TECHNICAL MANUAL

OPERATOR, UNIT AND DIRECT SUPPORT MAINTENANCE MANUAL AND REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL)



BITUMINOUS DISTRIBUTOR MODULE MODEL M4

(NSN 3990-01-444-6174) (EIC: BDP)

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

*Supersedes TM 9-3990-257-13&P, 1 November 2000

HEADQUARTERS, DEPARTMENT OF THE ARMY

JUNE 2007

WARNING

- Never attempt any operation which is not described in this manual.
- To avoid an extreme fire hazard or explosion, NEVER use gasoline as fuel in low pressure or generating burners.
- A fully charged dry chemical type ABC fire extinguisher must be within easy reach whenever burners are operating or there is an open flame near distributor. Minimum dry chemical capacity of fire extinguisher should be 20 lb. (9.08 kg).
- To prevent an explosion or fire hazard, position unit broadside to wind to prevent volatile fumes from drifting toward burners.
- Ensure there is at least six inches (15.24 cm) of product covering entire length of upper flue and a minimum of 1,050 gallons (3,974.25 l) of material in tank before second burner can be ignited. Failure to comply may result in death or serious injury to personnel.
- To prevent an explosion or fire hazard, ensure that burners are extinguished before removing any material from tank in any manner.
- To prevent an explosion or fire hazard, do not operate burners if tank is damaged or leaking.
- To prevent an explosion or fire hazard, do not operate burners when truck is unattended, when truck is in motion, when truck is not on level ground, or with truck in a confined area.
- To prevent an explosion or fire hazard, when burners go out, shut off fuel supply to both burners and allow flues to ventilate for at least 3 minutes before re-lighting burners.
- To prevent an explosion or fire hazard, do not heat material beyond the manufacturer's recommended temperature. Failure to comply may result in injury or death to personnel. (Refer to Material Safety Data Sheets [MSDS] for this information.)
- To prevent possible burns from leaking material, be sure all pipe, cap and hose connections are secure before opening valves. Failure to comply may result in serious injury to personnel.
- To prevent possible burns from hot asphalt spray, do not stand or allow anyone to stand, where accidental opening of a valve may cause contact with hot asphalt.
- To prevent an explosion or fire hazard, keep area free of all sparks or open flame when spraying volatile materials.
- Ensure high idle switch is in the OFF position before connecting control panel harness to interface kit connectors. Failure to comply may result in damage to equipment and injury or death to personnel.
- Ensure strap liners are in position as noted during removal. Failure to properly install strap with strap liner may allow fuel tank to shift during operation resulting in damage to equipment or injury or death to personnel.

WARNING

- To prevent possible burns from foaming or violent eruption, do not load tank with material temperature over 200°F (93°C) if water or condensation is present in tank, or if emulsion was used in previous load. Clean and thoroughly drain tank first. If water or emulsion may be present in spray bar or circulating system, allow a small amount of hot material to circulate in bar BEFORE filling tank. When approximately 1/3 full, drive unit to mix material in tank. This will help absorb moisture. Do not heat material over 200°F (93°C) if moisture or emulsion is present in tank. Failure to comply may result in injury or death to personnel.
- Before removing fill line cap, ensure asphalt pump is turning and suction valve is open. Failure to comply may result in injury to personnel.
- To prevent possible burns from hot asphalt spray when hand spraying, hold hand spray gun in proper position and watch for other people.
- To prevent burns, always wear insulated gloves when handling spray bar sections or hoses. Failure to comply may result in serious injury to personnel.
- To prevent becoming entangled in machinery, stand clear of rotating drives.
- To prevent possible injury, always open manhole cover slowly. Pressure build-up in tank may cause cover to burst open.
- To prevent possible burns from material overflow, allow sufficient space in tank for expansion of material when heating. Failure to comply may result in injury or death to personnel.
- Ensure SPRAYBAR ON/OFF switch is in the OFF position and remains in the OFF position throughout heating and circulating operations. Failure to comply may result in personnel being sprayed with hot bitumen resulting in severe burns.
- Hydraulic system can reach 3,675 psi (25,339 kPa). Engine must be turned off before disconnecting hydraulic lines. Failure to comply could cause serious injury to personnel.
- Always use an assistant during filling operations. Failure to comply may result in serious injury to personnel.
- To prevent possible burns, use extreme caution when using a portable burner torch to heat pump. Asphalt accumulated on and around pump may ignite when heating pump with a portable burner torch.
- Allowing flue burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulation, burners should be extinguished for 20-30 minutes before re-lighting burners.
- To prevent an explosion or fire hazard, never move truck when burners are operating.
- To prevent being struck by control lever on four-way valve, stand clear when ON/OFF function is being performed with air control.
- To prevent an explosion or fire hazard, do not remove material from tank in any manner when burners are in operation.
- To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.

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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.
- Always use an assistant and guide ropes when performing slinging operations. Attach guide ropes to flatrack stake pockets, tiedown rings or ISO corner castings. Do not attach guide rope to Bituminous Distributor components or attempt to guide Bituminous Distributor by hand. Failure to comply may result in fingers or hands being pinched, serious injury or death to personnel and damage to equipment.
- 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.
- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140°F (60°C) and Type III Drycleaning Solvent is 200°F (93°C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.
- Always stick measure quantity of material in tank prior to lighting burners. Failure to comply may result in injury or death to personnel.
- Never use float gage located at rear of tank as an accurate measuring device. Always use measuring stick to measure quantity of material in tank. Failure to comply may result in injury or death to personnel.
- Ensure SPRAYBAR ON/OFF switch is in the OFF position prior to turning POWER switch to ON position. Failure to comply may result in injury or death to personnel.
- **DO NOT** light any burner prior to stick measuring quantity of material in tank, (Para 2-13). Failure to comply may result in injury or death to personnel.
- **DO NOT** light lower burner unless a minimum of 750 gallons (2,838.75 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- **DO NOT** light upper burner unless a minimum of 1,050 gallons (3,974.25 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may cause injury or death to personnel.
- To avoid an extreme fire hazard or explosion, NEVER use gasoline as fuel in high pressure burners.
- Do not light portable burner in confined area. Injury or death to personnel may result.

WARNING

- Roller must be supported while removing retaining pins or roller may drop causing injury to personnel.
- Hookbar may have metal slivers or sharp edges. Wear gloves if handling or injury to personnel could result.
- Ensure crank bar latches are securing spray bar prior to removing cylinder pins. Spray bar could fall causing injury to personnel.
- Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.
- Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.
- Ensure exhaust stacks are cool. Failure to comply may result in severe burns to personnel.
- Fumes inside tank can give off harmful vapors. To avoid injury or death, keep Bituminous Distributor away from open flame and work in well-ventilated area.
- Always work with an assistant when performing maintenance on top of bituminous tank with an open hatch. Failure to comply could result in serious injury or death to personnel.
- Maintenance tasks are performed on or off truck. If maintenance is performed on truck, ensure UPIK is disconnected (TM 9-2320-364-10), engine is OFF and wheels are chocked. Failure to comply may result in injury or death to personnel.
- To prevent burns, ensure Bituminous Distributor has cooled down prior to performing task. Failure to comply may result in injury to personnel.
- Single level hearing protection is required for personnel in PLS truck cab during spraying operations. Failure to comply may result in hearing loss to personnel.
- Single level hearing protection is required for personnel within 6 ft. (1.8 m) of spray bar during heating and circulating of bitum in tank. Failure to comply may result in hearing loss to personnel.
- **DO NOT** enter the bituminous spreader tank without a written permit from the Occupational Safety and Health Authority (OSHA). Failure to comply may result in injury or death to personnel.
- Bituminous Distributor has a very high center of gravity (CG). A higher CG limits cornering and side slope operations. Limit side slope operations and transportation to no more than a 20 percent side slope angle when Bituminous Distributor is loaded onto PLS truck and/or PLS trailer (PLST). Failure to comply may result in vehicle rollover causing injury or death to personnel.
- To prevent an explosion or fire hazard, do not operate burners while tank is being filled. Failure to comply may result in injury or death to personnel.
- Do not light burners unless both internal and external gages are present.
- Do not use portable burner to heat RC material. Failure to comply may result in injury or death to personnel.
- Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.
- To prevent an explosion or fire hazard, do not heat material beyond manufacturer's recommended temperature. Failure to comply may result in injury or death to personnel.

WARNING

- When the asphalt pump is frozen or not turning, operate only the lower burner. Do not operate both burners when the asphalt pump is frozen or not turning, as this may cause localized overheating and tank eruption or boil over, resulting in serious injury or death.
- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- Do not stow or unstow spray bar past stops when needle relief valve is removed from system. Failure to comply could cause damage to equipment or injury to personnel.
- Use suitable lifting device to support spray bar when spray bar is lowered to unstow position for this step. Failure to comply could cause damage to equipment or injury to personnel.
- 12 and 24 VDC are present at interface connectors MC129 and MC130 when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.
- Cover must be installed on strainer housing with gasket seam located on bottom of cover. Failure to comply may result in serious injury to personnel.
- When performing Step (2) loosen eight screws equally until screws are flush on back side of housing flange. Failure to comply may result in serious injury to personnel.

FLUOROELASTOMER HANDLING

- Preformed packing and seals used in this task are made from fluoroelastomers. When used under design conditions, fluoroelastomers do not require special handling. However, when fluoroelastomers are heated to temperatures beyond their design temperature around 600°F (316°C), decomposition may occur with the formation of hydrofluoric acid. Hydrofluoric acid can be extremely corrosive to human tissue if not handled properly.
- A degraded seal may appear as a charred or black sticky mass. Do not touch either the seal or the surrounding equipment without wearing neoprene or PVC gloves if degradation is suspected. Wash parts and equipment with 10% lime water (calcium hydroxide solution) to neutralize any hydrofluoric acid.
- If contact with the skin occurs, wash affected areas immediately with water. Then rub a 2.5 calcium gluconate gel into the skin until there is no further irritation. Seek prompt medical attention. Failure to comply may cause serious injury to personnel.

LIST OF EFFECTIVE PAGES Insert latest changed pages. Destroy superseded pages.

NOTE

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Dates of issue for change pages are:

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TM 9-3990-257-13&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 30 June 2007

Technical Manual

OPERATOR, UNIT AND DIRECT SUPPORT MAINTENANCE MANUAL AND REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL)

FOR

BITUMINOUS DISTRIBUTOR MODULE MODEL M4 (NSN 3990-01-444-6174) (EIC: BDP)

Current as of 30 June 2007

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Submit your DA Form 2028 (Recommended Changes to Equipment Technical Publications), through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is 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, fax or E-mail your letter, DA Form 2028 directly to: TACOM Life Cycle Management Command, ATTN: AMSTA-LC-LPIT / TECH PUBS, TACOM-RI, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. The email address is ROCK-TACOM-TECH-PUBS@conus.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

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HOW TO USE THIS MANUAL

This manual is designed to help operate and maintain the Bituminous Distributor, NSN 3990-01-444-6174, Part Number 87T0040. Listed below are some of the features included in this manual to help locate and use the needed information:

- Warning, caution and note headings, subject headings and other essential information are printed in bold type, making them easier to see.
- In addition to text, there are digital photos and some line art illustrations showing how to take a component off and put it back on. Cleaning and inspection criteria are also included where necessary.
- Chapter 1 of this manual describes the Bituminous Distributor and provides equipment data.
- Chapter 2 of this manual covers Operator's Controls and Indicators, General Maintenance Procedures, Preventive Maintenance Checks and Services (PMCS), Operator Instructions and Lubrication Instructions.
- Chapter 3 of this manual covers General Maintenance Procedures, and Unit and Direct Support Maintenance Instructions.
- Chapter 4 of this manual covers Unit Maintenance Troubleshooting Instructions.
- Appendix A of this manual covers the Basic Issue Items (BII) list.
- Appendix B of this manual lists common torque limits.
- Appendix C of this manual contains the Repair Parts Special Tools List (RPSTL) for the Bituminous Distributor.
- Appendix D of this manual provides a Maintenance Allocation Chart (MAC).
- Appendix E of this manual provides an Expendable Supplies and Materials List.
- Appendix F of this manual provides a Tool Identification List.

Follow these guidelines when using this manual:

- Read all WARNINGS, CAUTIONS and NOTES prior to performing any procedure.
- The operator must read through this manual and become familiar with the contents before attempting to operate the Bituminous Distributor.
- Bituminous Distributor TM 9-3990-257-13&P is used in conjunction with Palletized Load System (PLS) TM 9-2320-364 manual series.

CHAPTER 1

DESCRIPTION OF EQUIPMENT

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1-1. EQUIPMENT DESCRIPTION.

a. Characteristics.

The Palletized Load System (PLS) Bituminous Distributor is a demountable unit capable of repeated use with the PLS Load Handling System (LHS) and compatible for transport and operation on the PLS truck and transport on the PLS trailer.

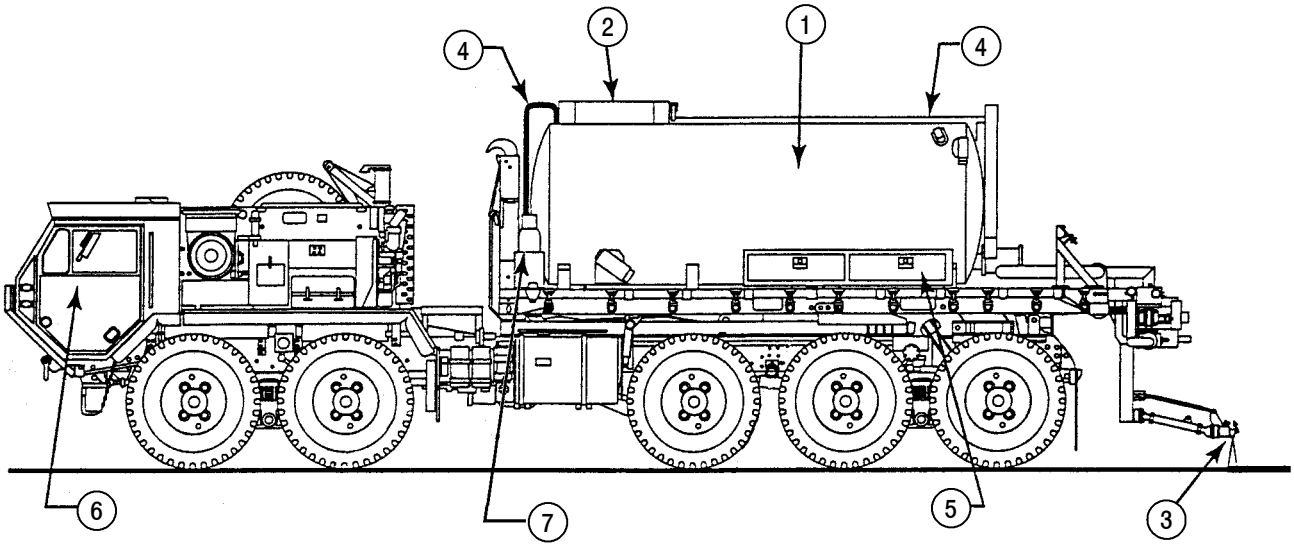
b. Capabilities.

When loaded on the PLS truck, the Bituminous Distributor will provide a means of spreading measured amounts of bituminous materials for road preparation and repair and other engineer applications. The Bituminous Distributor is able to be transported and perform functions throughout the PLS mission profile. The has a capacity of 2800 gal. (10,599 l) and is powered by a Universal Power Interface Kit (UPIK) connection to the PLS truck (M1075 only). The Bituminous Distributor is certified for the transport of bituminous materials over public highways.

c. Features.

- 2800 gal. (10,599 l) capacity
- Insulated tank to DOT specifications
- Two U-type flues with fuel oil, automatic ignition burners
- Computer controlled applications
- Hydrostatic drive 400 gpm (1514 lpm) asphalt pump
- All rigid piping in circulating system (no hoses)
- Spray bar with 8 ft. (2.44 m) center section with two 2 ft. (0.61 m) folding wing sections - total of 12 ft. (3.66 m)
- Cab controls
- One 15 ft. (4.57 m) x 3 in. (7.62 cm) flexible loading hose with quick couplers
- Hand spray attachment with 25 ft. (7.62 m) hose
- Power wash-down system
- 5 in. (12.70 cm) dial thermometer
- Pencil thermometer

1-2. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.



Left Side View - Spray Bar in Spray Position

Figure 1-1. Location of Major Components (Sheet 1 of 2)

Refer to Figure 1-1 for location of the following items:

a. Tank (1). Insulated cylinder tank with a capacity of 2800 gal. (10,599 l).

b. Manhole (2). Provides access to tank. The manhole may be equipped with a basket type removable strainer and all material entering the manhole must pass through the strainer.

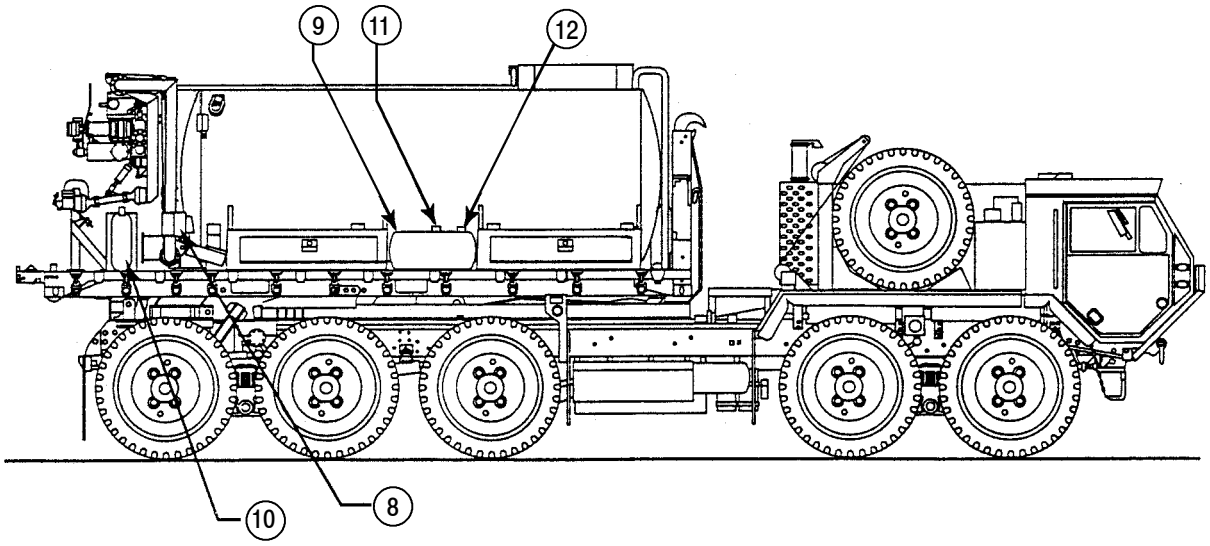
c. Spray Bar (3). Full circulating spray bar consisting of an 8 ft. (2.44 m) center section with two - 2 ft. (0.61 m) non-removable folding wings to make total spray bar length of 12 ft. (3.66 m) long.

d. Ladder and Walkway (4). Provides access to controls, piping, valves, fuel tanks and manhole.

e. Rear Control Panel (5). Provides operator controls from rear of the truck. Provides all pump controls, burner power and controls for spray bar maneuverability.

f. Front Control Panel (6). Provides operation with external controls for spray application and spray bar circulation. Provides a digital readout of GAL/SQYD (gallons per square yard; FPM (feet per minute), GPM (gallons per minute), gallons sprayed and feet traveled.

g. Fire Extinguisher (7). Twenty lb. (9.8 kg) fire extinguisher used to assist extinguishing local fires.



Right Side View - Spray Bar Raised to Travel Position

Figure 1-1. Location of Major Components (Sheet 2 of 2)

h. Fuel Oil Burners (8). Self contained, hydraulically driven diesel fuel oil burners with electronic push button ignition and automatic outfire control.

i. Fuel Tank (9). Provides fuel to burners for at least 10 hours of continuous operation.

j. Portable Burner (10). Used for heating pump or tank bar connections.

k. Fuel Level Gage (11). Displays fuel level in fuel tank.

l. Fuel Fill Cap (12). Provides access to fuel tank for fueling.

1-3. EQUIPMENT DATA.

Refer to Tables 1-1 and 1-2 for specific equipment data.

Table 1-1. Dimensions

Item	Specification
Height of Bituminous Distributor loaded on PLS	144 in. (365.76 cm)
Width of Bituminous Distributor	
Wings unstowed	144 in. (365.76 cm)
Wings stowed	96 in. (243.84 cm)
Length (Bituminous Distributor only)	239 in. (607.06 cm)
Height (Bituminous Distributor only)	85 in. (215.9 cm)

Table 1-2. Weights

Item	Specification
Bituminous Distributor (empty)	10,910 lb (4,949 kg)
Bituminous Distributor (loaded)	32,510 lb (14,760 kg)
PLS truck and Bituminous Distributor (empty)	61,300 lb (27,805 kg)
PLS truck and Bituminous Distributor (loaded)	82,900 lb (37,603 kg)

1-4. PRINCIPLES OF OPERATION.

Electrical, pneumatic and hydraulic power is provided to the Bituminous Distributor through Universal Power Interface Kit on PLS truck.

Bitumen distribution is accomplished through a spray bar assembly or hand spray wand. The spray bar applies bitumen to surface being sprayed at all combinations of specified widths and rates. The accuracy of distribution over a given area is within plus or minus 5%.

Fuel pumps are provided to supply fuel to each burner at constant pressure under all burner operating conditions. The pumps are connected to power source so that pumping will be accomplished only when burner is operating. Blowers are operating at full capacity.

The DC-2 computer is provided for application rate control. After input of truck speed (through a ground speed sensing radar head), application rate set point and asphalt spray width, DC-2 calculates a pump speed required to approximate desired application rate. The asphalt pump speed is used as a closed loop signal. The computer constantly modifies pump signal to maintain desired application rate. The overall system can be calibrated to an accuracy of ± 2%.

1-5. HANDLING AND TRANSPORTATION PROCEDURES.

The Bituminous Distributor is capable of being loaded or unloaded on any PLS truck or PLS Trailer (PLST) (TM 9-2320-364-10).

WARNING

Always use an assistant and guide ropes when performing slinging operations. Attach guide ropes to flatrack stake pockets, tiedown rings or ISO corner castings. Do not attach guide rope to Bituminous Distributor components or attempt to guide Bituminous Distributor by hand. Failure to comply may result in fingers or hands being pinched, serious injury or death to personnel and damage to equipment.

The flatrack portion of Bituminous Distributor contains rail transport pin holes for securing during rail transport. Lift pockets are also provided for forklift handling.

1-6. WARRANTY INFORMATION.

Except as provided below, and provided the Bituminous Distributor has been placed into service within one (1) year after shipment from the factory, as established by date on DD Form 250, or a period of twelve 12 months after delivery to the first user, Oshkosh Truck Corporation warrants the Engineering Mission Modules (EMMs) are free from defects in material and workmanship. This limited warranty shall apply only if the Bituminous Distributor is properly maintained and used in service which is normal for the particular Bituminous Distributor. Normal service means service, which does not subject the Bituminous Distributor to stresses or impacts greater than normally result from the careful use of the Bituminous Distributor or chassis. Oshkosh makes no warranty whatsoever as to (1) Any Bituminous Distributor, chassis, or component, part, attachment or accessory damaged by misuse, neglect or accident; (2) Any Bituminous Distributor, chassis, or component, part, attachment or accessory which shall have been repaired, Bituminous Distributor altered or assembled in any way by others than Oshkosh which, in the sole judgment of Oshkosh, affects the performance, stability or purpose for which it was manufactured; (4) Frames or crossmembers which have been subject to welding, heat treatment or corrosion caused by the use of acids after delivery to the first user; (5) Products or parts which are not defective, but which may wear out and have to be replaced during the warranty period including, but not limited to, fluids, gaskets and light bulbs.

If the Unit discovers a defect or nonconformity it must notify Oshkosh within ten (10) days after the date of discovery. Notification of a defect can be made by telephone or in writing, providing the details of the claim. If you have any questions, call the Oshkosh Defense Service Department at (920) 235-9151, extension 2681.

Warranty replacement parts are shipped directly to the Unit within five days of notification. Oshkosh arranges to correct the claim. Warranty claims are corrected in the field or at an Oshkosh service dealer. If it becomes necessary to return a Bituminous Distributor to a service dealer or our plant for repair, Oshkosh arranges and pays transportation to the facility.

1-7. MAINTENANCE CONCEPT.

The Unit operating the Bituminous Distributor should replace the components and replacement parts covered in this manual. Major systems, major components and items that are not covered in the maintenance tasks or illustrated within the parts list can be repaired by an Oshkosh service representative or designated technician.

Worn components will be rebuilt to manufacturer's specification either by component manufacturer, at an Oshkosh service facility or a qualified component rebuild facility. Oshkosh will maintain an inventory of rebuilt components to ship to the field to support immediate supply requirements.

1-8. REPAIR PARTS SUPPORT.

Oshkosh will provide parts delivery for all EMM parts in 5 business days or less.

Oshkosh shall provide parts support for the PLS Engineer Mission Module (EMM) unique items and will ship the part directly to the ordering unit or activity. Overseas locations will be shipped to a designated containerization point for transshipment on military aircraft/vessel to originator.

Oshkosh will apply bar-coded labels to every shipment made under this contract.

Oshkosh will supply new, quality parts and ensure complete customer satisfaction through a parts warranty. Quality standards will be maintained through the use of the ISO 9002 quality system or equivalent standards, or certified Original Equipment Manufacturer (OEM) replacement parts. Oshkosh will reimburse customers for any parts they return in unused condition that were found damaged upon receipt. Parts may be returned due to incorrect part number or incorrect order quantity received.

Replacement and repair parts information can be found in the replacement parts Appendix of this manual. Any parts not identified in the replacement parts Appendix will also be supported and supplied through Oshkosh. If a part is unidentifiable, an Oshkosh representative will assist in identifying that part. If you have any questions, or to obtain parts that are under warranty, call the Oshkosh Defense Service Department at (920) 235-9151, extension 2681.

1-9. MAINTENANCE FORMS AND RECORDS.

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

1-10. CORROSION PREVENTION AND CONTROL (CPC).

The Bituminous Distributor has a total service life of ten years which allows for extended periods of operation in a corrosive environment. A corrosive environment includes exposure to high humidity, salt spray, road-deicing chemicals, gravel and atmospheric contamination. No action beyond normal washing and repair of damaged areas is necessary to control corrosion. To prevent moisture accumulation, drain holes are provided on structural and sheet metal areas where necessary. Stowage boxes are provided with seals and baffled drains.

1-11. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE.

Refer to TM 750-244-6, Procedures for Destruction of Tank Automotive Equipment to Prevent Enemy Use.

1-12. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

If your Bituminous Distributor needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on a SF 368 (Product Quality Deficiency Report). Mail it to us at: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E-MPA, Warren, MI 48397-5000. We'll send you a reply.

CHAPTER 2

OPERATING AND MAINTENANCE INSTRUCTIONS

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

2-1. LOCATION AND USE OF CONTROLS AND INDICATORS.

Know the location and proper use of every control and indicator before operating the Bituminous Distributor. Use this paragraph to learn how each control and indicator is to be used. Separate illustrations, with keys, are provided.

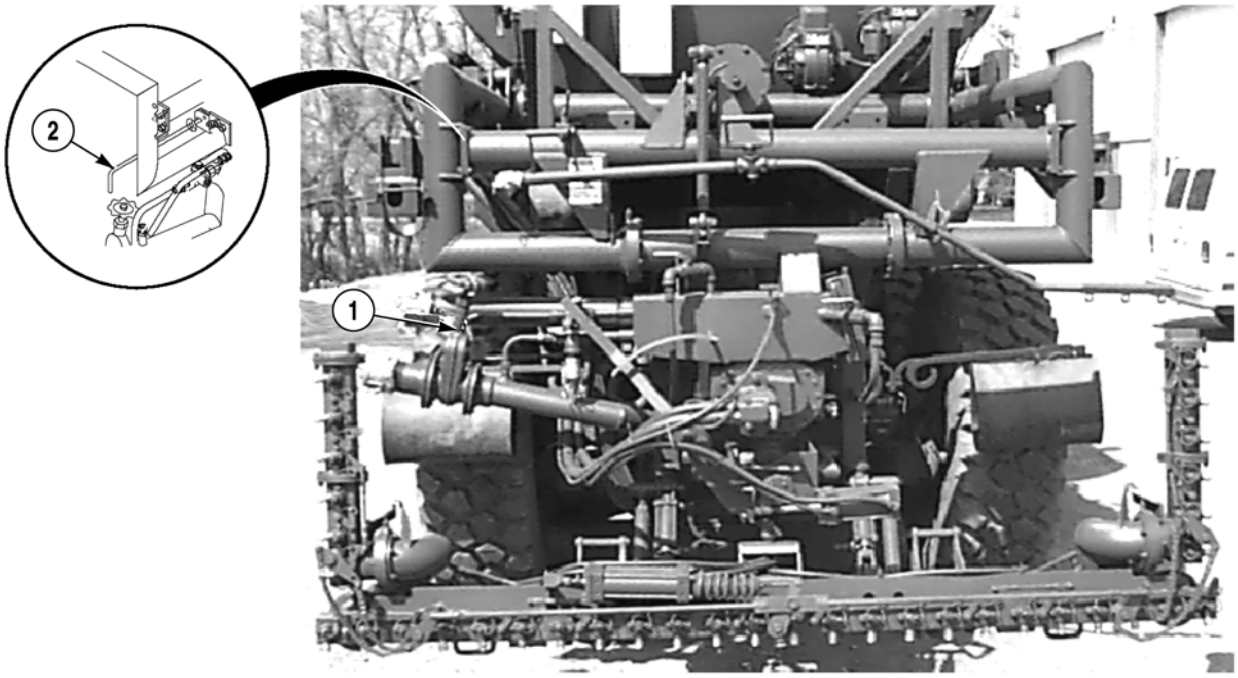


Figure 2-1. Circulating System (Sheet 1 of 3)

Key	Control or Indicator	Function
1	Fill line	Used for filling tank from a supply source instead of filling through manhole.
2	Butterfly valve lever	Controls transfer, hand spray and normal functions of circulation of material.

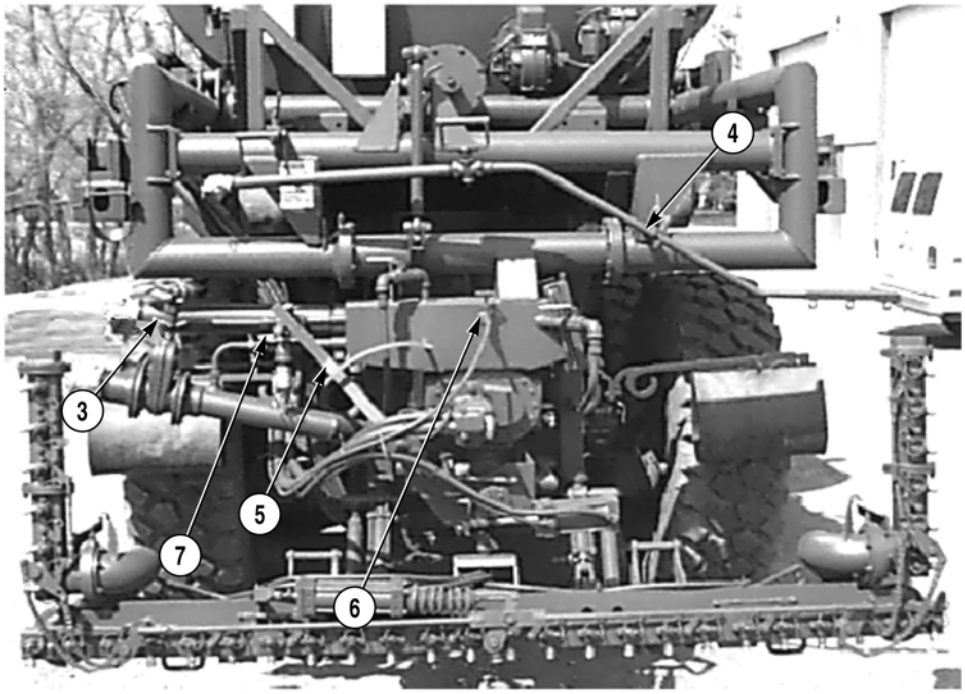


Figure 2-1. Circulating System (Sheet 2 of 3)

Key	Control or Indicator	Function
3	Transfer valve	Controls flow through transfer line when emptying material from tank.
4	Hand spray gun	For use when hand spraying asphalt.
5	Four-way valve control lever	Manually controls circulation of material through tank or spray bar. Four-way valve is automatically returned to "Circulate in Bar" position when SPRAYBAR switch is turned OFF.
6	Flush valve	When opened, allows diesel fuel to enter spray bar/circulation system and wash out pump.
7	Hand spray/suckback valve	Three-position valve which allows for hand spray operation, suckback of hand spray and transfer line, and a closed position.

2-1. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

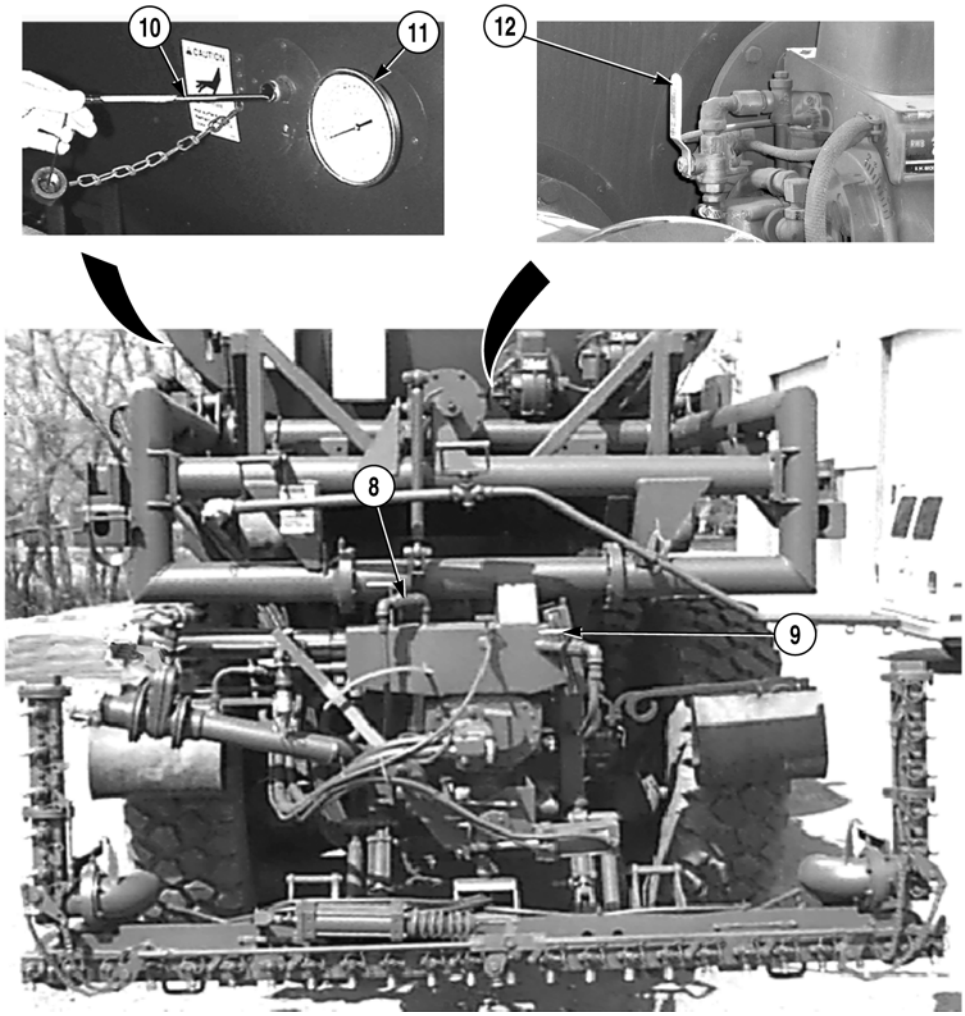


Figure 2-1. Circulating System (Sheet 3 of 3)

Key	Control or Indicator	Function
8	Suckback valve	When open, allows for suckback operation for left side of spray bar/circulation system.
9	Suckback valve	When open, allows for suckback operation for right side of spray bar/circulation system.
10	Internal temperature gage	Pull-out temperature gage for reading inside temperature of tank.
11	External temperature gage	Externally mounted temperature gage for reading inside temperature of tank.
12	Portable burner fuel supply valve	When open, allows fuel to flow to the portable burner.

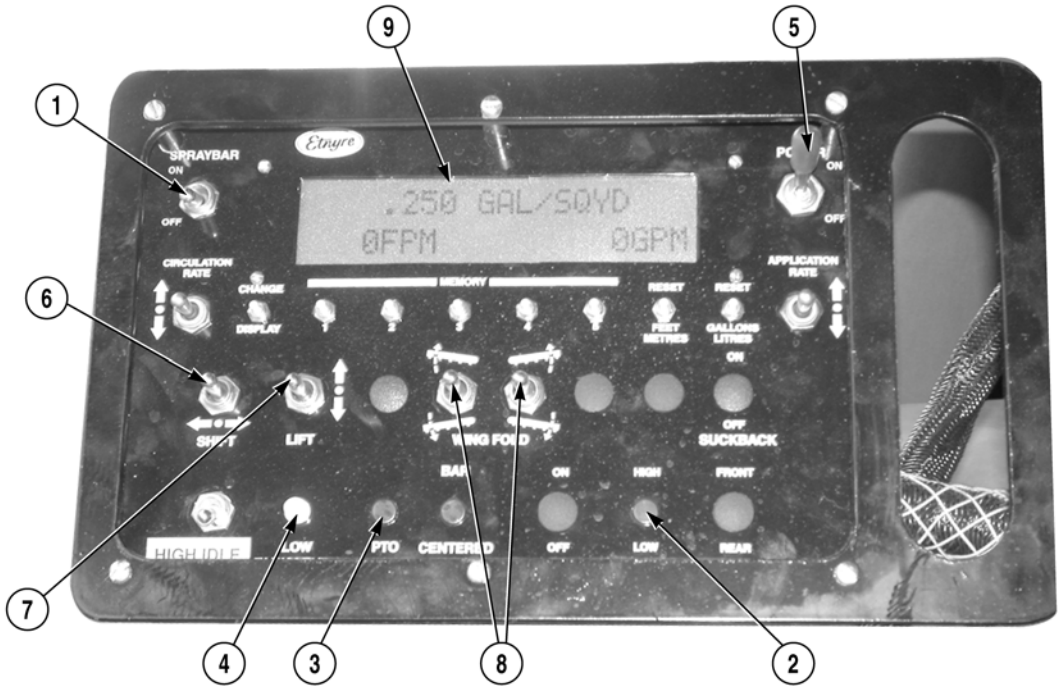


Figure 2-2. Front Control Panel (Sheet 1 of 2)

Key	Control or Indicator	Function
1	SPRAYBAR ON/OFF switch	Actuates solenoid valve to control product flow to spray bar.
2	HYD MOTOR HIGH LOW	Not applicable.
3	PTO indicator light	Not applicable.
4	LOW TANK LEVEL indicator light	Indicates low asphalt level in tank.
5	POWER switch	Controls master power to both front and rear control panels.
6	SHIFT switch	Controls left and right movement of spray bar.
7	LIFT switch	Controls raise/lower function of spray bar.
8	WING FOLD switch(es)	Controls raise and lower (fold) functions of spray bar wings.
9	Digital display	Provides digital readout of GAL/SQYD (gallons per square yard); FPM (feet per minute); and GPM (gallons per minute) as shown. Can also be changed to read gallons sprayed and feet traveled by pressing CHANGE DISPLAY button (see below). The digital display can be preset at factory or adjusted by operator in the field to display in metric units if desired.

2-1. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

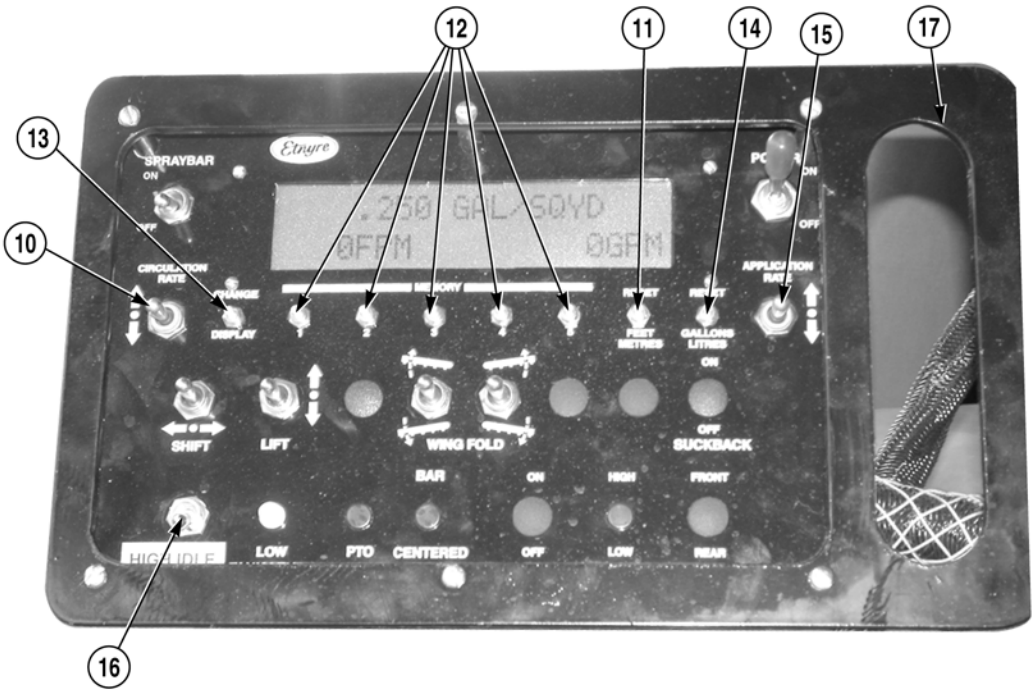


Figure 2-2. Front Control Panel (Sheet 2 of 2)

Key	Control or Indicator	Function
10	CIRCULATION RATE switch	Controls speed of asphalt pump for all functions requiring circulation or transfer of material except spraying. When spraying (SPRAYBAR switch ON), the asphalt pump is controlled by setting of APPLICATION RATE switch. Hold switch up to increase rate, down to decrease. Holding switch continually causes rate to change faster.
11	RESET (FEET/METERS) button	Reset button for “feet traveled” display. Can be reset after each shot, or at end of day. Also see descriptions for digital display and CHANGE DISPLAY button.
12	MEMORY buttons	Used to program and store up to five (5) application rates for frequent use. Hold MEMORY button in while adjusting application rate with APPLICATION RATE switch. Release button when desired rate is displayed.

Key	Control or Indicator	Function
13	CHANGE DISPLAY button	Changes display from GAL/SQYD, FPM and GPM (shown) to read "Gallons Sprayed" and "Feet Traveled." The button must be pressed again to return display back to GAL/SQYD, FPM and GPM, even if POWER switch has been turned off. Operator can get to temperature screen by pushing CHANGE DISPLAY button and stepping through GPM/FPM screen and feet and gallons traveled screen. The Start Up Factor screen: You get to start up factor screen by pushing CHANGE DISPLAY button and stepping through GPM/FPM screen, feet and gallons traveled screen, and temperature screen. The next screen is start up factor screen. Change start up factor by pushing APPLICATION RATE switch up to increase or down to decrease. A higher number will make for a "harder," more aggressive start when spray bar is first turned on. A lower number will make for a "softer," more gentle start. You may need to change start up factor by 25% to 30% to see much change in spray. That means if you want a harder start, set start up factor to 125%. If you want a softer start, set factor to 75% as a first try. Operator may then adjust again up or down as desired.
14	RESET (GALLONS/LITERS) button	Reset button for "gallons sprayed" display. Can be reset after each shot, or at end of day. Also see description for digital display and CHANGE DISPLAY button.
15	APPLICATION RATE switch	Used to set application rate for spraying. During spraying operations (SPRAYBAR switch ON), asphalt pump is controlled by rate set with this switch (GAL/SQYD). When SPRAYBAR switch is OFF, asphalt pump is controlled by GPM rate set with CIRCULATION RATE switch.
16	HIGH IDLE switch	Raises and latches PLS truck engine speed at high idle for circulating/filling/transfer operations. High idle can only be activated when PLS is in neutral and parking brake is set.
17	Handle/Guard	Used to carry front control panel during mount/dismount. Acts as guard to prevent damage to toggle switches.

2-1. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

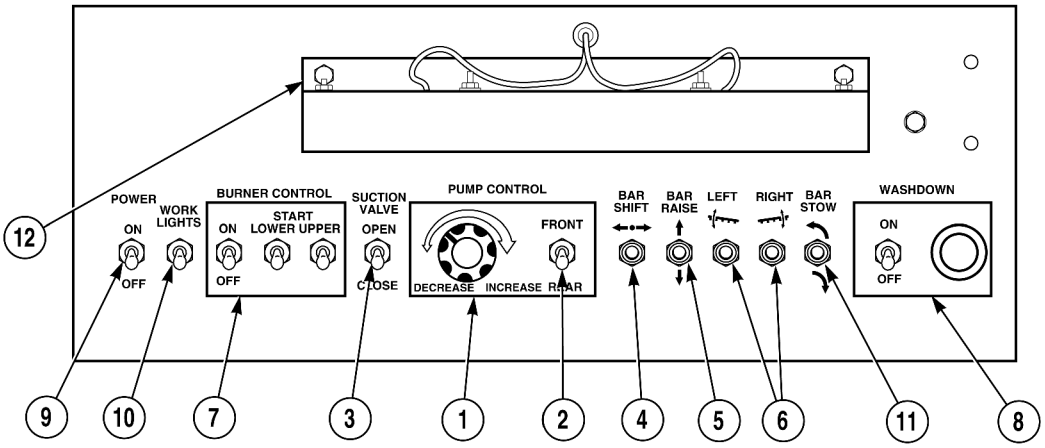


Figure 2-3. Rear Control Panel

Key	Control or Indicator	Function
1	PUMP CONTROL DECREASE/ INCREASE knob	Controls speed of asphalt pump whenever PUMP CONTROL switch is in REAR position. Pump speed can be manually increased to suck material out of spray bar/hand spray wand.
	NOTE Pump speed needs to be turned down to stow and unstow spray bar.	
2	PUMP CONTROL switch	Selects pump control - cab panel or rear panel.
3	SUCTION VALVE switch	Switches between front and rear tank-to-pump suction valves.
4	BAR SHIFT switch	Controls left and right movement of spray bar.
5	BAR RAISE switch	Controls raise/lower function of spray bar.
6	Wing raise switches	Controls raise and lower (fold) functions of spray bar wings.
7	BURNER CONTROL power and start switches	Switches for high pressure fuel oil burners.
8	WASHDOWN switch	Switch activates pump for power washdown. Light indicates when pump is ON.
9	Master POWER switch	Controls power to rear control panel. This switch must be in ON position to activate front control panel power. Front and rear controls must be in ON position to operate unit.
10	WORK LIGHTS switch	Controls ON/OFF function of work lights.
11	BAR STOW switch	Raises spray bar/circulating system to travel/stowage position.
12	Work lights	Shielded red work lights illuminate control panel for night operation.

Section II. OPERATION UNDER USUAL CONDITIONS

2-2. HANDLING AND TRANSPORTATION PROCEDURES.

The Bituminous Distributor is capable of being loaded or unloaded on any PLS truck and/or PLS trailer (PLST).

The flatrack portion of the Bituminous Distributor contains rail transport pins for securing during rail transport. Lift pockets are also provided for forklift handling.

2-3. INITIAL GUIDELINES.

Before operating the Bituminous Distributor, the operator should:

a. Perform Before (B) Preventive Maintenance Checks and Services (PMCS). If necessary, notify Unit Maintenance of problems.

b. Know how to use the Bituminous Distributor safely and efficiently.

c. Be sure you know what ingredient and what mix design you should use.

2-4. PREPARATION FOR OPERATION.

a. Refer to TM 9-2320-364-10 for Preparing for Operation of PLS truck.

b. Inspect Bituminous Distribution for damage that may have occurred during transport.

c. Check and tighten all fasteners, body tie-down bolts, pipe and circulating line connections, etc., that may have loosened during transit.

2-5. LOADING AND UNLOADING BITUMINOUS DISTRIBUTOR ON PLS TRUCK.

a. Loading.

WARNING

Bituminous Distributor has a very high center of gravity (CG). A higher CG limits cornering and side slope operations. Limit side slope operations and transportation to no more than a 20 percent side slope angle when Bituminous Distributor is loaded onto PLS truck and/or PLS trailer (PLST). Failure to comply may result in vehicle rollover causing injury or death to personnel.

CAUTION

Ensure spray bar is in stowed position prior to loading/unloading Bituminous Distributor onto PLS truck, (Para 2-17). Failure to comply may result in damage to equipment.

2-5. LOADING AND UNLOADING BITUMINOUS DISTRIBUTOR ON PLS TRUCK (CONT).

NOTE

If Bituminous Distributor is full of payload, ensure that Bituminous Distributor/payload combination does not exceed the truck weight limits.

(1) Ensure air line, hydraulic lines, electrical lines and transfer hose are stowed and will not contact any moving parts.

(2) Ensure front control panel is in stowage box.

(3) Ensure stowage box doors are closed and secured.

(4) Ensure rear rollers are properly installed.

(5) Ensure fire extinguisher and portable burner are stowed and secured.

(6) Load Bituminous Distributor on a PLS truck or PLS trailer, (TM 9-2320-364-10).

b. Unloading.

CAUTION

- Ensure spray bar is in stowed position prior to loading/unloading Bituminous Distributor onto PLS truck, (Para 2-17). Failure to comply may result in damage to equipment.
- PLS Interface Kit must be disconnected prior to performing this task or damage to equipment may result.

(1) Ensure interface hookups are disconnected and properly stowed, (Para 2-10).

(2) Ensure spray bar is in stowed position, (Para 2-17).

(3) Ensure LHS switch is in the AUTO position before attempting to unload a Bituminous Distributor.

(4) Unload Bituminous Distributor from a PLS truck or PLS trailer, (TM 9-2320-364-10).

2-6. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS).

This section contains PMCS requirements for the Bituminous Distributor. The PMCS table (Table 2-1) contains checks and services necessary to ensure the Bituminous Distributor is ready for operation. Using the PMCS table, perform maintenance at the specified intervals.

2-7. GENERAL MAINTENANCE PROCEDURES.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140°F (60°C) and Type III Drycleaning Solvent is 200°F (93°C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

a. Cleanliness. Dirt, grease, oil and debris only get in the way and may cover up a serious problem. Use drycleaning solvent 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 your supervisor.

d. Electrical Wires and Connectors. Look for cracked or broken insulation, bare wires and loose or broken connectors. Tighten loose connectors and make sure the wires are in good shape.

e. Fluid Hoses, Tubes and Fittings. Look for wear, damage, leaks and make sure clamps and fittings are tight. Wet spots show leaks, but a stain around a fitting or connector may 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. Fluid Leakage. It is necessary to know how fluid leakage affects the status of fuel, oil, coolant and the hydraulic system. The following are definitions of the type/classes of leakage necessary to know in order to determine the status of the Bituminous Distributor. 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 fluid capacity in the item/system being checked/inspected. When in doubt, notify the 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 the item being checked/inspected.

g. 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 something is broken or worn out, either repair or replace it.

h. Damage. Damage is defined as any condition that affects safety or would make the truck unserviceable for mission requirements.

2-8. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE.

a. Do the BEFORE (B) PREVENTIVE MAINTENANCE just before operating the Bituminous Distributor. Pay attention to the CAUTIONS and WARNINGS.

b. Do the DURING (D) PREVENTIVE MAINTENANCE while the Bituminous Distributor and/or its component systems are in operation.

c. Do the AFTER (A) PREVENTIVE MAINTENANCE right after operating the Bituminous Distributor. Pay attention to the CAUTIONS and WARNINGS.

d. Do the WEEKLY (W) PREVENTIVE MAINTENANCE weekly.

e. Do the MONTHLY (M) PREVENTIVE MAINTENANCE monthly.

f. Do the SEMIANNUAL (SA) PREVENTIVE MAINTENANCE once every six months and/or every 250 hours, whichever comes first.

g. Always do the PREVENTIVE MAINTENANCE in the same order until it gets to be a habit. Once practiced, it will be easy to spot anything wrong in a hurry. Perform the checks and services listed in Table 2-1 in the order listed.

h. If something does not work, troubleshoot using instructions in Unit Maintenance Troubleshooting Instructions, Chapter 4, of this manual.

i. When doing preventive maintenance, take along the tools and supplies needed to make all the checks, including a clean cloth or two.

j. 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 Bituminous Distributor. The item number column is used as a source of item numbers for the TM Number Column on the DA Form 2404, Equipment Inspection and Maintenance Worksheet, for recording results of PMCS.

(2) **"Interval" column.** The column identifies when the PMCS should be preformed. Lubrication services should coincide with the Bituminous Distributor's Semiannual Preventive Maintenance Service. For this purpose, a 10 percent tolerance (variation) in specified lubrication point hours is permissible. Those Bituminous Distributors not accumulating 250 hours in a 6-month period will be lubricated at the time of the Semiannual PreventiveMaintenance Service.

(3) **"Item To Be Inspected" column.** This column identifies the item to be inspected.

(4) **"Procedure" column.** This column contains all the information required to do the check/inspection. A digital photo is supplied to aid the user in identifying items. Whenever replacement is recommended, reference is made to the applicable maintenance instructions.

(5) **"Not Mission Capable If" column.** This column contains a brief statement of the condition that would cause the Bituminous Distributor to be less than fully ready to perform its assigned mission.

- If the Bituminous Distributor must be kept in continuous operation, do only the procedures that can be done without disturbing operation. Make complete checks and services when the Bituminous Distributor is shut down.
- Oil filters must be serviced/cleaned/changed as applicable, when they are known to be contaminated or clogged and at prescribed intervals.

Table 2-1. Unit Preventive Maintenance Checks and Services

B - Before D - During A - After W - Weekly M - Monthly SA - Semiannual

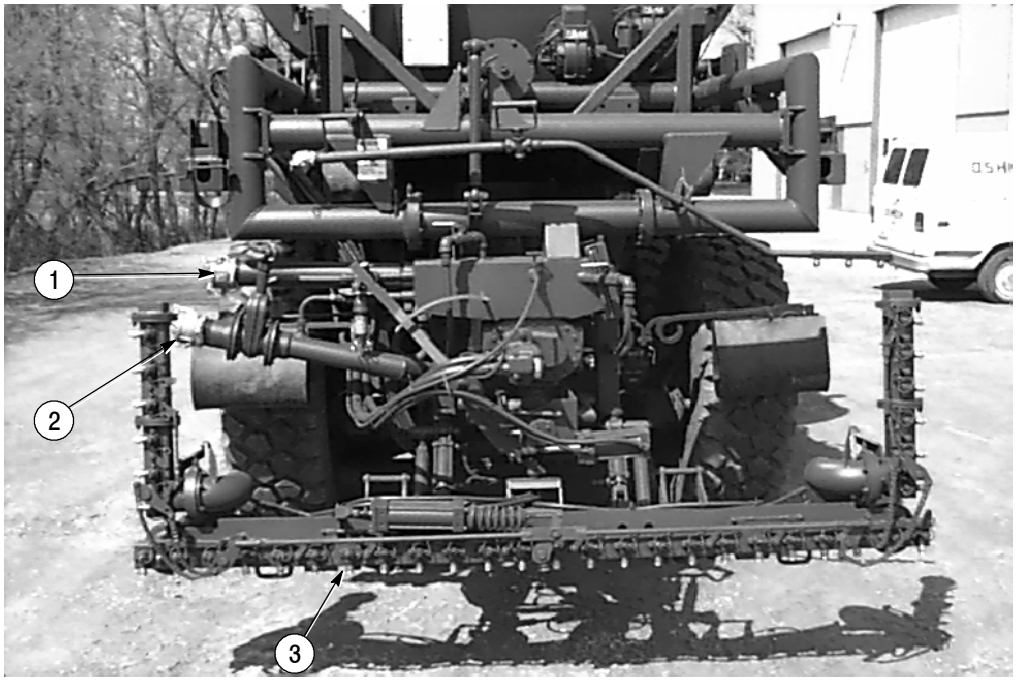
Item No.	Interval	Item to Be Inspected	Procedure	NOT Mission Capable If:
				
1	B	Circulating System	Check that fill cap (1) and transfer cap (2) are tight and secure.	Caps are missing or damaged.
2	B	Spray Bar	Check spray bar nozzles (3) for tightness. Nozzles should not be able to turn by hand. Tighten nozzles if loose and readjust spraying angle, (Para 2-17).	Nozzles are loose or missing.
3	B	Bituminous Tank	Check for evidence of leakage on or under Bituminous Distributor.	Class III leak is evident. Cracks that will impair operation are present.

Table 2-1. Unit Preventive Maintenance Checks and Services - CONT.

B - Before D - During A - After W - Weekly M - Monthly SA – Semiannual

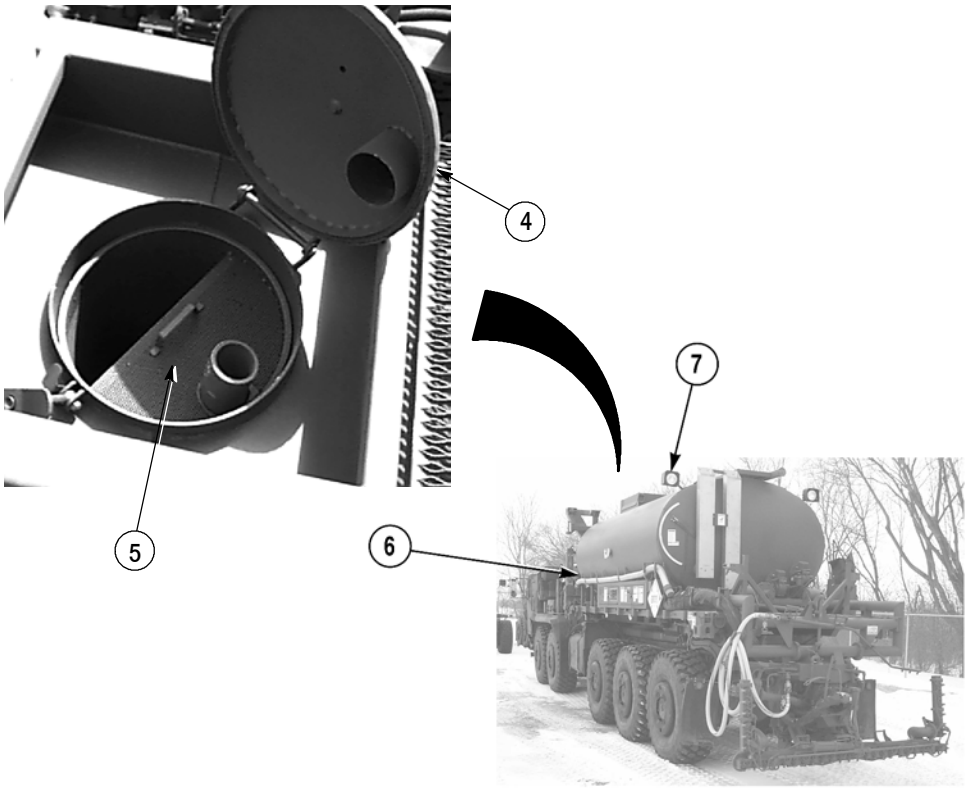
Item No.	Interval	Item to Be Inspected	Procedure	NOT Mission Capable If:
				
			WARNING **DO NOT** enter the bituminous spreader tank without a written permit from the Occupational Safety and Health Authority (OSHA). Failure to comply may result in injury or death to personnel.	
4	B	Manhole	***a.*** Check that manhole (4) is closed and secure. ***b.*** Check that manhole strainer (5) (if present) is free of debris.	Manhole will not secure.
5	B	Fire Extinguisher	Check for missing, damaged and loose fire extinguisher (6). Check for proper pressure/seal condition.	Fire extinguisher is missing or damaged. Pressure gage needle in red area or seal is broken.
6	B	Work Lights	Operate work lights (7) and check operation. Check for burnt, missing lamps and broken lenses.	

Table 2-1. Unit Preventive Maintenance Checks and Services - CONT.

B - Before D - During A - After W - Weekly M - Monthly SA – Semiannual

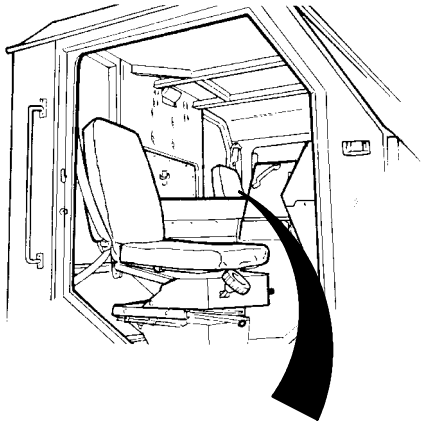
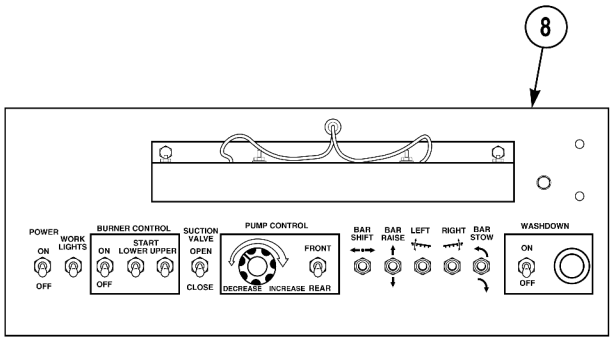
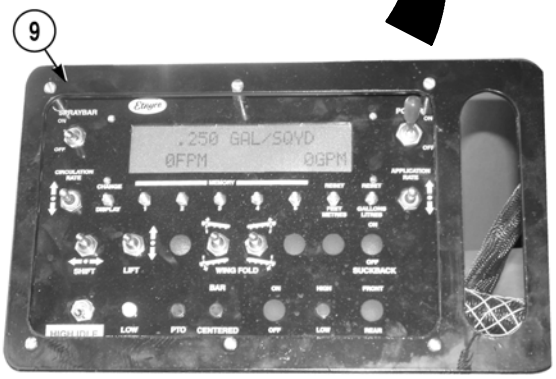
Item No.	Interval	Item to Be Inspected	Procedure	NOT Mission Capable If:
			   	
7	B	Electrical System	***a.*** Check rear control panel (8) for broken switches and obvious damage. ***b.*** Check front control panel (9) for broken switches and obvious damage.	Damage that would impair operation. Damage that would impair operation.
8	B	UPIK connections	Check UPIK connections for leaks and damage.	Class III leak is evident.

Table 2-1. Unit Preventive Maintenance Checks and Services - CONT.

B - Before D - During A - After W - Weekly M - Monthly SA – Semiannual

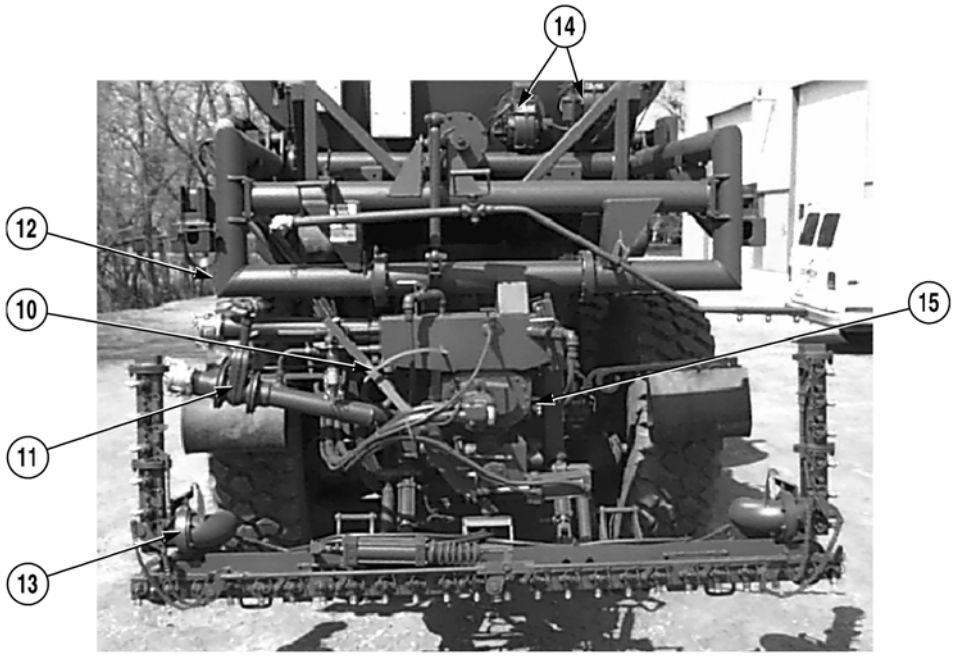
Item No.	Interval	Item to Be Inspected	Procedure	NOT Mission Capable If:
				
9	D	Circulating System	***a.*** Check four-way valve (10), transfer valve (11) and butterfly valve (12) for ease of operation and leaks.	Valves do not operate or Class III leak is evident.
			b. Check wing fold cylinders (13) for operation and obvious damage.	Damage that would impair operation.
			c. Check burners (14) for operation.	One or both burners do not operate properly.
10	D	Asphalt Pump	Check asphalt pump (15) for operation.	Bituminous pump does not operate.

Table 2-1. Unit Preventive Maintenance Checks and Services - CONT.

B - Before D - During A - After W - Weekly M - Monthly SA – Semiannual

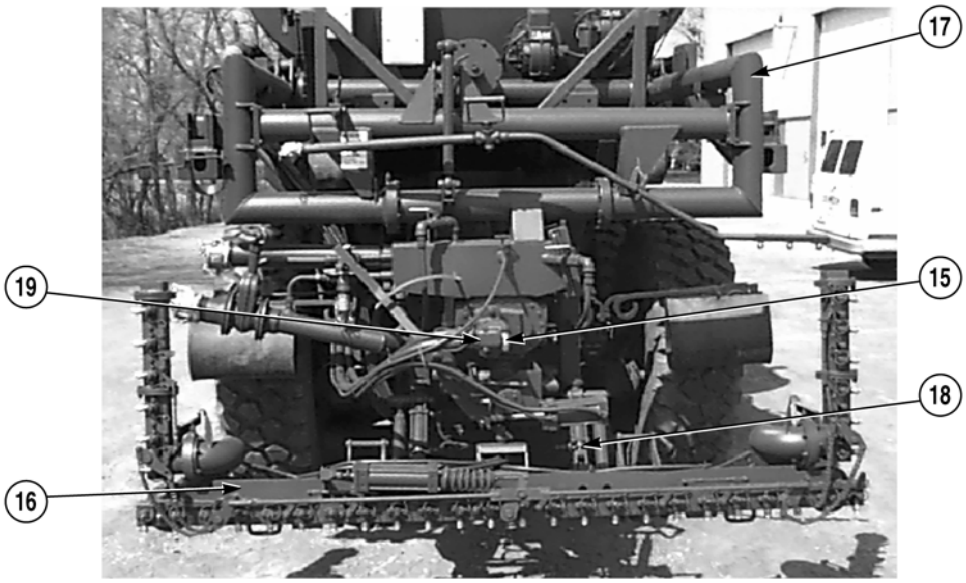
Item No.	Interval	Item to Be Inspected	Procedure	NOT Mission Capable If:
				
11	D	Spray Bar	Check spray bar (16) for stow/unstow operation and for obvious damage, (Para 2-17).	Damage to spray bar that would impair operation.
12	A	Circulating System	Visually inspect circulation tubes (17) for leaks, obvious damage and cracked welds.	Class III leak is evident. Cracks that will impair operation are present.
13	A	Asphalt Pump	Visually inspect asphalt pump (15) for leaks and obvious damage.	Class III leak is evident.
14	A	Hydraulic System	Visually inspect hydraulic cylinders (18) for leaks and obvious damage.	Class III leak is evident.
	A		Visually inspect hydraulic motor (19) for leaks and obvious damage.	Class III leak is evident.
15	A	Spray Bar	Visually inspect spray bar (16) for leaks and obvious damage.	Class III leak is evident.

Table 2-1. Unit Preventive Maintenance Checks and Services - CONT.

B - Before D - During A - After W - Weekly M - Monthly SA – Semiannual

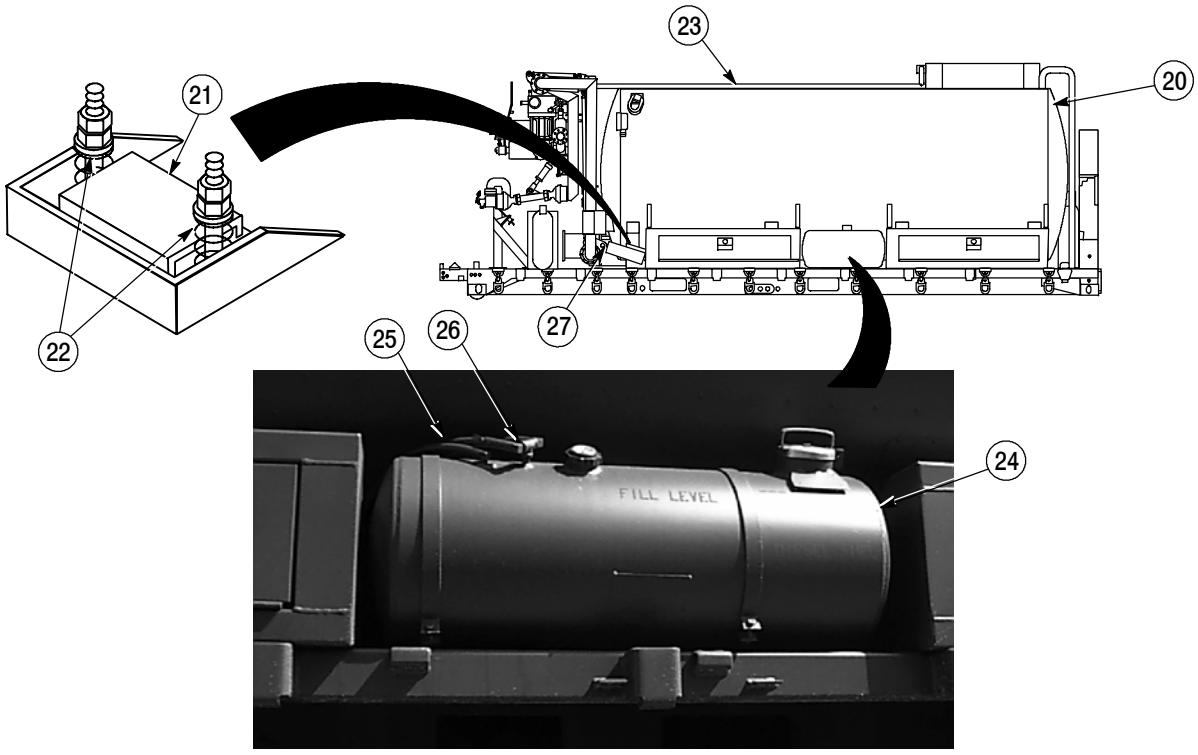
Item No.	Interval	Item to Be Inspected	Procedure	NOT Mission Capable If:
				
16	A	Bituminous Tank	Visually inspect bituminous tank (20), mounting brackets (21), springs (22) and catwalk (23) for obvious damage and cracked welds.	Tank, mounting brackets, springs or catwalk has damage that would impair operation.
			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.	
17	A	Fuel Tank, Hoses And Fittings	***a.*** Check fuel tank (24), hoses (25) and fittings (26) for leaks and cracks.	Class III leak is evident.
			b. Check fuel pumps (27) and fittings for leaks and cracks.	Class III leak is evident.
18	A	Electrical System	Visually inspect wiring and connectors for obvious damage, breaks or fraying.	Damage that would impair operation.

Table 2-1. Unit Preventive Maintenance Checks and Services - CONT.

B - Before D - During A - After W - Weekly M - Monthly SA – Semiannual

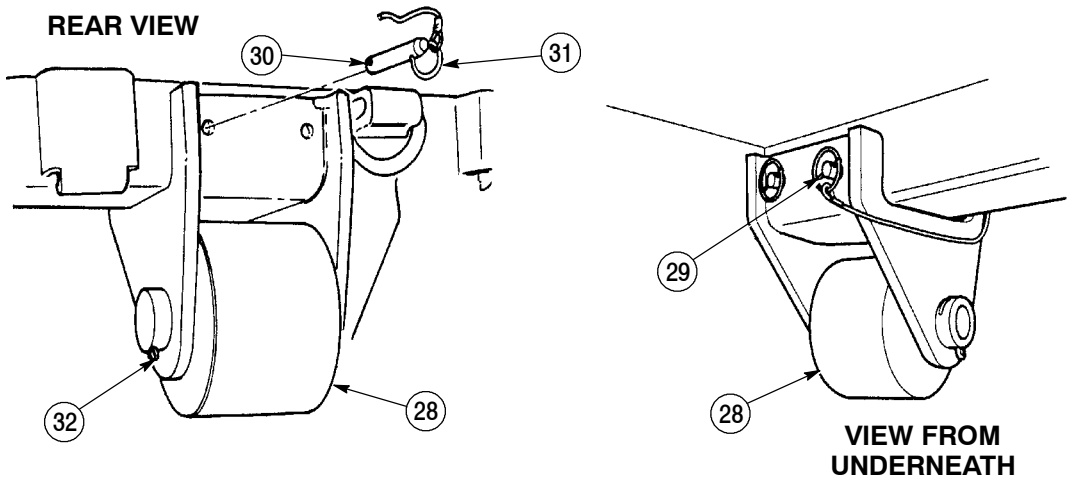
Item No.	Interval	Item to Be Inspected	Procedure	NOT Mission Capable If:
				
			WARNING Roller must be supported while removing retaining pins or roller may drop causing injury to personnel.	
19	A	Two rollers	***a.*** Hold roller (28) in place. Remove holding pin (29) from each retaining pin (30). Lift on ring (31), pull retaining pin out far enough to ensure it is removable, then push back in. Perform same with other pin. ***b.*** Ensure that roller (28) will rotate. ***c.*** Ensure roll pins (32) are not damaged.	Neither roller functions correctly.

Table 2-1. Unit Preventive Maintenance Checks and Services - CONT.

B - Before D - During A - After W - Weekly M - Monthly SA – Semiannual

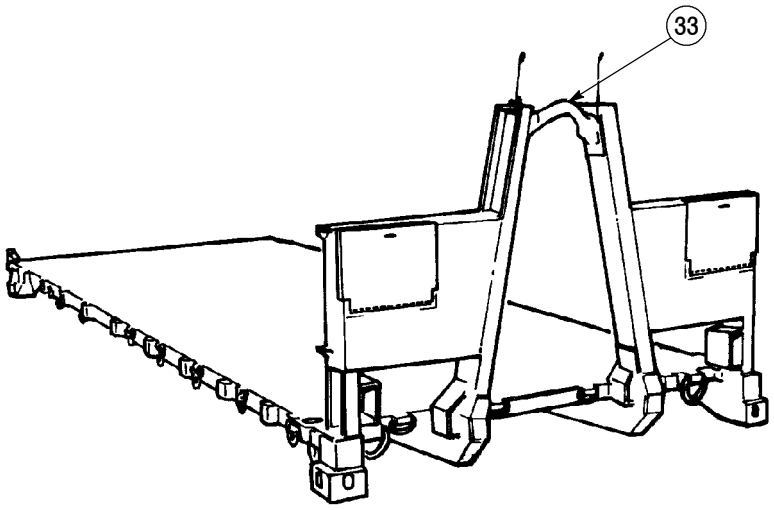
Item No.	Interval	Item to Be Inspected	Procedure	NOT Mission Capable If:
				
			WARNING Hookbar may have metal slivers or sharp edges. Wear gloves if handling or injury to personnel could result.	
20	A	Hookbar	Check hookbar (33) for cracks and bent bar.	Hookbar has cracks or is bent.

Table 2-1. Unit Preventive Maintenance Checks and Services - CONT.

B - Before D - During A - After W - Weekly M - Monthly SA – Semiannual

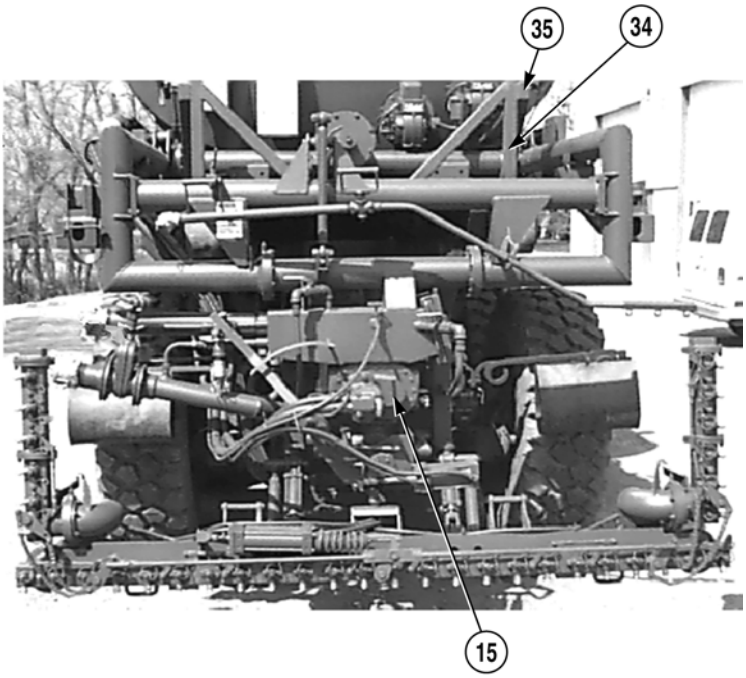
Item No.	Interval	Item to Be Inspected	Procedure	NOT Mission Capable If:
				
21	SA	Sheet Metal and Frame	Inspect sheet metal and frame (34) for evidence of corrosion damage such as surface color change, surface separation, blistered paint, rust through or other evidence of damage.	Sheet metal is affected to the point of damage to the parts.
22	SA	Frame	Check for broken frame rails, crossmembers, or cracked welds on undercarriage.	Damaged rails, crossmembers or broken welds are found.
23	SA	Mounting Brackets	Check mounting brackets (35) for cracks, breaks, rust or looseness.	Mounting brackets are damaged or missing.
24	SA	Asphalt Pump	Inspect asphalt pump (15) for leaks or loose parts.	Any Class III leaks, loose parts or damage.

Table 2-1. Unit Preventive Maintenance Checks and Services - CONT.

B - Before D - During A - After W - Weekly M - Monthly SA – Semiannual

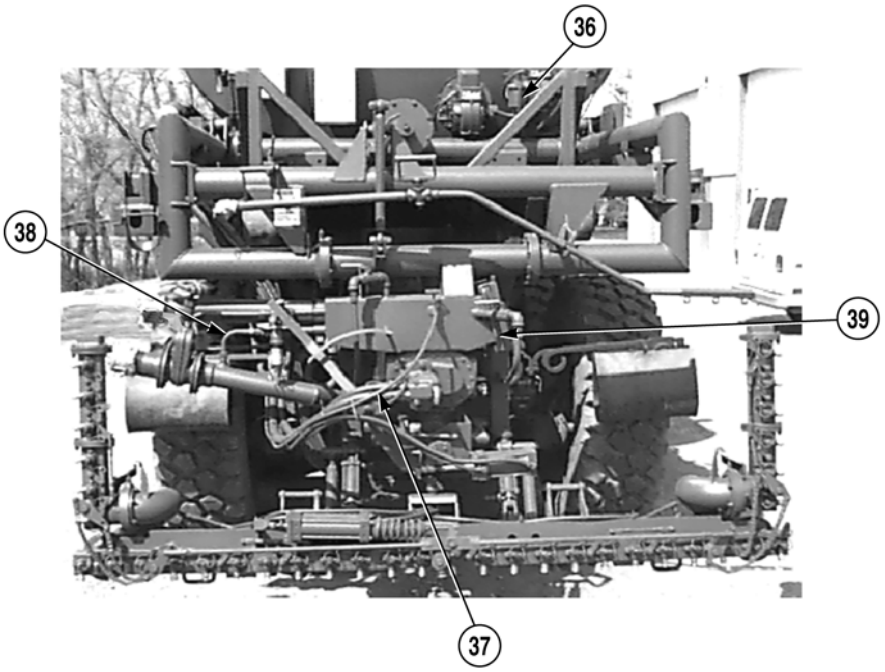
Item No.	Interval	Item to Be Inspected	Procedure	NOT Mission Capable If:
				
			WARNING Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel.	
25	SA	Fuel Filter (Burner)	Replace fuel filter (36) every 250 hours or semiannually, whichever comes first. Clean area around fuel filter head. Remove filter. Clean gasket surface of filter head, (Para 3-11).	Class III leak is evident.
26	SA	Hoses and Tubes	Follow routing of all hoses (37) and tubes (38). Inspect for loose fittings, excessive chafing, cracks and leaks.	Loose fittings, cracks, leaks or excessive chafing.
27	SA	Strainer	Check and clean strainer (39) every 250 hours or semiannually whichever comes first, (Para 3-10).	

Table 2-1. Unit Preventive Maintenance Checks and Services - CONT.

B - Before D - During A - After W - Weekly M - Monthly SA - Semiannual

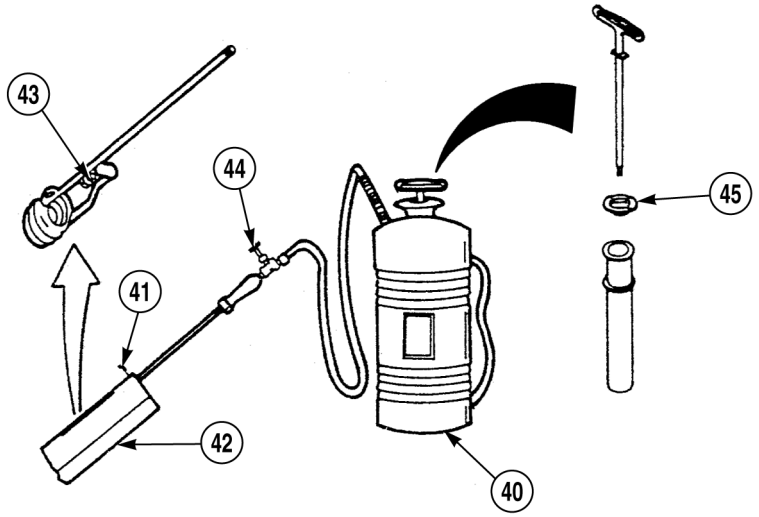
Item No.	Interval	Item to Be Inspected	Procedure	NOT Mission Capable If:
				
			WARNING Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel.	
			NOTE Portable burner PMCS is performed the same for all models, except S/N S3605 and subsequent do not have a portable burner tank.	
28	SA	Portable Burner	Clean portable burner tank (40) semiannually or every 250 hours, whichever comes first. Remove two screws (41) and slide shell (42) off burner coil. Remove nozzle jet (43) and open burner control valve (44) to permit raw diesel fuel to flush the burner. Close burner control valve (44) and wipe burner coil with clean cloth. Replace nozzle jet (43). Slide shell (42) over burner coil. Install and tighten screws (41). Apply several drops of lubricating oil to air vent hole in pump barrel cap (45).	

Table 2-1. Unit Preventive Maintenance Checks and Services - CONT.

B - Before D - During A - After W - Weekly M - Monthly SA – Semiannual

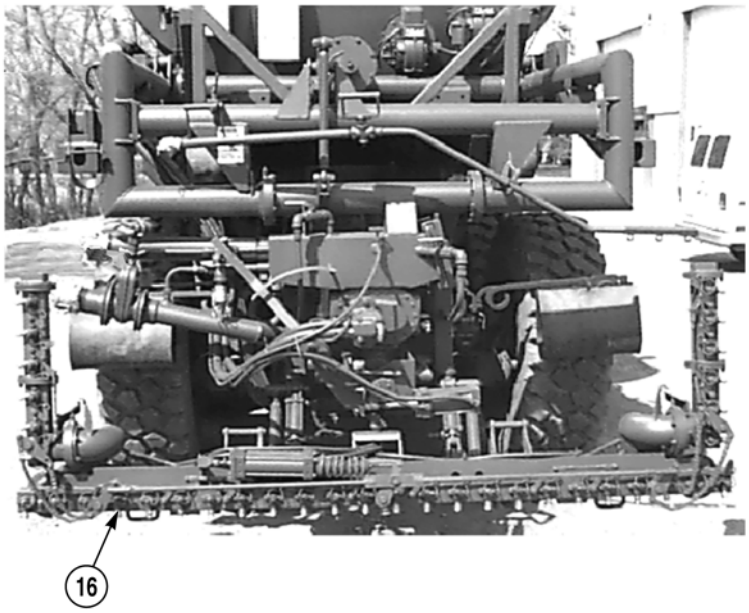
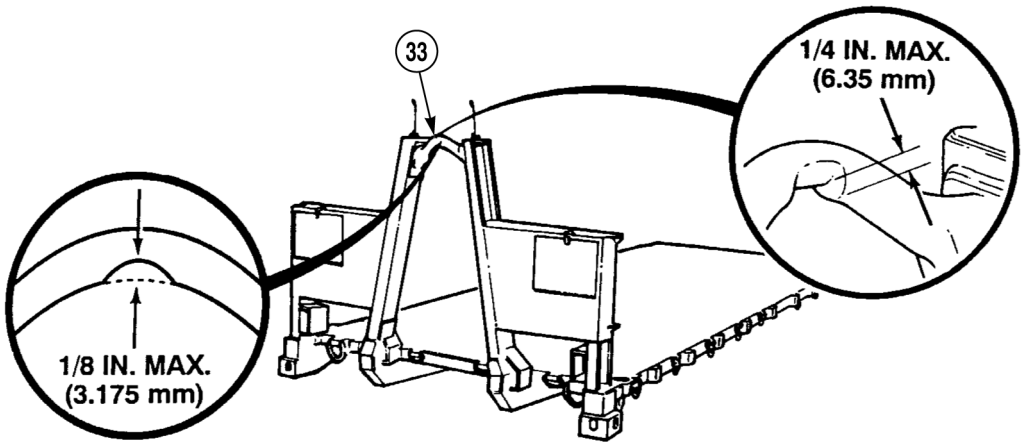
Item No.	Interval	Item to Be Inspected	Procedure	NOT Mission Capable If:
				
29	SA	Spray Bar	Inspect spray bar (16) for leaks, missing or damaged parts, cracked welds and evidence of corrosion damage such as surface color change, surface separation, blistered paint, rust through, or other evidence of damage.	

Table 2-1. Unit Preventive Maintenance Checks and Services - CONT.

B - Before D - During A - After W - Weekly M - Monthly SA - Semiannual

Item No.	Interval	Item to Be Inspected	Procedure	NOT Mission Capable If:
				
30	SA	Hook Bar	Check hook bar (33) for wear. If wear at lower back side of hook bar is greater than 1/4 in. (6.35 mm) or greater than 1/8 in. (3.175 mm) at bottom of hook bar, notify supervisor.	Wear at lower back side of hook bar is greater than 1/4 in. (6.35 mm) or greater than 1/8 in. (3.175 mm) at bottom of hook bar.

2-9. LUBRICATION INSTRUCTIONS.

Refer to Table 2-2 and Figure 2-4 for points that must be lubricated, their required lubrication intervals, the required lubricant and the amount of lubricant required.

NOTE

Ensure spray bar is in the deployed position, (Para 2-17).

Table 2-2. Lubrication Table

INTERVAL	LUBE POINT	IDENTIFICATION	LUBRICANT	QUANTITY
Daily	(1) Card 1	Pump Discharge Strainer	Clean	
Weekly	(2) Card 2	Air Oiler (See Note 1)	EO	Fill
	(3) Card 3	Manhole Cover	EO	Sparingly
	(4) Card 4	Spray Bar Controls	EO	Sparingly
Monthly	(5) Card 5	Four-Way Valve Handle (Hinge)	EO	Sparingly
	(6) Card 5	Four-Way Valve Handle (Lube fittings - 3)	HTG	Sparingly
	(7) Card 6	Bar Swivels (Lube fittings - 2 ea. side)	HTG	Sparingly
	(8) Card 1	Bar Carry Mechanism (See Note 2)	EO	Sparingly
	(9) Card 1	Mechanism Swivels	HTG	Sparingly
	(10) Card 7	Mechanism Pivot Bar Ends (Lube fittings - 5 ea. side)	EO	Sparingly
	(11) Card 10	Butterfly Valve Rod (Between two plates)	EO	Sparingly
	(12) Card 11	Stowage Box Door Hinges (2 ea. side)	EO	Sparingly
	(13) Card 12	Travel Locks (1 ea. side)	EO	Sparingly
	(14) Card 7	Mechanism Cylinders (See Note 3)	EO	Sparingly
	(15) Card 8	Rod End (6) (Bell Crank Shown)	EO	Sparingly
	(16) Card 9	Pivot Lug Assembly	EO	Sparingly
	(17) Card 9	Cyliner Ends (All)	EO	Sparingly
	(18) Card 13	Spray Bar Toggle Levers (Lube fittings - 5)	HTG	Sparingly
	(19) Card 9	Chain Clevis Ends (All)	EO	Sparingly

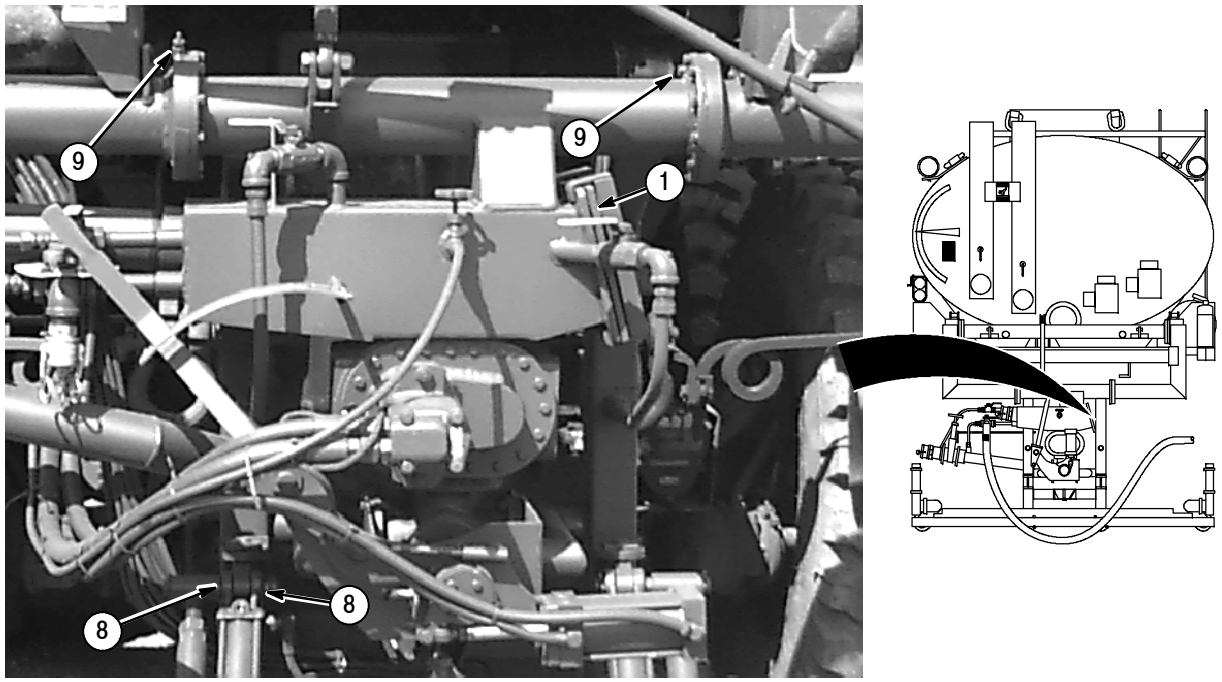
Note 1. Fill line oiler with light oil as needed.

Note 2. Lubricate all cylinder yoke pins, swivel joints and pivot points.

Note 3. Wipe cylinder rods clean and lightly oil.

HTG: High Temperature Grease MIL-G-18458B-SH
EO: (Engine Oil) 10W MIL-L-2104-F

2-9. LUBRICATION INSTRUCTIONS (CONT).

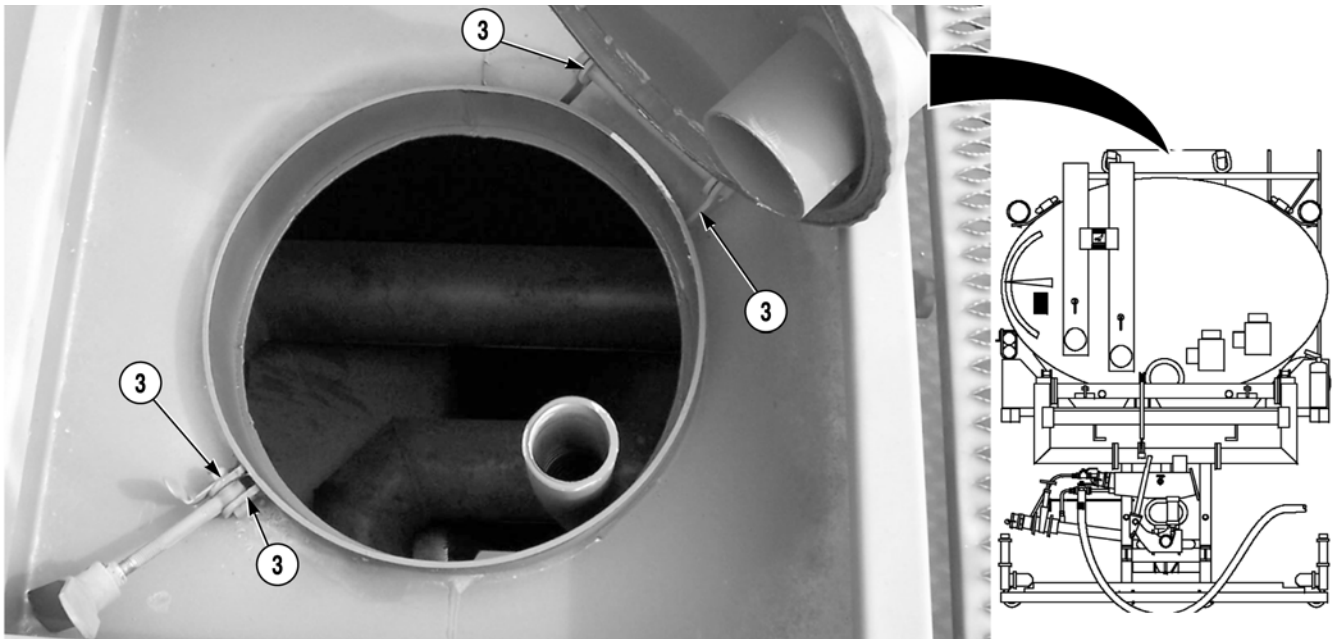


Card 1

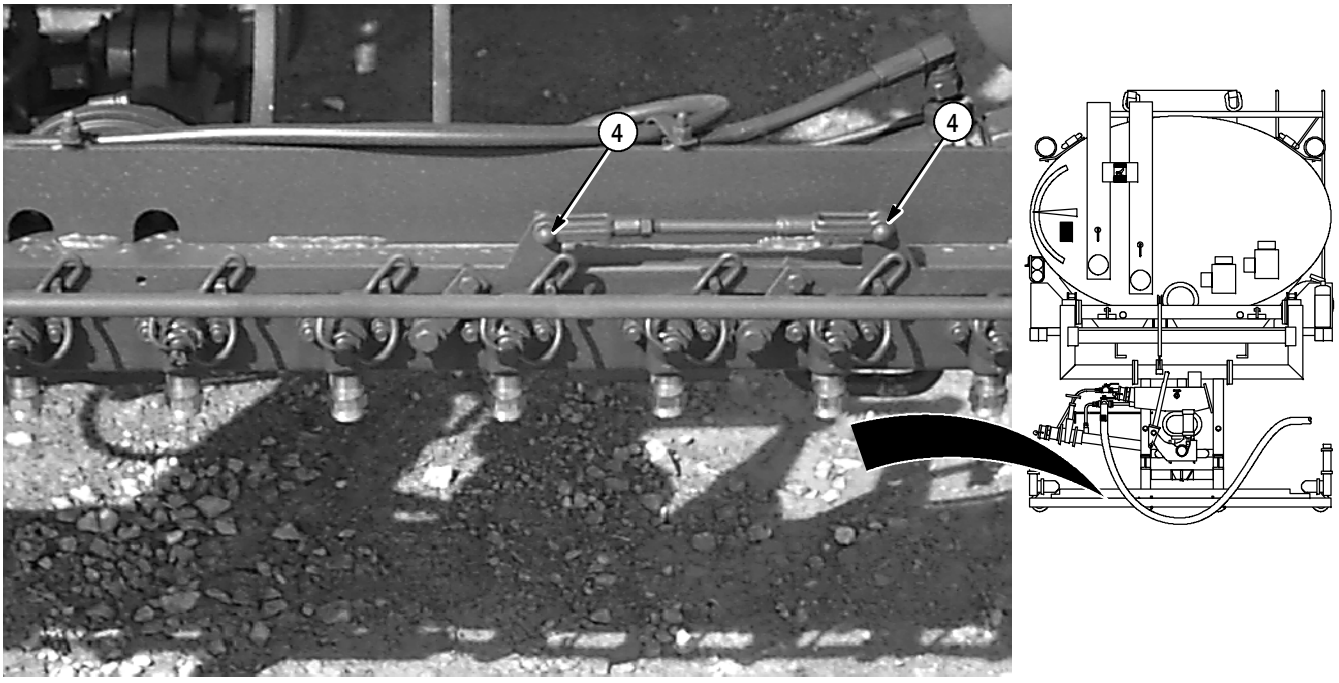


Card 2

Figure 2-4. Lubrication Points (Sheet 1 of 7)



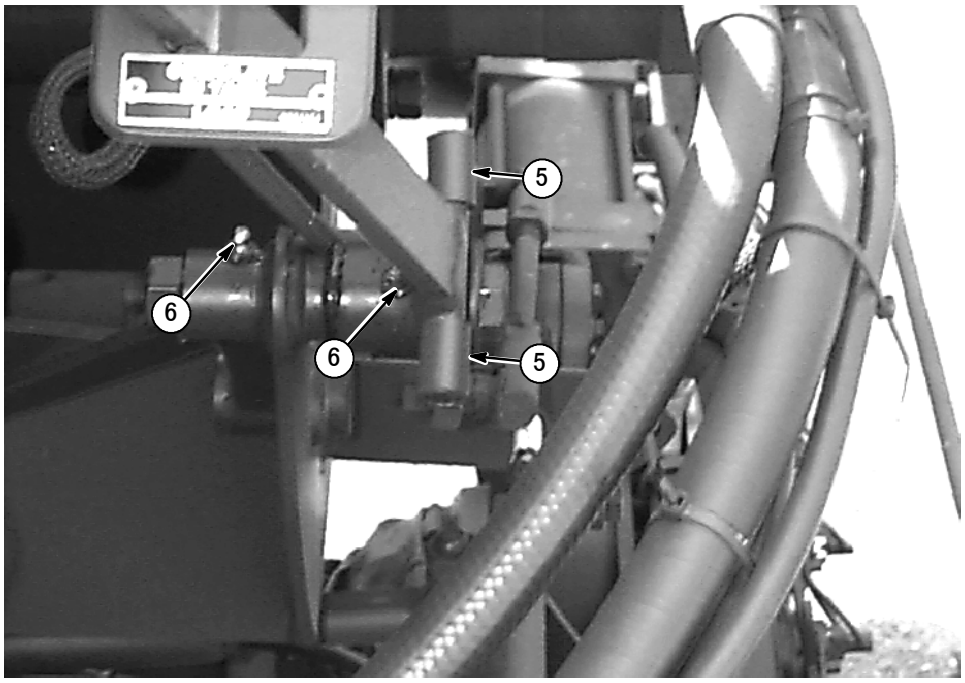
Card 3

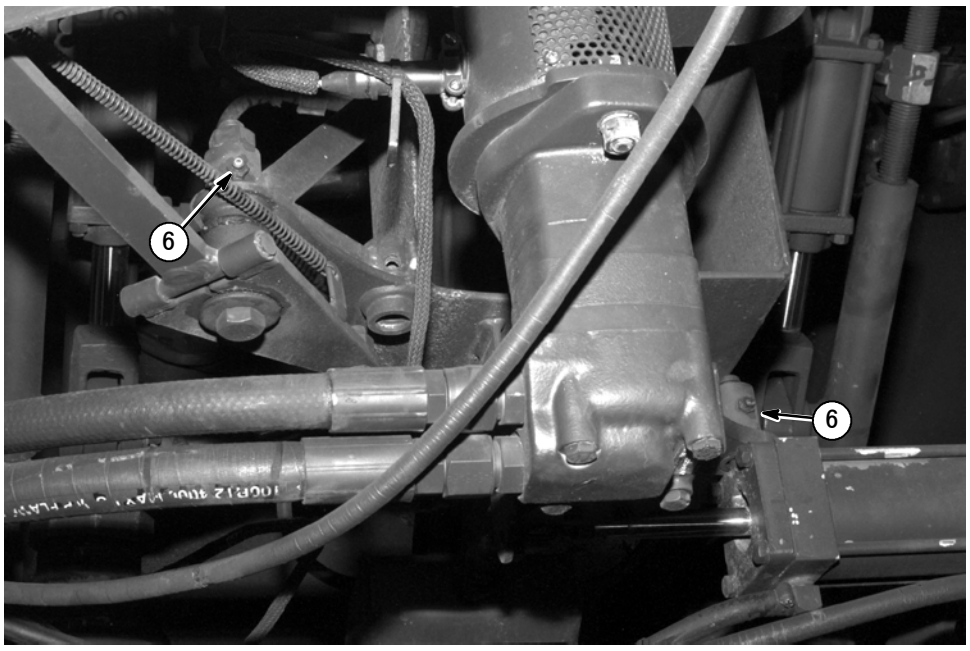


Card 4

Figure 2-4. Lubrication Points (Sheet 2 of 7)

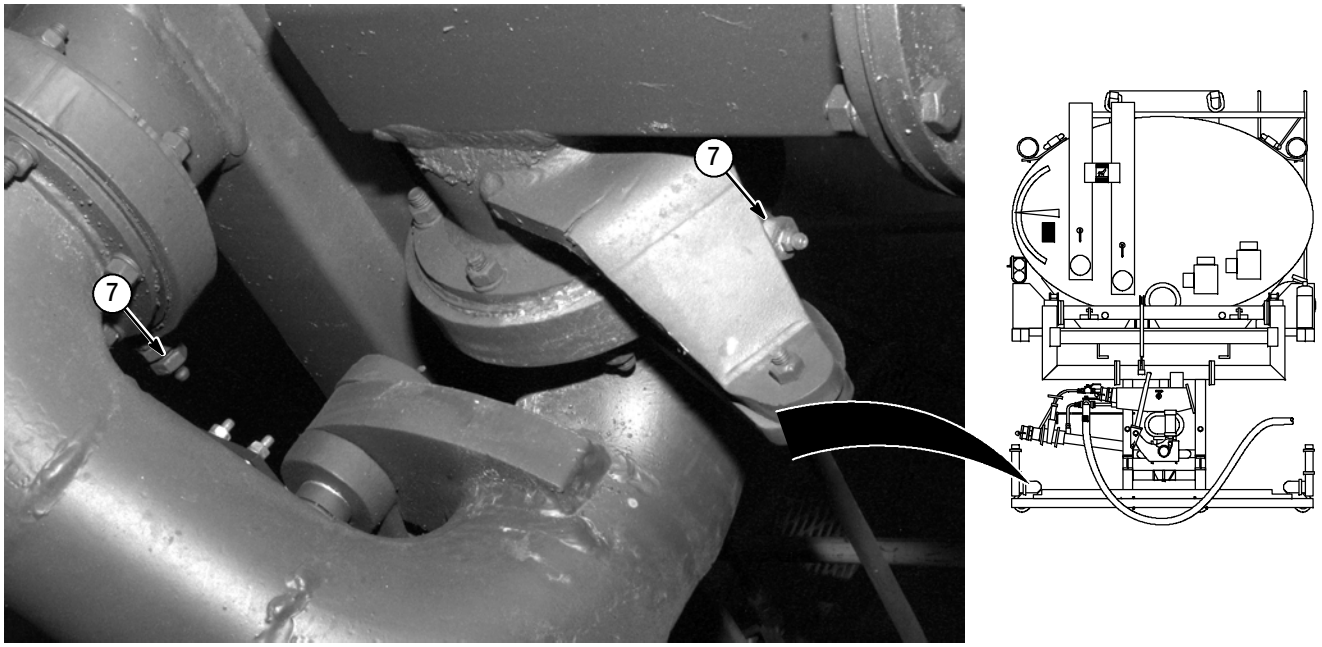
2-9. LUBRICATION INSTRUCTIONS (CONT).



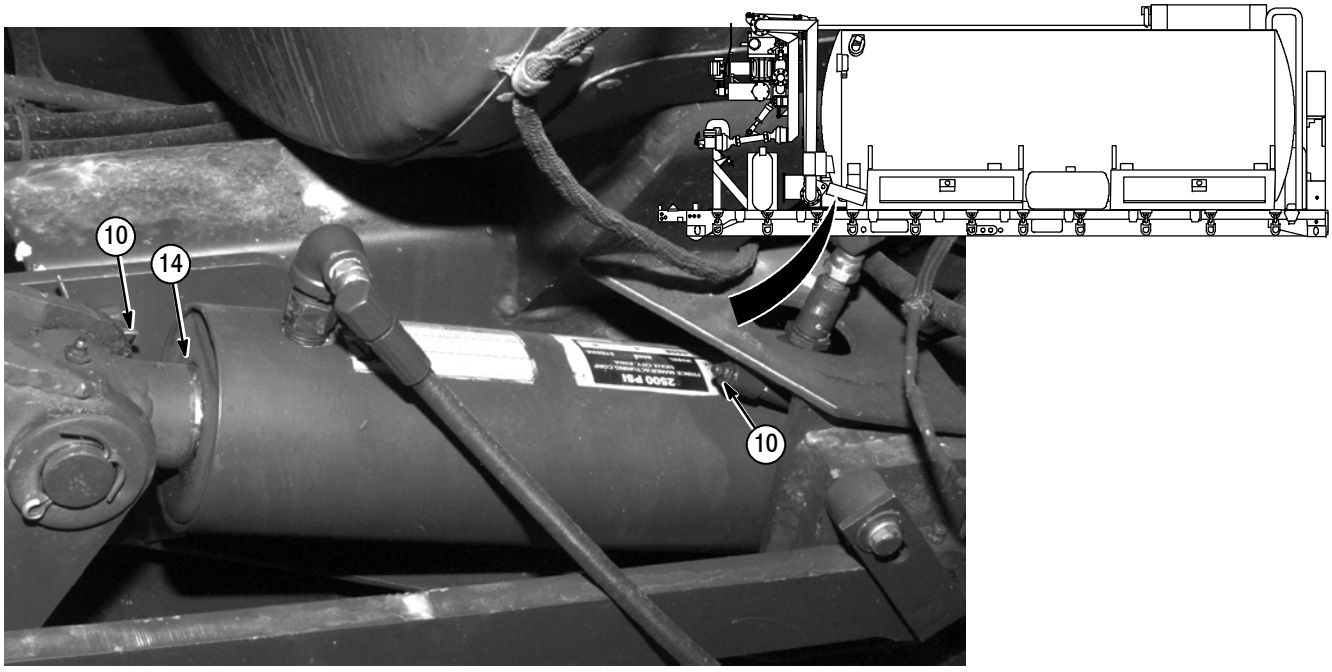


Card 5

Figure 2-4. Lubrication Points (Sheet 3 of 7)



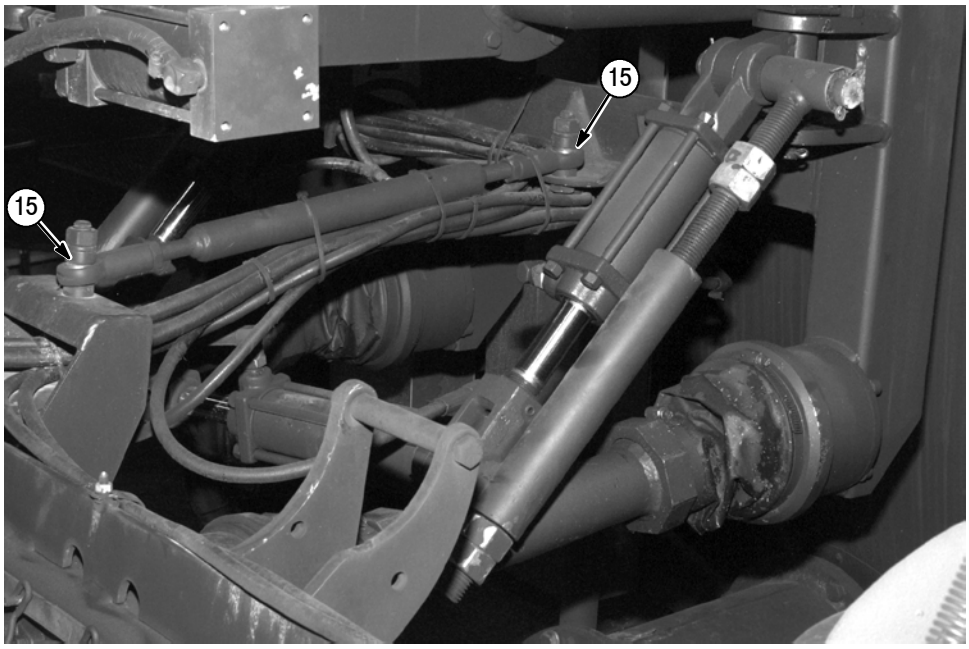
Card 6



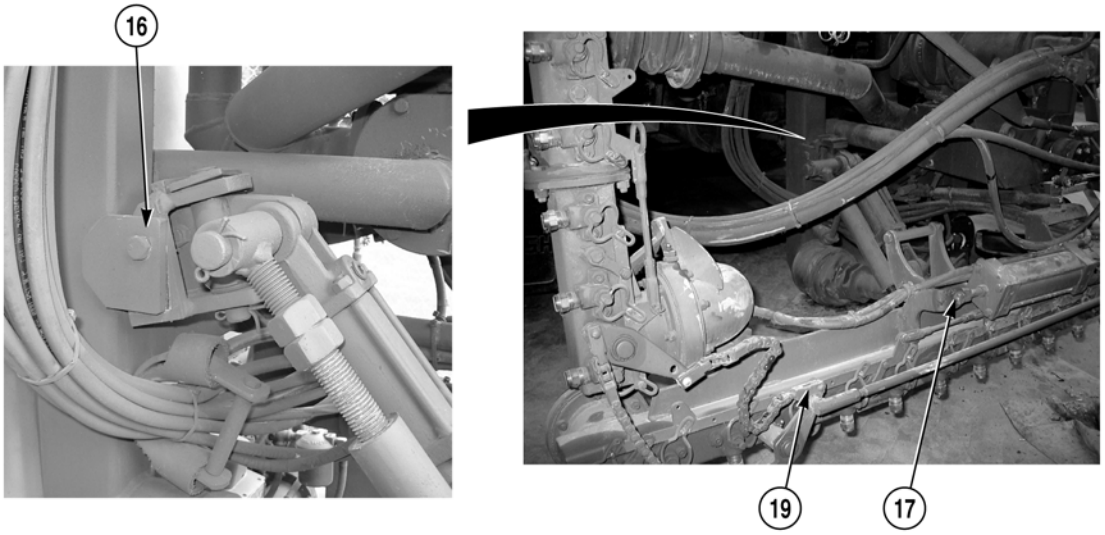
Card 7

Figure 2-4. Lubrication Points (Sheet 4 of 7)

2-9. LUBRICATION INSTRUCTIONS (CONT).

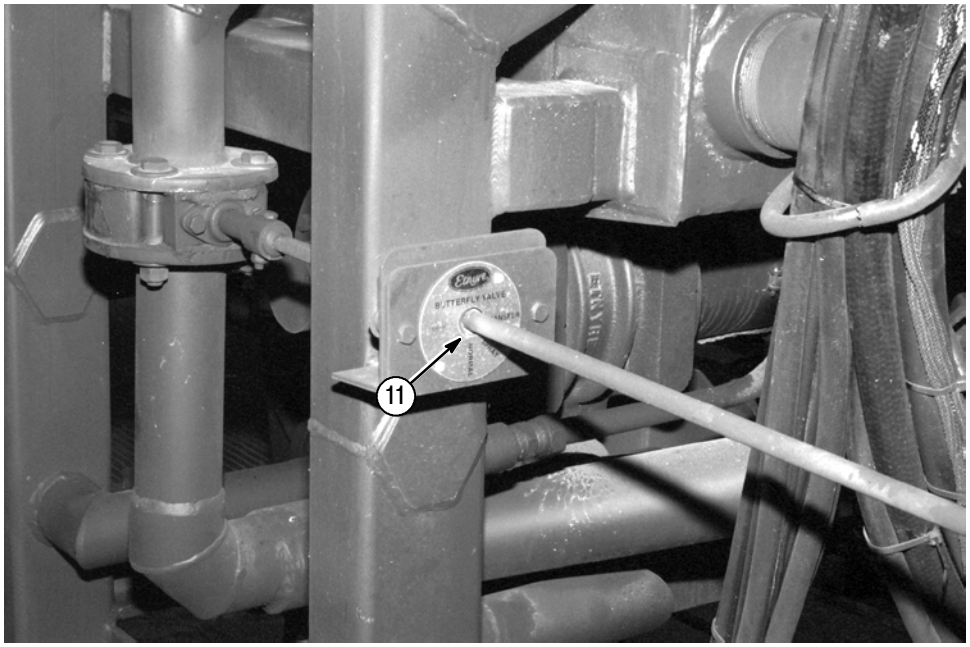


Card 8



Card 9

Figure 2-4. Lubrication Points (Sheet 5 of 7)



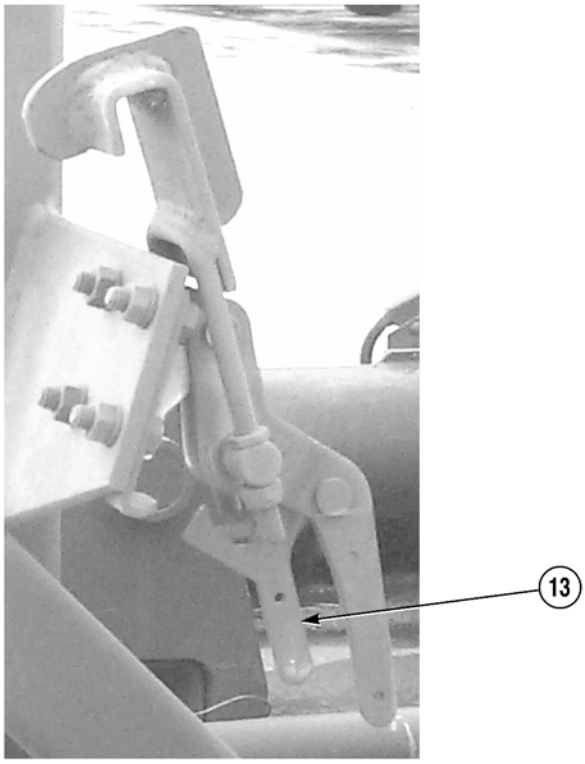
Card 10



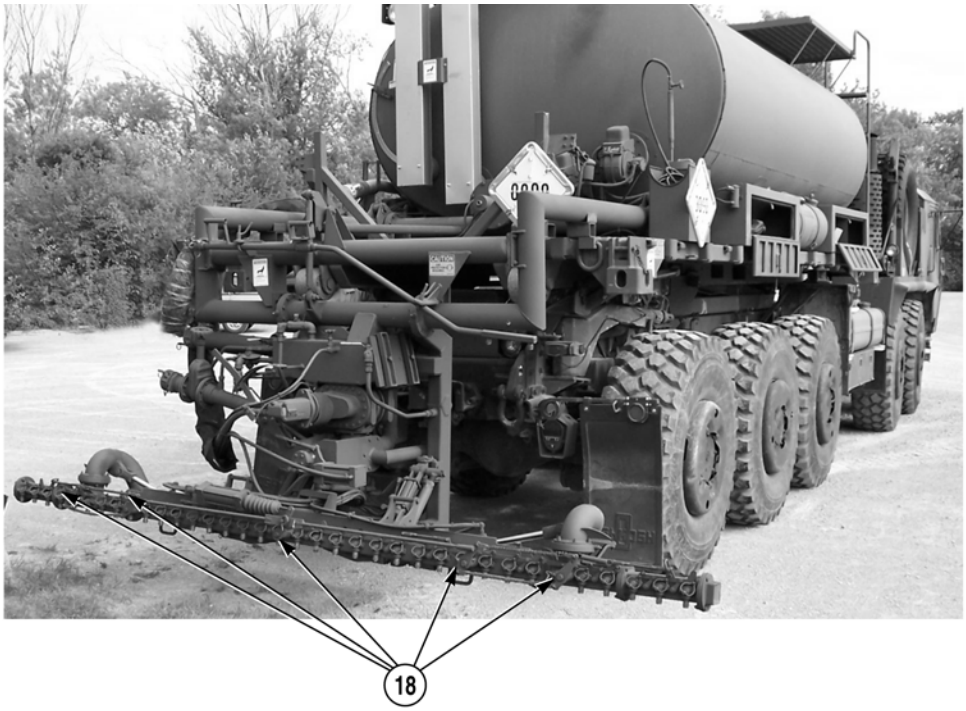
Card 11

Figure 2-4. Lubrication Points (Sheet 6 of 7)

2-9. LUBRICATION INSTRUCTIONS (CONT).



Card 12



Card 13

Figure 2-4. Lubrication Points (Sheet 7 of 7)

2-10. CONNECTING AIR, HYDRAULIC AND ELECTRICAL SYSTEMS.

a. Apply parking brakes and shut off engine switch, (TM 9-2320-364-10).

WARNING

Hydraulic system can reach 3,675 psi (25,339 kPa). Engine must be turned off before disconnecting hydraulic lines. Failure to comply could cause serious injury to personnel.

CAUTION

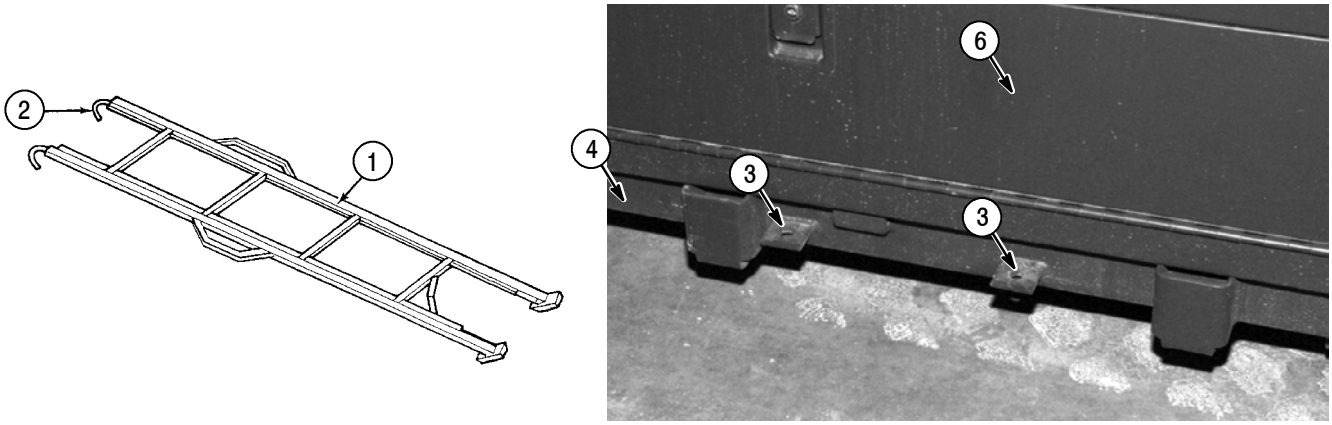
To prevent hydraulic contamination, keep hydraulic quick disconnects clean and install protective caps when couplers are not connected.

NOTE

A small amount of oil will leak out of quick disconnect couplings when disconnected. Wipe off any oil that spills on fender and dispose of in accordance with local regulations.

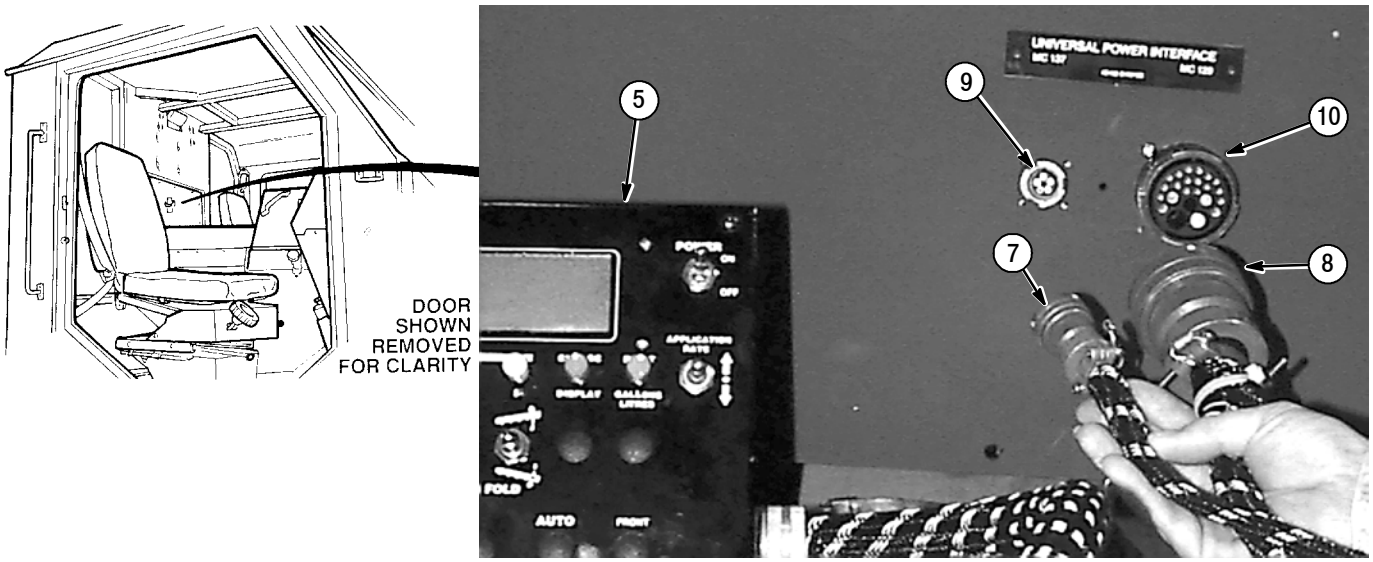
b. Connect Universal Power Interface Kit (UPIK), air, hydraulic and electrical systems, (TM 9-2320-364-10).

2-10. CONNECTING AIR, HYDRAULIC AND ELECTRICAL SYSTEMS (CONT).



c. Remove ladder (1) from stowage hooks on truck, (TM 9-2320-364-10).

d. Position two hooks (2) on ladder (1) in two brackets (3) on Bituminous Distributor (4).



e. Remove front control panel (5) from stowage box (6) and position in cab.

f. Remove ladder (1) and stow on stowage hooks on truck, (TM 9-2320-364-10).

WARNING

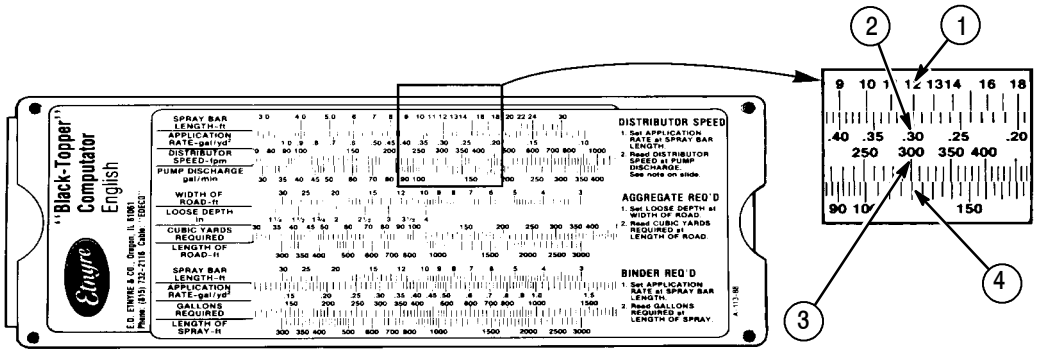
Ensure high idle switch is in the OFF position before connecting control panel harness to interface kit connectors. Failure to comply may result in damage to equipment and injury or death to personnel.

NOTE

All terminal pins in 23-pin electrical connector are present but not all are used.

g. Remove covers from connectors and connect two connectors (7) and (8) on front control panel harness to interface kit connectors (9) and (10).

2-11. ESTABLISHING FLOW RATE/GROUND SPEED RATIO USING THE COMPUTATOR.



NOTE

For standard nozzles #3352205, use pump speed of 10 to 15 gpm per foot of bar. Increase for larger nozzles or decrease for smaller nozzles to meet spraying condition.

a. Locate spray bar length to be used using upper scale on computator.

b. Determine nozzle type to be used on spray bar from the table below and note the application rate desired.



1	2	3	4	5	6	7	8	9	10
3351013	3351008	3351009	3352368	3351015	3352204	3352205	3352210	3351014	3351010

Ref.	Part No.	Description	**Application** Per Square Yard	**Application** (Metric) Liters Per Square Meter	**Flow** Gallons Per Minutes Per Foot
1	3351013**	1/16" Coin Slot	.05 - .20	.19 - .75	3.0 to 4.5
2	3351008	S36-4 V Slot	.10 - .35	.38 - 1.30	4.0 to 7.5
3	3351009	S36-5 V Slot	.18 - .45		7.0 to 10.0
4	3352368	Multi-Material V Slot	.15 - .40	.57 - 1.50	6.0 to 9.0
5	3351015	3/32" Coin Slot	.15 - .40	.57 - 1.50	6.0 to 9.0
6	3352204*	Multi-Material V Slot	.35 - .95	1.30 - 3.60	12.0 to 21.0
7	3352205*	Multi-Material V Slot	.20 - .55	.75 - 2.08	7.5 to 12.0
8	3352210	End Nozzle (3352205)	.20 - .55	.75 - 2.08	7.5 to 12.0
9	3351014	3/16" Coin Slot	.35 - .95	1.30 - 3.60	12.0 to 21.0
10	3351010	1/4" Coin Slot	.40 - 1.10	1.50 - 4.16	15.0 to 24.0

* Recommended nozzles for seal and chip with emulsified asphalts.
** For application prior to laying a hot mat.

2-11. ESTABLISHING FLOW RATE/GROUND SPEED RATIO USING THE COMPUTATOR (CONT).

c. At the end of computator, grasp tab and move center slide until desired application rate is directly below spray bar length.

d. In a straight line below application rate you will find distributor speed (in feet per minute), and pump discharge (in gallons per minute).

Example:	Width of Spray (1)	12 Feet
	Application Rate (2)	.30
	Distributor Speed (3)	300 FPM
	Pump Discharge (4)	120 GPM

e. Select a transmission gear that will provide 300 FPM at 1200 - 1600 RPM on truck engine.

2-12. PREHEATING BITUMINOUS DISTRIBUTOR.

WARNING

- To prevent an explosion or fire hazard, do not heat material beyond the manufacturer's recommended temperature. Failure to comply may result in injury or death to personnel. (Refer to Material Safety Data Sheets [MSDS]) for this information.)
- Ensure SPRAYBAR ON/OFF switch is in the OFF position and remains in the OFF position throughout heating and circulating operations. Failure to comply may result in personnel being sprayed with hot bitumen resulting in severe burns.

CAUTION

To prevent possible damage to equipment from material setting up in hose or distributor, ensure that bitumen in supply tank is heated sufficiently.

NOTE

- A portable burner is available to preheat the circulating system.
- Preheating the circulating system will ensure that first material to enter the pump will not stop pump.

a. If pump, spray bar and/or circulating system were not drained and flushed after previous use, preheat circulating system prior to use.

CAUTION

If distributor is to be filled with hot bitumen, proceed cautiously. If there is any moisture in the tank, or if emulsion was used in previous load, foaming or eruption may occur.

NOTE

- To prevent foaming, or if emulsified asphalt was used in previous load, an anti-foam agent may be used.
- Perform Steps ***b.*** through ***d.*** when using anti-foam agent.

b. Mix can (16 oz.) of anti-foam agent with one gal. (3.79 l) of diesel fuel or kerosene.

c. Add one ounce of mixture from Step ***b.*** to each 1,000 gal. (3,785.31 l) of asphalt.

d. Pour the correct amount of mixture through manhole.

NOTE

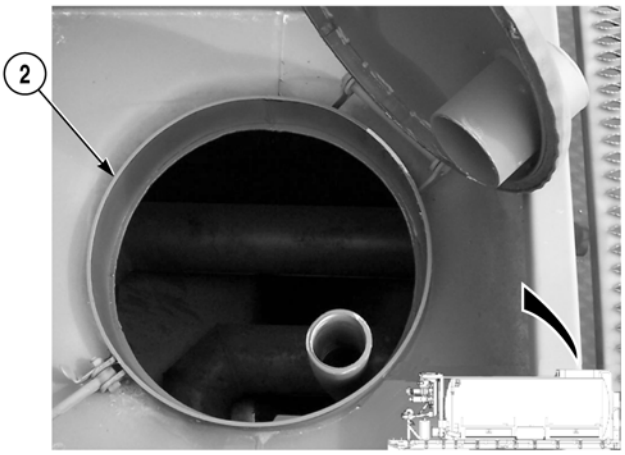
If no foaming occurs at start of the filling operation but moisture in circulating system or spray bar is suspected, perform Steps ***e.*** and ***f.*** If foaming occurs, go on to Step ***g.***

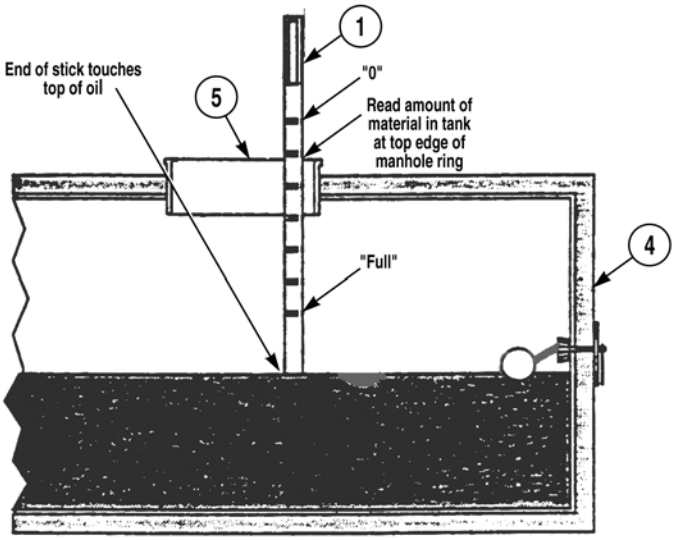
e. Stop filling operation when tank is not more than 25% full.

f. Circulate product through the spray bar at 80 to 110 gpm (5.05 to 6.94 lps) before continuing the filling operation.

g. Continue circulating until foaming stops. Suck product in spray bar back into tank before continuing to fill tank completely.

2-13. MEASURE QUANTITY IN TANK.





WARNING

- Always stick measure quantity of material in tank prior to lighting burners. Failure to comply may result in injury or death to personnel.
- Never use float gage located at rear of tank as an accurate measuring device. Always use measuring stick to measure quantity of material in tank. Failure to comply may result in injury or death to personnel.
- **DO NOT** enter the bituminous spreader tank without a written permit from the Occupational Safety and Health Authority (OSHA). Failure to comply may result in injury or death to personnel.

NOTE

The measurement taken will only be accurate if tank is level and if measuring stick is straight.

a. Remove measuring stick (1) from side of Bituminous Distributor.

2-13. MEASURE QUANTITY IN TANK (CONT).

NOTE

Manhole strainer is optional and may not be present.

b. Open manhole (2) and remove manhole strainer (3), if present.

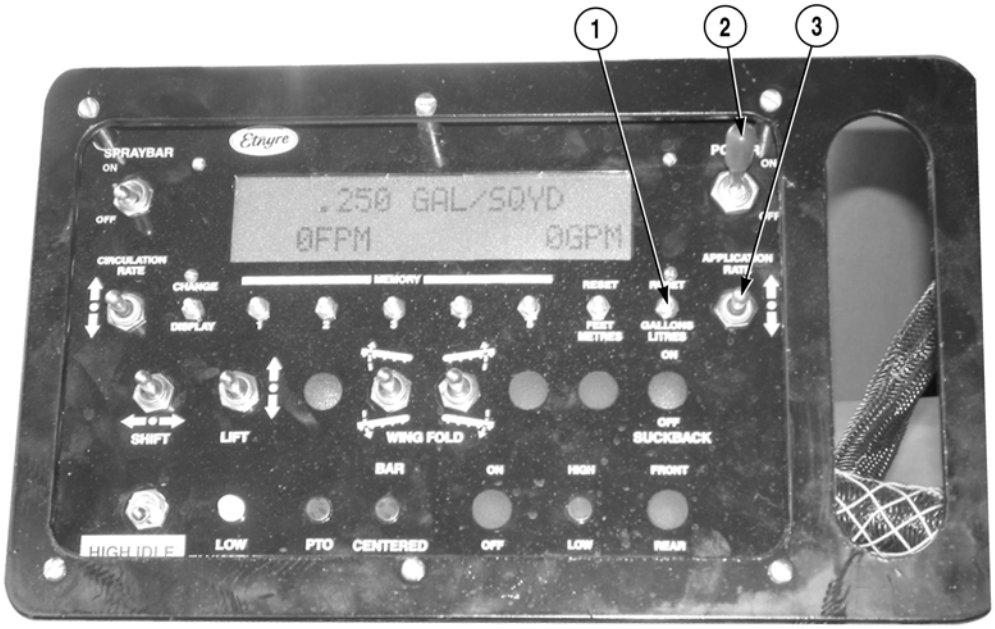
c. Install measuring stick (1) into tank (4) until bottom end of stick touches top of material in tank.

d. Read amount of material in tank (4) on measuring stick (1) at top edge of manhole ring (5).

e. Install manhole strainer (3), if present, and close manhole (2).

f. Install measuring stick (1) on side of Bituminous Distributor.

2-14. COMPUTER CONTROL SET UP SCREENS.



NOTE

There are eleven set up screens that need to be set to match options of your Bituminous Distributor.

a. To enter “Set Up Screens” mode:

(1) Hold RESET (GALLONS/LITERS) button (1) down, while turning POWER switch (2) to ON position.

(2) The screens shown in Step **c**. will appear.

b. To scroll through screens:

(1) Push RESET (GALLONS/LITERS) button (1).

(2) To edit set up, follow instructions on screen.

(3) Push APPLICATION RATE switch (3) UP or DOWN as instructed.

(4) When finished, save settings as instructed on screen.

c. Display the following screens in “Set Up Screens” mode, as required:

First screen:

Flow Cal. Factor
1000

This screen shows a pump speed calibration factor. The factory setting should be 1000. The pump calibration can be adjusted by 0.1% increments, by changing this factor; e.g., 1001 or 999. Increasing flow factor will increase reading for a given flow. Use APPLICATION RATE switch to change.

Second screen:

Speed Cal. Factor
96

This screen shows a radar ground speed calibration factor. The factory setting should be 96. The ground speed calibration can be adjusted 1.0% increments, by changing this factor; e.g., 97 or 95. Increasing speed factor will increase reading for a given speed. Use APPLICATION RATE switch to change.

Third screen:

English Units
Decrease to Change

This screen allows for change between English and metric units of measure. Push APPLICATION RATE switch down (decrease) to change to metric. If control is set to metric, push up, (increase) to change to English.

Fourth screen:

Series 90 Pump
Increase to Change

This screen allows for change between 40 series pumps and 90 series pumps. Push APPLICATION RATE switch down (decrease) to change to 90 series. Always keep setting at 90 series.

Fifth screen:

Gang Bar
Increase to Change

This screen allows for change between one foot spray bar controls and gang bar controls. Push APPLICATION RATE switch down (decrease) to change to gang bar controls. If control is set to gang bar control, push up (increase) to change to one foot controls. Unit is not equipped with one foot spray bar controls. Always keep setting at gang bar controls.

2-14. COMPUTER CONTROL SET UP SCREENS (CONT).

Sixth screen:

Pulses/Gallon Adjust
65

This screen allows for changing pulse pick up gear on asphalt pump shaft. The factory setting should be 65. This is number of teeth on gear divided by 0.61, (gal/rev of P15 pump). The standard gear has 40 teeth. 40/0.61 = 65. Use APPLICATION RATE switch to change.

Seventh screen:

Threshold Adjust
50

This screen allows for adjustment of target current "threshold" for start of spraying. This number can be adjusted up or down. A higher number will provide a more aggressive start when master spray switch is turned on. A lower number will provide a more gentle start. The number on a specific Distributor should be set to match current, in milliamps that is required to start asphalt pump turning. The number can be adjusted up or down with APPLICATION RATE switch.

Eighth screen:

3.1 to 1 Ratio
Decrease to Change

This screen allows for changing ratio on gear box between hydraulic drive motor and asphalt pump. The standard gear ratio is used. The proper gear box ratio can be selected with APPLICATION RATE switch.

Ninth screen:

Spray Delay
0.2 sec

This screen allows adjustment of the delay while the four-way valve shifts prior to begin spraying. It ensures sufficient delivery of bitumen to the spray bar to provide a uniform spray pattern. The number can be adjusted up or down with APPLICATION RATE switch.

Tenth screen:

EXIT = PUSH APP INCR
SAVE = PUSH APP DECR

This screen allows for returning to operating mode, or saving settings and returning to operating mode. Push down and hold APPLICATION RATE switch to save settings. When screen changes, release switch. Push up to exit without saving.

Eleventh screen:

Circulate Rate Adj.
XXX Gal/Min.

This screen shows current setting for circulation rate. If control is set for metric measure, Lit/Min will appear instead of Gal/Min. Use CIRCULATION RATE switch to adjust. Push CIRCULATION RATE switch up to increase and down to decrease.

2-15. FILLING DISTRIBUTOR.

NOTE

When the Bituminous Distributor is loaded with material, it can be labeled with one of three designations defined in the Hazardous Material Table per 49 CFR part 172.101.

- UN1999 (road asphalts, bitumen and cutbacks)
- UN3256 (elevated temperature flammable)
- UN3257 (elevated temperature non-flammable)

Table 2-3. Guide For Loading Asphalt Products

Last Product In Tank	Product to be Loaded			
	Asphalt Cement	**Cutback Asphalt**	**Cationic Emulsion**	**Anionic Emulsion**
Asphalt Cement	OK to Load	OK to Load	Empty to no Measurable Quantity	Empty to no Measurable Quantity
Cutback Asphalt	Empty*	OK to Load	Empty to no Measurable Quantity	Empty to no Measurable Quantity
Cationic Emulsion	Empty*	Empty to no Measurable Quantity	OK to Load	Empty to no Measurable Quantity
Anionic Emulsion	Empty*	Empty to no Measurable Quantity	Empty to no Measurable Quantity	OK to Load
Crude Petroleum and Residual Fuel Oils	Empty*	Empty to no Measurable Quantity	Empty to no Measurable Quantity	Empty to no Measurable Quantity
Any Product Not Listed Above	Tank must be cleaned	Tank must be cleaned	Tank must be cleaned	Tank must be cleaned

*** Any material remaining will produce dangerous conditions**

Contamination

Tank cars and trucks may be used for transporting a variety of petroleum products. Field observations and test results have shown that contamination of materials frequently takes place. Contamination not only increases the possibility that the asphalt will not meet material specifications, but also increases the danger of fire or explosion. Light hydrocarbons, for example, may be present in a tank car or truck from the remains of previous loads or from diesel oil or solvent used to clean and flush the previous contents. To minimize the potential hazard, asphalt products should be loaded in accordance with Table 2-3. Tanks should be emptied to 0.5 percent of capacity or less, as listed in Table 2-3.

Spills or Leaks

Asphalt escaping from its container should be stopped at the source as soon as possible. Sources of ignition should be eliminated, and persons not using protective equipment should be excluded from the area until clean-up has been completed. Asphalt spills should be contained by diking or impounding if needed. Removal of asphalt spills that do not solidify on cooling may require the use of an absorbent such as sand, earth, or sawdust. If asphalt enters water-courses or sewers, the authorities concerned should be notified. Uncontaminated asphalt may be recovered for use, and absorbents containing asphalt should be removed to an approved disposal facility.

2-15. FILLING DISTRIBUTOR (CONT).

a. Anti-Foaming and Removing Moisture Procedure.

WARNING

- Ensure SPRAYBAR ON/OFF switch is in the OFF position and remains in the OFF position throughout heating and circulating operations. Failure to comply may result in personnel being sprayed with hot bitumen resulting in severe burns.
- To prevent possible burns from foaming or violent eruption, do not load tank with material temperature over 200°F (93°C) if water or condensation is present in tank, or if emulsion was used in previous load. Clean and thoroughly drain tank first. If water or emulsion may be present in spray bar or circulating system, allow a small amount of hot material to circulate in bar BEFORE filling tank. When approximately 1/3 full, drive unit to mix material in tank. This will help absorb moisture. Do not heat material over 200°F (93°C) if moisture or emulsion is present in tank. Failure to comply may result in injury or death to personnel.
- To prevent possible injury, always open manhole cover slowly. Pressure build-up in tank may cause cover to burst open.
- To prevent possible burns from material overflow, allow sufficient space in tank for expansion of material when heating. Failure to comply may result in injury or death to personnel.

(1) Open manhole.

NOTE

- An anti-foaming agent only needs to be used if switching to or from an emulsified product.
- To prevent foaming, or if emulsified asphalt was used in previous load, an anti-foam agent may be used.
- Perform Steps (2) through (4) when using anti-foam agent.

(2) Mix (16 oz.) of anti-foam agent with one gal. (3.79 l) of diesel fuel or kerosene.

(3) Add three ounces of mixture from Step (2) to tank of asphalt.

(4) Pour correct amount of mixture through manhole.

NOTE

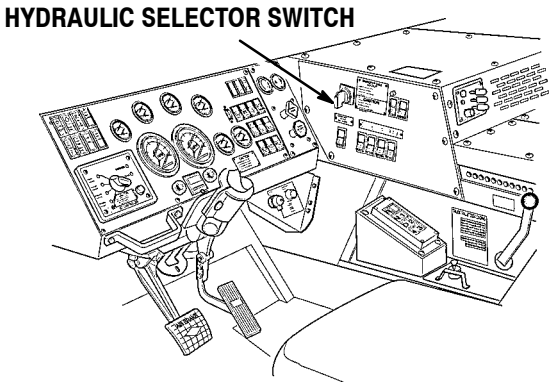
If no foaming occurs at start of filling operation but moisture in circulating system or spray bar is suspected, perform Steps (5) and (6). If foaming occurs, go on to Step (7).

(5) Stop filling operation when tank is not more than 25% full.

(6) Circulate product through spray bar at 80 to 110 gpm (302 to 416 lpm) before continuing filling operation.

(7) Continue circulating until foaming stops. Suck product in spray bar back into tank before continuing to fill tank completely, (Para 2-18).

b. Fill Distributor Through Fill Line From Front Control Panel.



WARNING

- Always use an assistant during filling operations. Failure to comply may result in serious injury to personnel.
- **DO NOT** enter the bituminous spreader tank without a written permit from the Occupational Safety and Health Authority (OSHA). Failure to comply may result in injury or death to personnel.
- To prevent an explosion or fire hazard, do not operate burners while tank is being filled. Failure to comply may result in injury or death to personnel.

(1) Load Bituminous Distributor on PLS, (Para 2-5).

(2) Connect UPIK, (Para 2-10).

(3) Start engine, (TM 9-2320-364-10).

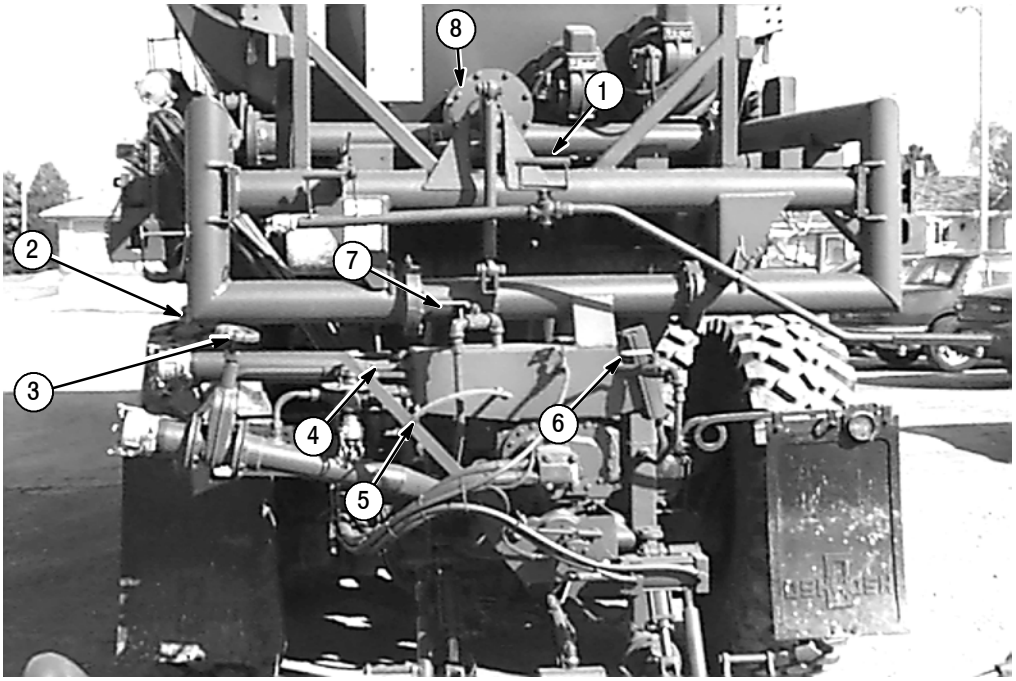
CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(4) Turn hydraulic selector switch to CRANE/SRW.

(5) Deploy spray bar, (Para 2-17).

2-15. FILLING DISTRIBUTOR (CONT).



NOTE

- If hand spray gun is installed, perform Step (6). If not, go on to Step (7).
- Hand spray valve is closed when aligned with spray wand.

(6) Ensure hand spray valve (1) is in CLOSED position.

(7) Ensure butterfly valve (2) is in NORMAL position.

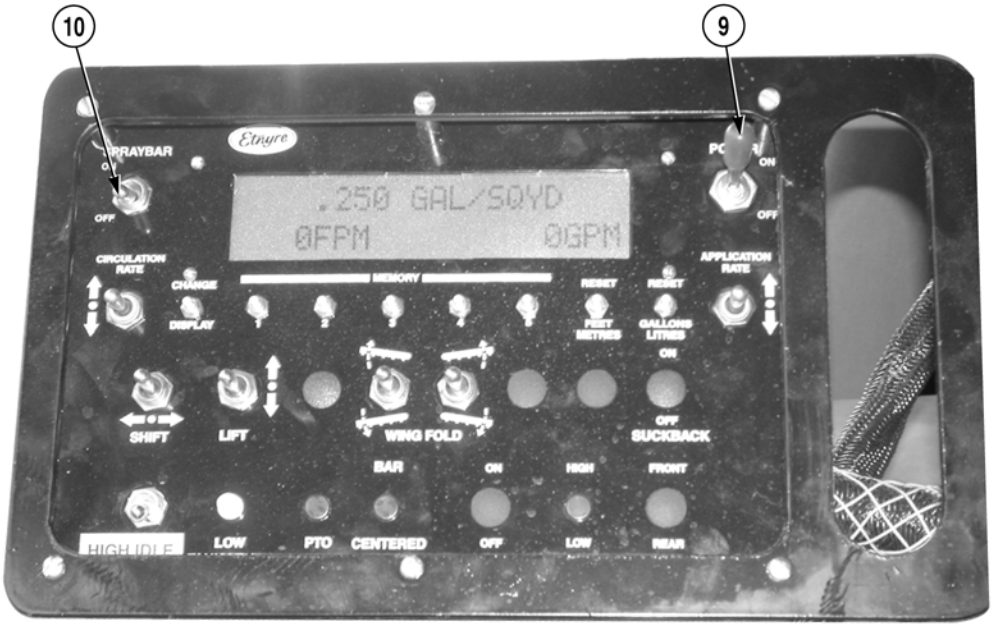
(8) Ensure transfer valve (3) is in CLOSED position.

(9) Ensure suckback valve (4) is in OFF position.

(10) Ensure four-way valve (5) is in CIRCULATE IN TANK position.

(11) Ensure two suckback valves (6) and (7) are in CLOSED position.

(12) Ensure suction valve (8) is in CLOSED position. (Look in sight glass for indicator.)



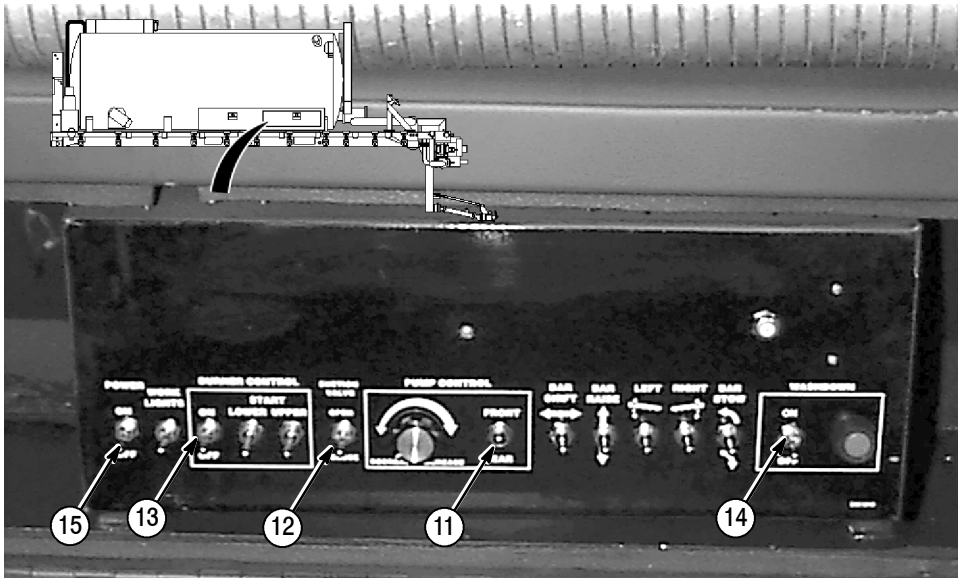
NOTE

Steps (13) and (14) are performed from front control panel.

(13) Ensure POWER switch (9) is in OFF position.

(14) Ensure SPRAYBAR switch (10) is in OFF position.

2-15. FILLING DISTRIBUTOR (CONT).



NOTE

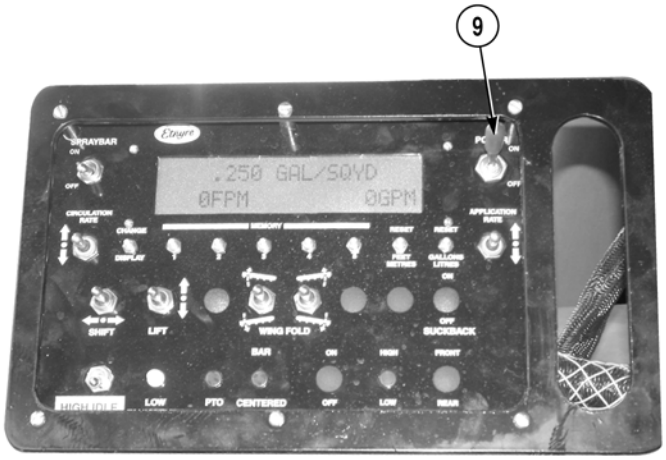
Steps (15) through (18) are performed from rear control panel.

(15) Ensure PUMP CONTROL switch (11) is in FRONT position.

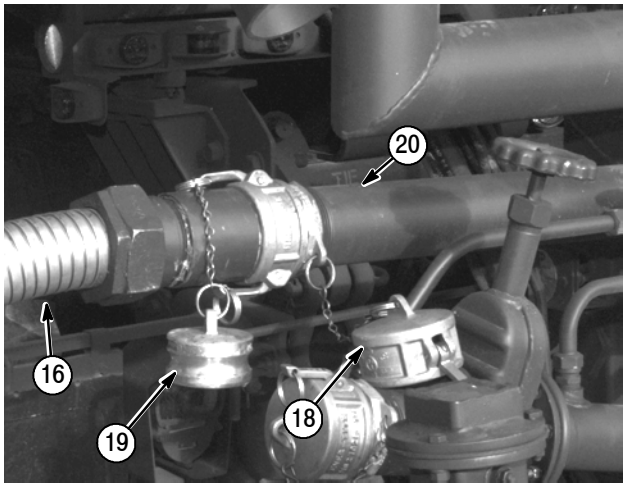
(16) Ensure SUCTION VALVE switch (12) is in CLOSE position.

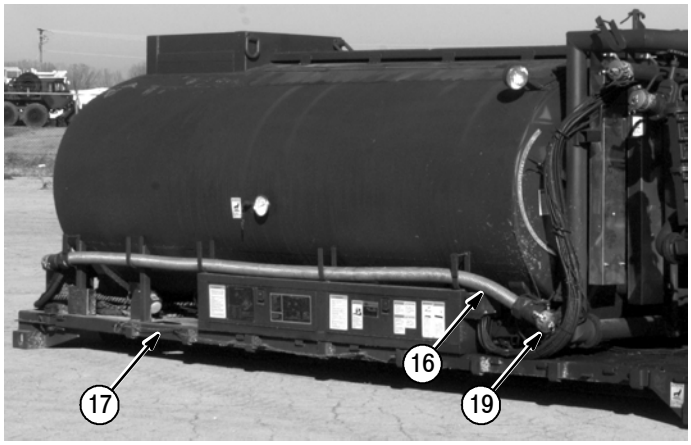
(17) Ensure BURNER CONTROL power switch (13) and WASHDOWN switch (14) are in OFF position.

(18) Turn master POWER switch (15) to ON position.



(19) At front control panel, turn POWER switch (9) to ON position.





(20) Remove fill hose (16) from Bituminous Distributor (17).

WARNING

- Ensure SPRAYBAR ON/OFF switch is in the OFF position and remains in the OFF position throughout heating and circulating operations. Failure to comply may result in personnel being sprayed with hot bitumen resulting in severe burns.
- To prevent possible burns from leaking material, be sure all pipe, cap and hose connections are secure before opening valves. Failure to comply may result in serious injury to personnel.
- Before removing fill line cap, ensure asphalt pump is turning and suction valve is open. Failure to comply may result in injury to personnel.

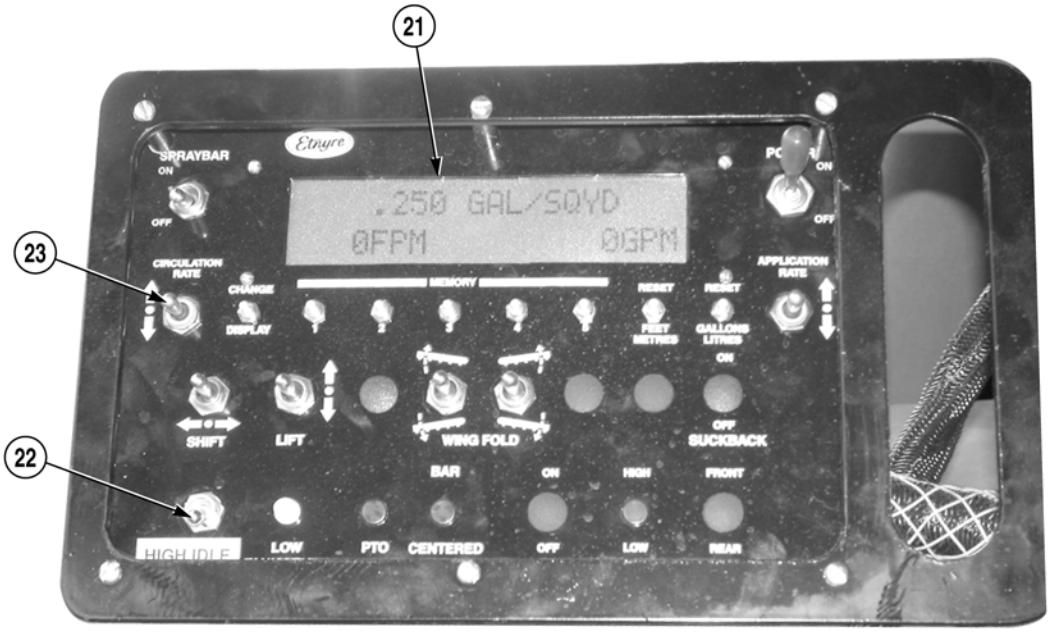
NOTE

Air leaks will reduce vacuum and slow down filling operations.

(21) Remove fill line cap (18) and fill hose caps (19) from fill line (20) and fill hose (16).

(22) Connect fill hose (16) to fill line (20) and check for proper connections between fill hose (16) and supply source.

2-15. FILLING DISTRIBUTOR (CONT).



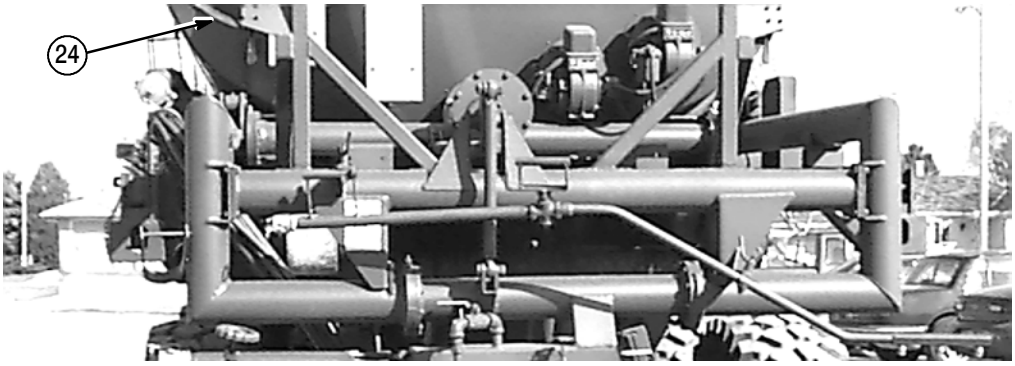
NOTE

Press CHANGE DISPLAY button until desired screen is found.

(23) Set digital display (21) on front control panel to GAL/SQYD; FPM; GPM.

(24) Turn HIGH IDLE switch (22) to ON position.

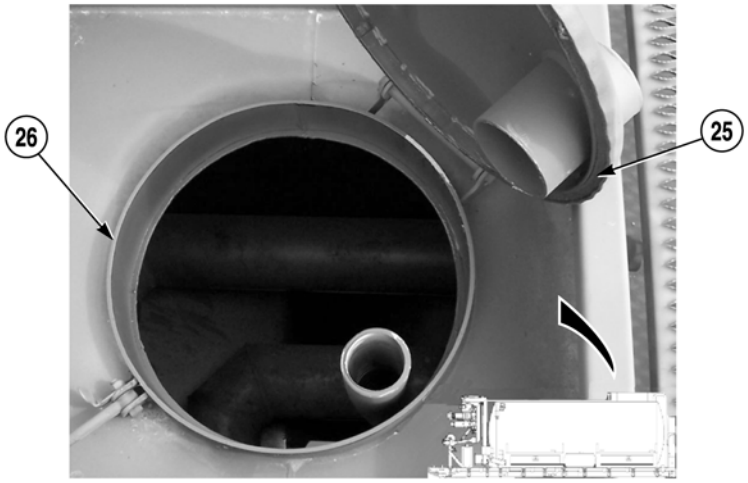
(25) Toggle CIRCULATION RATE switch (23) up or down to obtain desired rate.



WARNING

- To prevent possible injury, always open manhole cover slowly. Pressure build-up in tank may cause cover to burst open.
- To prevent an explosion or fire hazard, keep burning cigarettes or other sources of combustion away from manhole and overflow vent. Failure to comply may result in serious injury to personnel.

(26) Open valve at supply source and monitor tank gage (24) on Bituminous Distributor.



WARNING

Always use an assistant during filling operations. Failure to comply may result in serious injury to personnel.

(27) With the aid of an assistant, open manhole cover (25) on manhole (26) to observe if foaming occurs or moisture is suspect. If either occur, perform Para 2-12 **b.** through **d.**

(28) With the aid of an assistant, monitor when tank gage (24) reads half-full. Advise operator when to close valve at supply source.

2-15. FILLING DISTRIBUTOR (CONT).



WARNING

To prevent possible burns from material overflow, allow sufficient space in tank for expansion of material when heating. Failure to comply may result in injury or death to personnel.

NOTE

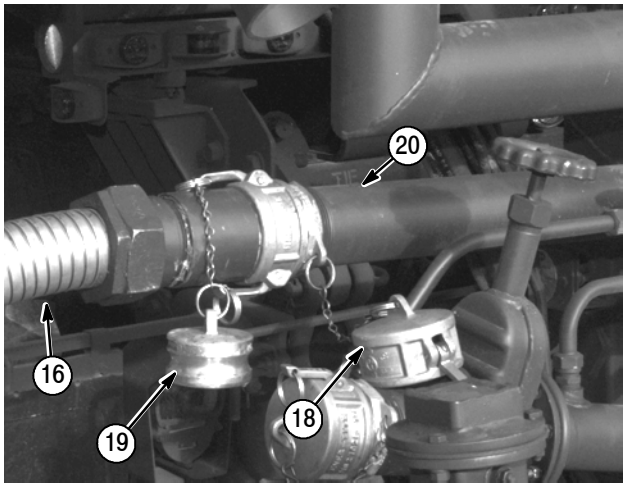
Higher pump speeds will not load thick material quickly. Normal operating speed is 150 gpm (568 lpm). Light materials, or heavy materials at spraying temperature, may be loaded at faster pump speeds (maximum 240 gpm (908 lpm)).

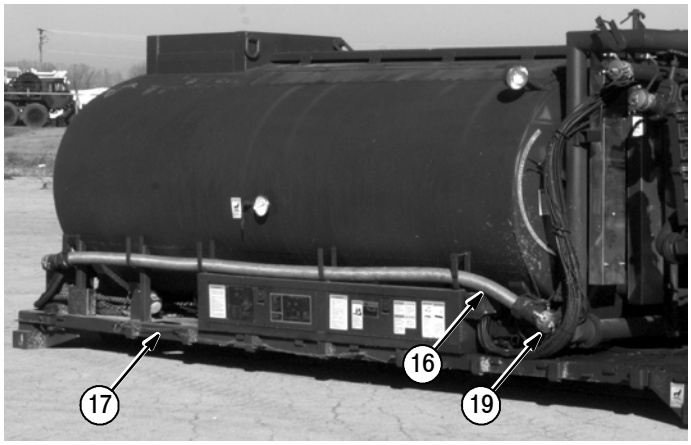
(29) When loading of material is near completion, lower pump speed using CIRCULATION RATE switch (23) to speed where pump will run quietly.

WARNING

To prevent burns, always wear insulated gloves when handling spray bar sections or hoses. Failure to comply may result in serious injury to personnel.

(30) Close valve at supply source when tank is full.





NOTE

If there is no bleeder valve at supply source, carefully break connection between valve and fill hose to allow air into hose.

(31) Open bleeder valve at supply source to suck residual material out of fill line (20).

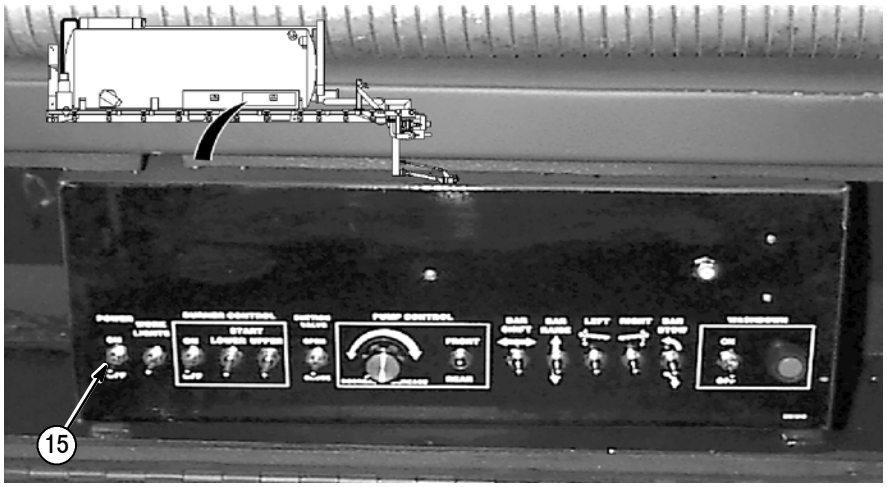
(32) Disconnect fill hose (16) at supply source and elevate fill hose (16) to allow maximum drainage to fill line (20).

(33) With pump continuing to turn, disconnect fill hose (16) from fill line (20).

(34) At front control panel, turn HIGH IDLE switch (22) to OFF position.

(35) Install fill line cap (18) and fill hose caps (19) on fill line (20) and fill hose (16).

(36) Stow fill hose (16) on Bituminous Distributor (17).

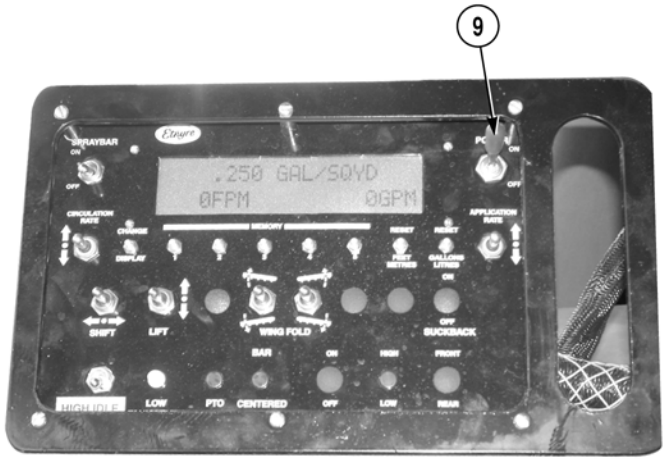


NOTE

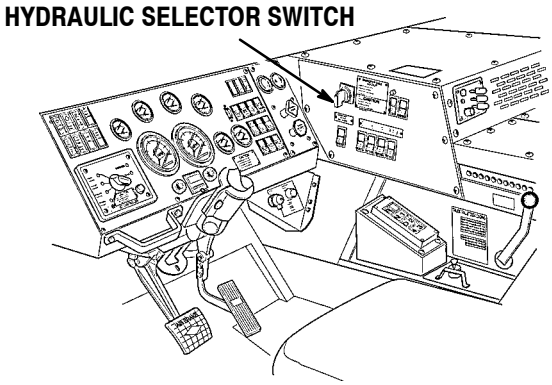
Perform Steps (37) through (40) if mission is complete.

(37) Turn master POWER switch (15) on rear control panel to OFF position.

2-15. FILLING DISTRIBUTOR (CONT).



(38) Turn POWER switch (9) on front control panel to OFF position.



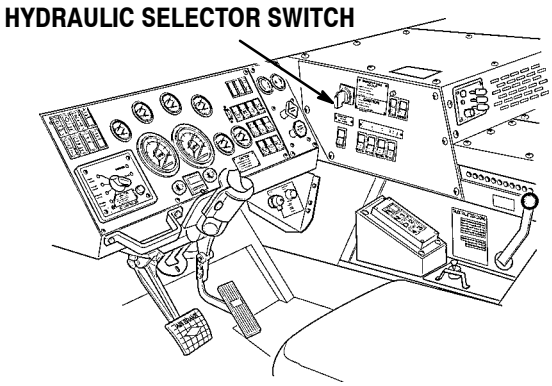
CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(39) Turn hydraulic selector switch to OFF.

(40) Shut OFF engine, (TM 9-2320-364-10).

c. Filling Distributor From Rear Control Panel.



WARNING

- Always use an assistant during filling operations. Failure to comply may result in serious injury to personnel.
- **DO NOT** enter the bituminous spreader tank without a written permit from the Occupational Safety and Health Authority (OSHA). Failure to comply may result in injury or death to personnel.

(1) Load Bituminous Distributor on PLS, (Para 2-5).

(2) Connect UPIK, (Para 2-10).

(3) Start engine, (TM 9-2320-364-10).

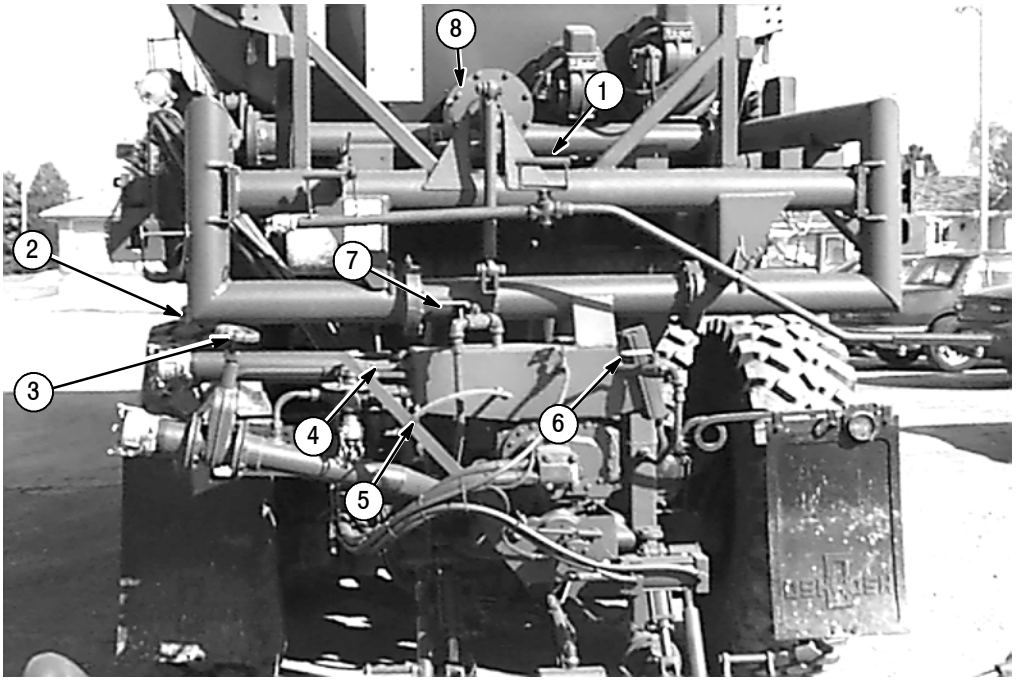
CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(4) Turn hydraulic selector switch to CRANE/SRW.

(5) Deploy spray bar, (Para 2-17).

2-15. FILLING DISTRIBUTOR (CONT).



NOTE

- If hand spray gun is installed, perform Step (6). If not, go on to Step (7).
- Hand spray valve is closed when aligned with spray wand.

(6) Ensure hand spray valve (1) is in CLOSED position.

(7) Ensure butterfly valve (2) is in NORMAL position.

(8) Ensure transfer valve (3) is in CLOSED position.

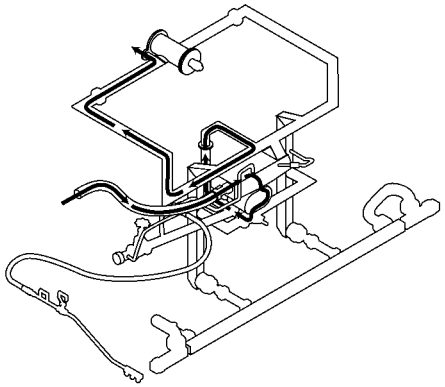
(9) Ensure suckback valve (4) is in OFF position.

(10) Ensure four-way valve (5) is in CIRCULATE IN TANK position.

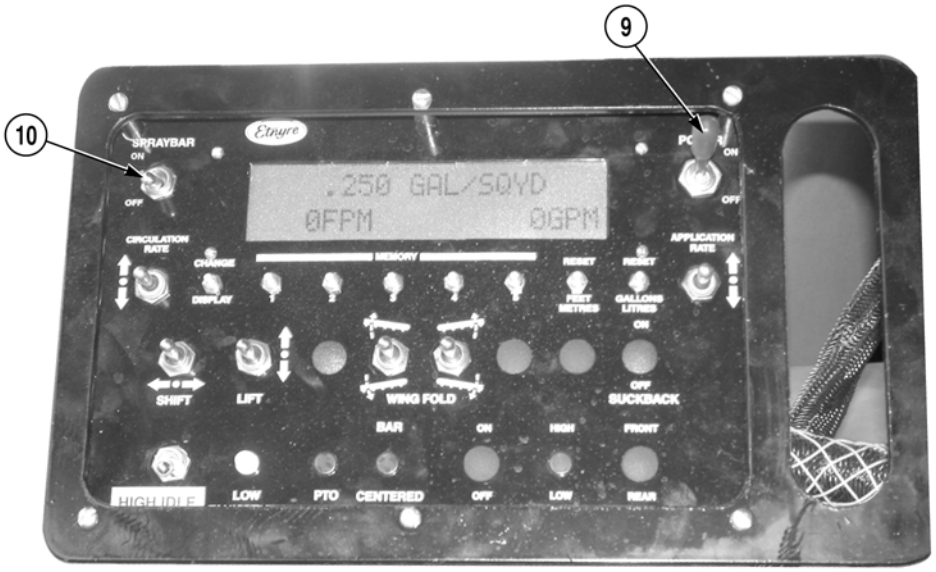
(11) Ensure two suckback valves (6) and (7) are in CLOSED position.

(12) Ensure suction valve (8) is in CLOSED position. (Look in sight glass for indicator.)

Valve	Position
Hand Spray Valve	CLOSED
Butterfly Valve	NORMAL
Transfer Valve	CLOSED
Suckback Valves (3)	CLOSED
4-Way Valve	CIRCULATE IN TANK
Suction Valve	CLOSED



Fill Flow



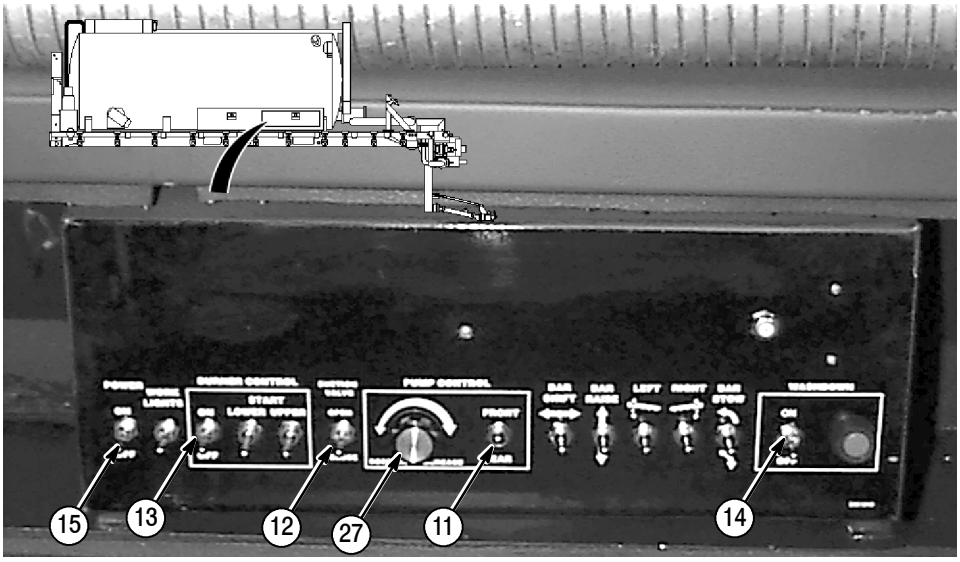
NOTE

Steps (13) and (14) are performed at front control panel.

(13) Ensure SPRAYBAR switch (10) is in OFF position.

(14) Turn POWER switch (9) to ON position.

2-15. FILLING DISTRIBUTOR (CONT).



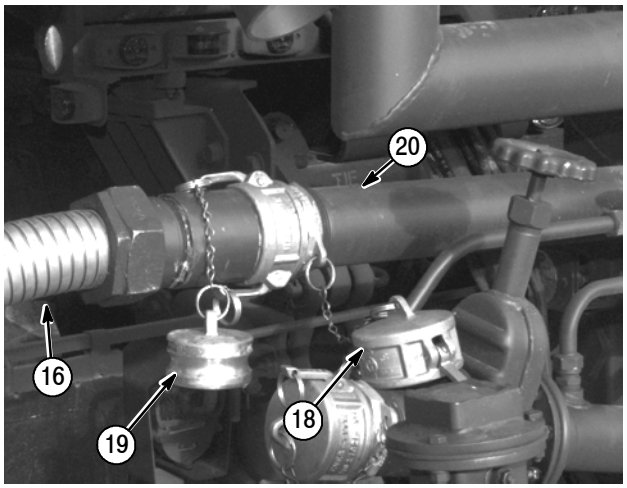
(15) At rear control panel, turn PUMP CONTROL knob (27) fully counter-clockwise.

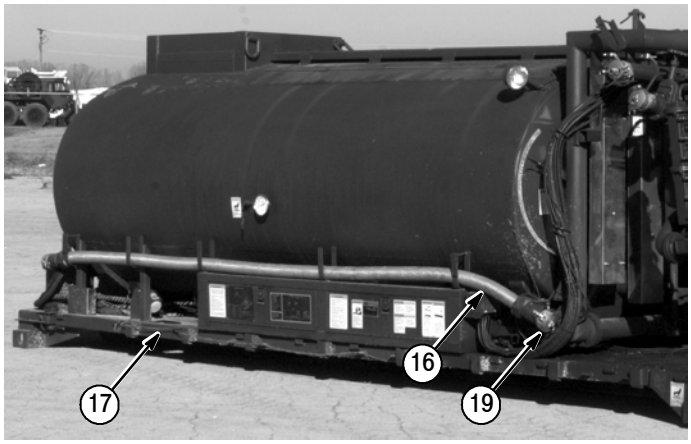
(16) Position PUMP CONTROL switch (11) in REAR position.

(17) Position SUCTION VALVE switch (12) in CLOSE position.

(18) Ensure BURNER CONTROL power switch (13) and WASHDOWN switch (14) are in OFF position.

(19) Turn master POWER switch (15) to ON position.





(20) Remove fill hose (16) from Bituminous Distributor (17).

WARNING

- Ensure SPRAYBAR ON/OFF switch is in the OFF position and remains in the OFF position throughout heating and circulating operations. Failure to comply may result in personnel being sprayed with hot bitumen resulting in severe burns.
- To prevent possible burns from leaking material, be sure all pipe, cap and hose connections are secure before opening valves. Failure to comply may result in serious injury to personnel.
- Before removing fill line cap, ensure asphalt pump is turning and suction valve is closed. Failure to comply could result in serious injury to personnel.

NOTE

Air leaks will reduce vacuum and slow down filling operations.

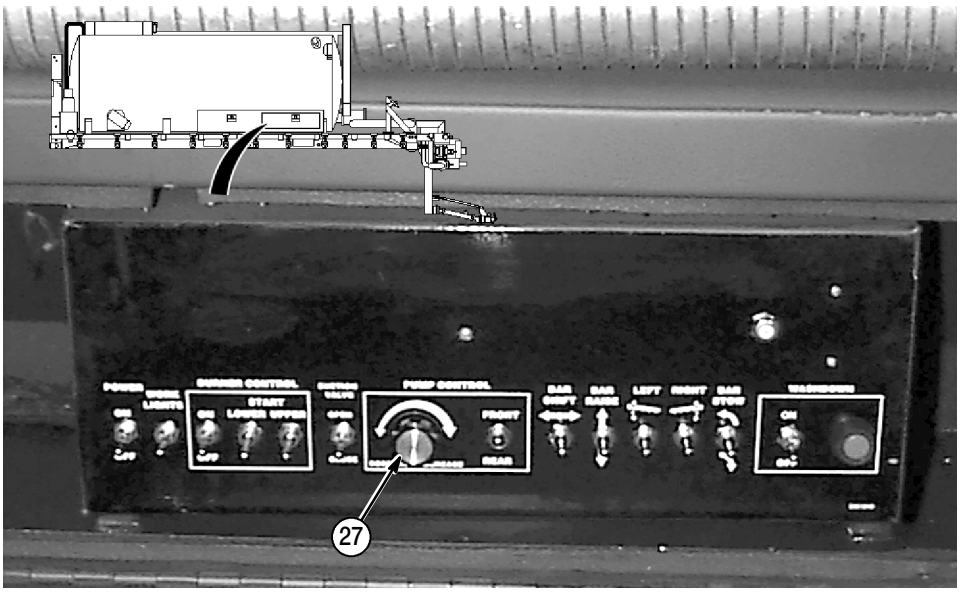
(21) Remove fill line cap (18) from fill line (20) and two fill hose caps (19) from fill hose (16).

(22) Connect fill hose (16) to fill line (20) and check for proper connections between fill hose (16) and supply source.

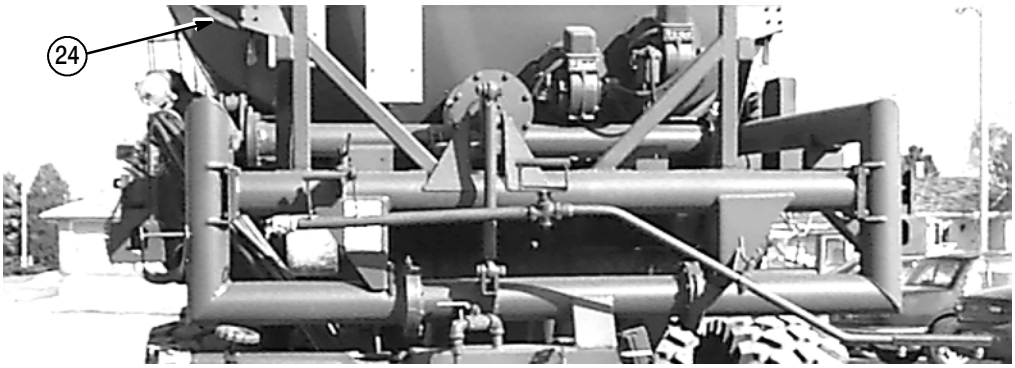
2-15. FILLING DISTRIBUTOR (CONT).



(23) Turn HIGH IDLE switch (22) on front control panel to ON position.



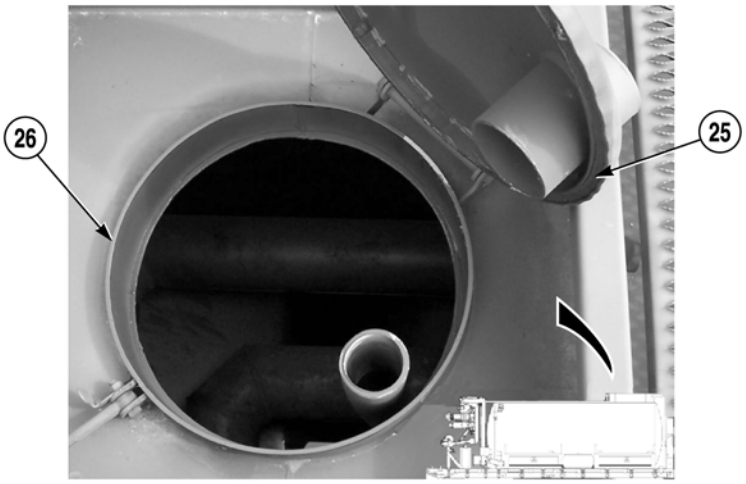
(24) Adjust PUMP CONTROL knob (27) for desired rate.



WARNING

- To prevent possible injury, always open manhole cover slowly. Pressure build-up in tank may cause cover to burst open.
- To prevent an explosion or fire hazard, keep burning cigarettes or other sources of combustion away from manhole and overflow vent. Failure to comply may result in serious injury to personnel.

(25) Open valve at supply source and monitor tank gage (24).



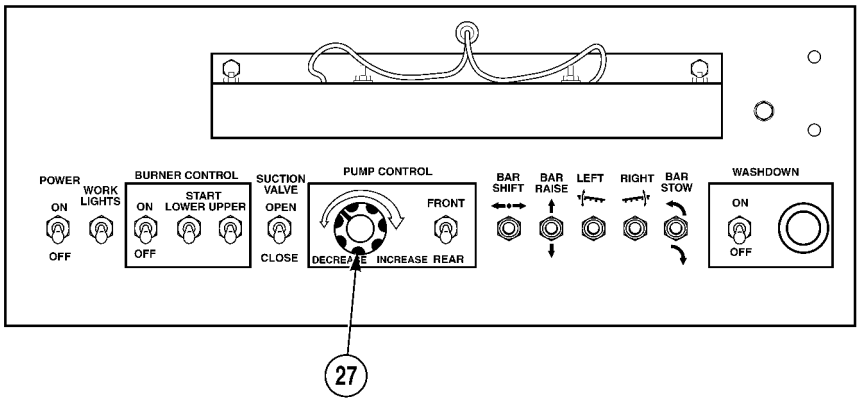
WARNING

Always use an assistant during filling operations. Failure to comply may result in serious injury to personnel.

(26) With the aid of an assistant, open manhole cover (25) on manhole (26) to observe if foaming occurs or moisture is suspect. If either occur, perform Para 2-12 **b.** through **d.**

(27) With the aid of an assistant, monitor when tank gage (24) reads half-full. Advise operator when to close valve at supply source.

2-15. FILLING DISTRIBUTOR (CONT).



WARNING

To prevent possible burns from material overflow, allow sufficient space in tank for expansion of material when heating. Failure to comply may result in injury or death to personnel.

NOTE

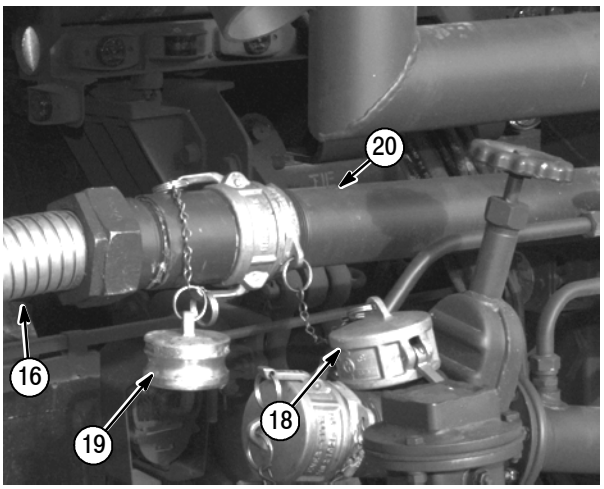
Higher pump speeds will not load thick material quickly. Normal operating speed is 150 gpm (568 lpm). Light materials, or heavy materials at spraying temperature, may be loaded at faster pump speeds (maximum 240 gpm (900 lpm)).

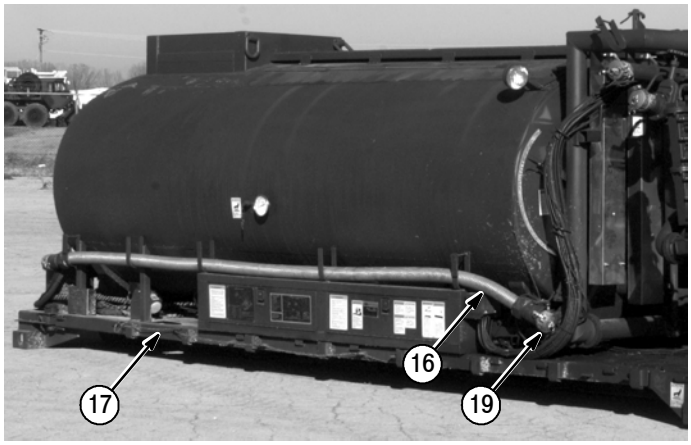
(28) When loading of material is near completion, lower pump speed using PUMP CONTROL knob (27) to speed where it will run quietly.

WARNING

To prevent burns, always wear insulated gloves when handling spray bar sections or hoses. Failure to comply may result in serious injury to personnel.

(29) Close valve at supply source when tank is full.





NOTE

If there is no bleeder valve at supply source, carefully break connection between valve and fill hose to allow air into hose.

(30) Open bleeder valve at supply source to suck residual material out of fill line (20).

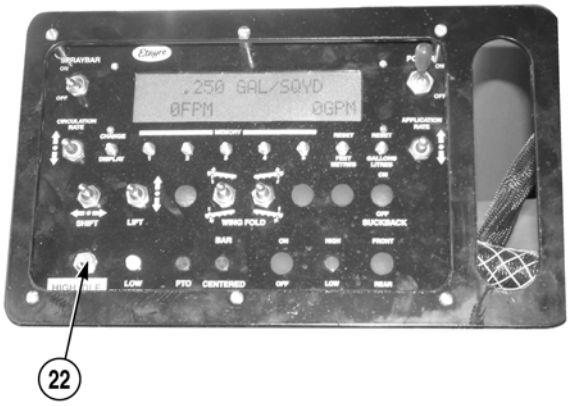
(31) Disconnect fill hose (16) at supply source and elevate fill hose (16) to allow maximum drainage to fill line (20).

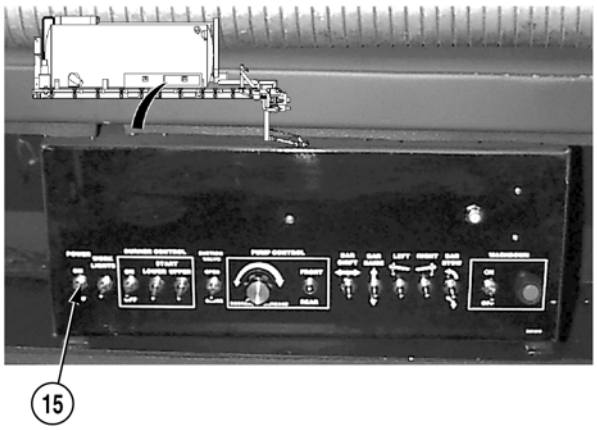
(32) With pump continuing to turn, disconnect fill hose (16) from fill line (20).

(33) At front control panel, turn HIGH IDLE switch (22) to OFF position.

(34) Install fill line cap (18) and two fill hose caps (19) on fill line (20) and fill hose (16).

(35) Stow fill hose (16) on Bituminous Distributor (17).



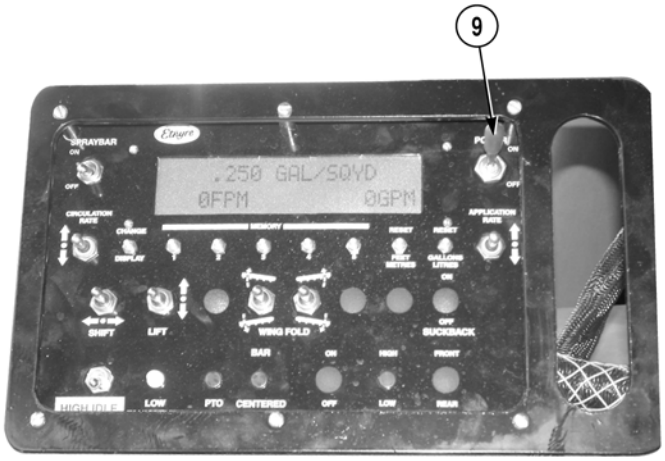


NOTE

Perform Steps (36) through (39) if mission is complete.

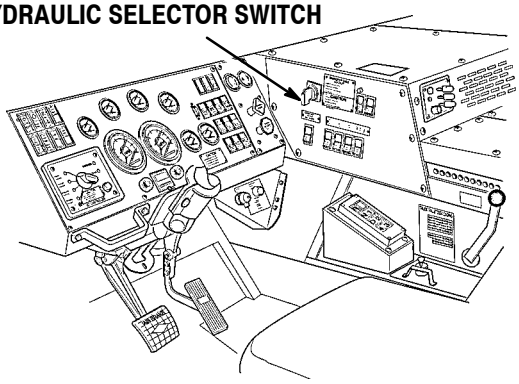
(36) Turn master POWER switch (15) on rear control panel to OFF position.

2-15. FILLING DISTRIBUTOR (CONT).



(37) Turn POWER switch (9) on front control panel to OFF position.

HYDRAULIC SELECTOR SWITCH



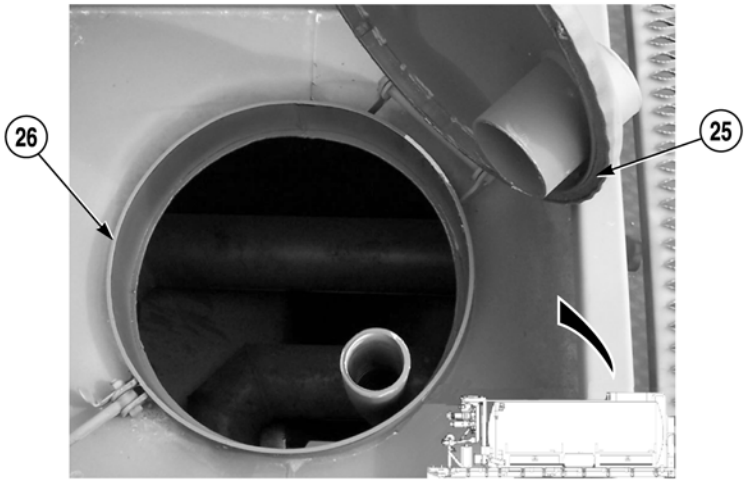
CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(38) Turn hydraulic selector switch to OFF.

(39) Shut OFF engine, (TM 9-2320-364-10).

d. Filling Distributor Through Manhole.



WARNING

- To prevent possible injury, always open manhole cover slowly. Pressure build-up in tank may cause cover to burst open.
- To prevent an explosion or fire hazard, keep burning cigarettes or other sources of combustion away from manhole and overflow vent. Failure to comply may result in serious injury to personnel.
- Ensure SPRAYBAR ON/OFF switch is in the OFF position and remains in the OFF position throughout heating and circulating operations. Failure to comply may result in personnel being sprayed with hot bitumen resulting in severe burns.
- **DO NOT** enter the bituminous spreader tank without a written permit from the Occupational Safety and Health Authority (OSHA). Failure to comply may result in injury or death to personnel.

CAUTION

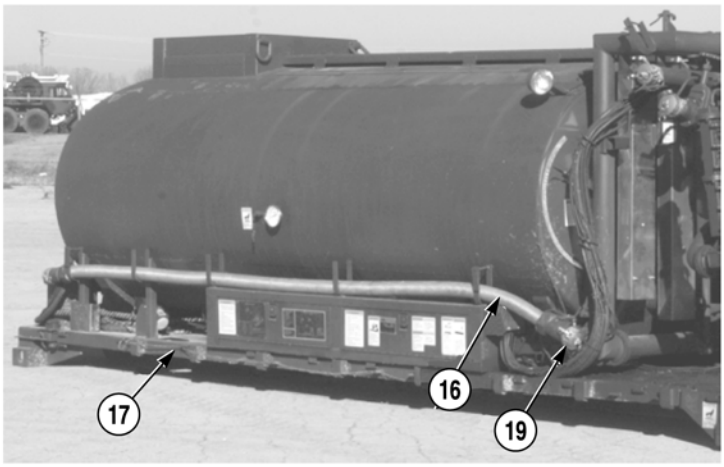
To prevent possible damage to equipment, always use manhole strainer when filling through manhole.

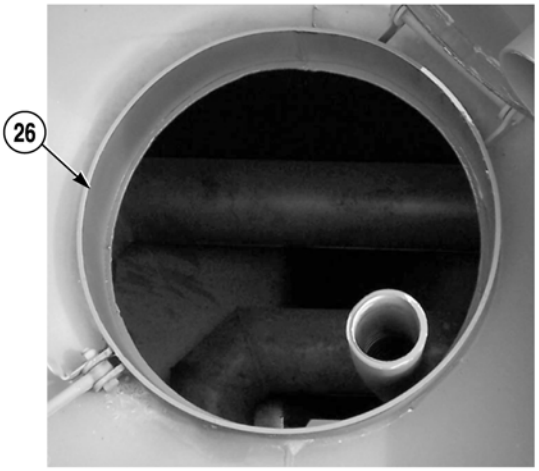
NOTE

- Manhole strainer is optional and may not be present.
- Ensure suction valve is closed when performing this task.
- It is not necessary to run pump when filling through manhole.

(1) Open manhole cover (25) on manhole (26) and ensure that the strainer is clean and secure.

2-15. FILLING DISTRIBUTOR (CONT).



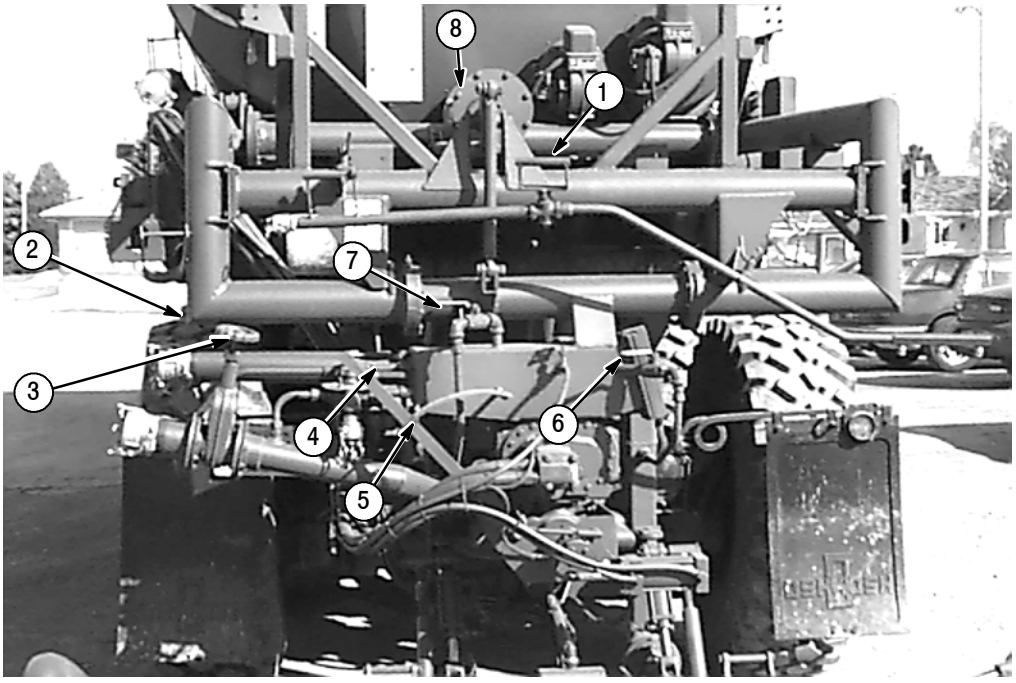


NOTE

Additional fill hose from supply source may be required.

(2) Remove fill hose (16) from Bituminous Distributor (17) and remove two fill hose caps (19).

(3) Connect fill hose (16) to supply source. Position other end of fill hose (16) in manhole (26).



NOTE

- If hand spray gun is installed, perform Step (4). If not, go on to Step (5).
- Hand spray valve is closed when aligned with spray wand.

(4) Ensure hand spray valve (1) is in CLOSED position.

(5) Ensure butterfly valve (2) is in NORMAL position.

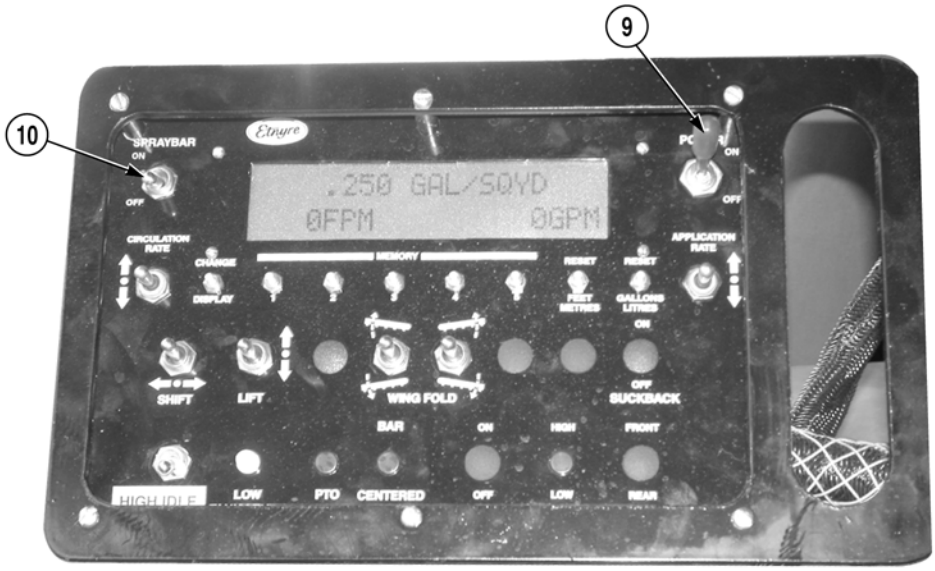
(6) Ensure transfer valve (3) is in CLOSED position.

(7) Ensure suckback valve (4) is in OFF position.

(8) Ensure four-way valve (5) is in CIRCULATE IN TANK position.

(9) Ensure two suckback valves (6) and (7) are in CLOSED position.

(10) Ensure suction valve (8) is in CLOSED position. (Look in sight glass for indicator.)



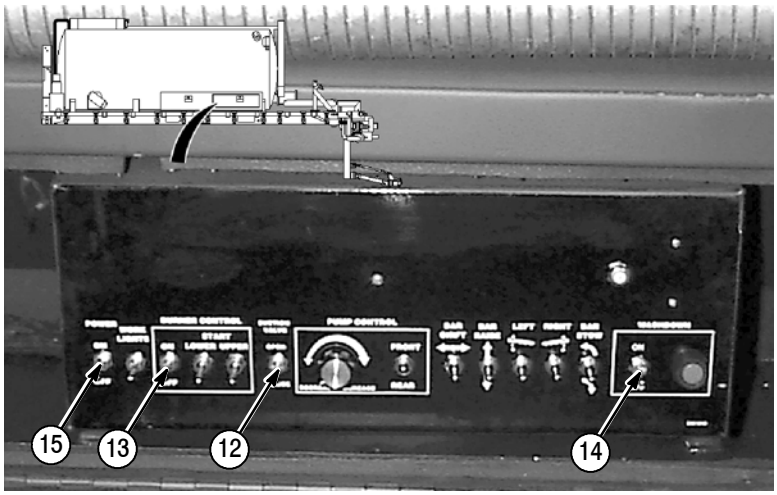
NOTE

Steps (11) and (12) are performed from front control panel.

(11) Ensure POWER switch (9) is in OFF position.

(12) Ensure SPRAYBAR switch (10) is in OFF position.

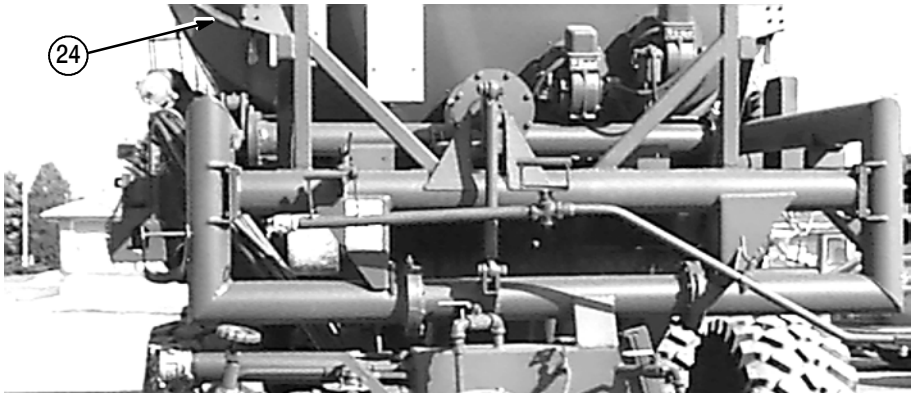
2-15. FILLING DISTRIBUTOR (CONT).



(13) At rear control panel, ensure SUCTION VALVE switch (12) is in CLOSE position.

(14) Ensure BURNER CONTROL power switch (13) and WASHDOWN switch (14) are in OFF position.

(15) Ensure master POWER switch (15) is in OFF position.



WARNING

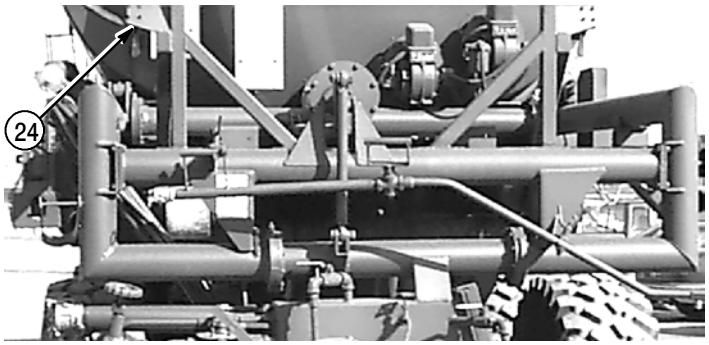
To prevent an explosion or fire hazard, keep burning cigarettes or other sources of combustion away from manhole and overflow vent. Failure to comply may result in serious injury to personnel.

(16) Open valve at supply source and monitor tank gage (24).

WARNING

Always use an assistant during filling operations. Failure to comply may result in serious injury to personnel.

(17) With the aid of an assistant, observe if foaming occurs or moisture is suspect. If either occur, perform Para 2-12 **b.** through **d**.

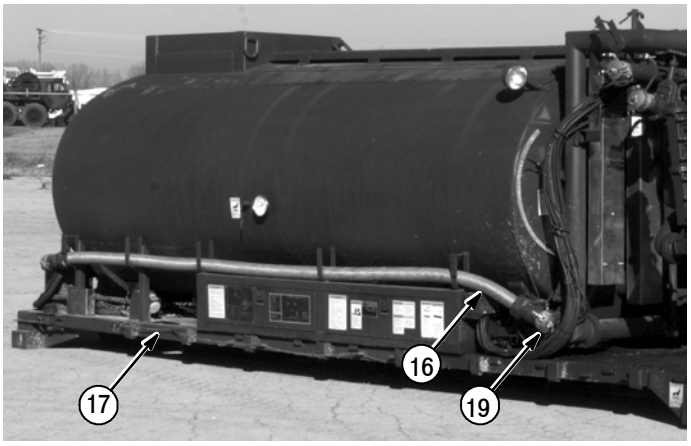


(18) When tank gage (24) reads half-full, with the aid of an assistant, advise operator when to close valve at supply source.

WARNING

To prevent burns, always wear insulated gloves when handling spray bar sections or hoses. Failure to comply may result in serious injury to personnel.

(19) Close valve at supply source when tank is full.





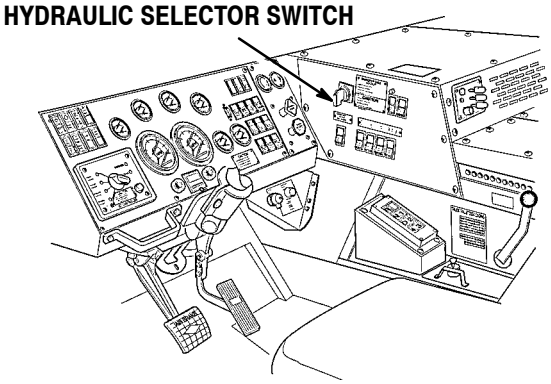
(20) Disconnect fill hose (16) at supply source and elevate fill hose (16) to allow maximum drainage into manhole (26).

(21) Remove fill hose (16) from manhole (26), install two fill hose caps (19) and stow fill hose (16) back on Bituminous Distributor (17).

(22) Secure manhole cover (25).

2-16. CIRCULATING.

a. Circulating in Tank From Cab.



CAUTION

There must be a minimum of at least 100 gallons (378.53 l) of material in Bituminous Distributor prior to circulating or damage to equipment may result.

(1) Load Bituminous Distributor on PLS, (Para 2-5).

(2) Connect UPIK, (Para 2-10).

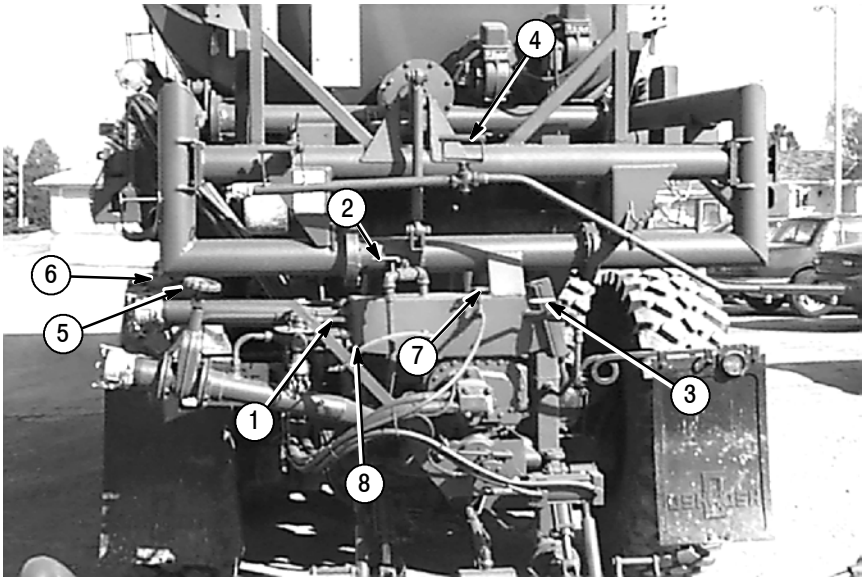
(3) Start engine, (TM 9-2320-364-10).

CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(4) Turn hydraulic selector switch to CRANE/SRW.

(5) Deploy spray bar, (Para 2-17).



WARNING

- To prevent an explosion or fire hazard, keep burning cigarettes or other sources of combustion away from manhole and overflow vent. Failure to comply may result in serious injury to personnel.
- To prevent possible burns from leaking material, be sure all pipe, cap and hose connections are secure before opening valves. Failure to comply may result in serious injury to personnel.
- To prevent possible burns from hot asphalt spray, do not stand or allow anyone to stand where accidental opening of a valve may cause contact with hot asphalt.
- To prevent becoming entangled in machinery, stand clear of rotating drives.
- Ensure SPRAYBAR ON/OFF switch is in the OFF position and remains in the OFF position throughout heating and circulating operations. Failure to comply may result in personnel being sprayed with hot bitumen resulting in severe burns.

(6) Ensure suckback valve (1) is in OFF position and suckback valves (2) and (3) are in CLOSED position.

NOTE

- If hand spray gun is installed, perform Step (7). If not, go on to Step (8).
- Hand spray valve is closed when aligned with spray wand.

(7) Ensure hand spray valve (4) is in CLOSED position.

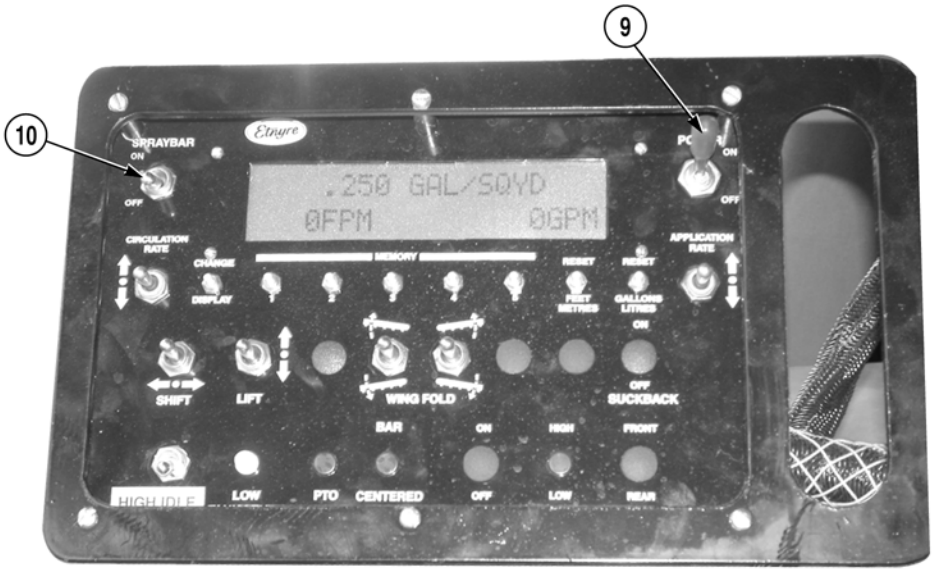
(8) Ensure transfer valve (5) is in CLOSED position.

(9) Ensure butterfly valve (6) is in NORMAL position.

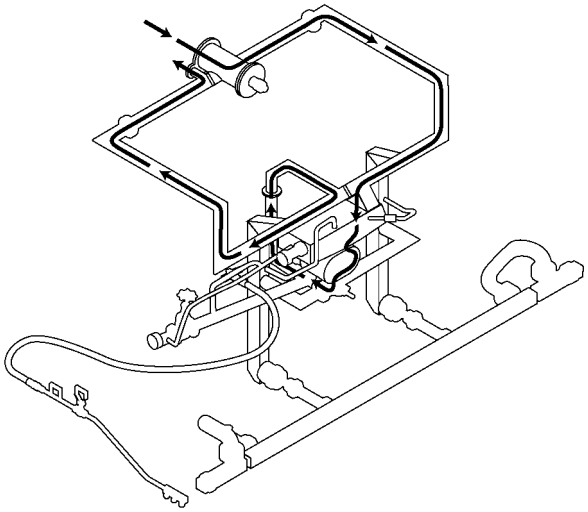
(10) Ensure flush valve (7) is in CLOSED position.

(11) Ensure four-way valve (8) is in CIRCULATE IN TANK position.

2-16. CIRCULATING (CONT).



Valve	Position
Hand Spray Valve	CLOSED
Butterfly Valve	NORMAL
Transfer Valve	CLOSED
Suckback Valves (3)	CLOSED
Flush Valve	CLOSED
4-Way Valve	CIRCULATE IN TANK
Suction Valve	OPEN



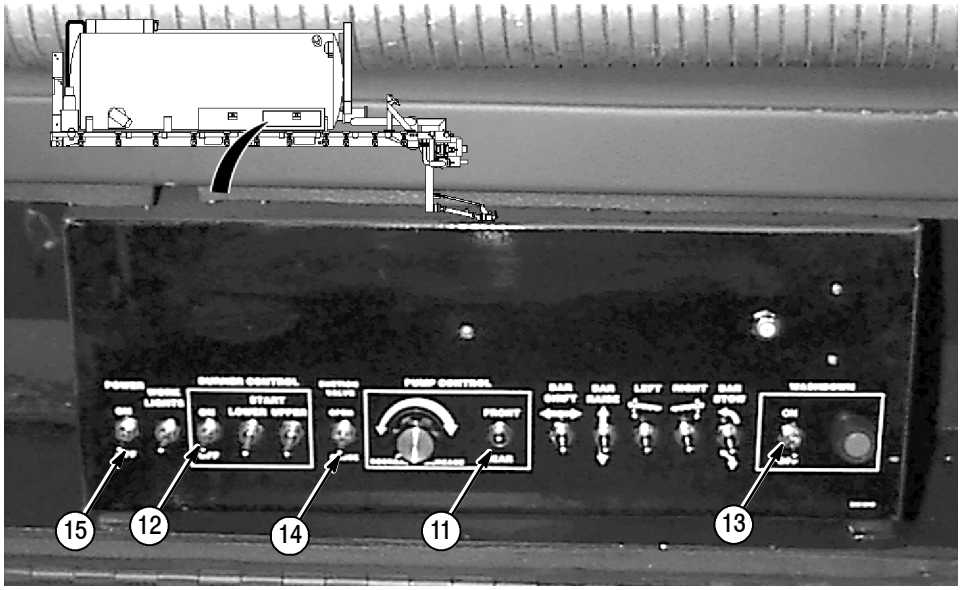
Circulate In Tank

NOTE

Steps (12) and (13) are performed at front control panel.

(12) Ensure POWER switch (9) is in OFF position.

(13) Ensure SPRAYBAR switch (10) is in OFF position.



NOTE

Steps (14) through (18) are performed at rear control panel.

(14) Ensure PUMP CONTROL switch (11) is in FRONT position.

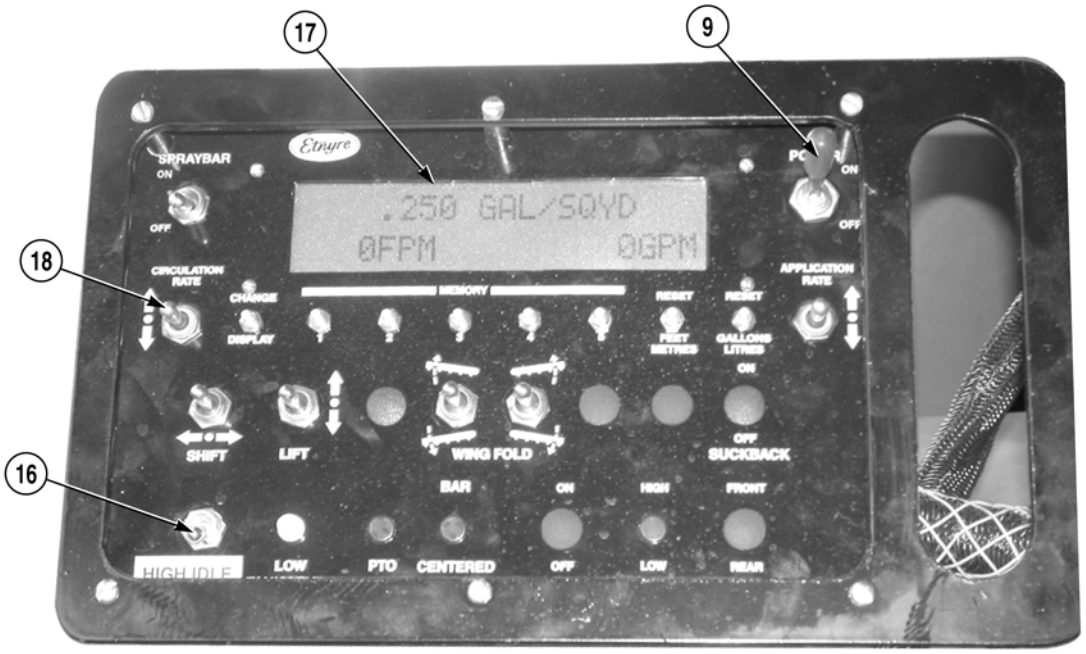
(15) Ensure BURNER CONTROL power switch (12) is in OFF position.

(16) Ensure WASHDOWN switch (13) is in OFF position.

(17) Ensure SUCTION VALVE switch (14) is in OPEN position.

(18) Turn master POWER switch (15) to ON position.

2-16. CIRCULATING (CONT).



(19) Turn POWER switch (9) on front control panel to ON position.

(20) Turn HIGH IDLE switch (16) to ON position.

NOTE

GPM is only shown on cab panel. If display does not show GAL/ SQ YD; FPM: GPM, press CHANGE DISPLAY button until this screen appears.

(21) Set digital readout (17) to display GAL/SQ YD; FPM; GPM.

WARNING

To prevent possible burns, use extreme caution when using a portable burner torch to heat pump. Asphalt accumulated on and around pump may ignite when heating pump with a portable burner torch.

NOTE

If pump fails to quickly regain its speed, close suction valve and put a small amount of diesel fuel into fill line to free up pump or use hand torch to warm pump.

(22) Use CIRCULATION RATE switch (18) to obtain 100 to 160 gpm (378 to 606 lpm).

WARNING

- Allowing flue burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after fifteen minutes of heating without circulation, burners should be extinguished for 20-30 minutes before re-lighting burners.
- When the asphalt pump is frozen or not turning, operate only the lower burner. Do not operate both burners when the asphalt pump is frozen or not turning, as this may cause localized overheating and tank eruption or boil over, resulting in serious injury or death.

(23) If product is too cold to be circulated, heat product using flue burners (Para 2-22) until temperature is increased enough to start circulating.

WARNING

To prevent an explosion or fire hazard, never move truck when burners are operating.

NOTE

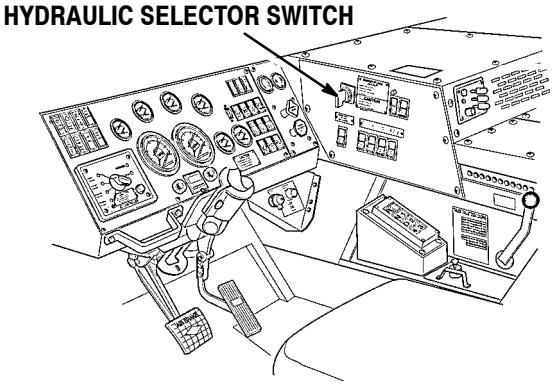
Once circulation has been established, heating can continue without interruption. Circulate at 100 to 160 gpm (378 to 606 lpm).

(24) To decrease amount of time required to bring product temperature up enough to start circulating, move distributor back and forth while burners are OFF to allow hot product to mix with cooler product.

b. Circulating in Tank From Rear Control Panel.

WARNING

Single level hearing protection is required for personnel within 6 ft. (1.8 m) of spray bar during heating and circulating of bitum in tank. Failure to comply may resultin hearing loss to personnel.



CAUTION

There must be a minimum of at least 100 gallons (378.53 l) of material in Bituminous Distributor prior to circulating or damage to equipment may result.

(1) Load Bituminous Distributor on PLS, (Para 2-5).

2-16. CIRCULATING (CONT).

(2) Connect UPIK, (Para 2-10).

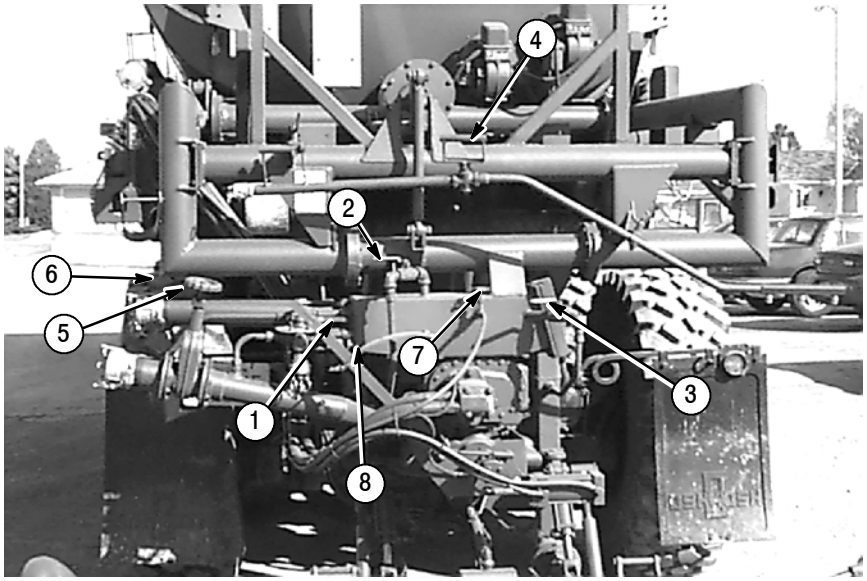
(3) Start engine, (TM 9-2320-364-10).

CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(4) Turn hydraulic selector switch to CRANE/SRW.

(5) Deploy spray bar, (Para 2-17).



WARNING

- To prevent an explosion or fire hazard, keep burning cigarettes or other sources of combustion away from manhole and overflow vent. Failure to comply may result in serious injury to personnel.
- To prevent possible burns from leaking material, be sure all pipe, cap and hose connections are secure before opening valves. Failure to comply may result in serious injury to personnel.
- To prevent possible burns from hot asphalt spray, do not stand or allow anyone to stand, where accidental opening of a valve may cause contact with hot asphalt.
- To prevent becoming entangled in machinery, stand clear of rotating drives.
- Ensure SPRAYBAR ON/OFF switch is in the OFF position and remains in the OFF position throughout heating and circulating operations. Failure to comply may result in personnel being sprayed with hot bitumen resulting in severe burns.

(6) Ensure suckback valve (1) is in OFF position and suckback valves (2) and (3) are in CLOSED position.

NOTE

- If hand spray gun is installed, perform Step (7). If not, go on to Step (8).
- Hand spray valve is closed when aligned with spray wand.

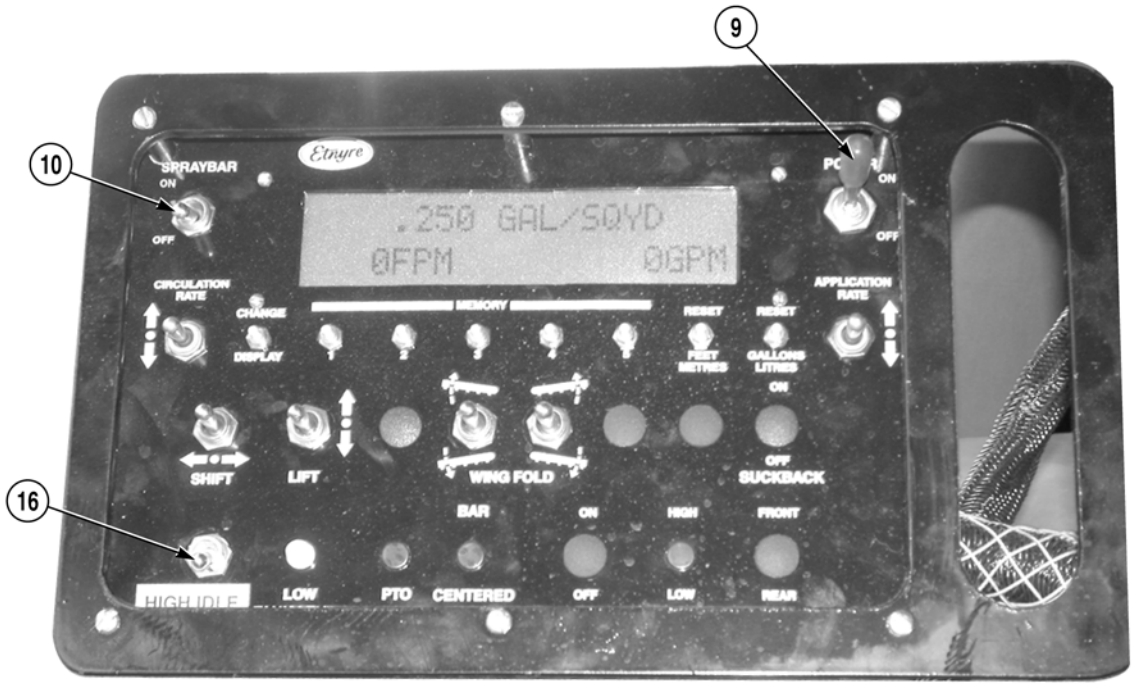
(7) Ensure hand spray valve (4) is in CLOSED position.

(8) Ensure transfer valve (5) is CLOSED position.

(9) Ensure butterfly valve (6) is in NORMAL position.

(10) Ensure flush valve (7) is in CLOSED position.

(11) Ensure four-way valve (8) is in CIRCULATE IN TANK position.



WARNING

Ensure SPRAYBAR ON/OFF switch is in the OFF position and remains in the OFF position throughout heating and circulating operations. Failure to comply may result in personnel being sprayed with hot bitumen resulting in severe burns.

NOTE

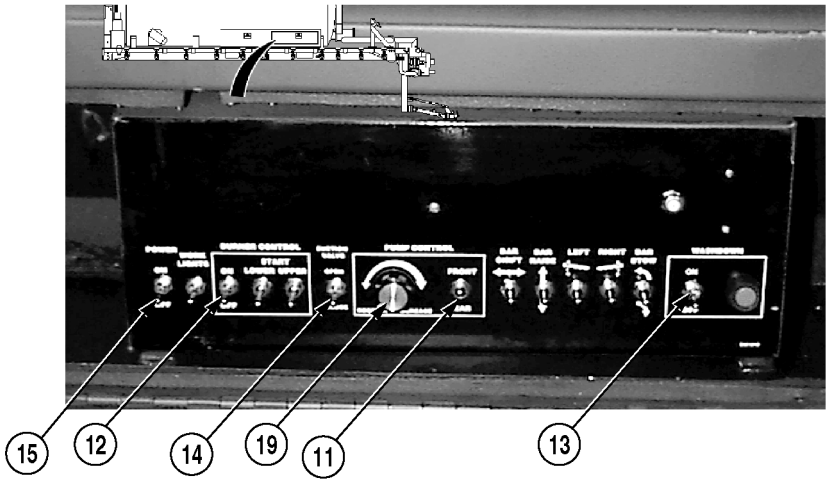
Steps (12) through (14) are performed at front control panel.

(12) Ensure SPRAYBAR switch (10) is in OFF position.

(13) Turn POWER switch (9) to ON position at front control panel.

(14) Turn HIGH IDLE switch (16) to ON position.

2-16. CIRCULATING (CONT).



(15) At rear control panel, place PUMP CONTROL switch (11) in REAR position.

(16) Turn PUMP CONTROL knob (19) fully counter-clockwise.

(17) Ensure BURNER CONTROL power switch (12) is in OFF position.

(18) Ensure WASHDOWN switch (13) is in OFF position (down).

(19) Place SUCTION VALVE switch (14) in OPEN position.

(20) Turn master POWER switch (15) to ON position.

NOTE

- GPM is only shown on cab panel. If display does not show GAL/ SQ YD; FPM: GPM, press CHANGE DISPLAY button until this screen appears.
- If pump fails to quickly regain its speed, close suction valve and put a small amount of diesel fuel into fill line to free up pump or use portable burner to warm pump.

(21) Adjust PUMP CONTROL knob (19) for desired gpm (lpm).

WARNING

- Allowing flue burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after fifteen minutes of heating without circulation, burners should be extinguished for 20-30 minutes before re-lighting burners.
- When the asphalt pump is frozen or not turning, operate only the lower burner. Do not operate both burners when the asphalt pump is frozen or not turning, as this may cause localized overheating and tank eruption or boil over, resulting in serious injury or death.

(22) If product is too cold to be circulated, heat product using flue burners, (Para 2-22) until temperature is increased enough to start circulating.

WARNING

To prevent an explosion or fire hazard, never move truck when burners are operating.

NOTE

Once circulation has been established, heating can continue without interruption. Circulate at 100 to 160 gpm (379 to 606 lpm).

(23) To decrease amount of time required to bring product temperature up enough to start circulating, move distributor back and forth while burners are OFF to allow hot product to mix with cooler product.

c. Circulating Product in Bar.

WARNING

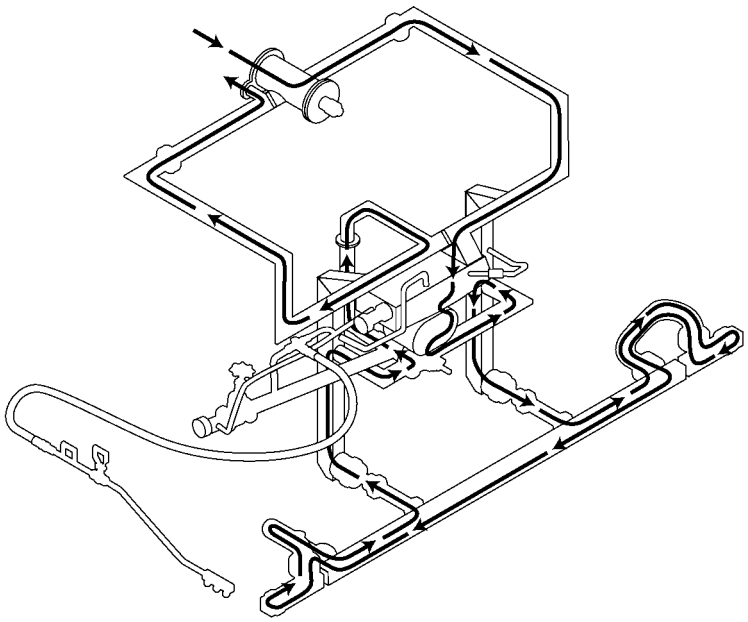
- Ensure SPRAYBAR ON/OFF switch is in the OFF position and remains in the OFF position throughout heating and circulating operations. Failure to comply may result in personnel being sprayed with hot bitumen resulting in severe burns.
- Single level hearing protection is required for personnel within 6 ft. (1.8 m) of spray bar during heating and circulating of bitum in tank. Failure to comply may result in hearing loss to personnel.

NOTE

Circulating product in tank can be performed from either cab control or rear control panels.

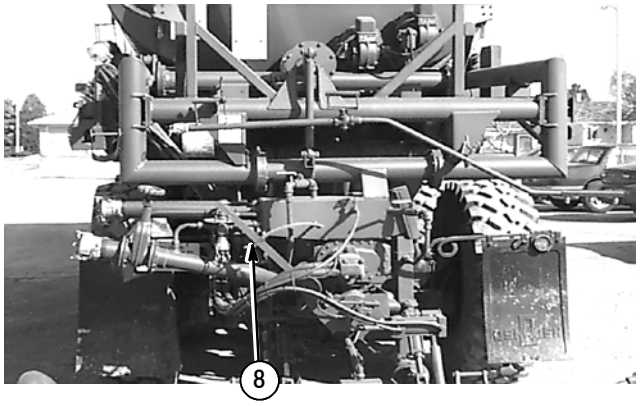
(1) Circulate product in tank (Para 2-16**a.** or 2-16**b.**) prior to performing Step (2).

Valve	Position
Hand Spray Valve	CLOSED
Butterfly Valve	NORMAL
Transfer Valve	CLOSED
Suckback Valves (3)	CLOSED
Flush Valve	CLOSED
4-Way Valve	CIRCULATE IN BAR
Suction Valve	OPEN



Circulate In Bar

2-16. CIRCULATING (CONT).



WARNING

- To prevent an explosion or fire hazard, ensure that burners are extinguished before removing any material from tank in any manner.
- To prevent an explosion or fire hazard, keep burning cigarettes or other sources of combustion away from manhole and overflow vent. Failure to comply may result in serious injury to personnel.
- To prevent an explosion or fire hazard, keep area free of sparks or open flames when spraying volatile material.
- To prevent possible burns from leaking material, be sure all pipe, cap and hose connections are secure before opening valves. Failure to comply may result in serious injury to personnel.
- To prevent possible burns from hot asphalt spray, do not stand or allow anyone to stand, where accidental opening of a valve may cause contact with hot asphalt.
- To prevent burns, always wear insulated gloves when handling spray bar sections or hoses. Failure to comply may result in serious injury to personnel.
- To prevent becoming entangled in machinery, stand clear of rotating drives.

NOTE

When moving lever from CIRCULATE IN TANK to CIRCULATE IN BAR, move lever slowly. In case of moisture or plugged spray bar, lever can be quickly returned to CIRCULATE IN TANK. Slug in bar can be heated with portable burner to release.

(2) Once product is circulating in tank, move four-way valve (8) to CIRCULATE IN BAR position.

CAUTION

To prevent excessive pressure in spray bar, asphalt pump speed should not exceed 160 gpm (606 lpm) while circulating.

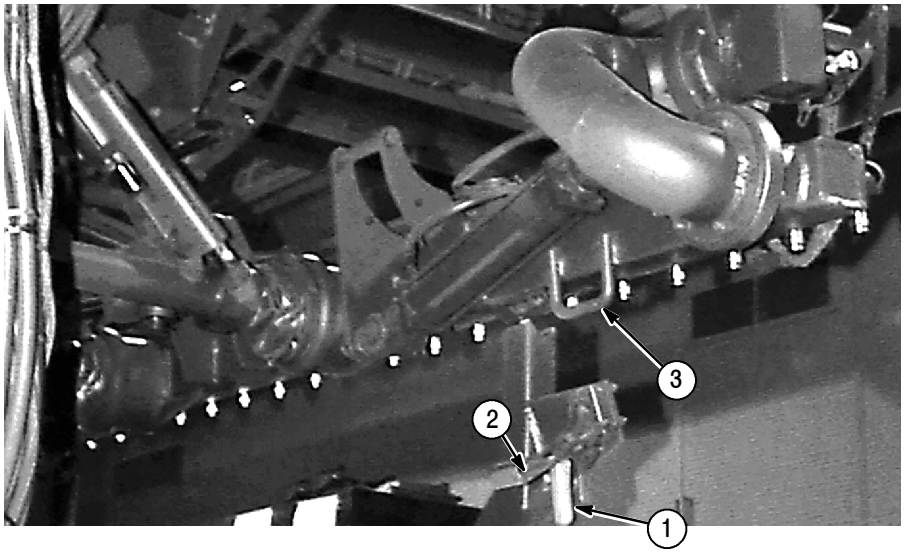
NOTE

Material will circulate in bar ends with extensions folded or in spraying position.

(3) Circulate product long enough to ensure removal of all air from bar, and to heat spray valves sufficiently.

2-17. SPRAYING.

a. Deploy Spray Bar.



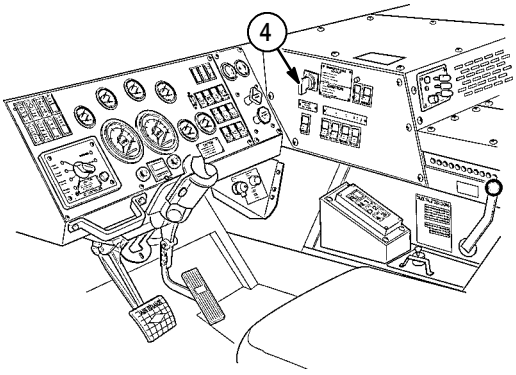
(1) Connect UPIK, (Para 2-10).

(2) Loosen right and left side hand crank bar latches (1). Ensure “J” hooks (2) on each side are not touching spray bar bracket (3).

(3) Start engine, (TM 9-2320-364-10).

CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.



(4) Turn hydraulic selector switch (4) to CRANE/SRW.

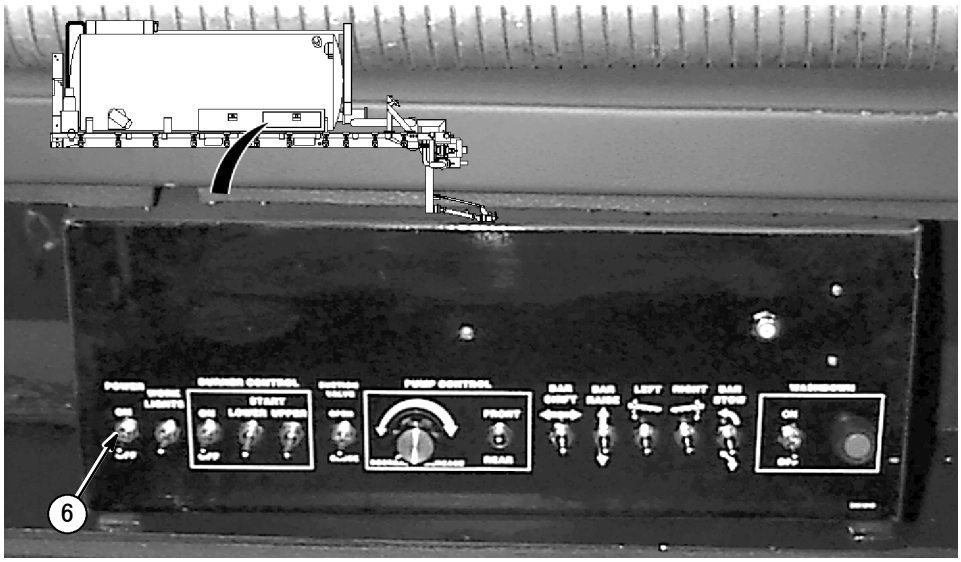
2-17. SPRAYING (CONT).



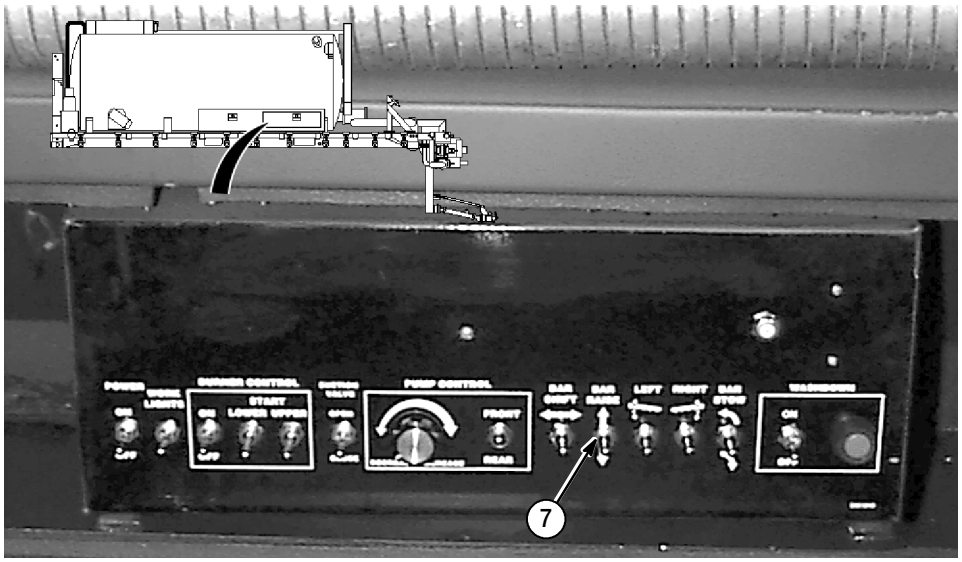
WARNING

Ensure SPRAYBAR ON/OFF switch is in the OFF position prior to turning POWER switch to ON position. Failure to comply may result in injury or death to personnel.

(5) Turn POWER switch (5) on front control panel to ON position.



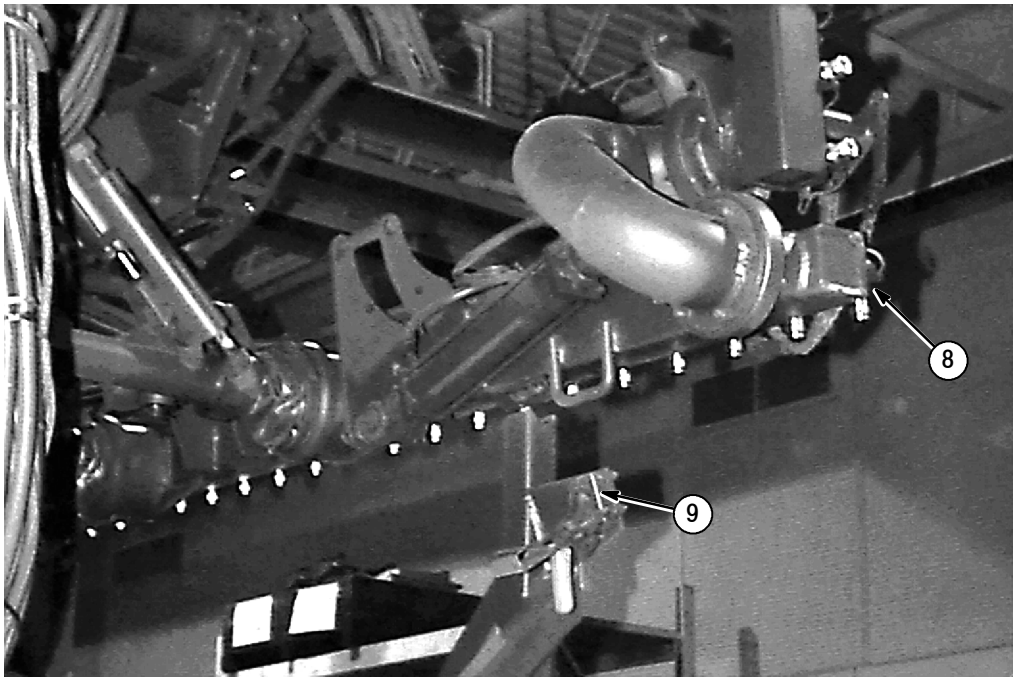
(6) Turn master POWER switch (6) on rear control panel to ON position.



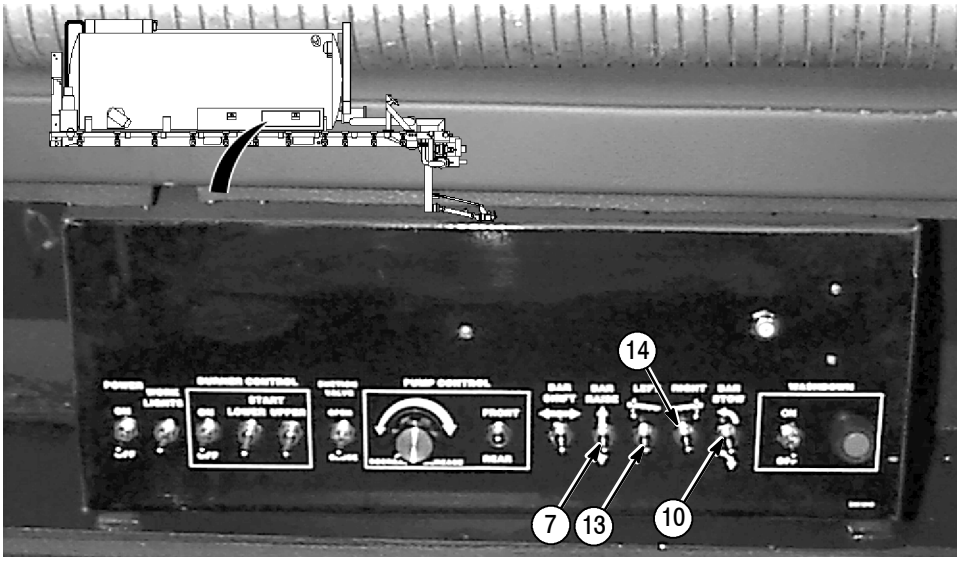
CAUTION

- Ensure spray bar is lifted out of storage carrying bracket as far as it will go or damage to equipment may result.
- Ensure pump control is set to MINIMUM or damage to equipment may result.

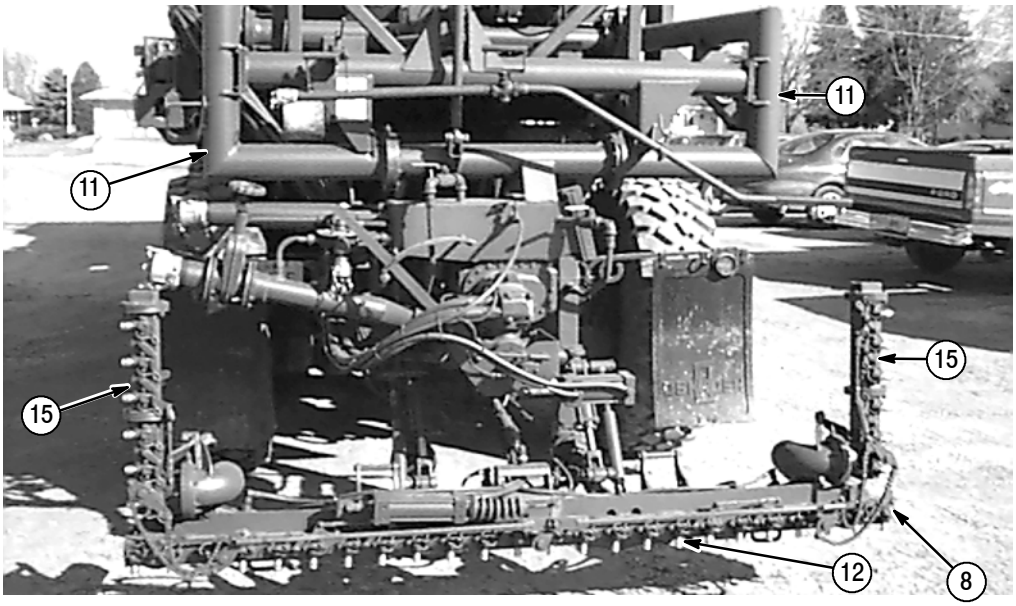
(7) Hold BAR RAISE switch (7) up and lift spray bar (8) off of storage carrying brackets (9) until it stops.



2-17. SPRAYING (CONT).



(8) Hold BAR STOW switch (10) down until spray bar (8) moves back and down towards ground until circulation tubes (11) come to rest on Bituminous Distributor deck.



(9) Hold BAR RAISE switch (7) down until spray bar nozzles (12) are approximately 12 inches (30.48 cm) above road surface.

NOTE

Perform Step (10) if left and right wings are required.

(10) Hold LEFT and RIGHT switches (13) and (14) down until left and right wings (15) are completely down.

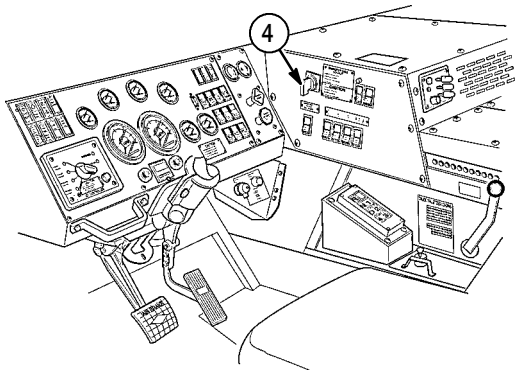


(11) Turn POWER switch (5) on front control panel to OFF position.

(12) Refer to Para 2-17**c.** for spraying operations.

2-17. SPRAYING (CONT).

b. Stow Spray Bar.

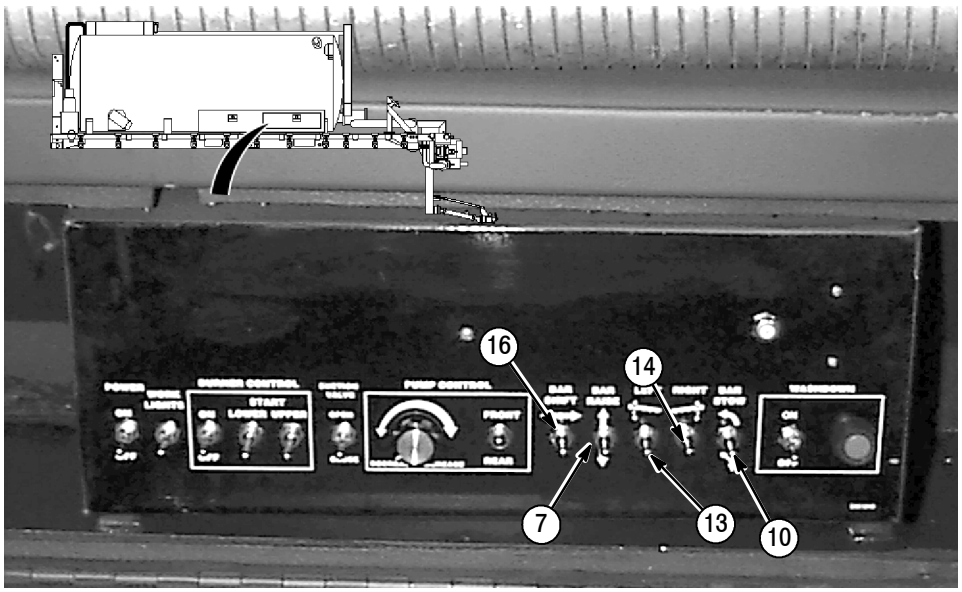


(1) Start engine, (TM 9-2320-364-10).

CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(2) Turn hydraulic selector switch (4) to CRANE/SRW.

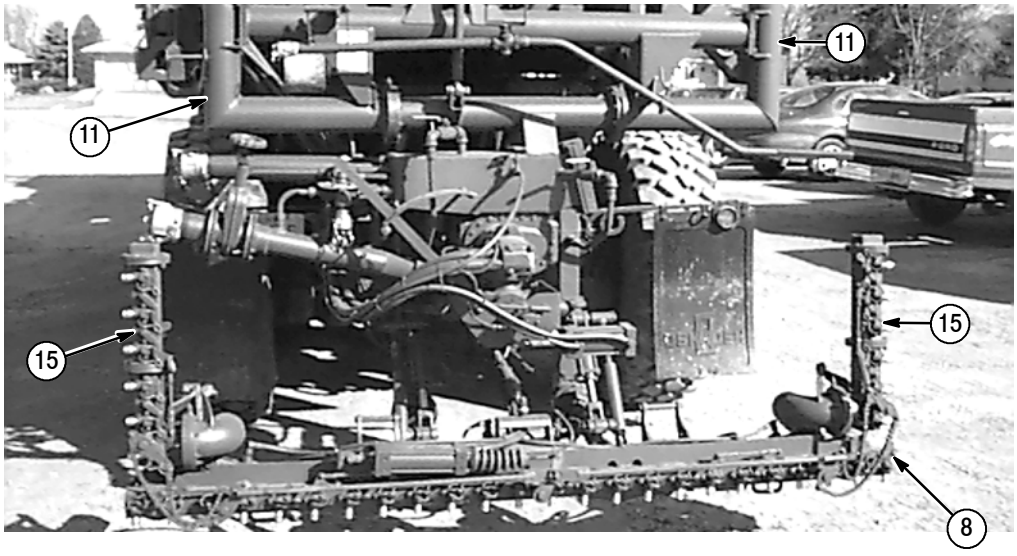


NOTE

Perform Step (3) if right or left wing was used.

(3) Hold LEFT and RIGHT switches (13) and (14) up until right and left wings (15) are folded up 90° from spray bar (8).

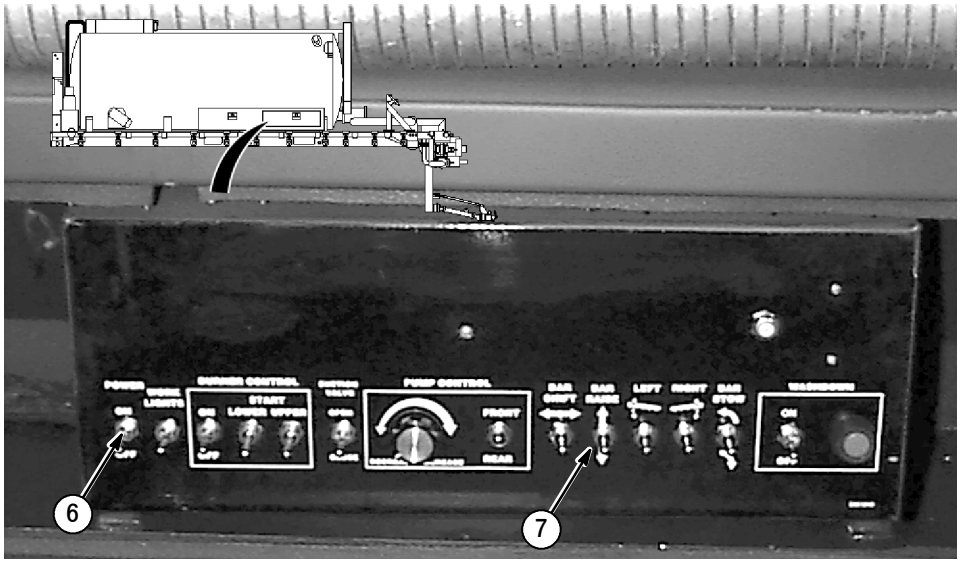
(4) Turn BAR SHIFT switch (16) left or right as required to center spray bar (8) to truck.



(5) Hold BAR RAISE switch (7) up and raise spray bar (8) up and in until it stops.

(6) Hold BAR STOW switch (10) up until circulation tubes (11) are 90° (straight up) from Bituminous Distributor deck or until circulation tubes (11) contact stop bracket at rear of catwalk on bituminous tank.

2-17. SPRAYING (CONT).



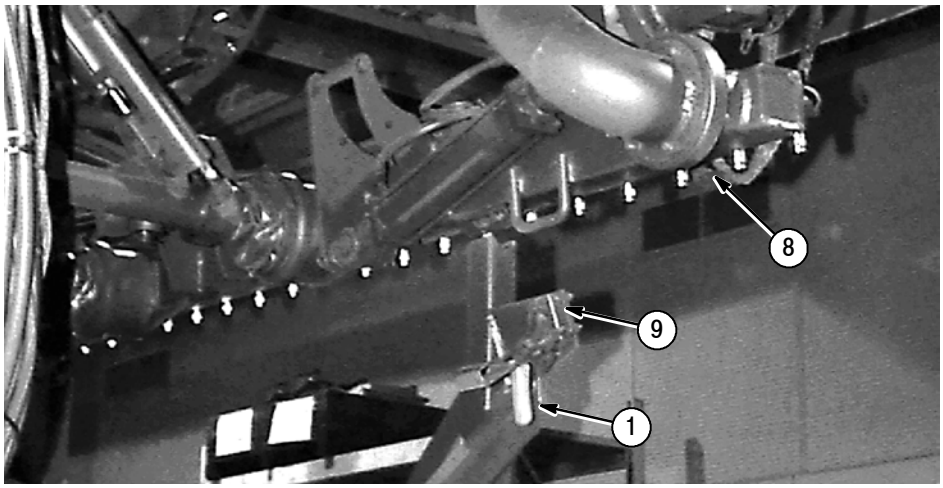
CAUTION

Ensure “V” blocks on lower spray bar align with “V” in stowage carrying brackets or damage to equipment may result.

NOTE

Operator may need to move BAR STOW and BAR SHIFT switches as required to help center spray bar onto stowage carrying bracket.

(7) Hold BAR RAISE switch (7) down and lower spray bar (8) onto stowage carrying brackets (9).



NOTE

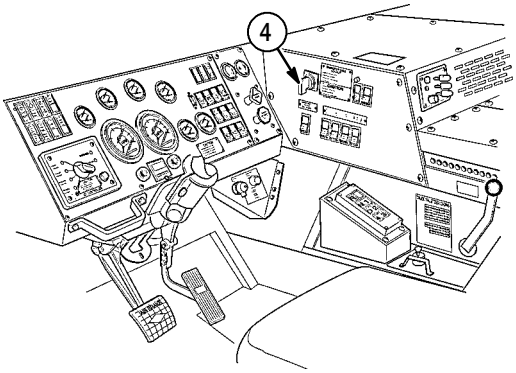
Ensure “J” hooks on each side are in contact with spray bar bracket.

(8) Secure right and left side crank bar latches (1).

(9) Turn master POWER switch (6) to OFF position on rear control panel.



(10) Turn POWER switch (5) on front control panel to OFF position.



CAUTION

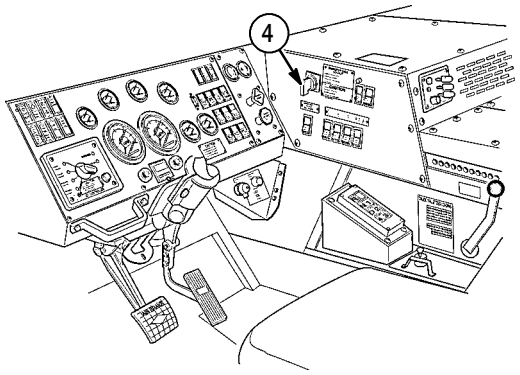
Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(11) Turn hydraulic selector switch (4) to OFF position.

(12) Shut OFF engine, (TM 9-2320-364-10).

2-17. SPRAYING (CONT).

c. Spraying Operations.



WARNING

Single level hearing protection is required for personnel in PLS truck cab during spraying operations. Failure to comply may result in hearing loss to personnel.

(1) Load Bituminous Distributor on PLS, (Para 2-5).

(2) Connect UPIK, (Para 2-10).

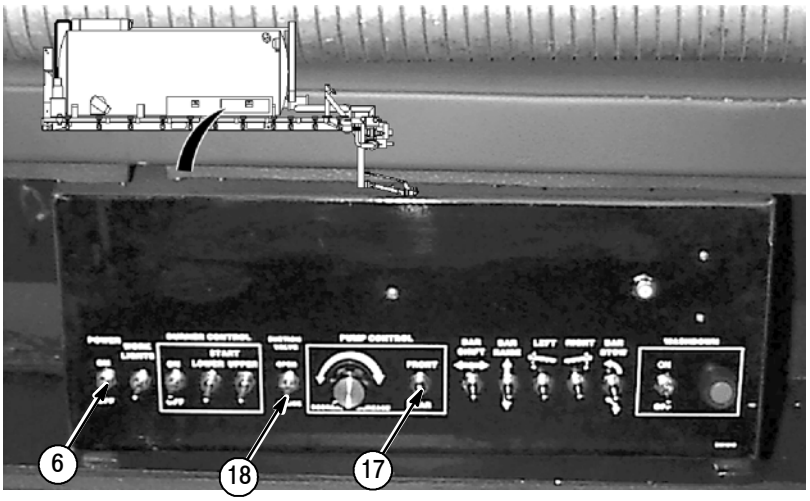
(3) Start engine, (TM 9-2320-364-10).

CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(4) Turn hydraulic selector switch (4) to CRANE/SRW.

(5) Deploy spray bar, (Para 2-17).



WARNING

- To prevent an explosion or fire hazard, ensure that burners are extinguished before removing any material from tank in any manner.
- To prevent an explosion or fire hazard, keep burning cigarettes or other sources of combustion away from manhole and overflow vent. Failure to comply may result in serious injury to personnel.
- To prevent an explosion or fire hazard, keep area free of sparks or open flame when spraying with volatile materials.
- To prevent possible burns from leaking material, be sure all pipe, cap and hose connections are secure before opening valves. Failure to comply may result in serious injury to personnel.
- To prevent possible burns from hot asphalt spray, do not stand, or allow anyone to stand, where accidental opening of a valve may cause contact with hot asphalt.
- To prevent burns, always wear insulated gloves when handling spray bar sections or hoses. Failure to comply may result in serious injury to personnel.
- To prevent becoming entangled in machinery, stand clear of rotating drives.
- To prevent being struck by control lever on rear quadrant, stand clear when ON/OFF function is being performed with air control.

NOTE

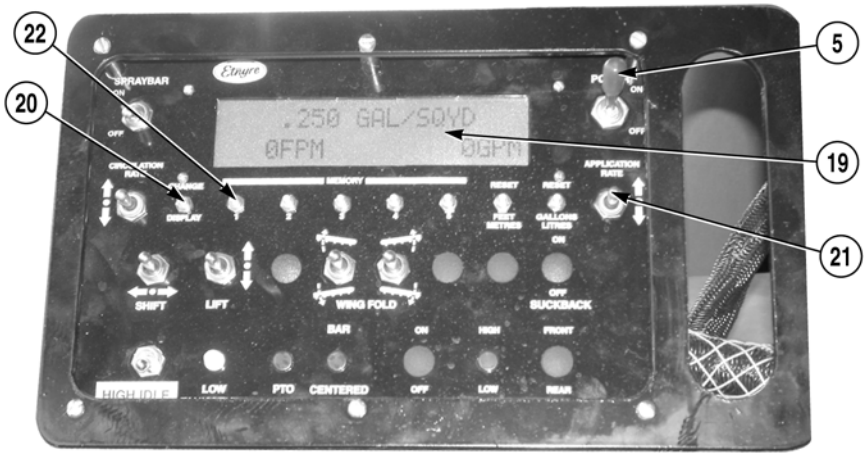
- Correct spray cannot be obtained unless bitumen is heated to proper spraying temperature. Cold bitumen will not provide sharp spray edges, and will cause streaking. Refer to Para 2-22 to heat bitumen prior to spraying.
- Refer to Para 2-16 for setting proper asphalt pump speeds. Pump speeds higher than recommended will cause excessive fogging of spray. If higher pump speeds are desired, use larger spray nozzles. Low pump speeds will cause spray fan to sag and cause heavy edges.
- Steps (6) through (8) are performed at rear control panel.

(6) Place PUMP CONTROL switch (17) in FRONT position.

(7) Place SUCTION VALVE switch (18) in OPEN position.

(8) Turn master POWER switch (6) to ON position.

2-17. SPRAYING (CONT).



(9) Turn POWER switch (5) to ON position.

(10) Change digital display (19) to BAR FT with CHANGE DISPLAY button (20) on front control panel.

(11) Toggle APPLICATION RATE switch (21) to obtain desired bar width.



(12) Adjust spray bar (8) to match width of spray selected in cab.

(13) Press CHANGE DISPLAY button (20) to show application rate screen.

NOTE

Refer to Para 2-11 to figure application rate.

(14) Choose desired application rate with MEMORY button (22) or toggle APPLICATION RATE switch (21) up or down until desired application rate (GAL/SQ YD) appears on digital display (19).



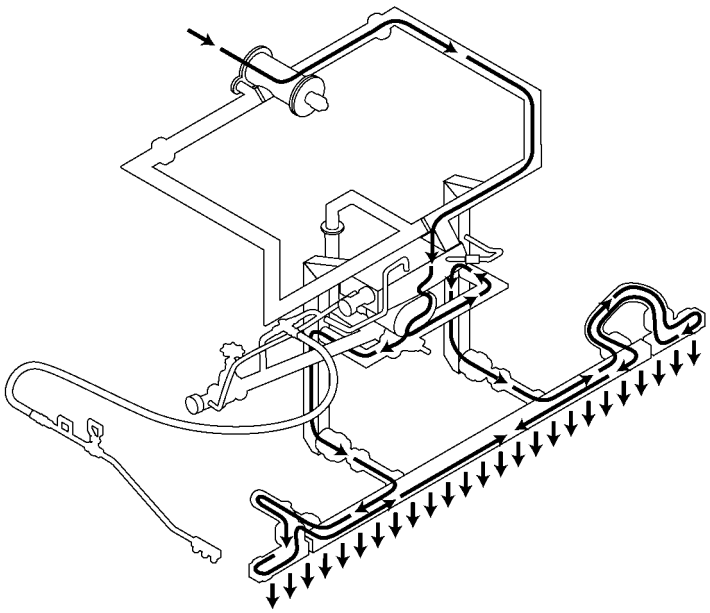
NOTE

- The application rate may be changed while spraying simply by using APPLICATION RATE switch. Return to initial rate by using toggle switch or by pressing MEMORY button.
- Spray bar should be set at an angle of 5° backward to obtain proper spray pattern.

(15) When desired application rate is set in computer, lower spray bar (8).

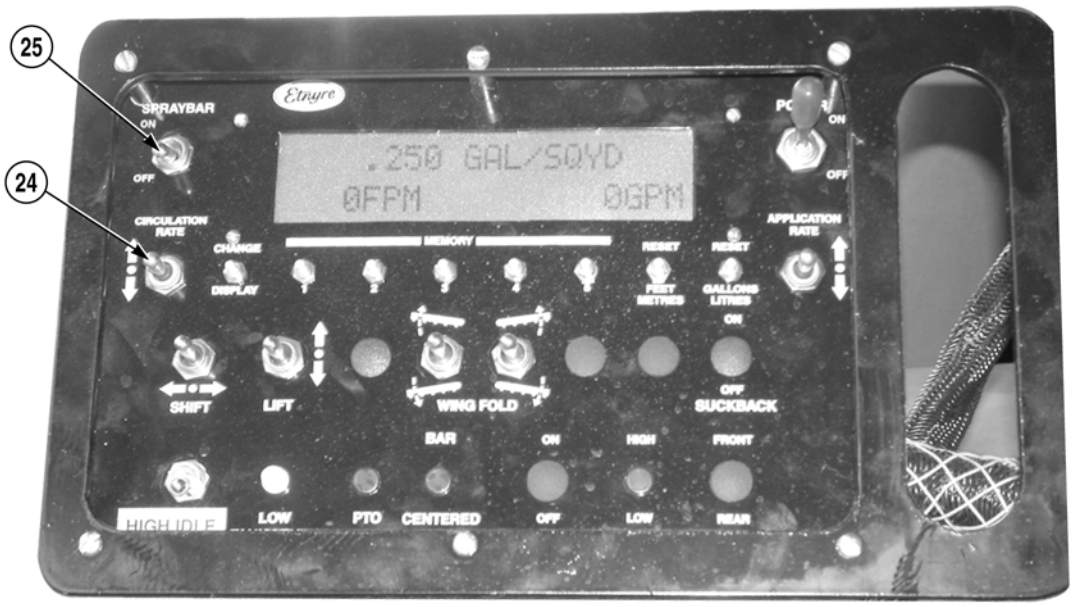
(16) Set four-way valve (23) to CIRCULATE IN BAR position.

Valve	Position
Hand Spray Valve	CLOSED
Butterfly Valve	NORMAL
Transfer Valve	CLOSED
Suckback Valves (3)	CLOSED
Flush Valve	CLOSED
4-Way Valve	CIRCULATE IN BAR
Suction Valve	OPEN



Spraying Flow

2-17. SPRAYING (CONT).



(17) Use CIRCULATION RATE switch (24) to adjust circulation rate for 10 gpm (38 lpm) per foot (m) of spray bar selected. Do not exceed 160 gpm (605 lpm).

NOTE

If unit is to be used for tack coating (0.05 to 0.20 gal/sq yd) adjust circulation rate to approximately 4 gpm (15 lpm) per foot (m) of bar length selected.

(18) Start distributor moving in pre-selected gear (transfer case in low range and transmission in first or second gear).

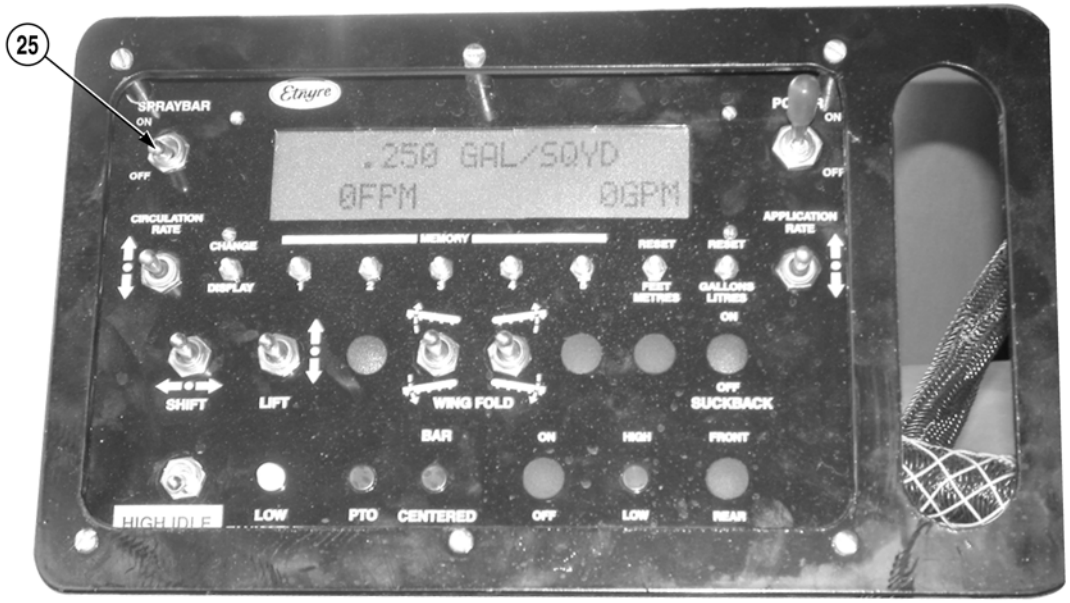
CAUTION

Do not run pump above rated capacity of 400 gpm (1514 lpm). Damage to equipment may result.

NOTE

- While unit is spraying, truck speed does not have to remain constant to maintain accuracy.
- At higher speed flow rates may increase beyond nozzle flow rating. When this occurs, fogging may result. At lower speeds flow rate may decrease below recommended nozzle flow rating. When this occurs, fan droops causing heavy edges and/or streaking.

(19) At start line move SPRAYBAR switch (25) to ON position.



NOTE

- Monitor LOW TANK LEVEL light during spray operations. Light will illuminate when approximately 200-300 gallons (757.06 - 1,135.59 l) of material remain in tank.
- Four-way valve is automatically returned to CIRCULATE IN BAR position when SPRAYBAR switch is turned to OFF position.

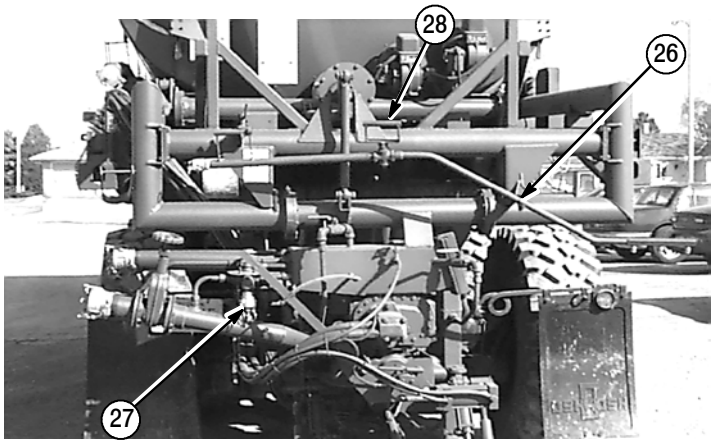
(20) When end of shot is reached, turn SPRAYBAR switch (25) to OFF position.

(21) Upon completion of spraying operations, perform spray bar suckback operation, (Para 2-18) prior to stowing spray bar.

(22) Stow spray system, (Para 2-17).

2-17. SPRAYING (CONT).

d. Hand Spray.



(1) Load Bituminous Distributor on PLS, (Para 2-5).

(2) Connect UPIK, (Para 2-10).

(3) Deploy spray bar, (Para 2-17).

(4) Remove hand spray gun (26) and hand spray hose from Bituminous Distributor.

(5) Attach hand spray gun (26) to hand spray hose.

(6) Attach hand spray hose to hand spray line connector (27).

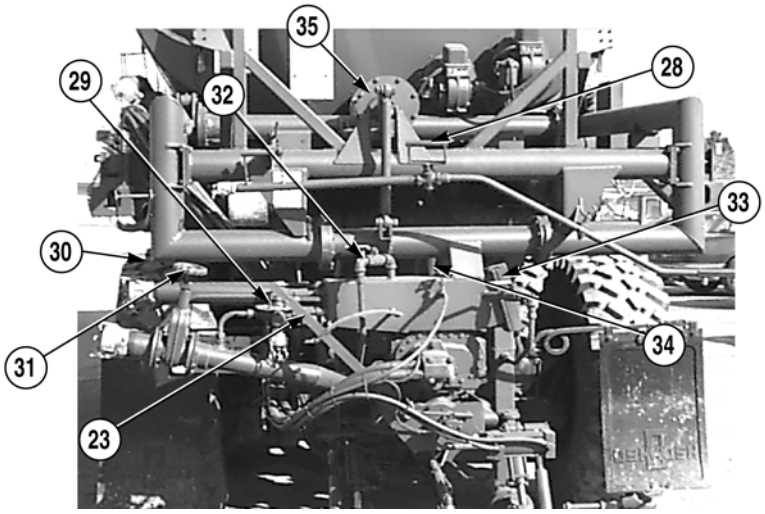
WARNING

- To prevent an explosion or fire hazard, ensure that burners are extinguished before removing any material from tank in any manner.
- To prevent an explosion or fire hazard, keep burning cigarettes or other sources of combustion away from manhole and overflow vent. Failure to comply may result in serious injury to personnel.
- To prevent an explosion or fire hazard, keep area free of sparks or open flames when spraying volatile materials.
- To prevent possible burns from leaking material, be sure all pipe, cap and hose connections are secure before opening valves. Failure to comply may result in serious injury to personnel.
- To prevent possible burns from hot asphalt spray, do not stand or allow anyone to stand, where accidental opening of a valve may cause contact with hot asphalt.
- To prevent burns, always wear insulated gloves when handling spray bar sections or hoses. Failure to comply may result in serious injury to personnel.
- To prevent becoming entangled in machinery, stand clear of rotating drives.
- To prevent being struck by control lever on rear quadrant, stand clear when ON/OFF function is being performed with air control.

NOTE

Hand spray valve is closed when aligned with spray wand.

(7) Ensure hand spray valve (28) on hand spray gun (26) is in CLOSED position.



NOTE

- Correct spray cannot be obtained unless bitumen is heated to proper spraying temperature. Cold bitumen will not provide sharp spray edges, and will cause streaking. Refer to Para 2-22 to heat bitumen prior to spraying.
- Refer to Para 2-16 for setting proper asphalt pump speeds. Pump speeds higher than recommended will cause excessive fogging of spray. If higher pump speeds are desired, use larger spray nozzles. Low pump speeds will cause spray fan to sag and cause heavy edges.

(8) Set hand spray valve (29) to HANDSPRAY position.

(9) Set butterfly valve (30) to HANDSPRAY position.

(10) Ensure transfer valve (31) is in CLOSED position.

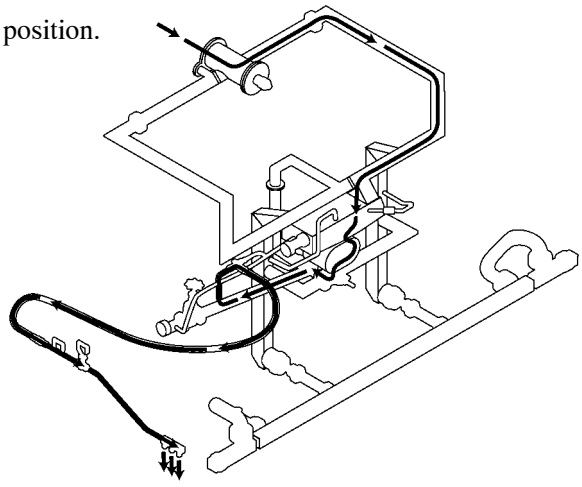
(11) Ensure two suckback valves (32) and (33) are in CLOSED position.

(12) Ensure flush valve (34) is in CLOSED position.

(13) Ensure four-way valve (23) is in CIRCULATE IN TANK position.

(14) Ensure rear suction valve (35) is in OPEN position.

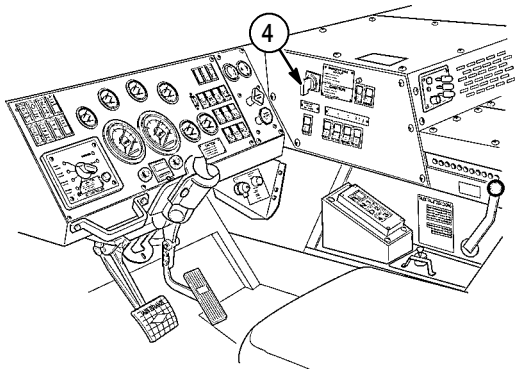
Valve	Position
Hand Spray Valve	HANDSPRAY
Butterfly Valve	HANDSPRAY
Transfer Valve	CLOSED
Suckback Valves (3)	CLOSED
Flush Valve	CLOSED
4-Way Valve	CIRCULATE IN TANK
Suction Valve	OPEN



Handspray Flow

2-17. SPRAYING (CONT).

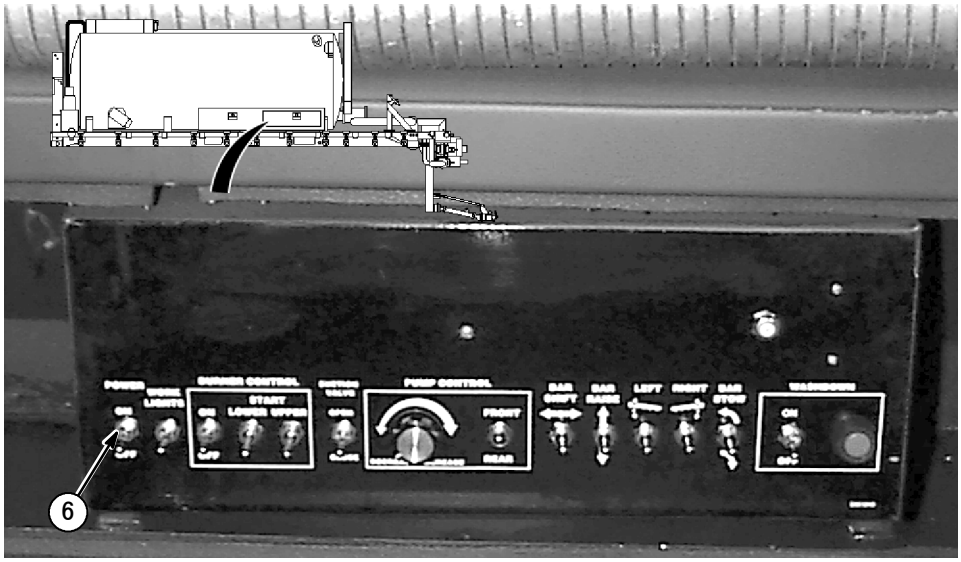
(15) Start engine, (TM 9-2320-364-10).



CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

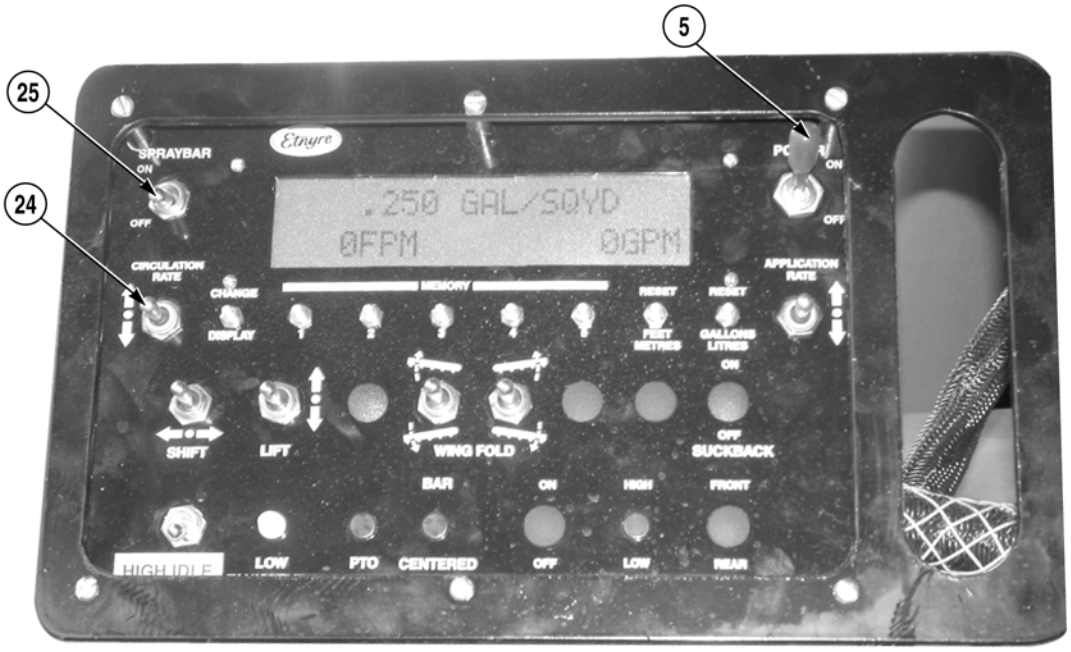
(16) Turn hydraulic selector switch (4) to CRANE/SRW.



WARNING

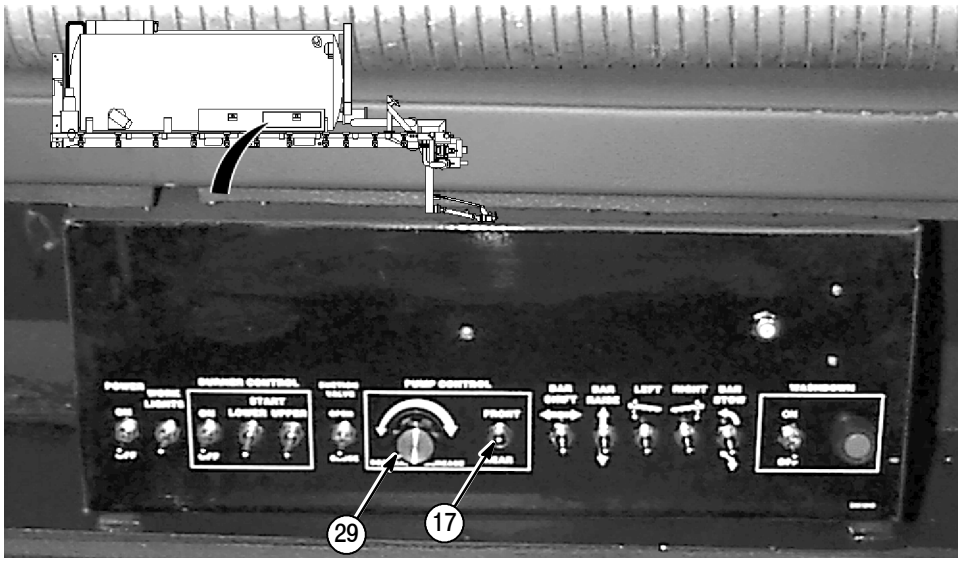
- To prevent possible burns from hot asphalt spray when hand spraying, hold hand spray gun in proper position and watch for other people.
- To prevent burns, always wear insulated gloves when handling spray bar sections or hoses. Failure to comply may result in serious injury to personnel.

(17) At rear control panel, turn master POWER switch (6) to ON position.



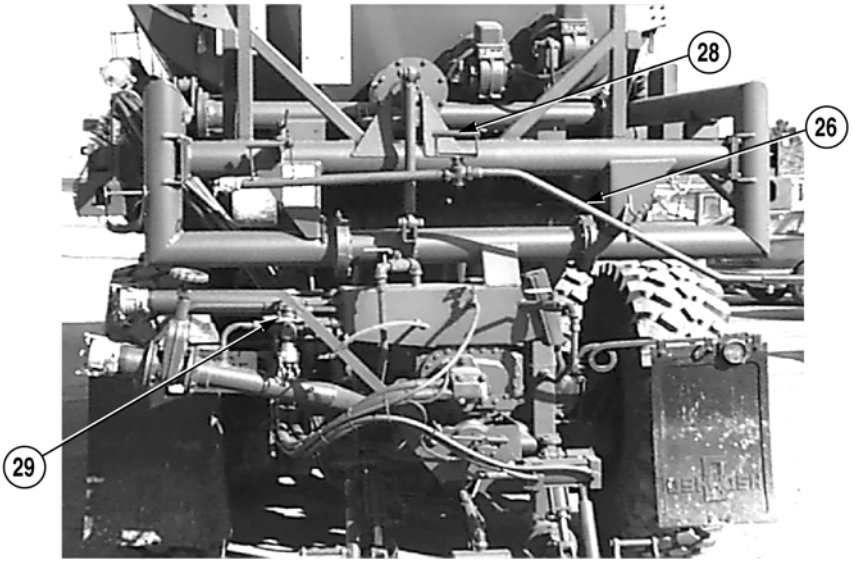
(18) At front control panel, turn SPRAYBAR switch (25) to OFF position.

(19) At front control panel, turn POWER switch (5) to ON position.



(20) Adjust asphalt pump speed to 80 gpm (302 lpm) using CIRCULATION RATE switch (24) at front control panel, or set PUMP CONTROL switch (17) to REAR position and adjust pump speed with rear PUMP CONTROL knob (29) at rear control panel.

2-17. SPRAYING (CONT).



(21) Turn hand spray valve (28) on hand spray gun (26) 90° to spray.

NOTE

- Turn ball valve counter-clockwise to increase pressure.
- Do not turn handle of ball valve completely to transfer. This will cause oil to deadhead into hand spray hose when spray wand is turned to OFF position.

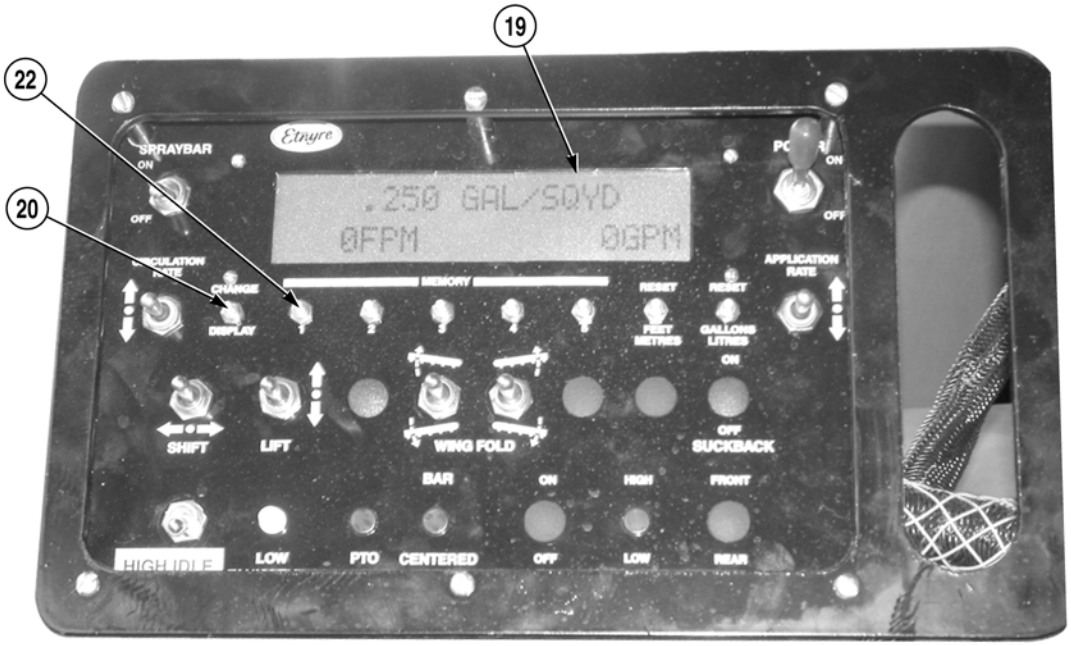
(22) Adjust hand spray pressure with hand spray valve (29).

(23) If hand spray valve (29) is approaching completely closed position and pressure at hand spray gun (26) is insufficient, reset ball valve to HANDSPRAY position and increase asphalt pump rate.

(24) When finished hand spraying, close hand spray valve (28) on hand spray gun (26).

(25) Perform suckback for hand spray procedure, (Para 2-18).

e. Setting Digital Memory Presets.



NOTE

Setting memory presets is not required to spray. The MEMORY buttons are provided as a convenience to allow operator to save five different preset application rates. These settings will be saved in memory even with master power shut off.

(1) Set digital display (19) to GAL/SQ YD (use CHANGE DISPLAY button (20) if necessary).

NOTE

While holding MEMORY button, toggle APPLICATION RATE switch up or down to desired GAL/SQ YD.

(2) To set GAL/SQ YD memory, push in and hold desired MEMORY button (22). When reached, release button.

2-17. SPRAYING (CONT).

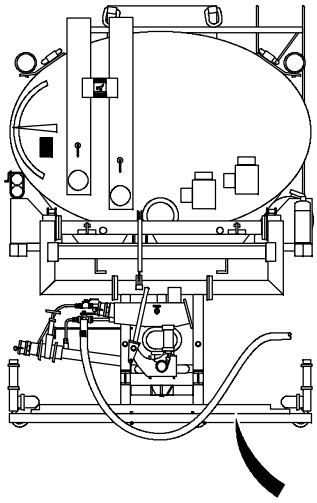
f. Adjusting Spray Bar Nozzle Angle.

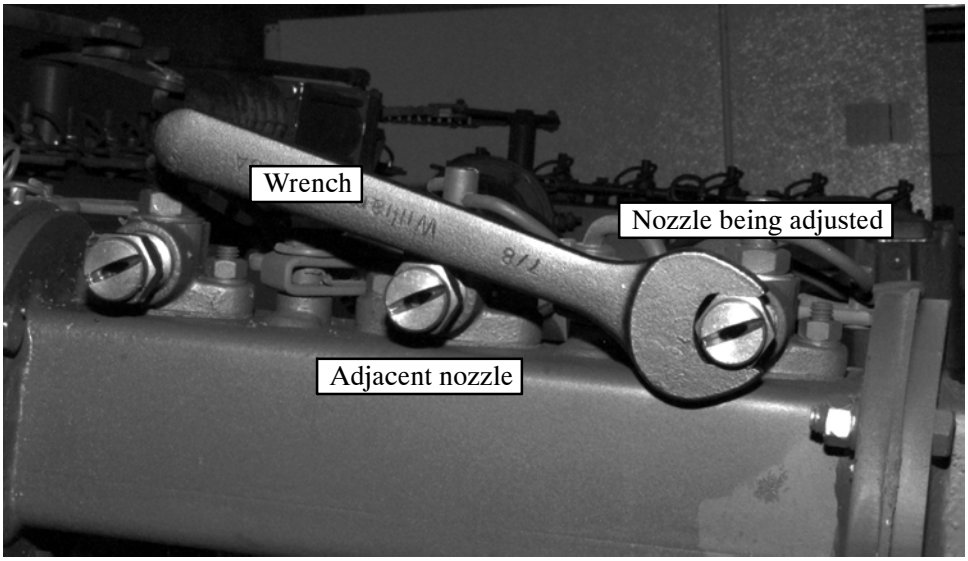
CAUTION

Ensure nozzles are not loose after adjustment. Nozzles should not be able to be turned by hand. Nozzles could fall out and be damaged or lost.

NOTE

- Nozzle adjustment wrench is located in stowage box.
- Use nozzle adjustment wrench supplied with your Bituminous Distributor to adjust nozzles.
- Every nozzle should be adjusted at same angle.
- When handle of nozzle adjustment wrench contacts adjacent nozzle being adjusted and wrench handle bend is up, nozzle angle will be at 30°.

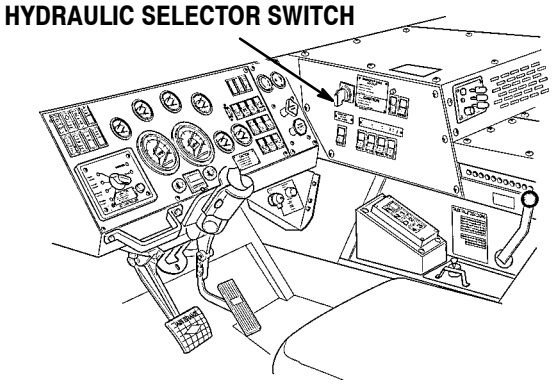




Adjust nozzles to obtain an angle of approximately 30° with bar centerline.

2-18. SUCKBACK OPERATIONS.

a. Suckback for Hand Spray.

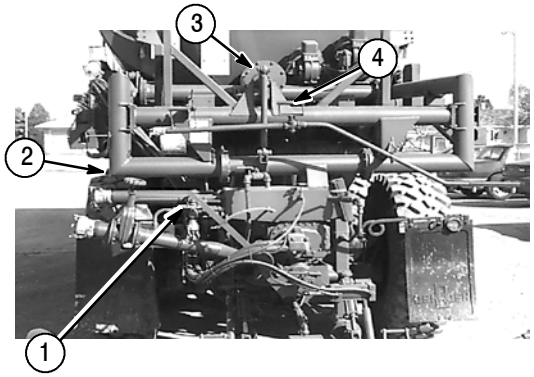


(1) Start engine, (TM 9-2320-364-10).

CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(2) Turn hydraulic selector switch to CRANE/SRW.



(3) Turn hand spray/suckback valve (1) to SUCKBACK position.

(4) Turn butterfly valve (2) to NORMAL position.

(5) Ensure rear suction valve (3) is in CLOSED position.

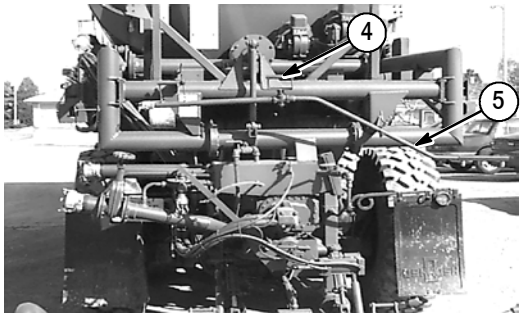
(6) Turn hand spray valve (4) on spray gun to OPEN position.

(7) Increase pump speed to 200 gpm (757 lpm).

(8) If finished hand spraying for day, crack open hand spray valve (4) with nozzle submerged in diesel fuel or kerosene.

(9) After approximately 1 minute, remove hand spray nozzle from diesel fuel or kerosene.

2-18. SUCKBACK OPERATIONS (CONT).

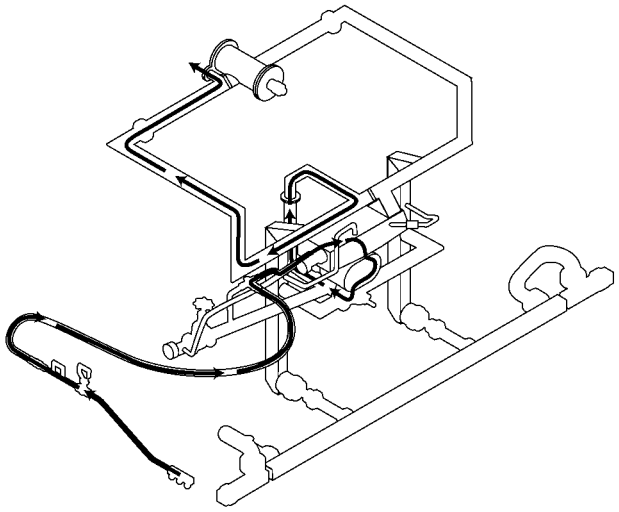


NOTE

Hand spray valve is closed when aligned with spray wand.

(10) Turn hand spray valve (4) to CLOSED position.

Valve	Position
Hand Spray Valve	SUCK BACK
Butterfly Valve	NORMAL
Transfer Valve	CLOSED
Suckback Valves (3)	CLOSED
Flush Valve	CLOSED
4-Way Valve	CIRCULATE IN TANK
Suction Valve	CLOSED



Handspray Suckback Flow

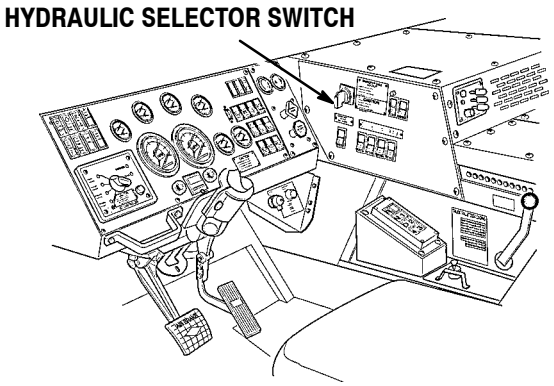
(11) Disconnect hand spray gun (5) and hand spray hose from Bituminous Distributor.

(12) Install caps on hand spray gun (5), hand spray hose and hand spray valve (4).

(13) Stow hand spray gun (5) and hand spray hose on Bituminous Distributor.

(14) Stow spray bar, (Para 2-17).

b. Suckback Spray Bar.

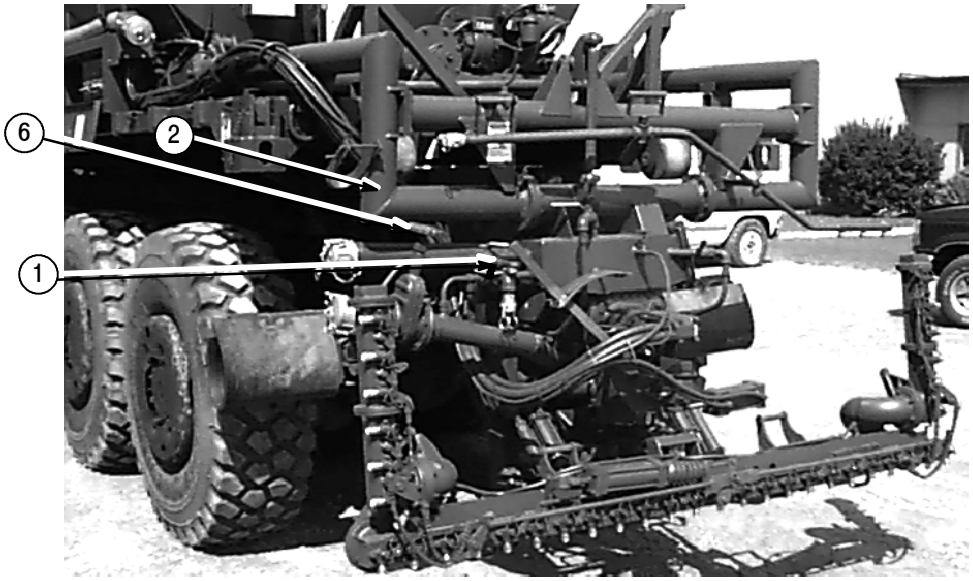


(1) Start engine, (TM 9-2320-364-10).

CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(2) Turn hydraulic selector switch to CRANE/SRW.

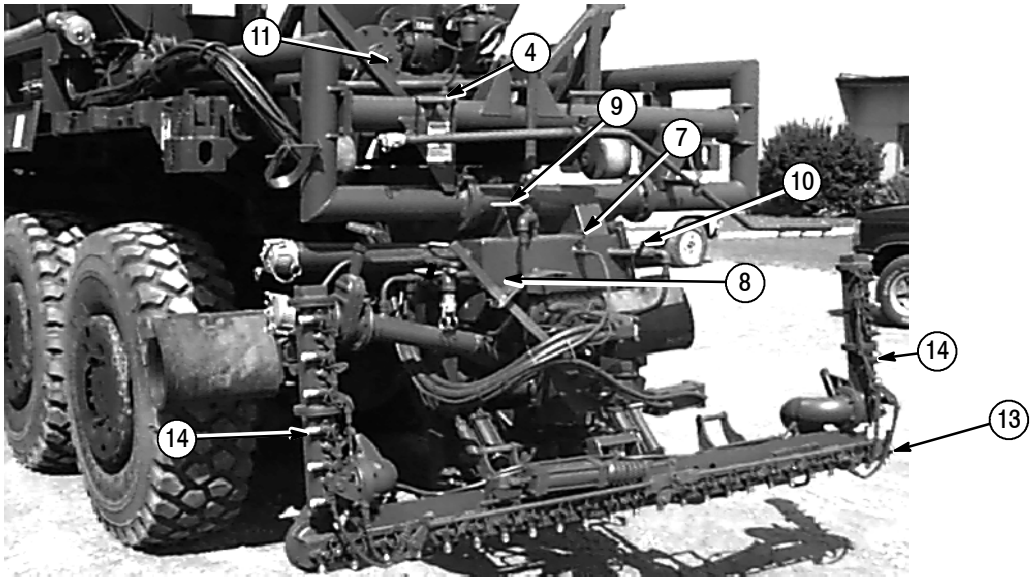


(3) Ensure hand spray/suckback valve (1) is in OFF position.

(4) Turn butterfly valve (2) to NORMAL position.

(5) Ensure transfer valve (6) is in CLOSED position.

2-18. SUCKBACK OPERATIONS (CONT).



NOTE

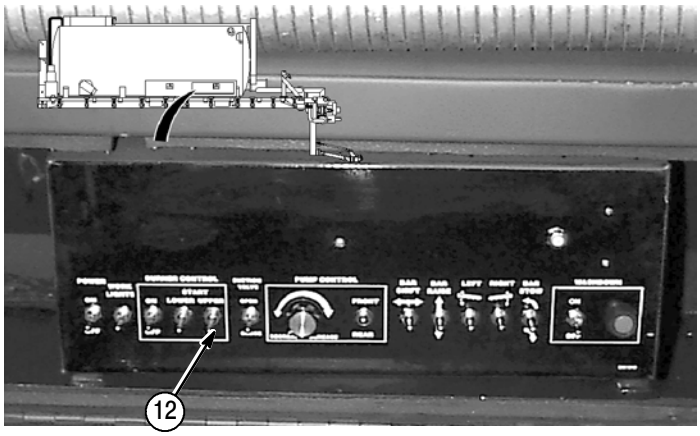
- If hand spray gun is installed, perform Step (6). If not, go on to Step (7).
- Hand spray valve is closed when aligned with spray wand.

(6) Ensure hand spray valve (4) on spray gun is in CLOSED position.

(7) Ensure flush valve (7) is in CLOSED position.

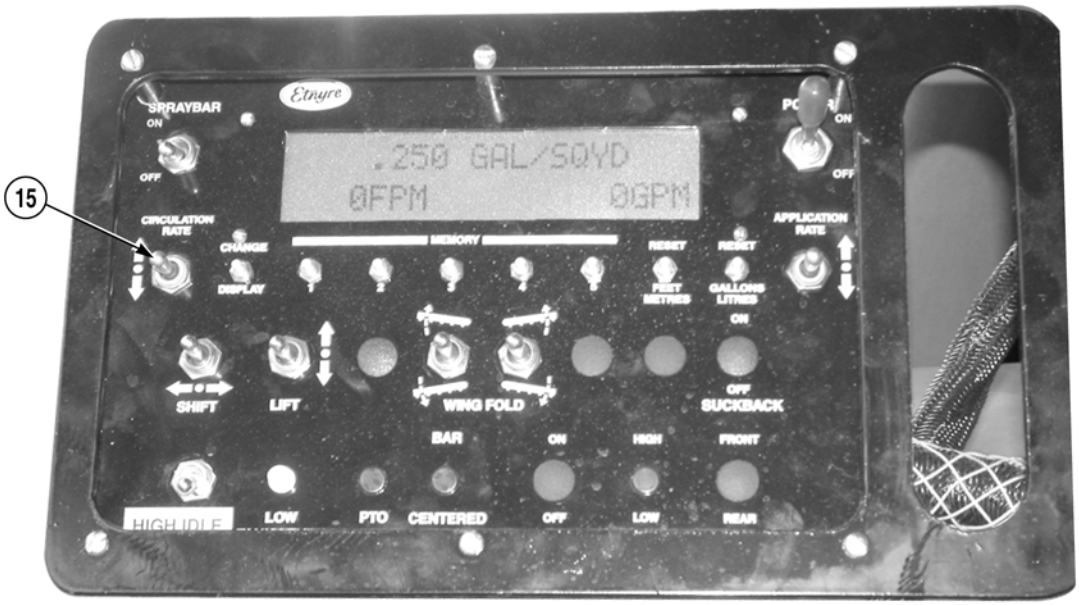
(8) Position four-way valve (8) to CIRCULATE IN TANK position.

(9) Open two suckback valves (9) and (10).

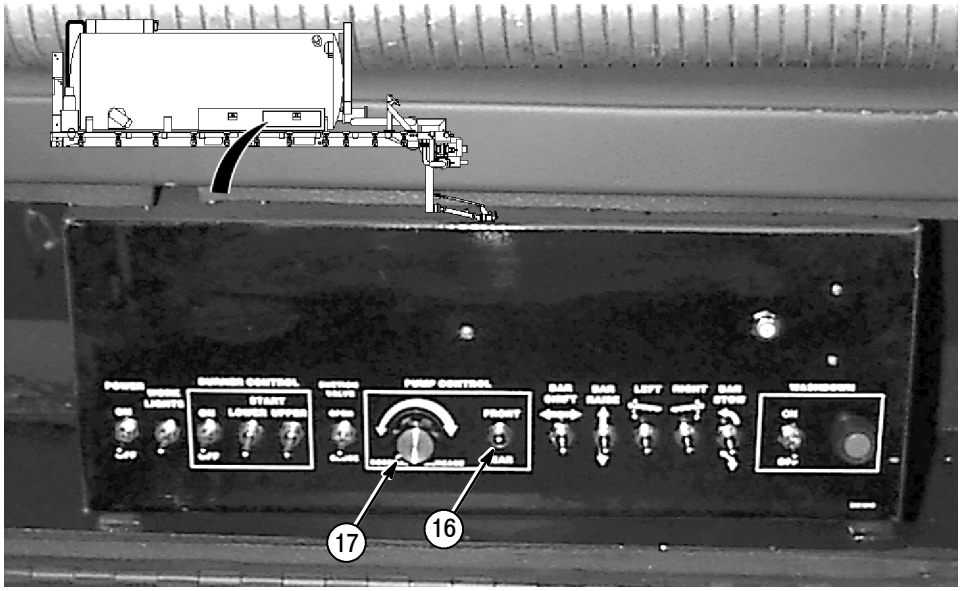


(10) Close suction valve (11) with SUCTION VALVE switch (12) at rear control panel.

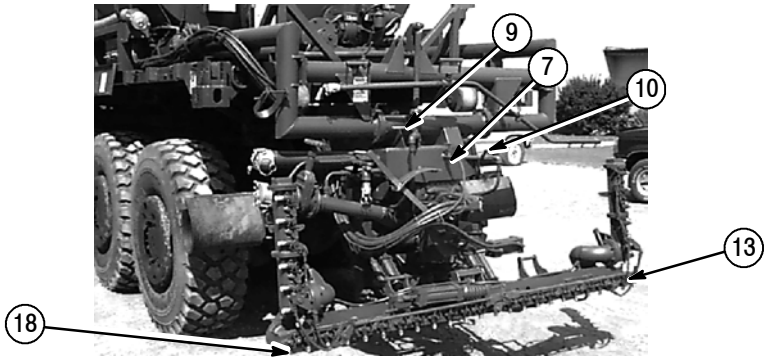
(11) Raise spray bar (13) and fold wings (14) up.



(12) Run pump at 200 gpm (757 lpm) using CIRCULATION RATE switch (15) in cab or set PUMP CONTROL switch (16) to REAR position and adjust pump speed with rear PUMP CONTROL knob (17).



2-18. SUCKBACK OPERATIONS (CONT).



(13) After drawing material back for approximately 2 minutes, open end valves (18) on spray bar (13) momentarily allowing air to enter system.

(14) Close two suckback valves (9) and (10).

(15) Reduce pump speed to 100 gpm (379 lpm).

WARNING

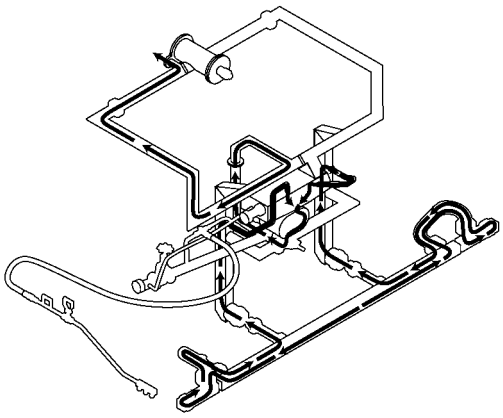
To prevent an explosion or fire hazard, keep burning cigarettes or other sources of combustion away from manhole and overflow vent. Failure to comply may result in serious injury to personnel.

(16) Open flush valve (7). This will allow diesel fuel to enter system and wash out pump.

(17) After three minutes, close flush valve (7) and stop pump.

(18) Reduce pump gpm (lpm).

Valve	Position
Hand Spray Valve	CLOSED
Butterfly Valve	NORMAL
Transfer Valve	CLOSED
Suckback Valves (3)	(2) - OPEN (1) - CLOSED
Flush Valve	CLOSED
4-Way Valve	CIRCULATE IN TANK
Suction Valve	CLOSED



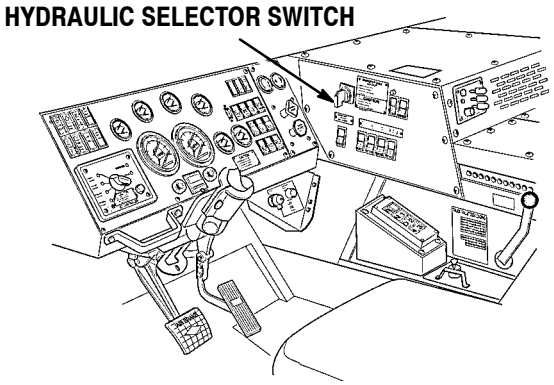
Spray Bar Suckback Flow

NOTE

For better cleaning of pump it may be helpful to pour some diesel fuel down fill line after all functions are completed. The diesel fuel will remain in pump over night to keep pump free for morning operation.

(19) Stow spray bar, (Para 2-17).

2-19. PUMP-OFF OPERATIONS.



a. Load Bituminous Distributor on PLS, (Para 2-5).

b. Connect UPIK, (Para 2-10).

c. Start engine, (TM 9-2320-364-10).

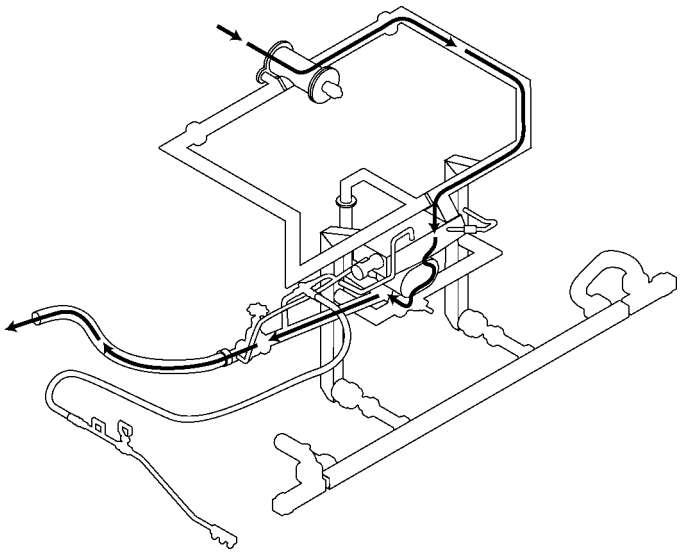
CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

d. Turn hydraulic selector switch to CRANE/SRW.

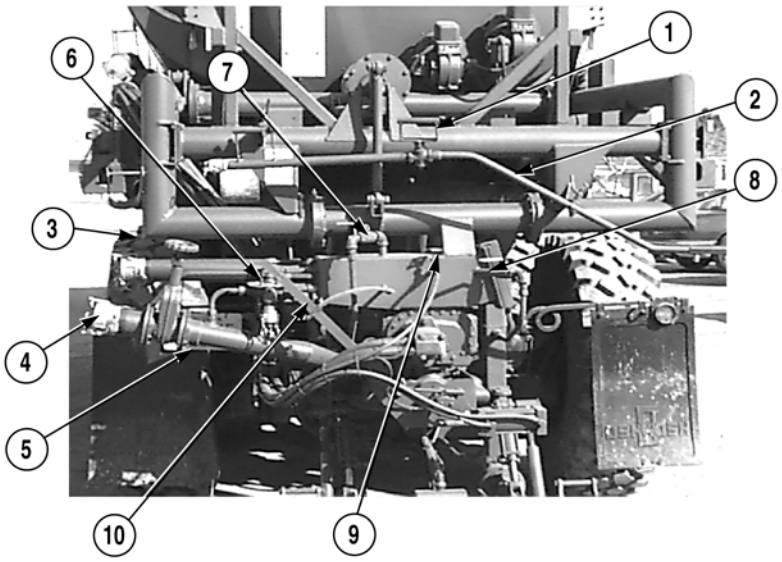
e. Deploy spray bar, (Para 2-17).

Valve	Position
Hand Spray Valve	CLOSED
Butterfly Valve	TRANSFER
Transfer Valve	OPEN
Suckback Valves (3)	CLOSED
Flush Valve	CLOSED
4-Way Valve	CIRCULATE IN TANK
Suction Valve	OPEN



Pump-Off Flow

2-19. PUMP-OFF OPERATIONS (CONT).



WARNING

To prevent burns, always wear insulated gloves when handling spray bar sections or hoses. Failure to comply may result in serious injury to personnel.

NOTE

- When pumping material off, ensure that all valves in pump-off line between distributor and storage tank are open before opening suction valve on distributor.
- If hand spray gun is installed, perform Step **f**. If not, go on to Step **g**.
- Hand spray valve is closed when aligned with spray wand.

f. Ensure hand spray valve (1) on spray gun (2) is in CLOSED position.

g. Turn butterfly valve (3) to NORMAL position.

h. Remove cap (4) from transfer line (5).

WARNING

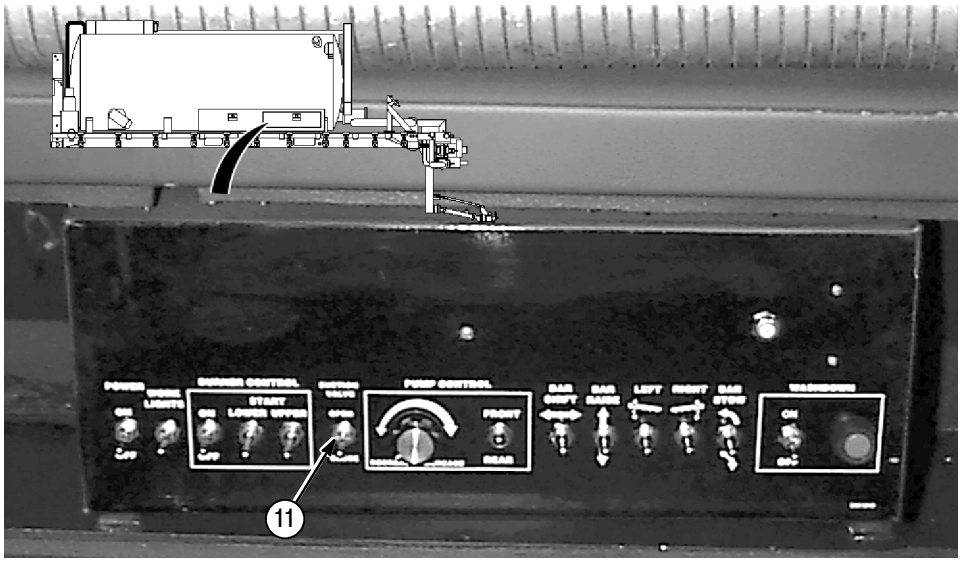
To prevent possible burns from leaking material, be sure all pipe, cap and hose connections are secure before opening valves. Failure to comply may result in serious injury to personnel.

i. Remove two pump-off hose caps and connect pump-off hose to transfer line (5) and storage tank.

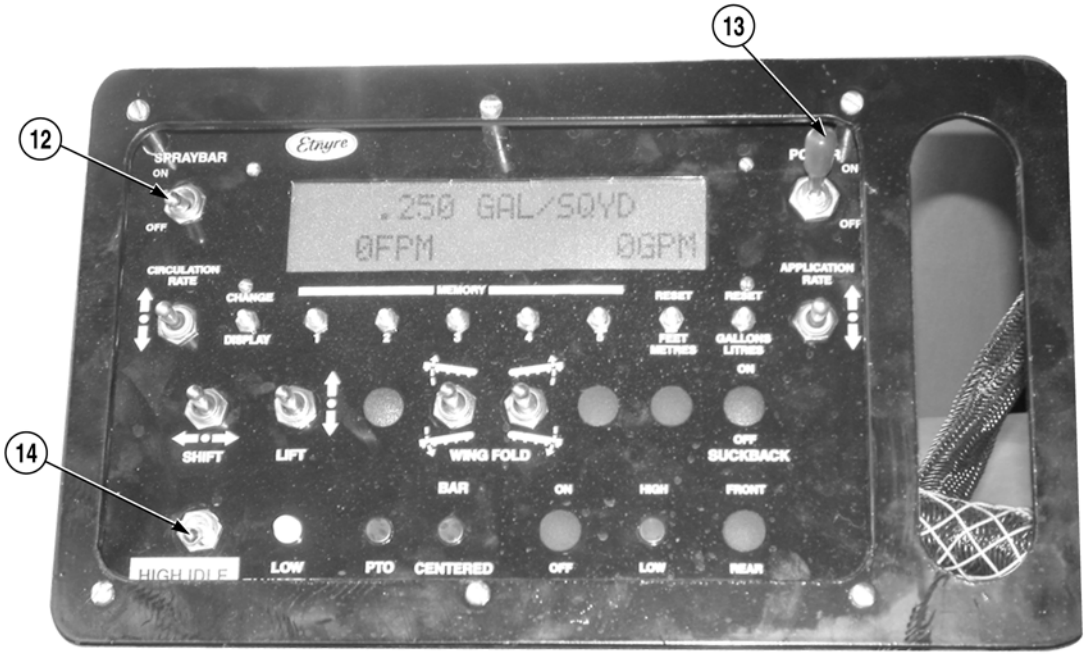
j. Ensure suckback valve (6) is in OFF position and suckback valves (7) and (8) are in CLOSED position.

k. Ensure flush valve (9) is in CLOSED position.

l. Ensure four-way valve (10) is in CIRCULATE IN TANK position.



m. At rear control panel, position SUCTION VALVE switch (11) to CLOSE position.

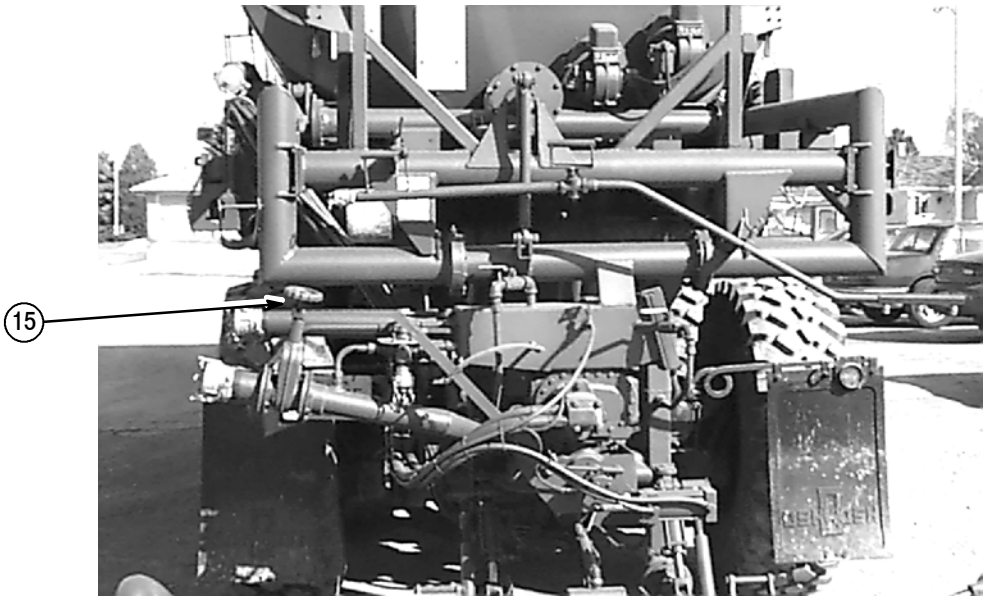


n. Ensure SPRAYBAR switch (12) is in OFF position.

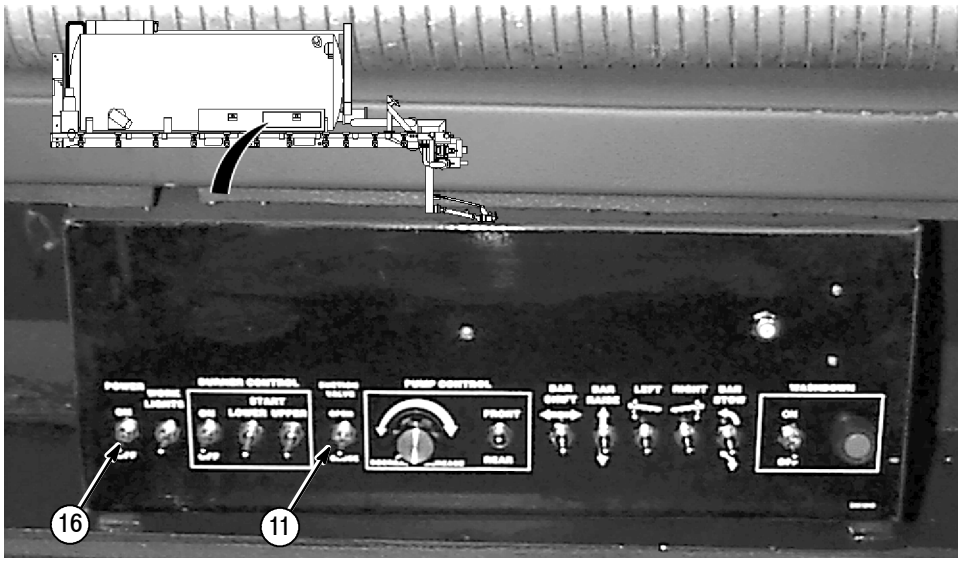
o. Ensure POWER switch (13) is in ON position.

p. At front control panel, turn HIGH IDLE switch (14) to ON position.

2-19. PUMP-OFF OPERATIONS (CONT).

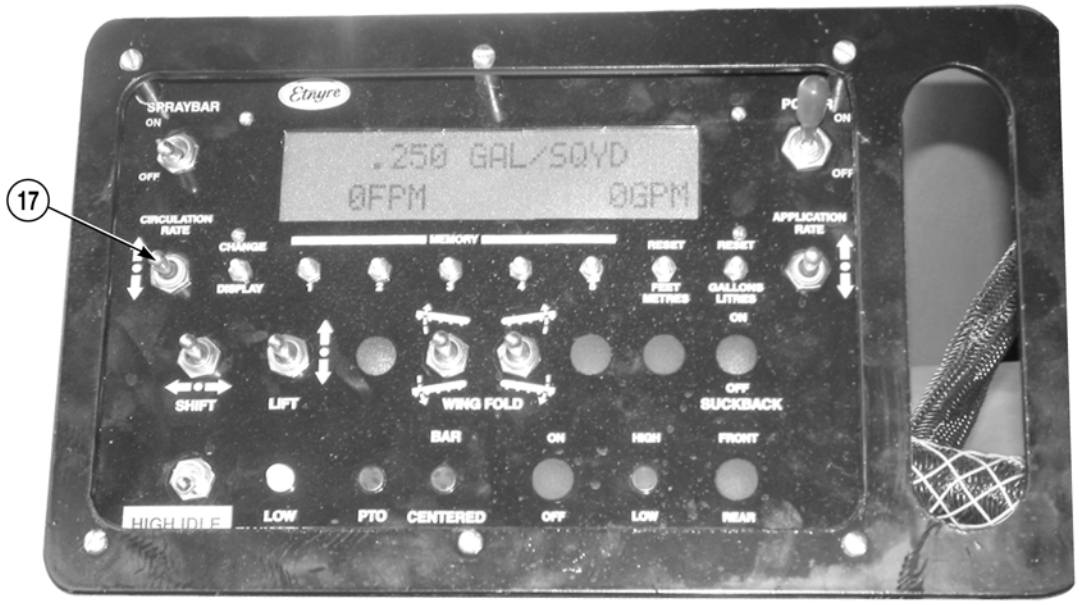


q. Open transfer valve (15).

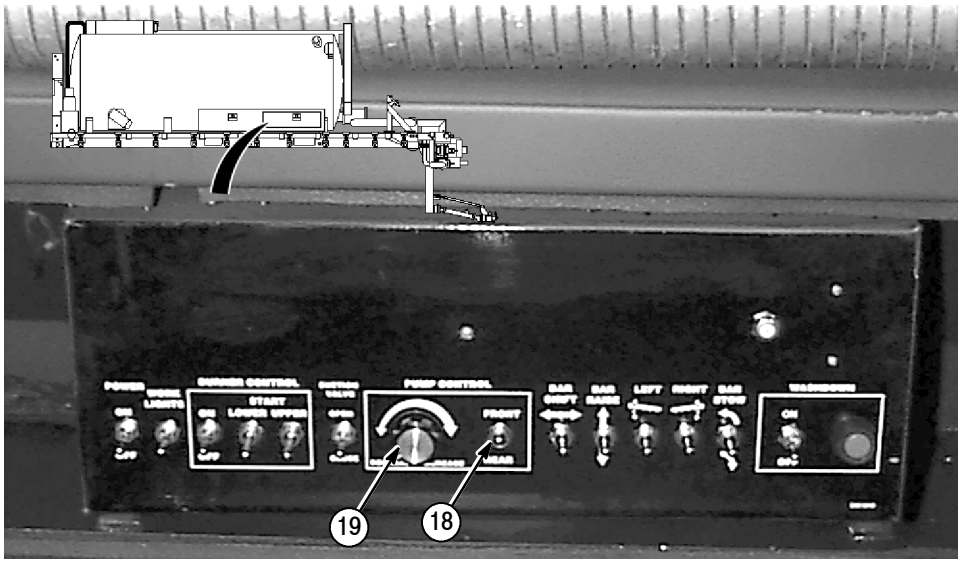


r. At rear control panel, ensure master POWER switch (16) is in ON position.

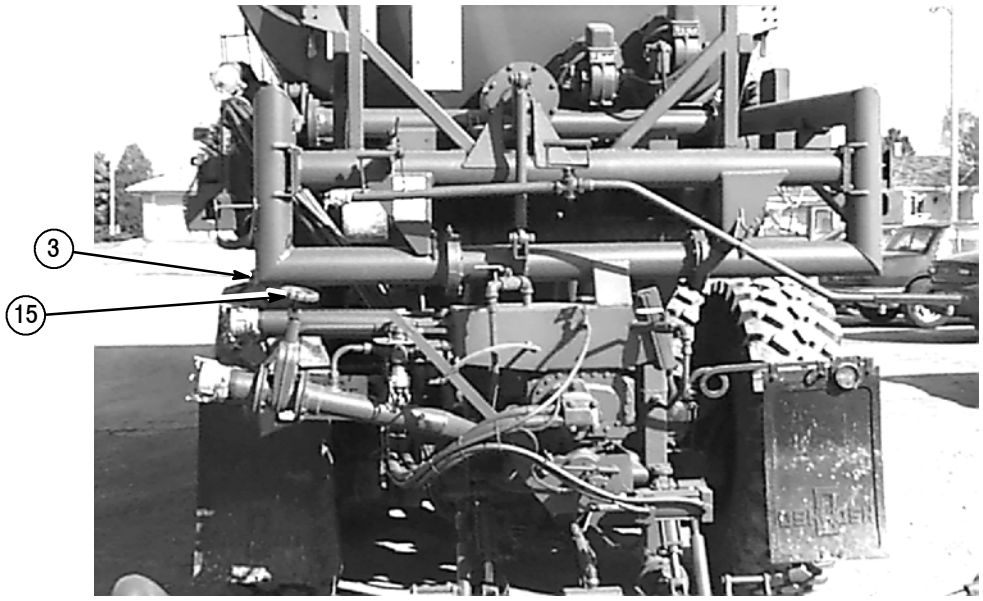
s. At rear control panel, push SUCTION VALVE switch (11) to OPEN position.



t. Increase pump speed to approximately 150 gpm (568 lpm) using CIRCULATION RATE switch (17) on front control panel or set PUMP CONTROL switch (18) to REAR position and adjust speed with PUMP CONTROL knob (19).



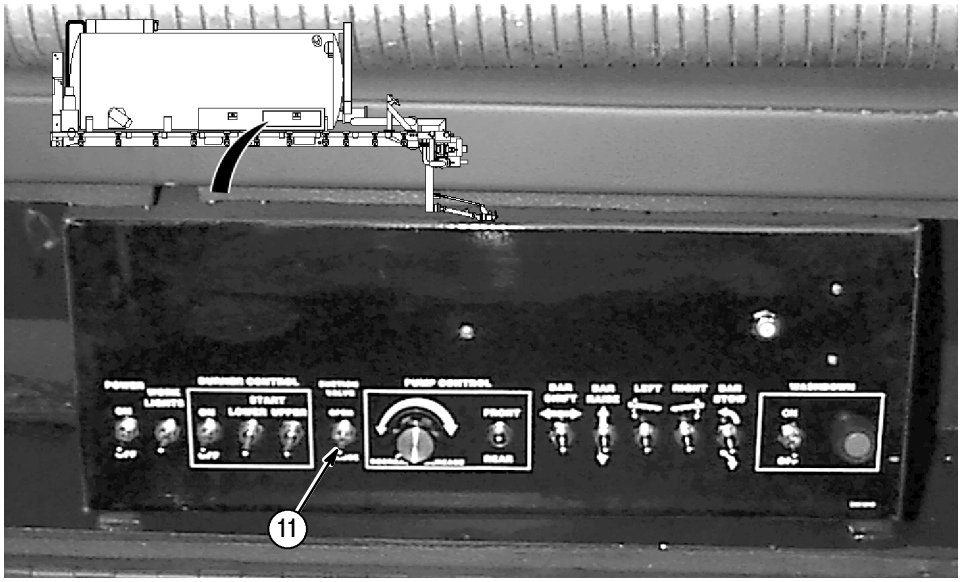
2-19. PUMP-OFF OPERATIONS (CONT).



u. Turn butterfly valve (3) to TRANSFER position.

v. When pump-off is complete, turn butterfly valve (3) to NORMAL position.

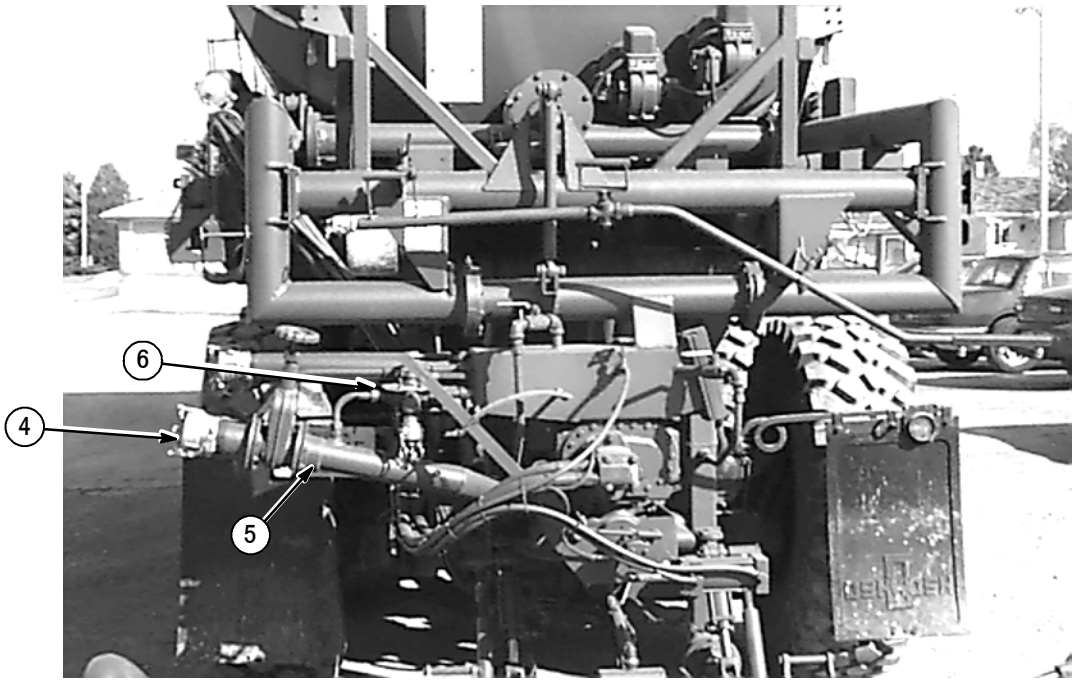
w. Decrease pump speed.



x. At rear control panel, position SUCTION VALVE switch (11) to CLOSE position.

y. Close valve at storage tank.

z. Close transfer valve (15).



WARNING

To prevent burns, always wear insulated gloves when handling spray bar sections or hoses. Failure to comply may result in serious injury to personnel.

NOTE

If there is no bleeder valve at supply source, carefully break connection between valve and fill hose to allow air into hose.

aa. Open suckback valve (6) in transfer line (5) and open bleeder valve at supply source.

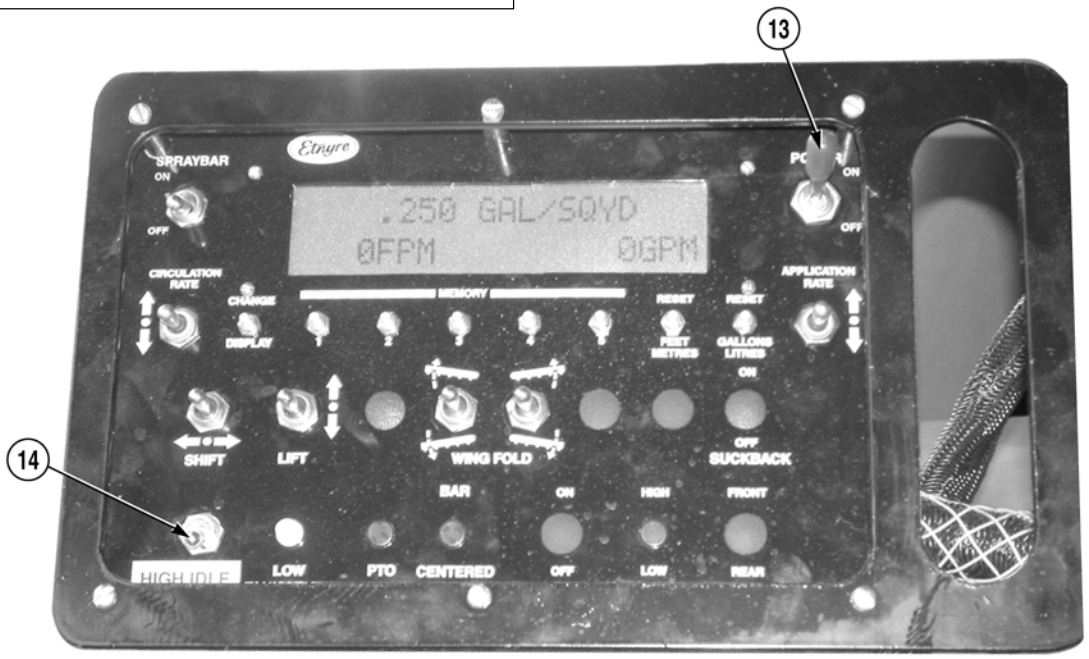
ab. Increase pump speed to approximately 150 gpm (568 lpm).

ac. Increase pump speed to 200 gpm (757 lpm), disconnect hose at supply end and elevate hose to allow maximum drainage to transfer line.

ad. Allow pump to continue turning while hose is disconnected from transfer line (5).

ae. Install transfer line cap (4) and two pump-off hose caps.

2-19. PUMP-OFF OPERATIONS (CONT).

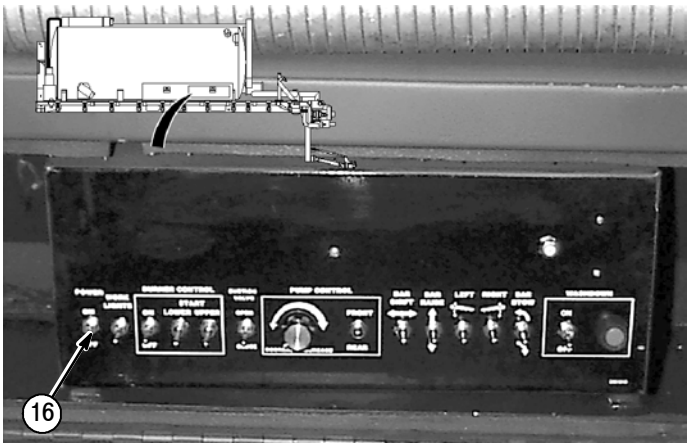


af. At front control panel, position HIGH IDLE switch (14) to OFF position.

ag. Stow spray bar, (Para 2-17).

ah. Turn POWER switch (13) to OFF position.

ai. At rear control panel, turn master POWER switch (16) to OFF position.

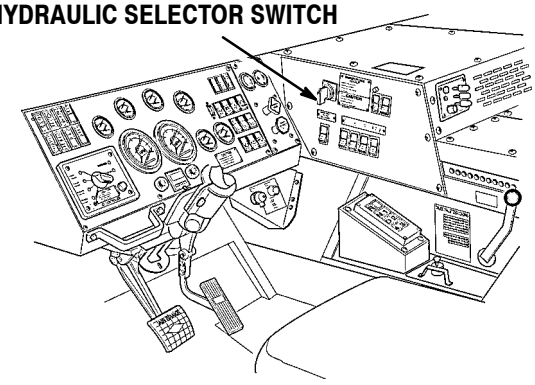


CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

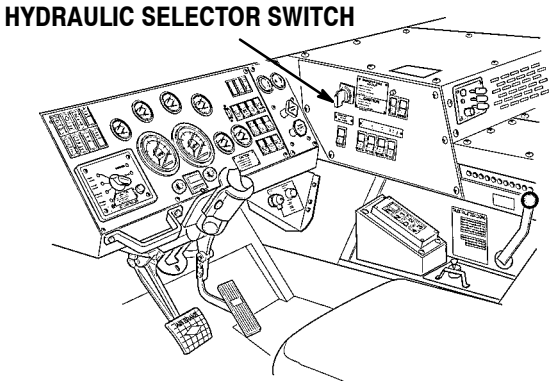
aj. Turn hydraulic selector switch to OFF position.

HYDRAULIC SELECTOR SWITCH



ak. Shut OFF engine, (TM 9-2320-364-10).

2-20. TRANSFER OPERATIONS.



a. Load Bituminous Distributor on PLS, (Para 2-5).

b. Connect UPIK, (Para 2-10).

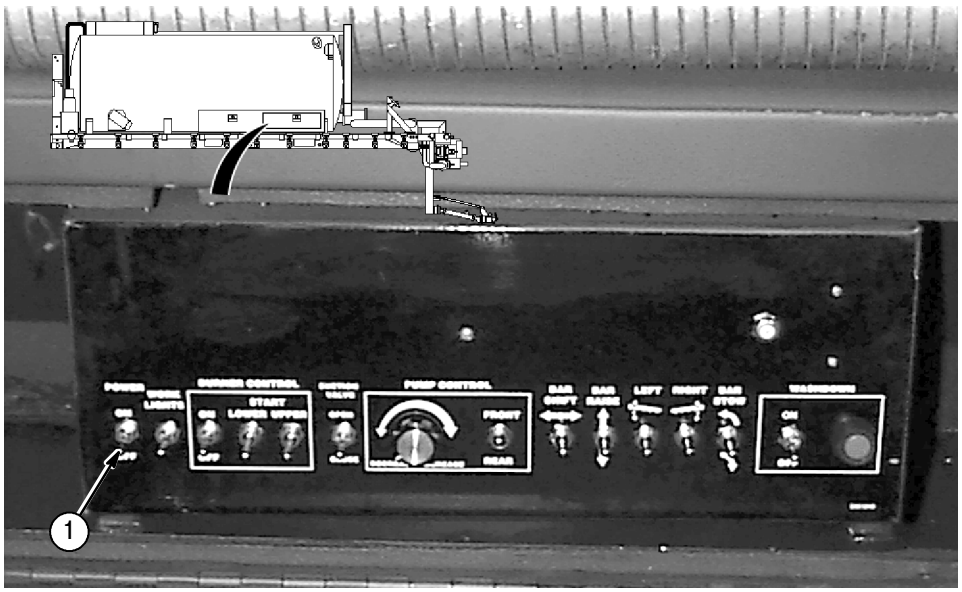
c. Start engine, (TM 9-2320-364-10).

CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

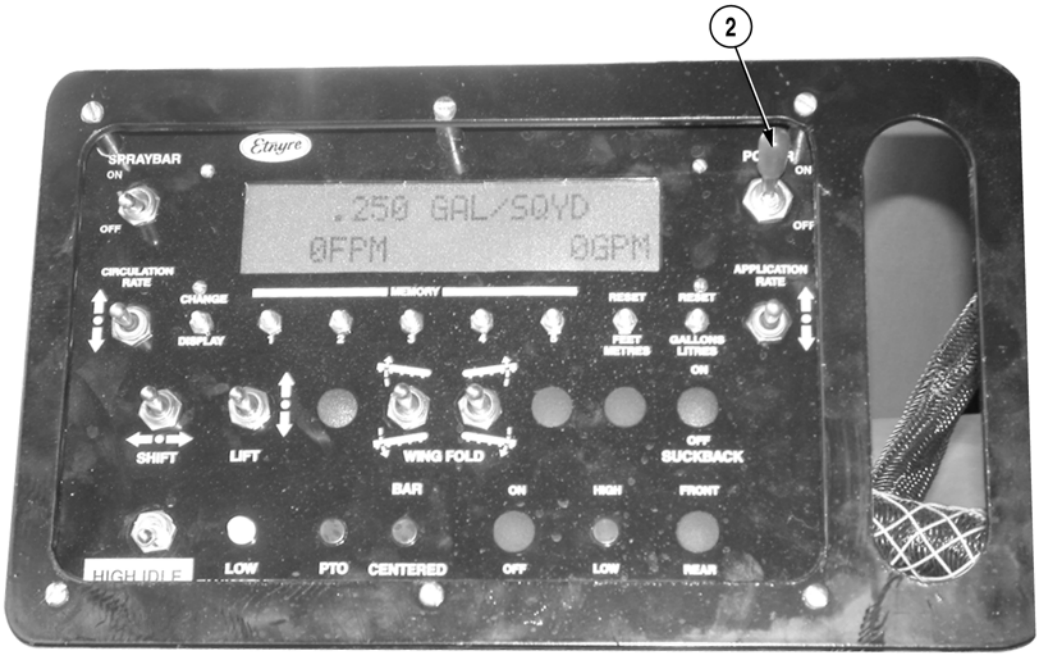
d. Turn hydraulic selector switch to CRANE/SRW.

e. Deploy spray bar, (Para 2-17).

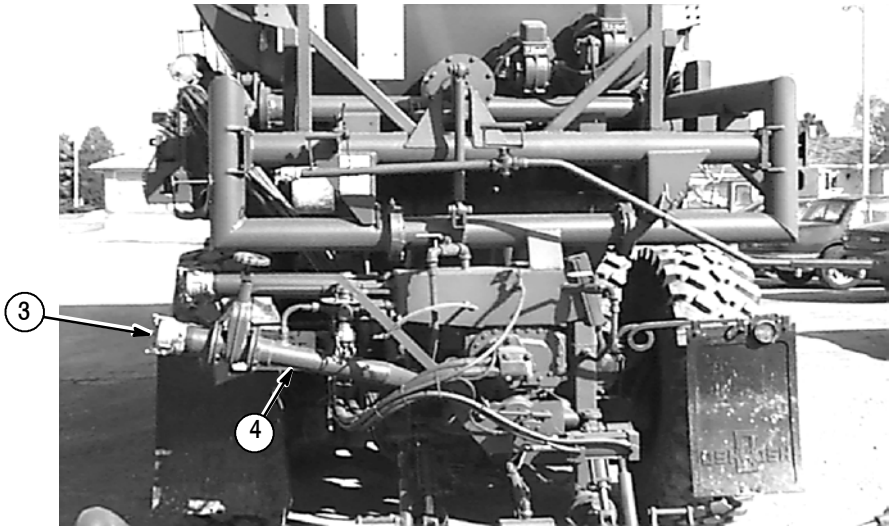


f. On rear control panel, ensure master POWER switch (1) is in ON position.

2-20. TRANSFER OPERATIONS (CONT).



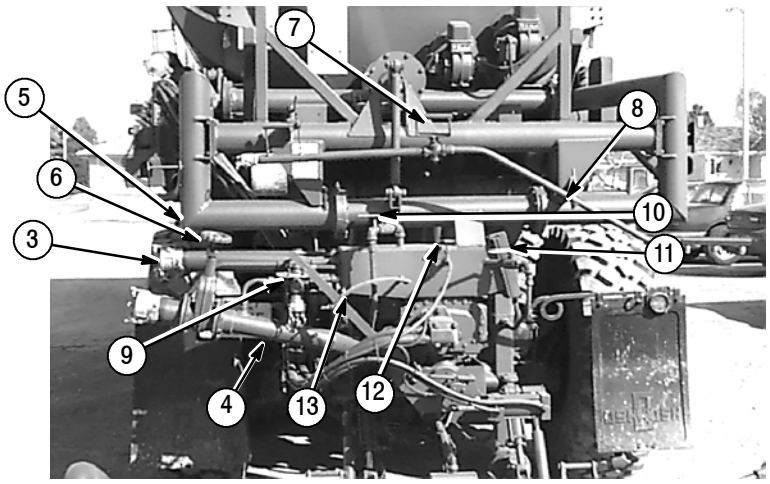
g. On front control panel, ensure POWER switch (2) is in ON position.



WARNING

- To prevent possible burns from leaking material, be sure all pipe, cap and hose connections are secure before opening valves. Failure to comply may result in serious injury to personnel.
- To prevent burns, always wear insulated gloves when handling spray bar sections or hoses. Failure to comply may result in serious injury to personnel.

h. Remove caps from fill line (3) and transfer line (4).



i. Connect hose from supply source to fill line (3).

j. Connect hose from storage to transfer line (4).

k. Ensure butterfly valve (5) is in NORMAL position.

l. Ensure transfer valve (6) is in CLOSED position.

NOTE

- If hand spray gun is installed, perform Step **m**. If not, go on to Step **n**.
- Hand spray valve us closed when aligned with spray wand.

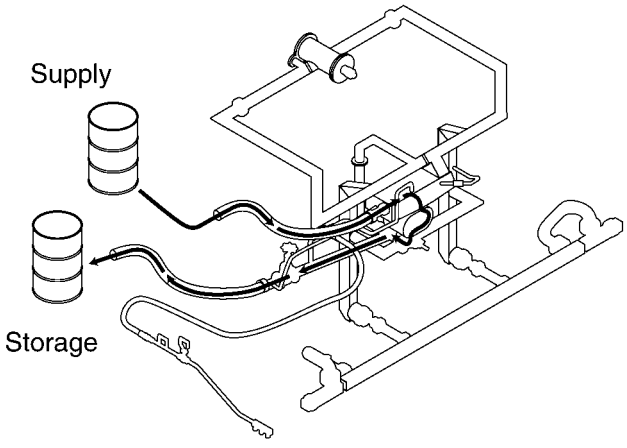
m. Ensure hand spray valve (7) on spray gun (8) is in CLOSED position.

n. Ensure suckback valve (9) is in OFF position and suckback valves (10) and (11) are in CLOSED position.

o. Ensure flush valve (12) is in CLOSED position.

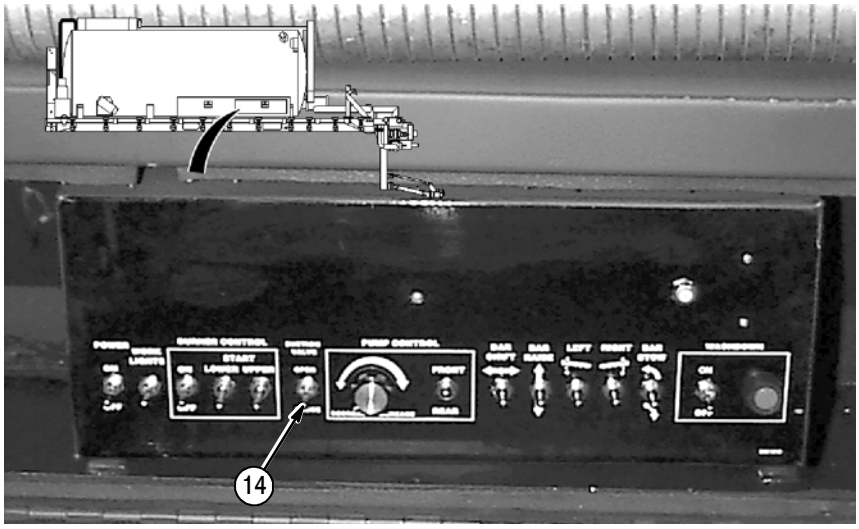
p. Position four-way valve (13) to CIRCULATE IN TANK position.

Valve	Position
Hand Spray Valve	CLOSED
Butterfly Valve	TRANSFER
Transfer Valve	OPEN
Suckback Valves (3)	CLOSED
Flush Valve	CLOSED
4-Way Valve	CIRCULATE IN TANK
Suction Valve	CLOSED



Transfer

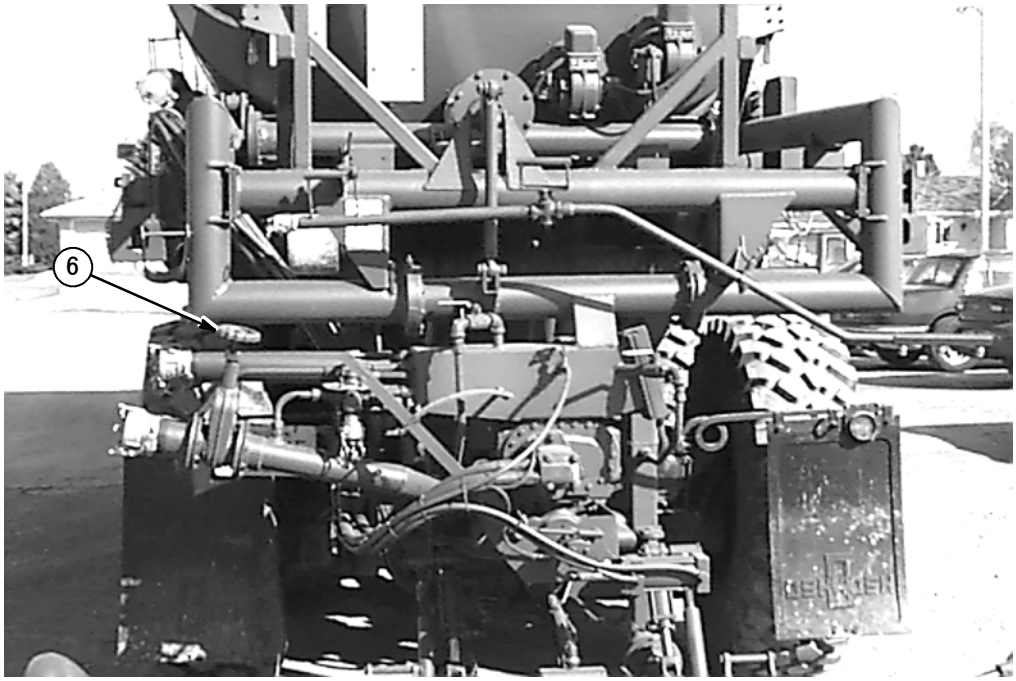
2-20. TRANSFER OPERATIONS (CONT).



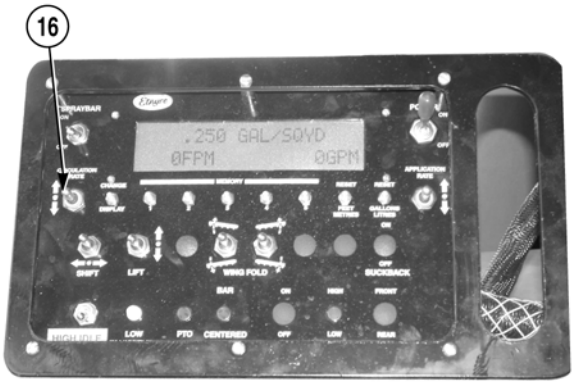
q. On rear control panel, position SUCTION VALVE switch (14) to CLOSE position.

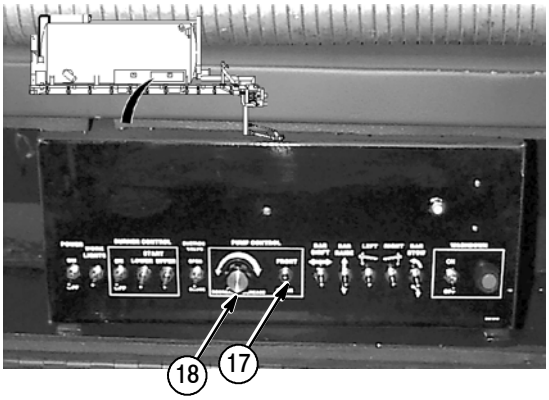


r. At front control panel, turn HIGH IDLE switch (15) to ON position.



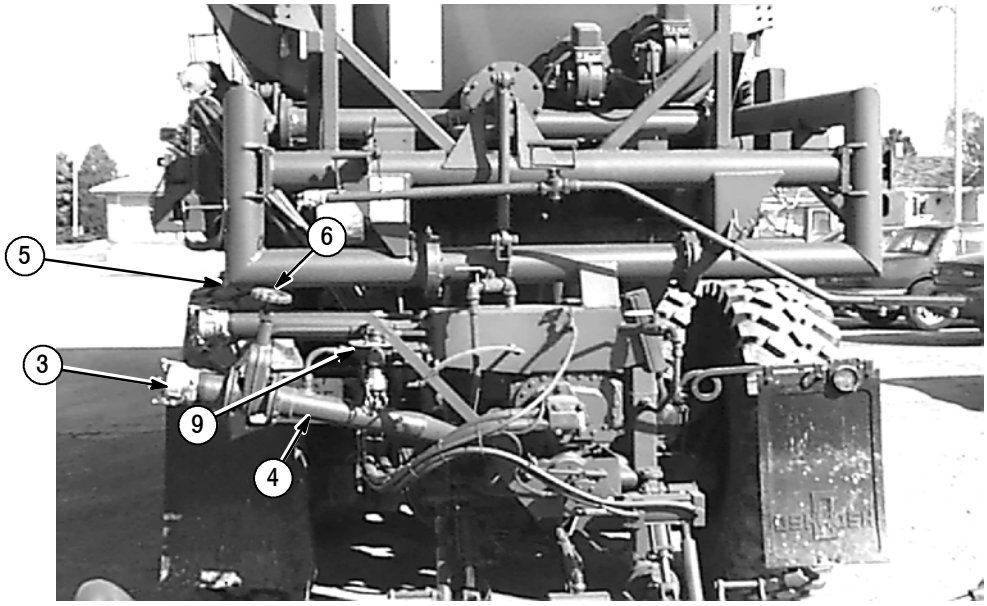
s. Open transfer valve (6).





t. Increase pump speed to approximately 150 gpm (568 lpm) using CIRCULATION RATE switch (16) on front control panel or set PUMP CONTROL switch (17) at rear panel to REAR position and adjust pump speed with PUMP CONTROL knob (18).

2-20. TRANSFER OPERATIONS (CONT).



u. Turn butterfly valve (5) to TRANSFER position.

v. After material is transferred, close valve at supply source and open supply line bleeder valve.

w. Disconnect supply line and install cap on distributor fill line (3).

x. Close valve at storage tank.

y. Close transfer valve (6).

z. Open suckback valve (9) on transfer line (4).

aa. Turn butterfly valve (5) to NORMAL position.

WARNING

To prevent burns, always wear insulated gloves when handling spray bar sections or hoses. Failure to comply may result in serious injury to personnel.

NOTE

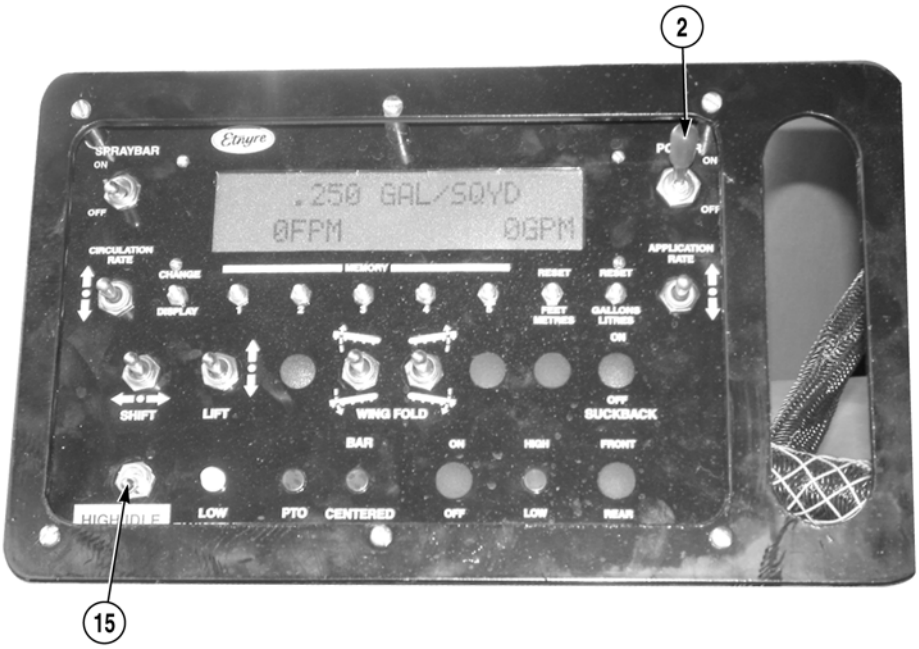
If there is no bleeder valve at supply source, carefully break connection between valve and fill hose to allow air into hose.

ab. Open bleeder valve at storage tank.

ac. Increase pump speed to 200 gpm (757 lpm), disconnect hose at storage end and elevate hose to allow maximum drainage to transfer line (4).

ad. Allow pump to continue turning while hose is disconnected from transfer line (4).

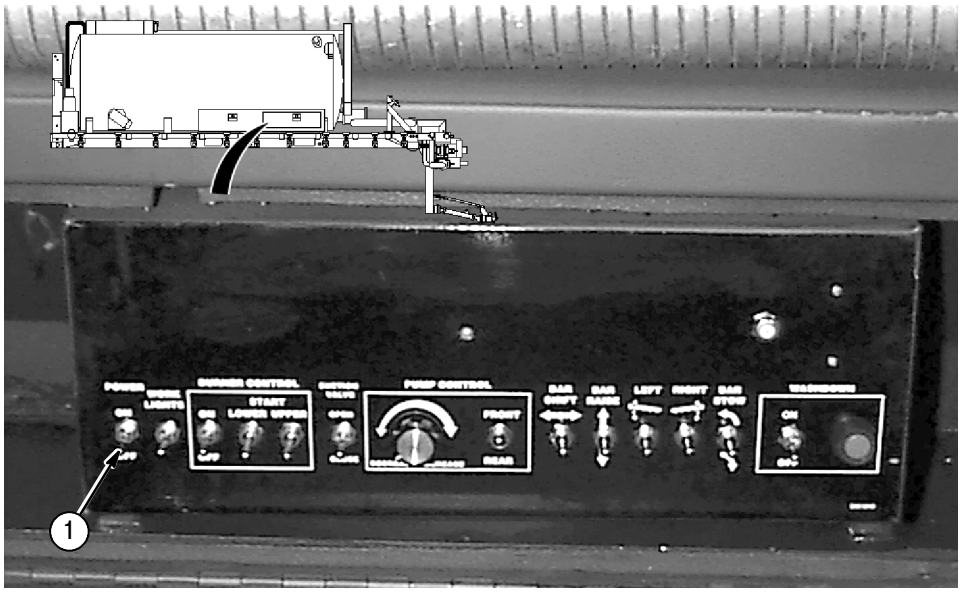
ae. Install transfer line (4) cap and two fill hose caps.



af. At front control panel, turn HIGH IDLE switch (15) to OFF position.

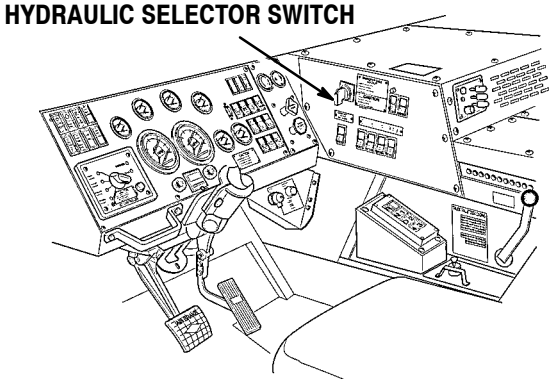
ag. Stow spray bar, (Para 2-17).

ah. At front control panel, turn POWER switch (2) to OFF position.



ai. At rear control panel, turn master POWER switch (1) to OFF position.

2-20. TRANSFER OPERATIONS (CONT).



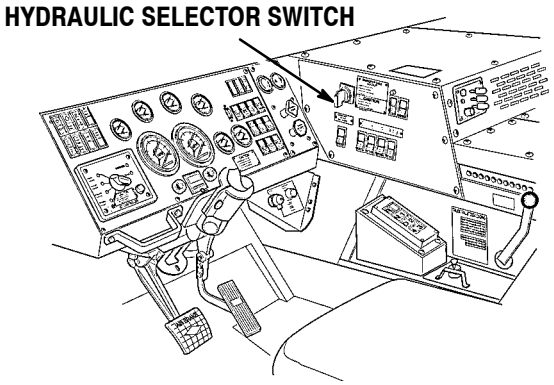
CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

aj. Turn hydraulic selector switch to OFF position.

ak. Shut OFF engine, (TM 9-2320-364-10).

2-21. FLUSHING OPERATIONS.



a. Perform suckback operations, (Para 2-18).

CAUTION

Flush system after performing suckback operations to remove bituminous material. Failure to comply may allow bituminous material to become solid and damage equipment.

b. Check Bituminous Distributor fuel tank for fuel level. Fill if required, (Para 1-2).

c. Start engine, (TM 9-2320-364-10).

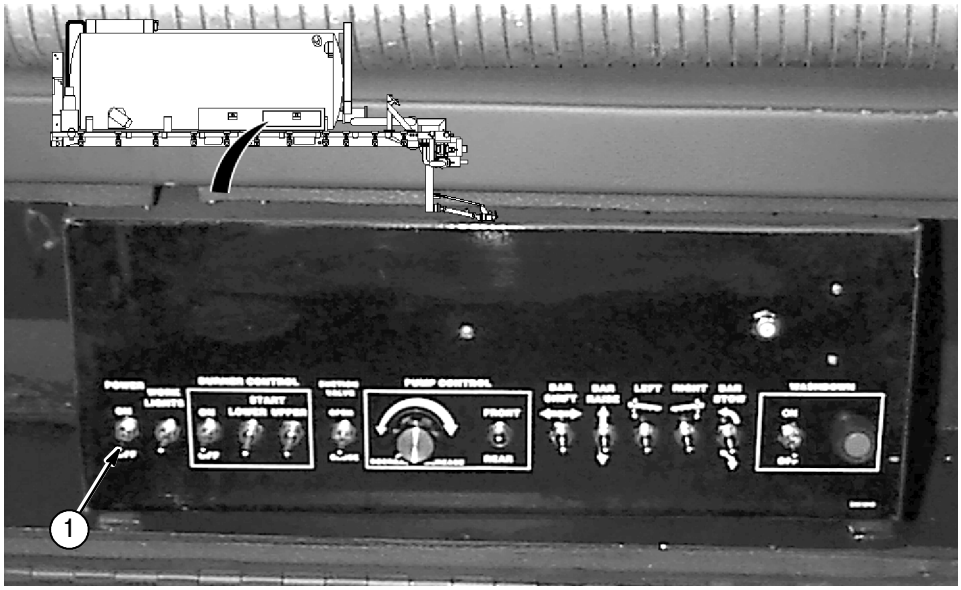
CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

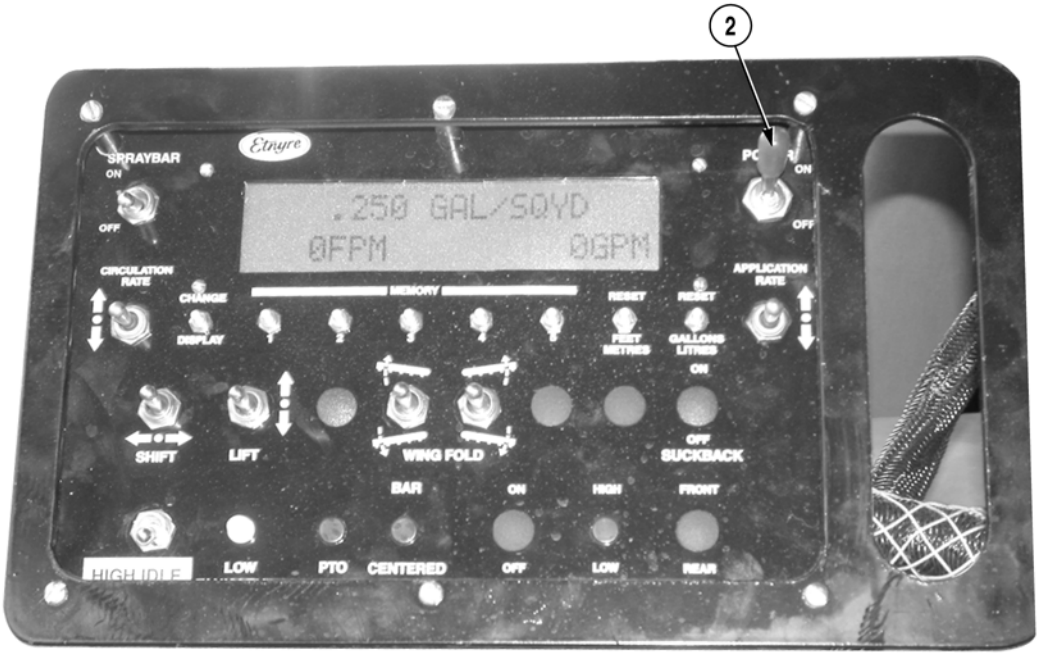
d. Turn hydraulic selector switch to CRANE/SRW.

e. Deploy spray bar, (Para 2-17).

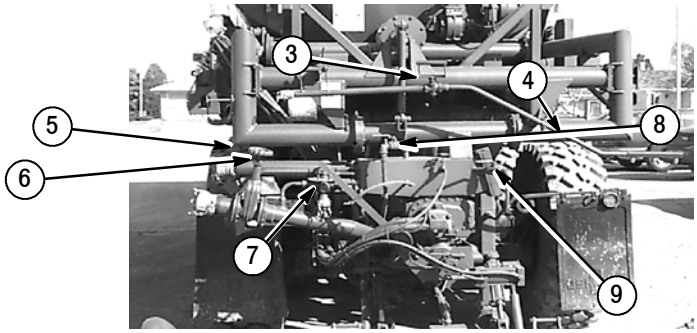
2-21. FLUSHING OPERATIONS (CONT).



f. On rear control panel, ensure master POWER switch (1) is in ON position.



g. On front control panel, ensure POWER switch (2) is in ON position.



WARNING

- To prevent possible burns from leaking material, be sure all pipe, cap and hose connections are secure before opening valves. Failure to comply may result in serious injury to personnel.
- To prevent burns, always wear insulated gloves when handling spray bar sections or hoses. Failure to comply may result in serious injury to personnel.

NOTE

- Normally suckback procedure will remove sufficient material from circulating system to negate need for draining circulating system and spray bar before proceeding with wash-out operation.
- The flushing operation requires only three quarts of flushing solvent. This small amount is not sufficient to fill lines to tank, thus preventing solvent from being forced into tank.
- If hand spray gun is installed, perform Step **h**. If not, perform Step **i**.
- Hand spray valve is closed when aligned with spray wand.

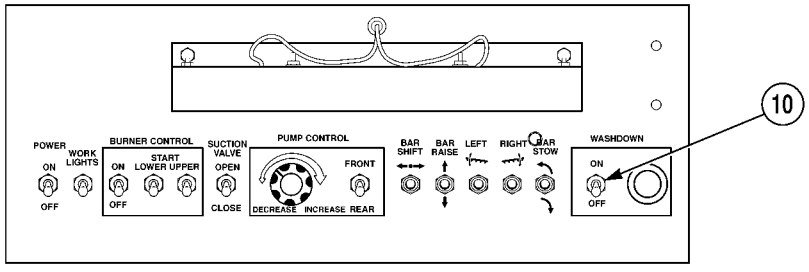
h. Ensure hand spray valve (3) on hand spray gun (4) is in CLOSED position.

i. Ensure butterfly valve (5) is in NORMAL position.

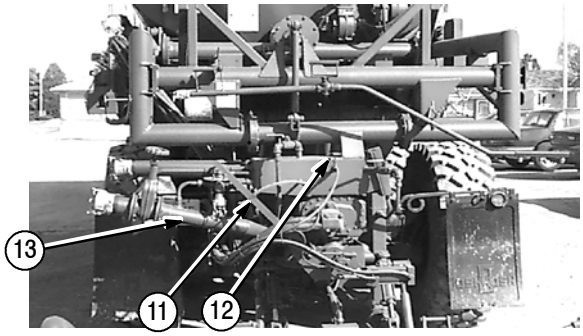
j. Ensure transfer valve (6) is in CLOSED position.

k. Ensure suckback valve (7) is in OFF position and suckback valves (8) and (9) are in CLOSED position.

l. Position washdown switch (10) in ON position to operate fuel pump for three minutes.



2-21. FLUSHING OPERATIONS (CONT).



m. Move four-way valve (11) to CIRCULATE IN BAR position.

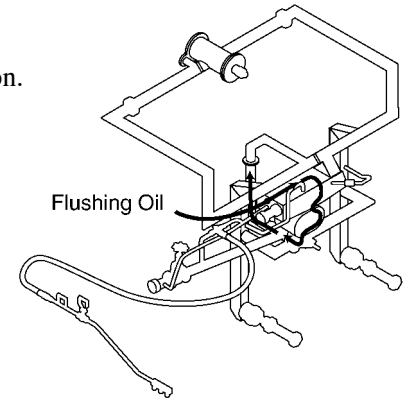
n. Open flush valve (12) and run pump at 100 gpm (379 lpm) for 2 minutes.

o. Operate washdown switch (10) and fuel pump for one minute after pump is stopped to provide lubrication.

p. Close flush valve (12).

q. Move four-way valve (11) to CIRCULATE IN TANK position.

Valve	Position
Hand Spray Valve	CLOSED
Butterfly Valve	NORMAL
Transfer Valve	CLOSED
Suckback Valves (3)	CLOSED
Flush Valve	OPEN
4-Way Valve	CIRCULATE IN TANK
Suction Valve	CLOSED



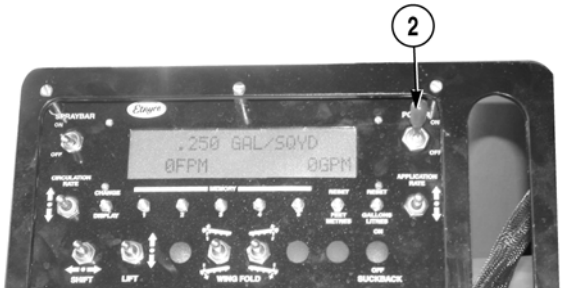
Flushing Flow

NOTE

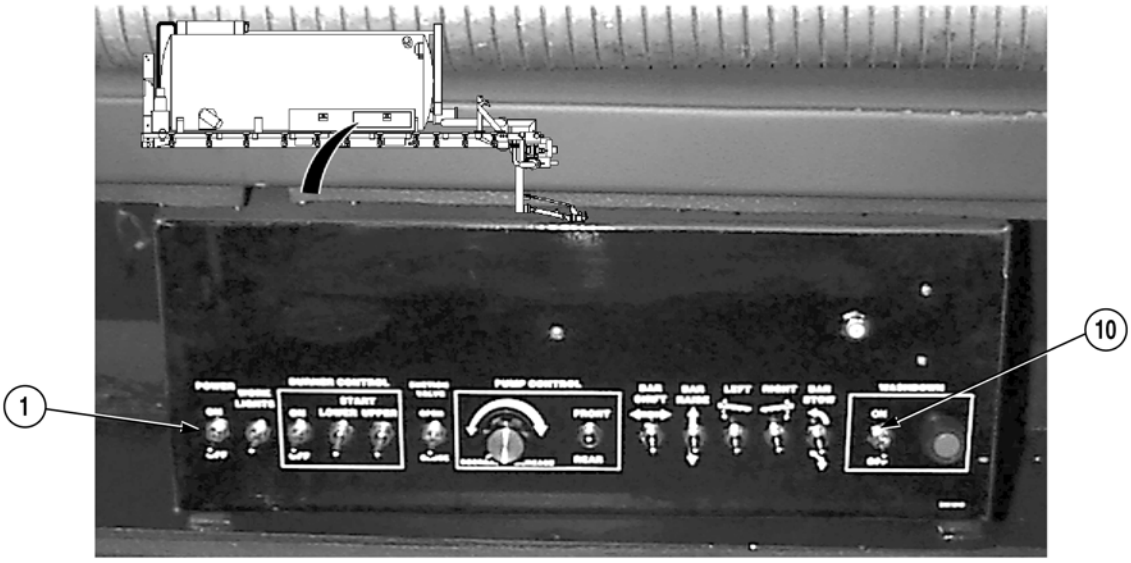
Diesel fuel softens or dissolves any residual asphalt in pump.

r. Upon completion of flushing operations, pump in 1 to 2 qt. (0.95 to 1.89 l) of diesel fuel into fill line (13). Run washdown pump for 2 to 3 minutes with flush valve and strainer open. Allow diesel fuel to remain in system overnight.

s. Stow spray bar, (Para 2-17).

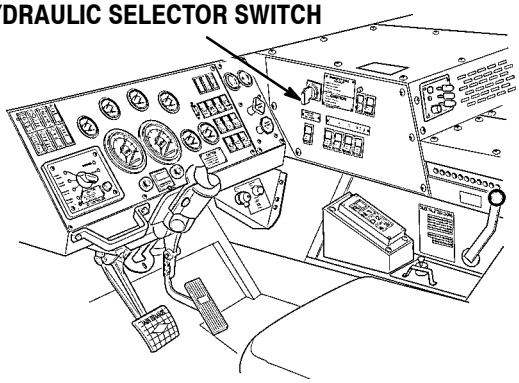


t. At front control panel, turn POWER switch (2) to OFF position.



u. At rear control panel, turn master POWER switch (1) to OFF position.

HYDRAULIC SELECTOR SWITCH



CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

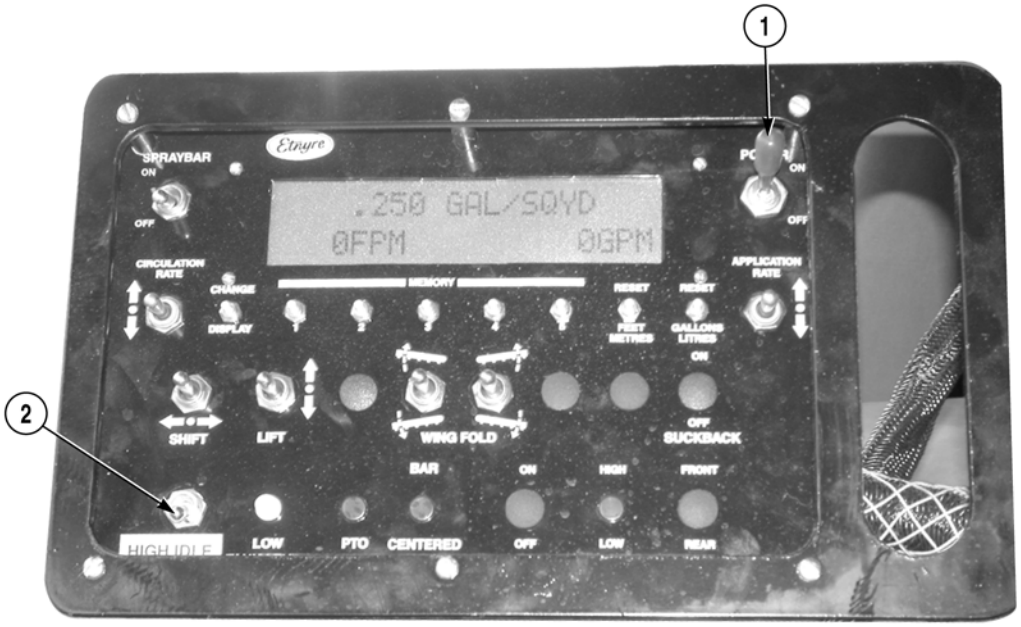
v. Turn hydraulic selector switch to OFF position.

w. Shut OFF engine, (TM 9-2320-364-10).

2-22. HEATING BITUMEN IN DISTRIBUTOR.

WARNING

- **DO NOT** light any burner prior to stick measuring quantity of material in tank. (Refer to Para 2-13). Failure to comply may result in injury or death to personnel.
- **DO NOT** light lower burner unless a minimum of 750 gallons (2,838.75 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- **DO NOT** light upper burner unless a minimum of 1,050 gallons (3,974.25 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- To prevent an explosion or fire hazard, do not remove material from tank in any manner when burners are in operation.
- To prevent an explosion or fire hazard, do not operate burners if tank is damaged or leaking.
- To prevent an explosion or fire hazard, do not operate burners when truck is unattended, when truck is in motion, when truck is not on level ground, or with truck in a confined area.
- To avoid an extreme fire hazard or explosion, NEVER use gasoline as fuel in high pressure burners.
- To prevent an explosion or fire hazard, position unit broadside to wind to prevent volatile fumes from drifting toward burners.
- To prevent an explosion or fire hazard, when burners go out, shut off fuel supply to both burners to allow flues to ventilate for several minutes before re-lighting burners.
- To prevent an explosion or fire hazard, do not heat material beyond manufacturer's recommended temperature. Failure to comply may result in injury or death to personnel.
- To prevent possible burns from foaming or violent eruption, do not load tank with material over 200°F (93°C) if water or condensation is present in tank, or if emulsion was used in previous load. Clean and thoroughly drain tank first. If water or emulsion may be present in spray bar or circulating system, allow a small amount of hot material to circulate in bar BEFORE filling tank. When approximately 1/3 full, drive unit to mix material in tank. This will help absorb moisture. Do not heat material over 200°F (93°C) if moisture or emulsion is present in tank. Failure to comply may result in injury or death to personnel.
- To prevent possible burns from material overflow, allow sufficient space in tank for expansion of material when heating. Failure to comply may result in injury or death to personnel.
- A fully charged dry chemical type ABC fire extinguisher must be within easy reach whenever burners are operating or there is an open flame near distributor. Minimum dry chemical capacity of fire extinguisher should be 20 lb. (9.08 kg).
- Single level hearing protection is required for personnel within 6 ft. (1.8 m) of spray bar during heating and circulating of bitum in tank. Failure to comply may result in hearing loss to personnel.
- Do not light burners unless both internal and external gages are present.
- When the asphalt pump is frozen or not turning, operate only the lower burner. Do not operate both burners when the asphalt pump is frozen or not turning, as this may cause localized overheating and tank eruption or boil over, resulting in serious injury or death.



WARNING

When the asphalt pump is frozen or not turning, operate only the lower burner. Do not operate both burners when the asphalt pump is frozen or not turning, as this may cause localized overheating and tank eruption or boil over, resulting in serious injury or death.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is "frozen" is it acceptable to operate burners without circulating material. However, if asphalt pump is frozen, carefully apply heat to pump housing and start circulating material as soon as possible.

NOTE

This procedure can be performed with spraying unit either stowed or unstowed, however, ensure that four-way valve is set to CIRCULATE IN TANK position.

a. Measure quantity of material in tank, (Para 2-13).

b. Start engine, (TM 9-2320-364-10).

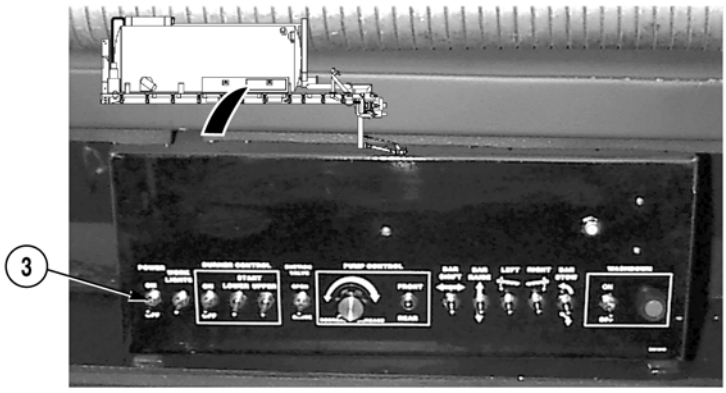
c. Apply parking brake, (TM 9-2320-364-10).

d. Place truck transmission in NEUTRAL, (TM 9-2320-364-10).

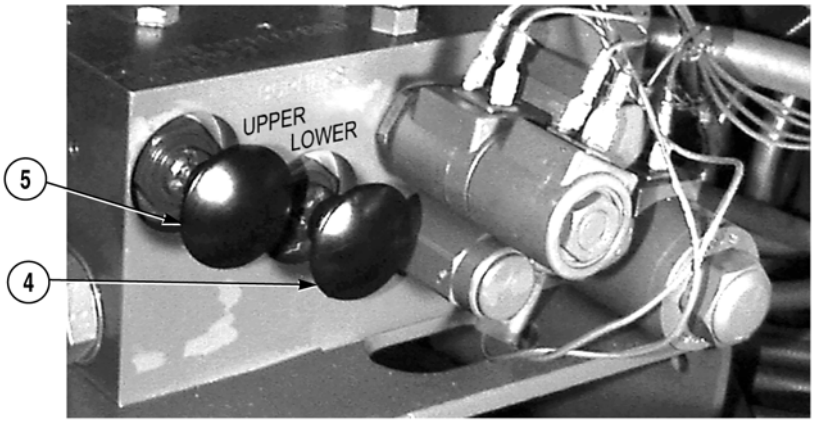
e. At front control panel, turn POWER switch (1) to ON position.

f. At front control panel, turn HIGH IDLE switch (2) to ON position.

2-22. HEATING BITUMEN IN DISTRIBUTOR (CONT).



g. At rear control panel, turn master POWER switch (3) to ON position.



NOTE

Burner controls are located inside of left side stowage box.

h. Pull out palm button (4) on lower burner and turn 90°.

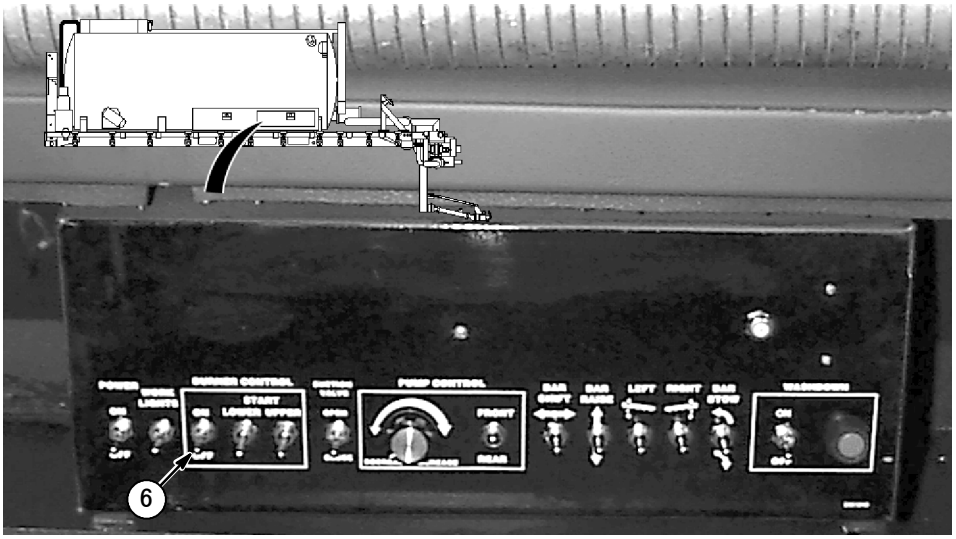
WARNING

Ensure there is at least six inches (15.24 cm) of product covering entire length of upper flue and a minimum of 1,050 gallons (3,974.25 l) of material in tank before second burner can be ignited. Failure to comply may result in death or serious injury to personnel.

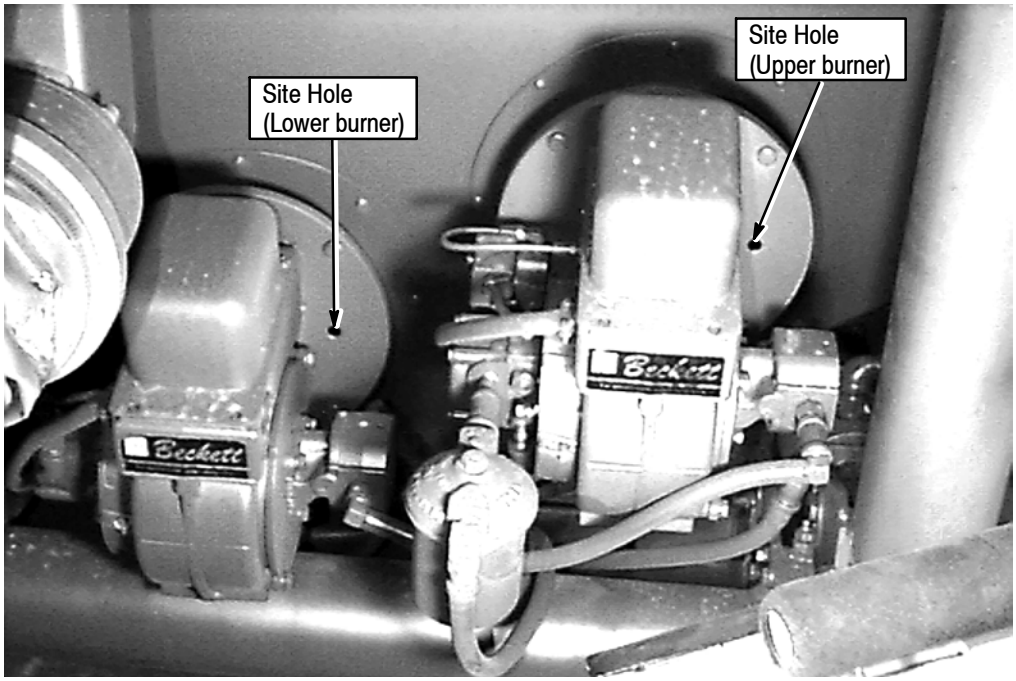
NOTE

HIGH IDLE switch on front control panel must be in the ON position before pulling out palm button on upper burner, or upper burner will not function properly.

i. If desired, pull out palm button (5) on upper burner and turn 90°.



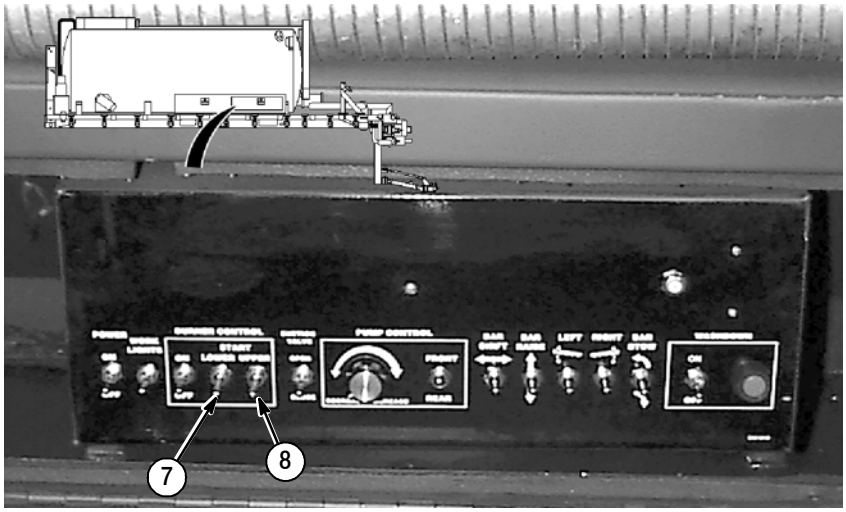
j. At rear control panel, turn BURNER CONTROL switch (6) to ON position.



NOTE

Burners can be checked through site hole of each burner.

2-22. HEATING BITUMEN IN DISTRIBUTOR (CONT).

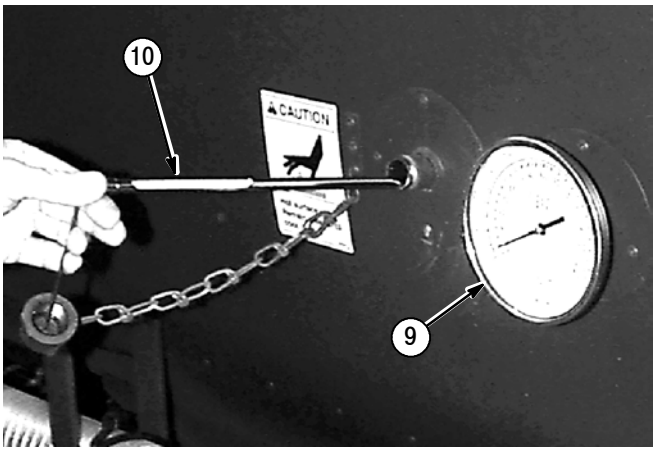


k. At rear control panel, to light lower burner, push up and hold LOWER switch (7) until burner has been lit.

l. At rear control panel, to light upper burner, push up and hold UPPER switch (8) until burner has been lit.

WARNING

- Allowing flue burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulation, burners should be extinguished for 20-30 minutes before re-lighting burners.
- When the asphalt pump is frozen or not turning, operate only the lower burner. Do not operate both burners when the asphalt pump is frozen or not turning, as this may cause localized overheating and tank eruption or boil over, resulting in serious injury or death.
- To prevent an explosion or fire hazard, never move truck when burners are operating.



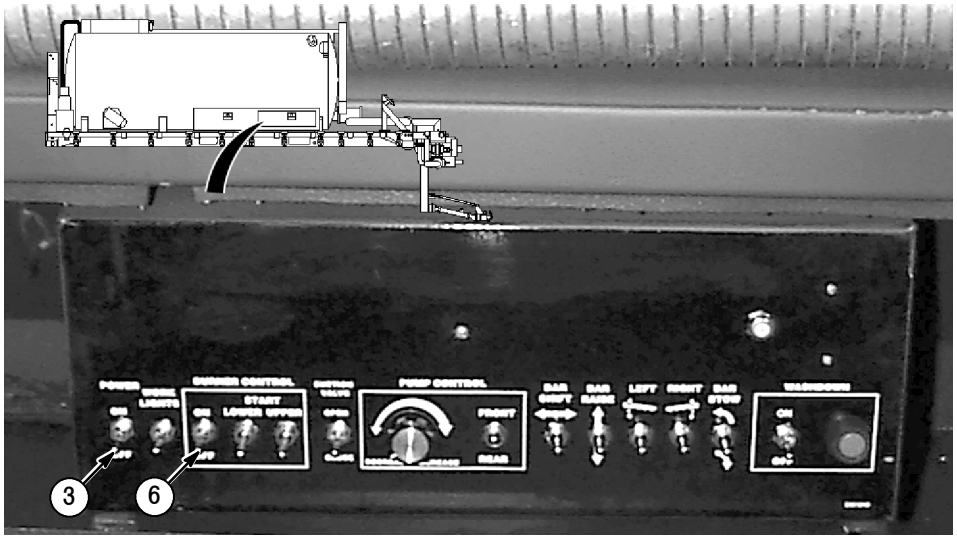
CAUTION

Do not heat material higher than spraying temperature recommended by asphalt supplier. This information is available on Material Safety Data Sheet (MSDS).

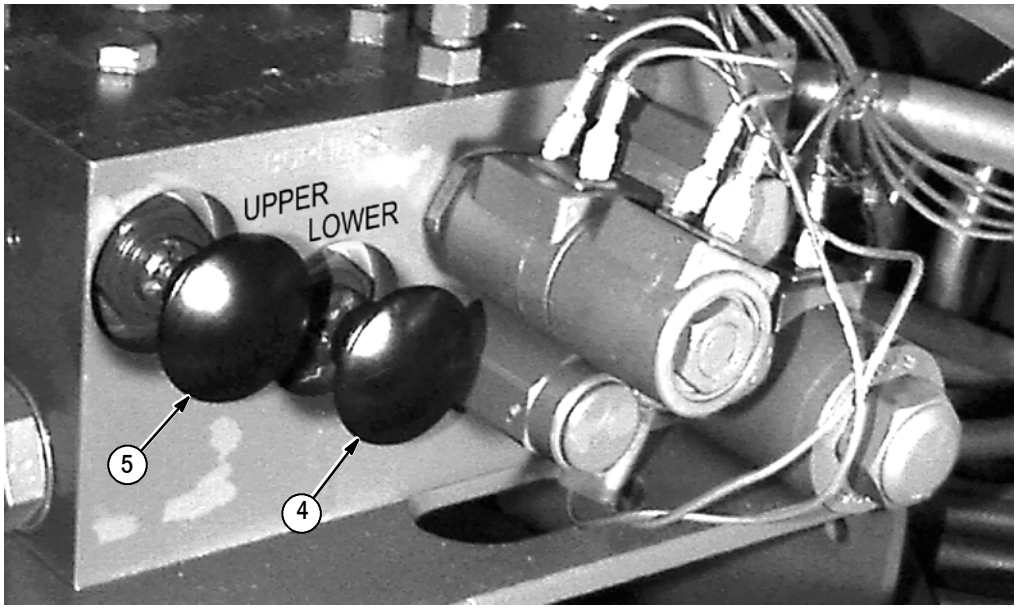
NOTE

Moving distributor back and forth while burners are off will allow hot product to mix with cooler product. This should decrease time required to bring product temperature up enough to start circulating. Once circulation has been established, heating can continue without interruption. Circulate at 100 to 160 gpm (379 to 606 lpm).

m. Monitor tank temperature by reading either external temperature gage (9) or internal temperature gage (10) located on left side of truck.



n. To shut down burners, at rear control panel, turn BURNER CONTROL power switch (6) to OFF position.

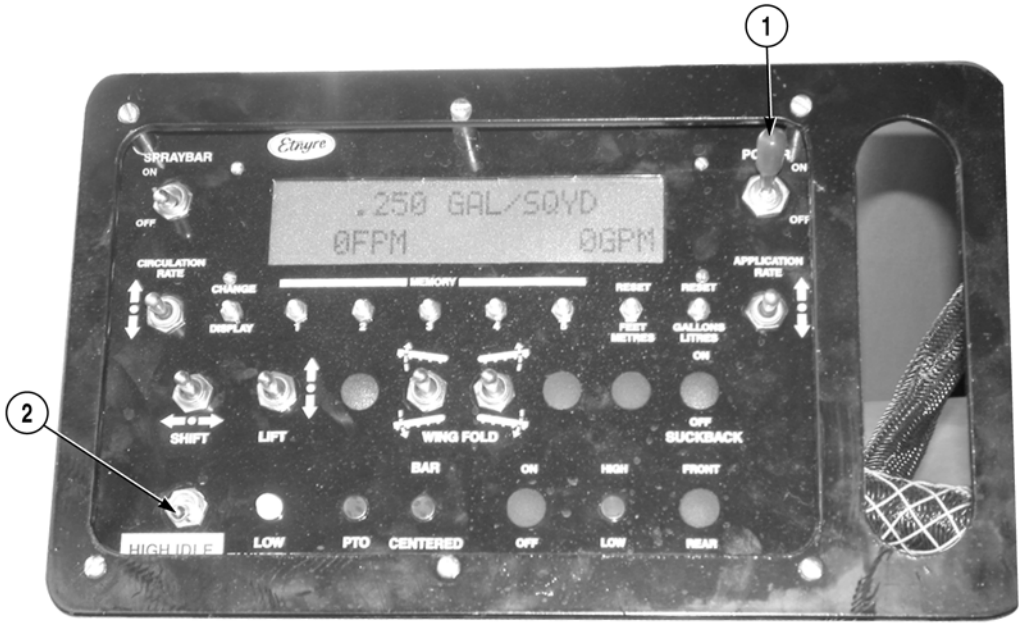


o. If upper burner was ignited, pull out palm button (5) on upper burner and turn 90° until locked. Release palm button (5).

p. Pull out palm button (4) on lower burner and turn 90° until locked. Release palm button (4).

q. At rear control panel, turn master POWER switch (3) to OFF position.

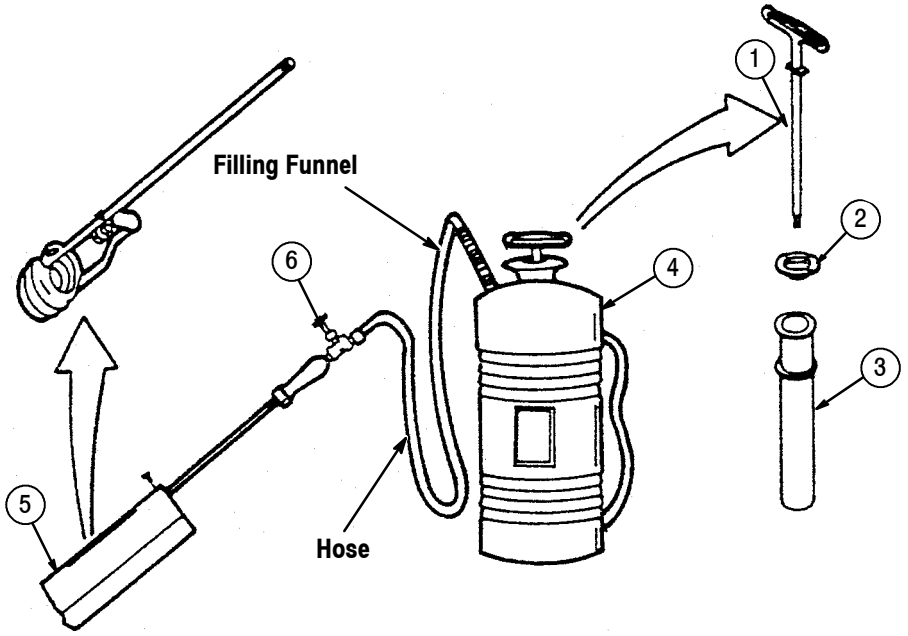
2-22. HEATING BITUMEN IN DISTRIBUTOR (CONT).



r. At front control panel, turn HIGH IDLE switch (2) to OFF position.

s. At front control panel, turn POWER switch (1) to OFF position.

2-23. OPERATING THE PORTABLE BURNER (S/N S2328 THRU S3422).



WARNING

Do not use portable burner to heat RC material. Failure to comply may result in injury or death to personnel.

NOTE

- The portable burner control valve is located at the end of the hose. This valve controls the flow of fuel to the burner.
- The portable burner pump handle is located in the filling funnel. This handle is used to pump air into the portable fuel tank.

a. Remove portable burner from stowed position on platform right side of the Bituminous Distributor.

WARNING

Ensure pressure is released from tank before opening burner control valve or personal injury or death may result.

b. Unscrew pump handle (1) and remove cap (2) and barrel (3). Fill burner fuel tank (4) to three-fourths full with clean diesel fuel. Reinstall barrel (3), cap (2) and pump handle (1).

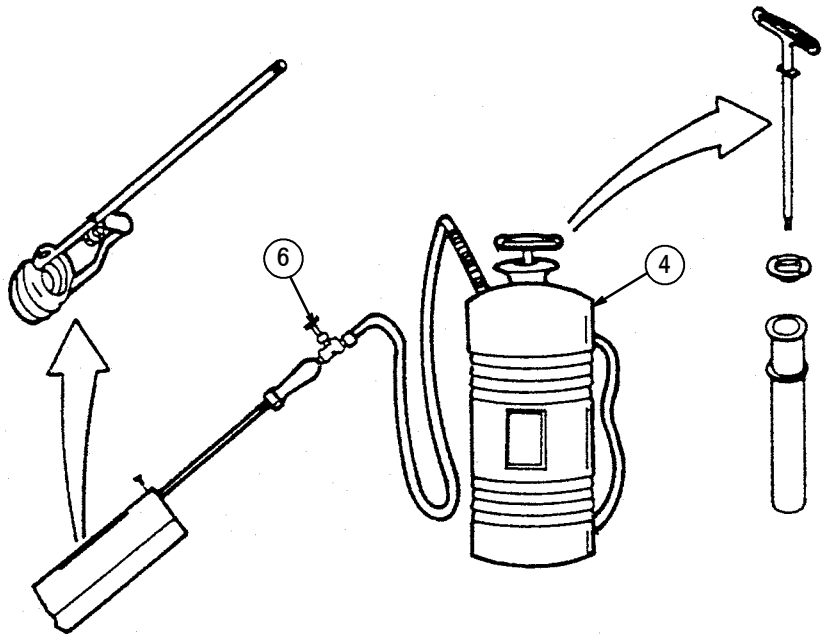
c. Pump air into burner fuel tank (4) by pulling and pushing pump handle (1).

NOTE

Only open burner control valve enough to fill pan and not spray out front of burner.

d. Hold burner (5) in a horizontal position. Open burner control valve (6) to fill the preheating pan with fuel, then close the burner control valve (6).

2-23. OPERATING THE PORTABLE BURNER (S/N S2328 THRU S3422) (CONT).



WARNING

Do not light portable burner in confined area. Injury or death to personnel may result.

e. Light fuel by dropping a small piece of lighted rag into preheating pan.

NOTE

- When coils are being heated, residual fuel in handle and coils will continue to drip or spray from nozzles until consumed. This is normal.
- Ensure fuel in preheating pan is almost consumed before opening burner control valve.
- Blue flame will be inside of coils and yellow flame will be coming out of front of burner.
- If burner shoots liquid or burns with sluggish yellow and smoky flame, shut burner control valve off and repeat Steps **d.** and **e.**, above.

f. Allow fuel to burn until it is almost consumed, then open burner control valve (6) approximately one-third of a complete turn. This should produce a steady blue flame after it has been operating for at least one minute. Adjust burner control valve to achieve desired setting.

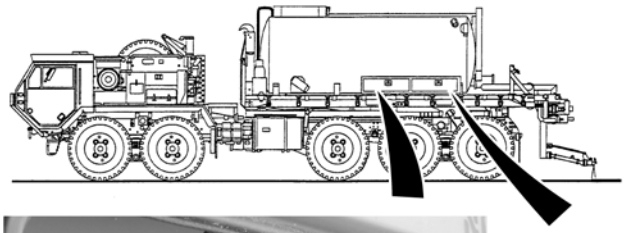
g. Maintain pressure in burner fuel tank (4) during operation by pumping. See **c.** above.

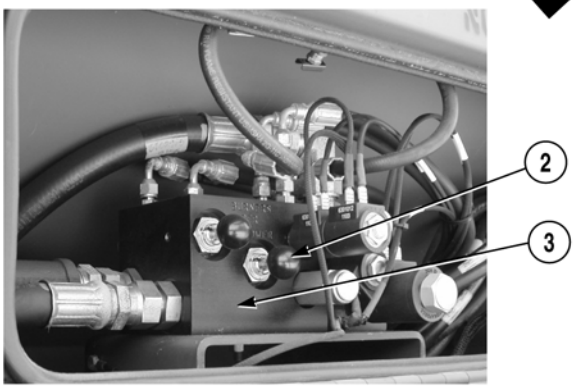
h. When flame burns with intermittent roars or pulsates, turn burner control valve (6) slowly toward CLOSE until flame is even.

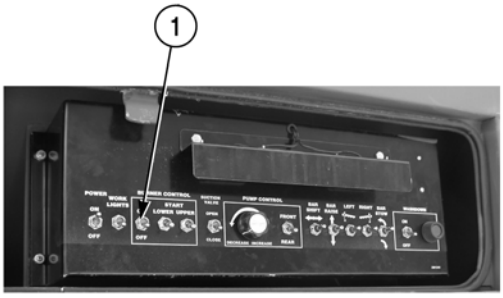
i. Shut off burner control valve (6).

j. Allow burner to cool before stowing burner on platform.

2-24. OPERATING THE PORTABLE BURNER (S/N S3605 AND SUBSEQUENT).







WARNING

- Do not light portable burner in confined area. Injury or death to personnel may result.
- To prevent possible burns, use extreme caution when using a portable burner torch to heat pump. Asphalt accumulated on and around pump may ignite when heating pump with a portable burner torch.
- Do not use portable burner to heat RC material. Failure to comply may result in injury or death to personnel.
- Do not light or operate burner(s) when using portable burner. Failure to comply may result in injury or death to personnel.

NOTE

- The portable burner fuel supply valve is located on the left side of the lower burner.
- The portable burner control valve is located at the end of the hose. This valve controls the flow of fuel to the burner.

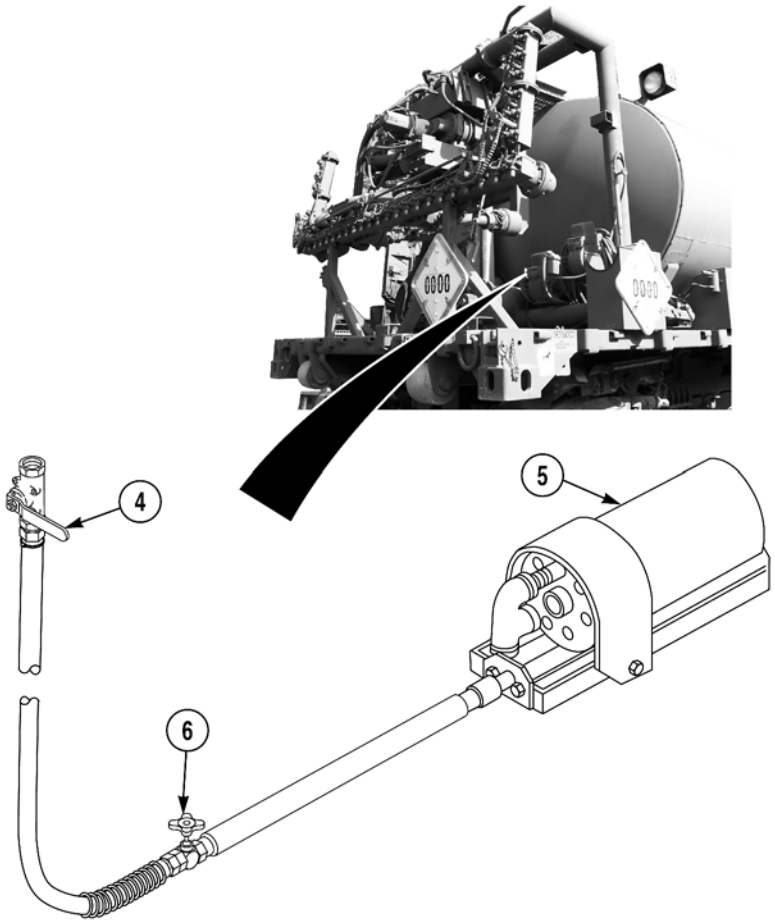
a. Deploy spray bar, (Para 2-17).

b. Remove portable burner from its stowed position right side of Bituminous Distributor.

c. Turn BURNER CONTROL power switch (1) to ON position.

d. Pull out lower burner palm button (2) on burner manifold (3) and turn 90°.

2-24. OPERATING THE PORTABLE BURNER (S/N S3605 AND SUBSEQUENT) (CONT).



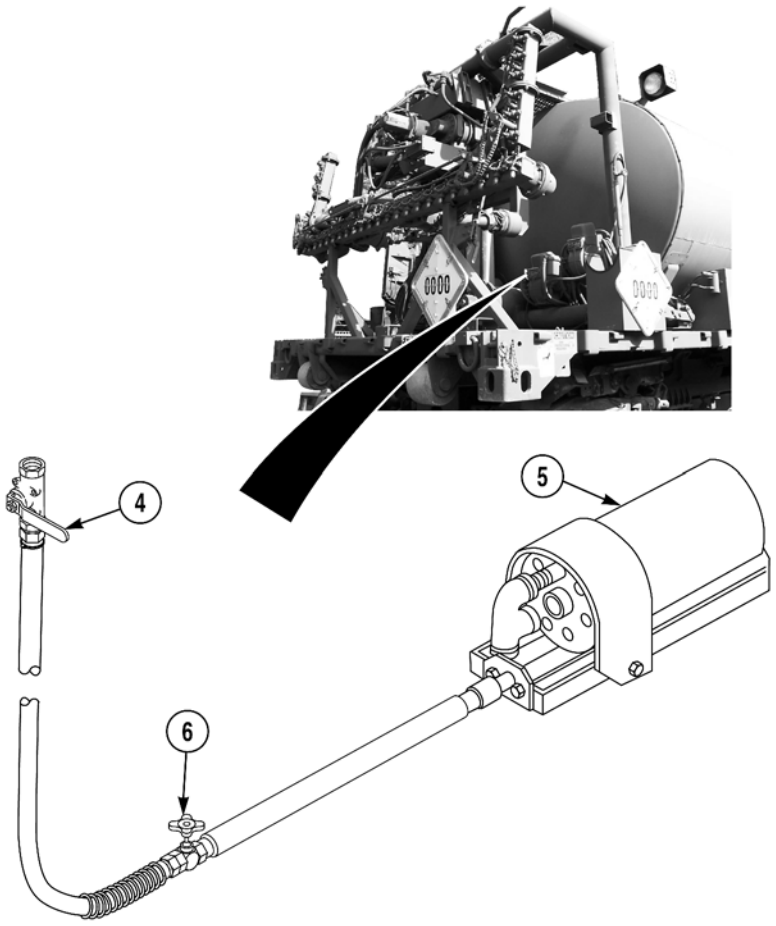
e. Open portable burner fuel supply valve (4).

NOTE

Only open burner control valve enough to fill pan and not spray out front of burner.

f. Hold burner (5) in a horizontal position. Open burner control valve (6) to fill preheating pan with fuel, then close burner control valve (6).

g. Light fuel by dropping a small piece of lighted rag into preheating pan.



NOTE

- When coils are being heated, residual fuel in handle and coils will continue to drip or spray from nozzles until consumed. This is normal.
- Ensure fuel in preheating pan is almost consumed before opening burner control valve.
- Blue flame will be inside of coils and yellow flame will be coming out of front of burner.
- If burner shoots liquid or burns with sluggish yellow and smoky flame, shut burner control valve off and repeat Steps **f**. and **g.**, above.

h. Allow fuel to burn until it is almost consumed, then open burner control valve (6) approximately one-third of a complete turn. This should produce a steady blue flame after it has been operating for at least one minute. Adjust burner control valve to achieve desired setting.

i. When flame burns with intermittent roars or pulsates, turn burner control valve (6) slowly toward CLOSE until flame is even.

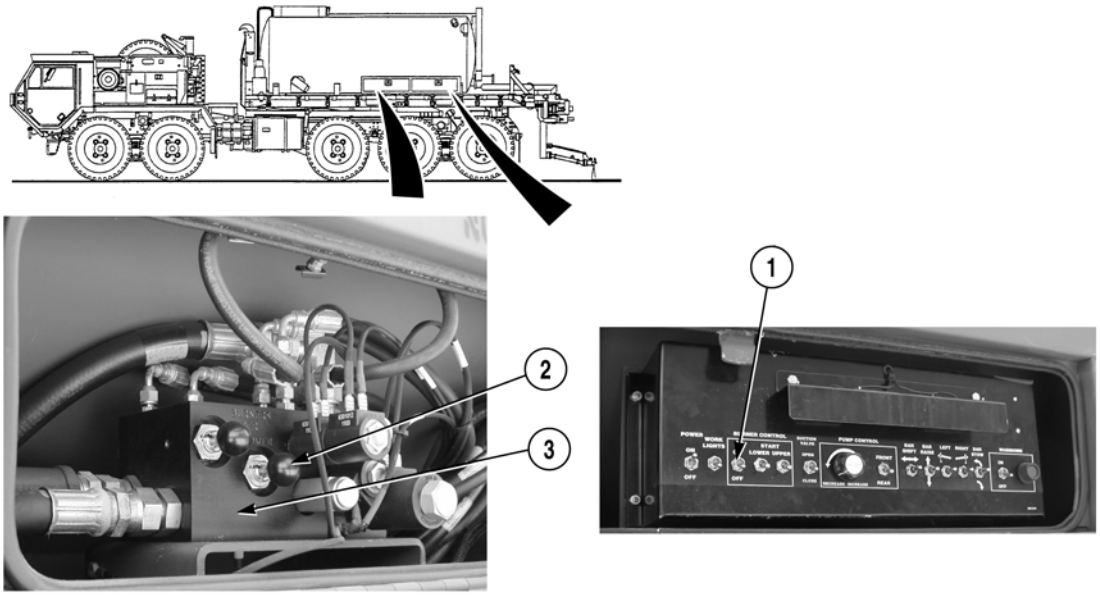
j. Shut off burner control valve (6) and portable burner fuel supply valve (4).

NOTE

Allow burner to cool before stowing it on the platform.

k. Stow portable burner (5) on platform.

2-24. OPERATING THE PORTABLE BURNER (S/N S3605 AND SUBSEQUENT) (CONT).



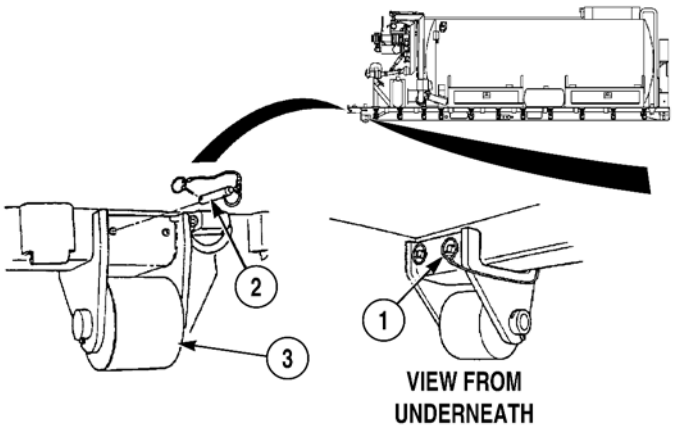
l. Turn BURNER CONTROL power switch (1) to OFF position.

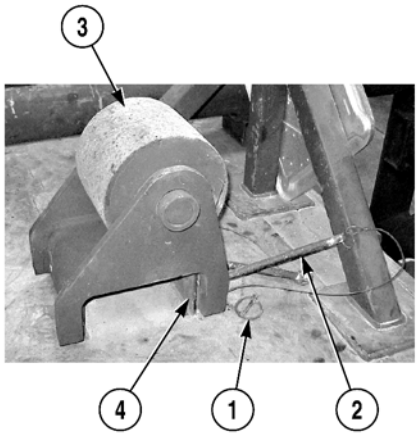
m. Pull out lower burner palm button (2) on burner manifold (3) and turn 90° until locked. Release palm button (2).

n. Stow spray bar, (Para 2-17).

2-25. REAR ROLLER STOW/UNSTOW.

a. Stow





WARNING

Support roller while removing retaining pins or roller may drop causing injury to personnel.

NOTE

This procedure shows replacement of one roller. Replacement is the same for both rollers.

(1) Load Bituminous Distributor, (Para 2-5).

(2) Remove two holding pins (1) from retaining pins (2).

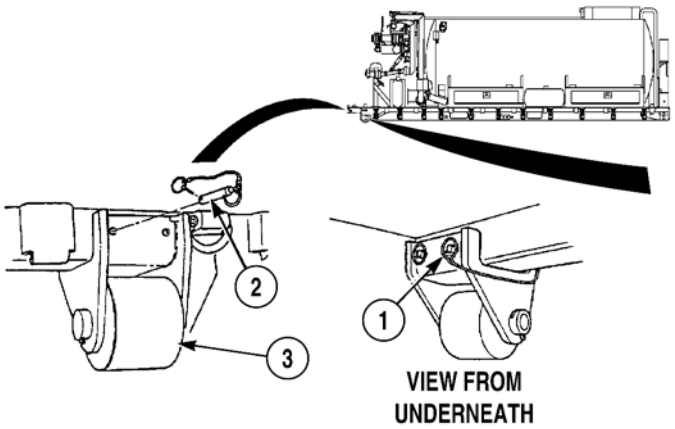
(3) Support roller (3) and remove two retaining pins (2). Remove roller (3) from Bituminous Distributor.

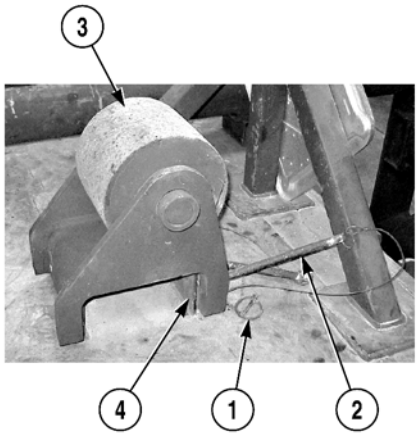
(4) Position roller (3) on roller stowage bracket (4) and install two retaining pins (2).

(5) Install two holding pins (1) in retaining pins (2).

2-25. REAR ROLLER STOW/UNSTOW (CONT).

b. Unstow





(1) Remove two holding pins (1) from retaining pins (2).

(2) Remove two retaining pins (2) and roller (3) from roller stowage bracket (4).

(3) Install roller (3) on Bituminous Distributor using two retaining pins (2).

(4) Install two holding pins (1) in retaining pins (2).

(5) Unload Bituminous Distributor, (Para 2-5).

CHAPTER 3

UNIT AND DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

WARNING

Maintenance tasks are performed on or off truck. If maintenance is performed on truck, ensure UPIK is disconnected (TM 9-2320-364-10), engine is OFF and wheels are chocked. Failure to comply may result in injury or death to personnel.

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3-1. INTRODUCTION.

This section contains Unit and Direct Support Procedures for the Bituminous Distributor. To ensure the Bituminous Distributor is ready for operation at all times, it must be inspected on a regular basis so defects may be found before they result in serious damage, equipment failure or injury to personnel.

Maintenance procedures may be performed either on or off PLS vehicle, i.e. Bituminous Distributor unloaded from PLS. However, all procedures requiring testing to verify repairs must be performed on PLS vehicle.

3-2. GENERAL MAINTENANCE PROCEDURES.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140°F (60°C) and Type III Drycleaning Solvent is 200°F (93°C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

a. Cleanliness. Dirt, grease, oil and debris only get in the way and may cover up a serious problem. Use drycleaning solvent 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 your supervisor.

d. Electrical Wires and Connectors. Look for cracked or broken insulation, bare wires and loose or broken connectors. Tighten loose connectors and make sure the wires are in good shape. Refer to TM 9-2320-364-20 for wire and connector repair.

e. Fluid Hoses, Tubes and Fittings. Look for wear, damage and leaks; and make sure clamps and fittings are tight. Wet spots show leaks, but a stain around a fitting or connector may indicate a leak. If connector or fitting is loose, tighten it. If something is broken or worn out, repair or replace per applicable procedure.

3-2. GENERAL MAINTENANCE PROCEDURES (CONT).

f. Fluid Leakage. It is necessary to know how fluid leakage affects the status of fuel, oil, coolant and the hydraulic system. The following are definitions of the type/classes of leakage necessary to know in order to determine the status of the Bituminous Distributor. 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 fluid capacity in the item/system being checked/inspected. When in doubt, notify the 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 the item being checked/inspected.

g. 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 something is broken or worn out, either repair or replace it.

h. Damage. Damage is defined as any condition that affects safety or would make the truck unserviceable for mission requirements.

3-3. FUEL TANK DRAIN/FILL.

This task covers:

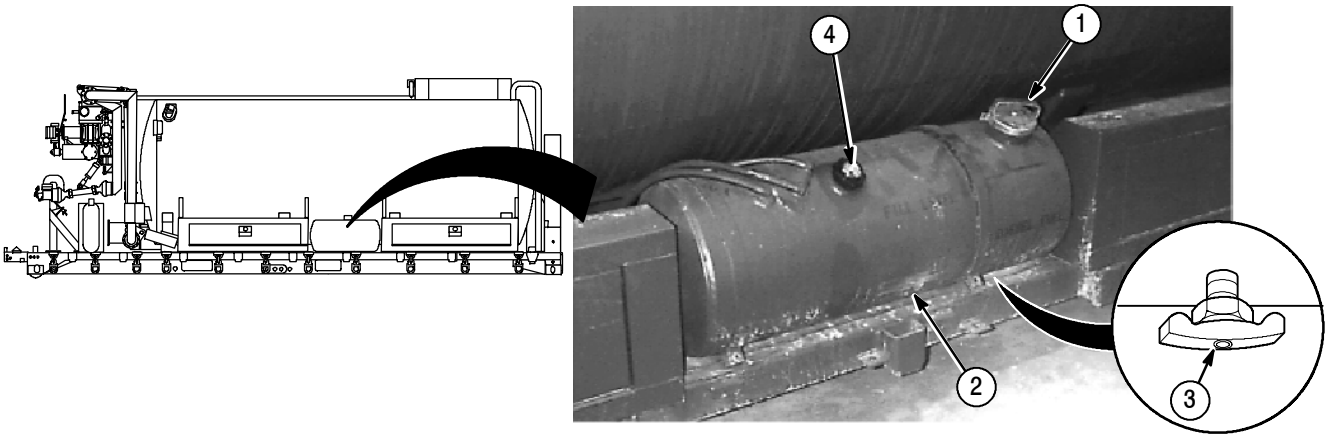
a. Drain b. Fill

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Pan, Drain (Item 9, Appendix F)

Materials/Parts
Oil, Fuel, Diesel (Item 4, Appendix E)

a. Drain.



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.

NOTE

Fuel tank capacity is approximately 25 gallons (94.63 l).

(1) Loosen cap (1) on fuel tank (2).

(2) Position drain pan under fuel tank (2).

(3) Open drain cock (3) on fuel tank (2) and completely drain fuel.

(4) Close drain cock (3) on fuel tank (2).

b. Fill.

(1) Remove cap (1) from fuel tank (2).

(2) Fill fuel tank (2) with diesel fuel until fuel gage (4) reads FULL.

(3) Install cap (1) on fuel tank (2).

END OF TASK

3-4. HYDRAULIC MOTOR REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

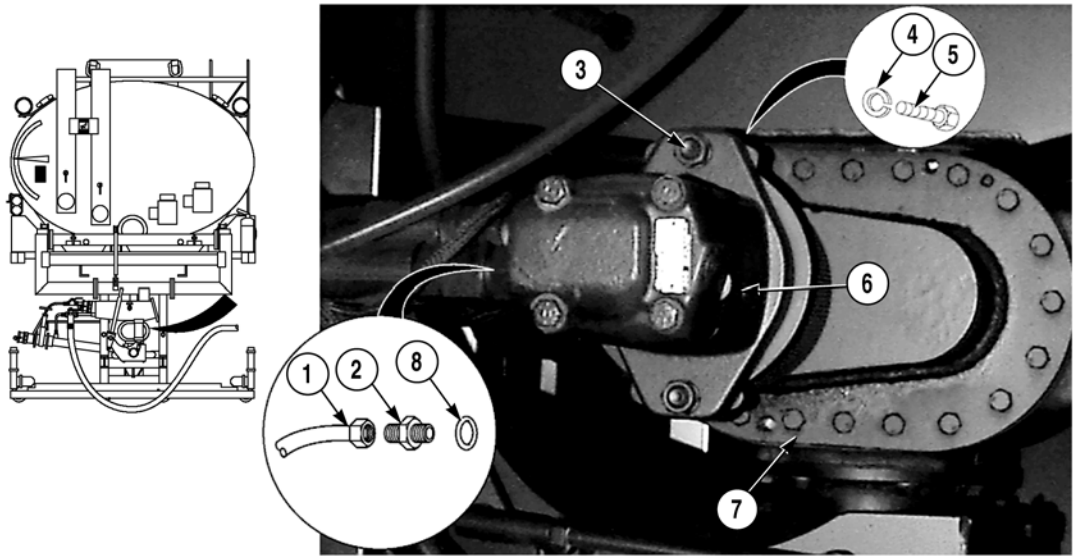
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Cap and Plug Set (Item 3, Appendix F)
Pan, Drain (Item 9, Appendix F)

Materials/Parts
Cable Ties (Item 1, Appendix E)
Compound, Antiseize (Item 2, Appendix E)

Materials/Parts - Continued
Hydraulic Oil (Item 3, Appendix E)
Lockwasher (2)
Tags, Identification (Item 9, Appendix E)
Packing, Preformed (Item 11, Appendix E)

Equipment Condition
Spray Bar deployed, (Para 2-17)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



NOTE

- Remove cable ties as required.
- Cap and plug all hoses and fittings upon removal.
- Tag and mark hoses prior to removal.
- Position drain pan under hoses.

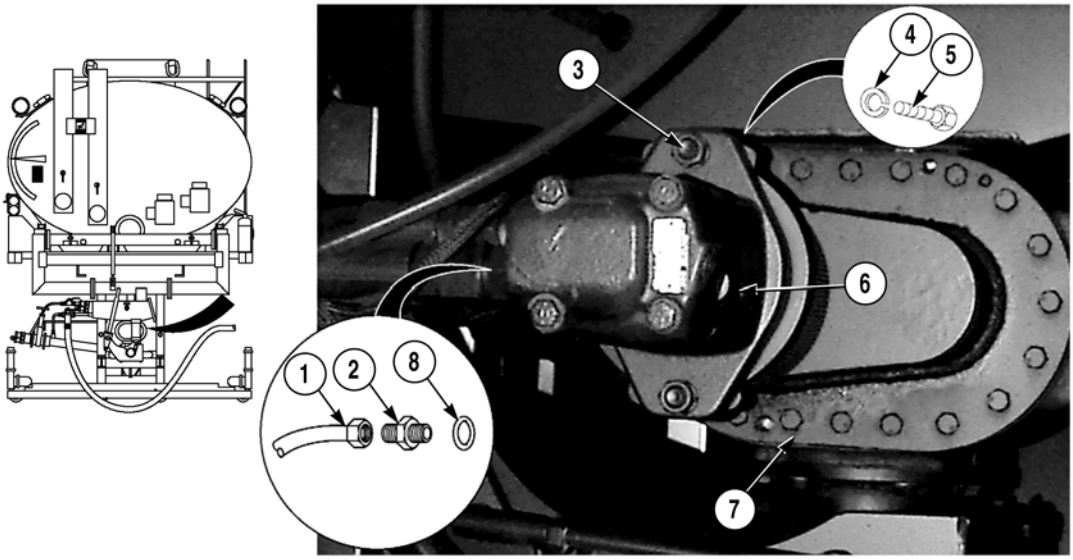
(1) Remove two hoses (1) from fittings (2).

(2) Remove two nuts (3), lockwashers (4), screws (5) and hydraulic motor (6) from asphalt pump (7). Discard lockwashers.

(3) Remove two fittings (2) from hydraulic motor (6).

(4) Remove and discard two preformed packings (8) from fittings (2).

b. Installation.



NOTE

Install cable ties as required.

(1) Apply lubricating oil to two preformed packings (8).

(2) Install two preformed packings (8) in fittings (2).

(3) Install two fittings (2) in hydraulic motor (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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(4) Apply antiseize to splines on shaft of hydraulic motor (6).

(5) Install hydraulic motor (6) on asphalt pump (7) using two screws (5), lockwashers (4) and nuts (3).

NOTE

Ensure hoses are installed in same location as noted during removal.

(6) Install two hoses (1) on fittings (2).

c. Follow-On Maintenance:

- Stow spraybar, (Para 2-17).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-5. LADDER REPLACEMENT.

This task covers:

a. Removal b. Installation

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Lockwasher (8) (MS 35338-7)

Equipment Condition
Bituminous Distributor unloaded from PLS, (Para 2-5)

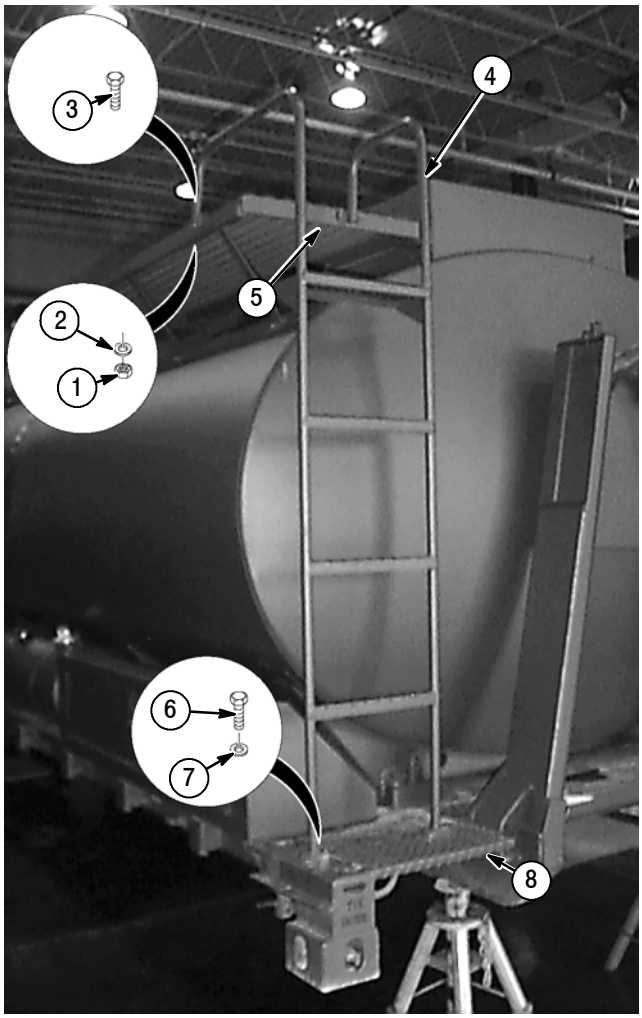
a. Removal.

NOTE

Some models have screws directly into Bituminous Distributor and do not have nuts.

(1) Remove four nuts (1), lockwashers (2) and screws (3) from ladder (4) and walkway (5). Discard lockwashers.

(2) Remove four screws (6), lockwashers (7) and ladder (4) from flatrack (8). Discard lockwashers.



b. Installation.

(1) Position ladder (4) on flatrack (8) with four lockwashers (7) and screws (6). Do not tighten screws.

(2) Position four screws (3), lockwashers (2) and nuts (1) in ladder (4) and walkway (5). Do not tighten screws.

(3) Tighten six screws (6) and (3) on ladder (4).

END OF TASK

3-6. REAR CONTROL PANEL SWITCH REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

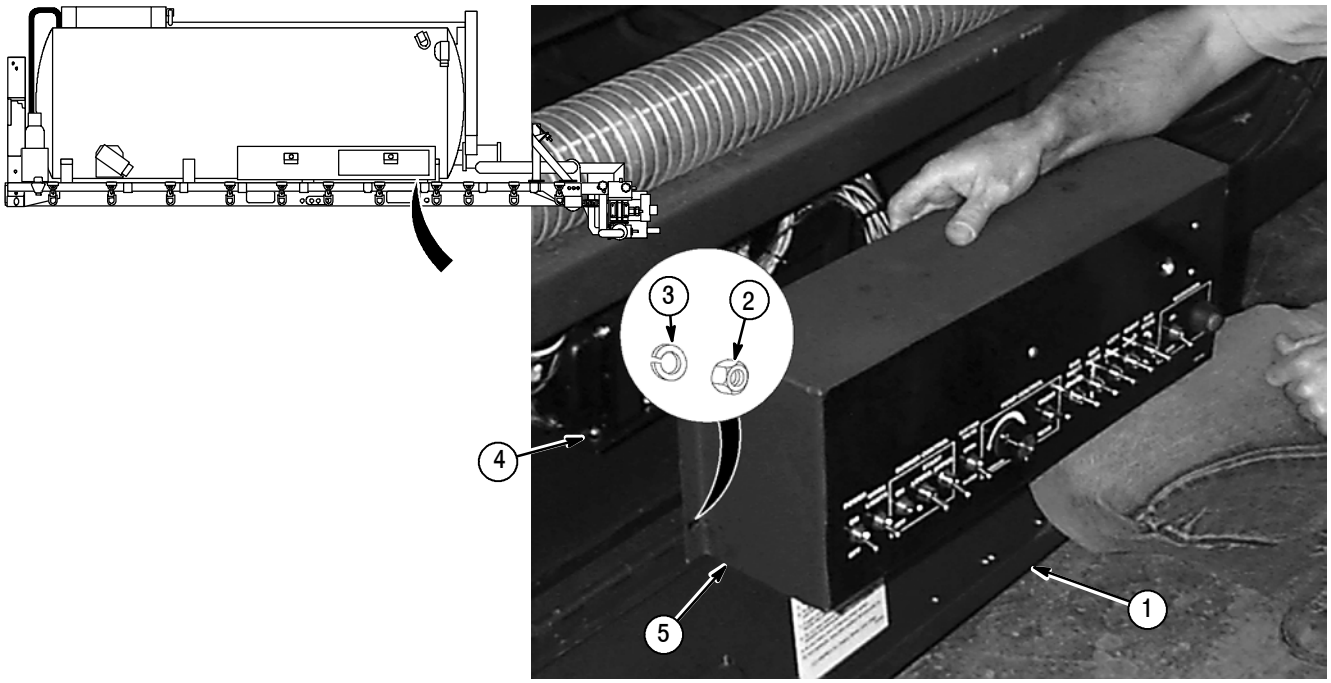
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Lockwasher (4) (MS 35338-44)

Equipment Condition
Rear control panel removed, (Para 3-76) (S/N S3605 and Subsequent)

a. Removal.



NOTE

All switches on rear control panel are removed the same way.

(1) Open rear control panel door (1).

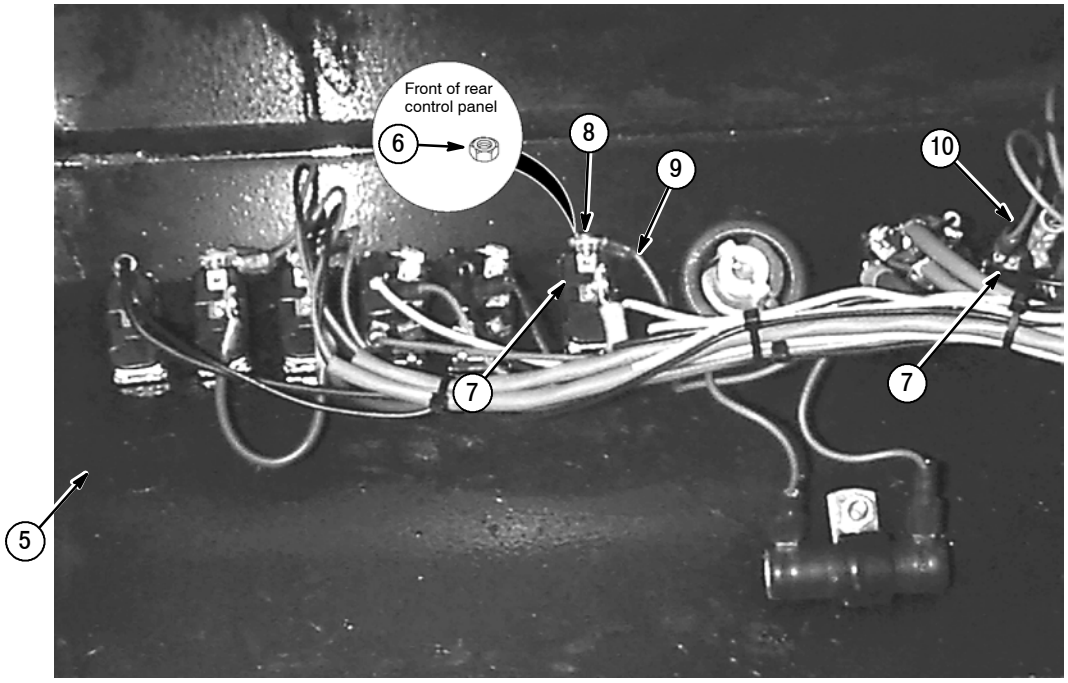
(2) Remove four nuts (2) and lockwashers (3) from studs (4) and rear control panel (5). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(3) Carefully pull rear control panel (5) forward and support rear control panel (5).

3-6. REAR CONTROL PANEL SWITCH REPLACEMENT (CONT).



NOTE

- For screw-type wires, perform Steps (4) and (6).
- For spade connected wires, perform Steps (5) and (6).
- Tag and mark all wires prior to removal.
- Nuts are located on face of rear control panel.

(4) Remove nut (6) and switch (7) from rear control panel (5).

(5) Loosen screws (8) and remove wires (9) from switch (7).

(6) Remove wires (10) from switch (7) being replaced.

b. Installation.

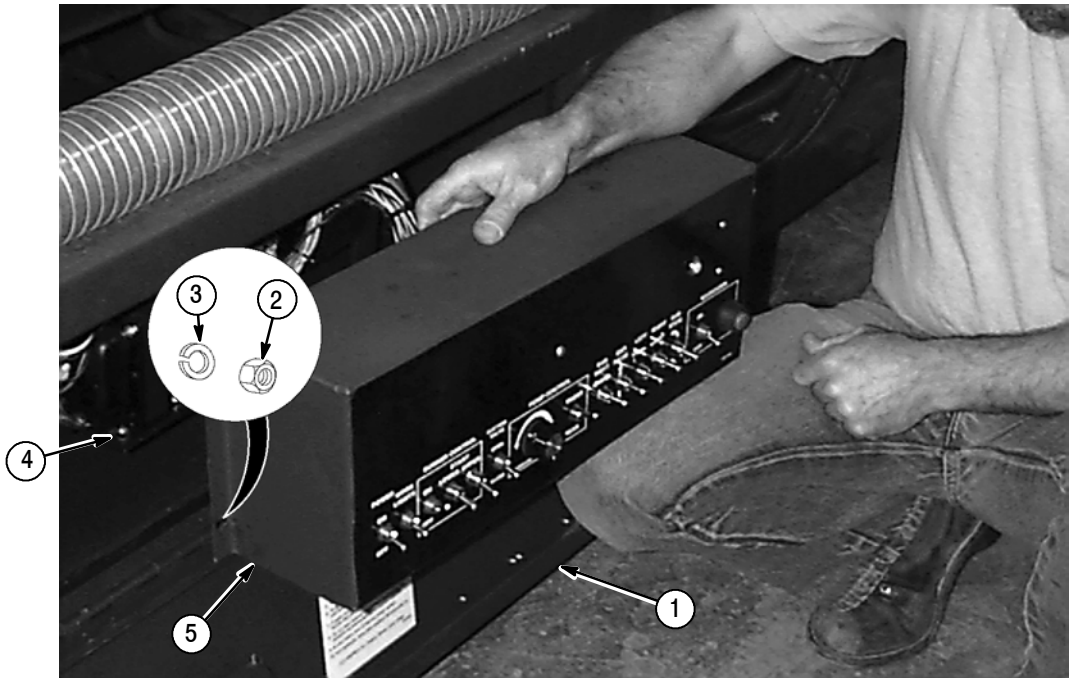
NOTE

- Install wires in position as noted prior to removal.
- For spade connected wires, perform Steps (1) and (2).
- For screw-type wires, perform Steps (1) and (3).

(1) Install wires (10) on switch (7).

(2) Position wires (9) on switch (7) and tighten screws (8).

(3) Install switch (7) in rear control panel (5) with nut (6).



(4) Position rear control panel (5) on four studs (4).

(5) Install four lockwashers (3) and nuts (2) on studs (4) on rear control panel (5).

(6) Close rear control panel door (1).

c. Follow-On Maintenance:

- Install rear control panel, (Para 3-76) (S/N S3605 and Subsequent).

END OF TASK

3-7. REAR CONTROL PANEL RESISTOR REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

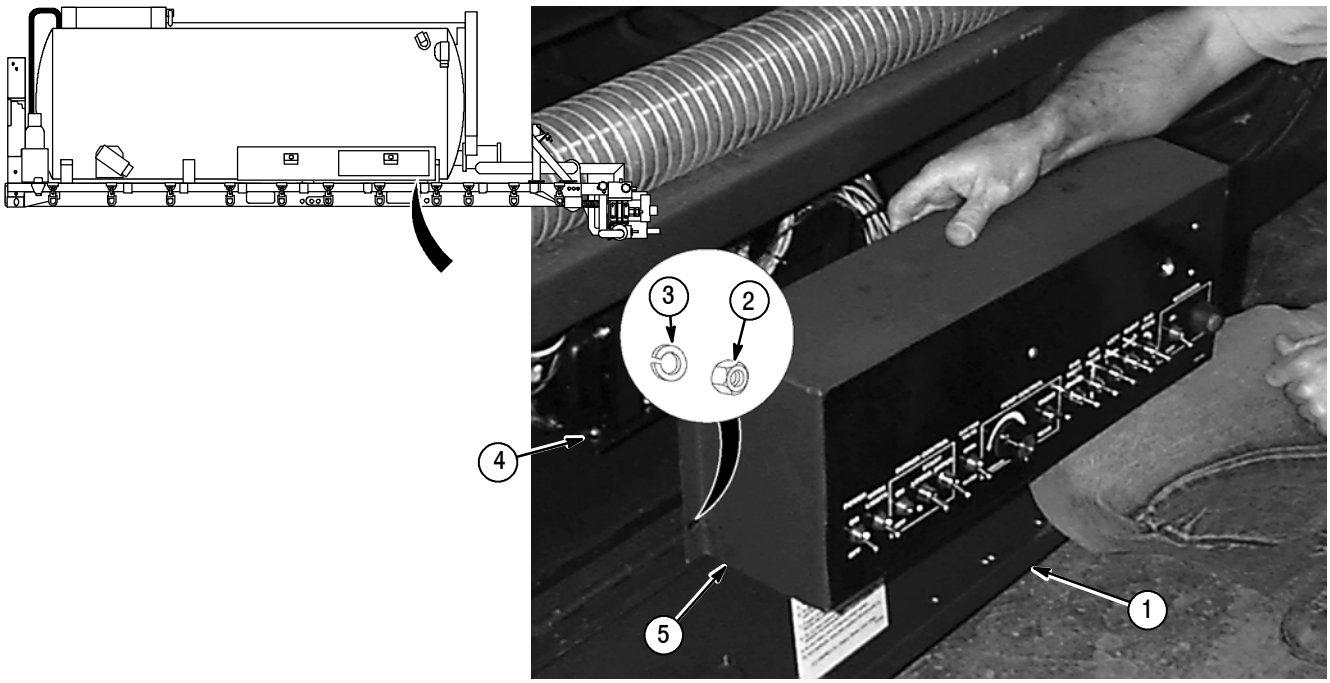
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Lockwasher (5) (MS 35338-44)

Equipment Condition
Rear control panel removed, (Para 3-76) (S/N S3605 and Subsequent)

a. Removal.



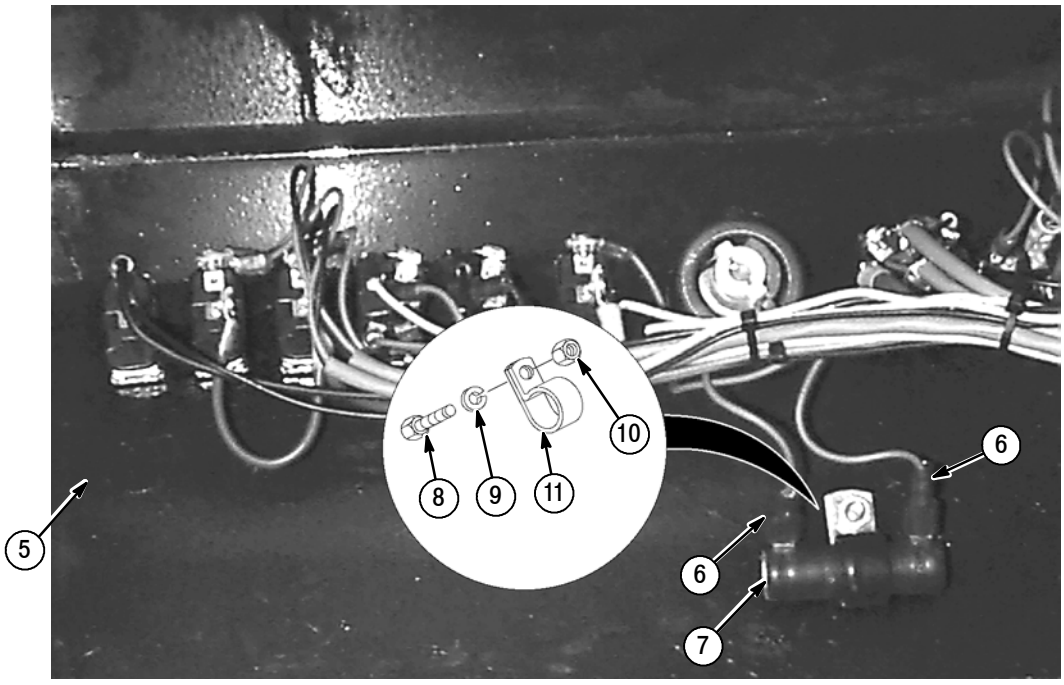
(1) Open rear control panel door (1).

(2) Remove four nuts (2) and lockwashers (3) from studs (4) and rear control panel (5). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(3) Carefully pull rear control panel (5) forward and support rear control panel (5).



NOTE

Tag and mark wires prior to removal.

(4) Remove two wires (6) from rear of resistor (7).

(5) Remove screw (8), lockwasher (9), nut (10) and cushion clip (11) from rear control panel (5). Discard lockwasher.

(6) Remove cushion clip (11) from resistor (7).

b. Installation.

(1) Position cushion clip (11) on resistor (7).

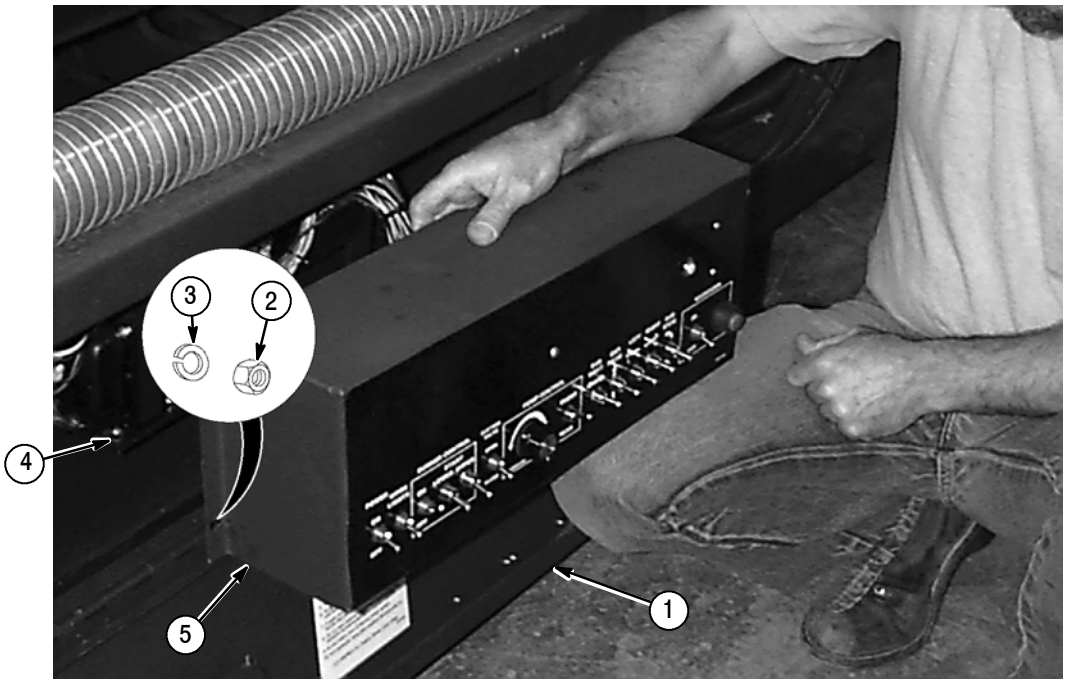
(2) Install cushion clip (11) and resistor (7) on rear control panel (5) with lockwasher (9), screw (8) and nut (10).

NOTE

Install wires as noted prior to removal.

(3) Install two wires (6) on rear of resistor (7).

3-7. REAR CONTROL PANEL RESISTOR REPLACEMENT (CONT).



(4) Position rear control panel (5) on four studs (4).

(5) Install four lockwashers (3) and nuts (2) on studs (4) and rear control panel (5).

(6) Close rear control panel door (1).

c. Follow-On Maintenance:

- Install rear control panel, (Para 3-76) (S/N S3605 and Subsequent).

END OF TASK

3-8. REAR CONTROL PANEL RHEOSTAT SWITCH REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

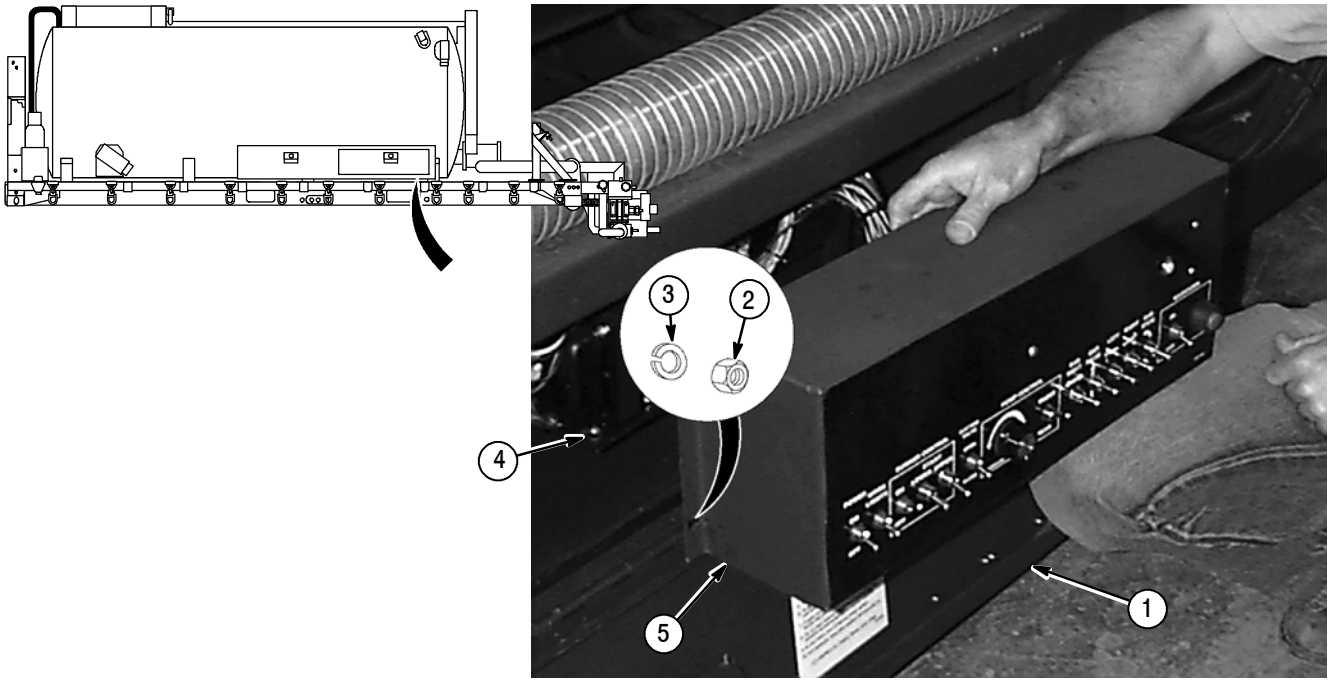
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Lockwasher (4) (MS 35338-44)

Equipment Condition
Rear control panel removed, (Para 3-76) (S/N S3605 and Subsequent)

a. Removal.



(1) Open rear control panel door (1).

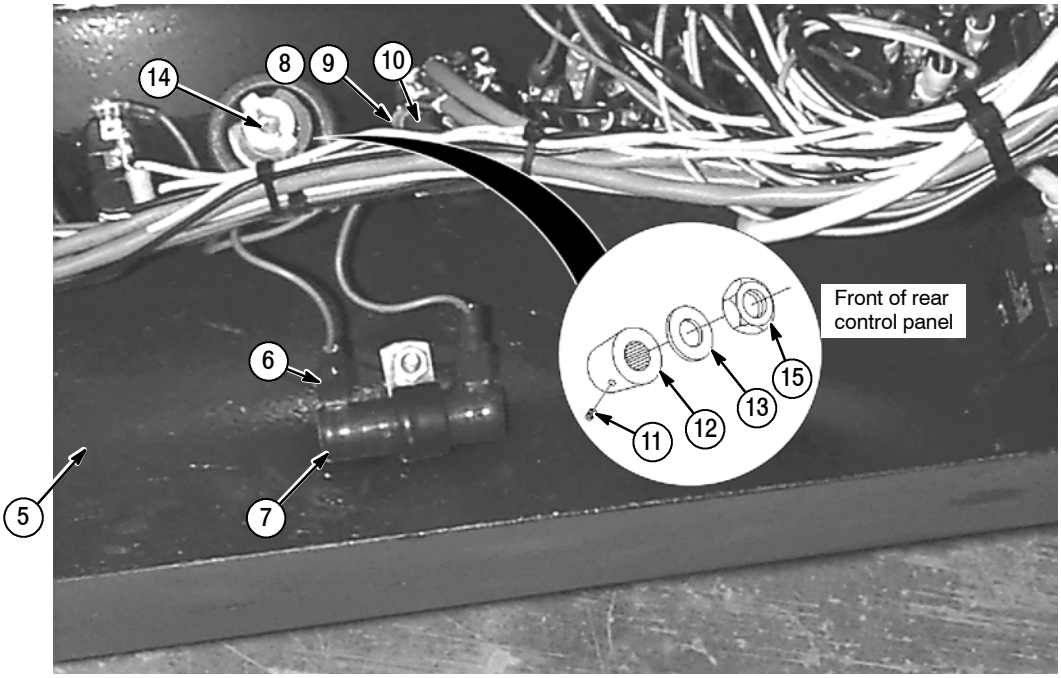
(2) Remove four nuts (2) and lockwashers (3) from studs (4) and rear control panel (5). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(3) Carefully pull rear control panel (5) forward and support rear control panel (5).

3-8. REAR CONTROL RHEOSTAT SWITCH REPLACEMENT (CONT).



NOTE

- Note position of switch and knob prior to removal.
- Tag and mark wires prior to removal.

(4) Remove wire (6) from resistor (7).

(5) Loosen screw (8) and remove wire (9) from rear of pump switch (10).

(6) Loosen setscrew (11) and remove knob (12) and foam washer (13) from front of rheostat switch (14).

(7) Remove nut (15) and rheostat switch (14) from rear control panel (5).

b. Installation.

NOTE

Install switch and knob as noted prior to removal.

(1) Install rheostat switch (14) on rear control panel (5) with nut (15).

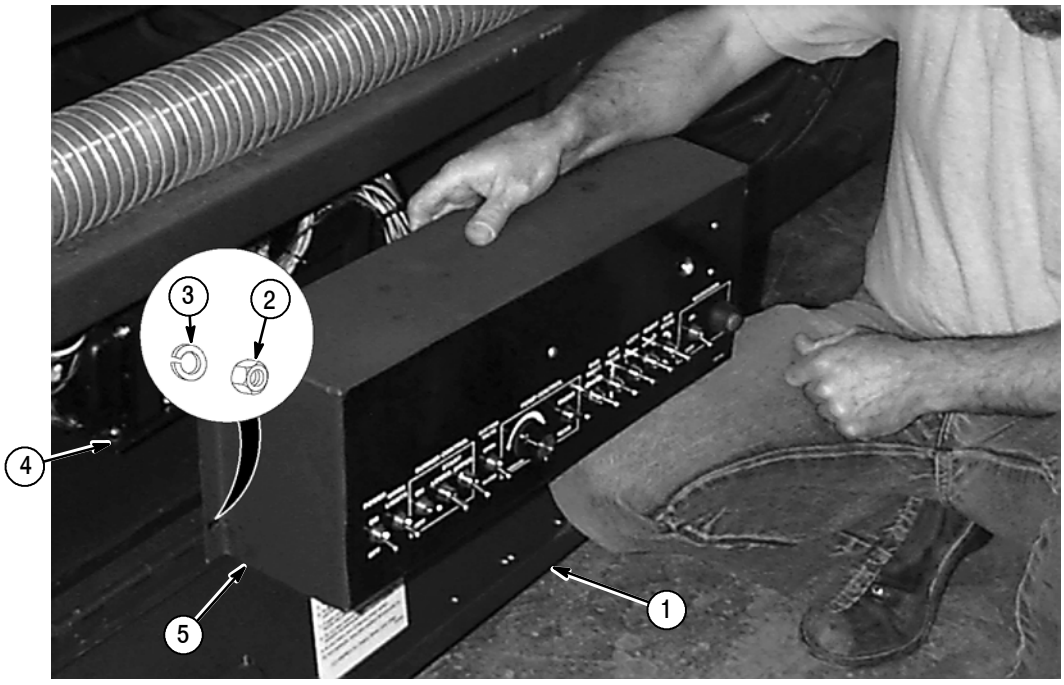
(2) Install foam washer (13) and knob (12) on front of rheostat switch (14) and tighten setscrew (11).

NOTE

Install wires as noted prior to removal.

(3) Install wire (9) on rear of pump switch (10) and tighten screw (8).

(4) Install wire (6) on left end of resistor (7).



(5) Position rear control panel (5) on four studs (4).

(6) Install four lockwashers (3) and nuts (2) on studs (4) and rear control panel (5).

(7) Close rear control panel door (1).

c. Follow-On Maintenance:

- Install rear control panel, (Para 3-76) (S/N S3605 and Subsequent).

END OF TASK

3-9. REAR CONTROL PANEL WASHDOWN BUZZ LIGHT REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

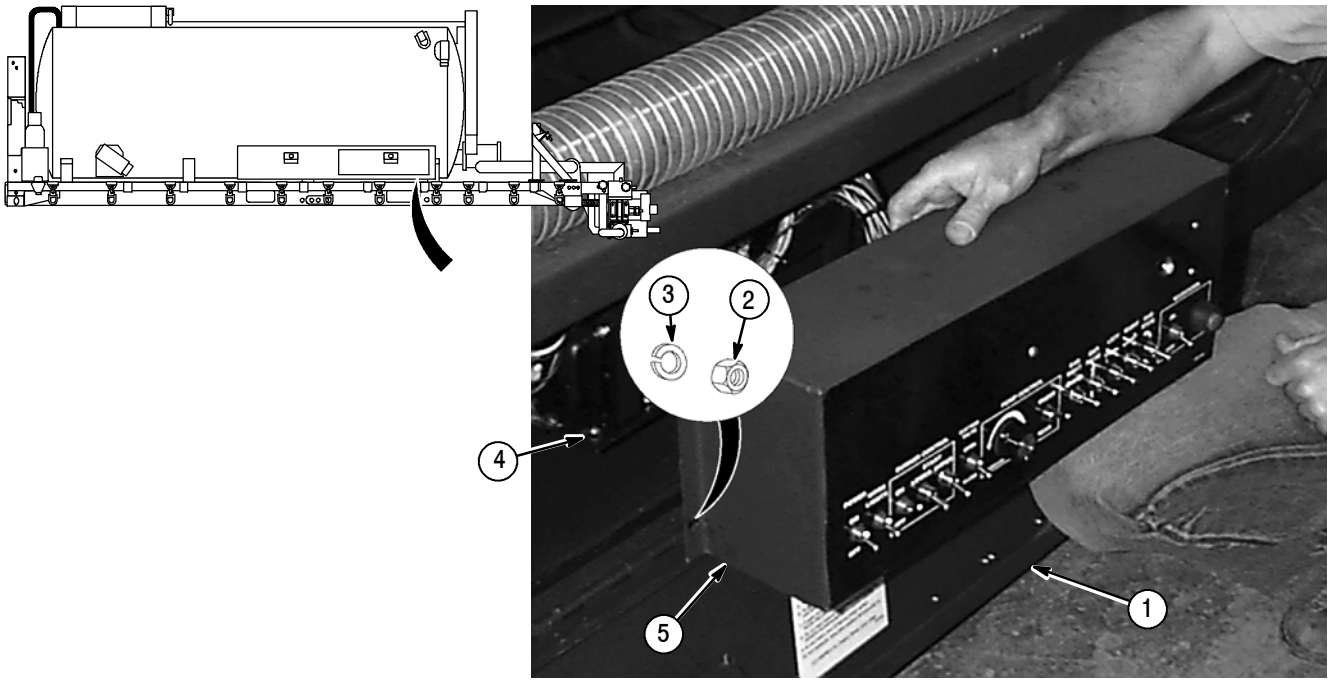
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Lockwasher (4) (MS 35338-44)

Equipment Condition
Rear control panel removed, (Para 3-76) (S/N S3605 and Subsequent)

a. Removal.



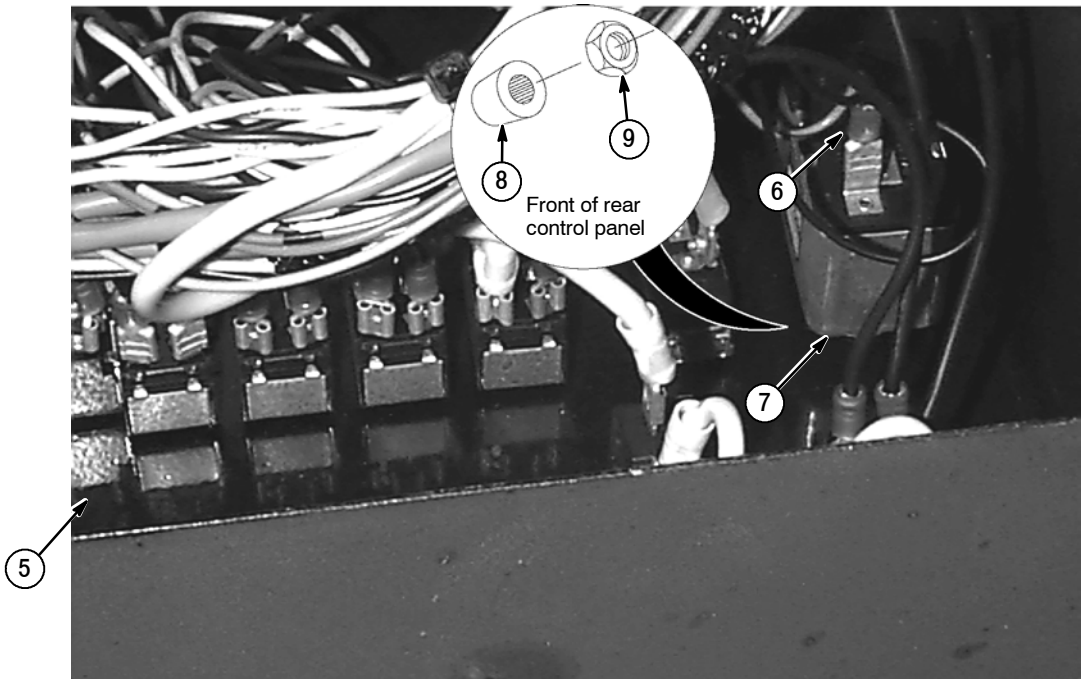
(1) Open rear control panel door (1).

(2) Remove four nuts (2) and lockwashers (3) from studs (4) and rear control panel (5). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(3) Carefully pull rear control panel (5) forward and support rear control panel (5).



NOTE

Tag and mark wires prior to removal.

(4) Remove two wires (6) from rear of washdown buzz light (7).

(5) Remove cover (8) from front side of washdown buzz light (7).

(6) Remove nut (9) and washdown buzz light (7) from rear control panel (5).

b. Installation.

(1) Install washdown buzz light (7) on rear control panel (5) with nut (9).

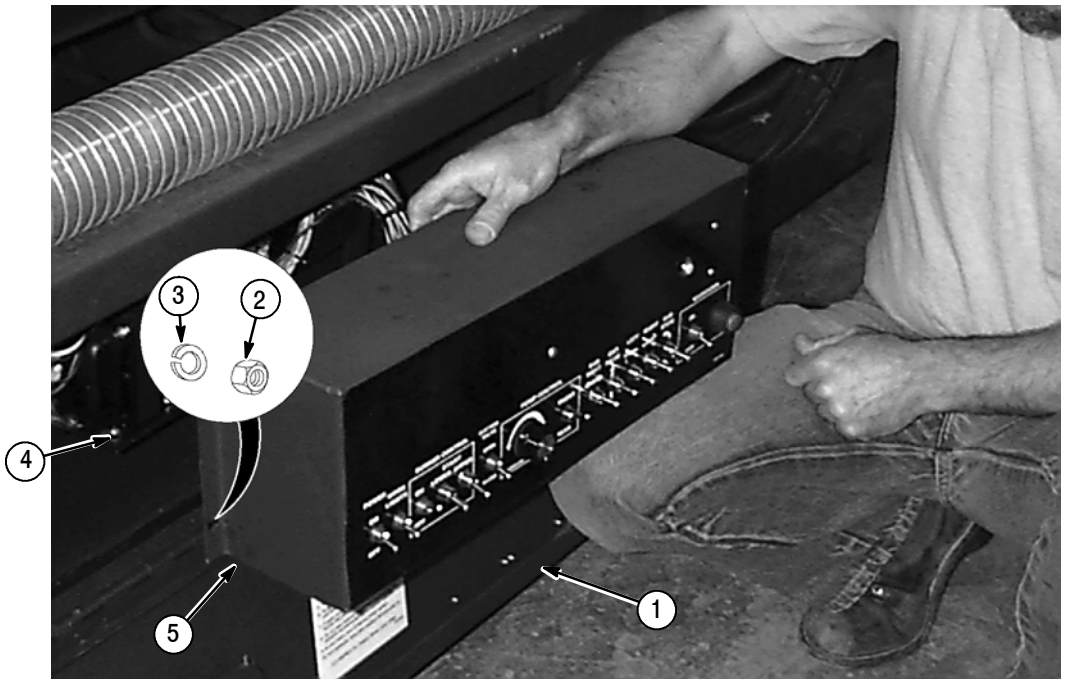
(2) Install cover (8) on front side of washdown buzz light (7).

NOTE

Install wires as noted prior to removal.

(3) Install two wires (6) on rear of washdown buzz light (7).

3-9. REAR CONTROL PANEL WASHDOWN BUZZ LIGHT REPLACEMENT (CONT).



(4) Position rear control panel (5) on four studs (4).

(5) Install four lockwashers (3) and nuts (2) on studs (4) and rear control panel (5).

(6) Close rear control panel door (1).

c. Follow-On Maintenance:

- Install rear control panel, (Para 3-76) (S/N S3605 and Subsequent).

END OF TASK

3-10. STRAINER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

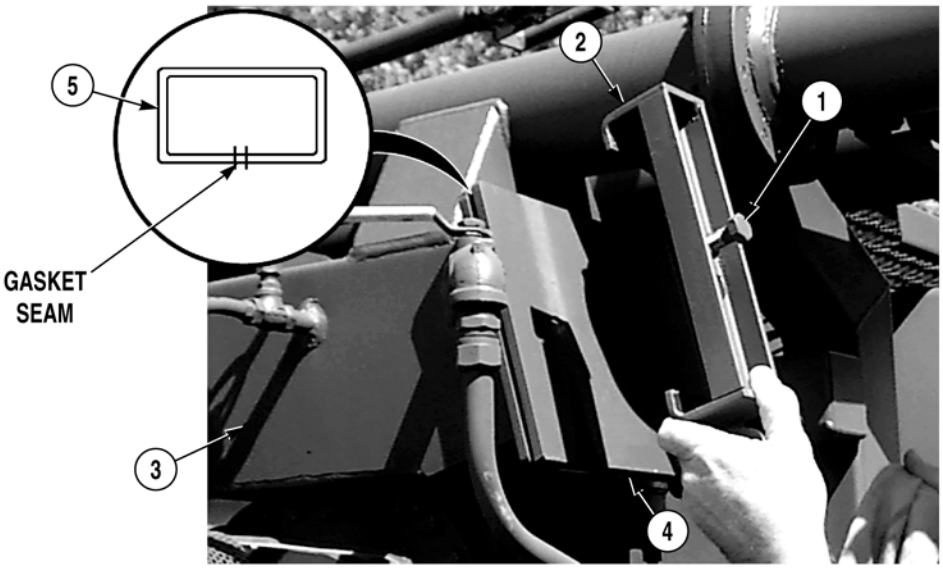
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Pan, Drain (Item 9, Appendix F)

Materials/Parts
Gasket (3341459)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



WARNING

To prevent burns, ensure Bituminous Distributor has cooled down prior to performing task. Failure to comply may result in injury to personnel.

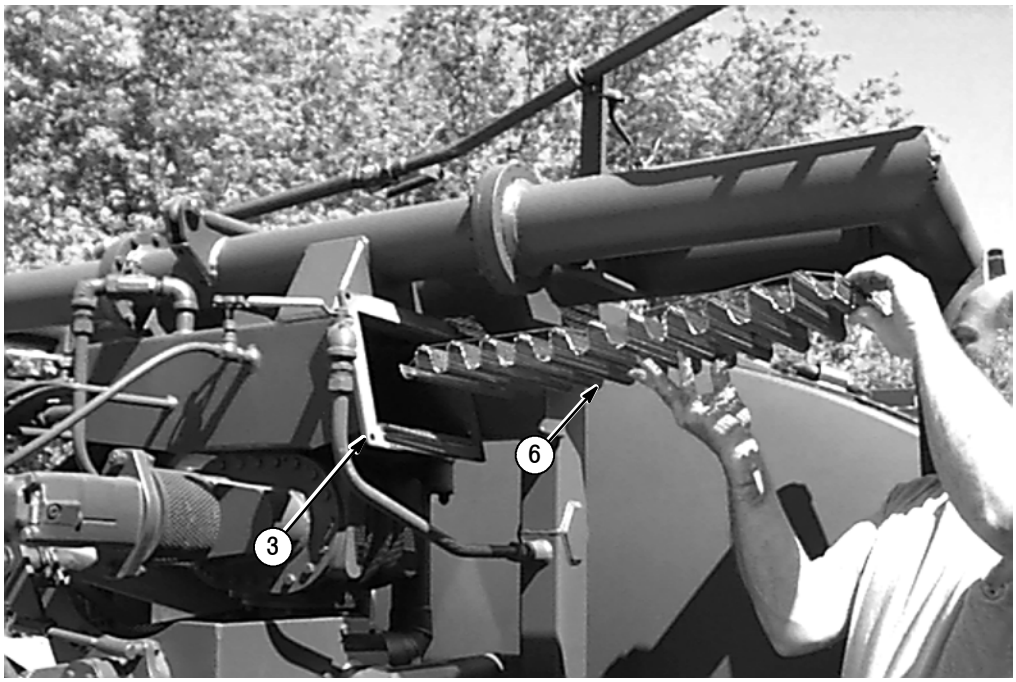
NOTE

- Clamps will slide off strainer in left direction only.
- Position drain pan under strainer to catch fuel/bituminous mixture.

(1) Loosen two screws (1) and slide two clamps (2) from strainer housing (3).

(2) Remove cover (4) and gasket (5) from strainer housing (3). Discard gasket.

3-10. STRAINER REPLACEMENT (CONT).



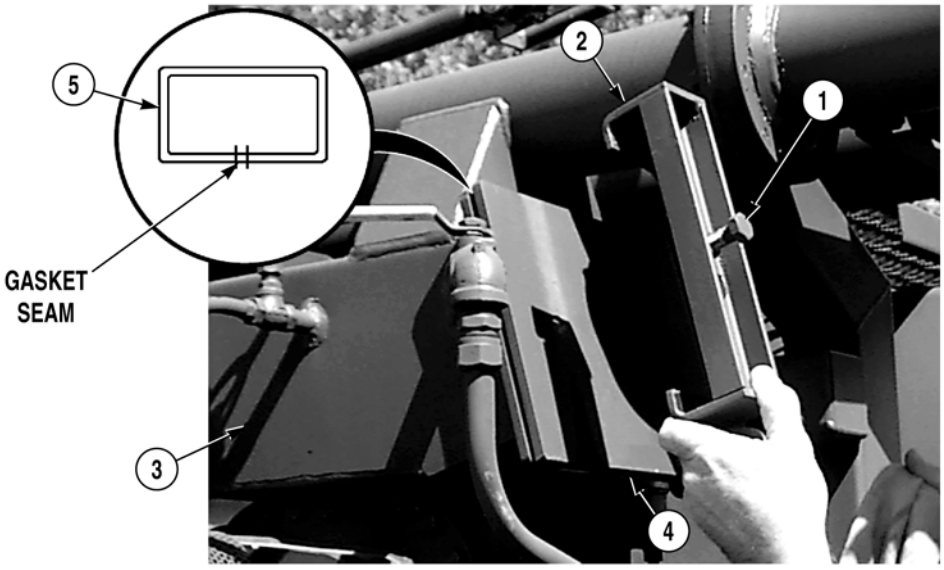
(3) Remove strainer (6) from strainer housing (3).

b. Installation.

NOTE

Strainer is installed with wire side up.

(1) Install strainer (6) in strainer housing (3).



WARNING

Cover must be installed on strainer housing with gasket seam located on bottom of cover. Failure to comply may result in serious injury to personnel.

CAUTION

Overtightening screws can cause damage to clamp.

NOTE

- Screws on clamps should be positioned over outside recessed holes.
- Both clamps are installed from left end of strainer housing.

(2) Position cover (4) and gasket (5) on strainer housing (3) and install two clamps (2) over cover (4).

(3) Hand tighten two screws (1). With wrench, tighten screws (1) approximately 3/4 to 1 turn.

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-11. FUEL FILTER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Pan, Drain (Item 9, Appendix F)

Materials/Parts
Filter and Gasket (773001)
Oil, Fuel, Diesel (Item 4, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.

WARNING

To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.

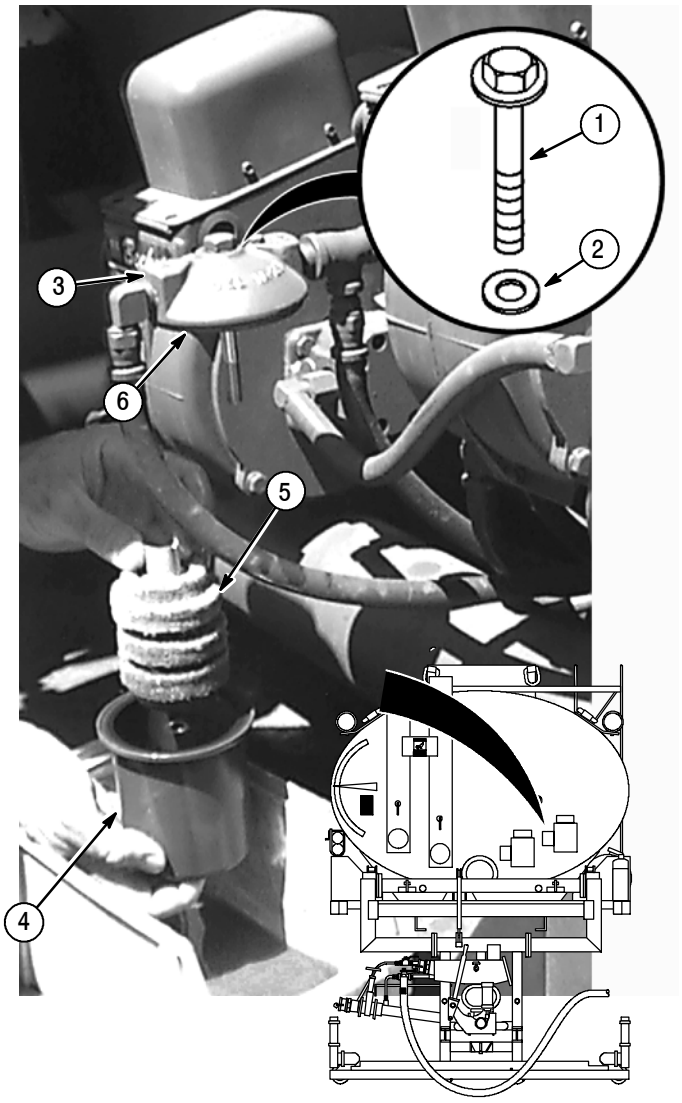
NOTE

Position drain pan under fuel filter to catch excess fuel.

(1) Remove screw (1) and gasket (2) from top of base (3) and remove filter housing (4) from base (3).

(2) Remove and discard fuel filter (5) from filter housing (4).

(3) Remove and discard gasket (6) from base (3) or filter housing (4).



b. Installation.

(1) Install gasket (6) on filter housing (4).

(2) Install fuel filter (5) in filter housing (4).

(3) Prefill filter housing (4) 3/4 full of clean diesel fuel.

(4) Install filter housing (4) on base (3) with screw (1) and gasket (2).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-12. FUEL PUMP REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

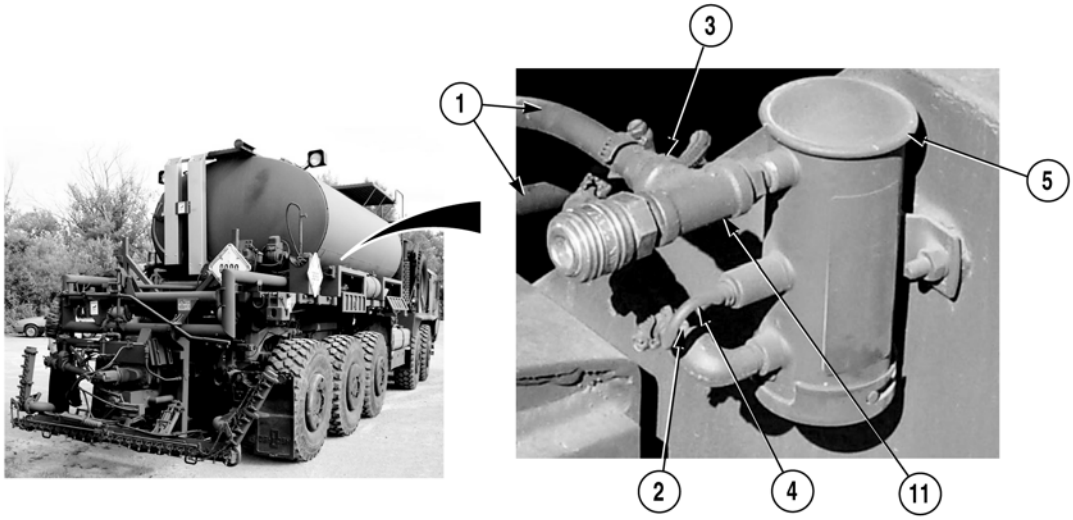
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Tool Kit, Electrical (Item 13, Appendix F)
Cap and Plug Set (Item 3, Appendix F)
Pan, Drain (Item 9, Appendix F)

Materials/Parts
Sealing Compound (Item 8, Appendix E)

Materials/Parts - Continued
Tags, Identification (Item 9, Appendix E)
Tape, Electrical (Item 10, Appendix E)
Lockwasher (2) (MS 35338-44)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



WARNING

To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.

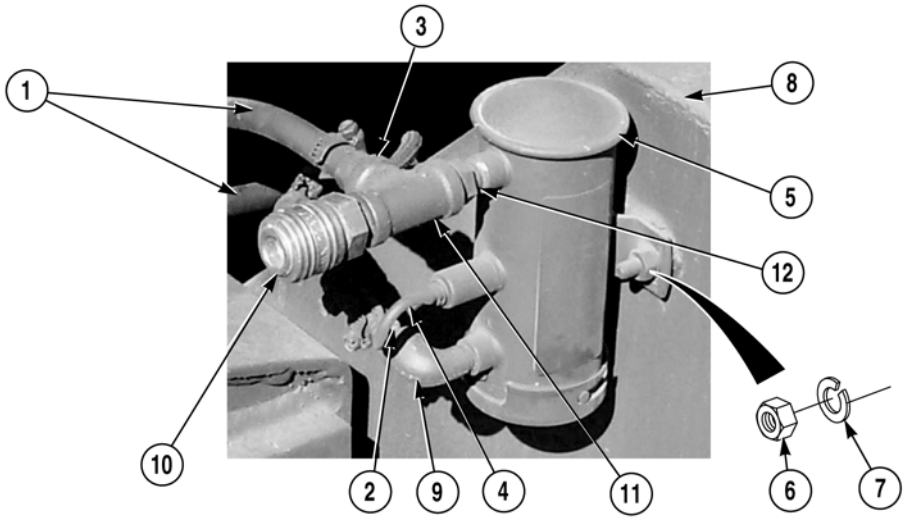
NOTE

- Position drain pan under fuel pump to catch excess fuel.
- Tag and mark all hoses prior to removal.
- Cap and plug all hoses upon removal.
- Some models have no fittings and hoses are attached directly on elbow.

(1) Remove two hoses (1) from fittings (2) and (3).

(2) Cut wire (4) on fuel pump (5).

3-12. FUEL PUMP REPLACEMENT (CONT).



NOTE

Some models have two screws and four washers.

(3) Remove two nuts (6), lockwashers (7) and fuel pump (5) from stowage box (8). Discard lockwashers.

NOTE

Note position of fittings prior to removal.

(4) Remove fitting (2) and elbow (9) from fuel pump (5).

(5) Remove quick disconnect (10), tee (11) and two fittings (3) and (12) from fuel pump (4).

b. 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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Ensure fittings and hoses are installed in position as noted prior to removal.

(1) Apply sealing compound to quick disconnect (10), elbow (9) and two fittings (3) and (12).

(2) Install two fittings (3) and (12), tee (11) and quick disconnect (10) on fuel pump (5).

(3) Install elbow (9) and fitting (2) on fuel pump (5).

(4) Install fuel pump (5) on stowage box (8) with two lockwashers (7) and nuts (6).

(5) Repair wire (4), (Para 3-80).

(6) Connect two hoses (1) to fittings (2) and (3).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-13. FUEL PUMP MAINTENANCE.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

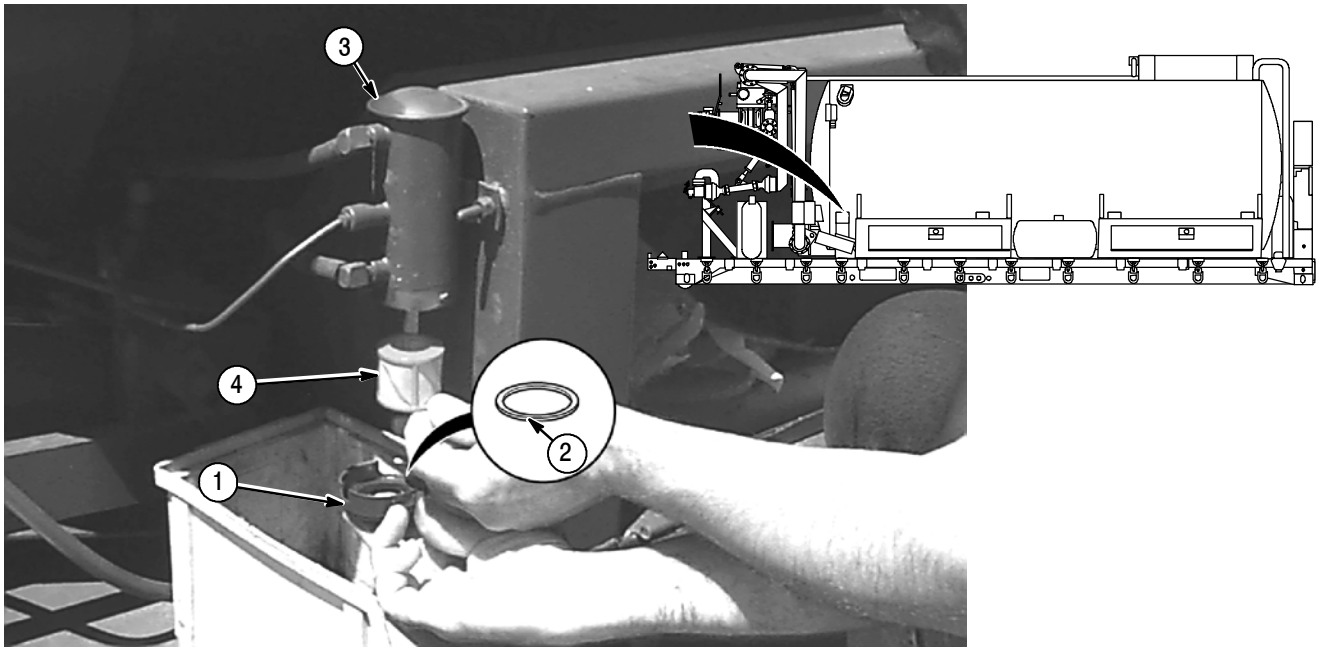
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Pan, Drain (Item 9, Appendix F)

Materials/Parts
Oil, Fuel, Diesel (Item 4, Appendix E)
Gasket (610 1086)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



WARNING

To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.

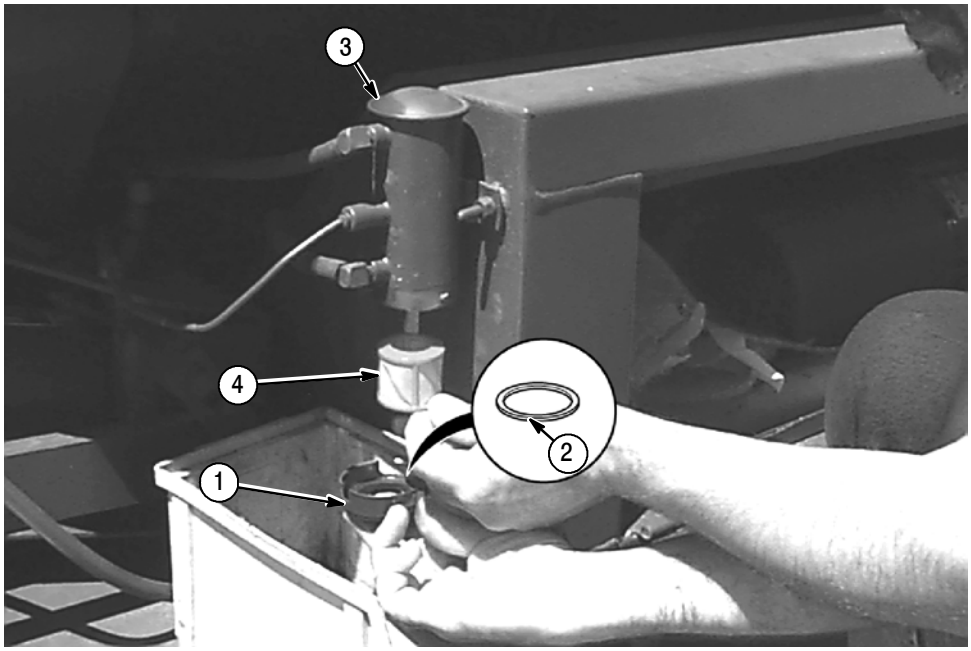
NOTE

- Position drain pan under fuel pump to catch excess fuel.
- Strainer cap is removed by turning hex head on cap counter-clockwise.

(1) Remove strainer cap (1) and gasket (2) from fuel pump (3). Discard gasket.
(2) Remove strainer (4) from fuel pump (3).
(3) Clean strainer (4) with clean diesel fuel.
(4) If strainer (4) is damaged, replace fuel pump (3).

3-13. FUEL PUMP MAINTENANCE (CONT).

b. Installation.



(1) Install strainer (4) in fuel pump (3).

(2) Install strainer cap (1) and gasket (2) on fuel pump (3).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-14. TRANSFER VALVE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

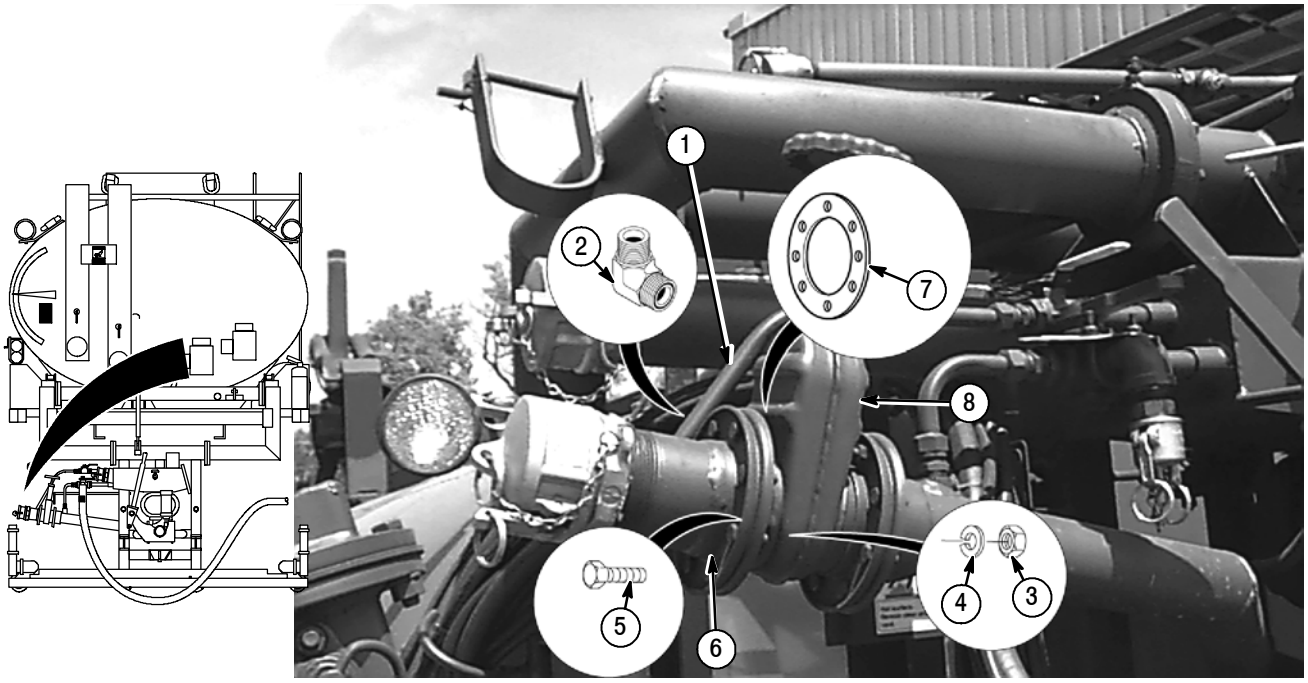
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Gasket (2) (3340515)
Lockwasher (16) (MS 35338-46)
Sealing Compound (Item 8, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



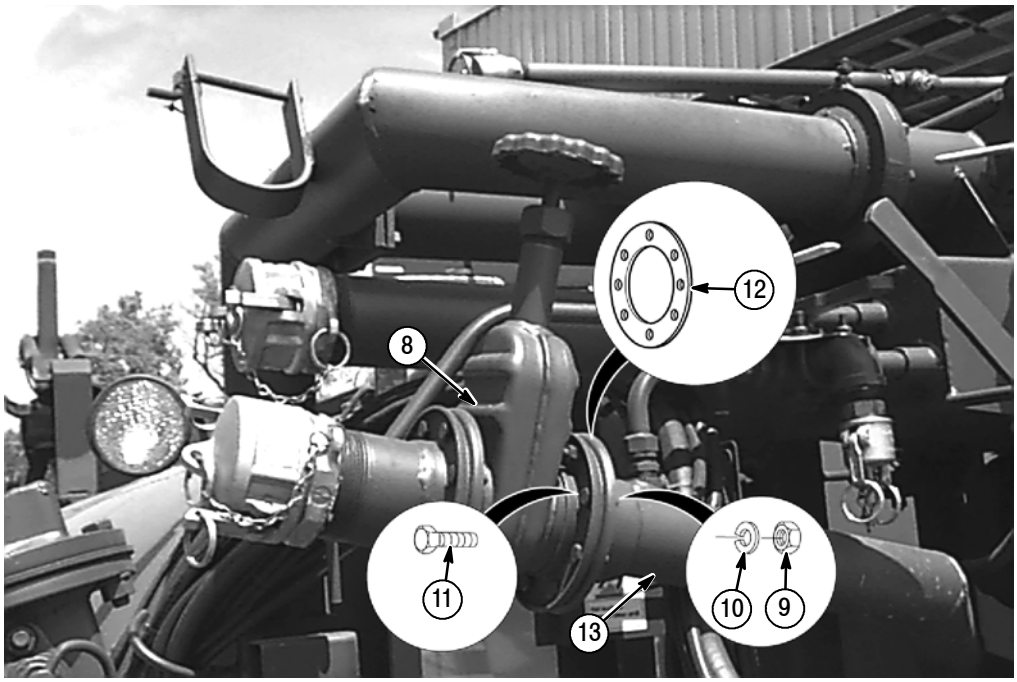
(1) Remove tube (1) from elbow (2).

NOTE

Matchmark location of transfer pipe and transfer valve prior to removal to ensure proper assembly.

(2) Remove eight nuts (3), lockwashers (4), screws (5), transfer pipe (6) and gasket (7) from transfer valve (8). Discard lockwashers and gasket.

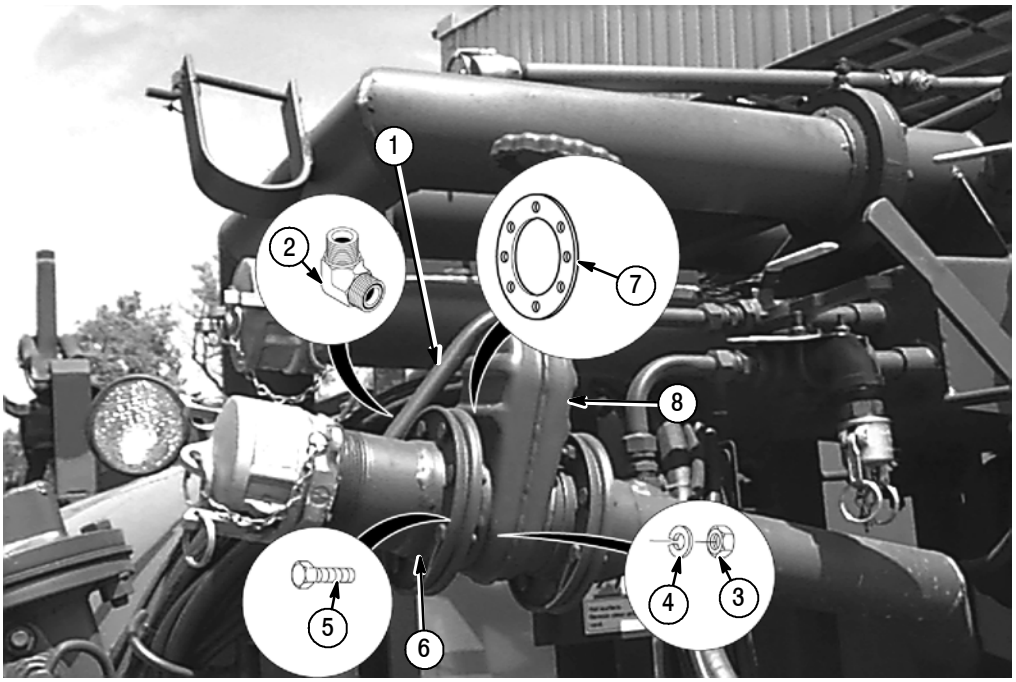
3-14. TRANSFER VALVE REPLACEMENT (CONT).



(3) Remove eight nuts (9), lockwashers (10), screws (11), transfer valve (8) and gasket (12) from transfer tube assembly (13). Discard lockwashers and gasket.

b. Installation.

(1) Position transfer valve (8) on transfer tube assembly (13) with gasket (12), eight screws (11), lockwashers (10) and nuts (9). Do not tighten screws.



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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Ensure transfer pipe is installed in same position as noted during removal.

(2) Apply sealing compound to threads of elbow (2).

(3) Install tube (1) on elbow (2).

NOTE

Tighten screws evenly using a crossing pattern.

(4) Position transfer pipe (6) on transfer valve (8) with gasket (7), eight screws (5), lockwashers (4) and nuts (3). Do not tighten screws.

(5) Tighten 16 screws (11) and (5).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-15. ASPHALT PUMP REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

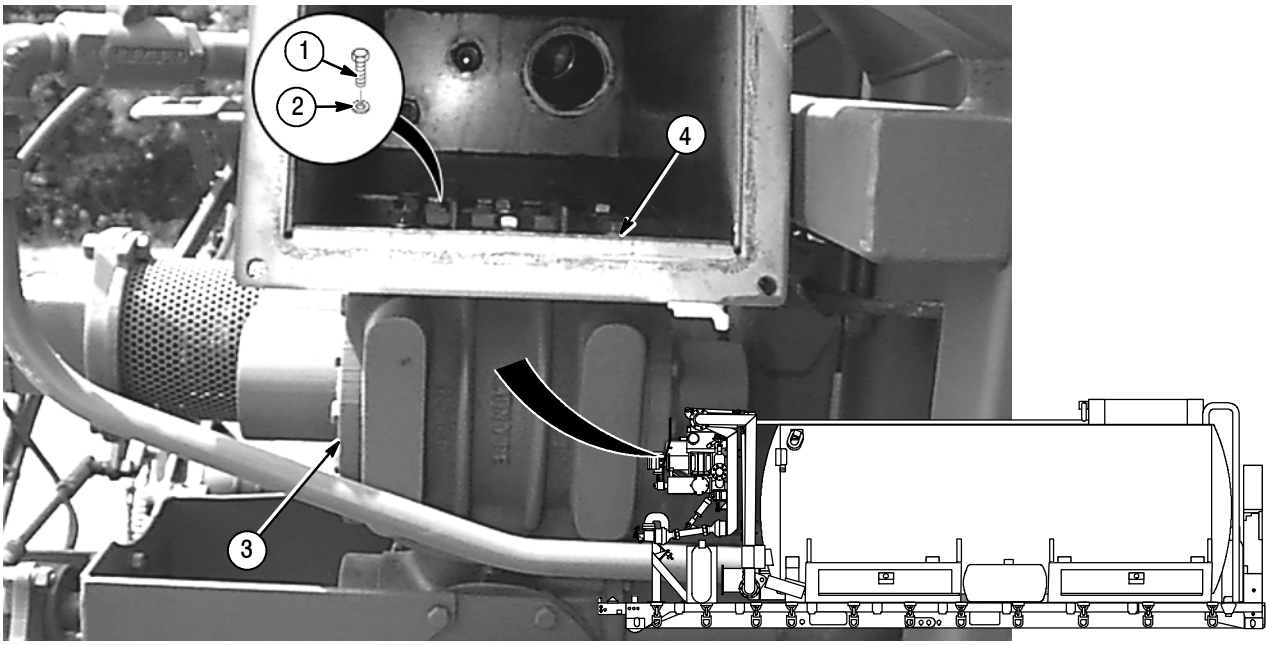
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Wrench, Torque (0-175 lb-ft) (Item 17, Appendix F)

Materials/Parts
Primer "N" (Item 5, Appendix E)
Sealing Compound (Item 6, Appendix E)
Gasket (3352222)
Lockwasher (8) (MS 35338-46)

Personnel Required
Two

Equipment Condition
Hydraulic Motor removed, (Para 3-4)
Four-Way Control Valve removed, (Para 3-35)
Strainer removed, (Para 3-10)
Speed Sensor removed, (Para 3-17)

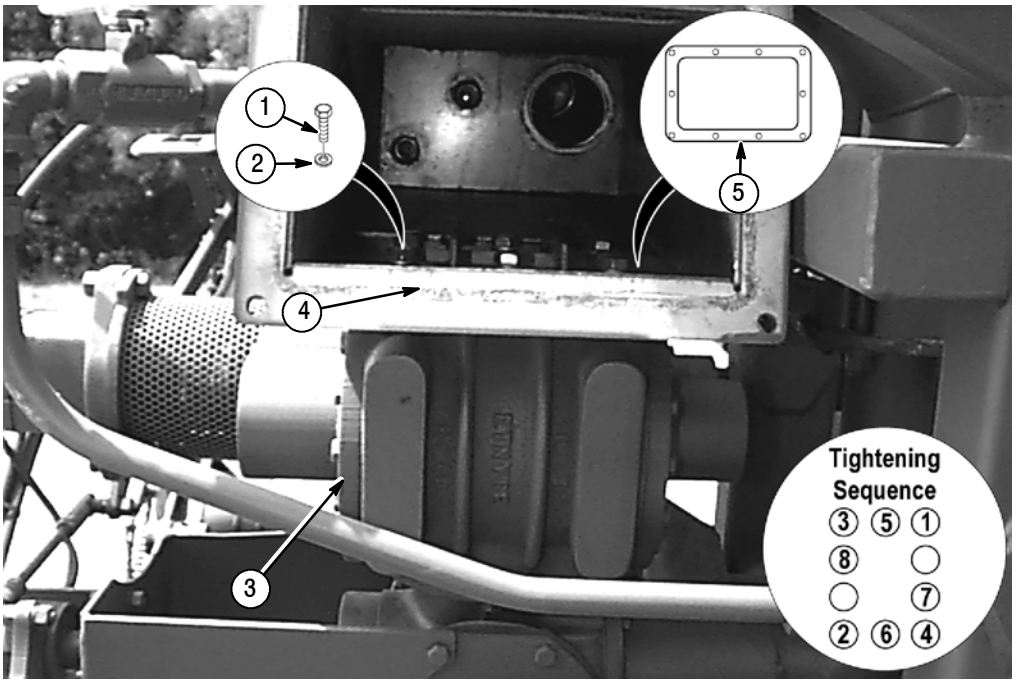
a. Removal.



CAUTION

Note location of eight screws prior to removal. There are 10 holes, but only eight screws. Screws must be installed in original location or damage to equipment may result.

(1) With the aid of an assistant, remove eight screws (1), lockwashers (2) and asphalt pump (3) from strainer housing (4). Discard lockwashers.



(2) Remove and discard gasket (5) from asphalt pump (3) or strainer housing (4).

(3) Scrape excess gasket material from asphalt pump (3) or strainer housing (4).

b. 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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(1) Coat strainer housing (4) gasket area and asphalt pump (3) gasket area with primer and sealing compound.

(2) Position gasket (5) on asphalt pump (3).

(3) With the aid of an assistant, position gasket (5) and asphalt pump (3) on strainer housing (4) with eight lockwashers (2) and screws (1).

(4) Tighten eight screws (1) in sequence shown to 35 lb-ft (47 N·m).

c. Follow-On Maintenance.

- Install speed sensor, (Para 3-17).
- Install strainer, (Para 3-10).
- Install four-way control valve, (Para 3-35).
- Install hydraulic motor, (Para 3-4).

END OF TASK

3-16. NEEDLE RELIEF VALVE REPLACEMENT/ADJUSTMENT

This task covers:

a. Removal
b. Installation
c. Adjustment
d. Follow-On Maintenance

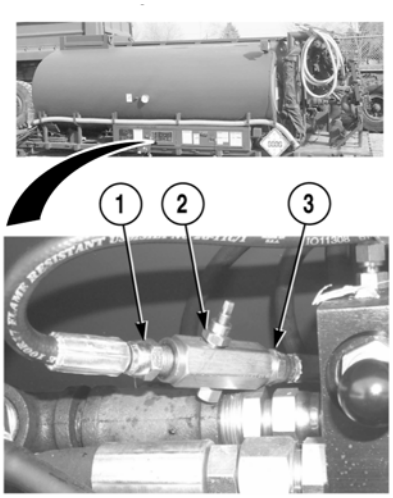
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Cap and Plug Set (Item 3, Appendix F)
Pan, Drain (Item 9, Appendix F)

Materials/Parts
Sealing Compound (Item 8, Appendix E)
Tags, Identification (Item 9, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



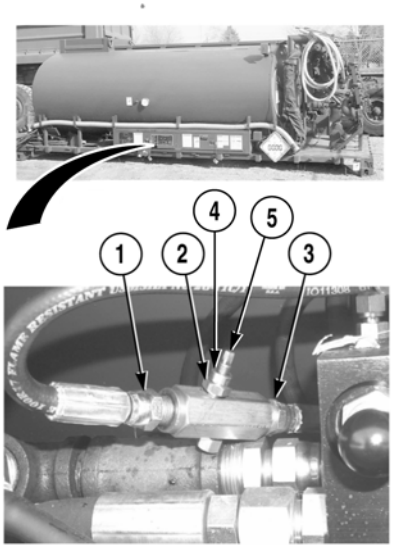
NOTE

- Cap and plug hoses upon removal.
- Position drain pan under hose.
- Tag and mark hoses upon removal.
- Note direction of arrow on needle relief valve prior to removal.

(1) Remove hose (1) from needle relief valve (2).

(2) Remove needle relief valve (2) from hose (3).

b. 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 adhesives, solvents or sealing compounds gets on skin or clothing, wash immediately with soap and water.

(1) Apply sealing compound to threads of two hoses (1) and (3).

NOTE

Install needle relief valve with arrow in direction as noted during removal.

(2) Install needle relief valve (2) on hose (3).

(3) Install hose (1) on needle relief valve (2).

c. Adjustment.

(1) Loosen jam nut (4) and turn needle relief valve handle (5) completely in.

(2) Back off 1/4 turn, and tighten jam nut (4).

d. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-17. SPEED SENSOR REPLACEMENT.

This task covers:

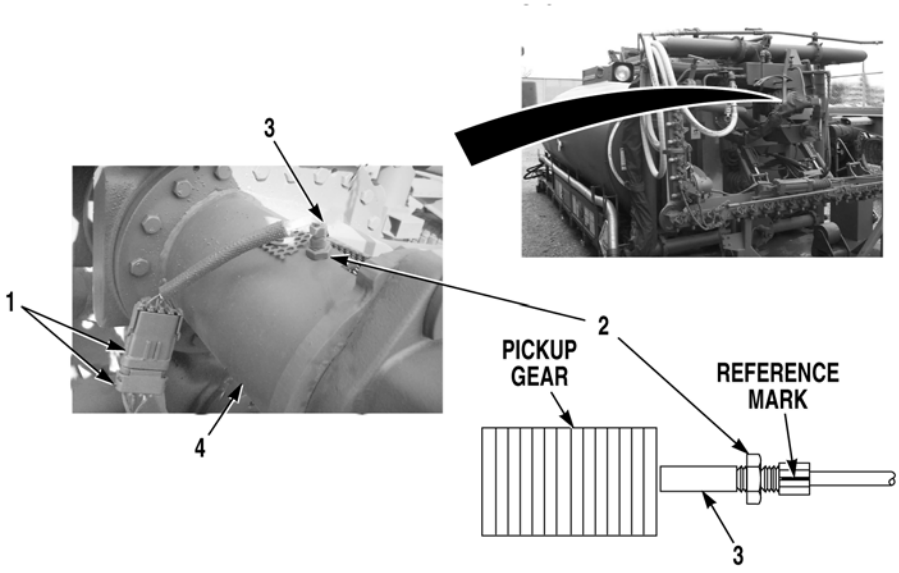
a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Tool Kit, Electrical (Item 13, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



NOTE

Connector is removed by gently prying up on tabs.

(1) Disconnect connector (1).

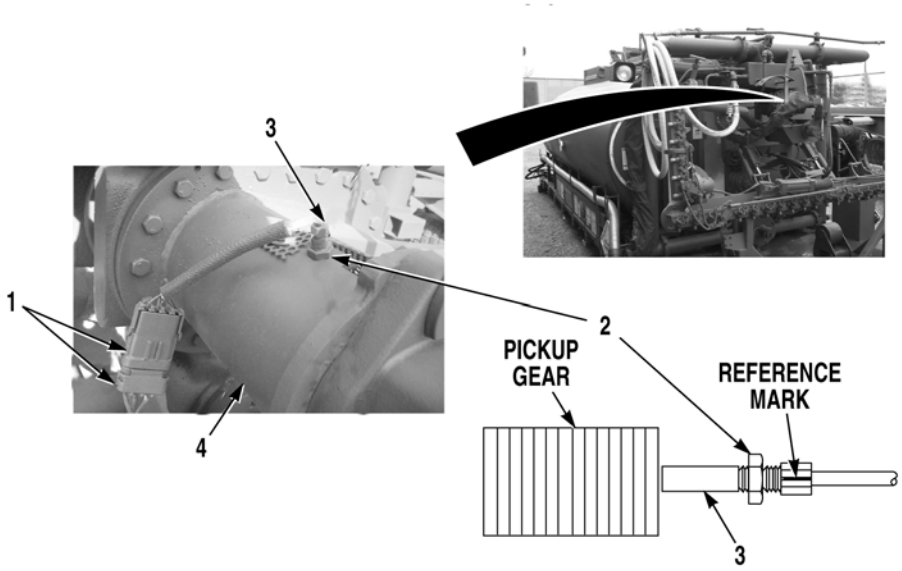
NOTE

- Your model may or may not have reference mark.
- Note position of reference mark on speed sensor prior to removal to ensure proper installation.

(2) Loosen nut (2) on speed sensor (3).

(3) Remove speed sensor (3) from pump housing (4).

b. Installation.



(1) Position speed sensor (3) on pump housing (4).

NOTE

- Once speed sensor is unscrewed 1/16 in. (1.59 mm), ensure speed sensor does not move when tightening nut.
- Install speed sensor with reference mark in line with pickup gear as noted prior to removal. Rotate clockwise if necessary.

(2) Unscrew speed sensor (3) a maximum of 1/16 in. (1.59 mm) from pickup gear and tighten nut (2).

(3) Connect connector (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-18. BURNER HYDRAULIC MOTOR REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

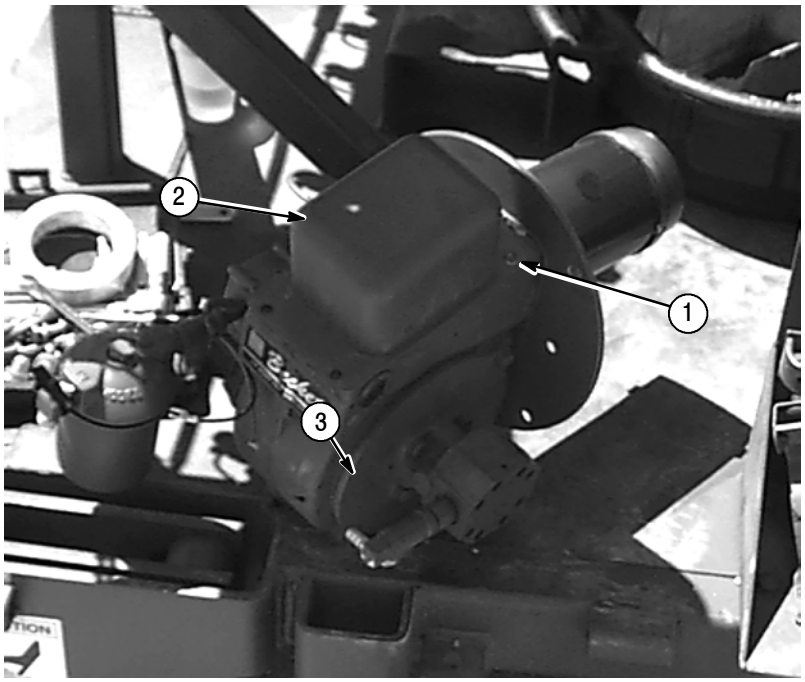
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

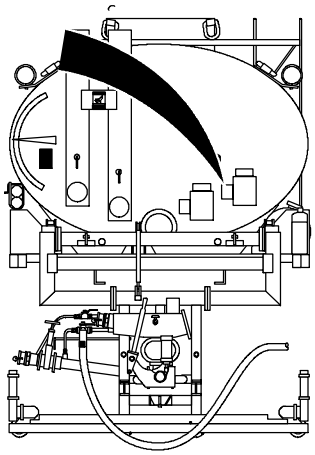
Materials/Parts
Sealing Compound (Item 8, Appendix E)
Tags, Identification (Item 9, Appendix E)
Gasket

Materials/Parts - Continued
Lockwasher (2) (MS 35338-26)
Lockwasher (4) (MS 35338-44)

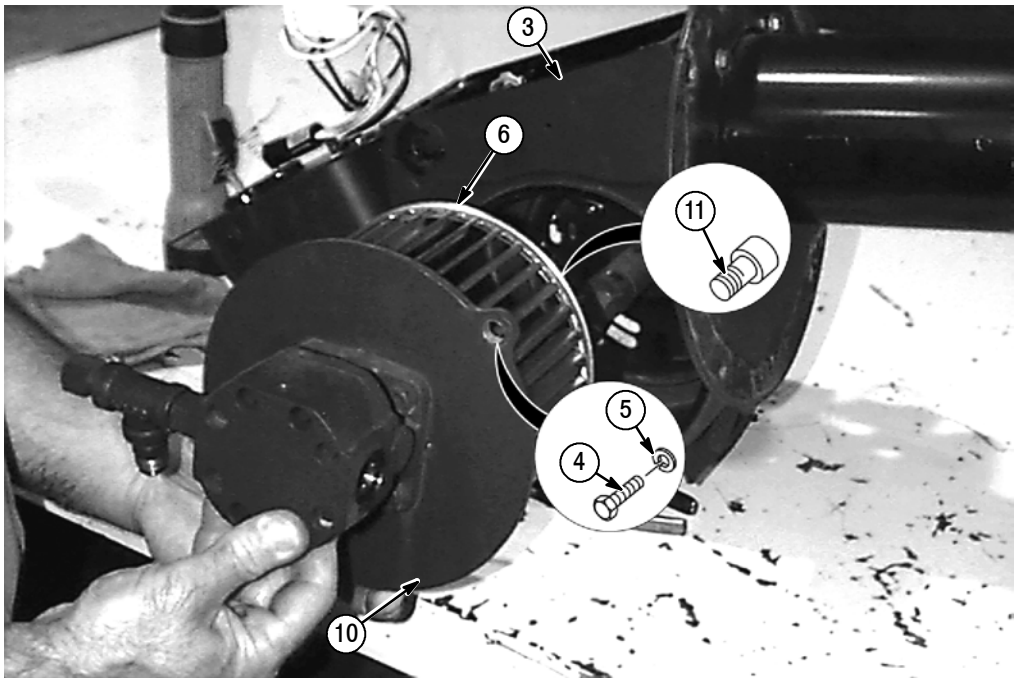
Equipment Condition
Burner removed, (Para 3-19)

a. Removal.





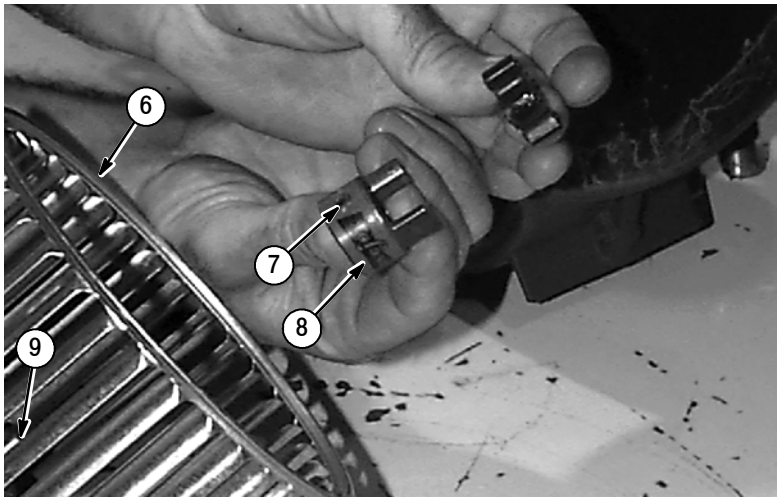
(1) Remove two screws (1) and open cover (2) on burner (3).



NOTE

- If rubber coupling is removed with blower wheel, install coupling back inside burner on shaft of pump.
- Matchmark burner, plate and hydraulic motor prior to removal.

(2) Remove two screws (4), lockwashers (5) and blower wheel (6) from burner (3). Discard lockwashers.

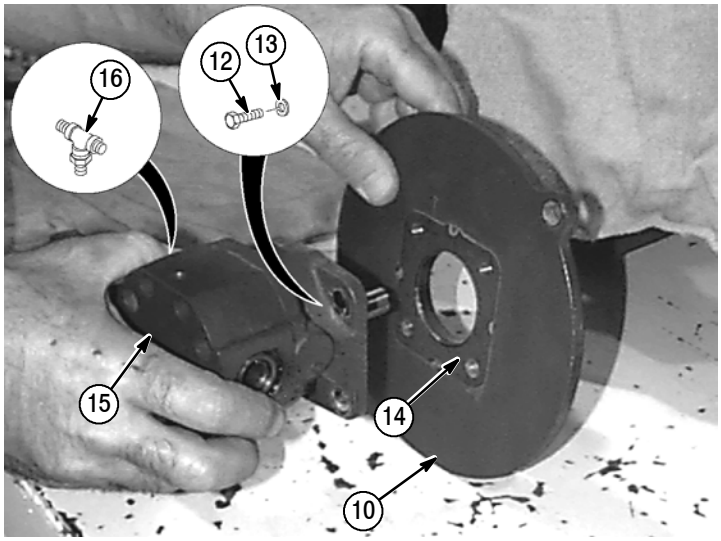


(3) Loosen socket head screw (7) and remove coupling (8) from motor shaft (9).

(4) Measure and record gap between rear edge of blower wheel (6) and inside edge of plate (10).

(5) Loosen socket head screw (11) and remove blower wheel (6) from motor shaft (9).

3-18. BURNER HYDRAULIC MOTOR REPLACEMENT (CONT).



(6) Remove four screws (12), lockwashers (13), plate (10) and gasket (14) from hydraulic motor (15). Discard lockwashers and gasket.

NOTE

Tag and mark location and position of fittings, tees and elbows prior to removal.

(7) Remove all fittings (16) from hydraulic motor (15).

b. 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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(1) Apply sealing compound to all fittings, tees and elbows that do not use preformed packings.

NOTE

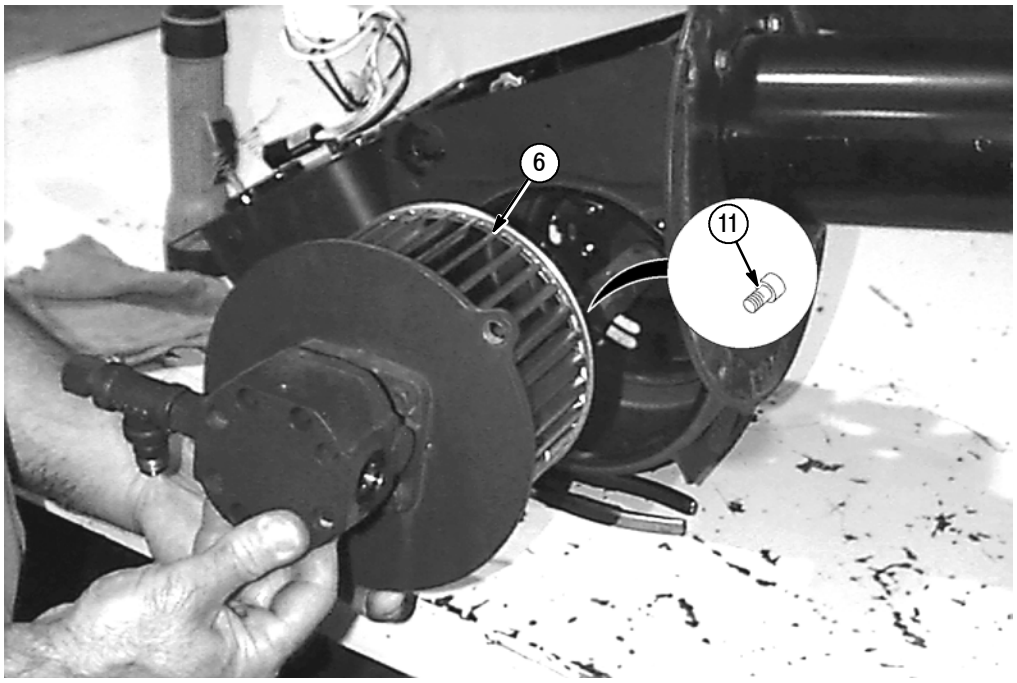
Install fittings, tees and elbows as noted prior to removal.

(2) Install fittings (16) in hydraulic motor (15).

NOTE

Align matchmarks on hydraulic motor, plate and burner as noted prior to removal.

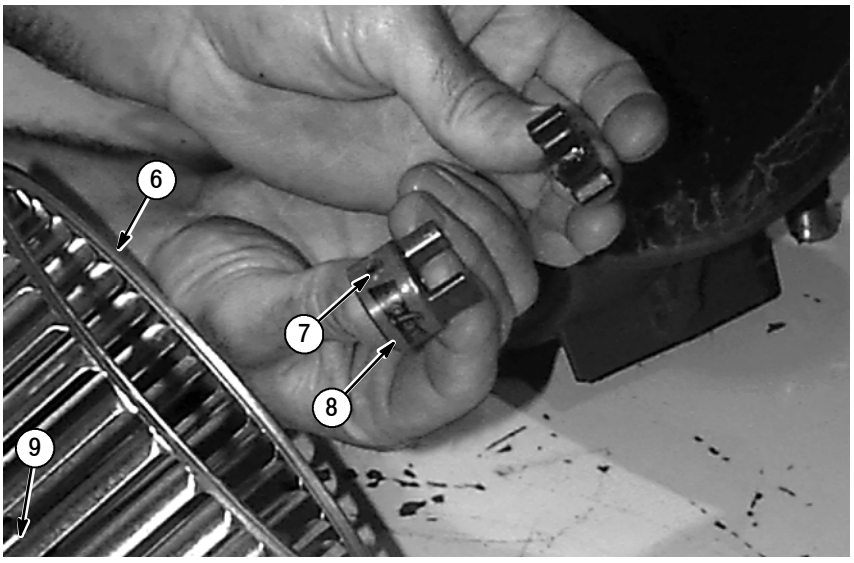
(3) Install gasket (14) and plate (10) on hydraulic motor (15) with four lockwashers (13) and screws (12).



NOTE

- Socket head screw must align with keyway in motor shaft.
- When blower wheel is installed on shaft, ensure same gap measured during removal is obtained between blower wheel and plate.

(4) Install blower wheel (6) on motor shaft (9) and tighten socket head screw (11).

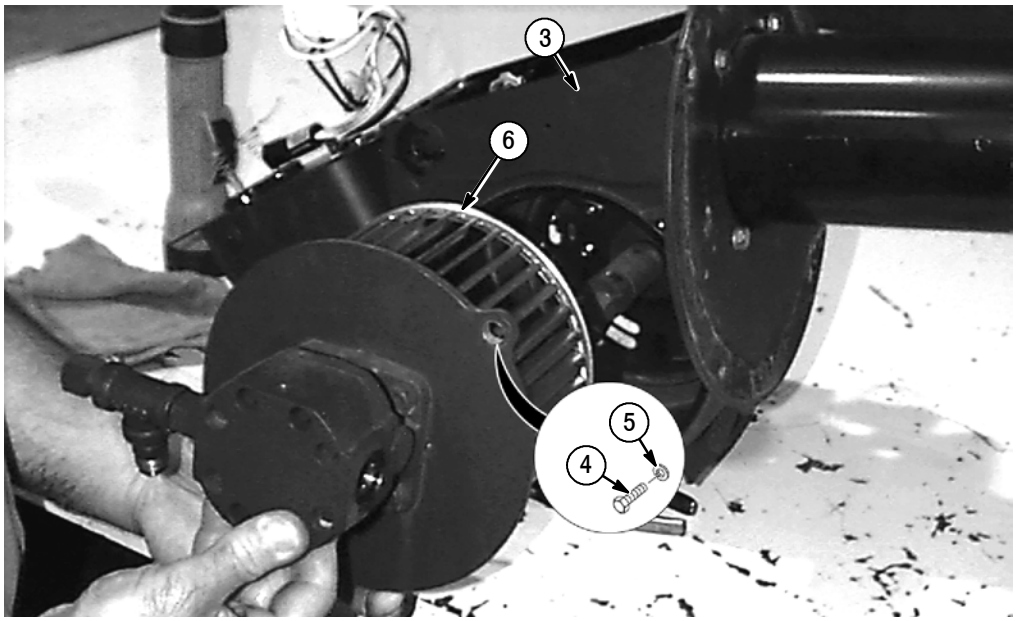


NOTE

Socket head screw in coupling must align in keyway of motor shaft.

(5) Install coupling (8) on motor shaft (9) and tighten socket head screw (7).

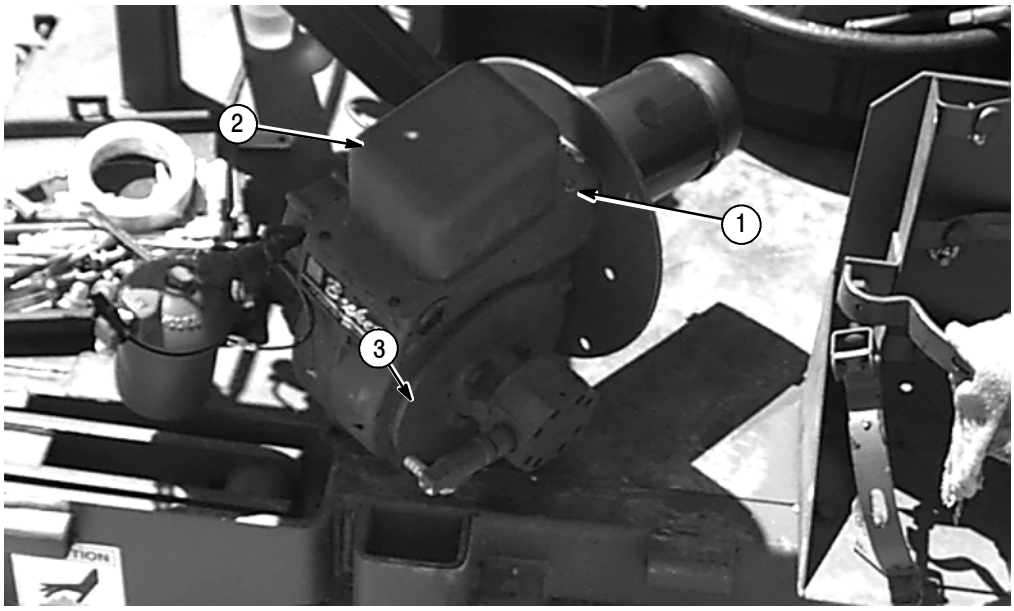
3-18. BURNER HYDRAULIC MOTOR REPLACEMENT (CONT).



NOTE

Ensure rubber coupling is installed on pump shaft of burner prior to Step (6).

(6) Align shafts and install blower wheel (6) on burner (3) with two lockwashers (5) and screws (4).



(7) Close cover (2) on burner (3) and install two screws (1).

c. Follow-On Maintenance.

- Install burner, (Para 3-19).

END OF TASK

3-19. BURNER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Tool Kit, Electrical (Item 13, Appendix F)
Cap and Plug Set (Item 3, Appendix F)
Pan, Drain (Item 9, Appendix F)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Lockwasher (4) (MS 35338-44)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.

NOTE

- There are two burners on the Bituminous Distributor. Both burners are removed the same way except where noted. Upper burner shown.
- Cap and plug all hoses and fittings upon removal.
- Tag and mark all hoses and wires prior to removal.
- Perform Step (1) if removing upper burner.
- Perform Step (2) if removing lower burner.
- Position drain pan under hoses.

(1) Remove six hoses (1) from burner (2).

NOTE

S/N S3605 and subsequent have five hoses.

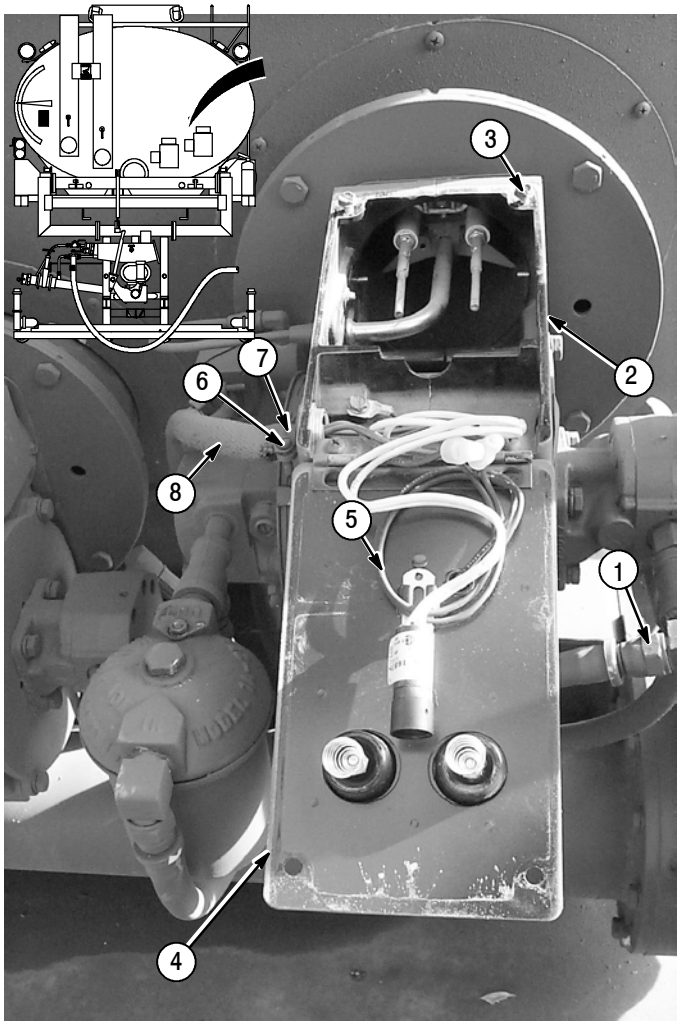
(2) Remove four hoses (1) from burner (2).

(3) Remove two screws (3) and open cover (4) on burner (2).

(4) Disconnect 11 wires (5) from inside of cover (4) and burner (2).

(5) Loosen two screws (6) on clamp (7) and remove two electrical cables (8) from burner (2).

(6) Close cover (4) on burner (2).



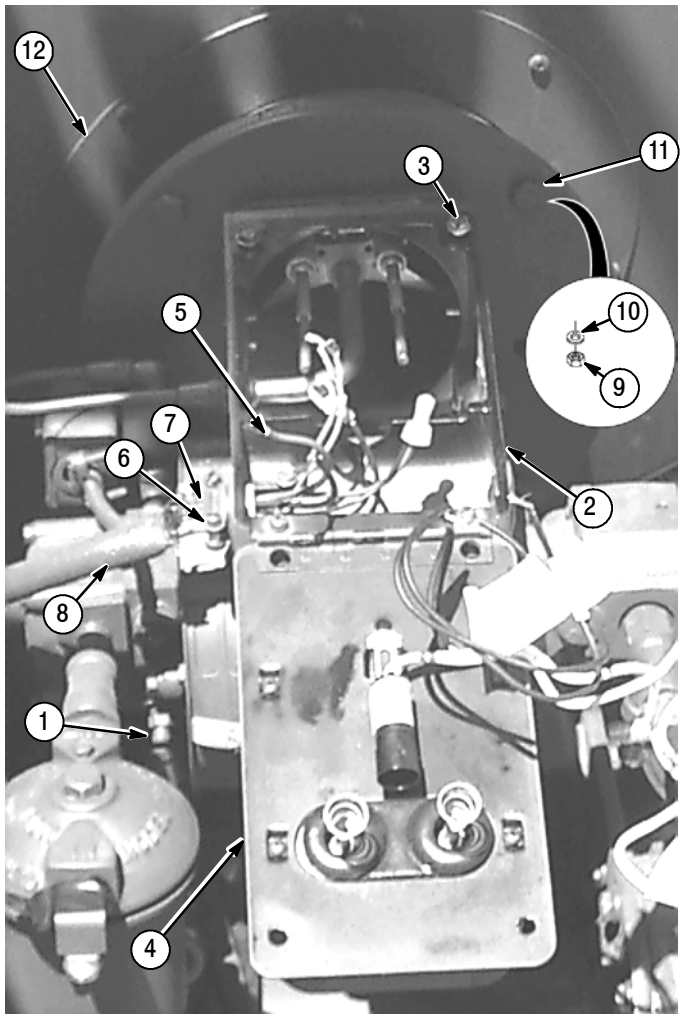
3-19. BURNER REPLACEMENT (CONT).

(7) Remove four nuts (9), lockwashers (10), screws (11) and burner (2) from combustion tube (12). Discard lockwashers.

NOTE

If replacing burner with a new burner, perform Step (8).

(8) Remove burner hydraulic motor, (Para 3-18).



b. Installation.

NOTE

- Install all wires and hoses as noted prior to removal.
- Both burners are installed the same way except where noted.
- Perform Step (1) if burner hydraulic motor was removed.

(1) Install burner hydraulic motor, (Para 3-18).

(2) Install burner (2) in combustion tube (12) with four screws (11), lockwashers (10) and nuts (9).

(3) Open cover (4) on burner (2).

(4) Position two electrical cables (8) through clamp (7) on burner (2) and tighten two screws (6).

(5) Connect 11 wires (5) to inside of burner (2) and cover (4).

(6) Close cover (4) on burner (2) and install two screws (3).

NOTE

- Perform Step (7) if installing lower burner.
- Perform Step (8) if installing upper burner.

(7) Install four hoses (1) on burner (2).

(8) Install six hoses (1) on burner (2).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-20. BURNER MAINTENANCE.

This task covers:

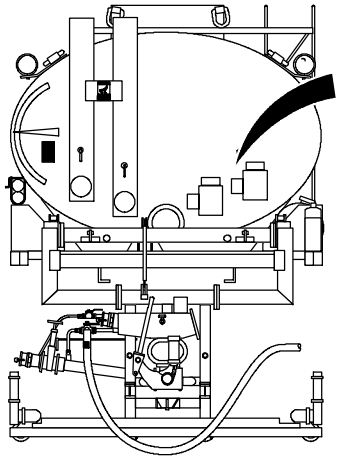
a. Electrode Assembly Adjustment
b. Burner Air Band Settings
c. Fire Burners
d. Follow-On Maintenance

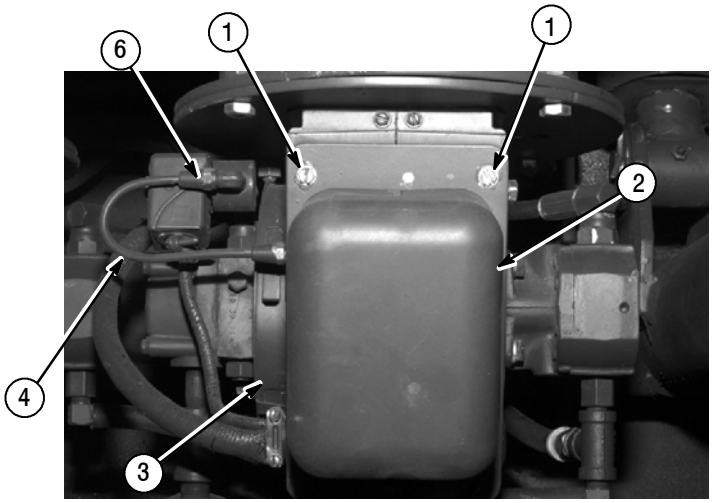
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Pressure Test Kit (Item 10, Appendix F)

Equipment Condition
Engine off, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Electrode Assembly Adjustment.

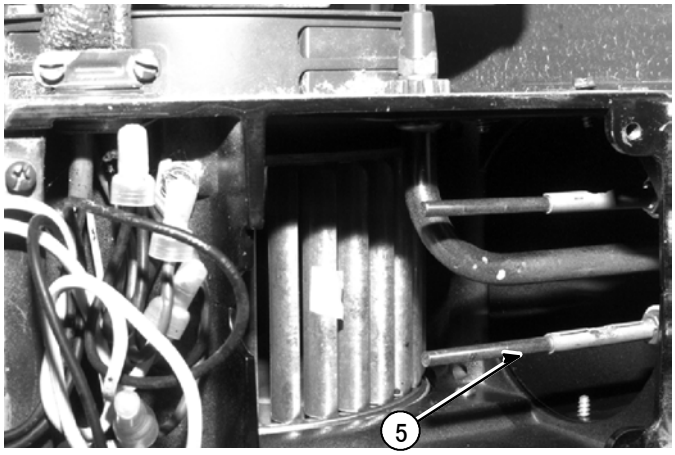




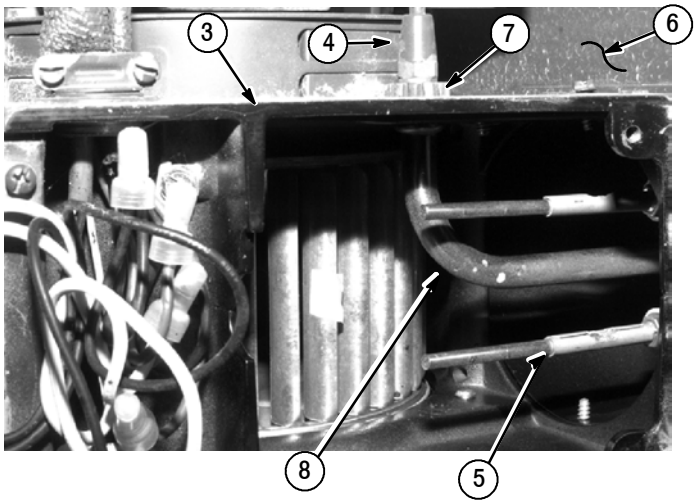
(1) Disconnect UPIK, (Para 2-10).

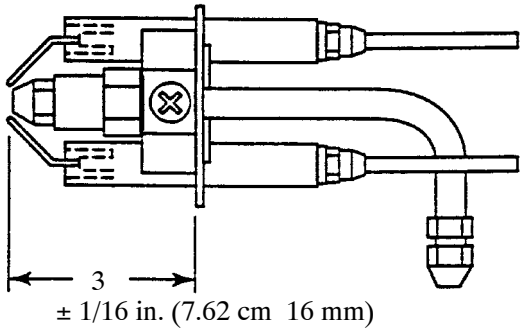
(2) Remove two screws (1) and open cover (2) on burner (3).

(3) Remove jumper fuel line (4) from electrode assembly (5) and fuel pump (6).



3-20. BURNER MAINTENANCE (CONT).





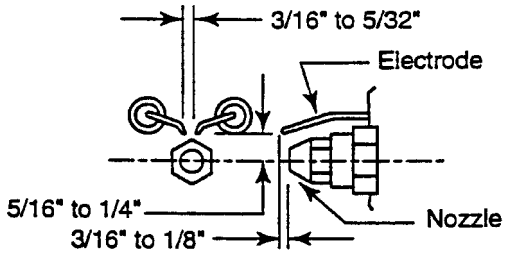


Figure 3-1. Burner Electrode Adjustments

(4) Remove nut (7) and electrode assembly (5) from burner (3).

(5) Adjust electrode assembly adjustments per Figure 3-1.

NOTE

Prior to installing electrode assembly, check that blower wheel turns freely and that all setscrews are tightened securely.

(6) Position electrode assembly (5) into air tube unit. Use side plate for mounting. Refer to Figure 3-2.

(7) Position fuel line (8) through hole in burner (3).

(8) Install nut (7) on fuel line (8).

(9) Install jumper fuel line (4) on fuel pump (6) and electrode assembly (5).

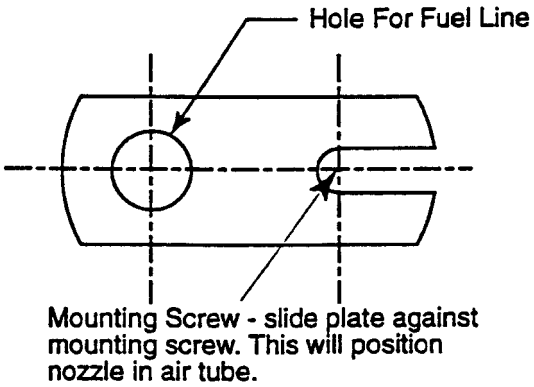
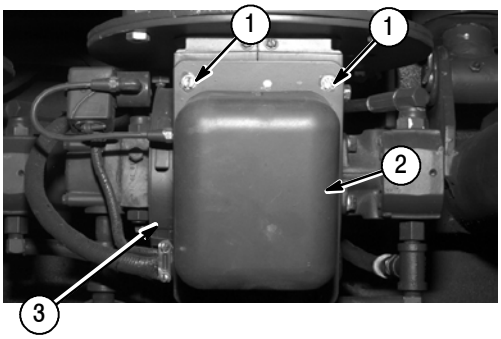


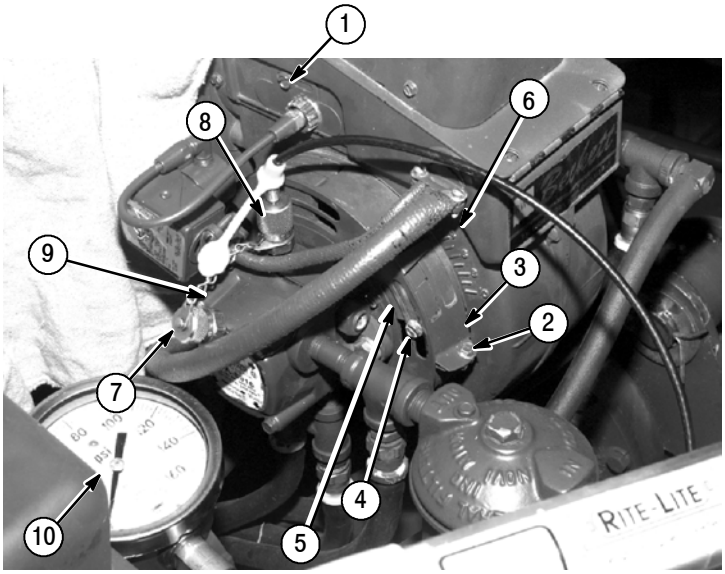
Figure 3-2. Electrode Assembly Installation



(10) Close cover (2) on burner (3) and install two screws (1).

(11) Connect UPIK, (Para 2-10).

b. Burner Air Band Settings.



NOTE

Screw must set at second notch to position burner nozzle 2 3/8 in. (5.76 cm) from edge of burner ring.

(1) Position screw (1) at second notch. Tighten screw.

(2) Loosen screw (2) and close bulk air bank (outside diameter band) (3).

(3) Loosen screw (4) and set end air band (5) between 3.5 - 4.0 on scale (6).

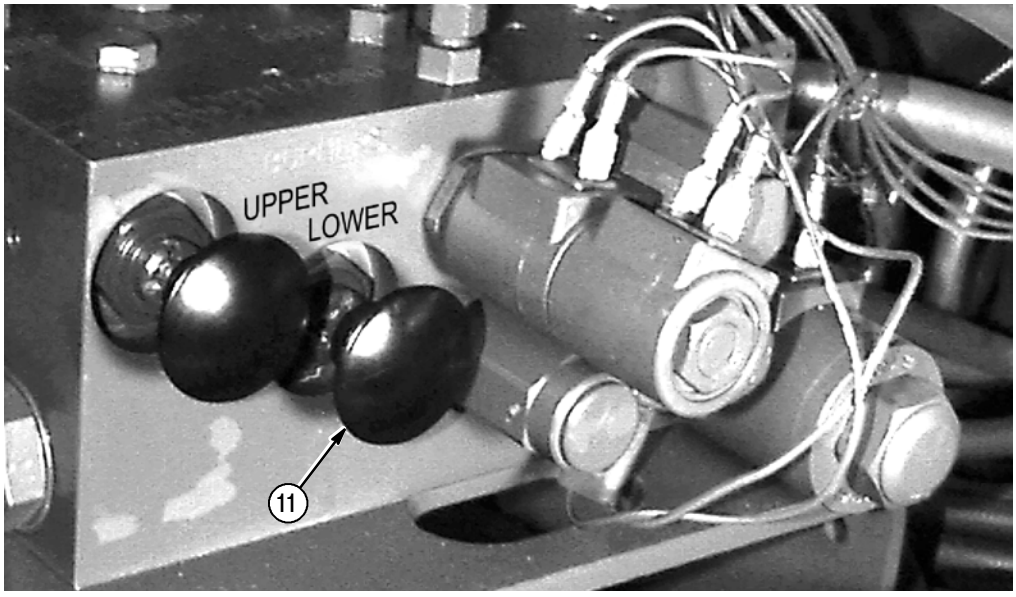
(4) Check initial setting of burner regulators. Remove plug (7) from pressure port (8) on burner fuel pump (9).

(5) Install pressure gage (10) into pressure port (8).

(6) Start engine.

(7) Turn master POWER switches on.

3-20. BURNER MAINTENANCE (CONT).



(8) Pull out palm button (11) on lower burner and turn 90°.





(9) At rear control panel, turn BURNER CONTROL switch (12) to ON position.

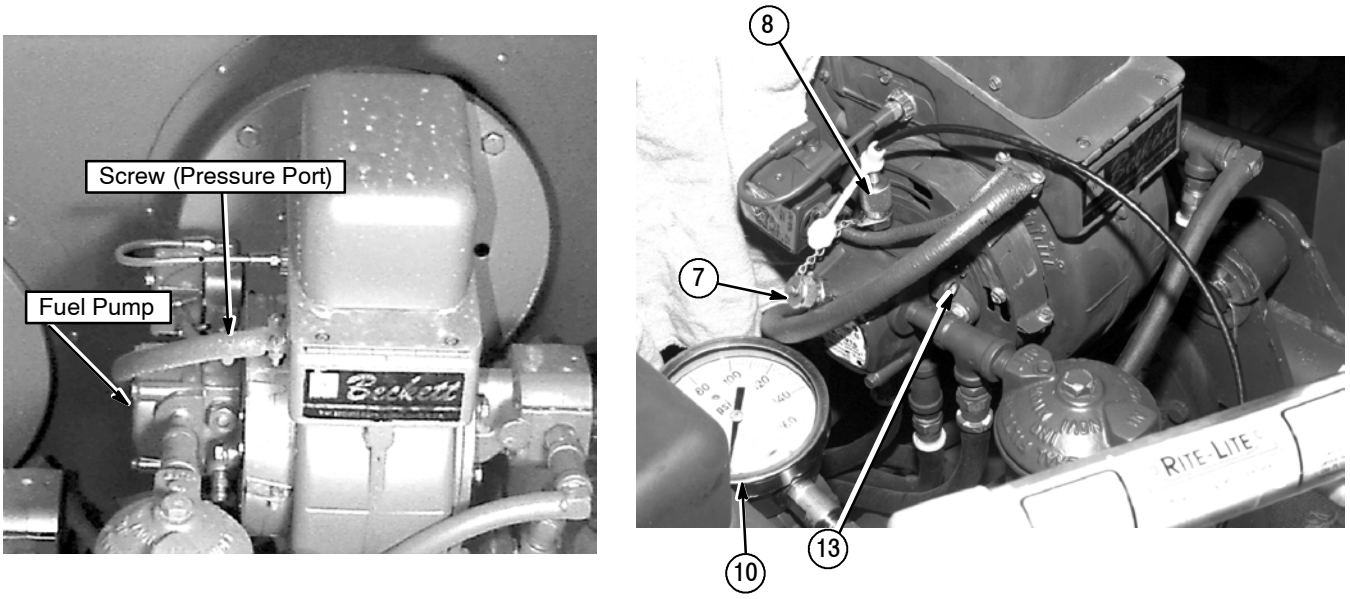


Figure 3-3. Burner Flow Control Regulator - Initial Adjustment

(10) Adjust pressure with adjusting screw (13) to read 100 psi ± 5 (689.47 ± 34.47 kPa). Refer to Figure 3-3.

(11) Remove pressure gage (10) from pressure port (8) and install plug (7).

c. Fire Burners.

(1) Ensure that fuel oil pressure is 100 psi (689.48 kPa).

WARNING

To prevent an explosion or fire hazard, flues must be covered by minimum 6 in. (15.24 cm) of material when burners are in operation. When testing burners, do not run burners for more that 15 seconds if tank is empty.

(2) Hold ignition switch down until ignition occurs, and keep switch down for an additional 2 to 4 seconds before releasing.

(3) Run burner for 15 seconds maximum, then shut down.

d. Follow-On Maintenance.

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-21. BURNER FUEL PUMP REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

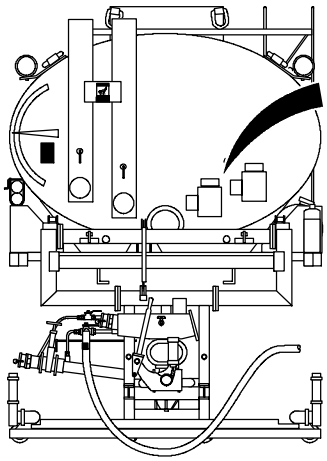
INITIAL SETUP

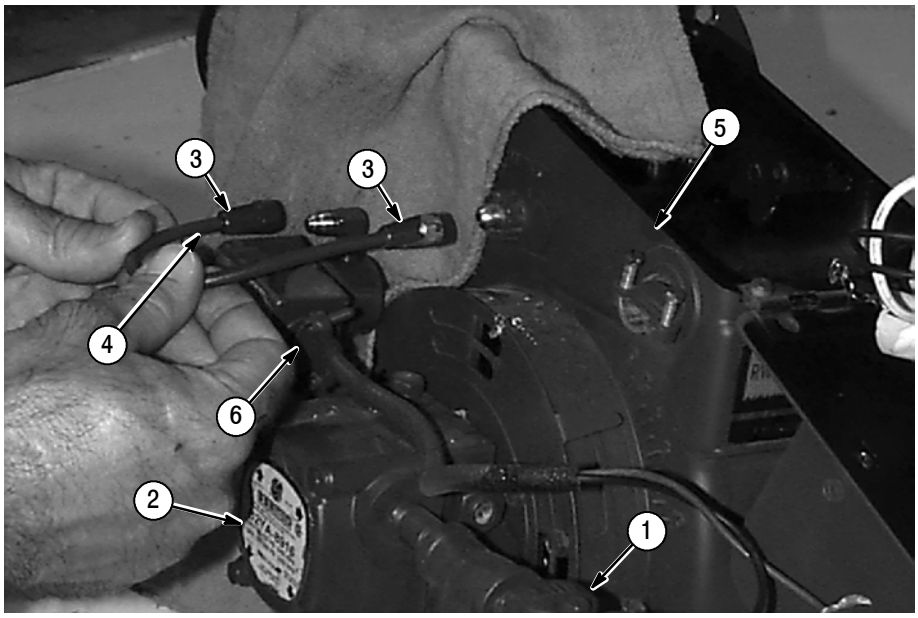
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Cap and Plug Set (Item 3, Appendix F)
Pan, Drain (Item 9, Appendix F)

Materials/Parts
Sealing Compound (Item 8, Appendix E)
Tags, Identification (Item 9, Appendix E)
Lockwasher (2) (MS 35338-26)

Equipment Condition
Fuel filter removed, (upper burner only), (Para 3-11)

a. Removal.





NOTE

- Position drain pan under hoses.
- Tag and mark all hoses and fittings prior to removal.
- If removing fuel pump from upper burner, perform Step (1).
- If removing fuel pump from lower burner, perform Step (2).
- Cap and plug all hoses and fittings upon removal.

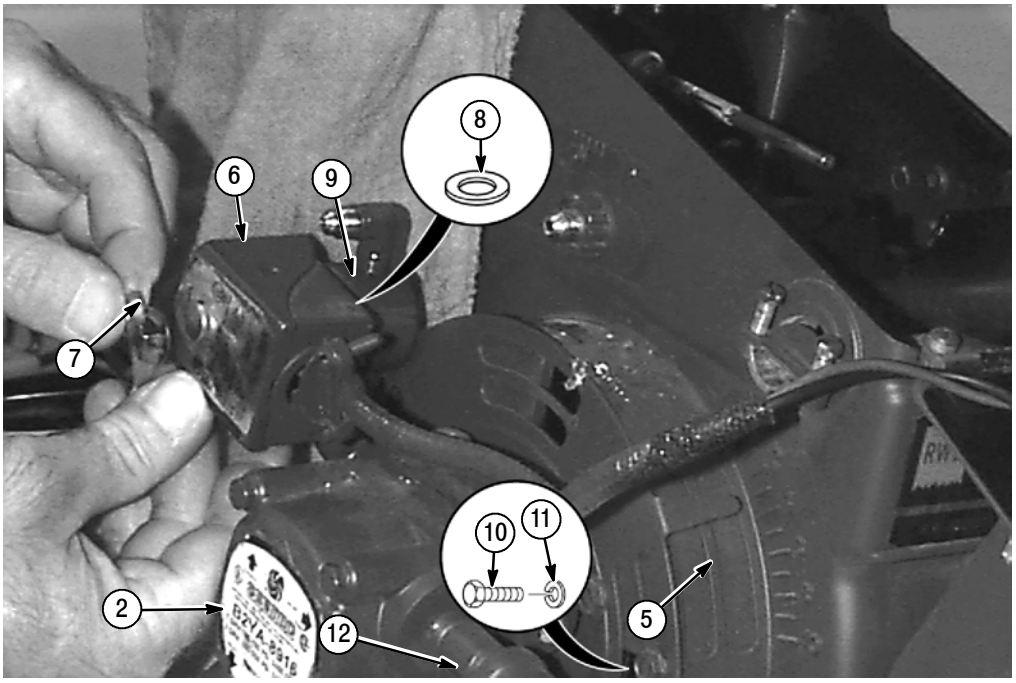
(1) Disconnect four hoses (1) from fuel pump (2).

NOTE

S/N S3605 and subsequent have three hoses.

(2) Disconnect two hoses (1) from fuel pump (2).

(3) Loosen two fittings (3) and remove tube (4) from burner (5) and fuel oil valve (6).



(4) Remove clip (7), fuel oil valve (6) and washer (8) from shaft (9).

NOTE

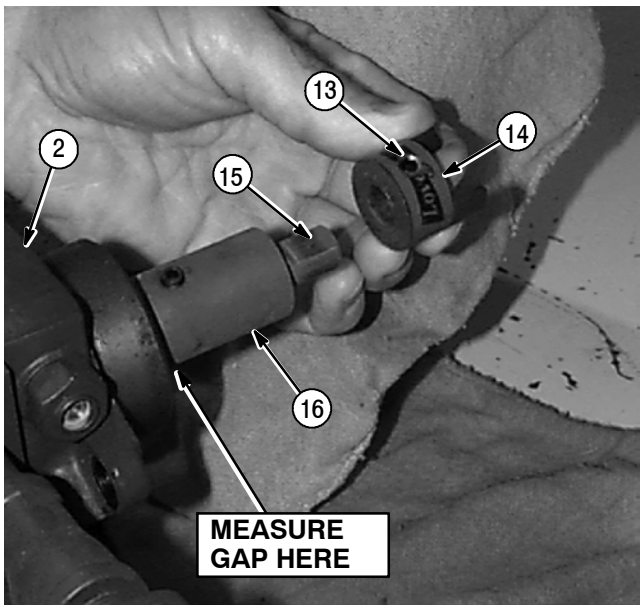
If rubber coupling is removed with fuel pump, install coupling back inside burner on shaft of motor.

(5) Remove two screws (10), lockwashers (11) and fuel pump (2) from burner (5). Discard lockwashers.

(6) Matchmark and remove all fittings (12) from fuel pump (2).

(7) Loosen setscrew (13) and remove coupling (14) from shaft (15).

(8) Measure and record gap between keyshaft (16) and fuel pump (2).



3-21. BURNER FUEL PUMP REPLACEMENT (CONT).

NOTE

Note position of keyshaft prior to removal.

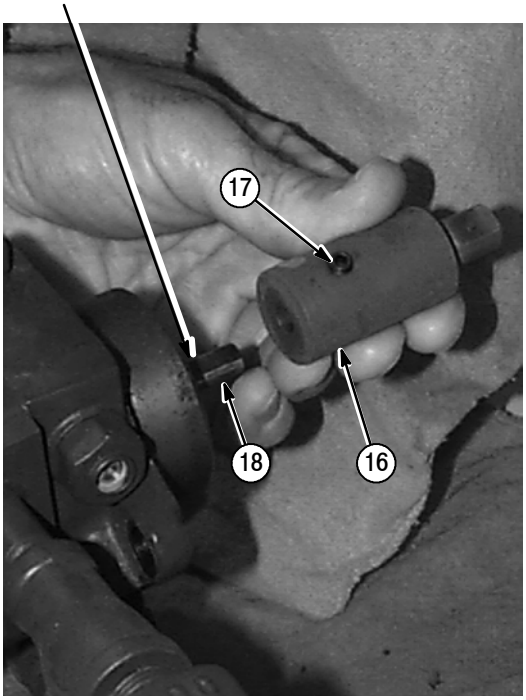
(9) Loosen setscrew (17) and remove keyshaft (16) from shaft (18).

b. Installation.

NOTE

- Ensure keyshaft is installed and gapped as noted during removal.
- Align setscrews in Step (1) and (2) with flat spot on pump shaft.

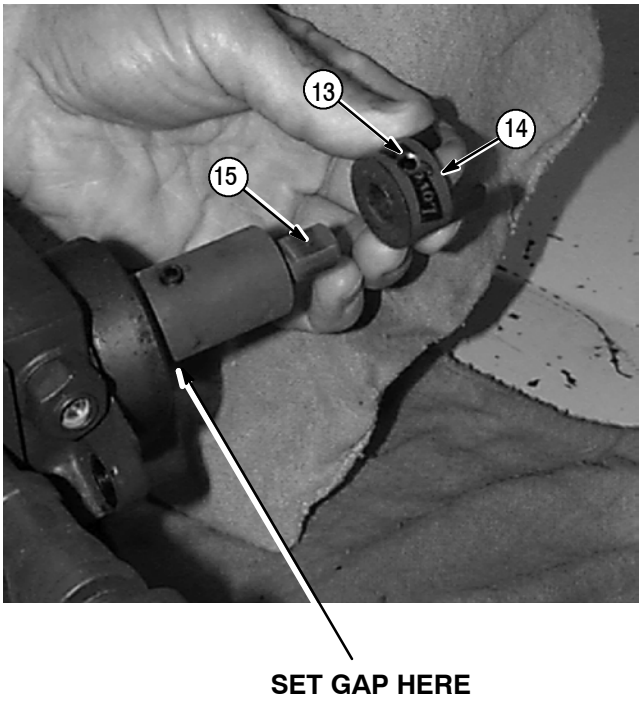
(1) Install keyshaft (16) on shaft (18) and tighten setscrew (17).

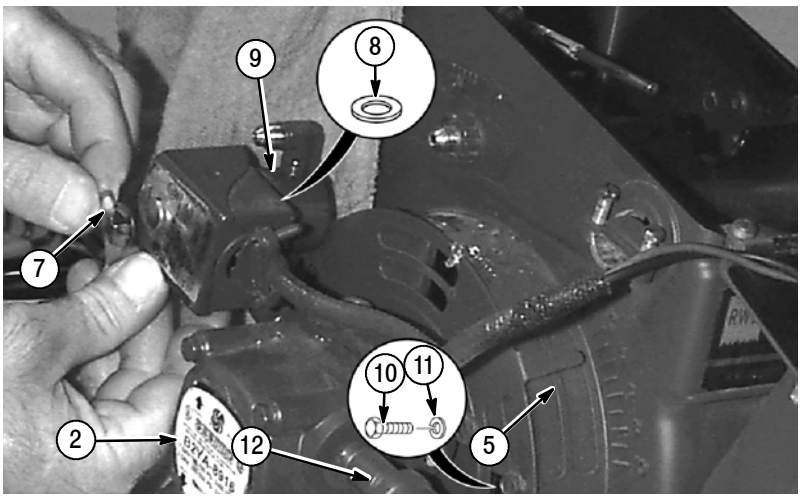


NOTE

Leave sufficient space between couplings.

(2) Install coupling (14) on shaft (15) and tighten setscrew (13).





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 adhesives, solvents or sealing compound gets on skin or clothing, wash immediately with soap and water.

(3) Apply sealing compound to threads of fittings (12).

(4) Align matchmarks and install all fittings (12) on fuel pump (2).

NOTE

Ensure rubber coupling is installed on motor shaft of burner.

(5) Align shafts and install fuel pump (2) on burner (5) with two lockwashers (11) and screws (10).

(6) Install washer (8) and fuel oil valve (6) on shaft (9) with clip (7).

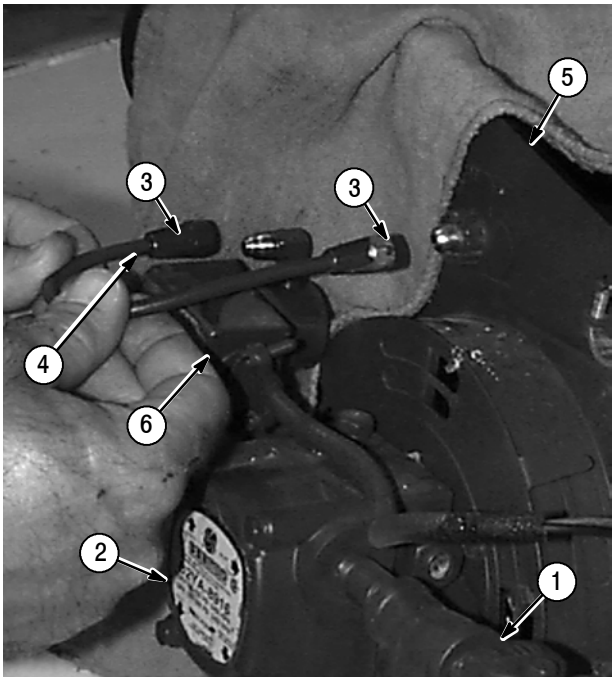
(7) Install tube (4) on fuel oil valve (6) and burner (5) and tighten two fittings (3).

NOTE

- If installing fuel pump on lower burner, perform Step (8).
- If installing fuel pump on upper burner, perform Step (9).

(8) Connect two hoses (1) on fuel pump (2).

(9) Connect four hoses (1) on fuel pump (2).



c. Follow-On Maintenance.

- Install fuel filter (upper burner only), (Para 3-11).

END OF TASK

3-22. HYDRAULIC CYLINDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Cap and Plug Set (Item 3, Appendix F)
Pan, Drain (Item 9, Appendix F)

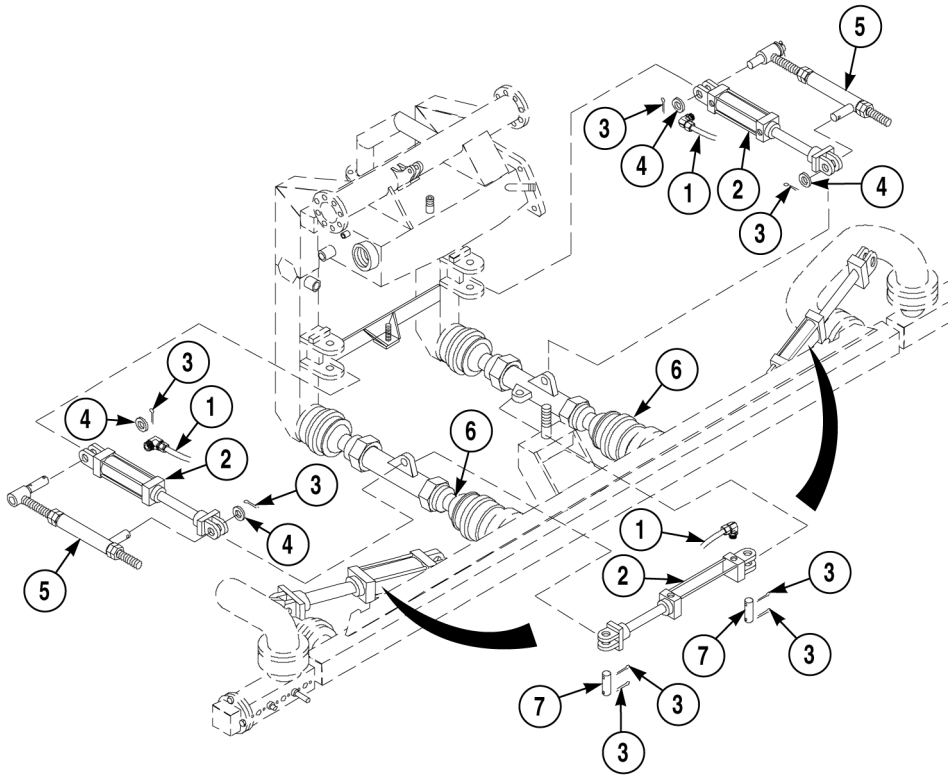
Materials/Parts
Tags, Identification (Item 9, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.

NOTE

- Position drain pan under cylinder to catch excess oil.
- Tag and mark hoses prior to removal.
- Cap and plug hoses upon removal.
- This task covers spray bar raise, shift and wing-fold hydraulic cylinders. Cylinders are removed the same way except where noted.



(1) Remove two hoses (1) from hydraulic cylinder (2).

NOTE

- Perform Step (2) if removing spray bar raise cylinder.
- Perform Step (3) if removing shift or wing-fold hydraulic cylinders.

(2) Remove two retaining pins (3) from hydraulic cylinder (2).

(3) Remove four retaining pins (3) from hydraulic cylinder (2).

NOTE

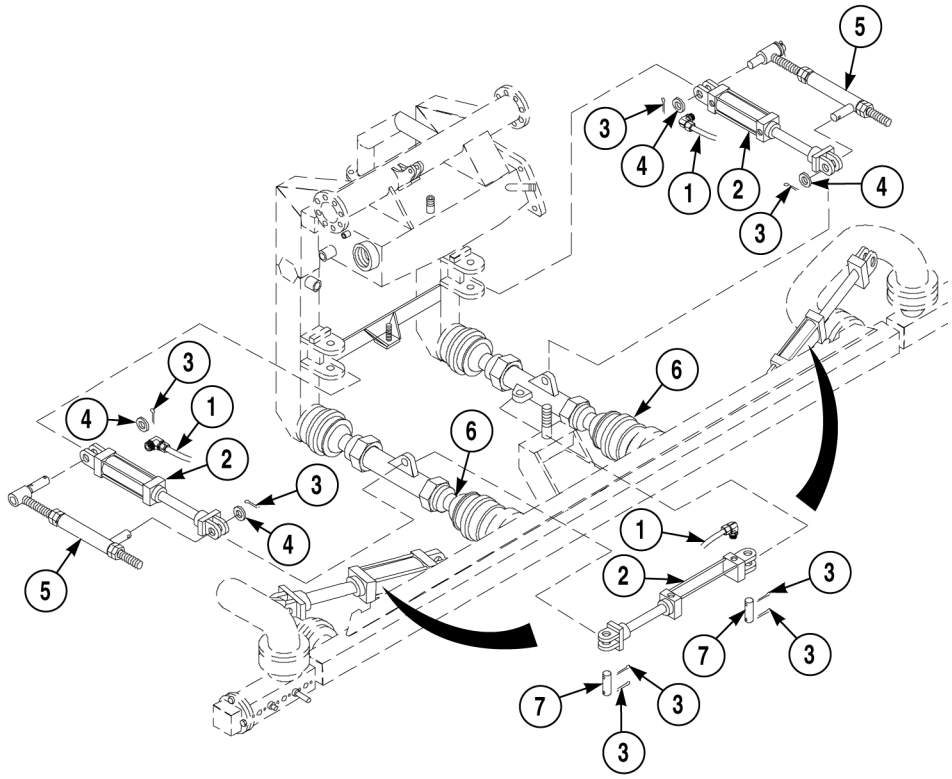
- Perform Step (4) if removing spray bar raise hydraulic cylinder.
- Perform Step (5) if removing shift or wing-fold hydraulic cylinders.

(4) Remove two washers (4), height adjustment rod (5) and hydraulic cylinder (2) from Bituminous Distributor (6).

(5) Remove two pins (7) and hydraulic cylinder (2) from Bituminous Distributor (6).

3-22. HYDRAULIC CYLINDER REPLACEMENT (CONT).

b. Installation.



NOTE

- Perform Step (1) if installing shift or wing-fold hydraulic cylinders.
- Perform Step (2) if installing spray bar raise hydraulic cylinder.

(1) Install hydraulic cylinder (2) on Bituminous Distributor (6) with two pins (7).

(2) Install hydraulic cylinder (2), height adjustment rod (5) and two washers (4) on Bituminous Distributor (6).

NOTE

- Perform Step (3) if installing shift or wing-fold hydraulic cylinders.
- Perform Step (4) if installing spray bar raise hydraulic cylinder.

(3) Install four retaining pins (3) on hydraulic cylinder (2).

(4) Install two retaining pins (3) on hydraulic cylinder (2).

NOTE

Install hoses as noted prior to removal.

(5) Install two hoses (1) on hydraulic cylinder (2).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-23. STOW/UNSTOW HYDRAULIC CYLINDER REPLACEMENT (SPRAY BAR ASSEMBLY).

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

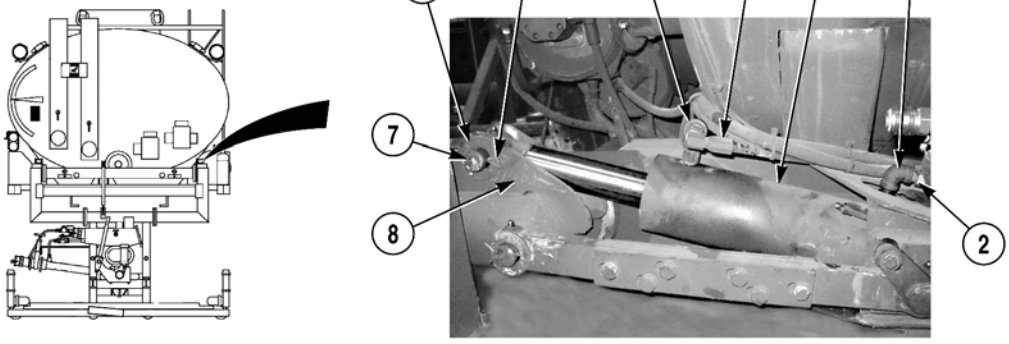
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Cap and Plug Set (Item 3, Appendix F)
Pan, Drain (Item 9, Appendix F)

Materials/Parts
Cotter Pin (2) (MS 24665-516)
Lockwasher (H22-56-52)
Sealing Compound (Item 8, Appendix E)

Materials/Parts - Continued
Tags, Identification (Item 9, Appendix E)
Compound, Antiseize (Item 2, Appendix E)

Equipment Condition
Spray bar deployed, (Para 2-17)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



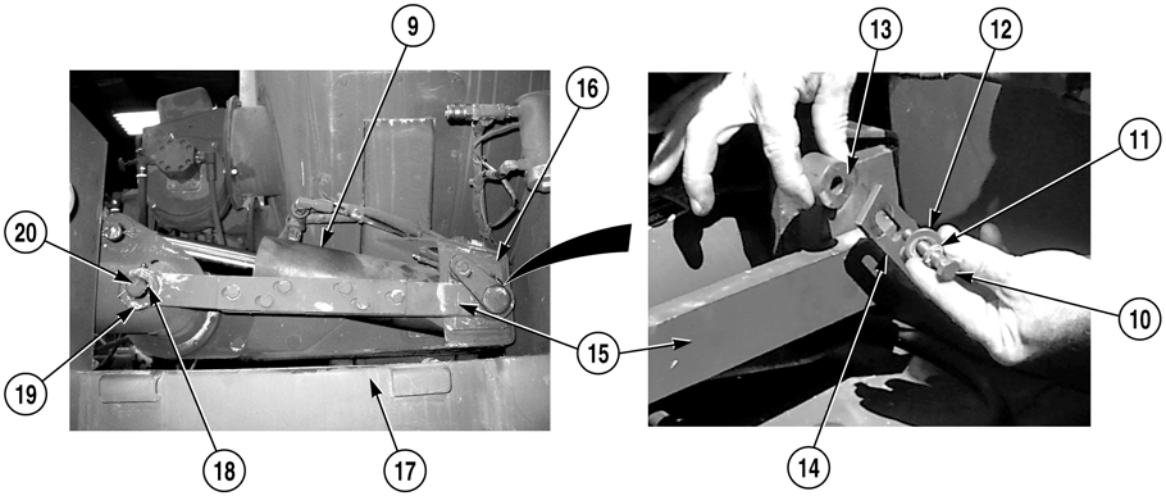
NOTE

- Cap and plug hoses and elbows upon removal.
- There are two hydraulic cylinders on the spray bar assembly. Both cylinders are removed the same way. Right side shown.
- Tag and mark hoses prior to removal.
- Position drain pan under cylinder to catch excess oil.
- Note position of elbows, tube, fittings and flow control fitting prior to removal.

(1) Remove two hoses (1) and (2) from fitting (3) and elbow (4).

(2) Remove cotter pin (5), washer (6) and pin (7) from pipe bracket (8) and cylinder (9). Discard cotter pin.

3-23. STOW/UNSTOW HYDRAULIC CYLINDER REPLACEMENT (SPRAY BAR ASSEMBLY) (CONT).



NOTE

Pin assembly may or may not be able to be removed from bar, cylinder and bracket because of rust or corrosion. Perform Steps (3) and (4) to remove cylinder without removing bar. Perform Steps (3), (5), (6) and (7) if bar needs to be removed.

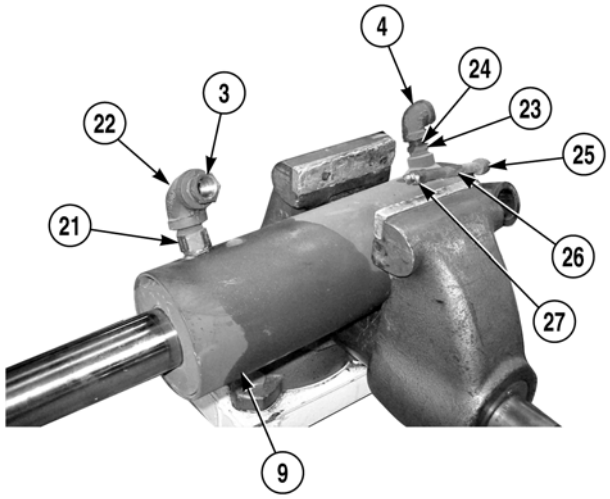
(3) Remove screw (10), lockwasher (11), washer (12), spacer (13) and pin assembly (14) from bar (15), bracket (16) and cylinder (9). Discard lockwasher.

(4) Remove cylinder (9) from Bituminous Distributor (17).

(5) Remove cotter pin (18) and washer (19) from pin (20). Discard cotter pin.

(6) Remove pin assembly (14) and bar (15) from bracket (16) cylinder (9) and pin (20).

(7) Remove cylinder (9) from Bituminous Distributor (17).

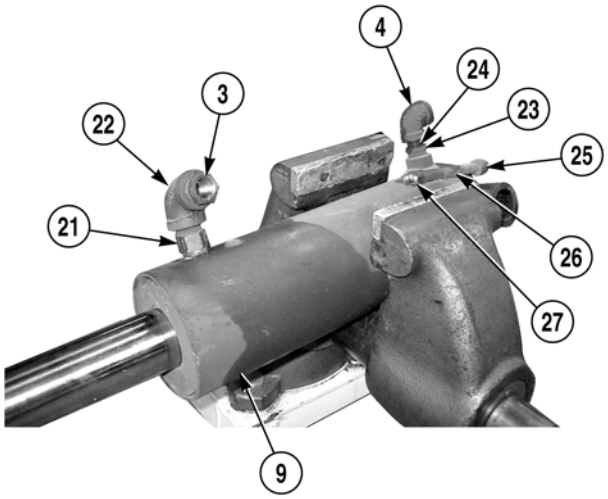


(8) Remove flow control fitting (21), elbow (22) and fitting (3) from cylinder (9).

(9) Remove two fittings (23) and (24) and elbow (4) from cylinder (9).

(10) Remove two elbows (25), tube (26) and grease fitting (27) from cylinder (9).

b. 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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

- Both hydraulic cylinders are installed the same way. Right side shown.
- Install elbows, tube, fittings and flow control fitting in location and position as noted prior to removal.

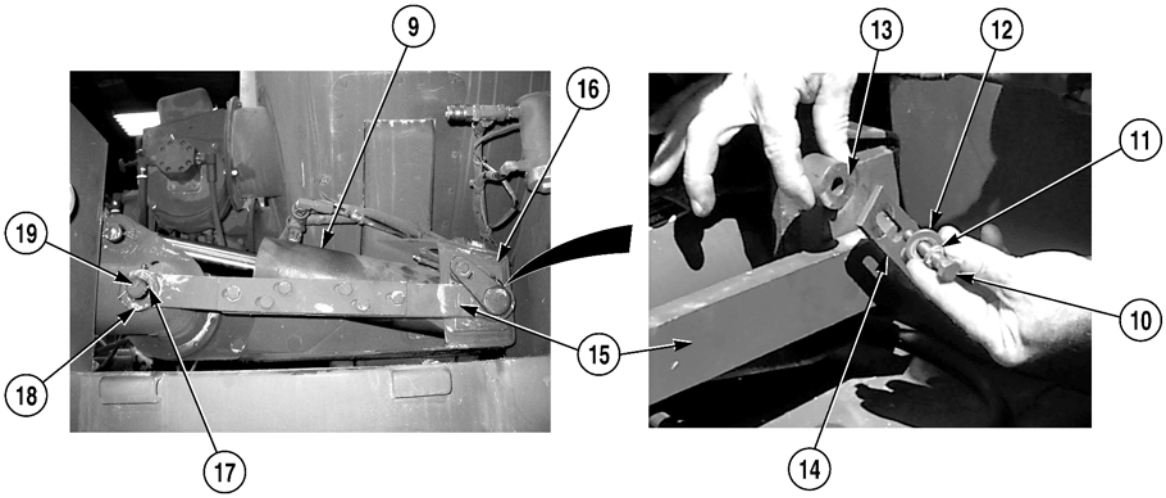
(1) Apply sealing compound to threads of three fittings (3), (23) and (24), two elbows (25), tube (26), grease fitting (27) and flow control fitting (21).

(2) Install two elbows (25), tube (26) and grease fitting (27) on cylinder (9).

(3) Install two fittings (23) and (24) and elbow (4) on cylinder (9).

(4) Install flow control valve fitting (21), elbow (22) and fitting (3) on cylinder (9).

3-23. STOW/UNSTOW HYDRAULIC CYLINDER REPLACEMENT (SPRAY BAR ASSEMBLY) (CONT).



(5) Position cylinder (9) on Bituminous Distributor (17).

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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

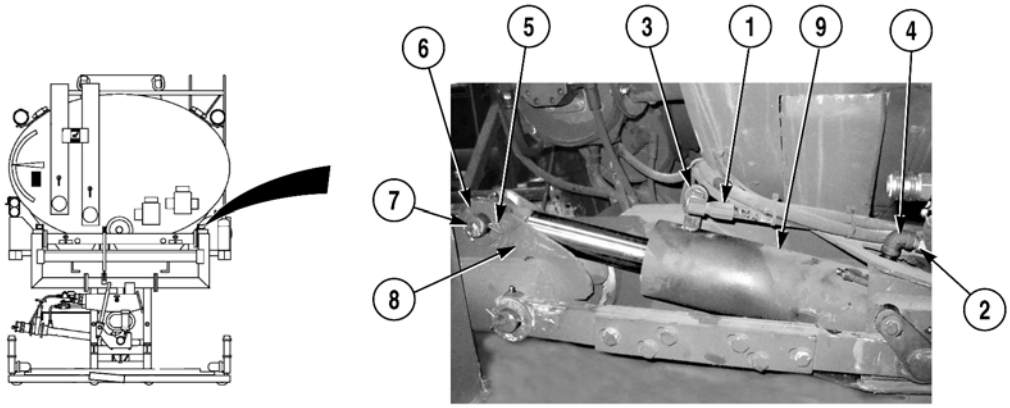
Perform Steps (6) and (7) if bar was removed.

(6) Apply antiseize on pin (20).

(7) Install bar (15) on pin (20) with washer (19) and cotter pin (18).

(8) Apply antiseize on pin assembly (14).

(9) Install bar (15) and cylinder (9) on bracket (16) with spacer (13), pin assembly (14), washer (12), lockwasher (11) and screw (10).



(10) Apply antiseize on pin (7).

(11) Install cylinder (9) on pipe bracket (8) with pin (7), washer (6) and cotter pin (5).

(12) Apply sealing compound to threads of two hoses (1) and (2).

(13) Install two hoses (1) and (2) on fitting (3) and elbow (4).

c. Follow-On Maintenance:

- Stow spray bar, (Para 2-17).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-24. BALL VALVE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

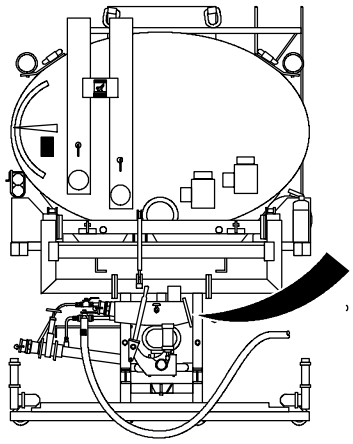
INITIAL SETUP

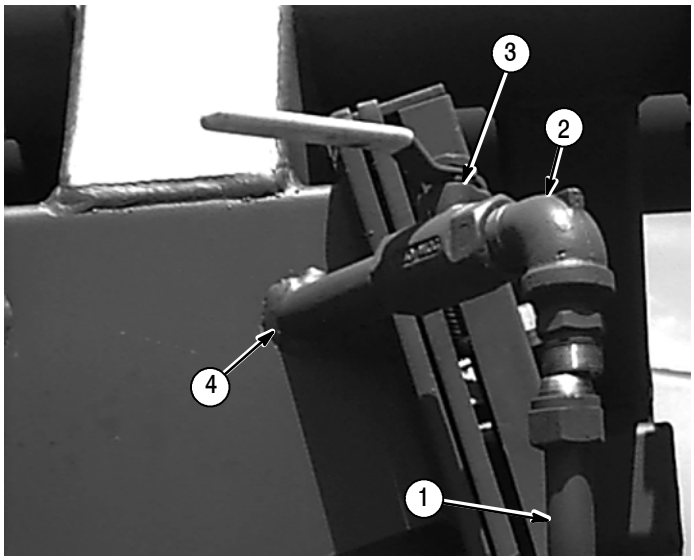
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Cap and Plug Set (Item 3, Appendix F)
Pan, Drain (Item 9, Appendix F)
Wrench, Combination 1-3/8 in. (Item 16, Appendix F)

Materials/Parts
Sealing Compound (Item 8, Appendix E)
Tags, Identification (Item 9, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





NOTE

- There are three ball valves on Bituminous Distributor. All three ball valves are removed the same way.
- Position drain pan under ball valve to catch excess oil.
- Tube will be removed at ball valve end only.
- Cap and plug hoses and fittings upon removal.

(1) Remove tube (1) from adapter or elbow (2).

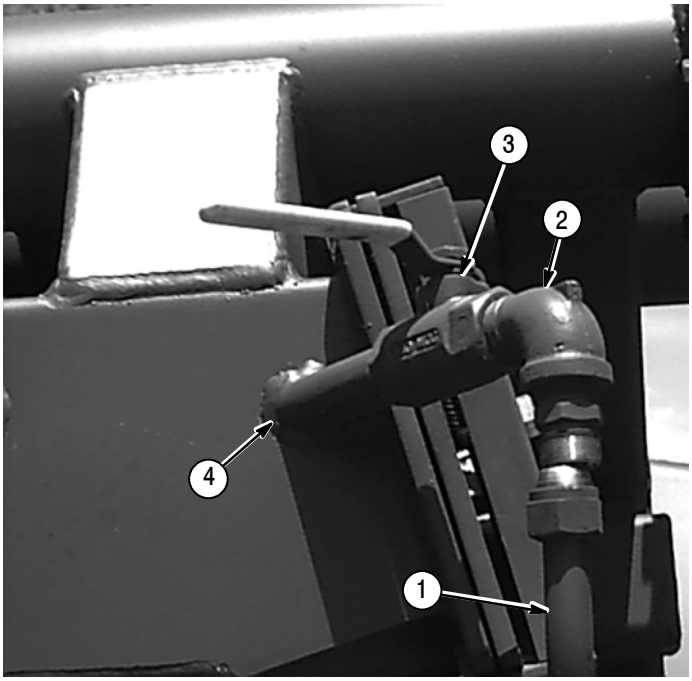
(2) Remove ball valve (3) from Bituminous Distributor (4).

NOTE

Tag and mark location and positioning of fittings and elbows prior to removal.

(3) Position ball valve (3) in vise and remove all fittings and elbows from ball valve.

b. 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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

- All ball valves are installed the same way.
- Install fittings and elbows in position and location as noted prior to removal.

(1) Apply sealing compound to thread of all fittings and elbows.

(2) Install all fittings and elbows in ball valve (3).

(3) Install ball valve (3) on Bituminous Distributor (4).

(4) Install tube (1) on adapter or elbow (2).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-25. HAND SPRAY VALVE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

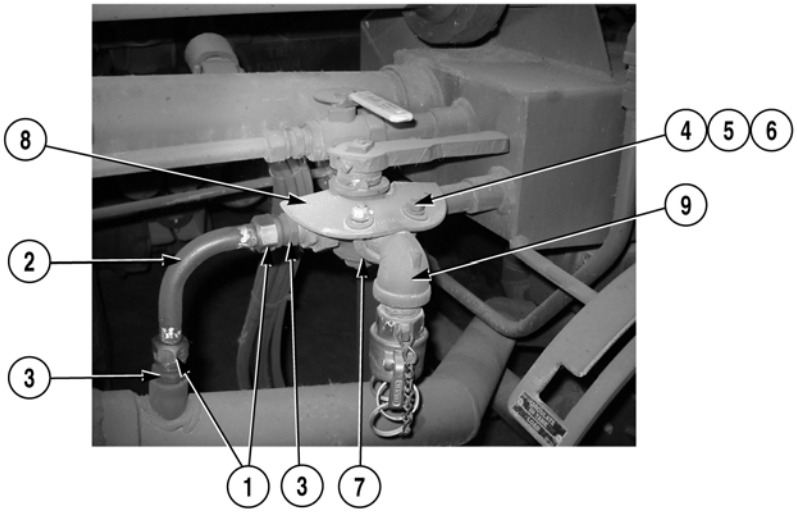
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Pan, Drain (Item 9, Appendix F)

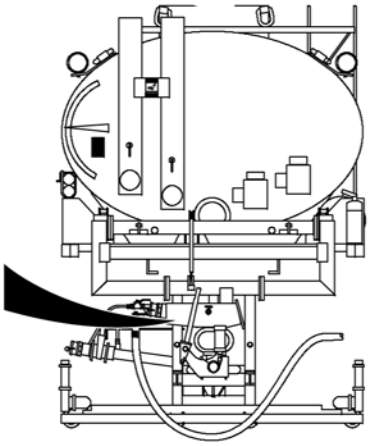
Materials/Parts
Primer "N" (Item 5, Appendix E)
Sealing Compound (Item 7, Appendix E)

Materials/Parts - Continued
Lockwasher (2) (MS 35338-45)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





NOTE

- Position drain pan under hand spray valve to catch excess oil.
- Note location and position of fittings prior to removal.

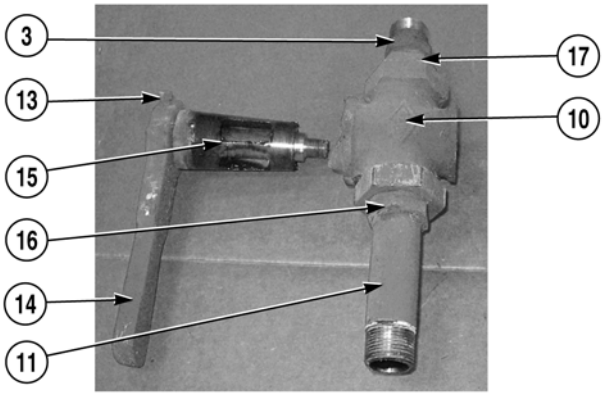
(1) Remove two fittings (1) and tube (2) from two fittings (3).

(2) Remove two nuts (4), lockwashers (5), washers (6), U-bolt (7) and data plate (8) from elbow (9). Discard lockwashers.



(3) Remove elbow (9) from valve (10).

(4) Remove valve (10) and pipe (11) from box (12).

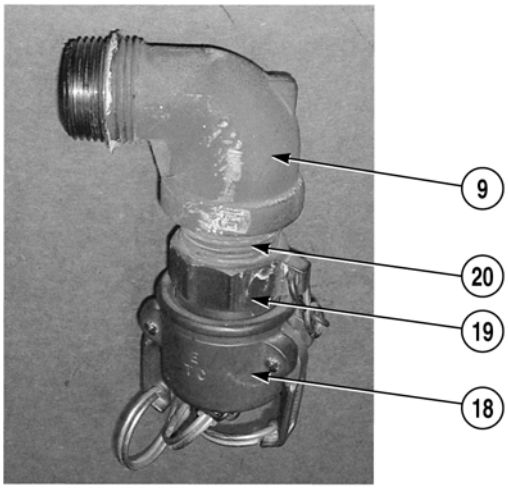


(5) Remove two setscrews (13) and handle (14) from tapered valve (15).

(6) Remove pipe (11) and fitting (16) from valve (10).

(7) Remove two fittings (3) and (17) from valve (10).

3-25. HAND SPRAY VALVE REPLACEMENT (CONT).



(8) Remove cap (18), adapter (19) and nipple (20) from elbow (9).

b. Installation.

WARNING

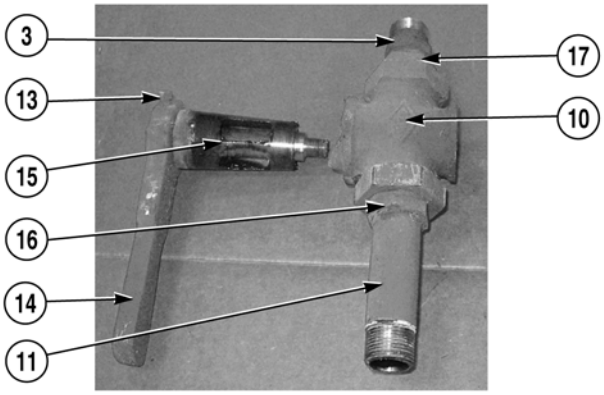
Adhesives, solvents and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap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

NOTE

Install fittings and elbow in location and position as noted prior to removal.

(1) Apply primer and sealing compound to threads of all fittings, pipe and elbow prior to installation.

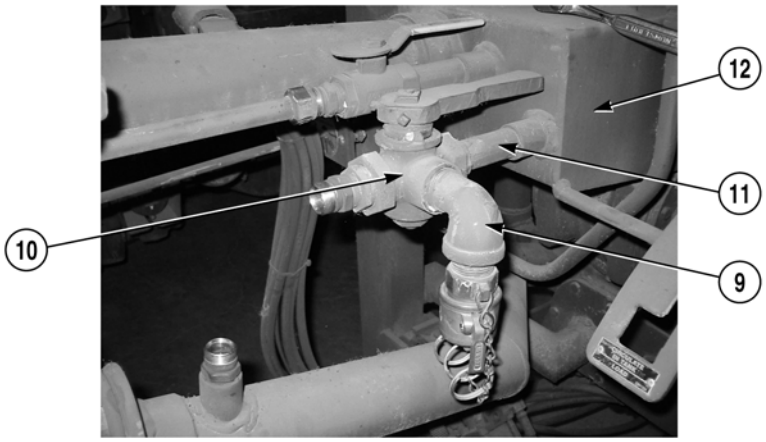
(2) Install nipple (20), adapter (19) and cap (18) on elbow (9).



(3) Install two fittings (3) and (17) on valve (10).

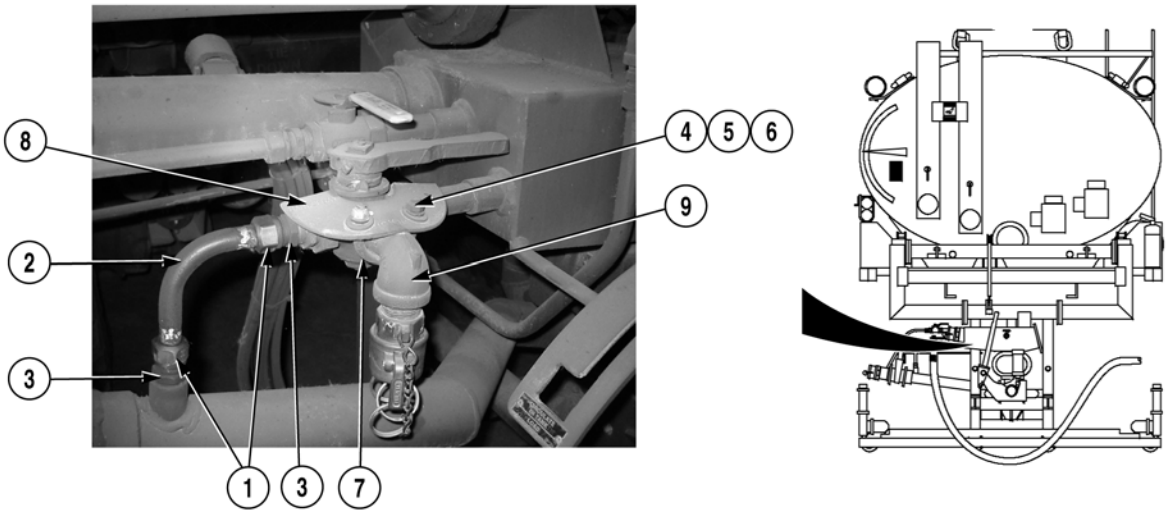
(4) Install fitting (16) and pipe (11) on valve (10).

(5) Install handle (14) on tapered valve (15) with two setscrews (13).



(6) Install pipe (11) and valve (10) on box (12).

(7) Install elbow (9) on valve (10).



(8) Install data plate (8) on elbow (9) with U-bolt (7), two washers (6), lockwashers (5) and nuts (4).

(9) Install tube (2) and two fittings (1) on fittings (3).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-26. BUTTERFLY VALVE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Pan, Drain (Item 9, Appendix F)

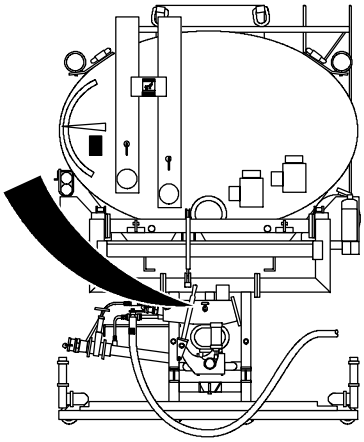
Materials/Parts
Primer "N" (Item 5, Appendix E)
Sealing Compound (Item 6, Appendix E)
Locknut (3) (9416509)
Lockwasher (6) (MS 35338-45)

Materials/Parts - Continued
Gasket (3340519)
Lockwasher (4) (MS 35338-48)

Equipment Condition
Spray bar deployed, (Para 2-17)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.

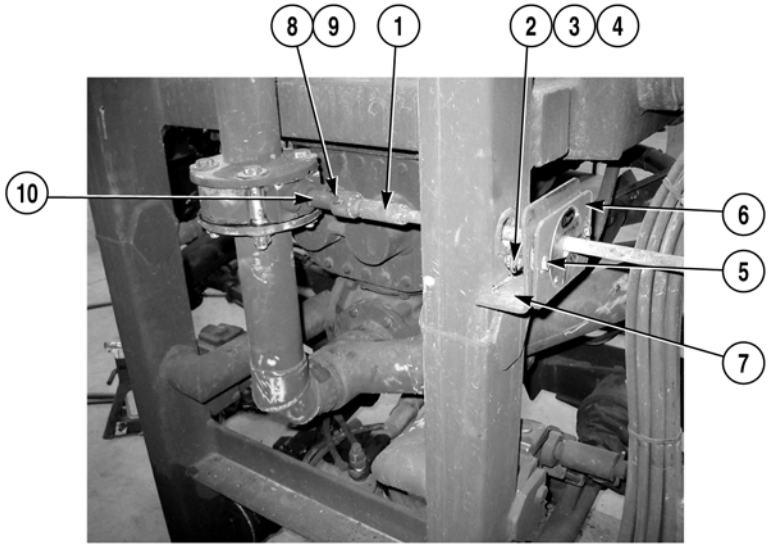




NOTE

Position drain pan under butterfly valve.

(1) Position butterfly valve handle (1) in TRANSFER position.

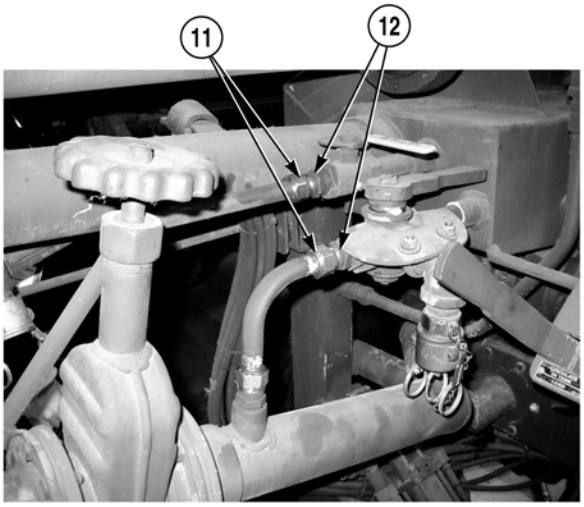


NOTE

Note position of springs, washers and locknuts on screws prior to removal.

(2) Remove two locknuts (2), washers (3), springs (4), screws (5) and plate (6) from bracket (7). Discard locknuts.

(3) Remove locknut (8), screw (9) and butterfly valve handle (1) from shaft (10). Discard locknut.

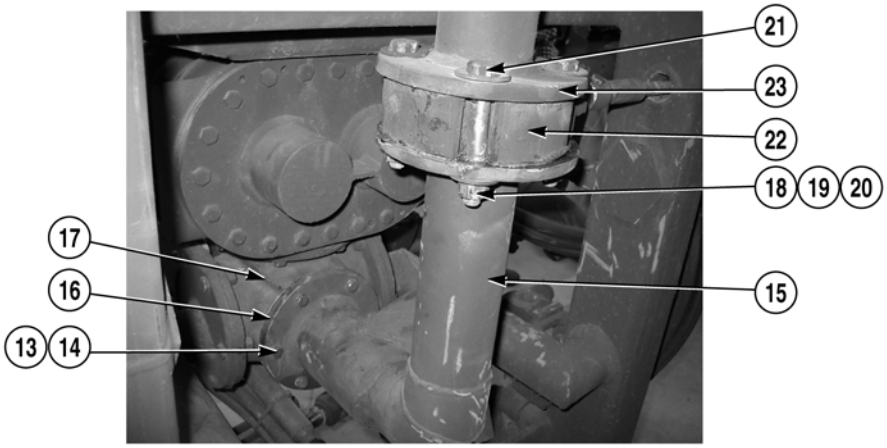


NOTE

Removing return line allows for easier removal of butterfly valve and cleaning of gasket surface.

(4) Remove two fittings (11) from fittings (12).

3-26. BUTTERFLY VALVE REPLACEMENT (CONT).



(5) Remove six screws (13), lockwashers (14), return line (15) and gasket (16) from four-way valve (17). Discard lockwashers and gasket.

NOTE

Note position of butterfly valve prior to removal.

(6) Remove four nuts (18), lockwashers (19), eight washers (20), four screws (21), return line (15) and butterfly valve (22) from flange (23). Discard locknuts.

b. 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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Install butterfly valve in same position as noted prior to removal.

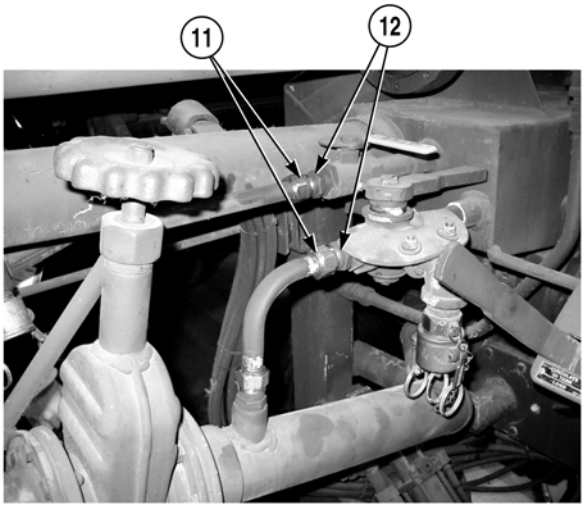
(1) Apply sealing compound to surface of gasket (16).

(2) Position gasket (16) and return line (15) on four-way valve (17) with six lockwashers (14) and screws (13). Do not tighten screws.

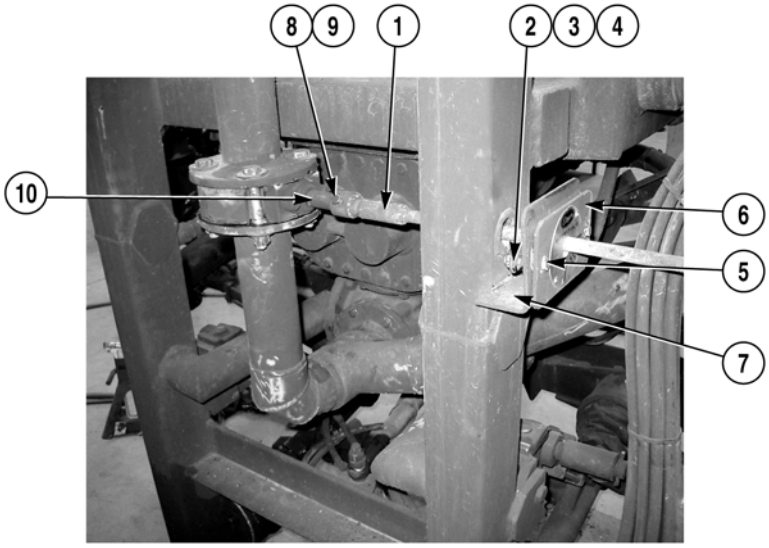
(3) Apply primer and sealing compound to mating surfaces of butterfly valve (22).

(4) Install butterfly valve (22) on flange (23) and return line (15) with four screws (21), eight washers (20), four lockwashers (19) and nuts (18).

(5) Tighten six screws (13).



(6) Install two fittings (11) on fittings (12).



(7) Install butterfly valve handle (1) on shaft (10) with screw (9) and locknut (8).

NOTE

Install springs, washers and locknuts on screws as noted prior to removal.

(8) Install plate (6) on bracket (7) with two screws (5), springs (4), washers (3) and locknuts (2).

(9) Ensure butterfly valve handle (1) is returned to NORMAL position.

c. Follow-On Maintenance:

- Stow spray bar, (Para 2-17).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-27. AIR VALVE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

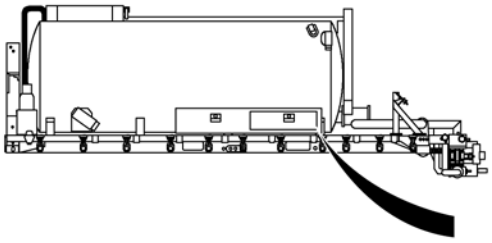
INITIAL SETUP

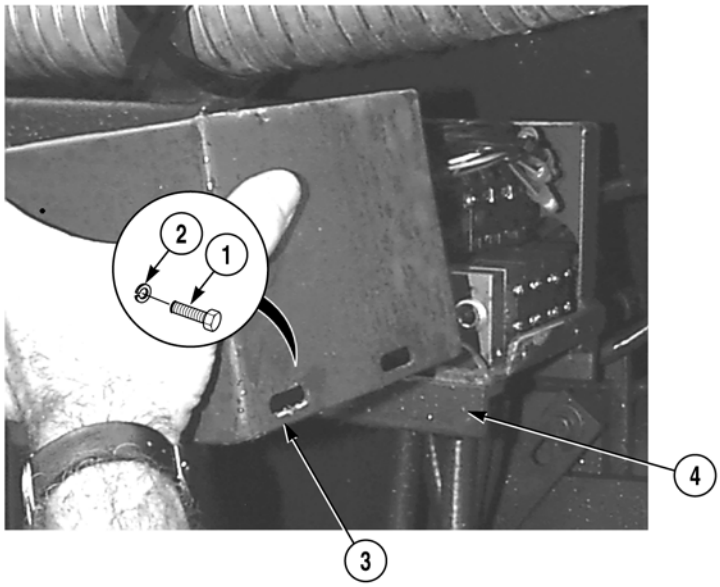
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Tool Kit, Electrical (Item 13, Appendix F)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Lockwasher (4) (MS 35338-44)
Sealing Compound (Item 8, Appendix E)
Seals (4) (16358)

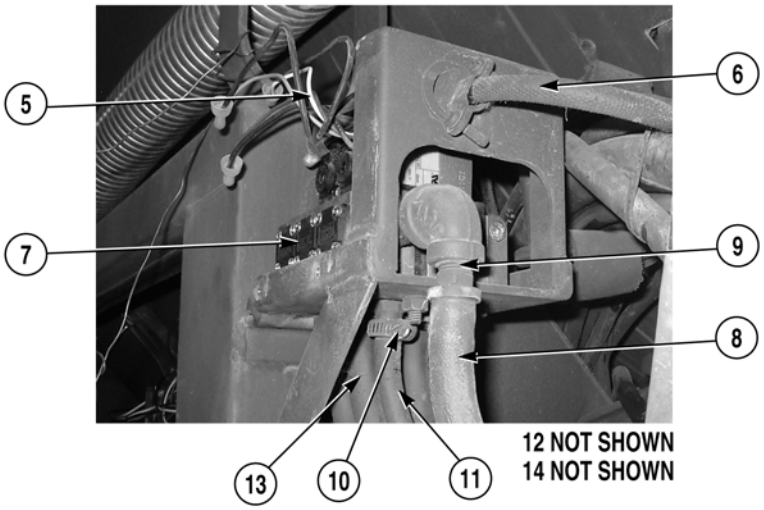
Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Transfer Hose removed, (Para 2-20)

a. Removal.





(1) Remove two screws (1), washers (2) and cover (3) from bracket (4).



NOTE

- Tag and mark wires and air lines prior to removal.
- Wires cut in Step (2) should be red, white, green and black from harness and six black wires from three air valves.

(2) Cut ten wires (5) from wire harness (6) and three air valves (7).

(3) Remove air line (8) from fitting (9).

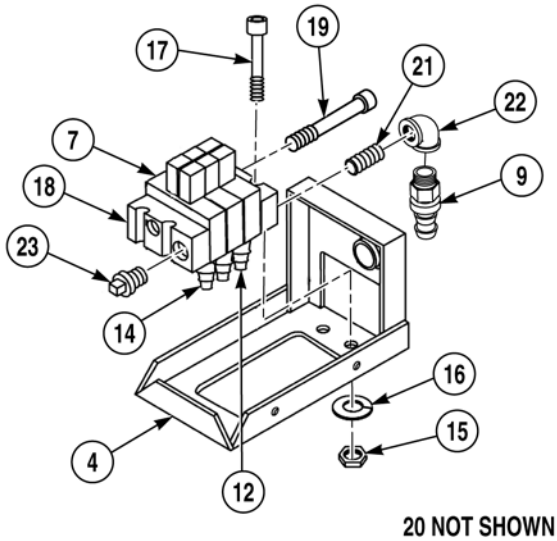
NOTE

Two rear air lines have clamps, four front air lines do not.

(4) Loosen two clamps (10) and remove air lines (11) from fittings (12).

(5) Remove four air lines (13) from fittings (14).

3-27. AIR VALVE REPLACEMENT (CONT).



(6) Remove four nuts (15), lockwashers (16), screws (17), two end plates (18) and three air valves (7) from bracket (4). Discard lockwashers.

(7) Remove two screws (19), end plates (18) and four seals (20) from three air valves (7). Discard seals.

(8) Remove two fittings (12) and four fittings (14) from three air valves (7).

(9) Remove nipple (21), elbow (22) and plug (23) from two end plates (18).

(10) Remove fitting (9) and nipple (21) from elbow (22).

b. 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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(1) Apply sealing compound to threads of three fittings (12) and (21), five fittings (14) and (9), and plug (23).

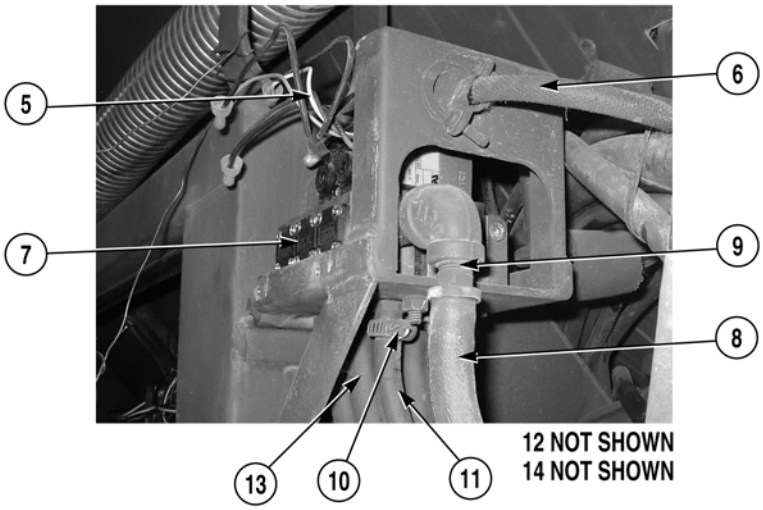
(2) Install nipple (21) and fitting (9) on elbow (22).

(3) Install nipple (21) and plug (23) on two end plates (18).

(4) Install two fittings (12) and four fittings (14) on three air valves (7).

(5) Install three air valves (7) and four seals (20) on end plates (18) with two screws (19).

(6) Install three air valves (7) and two end plates (18) on bracket (4) with four screws (17), lockwashers (16) and nuts (15).

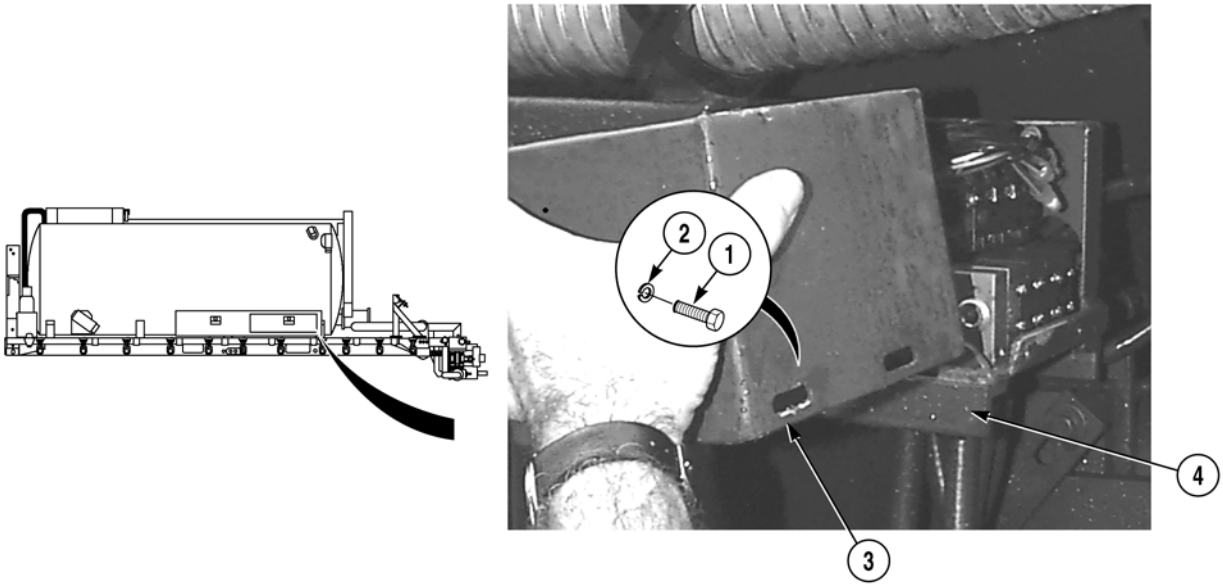


(7) Install four air lines (13) on fittings (14).

(8) Install two air lines (11) on fittings (12) with clamps (10).

(9) Install air line (8) on nipple (9).

(10) Repair and connect ten wires (5) on three air valves (7) and wire harness (6), (Para 3-80).



(11) Install cover (3) on bracket (4) with two washers (2) and screws (1).

c. Follow-On Maintenance.

- Install transfer hose, (Para 2-20).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-28. CONTROLLER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

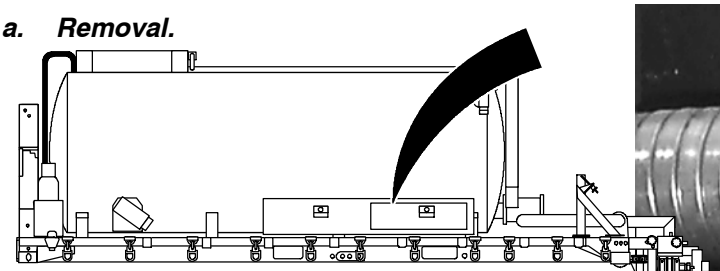
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Lockwasher (4) (MS 35338-44)
Tags, Identification (Item 9, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



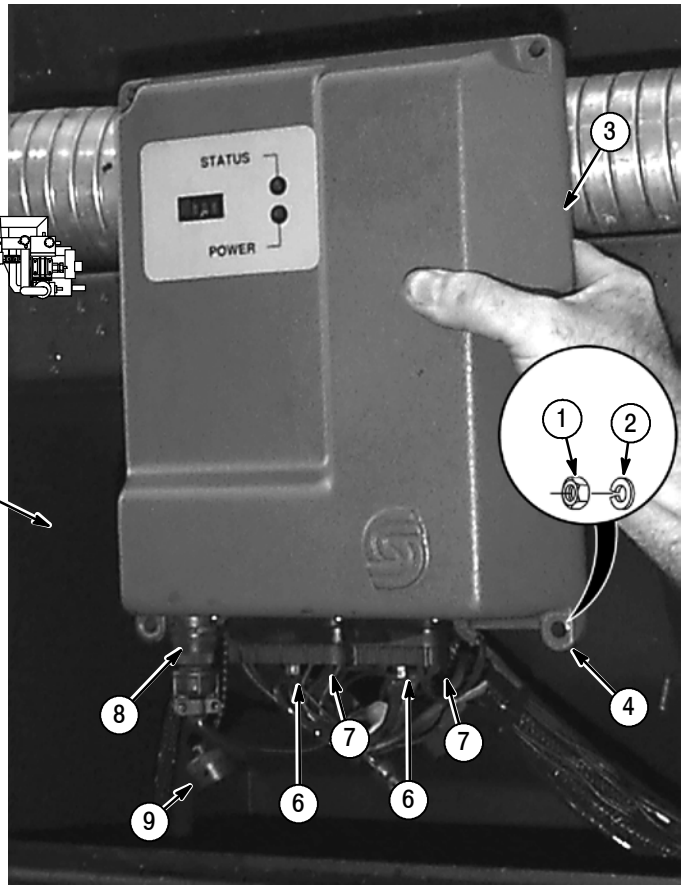
(1) Open rear control panel door.

CAUTION

Controller has connectors attached to bottom of unit. Use care when pulling controller forward or damage to wires may occur.

NOTE

- Tag and mark connectors prior to removal.
- Some models have eight washers.
- Return controller core to manufacturer.



(2) Remove four nuts (1), lockwashers (2) and controller (3) from studs (4) on Bituminous Distributor (5). Discard lockwashers.

(3) Carefully pull controller (3) away from Bituminous Distributor (5).

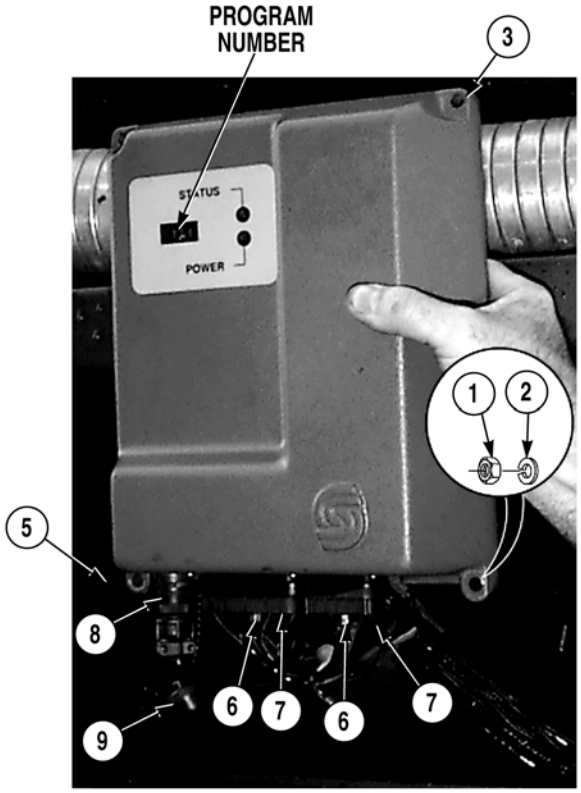
(4) Loosen two screws (6) and disconnect two connectors (7) from controller (3).

(5) Remove connector (8) from controller (3).

(6) Install end cap (9) on controller (3).

(7) Remove controller (3) from Bituminous Distributor (5).

b. Installation.



NOTE

If installing new controller, new controller is equipped with connector end cap. Remove end caps and install on old controller for shipping.

(1) Position controller (3) on Bituminous Distributor (5).

(2) Remove end cap (9) from controller (3).

(3) Install connector (8) on controller (3).

(4) Install two connectors (7) on controller (3) and tighten two screws (6).

(5) Install controller (3) on Bituminous Distributor (5) with four lockwashers (2) and nuts (1).

(6) Turn front and rear control panel POWER switches, (Para 2-1).

(7) Check controller for correct program number. Correct program is PLS5.

(8) If program number is incorrect, controller will not operate this Bituminous Distributor. Uninstall controller and return to vendor.

(9) Close rear control panel door.

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-29. MAIN MANIFOLD REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

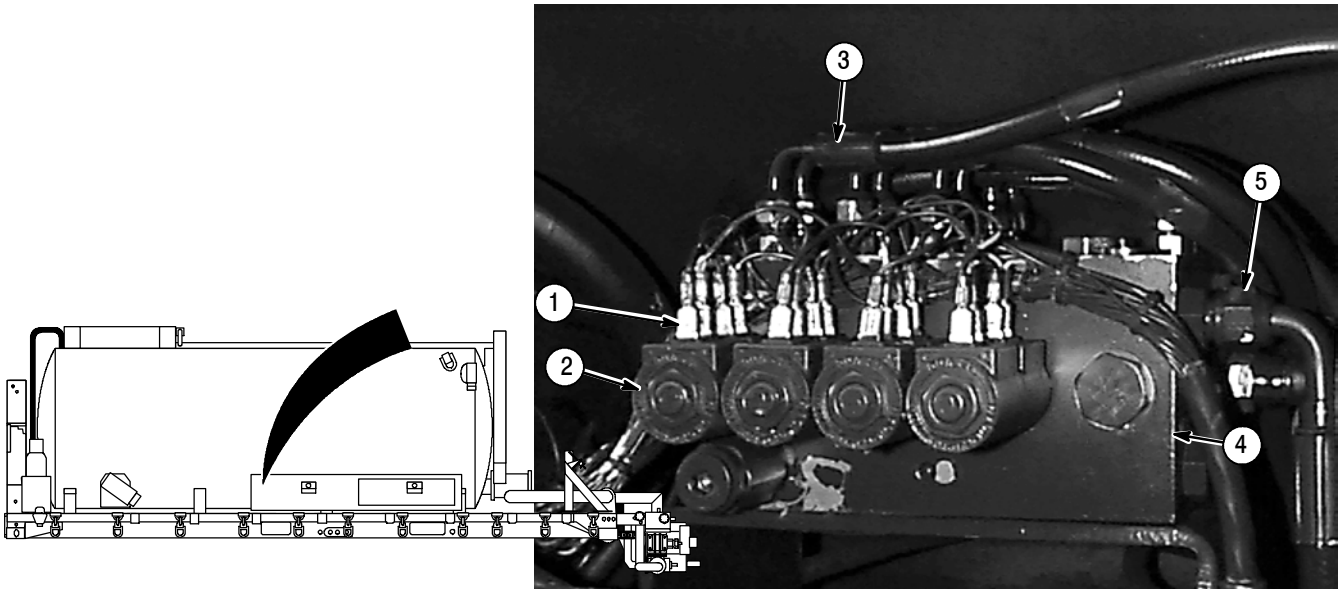
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Cap and Plug Set (Item 3, Appendix F)

Materials/Parts
Hydraulic Oil (Item 3, Appendix E)
Tags, Identification (Item 9, Appendix E)
Lockwasher (2) (MS 35338-44)

Materials/Parts - Continued
Preformed Packing Assortment (Item 11, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



NOTE

- Tag and mark all hoses and wires prior to removal.
- Cap and plug hoses, elbows and fittings upon removal.

(1) Open left front stowage box door.

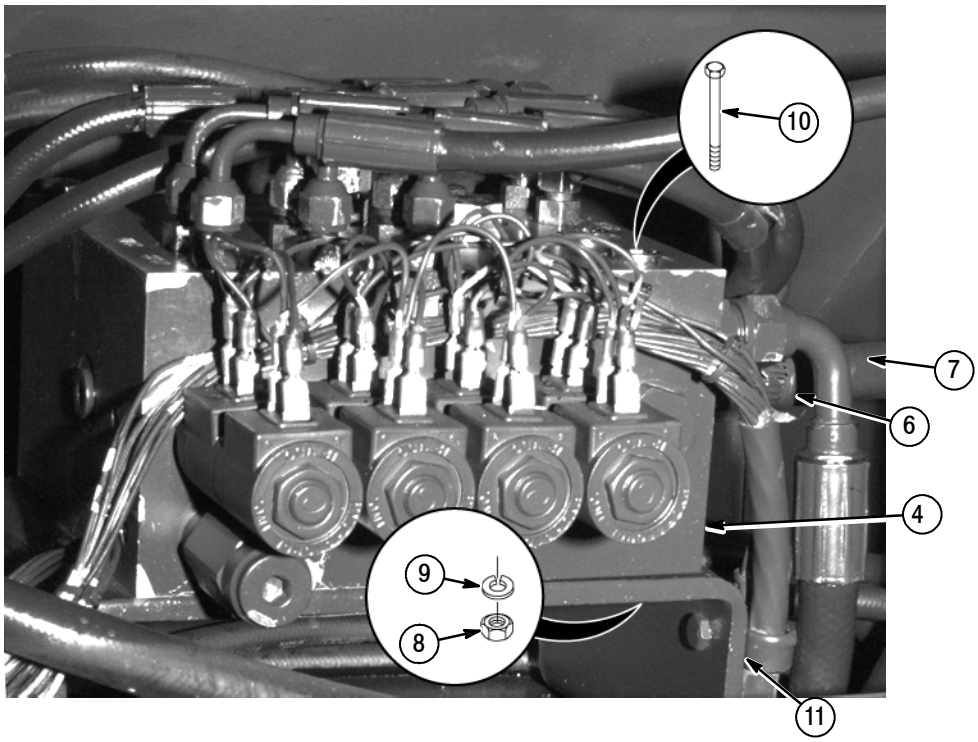
(2) Remove 16 wires (1) from eight coils (2).

(3) Remove 10 hoses (3) from top of main manifold (4).

NOTE

Some models have hose (5) attached to an elbow.

(4) Remove hose (5) from side of main manifold (4).



NOTE

Some models no longer have a clamp, and hose (7) is attached to an elbow.

(5) Loosen clamp (6) and remove hose (7) from side of main manifold (4).

(6) Remove two nuts (8), lockwashers (9), screws (10) and main manifold (4) from bracket (11). Discard lockwashers.

b. Installation.

(1) Install main manifold (4) on bracket (11) with two screws (10), lockwashers (9) and nuts (8).

NOTE

Install hoses and wires as noted prior to removal.

(2) Install hose (7) on side of main manifold (4) and tighten clamp (6).

(3) Install hose (5) on side of main manifold (4).

(4) Install 10 hoses (3) on top of main manifold (4).

(5) Install 16 wires (1) on eight coils (2).

(6) Close left front stowage box door.

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-30. BURNER MANIFOLD REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

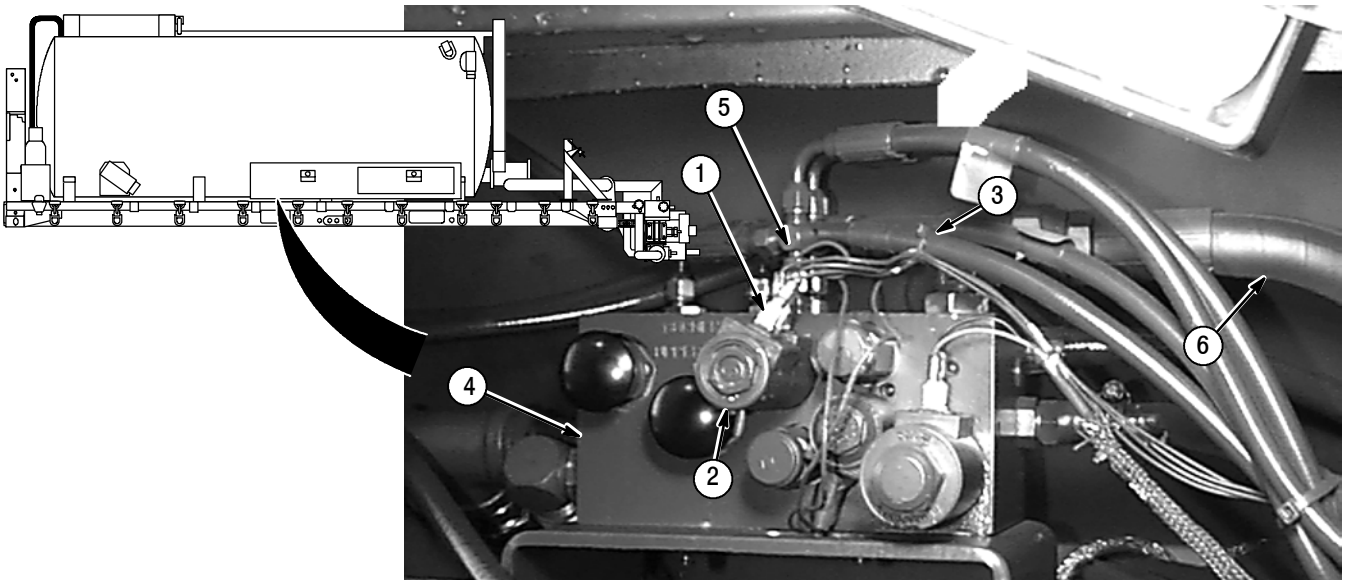
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Cap and Plug Set (Item 3, Appendix F)
Wrench, Combination, 1-1/4 (Item 15, Appendix F)

Materials/Parts
Hydraulic Oil (Item 3, Appendix E)
Tags, Identification (Item 9, Appendix E)
Lockwasher (2) (MS 35338-44)
Preformed Packing (5)

Materials/Parts - Continued
Preformed Packing Assortment (Item 11, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



(1) Open front left stowage box door.

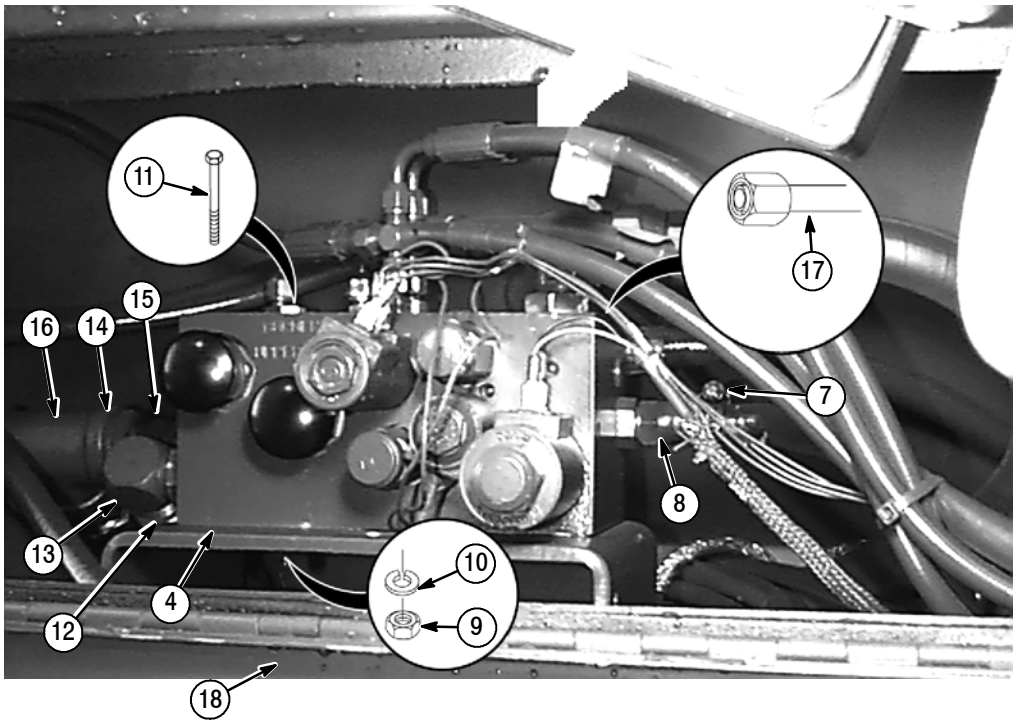
NOTE

- Tag and mark all hoses and wires prior to removal.
- Cap and plug all hoses, elbows and fittings upon removal.

(2) Remove eight wires (1) from four coils (2).

(3) Remove six hoses (3) from top of burner manifold (4) and two tees (5).

(4) Remove hose (6) from top of burner manifold (4).



NOTE

Some models no longer have clamp and hose (8) attached to elbow.

(5) Loosen clamp (7) and remove hose (8) from side of burner manifold (4).

(6) Remove two nuts (9), lockwashers (10) and screws (11) from burner manifold (4) and pull burner manifold (4) out. Discard lockwashers.

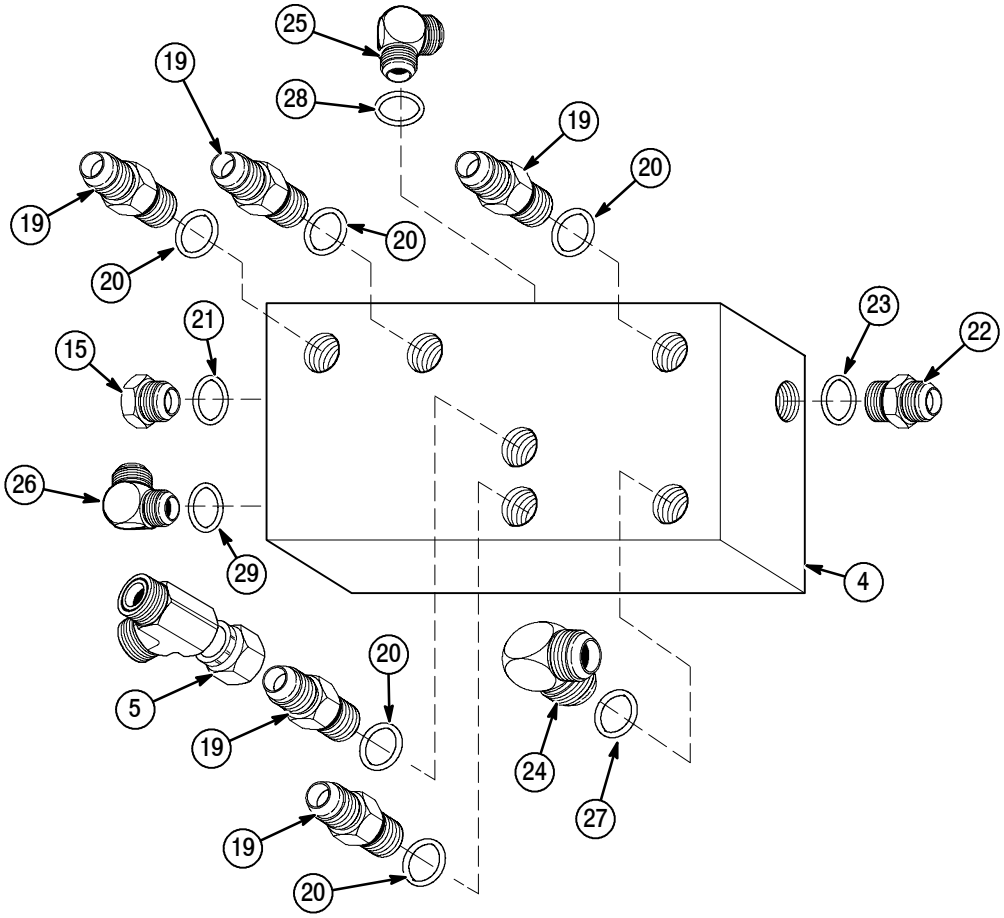
(7) Remove hose (12) from elbow (13).

(8) Hold nut (14) and loosen adapter (15) to remove hoses and tees (16) from burner manifold (4).

(9) Remove hose (17) from rear of burner manifold (4).

(10) Remove burner manifold (4) from Bituminous Distributor (18).

3-30. BURNER MANIFOLD REPLACEMENT (CONT).



NOTE

- Note location of fittings, adapters and tees prior to removal.
- Perform Steps (11) through (15) if tees, adapters and fittings are damaged.

(11) Remove two tees (5) from fittings (19).

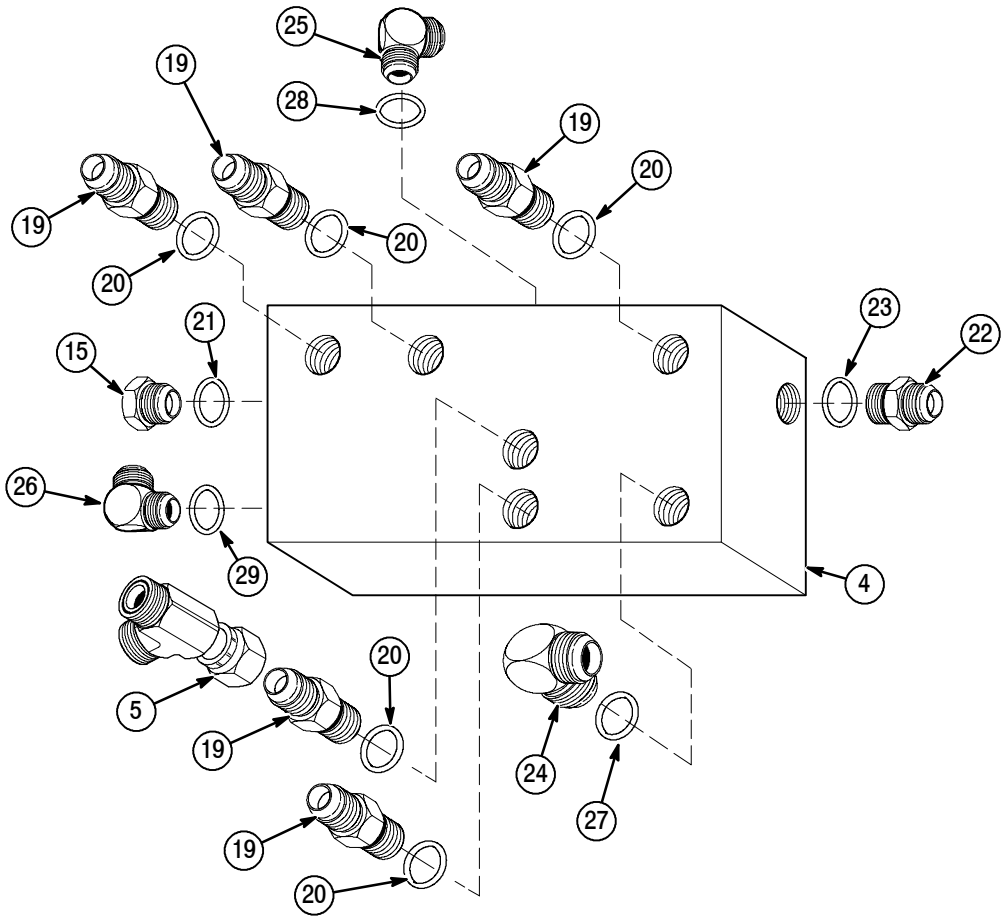
(12) Remove five fittings (19) and preformed packings (20) from burner manifold (4). Discard preformed packings.

(13) Remove adapter (15) and preformed packing (21) from burner manifold (4). Discard preformed packing.

(14) Remove fitting (22) and preformed packing (23) from burner manifold (4). Discard preformed packing.

(15) Remove elbows (24), (25), (26) and preformed packings (27), (28) and (29) from burner manifold (4). Discard preformed packings.

b. Installation.



NOTE

- Perform Steps (1) through (6) if tees, adapters and fittings were removed.
- Install tees, adapters and fittings as noted prior to removal.

(1) Apply hydraulic oil to preform packings (29), (28), (27), (23), (21) and five preformed packings (20).

(2) Install elbows (26), (25), (24) and preformed packings (29), (28) and (27) on burner manifold (4).

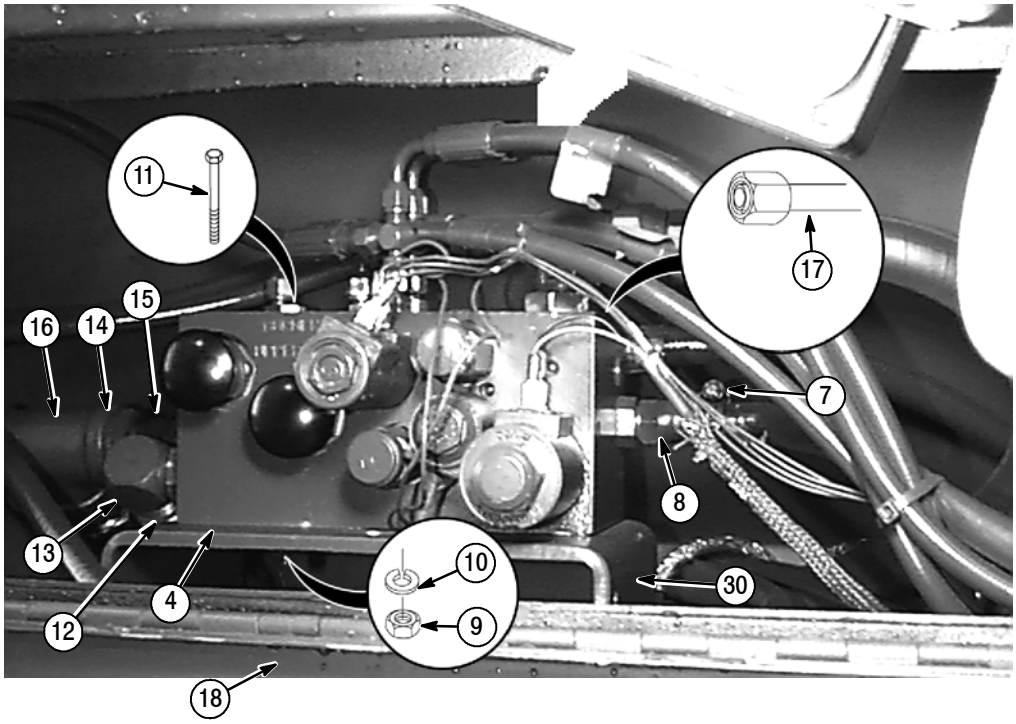
(3) Install fitting (22) and preformed packing (23) on burner manifold (4).

(4) Install adapter (15) and preformed packing (21) on burner manifold (4).

(5) Install five fittings (19) and preformed packings (20) on burner manifold (4).

(6) Install two tees (5) on fittings (19).

3-30. BURNER MANIFOLD REPLACEMENT (CONT).



NOTE

Hoses are positioned on elbows and fittings prior to installing burner manifold on bracket for ease of installation.

(7) Position burner manifold (4) on Bituminous Distributor (18).

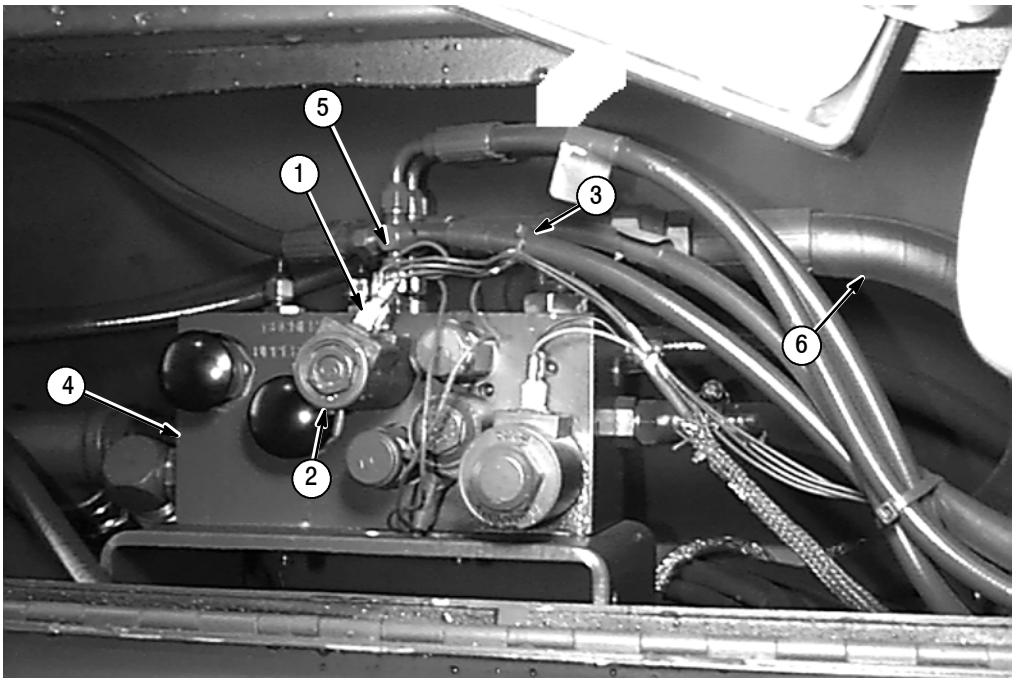
(8) Install hose (17) on rear of burner manifold (4).

(9) Position hoses and tees (16) on adapter (15). Hold nut (14) and tighten adapter (15).

(10) Install hose (12) on elbow (13).

(11) Install burner manifold (4) on bracket (30) with two screws (11), lockwashers (10) and nuts (9).

(12) Install hose (8) on side of burner manifold (4) and tighten clamp (7).



(13) Install hose (6) on top of burner manifold (4).

(14) Install six hoses (3) and two tees (5) on top of burner manifold (4).

NOTE

Install wires as noted prior to removal.

(15) Install eight wires (1) on four coils (2).

(16) Close front left stowage box door.

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-31. OILER MAINTENANCE.

This task covers:

a. Service b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Goggles, Industrial (Item 6, Appendix F)

Materials/Parts
Hydraulic Oil (Item 3, Appendix E)
Preformed Packing Assortment (Item 11, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
UPIK air connector disconnected, (Para 2-10)

a. Service.

(1) Visually check for water and level of oil in oiler (1).

CAUTION

When cap is removed, glass bowl will fall if not supported.

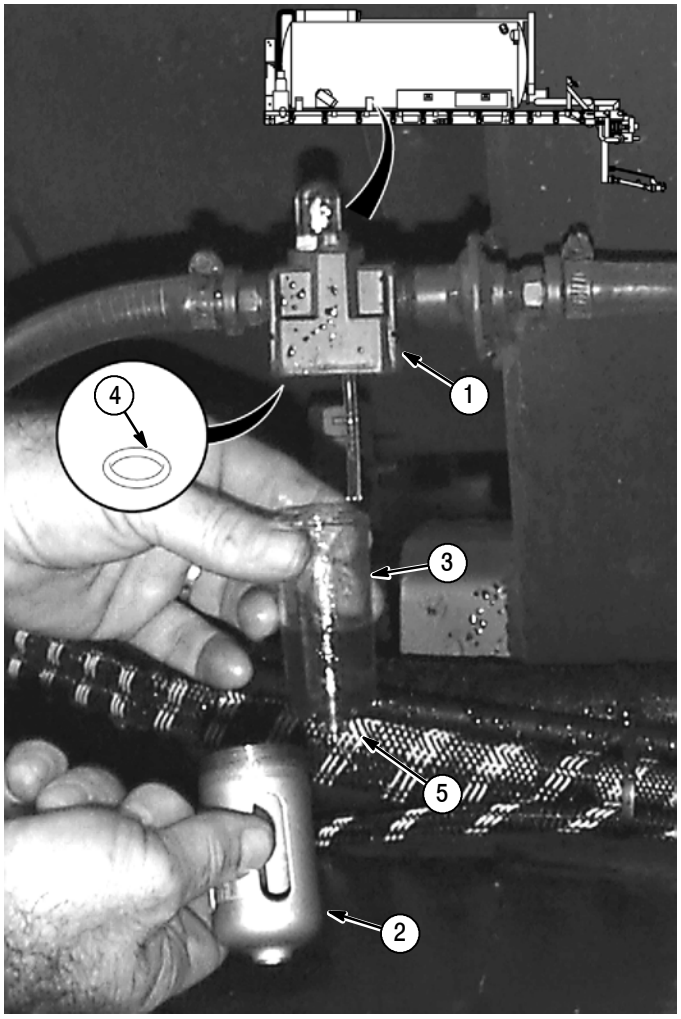
NOTE

If glass bowl or cap is damaged, perform Steps (2) and (3).

(2) Remove cap (2), glass bowl (3) and preformed packing (4) from oiler (1). Discard preformed packing.

(3) Install preformed packing (4), glass bowl (3) and cap (2) on oiler (1).

(4) If water is present in glass bowl (3), push up on drain (5) until all water has drained from oiler (1).



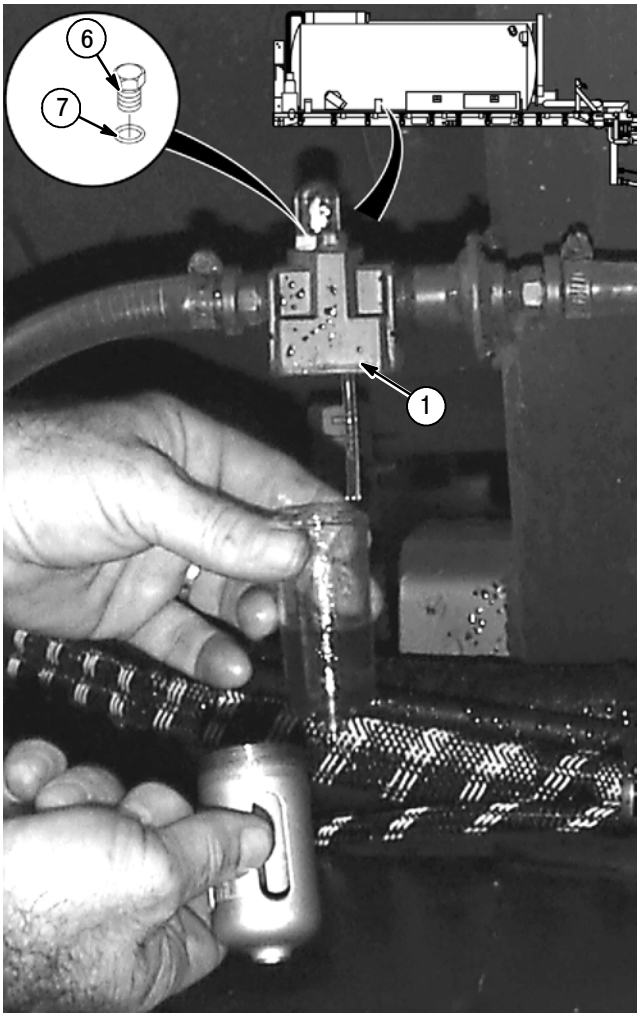
NOTE

- If oil level is less than half full, perform Steps (5) through (7).
- If oiler is more than half full, go to Follow-On Maintenance.

(5) Remove screw (6) and preformed packing (7) from top of oiler (1) and fill with 10W oil through fill hole. Discard preformed packing.

(6) Apply oil to preformed packing (7).

(7) Install preformed packing (7) and screw (6) on top of oiler (1).



b. Follow-On Maintenance.

- Connect UPIK air connector, (Para 2-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-32. RADAR GROUND SPEED SENSOR REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Soldering Kit, Torch (Item 11, Appendix F)

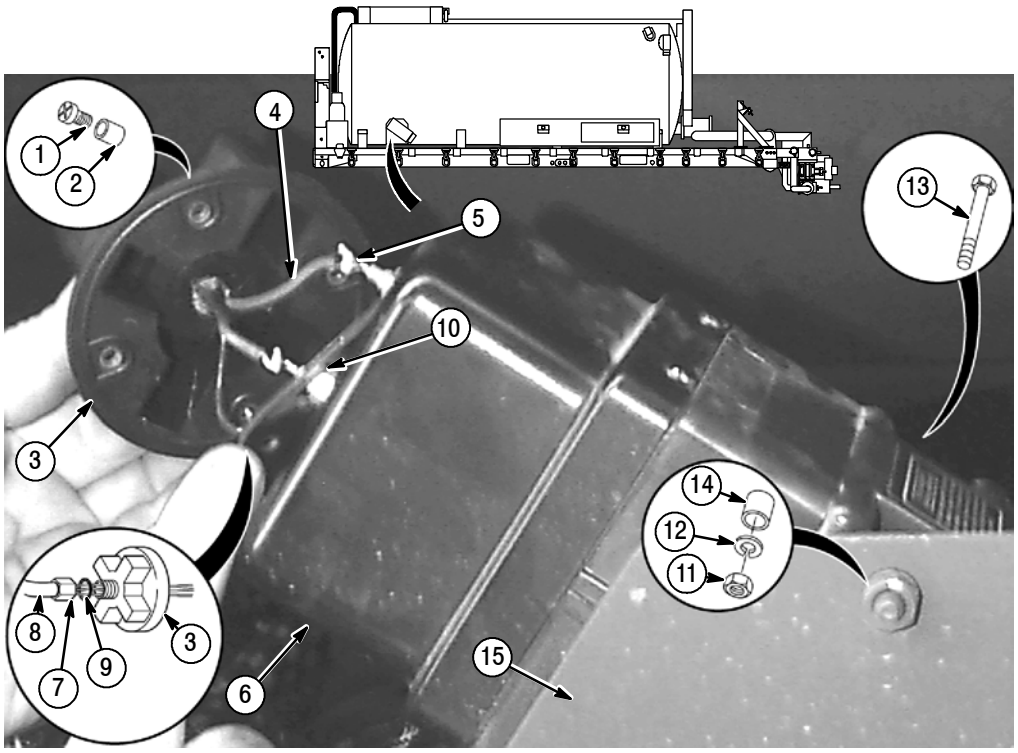
Materials/Parts
Tags, Identification (Item 9, Appendix E)
Lockwasher (4) (MS 35338-44)
Preformed Packing Assortment (Item 11, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
UPIK electrical connector disconnected, (Para 2-10)

a. Removal.

NOTE

- Tag and mark all wires prior to removal.
- Discard wire harness supplied with radar ground speed sensor and attach existing wire harness to radar ground sensor.



(1) Remove four screws (1) and sealing washers (2) from cover (3).

(2) Gently pull back cover (3) and unsolder three wires (4) from terminals (5) on radar ground speed sensor (6).

(3) Loosen nut (7) and remove wire harness (8), preformed packing (9), nut (7) and gasket (10) from cover (3). Discard preformed packing.

(4) Remove four nuts (11), lockwashers (12), screws (13), spacers (14) and radar ground speed sensor (6) from bracket (15). Discard lockwashers.

b. Installation.

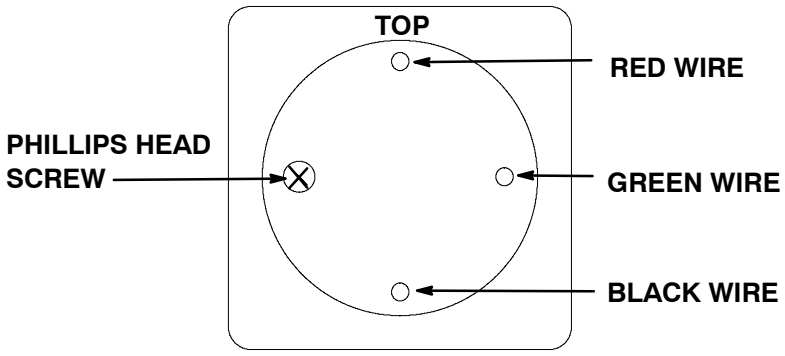
(1) Install radar ground speed sensor (6) on bracket (15) with four screws (13), spacers (14), lockwashers (12) and nuts (11).

NOTE

Install wires as noted prior to removal.

(2) Position wire harness (8) through gasket (10), nut (7), preformed packing (9) and cover (3). Tighten nut (7) on cover (3).

3-32. RADAR GROUND SPEED SENSOR REPLACEMENT (CONT).



(3) Position cover (3) near radar ground speed sensor (6) and solder three wires (4) to terminals (5).

(4) Install cover (3) on radar ground speed sensor (6) with four sealing washers (2) and screws (1).

c. Follow-On Maintenance.

- Connect UPIK electrical connector, (Para 2-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-33. GANG VALVE CONTROL AIR CYLINDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Sealing Compound (Item 8, Appendix E)
Tags, Identification (Item 9, Appendix E)
Cable Ties, (Item 1, Appendix E)
Cotter Pin (MS 24665-306)
Locknut (M45913/1-14FG5C)

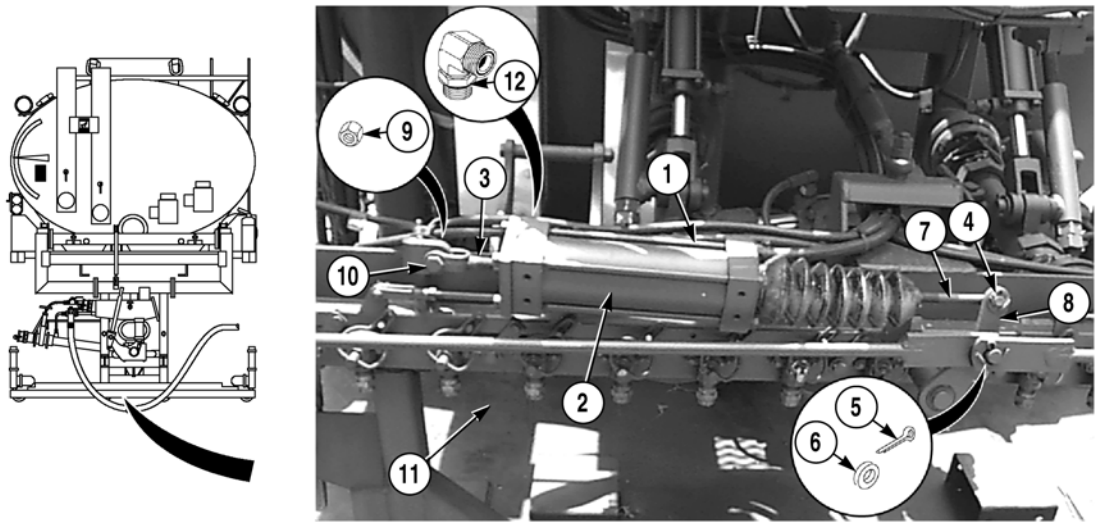
Equipment Condition
Spray bar deployed, (Para 2-17)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
UPIK disconnected, (Para 2-10)

a. Removal.

NOTE

- Remove cable ties as required.
- Tag and mark air lines prior to removal to ensure proper installation.
- Some models do not have clamps.

3-33. GANG VALVE CONTROL AIR CYLINDER REPLACEMENT (CONT).



(1) Remove two air lines (1) from gang valve control air cylinder (2).

NOTE

Ensure cylinder is fully extended.

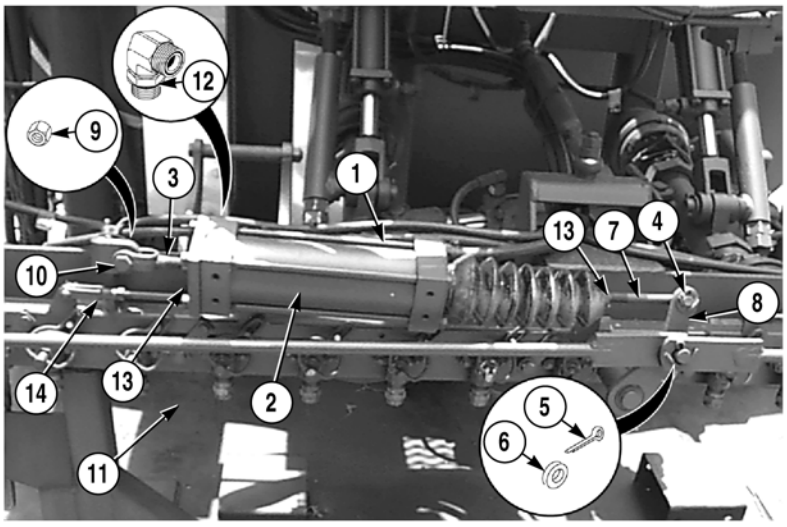
(2) Measure and record distance between center of yoke (3) and center of cylinder rod (4).

(3) Remove cotter pin (5) and washer (6) from cylinder rod (7) and pull cylinder rod from bracket (8). Discard cotter pin.

(4) Remove locknut (9), screw (10) and gang valve control air cylinder (2) from Bituminous Distributor (11). Discard locknut.

(5) Remove two elbows (12) from gang valve control air cylinder (2).

b. 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 adhesives, solvents or sealing compound gets on skin or clothing, wash immediately with soap and water.

(1) Apply sealing compound to threads of two elbows (12).

(2) Install two elbows (12) in gang valve control air cylinder (2).

NOTE

- Perform Step (3) if installing new cylinder.
- Install all cable ties as required.

(3) Loosen two jam nuts (13) and adjust cylinder rod (3) and yoke end (14) to same measurement as recorded during removal.

(4) Position gang valve control air cylinder (2) on Bituminous Distributor (11) with screw (10) and locknut (9).

(5) Install cylinder rod (7) in bracket (8) with washer (6) and cotter pin (5).

(6) Tighten locknut (9) on screw (10).

(7) Apply sealing compound to threads of two air lines (1).

(8) Install two air lines (1) on gang valve control air cylinder (2).

c. Follow-On Maintenance.

- Connect UPIK, (Para 2-10).
- Stow spray bar, (Para 2-17).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-34. FOUR-WAY VALVE AIR CYLINDER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

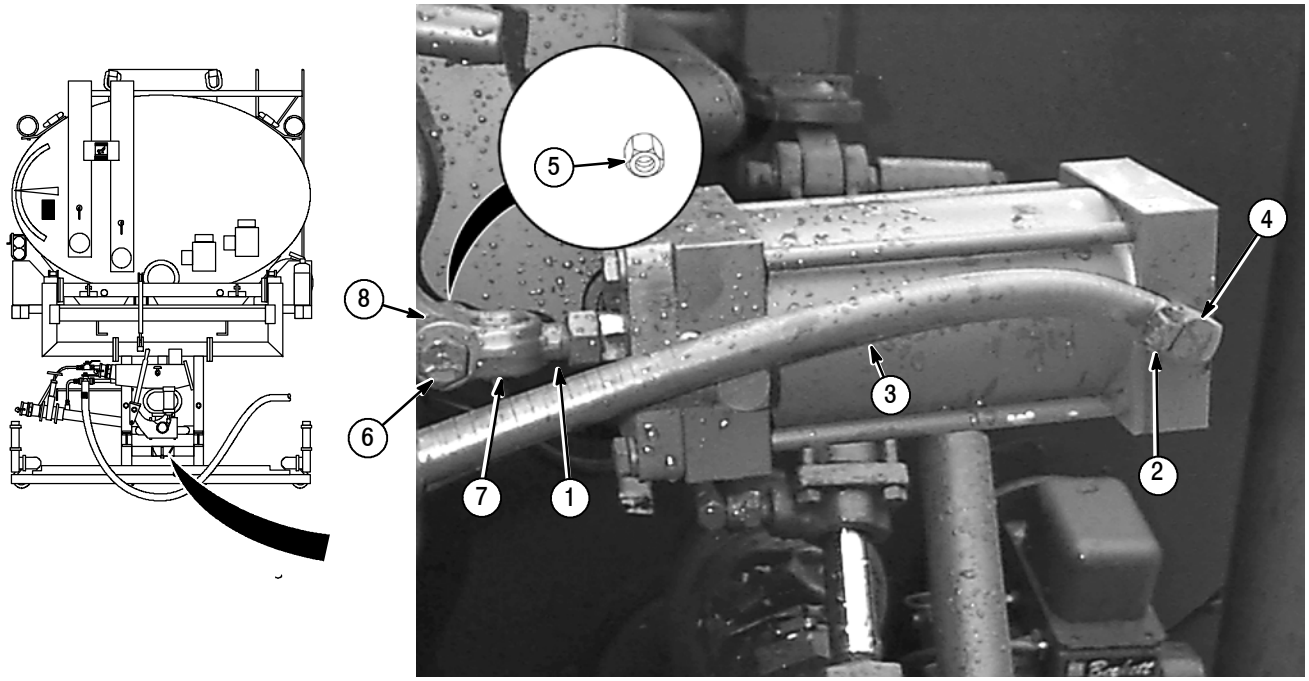
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Cable Ties (Item 1, Appendix E)
Tags, Identification (Item 9, Appendix E)
Locknut (M45913/3-7CG8C)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



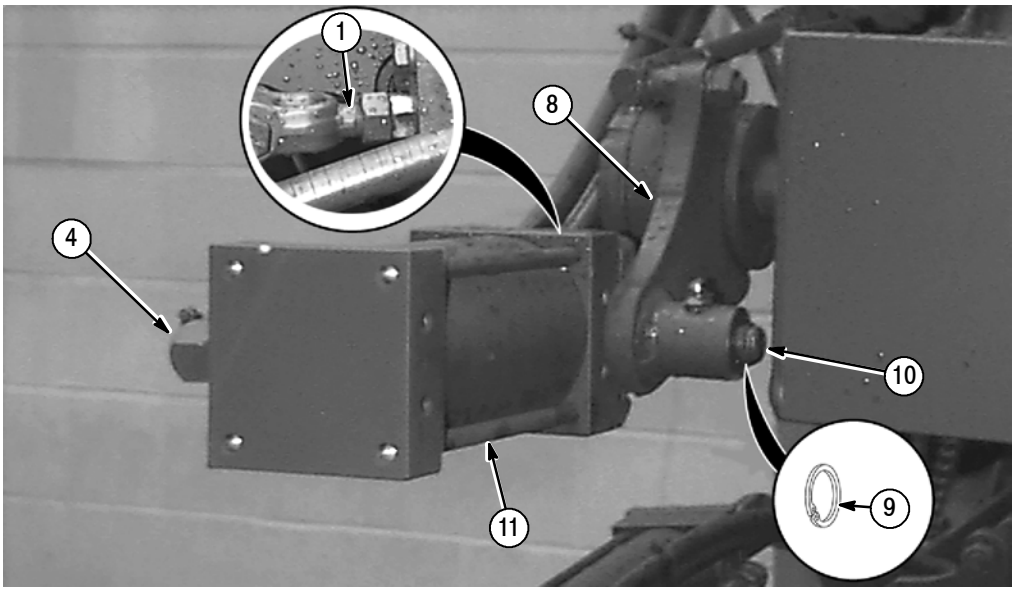
NOTE

- Remove cable ties as required.
- Tag and mark air lines prior to removal.

(1) Measure and record length of exposed cylinder rod (1).

(2) Loosen two clamps (2) and disconnect air lines (3) from elbows (4).

(3) Remove locknut (5) and screw (6) from yoke (7) and bracket (8). Discard locknut.



WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(4) Remove retaining ring (9) from shaft (10).

NOTE

Note position of elbows prior to removal.

(5) Remove four-way valve air cylinder (11) from bracket (8).

(6) Remove two elbows (4) from four-way valve air cylinder (11).

b. 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 adhesives, solvents or sealing compound gets on skin or clothing, wash immediately with soap and water.

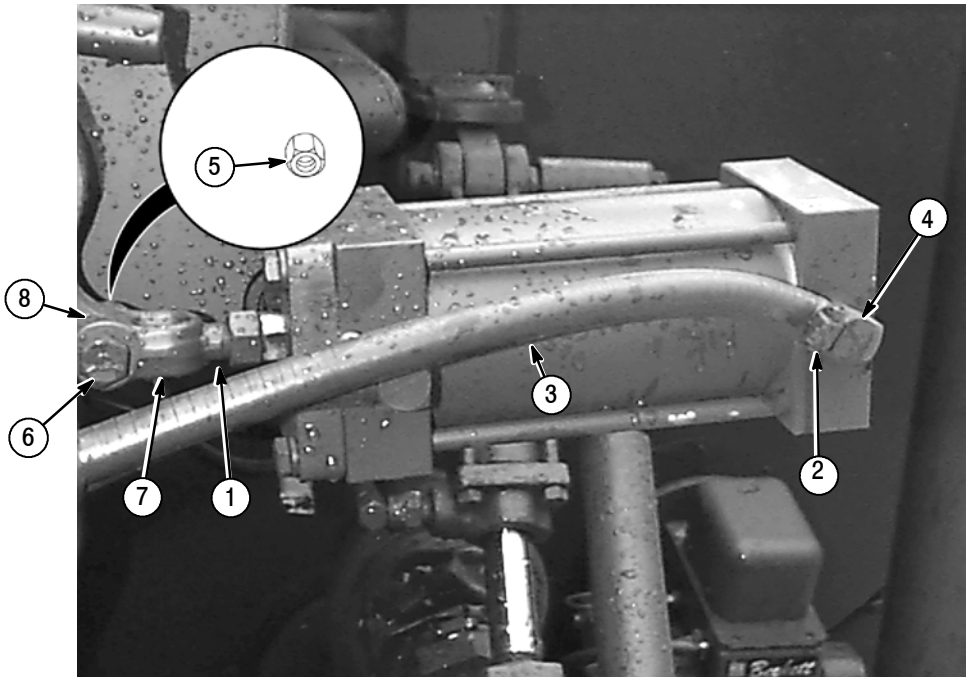
NOTE

Install elbows in position as noted prior to removal.

(1) Apply sealing compound to threads of two elbows (4).

(2) Install two elbows (4) in four-way valve air cylinder (11).

3-34. FOUR-WAY VALVE AIR CYLINDER REPLACEMENT (CONT).



NOTE

Install cable ties as required.

(3) Position cylinder rod (1) to same dimension as measured during removal.

WARNING

Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released causing injury to personnel.

(4) Install four-way valve air cylinder (11) on bracket (8) with retaining ring (9).

(5) Install yoke (7) on bracket (8) with screw (6) and locknut (5).

(6) Install two air lines (3) on elbows (4) and tighten two clamps (2).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-35. FOUR-WAY VALVE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

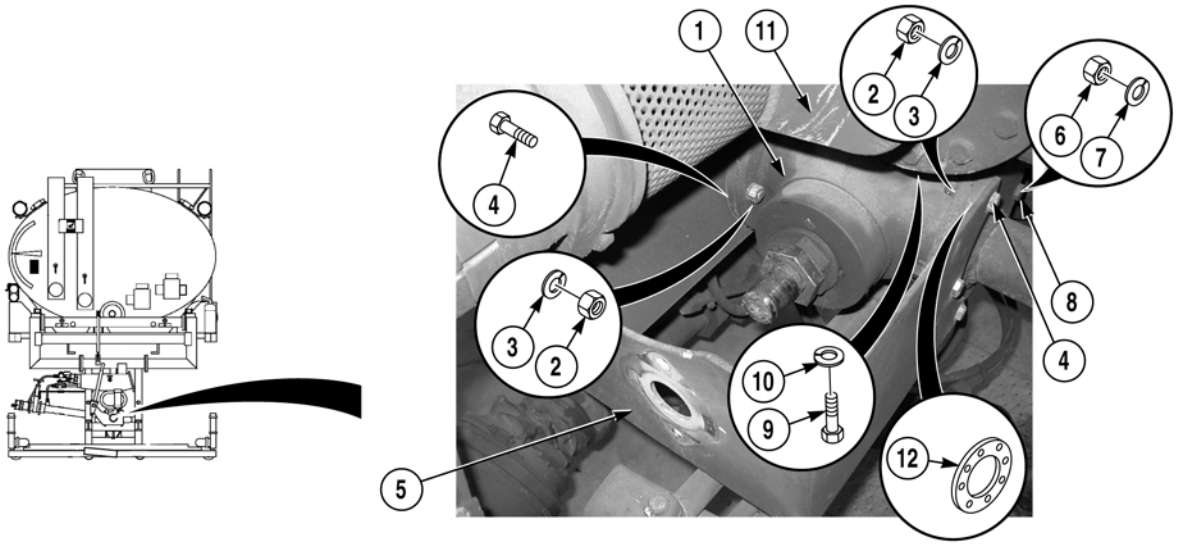
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Pan, Drain (Item 9, Appendix F)

Materials/Parts
Gasket (3340515)
Lockwasher (24) (MS 35338-46)

Equipment Condition
Four-way shaft bearing removed, (Para 3-78)

Personnel Required
Two

a. Removal.



(1) Position drain pan under four-way valve (1).

(2) With the aid of an assistant, remove six nuts (2), lockwashers (3) and screws (4) from bracket (5) and four-way valve (1). Discard lockwashers.

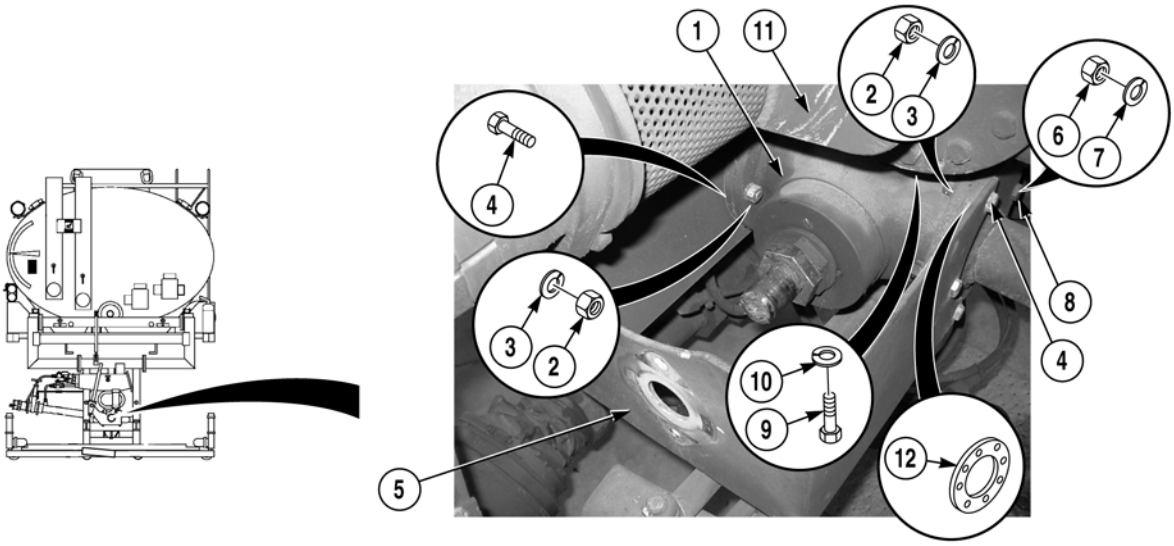
(3) Remove six nuts (6), lockwashers (7) and screws (8) from four-way valve (1). Discard lockwashers.

(4) With the aid of an assistant, remove 12 screws (9), lockwashers (10) and four-way valve (1) from asphalt pump (11). Discard lockwashers.

(5) Remove and discard four gaskets (12) from four-way valve (1).

3-35. FOUR-WAY VALVE REPLACEMENT (CONT).

b. Installation.



(1) With the aid of an assistant, install four gaskets (12) and four-way valve (1) on asphalt pump (11) with 12 lockwashers (10) and screws (9).

(2) Install six screws (8), lockwashers (7) and nuts (6) in four-way valve (1).

(3) With the aid of an assistant, install bracket (5) on four-way valve (1) with six screws (4), lockwashers (3) and nuts (2).

c. Follow-On Maintenance:

- Install four-way shaft bearing, (Para 3-78).

END OF TASK

3-36. SUCTION VALVE REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

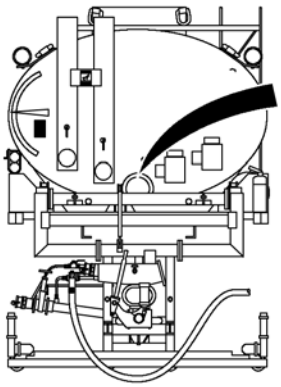
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Pan, Drain (Item 9, Appendix F)

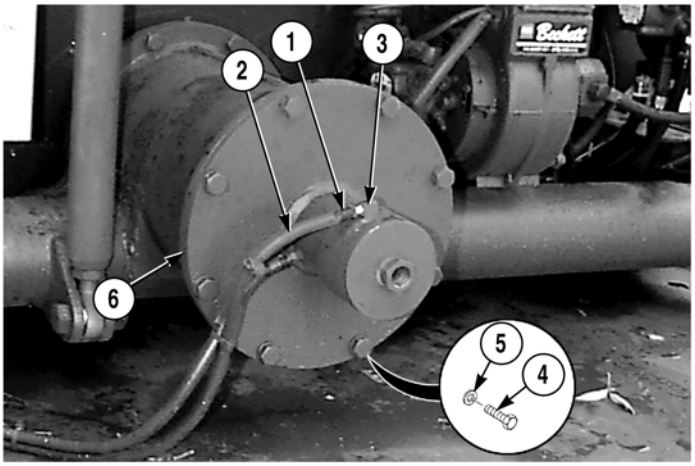
Materials/Parts
Cable Ties (Item 1, Appendix E)
Primer "N" (Item 5, Appendix E)
Sealing Compound (Item 6, Appendix E)
Sealing Compound (Item 8, Appendix E)

Materials/Parts - Continued
Tags, Identification (Item 9, Appendix E)
Lockwasher (8) (MS 35338-48)

Equipment Condition
Deploy spray bar, (Para 2-17)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
Bitumen tank empty, (Para 2-19)

a. Removal.





NOTE

- Remove cable ties as required.
- Tag and mark all hoses prior to removal.
- Position drain pan under suction valve to catch excess oil.
- Matchmark suction valve and flange prior to removal.

(1) Loosen two clamps (1) and remove air lines (2) from elbow (3).

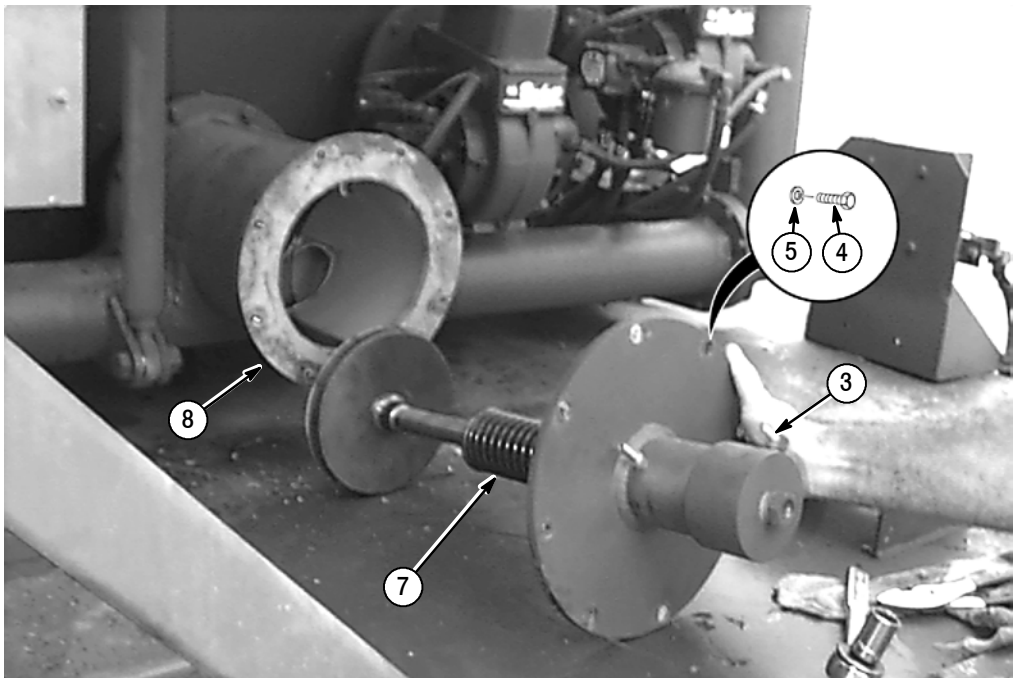
WARNING

When performing Step (2), loosen eight screws equally until screws are flush on back side of housing flange. Failure to comply may result in serious injury to personnel.

(2) Loosen eight screws (4) and lockwashers (5) from body (6). Discard lockwashers.

(3) Once seal is broken, remove eight screws (4) and lockwashers (5) from body (6). Discard lockwashers.

3-36. SUCTION VALVE REPLACEMENT (CONT).



(4) Remove suction valve (7) from flange (8).

(5) Remove elbow (3) from suction valve (7).

b. 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 adhesives, solvents or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Install cable ties as required.

(1) Apply sealing compound to threads of elbow (3).

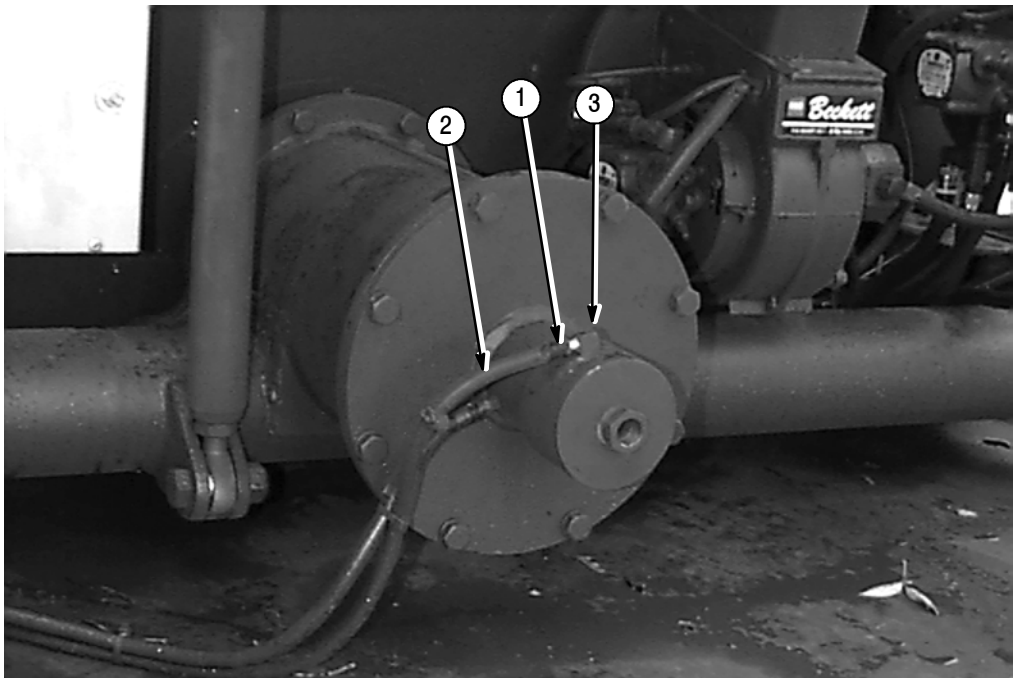
(2) Install elbow (3) on suction valve (7).

(3) Apply primer and sealant to flanged surface of suction valve (7).

NOTE

Align matchmark on flange and suction valve.

(4) Install suction valve (7) on flange (8) with eight lockwashers (5) and screws (4).



(5) Position two air lines (2) on elbow (3) and tighten two clamps (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-37. PORTABLE BURNER BRACKET REPLACEMENT (S/N S2328 THRU S3422).

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

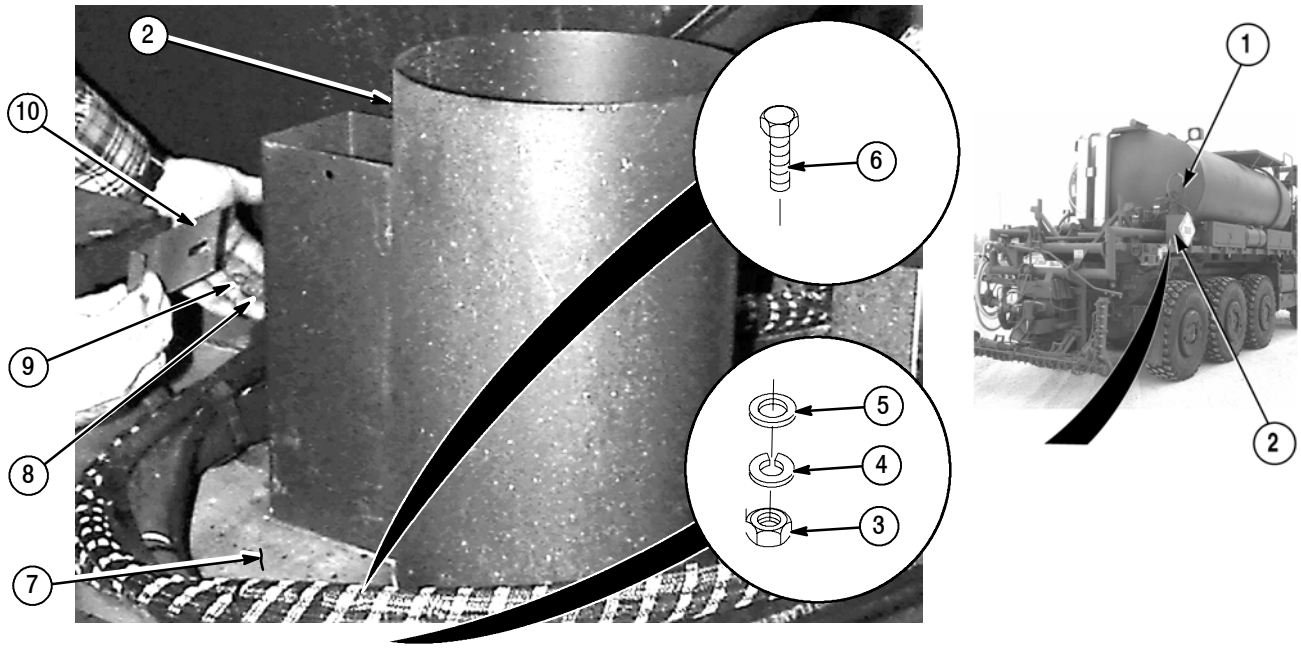
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Lockwasher (3) (MS 35338-46)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



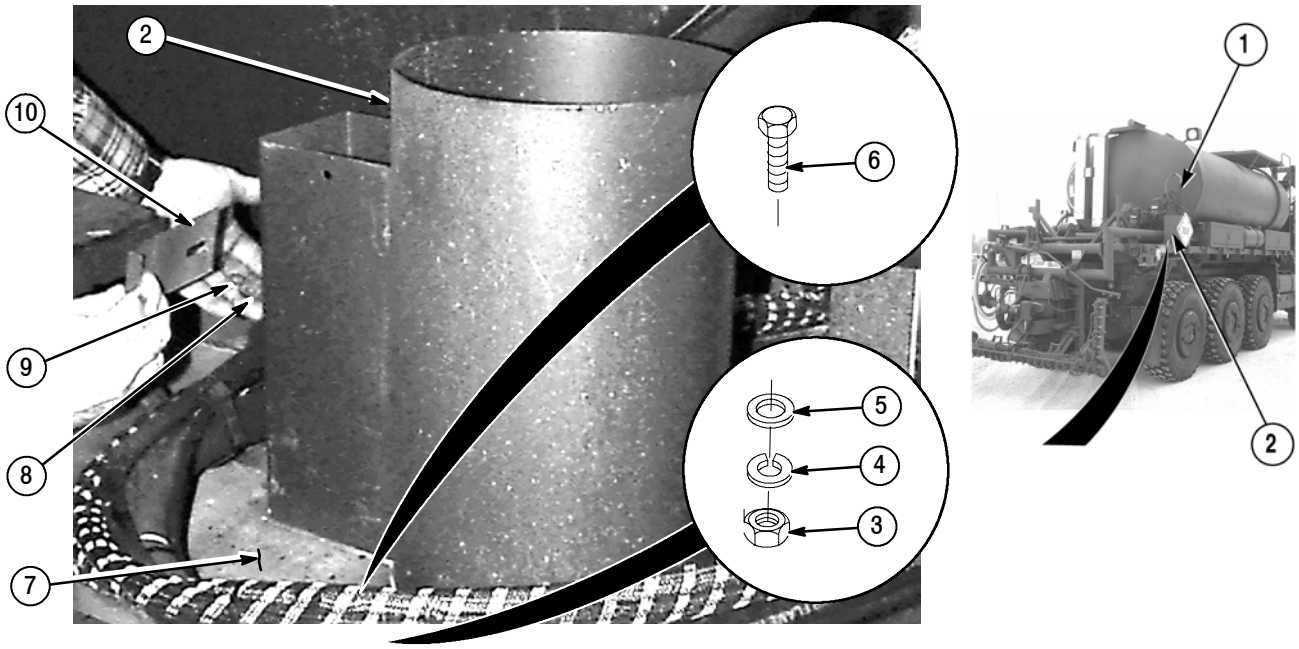
(1) Remove portable burner (1) from portable burner bracket (2).

(2) Remove three nuts (3), lockwashers (4), washers (5) and screws (6) from portable burner bracket (2). Discard lockwashers.

(3) Remove portable burner bracket (2) from flatrack (7).

(4) Remove wing nut (8), two washers (9) and bracket (10) from portable burner bracket (2).

b. Installation.



(1) Install bracket (10) on portable burner bracket (2) with two washers (9) and wing nut (8).

(2) Install portable burner bracket (2) on flatrack (7) with three screws (6), washers (5), lockwashers (4) and nuts (3).

(3) Install portable burner (1) in portable burner bracket (2).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-38. FUEL TANK REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

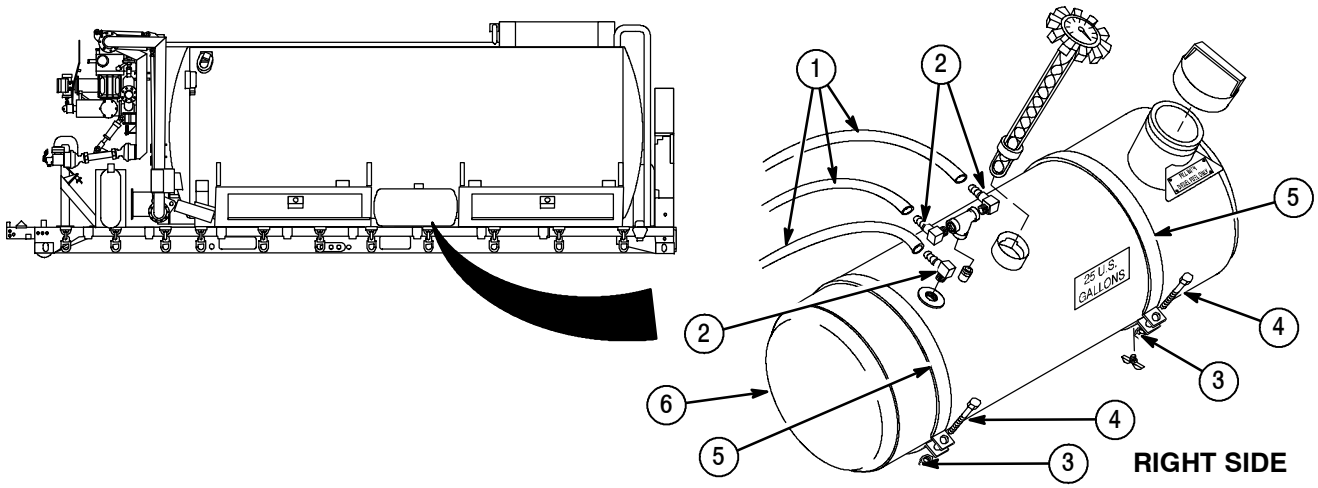
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Cap and Plug Set (Item 3, Appendix F)

Materials/Parts
Locknut (4) (MS 51943-35)
Locknut (2) (M45913/1-16FG5C)

Materials/Parts - Continued
Sealing Compound (Item 8, Appendix E)
Tags, Identification (Item 9, Appendix E)

Equipment Condition
Fuel tank drained, (Para 3-3)

a. 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.

NOTE

- Tag and mark all hoses prior to removal.
- Cap and plug hoses upon removal.
- Fuel tank capacity is approximately 25 gal. (94.635 l).

(1) Remove three hoses (1) from elbows (2).

NOTE

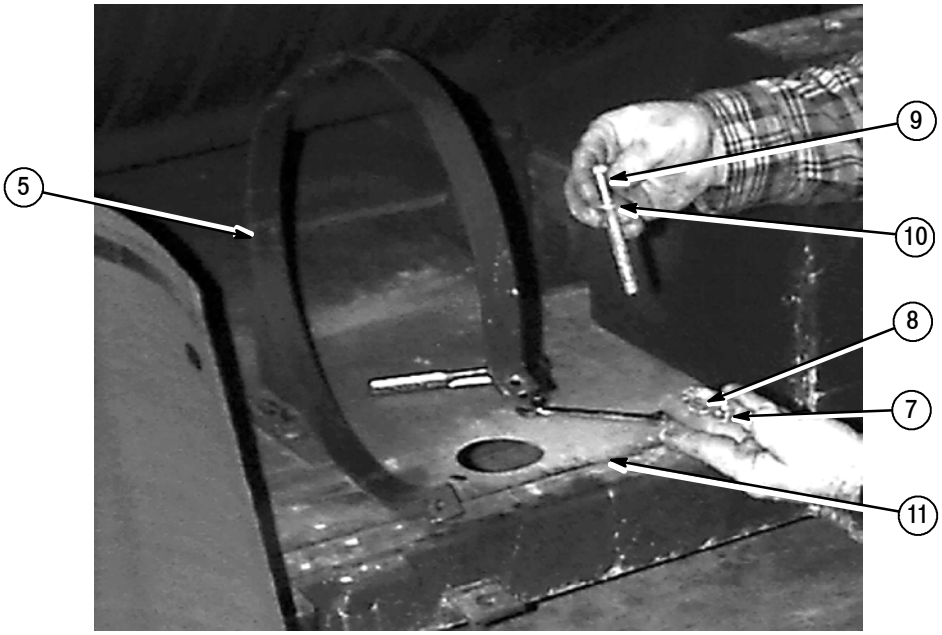
Note position of fuel tank prior to removal.

(2) Remove two locknuts (3) and screws (4) from straps with liners (5). Discard locknuts.

NOTE

Ensure not to dislodge strap liner.

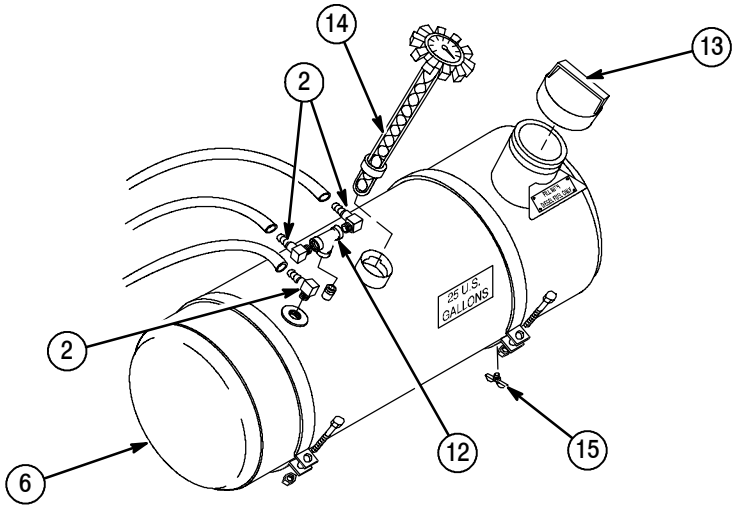
(3) Remove fuel tank (6) from two straps with liners (5).



NOTE

Some models have eight washers and lockwashers instead of nuts.

(4) Remove four locknuts (7), washers (8), screws (9), washers (10) and two straps with liners (5) from Bituminous Distributor (11). Discard locknuts.



NOTE

Note position of elbows prior to removal.

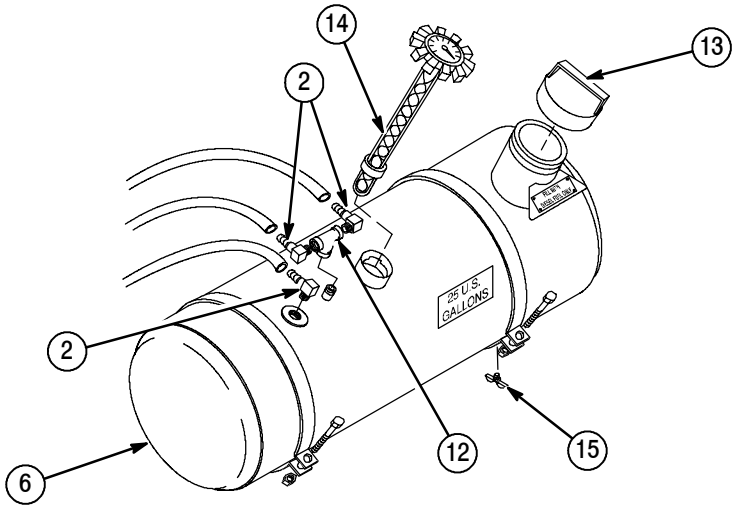
(5) Remove three elbows (2) and tee (12) from fuel tank (6).

(6) Remove fuel cap (13) and fuel gage (14) from fuel tank (6).

(7) Remove drain cock (15) from fuel tank (6).

3-38. FUEL TANK REPLACEMENT (CONT).

b. 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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(1) Apply sealing compound to threads of drain cock (15).

(2) Install drain cock (15) in fuel tank (6).

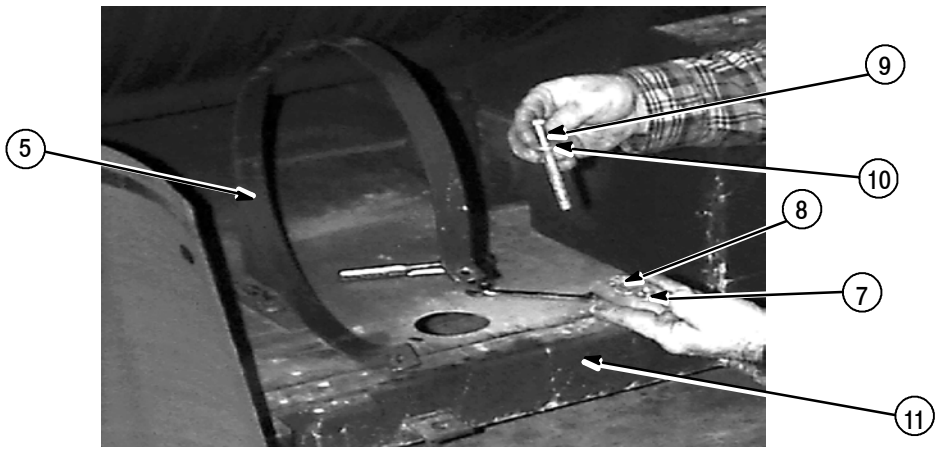
(3) Install fuel gage (14) and fuel cap (13) on fuel tank (6).

(4) Apply sealing compound to threads of tee (12) and three elbows (2).

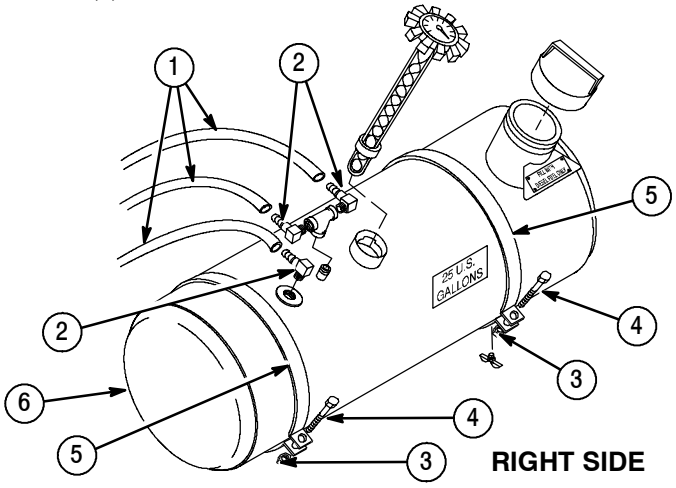
NOTE

Ensure elbows and tee are installed in same position as noted during removal.

(5) Install tee (12) and three elbows (2) in fuel tank (6).



(6) Install two straps with liners (5) on Bituminous Distributor (11) with four screws (9), washers (10), washers (8) and locknuts (7).



NOTE

- Ensure fuel tank is installed in same position as noted during removal with fuel gage in highest position possible.
- Ensure strap liner stays in place on straps.

(7) Position fuel tank (6) in two straps with liners (5).

WARNING

Ensure strap liners are in position as noted during removal. Failure to properly install strap with strap liner may allow fuel tank to shift during operation resulting in damage to equipment or injury or death to personnel.

(8) Install two screws (4) and locknuts (3) in straps with liners (5). Tighten screws until three threads are showing.

(9) Install three hoses (1) on elbows (2).

3-38. FUEL TANK REPLACEMENT (CONT).

c. Follow-On Maintenance.

- Fill fuel tank, (Para 3-3).
- Check for leaks.

END OF TASK

3-39. LOW TANK LEVEL INDICATOR AND WIRE HARNESS REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Cable Ties (Item 1, Appendix E)
Tags, Identification (Item 9, Appendix E)
Locknut (0120366)

Materials/Parts (Cont)
Lockwasher (6) (MS 35338-44)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.

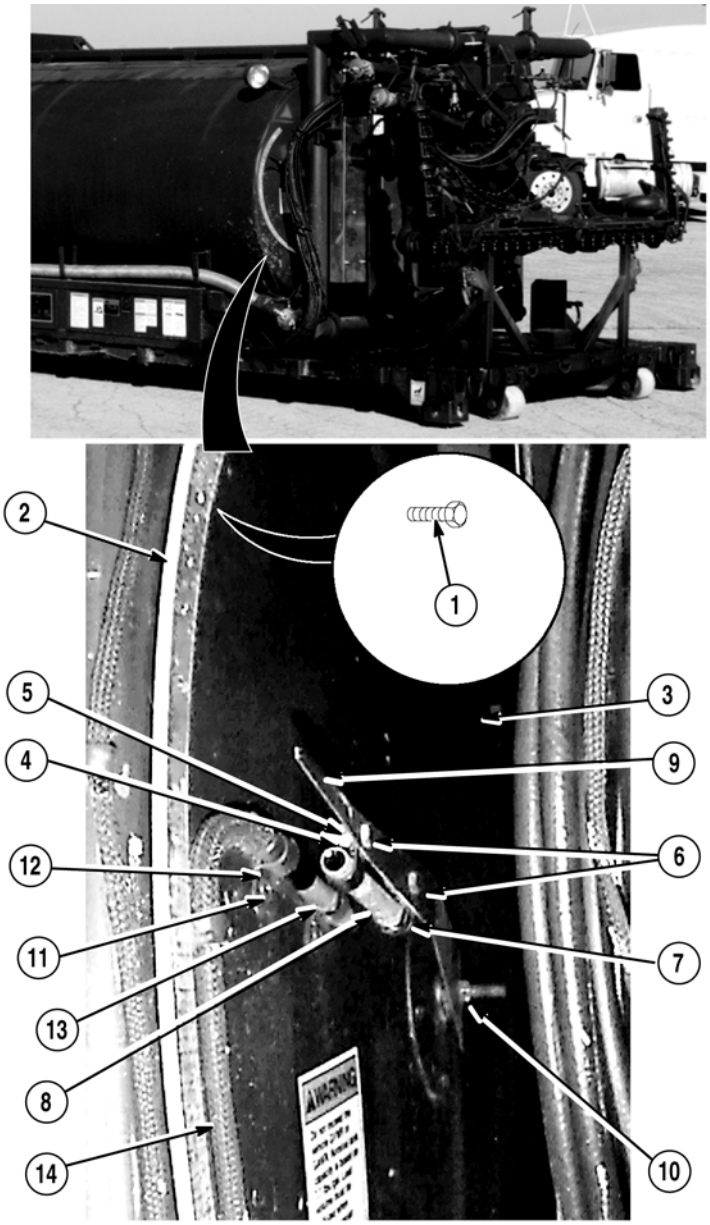
(1) Remove three screws (1) and rear dial (2) from tank (3).

(2) Remove two nuts (4), lockwashers (5), screws (6), clamps (7) and magnetic switch (8) from dial pointer (9). Discard lockwashers.

(3) Matchmark dial pointer (9) to tank (3).

(4) Remove locknut (10) and dial pointer (9) from tank (3). Discard locknut.

(5) Remove seven screws (11), clips (12) and magnetic sensor (13) from tank (3).



3-39. LOW TANK LEVEL INDICATOR AND WIRE HARNESS REPLACEMENT (CONT).

NOTE

- Tag and mark wires prior to removal.
- Remove cable ties as required.

(6) Follow harness (14) down to rear control panel (15).

CAUTION

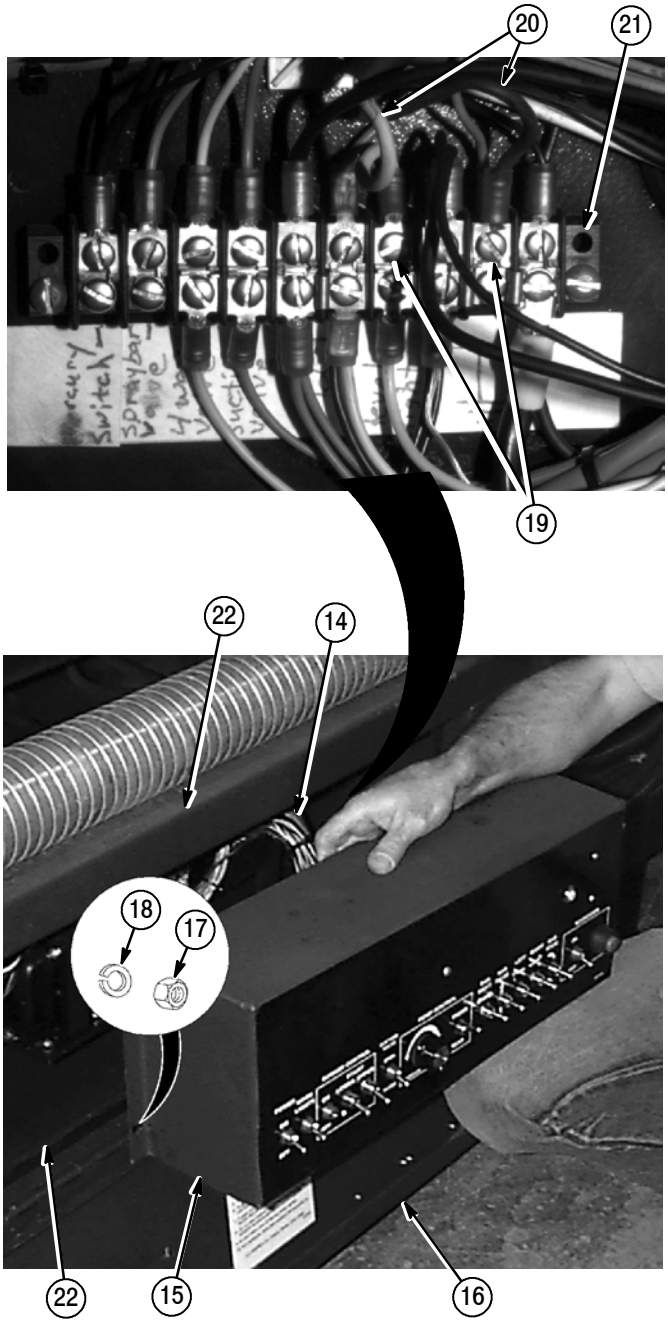
Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(7) Open rear control panel door (16).

(8) Remove four nuts (17) and lockwashers (18) from rear control panel (15) and gently pull rear control panel forward. Discard lockwashers.

(9) Loosen two screws (19) and remove wires (20) from terminal strip (21).

(10) Remove harness (14) from Bituminous Distributor (22).



b. Installation.

NOTE

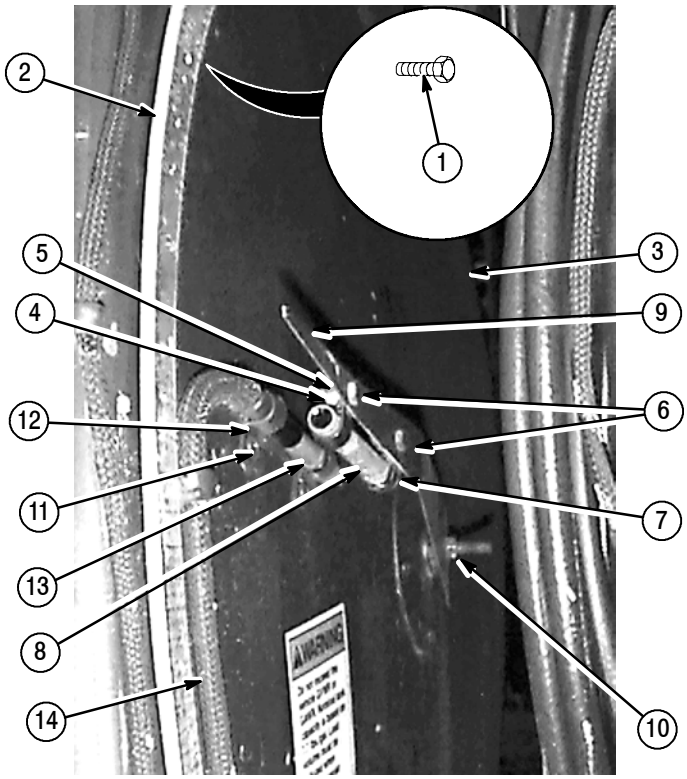
- Install cable ties as required.
- Install wires as noted prior to removal.

(1) Connect harness (14) to rear control panel (15) on Bituminous Distributor (22).

(2) Position two wires (20) on terminal strip (21) and tighten two screws (19).

(3) Install rear control panel (15) on module (22) with four lockwashers (18) and nuts (17).

(4) Close rear control panel door (16).



(5) Route harness (14) up and install magnetic sensor (13) on tank (3) with seven clips (12) and screws (11).

(6) Align matchmarks and install dial pointer (9) on tank (3) with locknut (10).

(7) Install magnetic switch (8) on dial pointer (9) with two clamps (7), screws (6), lockwashers (5) and nuts (4).

(8) Install rear dial (2) on tank (3) with three screws (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10)

END OF TASK

3-40. EXHAUST STACK REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Lockwasher (8) (MS 35338-45)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.

WARNING

Ensure exhaust stacks are cool. Failure to comply may result in severe burns to personnel.

NOTE

Both exhaust stacks are removed the same way.

(1) Remove two screws (1) and decal plate (2) from exhaust stack (3).

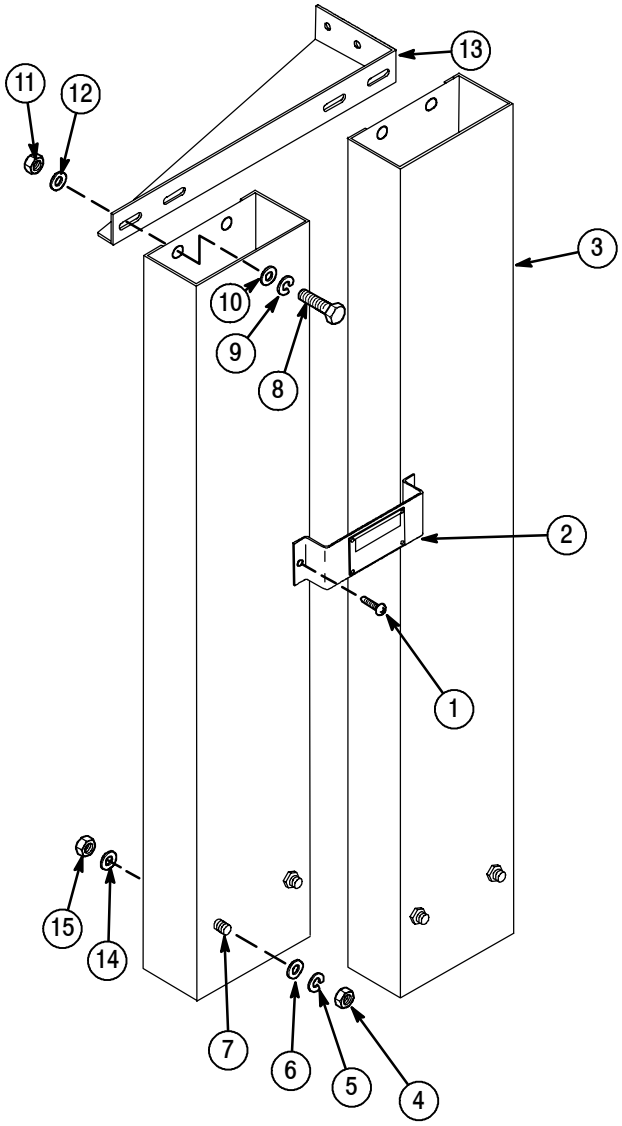
(2) Remove two nuts (4), lockwashers (5) and washers (6) from studs (7). Discard lockwashers.

(3) Remove two screws (8), lockwashers (9), washers (10), nuts (11) and washers (12) from exhaust stack (3). Discard lockwashers.

(4) Remove exhaust stack (3) from bracket (13) and studs (7).

(5) Remove two washers (14) and nuts (15) from studs (7).

(6) Repeat Steps (2) through (5) for remaining exhaust stack.



b. Installation.

NOTE

Both exhaust stacks are installed the same way.

(1) Install two nuts (15) and washers (14) on studs (7).

(2) Position exhaust stack (3) on bracket (13) and studs (7).

(3) Position two washers (6), lockwashers (5) and nuts (4) on studs (7).

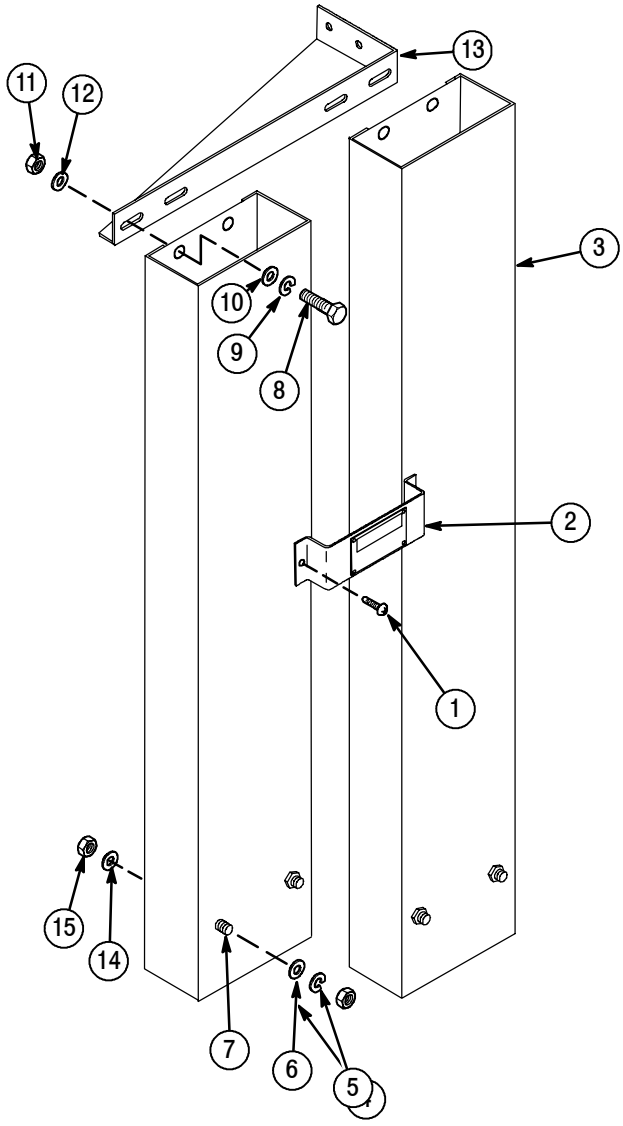
(4) Position two washers (12), nuts (11), washers (10), lockwashers (9) and screws (8) in exhaust stack (3).

(5) Tighten two nuts (4) on studs (7).

(6) Tighten two nuts (11) on screws (8).

(7) Repeat Steps (1) through (6) for remaining exhaust stack.

(8) Install decal plate (2) on exhaust stack (3) with two screws (1).



c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-41. HATCH REPLACEMENT.

This task covers:

a. Removal b. Installation

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Pin, Cotter (2) (MS 24665-391)
Locknut (2) (M45913/1-8CG5C)
Gasket (2700248)
Sealing Compound (Item 8, Appendix E)

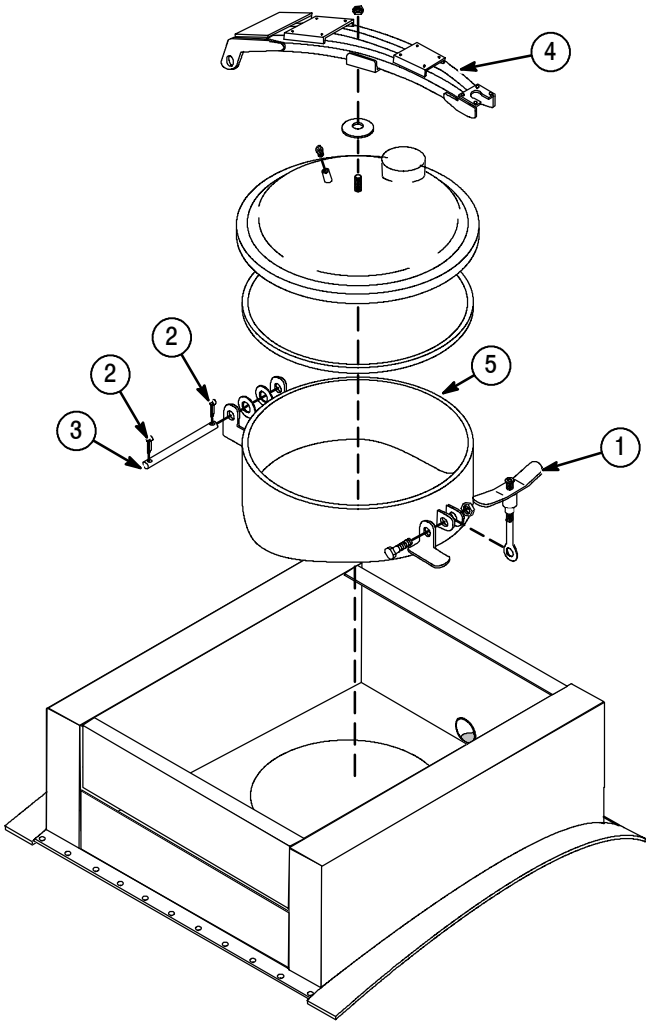
Personnel Required
Two

Equipment Condition
Bituminous Distributor unloaded from PLS, (Para 2-5)

a. Removal.

WARNING

- **DO NOT** enter the bituminous spreader tank without a written permit from the Occupational Safety and Health Authority (OSHA). Failure to comply may result in injury or death to personnel.
- Fumes inside tank can give off harmful vapors. To avoid injury or death, keep Bituminous Distributor away from open flame and work in well-ventilated area.
- Always work with an assistant when performing maintenance on top of bituminous tank with an open hatch. Failure to comply could result in serious injury or death to personnel.



(1) Loosen hold down assembly (1).

(2) Remove two cotter pins (2) from pin (3). Discard cotter pins.

(3) Remove pin (3) from strongback assembly (4) and collar (5).

CAUTION

Ensure all parts and debris are kept clear of manhole opening of tank. Parts or debris falling into tank could result in damage to equipment.

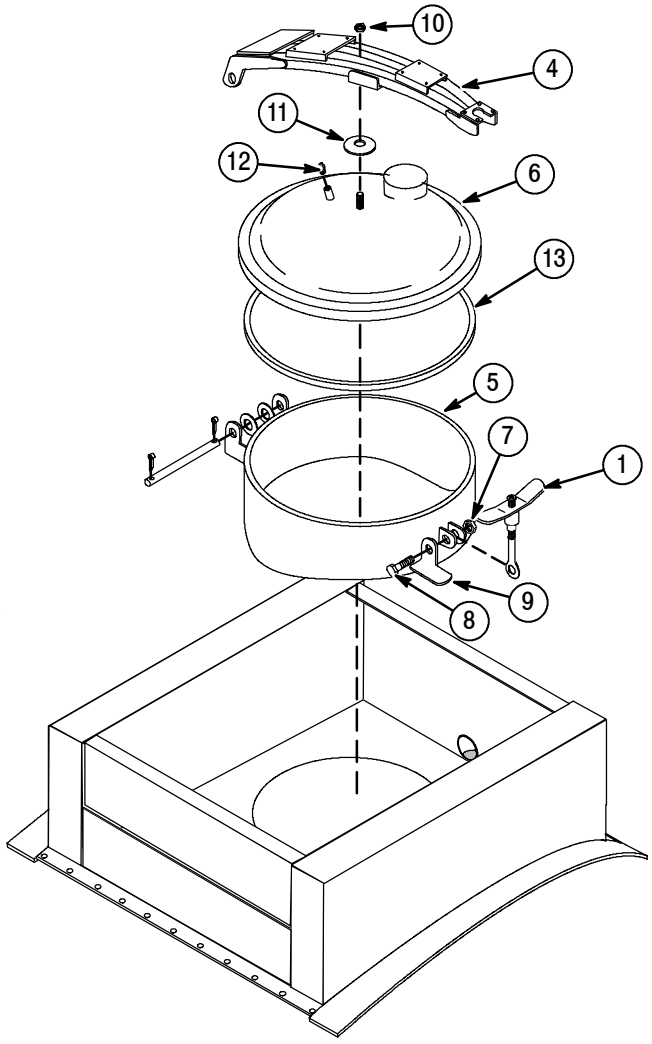
(4) Remove hatch (6) from collar (5).

(5) Remove locknut (7), screw (8), cover prop (9) and hold down assembly (1) from collar (5). Discard locknut.

(6) Remove locknut (10), strongback assembly (4) and washer (11) from hatch (6). Discard locknut.

(7) Remove plug (12) from hatch (6).

(8) Remove gasket (13) from hatch (6). Discard gasket.



3-41. HATCH REPLACEMENT (CONT).

b. Installation.

(1) Install gasket (13) on hatch (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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(2) Apply sealing compound to threads of plug (12).

(3) Install plug (12) in hatch (6).

(4) Install washer (11) and strongback assembly (4) on hatch (6) with locknut (10).

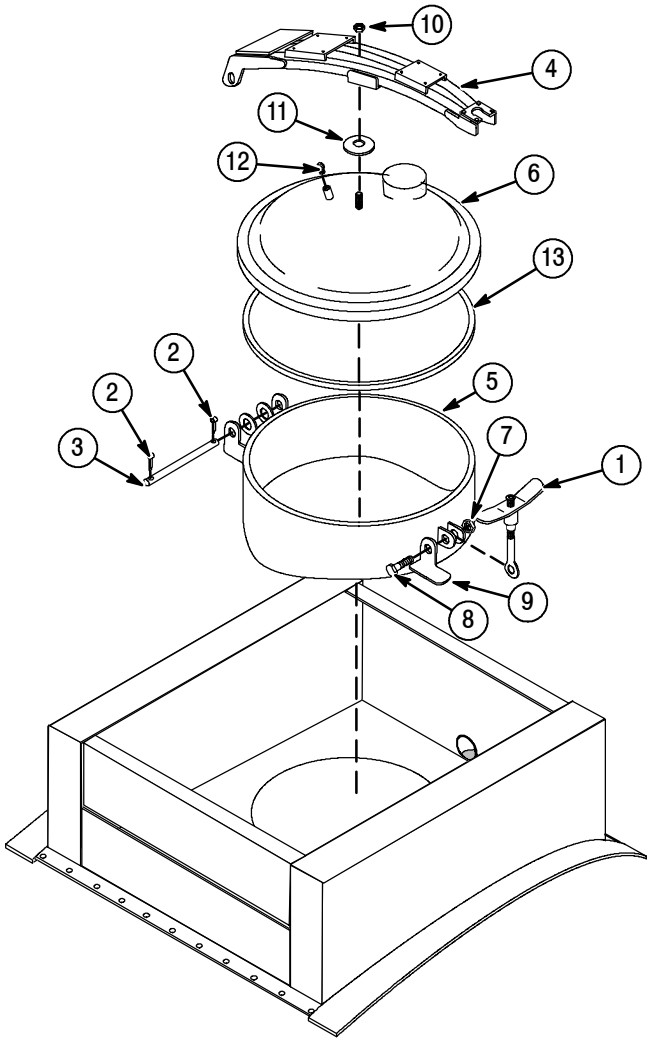
(5) Install cover prop (9) and hold down assembly (1) on collar (5) with screw (8) and locknut (7).

(6) Position hatch (6) on collar (5).

(7) Install pin (3) in strongback assembly (4) and collar (5).

(8) Install two cotter pins (2) in pin (3).

(9) Tighten hold down assembly (1) securely.



END OF TASK

3-42. SPRAY BAR ADJUSTMENT.

This task covers:

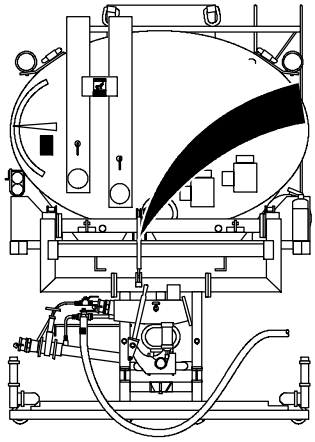
a. Adjustment b. Follow-On Maintenance

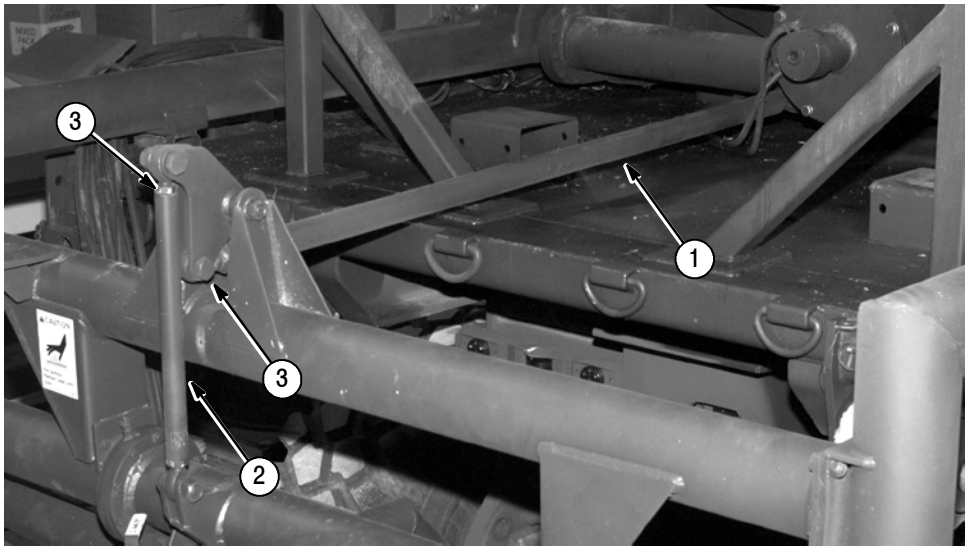
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Equipment Condition
Spray bar deployed, (Para 2-17)

a. Adjustment.





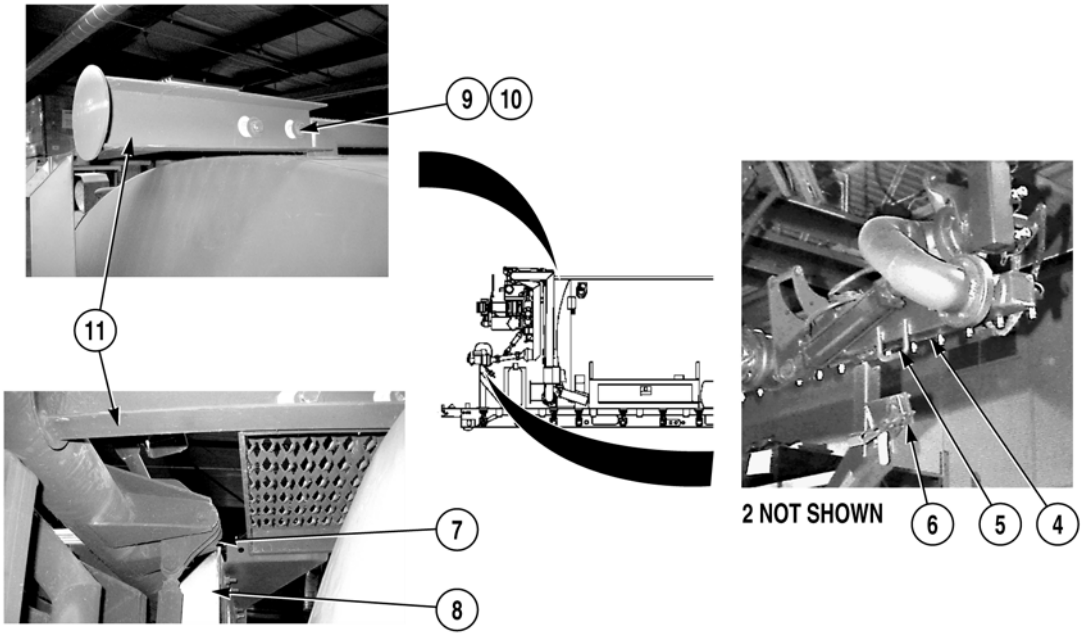
NOTE

- Starting upper rod length should be 61 7/16 in. (156.05 cm) from center of rod eye ends.
- Lower rod length should be 18 29/32 in. (48.022 cm) from center of rod eye ends.
- Adjustment should be made in down or deployed position.
- Adjustment should be made using lower (or short) link. Adjust upper (or long) link only if minimum thread engagement (rod eye to tube) or minimum collapsed length of lower link is reached and further adjustment is necessary. Minimum thread engagement of 5/8 in. (10 turns) must be maintained at both rod ends on both lower and upper links.
- Adjust links to maintain a minimum clearance of 2 in. (5 cm) between spray bar drop tubes and rear of flatrack in either the up travel or the down travel of the folding mechanism. To increase this clearance, shorten the lower link, and if necessary, lengthen the upper link. Clearance to flatrack should not exceed 3 in. (7.6 cm) when correctly adjusted.

(1) Measure and record upper rod (1) length eye center to eye center and lower rod (2) length eye center to eye center and adjust as required to obtain proper measurement.

(2) Tighten jam nuts (3) after adjustment is complete.

3-42. SPRAY BAR ADJUSTMENT (CONT).



CAUTION

When stowing spray bar, contact must not be made between exhaust stack and across tube assembly bracket. Failure to comply may cause damage to equipment.

NOTE

Adjust where up-travel stops by adjusting bar stop bracket at top of tank.

(3) Stow spray bar (4), (Para 2-17) and observe that spray bar brackets (5) properly engage the spray bar support members (6), while cross tube assembly bracket (7) does not contact exhaust stack (8).

NOTE

- Shortening lower rod will push spray bar out.
- Lengthening lower rod will pull spray bar in.
- Perform Step (4) if cross tube assembly bracket will make contact with exhaust stack.

(4) Loosen two nuts (9) on screws (10) and adjust bar stop bracket (11).

(5) If spray bar brackets (5) do not properly engage spray bar support members (6), unstow spray bar and adjust lower rod (2) as required.

b. Follow-On Maintenance.

- Stow spray bar, (Para 2-17).

END OF TASK

3-43. UPIK STOWAGE BLOCK AND COVER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

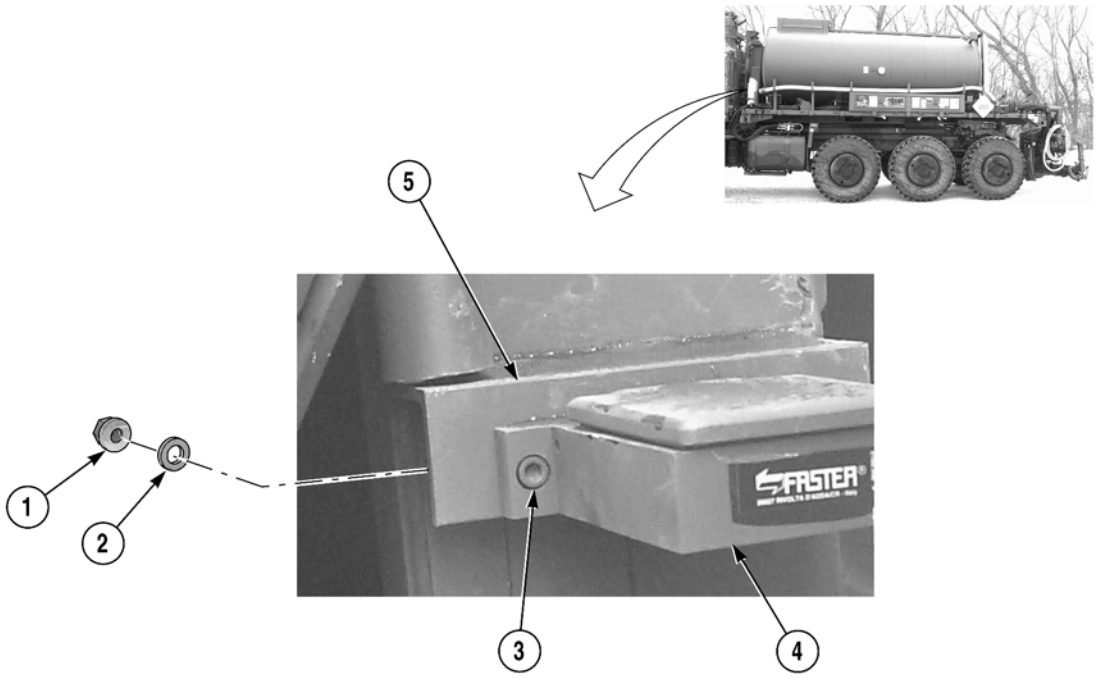
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Locknut (2) (MS 51943-36)

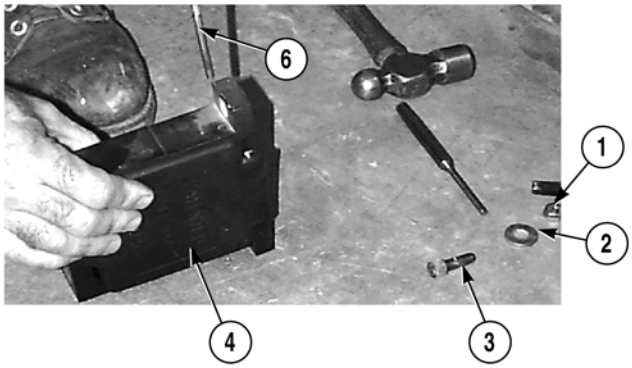
Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
UPIK connections disconnected, (Para 2-10)

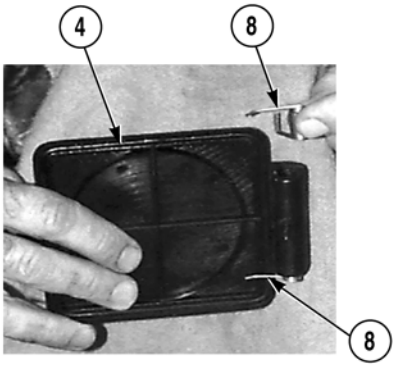
a. Removal.



(1) Remove two locknuts (1), washers (2), socket head screws (3) and UPIK block (4) from bracket (5). Discard locknuts.

3-43. UPIK STOWAGE BLOCK AND COVER REPLACEMENT (CONT).





(2) Remove pin (6) and cover (7) from UPIK block (4).

NOTE

- Note position and location of springs prior to removal to ensure proper installation.
- If rubber pad on cover is damaged or is leaking, cover must be discarded upon completion of Step (3).

(3) Remove two springs (8) from cover (7).

b. Installation.

NOTE

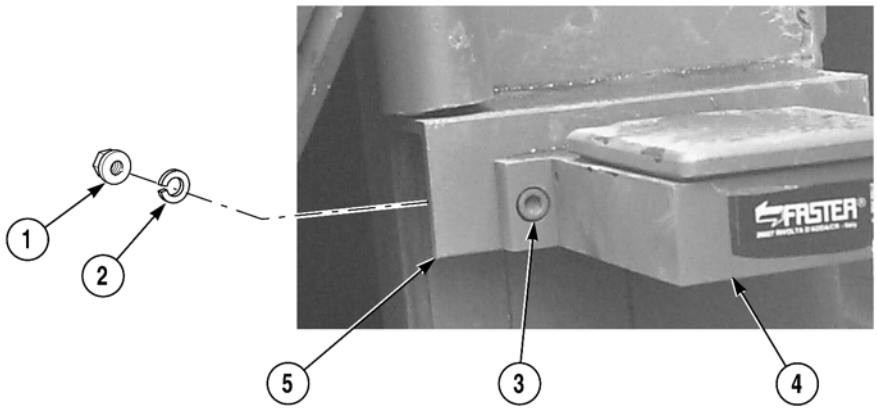
Ensure springs are installed in same position and location as noted during removal.

(1) Install two springs (8) in cover (7).

NOTE

Install pin until pin is flush with UPIK block.

(2) Install cover (7) on UPIK block (4) with pin (6).



(3) Install UPIK block (4) on bracket (5) with two socket head screws (3), washers (2) and locknuts (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-44. PLACARD ASSEMBLY REPLACEMENT.

This task covers:

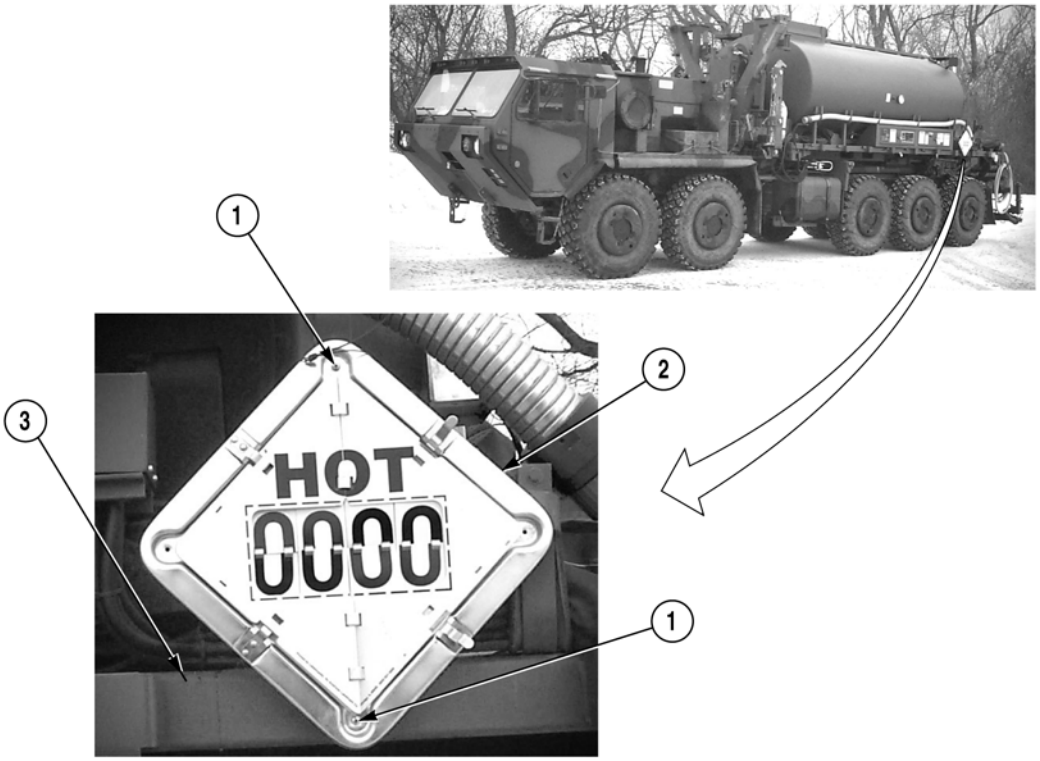
a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



NOTE

Four placard assemblies are used on Bituminous Distributor. Front placard assembly is attached to front skid plate of Bituminous Distributor. Placards on both sides and rear of Bituminous Distributor are attached the same way. Left rear placard is shown.

Remove two screws (1) and placard assembly (2) from Bituminous Distributor (3).

b. Installation.

Install placard assembly (2) on Bituminous Distributor (3) with two screws (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-45. REAR CONTROL PANEL MODULE LIGHT REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

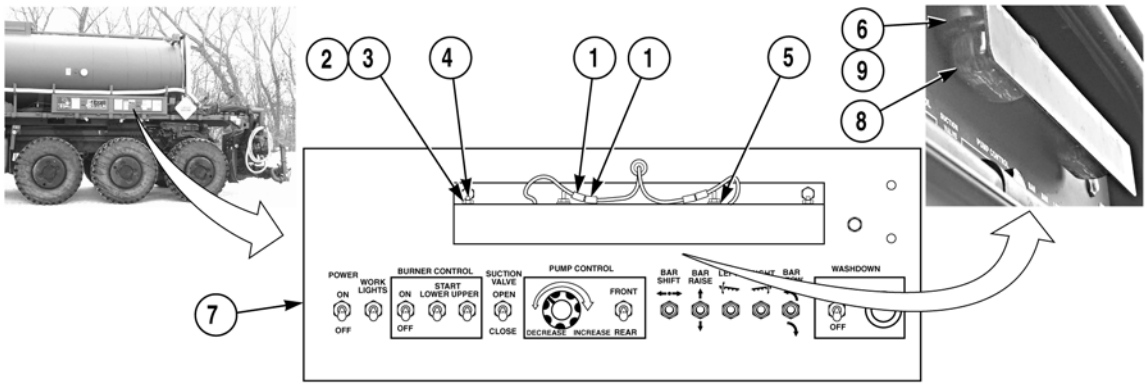
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Tool Kit, Electric (Item 13, Appendix F)

Materials/Parts
Lockwasher (2) (MS 35338-42)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
UPIK electrical connector disconnected, (Para 2-10)

a. Removal.



NOTE

- Both lamps are removed the same way.
- Some models are hard wired and wires must be cut.

(1) Disconnect connector (1).

NOTE

- Note position of cushion clip prior to removal to ensure proper installation.
- Some models do not have a cushion clip.

(2) Remove two nuts (2), lockwashers (3), screws (4), cushion clip (5) and light (6) from rear control box light bracket (7). Discard lockwashers.

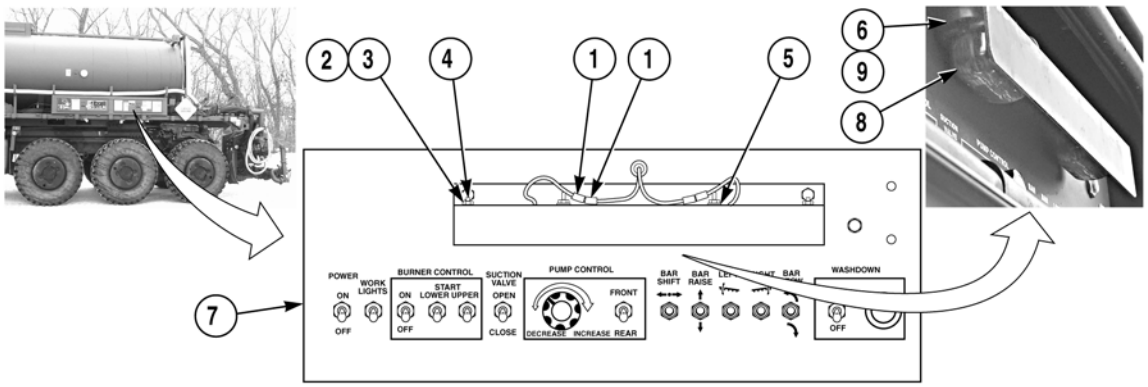
NOTE

Some models are removed as an assembly.

(3) Remove lens (8) from light (6).

(4) Remove lamp (9) from light (6).

b. Installation.



NOTE

- Both lamps are installed the same way.
- Install cushion clip in same position as noted prior to removal.

(1) Install lamp (9) in light (6).

(2) Install lens (8) on light (6).

(3) Install light (6) on rear control box light bracket (7) with cushion clip (5), two screws (4), lockwashers (3) and nuts (2).

(4) Connect connector (1) or repair wire, (Para 3-80).

c. Follow-On Maintenance.

- Connect electrical connector UPIK, (Para 2-10).
- Check operation of light.
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-46. SPRAY BAR VALVE(S) REPLACEMENT/REPAIR.

This task covers:

a. Removal
b. Cleaning and Inspection
c. Installation
d. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

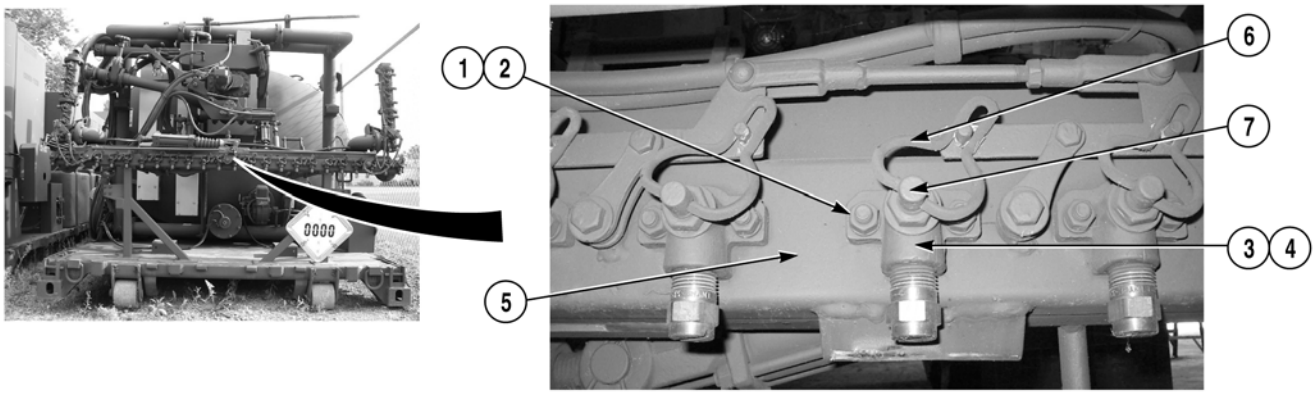
Materials/Parts
Hydraulic Oil (Item 3, Appendix E)
Packing, Preformed (Item 11, Appendix E)
Solvent, Drycleaning (Item 12, Appendix E)

a. Removal.

WARNING

FLUOROELASTOMER HANDLING

- Preformed packing and seals used in this task are made from fluoroelastomers. When used under design conditions, fluoroelastomers do not require special handling. However, when fluoroelastomers are heated to temperatures beyond their design temperature around 600°F (316°C), decomposition may occur with the formation of hydrofluoric acid. Hydrofluoric acid can be extremely corrosive to human tissue if not handled properly.
- A degraded seal may appear as a charred or black sticky mass. Do not touch either the seal or the surrounding equipment without wearing neoprene or PVC gloves if degradation is suspected. Wash parts and equipment with 10% lime water (calcium hydroxide solution) to neutralize any hydrofluoric acid.
- If contact with the skin occurs, wash affected areas immediately with water. Then rub a 2.5 calcium gluconate gel into the skin until there is no further irritation. Seek prompt medical attention. Failure to comply may cause serious injury to personnel.

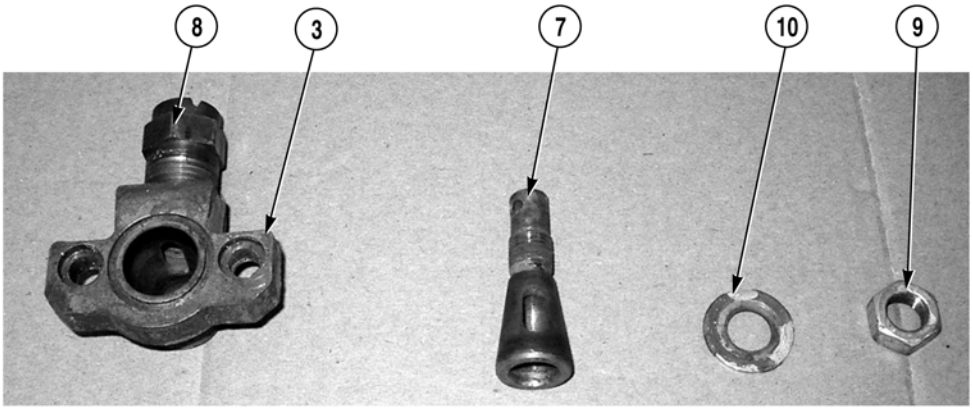


NOTE

All spray bar valves are removed the same way.

(1) Remove two nuts (1), washers (2), valve (3) and preformed packing (4) from spray bar (5). Discard preformed packing.

(2) Remove link (6) from valve stem (7).



NOTE

Note position of nozzle on valve prior to removal.

(3) Remove nozzle (8) from valve (3).

(4) Remove nut (9), washer (10) and valve stem (7) from valve (3).

3-46. SPRAY BAR VALVE(S) REPLACEMENT/REPAIR (CONT).

b. Cleaning/Inspection.

WARNING

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type II Drycleaning Solvent is 140°F (60°C) and Type III Drycleaning Solvent is 200°F (93°C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

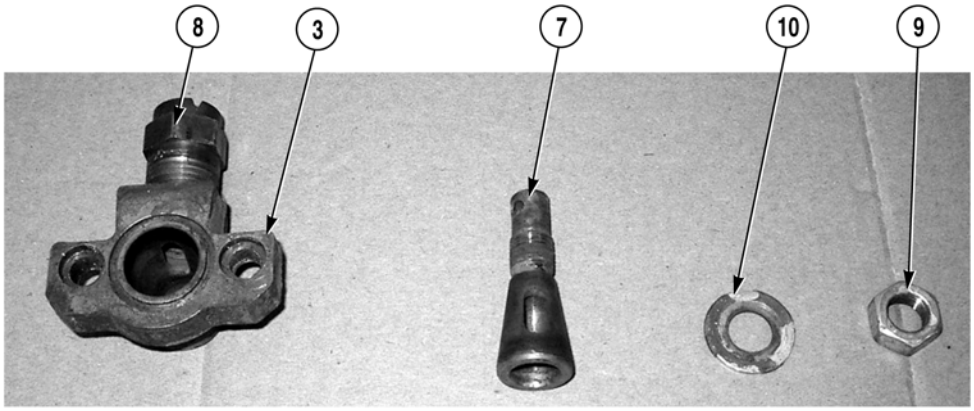
(1) Clean all parts with drycleaning solvent.

(2) Wipe parts with a clean, lint-free cloth.

(3) Inspect all parts for cracks, gouges and pitting, or excess wear.

(4) If cracked or worn, replace as complete assembly.

c. Installation.



NOTE

Note opening in valve, stem should align with opening in valve.

(1) Install valve stem (7) on valve (3) with washer (10) and nut (9).

NOTE

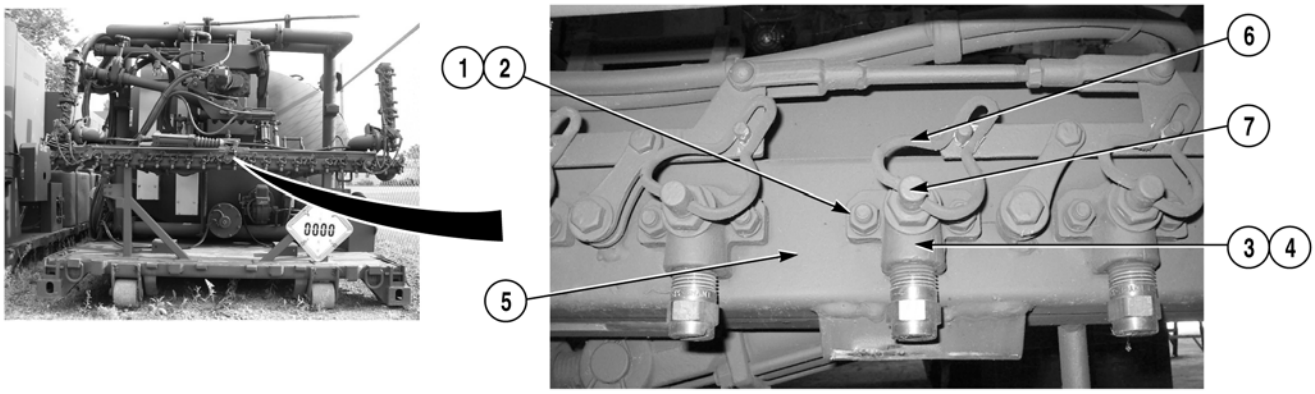
- Valve stem must rotate freely in valve. Loosening nut approximately 1/8 turn permits valve stem to rotate without allowing valve stem to move in or out.
- If valve does not rotate after loosening nut, strike end of valve stem with brass drift punch.

(2) After tightening nut (9) on valve stem (7), loosen nut (9) 1/8 turn.

NOTE

Install nozzle on valve as noted prior to removal.

(3) Install nozzle (8) on valve (3).



(4) Install link (6) on valve stem (7).

(5) Apply lubricating oil to preformed packing (4) and install preformed packing (4) and valve (3) on spray bar (5) with two washers (2) and nuts (1).

d. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-47. HYDRAULIC HOSE REPLACEMENT.

This task covers:

a. Hydraulic Hose Locations

b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Pan, Drain (Item 9, Appendix F)
Cap and Plug Set (Item 3, Appendix F)

Materials/Parts
Cable Ties (Item 1, Appendix E)
Tags, Identification (Item 9, Appendix E)
Hydraulic Oil (Item 3, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
UPIK hydraulic hoses disconnected, (Para 2-10)

a. Hydraulic Hose Locations.

WARNING

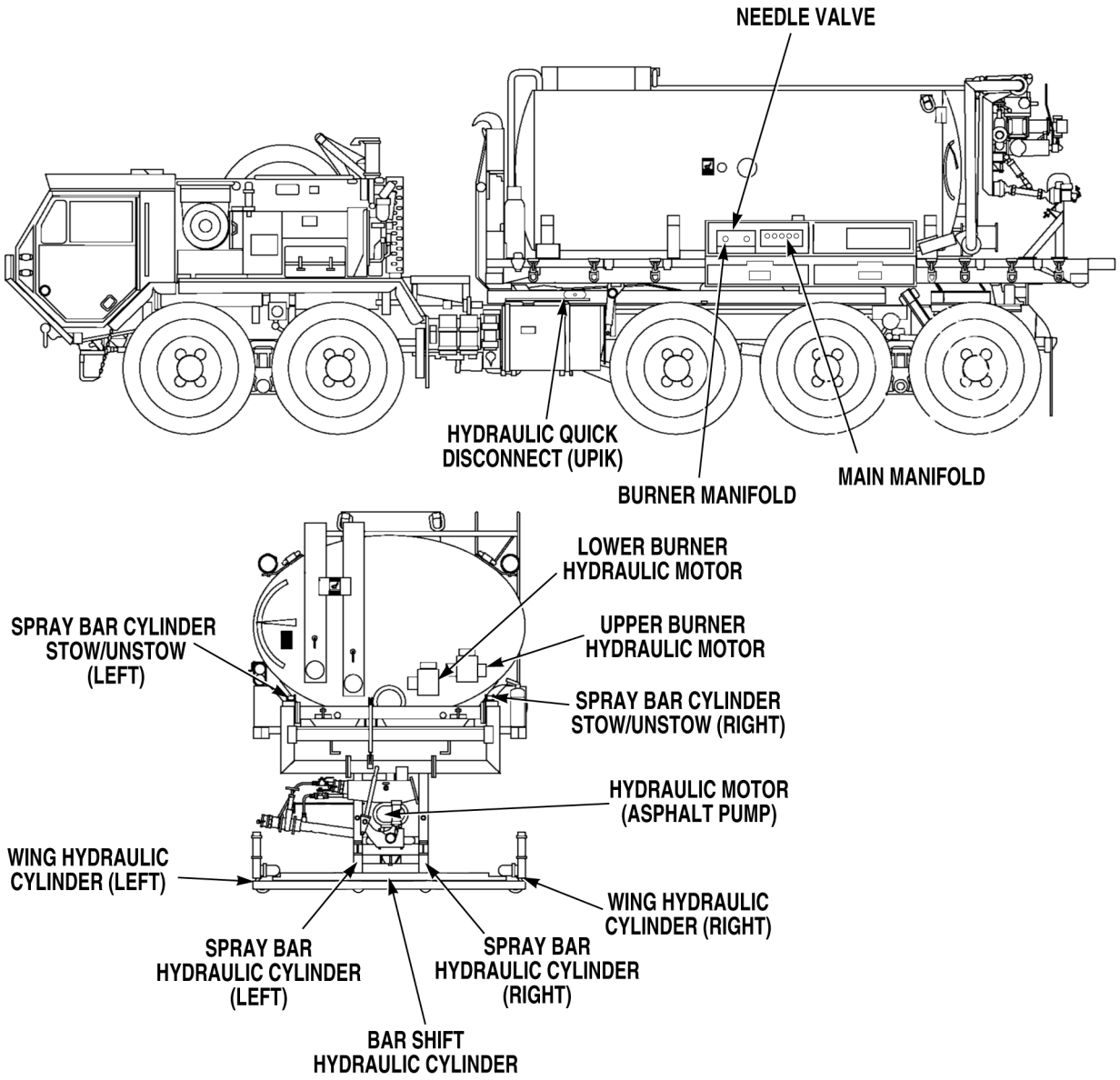
Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

NOTE

- This procedure shows the location of hydraulic hoses on the Bituminous Distributor. It will never be necessary to remove all hydraulic hoses at one time.
- Tag and mark hoses and tubes prior to removal.
- Cap and plug all hoses and fittings upon removal.
- Remove and install cable ties as required.
- Refer to Hydraulic Schematic (Para 3-83) for (Ref No.) on following table.

Hose Part No.	(Ref No.)	From	To
6602962	(7)	Hydraulic Quick Disconnect (UPIK) (Supply)	Burner Manifold (Left) (P Port)
6601564	(11)	Hydraulic Quick Disconnect (UPIK) (Return)	Burner Manifold (Left) (R1 Port)
6602667	(4)	Hydraulic Quick Disconnect (UPIK) (Load Sense)	Burner Manifold (Top) (LS Port)
6602959	(12)	Burner Manifold (Back) (M Port)	Main Manifold (Right Side) (P Port)
6600662	(18)	Burner Manifold (Right) (R2 Port)	Main Manifold (Right Side) (T Port)
6602965	(19)	Burner Manifold (Top) (APP Port)	Hydraulic Motor (Supply) on Asphalt Pump Motor
6602958	(21)	Hydraulic Motor (Return) on Asphalt Pump Motor	Burner Manifold (Tee, Left Side) (R1 Port)
3341645	(49)	Burner Manifold (Tee, Top) (BSG Port)	Needle Valve
3341645	(49)	Burner Manifold (Tee, Top) (BSR Port)	Needle Valve
3341644	(28)	Burner Manifold (Tee, Top) (BSG Port)	Spray Bar Cylinder Stow/Unstow (Extend) (Left)
3341641	(35)	Spray Bar Cylinder (Stow/Unstow) (Extend) (Left)	Spray Bar Cylinder Stow/Unstow (Extend) (Right)
3341643	(27)	Burner Manifold (Tee, Top) (BSR Port)	Spray Bar Cylinder Stow/Unstow (Retract) (Left)
3341641	(35)	Spray Bar Cylinder Stow/Unstow (Retract) (Left)	Spray Bar Cylinder Stow/Unstow (Retract) (Right)
3331392	(36)	Burner Manifold (Top) (UBP Port)	Upper Burner Hydraulic Motor (Supply)
6600324	(40)	Upper Burner Hydraulic Motor (Return)	Lower Burner Hydraulic Motor (Return)
3331392	(36)	Burner Manifold (Top) (LBP Port)	Lower Burner Hydraulic Motor (Supply)
6600324	(40)	Lower Burner Hydraulic Motor (Return)	Burner Manifold Left (Tee) (R1 Port)
3341707	(54)	Main Manifold (Top) (LLR Port)	Spray Bar Hydraulic Cylinder (Retract) (Left)
3341707	(54)	Main Manifold (Top) (RLC Port)	Spray Bar Hydraulic Cylinder (Extend) (Right)
3341707	(54)	Main Manifold (Top) (RLR Port)	Spray Bar Hydraulic Cylinder (Retract) (Right)
3341707	(54)	Main Manifold (Top) (LLC Port)	Spray Bar Hydraulic Cylinder (Extend) (Left)
3341706	(53)	Main Manifold (Top) (SR Port)	Bar Shift Hydraulic Cylinder (Retract)
3341706	(53)	Main Manifold (Top) (SC Port)	Bar Shift Hydraulic Cylinder (Extend)
3341705	(55)	Main Manifold (Top) (LWR Port)	Wing Hydraulic Cylinder (Retract) (Left)
3341705	(55)	Main Manifold (Top) (LWC Port)	Wing Hydraulic Cylinder (Extend) (Left)
3341705	(55)	Main Manifold (Top) (RWR Port)	Wing Hydraulic Cylinder (Retract) (Right)
3341705	(55)	Main Manifold (Top) (RWC Port)	Wing Hydraulic Cylinder (Extend) (Right)

3-47. HYDRAULIC HOSE REPLACEMENT (CONT).



b. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-48. HYDRAULIC PRESSURE ADJUSTMENT.

This task covers:

a. Hydraulic Pressure Adjustment
b. Follow-On Maintenance

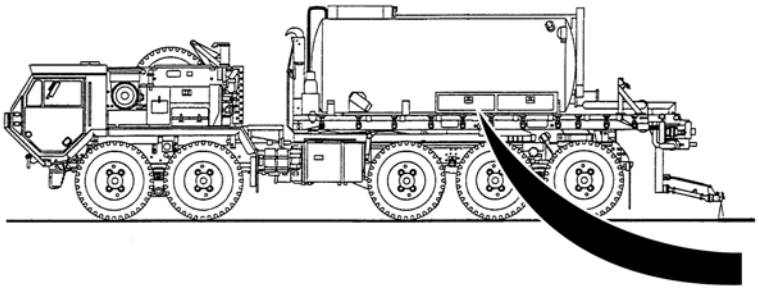
INITIAL SETUP

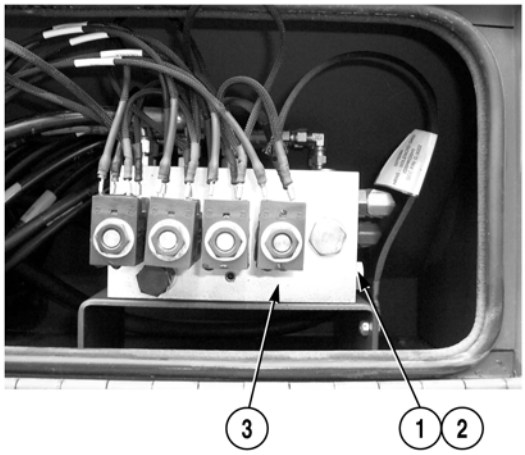
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Hose Assembly (Item 7, Appendix F)
Gage, Pressure, Dial (Item 5, Appendix F)
Adapter, Straight (Item 2, Appendix F)
Adapter (Item 1, Appendix F)
Test Fitting (Item 12, Appendix F)

Materials/Parts
Hydraulic Oil (Item 3, Appendix E)
Preformed Packing (Item 11, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
UPIK hydraulic hoses disconnected, (Para 2-10)

a. Hvdraulic Pressure Adiustment.





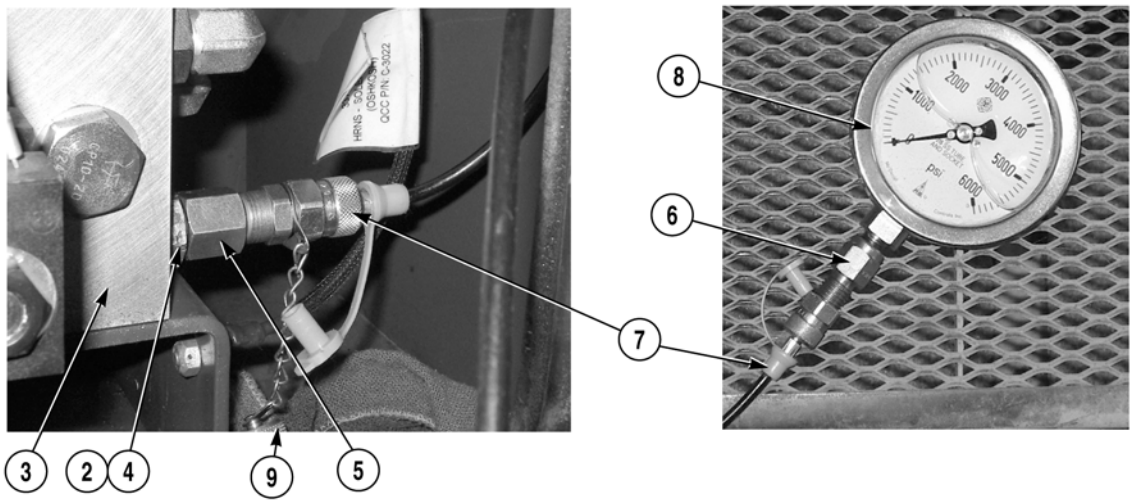
(1) Open front compartment door.

WARNING

Never disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply may result in serious injury or death to personnel.

(2) Slowly remove plug (1) and preformed packing (2) from AUX P port on main manifold (3).

3-48. HYDRAULIC PRESSURE ADJUSTMENT (CONT).



(3) Apply hydraulic oil on preformed packing (2) and install preformed packing (2) and adapter (4) on main manifold (3).

(4) Install test fitting (5) on adapter (4).

(5) Install adapter (6) on test hose (7).

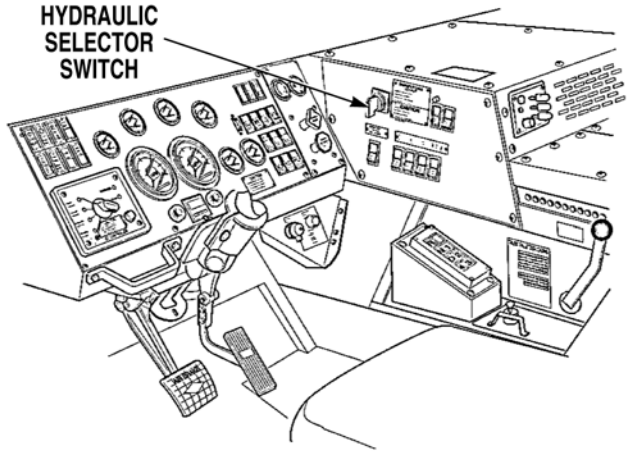
(6) Install pressure gage (8) on adapter (6).

(7) Remove cap (9) from test fitting (5).

(8) Install test hose (7) on test fitting (5) and adapter (6).

(9) Connect UPIK hydraulic hose, (Para 2-10).

(10) Start engine, (TM 9-2320-364-10).



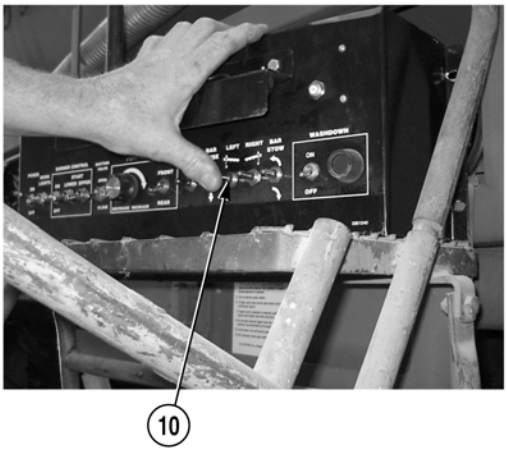
CAUTION

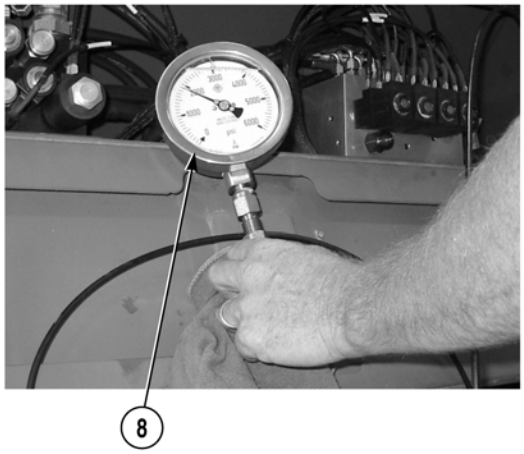
Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(11) Turn hydraulic selector switch to CRANE/SRW.

(12) Deploy spray bar, (Para 2-17).

(13) Stow left wing, (Para 2-17).



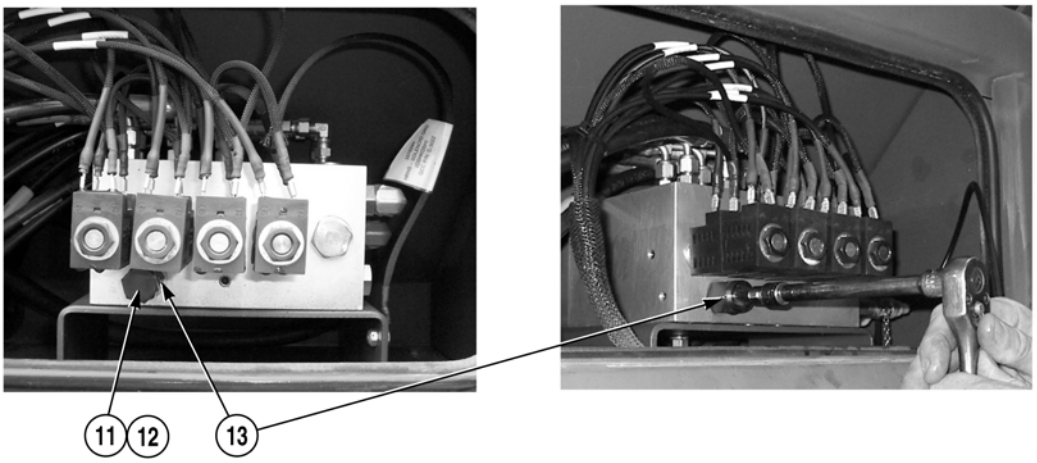


NOTE

- Correct pressure for hydraulic system is 2100 psi ±50 (14,480 kPa ±345).
- When taking hydraulic pressure reading, left wing switch must be held in the up position.
- Holding left wing switch in the up position allows hydraulic pressure reading to be taken.

(14) While holding left wing switch (10) in up position, record reading on pressure gage (8).

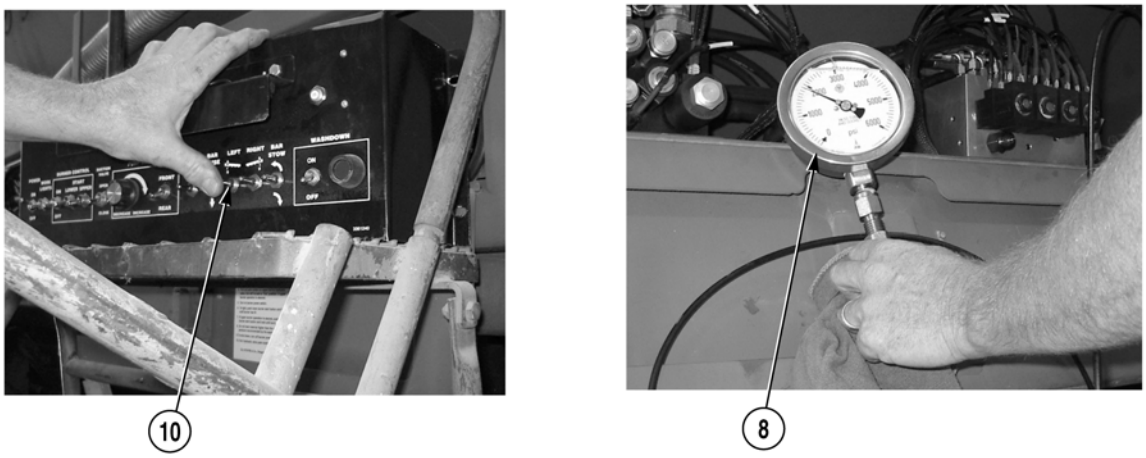
3-48. HYDRAULIC PRESSURE ADJUSTMENT (CONT).



NOTE

- Perform Steps (15) through (17) if hydraulic pressure needs to be adjusted.
- Hydraulic pressure is adjusted by turning adjusting fitting clockwise or counterclockwise.

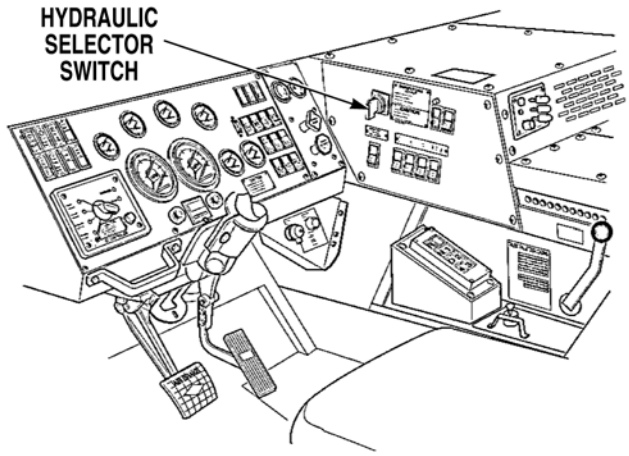
(15) Remove plug (11) and preformed packing (12) from valve (13). Discard preformed packing.



(16) While holding left wing switch (10) in up position, adjust pressure setting on valve (13) until hydraulic pressure reading records 2100 psi ±50 (14,480 kPa ±345 kPa) on pressure gage (8).

(17) Apply hydraulic oil to preformed packing (12) and install preformed packing (12) and plug (11) on valve (13).

(18) Stow spray bar, (Para 2-17).

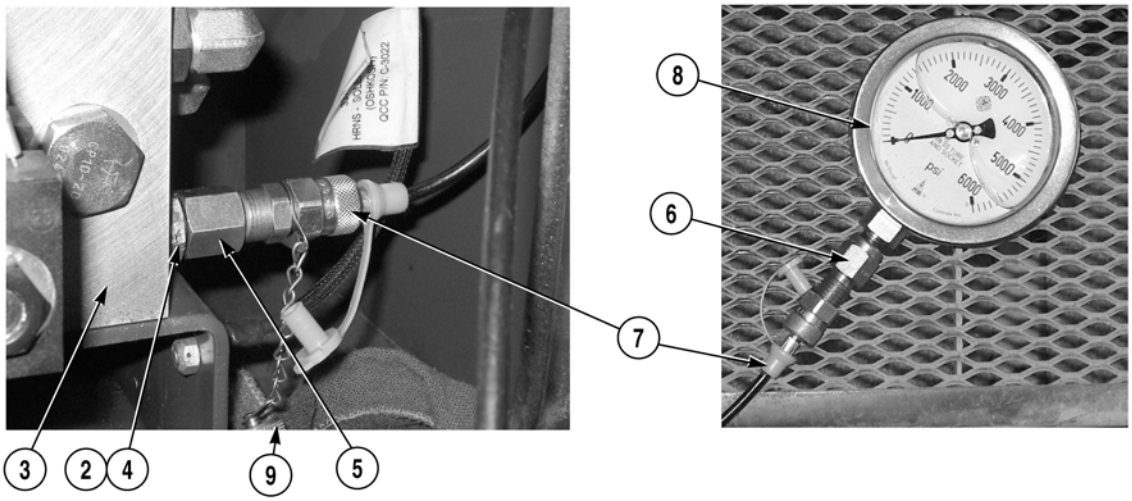


CAUTION

Engine speed must be at idle before using hydraulic selector switch, or damage to equipment may result.

(19) Turn hydraulic selector switch to OFF position.

(20) Shut OFF engine, (TM 9-2320-364-10).



(21) Remove test hose (7) from test fitting (5) and adapter (6).

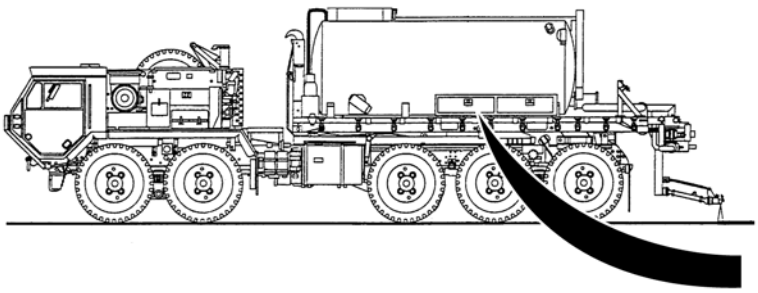
(22) Install cap (9) on test fitting (5).

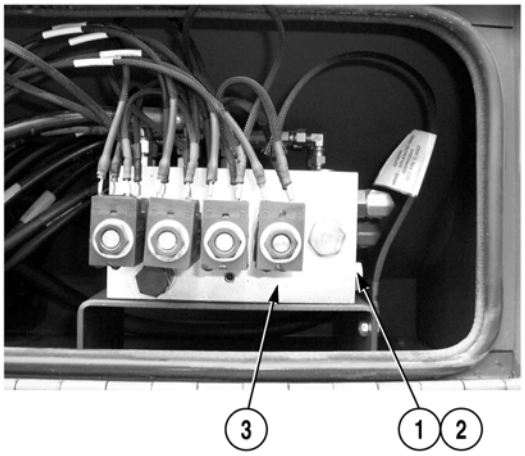
(23) Remove pressure gage (8) from adapter (6).

(24) Remove adapter (6) from test hose (7).

(25) Remove adapter (4) and preformed packing (2) from main manifold (3). Discard preformed packing.

3-48. HYDRAULIC PRESSURE ADJUSTMENT (CONT).





(26) Apply hydraulic oil to preformed packing (2) and install preformed packing (2) and plug (1) on AUX P port on main manifold (3).

b. Follow-On Maintenance.

- Connect UPIK hydraulic hose, (Para 2-10).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-49. AIR LINE REPLACEMENT.

This task covers:

a. Air Line Locations

b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Cap and Plug Set (Item 3, Appendix F)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Cable Ties (Item 1, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)
UPIK air line disconnected, (Para 2-10)

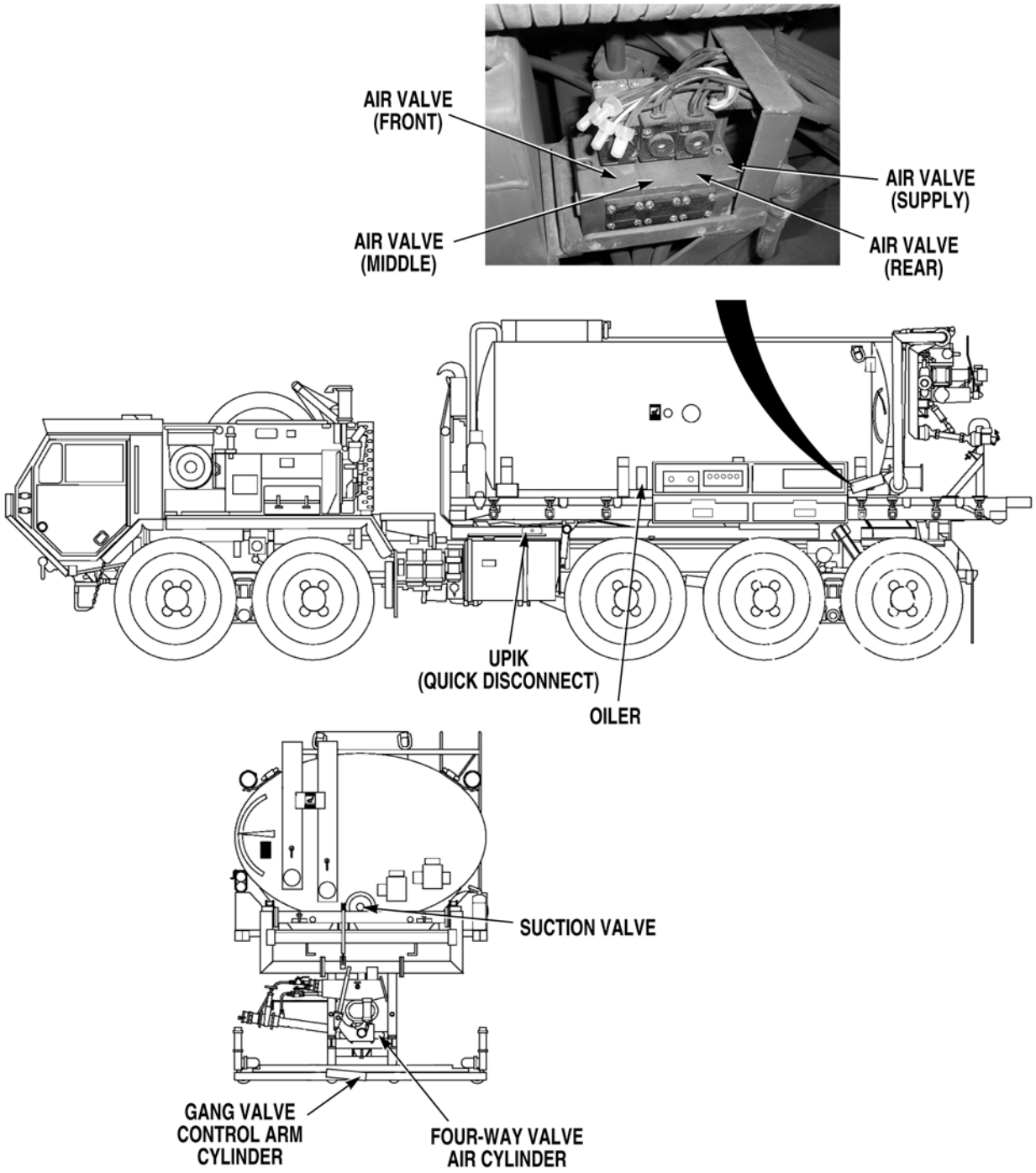
a. Air Line Locations.

NOTE

- This procedure shows the location of air lines and tubes on the Bituminous Distributor. It will never be necessary to remove all air lines and tubes at one time.
- As items are removed, cap and plug all hoses, air lines, tubes and connectors.
- Tag and mark hoses and air lines prior to removal.
- Note location and position of cable ties prior to removal.
- Remove cable ties as required.
- Remove clamps and support brackets as required.
- Remove wear sleeves as required.
- Inspect all hoses, lines and fittings for cracks, bends, nicks, dents, stripped threads and cuts. Replace all damaged parts.

Part No.	From	To
6600324-186	Quick disconnect at UPIK	Oiler
6600324-128	Oiler	Air Valve (Supply)
6600324-192	Air Valve (Front)	Gang Valve Control Arm Cylinder
6600324-216	Air Valve (Front)	Gang Valve Control Arm Cylinder
6600324-198	Air Valve (Middle)	Four-Way Valve Air Cylinder
6600324-204	Air Valve (Middle)	Four-Way Valve Air Cylinder
6309255-100	Air Valve (Rear)	Suction Valve
6309255-105	Air Valve (Rear)	Suction Valve

3-49. AIR LINE REPLACEMENT (CONT).



b. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-50. FUEL LINE REPLACEMENT.

This task covers:

a. Fuel Line Locations

b. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Pan, Drain (Item 9, Appendix F)
Cap and Plug Set (Item 3, Appendix F)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Cable Ties (Item 1, Appendix E)
Oil, Fuel, Diesel (Item 4, Appendix E)

Equipment Condition
Fuel tank drained, (Para 3-3)

a. Fuel Line Locations.

WARNING

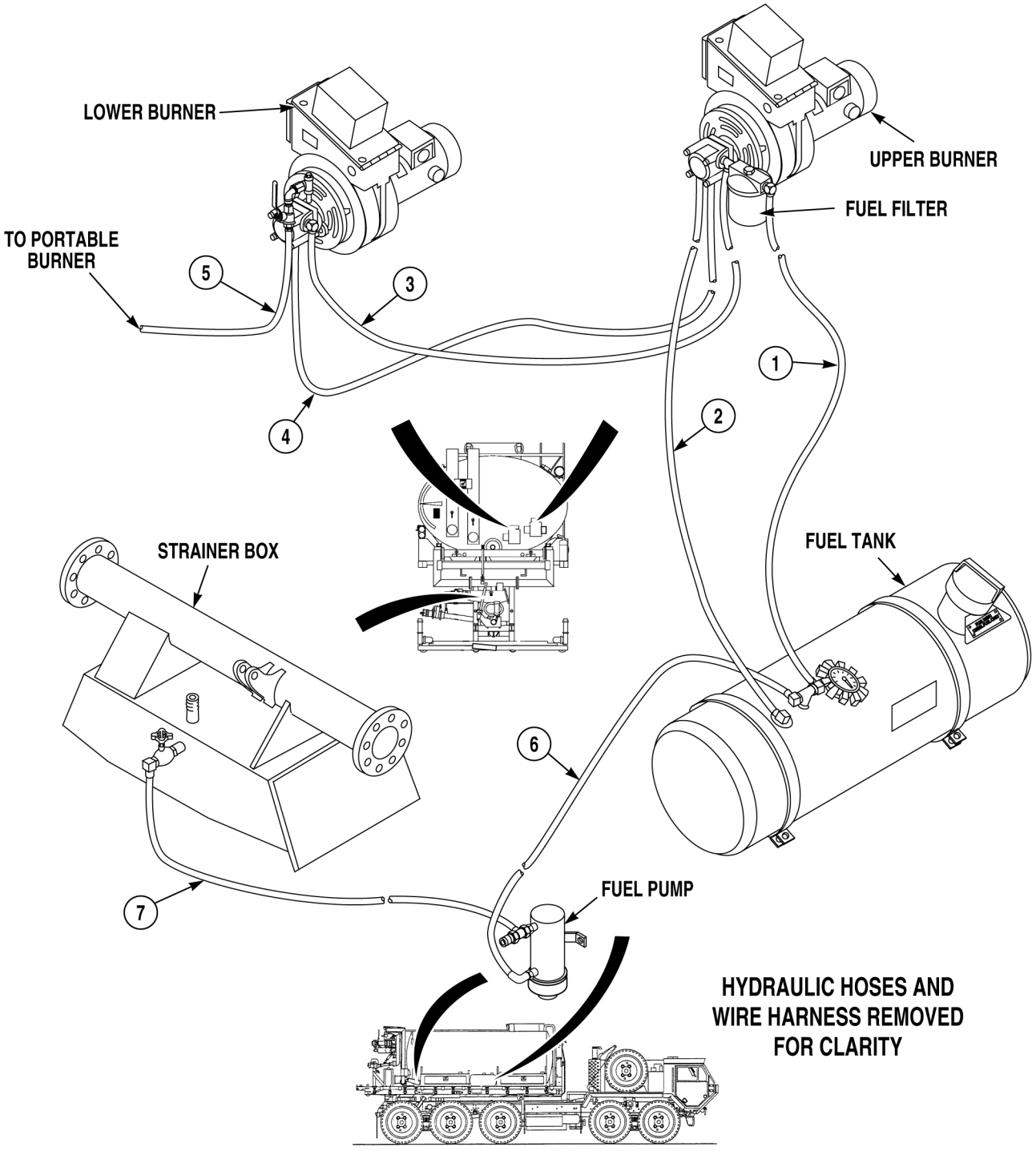
To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.

NOTE

- This procedure shows the location of fuel lines on the Bituminous Distributor. It will never be necessary to remove all fuel lines at one time.
- Position drain pan under fuel lines being removed to catch excess fuel.
- Tag and mark all hoses prior to removal.
- Cap and plug all hoses upon removal.
- Remove and install cable ties as required.

Hose Item No.	From	To
1	Fuel Tank	Fuel Filter
2	Fuel Tank	Upper Burner
3	Upper Burner	Lower Burner
4	Upper Burner	Lower Burner
5	Lower Burner	Portable Burner
6	Fuel Tank	Fuel Pump
7	Fuel Pump	Strainer Box

3-50. FUEL LINE REPLACEMENT (CONT).



b. Follow-On Maintenance:

- Fill fuel tank, (Para 3-3).

END OF TASK

3-51. FRONT CONTROL PANEL SWITCH REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

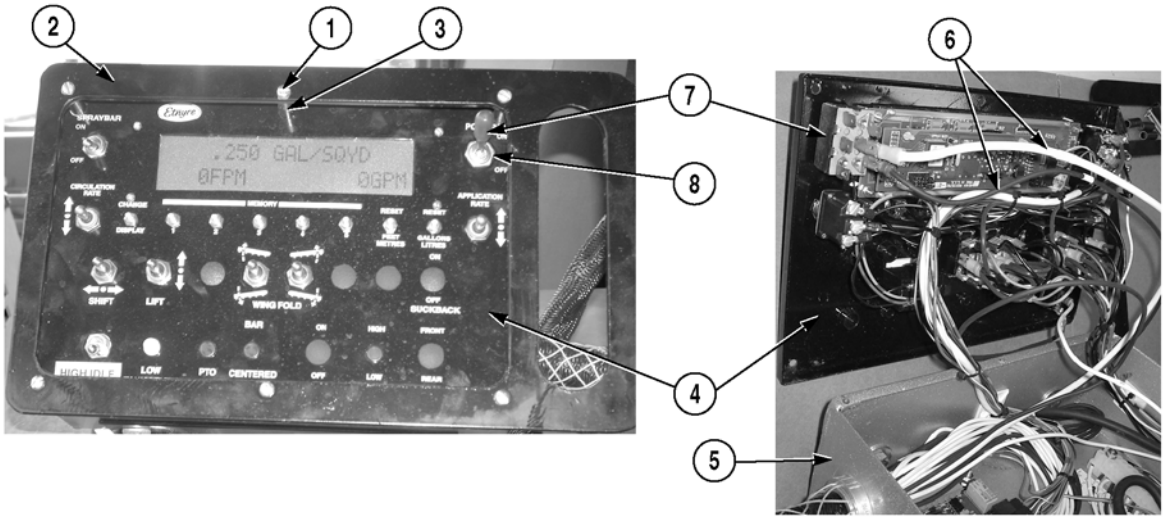
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Equipment Condition
Front control panel wire harness disconnected, (Para 2-10)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Cable Ties (Item 1, Appendix E)

a. Removal.



(1) Remove six screws (1), guard (2), six spacers (3) and control box panel (4) from control box (5).

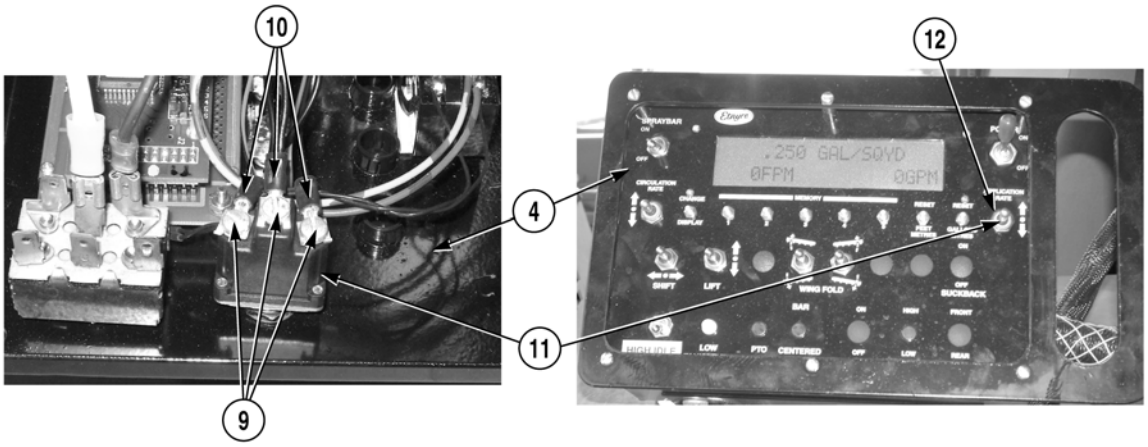
NOTE

- Remove cable ties as required.
- Tag and mark wires and connectors prior to removal.
- Perform Steps (2) and (3) for POWER switch removal.

(2) Remove two wires (6) from switch (7).

(3) Remove nut (8) and switch (7) from control box panel (4).

3-51. FRONT CONTROL PANEL SWITCH REPLACEMENT (CONT).

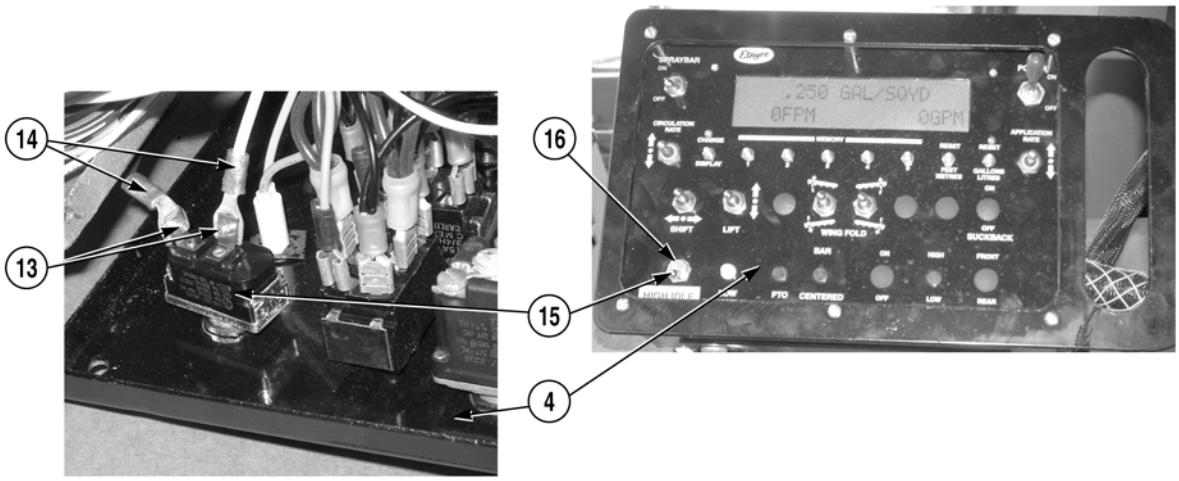


NOTE

Perform Steps (4) and (5) for APPLICATION RATE switch removal.

(4) Loosen three screws (9) and remove wires (10) from switch (11).

(5) Remove nut (12) and switch (11) from control box panel (4).

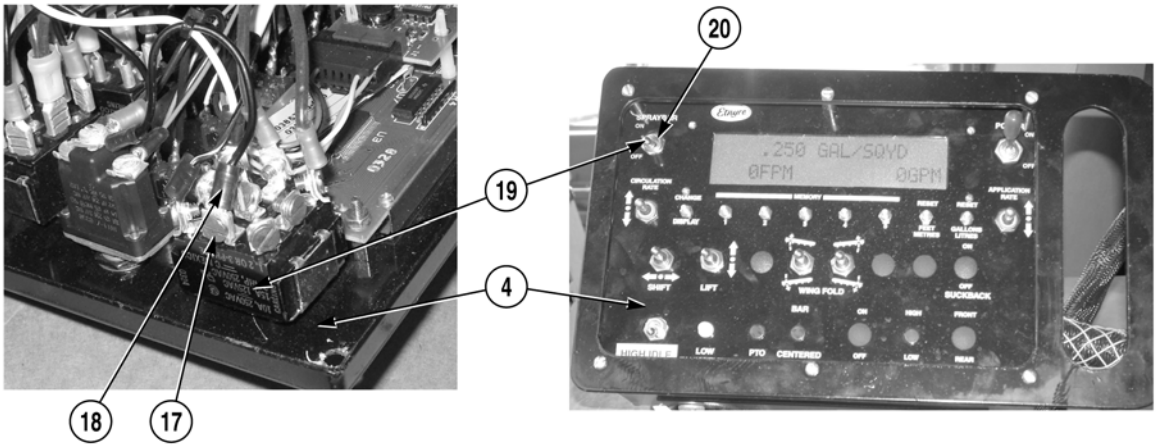


NOTE

Perform Steps (6) and (7) for HIGH IDLE switch removal.

(6) Loosen two screws (13) and remove wires (14) from switch (15).

(7) Remove nut (16) and switch (15) from control box panel (4).

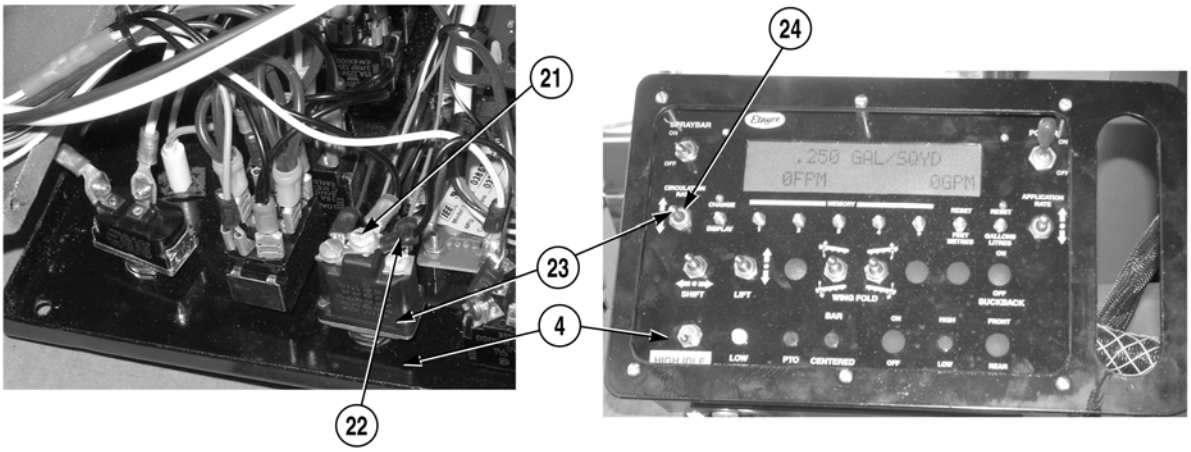


NOTE

Perform Steps (8) and (9) for SPRAYBAR switch removal.

(8) Loosen five screws (17) and remove wires (18) from switch (19).

(9) Remove nut (20) and switch (19) from control box panel (4).



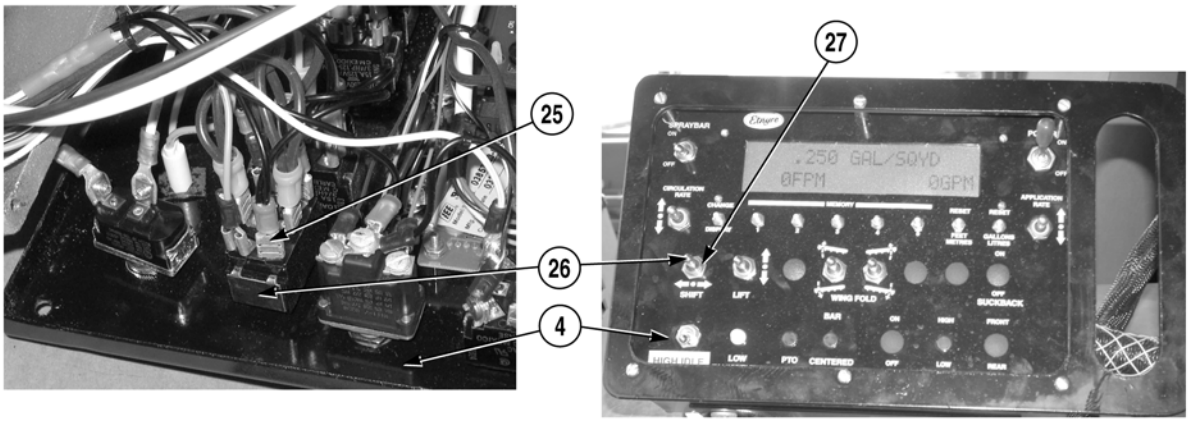
NOTE

- Perform Steps (10) and (11) for CIRCULATION RATE switch removal.
- Two wires are fastened to single spade terminal.

(10) Loosen three screws (21) and remove six wires (22) from switch (23).

(11) Remove nut (24) and switch (23) from control box panel (4).

3-51. FRONT CONTROL PANEL SWITCH REPLACEMENT (CONT).



NOTE

- SHIFT, LIFT and WING FOLD switches are removed the same way. Number of wires and quick disconnect terminals may vary. SHIFT switch shown.
- Eight wires are fastened to four spade terminals.
- Perform Steps (12) and (13) for SHIFT switch removal.

(12) Remove ten wires (25) from switch (26).

(13) Remove nut (27) and switch (26) from control box panel (4).

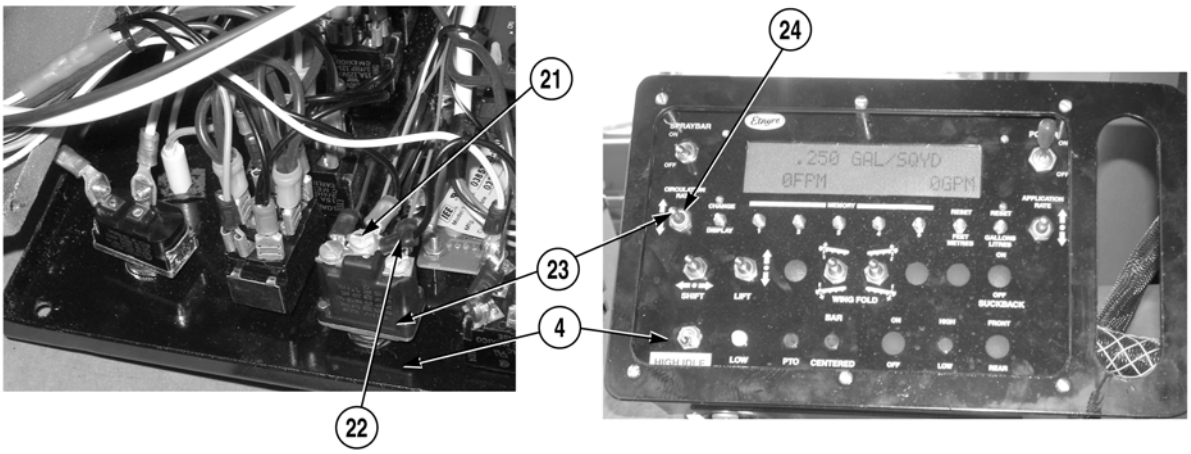
b. Installation.

NOTE

- Install cable ties as required.
- SHIFT, LIFT and WING FOLD are installed the same way. Number of wires and quick disconnect terminals may vary. SHIFT switch shown.
- Perform Steps (1) and (2) for SHIFT switch installation.
- Eight wires are fastened to four spade terminals.

(1) Install switch (26) on control box panel (4) with nut (27).

(2) Install ten wires (25) on switch (26).

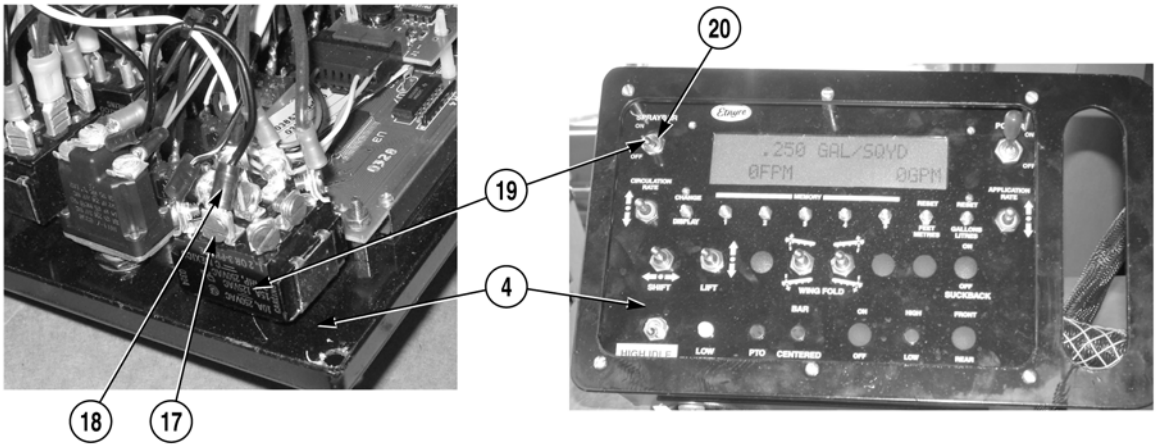


NOTE

- Perform Steps (3) and (4) for CIRCULATION RATE switch installation.
- Two wires are fastened to single spade terminal.

(3) Install switch (23) on control box panel (4) with nut (24).

(4) Install six wires (22) on switch (23) with three screws (21).



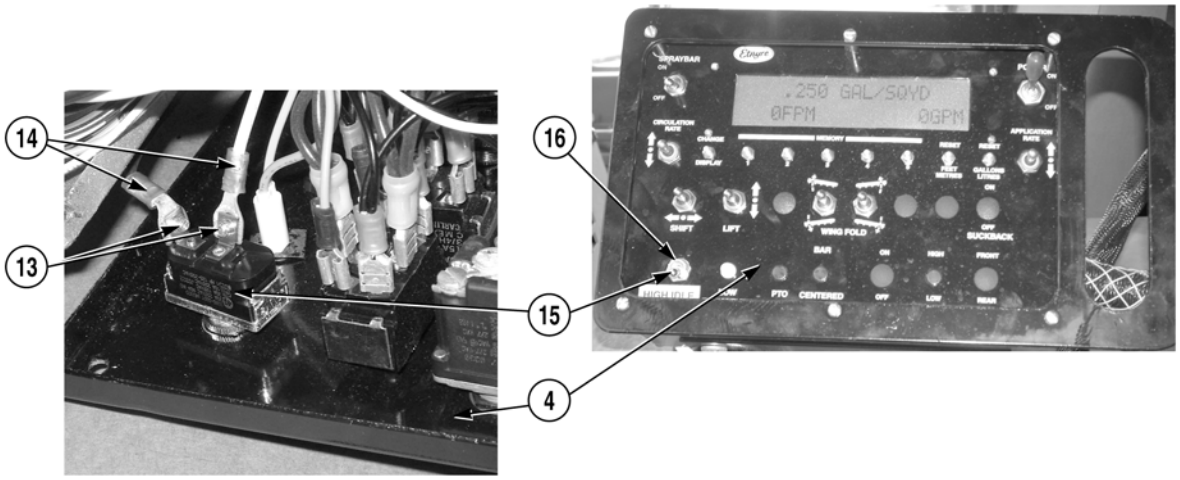
NOTE

Perform Steps (5) and (6) for SPRAYBAR switch installation.

(5) Install switch (19) on control box panel (4) with nut (20).

(6) Install five wires (18) on switch (19) with five screws (17).

3-51. FRONT CONTROL PANEL SWITCH REPLACEMENT (CONT).

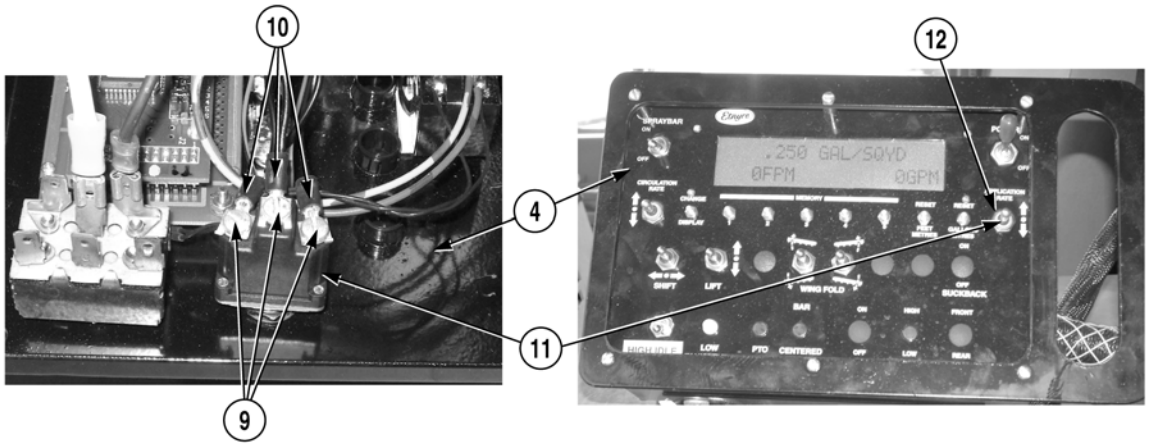


NOTE

Perform Steps (7) and (8) for HIGH IDLE switch removal.

(7) Install switch (15) on control box panel (4) with nut (16).

(8) Install two wires (14) on switch (15) with two screws (13).

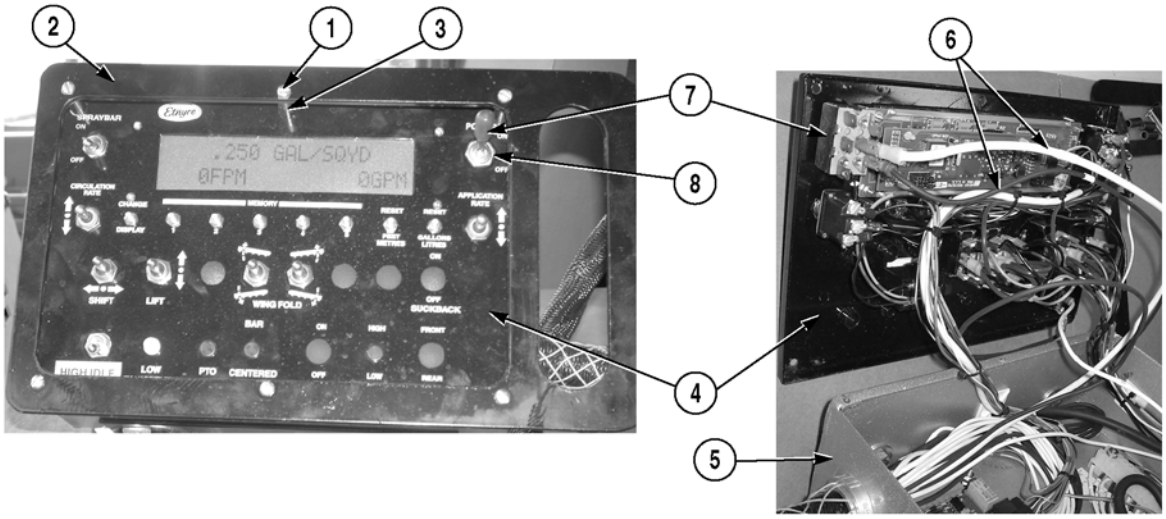


NOTE

Perform Steps (9) and (10) for APPLICATION RATE switch removal.

(9) Install switch (11) on control box panel (4) with nut (12).

(10) Install three wires (10) on switch (11) with three screws (9).



NOTE

Perform Steps (11) and (12) for POWER switch installation.

(11) Install switch (7) on control box panel (4) with nut (8).

(12) Install two wires (6) on switch (7).

CAUTION

During front control panel wire harness replacement the HIGH IDLE switch may have been switched to the ON position. HIGH IDLE switch must be in the OFF position. Failure to comply may result in damage to equipment.

(13) Install guard (2) and control box panel (4) on control box (5) with six spacers (3) and screws (1).

c. Follow-On Maintenance.

- Connect front control panel wire harness, (Para 2-10).

END OF TASK

3-52. WORK LIGHT WIRE HARNESS REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

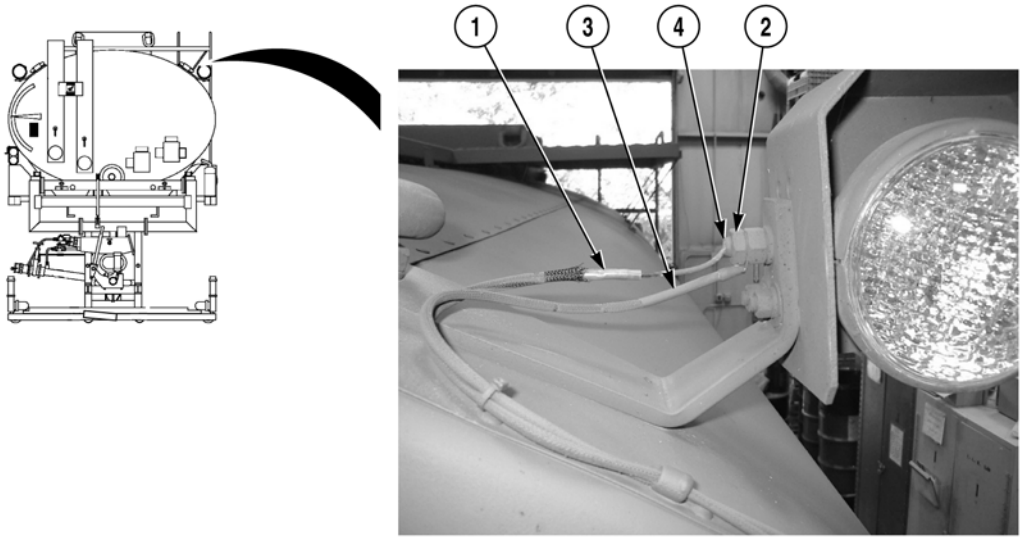
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

Materials/Parts
Cable Ties (Item 1, Appendix E)
Tags, Identification (Item 9, Appendix E)
Lockwashers (2) (MS 35338-43)
Lockwashers (5) (MS 35338-44)

a. Removal.

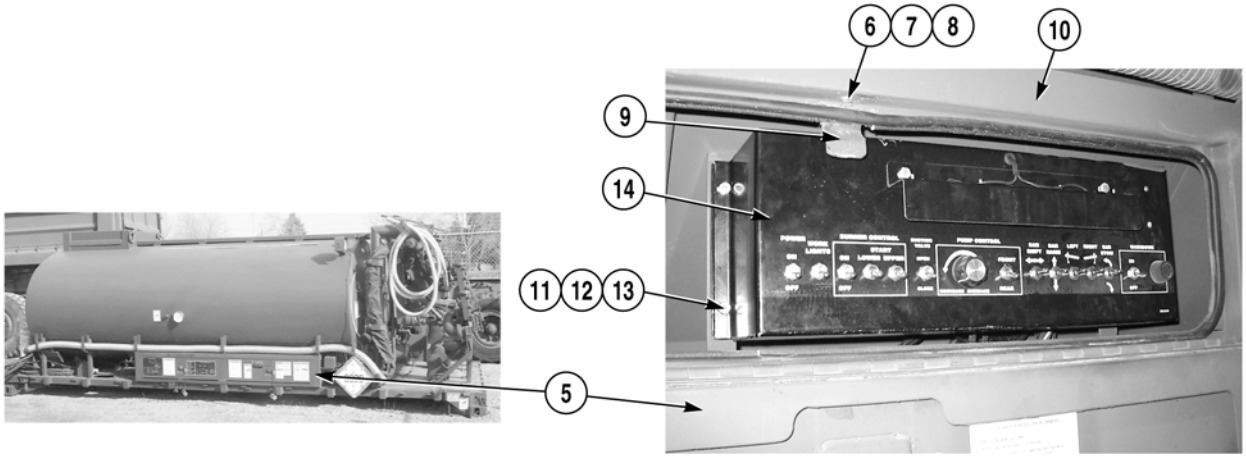


NOTE

Tag and mark wires.

(1) Cut wire (1).

(2) Remove nut (2) and wire (3) from stud (4).



NOTE

Remove cushion clips and cable ties as required.

(3) Open rear control panel door (5).

(4) Remove two nuts (6), lockwashers (7), screws (8) and latch (9) from stowage box (10). Discard lockwashers.

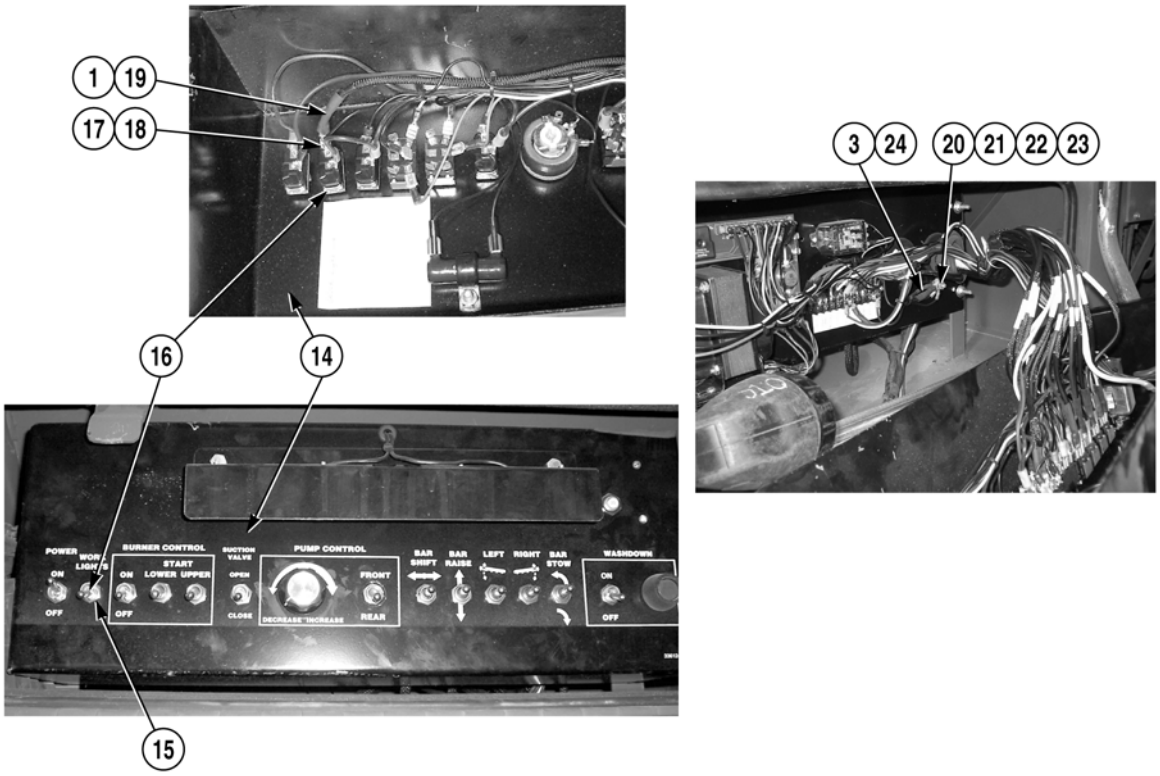
(5) Remove four nuts (11) and lockwashers (12) from studs (13) and rear control panel (14). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(6) Carefully pull rear control panel (14) forward and support rear control panel (14).

3-52. WORK LIGHT WIRE HARNESS REPLACEMENT (CONT).



(7) Remove nut (15) and switch (16) from rear control panel (14).

(8) Remove screw (17) and terminal (18) from switch (16).

(9) Cut two wires (1) and (19) at terminal (18).

(10) Remove nut (20), lockwasher (21) and terminal (22) from ground stud (23). Discard lockwasher.

(11) Cut two wires (3) and (24) at terminal (22).

b. Installation.

NOTE

Install wires as noted prior to removal.

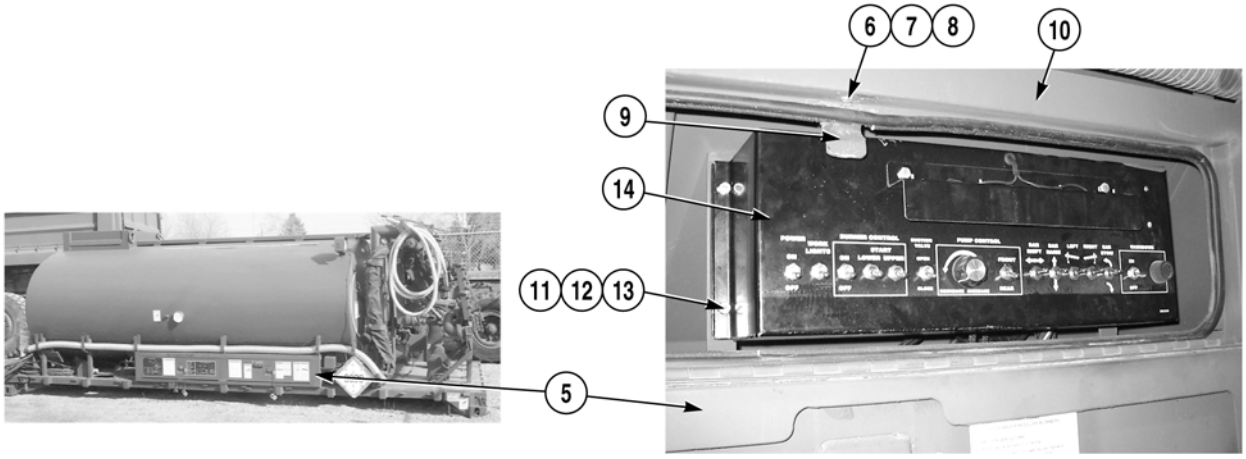
(1) Repair and install two wires (3) and (24) on terminal (22), (Para 3-80).

(2) Install terminal (22) on ground stud (23) with lockwasher (21) and nut (20).

(3) Repair and install two wires (1) and (19) on terminal (18), (Para 3-80).

(4) Install terminal (18) on switch (16) with screw (17).

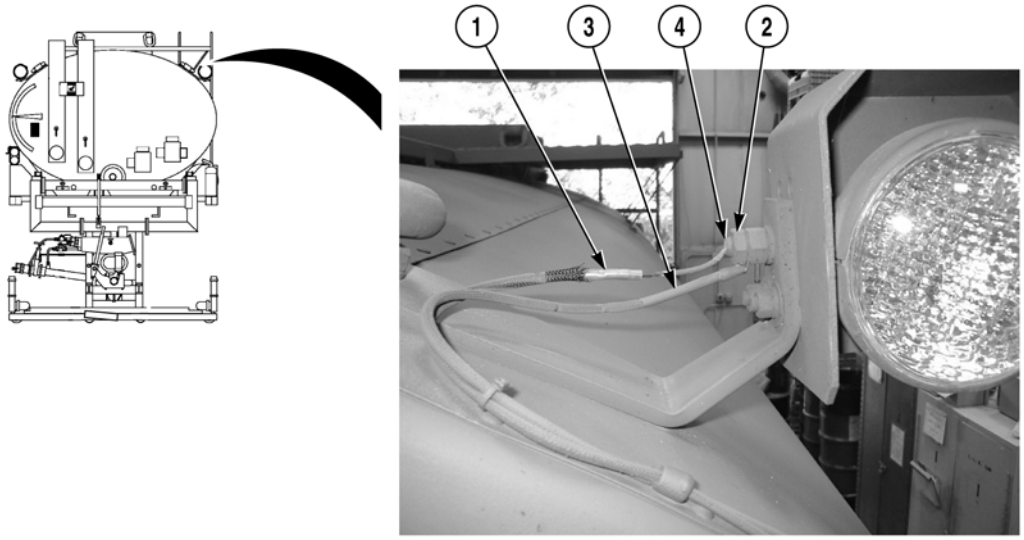
(5) Install switch (16) on rear control panel (14) with nut (15).



(6) Install rear control panel (14) on four studs (13) with lockwashers (12) and nuts (11).

(7) Install latch (9) on stowage box (10) with two screws (8), lockwashers (7) and nuts (6).

(8) Close rear control panel door (5).



NOTE

Install cushion clips and cable ties as required.

(9) Install wire (3) on stud (4) with nut (2).

(10) Repair wire (1), (Para 3-80).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-53. SPEED SENSOR WIRE HARNESS REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

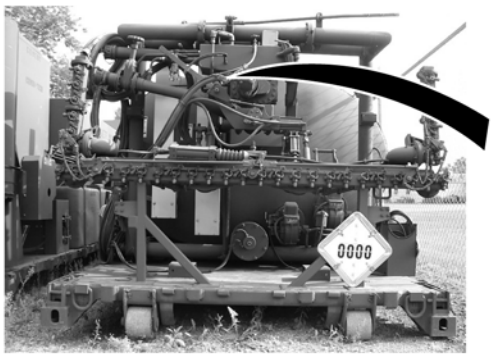
INITIAL SETUP

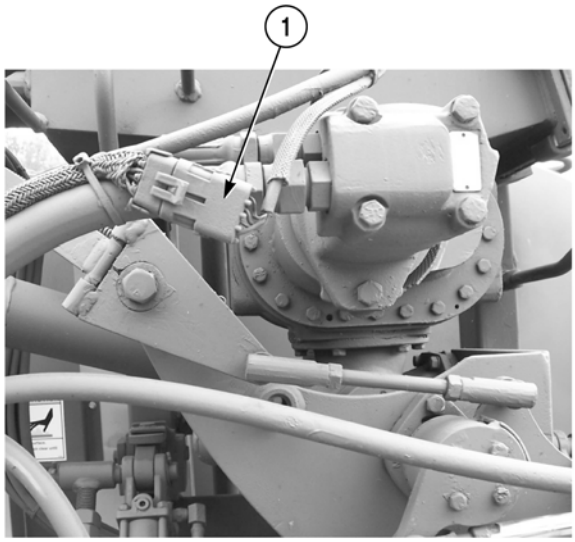
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Cable Ties (Item 1, Appendix E)
Lockwashers (2) (MS 35338-43)
Lockwashers (4) (MS 35338-44)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.

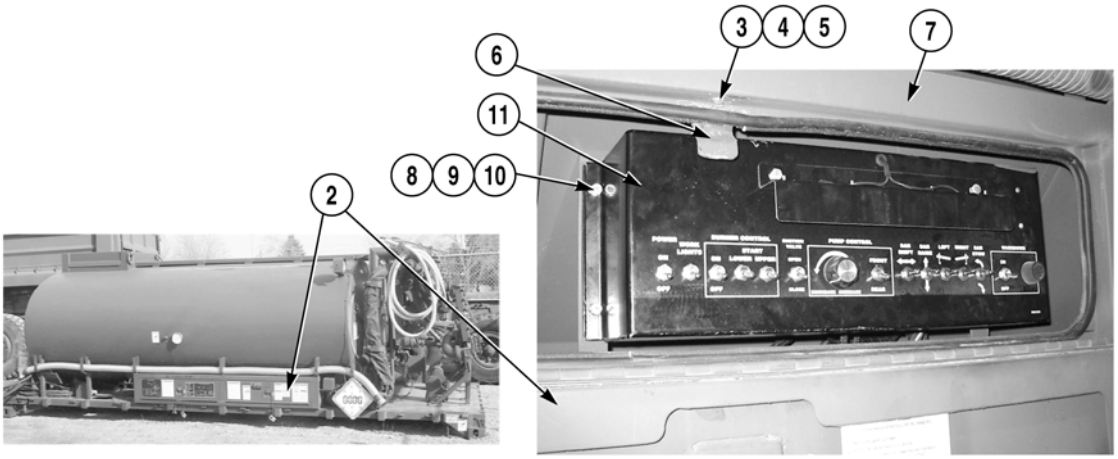




NOTE

- Remove cable ties and hose cover as required.
- Tag and mark wires and connectors prior to removal.

(1) Disconnect connector (1).



(2) Open rear compartment door (2).

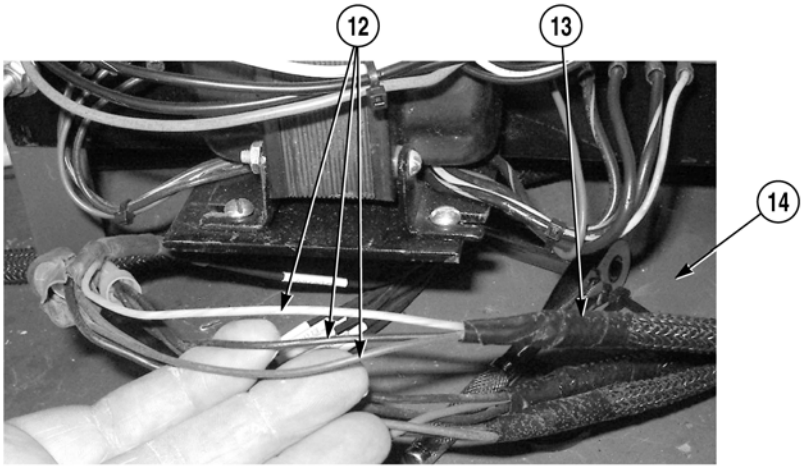
(3) Remove two nuts (3), lockwashers (4), screws (5) and latch (6) from stowage box (7). Discard lockwashers.

(4) Remove four nuts (8) and lockwashers (9) from studs (10) and rear control panel (11). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(5) Carefully pull rear control panel (11) forward and support rear control panel (11).



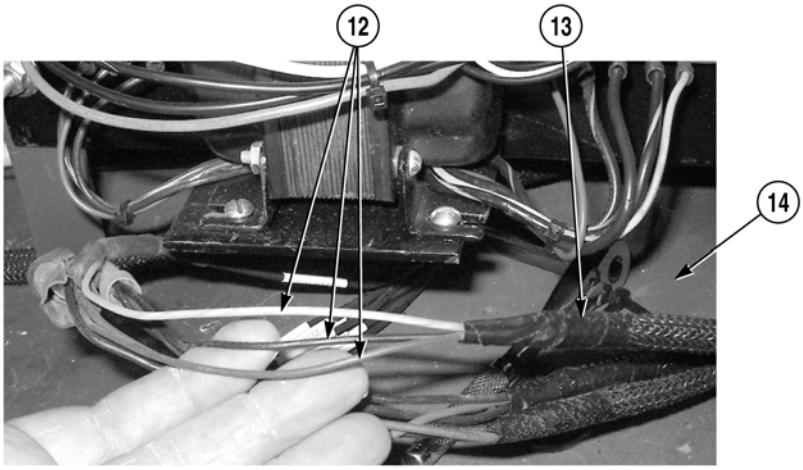
NOTE

Wires cut in Step (6) should be black, red and white.

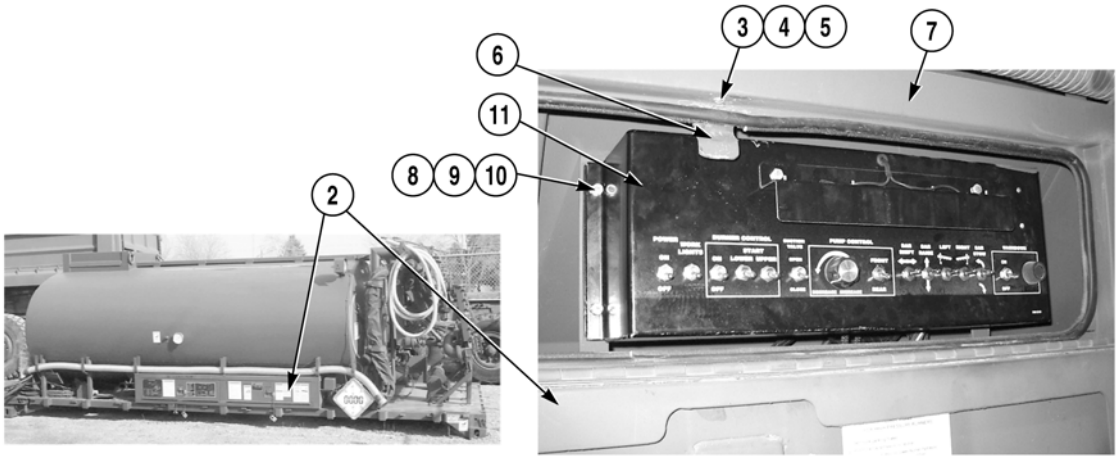
(6) Cut three wires (12) and remove wire harness (13) from Bituminous Distributor (14).

3-53 SPEED SENSOR WIRE HARNESS REPLACEMENT (CONT).

b. Installation.



(1) Position wire harness (13) on Bituminous Distributor (14) and repair three wires (12), (Para 3-80).



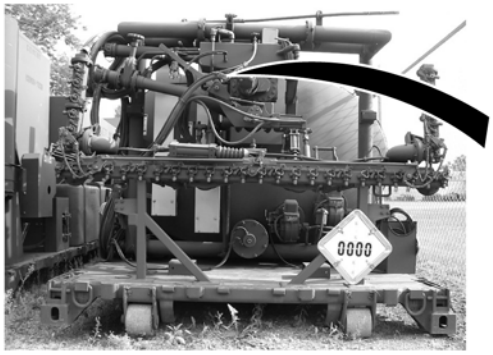
NOTE

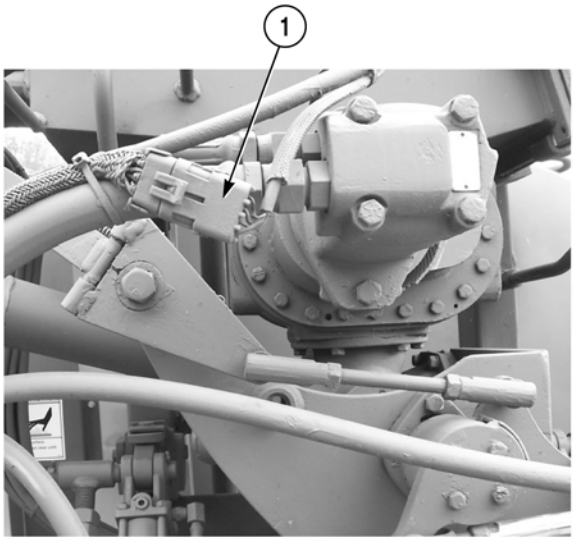
Install cable ties and hose cover as required.

(2) Install rear control panel (11) on four studs (10) with lockwashers (9) and nuts (8).

(3) Install latch (6) on stowage box (7) with two screws (5), lockwashers (4) and nuts (3).

(4) Close rear compartment door (2).





(5) Connect connector (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-54. BURNER WIRE HARNESS REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

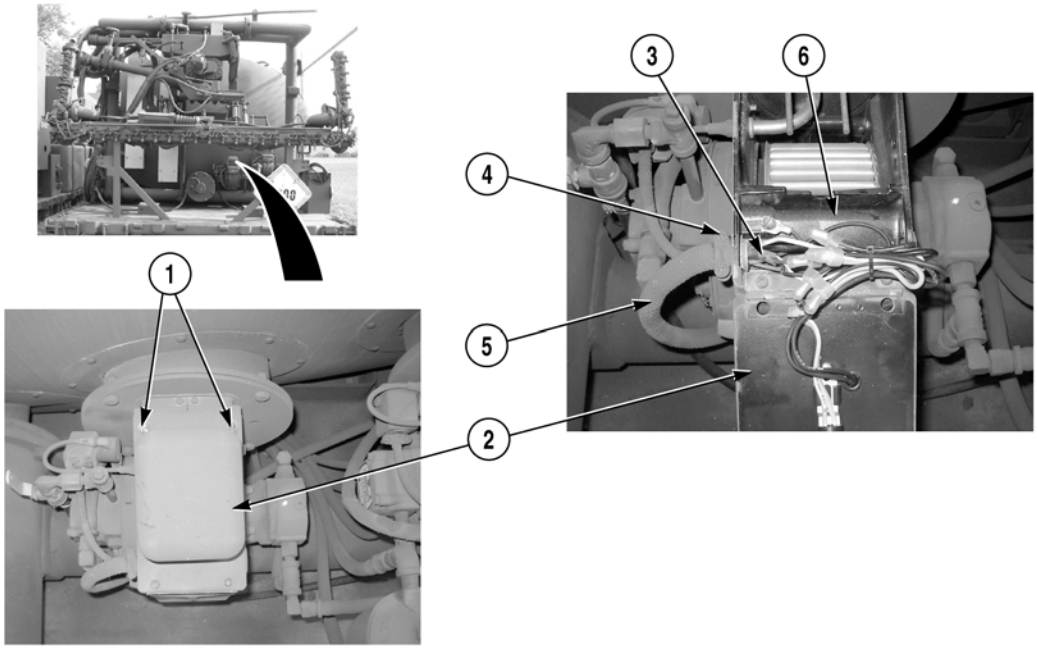
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Cable Ties (Item 1, Appendix E)
Lockwashers (2) (MS 35338-43)
Lockwashers (4) (MS 35338-44)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



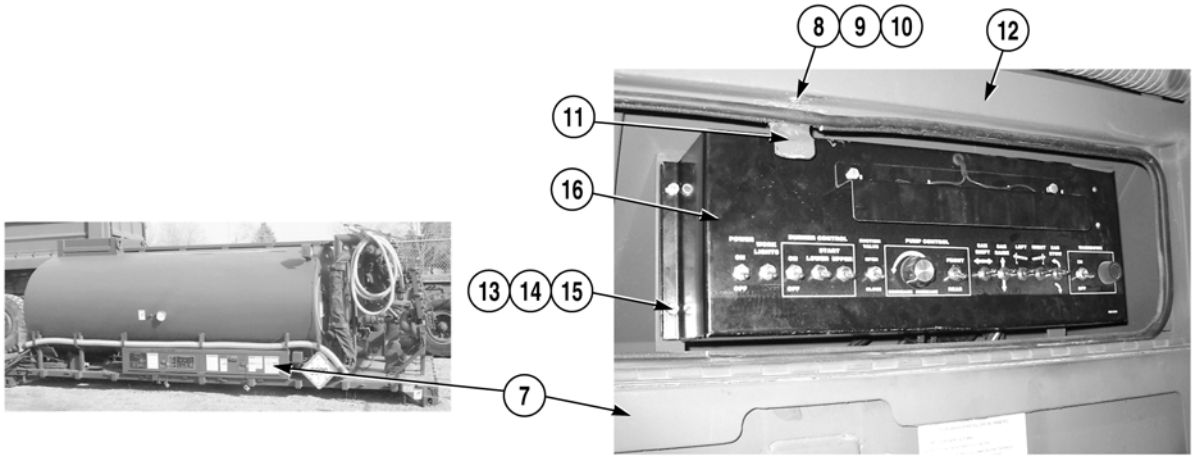
(1) Remove two screws (1) and open cover (2).

NOTE

- Both burner wire harnesses are removed the same way. Lower burner wire harness shown.
- Remove cable ties and hose cover as required.
- Tag and mark wires prior to removal.
- Wires cut in Step (2) should be two black, two white and red wire.
- Wires for upper burner should be two green, one red, black and black/white wire(s).

(2) Cut five wires (3).

(3) Loosen two screws (4) and remove wire harness (5) from burner (6).



(4) Open rear compartment door (7).

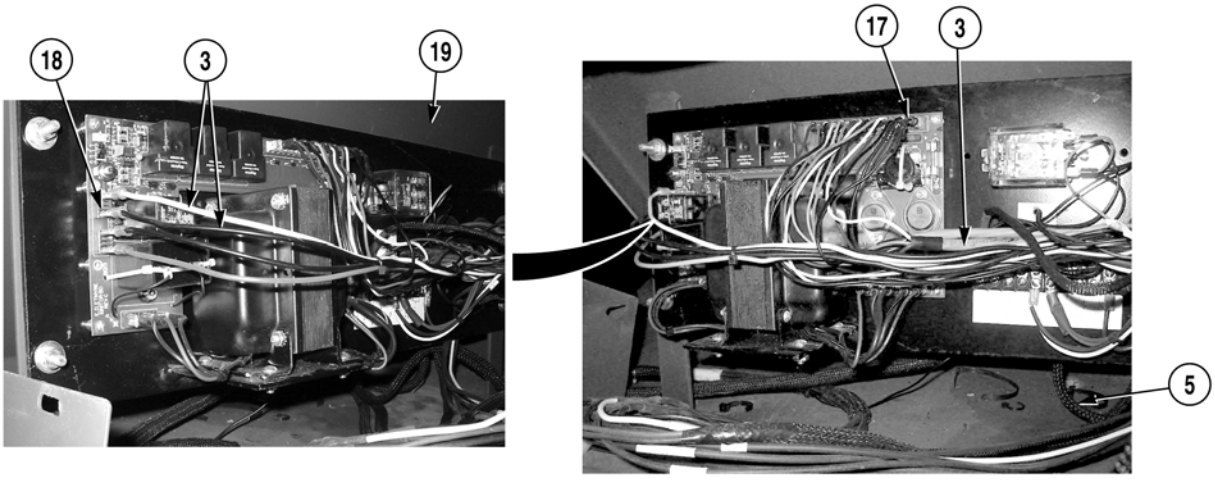
(5) Remove two nuts (8), lockwashers (9), screws (10) and latch (11) from stowage box (12). Discard lockwashers.

(6) Remove four nuts (13) and lockwashers (14) from studs (15) and rear control panel (16). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(7) Carefully pull rear control panel (16) forward and support rear control panel (16).



NOTE

Wires removed in Step (8) should be black, red and white.

(8) Remove three wires (3) from terminal strip (17).

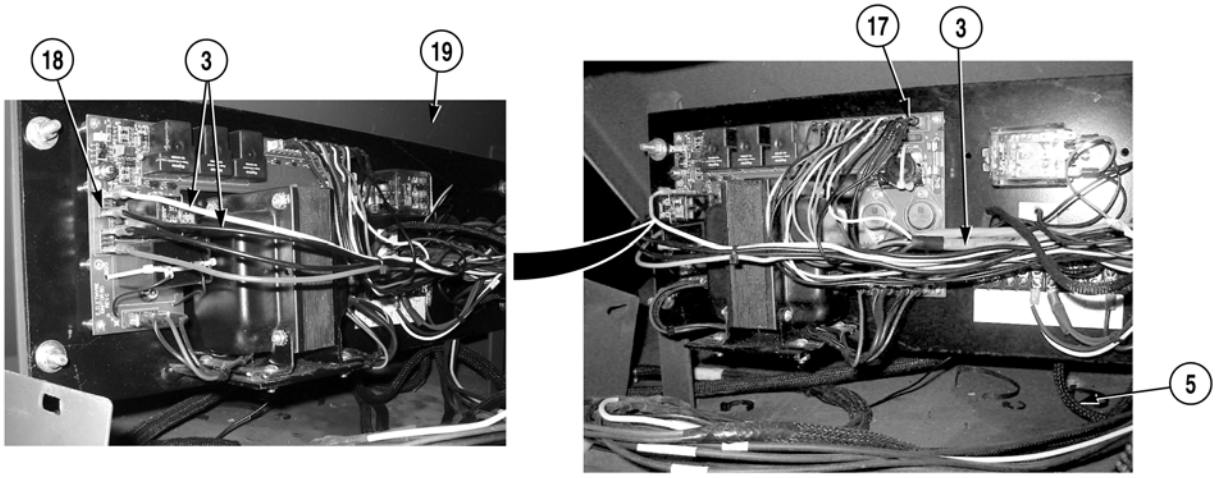
NOTE

Two wires removed in Step (9) should be white and black.

(9) Remove two wires (3) from terminal strip (18) and remove wire harness (5) from Bituminous Distributor (19).

3-54 BURNER WIRE HARNESS REPLACEMENT (CONT).

b. Installation.

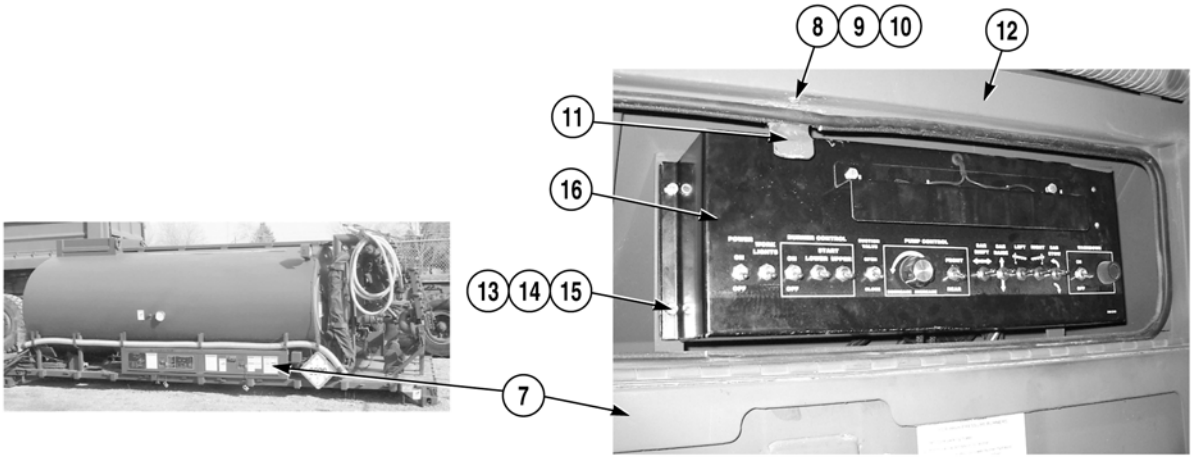


NOTE

- Both burner wire harnesses are installed the same way. Lower burner wire harness shown.
- Install cable ties and hose cover as required.
- Install wires as noted prior to removal.
- Two wires installed in Step (1) should be white and black.

(1) Position wire harness (5) on Bituminous Distributor (19) and install two wires (3) on terminal strip (18).

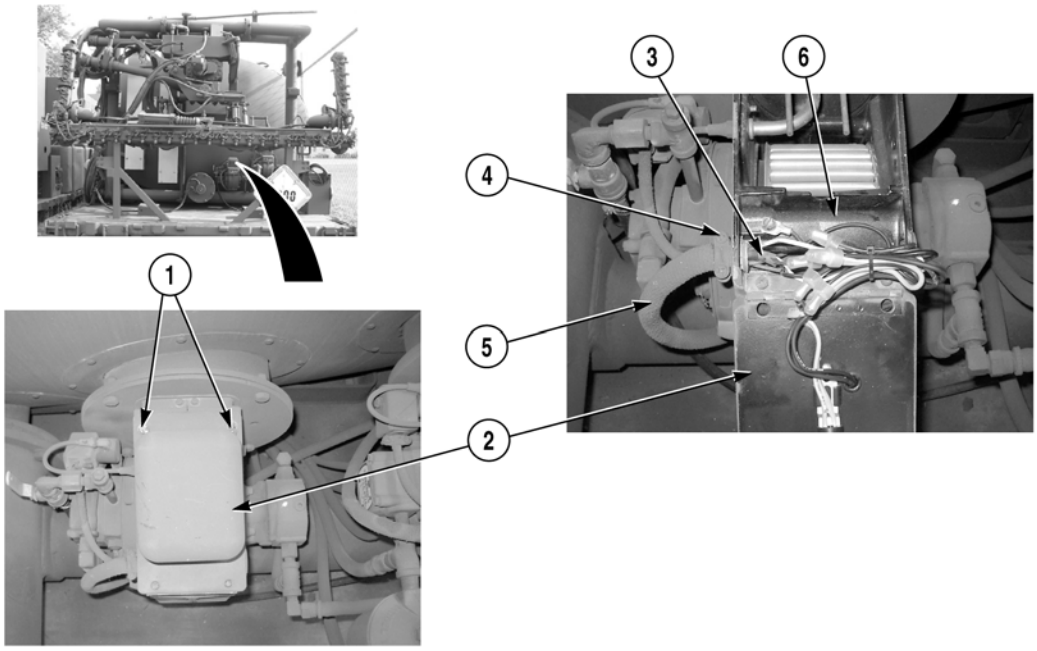
(2) Install three wires (3) on terminal strip (17).



(3) Install rear control panel (16) on four studs (15) with lockwashers (14) and nuts (13).

(4) Install latch (11) on stowage box (12) with two screws (10), lockwashers (9) and nuts (8).

(5) Close compartment door (7).



(6) Position wire harness (5) in burner (6) and tighten two screws (4).

(7) Repair five wires (3), (Para 3-80).

(8) Close cover (2) and tighten two screws (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-55. MERCURY SWITCH WIRE HARNESS REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

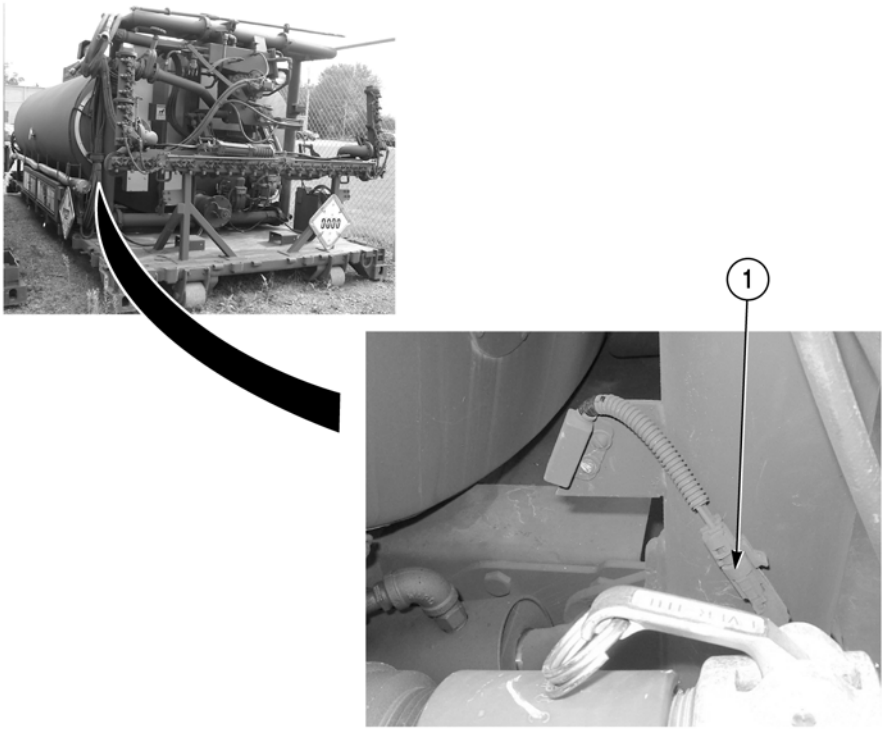
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Cable Ties (Item 1, Appendix E)
Lockwashers (2) (MS 35338-43)
Lockwashers (4) (MS35338-44)

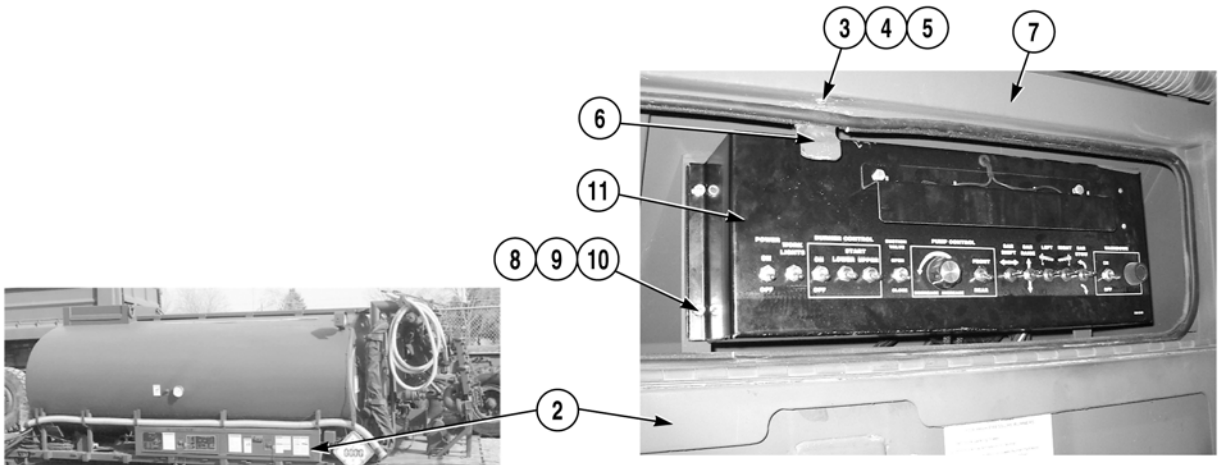
a. Removal.



NOTE

Tag and mark wires and connectors prior to removal.

(1) Disconnect connector (1).



NOTE

Remove cable ties as required.

(2) Open rear compartment door (2).

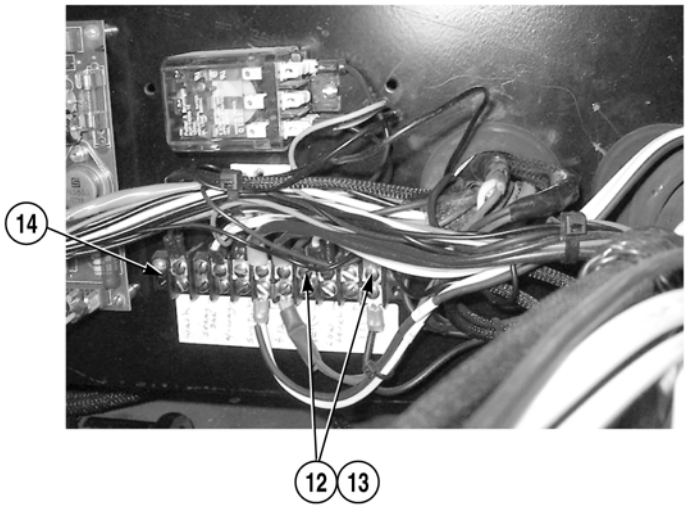
(3) Remove two nuts (3), lockwashers (4), screws (5) and latch (6) from stowage box (7). Discard lockwashers.

(4) Remove four nuts (8) and lockwashers (9) from studs (10) and rear control panel (11). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(5) Carefully pull rear control panel (11) forward and support rear control panel (11).



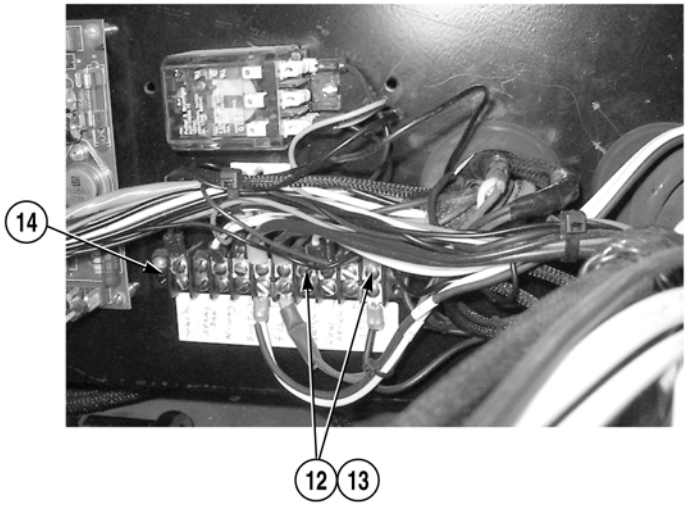
NOTE

Two wires being removed from terminal strip should be red and black.

(6) Loosen two screws (12) and remove two wires (13) from terminal strip (14).

3-55. MERCURY SWITCH WIRE HARNESS REPLACEMENT (CONT).

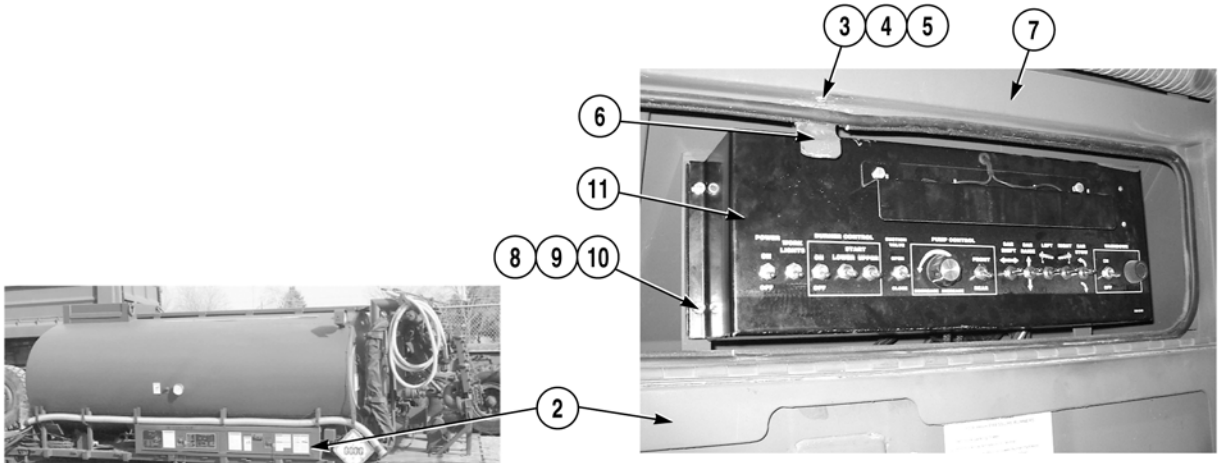
b. Installation.



NOTE

- Install wires and connectors as noted prior to removal.
- Install cable ties as required.
- Two wires being installed on terminal strip should be red and black.

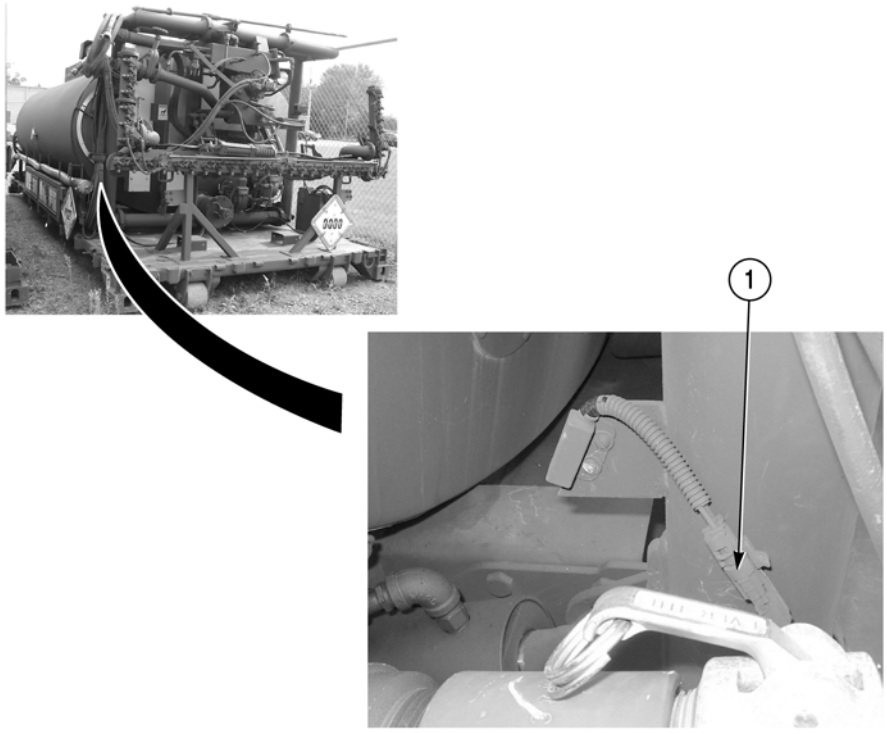
(1) Install two wires (13) on terminal strip (14) and tighten two screws (12).



(2) Install rear control panel (11) on four studs (10) with lockwashers (9) and nuts (8).

(3) Install latch (6) on stowage box (7) with two screws (5), lockwashers (4) and nuts (3).

(4) Close rear compartment door (2).



(5) Connect connector (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-56. FUEL PUMP WIRE HARNESS REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

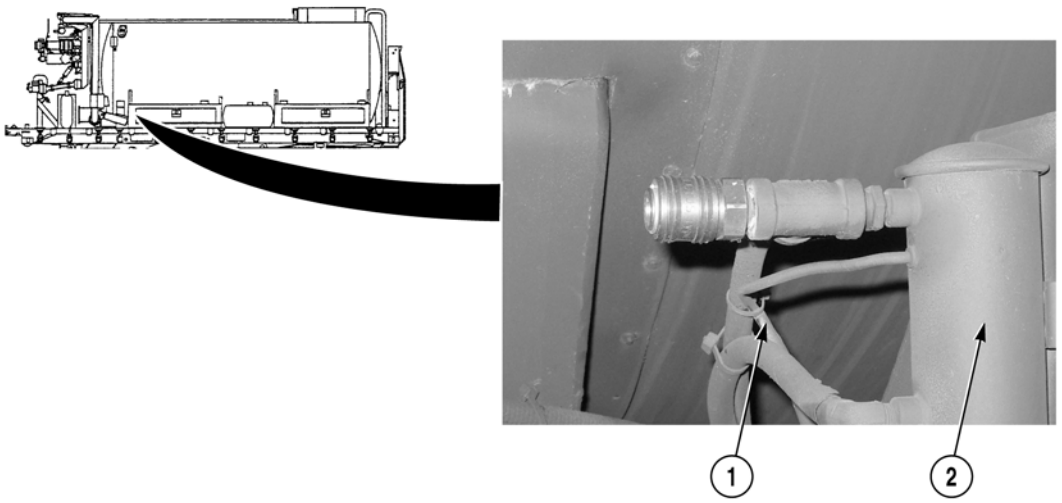
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

Materials/Parts
Cable Ties (Item 1, Appendix E)
Lockwasher (2) (MS 35338-43)
Lockwasher (4) (MS 35338-44)

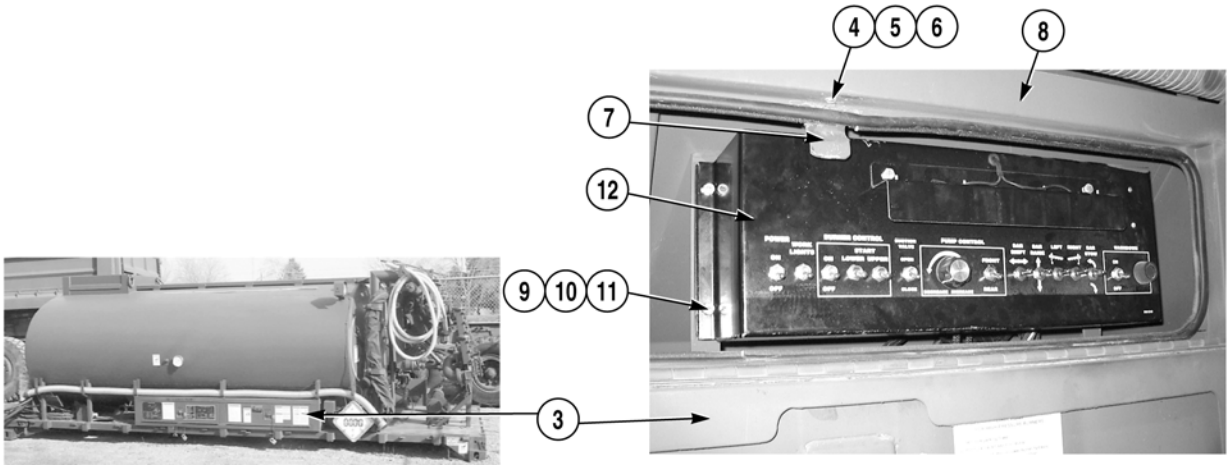
a. Removal.



NOTE

Remove cable ties as required.

(1) Cut wire (1) on fuel pump (2).



(2) Open rear compartment door (3).

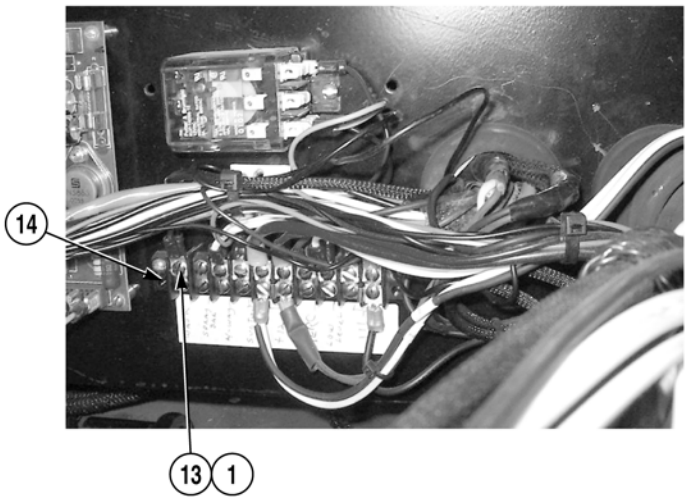
(3) Remove two nuts (4), lockwashers (5), screws (6) and latch (7) from stowage box (8). Discard lockwashers.

(4) Remove four nuts (9) and lockwashers (10) from studs (11) and rear control panel (12). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(5) Carefully pull rear control panel (12) forward and support rear control panel (12).



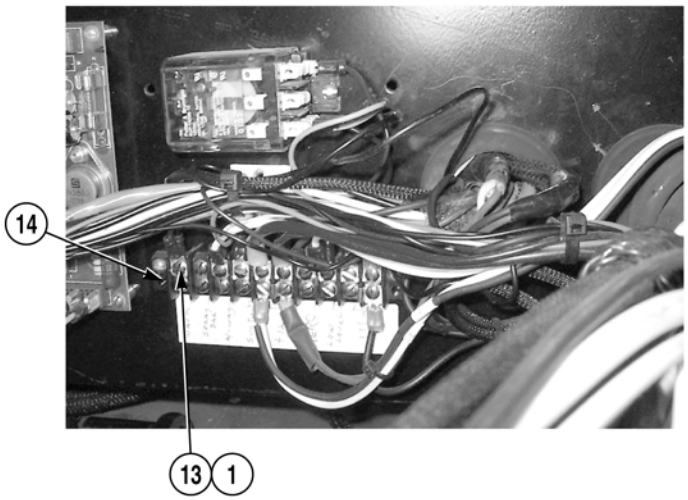
NOTE

Identification below wire being removed is labeled (Wash).

(6) Loosen screw (13) and remove wire (1) from terminal strip (14).

3-56. FUEL PUMP WIRE HARNESS REPLACEMENT (CONT).

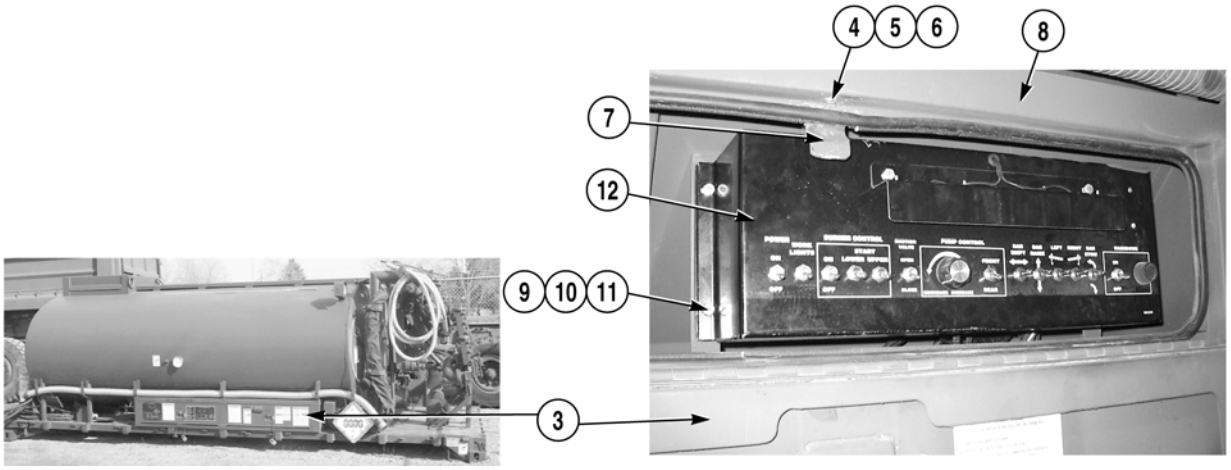
b. Installation.



NOTE

- Identification below wire being installed is labeled (Wash).
- Install cable ties as required.

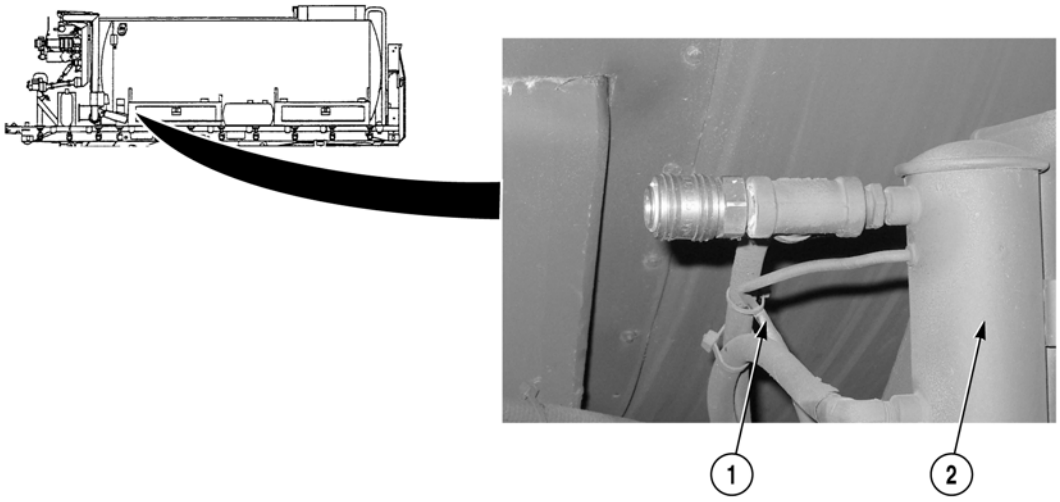
(1) Install wire (1) on terminal strip (14) and tighten screw (13).



(2) Install rear control panel (12) on four studs (11) with lockwashers (10) and nuts (9).

(3) Install latch (7) on stowage box (8) with two screws (6), lockwashers (5) and nuts (4).

(4) Close rear compartment door (3).



(5) Repair and install wire (1) at fuel pump (2), (Para 3-80).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-57. CONTROLLER WIRE HARNESS REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

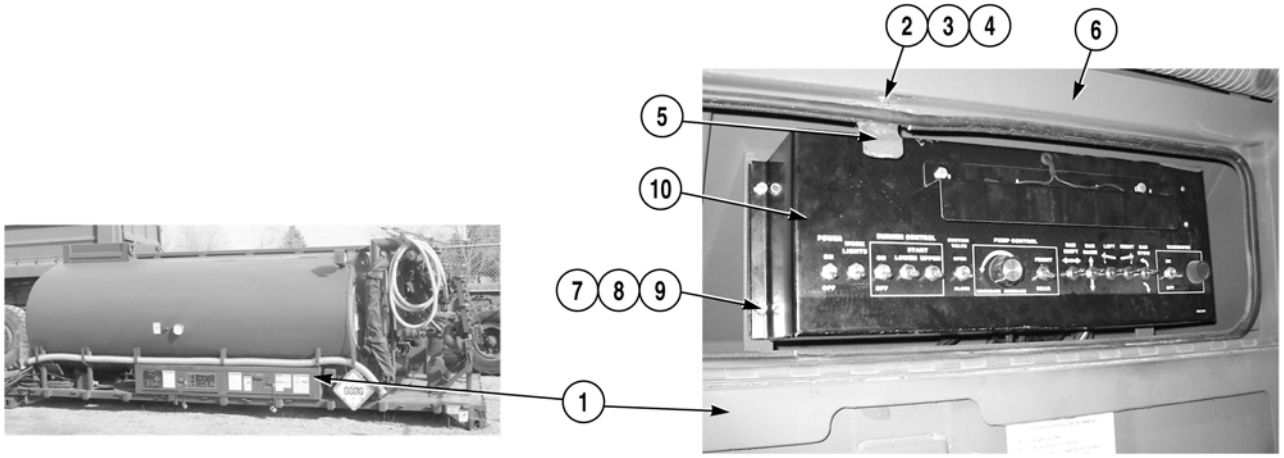
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Equipment Condition
Controller removed, (Para 3-28)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Cable Ties (Item 1, Appendix E)
Lockwasher (2) (MS 35338-43)
Lockwasher (4) (MS 35338-44)

a. Removal.



(1) Open rear compartment door (1).

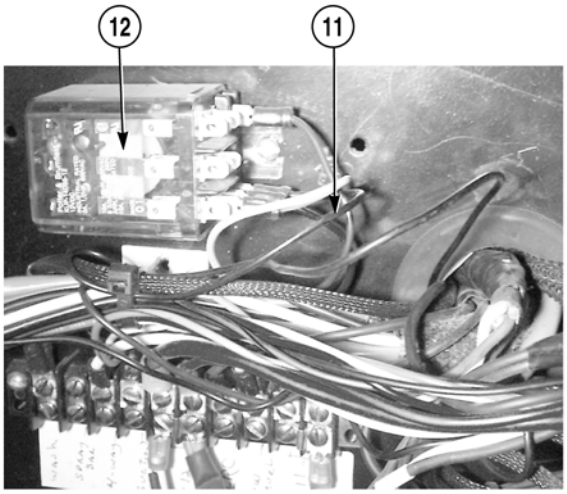
(2) Remove two nuts (2), lockwashers (3), screws (4) and latch (5) from stowage box (6). Discard lockwashers.

(3) Remove four nuts (7) and lockwashers (8) from studs (9) and rear control panel (10). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

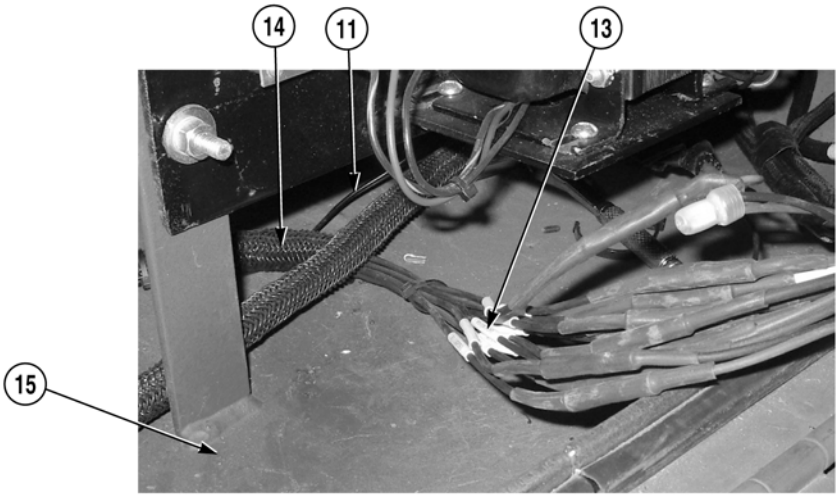
(4) Carefully pull rear control panel (10) forward and support rear control panel (10).



NOTE

- Tag and mark wires prior to removal to ensure proper installation.
- Remove cable ties as required.
- Twelve of thirteen wires will need to be cut. Follow separate black wire from 18-pin connector on controller to relay before cutting twelve wires.
- Wire removed in Step (5) should be black.

(5) Remove wire (11) from relay (12).



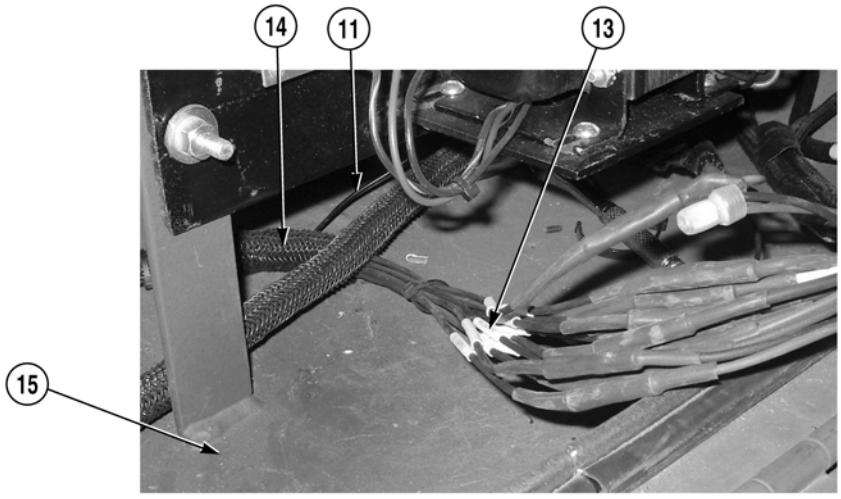
NOTE

Wires cut in Step (6) should be black, and labeled with alphanumeric designations.

(6) Cut twelve wires (13) and remove harness (14) and wire (11) from Bituminous Distributor (15).

3-57. CONTROLLER WIRE HARNESS REPLACEMENT (CONT).

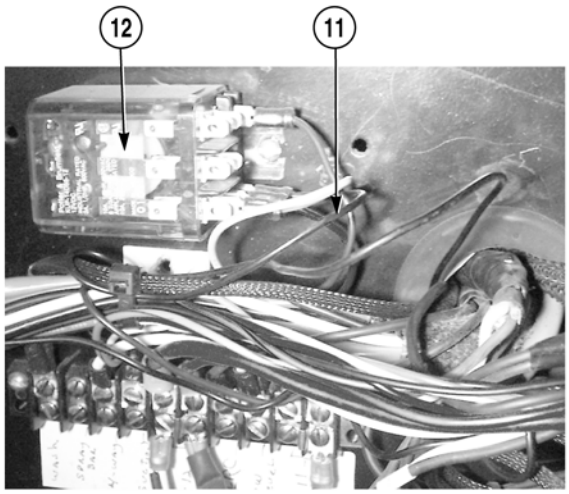
b. Installation.



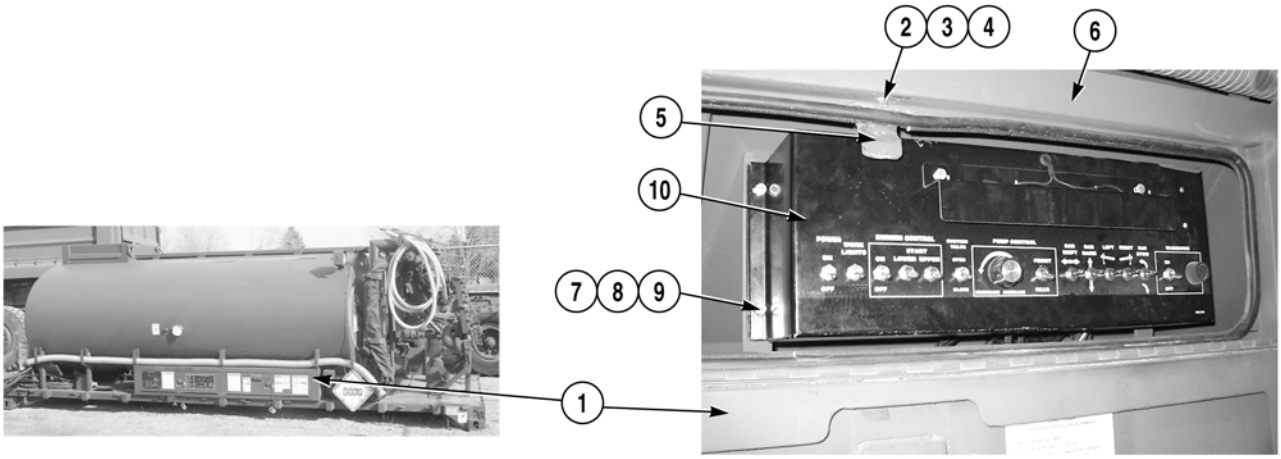
NOTE

- Install wires as noted prior to removal.
- Install cable ties as required.

(1) Position wire harness (14) and wire (11) on Bituminous Distributor (15) and repair twelve wires (13), (Para 3-80).



(2) Install wire (11) on relay (12).



(3) Install rear control panel (10) on four studs (9) with lockwashers (8) and nuts (7).

(4) Install latch (5) on stowage box (6) with two screws (4), lockwashers (3) and nuts (2).

(5) Close rear compartment door (1).

c. Follow-On Maintenance.

- Install controller, (Para 3-28).

END OF TASK

3-58. BURNER AND MAIN MANIFOLD WIRE HARNESS REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

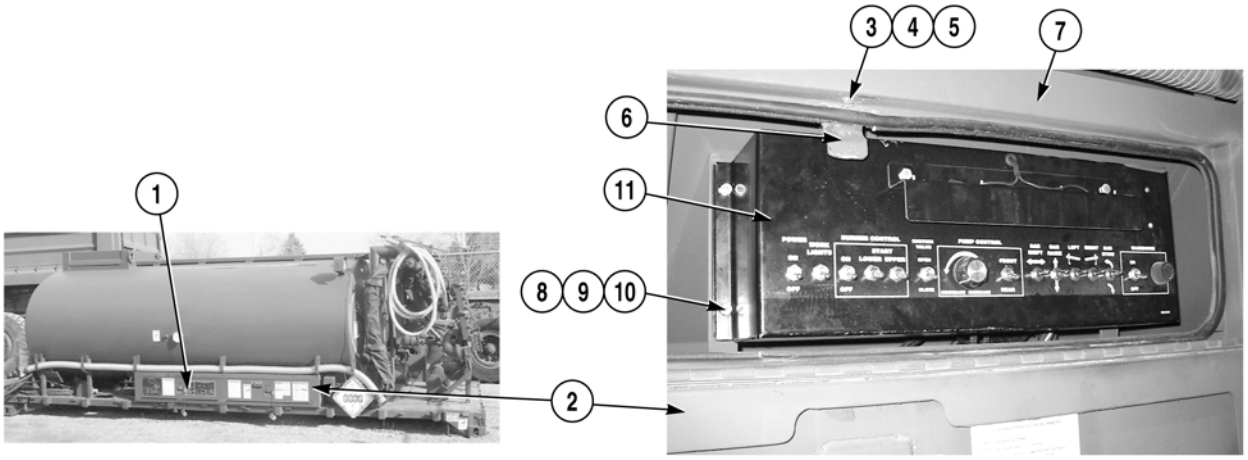
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Cable Ties (Item 1, Appendix E)
Lockwasher (2) (MS 35338-43)
Lockwasher (4) (MS 35338-44)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



(1) Open two rear compartment doors (1) and (2).

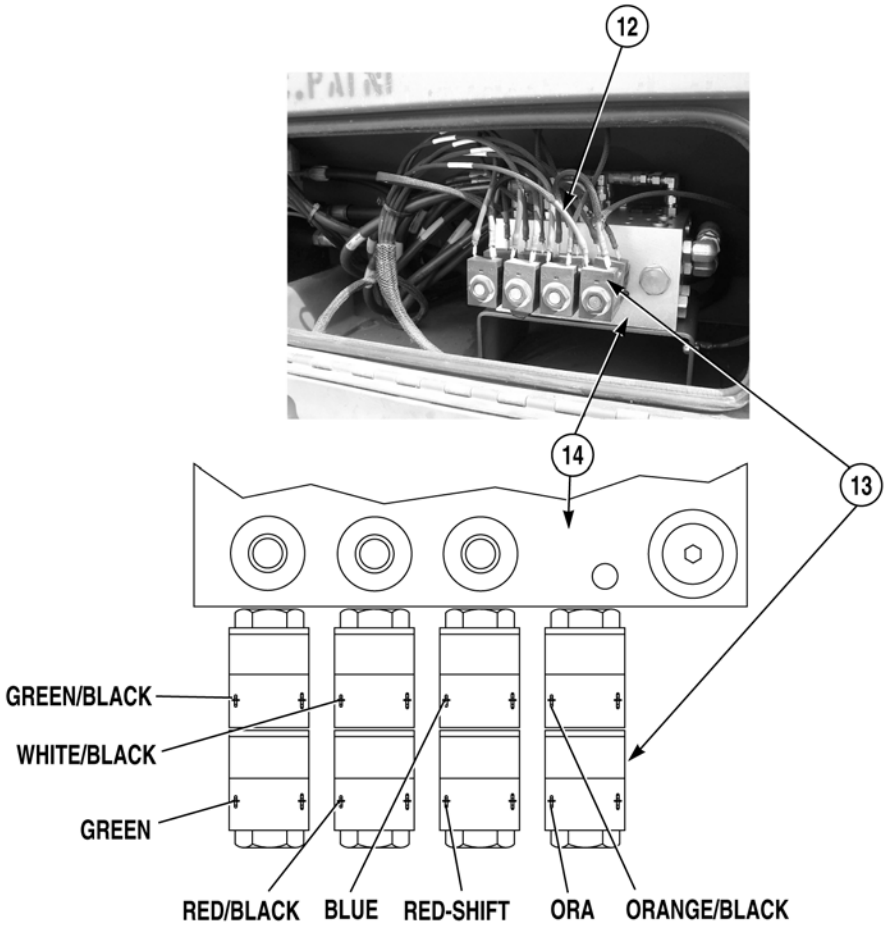
(2) Remove two nuts (3), lockwashers (4), screws (5) and latch (6) from stowage box (7). Discard lockwashers.

(3) Remove four nuts (8) and lockwashers (9) from studs (10) and rear control panel (11). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(4) Carefully pull rear control panel (11) forward and support rear control panel (11).

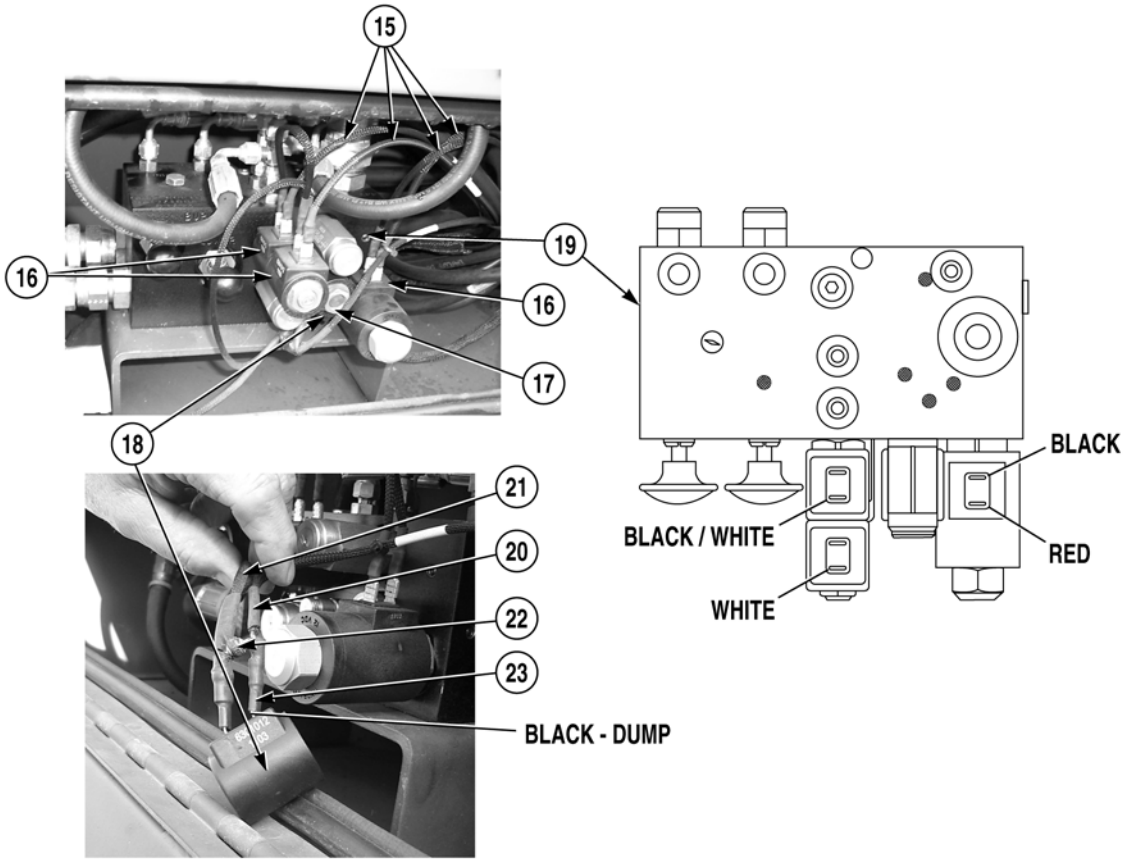


NOTE

- Remove cable ties and hose cover as required.
- Tag and mark wires and connectors prior to removal.
- Eight wires are identified with color coded identification.

(5) Remove eight wires (12) from coils (13) on main manifold (14).

3-58. BURNER AND MAIN MANIFOLD WIRE HARNESS REPLACEMENT (CONT).



NOTE

Four wires are identified with color coded identification.

(6) Remove four wires (15) from three coils (16).

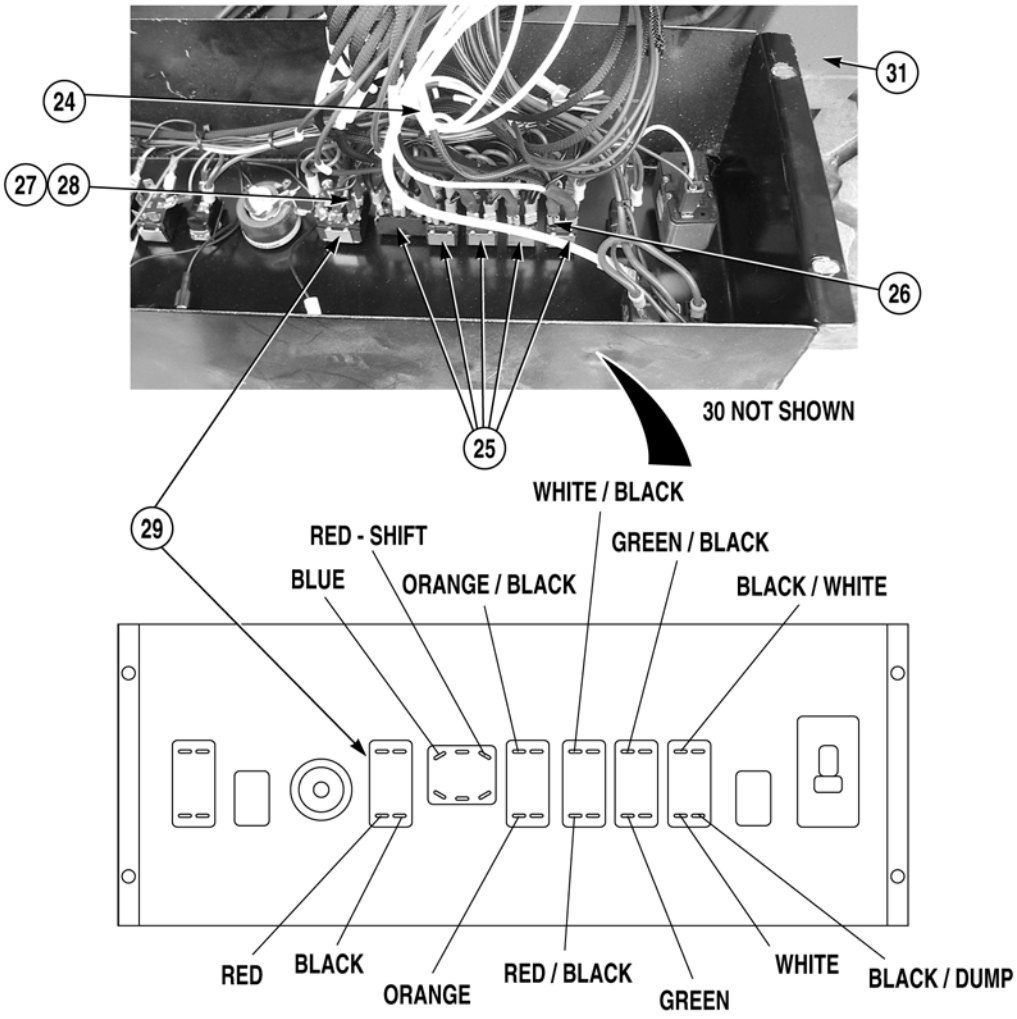
NOTE

Burner and main manifold wire harness is connected to burner manifold solenoid ground wire harness with a diode. Diode must be removed from spade terminal that holds burner and main manifold wire harness wire.

(7) Remove nut (17) and coil (18) from burner manifold (19).

(8) Remove two wires (20) and (21) and diode (22) from coil (18).

(9) Remove wire (20) and diode (22) from spade terminal (23).



NOTE

- Thirteen wires connected to six switches are identified with color coded identification.
- Nine wires connected to five switches are connected to rear control box wire harness with spade terminals and must be cut from spade terminals after removal.

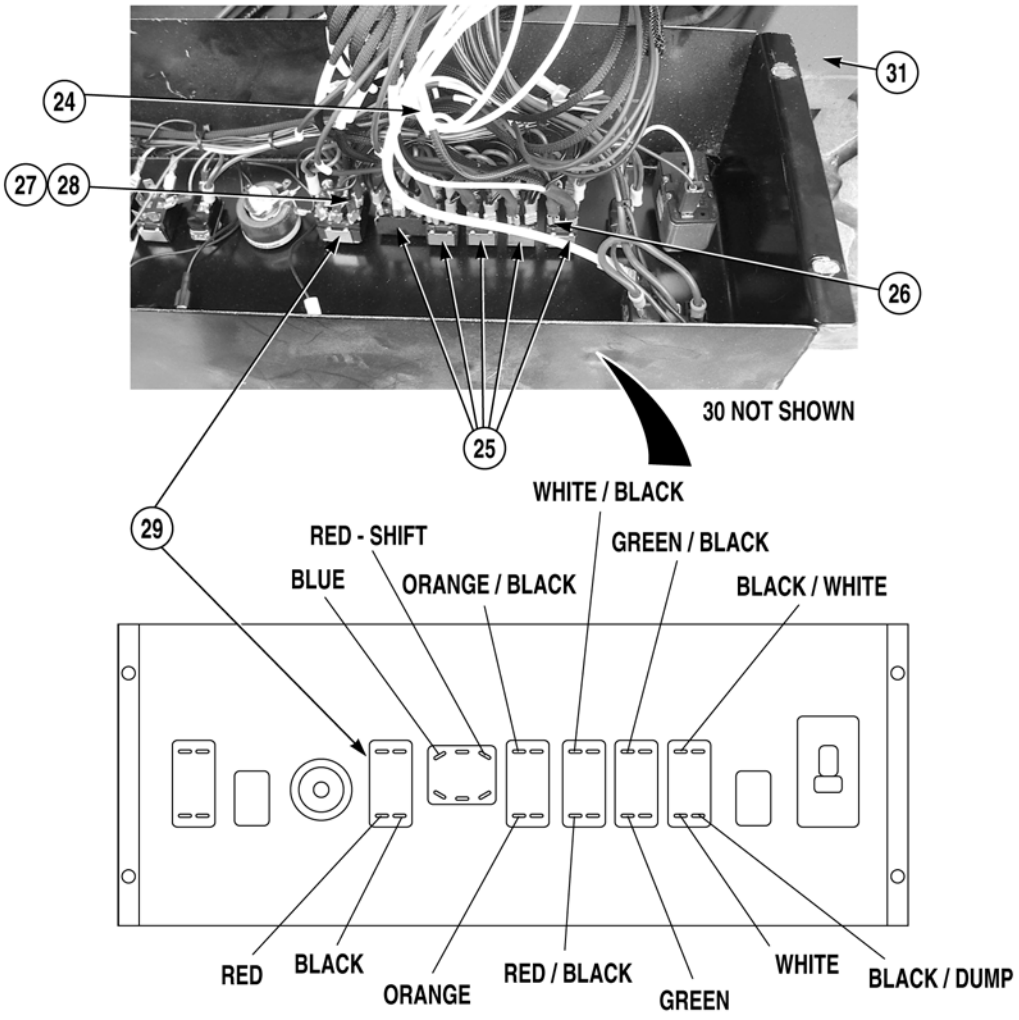
(10) Remove 11 wires (24) from five switches (25).

(11) Cut nine wires (24) from spade terminals (26).

(12) Loosen two screws (27) and remove two wires (28) from switch (29), and remove wire harness (30) from Bituminous Distributor (31).

3-58. BURNER AND MAIN MANIFOLD WIRE HARNESS REPLACEMENT (CONT).

b. Installation.



NOTE

- Install wires as noted prior to removal.
- Install cable ties and hose cover as required.

(1) Position wire harness (30) on Biduminous Distributor (31).

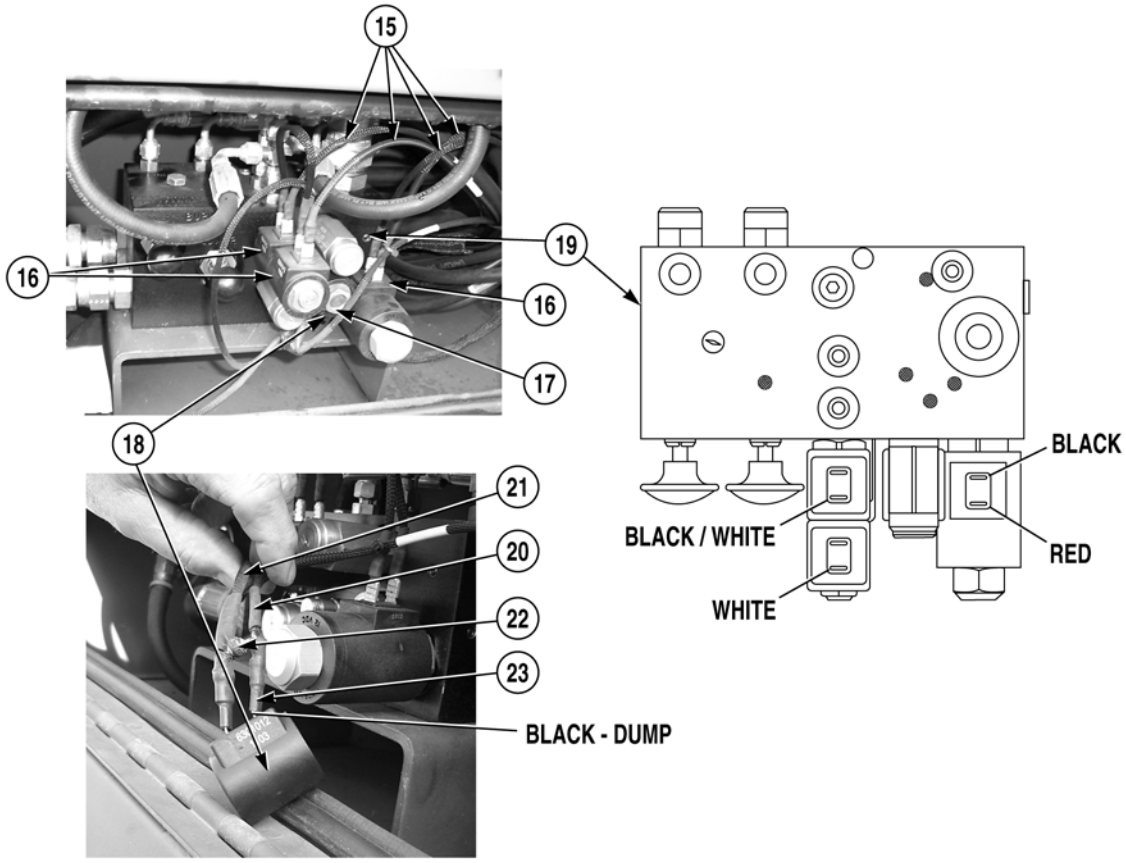
(2) Install two wires (28) on switch (29) and tighten two screws (27).

NOTE

Nine wires connected to five switches are connected to rear control box wire harness and must be connected to spade terminals before installing on switches.

(3) Repair nine wires (24) and connect on spade terminals (26), (Para 3-80).

(4) Install 11 wires (24) on five switches (25).



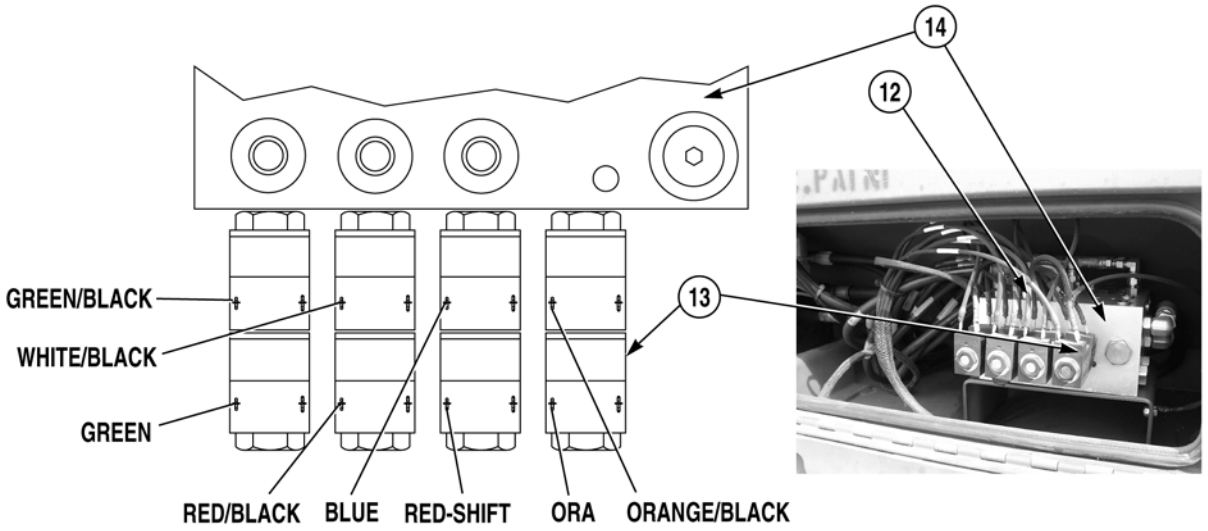
(5) Repair wire (20) and install diode (22) on spade terminal (23), (Para 3-80).

(6) Install two wires (20) and (21) and diode (22) on coil (18).

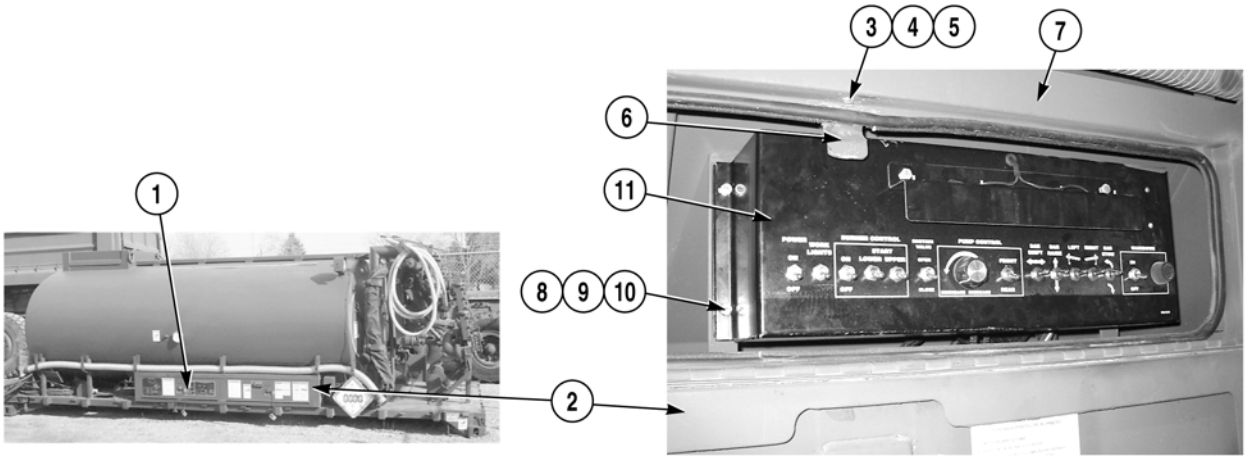
(7) Install coil (18) on burner manifold (19) with nut (17).

(8) Install four wires (15) on three coils (16).

3-58. BURNER AND MAIN MANIFOLD WIRE HARNESS REPLACEMENT (CONT).



(9) Install eight wires (12) on coils (13) on main manifold (14).



(10) Install rear control panel (11) on four studs (10) with lockwashers (9) and nuts (8).

(11) Install latch (6) on stowage box (7) with two screws (5), lockwashers (4) and nuts (3).

(12) Close two rear compartment doors (1 and 2).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-59. BURNER MANIFOLD SOLENOID GROUND WIRE HARNESS REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

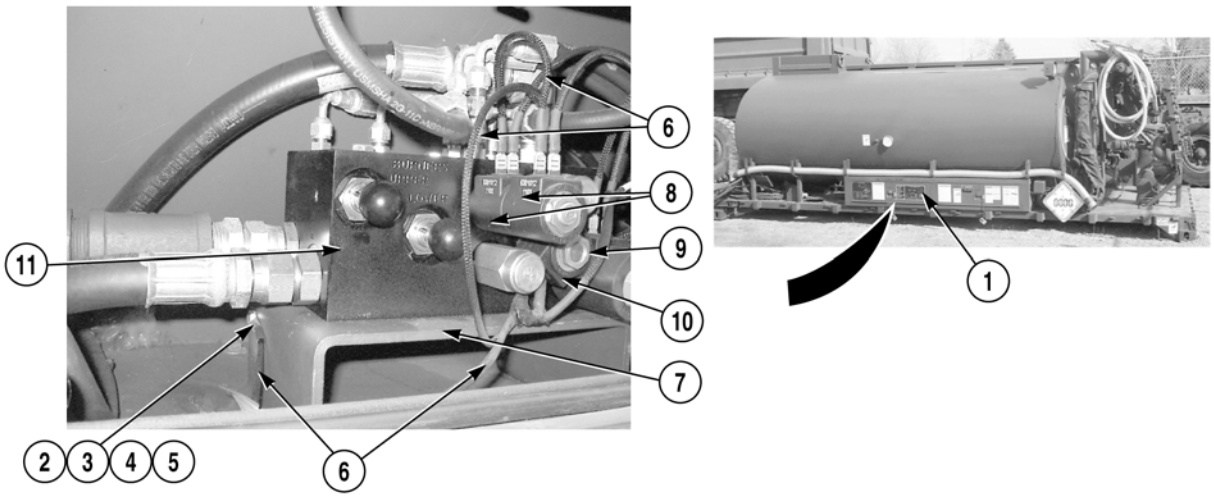
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Lockwasher (21NE-040)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



(1) Open front compartment door (1).

NOTE

Tag and mark wires and connectors prior to removal.

(2) Remove nut (2), lockwasher (3), washer (4), screw (5) and wire harness (6) from bracket (7). Discard lockwasher.

(3) Remove wire harness (6) from two coils (8).

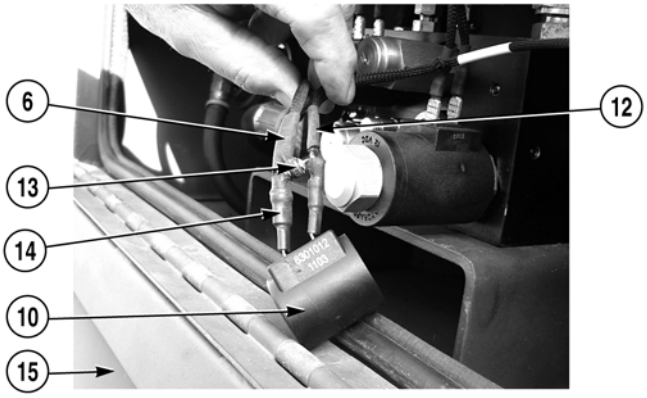
NOTE

Burner and main manifold wire harness is connected to burner manifold solenoid ground wire harness with a diode. Diode must be removed from spade terminal that holds burner manifold solenoid ground wire harness wire.

(4) Remove nut (9) and coil (10) from burner manifold (11).

3-59. BURNER MANIFOLD SOLENOID GROUND WIRE HARNESS REPLACEMENT (CONT).

(5) Remove wire harness (6), wire (12) and diode (13) from coil (10).
(6) Remove wire harness (6) and diode (13) from spade terminal (14).
(7) Remove wire harness (6) from Bituminous Distributor (15).



b. Installation.

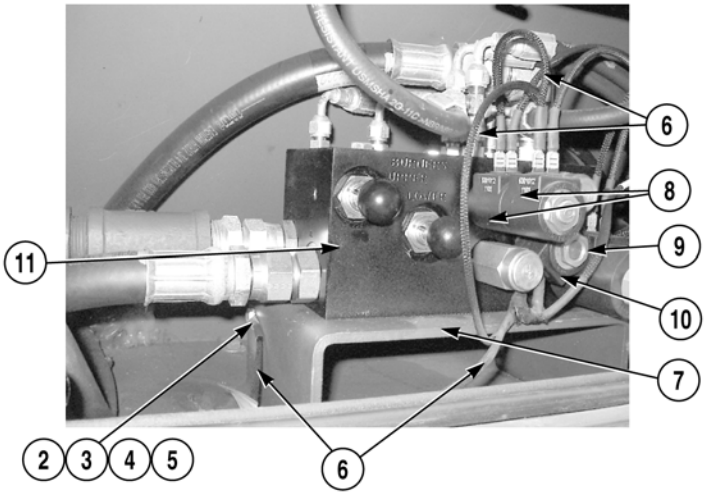
NOTE

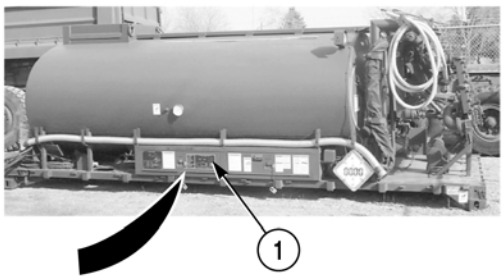
Install wires and connectors as noted prior to removal.

(1) Position wire harness (6) on Bituminous Distributor (15).

(2) Repair wire harness (6) and install diode (13) on spade terminal (14), (Para 3-80).

(3) Install wire harness (6), wire (12) and diode (13) on coil (10).





(4) Install coil (10) on burner manifold (11) with nut (9).

(5) Install wire harness (6) on two coils (8).

(6) Install wire harness (6) on bracket (7) with screw (5), washer (4), lockwasher (3) and nut (2).

(7) Close front compartment door (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-60. FRONT CONTROL PANEL WIRE HARNESS REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

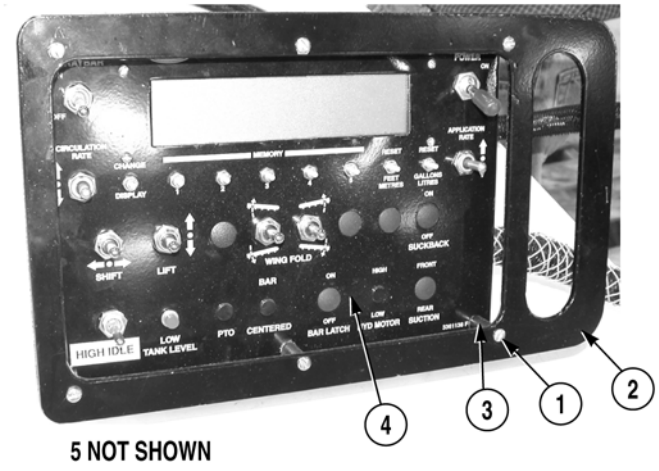
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Equipment Condition
Front control panel wire harness disconnected, (Para 3-60)

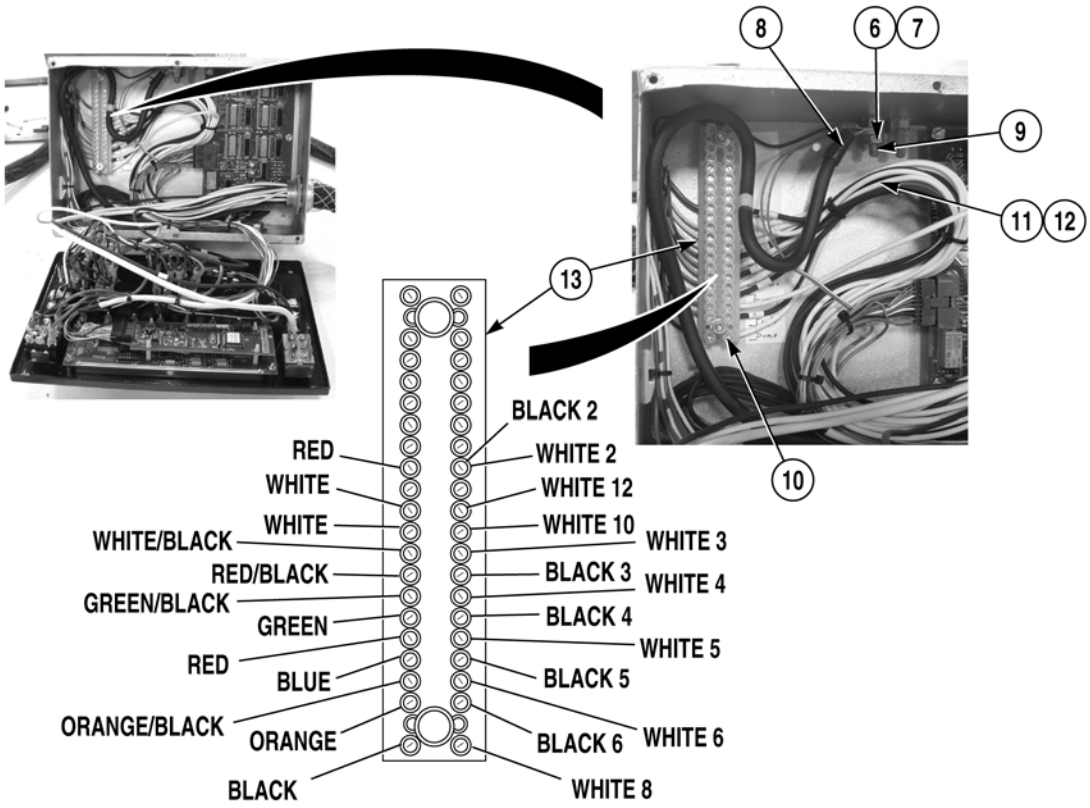
Materials/Parts
Tags, Identification (Item 9, Appendix E)
Cable Ties (Item 1, Appendix E)
Lockwasher (21NE-040)

a. Removal.



(1) Remove six screws (1), guard (2), six spacers (3) and control box panel (4) from control box (5).

3-60. FRONT CONTROL PANEL WIRE HARNESS REPLACEMENT (CONT).

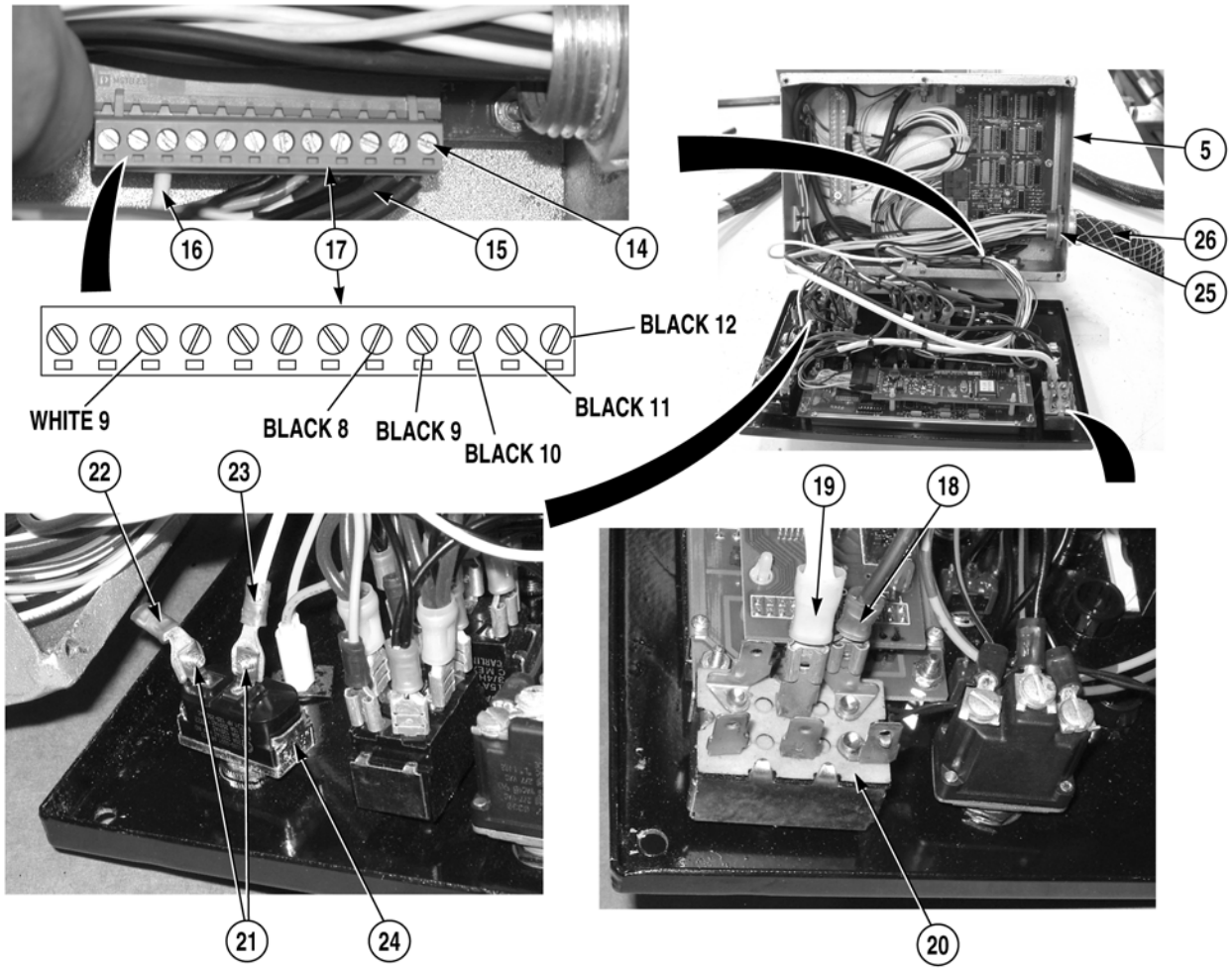


NOTE

- Tag and mark wires prior to removal.
- Remove cable ties as required.
- Front control panel wire harness consists of 24 black and white wires identified with numbered identification tags.
- Ground wire is labeled number 7.
- Wires on left side of terminal strip are not removed.

(2) Remove nut (6), lockwasher (7) and ground wire (8) from stud (9). Discard lockwasher.

(3) Loosen 12 screws (10) and remove five black wires (11) and eight white wires (12) from terminal strip (13).



(4) Loosen six screws (14) and remove five black wires (15) and one white wire (16) from connector (17).

NOTE

Black and white wires are labeled number 1.

(5) Remove black wire (18) and white wire (19) from switch (20).

NOTE

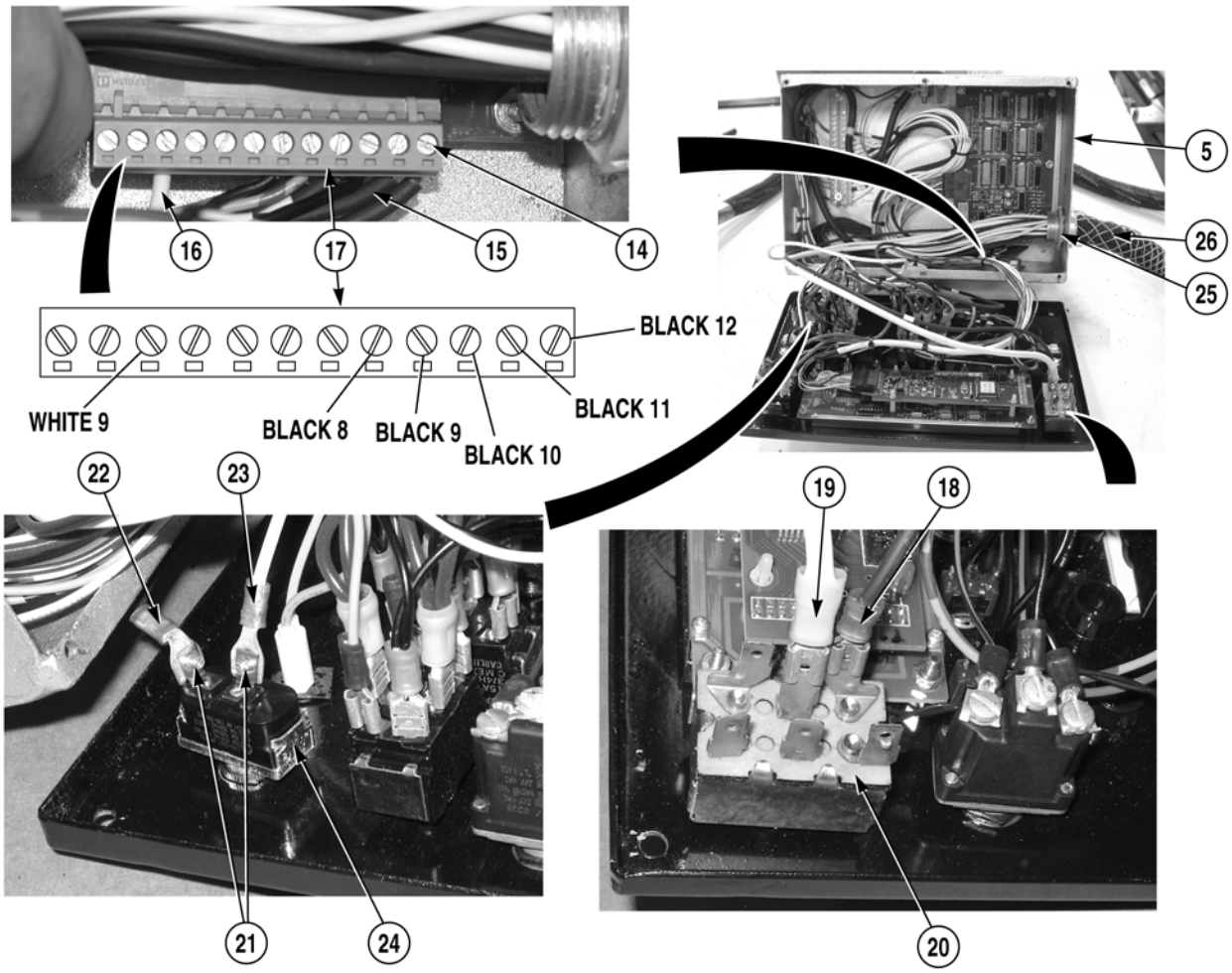
Black and white wires are labeled number 20.

(6) Loosen two screws (21) and remove black wire (22) and white wire (23) from switch (24).

(7) Remove nut (25) and wire harness (26) from control box (5).

3-60. FRONT CONTROL PANEL WIRE HARNESS REPLACEMENT (CONT).

b. Installation.



NOTE

- Install wires as noted prior to removal.
- Install cable ties as required.

(1) Install wire harness (26) on control box (5) with nut (25).

NOTE

Black and white wires are labeled number 20.

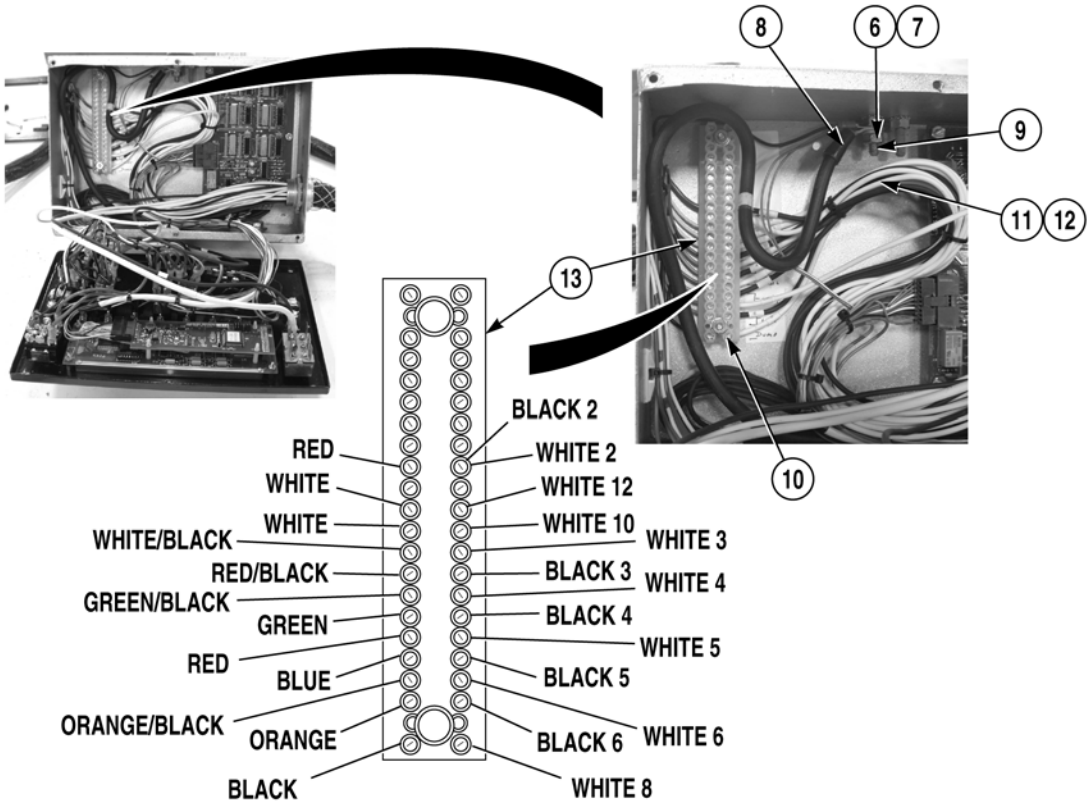
(2) Install black wire (22) and white wire (23) on switch (24) with two screws (21).

NOTE

Black and white wires are labeled number 1.

(3) Install black wire (18) and white wire (19) on switch (20).

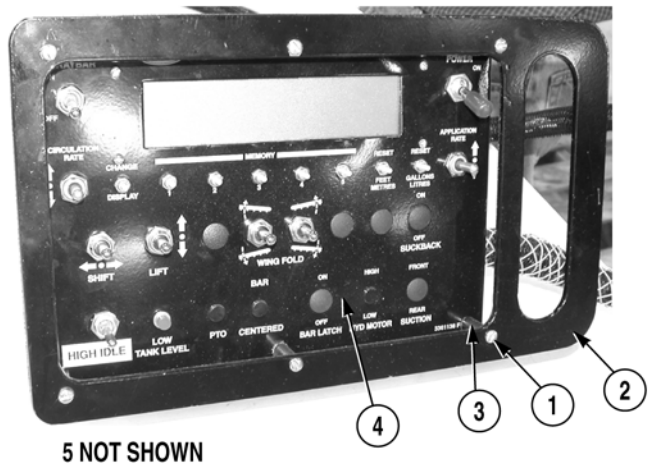
(4) Install five black wires (15) and one white wire (16) on connector (17) and tighten six screws (14).



(5) Install five black wires (11) and eight white wires (12) on terminal strip (13) and tighten 12 screws (10).

(6) Install ground wire (8) on stud (9) with lockwasher (7) and nut (6).

3-60. FRONT CONTROL PANEL WIRE HARNESS REPLACEMENT (CONT).



5 NOT SHOWN

CAUTION

During front control panel wire harness replacement, the HIGH IDLE switch may have been switched to the ON position. HIGH IDLE switch must be in the OFF position. Failure to comply may result in damage to equipment.

(7) Install guard (2) and control box panel (4) on control box (5) with six spacers (3) and screws (1).

c. Follow-On Maintenance.

- Connect front control panel wire harness, (Para 3-60).

END OF TASK

3-61. RADAR GROUND SPEED SENSOR WIRE HARNESS REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

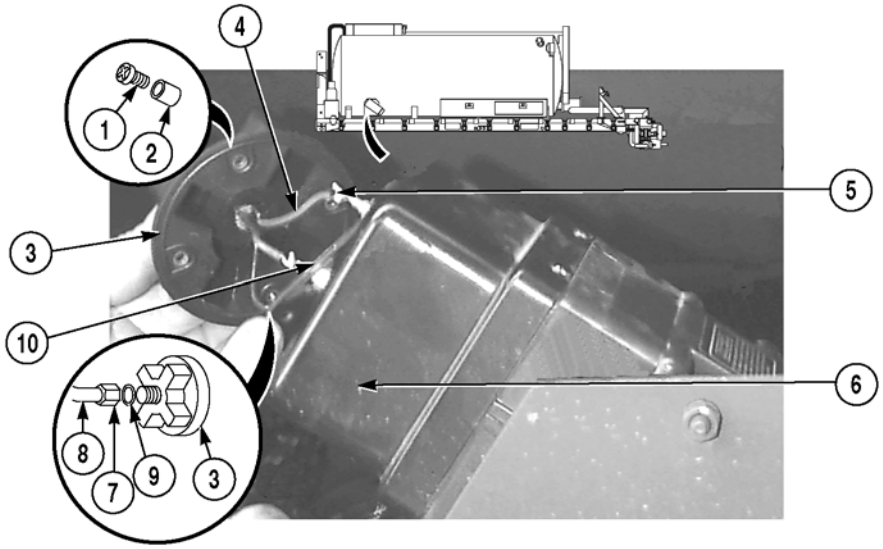
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Cable Ties (Item 1, Appendix E)
Preformed Packing Assortment (Item 11, Appendix E)
Lockwashers (2) (MS 35338-43)
Lockwashers (4) (MS 35338-44)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



NOTE

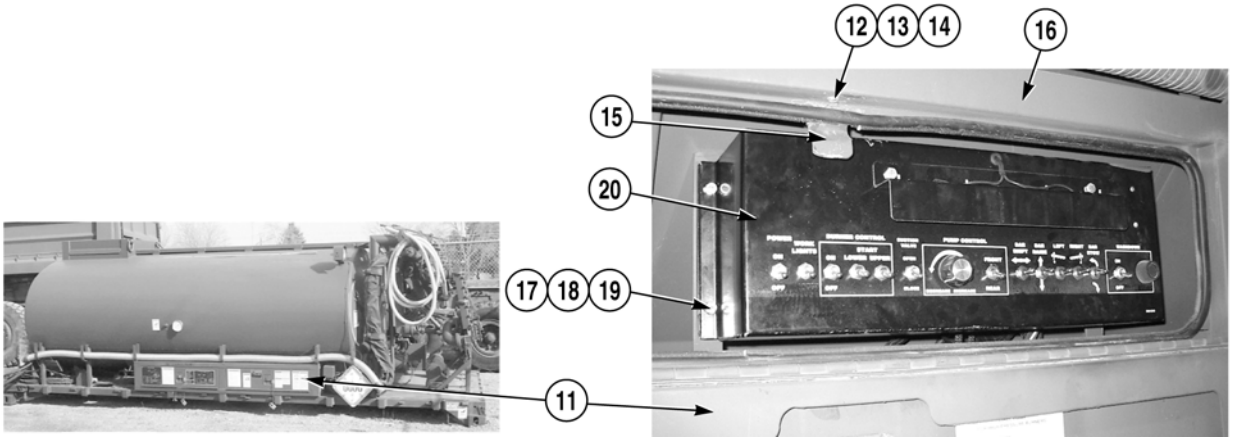
Tag and mark all wires prior to removal.

(1) Remove four screws (1) and sealing washers (2) from cover (3).

(2) Gently pull back cover (3) and unsolder three wires (4) from terminals (5) on radar ground speed sensor (6).

(3) Loosen nut (7) and remove wire harness (8), preformed packing (9), nut (7) and gasket (10) from cover (3). Discard preformed packing.

3-61. RADAR GROUND SPEED SENSOR WIRE HARNESS REPLACEMENT (CONT).



(4) Open rear compartment door (11).

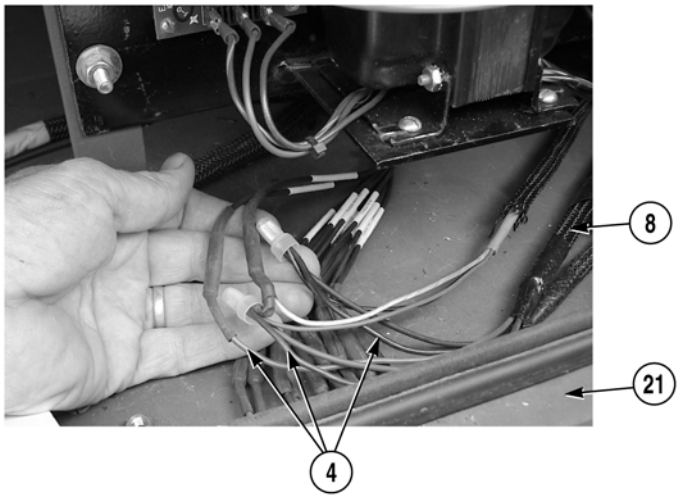
(5) Remove two nuts (12), lockwashers (13), screws (14) and latch (15) from stowage box (16). Discard lockwashers.

(6) Remove four nuts (17) and lockwashers (18) from studs (19) and rear control panel (20). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(7) Carefully pull rear control panel (20) forward and support rear control panel (20).

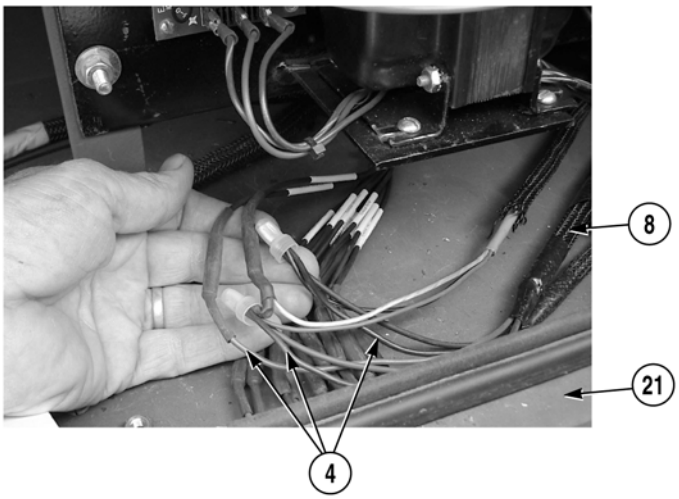


NOTE

- Remove cable ties and hose covering as required.
- Wires cut in Step (8) should be green, red and black.

(8) Cut three wires (4) and remove wire harness (8) from Bituminous Distributor (21).

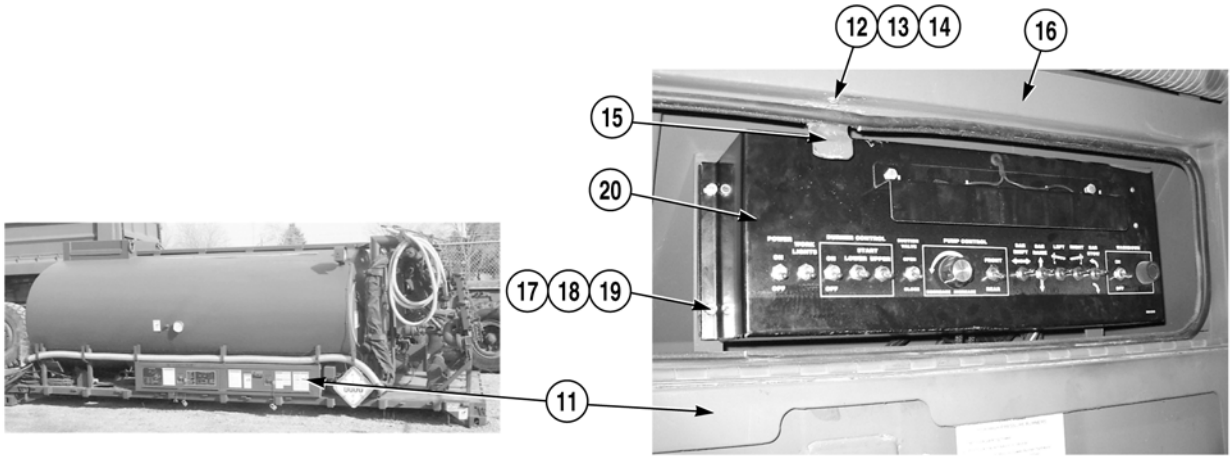
b. Installation.



NOTE

Install cable ties and hose cover as required.

(1) Position wire harness (8) on Bituminous Distributor (21) and repair three wires (4), (Para 3-80).

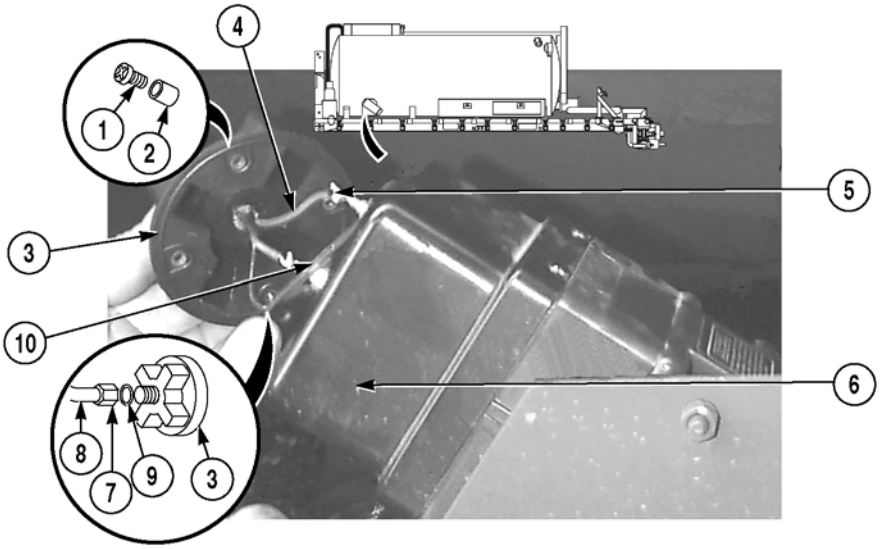


(2) Install rear control panel (20) on four studs (19) with lockwashers (18) and nuts (17).

(3) Install latch (15) on stowage box (16) with two screws (14), lockwashers (13) and nuts (12).

(4) Close rear compartment door (11).

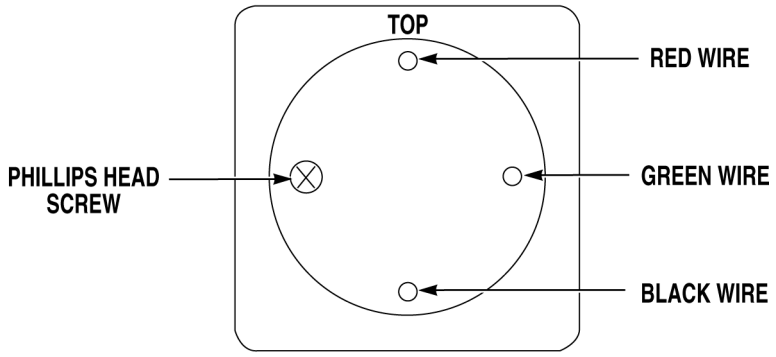
3-61. RADAR GROUND SPEED SENSOR WIRE HARNESS REPLACEMENT (CONT).



NOTE

Install wires as noted prior to removal.

(5) Position wire harness (8) through gasket (10), nut (7), preformed packing (9) and cover (3). Tighten nut (7) on cover (3).



(6) Position cover (3) near radar ground speed sensor (6) and solder three wires (4) on terminals (5).

(7) Install cover (3) on radar ground speed sensor (6) with four sealing washers (2) and screws (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-62. REAR CONTROL PANEL WIRE HARNESS REPLACEMENT.

This task covers:

a. Removal b. Installation

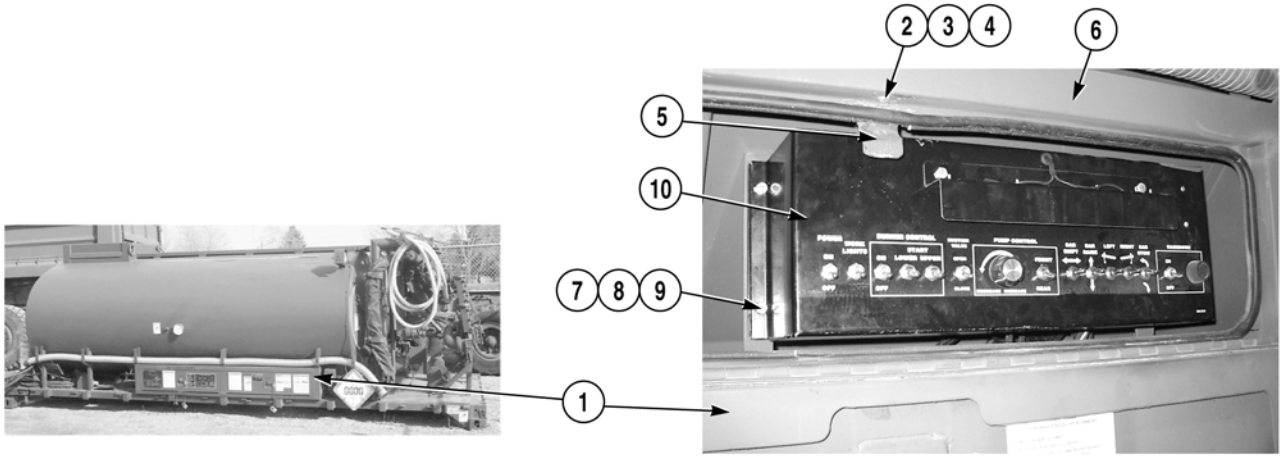
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Cable Ties (Item 1, Appendix E)
Lockwashers (2) (MS 35338-43)
Lockwashers (4) (MS 35338-44)

Equipment Condition
Bituminous Distributor unloaded from PLS, (Para 2-5)

a. Removal.



NOTE

- Remove cable ties and hose cover as required.
- Tag and mark wires and connectors prior to removal.

(1) Open rear compartment door (1).

(2) Remove two nuts (2), lockwashers (3), screws (4) and latch (5) from stowage box (6). Discard lockwashers.

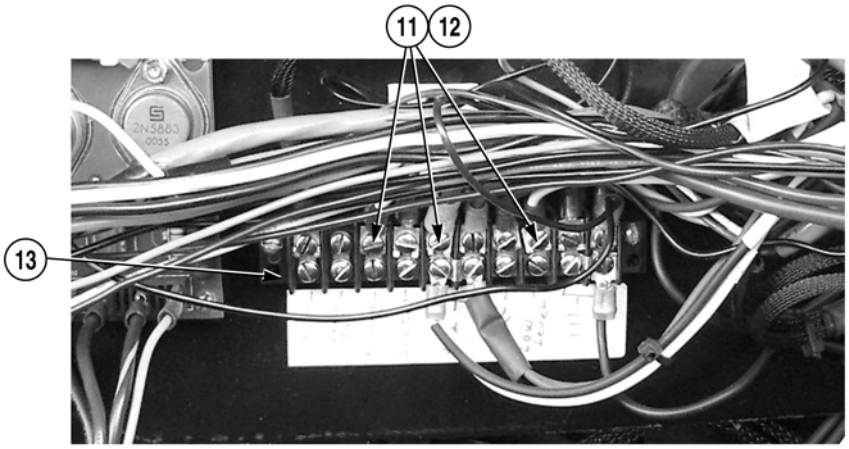
(3) Remove four nuts (7) and lockwashers (8) from studs (9) and rear control panel (10). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(4) Carefully pull rear control panel (10) forward and support rear control panel (10).

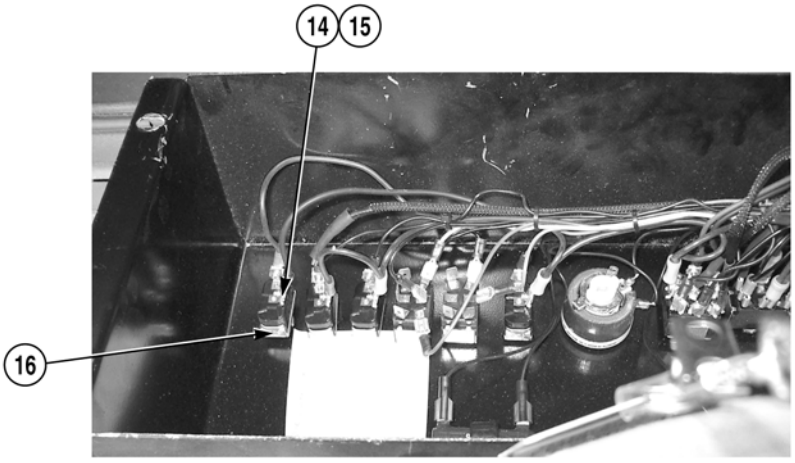
3-62. REAR CONTROL PANEL WIRE HARNESS REPLACEMENT (CONT).



NOTE

- Rear control box wire harness consists of 22 black and white wires identified with numbered identification tags. Harness runs from UPIK connection to rear control panel terminal strip, rear panel switches and circuit breaker, and controller wire harness.
- Tag below terminal strip identifies connection points. Connection points may be labeled differently from one Bituminous Distributor to another.
- Step (5) removes No. 10 white wire from four-way, No. 2 white and No. 2 black wires from +12, and No. 12 white wire from low level.

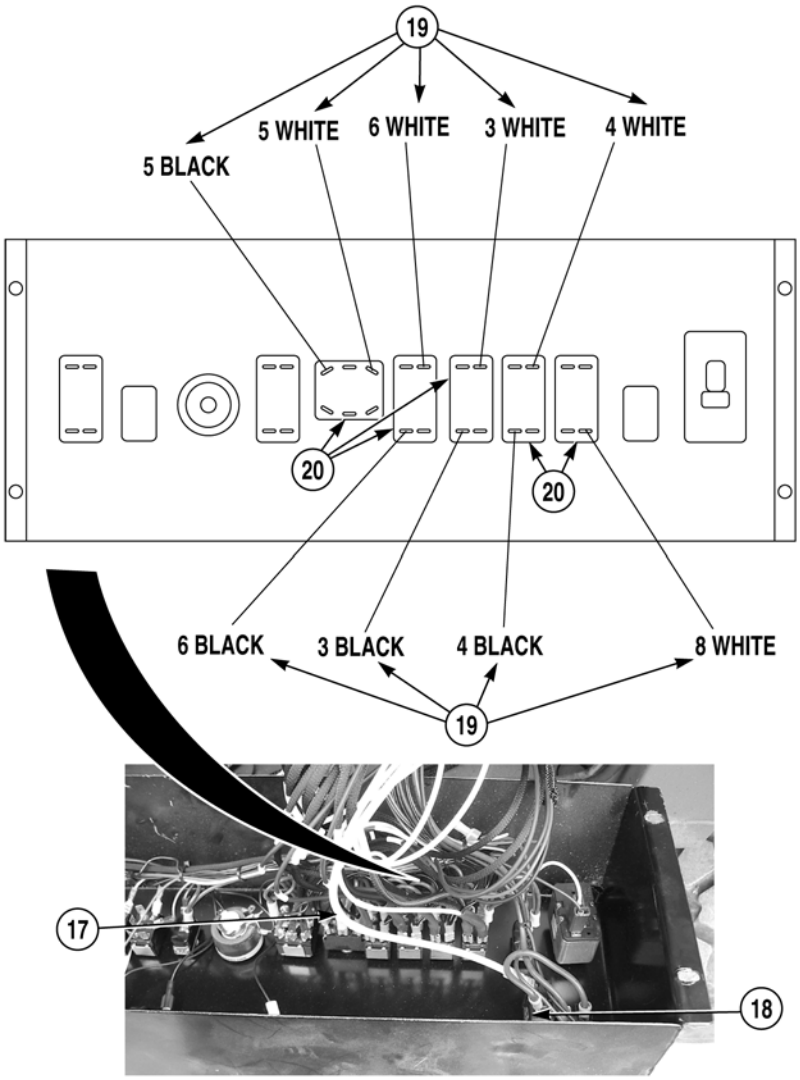
(5) Loosen three screws (11) and remove four wires (12) from terminal strip (13).



NOTE

Step (6) removes No. 1 black wire from switch.

(6) Loosen screw (14) and remove wire (15) from switch (16).



NOTE

Step (7) removes No. 1 white wire from circuit breaker.

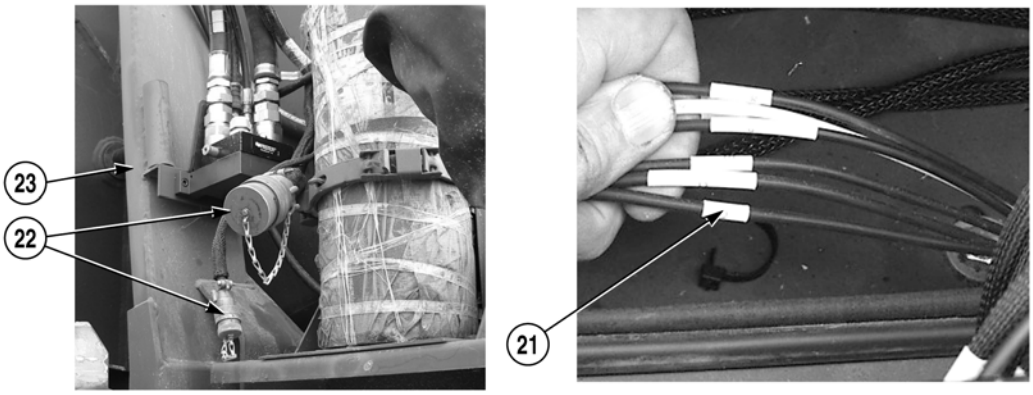
(7) Remove wire (17) from circuit breaker (18).

NOTE

Nine wires removed from five switches are connected to wires with spade terminals to burner and main manifold wire harness and must be cut from spade terminals after removal.

(8) Remove nine wires (19) from five switches (20).

3-62. REAR CONTROL PANEL WIRE HARNESS REPLACEMENT (CONT).



NOTE

- Step (9) removes six wires labeled 9 white, and 8, 9, 10, 11 and 12 black from Bituminous Distributor (23).
- Note routing of wire harness prior to removal.

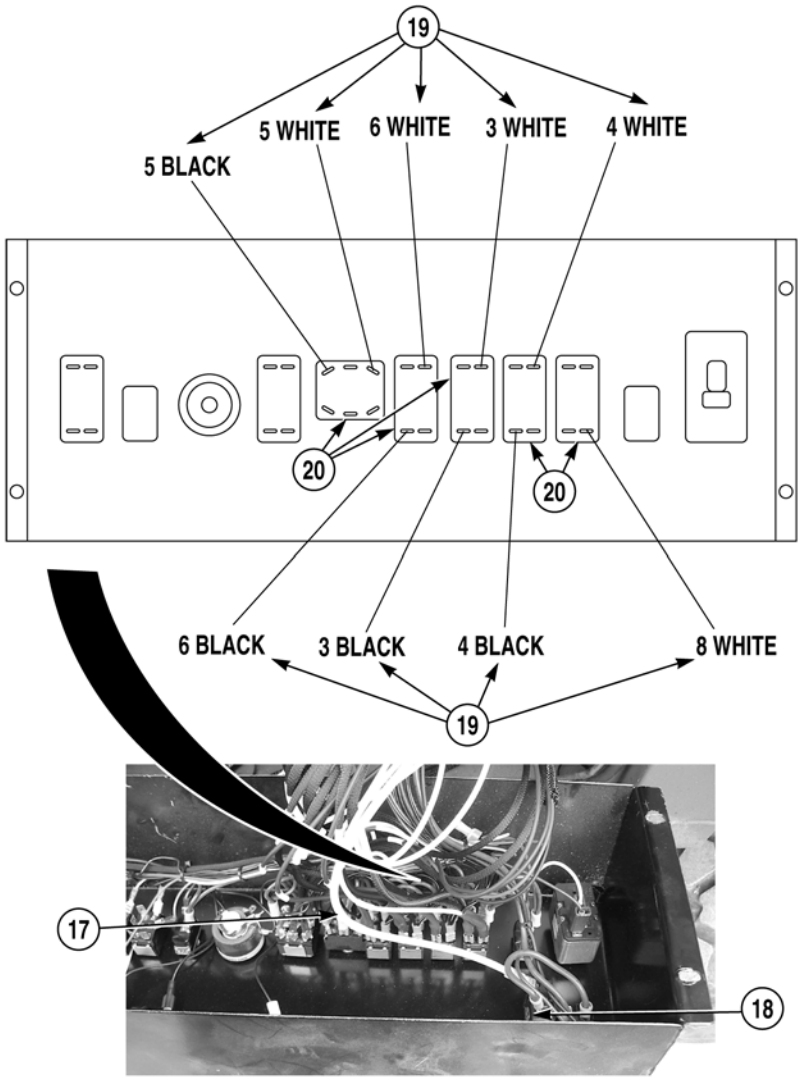
(9) Cut six wires (21) and remove wire harness (22) from Bituminous Distributor (23).

b. Installation.

NOTE

- Route wire harness as noted prior to removal.
- Step (1) repairs six wires labeled 9 white, and 8, 9, 10, 11 and 12 black.

(1) Position wire harness (22) on Bituminous Distributor (23) and repair six wires (21), (Para 3-80).



NOTE

Nine wires must be connected to wires from burner and main manifold wire harness on spade terminals.

(2) Repair nine wires (19), (Para 3-80).

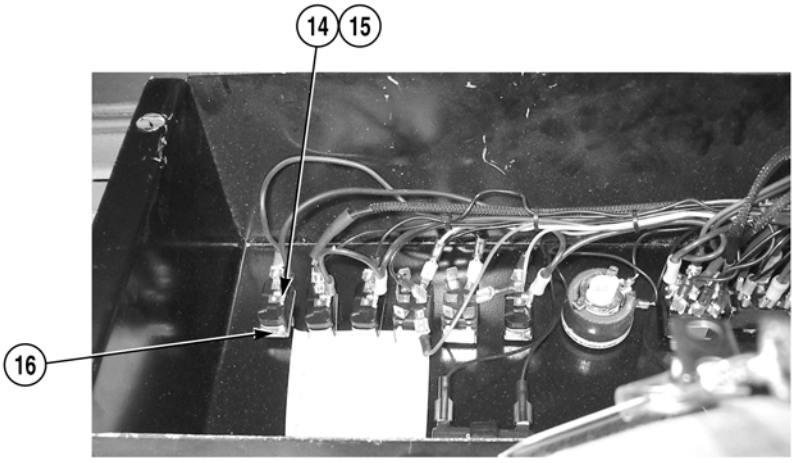
(3) Install nine wires (19) on five switches (20).

NOTE

Step (4) installs No. 1 white wire on circuit breaker.

(4) Install wire (17) on circuit breaker (18).

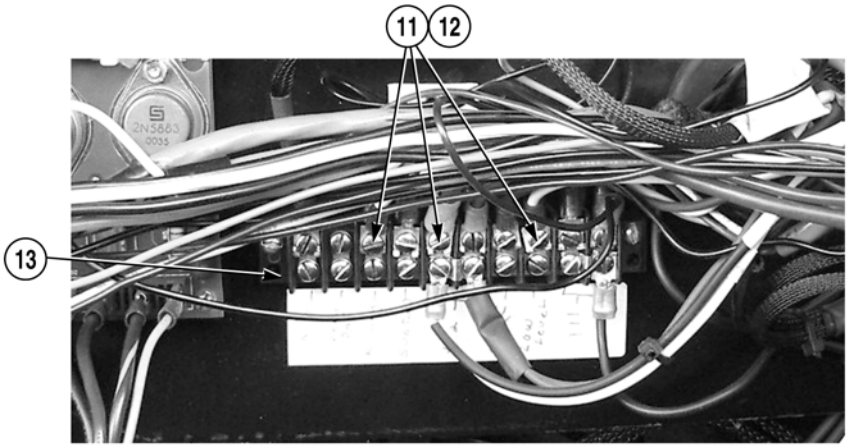
3-62. REAR CONTROL PANEL WIRE HARNESS REPLACEMENT (CONT).



NOTE

Step (5) installs No. 1 black wire on switch.

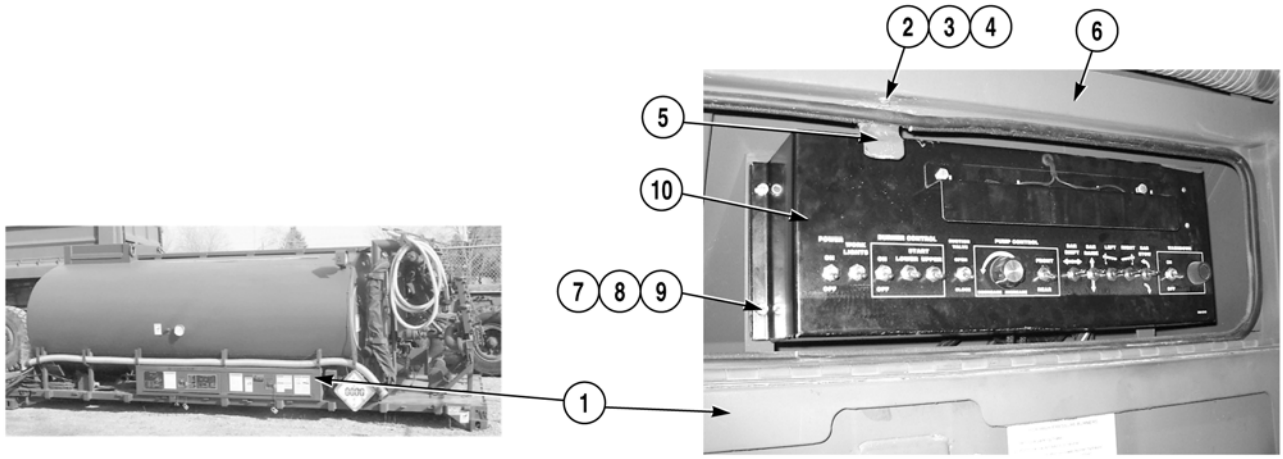
(5) Install wire (15) on switch (16) and tighten screw (14).



NOTE

Step (6) installs No. 10 white wire on four-way, No. 2 white and No. 2 black wires on +12, and No. 12 white wire on low level.

(6) Install four wires (12) on terminal strip (13) and tighten three screws (11).



(7) Install rear control panel (10) on four studs (9) with lockwashers (8) and nuts (7).

(8) Install latch (5) on stowage box (6) with two screws (4), lockwashers (3) and nuts (2).

(9) Close rear compartment door (1).

END OF TASK

3-63. REAR CONTROL PANEL MODULE LIGHT WIRE HARNESS REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

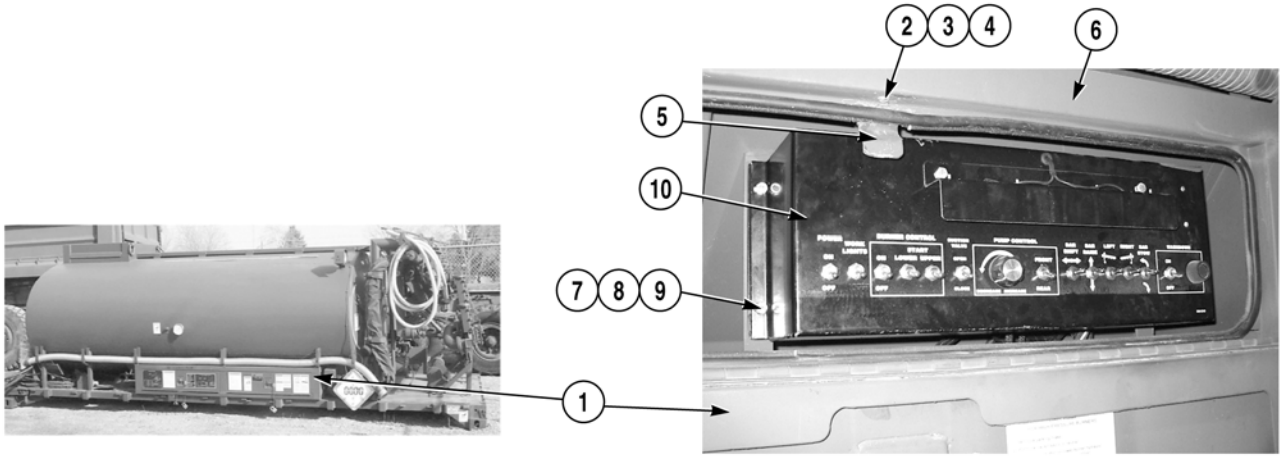
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Cable Ties (Item 1, Appendix E)
Lockwashers (2) (MS 35338-43)
Lockwashers (4) (MS 35338-44)

a. Removal.



(1) Open rear compartment door (1).

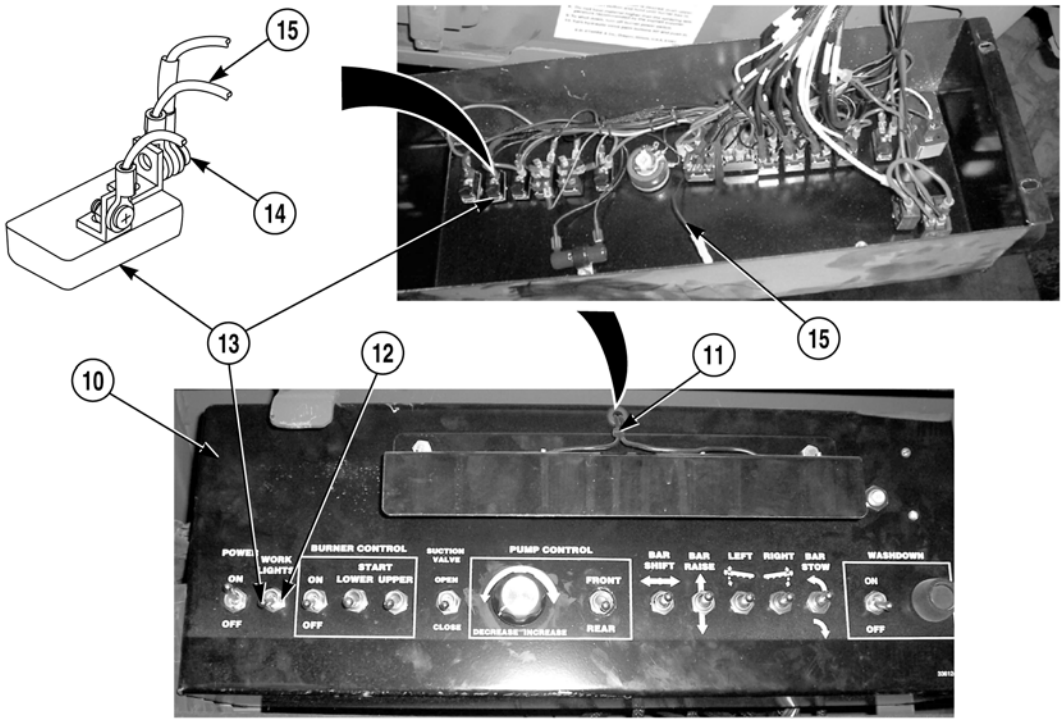
(2) Remove two nuts (2), lockwashers (3), screws (4) and latch (5) from stowage box (6). Discard lockwashers.

(3) Remove four nuts (7) and lockwashers (8) from studs (9) and rear control panel (10). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(4) Carefully pull rear control panel (10) forward and support rear control panel (10).



NOTE

- Remove cable ties as required.
- Tag and mark wires prior to removal.
- Cut wires as close to butt connector as possible.

(5) Cut two wires (11).

(6) Remove nut (12) and switch (13) from rear control panel (10).

(7) Loosen screw (14) and remove wire (15) from switch (13) and rear control panel (10).

b. Installation.

NOTE

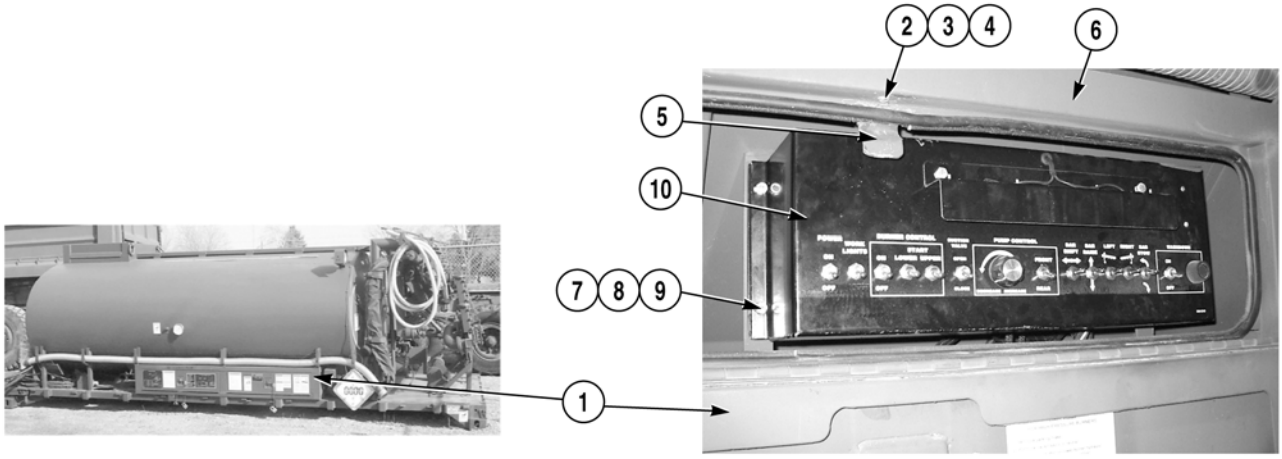
- Install wires as noted prior to removal.
- Install cable ties as required.

(1) Position wire (15) on control panel (10) and install wire (15) on switch (13) and tighten screw (14).

(2) Install switch (13) on rear control panel (10) with nut (12).

(3) Repair two wires (11) and wire (15), (Para 3-80).

3-63. REAR CONTROL PANEL MODULE LIGHT WIRE HARNESS REPLACEMENT (CONT).



(4) Install rear control panel (10) on four studs (9) with lockwashers (8) and nuts (7).

(5) Install latch (5) on stowage box (6) with two screws (4), lockwashers (3) and nuts (2).

(6) Close rear compartment door (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-64. SOLENOID GROUND WIRE HARNESS REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

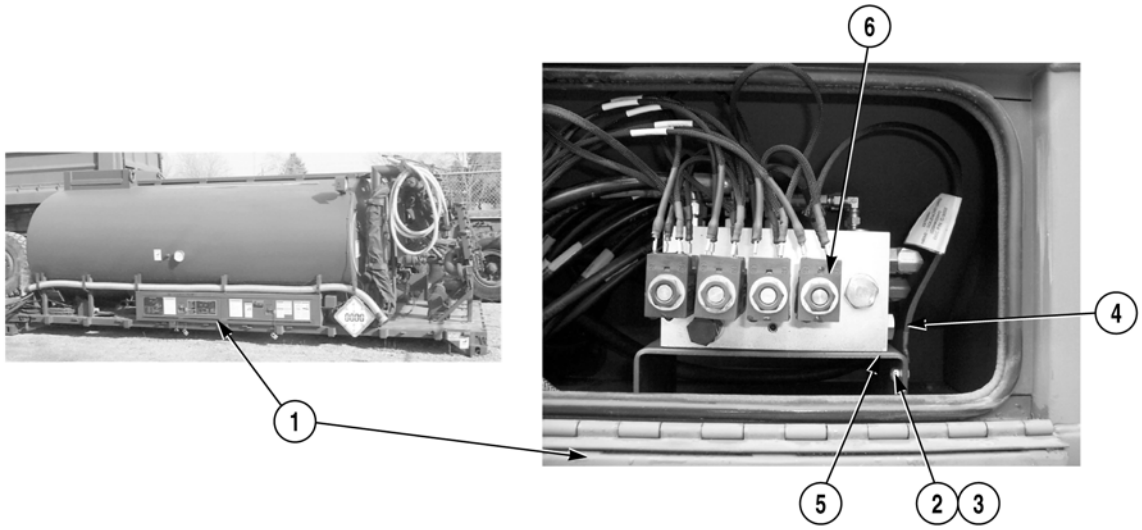
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Locknut (MS 51943-31)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



(1) Open front compartment door (1).

NOTE

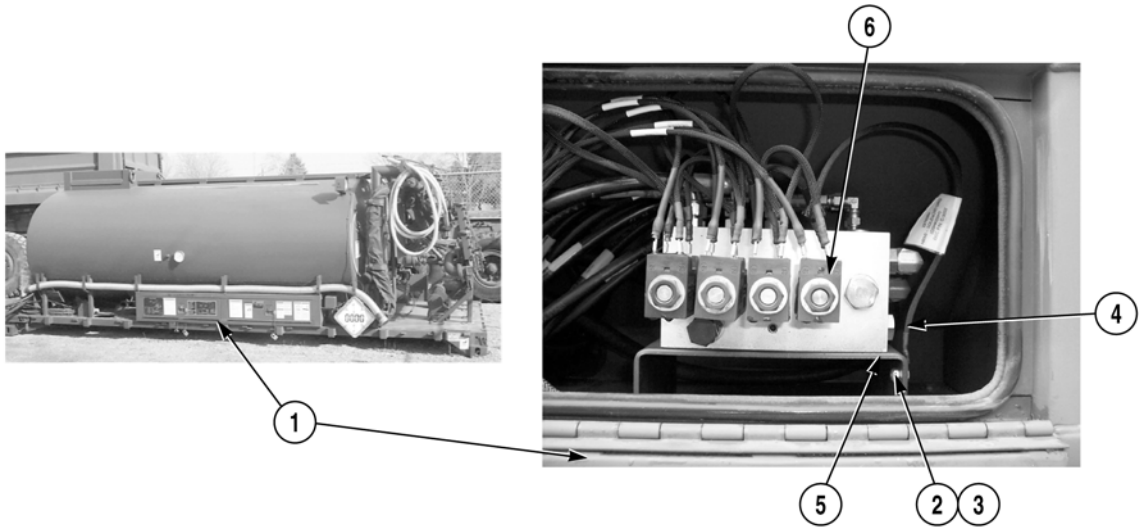
- Tag and mark wires and connectors prior to removal to ensure proper installation.
- Wire harness is connected to bracket and eight solenoids.

(2) Remove locknut (2), screw (3) and wire harness (4) from bracket (5). Discard locknut.

(3) Remove wire harness (4) from eight solenoids (6).

3-64. SOLENOID GROUND WIRE HARNESS REPLACEMENT (CONT).

b. Installation.



(1) Install wire harness (4) on eight solenoids (6).

(2) Install wire harness (4) on bracket (5) with screw (3) and locknut (2).

(3) Close front compartment door (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-65. PLS LOCK-OUT ASSEMBLY WIRE HARNESS REPLACEMENT.

This task covers:

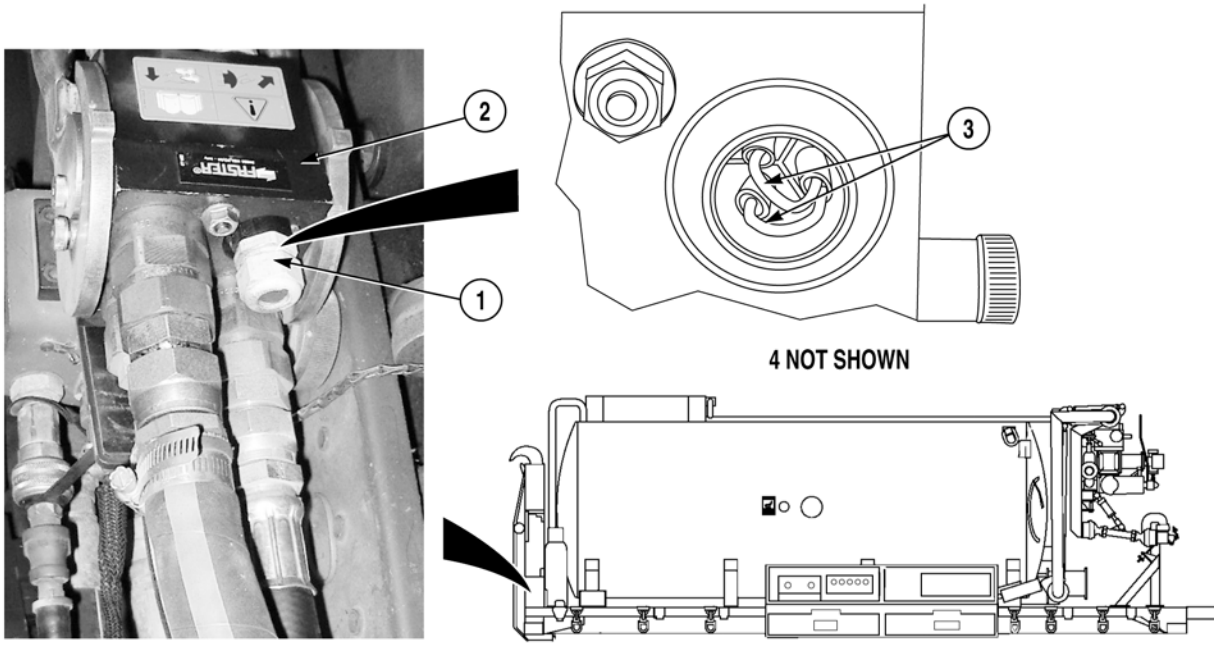
a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Item 14, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.

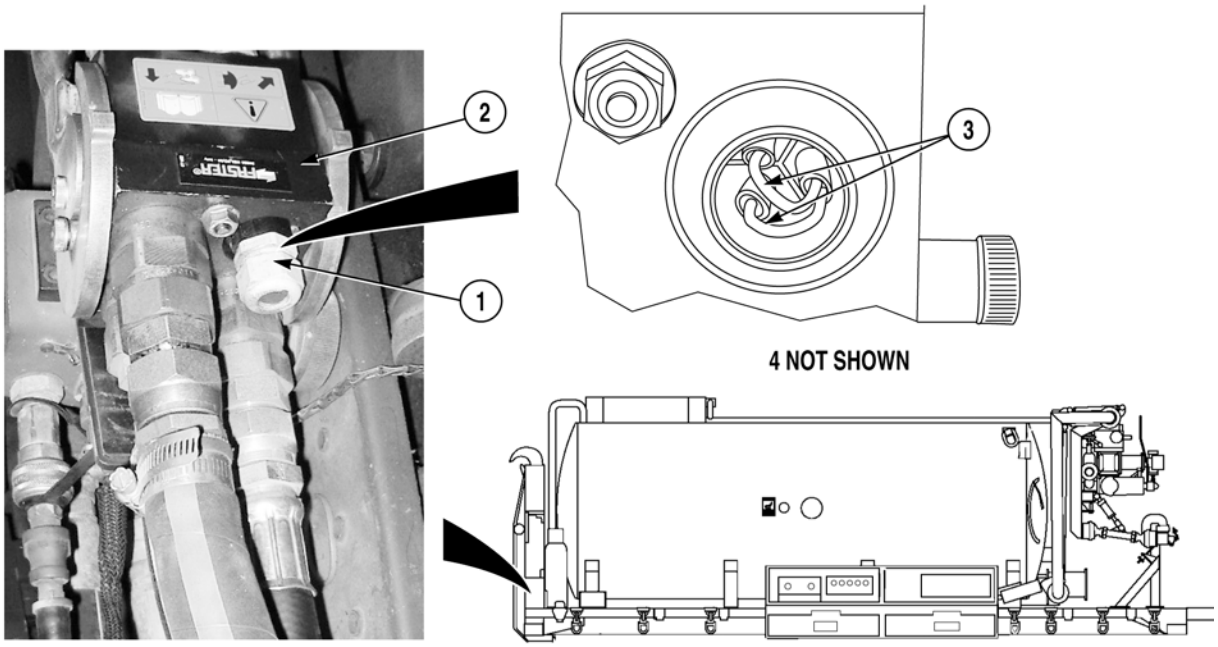


(1) Remove cover (1) from connector assembly (2).

(2) Remove two wires (3) from three terminals (4) on connector assembly (2).

3-65. PLS LOCK-OUT ASSEMBLY WIRE HARNESS REPLACEMENT (CONT).

b. Installation.



(1) Install two wires (3) on three terminals (4) on connector assembly (2).

(2) Install cover (1) on connector assembly (2).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-66. AIR VALVE WIRE HARNESS REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

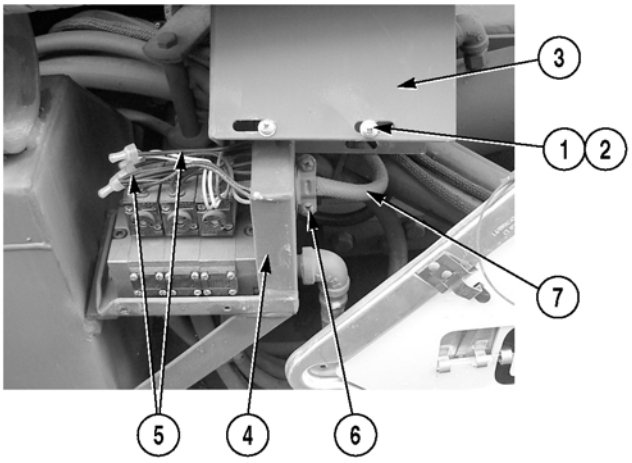
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Cable Ties (Item 1, Appendix E)
Lockwasher (2) (MS 35338-43)
Lockwasher (4) (MS 35338-44)

a. Removal.





(1) Remove two screws (1), washers (2) and cover (3) from bracket (4).

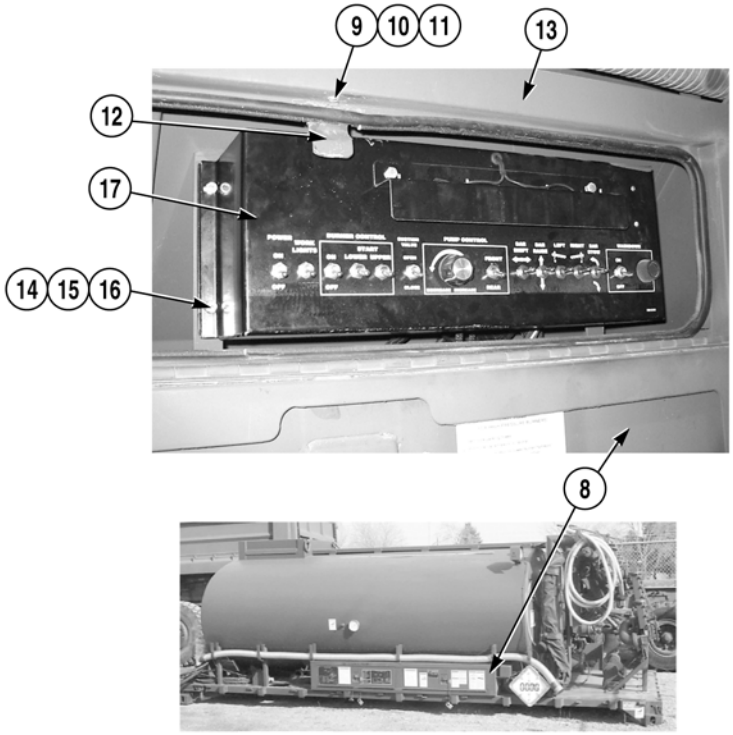
NOTE

- Remove cable ties as required.
- Tag and mark wires and connectors prior to removal.
- Four wires from wire harness cut in Step (2) should be red, white, green and black.

(2) Cut four wires (5).

(3) Loosen two screws (6) and remove wire harness (7) from bracket (4).

3-66. AIR VALVE WIRE HARNESS REPLACEMENT (CONT).



(4) Open rear compartment door (8).

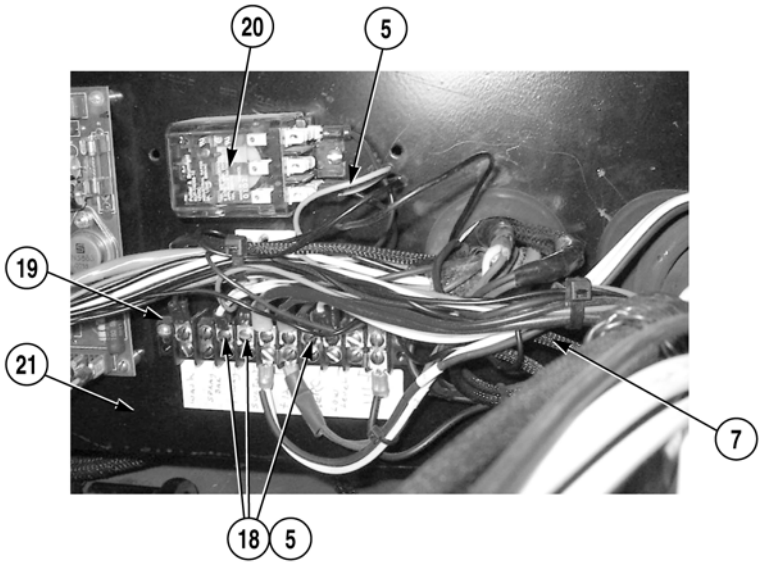
(5) Remove two nuts (9), lockwashers (10), screws (11) and latch (12) from stowage box (13). Discard lockwashers.

(6) Remove four nuts (14) and lockwashers (15) from studs (16) and rear control panel (17). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(7) Carefully pull rear control panel (17) forward and support rear control panel (17).



NOTE

Three wires removed in Step (8) should be red, white and black.

(8) Loosen three screws (18) and remove wires (5) from terminal strip (19).

NOTE

Wire removed from relay in Step (9) should be green.

(9) Remove wire (5) from relay (20) and remove wire harness (7) from Bituminous Distributor (21).

b. Installation.

NOTE

- Install cable ties as required.
- Install wires as noted prior to removal.
- Wire installed on relay in Step (1) should be green.

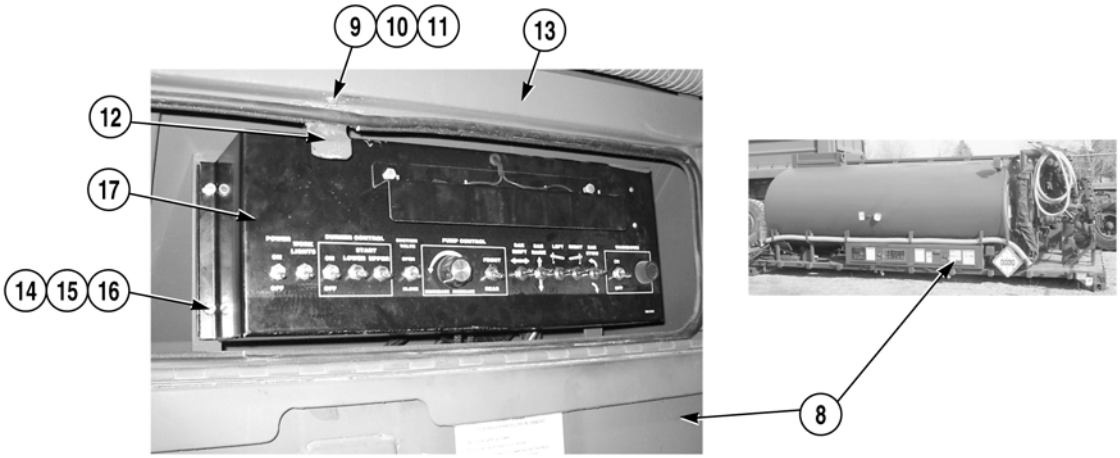
(1) Position wire harness (7) on Bituminous Distributor (21) and install wire (5) on relay (20).

NOTE

Three wires installed in Step (2) should be red, white and black.

(2) Install three wires (5) on terminal strip (19) and tighten three screws (18).

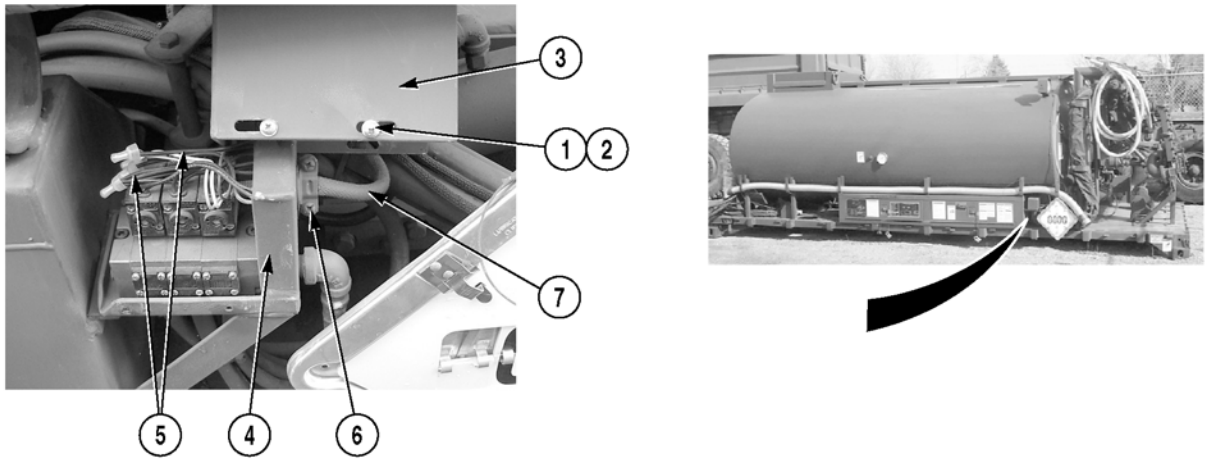
3-66. AIR VALVE WIRE HARNESS REPLACEMENT (CONT).



(3) Install rear control panel (17) on four studs (16) with lockwashers (15) and nuts (14).

(4) Install latch (12) on stowage box (13) with two screws (11), lockwashers (10) and nuts (9).

(5) Close rear compartment door (8).



(6) Position wire harness (7) on bracket (4) and tighten two screws (6).

(7) Repair four wires (5), (Para 3-80).

(8) Install cover (3) on bracket (4) with two washers (2) and screws (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-67. SPRAY BAR PIVOTS AND END TUBES REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

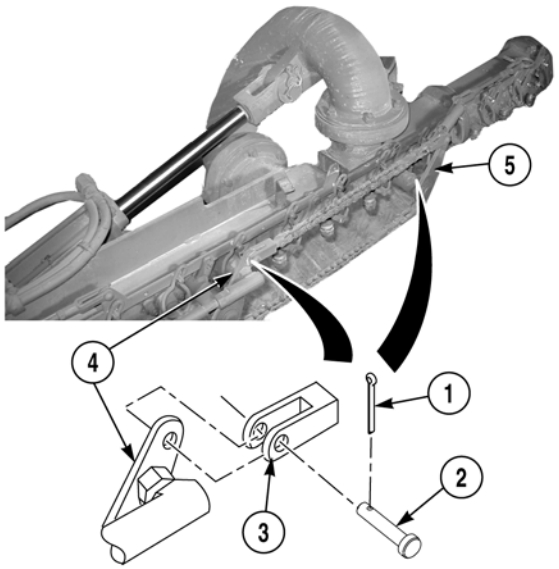
Personnel Required
Two

Materials/Parts
Cotter Pin (2) (MS 24665-306)
Lockwasher (24) (MS 35338-45)
Gasket (4) (3352615)
Locknut (45913/1-4CG5C)
Lockwasher (6) (C17)
Gasket (2) (3352592)
Sealing Compound (Item 6, Appendix E)

Equipment Condition
Spray bar deployed, (Para 2-17)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



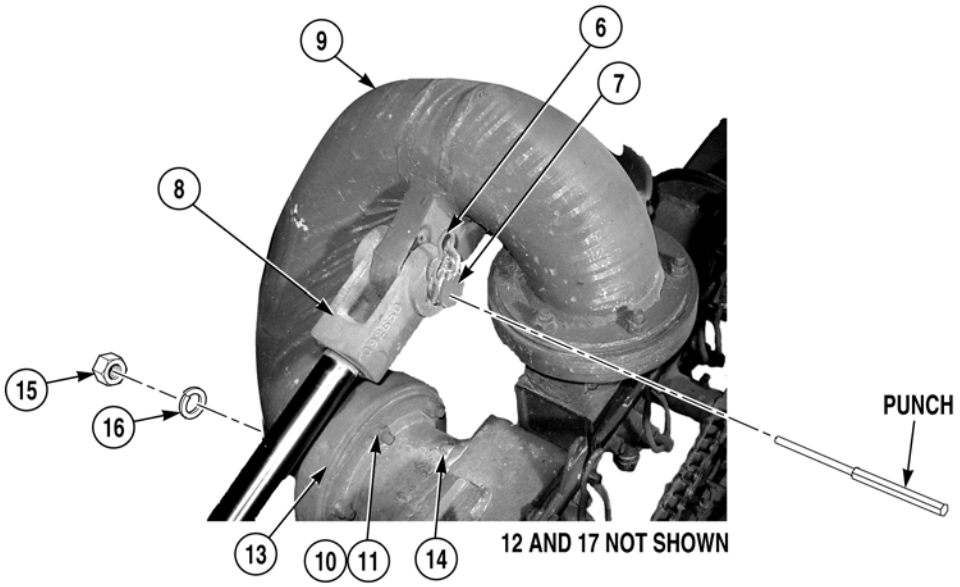


NOTE

Both spray bar pivots and end tubes are replaced the same way. Right side shown.

(1) Remove two cotter pins (1), pins (2) and chain clevis (3) from toggles (4) and (5). Discard cotter pins.

3-67. SPRAY BAR PIVOTS AND END TUBES REPLACEMENT (CONT).



NOTE

After removal of pin (7) from hinge assembly and cylinder shaft, hinge assembly and cylinder shaft must be temporarily held in place with punch until hinge assembly is removed.

(2) With the aid of an assistant, remove two retaining pins (6) and pin (7) from cylinder shaft (8) and hinge assembly (9).

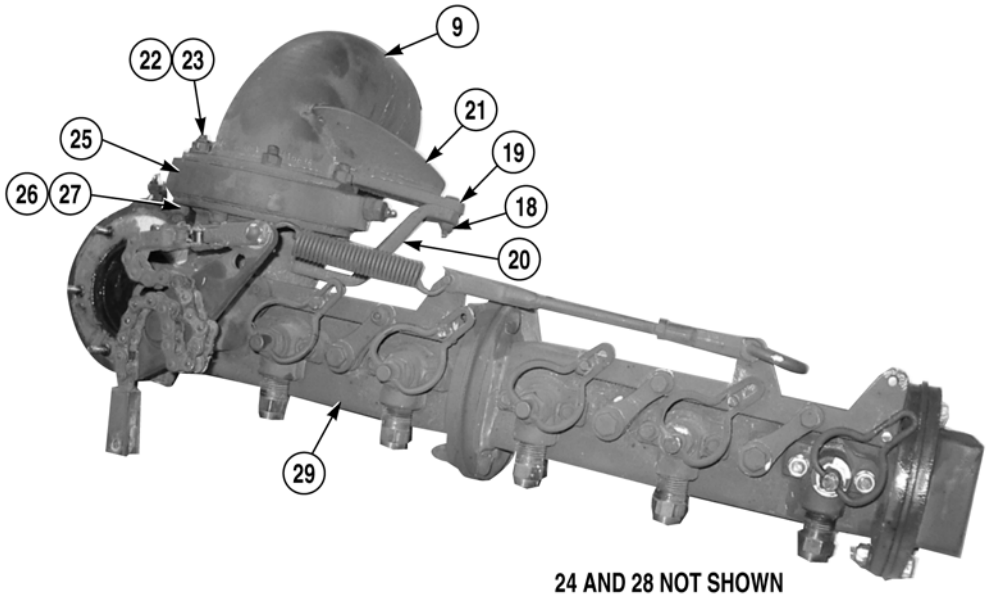
(3) Position cylinder shaft (8) on hinge assembly (9) with punch.

WARNING

Hinge assembly weighs 72 lb (33 kg) and must be supported when removing hinge assembly. Failure to comply may result in serious personal injury or damage to equipment.

(4) With the aid of an assistant, remove six nuts (10), lockwashers (11), gasket (12), bearing assembly (13) and hinge assembly (9) from flange (14). Discard lockwashers and gasket.

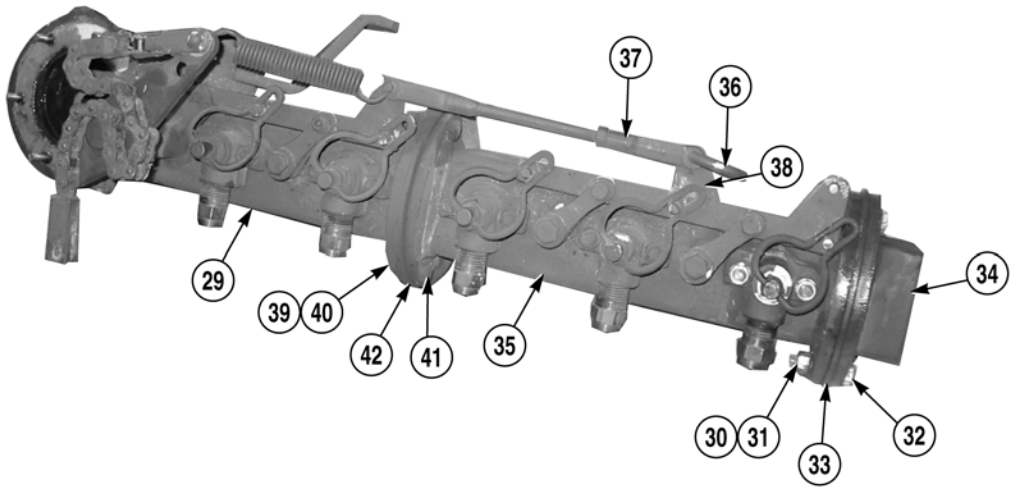
(5) Remove six nuts (15), lockwashers (16), gasket (17) and bearing assembly (13) from hinge assembly (9). Discard lockwashers and gasket.



(6) Remove locknut (18) and screw (19) from two brackets (20) and (21). Discard locknut.

(7) Remove six nuts (22), lockwashers (23), gasket (24) and hinge assembly (9) from bearing assembly (25). Discard lockwashers and gasket.

(8) Remove six nuts (26), lockwashers (27), gasket (28) and bearing assembly (25) from tube (29). Discard lockwashers and gasket.



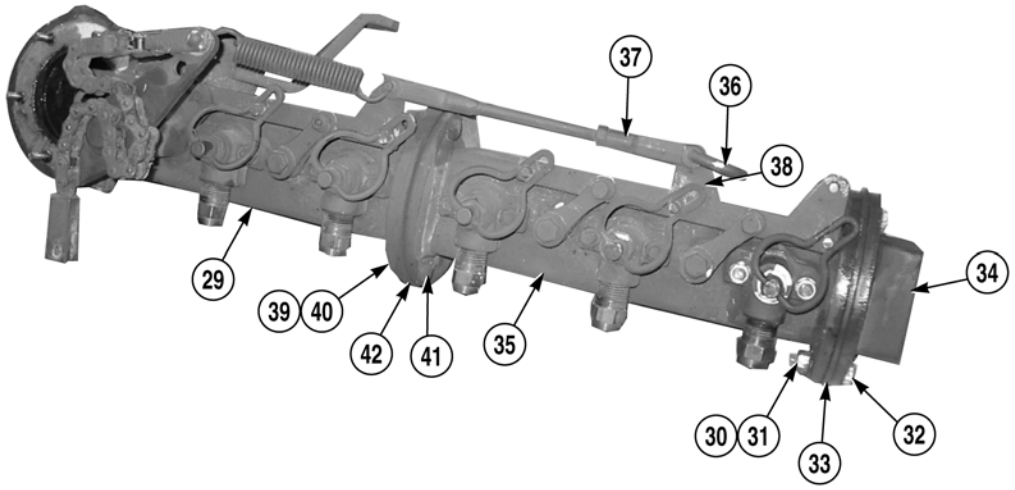
(9) Remove three nuts (30), lockwashers (31), screws (32), gasket (33) and end cap (34) from tube (35). Discard lockwashers and gasket.

(10) Remove pin (36) from rod end (37) and bracket (38).

(11) Remove three nuts (39), lockwashers (40), screws (41), gasket (42) and tube (35) from tube (29). Discard lockwashers and gasket.

3-67. SPRAY BAR PIVOTS AND END TUBES REPLACEMENT (CONT).

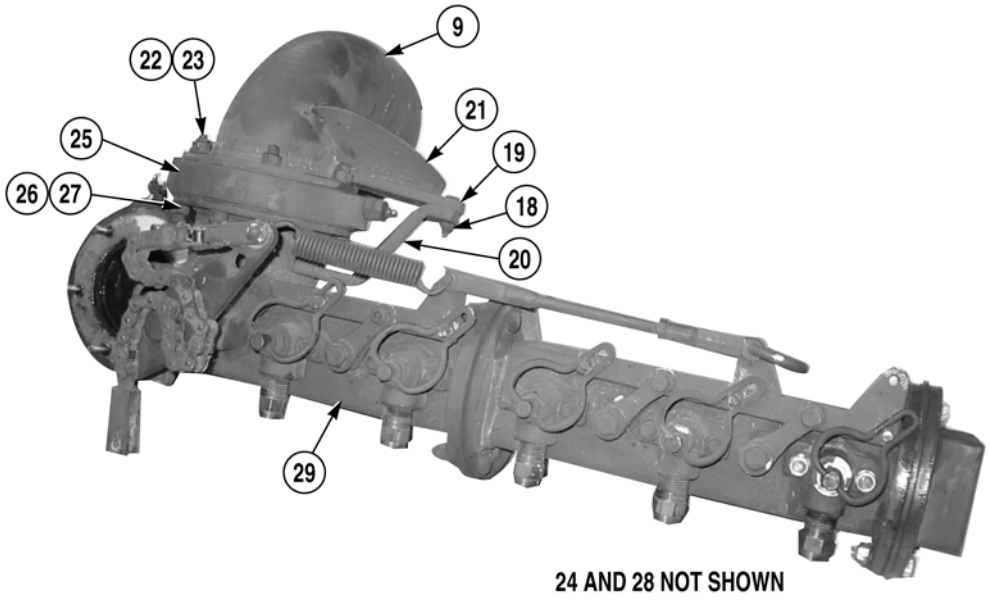
b. Installation.



(1) Install gasket (42) and tube (35) on tube (29) with three screws (41), lockwashers (40) and nuts (39).

(2) Install rod end (37) on bracket (38) with pin (36).

(3) Install gasket (33) and end cap (34) on tube (35) with three screws (32), lockwashers (31) and nuts (30).



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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(4) Apply sealing compound to gasket (28).

NOTE

Gasket is installed between bearing assembly and tube.

(5) Install gasket (28) and bearing assembly (25) on tube (29) with six lockwashers (27) and nuts (26).

(6) Apply sealing compound to gasket (24).

NOTE

Gasket is installed between hinge assembly and bearing assembly.

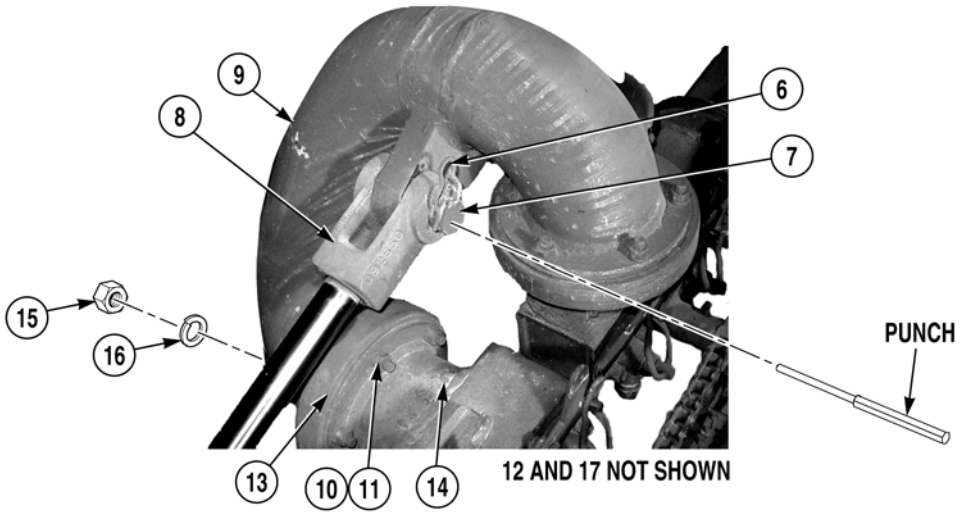
(7) Install gasket (24) and hinge assembly (9) on bearing assembly (25) with six lockwashers (23) and nuts (22).

NOTE

Hinge assembly must be rotated so that holes in two brackets align.

(8) Install screw (19) and locknut (18) on two brackets (20) and (21).

3-67. SPRAY BAR PIVOTS AND END TUBES REPLACEMENT (CONT).



(9) Apply sealing compound to gasket (17).

NOTE

Gasket is installed between bearing assembly and hinge assembly.

(10) Install gasket (17) and bearing assembly (13) on hinge assembly (9) with six lockwashers (16) and nuts (15).

(11) Apply sealing compound to gasket (12).

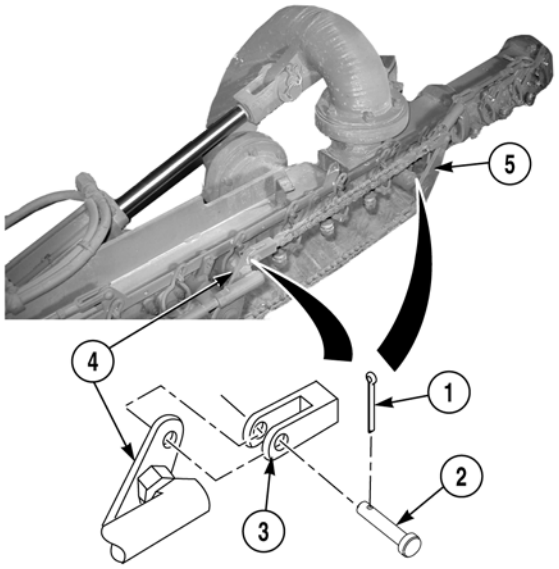
NOTE

Gasket is installed between bearing assembly and hinge assembly.

(12) Install gasket (12), bearing assembly (13) and hinge assembly (9) on flange (14) with six lockwashers (11) and nuts (10).

(13) Install cylinder shaft (8) on hinge assembly (9) with pin (7) and two retaining pins (6).





(14) Install two chain clevis (3) on toggles (4) and (5) with two pins (2) and cotter pins (1).

c. Follow-On Maintenance.

- Stow spray bar, (Para 2-17).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-68. SPRAY BAR PIVOT LUG REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

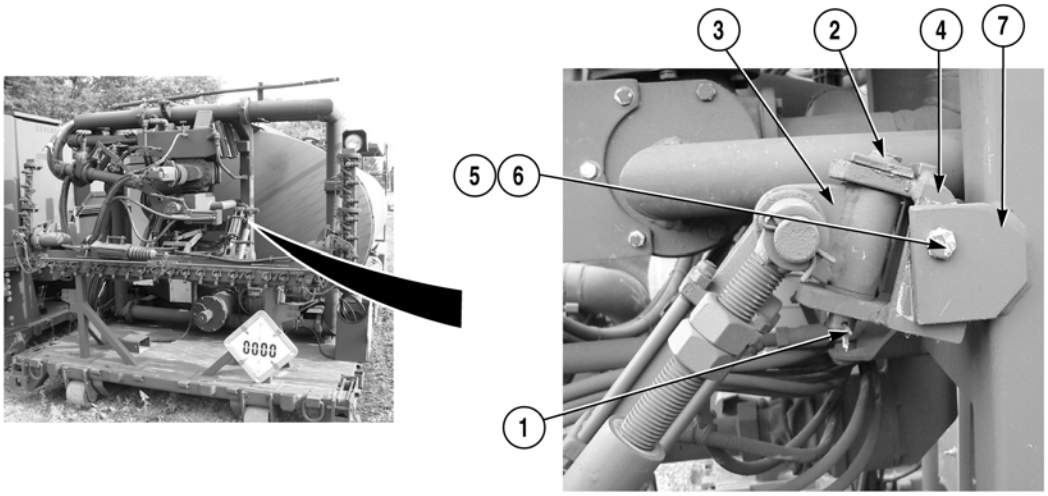
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Item 14, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

Materials/Parts
Cotter Pin (MS 24665-495)
Locknut (2) (9411727)

a. Removal.



NOTE

Both pivot lugs are removed the same way. Right side shown.

(1) Remove cotter pin (1) and pin (2) from bar lift (3) and lug (4). Discard cotter pin.

(2) Remove two locknuts (5), screws (6) and lug (4) from bracket (7). Discard locknuts.

b. Installation.

(1) Install lug (4) on bracket (7) with two screws (6) and locknuts (5).

(2) Install bar lift (3) on lug (4) with pin (2) and cotter pin (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-69. WORK LIGHT AND LAMP REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

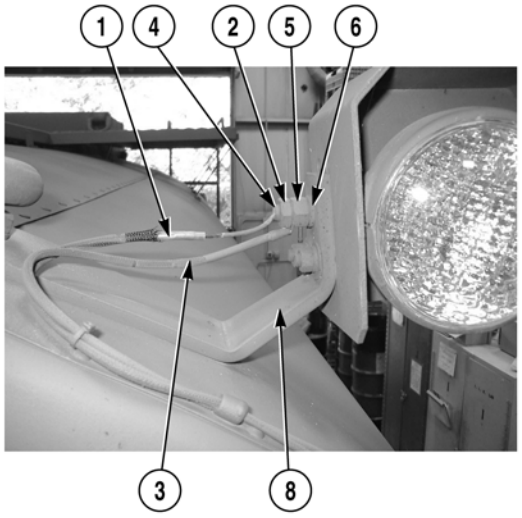
INITIAL SETUP

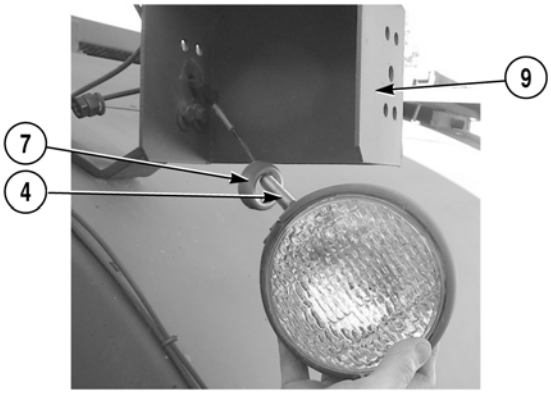
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Cable Ties (Item 1, Appendix E)
Lockwasher (MS 35335-37)
Lockwasher (2) (MS 35338-45)

a. Removal.





NOTE

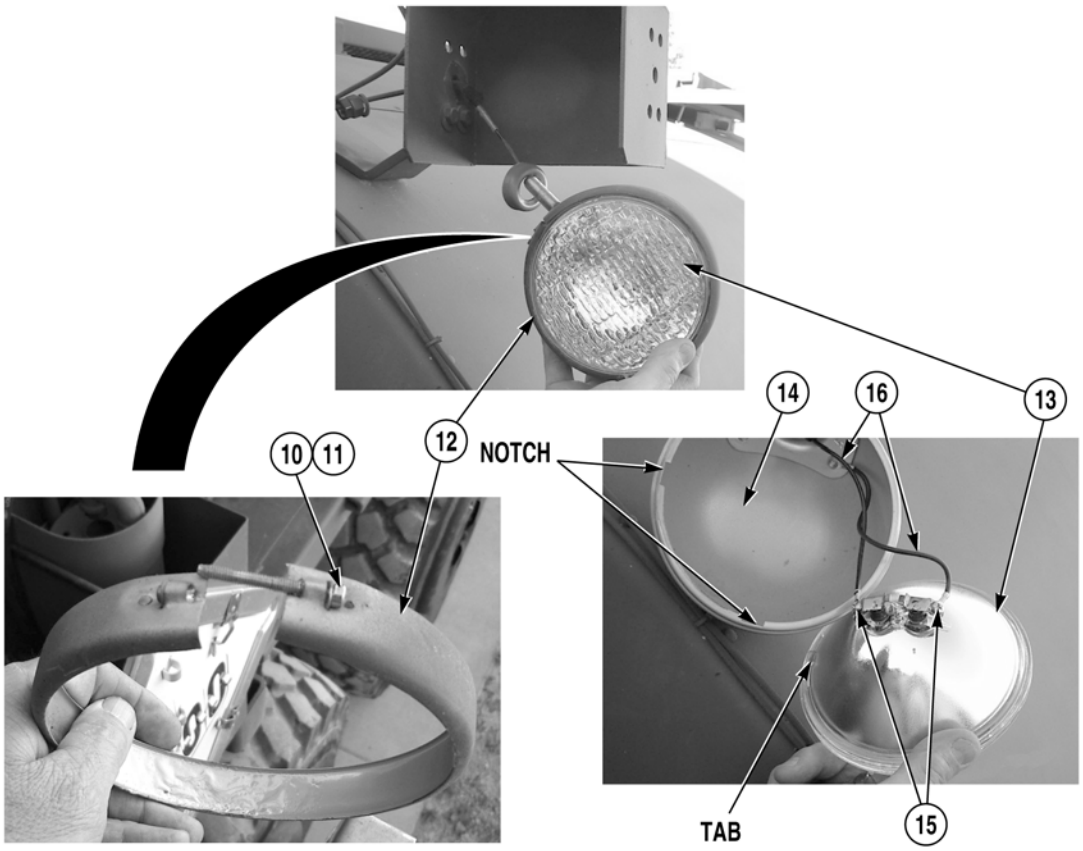
- Tag and mark wires prior to removal.
- Remove cable ties as required.
- Note length of wire.

(1) Cut wire (1).

(2) Remove jam nut (2) and ground wire (3) from stud (4).

(3) Remove nut (5), lockwasher (6), stud (4) and collar (7) from two brackets (8) and (9). Discard lockwasher.

3-69. WORK LIGHT AND LAMP REPLACEMENT (CONT).



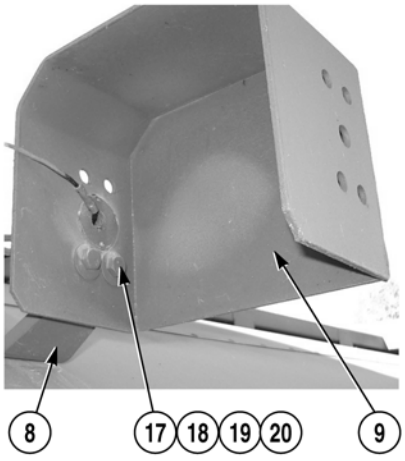
NOTE

Tab on back of lamp aligns with notch in housing. Note position of lamp on housing prior to removal to ensure proper installation.

(4) Remove screw (10), washer (11), ring (12) and lamp (13) from housing (14).

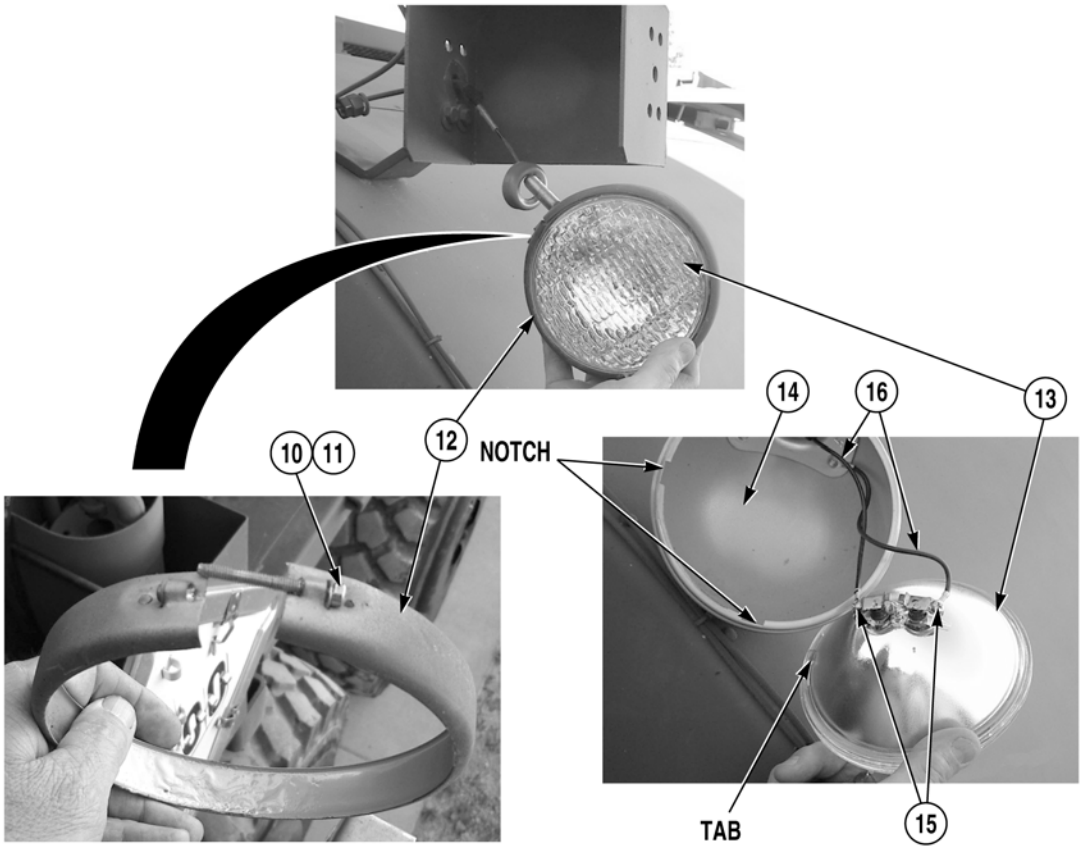
(5) Loosen two screws (15) and remove wires (16) from lamp (13).

(6) Remove two nuts (17), lockwashers (18), four washers (19), two screws (20) and bracket (9) from bracket (8). Discard lockwashers.



b. Installation.

(1) Install bracket (9) on bracket (8) with two screws (20), four washers (19), two lockwashers (18) and nuts (17).



NOTE

Install wires as noted prior to removal.

(2) Install two wires (16) on lamp (13) and tighten two screws (15).

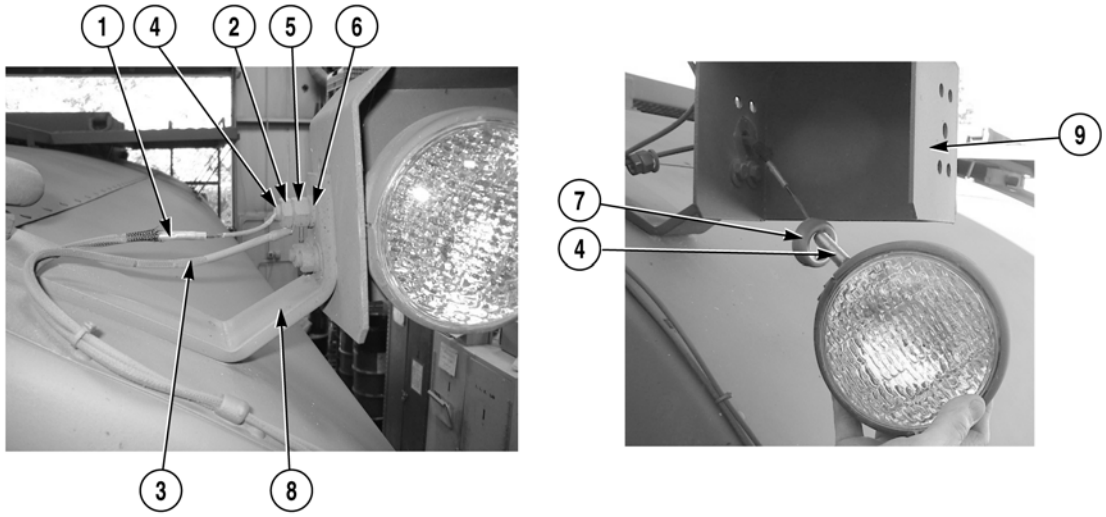
NOTE

Install lamp on housing as noted prior to removal.

(3) Install lamp (13) on housing (14) and position ring (12) over housing (14) and lamp (13).

(4) Tighten washer (11) and screw (10) on ring (12).

3-69. WORK LIGHT AND LAMP REPLACEMENT (CONT).



(5) Install stud (4) and collar (7) on two brackets (8) and (9) with lockwasher (6) and nut (5).

(6) Install ground wire (3) on stud (4) with jam nut (2).

NOTE

Wire should be the same length as noted prior to removal.

(7) Repair wire (1), (Para 3-80).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-70. MERCURY SWITCH REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

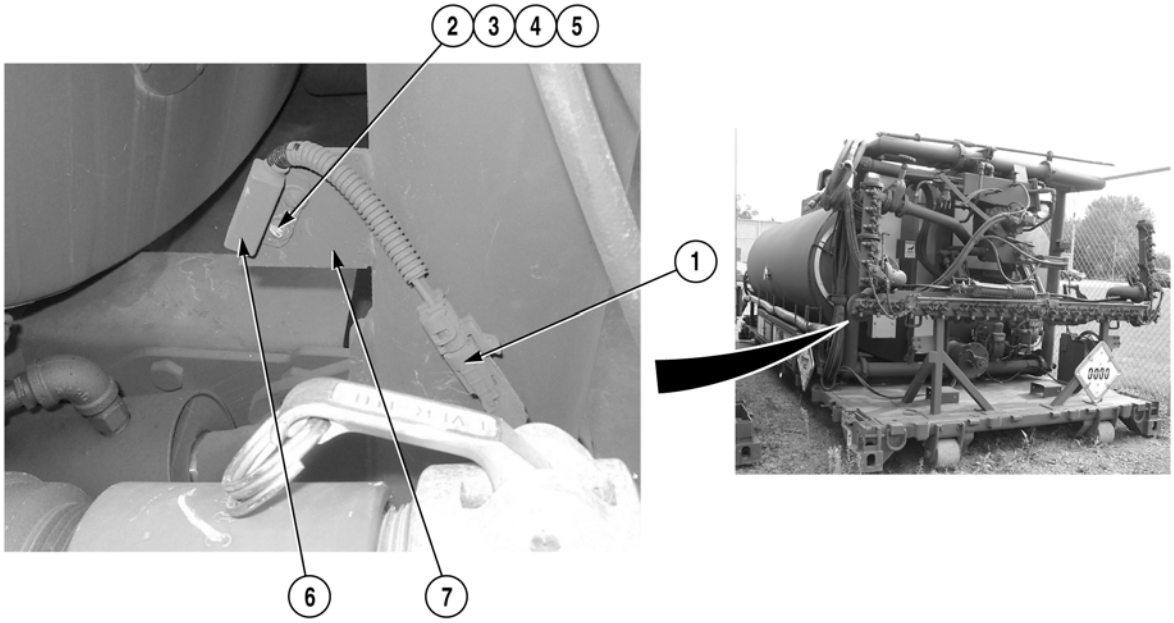
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Lockwasher (2) (MS 21044N3)

a. Removal.



NOTE

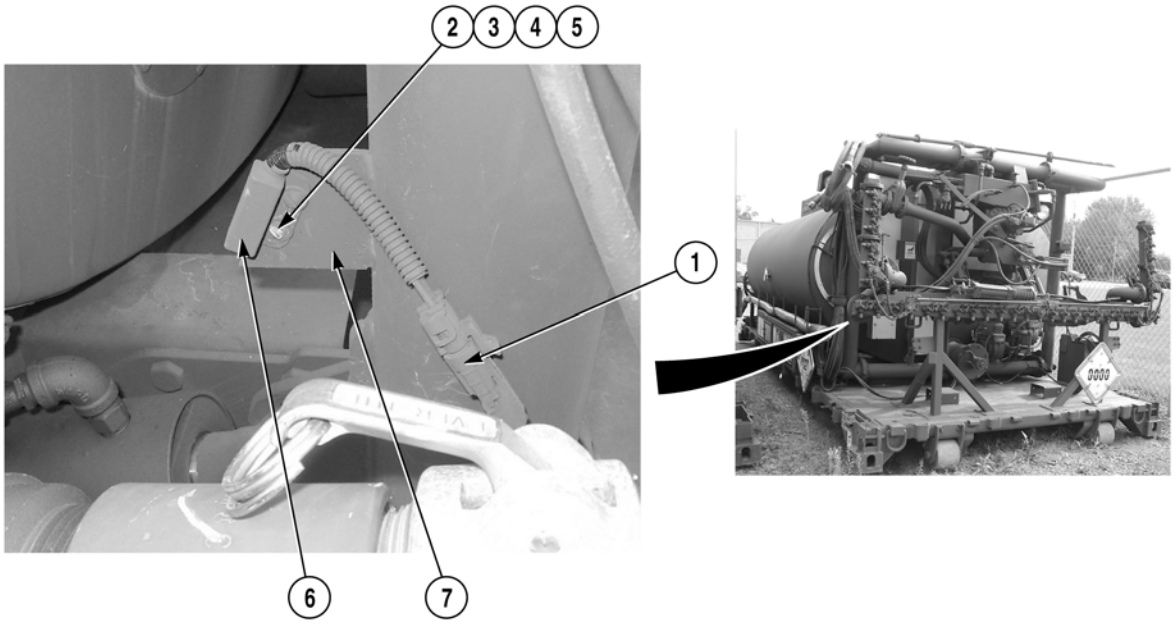
Tag and mark connectors prior to removal.

(1) Disconnect connector (1).

(2) Remove two nuts (2), lockwashers (3), four washers (4), two screws (5) and switch (6) from bracket (7). Discard lockwashers.

3-70. MERCURY SWITCH REPLACEMENT (CONT).

b. Installation.



(1) Install switch (6) on bracket (7) with two screws (5), four washers (4), two lockwashers (3) and nuts (2).

(2) Connect connector (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-71. BURNER TRANSFORMER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

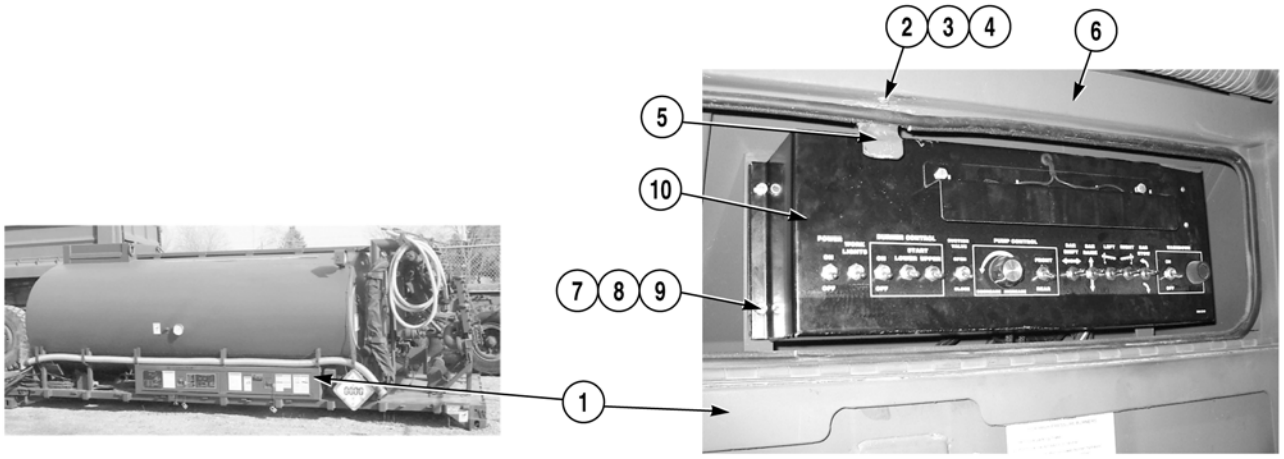
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Cable Ties (Item 1, Appendix E)
Lockwasher (4) (MS 35338-44)
Lockwasher (6) (MS 35338-43)

a. Removal.



(1) Open rear compartment door (1).

(2) Remove two nuts (2), lockwashers (3), screws (4) and latch (5) from stowage box (6). Discard lockwashers.

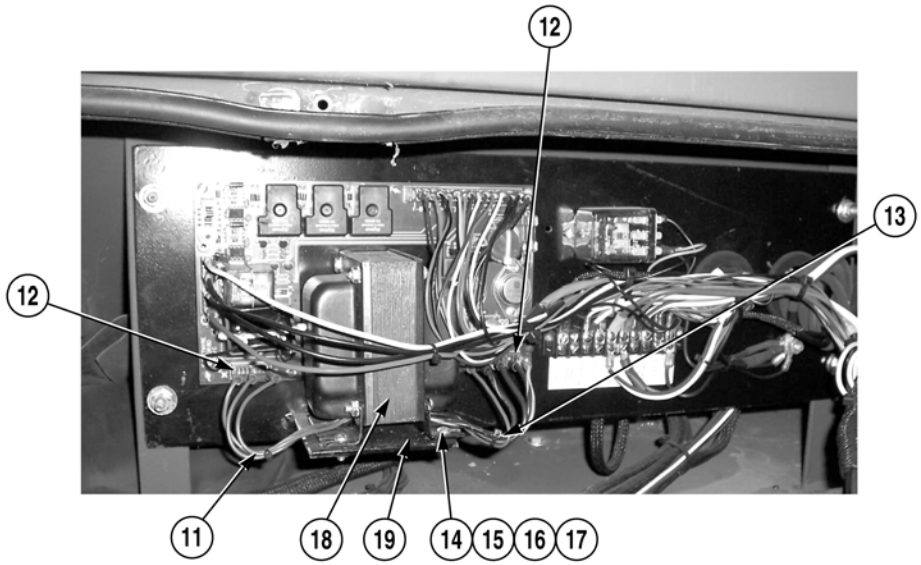
(3) Remove four nuts (7) and lockwashers (8) from studs (9) and rear control panel (10). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(4) Carefully pull rear control panel (10) forward and support rear control panel (10).

3-71. BURNER TRANSFORMER REPLACEMENT (CONT).



NOTE

- Tag and mark wires and connectors prior to removal.
- Remove cable ties as required.

(5) Disconnect three wires (11) from circuit board (12).

(6) Disconnect five wires (13) from circuit board (12).

(7) Remove four nuts (14), lockwashers (15), washers (16), screws (17) and transformer (18) from bracket (19). Discard lockwashers.

b. Installation.

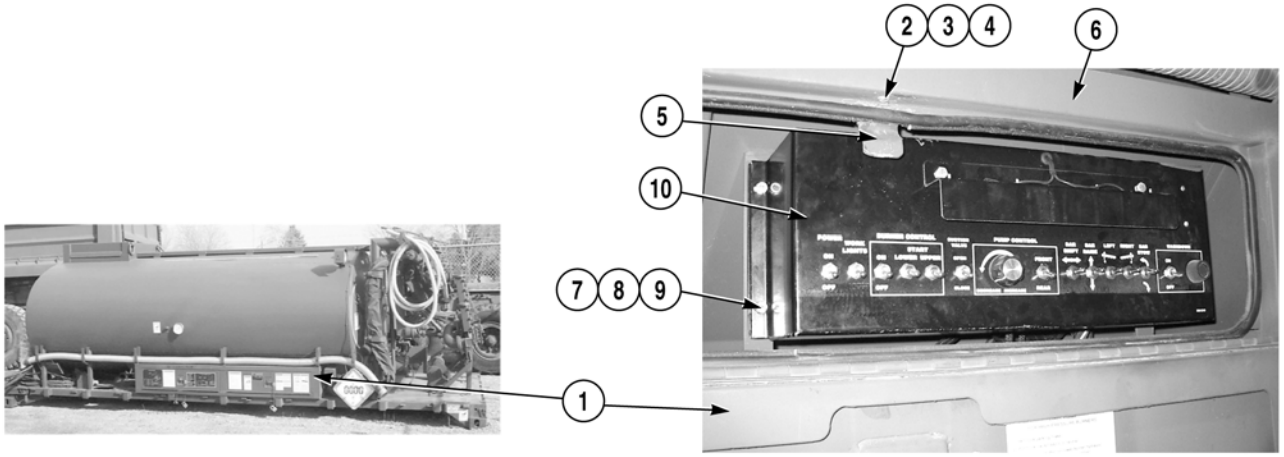
NOTE

Install cable ties as required.

(1) Install transformer (18) on bracket (19) with four screws (17), washers (16), lockwashers (15) and nuts (14).

(2) Connect five wires (13) on circuit board (12).

(3) Connect three wires (11) on circuit board (12).



(4) Install rear control panel (10) on four studs (9) with lockwashers (8) and nuts (7).

(5) Install latch (5) on stowage box (6) with two screws (4), lockwashers (3) and nuts (2).

(6) Close rear compartment door (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-72. BURNER IGNITION CONTROLLER REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

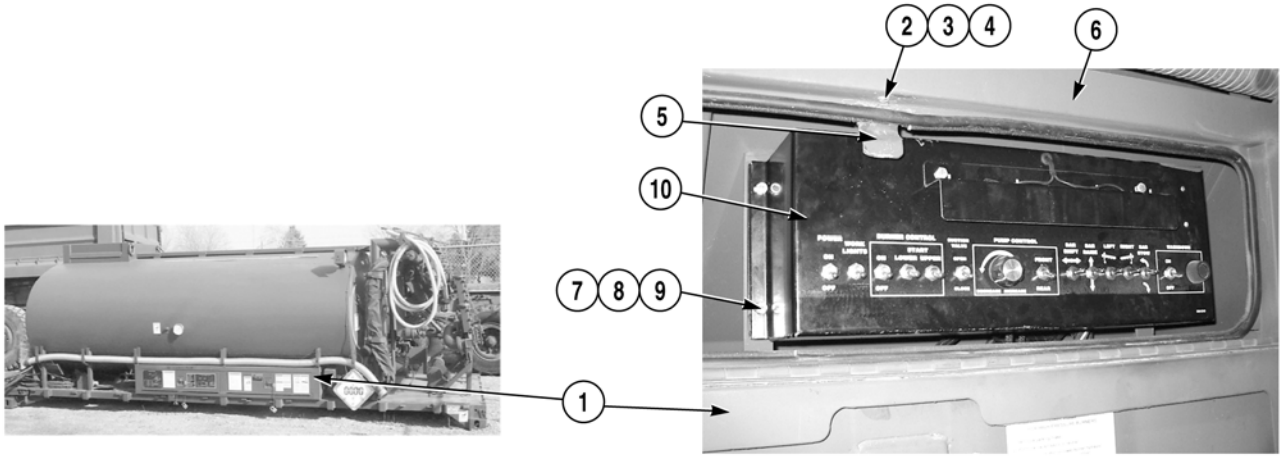
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Cable Ties (Item 1, Appendix E)
Lockwasher (2) (MS 35338-43)
Lockwasher (4) (MS 35338-44)
Lockwasher (7) (MS 35338-41)

a. Removal.



(1) Open rear compartment door (1).

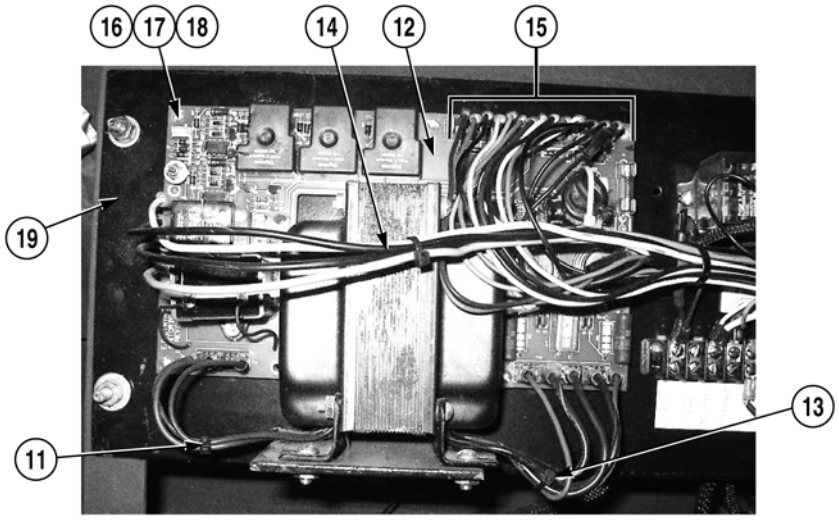
(2) Remove two nuts (2), lockwashers (3), screws (4) and latch (5) from stowage box (6). Discard lockwashers.

(3) Remove four nuts (7) and lockwashers (8) from studs (9) and rear control panel (10). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(4) Carefully pull rear control panel (10) forward and support rear control panel (10).



NOTE

- Tag and mark wires and connectors prior to removal.
- Remove cable ties as required.

(5) Remove three wires (11) from ignition controller (12).

(6) Remove five wires (13) from ignition controller (12).

(7) Remove four wires (14) from ignition controller (12).

(8) Remove 14 wires (15) from ignition controller (12).

(9) Remove seven nuts (16), lockwashers (17), screws (18) and ignition controller (12) from panel (19). Discard lockwashers.

b. Installation.

NOTE

Install cable ties as required.

(1) Install ignition controller (12) on panel (19) with seven screws (18), lockwashers (17) and nuts (16).

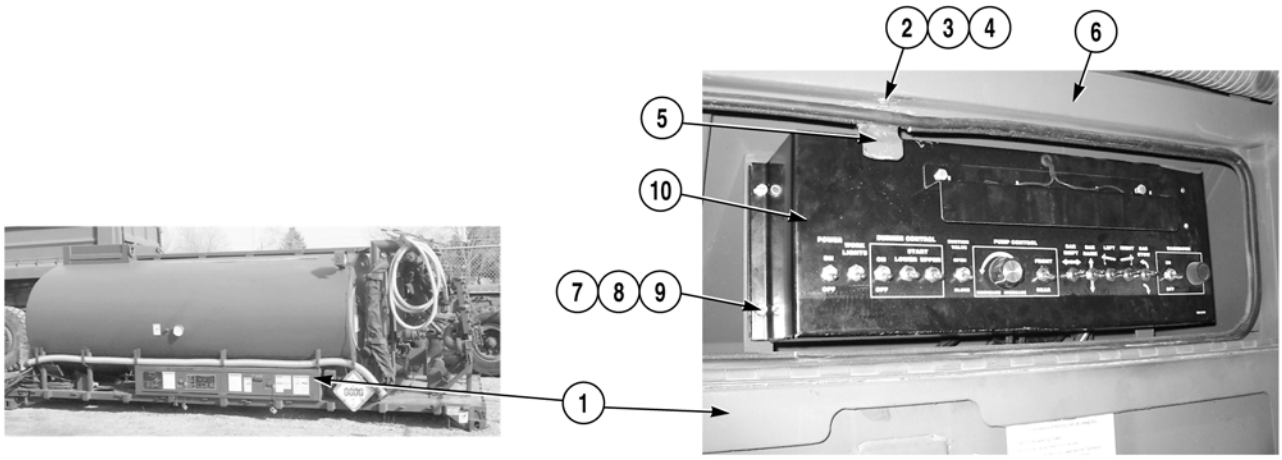
(2) Install 14 wires (15) on ignition controller (12).

(3) Install four wires (14) on ignition controller (12).

(4) Install five wires (13) on ignition controller (12).

(5) Install three wires (11) on ignition controller (12).

3-72. BURNER IGNITION CONTROLLER REPLACEMENT (CONT).



(6) Install rear control panel (10) on four studs (9) with lockwashers (8) and nuts (7).

(7) Install latch (5) on stowage box (6) with two screws (4), lockwashers (3) and nuts (2).

(8) Close rear compartment door (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-73. SPRAY BAR CONTROL RELAY REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

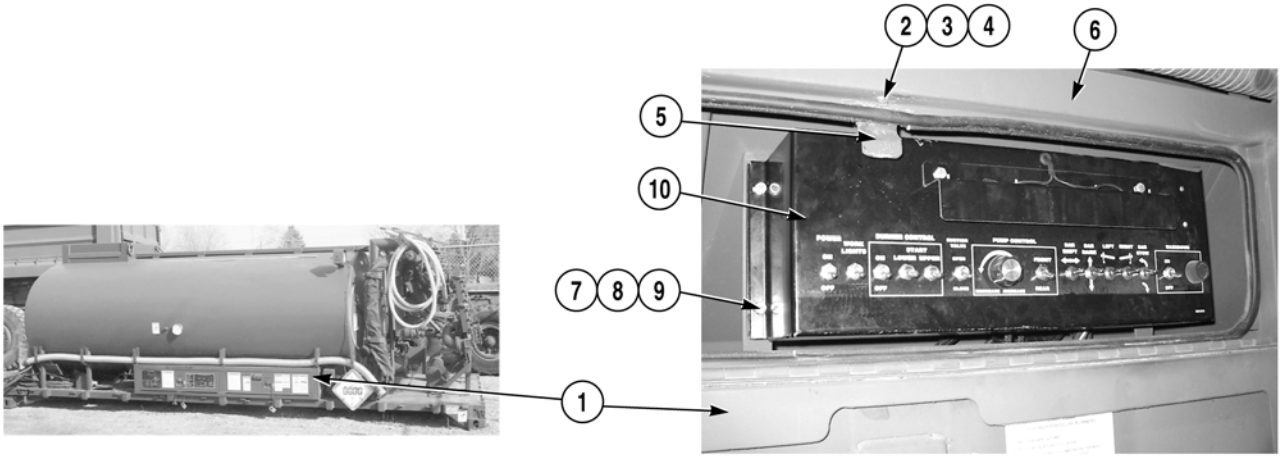
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Lockwasher (2) (MS 35338-43)
Lockwasher (4) (MS 35338-44)
Lockwasher (2) (MS 35338-41)

a. Removal.



(1) Open rear compartment door (1).

(2) Remove two nuts (2), lockwashers (3), screws (4) and latch (5) from stowage box (6). Discard lockwashers.

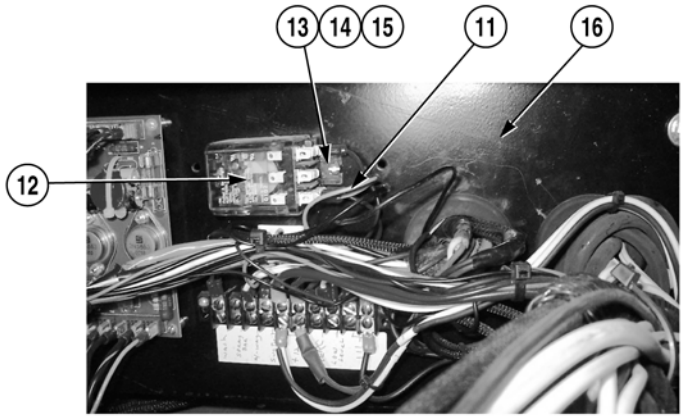
(3) Remove four nuts (7) and lockwashers (8) from studs (9) and rear control panel (10). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(4) Carefully pull rear control panel (10) forward and support rear control panel (10).

3-73. SPRAY BAR CONTROL RELAY REPLACEMENT (CONT).



NOTE

- Tag and mark wires and connectors prior to removal.
- Four wires removed from relay should be red, green and two black.

(5) Remove four wires (11) from relay (12).

(6) Remove two nuts (13), lockwashers (14), screws (15) and relay (12) from panel (16). Discard lockwashers.

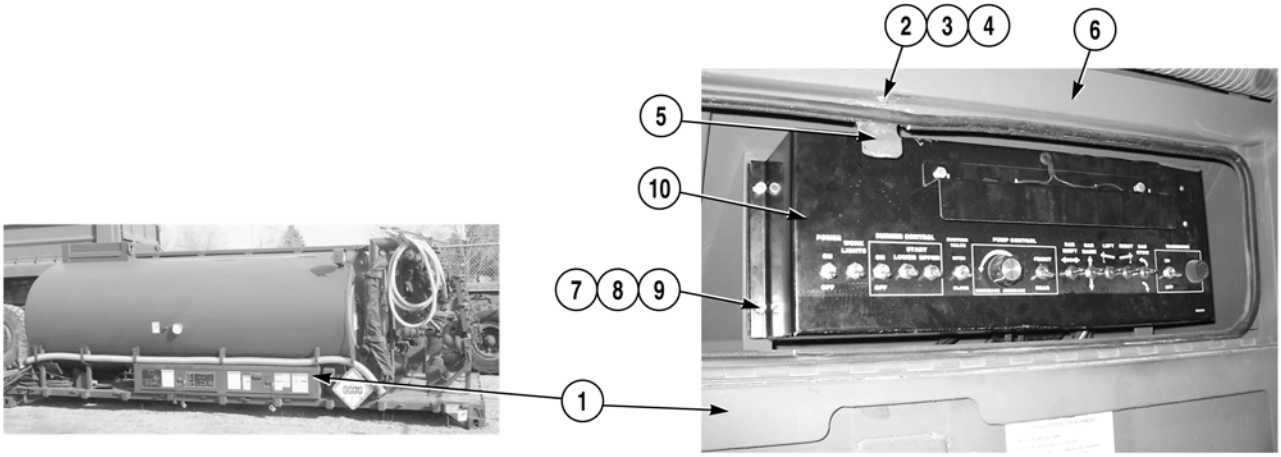
b. Installation.

(1) Install relay (12) on panel (16) with two screws (15), lockwashers (14) and nuts (13).

NOTE

Install wires as noted prior to removal.

(2) Install four wires (11) on relay (12).



(3) Install rear control panel (10) on four studs (9) with lockwashers (8) and nuts (7).

(4) Install latch (5) on stowage box (6) with two screws (4), lockwashers (3) and nuts (2).

(5) Close rear compartment door (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-74. PORTABLE BURNER REPLACEMENT (S/N S3605 AND SUBSEQUENT).

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

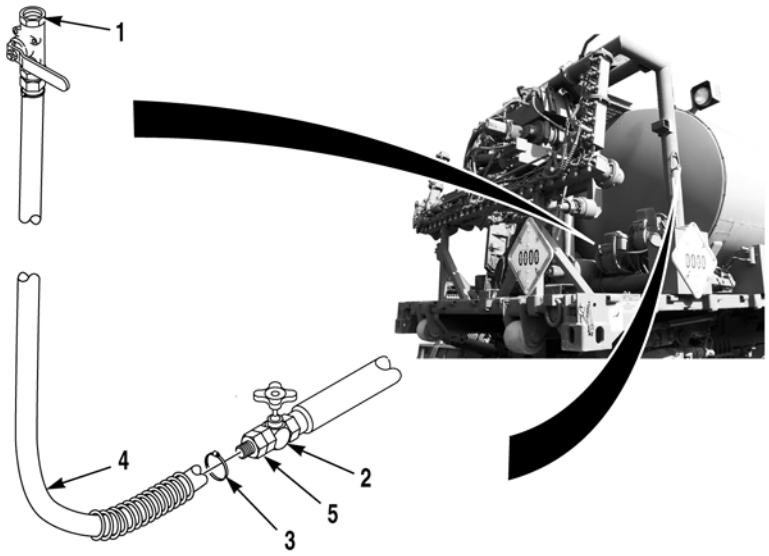
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Cap and Plug Set (Item 3, Appendix F)
Pan, Drain (Item 9, Appendix F)

Materials/Parts
Sealing Compound (Item 8, Appendix E)
Locknut (4) (M45913/1-4CG5C)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



WARNING

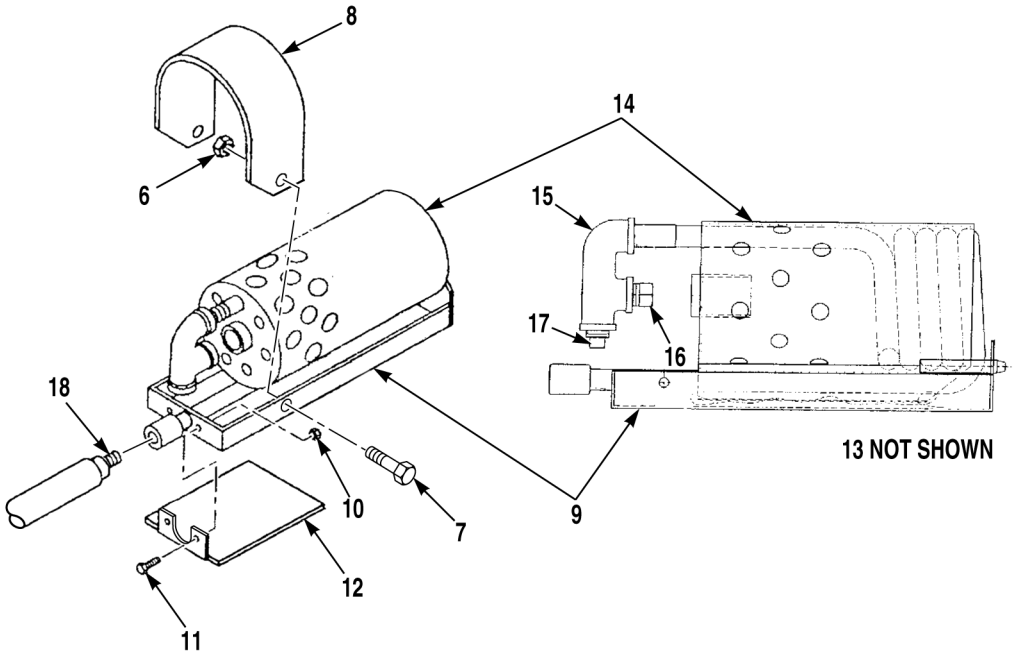
To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.

NOTE

- Position drain pan under hose to catch excess fuel.
- Cap and plug all hoses and fittings upon removal.
- Perform Step (1) if valve(s) are not already closed.

(1) Close two valves (1) and (2).

(2) Remove clamp (3) and hose (4) from fitting (5).



(3) Remove two locknuts (6), screws (7) and cover (8) from pan (9). Discard locknuts.

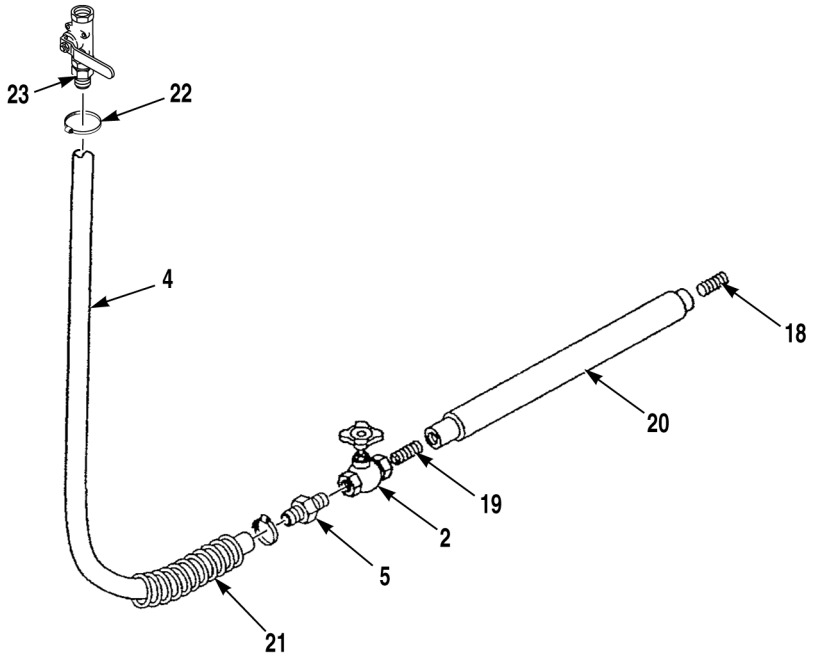
(4) Remove two locknuts (10), screws (11), bracket (12), insulation blanket (13) and pan (9) from coil assembly (14). Discard locknuts.

(5) Remove vaporizing plug holder (15) from coil assembly (14).

(6) Remove vaporizing plug (16) and plug (17) from vaporizing plug holder (15).

(7) Remove coil assembly (14) from nipple (18).

3-74. PORTABLE BURNER REPLACEMENT (S/N S3605 AND SUBSEQUENT) (CONT).



(8) Remove nipple (19) and fitting (5) from valve (2).

(9) Remove two nipples (18) and (19) from handle (20).

NOTE

Note position of spring prior to removal to ensure proper installation.

(10) Remove spring (21) from hose (4).

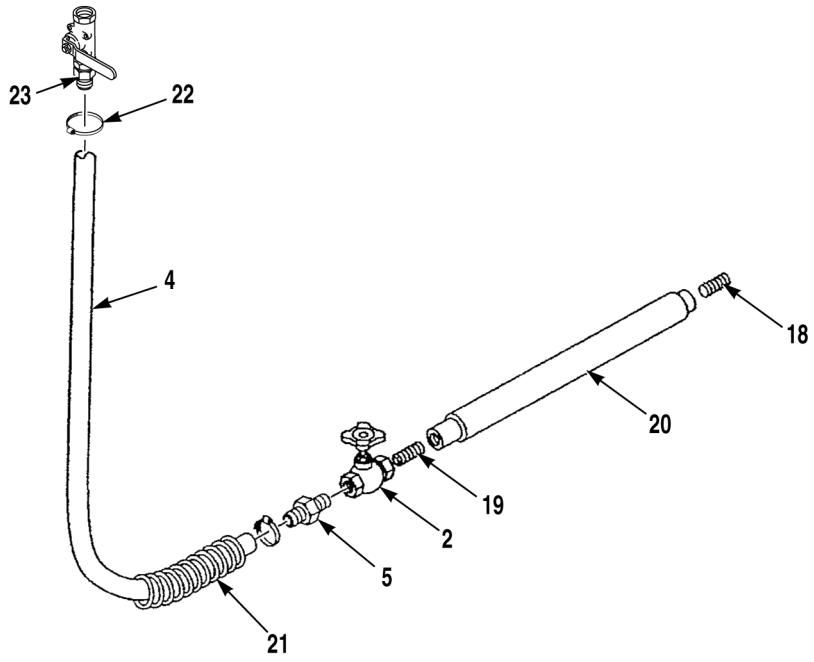
(11) Remove clamp (22) and hose (4) from fitting (23).

b. Installation.

NOTE

If installing existing hose, cut off approximately 1 inch (2.54 cm) of each end of hose.

(1) Install hose (4) on fitting (23) with clamp (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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(2) Apply sealing compound to threads of fitting (5) and two nipples (18) and (19).

(3) Install two nipples (18) and (19) on handle (20).

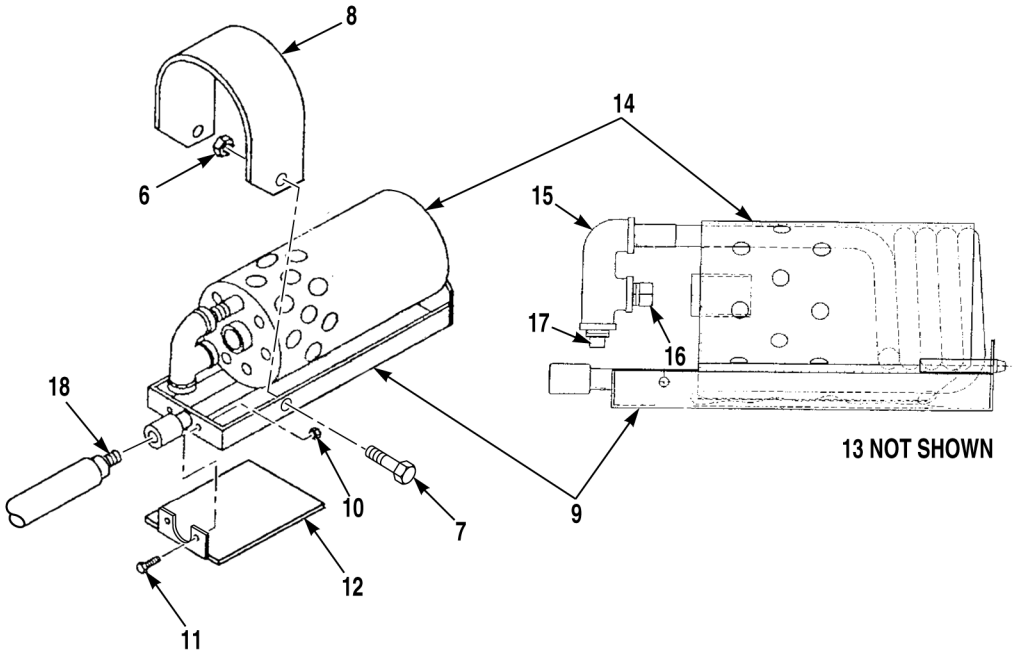
(4) Install fitting (5) and nipple (19) on valve (2).

NOTE

Install spring as noted prior to removal.

(5) Position spring (21) on hose (4).

3-74. PORTABLE BURNER REPLACEMENT (S/N S3605 AND SUBSEQUENT) (CONT).



(6) Install coil assembly (14) on nipple (18).

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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

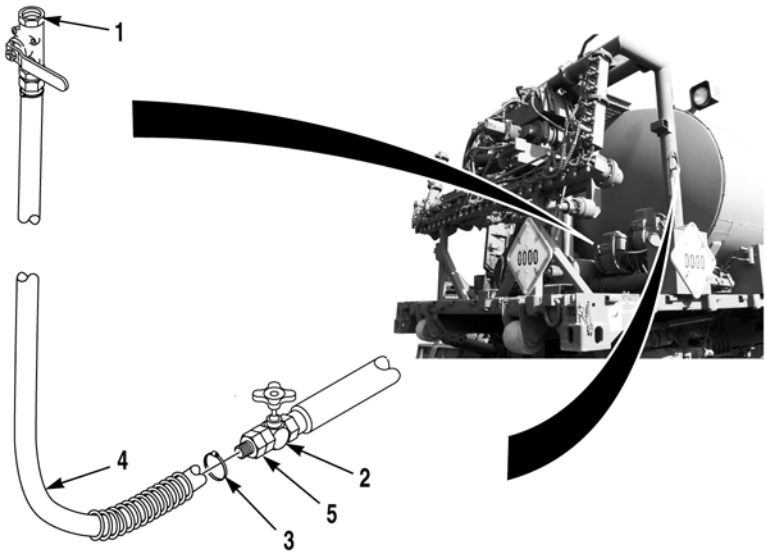
(7) Apply sealing compound to threads of coil assembly (14), vaporizing plug (16) and plug (17).

(8) Install vaporizing plug (16) and plug (17) on vaporizing plug holder (15).

(9) Install vaporizing plug holder (15) on coil assembly (14).

(10) Install bracket (12), pan (9) and insulation blanket (13) on coil assembly (14) with two screws (11) and locknuts (10).

(11) Install cover (8) on pan (9) with two screws (7) and locknuts (6).



(12) Install hose (4) on fitting (5) with clamp (3).

(13) Close valves (1) and (2).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-75. PORTABLE BURNER FUEL SUPPLY VALVE REPLACEMENT (S/N S3605 AND SUBSEQUENT).

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Pan, Drain (Item 9, Appendix F)
Cap and Plug Set (Item 3, Appendix F)

Materials/Parts
Tags, Identification (Item 9, Appendix E)
Sealing Compound (Item 8, Appendix E)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.





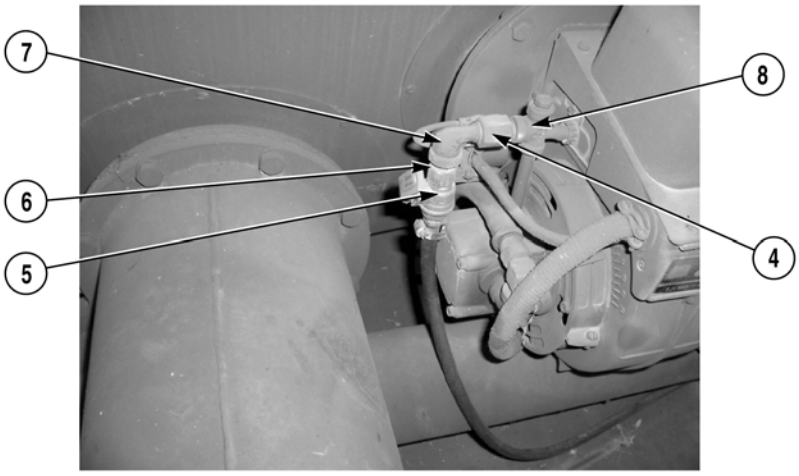
WARNING

To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.

NOTE

- Position drain pan under valve to catch excess fuel.
- Tag and mark all hoses prior to removal.
- Cap and plug all hoses and fittings upon removal.

(1) Loosen clamp (1) and remove hose (2) from fitting (3).



NOTE

- Fitting must be rotated 90° in order to remove valve.
- Note position of elbow and fittings prior to removal.

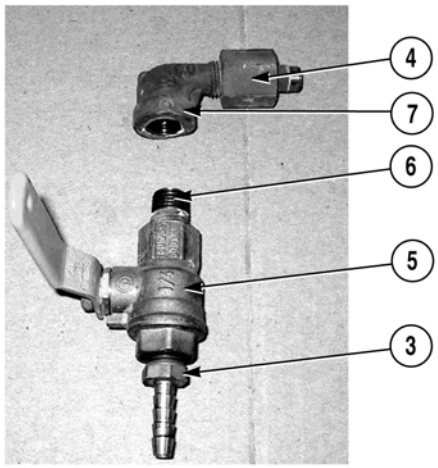
(2) Loosen and rotate fitting (4) 90°.

(3) Remove valve (5) and fitting (6) from elbow (7).

(4) Remove fitting (4) from tee (8).

(5) Remove two fittings (3) and (6) from valve (5).

(6) Remove elbow (7) from fitting (4).



b. 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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(1) Apply sealing compound to three fittings (3), (4) and (6) and elbow (7).

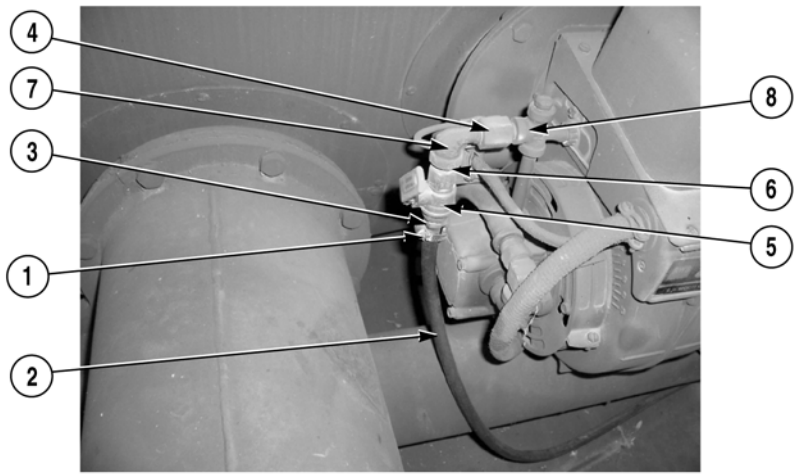
NOTE

Install elbow and fittings as noted prior to removal.

(2) Install elbow (7) on fitting (4).

(3) Install two fittings (3) and (6) on valve (5).

3-75. PORTABLE BURNER FUEL SUPPLY VALVE REPLACEMENT (S/N S3605 AND SUBSEQUENT) (CONT).



NOTE

Do not tighten fitting until after installation of valve.

(4) Install fitting (4) on tee (8).

(5) Install valve (5) and fitting (6) on elbow (7).

(6) Tighten fitting (4) on tee (8).

(7) Install hose (2) on fitting (3) and tighten clamp (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-76. CONTROL PANEL REPLACEMENT (FRONT/REAR).

This task covers:

a. Front b. Rear c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

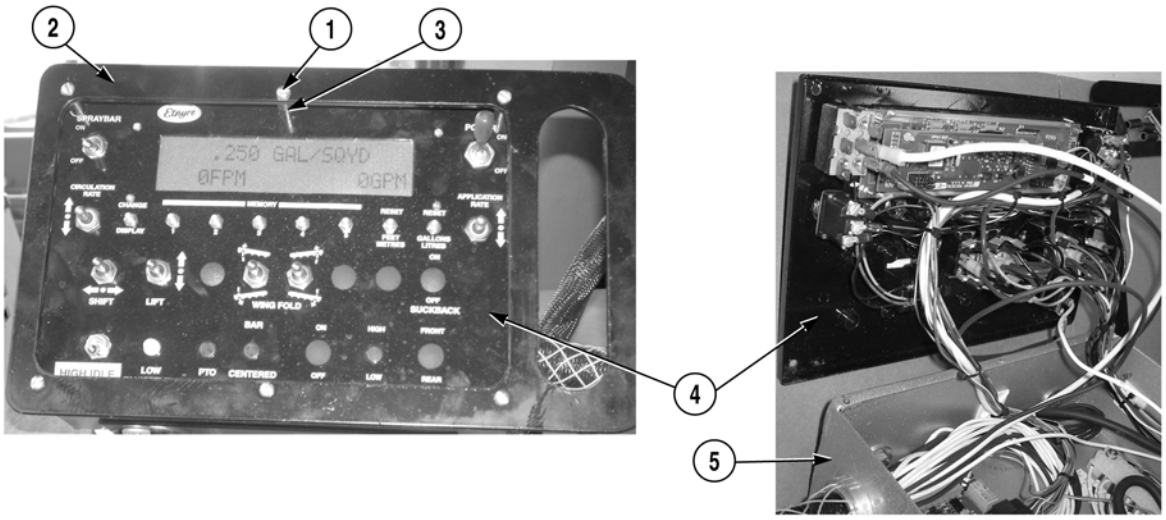
Materials/Parts
Lockwasher (2) (MS 35338-43)
Lockwasher (4) (MS 35338-44)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

NOTE

The primary function of this procedure is to provide access ability to wire harnesses, terminals strips and switches when performing voltage and continuity tests. No wire harnesses, terminals or other components are removed when performing this procedure.

a. Front.



(1) Removal. Remove six screws (1), guard (2), six spacers (3) and control box panel (4) from control box (5).

(2) Installation.

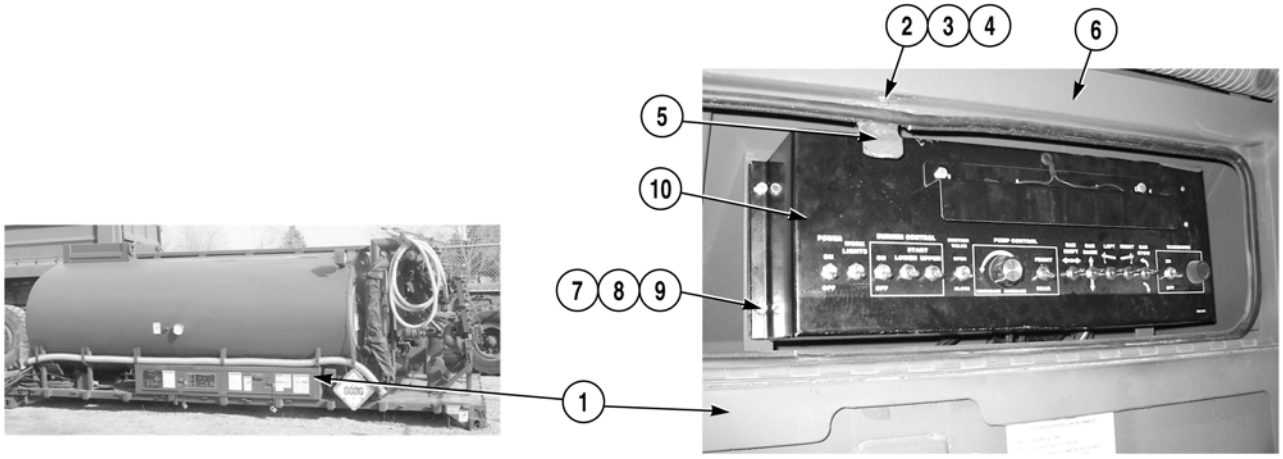
CAUTION

During front control panel removal and installation, the HIGH IDLE switch may have been switched to the ON position. HIGH IDLE switch must be in the OFF position. Failure to comply may result in damage to equipment.

Install guard (2) and control box panel (4) on control box (5) with six spacers (3) and screws (1).

3-76. CONTROL PANEL REPLACEMENT (FRONT/REAR) (CONT).

b. Rear.



(1) Removal.

(a) Open rear compartment door (1).

(b) Remove two nuts (2), lockwashers (3), screws (4) and latch (5) from stowage box (6). Discard lockwashers.

(c) Remove four nuts (7) and lockwashers (8) from studs (9) and rear control panel (10). Discard lockwashers.

CAUTION

Rear control panel has wires attached. Use extreme care when supporting rear control panel to avoid damage to equipment.

(d) Carefully pull rear control panel (10) forward and support rear control panel (10).

(2) Installation.

(a) Install rear control panel (10) on four studs (9) with lockwashers (8) and nuts (7).

(b) Install latch (5) on stowage box (6) with two screws (4), lockwashers (3) and nuts (2).

(c) Close rear compartment door (1).

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-77. DISTRIBUTION LINE, BOOT AND BALL REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

INITIAL SETUP

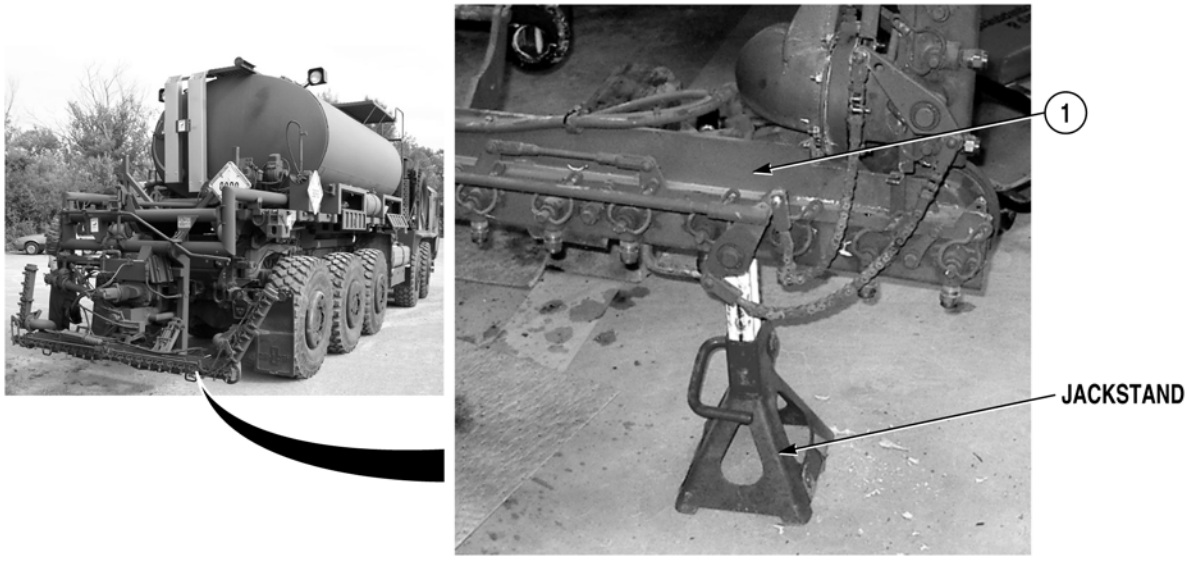
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Sealing Compound (Item 13, Appendix E)
Sealing Compound (Item 6, Appendix E)
Sealing Compound (Item 14, Appendix E)
Compound, Antiseize (Item 2 Appendix E)
Hydraulic Oil (Item 3, Appendix E)
Cotter Pin (2) (MS 24665-513)

Materials/Parts (Cont)
Lockwasher (8) (H22-56-52)
Boot (2) (3352859)
Preformed Packing (2) (OR-351-2820-744)
Sleeve (439B656PC16)

Equipment Condition
Spray bar deployed, (Para 2-17)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.



WARNING

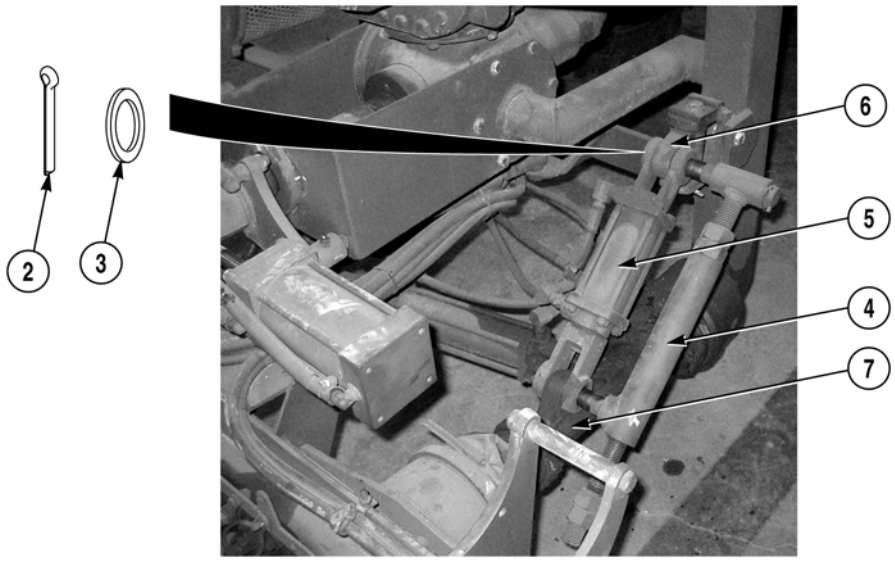
Spray bar assembly weighs 90 lbs (41 kg). When removing adjusting arm, cylinder and feed tube, spray bar assembly will need to be supported. Failure to comply may cause serious injury to personal and damage to equipment.

NOTE

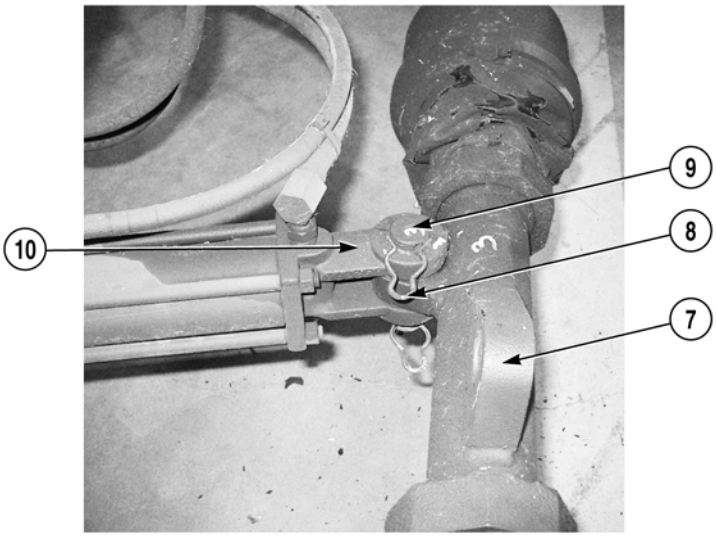
Both right and left adjusting arms, cylinders and feed tubes are replaced the same way. Right side shown.

(1) Place jackstand under spray bar (1).

3-77. DISTRIBUTION LINE, BOOT AND BALL REPLACEMENT (CONT).



(2) Remove two cotter pins (2), washers (3), adjusting arm (4) and cylinder (5) from pivot lug (6) and feed tube (7). Discard cotter pins.



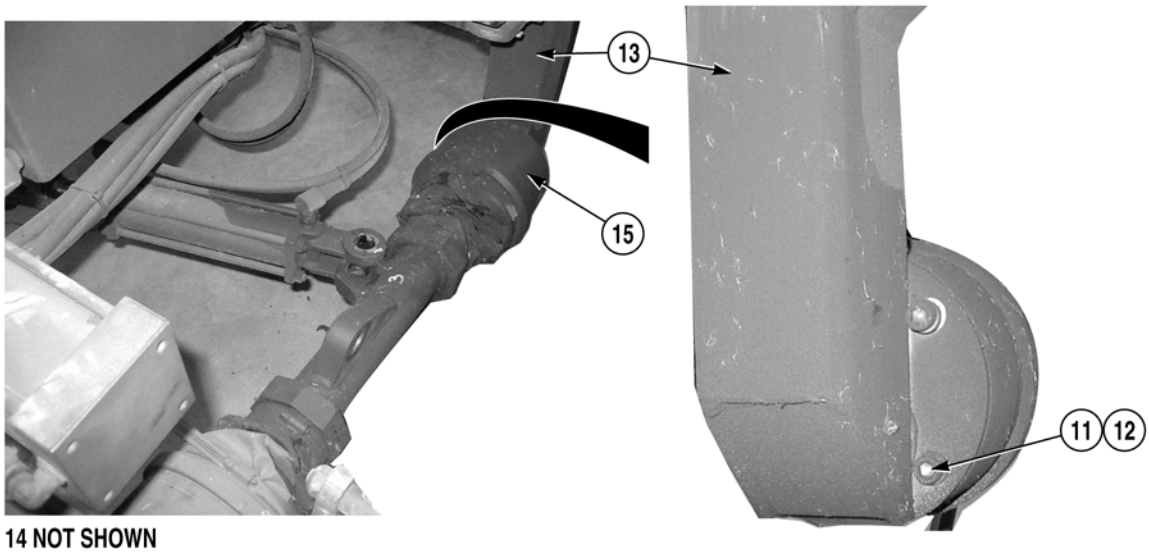
(3) Remove two lock pins (8) and pin (9) from cylinder (10) and feed tube (7).



WARNING

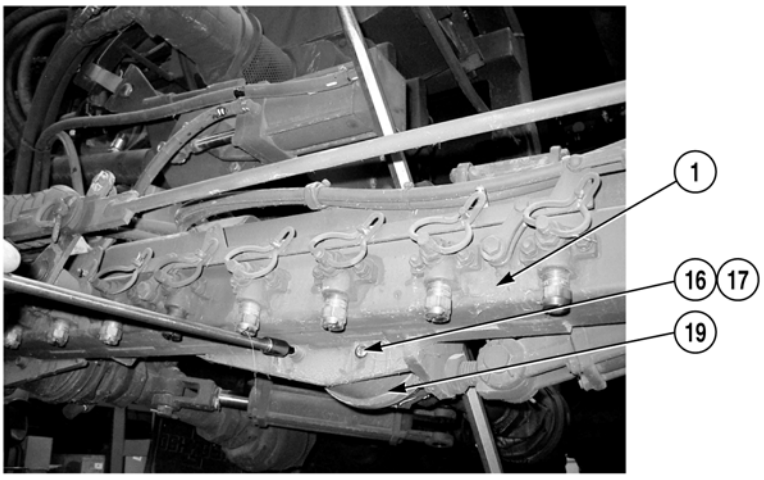
Feed tube and ball end assemblies weigh 70 lbs (32 kg). Feed tube must be supported before removing screws from pipe assembly and feed tube. Failure to comply may cause serious injury to personnel and damage to equipment.

(4) Position two jackstands under feed tube (7).



(5) Remove four screws (11) and lockwashers (12) from pipe assembly (13), gasket (14) and ball case (15). Discard lockwashers.

3-77. DISTRIBUTION LINE, BOOT AND BALL REPLACEMENT (CONT).



18 NOT SHOWN

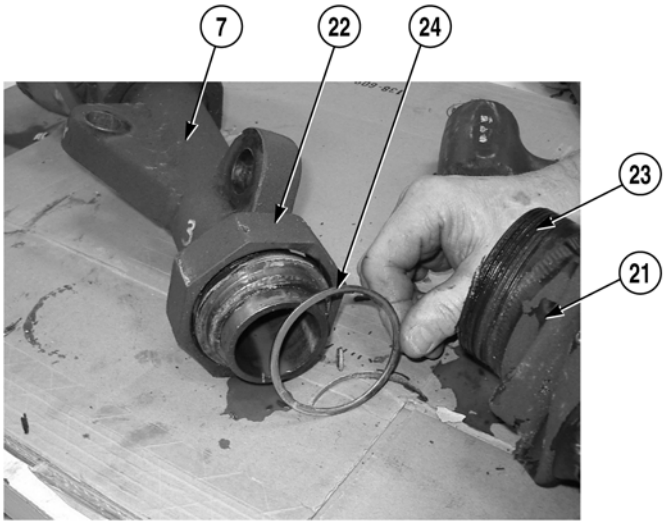
(6) Remove four screws (16) and lockwashers (17) from spray bar (1), gasket (18) and ball case (19). Discard lockwashers.



NOTE

Both ball case assemblies are replaced the same way. Front ball case assembly shown.

(7) Remove two clamps (20) from boot (21).

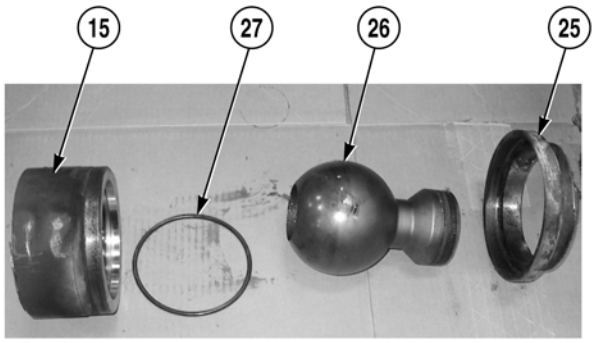


(8) Remove nut (22) from ball (23).

(9) Remove seal (24) from feed tube (7).

(10) Remove boot (21) from ball (23). Discard boot.

3-77. DISTRIBUTION LINE, BOOT AND BALL REPLACEMENT (CONT).



WARNING

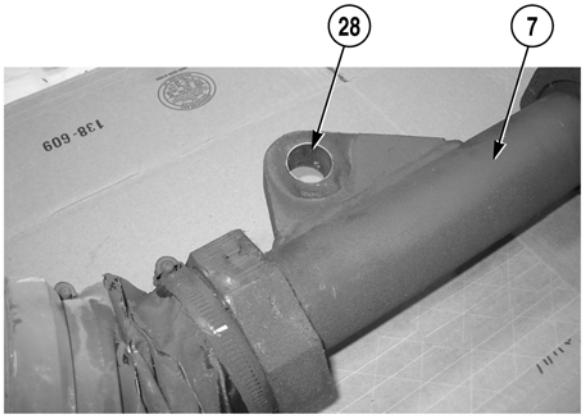
- When heating ball nut with torch, O-ring may be heated beyond design temperatures.

Fluoroelastomer Handling

- Preformed packing and seals used in this task are made from fluoroelastomers. When used under design conditions, fluoroelastomers do not require special handling. However, when fluoroelastomers are heated to temperatures beyond their design temperature around 600°F (316°C), decomposition may occur with the formation of hydrofluoric acid. Hydrofluoric acid can be extremely corrosive to human tissue if not handled properly.
- A degraded seal may appear as a charred or black sticky mass. Do not touch either the seal or the surrounding equipment without wearing neoprene or PVC gloves if degradation is suspected. Wash parts and equipment with 10% lime water (calcium hydroxide solution) to neutralize any hydrofluoric acid.
- If contact with the skin occurs, wash affected areas immediately with water. Then rub a 2.5 calcium gluconate gel into the skin until there is no further irritation. Seek prompt medical attention. Failure to comply may cause serious injury to personnel.

(11) Remove ball nut (25) and ball (26) from ball case (15).

(12) Remove preformed packing (27) from ball case (15). Discard preformed packing.



NOTE

Perform Step (13) if sleeve needs to be replaced.

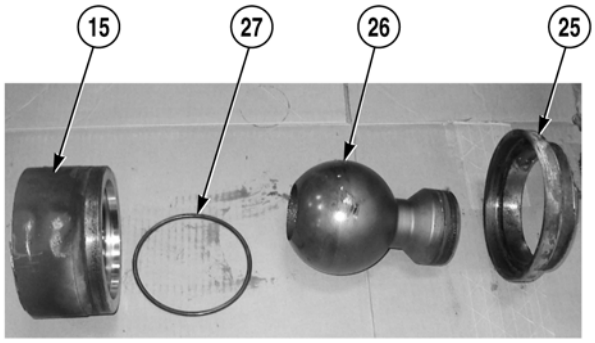
(13) Remove sleeve (28) from feed tube (7). Discard sleeve.

b. Installation.

NOTE

Perform Step (1) if sleeve needs to be installed.

(1) Install sleeve (28) on feed tube (7).

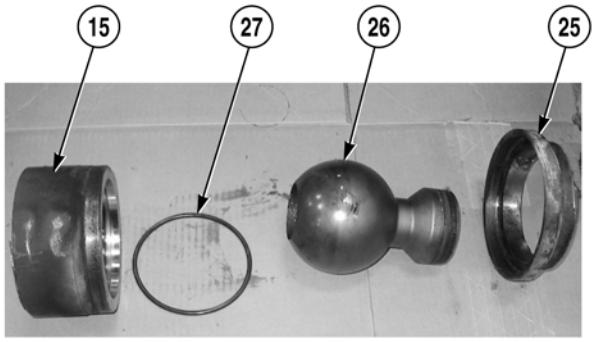


(2) Apply hydraulic oil to preformed packing (27).

(3) Install preformed packing (27) on ball case (15).

(4) Apply grease to ball (26).

3-77. DISTRIBUTION LINE, BOOT AND BALL REPLACEMENT (CONT).



WARNING

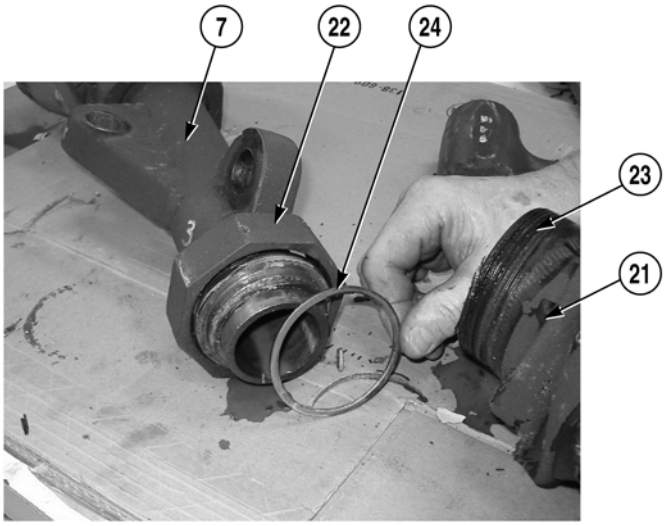
Adhesives, solvents and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap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

(5) Apply sealing compound (Loctite 271) to threads of ball case (15).

NOTE

Ball nut is tightened just past hand tight.

(6) Install ball (26) on ball case (15) with ball nut (25).



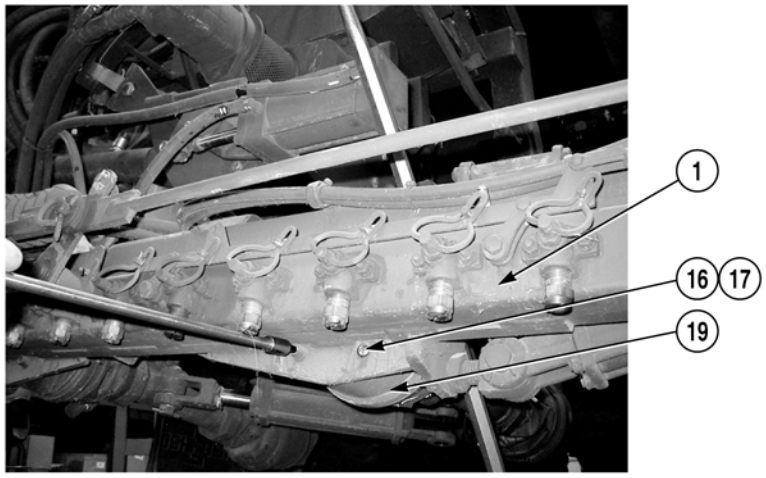
NOTE

Clamps will be installed in Step (15).

(7) Position boot (21) on ball (23). Do not install clamps.

(8) Install seal (24) on feed tube (7).

(9) Install ball (23) on feed tube (7) with nut (22).

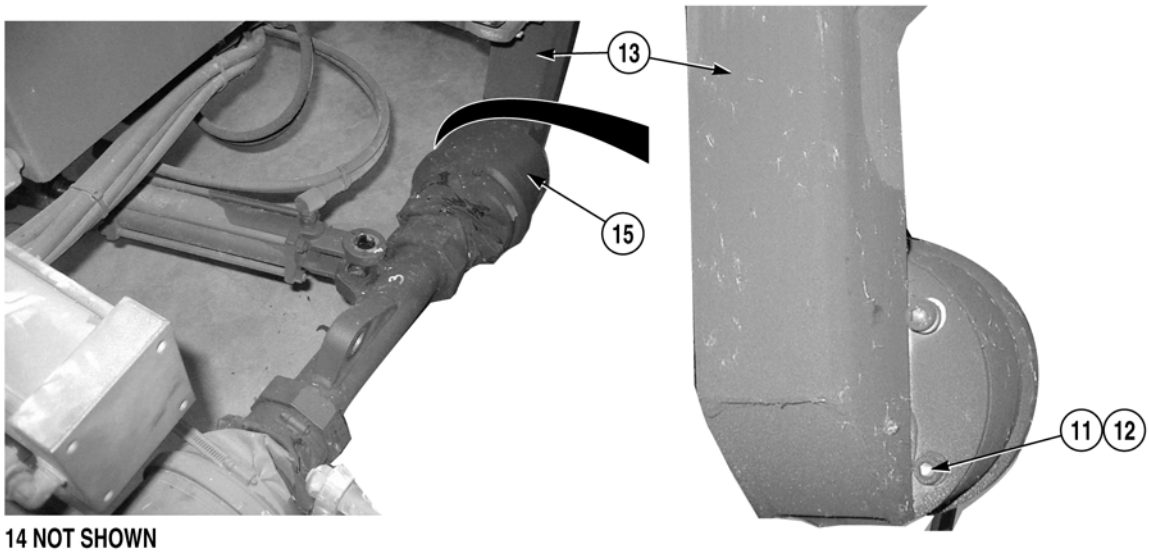


18 NOT SHOWN

(10) Apply sealing compound (Loctite 510) to two gaskets (14) and (18).

(11) Apply sealing compound (Loctite 242) to threads of four screws (16).

(12) Install gasket (18) and ball case (19) on spray bar (1) with four lockwashers (17) and screws (16).



14 NOT SHOWN

(13) Apply sealing compound (Loctite 242) to threads of four screws (11).

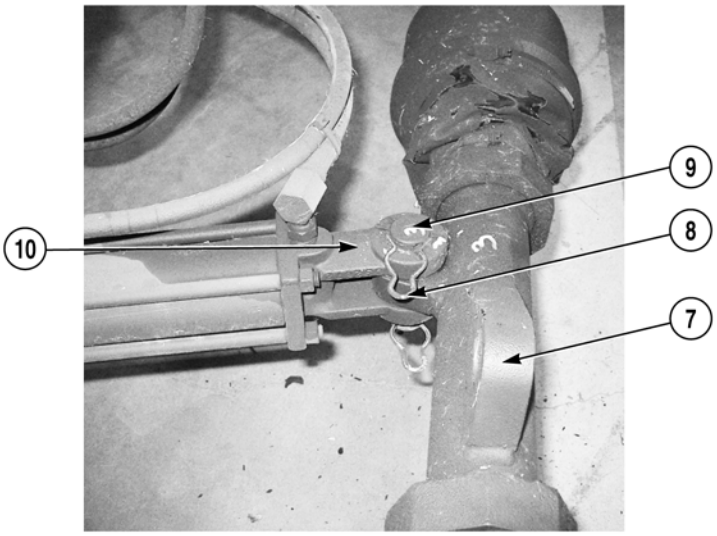
(14) Install gasket (14) and ball case (15) on pipe assembly (13) with four lockwashers (12) and screws (11).

3-77. DISTRIBUTION LINE, BOOT AND BALL REPLACEMENT (CONT).

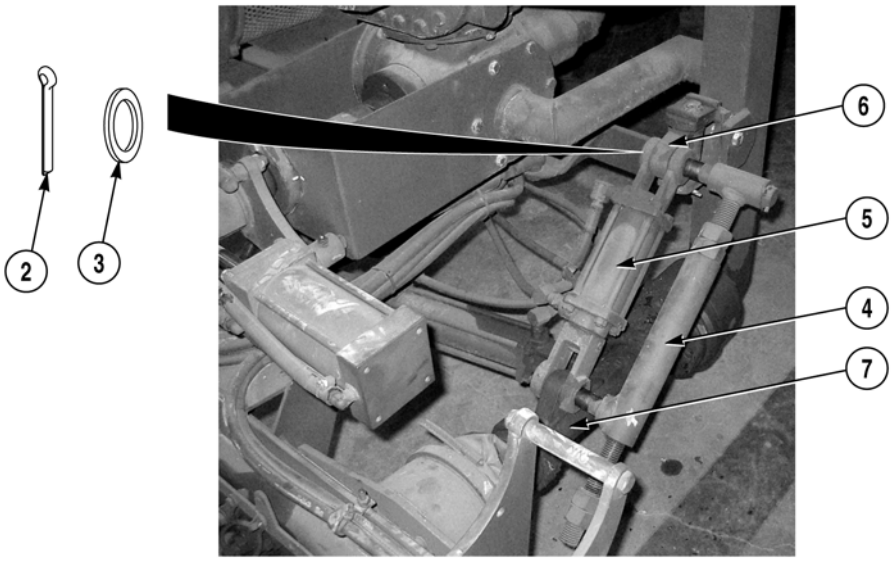


(15) Install and tighten two clamps (20) on boot (21).

(16) Apply antiseize on pin (9).



(17) Install cylinder (10) on feed tube (7) with pin (9) and two lock pins (8).



(18) Apply antiseize on pins of adjusting arm (4).

(19) Install adjusting arm (4) and cylinder (5) on pivot lug (6) and feed tube (7) with two washers (3) and cotter pins (2).

c. Follow-On Maintenance:

- Stow spray bar, (Para 2-17).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-78. FOUR-WAY SHAFT BEARING REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

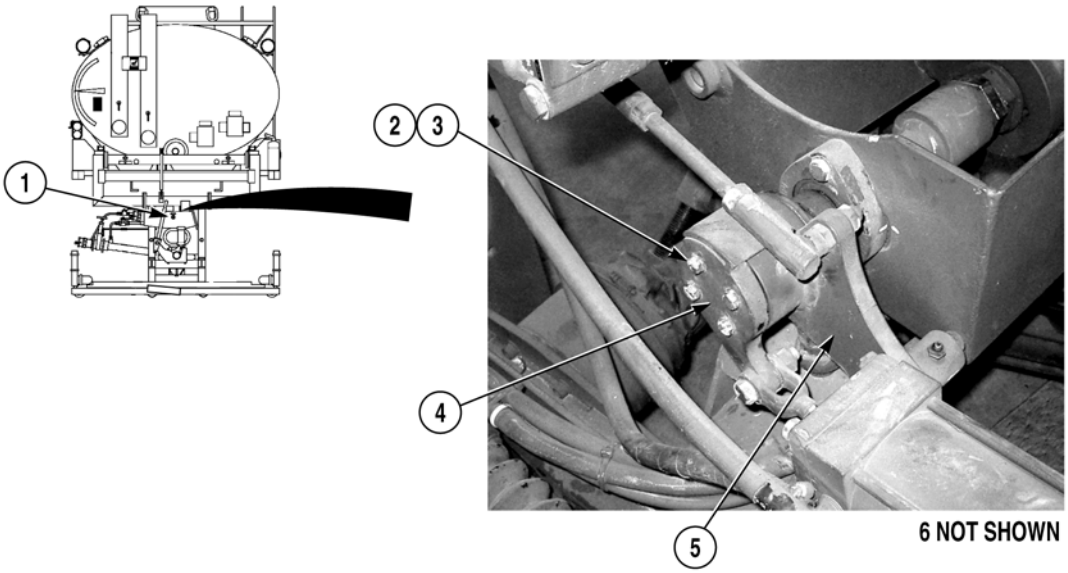
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Compound, Antiseize (Item 2 Appendix E)
Lockwasher (4) (MS 35338-44)
Lockwasher (2) (R10-5.50-3)

Equipment Condition
Spray bar deployed, (Para 2-17)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Removal.

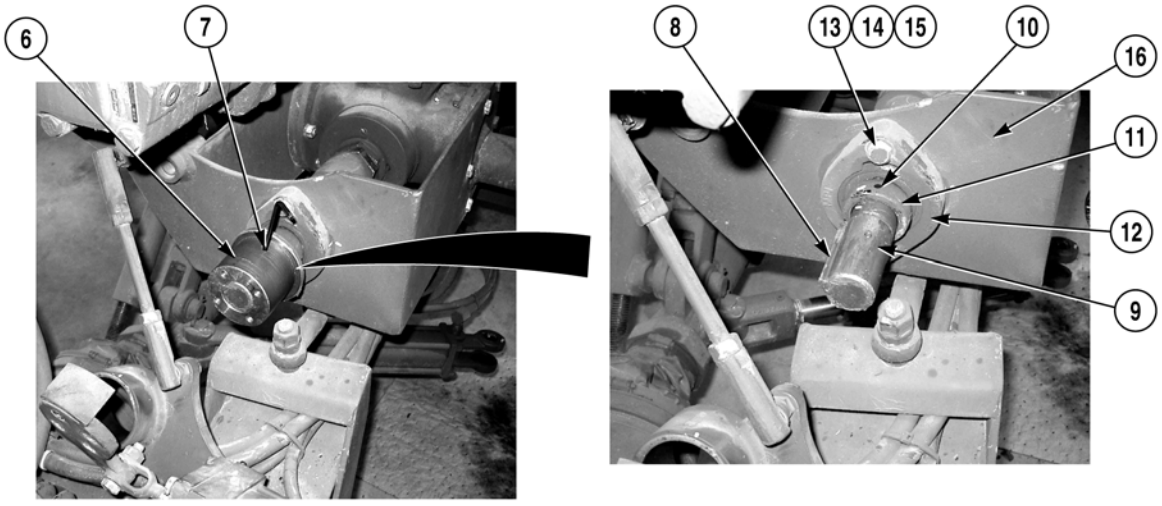


(1) Put handle (1) in CIRCULATE IN TANK position.

NOTE

Air cylinder, cover and lever assembly are removed as an assembly.

(2) Remove four screws (2), lockwashers (3), cover (4) and lever assembly (5) from actuator (6). Discard lockwashers.



(3) Remove two sets screws (7), actuator (6) and key (8) from shaft (9).

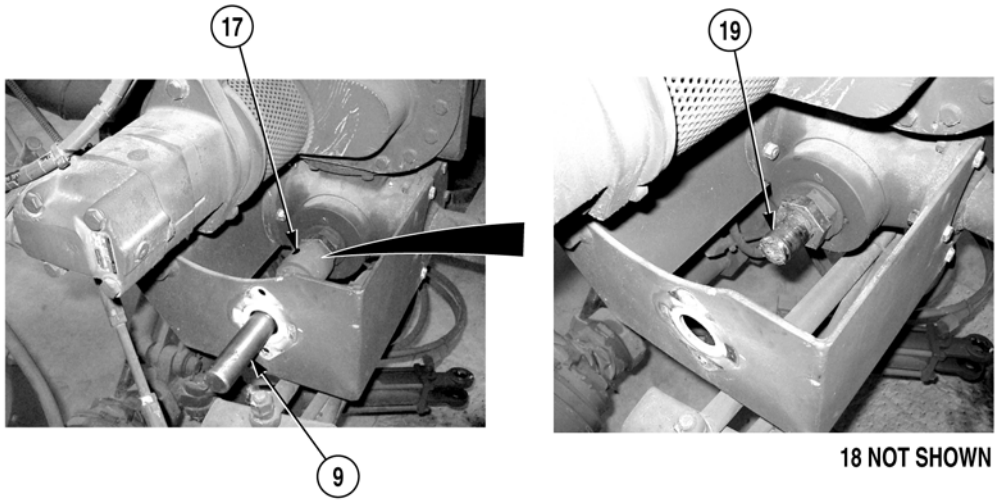
NOTE

Lock collar is an internally cut cam and is held in place on shaft with set screw, and on bearing by friction. Lock collar is removed by rotating lock collar either clockwise or counterclockwise.

(4) Remove set screw (10) from lock collar (11).

(5) Remove lock collar (11) from bearing (12) and shaft (9).

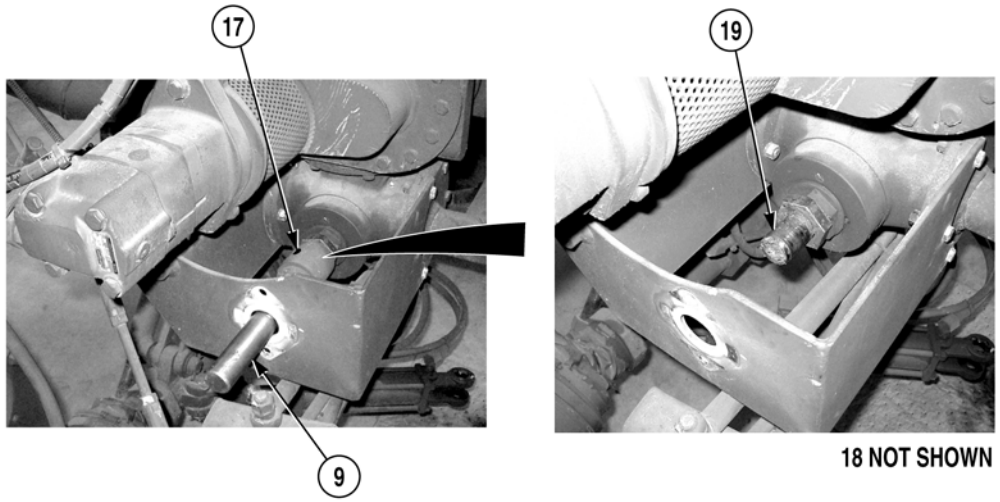
(6) Remove two nuts (13), lockwashers (14), screws (15) and bearing (12) from shaft (9) and bracket (16). Discard lockwashers.



(7) Remove two set screws (17), key (18) and shaft (9) from shaft (19).

3-78. FOUR-WAY SHAFT BEARING REPLACEMENT (CONT).

b. Installation.

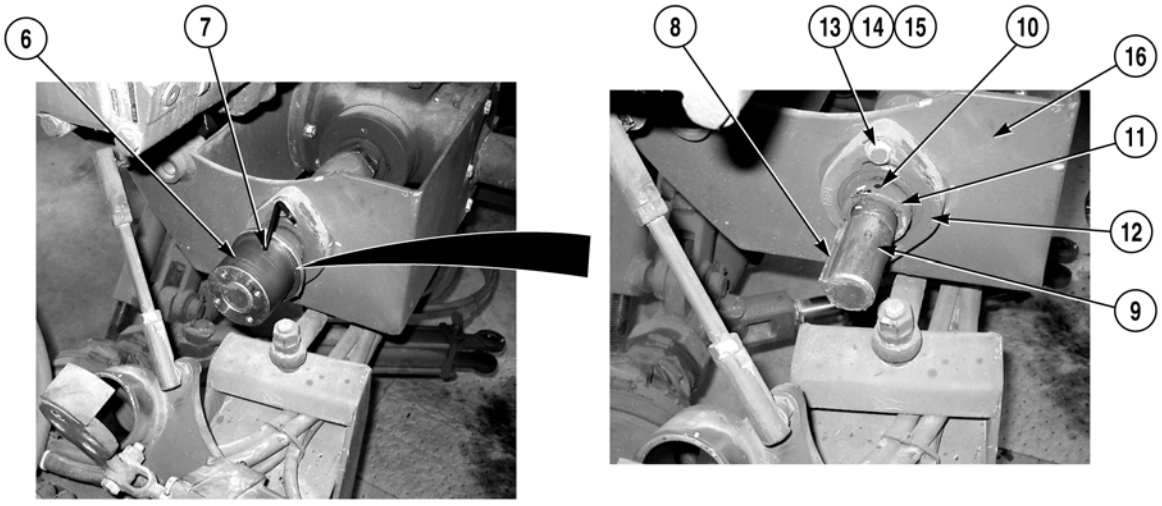


WARNING

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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

(1) Apply antiseize on shaft (19).

(2) Install shaft (9) on shaft (19) with key (18) and two set screws (17).



(3) Apply antiseize on shaft (9).

(4) Position bearing (12) on shaft (9).

(5) Install bearing (12) on bracket (16) with two screws (13), lockwashers (14) and nuts (15).

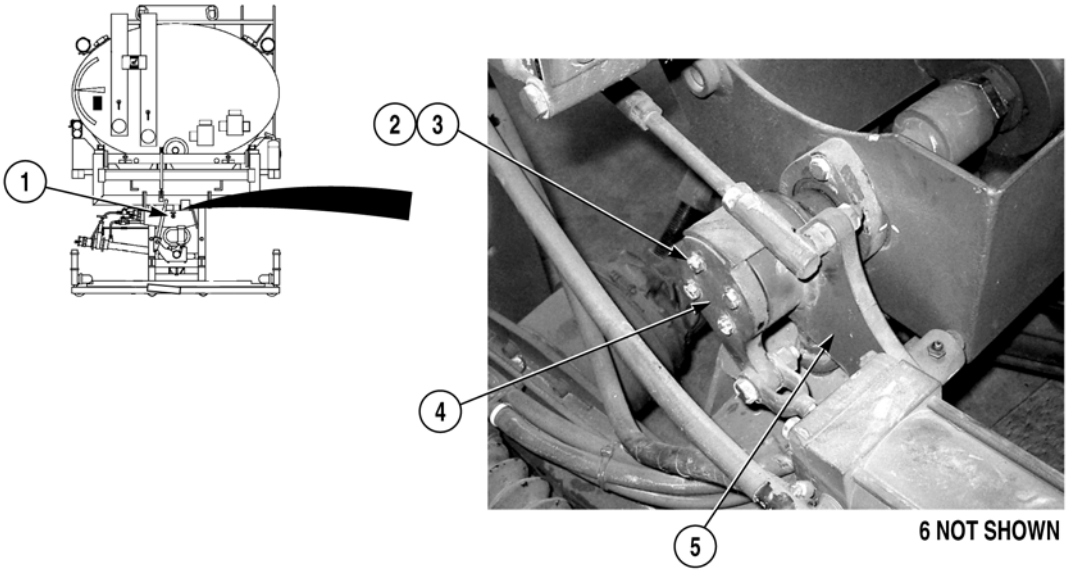
NOTE

Lock collar is locked in place by turning lock collar on bearing either clockwise or counterclockwise.

(6) Rotate lock collar (11) and install set screws (10) on shaft (9).

(7) Install actuator (6) on shaft (9) with key (8) and two set screws (7).

3-78. FOUR-WAY SHAFT BEARING REPLACEMENT (CONT).



NOTE

Air cylinder, cover and lever assembly are installed as an assembly.

(8) Install cover (4) and lever assembly (5) on actuator (6) with four lockwashers (3) and screws (2).

(9) Handle (1) may remain in CIRCULATE IN TANK position.

c. Follow-On Maintenance:

- Stow spray bar, (Para 2-17).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-79. ASPHALT PUMP TIMING GEAR REPLACEMENT.

This task covers:

a. Removal b. Installation c. Follow-On Maintenance

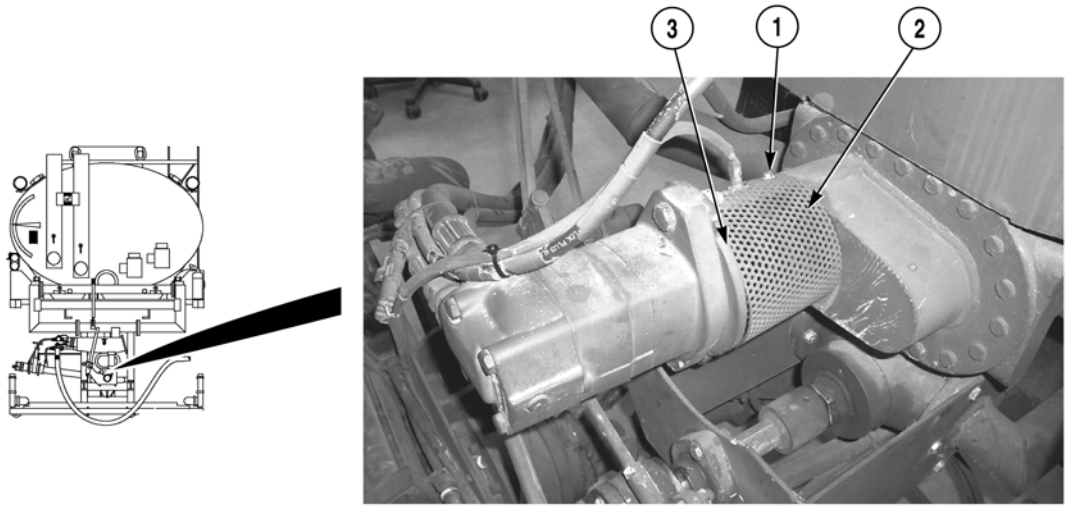
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Materials/Parts
Compound, Antiseize (Item 2 Appendix E)

Equipment Condition
Hydraulic motor removed, (Para 3-4)

a. Removal.



(1) Remove screw (1) and guard (2) from asphalt pump (3).

3-79. ASPHALT PUMP TIMING GEAR REPLACEMENT (CONT).



NOTE

Note position of timing gear on shaft. Teeth on timing gear must be centered under speed sensor.

(2) Remove two set screws (4), timing gear (5) and key (6) from shaft (7).

b. 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 adhesives, solvent or sealing compound gets on skin or clothing, wash immediately with soap and water.

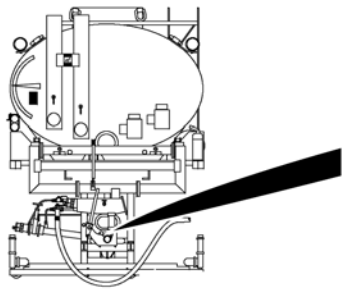
(1) Apply antiseize on shaft (7).

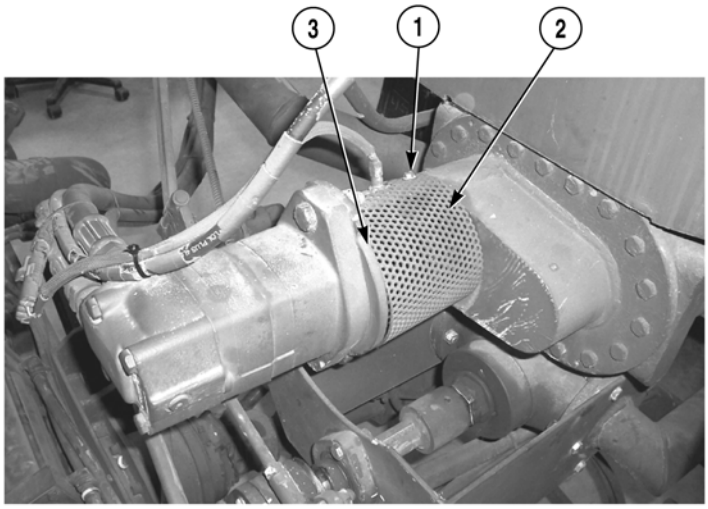
NOTE

Install timing gear on shaft as noted prior to removal. Teeth on timing gear must be centered under speed sensor.

(2) Install key (6) and timing gear (5) on shaft (7) with two set screws (4).

(3) Adjust speed sensor, (Para 3-17).





(4) Install guard (2) on asphalt pump (3) with screw (1).

c. Follow-On Maintenance:

- Install hydraulic motor, (Para 3-4).
- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

3-80. WIRE REPAIR.

This task covers:

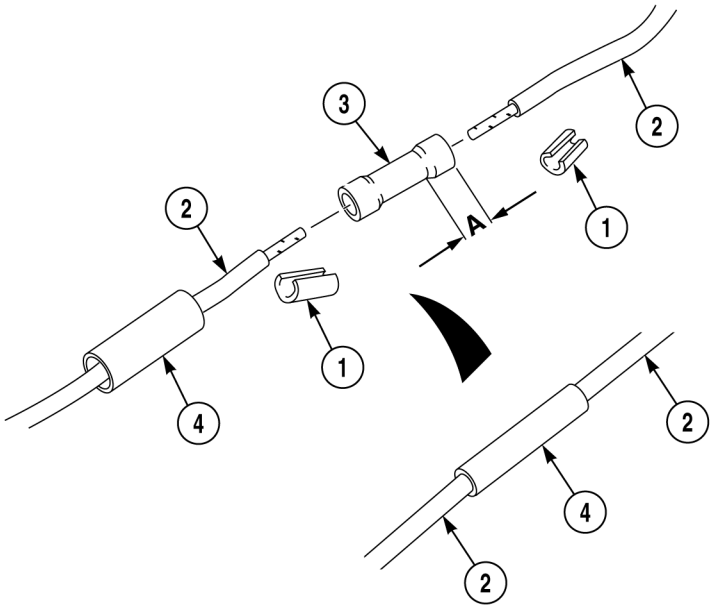
a. Type 1 Wire Repair b. Type 2 Wire Repair c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Crimping Tool (Item 4, Appendix F)

Equipment Condition
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

a. Type 1 Wire Repair.



NOTE

If required, remove butt connector from wire.

(1) Remove insulation (1) from both ends of wires (2) equal to dimension A on butt connector (3).

(2) Slide 3 in. (76.20 mm) piece of heatshrink tubing (4) over end of one wire (2).

NOTE

Ensure all strands of wire are inside terminal of butt connector.

(3) Install bare ends of wire (2) in butt connector (3) and crimp securely.

(4) Inspect wire splice to ensure no bare wire is visible.

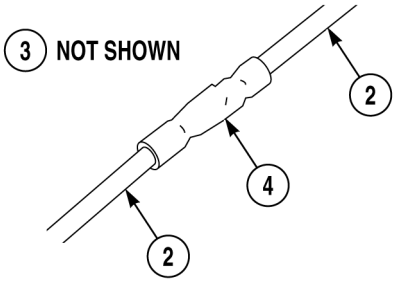
(5) Slide heatshrink tubing (4) over butt connector (3).

WARNING

- Never use open flame to apply heat to heatshrink tubing. Failure to comply may result in injury to personnel.
- Allow heatshrink tubing to cool before handling. Failure to comply may result in injury to personnel.

CAUTION

Do not overheat tubing. Failure to comply may cause damage to equipment.

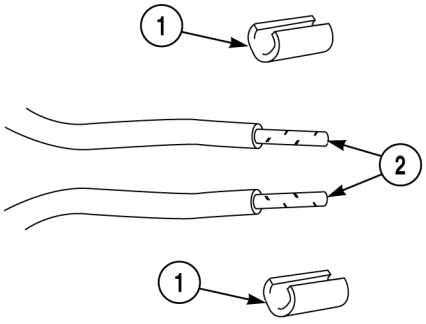


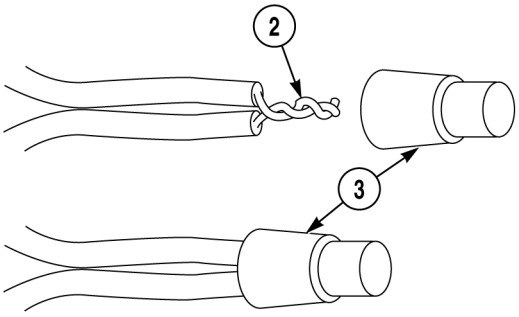
NOTE

Ensure butt connector is centered in heatshrink tubing.

(6) Apply heat to heatshrink tubing (4). Allow heatshrink tubing to shrink until tight on butt connector (3) and wire (2).

b. Type 2 Wire Repair.





NOTE

Remove pigtail, spade or ring connector from remaining wire(s) if required. Pigtail connector shown.

(1) Remove insulation (1) from both ends of wires (2) equal to the length on connector (3).

(2) Twist two ends of wires (2) together.

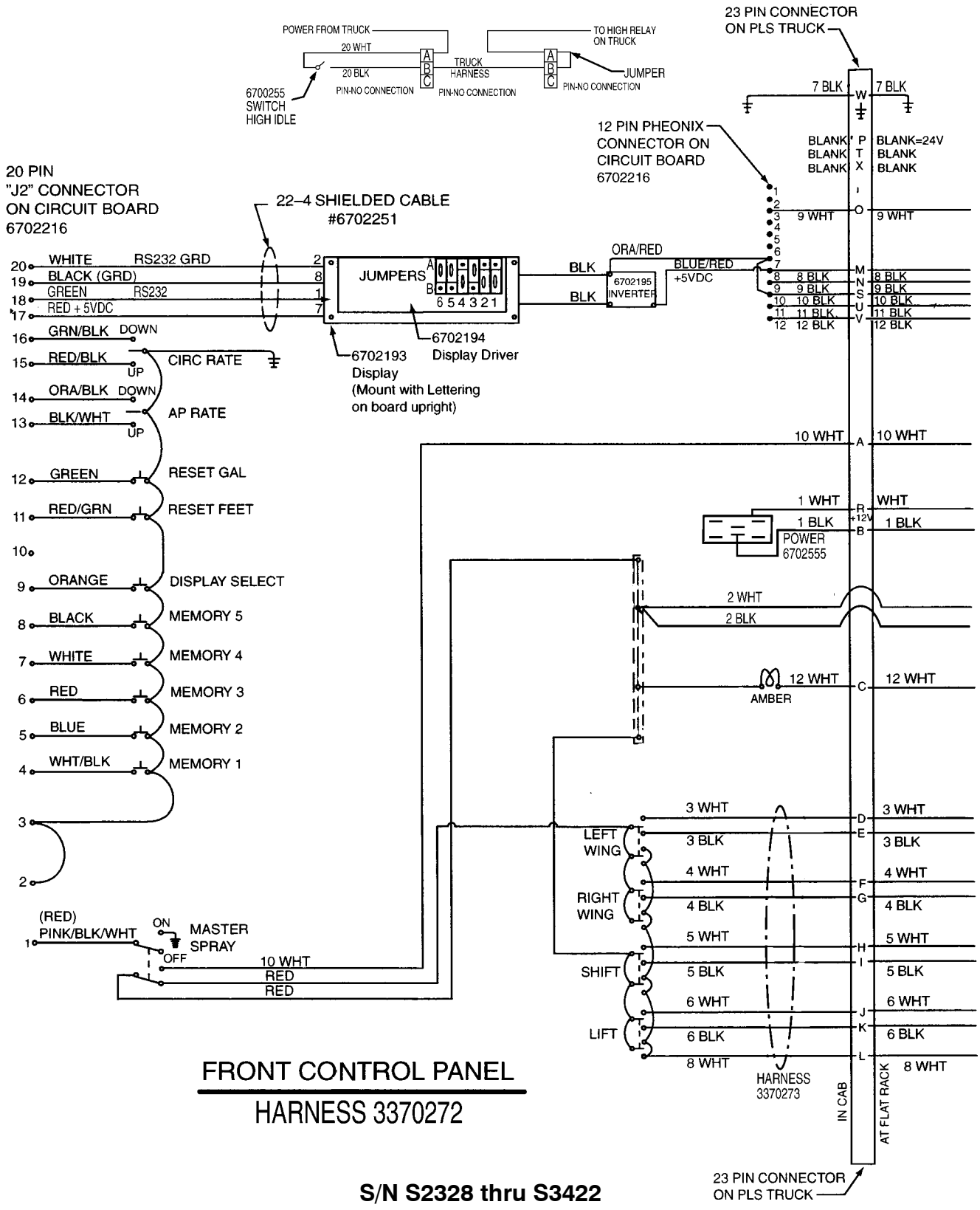
(3) Install connector (3) on two wires (2) and crimp securely.

c. Follow-On Maintenance:

- Remove wheel chocks, (TM 9-2320-364-10).

END OF TASK

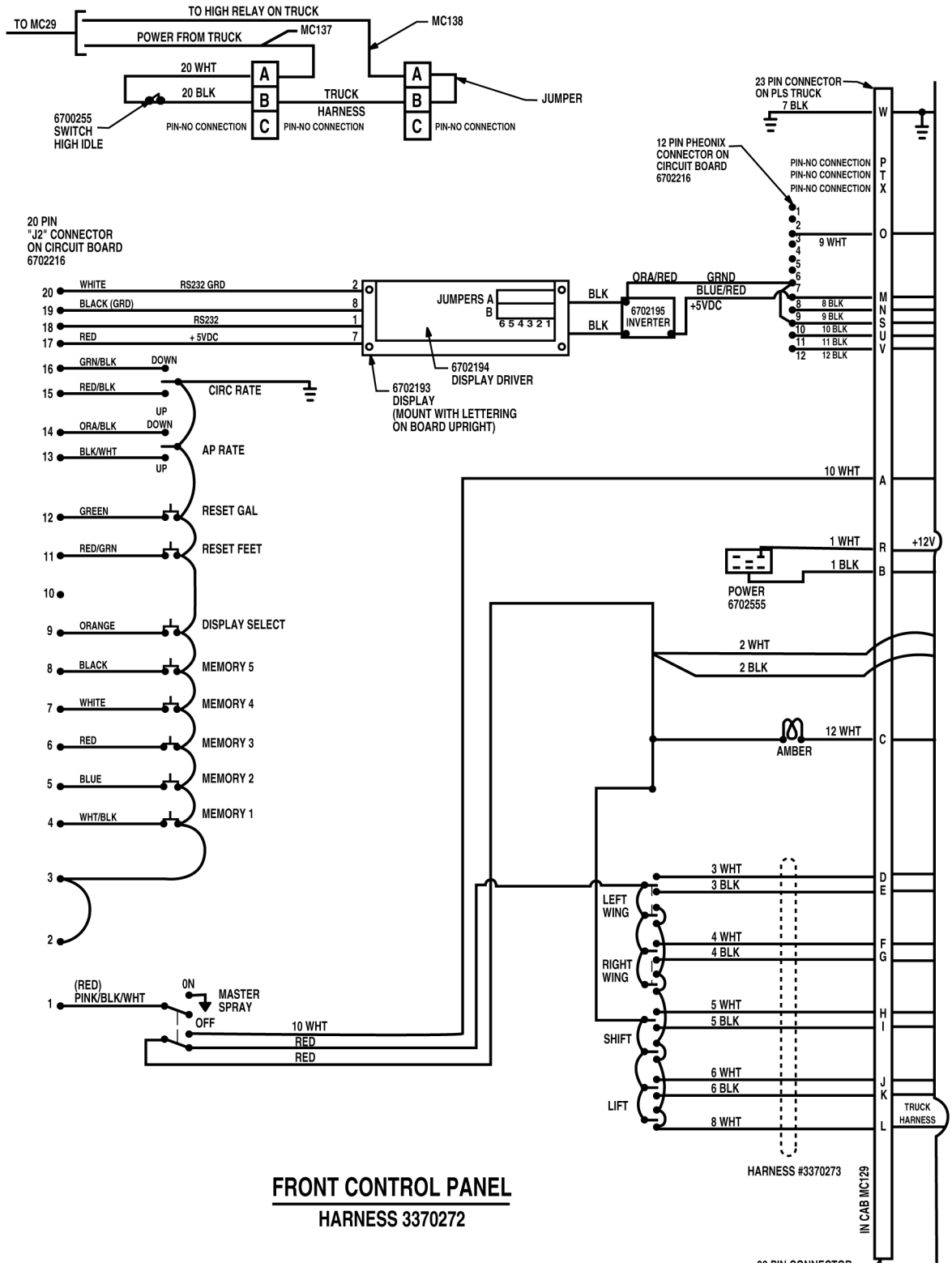
3-81. WIRING DIAGRAM FRONT CONTROL PANEL.



FRONT CONTROL PANEL

HARNESS 3370272

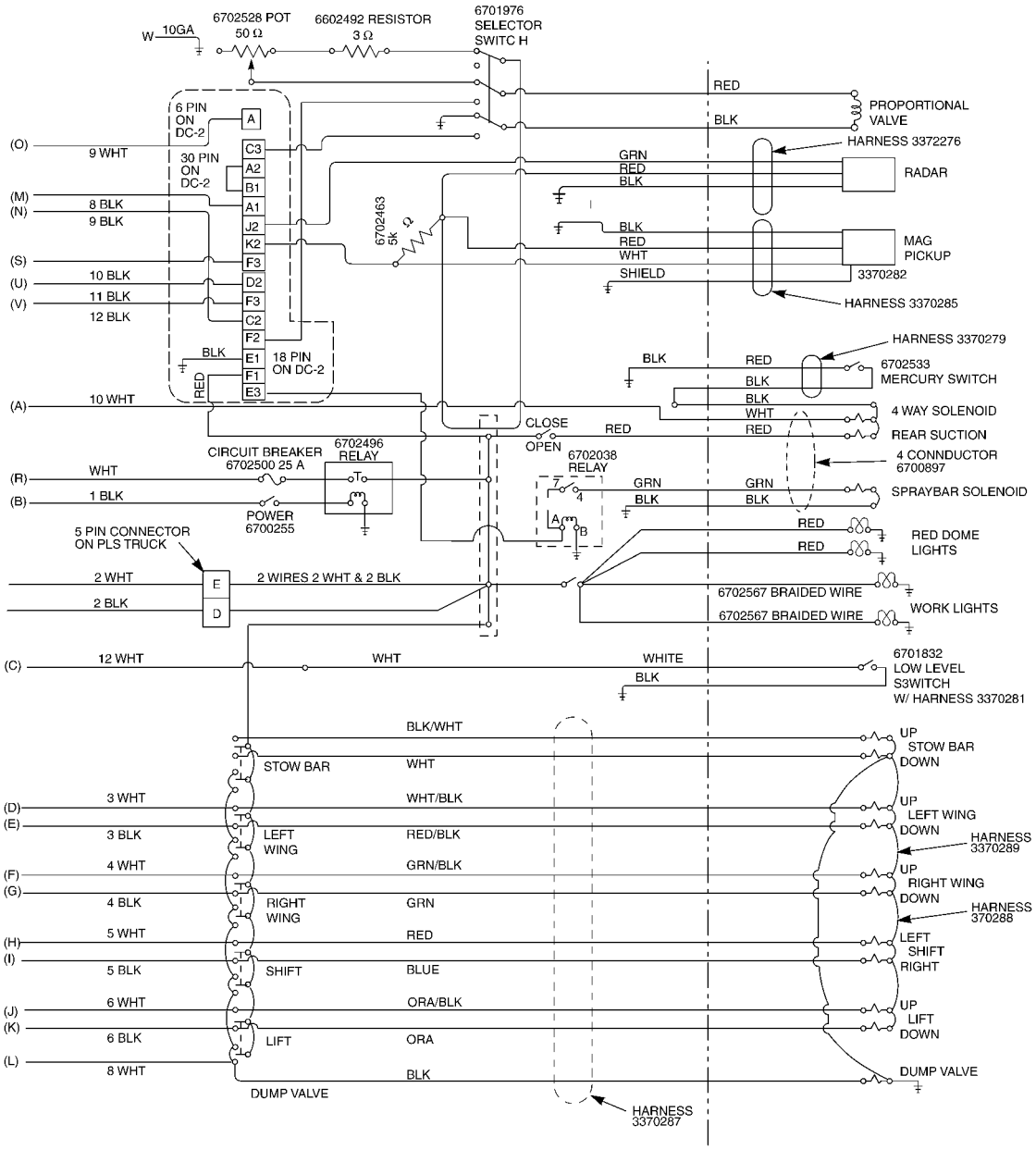
S/N S2328 thru S3422



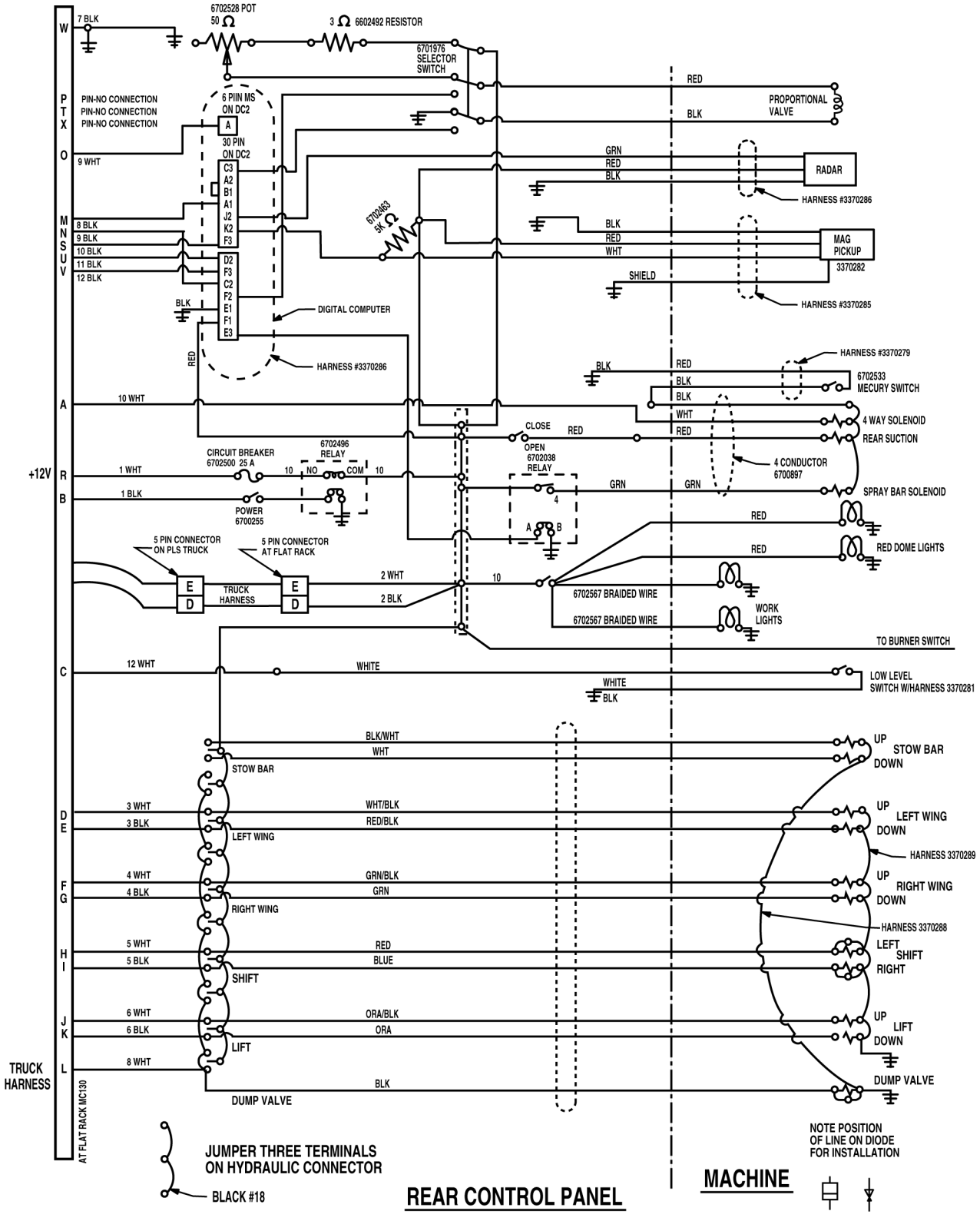
FRONT CONTROL PANEL
HARNESS 3370272

S/N S3605 and Subsequent

3-82. WIRING DIAGRAM REAR CONTROL PANEL.

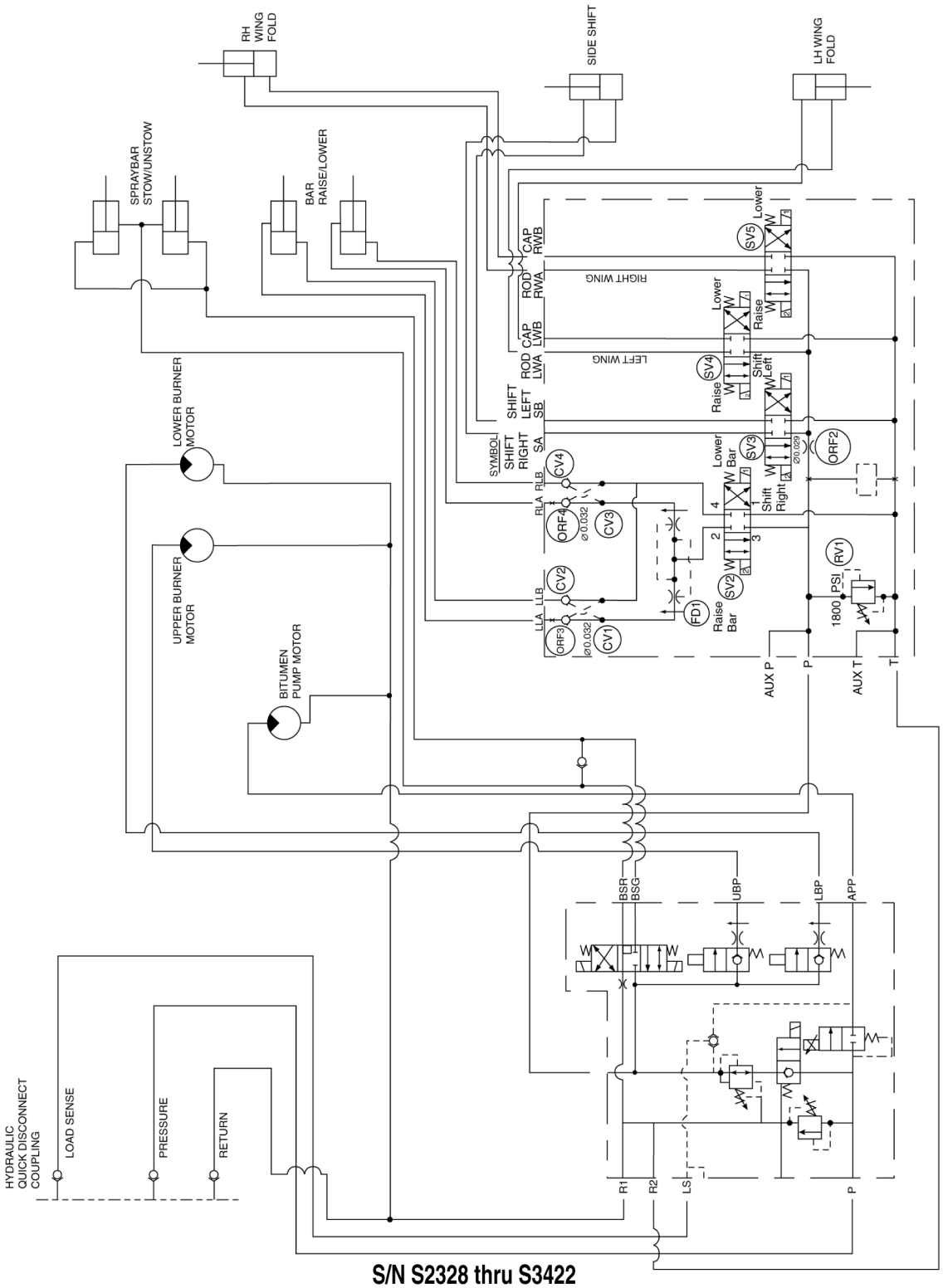


S/N S2328 thru S3422

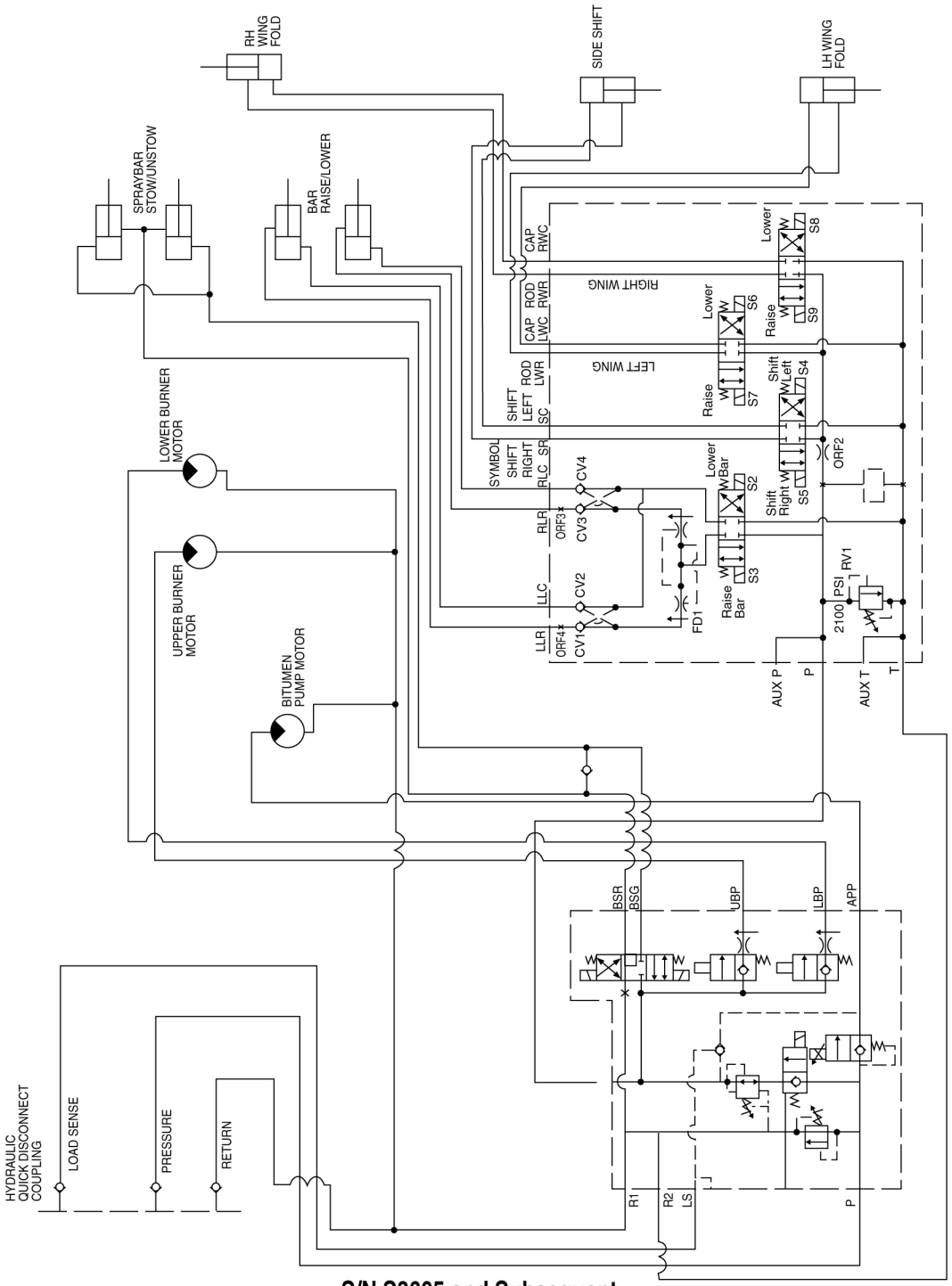


S/N S3605 and Subsequent

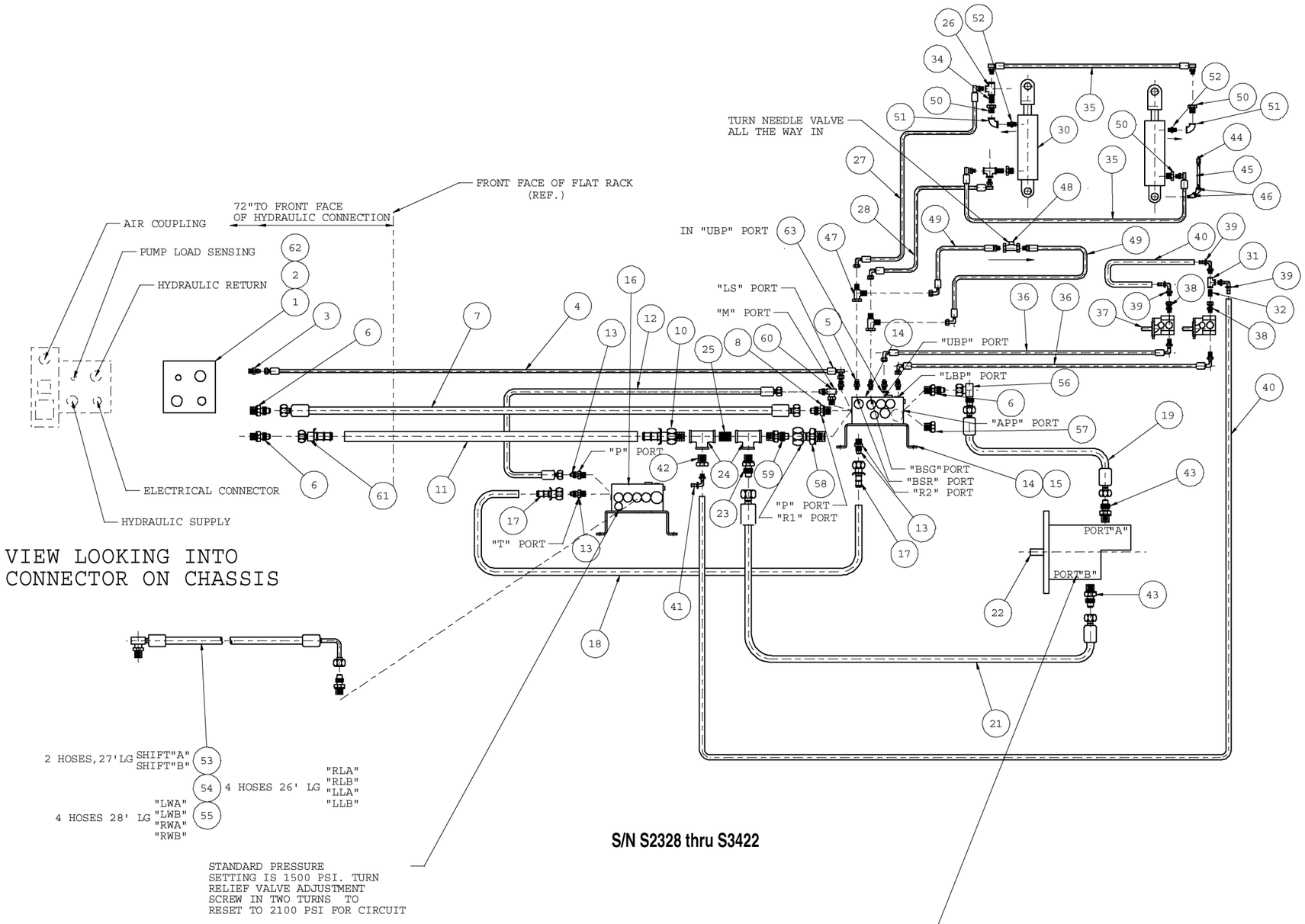
3-83. HYDRAULIC SCHEMATIC.



S/N S2328 thru S3422



S/N S3605 and Subsequent



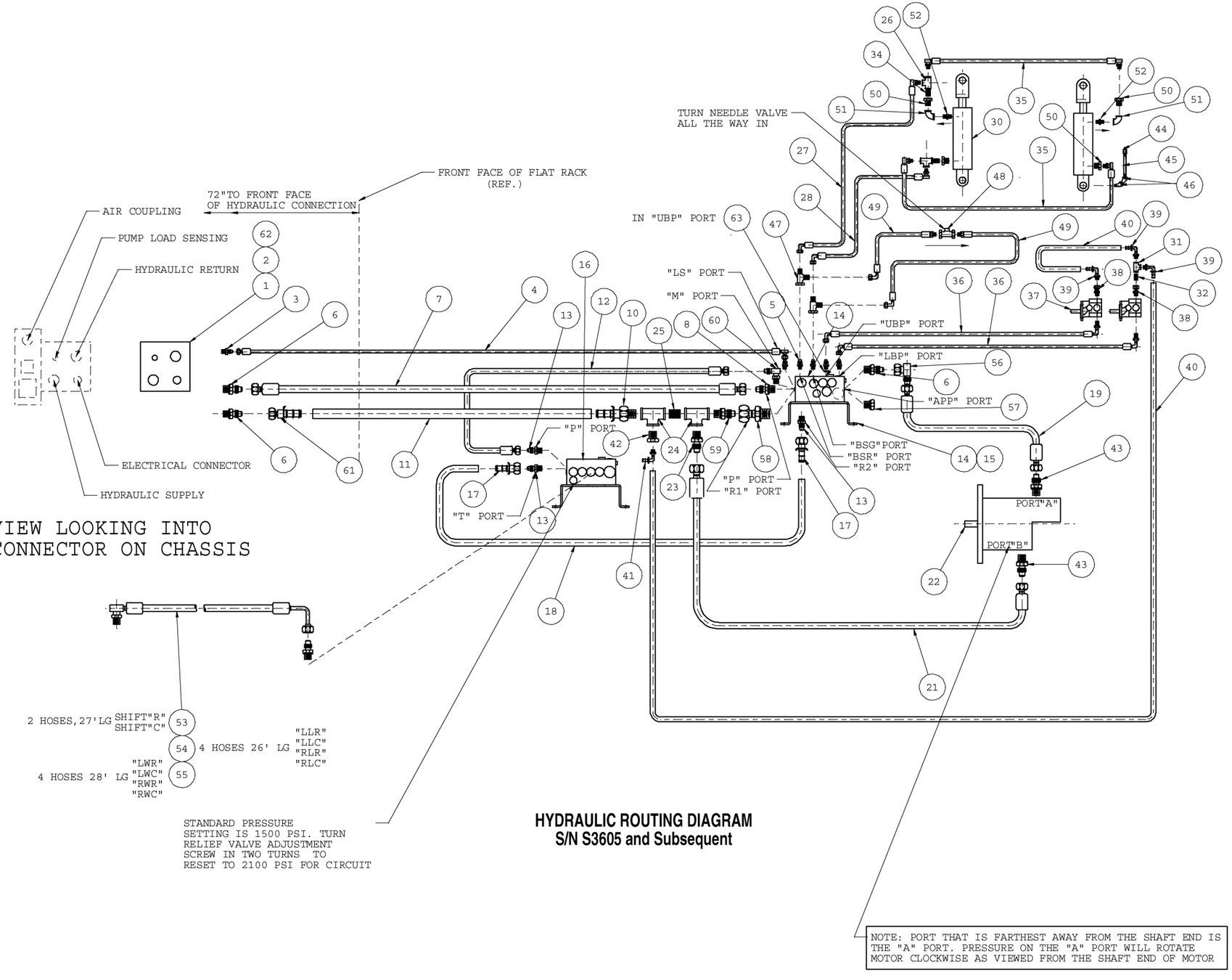
VIEW LOOKING INTO
CONNECTOR ON CHASSIS

STANDARD PRESSURE
SETTING IS 1500 PSI. TURN
RELIEF VALVE ADJUSTMENT
SCREW IN TWO TURNS TO
RESET TO 2100 PSI FOR CIRCUIT

S/N S2328 thru S3422

NOTE: PORT THAT IS FARTHEST AWAY FROM THE SHAFT END IS THE "A" PORT. PRESSURE ON THE "A" PORT WILL ROTATE MOTOR CLOCKWISE AS VIEWED FROM THE SHAFT END OF MOTOR

REF	REQ	PART NO	DESCRIPTION
63	1	3361335	ORIFICE PLUG-.380D,.200T,0.070
62	2	9421707	SCREW-SOCK,0.31NC X 1.00
61	1	6601566	HOSE END,16-16FJX
60	1	9410977	ELBOW-HYD,90° 8MB-8MJ
59	1	6601882	ADAPTER-HYD,ST,12MJ-16MP
58	1	6602096	ADAPTER-HYD,ST,12MB-12FJX
57	2	9410356	PLUG,4MB
56	1	9410285	ELBOW-HYD 90° 16FJX-16MJ
55	4	3341705	HOSE ASM-4X336,6MPX90-4FJX90M
54	4	3341707	HOSE ASM-4X312,6MPX90-4FJX
53	2	3341706	HOSE ASM-4X324,6MPX90-4FJX90M
52	2	6602677	VALVE-HYD. FLOW LIMIT 3.0GPM
51	2	0119098	ELBOW-PIPE,90,0.50NPT,PN
50	2	0142209	BUSHING-PIPE,0.50X0.38NPT,PN
49	2	3341645	HOSE ASM-4X10,04FJX90-04MPX
48	1	6601822	VALVE-NEEDLE,.25,W/CHECK
47	2	6602140	TEE-HYDR,04MJ-04FJX-04MJ
46	4	0106649	ELBOW - PIPE,45,ST,0.12 NPT,PN
45	2	0118938	NIPPLE-PP,SCH 40,0.12 X 4.00, PN
44	2	0126122	GREASE FITTING, 1/8 NPT (FEMALE)
43	2	6600910	ADAPTER-HYDR,ST,12MJ-10MB
42	1	0142263	BUSHING-PIPE,1" X 3/8" PN
41	1	6602398	HOSE BARB-06-06MP,90°
40	AR	6600324	HOSE-PUSH ON,3/8"GENERIC
39	3	6602402	HOSE BARB-06X04MP90DEG.LP.
38	2	9409286	ADAPTER-HYDR.,ST,04FP-06MB
37	2	6601961	MOTOR-HYD.0.65CU,IN.LH
36	2	3331392	HOSE ASM.-04X228",04FJX90M,06MBX90
35	2	3341641	HOSE ASM.-04X96",04FJX90M,06MPX90
34	2	0121207	NIPPLE-PP,SCH 40,0.38XCLOSE,PN
33	1	0144045	BUSHING-PP,SCH40,1/2"X1/4",PN
32	1	6200292	NIPPLE-PP,SCH.80,1/4"XCLOSE,PN
31	1	0105417	TEE-PP SCH.40,1/4"NPT,PN
30	2	6602660	CYLINDER-HYD.4.0X8.0
29			
28	1	3341644	HOSE ASM.-04X120",04FJX90-06MPX90
27	1	3341643	HOSE ASM.-04X132",04FJX90-06MPX90
26	2	0218237	TEE-PIPE,0.38X0.25X0.38NPT,PN
25	1	0191492	NIPPLE-PP,SCH.40-1"XCLOSE,PN.
24	2	0115237	TEE-PIPE 1"SCH.40,PN.
23	1	9402713	ADAPTER-HYDR.ST.16MJ-16MP
22	1	6602658	MOTOR-HYD.8.0CU.IN.2BOLT,SAE-"B"
21	1	6602958	HOSE ASM 12X300-3/4 HOSE
20			
19	1	6602965	HOSE ASM. 12X300
18	AR	6600662	HOSE-PUSH LOCK 1/2" I.D.
17	2	6600664	HOSE BARB 08-08FJX
16	1	3361246	REWORK MANIFOLD SUB-ASM#3361211
15	1	3361247	BRACKET-MTG.6602665 MANIFOLD
14	1	6602665	MANIFOLD-HYD.SPL.OSHKOSH
13	3	9410203	ADAPTER-HYDR.ST.8MB-8MJ
12	1	6602959	HOSE ASM 8X36
11	17	6601564	HOSE-SUCTION1.O ID SAE100R4
10	1	6601565	HOSE END-16-16MP,ST,LP100R4
9	1	9207860	ADAPTER-HYDR.ST.16MB-16FP
8	1	9410205	ADAPTER-HYDR.ST.12MB-12MJ
7	1	6602962	HOSE ASM 12X204
6	3	6601915	ADAPTER-HYDR.ST.12MB-16MJ
5	5	9410200	ADAPTER-HYDR.ST,4MB-4MJ
4	1	6602667	HOSE ASM.-4 X 216",04FJX,04FJX-90(H.P.)
3	1	6602363	ADAPTER-HYDR.ST.8MB-4MJ
2	1	6602661	BRACKET-SUPPORT HYD.COUPLER
1	1	6602659	CONNECTOR-HYD/ELECT,MALE



HYDRAULIC ROUTING DIAGRAM
S/N S3605 and Subsequent

NOTE: PORT THAT IS FARTHEST AWAY FROM THE SHAFT END IS THE "A" PORT. PRESSURE ON THE "A" PORT WILL ROTATE MOTOR CLOCKWISE AS VIEWED FROM THE SHAFT END OF MOTOR

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55	4	3341705	HOSE ASM-4X336,6MPX90-4FJX90M
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52	2	6602677	VALVE-HYD. FLOW LIMIT 3.0GPM
51	2	0119098	ELBOW-PIPE,90,0.50NPT,PN
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47	2	6602140	TEE-HYDR,04MJ-04FJX-04MJ
46	4	0106649	ELBOW - PIPE,45,ST,0.12 NPT,PN
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34	2	0121207	NIPPLE-PP,SCH 40,0.38XCLOSE,PN
33	1	0144045	BUSHING-PP,SCH40,1/2"X1/4",PN
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31	1	0105417	TEE-PP SCH.40,1/4"NPT,PN
30	2	6602660	CYLINDER-HYD.4.0X8.0
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10	1	6601565	HOSE END-16-16MP,ST,LP100R4
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7	1	6602962	HOSE ASM 12X204
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3	1	6602363	ADAPTER-HYDR.ST.8MB-4MJ
2	1	6602661	BRACKET-SUPPORT HYD.COUPLER
1	1	6602659	CONNECTOR-HYD/ELECT,MALE

CHAPTER 4

UNIT MAINTENANCE TROUBLESHOOTING INSTRUCTIONS

Para	Contents	Page
4-1	Introduction	4-1
4-2	Introduction to Logic Tree Troubleshooting	4-1
4-3	Troubleshooting Symptom Index	4-3
4-4	Troubleshooting	4-4

4-1. INTRODUCTION.

a. This section contains information for locating and correcting most of the troubles which may develop on the Bituminous Distributor. Each malfunction for an individual component, unit or system is followed by a list of tests or inspections which will help to determine the corrective actions to take. Perform the tests/inspections and corrective action in the order listed.

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

4-2. INTRODUCTION TO LOGIC TREE TROUBLESHOOTING.

a. Page Layout. Troubleshooting procedures are divided into logic tree pages and test pages.

(1) A logic tree page is always a left-hand page, facing the test page on the right. The logic tree page provides the sequence of steps required to isolate a fault to a failed component. All critical information for decision making is on the left-hand page. Each logic tree page contains the following information:

(a) **INITIAL SETUP -** This box is located only on the first logic tree page of a fault. INITIAL SETUP lists tools, materials, references, personnel and equipment needed to troubleshoot the fault.

(b) **KNOWN INFO -** This box is located in the top left-hand column. KNOWN INFO lists conditions and information that will eliminate specific components as the cause of the fault.

(c) **POSSIBLE PROBLEMS -** This box is located directly below KNOWN INFO. All of the system components that could cause a fault are listed in the POSSIBLE PROBLEMS box. The first component listed in the POSSIBLE PROBLEMS box is the one that will be tested at that step in the logic sequence. When one of the components is tested and found to be operational, it is entered at the bottom of the KNOWN INFO box as OK.

(d) **QUESTION -** Each question, located in the middle column, refers to the first possible problem listed in POSSIBLE PROBLEMS. If the answer to the question is YES, proceed to the next step. If the answer is NO, follow the NO arrow to obtain directions for correcting the problem. If the step contains a WARNING or CAUTION message, a small shadow box is printed above the question. Text for WARNINGs or CAUTIONs is on the following right-hand page.

(e) **TEST OPTIONS -** This box is located in the top right-hand column. TEST OPTIONS lists tests available for testing parts suspected of failing.

(f) **REASON FOR QUESTION -** This box is located directly below TEST OPTIONS. It explains the purpose for the question in the middle column.

4-2. INTRODUCTION TO LOGIC TREE TROUBLESHOOTING (CONT).

(2) A test page is always a right-hand page, facing the logic tree page on the left. The test provides detailed instructions for testing the first component listed in the POSSIBLE PROBLEMS box. This test will also provide an answer for the question in the middle column. Note the arrow connecting the test on the right-hand page to the REASON FOR QUESTION. When possible, illustrations are included to provide visual details. Warnings, cautions and notes contain additional information for testing.

b. How to Begin Troubleshooting.

(1) Determine the symptom or condition that indicates a problem or failure. Troubleshooting is divided into symptoms peculiar to a module system or component, for example: air system or hydraulics.

(2) Go to the referenced page to begin troubleshooting. Open the manual flat so both the left-hand and right-hand pages are displayed before you. The information on both pages is important to resolve the problem or failure. However, the experienced technician can follow the left-hand page instructions and refer to the right-hand page when necessary.

(3) Follow the Diagnostic Procedure. Answer question No. 1 on the left-hand page and follow the YES or NO path to either the remedy or the next question. If necessary, look on the right-hand page for test instructions and illustrations.

(4) Observe warnings, cautions and notes. The formatting and symbols used in this manual for warnings, cautions and notes are as follows:

WARNING

This is the symbol for a warning statement. If you see the word WARNING above a question on the left-hand page, look on the right-hand page for the text of the message. WARNINGs describe a situation which could cause severe injury or death to personnel.

CAUTION

This is the symbol for a caution statement. If you see the word CAUTION above a question on the left-hand page, look on the right-hand page for the text of the message. CAUTIONs describe a situation which could cause damage to equipment.

NOTE

This is the symbol for a note. Notes are located directly above the test to which they refer. Notes provide additional information for performing a test.

4-3. TROUBLESHOOTING SYMPTOM INDEX.

The following pages contain the malfunctions listed in Unit Maintenance Troubleshooting Symptom Index (Table 4-1), test or inspection instructions required to determine cause of malfunction, and corrective actions for repairing the faulty equipment.

Table 4-1. Unit Maintenance Troubleshooting Symptom Index

Fault No.	Troubleshooting Procedure	Page
1.	Two or More Front Spray Bar Adjustment Controls Do Not Operate	4-4
2.	All Spray Bar Adjustment Controls Do Not Operate (Front and Rear)	4-32
3.	All Rear Spray Bar Adjustment Controls Do Not Operate	4-42
4.	Burner Blower(s) Do Not Operate	4-46
5.	Lower Burner Does Not Operate Correctly	4-78
6.	Upper Burner Does Not Operate Correctly	4-126
7.	Portable Burner Does Not Operate Correctly (S/N S3605 and Subsequent)	4-180
8.	Front Control Circulation Rate (Asphalt Pump Speed) Control Does Not Operate	4-210
9.	Front Controls Do Not Operate Correctly (Except Spray Bar Adjustments and High Idle Control)	4-288
10.	Low Tank Level Indicator Does Not Operate Correctly	4-360
11.	No FPM (feet per minute) Reading At Front Control Panel	4-372
12.	No High Idle When Selected	4-390
13.	No GPM (gallons per minute) Reading At Front Control Panel	4-402
14.	Asphalt Pump Does Not Turn or Turns Slowly	4-422
15.	Asphalt Pump Surges or GPM Gage Reading Is Erratic	4-448
16.	Rear Pump Speed Control Does Not Operate	4-484
17.	Spray Bar Application Too Light Or Too Heavy	4-504
18.	Spray Bar Does Not Raise/Lower (Front and/or Rear Control)	4-532
19.	Spray Bar Does Not Shift Left/Right (Front and/or Rear Control)	4-586
20.	Spray Bar Does Not Stow/Unstow (Rear Control)	4-636
21.	Left Spray Bar Wing Does Not Raise/Lower (Front and/or Rear Control)	4-678
22.	Right Spray Bar Wing Does Not Raise/Lower (Front and/or Rear Control)	4-728
23.	Spray Operation Is Not Started When SPRAYBAR Switch Is Turned On	4-778
24.	Suckback Function Does Not Operate Correctly	4-794
25.	Suction Valve Does Not Operate Correctly (Rear Control)	4-830
26.	Four-Way Valve Does Not Operate Correctly	4-868
27.	Spray Bar Valves Do Not Operate Correctly	4-906
28.	System Does Not Power Up	4-948
29.	Washdown Function Does Not Operate	4-984
30.	Work Lights and/or Panel Lights Do Not Operate	4-1008

4-4. TROUBLESHOOTING.

1. TWO OR MORE FRONT SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE.

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Multimeter (Item 8, Appendix F)

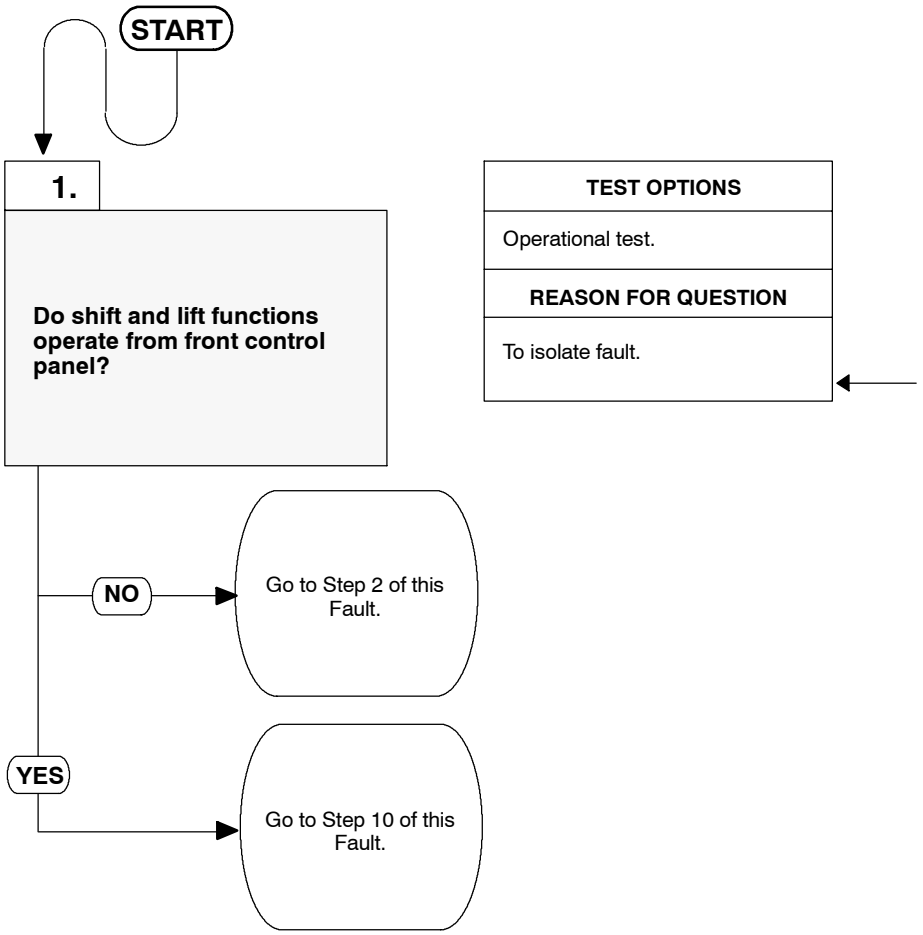
Equipment Condition
Bituminous Distributor loaded on PLS, (Para 2-5)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

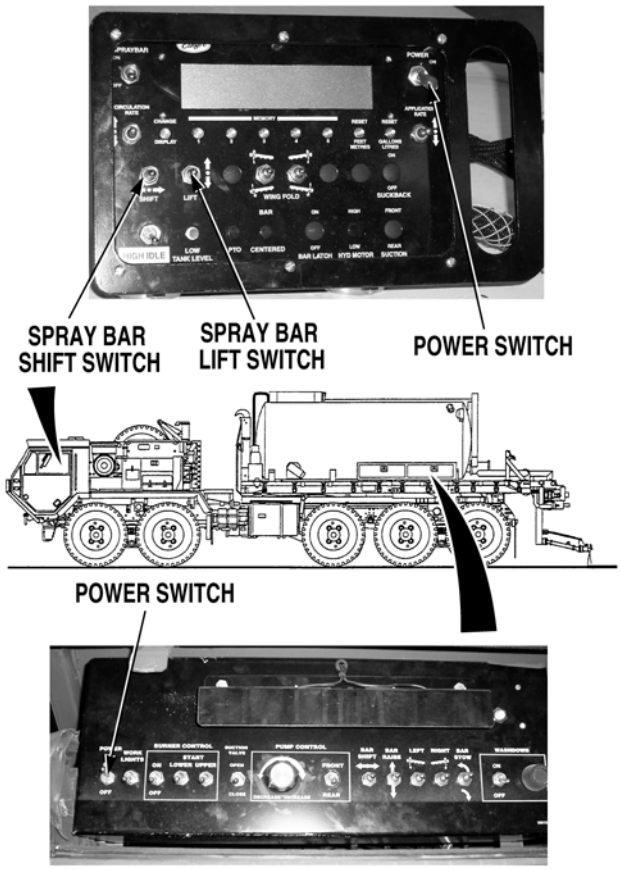
KNOWN INFO

Nothing.

POSSIBLE PROBLEMS

Rear control panel spray bar adjustment controls faulty.
SPRAYBAR switch not in OFF position.
Power (red) wire between terminal strip and spray bar SHIFT switch faulty.
Connector MC137 faulty.
Connector MC138 faulty.
Wires 2 white and 2 black rear control panel connections faulty.
Wires 2 white and 2 black front control panel connections faulty.
Front control panel black dump valve control wire faulty.
Front control panel wire harness (wire 8 white) faulty.
PLS interface faulty.
Rear control panel wire harness (wire 8 white) faulty.
Power (red) wire between LIFT switch and SPRAYBAR switch faulty.
SPRAYBAR switch faulty.
Power (red) wire between SPRAYBAR switch and left WING FOLD switch faulty.
Black wire between right WING FOLD switch and LIFT switch faulty.





OPERATIONAL TEST

(1) Start engine, (TM 9-2320-364-10).

(2) Turn front control panel POWER switch ON, (Para 2-1).

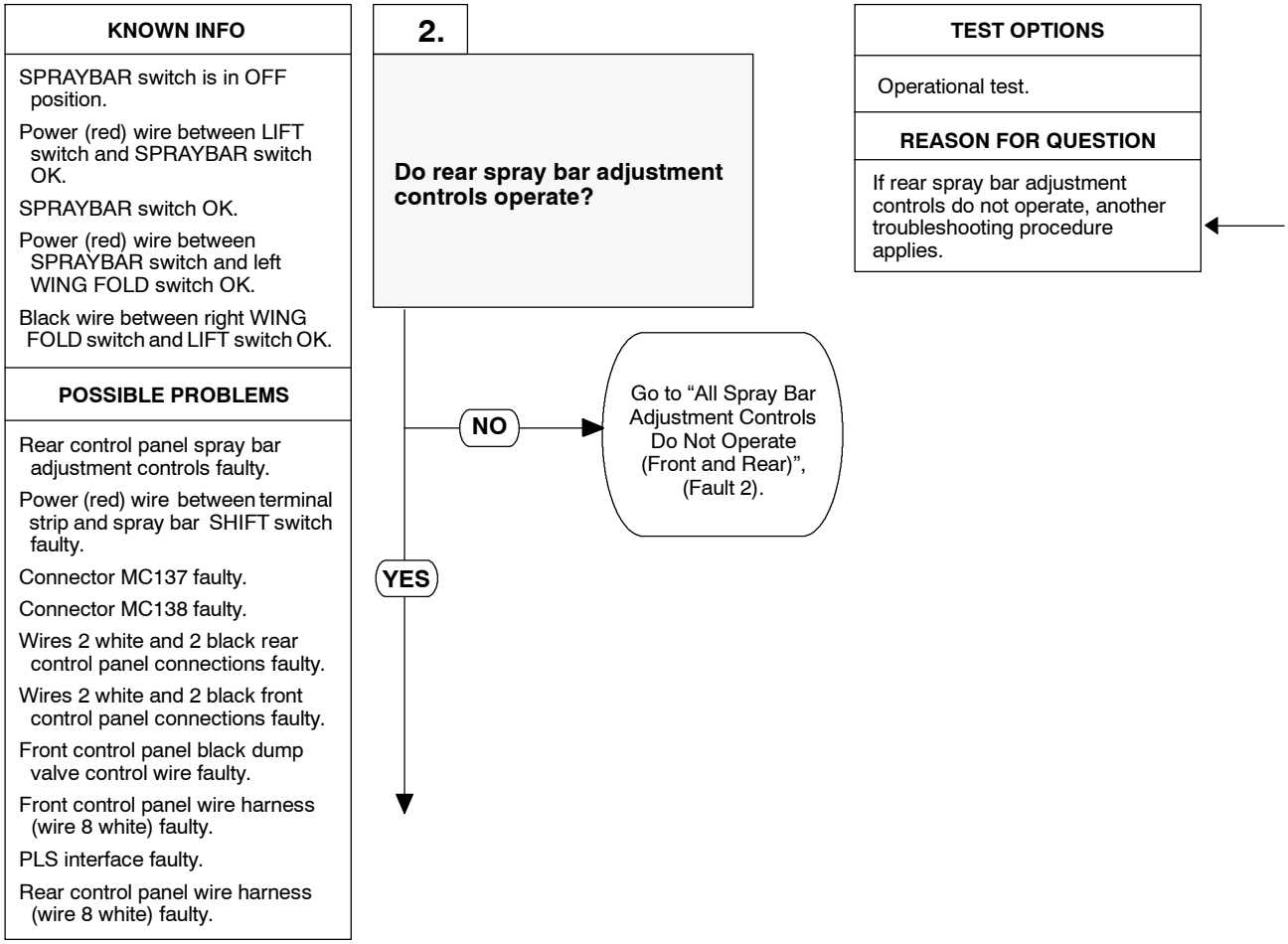
(3) Turn rear control panel POWER switch ON, (Para 2-1).

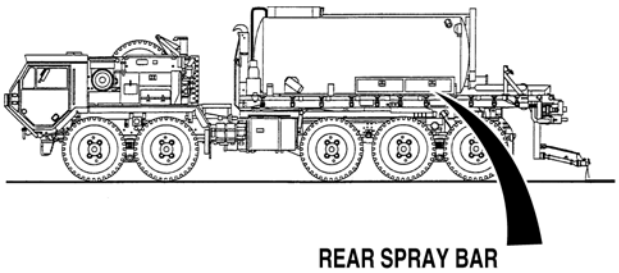
(4) Operate spray bar shift and lift functions from front control panel, (Para 2-1).

  (a) If shift and lift functions operate from front control panel, go to Step 2 of this fault.

  (b) If shift and lift functions do not operate from front control panel, go to Step 10 of this Fault.

1. TWO OR MORE FRONT SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (CONT).







OPERATIONAL TEST

Operate rear control panel spray bar adjustment controls, (Para 2-1).

(a) If spray bar adjustment controls do not operate from rear control panel, go to “All Spray Bar Adjustment Controls Do Not Operate (Front and Rear)”, (Fault 2).

(b) If spray bar adjustment controls operate, go to Step 3 of this Fault.

1. TWO OR MORE FRONT SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (CONT).

KNOWN INFO

SPRAYBAR switch is in OFF position.

Power (red) wire between LIFT switch and SPRAYBAR switch OK.

SPRAYBAR switch OK.

Power (red) wire between SPRAYBAR switch and left WING FOLD switch OK.

Black wire between right WING FOLD switch and LIFT switch OK.

Rear control panel spray bar adjustment controls OK.

POSSIBLE PROBLEMS

Power (red) wire between terminal strip and spray bar SHIFT switch faulty.

Connector MC137 faulty.

Connector MC138 faulty.

Wires 2 white and 2 black rear control panel connections faulty.

Wires 2 white and 2 black front control panel connections faulty.

Front control panel black dump valve control wire faulty.

Front control panel wire harness (wire 8 white) faulty.

PLS interface faulty.

Rear control panel wire harness (wire 8 white) faulty.

3.

WARNING

Read WARNING on Page 4-9

Are 10 to 14 VDC measured between terminal wires 2 white and 2 black at front control panel terminal strip, and a known good ground?

NO → Go to Step 4 of this Fault.

YES → Repair power (red) wire between terminal strip and spray bar SHIFT switch, (Para 3-80). Verify repair, go to Step 14 of this Fault.

TEST OPTIONS

Voltage test.

REASON FOR QUESTION

If 10 to 14 VDC are measured, power (red) wire between terminal strip and spray bar SHIFT switch is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VOLTAGE TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove front control panel, (Para 3-76).

(4) Push in battery disconnect switch, (TM 9-2320-364-10).

(5) Turn front control panel POWER switch ON, (Para 2-1).

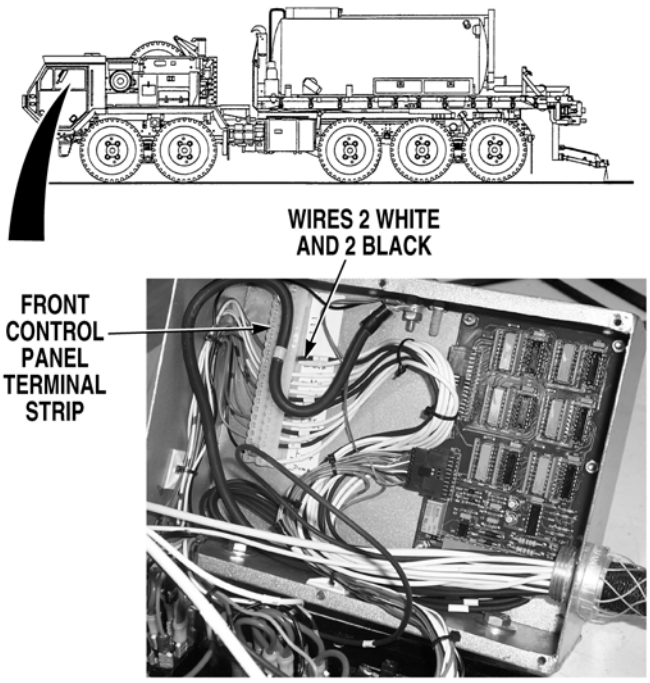
(6) Turn rear control panel POWER switch ON, (Para 2-1).

(7) Connect positive (+) multimeter lead to wires 2 white and 2 black at front control panel terminal strip, 12 VDC terminal.

(8) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, go to Step 4 of this Fault.

(b) If 10 to 14 VDC are present, repair power (red) wire between terminal strip and spray bar shift switch, (Para 3-80). Verify repair, go to Step 14 of this Fault.



1. TWO OR MORE FRONT SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (CONT).

KNOWN INFO

SPRAYBAR switch is in OFF position.

Power (red) wire between lift switch and SPRAYBAR switch OK.

SPRAYBAR switch OK.

Power (red) wire between SPRAYBAR switch and left WING FOLD switch OK.

Black wire between right WING FOLD switch and LIFT switch OK.

Rear control panel spray bar adjustment controls OK.

Power (red) wire between terminal strip and spray bar SHIFT switch OK.

POSSIBLE PROBLEMS

Connector MC137 faulty.

Connector MC138 faulty.

Wires 2 white and 2 black rear control panel connections faulty.

Wires 2 white and 2 black front control panel connections faulty.

Front control panel black dump valve control wire faulty.

Front control panel wire harness (wire 8 white) faulty.

PLS interface faulty.

Rear control panel wire harness (wire 8 white) faulty.

4.

WARNING

Read WARNING on Page 4-11

Are electrical connections secure at connectors MC137 and MC138?

NO → Repair electrical connections, (Para 2-10). Verify repair, go to Step 14 of this Fault.

YES

TEST OPTIONS

Visual inspection.

REASON FOR QUESTION

If connections MC137 and MC138 are not secure, front spray bar controls will not operate.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

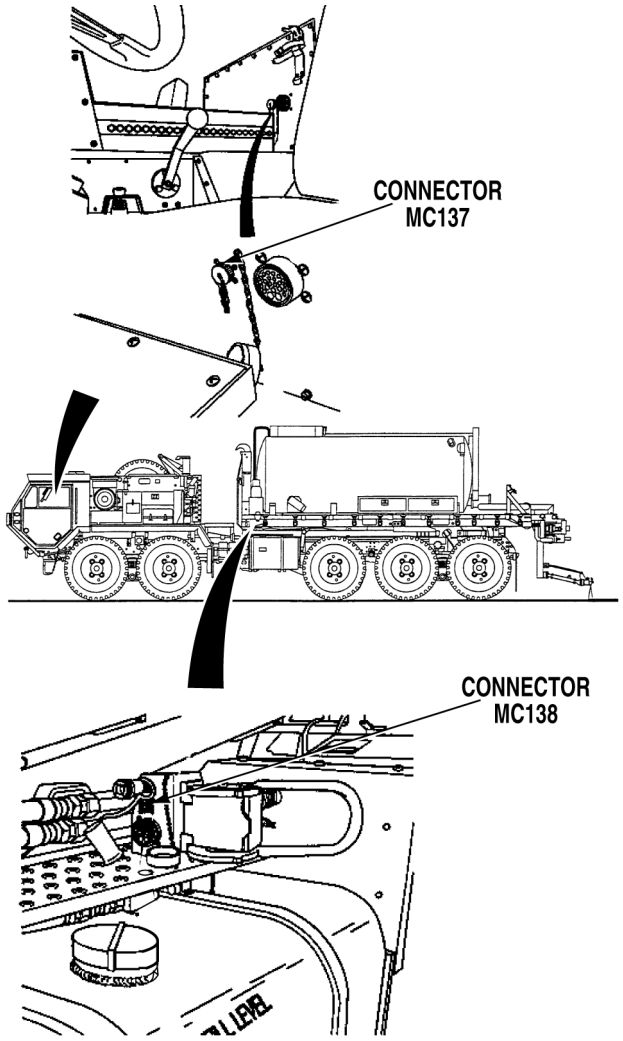
VISUAL INSPECTION

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

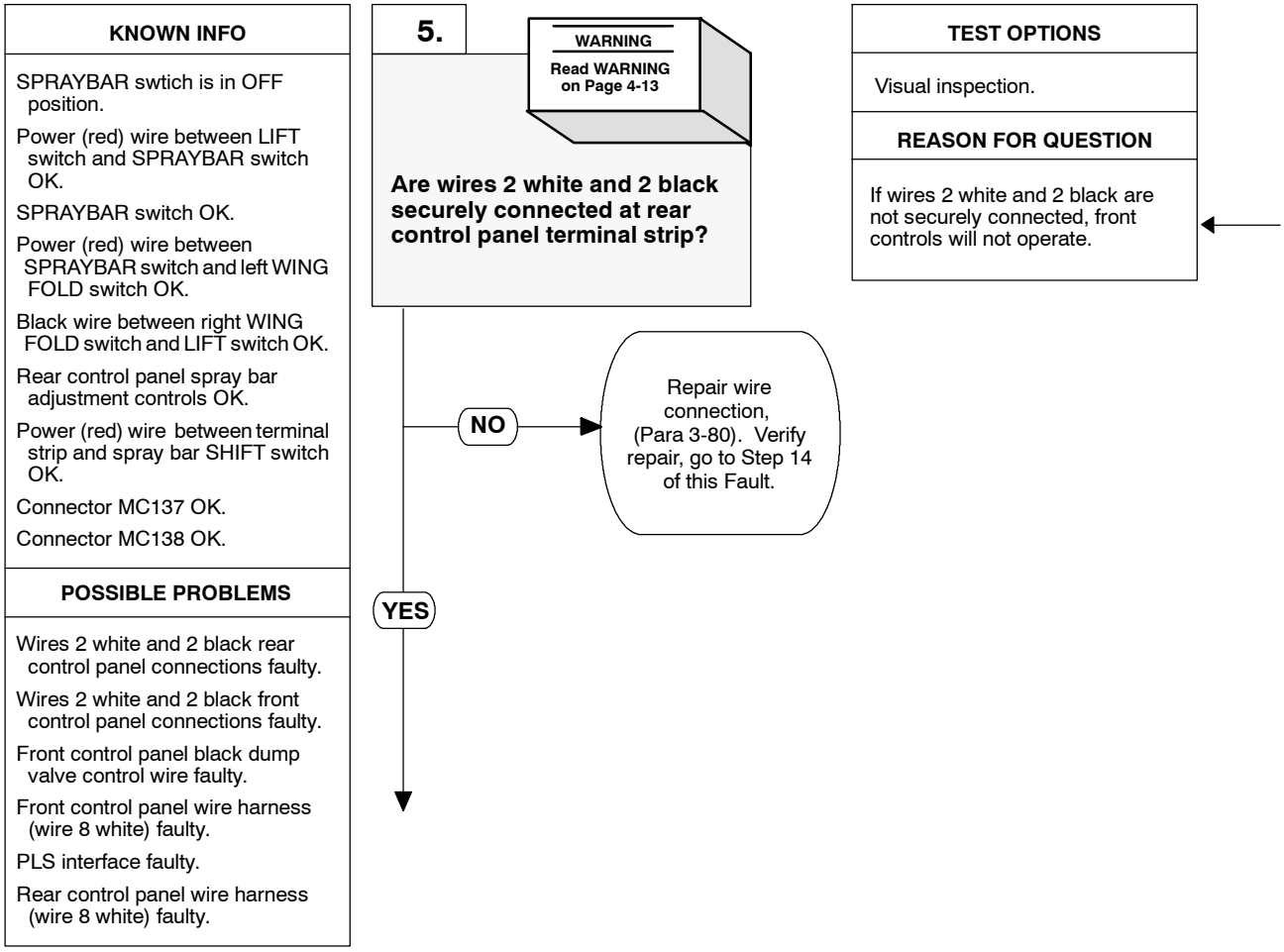
(2) Check if connectors MC137 and MC138 are secure.

(a) If connections MC137 and MC138 are not secure, repair connections, (Para 2-10). Verify repair, go to Step 14 of this Fault.

(b) If connections MC137 and MC138 are secure, go to Step 5 of this Fault.



1. TWO OR MORE FRONT SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

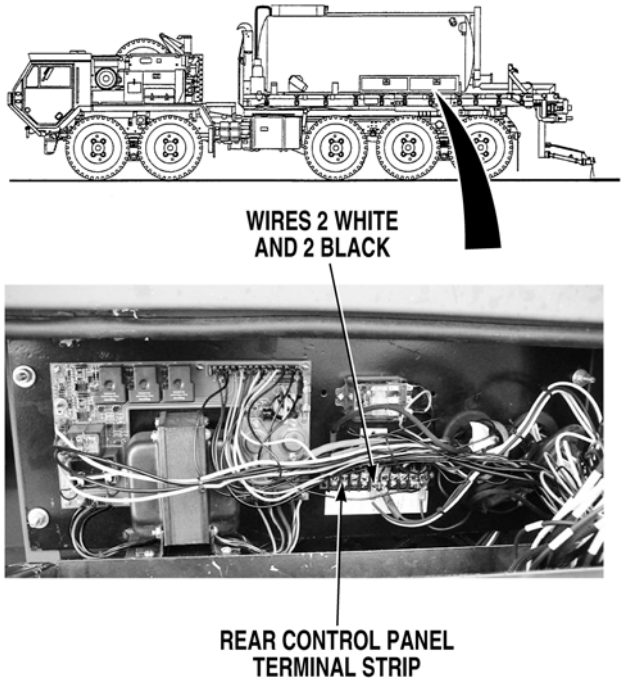
VISUAL INSPECTION

(1) Remove rear control panel, (Para 3-76).

(2) Check if wires 2 white and 2 black are securely connected at rear control panel terminal strip, 12 VDC terminal.

(a) If wires 2 white and 2 black are not securely connected, repair wire connection, (Para 3-80). Verify repair, go to Step 14 of this Fault.

(b) If wires 2 white and 2 black are securely connected, go to Step 6 of this Fault.



1. TWO OR MORE FRONT SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (CONT).

KNOWN INFO

- SPRAYBAR switch is in OFF position.
- Power (red) wire between LIFT switch and SPRAYBAR switch OK.
- SPRAYBAR switch OK.
- Power (red) wire between SPRAYBAR switch and left WING FOLD switch OK.
- Black wire between right WING FOLD switch and LIFT switch OK.
- Rear control panel spray bar adjustment controls OK.
- Power (red) wire between terminal strip and spray bar SHIFT switch OK.
- Connector MC137 OK.
- Connector MC138 OK.
- Wires 2 white and 2 black rear control panel connections OK.

POSSIBLE PROBLEMS

- Wires 2 white and 2 black front control panel connections faulty.
- Front control panel black dump valve control wire faulty.
- Front control panel wire harness (wire 8 white) faulty.
- PLS interface faulty.
- Rear control panel wire harness (wire 8 white) faulty.

6.

WARNING

Read WARNING on Page 4-15

Are wires 2 white and 2 black securely connected at front control panel terminal strip?

NO → Repair wire connections, (Para 3-80). Verify repair, go to Step 14 of this Fault.

YES

TEST OPTIONS

Visual inspection.

REASON FOR QUESTION

If wires 2 white and 2 black are not securely connected, front controls will not operate.

WARNING

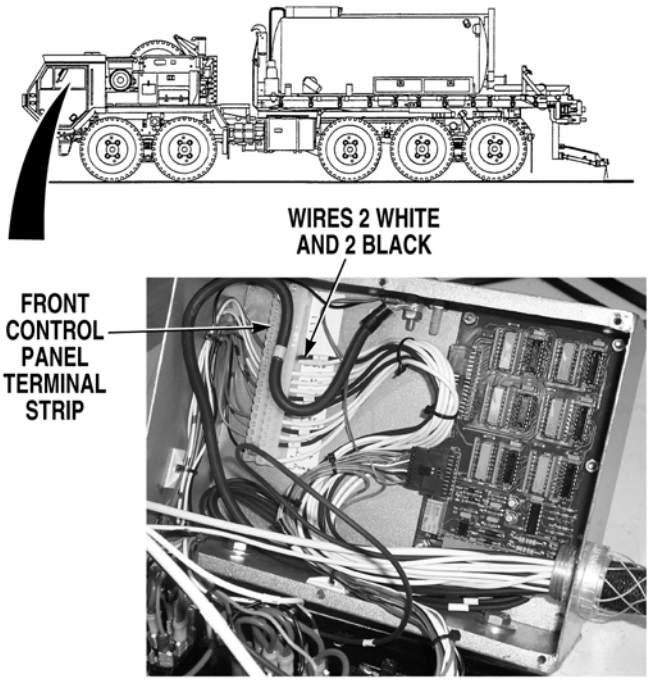
Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VISUAL INSPECTION

Check if wires 2 white and 2 black are securely connected at front control panel terminal strip, 12 VDC terminal.

(a) If wires 2 white and 2 black are not securely connected, repair wire connection, (Para 3-80). Verify repair, go to Step 14 of this Fault.

(b) If wires 2 white and 2 black are securely connected, go to Step 7 of this Fault.



1. TWO OR MORE FRONT SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (CONT).

KNOWN INFO

SPRAYBAR switch is in OFF position.

Power (red) wire between LIFT switch and SPRAYBAR switch OK.

SPRAYBAR switch OK.

Power (red) wire between SPRAYBAR switch and left WING FOLD switch OK.

Black wire between right WING FOLD switch and LIFT switch OK.

Rear control panel spray bar adjustment controls OK.

Power (red) wire between terminal strip and spray bar SHIFT switch OK.

Connector MC137 OK.

Connector MC138 OK.

Wires 2 white and 2 black rear control panel connections OK.

Wires 2 white and 2 black front control panel connections OK.

POSSIBLE PROBLEMS

Front control panel black dump valve control wire faulty.

Front control panel wire harness (wire 8 white) faulty.

PLS interface faulty.

Rear control panel wire harness (wire 8 white) faulty.

7.

WARNING

Read WARNING on Page 4-17

Is continuity measured across black dump valve control wire from front control panel LIFT switch to terminal strip?

NO → Repair black dump valve control wire between LIFT switch and terminal strip, (Para 3-80). Verify repair, go to Step 14 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, black dump valve control wire is faulty. ←

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

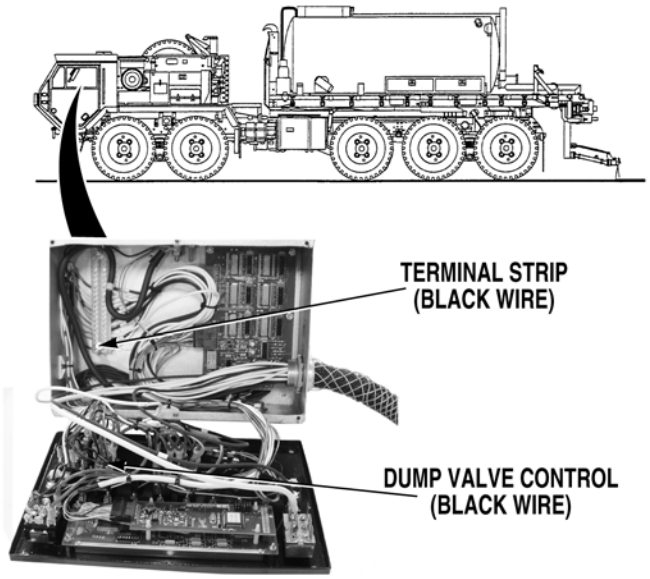
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to black dump valve control wire at front control panel LIFT switch.

(3) Connect negative (-) multimeter lead to black control wire at front control panel terminal strip.

(a) If continuity is not measured, repair black control wire between front control panel LIFT switch and terminal strip, (Para 3-80). Verify repair, go to Step 14 of this Fault.

(b) If continuity is measured, go to Step 8 of this Fault.



1. TWO OR MORE FRONT SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (CONT).

KNOWN INFO

SPRAYBAR switch is in OFF position.

Power (red) wire between LIFT switch and SPRAYBAR switch OK.

SPRAYBAR switch OK.

Power (red) wire between SPRAYBAR switch and left WING FOLD switch OK.

Black wire between right WING FOLD switch and LIFT switch OK.

Rear control panel spray bar adjustment controls OK.

Power (red) wire between terminal strip and spray bar SHIFT switch OK.

Connector MC137 OK.

Connector MC138 OK.

Wires 2 white and 2 black rear control panel connections OK.

Wires 2 white and 2 black front control panel connections OK.

Front control panel black dump valve control wire OK.

POSSIBLE PROBLEMS

Front control panel wire harness (wire 8 white) faulty.

PLS interface faulty.

Rear control panel wire harness (wire 8 white) faulty.

8.

WARNING

Read WARNING on Page 4-19

Is continuity measured across wire 8 white between front control panel terminal strip and connector MC129, terminal L?

NO → Repair wire 8 white or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 14 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, wire 8 white is faulty. ←

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Disconnect front control panel connector MC129, (Para 2-10).

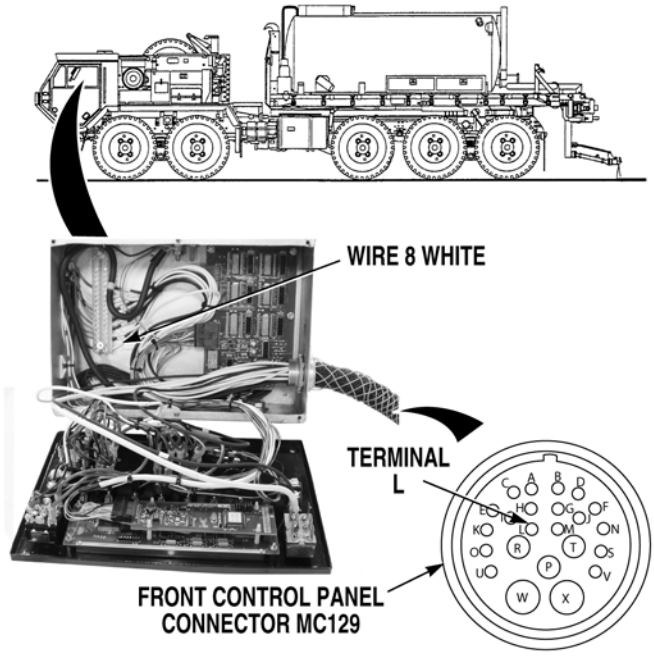
(2) Set multimeter select switch to ohms.

(3) Connect positive (+) multimeter lead to wire 8 white at front control panel terminal strip.

(4) Connect negative (-) multimeter lead to wire 8 white at front control panel connector MC129, terminal L.

(a) If continuity is not measured, repair wire 8 white, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 14 of this Fault.

(b) If continuity is measured, go to Step 9 of this Fault.



1. TWO OR MORE FRONT SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (CONT).

KNOWN INFO

SPRAYBAR switch is in OFF position.

Power (red) wire between LIFT switch and SPRAYBAR switch OK.

SPRAYBAR switch OK.

Power (red) wire between SPRAYBAR switch and left WING FOLD switch OK.

Black wire between right WING FOLD switch and LIFT switch OK.

Rear control panel spray bar adjustment controls OK.

Power (red) wire between terminal strip and spray bar SHIFT switch OK.

Connector MC137 OK.

Connector MC138 OK.

Wires 2 white and 2 black rear control panel connections OK.

Wires 2 white and 2 black front control panel connections OK.

Front control panel black dump valve control wire OK.

Front control panel wire harness (wire 8 white) OK.

POSSIBLE PROBLEMS

PLS interface faulty.

Rear control panel wire harness (wire 8 white) faulty.

9.

WARNING

Read WARNING on Page 4-21

Is continuity measured across wire 1780 between connector MC129, terminal L and connector MC130, terminal L?

NO → PLS interface faulty. Notify Supervisor.

YES → Repair wire 8 white, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 14 of this Fault.

TEST OPTIONS

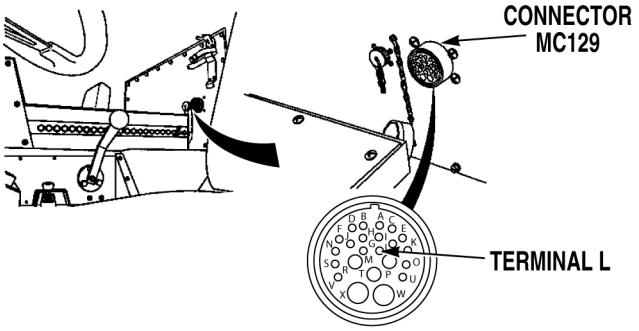
Continuity test.

REASON FOR QUESTION

If continuity is measured, wire 8 white is faulty. If not, wire 1780 in PLS wire harness is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.



CONTINUITY TEST

(1) Disconnect connector MC130, (Para 2-10).

(2) Set multimeter select switch to ohms.

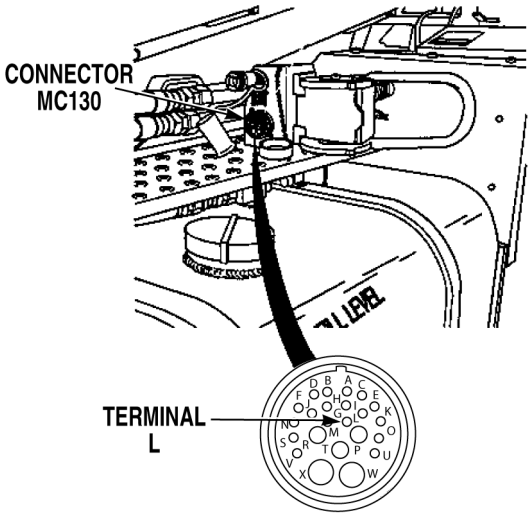
(3) Connect jumperwire between wire 8 white at connector MC129, terminal L and a known good ground.

(4) Connect positive (+) multimeter lead to wire 8 white at connector MC130, terminal L.

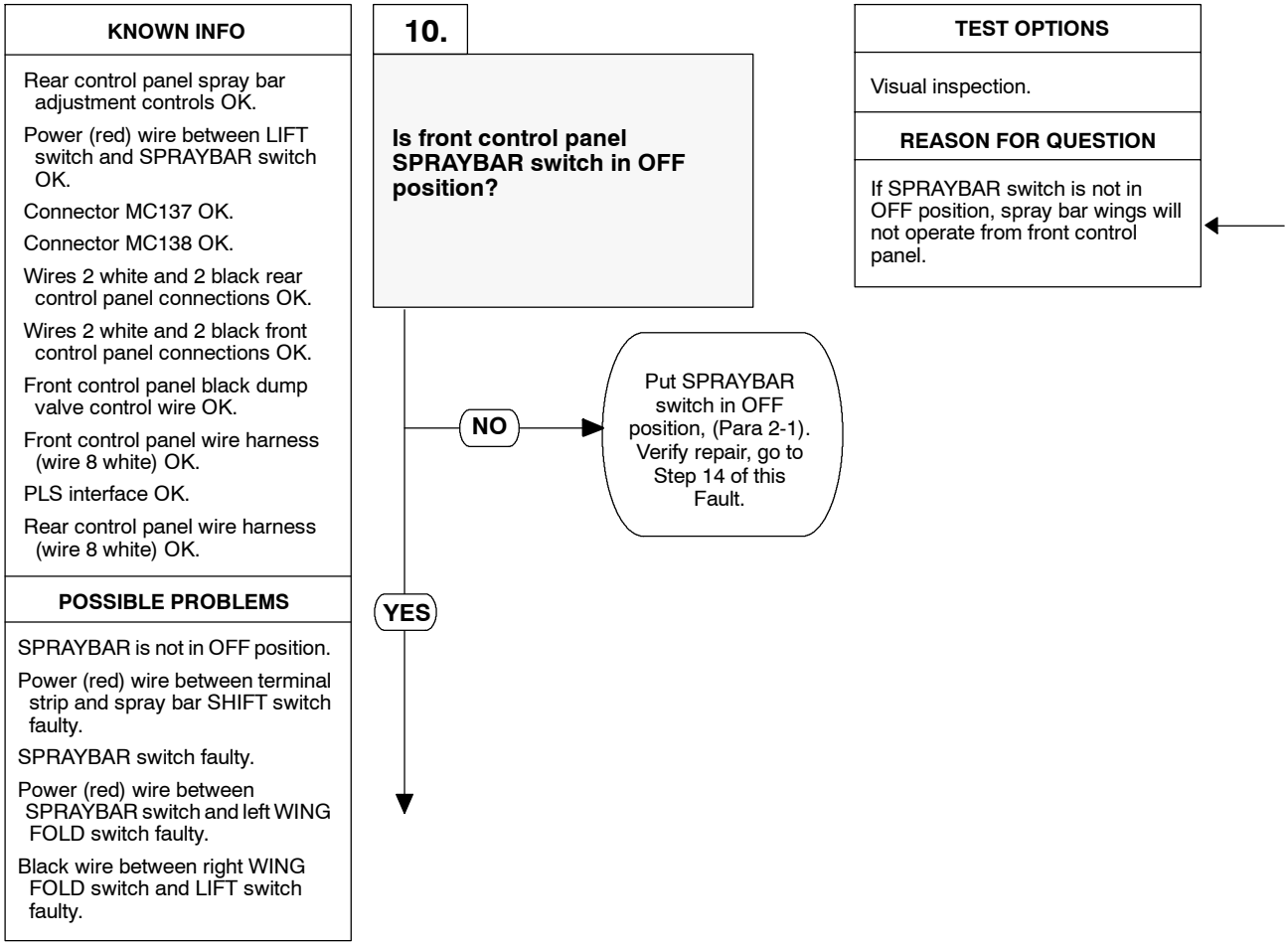
(5) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, wire 1780 in PLS interface is faulty. Notify Supervisor.

(b) If continuity is measured, repair wire 8 white or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 14 of this Fault.



1. TWO OR MORE FRONT SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (CONT).



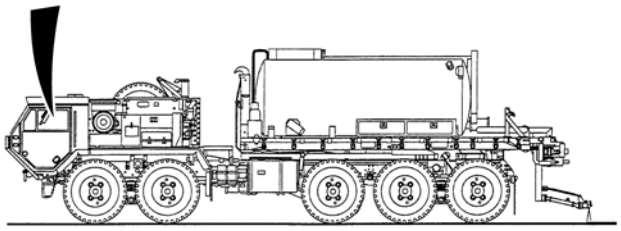


VISUAL INSPECTION

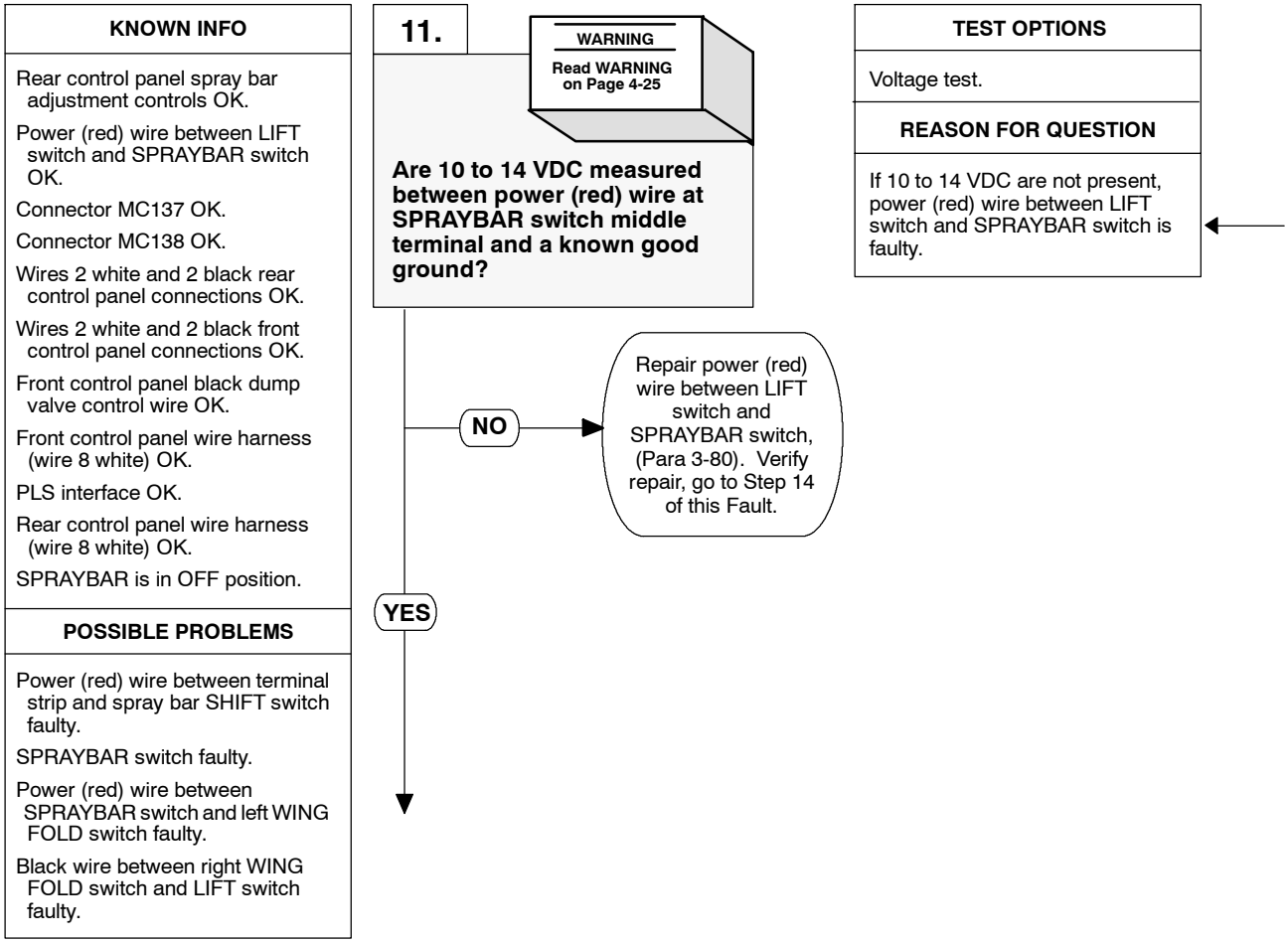
Check if SPRAYBAR switch is in OFF position.

(a) If SPRAYBAR switch is not in OFF position, put SPRAYBAR switch to OFF position, (Para 2-1). Verify repair, go to Step 14 of this Fault.

(b) If SPRAYBAR switch is in OFF position, go to Step 11 of this Fault.



1. TWO OR MORE FRONT SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VOLTAGE TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove front control panel, (Para 3-76).

(4) Push in battery disconnect switch, (TM 9-2320-364-10).

(5) Turn front control panel POWER switch ON, (Para 2-1).

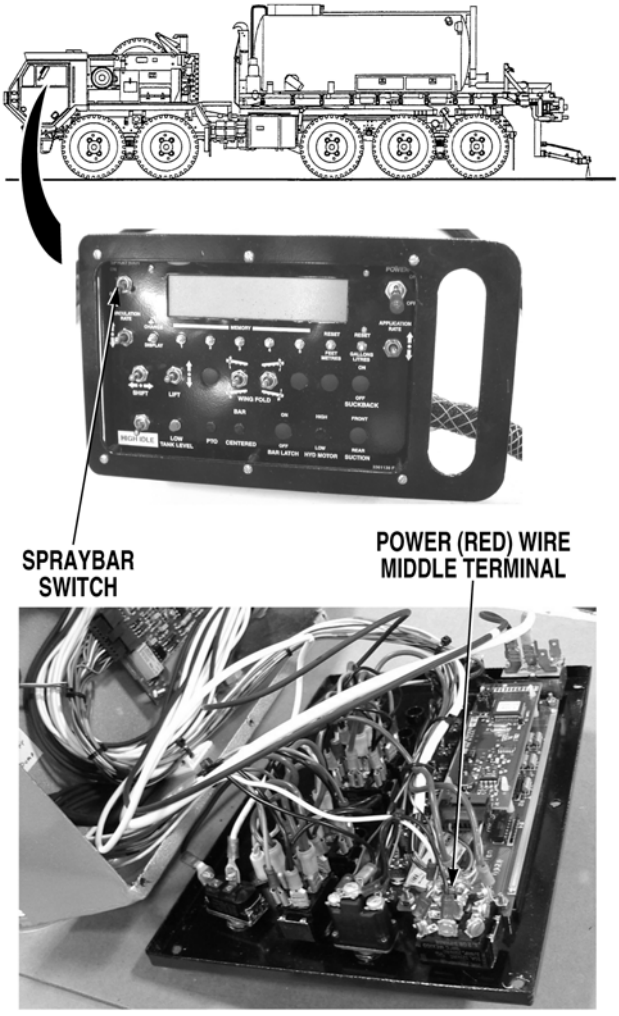
(6) Turn rear control panel POWER switch ON, (Para 2-1).

(7) Connect positive (+) multimeter lead to power (red) wire at SPRAYBAR switch, middle terminal.

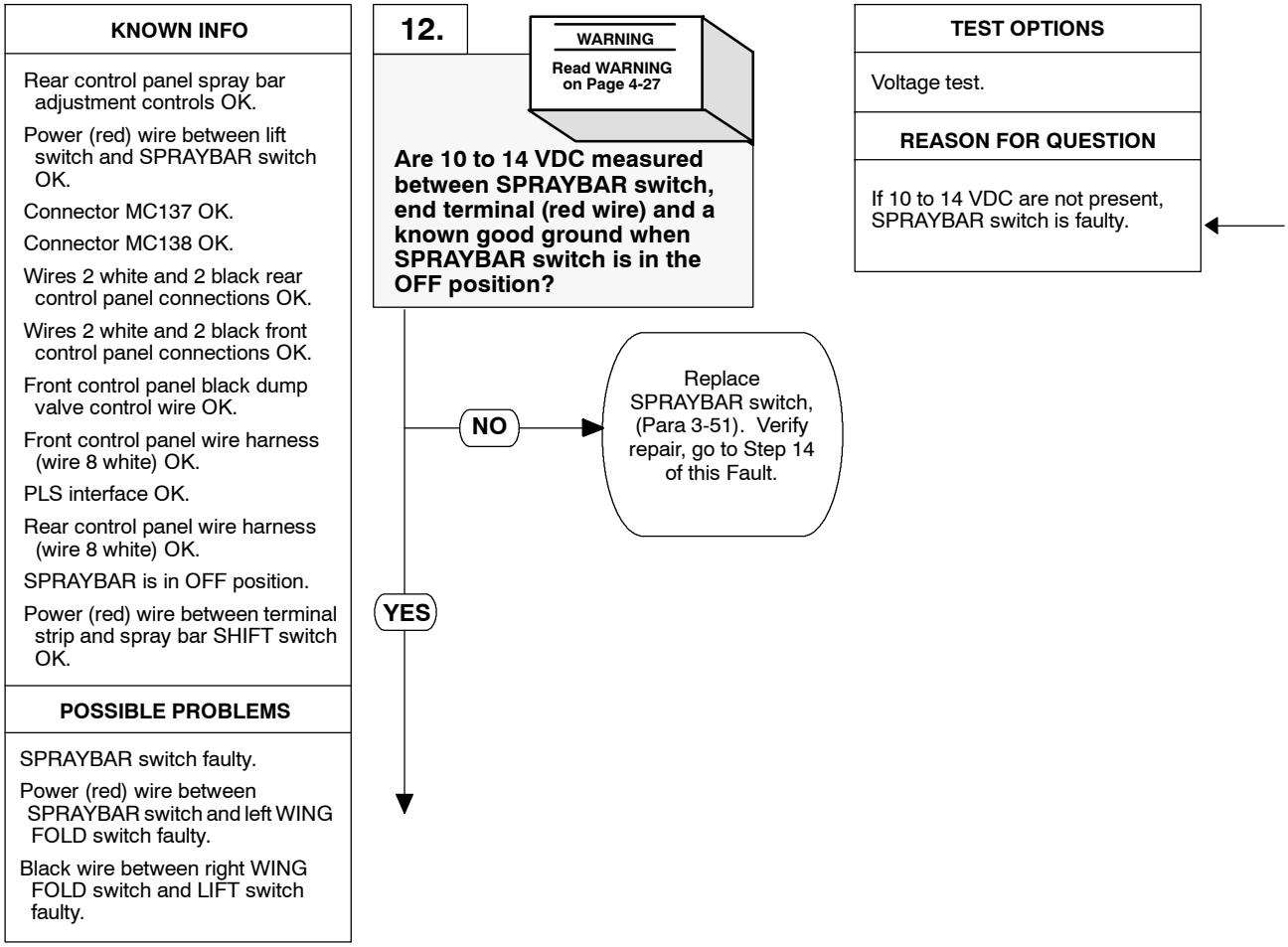
(8) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, repair power (red) wire, (Para 3-80). Verify repair, go to Step 14 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 12 of this Fault.



1. TWO OR MORE FRONT SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

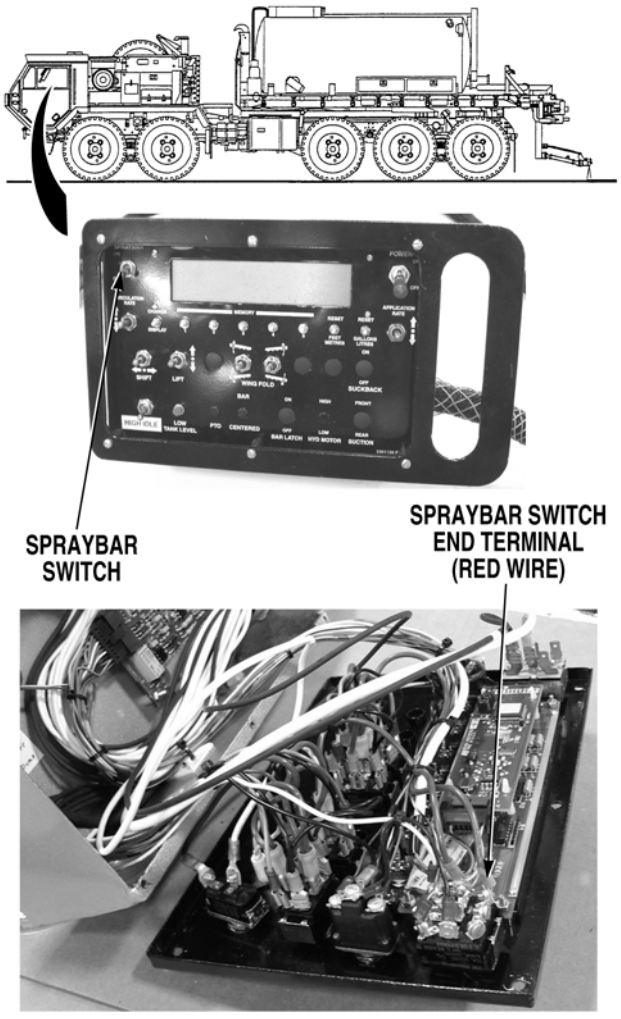
(1) Place SPRAYBAR switch in OFF position, (Para 2-1).

(2) Connect positive (+) multimeter lead to SPRAYBAR switch end terminal (red wire).

(3) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, replace SPRAYBAR switch, (Para 3-51). Verify repair, go to Step 14 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 13 of this Fault.



1. TWO OR MORE FRONT SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (CONT).

KNOWN INFO

Rear control panel spray bar adjustment controls OK.

Power (red) wire between terminal strip and spray bar SHIFT switch OK.

Connector MC137 OK.

Connector MC138 OK.

Wires 2 white and 2 black rear control panel connections OK.

Wires 2 white and 2 black front control panel connections OK.

Front control panel black dump valve control wire OK.

Front control panel wire harness (wire 8 white) OK.

PLS interface OK.

Rear control panel wire harness (wire 8 white) OK.

SPRAYBAR is in OFF position.

Power (red) wire between LIFT switch and SPRAYBAR switch OK.

SPRAYBAR switch OK.

POSSIBLE PROBLEMS

Power (red) wire between SPRAYBAR switch and left WING FOLD switch faulty.

Black wire between right WING FOLD switch and LIFT switch faulty.

13.

WARNING

Read WARNING on Page 4-29

Are 10 to 14 VDC measured between power (red) wire at spray bar left WING FOLD switch and a known good ground?

NO → Repair power (red) wire between SPRAYBAR switch and spray bar left WING FOLD switch, (Para 3-80). Verify repair, go to Step 14 of this Fault.

YES → Repair black wire between right WING FOLD switch and LIFT switch, (Para 3-80). Verify repair, go to Step 14 of this Fault.

TEST OPTIONS

Voltage test.

REASON FOR QUESTION

If 10 to 14 VDC are present, black wire between SPRAYBAR switch and LIFT switch is faulty. If not, power (red) wire between SPRAYBAR switch and spray bar left WING FOLD switch is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

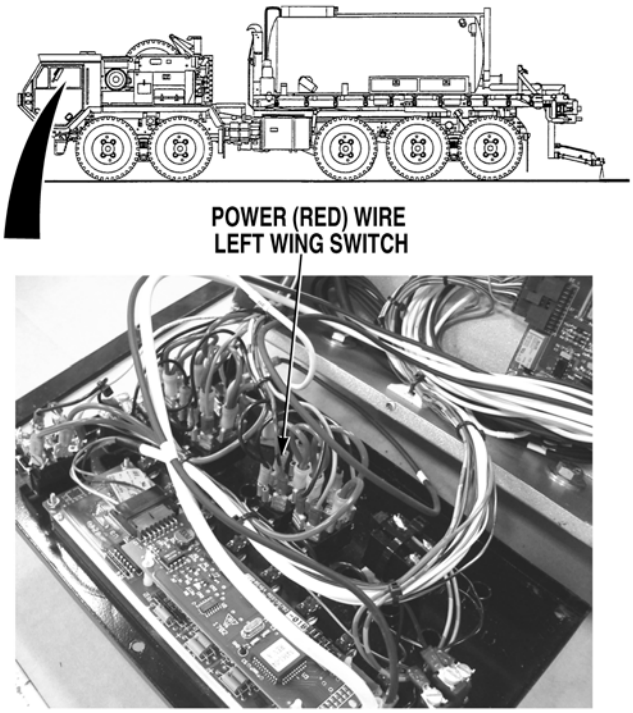
(1) Connect positive (+) multimeter lead to power (red) wire at left WING FOLD switch.

(2) Connect negative (-) multimeter lead to a known good ground.

  (a) If 10 to 14 VDC are not present, repair power (red) wire between SPRAYBAR switch and spray bar left WING FOLD switch, (Para 3-80).

  (b) If 10 to 14 VDC are present, repair black wire between right WING FOLD switch and LIFT switch, (Para 3-80).

(3) Verify repair, go to Step 14 of this Fault.



1. TWO OR MORE FRONT SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (CONT).

KNOWN INFO

Rear control panel spray bar adjustment controls OK.

Power (red) wire between terminal strip and spray bar SHIFT switch OK.

Connector MC137 OK.

Connector MC138 OK.

Wires 2 white and 2 black rear control panel connections OK.

Wires 2 white and 2 black front control panel connections OK.

Front control panel black dump valve control wire OK.

Front control panel wire harness (wire 8 white) OK.

PLS interface OK.

Rear control panel wire harness (wire 8 white) OK.

Power (red) wire between LIFT switch and SPRAYBAR switch OK.

SPRAYBAR switch OK.

Power (red) wire between SPRAYBAR switch and left WING FOLD switch OK.

Black wire between right WING FOLD switch and LIFT switch OK.

POSSIBLE PROBLEMS

None.

14.

WARNING

Read WARNING on Page 4-31

Do all front spray bar adjustment controls operate?

NO → Fault not corrected. Notify Supervisor.

YES → Fault corrected.

TEST OPTIONS

Verify repair.

REASON FOR QUESTION

If all front spray bar adjustment controls operate, fault has been corrected. If not, fault not corrected. Notify Supervisor.

WARNING

12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

VERIFY REPAIR

(1) If in, pull out battery disconnect switch, (TM 9-2320-364-10).

(2) If removed, install front control panel, (Para 3-76).

(3) If removed, install rear control panel, (Para 3-76).

(4) If out, push in battery disconnect switch, (TM 9-2320-364-10).

(5) Start engine, (TM 9-2320-364-10).

(6) Turn front control panel POWER switch ON, (Para 2-1).

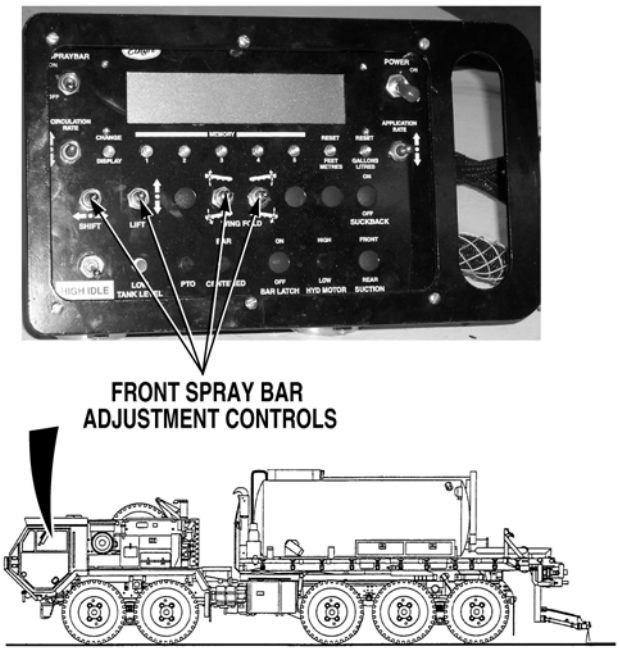
(7) Turn rear control panel POWER switch ON, (Para 2-1).

(8) Operate front control panel spray bar adjustment controls, (Para 2-1).

  (a) If front control panel spray bar adjustment controls do not operate, fault not corrected. Notify Supervisor.

  (b) If front control panel spray bar adjustment controls operate, fault has been corrected.

(9) Shut OFF engine, (TM 9-2320-364-10).



2. ALL SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (FRONT AND REAR).

INITIAL SETUP

Tools and Special Tools

Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

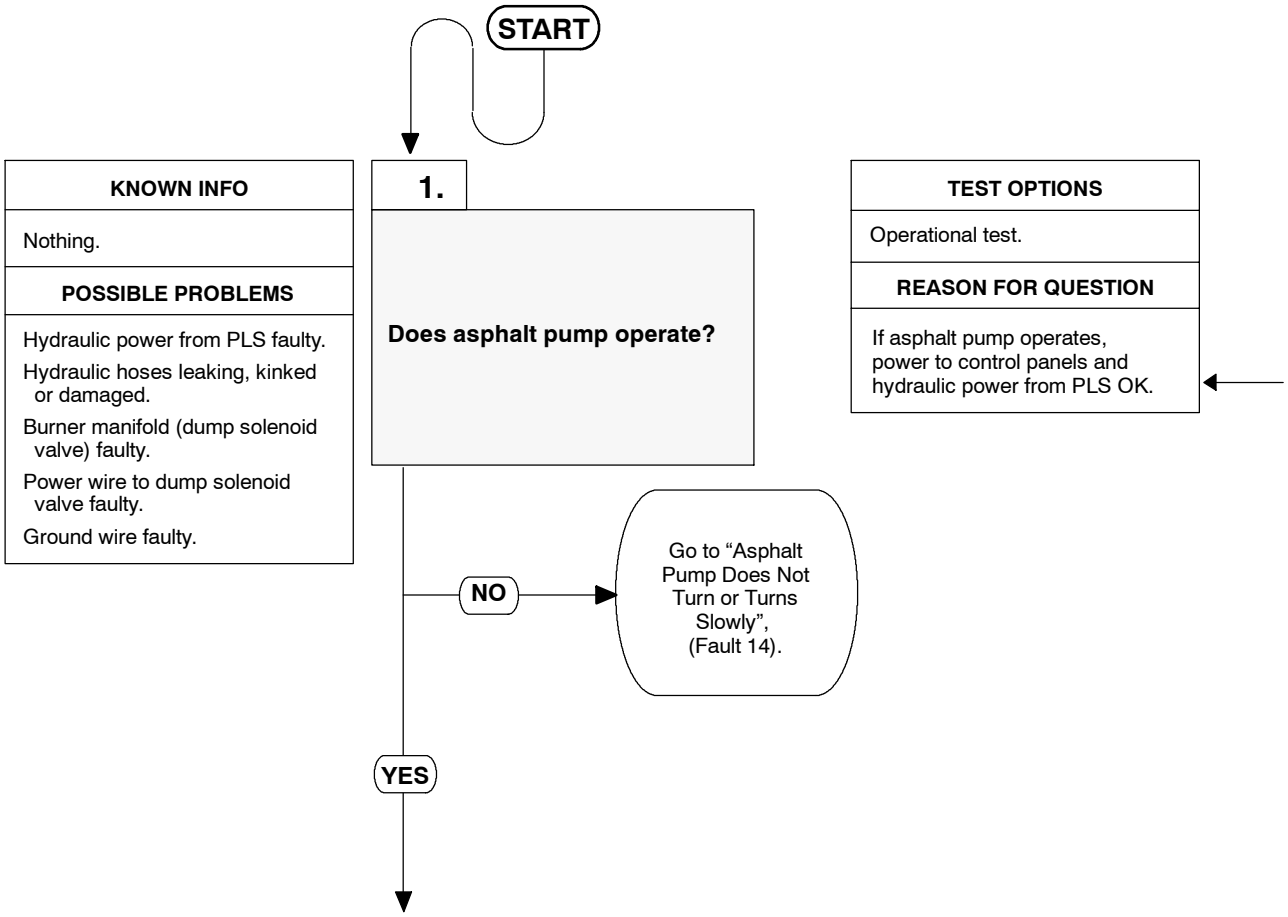
Multimeter (Item 8, Appendix F)

Equipment Condition

Bituminous Distributor loaded on PLS, (Para 2-5)

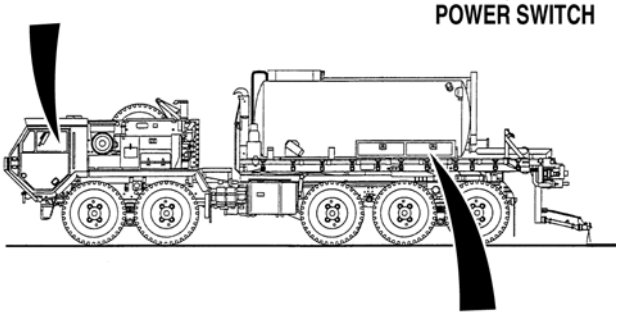
Engine OFF, (TM 9-2320-364-10)

Wheels chocked, (TM 9-2320-364-10)





POWER SWITCH



POWER SWITCH PUMP CONTROL



OPERATIONAL TEST

(1) Start engine, (TM 9-2320-364-10).

(2) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(3) Turn front control panel POWER switch ON, (Para 2-1).

(4) Turn rear control panel POWER switch ON, (Para 2-1).

(5) Set up system to circulate using rear control panel, (Para 2-16). Do not open suction tank.

(6) Adjust pump speed using rear control panel PUMP CONTROL, (Para 2-1). Check if asphalt pump turns.

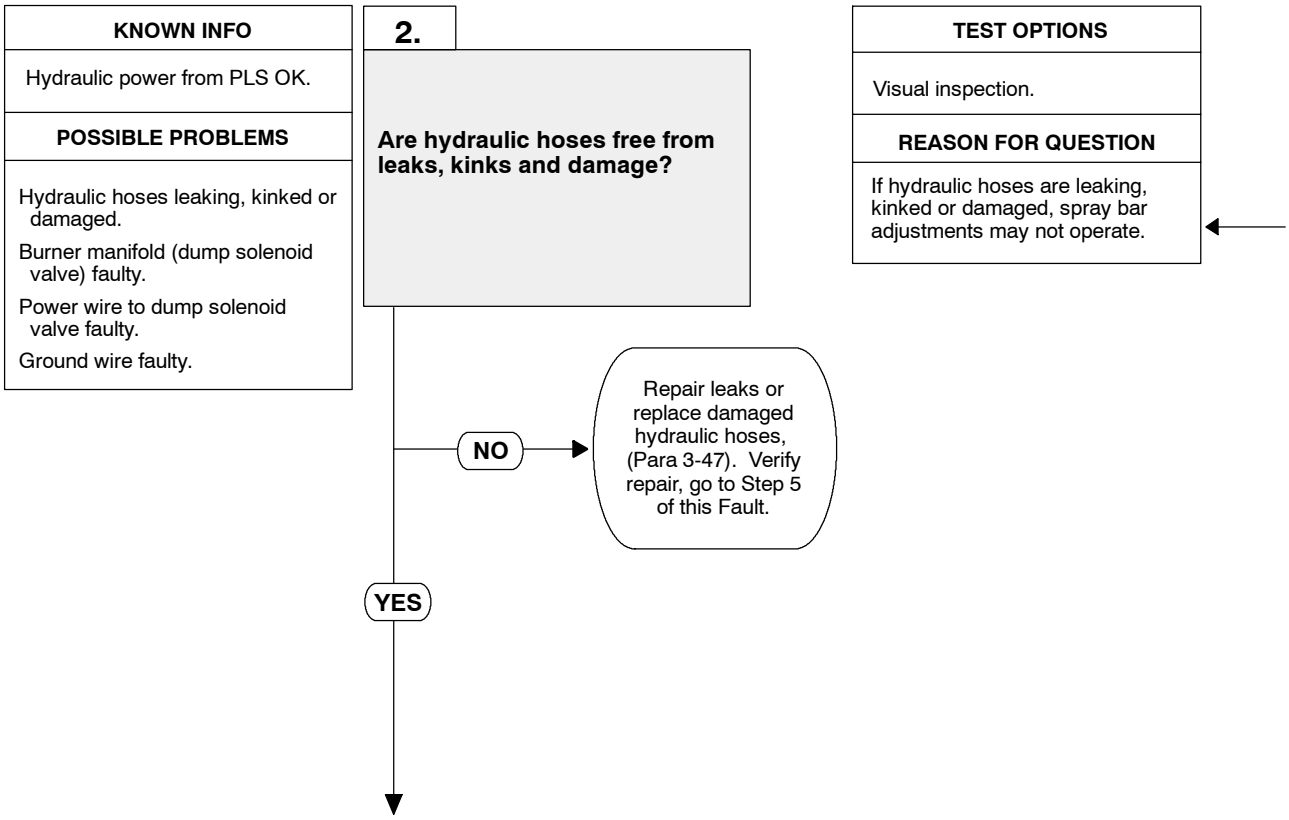
  (a) If asphalt pump does not operate, go to “Asphalt Pump Does Not Turn or Turns Slowly”, (Fault 14).

  (b) If asphalt pump operates, go to Step 2 of this Fault.



ASPHALT PUMP

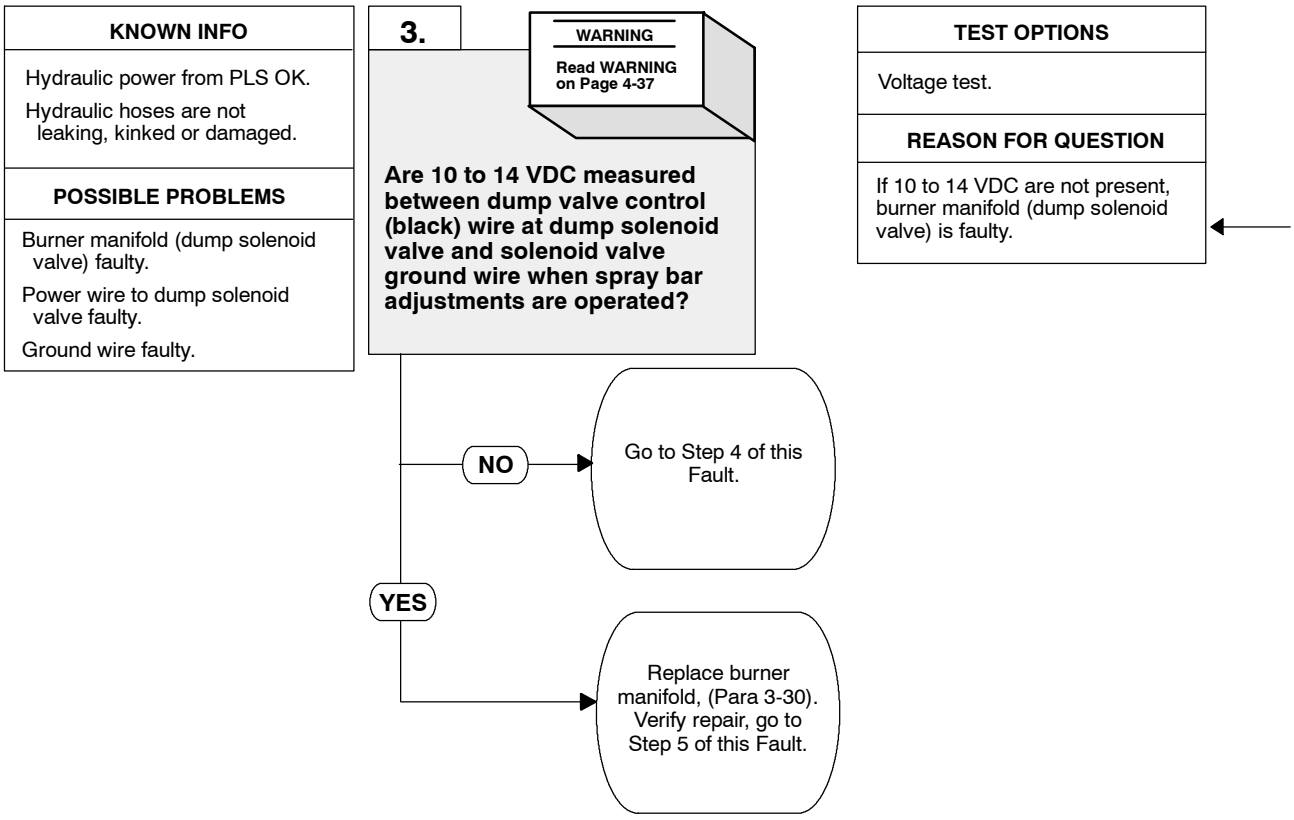
2. ALL SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (FRONT AND REAR) (CONT).



VISUAL INSPECTION
(1) Shut OFF engine, (TM 9-2320-364-10). (2) Check if hydraulic hoses are free from leaks, kinks and damage. (a) If hydraulic hoses are not free from leaks, kinks or damage, repair or replace leaking, kinked and damaged hoses, (Para 3-47). Verify repair, go to Step 5 of this Fault. (b) If hydraulic hoses are free from leaks, kinks and damage, go to Step 3 of this Fault.

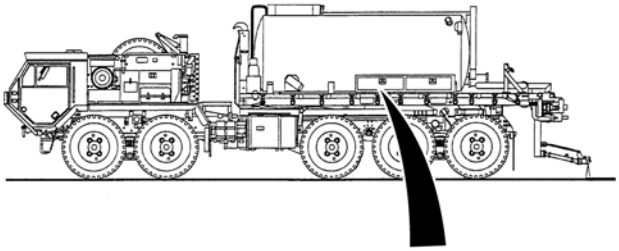


2. ALL SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (FRONT AND REAR) (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.



VOLTAGE TEST

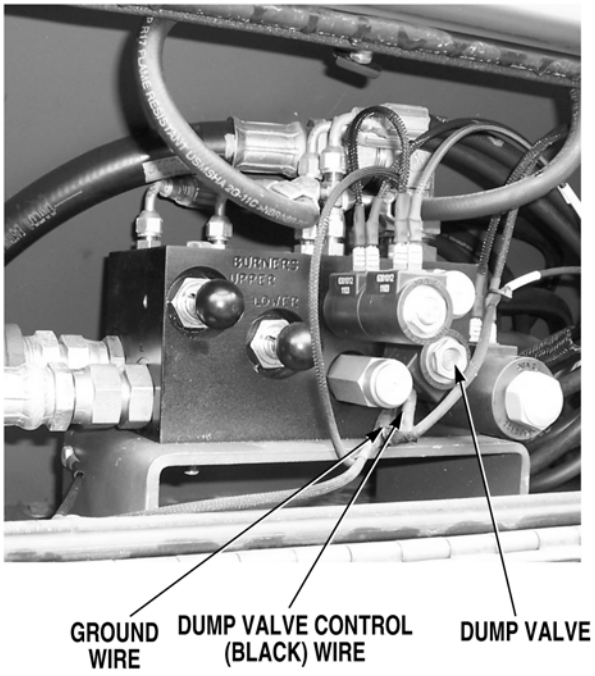
(1) Connect positive (+) multimeter lead to dump valve control (black) wire at dump solenoid valve.

(2) Connect negative (-) multimeter lead to ground wire at dump solenoid valve.

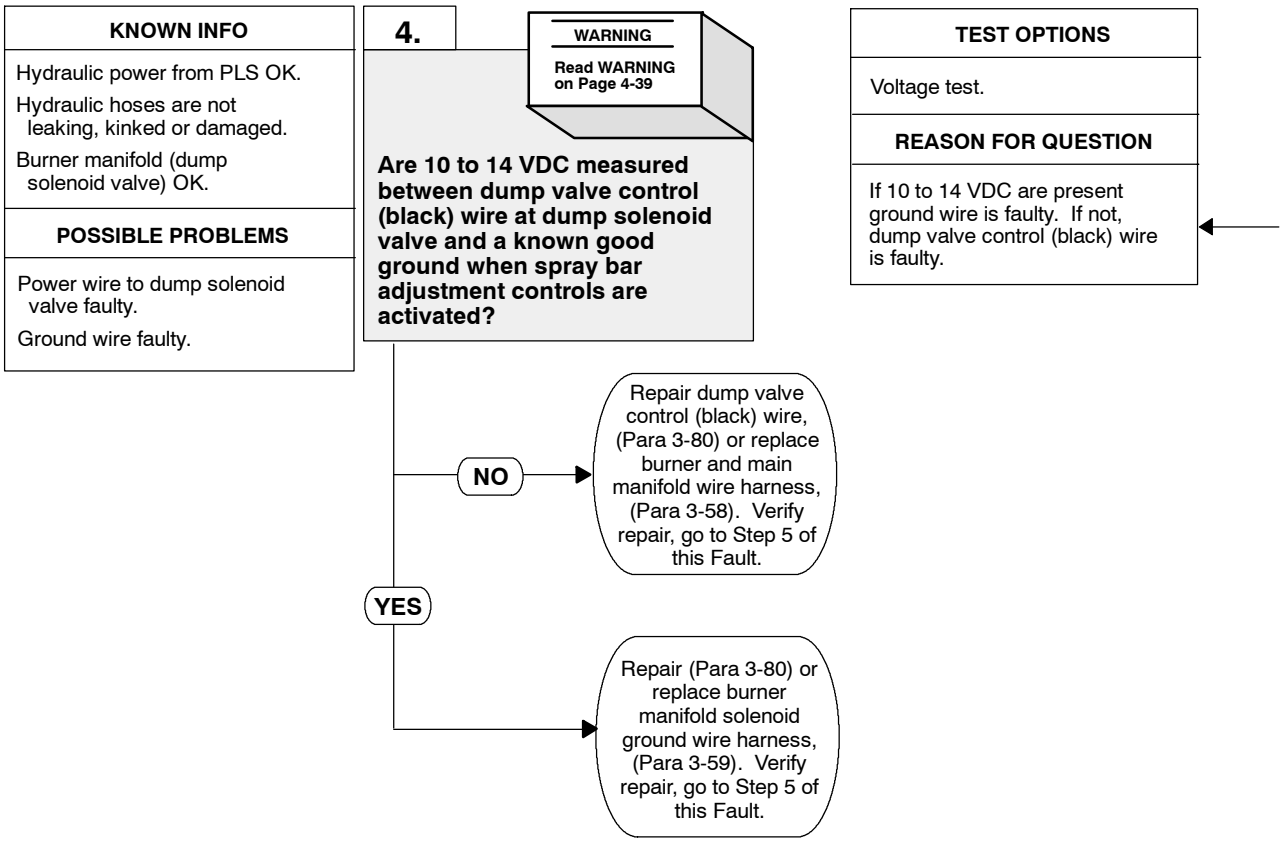
(3) Check if 10 to 14 VDC are present when rear control panel bar shift, bar raise, left, right, or bar stow control switch is activated.

(a) If 10 to 14 VDC are not present, go to Step 4 of this Fault.

(b) If 10 to 14 VDC are present, replace burner manifold, (Para 3-30). Verify repair, go to Step 5 of this Fault.



2. ALL SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (FRONT AND REAR) (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

(1) Connect positive (+) multimeter lead to dump valve control (black) wire at dump solenoid valve.

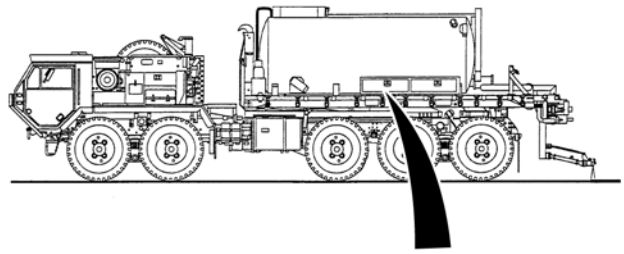
(2) Connect negative (-) multimeter lead to a known good ground.

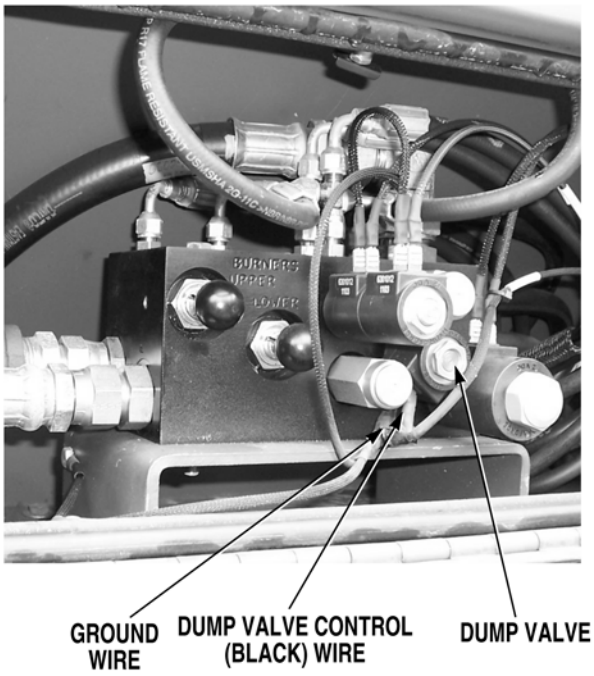
(3) Check if 10 to 14 VDC are present when rear control panel bar shift, bar raise, left, right, or bar stow control switch is activated.

  (a) If 10 to 14 VDC are not present, repair dump valve (black) wire, (Para 3-80) or replace burner and main manifold wire harness, (Para 3-58).

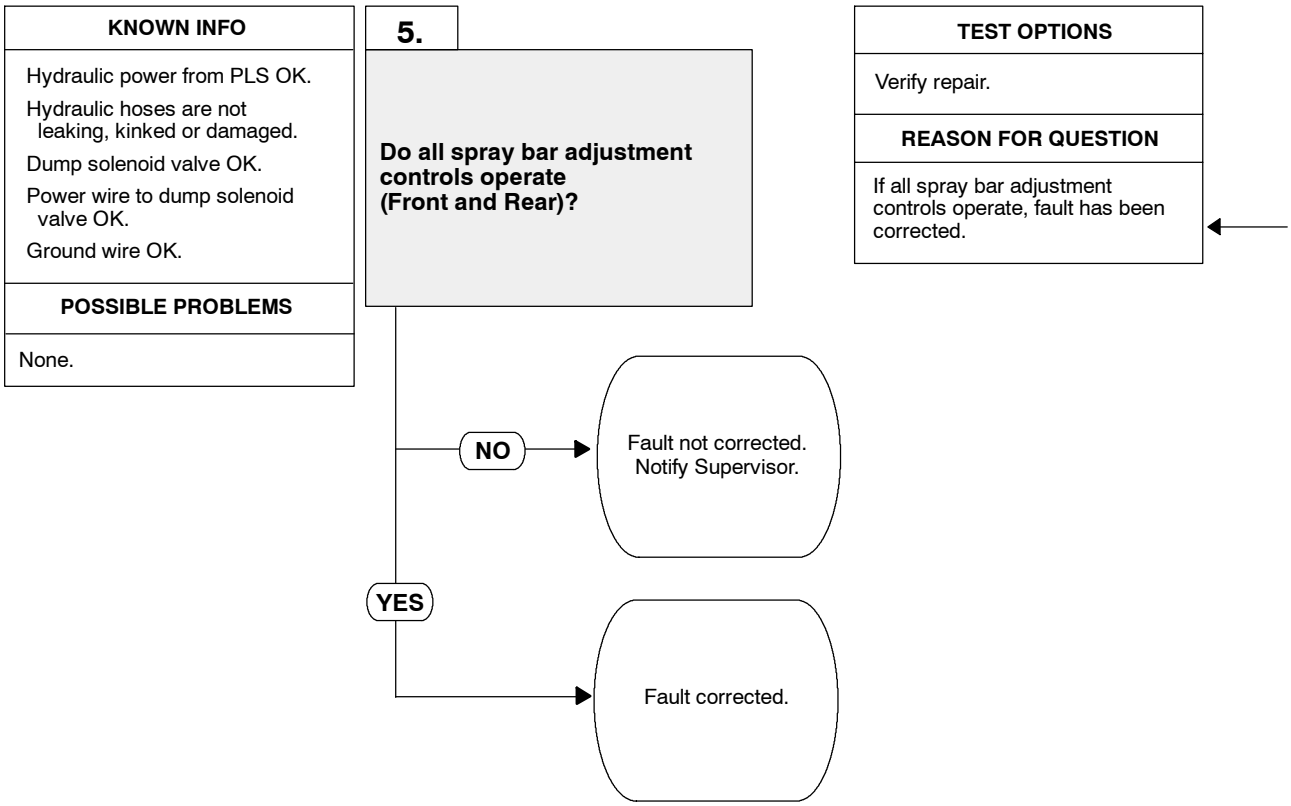
  (b) If 10 to 14 VDC are present, repair, (Para 3-80) or replace burner manifold solenoid valve ground wire harness, (Para 3-59).

(4) Verify repair, go to Step 5 of this Fault.

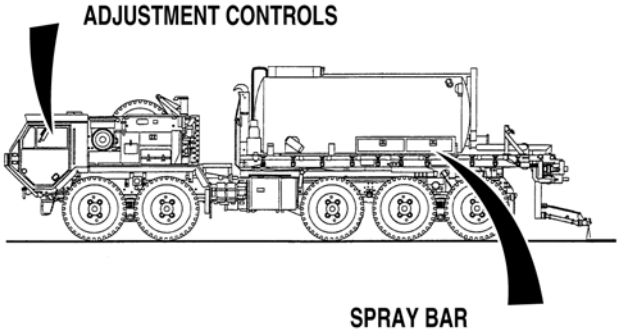




2. ALL SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (FRONT AND REAR) (CONT).









VERIFY REPAIR

(1) Start engine, (TM 9-2320-364-10).

(2) Operate spraybar adjustment functions from cab and rear control panels.

  (a) If spraybar adjustment functions do not operate, fault not corrected. Notify Supervisor.

  (b) If spraybar adjustment functions operate, fault has been corrected.

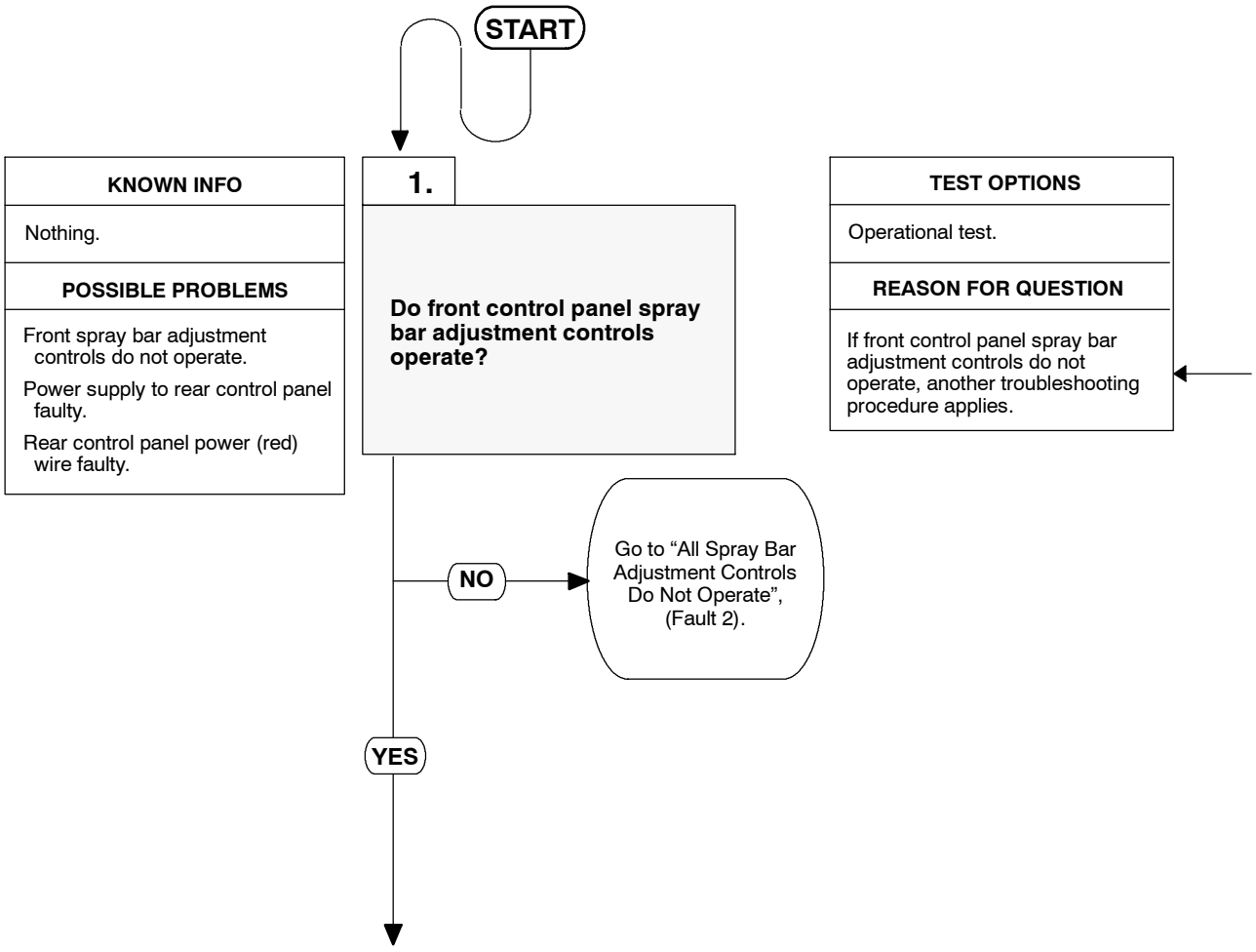
(3) Shut OFF engine, (TM 9-2320-364-10).

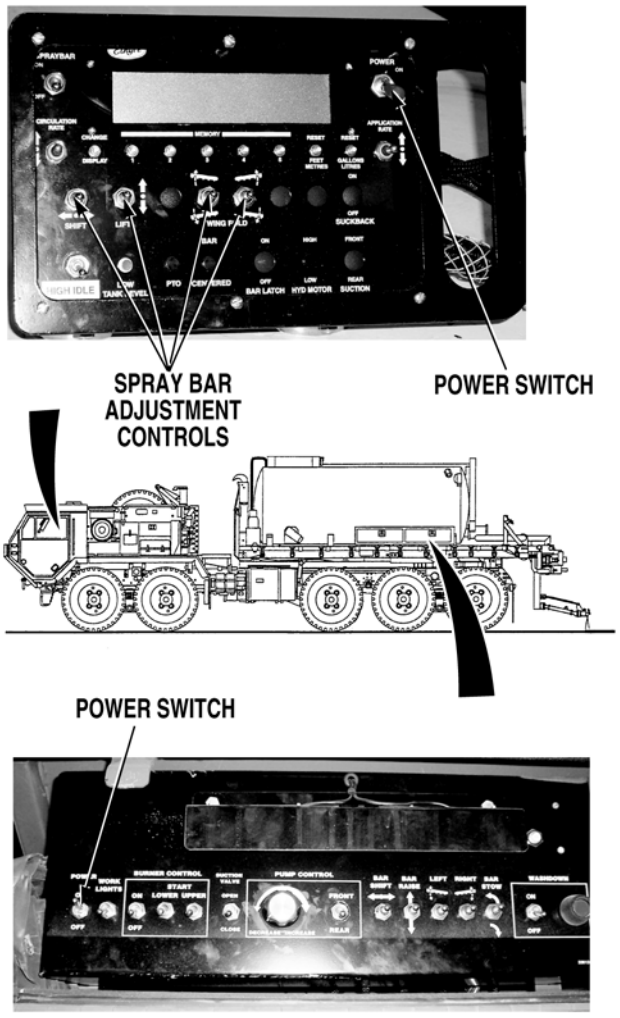
3. ALL REAR SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE.

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Equipment Condition
Bituminous Distributor loaded on PLS, (Para 2-5)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)





OPERATIONAL TEST

(1) Start engine, (TM 9-2320-364-10).

(2) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(3) Turn front control panel POWER switch ON, (Para 2-1).

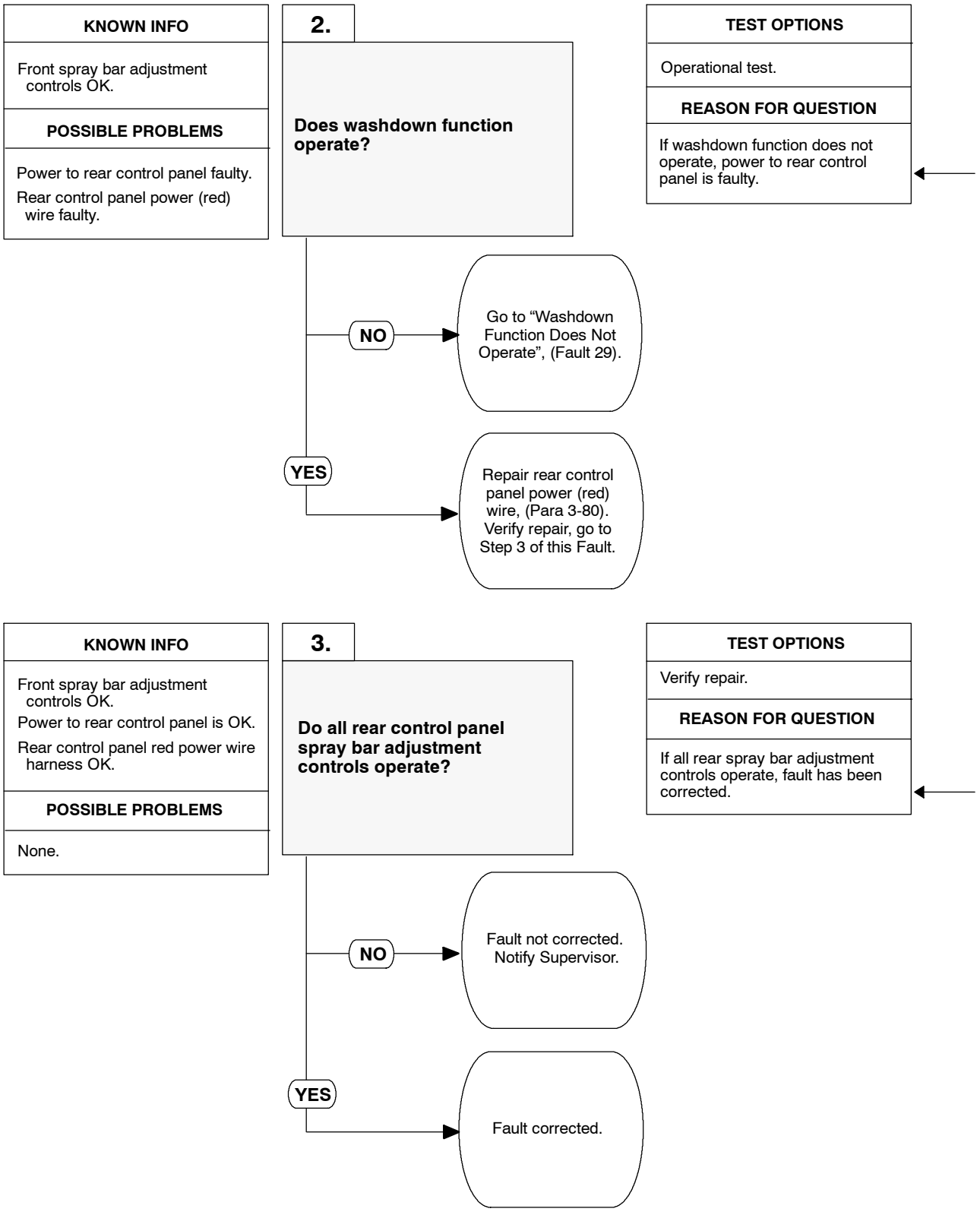
(4) Turn rear control panel POWER switch ON, (Para 2-1).

(5) Check if front spray bar adjustment controls operate.

(a) If front spray bar adjustment controls do not operate, go to "All Spray Bar Adjustment Controls Do Not Operate", (Fault 2).

(b) If front spray bar adjustment controls operate, go to Step 2 of this Fault.

3. ALL REAR SPRAY BAR ADJUSTMENT CONTROLS DO NOT OPERATE (CONT).

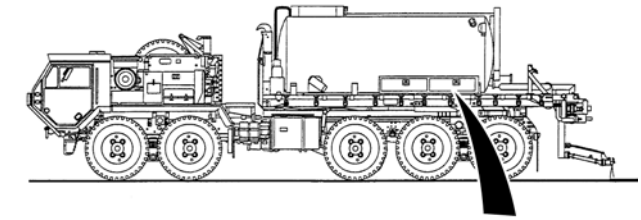


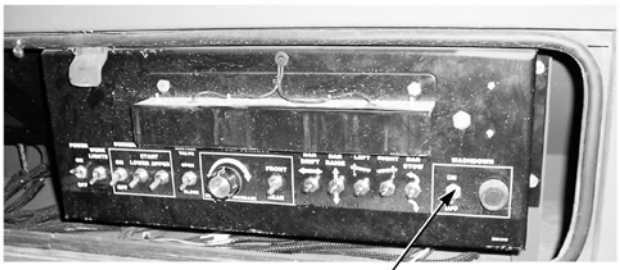
OPERATIONAL TEST

Operate washdown function, (Para 2-21).

(a) If washdown function does not operate, go to, "Washdown Function Does Not Operate", (Fault 29).

(b) If washdown function operates, repair rear control panel power (red) wire, between WASHDOWN switch and spray bar adjustment switches, (Para 3-80). Verify repair, go to Step 3 of this Fault.





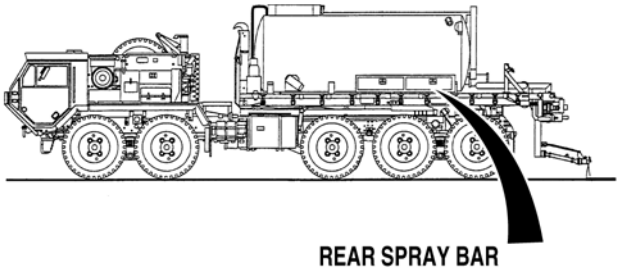
VERIFY REPAIR

(1) Operate rear control panel spray bar adjustment controls, (Para 2-17).

(a) If all rear control panel spray bar adjustment controls do not operate, fault not corrected. Notify Supervisor.

(b) If all rear control panel spray bar adjustment controls operate, fault has been corrected.

(2) Shut OFF engine, (TM 9-2320-364-10).



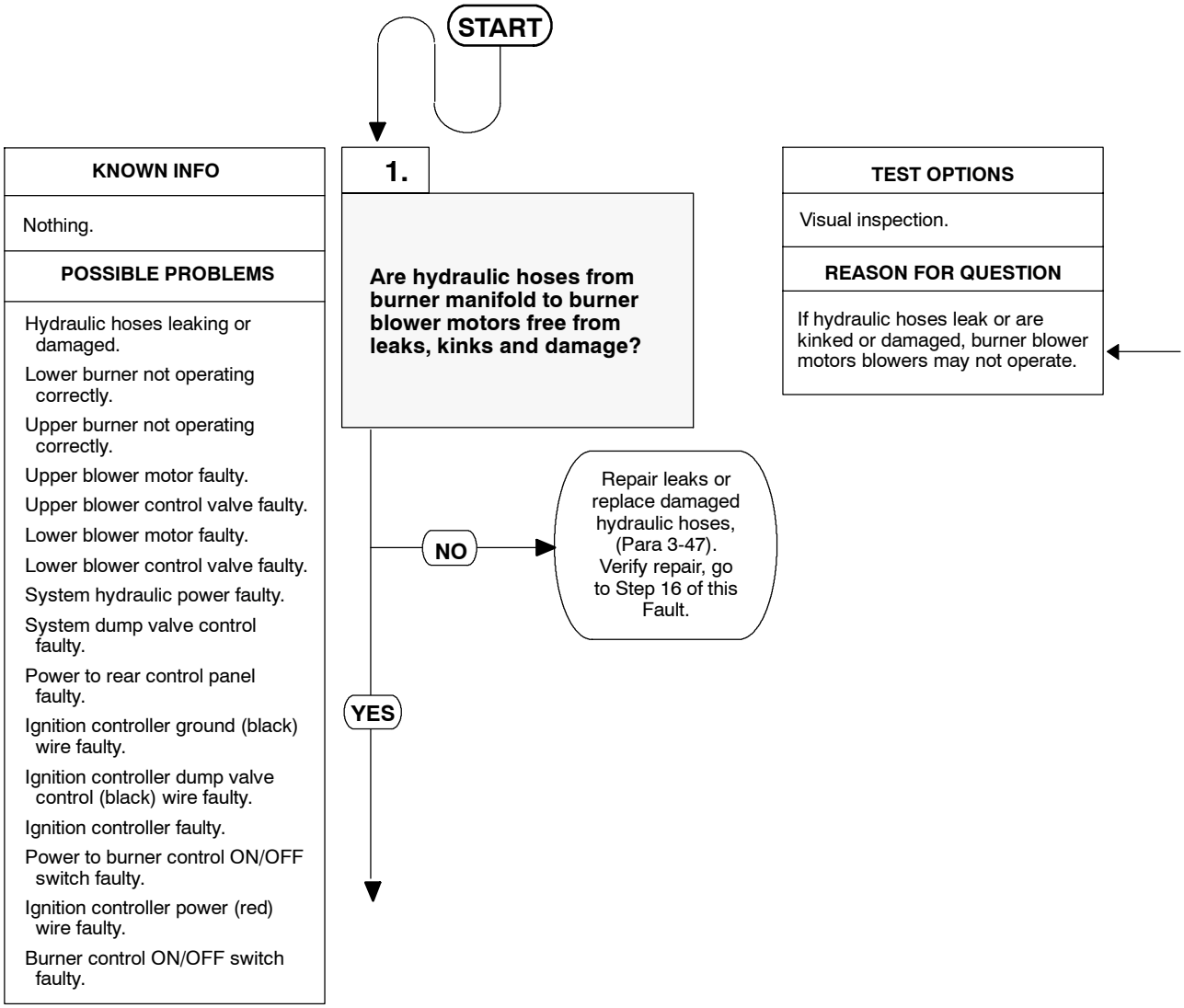


4. BURNER BLOWER(S) DO NOT OPERATE.

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Multimeter (Item 8, Appendix F)

Equipment Condition
Bituminous Distributor loaded on PLS, (Para 2-5)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

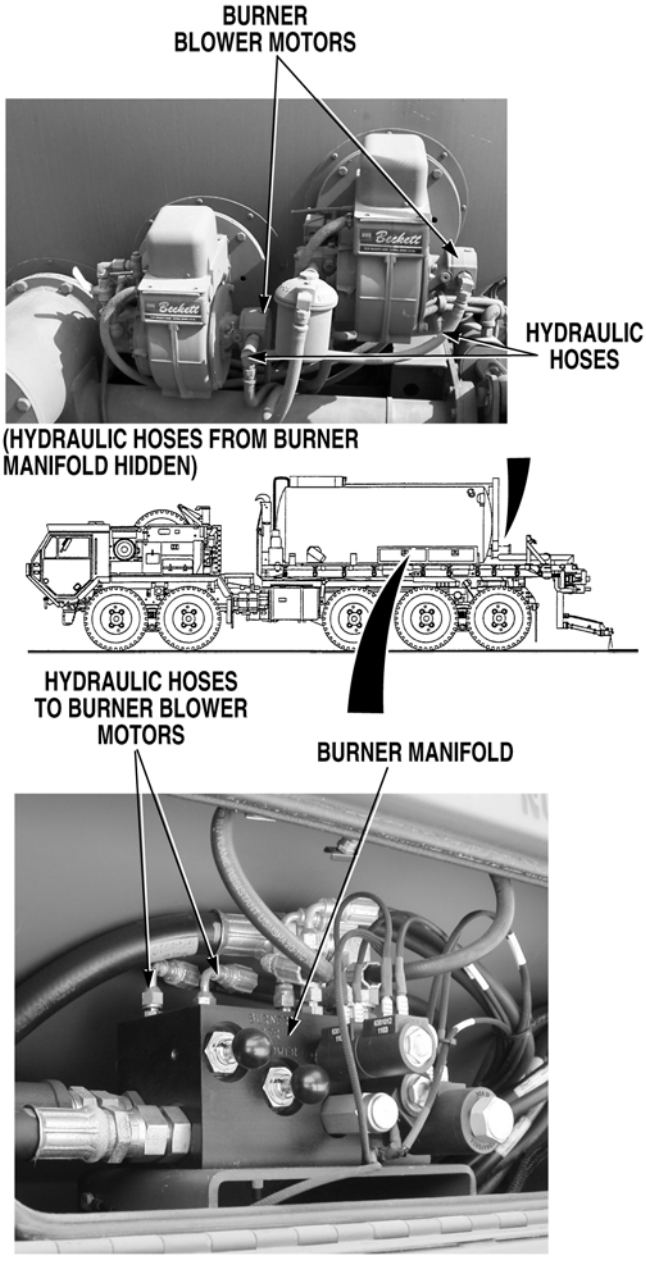


VISUAL INSPECTION

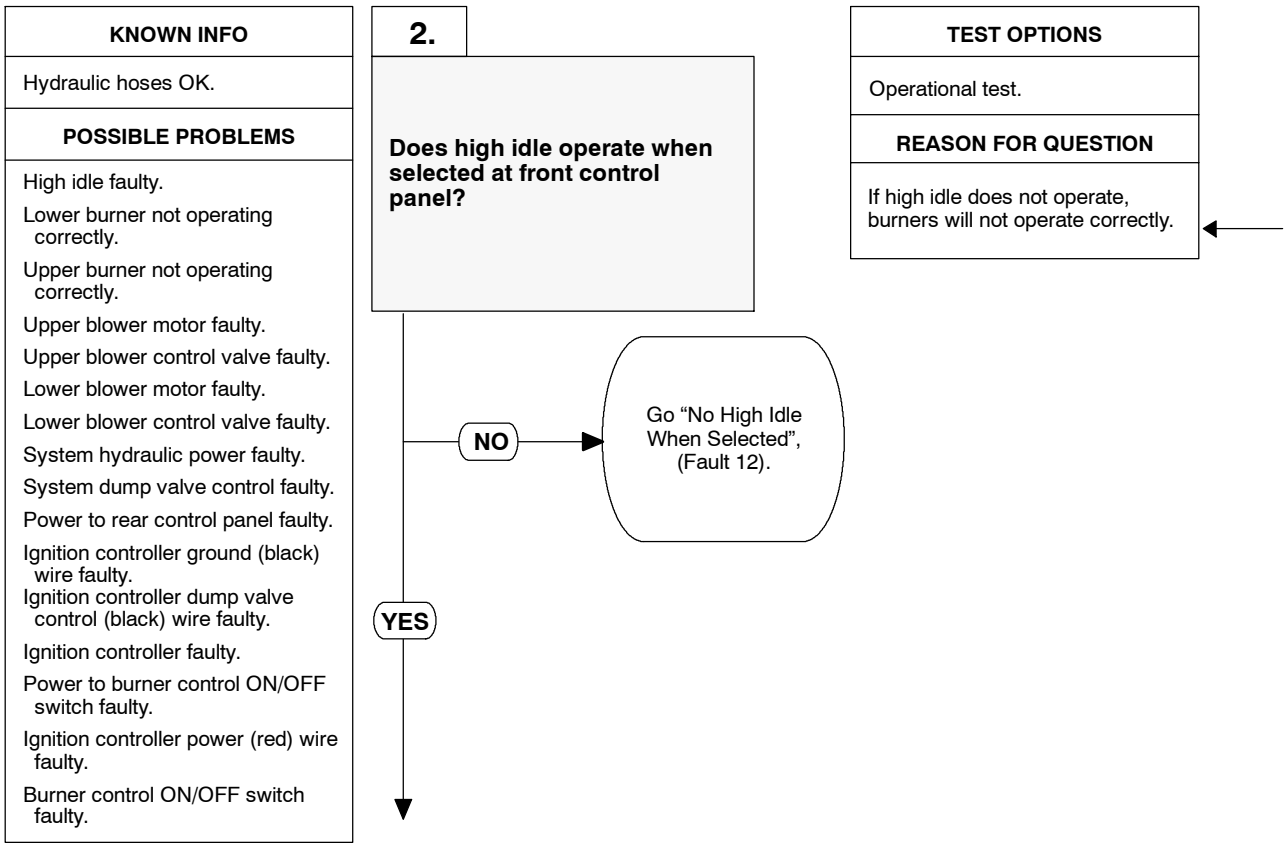
Inspect hydraulic hoses from burner manifold to burner blower motors for leaks, kinks and damage.

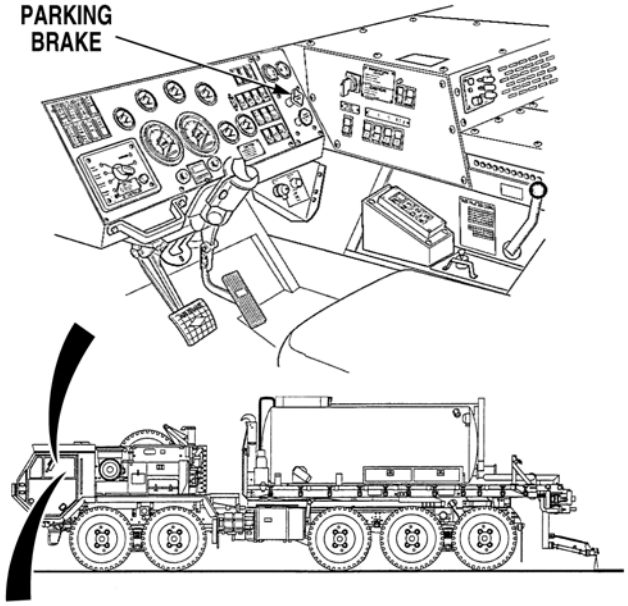
(a) If hydraulic hoses leak or are kinked or damaged, repair leaks or replace damaged hydraulic hoses, (Para 3-47). Verify repair, go to Step 16 of this Fault.

(b) If hydraulic hoses are free from leaks, kinks and damage, go to Step 2 of this Fault.



4. BURNER BLOWER(S) DO NOT OPERATE (CONT).





OPERATIONAL TEST

(1) Start engine, (TM 9-2320-364-10).

(2) Apply parking brake, (TM 9-2320-364-10).

(3) Turn front control panel HIGH IDLE switch ON, (Para 2-1).

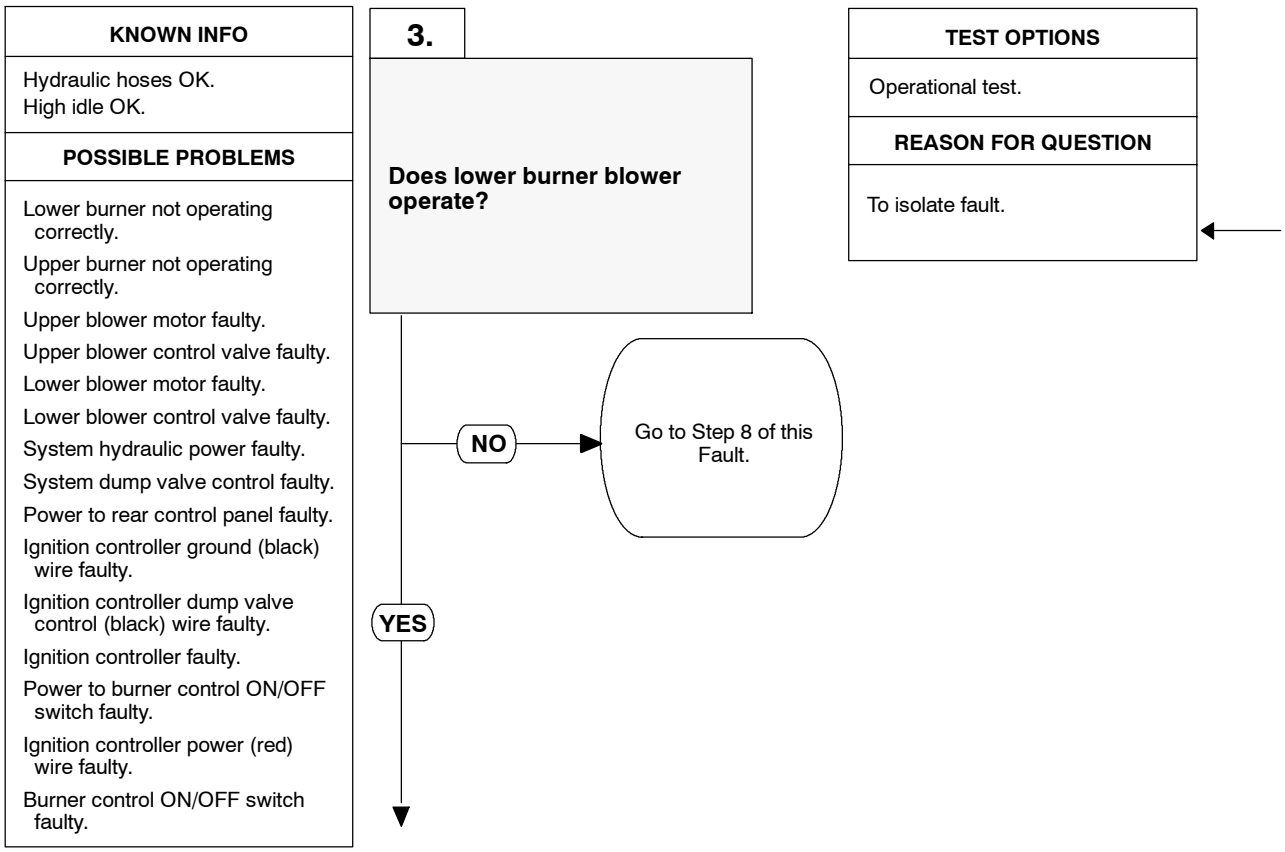
(4) Check if engine speed increases to high idle.

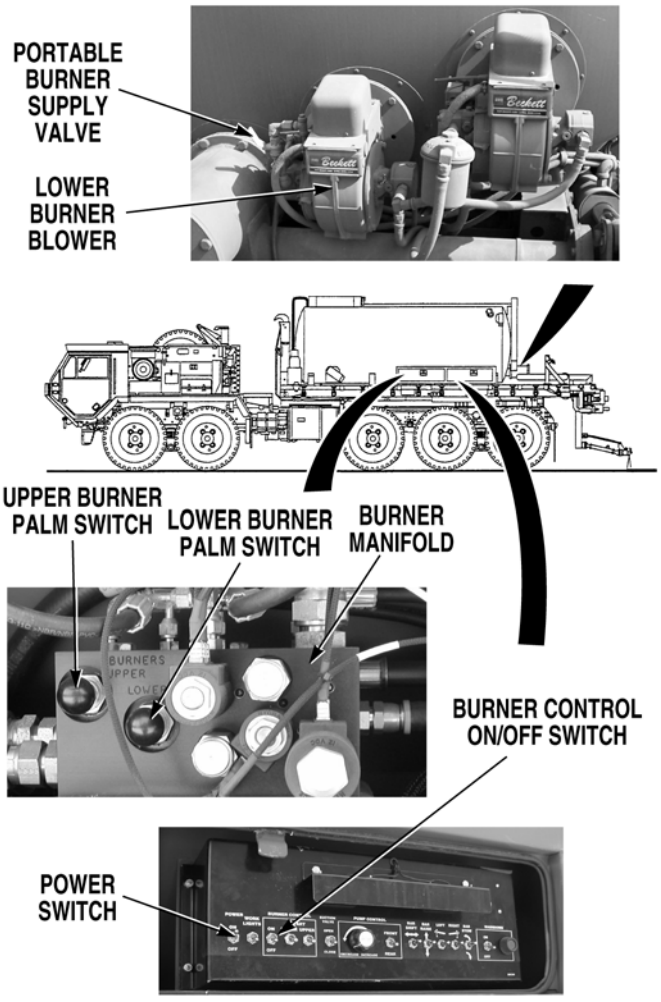
  (a) If engine speed does not increase to high idle, go to “No High Idle When Selected”, (Fault 12).

  (b) If engine speed increases to high idle, go to Step 3 of this Fault.



4. BURNER BLOWER(S) DO NOT OPERATE (CONT).





OPERATIONAL TEST

(1) Turn front control panel HIGH IDLE switch OFF, (Para 2-1).

(2) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(3) Turn front control panel POWER switch ON, (Para 2-1).

(4) Turn front control panel HIGH IDLE switch ON, (Para 2-1).

(5) Turn rear control panel POWER switch ON, (Para 2-1).

(6) Close portable burner supply valve, (Para 2-1).

(7) Pull out and turn lower burner palm button 90° and release, (Para 2-22).

(8) Pull out and turn upper burner palm button 90° and release, (Para 2-22).

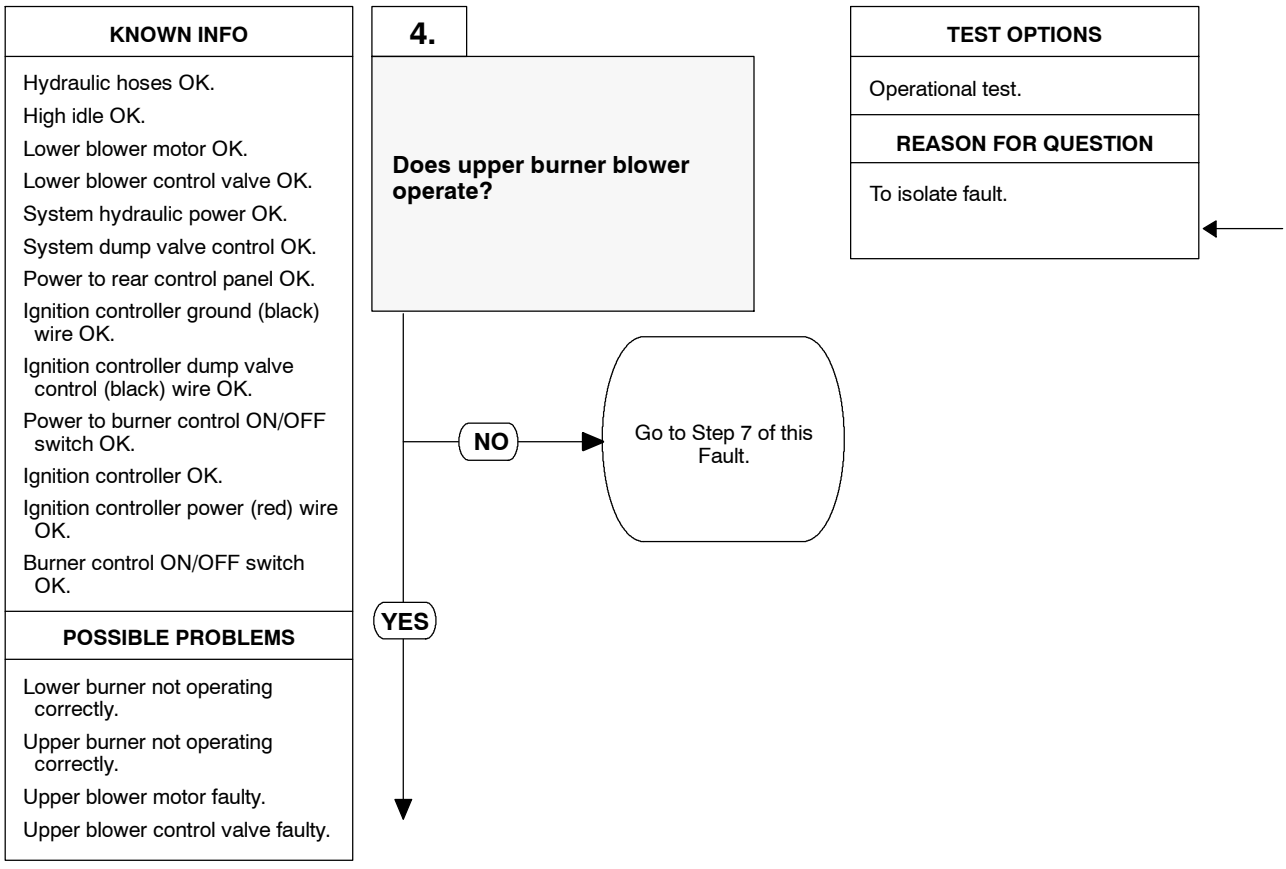
(9) Turn burner control ON/OFF switch ON, (Para 2-1).

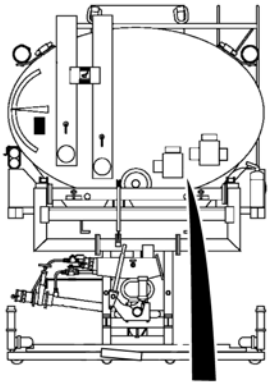
(10) Check if lower burner blower operates.

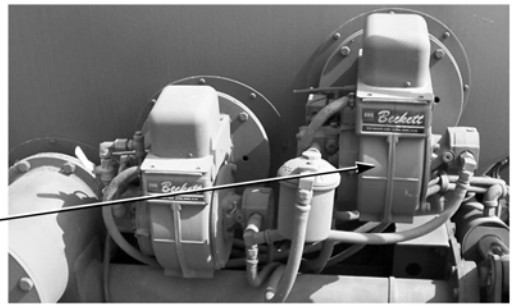
  (a) If lower burner blower does not operate, go to Step 8 of this Fault.

  (b) If lower burner blower operates, go to Step 4 of this Fault.

4. BURNER BLOWER(S) DO NOT OPERATE (CONT).

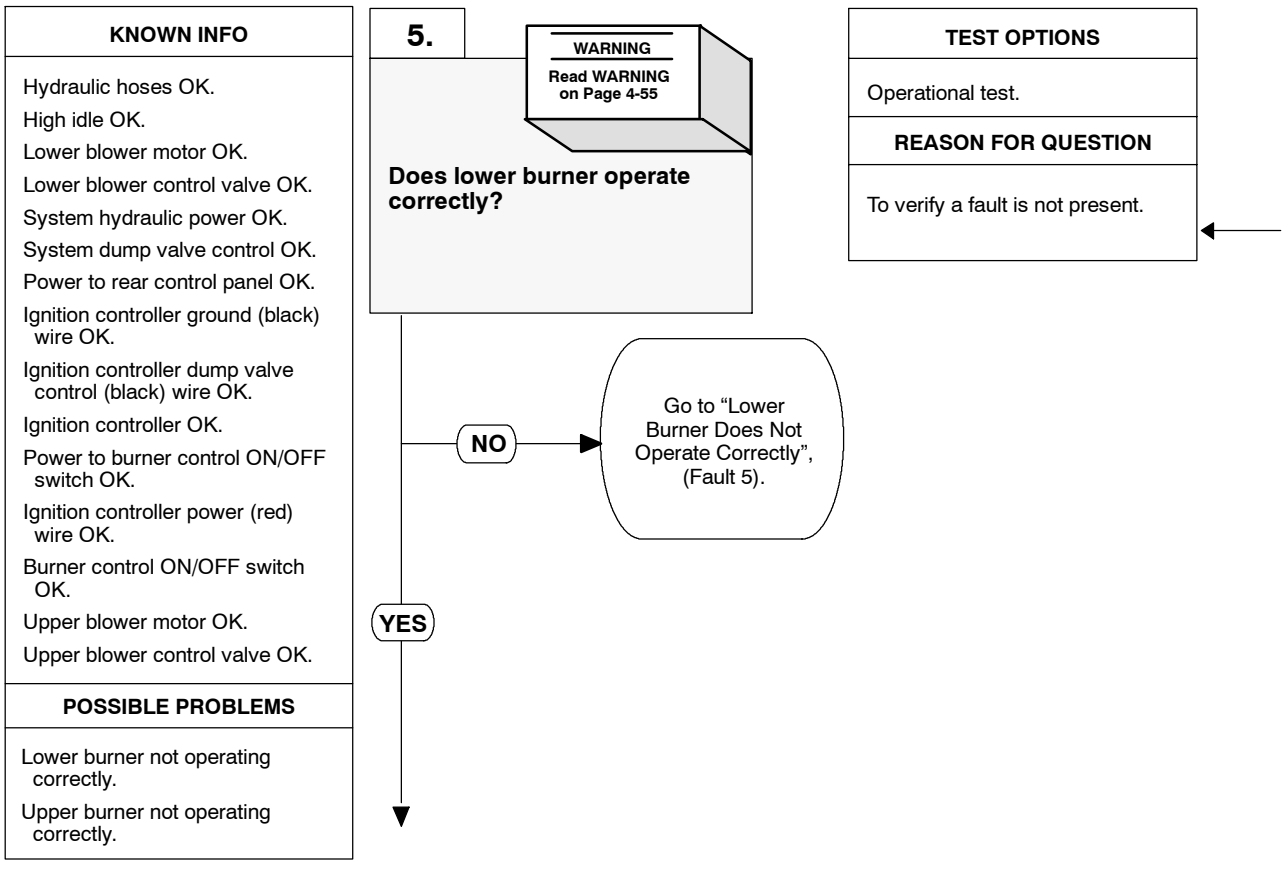






OPERATIONAL TEST
Check if upper burner blower operates. (a) If upper burner blower does not operate, go to Step 7 of this Fault. (b) If upper burner blower operates, go to Step 5 of this Fault.

4. BURNER BLOWER(S) DO NOT OPERATE (CONT).



WARNING

- DO NOT light any burner prior to stick measuring quantity of material in tank (Refer to Para 2-9). Failure to comply may result in injury or death to personnel.
- DO NOT light lower burner unless a minimum of 750 gallons (2,838.75 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- DO NOT light upper burner unless a minimum of 1,050 gallons (3,974.25 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- Allowing burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulating, burners should be extinguished for 20 to 30 minutes before re-lighting.
- See Para 2-18 for additional warnings.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is “frozen” is it acceptable to operate burners without circulating material. However, if asphalt pump is “frozen”, carefully apply heat to pump housing and start circulating as soon as possible.

OPERATIONAL TEST

(1) Stick measure contents of distributor, (Para 2-13). Ensure there is at least 1,050 gallons (3,974.25 l) of material in tank. Fill distributor if required, (Para 2-15).

(2) Set up distributor to circulate material, (Para 2-16).

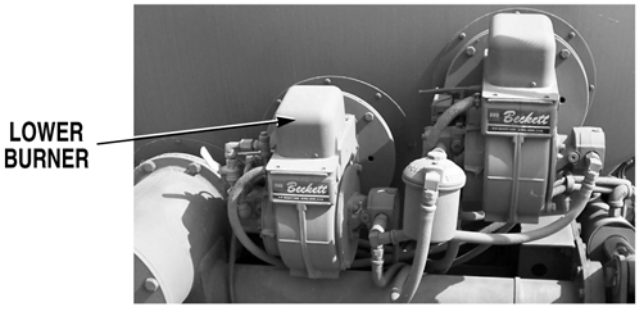
(3) Push and hold LOWER START switch in the up position until lower burner ignites, (Para 2-1).

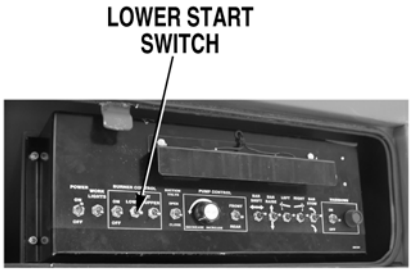
(4) Release LOWER START switch.

(5) Check if lower burner operates correctly.

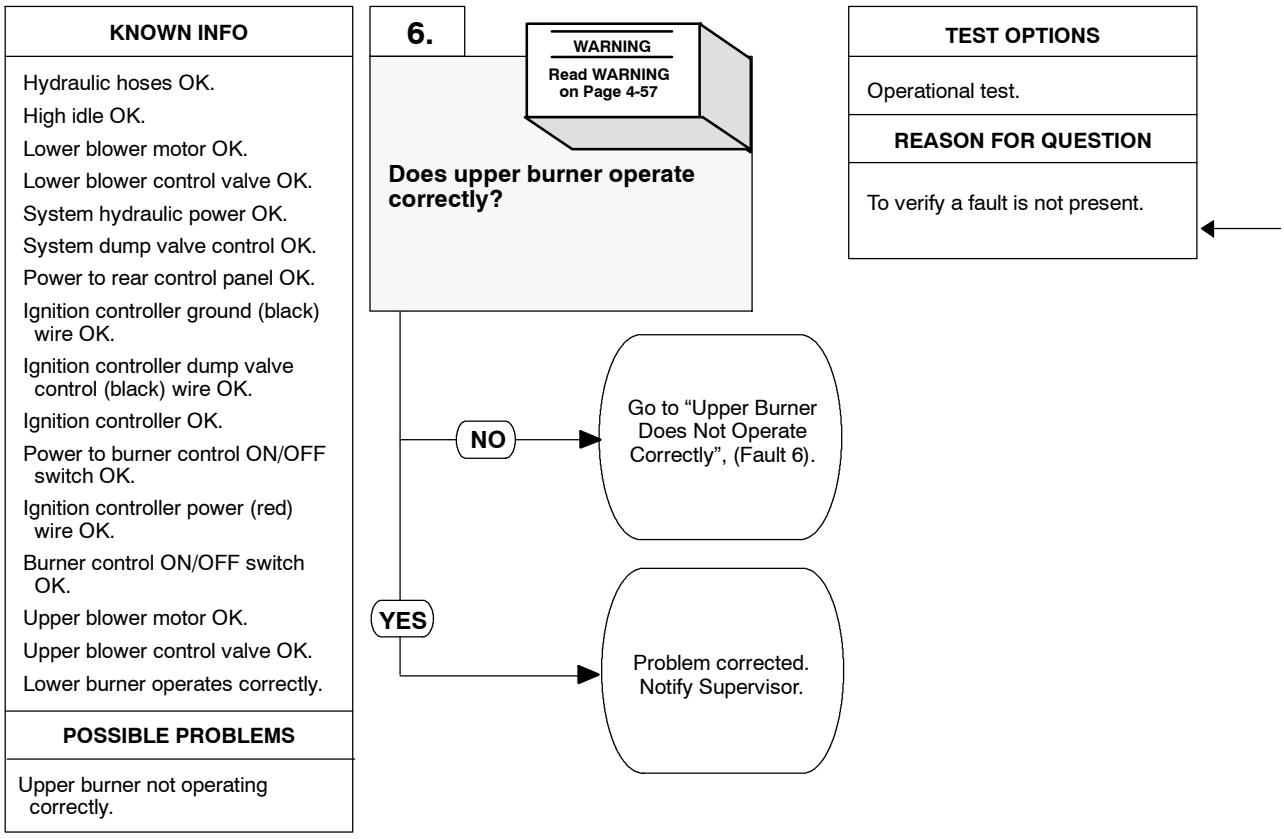
  (a) If lower burner does not operate, go to “Lower Burner Does Not Operate Correctly”, (Fault 5).

  (b) If lower burner operates, go to Step 6 of this Fault.





4. BURNER BLOWER(S) DO NOT OPERATE (CONT).



WARNING

- DO NOT light any burner prior to stick measuring quantity of material in tank (Refer to Para 2-9). Failure to comply may result in injury or death to personnel.
- DO NOT light lower burner unless a minimum of 750 gallons (2,838.75 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- DO NOT light upper burner unless a minimum of 1,050 gallons (3,974.25 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- Allowing burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulating, burners should be extinguished for 20 to 30 minutes before re-lighting.
- See Para 2-18 for additional warnings.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is “frozen” is it acceptable to operate burners without circulating material. However, if asphalt pump is “frozen”, carefully apply heat to pump housing and start circulating as soon as possible.

OPERATIONAL TEST

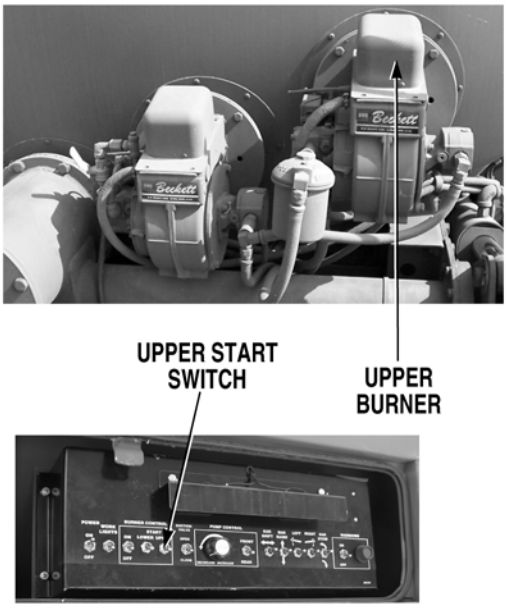
(1) Push and hold UPPER START switch in the up position until upper burner ignites, (Para 2-1).

(2) Release upper start switch.

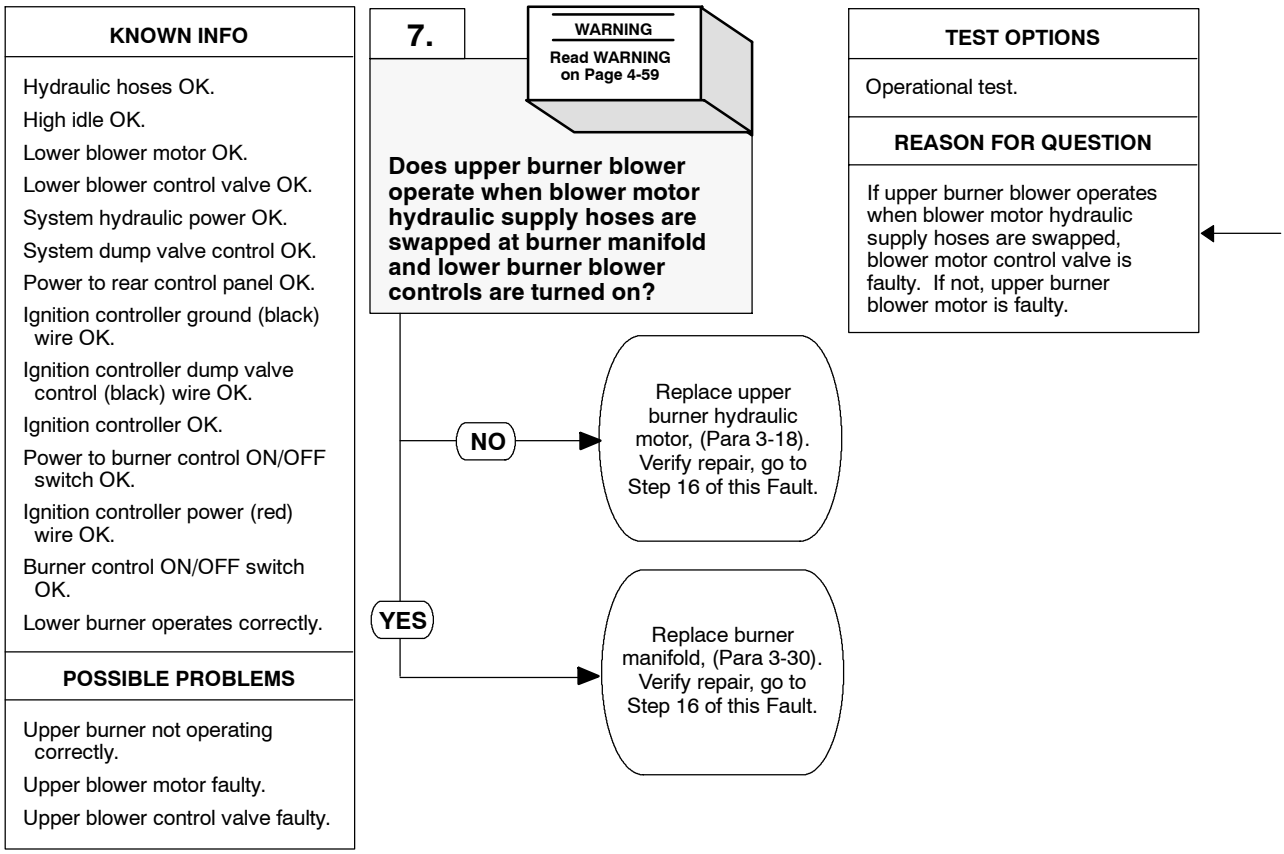
(3) Check if upper burner operates correctly.

  (a) If upper burner does not operate, go to “Upper Burner Does Not Operate Correctly”, (Fault 6).

  (b) Problem has been corrected. Notify Supervisor.



4. BURNER BLOWER(S) DO NOT OPERATE (CONT).

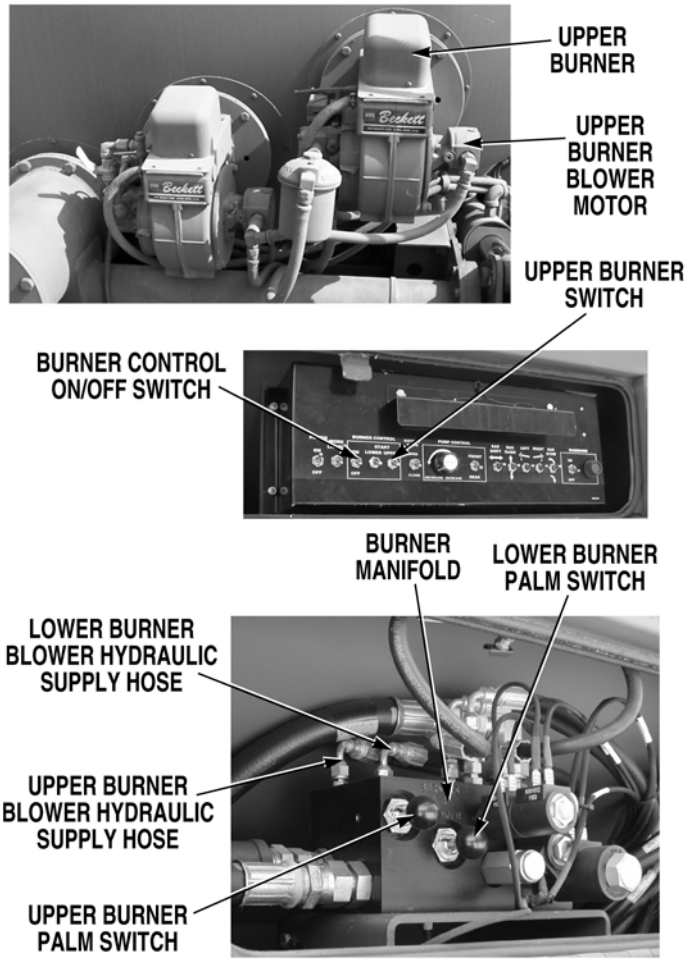


WARNING

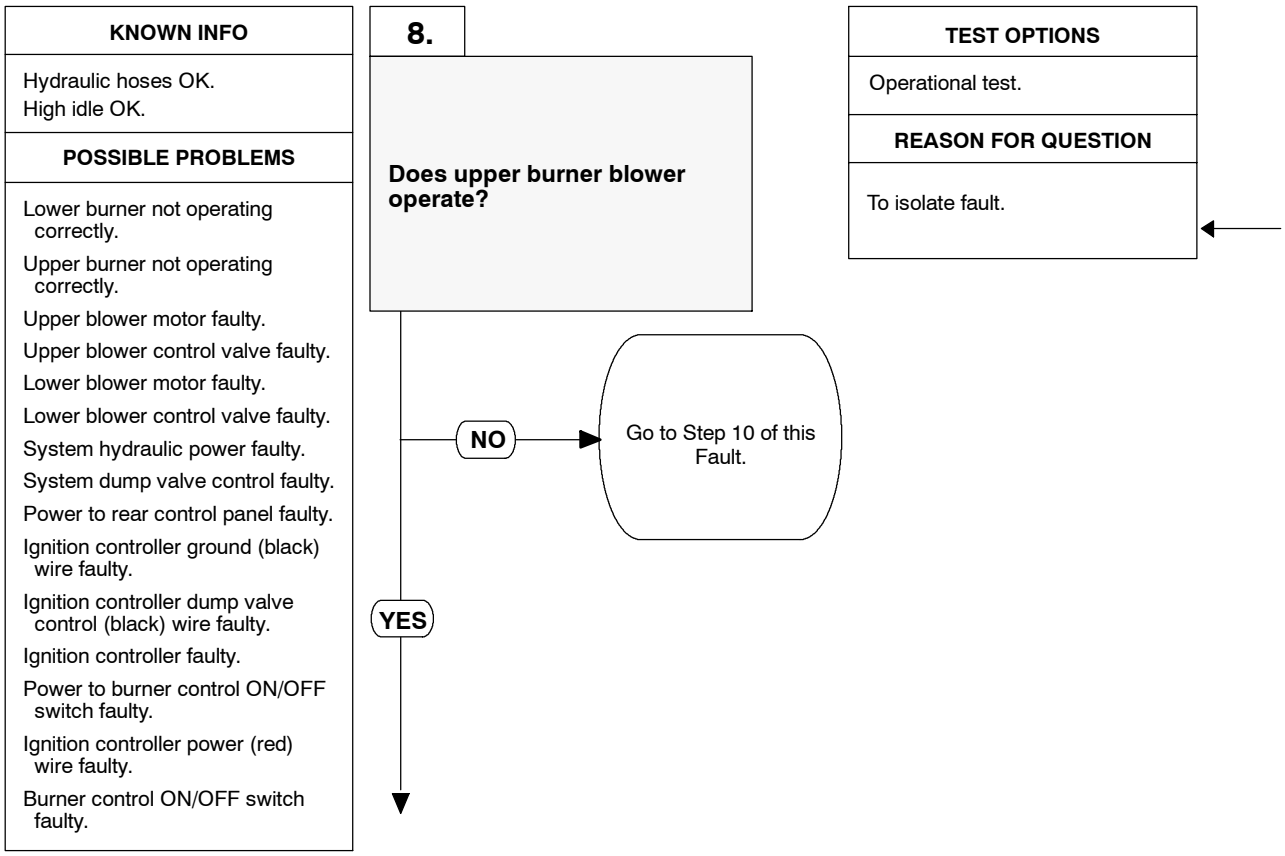
Hydraulic system can reach 3,675 psi (25,338.19 kPa). Engine must be turned off before disconnecting hydraulic lines. Failure to comply could cause serious injury to personnel.

VISUAL INSPECTION

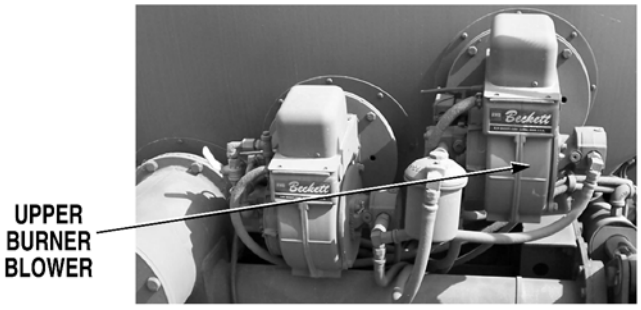
(1) Turn burner control ON/OFF switch OFF, (Para 2-1).
(2) Pull out and turn upper burner palm button 90° and release, (Para 2-22).
(3) Pull out and turn lower burner palm button 90° and release, (Para 2-22).
(4) Shut OFF engine, (TM 9-2320-364-10).
(5) Disconnect upper burner blower hydraulic supply hose from burner manifold, (Para 3-47).
(6) Disconnect lower burner blower hydraulic supply hose from burner manifold and connect to upper burner blower supply port UBP on burner manifold.
(7) Connect upper burner blower hydraulic supply hose to lower blower supply port LBP on burner manifold.
(8) Start engine, (TM 9-2320-364-10).
(9) If OFF, turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).
(10) Turn front control panel HIGH IDLE switch ON, (Para 2-1).
(11) Pull out and turn lower burner palm button 90° and release, (Para 2-22).
(12) Turn burner control ON/OFF switch ON, (Para 2-1).
(13) Check if upper burner blower operates, note operation.
(14) Turn burner control ON/OFF switch OFF, (Para 2-1).
(15) Pull out and turn lower burner palm button 90° and release, (Para 2-22).
(16) Shut OFF engine, (TM 9-2320-364-10).
(17) If upper burner blower does not operate in Step 13, reconnect hydraulic hoses in their original positions and replace upper burner hydraulic motor, (Para 3-18).
(18) If upper burner blower operated in Step 13, replace burner manifold, (Para 3-30) and reconnect hydraulic hoses in their original positions.
(19) Verify repair, go to Step 16 of this Fault.

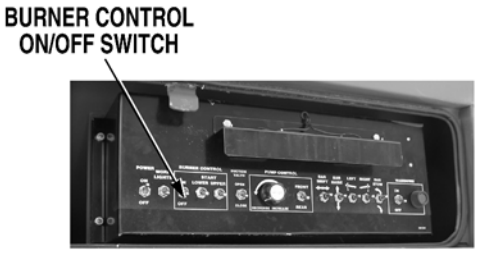


4. BURNER BLOWER(S) DO NOT OPERATE (CONT).

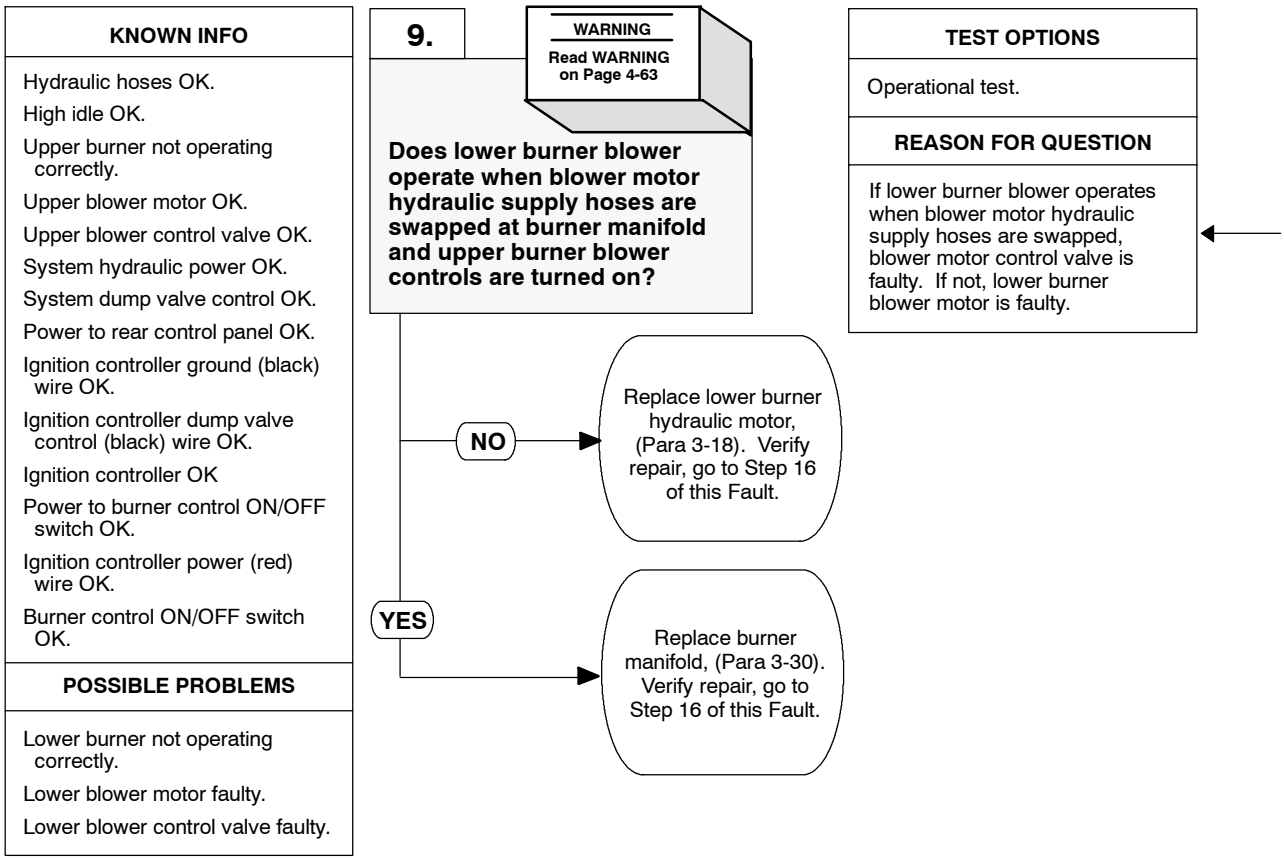


OPERATIONAL TEST
Check if upper burner blower operates. (a) If upper burner blower does not operate, go to Step 10 of this Fault. (b) If upper burner blower operates, go to Step 9 of this Fault.



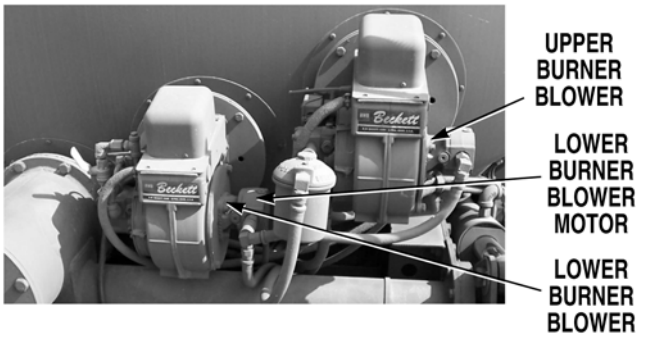


4. BURNER BLOWER(S) DO NOT OPERATE (CONT).

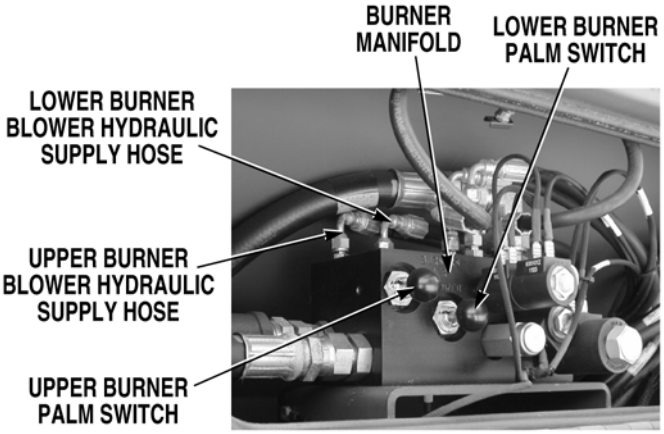


WARNING

Hydraulic system can reach 3,675 psi (25,338.19 kPa). Engine must be turned off before disconnecting hydraulic lines. Failure to comply could cause serious injury to personnel.



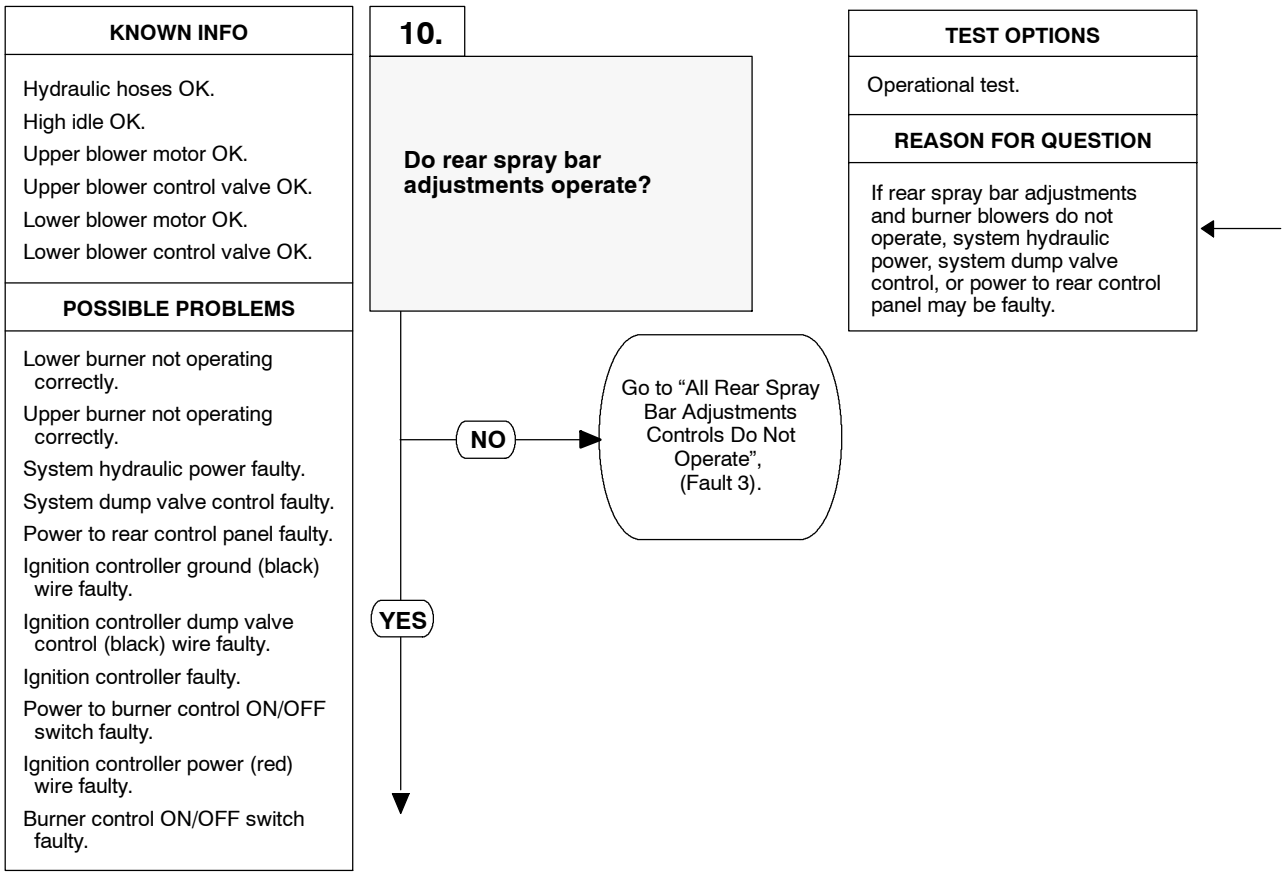




OPERATIONAL TEST

(1) Turn burner control ON/OFF switch OFF, (Para 2-1).
(2) Pull out and turn upper burner palm button 90° and release, (Para 2-22).
(3) Pull out and turn lower burner palm button 90° and release, (Para 2-22).
(4) Shut OFF engine, (TM 9-2320-364-10).
(5) Disconnect upper burner blower hydraulic supply hose from burner manifold, (Para 3-47).
(6) Disconnect lower burner blower hydraulic supply hose from burner manifold and connect to upper burner blower supply port UBP on burner manifold.
(7) Connect upper burner blower hydraulic supply hose to lower blower supply port LBP on burner manifold.
(8) Start engine, (TM 9-2320-364-10).
(9) If OFF, turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).
(10) Turn front control panel HIGH IDLE switch ON, (Para 2-1).
(11) Pull out upper blower palm button and turn 90°, (Para 2-1).
(12) Turn burner control ON/OFF switch ON, (Para 2-1).
(13) Check if lower burner blower operates, note operation.
(14) Turn burner control ON/OFF switch OFF, (Para 2-1).
(15) Pull out and turn upper burner palm button 90° and release, (Para 2-22).
(16) Shut OFF engine, (TM 9-2320-364-10).
(17) If lower burner blower does not operate in Step 13, reconnect hydraulic hoses in their original positions and replace lower burner hydraulic motor, (Para 3-18).
(18) If lower burner blower operated in Step 13, replace burner manifold, (Para 3-30) and reconnect hydraulic hoses in their original positions.
(19) Verify repair, go to Step 16 of this Fault.

4. BURNER BLOWER(S) DO NOT OPERATE (CONT).

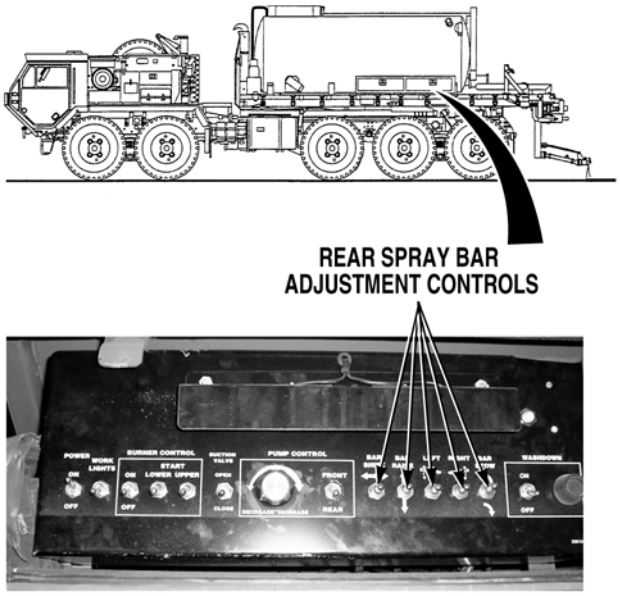


OPERATIONAL TEST

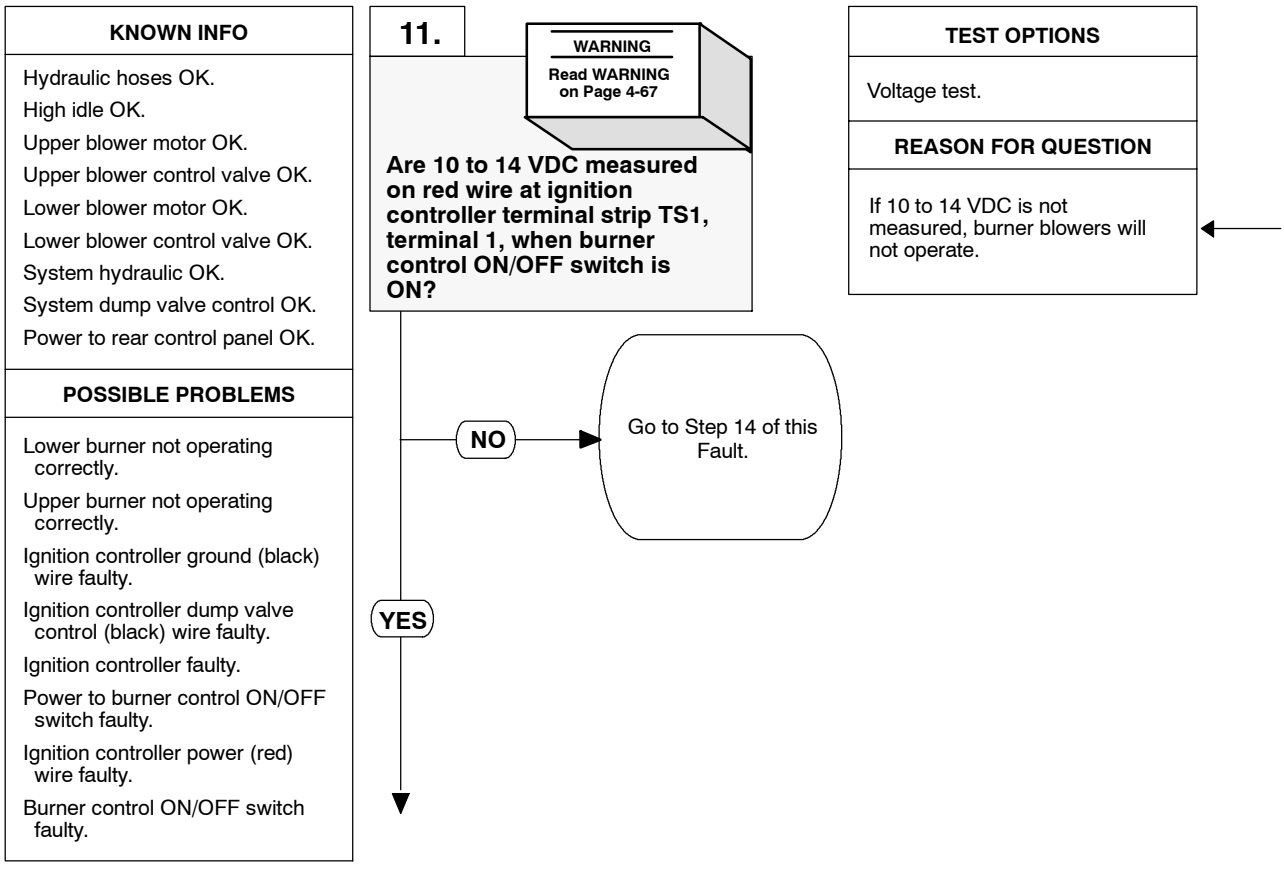
Operate rear spray bar adjustment controls, (Para 2-17). Check if spray bar position can be adjusted.

(a) If spray bar position cannot be adjusted, go to “All Rear Spray Bar Adjustments Controls Do Not Operate”, (Fault 3).

(b) If spray bar position can be adjusted, go to Step 11 of this Fault.

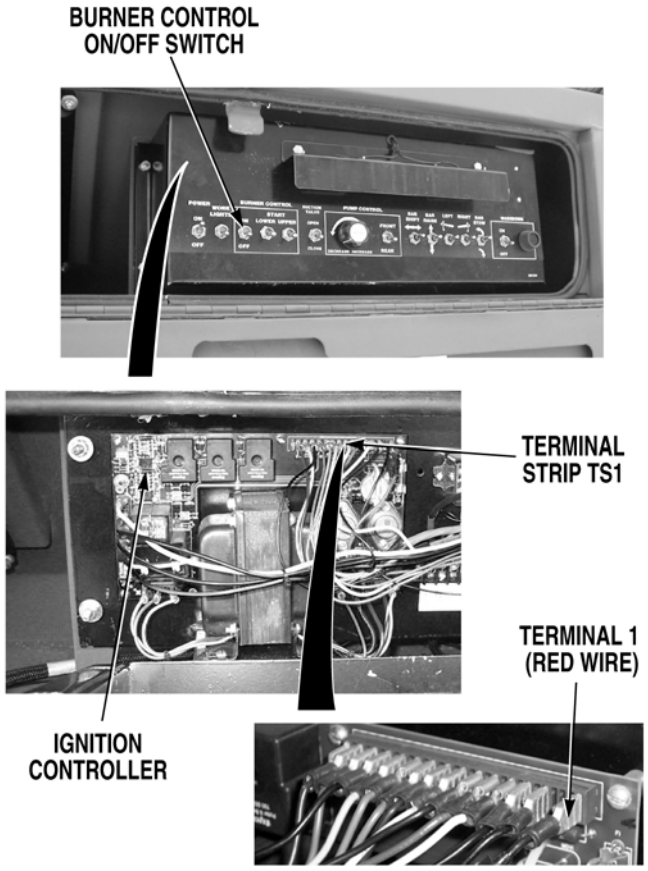


4. BURNER BLOWER(S) DO NOT OPERATE (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.



VOLTAGE TEST

(1) Turn burner control ON/OFF switch OFF, (Para 2-1).

(2) Shut OFF engine, (TM 9-2320-364-10).

(3) Pull out battery disconnect switch, (TM 9-2320-364-10).

(4) Remove rear control panel, (Para 3-76).

(5) Push in battery disconnect switch, (TM 9-2320-364-10).

(6) Turn front control panel POWER switch ON, (Para 2-1).

(7) Turn rear control panel POWER switch ON, (Para 2-1).

(8) Turn burner control ON/OFF switch ON, (Para 2-1).

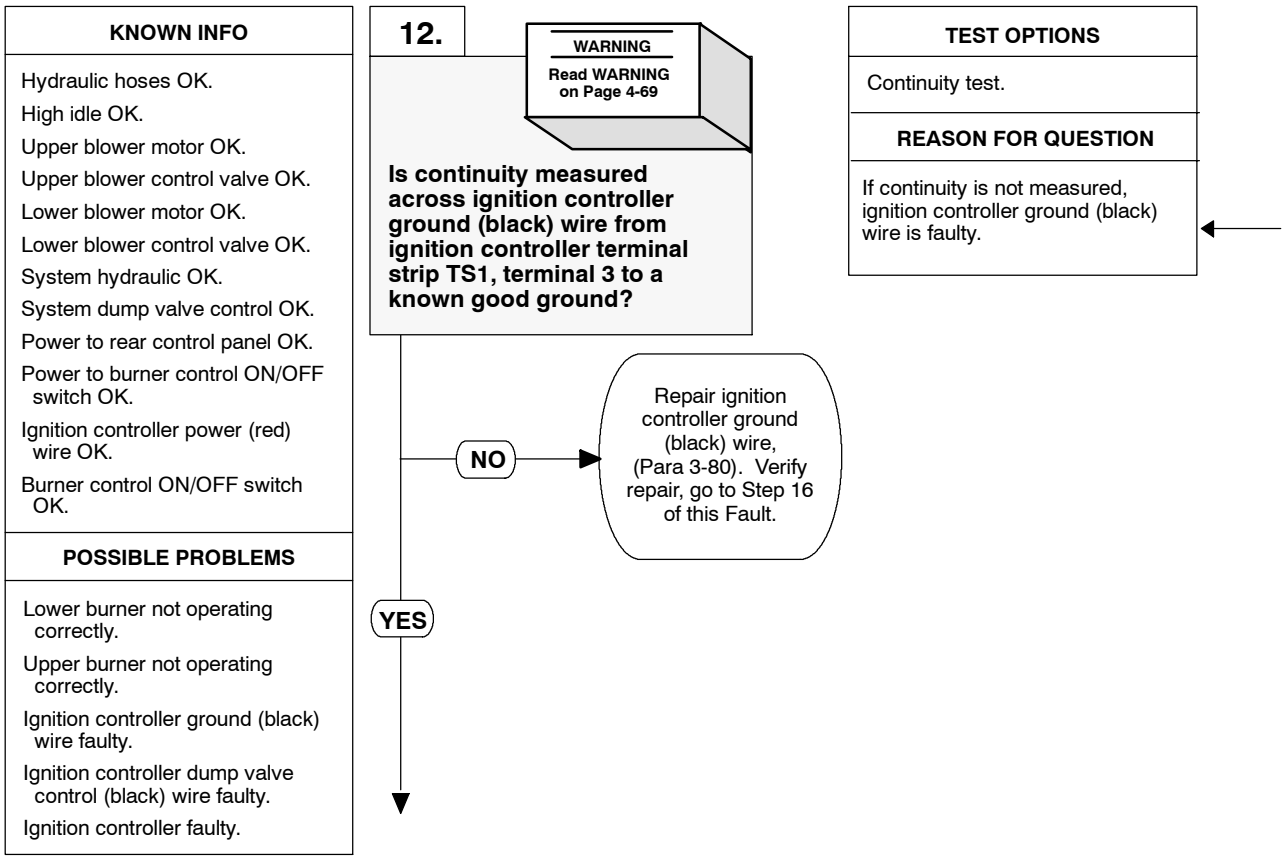
(9) Connect positive (+) multimeter lead to red wire at ignition controller terminal strip TS1, terminal 1.

(10) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC is not measured, go to Step 14 of this Fault.

(b) If 10 to 14 VDC is measured, go to Step 12 of this Fault.

4. BURNER BLOWER(S) DO NOT OPERATE (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Turn burner control ON/OFF switch OFF, (Para 2-1).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

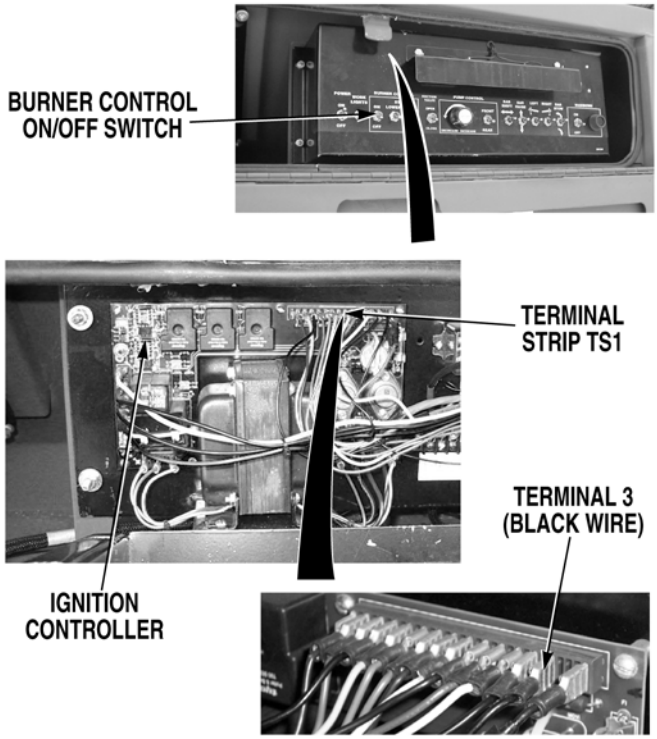
(3) Set multimeter select switch to ohms.

(4) Connect positive (+) multimeter lead to ground (black) wire at ignition controller terminal strip TS1, terminal 3.

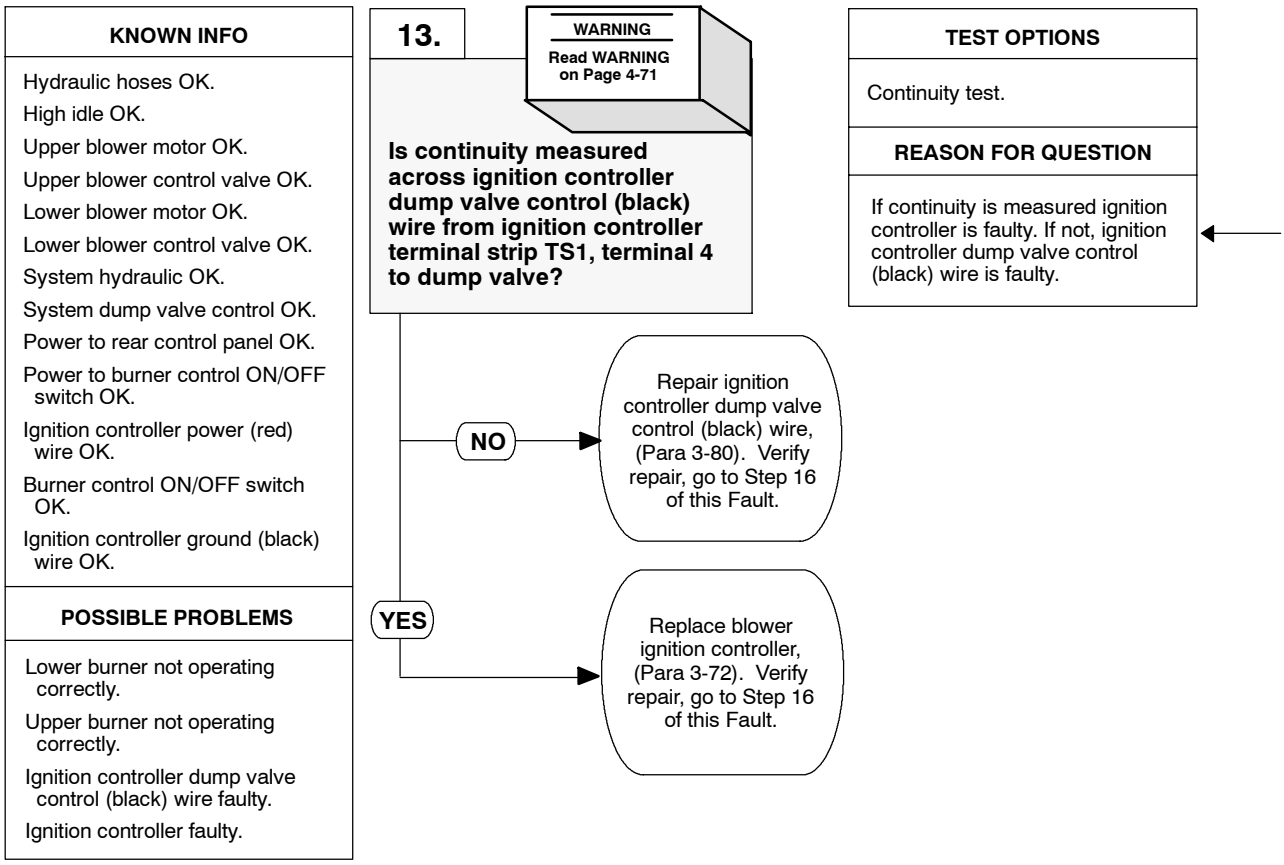
(5) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, repair rear control panel ground (black) wire, (Para 3-80). Verify repair, go to Step 16 of this Fault.

(b) If continuity is measured, go to Step 13 of this Fault.



4. BURNER BLOWER(S) DO NOT OPERATE (CONT).

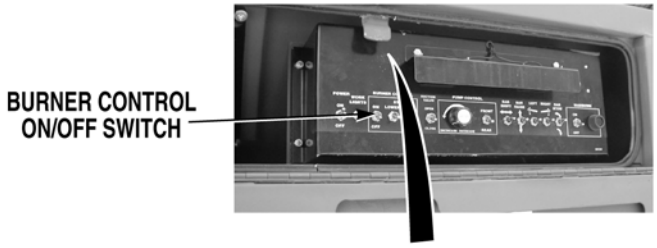


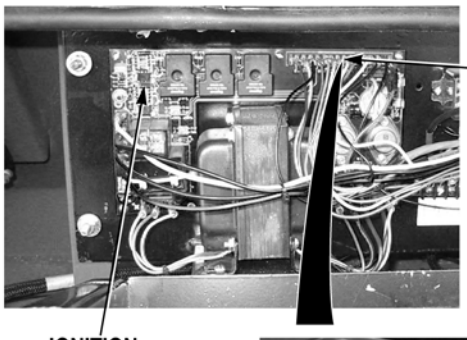
WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death may occur.

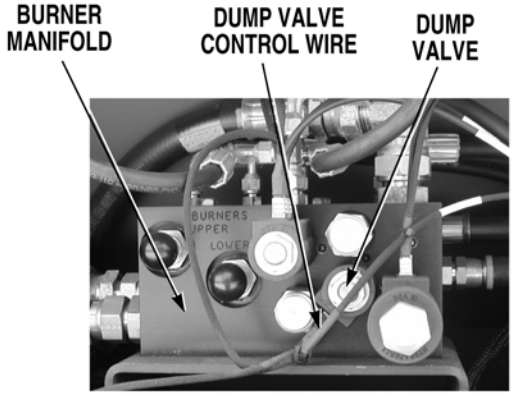
CONTINUITY TEST

(1) Set multimeter select switch to ohms.
(2) Connect positive (+) multimeter lead to ignition controller dump valve control (black) wire at ignition controller terminal strip TS1, terminal 4.
(3) Connect negative (-) multimeter lead to dump valve control (black) wire at dump valve.
    (a) If continuity is not measured, repair ignition controller dump valve control (black) wire between ignition controller and dump valve, (Para 3-80).
    (b) If continuity is measured, replace burner ignition controller, (Para 3-72).
(4) Verify repair, go to Step 16 of this Fault.

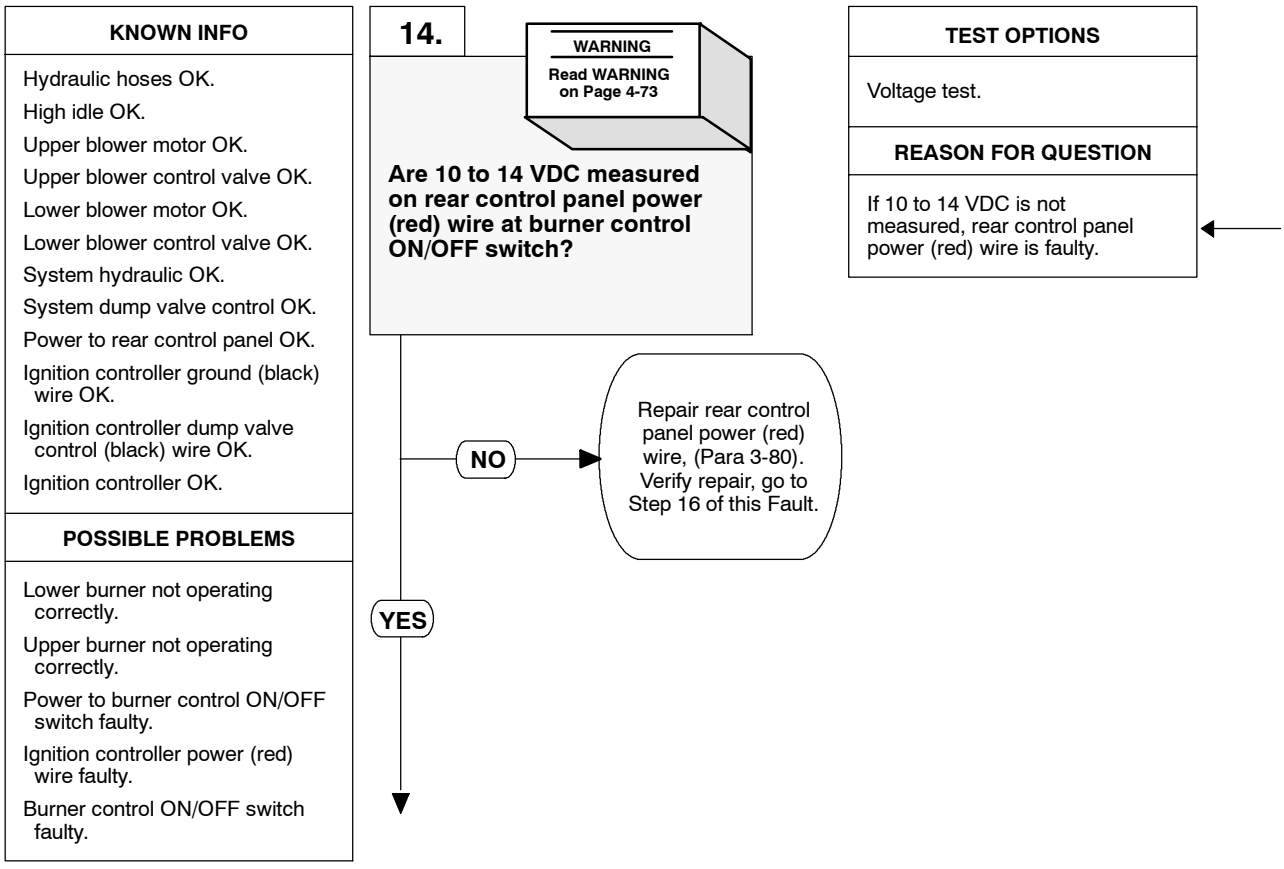






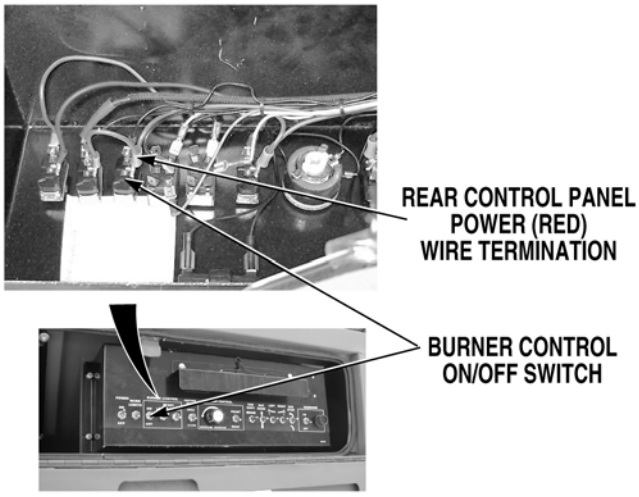


4. BURNER BLOWER(S) DO NOT OPERATE (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death may occur.



VOLTAGE TEST

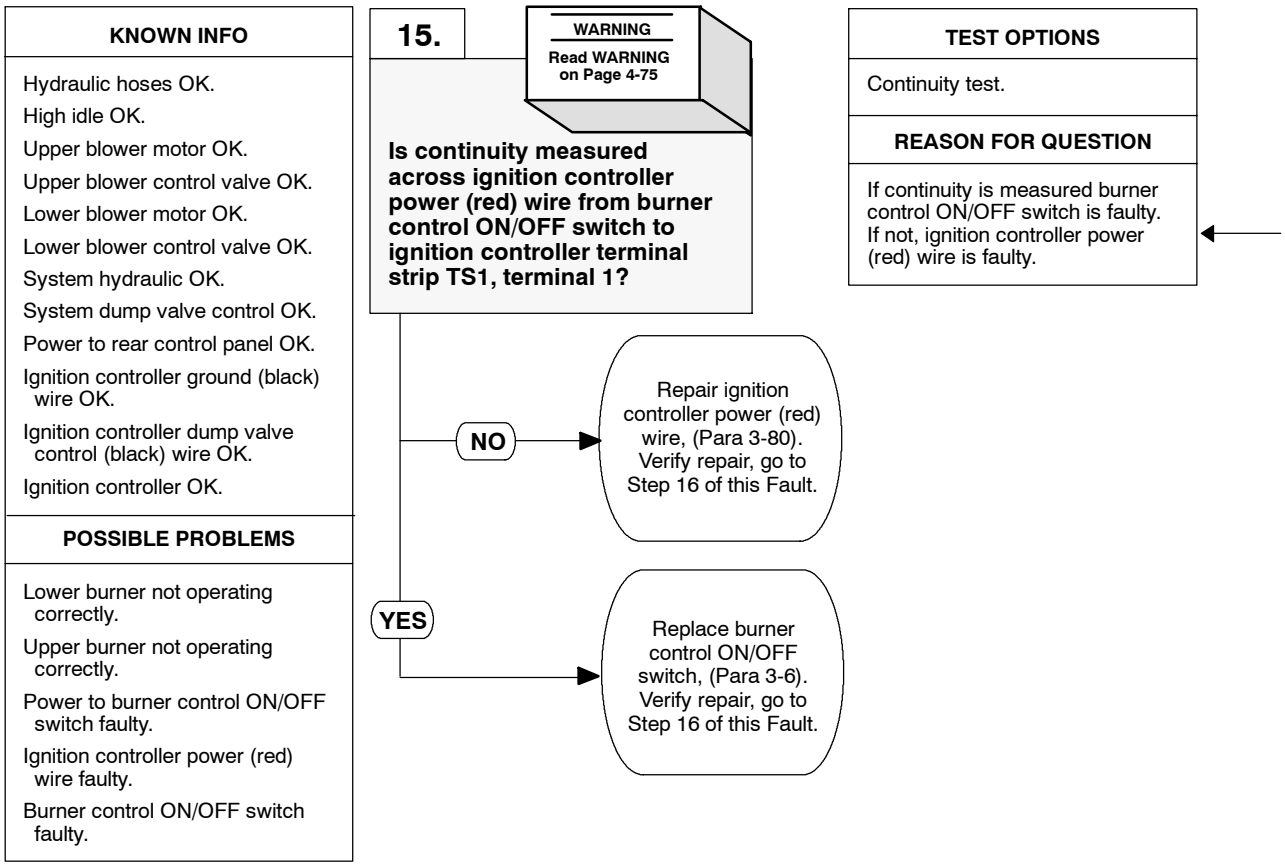
(1) Connect positive (+) multimeter lead to rear control panel power (red) wire at burner control ON/OFF switch.

(2) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC is not measured, repair rear control panel power (red) wire, (Para 3-80). Verify repair, go to Step 16 of this Fault.

(b) If 10 to 14 VDC is measured, go to Step 15 of this Fault.

4. BURNER BLOWER(S) DO NOT OPERATE (CONT).

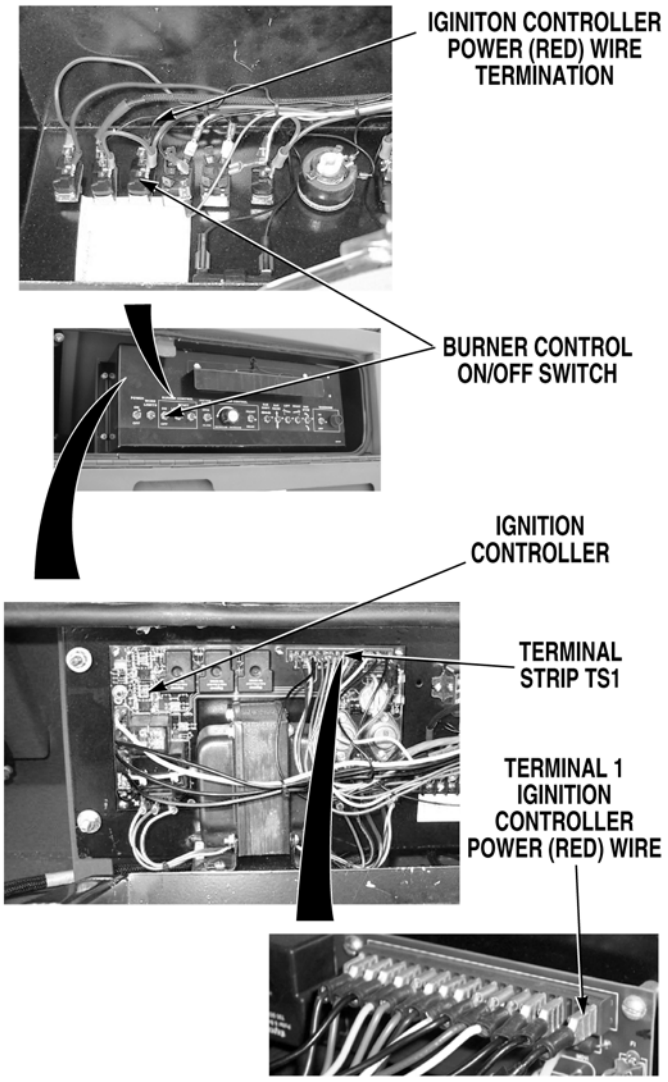


WARNING

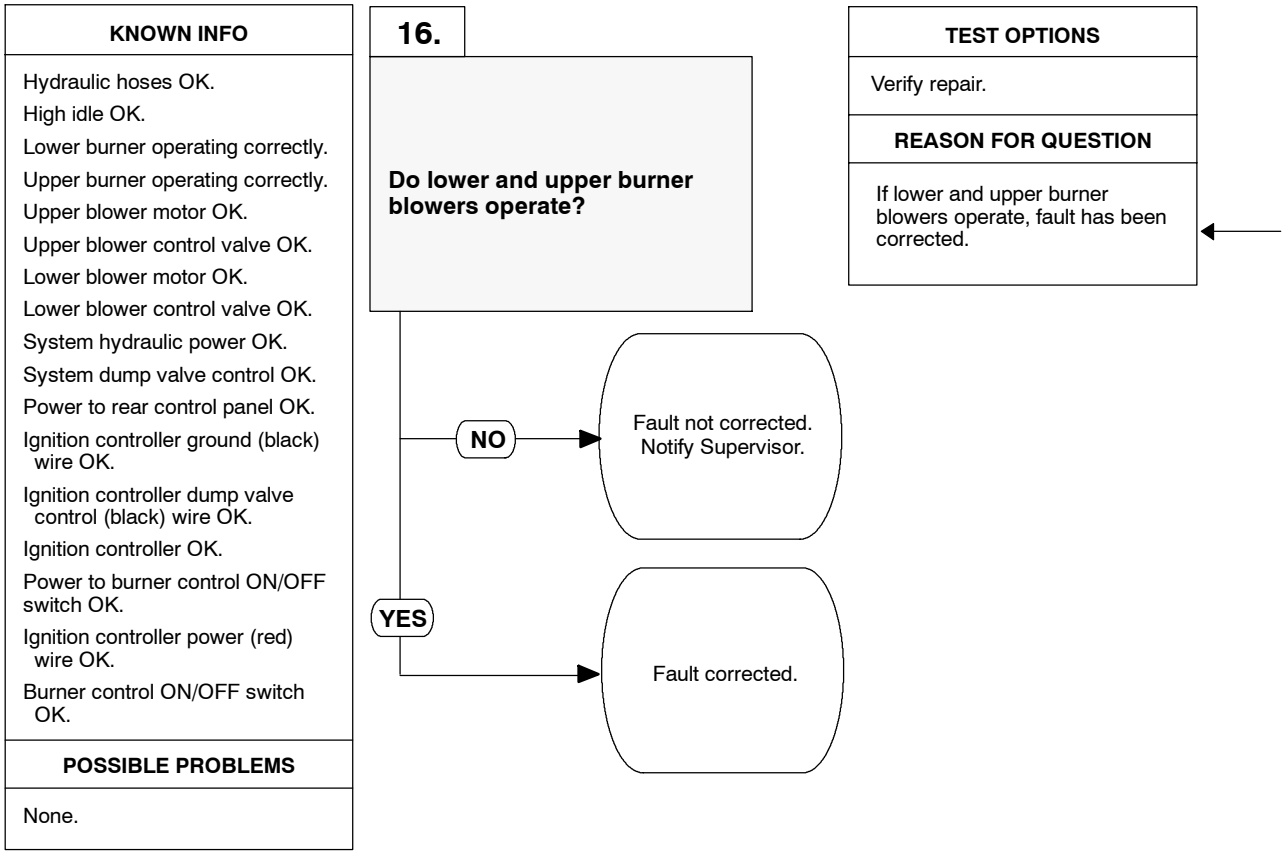
- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits Failure to comply may cause injury to personnel.

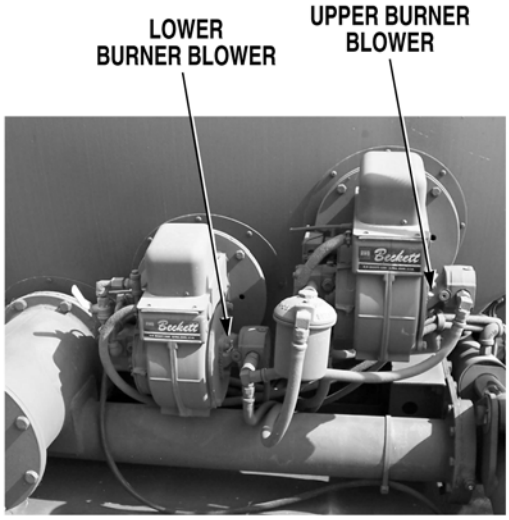
CONTINUITY TEST

(1) Turn burner control ON/OFF switch OFF, (Para 2-1).
(2) Pull out battery disconnect switch, (TM 9-2320-364-10).
(3) Set multimeter select switch to ohms.
(4) Connect positive (+) multimeter lead to ignition controller power (red) wire at burner control ON/OFF switch.
(5) Connect negative (-) multimeter lead to ignition controller terminal strip TS1, terminal 1.
    (a) If continuity is not measured, repair ignition controller power (red) wire, (Para 3-80).
    (b) If continuity is measured, replace burner control ON/OFF switch, (Para 3-6).
(6) Verify repair, go to Step 16 of this Fault.



4. BURNER BLOWER(S) DO NOT OPERATE (CONT).





VERIFY REPAIR

(1) If removed, install rear control panel, (Para 3-76).
(2) Start engine, (TM 9-2320-364-10).
(3) Turn front control panel HIGH IDLE switch ON, (Para 2-1).
(4) Close portable burner supply valve, (Para 2-1).
(5) Set up distributor to circulate material, (Para 2-16).
(6) Pull out and turn lower blower palm button 90° and release, (Para 2-22).
(7) Pull out and turn upper blower palm button 90° and release, (Para 2-22).
(8) Turn burner control ON/OFF switch ON, (Para 2-1).
(9) Check if lower and upper burner blowers operate.
    (a) If lower and upper burner blowers do not operate, fault not corrected. Notify supervisor.
    (b) If lower and upper burner blowers operate, fault has been corrected.

5. LOWER BURNER DOES NOT OPERATE CORRECTLY.

INITIAL SETUP

Tools and Special Tools

Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Multimeter (Item 8, Appendix F)
Jumperwire

Equipment Condition

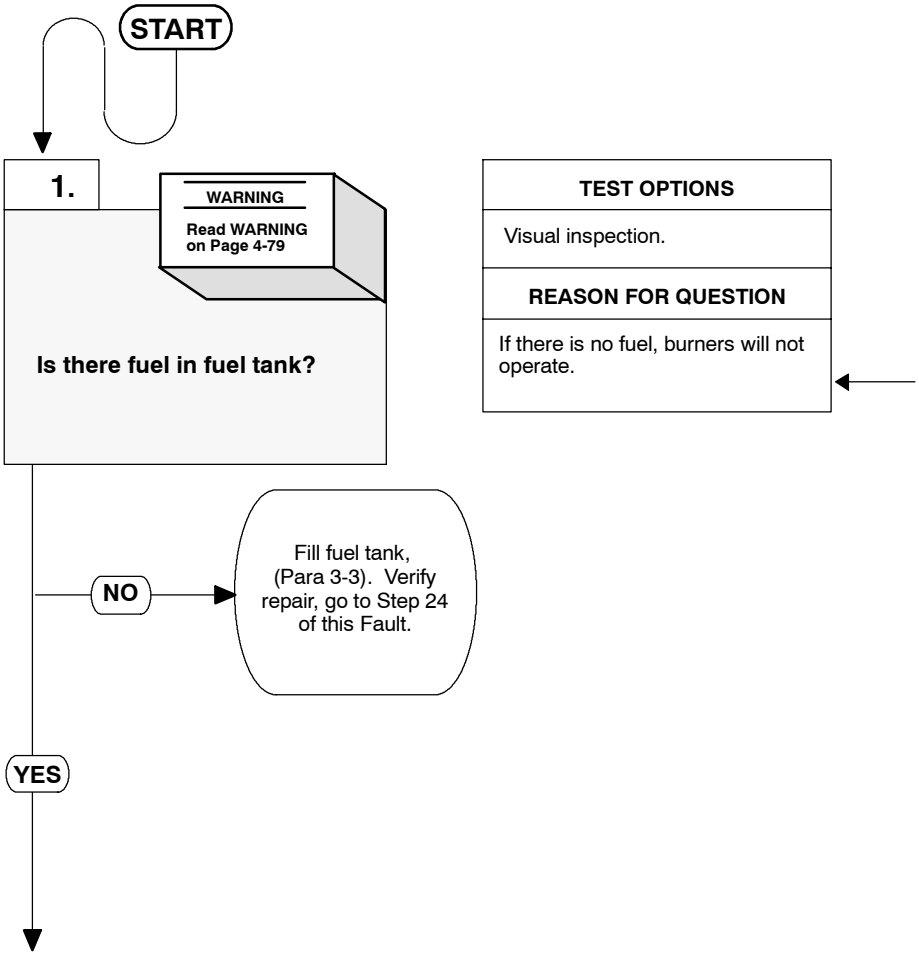
Bituminous Distributor loaded on PLS, (Para 2-5)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

KNOWN INFO

Nothing.

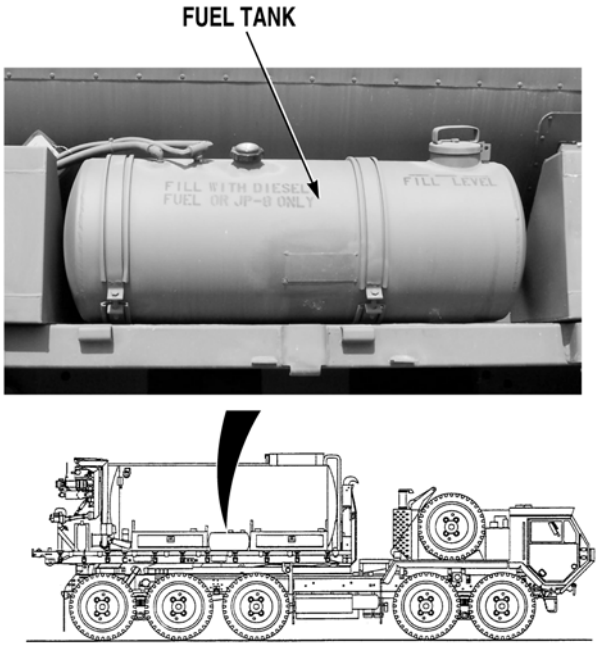
POSSIBLE PROBLEMS

No fuel in fuel tank.
Fuel lines leaking or damaged.
High idle faulty.
Lower blower not operating.
Lower air band adjustment incorrect.
Lower fuel pump adjustment incorrect.
Fuel filter faulty.
Lower fuel pump faulty.
Lower CAD cell white wire faulty.
Lower CAD cell black wire faulty.
Ignition controller faulty.
Lower CAD cell faulty.
Lower fuel solenoid red wire faulty.
Lower ignition transformer white wire faulty.
Lower ignition transformer black wire faulty.
Lower fuel solenoid ground faulty.
Lower ignition electrode adjustment incorrect.
Ignition controller transformer faulty.
Lower ignition transformer faulty.
Lower ignition electrode faulty.
LOWER START switch red wire faulty.
LOWER START switch white wire faulty.
LOWER START switch faulty.



WARNING

To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.



VISUAL INSPECTION
Check fuel level in fuel tank. (a) If fuel level is low, fill fuel tank, (Para 3-3). Verify repair, go to Step 24 of this Fault. (b) If there is sufficient fuel, go to Step 2 of this Fault.

5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).

KNOWN INFO
Fuel in fuel tank OK.
POSSIBLE PROBLEMS
Fuel lines leaking or damaged. High idle faulty. Lower blower not operating correctly. Lower air band adjustment incorrect. Lower fuel pump adjustment incorrect. Fuel filter faulty. Lower fuel pump faulty. Lower CAD cell white wire faulty. Lower CAD cell black wire faulty. Ignition controller faulty. Lower CAD cell faulty. Lower fuel solenoid red wire faulty. Lower ignition transformer white wire faulty. Lower ignition transformer black wire faulty. Lower fuel solenoid ground faulty. Lower ignition electrode adjustment incorrect. Ignition controller transformer faulty. Lower ignition transformer faulty. Lower ignition electrode faulty. LOWER START switch red wire faulty. LOWER START switch white wire faulty. LOWER START switch faulty.

2.

WARNING

Read WARNING on Page 4-81

Are fuel lines from fuel tank to burner fuel pumps free from leaks, kinks and damage?

NO → Repair leaks and replace damaged fuel lines, (Para 3-50). Verify repair, go to Step 24 of this Fault.

YES

TEST OPTIONS
Visual inspection.
REASON FOR QUESTION
If fuel lines leak, or are kinked or damaged, burners may not operate.

WARNING

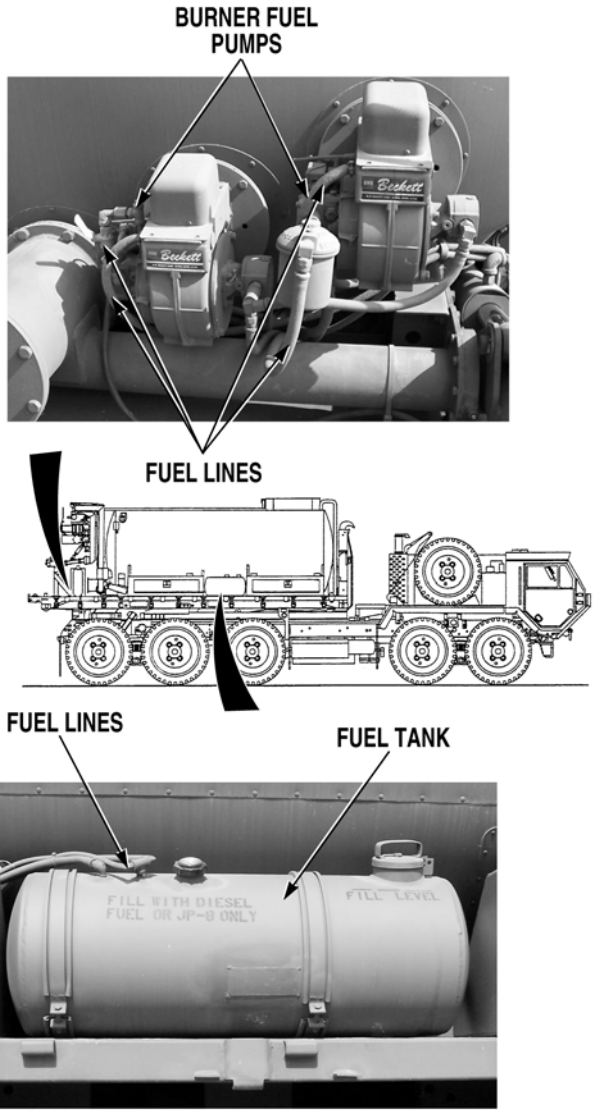
To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.

VISUAL INSPECTION

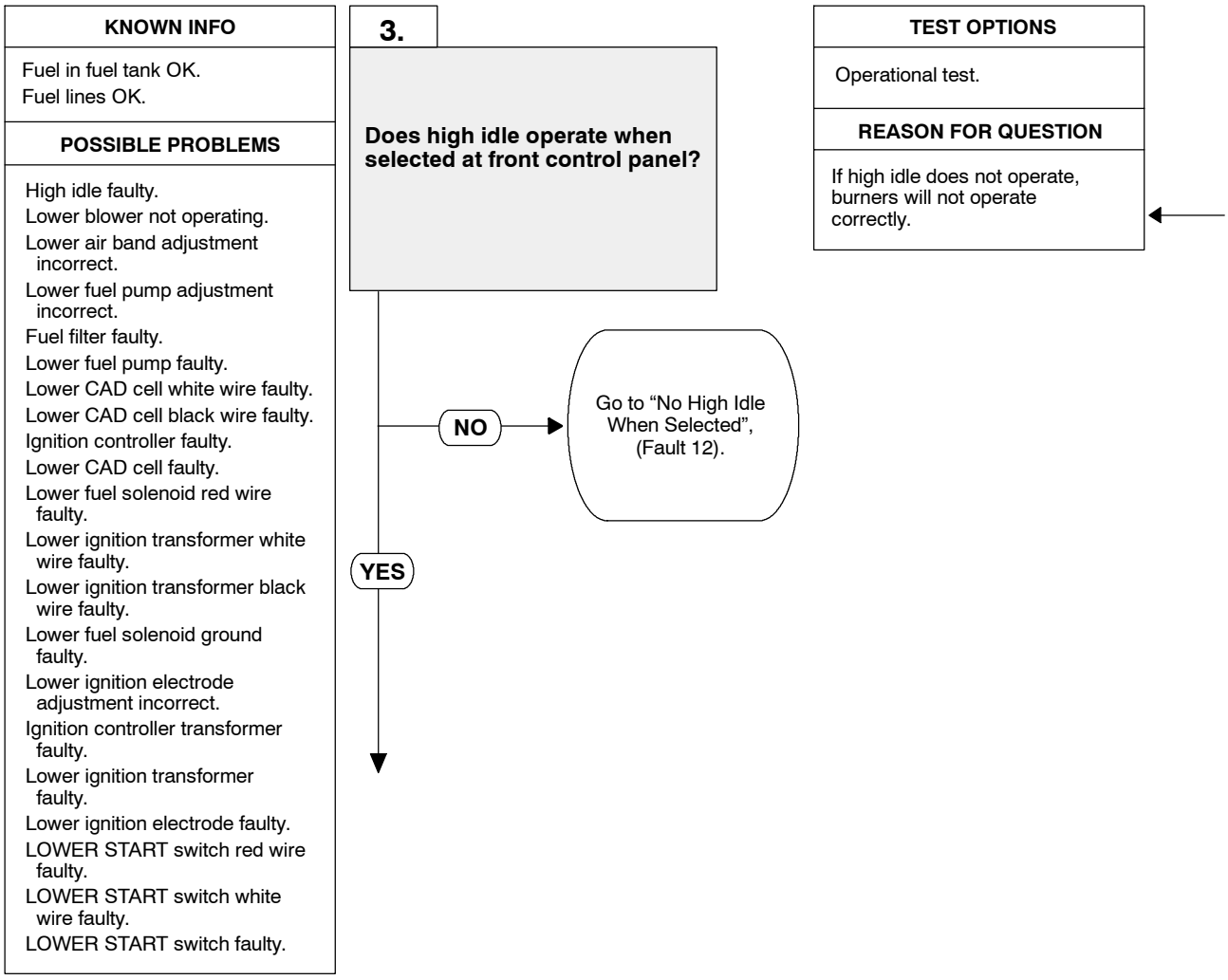
Inspect fuel lines from fuel tank to upper and lower burners for leaks, kinks and damage.

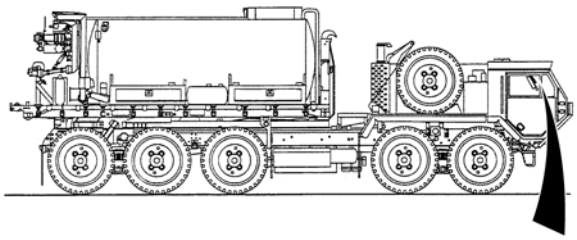
(a) If fuel lines leak or are kinked or damaged, repair leaks or replace damaged fuel lines, (Para 3-50). Verify repair, go to Step 24 of this Fault.

(b) If fuel lines are free from leaks, kinks and damage, go to Step 3 of this Fault.



5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).





OPERATIONAL TEST

(1) Start engine, (TM 9-2320-364-10).

(2) Apply parking brake, (TM 9-2320-364-10).

(3) Turn on front control panel HIGH IDLE switch, (Para 2-1).

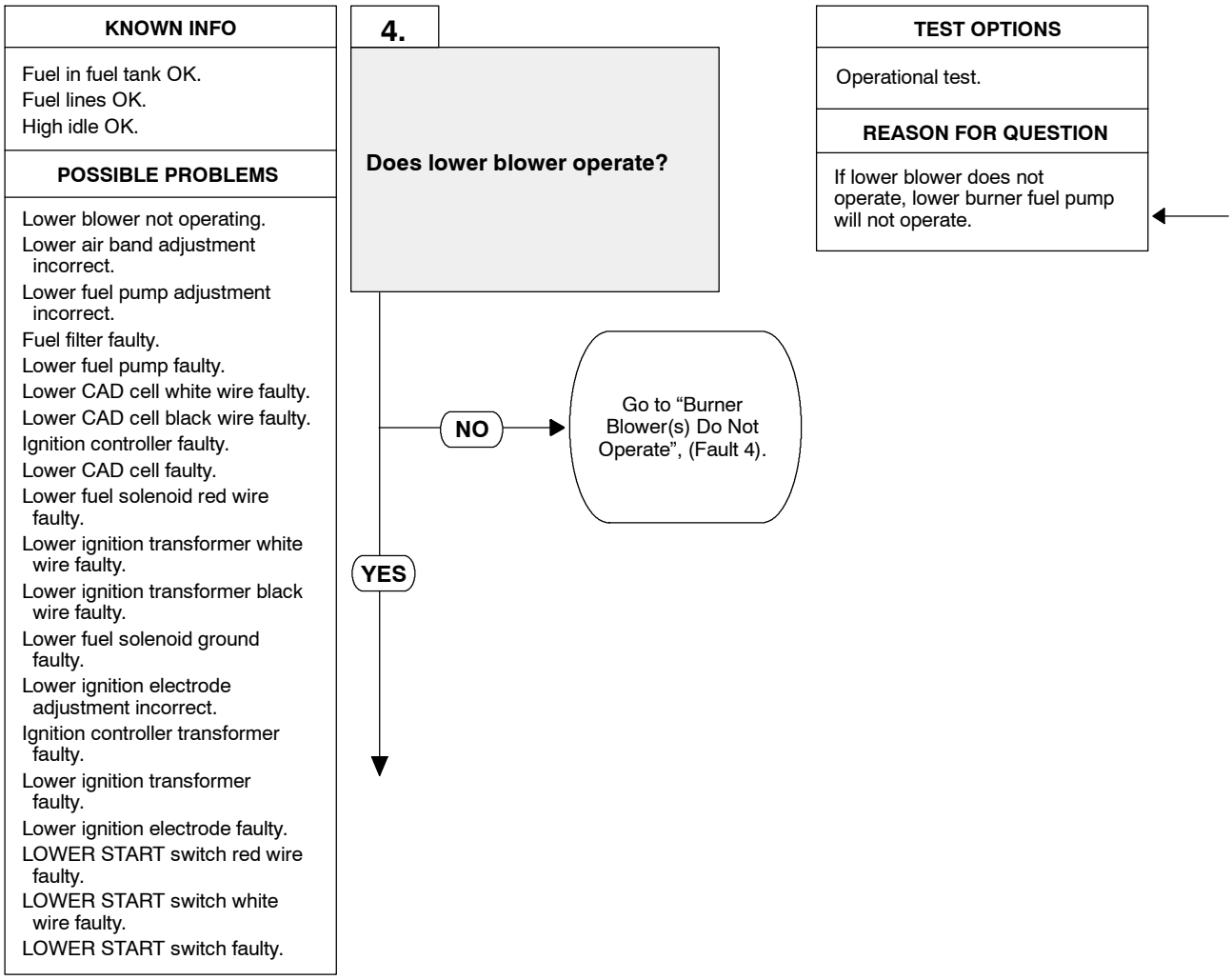
(4) Check if engine speed increases to high idle.

  (a) If engine speed does not increase to high idle, go to “No High Idle When Selected”, (Fault 12).

  (b) If engine speed increases to high idle, go to Step 4 of this Fault.



5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



OPERATIONAL TEST

(1) Turn front control panel HIGH IDLE switch OFF, (Para 2-1).

(2) Stick measure contents of distributor, (Para 2-13). Ensure there is at least 750 gallons (2,838.75 l) of material is in tank. Fill distributor if required, (Para 2-24).

(3) Close portable burner supply valve, (Para 2-1).

(4) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(5) Set up distributor to circulate material, (Para 2-16).

(6) Turn front control panel HIGH IDLE switch ON, (Para 2-1).

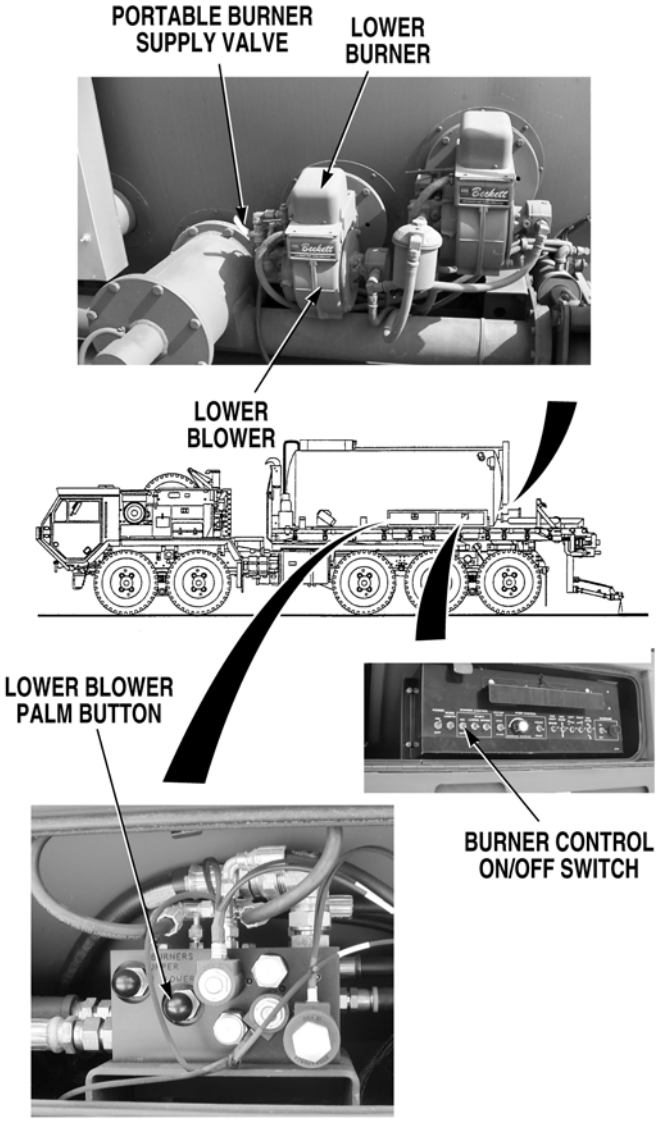
(7) Pull out and turn lower blower palm button 90° and release, (Para 2-22).

(8) Turn burner control ON/OFF switch ON, (Para 2-1).

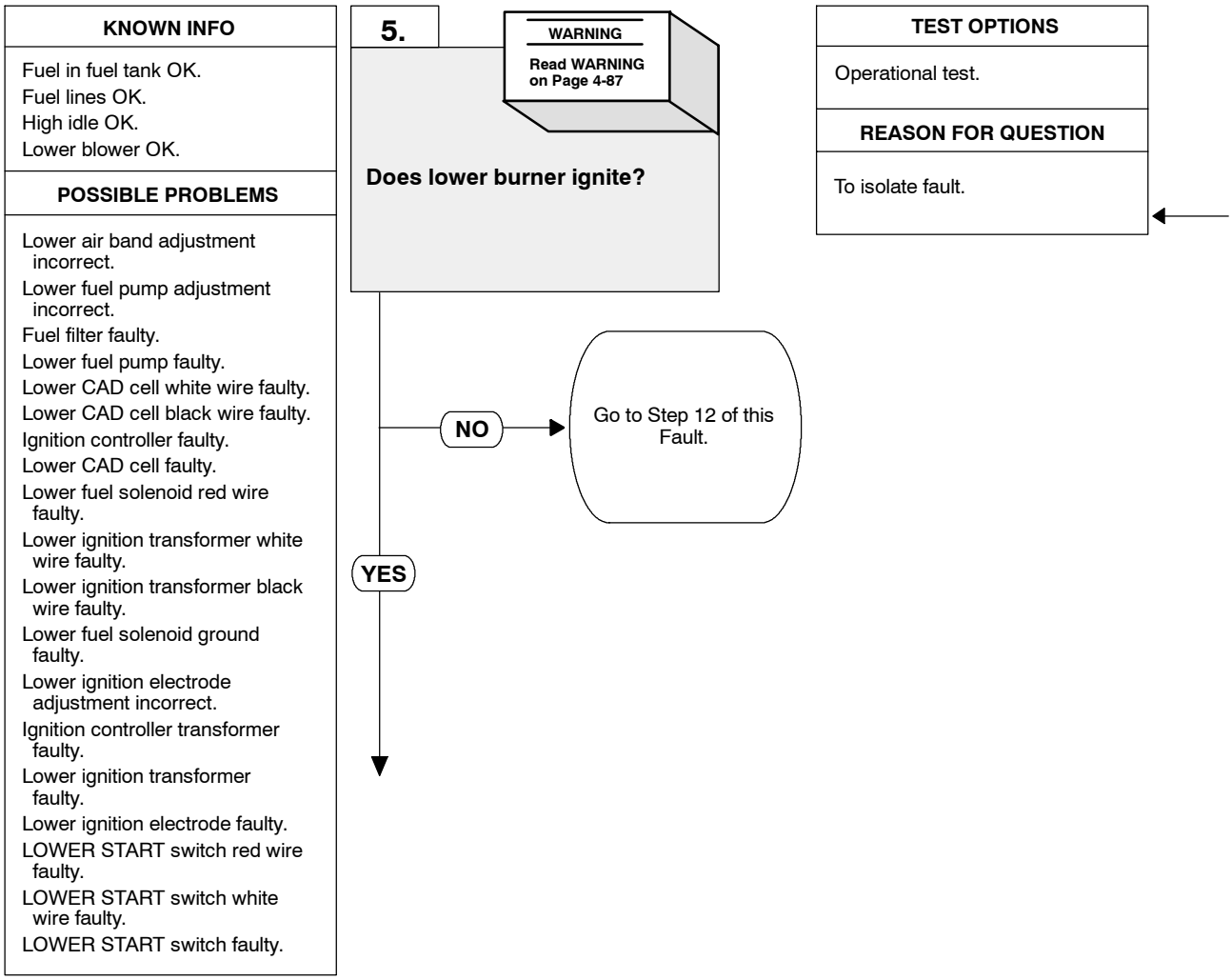
(9) Check if lower burner blower operates.

(a) If lower burner blower does not operate, go to “Burner Blower(s) Do Not Operate”, (Fault 4).

(b) If lower burner blower operates, go to Step 5 of this Fault.



5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- DO NOT light any burner prior to stick measuring quantity of material in tank (refer to, Para 2-13). Failure to comply may result in injury or death to personnel.
- DO NOT light lower burner unless a minimum of 750 gallons (2,838.75 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- Allowing burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulating, burners should be extinguished for 20 to 30 minutes before re-lighting.
- See Para 2-22 for additional warnings.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is “frozen” is it acceptable to operate burners without circulating material. However, if asphalt pump is “frozen”, carefully apply heat to pump housing and start circulating as soon as possible.

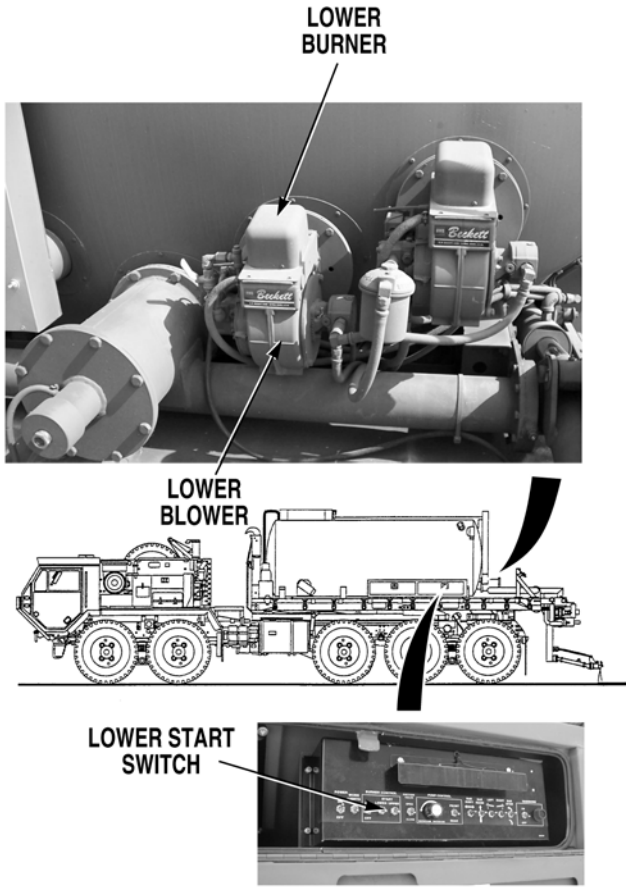
OPERATIONAL TEST

(1) Push and hold LOWER START switch in the up position.

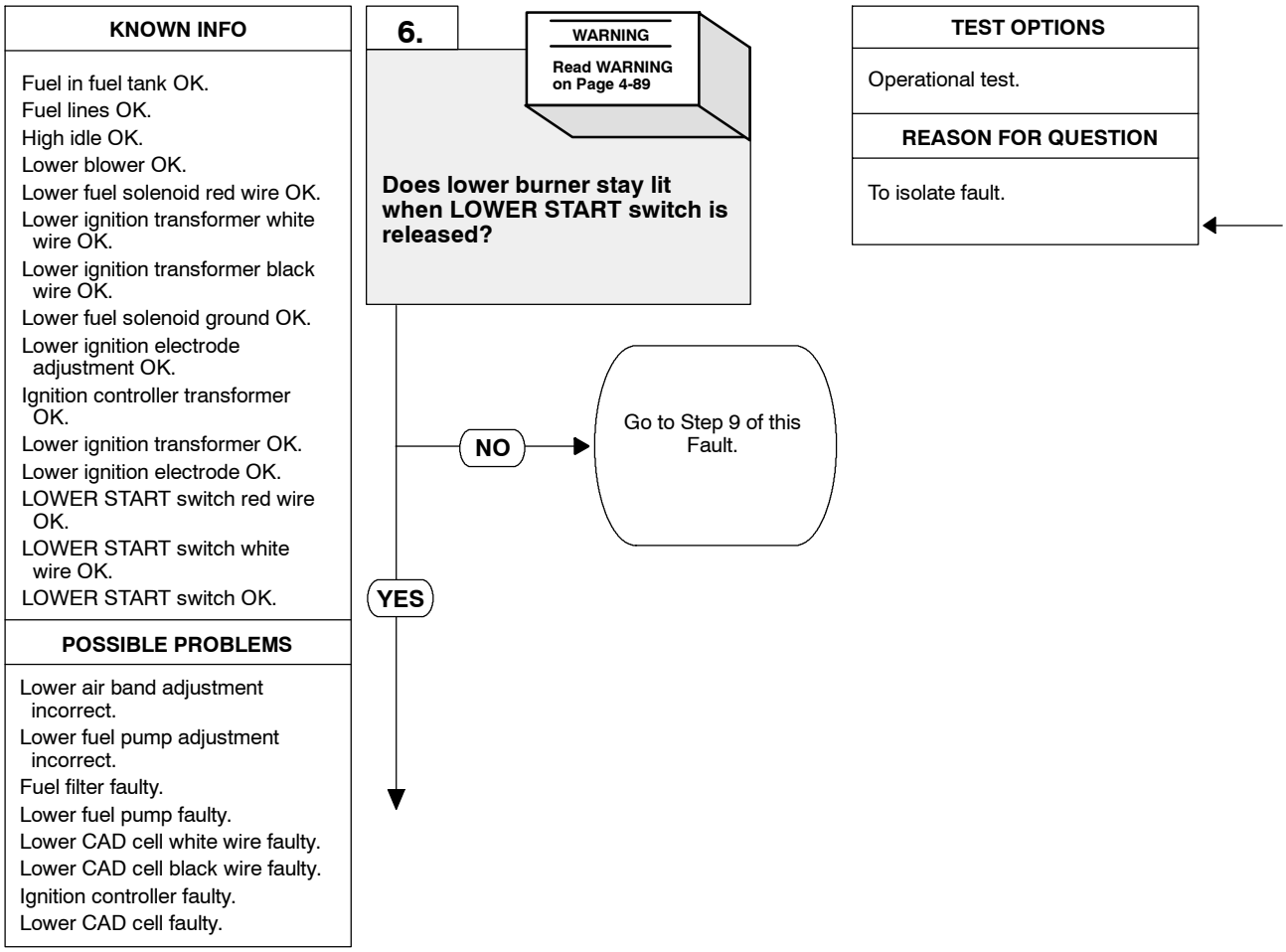
(2) Check if lower burner ignites.

(a) If lower burner does not ignite, go to Step 12 of this Fault.

(b) If lower burner ignites, go to Step 6 of this Fault.



5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.
- DO NOT light any burner prior to stick measuring quantity of material in tank, (refer to Para 2-13). Failure to comply may result in injury or death to personnel.
- DO NOT light lower burner unless a minimum of 750 gallons (2,838.75 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- Allowing burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulating, burners should be extinguished for 20 to 30 minutes before re-lighting.
- See Para 2-22 for additional warnings.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is “frozen” is it acceptable to operate burners without circulating material. However, if asphalt pump is “frozen”, carefully apply heat to pump housing and start circulating as soon as possible.

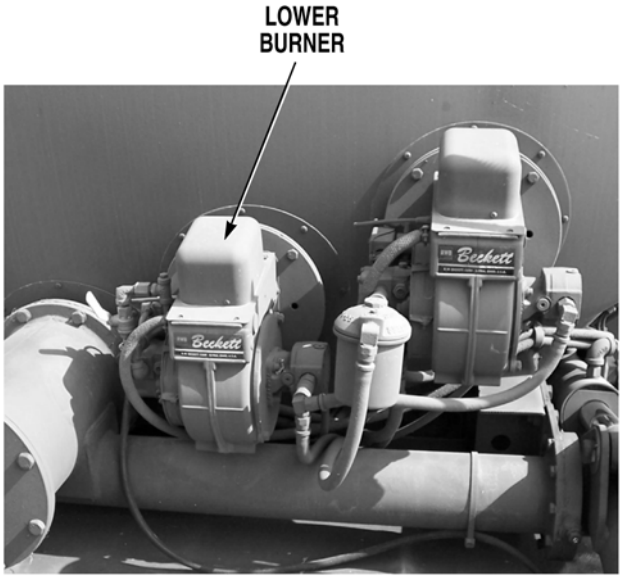
OPERATIONAL TEST

(1) Release LOWER START switch, (Para 2-1).

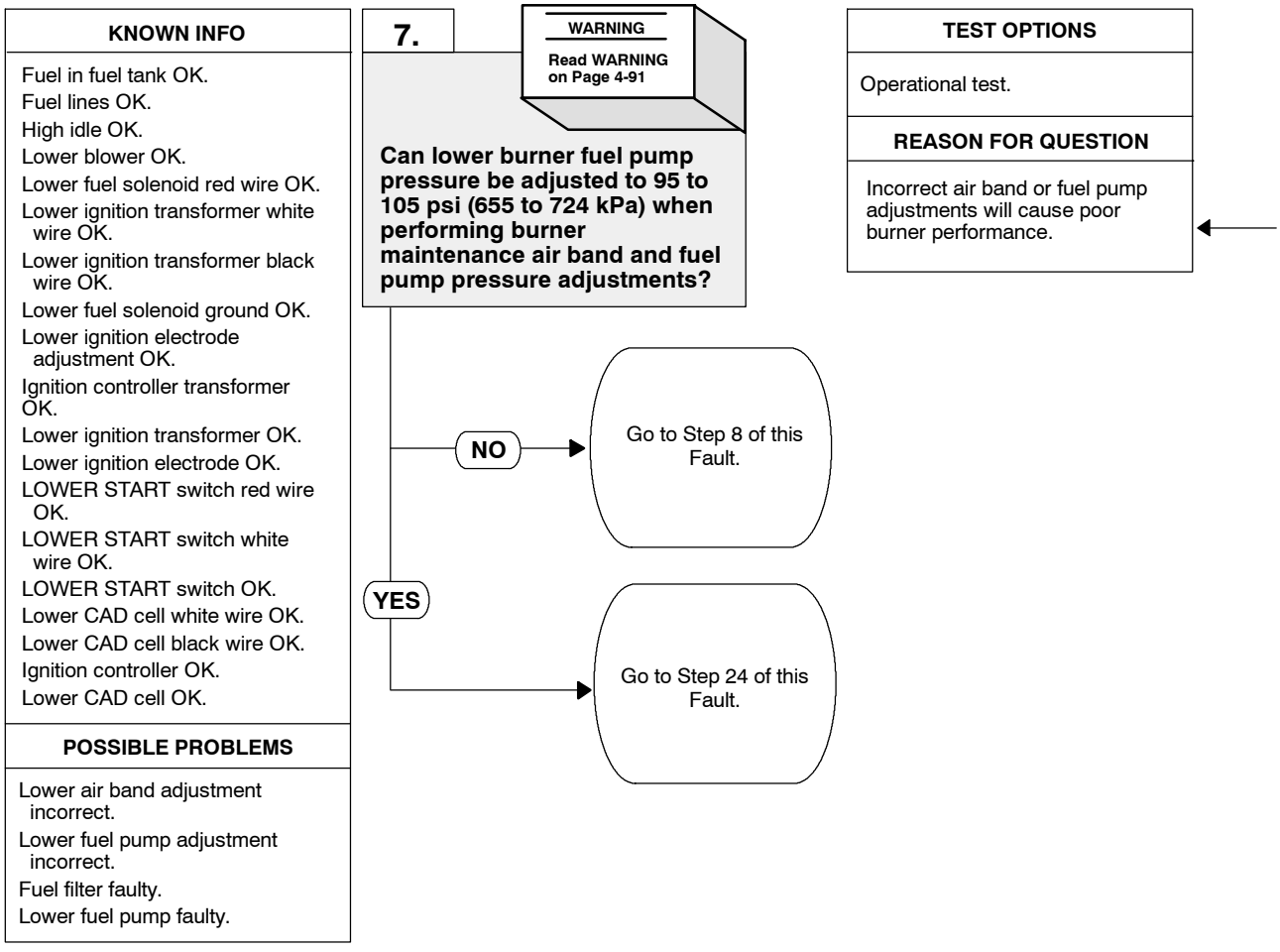
(2) Check if lower burner remains lit.

(a) If lower burner does not remain lit, go to Step 9 of this Fault.

(b) If lower burner remains lit, go to Step 7 of this Fault.

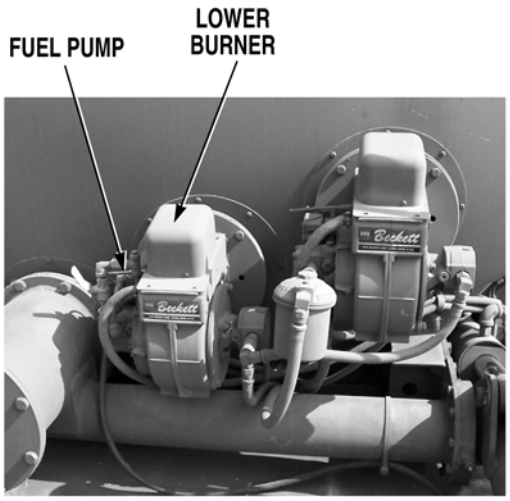


5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.



OPERATIONAL TEST

(1) Turn burner control ON/OFF switch OFF, (Para 2-1).

(2) Pull out and turn lower blower palm button 90° and release, (Para 2-22).

(3) Shut OFF engine, (TM 9-2320-364-10).

(4) Wait 20 to 30 minutes before continuing.

(5) Remove two screws and open lower burner cover, (Para 3-19).

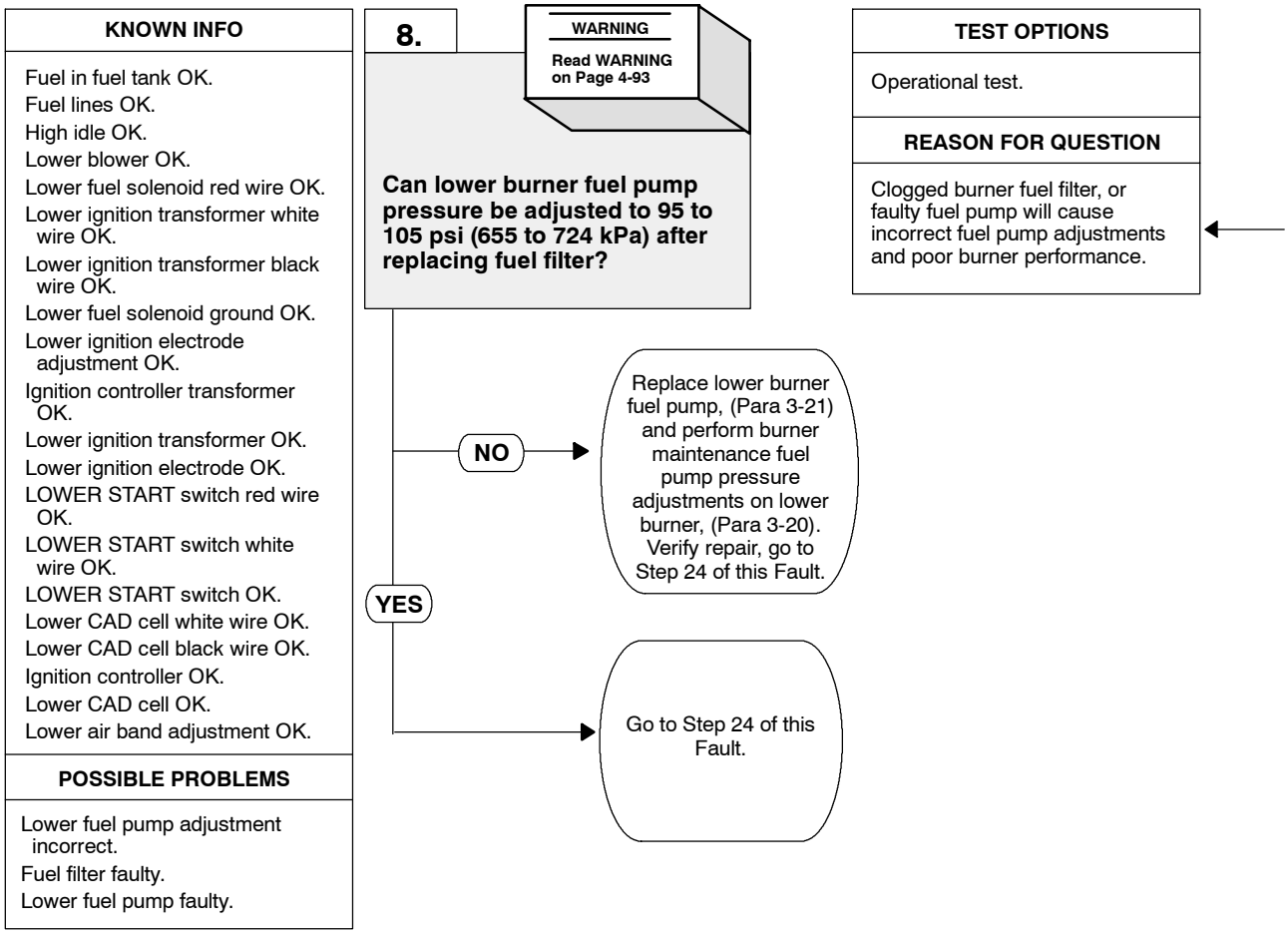
(6) Perform lower burner maintenance air band adjustment, (Para 3-20).

(7) Perform lower burner maintenance fuel pump pressure adjustments, (Para 3-20). Check if fuel pump pressure can be adjusted to 95 to 105 psi (655 to 724 kPa).

(a) If fuel pump pressure cannot be adjusted to 95 to 105 psi (655 to 724 kPa), go to Step 8 of this Fault.

(b) If fuel pump pressure can be adjusted to 95 to 105 psi (655 to 724 kPa), go to Step 24 of this Fault.

5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.

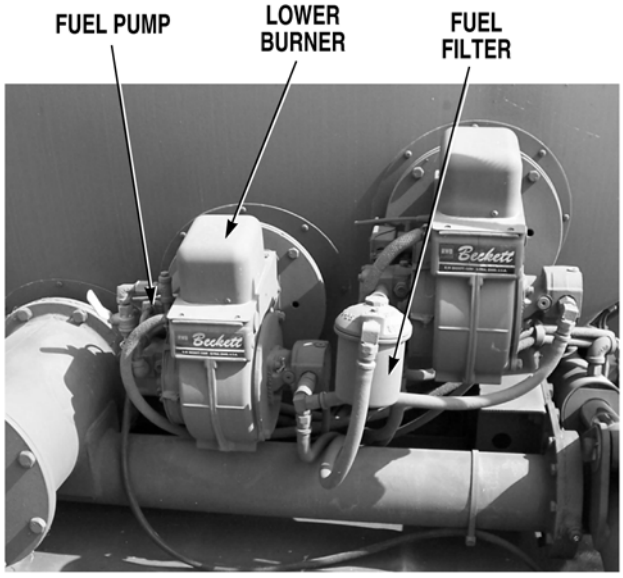
OPERATIONAL TEST

(1) Replace burner fuel filter, (Para 3-11).

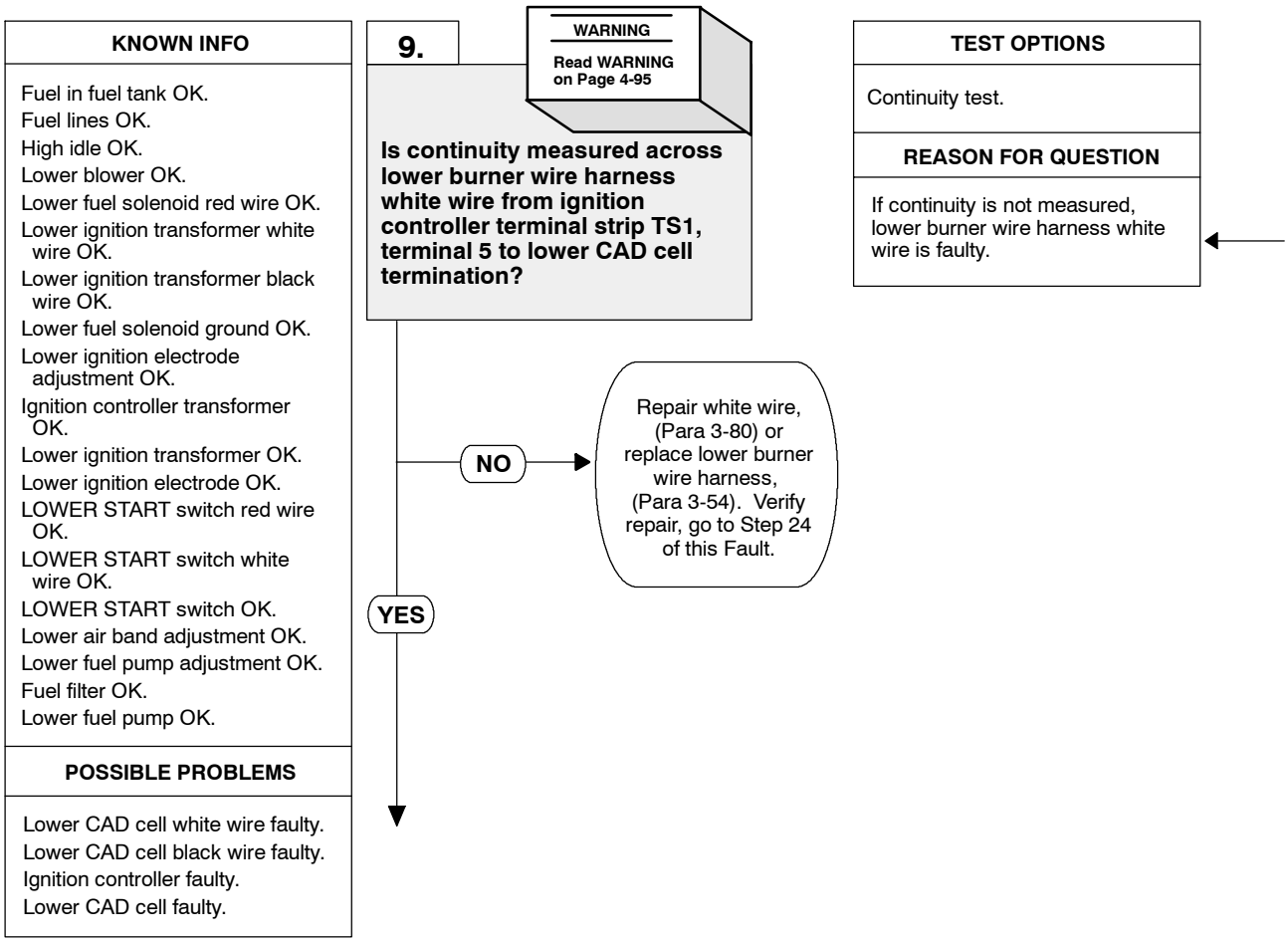
(2) Perform lower burner maintenance fuel pump pressure adjustment, (Para 3-20). Check if fuel pressure can be adjusted 95 to 105 psi (655 to 724 kPa).

(a) If fuel pump pressure cannot be adjusted to 95 to 105 psi (655 to 724 kPa), replace lower burner fuel pump, (Para 3-21) and perform lower burner maintenance fuel pump pressure adjustment, (Para 3-20). Verify repair, to to Step 24 of this Fault.

(b) If fuel pump pressure can be adjusted to 95 to 105 psi (655 to 724 kPa), go to Step 24 of this Fault.



5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Turn burner control ON/OFF switch OFF, (Para 2-1).

(2) Pull out and turn lower burner palm button 90° and release, (Para 2-22).

(3) Shut OFF engine, (TM 9-2320-364-10).

(4) Pull out battery disconnect switch, (TM 9-2320-364-10).

(5) Wait 20 to 30 minutes before continuing.

(6) Remove two screws and open lower burner cover, (Para 3-19).

(7) Remove rear control panel, (Para 3-76).

(8) Set multimeter select switch to ohms.

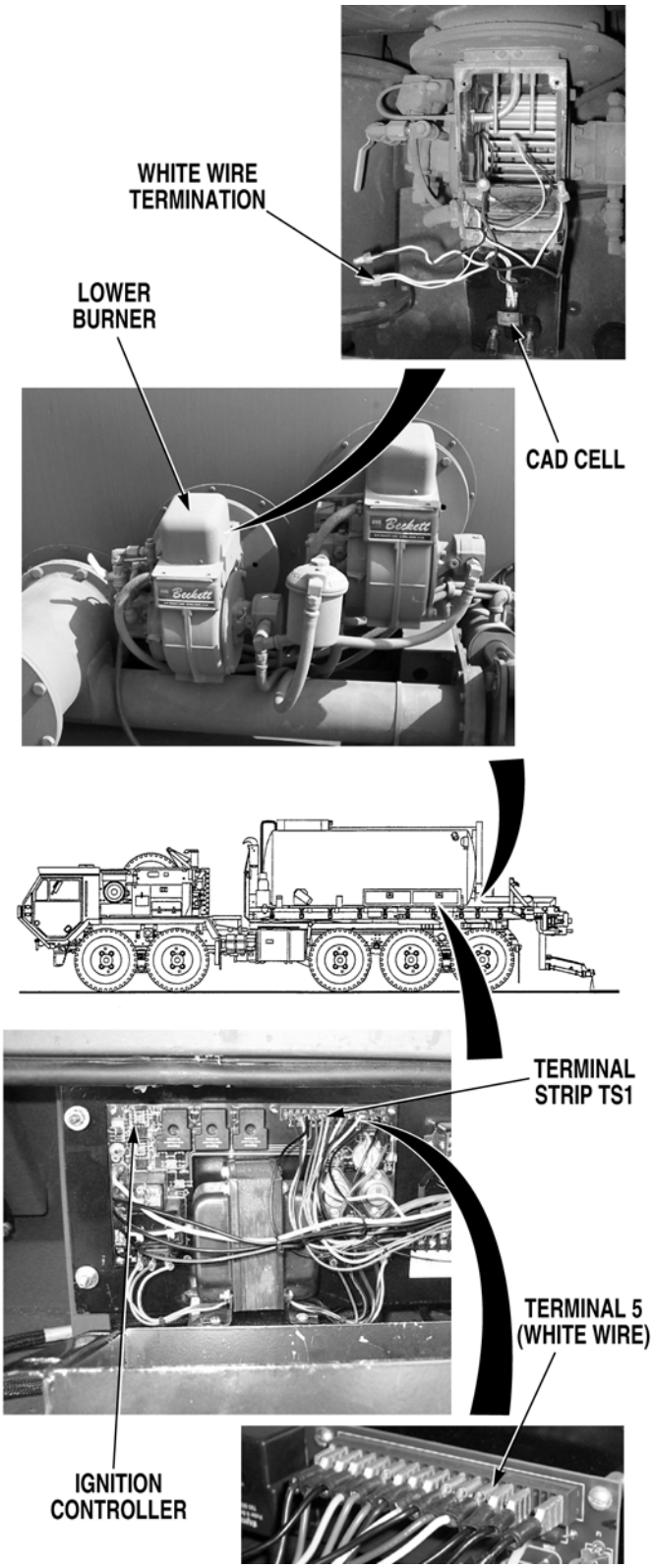
(9) Connect jumperwire between white wire at ignition controller terminal strip TS1, terminal 5 and a known good ground.

(10) Connect (backprobe) positive (+) multimeter lead to white wire at lower burner CAD cell wire termination.

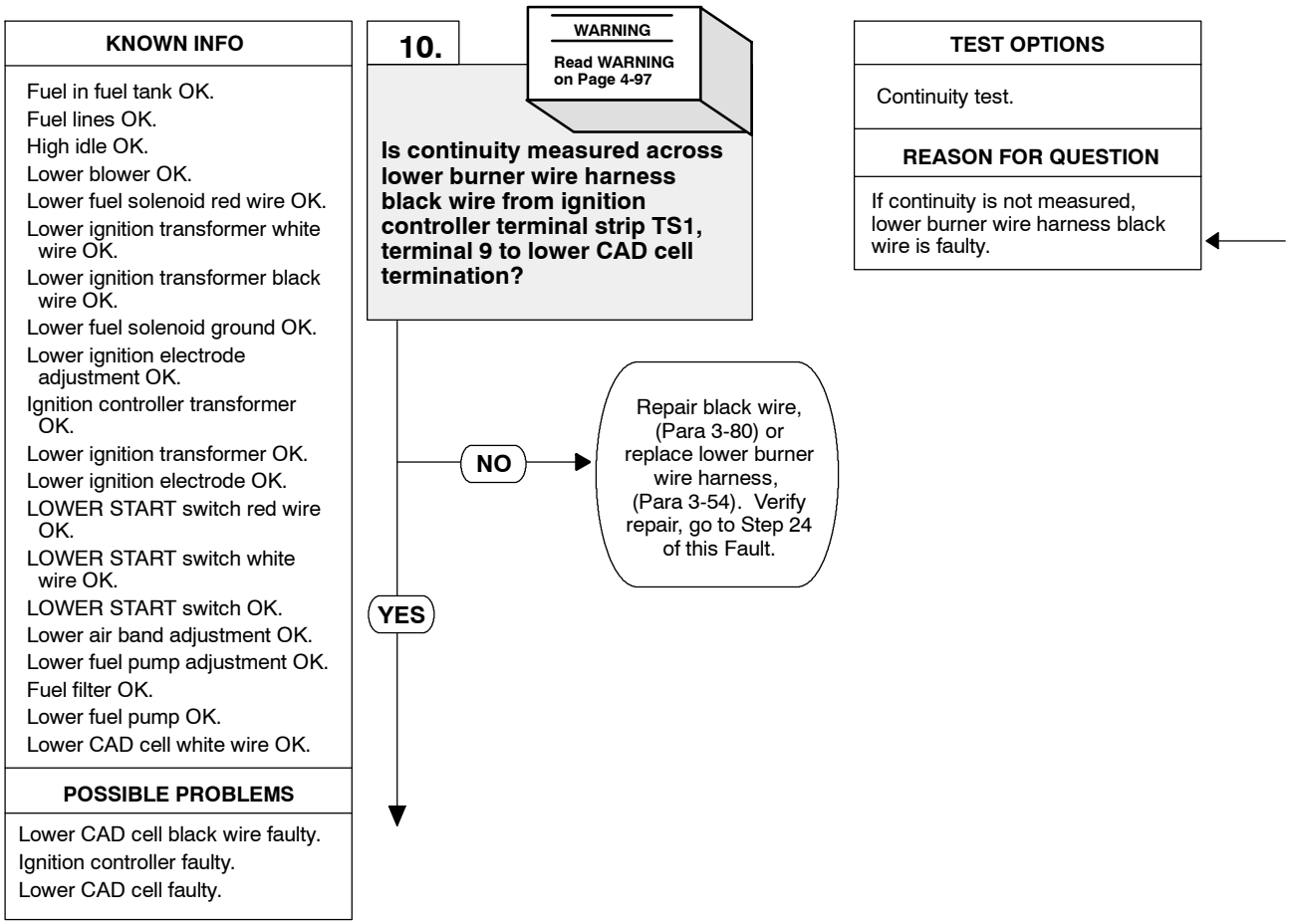
(11) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, repair white wire, (Para 3-80) or replace lower burner wire harness, (Para 3-54). Verify repair, go to Step 24 of this Fault.

(b) If continuity is measured, go to Step 11 of this Fault.



5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

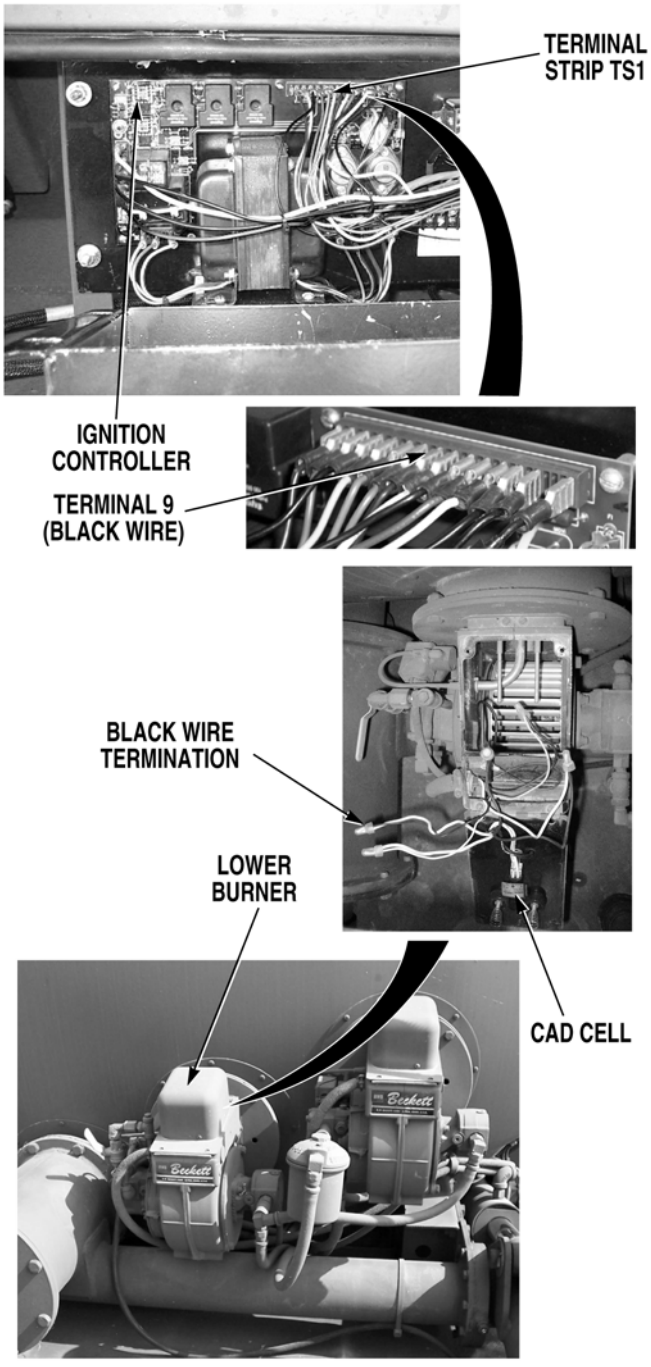
(2) Connect jumperwire between black wire at ignition controller terminal strip TS1, terminal 9 and a known good ground.

(3) Connect (backprobe) positive (+) multimeter lead to black wire at lower burner CAD cell wire termination.

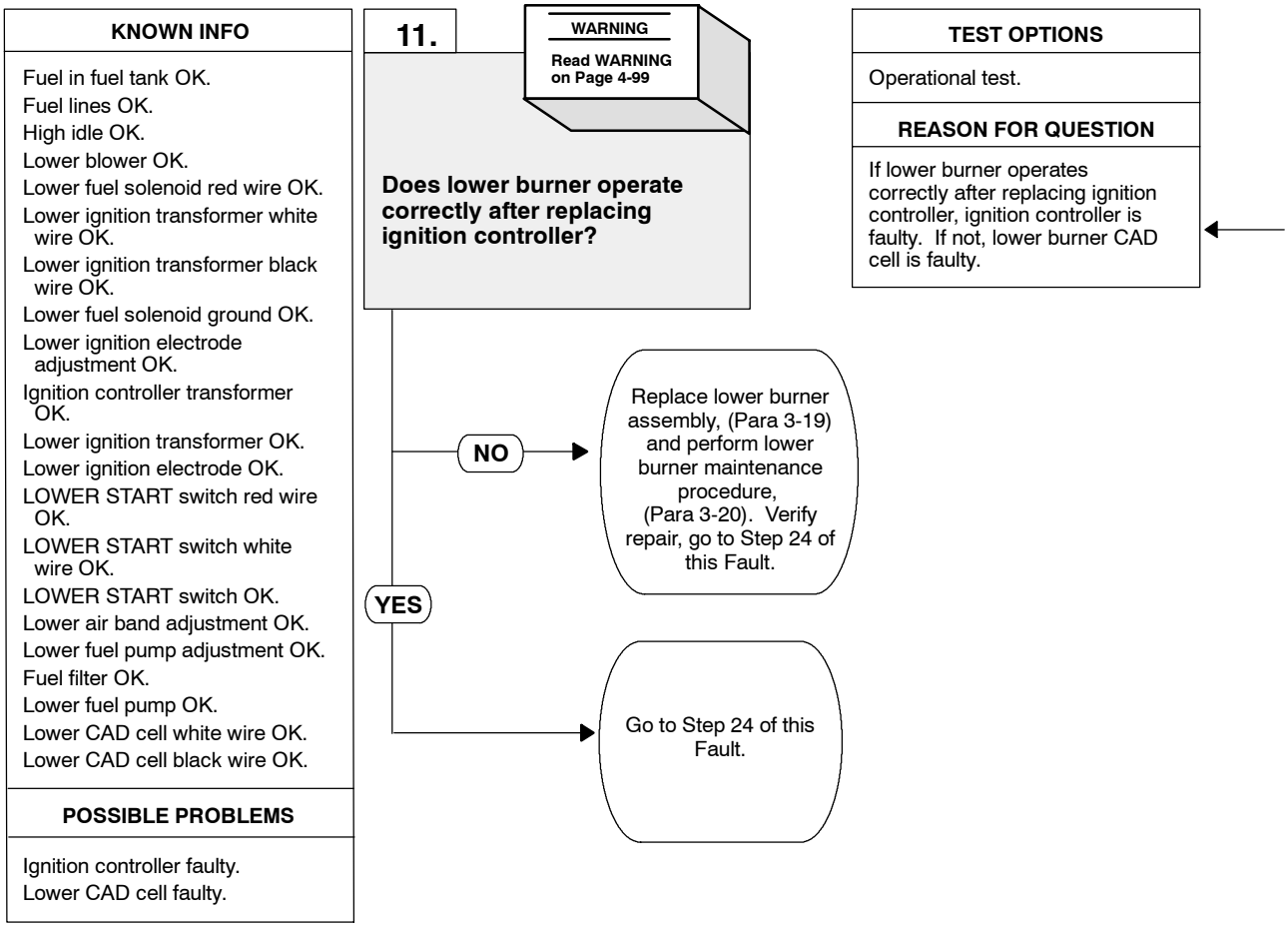
(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, repair black wire, (Para 3-80) or replace lower burner wire harness, (Para 3-54). Verify repair, go to Step 24 of this Fault.

(b) If continuity is measured, go to Step 11 of this Fault.



5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- DO NOT light any burner prior to stick measuring quantity of material in tank (refer to Para 2-13). Failure to comply may result in injury or death to personnel.
- DO NOT light lower burner unless a minimum of 750 gallons (2,838.75 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- Allowing burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulating, burners should be extinguished for 20 to 30 minutes before re-lighting.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.
- See Para 2-22 for additional warnings.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is “frozen” is it acceptable to operate burners without circulating material. However, if asphalt pump is “frozen”, carefully apply heat to pump housing and start circulating as soon as possible.

OPERATIONAL TEST

(1) Replace burner ignition controller, (Para 3-72). Do not replace transformer.

(2) Install rear control panel, (Para 3-76).

(3) Push in battery disconnect switch, (TM 9-2320-364-10).

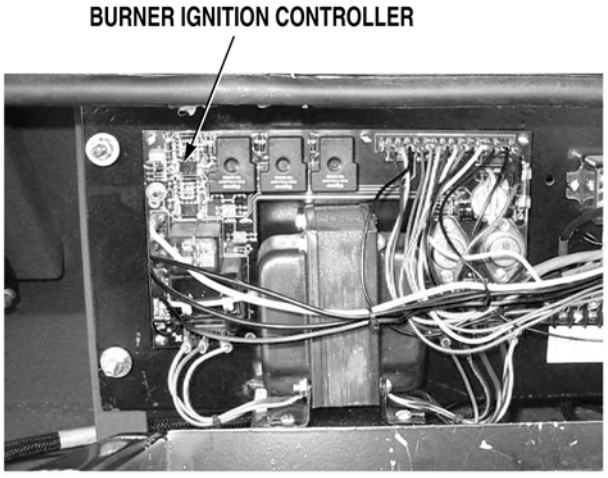
(4) Start engine, (TM 9-2320-364-10).

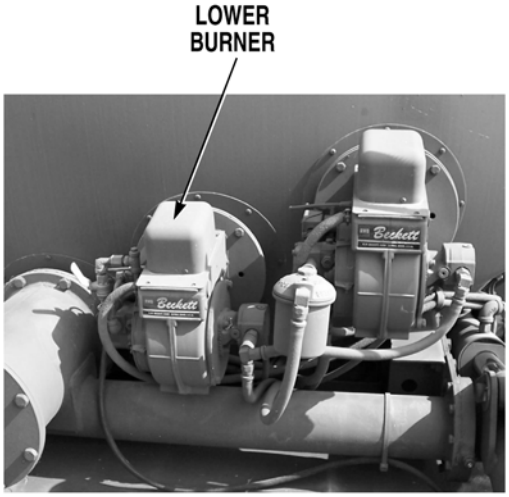
(5) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(6) Operate lower burner, (Para 2-22). Check if burner operates correctly.

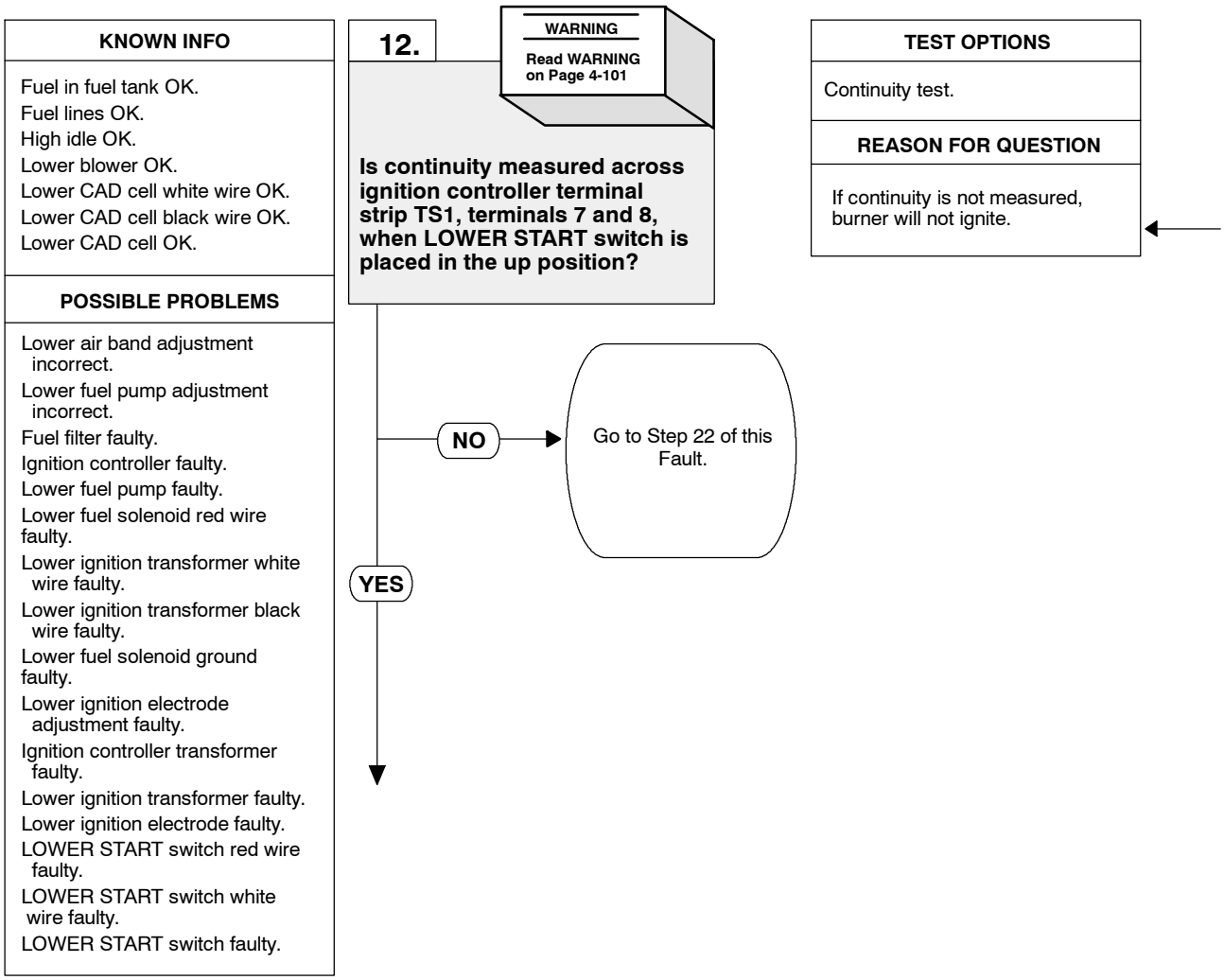
(a) If burner does not operate correctly, replace lower burner assembly, (Para 3-19) and perform lower burner maintenance adjustments, (Para 3-20). Verify repair, go to Step 24 of this Fault.

(b) If burner operates correctly, go to Step 24 of this Fault.





5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Turn burner control ON/OFF switch OFF, (Para 2-1).

(2) Pull out and turn lower burner palm button 90° and release, (Para 2-22).

(3) Shut OFF engine, (TM 9-2320-364-10).

(4) Pull out battery disconnect switch, (TM 9-2320-364-10).

(5) Wait 20 to 30 minutes before continuing.

(6) Remove rear control panel, (Para 3-76).

(7) Set multimeter select switch to ohms.

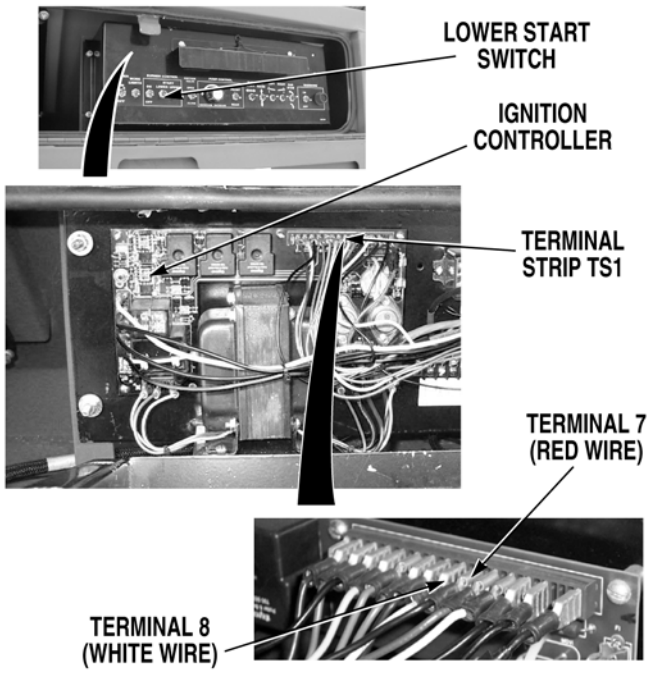
(8) Connect positive (+) multimeter lead to red wire at ignition controller terminal strip TS1, terminal 7.

(9) Connect negative (-) multimeter lead to a white wire at ignition controller terminal strip TS1, terminal 8.

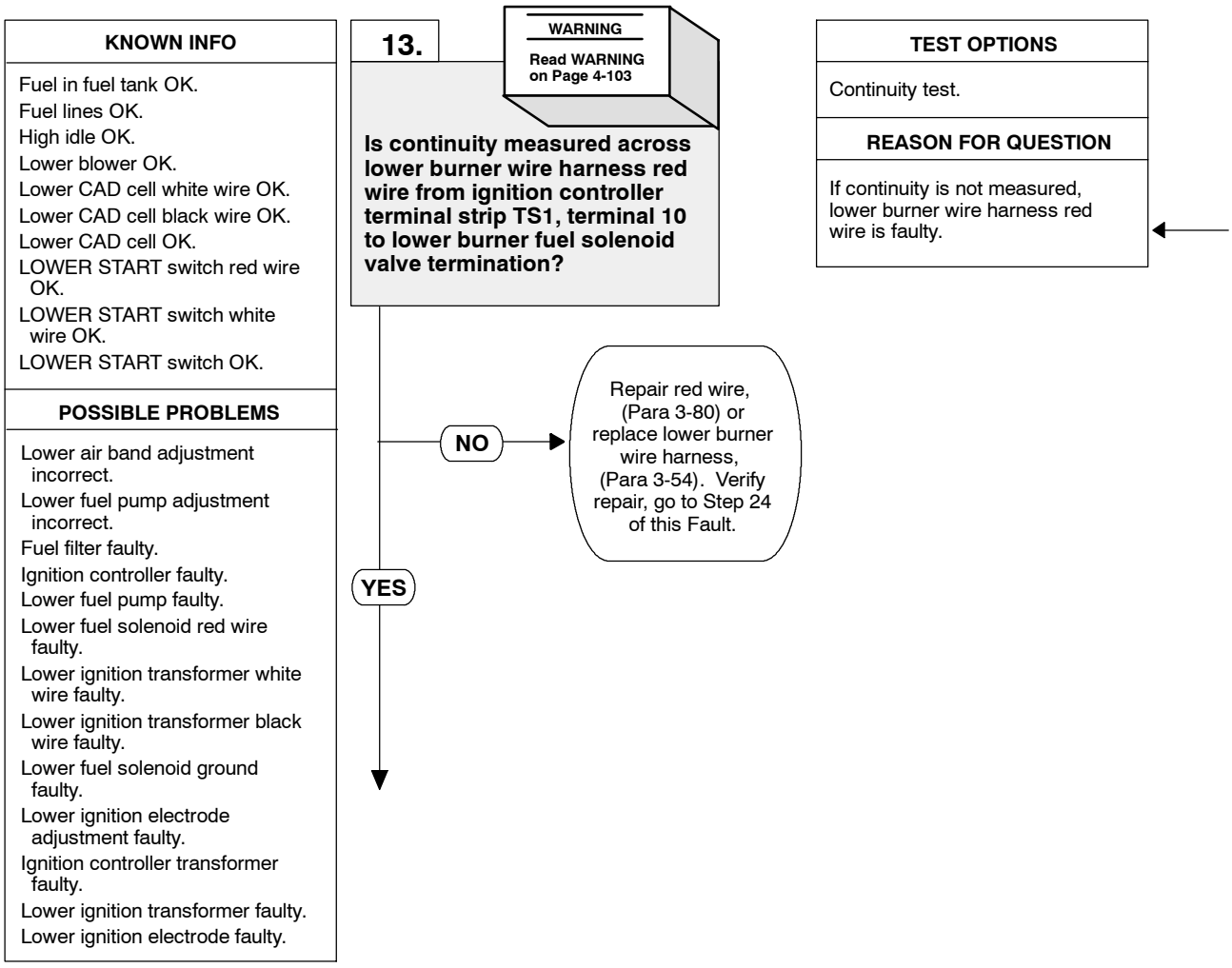
(10) Position burner control LOWER START switch to up position, (Para 2-1).

(a) If continuity is not measured. go to Step 22 of this Fault.

(b) If continuity is measured, go to Step 13 of this Fault.



5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Remove two screws and open lower burner cover, (Para 3-19).

(2) Set multimeter select switch to ohms.

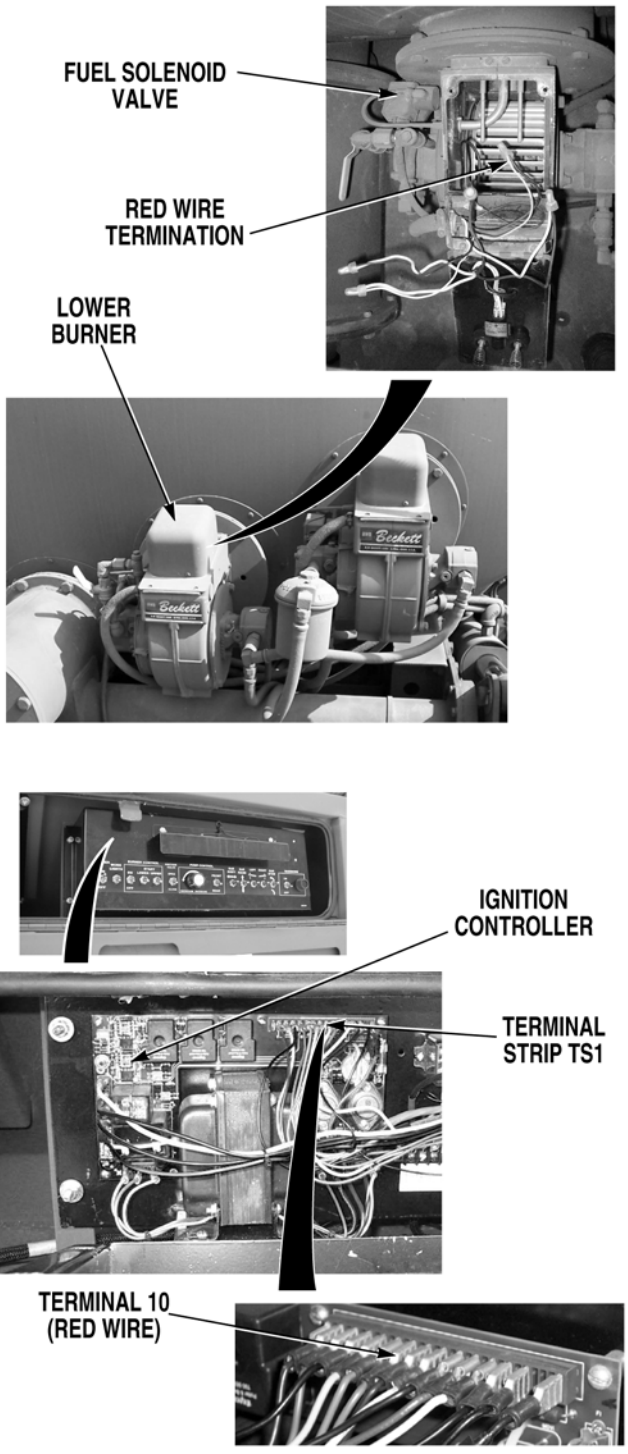
(3) Connect jumperwire between red wire at ignition controller terminal strip TS1, terminal 10 and a known good ground.

(4) Connect (backprobe) positive (+) multimeter lead to red wire at lower burner fuel solenoid valve termination.

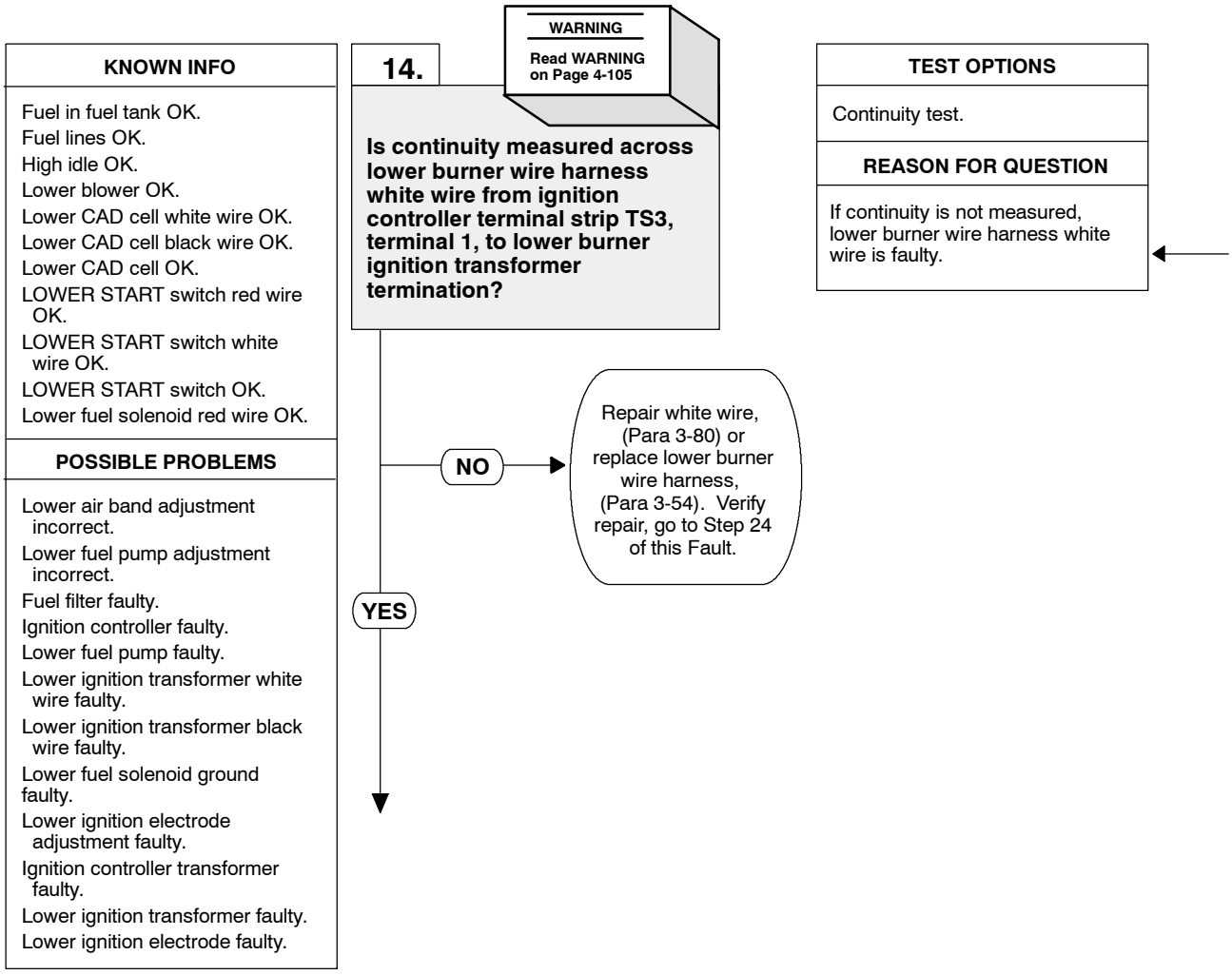
(5) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, repair red wire, (Para 3-80) or replace lower burner wire harness, (Para 3-54). Verify repair go to Step 24 of this Fault.

(b) If continuity is measured, go to Step 14 of this Fault.



5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

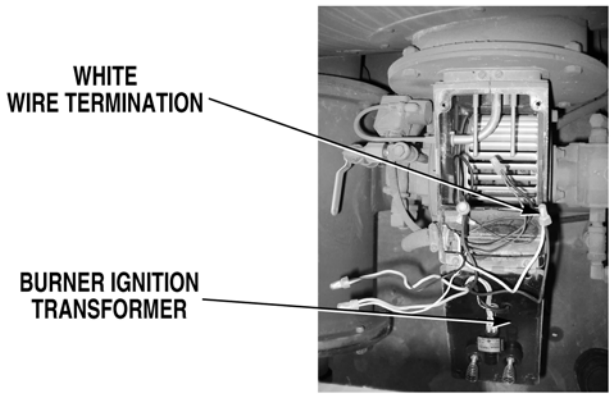
(2) Connect jumperwire between white wire at ignition controller terminal strip TS3, terminal 1 and a known good ground.

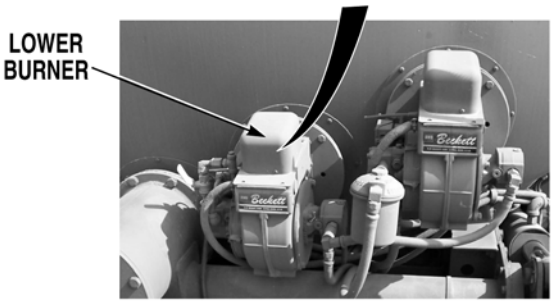
(3) Connect (backprobe) positive (+) multimeter lead to white wire at lower burner ignition transformer termination.

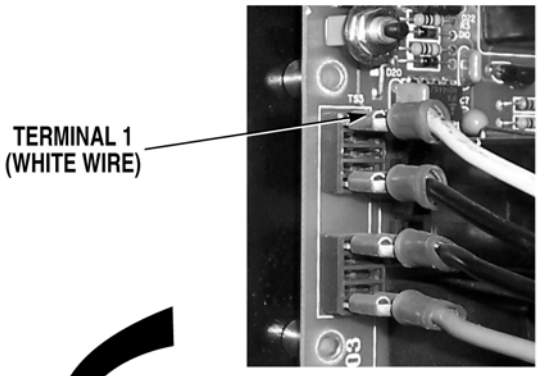
(4) Connect negative (-) multimeter lead to a known good ground.

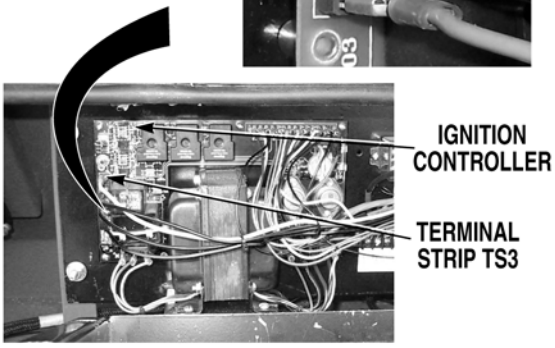
(a) If continuity is not measured, repair white wire, (Para 3-80) or replace lower burner wire harness, (Para 3-54). Verify repair, go to Step 24 of this Fault.

(b) If continuity is measured, go to Step 15 of this Fault.

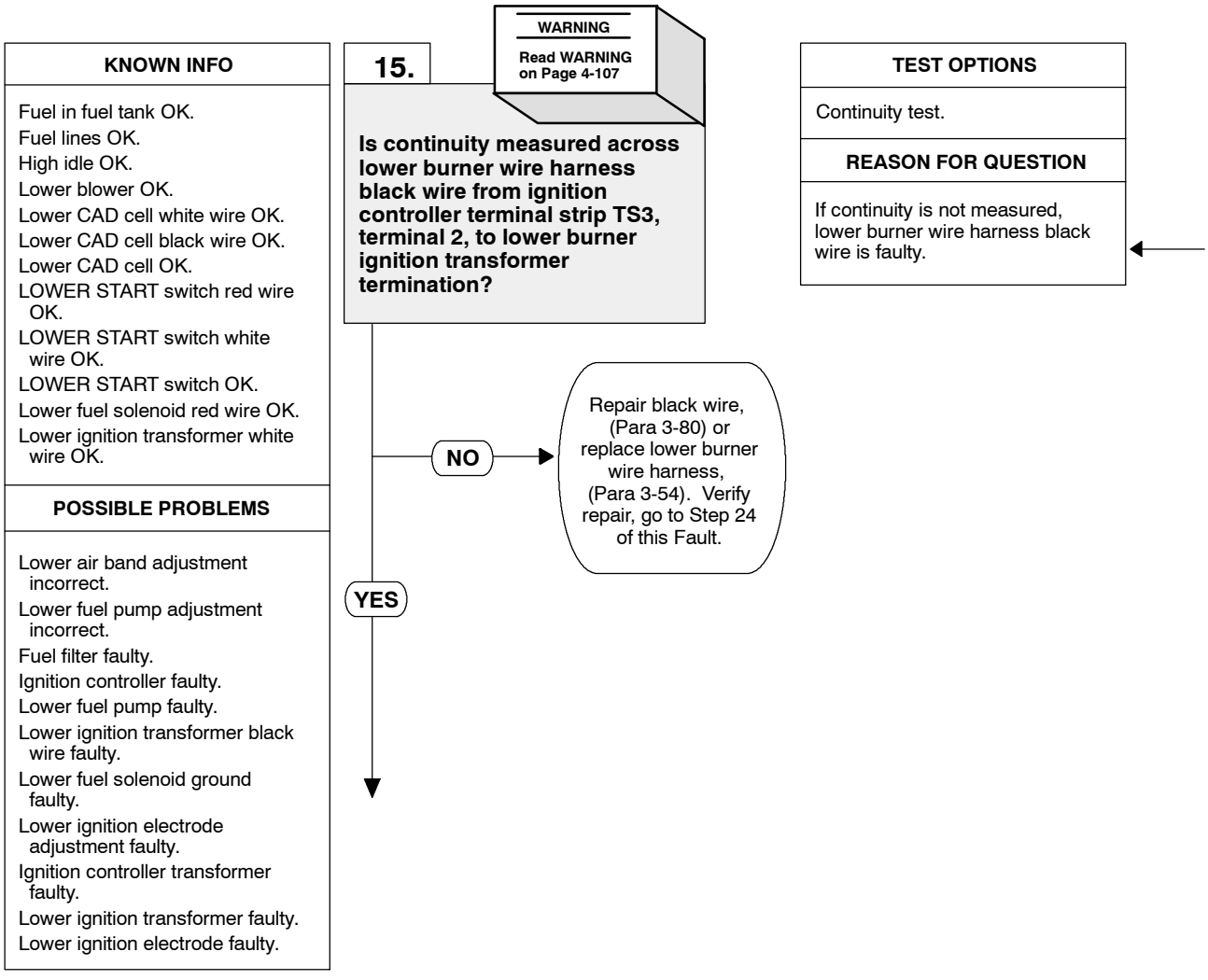








5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

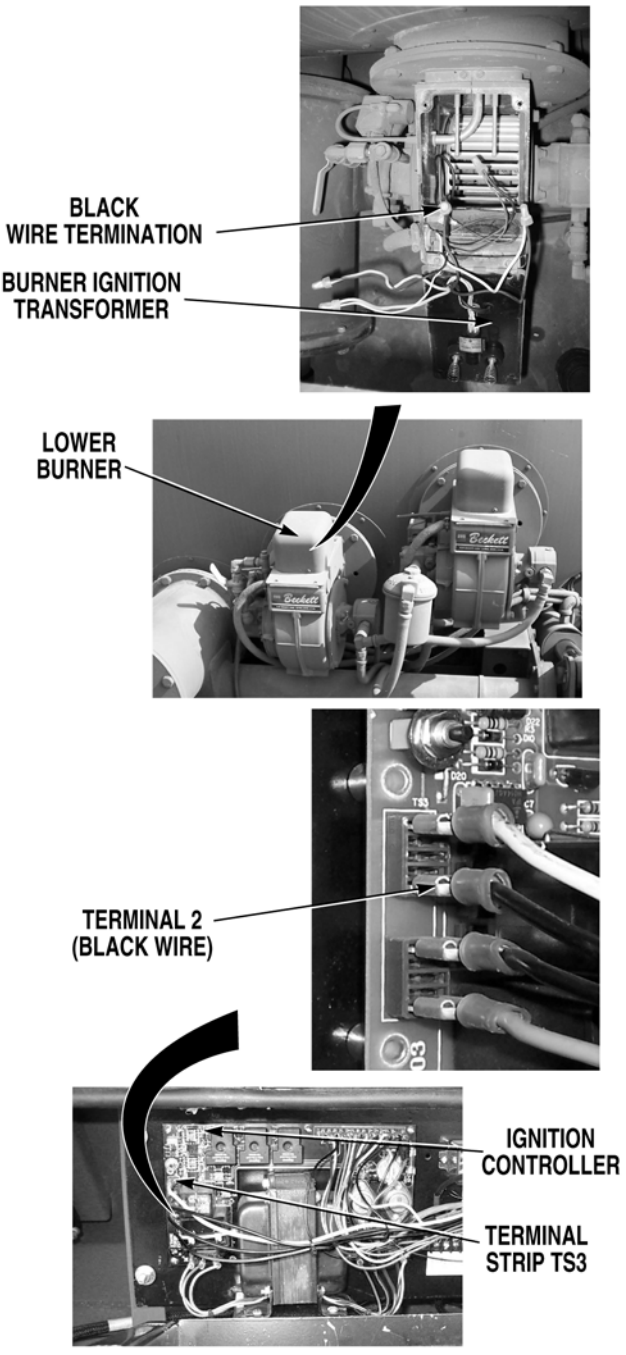
(2) Connect jumperwire between black wire at ignition controller terminal strip TS3, terminal 2 and a known good ground.

(3) Connect (backprobe) positive (+) multimeter lead to black wire at upper burner ignition transformer termination.

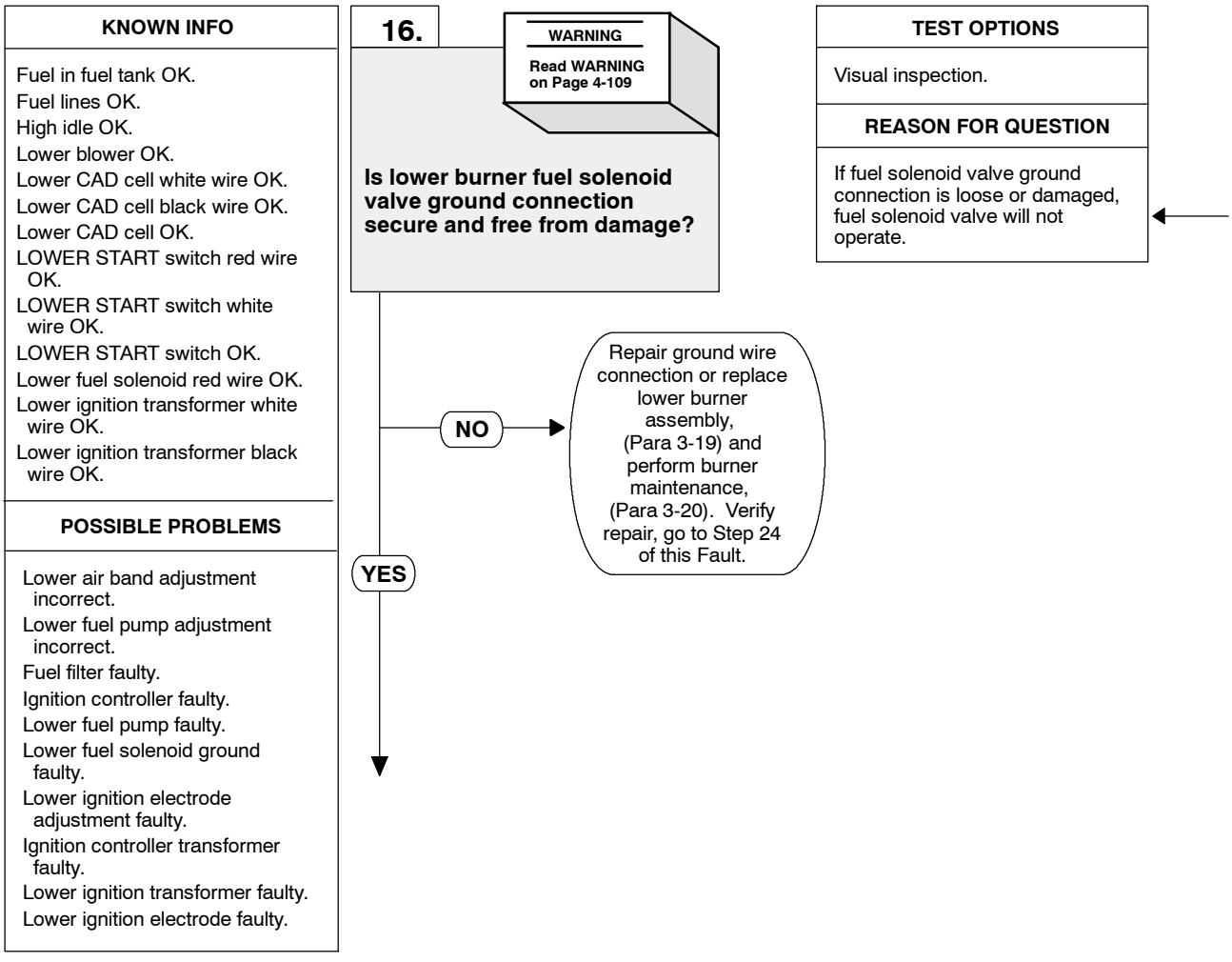
(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, repair black wire, (Para 3-80) or replace lower burner wire harness, (Para 3-54). Verify repair, go to Step 24 of this Fault.

(b) If continuity is measured, go to Step 16 of this Fault.

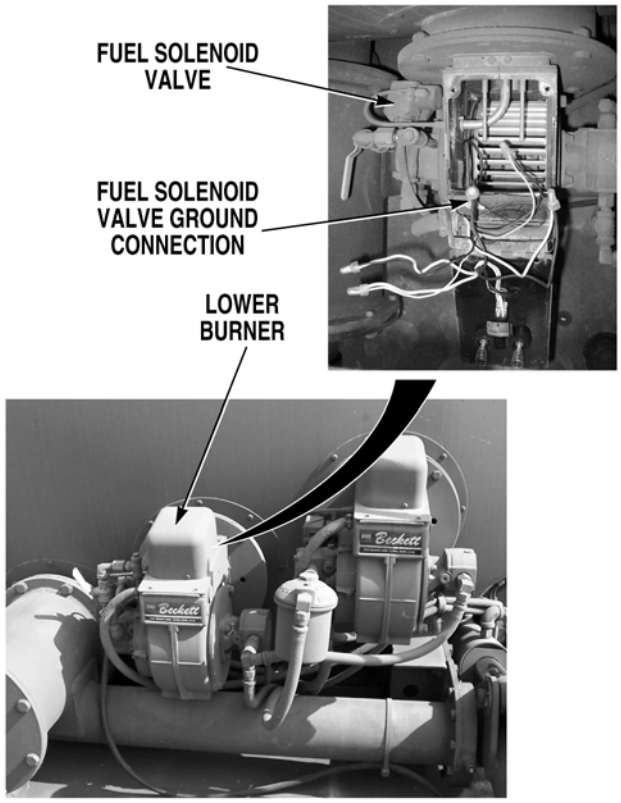


5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.



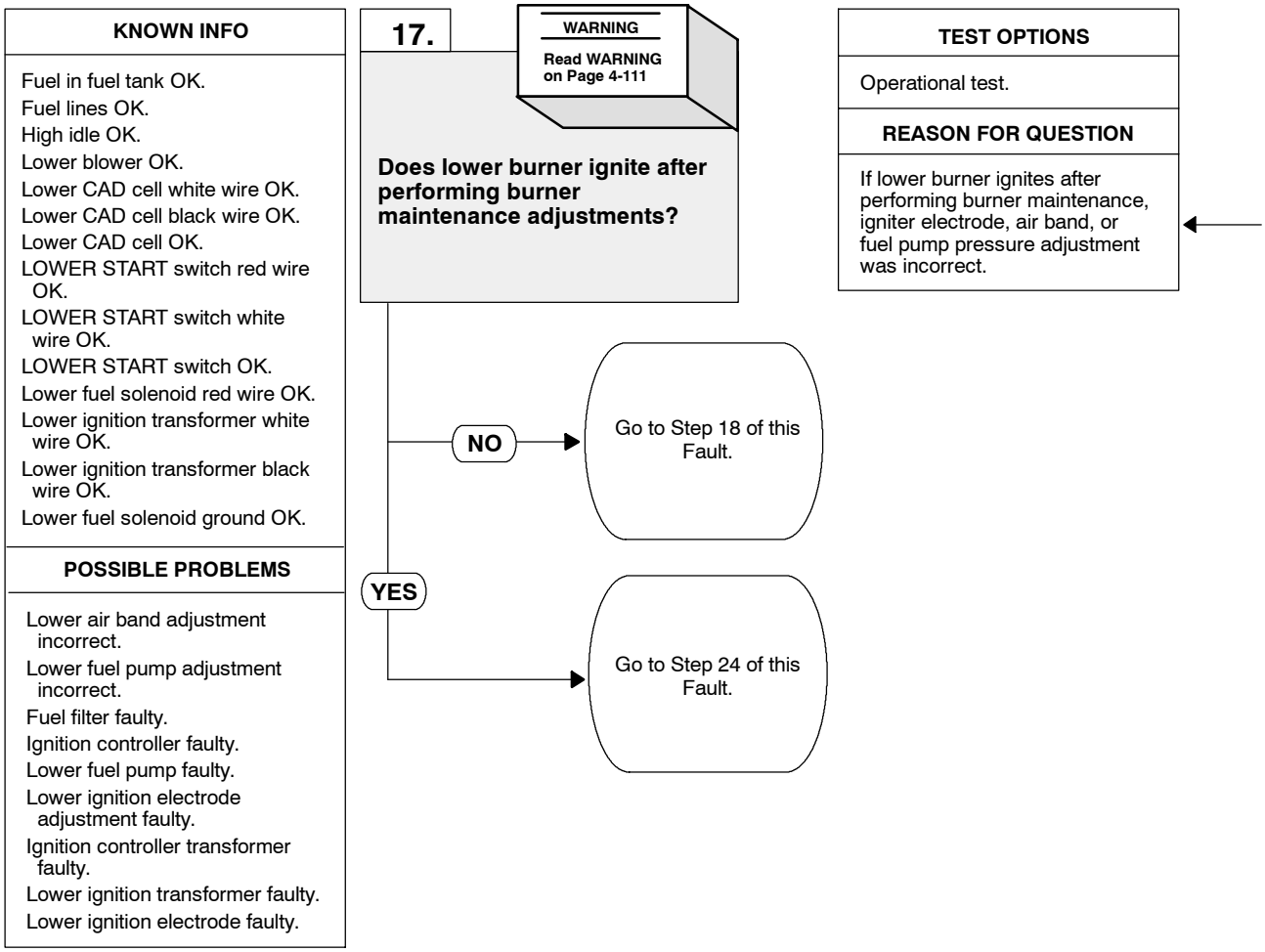
VISUAL INSPECTION

Inspect lower fuel solenoid valve ground connection for loose connection and damage.

(a) If connection is loose, repair connection or replace lower burner assembly, (Para 3-19). Verify repair, go to Step 24 of this Fault.

(b) If connection is tight and free from damage, go to Step 17 of this Fault.

5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- DO NOT light any burner prior to stick measuring quantity of material in tank (refer to Para 2-13). Failure to comply may result in injury or death to personnel.
- DO NOT light lower burner unless a minimum of 750 gallons (2,838.75 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- Allowing burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulating, burners should be extinguished for 20 to 30 minutes before re-lighting.
- See Para 2-22 for additional warnings.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is “frozen” is it acceptable to operate burners without circulating material. However, if asphalt pump is “frozen”, carefully apply heat to pump housing and start circulating as soon as possible.

OPERATIONAL TEST

(1) Install rear control panel, (Para 3-76).

(2) Perform lower burner maintenance ignition electrode adjustment, (Para 3-20).

(3) Perform lower burner maintenance air band and fuel pump pressure adjustments, (Para 3-20). Note if fuel pump pressure can be adjusted to 95 to 105 psi (655 to 724 kPa).

(4) Push in battery disconnect switch, (TM 9-2320-364-10).

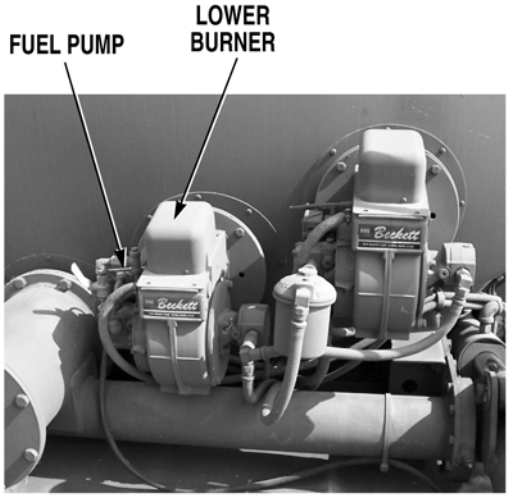
(5) Start engine, (TM 9-2320-364-10).

(6) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

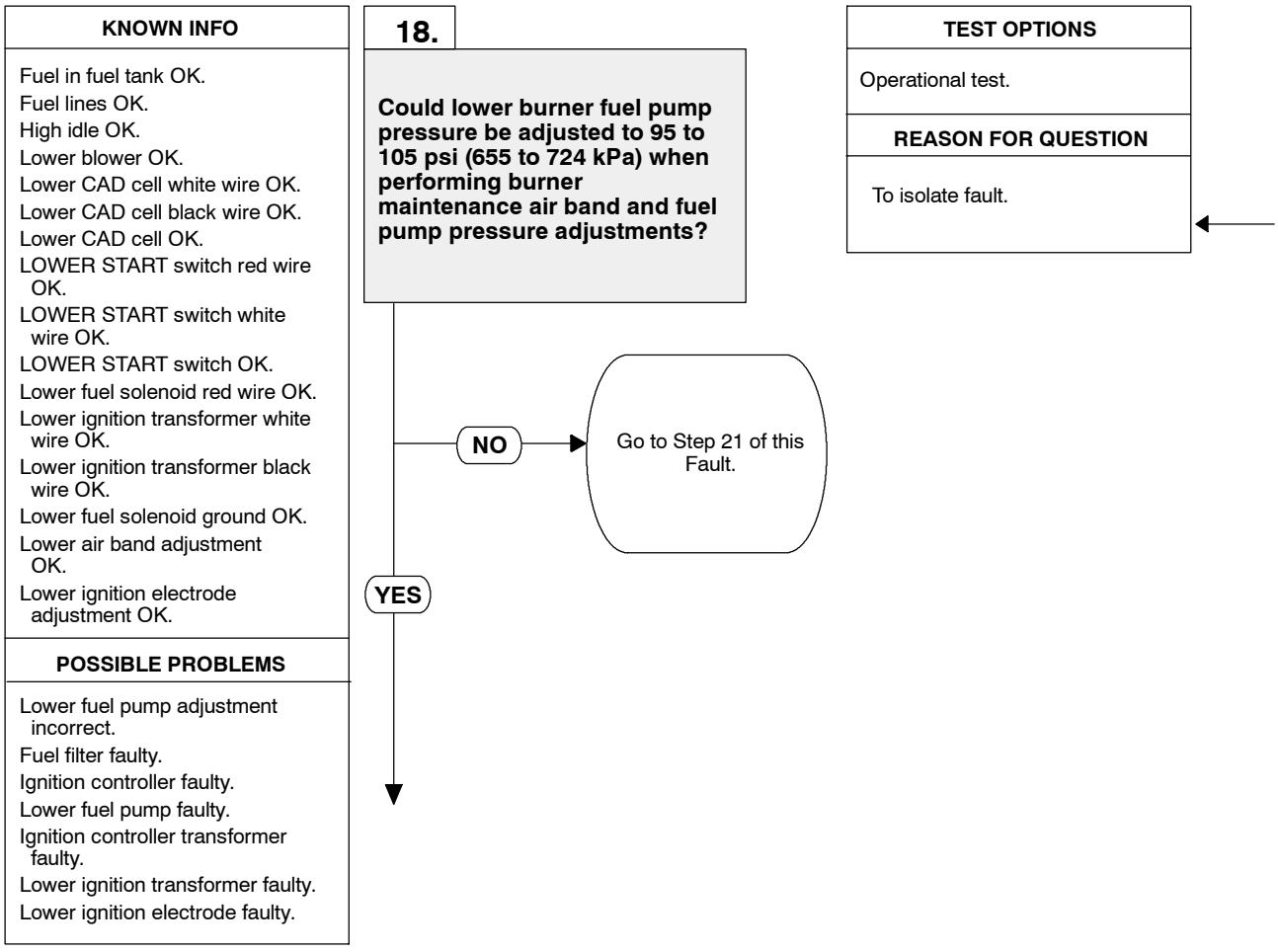
(7) Operate upper burner, (Para 2-22). Check if burner ignites.

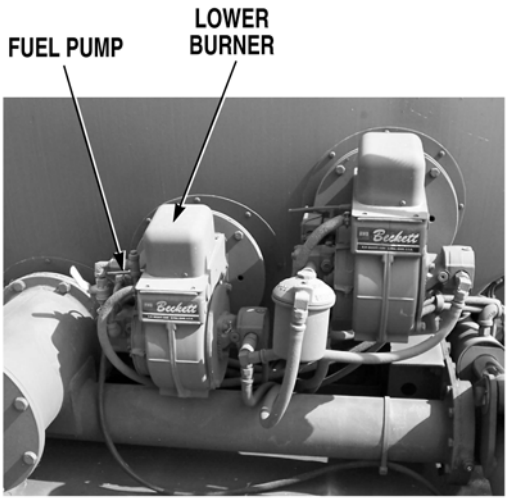
  (a) If burner does not ignite, go to Step 18 of this Fault.

  (b) If burner ignites, go to Step 24 of this Fault.



5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).





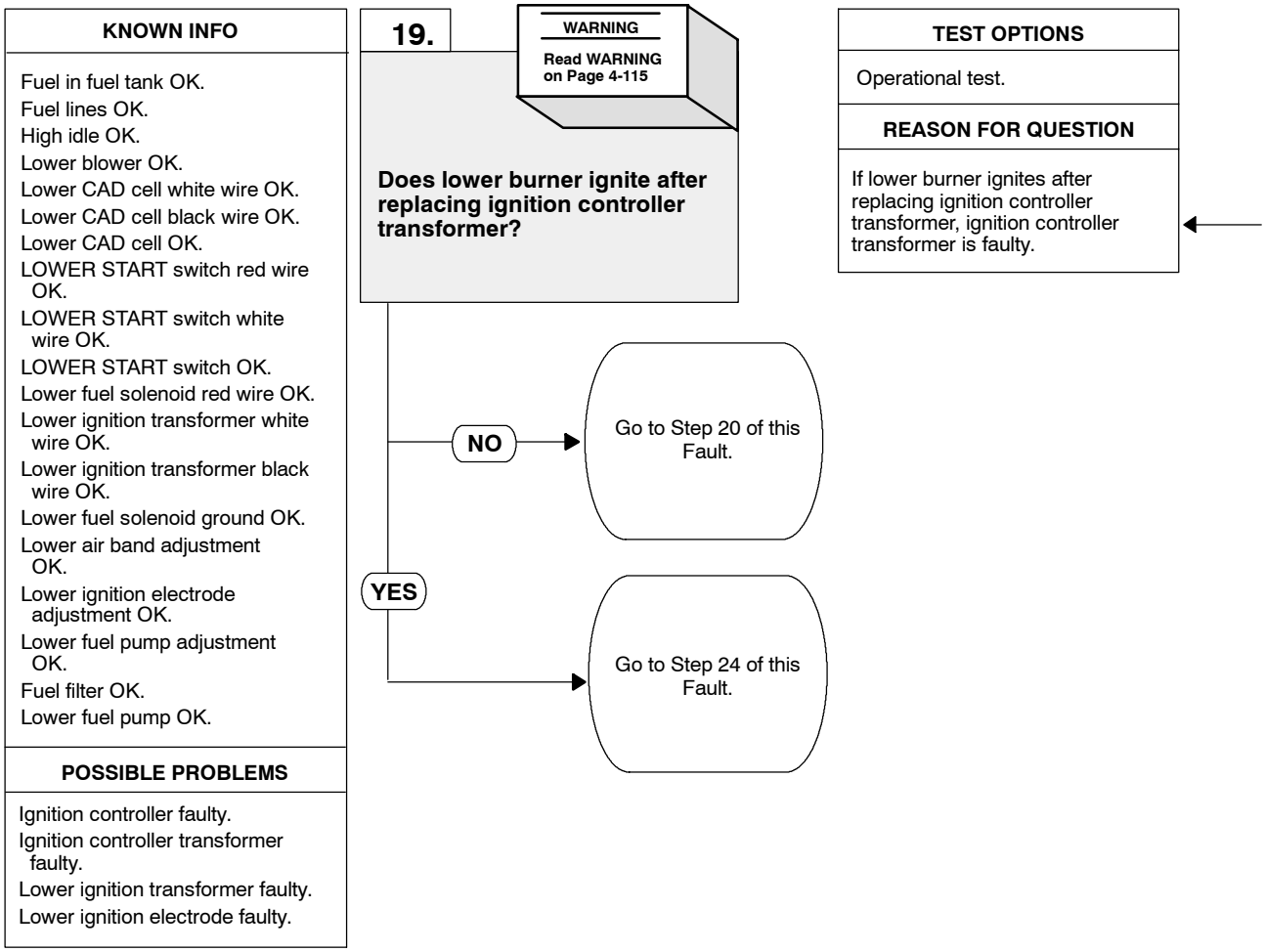
OPERATIONAL TEST

Check if fuel pump pressure could be adjusted to 95 to 105 psi (655 to 724 kPa) when Step 17 of this Fault was performed.

(a) If fuel pump pressure could not be adjusted to 95 to 105 psi (655 to 724 kPa), when Step 17 of this procedure was performed, go to Step 21 of this Fault.

(b) If fuel pump pressure could be adjusted to 95 to 105 psi (655 to 724 kPa), go to Step 19 of this Fault.

5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- DO NOT light any burner prior to stick measuring quantity of material in tank (refer to Para 2-13). Failure to comply may result in injury or death to personnel.
- DO NOT light lower burner unless a minimum of 750 gallons (2,838.75 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- Allowing burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulating, burners should be extinguished for 20 to 30 minutes before re-lighting.
- See Para 2-22 for additional warnings.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is “frozen” is it acceptable to operate burners without circulating material. However, if asphalt pump is “frozen”, carefully apply heat to pump housing and start circulating as soon as possible.

OPERATIONAL TEST

(1) Turn burner control ON/OFF switch OFF, (Para 2-1).

(2) Pull out and turn lower burner palm button 90° and release, (Para 2-22).

(3) Shut OFF engine, (TM 9-2320-364-10).

(4) Wait 20 to 30 minutes before continuing.

(5) Remove rear control panel, (Para 3-76).

(6) Replace ignition controller transformer, (Para 3-71).

(7) Install rear control panel, (Para 3-76).

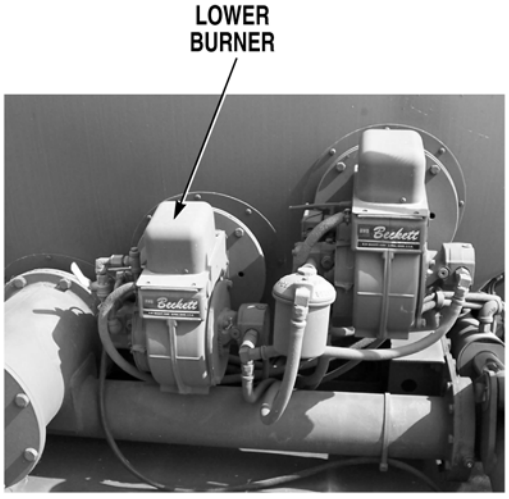
(8) Start engine, (TM 9-2320-364-10).

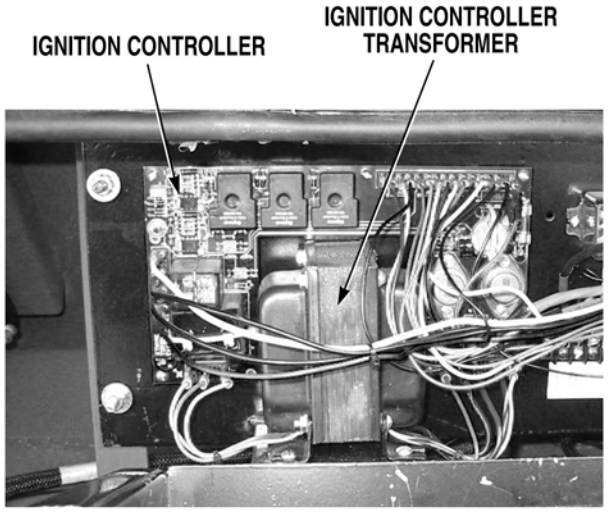
(9) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(10) Operate lower burner, (Para 2-22). Check if burner ignites.

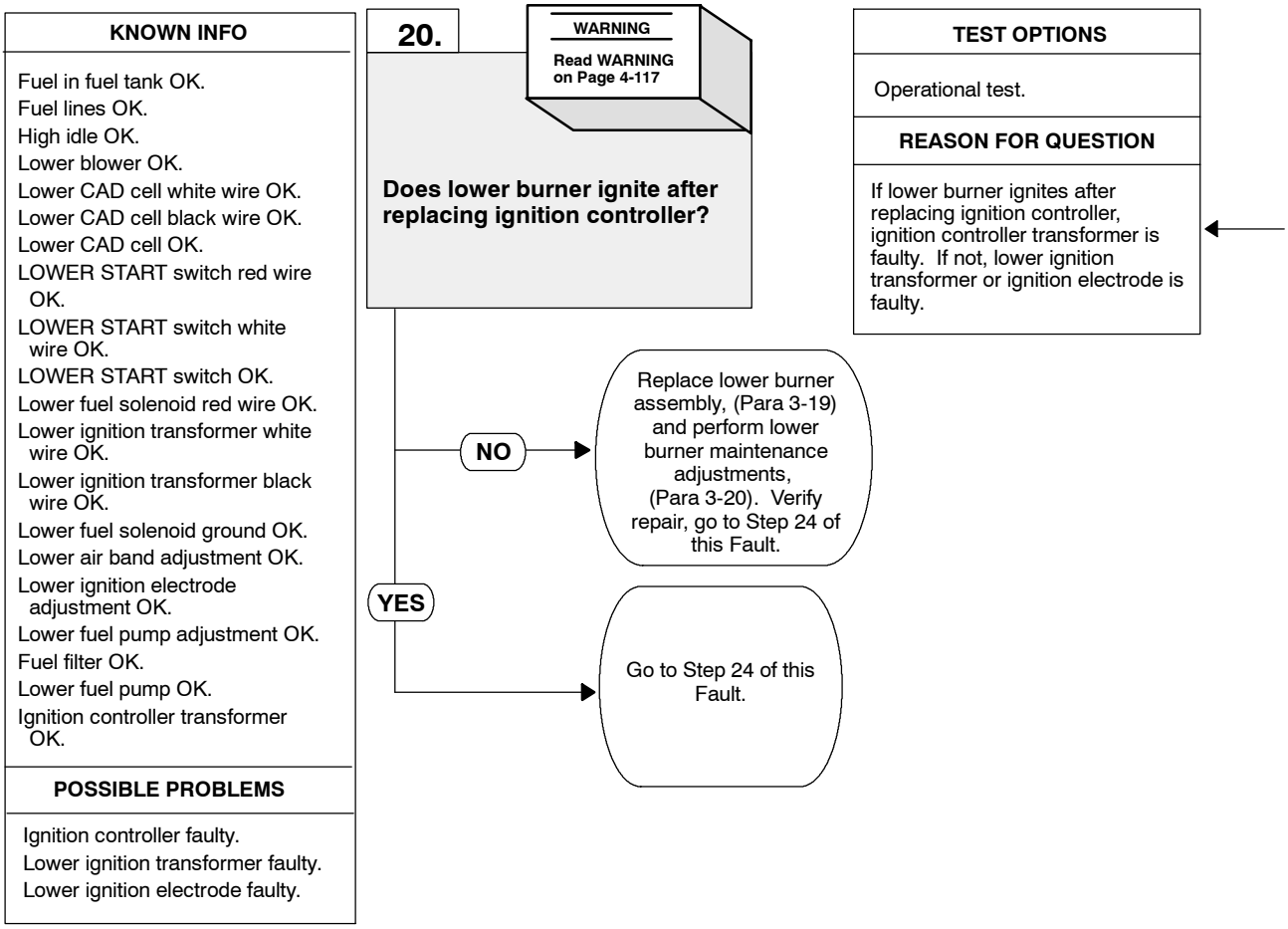
  (a) If burner does not ignite, go to Step 20 of this Fault.

  (b) If burner ignites, go to Step 24 of this Fault.





5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.
- DO NOT light any burner prior to stick measuring quantity of material in tank (refer to Para 2-13). Failure to comply may result in injury or death to personnel.
- DO NOT light lower burner unless a minimum of 750 gallons (2,838.75 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- Allowing burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulating, burners should be extinguished for 20 to 30 minutes before re-lighting.
- See Para 2-22 for additional warnings.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is “frozen” is it acceptable to operate burners without circulating material. However, if asphalt pump is “frozen”, carefully apply heat to pump housing and start circulating as soon as possible.

OPERATIONAL TEST

(1) Turn burner control ON/OFF switch OFF, (Para 2-1).

(2) Pull out and turn lower burner palm button 90° and release (Para 2-22).

(3) Shut OFF engine, (TM 9-2320-364-10).

(4) Wait 20 to 30 minutes before continuing.

(5) Remove rear control panel, (Para 3-76).

(6) Replace ignition controller, (Para 3-72).

(7) Install rear control panel, (Para 3-76).

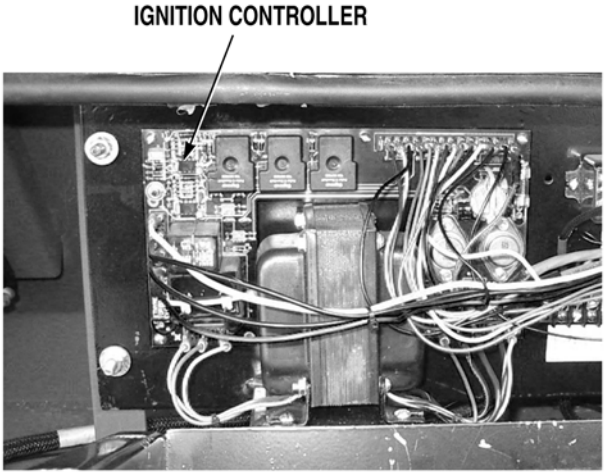
(8) Start engine, (TM 9-2320-364-10).

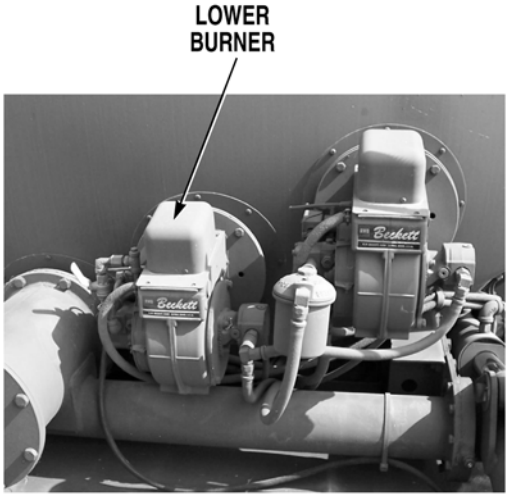
(9) Turn hydraulic selection switch to CRANE/SRW, (TM 9-2320-364-10).

(10) Operate lower burner, (Para 2-22). Check if burner ignites.

(a) If burner does not ignite, perform Steps 1 through 4 above, replace lower burner, (Para 3-19) and perform lower burner maintenance adjustments, (Para 3-20). Verify repair, go to Step 24 of this Fault.

(b) If burner ignites, go to Step 24 of this Fault.





5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).

KNOWN INFO

Fuel in fuel tank OK.
Fuel lines OK.
High idle OK.
Lower blower OK.
Lower CAD cell white wire OK.
Lower CAD cell black wire OK.
Lower CAD cell OK.
LOWER START switch red wire OK.
LOWER START switch white wire OK.
LOWER START switch OK.
Lower fuel solenoid red wire OK.
Lower ignition transformer white wire OK.
Lower ignition transformer black wire OK.
Lower fuel solenoid ground OK.
Lower air band adjustment OK.
Lower ignition electrode adjustment OK.
Ignition controller OK.
Ignition controller transformer OK.
Lower ignition transformer OK.
Lower ignition electrode OK.

POSSIBLE PROBLEMS

Lower fuel pump adjustment incorrect.
Fuel filter faulty.
Lower fuel pump faulty.

21.

WARNING

Read WARNING on Page 4-119

Can lower burner fuel pump pressure be adjusted to 95 to 105 psi (655 to 724 kPa) after replacing fuel filter?

NO → Replace lower burner fuel pump, (Para 3-21) and perform burner maintenance fuel pump pressure adjustments on lower burner, (Para 3-20). Verify repair, go to Step 24 of this Fault.

YES → Go to Step 24 of this Fault.

TEST OPTIONS

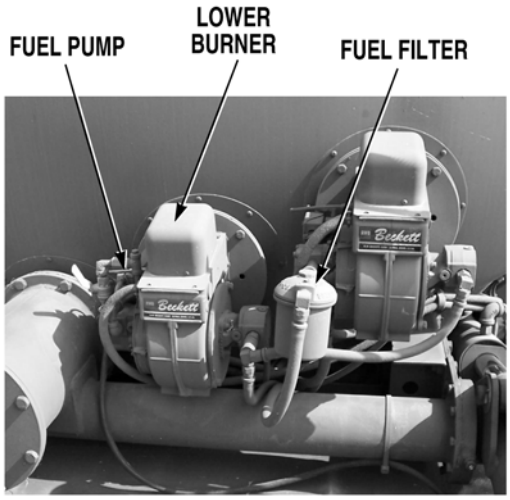
Operational test.

REASON FOR QUESTION

Clogged burner fuel filter, or faulty fuel pump will cause incorrect fuel pump adjustments and poor burner performance.

WARNING

To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.



OPERATIONAL TEST

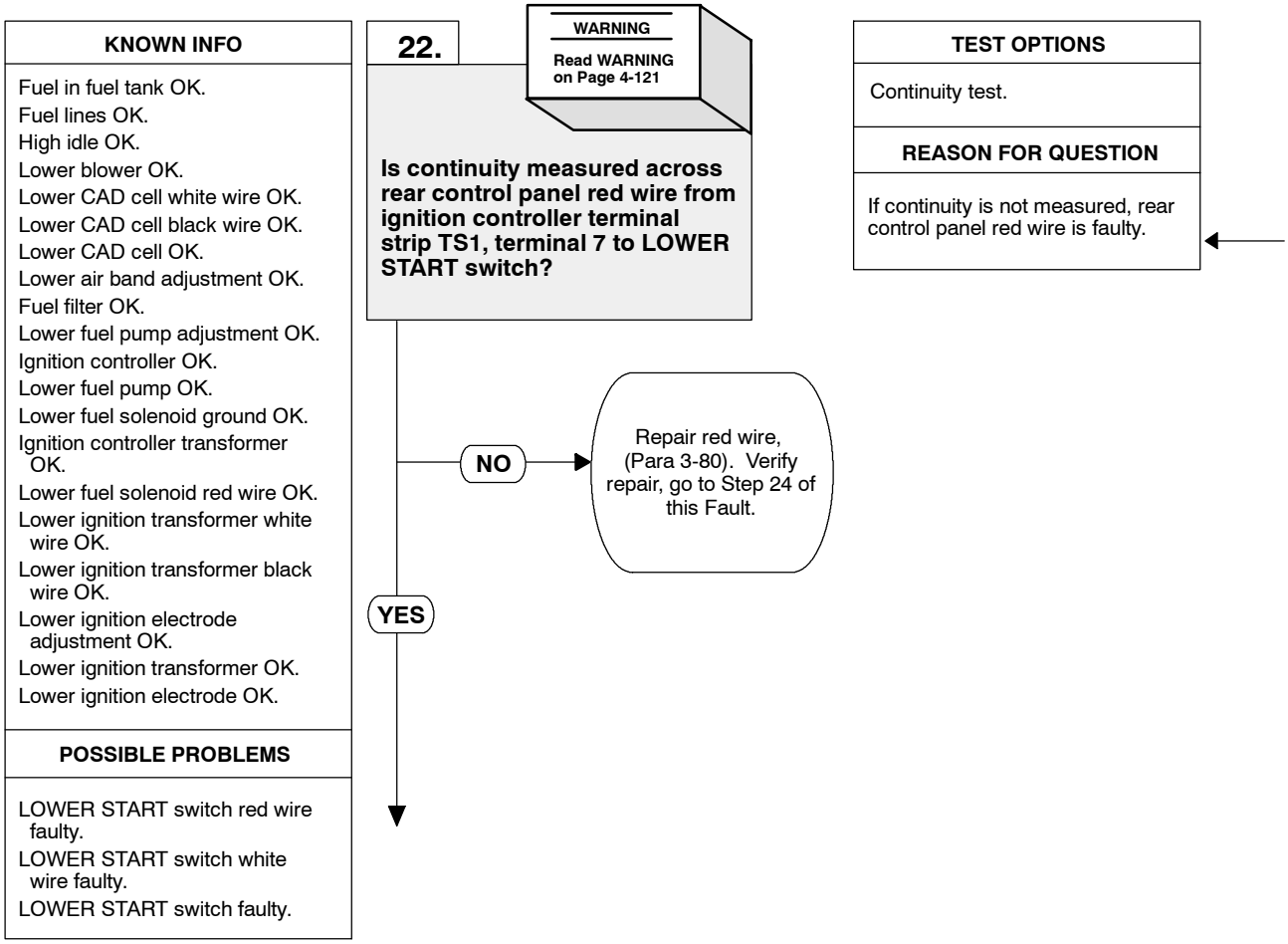
(1) Replace burner fuel filter, (Para 3-11).

(2) Perform lower burner maintenance fuel pump pressure adjustment, (Para 3-20). Check if fuel pump pressure can be adjusted to 95 to 105 psi (655 to 724 kPa).

(a) If fuel pump pressure cannot be adjusted to 95 to 105 psi (655 to 724 kPa), replace lower burner fuel pump, (Para 3-21) and perform lower burner maintenance fuel pump pressure adjustment, (Para 3-20). Verify repair, go to Step 24 of this Fault.

(b) If fuel pump pressure can be adjusted to 95 to 105 psi (655 to 724 kPa), go to Step 24 of this Fault.

5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

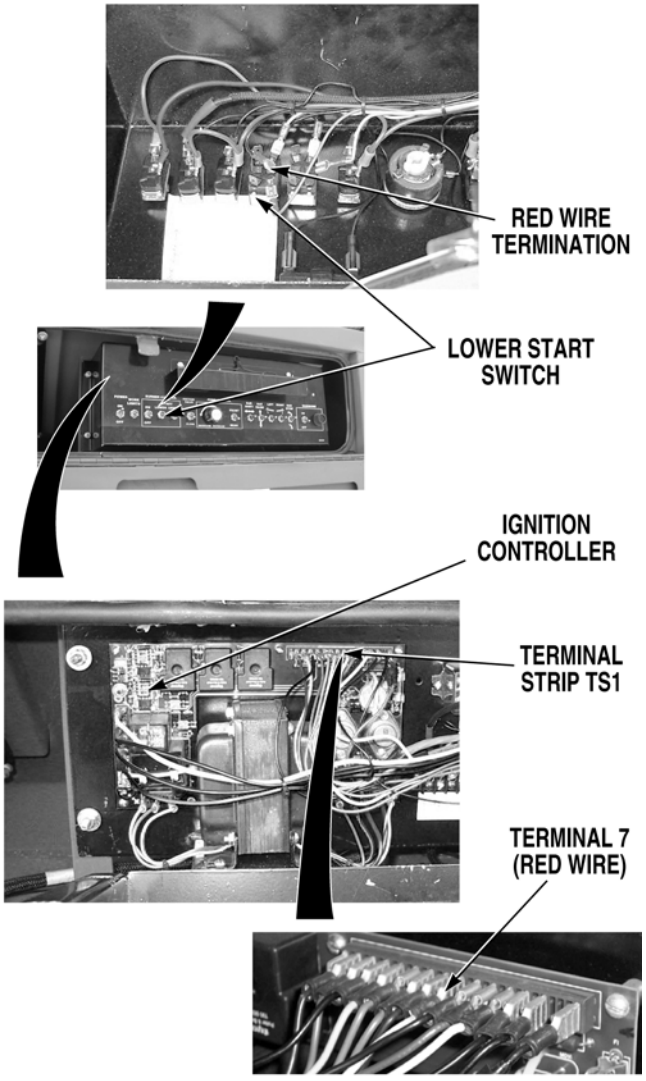
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to red wire at ignition controller terminal strip TS1, terminal 7.

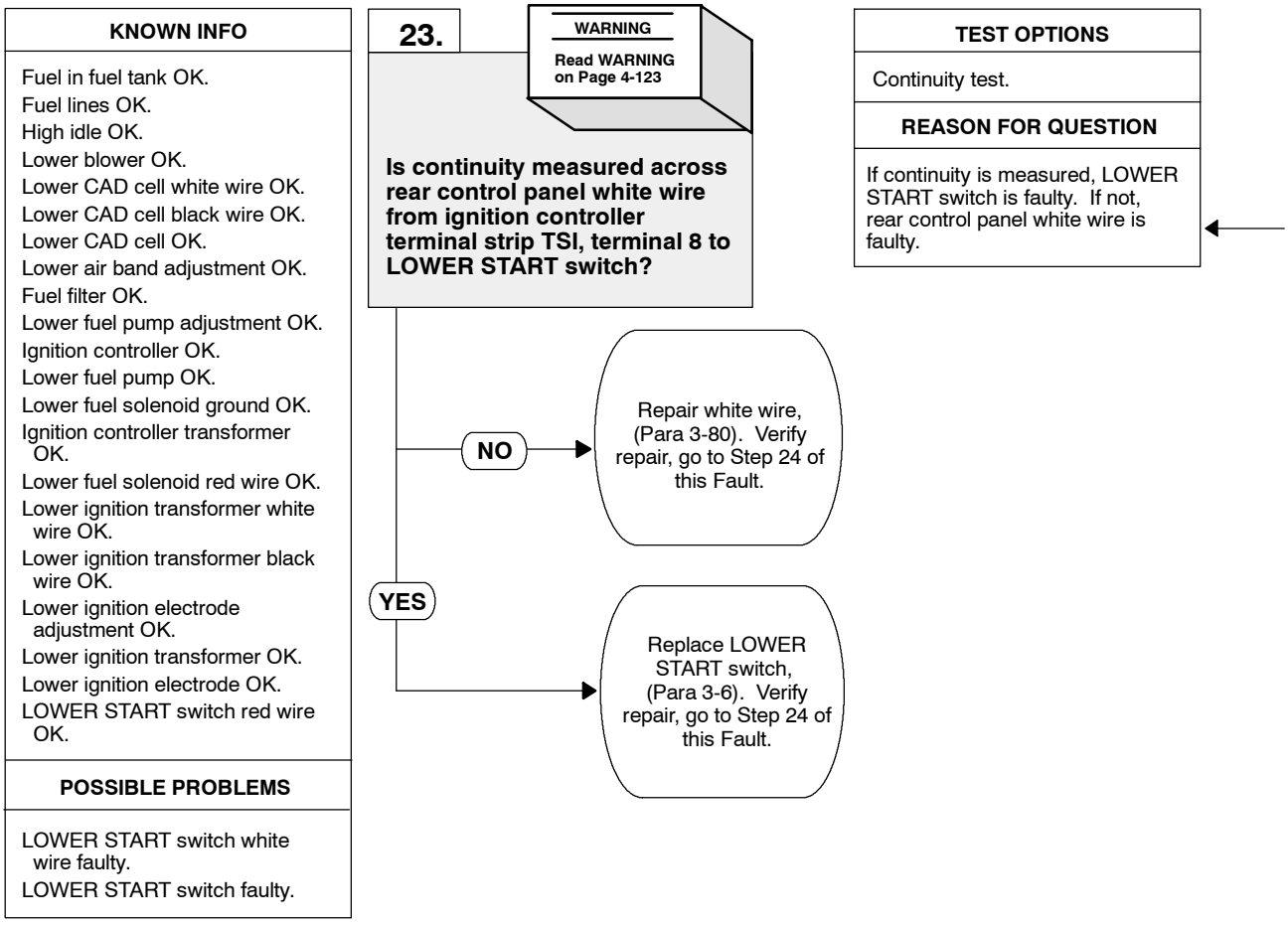
(3) Connect negative (-) multimeter lead to red wire at rear control panel lower start switch terminal.

(a) If continuity is not measured, repair rear control panel red wire, (Para 3-80). Verify repair, go to Step 24 of this Fault.

(b) If continuity is measured, go to Step 23 of this Fault.



5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

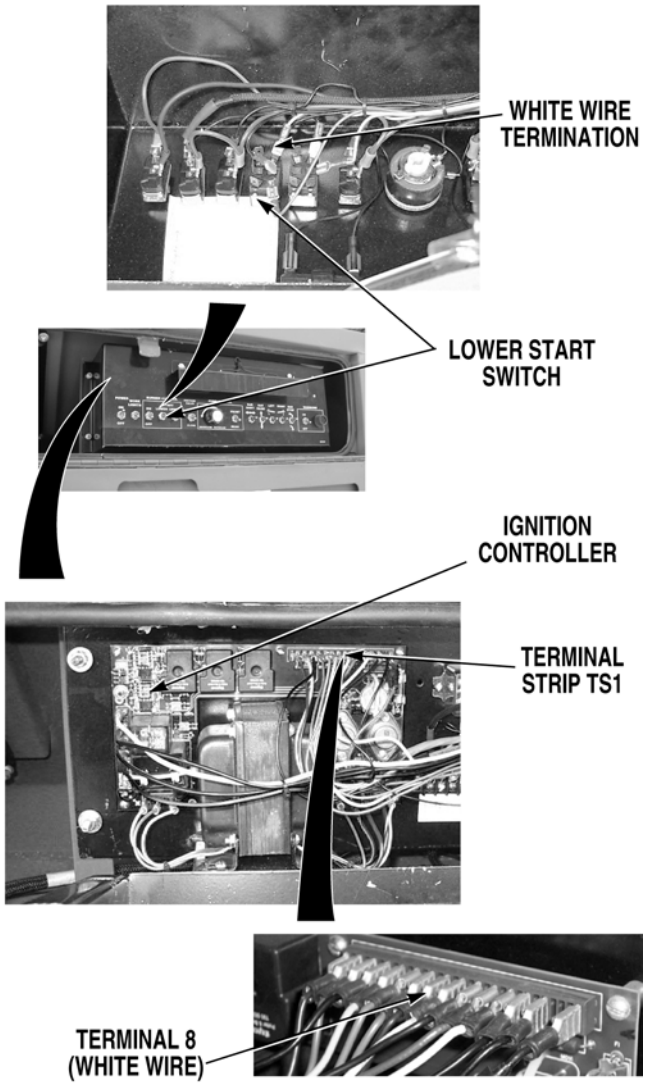
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to white wire at ignition controller terminal strip TS1, terminal 8.

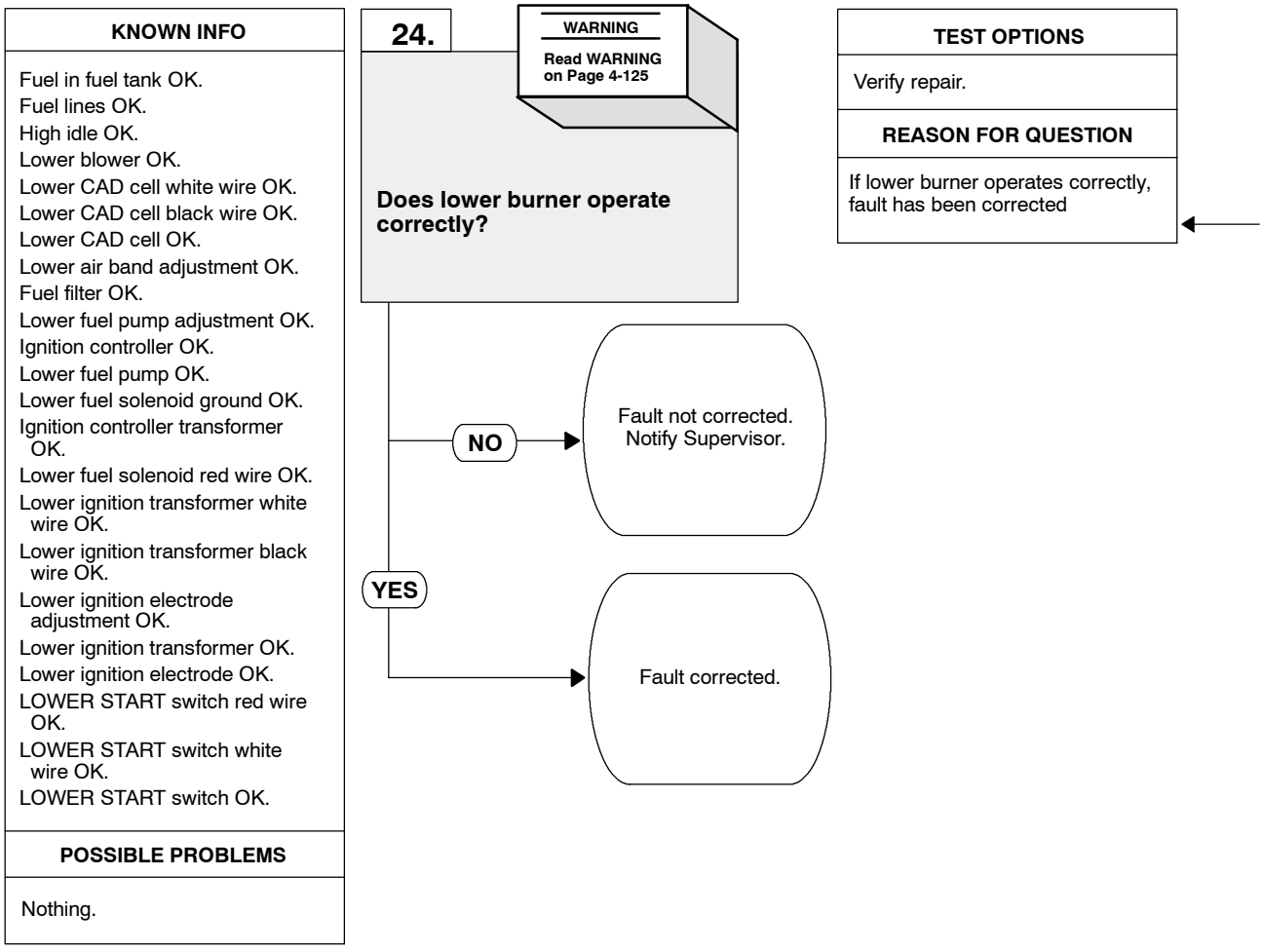
(3) Connect negative (-) multimeter lead to white wire at rear control panel lower start switch terminal.

(a) If continuity is not measured, repair rear control panel white wire, (Para 3-80). Verify repair, go to Step 24 of this Fault.

(b) If continuity is measured, replace LOWER START switch, (Para 3-6). Verify repair, go to Step 24 of this Fault.



5. LOWER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- DO NOT light any burner prior to stick measuring quantity of material in tank (refer to (Para 2-13). Failure to comply may result in injury or death to personnel.
- DO NOT light lower burner unless a minimum of 750 gallons (2,838.75 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- DO NOT light upper burner unless a minimum of 1,050 gallons (3,974.25 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- Allowing burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulating, burners should be extinguished for 20 to 30 minutes before re-lighting.
- See Para 2-22 for additional warnings.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is “frozen” is it acceptable to operate burners without circulating material. However, if asphalt pump is “frozen”, carefully apply heat to pump housing and start circulating as soon as possible.

VERIFY REPAIR

(1) If removed, install rear control panel, (Para 3-76).

(2) If open, close lower burner cover and install two screws, (Para 3-19).

(3) If out, push in battery disconnect switch, (TM 9-2320-364-10).

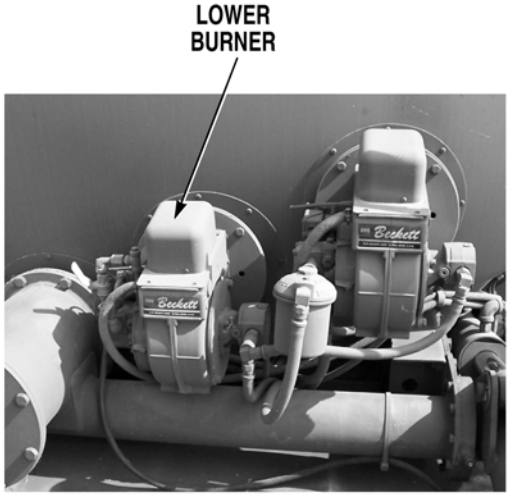
(4) If OFF, start engine, (TM 9-2320-364-10).

(5) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(6) Operate lower burner, (Para 2-22). Check if lower burner operates correctly.

(a) If burner does not operate, fault has not been corrected. Notify Supervisor.

(b) If burner operates, fault has been corrected.



6. UPPER BURNER DOES NOT OPERATE CORRECTLY.

INITIAL SETUP

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
- Multimeter (Item 8, Appendix F)
- Jumperwire

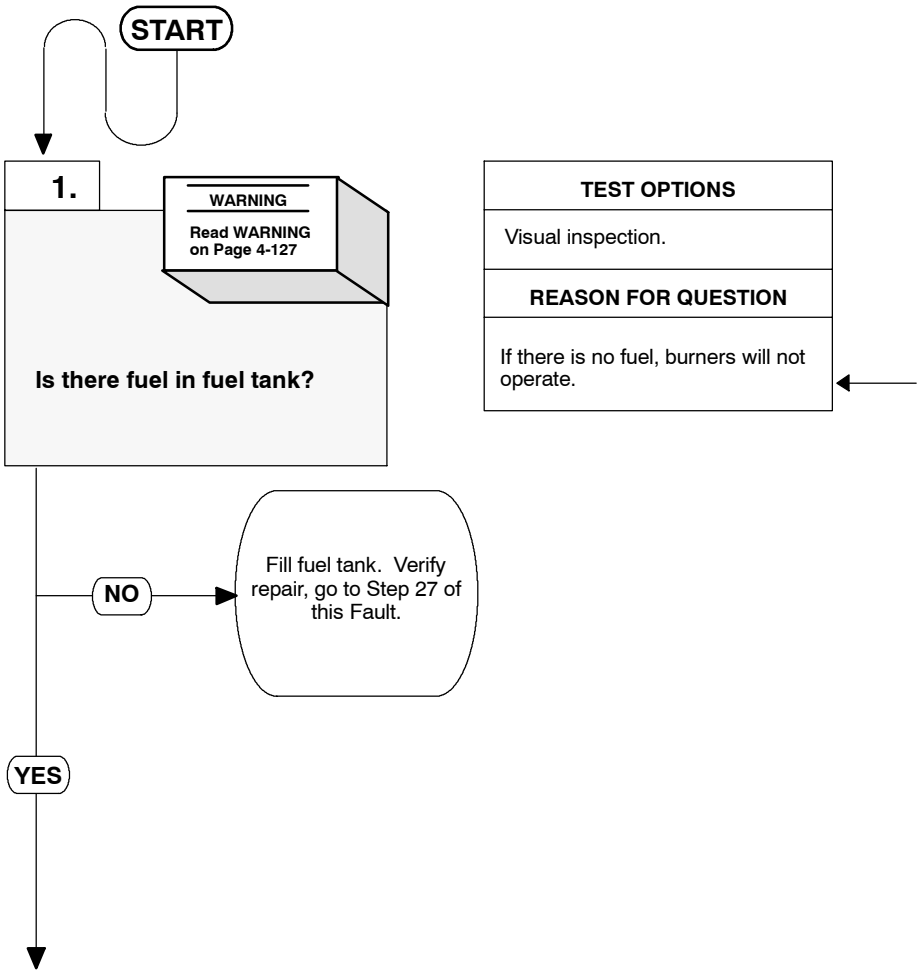
Equipment Condition
- Bituminous Distributor loaded on PLS, (Para 2-5)
- Engine OFF, (TM 9-2320-364-10)
- Wheels chocked, (TM 9-2320-364-10)

KNOWN INFO

Nothing.

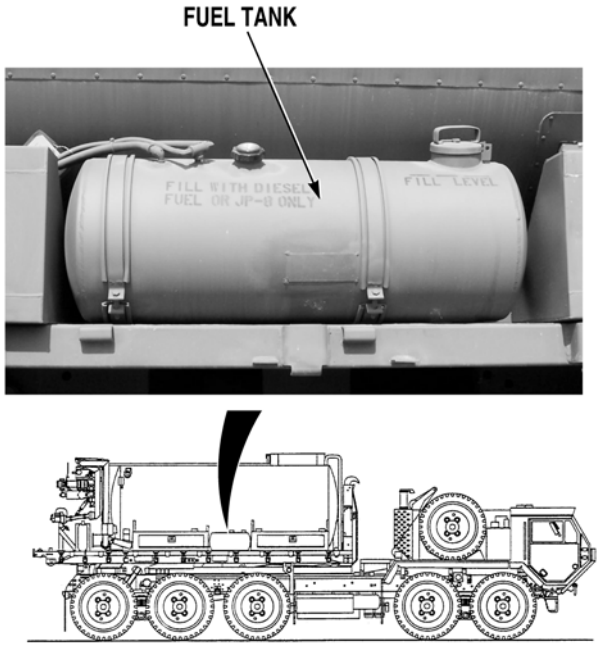
POSSIBLE PROBLEMS

- No fuel in fuel tank.
- Fuel lines leaking or damaged.
- High idle faulty.
- Lower burner not operating correctly.
- Upper blower not operating.
- Upper air band adjustment incorrect.
- Upper fuel pump adjustment incorrect.
- Fuel filter faulty.
- Upper fuel pump faulty.
- Upper CAD cell green wire faulty.
- Upper CAD cell red wire faulty.
- Ignition controller faulty.
- Upper CAD cell faulty.
- Upper ignition transformer black/white wire faulty.
- Upper ignition transformer green wire faulty.
- Upper fuel solenoid black wire faulty.
- Upper fuel solenoid ground faulty.
- Upper ignition electrode adjustment incorrect.
- Ignition controller transformer faulty.
- Upper ignition transformer faulty.
- Upper ignition electrode faulty.
- UPPER START switch blue wire faulty.
- UPPER START switch black wire faulty.
- UPPER START switch faulty.
- LOWER START switch green wire faulty.
- LOWER START switch faulty.



WARNING

To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.



VISUAL INSPECTION

Check fuel level in fuel tank.

(a) If fuel is low, fill fuel tank (Para 3-3). Verify repair, go to Step 27 of this Fault.

(b) If there is sufficient fuel, go to Step 2 of this Fault.

6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).

KNOWN INFO
Fuel in fuel tank OK.
POSSIBLE PROBLEMS
Fuel lines leaking or damaged. High idle faulty. Lower burner not operating correctly. Upper blower not operating. Upper air band adjustment incorrect. Upper fuel pump adjustment incorrect. Fuel filter faulty. Upper fuel pump faulty. Upper CAD cell green wire faulty. Upper CAD cell red wire faulty. Ignition controller faulty. Upper CAD cell faulty. Upper fuel solenoid black wire faulty. Upper ignition transformer black/white wire faulty. Upper ignition transformer green wire faulty. Upper fuel solenoid ground faulty. Upper ignition electrode adjustment incorrect. Ignition controller transformer faulty. Upper ignition transformer faulty. Upper ignition electrode faulty. UPPER START switch blue wire faulty. UPPER START switch black wire faulty. UPPER START switch faulty. LOWER START switch green wire faulty. LOWER START switch faulty.

2.

WARNING

Read WARNING on Page 4-129

Are fuel lines from fuel tank to burner fuel pumps free from leaks kinks and damage?

NO → Repair leaks and replace damaged fuel lines, (Para 3-50). Verify repair, go to Step 27 of this Fault.

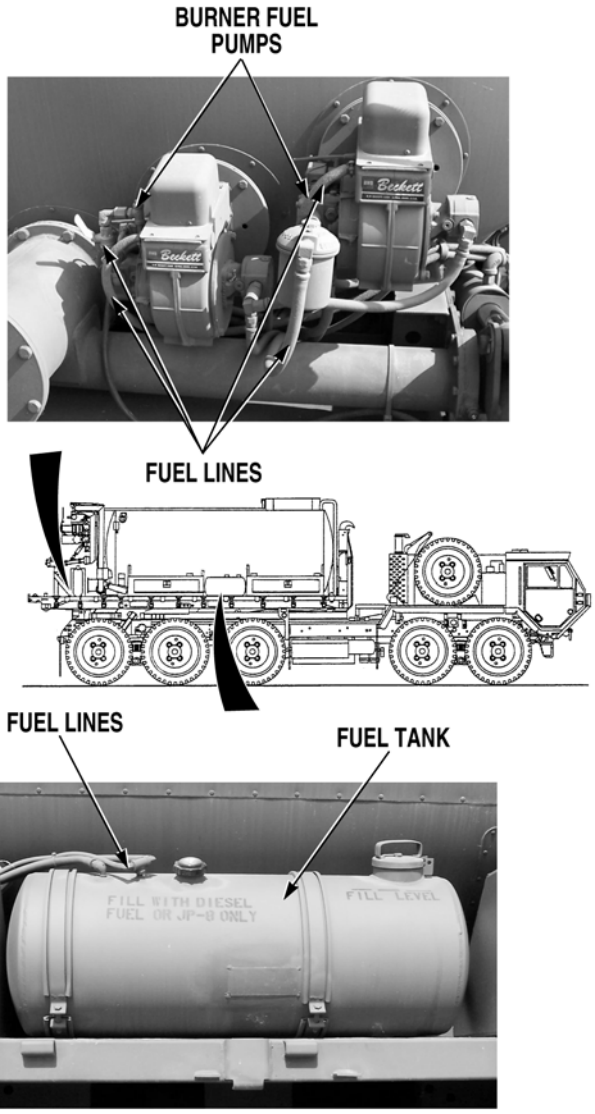
YES

TEST OPTIONS
Visual inspection.
REASON FOR QUESTION
If fuel lines leak, or are kinked or damaged, burners may not operate.

WARNING

To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.

VISUAL INSPECTION
Inspect fuel lines from fuel tank to upper and lower burners for leaks, kinks and damage. (a) If fuel lines leak or are kinked or damaged, repair leaks or replace damaged fuel lines, (Para 3-50). Verify repair, go to Step 27 of this Fault. (b) If fuel lines are free from leaks, kinks and damage, go to Step 3 of this Fault.



6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).

KNOWN INFO
Fuel in fuel tank OK. Fuel lines OK.
POSSIBLE PROBLEMS
High idle faulty. Lower burner not operating correctly. Upper blower not operating. Upper air band adjustment incorrect. Upper fuel pump adjustment incorrect. Fuel filter faulty. Upper fuel pump faulty. Upper CAD cell green wire faulty. Upper CAD cell red wire faulty. Ignition controller faulty. Upper CAD cell faulty. Upper ignition transformer black/white wire faulty. Upper ignition transformer green wire faulty. Upper fuel solenoid black wire faulty. Upper fuel solenoid ground faulty. Upper ignition electrode adjustment incorrect. Ignition controller transformer faulty. Upper ignition transformer faulty. Upper ignition electrode faulty. UPPER START switch blue wire faulty. UPPER START switch black wire faulty. UPPER START switch faulty. LOWER START switch green wire faulty. LOWER START switch faulty.

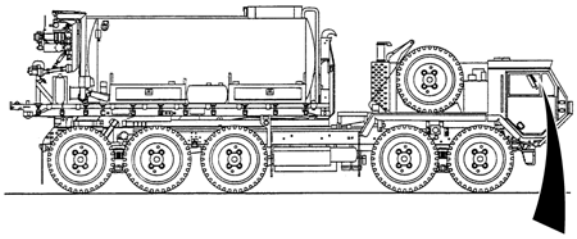
3.

Does high idle operate when selected at front control panel?

NO → Go to “No High Idle When Selected”, (Fault 12).

YES

TEST OPTIONS
Operational test.
REASON FOR QUESTION
If high idle does not operate, burners will not operate correctly.





HIGH IDLE SWITCH

OPERATIONAL TEST

(1) Start engine, (TM 9-2320-364-10).

(2) Apply parking brake, (TM 9-2320-364-10).

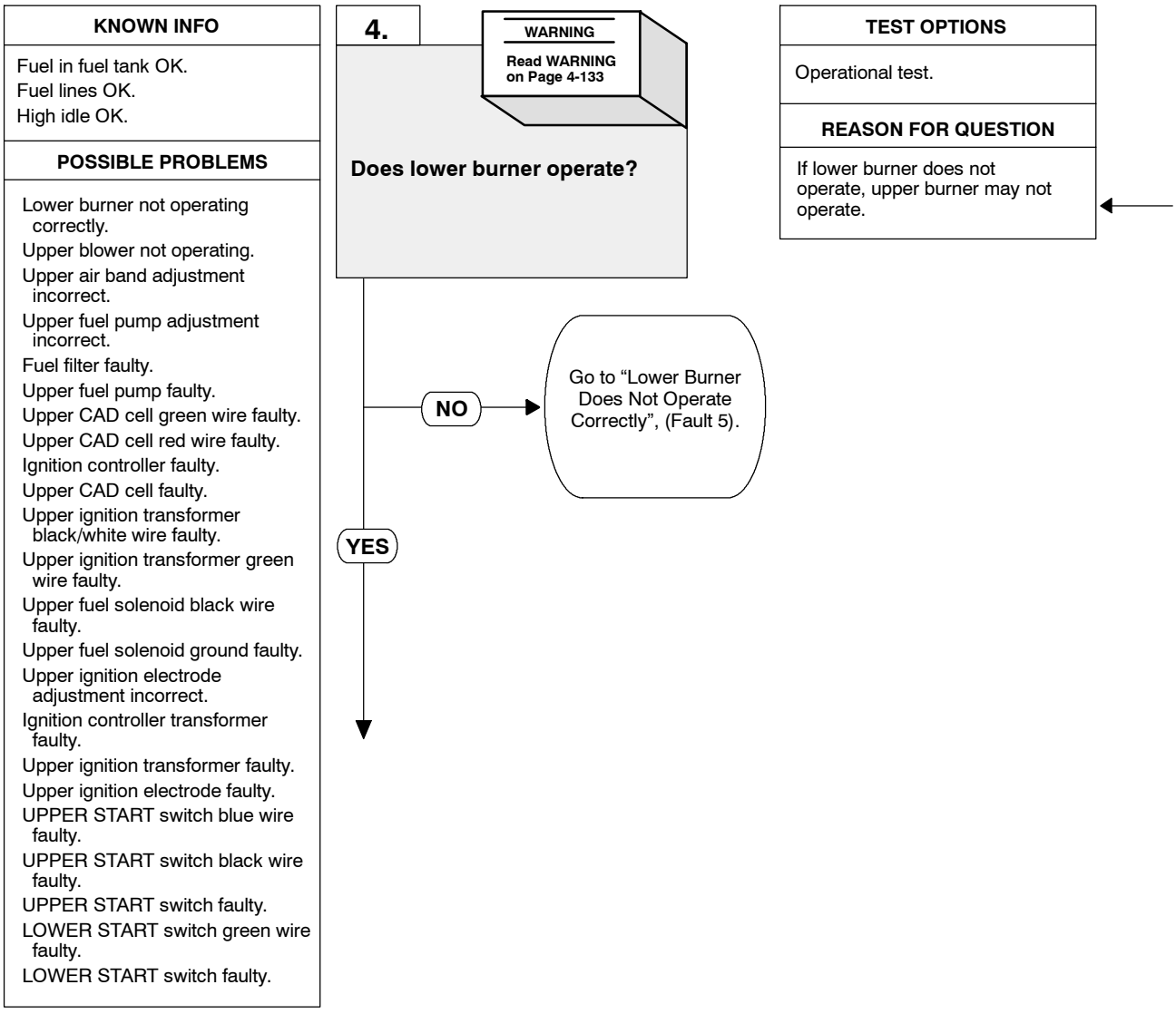
(3) Turn on front control panel HIGH IDLE switch, (Para 2-1).

(4) Check if engine speed increases to high idle.

  (a) If engine speed does not increase to high idle, go to “No High Idle When Selected”, (Fault 12).

  (b) If engine speed increases to high idle, go to Step 4 of this Fault.

6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- DO NOT light any burner prior to stick measuring quantity of material in tank, (refer to Para 2-13). Failure to comply may result in injury or death to personnel.
- DO NOT light lower burner unless a minimum of 750 gallons (2, 838.75 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- DO NOT light upper burner unless a minimum of 1.050 gallons (3,974.25 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- Allowing burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulating, burners should be extinguished for 20 to 30 minutes before re-lighting.
- See Para 2-22 for additional warnings.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is "frozen" is it acceptable to operate burners without circulating material. However, if asphalt pump is "frozen", carefully apply heat to pump housing and start circulating as soon as possible.

OPERATIONAL TEST

(1) Turn off front control panel HIGH IDLE switch, (Para 2-1).

(2) Stick measure quantity of material in tank, (Para 2-13). Ensure there is at least 1,050 gallons (3974.25 l) of material in tank. Fill distributor if required, (Para 2-15).

(3) Close portable burner supply valve, (Para 2-1).

(4) Turn hydraulic selector switch to CRANE/SRW, (TM 9-2320-364-10).

(5) Set up distributor to circulate material, (Para 2-16).

(6) Turn front control panel HIGH IDLE switch ON, (Para 2-1).

(7) Pull out and turn lower burner palm button 90° and release, (Para 2-22).

(8) Pull out and turn upper burner palm button 90° and release, (Para 2-22).

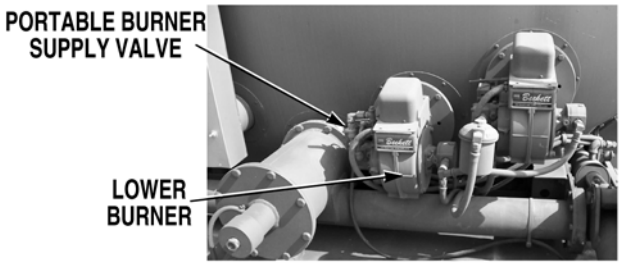
(9) Turn burner control ON/OFF switch ON, (Para 2-1).

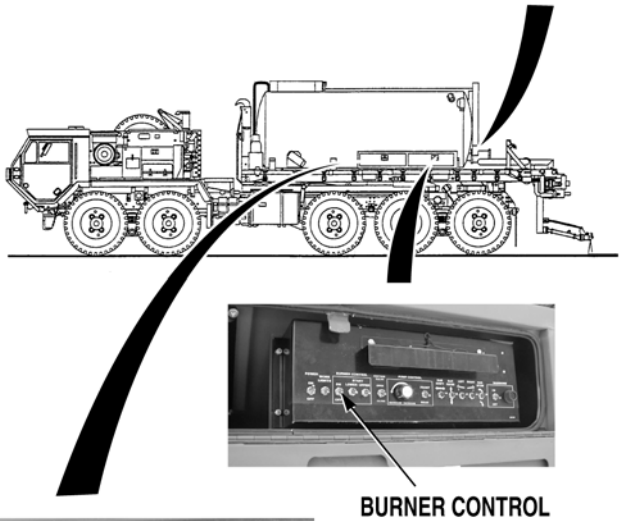
(10) Push and hold LOWER START switch in the up position, (Para 2-1).

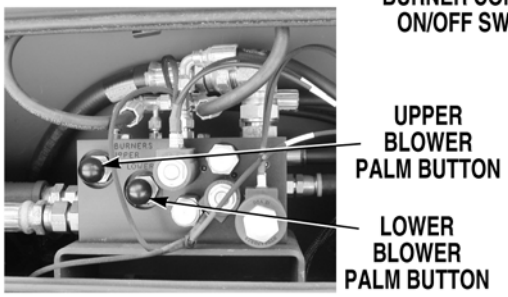
(11) Check if lower burner operates.

(a) If lower burner does not operate, go to "Lower Burner Does Not Operate Correctly", (Fault 5).

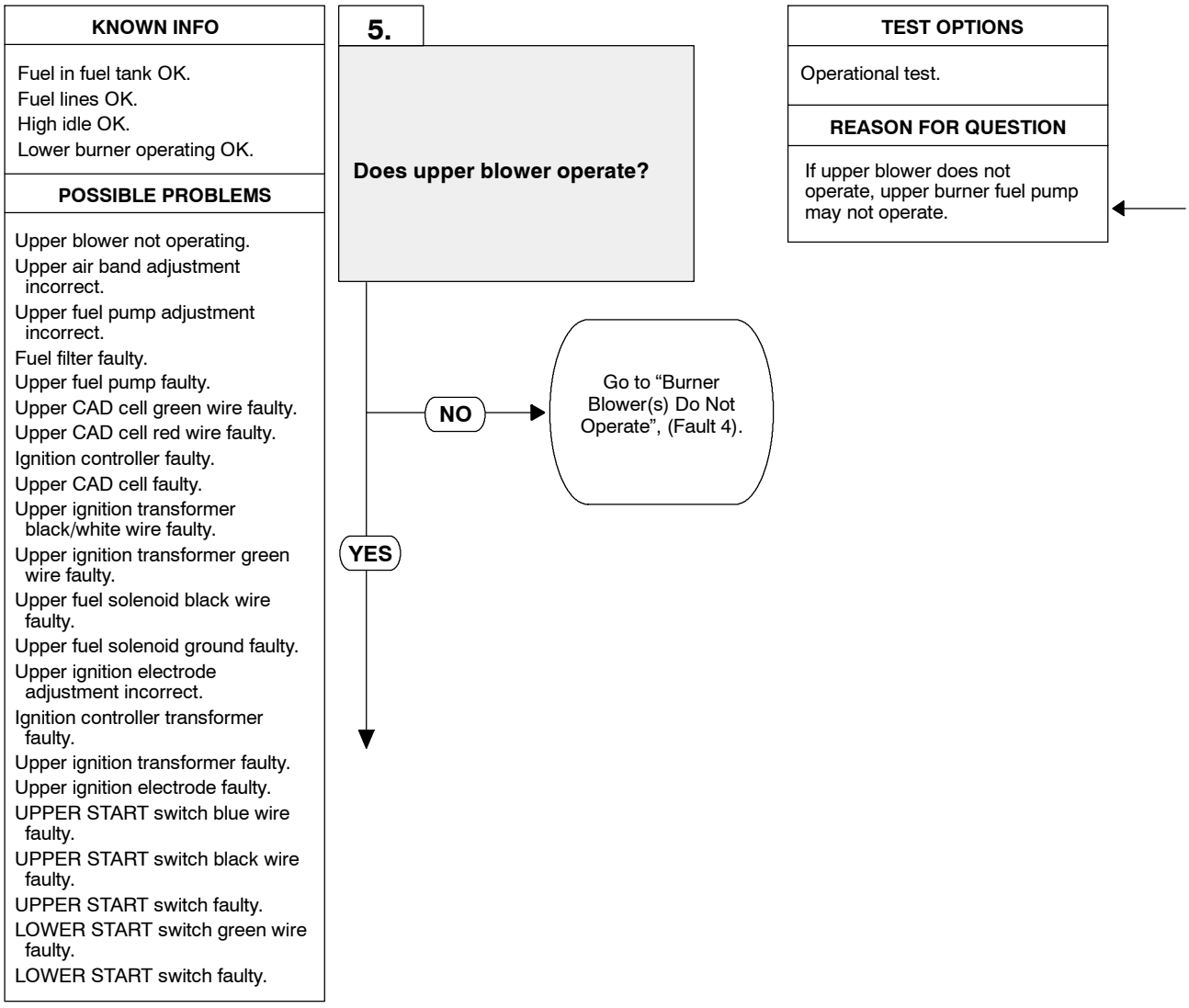
(b) If lower burner operates, go to Step 5 of this Fault.

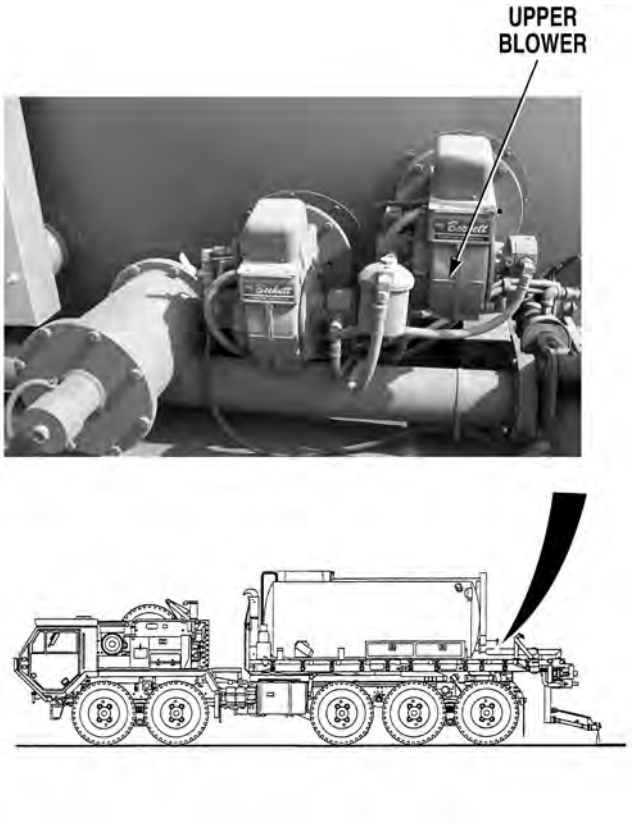






6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).





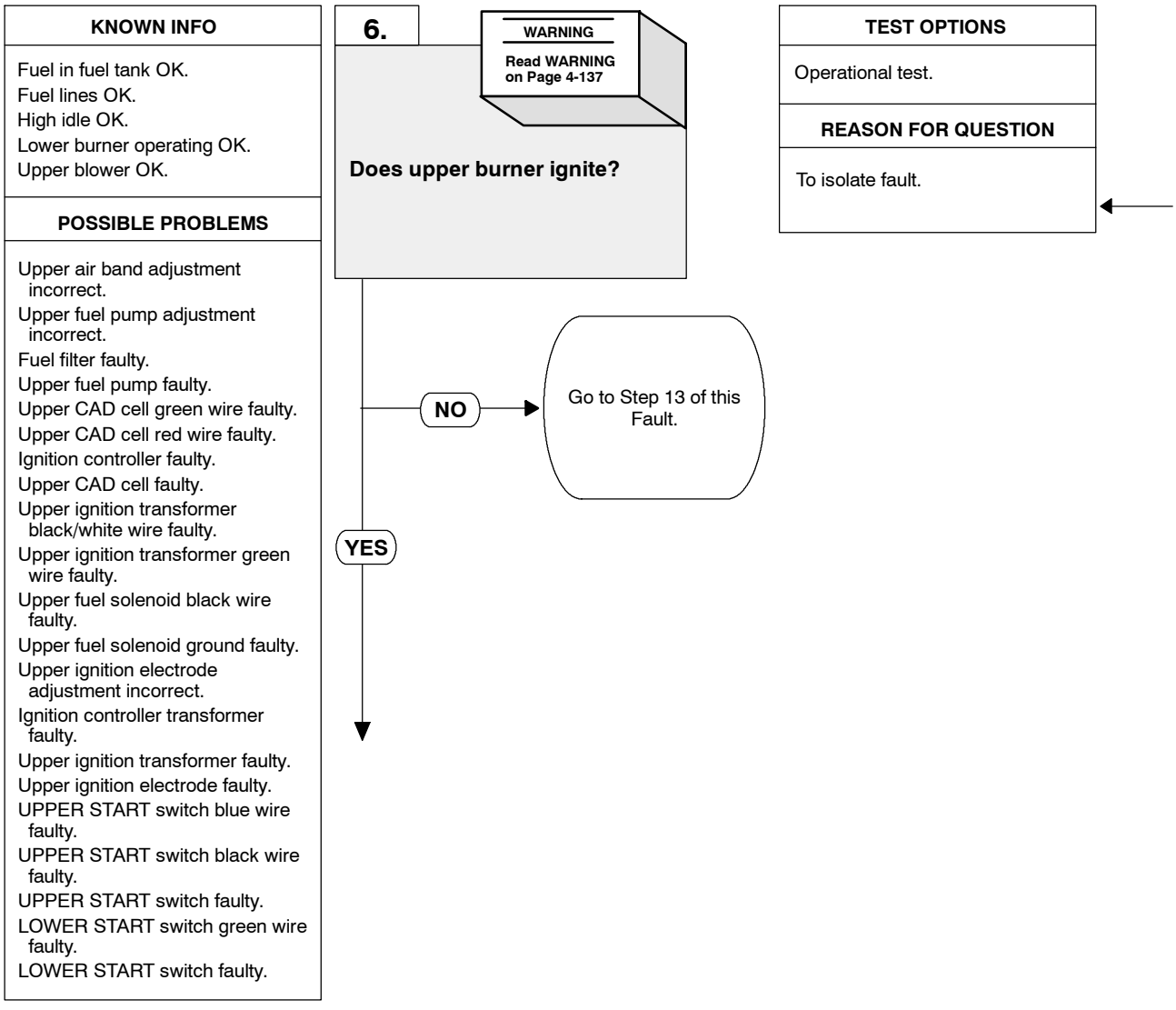
OPERATIONAL TEST

Check if upper blower operates.

(a) If upper blower does not operate, go to “Burner Blower(s) Do Not Operate”, (Fault 4).

(b) If upper blower operates, go to Step 6 of this Fault.

6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- DO NOT light any burner prior to stick measuring quantity of material in tank, (refer to Para 2-13). Failure to comply may result in injury or death to personnel.
- DO NOT light upper burner unless a minimum of 1.050 gallons (3,974.25 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- Allowing burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulating, burners should be extinguished for 20 to 30 minutes before re-lighting.
- See Para 2-22 for additional warnings.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is “frozen” is it acceptable to operate burners without circulating material. However, if asphalt pump is “frozen”, carefully apply heat to pump housing and start circulating as soon as possible.

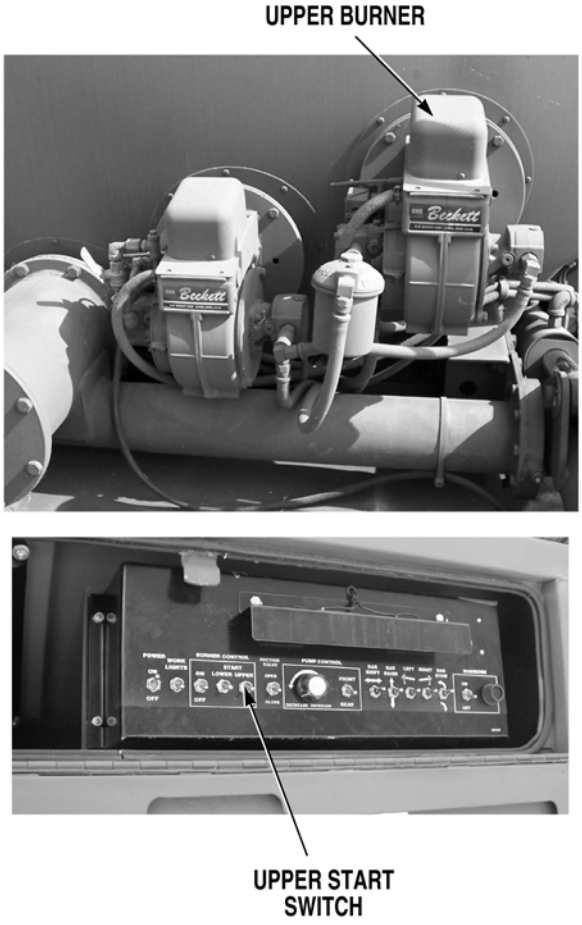
OPERATIONAL TEST

(1) Push and hold UPPER START switch in the up position (Para 2-1).

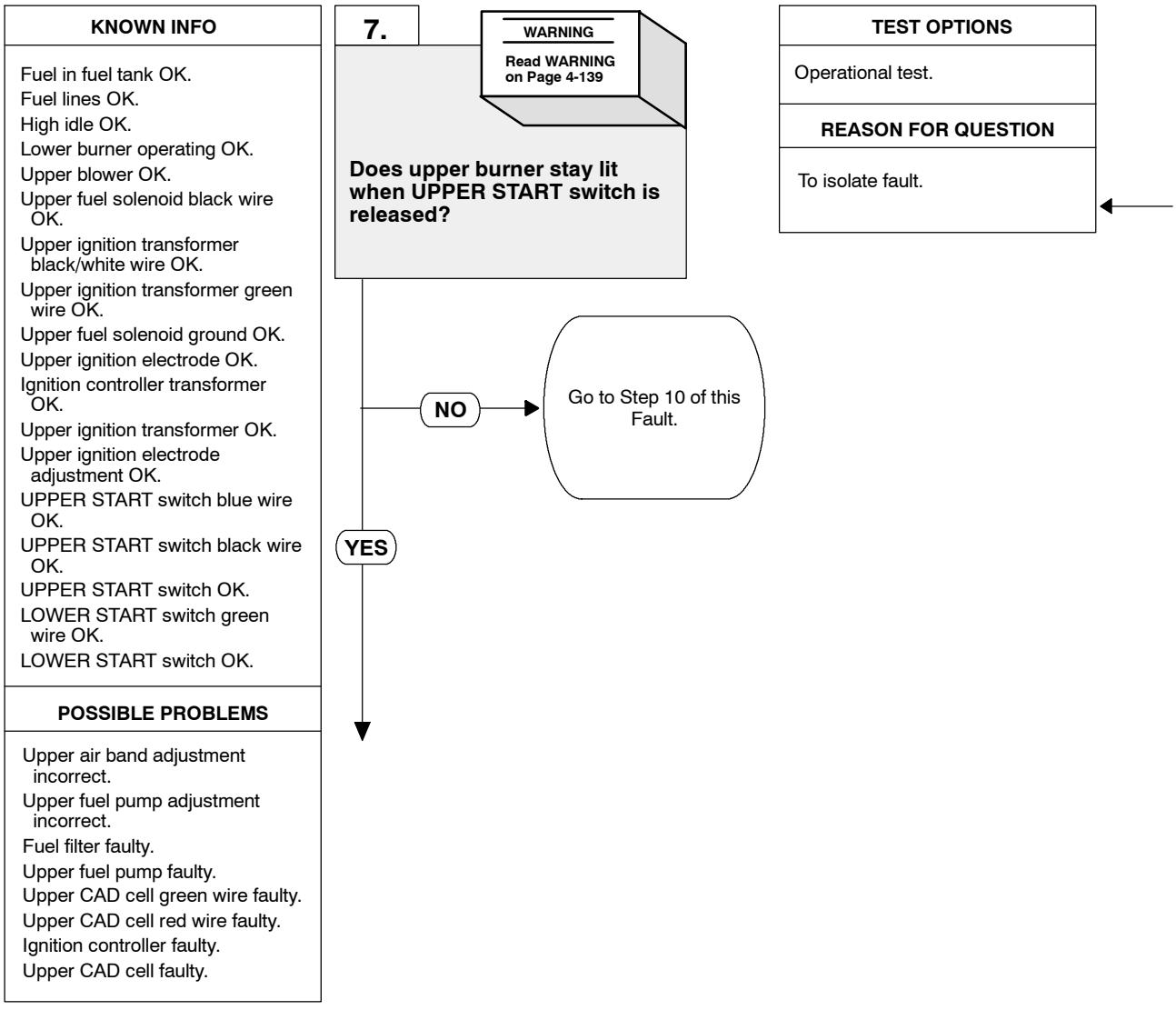
(2) Check if upper burner ignites.

  (a) If upper burner does not ignite, go to Step 13 of this Fault.

  (b) If upper burner ignites, go to Step 7 of this Fault.



6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- DO NOT light any burner prior to stick measuring quantity of material in tank, (refer to Para 2-13). Failure to comply may result in injury or death to personnel.
- DO NOT light upper burner unless a minimum of 1.050 gallons (3,974.25 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- Allowing burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulating, burners should be extinguished for 20 to 30 minutes before re-lighting.
- See Para 2-22 for additional warnings.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is “frozen” is it acceptable to operate burners without circulating material. However, if asphalt pump is “frozen”, carefully apply heat to pump housing and start circulating as soon as possible.

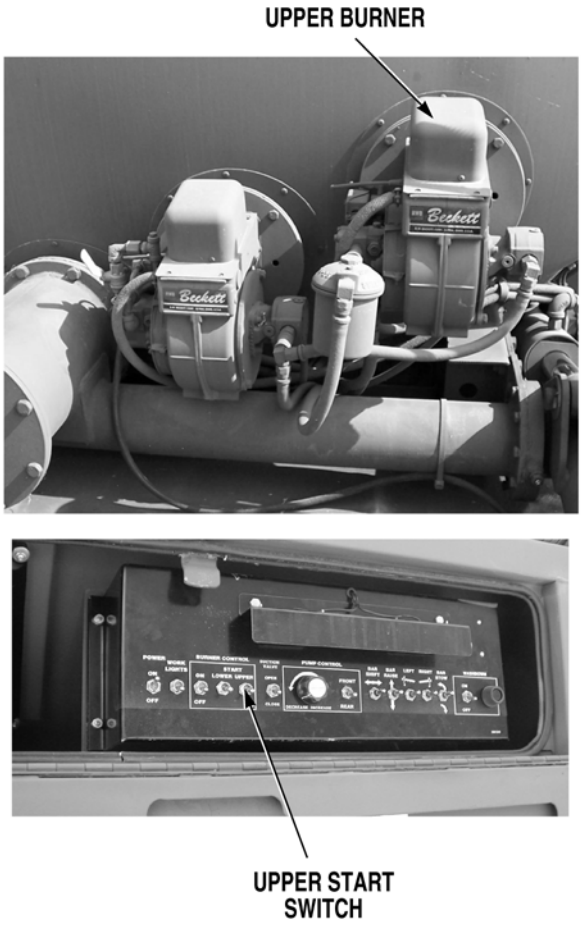
OPERATIONAL TEST

(1) Release UPPER START switch, (Para 2-1).

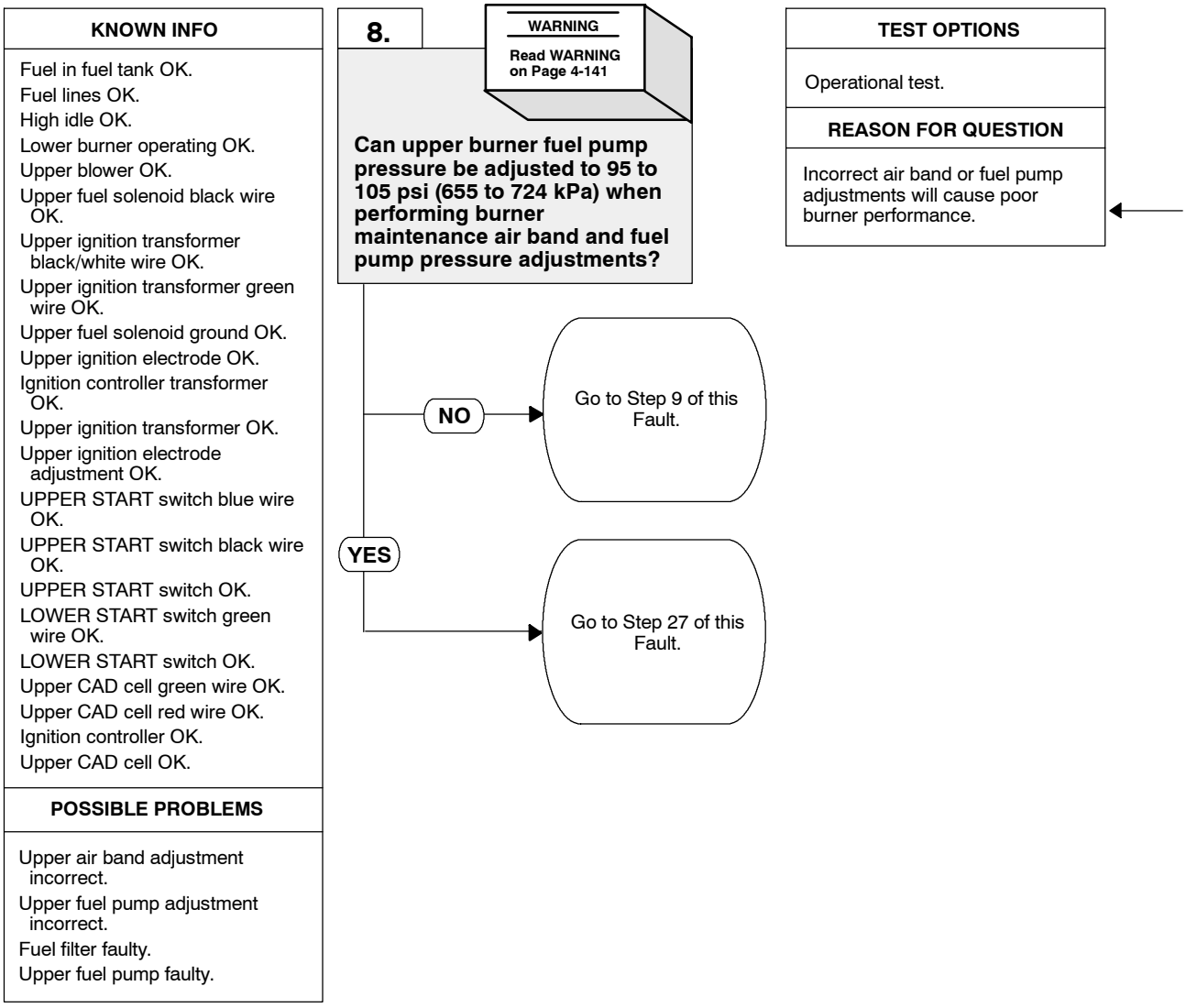
(2) Check if upper burner remains lit.

  (a) If upper burner did not remain lit, go to Step 10 of this Fault.

  (b) If lower burner remains lit go to Step 8 of this Fault.



6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.

OPERATIONAL TEST

(1) Turn burner control ON/OFF switch OFF, (Para 2-1).

(2) Pull out and turn upper burner palm button 90° and release, (Para 2-22).

(3) Pull out turn lower burner palm button 90° and release, (Para 2-22).

(4) Shut OFF engine, (TM 9-2320-364-10).

(5) Wait 20 to 30 minutes before continuing.

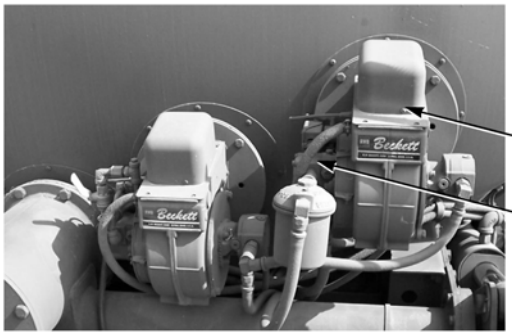
(6) Remove two screws and open upper burner cover, (Para 3-19).

(7) Perform upper burner maintenance air band adjustment, (Para 3-20).

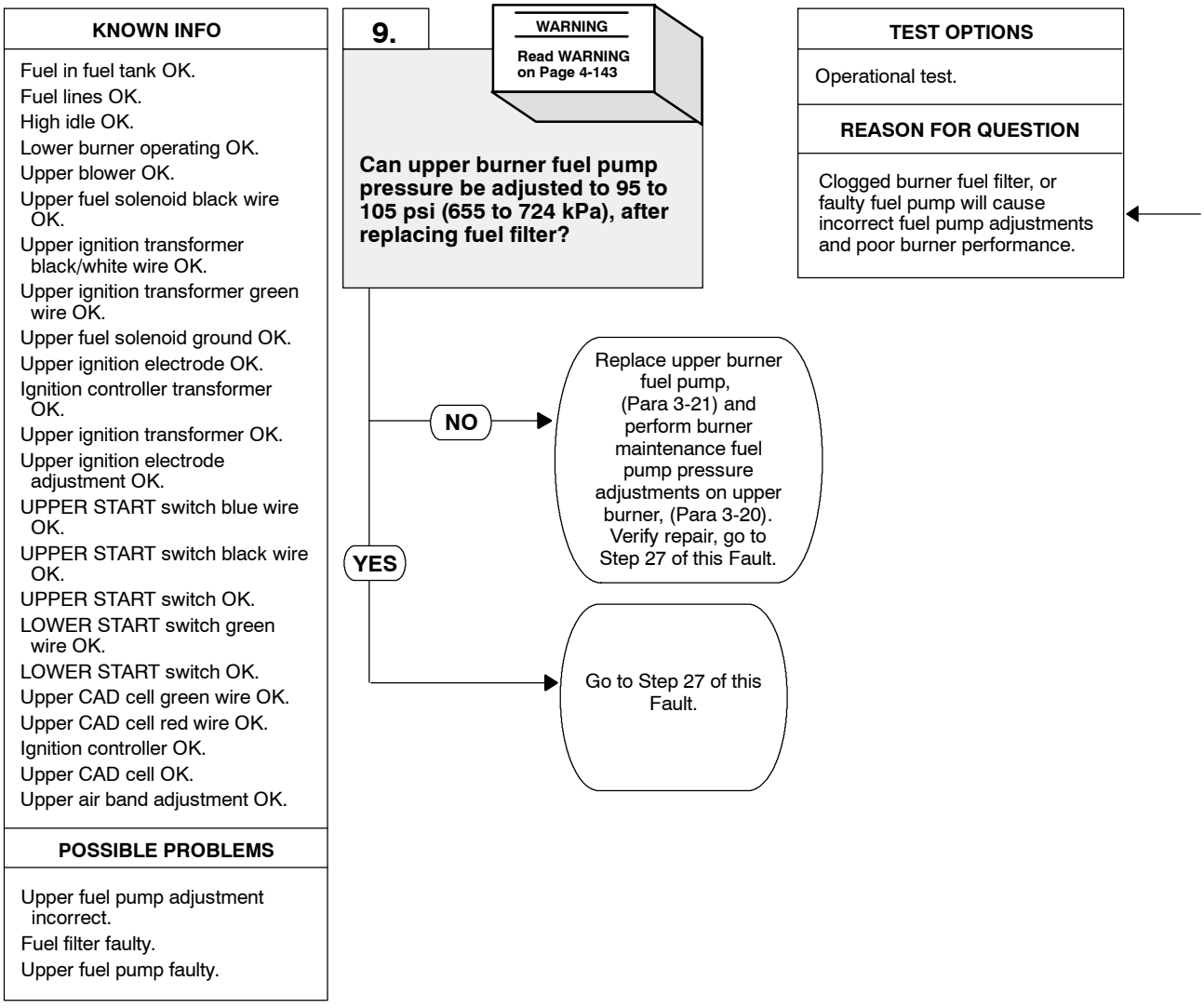
(8) Perform upper burner maintenance fuel pump pressure adjustment, (Para 3-20). Check if fuel pump pressure can be adjusted to 95 to 105 psi (655 to 724 kPa).

(a) If fuel pump pressure cannot be adjusted to 95 to 105 psi (655 to 724 kPa), go to Step 9 of this Fault.

(b) If fuel pump pressure can be adjusted to 95 to 105 psi (655 to 724 kPa), go to Step 27 of this Fault.

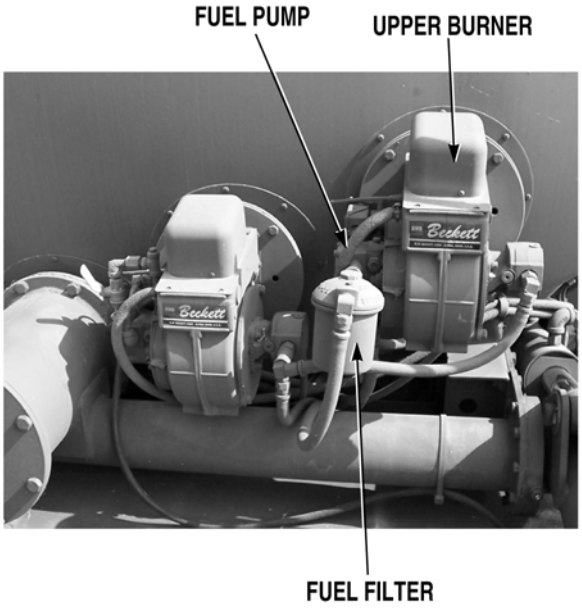


6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



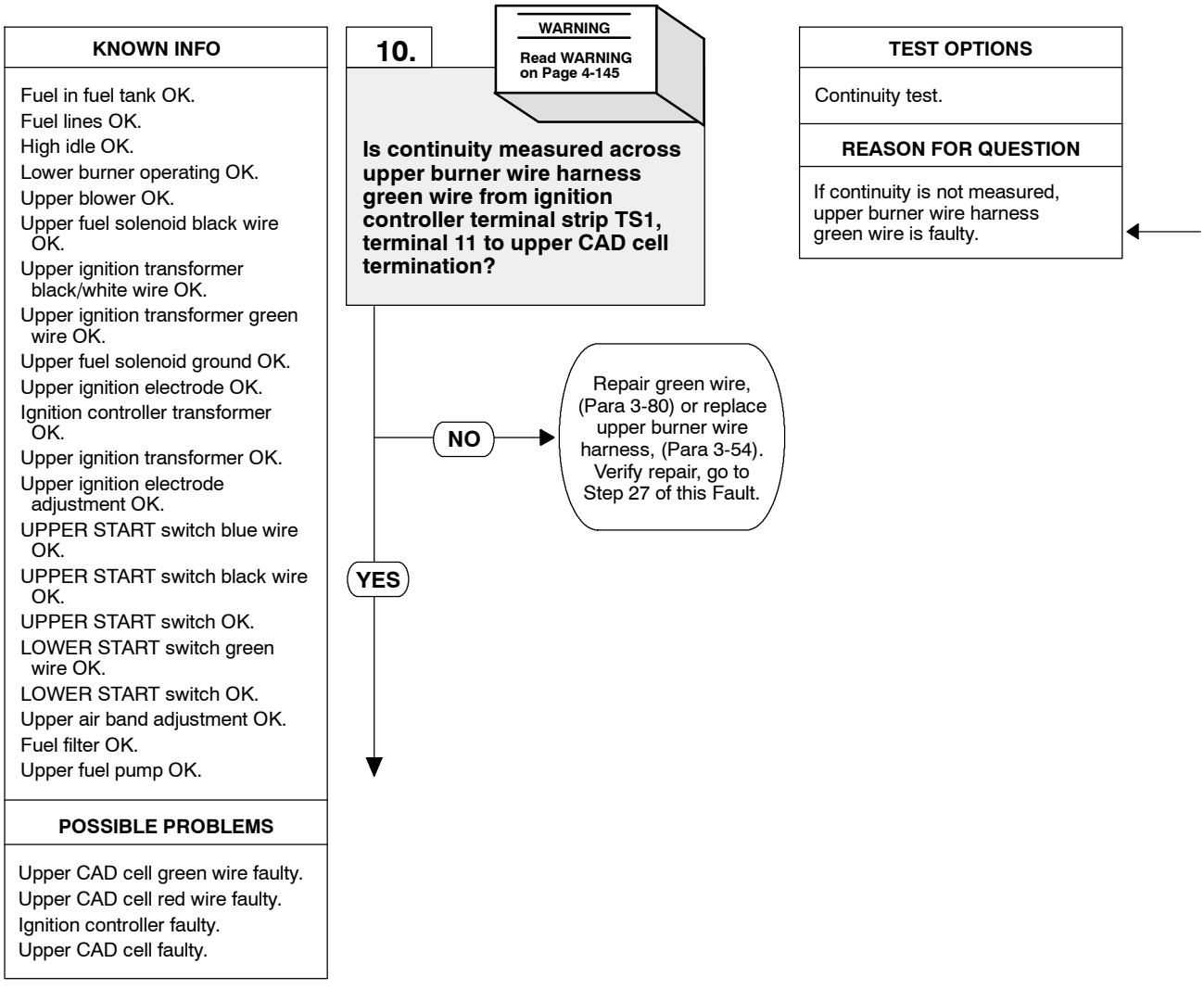
WARNING

To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.



OPERATIONAL TEST
(1) Replace burner fuel filter, (Para 3-11). (2) Perform upper burner maintenance fuel pump pressure adjustment, (Para 3-20). Check if fuel pressure can be adjusted 95 to 105 psi (655 to 724 kPa). (a) If fuel pump pressure cannot be adjusted to 95 to 105 psi (655 to 724 kPa), replace upper burner fuel pump, (Para 3-21) and perform upper burner maintenance fuel pump pressure adjustment. Verify repair, to to Step 27 of this Fault. (b) If fuel pump pressure can be adjusted to 95 to 105 psi (655 to 724 kPa), go to Step 27 of this Fault.

6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Turn burner control ON/OFF switch OFF, (Para 2-1).

(2) Pull out and turn upper burner palm button 90° and release, (Para 2-22).

(3) Pull out and turn lower burner palm button 90° and release, (Para 2-22).

(4) Shut OFF engine, (TM 9-2320-364-10).

(5) Pull out battery disconnect switch, (TM 9-2320-364-10).

(6) Wait 20 to 30 minutes before continuing.

(7) Remove two screws and open upper burner cover, (Para 3-19).

(8) Remove rear control panel, (Para 3-76).

(9) Set multimeter select switch to ohms.

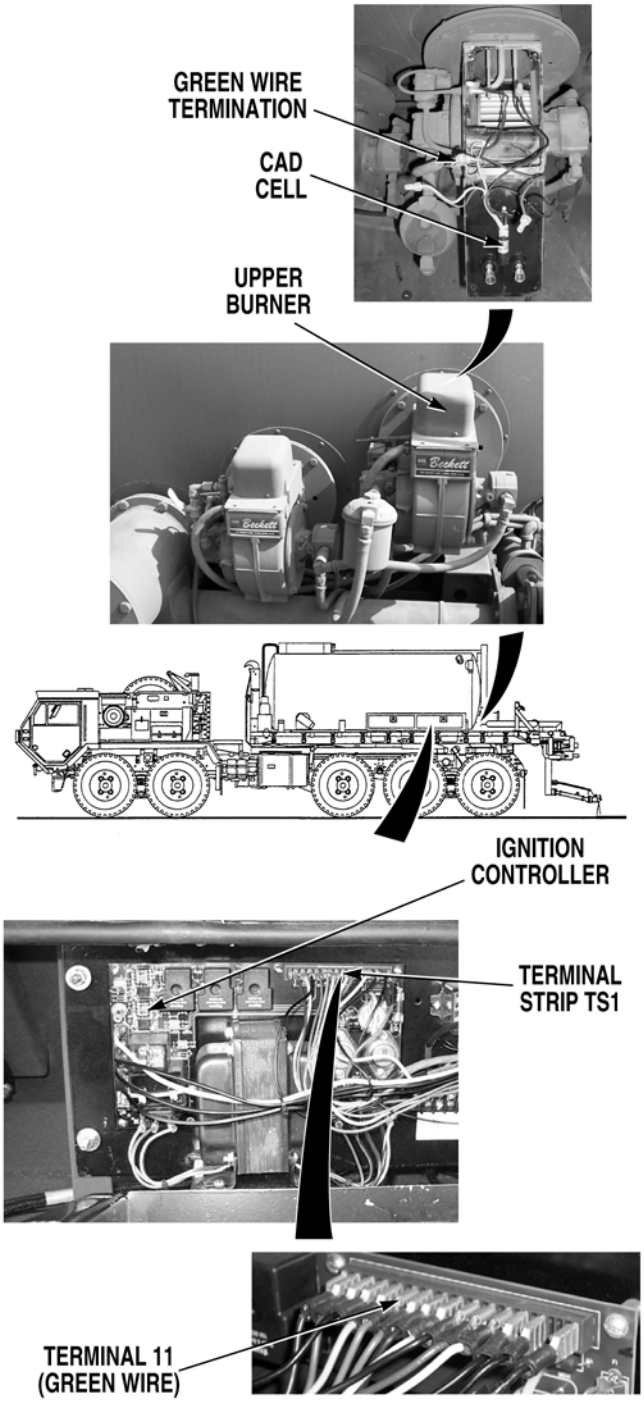
(10) Connect jumperwire between green wire at ignition controller terminal strip TS1, terminal 11 and a known good ground.

(11) Connect (backprobe) positive (+) multimeter lead to green wire at upper burner CAD cell wire termination.

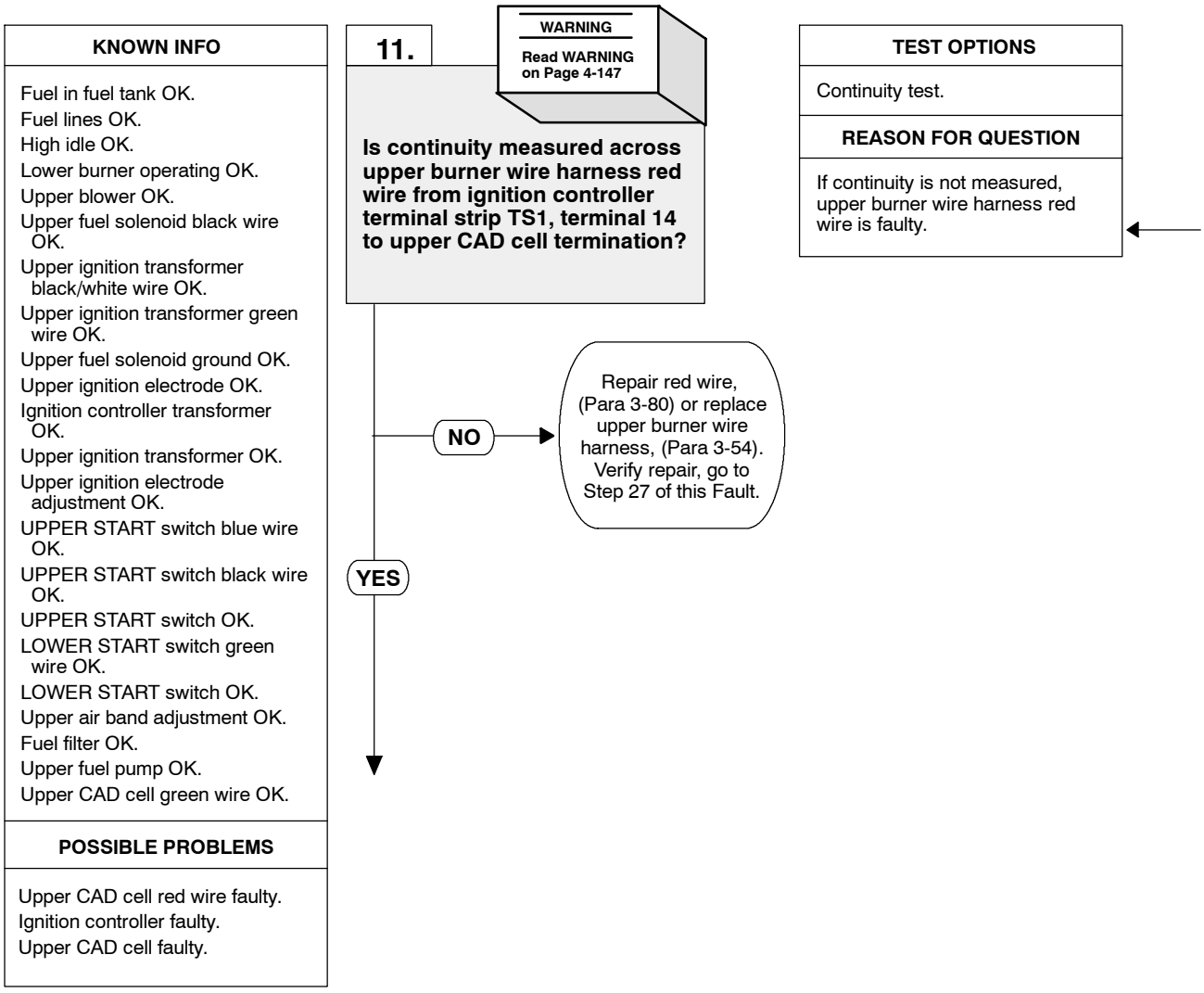
(12) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, repair green wire, (Para 3-80) or replace upper burner wire harness, (Para 3-54). Verify repair, go to Step 27 of this Fault.

(b) If continuity is measured, go to Step 11 of this Fault.



6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

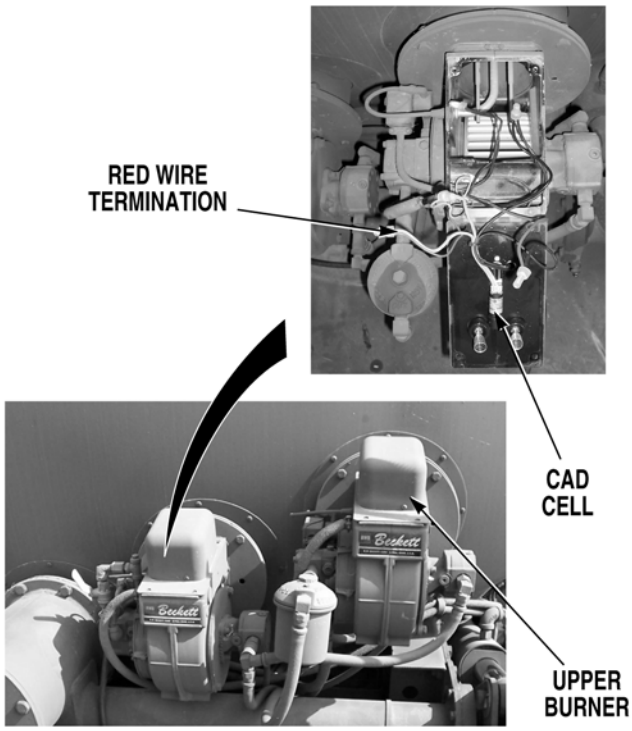
(2) Connect jumperwire between red wire at ignition controller terminal strip TS1, terminal 14 and a known good ground.

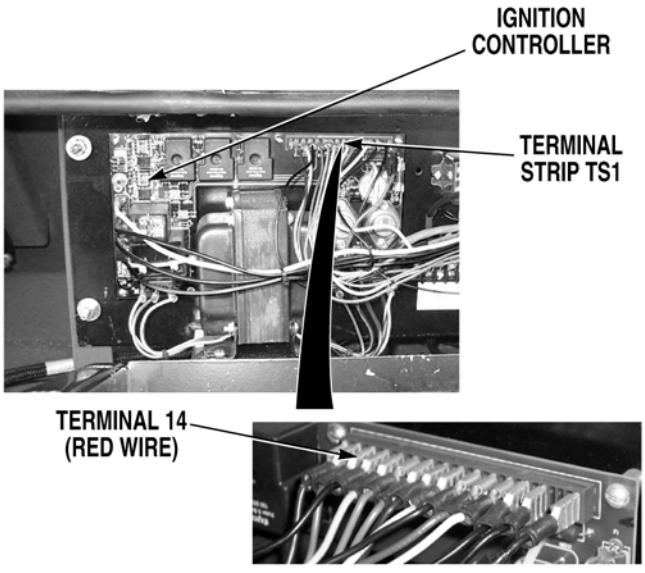
(3) Connect (backprobe) positive (+) multimeter lead to red wire at upper burner CAD cell wire termination.

(4) Connect negative (–) multimeter lead to a known good ground.

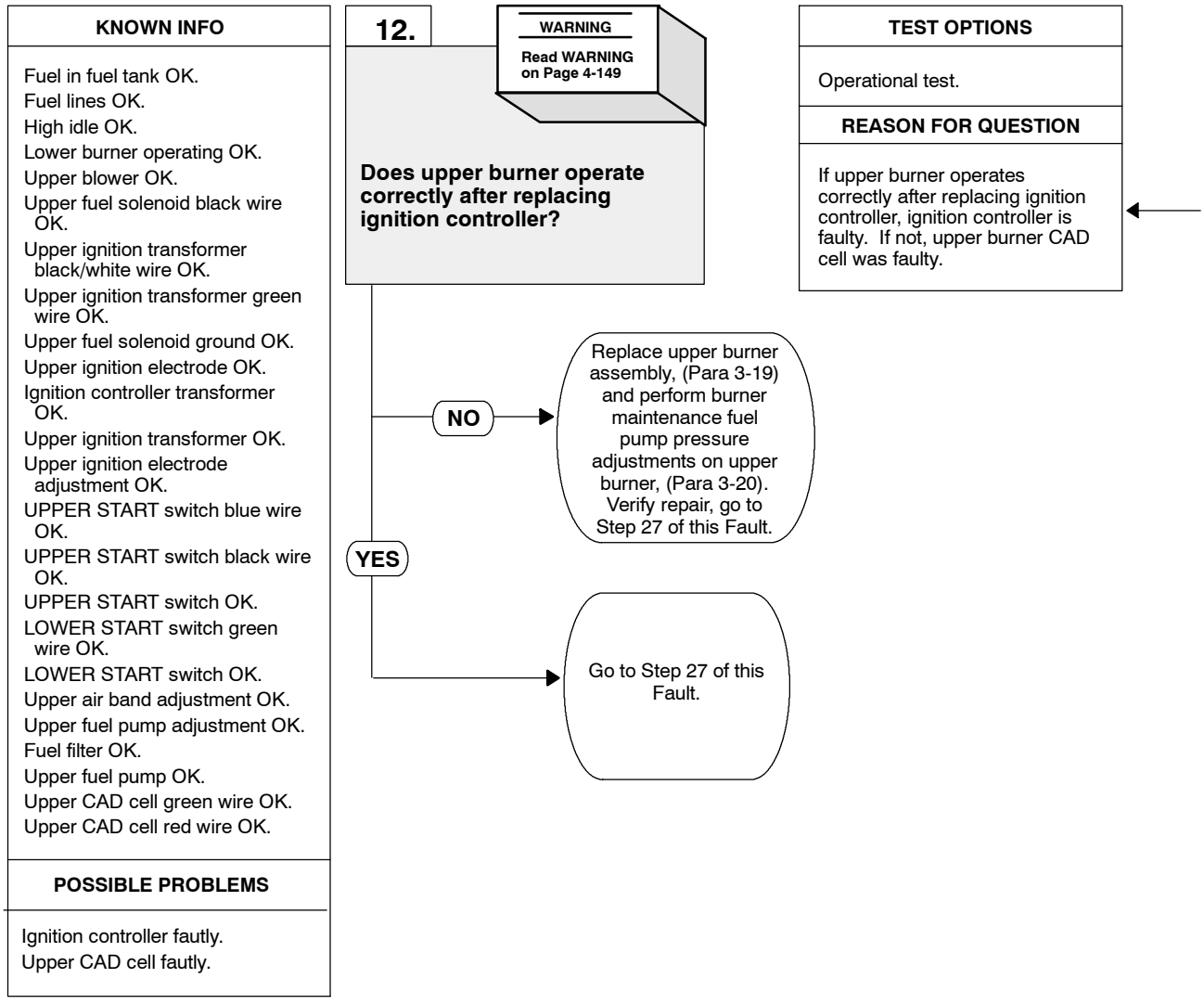
(a) If continuity is not measured, repair red wire, (Para 3-80) or replace upper burner wire harness, (Para 3-54). Verify repair, go to Step 27 of this Fault.

(b) If continuity is measured, go to Step 12 of this Fault.





6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- DO NOT light any burner prior to stick measuring quantity of material in tank, (refer to Para 2-13). Failure to comply may result in injury or death to personnel.
- DO NOT light lower burner unless a minimum of 750 gallons (2,838.75 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- DO NOT light upper burner unless a minimum of 1,050 gallons (3, 974.57 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- Allowing burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulating, burners should be extinguished for 20 to 30 minutes before re-lighting.
- See Para 2-22 for additional warnings.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is “frozen” is it acceptable to operate burners without circulating material. However, if asphalt pump is “frozen”, carefully apply heat to pump housing and start circulating as soon as possible.

OPERATIONAL TEST

(1) Replace burner ignition controller, (Para 3-72). Do not replace transformer.

(2) Install rear control panel, (Para 3-76).

(3) Push in battery disconnect switch, (TM 9-2320-364-10).

(4) Start engine, (TM 9-2320-364-10).

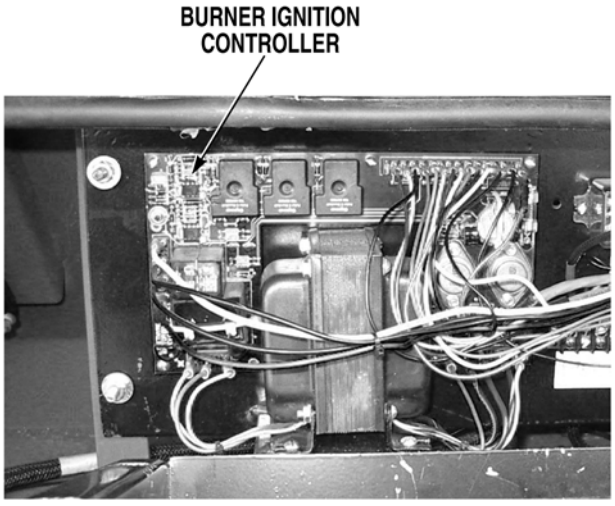
(5) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

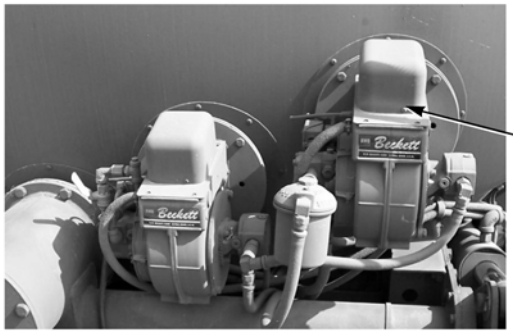
(6) Operate lower burner, (Para 2-22).

(7) Operate upper burner, (Para 2-22). Check if burner operates correctly.

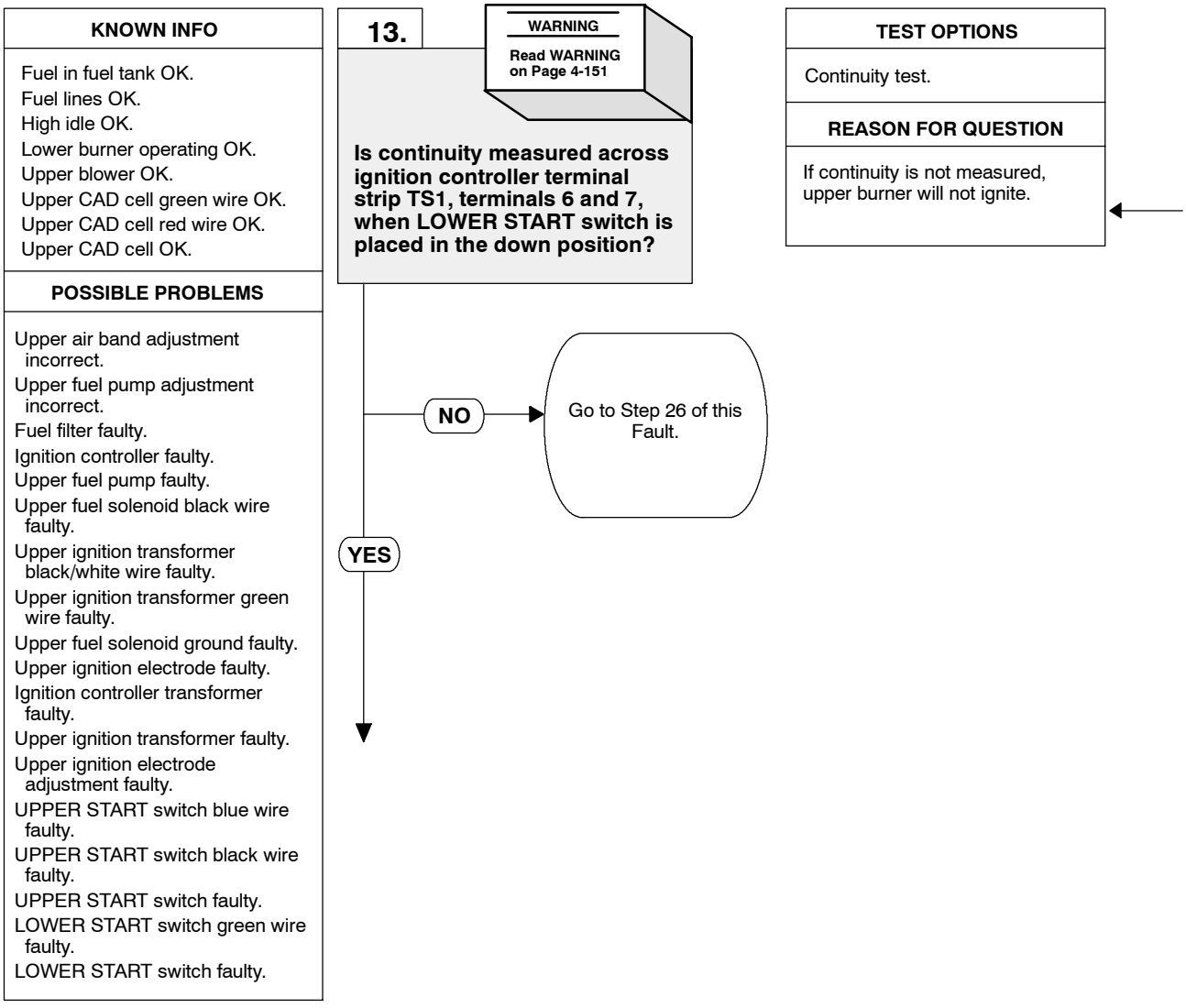
(a) If burner does not operate correctly, replace upper burner assembly, (Para 3-19) and perform upper burner maintenance adjustments, (Para 3-20). Verify repair, go to Step 27 of this Fault.

(b) If burner operates correctly, go to Step 27 of this Fault.



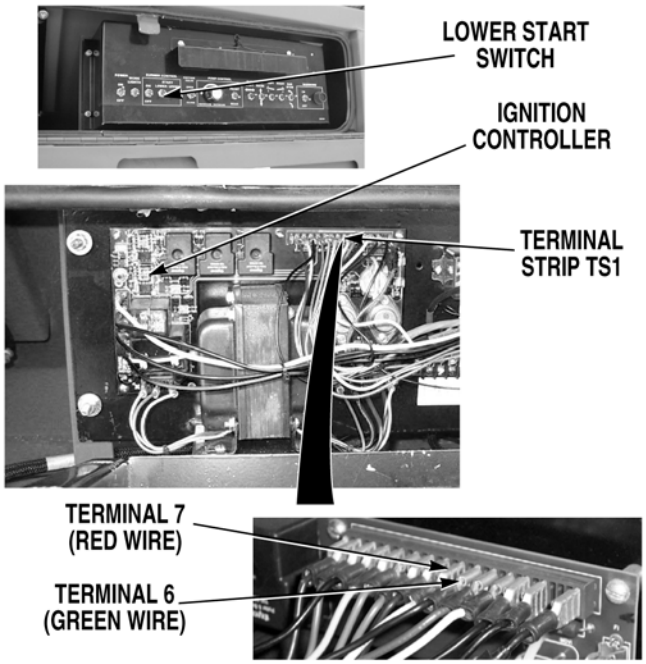


6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.



CONTINUITY TEST

(1) Turn burner control ON/OFF switch OFF, (Para 2-1).

(2) Pull out and turn upper burner palm button 90° and release, (Para 2-22).

(3) Pull out and turn lower burner palm button 90° and release, (Para 2-22).

(4) Shut OFF engine, (TM 9-2320-364-10).

(5) Pull out battery disconnect switch, (TM 9-2320-364-10).

(6) Wait 20 to 30 minutes before continuing.

(7) Remove rear control panel, (Para 3-76).

(8) Set multimeter select switch to ohms.

(9) Position burner control LOWER START switch to down position, (Para 2-1).

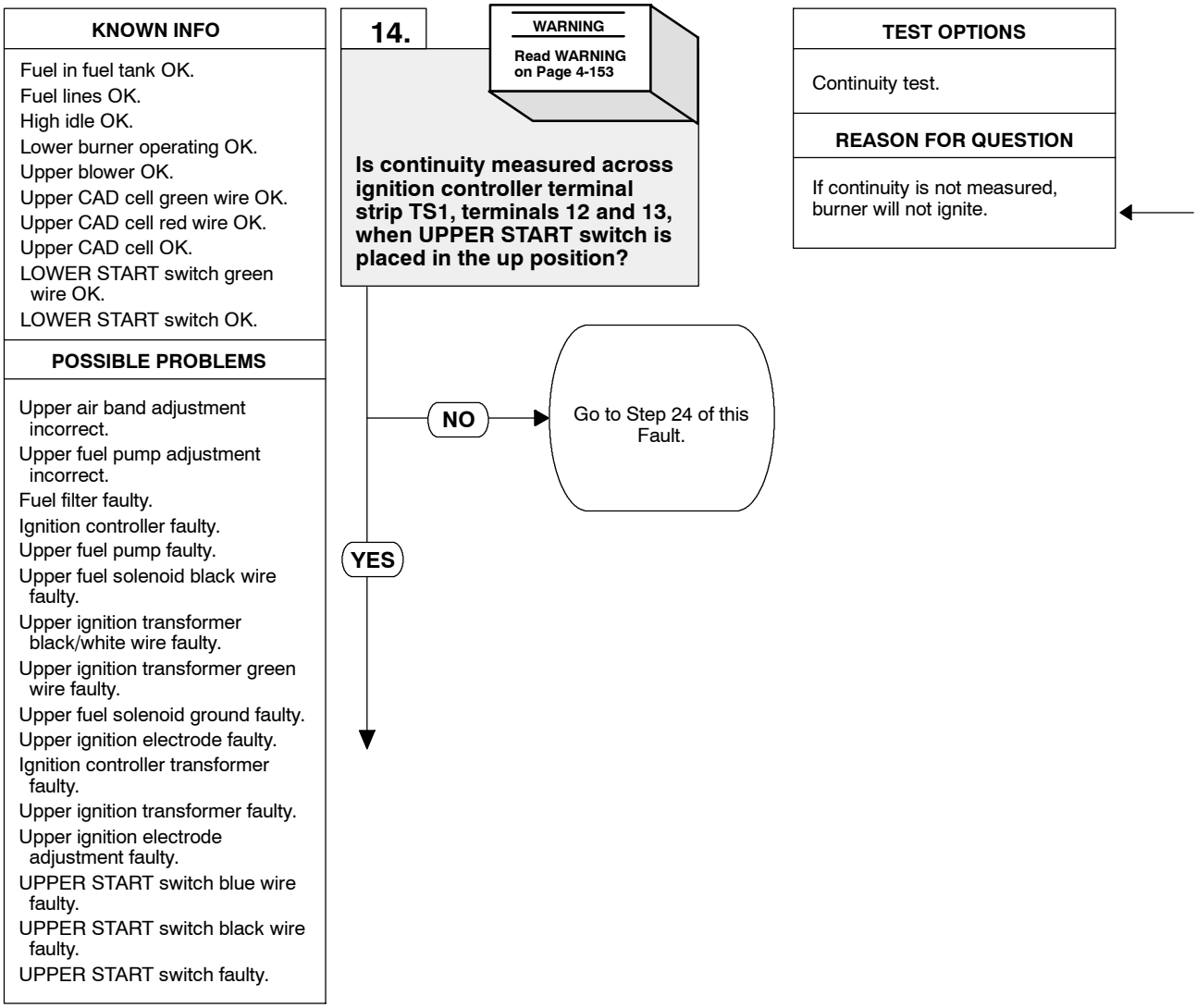
(10) Connect positive (+) multimeter lead to green wire at ignition controller terminal strip TS1, terminal 6.

(11) Connect negative (-) multimeter lead to red wire at ignition controller terminal strip TS1, terminal 7.

(a) If continuity is not measured, go to Step 26 of this Fault.

(b) If continuity is measured, go to Step 14 of this Fault.

6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

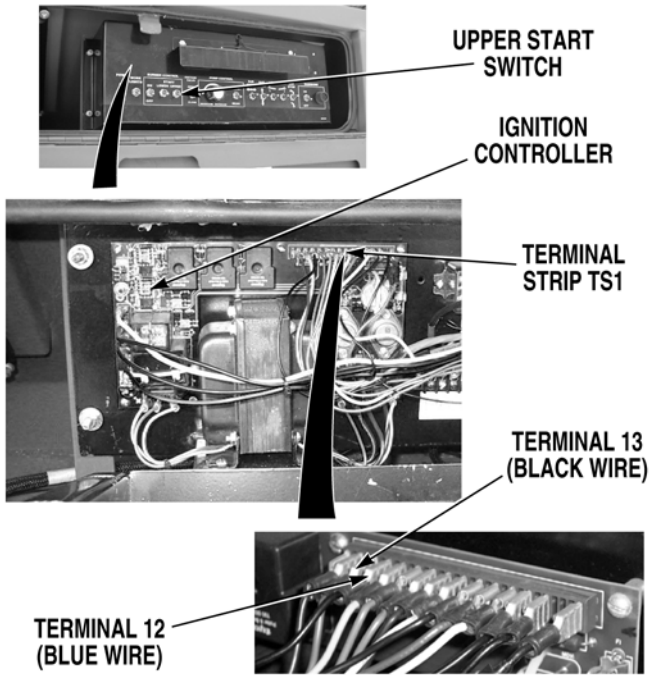
(2) Connect positive (+) multimeter lead to blue wire at ignition controller terminal strip TS1, terminal 12.

(3) Connect negative (-) multimeter lead to black wire at ignition controller terminal strip TS1, terminal 13.

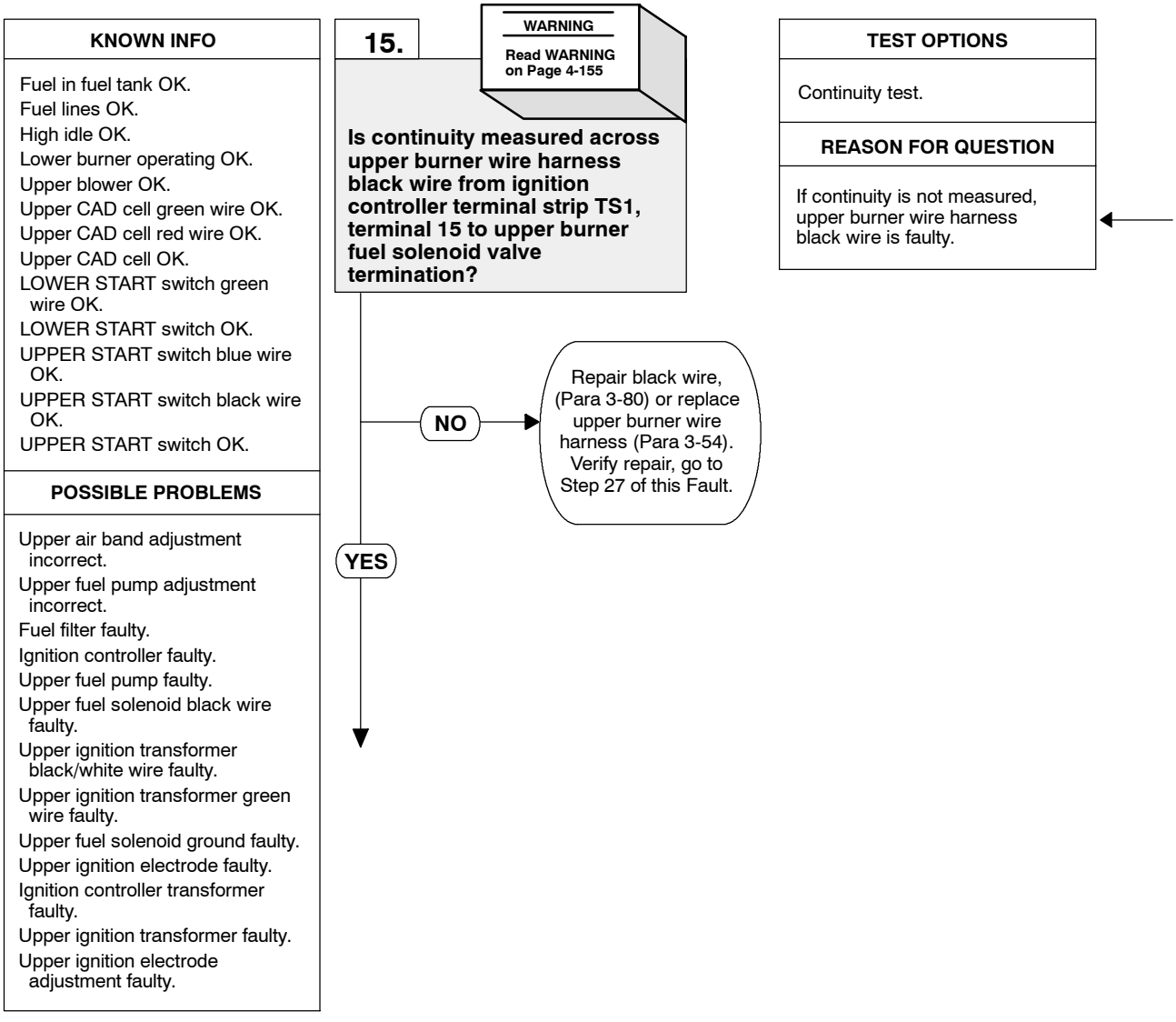
(4) Position burner control UPPER START switch to up position, (Para 2-1).

(a) If continuity is not measured, go to Step 24 of this Fault.

(b) If continuity is measured, go to Step 15 on this Fault.

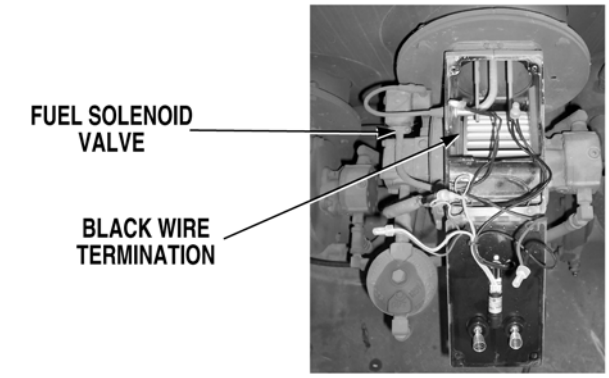


6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.



CONTINUITY TEST

(1) Remove two screws and open upper burner cover, (Para 3-19).

(2) Set multimeter select switch to ohms.

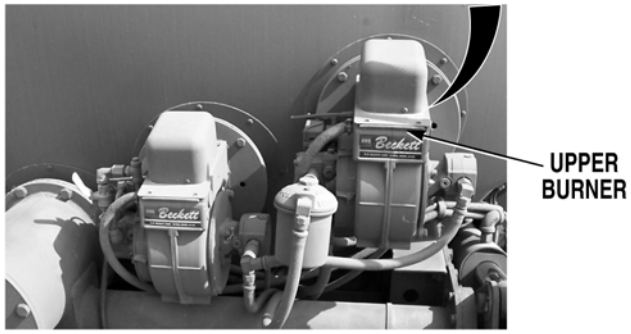
(3) Connect jumperwire between black wire at ignition controller terminal strip TS1, terminal 15 and a known good ground.

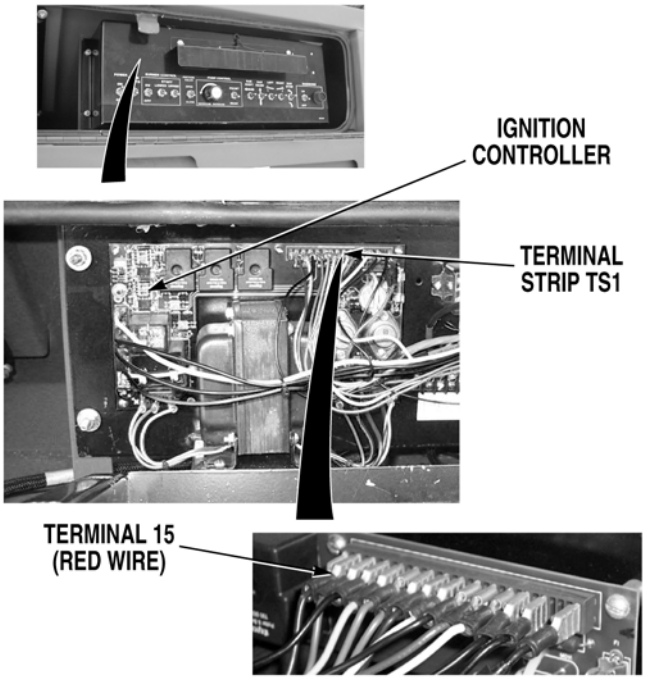
(4) Connect (backprobe) positive (+) multimeter lead to black wire at upper burner fuel solenoid valve termination.

(5) Connect negative (-) multimeter lead to a known good ground.

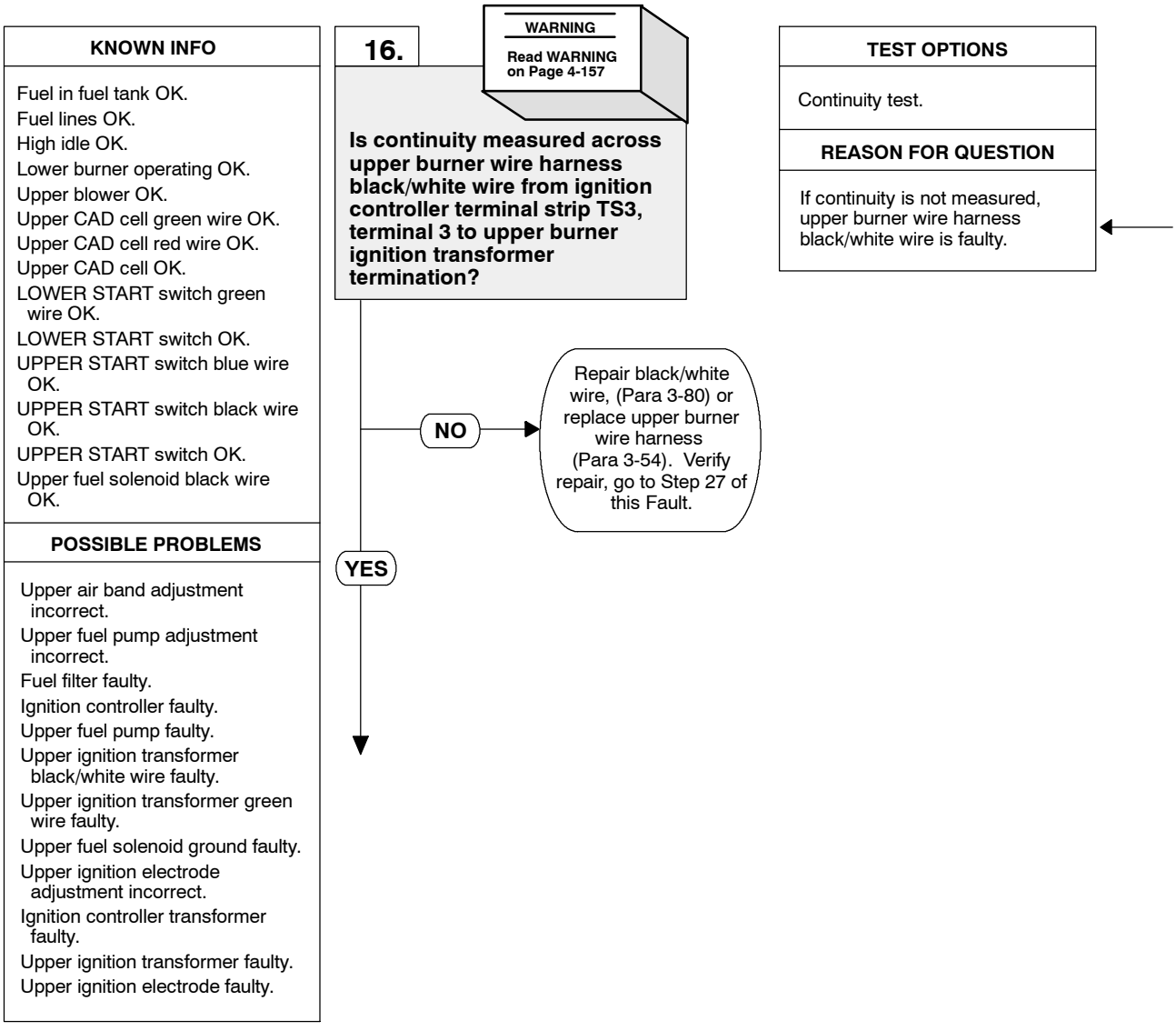
(a) If continuity is not measured, repair black wire, (Para 3-80) or replace lower burner wire harness, (Para 3-54). Verify repair, go to Step 24 of this Fault.

(b) If continuity is measured, go to Step 16 of this Fault.





6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

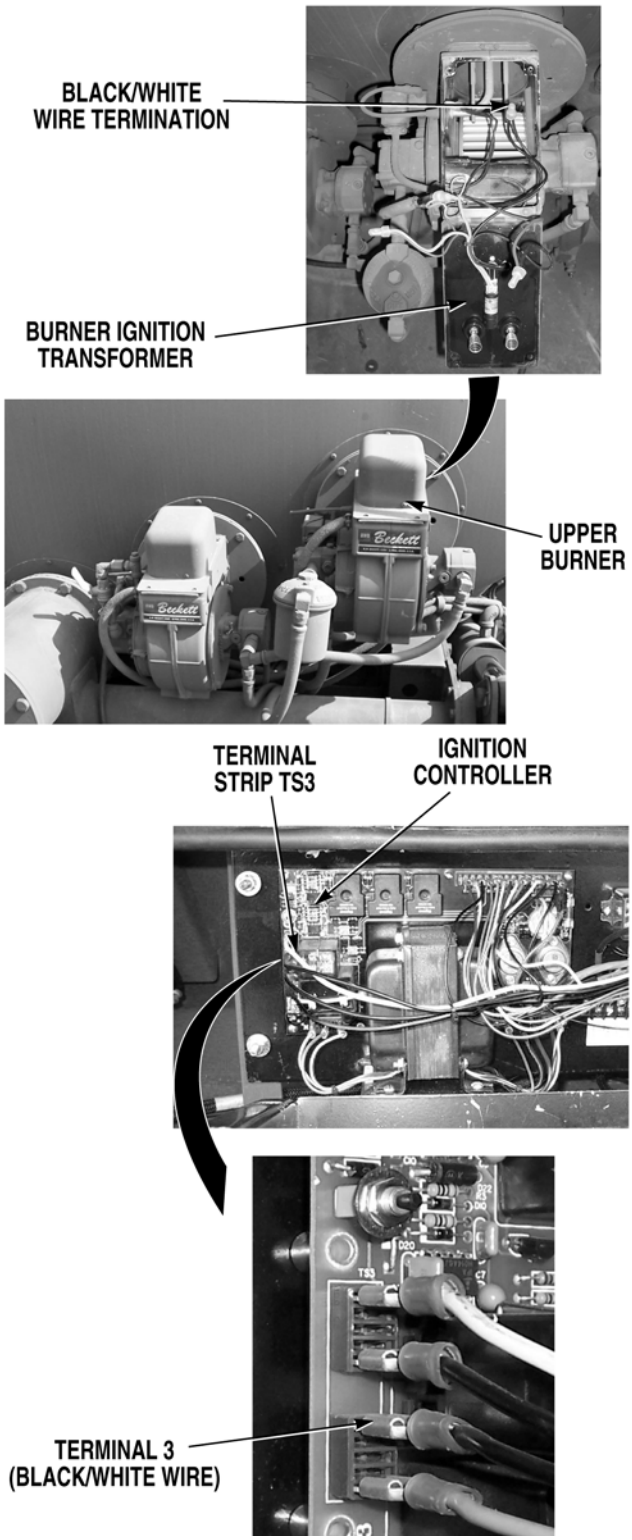
(2) Connect jumperwire between black/white wire at ignition controller terminal strip TS3, terminal 3 and a known good ground.

(3) Connect (backprobe) positive (+) multimeter lead to black/white wire at upper burner ignition transformer termination.

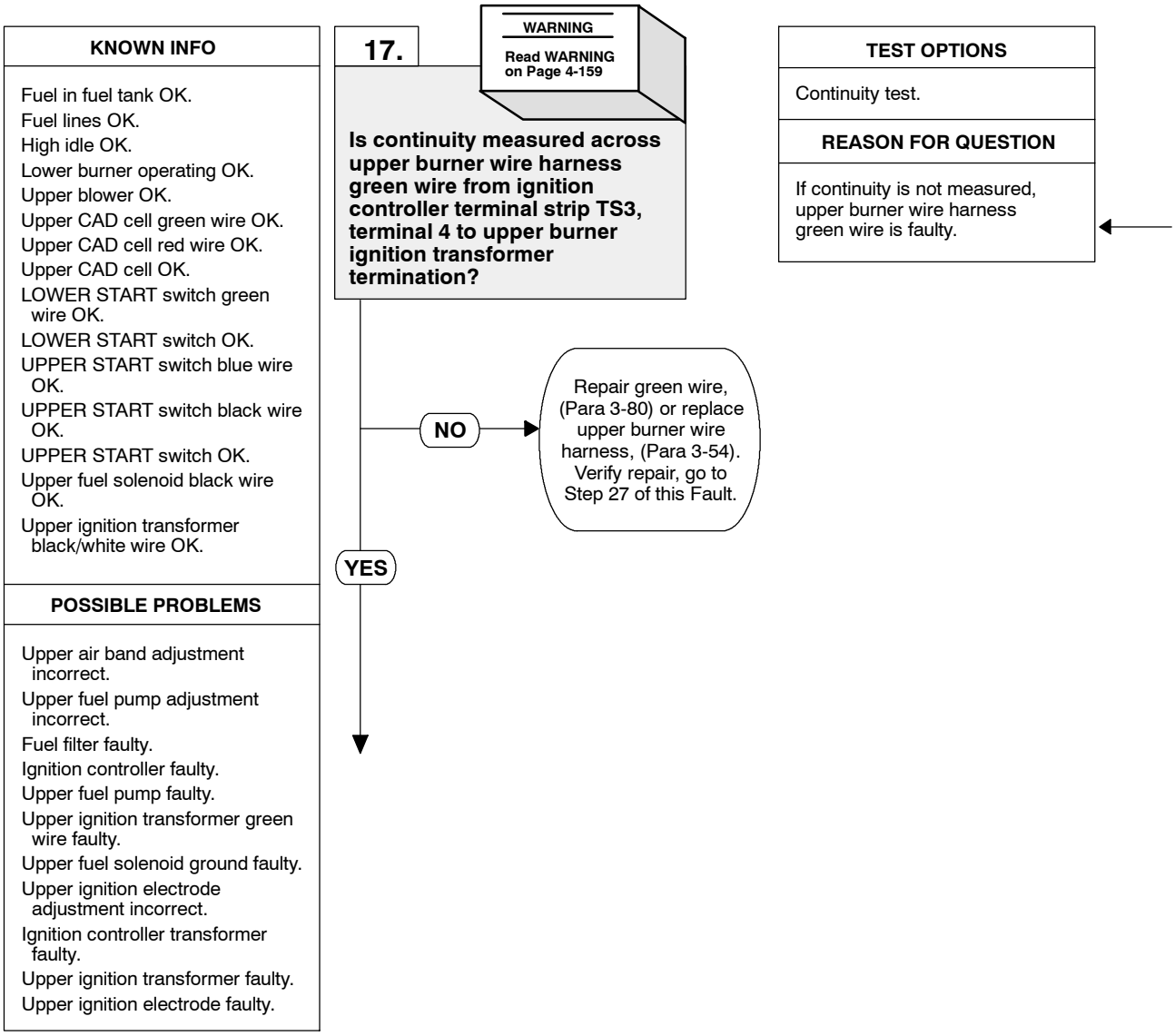
(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, repair black/white wire, (Para 3-80) or replace upper burner wire harness, (Para 3-54). Verify repair, go to Step 27 of this Fault.

(b) If continuity is measured, go to Step 17 of this Fault.



6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

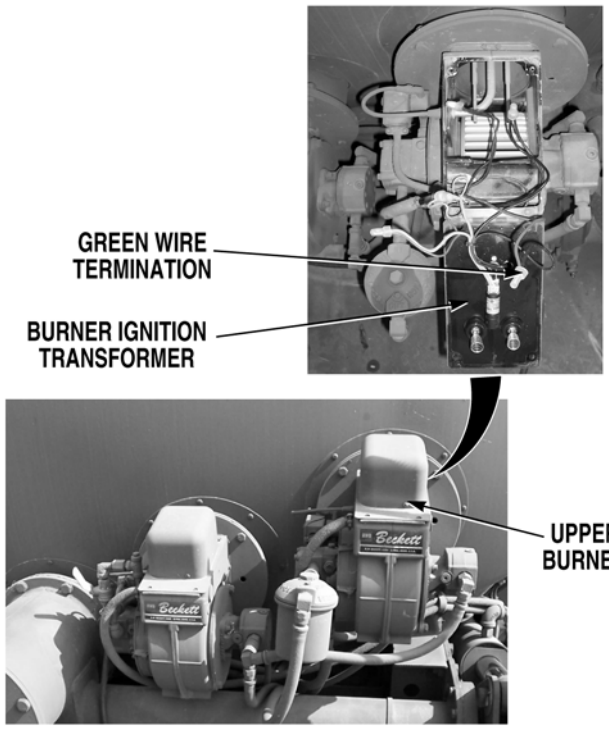
(2) Connect jumperwire between green wire at ignition controller terminal strip TS3, terminal 4 and a known good ground.

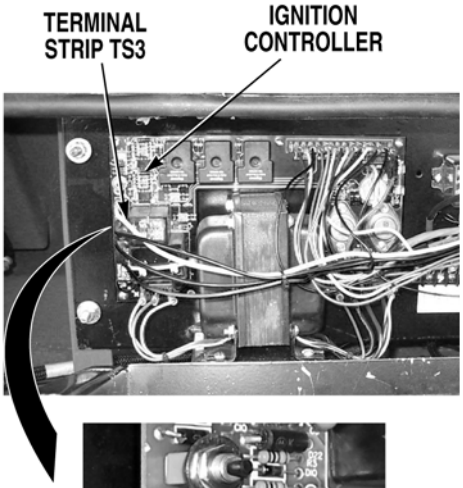
(3) Connect (backprobe) positive (+) multimeter lead to green wire at upper burner ignition transformer termination.

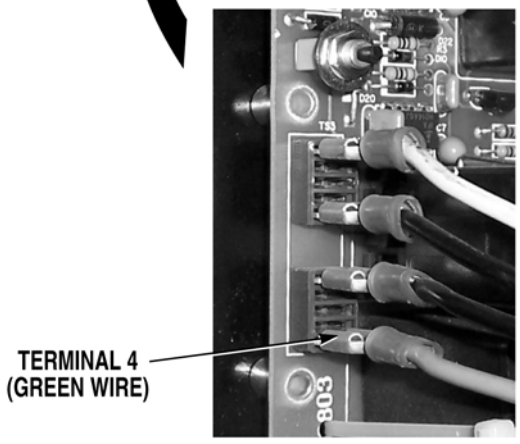
(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, repair green wire, (Para 3-80) or replace upper burner wire harness, (Para 3-54). Verify repair, go to Step 27 of this Fault.

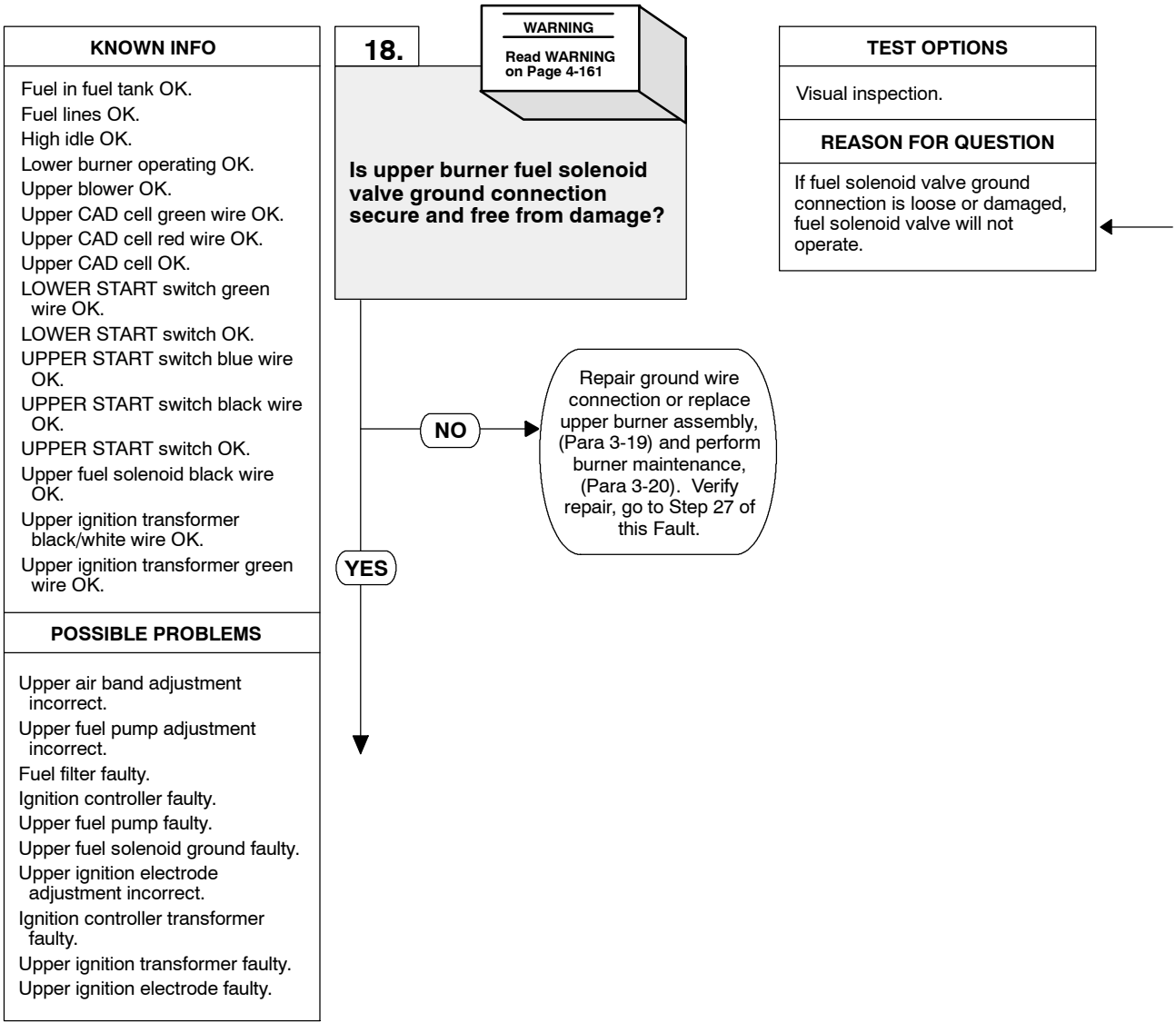
(b) If continuity is measured, go to Step 18 of this Fault.





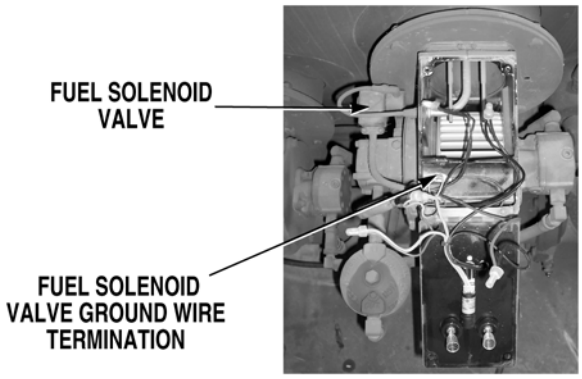


6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

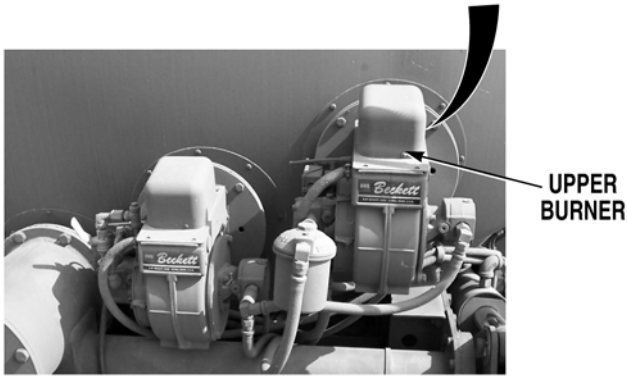


VISUAL INSPECTION

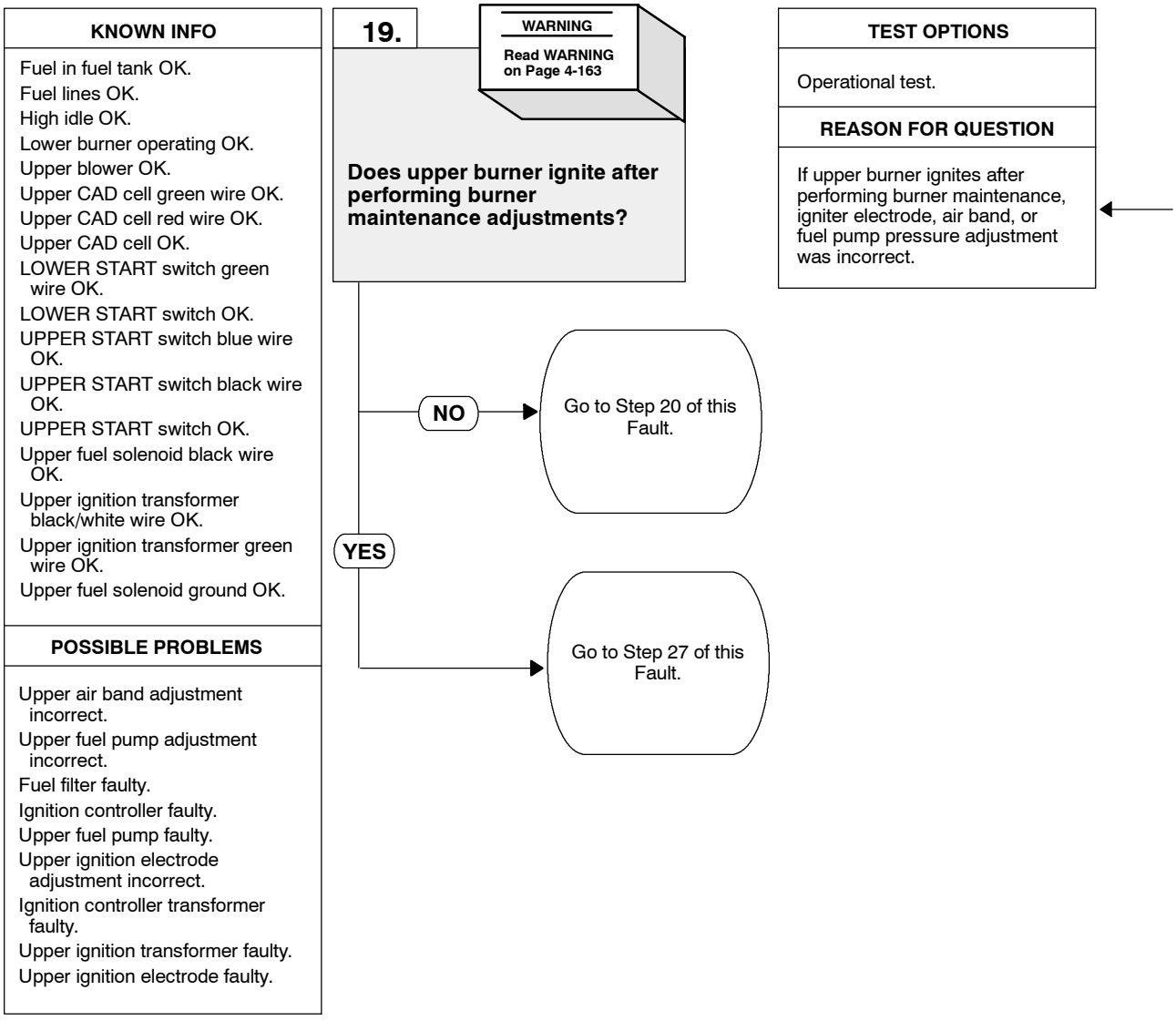
Inspect upper fuel solenoid valve ground connection for loose connection and damage.

(a) If connection is loose, repair connection or replace upper burner assembly, (Para 3-19) and perform burner maintenance, (Para 3-20). Verify repair, go to Step 27 of this Fault.

(b) If connection is tight and free from damage, go to Step 19 of this Fault.



6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- DO NOT light any burner prior to stick measuring quantity of material in tank, (refer to Para 2-13). Failure to comply may result in injury or death to personnel.
- DO NOT light lower burner unless a minimum of 750 gallons (2,838.75 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- DO NOT light upper burner unless a minimum of 1.050 gallons (3,974.25 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- Allowing burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulating, burners should be extinguished for 20 to 30 minutes before re-lighting.
- See Para 2-22 for additional warnings.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is “frozen” is it acceptable to operate burners without circulating material. However, if asphalt pump is “frozen”, carefully apply heat to pump housing and start circulating as soon as possible.

OPERATIONAL TEST

(1) Install rear control panel, (Para 3-76).

(2) Perform upper burner maintenance ignition electrode adjustment, (Para 3-20).

(3) Perform upper burner maintenance air band and fuel pump pressure adjustments, (Para 3-20). Note if fuel pump pressure can be adjusted to 95 to 105 psi (655 to 724 kPa).

(4) Push in battery disconnect switch, (TM 9-2320-364-10).

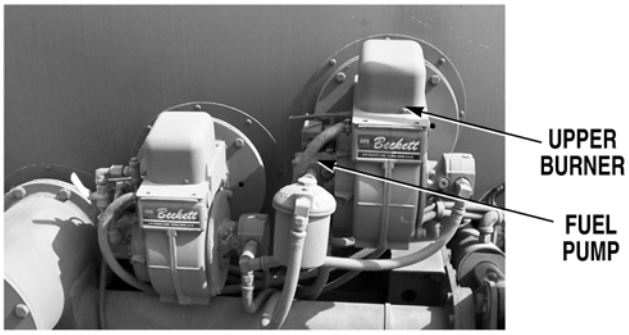
(5) Start engine, (TM 9-2320-364-10).

(6) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

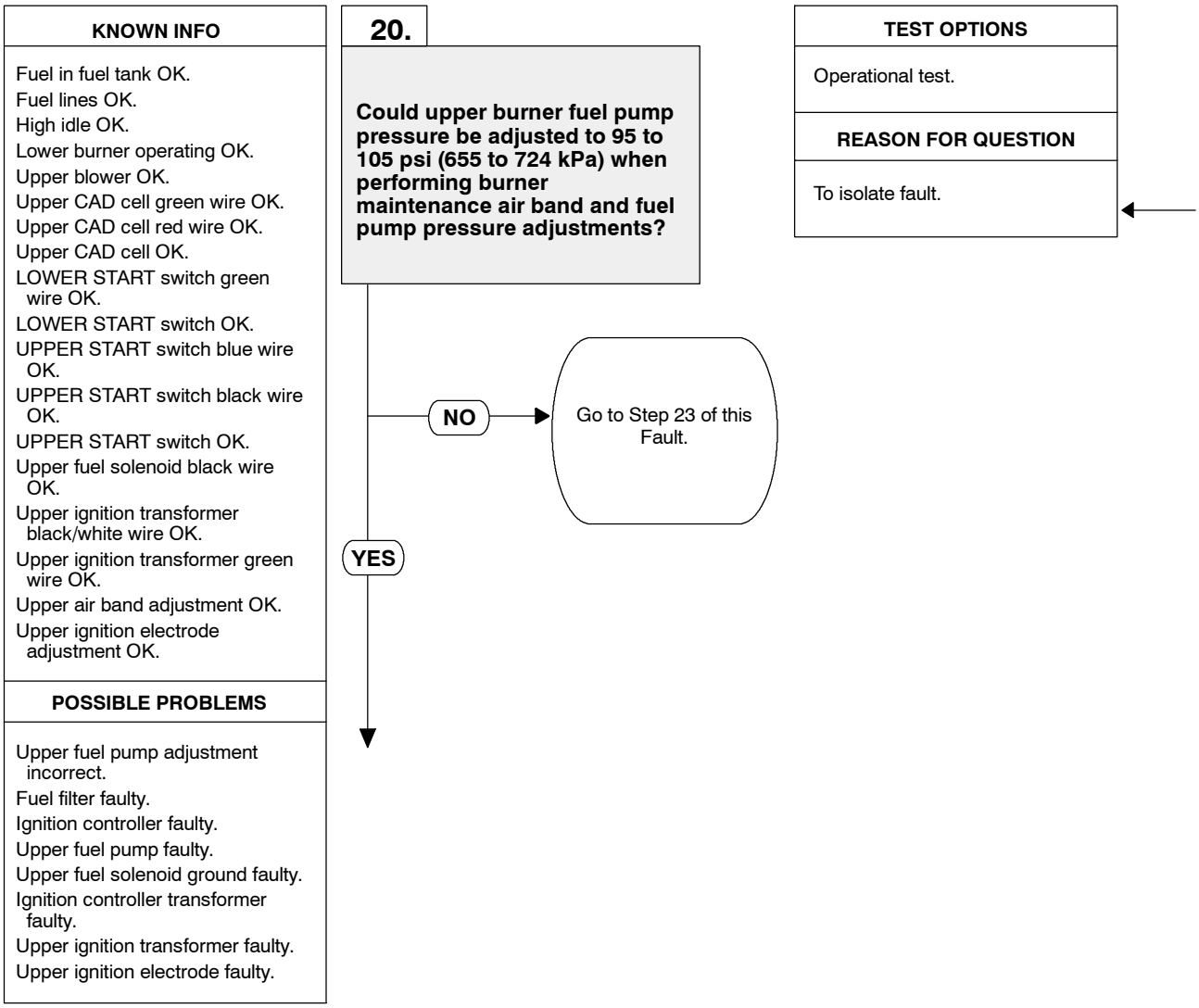
(7) Operate upper burner, (Para 2-22). Check if burner ignites.

(a) If burner does not ignite, go to Step 20 of this Fault.

(b) If burner ignites, go to Step 27 of this Fault.



6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).

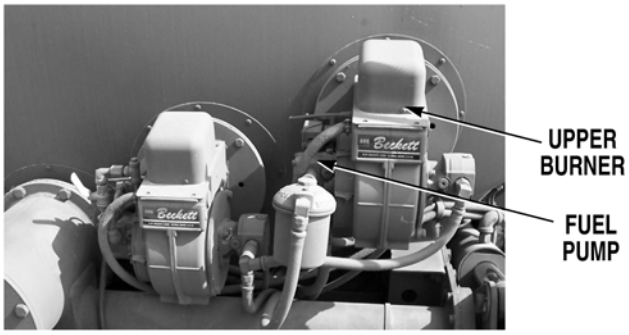


OPERATIONAL TEST

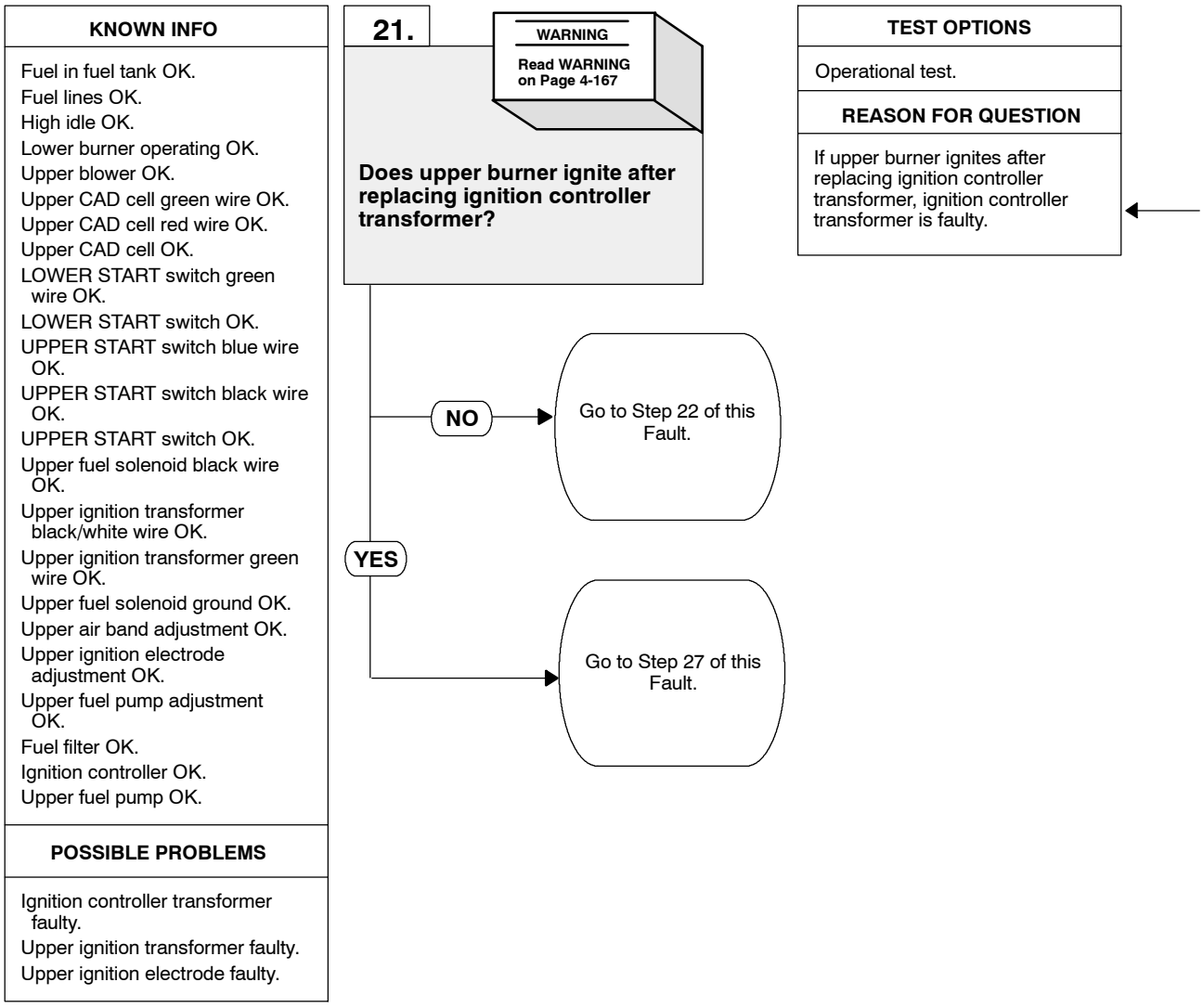
Check if fuel pump pressure could be adjusted to 95 to 105 psi (655 to 724 kPa) when Step 19 of this Fault was performed.

(a) If fuel pump pressure could not be adjusted to 95 to 105 psi (655 to 724 kPa), go to Step 23 of this Fault.

(b) If fuel pump pressure could be adjusted to 95 to 105 psi (655 to 724 kPa), go to Step 21 of this Fault.



6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- DO NOT light any burner prior to stick measuring quantity of material in tank, (refer to Para 2-13). Failure to comply may result in injury or death to personnel.
- DO NOT light lower burner unless a minimum of 750 gallons (2,838.75 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- DO NOT light upper burner unless a minimum of 1.050 gallons (3,974.25 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- Allowing burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulating, burners should be extinguished for 20 to 30 minutes before re-lighting.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.
- See Para 2-22 for additional warnings.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is “frozen” is it acceptable to operate burners without circulating material. However, if asphalt pump is “frozen”, carefully apply heat to pump housing and start circulating as soon as possible.

OPERATIONAL TEST

(1) Turn burner control ON/OFF switch OFF, (Para 2-1).

(2) Pull out and turn upper burner palm button 90° and release, (Para 2-22).

(3) Pull out and turn lower burner palm button 90° and release, (Para 2-22).

(4) Shut OFF engine, (TM 9-2320-364-10).

(5) Pull out battery disconnect switch, (TM 9-2320-364-10).

(6) Wait 20 to 30 minutes before continuing.

(7) Remove rear control panel, (Para 3-76).

(8) Replace ignition controller transformer, (Para 3-71).

(9) Install rear control panel (Para 3-76).

(10) Push in battery disconnect switch, (TM 9-2320-364-10).

(11) Start engine, (TM 9-2320-364-10).

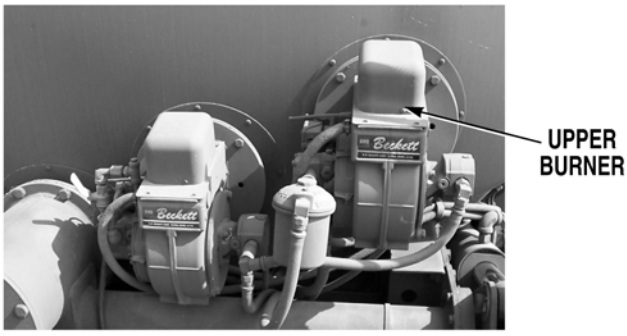
(12) Turn hydraulic selector switch to CRANE/SRW, (TM 9-2320-364-10).

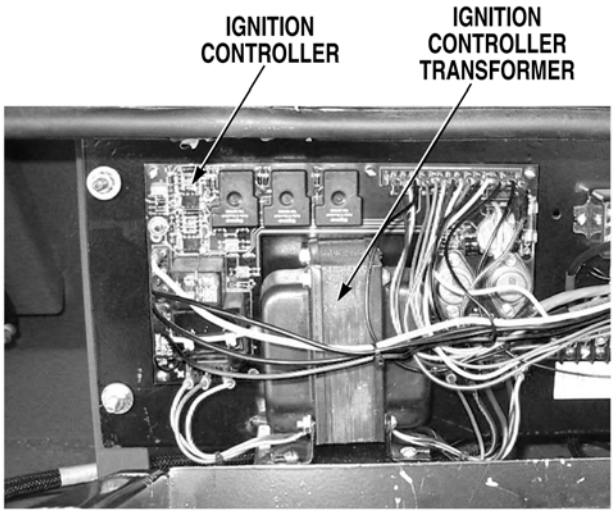
(13) Operate lower burner, (Para 2-22).

(14) Operate upper burner, (Para 2-22). Check if burner ignites.

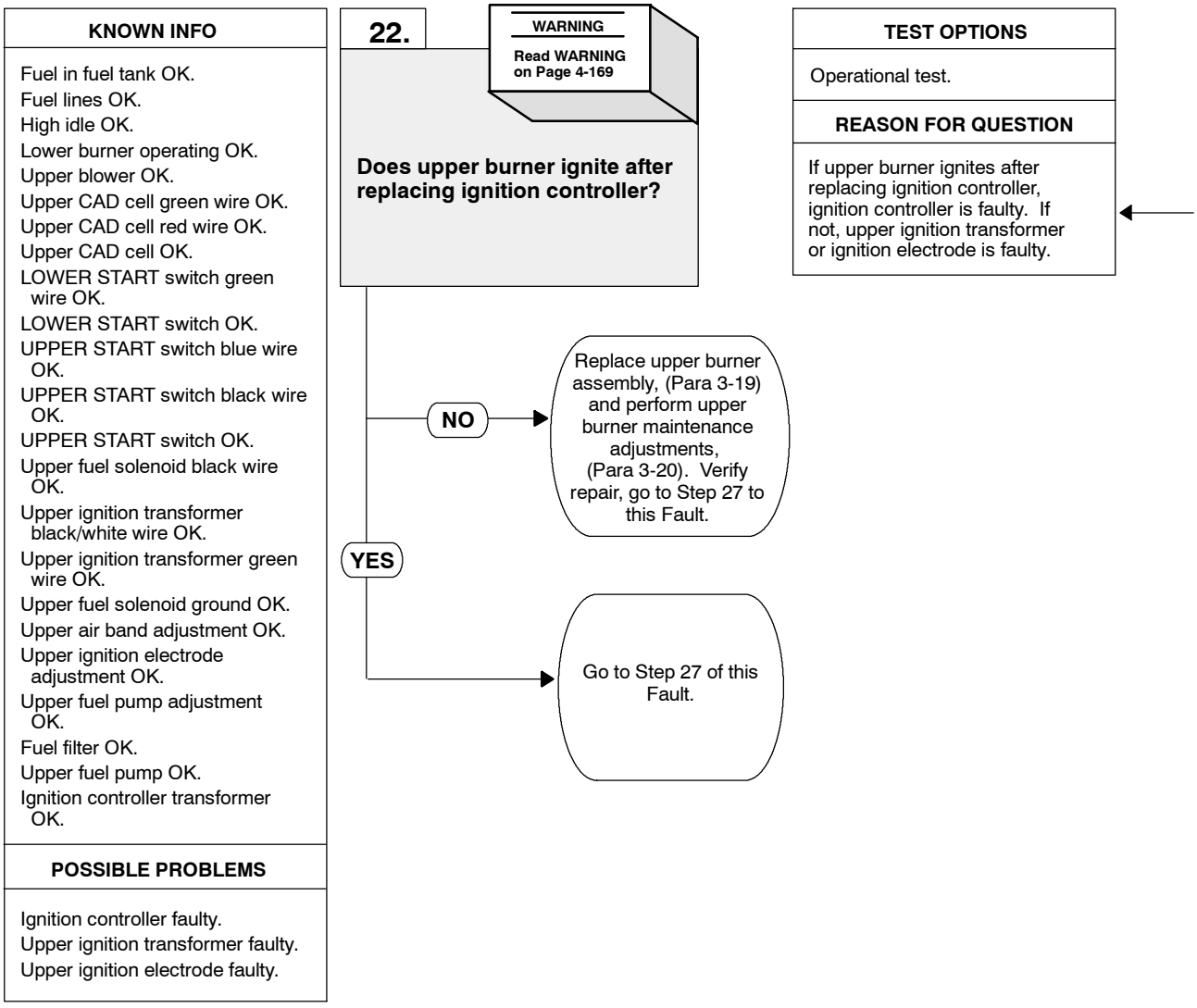
(a) If burner does not ignite, go to Step 22 of this Fault.

(b) If burner ignited, go to Step 27 of this Fault.





6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- DO NOT light any burner prior to stick measuring quantity of material in tank refer to, (Para 2-13). Failure to comply may result in injury or death to personnel.
- DO NOT light lower burner unless a minimum of 750 gallons (2,838.75 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- DO NOT light upper burner unless a minimum of 1,050 gallons (3,974.25 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- Allowing burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulating, burners should be extinguished for 20 to 30 minutes before re-lighting.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.
- See Para 2-22 for additional warnings.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is "frozen" is it acceptable to operate burners without circulating material. However, if asphalt pump is "frozen", carefully apply heat to pump housing and start circulating as soon as possible.

OPERATIONAL TEST

(1) Turn burner control ON/OFF switch OFF, (Para 2-1).

(2) Pull out and turn upper burner palm button 90° and release, (Para 2-22).

(3) Pull out and turn lower burner palm button 90° and release, (Para 2-22).

(4) Shut OFF engine, (TM 9-2320-364-10).

(5) Pull out battery disconnect switch, (TM 9-2320-364-10).

(6) Wait 20 to 30 minutes before continuing.

(7) Remove rear control panel, (Para 3-76).

(8) Replace ignition controller, (Para 3-72).

(9) Install rear control panel, (Para 3-76).

(10) Push in battery disconnect switch, (TM 9-2320-364-10).

(11) Start engine, (TM 9-2320-364-10).

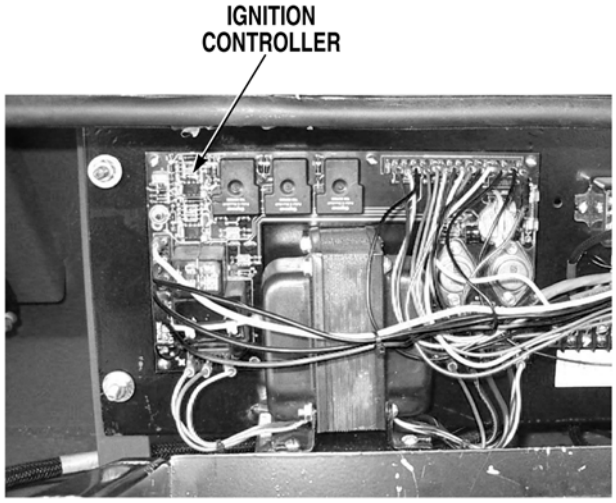
(12) Turn hydraulic selector switch to CRANE/SRW, (TM 9-2320-364-10).

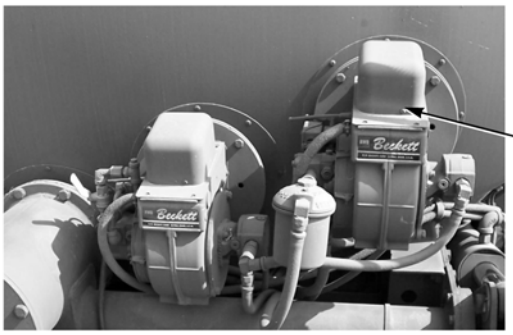
(13) Operate lower burner, (Para 2-22).

(14) Operate upper burner, (Para 2-22). Check if burner ignites.

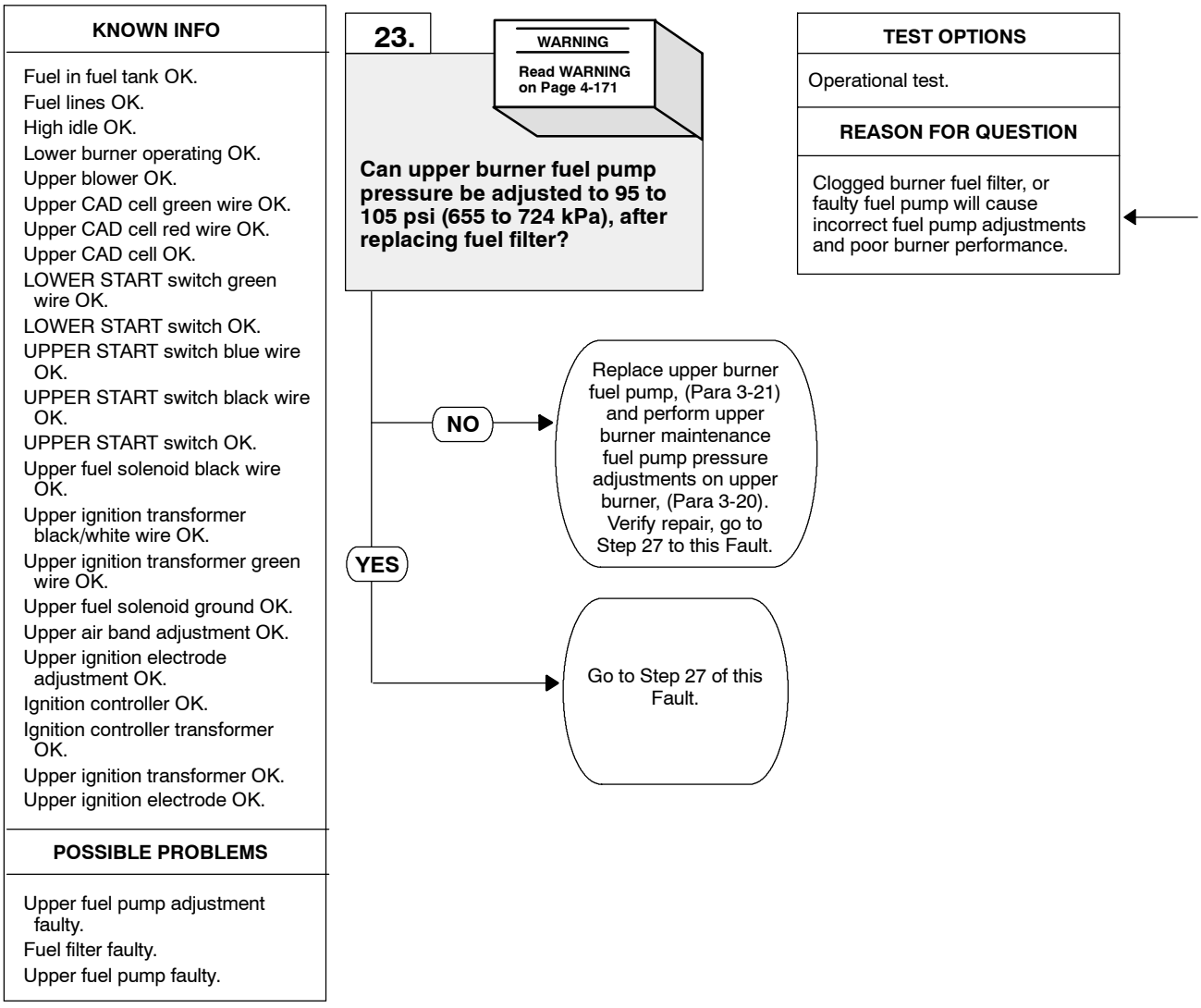
(a) If burner does not ignite, perform Steps 1 through 5 above, replace upper burner, (Para 3-19) and perform upper burner maintenance adjustments, (Para 3-20). Verify repair, go to Step 27 of this Fault.

(b) If burner ignites, go to Step 27 of this Fault.



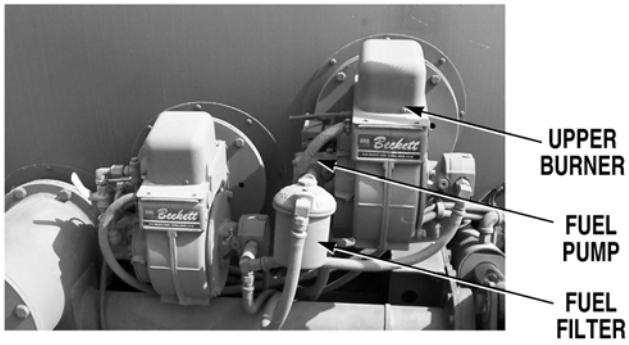


6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.



OPERATIONAL TEST

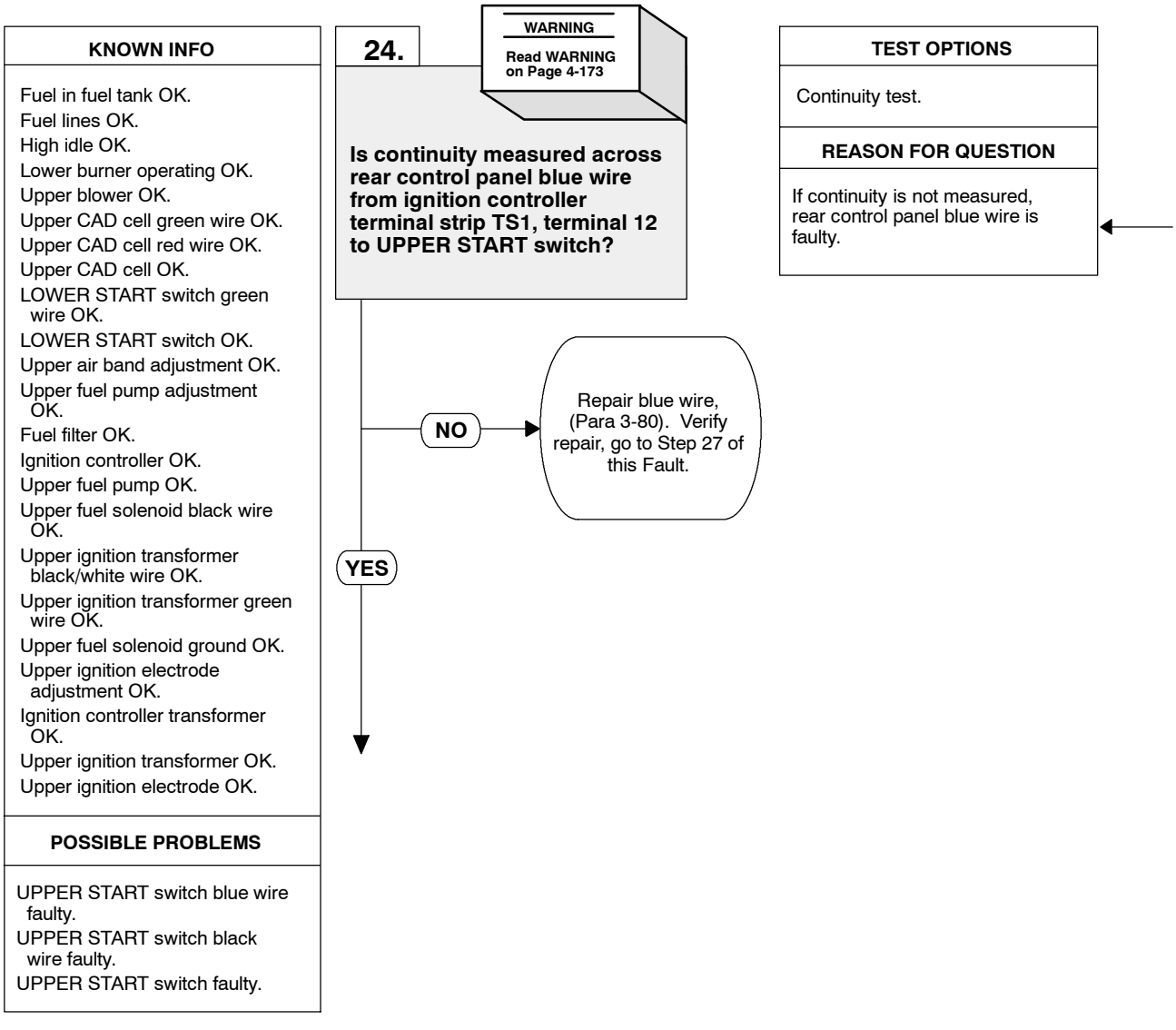
(1) Replace burner fuel filter, (Para 3-11).

(2) Perform upper burner maintenance fuel pump pressure adjustment, (Para 3-20). Check if fuel pump pressure can be adjusted to 95 to 105 psi (655 to 724 kPa).

(a) If fuel pump pressure cannot be adjusted to 95 to 105 psi (655 to 724 kPa), replace upper burner fuel pump, (Para 3-21) and perform upper burner maintenance fuel pump pressure adjustment. Verify repair, go to Step 27 of this Fault.

(b) If fuel pump pressure can be adjusted to 95 to 105 psi (655 to 724 kPa), go to Step 27 of this Fault.

6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

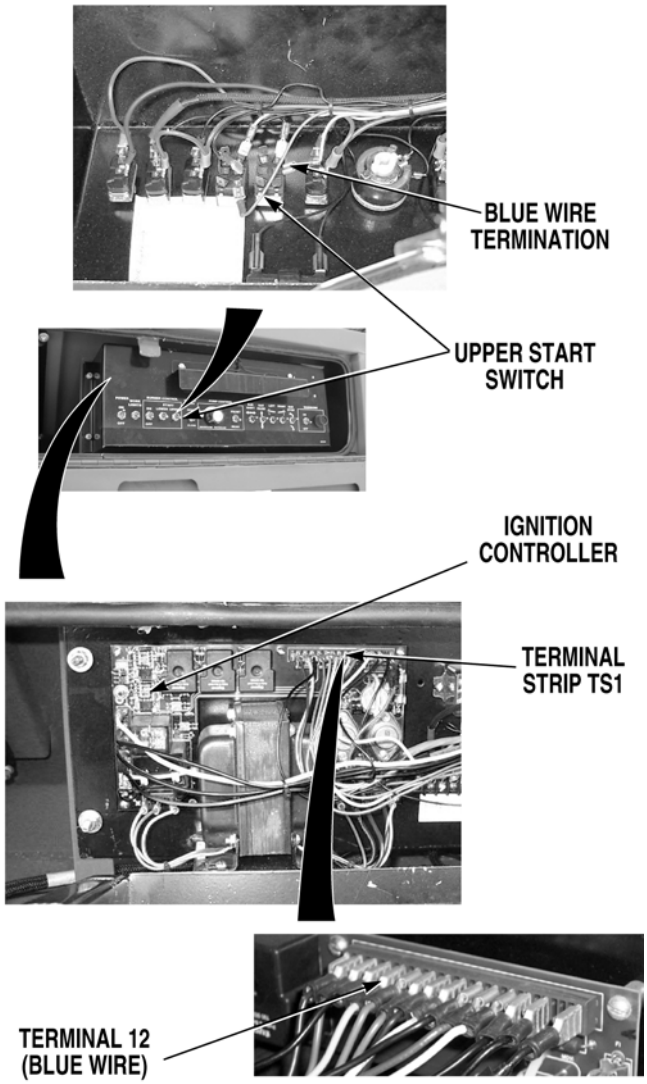
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to blue wire at ignition controller terminal strip TS1, terminal 12.

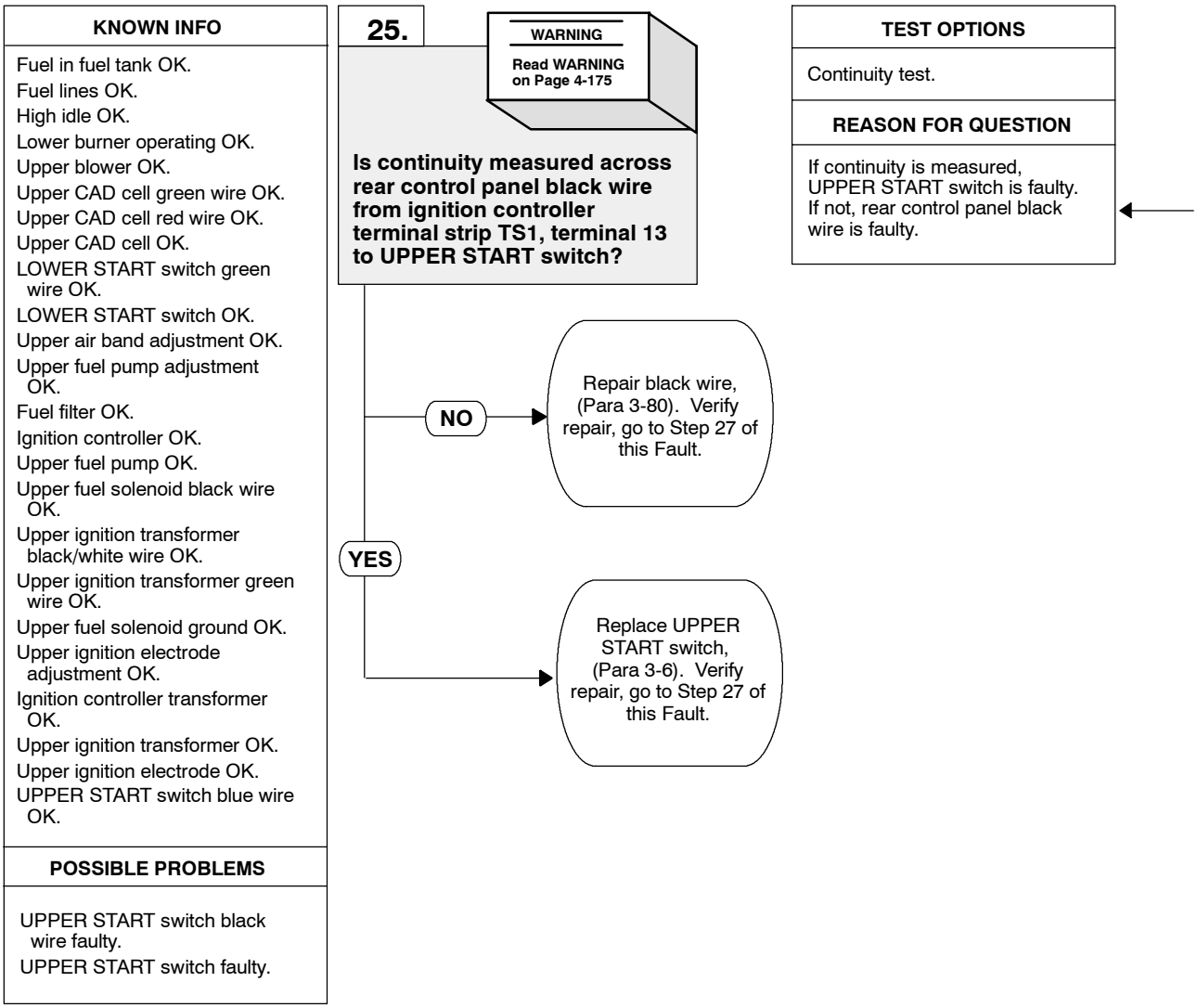
(3) Connect negative (-) multimeter lead to blue wire at rear control panel UPPER START switch terminal.

(a) If continuity is not measured, repair rear control panel blue wire, (Para 3-80). Verify repair, go to Step 27 of this Fault.

(b) If continuity is measured, go to Step 25 of this Fault.



6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

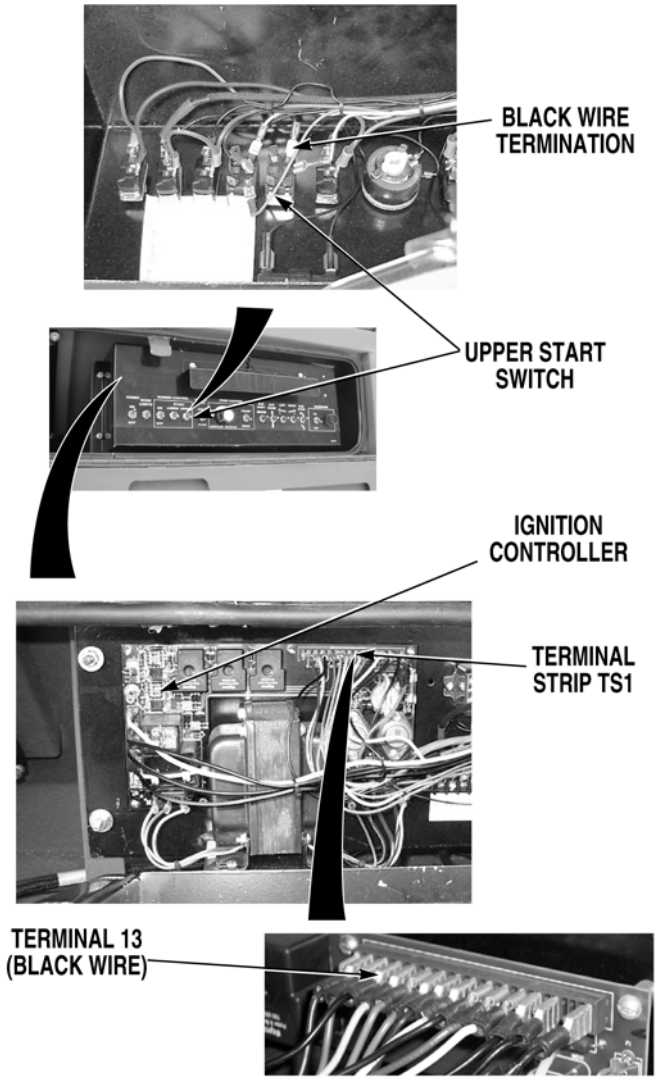
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to black wire at ignition controller terminal strip TS1, terminal 13.

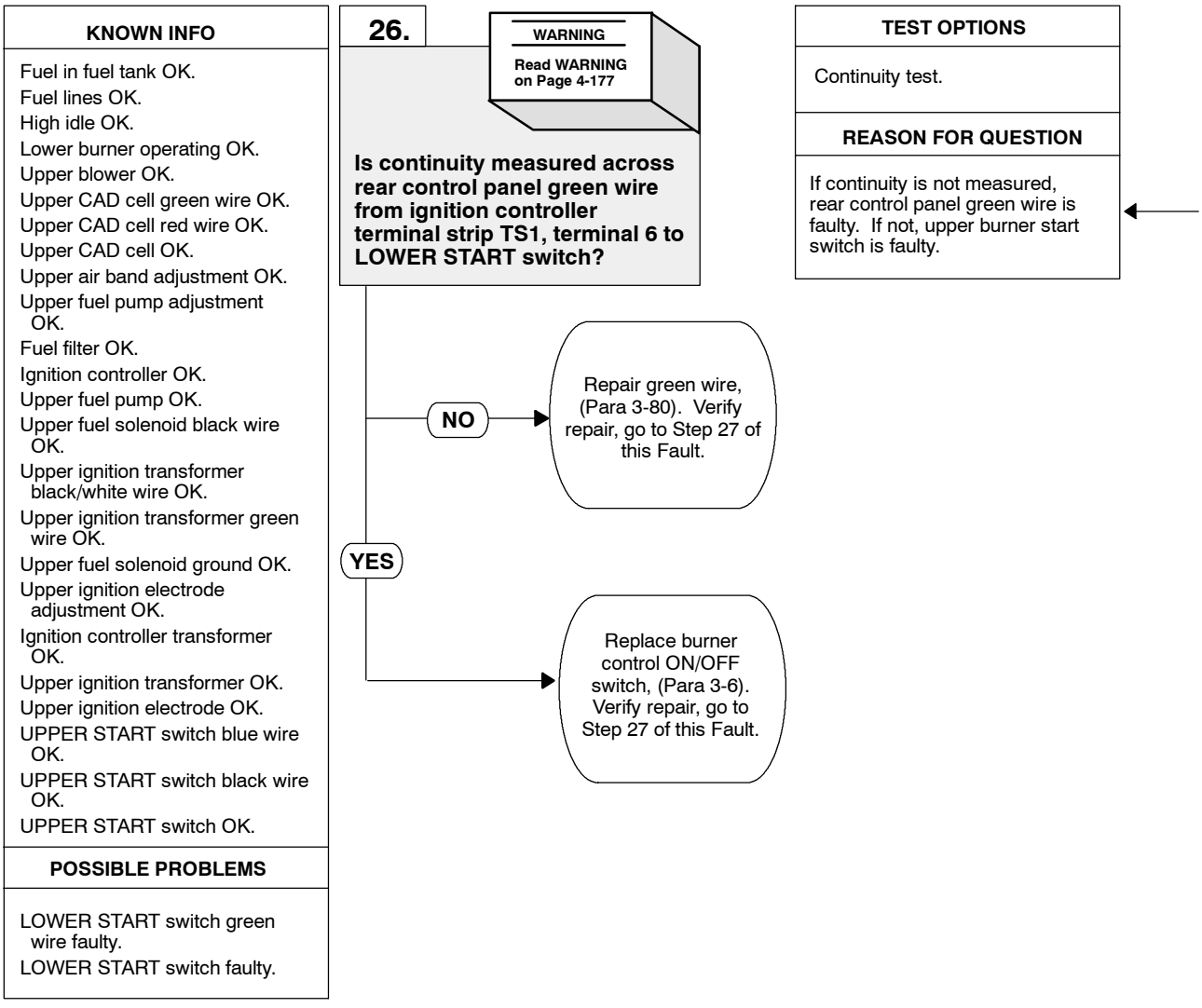
(3) Connect negative (-) multimeter lead to black wire at rear control panel UPPER START switch terminal.

(a) If continuity is not measured, repair rear control panel black wire, (Para 3-80). Verify repair, go to Step 27 of this Fault.

(b) If continuity is measured, replace UPPER START switch, (Para 3-6). Verify repair, go to Step 27 of this Fault.



6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

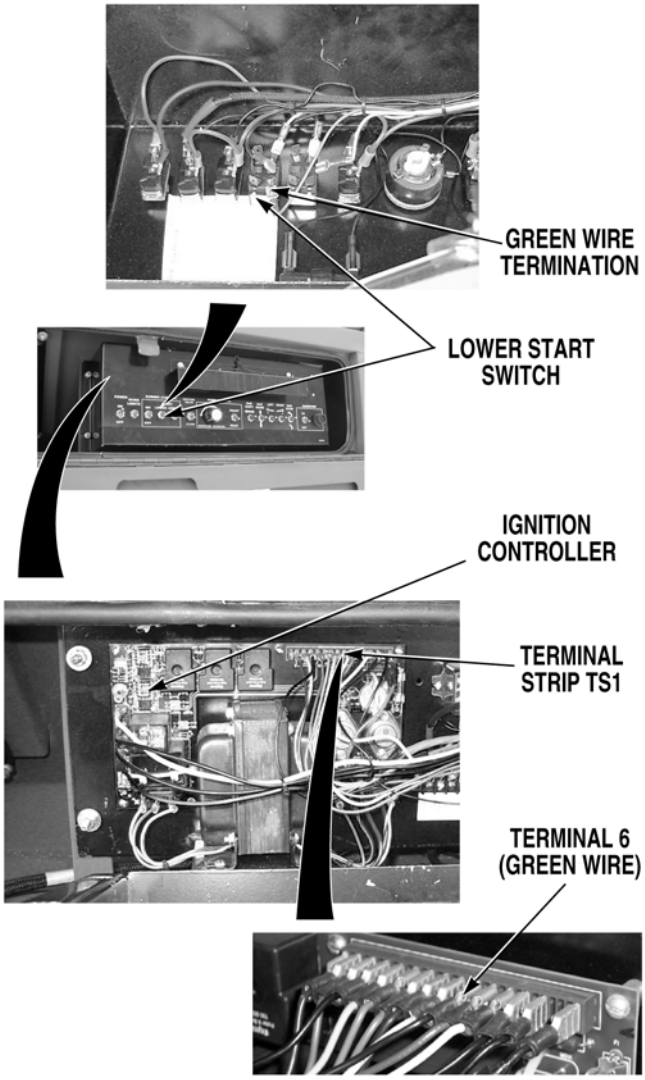
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to green wire at ignition controller terminal strip TS1, terminal 6.

(3) Connect negative (-) multimeter lead to green wire at rear control panel upper start switch terminal.

(a) If continuity is not measured, repair rear control panel green wire, (Para 3-80). Verify repair, go to Step 27 of this Fault.

(b) If continuity is measured, replace burner control ON/OFF switch, (Para 3-6). Verify repair, go to Step 27 of this Fault.



6. UPPER BURNER DOES NOT OPERATE CORRECTLY (CONT).

KNOWN INFO
Fuel in fuel tank OK.
Fuel lines OK.
High idle OK.
Lower burner OK.
Upper blower OK.
Upper air band adjustment OK.
Upper fuel pump adjustment OK.
Fuel filter OK.
Upper fuel pump OK.
Upper CAD cell green wire OK.
Upper CAD cell red wire OK.
Ignition controller OK.
Upper CAD cell OK.
Upper fuel solenoid black wire OK.
Upper ignition transformer black/white wire OK.
Upper ignition transformer green wire OK.
Upper fuel solenoid ground OK.
Upper ignition electrode adjustment OK.
Ignition controller transformer OK.
Upper ignition transformer OK.
Upper ignition electrode OK.
UPPER START switch blue wire OK.
UPPER START switch black wire OK.
UPPER START switch OK.
LOWER START switch green wire OK.
LOWER START switch OK.

POSSIBLE PROBLEMS
None.

27.

WARNING

Read WARNING on Page 4-179

Does upper burner operate correctly?

NO → Fault not corrected. Notify Supervisor.

YES → Fault corrected.

TEST OPTIONS
Verify repair.
REASON FOR QUESTION
If upper burner operates correctly, fault has been corrected.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- DO NOT light any burner prior to stick measuring quantity of material in tank refer to, (Para 2-13). Failure to comply may result in injury or death to personnel.
- DO NOT light lower burner unless a minimum of 750 gallons (2,838.75 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- DO NOT light upper burner unless a minimum of 1.050 gallons (3,974.25 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- Allowing burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulating, burners should be extinguished for 20 to 30 minutes before re-lighting.
- See Para 2-22 for additional warnings.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is “frozen” is it acceptable to operate burners without circulating material. However, if asphalt pump is “frozen”, carefully apply heat to pump housing and start circulating as soon as possible.

VERIFY REPAIR

(1) If removed, install rear control panel, (Para 3-76).

(2) If open, close upper burner cover and install two screws, (Para 3-19).

(3) If out, push in battery disconnect switch, (TM 9-2320-364-10).

(4) If OFF, start engine, (TM 9-2320-364-10).

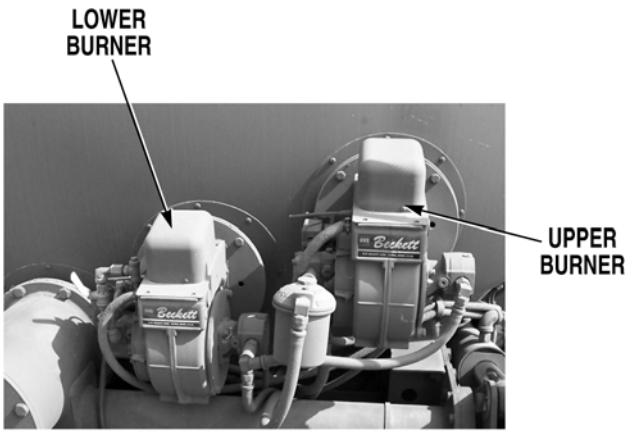
(5) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(6) Operate lower burner, (Para 2-22).

(7) Operate upper burner, (Para 2-22). Check if upper burner operates correctly.

  (a) If burner does not operate, fault has not been corrected. Notify Supervisor.

  (b) If burner operates, fault has been corrected.



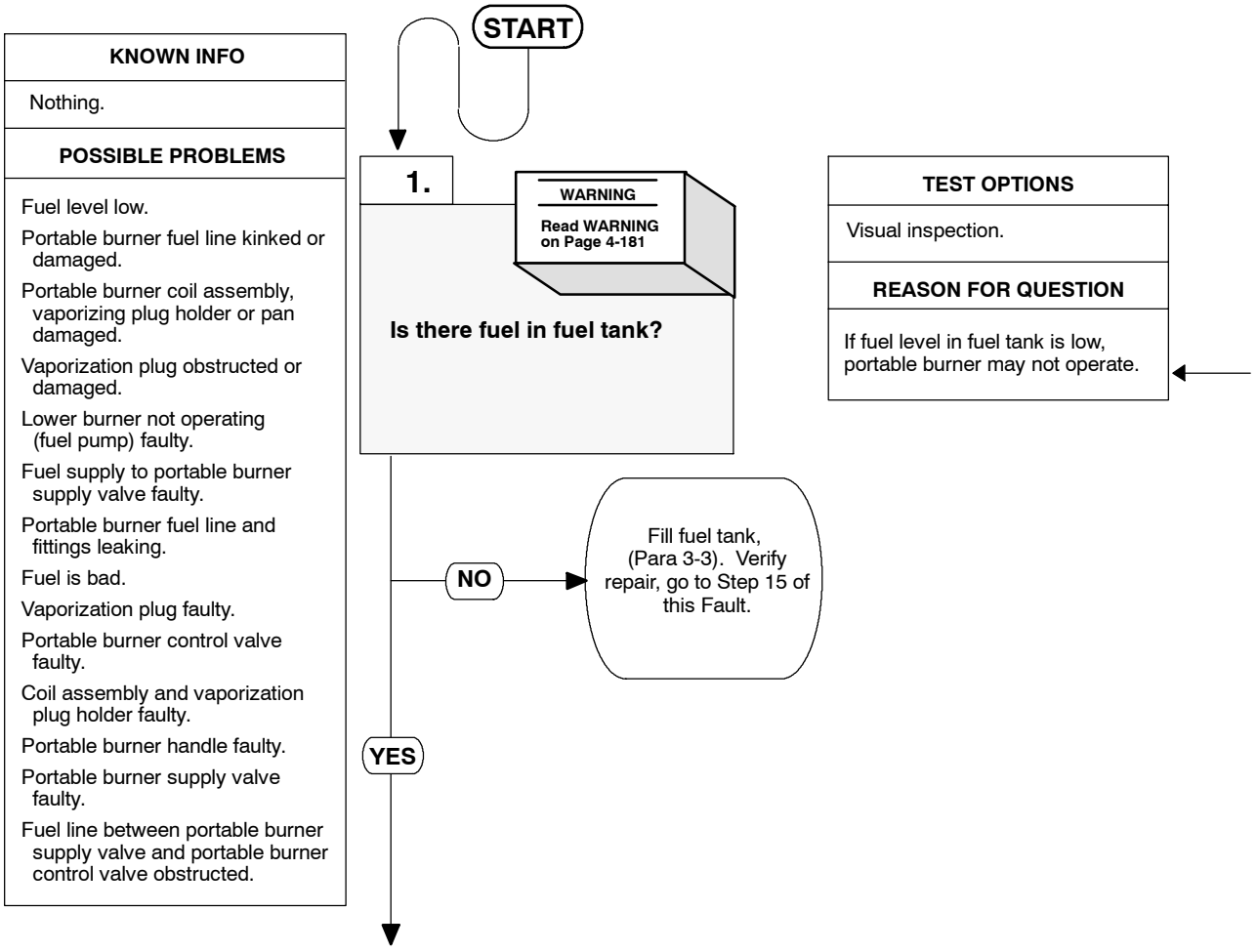
7. PORTABLE BURNER DOES NOT OPERATE CORRECTLY (S/N S3605 AND SUBSEQUENT).

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Pan, Drain (Item 9, Appendix F)

Personnel Required
Two

Equipment Condition
Bituminous Distributor loaded on PLS, (Para 2-5)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)



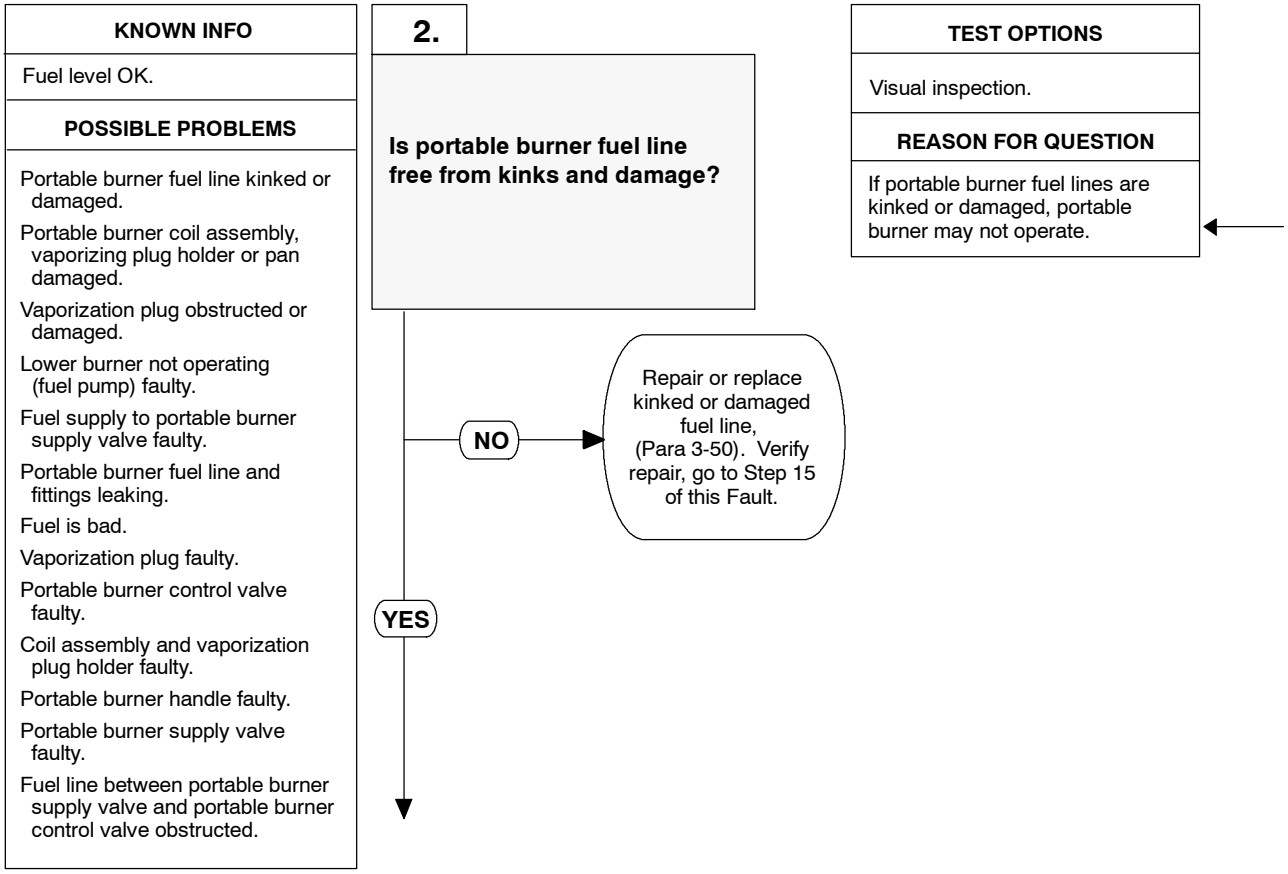
WARNING

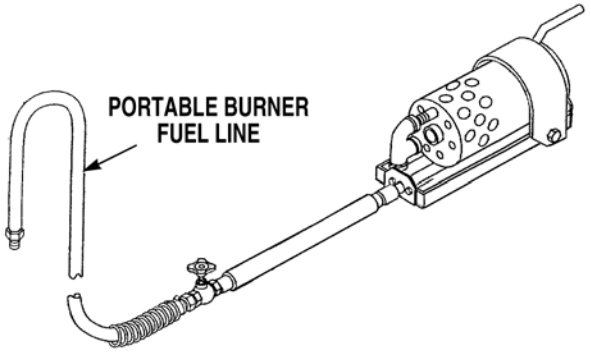
Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel.



VISUAL INSPECTION
Check fuel level in fuel tank. (a) If fuel level in fuel tank is low, fill fuel tank, (Para 3-3). Verify repair, go to Step 15 of this Fault. (b) If fuel level in fuel tank is OK, go to Step 2 of this Fault.

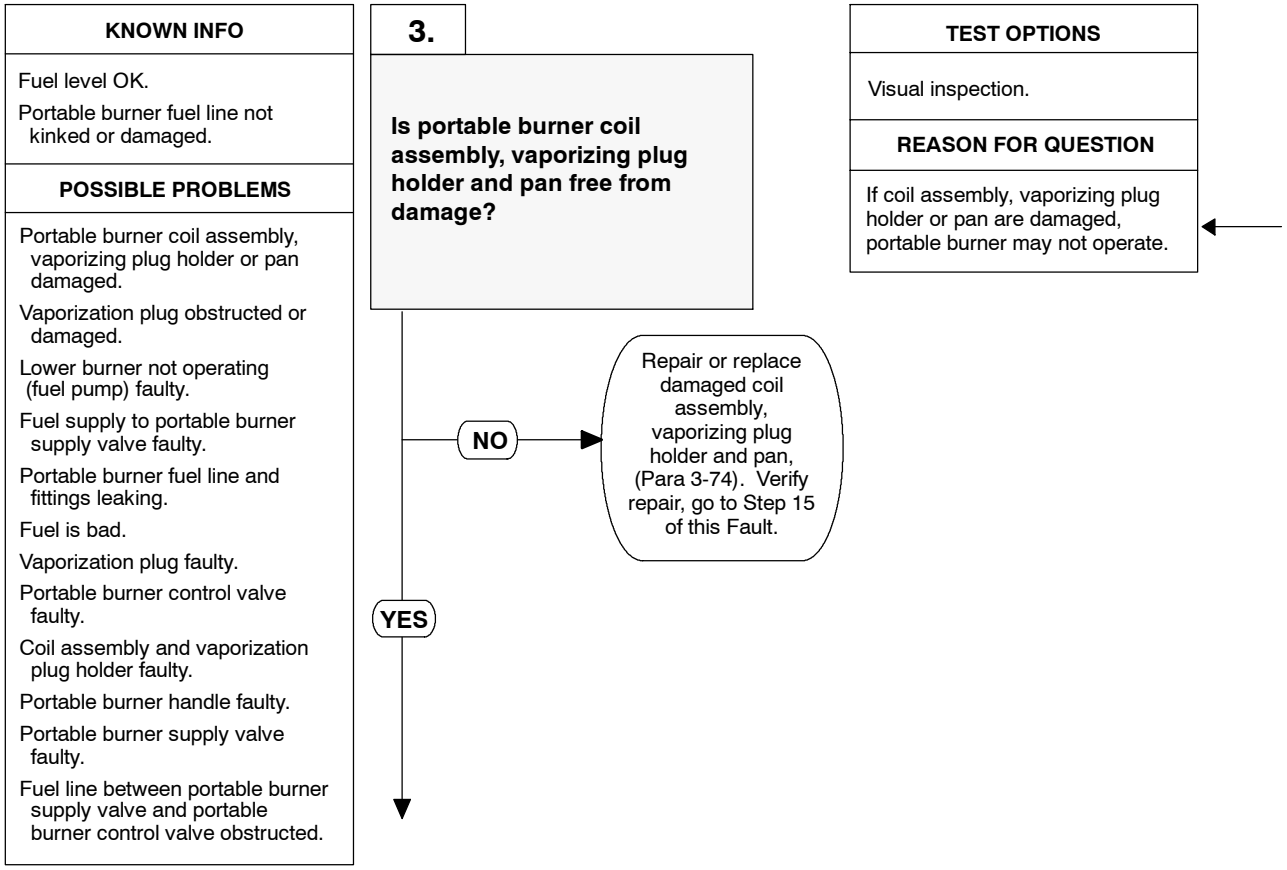
7. PORTABLE BURNER DOES NOT OPERATE CORRECTLY (S/N S3605 AND SUBSEQUENT) (CONT).

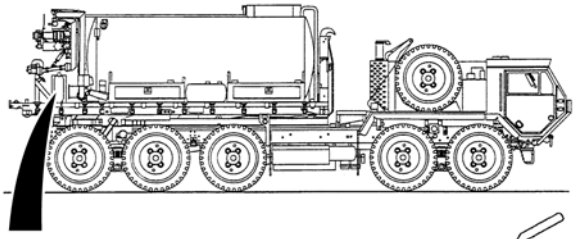


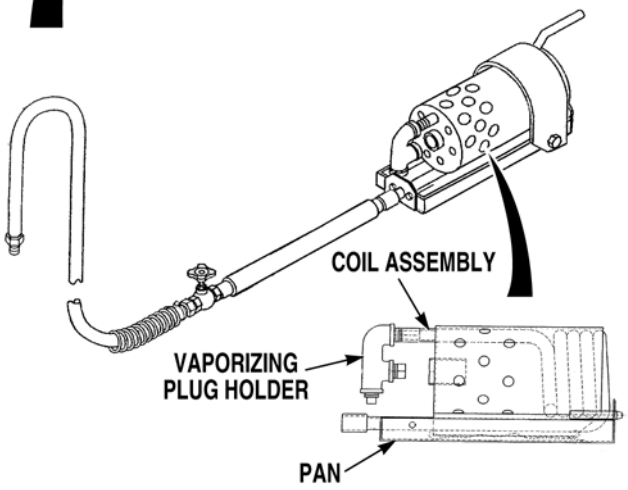


VISUAL INSPECTION
Check if portable burner fuel line is free from kinks and damage. (a) If portable burner fuel line is not free from kinks and damage, repair or replace damaged fuel line, (Para 3-50). Verify repair, go to Step 15 of this Fault. (b) If portable burner fuel line is free from kinks and damage, go to Step 3 of this Fault.

7. PORTABLE BURNER DOES NOT OPERATE CORRECTLY (S/N S3605 AND SUBSEQUENT) (CONT).

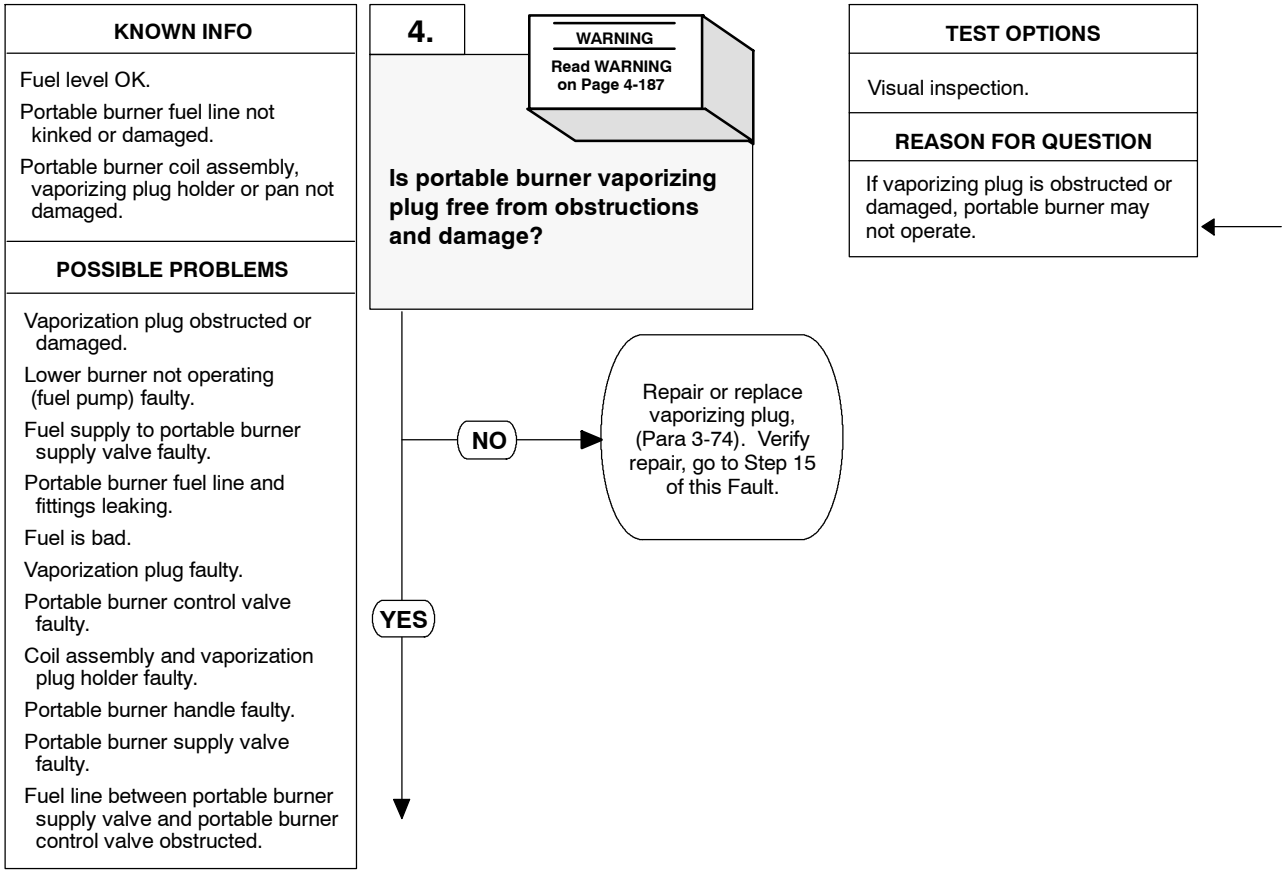






VISUAL INSPECTION
Check if portable burner coil assembly, vaporizing plug holder and pan are free from damage. (a) If portable burner coil assembly, vaporizing plug holder and pan are damaged, repair or replace coil assembly, vaporizing plug holder and pan, (Para 3-74). Verify repair, go to Step 15 of this Fault. (b) If portable burner coil assembly, vaporizing plug holder and pan are free from damage, go to Step 4 of this Fault.

7. PORTABLE BURNER DOES NOT OPERATE CORRECTLY (S/N S3605 AND SUBSEQUENT) (CONT).



WARNING

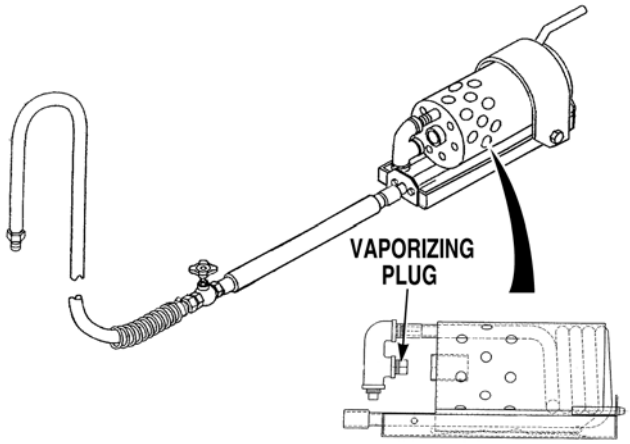
Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel.

VISUAL INSPECTION

Remove portable burner vaporizing plug from vaporizing plug holder, (Para 3-74). Check if portable burner vaporizing plug is free from obstructions and damage.

(a) If portable burner vaporizing plug is not free from obstructions and damage, repair or replace portable burner vaporizing plug, (Para 3-74). Verify repair, go to Step 15 of this Fault.

(b) If portable burner vaporizing plug is free from obstructions and damage, go to Step 5 of this Fault.



7. PORTABLE BURNER DOES NOT OPERATE CORRECTLY (S/N S3605 AND SUBSEQUENT) (CONT).

KNOWN INFO

Fuel level OK.

Portable burner fuel line not kinked or damaged.

Portable burner coil assembly, vaporizing plug holder or pan not damaged.

Vaporization plug not obstructed or damaged.

POSSIBLE PROBLEMS

Lower burner not operating (fuel pump) faulty.

Fuel supply to portable burner supply valve faulty.

Portable burner fuel line and fittings leaking.

Fuel is bad.

Vaporization plug faulty.

Portable burner control valve faulty.

Coil assembly and vaporization plug holder faulty.

Portable burner handle faulty.

Portable burner supply valve faulty.

Fuel line between portable burner supply valve and portable burner control valve obstructed.

5.

WARNING

Read WARNING on Page 4-189

Does lower burner operate?

NO → Go to "Lower Burner Does Not Operate Correctly", (Fault 5).

YES

TEST OPTIONS

Operational test.

REASON FOR QUESTION

If lower burner does not operate, fuel pump may be faulty or another troubleshooting procedure applies.

WARNING

- DO NOT light any burner prior to stick measuring quantity of material in tank (Refer to Para 2-9). Failure to comply may result in injury or death to personnel.
- DO NOT light lower burner unless a minimum of 750 gallons (2,838.75 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- DO NOT light upper burner unless a minimum of 1,050 gallons (3,974.25 l) of material is in tank and flue is covered with a minimum of six inches (15.24 cm) of material. Failure to comply may result in injury or death to personnel.
- Allowing burners to operate for a long period of time without circulating can damage product and create explosive fumes. If product cannot be circulated after 15 minutes of heating without circulating, burners should be extinguished for 20 to 30 minutes before re-lighting.
- See Para 2-18 for additional warnings.

CAUTION

Circulating bitumen in tank while heating is recommended for faster heating and reduced carbon on flues. Only when asphalt pump is “frozen” is it acceptable to operate burners without circulating material. However, if asphalt pump is “frozen”, carefully apply heat to pump housing and start circulating as soon as possible.

OPERATIONAL TEST

(1) Stick measure quantity of material in tank, (Para 2-13). Ensure there is at least 1,050 gallons (3974.25 l) of material in tank. Fill distributor if required, (Para 2-15).

(2) Start engine, (TM 9-2320-364-10).

(3) Apply parking brake, (TM 9-2320-364-10).

(4) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(5) Turn front control panel POWER switch ON, (Para 2-1).

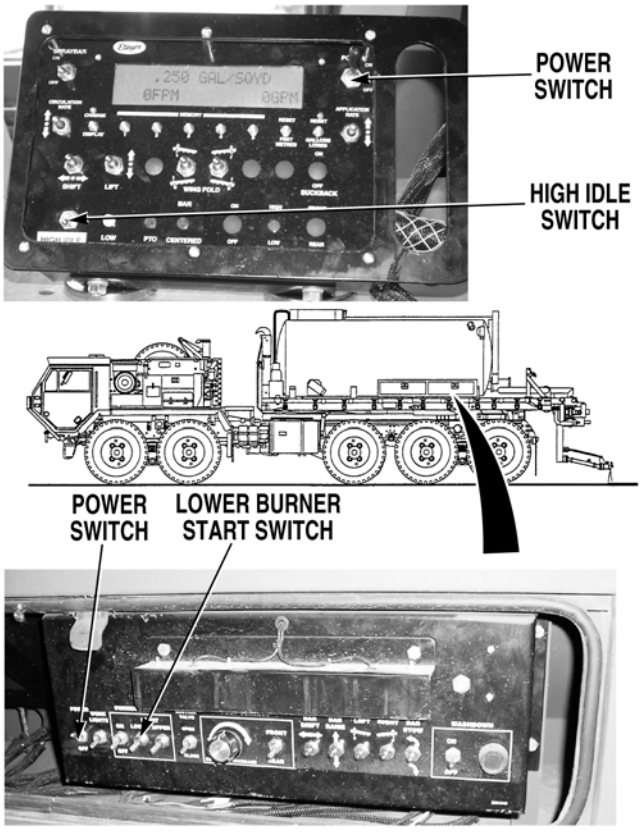
(6) Turn rear control panel POWER switch ON, (Para 2-1).

(7) Turn HIGH IDLE switch ON, (Para 2-1).

(8) Operate lower burner function, (Para 2-22). Check if lower burner operates correctly.

(a) If lower burner does not operate correctly, shut off lower burner, (Para 2-22) and engine, (TM 9-2320-364-10), and go to “Lower Burner Does Not Operate Correctly”, (Fault 5).

(b) If lower burner operates correctly, go to Step 6 of this Fault.



7. PORTABLE BURNER DOES NOT OPERATE CORRECTLY (S/N S3605 AND SUBSEQUENT) (CONT).

KNOWN INFO

Fuel level OK.

Portable burner fuel line not kinked or damaged.

Portable burner coil assembly, vaporizing plug holder or pan not damaged.

Vaporization plug not obstructed or damaged.

Fuel supply to portable burner supply valve OK.

Lower burner operates (fuel pump) OK.

POSSIBLE PROBLEMS

Portable burner fuel line and fittings leaking.

Fuel is bad.

Vaporization plug faulty.

Portable burner control valve faulty.

Coil assembly and vaporization plug holder faulty.

Portable burner handle faulty.

Portable burner supply valve faulty.

Fuel line between portable burner supply valve and portable burner control valve obstructed.

6.

WARNING

Read WARNING on Page 4-191

Is portable burner fuel line and fittings free from leaks, when portable burner supply valve is opened and burner control valve is closed?

NO → Repair leaks or replace damaged fuel lines, (Para 3-50). Verify repair, go to Step 15 of this Fault.

YES

TEST OPTIONS

Operational test.

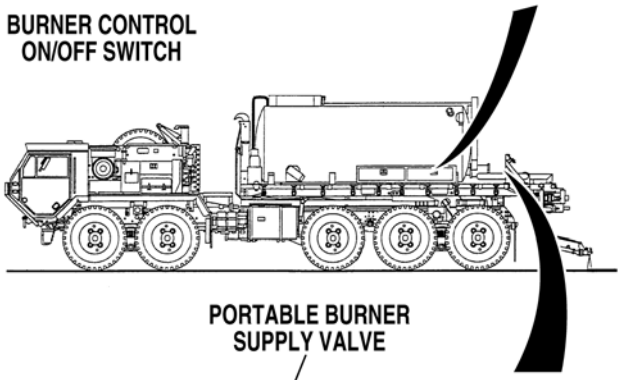
REASON FOR QUESTION

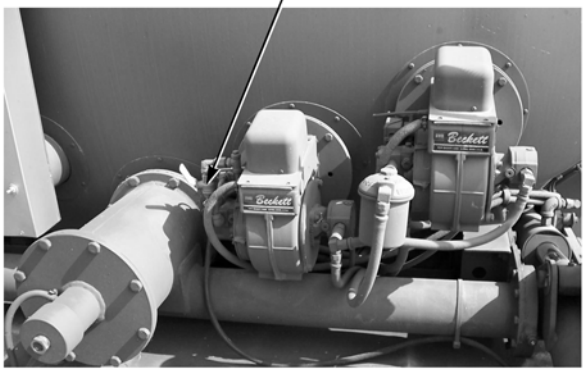
If portable burner fuel lines and fittings leak, portable burner may not operate.

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.







OPERATIONAL TEST

(1) Turner burner control ON/OFF switch OFF, (Para 2-1). Leave burner control ON/OFF switch in OFF position for a minimum of 20 seconds.

(2) Close portable burner control valve, (Para 2-24).

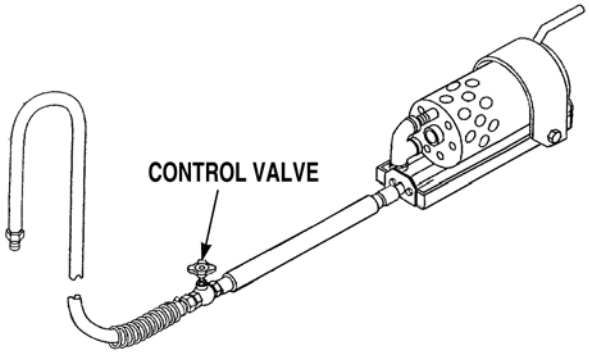
(3) Open portable burner supply valve, (Para 2-24).

(4) Turn burner control ON/OFF switch OFF, (Para 2-1).

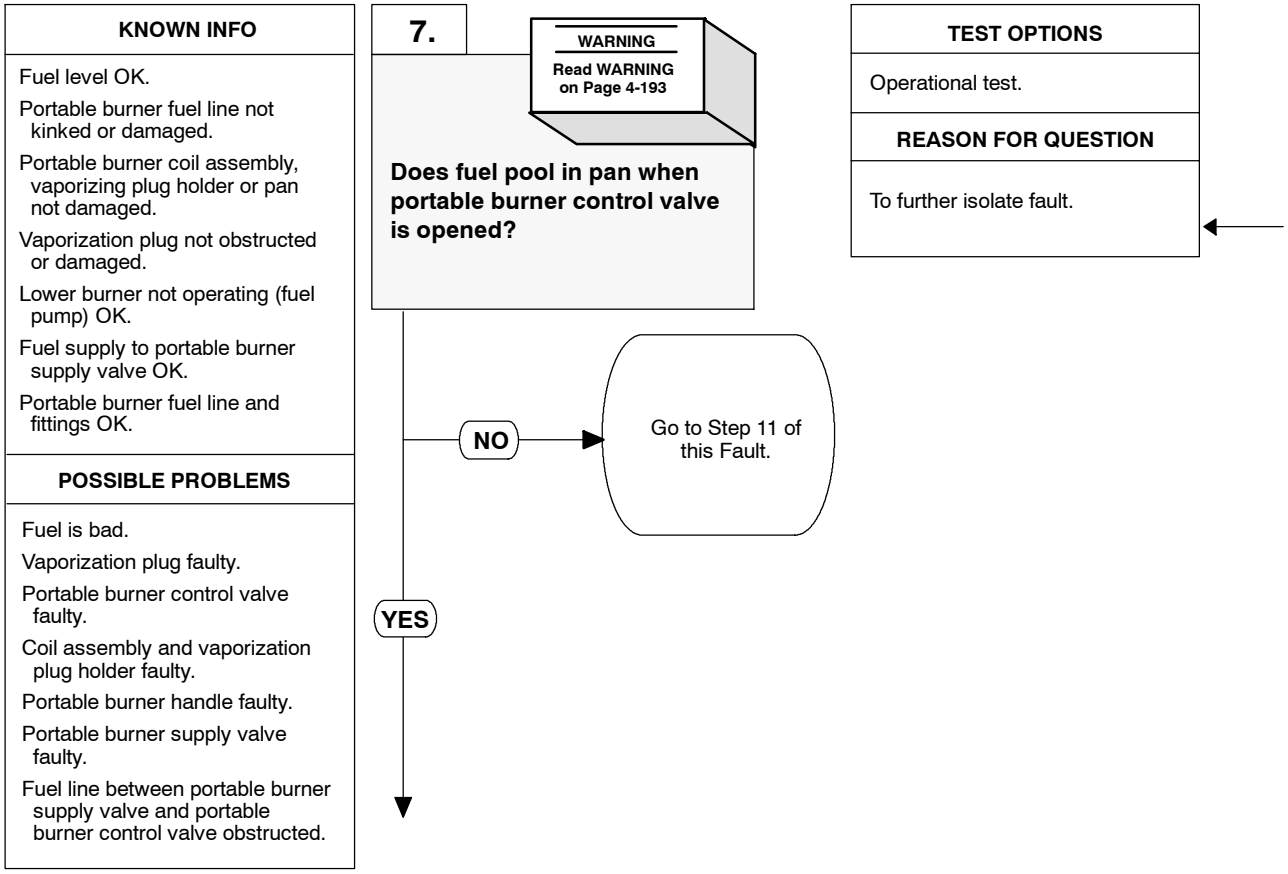
(5) Check if portable burner fuel lines and fittings are free from leaks.

(a) If portable burner fuel lines and fittings are not free from leaks, turn burner control ON/OFF switch OFF, (Para 2-1), shut off engine, (TM 9-2320-364-10) and repair leaks or replace portable burner fuel line, (Para 3-50). Verify repair, go to Step 15 of this Fault.

(b) If portable burner fuel lines and fittings are free from leaks, go to Step 7 of this Fault.



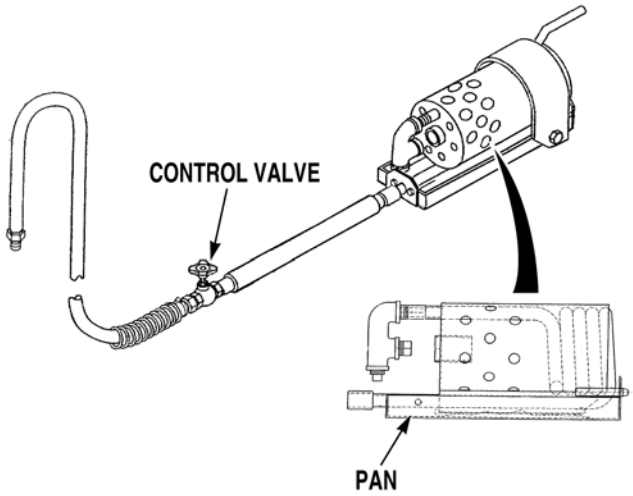
7. PORTABLE BURNER DOES NOT OPERATE CORRECTLY (S/N S3605 AND SUBSEQUENT) (CONT).



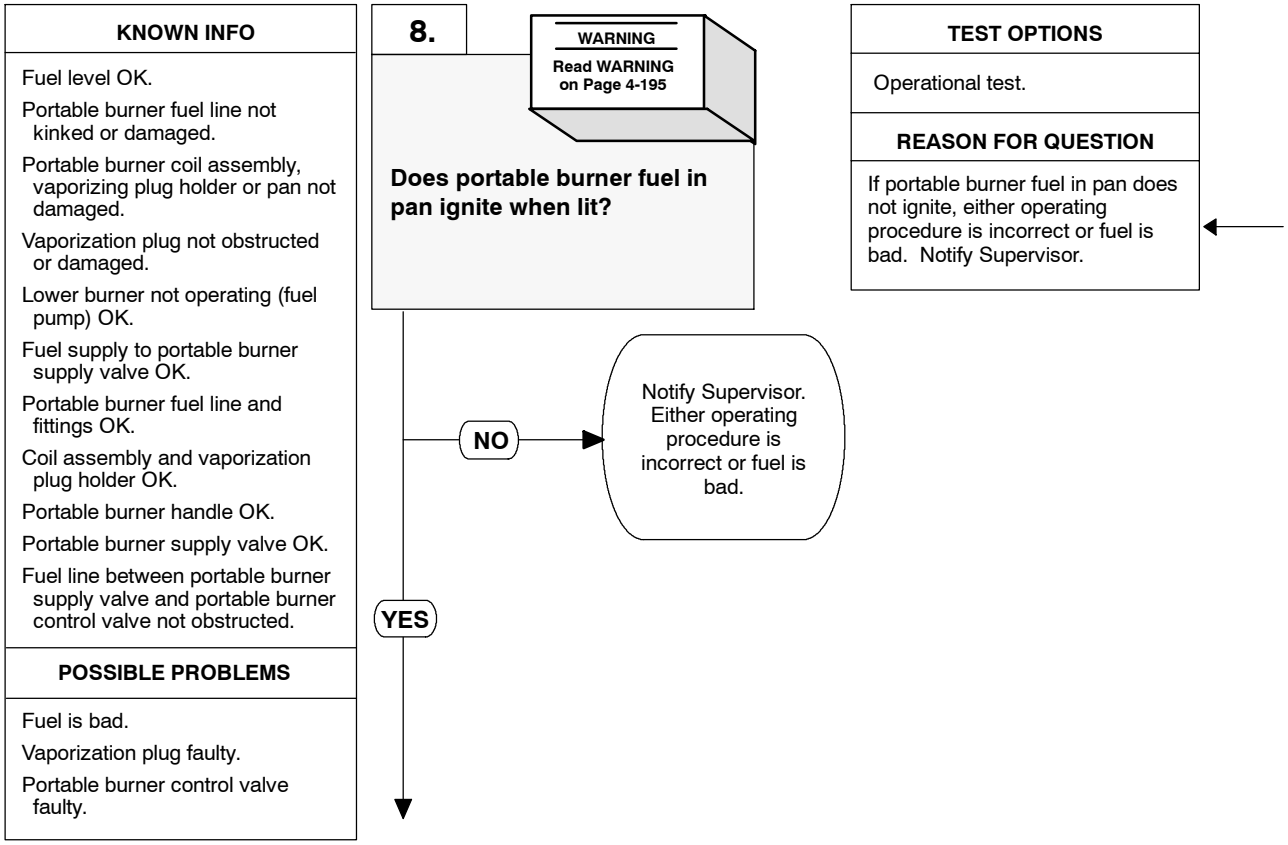
WARNING

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.

OPERATIONAL TEST
Open portable burner control valve, (Para 2-24). Check if fuel pools in portable burner pan. Close control valve. (a) If fuel does not pool in portable burner pan, go to Step 11 of this Fault. (b) If fuel pools in portable burner pan, go to Step 8 of this Fault.

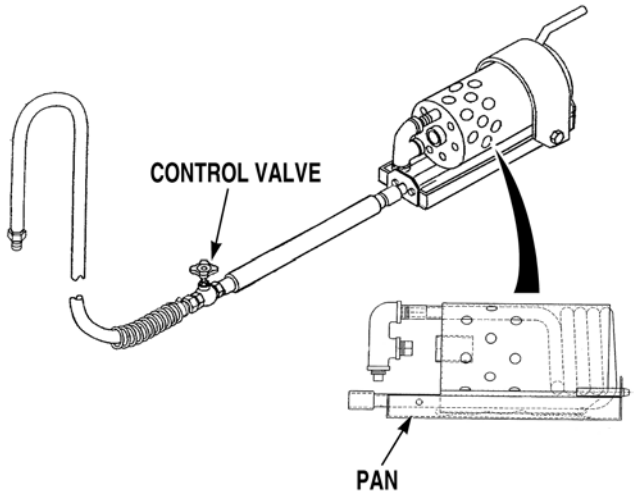


7. PORTABLE BURNER DOES NOT OPERATE CORRECTLY (S/N S3605 AND SUBSEQUENT) (CONT).



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 light portable burner in confined area. Injury or death to personnel may result.



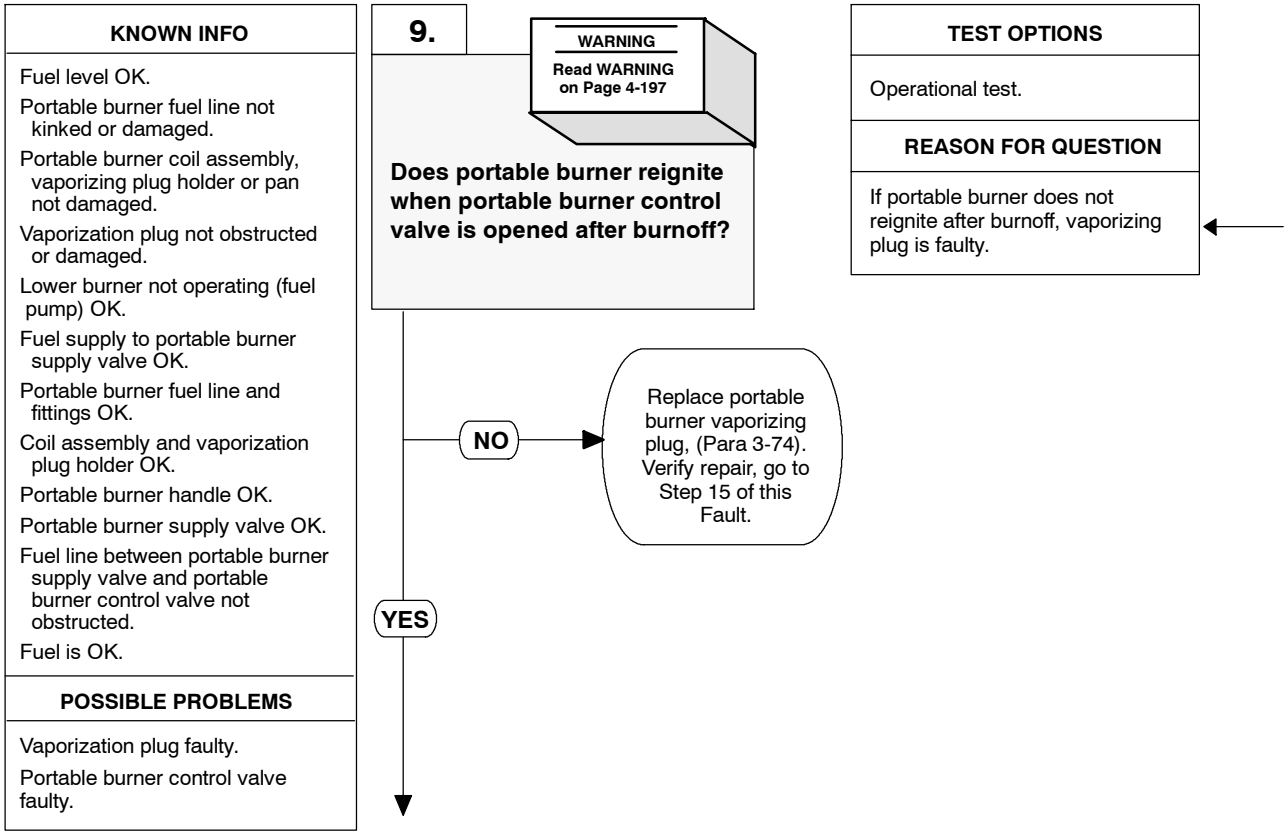
OPERATIONAL TEST

With control valve closed, ignite fuel in portable burner pan, (Para 2-24).

(a) If fuel in burner pan does not ignite,either operating procedures are incorrect or fuel is bad. Turn burner control ON/OFF switch OFF, (Para 2-1) and shut off engine, (TM 9-2320-364-10). Notify Supervisor.

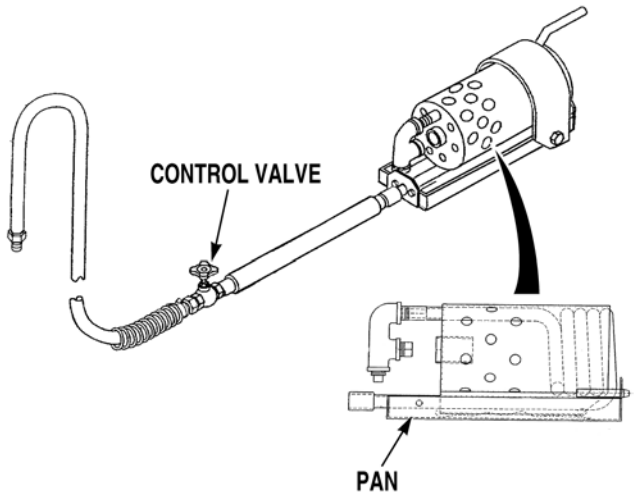
(b) If fuel in burner pan ignites, go to Step 9 of this Fault.

7. PORTABLE BURNER DOES NOT OPERATE CORRECTLY (S/N S3605 AND SUBSEQUENT) (CONT).



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 light portable burner in confined area. Injury or death to personnel may result.



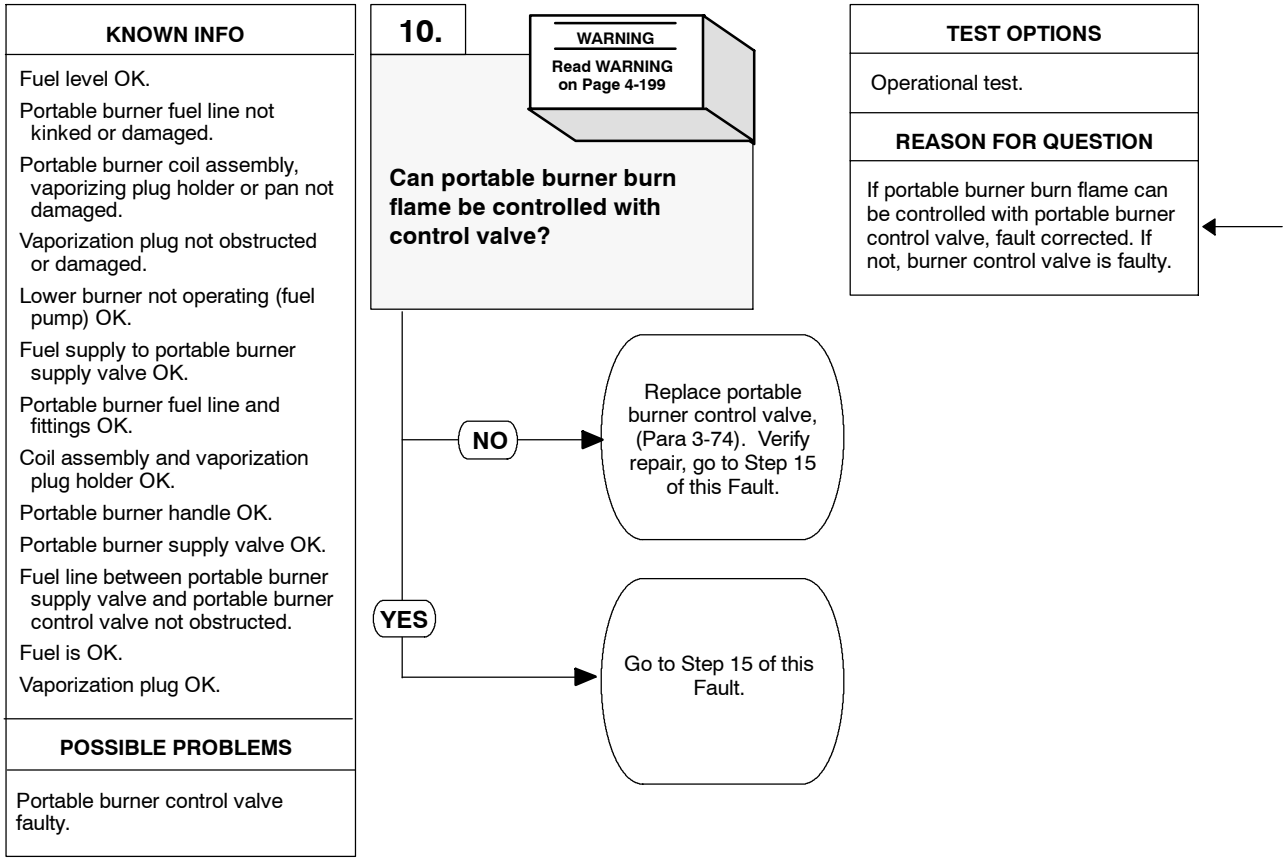
OPERATIONAL TEST

When fuel in burner pan burns off, open portable burner control valve, (Para 2-24). Check if portable burner reignites.

(a) If portable burner does not reignite, replace vaporizing plug, (Para 3-74). Verify repair, go to Step 15 of this Fault.

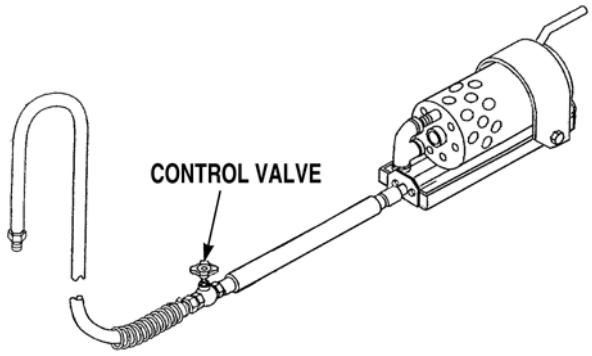
(b) If portable burner reignites, go to Step 10 of this Fault.

7. PORTABLE BURNER DOES NOT OPERATE CORRECTLY (S/N S3605 AND SUBSEQUENT) (CONT).



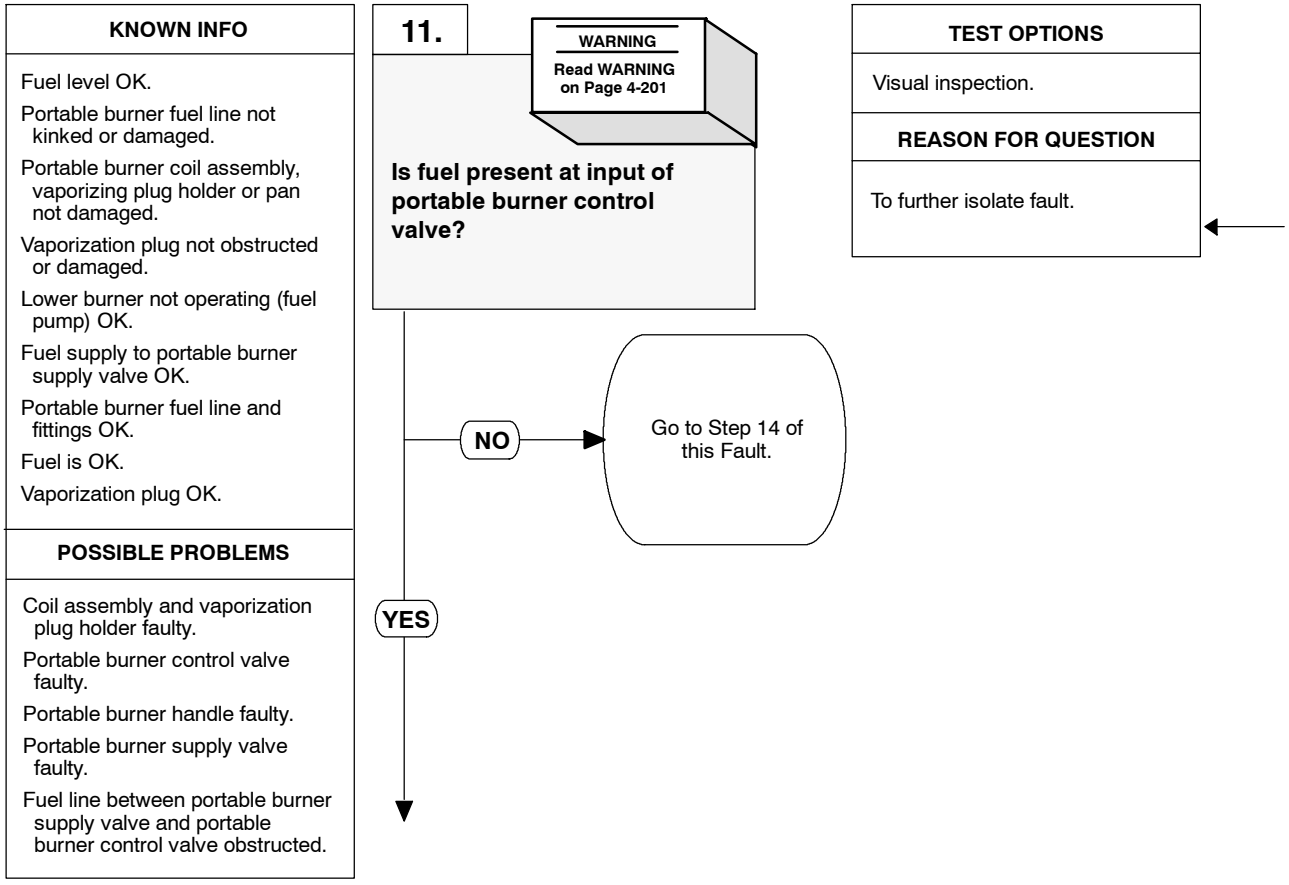
WARNING

- 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 light portable burner in confined area. Injury or death to personnel may result.



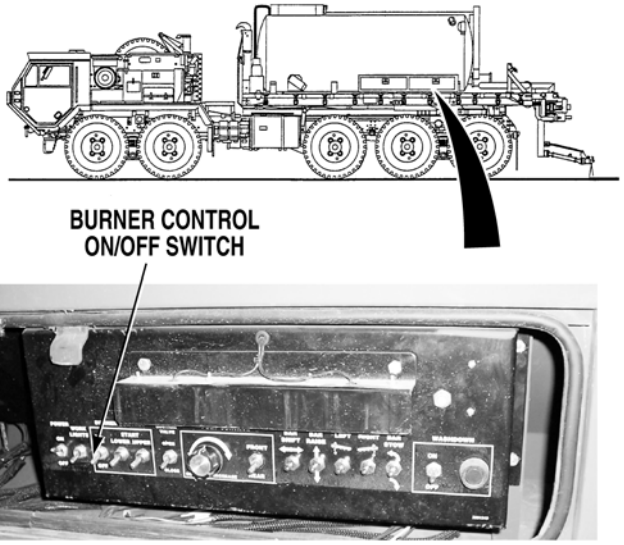
OPERATIONAL TEST
Operate portable burner control valve. Check if burner flame can be controlled with control valve. (a) If burner flame cannot be controlled, replace portable burner control valve, (Para 3-74). Verify repair, go to Step 15 of this Fault. (b) If burner flame can be controlled, go to Step 15 of this Fault.

7. PORTABLE BURNER DOES NOT OPERATE CORRECTLY (S/N S3605 AND SUBSEQUENT) (CONT).



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 light portable burner in confined area. Injury or death to personnel may result.



VISUAL INSPECTION

(1) Turn portable burner and supply valve valve OFF, (Para 2-24).

(2) Turn rear control panel burner control ON/OFF switch OFF, (Para 2-1).

(3) Place drain pan under portable burner control valve.

(4) Disconnect portable burner fuel line from portable burner control valve, (Para 3-74).

(5) Place portable burner fuel line in drain pan.

(6) Turn rear control panel burner control ON/OFF switch ON, (Para 2-1). (Lower burner blower will start.)

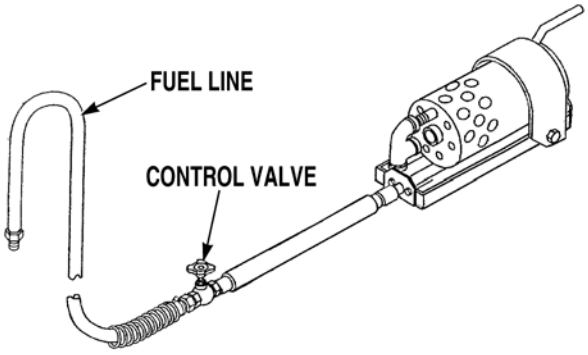
NOTE

Fuel is at high pressure, securely hold portable burner fuel line in drain pan.

(7) While an assistant opens portable burner supply valve, (Para 2-24), check if fuel is present at end of portable burner fuel line.

(a) If fuel is not present, go to Step 14 of this Fault.

(b) If fuel is present, go to Step 12 of this Fault.



7. PORTABLE BURNER DOES NOT OPERATE CORRECTLY (S/N S3605 AND SUBSEQUENT) (CONT).

KNOWN INFO

Fuel level OK.

Portable burner fuel line not kinked or damaged.

Portable burner coil assembly, vaporizing plug holder or pan not damaged.

Vaporization plug not obstructed or damaged.

Lower burner not operating (fuel pump) OK.

Fuel supply to portable burner supply valve OK.

Portable burner fuel line and fittings OK.

Fuel is OK.

Vaporization plug OK.

Portable burner supply valve OK.

Fuel line between portable burner supply valve and portable burner control valve not obstructed.

POSSIBLE PROBLEMS

Coil assembly and vaporization plug holder faulty.

Portable burner control valve faulty.

Portable burner handle faulty.

12.

WARNING

Read WARNING on Page 4-203

Is fuel present at input of portable burner coil assembly?

NO → Go to Step 13 of this Fault.

YES → Repair or replace portable burner coil assembly and vaporizing plug, (Para 3-74). Verify repair, go to Step 15 of this Fault.

TEST OPTIONS

Visual inspection.

REASON FOR QUESTION

If fuel is present at portable burner coil assembly, coil assembly and vaporizing plug holder are faulty.

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.

VISUAL INSPECTION

(1) Turn portable burner supply valve OFF, (Para 2-24).

(2) Turn rear control panel burner control ON/OFF switch OFF, (Para 2-1).

(3) Connect portable burner fuel line to portable burner control valve, (Para 3-74).

(4) Place drain pan under portable burner coil assembly.

(5) Disconnect portable burner handle from portable burner coil assembly, (Para 3-74).

(6) Turn rear control panel burner control ON/OFF switch ON, (Para 2-1).

(7) Turn portable burner supply valve ON, (Para 2-1).

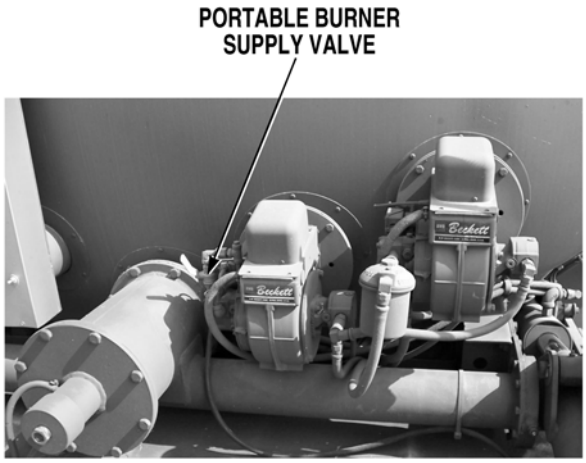
NOTE

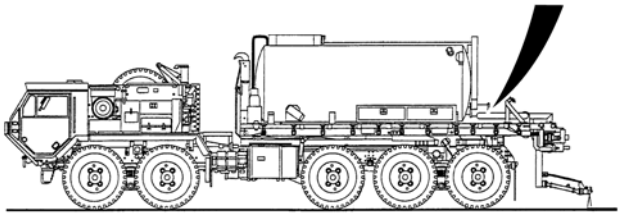
Fuel is at high pressure, securely hold portable burner handle in drain pan.

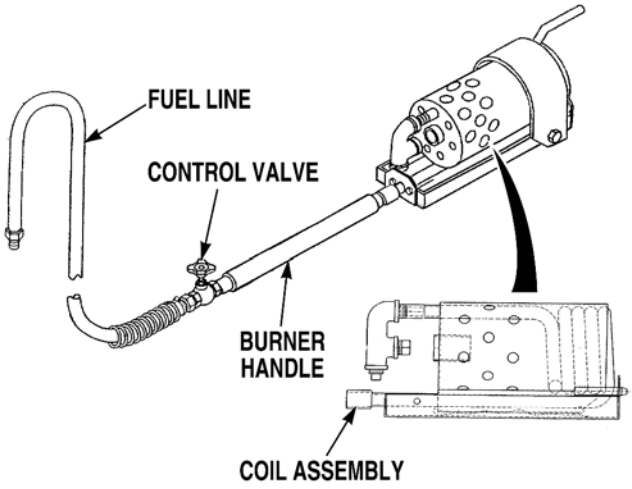
(8) With end of portable burner handle in drain pan, operate control valve check if fuel is present at end of portable burner handle.

(a) If fuel is not present, go to Step 13 of this Fault.

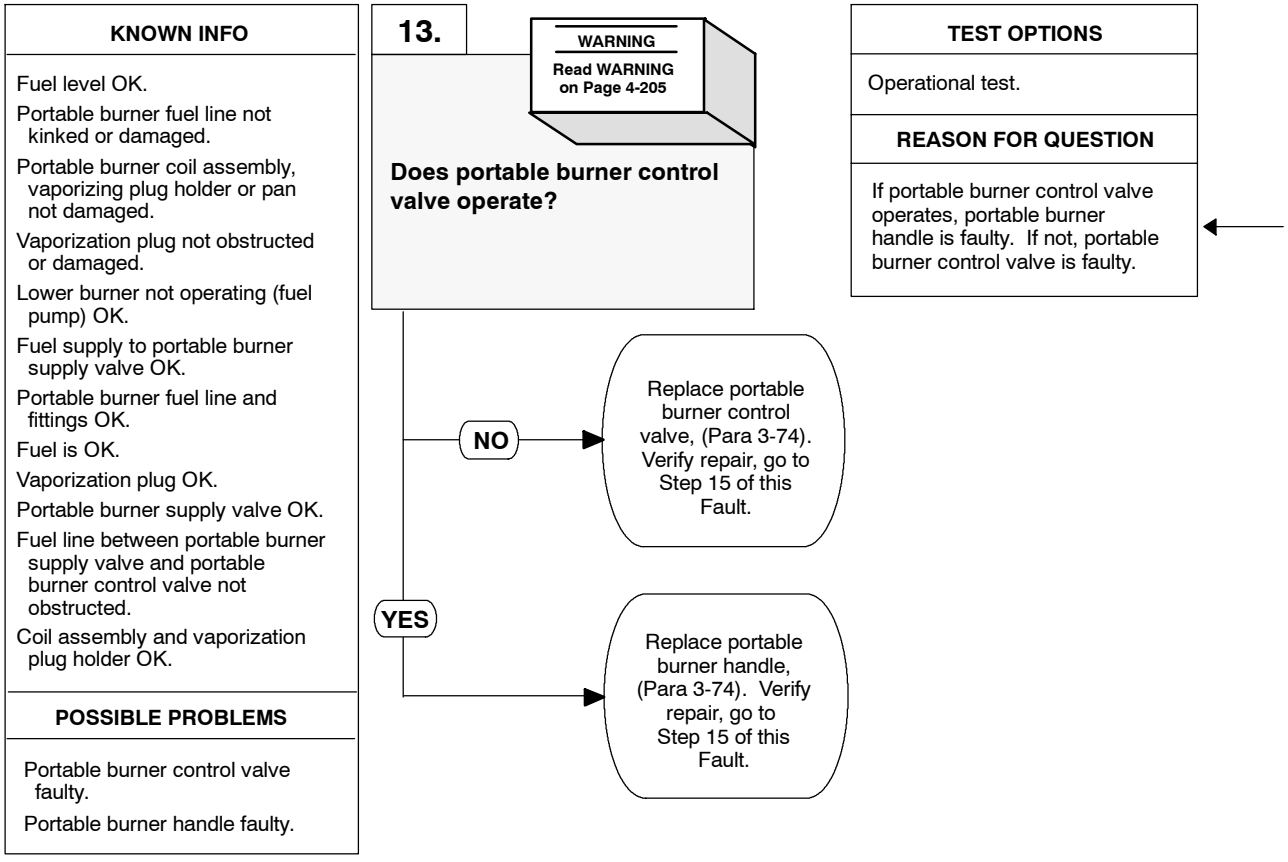
(b) If fuel is present, replace portable burner coil assembly, (Para 3-74). Verify repair, go to Step 15 of this Fault.







7. PORTABLE BURNER DOES NOT OPERATE CORRECTLY (S/N S3605 AND SUBSEQUENT) (CONT).

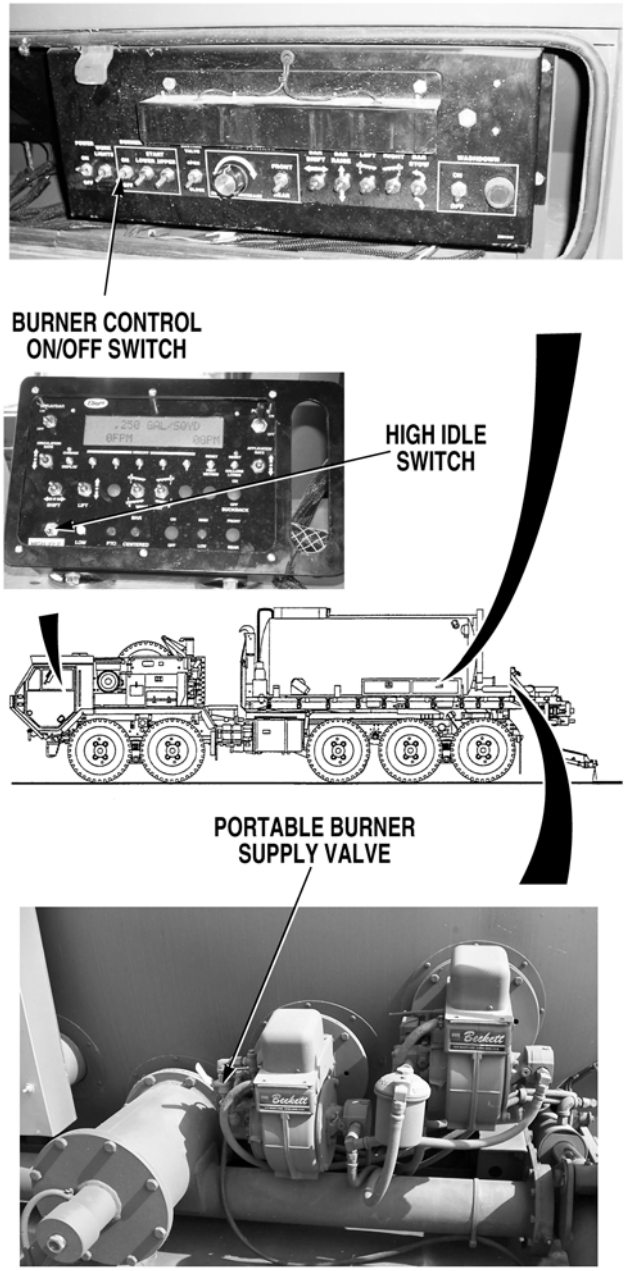


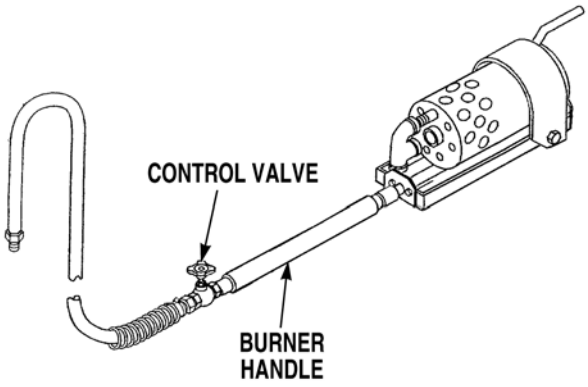
WARNING

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.

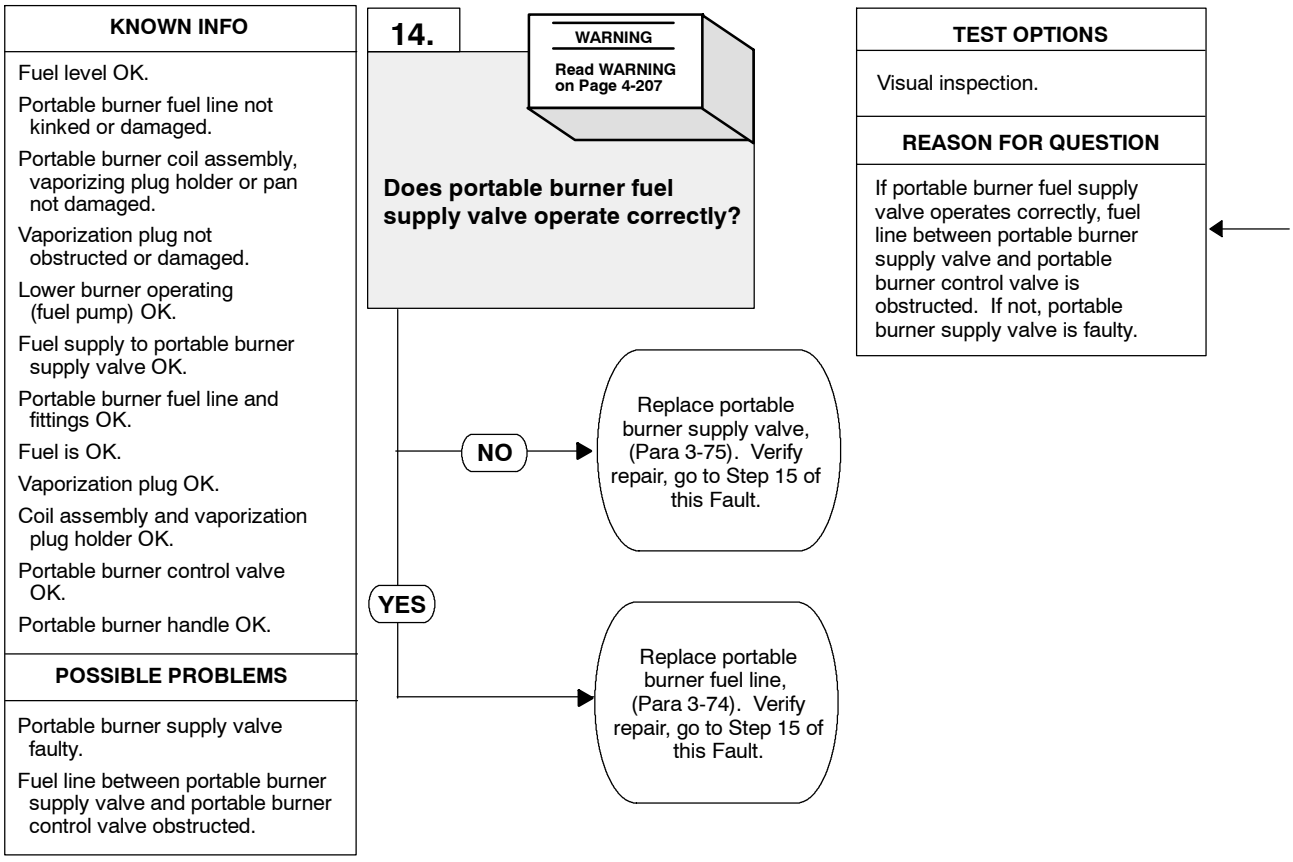
OPERATIONAL TEST

(1) Turn portable burner handle control valve OFF, (Para 2-24).
(2) Turn portable burner supply valve OFF, (Para 2-24).
(3) Turn rear control panel burner ON/OFF switch OFF, (Para 2-1).
(4) Turn HIGH IDLE switch OFF, (Para 2-1).
(5) Shut OFF engine, (TM 9-2320-364-10).
(6) Remove portable burner handle from control valve, (Para 2-24).
(7) Operate portable burner control valve, (Para 2-24). Check if portable burner control valve is operating correctly.
    (a) If portable burner control valve is not operating correctly, replace portable burner control valve, (Para 3-74).
    (b) If portable burner control valve is operating correctly, replace portable burner handle, (Para 3-74).
(8) Verify repair, go to Step 15 of this Fault.





7. PORTABLE BURNER DOES NOT OPERATE CORRECTLY (S/N S3605 AND SUBSEQUENT) (CONT).



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.

VISUAL INSPECTION

(1) Turn portable burner supply valve OFF, (Para 2-24).

(2) Turn rear control panel burner control ON/OFF switch OFF, (Para 2-1).

(3) Turn HIGH IDLE switch OFF, (Para 2-1).

(4) Shut OFF engine, (TM 9-2320-364-10).

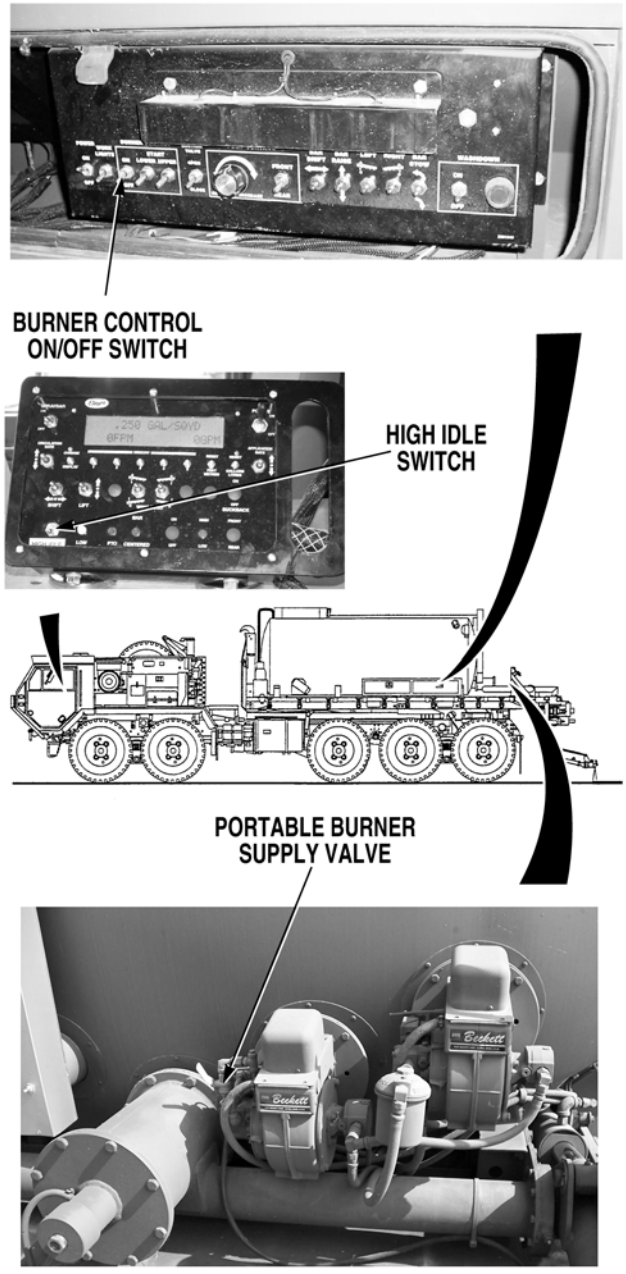
(5) Disconnect portable burner fuel line from portable burner supply valve, (Para 3-75).

(6) Operate portable burner supply valve, (Para 2-24). Check if portable burner supply valve is operating correctly.

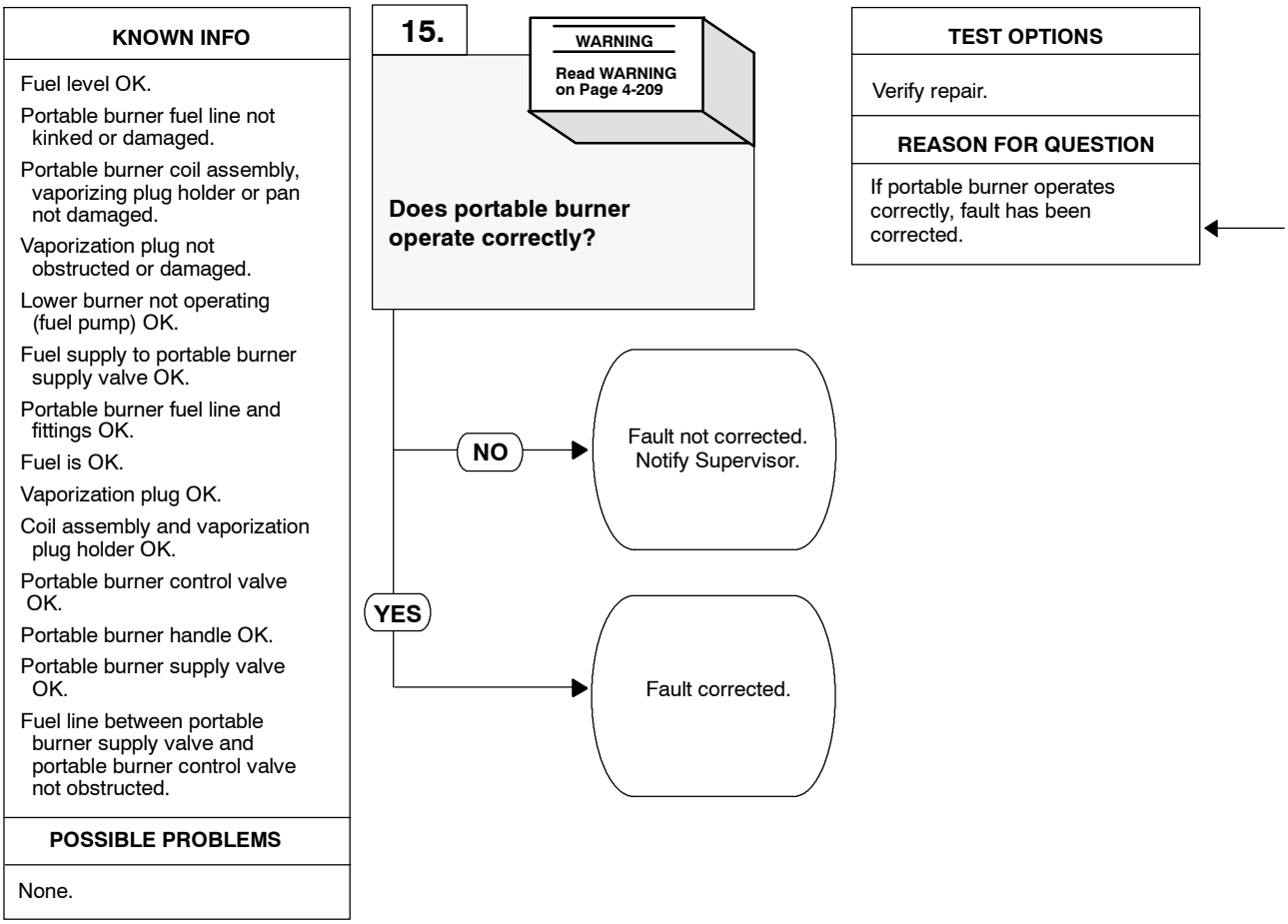
  (a) If portable burner supply valve is not operating correctly, replace portable burner supply valve, (Para 3-75).

  (b) If portable burner control valve is operating correctly, replace portable burner fuel line between portable burner supply valve and portable burner control valve, (Para 3-74).

(7) Verify repair, go to Step 15 of this Fault.



7. PORTABLE BURNER DOES NOT OPERATE CORRECTLY (S/N S3605 AND SUBSEQUENT) (CONT).



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 light portable burner in confined area. Injury or death to personnel may result.

VERIFY REPAIR

(1) If disconnected, connect portable burner control valve to portable burner fuel line, (Para 3-75).

(2) If disconnected, connect portable burner handle to portable burner control valve, (Para 3-74).

(3) If disconnected, connect portable burner handle to coil assembly, (Para 3-74).

(4) If disconnected, connect fuel supply line to portable burner supply valve, (Para 3-74).

(5) If removed, install vaporization plug, (Para 3-74).

(6) If OFF, start engine, (TM 9-2320-364-10).

(7) Apply parking brake, (TM 9-2320-364-10).

(8) Turn HIGH IDLE switch ON, (Para 2-1).

(9) Place truck transmission in NEUTRAL, (Para 2-1).

(10) Turn front control panel POWER switch ON, (Para 2-1).

(11) Turn rear control panel POWER switch ON, (Para 2-1).

(12) Pull out and turn lower burner palm button 90° and release, (Para 2-22).

(13) Turn rear control panel burner ON/OFF switch ON, (Para 2-1).

(14) Operate portable burner, (Para 2-23).

(a) If portable burner does not operate, fault not corrected. Notify Supervisor.

(b) If portable burner operates, fault has been corrected.

(15) Turn OFF rear control panel burner control ON/OFF switch, (Para 2-1).

(16) Pull out and turn lower burner palm button 90° and release, (Para 2-22).

(17) Turn rear control panel POWER switch OFF, (Para 2-1).

(18) Turn front control panel POWER switch OFF, (Para 2-1).

(19) Turn HIGH IDLE switch OFF, (Para 2-1).

(20) Shut OFF engine, (TM 9-2320-364-10).



8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE.

INITIAL SETUP

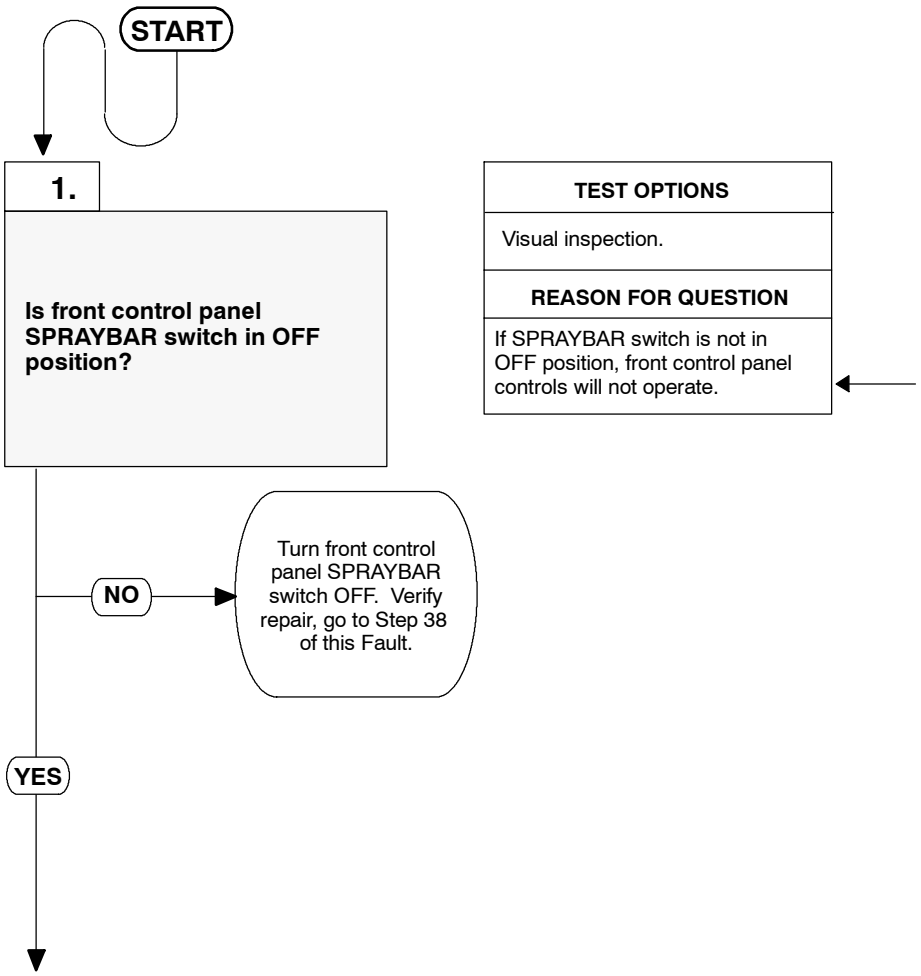
Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
- Multimeter (Item 8, Appendix F)
- Pan, Drain (Item 9, Appendix F)
- Jumperwire

Personnel Required
- Two

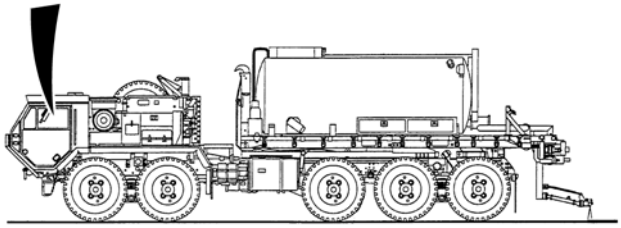
Equipment Condition
- Bituminous Distributor loaded on PLS, (Para 2-5)
- Engine OFF, (TM 9-2320-364-10)
- Wheels chocked, (TM 9-2320-364-10)

8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO
Nothing.
POSSIBLE PROBLEMS
Front control panel SPRAYBAR switch is not in correct position.
Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud faulty.
CIRCULATION RATE switch faulty.
Front control panel wire harness (wire 7 black) faulty.
PLS interface faulty.
Front control panel wire harness (wire 9 white) faulty.
Front control panel wire harness (wire 8 black) faulty.
Front control panel wire harness (wire 9 black) faulty.
Front control panel wire harness (wire 10 black) faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Rear control panel FRONT/REAR select switch faulty.
Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.







VISUAL INSPECTION

(1) Check if SPRAYBAR switch is in OFF position.

(a) If SPRAYBAR switch is not in OFF position, turn SPRAYBAR switch OFF, (Para 2-1). Verify repair, go to Step 38 of this Fault.

(b) If SPRAYBAR switch is in OFF position, go to Step 2 of this Fault.

8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

Front control panel SPRAYBAR switch is in correct position.

POSSIBLE PROBLEMS

- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud faulty.
- CIRCULATION RATE switch faulty.
- Front control panel wire harness (wire 7 black) faulty.
- PLS interface faulty.
- Front control panel wire harness (wire 9 white) faulty.
- Front control panel wire harness (wire 8 black) faulty.
- Front control panel wire harness (wire 9 black) faulty.
- Front control panel wire harness (wire 10 black) faulty.
- Front control panel wire harness (wire 11 black) faulty.
- Front control panel wire harness (wire 12 black) faulty.
- Rear control panel FRONT/REAR select switch faulty.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
- Front control panel faulty.
- Controller faulty.
- Controller wire harness (wire 12 black) faulty.
- Rear control panel wire harness (wire 12 black) faulty.
- Controller wire harness (wire 11 black) faulty.
- Rear control panel wire harness (wire 11 black) faulty.
- Controller wire harness (wire 9 black) faulty.
- Rear control panel wire harness (wire 9 black) faulty.
- Controller wire harness (wire 9 white) faulty.
- Rear control panel wire harness (wire 9 white) faulty.
- Controller wire harness (wire 10 black) faulty.
- Rear control panel wire harness (wire 10 black) faulty.
- Controller wire harness (wire 8 black) faulty.
- Rear control panel wire harness (wire 8 black) faulty.

2.

Does rear control panel PUMP CONTROL control pump speed?

TEST OPTIONS

Operational test.

REASON FOR QUESTION

If rear control panel PUMP CONTROL does not control asphalt pump speed, another troubleshooting procedure applies.

NO → Go to “Asphalt Pump Does Not Turn Or Turns Slowly”, (Fault 14).

YES



ASPHALT PUMP

OPERATIONAL TEST

(1) Start engine, (TM 9-2320-364-10).

(2) Turn hydraulic selector switch to CRANE/SRW, (TM 9-2320-364-10).

(3) Turn front control panel POWER switch ON, (Para 2-1).

(4) Turn rear control panel POWER switch ON, (Para 2-1).

(5) Turn rear control panel FRONT/REAR select switch to REAR, (Para 2-1).

(6) Set up system to circulate in tank, (Para 2-16).

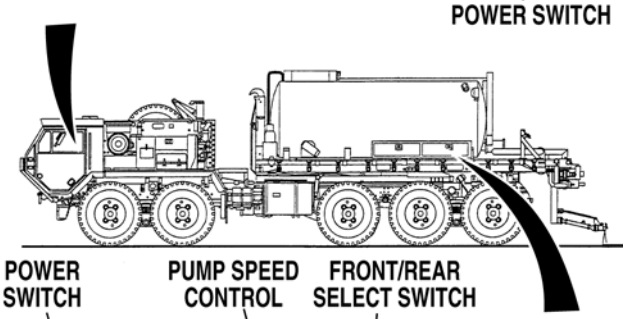
(7) Operate circulation function from rear control panel, (Para 2-16). Check if rear control panel PUMP CONTROL controls pump speed.

(a) If rear controls do not control asphalt pump speed, go to "Ashpalt Pump Does Not Turn or Turns Slowly", (Fault 14).

(b) If rear controls control pump speed, go to Step 3 of this Fault.



POWER SWITCH



POWER SWITCH

PUMP SPEED CONTROL

FRONT/REAR SELECT SWITCH



8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

Front control panel SPRAYBAR switch is in correct position.

POSSIBLE PROBLEMS

- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud faulty.
- CIRCULATION RATE switch faulty.
- Front control panel wire harness (wire 7 black) faulty.
- PLS interface faulty.
- Front control panel wire harness (wire 9 white) faulty.
- Front control panel wire harness (wire 8 black) faulty.
- Front control panel wire harness (wire 9 black) faulty.
- Front control panel wire harness (wire 10 black) faulty.
- Front control panel wire harness (wire 11 black) faulty.
- Front control panel wire harness (wire 12 black) faulty.
- Rear control panel FRONT/REAR select switch faulty.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
- Front control panel faulty.
- Controller faulty.
- Controller wire harness (wire 12 black) faulty.
- Rear control panel wire harness (wire 12 black) faulty.
- Controller wire harness (wire 11 black) faulty.
- Rear control panel wire harness (wire 11 black) faulty.
- Controller wire harness (wire 9 black) faulty.
- Rear control panel wire harness (wire 9 black) faulty.
- Controller wire harness (wire 9 white) faulty.
- Rear control panel wire harness (wire 9 white) faulty.
- Controller wire harness (wire 10 black) faulty.
- Rear control panel wire harness (wire 10 black) faulty.
- Controller wire harness (wire 8 black) faulty.
- Rear control panel wire harness (wire 8 black) faulty.

3.

Does front pump speed display change when pump speed is adjusted with rear controls?

NO → Go to “No GPM (gallons per minute) Reading at Front Control Panel”, (Fault 13).

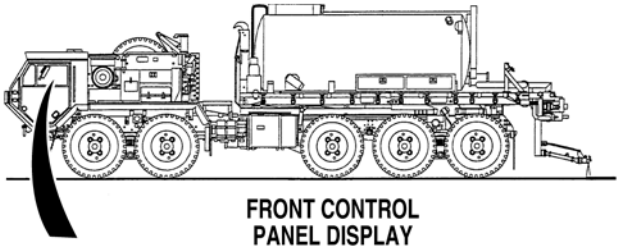
YES

TEST OPTIONS

Operational test.

REASON FOR QUESTION

If front pump speed display does not change, another troubleshooting procedure applies.



FRONT CONTROL PANEL DISPLAY

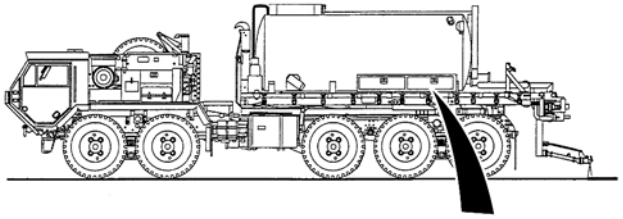


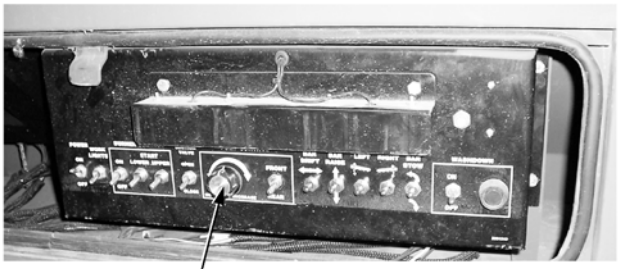
OPERATIONAL TEST

Check if front control panel speed displays change when changing pump speeds from rear control panel controls.

(a) If front control panel speed displays do not change, go to "No GPM (gallons per minute) Reading At Front Control Panel", (Fault 13).

(b) If front control panel speed displays change, go to Step 4 of this Fault.





PUMP SPEED CONTROL

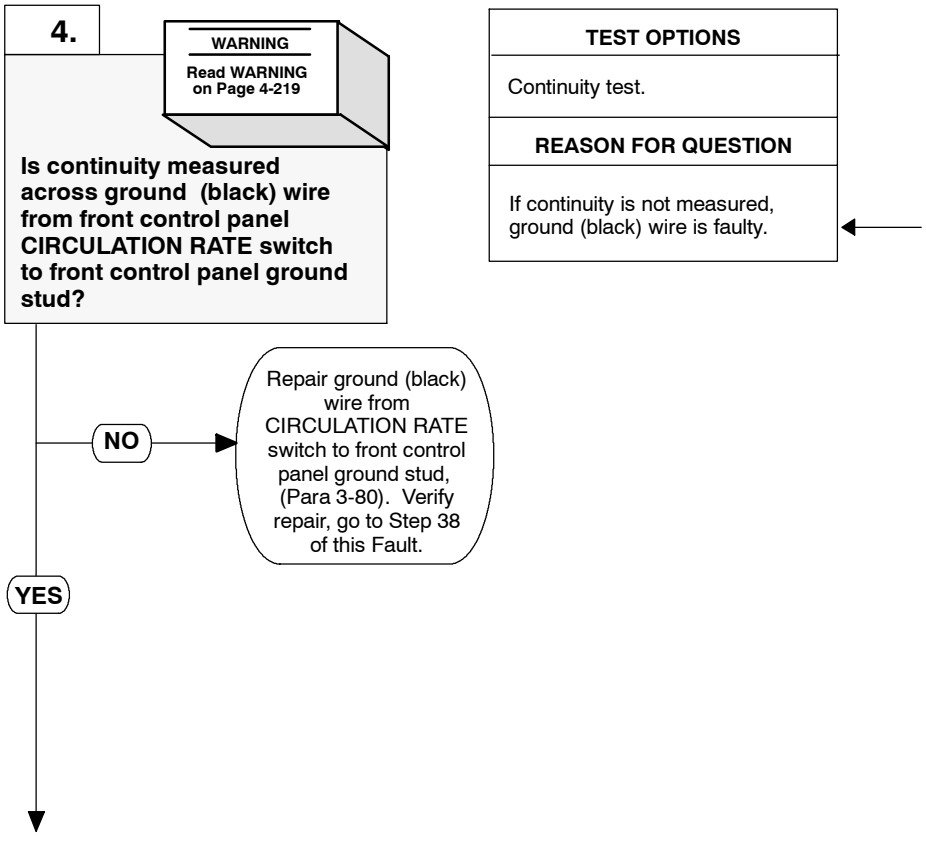
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

Front control panel SPRAYBAR switch is in correct position.

POSSIBLE PROBLEMS

- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud faulty.
- CIRCULATION RATE switch faulty.
- Front control panel wire harness (wire 7 black) faulty.
- PLS interface faulty.
- Front control panel wire harness (wire 9 white) faulty.
- Front control panel wire harness (wire 8 black) faulty.
- Front control panel wire harness (wire 9 black) faulty.
- Front control panel wire harness (wire 10 black) faulty.
- Front control panel wire harness (wire 11 black) faulty.
- Front control panel wire harness (wire 12 black) faulty.
- Rear control panel FRONT/REAR select switch faulty.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
- Front control panel faulty.
- Controller faulty.
- Controller wire harness (wire 12 black) faulty.
- Rear control panel wire harness (wire 12 black) faulty.
- Controller wire harness (wire 11 black) faulty.
- Rear control panel wire harness (wire 11 black) faulty.
- Controller wire harness (wire 9 black) faulty.
- Rear control panel wire harness (wire 9 black) faulty.
- Controller wire harness (wire 9 white) faulty.
- Rear control panel wire harness (wire 9 white) faulty.
- Controller wire harness (wire 10 black) faulty.
- Rear control panel wire harness (wire 10 black) faulty.
- Controller wire harness (wire 8 black) faulty.
- Rear control panel wire harness (wire 8 black) faulty.



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove front control panel, (Para 3-76).

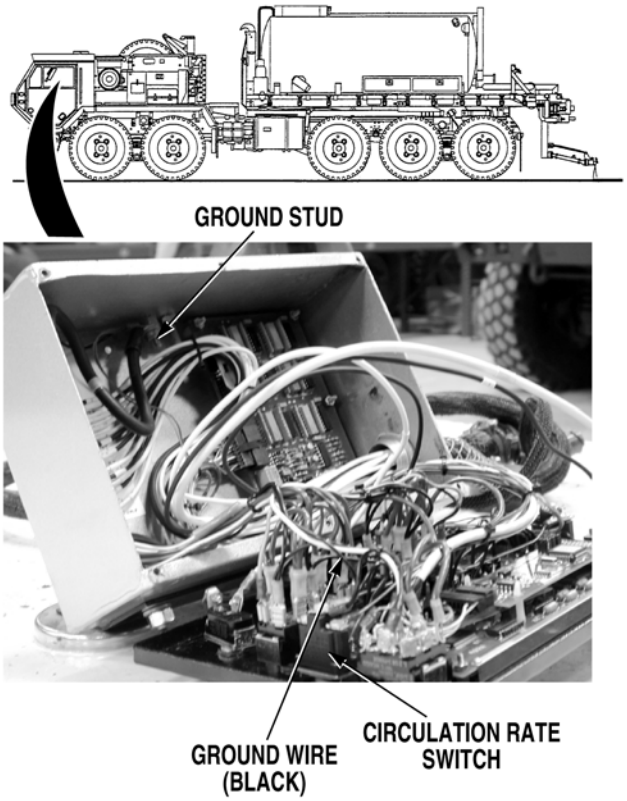
(4) Set multimeter select switch to ohms.

(5) Connect positive (+) multimeter lead to ground (black) wire at CIRCULATION RATE switch.

(6) Connect negative (-) multimeter lead to front control panel ground stud.

(a) If continuity is not measured, repair ground (black) wire from CIRCULATION RATE switch to front control panel ground stud, (Para 3-80). Verify repair, go to Step 38 of this Fault.

(b) If continuity is measured, go to Step 5 of this Fault.



8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

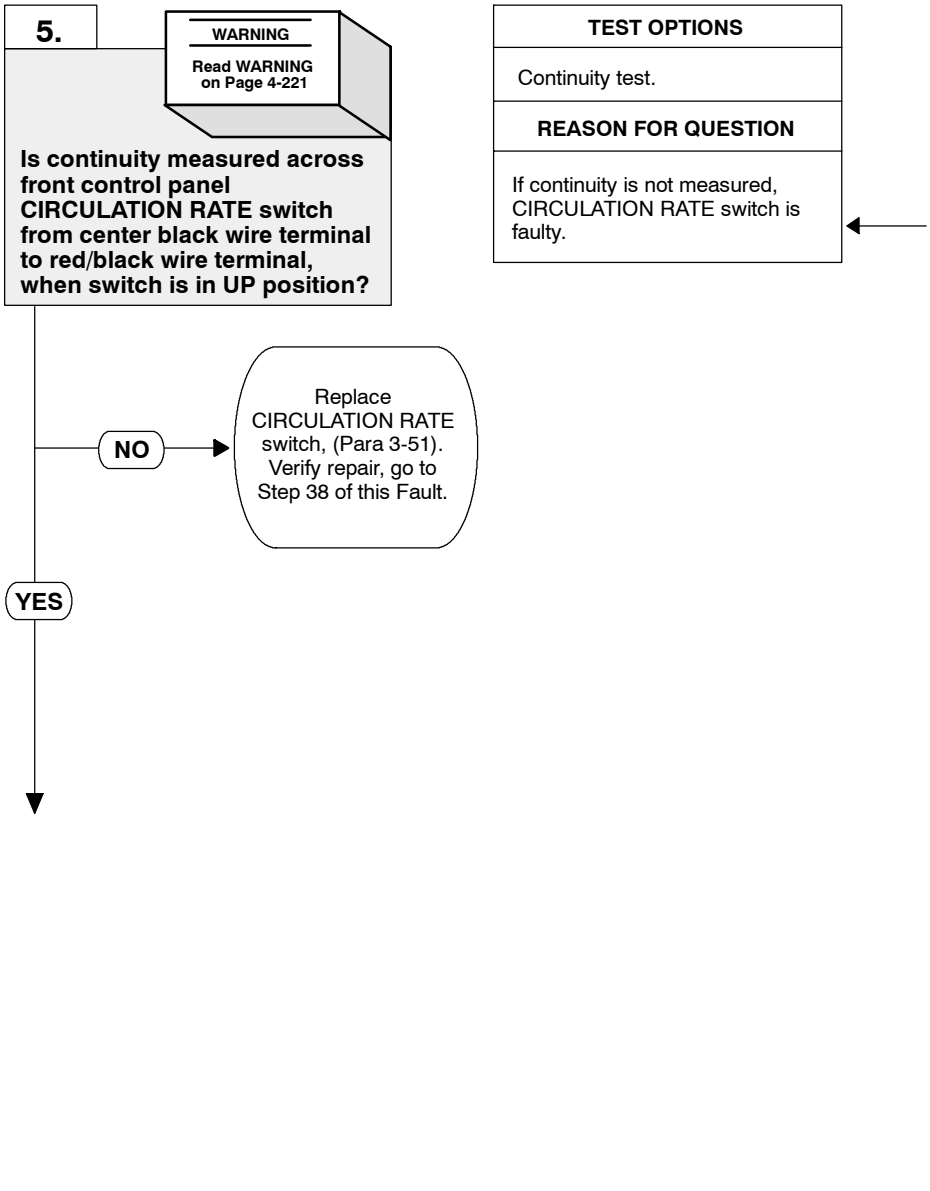
KNOWN INFO

Front control panel SPRAYBAR switch is in correct position.

Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.

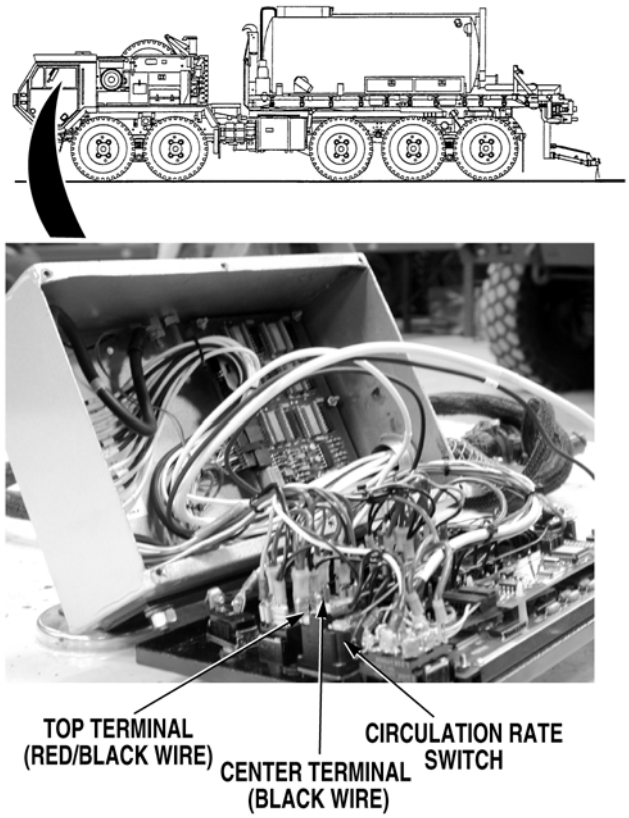
POSSIBLE PROBLEMS

CIRCULATION RATE switch faulty.
Front control panel wire harness (wire 7 black) faulty.
PLS interface faulty.
Front control panel wire harness (wire 9 white) faulty.
Front control panel wire harness (wire 8 black) faulty.
Front control panel wire harness (wire 9 black) faulty.
Front control panel wire harness (wire 10 black) faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Rear control panel FRONT/REAR select switch faulty.
Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.



CONTINUITY TEST

(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to center (black wire) terminal at CIRCULATION RATE switch.

(3) Connect negative (-) multimeter lead top terminal (red/black wire) at CIRCULATION RATE switch.

(4) While an assistant places and holds CIRCULATION RATE switch in the UP position, note meter reading.

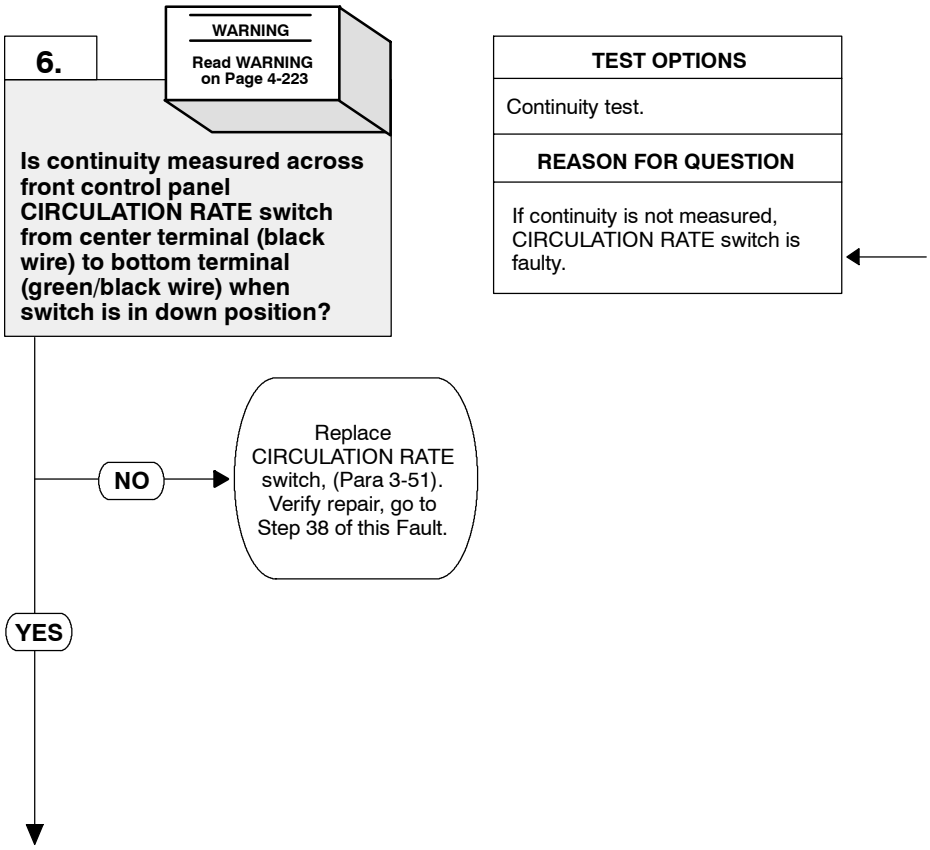
(a) If continuity is not measured, replace CIRCULATION RATE switch, (Para 3-51). Verify repair, go to Step 38 of this Fault.

(b) If continuity is measured, go to Step 6 of this Fault.

8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.

POSSIBLE PROBLEMS
CIRCULATION RATE switch faulty.
Front control panel wire harness (wire 7 black) faulty.
PLS interface faulty.
Front control panel wire harness (wire 9 white) faulty.
Front control panel wire harness (wire 8 black) faulty.
Front control panel wire harness (wire 9 black) faulty.
Front control panel wire harness (wire 10 black) faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Rear control panel FRONT/REAR select switch faulty.
Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

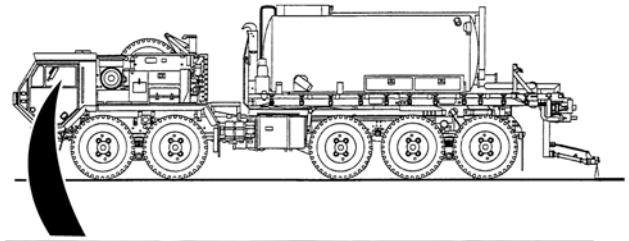
(2) Connect positive (+) multimeter lead to center terminal (black wire) at CIRCULATION RATE switch.

(3) Connect negative (-) multimeter lead bottom terminal (green/black wire) at CIRCULATION RATE switch.

(4) While an assistant places and holds CIRCULATION RATE switch in the down position note meter reading.

(a) If continuity is not measured, replace CIRCULATION RATE switch, (Para 3-51). Verify repair, go to Step 38 of this Fault.

(b) If continuity is measured, go to Step 7 of this Fault.





8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

Front control panel SPRAYBAR switch is in correct position.
Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
CIRCULATION RATE switch OK.

POSSIBLE PROBLEMS

Front control panel wire harness (wire 7 black) faulty.
PLS interface faulty.
Front control panel wire harness (wire 9 white) faulty.
Front control panel wire harness (wire 8 black) faulty.
Front control panel wire harness (wire 9 black) faulty.
Front control panel wire harness (wire 10 black) faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Rear control panel FRONT/REAR select switch faulty.
Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.

7.

WARNING
Read WARNING on Page 4-225

Is continuity measured across wire 7 black from front control panel connector MC129, terminal W to front control panel ground stud?

NO → Repair wire, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 38 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel wire harness (wire 7 black) is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Disconnect front control panel connector MC129, (Para 2-10).

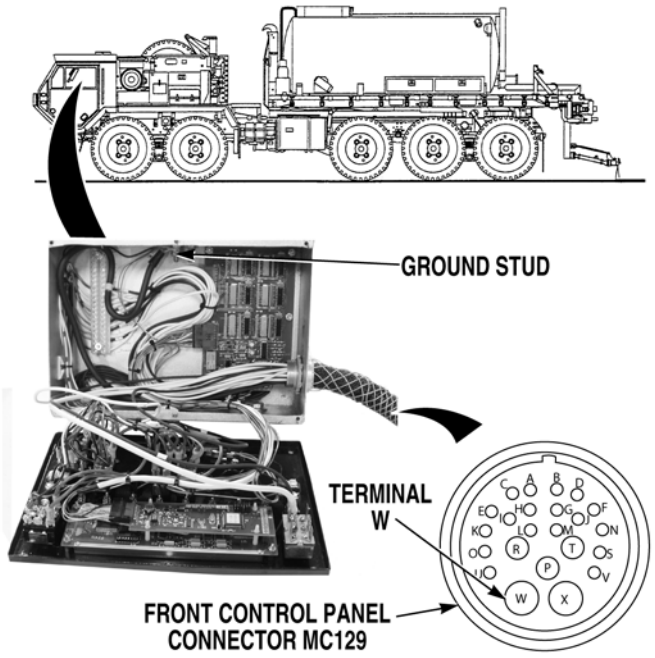
(2) Set multimeter select switch to ohms.

(3) Connect positive (+) multimeter lead to wire 7 black at front control panel connector MC129, terminal W.

(4) Connect negative (-) multimeter lead to front control panel ground stud.

(a) If continuity is not measured, repair wire 7 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 38 of this Fault.

(b) If continuity is measured, go to Step 8 of this Fault.



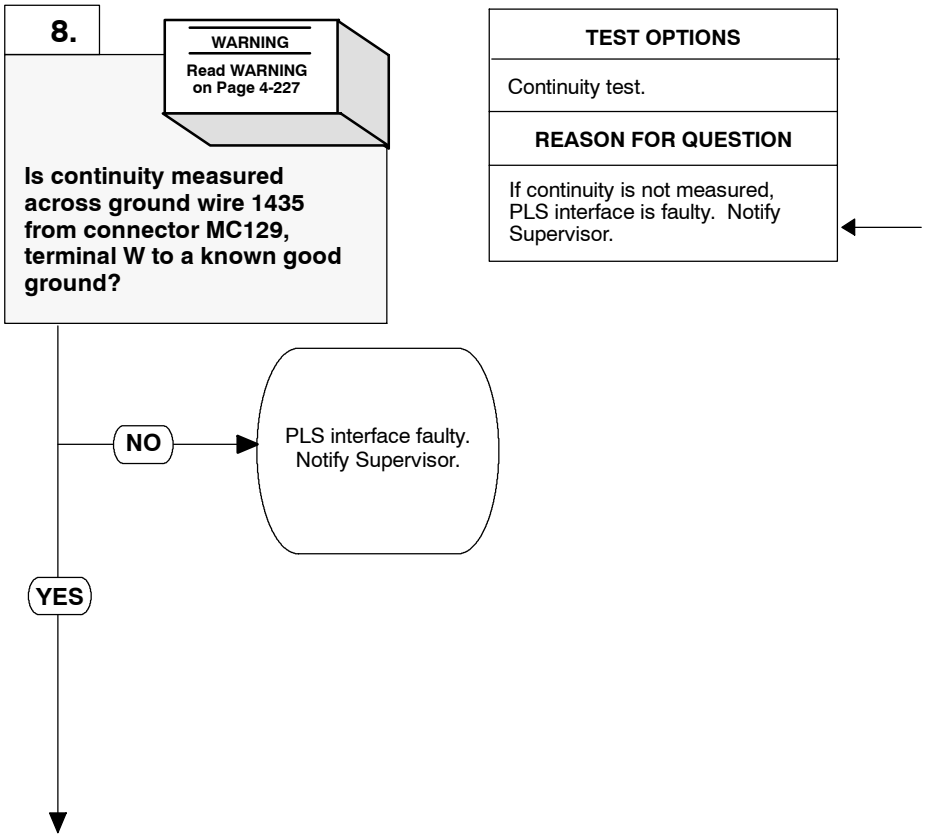
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

Front control panel SPRAYBAR switch is in correct position.
Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
CIRCULATION RATE switch OK.
Front control panel wire harness (wire 7 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel wire harness (wire 9 white) faulty.
Front control panel wire harness (wire 8 black) faulty.
Front control panel wire harness (wire 9 black) faulty.
Front control panel wire harness (wire 10 black) faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Rear control panel FRONT/REAR select switch faulty.
Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

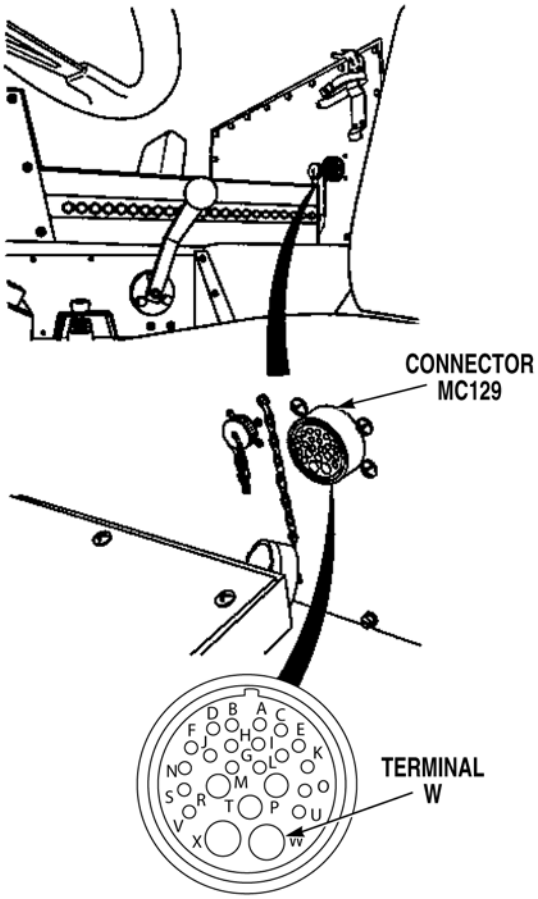
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to wire 1435, at connector MC129, terminal W.

(3) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, PLS interface is faulty. Notify Supervisor.

(b) If continuity is measured, go to Step 9 of this Fault.



8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

Front control panel SPRAYBAR switch is in correct position.
Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
CIRCULATION RATE switch OK.
Front control panel wire harness (wire 7 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel wire harness (wire 9 white) faulty.
Front control panel wire harness (wire 8 black) faulty.
Front control panel wire harness (wire 9 black) faulty.
Front control panel wire harness (wire 10 black) faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Rear control panel FRONT/REAR select switch faulty.
Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.

9.

WARNING
Read WARNING on Page 4-229

Is continuity measured across wire 9 white from front control panel, connector MC129, terminal O to front control panel circuit board terminal strip, terminal 3?

NO → Repair wire 9 white, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 38 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel wire harness (wire 9 white) is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

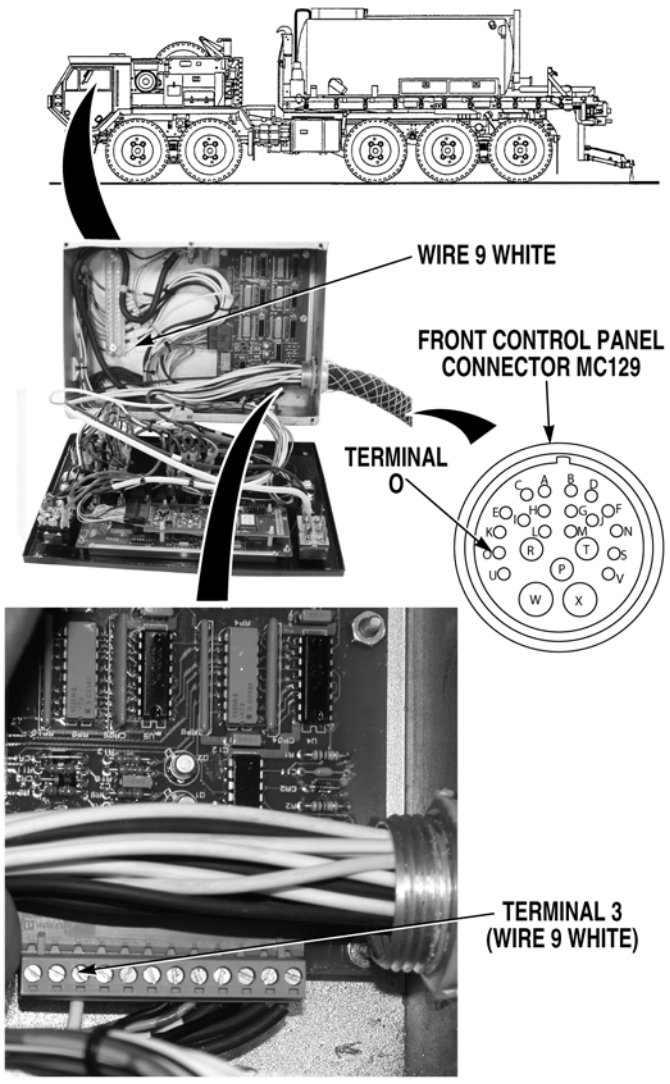
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to wire 9 white at front control panel connector MC129, terminal O.

(3) Connect negative (-) multimeter lead to front control panel circuit board terminal strip, terminal 3.

(a) If continuity is not measured, repair wire 9 white, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 38 of this Fault.

(b) If continuity is measured, go to Step 9 of this Fault.



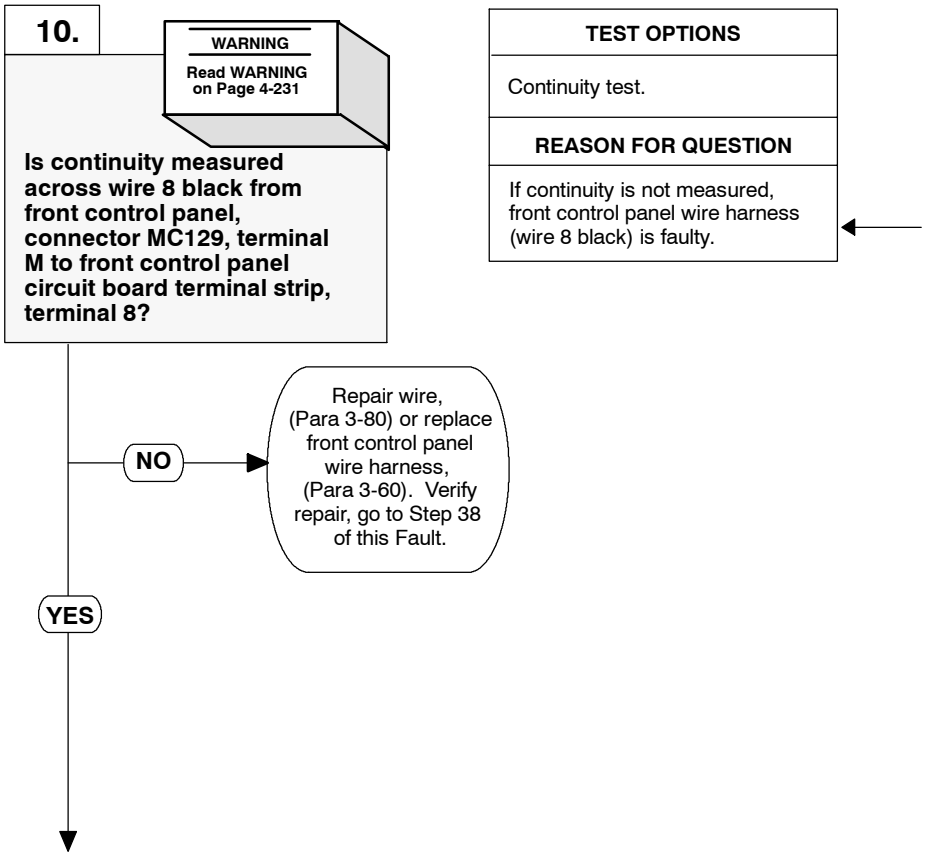
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

Front control panel SPRAYBAR switch is in correct position.
Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
CIRCULATION RATE switch OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel wire harness (wire 8 black) faulty.
Front control panel wire harness (wire 9 black) faulty.
Front control panel wire harness (wire 10 black) faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Rear control panel FRONT/REAR select switch faulty.
Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

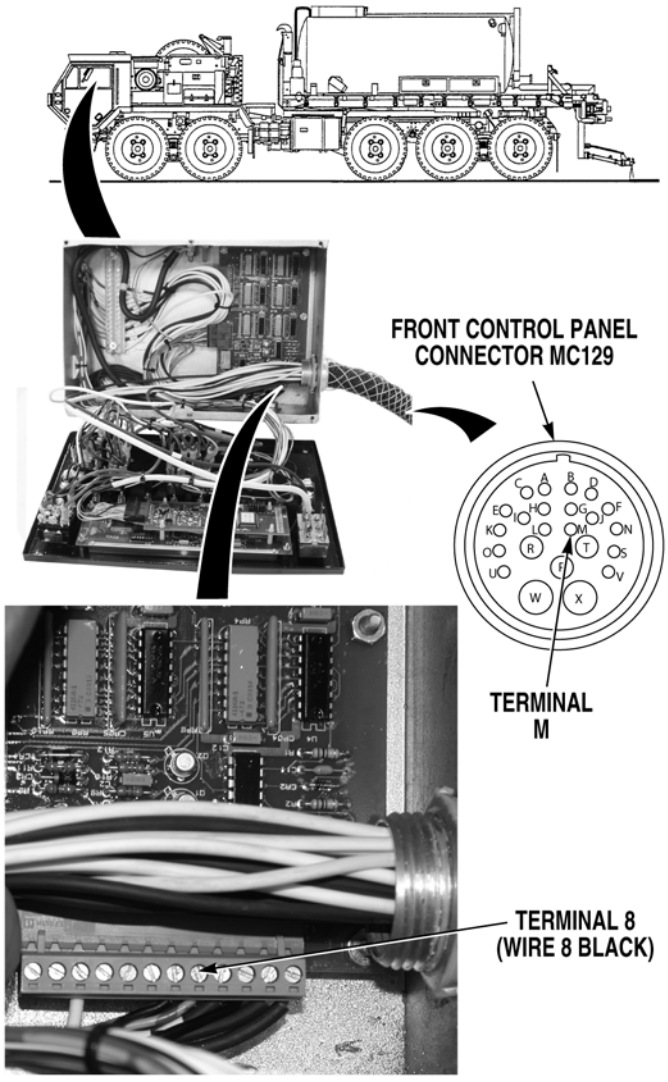
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to wire 8 black at front control panel connector MC129, terminal M.

(3) Connect negative (-) multimeter lead to front control panel circuit board terminal strip, terminal 8.

(a) If continuity is not measured, repair wire 8 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 38 of this Fault.

(b) If continuity is measured, go to Step 11 of this Fault.



8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

Front control panel SPRAYBAR switch is in correct position.
Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
CIRCULATION RATE switch OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel wire harness (wire 9 black) faulty.
Front control panel wire harness (wire 10 black) faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Rear control panel FRONT/REAR select switch faulty.
Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.

11.

WARNING

Read WARNING on Page 4-233

Is continuity measured across wire 9 black from front control panel, connector MC129, terminal N to front control panel circuit board terminal strip, terminal 9?

NO → Repair wire, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 38 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel wire harness (wire 9 black) is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

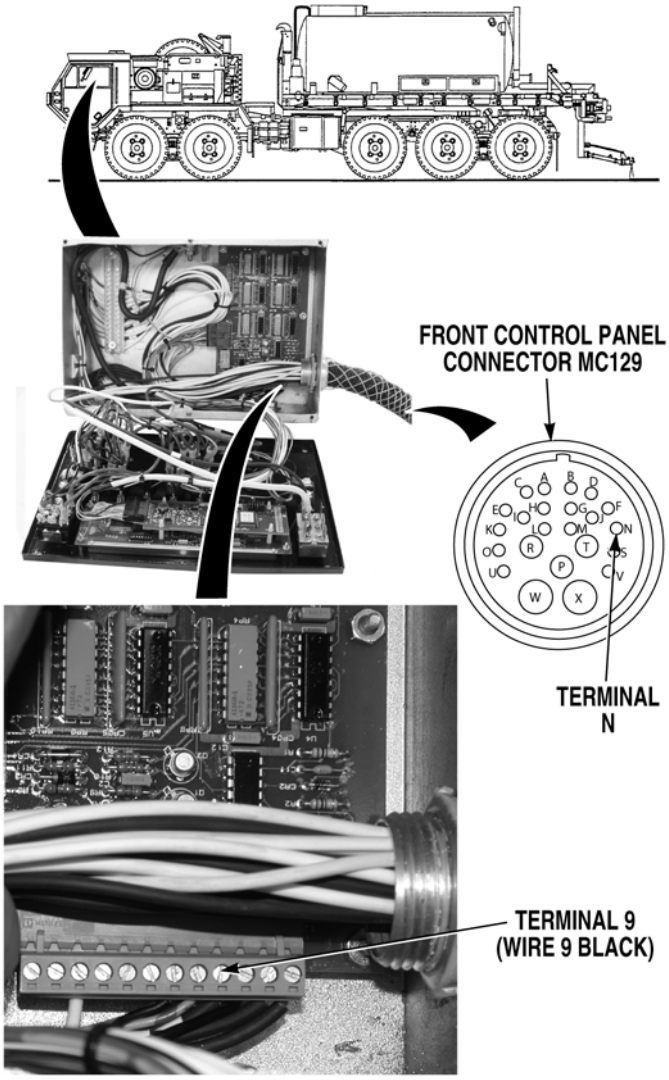
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to wire 9 black at front control panel connector MC129, terminal N.

(3) Connect negative (-) multimeter lead to front control panel circuit board terminal strip, terminal 9.

(a) If continuity is not measured, repair wire 9 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 38 of this Fault.

(b) If continuity is measured, go to Step 12 of this Fault.



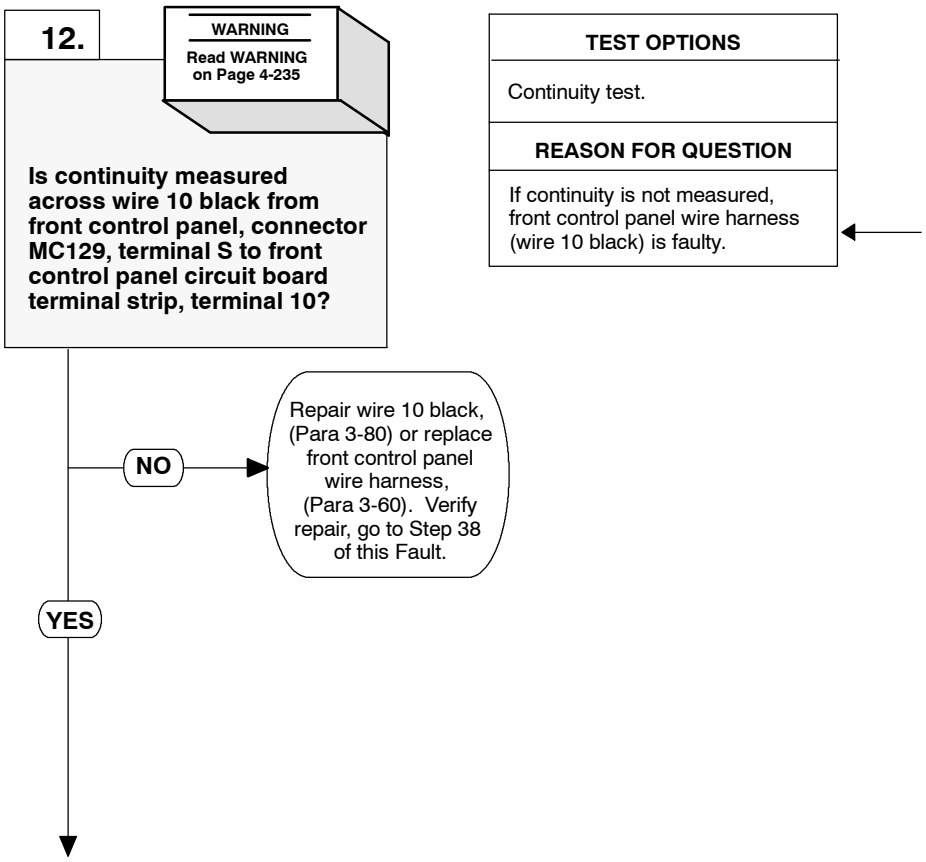
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

Front control panel SPRAYBAR switch is in correct position.
Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
CIRCULATION RATE switch OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel wire harness (wire 10 black) faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Rear control panel FRONT/REAR select switch faulty.
Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

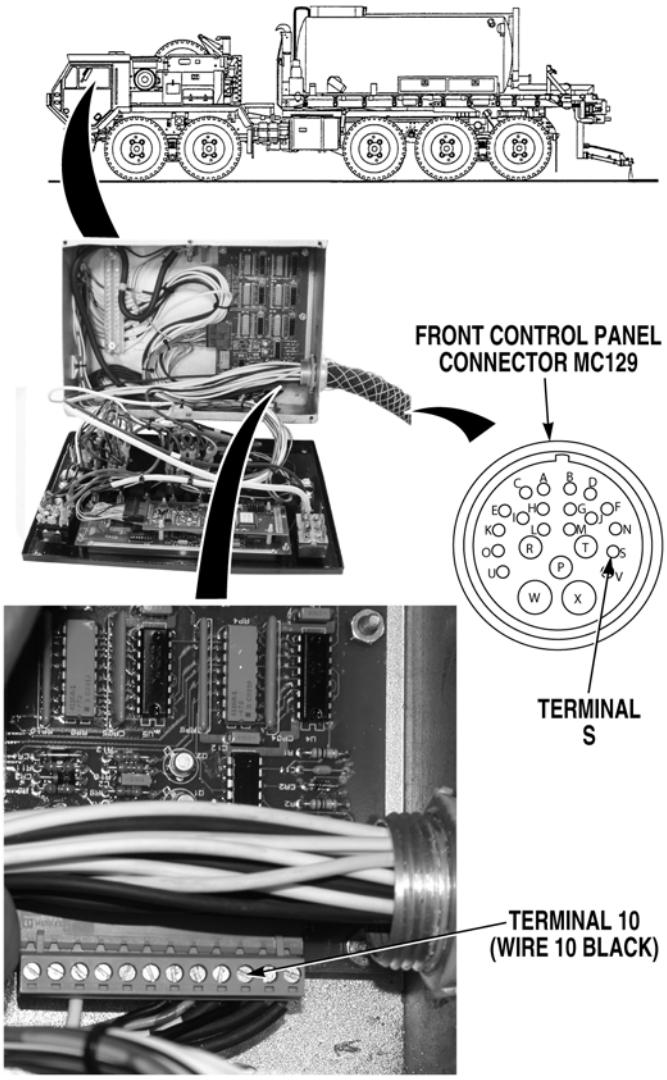
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to wire 10 black at front control panel connector MC129, terminal S.

(3) Connect negative (-) multimeter lead to front control panel circuit board terminal strip, terminal 10.

(a) If continuity is not measured, repair wire 10 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 38 of this Fault.

(b) If continuity is measured, go to Step 13 of this Fault.



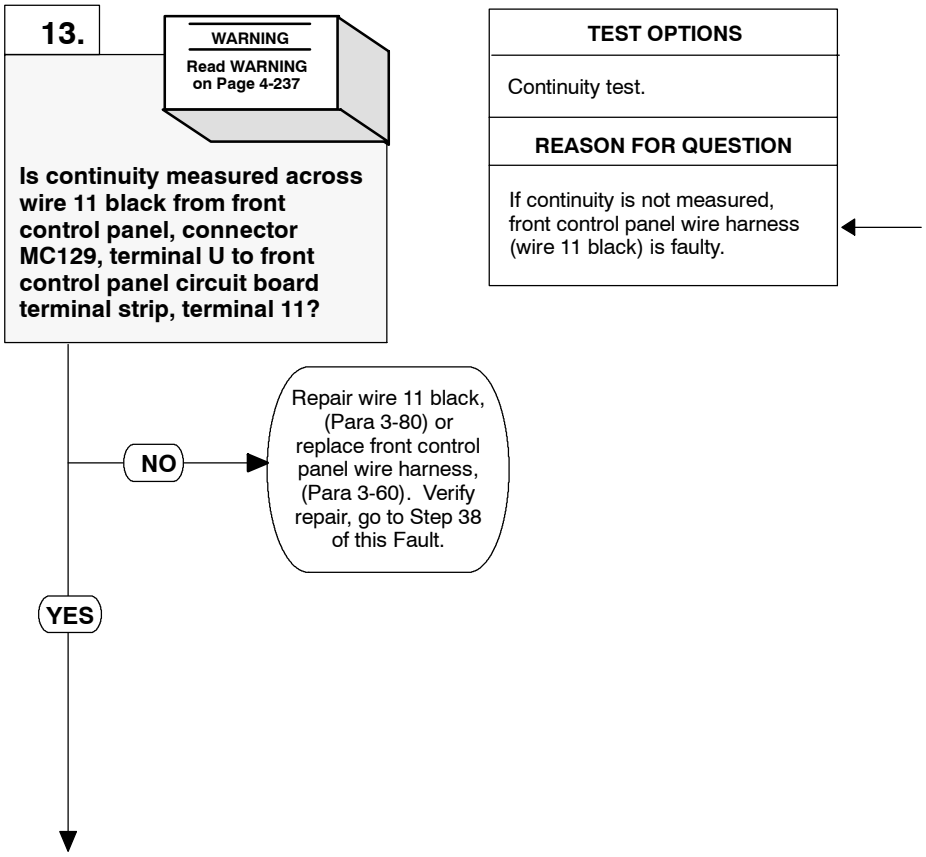
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

Front control panel SPRAYBAR switch is in correct position.
Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
CIRCULATION RATE switch OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Rear control panel FRONT/REAR select switch faulty.
Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

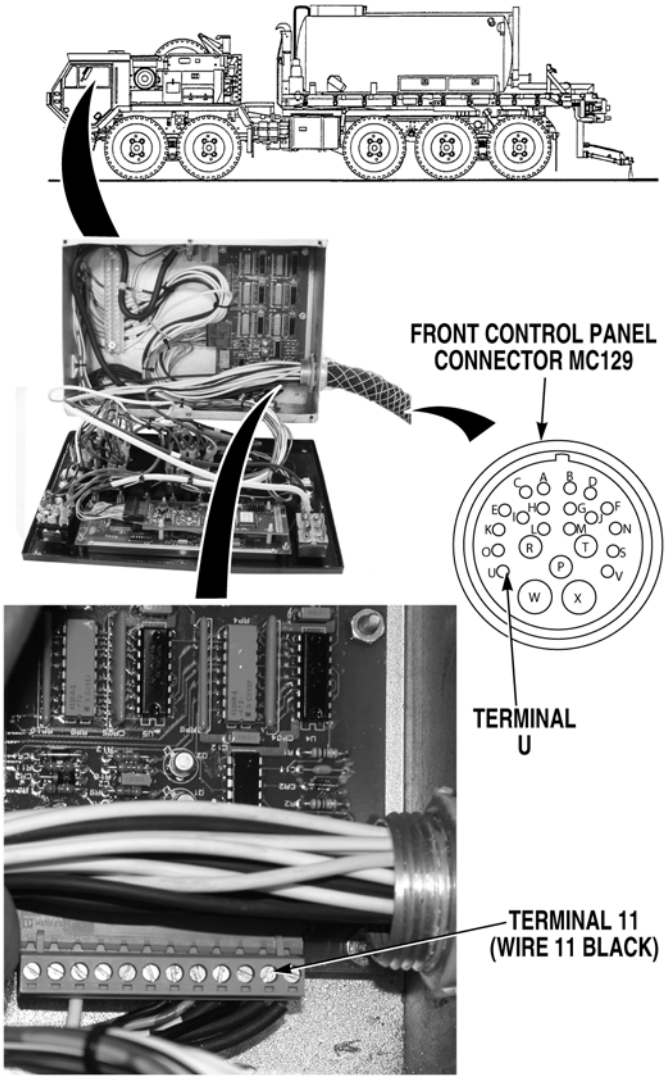
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to wire 11 black at front control panel connector MC129, terminal U.

(3) Connect negative (-) multimeter lead to front control panel circuit board terminal strip, terminal 11.

(a) If continuity is not measured, repair wire 11 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 38 of this Fault.

(b) If continuity is measured, go to Step 14 of this Fault.



8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

Front control panel SPRAYBAR switch is in correct position.
Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
CIRCULATION RATE switch OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel wire harness (wire 12 black) faulty.
Rear control panel FRONT/REAR select switch faulty.
Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.

14.

WARNING
Read WARNING on Page 4-239

Is continuity measured across wire 12 black from front control panel, connector MC129, terminal V to front control panel circuit board terminal strip, terminal 12?

NO → Repair wire 12 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 38 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel wire harness (wire 12 black) is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

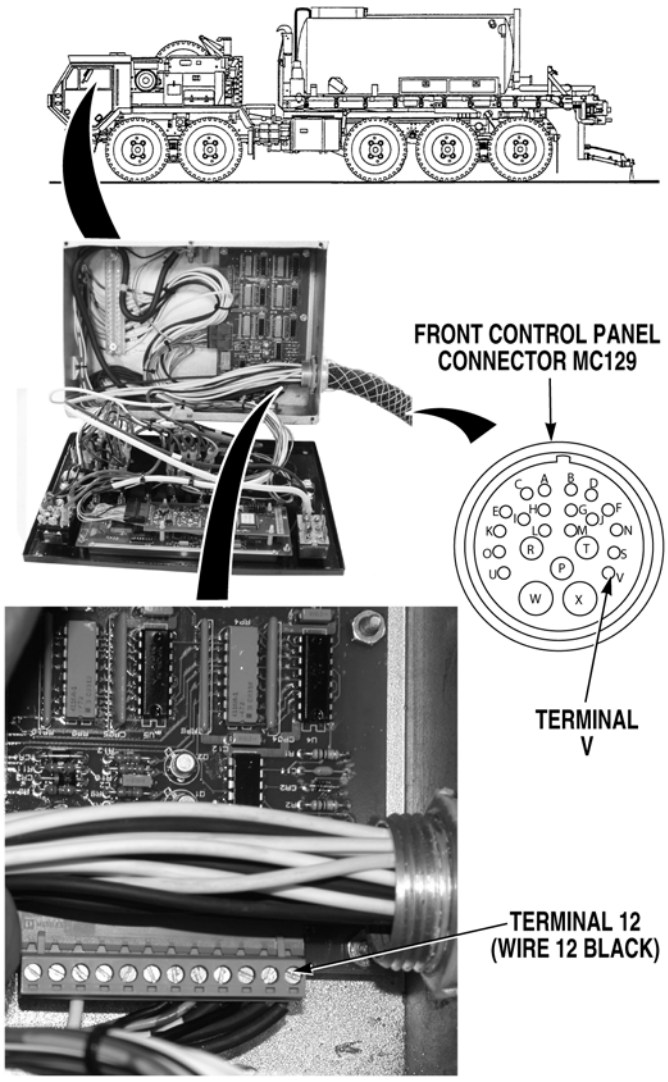
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to wire 12 black at front control panel connector MC129, terminal V.

(3) Connect negative (-) multimeter lead to front control panel circuit board terminal strip, terminal 12.

(a) If continuity is not measured, repair wire 12 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 38 of this Fault.

(b) If continuity is measured, go to Step 15 of this Fault.



8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

Front control panel SPRAYBAR switch is in correct position.
Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
CIRCULATION RATE switch OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Rear control panel FRONT/REAR select switch faulty.
Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.

15.

WARNING

Read WARNING on Page 4-241

Is continuity measured across rear control panel FRONT/REAR select switch from center right (black wire) terminal to top right (black wire) terminal, when switch is in FRONT position?

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, rear control panel FRONT/REAR select switch is faulty.

NO → Replace rear control panel FRONT/REAR select switch, (Para 3-6). Verify repair, go to Step 38 of this Fault.

YES

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

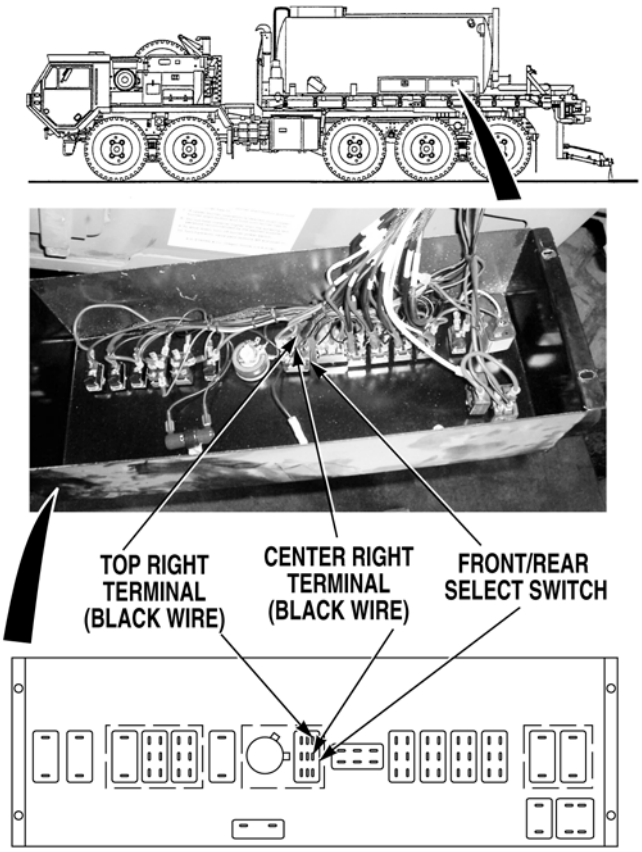
(2) Connect positive (+) multimeter lead to center right (black wire) terminal at rear control panel FRONT/REAR select switch.

(3) Connect negative (-) multimeter lead to top right (black wire) terminal at rear control panel FRONT/REAR select switch.

(4) Turn rear control panel FRONT/REAR select switch to FRONT, (Para 2-1).

(a) If continuity is not measured, replace FRONT/REAR select switch, (Para 3-6). Verify repair, go to Step 38 of this Fault.

(b) If continuity is measured, go to Step 16 of this Fault.



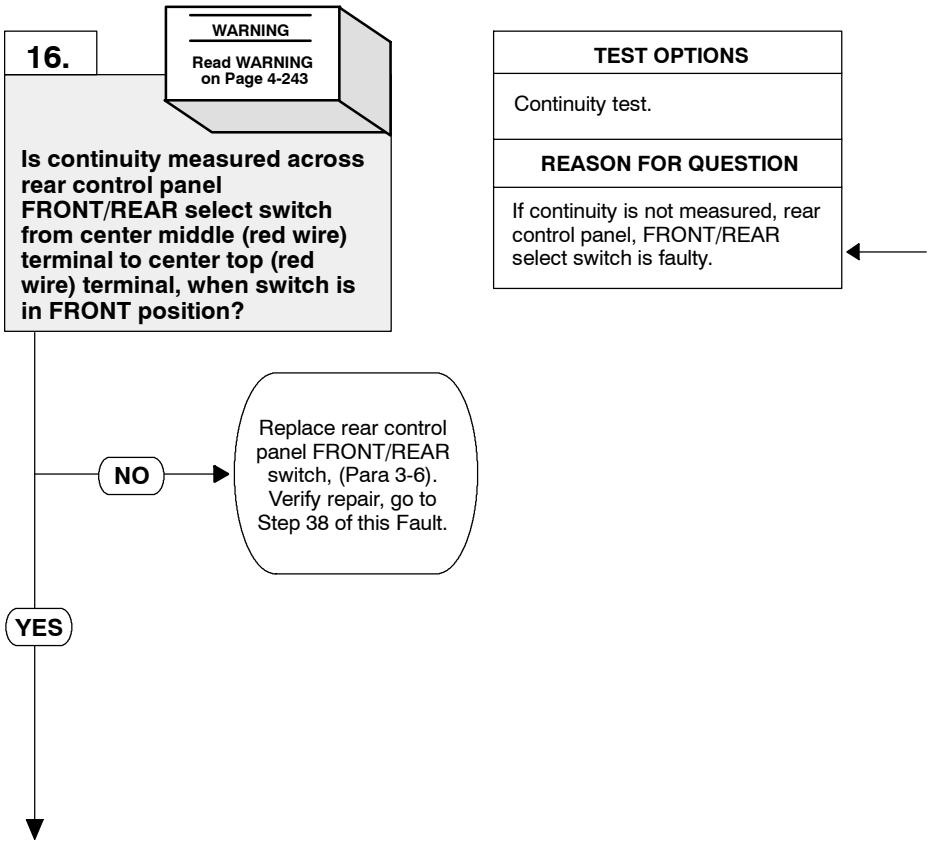
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.

POSSIBLE PROBLEMS

- Rear control panel FRONT/REAR select switch faulty.
- PLS interface faulty.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
- Front control panel faulty.
- Controller faulty.
- Controller wire harness (wire 12 black) faulty.
- Rear control panel wire harness (wire 12 black) faulty.
- Controller wire harness (wire 11 black) faulty.
- Rear control panel wire harness (wire 11 black) faulty.
- Controller wire harness (wire 9 black) faulty.
- Rear control panel wire harness (wire 9 black) faulty.
- Controller wire harness (wire 9 white) faulty.
- Rear control panel wire harness (wire 9 white) faulty.
- Controller wire harness (wire 10 black) faulty.
- Rear control panel wire harness (wire 10 black) faulty.
- Controller wire harness (wire 8 black) faulty.
- Rear control panel wire harness (wire 8 black) faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

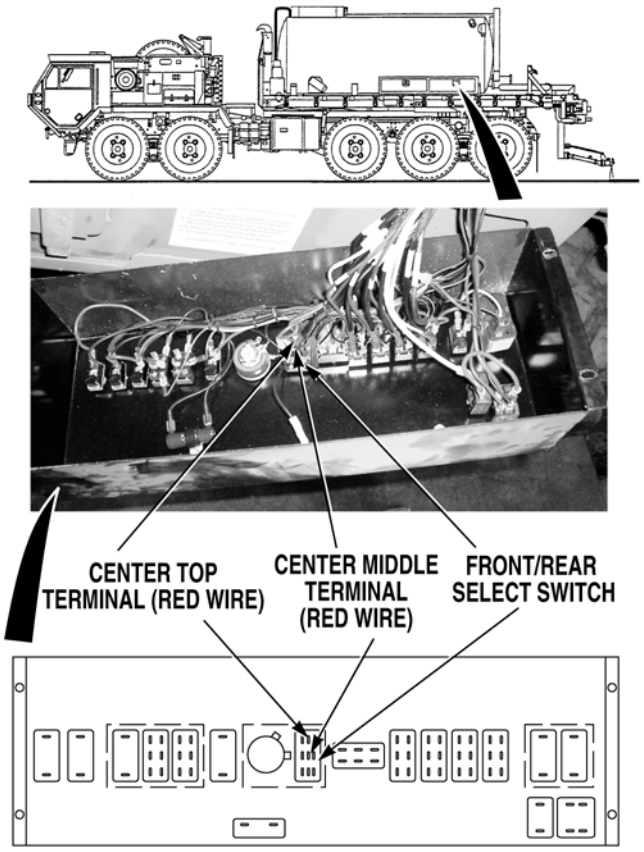
(2) Connect positive (+) multimeter lead to center middle (red wire) terminal at rear control panel FRONT/REAR select switch.

(3) Connect negative (-) multimeter lead to center top (red wire) terminal at rear control panel FRONT/REAR select switch.

(4) Turn rear control panel FRONT/REAR select switch to FRONT, (Para 2-1).

(a) If continuity is not measured, replace FRONT/REAR select switch, (Para 3-6). Verify repair, go to Step 38 of this Fault.

(b) If continuity is measured, go to Step 17 of this Fault.



8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.

POSSIBLE PROBLEMS

- PLS interface faulty.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
- Front control panel faulty.
- Controller faulty.
- Controller wire harness (wire 12 black) faulty.
- Rear control panel wire harness (wire 12 black) faulty.
- Controller wire harness (wire 11 black) faulty.
- Rear control panel wire harness (wire 11 black) faulty.
- Controller wire harness (wire 9 black) faulty.
- Rear control panel wire harness (wire 9 black) faulty.
- Controller wire harness (wire 9 white) faulty.
- Rear control panel wire harness (wire 9 white) faulty.
- Controller wire harness (wire 10 black) faulty.
- Rear control panel wire harness (wire 10 black) faulty.
- Controller wire harness (wire 8 black) faulty.
- Rear control panel wire harness (wire 8 black) faulty.

17.

WARNING

Read WARNING on Page 4-245

Is continuity measured across black wire from DC2 30-pin connector, terminal C3 to rear control panel FRONT/REAR select switch, top right terminal?

NO → Repair black wire, (Para 3-80) or replace controller wire harness, (Para 3-57). Verify repair, go to Step 38 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, black wire between controller and FRONT/REAR select switch is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Remove controller from mounting surface, (Para 3-28).

(2) Disconnect DC2 30-pin connector, (Para 3-28).

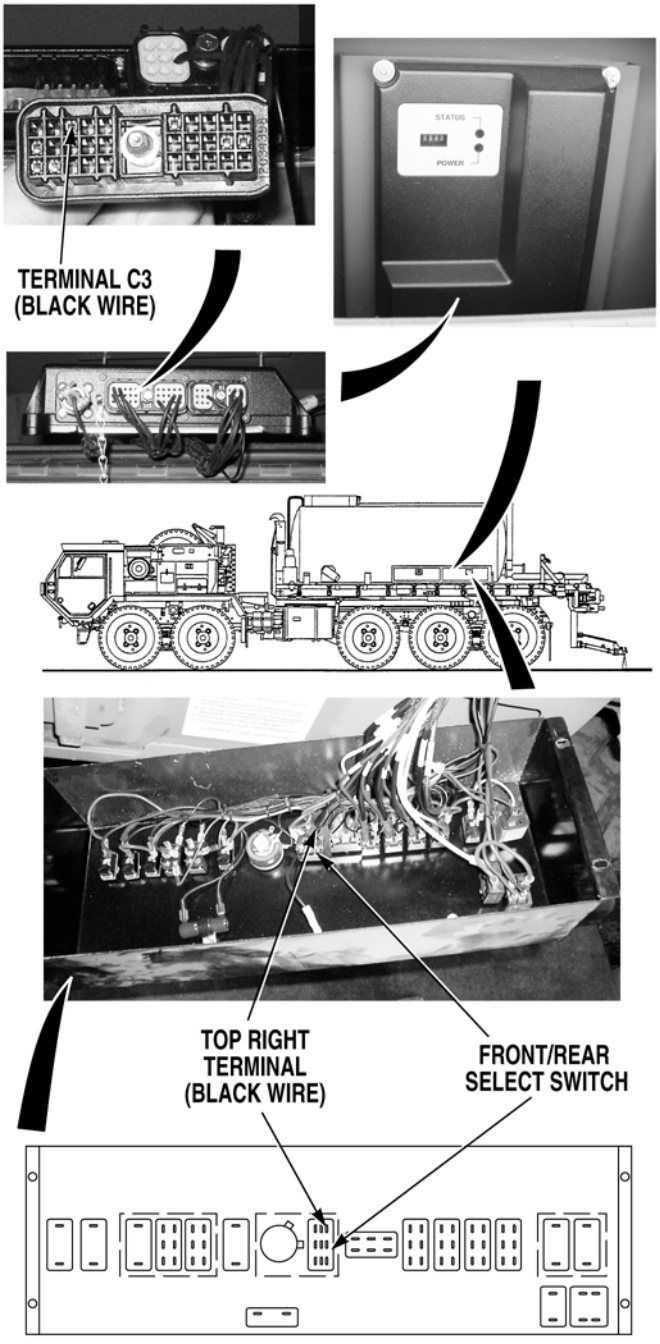
(3) Set multimeter select switch to ohms.

(4) Connect positive (+) multimeter lead to black wire at DC2 30-pin connector, terminal C3.

(5) Connect negative (-) multimeter lead to black wire at rear control panel FRONT/REAR select switch, top right terminal.

(a) If continuity is not measured, repair black wire between DC2 30-pin connector and rear control panel FRONT/REAR select switch, (Para 3-80) or replace controller wire harness, (Para 3-57). Verify repair, go to Step 38 of this Fault.

(b) If continuity is measured, go to Step 18 of this Fault.



8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.

POSSIBLE PROBLEMS

- PLS interface faulty.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
- Front control panel faulty.
- Controller faulty.
- Controller wire harness (wire 12 black) faulty.
- Rear control panel wire harness (wire 12 black) faulty.
- Controller wire harness (wire 11 black) faulty.
- Rear control panel wire harness (wire 11 black) faulty.
- Controller wire harness (wire 9 black) faulty.
- Rear control panel wire harness (wire 9 black) faulty.
- Controller wire harness (wire 9 white) faulty.
- Rear control panel wire harness (wire 9 white) faulty.
- Controller wire harness (wire 10 black) faulty.
- Rear control panel wire harness (wire 10 black) faulty.
- Controller wire harness (wire 8 black) faulty.
- Rear control panel wire harness (wire 8 black) faulty.

18.

WARNING

Read WARNING on Page 4-247

Is continuity measured across top center red wire from DC2 18-pin connector, terminal F2 to rear control panel FRONT/REAR select switch?

NO → Repair red wire, (Para 3-80) or replace controller wire harness, (Para 3-57). Verify repair, go to Step 38 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, red wire between controller and FRONT/REAR select switch is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

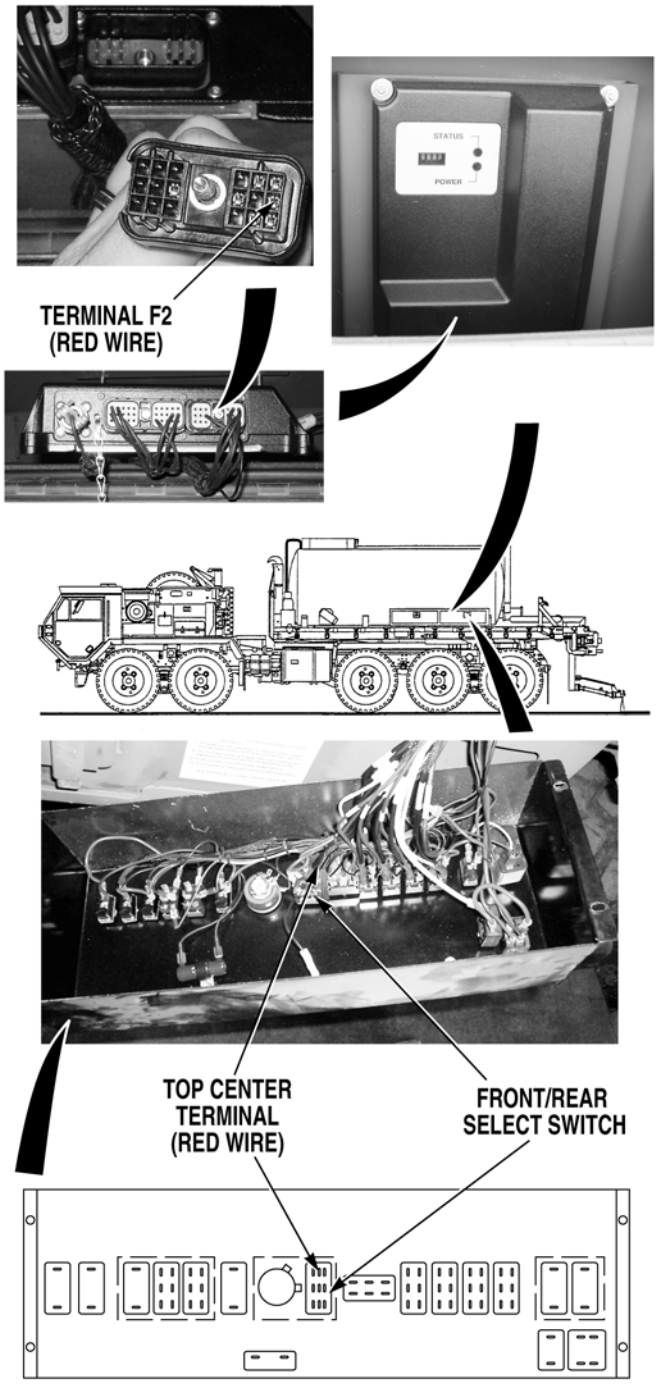
(2) Disconnect DC2 18-pin connector (Para 3-28).

(3) Connect positive (+) multimeter lead to red wire at DC2 18-pin connector, terminal F2.

(4) Connect negative (-) multimeter lead to top center (red wire) terminal at rear control panel FRONT/REAR select switch.

(a) If continuity is not measured, repair red wire between DC2 18-pin connector and rear control panel FRONT/REAR select switch, (Para 3-80) or replace controller wire harness, (Para 3-57). Verify repair, go to Step 38 of this Fault.

(b) If continuity is measured, go to Step 19 of this Fault.



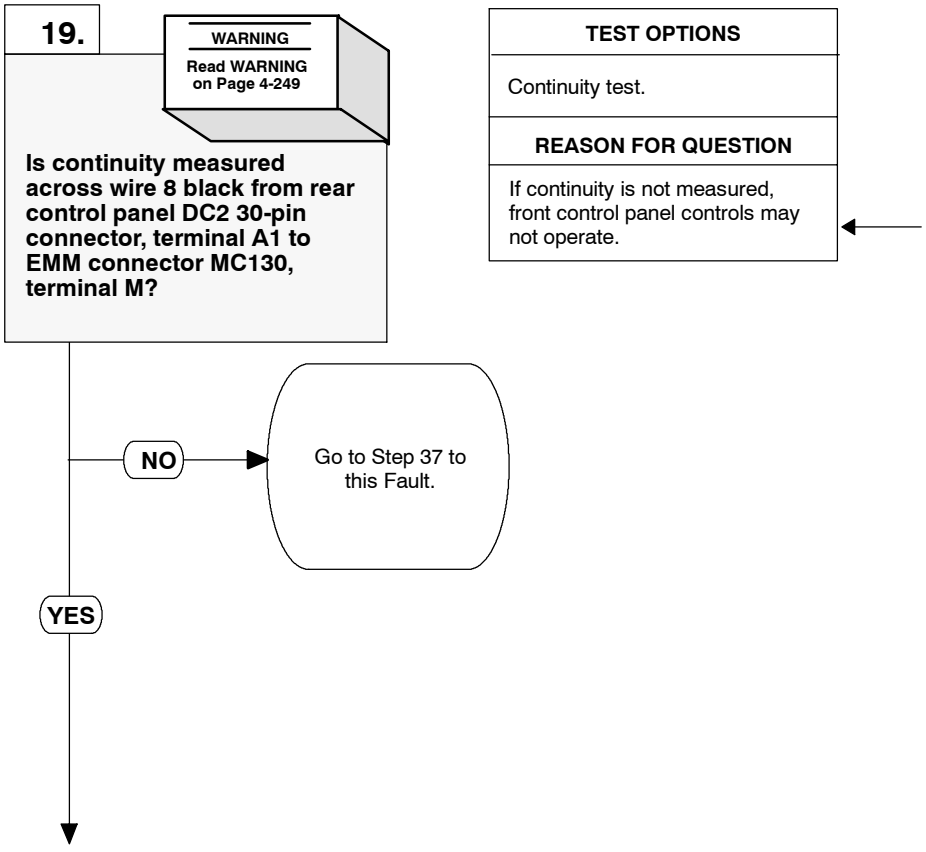
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.

POSSIBLE PROBLEMS

- PLS interface faulty.
- Front control panel faulty.
- Controller faulty.
- Controller wire harness (wire 12 black) faulty.
- Rear control panel wire harness (wire 12 black) faulty.
- Controller wire harness (wire 11 black) faulty.
- Rear control panel wire harness (wire 11 black) faulty.
- Controller wire harness (wire 9 black) faulty.
- Rear control panel wire harness (wire 9 black) faulty.
- Controller wire harness (wire 9 white) faulty.
- Rear control panel wire harness (wire 9 white) faulty.
- Controller wire harness (wire 10 black) faulty.
- Rear control panel wire harness (wire 10 black) faulty.
- Controller wire harness (wire 8 black) faulty.
- Rear control panel wire harness (wire 8 black) faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Connect DC2 18-pin connector, (Para 3-28).

(2) Disconnect connector MC130 (UPIK), (Para 2-10).

(3) Set multimeter select switch to ohms.

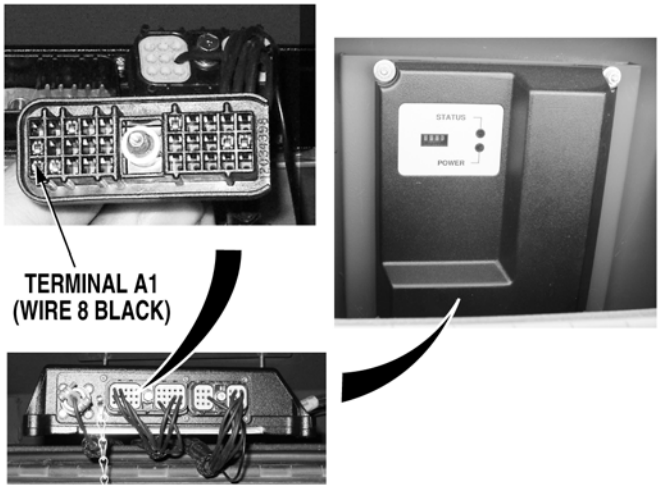
(4) Connect jumper wire between wire 8 black at EMM connector, terminal M and a known good ground.

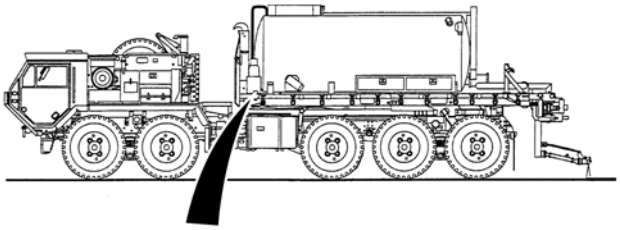
(5) Connect positive (+) multimeter lead to wire 8 black at rear control panel DC2 30-pin connector, terminal A1.

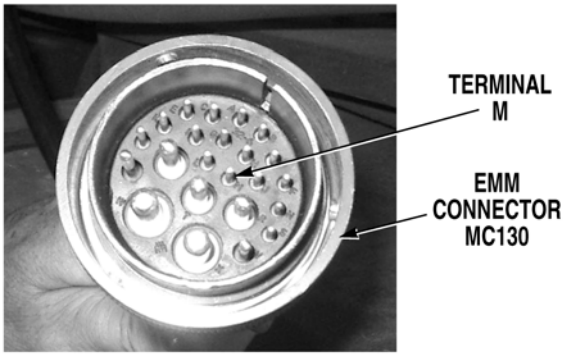
(6) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, go to Step 37 of this Fault.

(b) If continuity is measured, go to Step 20 of this Fault.







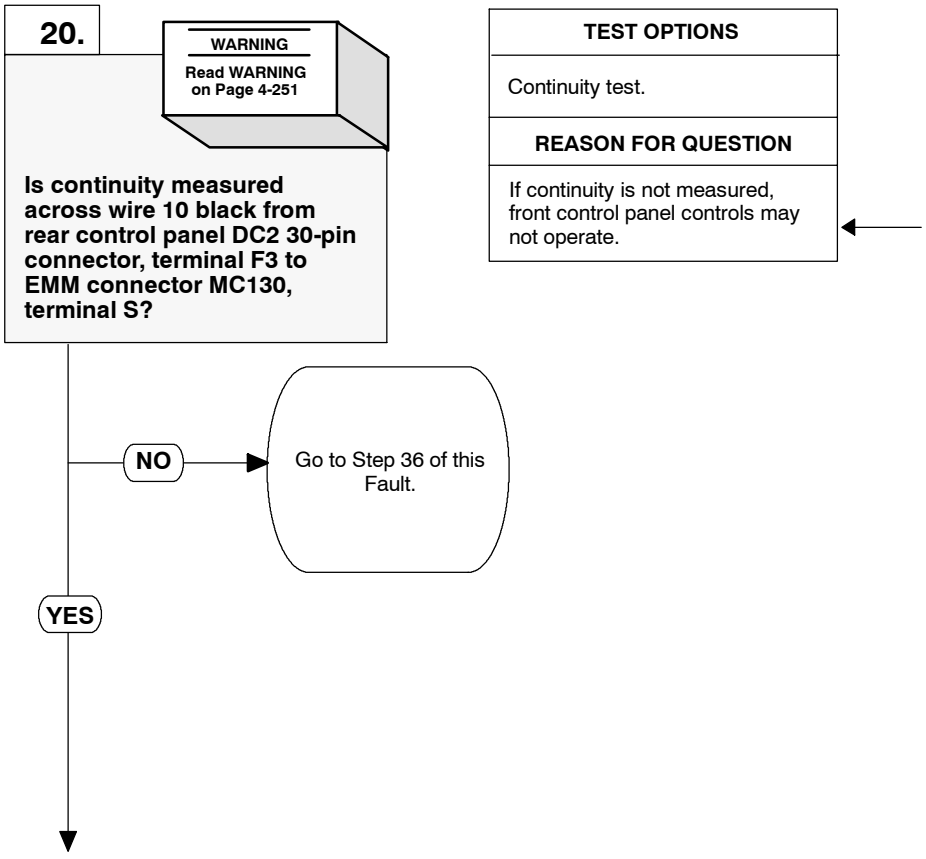
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- Controller wire harness (wire 8 black) OK.
- Rear control panel wire harness (wire 8 black) OK.

POSSIBLE PROBLEMS

- PLS interface faulty.
- Front control panel faulty.
- Controller faulty.
- Controller wire harness (wire 12 black) faulty.
- Rear control panel wire harness (wire 12 black) faulty.
- Controller wire harness (wire 11 black) faulty.
- Rear control panel wire harness (wire 11 black) faulty.
- Controller wire harness (wire 9 black) faulty.
- Rear control panel wire harness (wire 9 black) faulty.
- Controller wire harness (wire 9 white) faulty.
- Rear control panel wire harness (wire 9 white) faulty.
- Controller wire harness (wire 10 black) faulty.
- Rear control panel wire harness (wire 10 black) faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

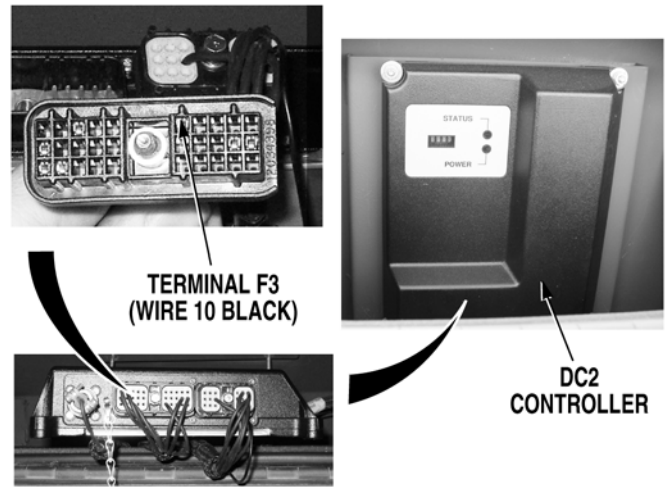
(2) Connect jumperwire between wire 10 black at EMM connector MC130, terminal S and a known good ground.

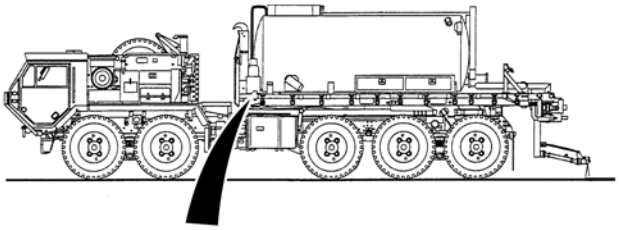
(3) Connect positive (+) multimeter lead to wire 10 black at rear control panel DC2 30-pin connector, terminal F3.

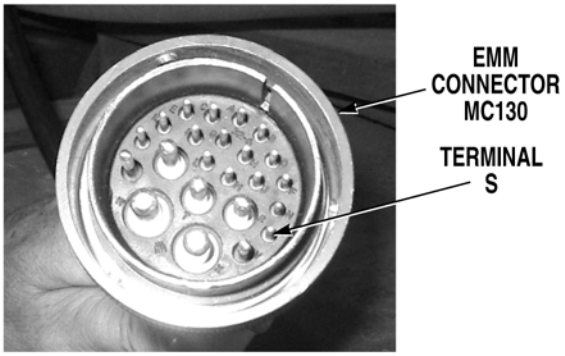
(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, go to Step 36 of this Fault.

(b) If continuity is measured, go to Step 21 of this Fault.







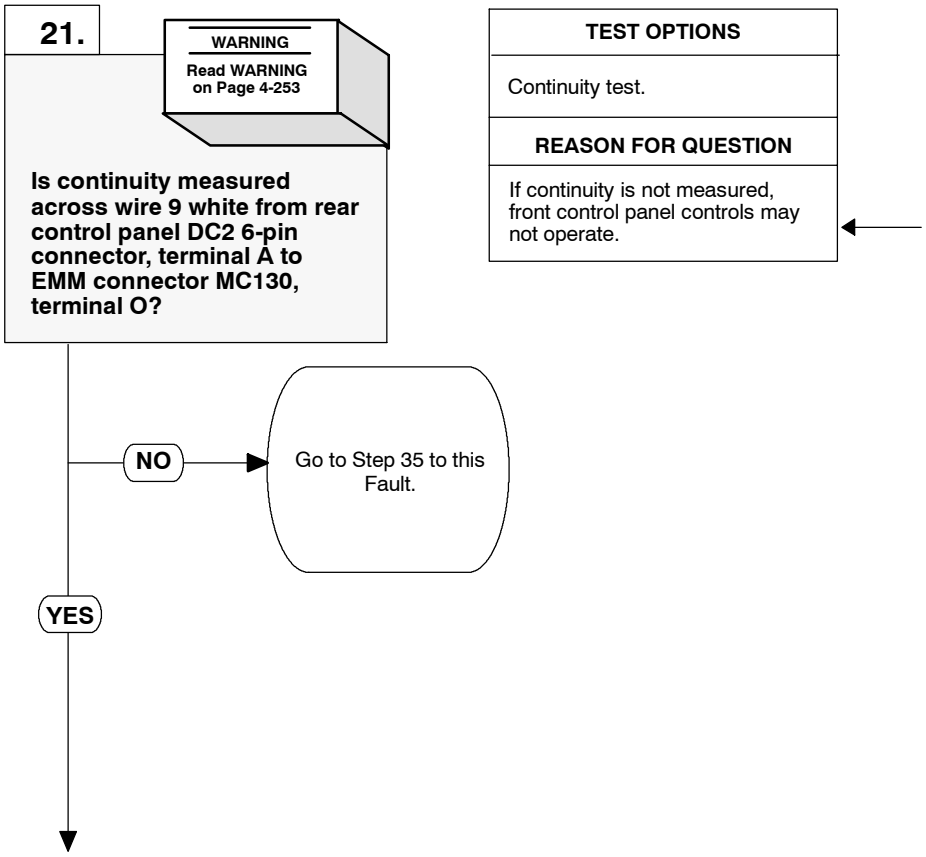
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- Controller wire harness (wire 8 black) OK.
- Rear control panel wire harness (wire 8 black) OK.
- Controller wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 10 black) OK.

POSSIBLE PROBLEMS

- PLS interface faulty.
- Front control panel faulty.
- Controller faulty.
- Controller wire harness (wire 12 black) faulty.
- Rear control panel wire harness (wire 12 black) faulty.
- Controller wire harness (wire 11 black) faulty.
- Rear control panel wire harness (wire 11 black) faulty.
- Controller wire harness (wire 9 black) faulty.
- Rear control panel wire harness (wire 9 black) faulty.
- Controller wire harness (wire 9 white) faulty.
- Rear control panel wire harness (wire 9 white) faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Connect DC2 30-pin connector, (Para 3-28).

(2) Disconnect DC2 6-pin connector (Para 3-28).

(3) Set multimeter select switch to ohms.

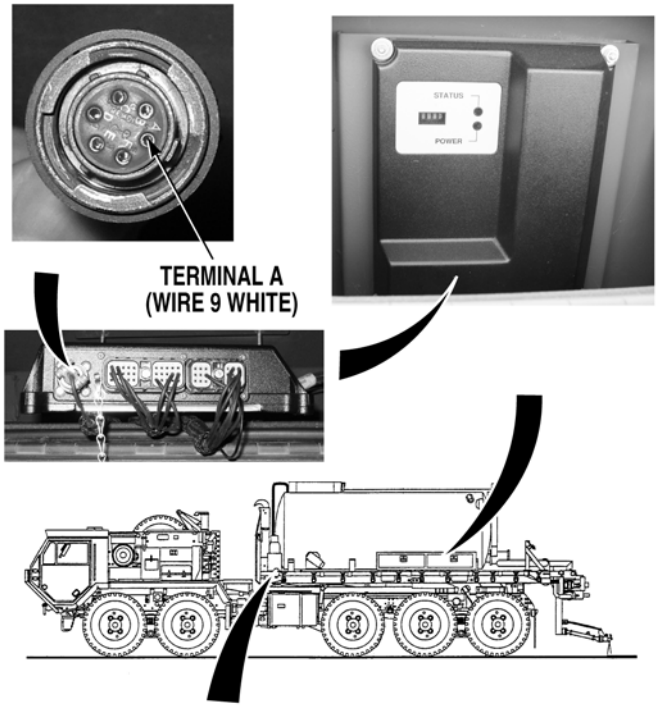
(4) Connect jumperwire between wire 9 white at EMM connector MC130, terminal O, and a known good ground.

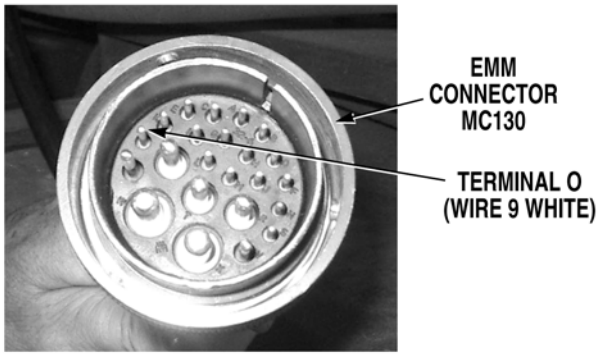
(5) Connect positive (+) multimeter lead to wire 9 white at rear control panel 6-pin connector, terminal A.

(6) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, go to Step 35 of this Fault.

(b) If continuity is measured, go to Step 22 of this Fault.





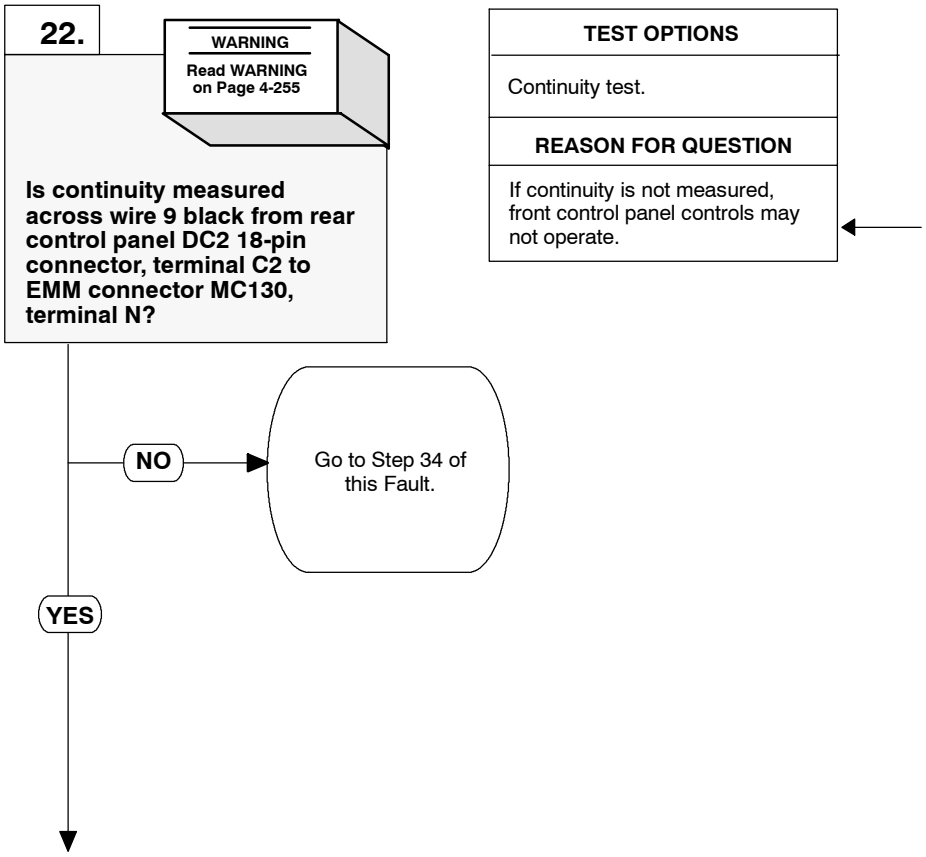
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- Controller wire harness (wire 8 black) OK.
- Rear control panel wire harness (wire 8 black) OK.
- Controller wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 white) OK.

POSSIBLE PROBLEMS

- PLS interface faulty.
- Front control panel faulty.
- Controller faulty.
- Controller wire harness (wire 12 black) faulty.
- Rear control panel wire harness (wire 12 black) faulty.
- Controller wire harness (wire 11 black) faulty.
- Rear control panel wire harness (wire 11 black) faulty.
- Controller wire harness (wire 9 black) faulty.
- Rear control panel wire harness (wire 9 black) faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Disconnect DC2 18-pin connector, (Para 3-28).

(2) Set multimeter select switch to ohms.

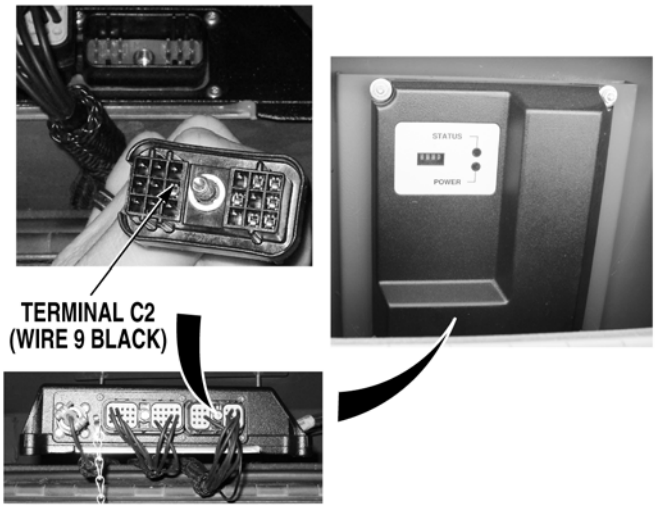
(3) Connect jumperwire between wire 9 black at EMM connector MC130, terminal N and a known good ground.

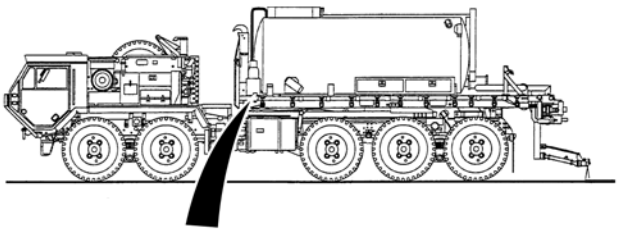
(4) Connect positive (+) multimeter lead to wire 9 black at rear control panel DC2 18-pin connector, terminal C2.

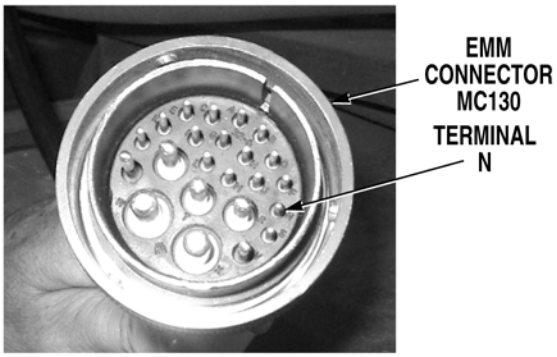
(5) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, go to Step 34 of this Fault.

(b) If continuity is measured, go to Step 23 of this Fault.







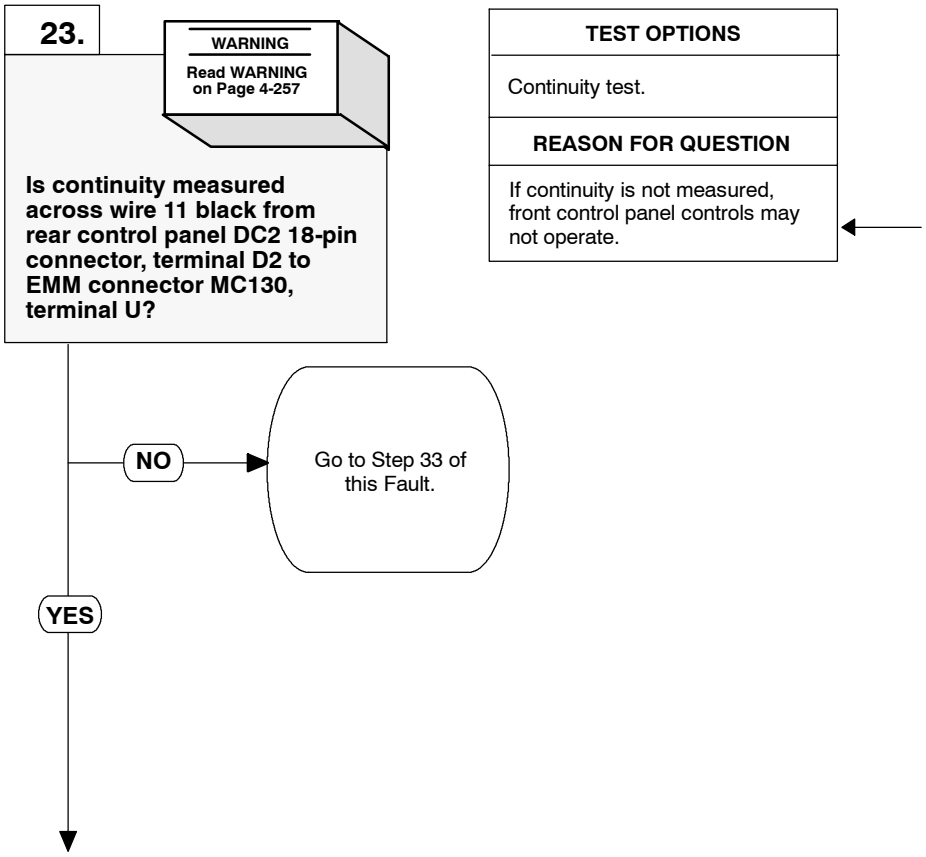
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- Controller wire harness (wire 8 black) OK.
- Rear control panel wire harness (wire 8 black) OK.
- Controller wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 black) OK.
- Rear control panel wire harness (wire 9 black) OK.

POSSIBLE PROBLEMS

- PLS interface faulty.
- Front control panel faulty.
- Controller faulty.
- Controller wire harness (wire 12 black) faulty.
- Rear control panel wire harness (wire 12 black) faulty.
- Controller wire harness (wire 11 black) faulty.
- Rear control panel wire harness (wire 11 black) faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

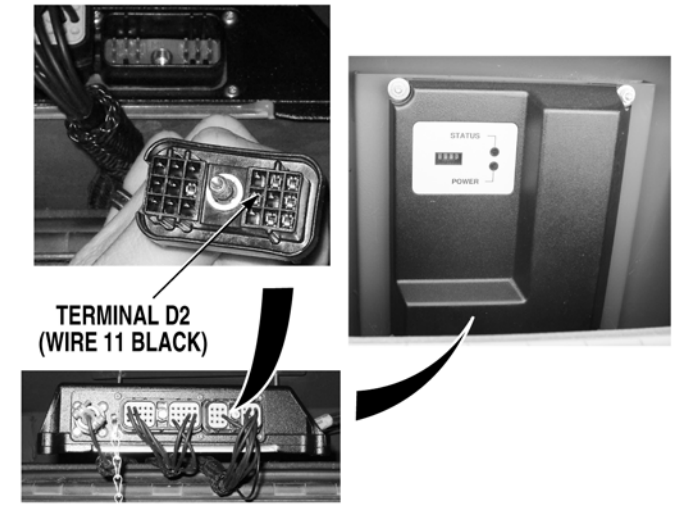
(2) Connect jumperwire between wire 11 black at EMM connector MC130 terminal U and a known good ground.

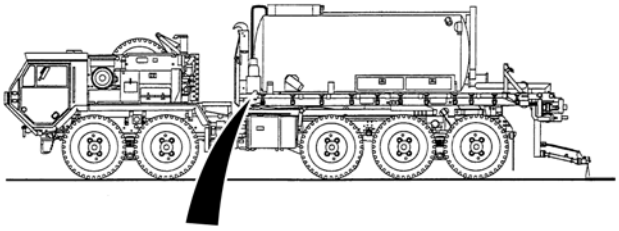
(3) Connect positive (+) multimeter lead to wire 11 black at rear control panel DC2 18-pin connector, terminal D2.

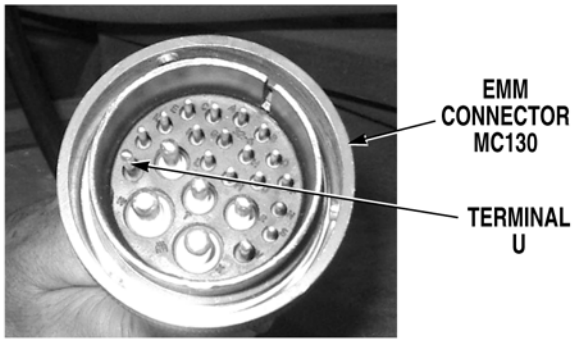
(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, go to Step 33 of this Fault.

(b) If continuity is measured, go to Step 24 of this Fault.







8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- Controller wire harness (wire 8 black) OK.
- Rear control panel wire harness (wire 8 black) OK.
- Controller wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 black) OK.
- Rear control panel wire harness (wire 9 black) OK.
- Controller wire harness (wire 11 black) OK.
- Rear control panel wire harness (wire 11 black) OK.

POSSIBLE PROBLEMS

- PLS interface faulty.
- Front control panel faulty.
- Controller faulty.
- Controller wire harness (wire 12 black) faulty.
- Rear control panel wire harness (wire 12 black) faulty.

24.

WARNING

Read WARNING on Page 4-259

Is continuity measured across wire 12 black from rear control panel DC2 18-pin connector, terminal F3 to EMM connector MC130, terminal V?

NO → Go to Step 32 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel controls may not operate.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

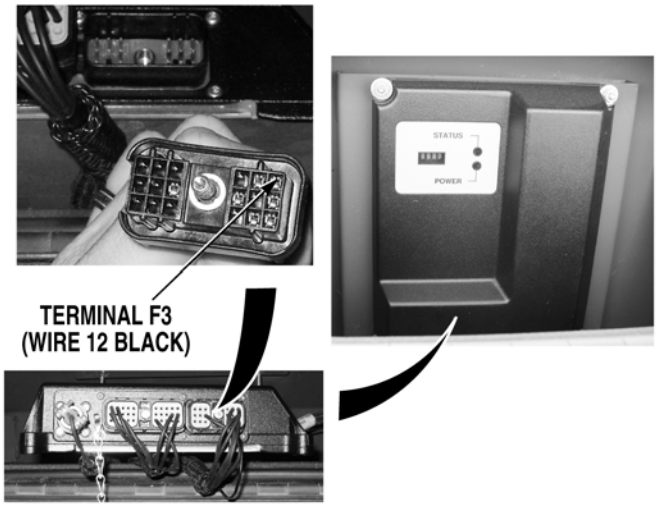
(2) Connect jumperwire between wire 12 black at EMM connector MC130, terminal V and a known good ground.

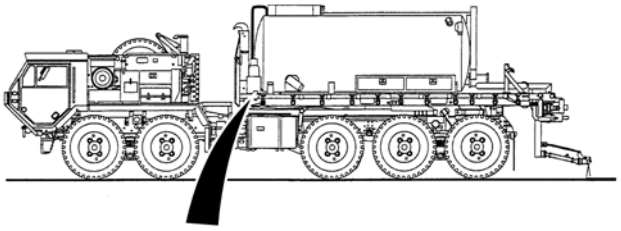
(3) Connect positive (+) multimeter lead to wire 12 black at rear control panel DC2 18-pin connector, terminal F3.

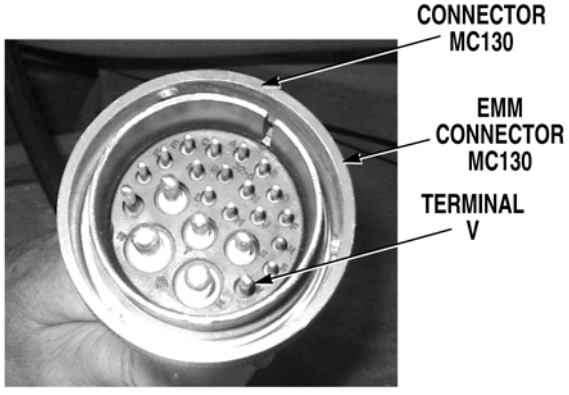
(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, go to Step 32 of this Fault.

(b) If continuity is measured, go to Step 25 of this Fault.







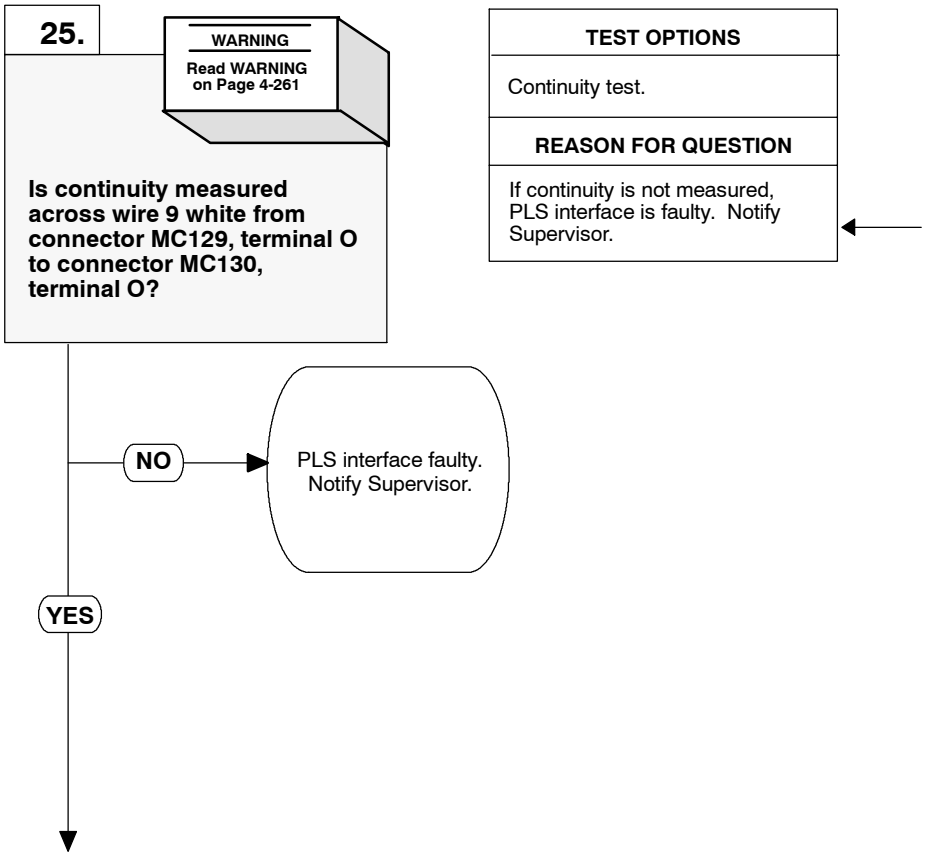
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- Controller wire harness (wire 8 black) OK.
- Rear control panel wire harness (wire 8 black) OK.
- Controller wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 black) OK.
- Rear control panel wire harness (wire 9 black) OK.
- Controller wire harness (wire 11 black) OK.
- Rear control panel wire harness (wire 11 black) OK.
- Controller wire harness (wire 12 black) OK.
- Rear control panel wire harness (wire 12 black) OK.

POSSIBLE PROBLEMS

- PLS interface faulty.
- Front control panel faulty.
- Controller faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Install DC2 controller, (Para 3-28).

(2) Set multimeter select switch to ohms.

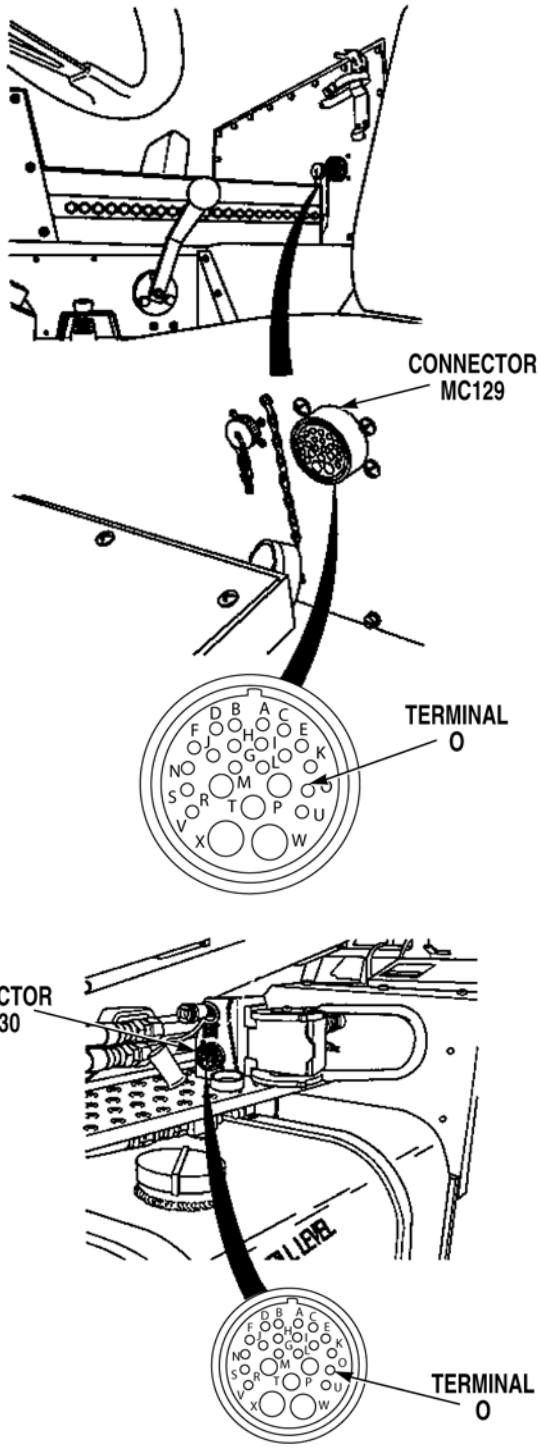
(3) Connect jumperwire between wire 9 white at connector MC129, terminal O and a known good ground.

(4) Connect positive (+) multimeter lead to wire 9 white at connector MC130, terminal O.

(5) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, PLS interface is faulty. Notify Supervisor.

(b) If continuity is measured, go to Step 26 of this Fault.



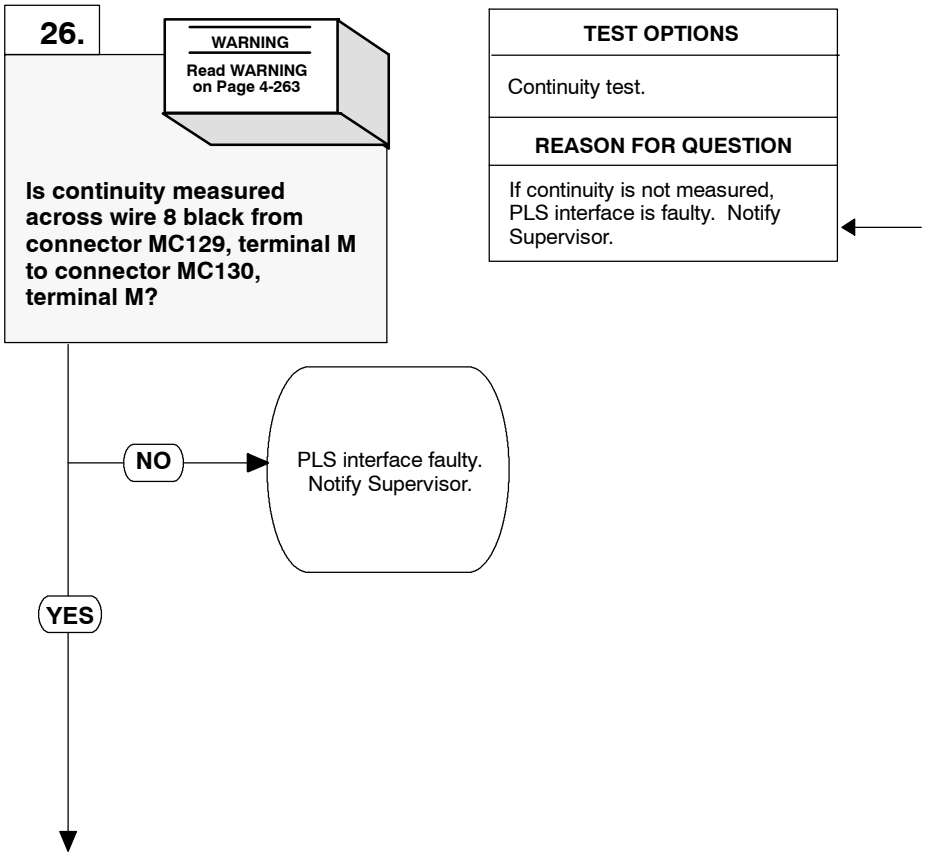
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- Controller wire harness (wire 8 black) OK.
- Rear control panel wire harness (wire 8 black) OK.
- Controller wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 black) OK.
- Rear control panel wire harness (wire 9 black) OK.
- Controller wire harness (wire 11 black) OK.
- Rear control panel wire harness (wire 11 black) OK.
- Controller wire harness (wire 12 black) OK.
- Rear control panel wire harness (wire 12 black) OK.

POSSIBLE PROBLEMS

- PLS interface faulty.
- Front control panel faulty.
- Controller faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

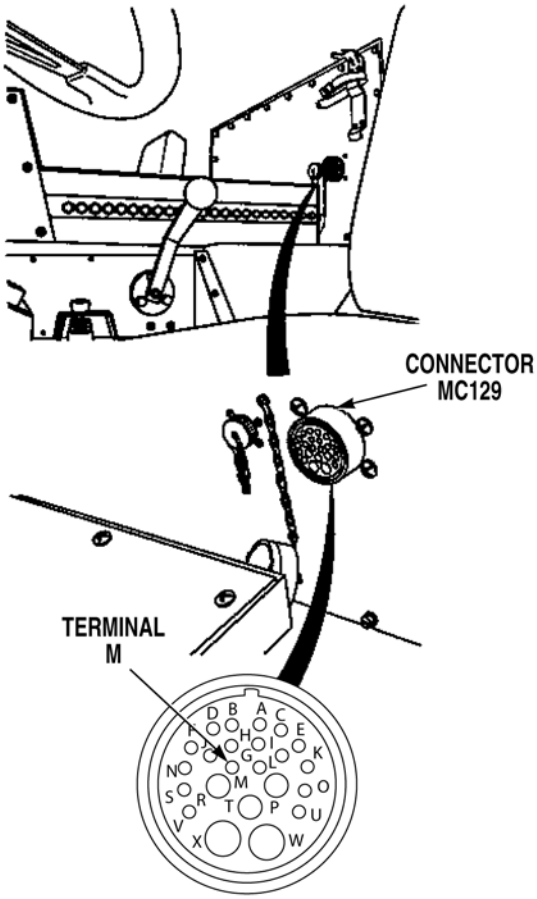
(2) Connect jumperwire between wire 8 black at connector MC129, terminal M and a known good ground.

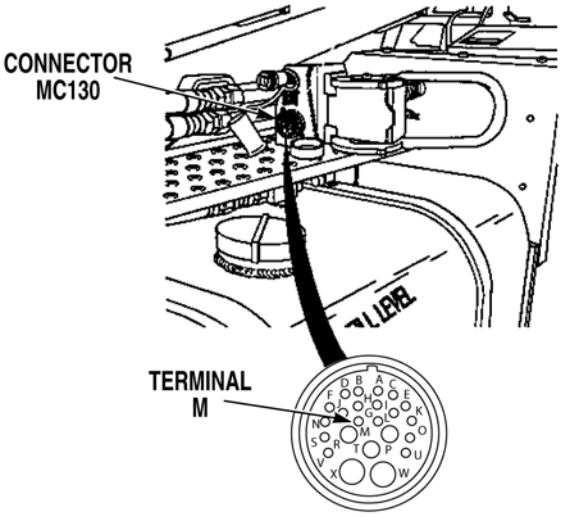
(3) Connect positive (+) multimeter lead to wire 8 black at connector MC130, terminal M.

(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, PLS interface is faulty. Notify Supervisor.

(b) If continuity is measured, go to Step 27 of this Fault.





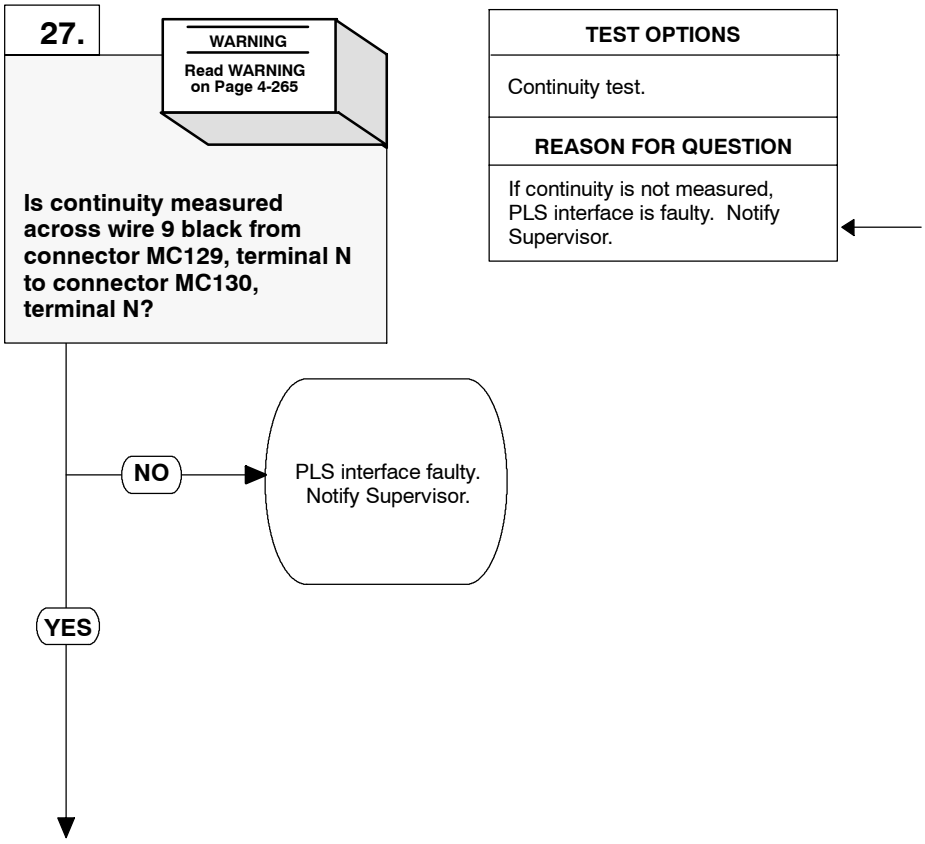
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- Controller wire harness (wire 8 black) OK.
- Rear control panel wire harness (wire 8 black) OK.
- Controller wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 black) OK.
- Rear control panel wire harness (wire 9 black) OK.
- Controller wire harness (wire 11 black) OK.
- Rear control panel wire harness (wire 11 black) OK.
- Controller wire harness (wire 12 black) OK.
- Rear control panel wire harness (wire 12 black) OK.

POSSIBLE PROBLEMS

- PLS interface faulty.
- Front control panel faulty.
- Controller faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

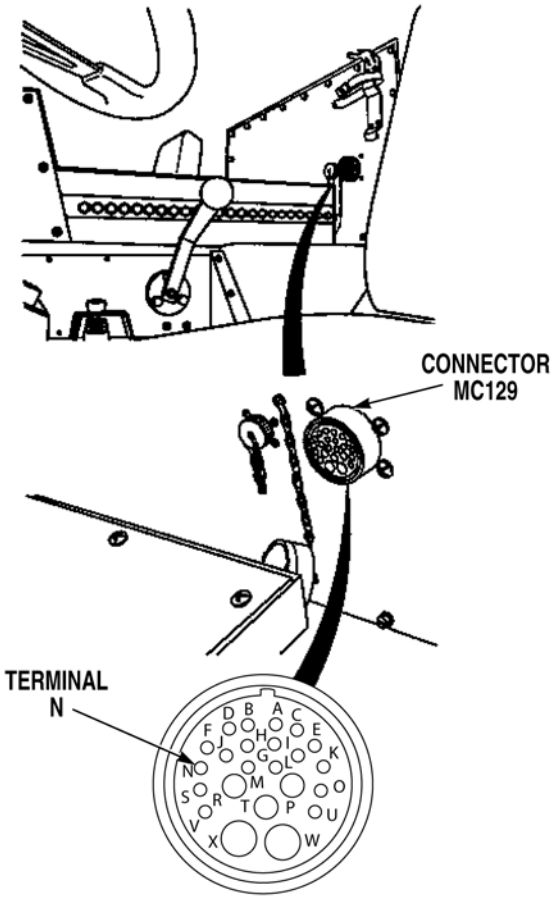
(2) Connect jumperwire between wire 9 black, at connector MC129, terminal N and a known good ground.

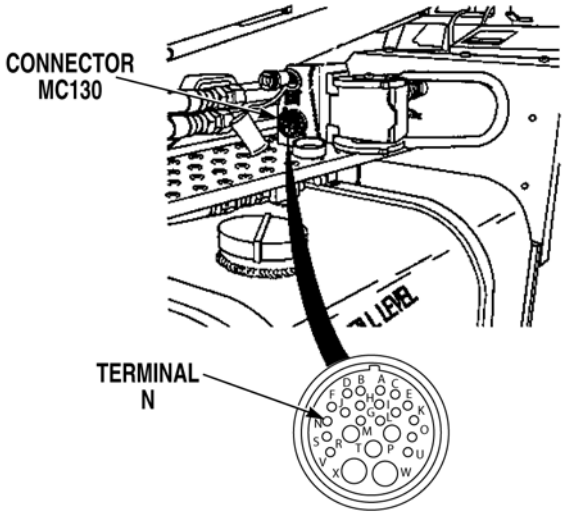
(3) Connect positive (+) multimeter lead to wire 9 black at connector MC130, terminal N.

(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, PLS interface is faulty. Notify Supervisor.

(b) If continuity is measured, go to Step 28 of this Fault.





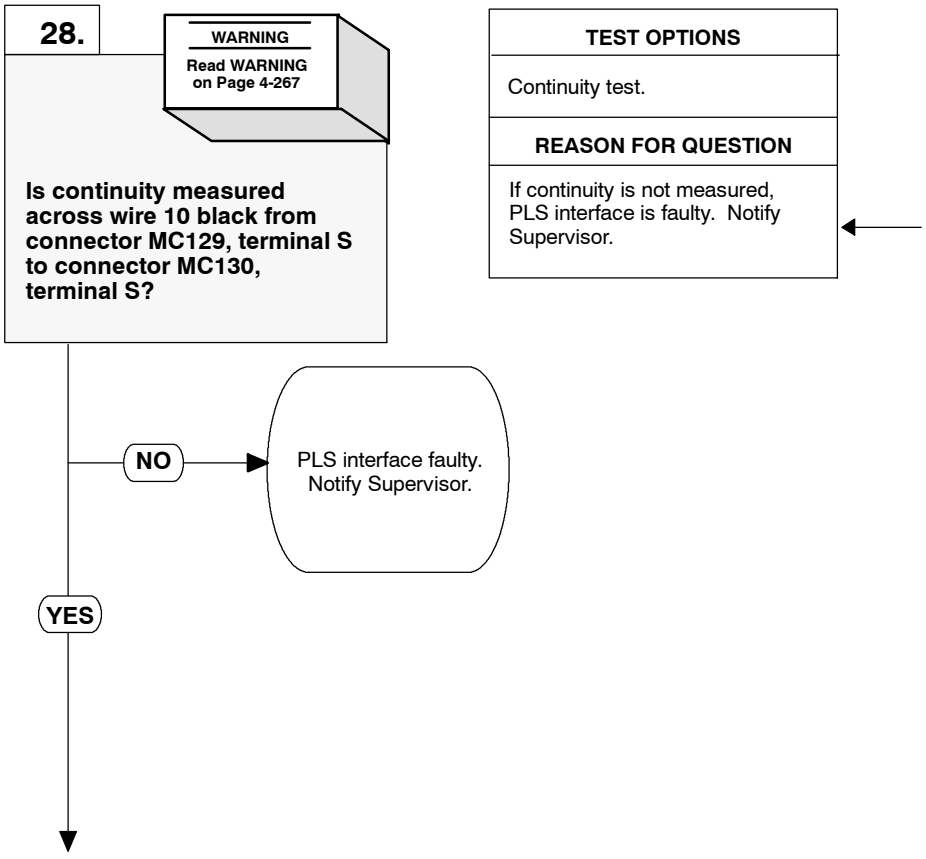
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- Controller wire harness (wire 8 black) OK.
- Rear control panel wire harness (wire 8 black) OK.
- Controller wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 black) OK.
- Rear control panel wire harness (wire 9 black) OK.
- Controller wire harness (wire 11 black) OK.
- Rear control panel wire harness (wire 11 black) OK.
- Controller wire harness (wire 12 black) OK.
- Rear control panel wire harness (wire 12 black) OK.

POSSIBLE PROBLEMS

- PLS interface faulty.
- Front control panel faulty.
- Controller faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

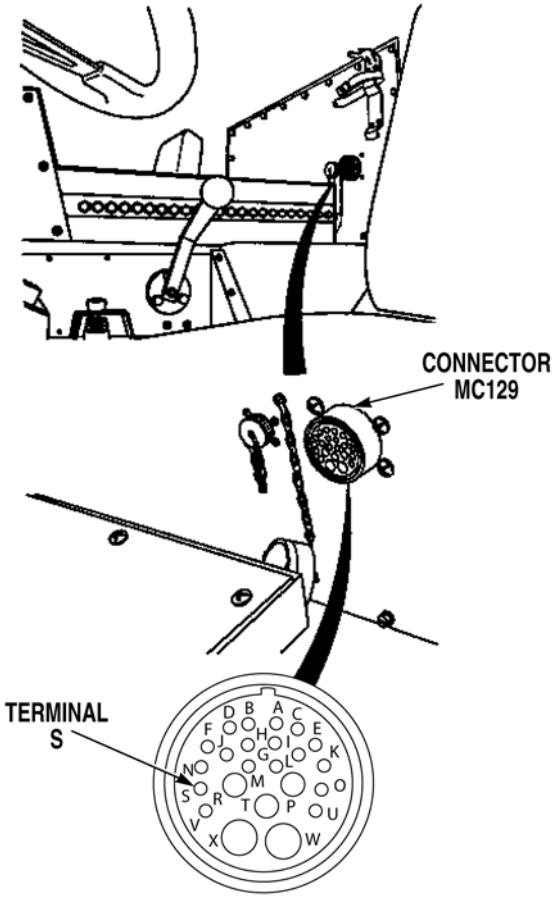
(2) Connect jumperwire between wire 10 black connector MC129, terminal S and a known good ground.

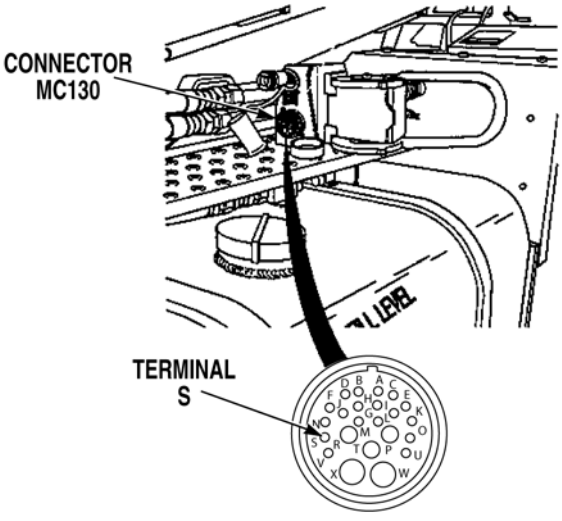
(3) Connect positive (+) multimeter lead to wire 10 black at connector MC130, terminal S.

(4) Connect negative (-) multimeter lead a known good ground.

(a) If continuity is not measured, PLS interface is faulty. Notify Supervisor.

(b) If continuity is measured, go to Step 29 of this Fault.





8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- Controller wire harness (wire 8 black) OK.
- Rear control panel wire harness (wire 8 black) OK.
- Controller wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 black) OK.
- Rear control panel wire harness (wire 9 black) OK.
- Controller wire harness (wire 11 black) OK.
- Rear control panel wire harness (wire 11 black) OK.
- Controller wire harness (wire 12 black) OK.
- Rear control panel wire harness (wire 12 black) OK.

POSSIBLE PROBLEMS

- PLS interface faulty.
- Front control panel faulty.
- Controller faulty.

29.

WARNING

Read WARNING on Page 4-269

Is continuity measured across wire 11 black from connector MC129, terminal U to connector M130, terminal U?

NO → PLS interface faulty. Notify Supervisor.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, PLS interface is faulty. Notify Supervisor.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

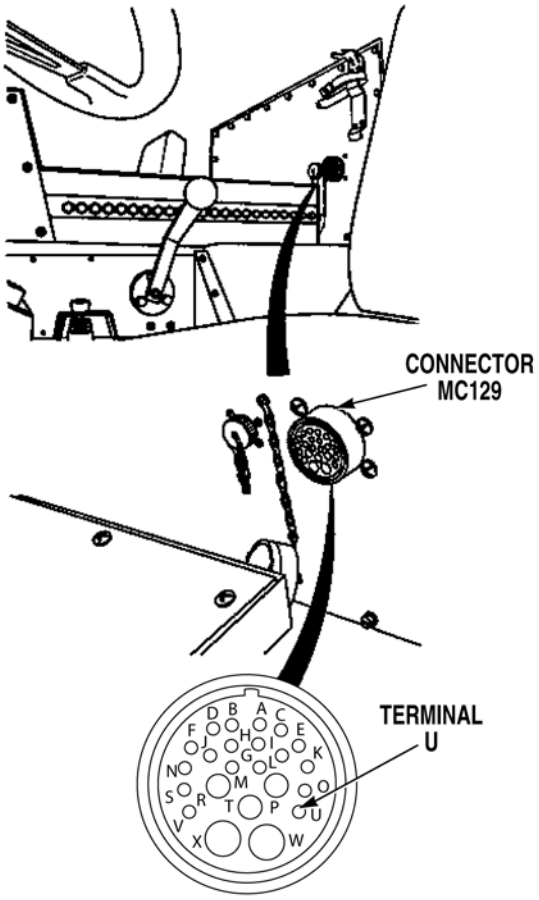
(2) Connect jumperwire between wire 11 black at connector MC129, terminal U and a known good ground.

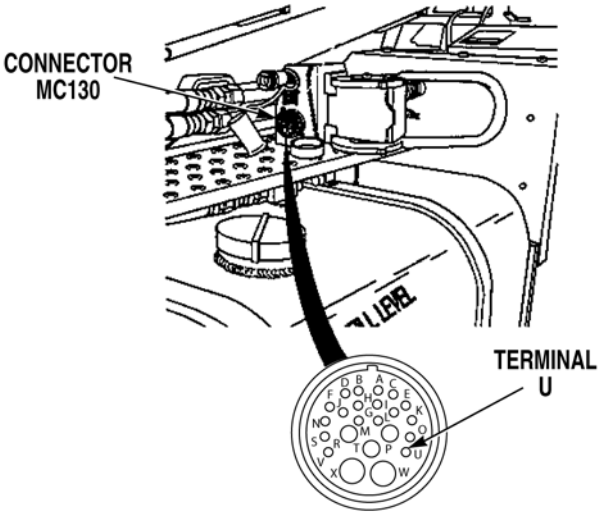
(3) Connect positive (+) multimeter lead to wire 11 black at connector MC130, terminal U.

(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, PLS interface is faulty. Notify Supervisor.

(b) If continuity is measured, go to Step 30 of this Fault.





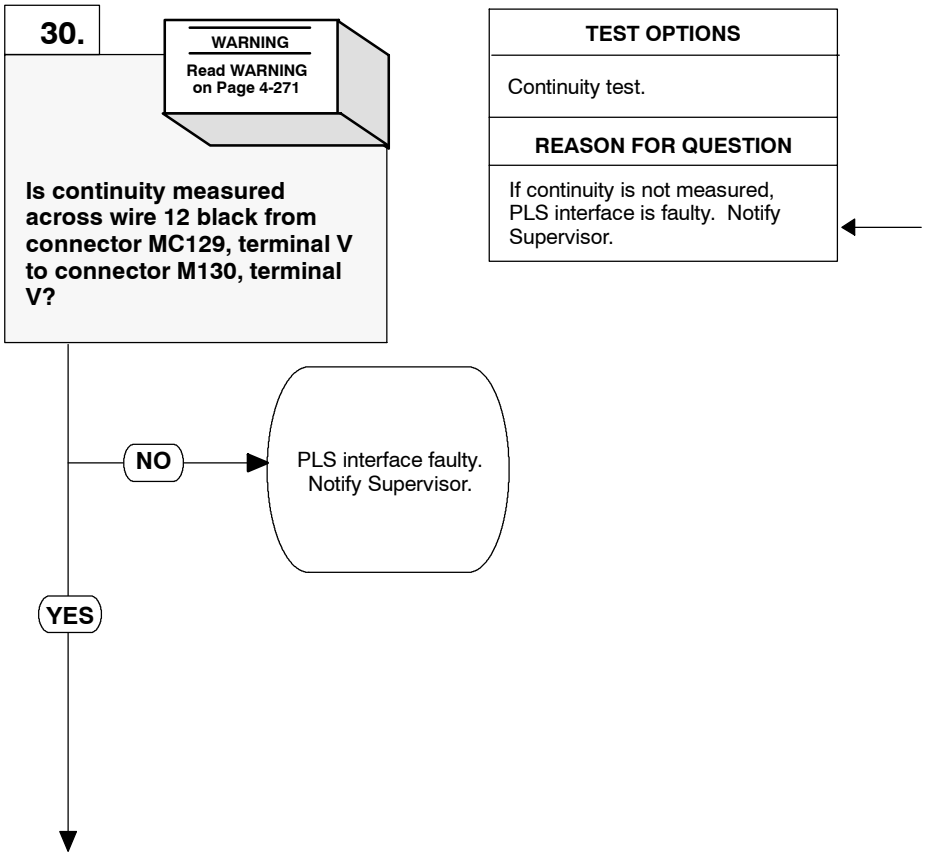
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- Controller wire harness (wire 8 black) OK.
- Rear control panel wire harness (wire 8 black) OK.
- Controller wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 black) OK.
- Rear control panel wire harness (wire 9 black) OK.
- Controller wire harness (wire 11 black) OK.
- Rear control panel wire harness (wire 11 black) OK.
- Controller wire harness (wire 12 black) OK.
- Rear control panel wire harness (wire 12 black) OK.

POSSIBLE PROBLEMS

- PLS interface faulty.
- Front control panel faulty.
- Controller faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

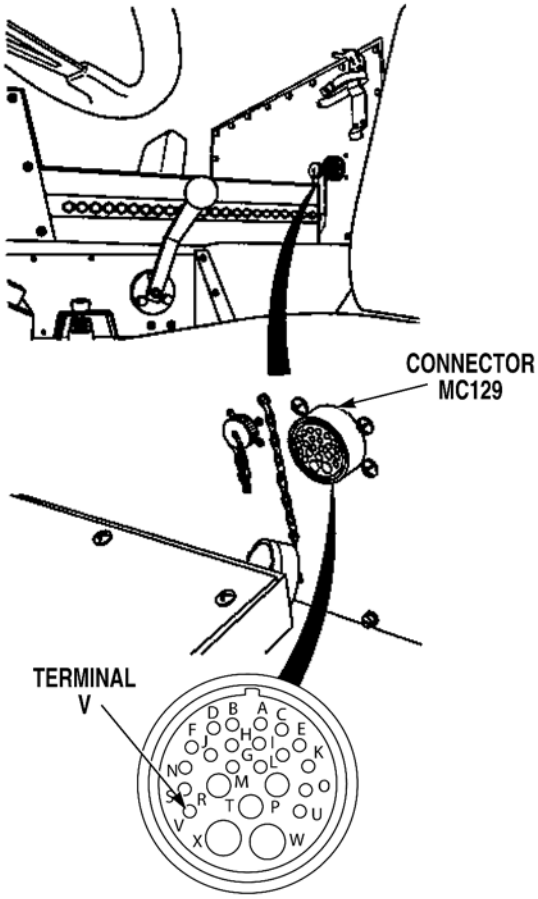
(2) Connect jumperwire between wire 12 black, connector MC129, terminal V and a known good ground.

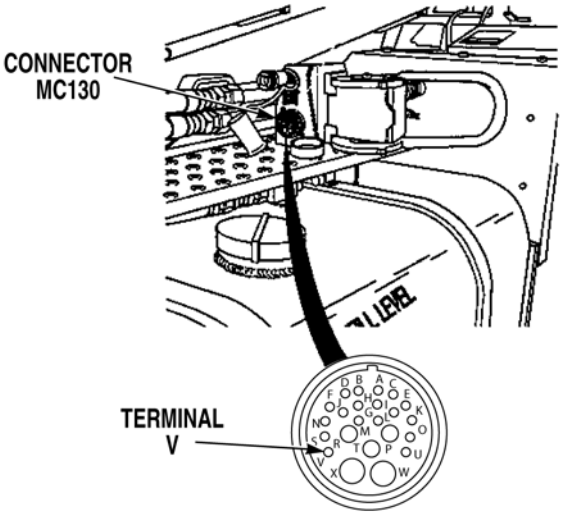
(3) Connect positive (+) multimeter lead to wire 12 black at connector MC130, terminal V.

(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, PLS interface is faulty. Notify Supervisor.

(b) If continuity is measured, go to Step 31 of this Fault.





8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- Controller wire harness (wire 8 black) OK.
- Rear control panel wire harness (wire 8 black) OK.
- Controller wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 black) OK.
- Rear control panel wire harness (wire 9 black) OK.
- Controller wire harness (wire 11 black) OK.
- Rear control panel wire harness (wire 11 black) OK.
- Controller wire harness (wire 12 black) OK.
- Rear control panel wire harness (wire 12 black) OK.
- PLS interface OK.

POSSIBLE PROBLEMS

- Front control panel faulty.
- Controller faulty.

31.

Can pump speed be adjusted using front control panel CIRCULATION RATE controls after replacing front control panel?

NO → Replace controller, (Para 3-28). Verify repair, go to Step 38 of this Fault.

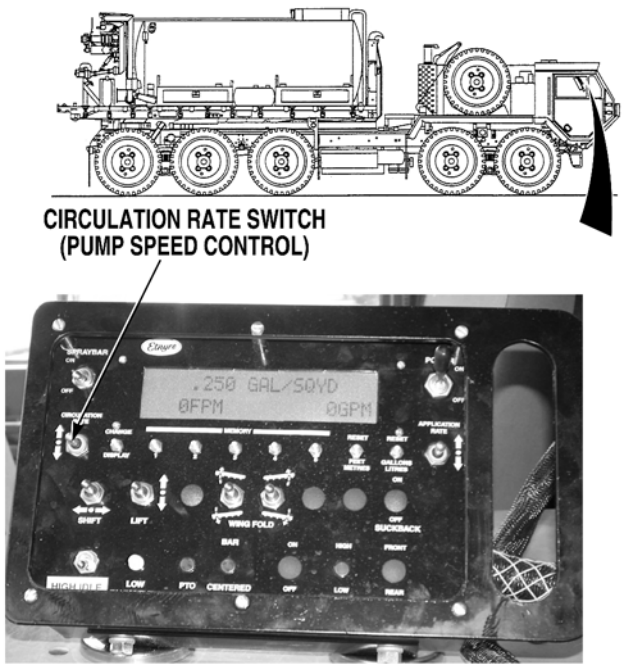
YES → Verify repair, go to Step 38 of this Fault.

TEST OPTIONS

Operational test.

REASON FOR QUESTION

If front controls do not operate after replacing front control panel, controller is faulty.



VISUAL INSPECTION

(1) Replace front control panel, (Para 2-10).

(2) Push in battery disconnect switch, (TM 9-2320-364-10).

(3) Start engine, (TM 9-2320-364-10).

(4) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(5) Turn front control panel POWER switch ON, (Para 2-1).

(6) Turn rear control panel POWER switch ON, (Para 2-1).

(7) Turn rear control panel FRONT/REAR select switch to FRONT, (Para 2-1).

(8) Operate front control panel CIRCULATION RATE switch, (Para 2-16).

  (a) If pump speed cannot be adjusted from front control panel, replace controller, (Para 3-28). Verify repair, go to Step 38 of this Fault.

  (b) If pump speed can be adjusted from front control panel, go to Step 38 of this Fault.

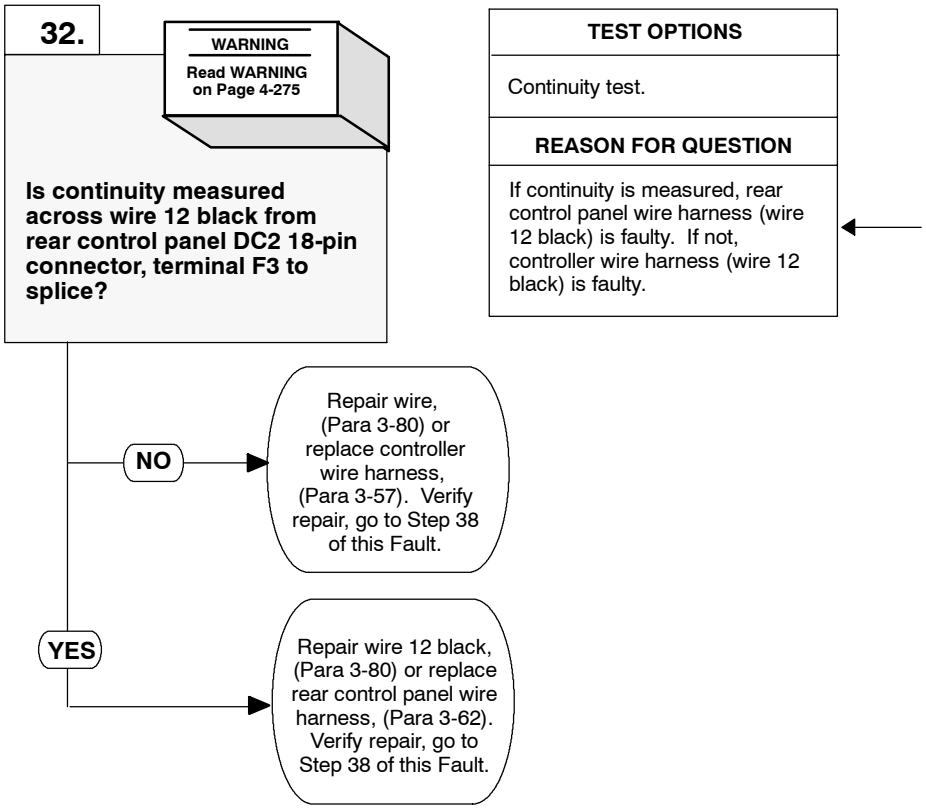
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- Controller wire harness (wire 8 black) OK.
- Rear control panel wire harness (wire 8 black) OK.
- Controller wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 black) OK.
- Rear control panel wire harness (wire 9 black) OK.
- Controller wire harness (wire 11 black) OK.
- Rear control panel wire harness (wire 11 black) OK.
- PLS interface OK.
- Front control panel OK.
- Controller OK.

POSSIBLE PROBLEMS

- Controller wire harness (wire 12 black) faulty.
- Rear control panel wire harness (wire 12 black) faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

(2) Cut wire 12 black at splice.

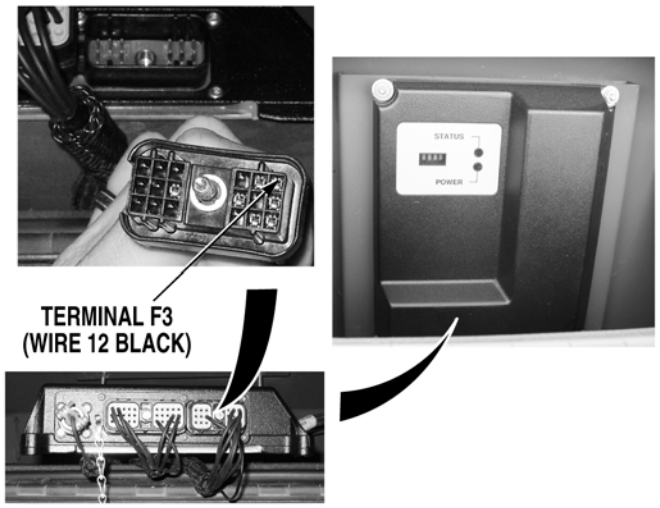
(3) Connect positive (+) multimeter lead to wire 12 black at rear control panel DC2 18-pin connector, terminal F3.

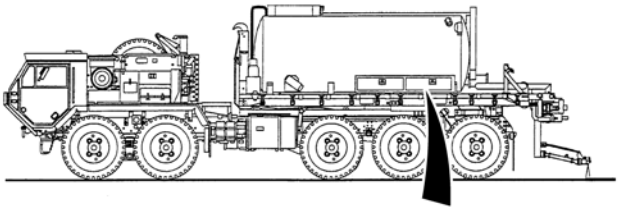
(4) Connect negative (-) multimeter lead to wire 12 black at splice.

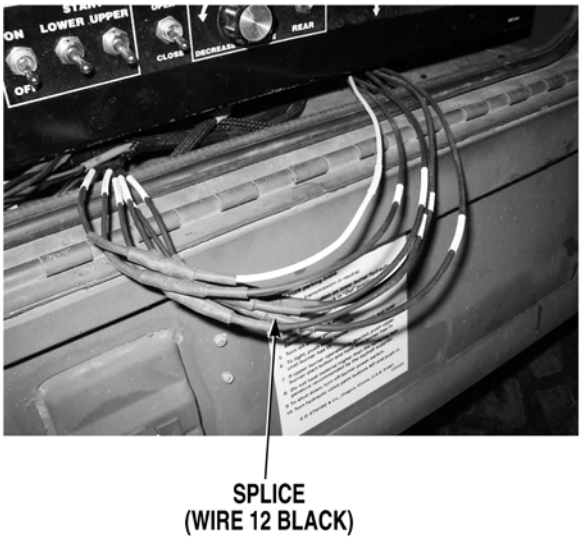
(a) If continuity is not measured, repair wire 12 black, (Para 3-80) or replace controller wire harness, (Para 3-57).

(b) If continuity is measured, repair wire, (Para 3-80) or replace rear control panel wire harness, (Para 3-62).

(5) Verify repair, go to Step 38 of this Fault.







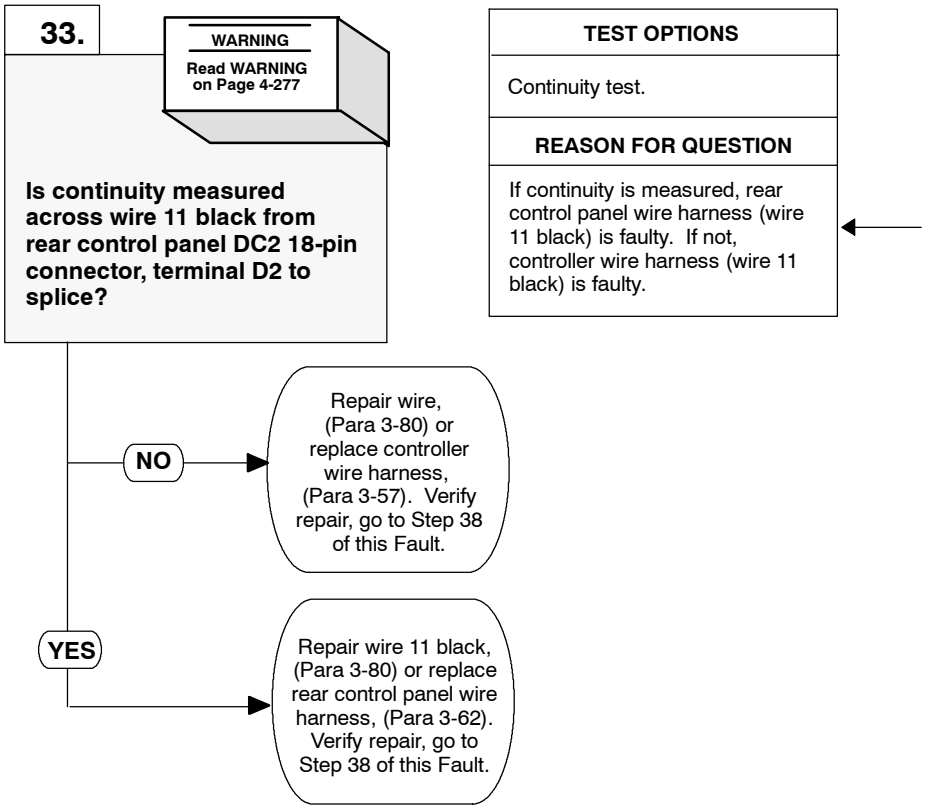
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- Controller wire harness (wire 8 black) OK.
- Rear control panel wire harness (wire 8 black) OK.
- Controller wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 black) OK.
- Rear control panel wire harness (wire 9 black) OK.
- PLS interface OK.
- Front control panel OK.
- Controller OK.
- Controller wire harness (wire 12 black) OK.
- Rear control panel wire harness (wire 12 black) OK.

POSSIBLE PROBLEMS

- Controller wire harness (wire 11 black) faulty.
- Rear control panel wire harness (wire 11 black) faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

(2) Cut wire 11 black at splice.

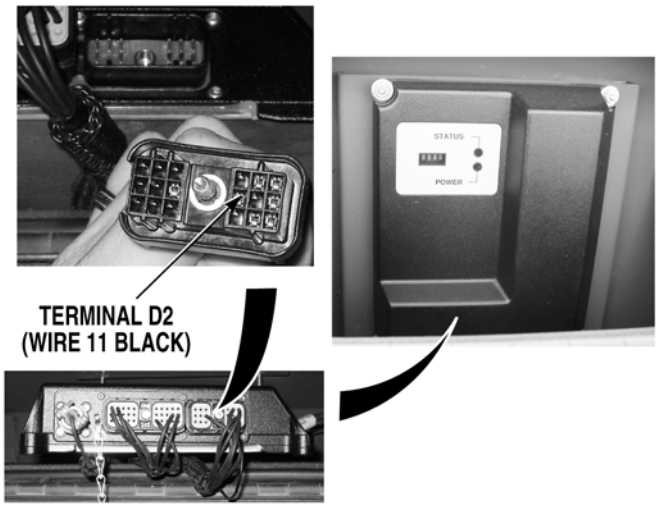
(3) Connect positive (+) multimeter lead to wire 11 black at rear control panel DC2, 18-pin connector, terminal D2.

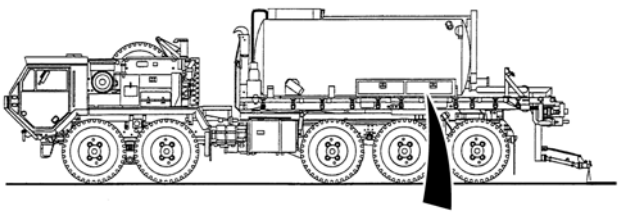
(4) Connect negative (-) multimeter lead to wire 11 black at splice.

(a) If continuity is not measured, repair wire 11 black, (Para 3-80) or replace controller wire harness, (Para 3-57).

(b) If continuity is measured, repair wire, (Para 3-80) or replace rear control panel wire harness, (Para 3-62).

(5) Verify repair, go to Step 38 of this Fault.







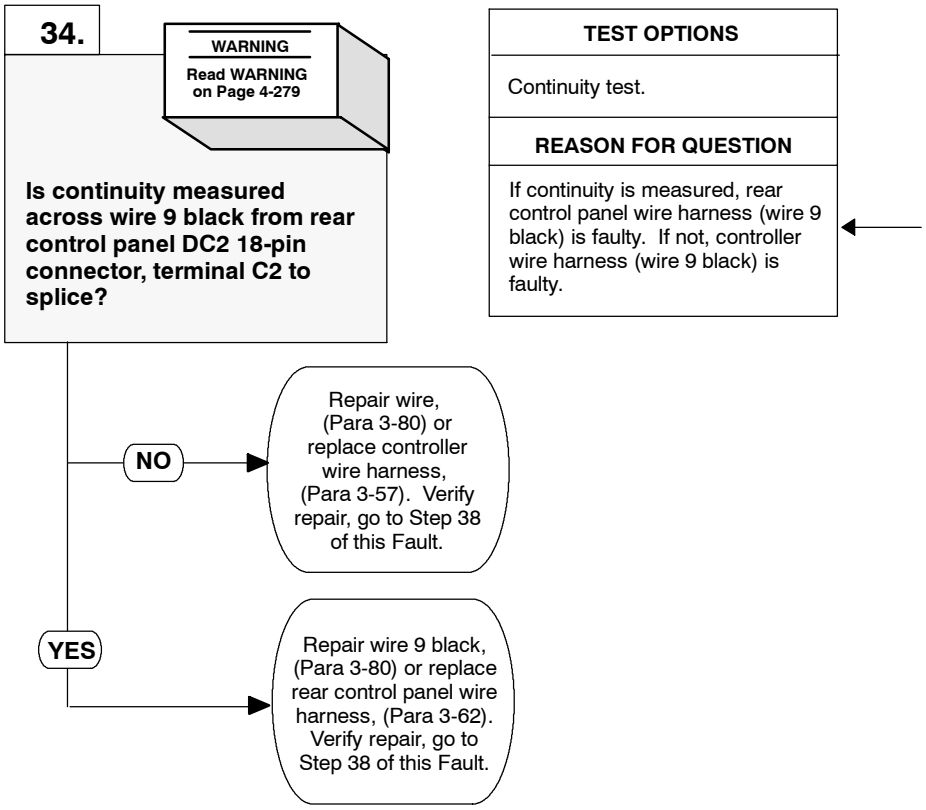
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- Controller wire harness (wire 8 black) OK.
- Rear control panel wire harness (wire 8 black) OK.
- Controller wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 white) OK.
- PLS interface OK.
- Front control panel OK.
- Controller OK.
- Controller wire harness (wire 12 black) OK.
- Rear control panel wire harness (wire 12 black) OK.
- Controller wire harness (wire 11 black) OK.
- Rear control panel wire harness (wire 11 black) OK.

POSSIBLE PROBLEMS

- Controller wire harness (wire 9 black) faulty.
- Rear control panel wire harness (wire 9 black) faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

(2) Cut wire 9 black at splice.

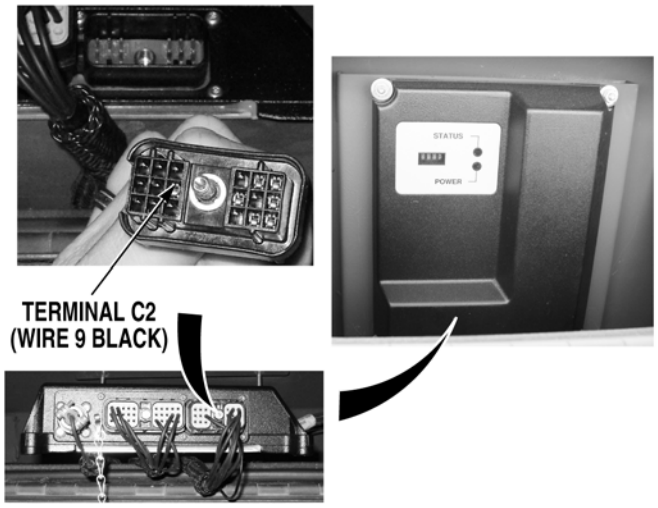
(3) Connect positive (+) multimeter lead to wire 9 black at rear control panel DC2 18-pin connector, terminal C2.

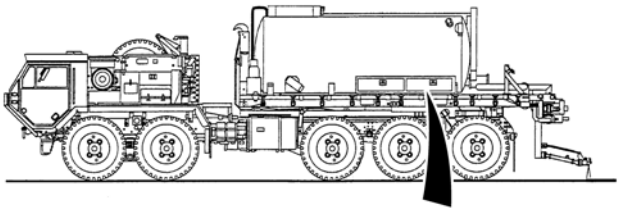
(4) Connect negative (-) multimeter lead to wire 9 black at splice.

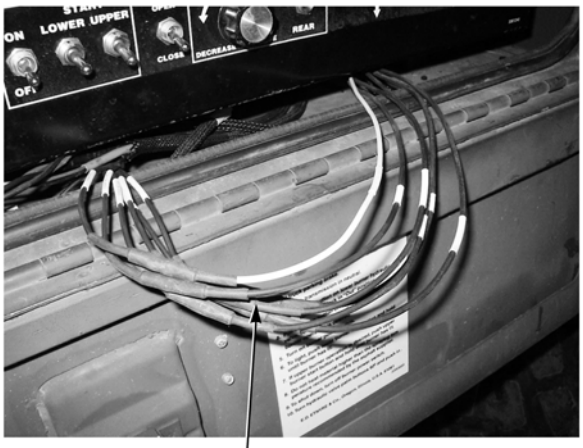
(a) If continuity is not measured, repair wire 9 black, (Para 3-80) or replace controller wire harness, (Para 3-57).

(b) If continuity is measured, repair wire, (Para 3-80) or replace rear control panel wire harness, (Para 3-62).

(5) Verify repair, go to Step 38 of this Fault.







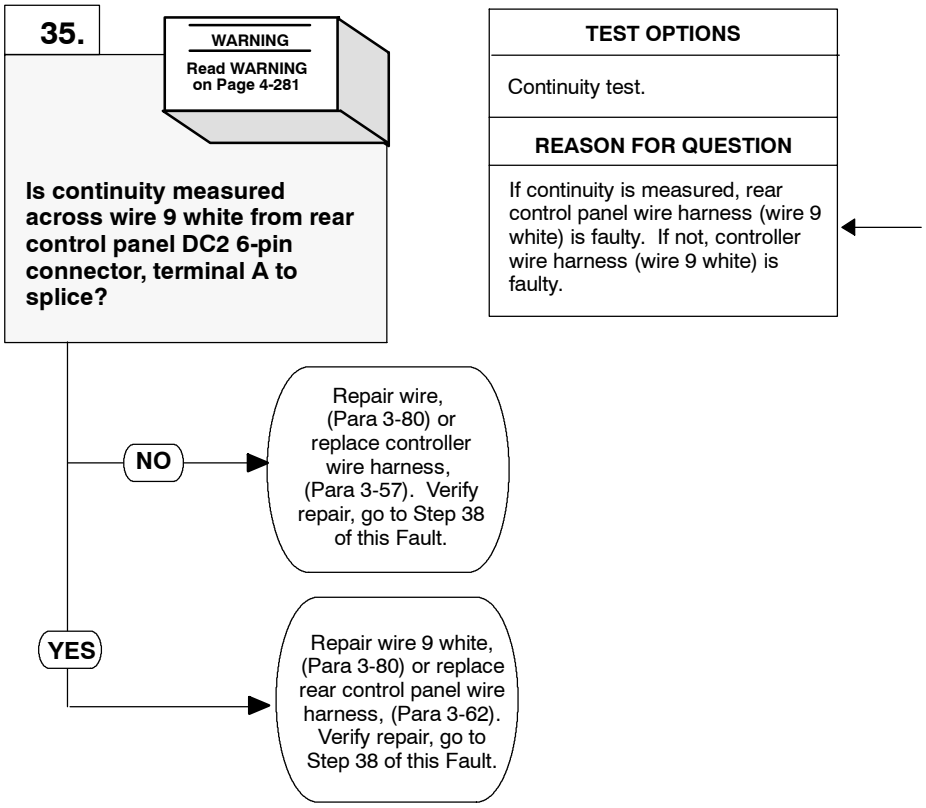
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- Controller wire harness (wire 8 black) OK.
- Rear control panel wire harness (wire 8 black) OK.
- Controller wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 10 black) OK.
- PLS interface OK.
- Front control panel OK.
- Controller OK.
- Controller wire harness (wire 12 black) OK.
- Rear control panel wire harness (wire 12 black) OK.
- Controller wire harness (wire 11 black) OK.
- Rear control panel wire harness (wire 11 black) OK.
- Controller wire harness (wire 9 black) OK.
- Rear control panel wire harness (wire 9 black) OK.

POSSIBLE PROBLEMS

- Controller wire harness (wire 9 white) faulty.
- Rear control panel wire harness (wire 9 white) faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

(2) Cut wire 9 white at splice.

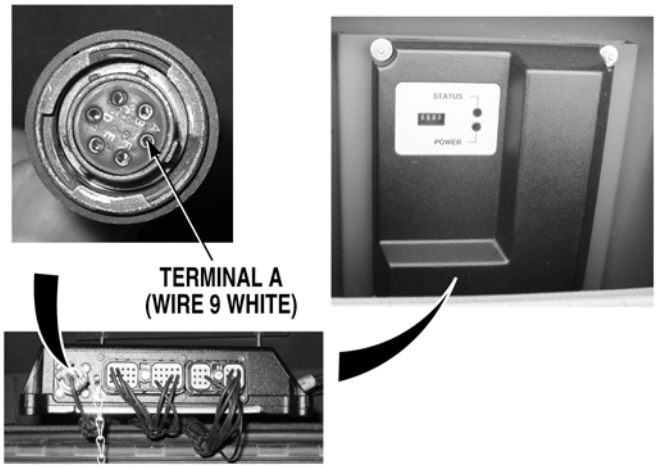
(3) Connect positive (+) multimeter lead to wire 9 white at rear control panel DC2 6-pin connector, terminal A.

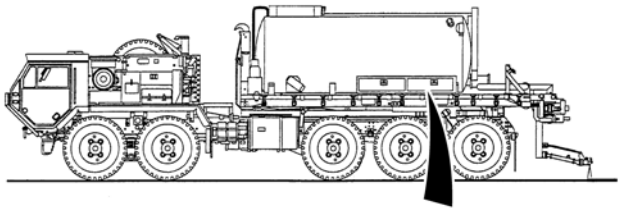
(4) Connect negative (-) multimeter lead to wire 9 white at splice.

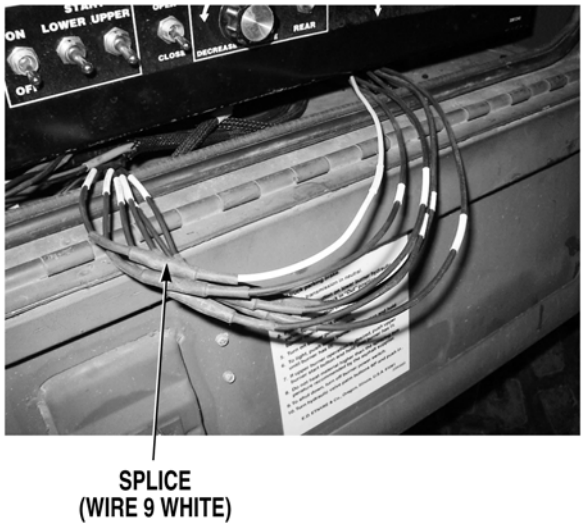
(a) If continuity is not measured, repair wire 9 white, (Para 3-80) or replace controller wire harness, (Para 3-57).

(b) If continuity is measured, repair wire 9 white, (Para 3-80) or replace rear control panel wire harness, (Para 3-62).

(5) Verify repair, go to Step 38 of this Fault.







8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- Controller wire harness (wire 8 black) OK.
- Rear control panel wire harness (wire 8 black) OK.
- PLS interface OK.
- Front control panel OK.
- Controller OK.
- Controller wire harness (wire 12 black) OK.
- Rear control panel wire harness (wire 12 black) OK.
- Controller wire harness (wire 11 black) OK.
- Rear control panel wire harness (wire 11 black) OK.
- Controller wire harness (wire 9 black) OK.
- Rear control panel wire harness (wire 9 black) OK.
- Rear control panel wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 white) OK.

POSSIBLE PROBLEMS

- Controller wire harness (wire 10 black) faulty.
- Rear control panel wire harness (wire 10 black) faulty.

36.

WARNING

Read WARNING on Page 4-283

Is continuity measured across wire 10 black from rear control panel DC2 30-pin connector, terminal F3 to splice?

NO → Repair wire, (Para 3-80) or replace controller wire harness, (Para 3-57). Verify repair, go to Step 38 of this Fault.

YES → Repair wire 10 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 38 of this Fault.

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is measured, rear control panel wire harness (wire 10 black) is faulty. If not, controller wire harness (wire 10 black) is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

(2) Cut wire 10 black at splice.

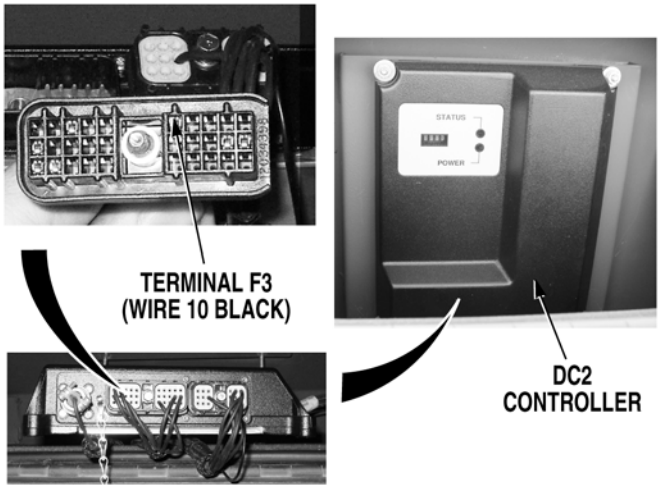
(3) Connect positive (+) multimeter lead to wire 10 black at rear control panel DC2 30-pin connector, terminal F3.

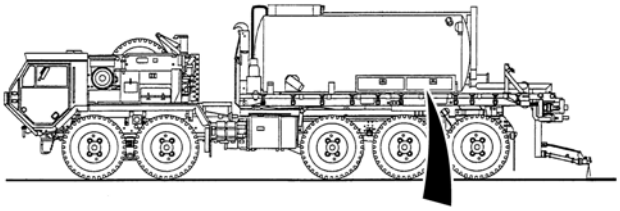
(4) Connect negative (-) multimeter lead to wire 10 black at splice.

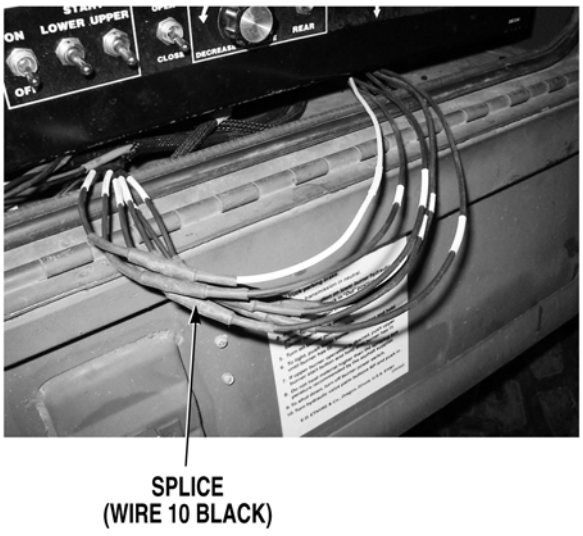
(a) If continuity is not measured, repair wire 10 black, (Para 3-80) or replace controller wire harness, (Para 3-57).

(b) If continuity is measured, repair wire 10 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62).

(5) Verify repair, go to Step 38 of this Fault.







8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- PLS interface OK.
- Front control panel OK.
- Controller OK.
- Controller wire harness (wire 12 black) OK.
- Rear control panel wire harness (wire 12 black) OK.
- Controller wire harness (wire 11 black) OK.
- Rear control panel wire harness (wire 11 black) OK.
- Controller wire harness (wire 9 black) OK.
- Rear control panel wire harness (wire 9 black) OK.
- Rear control panel wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 white) OK.
- Controller wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 10 black) OK.

POSSIBLE PROBLEMS

- Controller wire harness (wire 8 black) faulty.
- Rear control panel wire harness (wire 8 black) faulty.

37.

WARNING

Read WARNING on Page 4-285

Is continuity measured across wire 8 black from rear control panel DC2 30-pin connector, terminal A1 to splice?

NO → Repair wire, (Para 3-80) or replace controller wire harness, (Para 3-57). Verify repair, go to Step 38 of this Fault.

YES → Repair wire 8 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 38 of this Fault.

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is measured, rear control panel wire harness (wire 8 black) is faulty. If not, controller wire harness (wire 8 black) is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

(2) Cut wire 8 black at splice.

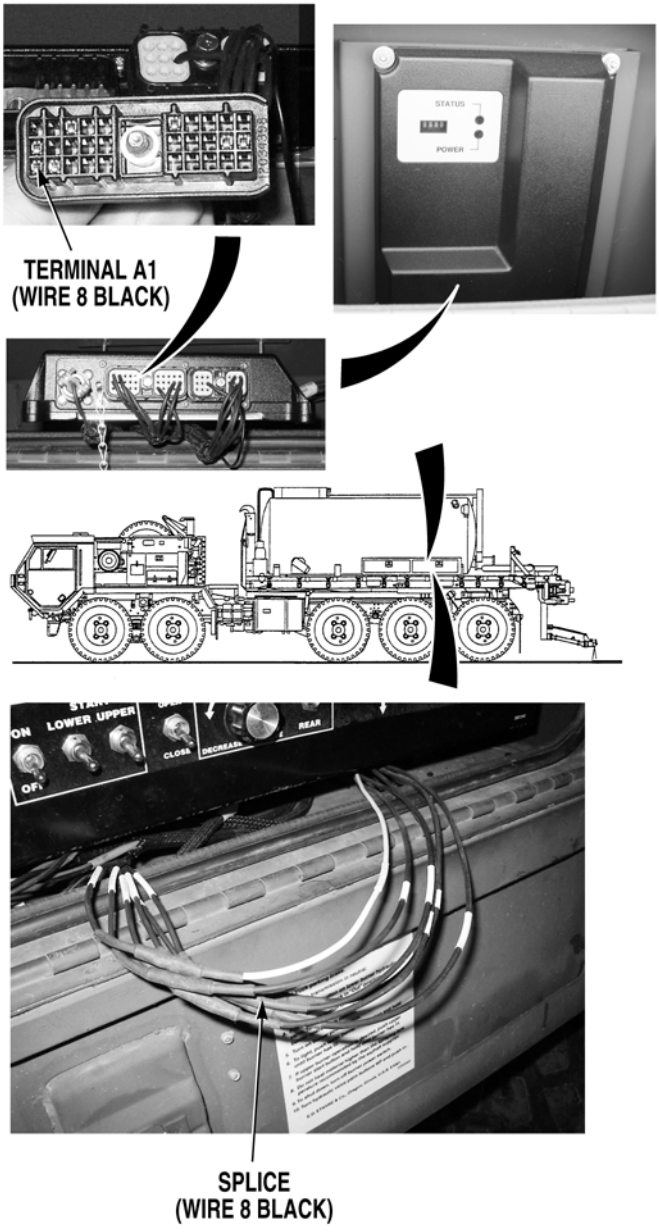
(3) Connect positive (+) multimeter lead to wire 8 black at rear control panel DC2 30-pin connector, terminal A1.

(4) Connect negative (-) multimeter lead to wire 8 black at splice.

(a) If continuity is not measured, repair wire 8 black, (Para 3-80) or replace controller wire harness, (Para 3-57).

(b) If continuity is measured, repair wire 8 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62).

(5) Verify repair, go to Step 38 of this Fault.



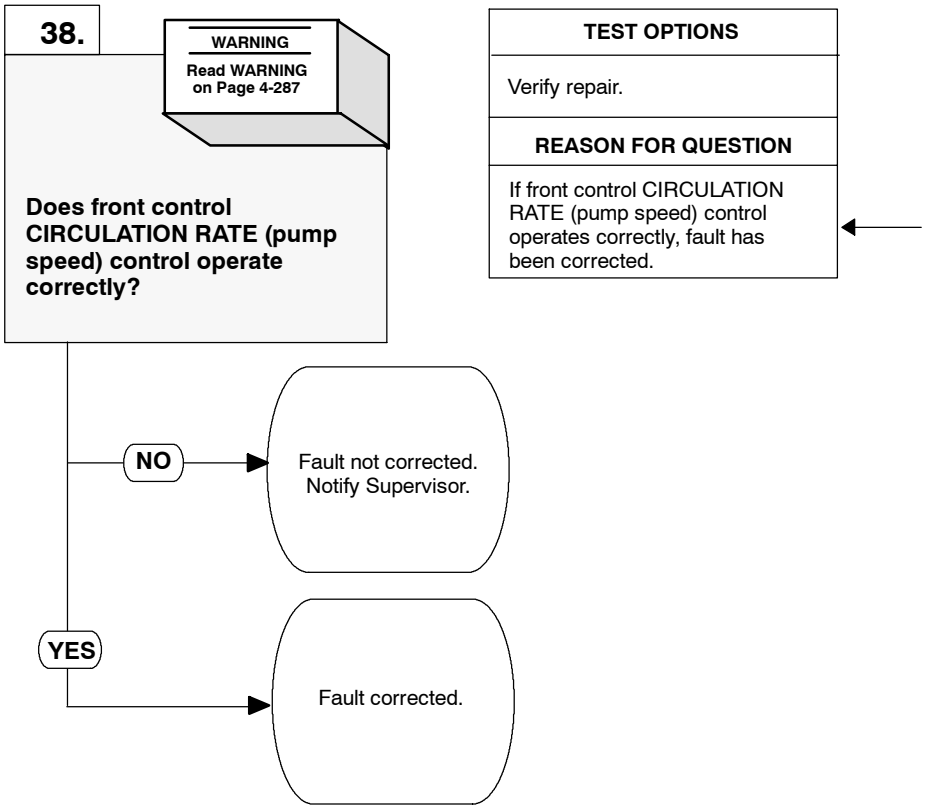
8. FRONT CONTROL CIRCULATION RATE (ASPHALT PUMP SPEED) CONTROL DOES NOT OPERATE (CONT).

KNOWN INFO

- Front control panel SPRAYBAR switch is in correct position.
- Front control panel ground (black) wire from CIRCULATION RATE switch to front control panel ground stud OK.
- CIRCULATION RATE switch OK.
- Front control panel wire harness (wire 7 black) OK.
- Front control panel wire harness (wire 9 white) OK.
- Front control panel wire harness (wire 8 black) OK.
- Front control panel wire harness (wire 9 black) OK.
- Front control panel wire harness (wire 10 black) OK.
- Front control panel wire harness (wire 11 black) OK.
- Front control panel wire harness (wire 12 black) OK.
- Rear control panel FRONT/REAR select switch OK.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch OK.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch OK.
- PLS interface OK.
- Front control panel OK.
- Controller OK.
- Controller wire harness (wire 12 black) OK.
- Rear control panel wire harness (wire 12 black) OK.
- Controller wire harness (wire 11 black) OK.
- Rear control panel wire harness (wire 11 black) OK.
- Controller wire harness (wire 9 black) OK.
- Rear control panel wire harness (wire 9 black) OK.
- Rear control panel wire harness (wire 9 white) OK.
- Controller wire harness (wire 9 white) OK.
- Controller wire harness (wire 10 black) OK.
- Rear control panel wire harness (wire 10 black) OK.
- Controller wire harness (wire 8 black) OK.
- Rear control panel wire harness (wire 8 black) OK.

POSSIBLE PROBLEMS

None.



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

VERIFY REPAIR

(1) If removed, install front control panel, (Para 3-76).

(2) If removed, install DC 2 controller, (Para 3-28).

(3) If disconnected, connect front control panel connector MC129, (Para 2-10).

(4) If disconnected, connect rear control panel connector MC130 (UPIK), (Para 2-10).

(5) If out, push in battery disconnect switch, (TM 9-2320-364-10).

(6) If OFF, start engine, (TM 9-2320-364-10).

(7) Turn hydraulic selector switch to CRANE/SRW, (TM 9-2320-364-10).

(8) Turn front control panel POWER switch ON, (Para 2-1).

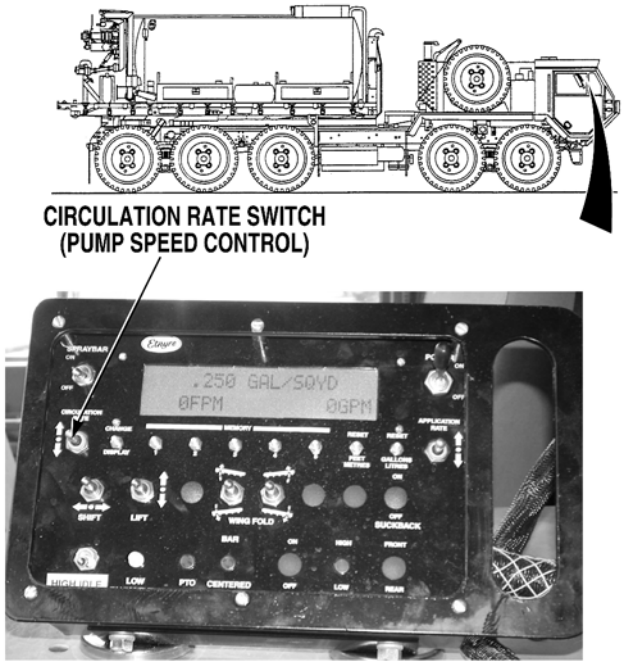
(9) Turn rear control panel POWER switch ON, (Para 2-1).

(10) Operate front control panel pump speed controls, (Para 2-16).

(a) If front control panel PUMP CONTROL does not control pump speed, fault not corrected. Notify Supervisor.

(b) If front control panel PUMP CONTROL controls pump speed, fault has been corrected.

(11) Shut OFF engine, (TM 9-2320-364-10).



9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL).

INITIAL SETUP

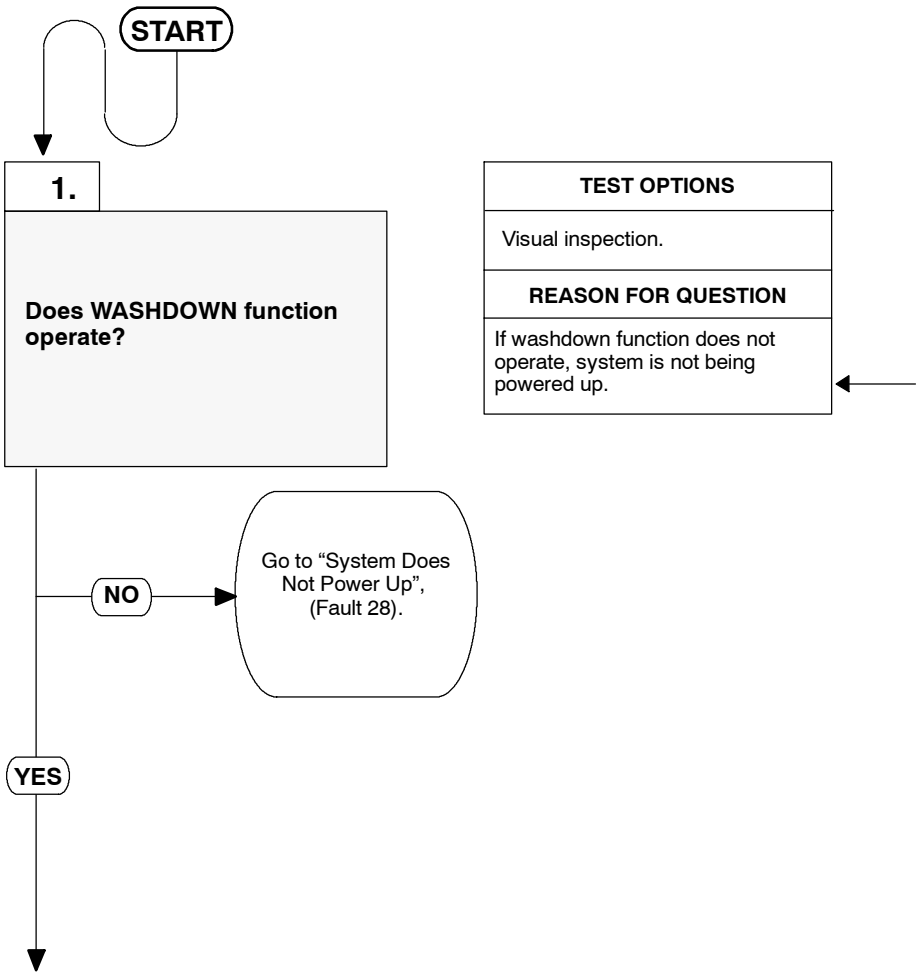
Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
- Multimeter (Item 8, Appendix F)
- Pan, Drain (Item 9, Appendix F)
- Jumperwire

Personnel Required
- Two

Equipment Condition
- Bituminous Distributor loaded on PLS, (Para 2-5)
- Engine OFF, (TM 9-2320-364-10)
- Wheels chocked, (TM 9-2320-364-10)

9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO
Nothing.
POSSIBLE PROBLEMS
System not powering up. Front control panel SPRAYBAR switch is not in correct position. Front control panel ground (black) wire from SPRAYBAR switch to CIRCULATION RATE switch faulty. Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud faulty. Front control panel wire harness (wire 7 black) faulty. PLS interface faulty. Front control panel wire harness (wire 9 white) faulty. Front control panel wire harness (wire 8 black) faulty. Front control panel wire harness (wire 9 black) faulty. Front control panel wire harness (wire 10 black) faulty. Front control panel wire harness (wire 11 black) faulty. Front control panel wire harness (wire 12 black) faulty. Front control panel faulty. Controller faulty. Controller wire harness (wire 9 white) faulty. Rear control panel wire harness (wire 9 white) faulty. Controller wire harness (wire 10 black) faulty. Rear control panel wire harness (wire 10 black) faulty. Controller wire harness (wire 8 black) faulty. Rear control panel wire harness (wire 8 black) faulty. Controller wire harness (wire 12 black) faulty. Rear control panel wire harness (wire 12 black) faulty. Controller wire harness (wire 11 black) faulty. Rear control panel wire harness (wire 11 black) faulty. Controller wire harness (wire 9 black) faulty. Rear control panel wire harness (wire 9 black) faulty. Controller wire harness ground wire faulty. Controller wire harness power (red) wire faulty.



VISUAL INSPECTION

(1) Turn front control panel POWER switch ON, (Para 2-1).

(2) Turn rear control panel POWER switch ON, (Para 2-1).

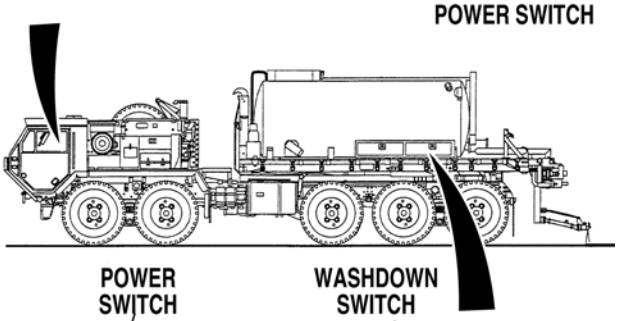
(3) Turn WASHDOWN switch ON, (Para 2-1).

(4) Check operation of WASHDOWN function.

(a) If WASHDOWN function does not operate, go to “System Does Not Power Up”, (Fault 28).

(b) If WASHDOWN function operates, go to Step 2 of this Fault.





9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO
System powers up.
POSSIBLE PROBLEMS
Front control panel SPRAYBAR switch is not in correct position.
Front control panel ground (black) wire from SPRAYBAR switch to CIRCULATION RATE switch faulty.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud faulty.
Front control panel wire harness (wire 7 black) faulty.
PLS interface faulty.
Front control panel wire harness (wire 9 white) faulty.
Front control panel wire harness (wire 8 black) faulty.
Front control panel wire harness (wire 9 black) faulty.
Front control panel wire harness (wire 10 black) faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.
Controller wire harness ground wire faulty.
Controller wire harness power (red) wire faulty.

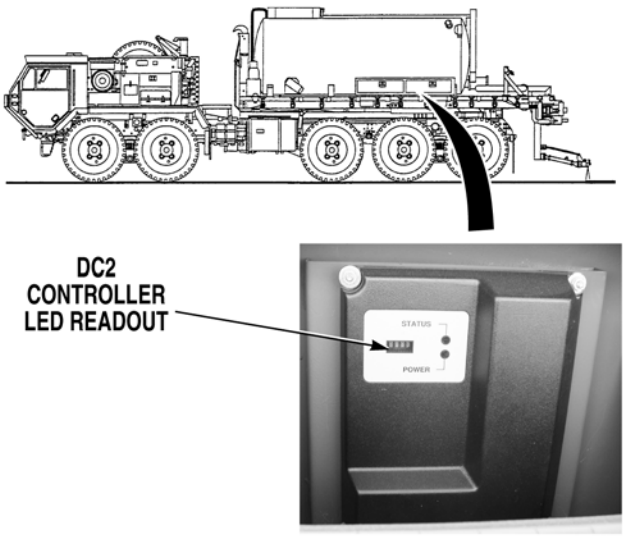
2.

Does DC2 controller LED readout illuminate?

NO → Go to Step 33 of this Fault.

YES

TEST OPTIONS
Operational test.
REASON FOR QUESTION
If DC2 controller LEDs do not illuminate, system is not being powered up.



OPERATIONAL TEST
Check if DC2 controller LED readout is illuminated (displays PLS 5). (a) If DC2 controller LED readout is not illuminated, go to Step 33 of this Fault. (b) If DC2 controller LED readout is illuminated, go to Step 3 of this Fault.

9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.

Controller wire harness ground wire OK.

Controller wire harness power (red) wire OK.

POSSIBLE PROBLEMS

Front control panel SPRAYBAR switch is not in correct position.

Front control panel ground (black) wire from SPRAYBAR switch to CIRCULATION RATE switch faulty.

Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud faulty.

Front control panel wire harness (wire 7 black) faulty.

PLS interface faulty.

Front control panel wire harness (wire 9 white) faulty.

Front control panel wire harness (wire 8 black) faulty.

Front control panel wire harness (wire 9 black) faulty.

Front control panel wire harness (wire 10 black) faulty.

Front control panel wire harness (wire 11 black) faulty.

Front control panel wire harness (wire 12 black) faulty.

Front control panel faulty.

Controller faulty.

Controller wire harness (wire 9 white) faulty.

Rear control panel wire harness (wire 9 white) faulty.

Controller wire harness (wire 10 black) faulty.

Rear control panel wire harness (wire 10 black) faulty.

Controller wire harness (wire 8 black) faulty.

Rear control panel wire harness (wire 8 black) faulty.

Controller wire harness (wire 12 black) faulty.

Rear control panel wire harness (wire 12 black) faulty.

Controller wire harness (wire 11 black) faulty.

Rear control panel wire harness (wire 11 black) faulty.

Controller wire harness (wire 9 black) faulty.

Rear control panel wire harness (wire 9 black) faulty.

3.

Is front control panel SPRAYBAR switch in OFF position?

TEST OPTIONS

Operational test.

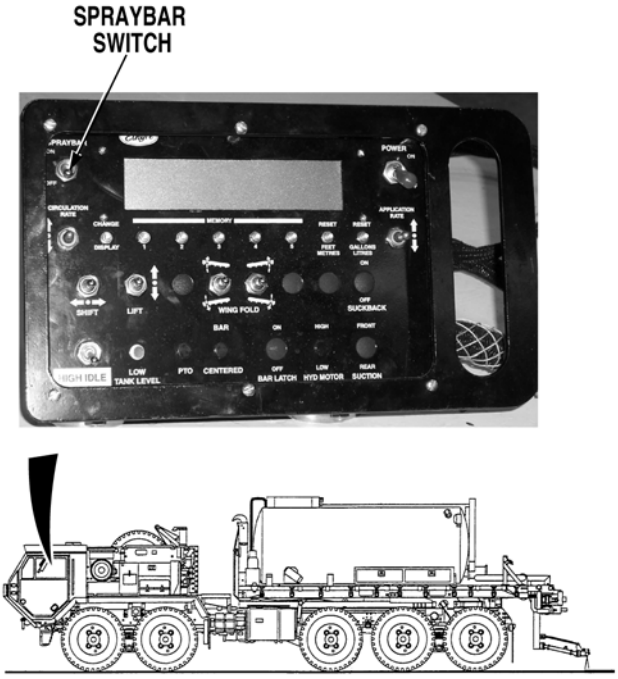
REASON FOR QUESTION

If SPRAYBAR switch is not in OFF position, front control panel controls will not operate.

NO → Turn front control panel SPRAYBAR switch OFF. Verify repair, go to Step 35 of this Fault.

YES

OPERATIONAL TEST
Check if SPRAYBAR switch is in OFF position. (a) If SPRAYBAR switch is not in OFF position, turn SPRAYBAR switch to OFF position, (Para 2-1). Verify repair, go to Step 35 of this Fault. (b) If SPRAYBAR switch is in OFF position, go to Step 4 of this Fault.



9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.

Controller wire harness ground wire OK.

Controller wire harness power (red) wire OK.

Front control panel SPRAYBAR switch is in correct position.

POSSIBLE PROBLEMS

Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch faulty.

Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud faulty.

Front control panel wire harness (wire 7 black) faulty.

PLS interface faulty.

Front control panel wire harness (wire 9 white) faulty.

Front control panel wire harness (wire 8 black) faulty.

Front control panel wire harness (wire 9 black) faulty.

Front control panel wire harness (wire 10 black) faulty.

Front control panel wire harness (wire 11 black) faulty.

Front control panel wire harness (wire 12 black) faulty.

Front control panel faulty.

Controller faulty.

Controller wire harness (wire 9 white) faulty.

Rear control panel wire harness (wire 9 white) faulty.

Controller wire harness (wire 10 black) faulty.

Rear control panel wire harness (wire 10 black) faulty.

Controller wire harness (wire 8 black) faulty.

Rear control panel wire harness (wire 8 black) faulty.

Controller wire harness (wire 12 black) faulty.

Rear control panel wire harness (wire 12 black) faulty.

Controller wire harness (wire 11 black) faulty.

Rear control panel wire harness (wire 11 black) faulty.

Controller wire harness (wire 9 black) faulty.

Rear control panel wire harness (wire 9 black) faulty.

4.

WARNING

Read WARNING on Page 4-297

Is continuity measured across ground wire (black) from front control panel SPRAYBAR switch to CIRCULATION RATE switch?

NO

Repair or replace ground (black) wire from SPRAYBAR switch to CIRCULATION RATE switch, (Para 3-80). Verify repair, go to Step 35 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove front control panel, (Para 3-76).

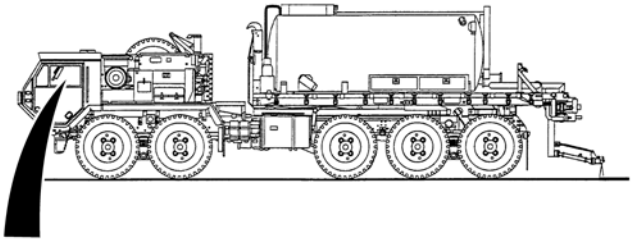
(4) Set multimeter select switch to ohms.

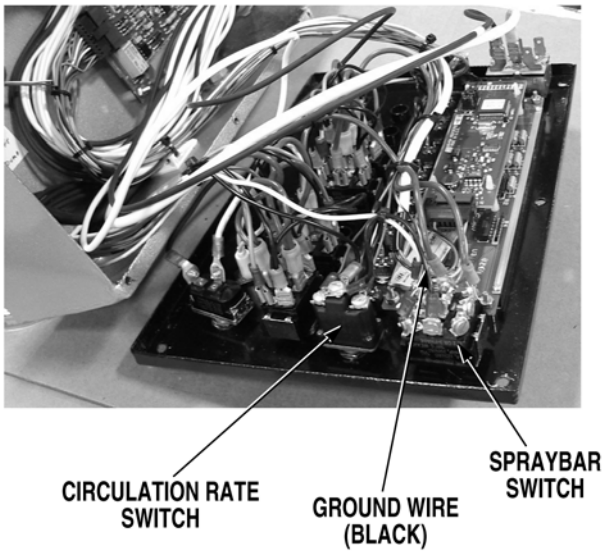
(5) Connect positive (+) multimeter lead to ground (black) wire at front control panel SPRAYBAR switch.

(6) Connect negative (-) multimeter lead to ground (black) wire at front control panel CIRCULATION RATE switch.

(a) If continuity is not measured, repair ground wire from front control panel SPRAYBAR switch to CIRCULATION RATE switch, (Para 3-80). Verify repair, go to Step 35 of this Fault.

(b) If continuity is measured, go to Step 5 of this Fault.





9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.

POSSIBLE PROBLEMS

Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud faulty.
Front control panel wire harness (wire 7 black) faulty.
PLS interface faulty.
Front control panel wire harness (wire 9 white) faulty.
Front control panel wire harness (wire 8 black) faulty.
Front control panel wire harness (wire 9 black) faulty.
Front control panel wire harness (wire 10 black) faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.

5.

WARNING
Read WARNING on Page 4-299

Is continuity measured across ground (black) wire from front control panel CIRCULATION RATE switch to front control panel ground stud?

NO → Repair ground (black) wire from CIRCULATION RATE switch to front control panel ground stud, (Para 3-80). Verify repair, go to Step 35 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, ground (black) wire is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

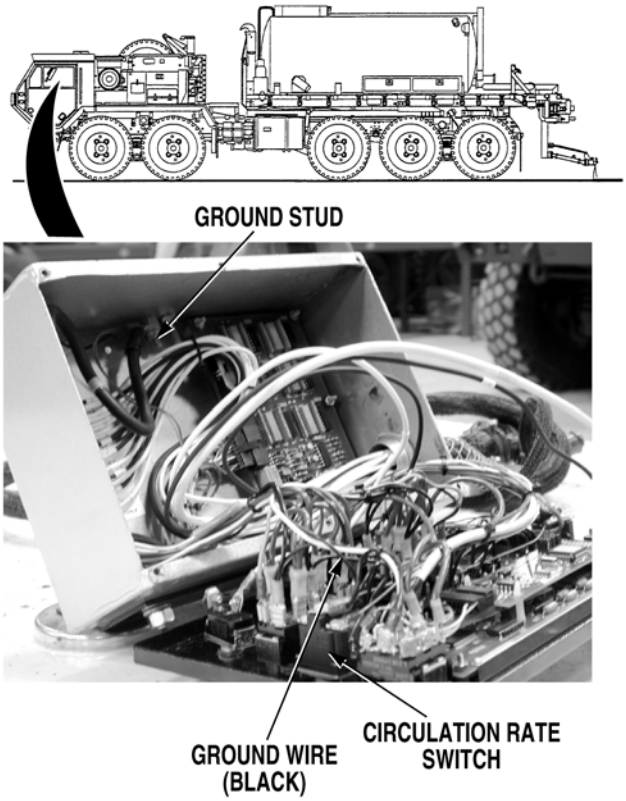
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to ground (black) wire at CIRCULATION RATE switch.

(3) Connect negative (-) multimeter lead to front control panel ground stud.

(a) If continuity is not measured, repair ground (black) wire from CIRCULATION RATE switch to front control panel ground stud, (Para 3-80). Verify repair, go to Step 35 of this Fault.

(b) If continuity is measured, go to Step 6 of this Fault.



9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.

POSSIBLE PROBLEMS

Front control panel wire harness (wire 7 black) faulty.
PLS interface faulty.
Front control panel wire harness (wire 9 white) faulty.
Front control panel wire harness (wire 8 black) faulty.
Front control panel wire harness (wire 9 black) faulty.
Front control panel wire harness (wire 10 black) faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.

6.

WARNING
Read WARNING on Page 4-301

Is continuity measured across wire 7 black from front control panel connector MC129, terminal W to front control panel ground stud?

NO → Repair wire, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 35 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel wire harness (wire 7 black) is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC13, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Disconnect front control panel connector MC129, (Para 2-10).

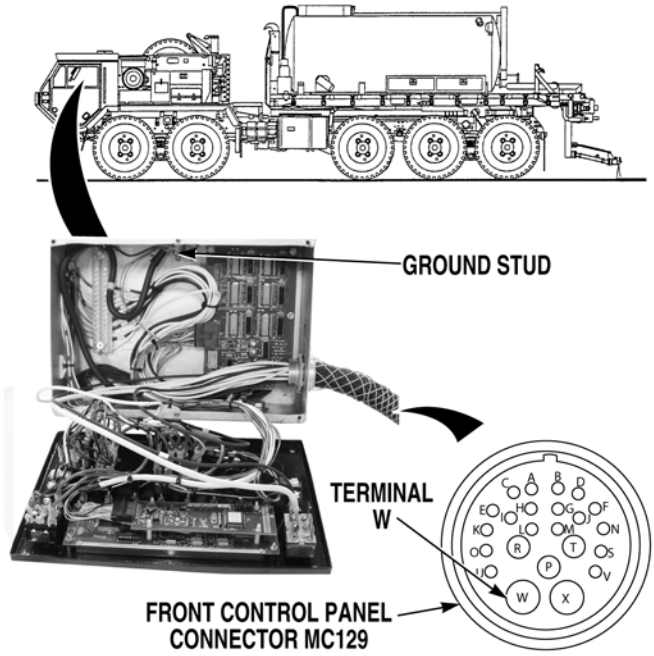
(2) Set multimeter select switch to ohms.

(3) Connect positive (+) multimeter lead to wire 7 black at front control panel connector MC129, terminal W.

(4) Connect negative (-) multimeter lead to front control panel ground stud.

(a) If continuity is not measured, repair wire 7 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 35 of this Fault.

(b) If continuity is measured, go to Step 7 of this Fault.



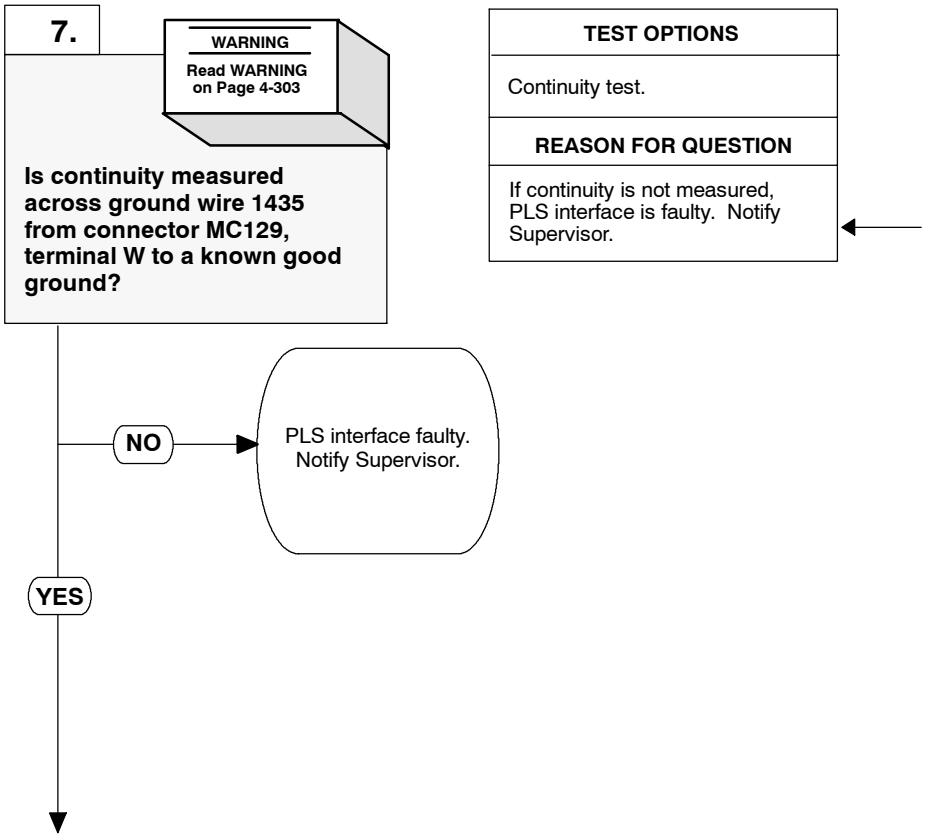
9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel wire harness (wire 9 white) faulty.
Front control panel wire harness (wire 8 black) faulty.
Front control panel wire harness (wire 9 black) faulty.
Front control panel wire harness (wire 10 black) faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

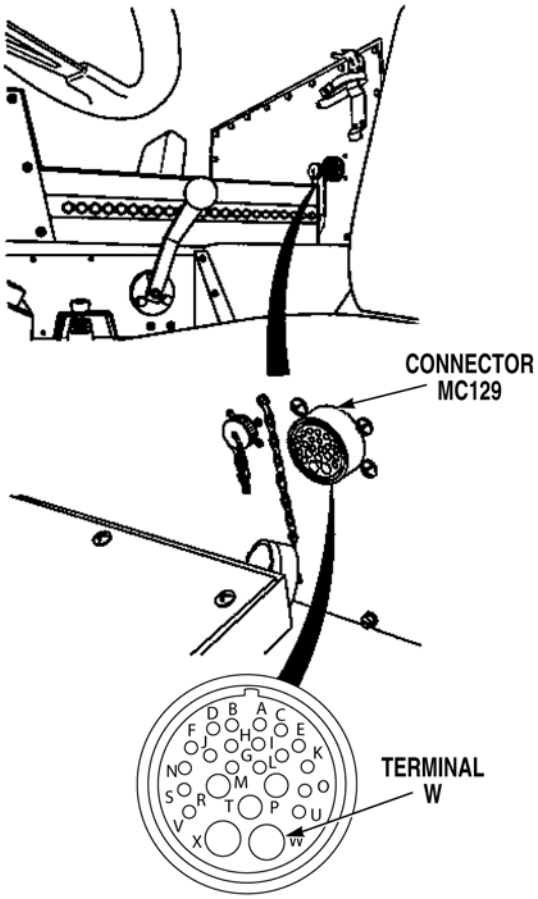
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to wire 1435, at connector MC129, terminal W.

(3) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, PLS interface is faulty. Notify Supervisor.

(b) If continuity is measured, go to Step 8 of this Fault.



9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel wire harness (wire 9 white) faulty.
Front control panel wire harness (wire 8 black) faulty.
Front control panel wire harness (wire 9 black) faulty.
Front control panel wire harness (wire 10 black) faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.

8.

WARNING
Read WARNING on Page 4-305

Is continuity measured across wire 9 white from front control panel, connector MC129, terminal O to front control panel circuit board terminal strip, terminal 3?

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel wire harness (wire 9 white) is faulty.

NO → Repair wire 9 white, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 35 of this Fault.

YES

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

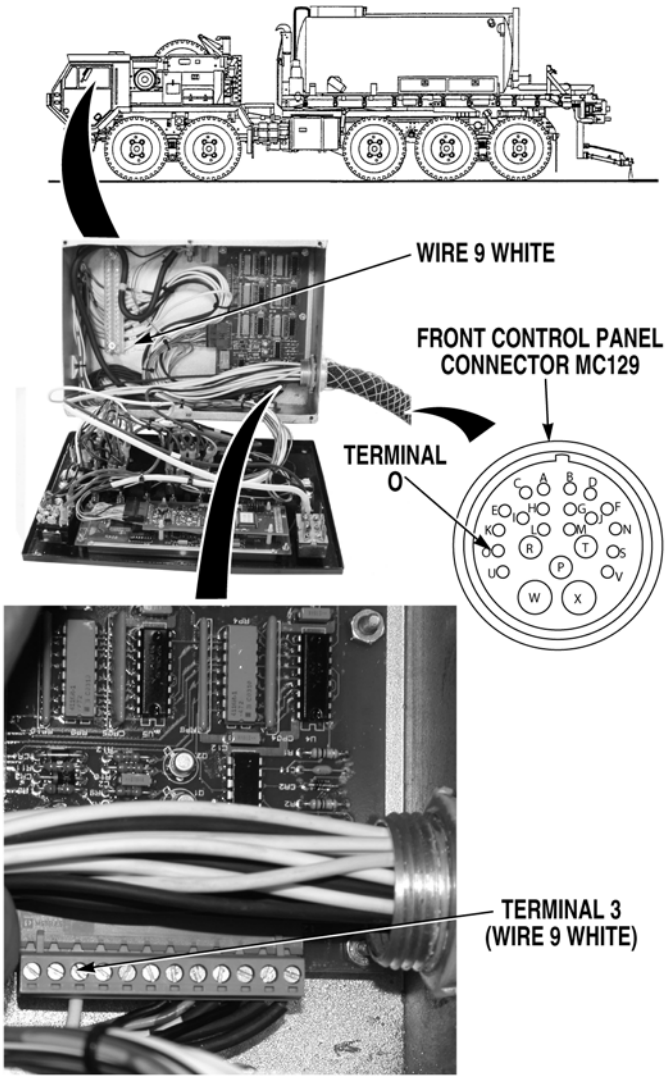
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to wire 9 white at front control panel connector MC129, terminal O.

(3) Connect negative (-) multimeter lead to front control panel circuit board terminal strip, terminal 3.

(a) If continuity is not measured, repair wire 9 white, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 35 of this Fault.

(b) If continuity is measured, go to Step 9 of this Fault.



9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel wire harness (wire 8 black) faulty.
Front control panel wire harness (wire 9 black) faulty.
Front control panel wire harness (wire 10 black) faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.

9.

WARNING
Read WARNING on Page 4-307

Is continuity measured across wire 8 black from front control panel, connector MC129, terminal M to front control panel circuit board terminal strip, terminal 8?

NO → Repair wire, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 35 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel wire harness (wire 8 black) is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

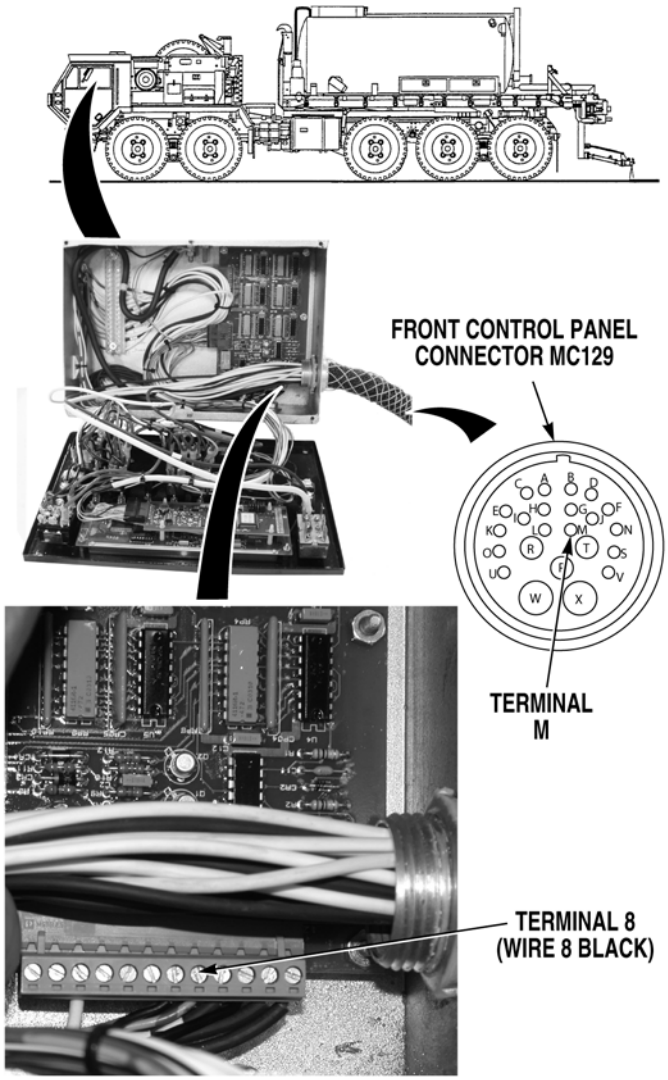
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to wire 8 black at front control panel connector MC129, terminal M.

(3) Connect negative (-) multimeter lead to front control panel circuit board terminal strip, terminal 8.

(a) If continuity is not measured, repair wire 8 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 35 of this Fault.

(b) If continuity is measured, go to Step 10 of this Fault.



9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel wire harness (wire 9 black) faulty.
Front control panel wire harness (wire 10 black) faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.

10.

WARNING
Read WARNING on Page 4-309

Is continuity measured across wire 9 black from front control panel, connector MC129, terminal N to front control panel circuit board terminal strip, terminal 9?

NO → Repair wire, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 35 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel wire harness (wire 9 black) is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

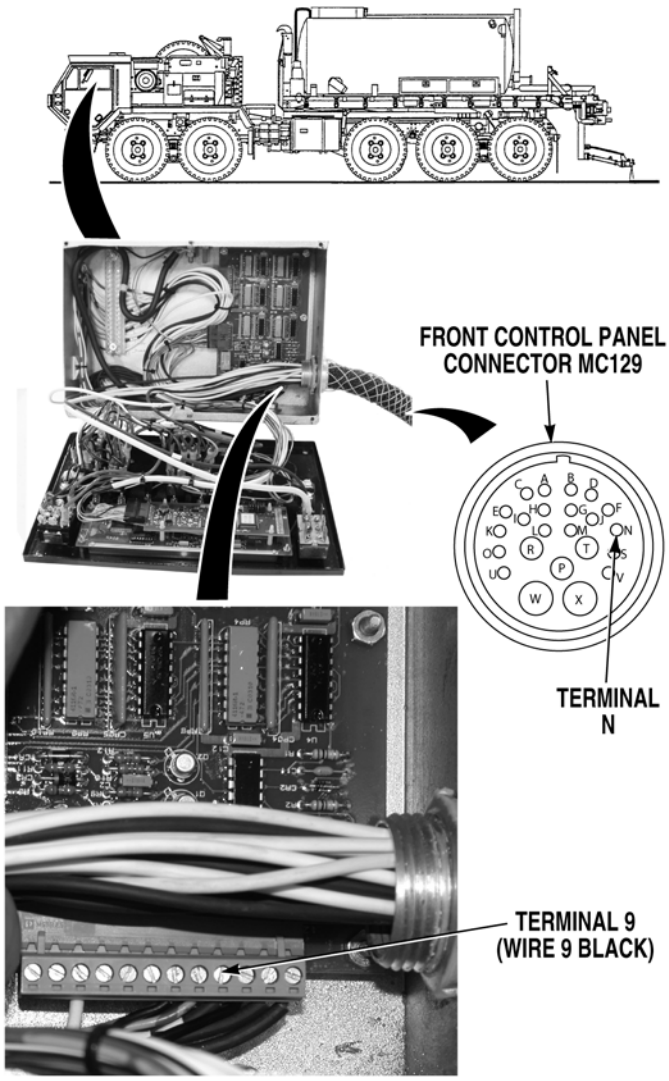
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to wire 9 black at front control panel connector MC129, terminal N.

(3) Connect negative (-) multimeter lead to front control panel circuit board terminal strip, terminal 9.

(a) If continuity is not measured, repair wire 9 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 35 of this Fault.

(b) If continuity is measured, go to Step 11 of this Fault.



9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel wire harness (wire 10 black) faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.

11.

WARNING
Read WARNING on Page 4-311

Is continuity measured across wire 10 black from front control panel, connector MC129, terminal S to front control panel circuit board terminal strip, terminal 10?

NO → Repair wire 10 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 35 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel wire harness (wire 10 black) is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

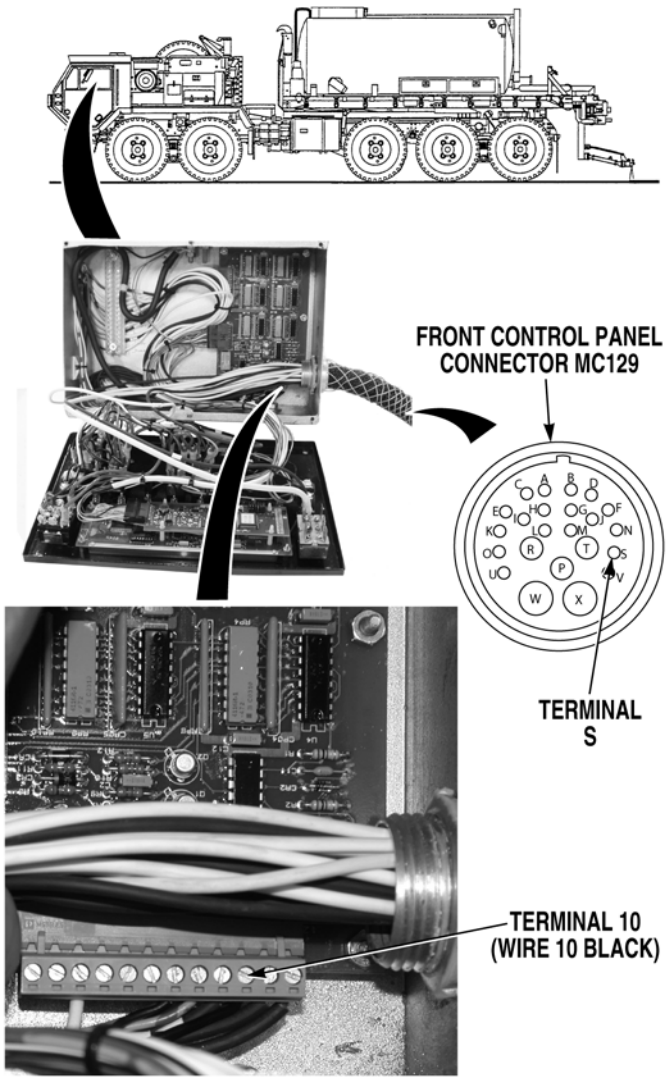
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to wire 10 black at front control panel connector MC129, terminal S.

(3) Connect negative (-) multimeter lead to front control panel circuit board terminal strip, terminal 10.

(a) If continuity is not measured, repair wire 10 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 35 of this Fault.

(b) If continuity is measured, go to Step 12 of this Fault.



9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel wire harness (wire 11 black) faulty.
Front control panel wire harness (wire 12 black) faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.

12.

WARNING
Read WARNING on Page 4-313

Is continuity measured across wire 11 black from front control panel, connector MC129, terminal U to front control panel circuit board terminal strip, terminal 11?

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel wire harness (wire 11 black) is faulty.

NO → Repair wire 11 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 35 of this Fault.

YES

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

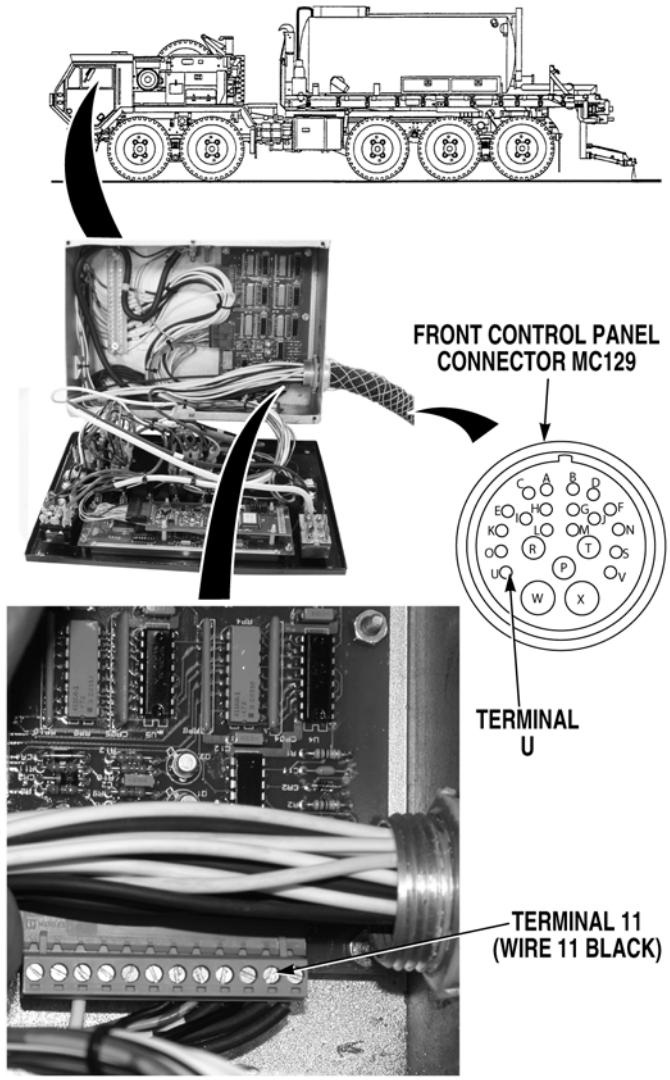
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to wire 11 black at front control panel connector MC129, terminal U.

(3) Connect negative (-) multimeter lead to front control panel circuit board terminal strip, terminal 11.

(a) If continuity is not measured, repair wire 11 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 35 of this Fault.

(b) If continuity is measured, go to Step 13 of this Fault.



9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel wire harness (wire 12 black) faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.

13.

WARNING
Read WARNING on Page 4-315

Is continuity measured across wire 12 black from front control panel, connector MC129, terminal V to front control panel circuit board terminal strip, terminal 12?

NO → Repair wire 12 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 35 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel wire harness (wire 12 black) is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

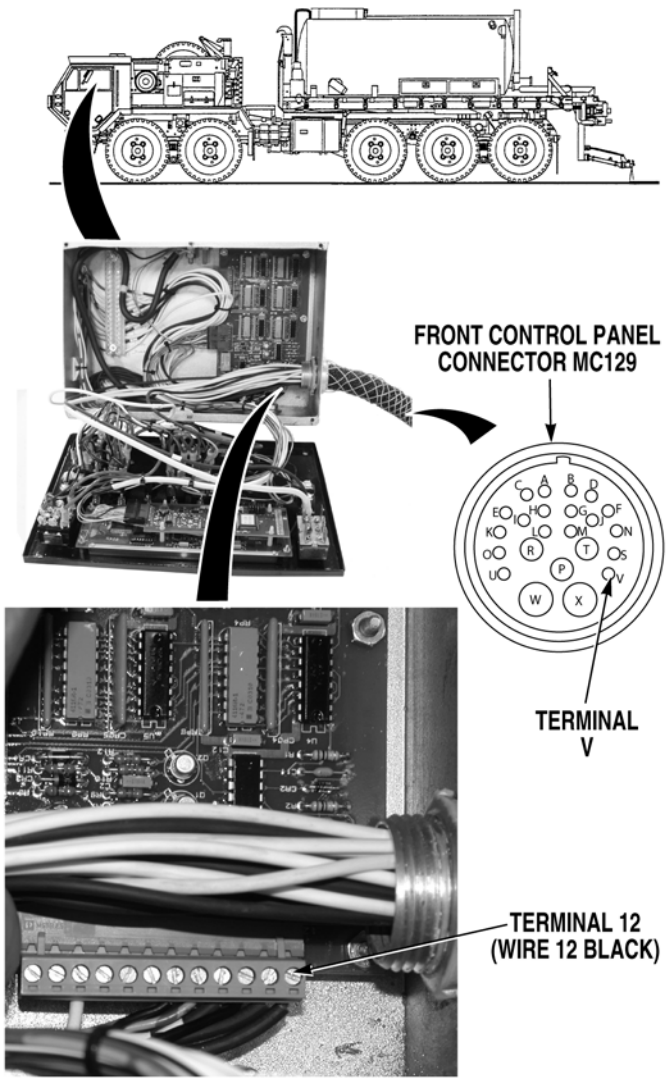
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to wire 12 black at front control panel connector MC129, terminal V.

(3) Connect negative (-) multimeter lead to front control panel circuit board terminal strip, terminal 12.

(a) If continuity is not measured, repair wire 12 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 35 of this Fault.

(b) If continuity is measured, go to Step 14 of this Fault.



9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.
Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.

14.

WARNING
Read WARNING on Page 4-317

Is continuity measured across wire 9 black from rear control panel DC2 18-pin connector, terminal C2 to EMM connector MC130, terminal N?

NO → Go to step 32 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel controls may not operate.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Remove DC2 controller, (Para 3-28).

(2) Disconnect DC2 18-pin connector, (Para 3-28).

(3) Disconnect connector MC130 (UPIK), (Para 2-10).

(4) Set multimeter select switch to ohms.

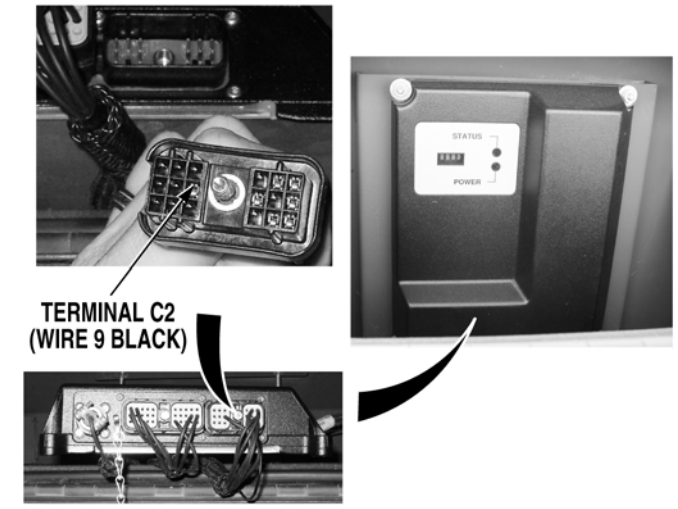
(5) Connect jumperwire between wire 9 black at EMM connector MC130 terminal N and a known good ground.

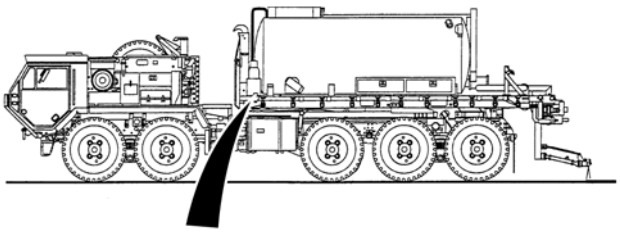
(6) Connect positive (+) multimeter lead to wire 9 black at rear control panel DC2 18 pin connector, terminal C2.

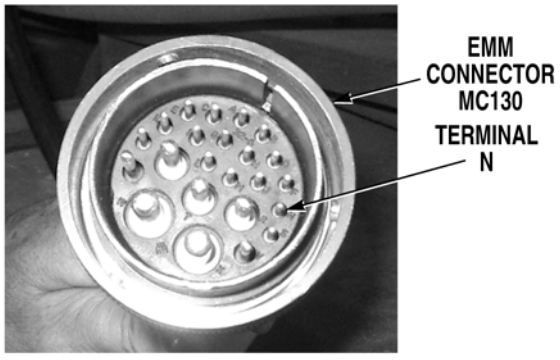
(7) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, go to Step 32 of this Fault.

(b) If continuity is measured, go to Step 15 of this Fault.







9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 10 black) faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.
Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.

15.

WARNING
Read WARNING on Page 4-319

Is continuity measured across wire 11 black from rear control panel DC2 18-pin connector, terminal D2 to EMM connector MC130, terminal U?

NO → Go to step 31 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel controls may not operate.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

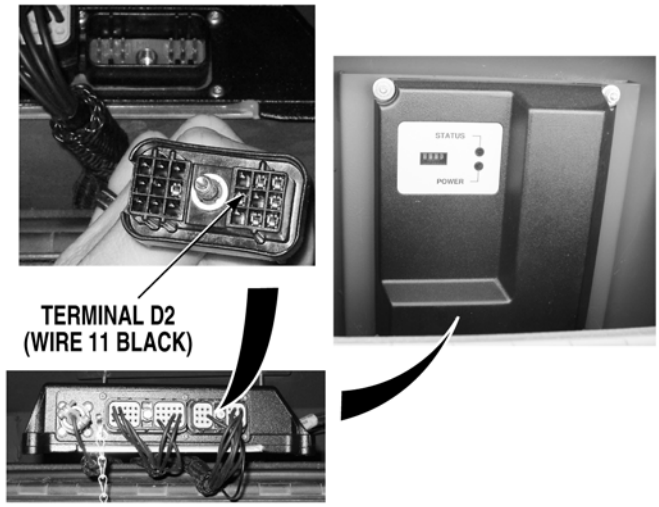
(2) Connect jumperwire between wire 11 black at EMM connector MC130 terminal U and a known good ground.

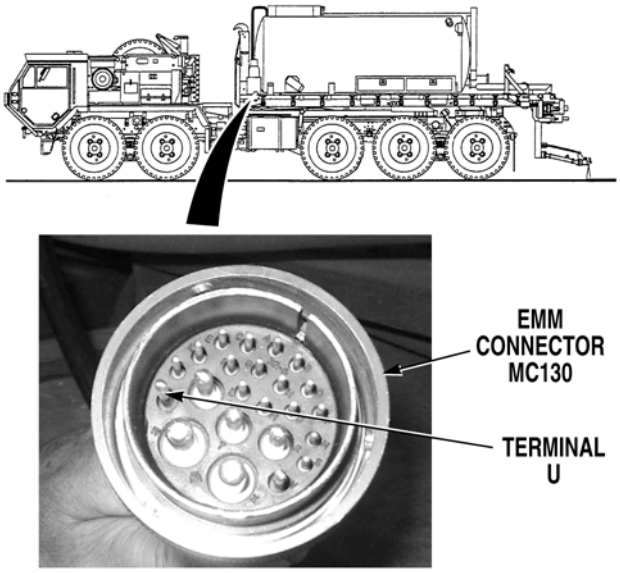
(3) Connect positive (+) multimeter lead to wire 11 black at rear control panel DC2 18-pin connector, terminal D2.

(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, go to Step 31 of this Fault.

(b) If continuity is measured, go to Step 16 of this Fault.





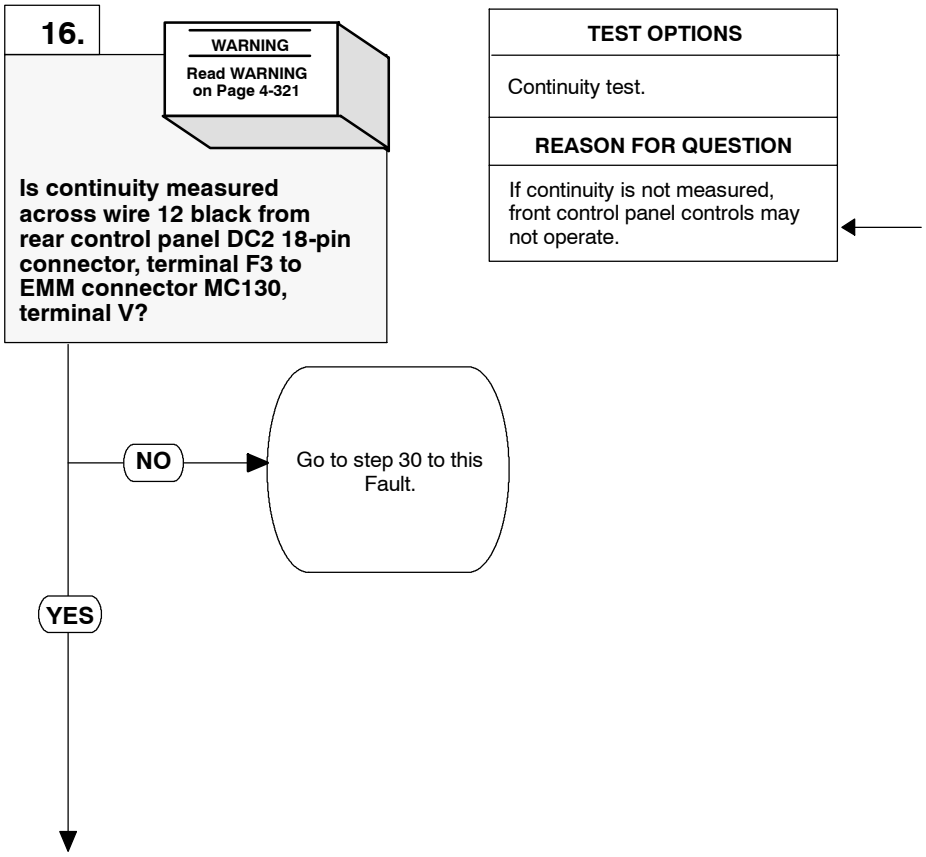
9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 8 black) faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.
Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

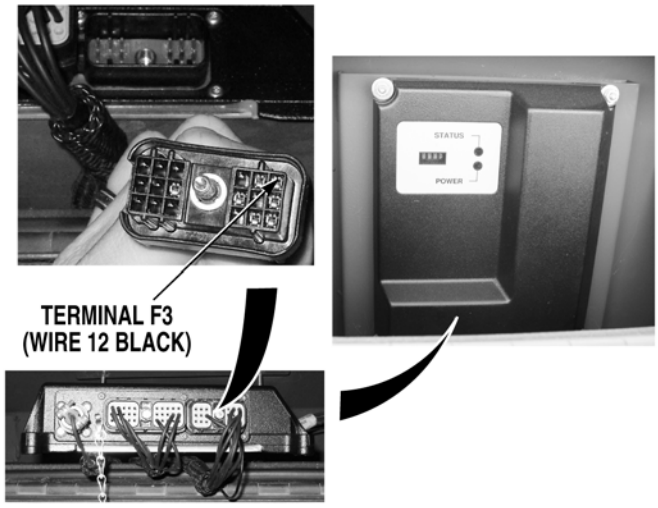
(2) Connect jumperwire between wire 12 black at EMM connector MC130 terminal V and a known good ground.

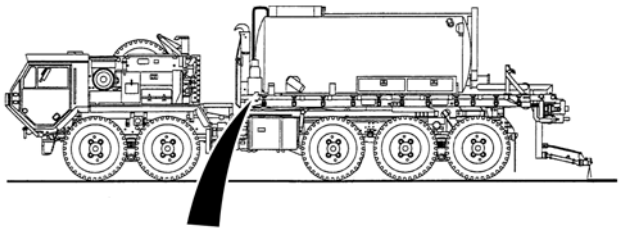
(3) Connect positive (+) multimeter lead to wire 12 black at rear control panel DC2 18-pin connector, terminal F3.

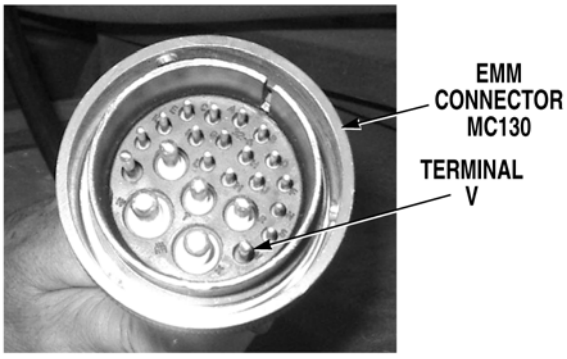
(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, go to Step 30 of this Fault.

(b) If continuity is measured, go to Step 17 of this Fault.







9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 12 black) OK.
Rear control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.

17.

WARNING
Read WARNING on Page 4-323

Is continuity measured across wire 8 black from rear control panel DC2 30-pin connector, terminal A1 to EMM connector MC130, terminal M?

NO → Go to step 29 to this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel controls may not operate.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Connect DC2 18-pin connector, (Para 3-28).

(2) Disconnect DC2 30-pin connector.

(3) Set multimeter select switch to ohms.

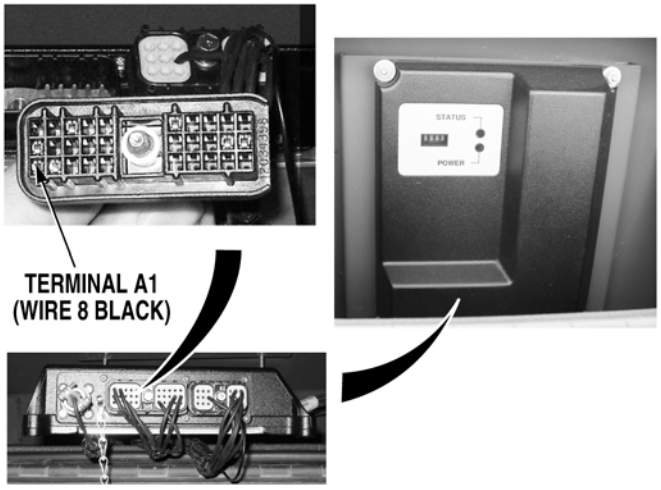
(4) Connect jumperwire between wire 8 black at EMM connector MC130 terminal M and a known good ground.

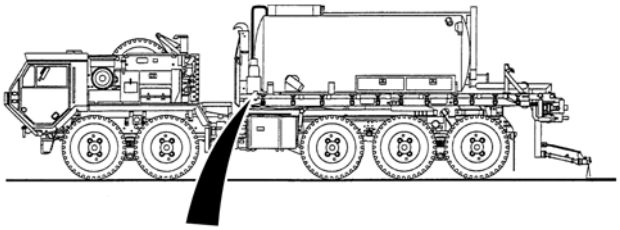
(5) Connect positive (+) multimeter lead to wire 8 black at rear control panel DC2 30-pin connector, terminal A1.

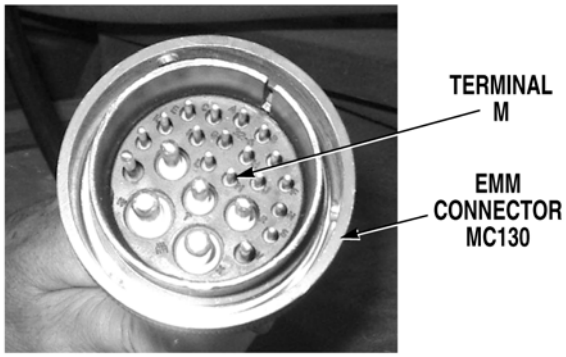
(6) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, go to Step 29 of this Fault.

(b) If continuity is measured, go to Step 18 of this Fault.







9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 9 white) OK.
Rear control panel wire harness (wire 9 white) OK.
Controller wire harness (wire 8 black) OK.
Rear control panel wire harness (wire 8 black) OK.
Controller wire harness (wire 12 black) OK.
Rear control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel faulty.
Controller faulty.
Rear control panel wire harness (wire 10 black) faulty.
Controller wire harness (wire 10 black) faulty.

18.

WARNING
Read WARNING on Page 4-325

Is continuity measured across wire 10 black from rear control panel DC2 30-pin connector, terminal F3 to EMM connector MC130, terminal S?

NO → Go to step 28 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured from control panel, controls may not operate.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

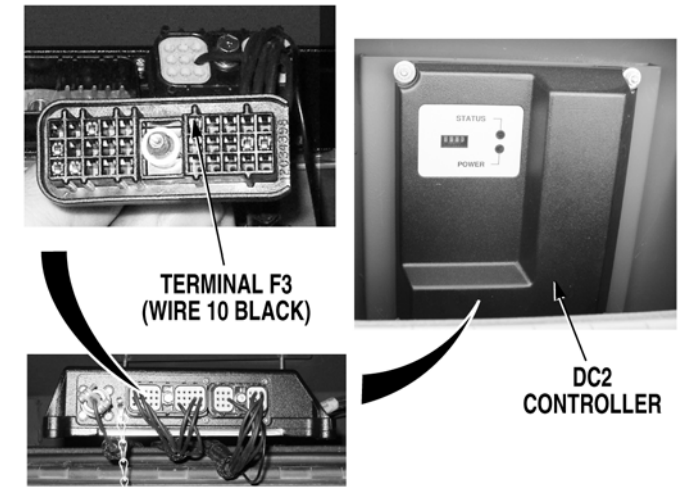
(2) Connect jumperwire between wire 10 black at EMM connector MC130 terminal S and a known good ground.

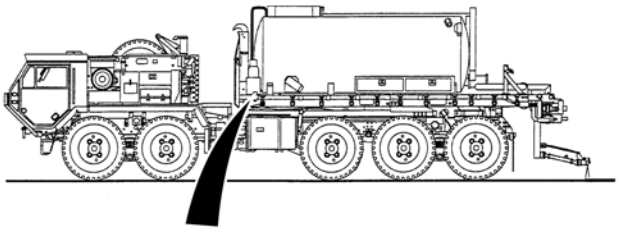
(3) Connect positive (+) multimeter lead to wire 10 black at rear control panel DC2 30-pin connector, terminal F3.

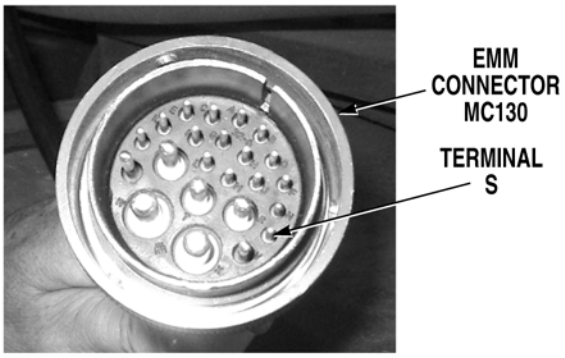
(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, go to Step 28 of this Fault.

(b) If continuity is measured, go to Step 19 of this Fault.







9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 10 black) OK.
Rear control panel wire harness (wire 10 black) OK.
Controller wire harness (wire 8 black) OK.
Rear control panel wire harness (wire 8 black) OK.
Controller wire harness (wire 12 black) OK.
Rear control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel faulty.
Controller faulty.
Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.

19.

WARNING
Read WARNING on Page 4-327

Is continuity measured across wire 9 white from rear control panel DC2 6-pin connector, terminal A to EMM connector MC130, terminal O?

NO → Go to step 27 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel controls may not operate.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Connect DC2 30-pin connector, (Para 3-28).

(2) Disconnect DC2 6-pin connector.

(3) Set multimeter select switch to ohms.

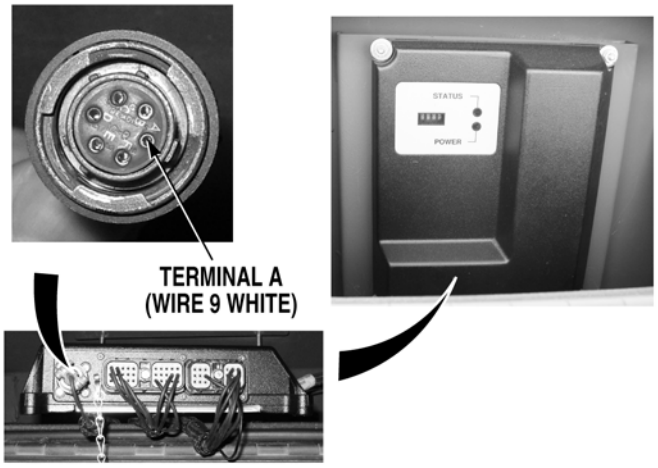
(4) Connect jumperwire between wire 9 white at EMM connector MC130 terminal O and a known good ground.

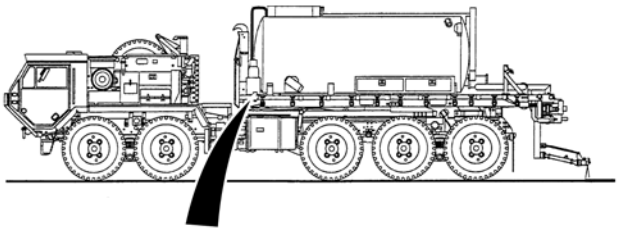
(5) Connect positive (+) multimeter lead to wire 9 white at rear control panel DC2 6-pin connector, terminal A.

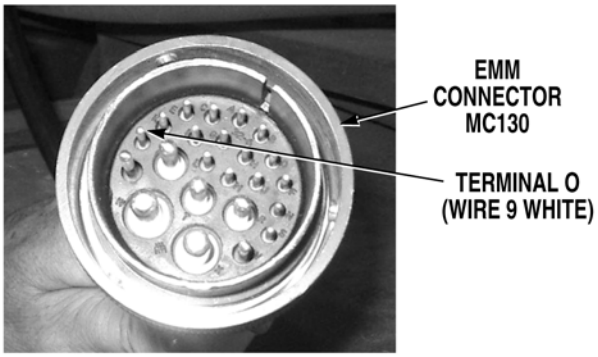
(6) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, go to Step 27 of this Fault.

(b) If continuity is measured, go to Step 20 of this Fault.







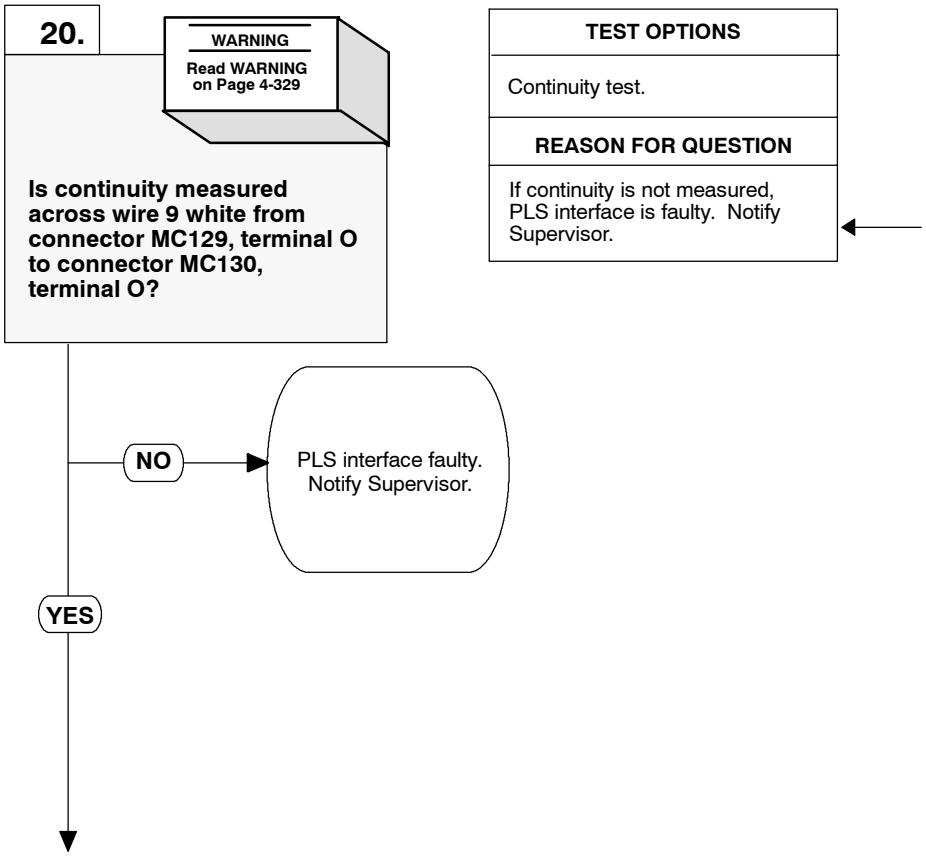
9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 9 white) OK.
Rear control panel wire harness (wire 9 white) OK.
Controller wire harness (wire 10 black) OK.
Rear control panel wire harness (wire 10 black) OK.
Controller wire harness (wire 8 black) OK.
Rear control panel wire harness (wire 8 black) OK.
Controller wire harness (wire 12 black) OK.
Rear control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel faulty.
Controller faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Connect DC2 6-pin connector, (Para 3-28).

(2) Install DC2 controller, (Para 3-28).

(3) Set multimeter select switch to ohms.

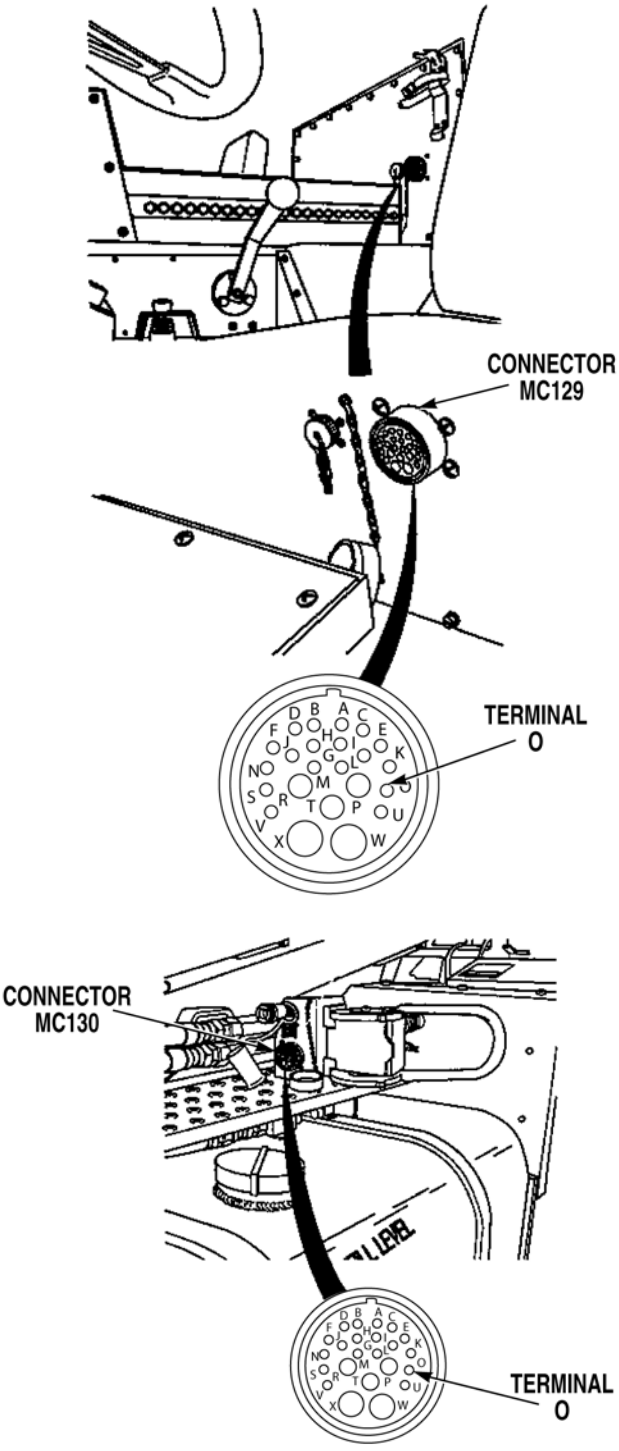
(4) Connect jumperwire between wire 9 white at connector MC129, terminal O and a known good ground.

(5) Connect negative (-) multimeter lead to a known good ground.

(6) Connect positive (+) multimeter lead to wire 9 white at connector MC130, terminal O.

(a) If continuity is not measured, PLS interface is faulty. Notify Supervisor.

(b) If continuity is measured, go to Step 21 of this Fault.



9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 9 white) OK.
Rear control panel wire harness (wire 9 white) OK.
Controller wire harness (wire 10 black) OK.
Rear control panel wire harness (wire 10 black) OK.
Controller wire harness (wire 8 black) OK.
Rear control panel wire harness (wire 8 black) OK.
Controller wire harness (wire 12 black) OK.
Rear control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel faulty.
Controller faulty.

21.

WARNING
Read WARNING on Page 4-331

Is continuity measured across wire 8 black from connector MC129, terminal M to connector MC130, terminal M?

NO → PLS interface faulty. Notify Supervisor.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, PLS interface is faulty. Notify Supervisor.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

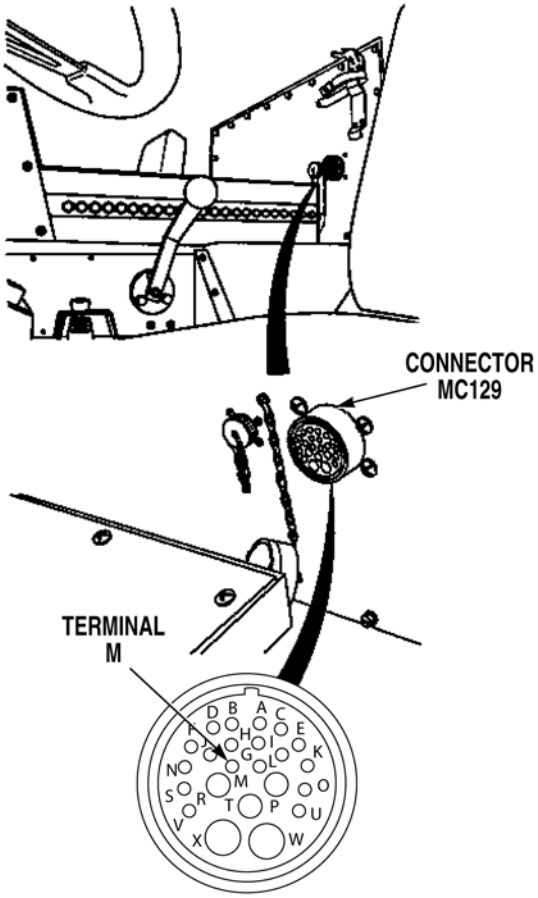
(2) Connect jumperwire between wire 8 black at connector MC129, terminal M and a known good ground.

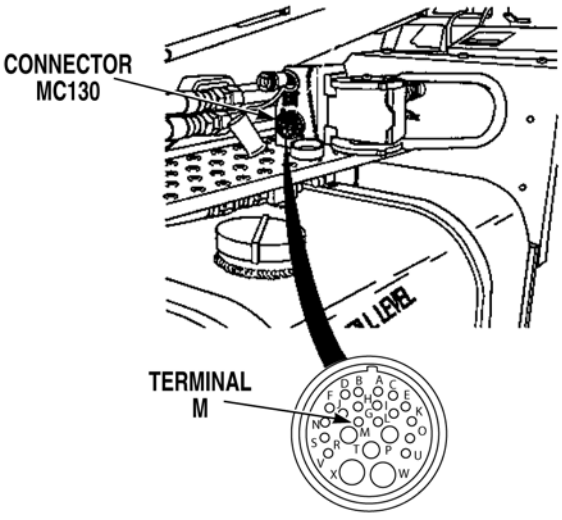
(3) Connect positive (+) multimeter lead to wire 8 black at connector MC130, terminal M.

(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, PLS interface is faulty. Notify Supervisor.

(b) If continuity is measured, go to Step 22 of this Fault.





9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 9 white) OK.
Rear control panel wire harness (wire 9 white) OK.
Controller wire harness (wire 10 black) OK.
Rear control panel wire harness (wire 10 black) OK.
Controller wire harness (wire 8 black) OK.
Rear control panel wire harness (wire 8 black) OK.
Controller wire harness (wire 12 black) OK.
Rear control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel faulty.
Controller faulty.

22.

WARNING
Read WARNING on Page 4-333

Is continuity measured across wire 9 black from connector MC129, terminal N to connector MC130, terminal N?

NO → PLS interface faulty. Notify Supervisor.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, PLS interface is faulty. Notify Supervisor.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

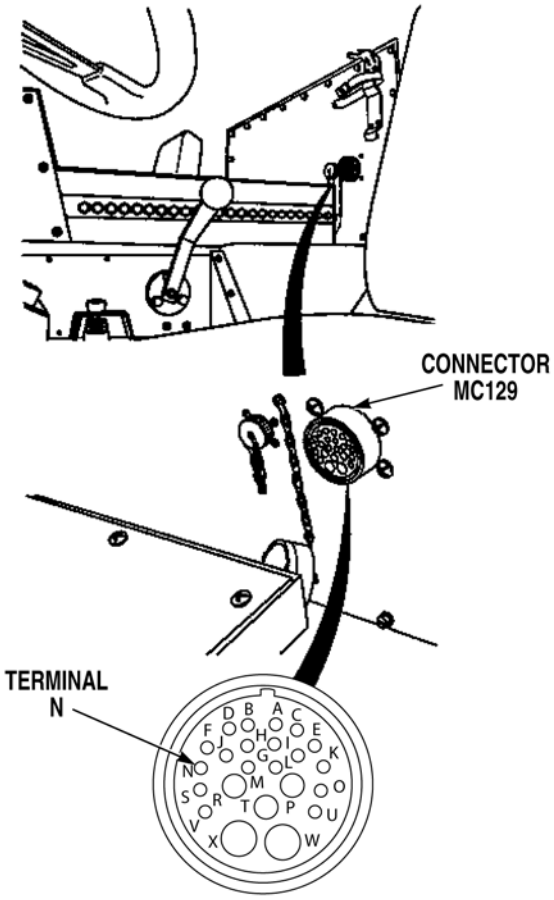
(2) Connect jumperwire between wire 9 black at connector MC129, terminal N and a known good ground.

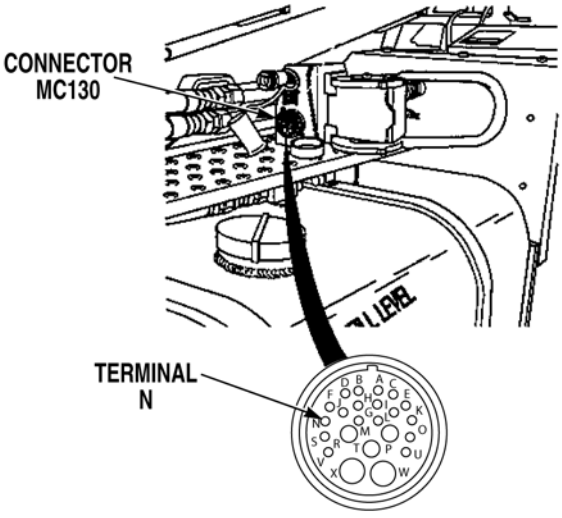
(3) Connect positive (+) multimeter lead to wire 9 black at connector MC130, terminal N.

(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, PLS interface is faulty. Notify Supervisor.

(b) If continuity is measured, go to Step 23 of this Fault.





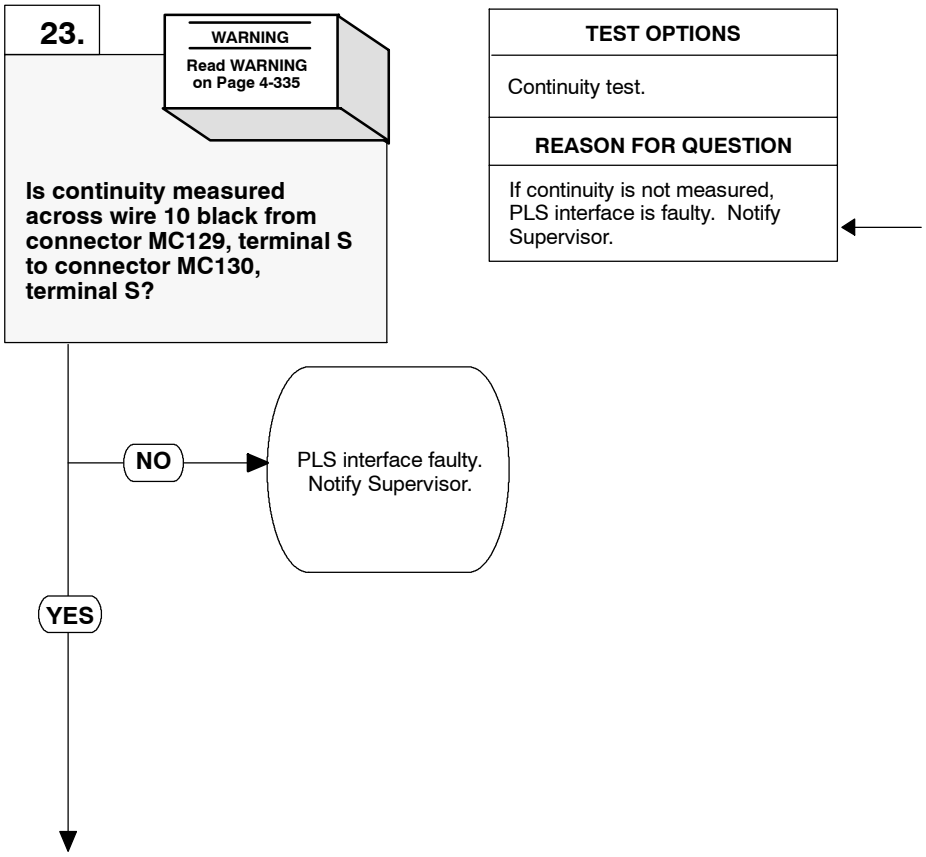
9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 9 white) OK.
Rear control panel wire harness (wire 9 white) OK.
Controller wire harness (wire 10 black) OK.
Rear control panel wire harness (wire 10 black) OK.
Controller wire harness (wire 8 black) OK.
Rear control panel wire harness (wire 8 black) OK.
Controller wire harness (wire 12 black) OK.
Rear control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel faulty.
Controller faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

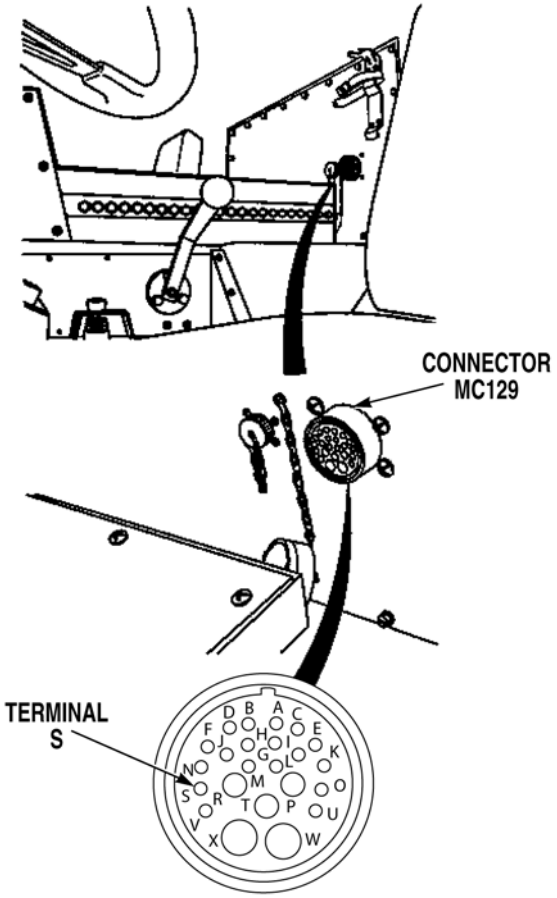
(2) Connect jumperwire between wire 10 black connector MC129, terminal S and a known good ground.

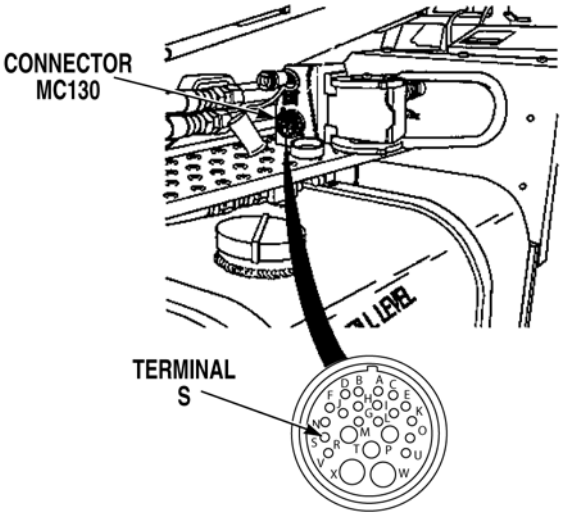
(3) Connect positive (+) multimeter lead to wire 10 black at connector MC130, terminal S.

(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, PLS interface is faulty. Notify Supervisor.

(b) If continuity is measured, go to Step 24 of this Fault.





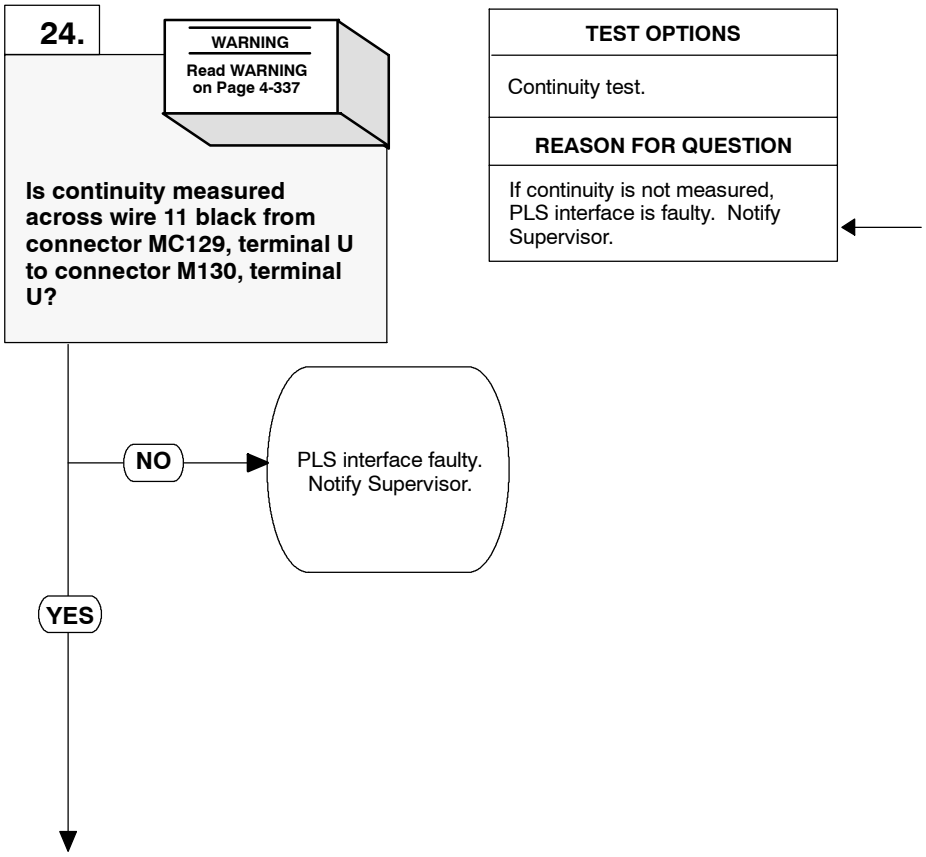
9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 9 white) OK.
Rear control panel wire harness (wire 9 white) OK.
Controller wire harness (wire 10 black) OK.
Rear control panel wire harness (wire 10 black) OK.
Controller wire harness (wire 8 black) OK.
Rear control panel wire harness (wire 8 black) OK.
Controller wire harness (wire 12 black) OK.
Rear control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel faulty.
Controller faulty.



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

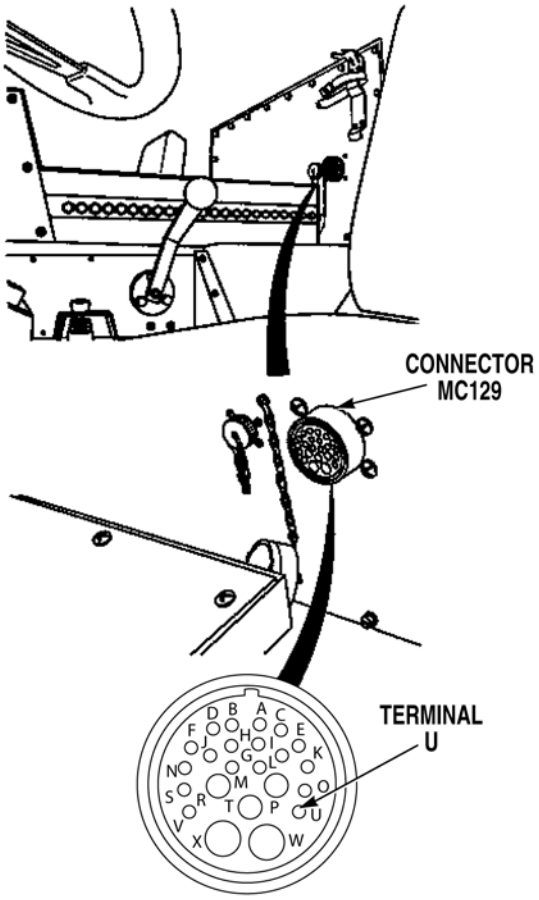
(2) Connect jumperwire between wire 11 black at connector MC129, terminal U and a known good ground.

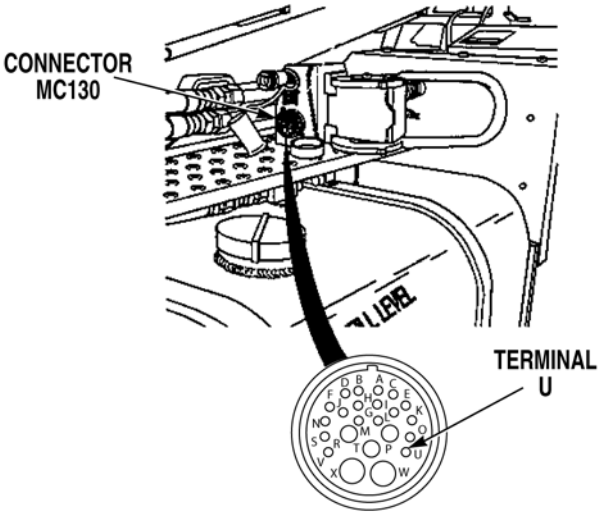
(3) Connect positive (+) multimeter lead to wire 11 black at connector MC130, terminal U.

(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, PLS interface is faulty. Notify Supervisor.

(b) If continuity is measured, go to Step 25 of this Fault.





9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 9 white) OK.
Rear control panel wire harness (wire 9 white) OK.
Controller wire harness (wire 10 black) OK.
Rear control panel wire harness (wire 10 black) OK.
Controller wire harness (wire 8 black) OK.
Rear control panel wire harness (wire 8 black) OK.
Controller wire harness (wire 12 black) OK.
Rear control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.

POSSIBLE PROBLEMS

PLS interface faulty.
Front control panel faulty.
Controller faulty.

25.

WARNING
Read WARNING on Page 4-339

Is continuity measured across wire 12 black from connector MC129, terminal V to connector M130, terminal V?

NO → PLS interface faulty. Notify Supervisor.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, PLS interface is faulty. Notify Supervisor.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

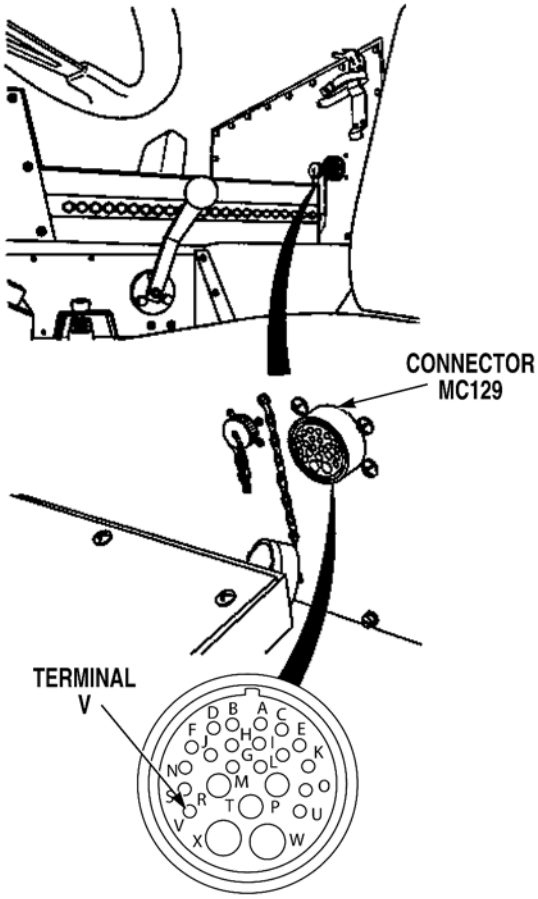
(2) Connect jumperwire between wire 12 black, connector MC129 terminal V and a known good ground.

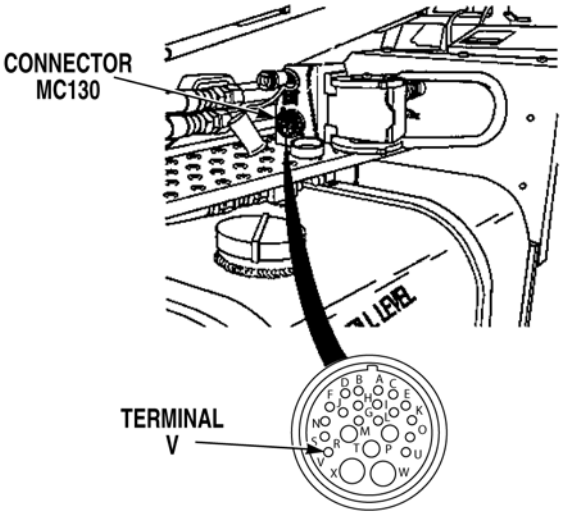
(3) Connect positive (+) multimeter lead to wire 12 black at connector MC130, terminal V.

(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, PLS interface is faulty. Notify Supervisor.

(b) If continuity is measured, go to Step 26 of this Fault.





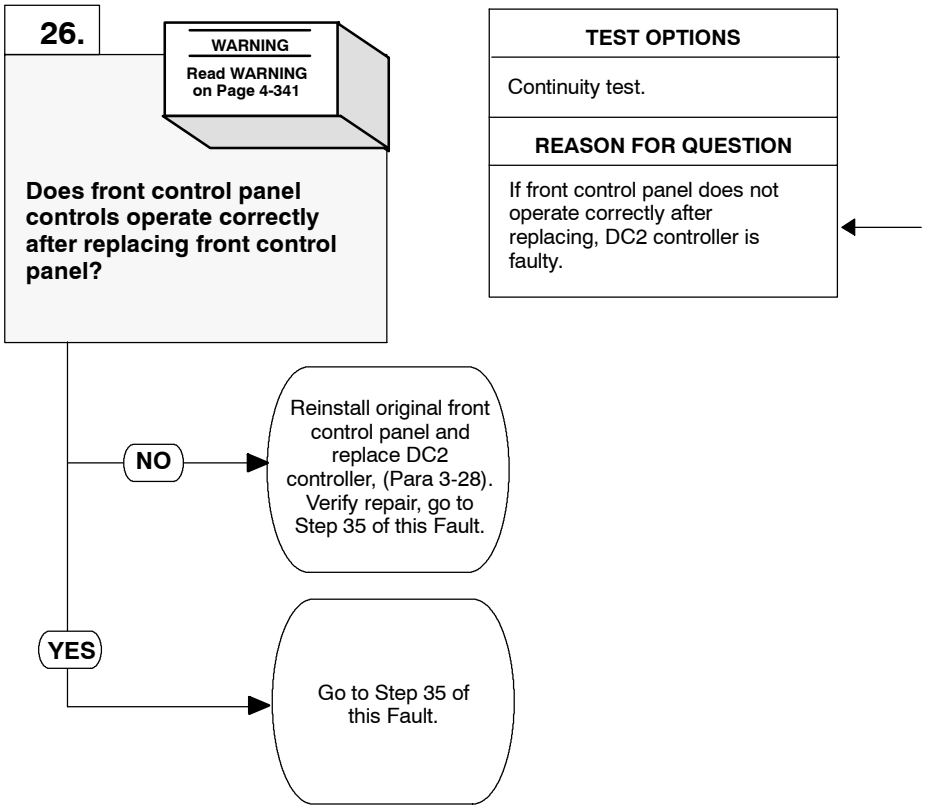
9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 9 white) OK.
Rear control panel wire harness (wire 9 white) faulty.
Controller wire harness (wire 10 black) OK.
Rear control panel wire harness (wire 10 black) OK.
Controller wire harness (wire 8 black) OK.
Rear control panel wire harness (wire 8 black) OK.
Controller wire harness (wire 12 black) OK.
Rear control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.
PLS interface OK.

POSSIBLE PROBLEMS

Front control panel faulty.
Controller faulty.



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.



FRONT CONTROL PANEL

CONTINUITY TEST

(1) Replace front control panel, (Para 2-10).

(2) Push in battery disconnect switch, (TM 9-2320-364-10).

(3) Start engine, (TM 9-2320-364-10).

(4) Turn front control panel POWER switch ON, (Para 2-1).

(5) Turn rear control panel POWER switch OFF, (Para 2-1).

(6) Operate front controls.

(a) If front control panel controls do not operate, reinstall original front control panel and replace DC2 controller, (Para 3-28). Verify repair, go to Step 35 of this Fault.

(b) If front control panel controls operate correctly, go to Step 35 of this Fault.

9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 10 black) OK.
Rear control panel wire harness (wire 10 black) OK.
Controller wire harness (wire 8 black) OK.
Rear control panel wire harness (wire 8 black) OK.
Controller wire harness (wire 12 black) OK.
Rear control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.
PLS interface OK.
Front control panel OK.
Controller OK.

POSSIBLE PROBLEMS

Controller wire harness (wire 9 white) faulty.
Rear control panel wire harness (wire 9 white) faulty.

27.

WARNING
Read WARNING on Page 4-343

Is continuity measured across wire 9 white from rear control panel DC2 6-pin connector, terminal A to splice?

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is measured, rear control panel wire harness, wire 9 white is faulty. If not, controller wire harness, wire 9 white is faulty.

NO → Repair wire, (Para 3-80) or replace controller wire harness, (Para 3-57). Verify repair, go to Step 35 of this Fault.

YES → Repair wire 9 white, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 35 of this Fault.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

(2) Cut wire 9 white at splice.

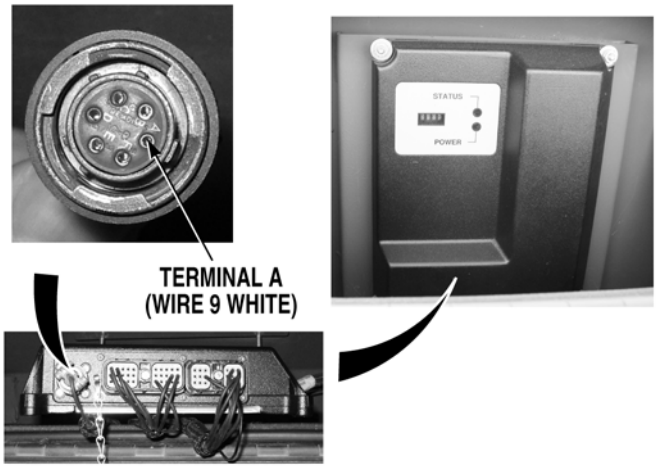
(3) Connect positive (+) multimeter lead to wire 9 white at rear control panel DC2, 6-pin connector, terminal A.

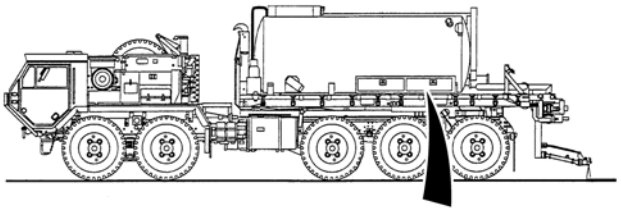
(4) Connect negative (-) multimeter lead to wire 9 white at splice.

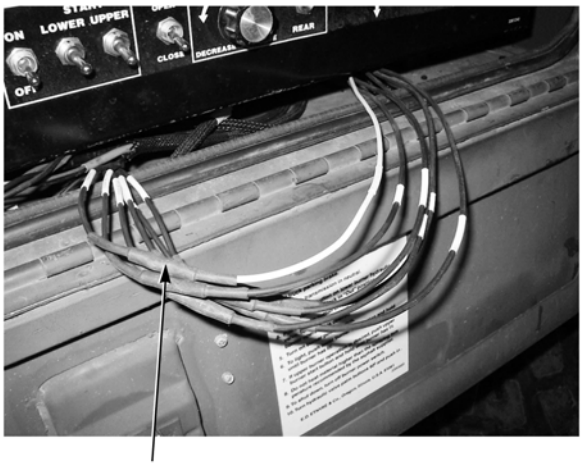
(a) If continuity is not measured, repair wire 9 white, (Para 3-80) or replace controller wire harness, (Para 3-57).

(b) If continuity is measured, repair wire 9 white, (Para 3-80) or replace rear control panel wire harness, (Para 3-62).

(5) Verify repair, go to Step 35 of this Fault.







9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 9 white) OK.
Rear control panel wire harness (wire 9 white) OK.
Controller wire harness (wire 8 black) OK.
Rear control panel wire harness (wire 8 black) OK.
Controller wire harness (wire 12 black) OK.
Rear control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.
PLS interface OK.
Front control panel OK.
Controller OK.

POSSIBLE PROBLEMS

Controller wire harness (wire 10 black) faulty.
Rear control panel wire harness (wire 10 black) faulty.

28.

WARNING
Read WARNING on Page 4-345

Is continuity measured across wire 10 black from rear control panel DC2 30-pin connector, terminal F3 to splice?

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is measured, rear control panel wire harness, wire 10 black is faulty. If not, controller wire harness, wire 10 black is faulty.

NO → Repair wire, (Para 3-80) or replace controller wire harness, (Para 3-57). Verify repair, go to Step 35 of this Fault.

YES → Repair wire 10 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 35 of this Fault.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

(2) Cut wire 10 black at splice.

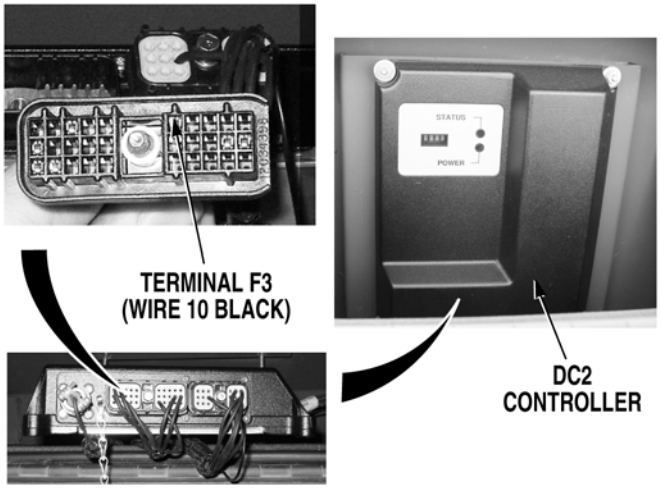
(3) Connect positive (+) multimeter lead to wire 10 black at rear control panel, DC2 30-pin connector, terminal F3.

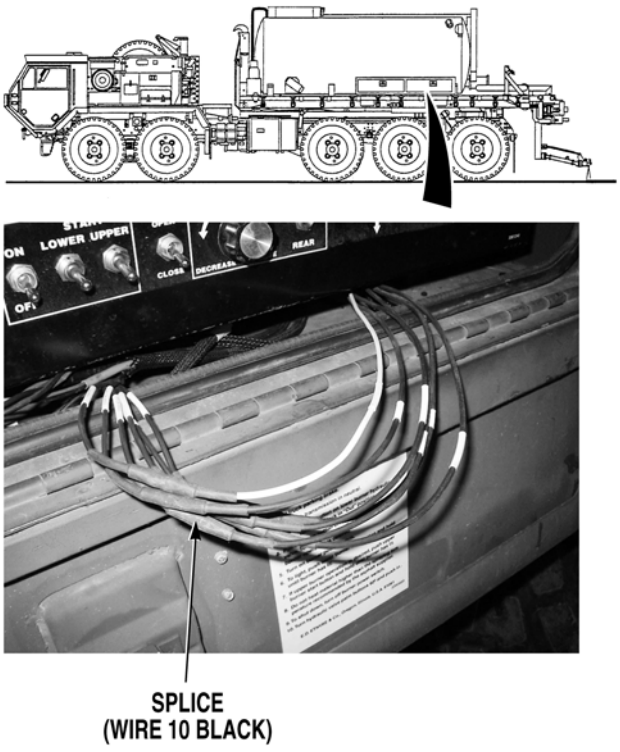
(4) Connect negative (-) multimeter lead to wire 10 black at splice.

(a) If continuity is not measured, repair wire 10 black, (Para 3-80) or replace controller wire harness, (Para 3-57).

(b) If continuity is measured, repair wire 10 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62).

(5) Verify repair, go to Step 35 of this Fault.





9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 9 white) OK.
Rear control panel wire harness (wire 9 white) OK.
Controller wire harness (wire 12 black) OK.
Rear control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.
PLS interface OK.
Front control panel OK.
Controller OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.
Controller wire harness (wire 10 black) OK.
Rear control panel wire harness (wire 10 black) OK.

POSSIBLE PROBLEMS

Controller wire harness (wire 8 black) faulty.
Rear control panel wire harness (wire 8 black) faulty.

29.

WARNING
Read WARNING on Page 4-347

Is continuity measured across wire 8 black from rear control panel DC2 30-pin connector, terminal A1 to splice?

NO → Repair wire, (Para 3-80) or replace controller wire harness, (Para 3-57). Verify repair, go to Step 35 of this Fault.

YES → Repair wire 8 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 35 of this Fault.

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is measured, rear control panel wire harness, wire 8 black is faulty. If not, controller wire harness, wire 8 black is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

(2) Cut wire 8 black at splice.

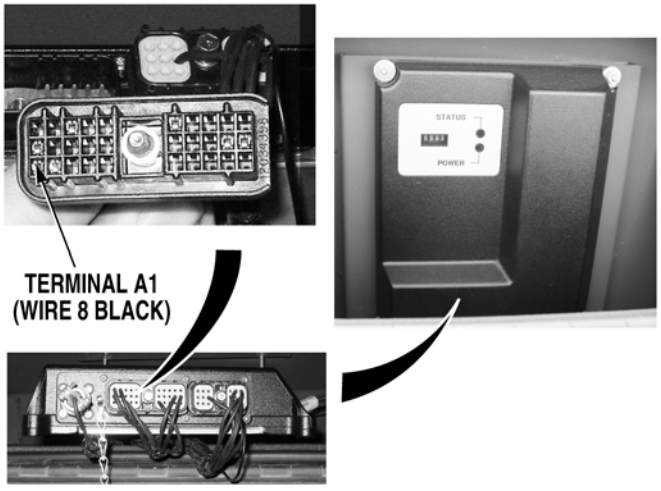
(3) Connect positive (+) multimeter lead to wire 8 black at rear control panel, DC2 30-pin connector, terminal A1.

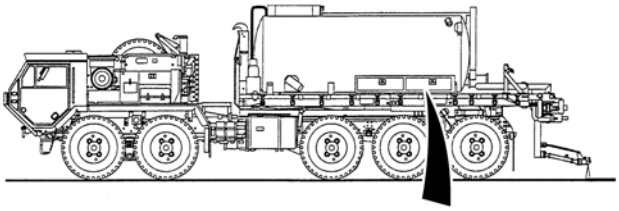
(4) Connect negative (-) multimeter lead to wire 8 black at splice.

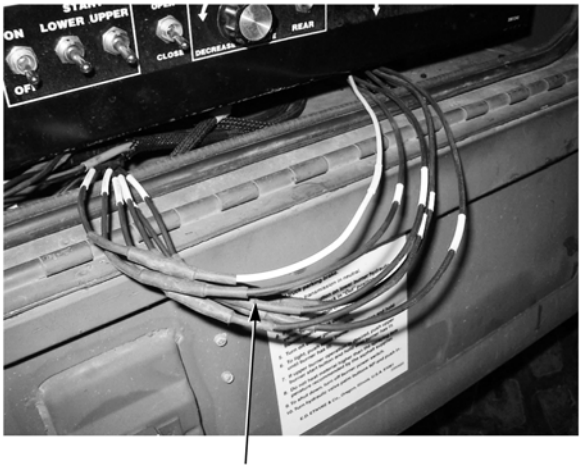
(a) If continuity is not measured, repair wire 8 black, (Para 3-80) or replace controller wire harness, (Para 3-57).

(b) If continuity is measured, repair wire 8 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62).

(5) Verify repair, go to Step 35 of this Fault.







9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 9 white) OK.
Rear control panel wire harness (wire 9 white) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.
PLS interface OK.
Front control panel OK.
Controller OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.
Controller wire harness (wire 10 black) OK.
Rear control panel wire harness (wire 10 black) OK.
Controller wire harness (wire 8 black) OK.
Rear control panel wire harness (wire 8 black) OK.

POSSIBLE PROBLEMS

Controller wire harness (wire 12 black) faulty.
Rear control panel wire harness (wire 12 black) faulty.

30.

WARNING
Read WARNING on Page 4-349

Is continuity measured across wire 12 black from rear control panel DC2 18-pin connector, terminal F3 to splice?

NO → Repair wire, (Para 3-80) or replace controller wire harness, (Para 3-57). Verify repair, go to Step 35 of this Fault.

YES → Repair wire 12 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 35 of this Fault.

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is measured, rear control panel wire harness, wire 12 black is faulty. If not, controller wire harness, wire 12 black is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

(2) Cut wire 12 black at splice.

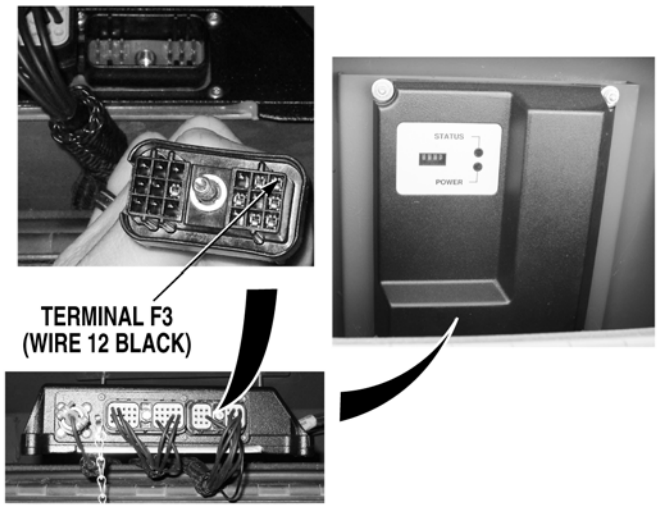
(3) Connect positive (+) multimeter lead to wire 12 black at rear control panel, DC2 18-pin connector, terminal F3.

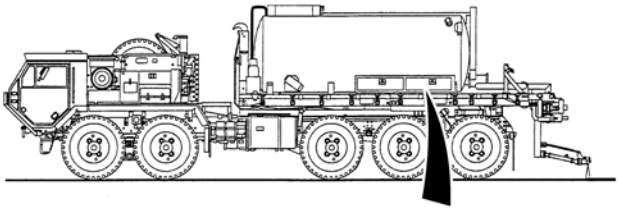
(4) Connect negative (-) multimeter lead to wire 12 black at splice.

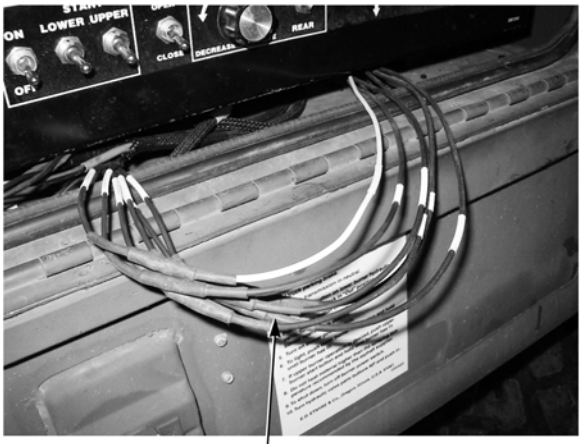
(a) If continuity is not measured, repair wire 12 black, (Para 3-80) or replace controller wire harness, (Para 3-57).

(b) If continuity is measured, repair wire, (Para 3-80) or replace rear control panel wire harness, (Para 3-62).

(5) Verify repair, go to Step 35 of this Fault.







9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 9 white) OK.
Rear control panel wire harness (wire 9 white) OK.
PLS interface OK.
Front control panel OK.
Controller OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.
Controller wire harness (wire 10 black) OK.
Rear control panel wire harness (wire 10 black) OK.
Controller wire harness (wire 8 black) OK.
Rear control panel wire harness (wire 8 black) OK.
Controller wire harness (wire 12 black) OK.
Rear control panel wire harness (wire 12 black) OK.

POSSIBLE PROBLEMS

Controller wire harness (wire 11 black) faulty.
Rear control panel wire harness (wire 11 black) faulty.

31.

WARNING
Read WARNING on Page 4-351

Is continuity measured across wire 11 black from rear control panel DC2 18-pin connector, terminal D2 to splice?

NO → Repair wire, (Para 3-80) or replace controller wire harness, (Para 3-57). Verify repair, go to Step 35 of this Fault.

YES → Repair wire 11 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 35 of this Fault.

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is measured, rear control panel wire harness, wire 11 black is faulty. If not, controller wire harness, wire 11 black is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

(2) Cut wire 11 black at splice.

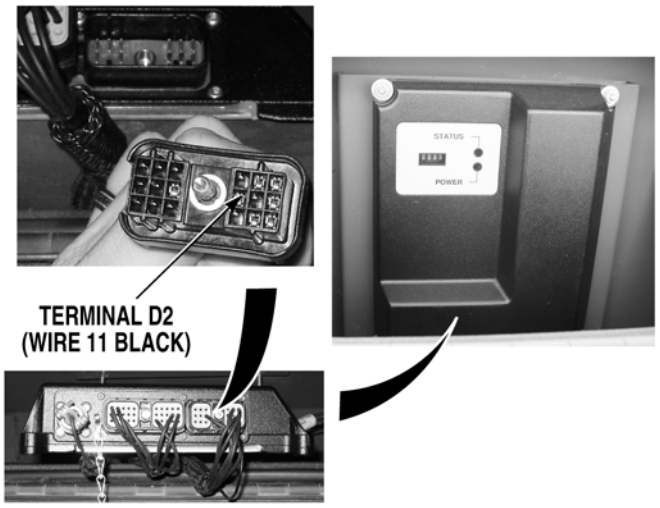
(3) Connect positive (+) multimeter lead to wire 11 black at rear control panel, DC2 18-pin connector, terminal D2.

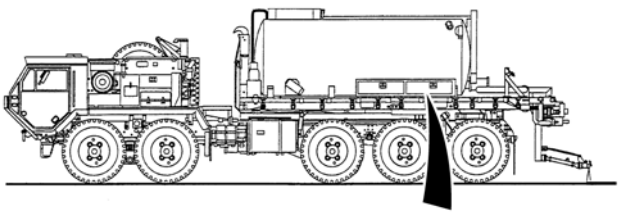
(4) Connect negative (-) multimeter lead to wire 11 black at splice.

(a) If continuity is not measured, repair wire 11 black, (Para 3-80) or replace controller wire harness, (Para 3-57).

(b) If continuity is measured, repair wire, (Para 3-80) or replace rear control panel wire harness, (Para 3-62).

(5) Verify repair, go to Step 35 of this Fault.







9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 9 white) OK.
Rear control panel wire harness (wire 9 white) OK.
PLS interface OK.
Front control panel OK.
Controller OK.
Controller wire harness (wire 10 black) OK.
Rear control panel wire harness (wire 10 black) OK.
Controller wire harness (wire 8 black) OK.
Rear control panel wire harness (wire 8 black) OK.
Controller wire harness (wire 12 black) OK.
Rear control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.

POSSIBLE PROBLEMS

Controller wire harness (wire 9 black) faulty.
Rear control panel wire harness (wire 9 black) faulty.

32.

WARNING
Read WARNING on Page 4-353

Is continuity measured across wire 9 black from rear control panel, DC2 18-pin connector, terminal C2 to splice?

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is measured, rear control panel wire harness, wire 9 black is faulty. If not, controller wire harness, wire 9 black is faulty.

NO → Repair wire, (Para 3-80) or replace controller wire harness, (Para 3-57). Verify repair, go to Step 35 of this Fault.

YES → Repair wire 9 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 35 of this Fault.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

(2) Cut wire 9 black at splice.

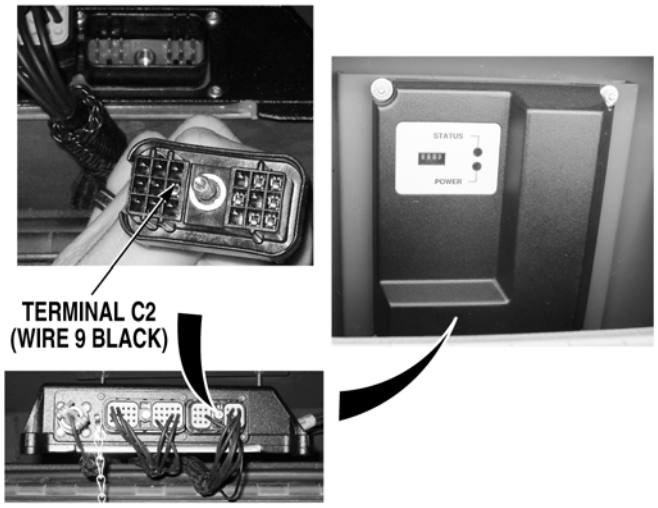
(3) Connect positive (+) multimeter lead to wire 9 black at rear control panel, DC2 18-pin connector, terminal C2.

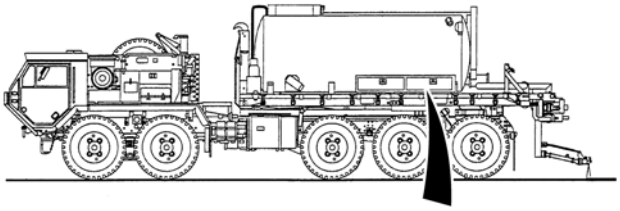
(4) Connect negative (-) multimeter lead to wire 9 black at splice.

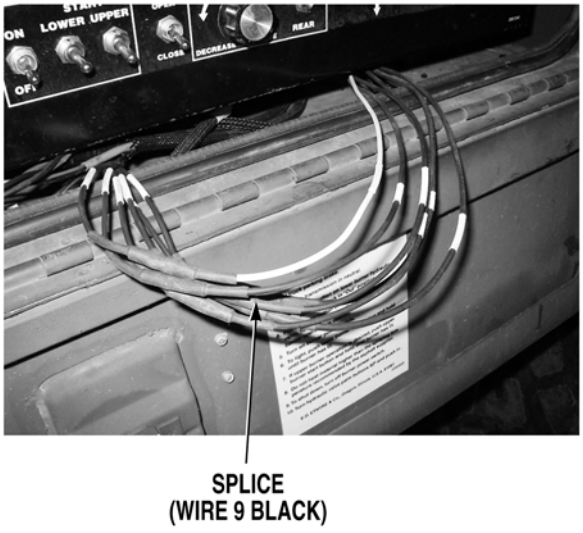
(a) If continuity is not measured, repair wire 9 black, (Para 3-80) or replace controller wire harness, (Para 3-57).

(b) If continuity is measured, repair wire, (Para 3-80) or replace rear control panel wire harness, (Para 3-62).

(5) Verify repair, go to Step 35 of this Fault.







9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
PLS interface OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Front control panel OK.
Controller wire harness (wire 9 white) OK.
Rear control panel wire harness (wire 9 white) OK.
Controller wire harness (wire 10 black) OK.
Rear control panel wire harness (wire 10 black) OK.
Controller wire harness (wire 8 black) OK.
Rear control panel wire harness (wire 8 black) OK.
Controller wire harness (wire 12 black) OK.
Rear control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.

POSSIBLE PROBLEMS

Controller wire harness ground wire faulty.
Controller wire harness power (red) wire faulty.
Controller faulty.

33.

WARNING
Read WARNING on Page 4-355

Is continuity measured across rear control panel ground wire from DC2 18-pin connector, terminal E1 to a known good ground?

NO → Repair ground wire, (Para 3-80) or replace controller wire harness, (Para 3-57). Verify repair, go to Step 35 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, controller wire harness ground wire is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Pull out battery disconnect, (TM 9-2320-364-10).

(2) Remove DC2 controller, (Para 3-28).

(3) Disconnect DC2 18-pin connector, (Para 3-28).

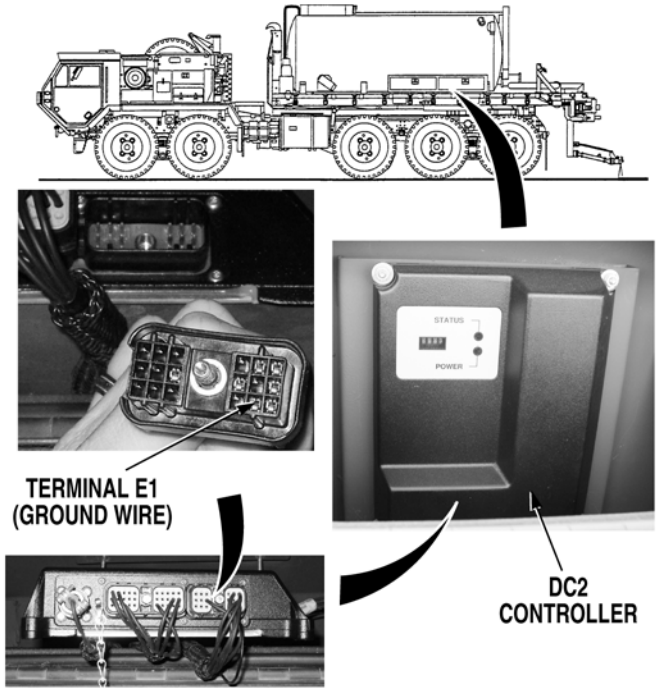
(4) Set multimeter select switch to ohms.

(5) Connect positive (+) multimeter lead to ground wire at DC2 18-pin connector, terminal E1.

(6) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, repair ground wire, (Para 3-80) or replace controller wire harness, (Para 3-57). Verify repair, go to Step 35 of this Fault.

(b) If continuity is measured, go to Step 34 of this Fault.



9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
PLS interface faulty.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Front control panel OK.
Controller wire harness (wire 9 white) OK.
Rear control panel wire harness (wire 9 white) OK.
Controller wire harness (wire 10 black) OK.
Rear control panel wire harness (wire 10 black) OK.
Controller wire harness (wire 8 black) OK.
Rear control panel wire harness (wire 8 black) OK.
Controller wire harness (wire 12 black) OK.
Rear control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.
Controller wire harness ground wire OK.

POSSIBLE PROBLEMS

Controller wire harness power (red) wire faulty.
Controller faulty.

34.

WARNING
Read WARNING on Page 4-357

Is continuity measured across rear control panel power (red) wire from DC2 18-pin connector, terminal F1 to rear control panel terminal strip?

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, power (red) wire from DC2 18-pin connector, terminal F1 to rear control panel terminal strip is faulty.

NO → Repair power (red) wire, (Para 3-80) or replace controller wire harness, (Para 3-57). Verify repair, go to Step 35 of this Fault.

YES → Replace DC2 controller, (Para 3-28). Verify repair, go to Step 35 of this Fault.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

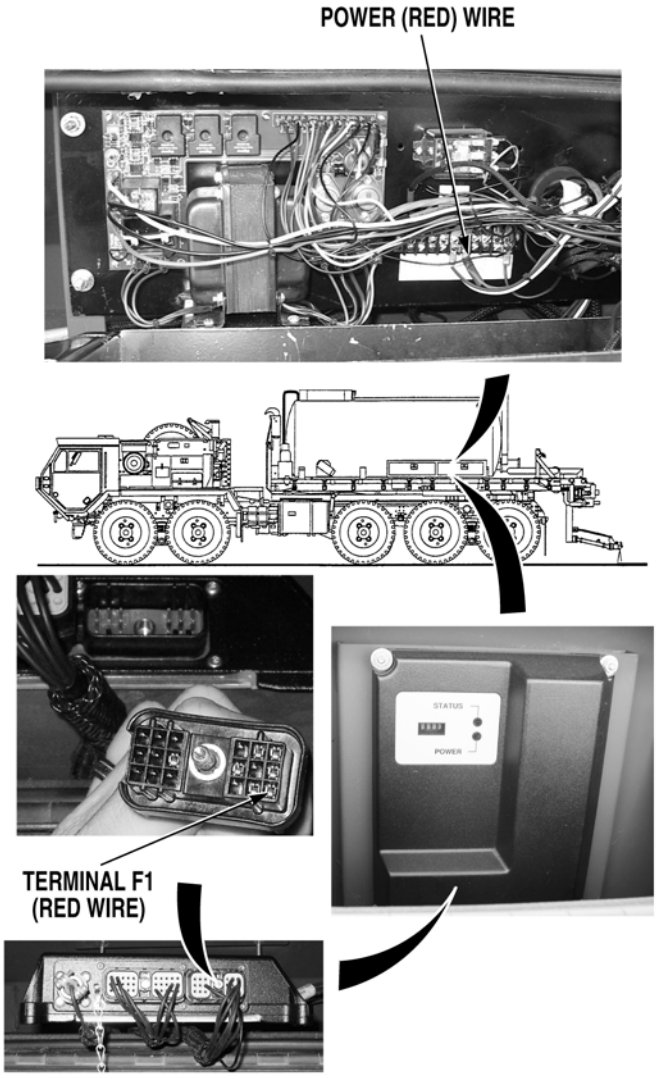
(2) Connect positive (+) multimeter lead to power (red) wire at DC2 18-pin connector, terminal F1.

(3) Connect negative (-) multimeter lead to rear control panel terminal strip.

(a) If continuity is not measured, repair power (red) wire, (Para 3-80) or replace controller wire harness, (Para 3-57).

(b) If continuity is measured, replace DC2 controller, (Para 3-28).

(4) Verify repair, go to Step 35 of this Fault.



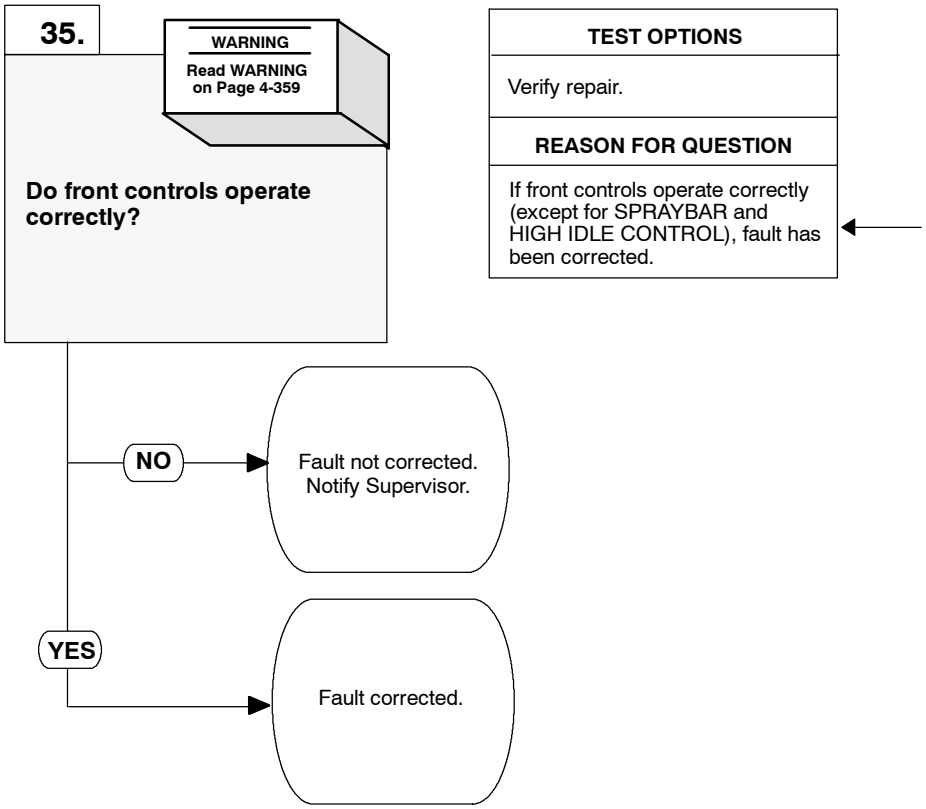
9. FRONT CONTROLS DO NOT OPERATE CORRECTLY (EXCEPT SPRAY BAR ADJUSTMENTS AND HIGH IDLE CONTROL) (CONT).

KNOWN INFO

System powers up.
Front control panel SPRAYBAR switch is in correct position.
Front control panel ground wire (black) from SPRAYBAR switch to CIRCULATION RATE switch OK.
Front control panel ground (black) wire from CIRCULATION RATE switch to ground stud OK.
Front control panel wire harness (wire 7 black) OK.
Front control panel wire harness (wire 9 white) OK.
Front control panel wire harness (wire 8 black) OK.
Front control panel wire harness (wire 9 black) OK.
Front control panel wire harness (wire 10 black) OK.
Front control panel wire harness (wire 11 black) OK.
Front control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 9 white) OK.
Rear control panel wire harness (wire 9 white) OK.
PLS interface OK.
Front control panel OK.
Controller OK.
Controller wire harness (wire 10 black) OK.
Rear control panel wire harness (wire 10 black) OK.
Controller wire harness (wire 8 black) OK.
Rear control panel wire harness (wire 8 black) OK.
Controller wire harness (wire 12 black) OK.
Rear control panel wire harness (wire 12 black) OK.
Controller wire harness (wire 11 black) OK.
Rear control panel wire harness (wire 11 black) OK.
Controller wire harness (wire 9 black) OK.
Rear control panel wire harness (wire 9 black) OK.
Controller wire harness ground wire OK.
Controller wire harness power (red) wire OK.

POSSIBLE PROBLEMS

None.



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.



FRONT CONTROL PANEL

VERIFY REPAIR

(1) If removed, install front control panel (Para 3-80).

(2) If removed, install DC 2 controller, (Para 3-28).

(3) If disconnected, connect front control panel connector MC129, (Para 2-10).

(4) If disconnected, connect rear control panel connector MC130 (UPIK), (Para 2-10).

(5) If out, push in battery disconnect switch, (TM 9-2320-364-10).

(6) If OFF, start engine, (TM 9-2320-364-10).

(7) Turn hydraulic selector switch to CRANE/SRW, (TM 9-2320-364-10).

(8) Turn front control panel POWER switch ON, (Para 2-1).

(9) Turn rear control panel POWER switch ON, (Para 2-1).

(10) Operate front control panel pump speed controls, (Para 2-16).

  (a) If front control panel pump speed controls do not control pump speed, fault not corrected. Notify Supervisor.

  (b) If front control panel pump speed controls control pump speed, fault has been corrected.

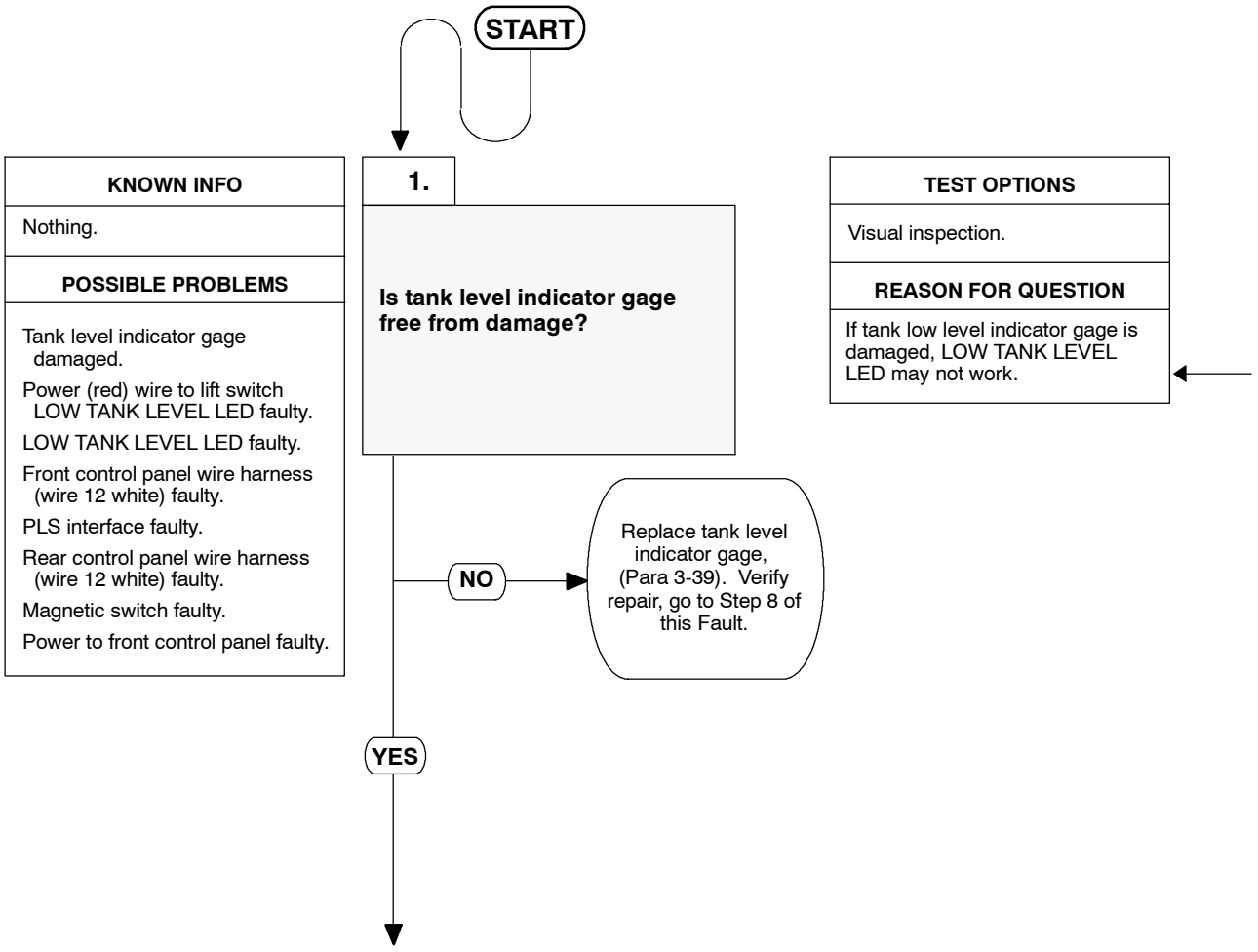
(11) Shut OFF engine, (TM 9-2320-364-10).

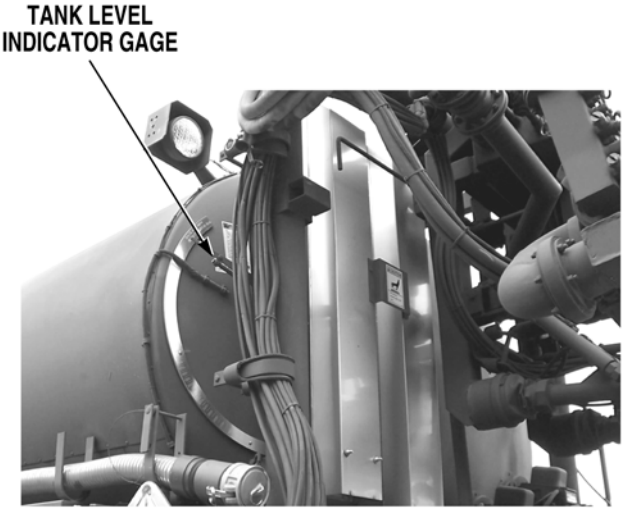
10. LOW TANK LEVEL INDICATOR DOES NOT OPERATE CORRECTLY.

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Multimeter (Item 8, Appendix F)

Equipment Condition
Bituminous Distributor loaded on PLS, (Para 2-5)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)





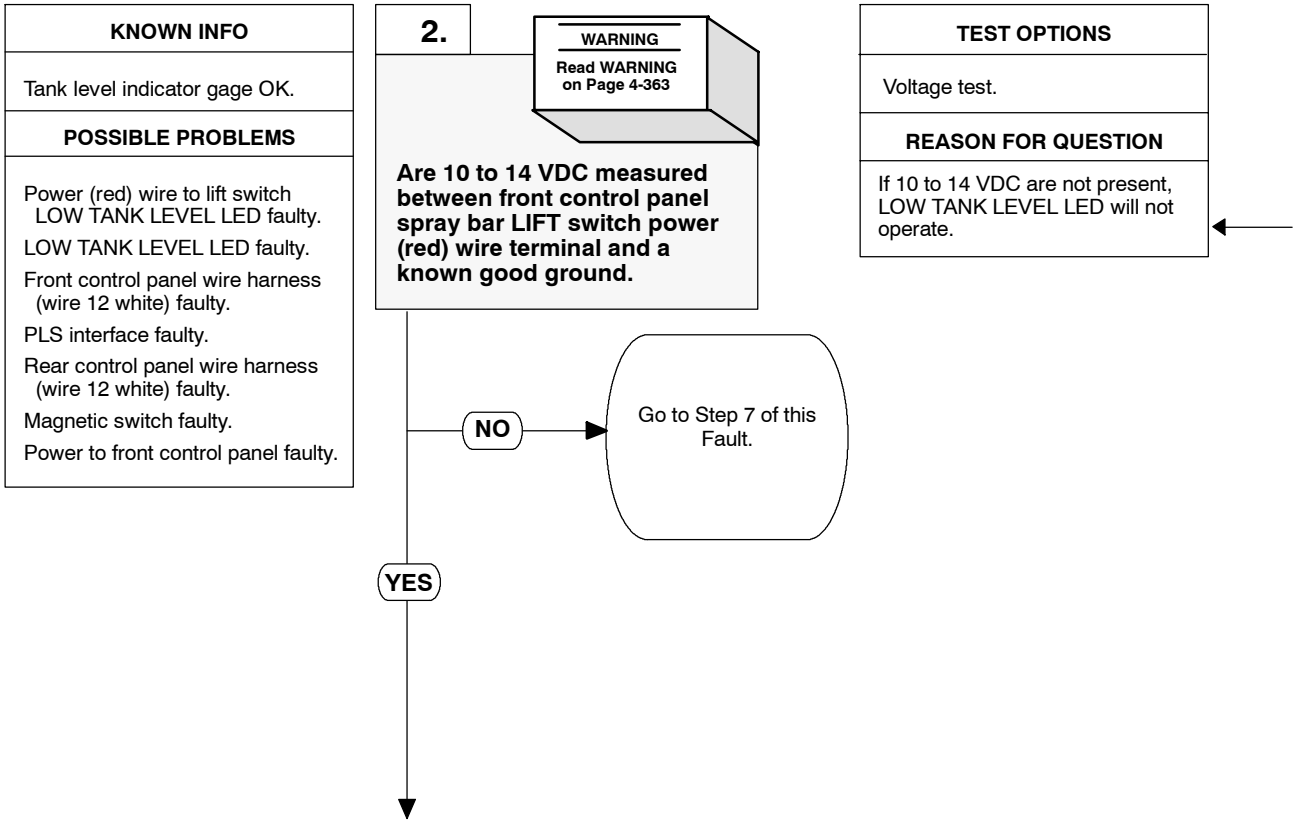
VISUAL INSPECTION

Check if tank level indicator gage is damaged.

(a) If tank level indicator gage is not damaged, go to Step 2 of this Fault.

(b) If tank level indicator gage is damaged, replace tank level indicator gage, (Para 3-39). Verify repair, go to Step 8 of this Fault.

10. LOW TANK LEVEL INDICATOR DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

(1) Remove front control panel, (Para 3-76).

(2) Turn front control panel POWER switch ON, (Para 2-1).

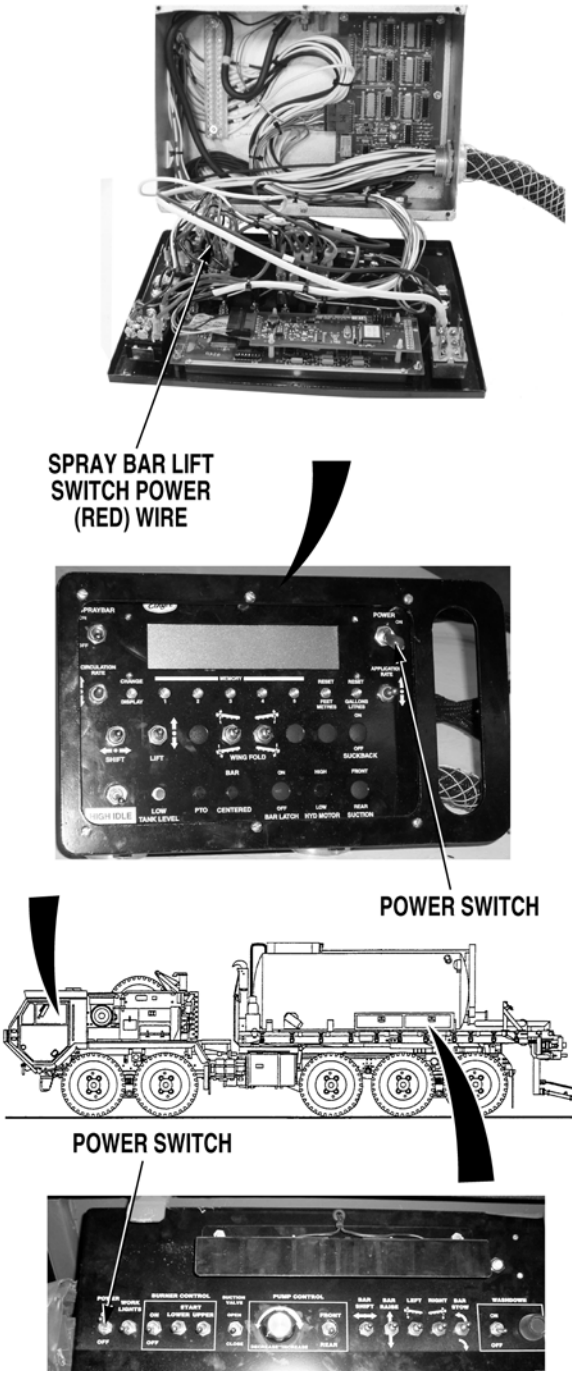
(3) Turn rear control panel POWER switch ON, (Para 2-1).

(4) Connect positive (+) multimeter lead to power (red) wire at front control panel spray bar LIFT switch.

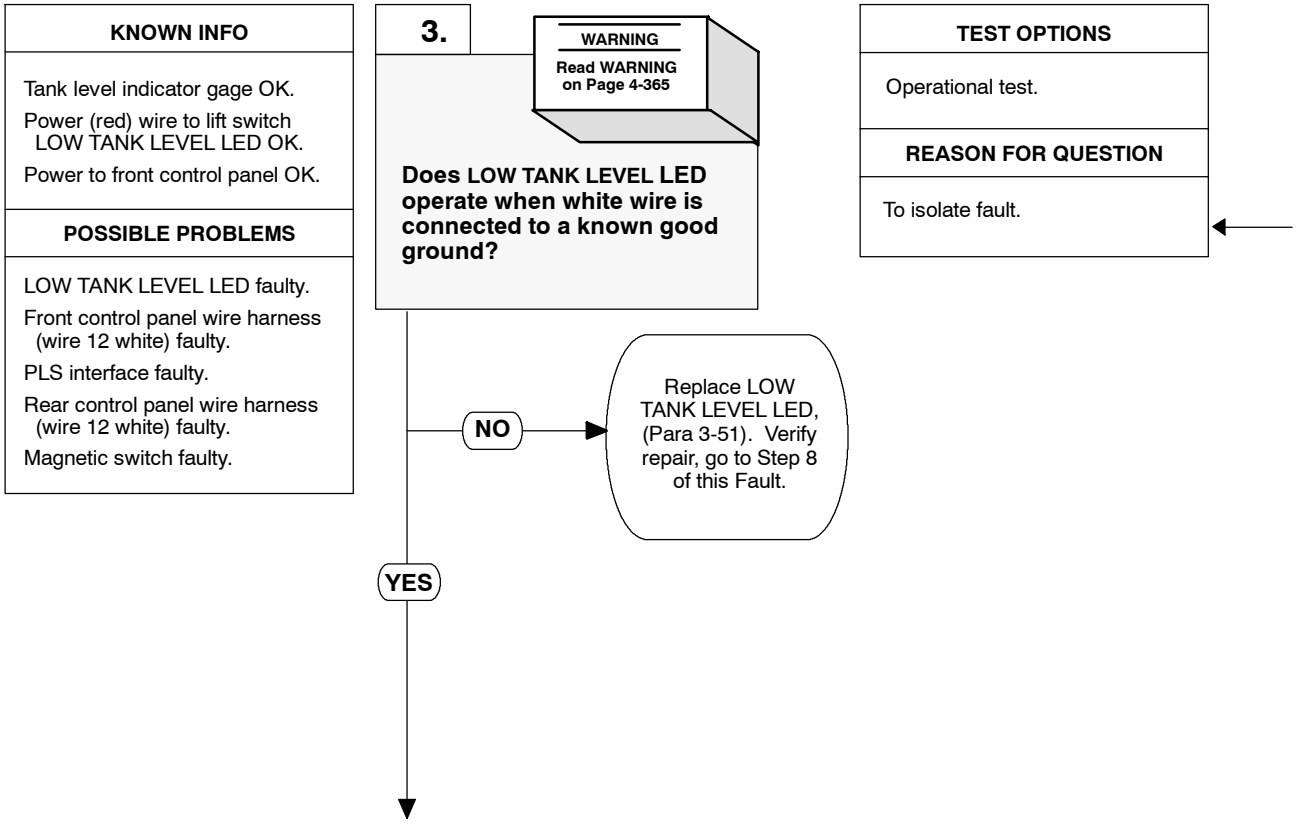
(5) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, go to Step 7 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 3 of this Fault.



10. LOW TANK LEVEL INDICATOR DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

OPERATIONAL TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

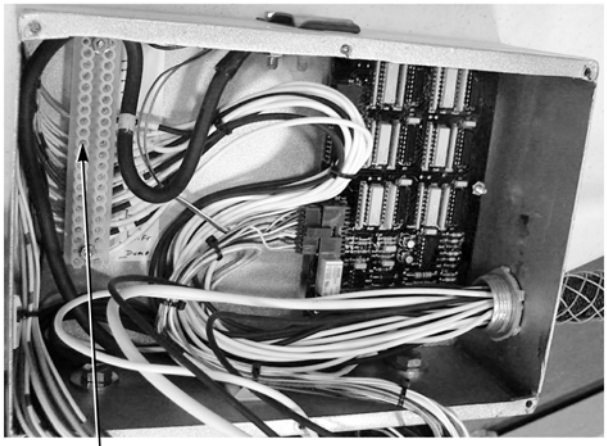
(2) Disconnect LOW TANK LEVEL LED white wire from terminal strip.

(3) Connect LOW TANK LEVEL LED white wire to a known good ground.

(4) Push in battery disconnect switch, (TM 9-2320-364-10).

(a) If LOW TANK LEVEL LED does not operate, turn OFF ENGINE start switch, (TM 9-2320-364-10), and replace LED, (Para 3-51). Verify repair, go to Step 8 of this Fault.

(b) If LOW TANK LEVEL LED does operate, go to Step 4 of this Fault.

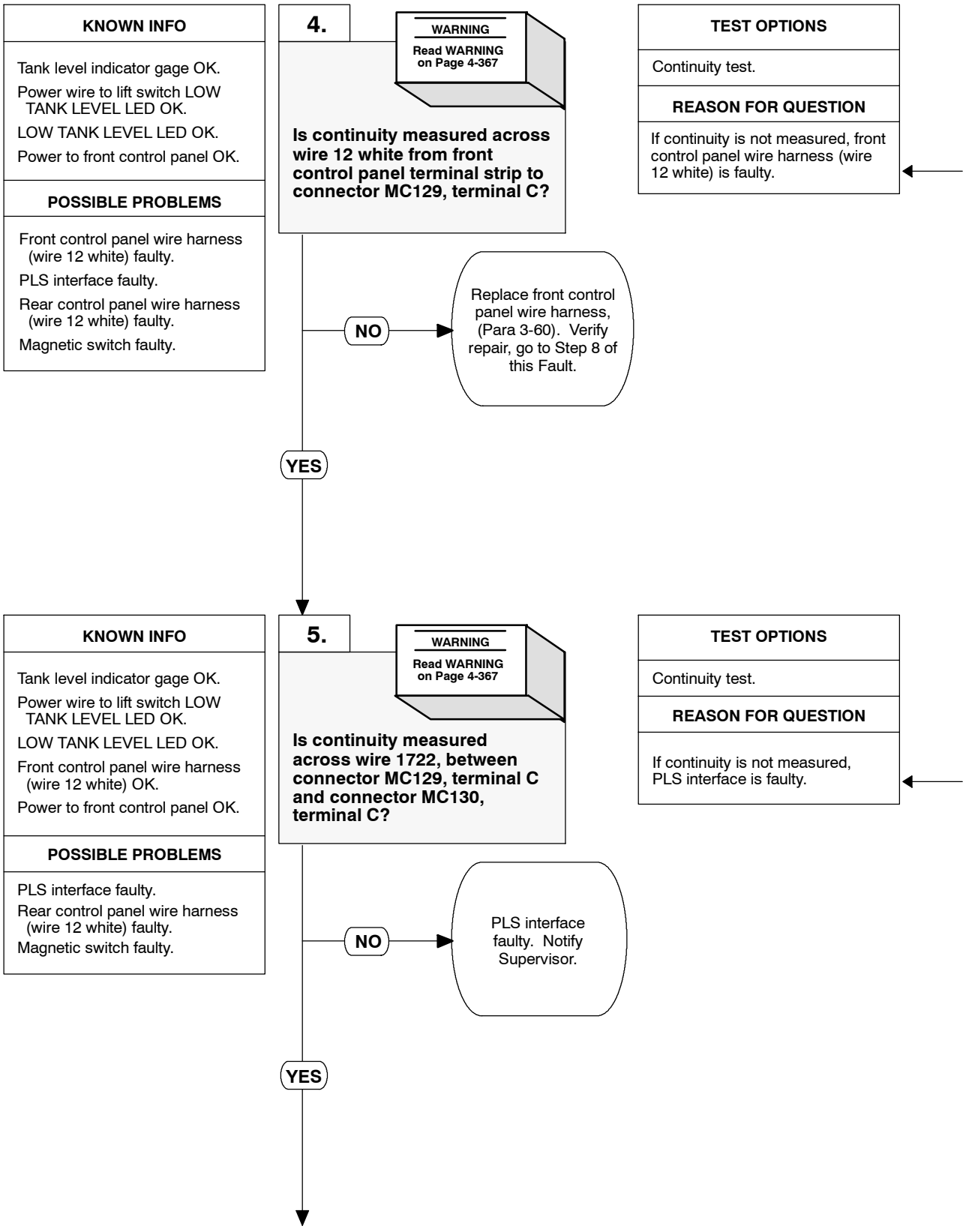


LED WHITE WIRE



LOW TANK LEVEL LED

10. LOW TANK LEVEL INDICATOR DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Disconnect front control panel connector MC129.

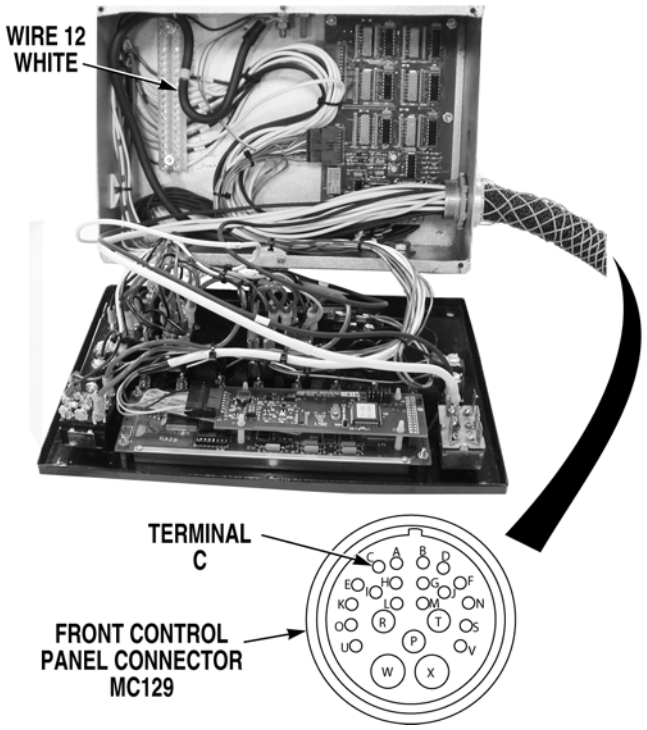
(3) Set multimeter select switch to ohms.

(4) Connect positive (+) multimeter lead to wire 12 white at front control panel terminal strip.

(5) Connect negative (-) multimeter lead to front control panel connector MC129, terminal C.

(a) If continuity is not measured, replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 8 of this Fault.

(b) If continuity is measured, go to Step 5 of this Fault.



CONTINUITY TEST

(1) Disconnect connector MC130 (UPIK), (Para 2-10).

(2) Set multimeter select switch to ohms.

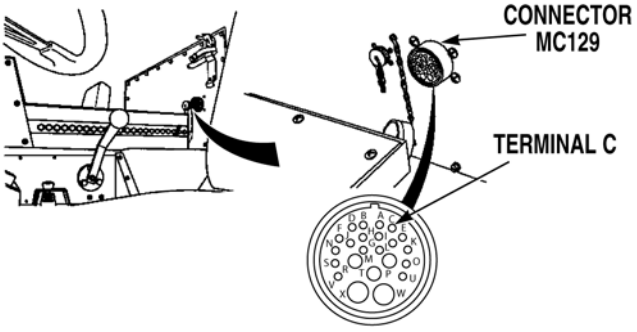
(3) Connect jumperwire between PLS wire harness, wire 1772, connector MC130, terminal C and a known good ground.

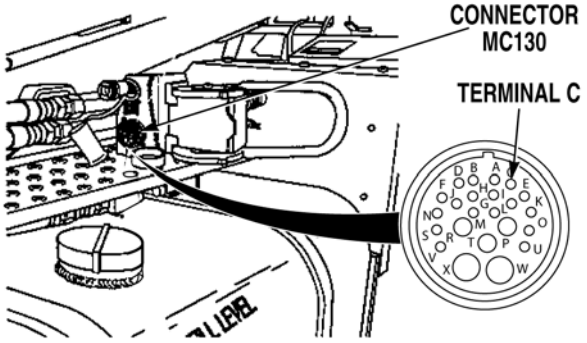
(4) Connect positive (+) multimeter lead on PLS wire harness, wire 1772, connector MC129, terminal C.

(5) Connect negative (-) multimeter lead to a known good ground.

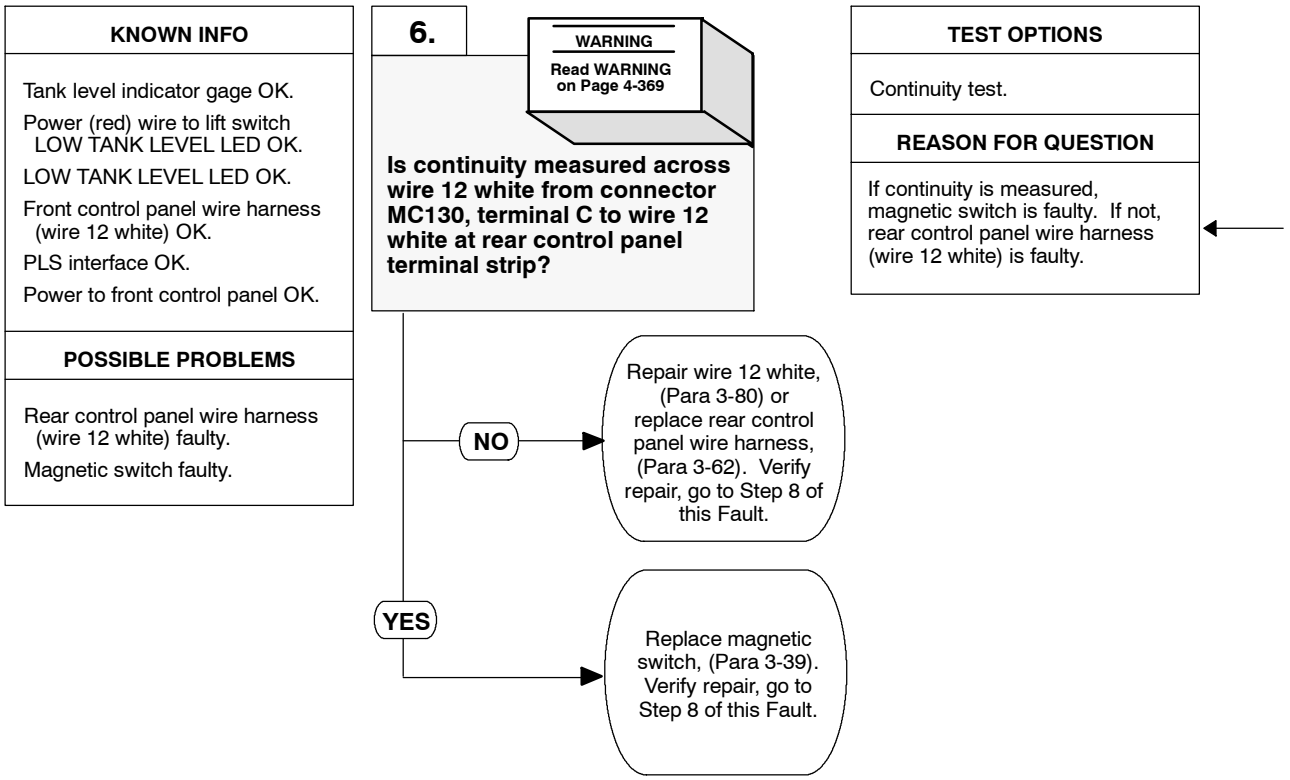
(a) If continuity is not measured, PLS interface is faulty. Notify Supervisor.

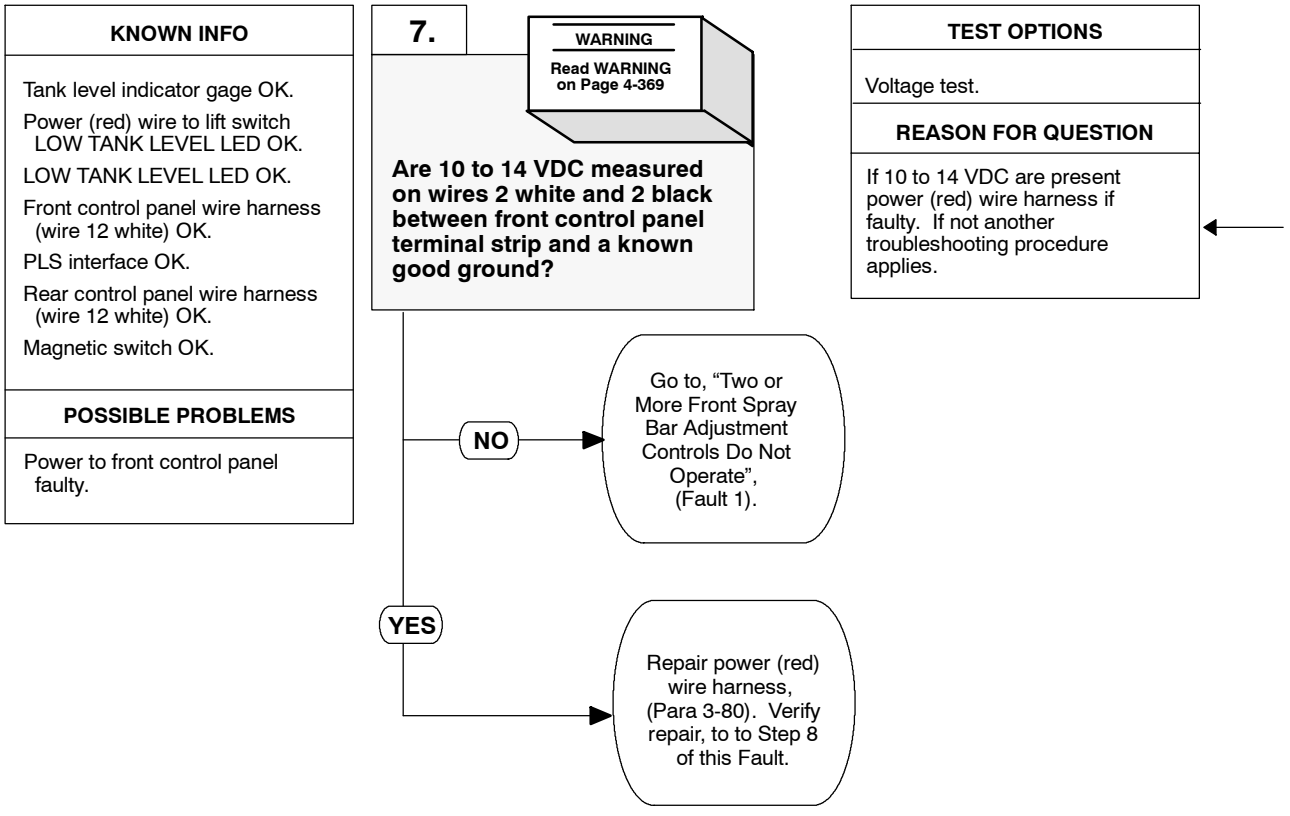
(b) If continuity is measured, go to Step 6 for this Fault.





10. LOW TANK LEVEL INDICATOR DOES NOT OPERATE CORRECTLY (CONT).





WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Remove rear control panel, (Para 3-76).

(2) Connect jumperwire between wire 12 white, at connector MC130, terminal C and a known good ground.

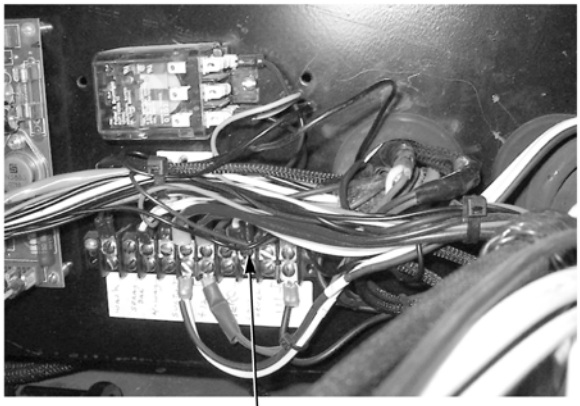
(3) Connect positive (+) multimeter lead to wire 12 white at rear control panel terminal strip.

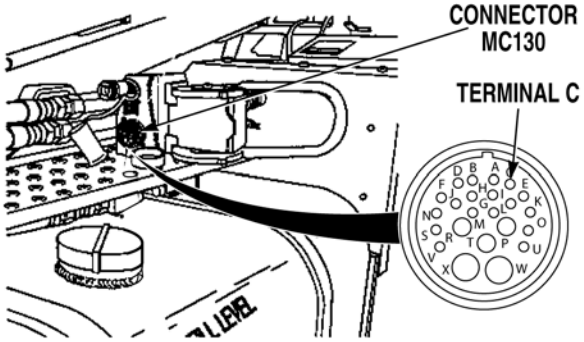
(4) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, replace rear control panel wire harness, (Para 3-62).

(b) If continuity is measured, replace magnetic switch, (Para 3-39).

(5) Verify repair, go to Step 8 of this Fault.





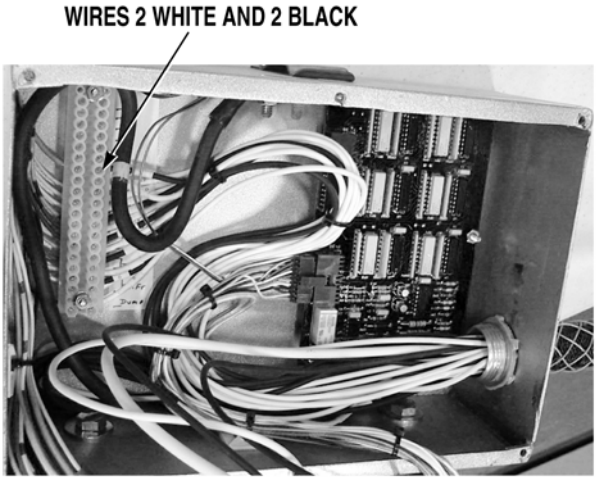
VOLTAGE TEST

(1) Connect positive (+) multimeter lead to wires 2 white and 2 black, at front control box terminal strip.

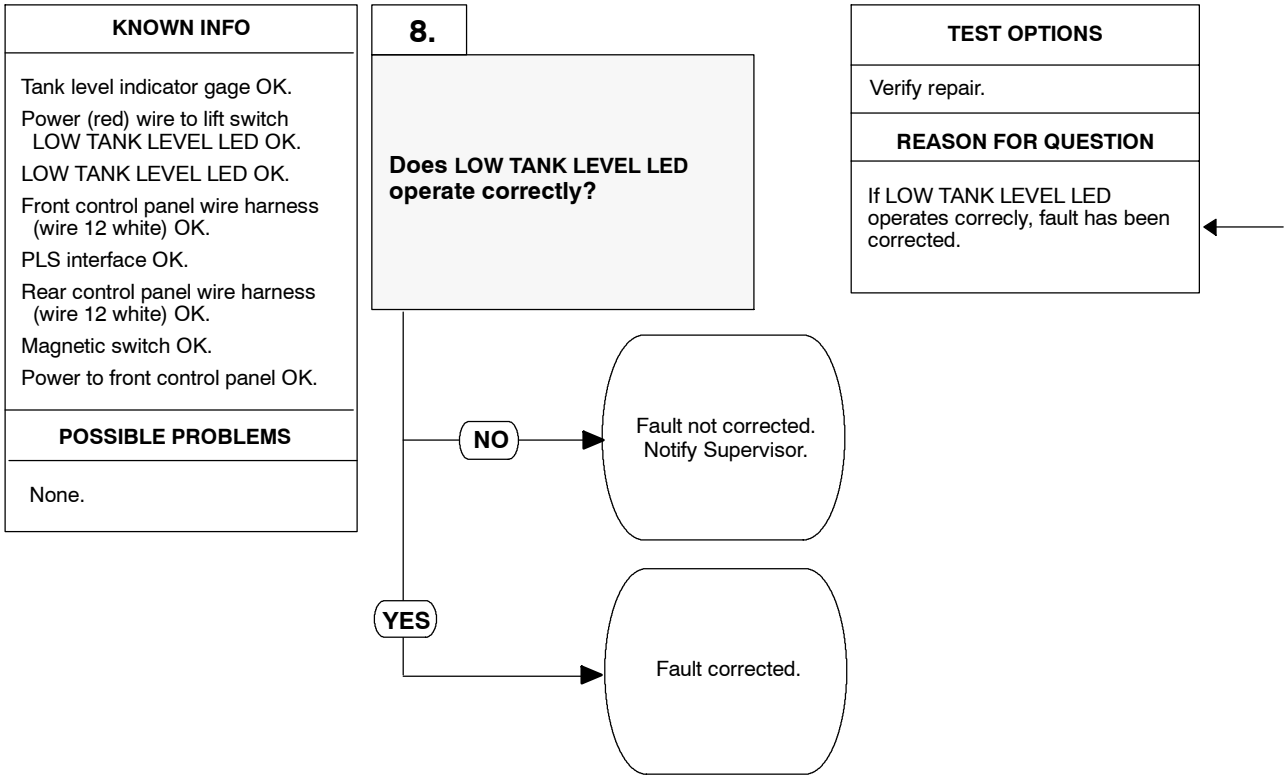
(2) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, go to "Two or More Front Spray Bar Adjustment Controls Do Not Operate", (Fault 1).

(b) If 10 to 14 VDC are present, repair front control box red power wire harness, (Para 3-80). Verify repair, go to Step 8 of this Fault.



10. LOW TANK LEVEL INDICATOR DOES NOT OPERATE CORRECTLY (CONT).



WARNING

12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

VERIFY REPAIR

(1) If in, pull out battery disconnect switch, (TM 9-2320-364-10).

(2) If removed, install front control panel, (Para 3-76).

(3) If disconnected, connect front control panel connector MC129, (Para 2-10).

(4) If removed, install rear control panel, (Para 3-76).

(5) If disconnected, connect connector MC130 (UPIK), (Para 2-10).

(6) If tank is not empty, remove magnet from tank level indicator gage, (Para 3-39).

(7) Push in battery disconnect switch, (TM 9-2320-364-10).

(8) If tank is empty, gently move tank level indicator gage, to and away from switch magnet. Check if LOW TANK LEVEL LED illuminates when gage is in the tank level low position.

(9) If tank is not empty, move magnet removed in Step 5 close to magnetic switch. Check if LOW TANK LEVEL LED illuminates when magnet is near switch.

(10) If removed, install magnet on LOW TANK LEVEL gage, (Para 3-39).

(11) If LOW TANK LEVEL LED operates correctly in Step 7 or 8, fault has been corrected.

(12) If LOW TANK LEVEL LED does not operate correctly in Steps 7 or 8, fault not corrected. Notify Supervisor.



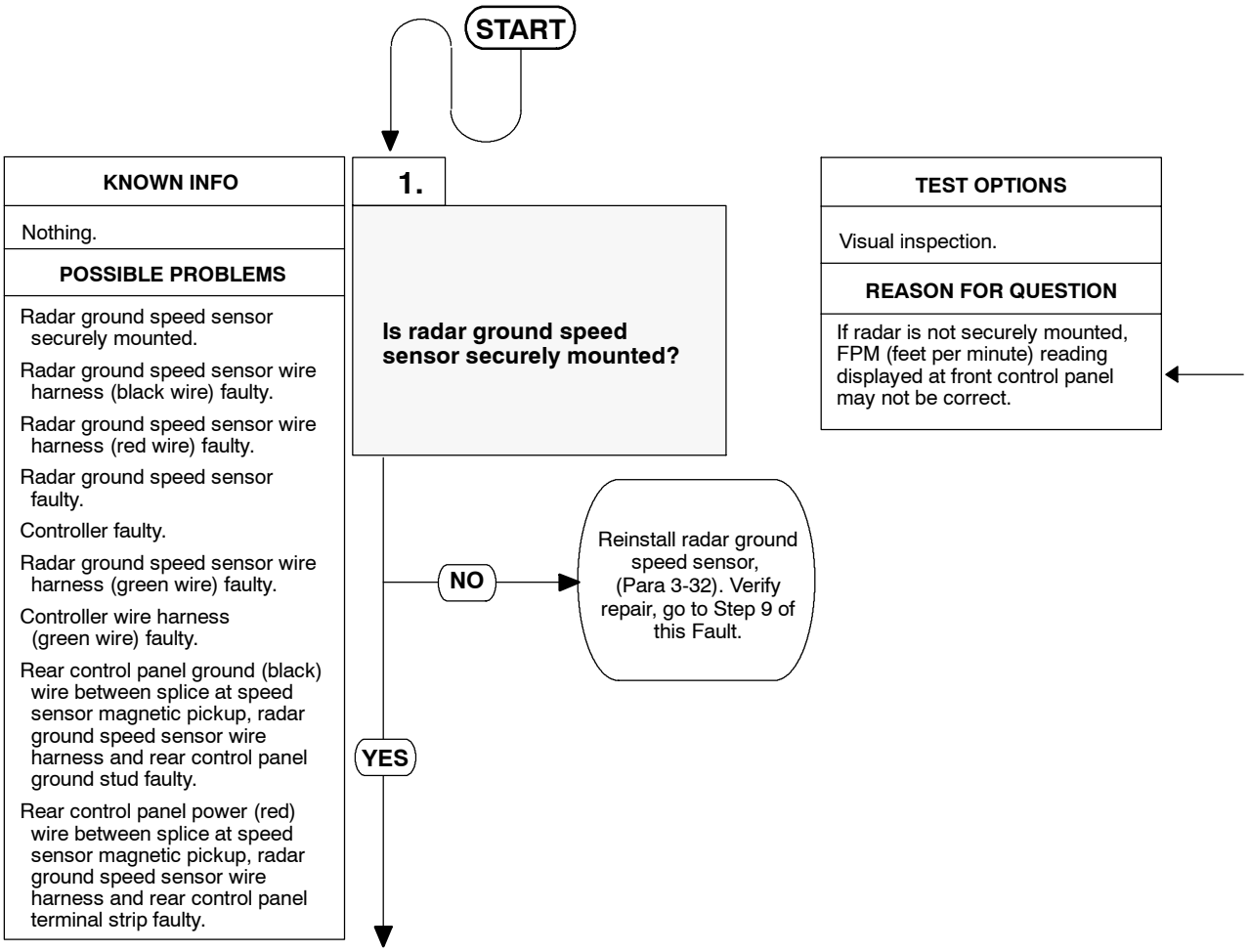
LOW TANK LEVEL LED

11. NO FPM (FEET PER MINUTE) READING AT FRONT CONTROL PANEL.

INITIAL SETUP

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
- Multimeter (Item 8, Appendix F)
- Jumperwire

Equipment Condition
- Bituminous Distributor loaded on PLS, (Para 2-5)
- Engine OFF, (TM 9-2320-364-10)
- Wheels chocked, (TM 9-2320-364-10)







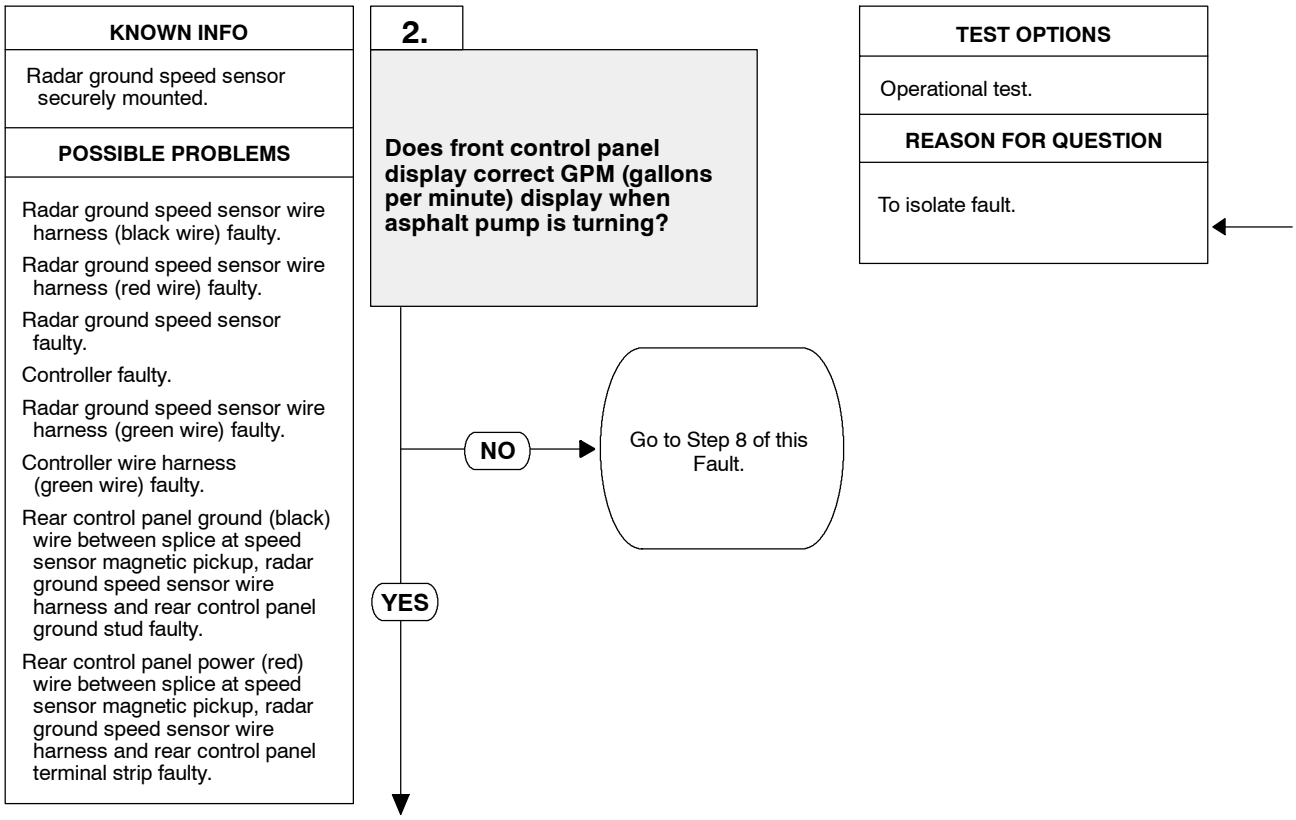
VISUAL INSPECTION

Check if radar ground speed sensor is securely mounted.

(a) If radar ground speed sensor is not securely mounted, reinstall radar ground speed sensor, (Para 3-32). Verify repair, go to Step 9 of this Fault.

(b) If radar ground speed sensor is securely mounted, go to Step 2 of this Fault.

11. NO FPM (FEET PER MINUTE) READING AT FRONT CONTROL PANEL (CONT).



OPERATIONAL TEST

(1) Start engine, (TM 9-2320-364-10).

(2) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(3) Turn front control panel POWER switch ON, (Para 2-1).

(4) Turn rear control panel POWER switch ON, (Para 2-1).

(5) Turn rear control panel FRONT/REAR switch to FRONT, (Para 2-1).

(6) Set up system to circulate in tank, (Para 2-16).

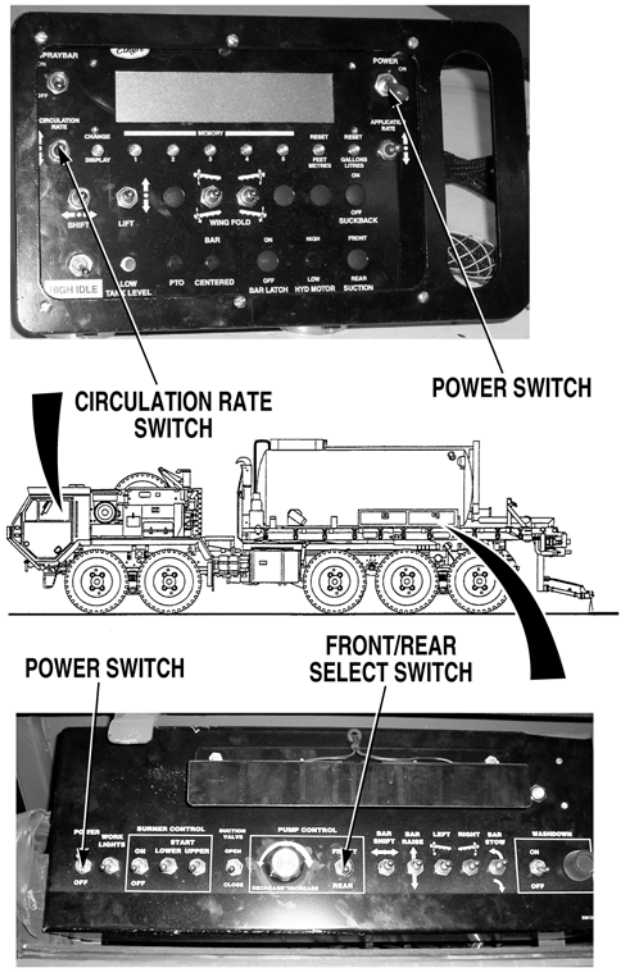
NOTE

Font control panel GPM (gallons per minute) display should change when CIRCULATION RATE is adjusted.

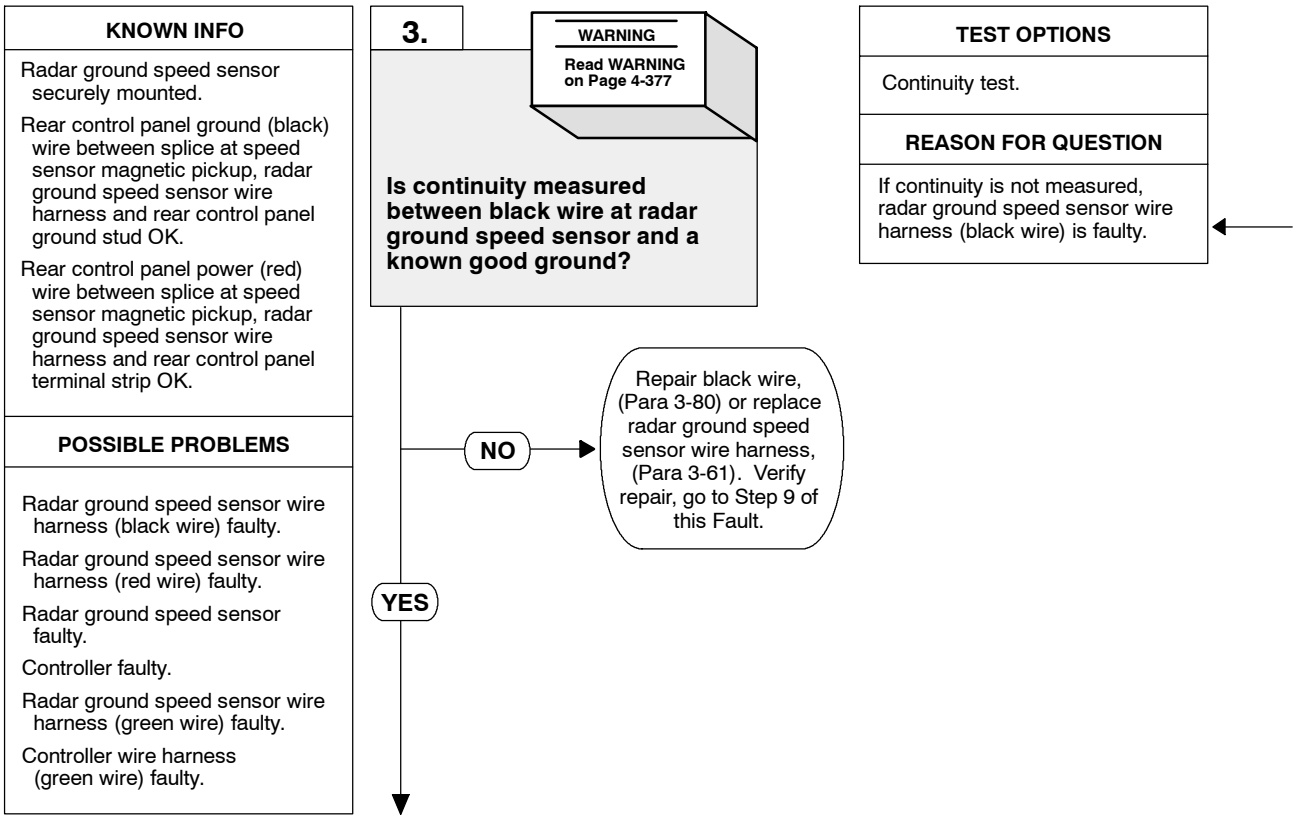
(7) Operate circulation rate function, (Para 2-17). Check if GPM (gallons per minute) is displayed on front control panel display.

(a) If GPM (gallons per minute) is not displayed on front control panel display, go to Step 8 of this Fault.

(b) If GPM (gallons per minute) is displayed on front control panel display, go to Step 3 of this Fault.



11. NO FPM (FEET PER MINUTE) READING AT FRONT CONTROL PANEL (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Set multimeter select switch to ohms.

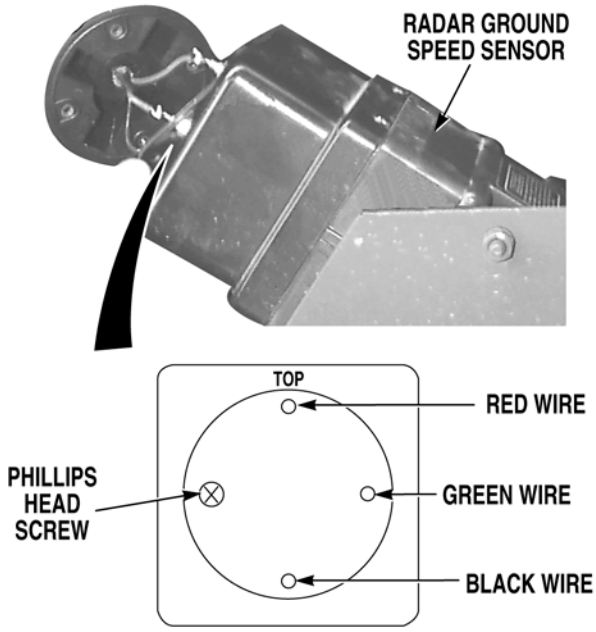
(4) Remove radar ground speed sensor cover, (Para 3-61).

(5) Connect positive (+) multimeter lead to black wire at radar ground speed sensor.

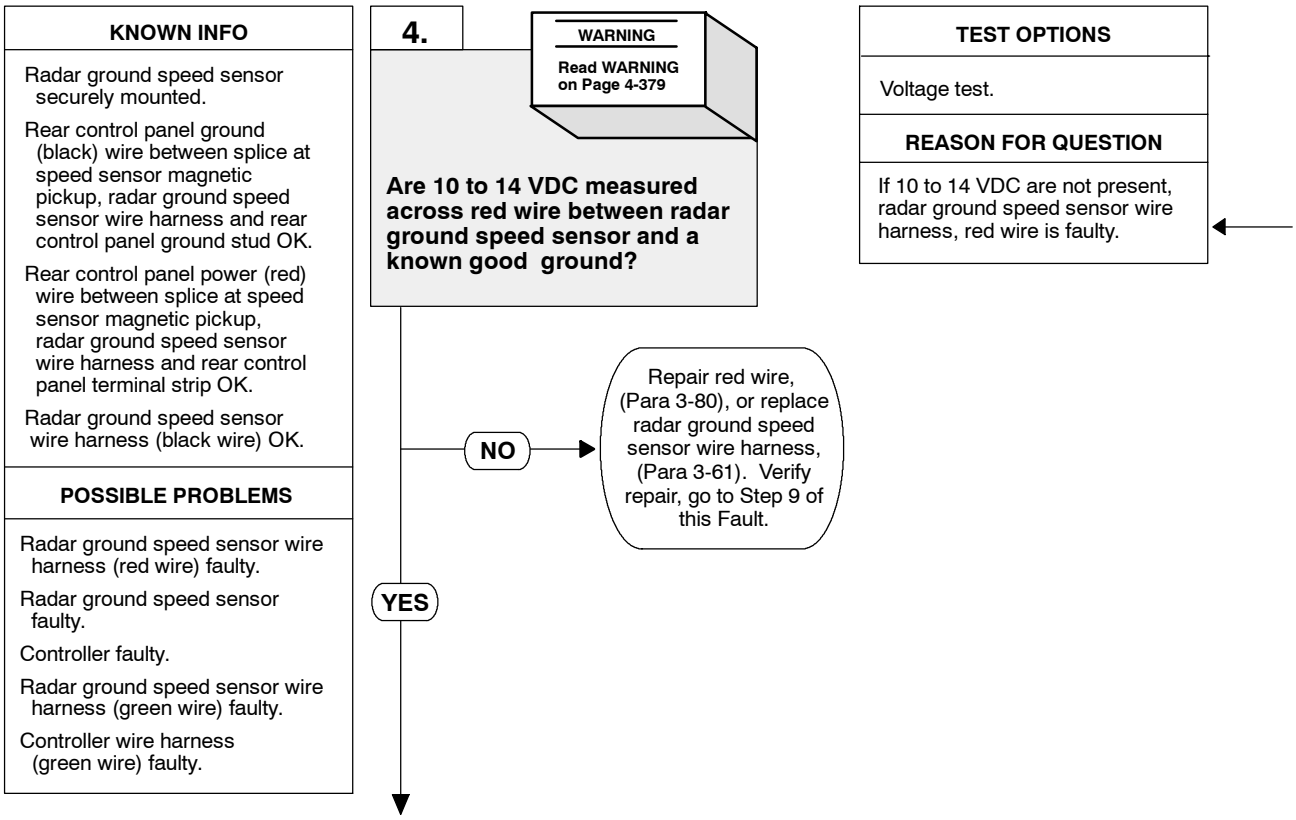
(6) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, repair black wire, (Para 3-80) or replace radar ground speed sensor wire harness, (Para 3-61). Verify repair, go to Step 9 of this Fault.

(b) If continuity is measured, go to Step 4 of this Fault.



11. NO FPM (FEET PER MINUTE) READING AT FRONT CONTROL PANEL (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

(1) Push in battery disconnect switch, (TM 9-2320-364-10).

(2) Turn front control panel POWER switch ON, (Para 2-1).

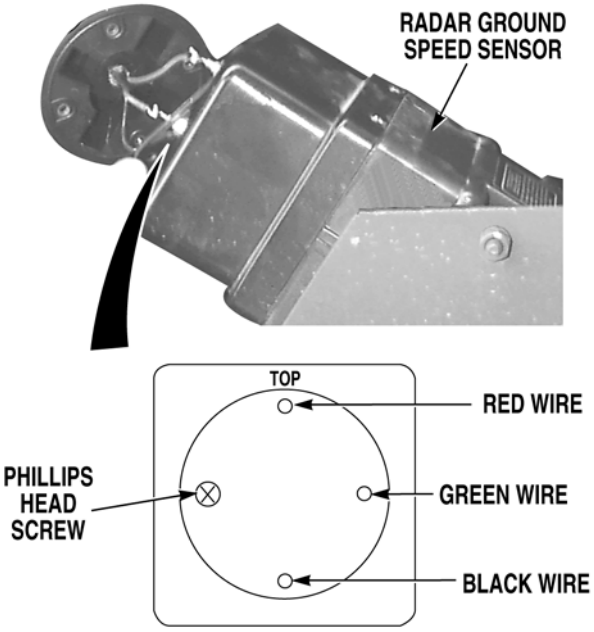
(3) Turn rear control panel POWER switch ON, (Para 2-1).

(4) Connect positive (+) multimeter lead to red wire at radar ground speed sensor.

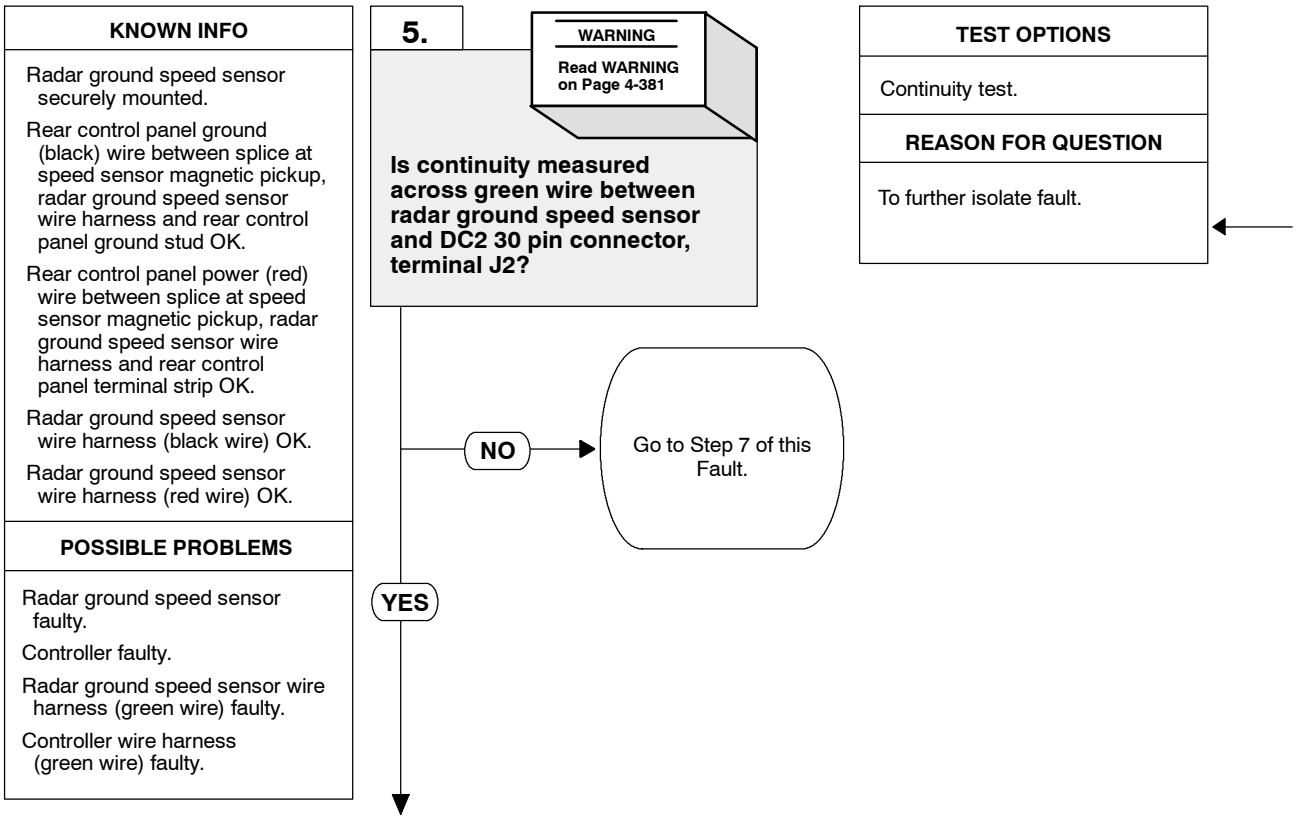
(5) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present repair red wire, (Para 3-80) or replace radar ground speed sensor wire harness, (Para 3-61). Verify repair, go to Step 9 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 5 of this Fault.



11. NO FPM (FEET PER MINUTE) READING AT FRONT CONTROL PANEL (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Turn front control panel POWER switch OFF, (Para 2-10).

(3) Turn rear control panel POWER switch OFF, (Para 2-10).

(4) Remove controller (Para 3-28). Do not disconnect connectors.

(5) Disconnect DC2 30-pin connector, (Para 3-28).

(6) Set multimeter select switch to ohms.

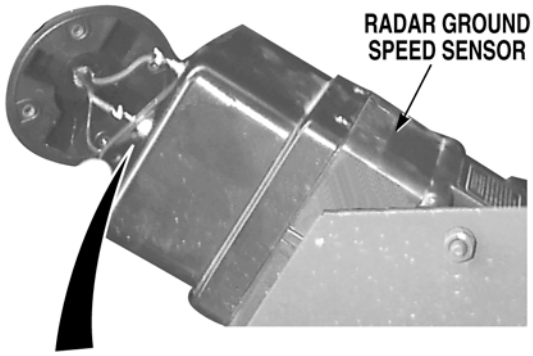
(7) Connect jumperwire between green wire at radar ground speed sensor and a known good ground.

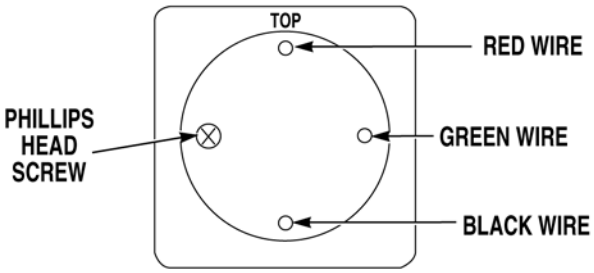
(8) Connect positive (+) multimeter lead to DC2 30 pin connector, terminal J2.

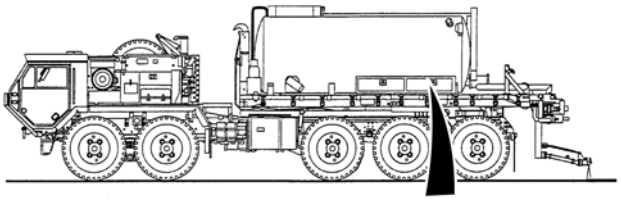
(9) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, go to Step 7 of this Fault.

(b) If continuity is measured, go to Step 6 of this Fault.



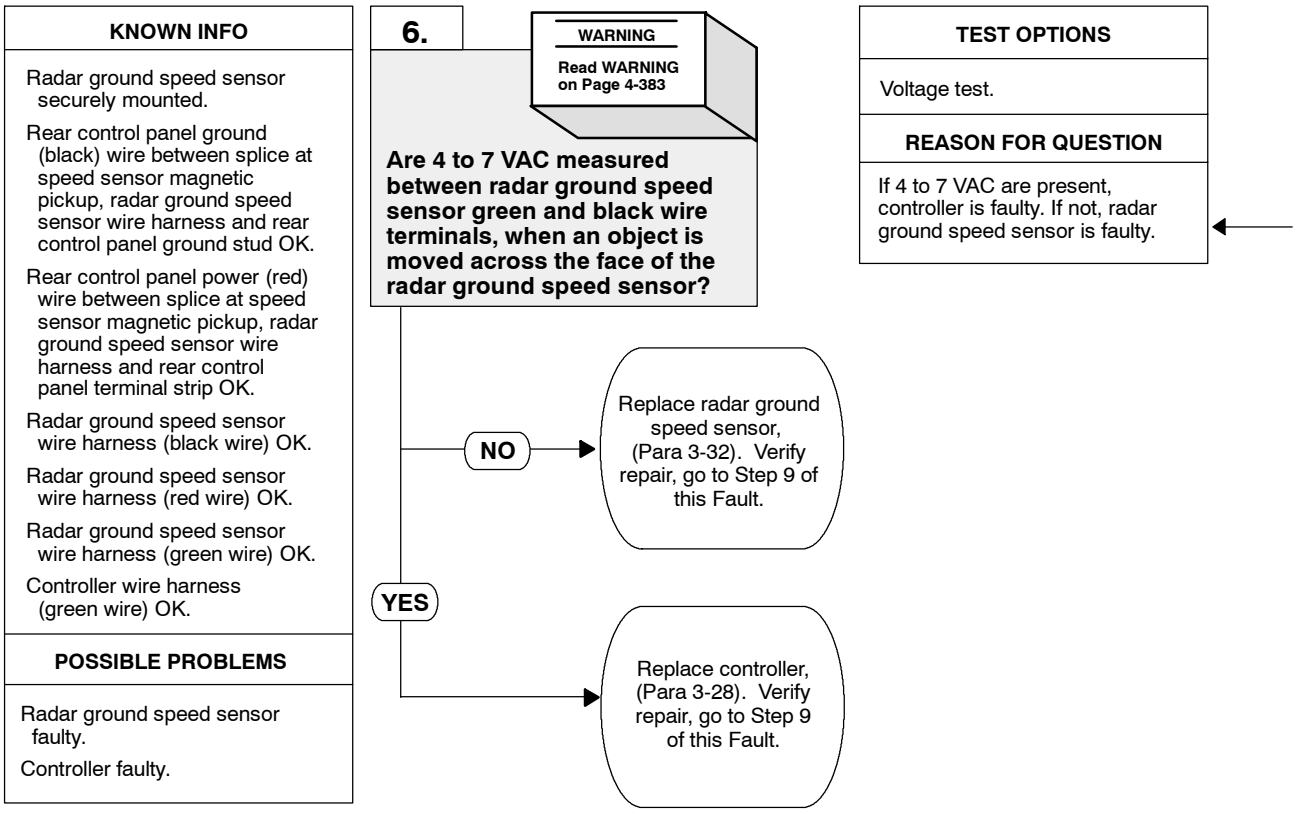








11. NO FPM (FEET PER MINUTE) READING AT FRONT CONTROL PANEL (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

(1) Disconnect DC2 30-pin connector, (Para 3-28).

(2) Install controller, (Para 3-28).

(3) Push in battery disconnect switch, (TM 9-2320-364-10).

(4) Turn front control panel POWER switch ON, (Para 2-1).

(5) Turn rear control panel POWER switch ON, (Para 2-1).

(6) Set multimeter select switch to VAC.

(7) Using an alligator clip or similar probe, Connect positive (+) multimeter lead to radar ground speed sensor green wire.

(8) Using an alligator clip or similar probe, Connect negative (-) multimeter lead to radar ground speed sensor black wire terminal.

NOTE

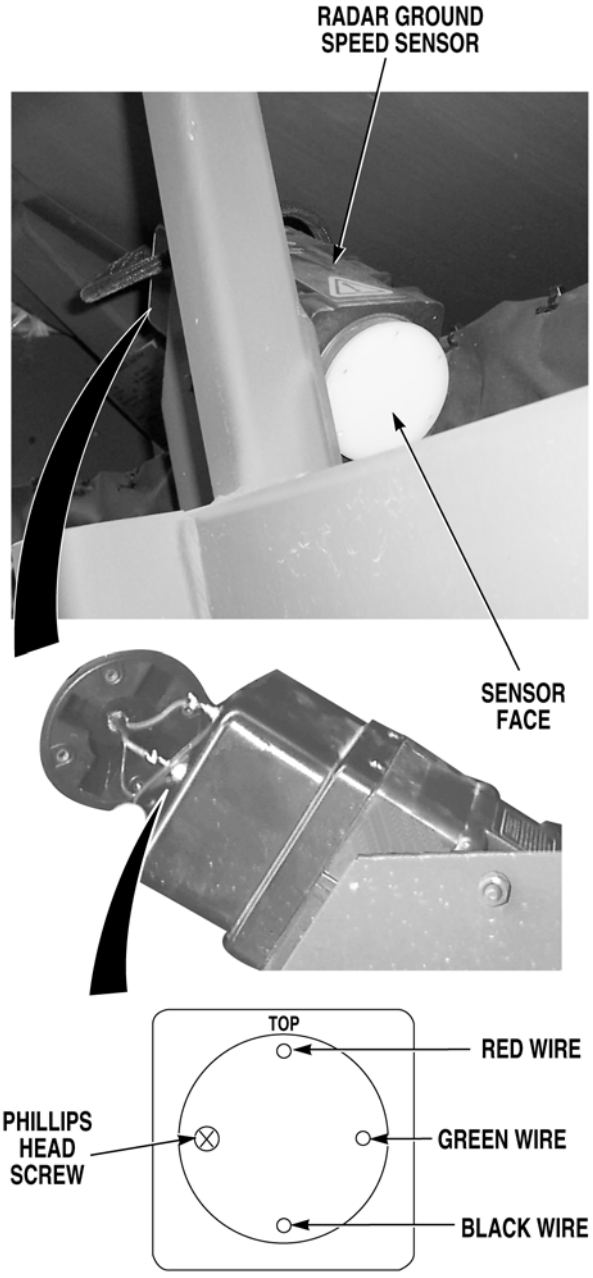
Multimeter reading will be 0 VAC when radar ground speed sensor senses no motion, and a voltage between 4 and 7 VAC when it senses motion.

(9) While waving hand or similar object quickly across face of radar ground speed sensor, (approximately 1 foot [30 cm] from sensor), check if multimeter reading increases to a value of 4 to 7 VAC.

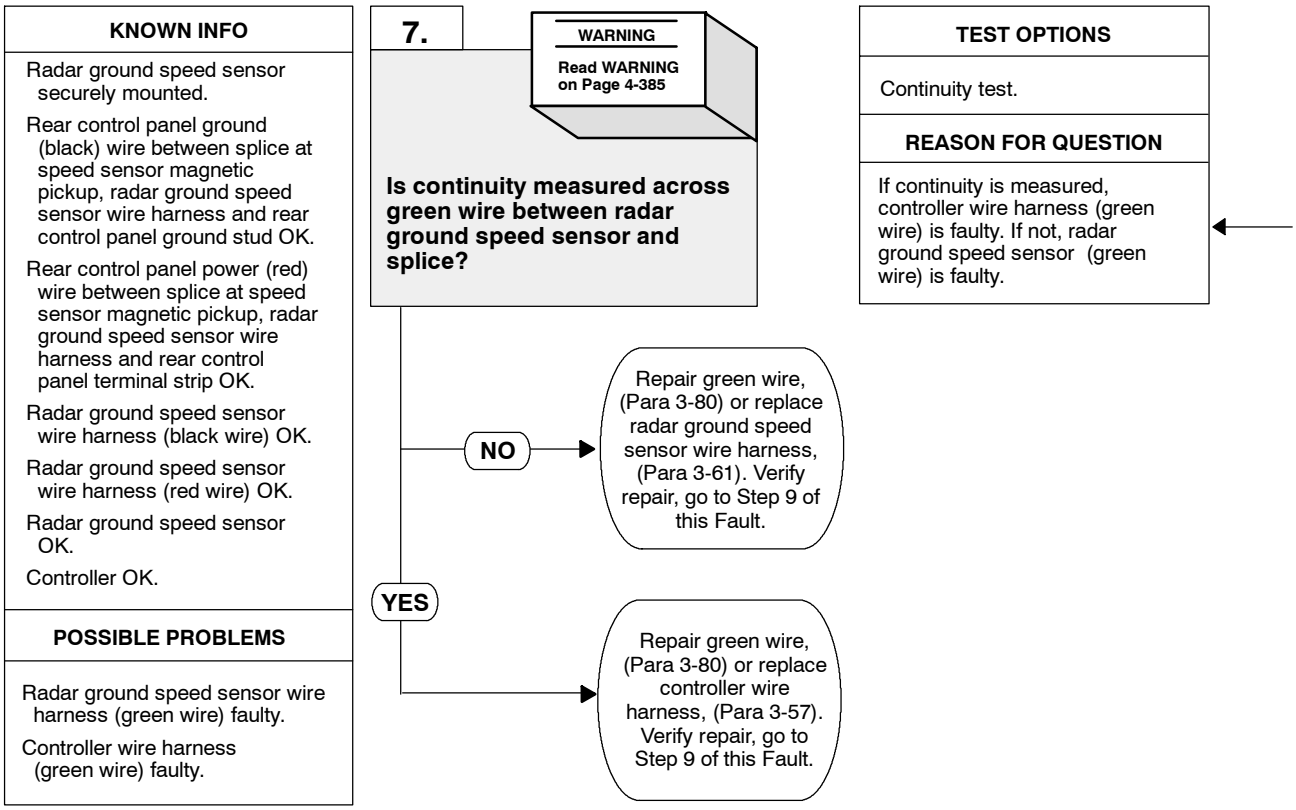
(a) If 4 to 7 VAC are not present, replace radar ground speed sensor, (Para 3-32).

(b) If 4 to 7 VAC are present, replace controller, (Para 3-28).

(10) Verify repair, go to Step 9 of this Fault.

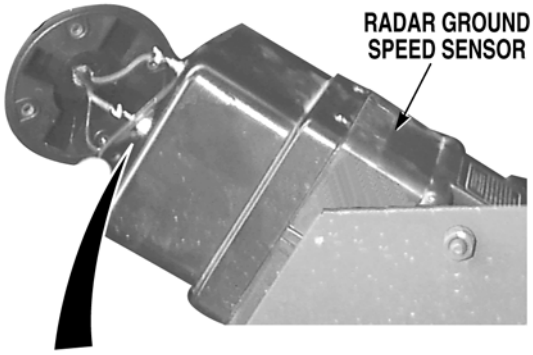


11. NO FPM (FEET PER MINUTE) READING AT FRONT CONTROL PANEL (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.



CONTINUITY TEST

(1) Set multimeter select switch to ohms.

(2) Cut green wire at splice between radar ground speed sensor and controller.

(3) Connect jumperwire between green wire at radar ground speed sensor and a known good ground.

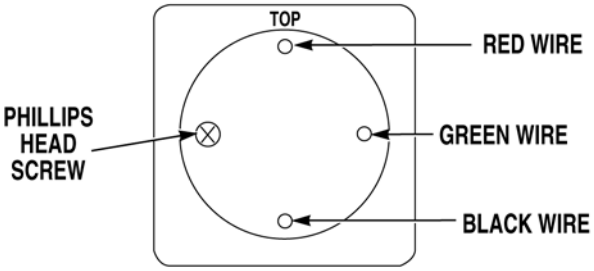
(4) Connect positive (+) multimeter lead to green wire at splice.

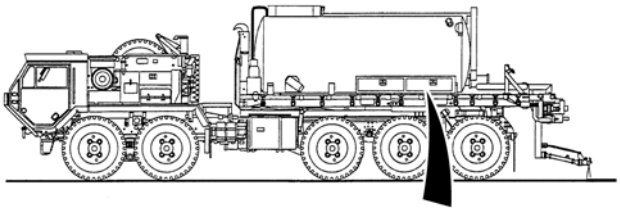
(5) Connect negative (-) multimeter lead to a known good ground.

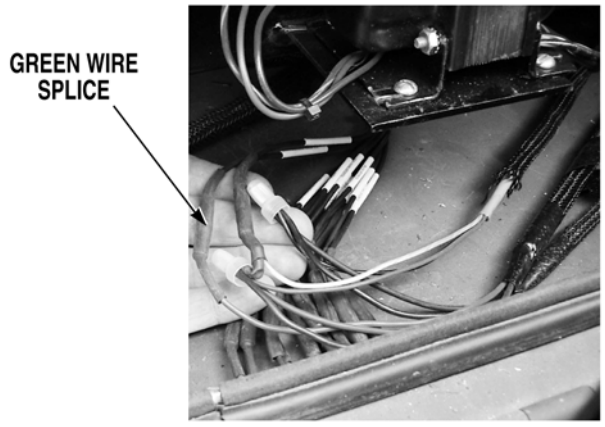
(a) If continuity is not measured, repair green wire, (Para 3-80) or replace controller wire harness, (Para 3-57).

(b) If continuity is measured, repair green wire, (Para 3-80) or replace radar ground speed sensor wire harness, (Para 3-61).

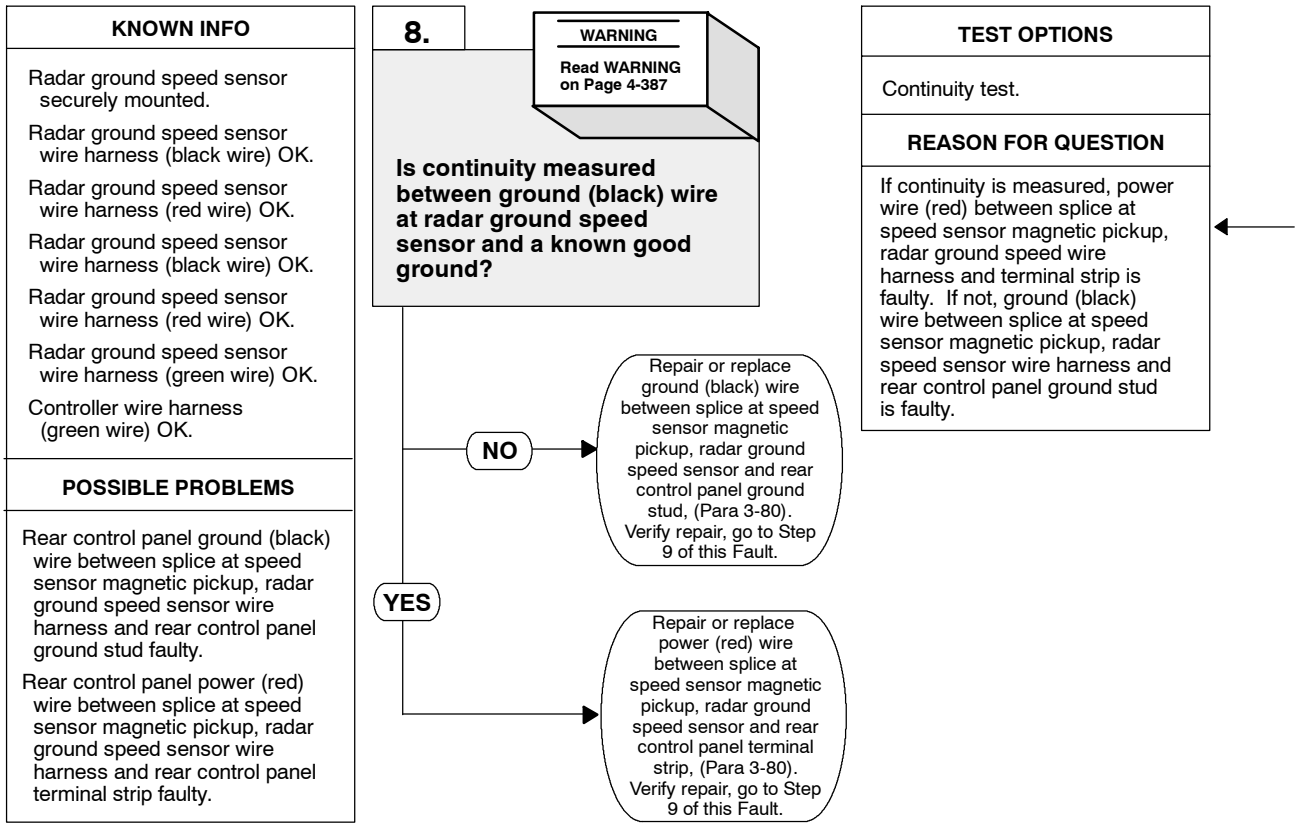
(6) Verify repair, go to Step 9 of this Fault.







11. NO FPM (FEET PER MINUTE) READING AT FRONT CONTROL PANEL (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Set multimeter select switch to ohms.

(4) Remove radar ground speed sensor cover, (Para 3-61).

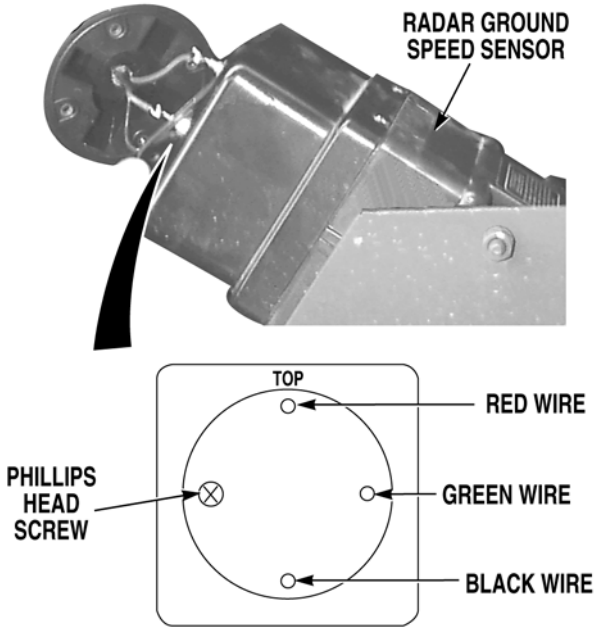
(5) Connect positive (+) multimeter lead to ground (black) wire at radar ground speed sensor.

(6) Connect negative (-) multimeter lead to a known good ground.

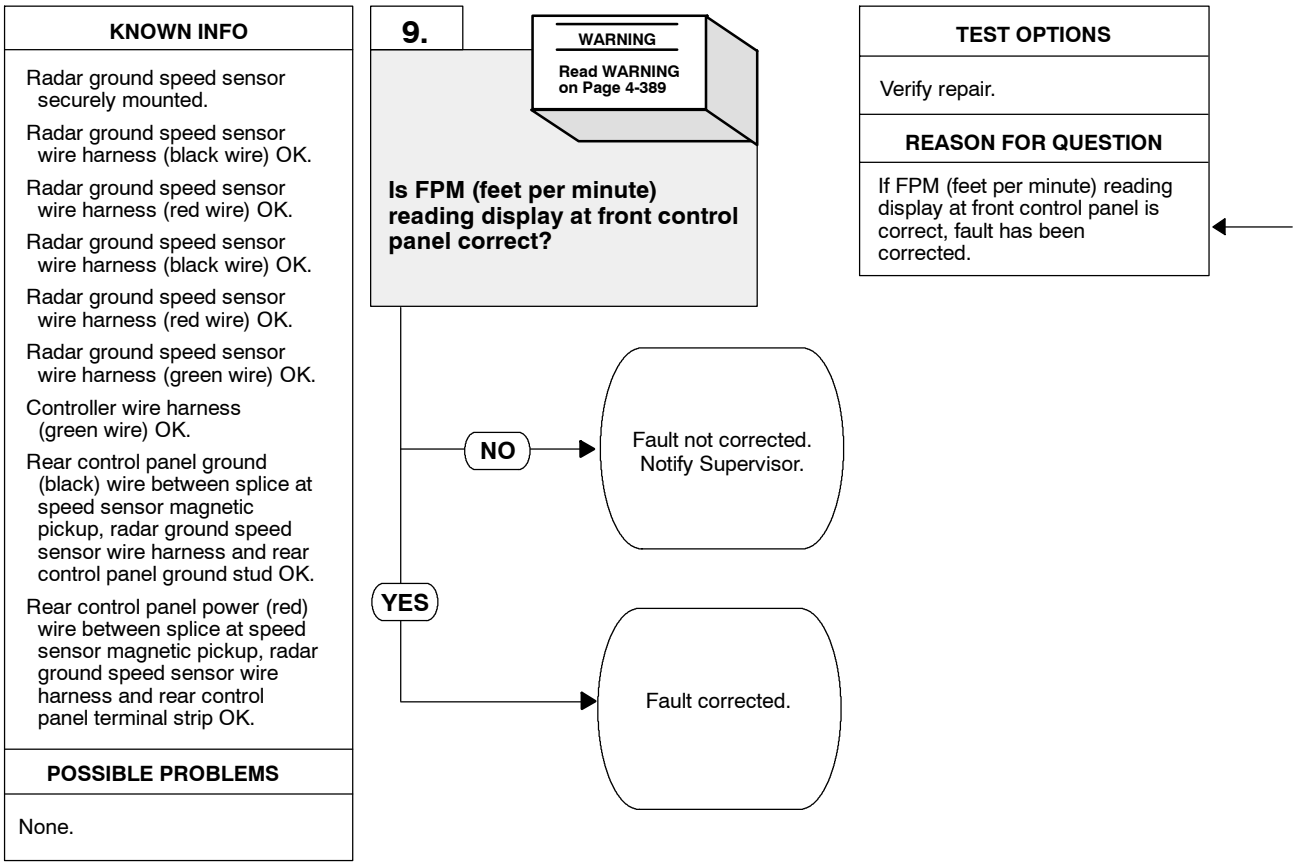
(a) If continuity is not measured, repair or replace ground (black) wire, between splice at speed sensor magnetic pickup, radar ground speed sensor and rear control panel ground stud, (Para 3-80).

(b) If continuity is measured, repair or replace rear control panel power (red) wire, between splice at speed sensor magnetic pickup, radar ground speed sensor and rear control panel terminal strip, (Para 3-80).

(7) Verify repair, go to Step 9 of this Fault.



11. NO FPM (FEET PER MINUTE) READING AT FRONT CONTROL PANEL (CONT).



WARNING

12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits Failure to comply may cause injury to personnel.

VERIFY REPAIR

(1) If in, pull out battery disconnect switch, (TM 9-2320-364-10).

(2) If removed, install radar ground speed sensor cover, (Para 3-61).

(3) If removed, install rear control panel, (Para 3-76).

(4) If removed, install controller, (Para 3-57).

(5) Push in battery disconnect switch, (TM 9-2320-364-10).

(6) Start engine, (TM 9-2320-364-10).

(7) Turn hydraulic selector switch to CRANE/SRW, (TM 9-2320-364-10).

(8) Turn front control panel POWER switch ON, (Para 2-1).

(9) Turn rear control panel POWER switch ON, (Para 2-1).

(10) Turn rear control panel FRONT/REAR switch to FRONT, (Para 2-1).

(11) Operate vehicle, (TM 9-2320-364-10). Check if FPM (feet per minute) is displayed on front control panel display while vehicle is moving.

(a) If FPM (feet per minute) is not displayed on front control panel display, fault not corrected. Notify Supervisor.

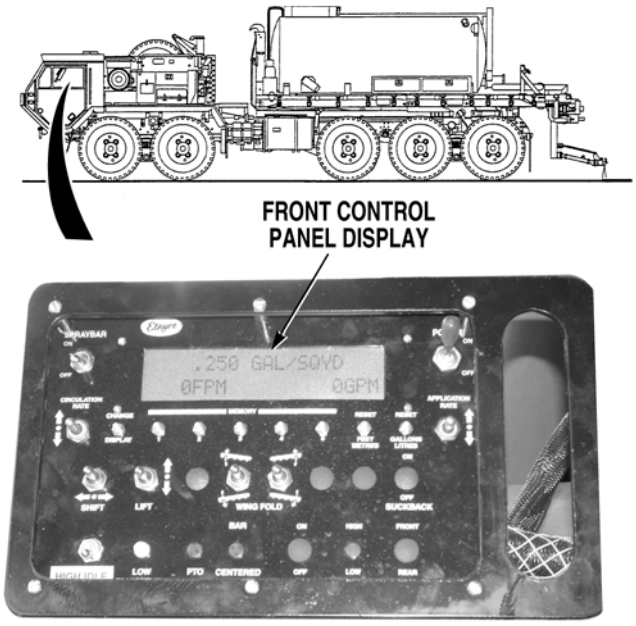
(b) If FPM (feet per minute) is displayed on front control panel display, fault has been corrected.

(12) Turn rear control panel POWER switch OFF, (Para 2-1).

(13) Turn front control panel POWER switch OFF, (Para 2-1).

(14) Turn hydraulic select switch to OFF, (TM 9-2320-364-10).

(15) Shut OFF engine, (TM 9-2320-364-10).

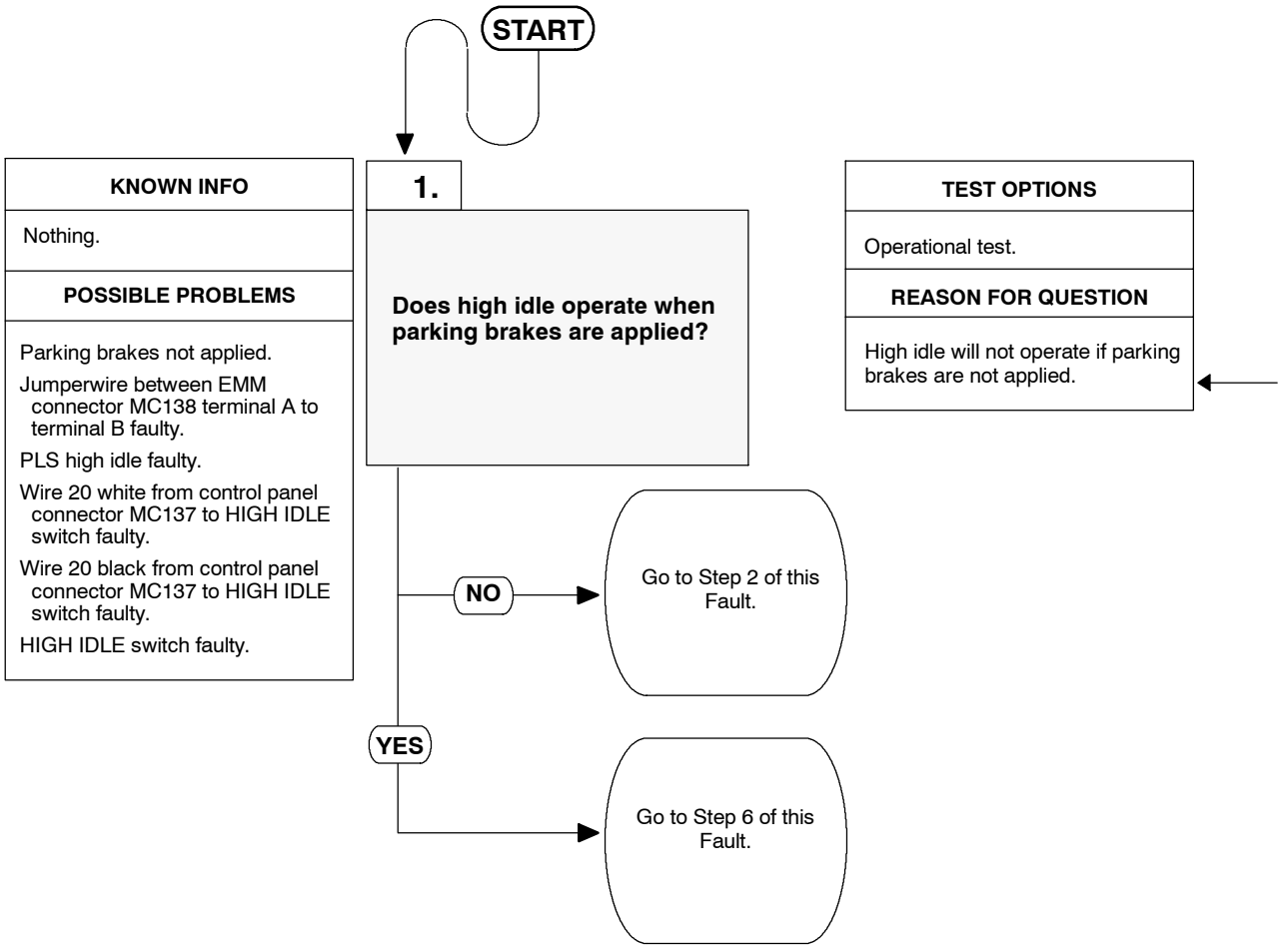


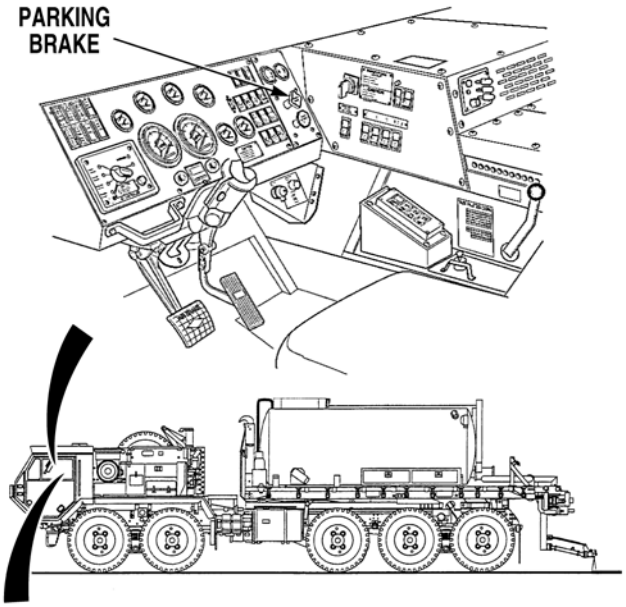
12. NO HIGH IDLE WHEN SELECTED.

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Multimeter (Item 8, Appendix F)

Equipment Condition
Bituminous Distributor loaded on PLS, (Para 2-5)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)





OPERATIONAL TEST

(1) Start engine, (TM 9-2320-364-10).

(2) Set parking brake, (TM 9-2320-364-10).

(3) Turn front control panel HIGH IDLE switch ON, (TM 9-2320-364-10).

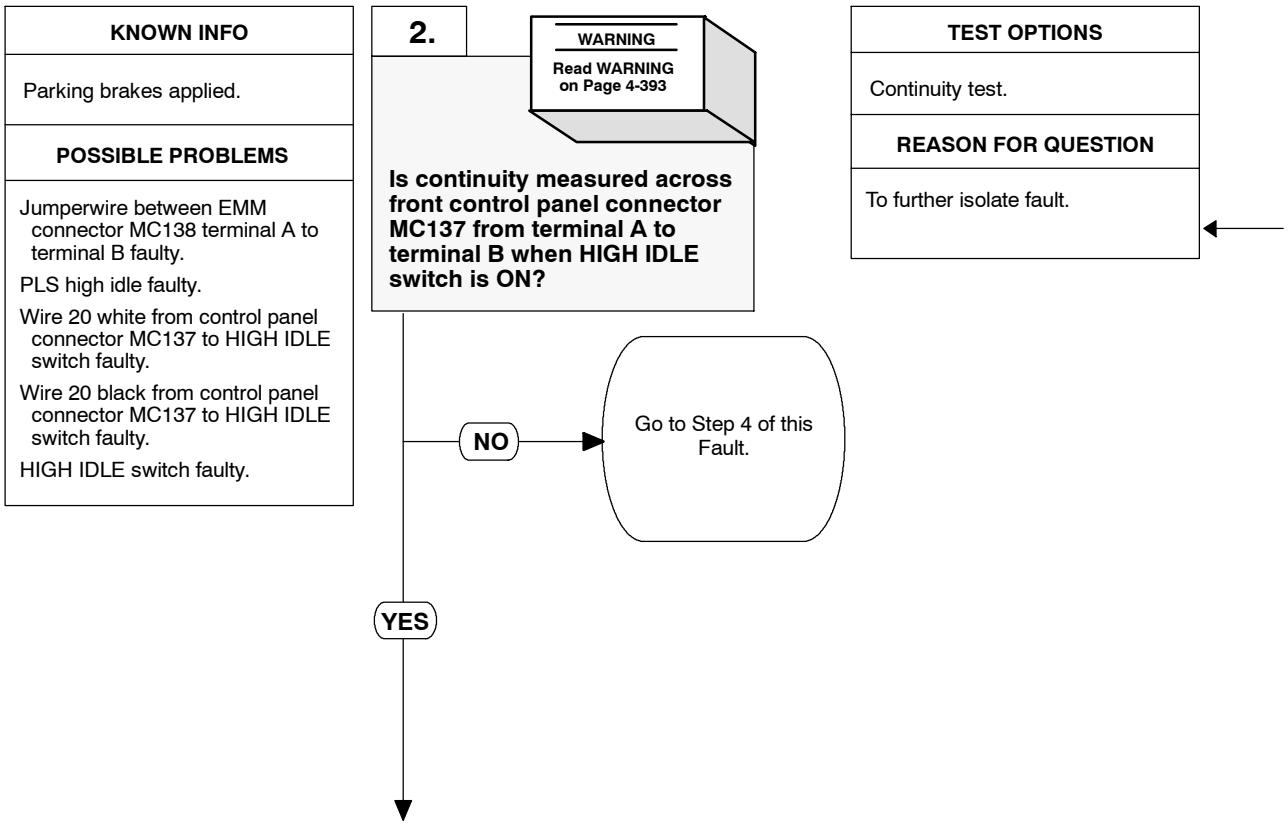
(4) Check if engine speed increased to high idle.

(a) If engine speed does not increase to high idle, go to Step 2 of this Fault.

(b) If engine speed increases to high idle, go to Step 6 of this Fault.



12. NO HIGH IDLE WHEN SELECTED (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Disconnect front control panel connector MC137, (Para 2-10).

(4) Turn HIGH IDLE switch ON, (Para 2-1).

(5) Set multimeter select switch to ohms.

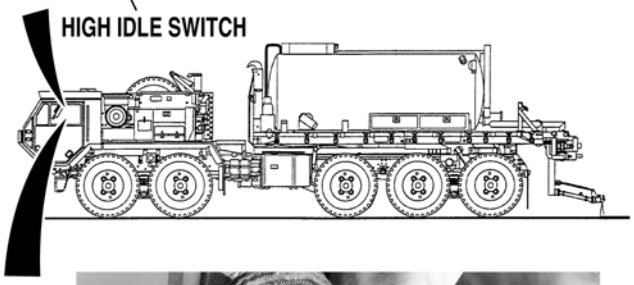
(6) Connect positive (+) multimeter lead to front control panel connector MC137 terminal A.

(7) Connect negative (-) multimeter lead to front control panel connector MC137 terminal B.

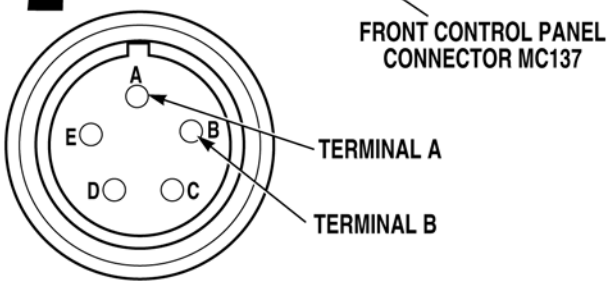
(a) If continuity is not measured, go to Step 4 of this Fault.

(b) If continuity is measured, go to Step 3 of this Fault.

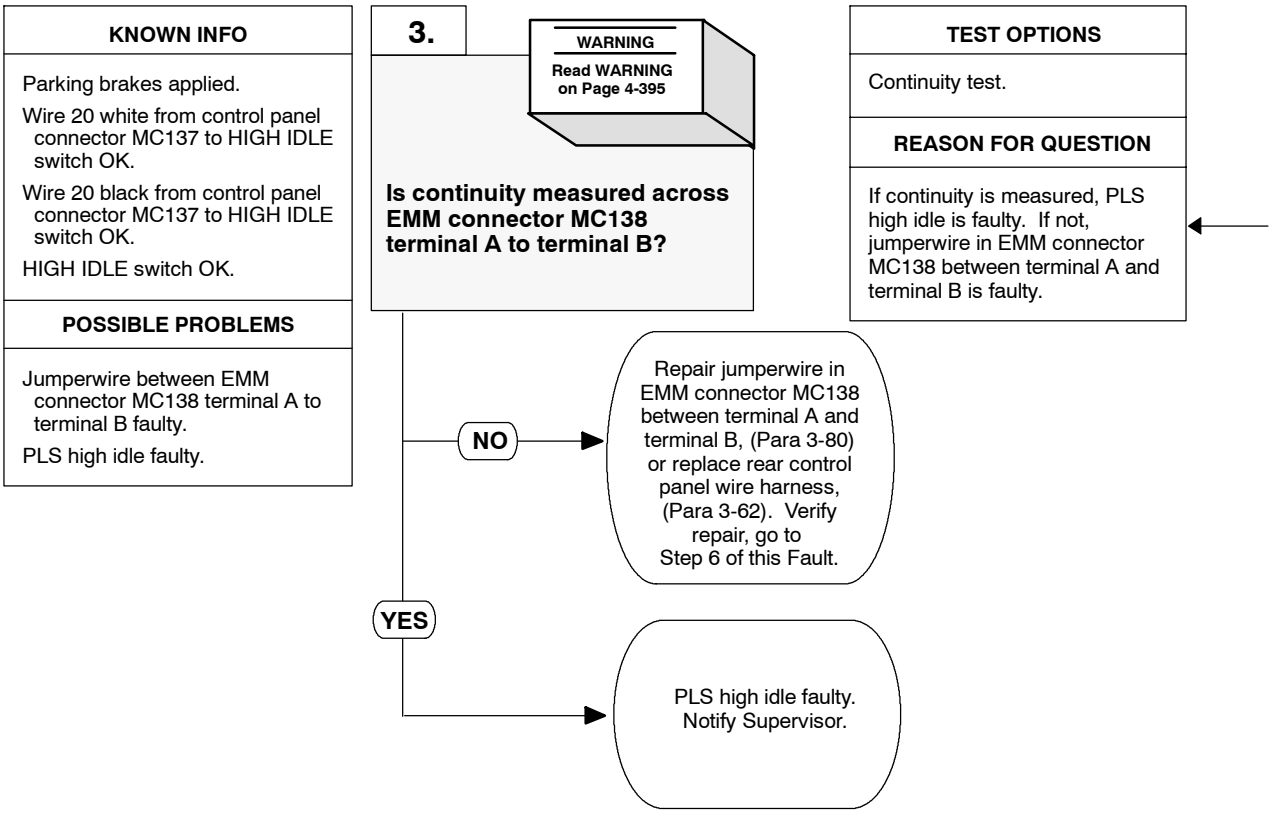






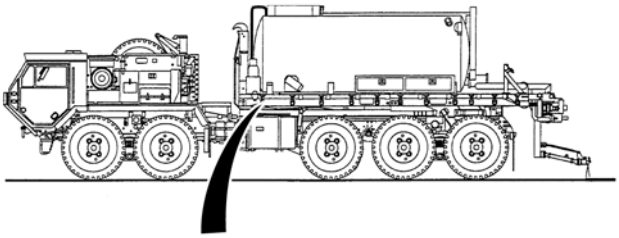


12. NO HIGH IDLE WHEN SELECTED (CONT).

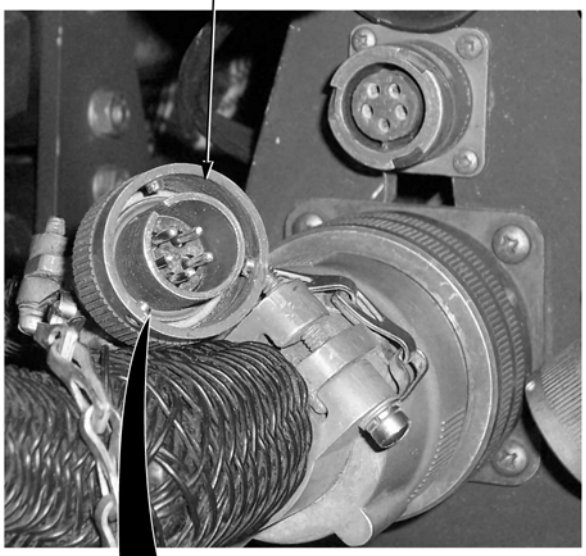


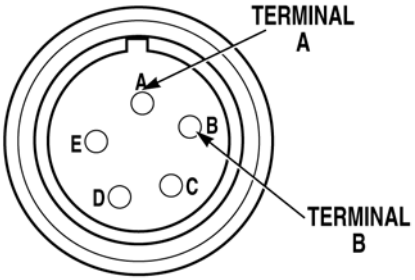
WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.



EMM CONNECTOR MC138





CONTINUITY TEST

(1) Disconnect EMM connector MC138 (UPIK), (Para 2-10).

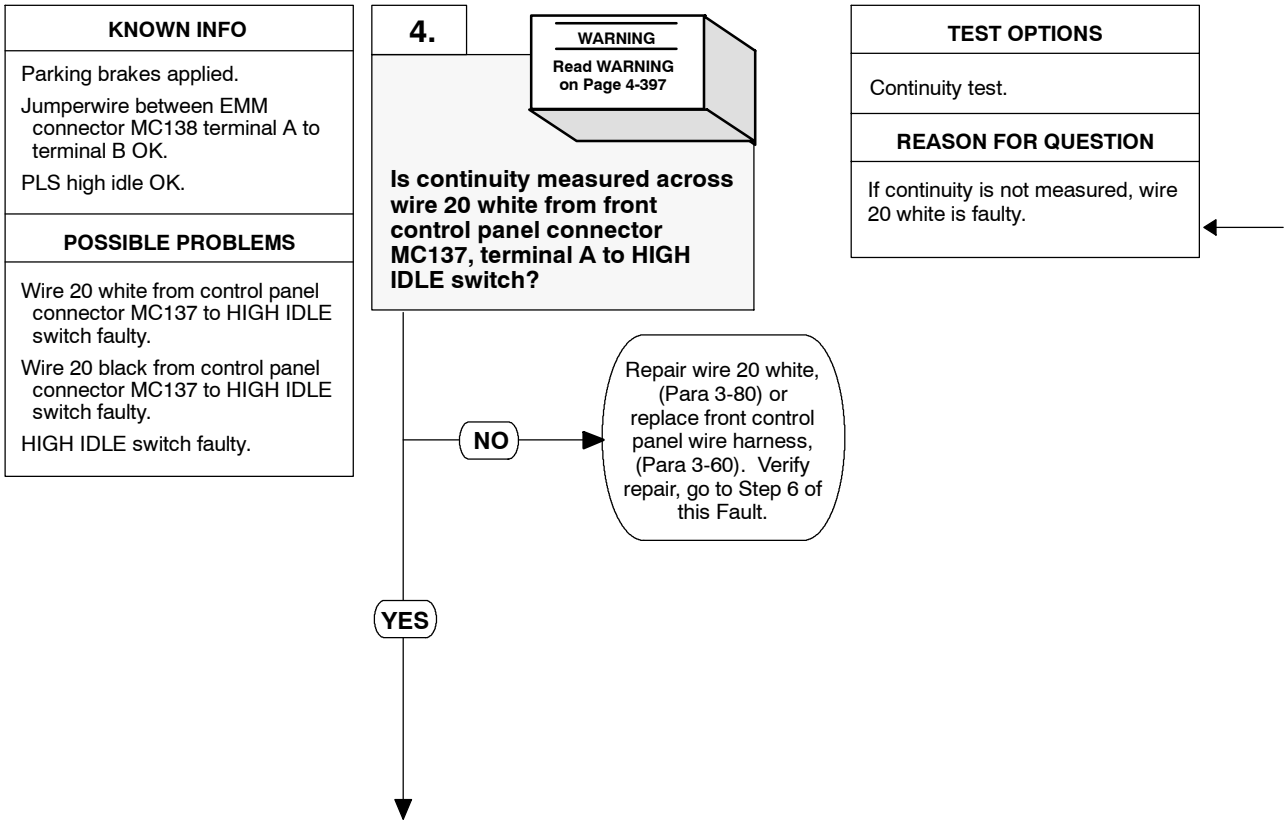
(2) Connect positive (+) multimeter lead to connector MC138, terminal A.

(3) Connect negative (-) multimeter lead to connector MC138 terminal B.

(a) If continuity is not measured, repair jumper wire in EMM connector MC138 between terminal A and terminal B, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 6 of this Fault.

(b) If continuity is measured, PLS high idle faulty. Notify Supervisor.

12. NO HIGH IDLE WHEN SELECTED (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Remove front control panel, (Para 3-76).

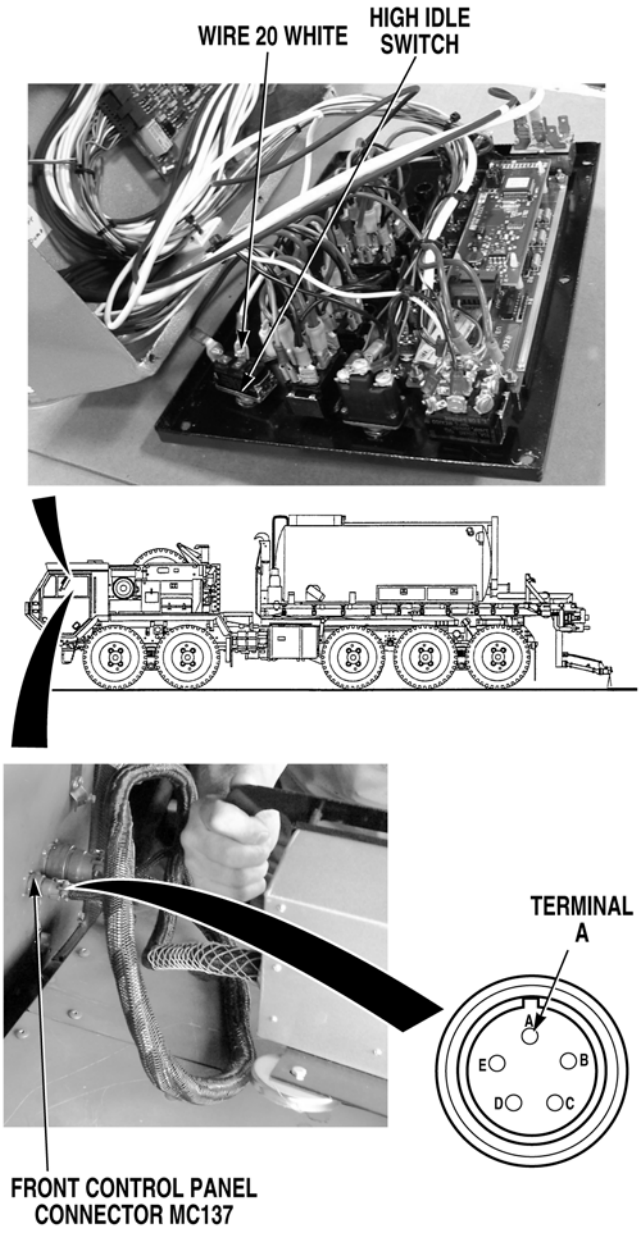
(2) Set multimeter select switch to ohms.

(3) Connect positive (+) multimeter lead to wire 20 white at front control panel connector MC137, terminal A.

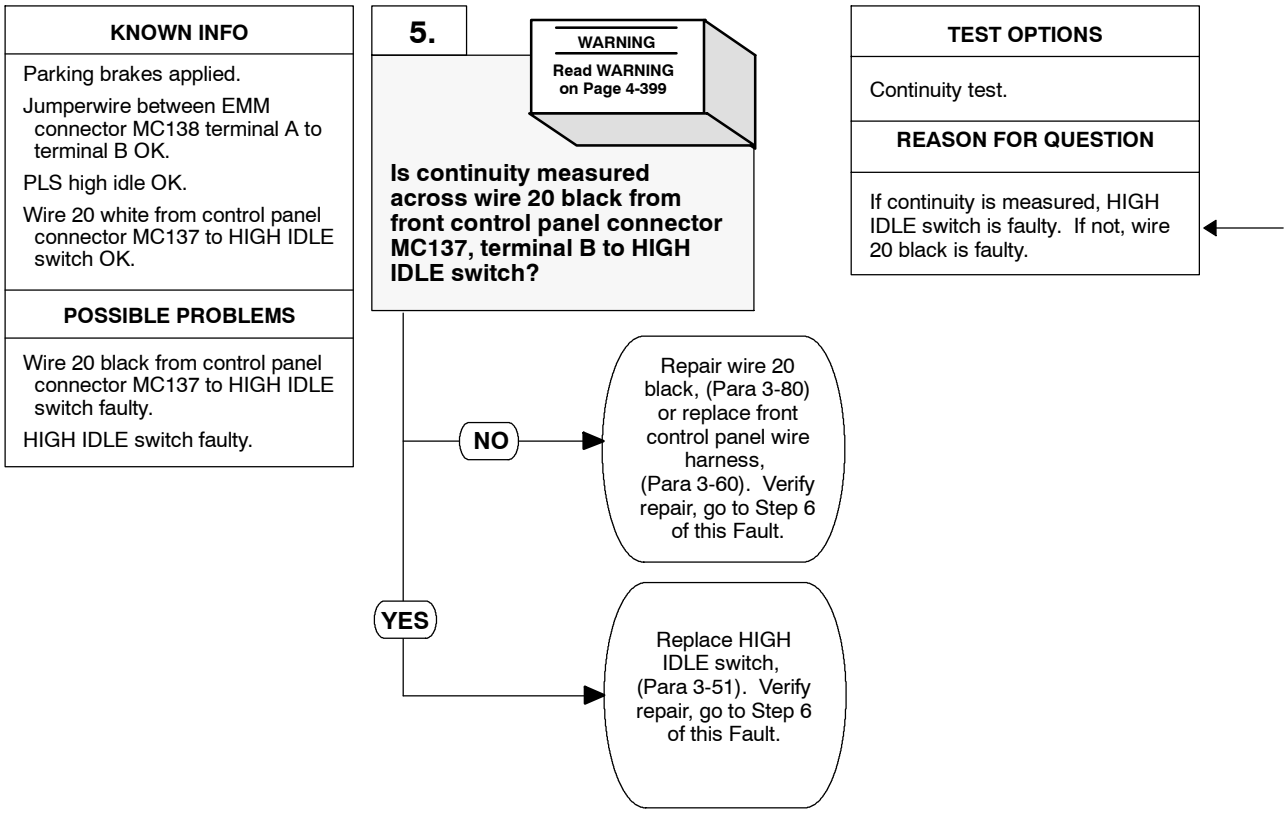
(4) Connect negative (-) multimeter lead to wire 20 white at front control panel HIGH IDLE switch.

(a) If continuity is not measured, repair wire 20, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 6 of this Fault.

(b) If continuity is measured, go to Step 5 of this Fault.



12. NO HIGH IDLE WHEN SELECTED (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

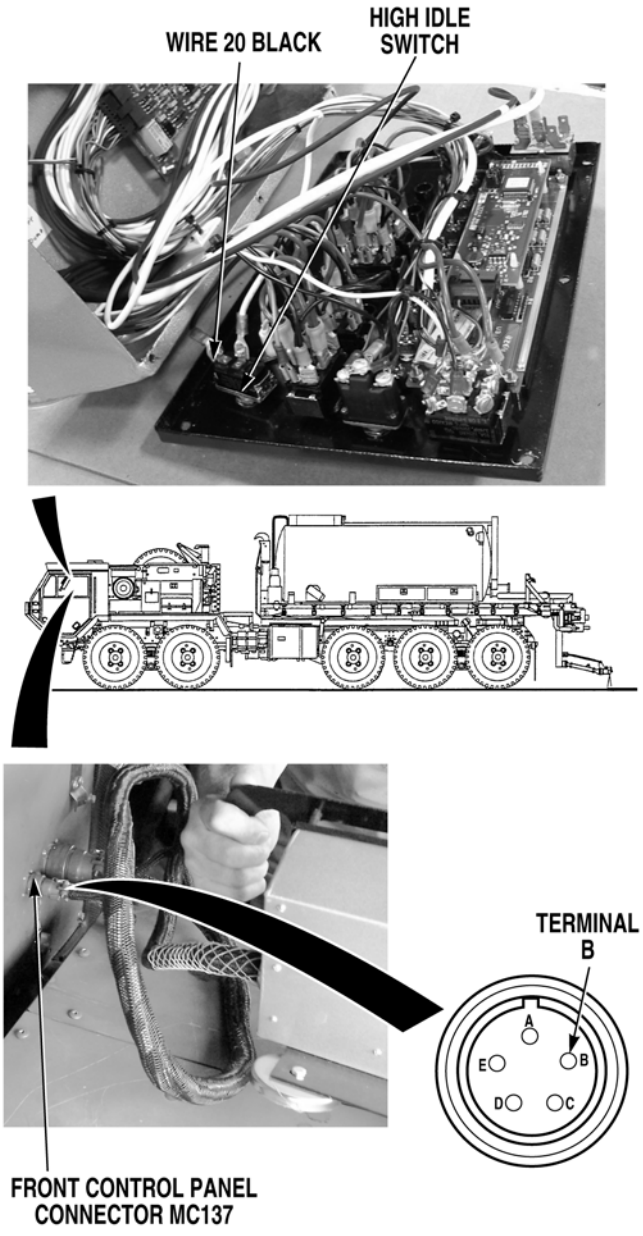
(2) Connect positive (+) multimeter lead to wire 20 black at front control panel connector MC137, terminal B.

(3) Connect negative (-) multimeter lead to wire 20 black at front control panel HIGH IDLE switch.

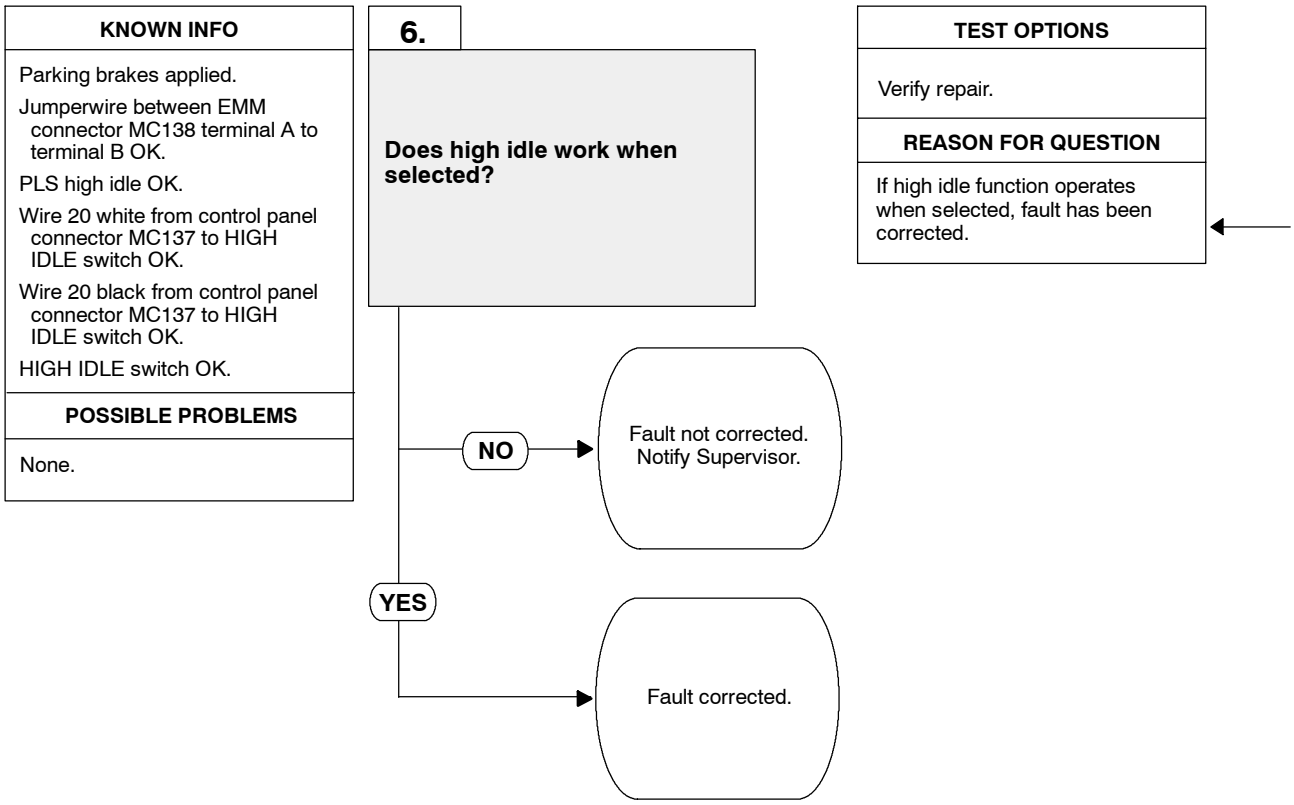
  (a) If continuity is not measured, repair wire 20 black (Para 3-80) or replace front control panel wire harness, (Para 3-60).

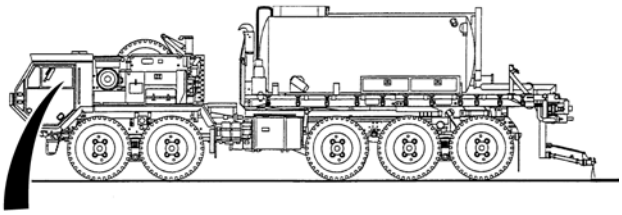
  (b) If continuity is measured, replace HIGH IDLE switch, (Para 3-51).

(4) Verify repair, go to Step 6 of this Fault.



12. NO HIGH IDLE WHEN SELECTED (CONT).







VERIFY REPAIR

(1) If removed, install front control panel, (Para 3-76).

(2) If disconnected, connect front control panel connector MC137, (Para 2-10).

(3) If disconnected, connect EMM connector MC138 (UPIK), (Para 2-10).

(4) If out, push in battery disconnect switch, (TM 9-2320-364-10).

(5) Start engine, (TM 9-2320-364-10).

(6) Apply parking brakes, (TM 9-2320-364-10).

(7) Turn HIGH IDLE switch ON, (Para 2-1).

(8) Check if engine speed increases to high idle.

  (a) If engine speed did not increase to high idle, fault not corrected. Notify Supervisor.

  (b) If engine speed increases to high idle, fault has been corrected.

(9) Turn HIGH IDLE switch OFF, (Para 2-1).

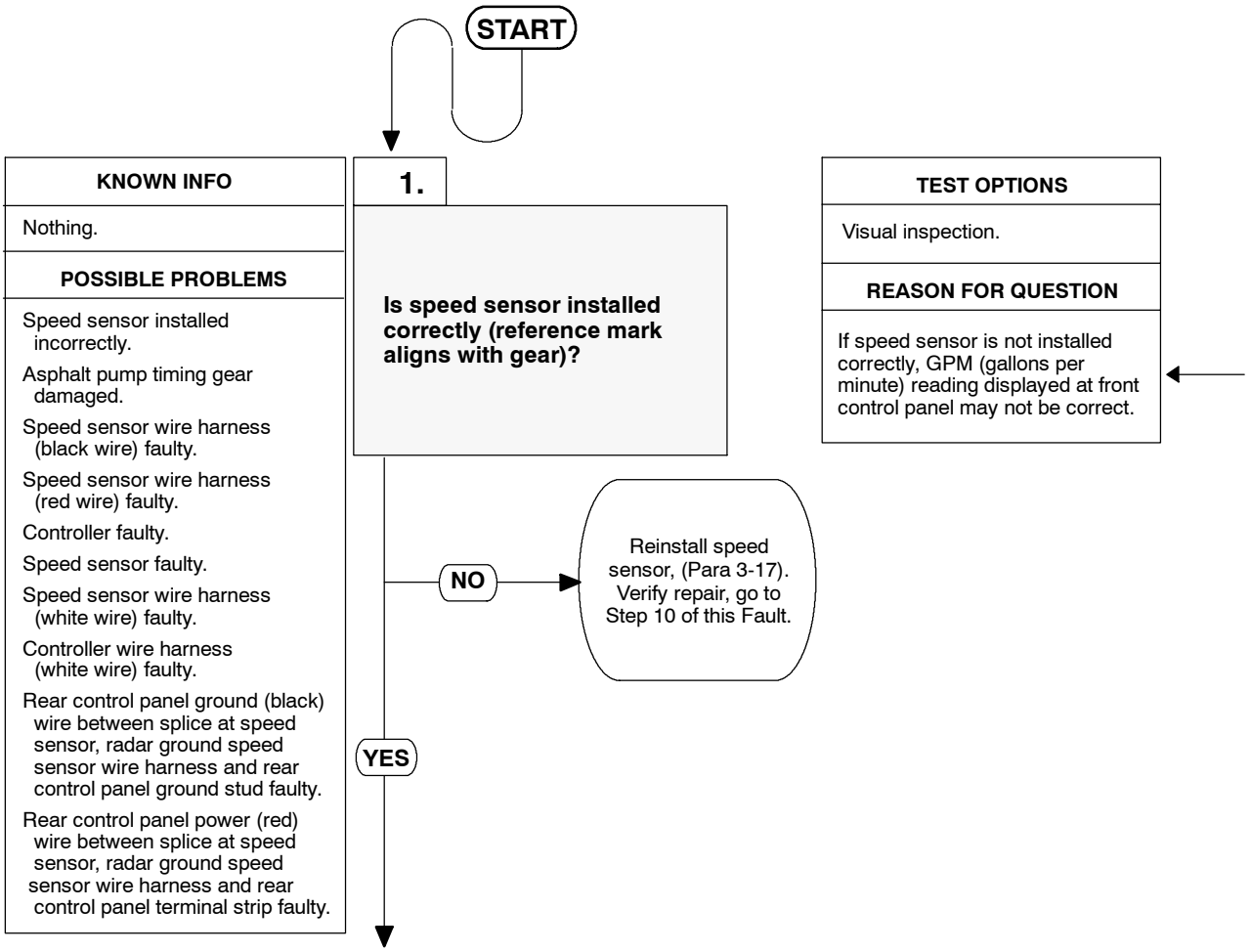
(10) Shut OFF engine, (TM 9-2320-364-10).

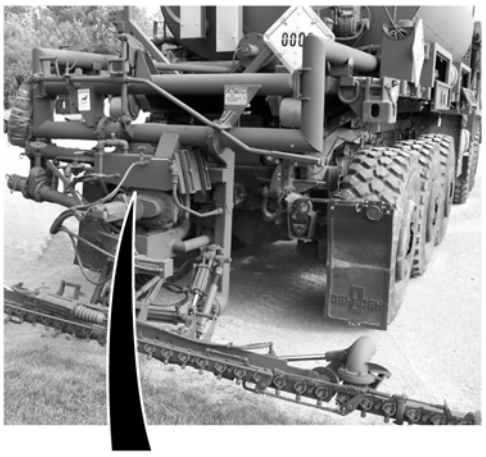
13. NO GPM (GALLONS PER MINUTE) READING AT FRONT CONTROL PANEL.

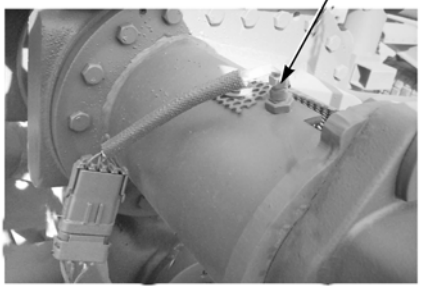
INITIAL SETUP

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
- Multimeter (Item 8, Appendix F)
- Jumperwire

Equipment Condition
- Bituminous Distributor loaded on PLS, (Para 2-5)
- Engine OFF, (TM 9-2320-364-10)
- Wheels chocked, (TM 9-2320-364-10)





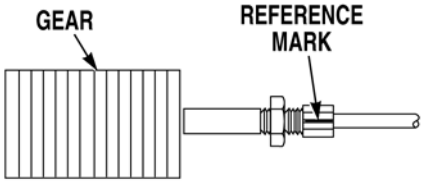


VISUAL INSPECTION

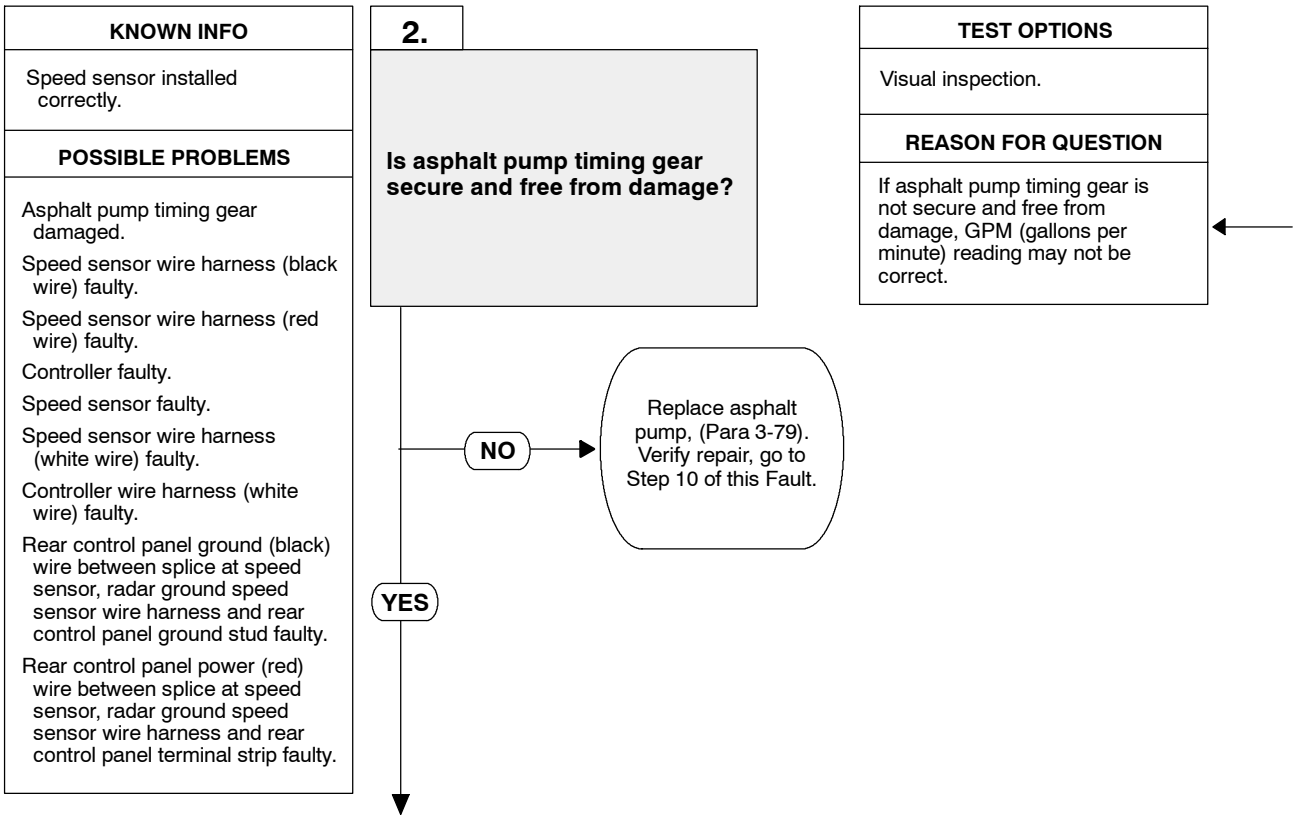
Remove asphalt pump timing gear cover, (Para 3-79). Check if speed sensor is installed correctly and reference mark lines up with gear.

(a) If speed sensor is not installed correctly, reinstall speed sensor correctly, (Para 3-17). Verify repair, go to Step 10 of this Fault.

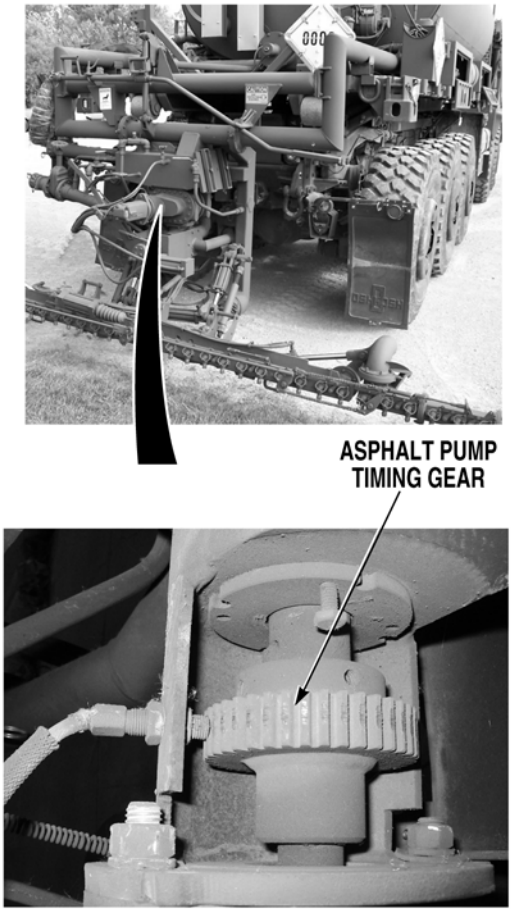
(b) If speed sensor is installed correctly, go to Step 2 of this Fault.



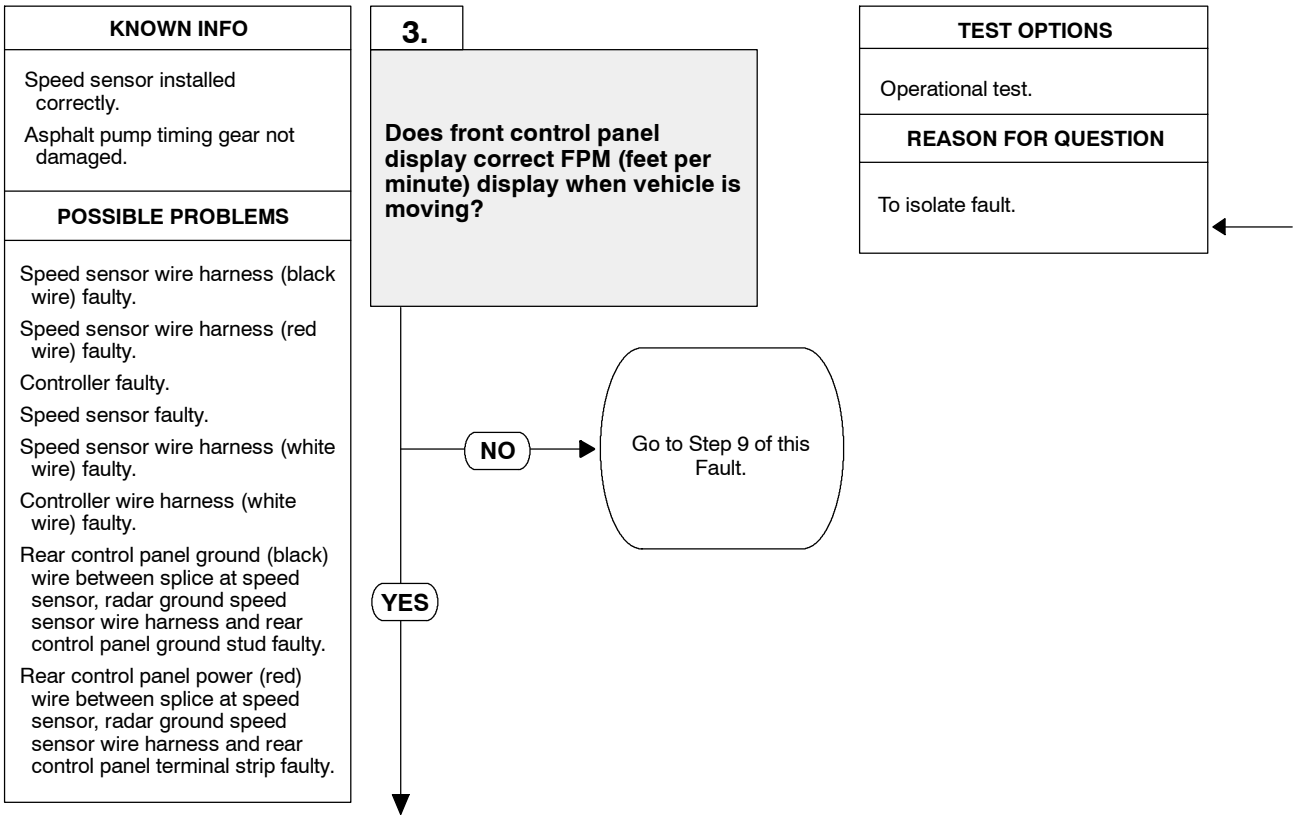
13. NO GPM (GALLONS PER MINUTE) READING AT FRONT CONTROL PANEL (CONT).



VISUAL INSPECTION
Check if asphalt pump timing gear is secure and free from damage. (a) If asphalt pump timing gear is not secure and free from damage, replace asphalt pump timing gear, (Para 3-79). Verify repair, go to Step 10 of this Fault. (b) If asphalt pump timing gear is secure and free from damage, go to Step 3 of this Fault.



13. NO GPM (GALLONS PER MINUTE) READING AT FRONT CONTROL PANEL (CONT).



OPERATIONAL TEST

(1) Start engine, (TM 9-2320-364-10).

(2) Turn front control panel POWER switch ON, (Para 2-1).

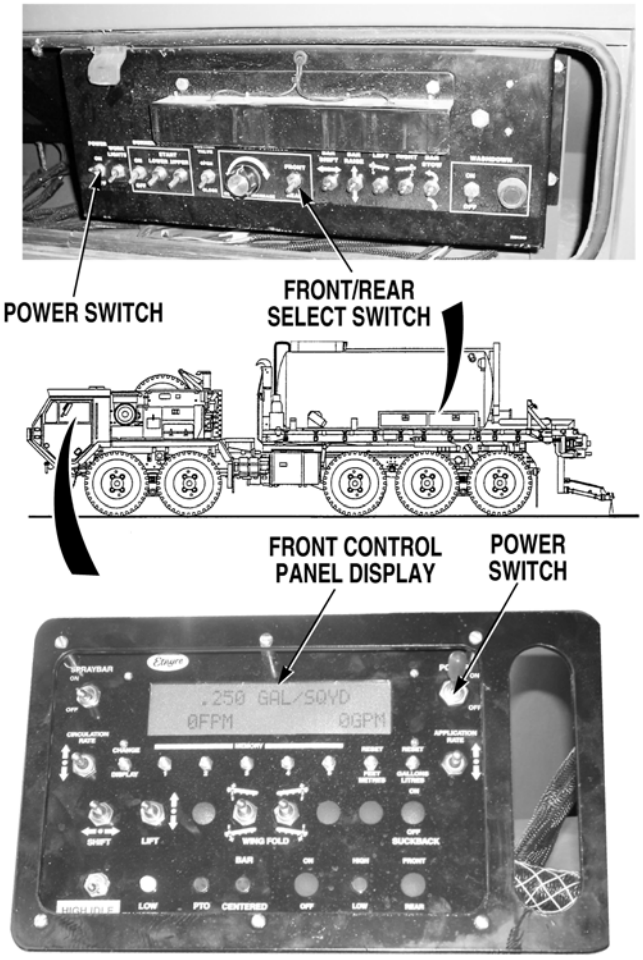
(3) Turn rear control panel POWER switch ON, (Para 2-1).

(4) Turn rear control panel FRONT/REAR switch to FRONT, (Para 2-1).

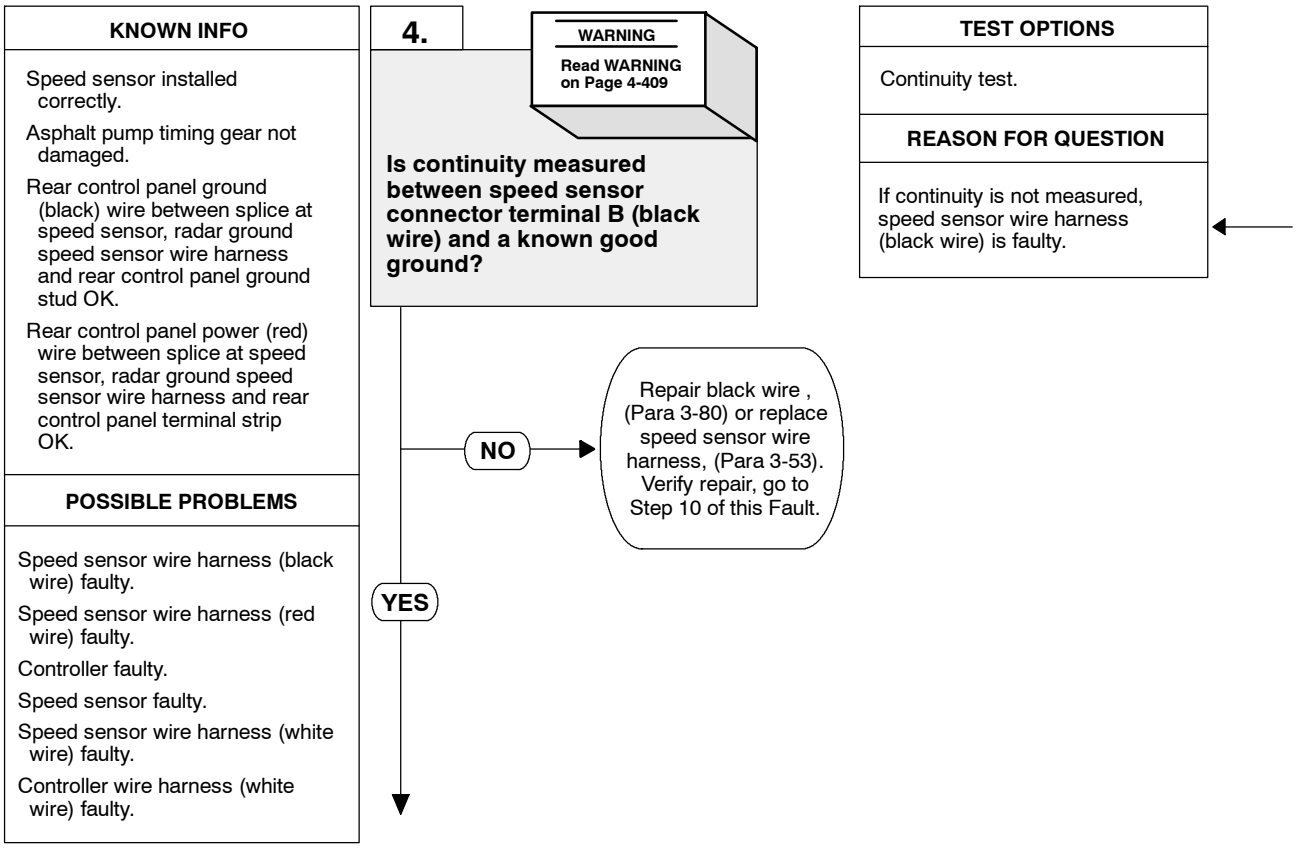
(5) Operate vehicle, (TM 9-2320-364-10). Check if FPM (feet per minute) is displayed on front control panel display while vehicle is moving.

  (a) If FPM (feet per minute) is not displayed on front control panel display, go to Step 9 of this Fault.

  (b) If FPM (feet per minute) is displayed on front control panel display, go to Step 4 of this Fault.



13. NO GPM (GALLONS PER MINUTE) READING AT FRONT CONTROL PANEL (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Park vehicle. (TM 9-2320-364-10).

(2) Shut OFF engine, (TM 9-2320-364-10).

(3) Pull out battery disconnect switch, (TM 9-2320-364-10).

(4) Set multimeter select switch to ohms.

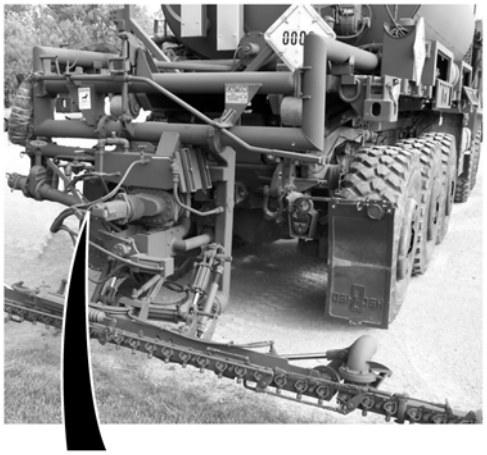
(5) Disconnect speed sensor connector, (Para 3-53).

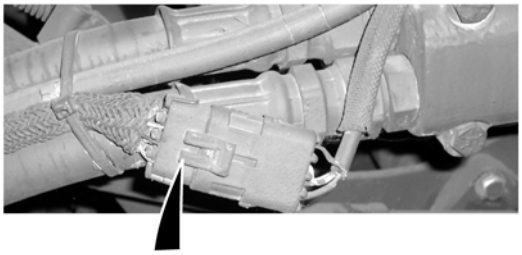
(6) Connect positive (+) multimeter lead to black wire at speed sensor connector, terminal B.

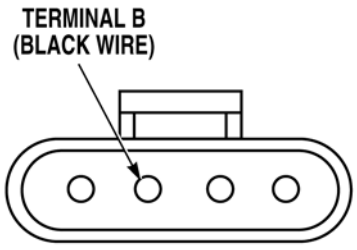
(7) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, repair black wire, (Para 3-80) or replace speed sensor wire harness, (Para 3-53). Verify repair, go to Step 10 of this Fault.

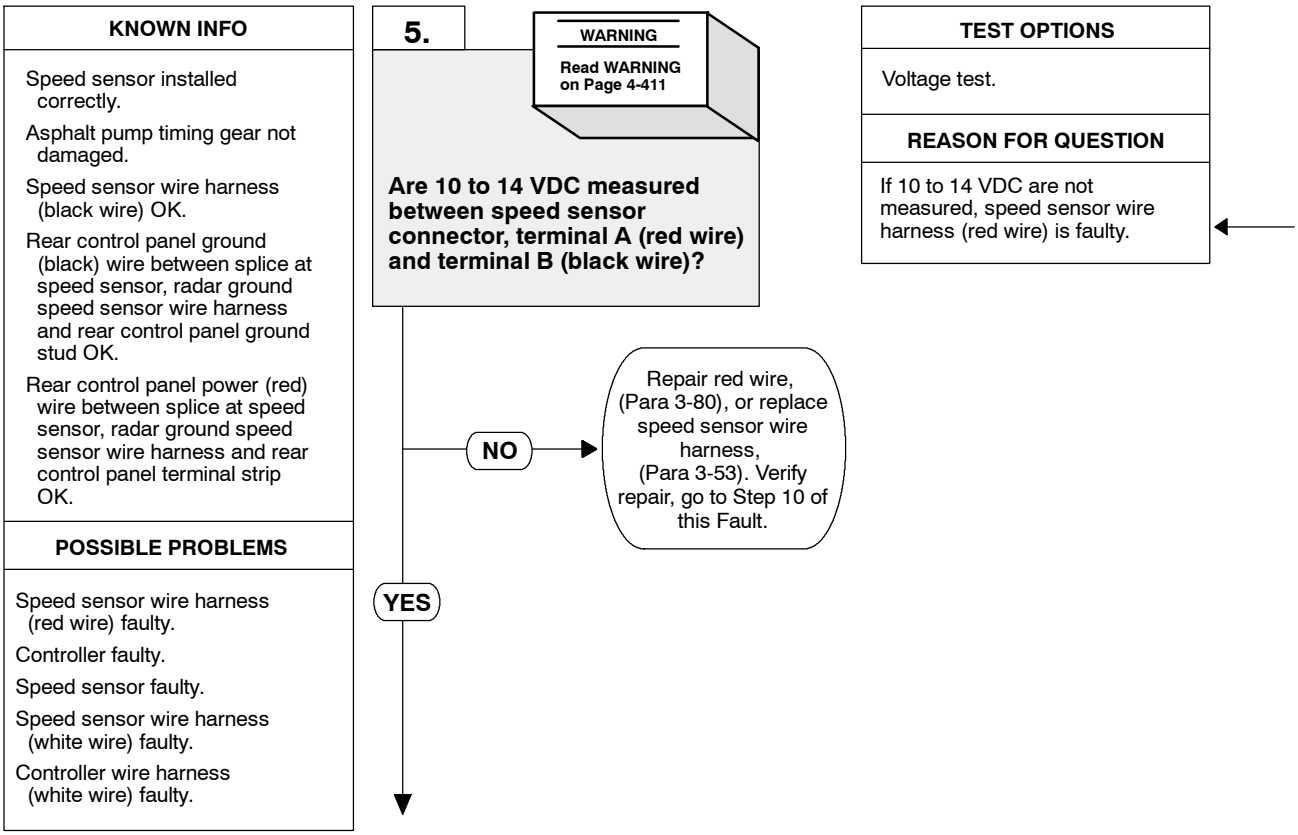
(b) If continuity is measured, go to Step 5 of this Fault.







13. NO GPM (GALLONS PER MINUTE) READING AT FRONT CONTROL PANEL (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

(1) Push in battery disconnect switch, (TM 9-2320-364-10).

(2) Turn front control panel POWER switch ON, (Para 2-1).

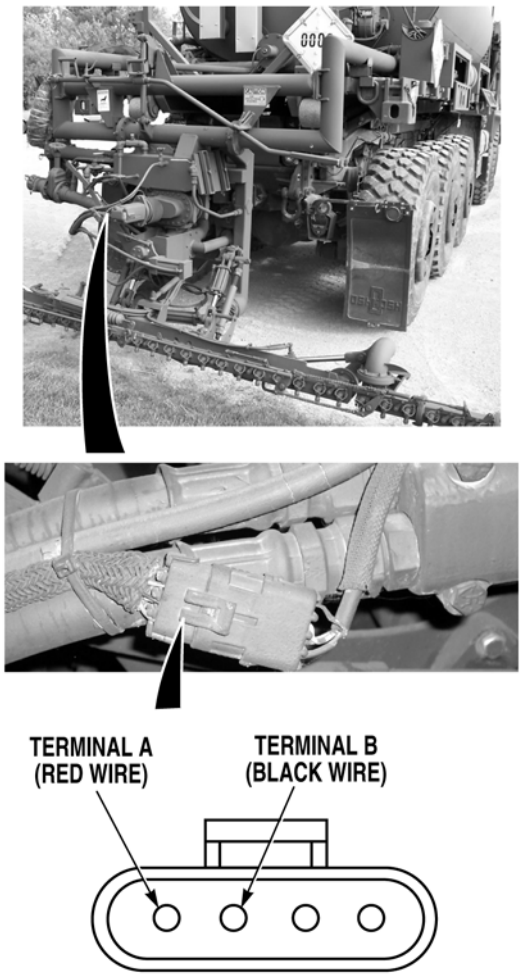
(3) Turn rear control panel POWER switch ON, (Para 2-1).

(4) Connect positive (+) multimeter lead to red wire at speed sensor connector, terminal A.

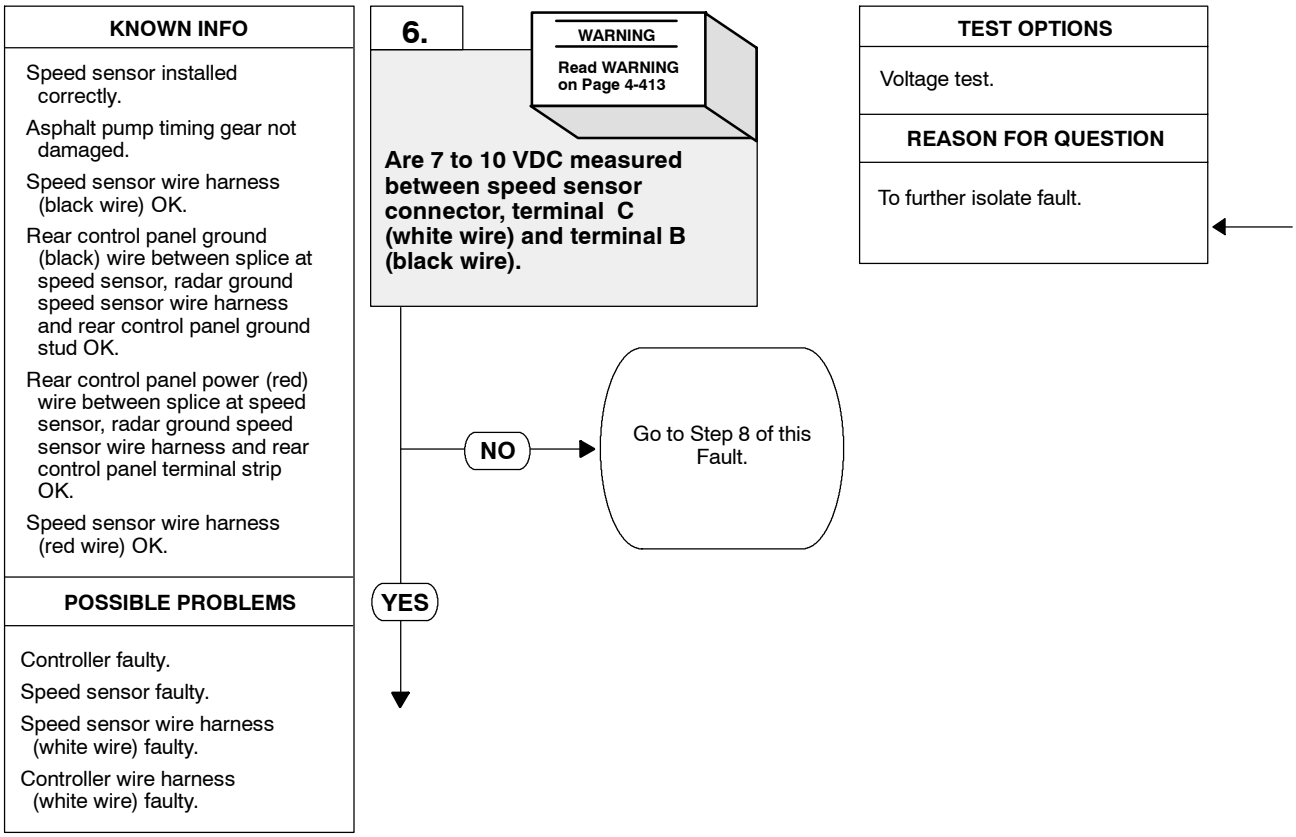
(5) Connect negative (-) multimeter lead to black wire at speed sensor connector, terminal B.

(a) If 10 to 14 VDC are not present, repair red wire, (Para 3-80) or replace speed sensor wire harness, (Para 3-53). Verify repair, go to Step 10 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 6 of this Fault.



13. NO GPM (GALLONS PER MINUTE) READING AT FRONT CONTROL PANEL (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

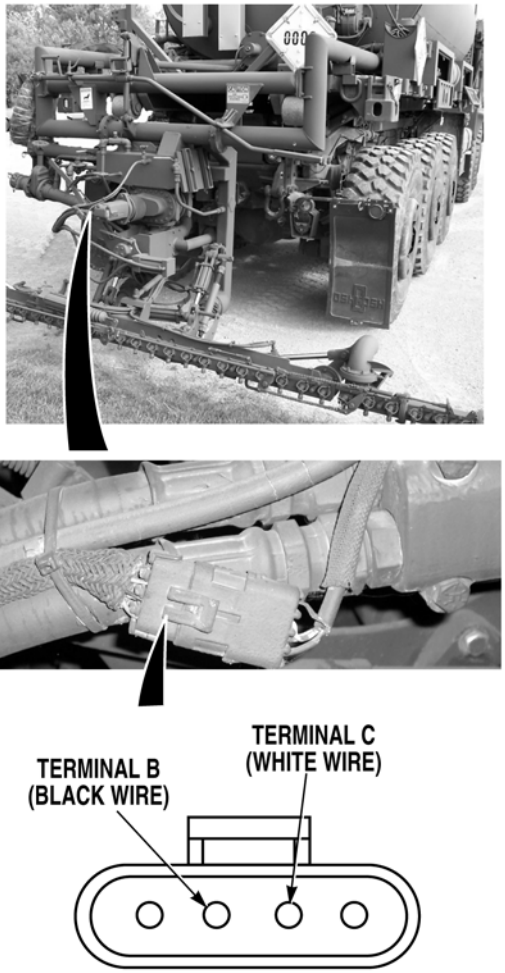
VOLTAGE TEST

(1) Connect positive (+) multimeter lead to white wire at speed sensor connector, terminal C.

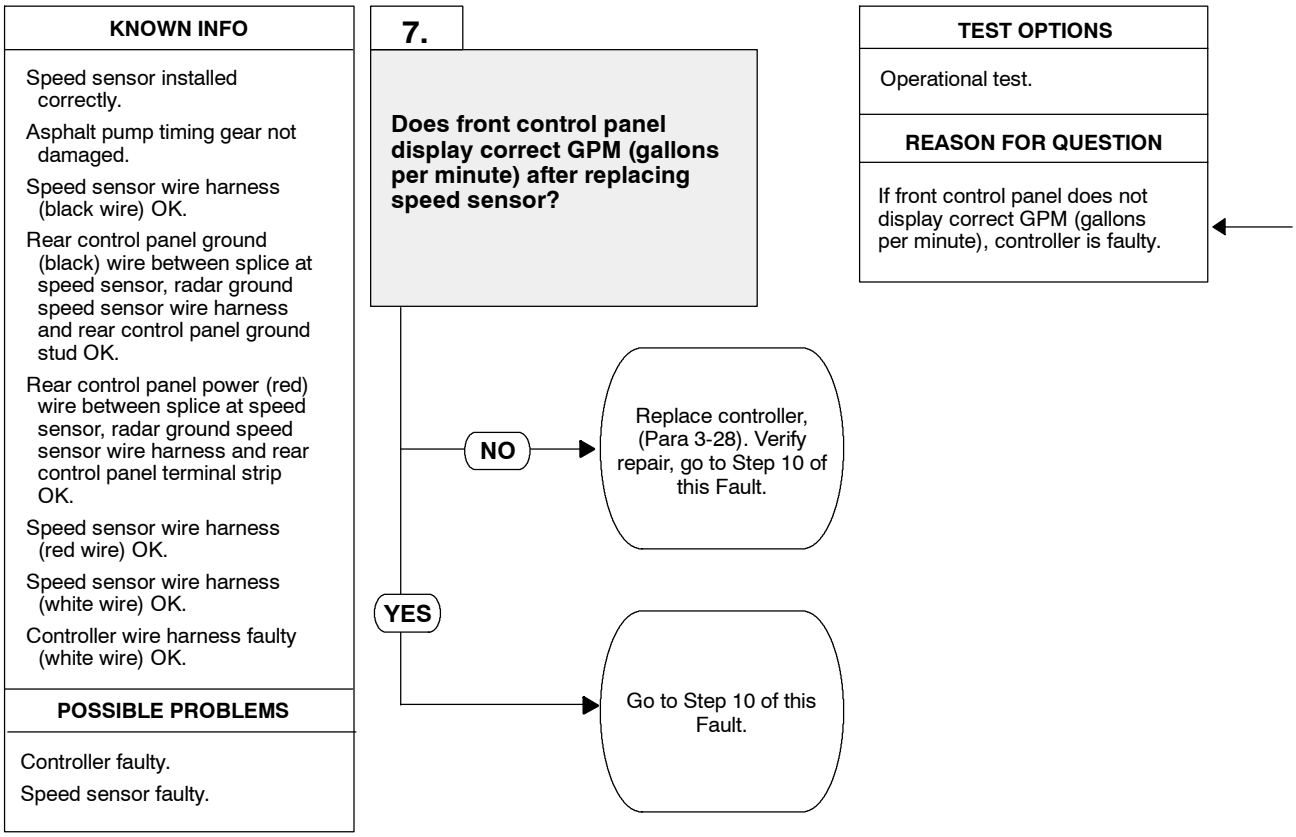
(2) Connect negative (-) multimeter lead to black wire at speed sensor connector, terminal B.

(a) If 7 to 10 VDC are not present, go to Step 8 of this Fault.

(b) If 7 to 10 VDC are present, go to Step 7 of this Fault.

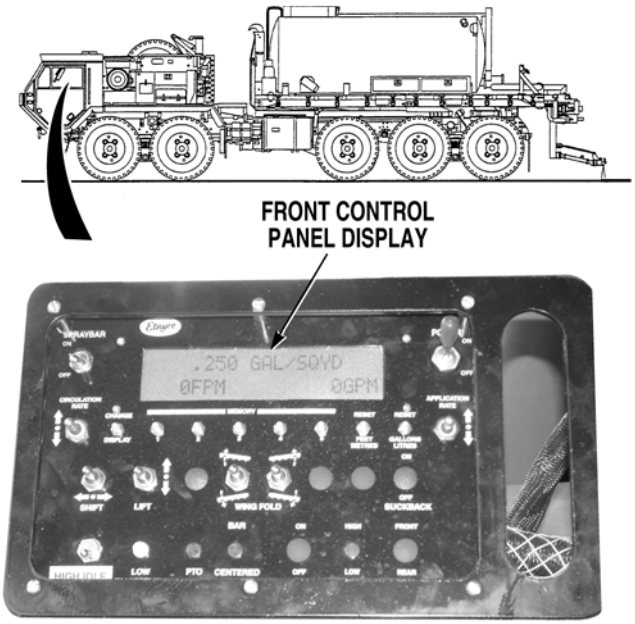


13. NO GPM (GALLONS PER MINUTE) READING AT FRONT CONTROL PANEL (CONT).



WARNING

12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.



OPERATIONAL TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Replace speed sensor, (Para 3-17).

(3) Push in battery disconnect switch, (TM 9-2320-364-10).

(4) Start engine, (TM 9-2320-364-10).

(5) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(6) Turn front control panel POWER switch ON, (Para 2-1).

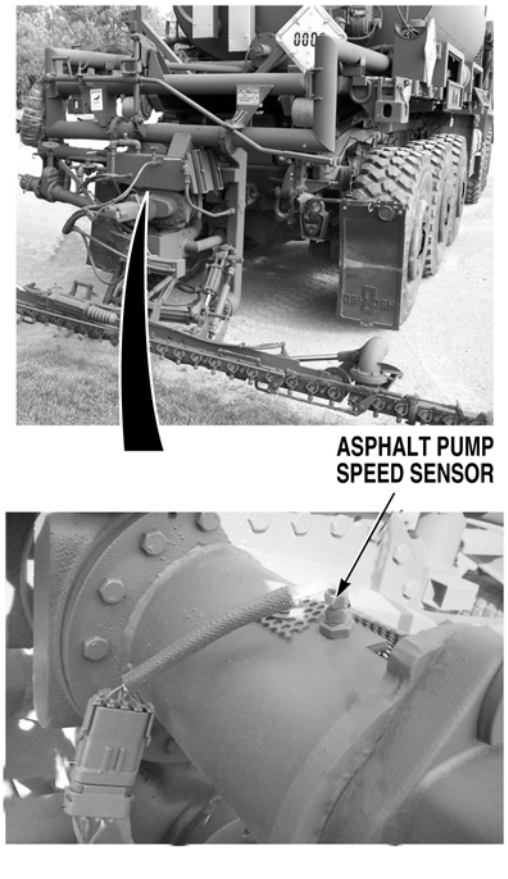
(7) Turn rear control panel POWER switch ON, (Para 2-1).

(8) Turn rear control panel FRONT/REAR switch to FRONT, (Para 2-1).

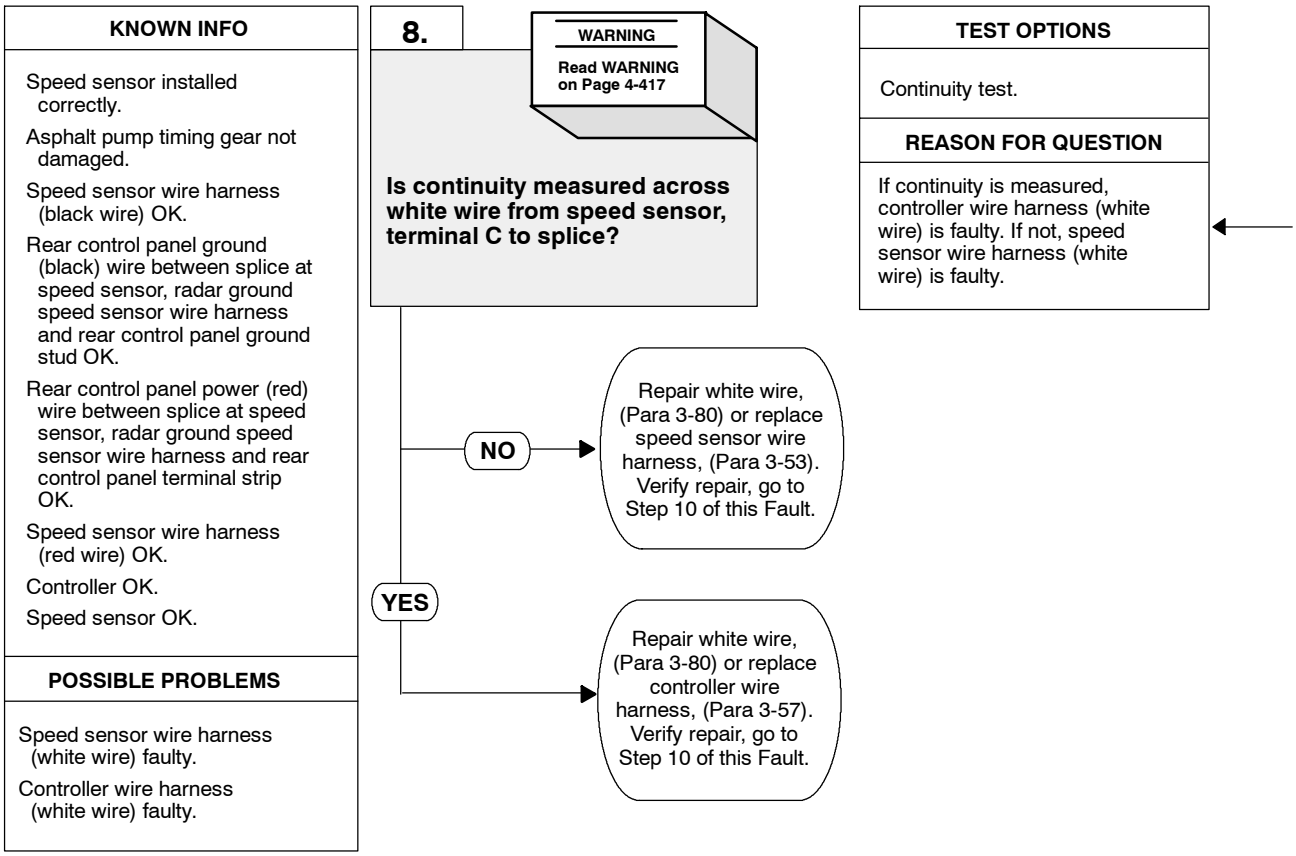
(9) Operate circulating function, (Para 2-16). Check if GPM (gallons per minute) is displayed on front control panel display.

(a) If GPM (gallons per minute) is not displayed on front control panel display, replace controller, (Para 3-28). Verify repair, go to Step 10 of this Fault.

(b) If GPM (gallons per minute) is displayed on front control panel display, go to Step 10 of this Fault.



13. NO GPM (GALLONS PER MINUTE) READING AT FRONT CONTROL PANEL (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Set multimeter select switch to ohms.

(3) Cut white wire at wire splice between speed sensor and controller.

(4) Connect jumperwire between white wire at speed sensor connector and a known good ground.

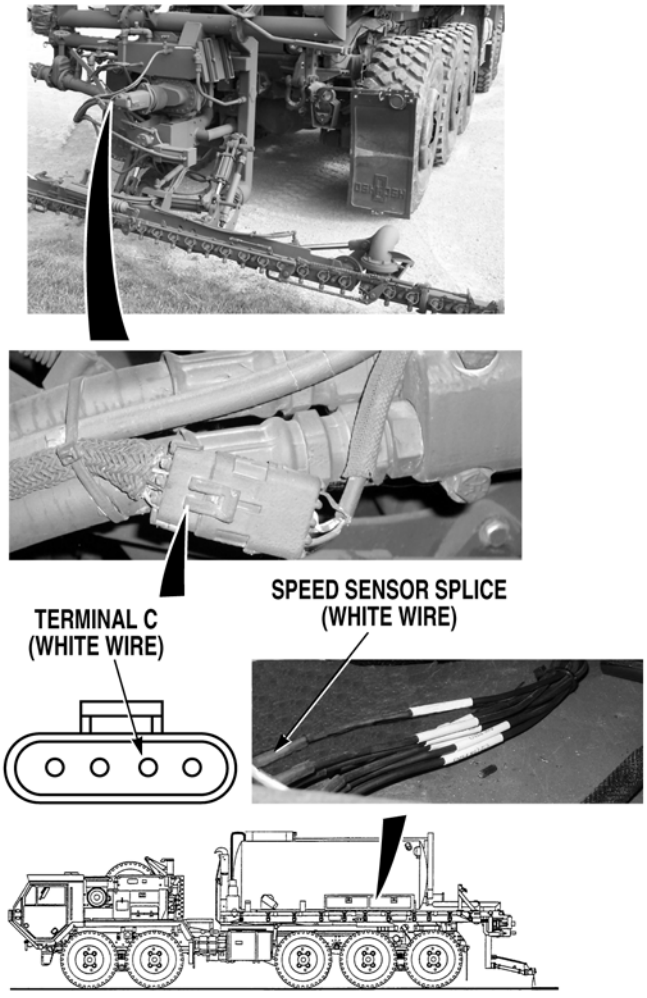
(5) Connect positive (+) multimeter lead to white wire at splice.

(6) Connect negative (-) multimeter lead to a known good ground.

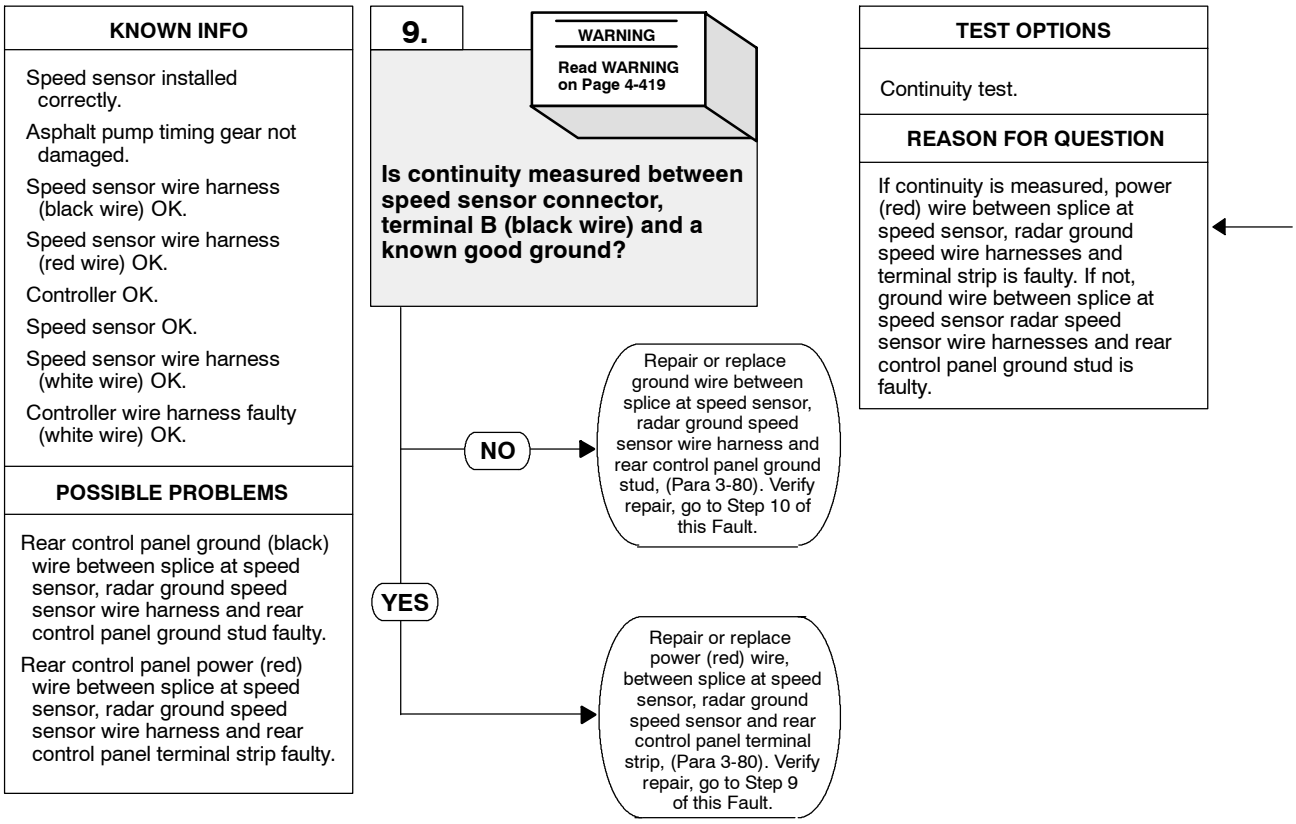
  (a) If continuity is not measured, repair white wire, (Para 3-80) or replace speed sensor wire harness, (Para 3-53).

  (b) If continuity is measured, repair wire, (Para 3-80) or replace controller wire harness, (Para 3-57).

(7) Verify repair, go to Step 10 of this Fault.

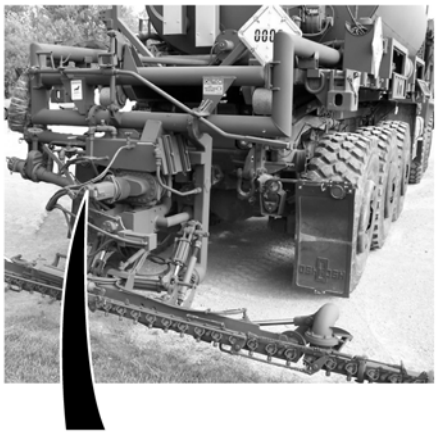


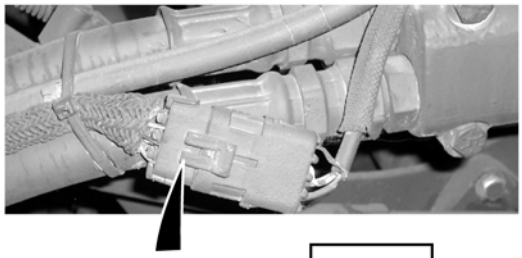
13. NO GPM (GALLONS PER MINUTE) READING AT FRONT CONTROL PANEL (CONT).

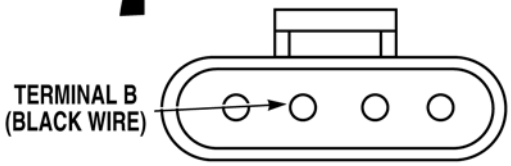


WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.







CONTINUITY TEST

(1) Park vehicle, (TM 9-2320-364-10).

(2) Shut OFF engine, (TM 9-2320-364-10).

(3) Pull out battery disconnect swtich, (TM 9-2320-364-10).

(4) Set multimeter select switch to ohms.

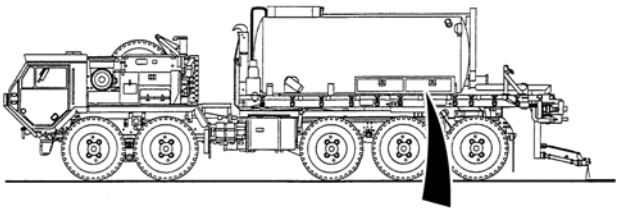
(5) Connect positive (+) multimeter lead to black wire at speed sensor connector, terminal B.

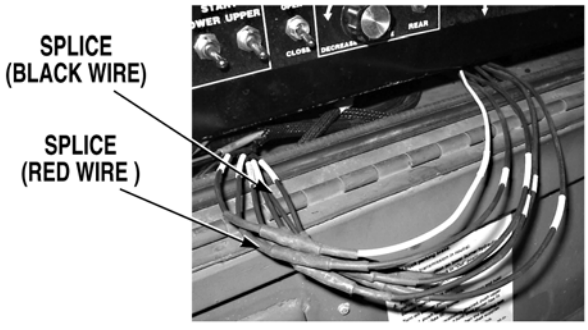
(6) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, repair or replace black ground wire between splice at speed sensor, radar ground speed sensor wire harness and rear control panel ground stud, (Para 3-80).

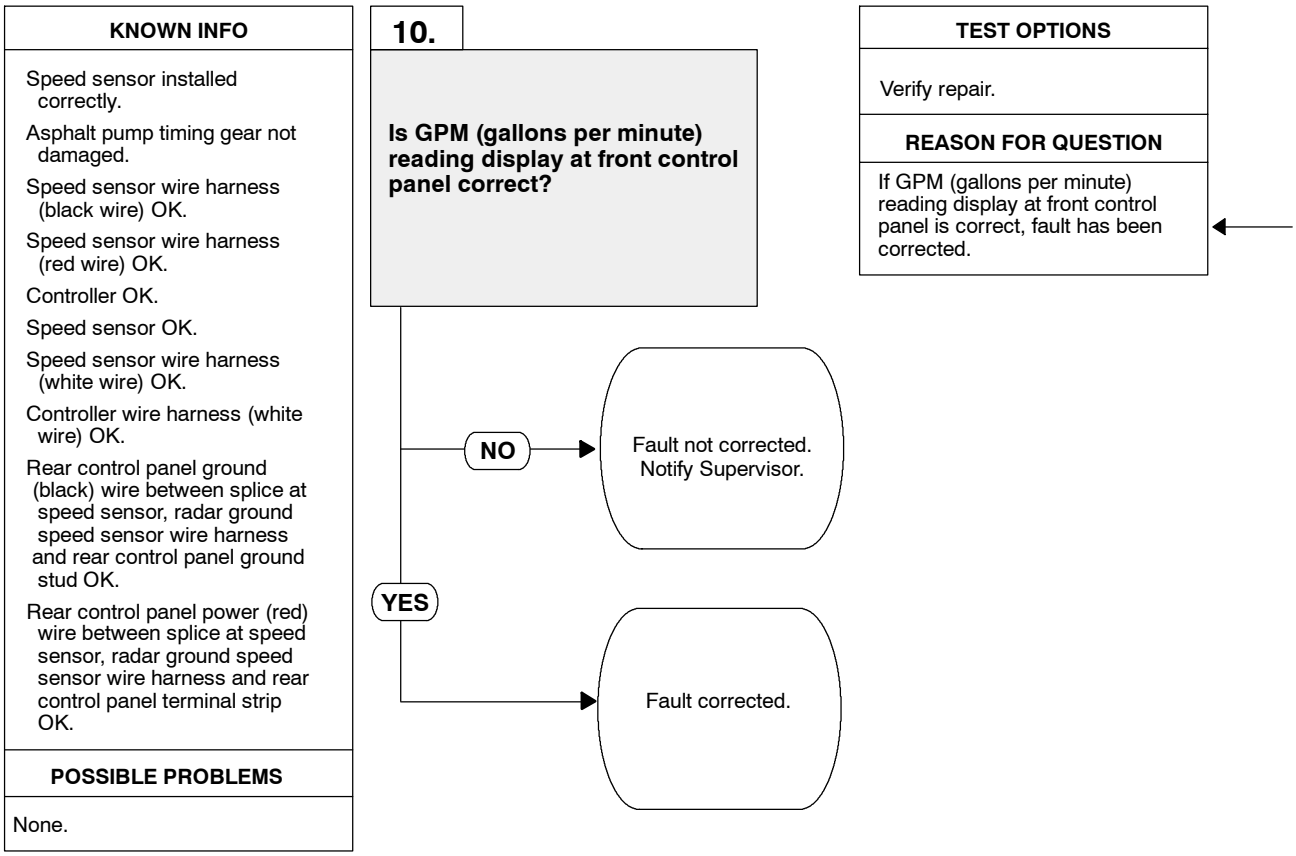
(b) If continuity is measured, repair or replace rear control panel power (red) wire, between splice at speed sensor, radar ground speed sensor and rear control panel terminal strip, (Para 3-80).

(7) Verify repair, go to Step 10 of this Fault.



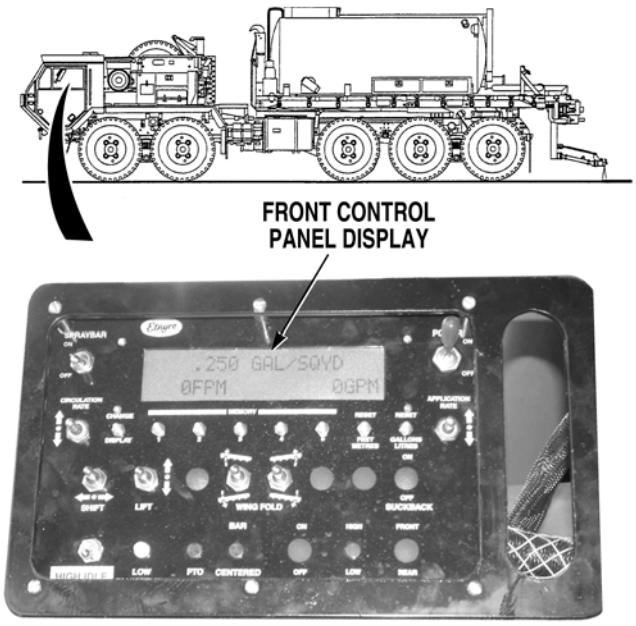


13. NO GPM (GALLONS PER MINUTE) READING AT FRONT CONTROL PANEL (CONT).



WARNING

12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.



VERIFY REPAIR

(1) If in, pull out battery disconnect switch, (TM 9-2320-364-10).

(2) If removed, install asphalt pump timing gear cover, (Para 3-79).

(3) If cut, repair wire, (Para 3-80).

(4) If disconnected, connect speed sensor connector, (Para 3-53).

(5) Push in battery disconnect swtich, (TM 9-2320-364-10).

(6) Start engine, (TM 9-2320-364-10).

(7) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(8) Turn front control panel POWER switch ON, (Para 2-1).

(9) Turn rear control panel POWER switch ON, (Para 2-1).

(10) Turn rear control panel FRONT/REAR switch to FRONT, (Para 2-1).

(11) Operate circulating function, (Para 2-16). Check if GPM (gallons per minute) is displayed on front control panel display.

(a) If GPM (gallons per minute) is not displayed on front control panel display, fault not corrected. Notify Supervisor.

(b) If GPM (gallons per minute) is displayed on front control panel display, fault has been corrected.

(12) Turn rear control panel POWER switch OFF, (Para 2-1).

(13) Turn front control panel POWER switch OFF, (Para 2-1).

(14) Turn hydraulic select switch to OFF, (TM 9-2320-364-10).

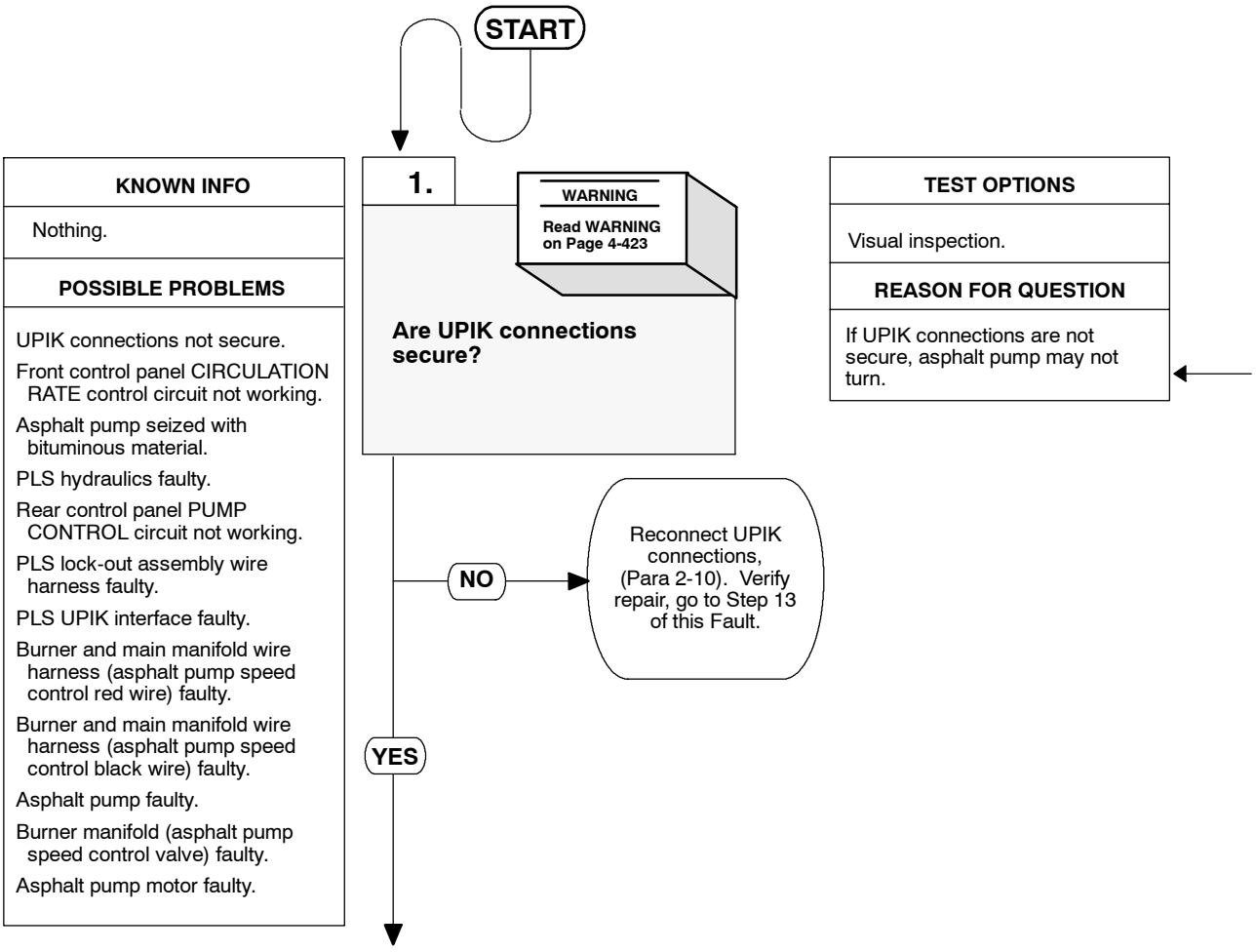
(15) Shut OFF engine, (TM 9-2320-364-10).

14. ASPHALT PUMP DOES NOT TURN OR TURNS SLOWLY.

INITIAL SETUP

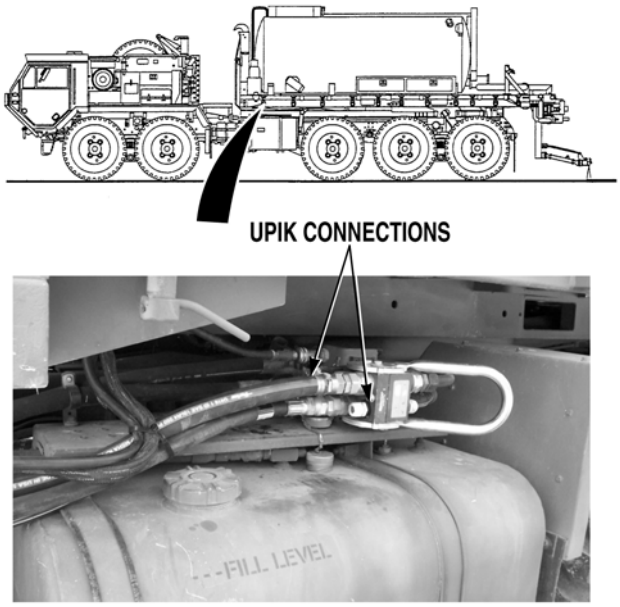
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Multimeter (Item 8, Appendix F)

Equipment Condition
Bituminous Distributor loaded on PLS, (Para 2-5)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)



WARNING

Hydraulic system can reach 3,675 psi (25,338.19 kPa). Engine must be turned off before disconnecting hydraulic lines. Failure to comply could cause serious injury to personnel.



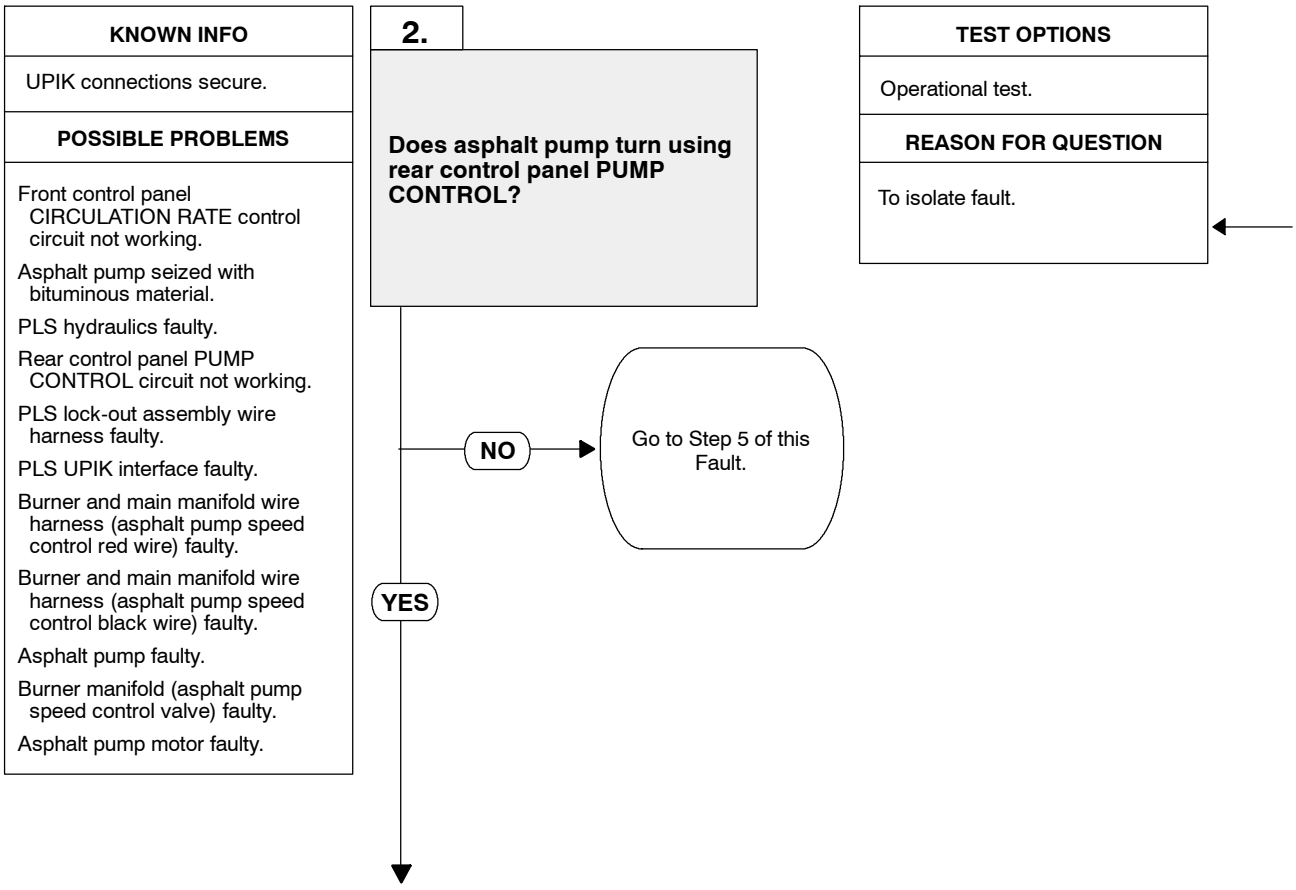
VISUAL INSPECTION

Check if UPIK connections are secure.

(a) If UPIK connections are not secure, reconnect UPIK connections, (Para 2-10). Verify repair, go to Step 13 of this Fault.

(b) If UPIK connections are secure, go to Step 2 of this Fault.

14. ASPHALT PUMP DOES NOT TURN OR TURNS SLOWLY (CONT).



OPERATIONAL TEST

(1) Start engine, (TM 9-2320-364-10).

(2) Turn hydraulic select switch to CRANE/SRW (TM 9-2320-364-10).

(3) Turn front control panel POWER switch ON, (Para 2-1).

(4) Turn rear control panel POWER switch ON, (Para 2-1).

(5) Set up system to circulate in tank using rear control panel, (Para 2-16). Do not open suction valve.

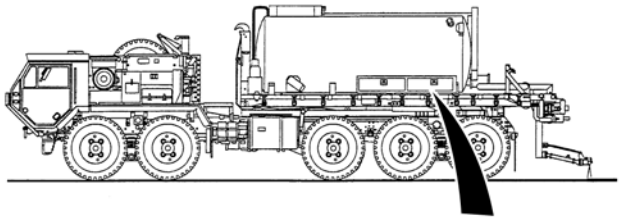
(6) Adjust asphalt pump speed using rear control panel PUMP CONTROL, (Para 2-1). Check if asphalt pump turns.

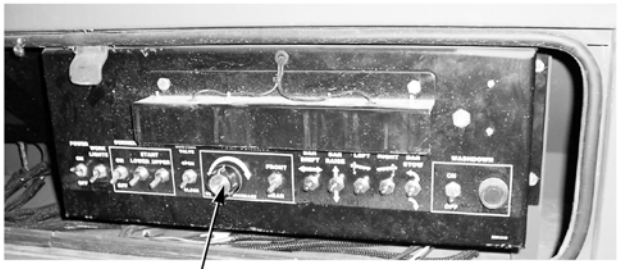
(a) If asphalt pump does not operate, go to Step 5 of this Fault.

(b) If asphalt pump operates, go to Step 3 of this Fault.



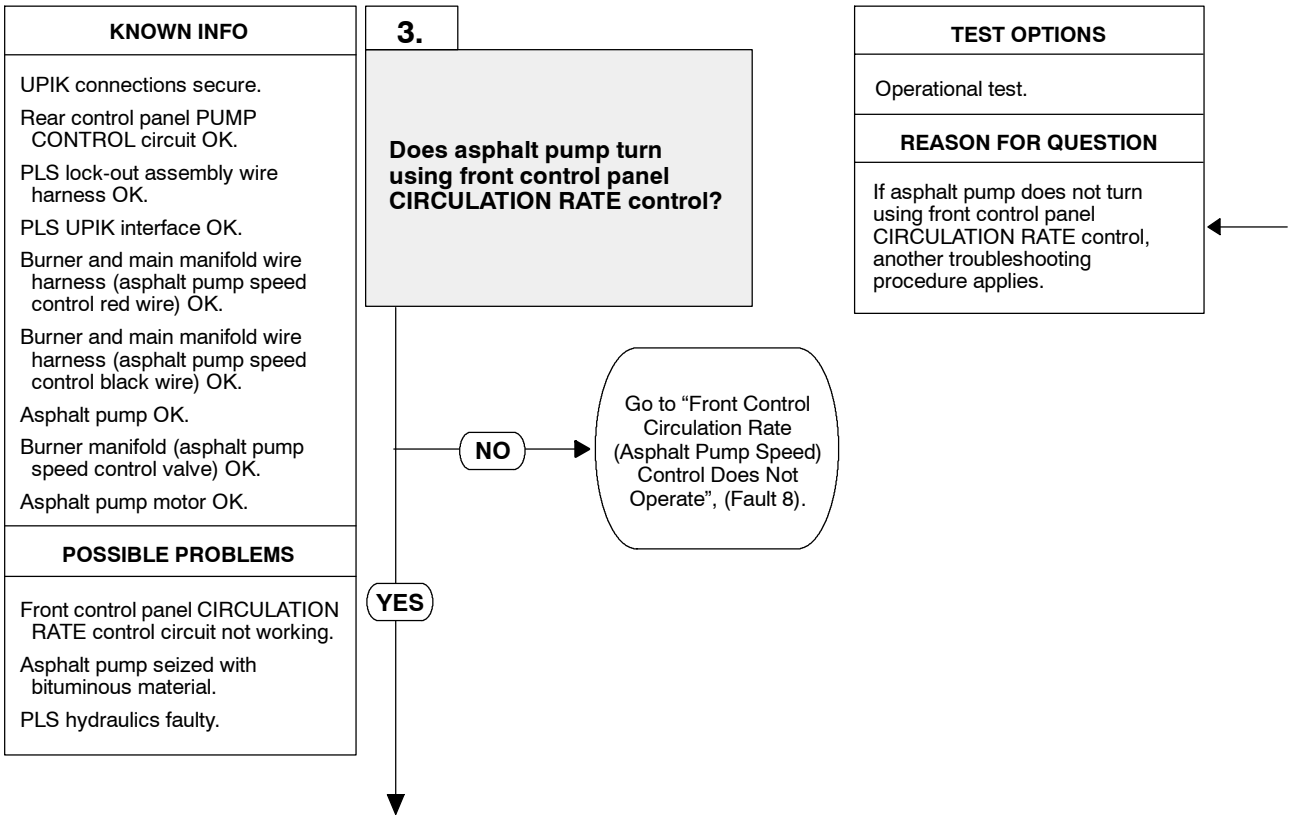
ASPHALT PUMP





PUMP CONTROL

14. ASPHALT PUMP DOES NOT TURN OR TURNS SLOWLY (CONT).





ASPHALT PUMP

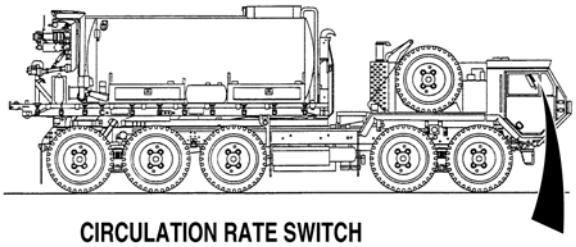
OPERATIONAL TEST

(1) Turn rear control panel FRONT/REAR select switch to FRONT, (Para 2-1).

(2) Adjust asphalt pump speed using front control panel CIRCULATION RATE control, (Para 2-1). Check if asphalt pump turns.

(a) If asphalt pump does not operate, go to “Front Control Circulation Rate (Asphalt Pump Speed) Control Does Not Operate”, (Fault 8).

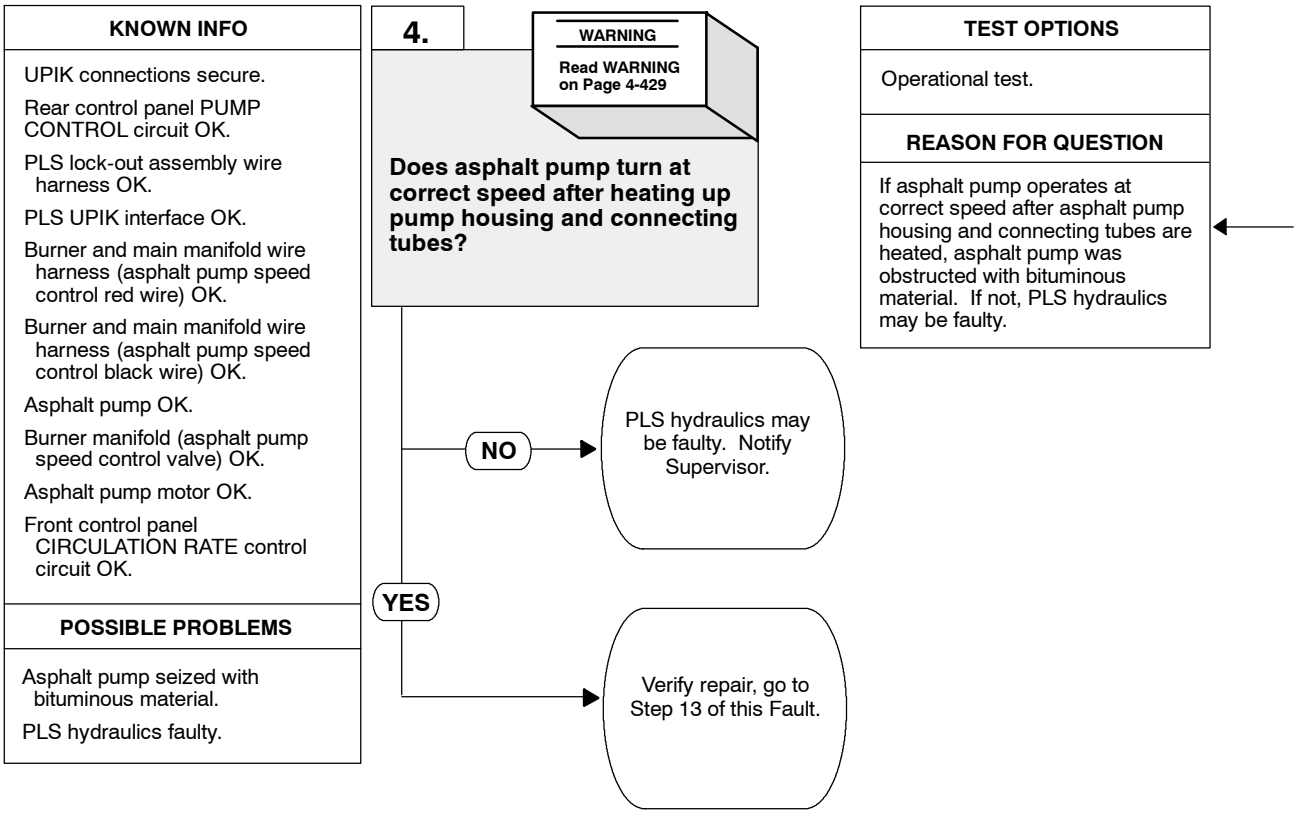
(b) If asphalt pump operates, go to Step 4 of this Fault.



CIRCULATION RATE SWITCH

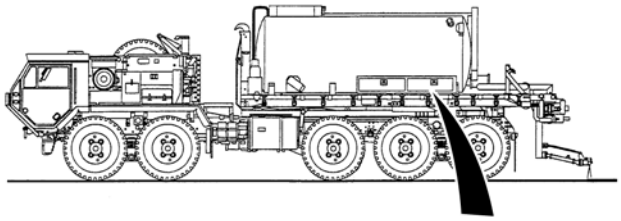


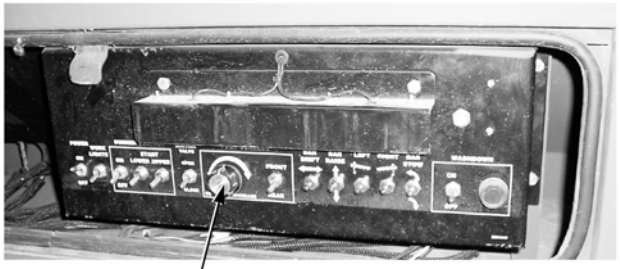
14. ASPHALT PUMP DOES NOT TURN OR TURNS SLOWLY (CONT).



WARNING

- To prevent possible burns, use extreme caution when using portable burner torch to heat pump. Asphalt accumulated on and around pump may ignite when heating pump with portable burner.
- 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.





OPERATIONAL TEST

(1) Set up system to circulate in tank using rear control panel, (Para 2-16). Do not open suction valve.

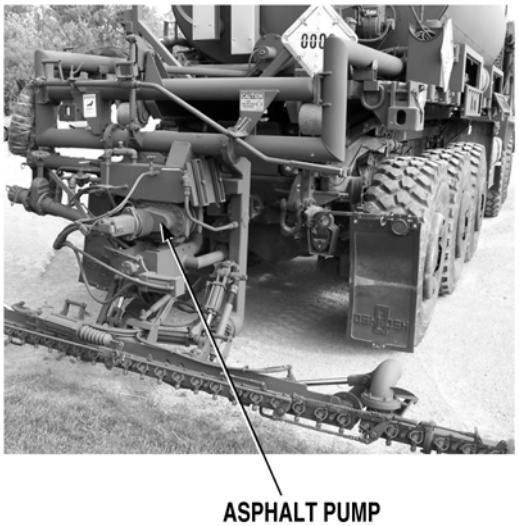
(2) Adjust asphalt pump speed using rear control panel asphalt pump speed PUMP CONTROL, (Para 2-1).

(3) If asphalt pump is not operating at correct speed, operate portable burner, S/N S2328 thru S3422, (Para 2-23); S/N S3605 and subsequent, (Para 2-24) and heat asphalt pump and connecting tubes.

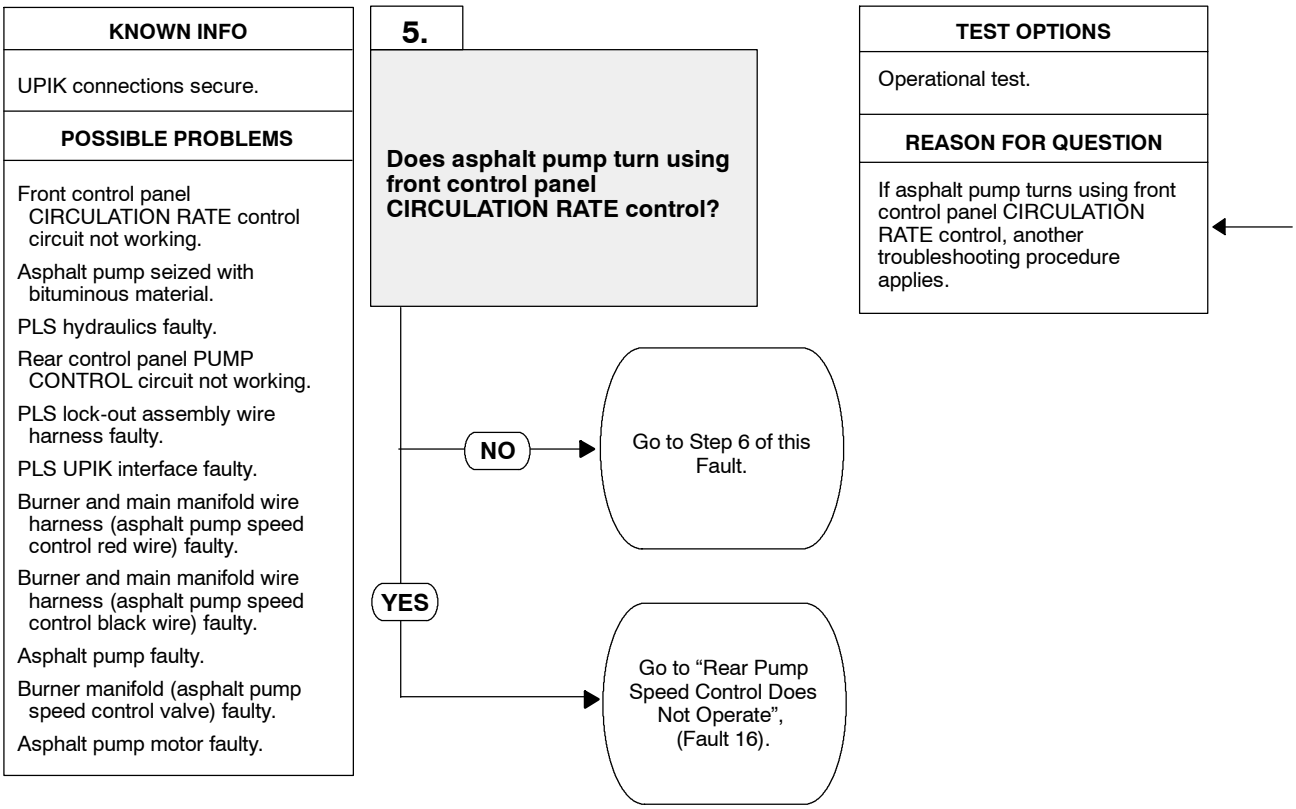
(4) Check if asphalt pump operates at correct speed.

  (a) If asphalt pump does not operate at correct speed PLS hydraulics may be faulty. Notify Supervisor.

  (b) If asphalt pump operates at correct speed, verify repair, go to Step 13 of this Fault.



14. ASPHALT PUMP DOES NOT TURN OR TURNS SLOWLY (CONT).





ASPHALT PUMP

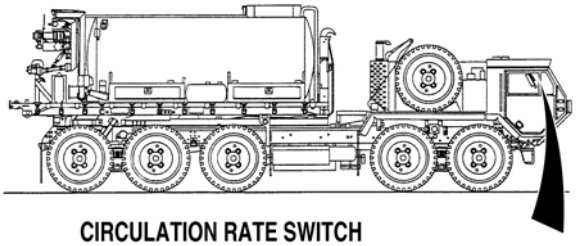
OPERATIONAL TEST

(1) Turn rear control panel FRONT/REAR select switch to FRONT, (Para 2-1).

(2) Adjust asphalt pump speed using front control panel CIRCULATION RATE control, (Para 2-1). Check if asphalt pump turns.

(a) If asphalt pump does not operate, go to Step 6 of this Fault.

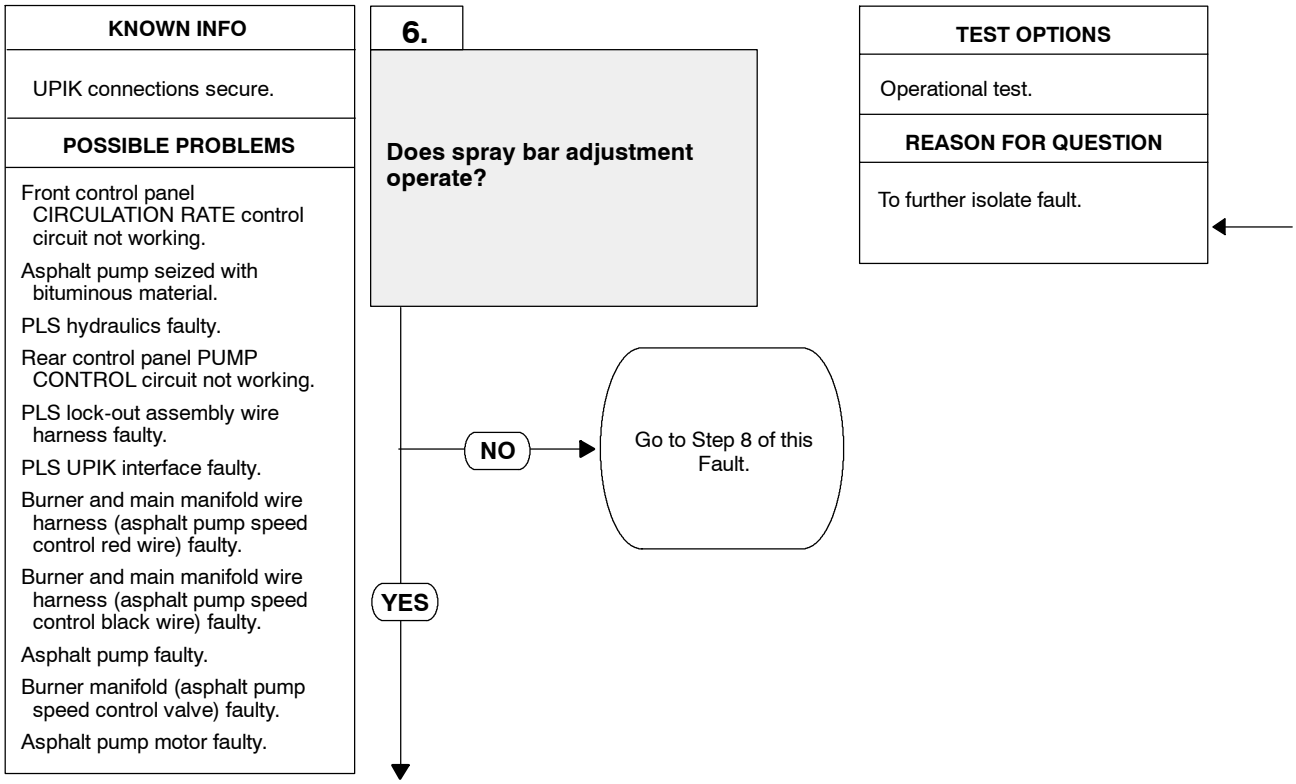
(b) If asphalt pump operates, go to “Rear Pump Speed Control Does Not Operate”, (Fault 16).



CIRCULATION RATE SWITCH



14. ASPHALT PUMP DOES NOT TURN OR TURNS SLOWLY (CONT).



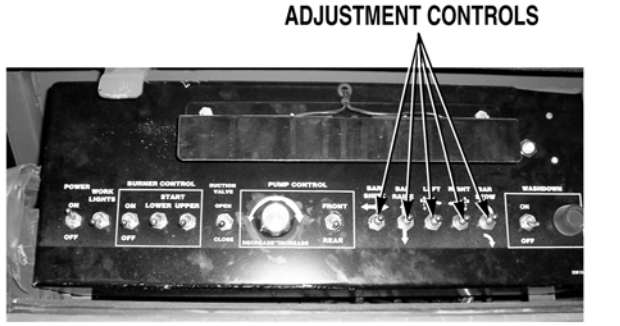


OPERATIONAL TEST

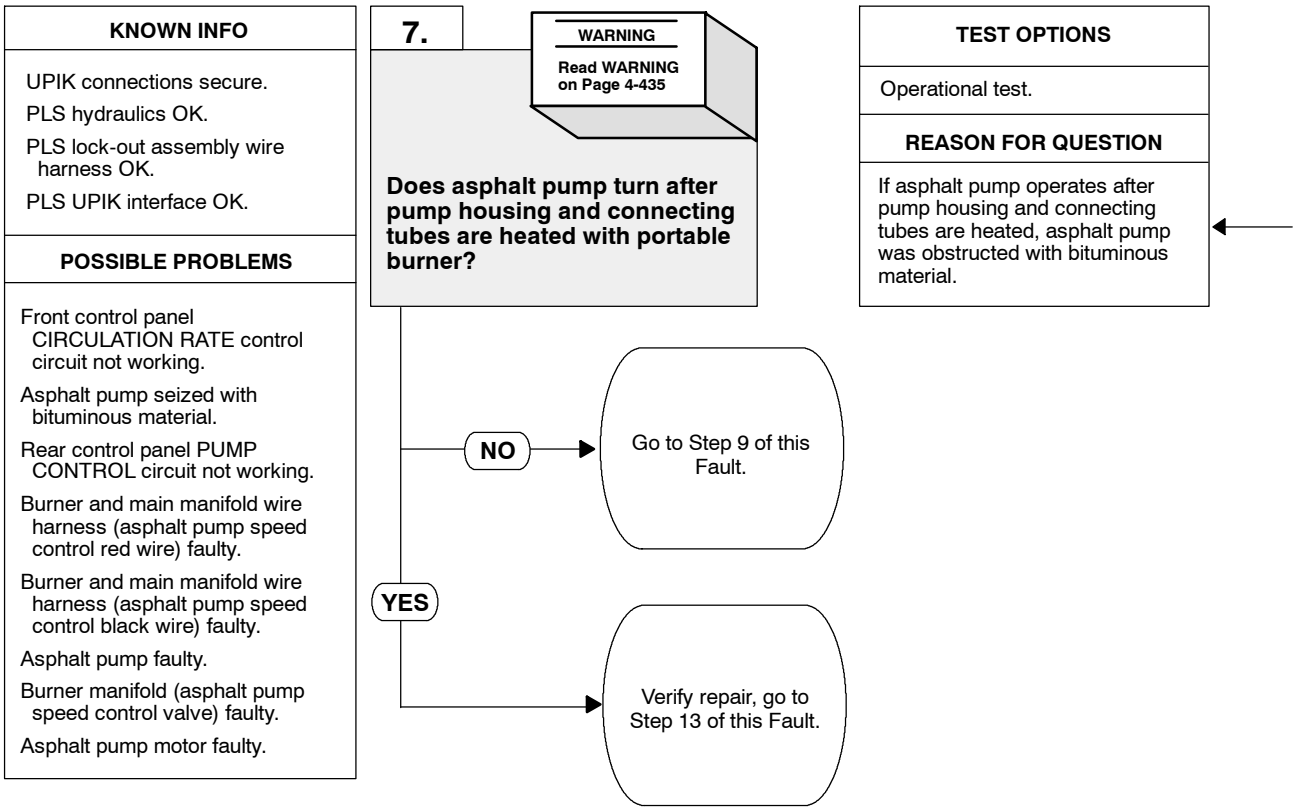
Operate spray bar adjustment controls from front or rear control panel, (Para 2-17).

(a) If spray bar adjustment controls do not operate, go to Step 8 of this Fault.

(b) If spray bar adjustment controls operate, go to Step 7 of this Fault.



14. ASPHALT PUMP DOES NOT TURN OR TURNS SLOWLY (CONT).



WARNING

- To prevent possible burns, use extreme caution when using portable burner torch to heat pump. Asphalt accumulated on and around pump may ignite when heating pump with portable burner.
- To prevent burns, always wear insulated gloves when handling spray bar sections or hoses. Failure to comply may result in serious injury to personnel.



OPERATIONAL TEST

(1) Set up system to circulate in tank using rear control panel, (Para 2-16). Do not open suction valve.

(2) Operate portable burner function, S/N S2328 thru S3422, (Para 2-23); S/N S3605 and subsequent, (Para 2-24). Heat asphalt pump and connecting tubes.

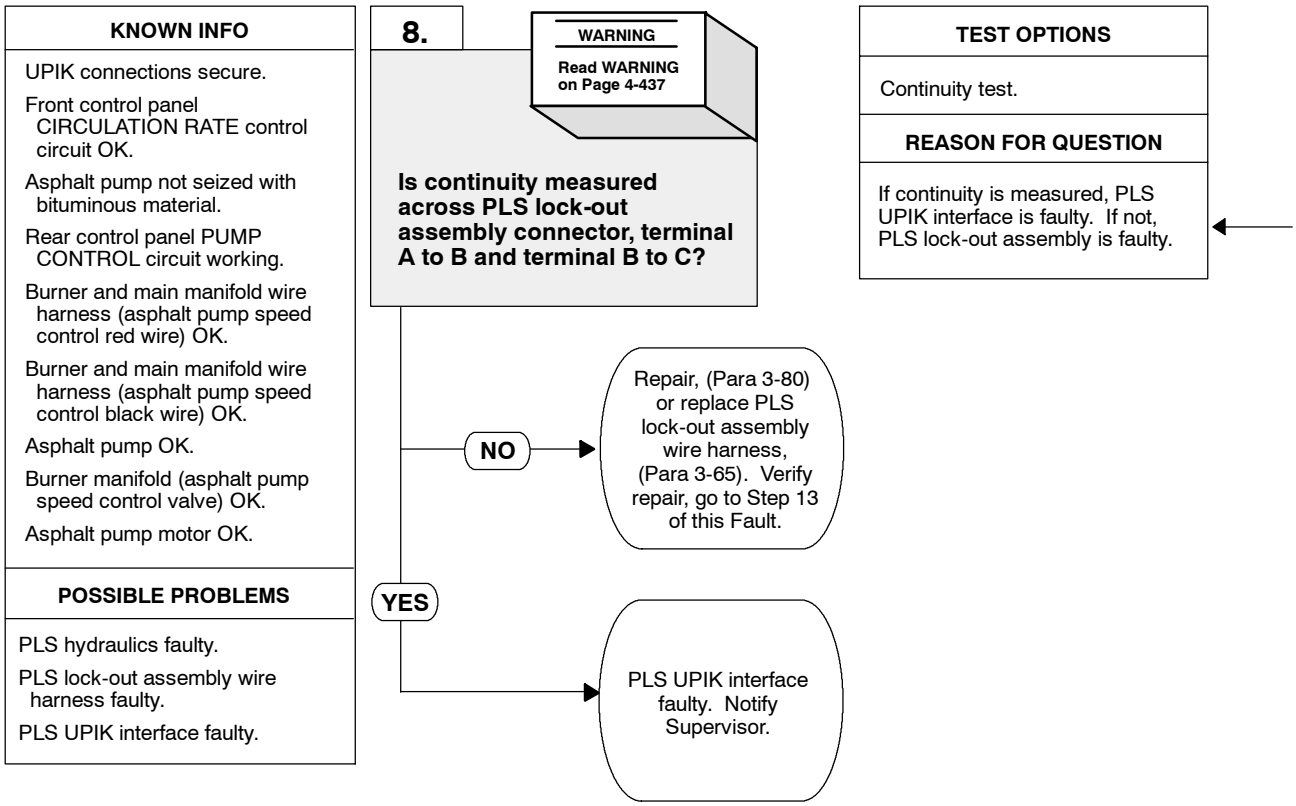
(3) Adjust asphalt pump speed using rear control panel PUMP CONTROL, (Para 2-1). Check if asphalt pump turns.

(a) If asphalt pump does not operate, go to Step 9 of this Fault.

(b) If asphalt pump operates, verify repair, go to Step 13 of this Fault.



14. ASPHALT PUMP DOES NOT TURN OR TURNS SLOWLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Set multimeter select switch to ohms.

(4) Disconnect UPIK connector, (Para 2-10).

(5) Connect positive (+) multimeter lead to PLS lock-out assembly connector, terminal A.

(6) Connect negative (-) multimeter lead to PLS lock-out assembly connector, terminal B.

(a) If continuity is not measured, repair, (Para 3-80) or replace PLS lock-out assembly wire harness, (Para 3-65). Verify repair, go to Step 13 of this Fault.

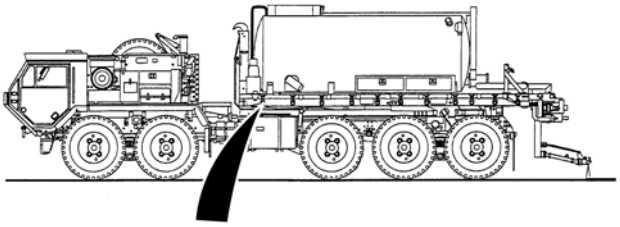
(b) If continuity is measured, go to Step 5 of this Fault.

(7) Connect positive (+) multimeter lead to PLS lock-out assembly connector, terminal B.

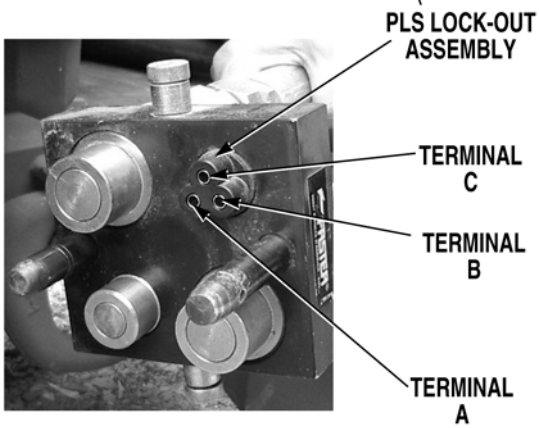
(8) Connect negative (-) multimeter lead to PLS lock-out assembly connector, terminal C.

(a) If continuity is not measured, repair, (Para 3-80) or replace PLS lock-out assembly wire harness, (Para 3-65). Verify repair, go to Step 13 of this Fault.

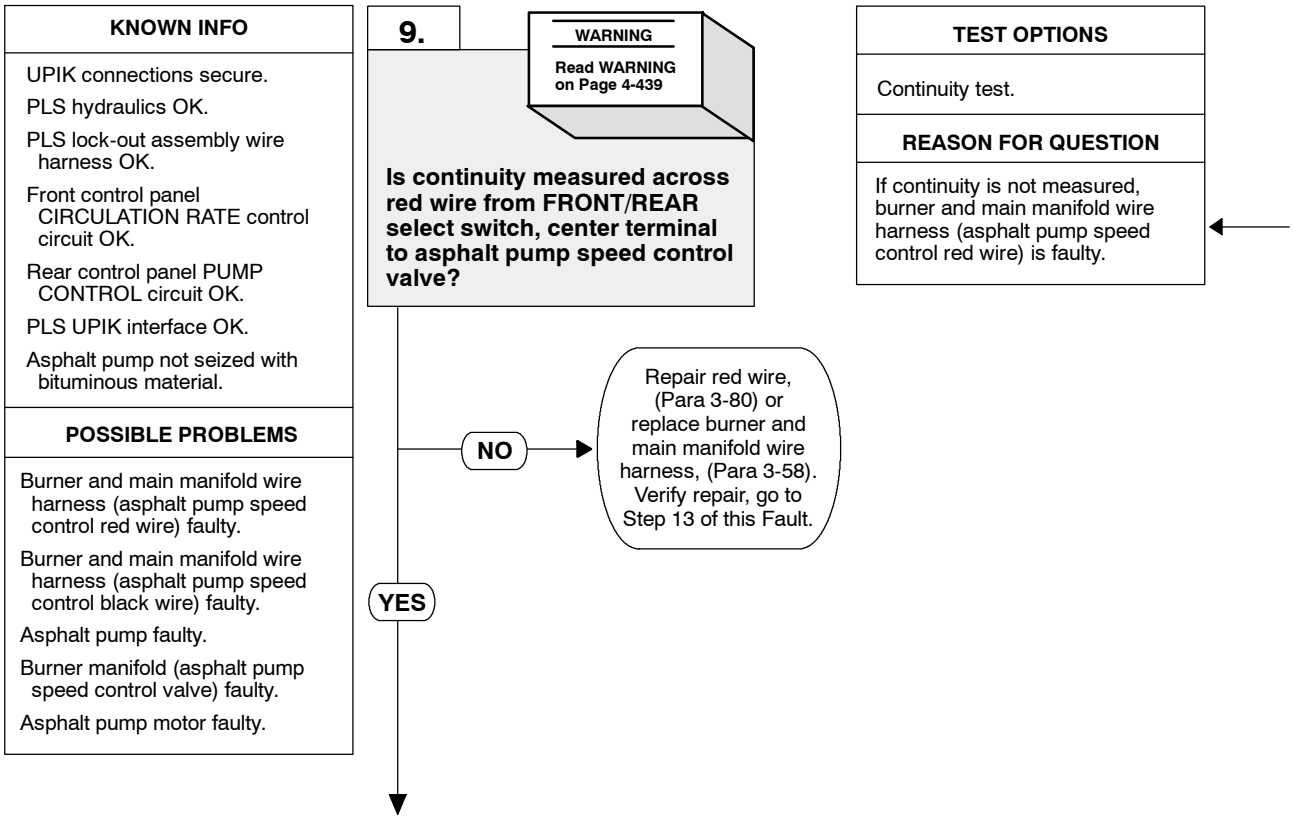
(b) If continuity is measured, PLS UPIK interface is faulty. Notify Supervisor.







14. ASPHALT PUMP DOES NOT TURN OR TURNS SLOWLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Set multimeter select switch to ohms.

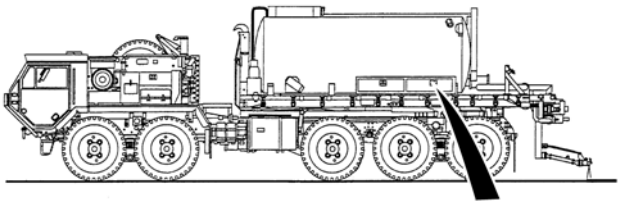
(4) Remove rear control panel, (Para 3-76).

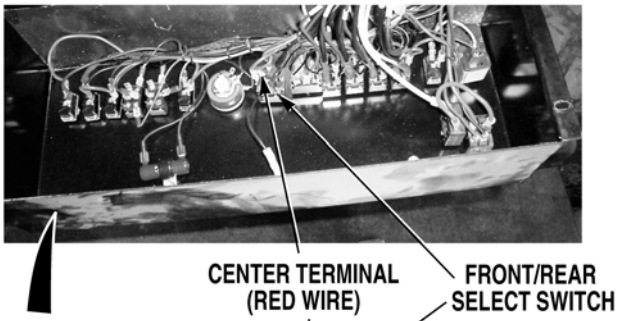
(5) Connect positive (+) multimeter lead to red wire at FRONT/REAR select switch center terminal.

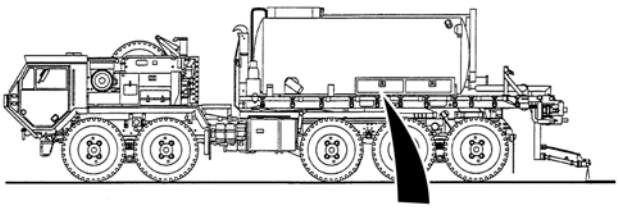
(6) Connect negative multimeter (-) lead to red wire at asphalt pump speed control valve.

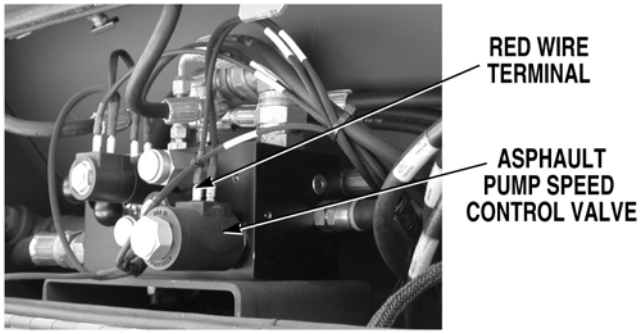
(a) If continuity is not measured, repair red wire, (Para 3-80) or replace burner and main manifold wire harness, (Para 3-58). Verify repair, go to Step 13 of this Fault.

(b) If continuity is measured, go to Step 10 of this Fault.

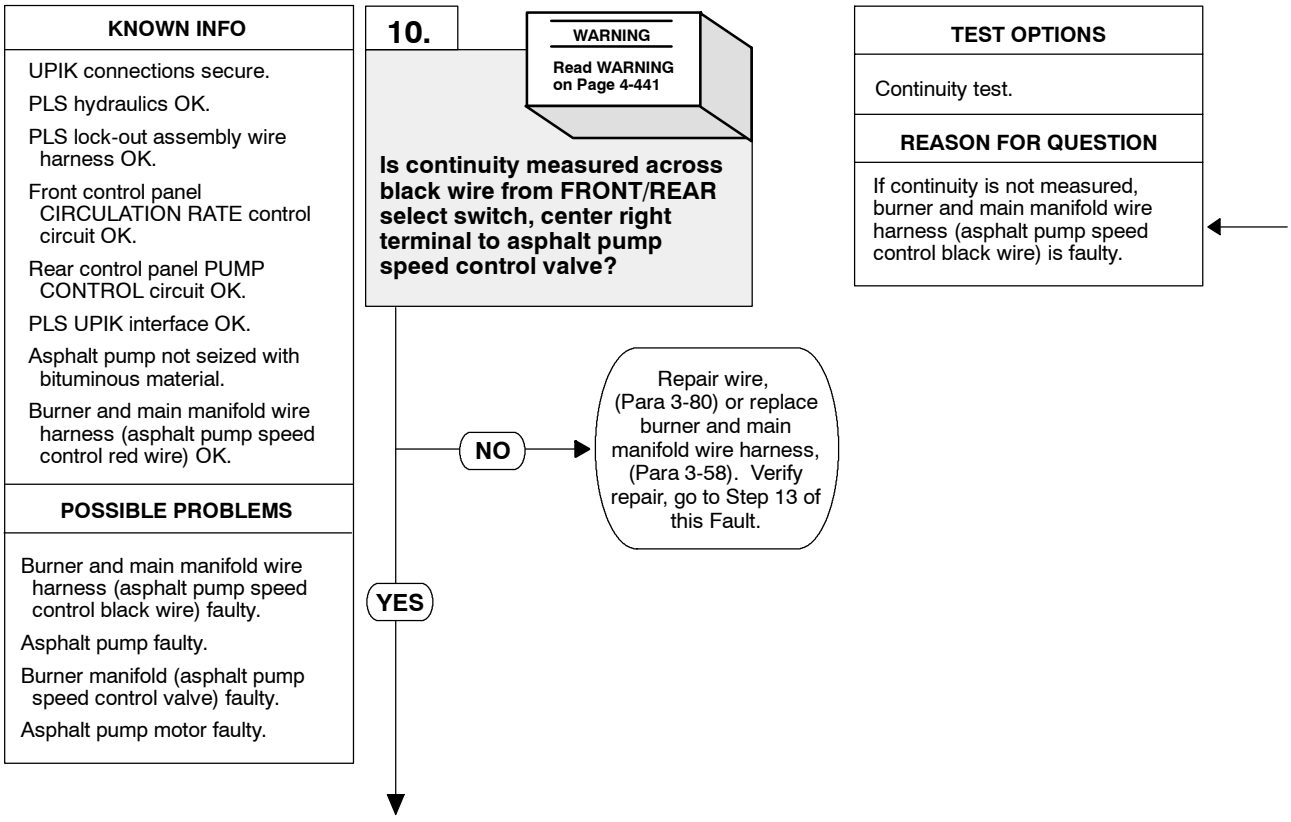






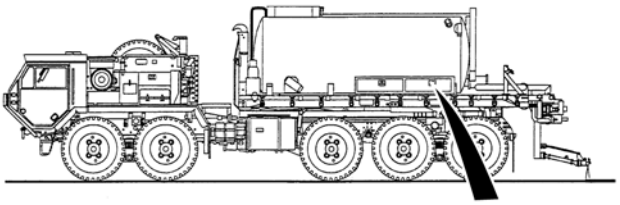


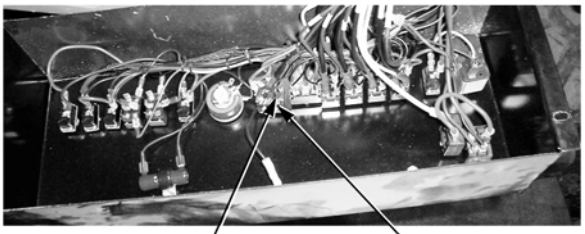
14. ASPHALT PUMP DOES NOT TURN OR TURNS SLOWLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.





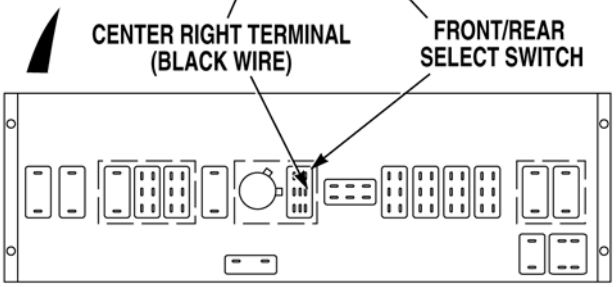
CONTINUITY TEST

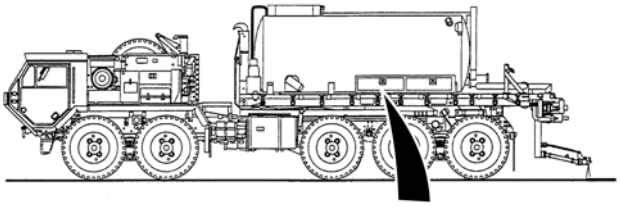
(1) Connect positive (+) multimeter lead to black wire at FRONT/REAR select switch center right terminal.

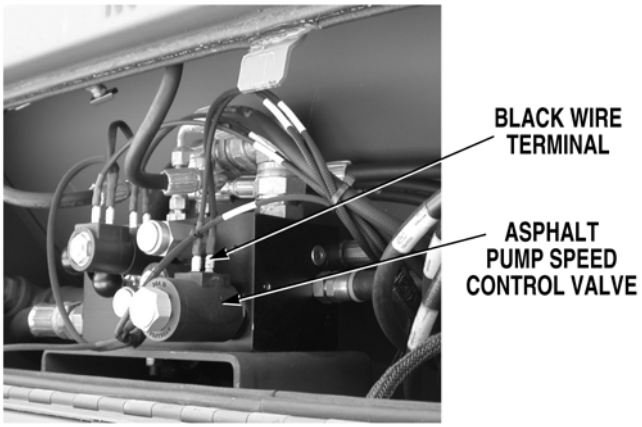
(2) Connect negative multimeter (-) lead to black wire at asphalt pump speed control valve.

(a) If continuity is not measured, repair black wire, (Para 3-80) or replace burner and main manifold wire harness, (Para 3-58). Verify repair, go to Step 13 of this Fault.

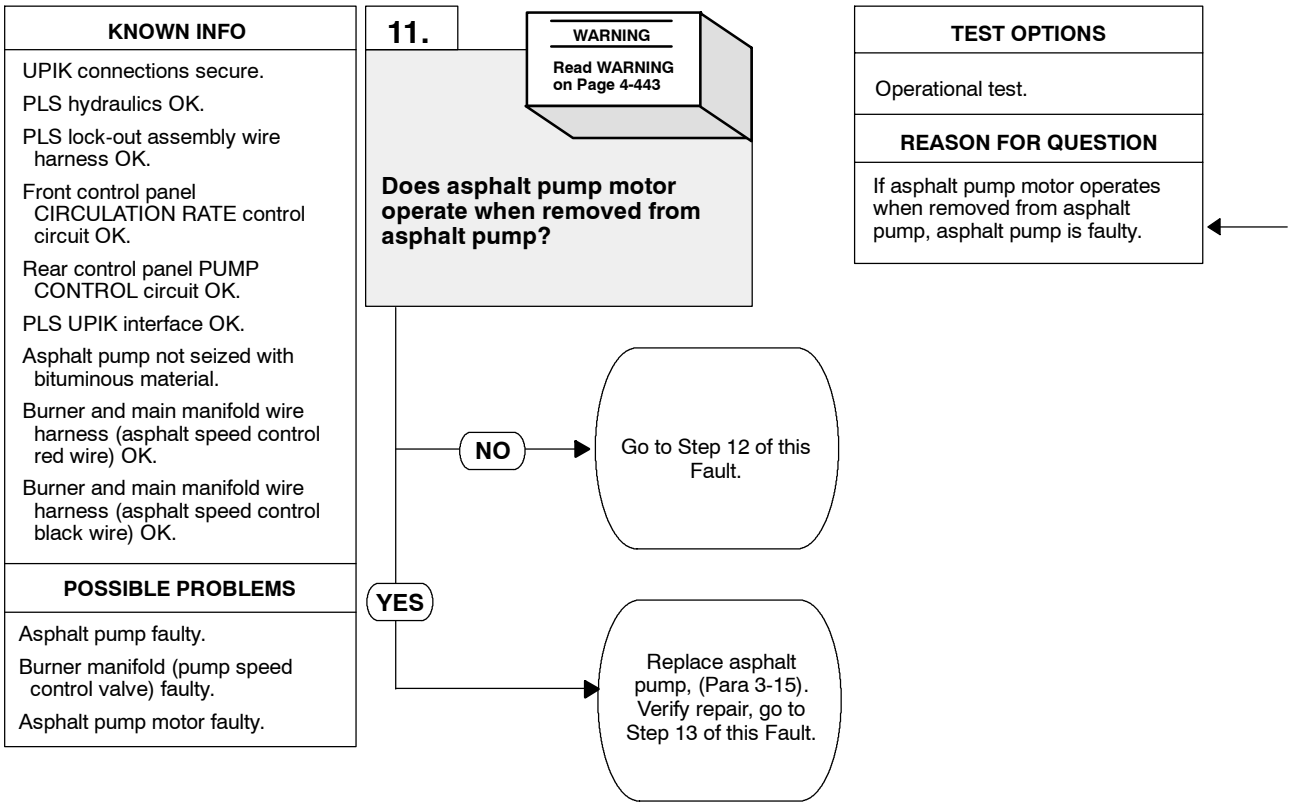
(b) If continuity is measured, go to Step 11 of this Fault.





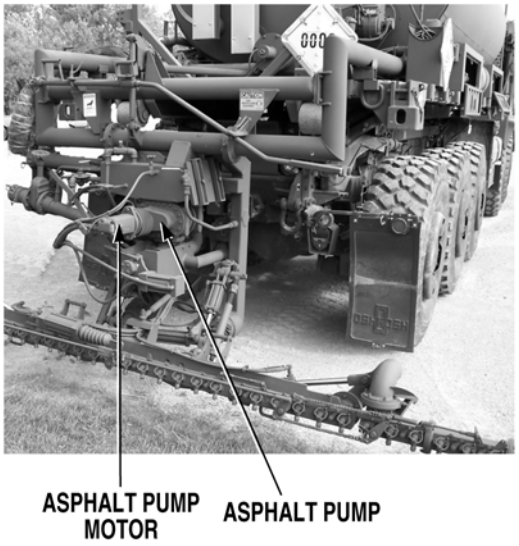


14. ASPHALT PUMP DOES NOT TURN OR TURNS SLOWLY (CONT).



WARNING

To prevent becoming entangled in machinery, stand clear of rotating drives.



OPERATIONAL TEST

(1) Remove asphalt pump motor from asphalt pump, (Para 3-15). Do not disconnect hydraulic hoses.

(2) Push in battery disconnect switch, (TM 9-2320-364-10).

(3) Start engine, (TM 9-2320-364-10).

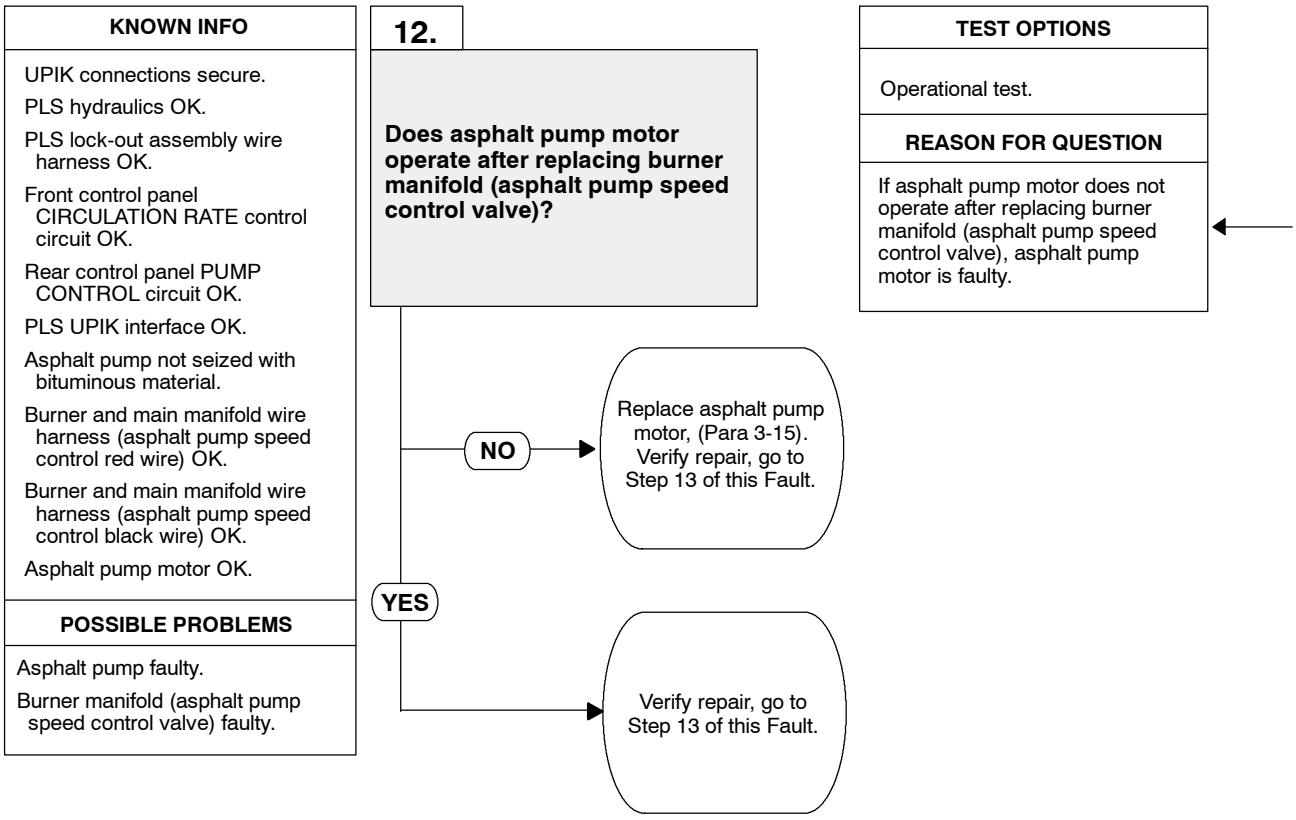
(4) Set up system to circulate in tank using rear control panel, (Para 2-16). Do not open suction valve.

(5) Adjust asphalt pump speed using rear control panel PUMP CONTROL, (Para 2-1). Check if asphalt pump motor is operating.

  (a) If asphalt pump motor is not operating, go to Step 12 of this Fault.

  (b) If asphalt pump motor operates replace asphalt pump, (Para 3-15). Verify repair, go to Step 13 of this Fault.

14. ASPHALT PUMP DOES NOT TURN OR TURNS SLOWLY (CONT).



OPERATIONAL TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Replace burner manifold (asphalt pump speed control valve), (Para 3-30).

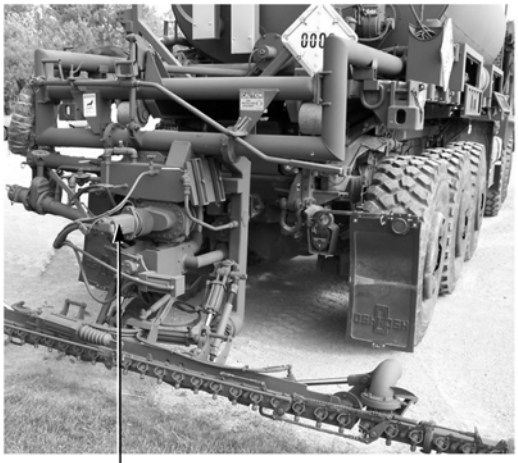
(3) Start engine, (TM 9-2320-364-10).

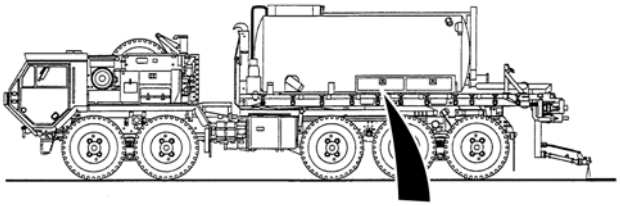
(4) Set up system to circulate in tank using rear control panel, (Para 2-16). Do not open suction valve.

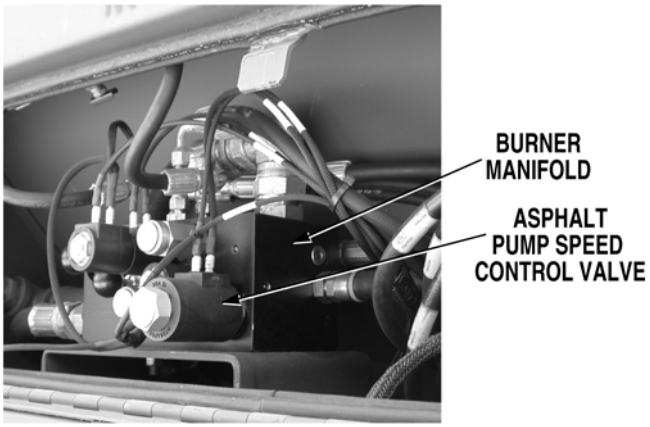
(5) Adjust asphalt pump speed using rear control panel PUMP CONTROL, (Para 2-1). Check if asphalt pump motor is operating.

  (a) If asphalt pump motor is not operating, replace asphalt pump, (Para 3-15).

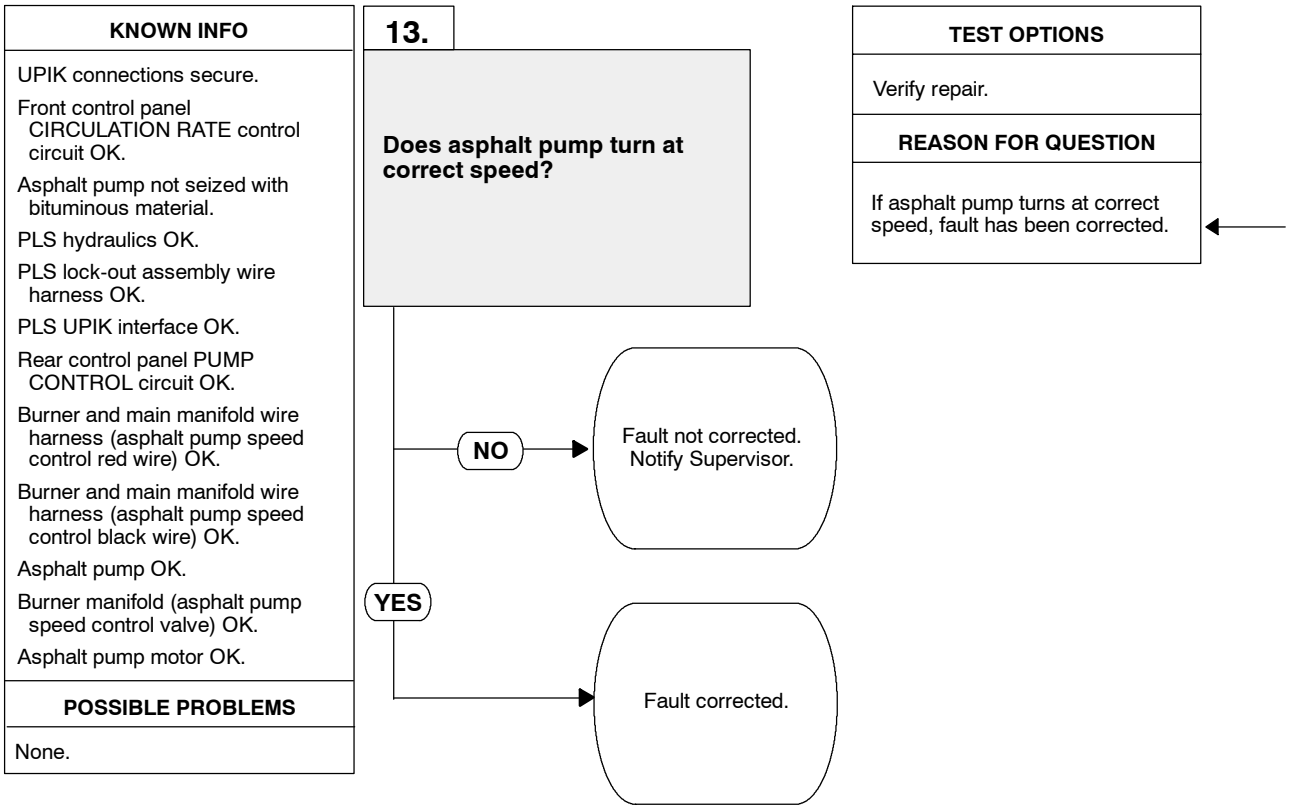
  (b) If asphalt pump motor is operating, verify repair, go to Step 13 of this Fault.







14. ASPHALT PUMP DOES NOT TURN OR TURNS SLOWLY(CONT).





VERIFY REPAIR

(1) If removed, install rear control panel, (Para 3-76).

(2) If removed, install asphalt pump motor, (Para 3-15).

(3) Start engine, (TM 9-2320-364-10).

(4) Turn hydraulic selector switch to CRANE/SRW, (TM 9-2320-364-10).

(5) Turn front control panel POWER switch ON, (Para 2-1).

(6) Turn rear control panel POWER switch ON, (Para 2-1).

(7) Set up system to circulate in tank using rear control panel controls, (Para 2-16).

(8) Adjust asphalt pump speed using rear control panel PUMP CONTROL, (Para 2-1). Check if pump turns at correct speed.

  (a) If asphalt pump does not turn or turns slowly, fault not corrected. Notify Supervisor.

  (b) If asphalt pump turns at correct speed, fault has been corrected.

(9) Shut OFF engine, (TM 9-2320-364-10).

(10) Turn hydraulic selector switch OFF, (TM 9-2320-364-10).

(11) Turn front control panel POWER switch OFF, (Para 2-1).

(12) Turn rear control panel POWER switch OFF, (Para 2-1).

15. ASPHALT PUMP SURGES OR GPM GAGE READING IS ERRATIC.

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanics: Automotive (Item 14, Appendix F)
Multimeter (Item 8, Appendix F)
Jumperwire

Personnel Required
Two

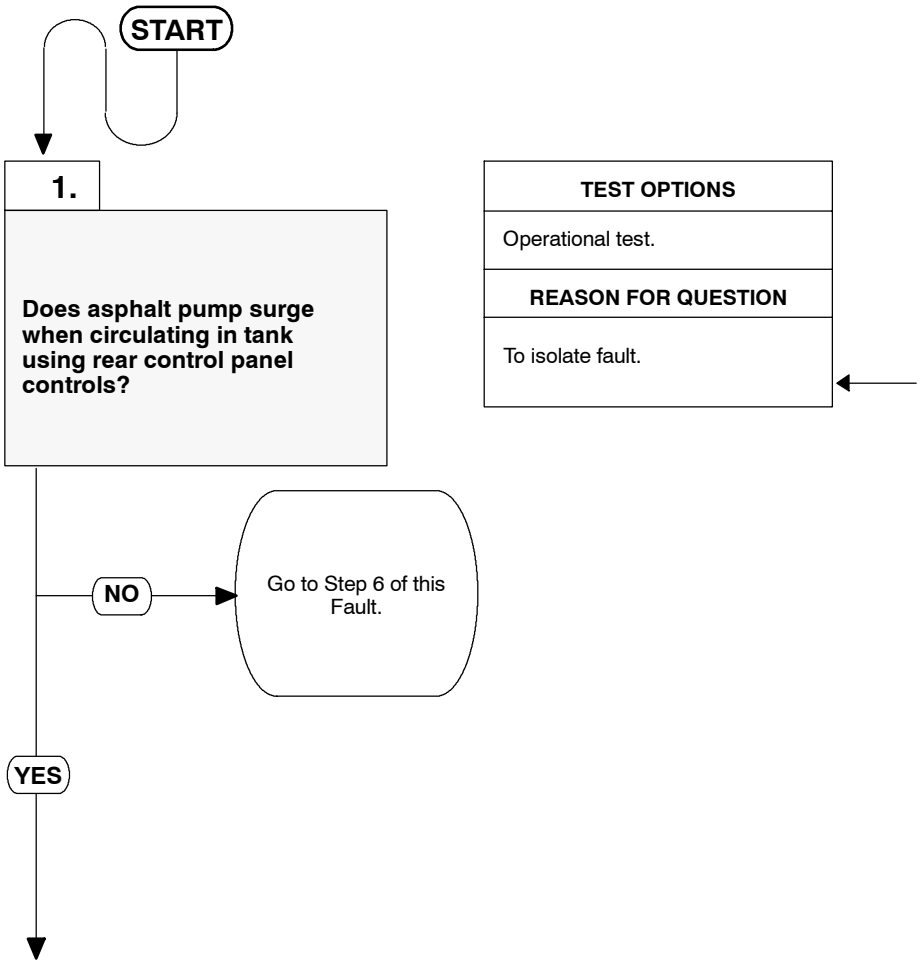
Equipment Condition
Bituminous distributor loaded on PLS, (Para 2-5)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

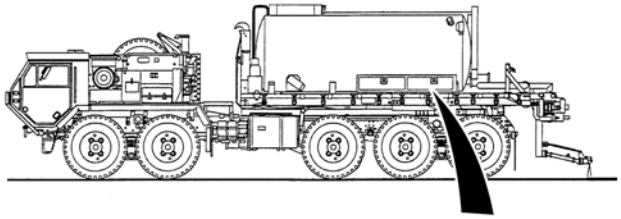
KNOWN INFO

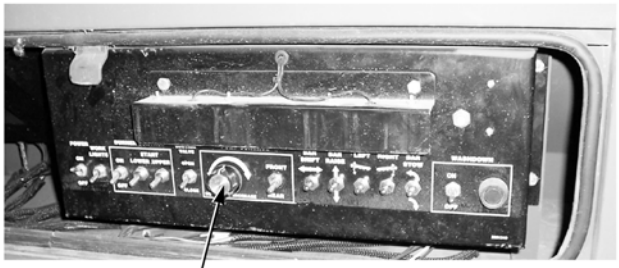
Nothing.

POSSIBLE PROBLEMS

- FRONT/REAR select switch connections loose.
- Pump speed control valve solenoid connections loose.
- Asphalt pump speed control circuit faulty or pump is restricted.
- Rear control panel pump speed control circuit faulty.
- Pump speed sense circuit faulty.
- Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
- Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
- Controller faulty.
- Radar ground speed sensor not securely mounted.
- Radar ground speed sensor wire harness (black wire) faulty.
- Radar ground speed sensor wire harness (red wire) faulty.
- Radar ground speed sensor faulty.
- Radar ground speed sensor wire harness (green wire) faulty.
- Controller harness (green wire) faulty.



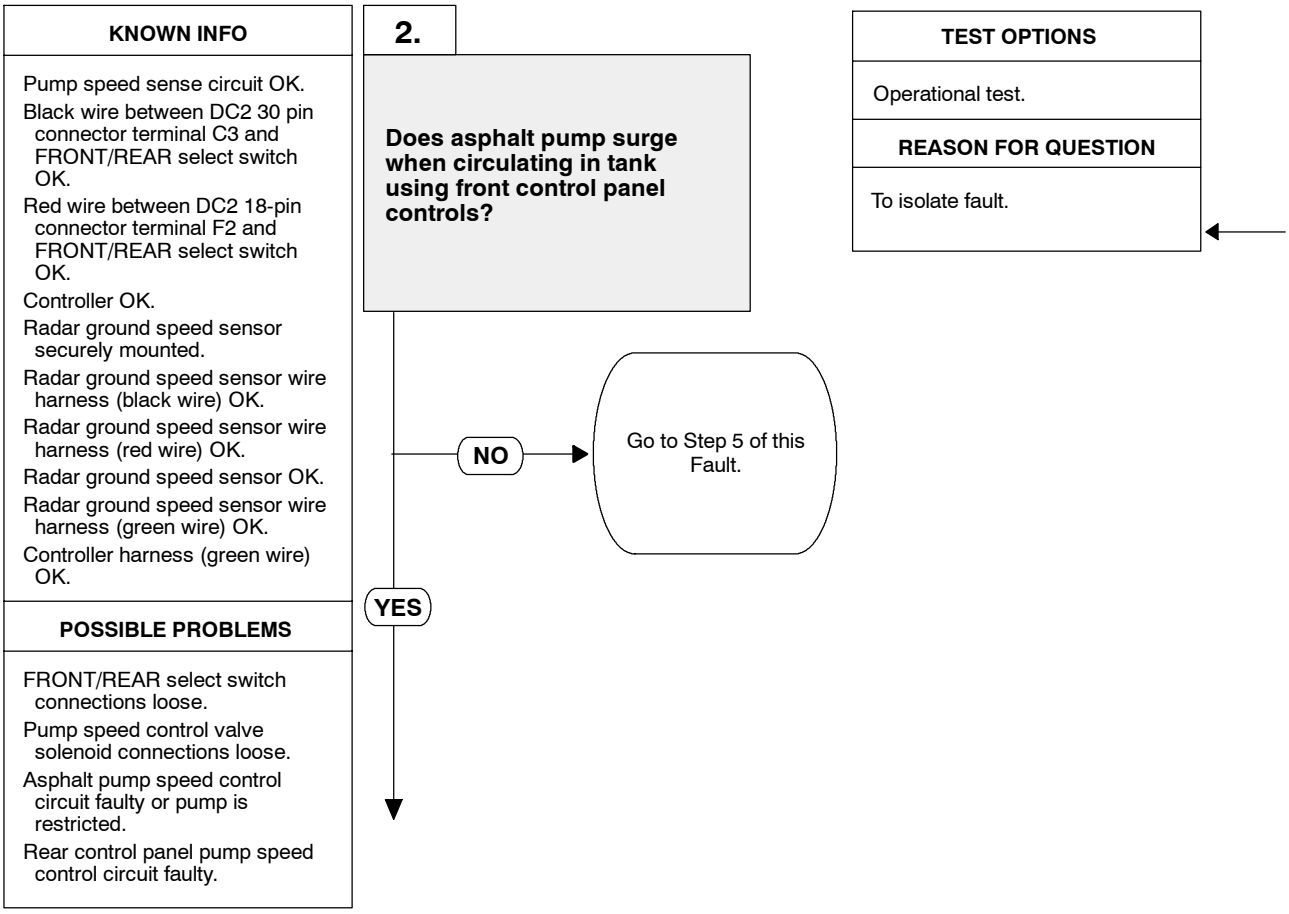




PUMP CONTROL

OPERATIONAL TEST
(1) Start engine (TM 9-2320-364-10) (2) Set up distributor to circulate material in tank using rear control panel, (Para 2-16). (3) Check if asphalt pump is surging. (a) If pump is not surging, go to Step 6 of this Fault. (b) If pump is surging, go to Step 2 of this Fault.

15. ASPHALT PUMP SURGES OR GPM GAGE READING IS ERRATIC (CONT).



OPERATIONAL TEST

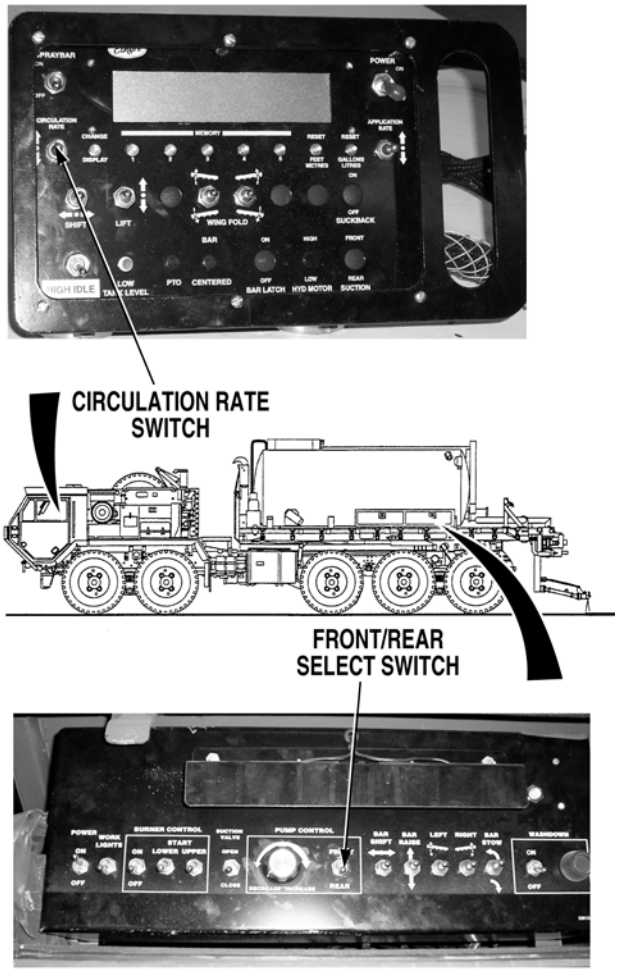
(1) Turn rear control panel FRONT/REAR select switch to FRONT, (Para 2-1).

(2) Adjust pump speed using front control panel CIRCULATION RATE switch, (Para 2-16).

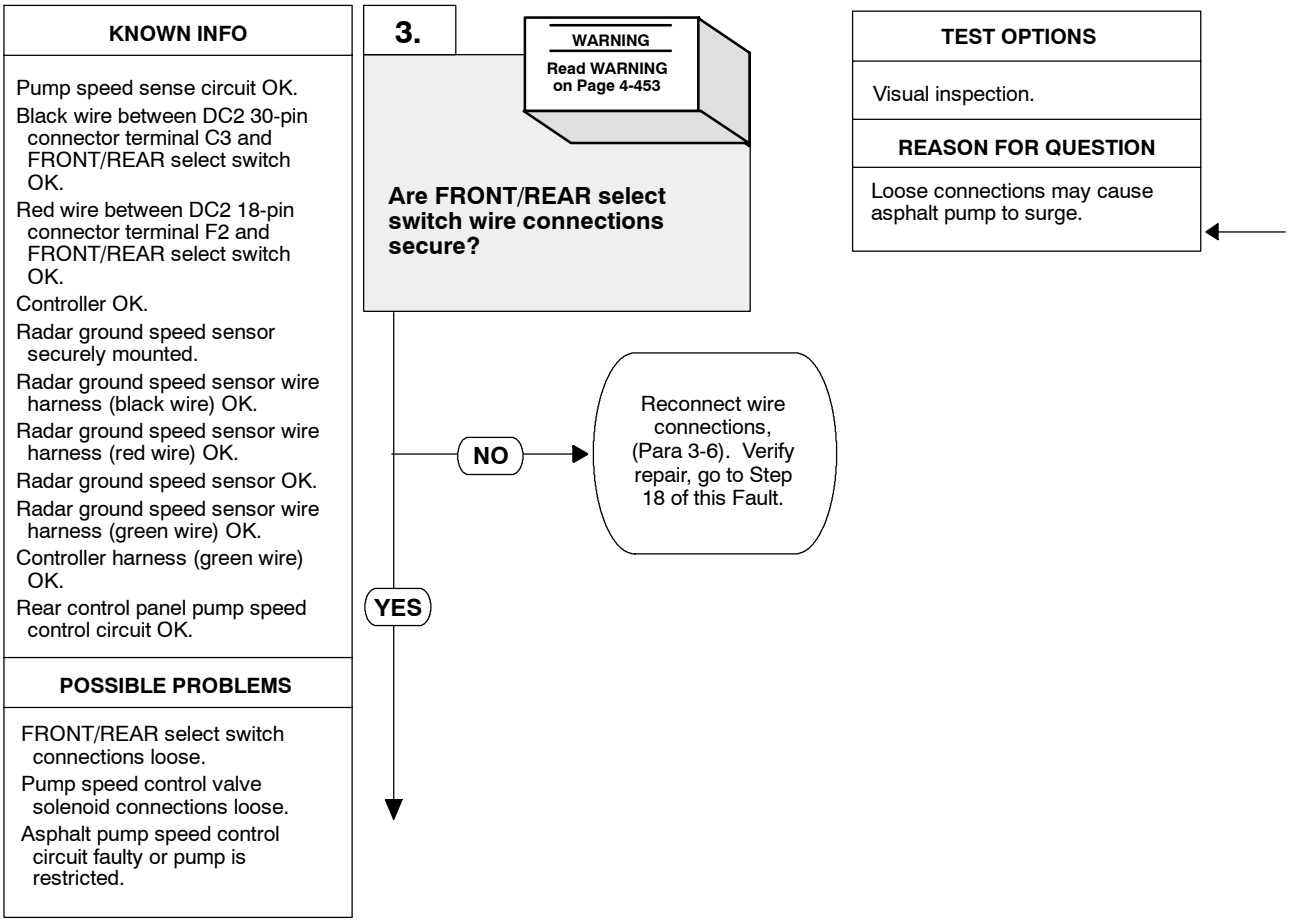
(3) Check if asphalt pump is surging.

  (a) If pump is not surging, go to Step 5 of this Fault.

  (b) If pump is surging, go to Step 3 of this Fault.

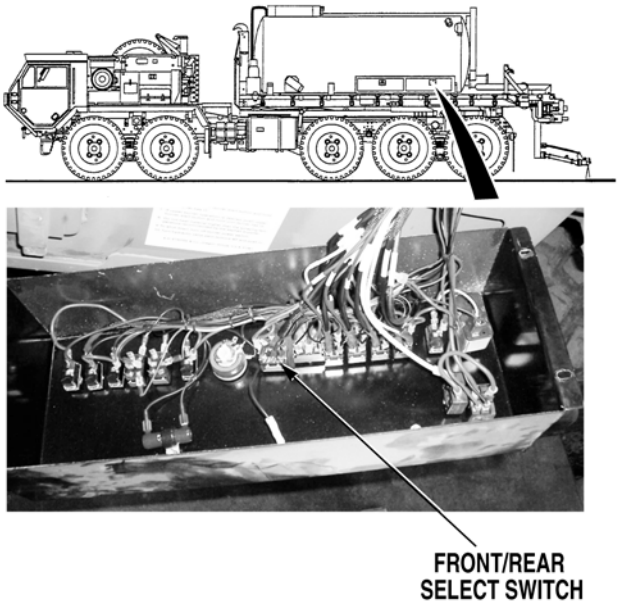


15. ASPHALT PUMP SURGES OR GPM GAGE READING IS ERRATIC (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.



VISUAL INSPECTION

(1) Shut off engine, (TM 9-2320-364-10).

(2) Turn front control panel POWER switch OFF, (Para 2-1).

(3) Turn rear control panel POWER switch OFF, (Para 2-1).

(4) Pull out battery disconnect switch, (TM 9-2320-364-10).

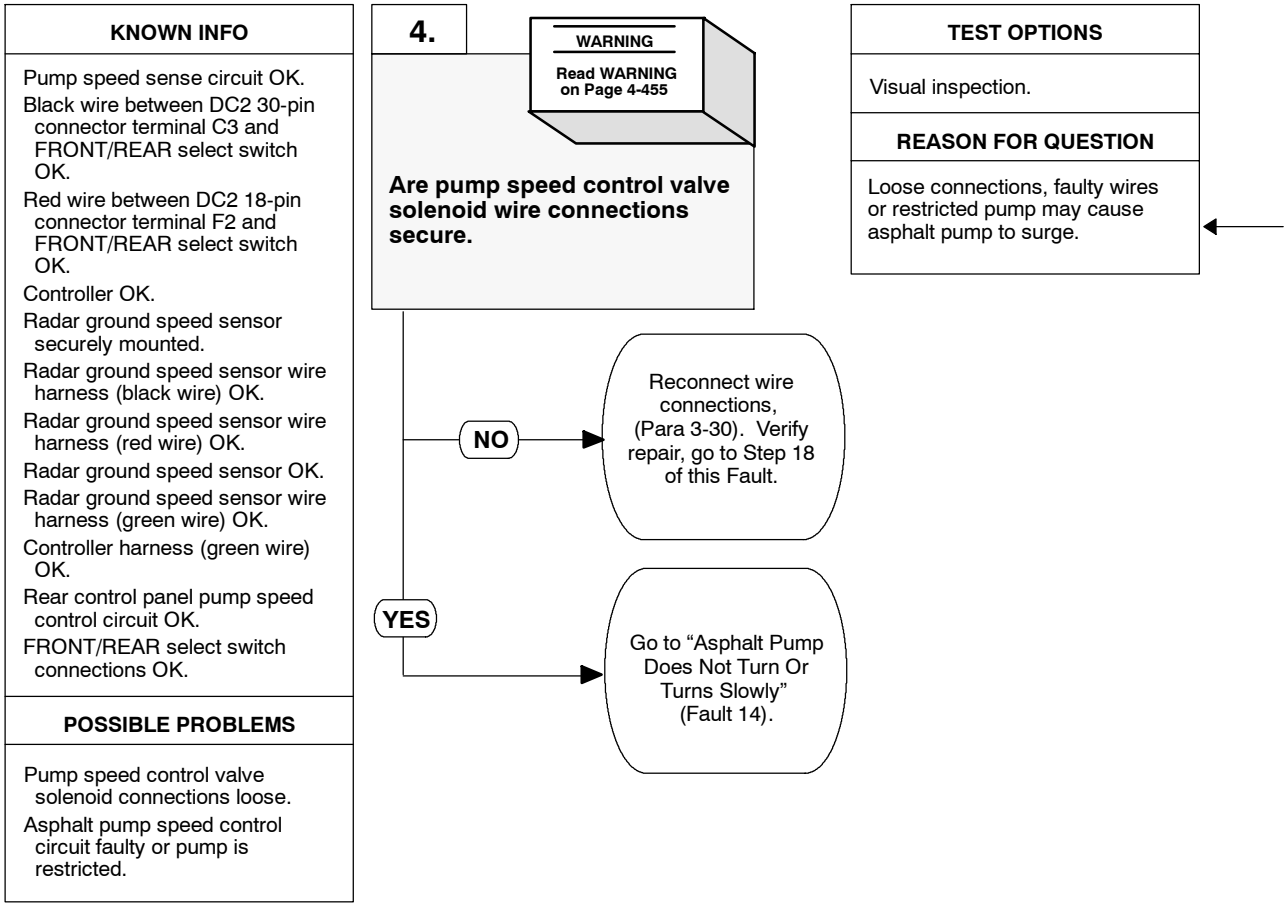
(5) Remove rear control panel, (Para 3-76).

(6) Check FRONT/REAR select switch for loose connections.

(a) If connections are loose, tighten loose connections, (Para 3-6). Verify repair go to Step 18 of this Fault.

(b) If connections are secure, go to Step 4 of this Fault.

15. ASPHALT PUMP SURGES OR GPM GAGE READING IS ERRATIC (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

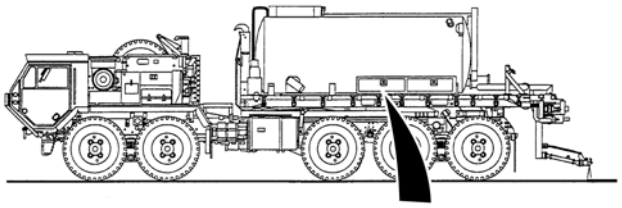
VISUAL INSPECTION

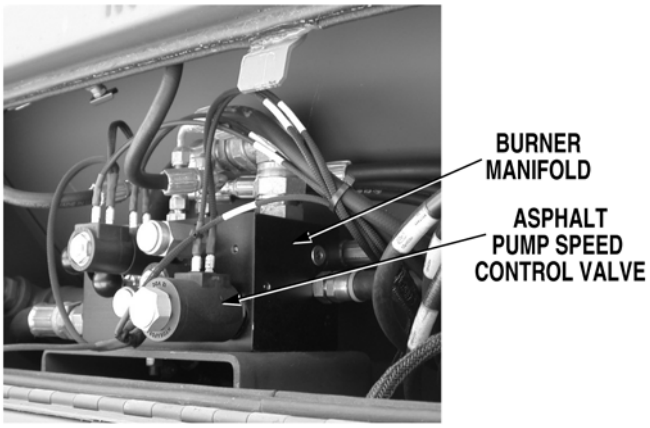
(1) Install rear control panel, (Para 3-76).

(2) Check asphalt pump speed control valve solenoid for loose connections.

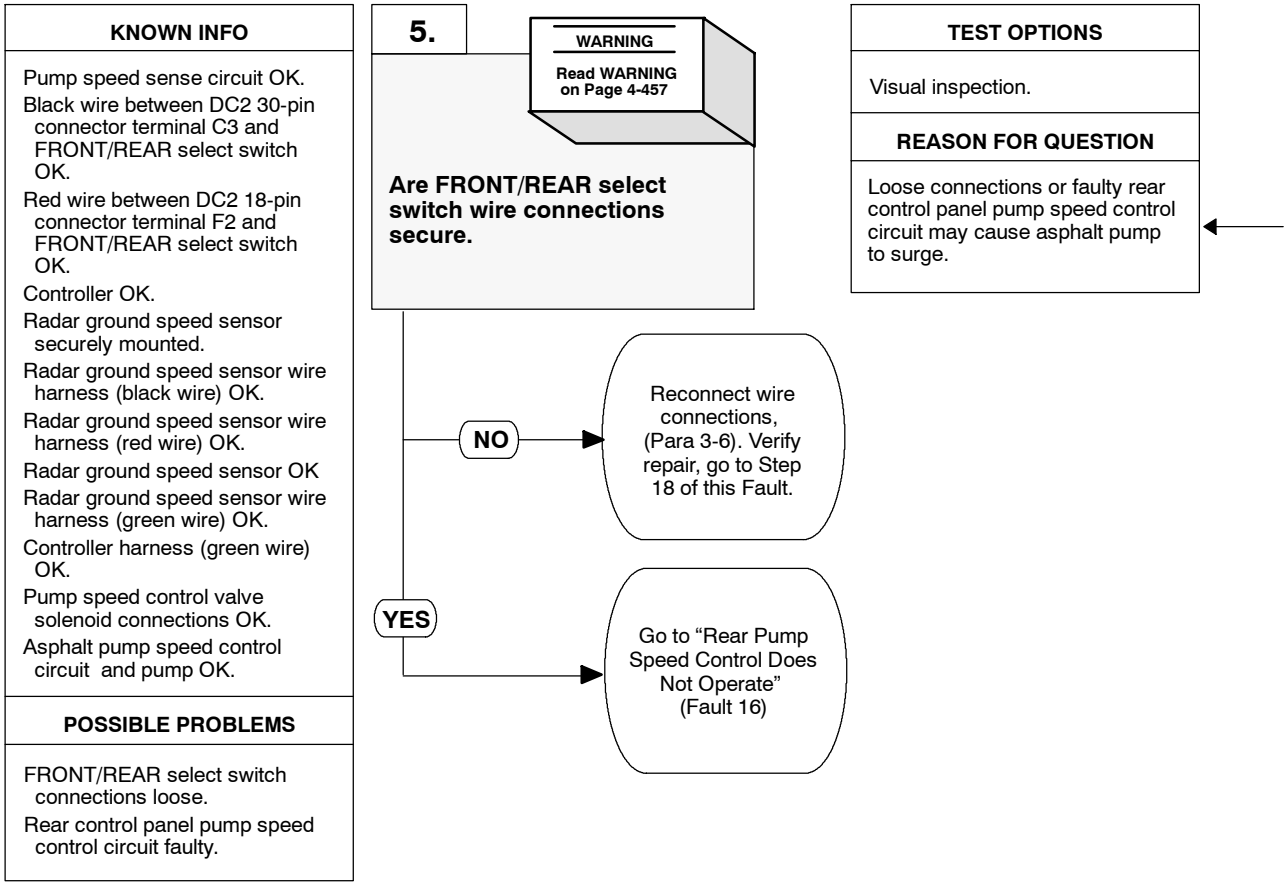
(a) If connections are loose, tightening loose connections, (Para 3-30). Verify repair go to Step 18 of this Fault.

(b) If connections are secure, go "Asphalt Pump Does Not Turn Or Turns Slowly" (Fault 14).





15. ASPHALT PUMP SURGES OR GPM GAGE READING IS ERRATIC (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VISUAL INSPECTION

(1) Shut off engine, (TM 9-2320-364-10).

(2) Turn front control panel POWER switch OFF, (Para 2-1).

(3) Turn rear control panel POWER switch OFF, (Para 2-1).

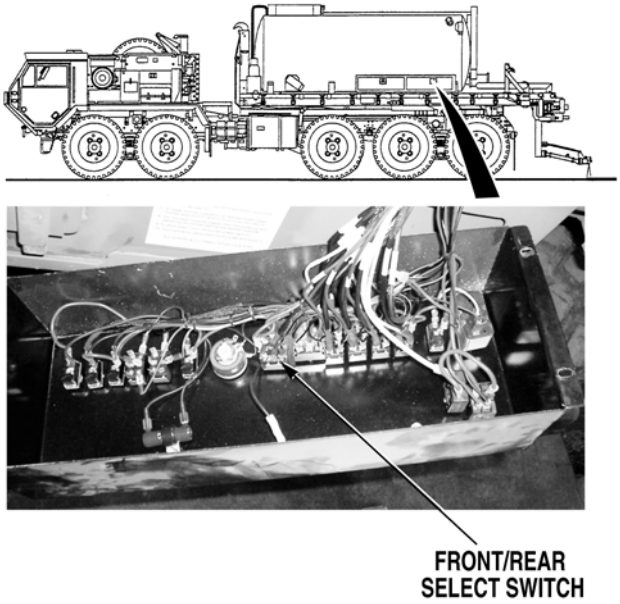
(4) Pull out battery disconnect switch, (TM 9-2320-364-10).

(5) Remove rear control panel, (Para 3-76).

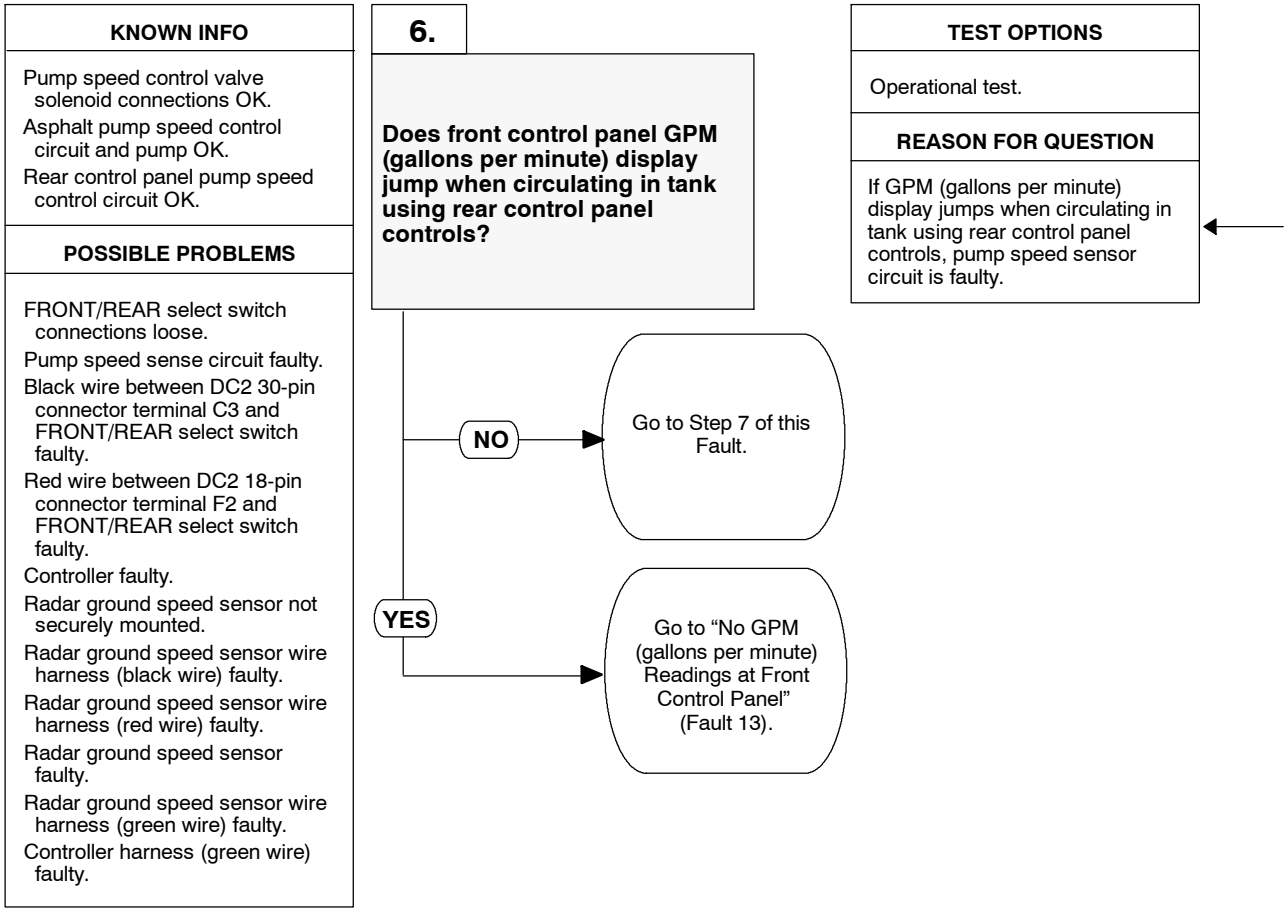
(6) Check FRONT/REAR select switch for loose connections.

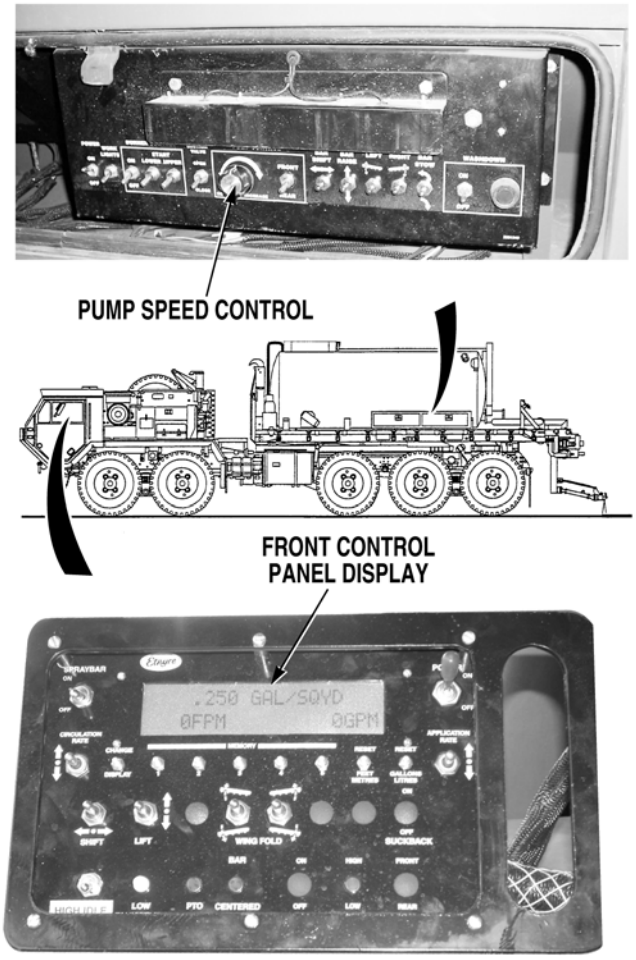
(a) If connections are loose, tighten loose connections, (para 3-6). Verify repair go to Step 18 of this Fault.

(b) If connections are secure, go to “Rear Pump Speed Control Does Not Operate” (Fault 16).



15. ASPHALT PUMP SURGES OR GPM GAGE READING IS ERRATIC (CONT).





OPERATIONAL TEST

Check if front control panel GPM (gallons per minute) display is jumping.

(a) If display is not jumping, go to Step 7 of this Fault.

(b) If display is jumping, go to "No GPM (gallons per minute) Readings at Front Control Panel" (Fault 13).

15. ASPHALT PUMP SURGES OR GPM GAGE READING IS ERRATIC (CONT).

KNOWN INFO

Pump speed control valve solenoid connections OK.
Asphalt pump speed control circuit and pump OK.
Rear control panel pump speed control circuit OK .
Pump speed sense circuit OK.
Rear control panel light OK.

POSSIBLE PROBLEMS

FRONT/REAR select switch connections loose.
Black wire between DC2 30-pin connector terminal C3 and FRONT/REAR select switch faulty.
Red wire between DC2 18-pin connector terminal F2 and FRONT/REAR select switch faulty.
Controller faulty.
Radar ground speed sensor not securely mounted.
Radar ground speed sensor wire harness (black wire) faulty.
Radar ground speed sensor wire harness (red wire) faulty.
Radar ground speed sensor faulty.
Radar ground speed sensor wire harness (green wire) faulty.
Controller harness (green wire) faulty.

7.

Does front control panel GPM (gallons per minute) display jump and asphalt pump surge when circulating in tank using front control panel controls?

NO → Go to Step 11 of this Fault.

YES → Go to Step 8 of this Fault.

TEST OPTIONS

Operational test.

REASON FOR QUESTION

If GPM (gallons per minute) display jumps and asphalt pump surges when circulating in tank using front control panel controls, controller circuit is faulty.

OPERATIONAL TEST

(1) Turn rear control panel FRONT/REAR select switch to FRONT, (Para 2-1).

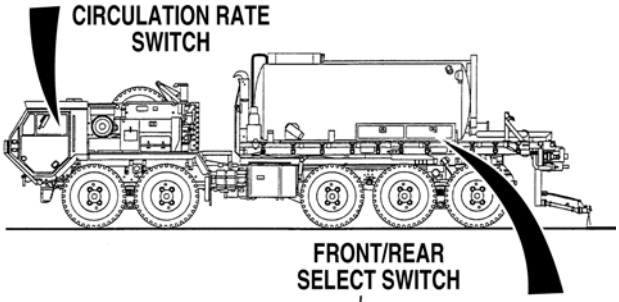
(2) Adjust pump speed using front control panel CIRCULATION RATE switch, (Para 2-16).

(3) Check if front control panel GPM (gallons per minute) display is jumping.

  (a) If display is not jumping, go to Step 11 of this Fault.

  (b) If display is jumping, go to Step 8 of this Fault.

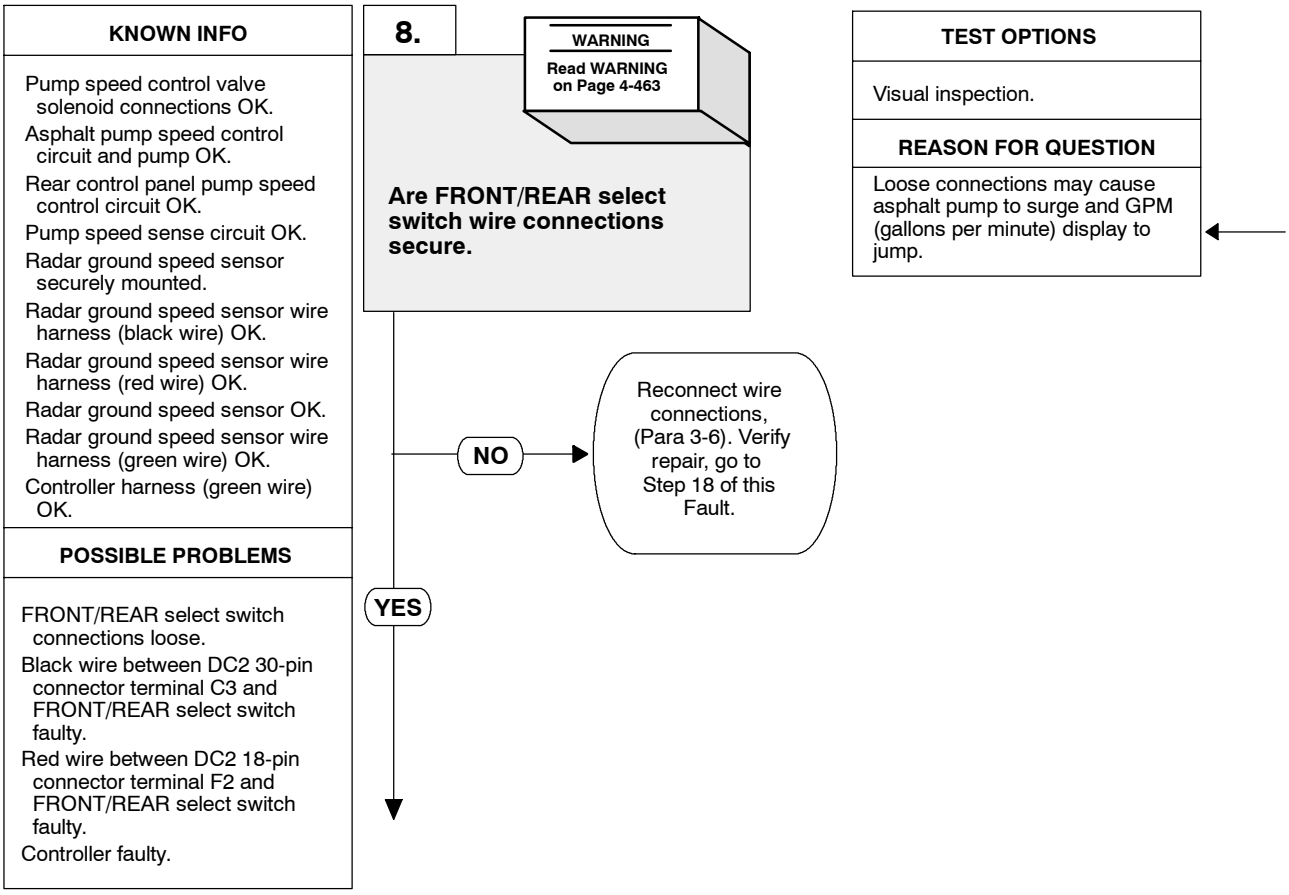






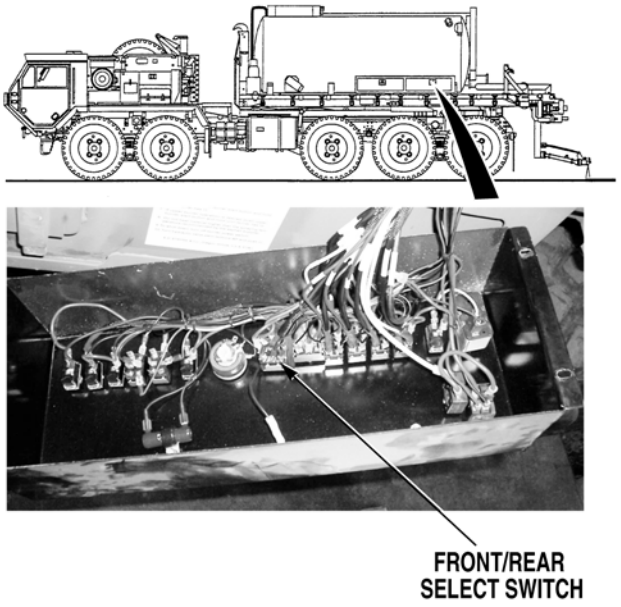


15. ASPHALT PUMP SURGES OR GPM GAGE READING IS ERRATIC (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.



VISUAL INSPECTION

(1) Shut off engine, (TM 9-2320-364-10).

(2) Turn front control panel POWER switch OFF, (Para 2-1).

(3) Turn rear control panel POWER switch OFF, (Para 2-1).

(4) Pull out battery disconnect switch, (TM 9-2320-364-10).

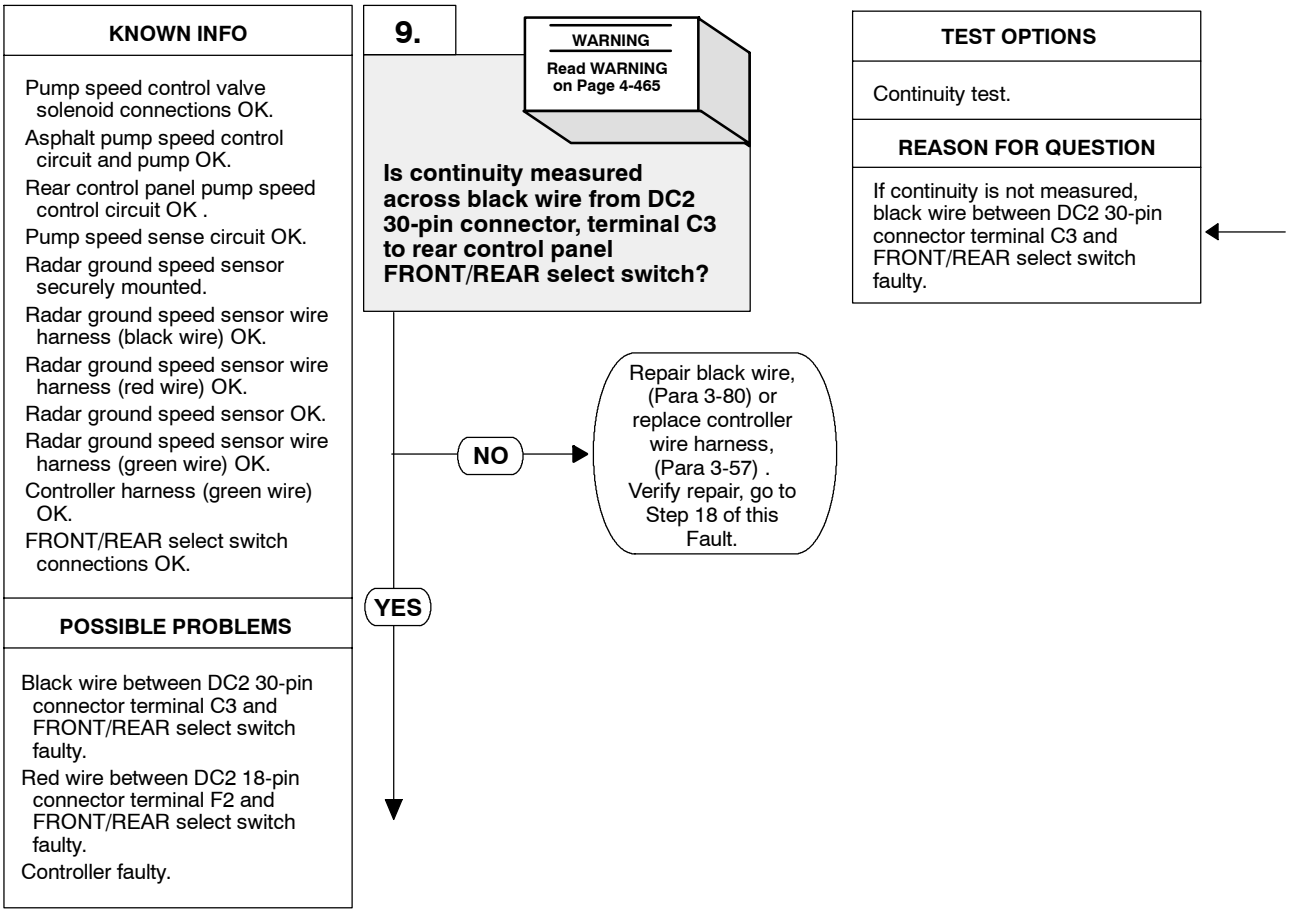
(5) Remove rear control panel, (Para 3-76).

(6) Check FRONT/REAR select switch for loose connections.

(a) If connections are loose, tighten loose connections, (Para 3-6). Verify repair, go to Step 18 of this Fault.

(b) If connections are secure, go to Step 9 of this Fault.

15. ASPHALT PUMP SURGES OR GPM GAGE READING IS ERRATIC (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Remove controller from mounting surface, (Para 3-28).

(2) Disconnect DC2 30-pin connector from controller, (Para 3-28).

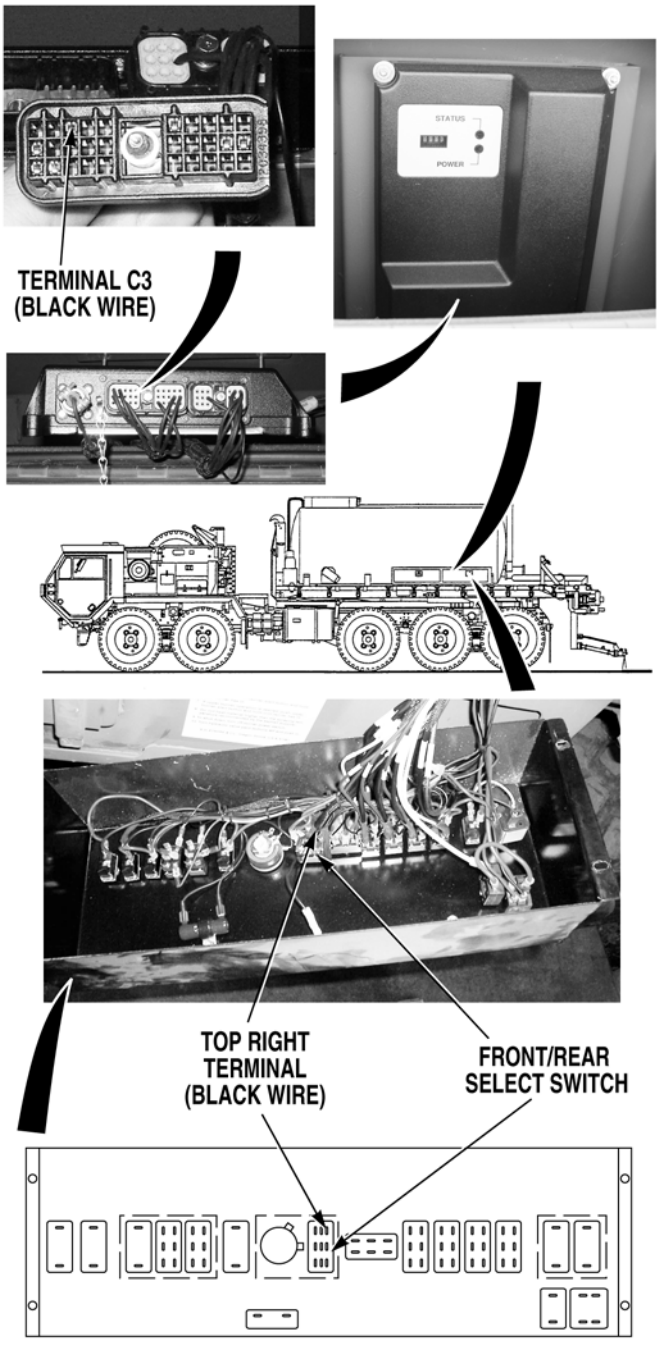
(3) Set multimeter select switch to ohms.

(4) Connect positive (+) multimeter lead to black wire at DC2 30-pin connector, terminal C3.

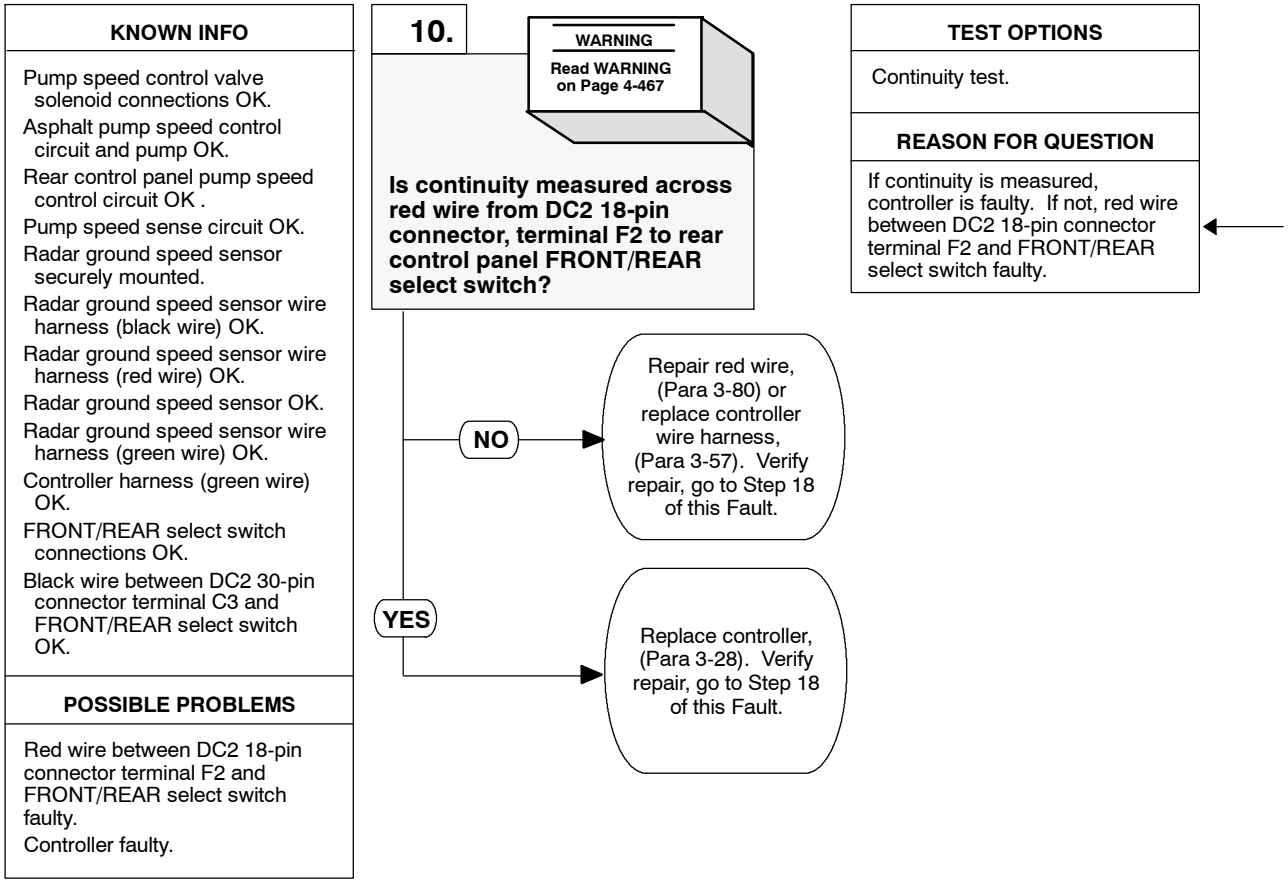
(5) Connect negative (-) multimeter lead to FRONT/REAR select switch, top right terminal.

(a) If continuity is not measured, repair black wire, (Para 3-80) or replace controller wire harness, (Para 3-57). Verify repair, go to Step 18 of this Fault.

(b) If continuity is measured, go to Step 10 of this Fault.



15. ASPHALT PUMP SURGES OR GPM GAGE READING IS ERRATIC (CONT).

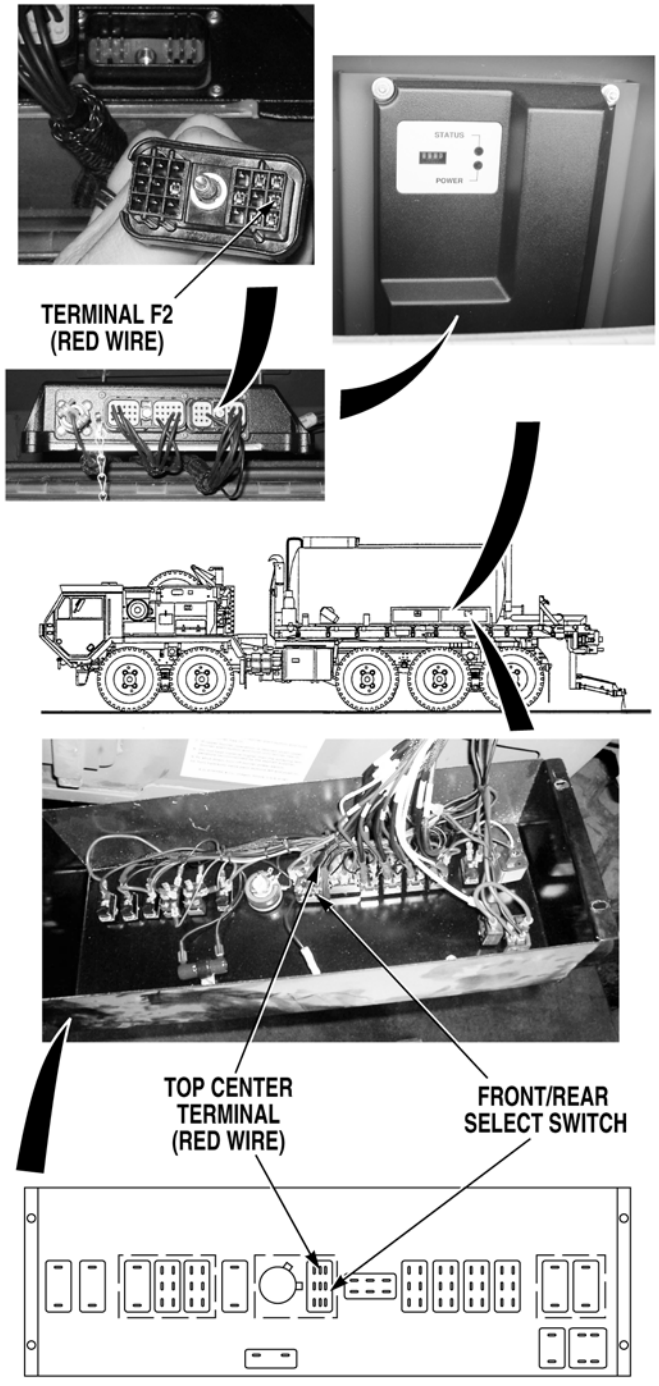


WARNING

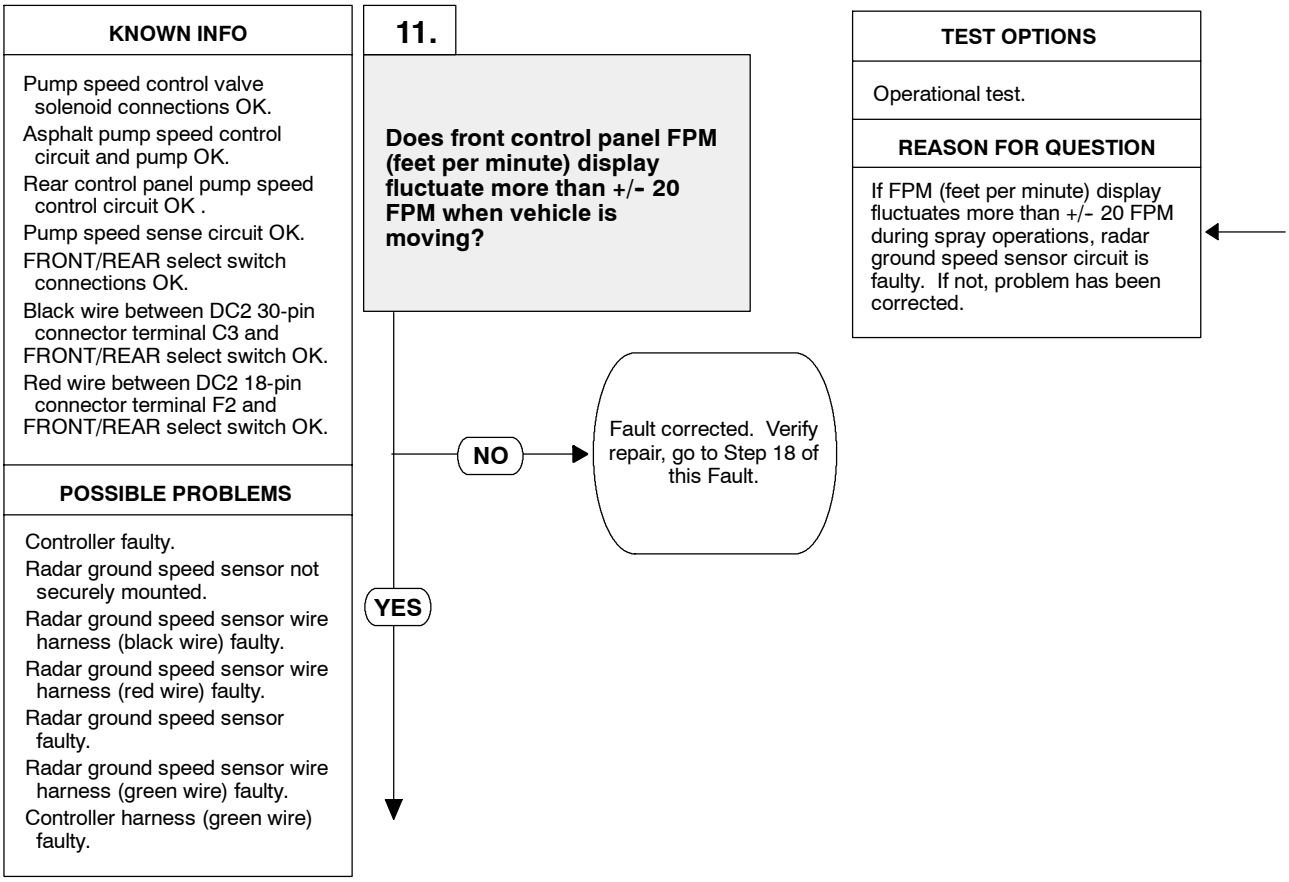
Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

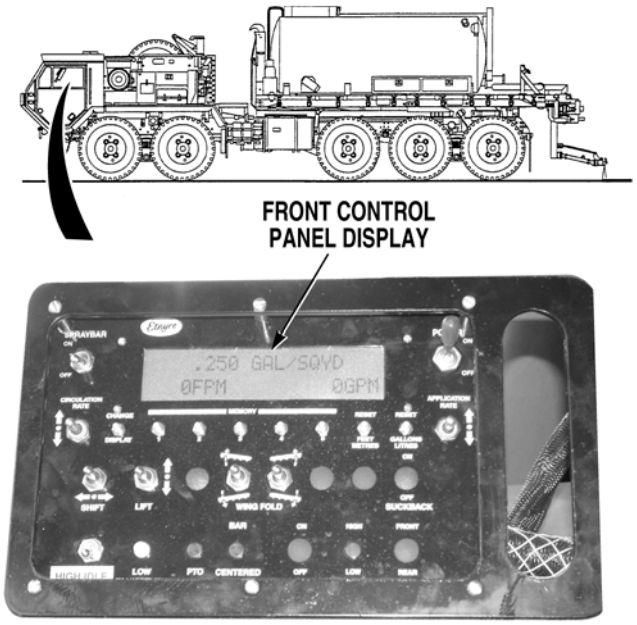
CONTINUITY TEST

(1) Disconnect DC2 18-pin connector.
(2) Set multimeter select switch to ohms.
(3) Connect positive (+) multimeter lead to black wire at DC2 18-pin connector, terminal F2.
(4) Connect negative (-) multimeter lead to FRONT/REAR select switch, top left terminal.
    (a) If continuity is not measured, repair red wire, (Para 3-80) or replace controller wire harness, (Para 3-57).
    (b) If continuity is measured, replace controller, (Para 3-28).
(5) Verify repair, go to Step 18 of this Fault.



15. ASPHALT PUMP SURGES OR GPM GAGE READING IS ERRATIC (CONT).





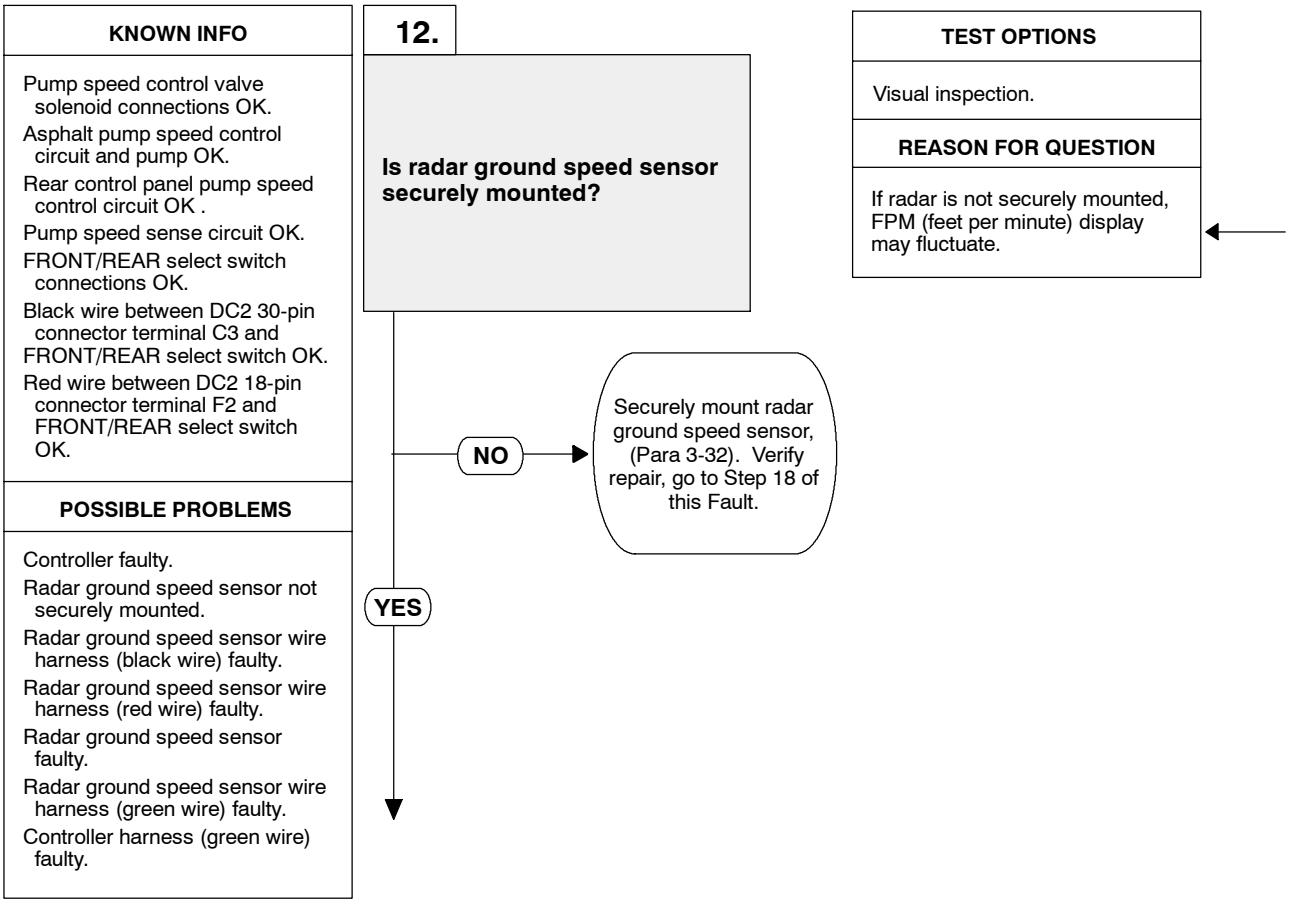
OPERATIONAL TEST

Check if front control panel FPM (feet per minute) display fluctuates more than +/- 20 FPM while vehicle is moving.

(a) If display does not fluctuate more than +/- 20 FPM, problem has been corrected. Verify repair, go to Step 18 of this Fault.

(b) If display fluctuates more than +/- 20 FPM, go to Step 12 of this Fault.

15. ASPHALT PUMP SURGES OR GPM GAGE READING IS ERRATIC (CONT).



VISUAL INSPECTION

(1) Shut off engine, (TM 9-2320-364-10).

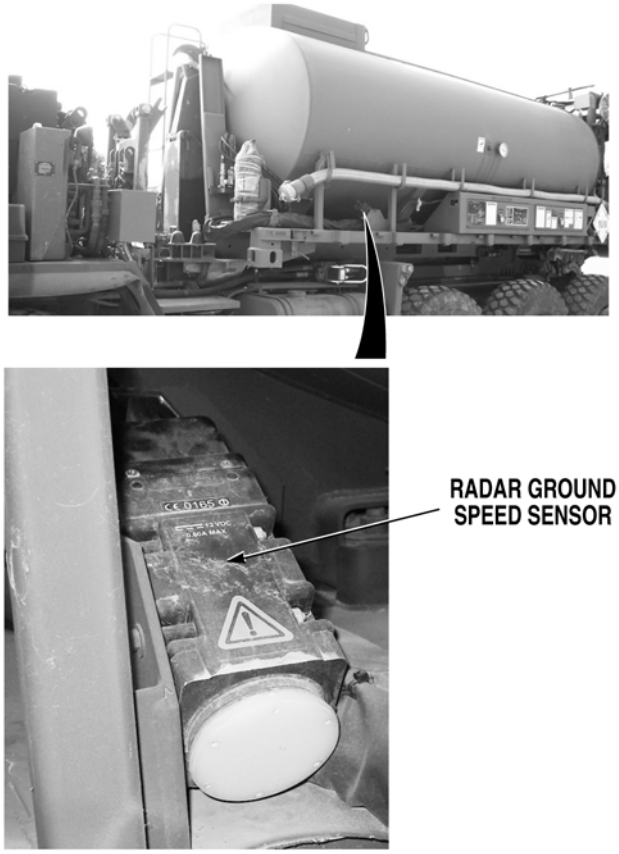
(2) Turn front control panel POWER switch OFF, (Para 2-1).

(3) Turn rear control panel POWER switch OFF, (Para 2-1).

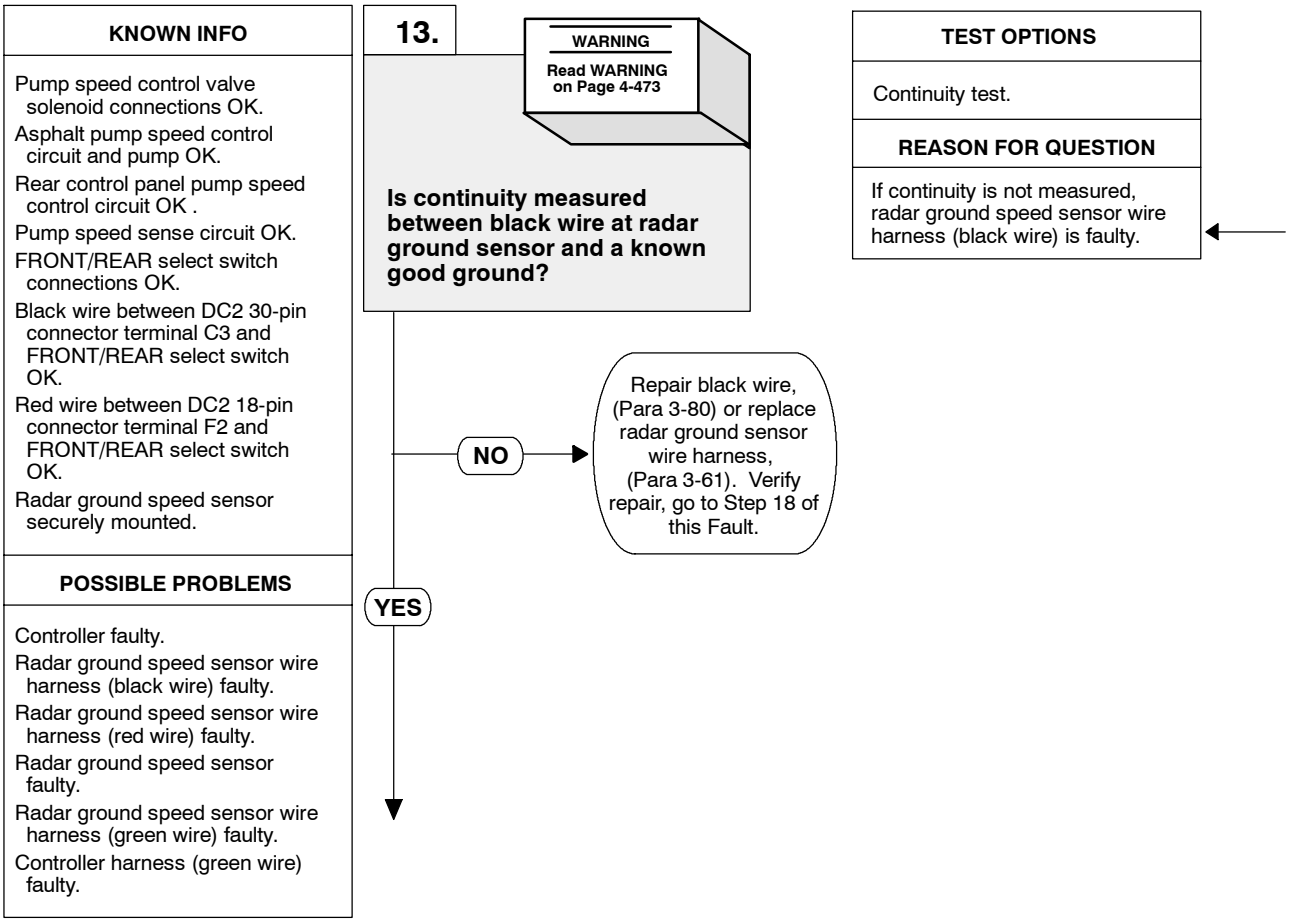
(4) Check if radar ground speed sensor is securely mounted.

  (a) If radar ground speed sensor is not securely mounted, reinstall radar ground speed sensor, (Para 3-32). Verify repair, go to Step 18 of this Fault.

  (b) If radar ground speed sensor is securely mounted, go to Step 13 of this Fault.



15. ASPHALT PUMP SURGES OR GPM GAGE READING IS ERRATIC (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Remove radar ground speed sensor cover, (Para 3-61).

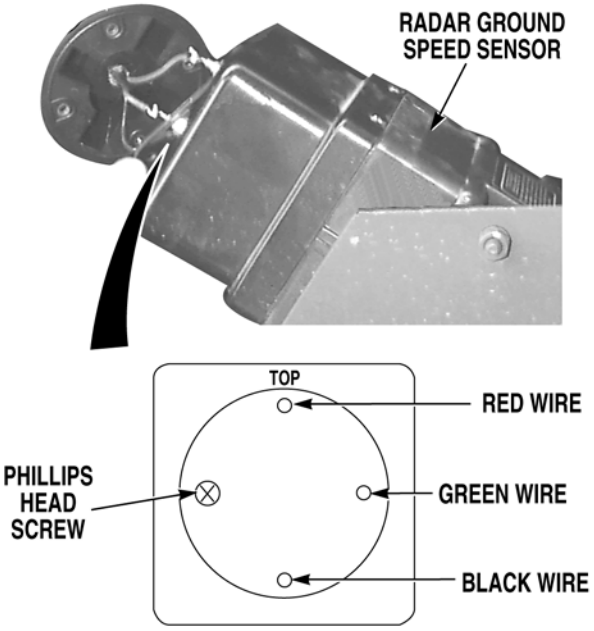
(3) Set multimeter select switch to ohms.

(4) Connect positive (+) multimeter lead to black wire at radar ground speed sensor.

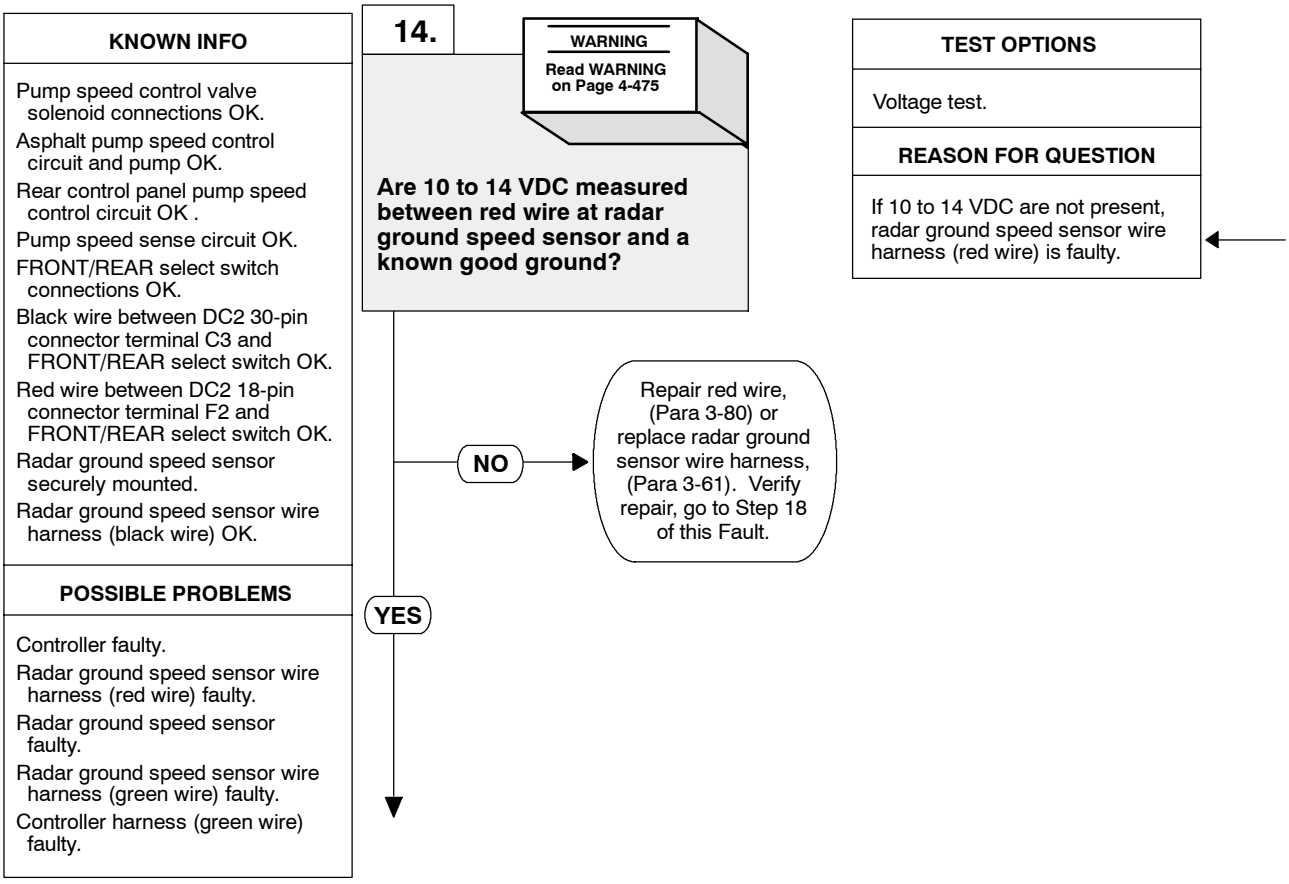
(5) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, repair black wire, (Para 3-80) or replace radar ground speed sensor wire harness, (Para 3-61). Verify repair, go to Step 18 of this Fault.

(b) If continuity is measured, go to Step 14 of this Fault.

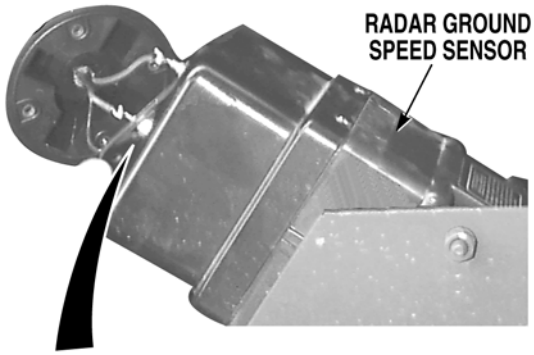


15. ASPHALT PUMP SURGES OR GPM GAGE READING IS ERRATIC (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.



VOLTAGE TEST

(1) Push in battery disconnect switch, (TM 9-2320-364-10).

(2) Turn front control panel POWER switch ON, (Para 2-1).

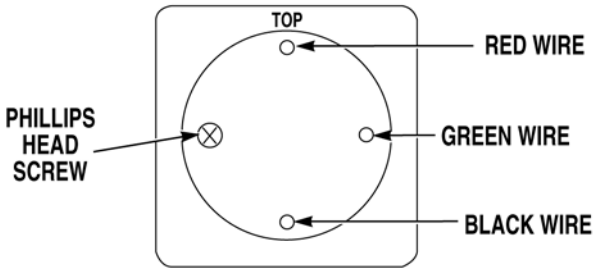
(3) Turn rear control panel POWER switch ON, (Para 2-1).

(4) Connect positive (+) multimeter lead to red wire at radar ground speed sensor.

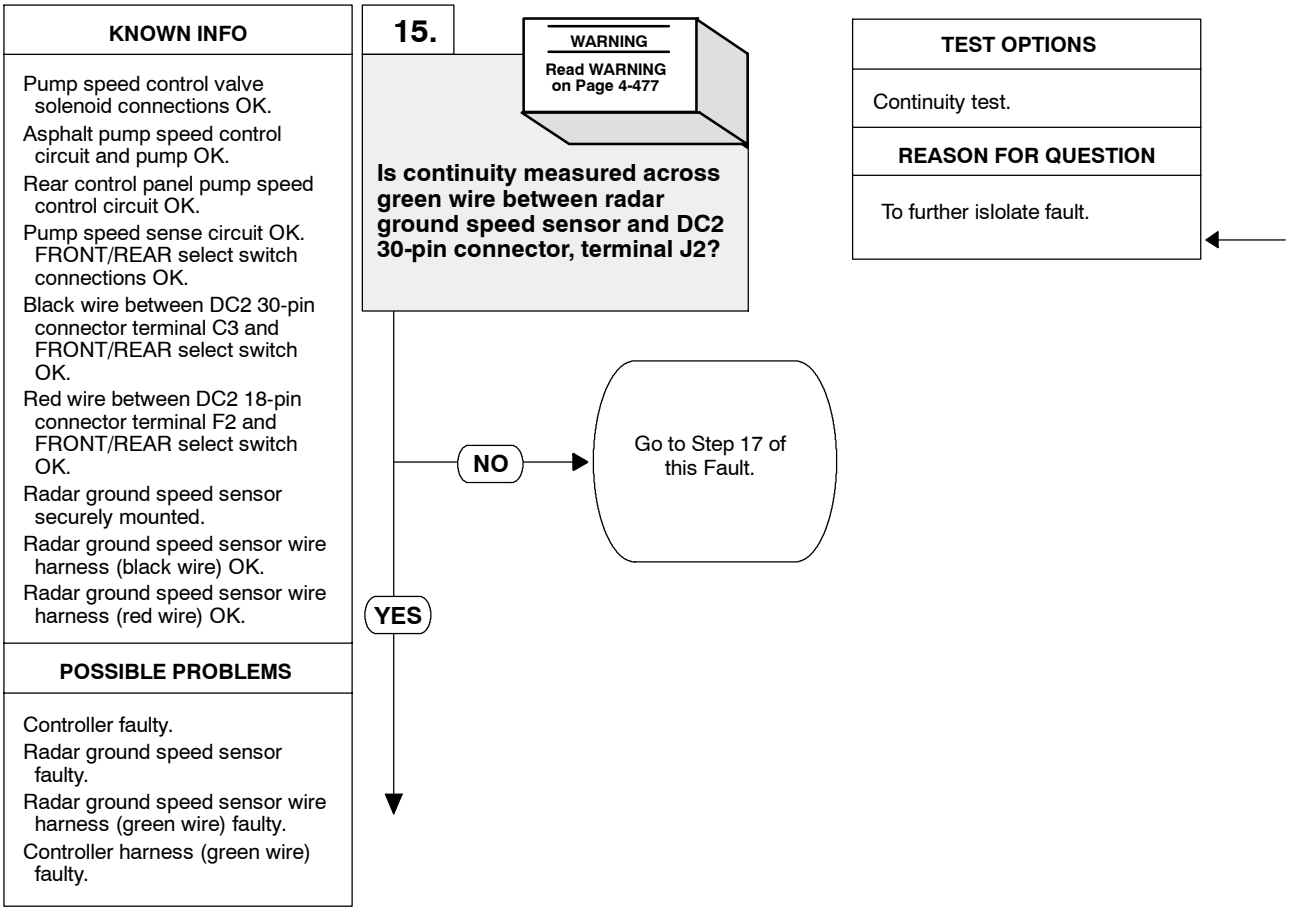
(5) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, repair red wire, (Para 3-80) or replace radar ground speed sensor wire harness, (Para 3-61) Verify repair, go to Step 18 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 15 of this Fault.

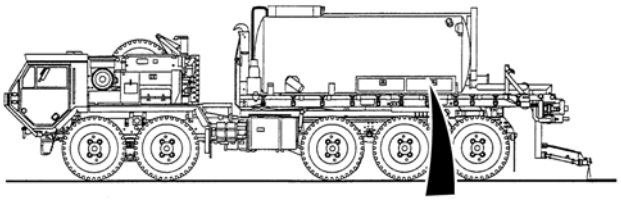


15. ASPHALT PUMP SURGES OR GPM GAGE READING IS ERRATIC (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.







CONTINUITY TEST

(1) Turn front control panel POWER switch OFF, (Para 2-1).

(2) Turn rear control panel POWER switch OFF, (Para 2-1).

(3) Pull out battery disconnect switch, (TM 9-2320-364-10).

(4) Remove controller from mounting surface, (Para 3-28).

(5) Disconnect DC2 30-pin connector from controller, (Para 3-28).

(6) Set multimeter select switch to ohms.

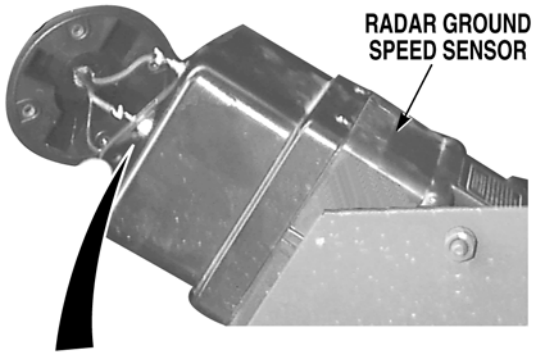
(7) Connect jumperwire between green wire at radar ground speed sensor.

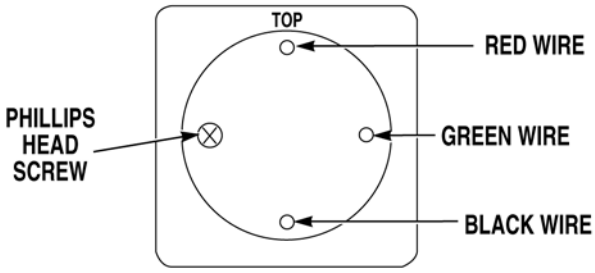
(8) Connect positive (+) multimeter lead to green wire at DC2 30-pin connector, terminal J2.

(9) Connect negative (-) multimeter lead to a known good ground.

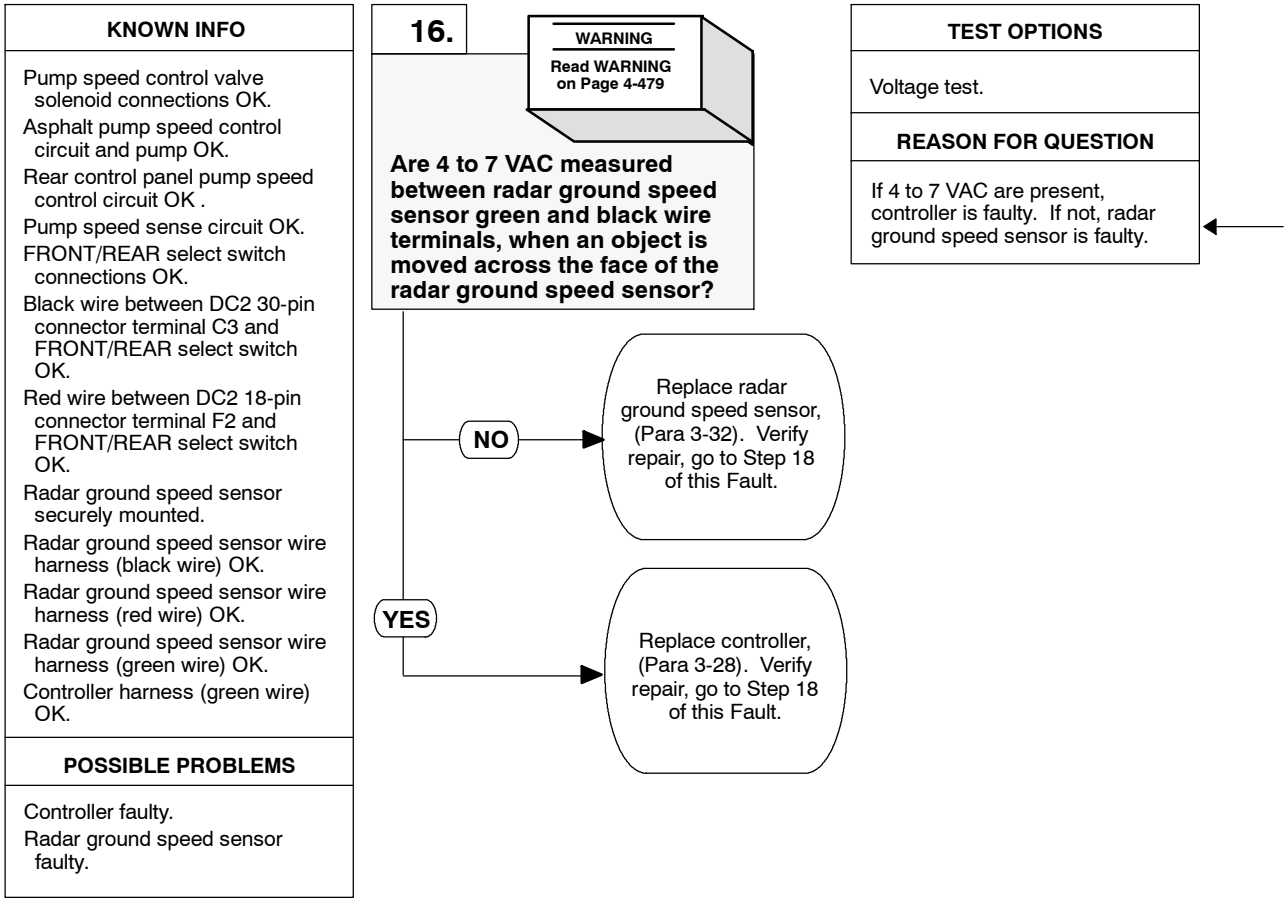
(a) If continuity is not measured, go to Step 17 of this Fault.

(b) If continuity is measured, go to Step 16 of this Fault.





15. ASPHALT PUMP SURGES OR GPM GAGE READING IS ERRATIC (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

(1) Connect DC2 30-pin connector, (Para 3-28).

(2) Install controller, (Para 3-28).

(3) Push in battery disconnect switch, (TM 9-2320-364-10).

(4) Turn front control panel POWER switch ON, (Para 2-1).

(5) Turn rear control panel POWER switch ON, (Para 2-1).

(6) Set multimeter select switch to VAC.

(7) Using an alligator clip or similar probe, connect positive (+) multimeter lead to radar ground speed sensor green wire terminal.

(8) Using an alligator clip or similar probe, connect negative (-) multimeter lead to radar ground speed sensor black wire terminal.

NOTE

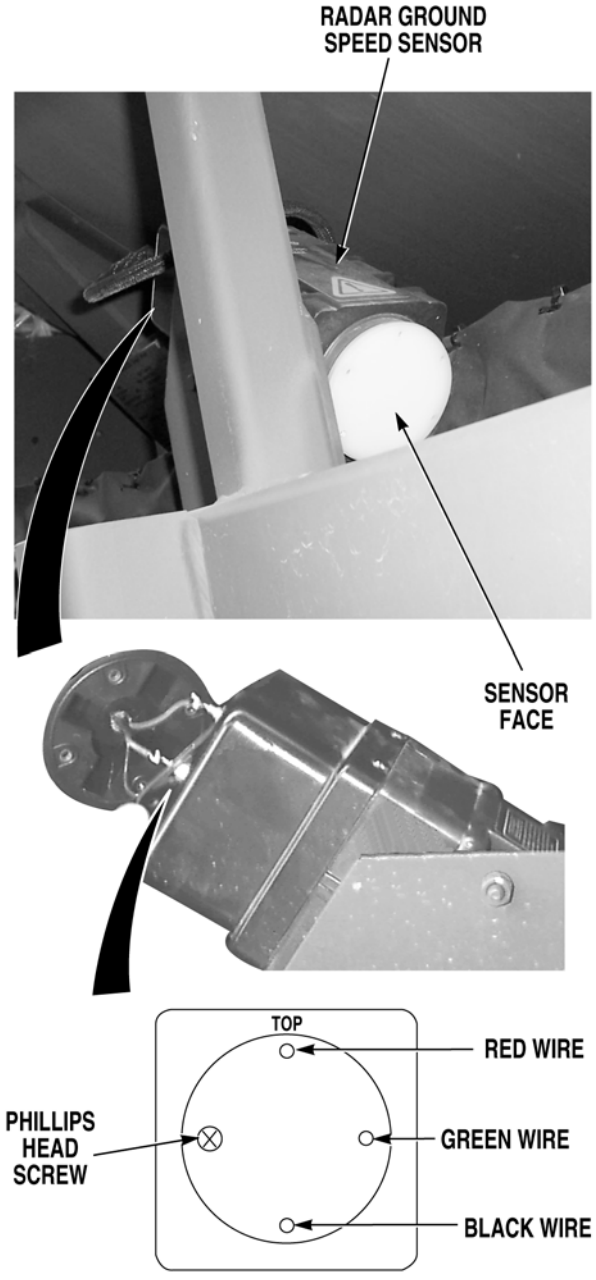
Multimeter reading will be 0 VAC when radar ground speed sensor senses no motion, and a voltage between 4 and 7 VAC when it senses motion.

(9) While waving hand or similar object quickly across face of radar ground speed sensor, (approximately 1 foot [30 cm] from sensor), check if multimeter reading increases to a value between 4 and 7 VAC.

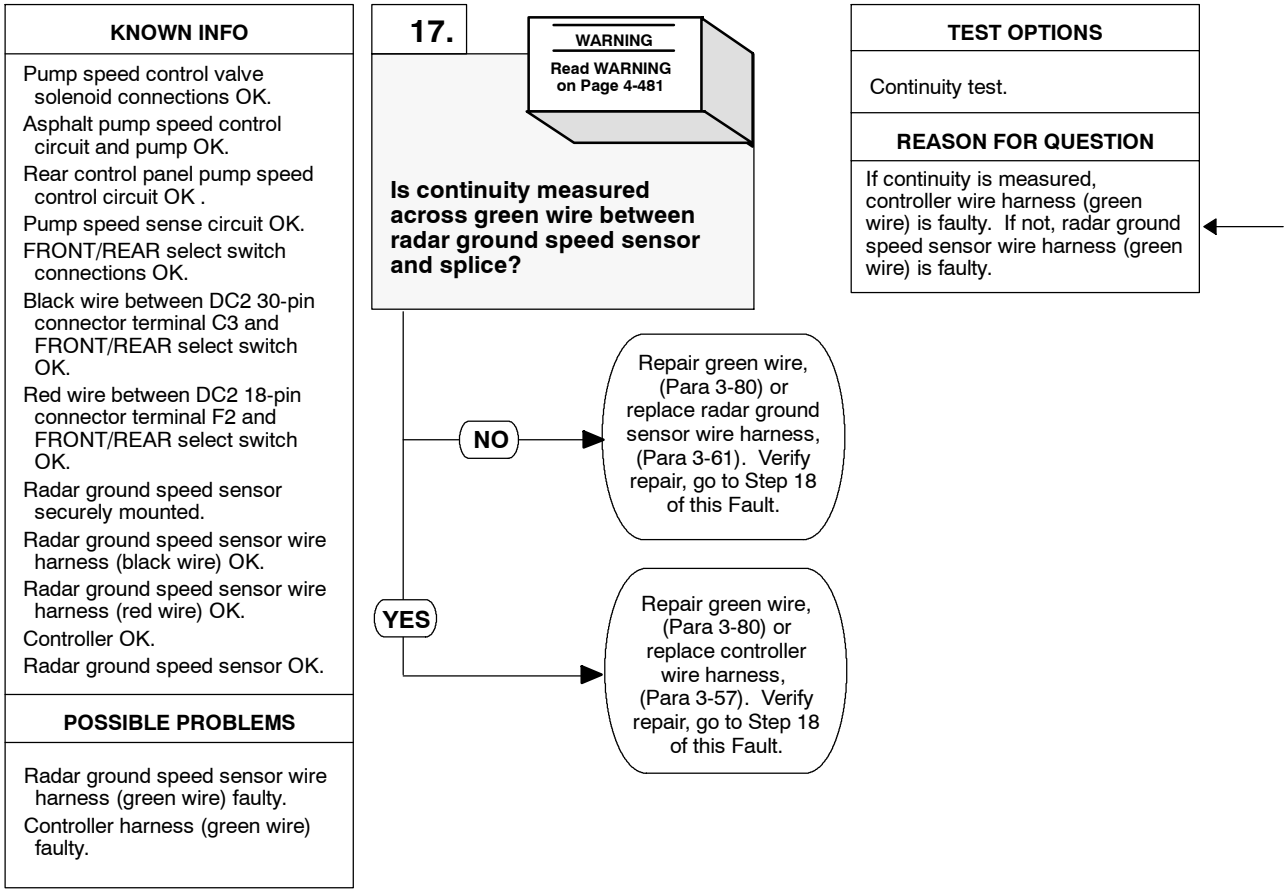
(a) If 4 to 7 VAC are not present, replace radar ground speed sensor, (Para 3-32).

(b) If 4 to 7 VAC are present, replace controller, (Para 3-28).

(10) Verify repair, go to Step 18 of this Fault.

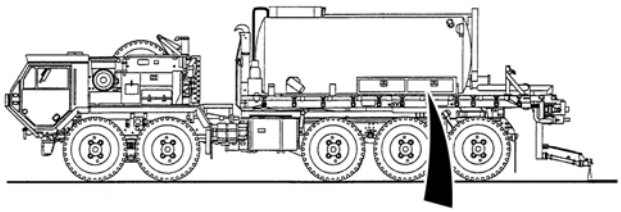


15. ASPHALT PUMP SURGES OR GPM GAGE READING IS ERRATIC (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.



CONTINUITY TEST

(1) Cut green wire at splice between radar ground sensor and controller.

(2) Set multimeter select switch to ohms.

(3) Connect jumperwire between green wire at radar ground speed sensor and a known good ground.

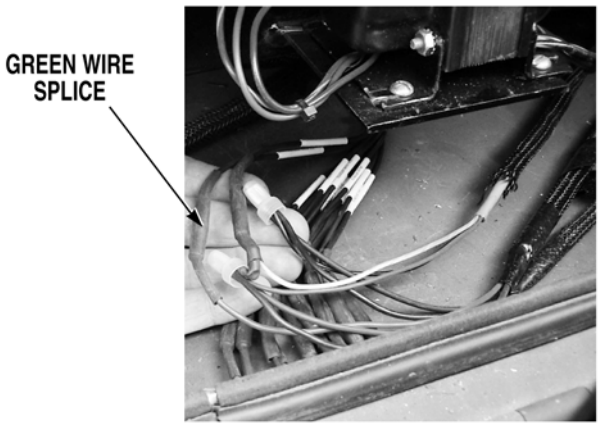
(4) Connect positive (+) multimeter lead to green wire at splice.

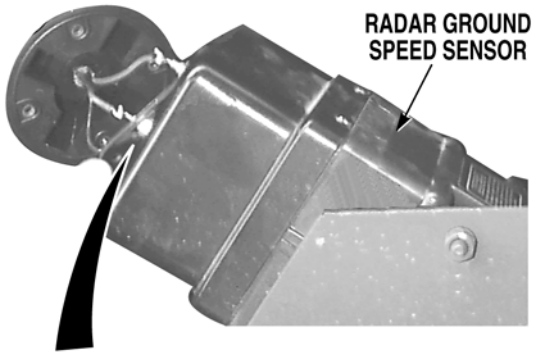
(5) Connect negative (-) multimeter lead to a known good ground.

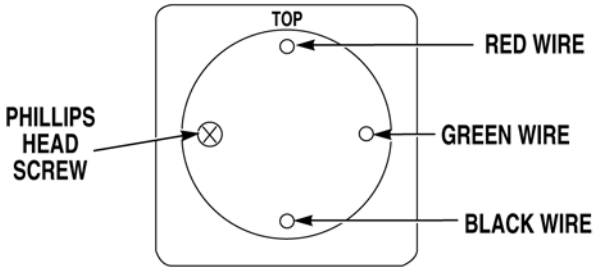
(a) If continuity is not measured, repair green wire, (Para 3-80) or replace radar ground sensor wire harness, (Para 3-61).

(b) If continuity is measured, repair green wire, (Para 3-80) or replace controller wire harness, (Para 3-57).

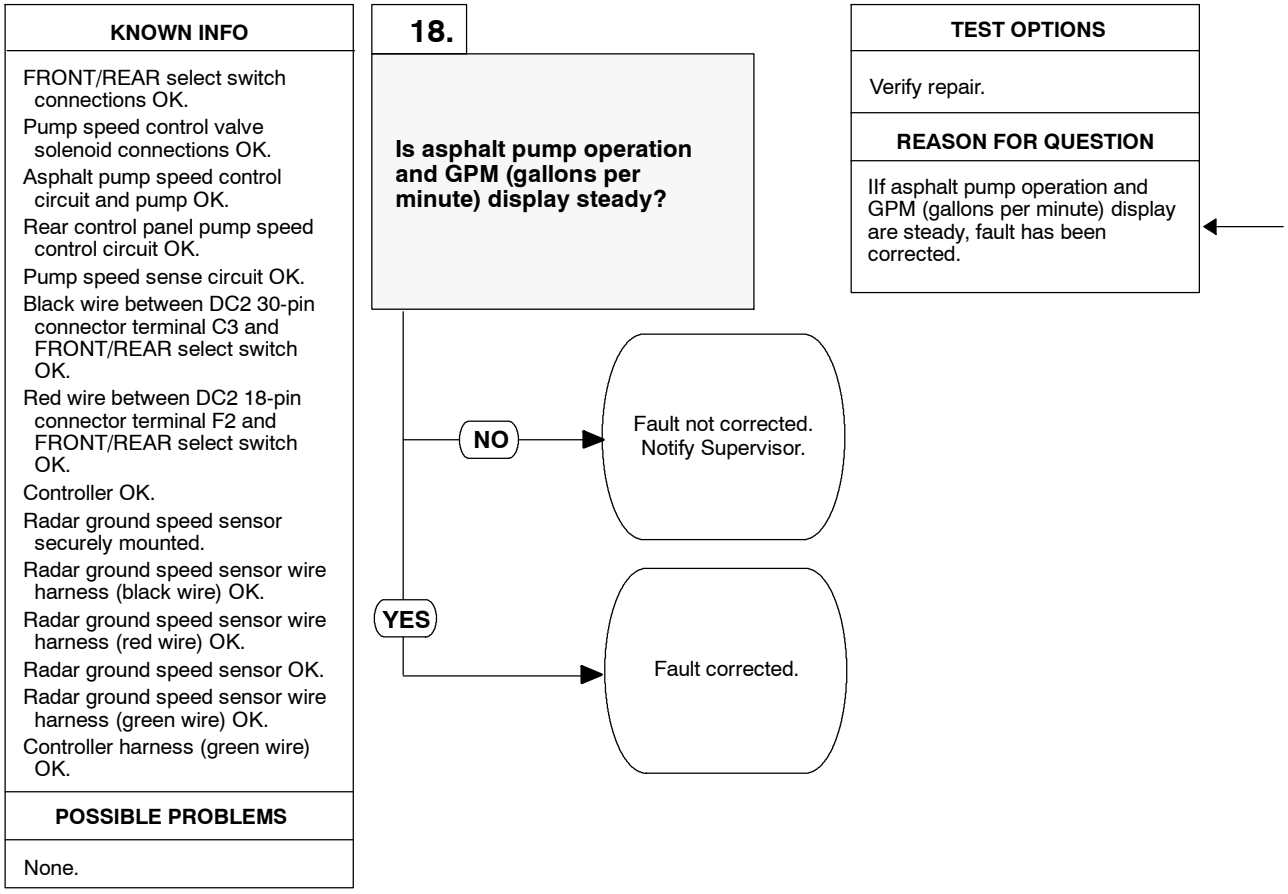
(6) Verify repair, go to Step 18 of this Fault.

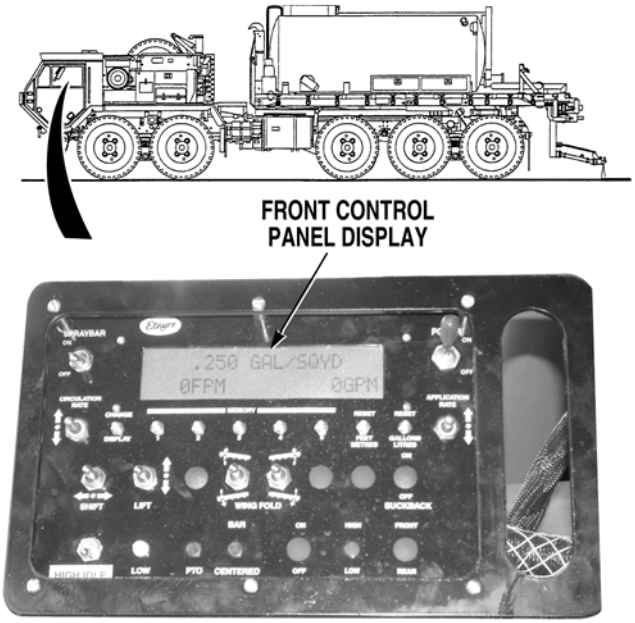






15. ASPHALT PUMP SURGES OR GPM GAGE READING IS ERRATIC (CONT).





VERIFY REPAIR

(1) If removed, install rear control panel, (Para 3-76).

(2) If removed, install controller, (Para 3-57).

(3) If removed, install radar ground speed sensor cover, (Para 3-61).

(4) If out, push in battery disconnect switch, (TM 9-2320-364-10).

(5) Start engine, (TM 9-2320-364-10).

(6) Set up distributor to circulate material in tank using rear control panel, (Para 2-16).

(7) Check operation of asphalt pump. Note if pump is surging.

(8) Check front control panel GPM (gallons per minute) display. Note if display is jumping.

(9) Set up distributor to circulate material in tank using front control panel, (Para 2-16).

(10) Check operation of asphalt pump. Note if pump is surging.

(11) Check front control panel GPM (gallons per minute) display. Note if display is jumping.

(12) Operate vehicle, (TM 9-2320-364-10). Check front control panel FPM (feet per minute) display. Note if display fluctuates more the +/- 20 FPM when vehicle is moving.

(13) Park vehicle, (TM 9-2320-364-10).

(14) Turn rear control panel POWER switch OFF, (Para 2-1).

(15) Turn front control panel POWER switch OFF, (Para 2-1).

(16) Turn hydraulic select switch OFF, (TM 9-2320-364-10).

(17) Shut OFF engine, (TM 9-2320-364-10).

(18) If pump surges or display jumps in Steps 6, 7, 9, 10, or 11 above, fault has not been corrected. Notify Supervisor.

(19) If pump operation and displays are steady in Steps 6, 7, 9, 10, or 11 above, fault has been corrected.

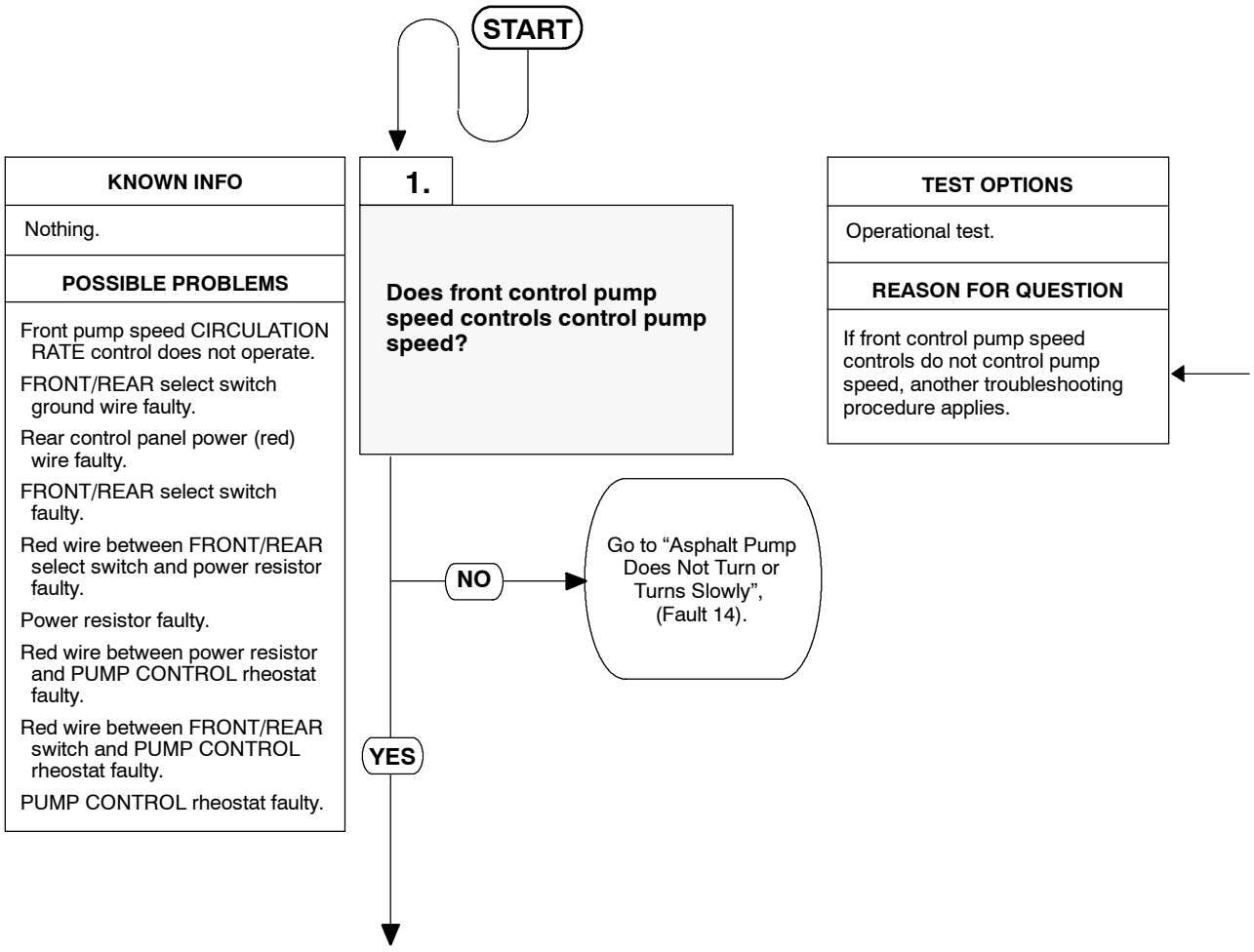


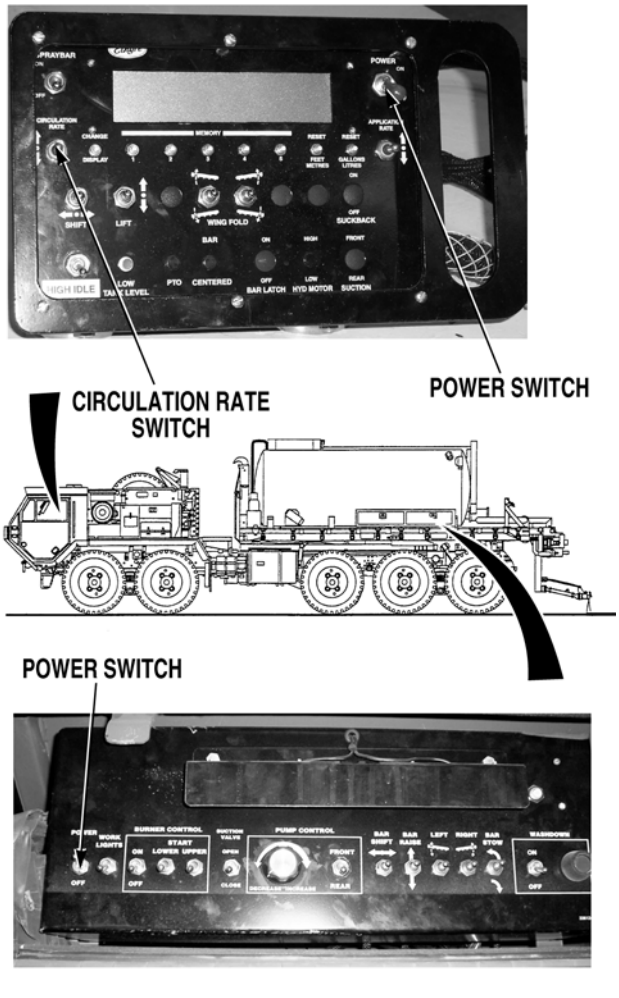
16. REAR PUMP SPEED CONTROL DOES NOT OPERATE.

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Multimeter (Item 8, Appendix F)

Equipment Condition
Bituminous Distributor loaded on PLS, (Para 2-5)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)





OPERATIONAL TEST

(1) Start engine, (TM 9-2320-364-10).

(2) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(3) Turn front control panel POWER switch ON, (Para 2-1).

(4) Turn rear control panel POWER switch ON, (Para 2-1).

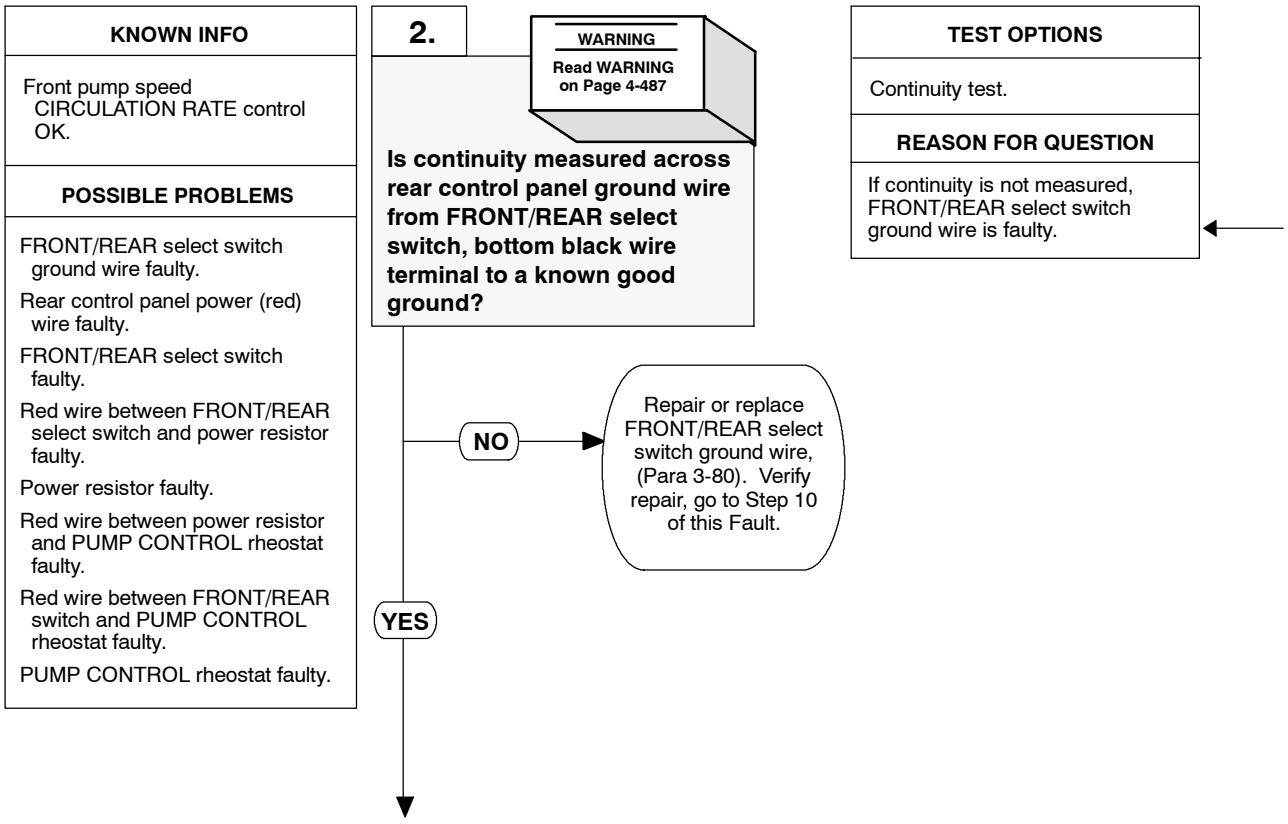
(5) Operate circulating function, (Para 2-16).

(6) Operate front control panel CIRCULATION RATE control, (Para 2-1).

(a) If front control panel CIRCULATION RATE control does not control pump speed, go to “Asphalt Pump Does Not Turn Or Turns Slowly”, (Fault 14).

(b) If front control panel CIRCULATION RATE control controls pump speed, go to Step 2 of this Fault.

16. REAR PUMP SPEED CONTROL DOES NOT OPERATE (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove rear control panel, (Para 3-76).

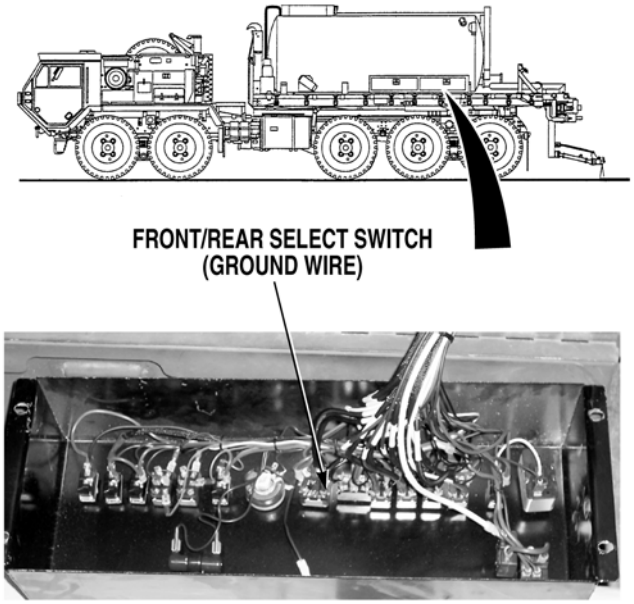
(4) Set multimeter select switch to ohms.

(5) Connect positive (+) multimeter lead to FRONT/REAR select switch, bottom black wire terminal.

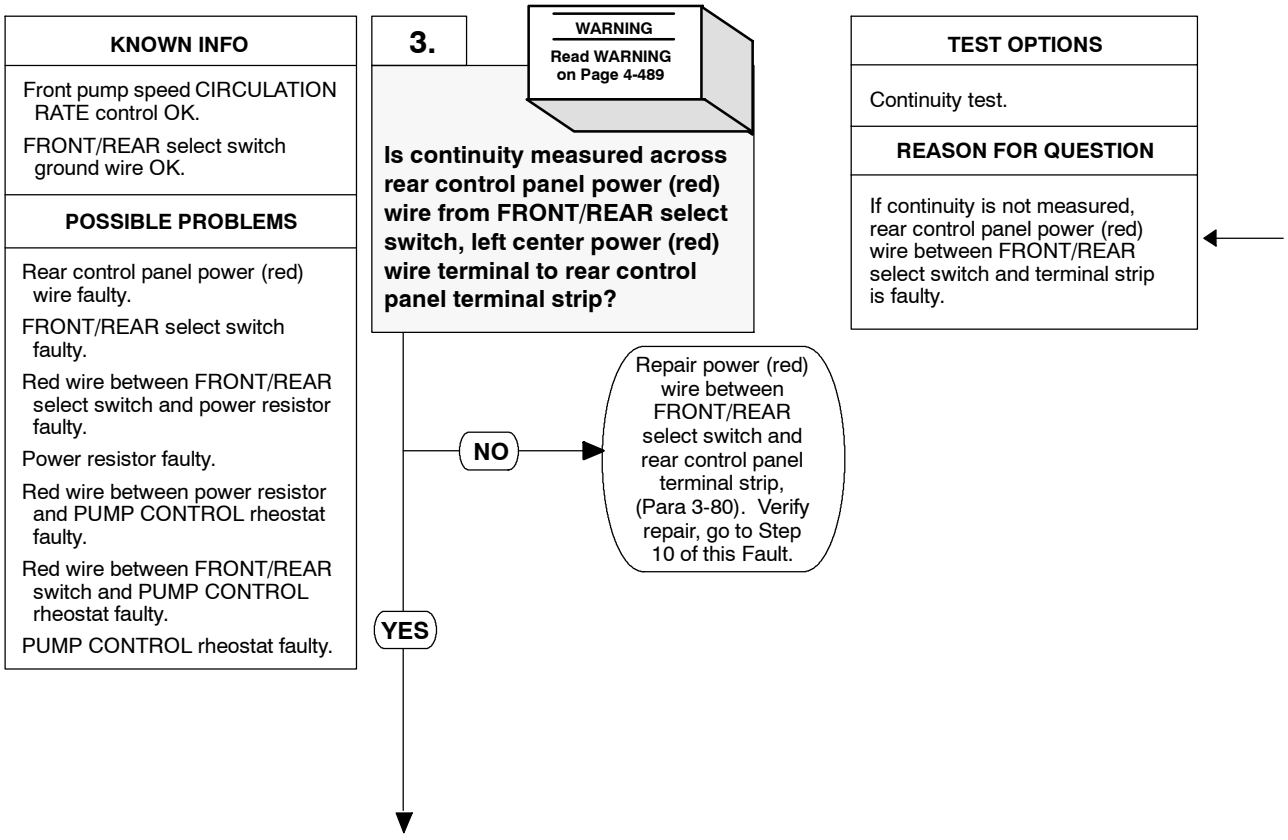
(6) Connect negative multimeter lead to a known good ground.

(a) If continuity is not measured, repair FRONT/REAR select switch ground wire, (Para 3-80). Verify repair, go to Step 10 of this Fault.

(b) If continuity is measured, go to Step 3 of this Fault.



16. REAR PUMP SPEED CONTROL DOES NOT OPERATE (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

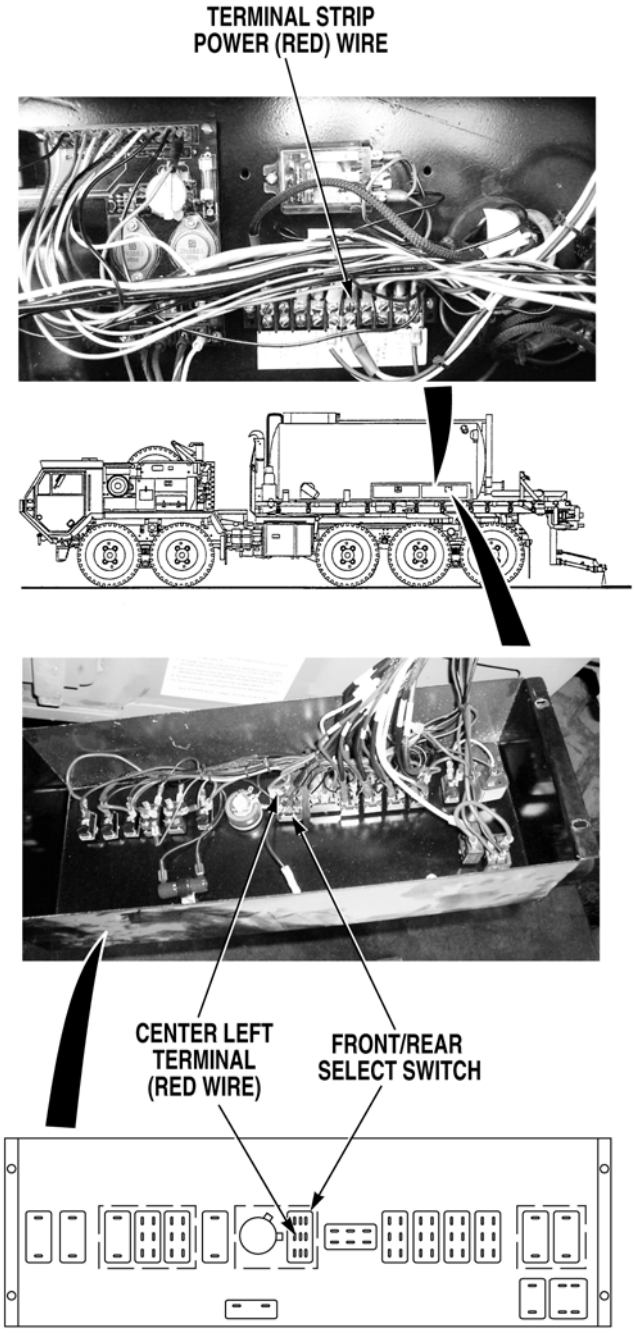
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to FRONT/REAR select switch left center power (red) wire terminal.

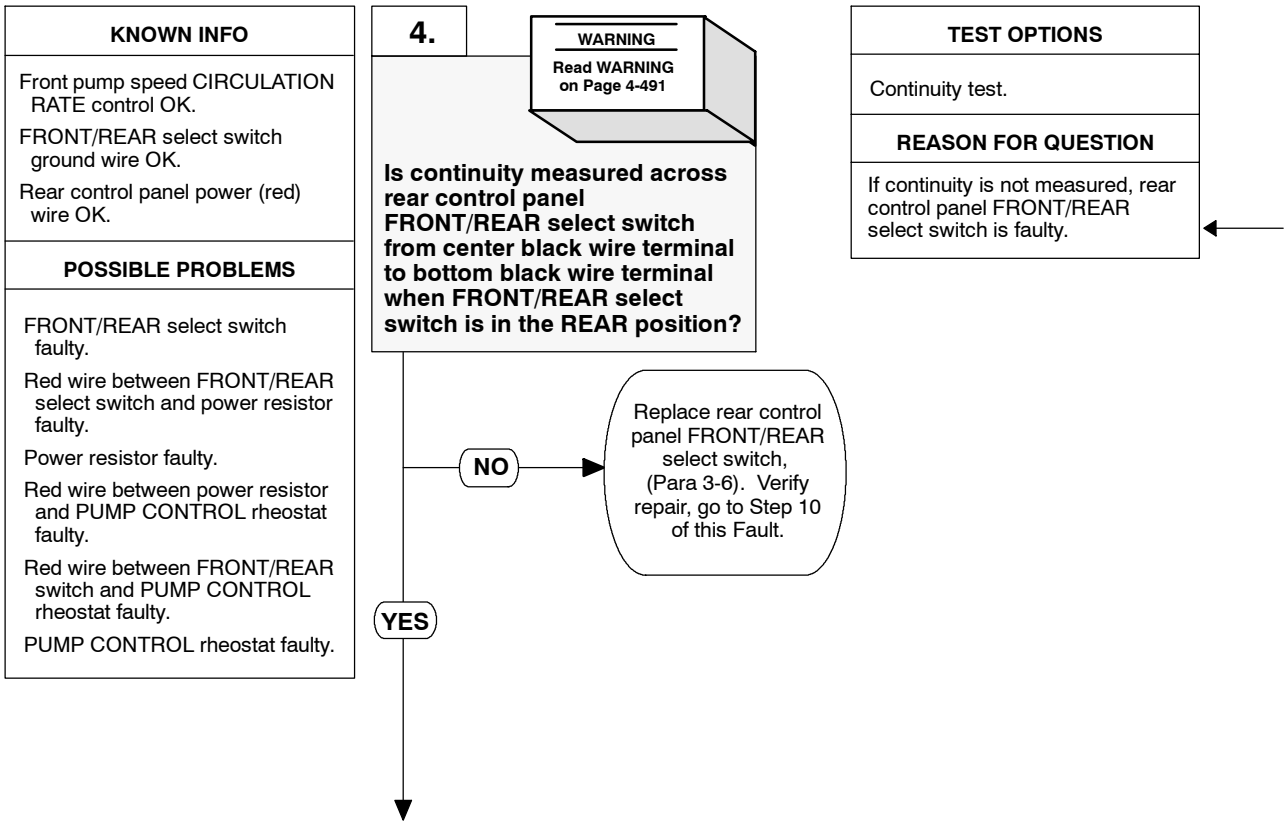
(3) Connect negative multimeter lead to power (red) wire at rear control panel terminal strip.

(a) If continuity is not measured, repair power (red) wire, (Para 3-80). Verify repair, go to Step 10 of this Fault.

(b) If continuity is measured, go to Step 4 of this Fault.



16. REAR PUMP SPEED CONTROL DOES NOT OPERATE (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

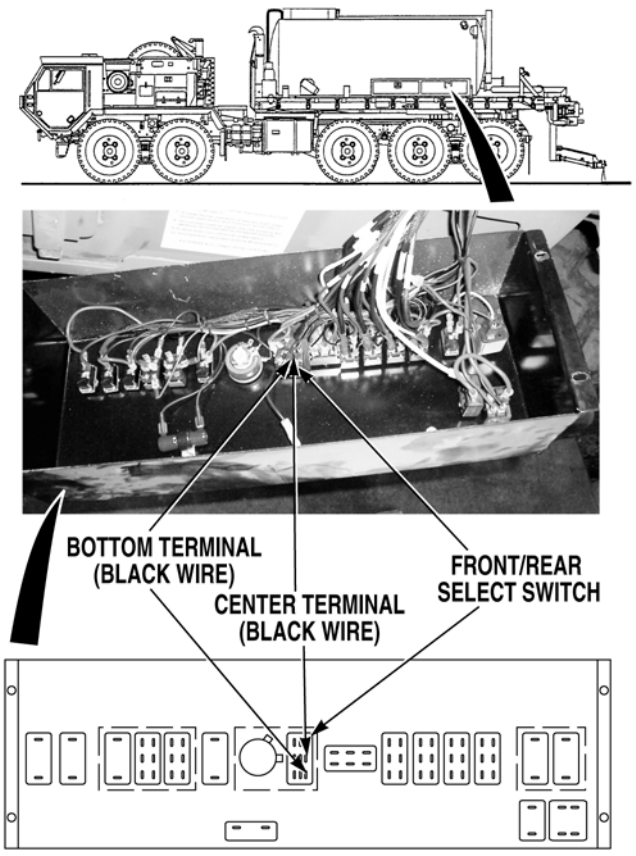
(2) Connect positive (+) multimeter lead to FRONT/REAR select switch center black wire terminal.

(3) Connect negative multimeter lead to FRONT/REAR select switch bottom black wire terminal.

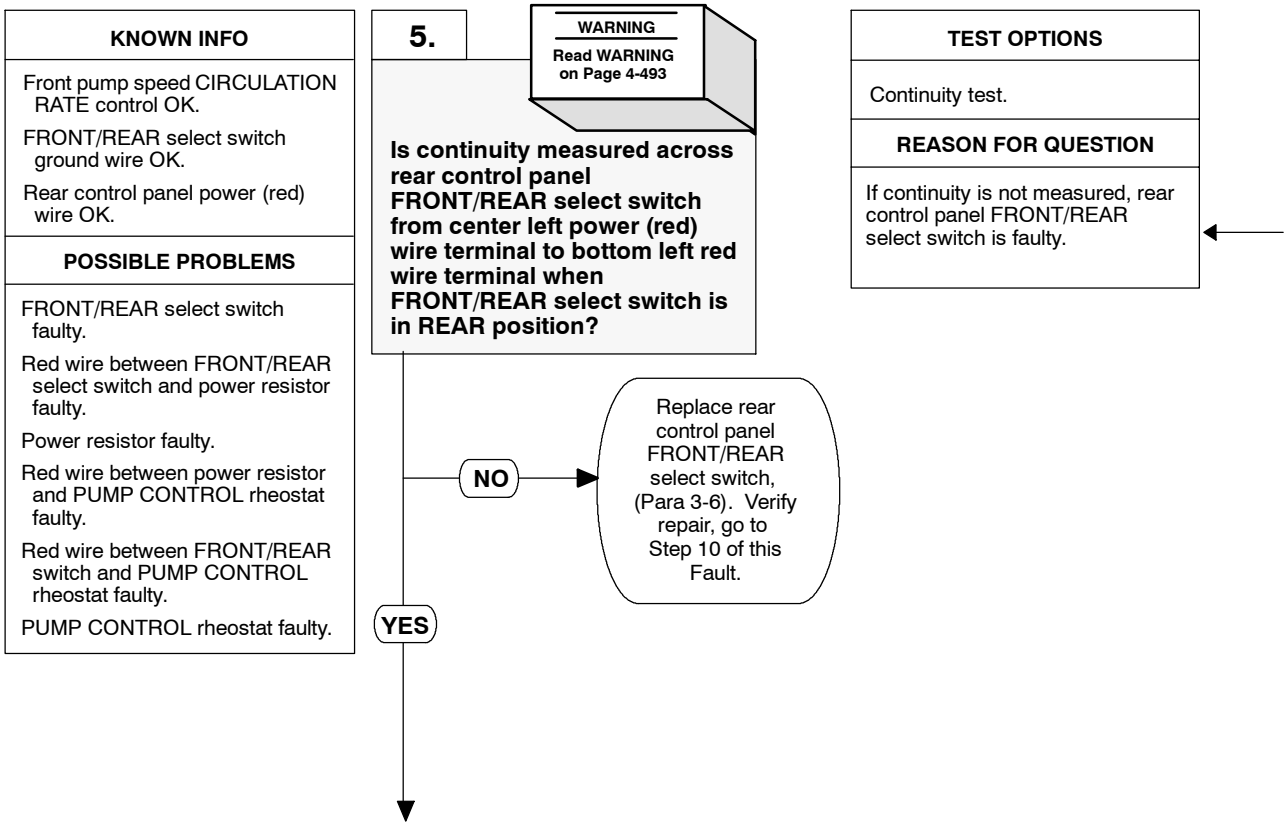
(4) Set FRONT/REAR select switch to REAR position, (Para 2-1).

(a) If continuity is not measured, replace rear control panel FRONT/REAR select switch, (Para 3-6). Verify repair, go to Step 10 of this Fault.

(b) If continuity is measured, go to Step 5 of this Fault.



16. REAR PUMP SPEED CONTROL DOES NOT OPERATE (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

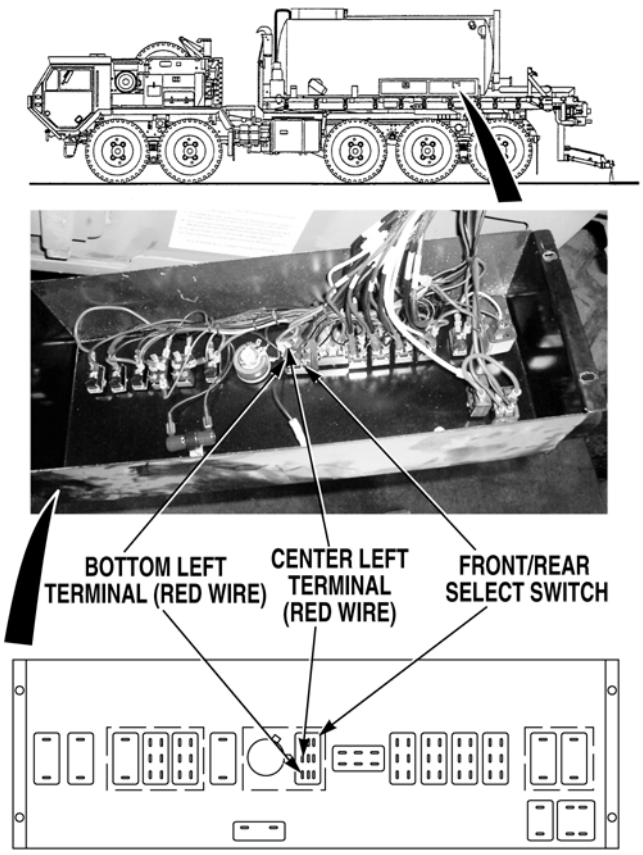
(2) Connect positive (+) multimeter lead to FRONT/REAR select switch center left power (red) wire terminal.

(3) Connect negative multimeter lead to FRONT/REAR select switch bottom left red wire terminal.

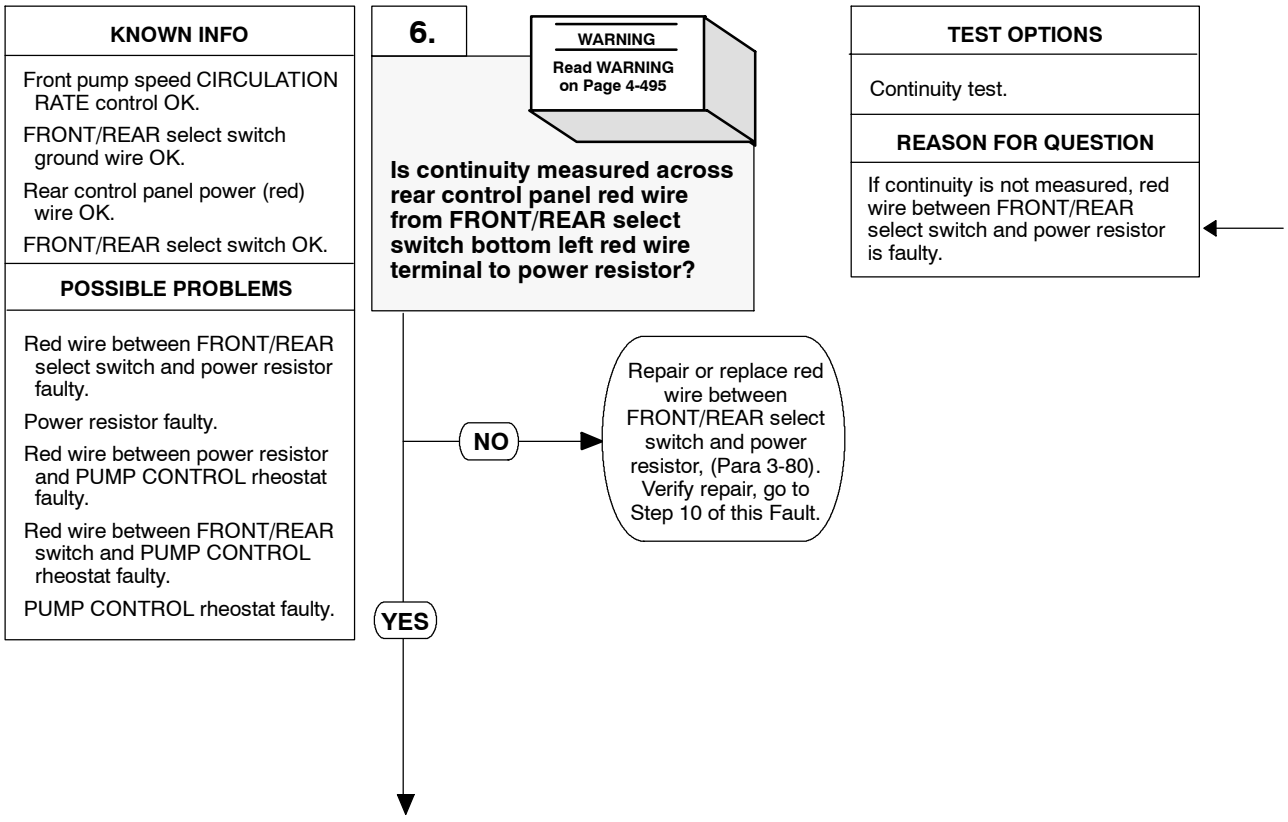
(4) Place FRONT/REAR select switch in REAR position, (Para 2-1).

(a) If continuity is not measured, replace rear control panel FRONT/REAR select switch, (Para 3-6). Verify repair, go to Step 10 of this Fault.

(b) If continuity is measured, go to Step 6 of this Fault.



16. REAR PUMP SPEED CONTROL DOES NOT OPERATE (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

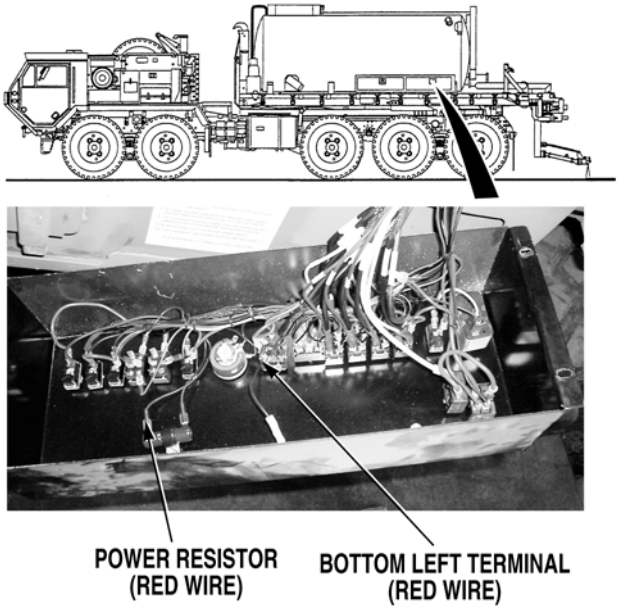
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to FRONT/REAR select switch bottom left red wire terminal.

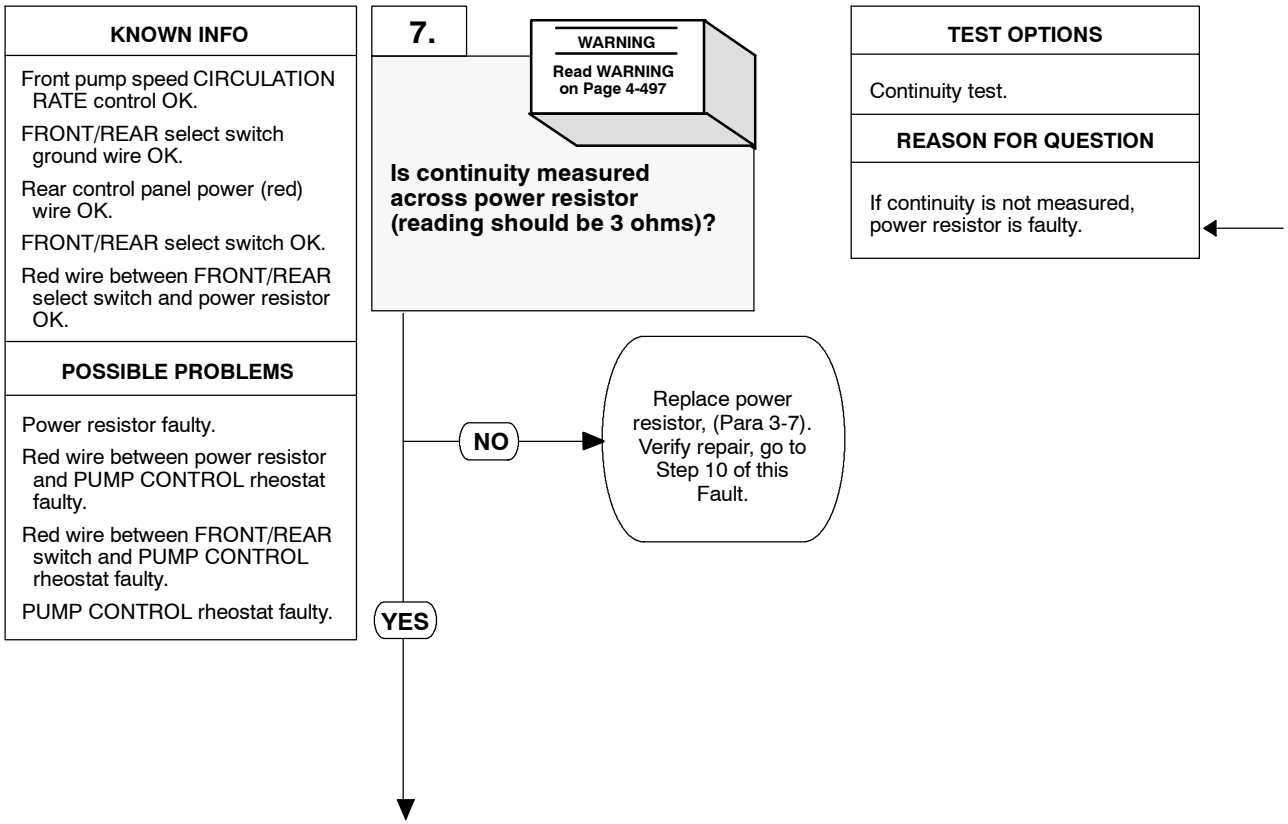
(3) Connect negative multimeter lead to power resistor left red wire terminal.

(a) If continuity is not measured, repair red wire between FRONT/REAR select switch and power resistor, (Para 3-80). Verify repair, go to Step 10 of this Fault.

(b) If continuity is measured, go to Step 7 of this Fault.

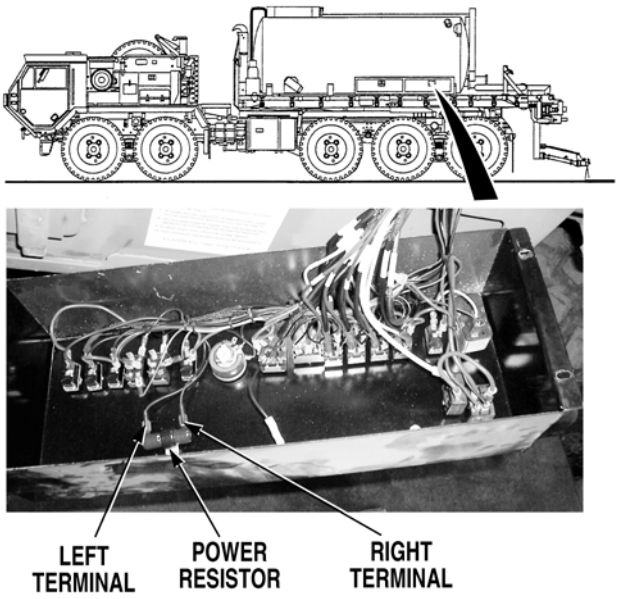


16. REAR PUMP SPEED CONTROL DOES NOT OPERATE (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.



CONTINUITY TEST

(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to power resistor left terminal.

(3) Connect negative multimeter lead to power resistor right terminal.

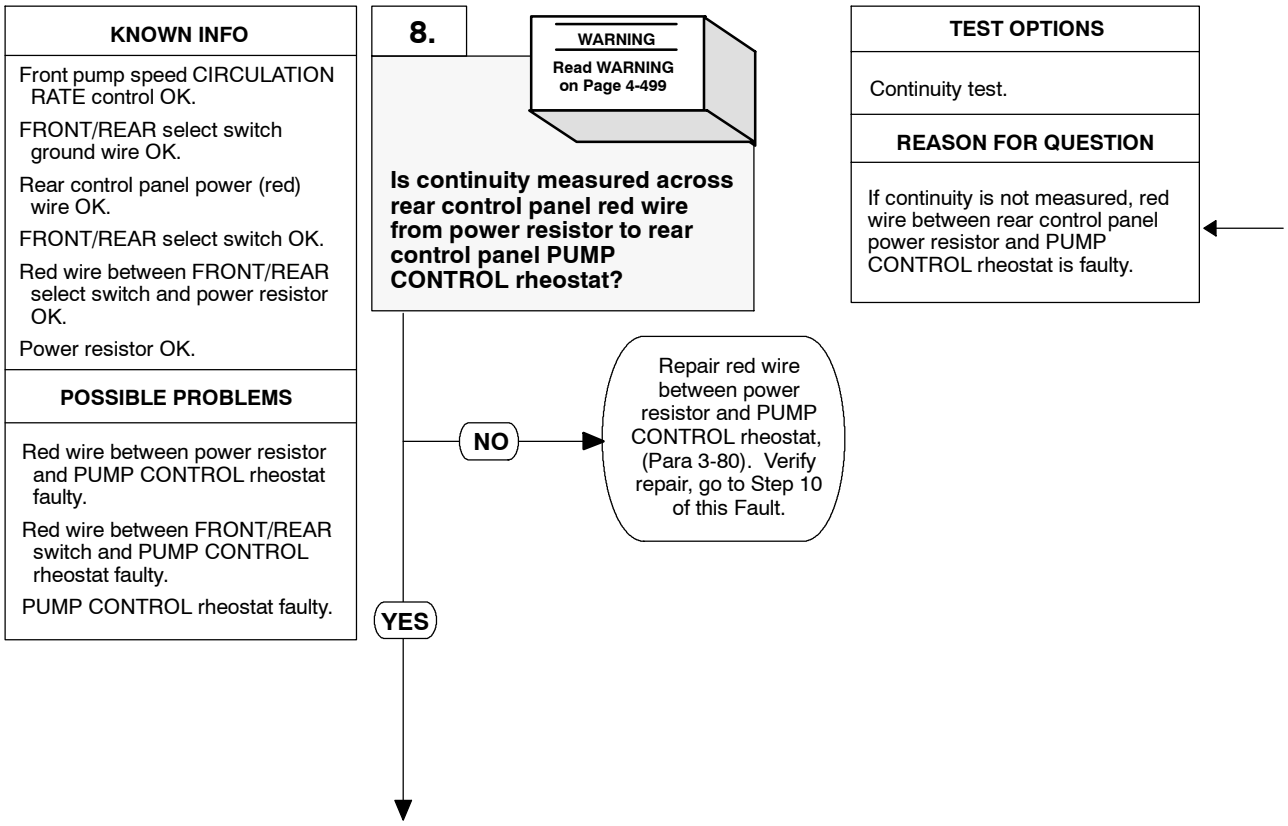
NOTE

Reading should be approximately 3 ohms.

(a) If continuity is not measured, replace power resistor, (Para 3-7). Verify repair, go to Step 10 of this Fault.

(b) If continuity is measured, go to Step 8 of this Fault.

16. REAR PUMP SPEED CONTROL DOES NOT OPERATE (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

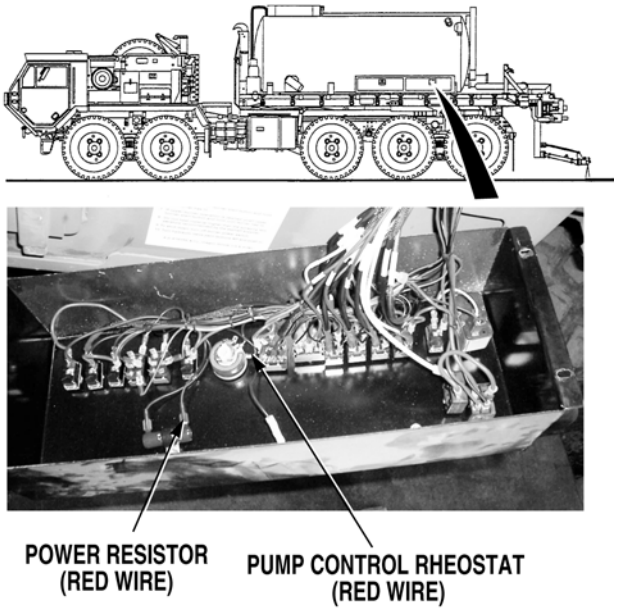
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to right power resistor terminal.

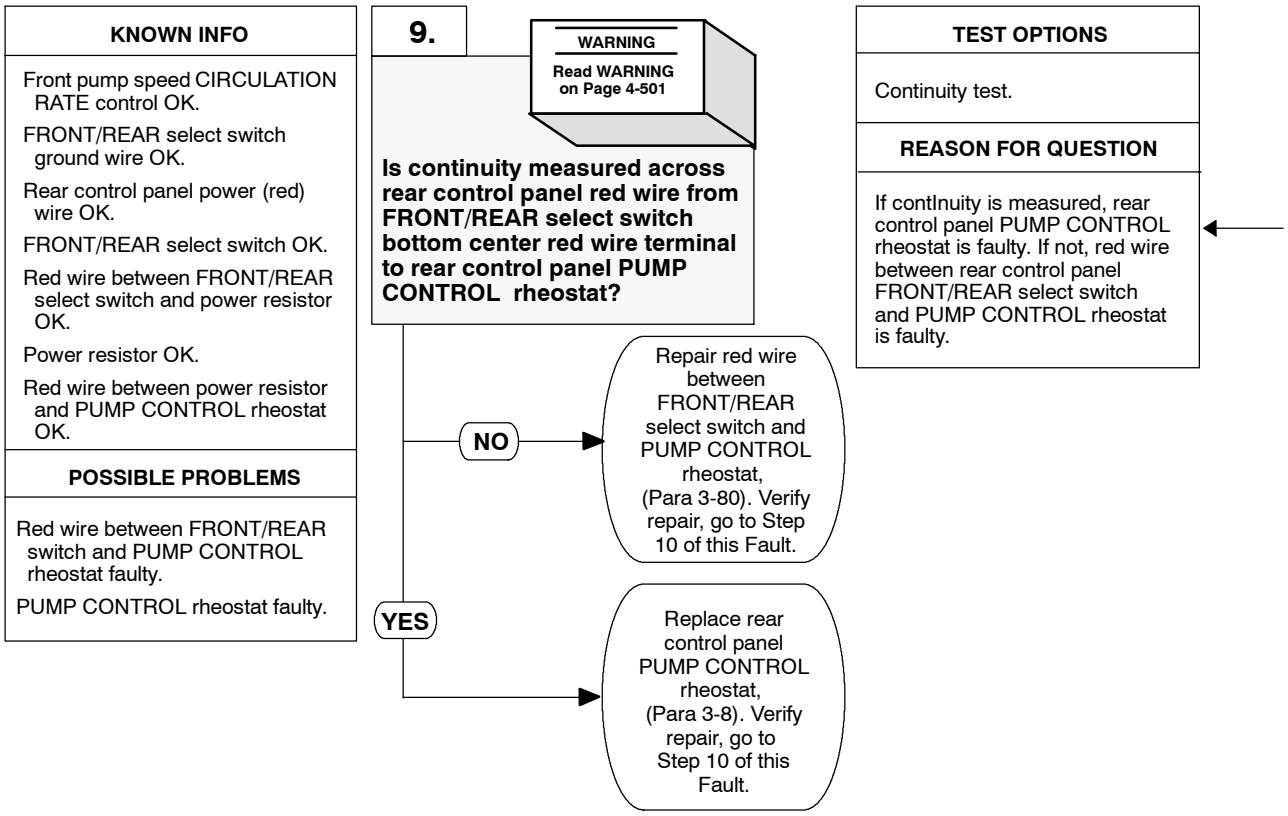
(3) Connect negative multimeter lead to rear control panel PUMP CONTROL rheostat right side terminal.

(a) If continuity is not measured, repair red wire between power resistor and PUMP CONTROL rheostat, (Para 3-80). Verify repair, go to Step 10 of this Fault.

(b) If continuity is measured, go to Step 9 of this Fault.



16. REAR PUMP SPEED CONTROL DOES NOT OPERATE (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

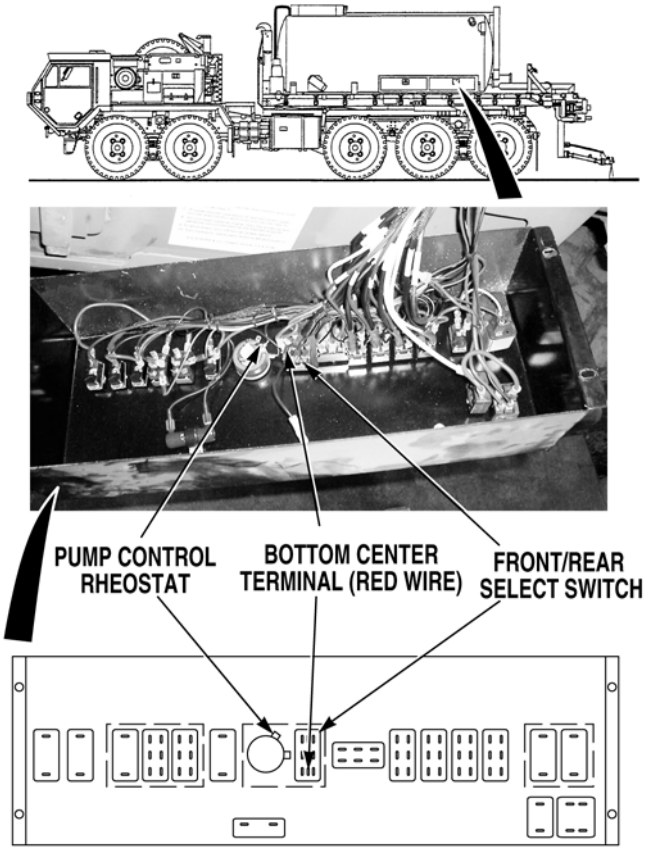
(2) Connect positive (+) multimeter lead to rear control panel FRONT/REAR select switch bottom center red wire terminal.

(3) Connect negative multimeter lead to rear control panel PUMP CONTROL rheostat top right terminal.

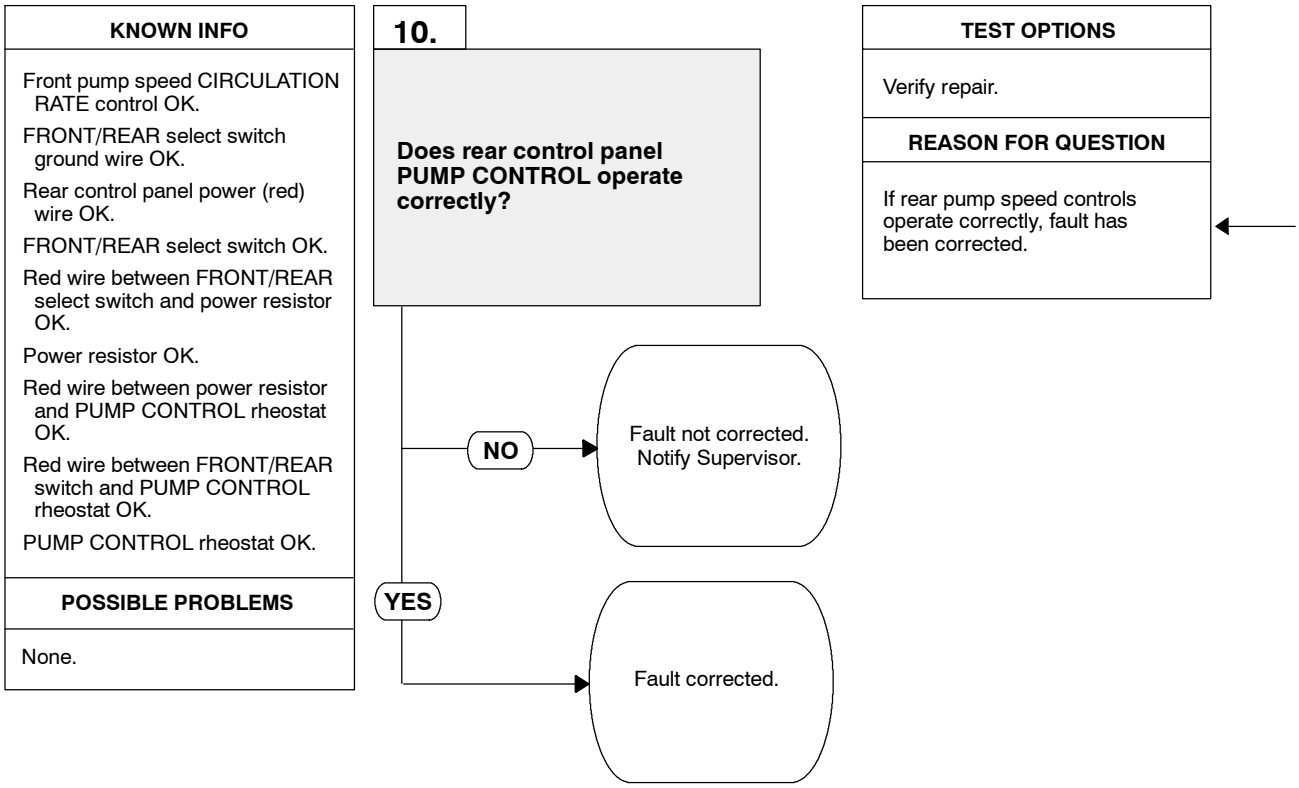
  (a) If continuity is not measured, repair red wire between rear control panel FRONT/REAR select switch and rear control panel PUMP CONTROL rheostat, (Para 3-80).

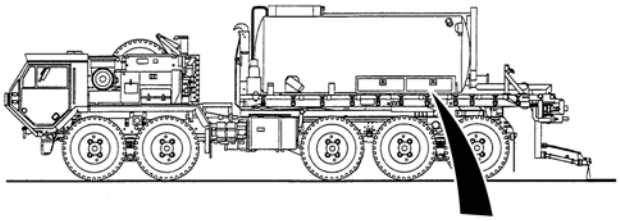
  (b) If continuity is measured, replace rear control panel PUMP CONTROL rheostat, (Para 3-8).

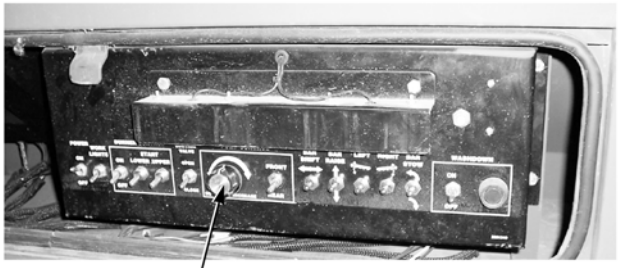
(4) Verify repair, go to Step 10 of this Fault.



16. REAR PUMP SPEED CONTROL DOES NOT OPERATE (CONT).







VERIFY REPAIR

(1) Install rear control panel, (Para 3-76).

(2) If out, push in battery disconnect switch, (TM 9-2320-364-10).

(3) Start engine, (TM 9-2320-364-10).

(4) Turn front control panel POWER switch ON, (Para 2-1).

(5) Turn rear control panel POWER switch ON, (Para 2-1).

(6) Operate rear control panel PUMP CONTROL functions, (Para 2-1).

  (a) If rear control panel PUMP CONTROL does not operate, fault not corrected. Notify Supervisor.

  (b) If rear control panel PUMP CONTROL operates, fault has been corrected.

(7) Turn front control panel POWER switch OFF, (Para 2-1).

(8) Turn rear control panel POWER switch OFF, (Para 2-1).

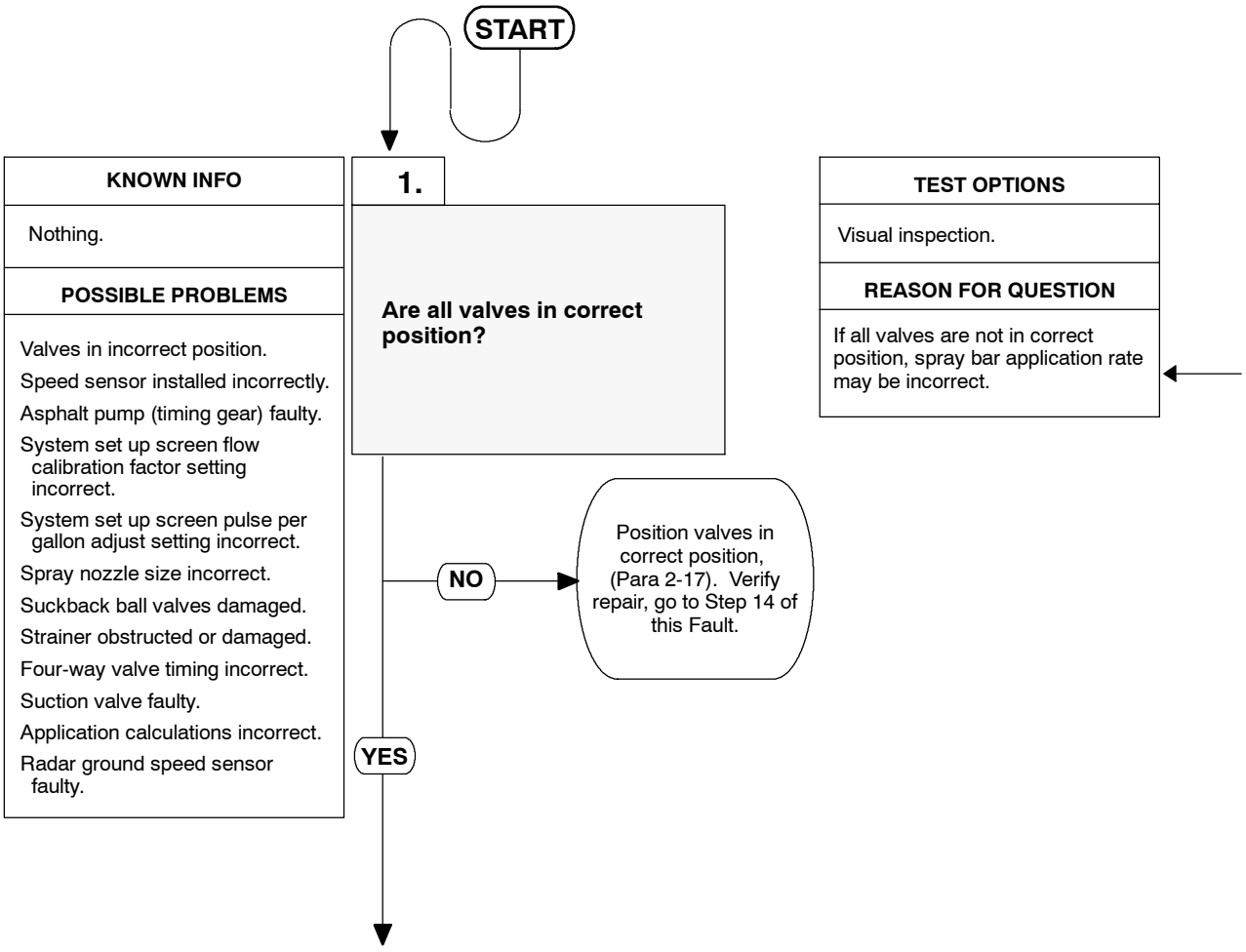
(9) Shut OFF engine, (TM 9-2320-364-10).

17. SPRAY BAR APPLICATION TOO LIGHT OR TOO HEAVY.

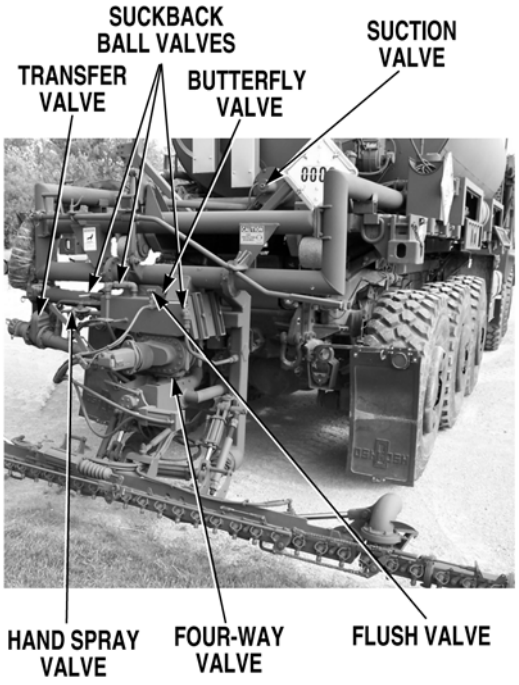
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Multimeter (Item 8, Appendix F)

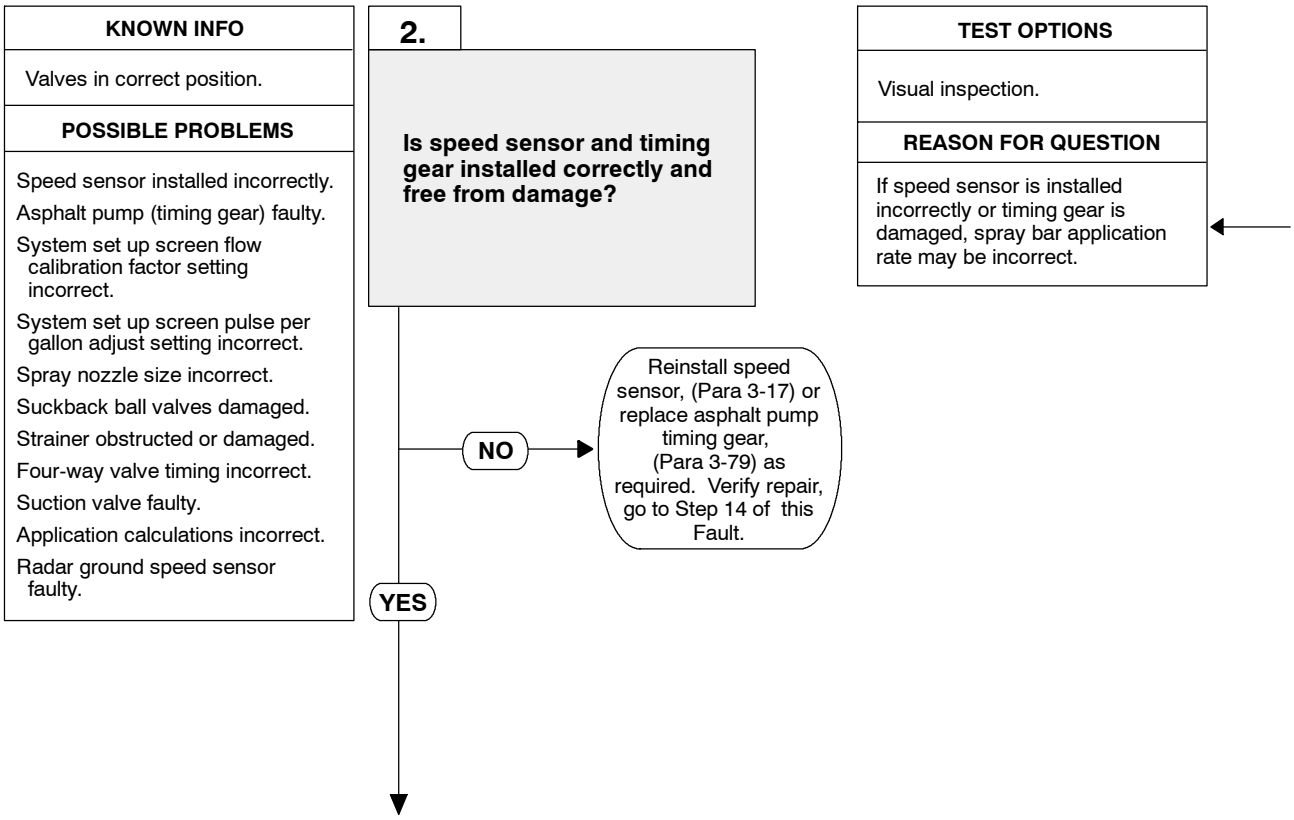
Equipment Condition
Bituminous Distributor loaded on PLS, (Para 2-5)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

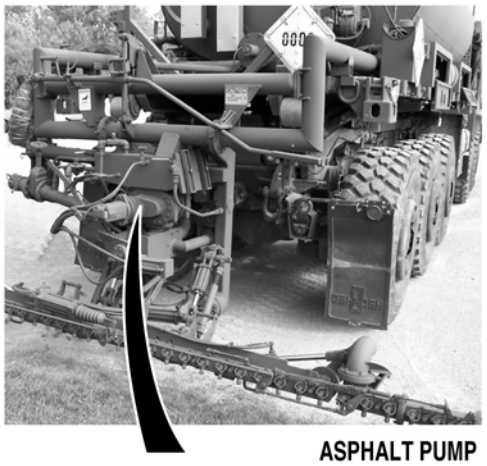


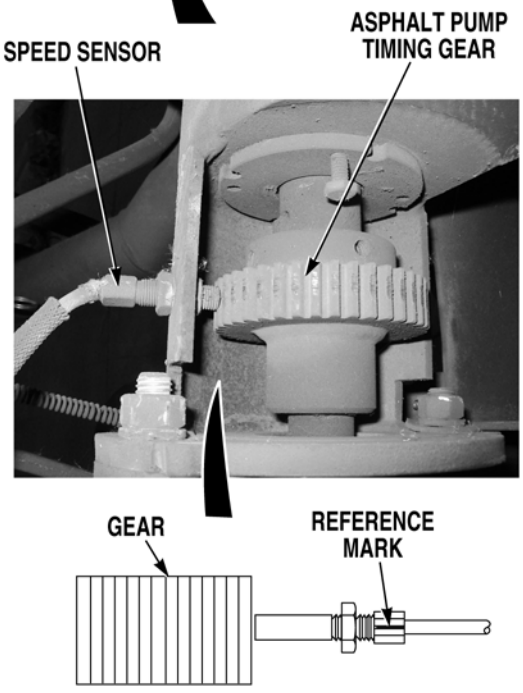
VISUAL INSPECTION
Check if all valves are in the correct position for spray operations, (Para 2-17). (a) If all valves are not in correct position, position valves in correct position, (Para 2-17). Verify repair, go to Step 14 of this Fault. (b) If all valves are in correct position, go to Step 2 of this Fault.



17. SPRAY BAR APPLICATION TOO LIGHT OR TOO HEAVY (CONT).







VISUAL INSPECTION

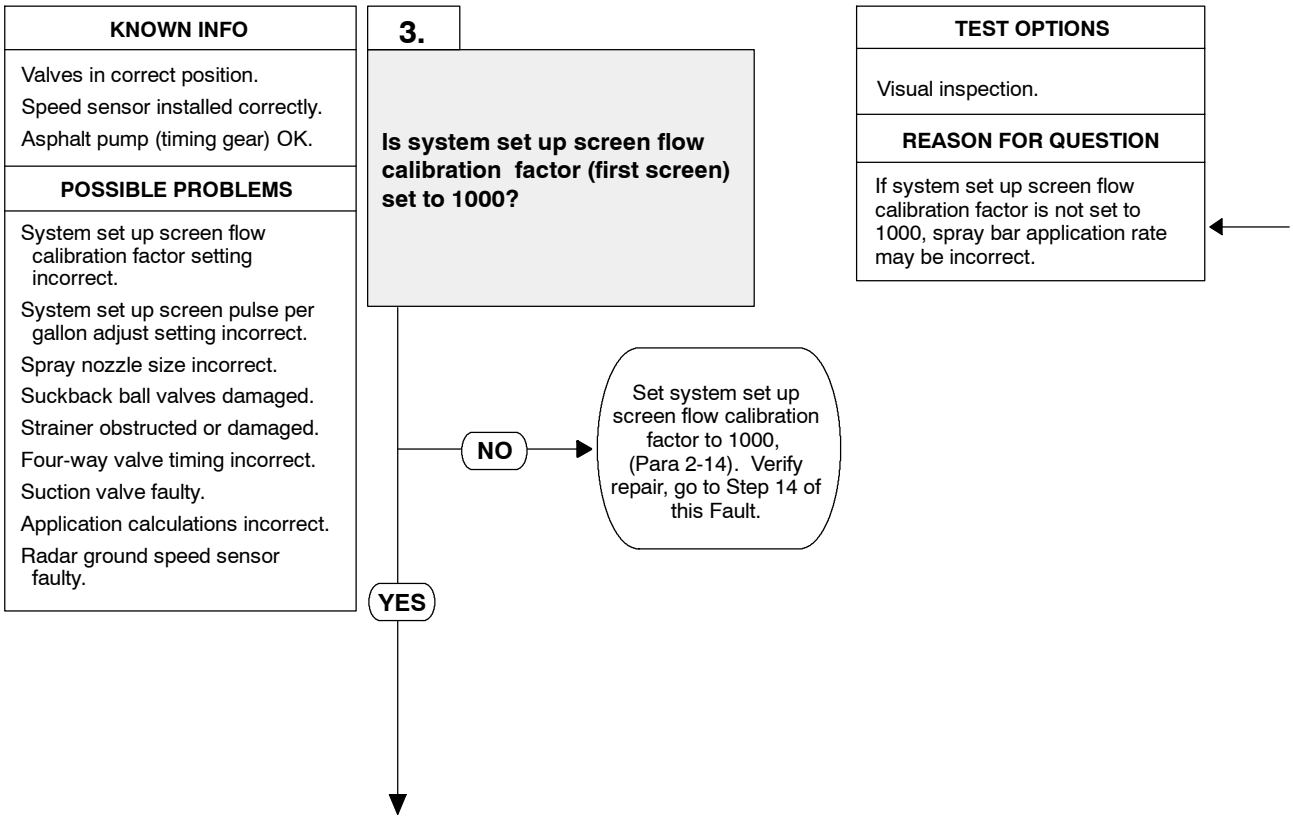
(1) Remove asphalt pump timing gear cover, (Para 3-17). Check if speed sensor reference mark lines up with timing gear.

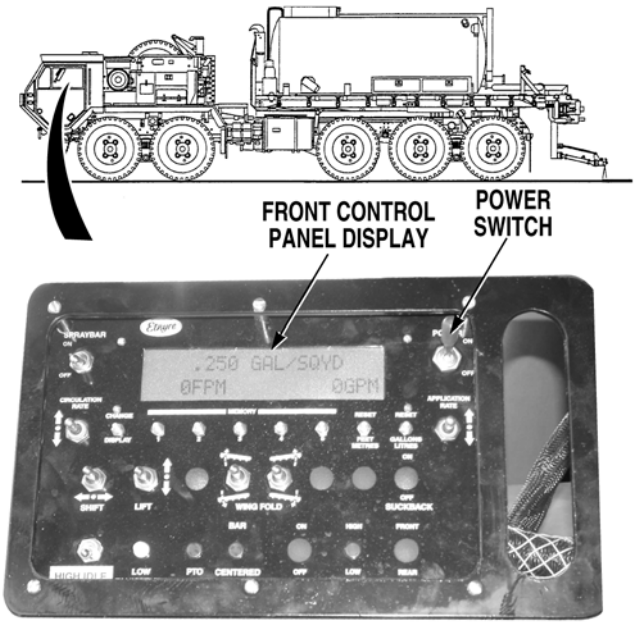
(2) Check if timing gear is free from damage.

(a) If speed sensor is not installed correctly or if timing gear is damaged, reinstall speed sensor, (Para 3-17) or replace asphalt pump timing gear, (Para 3-79) as required. Verify repair, go to Step 14 of this Fault.

(b) If speed sensor is installed correctly and timing gear is free from damage, go to Step 3 of this Fault.

17. SPRAY BAR APPLICATION TOO LIGHT OR TOO HEAVY (CONT).





VISUAL INSPECTION

(1) Install asphalt pump timing gear cover, (Para 3-79).

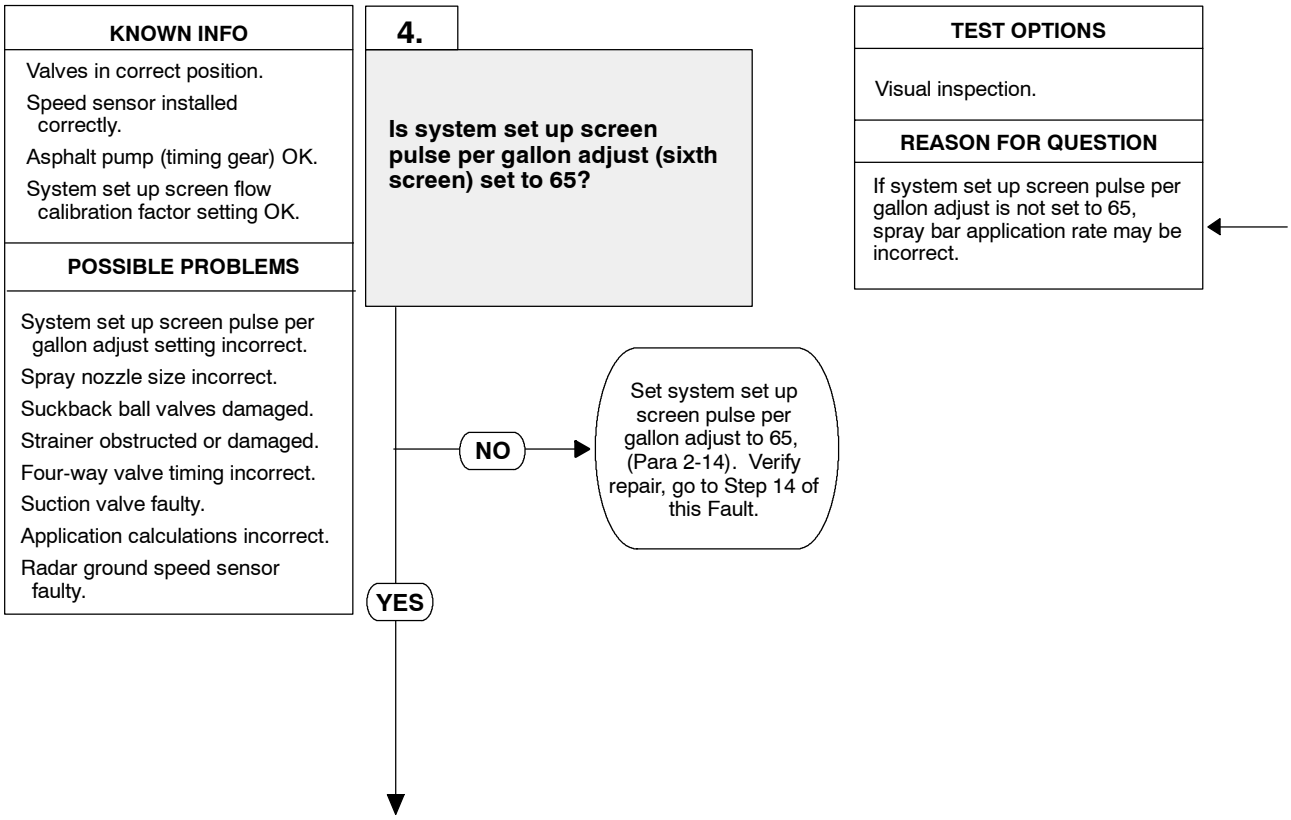
(2) Turn front control panel POWER switch ON, (Para 2-1).

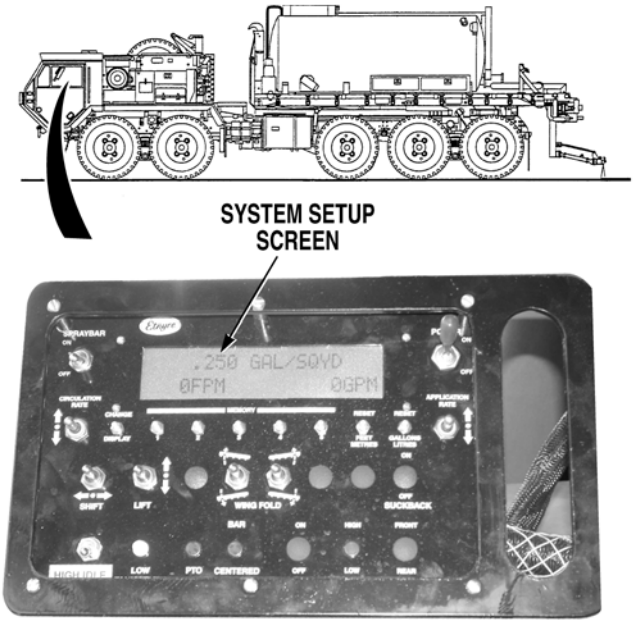
(3) Check if system set up screen flow calibration factor (first screen) is set to 1000, (Para 2-14).

(a) If system set up screen flow calibration factor is not set to 1000, set system set up screen flow calibration factor to 1000, (Para 2-14). Verify repair, go to Step 14 of this Fault.

(b) If system set up screen flow calibration factor is set to 1000, go to Step 4 of this Fault.

17. SPRAY BAR APPLICATION TOO LIGHT OR TOO HEAVY (CONT).





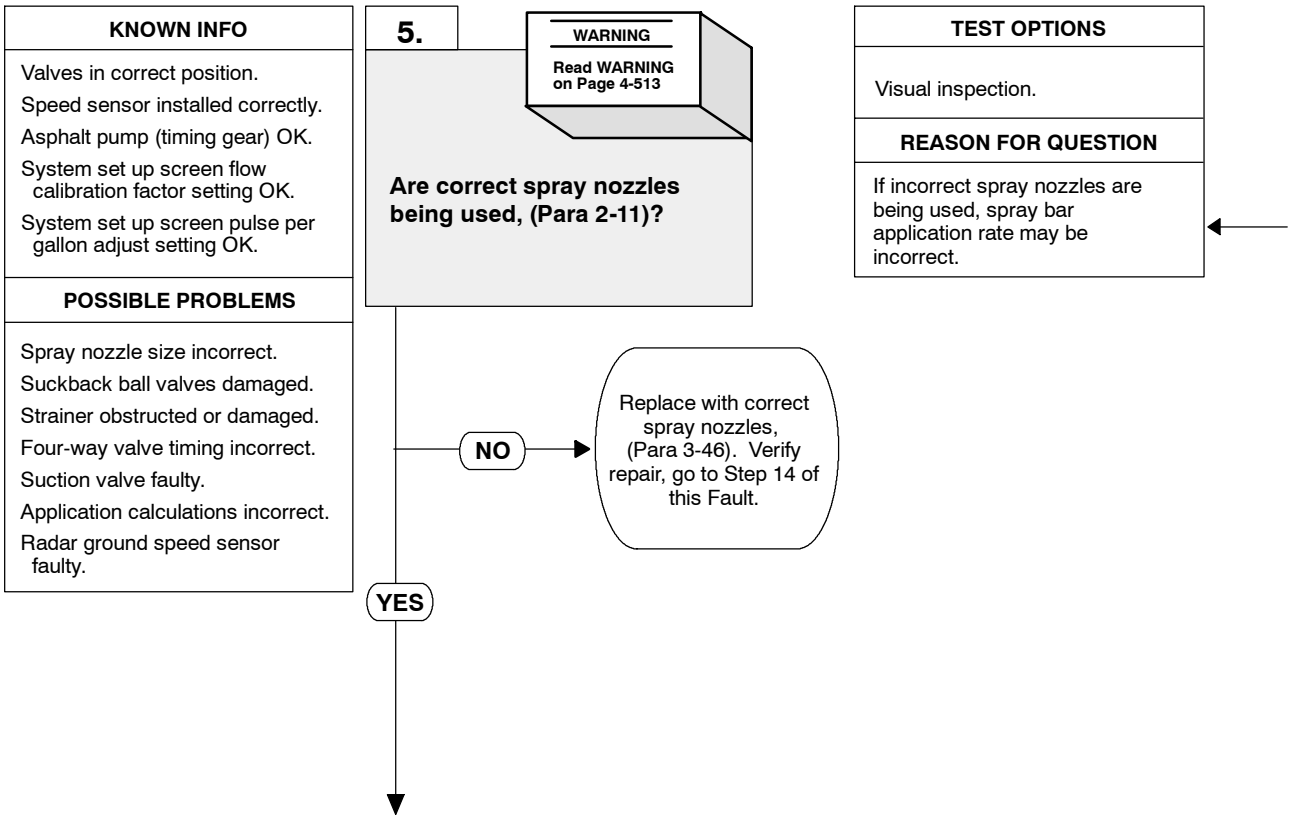
VISUAL INSPECTION

Check if system set up screen pulse per gallon adjust (sixth screen) is set to 65, (Para 2-14).

(a) If system set up screen pulse per gallon adjust is not set to 65, set system set up screen pulse per gallon adjust to 65, (Para 2-14). Verify repair, go to Step 14 of this Fault.

(b) If system set up screen pulse per gallon adjust is set to 65, go to Step 5 of this Fault.

17. SPRAY BAR APPLICATION TOO LIGHT OR TOO HEAVY (CONT).



WARNING

To prevent possible burns, always wear insulated gloves when handling spray bar sections or hoses. Failure to comply may result in serious injury to personnel.

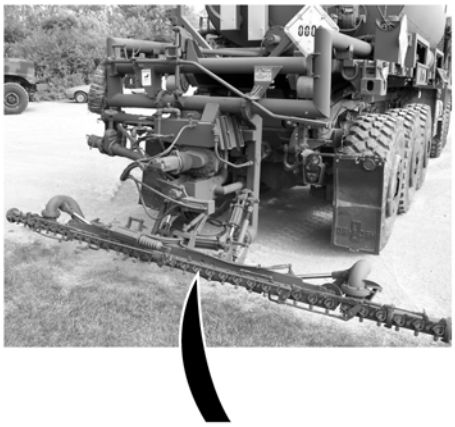
VISUAL INSPECTION

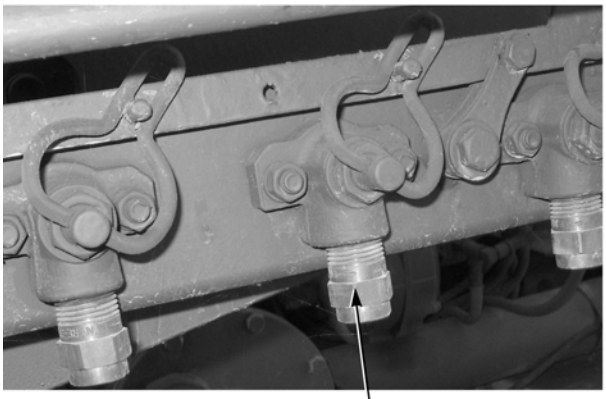
(1) Exit set up screens, (Para 2-14).

(2) Check if correct spray nozzles are being used for application being performed, (Para 2-11).

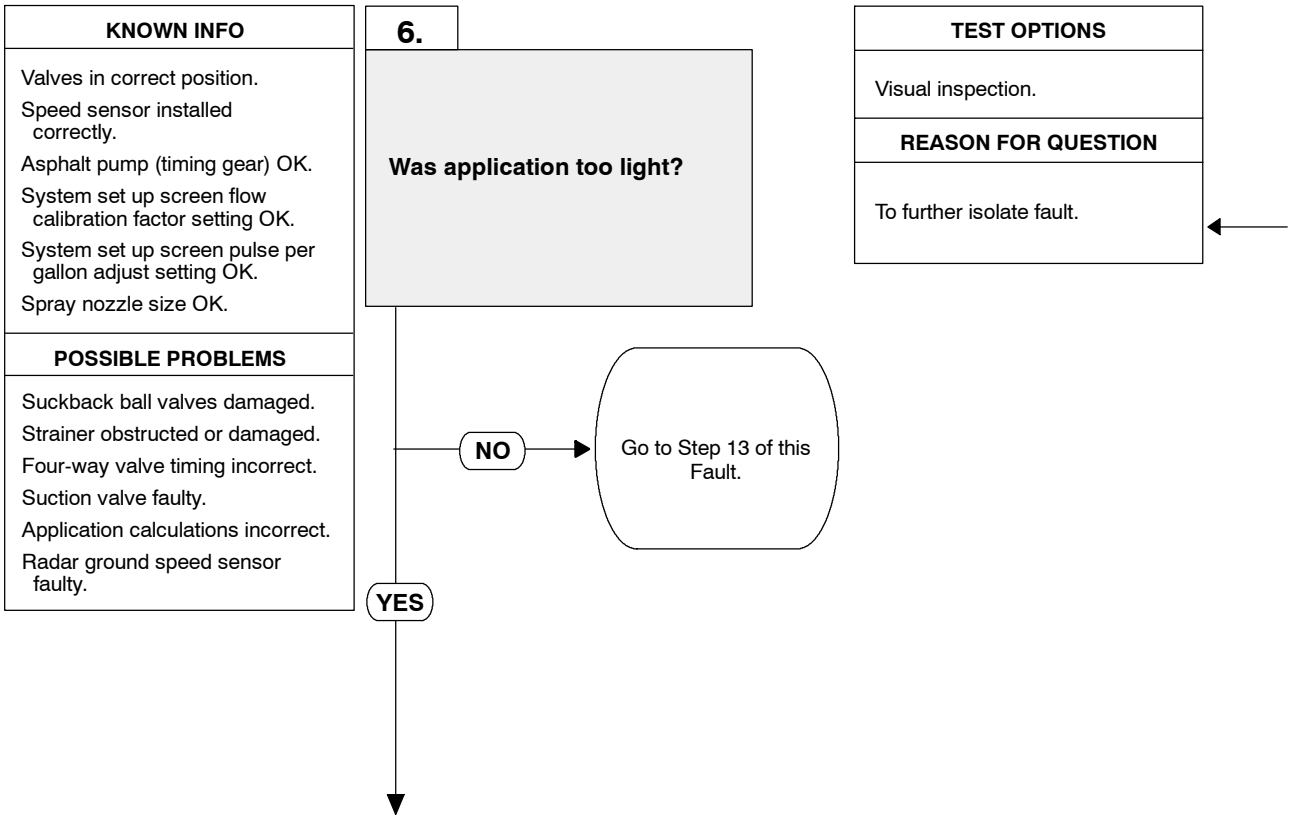
(a) If incorrect spray nozzles are being used, replace with correct spray nozzles, (Para 3-46). Verify repair, go to Step 14 of this Fault.

(b) If spray nozzles are correct, go to Step 6 of this Fault.

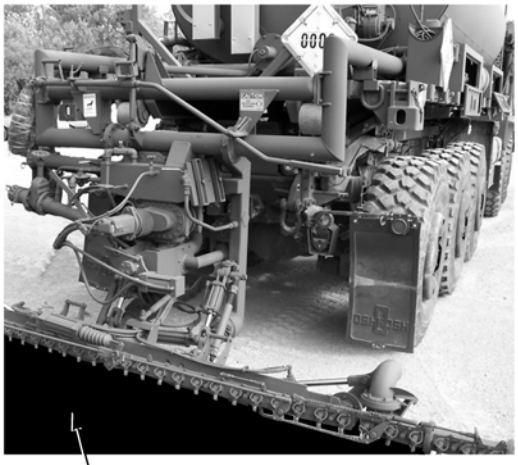




17. SPRAY BAR APPLICATION TOO LIGHT OR TOO HEAVY (CONT).

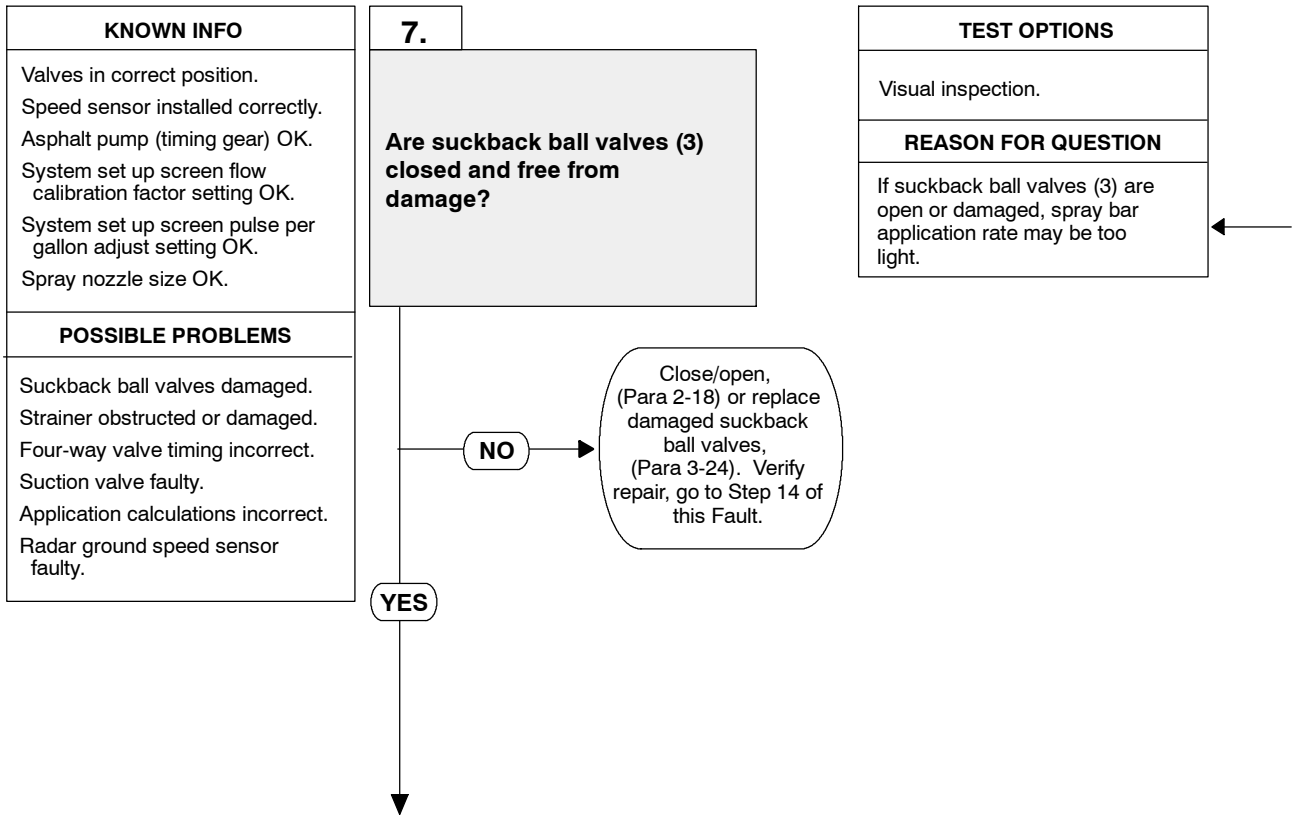


VISUAL INSPECTION
Check if application rate was too light. (a) If application rate was heavy, go to Step 13 of this Fault. (b) If application rate was too light, go to Step 7 of this Fault.



BITUMINOUS MATERIAL APPLICATION

17. SPRAY BAR APPLICATION TOO LIGHT OR TOO HEAVY (CONT).

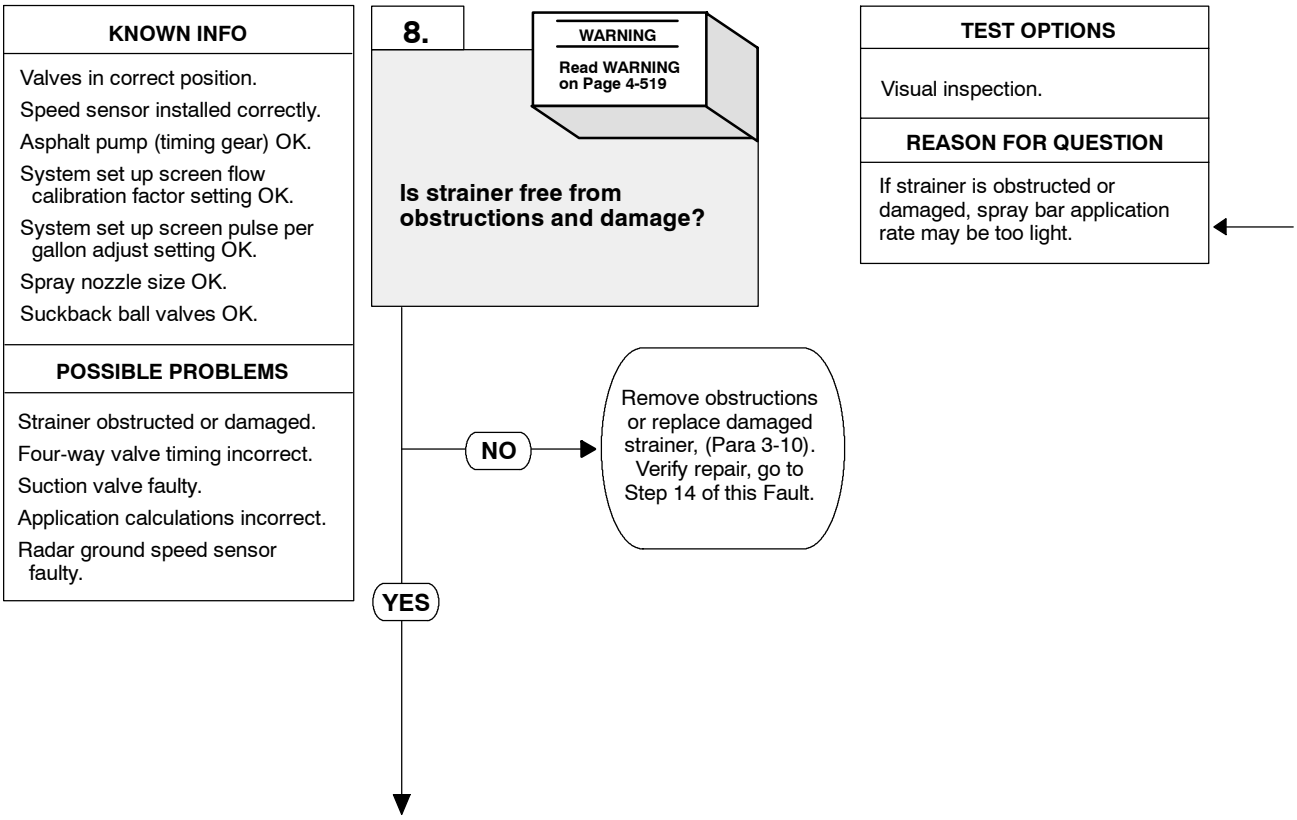


VISUAL INSPECTION
Check if suckback ball valves (3) are closed and free from damage. (a) If suckback ball valves (3) are not closed and free from damage, close/open, (Para 2-18) and replace damaged suckback ball valves, (Para 3-24). Verify repair, go to Step 14 of this Fault. (b) If suckback ball valves (3) are closed and free from damage, go to Step 8 of this Fault.



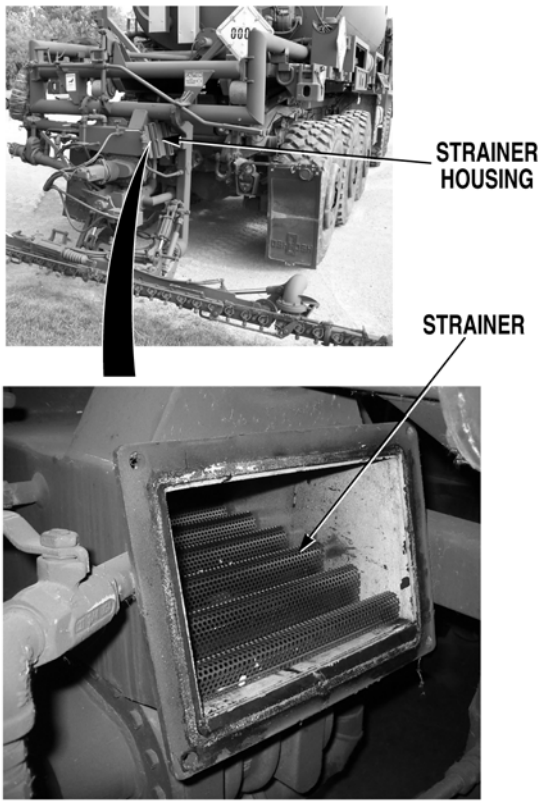
SPRAY BAR SUCKBACK BALL VALVES

17. SPRAY BAR APPLICATION TOO LIGHT OR TOO HEAVY (CONT).



WARNING

To prevent possible burns, always wear insulated gloves when handling spray bar sections or hoses. Failure to comply may result in serious injury to personnel.



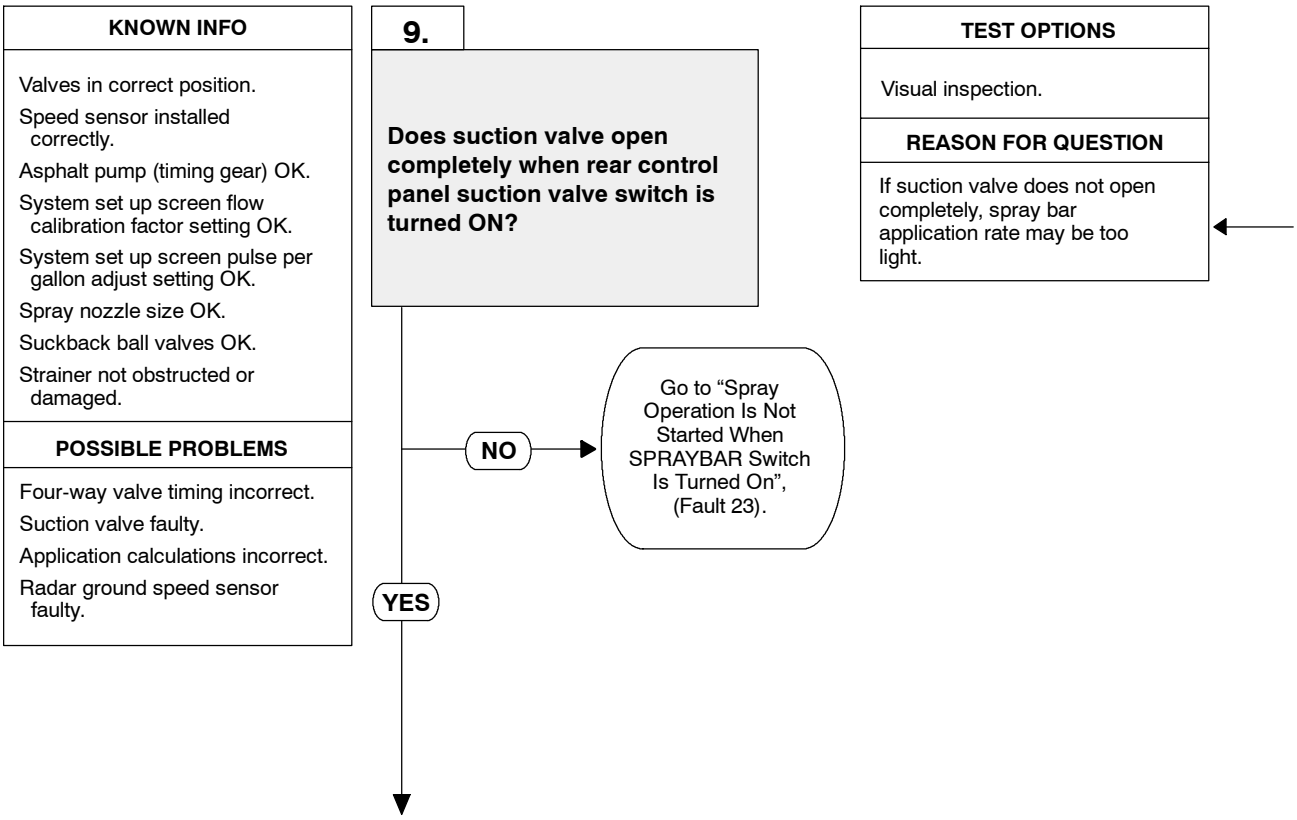
VISUAL INSPECTION

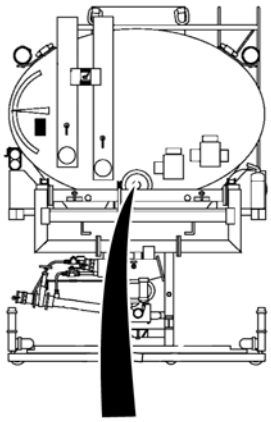
Remove strainer cover, (Para 3-10). Check if strainer is obstructed or damaged.

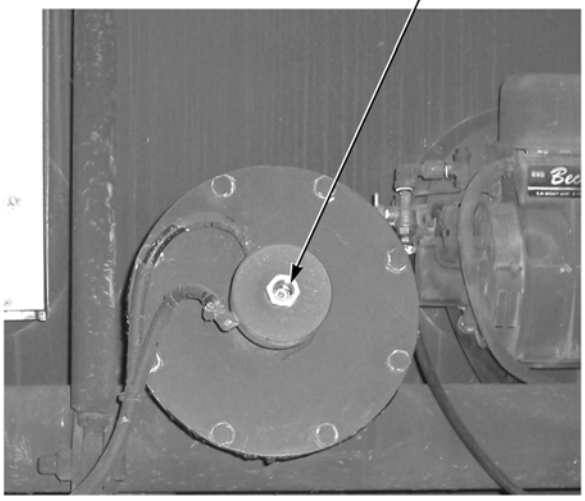
(a) If strainer is not free from obstructions or damage, remove obstructions or replace damaged strainer, (Para 3-10). Verify repair, go to Step 14 of this Fault.

(b) If strainer is free from obstructions and damage, reinstall strainer cover, go to Step 9 of this Fault.

17. SPRAY BAR APPLICATION TOO LIGHT OR TOO HEAVY (CONT).







VISUAL INSPECTION

(1) Install strainer and cover, (Para 3-10).

(2) Start engine and allow air system to charge to 100 to 120 psi (690 to 827 kPa), (TM 9-2320-364-10).

(3) Turn front control panel POWER switch ON, (Para 2-1).

(4) Turn rear control panel POWER switch ON, (Para 2-1).

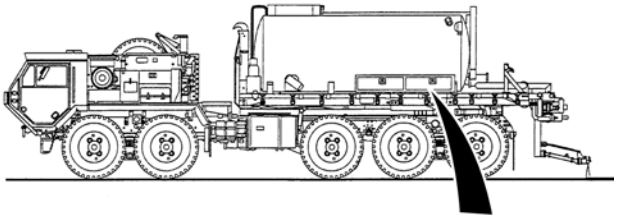
NOTE

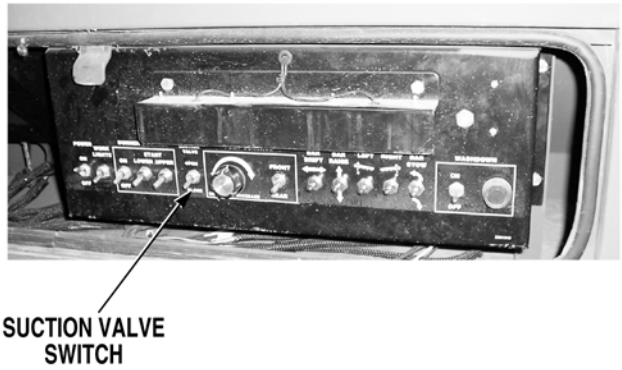
Suction valve plunger will move and an audible thud is heard when suction valve opens.

(5) While an assistant operates rear control panel suction valve switch, (Para 2-1), look through site glass to check if suction valve opens completely.

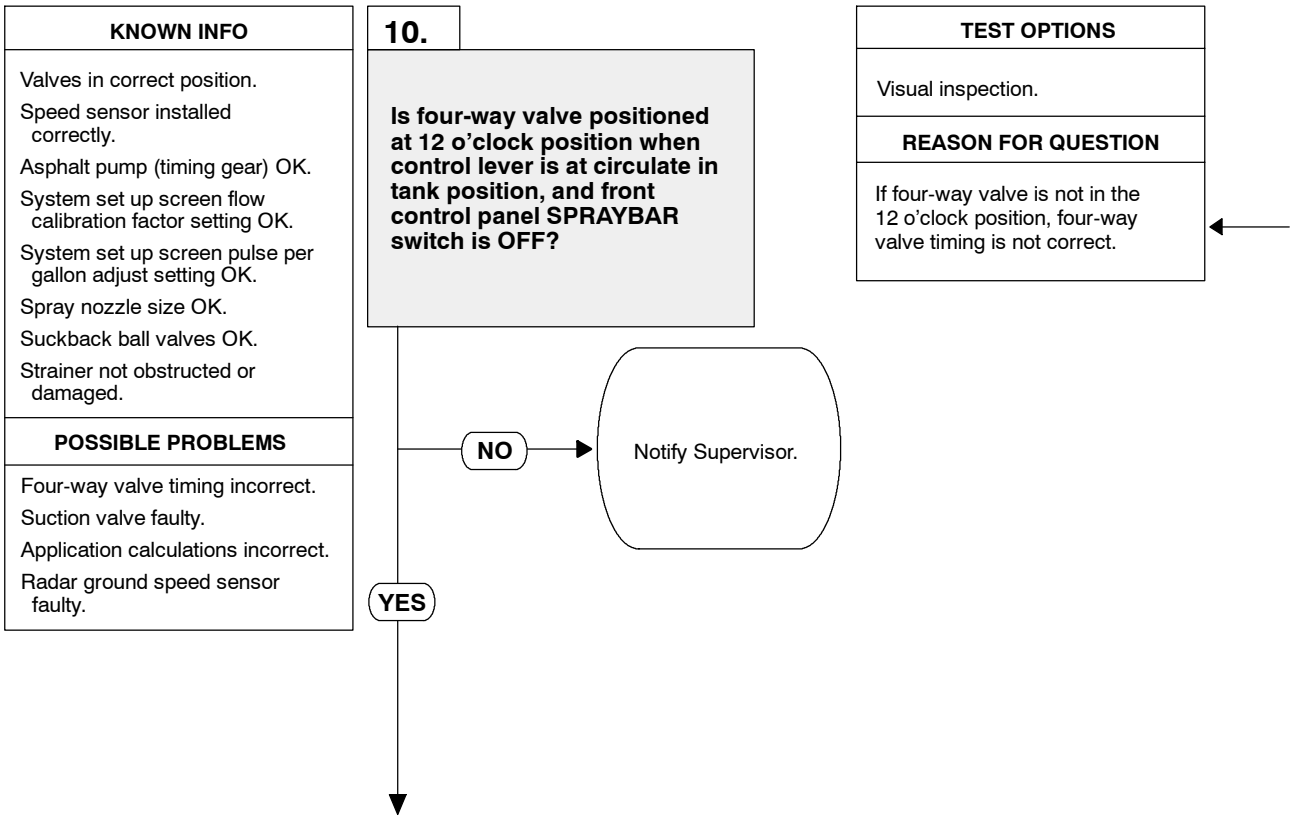
(a) If suction valve does not open completely, go to “Spray Operation Is Not Started When SPRAYBAR Switch Is Turned On”, (Fault 23).

(b) If suction valve opens completely, go to Step 10 of this Fault.





17. SPRAY BAR APPLICATION TOO LIGHT OR TOO HEAVY (CONT).



VISUAL INSPECTION

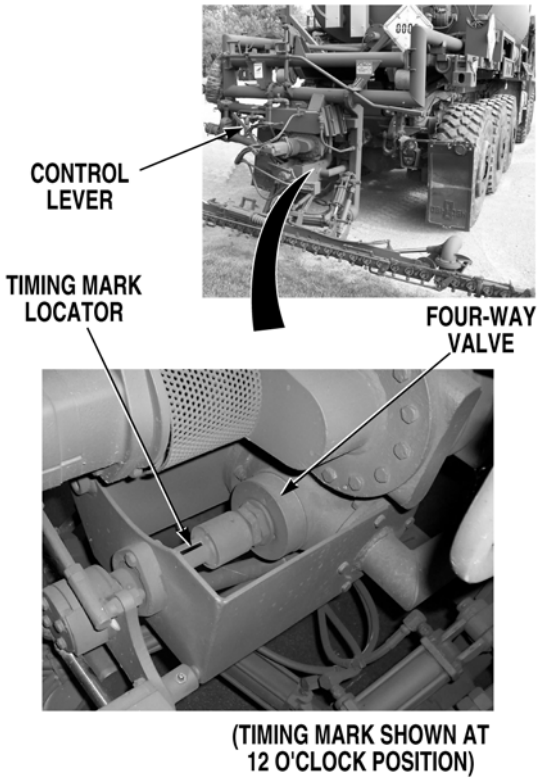
(1) Place four-way valve lever in circulate in tank position.

(2) Place front control panel SPRAYBAR switch in OFF position, (Para 2-1).

(3) Check if four-way valve is in 12 o'clock position.

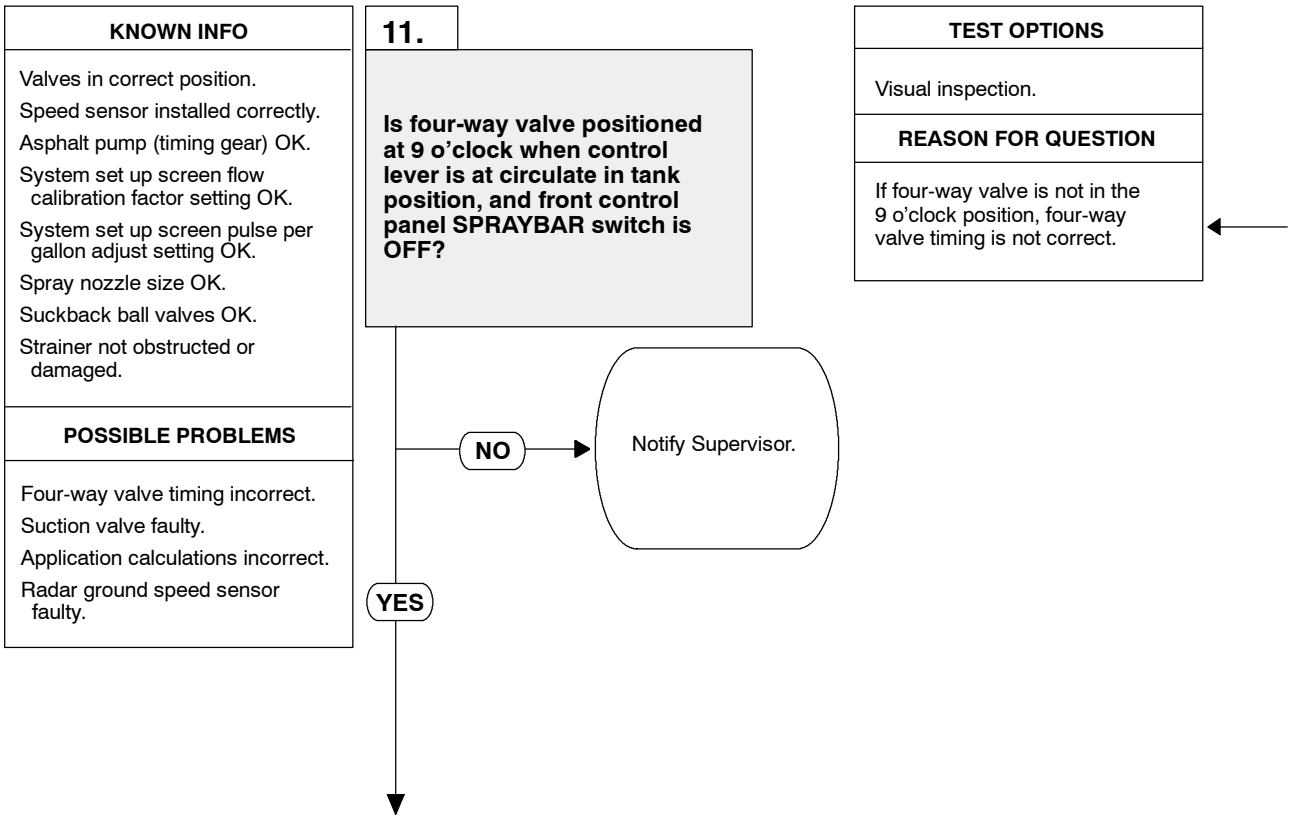
  (a) If four-way valve is not in the 12 o'clock position, notify Supervisor.

  (b) If four-way valve is in 12 o'clock position, go to Step 11 of this Fault.



(TIMING MARK SHOWN AT 12 O'CLOCK POSITION)

17. SPRAY BAR APPLICATION TOO LIGHT OR TOO HEAVY (CONT).



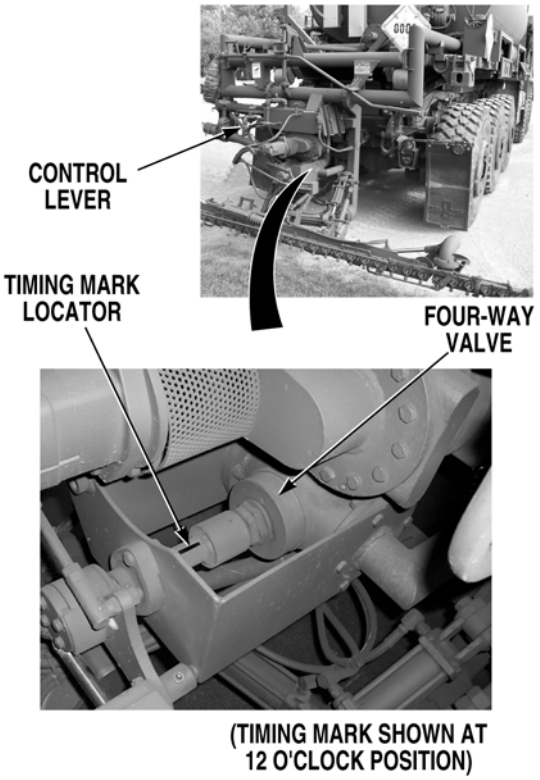
VISUAL INSPECTION

(1) Place four-way valve control lever in circulate in spray bar position.

(2) Place SPRAYBAR switch in OFF position. Check if four-way valve is in 9 o'clock position.

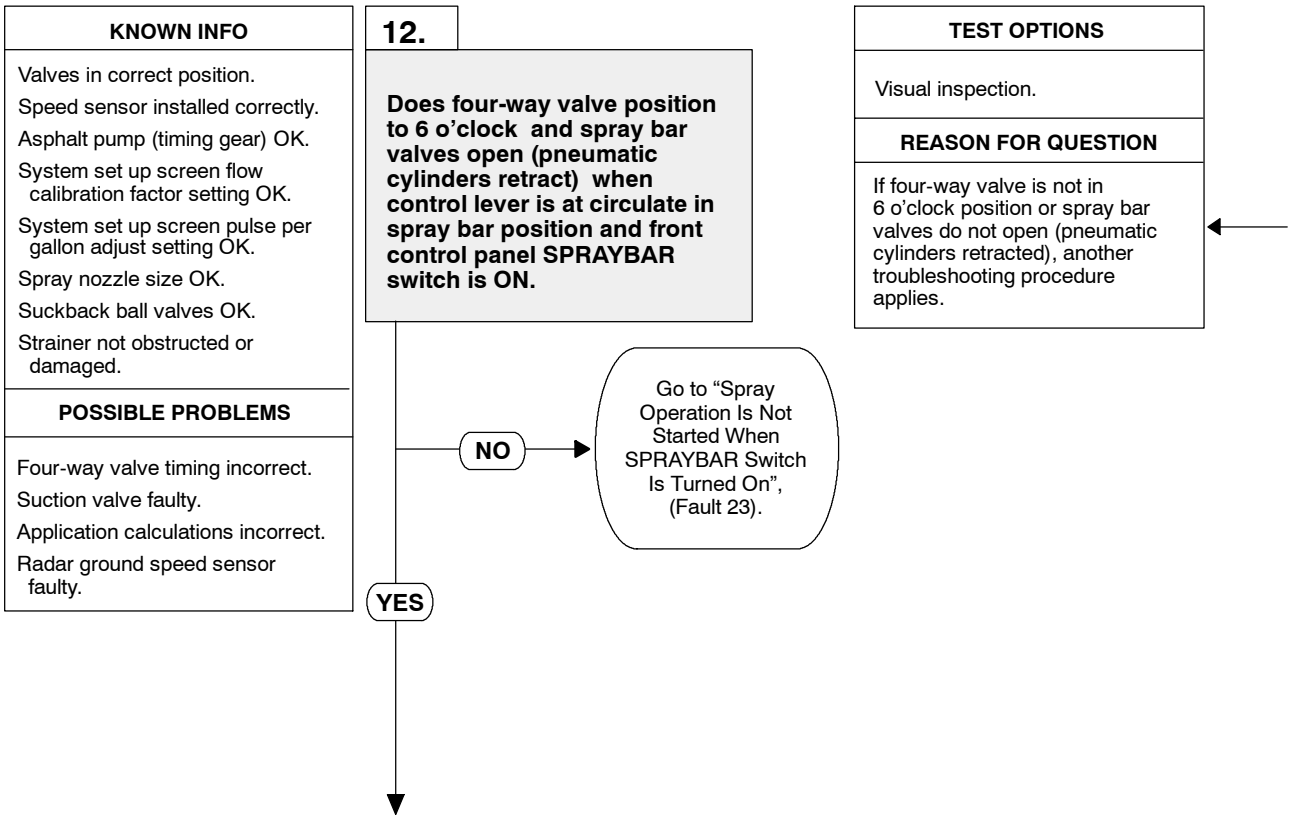
  (a) If four-way valve is not in the 9 o'clock position, notify Supervisor.

  (b) If four-way valve is in 9 o'clock position, go to Step 12 of this Fault.



(TIMING MARK SHOWN AT 12 O'CLOCK POSITION)

17. SPRAY BAR APPLICATION TOO LIGHT OR TOO HEAVY (CONT).

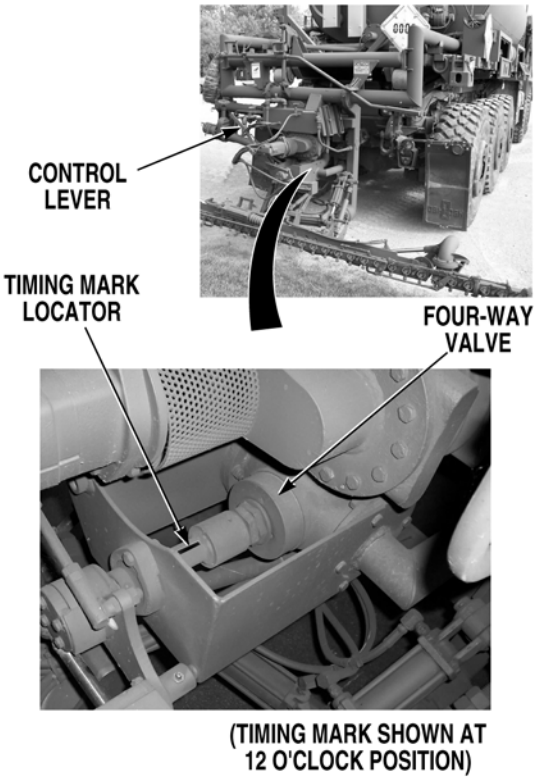


VISUAL INSPECTION

Turn front control panel SPRAYBAR switch to ON, (Para 2-1). Check if four-way valve is in 6 o'clock position and spray bar valves are open (pneumatic cylinders retracted).

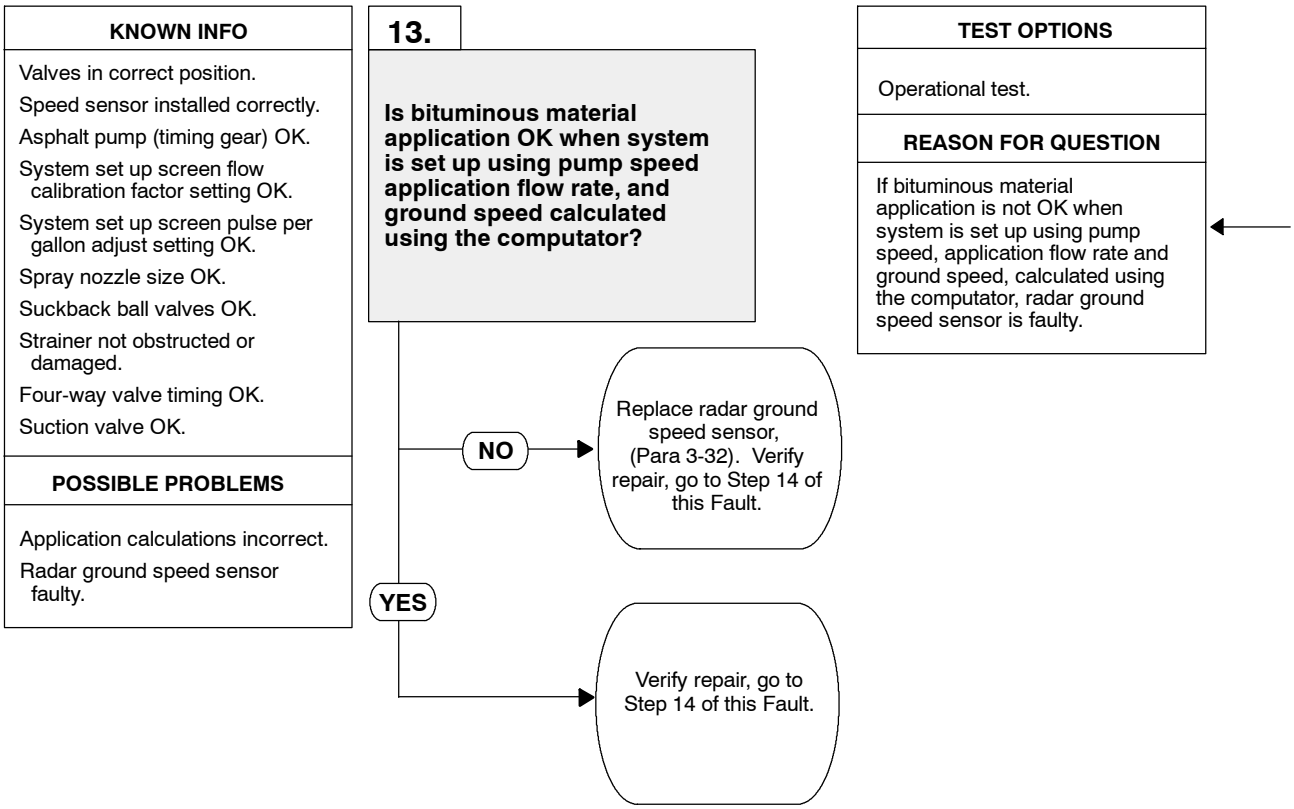
(a) If four-way valve is not in 6 o'clock position (pneumatic cylinders do not retract) or spray bar valves do not open, go to "Spray Operation Is Not Started When SPRAYBAR Switch Is Turned On", (Fault 23).

(b) If four-way valve is in 6 o'clock position and spray bar valves open (pneumatic cylinders retracted), go to Step 13 of this Fault.



(TIMING MARK SHOWN AT 12 O'CLOCK POSITION)

17. SPRAY BAR APPLICATION TOO LIGHT OR TOO HEAVY (CONT).



OPERATIONAL TEST

(1) If set up screen is displayed on front control panel, exit set up screen, (Para 2-14).

(2) Calculate application spray rate, ground speed and pump speed using computator, for the spray bar nozzles being used, (Para 2-11).

(3) If OFF, start engine, (TM 9-2320-364-10).

(4) Turn hydraulic selector switch to CRANE/SRW, (TM 9-2320-364-10).

(5) Turn front control panel POWER switch ON, (Para 2-1).

(6) Turn rear control panel POWER switch ON, (Para 2-1).

(7) Set up system using pump speed, application spray rate and ground speed calculated using computator, (Para 2-11).

(8) Operate spraying function. Check if bituminous material application is satisfactory.

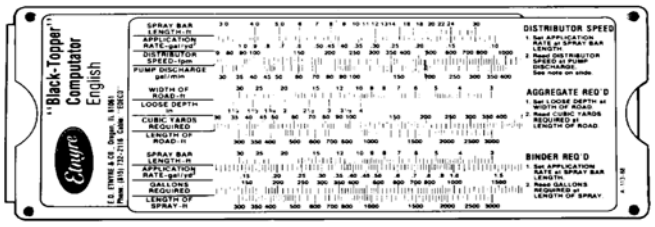
(a) If bituminous material application is too heavy or too light, replace radar ground speed sensor, (Para 3-32).

(b) If bituminous material application is satisfactory, fault has been corrected.

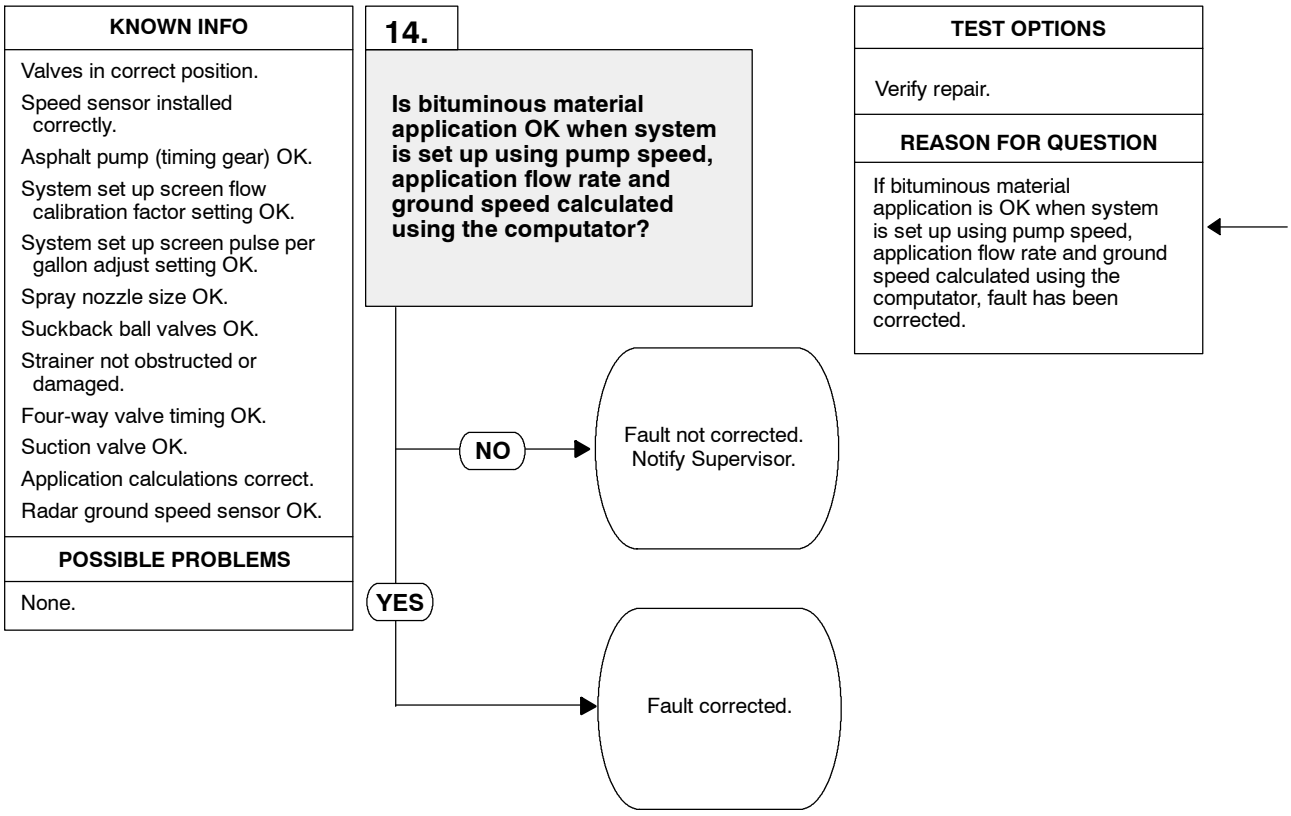
(9) Verify repair, go to Step 14 of this Fault.



BITUMINOUS MATERIAL APPLICATION



17. SPRAY BAR APPLICATION TOO LIGHT OR TOO HEAVY (CONT).



VERIFY REPAIR

(1) If not calculated, calculate application spray rate, ground speed and pump speed using computator, for the spray bar nozzles being used, (Para 2-11). Set up system using pump speed, application spray rate and ground speed calculated using the computator.

(2) IF OFF, start engine, (TM 9-2320-364-10).

(3) Turn hydraulic selector switch to CRANE/SRW, (TM 9-2320-364-10).

(4) Turn front control panel POWER switch ON, (Para 2-1).

(5) Turn rear control panel POWER switch ON, (Para 2-1).

(6) Operate spraying function, (Para 2-17). Check if bituminous material application satisfactory.

  (a) If bituminous material application is too light or too heavy, fault not corrected. Notify Supervisor.

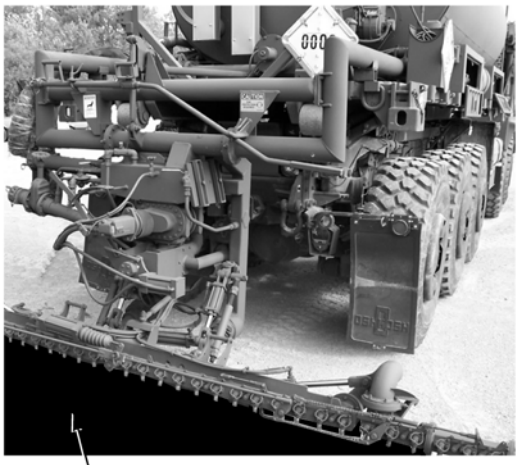
  (b) If bituminous material application is satisfactory, fault has been corrected.

(7) Turn hydraulic selector switch OFF, (TM 9-2320-364-10).

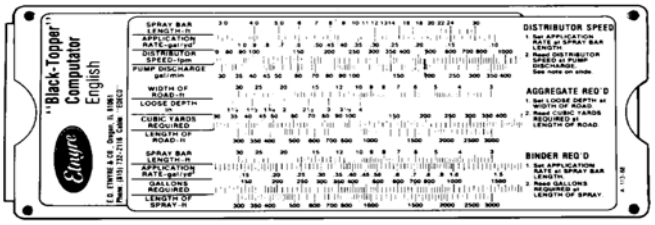
(8) Turn front control panel POWER switch OFF, (Para 2-1).

(9) Turn rear control panel POWER switch OFF, (Para 2-1).

(10) Shut off engine, (TM 9-2320-364-10).



BITUMINOUS MATERIAL APPLICATION



18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL).

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Multimeter (Item 8, Appendix F)
Pan, Drain (Item 9, Appendix F)
Jumperwire

Personnel Required
Two

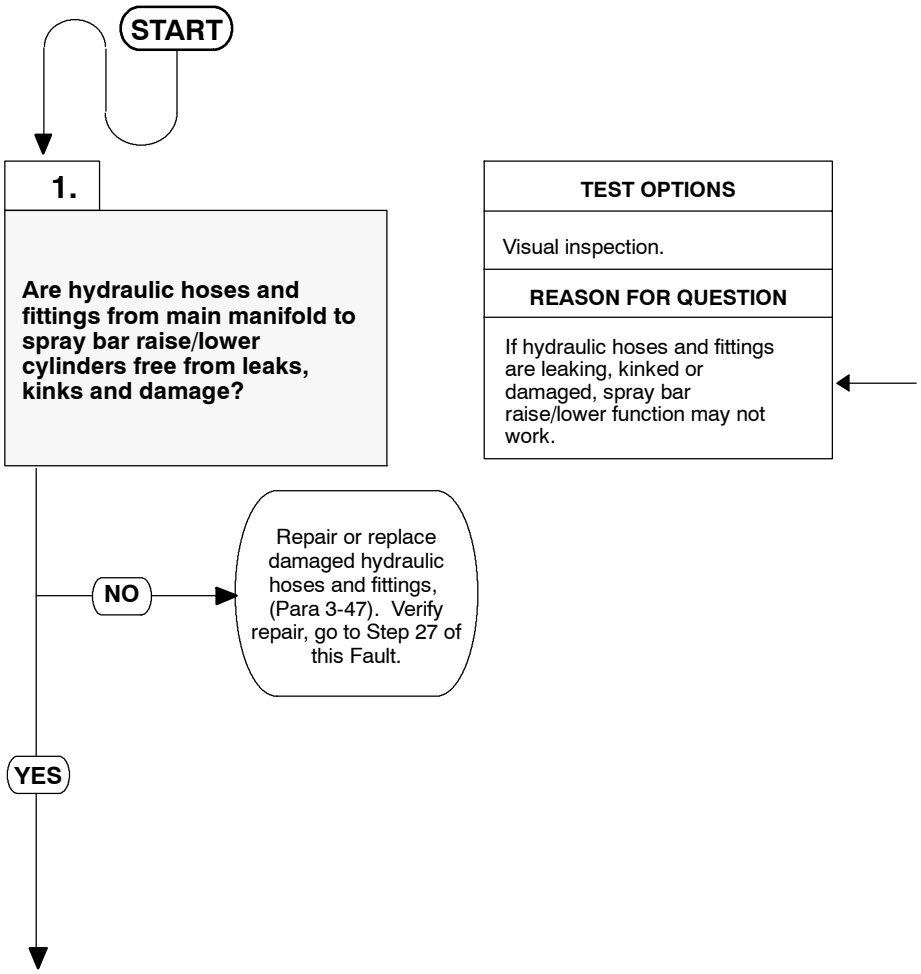
Equipment Condition
Bituminous Distributor loaded on PLS, (Para 2-5)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

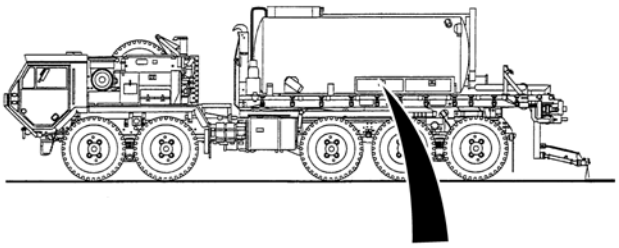
KNOWN INFO

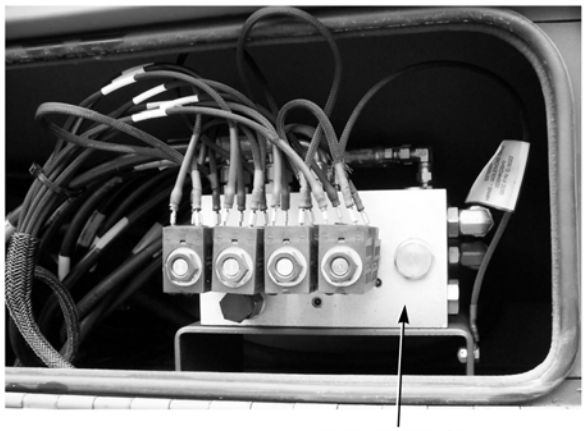
Spray bar shift function operates.
Power to front and rear control panels OK.
Hydraulic power to burner and main manifold OK.

POSSIBLE PROBLEMS

Hydraulic hoses and fittings faulty.
Non-operating hydraulic cylinder faulty.
Main manifold (check valve) faulty.
Asphalt pump faulty.
BAR RAISE switch faulty.
Burner and main manifold wire harness (orange/black wire) faulty.
Spray bar raise solenoid valve ground wire connection faulty.
Spray bar raise solenoid valve faulty.
Burner and main manifold wire harness (orange wire) faulty.
Spray bar lower solenoid valve faulty.
Spray bar lower solenoid valve ground wire connection faulty.
Orange wire from front control panel terminal strip to LIFT switch faulty.
Front control panel wire harness (wire 6 black) faulty.
Rear control panel wire harness (wire 6 black) faulty.
PLS interface faulty.
Orange/black wire from front control panel terminal strip to LIFT switch faulty.
Front control panel wire harness (wire 6 white) faulty.
Rear control panel wire harness (wire 6 white) faulty.







VISUAL INSPECTION

(1) Start engine, (TM 9-2320-364-10).

(2) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(3) Turn front control panel POWER switch ON, (Para 2-1).

(4) Turn rear control panel POWER switch ON, (Para 2-1).

(5) Operate spray bar raise/lower function, (Para 2-17).

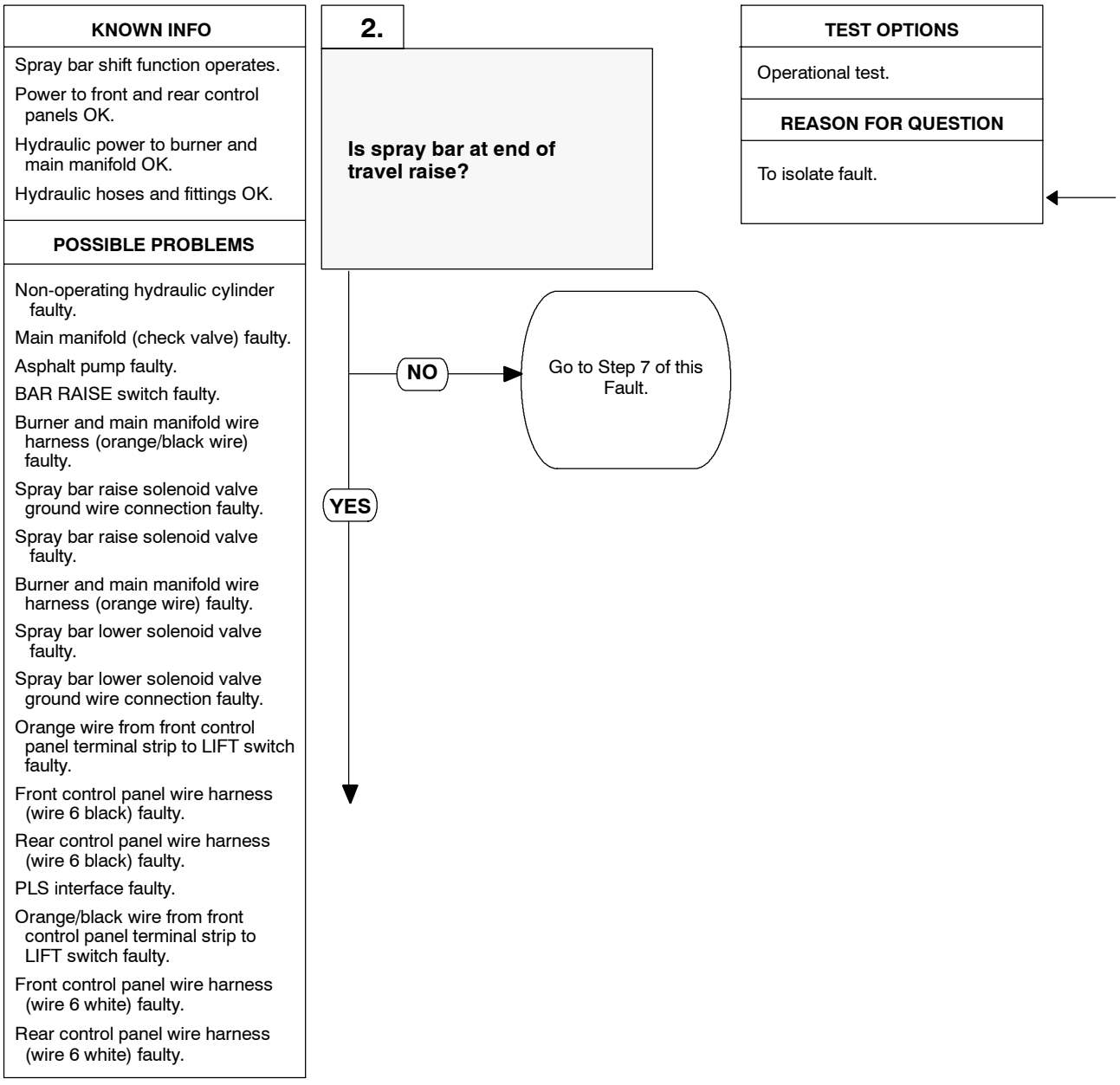
(6) Inspect hydraulic hoses from main manifold to spray bar hydraulic cylinder for leaks, kinks and damage.

(a) If hydraulic hoses and fittings are leaking, kinked or damaged, repair or replace hydraulic hoses and fittings, (Para 3-47). Verify repair, go to Step 27 of this Fault.

(b) If hydraulic hoses and fittings are not leaking, kinked or damaged, go to Step 2 of this Fault.



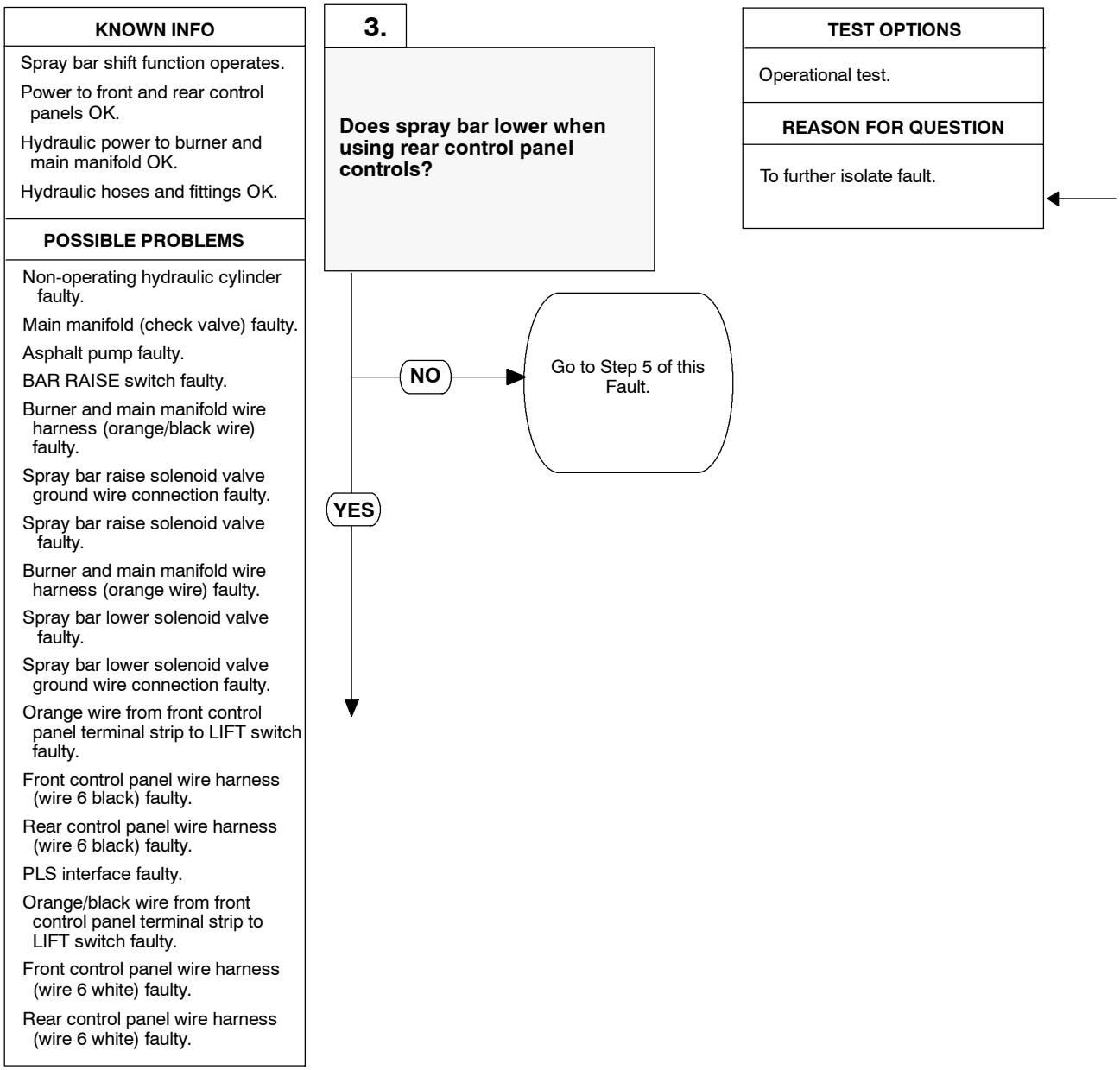
18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).



OPERATIONAL TEST
Check if spray bar is at end of travel raise. (a) If spray bar is not at end of travel raise, go to Step 7 to this Fault. (b) If spray bar is at end of travel raise, go to Step 3 of this Fault.



18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).



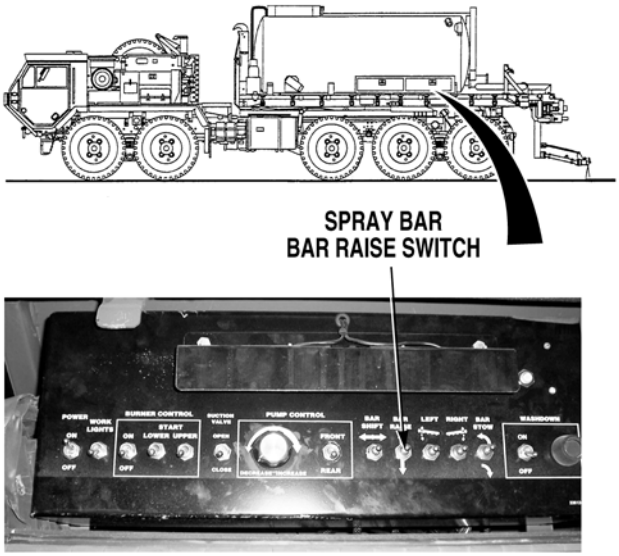


OPERATIONAL TEST

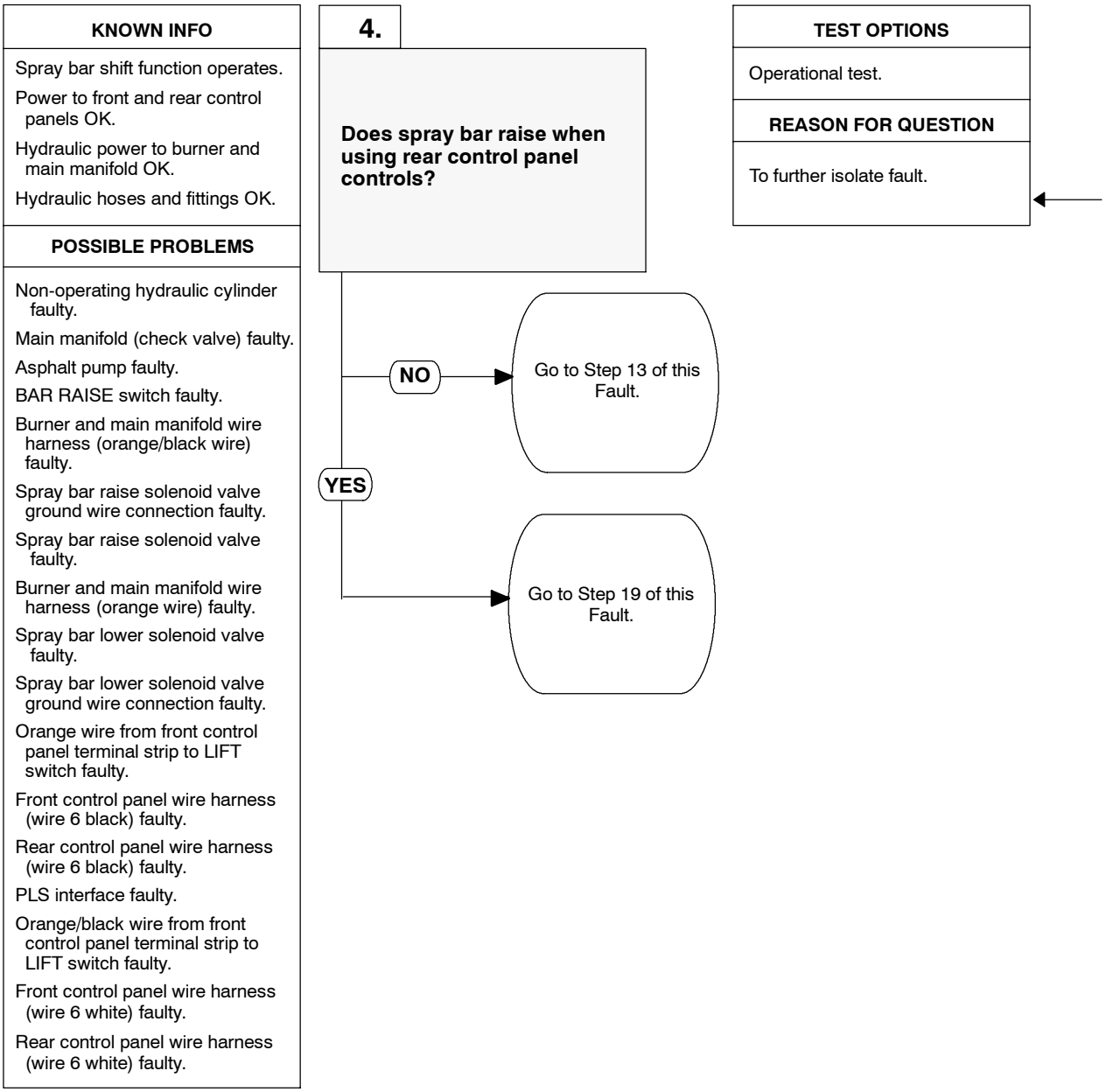
Operate spray bar lower function from rear control panel, (Para 2-17). Check if spray bar lowers.

(a) If spray bar does not lower, go to Step 5 of this Fault.

(b) If spray bar lowers, go to Step 4 of this Fault.



18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).



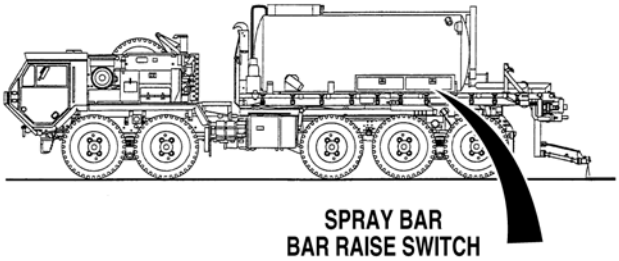
OPERATIONAL TEST

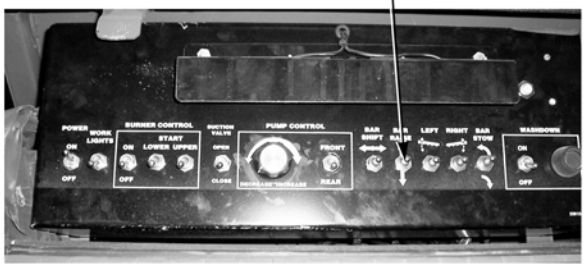
Operate spray bar raise function from rear control panel, (Para 2-17). Check if spray bar raises.

(a) If spray bar does not raise, go to Step 13 of this Fault.

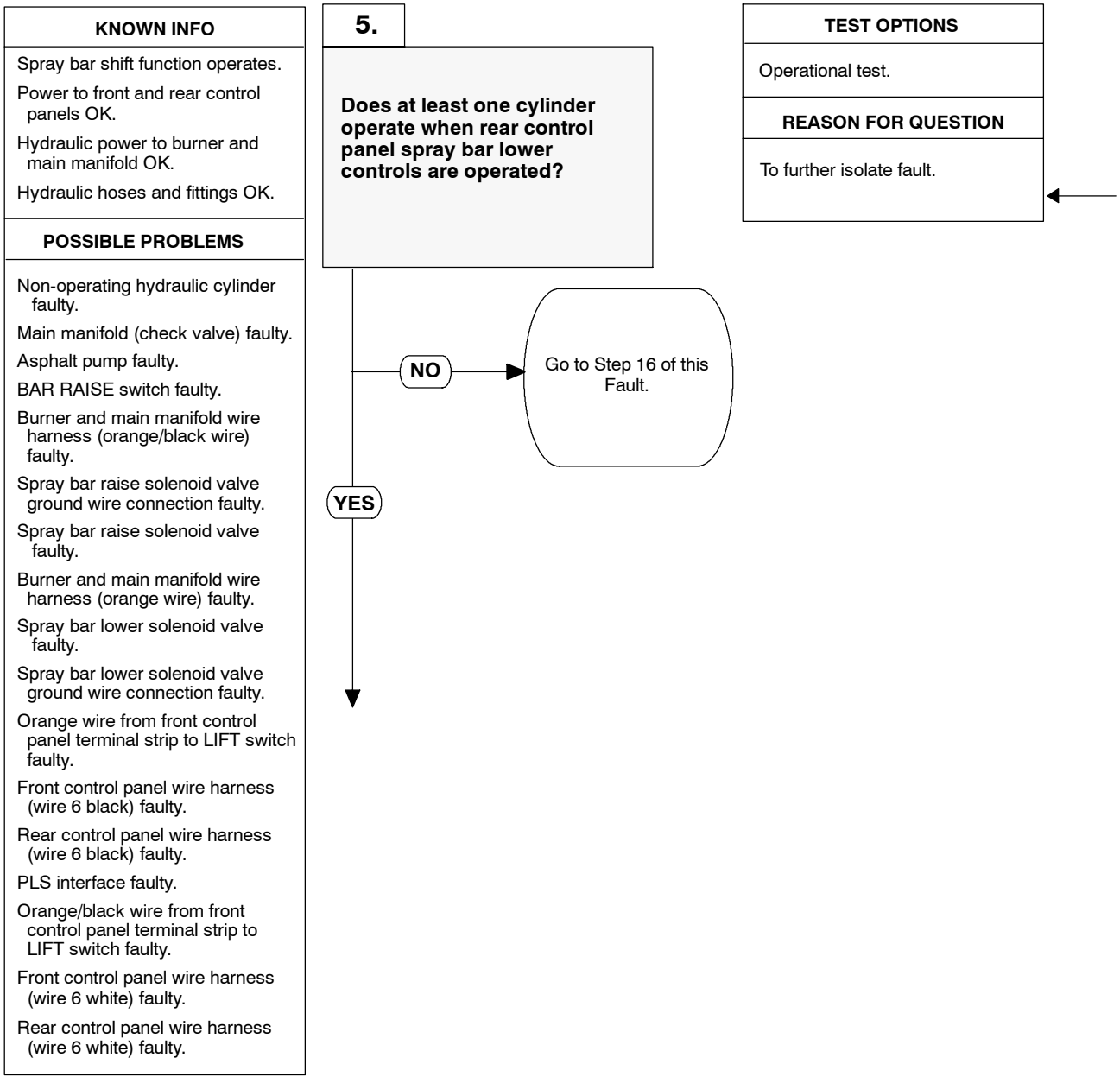
(b) If spray bar raises, go to Step 19 of this Fault.

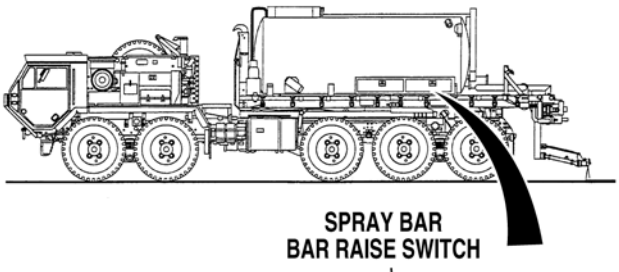




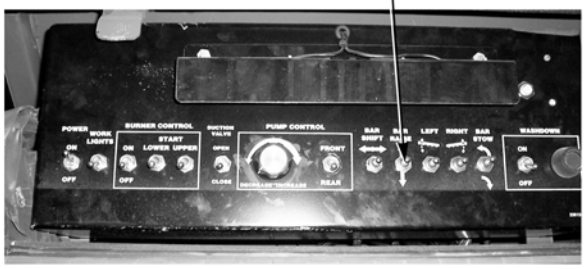


18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).





SPRAY BAR
BAR RAISE SWITCH



OPERATIONAL TEST

While an assistant operates rear control panel spray bar lower function, (Para 2-17), check if at least one hydraulic cylinder is operating.

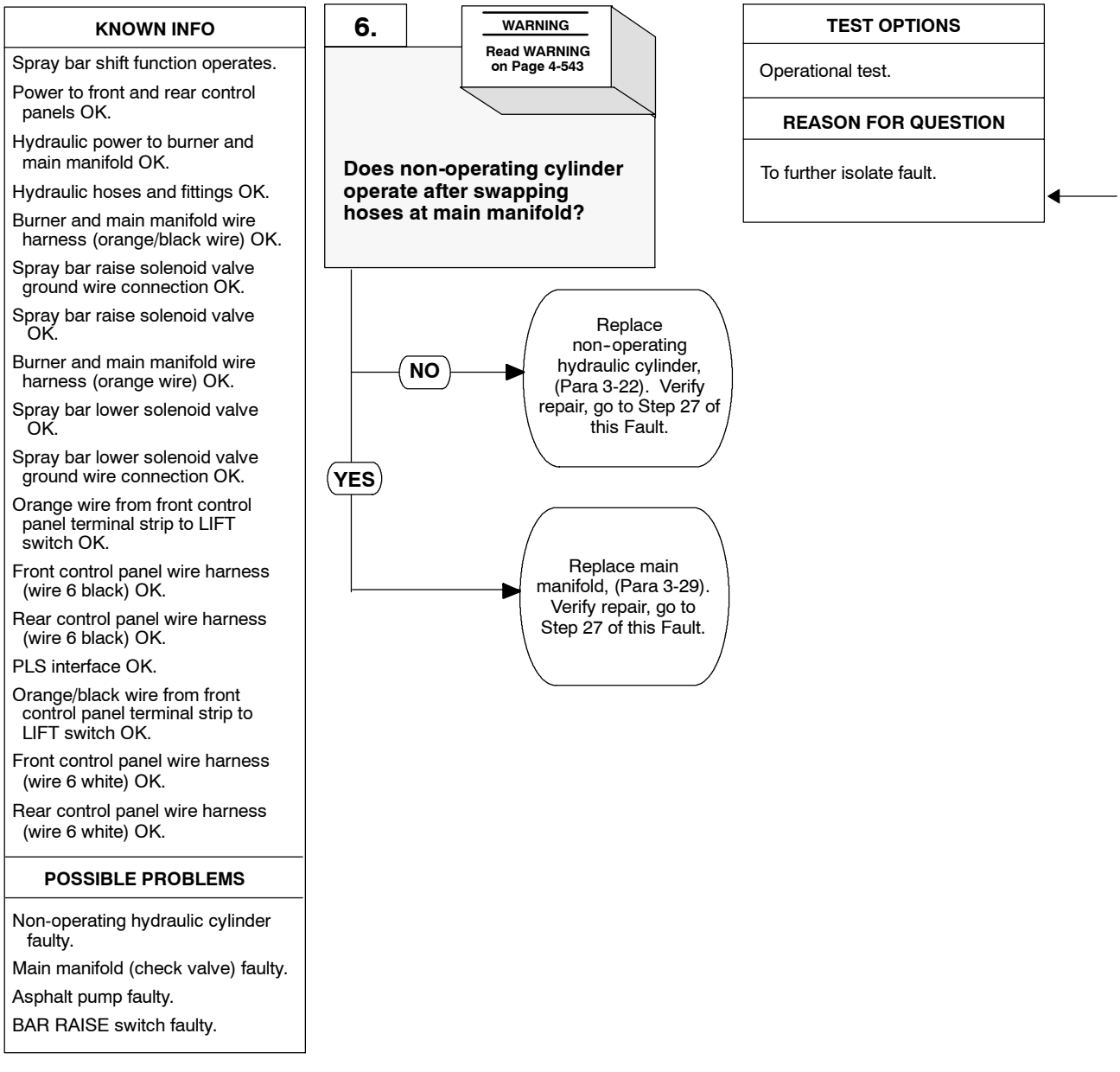
(a) If at least one cylinder does not operate, go to Step 16 of this Fault.

(b) If at least one cylinder operates, go to Step 6 of this Fault.



SPRAY BAR
RAISE/LOWER CYLINDERS

18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).



WARNING

- Hydraulic system can reach 3,675 psi (25,339 kPa). Never connect/disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply could cause serious injury or death to personnel.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

OPERATIONAL TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Place suitable drain pan under main manifold.

(4) Disconnect hydraulic hose from main manifold, port LLR.

(5) Disconnect hydraulic hose from main manifold, port RLR.

(6) Connect hydraulic hose from main manifold, port RLR to main manifold, port LLR.

(7) Connect hydraulic hose from main manifold, port LLR to main manifold, port RLR.

(8) Disconnect hydraulic hose from main manifold, port LLC.

(9) Disconnect hydraulic hose from main manifold, port RLC.

(10) Connect hydraulic hose from main manifold, port RLC to main manifold, port LLC.

(11) Connect hydraulic hose from main manifold, port LLC to main manifold, port RLC.

(12) Push in battery disconnect switch, (TM 9-2320-364-10).

(13) Start engine, (TM 9-2320-364-10).

(14) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(15) Turn front control panel POWER switch ON, (Para 2-1).

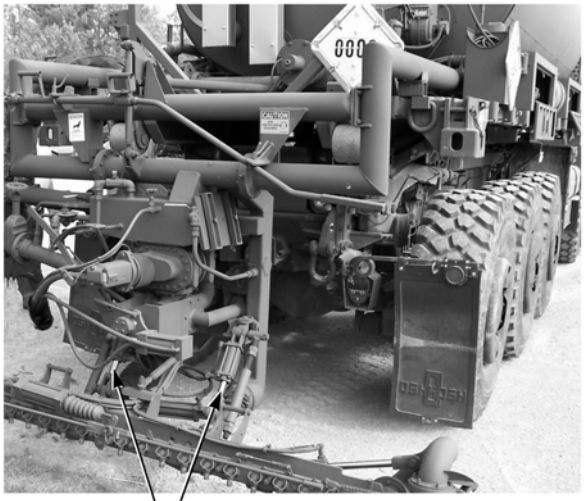
(16) Turn rear control panel POWER switch ON, (Para 2-1).

(17) Operate rear control panel spray bar lower function, (Para 2-17). Check if non-operating cylinder operates.

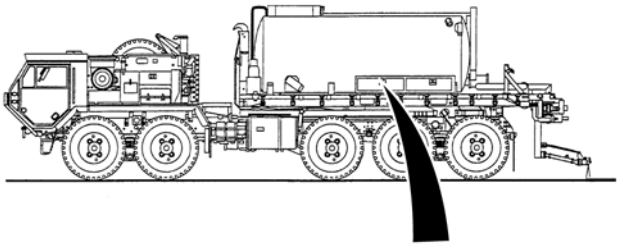
(a) If non-operating hydraulic cylinder doesn't operate, replace non-operating hydraulic cylinder, (Para 3-22).

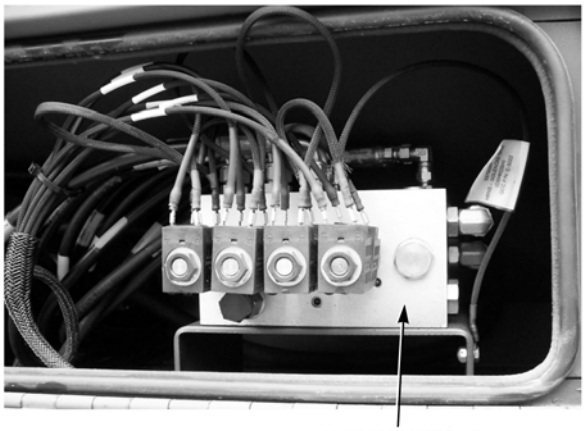
(b) If non-operating hydraulic cylinder operates, replace main manifold, (Para 3-29).

(18) Verify repair, go to Step 27 of this Fault.



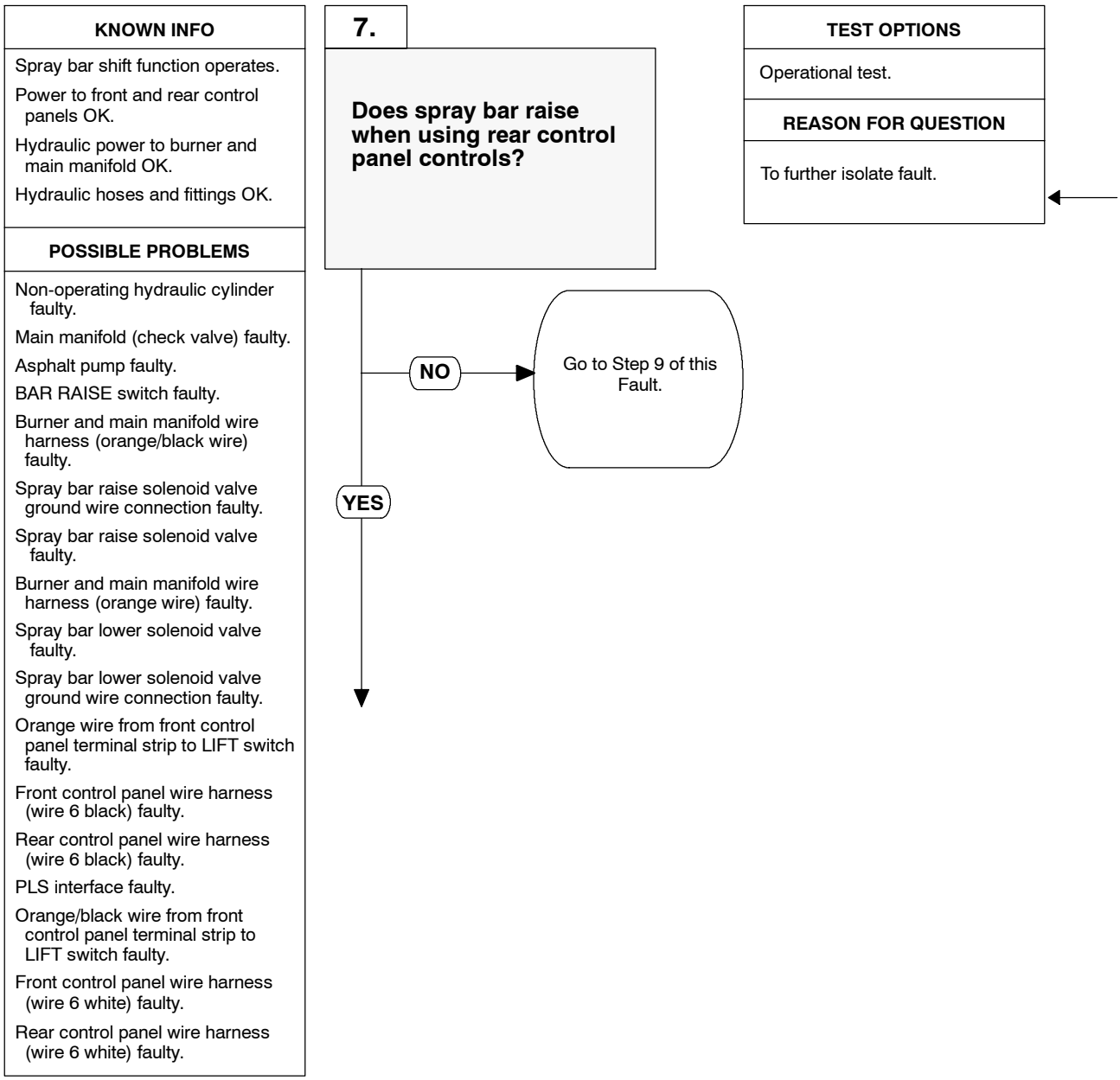
SPRAY BAR
RAISE/LOWER CYLINDERS





MAIN MANIFOLD

18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).



OPERATIONAL TEST

(1) Start engine, (TM 9-2320-364-10).

(2) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(3) Turn front control panel POWER switch ON, (Para 2-1).

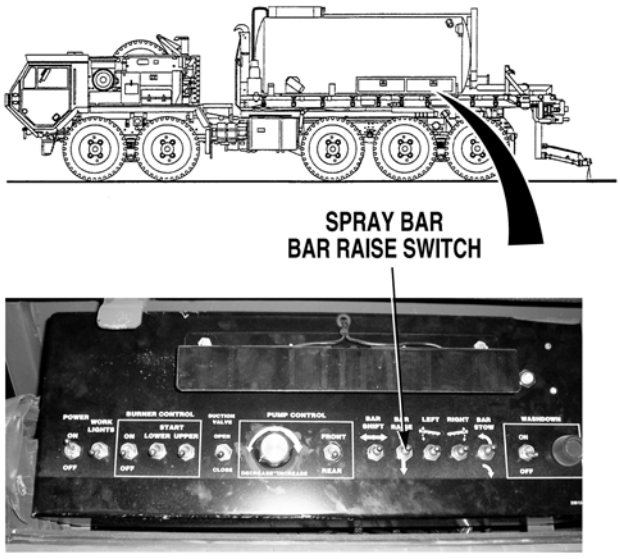
(4) Turn rear control panel POWER switch ON, (Para 2-1).

(5) Operate spray bar raise function from rear control panel, (Para 2-17). Check if spray bar raises.

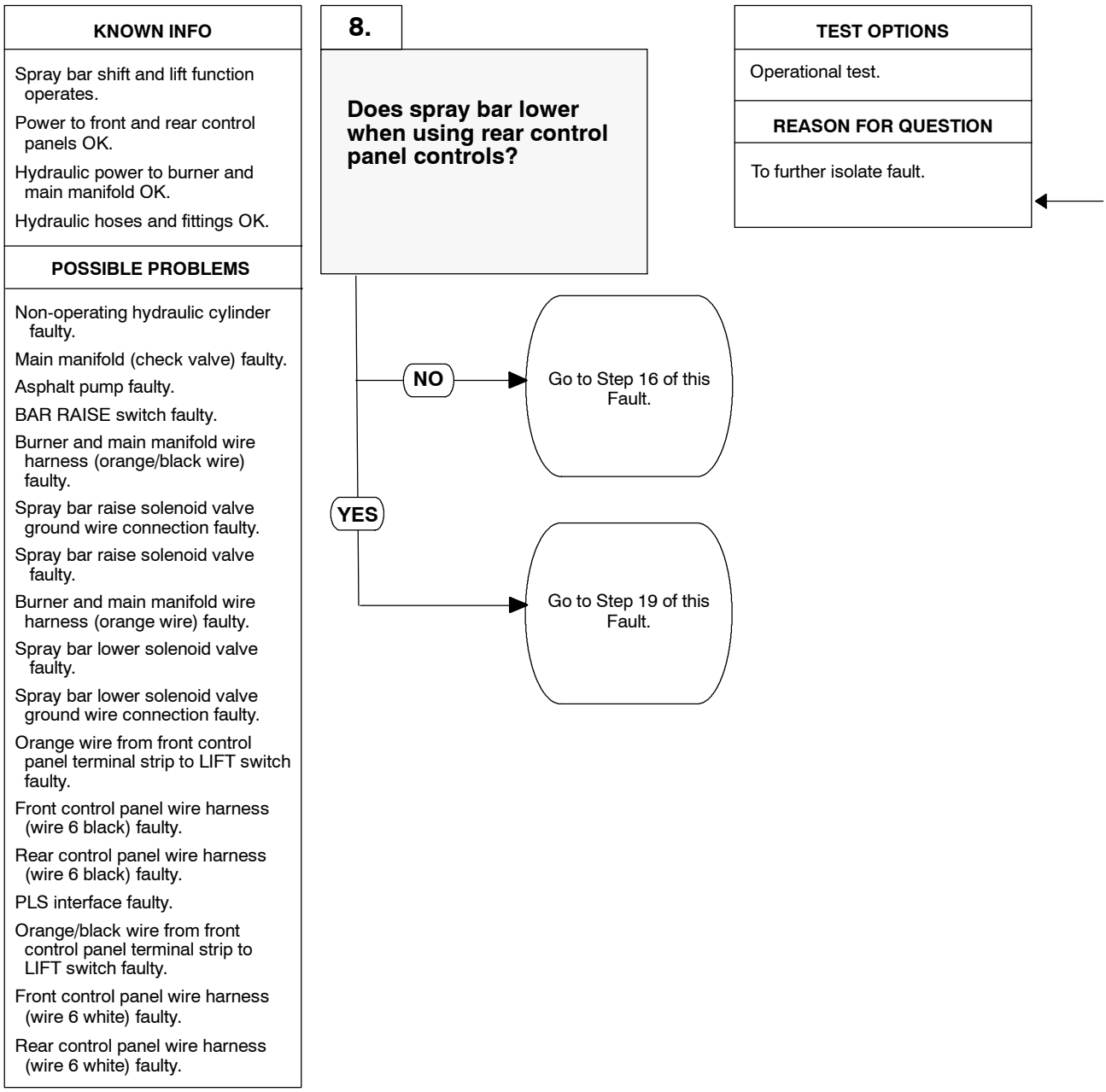
(a) If spray bar does not raise, go to Step 9 of this Fault.

(b) If spray bar raises, go to Step 8 of this Fault.





18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).





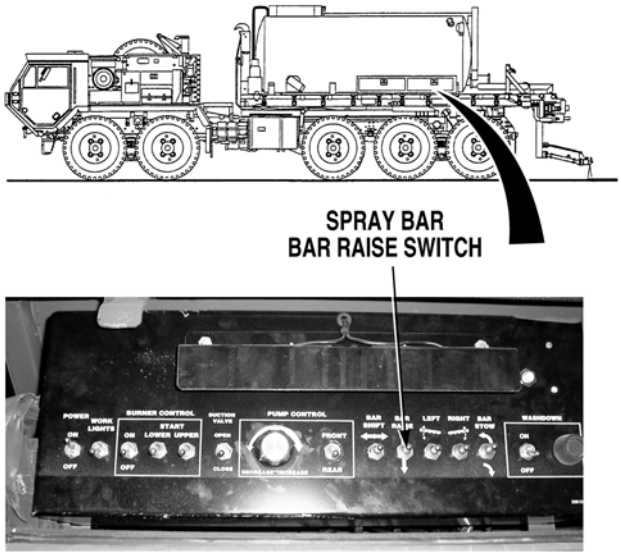
SPRAY BAR

OPERATIONAL TEST

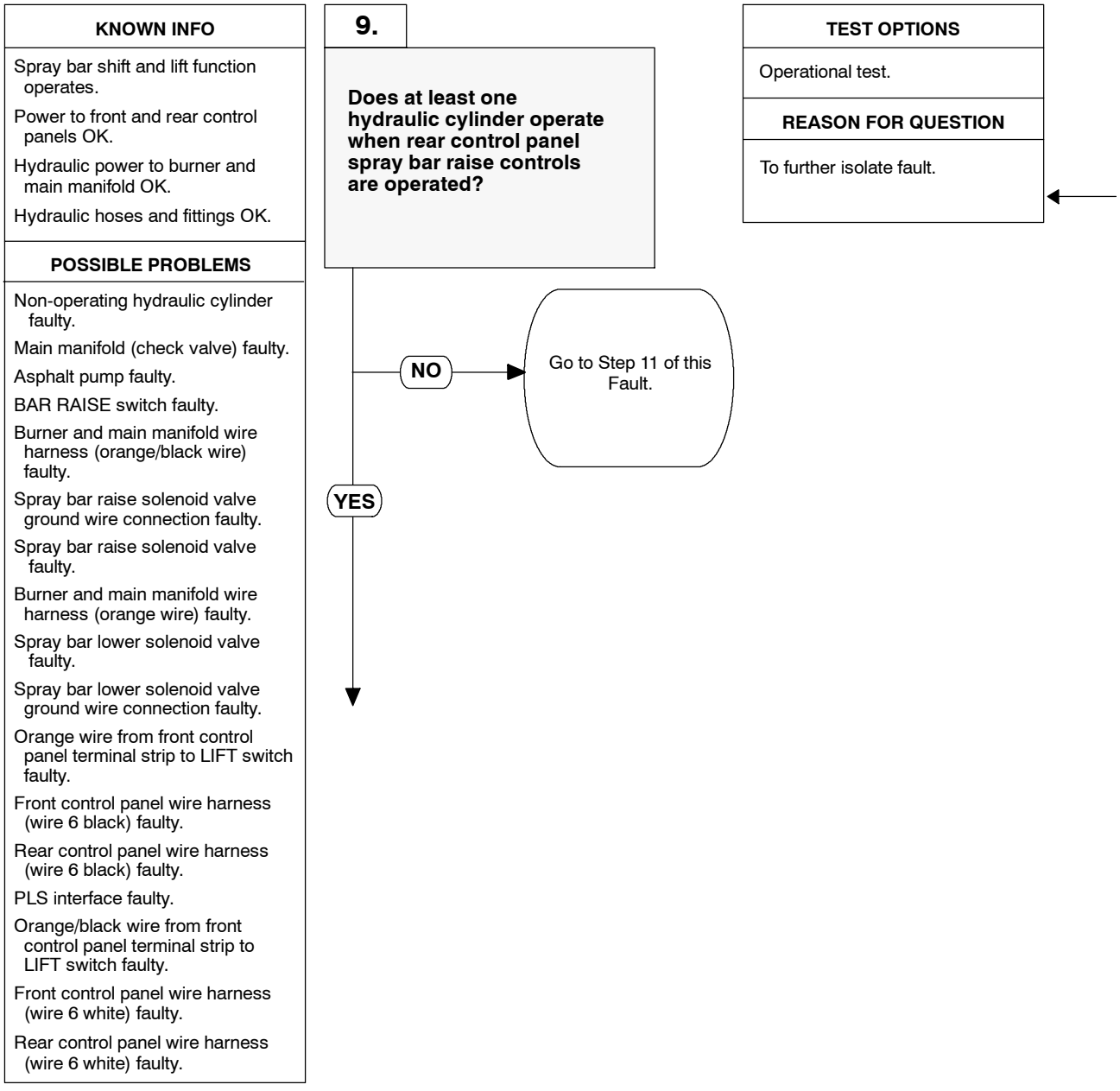
Operate spray bar lower function, from rear control panel, (Para 2-17). Check if spray bar lowers.

(a) If spray bar does not lower, go to Step 16 of this Fault.

(b) If spray bar lowers, go to Step 19 of this Fault.



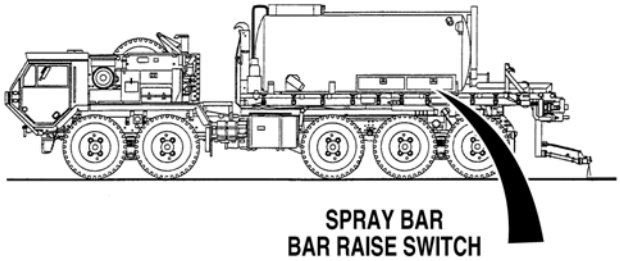
18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).



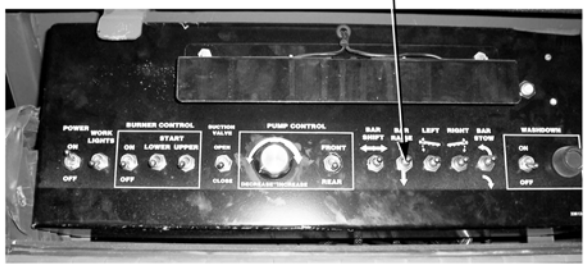
OPERATIONAL TEST
Operate spray bar raise function from rear control panel, (Para 2-17). Check if at least one hydraulic cylinder operates. (a) If at least one hydraulic cylinder does not operate, go to Step 11 of this Fault. (b) If at least one hydraulic cylinder operates, go to Step 10 of this Fault.



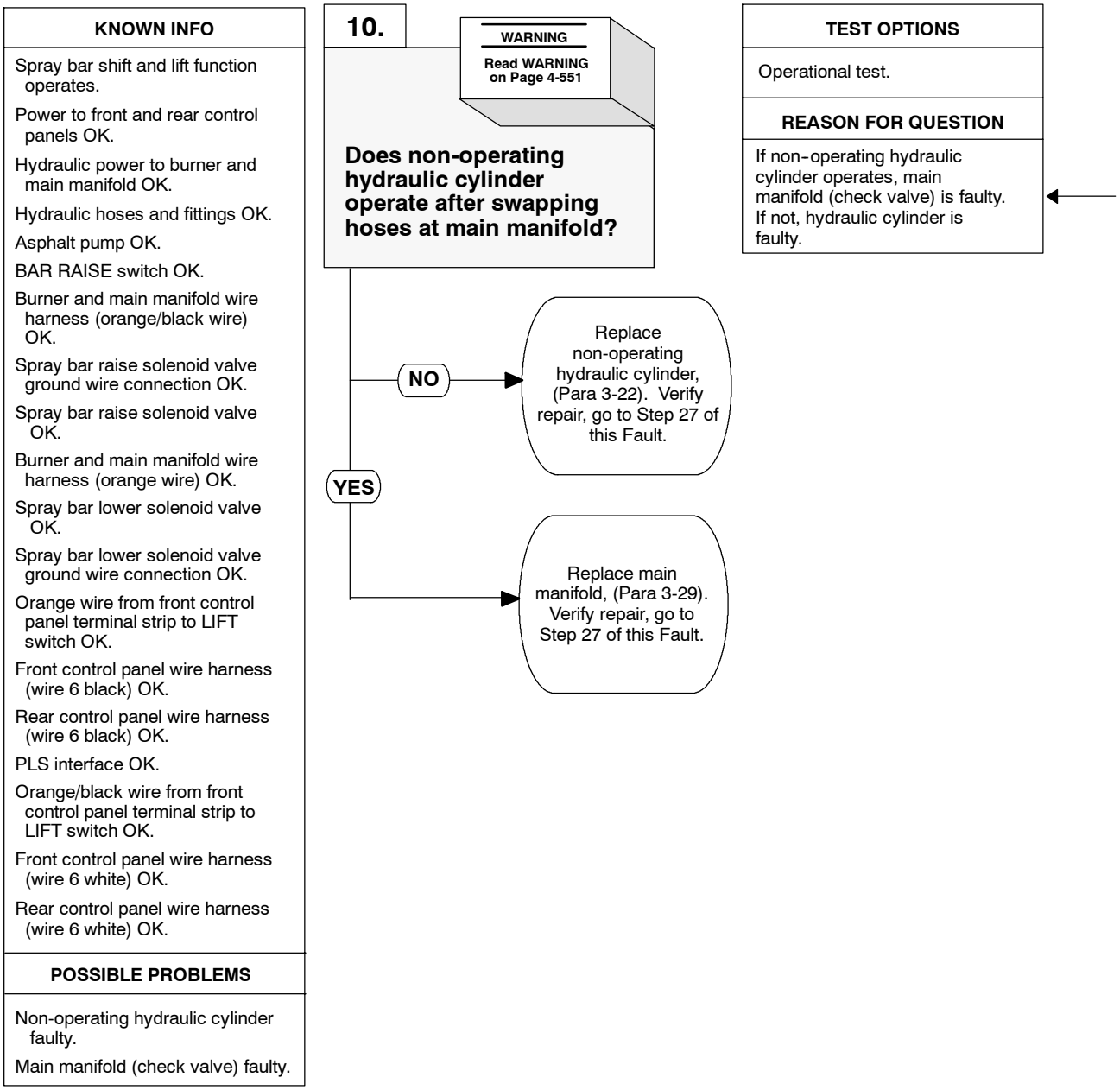
SPRAY BAR
RAISE/LOWER CYLINDERS



SPRAY BAR
BAR RAISE SWITCH



18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).



WARNING

- Hydraulic system can reach 3,675 psi (25,339 kPa). Never connect/disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply could cause serious injury or death to personnel.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

OPERATIONAL TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Place suitable drain pan under main manifold.

(4) Disconnect hydraulic hose from main manifold, port LLR.

(5) Disconnect hydraulic hose from main manifold, port RLR.

(6) Connect hydraulic hose from main manifold, port RLR to main manifold, port LLR.

(7) Connect hydraulic hose from main manifold, port LLR to main manifold, port RLR.

(8) Disconnect hydraulic hose main manifold, port LLC.

(9) Disconnect hydraulic hose main manifold, port RLC.

(10) Connect hydraulic hose from main manifold, port RLC to main manifold, port LLC.

(11) Connect hydraulic hose from main manifold, port LLC to main manifold, port RLC.

(12) Push in battery disconnect switch, (TM 9-2320-364-10).

(13) Start engine, (TM 9-2320-364-10).

(14) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(15) Turn front control panel POWER switch ON, (Para 2-1).

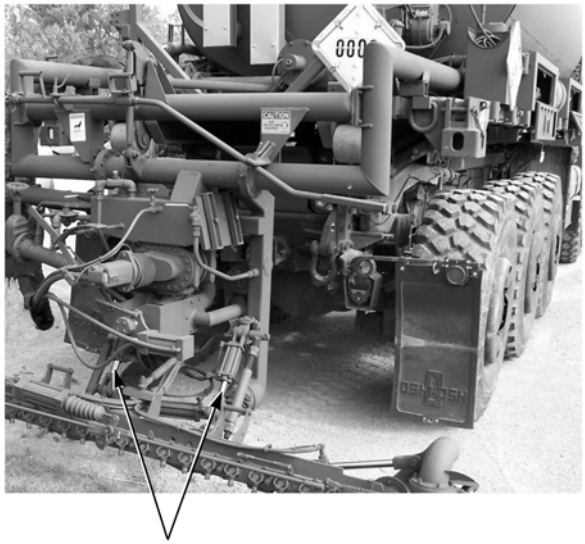
(16) Turn rear control panel POWER switch ON, (Para 2-1).

(17) Operate rear control panel spray bar lower function, (Para 2-17). Check if non-operating cylinder operates.

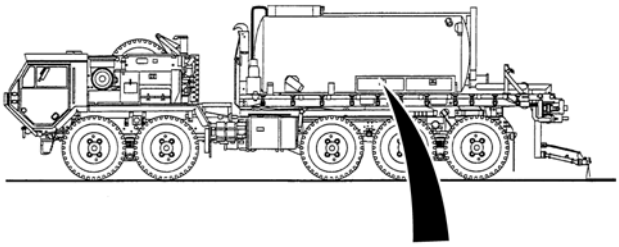
(a) If non-operating hydraulic cylinder doesn't operate, replace non-operating hydraulic cylinder, (Para 3-22).

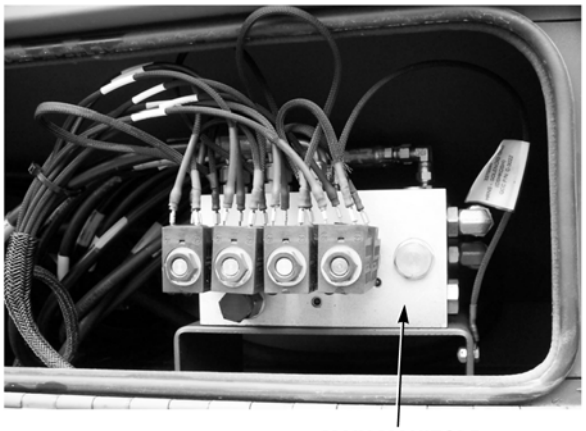
(b) If non-operating hydraulic cylinder operates, replace main manifold, (Para 3-29).

(18) Verify repair, go to Step 27 of this Fault.



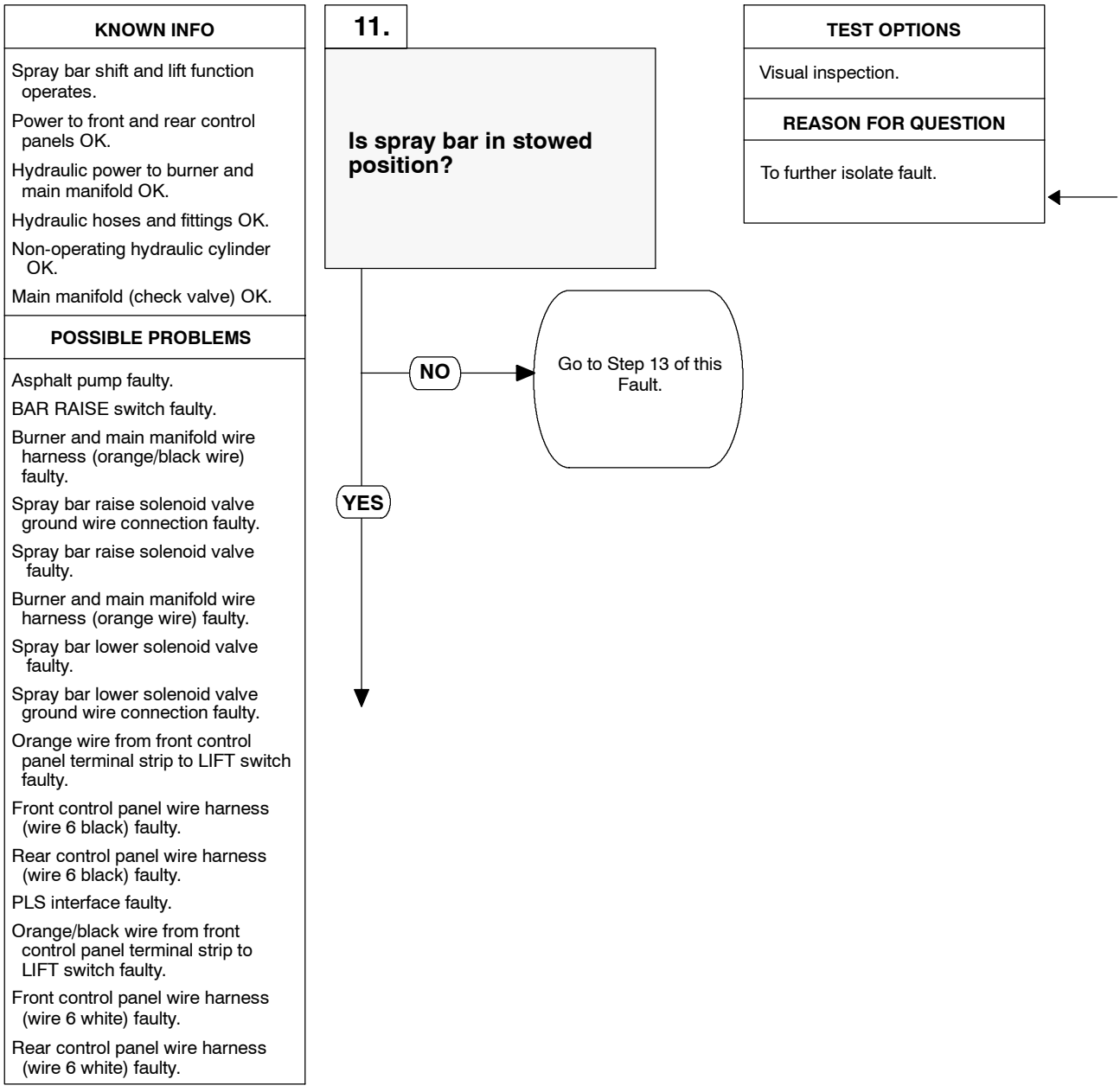
SPRAY BAR
RAISE/LOWER CYLINDERS





MAIN MANIFOLD

18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

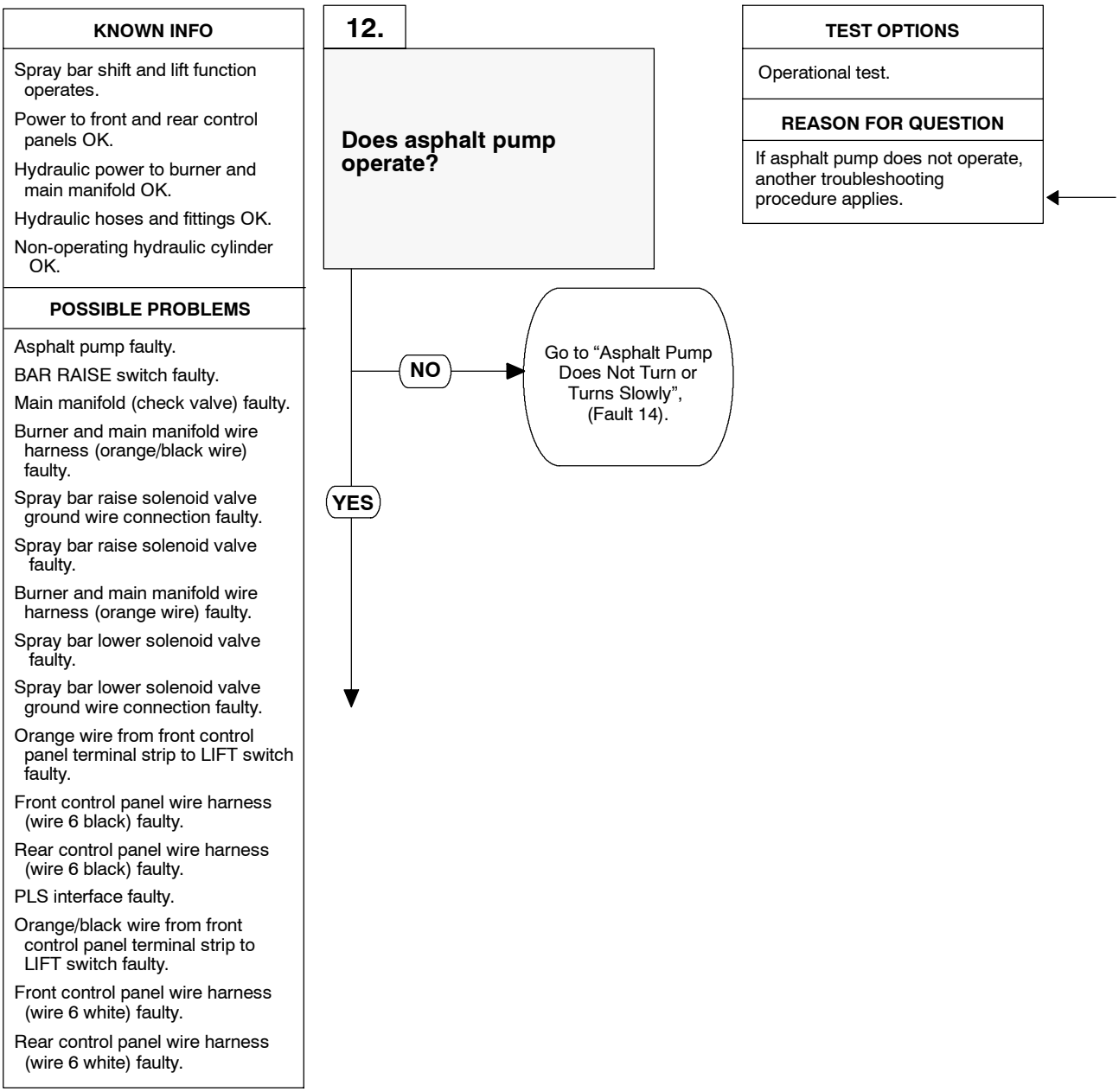


VISUAL INSPECTION
Check if spray bar is in stowed position. (a) If spray bar is not in stowed position, go to Step 13 of this Fault. (b) If spray is in stowed position, go to Step 12 of this Fault.



SPRAY BAR
STOWED POSITION

18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).



OPERATIONAL TEST

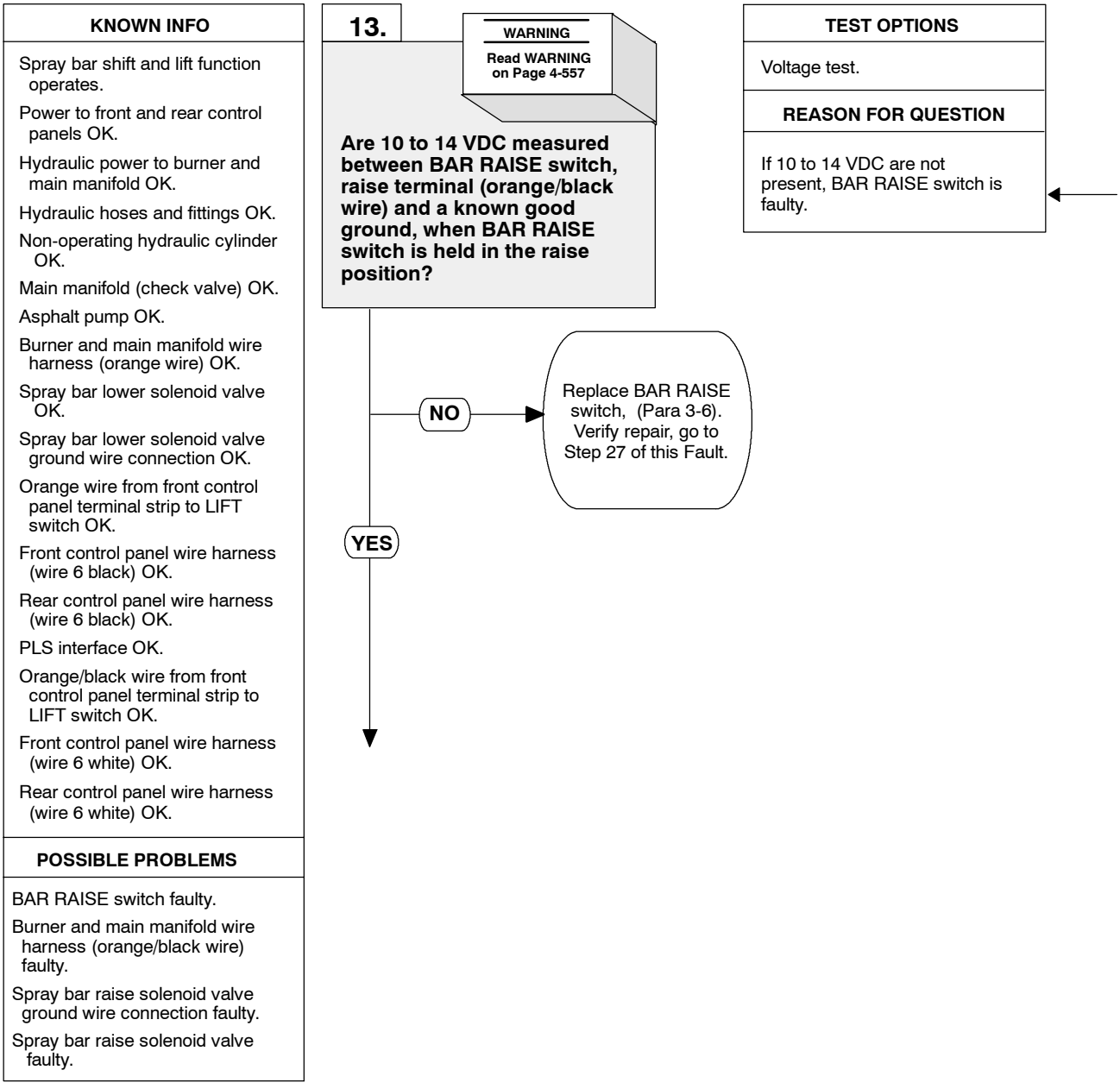
Operate circulation function, (Para 2-16). Check if asphalt pump is operating.

(a) If asphalt pump does not operate, go to, “Asphalt Pump Does Not Turn or Turns Slowly”, (Fault 14).

(b) If asphalt pump operates, go to Step 13 of this Fault.



18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VOLTAGE TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove rear control panel, (Para 3-76).

(4) Push in battery disconnect switch, (TM 9-2320-364-10).

(5) Turn front control panel POWER switch ON, (Para 2-1).

(6) Turn rear control panel POWER switch ON, (Para 2-1).

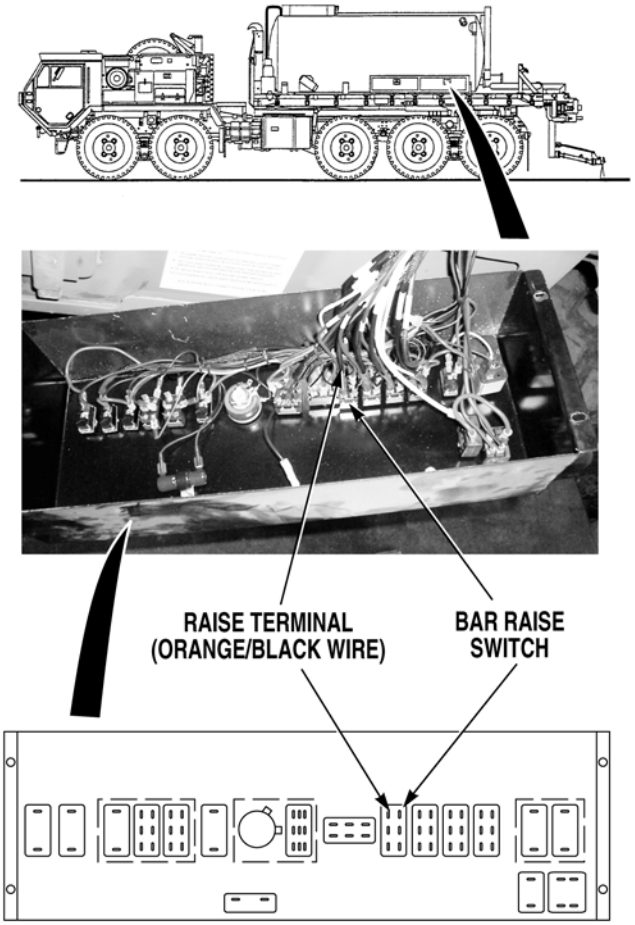
(7) Connect positive (+) multimeter lead to raise terminal (orange/black wire) at BAR RAISE switch.

(8) Connect negative (-) multimeter lead to a known good ground.

(9) While an assistant places and holds BAR RAISE switch in the raise position, note meter reading.

(a) If 10 to 14 VDC are not present, replace BAR RAISE switch, (Para 3-6). Verify repair, go to Step 27 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 14 of this Fault.



18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

Spray bar shift and lift function operates.

Power to front and rear control panels OK.

Hydraulic power to burner and main manifold OK.

Hydraulic hoses and fittings OK.

Non-operating hydraulic cylinder OK.

Main manifold (check valve) OK.

Asphalt pump OK.

BAR RAISE switch OK.

Burner and main manifold wire harness (orange wire) OK.

Spray bar lower solenoid valve OK.

Spray bar lower solenoid valve ground wire connection OK.

Orange wire from front control panel terminal strip to LIFT switch OK.

Front control panel wire harness (wire 6 black) OK.

Rear control panel wire harness (wire 6 black) OK.

PLS interface OK.

Orange/black wire from front control panel terminal strip to LIFT switch OK.

Front control panel wire harness (wire 6 white) OK.

Rear control panel wire harness (wire 6 white) OK.

POSSIBLE PROBLEMS

Burner and main manifold wire harness (orange/black wire) faulty.

Spray bar raise solenoid valve ground wire connection faulty.

Spray bar raise solenoid valve faulty.

14.

WARNING

Read WARNING on Page 4-559

Are 10 to 14 VDC measured between orange/black wire at spray bar raise solenoid valve and a known good ground when BAR RAISE switch is held in the raise position?

NO → Repair orange/black wire, (Para 3-80) or replace burner and main manifold wire harness, (Para 3-58). Verify repair, go to Step 27 of this Fault.

YES

TEST OPTIONS

Voltage test.

REASON FOR QUESTION

If 10 to 14 VDC are not present, burner and main manifold wire harness (orange/black) wire is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

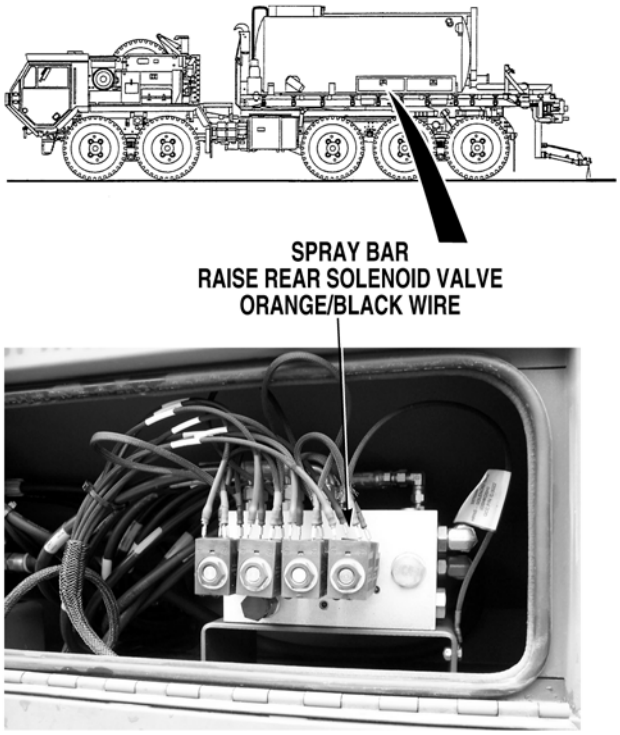
(1) Connect positive (+) multimeter lead to orange/black wire at spray bar raise solenoid valve.

(2) Connect negative (-) multimeter lead to a known good ground.

(3) While an assistant places and holds BAR RAISE switch in the raise position, note meter reading.

(a) If 10 to 14 VDC are not present, repair orange/black wire, (Para 3-80) or replace burner and main manifold wire harness, (Para 3-58). Verify repair, go to Step 27 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 15 of this Fault.



18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift function operates.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings OK.
- Non-operating hydraulic cylinder OK.
- Main manifold (check valve) OK.
- Asphalt pump OK.
- BAR RAISE switch OK.
- Burner and main manifold wire harness (orange wire) OK.
- Spray bar lower solenoid valve OK.
- Spray bar lower solenoid valve ground wire connection OK.
- Orange wire from front control panel terminal strip to LIFT switch OK.
- Front control panel wire harness (wire 6 black) OK.
- Rear control panel wire harness (wire 6 black) OK.
- PLS interface OK.
- Orange/black wire from front control panel terminal strip to LIFT switch OK.
- Front control panel wire harness (wire 6 white) OK.
- Rear control panel wire harness (wire 6 white) OK.
- Burner and main manifold wire harness (orange/black wire) OK.

POSSIBLE PROBLEMS

- Spray bar raise solenoid valve ground wire connection faulty.
- Spray bar raise solenoid valve faulty.

15.

WARNING

Read WARNING on Page 4-561

Is spray bar raise solenoid valve ground wire connection secure?

NO → Repair ground connection, (Para 3-64). Verify repair, go to Step 27 of this Fault.

YES → Replace main manifold, (Para 3-29). Verify repair, go to Step 27 of this Fault.

TEST OPTIONS

Visual inspection.

REASON FOR QUESTION

If spray bar raise solenoid valve ground connection is secure, main manifold is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VISUAL INSPECTION

(1) Shut OFF engine, (TM 9-2320-364-10).

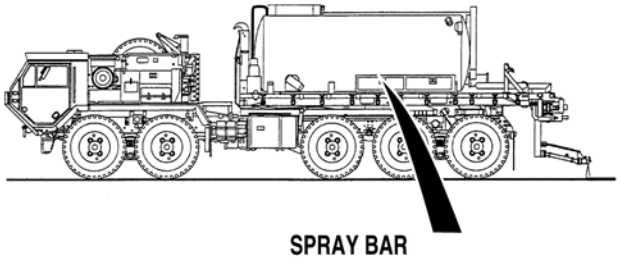
(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

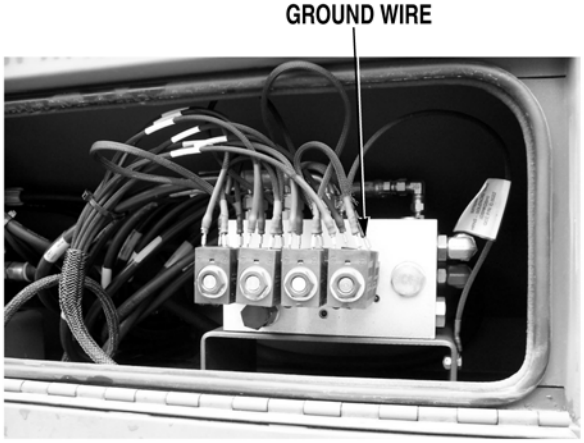
(3) Check ground wire connection at spray bar raise solenoid valve.

  (a) If ground wire connection is not secure, repair ground wire connection, (Para 3-64).

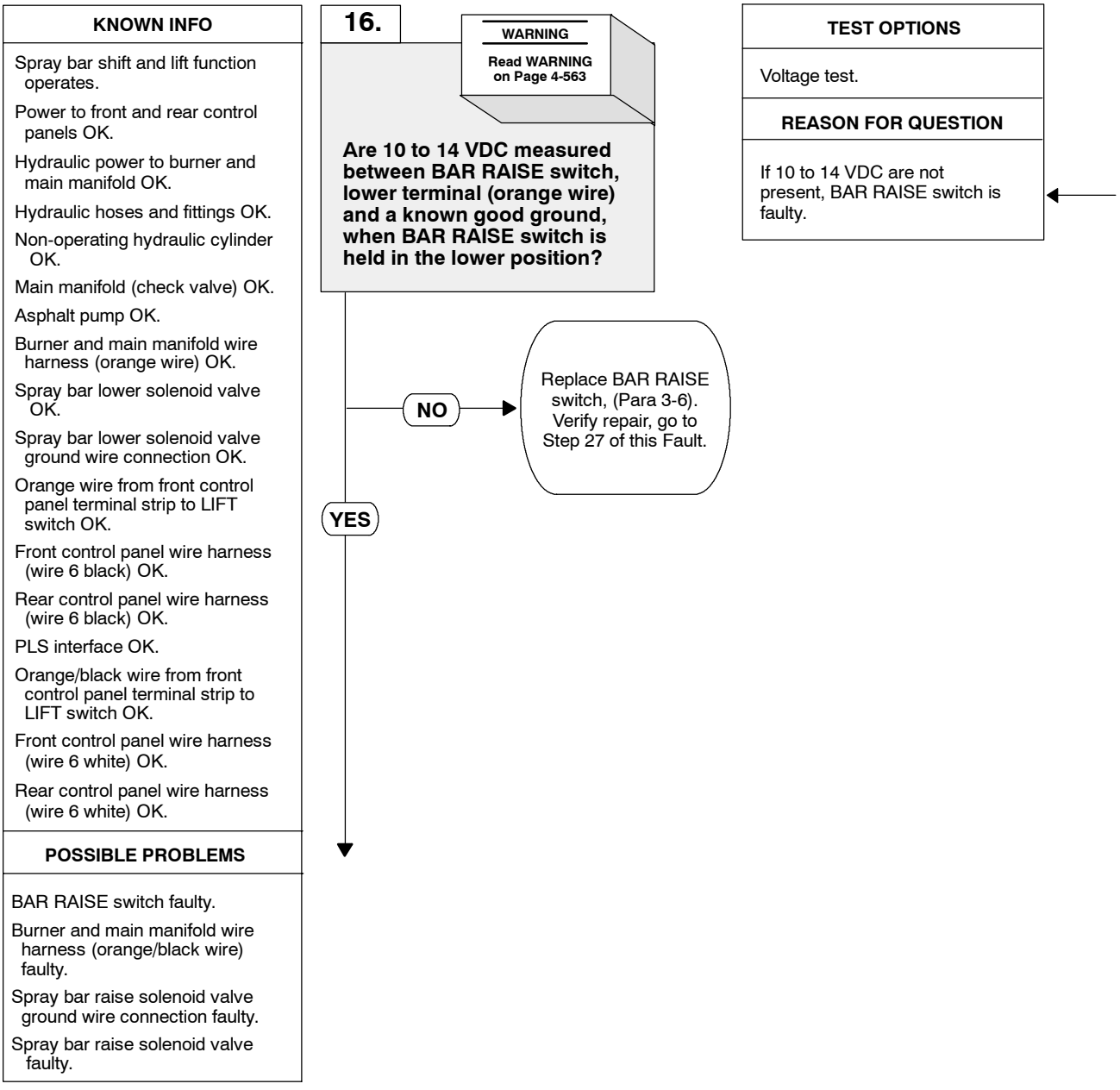
  (b) If ground wire is secure, replace main manifold, (Para 3-29).

(4) Verify repair, go to Step 27 of this Fault.





18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VOLTAGE TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove rear control panel, (Para 3-76).

(4) Push in battery disconnect switch, (TM 9-2320-364-10).

(5) Turn front control panel POWER switch ON, (Para 2-1).

(6) Turn rear control panel POWER switch ON, (Para 2-1).

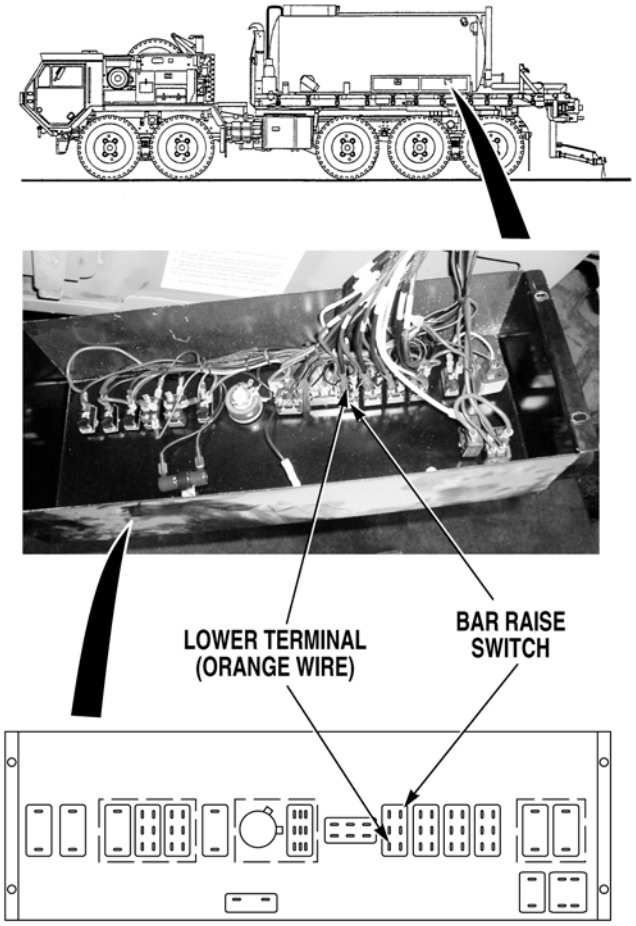
(7) Connect positive (+) multimeter lead to lower terminal (orange wire) at BAR RAISE switch.

(8) Connect negative (-) multimeter lead to a known good ground.

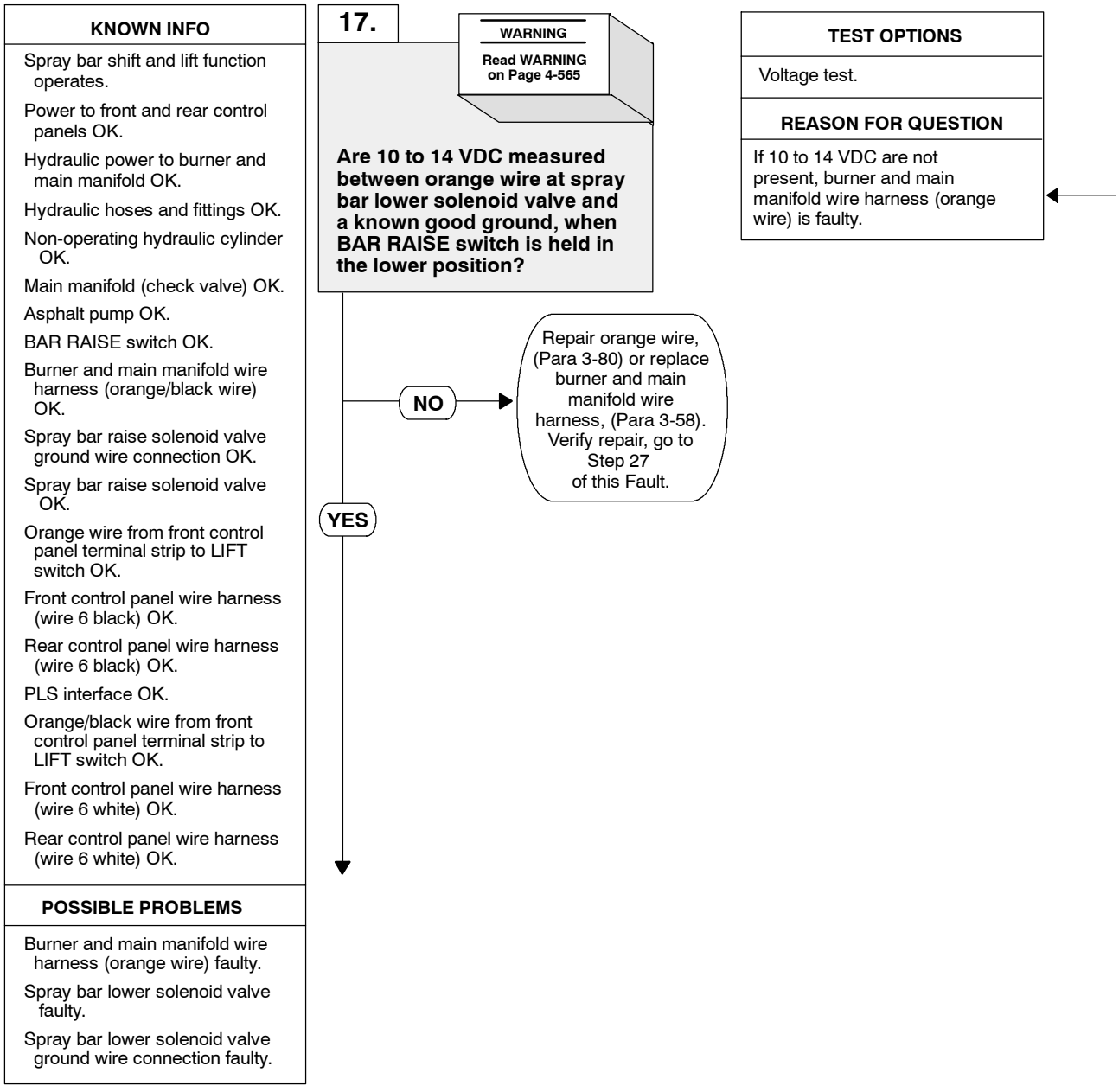
(9) While an assistant places and holds BAR RAISE switch in the lower position, note meter reading.

(a) If 10 to 14 VDC are not present, replace BAR RAISE switch, (Para 3-6). Verify repair, go to Step 27 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 17 of this Fault.



18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

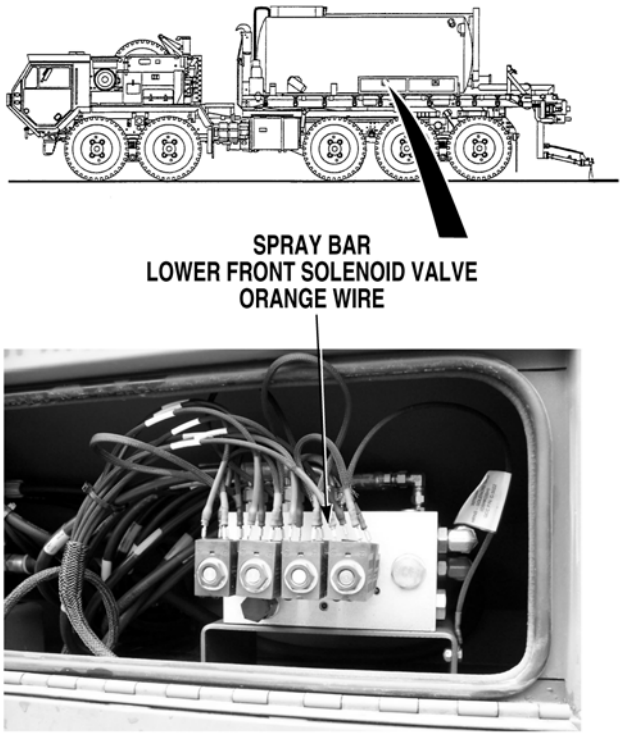
(1) Connect positive (+) multimeter lead to orange wire at spray bar lower solenoid valve.

(2) Connect negative (-) multimeter lead to a known good ground.

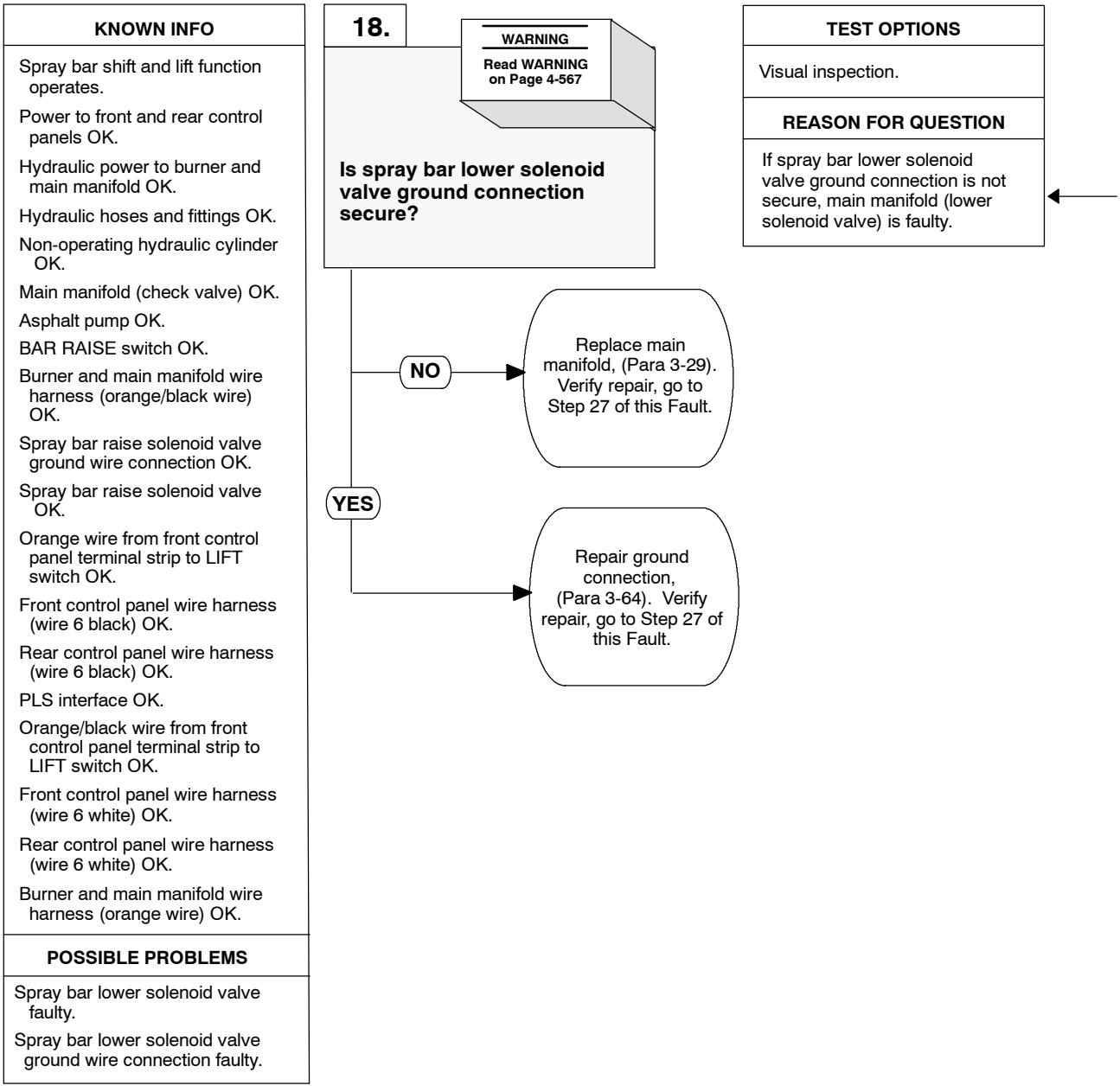
(3) While an assistant places and holds BAR RAISE switch in the lower position, note meter reading.

(a) If 10 to 14 VDC are not present, repair orange wire, (Para 3-80) or replace burner and manifold wire harness, (Para 3-58). Verify repair, go to Step 27 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 18 of this Fault.



18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VISUAL INSPECTION

(1) Shut OFF engine, (TM 9-2320-364-10).

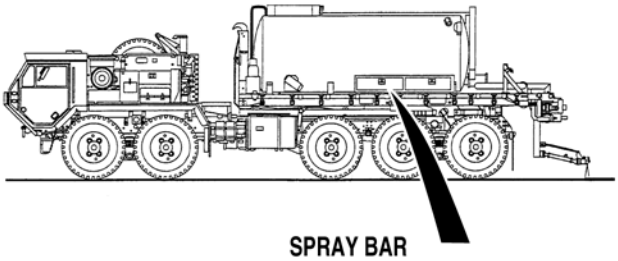
(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

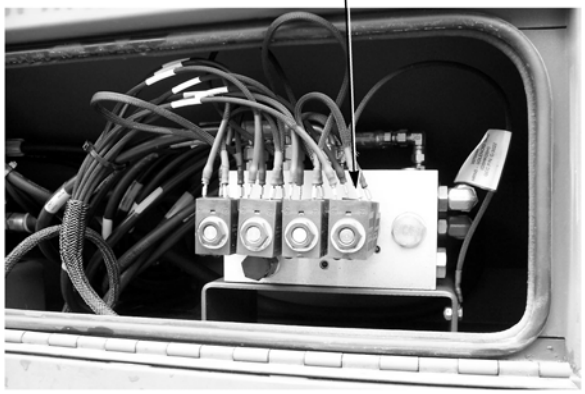
(3) Check ground wire connection at spray bar lower solenoid valve.

  (a) If ground wire connection is not secure, repair ground connection, (Para 3-64).

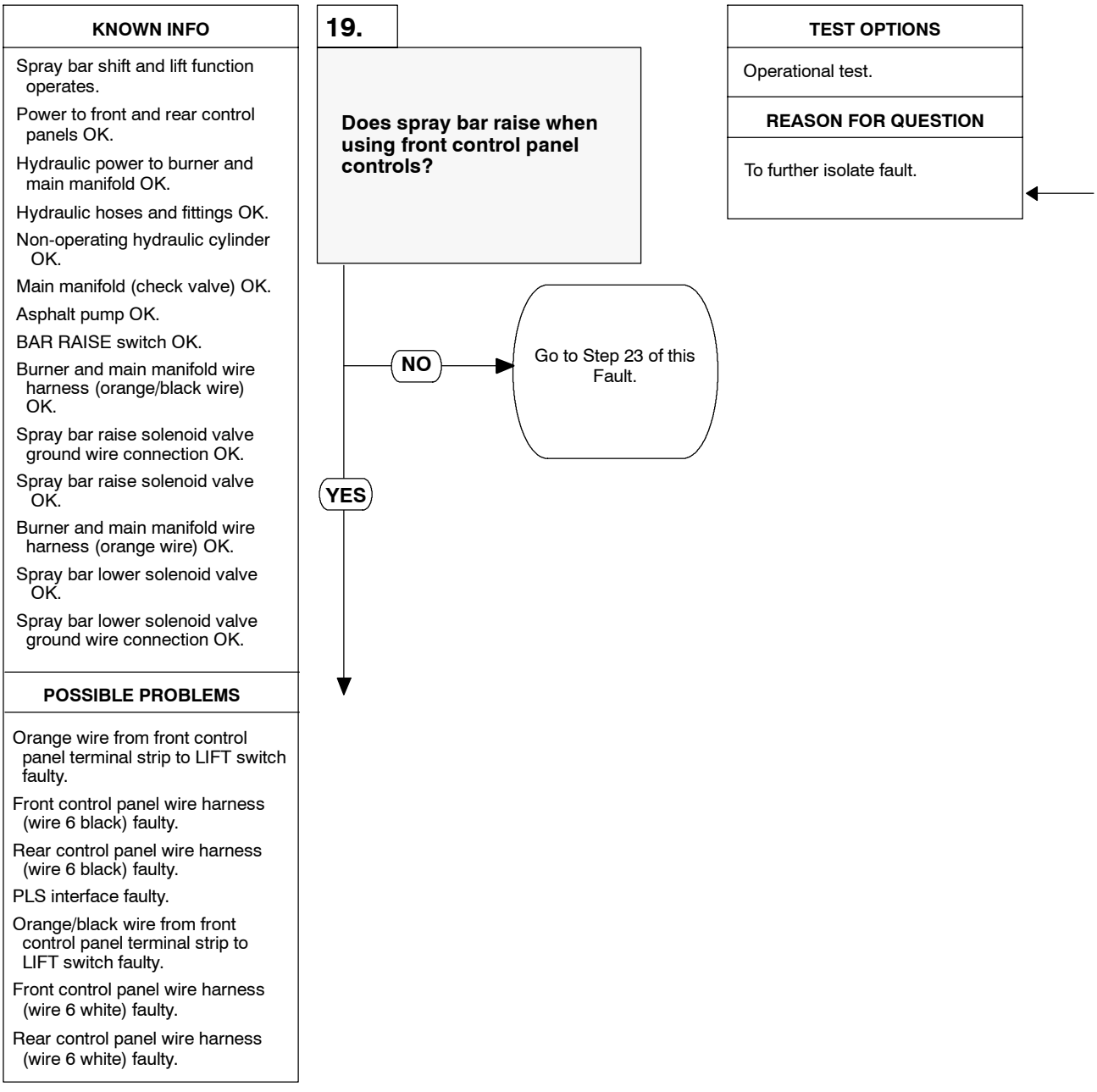
  (b) If ground wire is secure, replace main manifold, (Para 3-29).

(4) Verify repair, go to Step 27 of this Fault.





18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).





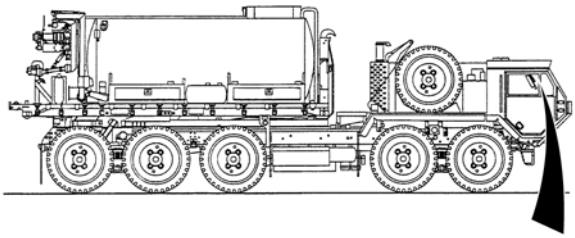
SPRAY BAR

OPERATIONAL TEST

Operate spray bar raise function from front control panel, (Para 2-17). Check if spray bar raises.

(a) If spray bar does not raise, go to Step 23 of this Fault.

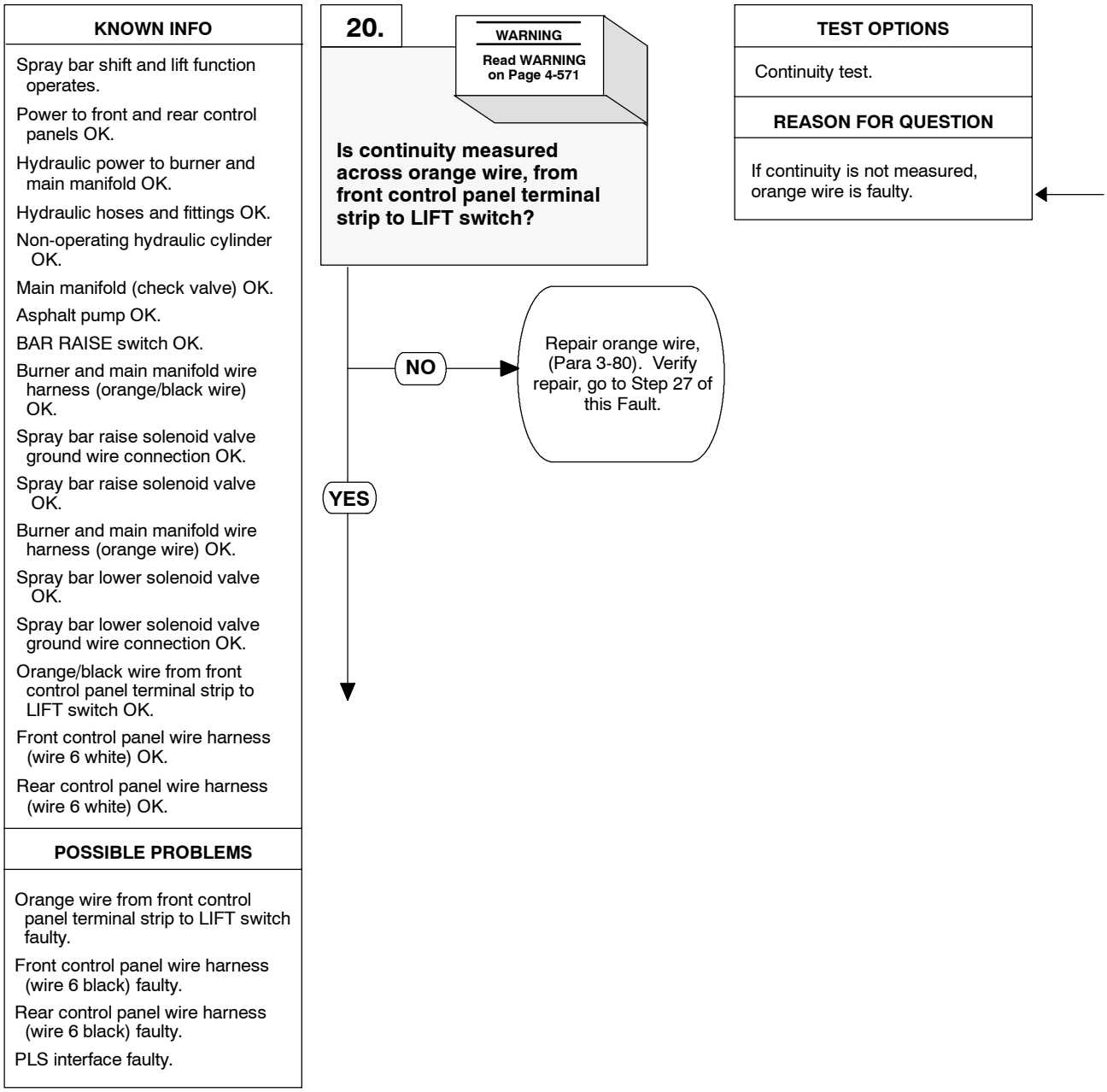
(b) If spray bar raises, go to Step 20 of this Fault.





LIFT SWITCH

18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove front control panel, (Para 3-76).

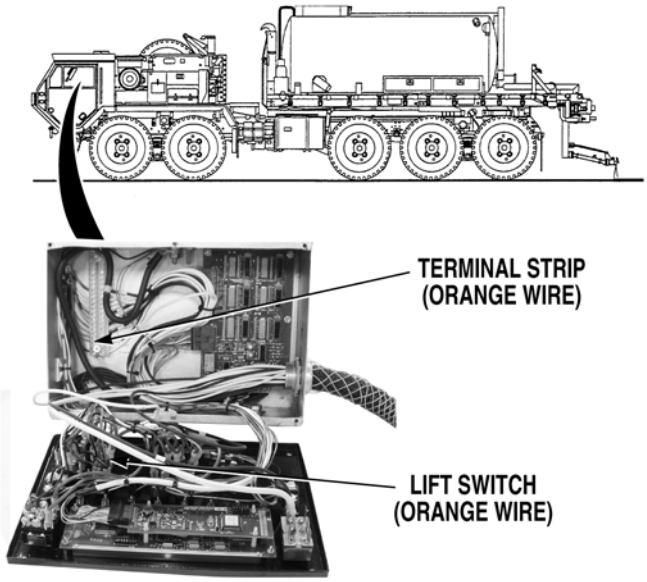
(4) Set multimeter select switch to ohms.

(5) Connect positive (+) multimeter lead to orange wire at front control panel terminal strip.

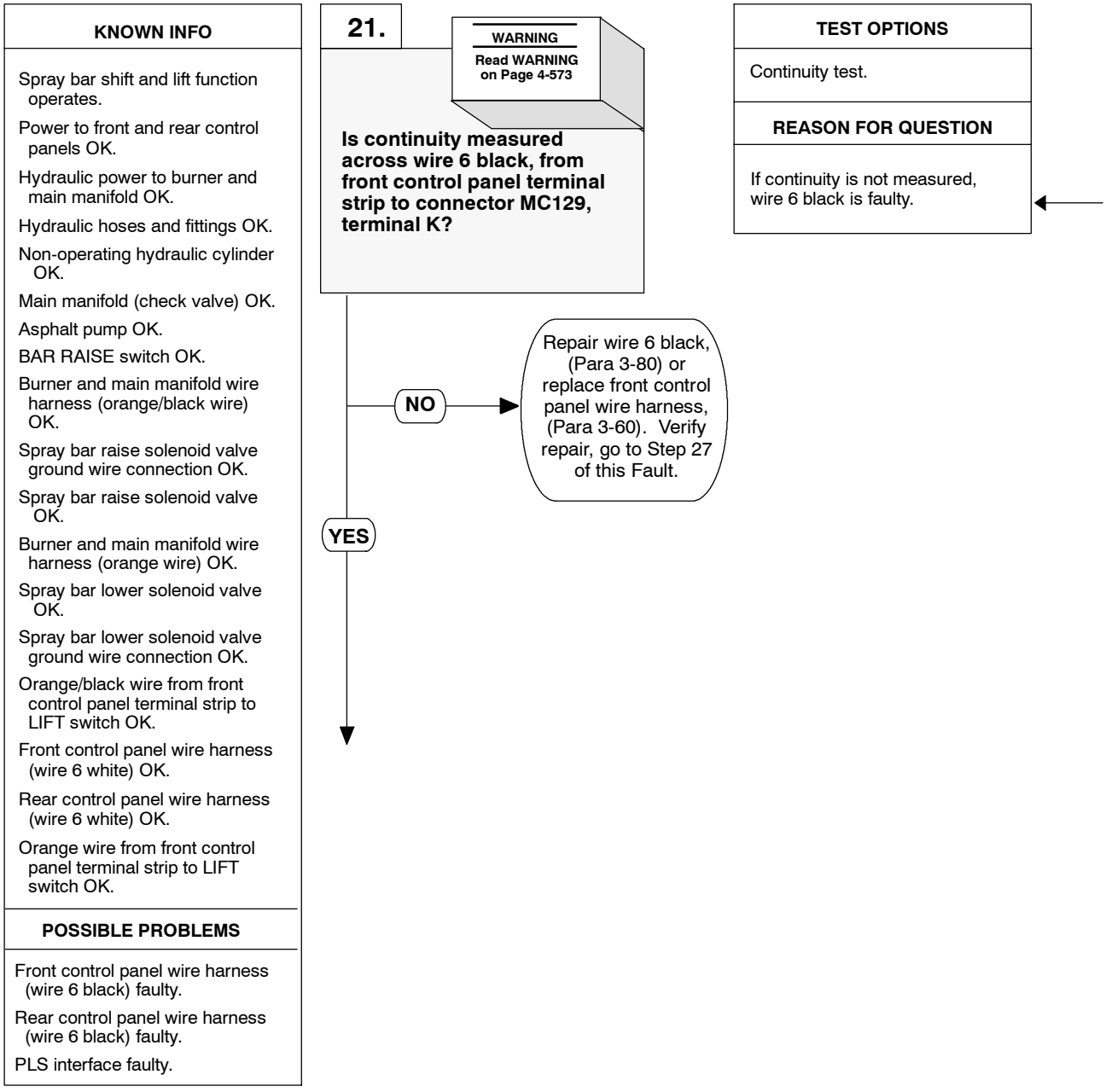
(6) Connect negative (–) multimeter lead to orange wire at front control panel LIFT switch.

(a) If continuity is not measured, repair orange wire between terminal strip and LIFT switch, (Para 3-80). Verify repair, go to Step 27 of this Fault.

(b) If continuity is measured, go to Step 21 of this Fault.



18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Disconnect front control panel connector MC129, (Para 2-10).

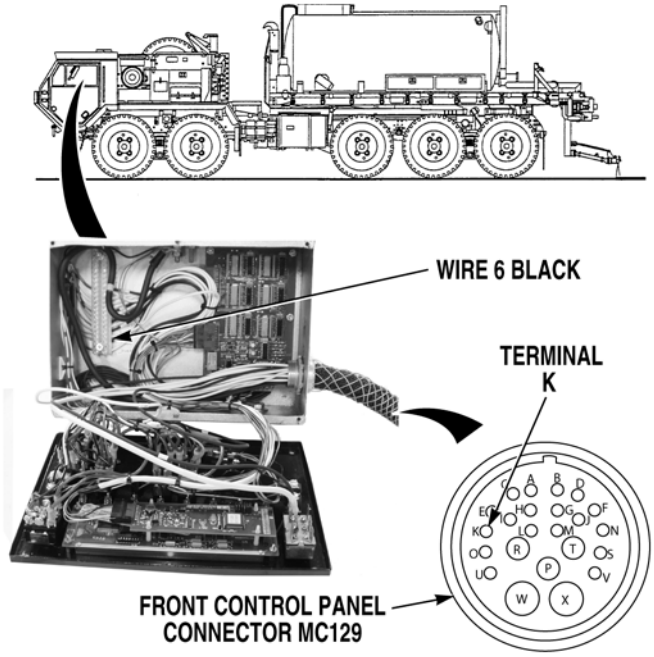
(2) Set multimeter select switch to ohms.

(3) Connect positive (+) multimeter lead to wire 6 black at front control panel connector MC129, terminal K.

(4) Connect negative (–) multimeter lead to wire 6 black at front control panel terminal strip.

(a) If continuity is not measured, repair wire 6 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 27 of this Fault.

(b) If continuity is measured, go to Step 22 of this Fault.



18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

Spray bar shift and lift function operates.

Power to front and rear control panels OK.

Hydraulic power to burner and main manifold OK.

Hydraulic hoses and fittings OK.

Non-operating hydraulic cylinder OK.

Main manifold (check valve) OK.

Asphalt pump OK.

BAR RAISE switch OK.

Burner and main manifold wire harness (orange/black wire) OK.

Spray bar raise solenoid valve ground wire connection OK.

Spray bar raise solenoid valve OK.

Burner and main manifold wire harness (orange wire) OK.

Spray bar lower solenoid valve OK.

Spray bar lower solenoid valve ground wire connection OK.

Orange/black wire from front control panel terminal strip to LIFT switch OK.

Front control panel wire harness (wire 6 white) OK.

Rear control panel wire harness (wire 6 white) OK.

Orange wire from front control panel terminal strip to LIFT switch OK.

Front control panel wire harness (wire 6 black) OK.

POSSIBLE PROBLEMS

Rear control panel wire harness (wire 6 black) faulty.

PLS interface faulty.

22.

WARNING

Read WARNING on Page 4-575

Is continuity measured across wire 6 black from connector MC130, terminal K, to rear control panel BAR RAISE switch?

NO → Repair wire 6 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 27 of this Fault.

YES → PLS interface is faulty. Notify Supervisor.

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is measured, PLS interface is faulty. If not, wire 6 black is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Remove rear control panel, (Para 3-76).

(2) Disconnect rear control panel connector MC130 (UPIK), (Para 2-10).

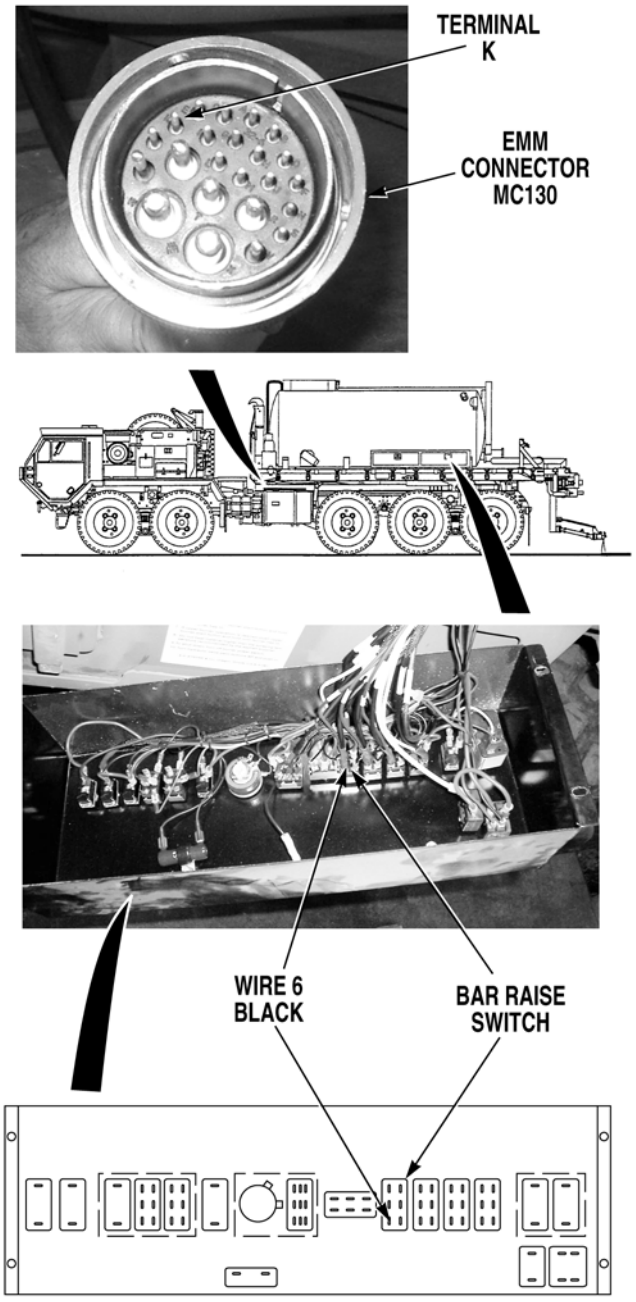
(3) Connect jumperwire between wire 6 black at EMM connector MC130, terminal K and a known good ground.

(4) Connect positive (+) multimeter lead to wire 6 black at rear control panel BAR RAISE switch.

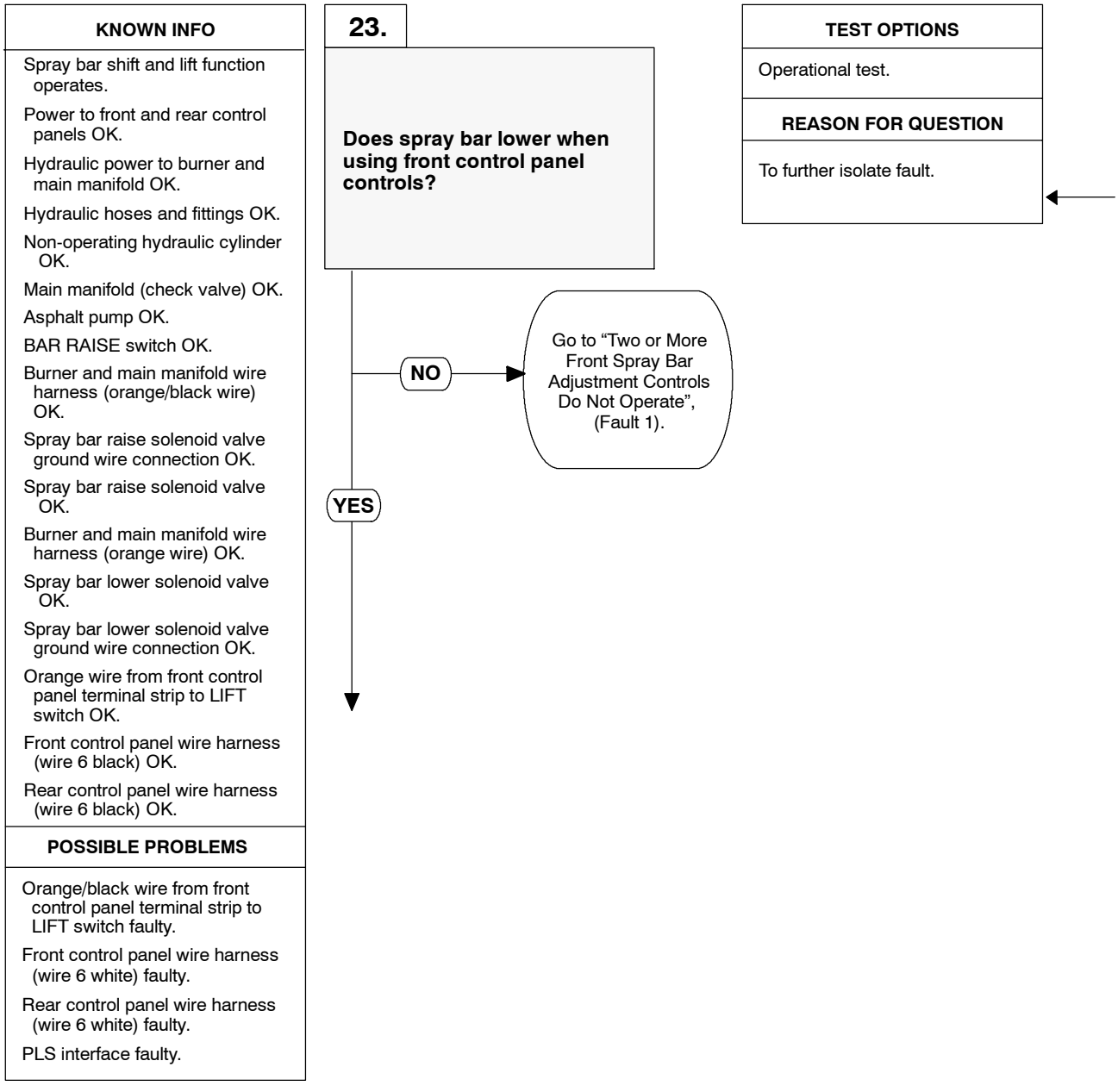
(5) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, repair wire 6 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 27 of this Fault.

(b) If continuity is measured, PLS interface is faulty. Notify Supervisor.



18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).





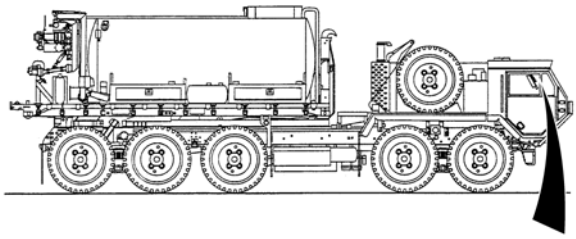
SPRAY BAR

OPERATIONAL TEST

Operate spray bar lower function from front control panel, (Para 2-17). Check if spray bar lowers.

(a) If spray bar does not lower, go to “Two or More Front Spray Bar Adjustment Controls Do Not Operate”, (Fault 1).

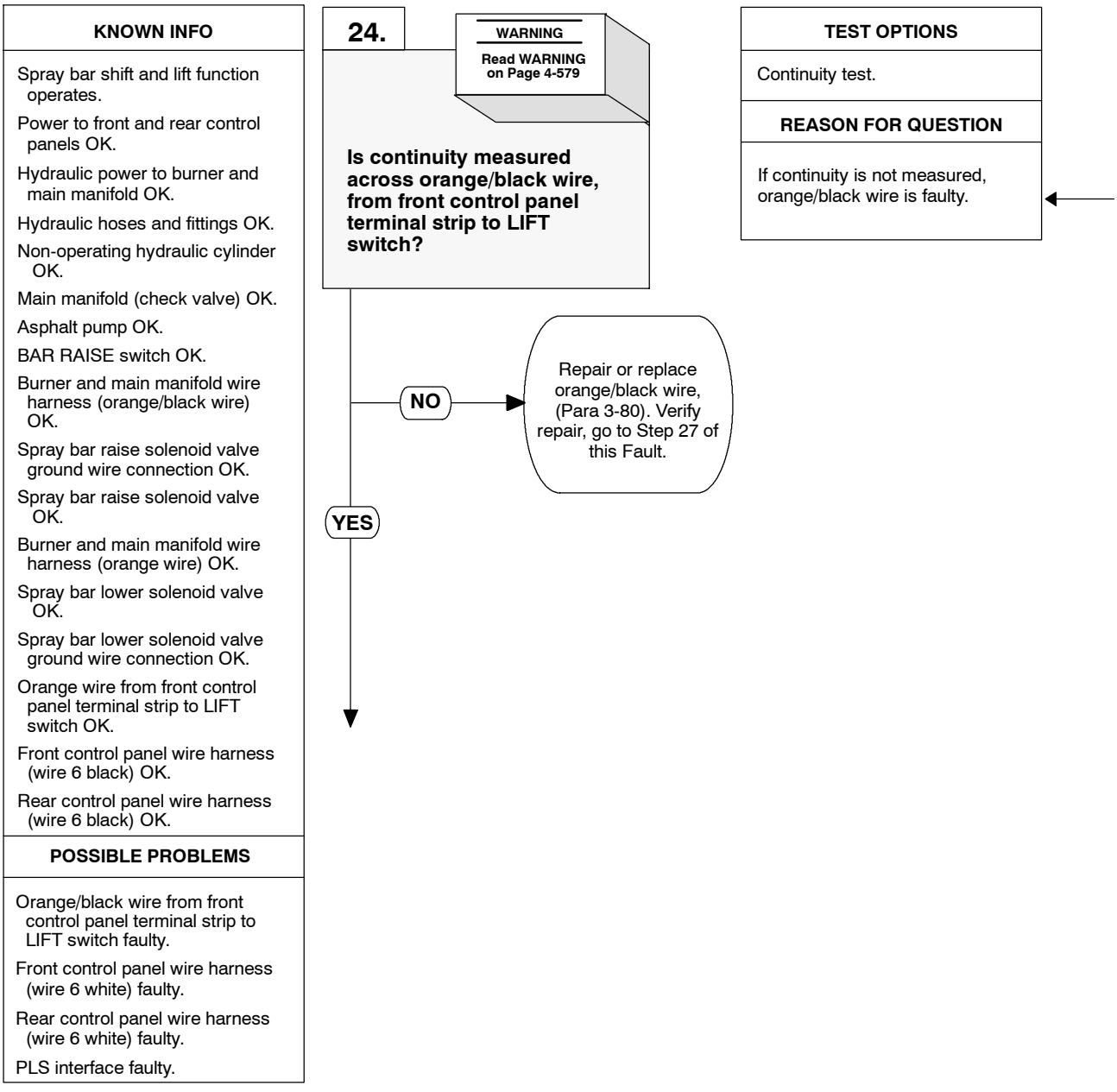
(b) If spray bar lowers, go to Step 24 of this Fault.





LIFT SWITCH

18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect, (TM 9-2320-364-10).

(3) Remove front control panel, (Para 3-76).

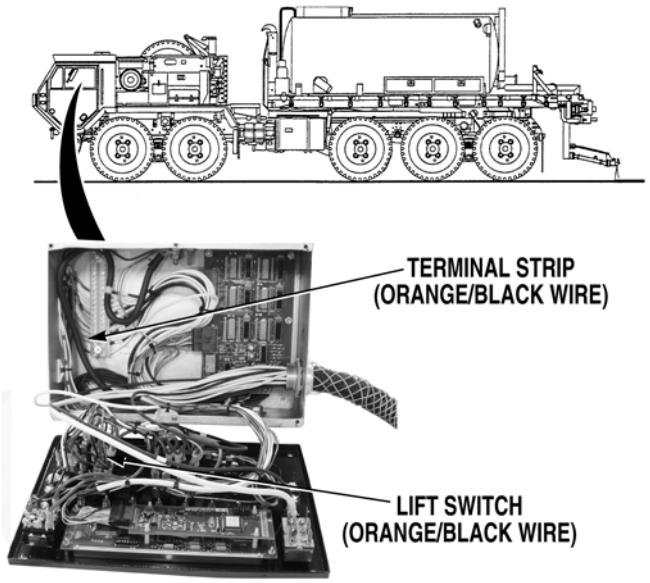
(4) Set multimeter select switch to ohms.

(5) Connect positive (+) multimeter lead to orange/black wire at front control panel terminal strip.

(6) Connect negative (-) multimeter lead to orange/black wire at front control panel LIFT switch.

(a) If continuity is not measured, repair or replace orange/black wire between front control panel terminal strip and LIFT switch, (Para 3-80). Verify repair, go to Step 27 of this Fault.

(b) If continuity is measured, go to Step 25 of this Fault.



18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift function operates.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings OK.
- Non-operating hydraulic cylinder OK.
- Main manifold (check valve) OK.
- BAR RAISE switch OK.
- Burner and main manifold wire harness (orange/black wire) OK.
- Spray bar raise solenoid valve ground wire connection OK.
- Spray bar raise solenoid valve OK.
- Burner and main manifold wire harness (orange wire) OK.
- Spray bar lower solenoid valve OK.
- Spray bar lower solenoid valve ground wire connection OK.
- Orange wire from front control panel terminal strip to LIFT switch OK.
- Front control panel wire harness (wire 6 black) OK.
- Rear control panel wire harness (wire 6 black) OK.
- Orange/black wire from front control panel terminal strip to LIFT switch OK.

POSSIBLE PROBLEMS

- Front control panel wire harness (wire 6 white) faulty.
- Rear control panel wire harness (wire 6 white) faulty.
- PLS interface faulty.

25.

WARNING

Read WARNING on Page 4-581

Is continuity measured across wire 6 white from front control panel terminal strip to connector MC129, terminal J?

NO → Repair wire 6 white (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 27 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel wire harness (wire 6 white) is faulty. ←

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Disconnect front control panel connector MC129, (Para 2-10).

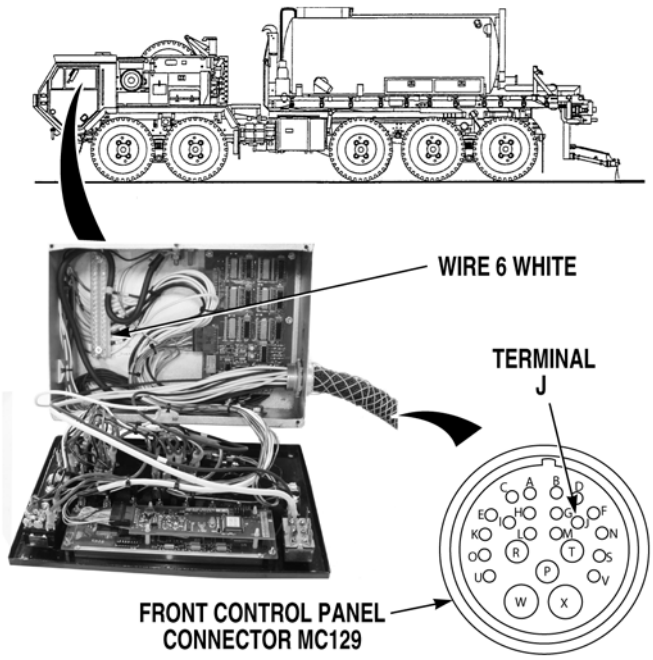
(2) Set multimeter select switch to ohms.

(3) Connect positive (+) multimeter lead to wire 6 white at front control panel connector MC129, terminal J.

(4) Connect negative (-) multimeter lead to wire 6 white at front control panel terminal strip.

(a) If continuity is not measured, repair wire 6 white, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 27 of this Fault.

(b) If continuity is measured, go to Step 26 of this Fault.



18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift function operates.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings OK.
- Non-operating hydraulic cylinder OK.
- Main manifold (check valve) OK.
- BAR RAISE switch OK.
- Burner and main manifold wire harness (orange/black wire) OK.
- Spray bar raise solenoid valve ground wire connection OK.
- Spray bar raise solenoid valve OK.
- Burner and main manifold wire harness (orange wire) OK.
- Spray bar lower solenoid valve OK.
- Spray bar lower solenoid valve ground wire connection OK.
- Orange wire from front control panel terminal strip to LIFT switch OK.
- Front control panel wire harness (wire 6 black) OK.
- Rear control panel wire harness (wire 6 black) OK.
- Orange/black wire from front control panel terminal strip to LIFT switch OK.
- Front control panel wire harness (wire 6 white) OK.

POSSIBLE PROBLEMS

- Rear control panel wire harness (wire 6 white) faulty.
- PLS interface faulty.

26.

WARNING

Read WARNING on Page 4-583

Is continuity measured across wire 6 white from connector MC130, terminal J, to rear control panel BAR RAISE switch?

NO → Repair wire 6 white, (Para 3-80) or repair rear control panel wire harness, (Para 3-62). Verify repair, go to Step 27 of this Fault.

YES → PLS interface is faulty. Notify Supervisor.

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is measured, PLS interface is faulty. If not, rear control panel wire harness, wire 6 white is faulty.

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Remove rear control panel, (Para 3-76).

(2) Disconnect rear control panel connector MC130 (UPIK), (Para 2-10).

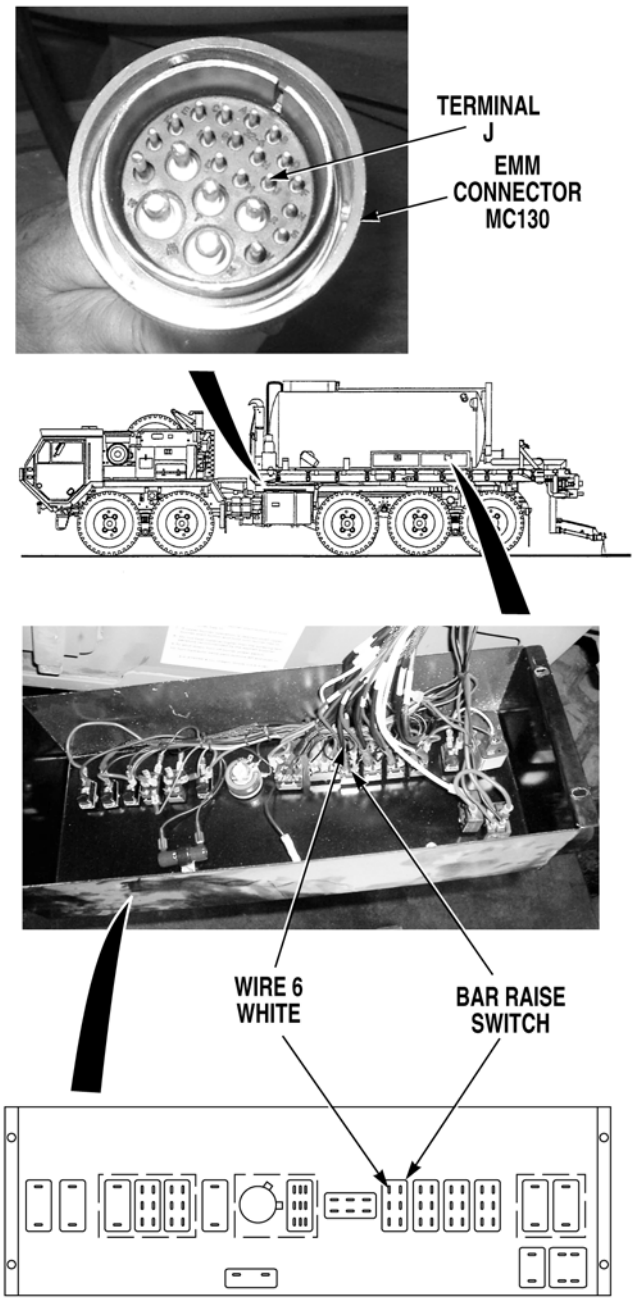
(3) Connect jumperwire between wire 6 white, EMM connector MC130, terminal J, and a known good ground.

(4) Connect positive (+) multimeter lead to wire 6 white at rear control panel BAR RAISE switch.

(5) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, repair wire 6 white, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 27 of this Fault.

(b) If continuity is measured, PLS interface is faulty. Notify Supervisor.



18. SPRAY BAR DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO
Spray bar shift and lift function operates.
Power to front and rear control panels OK.
Hydraulic power to burner and main manifold OK.
Hydraulic hoses and fittings OK.
Non-operating hydraulic cylinder OK.
Main manifold (check valve) OK.
BAR RAISE switch OK.
Burner and main manifold wire harness (orange/black wire) OK.
Spray bar raise solenoid valve ground wire connection OK.
Spray bar raise solenoid valve OK.
Burner and main manifold wire harness (orange wire) OK.
Spray bar lower solenoid valve OK.
Spray bar lower solenoid valve ground wire connection OK.
Orange wire from front control panel terminal strip to LIFT switch OK.
Front control panel wire harness (wire 6 black) OK.
Rear control panel wire harness (wire 6 black) OK.
Orange/black wire from front control panel terminal strip to LIFT switch OK.
Front control panel wire harness (wire 6 white) OK.
Rear control panel wire harness (wire 6 white) OK.
PLS interface OK.
POSSIBLE PROBLEMS
None.

27.

WARNING

Read WARNING on Page 4-585

Does spray bar raise and lower from front and/or rear control panel?

NO → Fault not corrected. Notify Supervisor.

YES → Fault corrected.

TEST OPTIONS
Verify repair.
REASON FOR QUESTION
If spray bar raises and lowers, fault has been corrected.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

VERIFY REPAIR

(1) If ON, shut OFF engine, (TM 9-2320-364-10).

(2) If in, pull out battery disconnect, (TM 9-2320-364-10).

(3) If removed, install front control panel, (Para 3-76).

(4) If removed, install rear control panel, (Para 3-76).

(5) If disconnected, connect front control panel connector MC129, (Para 2-10).

(6) If disconnected, connect rear control panel connector MC130 (UPIK), (Para 2-10).

(7) Push in battery disconnect switch, (TM 9-2320-364-10).

(8) Start engine, (TM 9-2320-364-10).

(9) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(10) Turn front control panel POWER switch ON, (Para 2-1).

(11) Turn rear control panel POWER switch ON, (Para 2-1).

(12) Operate spray bar raise and lower function, (Para 2-13).

(a) If spray bar does not raise and lower, fault not corrected. Notify Supervisor.

(b) If spray bar raises and lowers, fault has been corrected.

(13) Shut OFF engine, (TM 9-2320-364-10).



19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROL).

INITIAL SETUP

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
- Multimeter (Item 8, Appendix F)
- Pan, Drain (Item 9, Appendix F)
- Jumperwire

Personnel Required
- Two

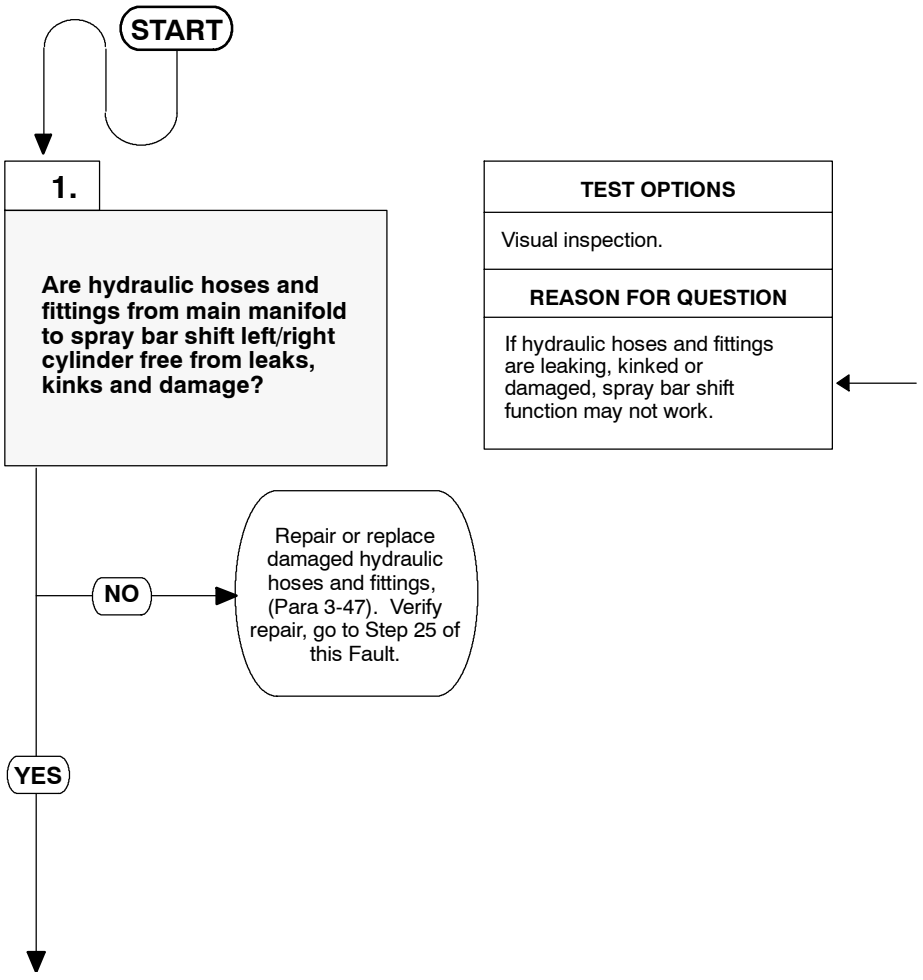
Equipment Condition
- Bituminous Distributor loaded on PLS, (Para 2-5)
- Engine OFF, (TM 9-2320-364-10)
- Wheels chocked, (TM 9-2320-364-10)

KNOWN INFO

Spray bar wings and lift functions operate.
Power to front and rear control panels OK.
Hydraulic power to main manifold OK.

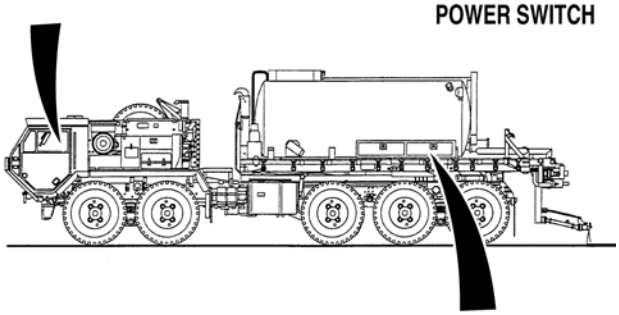
POSSIBLE PROBLEMS

Hydraulic hoses and fittings between main manifold and hydraulic cylinder leak, kinked or damaged.
Hydraulic cylinder faulty.
BAR SHIFT switch faulty.
Burner and main manifold wire harness (red wire) faulty.
Spray bar shift left solenoid valve faulty.
Spray bar shift left solenoid valve ground wire connection faulty.
Burner and main manifold wire harness (blue wire) faulty.
Spray bar shift right solenoid valve faulty.
Spray bar shift right solenoid valve ground wire connection faulty.
Blue wire from front control panel terminal strip to SHIFT switch faulty.
Front control panel wire harness (wire 5 black) faulty.
Rear control panel wire harness (wire 5 black) faulty.
PLS interface faulty.
Red wire from front control panel terminal strip to SHIFT switch faulty.
Front control panel wire harness (wire 5 white) faulty.
Rear control panel wire harness (wire 5 white) faulty.





POWER SWITCH



POWER SWITCH



VISUAL INSPECTION

(1) Start engine, (TM 9-2320-364-10).

(2) Turn hydraulic selector switch to CRANE/SRW, (TM 9-2320-364-10).

(3) Turn front control panel POWER switch ON, (Para 2-1).

(4) Turn rear control panel POWER switch ON, (Para 2-1).

(5) Operate spray bar shift function, (Para 2-17).

(6) Inspect hydraulic hoses, from main manifold to spray bar shift left/right cylinder for leaks, kinks and damage.

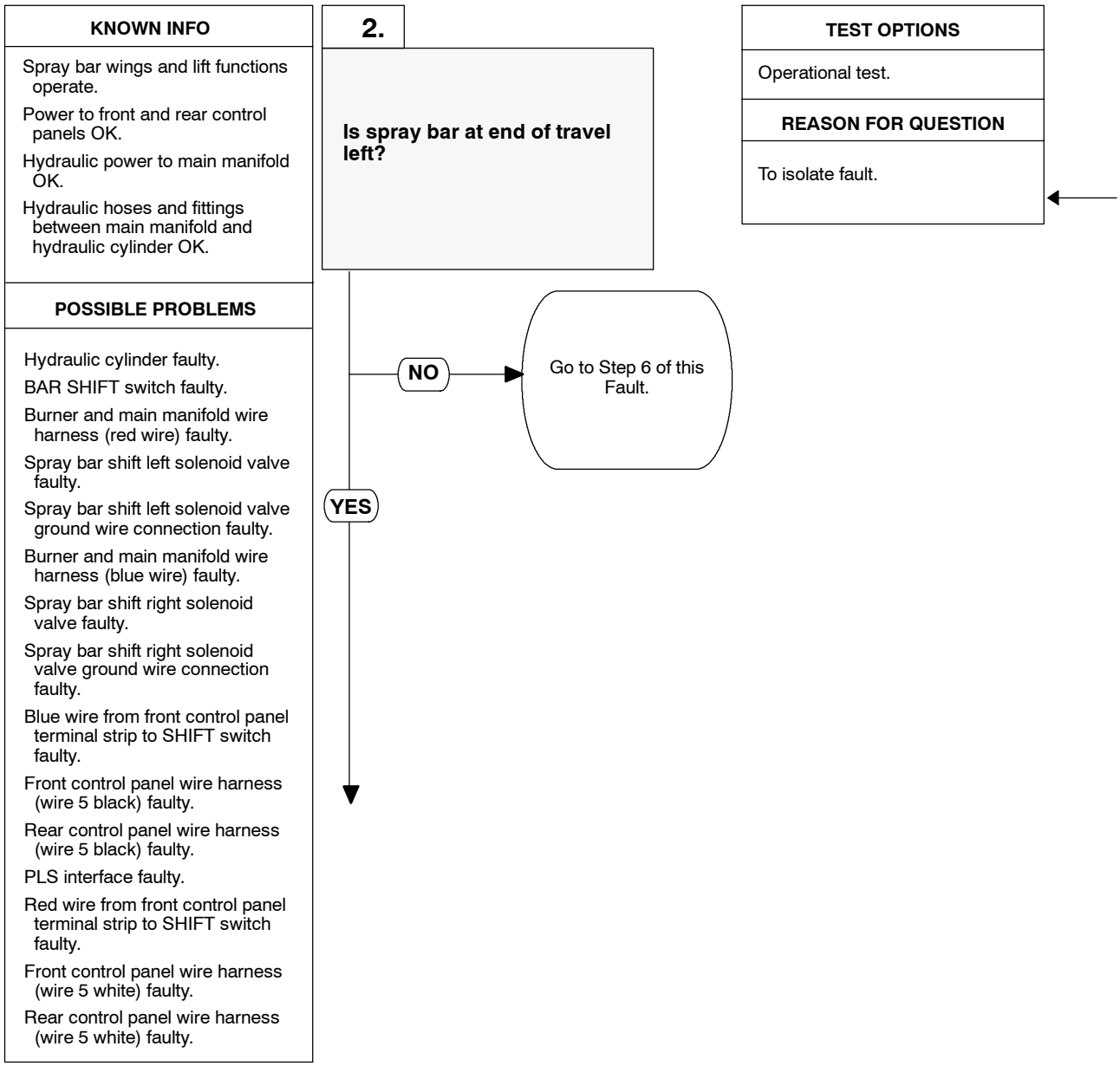
(a) If hydraulic hoses and fittings are leaking, kinked or damaged, repair or replace hydraulic hoses or fittings, (Para 3-47). Verify repair, go to Step 25 of this Fault.

(b) If hydraulic hoses and fittings are not leaking, kinked or damaged, go to Step 2 of this Fault.



SPRAY BAR SHIFT LEFT/RIGHT HYDRAULIC HOSES

19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).





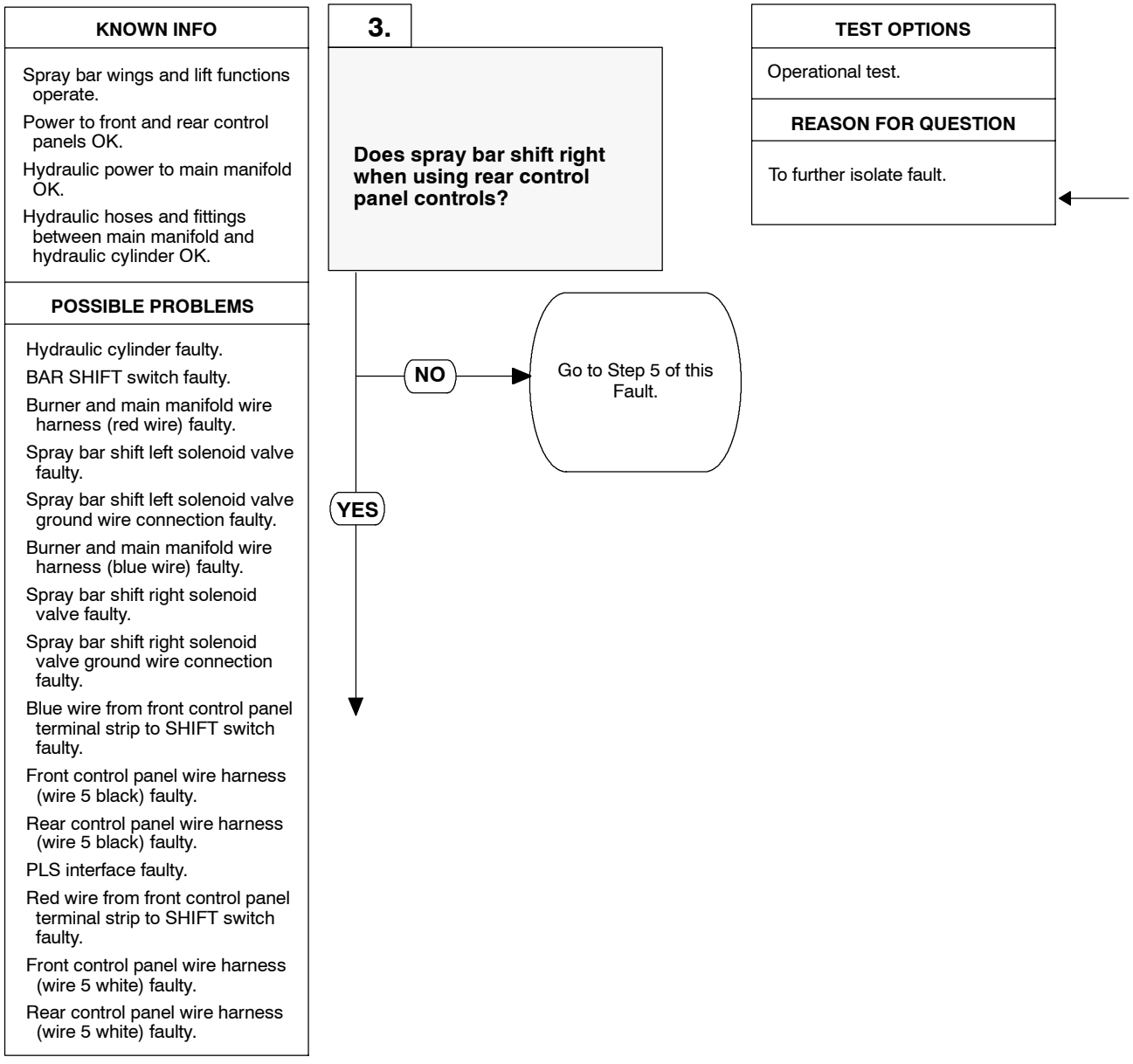
OPERATIONAL TEST

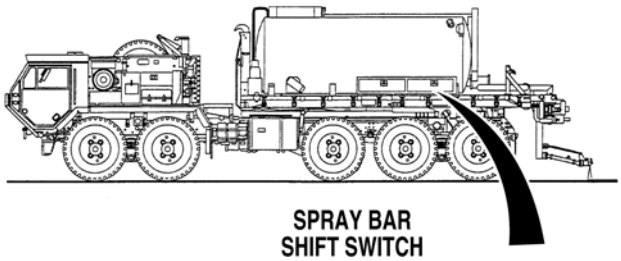
Check if spray bar is at end of travel left.

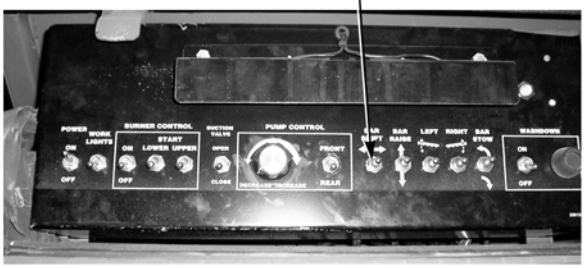
(a) If spray bar is not at end of travel left, go to Step 6 of this Fault.

(b) If spray bar is at end of travel left, go to Step 3 of this Fault.

19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).



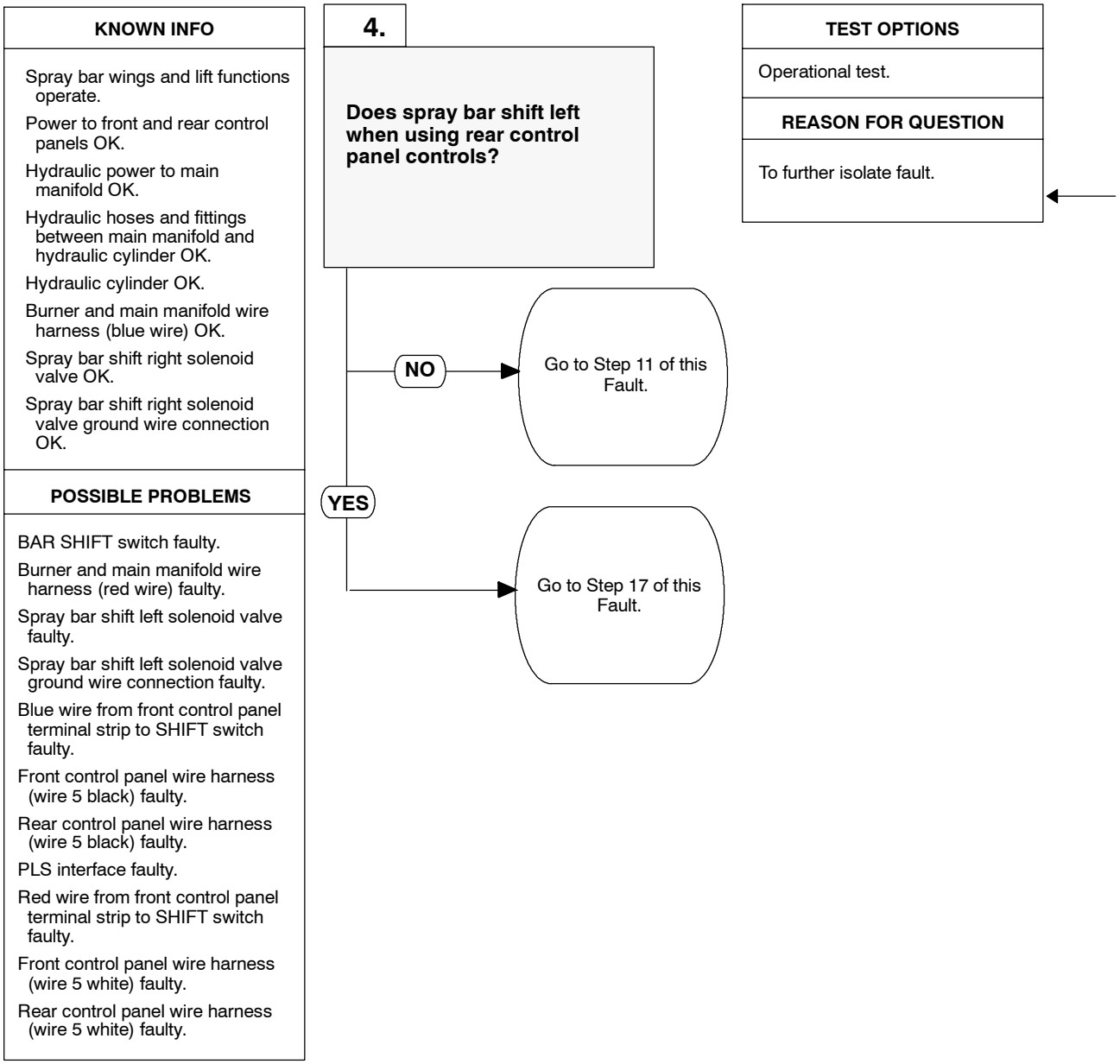


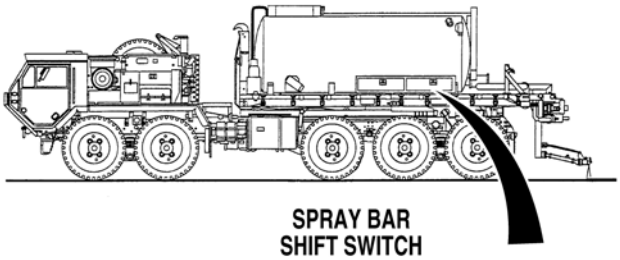


OPERATIONAL TEST
Operate spray bar shift right function from rear control panel, (Para 2-1). Check if spray bar shifts right. (a) If spray bar does not shift right, go to Step 5 of this Fault. (b) If spray bar shifts right, go to Step 4 of this Fault.

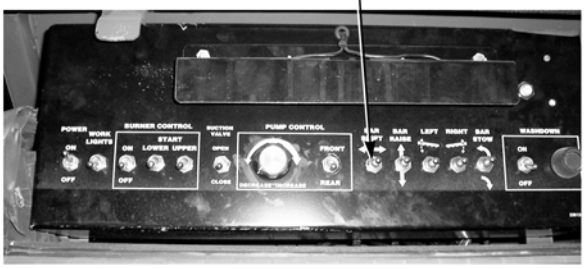


19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).





SPRAY BAR
SHIFT SWITCH



OPERATIONAL TEST

Operate spray bar shift left function from rear control panel, (Para 2-1). Check if spray bar shifts left.

(a) If spray bar does not shift left, go to Step 11 of this Fault.

(b) If spray bar shifts left, go to Step 17 of this Fault.



SPRAY BAR

19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).

KNOWN INFO

- Spray bar wings and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Burner and main manifold wire harness (red wire) OK.
- Spray bar shift left solenoid valve OK.
- Spray bar shift left solenoid valve ground wire connection OK.
- Blue wire from front control panel terminal strip to SHIFT switch OK.
- Front control panel wire harness (wire 5 black) OK.
- Rear control panel wire harness (wire 5 black) OK.
- Red wire from front control panel terminal strip to SHIFT switch OK.
- Front control panel wire harness (wire 5 white) OK.
- Rear control panel wire harness (wire 5 white) OK.

POSSIBLE PROBLEMS

- Hydraulic cylinder faulty.
- BAR SHIFT switch faulty.
- Burner and main manifold wire harness (blue wire) faulty.
- Spray bar shift right solenoid valve faulty.
- Spray bar shift right solenoid valve ground wire connection faulty.
- PLS interface faulty.

5.

Does spray bar shift left when using rear control panel after manually centering spray bar?

NO → Replace hydraulic cylinder, (Para 3-22). Verify repair, go to Step 25 of this Fault.

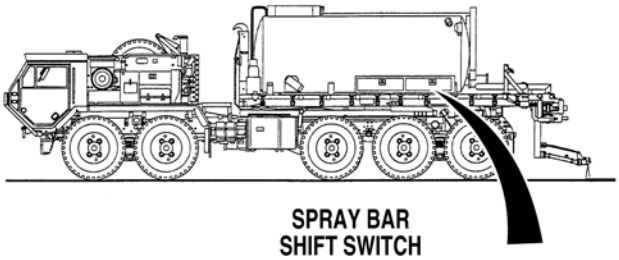
YES → Go to Step 14 of this Fault.

TEST OPTIONS

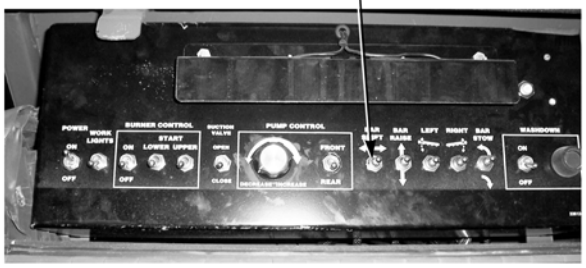
Operational test.

REASON FOR QUESTION

If spray bar does not shift left and right, hydraulic cylinder may be faulty.



SPRAY BAR
SHIFT SWITCH



OPERATIONAL TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Place drain pan under spray bar shift hydraulic cylinder.

(3) Disconnect hydraulic hoses from spray bar shift hydraulic cylinder, (Para 3-47).

(4) Manually place spray bar in centered position.

(5) Connect hydraulic hoses to spray bar shift hydraulic cylinder, (Para 3-47).

(6) Start engine, (TM 9-2320-364-10).

(7) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(8) Turn front control panel POWER switch ON, (Para 2-1).

(9) Turn rear control panel POWER switch ON, (Para 2-1).

(10) Operate spray bar shift left function from rear control panel, (Para 2-17). Check if spray bar shifts left.

(a) If spray bar does not shift left, replace hydraulic cylinder, (Para 3-22). Verify repair, go to Step 25 of this Fault.

(b) If spray bar shifts left, go to Step 14 of this Fault.



SPRAY BAR

19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).

KNOWN INFO

Spray bar wings and lift functions operate.

Power to front and rear control panels OK.

Hydraulic power to main manifold OK.

Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.

POSSIBLE PROBLEMS

Hydraulic cylinder faulty.

BAR SHIFT switch faulty.

Burner and main manifold wire harness (red wire) faulty.

Spray bar shift left solenoid valve faulty.

Spray bar shift left solenoid valve ground wire connection faulty.

Burner and main manifold wire harness (blue wire) faulty.

Spray bar shift right solenoid valve faulty.

Spray bar shift right solenoid valve ground wire connection faulty.

Blue wire from front control panel terminal strip to SHIFT switch faulty.

Front control panel wire harness (wire 5 black) faulty.

Rear control panel wire harness (wire 5 black) faulty.

PLS interface faulty.

Red wire from front control panel terminal strip to SHIFT switch faulty.

Front control panel wire harness (wire 5 white) faulty.

Rear control panel wire harness (wire 5 white) faulty.

6.

Does spray bar shift left when using rear control panel controls?

NO → Go to Step 8 of this Fault.

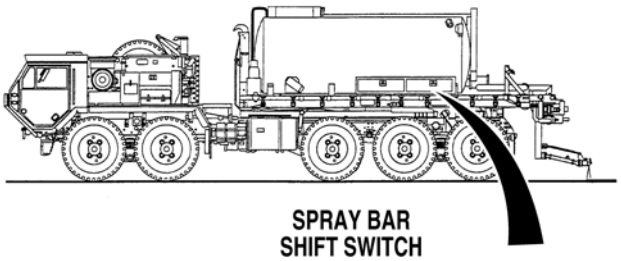
YES

TEST OPTIONS

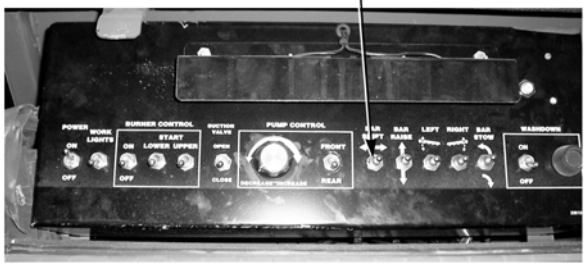
Operational test.

REASON FOR QUESTION

To further isolate fault.



SPRAY BAR
SHIFT SWITCH



OPERATIONAL TEST

Operate spray bar shift left function from rear control panel, (Para 2-1).

(a) If spray bar does not shift left, go to Step 8 of this Fault.

(b) If spray bar shifts left, go to Step 7 of this Fault.



SPRAY BAR

19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).

KNOWN INFO

Spray bar wings and lift functions operate.

Power to front and rear control panels OK.

Hydraulic power to main manifold OK.

Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.

Hydraulic cylinder OK

Burner and main manifold wire harness (red wire) OK.

Spray bar shift left solenoid valve OK.

Spray bar shift left solenoid valve ground wire connection OK.

POSSIBLE PROBLEMS

BAR SHIFT switch faulty.

Burner and main manifold wire harness (blue wire) faulty.

Spray bar shift right solenoid valve faulty.

Spray bar shift right solenoid valve ground wire connection faulty.

Blue wire from front control panel terminal strip to SHIFT switch faulty.

Front control panel wire harness (wire 5 black) faulty.

Rear control panel wire harness (wire 5 black) faulty.

PLS interface faulty.

Red wire from front control panel terminal strip to SHIFT switch faulty.

Front control panel wire harness (wire 5 white) faulty.

Rear control panel wire harness (wire 5 white) faulty.

7.

Does spray bar shift right when using rear control panel controls?

TEST OPTIONS

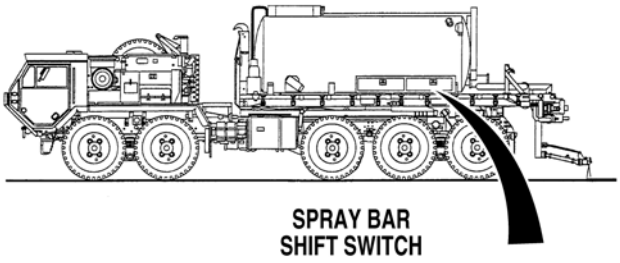
Operational test.

REASON FOR QUESTION

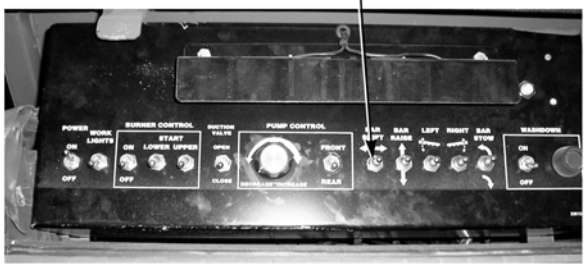
To further isolate fault.

NO → Go to Step 14 of this Fault.

YES → Go to Step 17 of this Fault.



SPRAY BAR
SHIFT SWITCH



OPERATIONAL TEST

Operate spray bar shift right function from rear control panel, (Para 2-1). Check if spray bar shifts right.

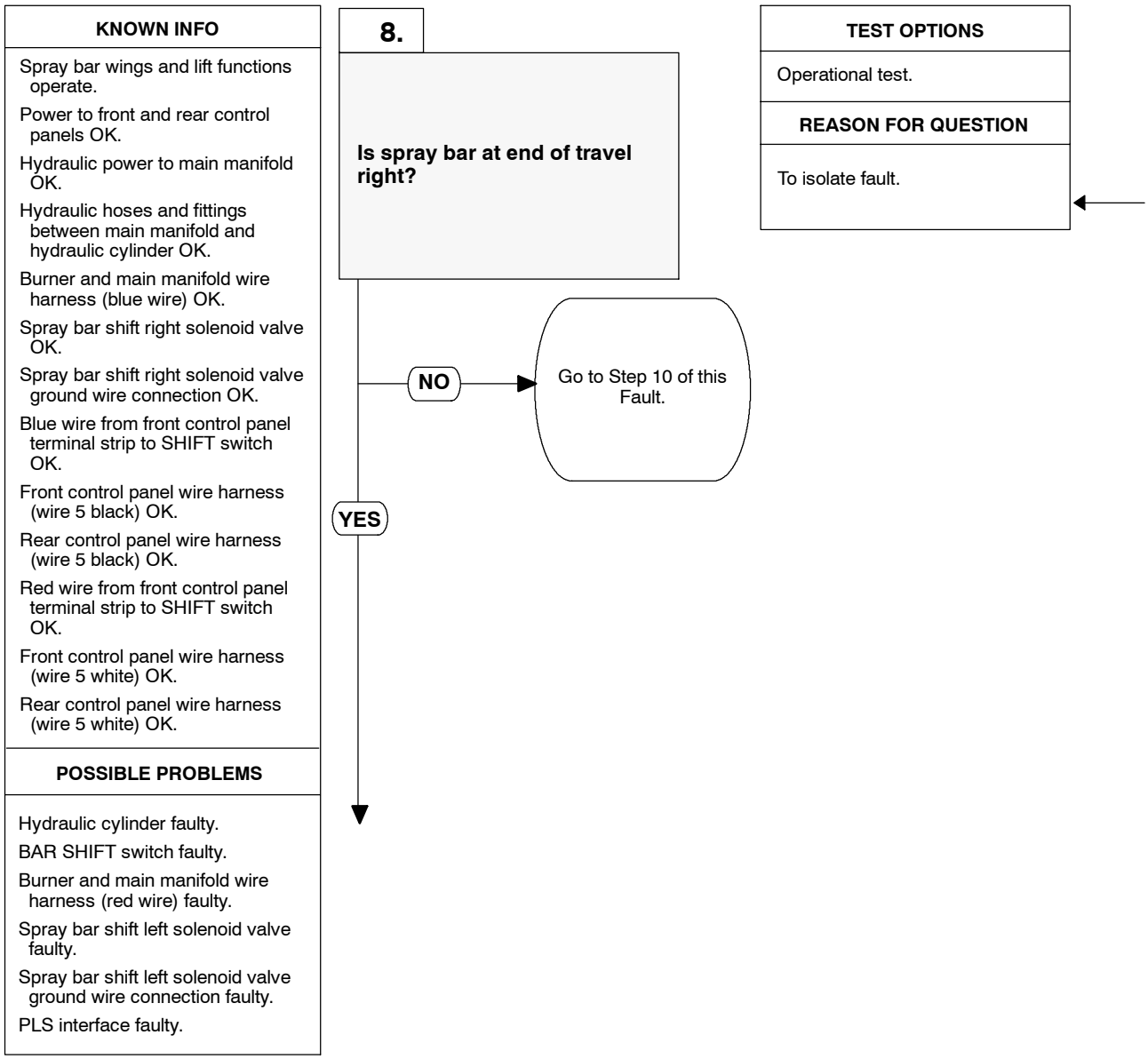
(a) If spray bar does not shift right, go to Step 14 of this Fault.

(b) If spray bar shifts right, go to Step 17 of this Fault.



SPRAY BAR

19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).





OPERATIONAL TEST
Check if spray bar is at end of travel right. (a) If spray bar is not at end of travel right, go to Step 10 of this Fault. (b) If spray bar is at end of travel right, go to Step 9 of this Fault.

19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).

KNOWN INFO

- Spray bar wings and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Burner and main manifold wire harness (blue wire) OK.
- Spray bar shift right solenoid valve OK.
- Spray bar shift right solenoid valve ground wire connection OK.
- Blue wire from front control panel terminal strip to SHIFT switch OK.
- Front control panel wire harness (wire 5 black) OK.
- Rear control panel wire harness (wire 5 black) OK.
- Red wire from front control panel terminal strip to SHIFT switch OK.
- Front control panel wire harness (wire 5 white) OK.
- Rear control panel wire harness (wire 5 white) OK.

POSSIBLE PROBLEMS

- Hydraulic cylinder faulty.
- BAR SHIFT switch faulty.
- Burner and main manifold wire harness (red wire) faulty.
- Spray bar shift left solenoid valve faulty.
- Spray bar shift left solenoid valve ground wire connection faulty.
- PLS interface faulty.

9.

Does spray bar shift right when using rear control panel after manually centering spray bar?

NO → Replace hydraulic cylinder, (Para 3-22). Verify repair, go to Step 25 of this Fault.

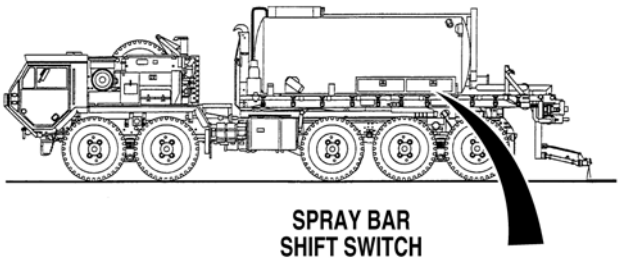
YES → Go to Step 11 of this Fault.

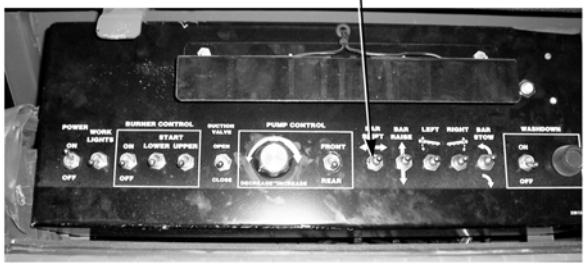
TEST OPTIONS

Operational test.

REASON FOR QUESTION

If spray bar does not shift left and right, hydraulic cylinder may be faulty.





OPERATIONAL TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Place drain pan under spray bar shift hydraulic cylinder.

(3) Disconnect hydraulic hoses from spray bar shift hydraulic cylinder, (Para 3-47).

(4) Manually place spray bar in centered position.

(5) Connect hydraulic hoses to spray bar shift hydraulic cylinder, (Para 3-47).

(6) Start engine, (TM 9-2320-364-10).

(7) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(8) Turn front control panel POWER switch ON, (Para 2-1).

(9) Turn rear control panel POWER switch ON, (Para 2-1).

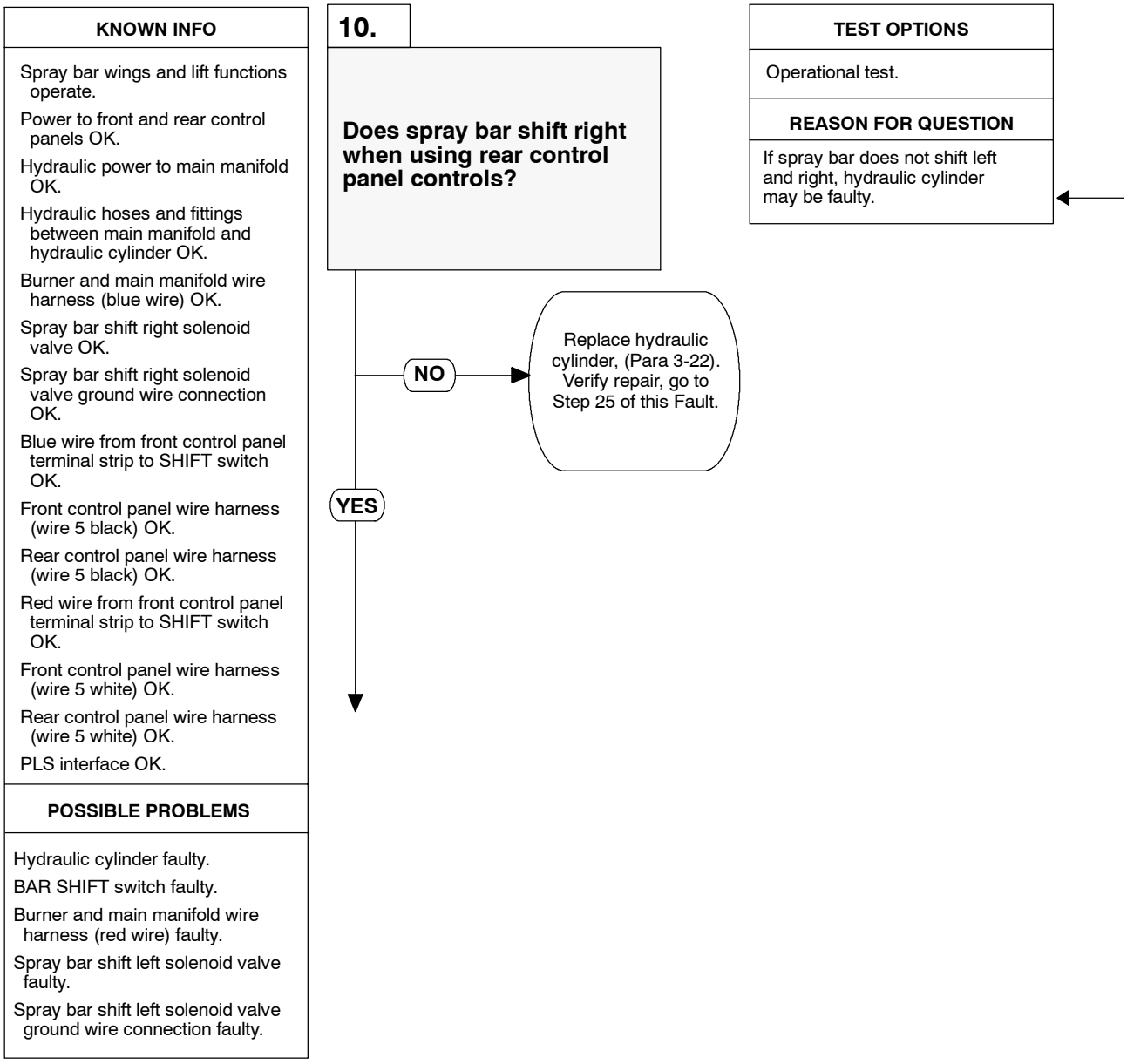
(10) Operate spray bar shift right function from rear control panel, (Para 2-17). Check if spray bar shifts right.

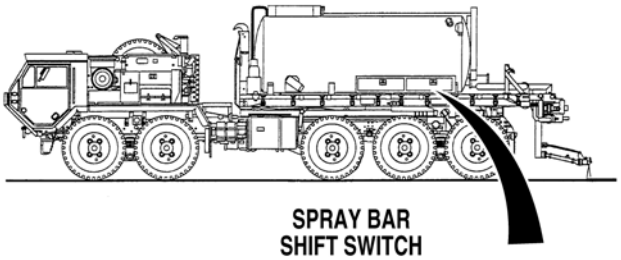
(a) If spray bar does not shift right, replace hydraulic cylinder, (Para 3-22). Verify repair, go to Step 25 of the Fault.

(b) If spray bar shifts right, go to Step 11 of this Fault.

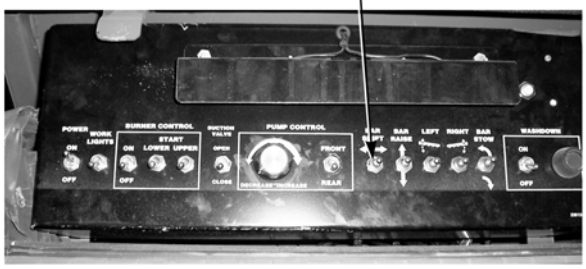


19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).





SPRAY BAR
SHIFT SWITCH



OPERATIONAL TEST

Operate spray bar shift right function from rear control panel, (Para 2-1). Check if spray bar shifts right.

(a) If spray bar does not shift right, replace hydraulic cylinder, (Para 3-22). Verify repair, go to Step 25 of this Fault.

(b) If spray bar shifts right, go to Step 11 of this Fault.



SPRAY BAR

19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).

KNOWN INFO

Spray bar wings and lift functions operate.

Power to front and rear control panels OK.

Hydraulic power to main manifold OK.

Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.

Burner and main manifold wire harness (blue wire) OK.

Spray bar shift right solenoid valve OK.

Spray bar shift right solenoid valve ground wire connection OK.

Blue wire from front control panel terminal strip to SHIFT switch OK.

Front control panel wire harness (wire 5 black) OK.

Rear control panel wire harness (wire 5 black) OK.

Red wire from front control panel terminal strip to SHIFT switch OK.

Front control panel wire harness (wire 5 white) OK.

Rear control panel wire harness (wire 5 white) OK.

PLS interface OK.

Hydraulic cylinder OK.

POSSIBLE PROBLEMS

BAR SHIFT switch faulty.

Burner and main manifold wire harness (red wire) faulty.

Spray bar shift left solenoid valve faulty.

Spray bar shift left solenoid valve ground wire connection faulty.

11.

WARNING

Read WARNING on Page 4-607

Are 10 to 14 VDC measured between BAR SHIFT switch, shift left terminal (red wire) and a known good ground, when BAR SHIFT switch is held in shift left position?

NO → Replace BAR SHIFT switch, (Para 3-6). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

Voltage test.

REASON FOR QUESTION

If 10 to 14 VDC are not present, BAR SHIFT switch is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits a direct short may result.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VOLTAGE TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove rear control panel, (Para 3-76).

(4) Push in battery disconnect switch, (TM 9-2320-364-10).

(5) Turn front control panel POWER switch ON, (Para 2-1).

(6) Turn rear control panel POWER switch ON, (Para 2-1).

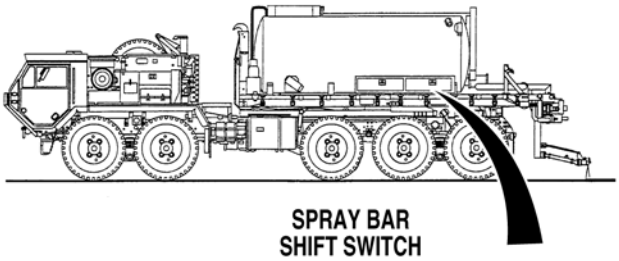
(7) Connect positive (+) multimeter lead to red wire, end terminal at spray bar rear control panel BAR SHIFT switch.

(8) Connect negative (-) multimeter lead to a known good ground.

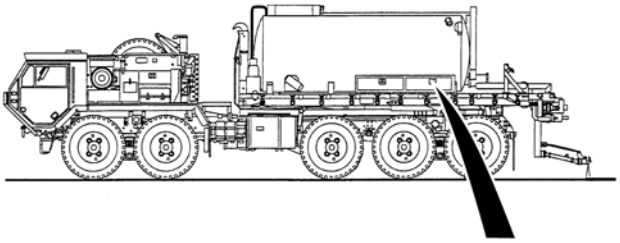
(9) While an assistant places and holds BAR SHIFT switch in the shift left position, note meter reading.

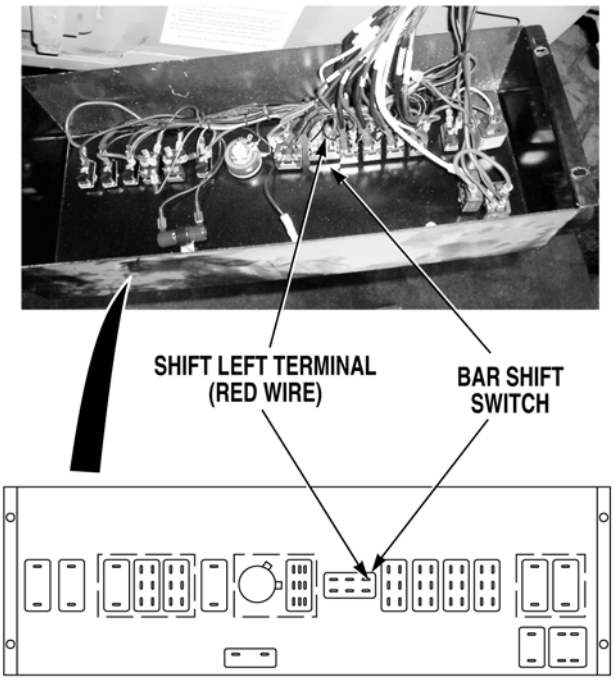
(a) If 10 to 14 VDC are not present, replace BAR SHIFT switch, (Para 3-6). Verify repair, go to Step 25 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 12 of this Fault.









19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).

KNOWN INFO

- Spray bar wings and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Burner and main manifold wire harness (blue wire) OK.
- Spray bar shift right solenoid valve OK.
- Spray bar shift right solenoid valve ground wire connection OK.
- Blue wire from front control panel terminal strip to SHIFT switch OK.
- Front control panel wire harness (wire 5 black) OK.
- Rear control panel wire harness (wire 5 black) OK.
- Red wire from front control panel terminal strip to SHIFT switch OK.
- Front control panel wire harness (wire 5 white) OK.
- Rear control panel wire harness (wire 5 white) OK.
- PLS interface OK.
- Hydraulic cylinder OK.
- BAR SHIFT switch OK.

POSSIBLE PROBLEMS

- Burner and main manifold wire harness (red wire) faulty.
- Spray bar shift left solenoid valve faulty.
- Spray bar shift left solenoid valve ground wire connection faulty.

12.

WARNING

Read WARNING on Page 4-609

Are 10 to 14 VDC measured between red wire at shift left solenoid valve and a known good ground when BAR SHIFT switch is held in shift left position?

NO → Repair red wire, (Para 3-80) or replace burner and main manifod wire harness, (Para 3-58). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

Voltage test.

REASON FOR QUESTION

If 10 to 14 VDC are not present, red wire is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

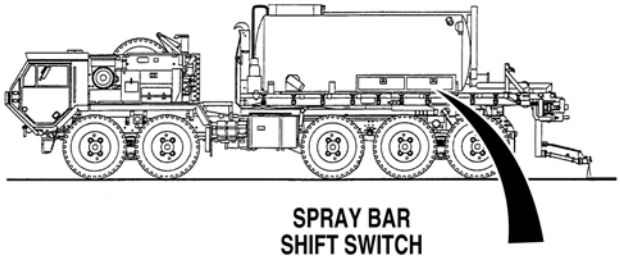
(1) Connect positive (+) multimeter lead to red wire at spray bar shift left solenoid valve.

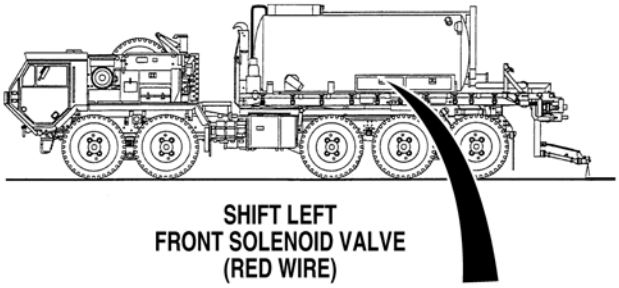
(2) Connect negative (-) multimeter lead to a known good ground.

(3) While an assistant places and holds spray BAR SHIFT switch in the shift left position, note meter reading.

(a) If 10 to 14 VDC are not present, repair red wire, (Para 3-80) or replace burner and manifold wire harness, (Para 3-58). Verify repair, go to Step 25 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 13 of this Fault.





19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).

KNOWN INFO

Spray bar wings and lift functions operate.
Power to front and rear control panels OK.
Hydraulic power to main manifold OK.
Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
Burner and main manifold wire harness (blue wire) OK.
Spray bar shift right solenoid valve OK.
Spray bar shift right solenoid valve ground wire connection OK.
Blue wire from front control panel terminal strip to SHIFT switch OK.
Front control panel wire harness (wire 5 black) OK.
Rear control panel wire harness (wire 5 black) OK.
Red wire from front control panel terminal strip to SHIFT switch OK.
Front control panel wire harness (wire 5 white) OK.
Rear control panel wire harness (wire 5 white) OK.
PLS interface OK.
Hydraulic cylinder OK.
BAR SHIFT switch OK.
Burner and main manifold wire harness (red wire) OK.

POSSIBLE PROBLEMS

Spray bar shift left solenoid valve faulty.
Spray bar shift left solenoid valve ground wire connection faulty.

13.

WARNING

Read WARNING on Page 4-611

Is shift left solenoid valve ground connection secure?

NO → Repair ground connection, (Para 3-64). Verify repair, go to Step 25 of this Fault.

YES → Replace main manifold, (Para 3-29). Verify repair, go to Step 25 of this Fault.

TEST OPTIONS

Visual inspection.

REASON FOR QUESTION

If spray bar shift left solenoid valve ground connection is not secure, or spray bar shift left solenoid valve is faulty, spray bar shift left function will not operate.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VISUAL INSPECTION

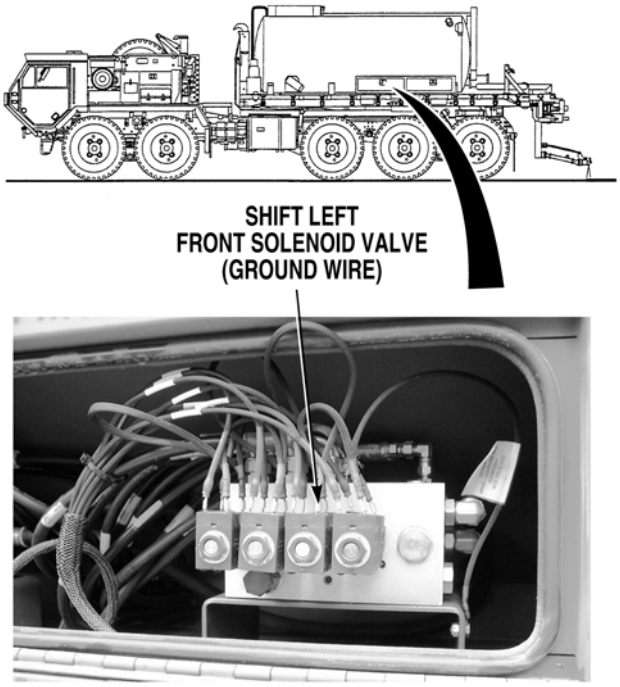
(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Check ground wire connection at spray bar shift left solenoid valve.

  (a) If ground wire connection is not secure, repair ground connection, (Para 3-64).

  (b) If ground wire is secure, replace main manifold, (Para 3-29).

(3) Verify repair, go to Step 25 of this Fault.



19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).

KNOWN INFO

- Spray bar wings and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (red wire) OK.
- Spray bar shift left solenoid valve OK.
- Spray bar shift left solenoid valve ground wire connection OK.
- Front control panel wire harness (wire 5 black) OK.
- Rear control panel wire harness (wire 5 black) OK.
- Red wire from front control panel terminal strip to SHIFT switch OK.
- Front control panel wire harness (wire 5 white) OK.
- Rear control panel wire harness (wire 5 white) OK.
- PLS interface OK.

POSSIBLE PROBLEMS

- BAR SHIFT switch faulty.
- Burner and main manifold wire harness (blue wire) faulty.
- Spray bar shift right solenoid valve faulty.
- Spray bar shift right solenoid valve ground wire connection faulty.
- Blue wire from front control panel terminal strip to SHIFT switch faulty.

14.

WARNING

Read WARNING on Page 4-613

Are 10 to 14 VDC measured between BAR SHIFT switch, shift right terminal (blue wire) and a known good ground, when BAR SHIFT switch is held in shift right position?

NO → Replace BAR SHIFT switch, (Para 3-6). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

Voltage test.

REASON FOR QUESTION

If 10 to 14 VDC are not present, BAR SHIFT switch is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits a direct short may result.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VOLTAGE TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove rear control panel, (Para 3-76).

(4) Push in battery disconnect switch, (TM 9-2320-364-10).

(5) Turn front control panel POWER switch ON, (Para 2-1).

(6) Turn rear control panel POWER switch ON, (Para 2-1).

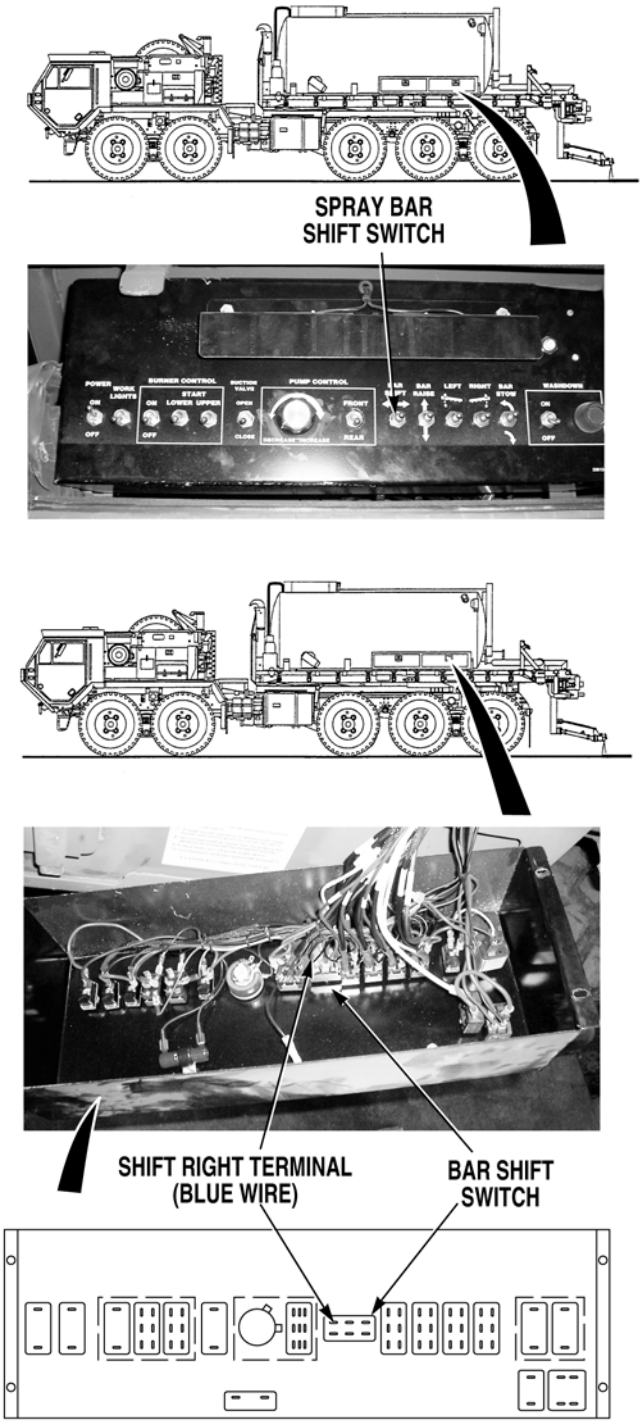
(7) Connect positive (+) multimeter lead to shift right terminal (blue wire) at BAR SHIFT switch, rear control panel.

(8) Connect negative (-) multimeter lead to a known good ground.

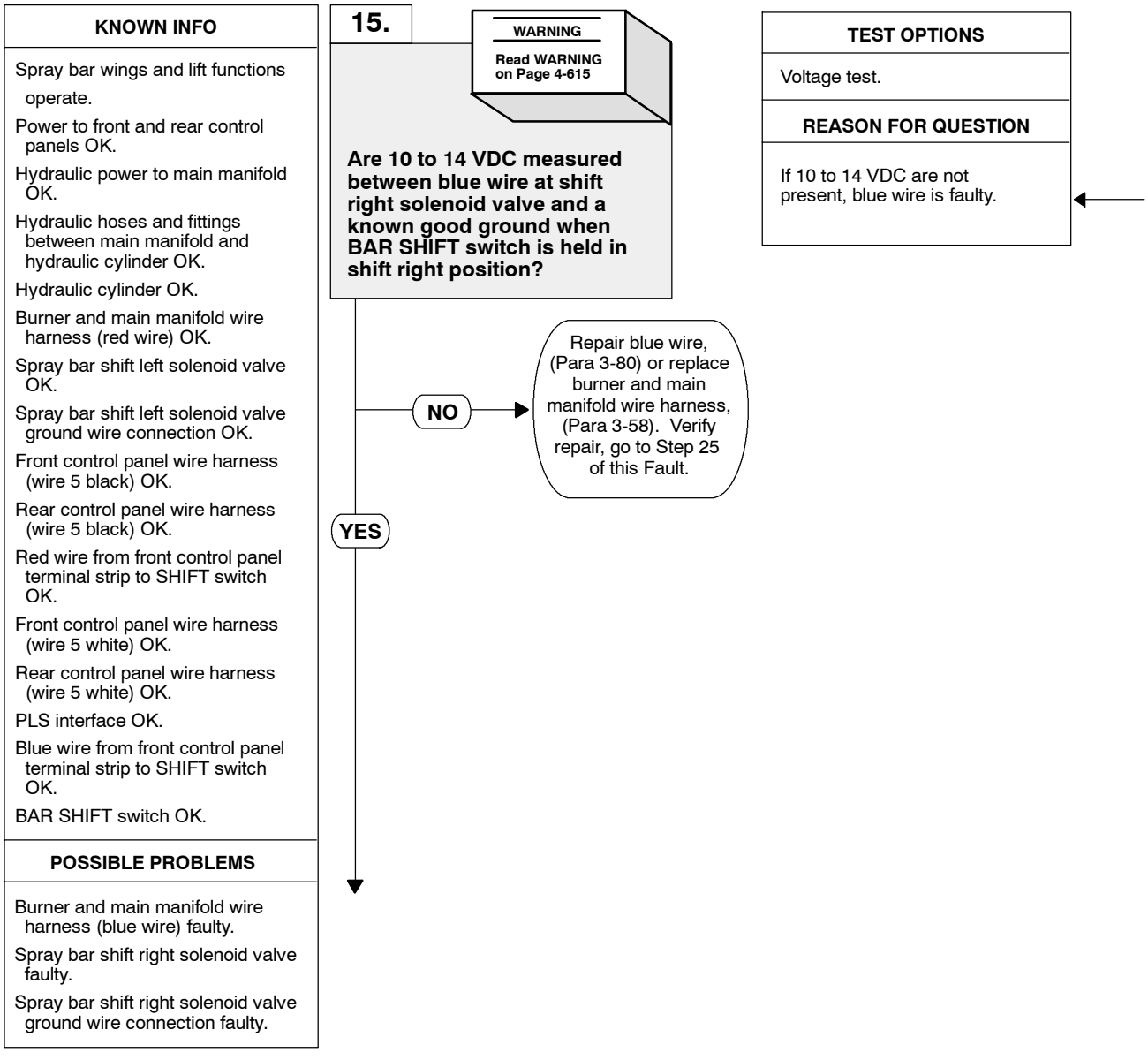
(9) While an assistant places and holds BAR SHIFT switch in the shift right position, note meter reading.

(a) If 10 to 14 VDC are not present, replace BAR SHIFT switch, (Para 3-6). Verify repair, go to Step 25 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 15 of this Fault.



19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

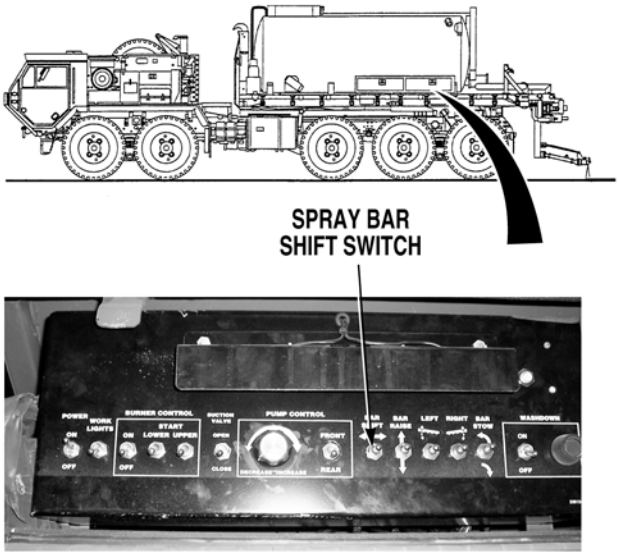
(1) Connect positive (+) multimeter lead to blue wire at spray bar shift right solenoid valve.

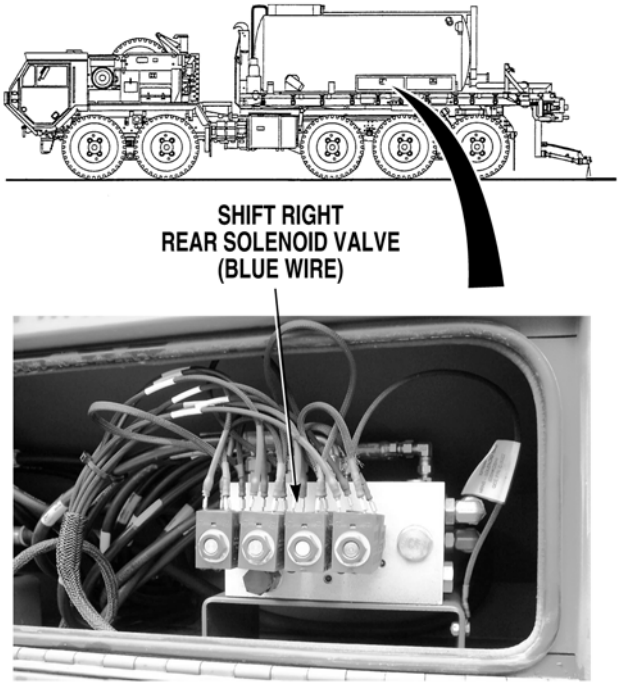
(2) Connect negative (-) multimeter lead to a known good ground.

(3) While an assistant places and holds BAR SHIFT switch in the shift right position, note meter reading.

(a) If 10 to 14 VDC are not present, repair blue wire, (Para 3-80) or replace burner and manifold wire harness, (Para 3-58). Verify repair, go to Step 25 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 16 of this Fault.





19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).

KNOWN INFO

- Spray bar wings and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Burner and main manifold wire harness (blue wire) OK.
- Front control panel wire harness (wire 5 black) OK.
- Rear control panel wire harness (wire 5 black) OK.
- Red wire from front control panel terminal strip to SHIFT switch OK.
- Front control panel wire harness (wire 5 white) OK.
- Rear control panel wire harness (wire 5 white) OK.
- PLS interface OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (red wire) OK.
- Spray bar shift left solenoid valve OK.
- Spray bar shift left solenoid valve ground wire connection OK.
- Blue wire from front control panel terminal strip to SHIFT switch OK.
- BAR SHIFT switch OK.

POSSIBLE PROBLEMS

- Spray bar shift right solenoid valve faulty.
- Spray bar shift right solenoid valve ground wire connection faulty.

16.

WARNING

Read WARNING on Page 4-617

Is shift right solenoid valve ground connection secure?

NO → Repair ground connection, (Para 3-64). Verify repair, go to Step 25 of this Fault.

YES → Replace main manifold, (Para 3-29). Verify repair, go to Step 25 of this Fault.

TEST OPTIONS

Visual inspection.

REASON FOR QUESTION

If spray bar shift right solenoid valve ground connection is not secure, or spray bar shift right solenoid valve is faulty, spray bar shift right function will not operate.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VISUAL INSPECTION

(1) Shut OFF engine, (TM 9-2320-364-10).

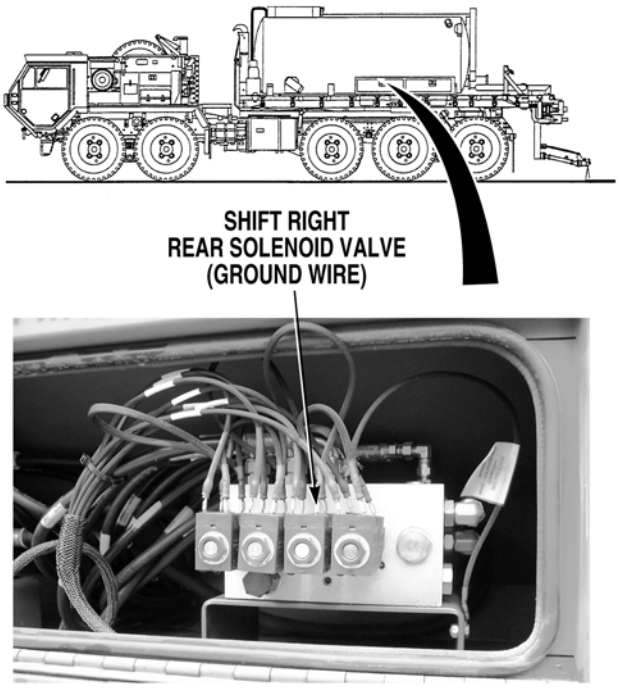
(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Check ground wire connection at spray bar shift right solenoid valve.

(a) If ground wire connection is not secure, repair ground connection, (Para 3-64).

(b) If ground wire is secure, replace main manifold, shift right solenoid valve, (Para 3-29).

(4) Verify repair, go to Step 25 of this Fault.



19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).

KNOWN INFO

Spray bar wings and lift functions operate.

Power to front and rear control panels OK.

Hydraulic power to main manifold OK.

Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.

Hydraulic cylinder OK.

Burner and main manifold wire harness (red wire) OK.

Spray bar shift left solenoid valve OK.

Spray bar shift left solenoid valve ground wire connection OK.

BAR SHIFT switch OK.

Burner and main manifold wire harness (blue wire) OK.

Spray bar shift right solenoid valve OK.

Spray bar shift right solenoid valve ground wire connection OK.

POSSIBLE PROBLEMS

Blue wire from front control panel terminal strip to SHIFT switch faulty.

Front control panel wire harness (wire 5 black) faulty.

Rear control panel wire harness (wire 5 black) faulty.

PLS interface faulty.

Red wire from front control panel terminal strip to SHIFT switch faulty.

Front control panel wire harness (wire 5 white) faulty.

Rear control panel wire harness (wire 5 white) faulty.

17.

Does spray bar shift left when using front control panel controls?

NO → Go to Step 21 of this Fault.

YES

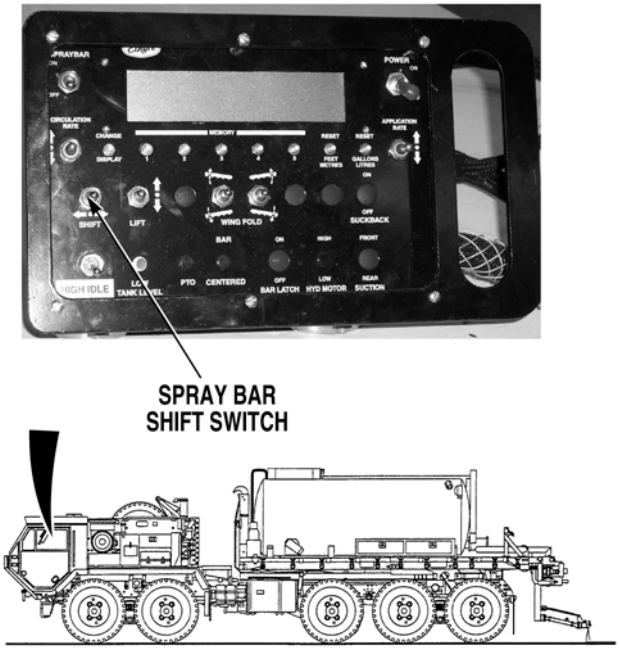
TEST OPTIONS

Operational test.

REASON FOR QUESTION

To further isolate fault.

OPERATIONAL TEST
Operate spray bar shift left function from front control panel, (Para 2-1). Check if spray bar shifts left. (a) If spray bar does not shift left, go to Step 21 of this Fault. (b) If spray bar shifts left, go to Step 18 of this Fault.





19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).

KNOWN INFO

- Spray bar wings and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (red wire) OK.
- Spray bar shift left solenoid valve OK.
- Spray bar shift left solenoid valve ground wire connection OK.
- BAR SHIFT switch OK.
- Burner and main manifold wire harness (blue wire) OK.
- Spray bar shift right solenoid valve OK.
- Spray bar shift right solenoid valve ground wire connection OK.
- Red wire from front control panel terminal strip to SHIFT switch OK.
- Front control panel wire harness (wire 5 white) OK.
- Rear control panel wire harness (wire 5 white) OK.

POSSIBLE PROBLEMS

- Blue wire from front control panel terminal strip to SHIFT switch faulty.
- Front control panel wire harness (wire 5 black) faulty.
- Rear control panel wire harness (wire 5 black) faulty.
- PLS interface faulty.

18.

WARNING

Read WARNING on Page 4-621

Is continuity measured across blue wire from front control panel terminal strip to SHIFT switch?

NO → Repair blue wire, (Para 3-80). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, blue wire is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove front control panel, (Para 3-76).

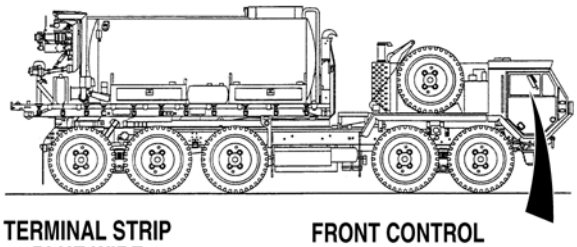
(4) Set multimeter select switch to ohms.

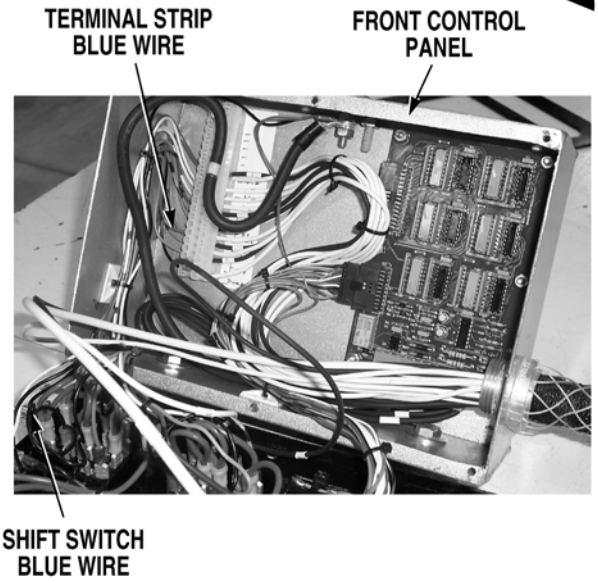
(5) Connect positive (+) multimeter lead to blue wire at front control panel terminal strip.

(6) Connect negative (-) multimeter lead to blue wire at front control panel SHIFT switch.

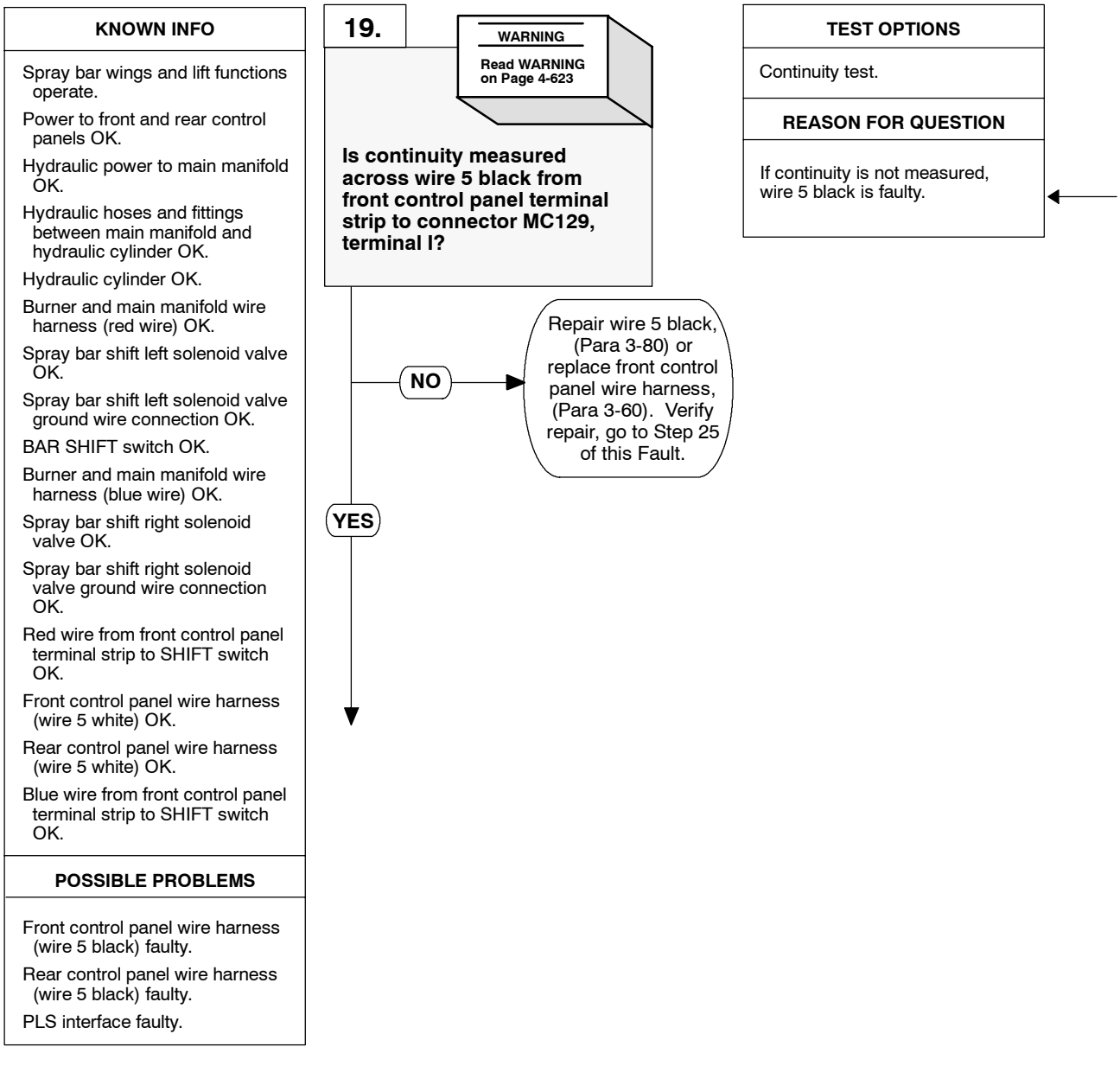
(a) If continuity is not measured, repair blue wire between terminal strip and SHIFT switch, front control panel, (Para 3-80). Verify repair, go to Step 25 of this Fault.

(b) If continuity is measured, go to Step 19 of this Fault.





19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Disconnect front control panel connector MC129, (Para 2-10).

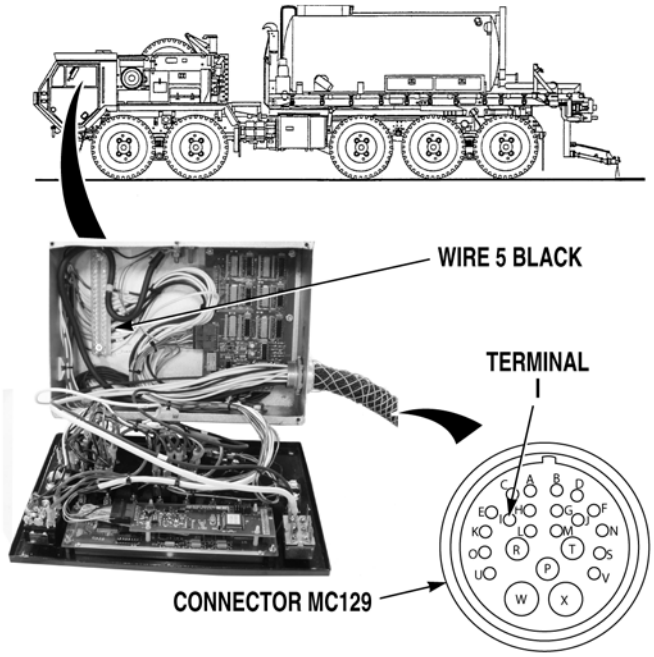
(2) Set multimeter select switch to ohms.

(3) Connect positive (+) multimeter lead on wire 5 black at connector MC129, terminal I.

(4) Connect negative (-) multimeter lead to wire 5 black at front control panel terminal strip.

(a) If continuity is not measured, repair wire 5 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 25 of this Fault.

(b) If continuity is measured, go to Step 20 of this Fault.



19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).

KNOWN INFO

Spray bar wings and lift functions operate.

Power to front and rear control panels OK.

Hydraulic power to main manifold OK.

Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.

Hydraulic cylinder OK.

Burner and main manifold wire harness (red wire) OK.

Spray bar shift left solenoid valve OK.

Spray bar shift left solenoid valve ground wire connection OK.

BAR SHIFT switch OK.

Burner and main manifold wire harness (blue wire) OK.

Spray bar shift right solenoid valve OK.

Spray bar shift right solenoid valve ground wire connection OK.

Red wire from front control panel terminal strip to SHIFT switch OK.

Front control panel wire harness (wire 5 white) OK.

Rear control panel wire harness (wire 5 white) OK.

Blue wire from front control panel terminal strip to SHIFT switch OK.

Front control panel wire harness (wire 5 black) OK.

POSSIBLE PROBLEMS

Rear control panel wire harness (wire 5 black) faulty.

PLS interface faulty.

20.

WARNING

Read WARNING on Page 4-625

Is continuity measured across wire 5 black from connector MC130, terminal I, to rear control panel BAR SHIFT switch?

NO → Repair wire 5 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 25 of this Fault.

YES → PLS interface is faulty. Notify Supervisor

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is measured, PLS interface is faulty. If not, wire 5 black faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Remove rear control panel, (Para 3-76).

(2) Disconnect rear control panel connector MC130 (UPIK), (Para 2-10).

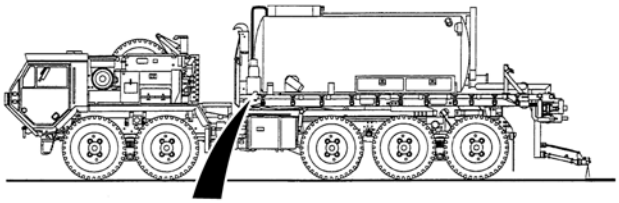
(3) Connect jumperwire between wire 5 black at EMM connector MC130, terminal I and a known good ground.

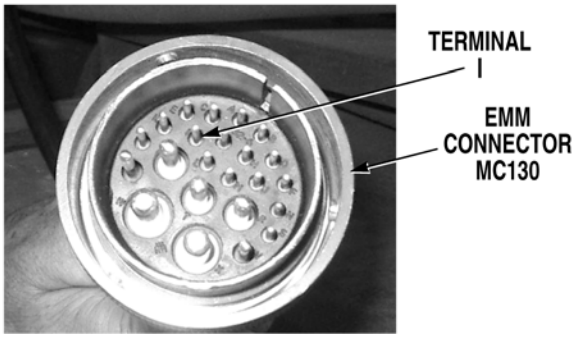
(4) Connect positive (+) multimeter lead to wire black at rear control panel BAR SHIFT switch.

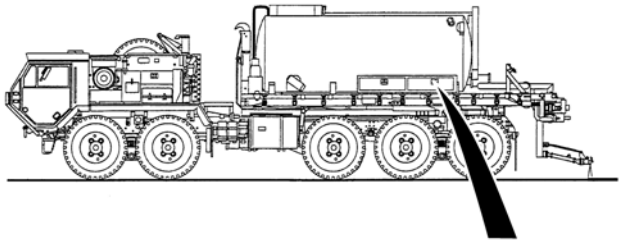
(5) Connect negative (-) multimeter lead to a known good ground.

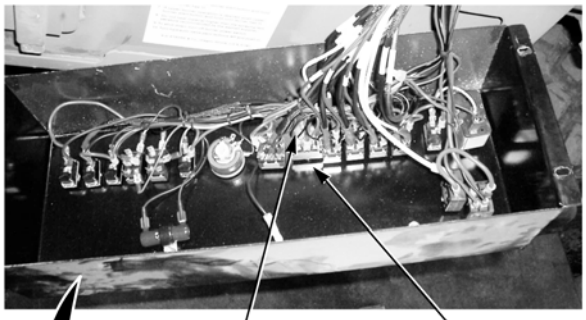
(a) If continuity is not measured, repair wire 5 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 25 of this Fault.

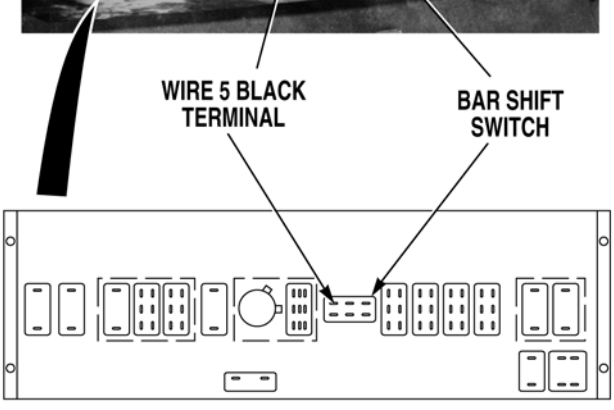
(b) If continuity is measured, PLS interface is faulty. Notify Supervisor.











19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).

KNOWN INFO

Spray bar wings and lift functions operate.

Power to front and rear control panels OK.

Hydraulic power to main manifold OK.

Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.

Hydraulic cylinder OK.

Burner and main manifold wire harness (red wire) OK.

Spray bar shift left solenoid valve OK.

Spray bar shift left solenoid valve ground wire connection OK.

BAR SHIFT switch OK.

Burner and main manifold wire harness (blue wire) OK.

Spray bar shift right solenoid valve OK.

Spray bar shift right solenoid valve ground wire connection OK.

Blue wire from front control panel terminal strip to SHIFT switch OK.

Front control panel wire harness (wire 5 black) OK.

Rear control panel wire harness (wire 5 black) OK.

POSSIBLE PROBLEMS

Red wire from front control panel terminal strip to SHIFT switch faulty.

Front control panel wire harness (wire 5 white) faulty.

Rear control panel wire harness (wire 5 white) faulty.

PLS interface faulty.

21.

Does spray bar shift right when using front control panel controls?

NO → Go to “Two Or More Front Spray Bar Adjustment Controls Do Not Operate”, (Fault 1).

YES

TEST OPTIONS

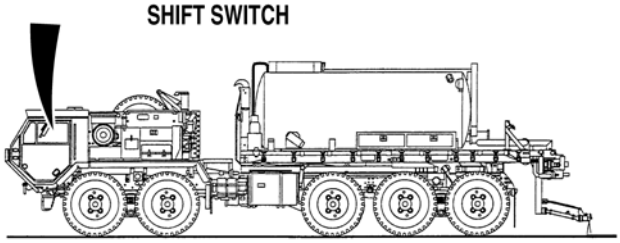
Operational test.

REASON FOR QUESTION

To further isolate fault.



SPRAY BAR
SHIFT SWITCH



OPERATIONAL TEST

Operate spray bar shift right function from front control panel, (Para 2-1). Check if spray bar shifts right.

(a) If spray bar does not shift right, go to "Two Or More Front Spray Bar Adjustment Controls Do Not Operate", (Fault 1).

(b) If spray bar shifts right, go to Step 22 of this Fault.



SPRAY BAR

19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).

KNOWN INFO

- Spray bar wings and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (red wire) OK.
- Spray bar shift left solenoid valve OK.
- Spray bar shift left solenoid valve ground wire connection OK.
- BAR SHIFT switch OK.
- Burner and main manifold wire harness (blue wire) OK.
- Spray bar shift right solenoid valve OK.
- Spray bar shift right solenoid valve ground wire connection OK.
- Blue wire from front control panel terminal strip to SHIFT switch OK.
- Front control panel wire harness (wire 5 black) OK.
- Rear control panel wire harness (wire 5 black) OK.

POSSIBLE PROBLEMS

- Red wire from front control panel terminal strip to SHIFT switch faulty.
- Front control panel wire harness (wire 5 white) faulty.
- Rear control panel wire harness (wire 5 white) faulty.
- PLS interface faulty.

22.

WARNING

Read WARNING on Page 4-629

Is continuity measured across red wire from front control panel terminal strip to SHIFT switch?

NO → Repair red wire, (Para 3-80). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, red wire is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove front control panel, (Para 3-76).

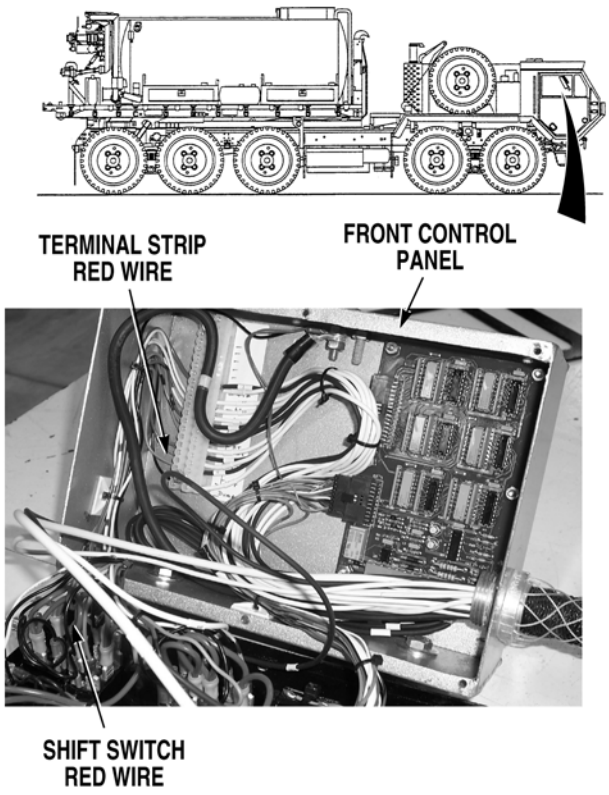
(4) Set multimeter select switch to ohms.

(5) Connect positive (+) multimeter lead to red wire at front control panel terminal strip.

(6) Connect negative (-) multimeter lead to red wire at front control panel SHIFT switch.

(a) If continuity is not measured, repair red wire between front control panel terminal strip and SHIFT switch, (Para 3-80). Verify repair, go to Step 25 of this Fault

(b) If continuity is measured, go to Step 23 of this Fault.



19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).

KNOWN INFO

Spray bar wings and lift functions operate.

Power to front and rear control panels OK.

Hydraulic power to main manifold OK.

Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.

Hydraulic cylinder OK.

Burner and main manifold wire harness (red wire) OK.

Spray bar shift left solenoid valve OK.

Spray bar shift left solenoid valve ground wire connection OK.

BAR SHIFT switch OK.

Burner and main manifold wire harness (blue wire) OK.

Spray bar shift right solenoid valve OK.

Spray bar shift right solenoid valve ground wire connection OK.

Blue wire from front control panel terminal strip to SHIFT switch OK.

Front control panel wire harness (wire 5 black) OK.

Rear control panel wire harness (wire 5 black) OK.

Red wire from front control panel terminal strip to SHIFT switch OK.

POSSIBLE PROBLEMS

Front control panel wire harness (wire 5 white) faulty.

Rear control panel wire harness (wire 5 white) faulty.

PLS interface faulty.

23.

WARNING

Read WARNING on Page 4-631

Is continuity measured across wire 5 white from front control panel terminal strip to connector MC129, terminal H?

NO → Repair wire 5 white, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, wire 5 white is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Disconnect front control panel connector MC129, (Para 2-10).

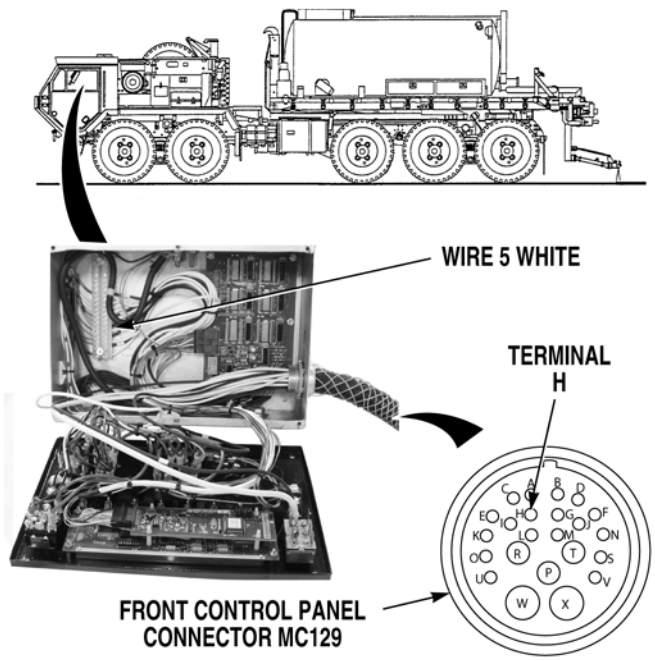
(2) Set multimeter select switch to ohms.

(3) Connect positive (+) multimeter lead to wire 5 white at front control panel connector MC129, terminal H.

(4) Connect negative (-) multimeter lead to wire 5 white at front control panel terminal strip.

(a) If continuity is not measured, repair wire 5 white, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 25 of this Fault.

(b) If continuity is measured, go to Step 24 of this Fault.



19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).

KNOWN INFO

- Spray bar wings and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (red wire) OK.
- Spray bar shift left solenoid valve OK.
- Spray bar shift left solenoid valve ground wire connection OK.
- BAR SHIFT switch OK.
- Burner and main manifold wire harness (blue wire) OK.
- Spray bar shift right solenoid valve OK.
- Spray bar shift right solenoid valve ground wire connection OK.
- Blue wire from front control panel terminal strip to SHIFT switch OK.
- Front control panel wire harness (wire 5 black) OK.
- Rear control panel wire harness (wire 5 black) OK.
- Red wire from front control panel terminal strip to SHIFT switch OK.
- Front control panel wire harness (wire 5 white) OK.

POSSIBLE PROBLEMS

- Rear control panel wire harness (wire 5 white) faulty.
- PLS interface faulty.

24.

WARNING

Read WARNING on Page 4-633

Is continuity measured across wire 5 white from connector MC130, terminal H, to rear control panel BAR SHIFT switch?

NO → Repair wire 5 white, (Para 3-80) or repair rear control panel wire harness, (Para 3-62). Verify repair, go to Step 25 of this Fault.

YES → PLS interface is faulty. Notify Supervisor.

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is measured, PLS interface is faulty. If continuity is not measured, wire 5 white is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Remove rear control panel, (Para 3-76).

(2) Disconnect rear control panel connector MC130 (UPIK), (Para 2-10).

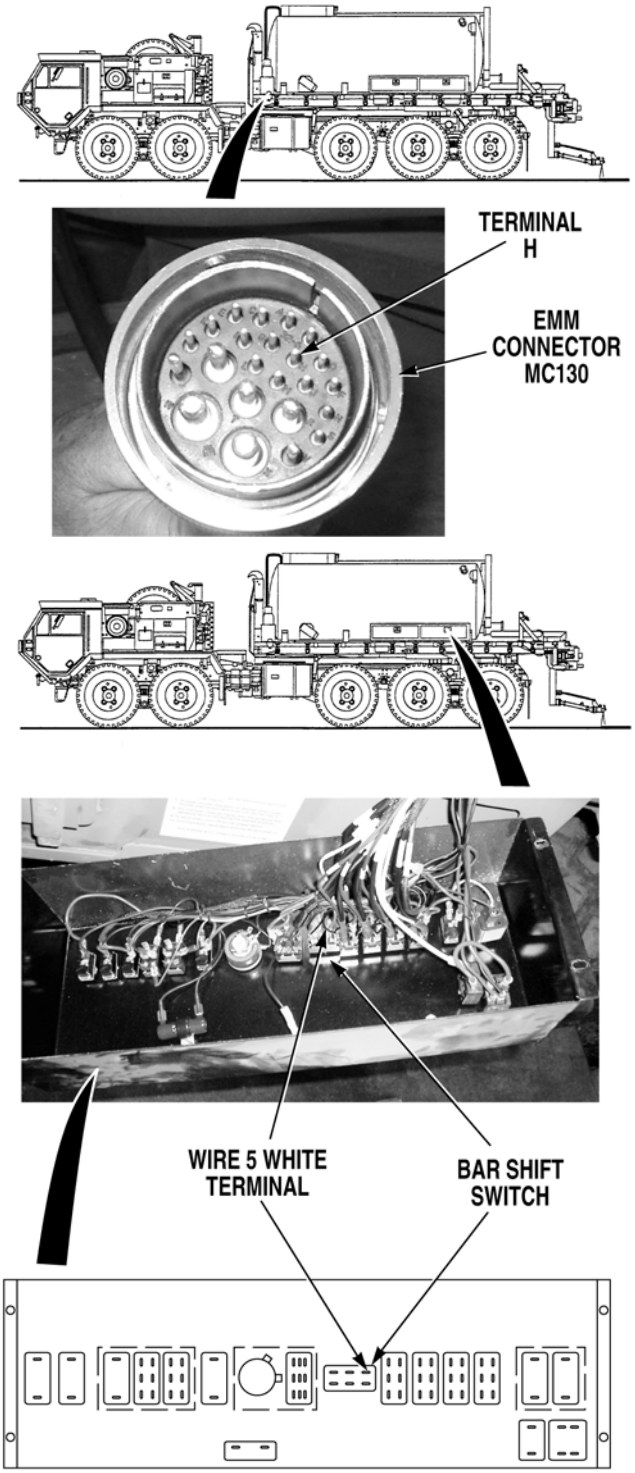
(3) Connect jumperwire between wire 5 white, EMM connector MC130, terminal H, and a known good ground.

(4) Connect positive (+) multimeter lead to wire 5 white at rear control panel BAR SHIFT switch.

(5) Connect negative (-) multimeter lead to wire 5 white rear control panel BAR SHIFT switch.

(a) If continuity is not measured, repair wire 5 white, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 25 of this Fault.

(b) If continuity is measured, PLS interface is faulty. Notify Supervisor.



19. SPRAY BAR DOES NOT SHIFT LEFT/RIGHT (FRONT AND/OR REAR CONTROLS) (CONT).

KNOWN INFO

- Spray bar wings and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (red wire) OK.
- Spray bar shift left solenoid valve OK.
- Spray bar shift left solenoid valve ground wire connection OK.
- BAR SHIFT switch OK.
- Burner and manifold wire harness (blue wire) OK.
- Spray bar shift right solenoid valve OK.
- Spray bar shift right solenoid valve ground wire connection OK.
- Blue wire from front control panel terminal strip to SHIFT switch OK.
- Front control panel wire harness (wire 5 black) OK.
- Rear control panel wire harness (wire 5 black) OK.
- Red wire from front control panel terminal strip to SHIFT switch OK.
- Front control panel wire harness (wire 5 white) OK.
- Rear control panel wire harness (wire 5 white) OK.

POSSIBLE PROBLEMS

None.

25.

WARNING

Read WARNING on Page 4-635

Does spray bar shift left and right from front and rear control panel?

NO → Fault not corrected. Notify Supervisor.

YES → Fault corrected.

TEST OPTIONS

Verify repair.

REASON FOR QUESTION

If spray bar shifts left and right, fault has been corrected.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

VERIFY REPAIR

(1) If removed, install front control panel, (Para 3-76).

(2) If removed, install rear control panel, (Para 3-76).

(3) If disconnected, connect front control panel connector MC129, (Para 2-10).

(4) If disconnected, connect rear control panel connector MC130 (UPIK), (Para 2-10).

(5) If out, push in battery disconnect switch, (TM 9-2320-364-10).

(6) If OFF, start engine, (TM 9-2320-364-10).

(7) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(8) Turn front control panel POWER switch ON, (Para 2-1).

(9) Turn rear control panel POWER switch ON, (Para 2-1).

(10) Operate spray bar shift function, (Para 2-17).

(a) If spray bar does not shift left and right, fault not corrected. Notify Supervisor.

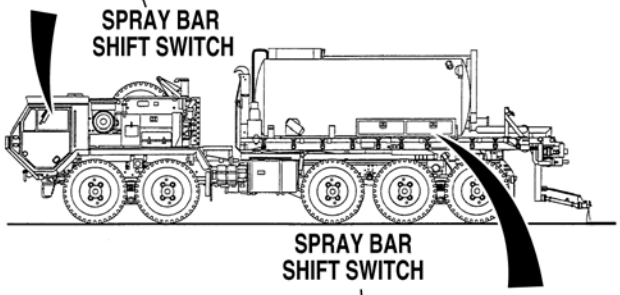
(b) If spray bar shifts left and right, fault has been corrected.

(11) Turn front control panel POWER switch OFF, (TM 9-2320-364-10).

(12) Turn rear control panel POWER switch OFF, (TM 9-2320-364-10).

(13) Shut OFF engine, (TM 9-2320-364-10).









20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL).

INITIAL SETUP

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
- Multimeter (Item 8, Appendix F)
- Cap and Plug set (Item 3, Appendix F)

Personnel Required
- Two

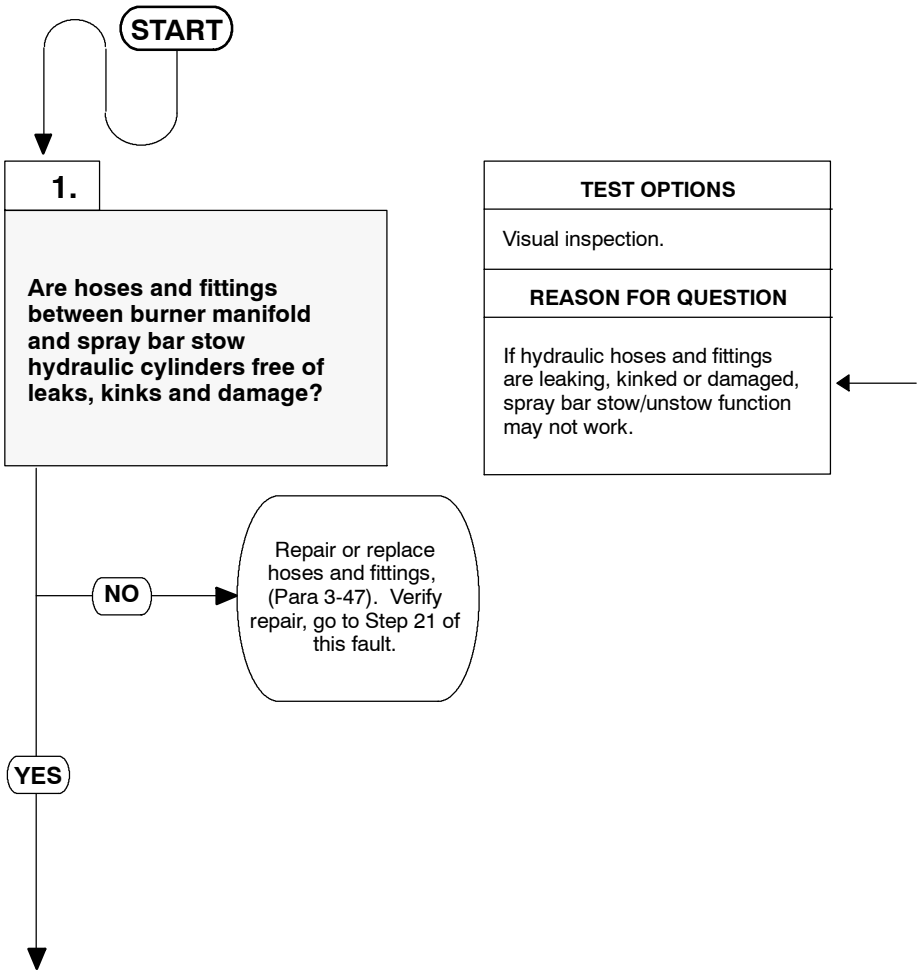
Equipment Condition
- Bituminous distributor loaded on PLS, (Para 2-5)
- Engine OFF, (TM 9-2320-364-10)
- Wheels chocked, (TM 9-2320-364-10)

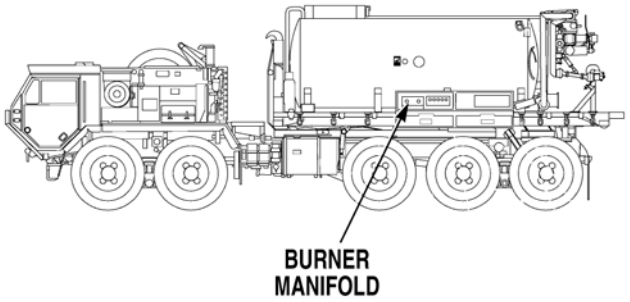
KNOWN INFO

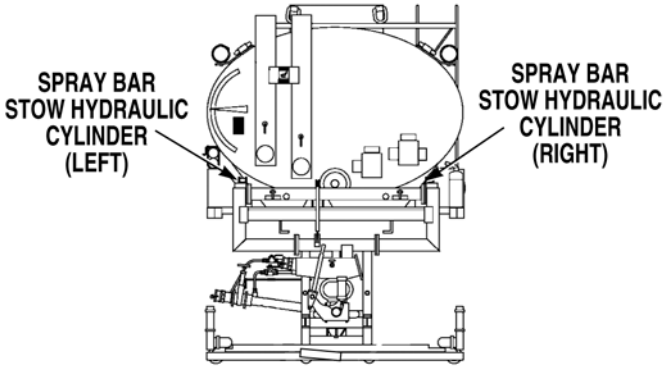
Nothing.

POSSIBLE PROBLEMS

- Hydraulic hoses between burner manifold and spray bar stow hydraulic cylinders leak, kinked or damaged.
- Hydraulics to burner manifold faulty.
- Power to rear control panel faulty.
- Dump valve operation faulty.
- Needle valve not adjusted correctly.
- Needle valve faulty.
- Right spray bar hydraulic cylinder faulty.
- Left spray bar hydraulic cylinder faulty.
- Burner manifold (spray bar stow valve) faulty.
- Unstow solenoid valve ground wire connection faulty.
- Burner manifold (unstow solenoid valve) faulty.
- Burner and main manifold wire harness (white wire) faulty.
- BAR STOW switch faulty.
- Stow solenoid valve ground wire connection faulty.
- Burner manifold (stow solenoid valve) faulty.
- Burner and main manifold wire harness (white/black wire) faulty.







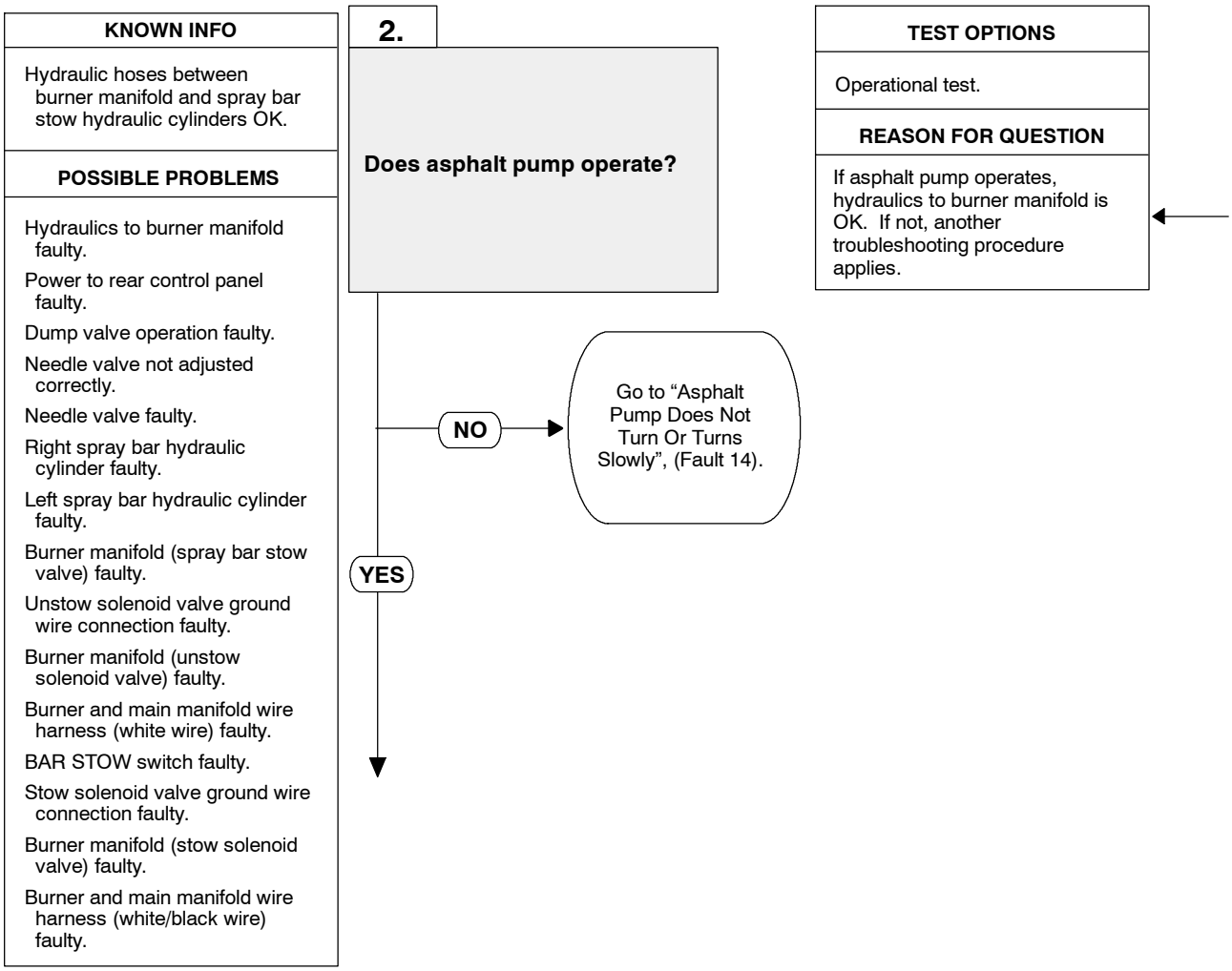
VISUAL INSPECTION

Check hydraulic hoses and fittings from burner manifold to spray bar stow hydraulic cylinders for leaks, kinks and damage.

(a) If hoses and fittings are not free from leaks, kinks or damage, repair or replace damaged hoses and fittings, (Para 3-47). Verify repair, go to Step 21 of this Fault.

(b) If hoses or fittings are free from leaks, kinks and damage, go to Step 2 of this Fault.

20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).





ASPHALT PUMP

OPERATIONAL TEST

(1) Start engine, (TM 9-2320-364-10).

(2) Turn hydraulic selector switch to CRANE/SRW (TM 9-2320-364-10).

(3) Turn front control panel POWER switch ON, (Para 2-1).

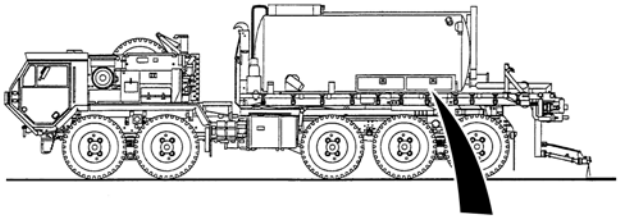
(4) Turn rear control panel POWER switch ON, (Para 2-1).

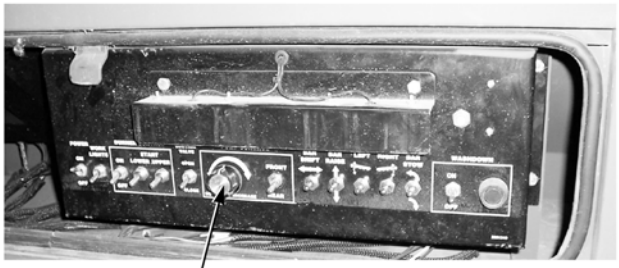
(5) Set up system to circulate in tank using rear control panel, (Para 2-16). Do not open suction valve.

(6) Adjust asphalt pump speed using rear control panel PUMP CONTROL, (Para 2-1). Check if asphalt pump turns.

(a) If asphalt pump does not operate, go to “Asphalt Pump Does Not Turn Or Turns Slowly”, (Fault 14).

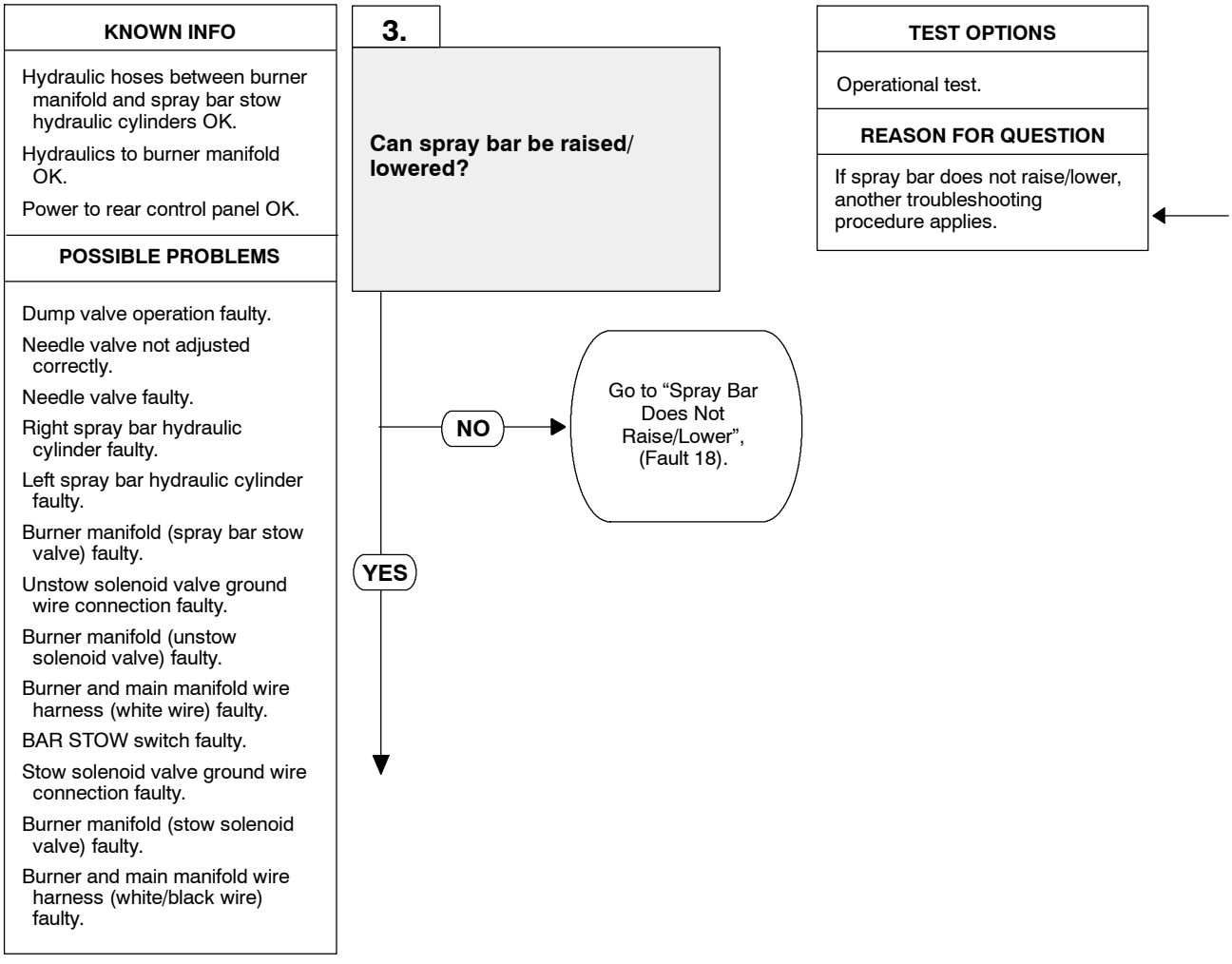
(b) If asphalt pump operates, go to Step 3 of this Fault.

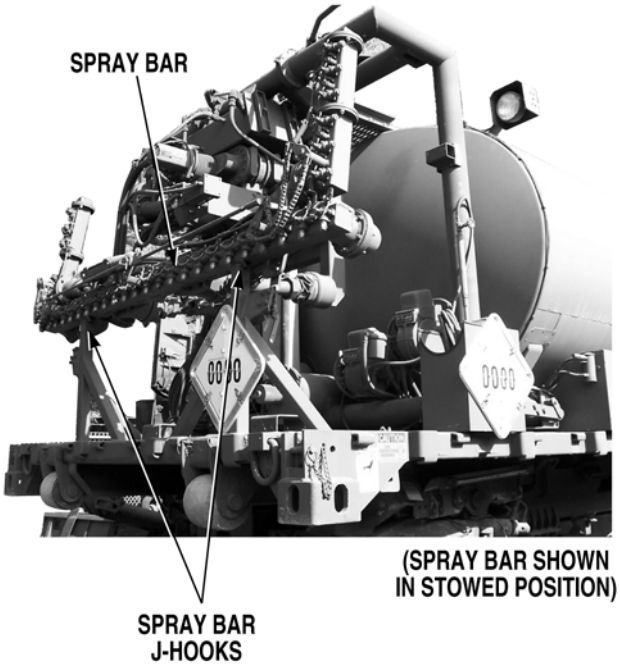




PUMP CONTROL

20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).





(SPRAY BAR SHOWN IN STOWED POSITION)

OPERATIONAL TEST

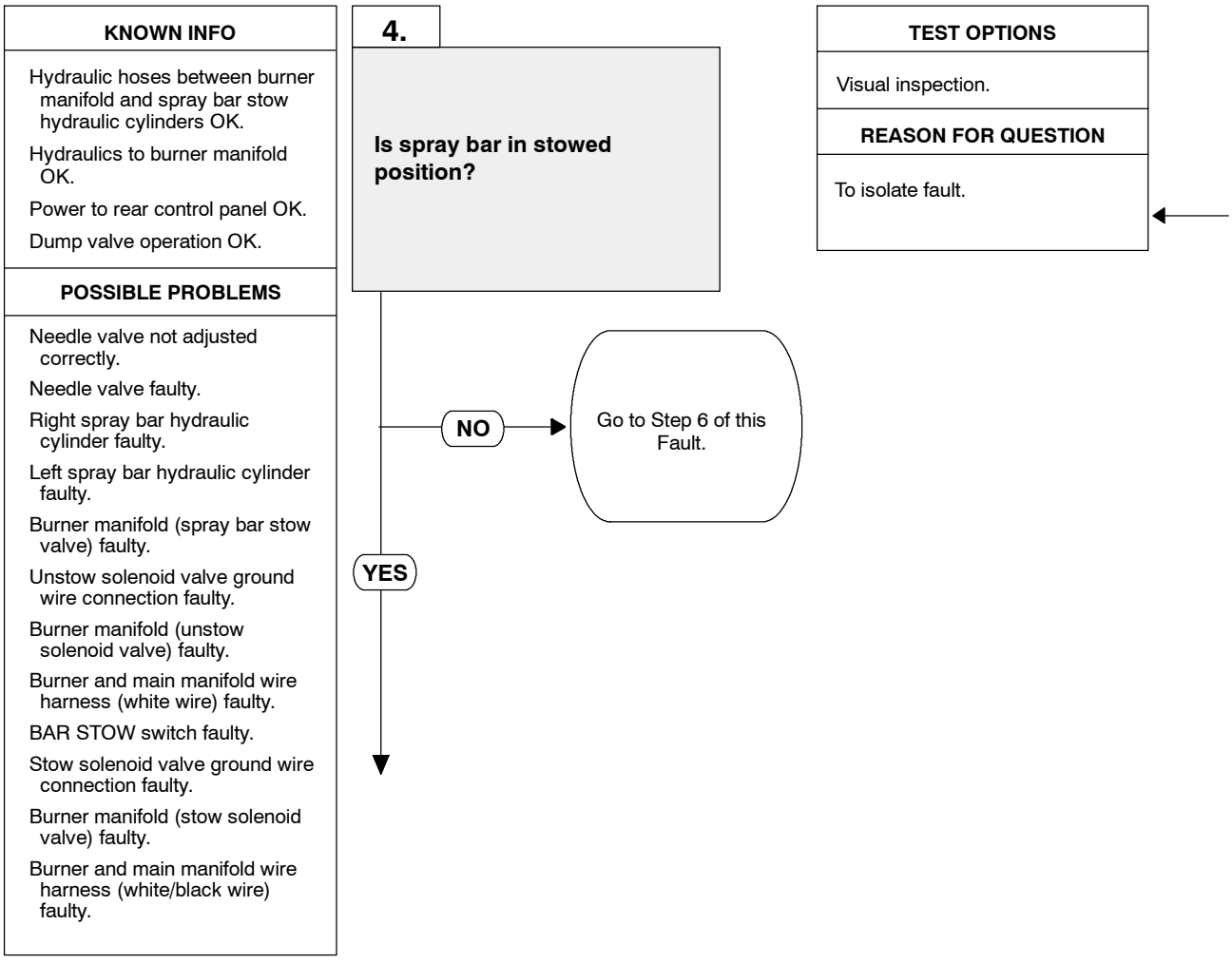
(1) If spray bar is latched in stow position, release spray bar J-hooks, (Para 2-17).

(2) Operate spray bar raise/lower function, (Para 2-17). Check if spray bar raises and lowers.

  (a) If spray bar does not raise/lower, go to “Spray Bar Does Not Raise/Lower”, (Fault 18).

  (b) If spray bar raises and lowers, go to Step 4 of this Fault.

20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).

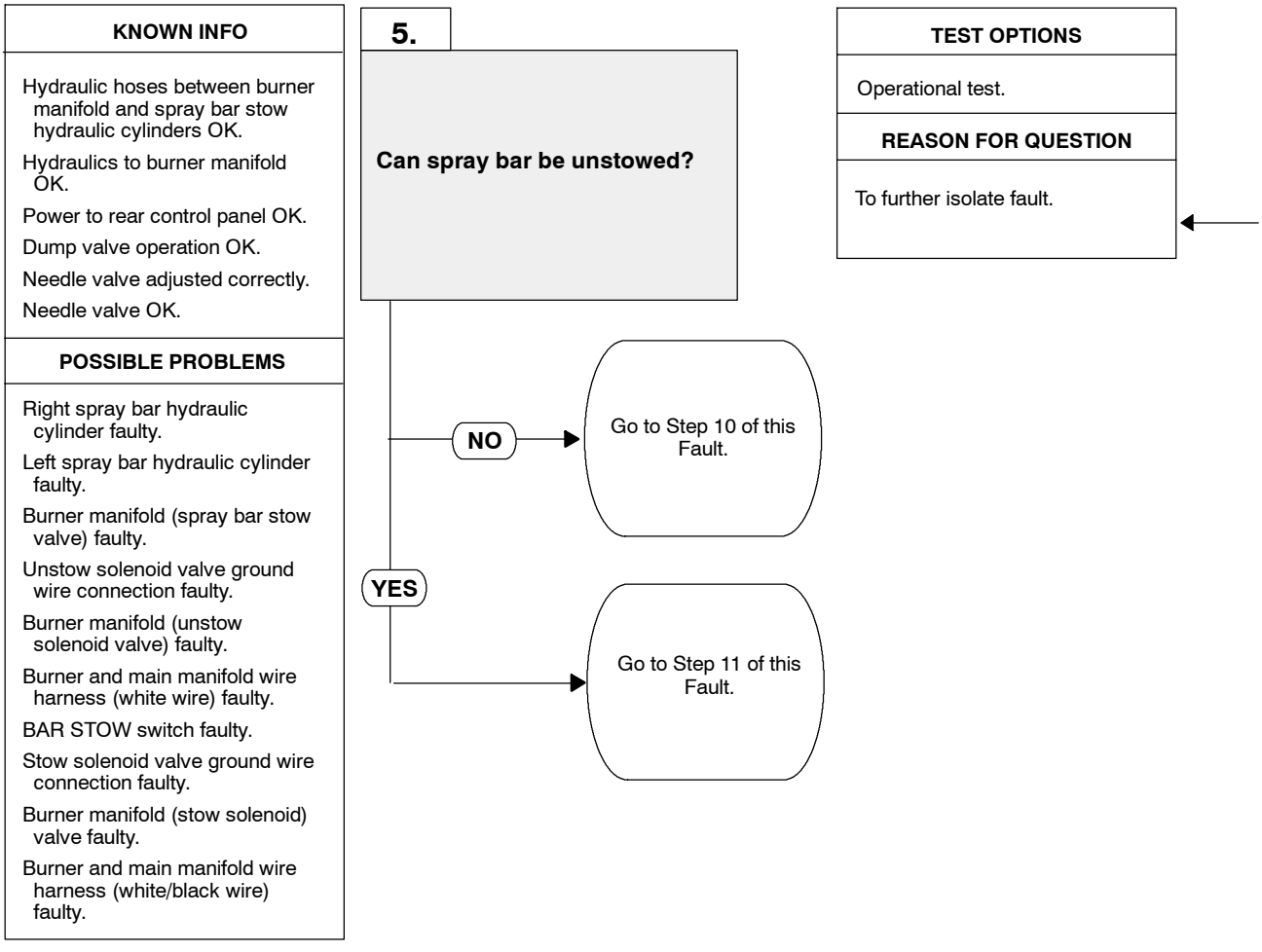


VISUAL INSPECTION
Check if spray bar is in stowed position. (a) If spray bar is not in the stowed position, go to Step 6 of this Fault. (b) If spray bar is in stowed position, go to Step 5 of this Fault.



SPRAY BAR
STOWED POSITION

20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).





(SPRAY BAR SHOWN IN STOWED POSITION)

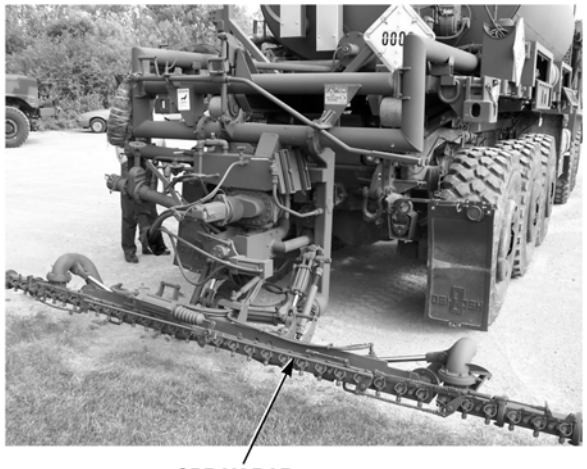
OPERATIONAL TEST

(1) If spray bar is resting on stowage support brackets, operate raise function to raise spray bar off support bracket, (Para 2-17).

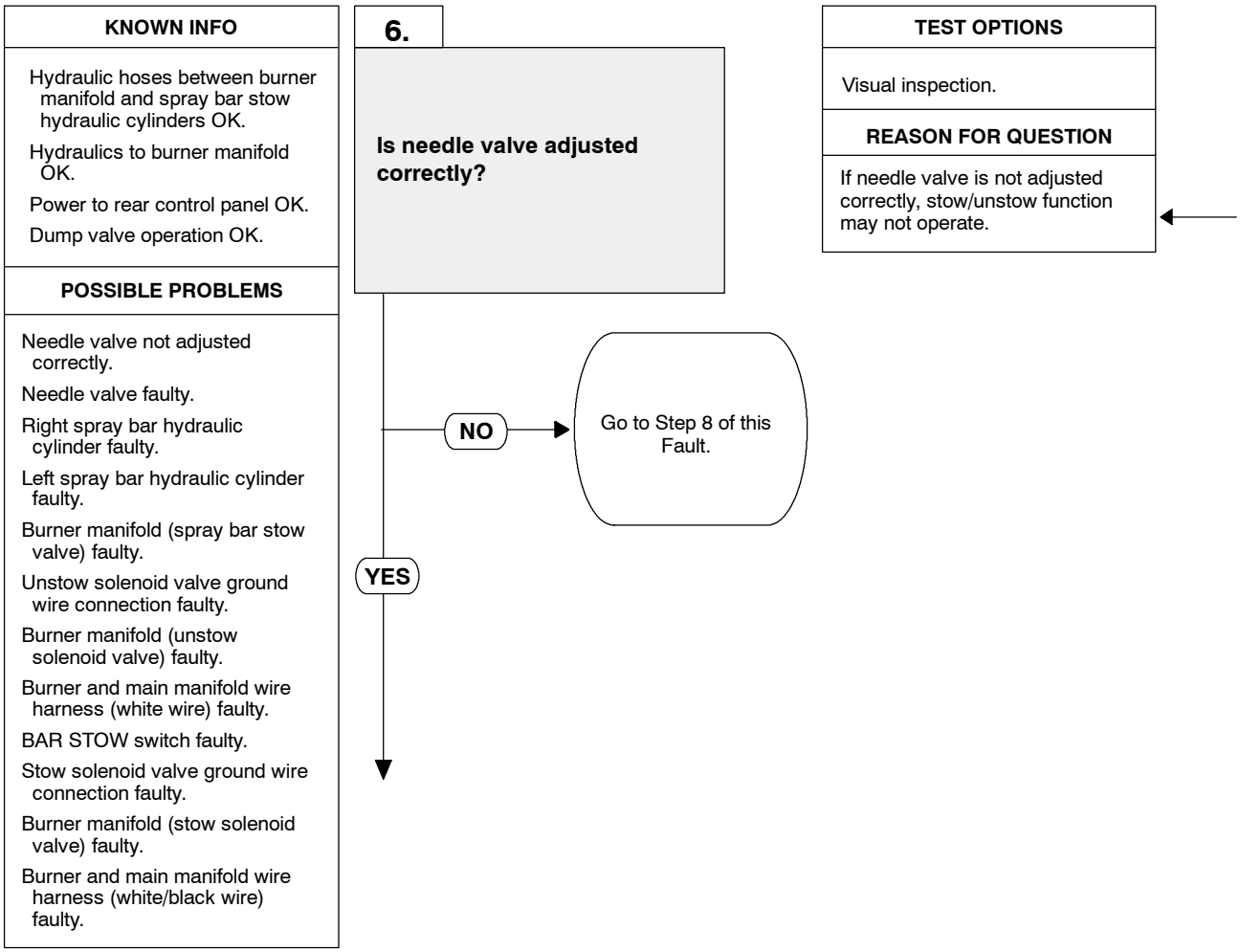
(2) Operate spray bar unstow function, (Para 2-17). Check if spray bar unstows.

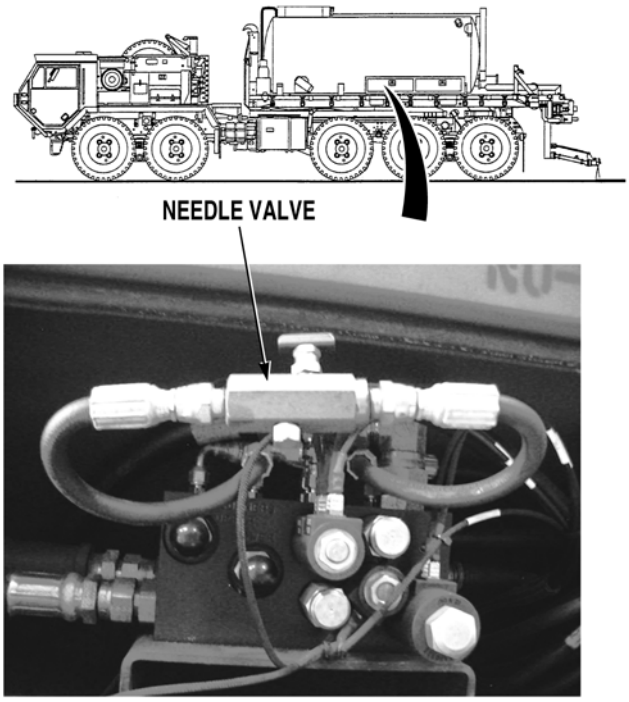
  (a) If spray bar does not unstow, go to Step 10 of this Fault.

  (b) If spray bar unstows, go to Step 11 of this Fault.



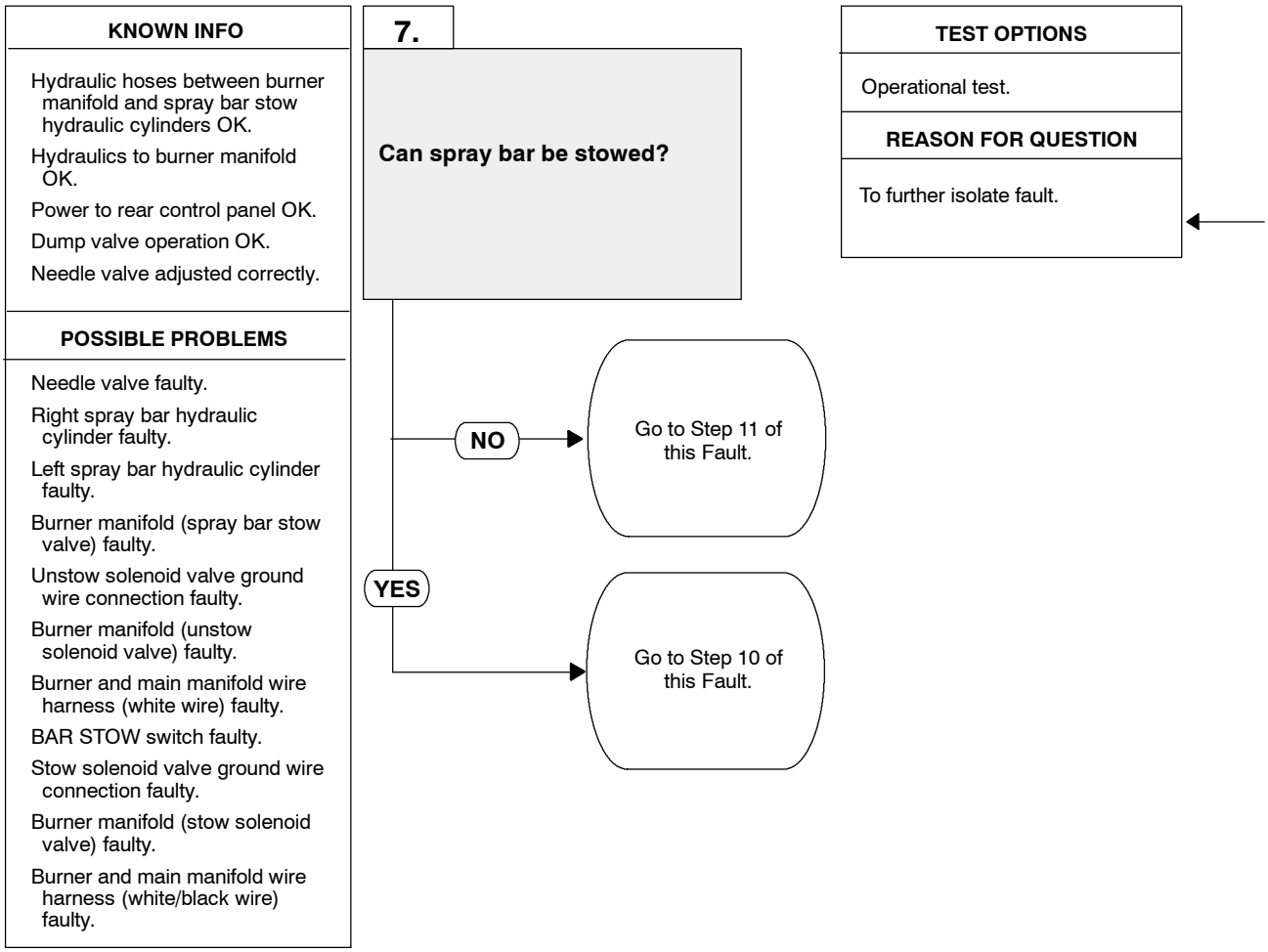
20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).





VISUAL INSPECTION
Check if needle valve is adjusted correctly, (Para 3-16). (a) If needle valve is not adjusted correctly, go to Step 8 of this Fault. (b) If needle valve is adjusted correctly, go to Step 7 of this Fault.

20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).

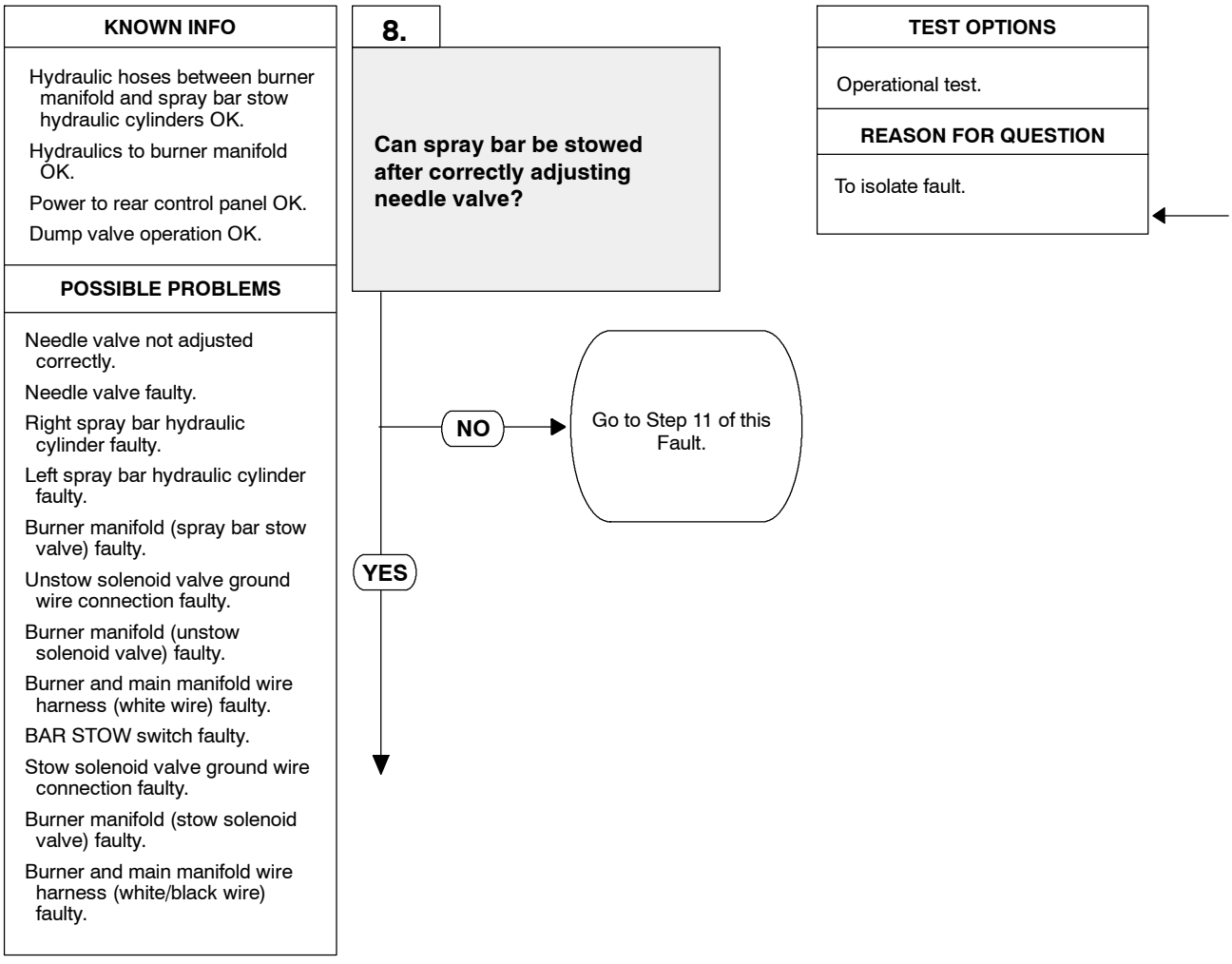


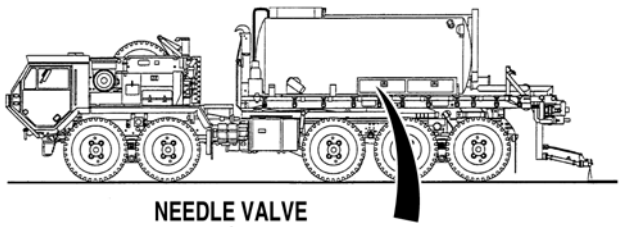
OPERATIONAL TEST
Operate spray bar stow function, (Para 2-17). Check if spray bar stows. (a) If spray bar does not stow, go to Step 11 of this Fault. (b) If spray bar stows, go to Step 10 of this Fault.

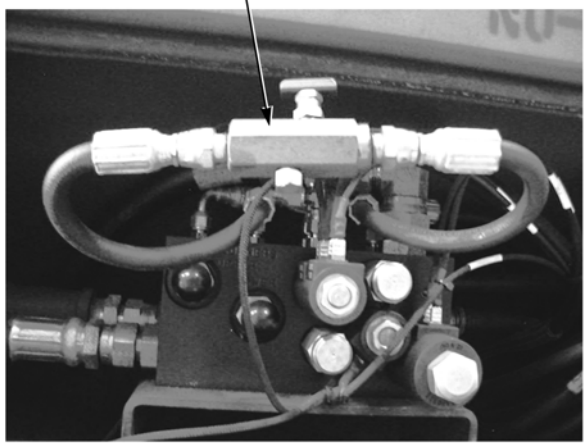


SPRAY BAR
STOWED POSITION

20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).



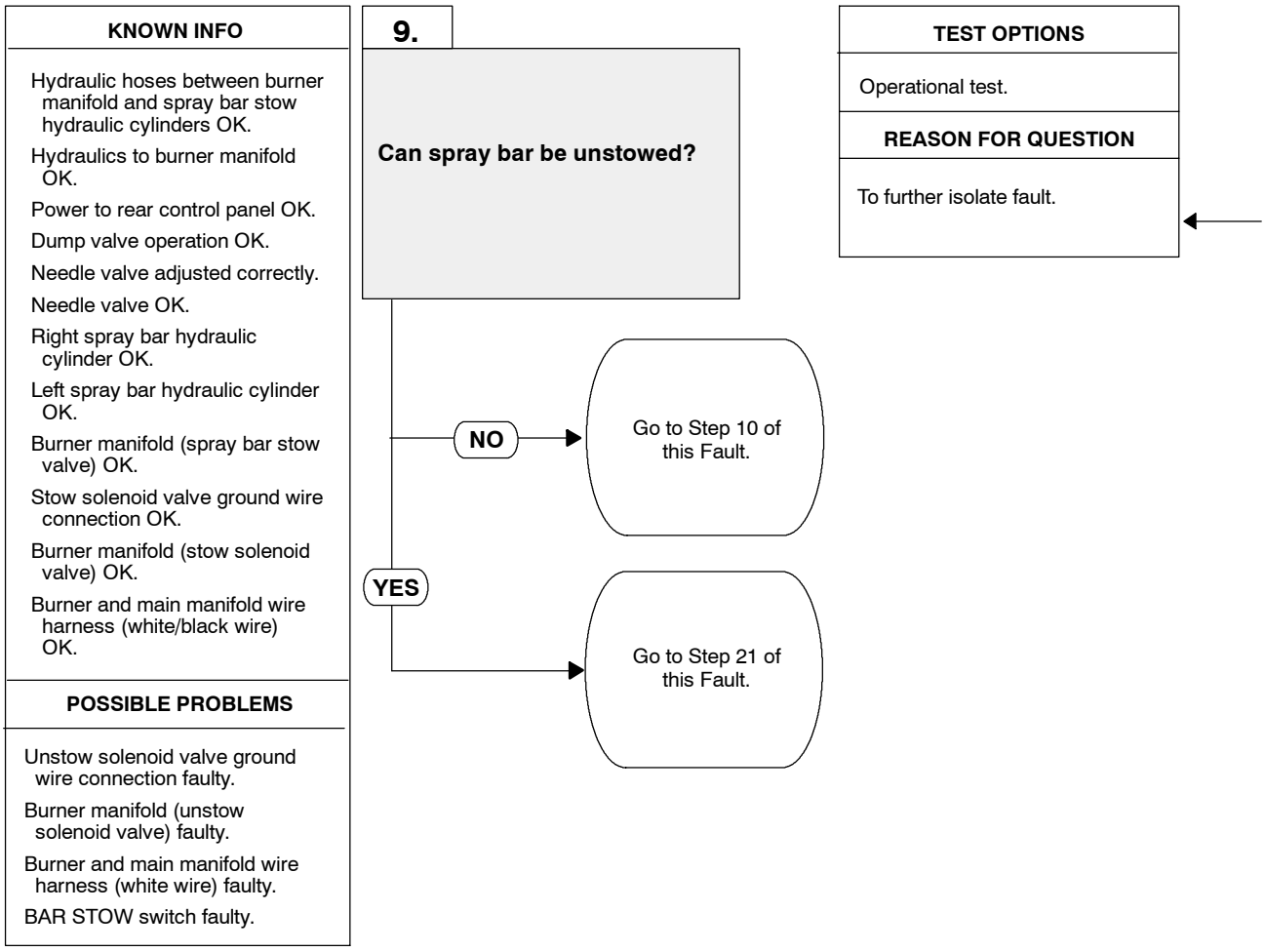


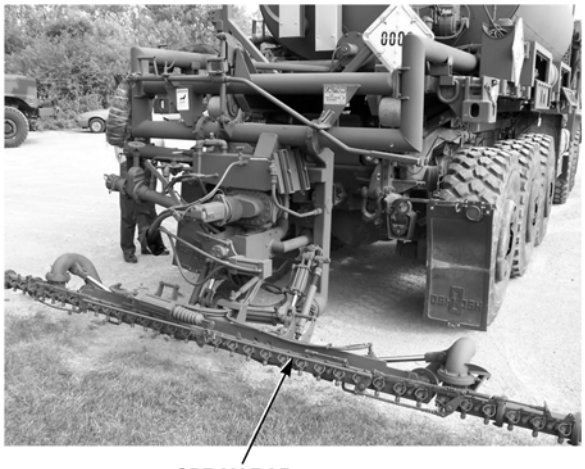


OPERATIONAL TEST
(1) Correctly adjust needle valve, (Para 3-16). (2) Operate spray bar stow function, (Para 2-17). Check if spray bar stows. (a) If spray bar does not stow, go to Step 11 of this Fault. (b) If spray bar stows, go to Step 9 of this Fault.



20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).

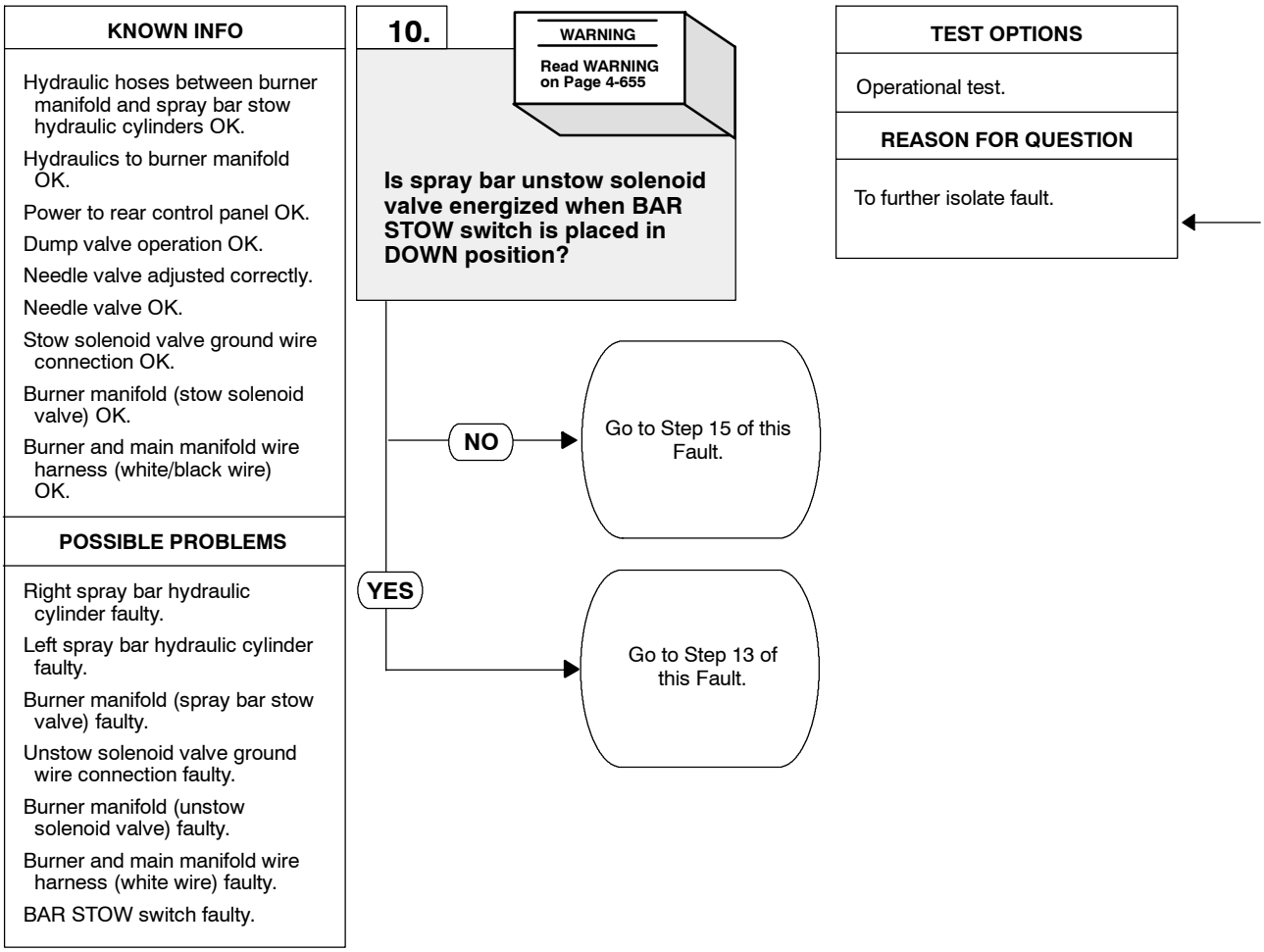




SPRAY BAR
UNSTOWED POSITION

OPERATIONAL TEST
Operate spray bar unstow function, (Para 2-17). Check if spray bar unstows. (a) If spray bar does not unstow, go to Step 10 of this Fault. (b) If spray bar unstows, go to Step 21 of this Fault.

20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

OPERATIONAL TEST

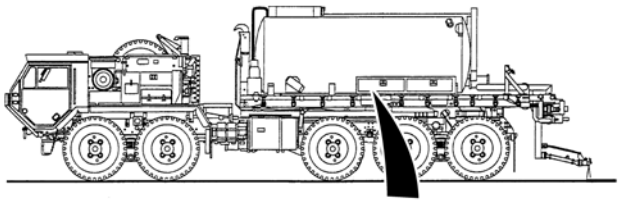
NOTE

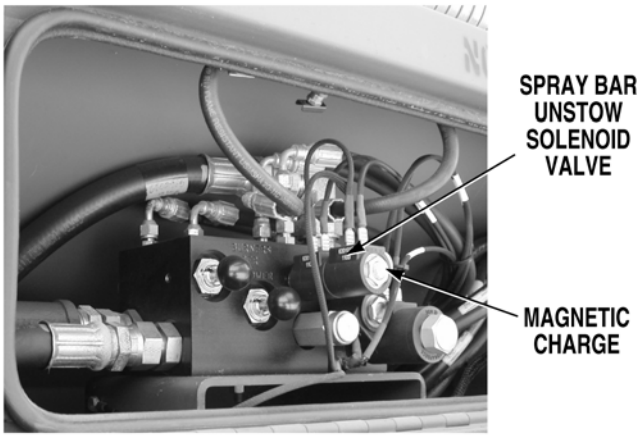
Solenoid valve is checked by checking for a magnetic charge.

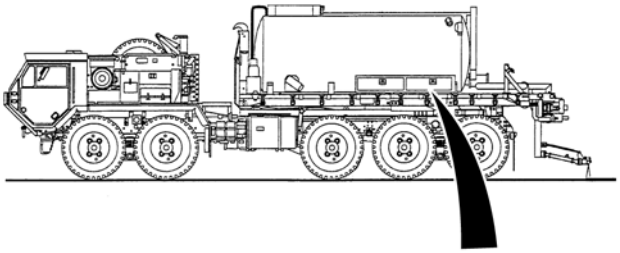
While an assistant positions BAR STOW switch in DOWN position, (Para 2-1), check if unstow solenoid valve energizes by placing a metal object at end of spray bar stow/unstow solenoid valves.

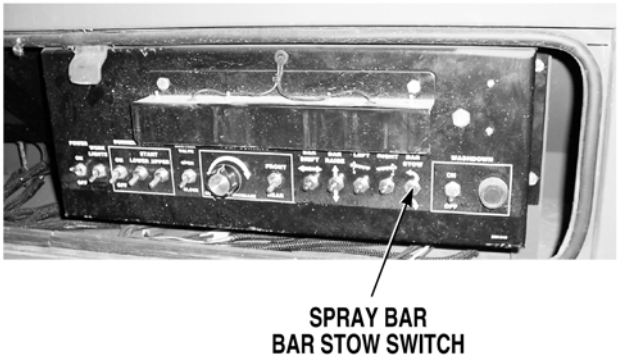
(a) If spray bar unstow solenoid valve is not energized (magnetized), go to Step 15 of this Fault.

(b) If spray bar unstow solenoid valve is energized (magnetized), go to Step 13 of this Fault.

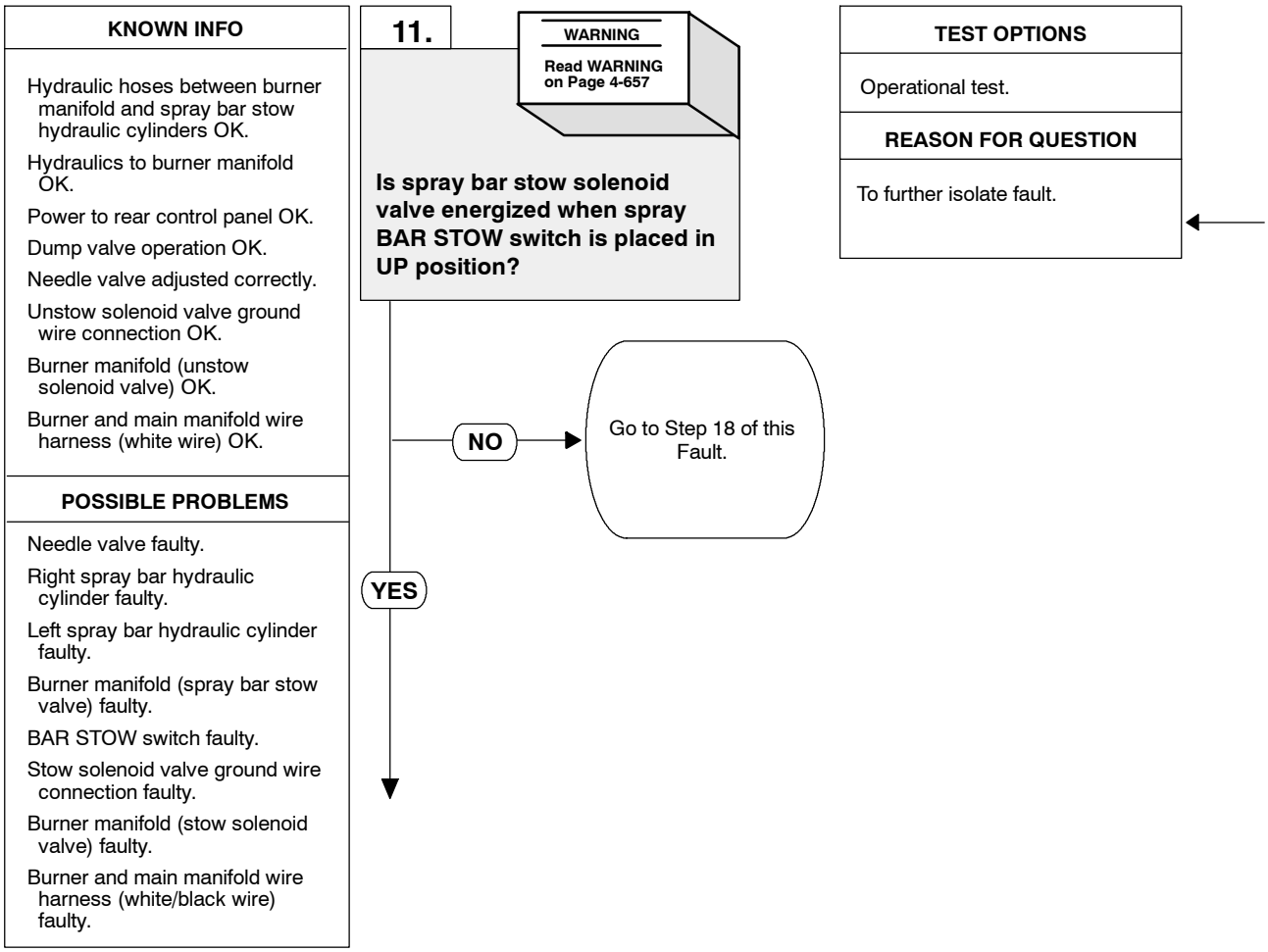






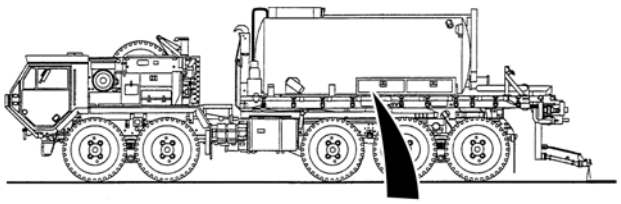


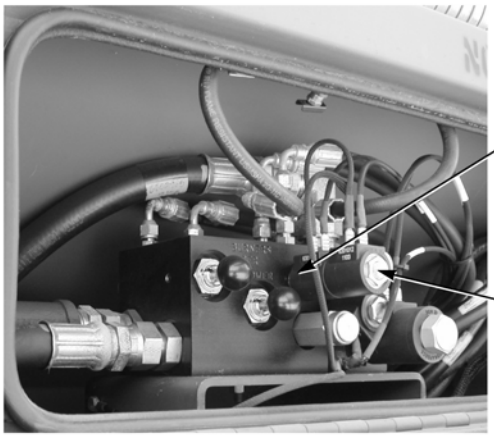
20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.





OPERATIONAL TEST

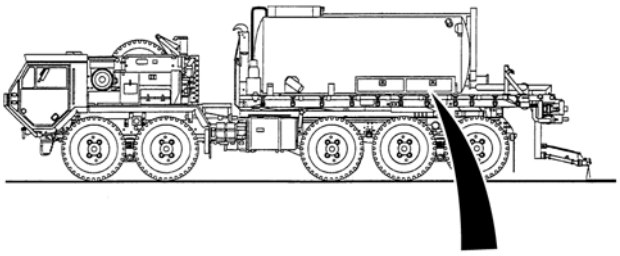
NOTE

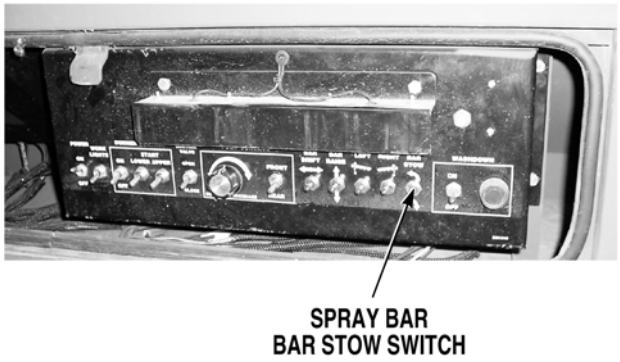
Solenoid valve is checked by checking for a magnetic charge.

While an assistant positions BAR STOW switch is UP position, (Para 2-1), check if stow solenoid valve energizes by placing a metal object at end of spray bar stow/unstow solenoid valves.

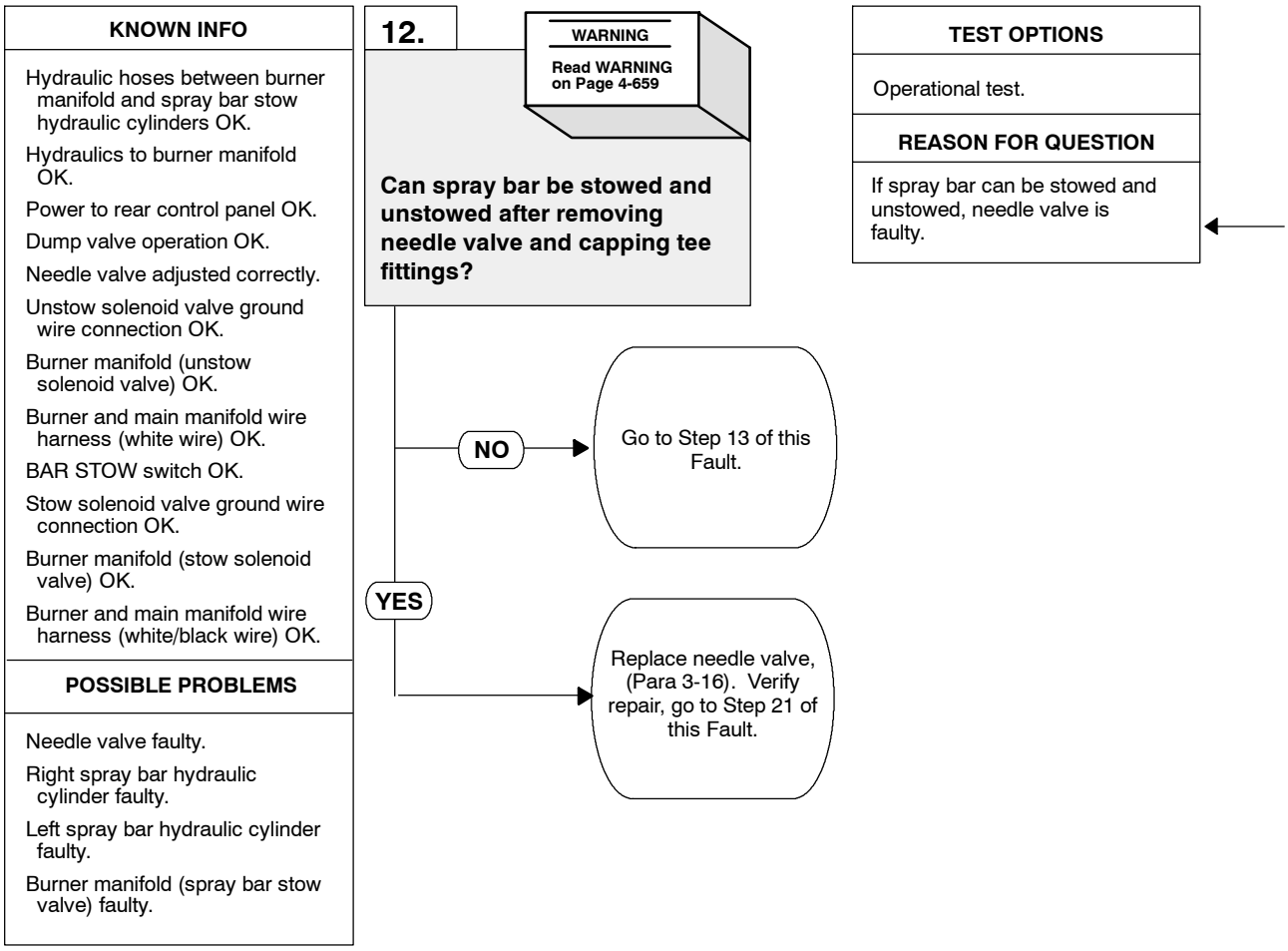
(a) If spray bar stow solenoid valve is not energized (magnetized), go to Step 18 of this Fault.

(b) If spray bar stow solenoid valve is energized (magnetized), go to Step 12 of this Fault.





20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).



WARNING

Hydraulic system can reach 3,675 psi (25,339 kPa). Never connect/disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply could cause serious injury or death to personnel.

OPERATIONAL TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Turn front control panel POWER switch OFF, (Para 2-1).

(3) Turn rear control panel POWER switch OFF, (Para 2-1).

(4) Remove needle valve, (Para 3-16) and cap tee fittings.

(5) Start engine, (TM 9-2320-364-10).

(6) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(7) Turn front control panel POWER switch ON, (Para 2-1).

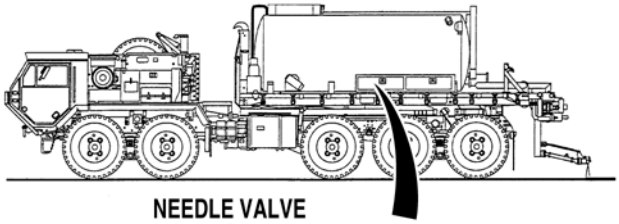
(8) Turn rear control panel POWER switch ON, (Para 2-1).

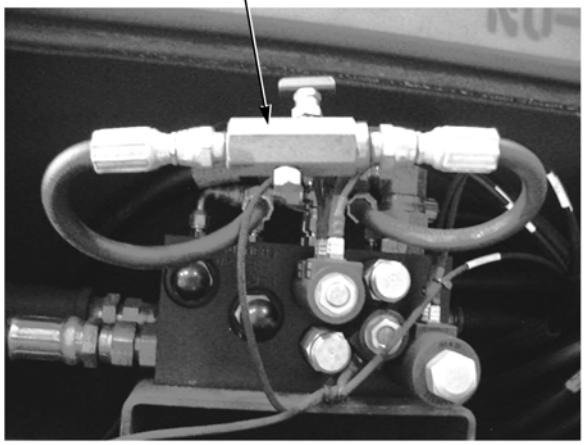
(9) Operate spray bar stow/unstow function, (Para 2-17).

(a) If spray bar stow/unstow function, does not operate, shut OFF engine, reinstall needle valve, (Para 3-16) and go to Step 13 of this Fault.

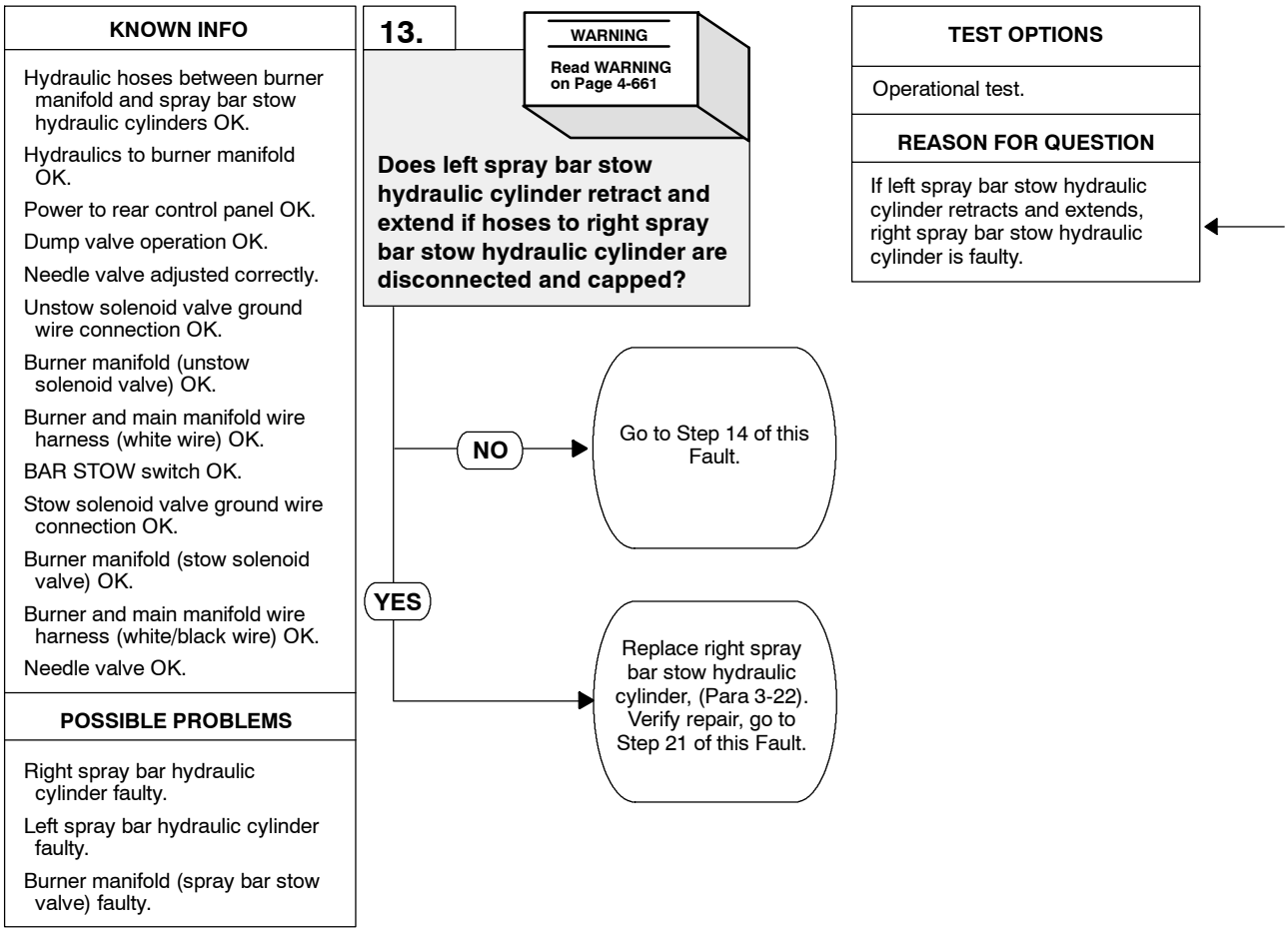
(b) If spray bar stow/unstow function operates, shut OFF engine and replace needle valve, (Para 3-16). Verify repair, go to Step 21 of this Fault.







20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).



WARNING

- Hydraulic system can reach 3,675 psi (25,339 kPa). Never connect/disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply could cause serious injury or death to personnel.
- Use suitable lifting device to support spray bar when spray bar is lowered to unstow position for this step. Failure to comply could cause damage to equipment or injury to personnel.

OPERATIONAL TEST

(1) If on, shut OFF engine, (TM 9-2320-364-10).

(2) Turn front control panel POWER switch OFF, (Para 2-1).

(3) Turn rear control panel POWER switch OFF, (Para 2-1).

(4) Use suitable lifting device to support spray bar assembly before disconnecting spray bar stow hydraulic cylinders.

(5) Disconnect spray bar stow hydraulic cylinders rod ends, from connecting bracket at spray bar assembly.

(6) Using a suitable lifting device, lower spray bar assembly to unstowed position.

(7) Disconnect right spray bar stow hydraulic cylinder hoses, at left spray bar stow hydraulic cylinder, (Para 3-22). Cap all fittings

(8) Start engine, (TM 9-2320-364-10).

(9) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

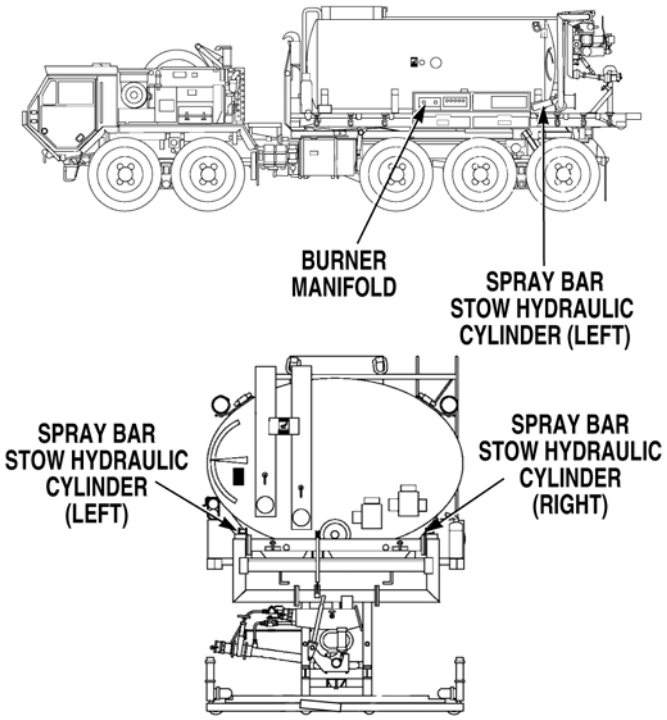
(10) Turn front control panel POWER switch ON, (Para 2-1).

(11) Turn rear control panel POWER switch ON, (Para 2-1).

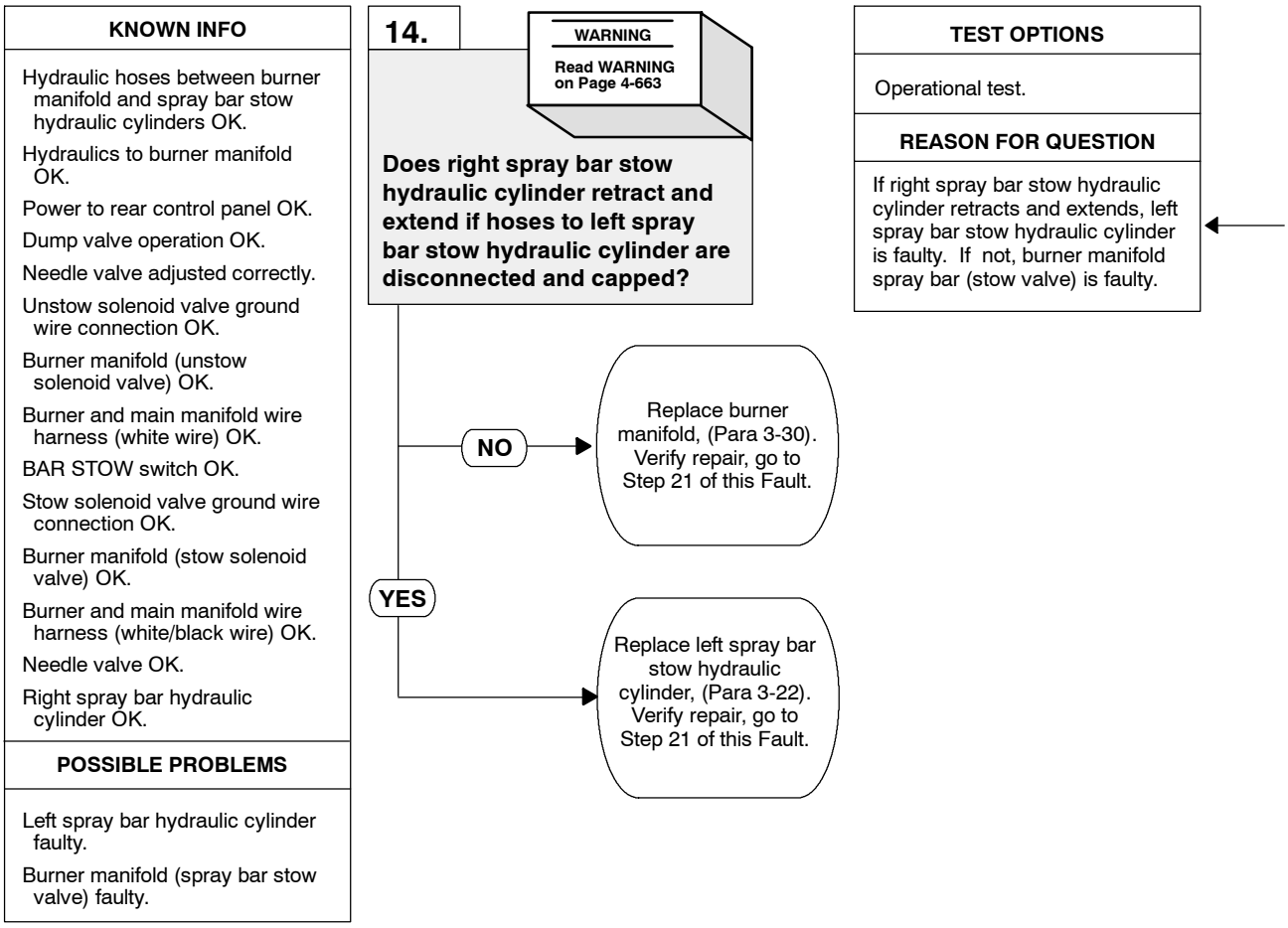
(12) Operate spray bar stow/unstow function, (Para 2-17). Check if left spray bar stow hydraulic cylinder retracts and extends.

(a) If hydraulic cylinder does not retract and extend, go to Step 14 of this Fault.

(b) If hydraulic cylinder retracts and extends, replace right spray bar stow hydraulic cylinder, (Para 3-22). Verify repair, go to Step 21 of this Fault.



20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).



WARNING

- Hydraulic system can reach 3,675 psi (25,339 kPa). Never connect/disconnect any hydraulic line or fitting without first dropping pressure to zero. Failure to comply could cause serious injury or death to personnel.
- Use suitable lifting device to support spray bar when spray bar is lowered to unstow position for this step. Failure to comply could cause damage to equipment or injury to personnel.

OPERATIONAL TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Turn front control panel POWER switch OFF, (Para 2-1).

(3) Turn rear control panel POWER switch OFF, (Para 2-1).

(4) Connect right spray bar stow hydraulic cylinder hoses, (Para 3-22).

(5) Disconnect left spray bar stow hydraulic cylinder hoses, (Para 3-22). Cap all fittings.

(6) Start engine, (TM 9-2320-364-10).

(7) Turn hydraulic select switch to CRANE/SW, (TM 9-2320-364-10).

(8) Turn front control panel POWER switch ON, (Para 2-1).

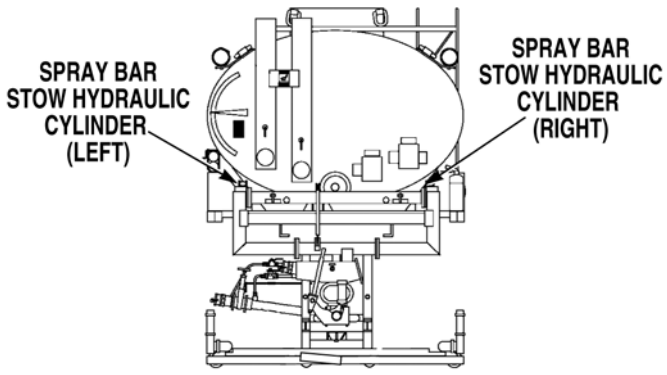
(9) Turn rear control panel POWER switch ON, (Para 2-1).

(10) Operate spray bar stow/unstow function, (Para 2-17). Check if right spray bar stow hydraulic cylinder retracts and extends.

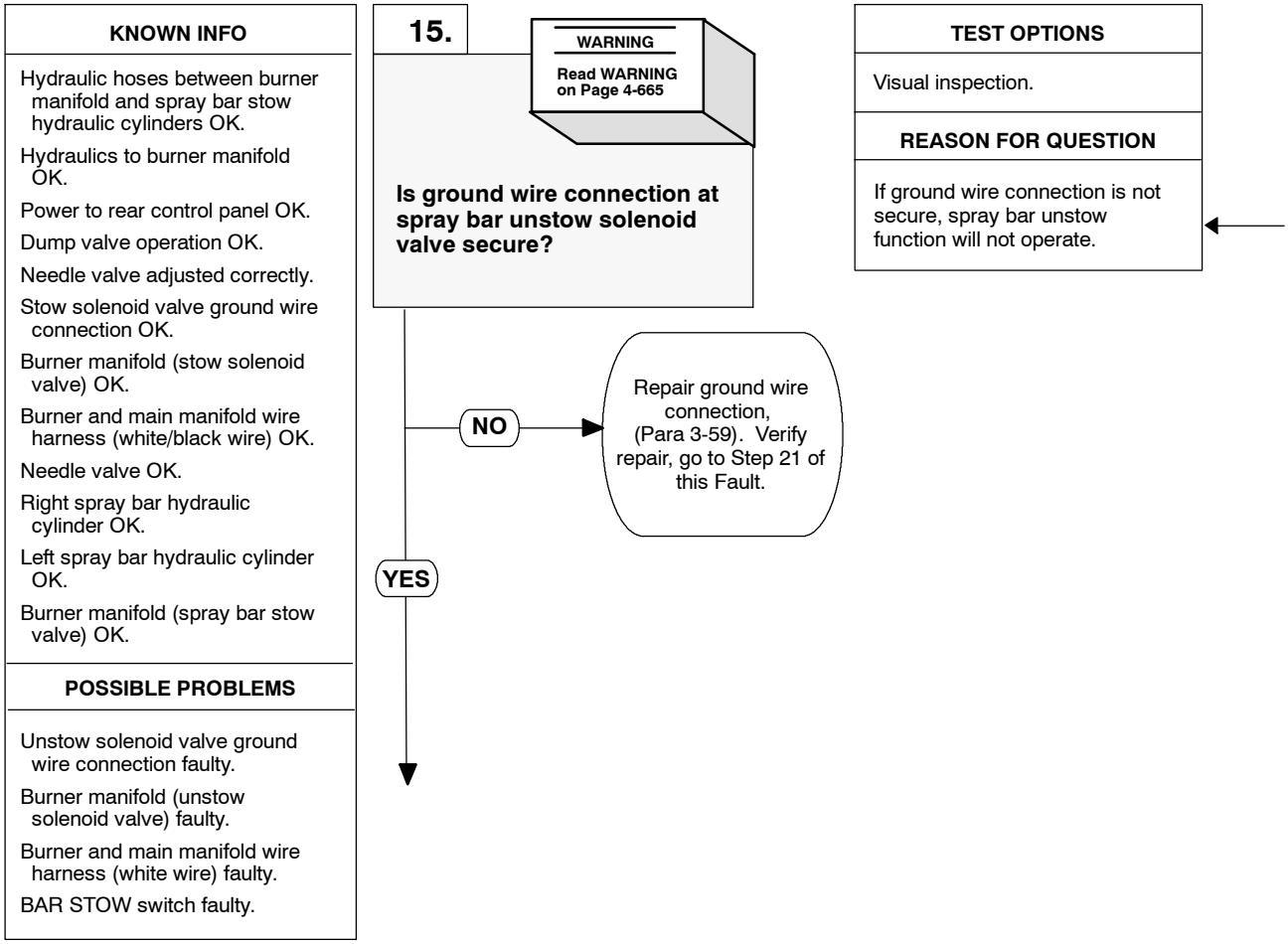
(a) If hydraulic cylinder does not retract and extend, replace burner manifold (stow/unstow solenoid valve), (Para 3-30).

(b) If hydraulic cylinder retracts and extends, replace left spray bar stow hydraulic cylinder, (Para 3-22).

(11) Verify repair, go to Step 21 of this Fault.

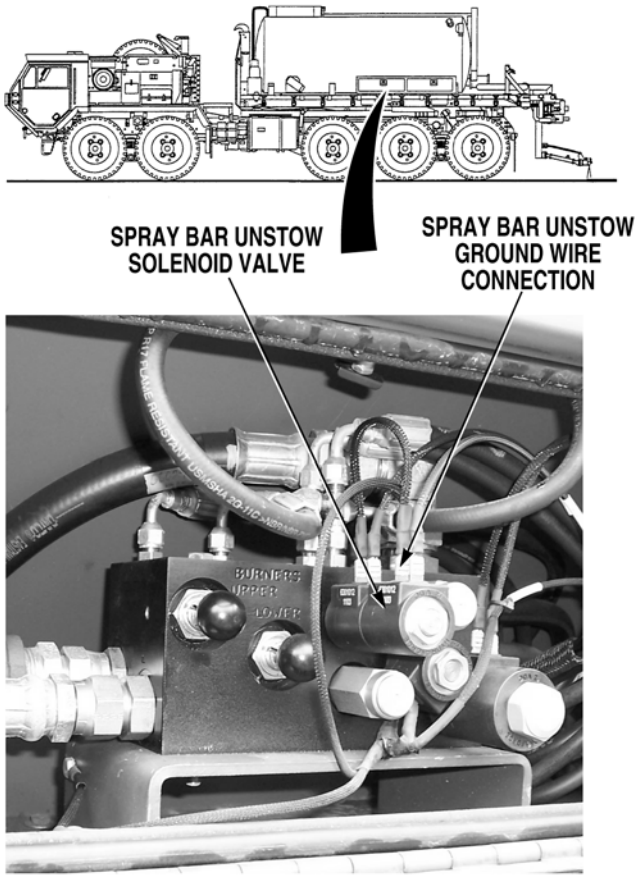


20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.



VISUAL INSPECTION

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Turn front control panel POWER switch OFF, (Para 2-1).

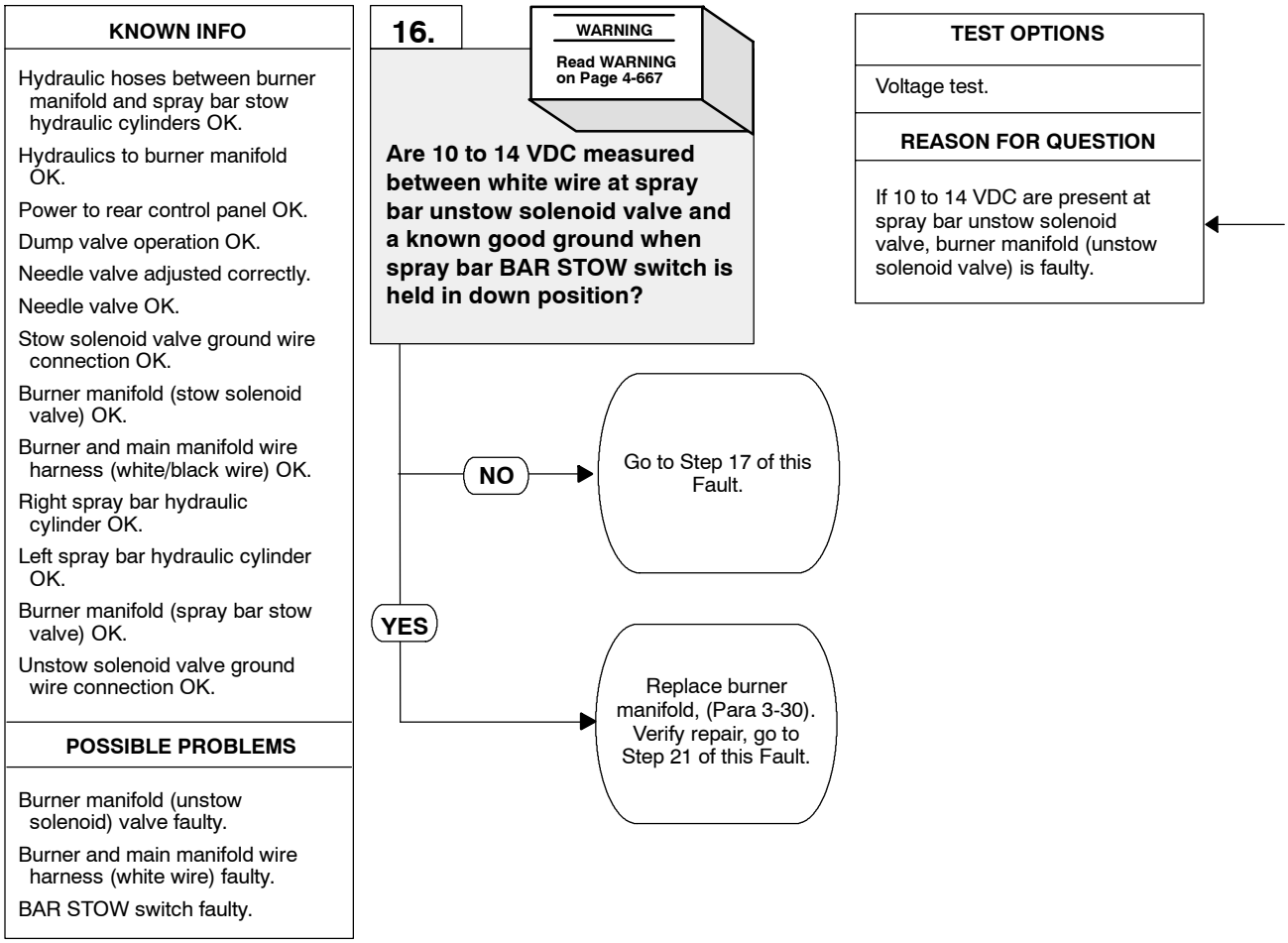
(3) Turn rear control panel POWER switch OFF, (Para 2-1).

(4) Check if ground wire connection at spray bar unstow solenoid valve is secure.

(a) If ground wire is not secure, repair ground wire connection, (Para 3-59). Verify repair, go to Step 21 of this Fault.

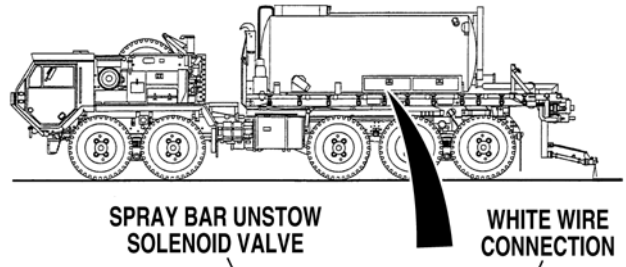
(b) If ground wire connection is secure, go to Step 16 of this Fault.

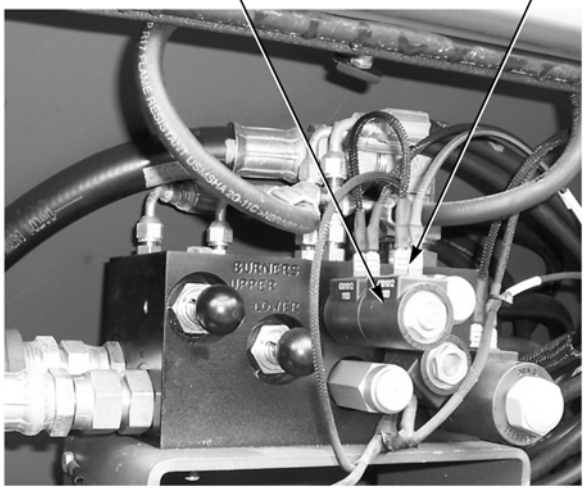
20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.





VOLTAGE TEST

(1) Turn front control panel POWER switch ON, (Para 2-1).

(2) Turn rear control panel POWER switch ON, (Para 2-1).

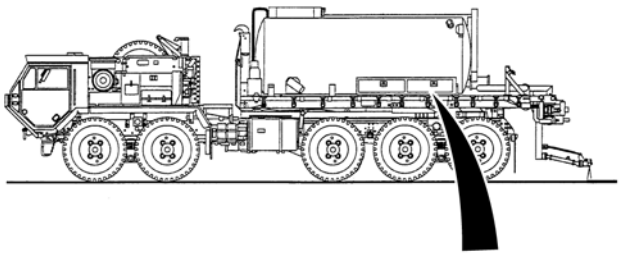
(3) Connect positive (+) multimeter lead to white wire at spray bar, unstow solenoid valve.

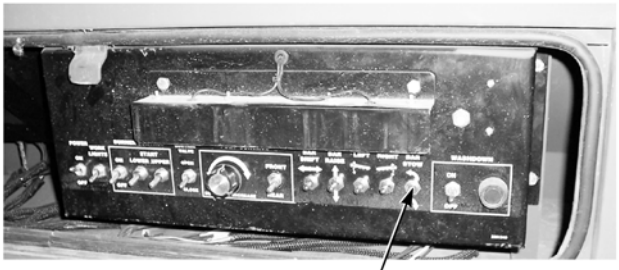
(4) Connect negative (-) multimeter lead to a known good ground.

(5) While and assistant places and holds the spray bar BAR STOW switch in the down position, note meter reading.

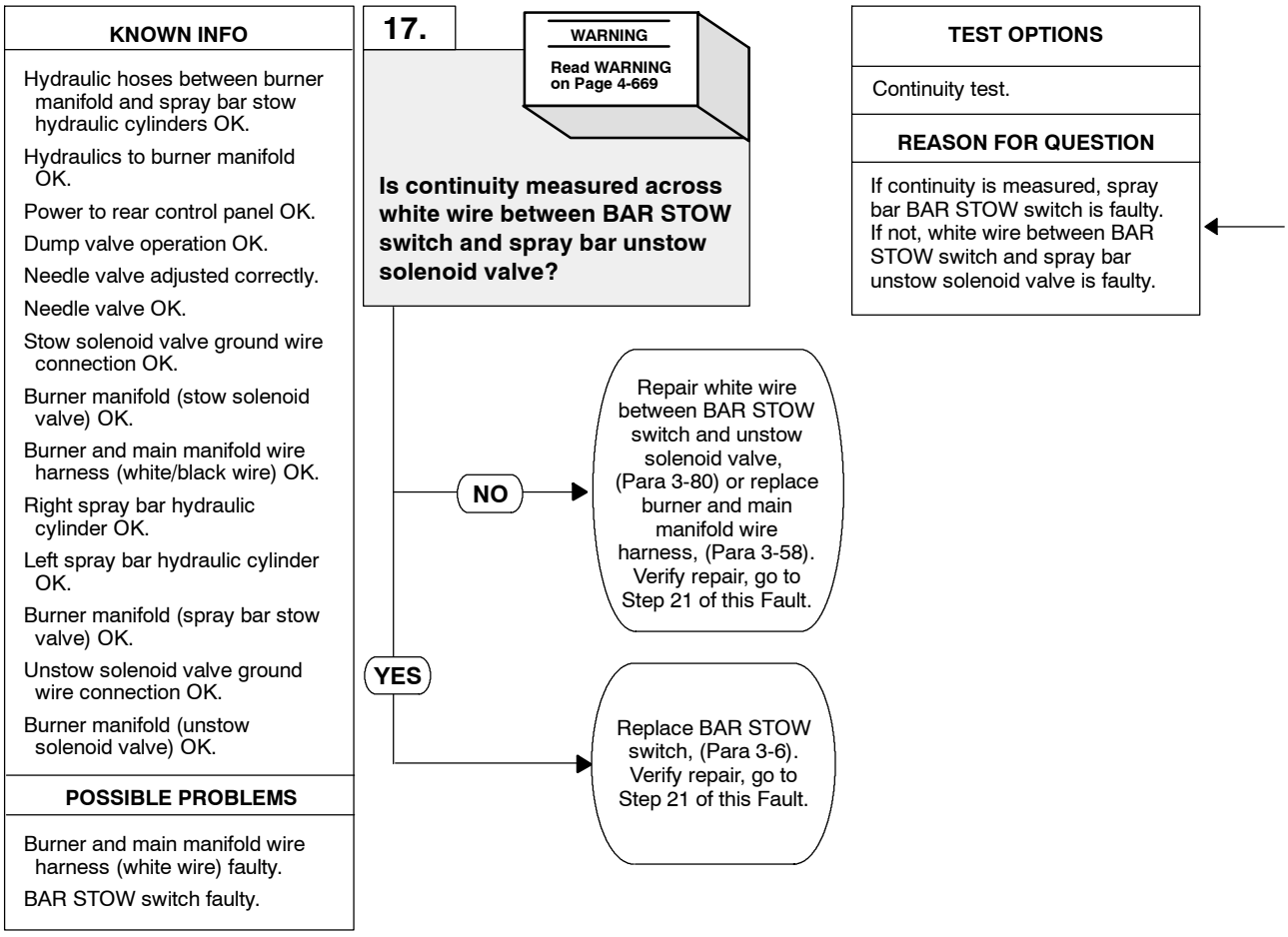
(a) If 10 to 14 VDC are not present, go to Step 17 of this Fault.

(b) If 10 to 14 VDC are present, replace burner manifold unstow solenoid valve, (Para 3-30). Verify repair, go to Step 21 of this Fault.





20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Turn front control panel POWER switch OFF, (Para 2-1).

(2) Turn rear control panel POWER switch OFF, (Para 2-1).

(3) Pull out battery disconnect switch, (TM 9-2320-364-10).

(4) Remove rear control panel, (Para 3-76).

(5) Set multimeter select switch to ohms.

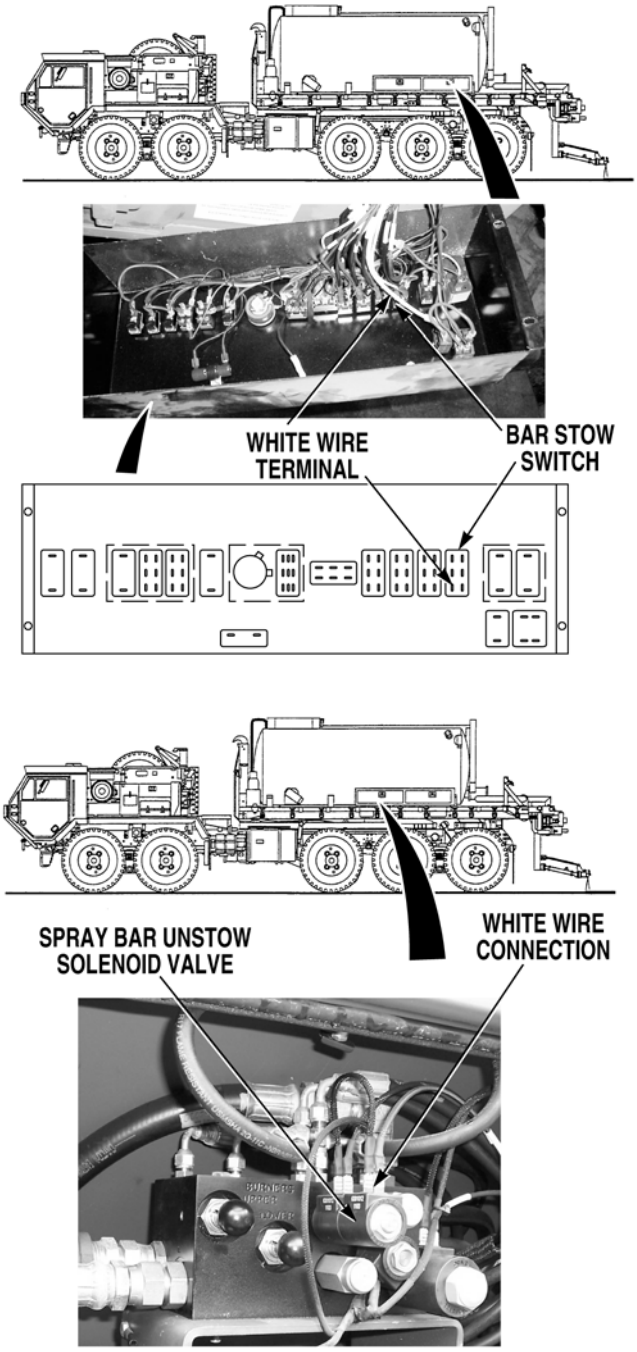
(6) Connect positive (+) multimeter lead to white wire at spray bar unstow solenoid valve.

(7) Connect negative (-) multimeter lead to white wire at BAR STOW switch.

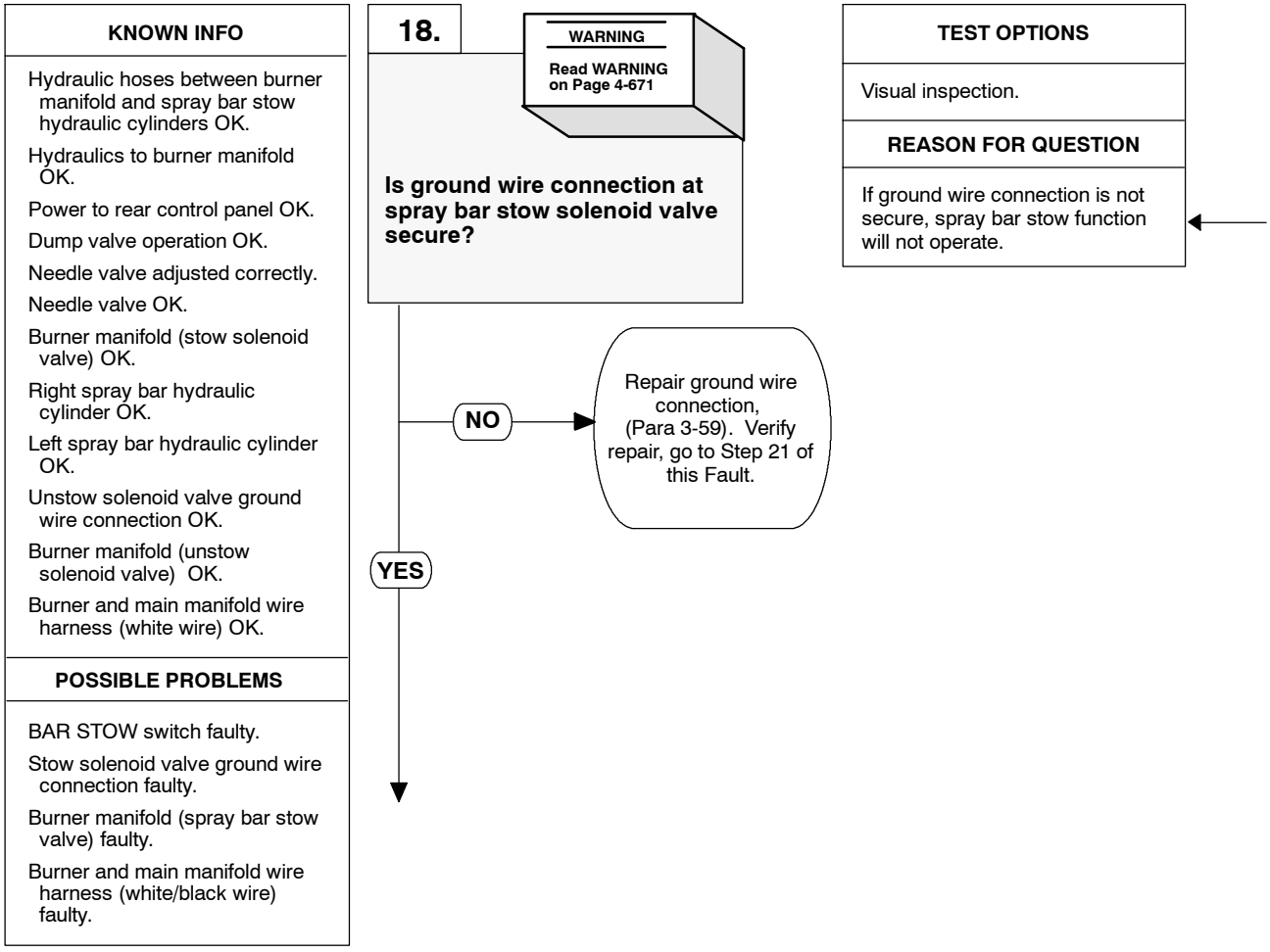
  (a) If continuity is not measured, repair white wire between BAR STOW switch and unstow solenoid valve, (Para 3-80) or replace burner and main manifold wire harness, (Para 3-58).

  (b) If continuity is measured, replace BAR STOW switch, (Para 3-6).

(8) Verify repair, go to Step 21 of this Fault.

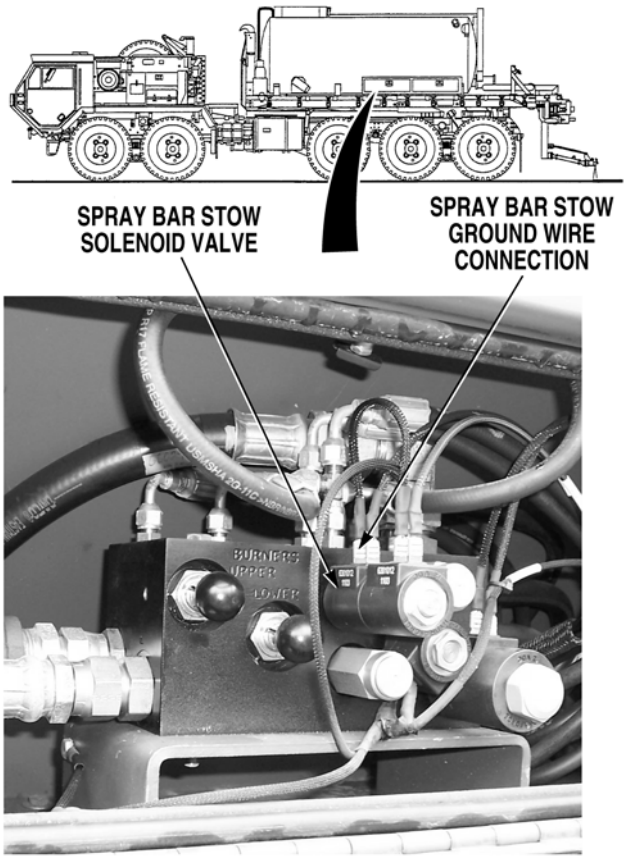


20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.



VISUAL INSPECTION

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Turn front control panel POWER switch OFF, (Para 2-1).

(4) Turn rear control panel POWER switch OFF, (Para 2-1).

(5) Check if ground wire connection at spray bar stow solenoid valve is secure.

(a) If ground wire connection is not secure, repair ground wire connection, (Para 3-59). Verify repair, go to Step 21 of this Fault.

(b) If ground wire is secure, go to Step 19 of this Fault.

20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).

KNOWN INFO

Hydraulic hoses between burner manifold and spray bar stow hydraulic cylinders OK.

Hydraulics to burner manifold OK.

Power to rear control panel OK.

Dump valve operation OK.

Unstow solenoid valve ground wire connection OK.

Burner manifold (unstow solenoid valve) OK.

Burner and main manifold wire harness (white wire) OK.

Needle valve adjusted correctly.

Needle valve OK.

Right spray bar hydraulic cylinder OK.

Left spray bar hydraulic cylinder OK.

Burner manifold (stow solenoid valve) OK.

Stow solenoid valve ground wire connection OK.

POSSIBLE PROBLEMS

BAR STOW switch faulty.

Burner manifold (spray bar stow valve) faulty.

Burner and main manifold wire harness (white/black wire) faulty.

19.

WARNING

Read WARNING on Page 4-673

Are 10 to 14 VDC measured between white/black wire at spray bar stow solenoid valve and a known good ground when spray bar BAR STOW switch is held in up position?

NO → Go to Step 20 of this Fault.

YES → Replace burner manifold, (Para 3-30). Verify repair, go to Step 21 of this Fault.

TEST OPTIONS

Voltage test.

REASON FOR QUESTION

If 10 to 14 VDC are present, burner manifold (stow solenoid valve) is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

(1) Push in battery disconnect switch, (TM 9-2320-364-10).

(2) Turn front control panel POWER switch ON, (Para 2-1).

(3) Turn rear control panel POWER switch ON, (Para 2-1).

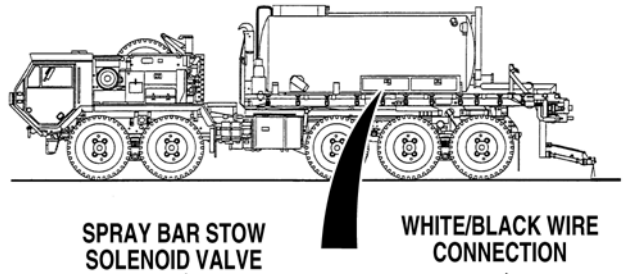
(4) Connect positive (+) multimeter lead to white/black wire at spray bar stow solenoid valve.

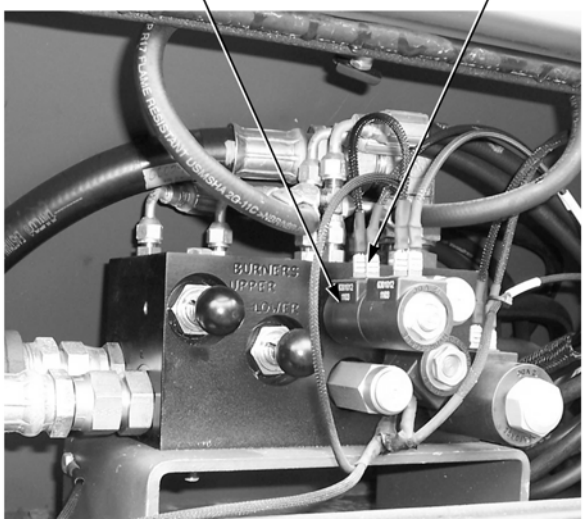
(5) Connect negative (-) multimeter lead to a known good ground.

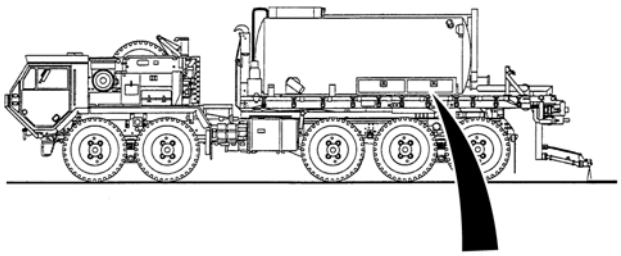
(6) While an assistant places and holds the spray bar BAR STOW switch in the up position, note meter reading.

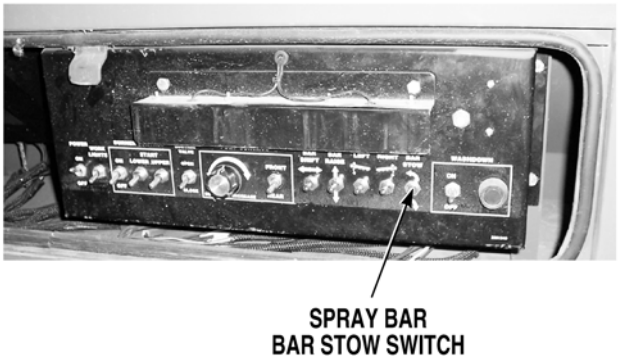
(a) If 10 to 14 VDC are not present, go to Step 20 of this Fault.

(b) If 10 to 14 VDC are present, replace burner manifold (stow solenoid valve), (Para 3-30). Verify repair, go to Step 21 of this Fault.

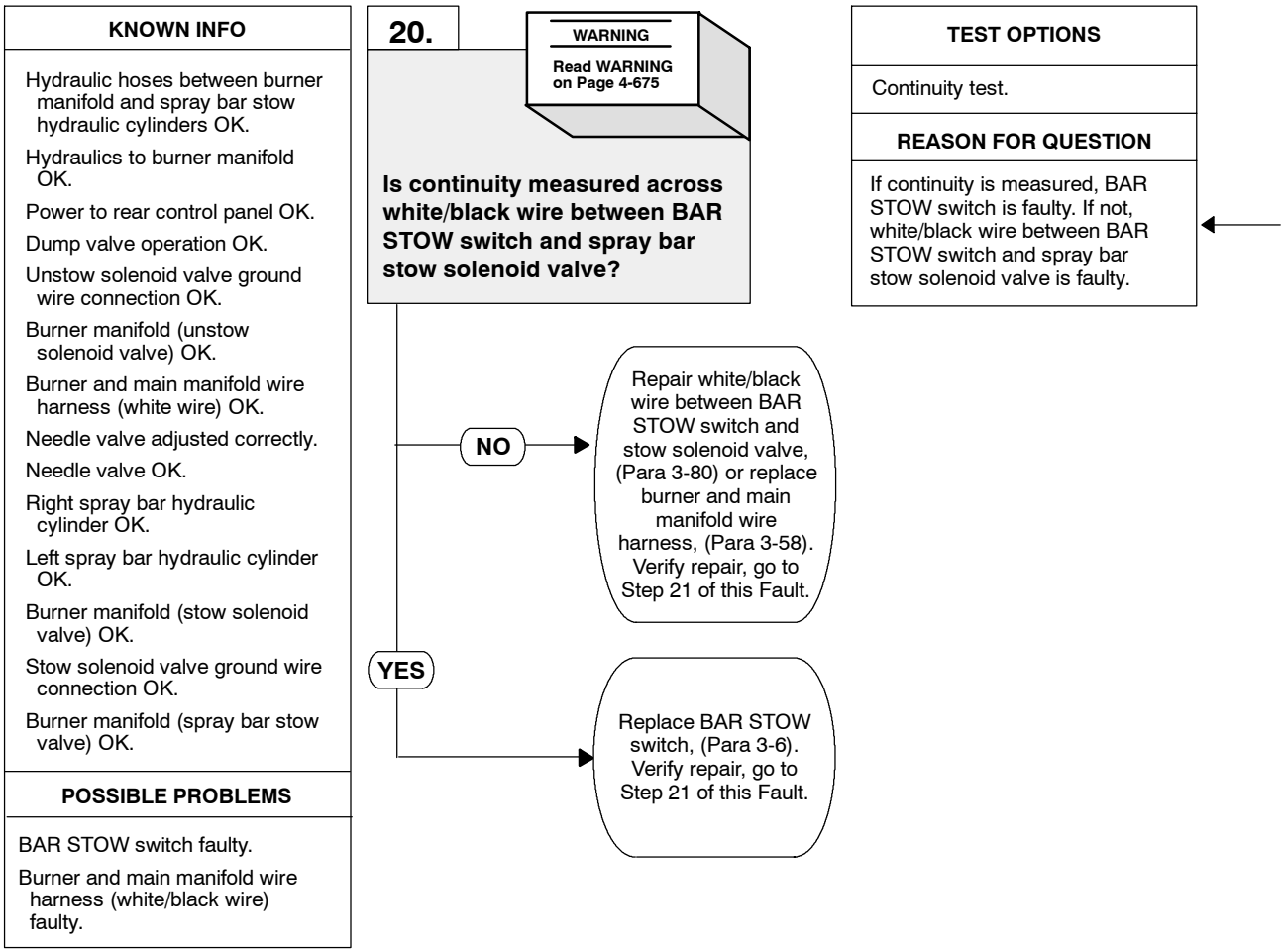








20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Turn front control panel POWER switch OFF, (Para 2-1).

(2) Turn rear control panel POWER switch OFF, (Para 2-1).

(3) Pull out battery disconnect switch, (TM 9-2320-364-10).

(4) Remove rear control panel, (Para 3-76).

(5) Set multimeter select switch to ohms.

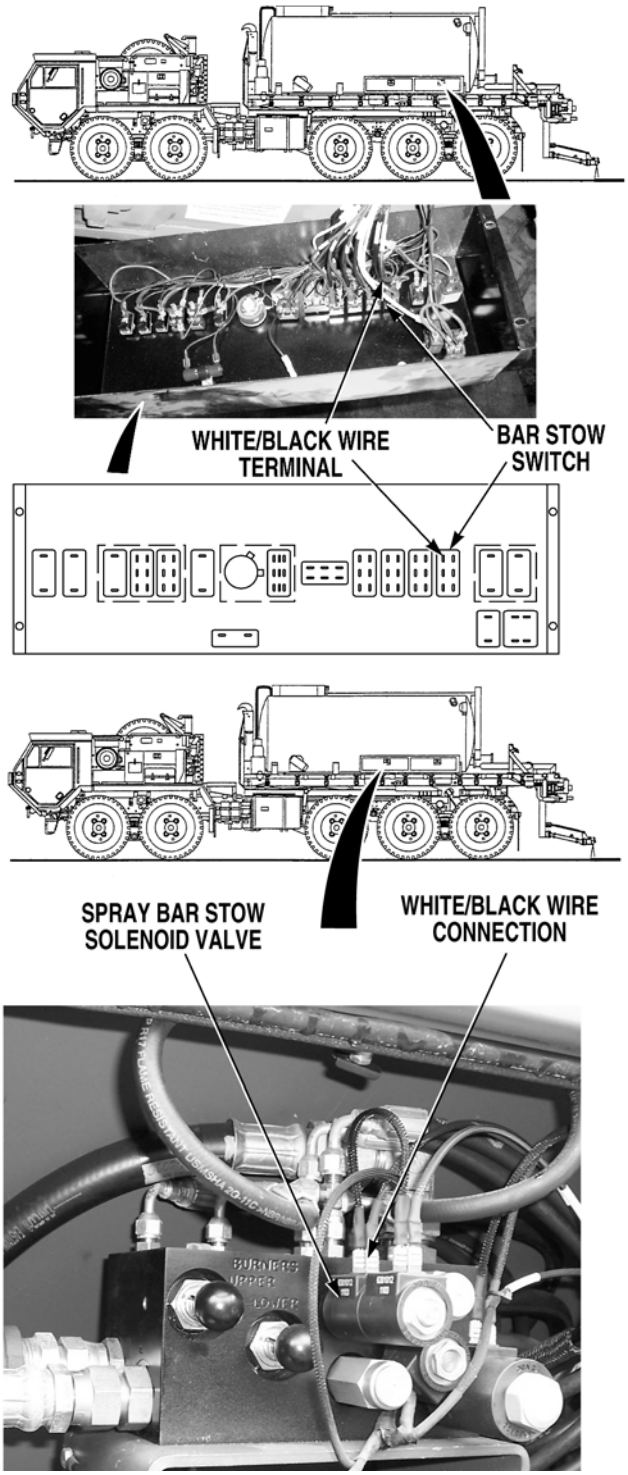
(6) Connect positive (+) multimeter lead to white/black wire at spray bar stow solenoid valve.

(7) Connect negative (-) multimeter lead to white/black wire at BAR STOW switch.

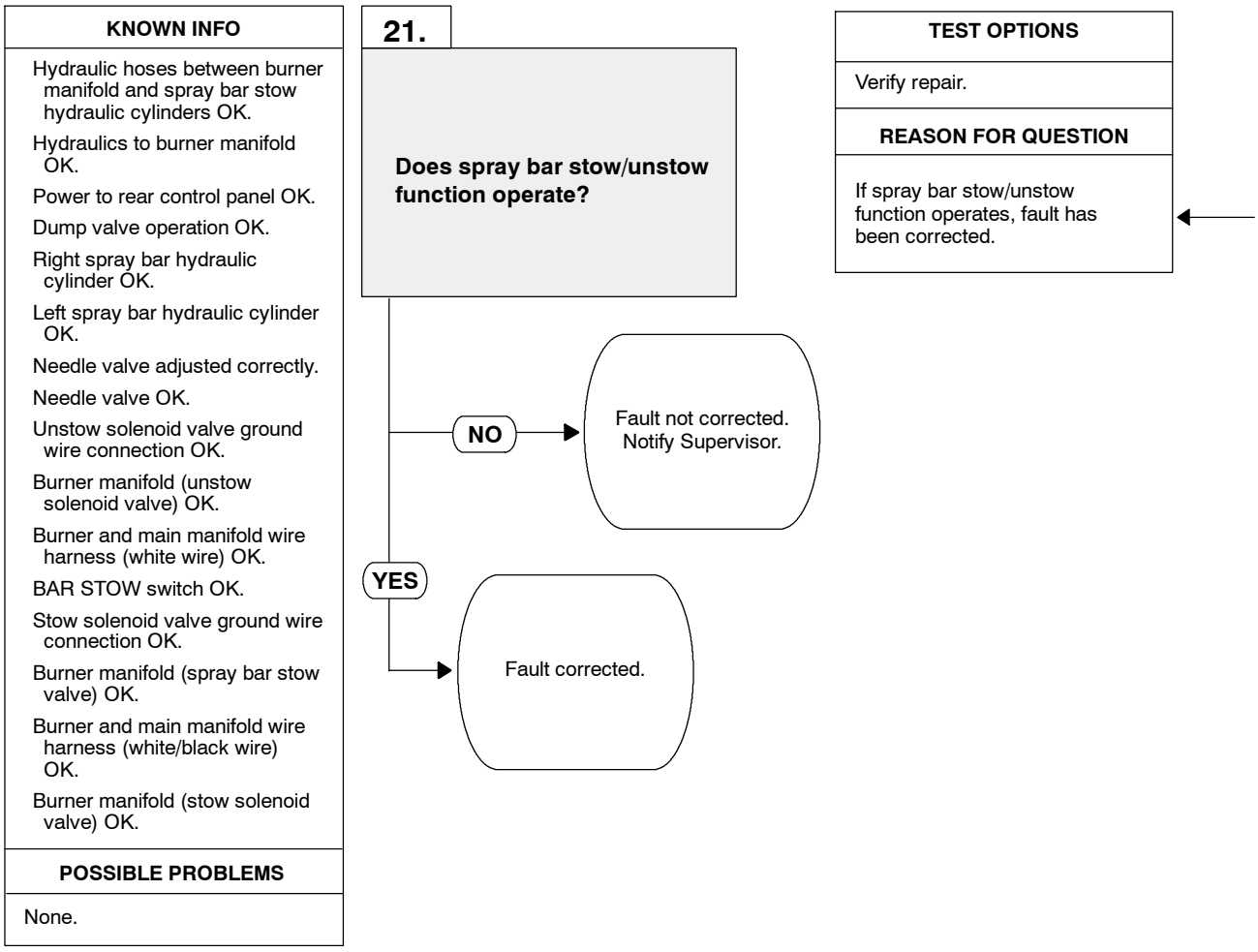
(a) If continuity is not measured, repair white/black wire between BAR STOW switch and stow solenoid valve, (Para 3-80), or replace rear control panel wire harness, (Para 3-62).

(b) If continuity is measured, replace BAR STOW switch, (Para 3-6).

(8) Verify repair, go to Step 21 of this Fault.



20. SPRAY BAR DOES NOT STOW/UNSTOW (REAR CONTROL) (CONT).



VERIFY REPAIR

(1) If removed, install rear control panel, (Para 3-76).

(2) If disconnected, connect hydraulic cylinder hoses, (Para 3-47).

(3) If out, push in battery disconnect switch, (TM 9-2320-364-10).

(4) If OFF, start engine, (TM 9-2320-364-10).

(5) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(6) Turn front control panel POWER switch ON, (Para 2-1).

(7) Turn rear control panel POWER switch ON, (Para 2-1).

NOTE

Perform Steps 8 through 10 if hydraulic cylinders are disconnected.

(8) Operate stow/unstow controls until spray bar stow hydraulic cylinders are evenly extended.

(9) Lift spray bar assembly with suitable lifting device as required to connect spray bar stow hydraulic cylinders.

(10) Connect spray bar stow hydraulic cylinders to spray bar assembly, (Para 3-22).

(11) Remove lifting device.

(12) Operate spray bar stow/unstow function, (Para 2-17).

(a) If spray bar stow/unstow function does not operate, fault not corrected. Notify Supervisor.

(b) If spray bar stow/unstow function operates, fault has been corrected.

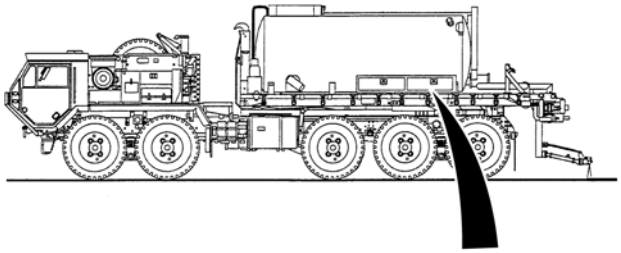
(13) Turn front control panel POWER switch OFF, (Para 2-1).

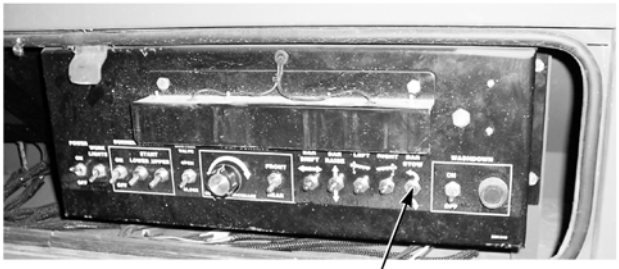
(14) Turn rear control panel POWER switch OFF, (Para 2-1).

(15) Shut OFF engine, TM 9-2320-364-10.



SPRAY BAR





SPRAY BAR
BAR STOW SWITCH

21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL).

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Multimeter (Item 8, Appendix F)
Pan, Drain (Item 9, Appendix F)
Jumperwire

Personnel Required
Two

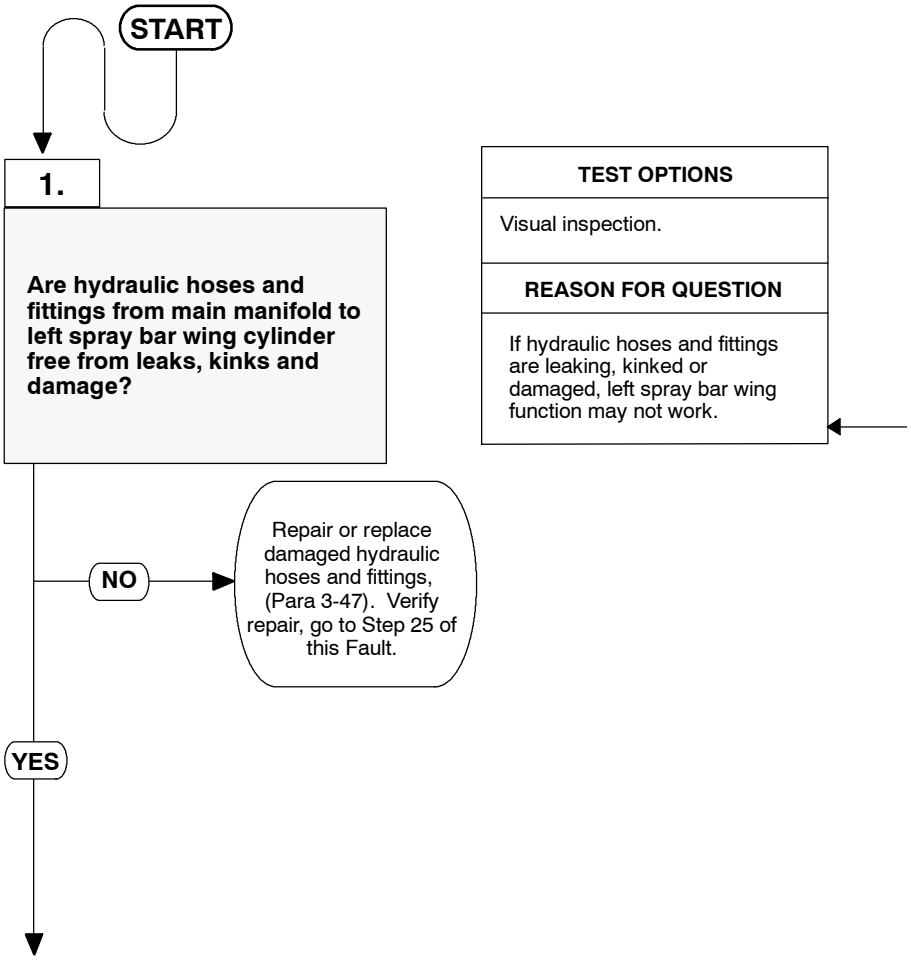
Equipment Condition
Bituminous Distributor loaded on PLS (Para 2-5)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

KNOWN INFO

Spray bar shift and lift functions operate.
Power to front and rear control panels OK.
Hydraulic power to burner and main manifold OK.

POSSIBLE PROBLEMS

Hydraulic hoses and fittings between main manifold and hydraulic cylinder, leak, kinked or damaged.
Hydraulic cylinder faulty.
LEFT (wing) switch faulty.
Burner and main manifold wire harness (white/black wire) faulty.
Left spray bar wing raise solenoid valve faulty.
Left spray bar wing raise solenoid valve ground wire connection faulty.
Burner and manifold wire harness (red/black wire) faulty.
Left spray bar wing lower solenoid valve faulty.
Left spray bar wing lower solenoid valve ground wire connection faulty.
Red/black wire from front control panel terminal strip to left WING FOLD switch faulty.
Front control panel wire harness (wire 3 black) faulty.
Rear control panel wire harness (wire 3 black) faulty.
PLS interface faulty.
White/black wire from front control panel terminal strip to left WING FOLD switch faulty.
Front control panel wire harness (wire 3 white) faulty.
Rear control panel wire harness (wire 3 white) faulty.





LEFT SPRAY BAR
HYDRAULIC CYLINDER

VISUAL INSPECTION

(1) Start engine, (TM 9-2320-364-10).

(2) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(3) Turn front control panel POWER switch ON, (Para 2-1).

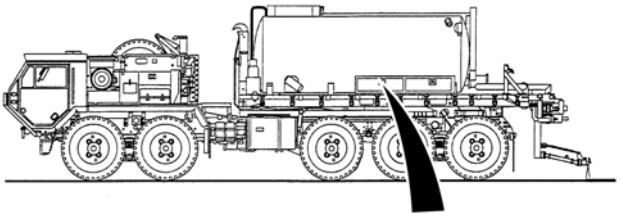
(4) Turn rear control panel POWER switch ON, (Para 2-1).

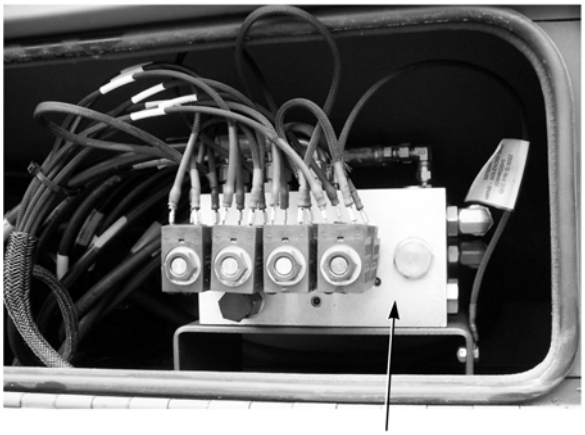
(5) Operate left spray bar wing function, (Para 2-17).

(6) Inspect hydraulic hoses from main manifold to left spray bar wing hydraulic cylinder for leaks, kinks and damage.

(a) If hydraulic hoses and fittings are leaking, kinked or damaged, repair or replace hydraulic hoses or fittings, (Para 3-47). Verify repair, go to Step 25 of this Fault.

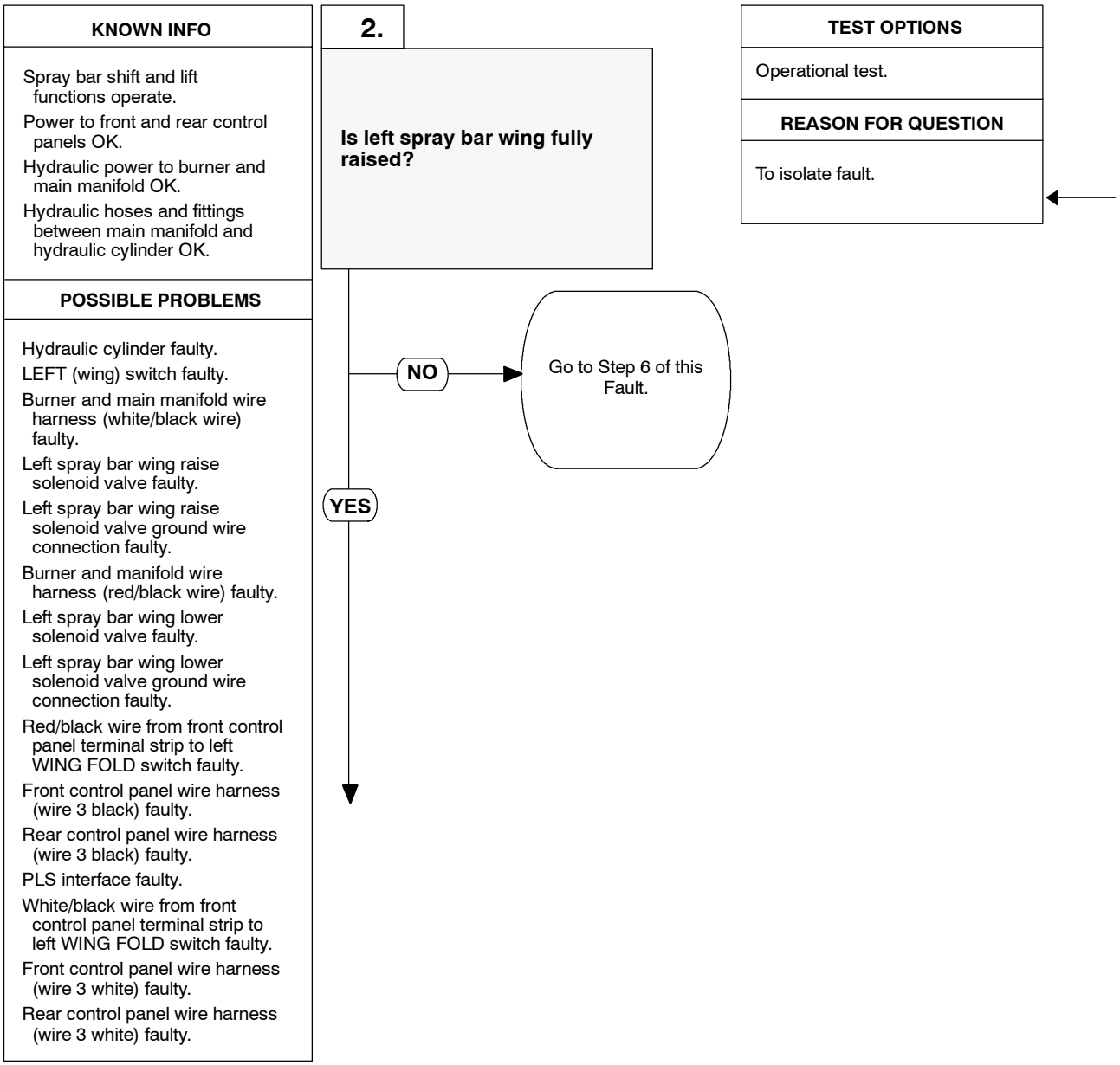
(b) If hydraulic hoses and fittings are not leaking, kinked or damaged, go to Step 2 of this Fault.





MAIN MANIFOLD

21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).



OPERATIONAL TEST

Check if left spray bar wing is fully raised.

(a) If left spray bar wing is not fully raised, go to Step 6 of this Fault.

(b) If left spray bar wing is fully raised, go to Step 3 of this Fault.



LEFT SPRAY BAR WING

21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

Spray bar shift and lift functions operate.

Power to front and rear control panels OK.

Hydraulic power to burner and main manifold OK.

Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.

POSSIBLE PROBLEMS

Hydraulic cylinder faulty.

LEFT (wing) switch faulty.

Burner and main manifold wire harness (white/black wire) faulty.

Left spray bar wing raise solenoid valve faulty.

Left spray bar wing raise solenoid valve ground wire connection faulty.

Burner and manifold wire harness (red/black wire) faulty.

Left spray bar wing lower solenoid valve faulty.

Left spray bar wing lower solenoid valve ground wire connection faulty.

Red/black wire from front control panel terminal strip to left WING FOLD switch faulty.

Front control panel wire harness (wire 3 black) faulty.

Rear control panel wire harness (wire 3 black) faulty.

PLS interface faulty.

White/black wire from front control panel terminal strip to left WING FOLD switch faulty.

Front control panel wire harness (wire 3 white) faulty.

Rear control panel wire harness (wire 3 white) faulty.

3.

Does left spray bar wing lower when using rear control panel controls?

NO → Go to Step 5 of this Fault.

YES

TEST OPTIONS

Operational test.

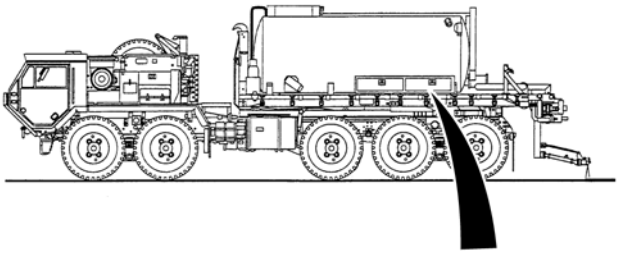
REASON FOR QUESTION

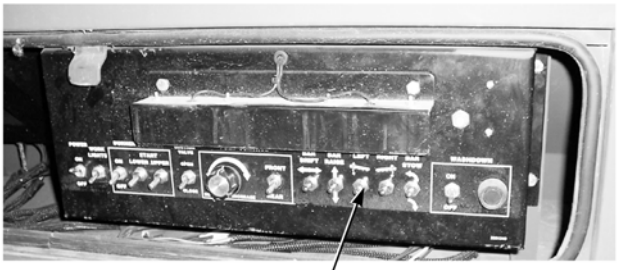
To further isolate fault.



LEFT SPRAY BAR WING

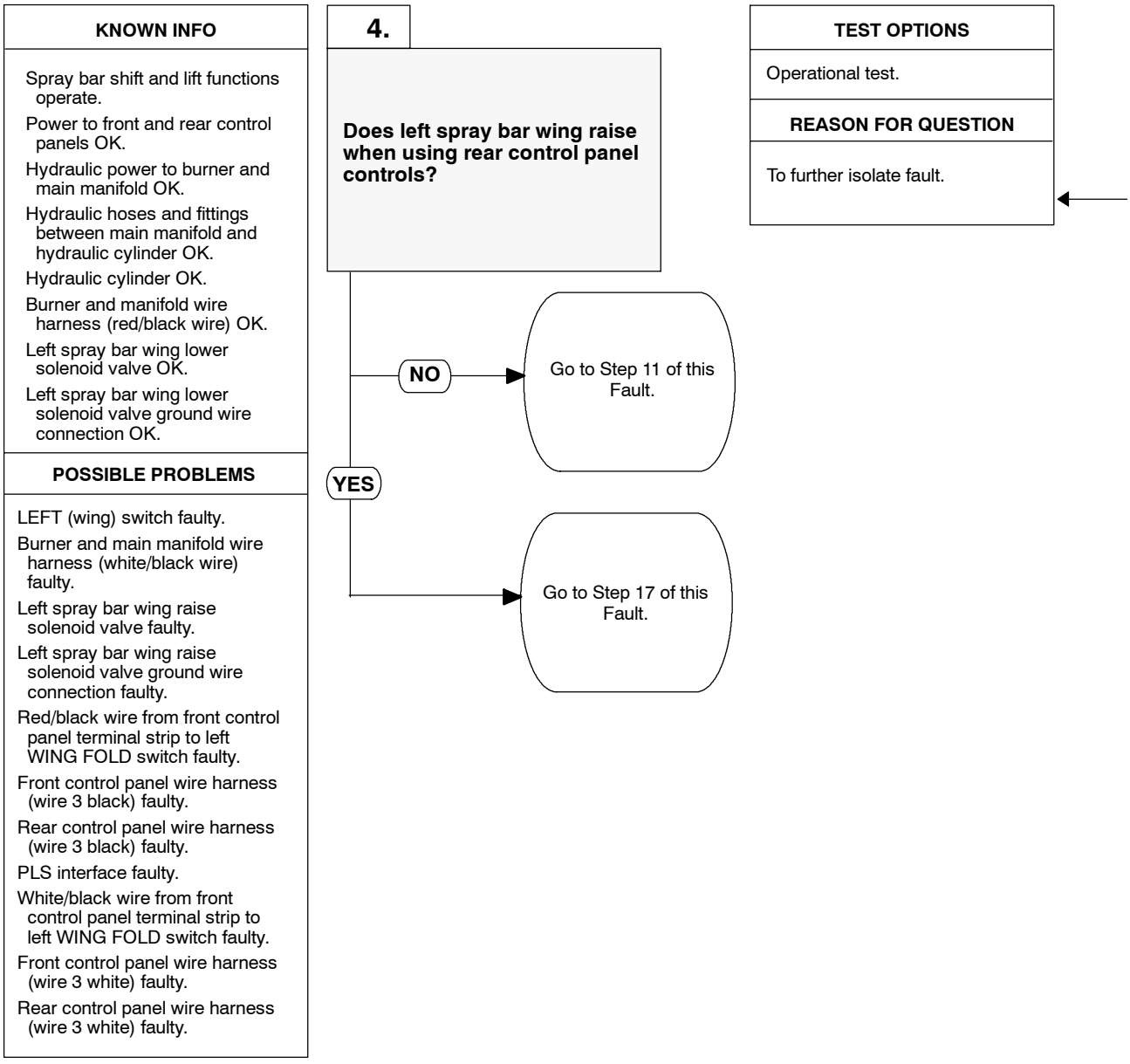
OPERATIONAL TEST
Operate left spray bar wing lower function, from rear control panel, (Para 2-1). Check if left spray bar wing lowers. (a) If left spray bar wing does not lower, go to Step 5 of this Fault. (b) If left spray bar wing lowers, go to Step 4 of this Fault.





LEFT SPRAY BAR WING SWITCH

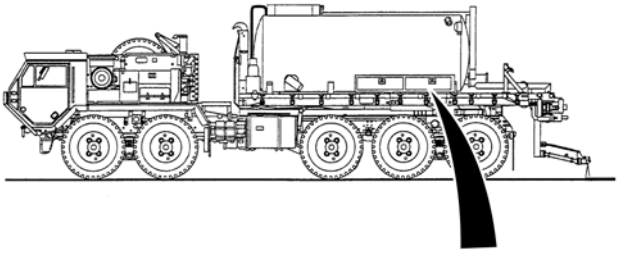
21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

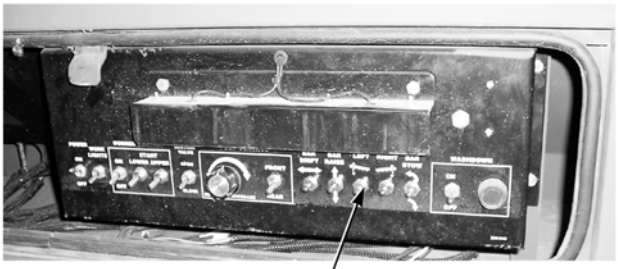




LEFT SPRAY BAR WING

OPERATIONAL TEST
Operate left spray bar wing raise function, from rear control panel, (Para 2-1). Check if left spray bar wing raises. (a) If left spray bar wing does not raise, go to Step 11 of this Fault. (b) If left spray bar wing raises, go to Step 17 of this Fault.





LEFT SPRAY BAR
WING SWITCH

21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Burner and main manifold wire harness (white/black wire) OK.
- Left spray bar wing raise solenoid valve OK.
- Left spray bar wing raise solenoid valve ground wire connection OK.
- Red/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 black) OK.
- Rear control panel wire harness (wire 3 black) OK.
- White/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 white) OK.
- Rear control panel wire harness (wire 3 white) OK.

POSSIBLE PROBLEMS

- Hydraulic cylinder faulty.
- LEFT (wing) switch faulty.
- Burner and manifold wire harness (red/black wire) faulty.
- Spray bar shift left solenoid valve faulty.
- Spray bar shift left solenoid valve ground wire connection faulty.
- PLS interface faulty.

5.

Does left spray bar wing raise when using rear control panel, after manually centering left spray bar wing?

NO → Replace hydraulic cylinder, (Para 3-22). Verify repair, go to Step 25 of this Fault.

YES → Go to Step 14 of this Fault.

TEST OPTIONS

Operational test.

REASON FOR QUESTION

If left spray bar wing does not raise, hydraulic cylinder may be faulty.



LEFT SPRAY BAR WING

OPERATIONAL TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Place drain pan under left spray bar wing hydraulic cylinder.

(3) Disconnect hydraulic hoses from left spray bar wing hydraulic cylinder, (Para 3-47).

(4) Manually place left spray bar wing in centered position.

(5) Connect hydraulic hoses to left spray bar wing hydraulic cylinder, (Para 3-47).

(6) Start engine, (TM 9-2320-364-10).

(7) Turn hydraulic select switch to CRANE/SRW (TM 9-2320-364-10).

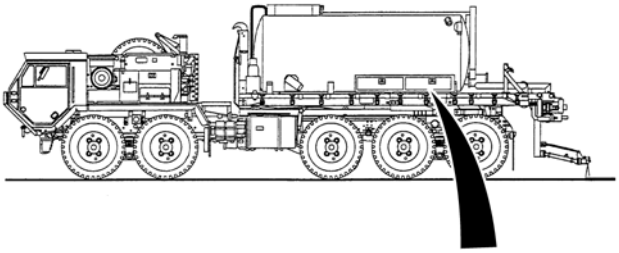
(8) Turn front control panel POWER switch ON, (Para 2-1).

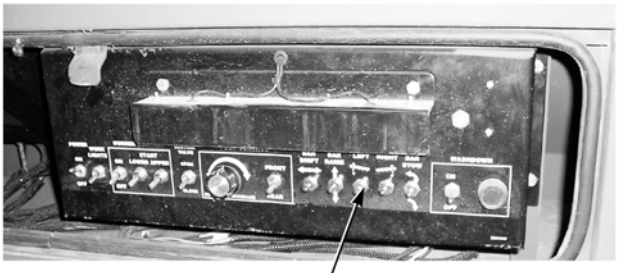
(9) Turn rear control panel POWER switch ON, (Para 2-1).

(10) Operate left spray bar wing raise function from rear control panel, (Para 2-17). Check if left spray bar wing raises.

(a) If left spray bar wing does not raise, replace hydraulic cylinder, (Para 3-22). Verify repair, go to Step 25 of this Fault.

(b) If left spray bar wing raises, go to Step14 of this Fault.





LEFT SPRAY BAR WING SWITCH

21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

Spray bar shift and lift functions operate.

Power to front and rear control panels OK.

Hydraulic power to burner and main manifold OK.

Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.

POSSIBLE PROBLEMS

Hydraulic cylinder faulty.

LEFT (wing) switch faulty.

Burner and main manifold wire harness (white/black wire) faulty.

Left spray bar wing raise solenoid valve faulty.

Left spray bar wing raise solenoid valve ground wire connection faulty.

Burner and manifold wire harness (red/black wire) faulty.

Left spray bar wing lower solenoid valve faulty.

Left spray bar wing lower solenoid valve ground wire connection faulty.

Red/black wire from front control panel terminal strip to left WING FOLD switch faulty.

Front control panel wire harness (wire 3 black) faulty.

Rear control panel wire harness (wire 3 black) faulty.

PLS interface faulty.

White/black wire from front control panel terminal strip to left WING FOLD switch faulty.

Front control panel wire harness (wire 3 white) faulty.

Rear control panel wire harness (wire 3 white) faulty.

6.

Does left spray bar wing raise when using rear control panel controls?

NO → Go to Step 8 of this Fault.

YES

TEST OPTIONS

Operational test.

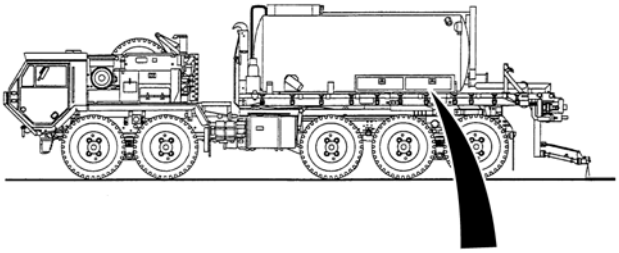
REASON FOR QUESTION

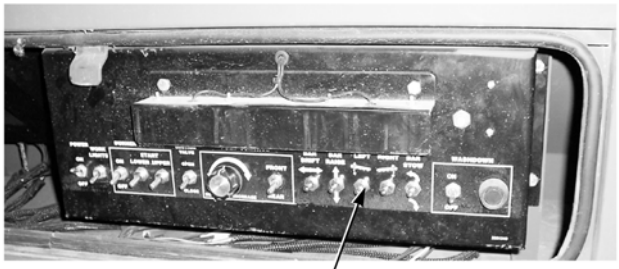
To further isolate fault.



LEFT SPRAY BAR WING

OPERATIONAL TEST
Operate left spray bar wing raise function, from rear control panel, (Para 2-1). (a) If left spray bar wing does not raise, go to Step 8 of this Fault. (b) If left spray bar wing raises, go to Step 7 of this Fault.





LEFT SPRAY BAR WING SWITCH

21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK
- Burner and main manifold wire harness (white/black wire) OK.
- Left spray bar wing raise solenoid valve OK.
- Left spray bar wing raise solenoid valve ground wire connection OK.

POSSIBLE PROBLEMS

- LEFT (wing) switch faulty.
- Burner and manifold wire harness (red/black wire) faulty.
- Left spray bar wing lower solenoid valve faulty.
- Left spray bar wing lower solenoid valve ground wire connection faulty.
- Red/black wire from front control panel terminal strip to left WING FOLD switch faulty.
- Front control panel wire harness (wire 3 black) faulty.
- Rear control panel wire harness (wire 3 black) faulty.
- PLS interface faulty.
- White/black wire from front control panel terminal strip to left WING FOLD switch faulty.
- Front control panel wire harness (wire 3 white) faulty.
- Rear control panel wire harness (wire 3 white) faulty.

7.

Does left spray bar wing lower when using rear control panel controls?

TEST OPTIONS

Operational test.

REASON FOR QUESTION

To further isolate fault.

NO → Go to Step 14 of this Fault.

YES → Go to Step 17 of this Fault.



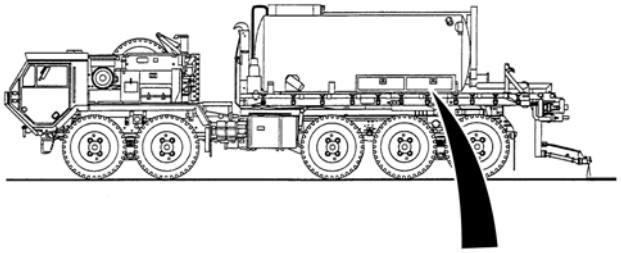
LEFT SPRAY BAR WING

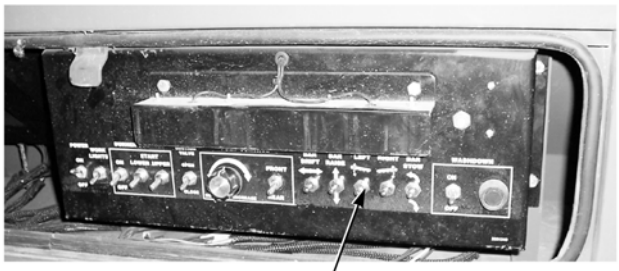
OPERATIONAL TEST

Operate left spray bar wing lower function, from rear control panel, (Para 2-1). Check if left spray bar wing lowers.

(a) If left spray bar wing does not lower, go to Step 14 of this Fault.

(b) If left spray bar wing lowers, go to Step 17 of this Fault.





LEFT SPRAY BAR WING SWITCH

21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

Spray bar shift and lift functions operate.
Power to front and rear control panels OK.
Hydraulic power to burner and main manifold OK.
Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
Burner and manifold wire harness (red/black wire) OK.
Left spray bar wing lower solenoid valve OK.
Left spray bar wing lower solenoid valve ground wire connection OK.
Red/black wire from front control panel terminal strip to left WING FOLD switch OK.
Front control panel wire harness (wire 3 black) OK.
Rear control panel wire harness (wire 3 black) OK.
White/black wire from front control panel terminal strip to left WING FOLD switch OK.
Front control panel wire harness (wire 3 white) OK.
Rear control panel wire harness (wire 3 white) OK.

POSSIBLE PROBLEMS

Hydraulic cylinder faulty.
LEFT (wing) switch faulty.
Burner and main manifold wire harness (white/black wire) faulty.
Left spray bar wing raise solenoid valve faulty.
Left spray bar wing raise solenoid valve ground wire connection faulty.
PLS interface faulty.

8.

Is left spray bar wing fully lowered?

NO → Go to Step 10 of this Fault.

YES

TEST OPTIONS

Operational test.

REASON FOR QUESTION

To further isolate fault.



LEFT SPRAY BAR WING

OPERATIONAL TEST
Check if left spray bar wing is fully lowered. (a) If left spray bar wing is not fully lowered, go to Step 10 of this Fault. (b) If left spray bar wing is fully lowered, go to Step 9 of this Fault.

21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Burner and manifold wire harness (red/black wire) OK.
- Left spray bar wing lower solenoid valve OK.
- Left spray bar wing lower solenoid valve ground wire connection OK.
- Red/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 black) OK.
- Rear control panel wire harness (wire 3 black) OK.
- White/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 white) OK.
- Rear control panel wire harness (wire 3 white) OK.

POSSIBLE PROBLEMS

- Hydraulic cylinder faulty.
- LEFT (wing) switch faulty.
- Burner and main manifold wire harness (white/black wire) faulty.
- Left spray bar wing raise solenoid valve faulty.
- Left spray bar wing raise solenoid valve ground wire connection faulty.
- PLS interface faulty.

9.

Does left spray bar wing lower when using rear control panel, after manually centering spray bar?

NO → Replace hydraulic cylinder, (Para 3-22). Verify repair, go to Step 25 of this Fault.

YES → Go to Step 11 of this Fault.

TEST OPTIONS

Operational test.

REASON FOR QUESTION

If left spray bar wing does not lower, hydraulic cylinder may be faulty.



LEFT SPRAY BAR WING

OPERATIONAL TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Place drain pan under left spray bar wing hydraulic cylinder.

(3) Disconnect hydraulic hoses from left spray bar wing hydraulic cylinder, (Para 3-47).

(4) Manually place left spray bar wing in centered position.

(5) Connect hydraulic hoses to left spray bar wing hydraulic cylinder, (Para 3-47).

(6) Start engine, (TM 9-2320-364-10).

(7) Turn hydraulic select switch to CRANE/SRW (TM 9-2320-364-10).

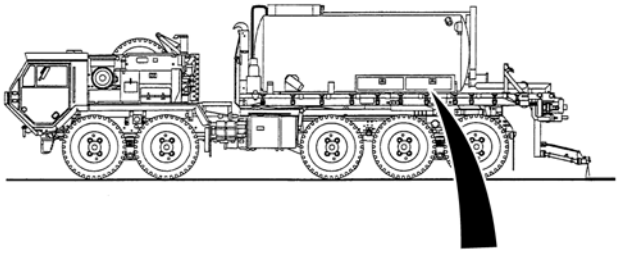
(8) Turn front control panel POWER switch ON, (Para 2-1).

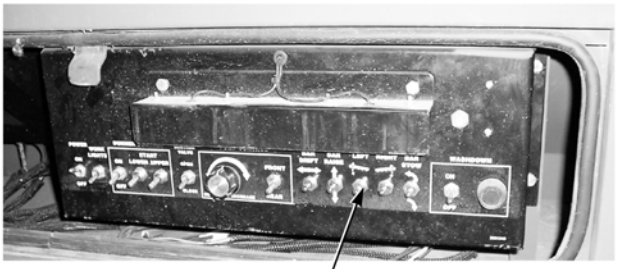
(9) Turn rear control panel POWER switch ON, (Para 2-1).

(10) Operate left spray bar wing lower function from rear control panel, (Para 2-17). Check if left spray bar wing lowers.

(a) If left spray bar wing does not lower, replace hydraulic cylinder, (Para 3-22). Verify repair, go to Step 25 of the Fault.

(b) If left spray bar wing lowers, go to Step 11 of this Fault.





LEFT SPRAY BAR WING SWITCH

21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Burner and manifold wire harness (red/black wire) OK.
- Left spray bar wing lower solenoid valve OK.
- Left spray bar wing lower solenoid valve ground wire connection OK.
- Red/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 black) OK.
- Rear control panel wire harness (wire 3 black) OK.
- White/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 white) OK.
- Rear control panel wire harness (wire 3 white) OK.
- PLS interface OK.

POSSIBLE PROBLEMS

- Hydraulic cylinder faulty.
- LEFT (wing) switch faulty.
- Burner and main manifold wire harness (white/black wire) faulty.
- Left spray bar wing raise solenoid valve faulty.
- Left spray bar wing raise solenoid valve ground wire connection faulty.

10.

Does left spray bar wing lower when using rear control panel controls?

TEST OPTIONS

Operational test.

REASON FOR QUESTION

If left spray bar wing does not lower, hydraulic cylinder may be faulty.

NO → Replace hydraulic cylinder, (Para 3-22). Verify repair, go to Step 25 of this Fault.

YES



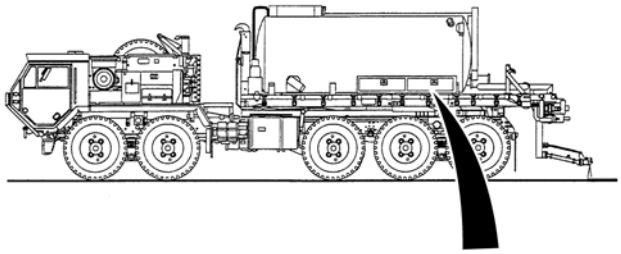
LEFT SPRAY BAR WING

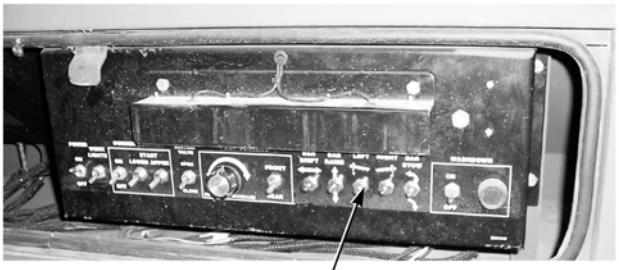
OPERATIONAL TEST

Operate left spray bar wing lower function from rear control panel, (Para 2-1). Check if left spray bar wing lowers.

(a) If left spray bar wing does not lower, replace hydraulic cylinder, (Para 3-22). Verify repair, go to Step 25 of this Fault.

(b) If left spray bar wing lowers, go to Step 11 of this Fault.





LEFT SPRAY BAR WING SWITCH

21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Burner and manifold wire harness (red/black wire) OK.
- Left spray bar wing lower solenoid valve OK.
- Left spray bar wing lower solenoid valve ground wire connection OK.
- Red/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 black) OK.
- Rear control panel wire harness (wire 3 black) OK.
- White/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 white) OK.
- Rear control panel wire harness (wire 3 white) OK.
- PLS interface OK.
- Hydraulic cylinder OK.

POSSIBLE PROBLEMS

- LEFT (wing) switch faulty.
- Burner and main manifold wire harness (white/black wire) faulty.
- Left spray bar wing raise solenoid valve faulty.
- Left spray bar wing raise solenoid valve ground wire connection faulty.

11.

WARNING

Read WARNING on Page 4-699

Are 10 to 14 VDC measured between LEFT (wing) switch, raise terminal (white/black wire) and a known good ground, when LEFT (wing) switch is held in the raise position?

NO → Replace LEFT (wing) switch, (Para 3-6). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

Voltage test.

REASON FOR QUESTION

If 10 to 14 VDC are not present, LEFT (wing) switch is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VOLTAGE TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove rear control panel, (Para 3-76).

(4) Push in battery disconnect switch, (TM 9-2320-364-10).

(5) Turn front control panel POWER switch ON, (Para 2-1).

(6) Turn rear control panel POWER switch ON, (Para 2-1).

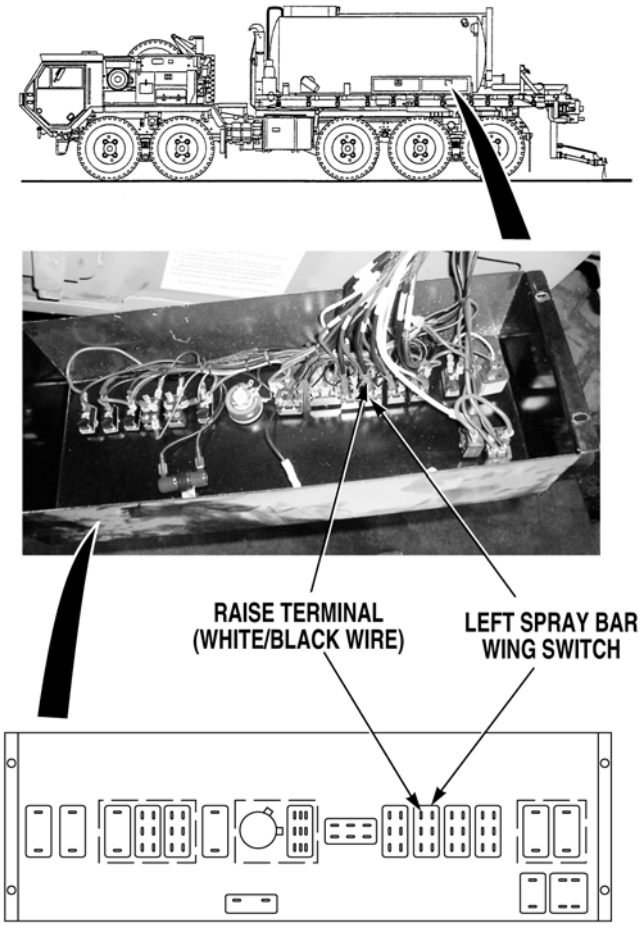
(7) Connect positive (+) multimeter lead to raise terminal (white/black wire) at LEFT (wing) switch.

(8) Connect negative (-) multimeter lead to a known good ground.

(9) While an assistant places and holds LEFT (wing) switch in the raise position note meter reading.

(a) If 10 to 14 VDC are not present, replace LEFT (wing) switch, (Para 3-6). Verify repair, go to Step 25 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 12 of this Fault.



21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Burner and manifold wire harness (red/black wire) OK.
- Left spray bar wing lower solenoid valve OK.
- Left spray bar wing lower solenoid valve ground wire connection OK.
- Red/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 black) OK.
- Rear control panel wire harness (wire 3 black) OK.
- White/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 white) OK.
- Rear control panel wire harness (wire 3 white) OK.
- PLS interface OK.
- Hydraulic cylinder OK.
- LEFT (wing) switch OK.

POSSIBLE PROBLEMS

- Burner and main manifold wire harness (white/black wire) faulty.
- Left spray bar wing raise solenoid valve faulty.
- Left spray bar wing raise solenoid valve ground wire connection faulty.

12.

WARNING

Read WARNING on Page 4-701

Are 10 to 14 VDC measured between white/black wire at left spray bar wing solenoid valve and a known good ground when LEFT (wing) switch is held in the raise position?

NO → Repair white/black wire, (Para 3-80) or replace burner and main manifold wire harness, (Para 3-58). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

Voltage test.

REASON FOR QUESTION

If 10 to 14 VDC are not present, white/black wire is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

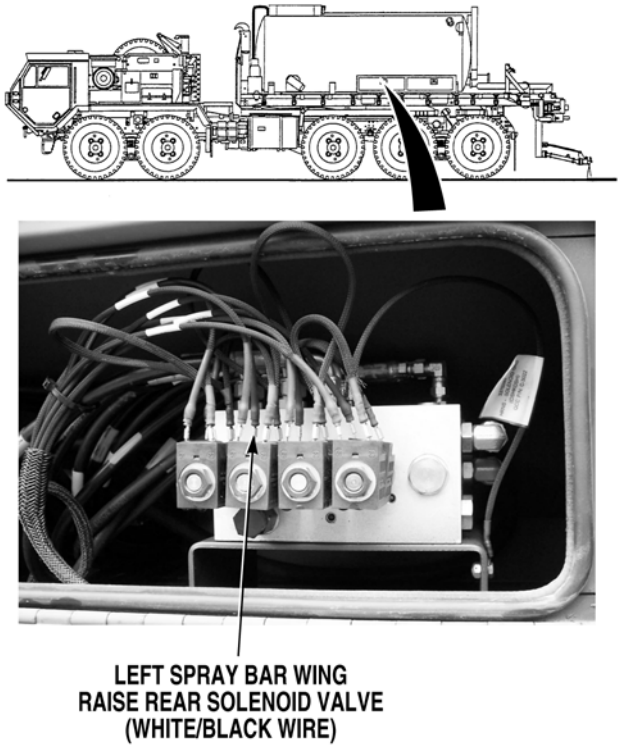
(1) Connect positive (+) multimeter lead to white/black wire at left spray bar wing raise solenoid valve.

(2) Connect negative (-) multimeter lead to a known good ground.

(3) While an assistant places and holds left spray bar wing LEFT (wing) switch in the raise position, note meter reading.

(a) If 10 to 14 VDC are not present, repair white/black wire, (Para 3-80) or replace burner and manifold wire harness, (Para 3-58). Verify repair, go to Step 25 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 13 of this Fault.



21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Burner and manifold wire harness (red/black wire) OK.
- Left spray bar wing lower solenoid valve OK.
- Left spray bar wing lower solenoid valve ground wire connection OK.
- Red/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 black) OK.
- Rear control panel wire harness (wire 3 black) OK.
- White/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 white) OK.
- Rear control panel wire harness (wire 3 white) OK.
- PLS interface OK.
- Hydraulic cylinder OK.
- LEFT (wing) switch OK.
- Burner and main manifold wire harness (white/black wire) OK.

POSSIBLE PROBLEMS

- Left spray bar wing raise solenoid valve faulty.
- Left spray bar wing raise solenoid valve ground wire connection faulty.

13.

WARNING

Read WARNING on Page 4-703

Is left wing raise solenoid valve ground connection secure?

NO → Repair ground connection, (Para 3-64). Verify repair, go to Step 25 of this Fault.

YES → Replace main manifold, (Para 3-29). Verify repair, go to Step 25 of this Fault.

TEST OPTIONS

Visual inspection.

REASON FOR QUESTION

If left spray bar wing raise solenoid valve ground connection is not secure, or left spray bar wing raise solenoid valve is faulty, left spray bar wing raise function will not operate.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VISUAL INSPECTION

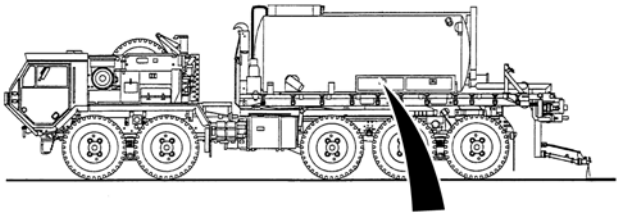
(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

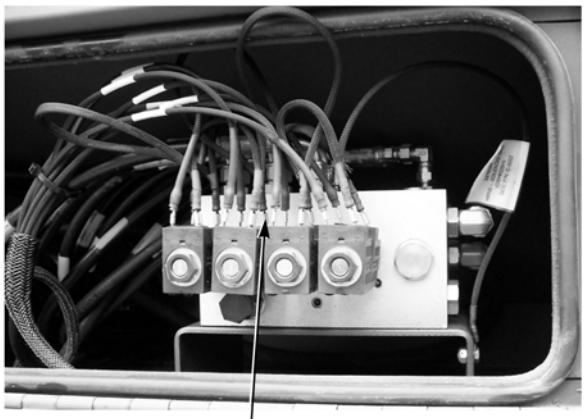
(2) Check ground wire connection at left spray bar wing raise solenoid valve.

  (a) If ground wire connection is not secure, repair ground connection, (Para 3-64).

  (b) If ground wire is secure, replace main manifold, (Para 3-29).

(3) Verify repair, go to Step 25 of this Fault.





LEFT SPRAY BAR WING
RAISE REAR SOLENOID VALVE
(GROUND WIRE)

21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (white/black wire) OK.
- Left spray bar wing raise solenoid valve OK.
- Left spray bar wing raise solenoid valve ground wire connection OK.
- Front control panel wire harness (wire 3 black) OK.
- Rear control panel wire harness (wire 3 black) OK.
- White/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 white) OK.
- Rear control panel wire harness (wire 3 white) OK.
- PLS interface OK.

POSSIBLE PROBLEMS

- LEFT (wing) switch faulty.
- Burner and manifold wire harness (red/black wire) faulty.
- Left spray bar wing lower solenoid valve faulty.
- Left spray bar wing lower solenoid valve ground wire connection faulty.
- Red/black wire from front control panel terminal strip to left WING FOLD switch faulty.

14.

WARNING

Read WARNING on Page 4-705

Are 10 to 14 VDC measured between LEFT (wing) switch, lower terminal (red/black wire) and a known good ground, when LEFT (wing) switch is held in the lower position?

NO → Replace LEFT (wing) switch, (Para 3-6). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

Voltage test.

REASON FOR QUESTION

If 10 to 14 VDC are not present, LEFT (wing) switch is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may not be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VOLTAGE TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove rear control panel, (Para 3-76).

(4) Push in battery disconnect switch, (TM 9-2320-364-10).

(5) Turn front control panel POWER switch ON, (Para 2-1).

(6) Turn rear control panel POWER switch ON, (Para 2-1).

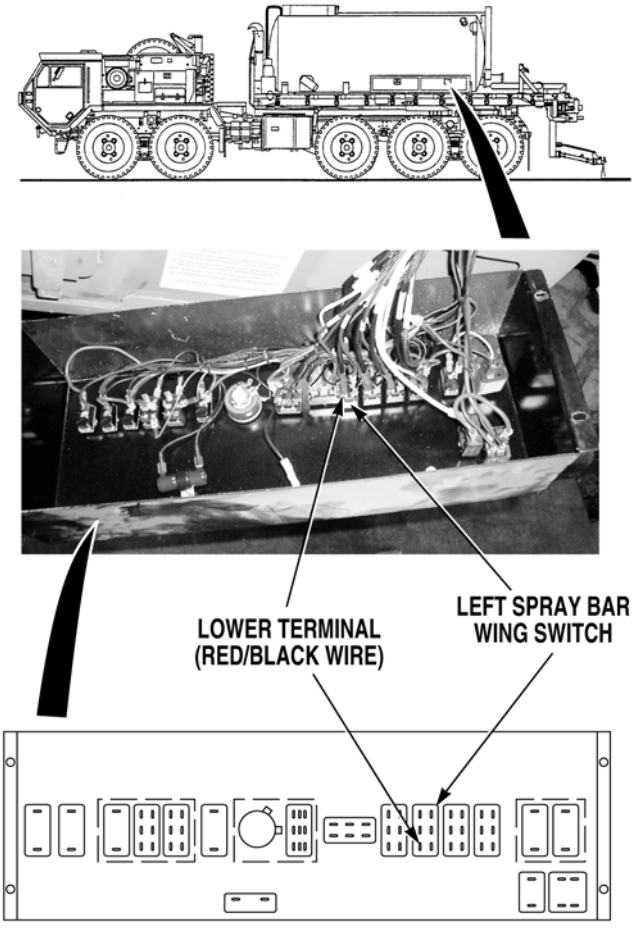
(7) Connect positive (+) multimeter lead to lower terminal (red/black wire) at LEFT (wing) switch, rear control panel.

(8) Connect negative (-) multimeter lead to a known good ground.

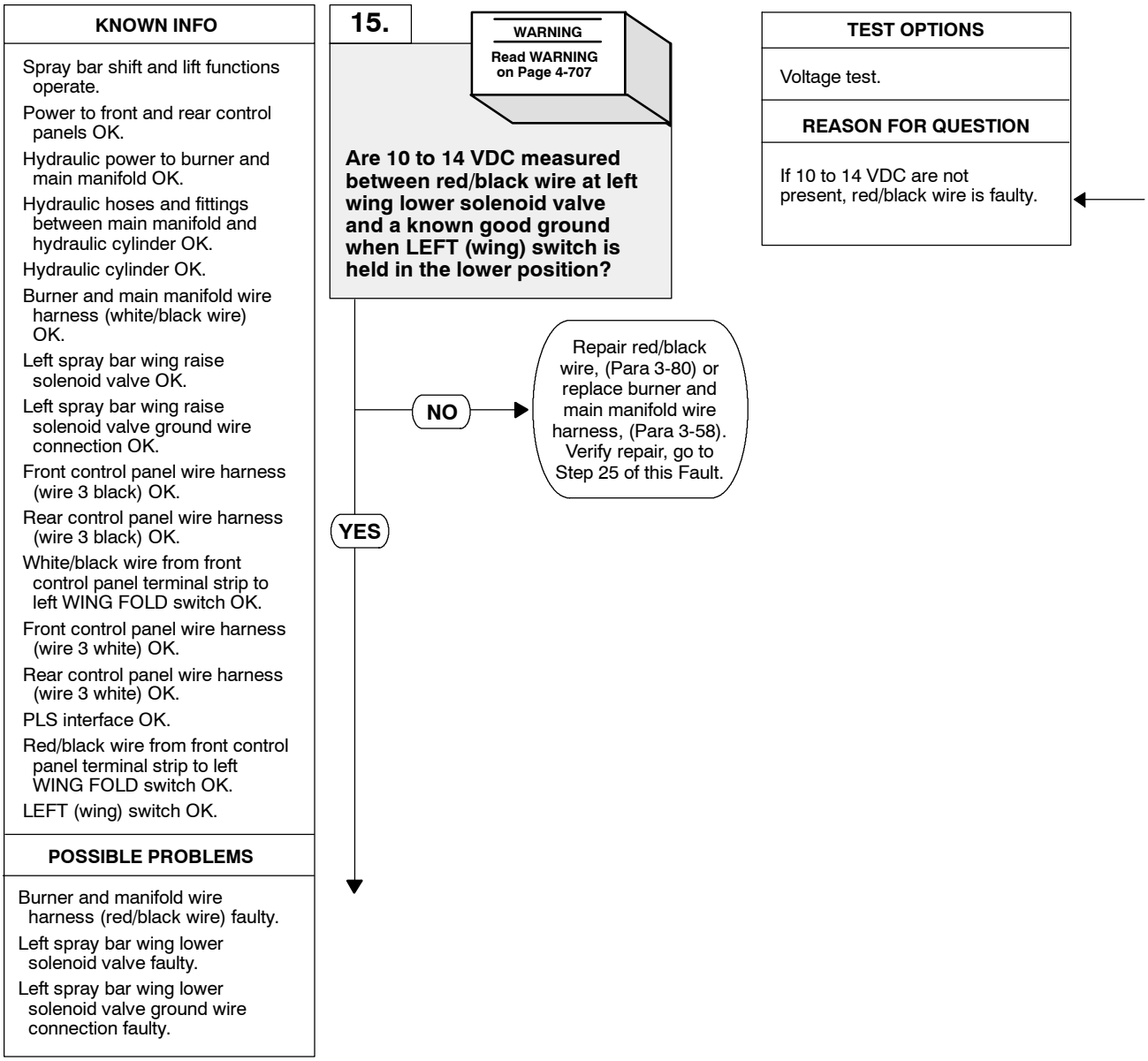
(9) While an assistant places and holds LEFT (wing) switch in the lower position, note meter reading.

(a) If 10 to 14 VDC are not present, replace LEFT (wing) switch, (Para 3-6). Verify repair, go to Step 25 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 15 of this Fault.



21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

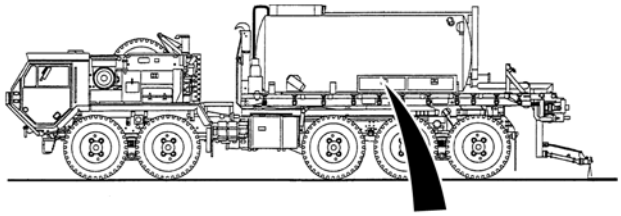
(1) Connect positive (+) multimeter lead to red/black wire at left spray bar wing lower solenoid valve.

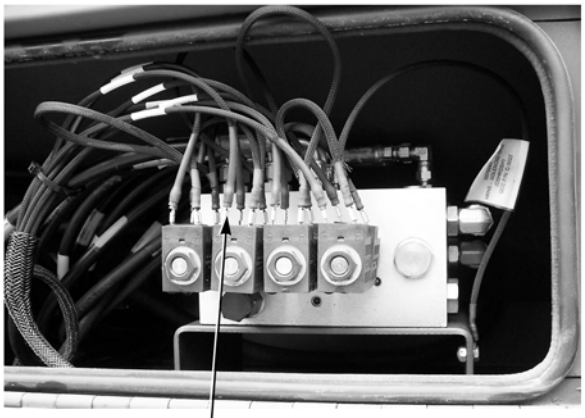
(2) Connect negative (-) multimeter lead to a known good ground.

(3) While an assistant places and holds LEFT (wing) switch in the lower position, note meter reading.

(a) If 10 to 14 VDC are not present, repair red/black wire, (Para 3-80) or replace burner and manifold wire harness, (Para 3-58). Verify repair, go to Step 25 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 16 of this Fault.





LEFT SPRAY BAR WING
LOWER FRONT SOLENOID VALVE
(RED/BLACK WIRE)

21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Burner and manifold wire harness (red/black wire) OK.
- Front control panel wire harness (3 black) OK.
- Rear control panel wire harness (3 black) OK.
- White/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (3 white) OK.
- Rear control panel wire harness (3 white) OK.
- PLS interface OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (white/black wire) OK.
- Spray bar shift left solenoid valve OK.
- Left spray bar wing raise solenoid valve ground wire connection OK.
- Red/black wire from front control panel terminal strip to left WING FOLD switch OK.
- LEFT (wing) switch OK.

POSSIBLE PROBLEMS

- Left spray bar wing lower solenoid valve faulty.
- Left spray bar wing lower solenoid valve ground wire connection faulty.

16.

WARNING

Read WARNING on Page 4-709

Is left wing lower solenoid valve ground connection secure?

NO → Repair ground connection, (Para 3-64). Verify repair, go to Step 25 of this Fault.

YES → Replace main manifold, (Para 3-29). Verify repair, go to Step 25 of this Fault.

TEST OPTIONS

Visual inspection.

REASON FOR QUESTION

If left spray bar wing lower solenoid valve ground connection is not secure, or left spray bar wing lower solenoid valve is faulty, left spray bar wing lower function will not operate.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VISUAL INSPECTION

(1) Shut OFF engine, (TM 9-2320-364-10).

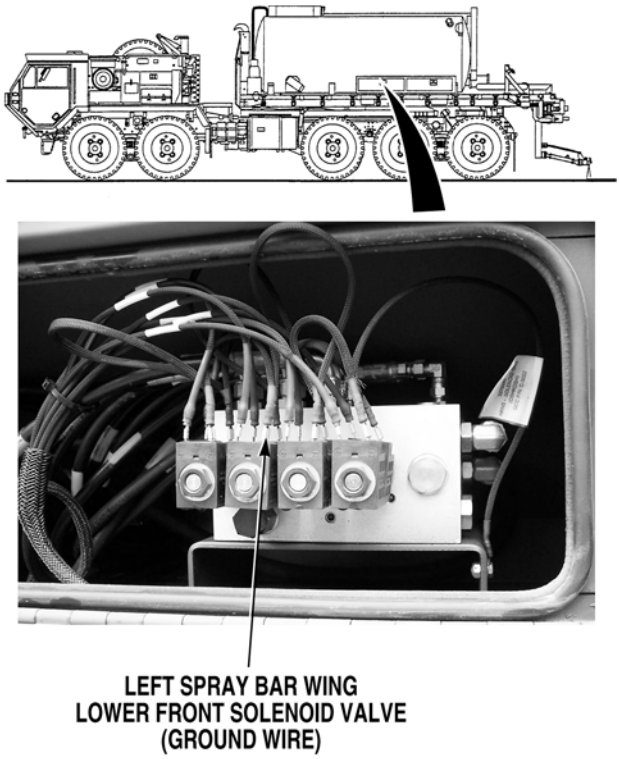
(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Check ground wire connection at left spray bar wing lower solenoid valve.

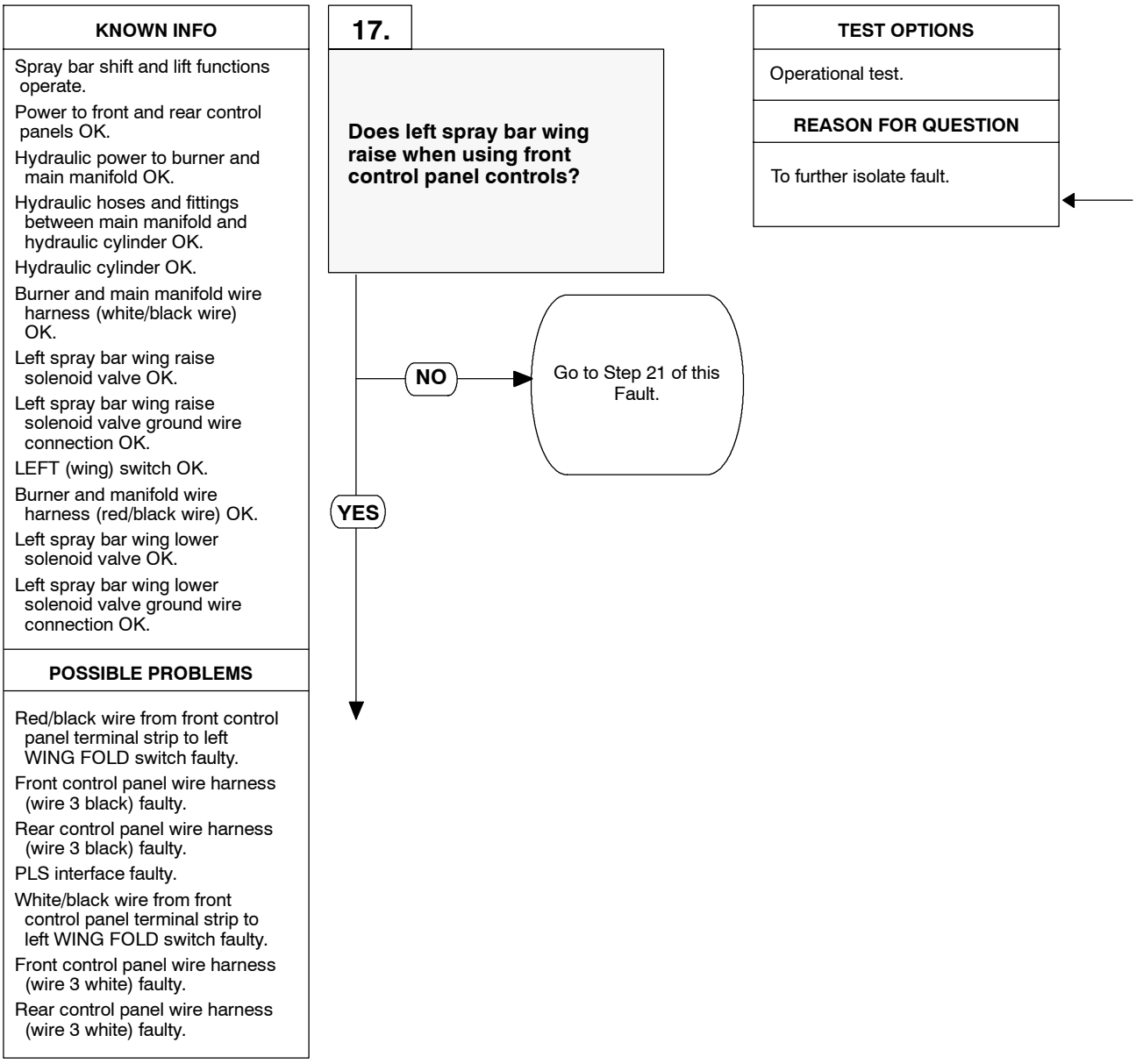
  (a) If ground wire connection is not secure, repair ground connection, (Para 3-64).

  (b) If ground wire is secure, replace main manifold, (Para 3-29).

(4) Verify repair, go to Step 25 of this Fault.



21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).





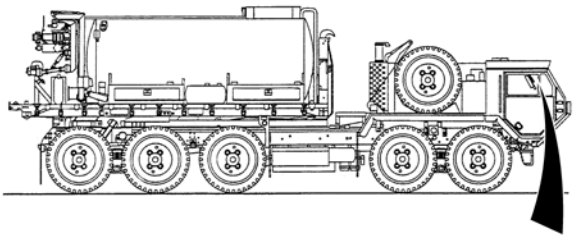
LEFT SPRAY BAR WING

OPERATIONAL TEST

Operate left spray bar wing raise function from front control panel, (Para 2-1). Check if spray bar raises.

(a) If spray bar does not raise, go to Step 21 of this Fault.

(b) If spray bar raises, go to Step 18 of this Fault.





LEFT SPRAY BAR
WING FOLD SWITCH

21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (white/black wire) OK.
- Left spray bar wing raise solenoid valve OK.
- Left spray bar wing raise solenoid valve ground wire connection OK.
- LEFT (wing) switch OK.
- Burner and manifold wire harness (red/black wire) OK.
- Left spray bar wing lower solenoid valve OK.
- Left spray bar wing lower solenoid valve ground wire connection OK.
- White/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 white) OK.
- Rear control panel wire harness (wire 3 white) OK.

POSSIBLE PROBLEMS

- Red/black wire from front control panel terminal strip to left WING FOLD switch faulty.
- Front control panel wire harness (wire 3 black) faulty.
- Rear control panel wire harness (wire 3 black) faulty.
- PLS interface faulty.

18.

WARNING

Read WARNING on Page 4-713

Is continuity measured across red/black wire from front control panel terminal strip to left WING FOLD switch?

NO → Repair red/black wire, (Para 3-80). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

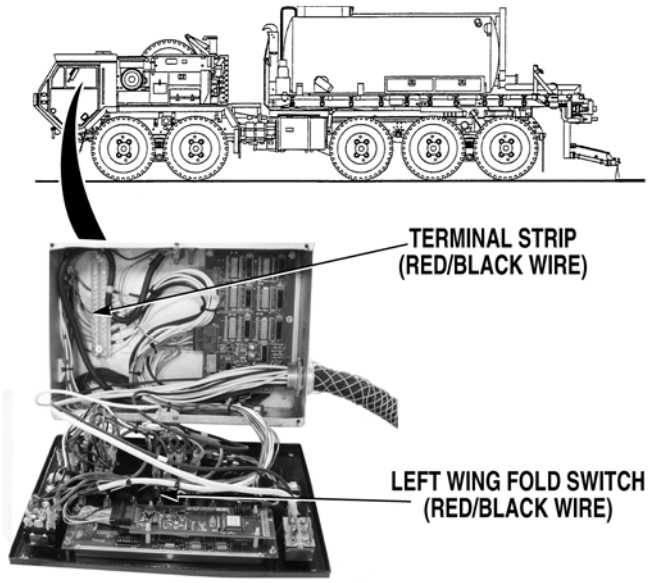
Continuity test.

REASON FOR QUESTION

If continuity is not measured, red/black wire is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.



CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove front control panel (Para 3-76).

(4) Set multimeter select switch to ohms.

(5) Connect positive (+) multimeter lead to red/black wire at front control panel terminal strip.

(6) Connect negative (–) multimeter lead to red/black wire at front control panel left WING FOLD switch.

(a) If continuity is not measured, repair red/black wire between terminal strip and left WING FOLD switch, front control panel, (Para 3-80). Verify repair, go to Step 25 of this Fault.

(b) If continuity is measured, go to Step 19 of this Fault.

21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (white/black wire) OK.
- Left spray bar wing raise solenoid valve OK.
- Left spray bar wing raise solenoid valve ground wire connection OK.
- LEFT (wing) switch OK.
- Burner and manifold wire harness (red/black wire) OK.
- Left spray bar wing lower solenoid valve OK.
- Left spray bar wing lower solenoid valve ground wire connection OK.
- White/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 white) OK.
- Rear control panel wire harness (wire 3 white) OK.
- Red/black wire from front control panel terminal strip to left WING FOLD switch OK.

POSSIBLE PROBLEMS

- Front control panel wire harness (wire 3 black) faulty.
- Rear control panel wire harness (wire 3 black) faulty.
- PLS interface faulty.

19.

WARNING

Read WARNING on Page 4-715

Is continuity measured across wire 3 black from front control panel terminal strip to connector MC129, terminal E?

NO → Repair wire 3 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, wire 3 black is faulty. ←

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Disconnect front control panel connector MC129, (Para 2-10).

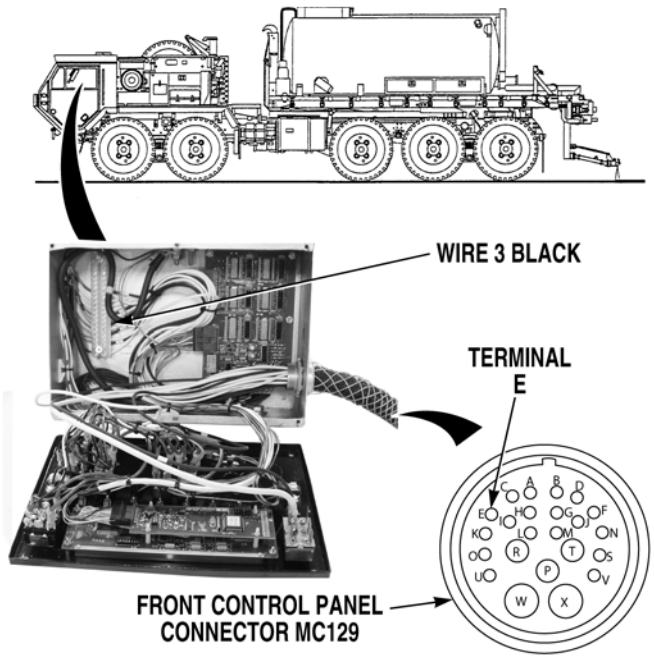
(2) Set multimeter select switch to ohms.

(3) Connect positive (+) multimeter lead on wire 3 black, at front control panel connector MC129, terminal E.

(4) Connect negative (–) multimeter lead to wire 3 black at front control panel terminal strip.

(a) If continuity is not measured, repair wire 3 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 25 of this Fault.

(b) If continuity is measured, go to Step 20 of this Fault.



21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (white/black wire) OK.
- Left spray bar wing raise solenoid valve OK.
- Left spray bar wing raise solenoid valve ground wire connection OK.
- LEFT (wing) switch OK.
- Burner and manifold wire harness (red/black wire) OK.
- Left spray bar wing lower solenoid valve OK.
- Left spray bar wing lower solenoid valve ground wire connection OK.
- White/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 white) OK.
- Rear control panel wire harness (wire 3 white) OK.
- Red/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 black) OK.

POSSIBLE PROBLEMS

- Rear control panel wire harness (wire 3 black) faulty.
- PLS interface faulty.

20.

WARNING

Read WARNING on Page 4-717

Is continuity measured across wire 3 black from connector MC130, terminal E, to rear control panel LEFT (wing) switch?

NO → Repair wire 3 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 25 of this Fault.

YES → PLS interface is faulty. Notify Supervisor.

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is measured, PLS interface is faulty. If not, rear control panel wire harness, wire 3 black is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Remove rear control panel, (Para 3-76).

(3) Disconnect rear control panel connector MC130 (UPIK), (Para 2-10).

(4) Push in battery disconnect switch, (TM 9-2320-364-10).

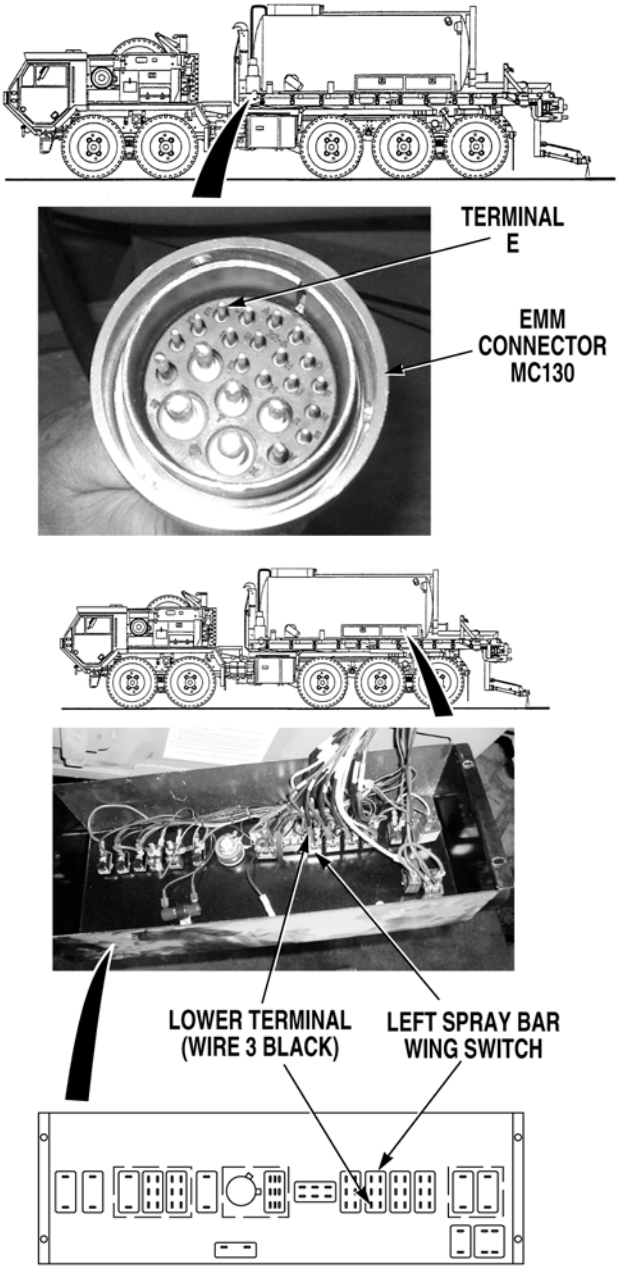
(5) Connect jumperwire between wire 3 black at EMM connector MC130, terminal E and a known good ground.

(6) Connect positive (+) multimeter lead to wire 3 black at rear control panel LEFT (wing) switch.

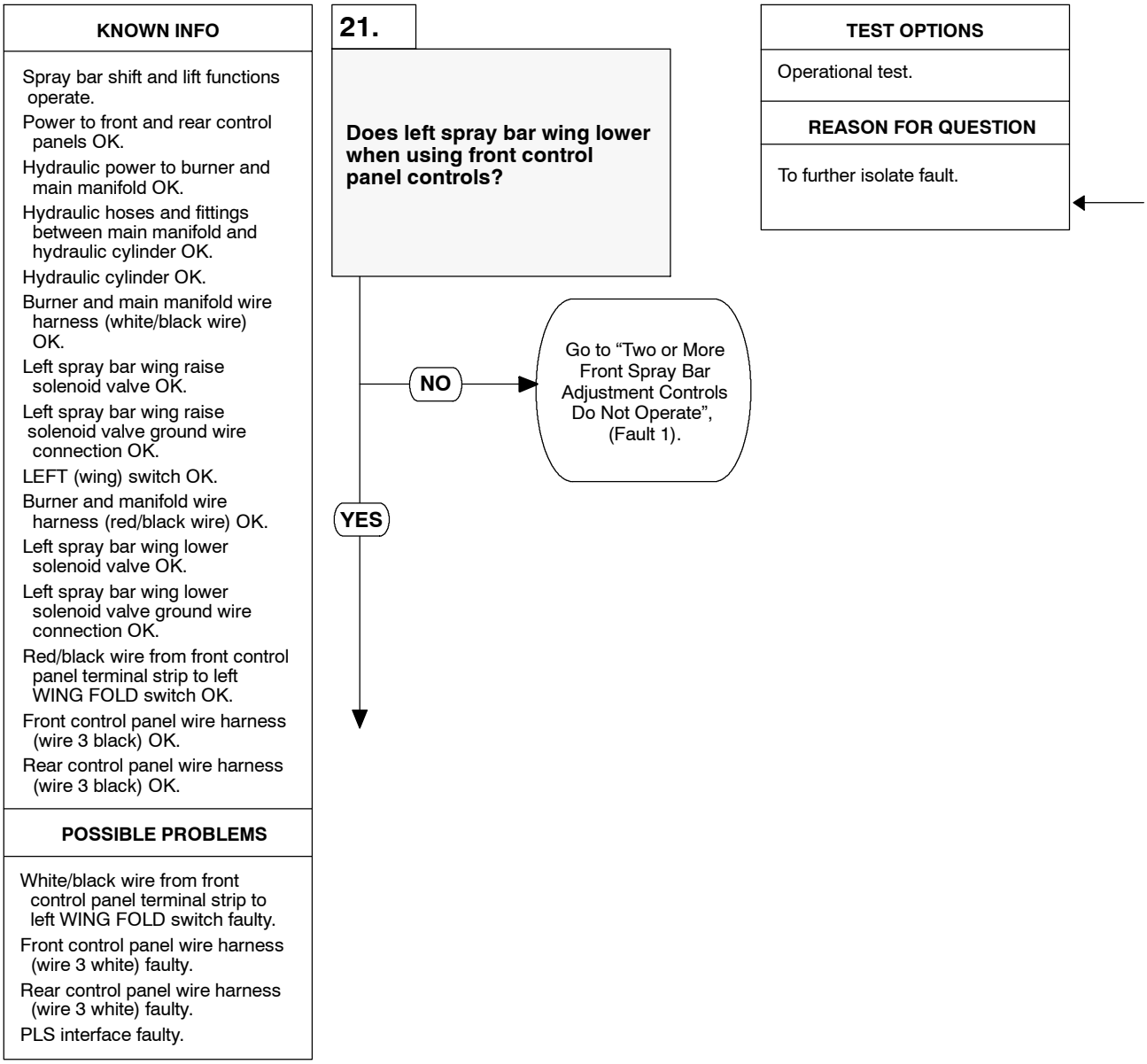
(7) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, repair wire 3 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 25 of this Fault.

(b) If continuity is measured, PLS interface is faulty. Notify Supervisor.



21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).





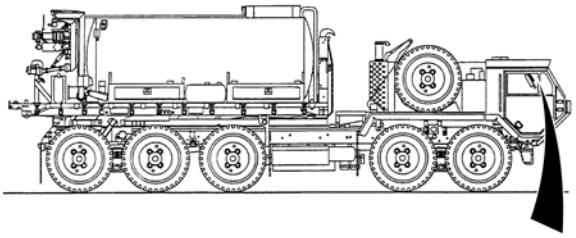
LEFT SPRAY BAR WING

OPERATIONAL TEST

Operate left spray bar wing lower function from front control panel, (Para 2-1). Check if left spray bar wing lowers.

(a) If left spray bar wing does not lower, go to “Two or More Front Spray Bar Adjustment Controls Do Not Operate”, (Fault 1).

(b) If left spray bar wing lowers, go to Step 22 of this Fault.





LEFT SPRAY BAR
WING FOLD SWITCH

21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (white/black wire) OK.
- Left spray bar wing raise solenoid valve OK.
- Left spray bar wing raise solenoid valve ground wire connection OK.
- LEFT (wing) switch OK.
- Burner and manifold wire harness (red/black wire) OK.
- Left spray bar wing lower solenoid valve OK.
- Left spray bar wing lower solenoid valve ground wire connection OK.
- Red/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 black) OK.
- Rear control panel wire harness (wire 3 black) OK.

POSSIBLE PROBLEMS

- White/black wire from front control panel terminal strip to left WING FOLD switch faulty.
- Front control panel wire harness (wire 3 white) faulty.
- Rear control panel wire harness (wire 3 white) faulty.
- PLS interface faulty.

22.

WARNING

Read WARNING on Page 4-721

Is continuity measured across white/black wire from front control panel terminal strip to left WING FOLD switch?

NO → Repair white/black wire, (Para 3-80). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

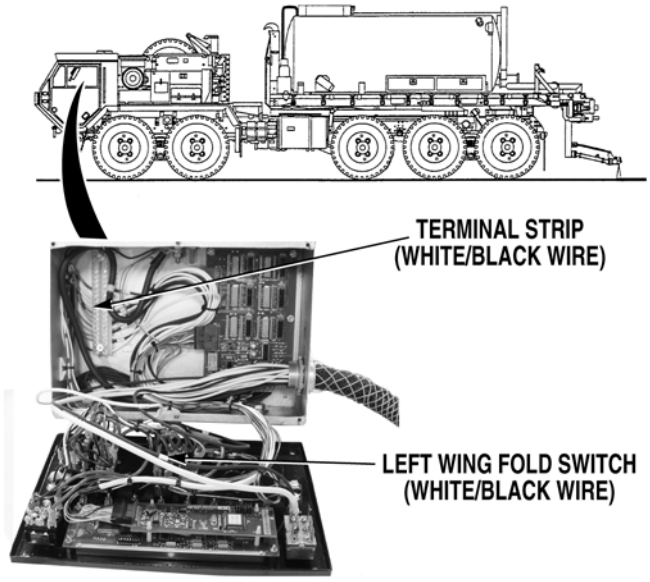
Continuity test.

REASON FOR QUESTION

If continuity is not measured, white/black wire is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.



CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove front control panel, (Para 3-76).

(4) Set multimeter select switch to ohms.

(5) Connect positive (+) multimeter lead to white/black wire at front control panel terminal strip.

(6) Connect negative (-) multimeter lead to white/black wire at front control panel left WING FOLD switch.

(a) If continuity is not measured, repair white/black wire between front control panel terminal strip and left WING FOLD switch, (Para 3-80). Verify repair, go to Step 25 of this Fault

(b) If continuity is measured, go to Step 23 of this Fault.

21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (white/black wire) OK.
- Left spray bar wing raise solenoid valve OK.
- Left spray bar wing raise solenoid valve ground wire connection OK.
- LEFT (wing) switch OK.
- Burner and main manifold wire harness (red/black wire) OK.
- Left spray bar wing lower solenoid valve OK.
- Left spray bar wing lower solenoid valve ground wire connection OK.
- Red/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 black) OK.
- Rear control panel wire harness (wire 3 black) OK.
- White/black wire from front control panel terminal strip to left WING FOLD switch OK.

POSSIBLE PROBLEMS

- Front control panel wire harness (wire 3 white) faulty.
- Rear control panel wire harness (wire 3 white) faulty.
- PLS interface faulty.

23.

WARNING

Read WARNING on Page 4-723

Is continuity measured across wire 3 white from front control panel terminal strip to connector MC129, terminal D?

NO → Repair wire 3 white (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 25 of this Fault

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel wire harness (wire 3 white) is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors M129 and M130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Disconnect front control panel connector MC129, (Para 2-10).

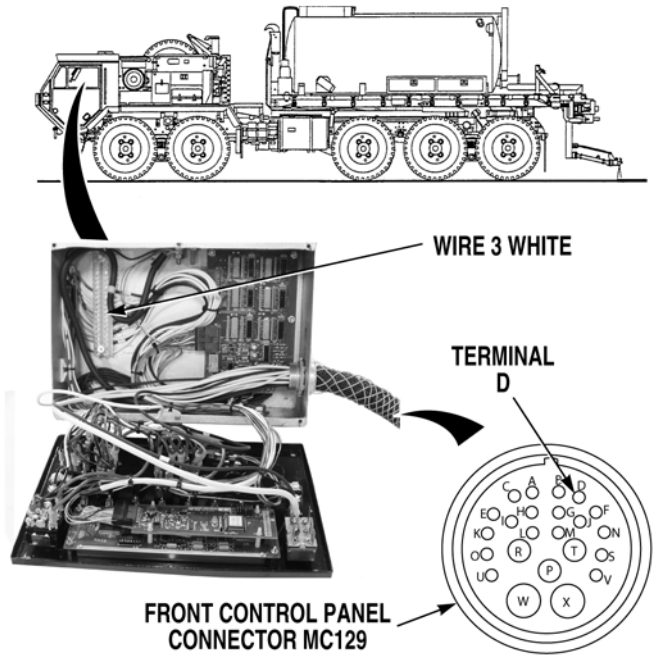
(2) Set multimeter select switch to ohms.

(3) Connect positive (+) multimeter lead to wire 3 white at front control panel connector MC129, terminal D.

(4) Connect negative (-) multimeter lead to wire 3 white at front control panel terminal strip.

(a) If continuity is not measured, repair wire 3 white, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 25 of this Fault.

(b) If continuity is measured, go to Step 24 of this Fault.



21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

Spray bar shift and lift functions operate.

Power to front and rear control panels OK.

Hydraulic power to burner and main manifold OK.

Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.

Hydraulic cylinder OK.

Burner and main manifold wire harness (white/black wire) OK.

Left spray bar wing raise solenoid valve OK.

Left spray bar wing raise solenoid valve ground wire connection OK.

LEFT (wing) switch OK.

Burner and manifold wire harness (red/black wire) OK.

Left spray bar wing lower solenoid valve OK.

Left spray bar wing lower solenoid valve ground wire connection OK.

Red/black wire from front control panel terminal strip to left WING FOLD switch OK.

Front control panel wire harness (wire 3 black) OK.

Rear control panel wire harness (wire 3 black) OK.

White/black wire from front control panel terminal strip to left WING FOLD switch OK.

Front control panel wire harness (wire 3 white) OK.

POSSIBLE PROBLEMS

Rear control panel wire harness (wire 3 white) faulty.

PLS interface faulty.

24.

WARNING

Read WARNING on Page 4-725

Is continuity measured across wire 3 white from connector MC130, terminal D, to rear control panel LEFT (wing) switch?

NO → Repair wire 3 white, (Para 3-80) or repair rear control panel wire harness, (Para 3-62). Verify repair, go to Step 25 of this Fault.

YES → PLS interface is faulty. Notify Supervisor.

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is measured, PLS interface is faulty. If not, rear control panel wire harness, wire 3 white is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Remove rear control panel, (Para 3-76).

(3) Disconnect rear control panel connector MC130 (UPIK), (Para 2-10).

(4) Push in battery disconnect switch, (TM 9-2320-364-10).

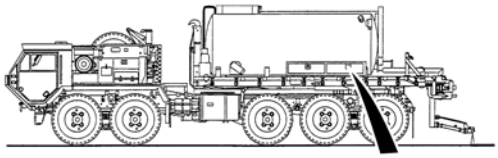
(5) Connect jumperwire between wire 3 white, at EMM connector MC130, terminal D, and a known good ground.

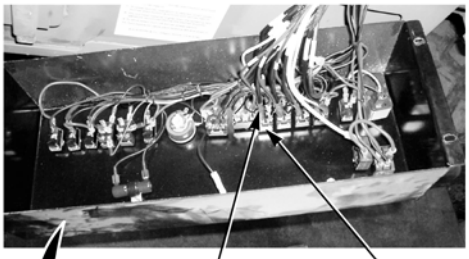
(6) Connect positive (+) multimeter lead to wire 3 white at rear control panel LEFT (wing) switch.

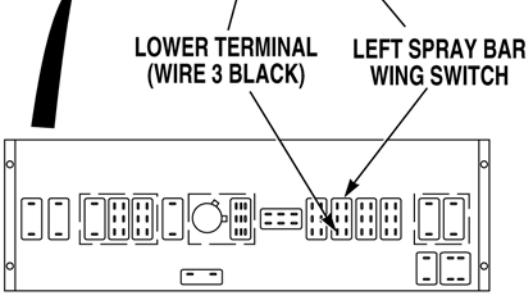
(7) Connect negative (-) multimeter lead to wire 3 white rear control panel LEFT (wing) switch.

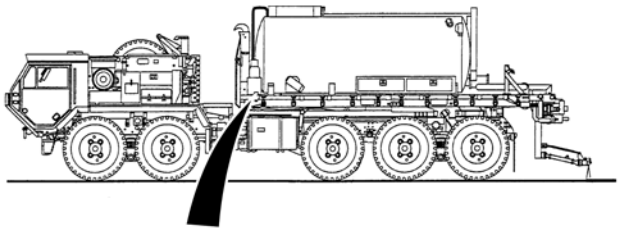
(a) If continuity is not measured, repair wire 3 white, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 25 of this Fault.

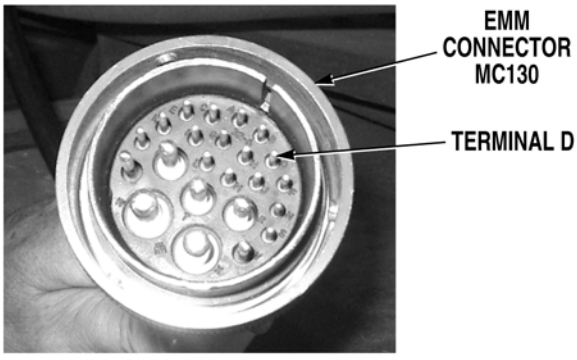
(b) If continuity is measured, PLS interface is faulty. Notify Supervisor.











21. LEFT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (white/black wire) OK.
- Left spray bar wing raise solenoid valve OK.
- Left spray bar wing raise solenoid valve ground wire connection OK.
- LEFT (wing) switch OK.
- Burner and manifold wire harness (red/black wire) OK.
- Left spray bar wing lower solenoid valve OK.
- Left spray bar wing lower solenoid valve ground wire connection OK.
- Red/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 black) OK.
- Rear control panel wire harness (wire 3 black) OK.
- White/black wire from front control panel terminal strip to left WING FOLD switch OK.
- Front control panel wire harness (wire 3 white) OK.
- Rear control panel wire harness (wire 3 white) OK.

POSSIBLE PROBLEMS

None.

25.

WARNING

Read WARNING on Page 4-727

Does left spray bar wing raise and lower from front and rear control panel?

NO → Fault not corrected. Notify Supervisor.

YES → Fault corrected.

TEST OPTIONS

Verify repair.

REASON FOR QUESTION

If left spray bar wing raises and lowers, fault has been corrected. ←

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

VERIFY REPAIR

(1) If on, shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) If removed, install front control panel, (Para 3-76).

(4) If removed, install rear control panel, (Para 3-76).

(5) If disconnected, connect front control panel connector MC129, (Para 2-10).

(6) If disconnected, connect rear control panel connector MC130 (UPIK), (Para 2-10).

(7) Push in battery disconnect switch, (TM 9-2320-364-10).

(8) Start engine, (TM 9-2320-364-10).

(9) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(10) Turn front control panel POWER switch ON, (Para 2-1).

(11) Turn rear control panel POWER switch ON, (Para 2-1).

(12) Operate left spray bar wing raise and lower function, (Para 2-1).

(a) If left spray bar wing does not raise and lower, fault not corrected. Notify Supervisor.

(b) If left spray bar wing raises and lowers. Fault has been corrected.

(13) Shut OFF engine, (TM 9-2320-364-10).



LEFT SPRAY BAR WING

22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL).

INITIAL SETUP

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
- Multimeter (Item 8, Appendix F)
- Pan, Drain (Item 9, Appendix F)
- Jumperwire

Personnel Required
- Two

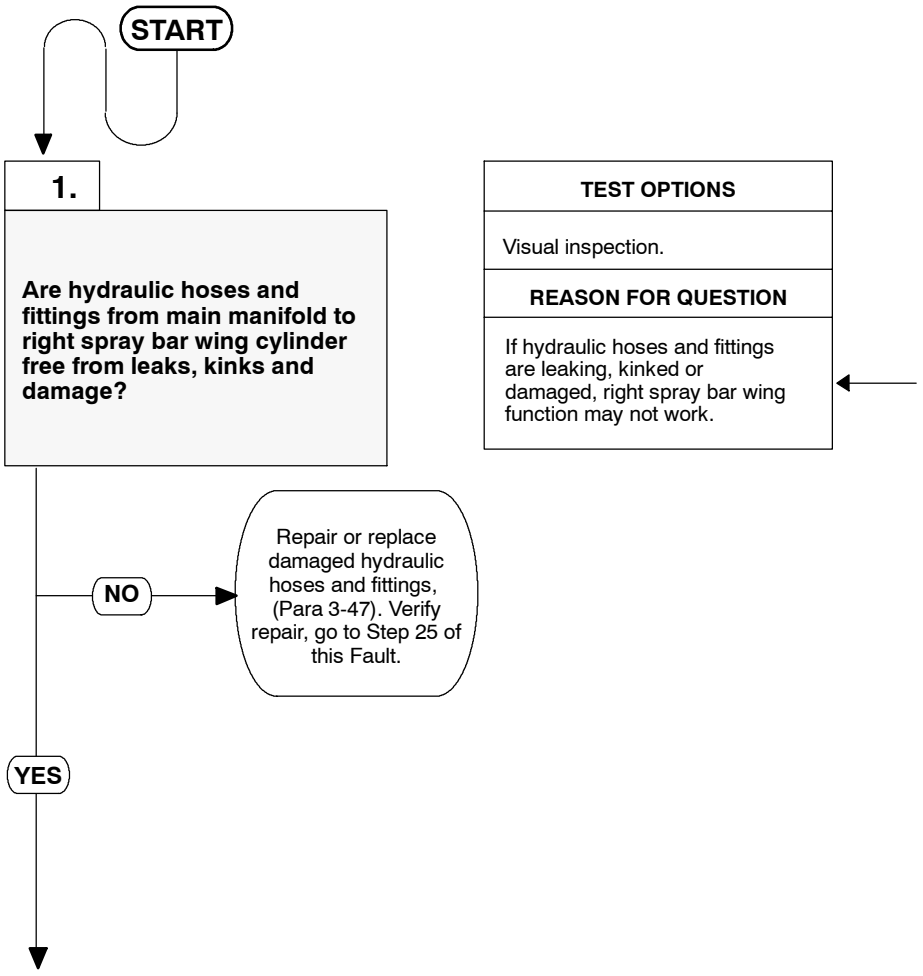
Equipment Condition
- Bituminous Distributor loaded on PLS, (Para 2-5)
- Engine OFF, (TM 9-2320-364-10)
- Wheels chocked, (TM 9-2320-364-10)

KNOWN INFO

Spray bar shift and lift functions operate.
Power to front and rear control panels OK.
Hydraulic power to burner and main manifold OK.

POSSIBLE PROBLEMS

Hydraulic hoses and fittings between main manifold and hydraulic cylinder leak, kinked or damaged.
Hydraulic cylinder faulty.
RIGHT (wing) switch faulty.
Burner and main manifold wire harness (green/black wire) faulty.
Right spray bar wing raise solenoid valve faulty.
Right spray bar wing raise solenoid valve ground wire connection faulty.
Burner and main manifold wire harness (green wire) faulty.
Right spray bar wing lower solenoid valve faulty.
Right spray bar wing lower solenoid valve ground wire connection faulty.
Green wire from front control panel terminal strip to right WING FOLD switch faulty.
Front control panel wire harness (wire 4 black) faulty.
Rear Control panel wire harness (wire 4 black) faulty.
PLS interface faulty.
Green/black wire from front control panel terminal strip to right WING FOLD switch faulty.
Front control panel wire harness (wire 4 white) faulty.
Rear control panel wire harness (wire 4 white) faulty.





RIGHT SPRAY BAR WING HYDRAULIC CYLINDER

VISUAL INSPECTION

(1) Start engine, (TM 9-2320-364-10).

(2) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(3) Turn front control panel POWER switch ON, (Para 2-1).

(4) Turn rear control panel POWER switch ON, (Para 2-1).

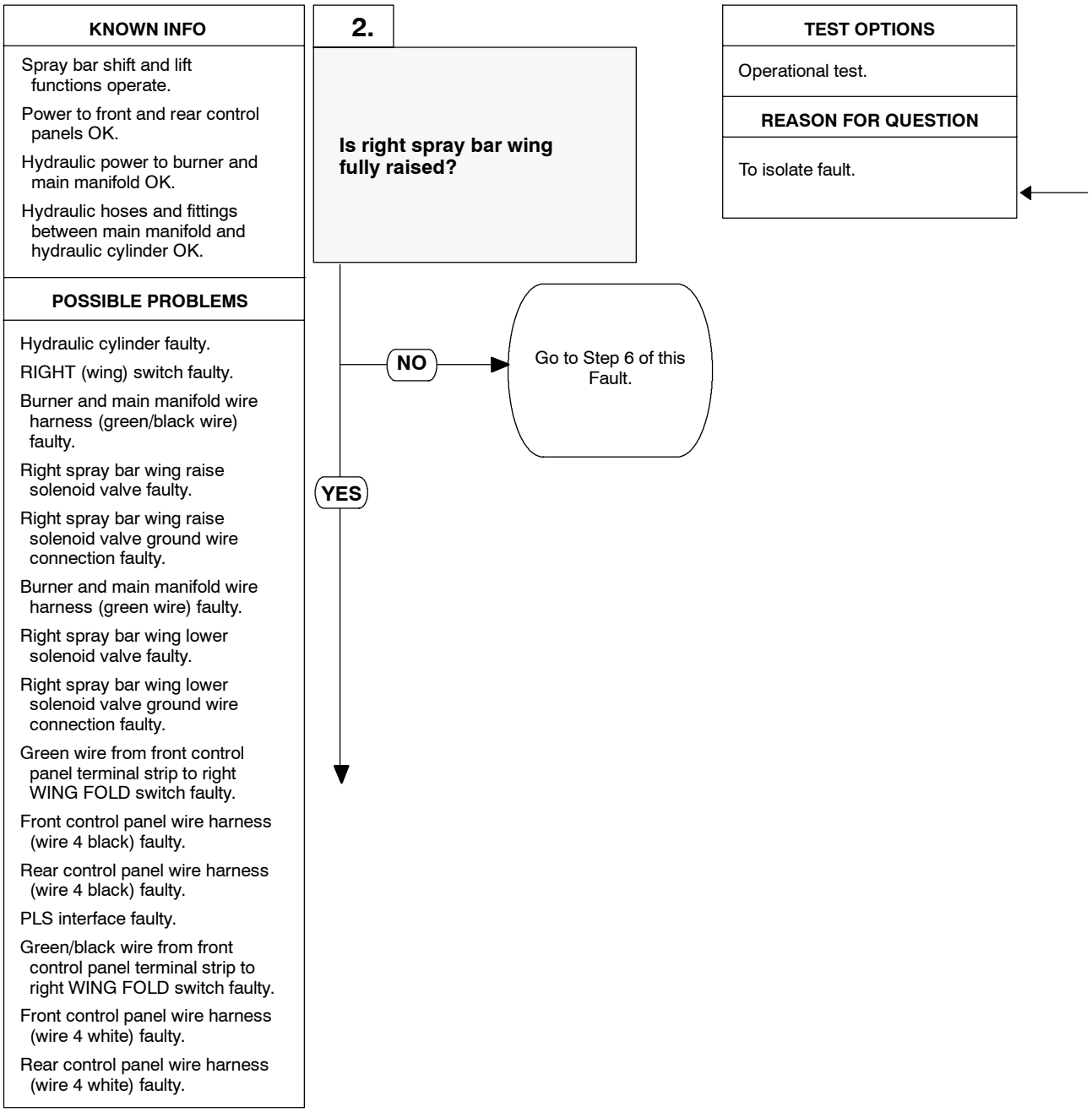
(5) Operate right spray bar wing function, (Para 2-17).

(6) Inspect hydraulic hoses from main manifold to right spray bar wing hydraulic cylinder for leaks, kinks and damage.

  (a) If hydraulic hoses and fittings are leaking, kinked or damaged, repair or replace hydraulic hoses or fittings, (Para 3-47). Verify repair, go to Step 25 of this Fault.

  (b) If hydraulic hoses and fittings are not leaking, kinked or damaged, go to Step 2 of this Fault.

22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).





RIGHT SPRAY BAR WING

OPERATIONAL TEST
Check if right spray bar wing is fully raised. (a) If right spray bar wing is not fully raised, go to Step 6 of this Fault. (b) If right spray bar wing is fully raised, go to Step 3 of this Fault.

22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

Spray bar shift and lift functions operate.

Power to front and rear control panels OK.

Hydraulic power to burner and main manifold OK.

Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.

POSSIBLE PROBLEMS

Hydraulic cylinder faulty.

RIGHT (wing) switch faulty.

Burner and main manifold wire harness (green/black wire) faulty.

Right spray bar wing raise solenoid valve faulty.

Right spray bar wing raise solenoid valve ground wire connection faulty.

Burner and main manifold wire harness (green wire) faulty.

Right spray bar wing lower solenoid valve faulty.

Right spray bar wing lower solenoid valve ground wire connection faulty.

Green wire from front control panel terminal strip to right WING FOLD switch faulty.

Front control panel wire harness (wire 4 black) faulty.

Rear control panel wire harness (wire 4 black) faulty.

PLS interface faulty.

Green/black wire from front control panel terminal strip to right WING FOLD switch faulty.

Front control panel wire harness (wire 4 white) faulty.

Rear control panel wire harness (wire 4 white) faulty.

3.

Does right spray bar wing lower when using rear control panel controls?

NO → Go to Step 5 of this Fault.

YES

TEST OPTIONS

Operational test.

REASON FOR QUESTION

To further isolate fault.



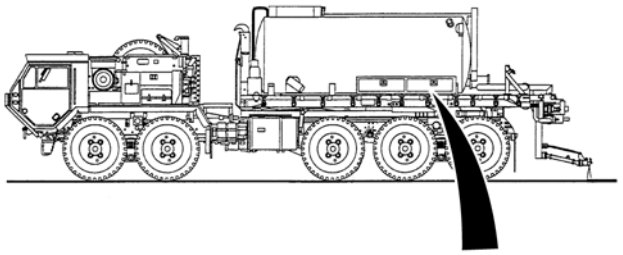
RIGHT SPRAY BAR WING

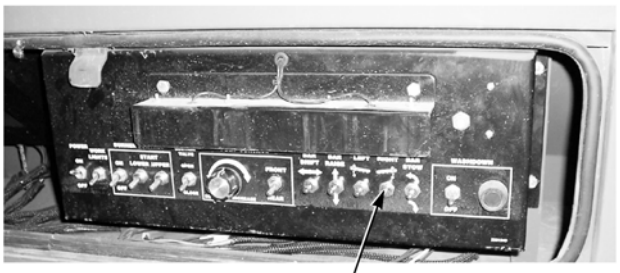
OPERATIONAL TEST

Operate right spray bar wing lower function from rear control panel, (Para 2-1). Check if right spray bar wing lowers.

(a) If right spray bar wing does not lower, go to Step 5 of this Fault.

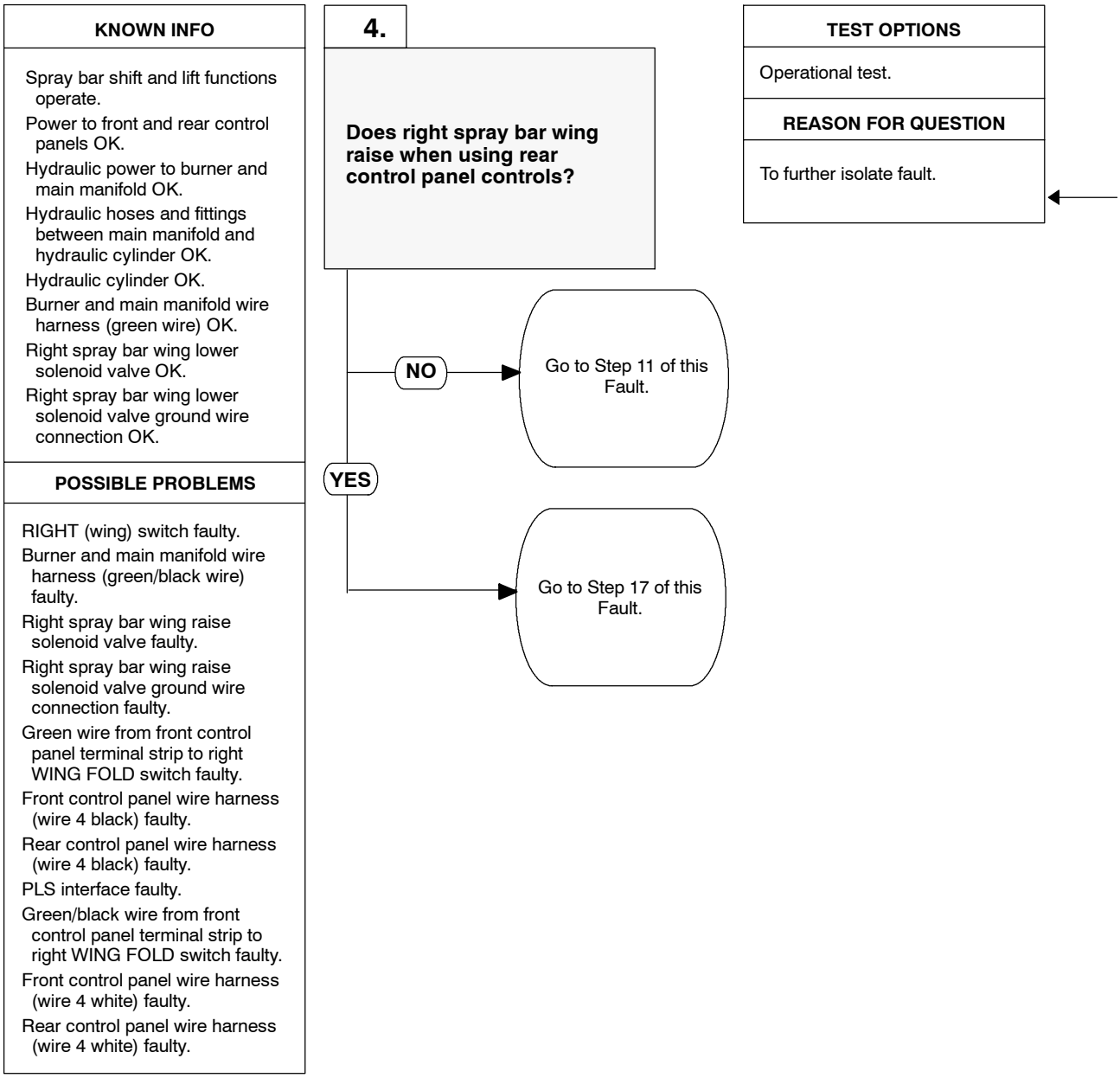
(b) If right spray bar wing lowers, go to Step 4 of this Fault.





RIGHT SPRAY BAR WING SWITCH

22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).





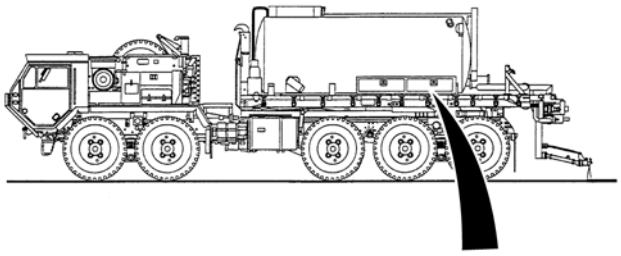
RIGHT SPRAY BAR WING

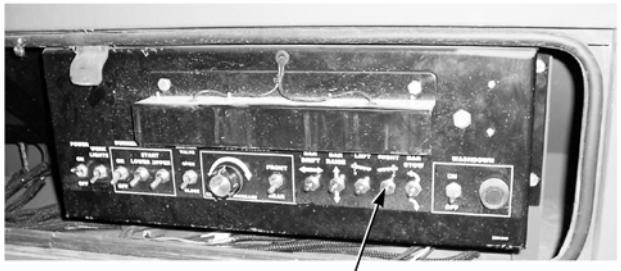
OPERATIONAL TEST

Operate right spray bar wing raise function from rear control panel, (Para 2-17). Check if right spray bar wing raises.

(a) If right spray bar wing does not raise, go to Step 11 of this Fault.

(b) If right spray bar wing raises, go to Step 17 of this Fault.





RIGHT SPRAY BAR WING SWITCH

22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

Spray bar shift and lift functions operate.
Power to front and rear control panels OK.
Hydraulic power to burner and main manifold OK.
Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
Burner and main manifold wire harness (green/black wire) OK.
Right spray bar wing raise solenoid valve OK.
Right spray bar wing raise solenoid valve ground wire connection OK.
Green wire from front control panel terminal strip to right WING FOLD switch OK.
Front control panel wire harness (wire 4 black) OK.
Rear control panel wire harness (wire 4 black) OK.
Green/black wire from front control panel terminal strip to right WING FOLD switch OK.
Front control panel wire harness (wire 4 white) OK.
Rear control panel wire harness (wire 4 white) OK.

POSSIBLE PROBLEMS

Hydraulic cylinder faulty.
RIGHT (wing) switch faulty.
Burner and main manifold wire harness (green wire) faulty.
PLS interface faulty.

5.

Does right spray bar wing raise when using rear control panel after manually centering right spray bar wing?

NO → Replace hydraulic cylinder, (Para 3-22). Verify repair, go to Step 25 of this Fault.

YES → Go to Step 14 of this Fault.

TEST OPTIONS

Operational test.

REASON FOR QUESTION

If right spray bar wing does not raise, hydraulic cylinder may be faulty.



RIGHT SPRAY BAR WING

OPERATIONAL TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Place drain pan under right spray bar wing hydraulic cylinder.

(3) Disconnect hydraulic hoses from right spray bar wing hydraulic cylinder, (Para 3-47).

(4) Manually place right spray bar wing in centered position.

(5) Connect hydraulic hoses to right spray bar wing hydraulic cylinder, (Para 3-47).

(6) Start engine, (TM 9-2320-364-10).

(7) Turn hydraulic select switch to CRANE/SRW (TM 9-2320-364-10).

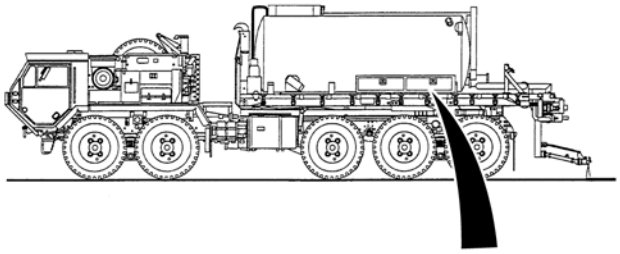
(8) Turn front control panel POWER switch ON, (Para 2-1).

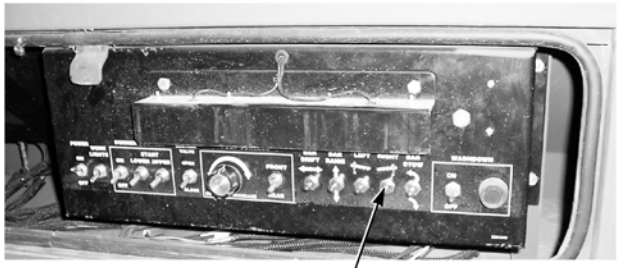
(9) Turn rear control panel POWER switch ON, (Para 2-1).

(10) Operate right spray bar wing raise function from rear control panel, (Para 2-17). Check if right spray bar wing raises.

(a) If right spray bar wing does not raise, replace hydraulic cylinder, (Para 3-22). Verify repair, go to Step 25 of this Fault.

(b) If right spray bar wing raises, go to Step14 of this Fault.





RIGHT SPRAY BAR WING SWITCH

22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

Spray bar shift and lift functions operate.
Power to front and rear control panels OK.
Hydraulic power to burner and main manifold OK.
Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.

POSSIBLE PROBLEMS

Hydraulic cylinder faulty.
RIGHT (wing) switch faulty.
Burner and main manifold wire harness (green/black wire) faulty.
Right spray bar wing raise solenoid valve faulty.
Right spray bar wing raise solenoid valve ground wire connection faulty.
Burner and main manifold wire harness (green wire) faulty.
Right spray bar wing lower solenoid valve faulty.
Right spray bar wing lower solenoid valve ground wire connection faulty.
Green wire from front control panel terminal strip to right WING FOLD switch faulty.
Front control panel wire harness (wire 4 black) faulty.
Rear control panel wire harness (wire 4 black) faulty.
PLS interface faulty.
Green/black wire from front control panel terminal strip to right WING FOLD switch faulty.
Front control panel wire harness (wire 4 white) faulty.
Rear control panel wire harness (wire 4 white) faulty.

6.

Does right spray bar wing raise when using rear control panel controls?

NO → Go to Step 8 of this Fault.

YES

TEST OPTIONS

Operational test.

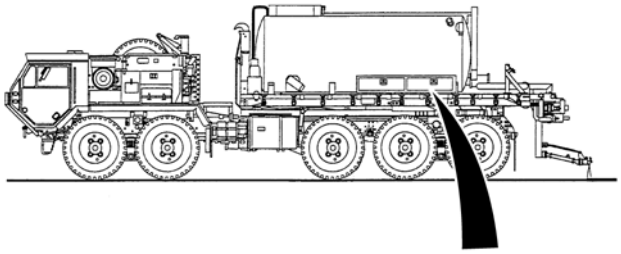
REASON FOR QUESTION

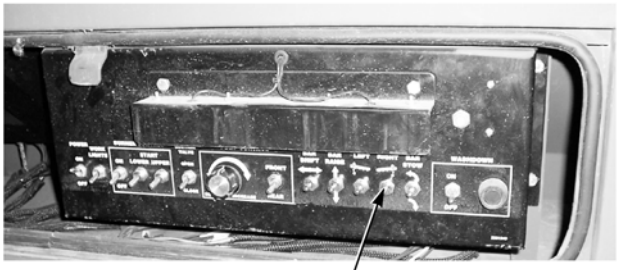
To further isolate fault.



RIGHT SPRAY BAR WING

OPERATIONAL TEST
Operate right spray bar wing raise function from rear control panel, (Para 2-17). (a) If right spray bar wing does not raise, go to Step 8 of this Fault. (b) If right spray bar wing raises, go to Step 7 of this Fault.





RIGHT SPRAY BAR WING SWITCH

22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

Spray bar shift and lift functions operate.
Power to front and rear control panels OK.
Hydraulic power to burner and main manifold OK.
Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
Hydraulic cylinder OK
Burner and main manifold wire harness (green/black wire) OK.
Right spray bar wing raise solenoid valve OK.
Right spray bar wing raise solenoid valve ground wire connection OK.

POSSIBLE PROBLEMS

RIGHT (wing) switch faulty.
Burner and main manifold wire harness (green wire) faulty.
Right spray bar wing lower solenoid valve faulty.
Right spray bar wing lower solenoid valve ground wire connection faulty.
Green wire from front control panel terminal strip to right WING FOLD switch faulty.
Front control panel wire harness (wire 4 black) faulty.
Rear control panel wire harness (wire 4 black) faulty.
PLS interface faulty.
Green/black wire from front control panel terminal strip to right WING FOLD switch faulty.
Front control panel wire harness (wire 4 white) faulty.
Rear control panel wire harness (wire 4 white) faulty.

7.

Does right spray bar wing lower when using rear control panel controls?

TEST OPTIONS

Operational test.

REASON FOR QUESTION

To further isolate fault.

NO → Go to Step 14 of this Fault.

YES → Go to Step 17 of this Fault.



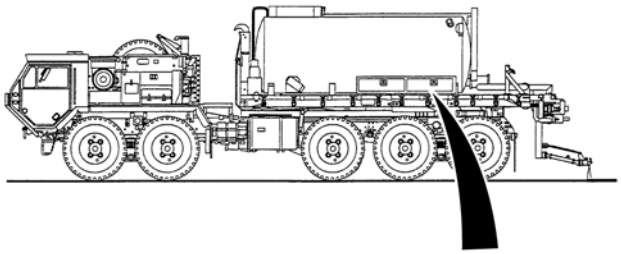
RIGHT SPRAY BAR WING

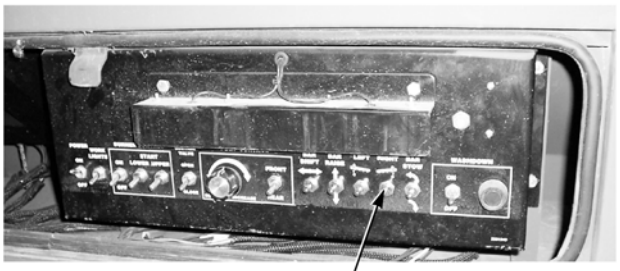
OPERATIONAL TEST

Operate right spray bar wing lower function from rear control panel, (Para 2-17). Check if right spray bar wing lowers.

(a) If right spray bar wing does not lower, go to Step 14 of this Fault.

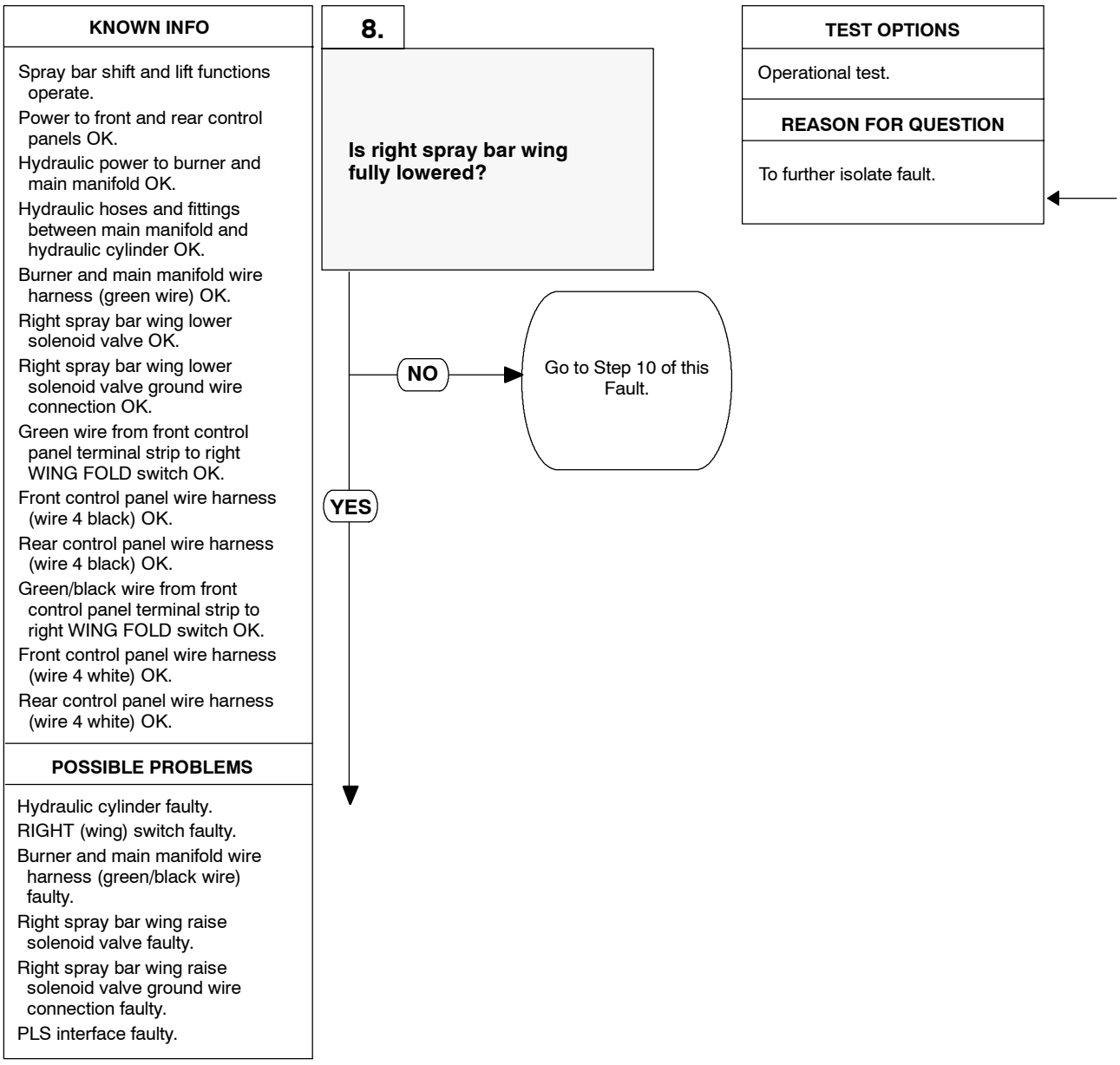
(b) If right spray bar wing lowers, go to Step 17 of this Fault.





RIGHT SPRAY BAR WING SWITCH

22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).





RIGHT SPRAY BAR WING

OPERATIONAL TEST
Check if right spray bar wing is fully lowered. (a) If right spray bar wing is not fully lowered, go to Step 10 of this Fault. (b) If right spray bar wing is fully lowered, go to Step 9 of this Fault.

22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

Spray bar shift and lift functions operate.
Power to front and rear control panels OK.
Hydraulic power to burner and main manifold OK.
Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
Burner and main manifold wire harness (green wire) OK.
Right spray bar wing lower solenoid valve OK.
Right spray bar wing lower solenoid valve ground wire connection OK.
Green wire from front control panel terminal strip to right WING FOLD switch OK.
Front control panel wire harness (wire 4 black) OK.
Rear control panel wire harness (wire 4 black) OK.
Green/black wire from front control panel terminal strip to right WING FOLD switch OK.
Front control panel wire harness (wire 4 white) OK.
Rear control panel wire harness (wire 4 white) OK.

POSSIBLE PROBLEMS

Hydraulic cylinder faulty.
RIGHT (wing) switch faulty.
Burner and main manifold wire harness (green/black wire) faulty.
Right spray bar wing raise solenoid valve faulty.
Right spray bar wing raise solenoid valve ground wire connection faulty.
PLS interface faulty.

9.

Does right spray bar wing lower when using rear control panel after manually centering spray bar?

TEST OPTIONS

Operational test.

REASON FOR QUESTION

If right spray bar wing does not lower, hydraulic cylinder may be faulty.

NO → Replace hydraulic cylinder, (Para 3-22). Verify repair, go to Step 25 of this Fault.

YES → Go to Step 11 of this Fault.



RIGHT SPRAY BAR WING

OPERATIONAL TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Place drain pan under right spray bar wing hydraulic cylinder.

(3) Disconnect hydraulic hoses from right spray bar wing hydraulic cylinder, (Para 3-47).

(4) Manually place right spray bar wing in centered position.

(5) Connect hydraulic hoses to right spray bar wing hydraulic cylinder, (Para 3-47).

(6) Start engine, (TM 9-2320-364-10).

(7) Turn hydraulic select switch to CRANE/SRW (TM 9-2320-364-10).

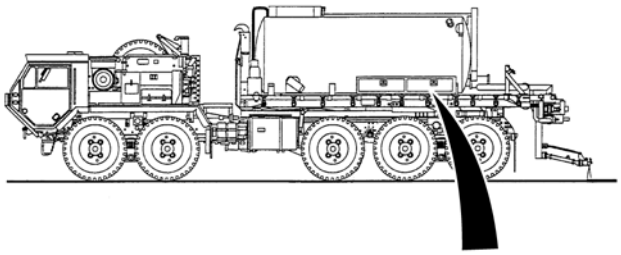
(8) Turn front control panel POWER switch ON, (Para 2-1).

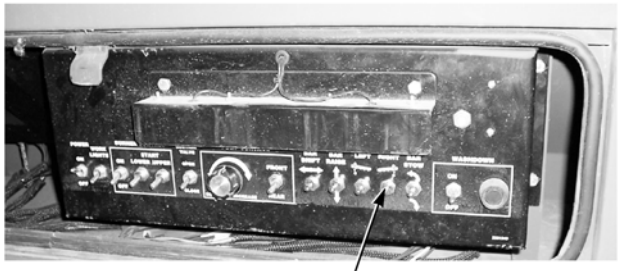
(9) Turn rear control panel POWER switch ON, (Para 2-1).

(10) Operate right spray bar wing lower function from rear control panel, (Para 2-17). Check if right spray bar wing lowers.

(a) If right spray bar wing does not lower, replace hydraulic cylinder, (Para 3-22). Verify repair, go to Step 25 of the Fault.

(b) If right spray bar wing lowers, go to Step 11 of this Fault.





RIGHT SPRAY BAR WING SWITCH

22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Burner and main manifold wire harness (green wire) OK.
- Right spray bar wing lower solenoid valve OK.
- Right spray bar wing lower solenoid valve ground wire connection OK.
- Green wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 black) OK.
- Rear control panel wire harness (wire 4 black) OK.
- Green/black wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 white) OK.
- Rear control panel wire harness (wire 4 white) OK.
- PLS interface OK.

POSSIBLE PROBLEMS

- Hydraulic cylinder faulty.
- RIGHT (wing) switch faulty.
- Burner and main manifold wire harness (green/black wire) faulty.
- Right spray bar wing raise solenoid valve faulty.
- Right spray bar wing raise solenoid valve ground wire connection faulty.

10.

Does right spray bar wing lower when using rear control panel controls?

NO → Replace hydraulic cylinder, (Para 3-22). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

Operational test.

REASON FOR QUESTION

If right spray bar wing does not lower, hydraulic cylinder may be faulty.



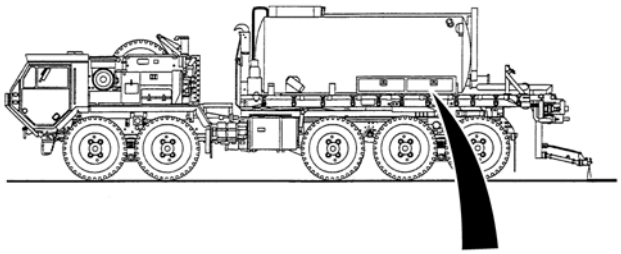
RIGHT SPRAY BAR WING

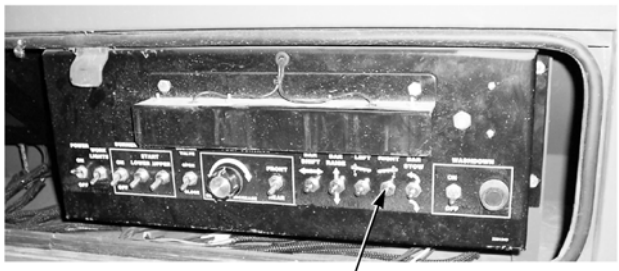
OPERATIONAL TEST

Operate right spray bar wing lower function from rear control panel, (Para 2-17). Check if right spray bar wing lowers.

(a) If right spray bar wing does not lower, replace hydraulic cylinder, (Para 3-22). Verify repair, go to Step 25 of this Fault.

(b) If right spray bar wing lowers, go to Step 11 of this Fault.





RIGHT SPRAY BAR WING SWITCH

22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Burner and main manifold wire harness (green wire) OK.
- Right spray bar wing lower solenoid valve OK.
- Right spray bar wing lower solenoid valve ground wire connection OK.
- Green wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 black) OK.
- Rear control panel wire harness (wire 4 black) OK.
- Green/black wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 white) OK.
- Rear control panel wire harness (wire 4 white) OK.
- PLS interface OK.
- Hydraulic cylinder OK.

POSSIBLE PROBLEMS

- RIGHT (wing) switch faulty.
- Burner and main manifold wire harness (green/black wire) faulty.
- Right spray bar wing raise solenoid valve faulty.
- Right spray bar wing raise solenoid valve ground wire connection faulty.

11.

WARNING

Read WARNING on Page 4-749

Are 10 to 14 VDC measured between RIGHT (wing) switch, raise terminal (green/black wire) and a known good ground when RIGHT (wing) switch is held in the raise position?

NO → Replace RIGHT (wing) switch, (Para 3-6). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

Voltage test.

REASON FOR QUESTION

If 10 to 14 VDC are not present, RIGHT (wing) switch is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VOLTAGE TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove rear control panel, (Para 3-76).

(4) Push in battery disconnect switch, (TM 9-2320-364-10).

(5) Turn front control panel POWER switch ON, (Para 2-1).

(6) Turn rear control panel POWER switch ON, (Para 2-1).

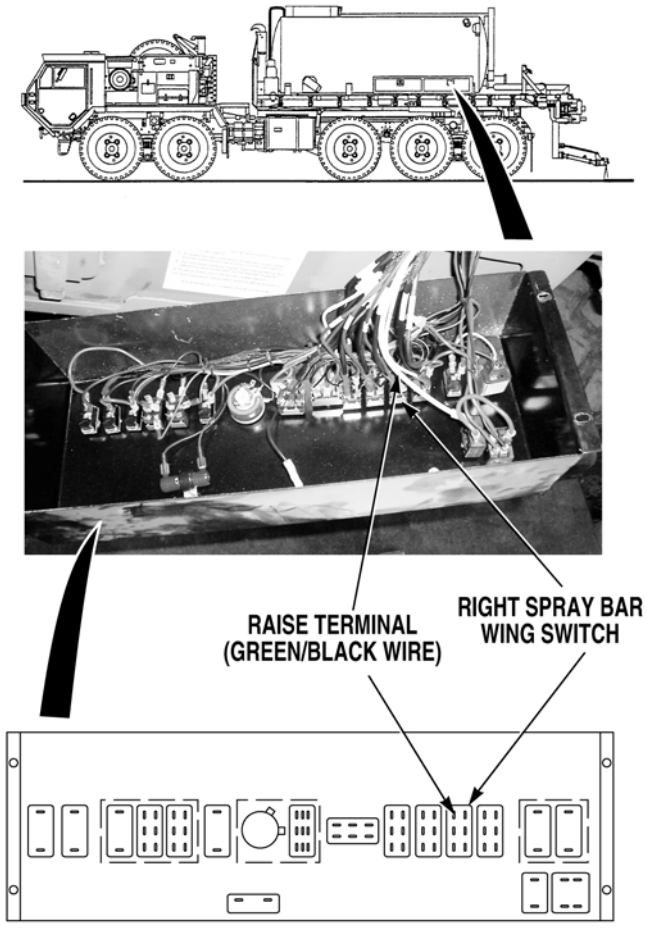
(7) Connect positive (+) multimeter lead to raise terminal (green/black wire) at RIGHT (wing) switch.

(8) Connect negative (-) multimeter lead to a known good ground.

(9) While an assistant places and holds RIGHT (wing) switch in the raise position, note meter reading.

(a) If 10 to 14 VDC are not present, replace RIGHT (wing) switch, (Para 3-6). Verify repair, go to Step 25 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 12 of this Fault.



22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Burner and main manifold wire harness (green wire) OK.
- Right spray bar wing lower solenoid valve OK.
- Right spray bar wing lower solenoid valve ground wire connection OK.
- Green wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 black) OK.
- Rear control panel wire harness (wire 4 black) OK.
- Green/black wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 white) OK.
- Rear control panel wire harness (wire 4 white) OK.
- PLS interface OK.
- Hydraulic cylinder OK.
- RIGHT (wing) switch OK.

POSSIBLE PROBLEMS

- Burner and main manifold wire harness (green/black wire) faulty.
- Right spray bar wing raise solenoid valve faulty.
- Right spray bar wing raise solenoid valve ground wire connection faulty.

12.

WARNING

Read WARNING on Page 4-751

Are 10 to 14 VDC measured between green/black wire at right spray bar wing solenoid valve and a known good ground when RIGHT (wing) switch is held in the raise position?

NO → Repair green/black wire, (Para 3-80) or replace burner and main manifold wire harness, (Para 3-58). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

Voltage test.

REASON FOR QUESTION

If 10 to 14 VDC are not present, green/black wire is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

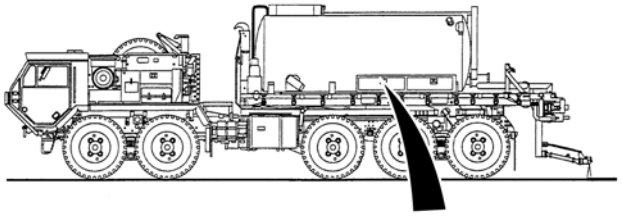
(1) Connect positive (+) multimeter lead to green/black wire at right spray wing raise solenoid valve.

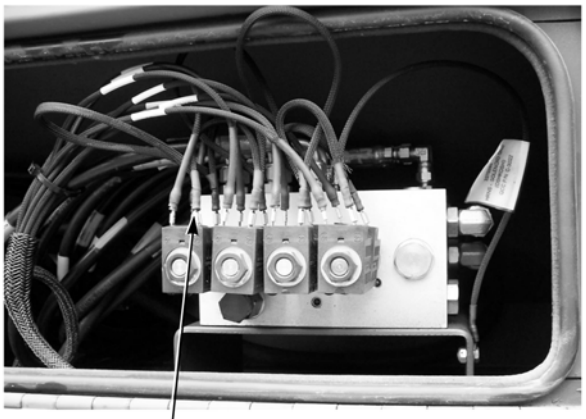
(2) Connect negative (-) multimeter lead to a known good ground.

(3) While an assistant places and holds right spray wing RIGHT (wing) switch in the raise position, note meter reading.

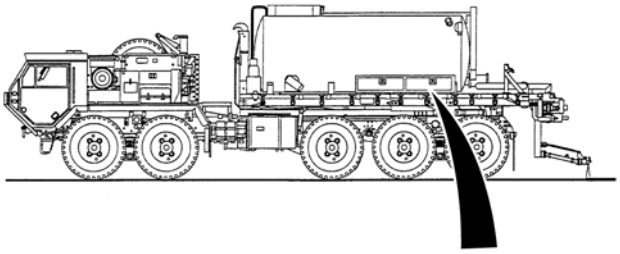
(a) If 10 to 14 VDC are not present, repair green/black wire, (Para 3-80) or replace burner and main manifold wire harness, (Para 3-58). Verify repair, go to Step 25 of this Fault.

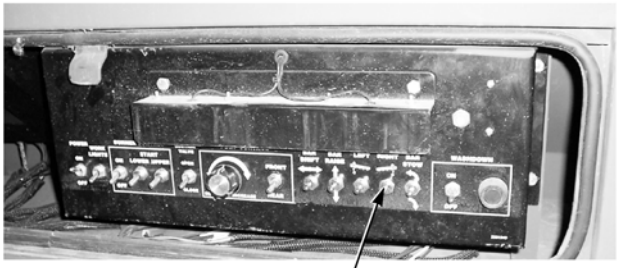
(b) If 10 to 14 VDC are present, go to Step 13 of this Fault.





RIGHT SPRAY BAR WING
RAISE REAR SOLENOID VALVE
(GREEN/BLACK WIRE)





RIGHT SPRAY BAR
WING SWITCH

22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Burner and main manifold wire harness (green wire) OK.
- Right spray bar wing lower solenoid valve OK.
- Right spray bar wing lower solenoid valve ground wire connection OK.
- Green wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 black) OK.
- Rear control panel wire harness (wire 4 black) OK.
- Green/black wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 white) OK.
- Rear control panel wire harness (wire 4 white) OK.
- PLS interface OK.
- Hydraulic cylinder OK.
- RIGHT (wing) switch OK.
- Burner and main manifold wire harness (green/black wire) OK.

POSSIBLE PROBLEMS

- Right spray bar wing raise solenoid valve faulty.
- Right spray bar wing raise solenoid valve ground wire connection faulty.

13.

WARNING

Read WARNING on Page 4-753

Is right wing raise solenoid valve ground connection secure?

NO → Repair ground connection, (Para 3-64). Verify repair, go to Step 25 of this Fault.

YES → Replace main manifold, (Para 3-29). Verify repair, go to Step 25 of this Fault.

TEST OPTIONS

Visual inspection.

REASON FOR QUESTION

If right spray bar wing raise solenoid valve ground connection is not secure, or right spray bar wing raise solenoid valve is faulty, right spray bar wing raise function will not operate.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VISUAL INSPECTION

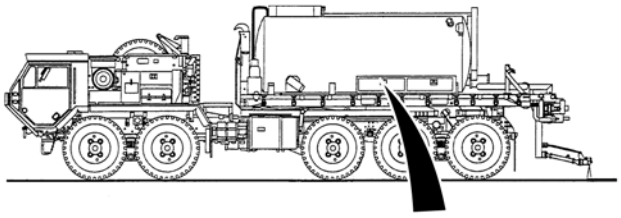
(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

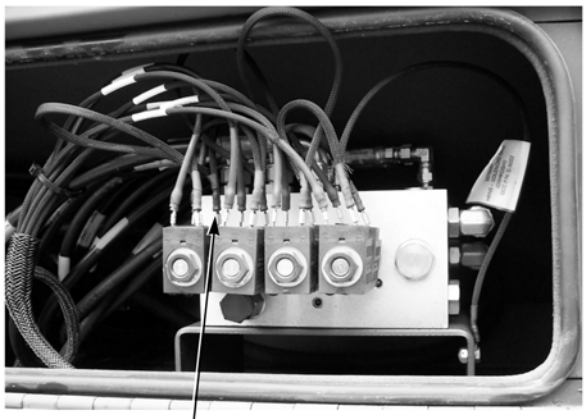
(2) Check ground wire connection at right spray bar wing raise solenoid valve.

  (a) If ground wire connection is not secure, repair ground connection, (Para 3-64).

  (b) If ground wire is secure, replace main manifold, (Para 3-29).

(3) Verify repair, go to Step 25 of this Fault.





RIGHT SPRAY BAR WING
RAISE REAR SOLENOID VALVE
(GROUND WIRE)

22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (green/black wire) OK.
- Right spray bar wing raise solenoid valve OK.
- Right spray bar wing raise solenoid valve ground wire connection OK.
- Front control panel wire harness (wire 4 black) OK.
- Rear control panel wire harness (wire 4 black) OK.
- Green/black wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 white) OK.
- Rear control panel wire harness (wire 4 white) OK.
- PLS interface OK.

POSSIBLE PROBLEMS

- RIGHT (wing) switch faulty.
- Burner and main manifold wire harness (green wire) faulty.
- Right spray bar wing lower solenoid valve faulty.
- Right spray bar wing lower solenoid valve ground wire connection faulty.
- Green wire from front control panel terminal strip to right WING FOLD switch faulty.

14.

WARNING

Read WARNING on Page 4-755

Are 10 to 14 VDC measured between RIGHT (wing) switch, lower terminal (green wire) and a known good ground, when RIGHT (wing) switch is held in the lower position?

NO → Replace RIGHT (wing) switch, (Para 3-6). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

Voltage test.

REASON FOR QUESTION

If 10 to 14 VDC are not present, RIGHT (wing) switch is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VOLTAGE TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove rear control panel, (Para 3-76).

(4) Push in battery disconnect switch, (TM 9-2320-364-10).

(5) Turn front control panel POWER switch ON, (Para 2-1).

(6) Turn rear control panel POWER switch ON, (Para 2-1).

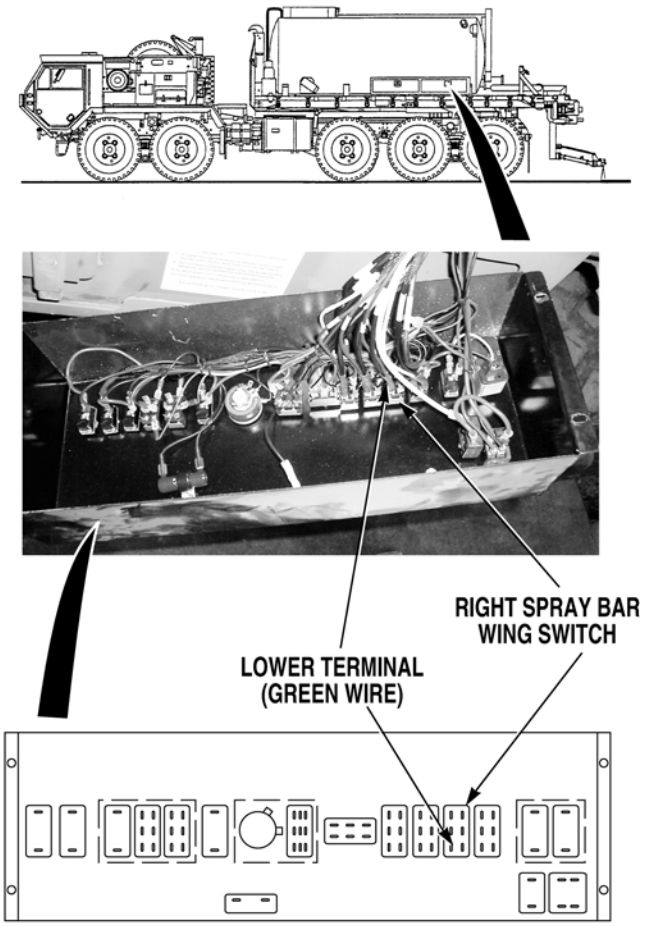
(7) Connect positive (+) multimeter lead to lower terminal (green wire) at RIGHT (wing) switch, rear control panel.

(8) Connect negative (-) multimeter lead to a known good ground.

(9) While an assistant places and holds RIGHT (wing) switch in the lower position, note meter reading.

(a) If 10 to 14 VDC are not present, replace RIGHT (wing) switch, (Para 3-6). Verify repair, go to Step 25 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 15 of this Fault.



22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (green/black wire) OK.
- Right spray bar wing raise solenoid valve OK.
- Right spray bar wing raise solenoid valve ground wire connection OK.
- Front control panel wire harness (wire 4 black) OK.
- Rear control panel wire harness (wire 4 black) OK.
- Green/black wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 white) OK.
- Rear control panel wire harness (wire 4 white) OK.
- PLS interface OK.
- Green wire from front control panel terminal strip to right WING FOLD switch OK.
- RIGHT (wing) switch OK.

POSSIBLE PROBLEMS

- Burner and main manifold wire harness (green wire) faulty.
- Right spray bar wing lower solenoid valve faulty.
- Right spray bar wing lower solenoid valve ground wire connection faulty.

15.

WARNING

Read WARNING on Page 4-757

Are 10 to 14 VDC measured between green wire at right wing lower solenoid valve and a known good ground when RIGHT (wing) switch is held in the lower position?

NO → Repair green wire, (Para 3-80) or replace burner and main manifold wire harness, (Para 3-58). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

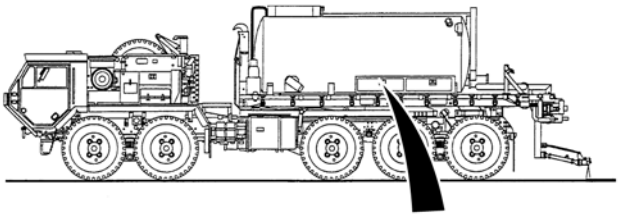
Voltage test.

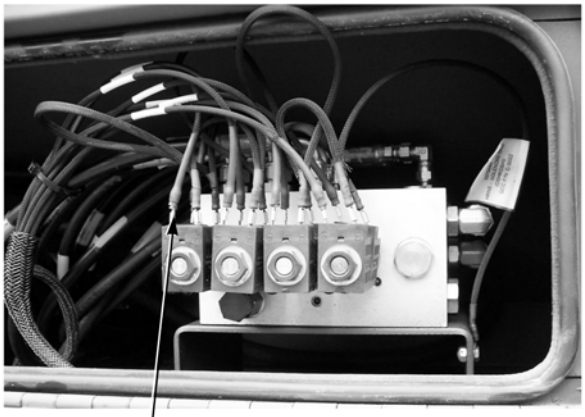
REASON FOR QUESTION

If 10 to 14 VDC are not present, green wire is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.





RIGHT SPRAY BAR WING
LOWER FRONT SOLENOID VALVE
(GREEN WIRE)

VOLTAGE TEST

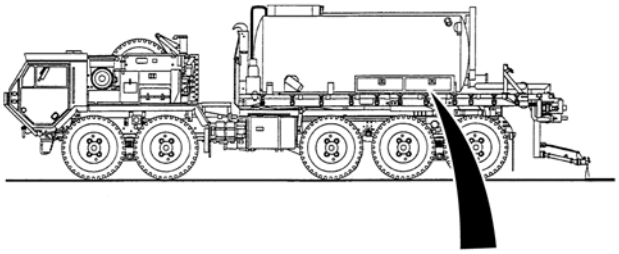
(1) Connect positive (+) multimeter lead to green wire at right spray bar wing lower solenoid valve.

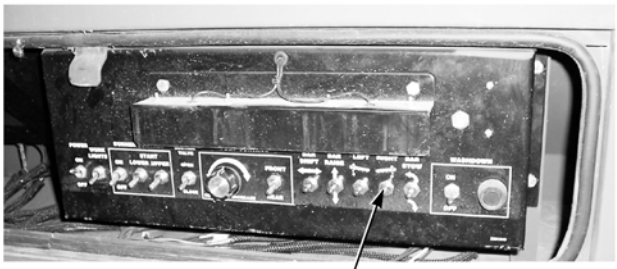
(2) Connect negative (-) multimeter lead to a known good ground.

(3) While an assistant places and holds RIGHT (wing) switch in the lower position, note meter reading.

(a) If 10 to 14 VDC are not present, repair green wire, (Para 3-80) or replace burner and main manifold wire harness, (Para 3-58). Verify repair, go to Step 25 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 16 of this Fault.





RIGHT SPRAY BAR
WING SWITCH

22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Burner and main manifold wire harness (green wire) OK.
- Front control panel wire harness (wire 4 black) OK.
- Rear Control panel wire harness (wire 4 black) OK.
- Green/black wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 white) OK.
- Rear control panel wire harness (wire 4 white) OK.
- PLS interface OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (green/black wire) OK.
- Spray bar shift left solenoid valve OK.
- Right spray bar wing raise solenoid valve ground wire connection OK.
- Green wire from front control panel terminal strip to right WING FOLD switch OK.
- RIGHT (wing) switch OK.

POSSIBLE PROBLEMS

- Right spray bar wing lower solenoid valve faulty.
- Right spray bar wing lower solenoid valve ground wire connection faulty.

16.

WARNING

Read WARNING on Page 4-759

Is right wing lower solenoid valve ground connection secure?

NO → Repair ground connection, (Para 3-64). Verify repair, go to Step 25 of this Fault.

YES → Replace main manifold, (Para 3-29). Verify repair, go to Step 25 of this Fault.

TEST OPTIONS

Visual inspection.

REASON FOR QUESTION

If right spray bar wing lower solenoid valve ground connection is not secure, or right spray bar wing lower solenoid valve is faulty, right spray bar wing lower function will not operate.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

VISUAL INSPECTION

(1) Shut OFF engine, (TM 9-2320-364-10).

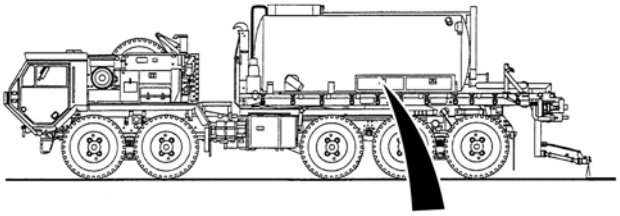
(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

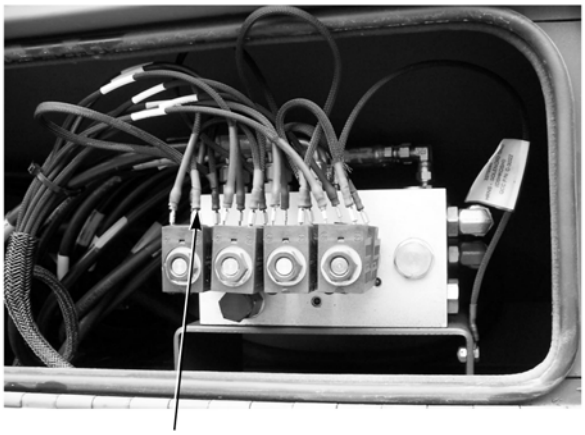
(3) Check ground wire connection at right spray bar wing lower solenoid valve.

  (a) If ground wire connection is not secure, repair ground connection, (Para 3-64).

  (b) If ground wire is secure, replace main manifold, (Para 3-29).

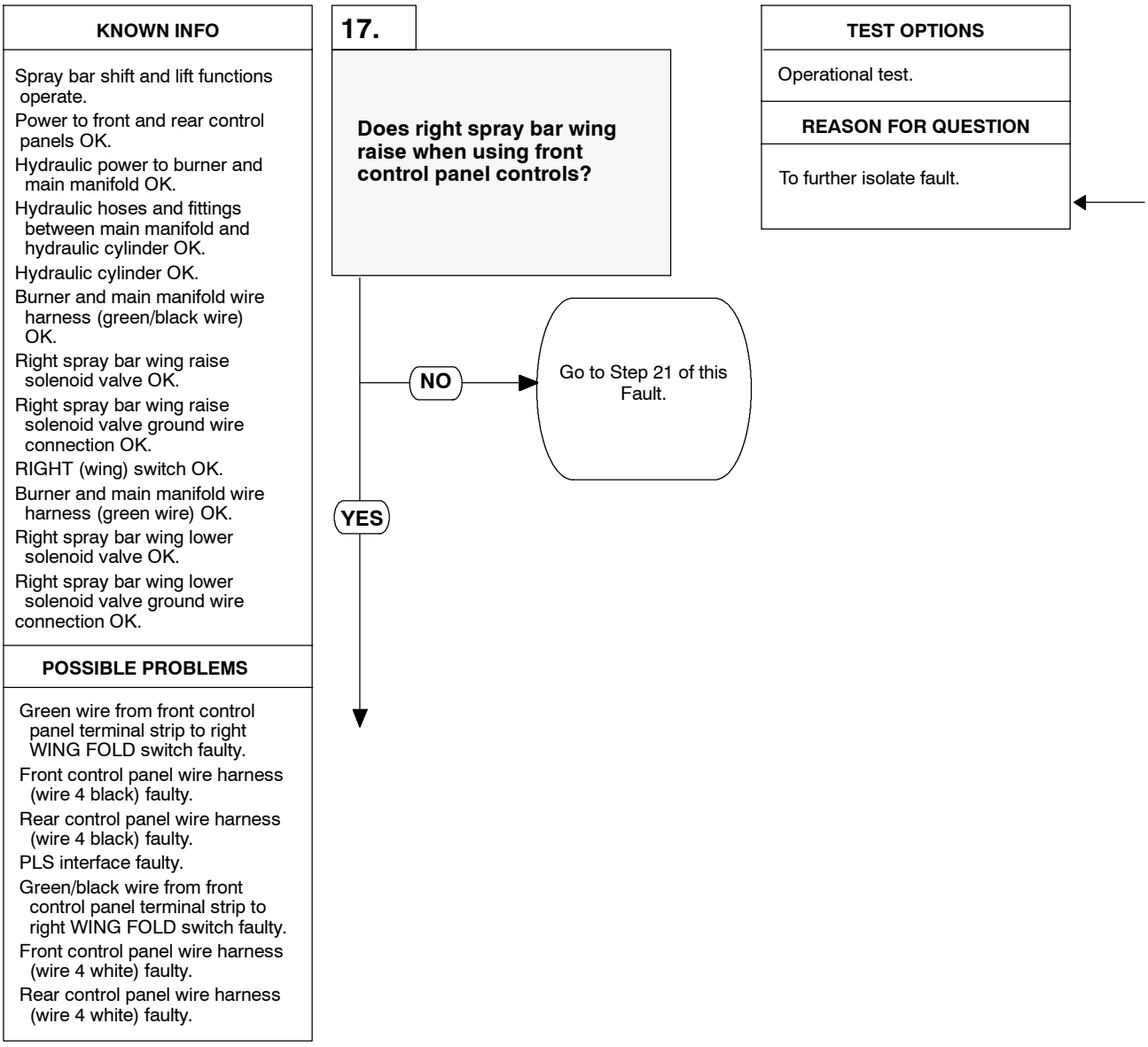
(4) Verify repair, go to Step 25 of this Fault.





RIGHT SPRAY BAR WING
LOWER FRONT SOLENOID VALVE
(GROUND WIRE)

22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).





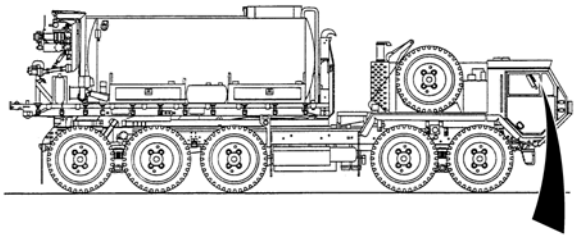
RIGHT SPRAY BAR WING

OPERATIONAL TEST

Operate right spray bar wing raise function from front control panel, (Para 2-1). Check if spray bar raises.

(a) If spray bar does not raise, go to Step 21 of this Fault.

(b) If spray bar raises, go to Step 18 of this Fault.





RIGHT SPRAY BAR
WING FOLD SWITCH

22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (green/black wire) OK.
- Right spray bar wing raise solenoid valve OK.
- Right spray bar wing raise solenoid valve ground wire connection OK.
- RIGHT (wing) switch OK.
- Burner and main manifold wire harness (green wire) OK.
- Right spray bar wing lower solenoid valve OK.
- Right spray bar wing lower solenoid valve ground wire connection OK.
- Green/black wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 white) OK.
- Rear control panel wire harness (wire 4 white) OK.

POSSIBLE PROBLEMS

- Green wire from front control panel terminal strip to right WING FOLD switch faulty.
- Front control panel wire harness (wire 4 black) faulty.
- Rear control panel wire harness (wire 4 black) faulty.
- PLS interface faulty.

18.

WARNING

Read WARNING on Page 4-763

Is continuity measured across green wire from front control panel terminal strip to right WING FOLD switch?

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

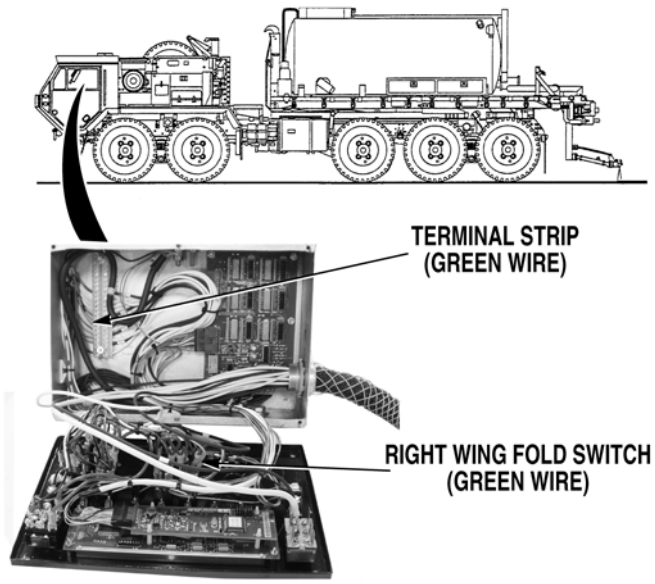
If continuity is not measured, green wire is faulty.

NO → Repair green wire, (Para 3-80). Verify repair, go to Step 25 of this Fault.

YES

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.



CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove front control panel (Para 3-76).

(4) Set multimeter select switch to ohms.

(5) Connect positive (+) multimeter lead to green wire at front control panel terminal strip.

(6) Connect negative (-) multimeter lead to green wire at front control panel right WING FOLD switch.

(a) If continuity is not measured, repair green wire between terminal strip and right WING FOLD switch, front control panel, (Para 3-80). Verify repair, go to Step 25 of this Fault.

(b) If continuity is measured, go to Step 19 of this Fault.

22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (green/black wire) OK.
- Right spray bar wing raise solenoid valve OK.
- Right spray bar wing raise solenoid valve ground wire connection OK.
- RIGHT (wing) switch OK.
- Burner and main manifold wire harness (green wire) OK.
- Right spray bar wing lower solenoid valve OK.
- Right spray bar wing lower solenoid valve ground wire connection OK.
- Green/black wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 white) OK.
- Rear control panel wire harness (wire 4 white) OK.
- Green wire from front control panel terminal strip to right WING FOLD switch OK.

POSSIBLE PROBLEMS

- Front control panel wire harness (wire 4 black) faulty.
- Rear control panel wire harness (wire 4 black) faulty.
- PLS interface faulty.

19.

WARNING
Read WARNING on Page 4-765

Is continuity measured across wire 4 black from front control panel terminal strip to connector MC129, terminal G?

NO → Repair wire 4 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, wire 4 black is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Disconnect front control panel connector MC129, (Para 2-10).

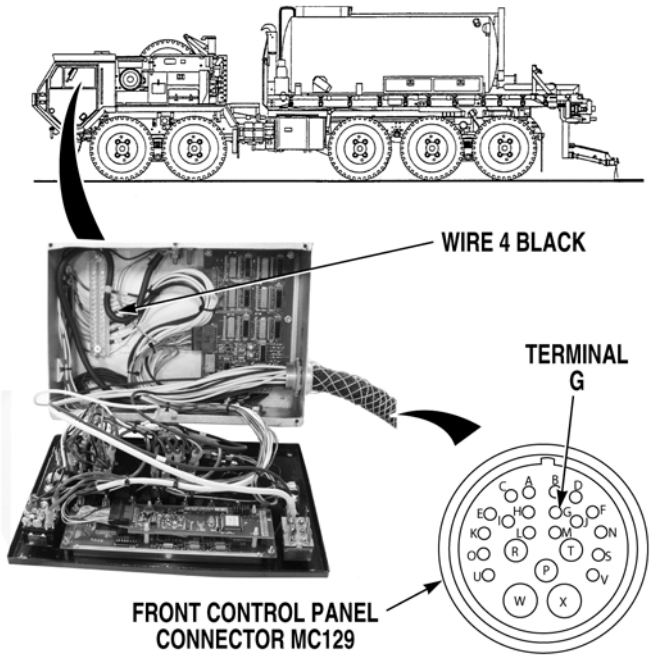
(2) Set multimeter select switch to ohms.

(3) Connect positive (+) multimeter lead on wire 4 black at front control panel connector MC129, terminal G.

(4) Connect negative (–) multimeter lead to wire 4 black at front control panel terminal strip.

(a) If continuity is not measured, repair wire 4 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 25 of this Fault.

(b) If continuity is measured, go to Step 20 of this Fault.



22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (green/black wire) OK.
- Right spray bar wing raise solenoid valve OK.
- Right spray bar wing raise solenoid valve ground wire connection OK.
- RIGHT (wing) switch OK.
- Burner and main manifold wire harness (green wire) OK.
- Right spray bar wing lower solenoid valve OK.
- Right spray bar wing lower solenoid valve ground wire connection OK.
- Green/black wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 white) OK.
- Rear control panel wire harness (wire 4 white) OK.
- Green wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 black) OK.

POSSIBLE PROBLEMS

- Rear control panel wire harness (wire 4 black) faulty.
- PLS interface faulty.

20.

WARNING

Read WARNING on Page 4-767

Is continuity measured across wire 4 black from connector MC130, terminal G, to rear control panel RIGHT (wing) switch?

NO → Repair wire 4 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 25 of this Fault.

YES → PLS interface is faulty. Notify Supervisor.

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is measured, PLS interface is faulty. If not, rear control panel wire harness, wire 4 black is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Remove rear control panel, (Para 3-76).

(3) Disconnect rear control panel connector MC130 (UPIK), (Para 2-10).

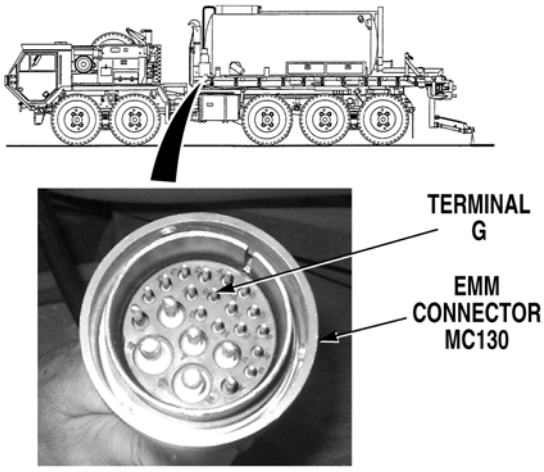
(4) Connect jumperwire between wire 4 black at EMM connector MC130, terminal G and a known good ground.

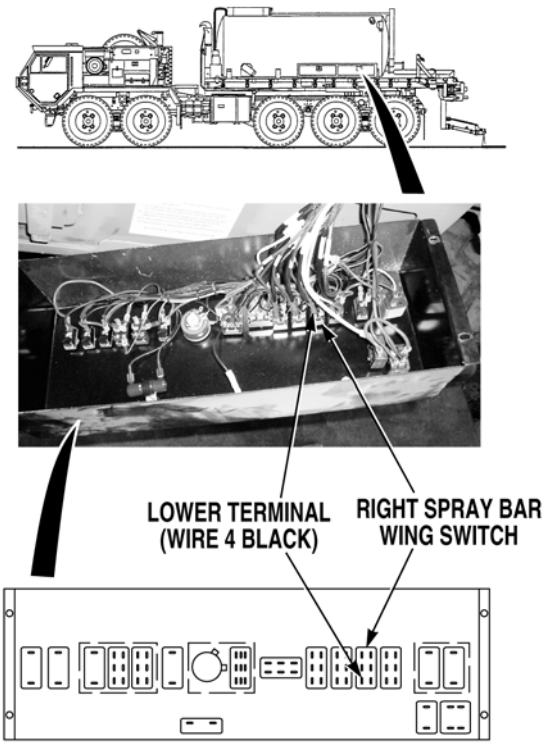
(5) Connect positive (+) multimeter lead to wire 4 black at rear control panel RIGHT (wing) switch.

(6) Connect negative (-) multimeter lead to a known good ground.

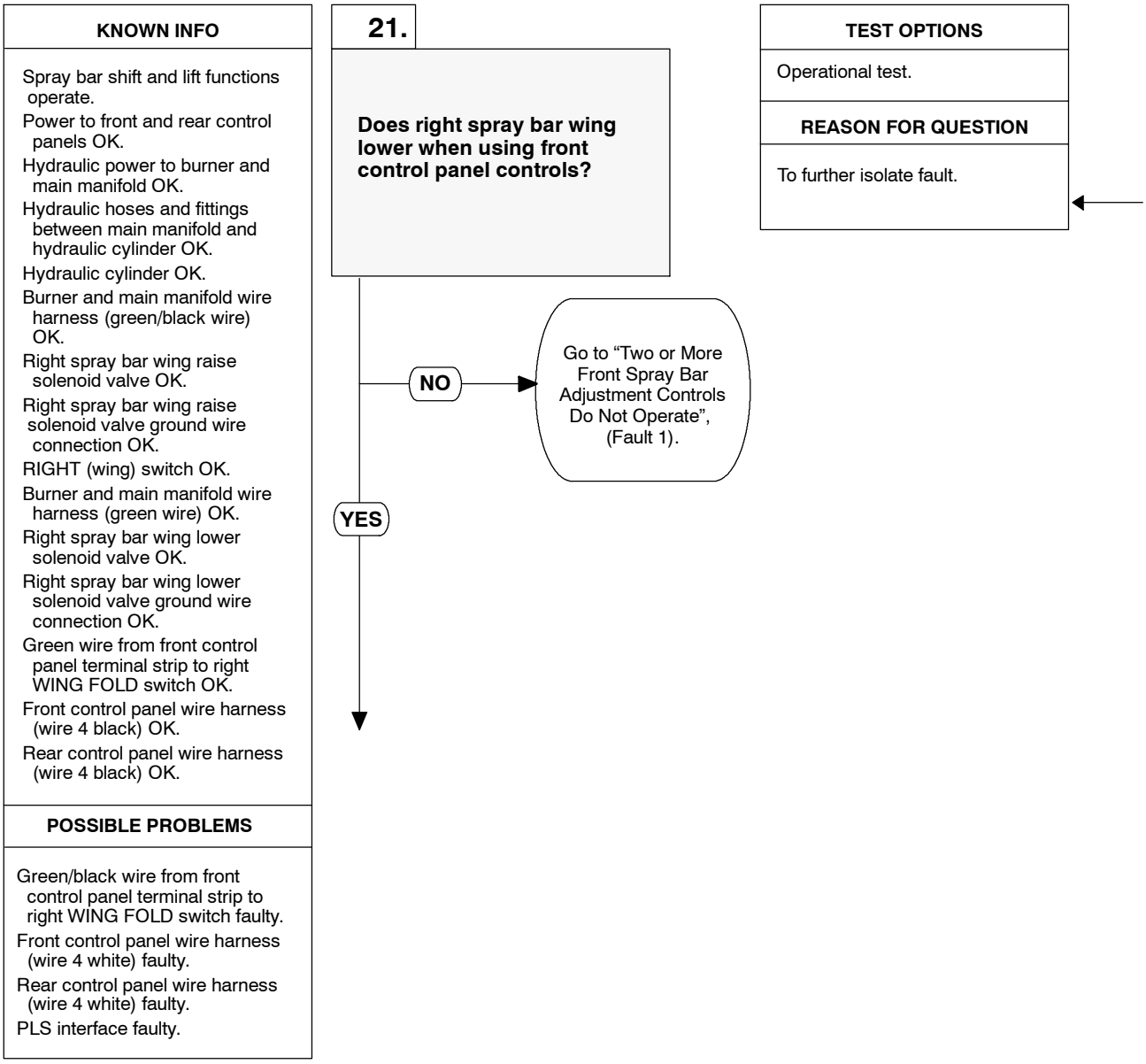
(a) If continuity is not measured, repair wire 4 black, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 25 of this Fault.

(b) If continuity is measured, PLS interface is faulty. Notify Supervisor.





22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).



OPERATIONAL TEST

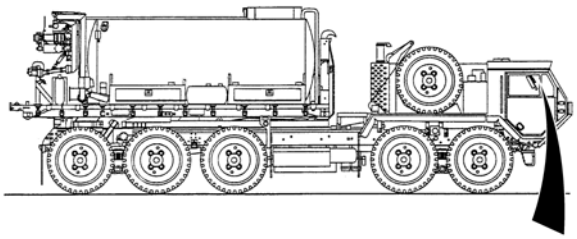
Operate right spray bar wing lower function from front control panel, (Para 2-17). Check if right spray bar wing lowers.

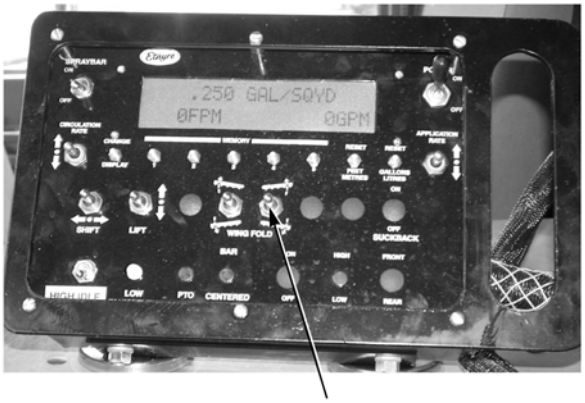
(a) If right spray bar wing does not lower, go to “Two or More Front Spray Bar Adjustment Controls Do Not Operate”, (Fault 1).

(b) If right spray bar wing lowers, go to Step 22 of this Fault.



RIGHT SPRAY BAR WING





RIGHT SPRAY BAR
WING FOLD SWITCH

22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

Spray bar shift and lift functions operate.
Power to front and rear control panels OK.
Hydraulic power to burner and main manifold OK.
Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
Hydraulic cylinder OK.
Burner and main manifold wire harness (green/black wire) OK.
Right spray bar wing raise solenoid valve OK.
Right spray bar wing raise solenoid valve ground wire connection OK.
RIGHT (wing) switch OK.
Burner and main manifold wire harness (green wire) OK.
Right spray bar wing lower solenoid valve OK.
Right spray bar wing lower solenoid valve ground wire connection OK.
Green wire from front control panel terminal strip to right WING FOLD switch OK.
Front control panel wire harness (wire 4 black) OK.
Rear control panel wire harness (wire 4 black) OK.

POSSIBLE PROBLEMS

Green/black wire from front control panel terminal strip to right WING FOLD switch faulty.
Front control panel wire harness (wire 4 white) faulty.
Rear control panel wire harness (wire 4 white) faulty.
PLS interface faulty.

22.

WARNING

Read WARNING on Page 4-771

Is continuity measured across green/black wire from front control panel terminal strip to right WING FOLD switch?

NO → Repair green/black wire, (Para 3-80). Verify repair, go to Step 25 of this Fault.

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, green/black wire is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Remove front control panel, (Para 3-76).

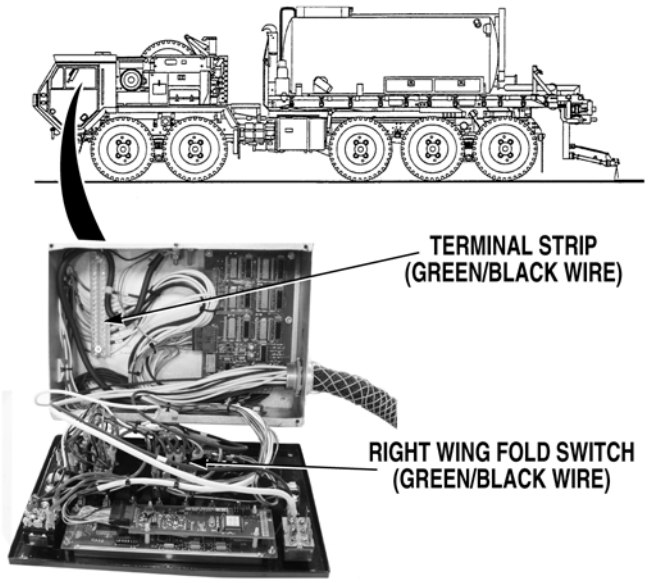
(4) Set multimeter select switch to ohms.

(5) Connect positive (+) multimeter lead to green/black wire at front control panel terminal strip.

(6) Connect negative (-) multimeter lead to green/black wire at front control panel right WING FOLD switch.

(a) If continuity is not measured, repair green/black wire between front control panel terminal strip and right WING FOLD switch, (Para 3-80). Verify repair, go to Step 25 of this Fault.

(b) If continuity is measured, go to Step 23 of this Fault.



22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (green/black wire) OK.
- Right spray bar wing raise solenoid valve OK.
- Right spray bar wing raise solenoid valve ground wire connection OK.
- RIGHT (wing) switch OK.
- Burner and main manifold wire harness (green wire) OK.
- Right spray bar wing lower solenoid valve OK.
- Right spray bar wing lower solenoid valve ground wire connection OK.
- Green wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 black) OK.
- Rear control panel wire harness (wire 4 black) OK.
- Green/black wire from front control panel terminal strip to right WING FOLD switch OK.

POSSIBLE PROBLEMS

- Front control panel wire harness (wire 4 white) faulty.
- Rear control panel wire harness (wire 4 white) faulty.
- PLS interface faulty.

23.

WARNING

Read WARNING on Page 4-773

Is continuity measured across wire 4 white from front control panel terminal strip to front control panel connector MC129, terminal F?

NO → Repair wire 4 white (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 25 of this Fault

YES

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is not measured, front control panel wire harness (wire 4 white) is faulty.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Disconnect front control panel connector MC129, (Para 2-10).

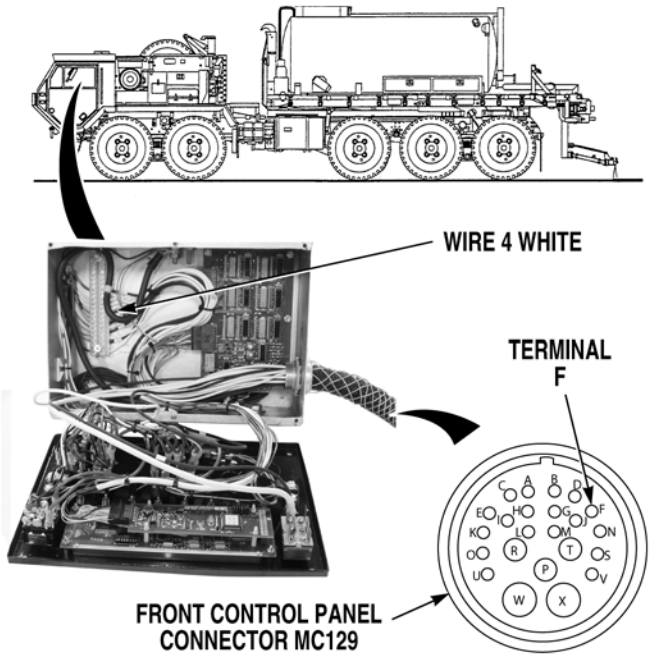
(2) Set multimeter select switch to ohms.

(3) Connect positive (+) multimeter lead to wire 4 white at front control panel connector MC129, terminal F.

(4) Connect negative (-) multimeter lead to wire 4 white at front control panel terminal strip.

(a) If continuity is not measured, repair wire 4 white, (Para 3-80) or replace front control panel wire harness, (Para 3-60). Verify repair, go to Step 25 of this Fault.

(b) If continuity is measured, go to Step 24 of this Fault.



22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (green/black wire) OK.
- Right spray bar wing raise solenoid valve OK.
- Right spray bar wing raise solenoid valve ground wire connection OK.
- RIGHT (wing) switch OK.
- Burner and main manifold wire harness (green wire) OK.
- Right spray bar wing lower solenoid valve OK.
- Right spray bar wing lower solenoid valve ground wire connection OK.
- Green wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 black) OK.
- Rear control panel wire harness (wire 4 black) OK.
- Green/black wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 white) OK.

POSSIBLE PROBLEMS

- Rear control panel wire harness (wire 4 white) faulty.
- PLS interface faulty.

24.

WARNING

Read WARNING on Page 4-775

Is continuity measured across wire 4 white from EMM connector MC130, terminal F to rear control panel RIGHT (wing) switch?

NO → Repair wire 4 white, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 25 of this Fault.

YES → PLS interface is faulty. Notify Supervisor.

TEST OPTIONS

Continuity test.

REASON FOR QUESTION

If continuity is measured, PLS interface is faulty. If not, rear control panel wire harness, wire 4 white is faulty.

WARNING

- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Remove rear control panel, (Para 3-76).

(3) Disconnect rear control panel connector MC130 (UPIK), (Para 2-10).

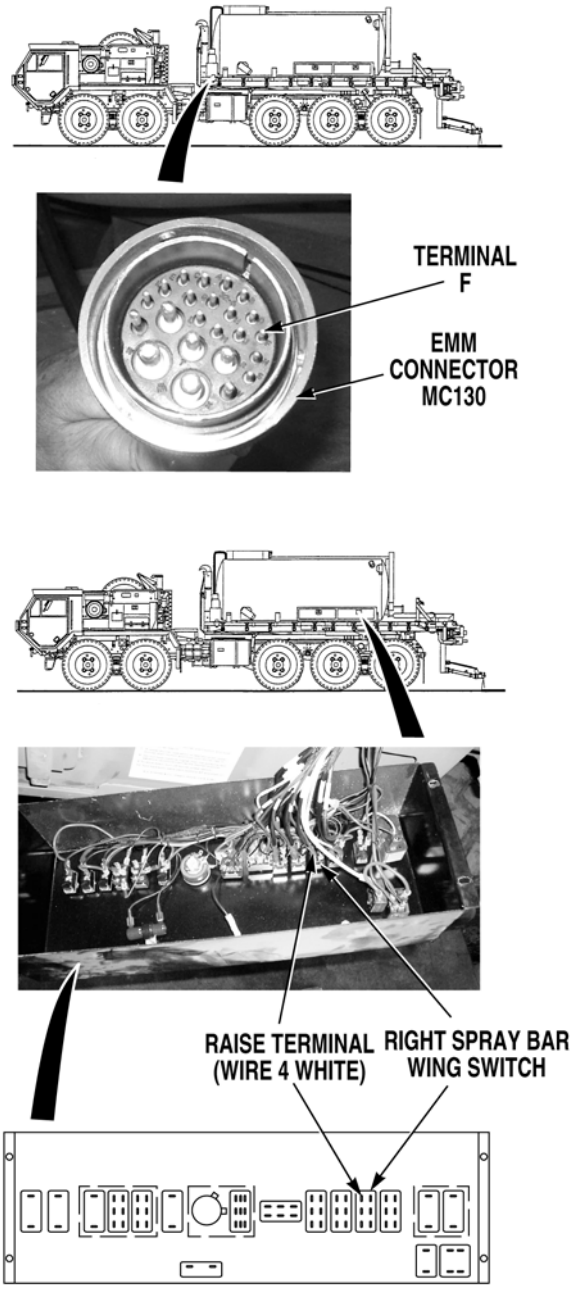
(4) Connect jumperwire between wire 4 white, EMM connector MC130, terminal F, and a known good ground.

(5) Connect positive (+) multimeter lead to wire 4 white at rear control panel RIGHT (wing) switch.

(6) Connect negative (-) multimeter lead to a known good ground.

(a) If continuity is not measured, repair wire 4 white, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 25 of this Fault.

(b) If continuity is measured, PLS interface is faulty. Notify Supervisor.



22. RIGHT SPRAY BAR WING DOES NOT RAISE/LOWER (FRONT AND/OR REAR CONTROL) (CONT).

KNOWN INFO

- Spray bar shift and lift functions operate.
- Power to front and rear control panels OK.
- Hydraulic power to burner and main manifold OK.
- Hydraulic hoses and fittings between main manifold and hydraulic cylinder OK.
- Hydraulic cylinder OK.
- Burner and main manifold wire harness (green/black wire) OK.
- Right spray bar wing raise solenoid valve OK.
- Right spray bar wing raise solenoid valve ground wire connection OK.
- RIGHT (wing) switch OK.
- Burner and main manifold wire harness (green wire) OK.
- Right spray bar wing lower solenoid valve OK.
- Right spray bar wing lower solenoid valve ground wire connection OK.
- Green wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 black) OK.
- Rear control panel wire harness (wire 4 black) OK.
- Green/black wire from front control panel terminal strip to right WING FOLD switch OK.
- Front control panel wire harness (wire 4 white) OK.
- Rear control panel wire harness (wire 4 white) OK.

POSSIBLE PROBLEMS

None.

25.

WARNING

Read WARNING on Page 4-777

Does right spray bar wing raise and lower from front and rear control panel?

NO → Fault not corrected. Notify Supervisor.

YES → Fault corrected.

TEST OPTIONS

Verify repair.

REASON FOR QUESTION

If right spray bar wing raises and lowers, fault has been corrected.

WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.



RIGHT SPRAY BAR WING

VERIFY REPAIR

(1) If ON, shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) If removed, install front control panel, (Para 3-76).

(4) If removed, install rear control panel, (Para 3-76).

(5) If disconnected, connect front control panel connector MC129, (Para 2-10).

(6) If disconnected, connect EMM connector MC130 (UPIK), (Para 2-10).

(7) Push in battery disconnect switch, (TM 9-2320-364-10).

(8) Start engine, (TM 9-2320-364-10).

(9) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(10) Turn front control panel POWER switch ON, (Para 2-1).

(11) Turn rear control panel POWER switch ON, (Para 2-1).

(12) Operate right spray bar wing raise and lower function, (Para 2-17).

  (a) If right spray bar wing does not raise and lower, fault not corrected. Notify Supervisor.

  (b) If right spray bar wing raises and lowers, fault has been corrected.

(13) Shut OFF engine, (TM 9-2320-364-10).

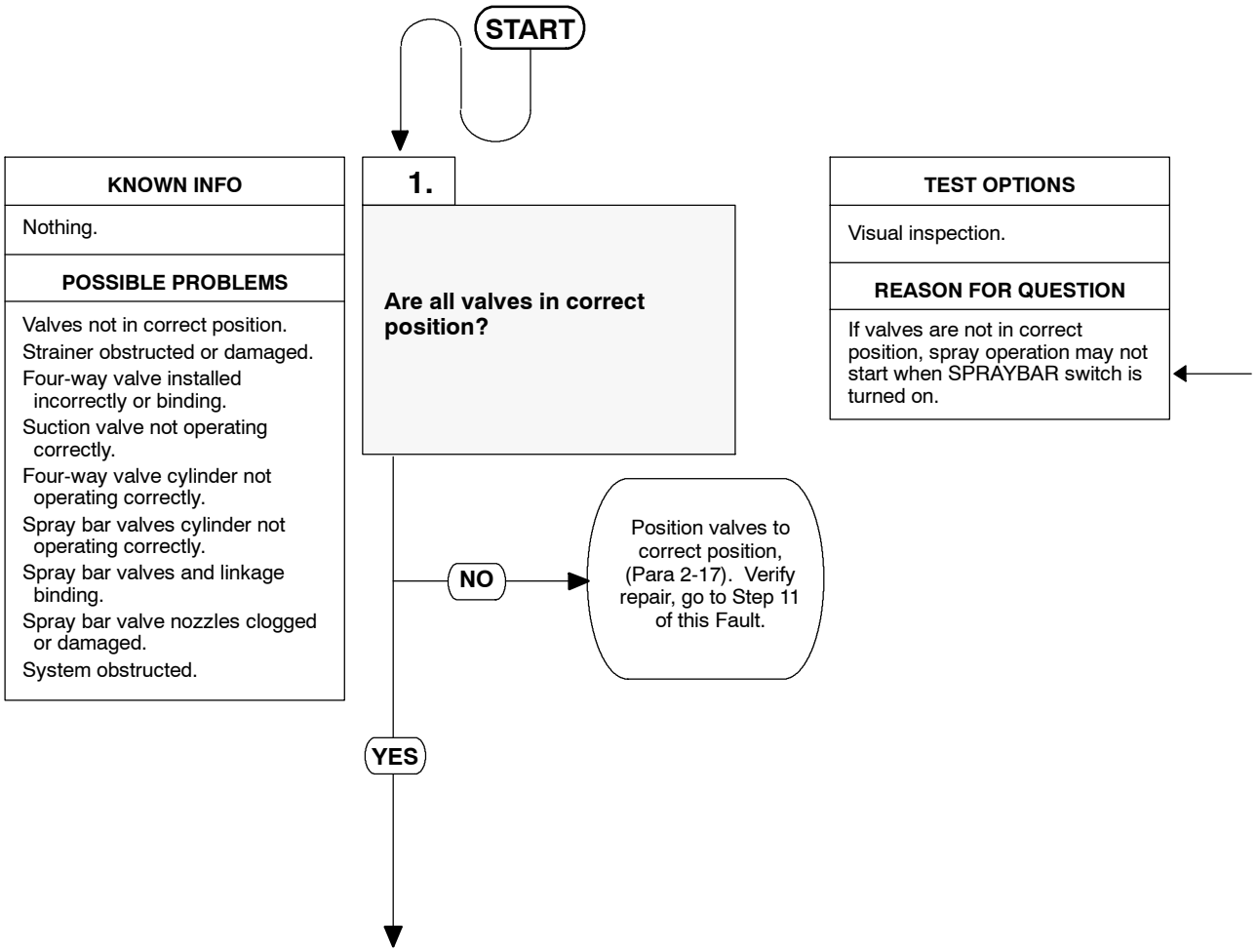
23. SPRAY OPERATION IS NOT STARTED WHEN SPRAYBAR SWITCH IS TURNED ON.

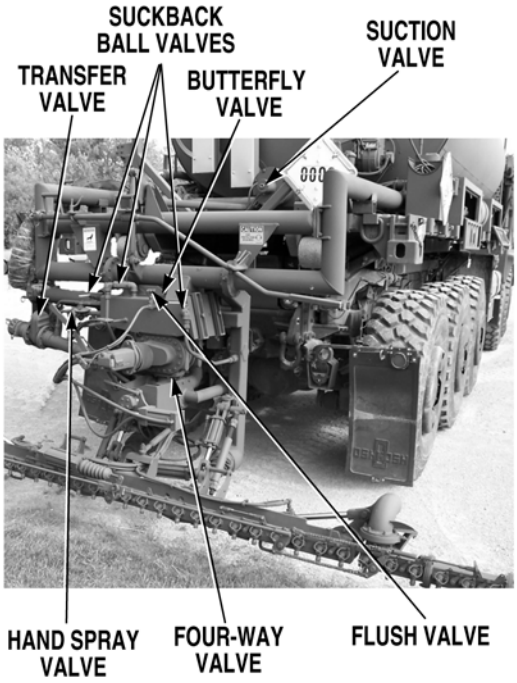
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

Personnel Required
Two

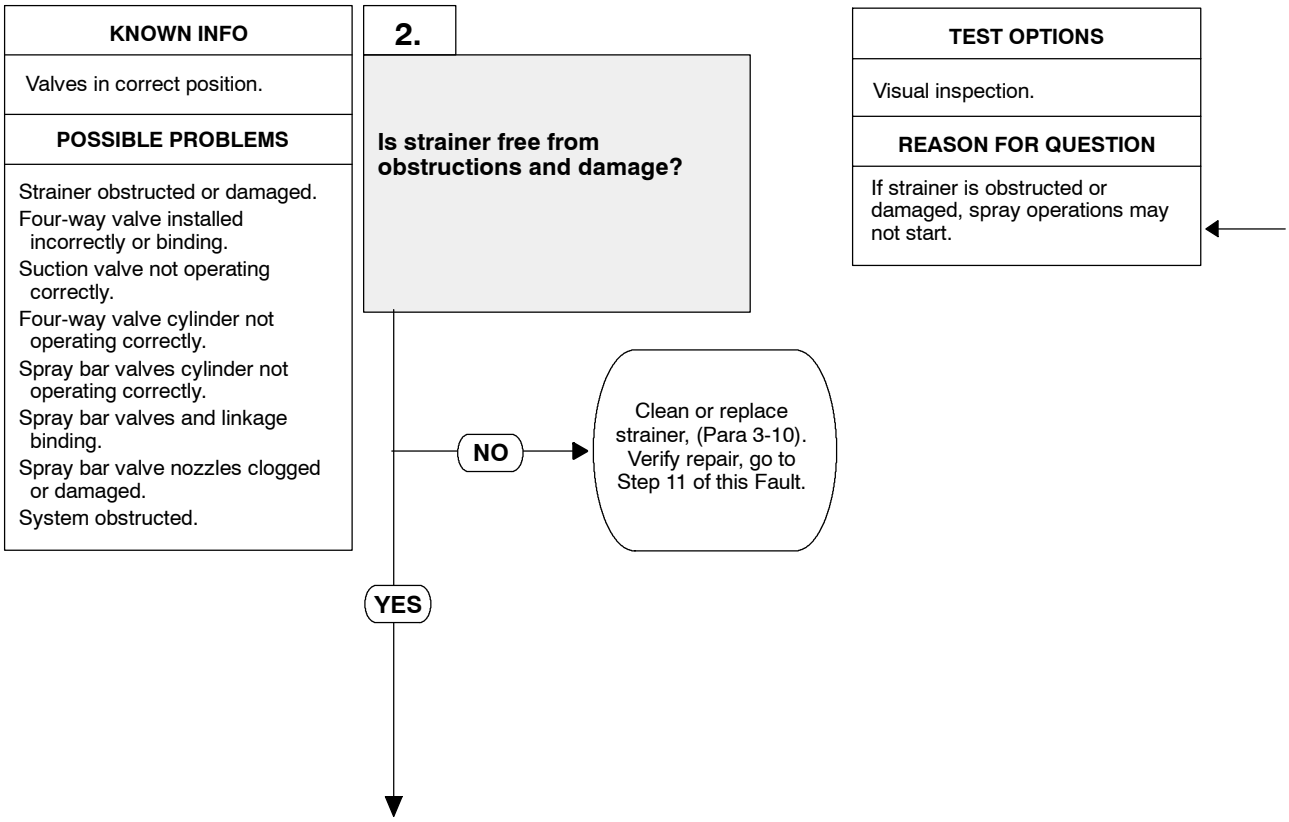
Equipment Condition
Bituminous Distributor loaded on PLS, (Para 2-5)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

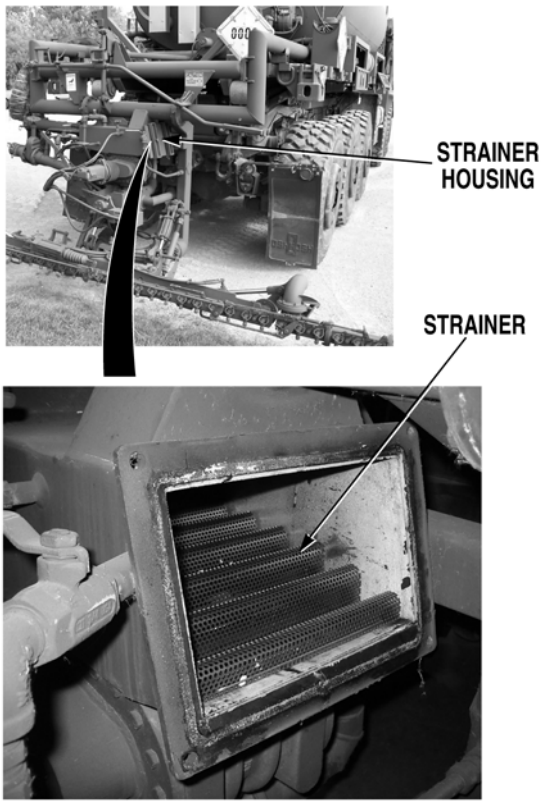




VISUAL INSPECTION
Check if all valves are in correct position for spray operations, (Para 2-17). (a) If all valves are not in correct position, reposition valves to correct position, (Para 2-17). Verify repair, go to Step 11 of this Fault. (b) If all valves are in correct position, go to Step 2 of this Fault.

23. SPRAY OPERATION IS NOT STARTED WHEN SPRAYBAR SWITCH IS TURNED ON (CONT).





VISUAL INSPECTION

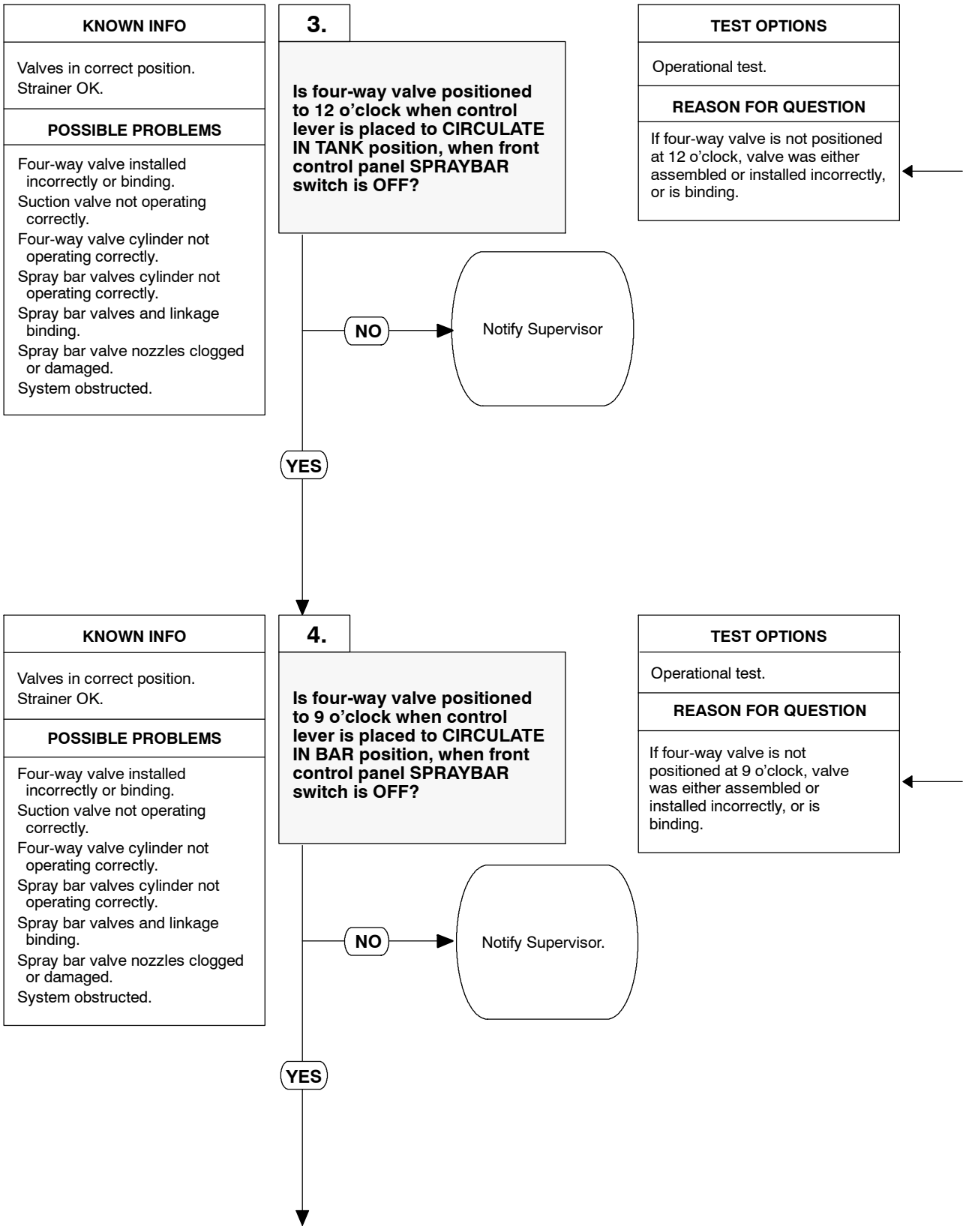
(1) Remove strainer box cover and gasket, (Para 3-10).

(2) Check if strainer is obstructed or damaged.

(a) If strainer is obstructed or damaged, remove obstructions or replace strainer, (Para 3-10). Verify repair, go to Step 11 of this Fault.

(b) If strainer is free from obstructions and damaged, go to Step 3 of this Fault.

23. SPRAY OPERATION IS NOT STARTED WHEN SPRAYBAR SWITCH IS TURNED ON (CONT).



OPERATIONAL TEST

(1) Start engine, (TM 9-2320-364-10) and allow air system to charge to 100 to 120 psi (690 to 827 kPa).

(2) If stowed, operate spray bar unstow function to deploy spray bar, (Para 2-17).

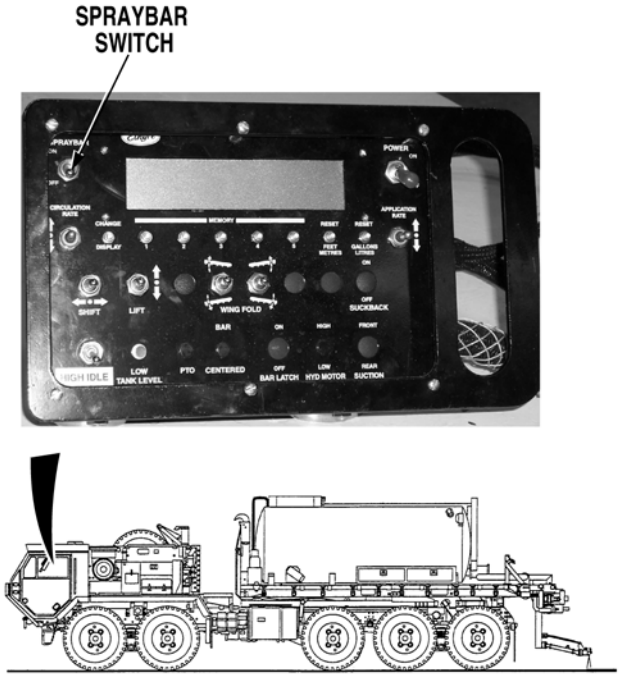
(3) Position four-way valve control lever in CIRCULATE IN TANK position, (Para 2-16).

(4) Place SPRAYBAR switch in OFF position, (Para 2-1).

(5) Check if four-way valve is at the 12 o'clock position.

(a) If valve is not at the 12 o'clock position, notify Supervisor.

(b) If valve is at the 12 o'clock position, go to Step 4 of this Fault.



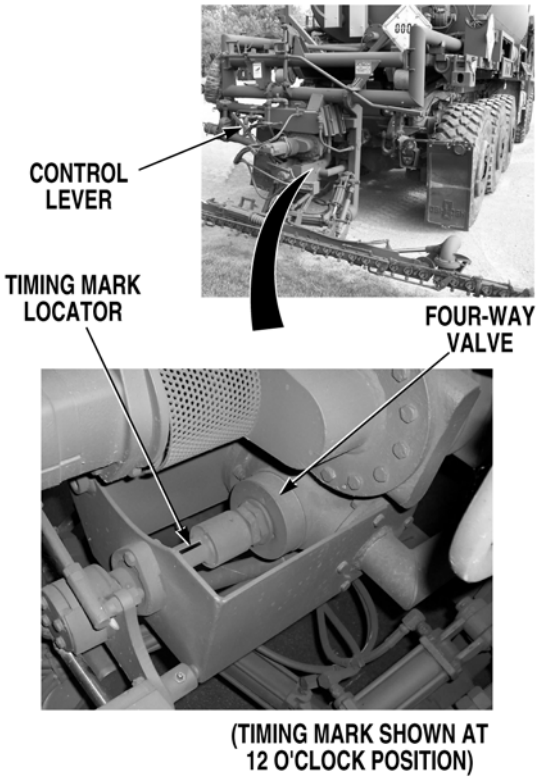
OPERATIONAL TEST

(1) Position four-way valve control lever in CIRCULATE IN BAR position, (Para 2-16).

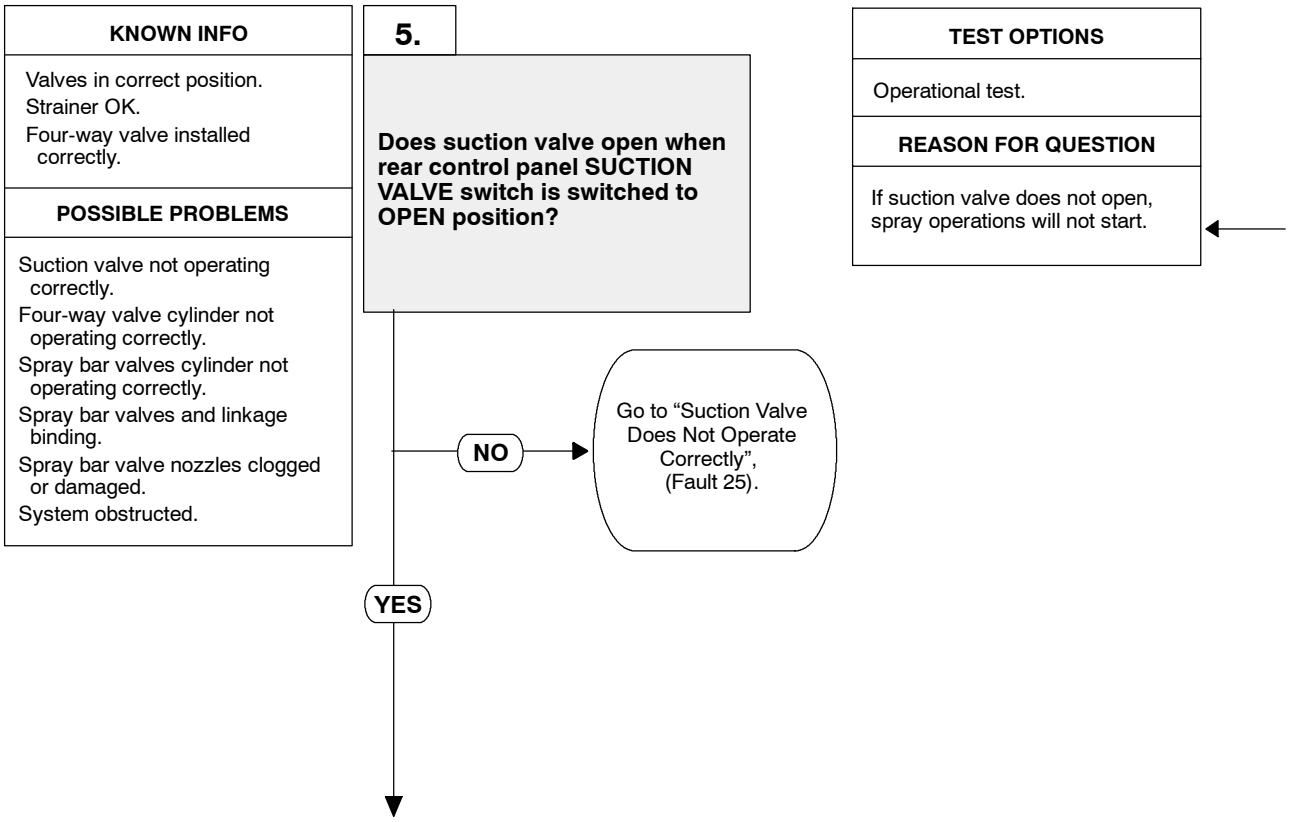
(2) Check if four-way valve is at 9 o'clock position.

(a) If valve is not at the 9 o'clock position, notify Supervisor.

(b) If valve is at the 9 o'clock position, go to Step 5 of this Fault.



23. SPRAY OPERATION IS NOT STARTED WHEN SPRAYBAR SWITCH IS TURNED ON (CONT).



OPERATIONAL TEST

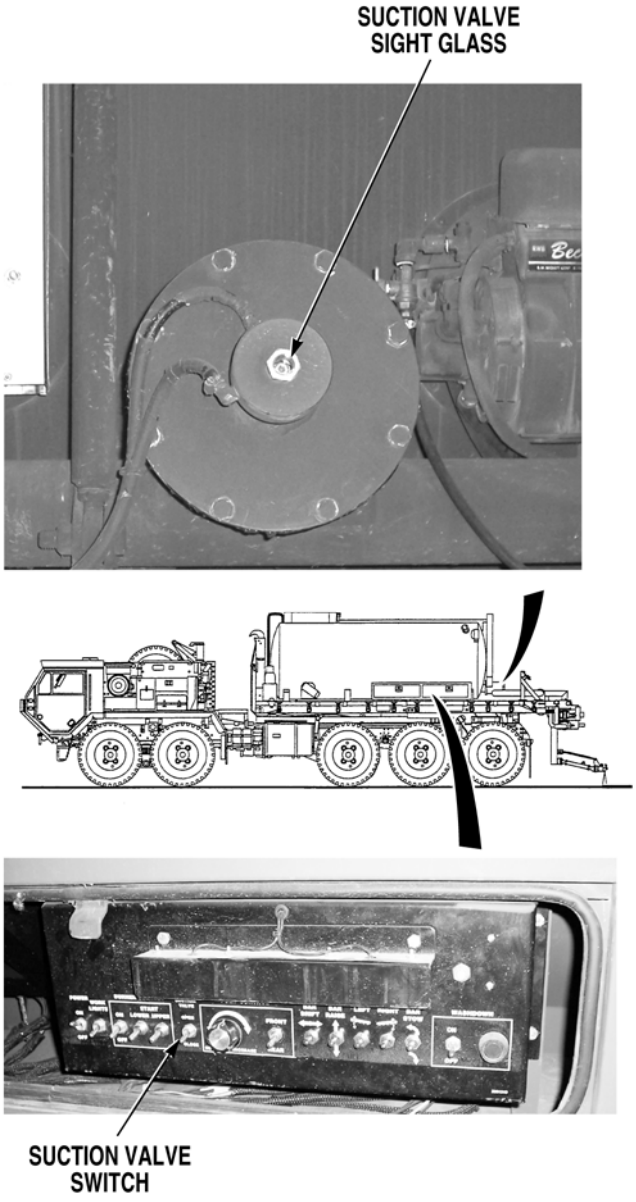
(1) Turn front control panel POWER switch ON, (Para 2-1).

(2) Turn rear control panel POWER switch ON, (Para 2-1).

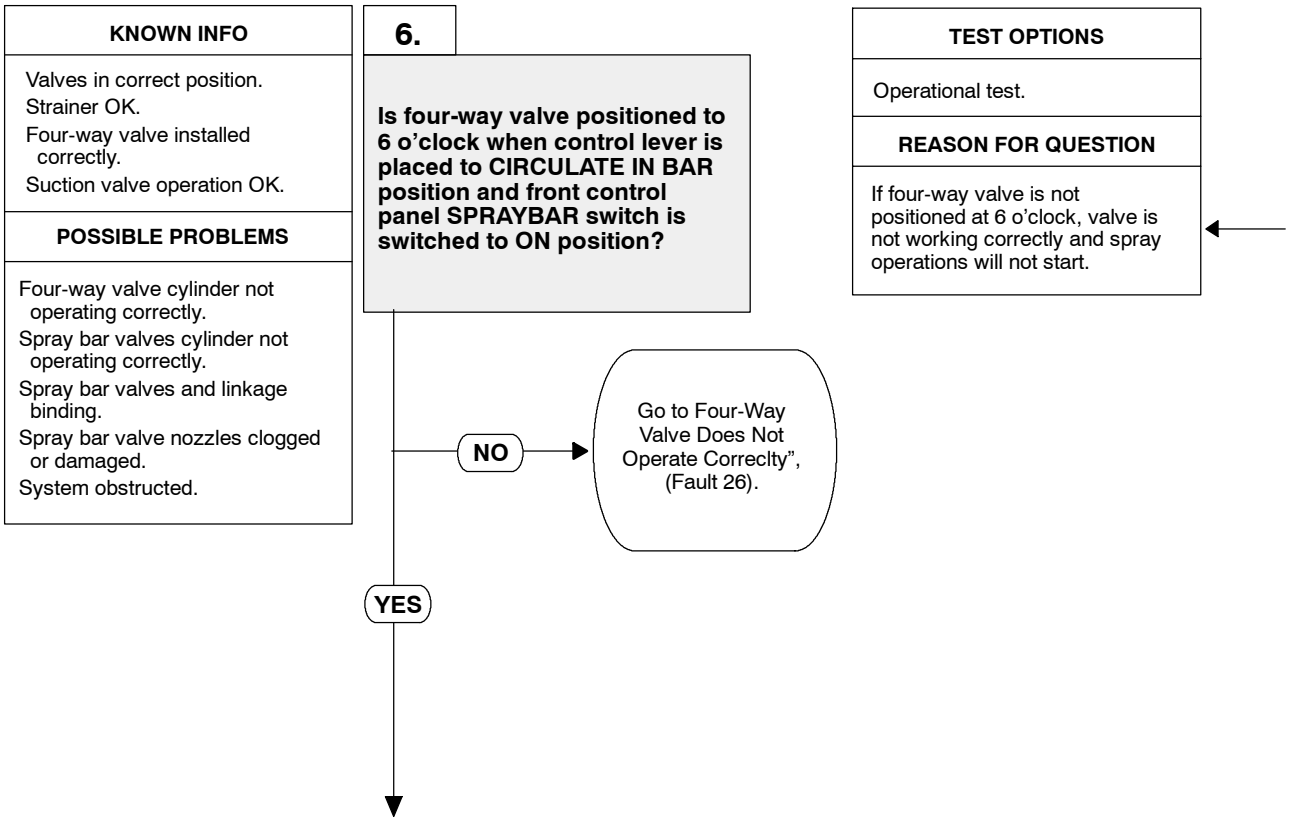
(3) While an assistant switches rear control panel SUCTION VALVE switch to OPEN position, look through sight glass on suction valve. Check if valve moves to open position.

  (a) If suction valve does not open, go to “Suction Valve Does Not Operate Correctly”, (Fault 25).

  (b) If suction valve opens, go to Step 6 of this Fault.

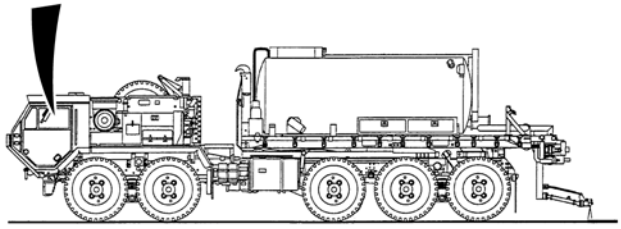


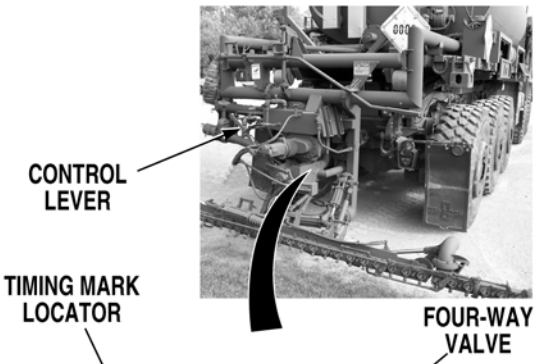
23. SPRAY OPERATION IS NOT STARTED WHEN SPRAYBAR SWITCH IS TURNED ON (CONT).

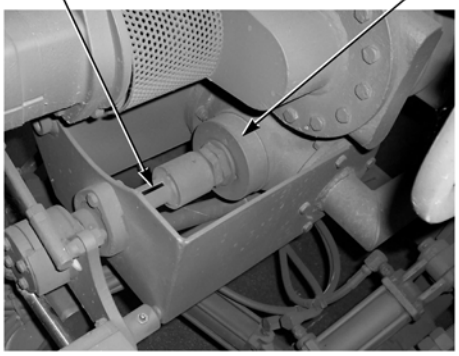


OPERATIONAL TEST
While an assistant switches SPRAYBAR switch to ON position, check if four-way valve is positioned to the 6 o'clock position (cylinder retracts). (a) If valve is not positioned to the 6 o'clock position, go to "Four-Way Valve Does Not Operate Correctly", (Fault 26). (b) If valve is positioned to the 6 o'clock position, go to Step 7 of this Fault.



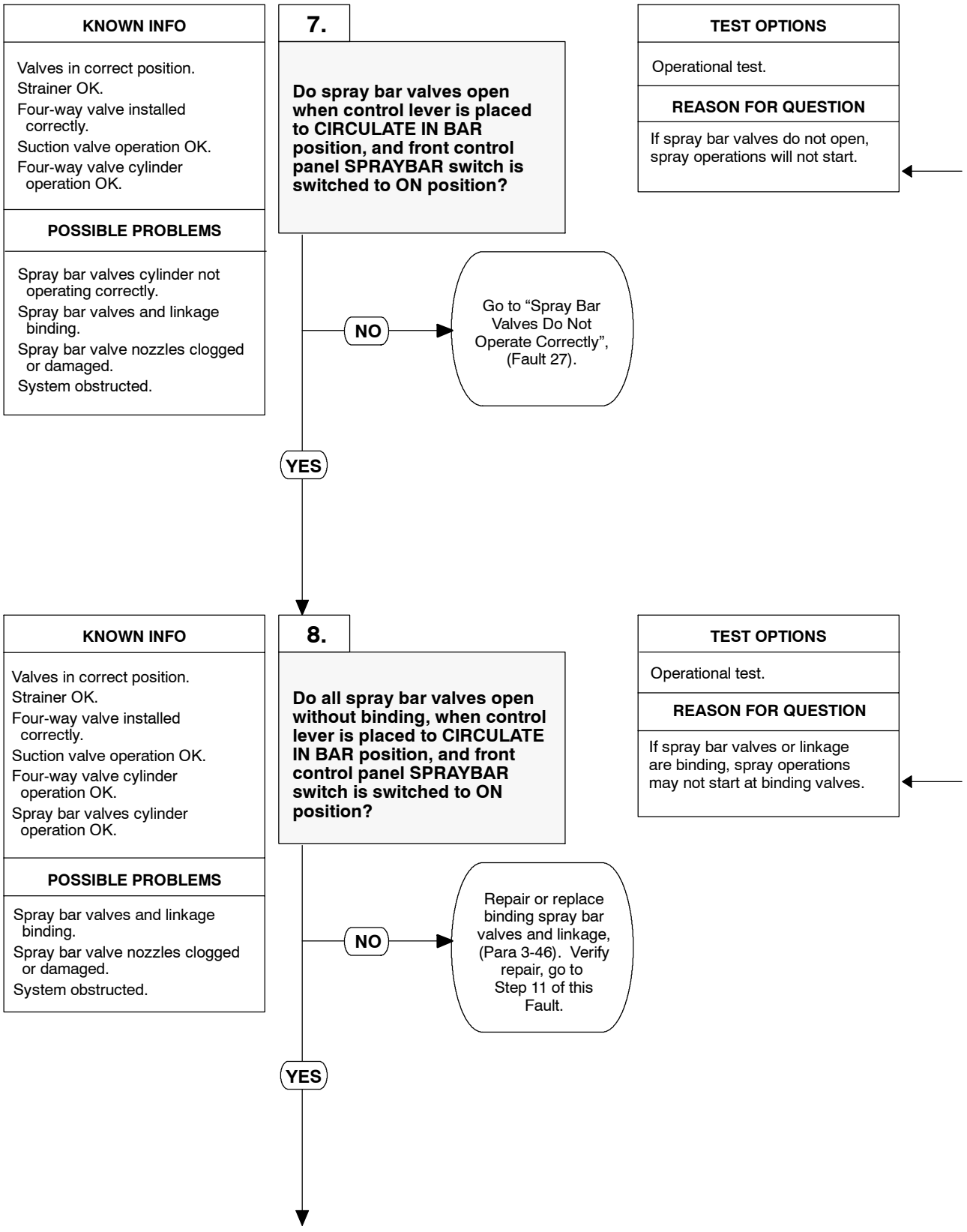






(TIMING MARK SHOWN AT 12 O'CLOCK POSITION)

23. SPRAY OPERATION IS NOT STARTED WHEN SPRAYBAR SWITCH IS TURNED ON (CONT).

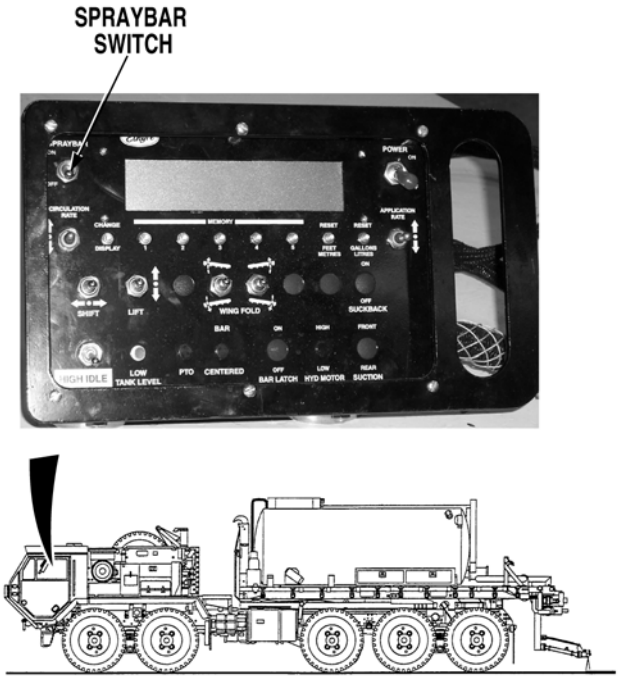


OPERATIONAL TEST

While an assistant switches SPRAYBAR switch to ON position, check if spray bar valves are positioned to the open position (cylinder retracts).

(a) If valves are not positioned to the open position, go to “Spray Bar Valves Do Not Operate Correctly”, (Fault 27).

(b) If valves are positioned to the open position, go to Step 8 of this Fault.

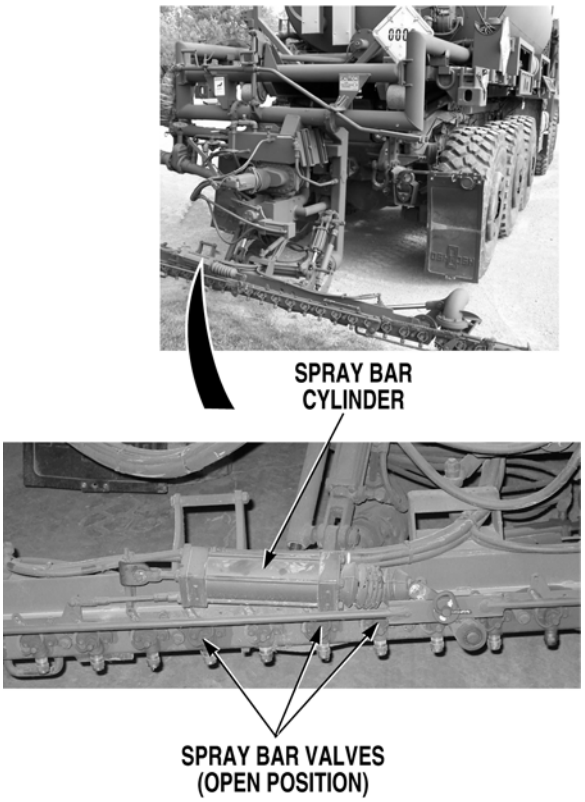


OPERATIONAL TEST

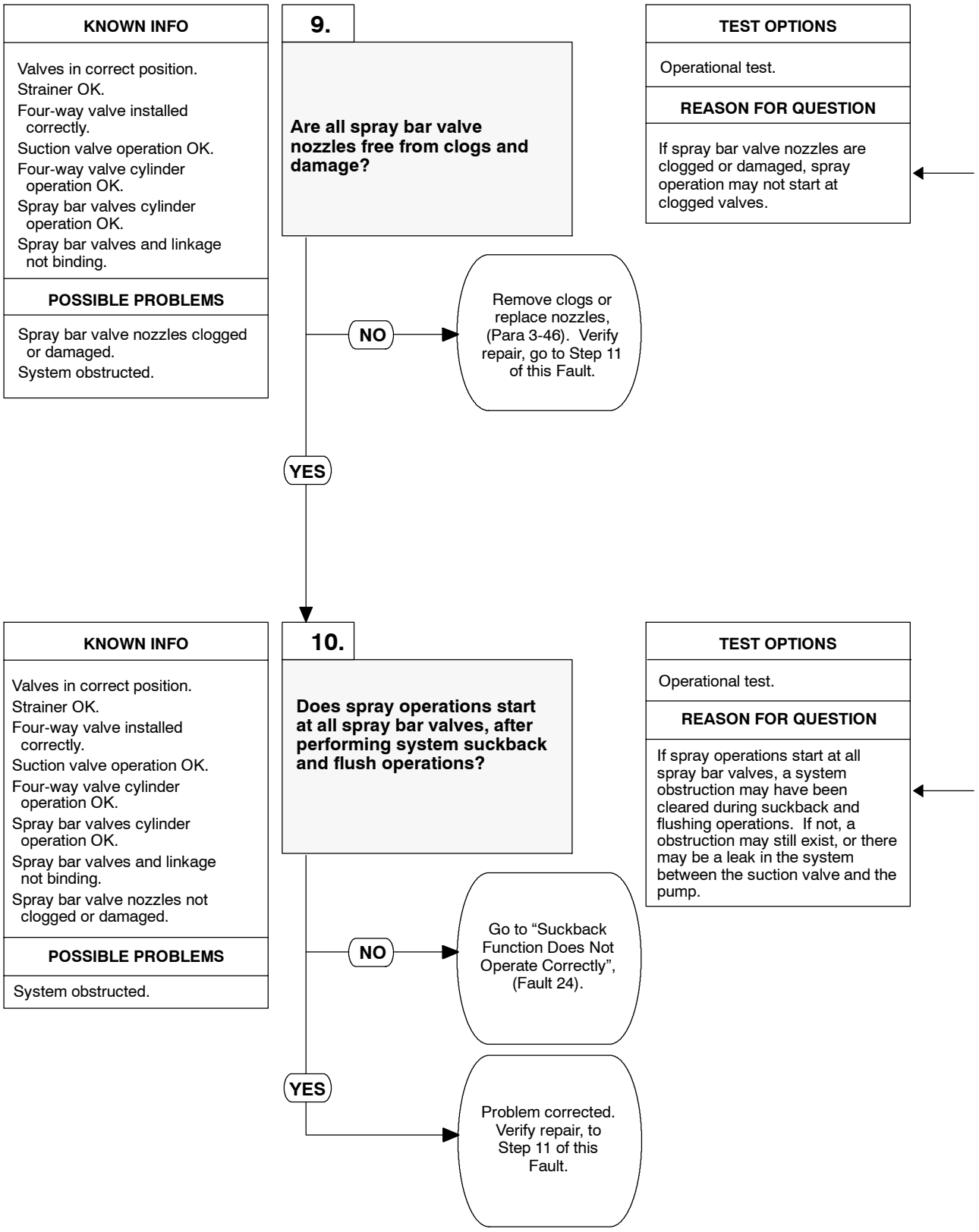
While an assistant switches SPRAYBAR switch to OFF and ON positions, check if all spray bar valves open without binding.

(a) If any valves do not open without binding, repair or replace binding valves and linkage, (Para 3-46). Verify repair, go to Step 11 of this Fault.

(b) If all valves open without binding, go to Step 9 of this Fault.



23. SPRAY OPERATION IS NOT STARTED WHEN SPRAYBAR SWITCH IS TURNED ON (CONT).



OPERATIONAL TEST

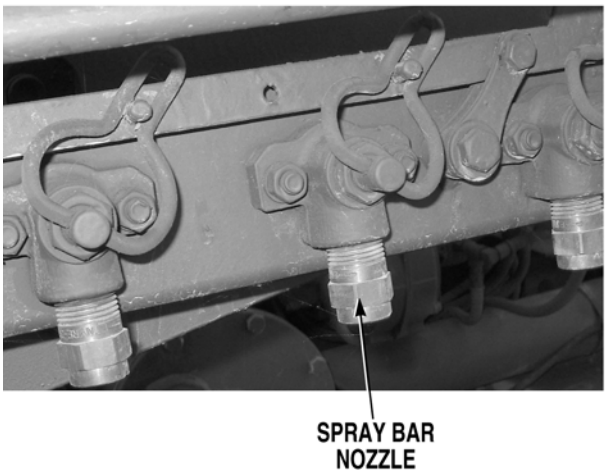
(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Remove spray bar nozzles and check for clogs and damage, (Para 3-46). Verify repair, to to Step 11 of this Fault.

(a) If spray bar nozzles are clogged or damaged, remove clogs or replace damaged spray bar nozzles, (Para 3-46). Verify repair, to Step 11 of this Fault.

(b) If spray bar nozzles are free from clogs or damaged, install nozzles and go to Step 10 of this Fault.





OPERATIONAL TEST

(1) Start engine, (TM 9-2320-364-10) and allow air system to charge to 100 to 120 psi (690 to 827 kPa).

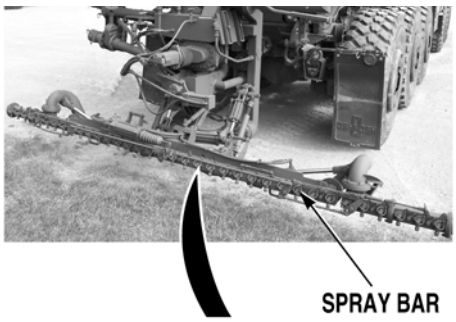
(2) Set up distributor to circulate material in spray bar, (Para 2-16).

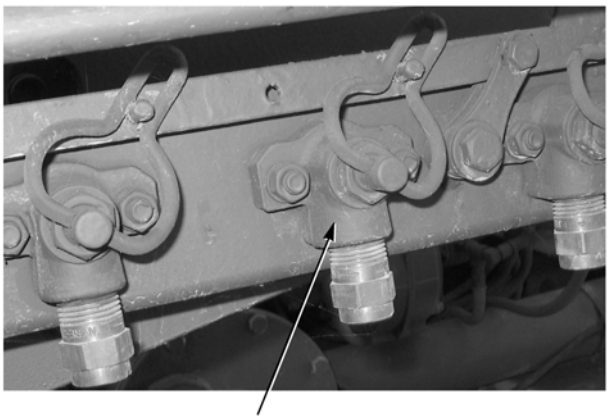
(3) Perform system suckback and flush operations, (Para 2-21).

(4) Perform spray operations, (Para 2-17). Check if spray operations start at all spray bar valves.

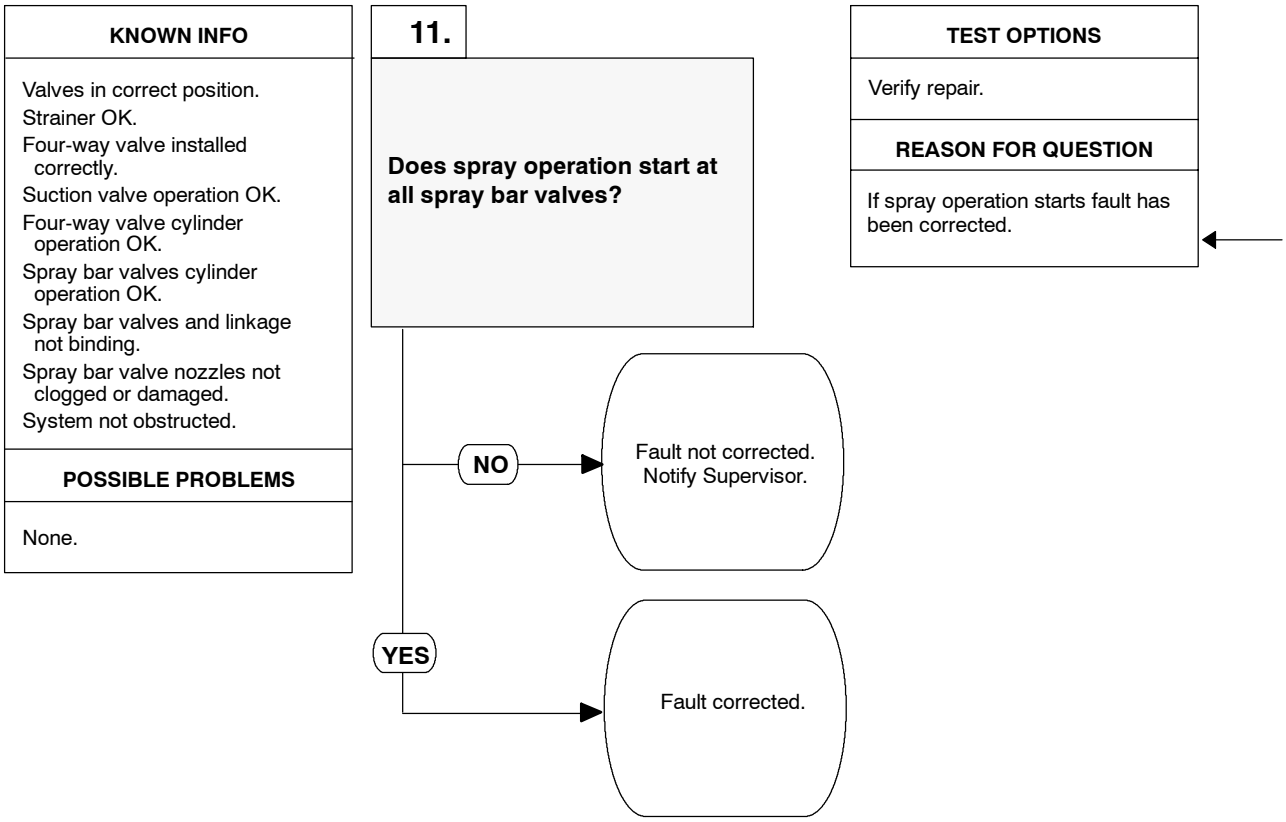
(a) If spray operations do not start, go to “Suckback Function Does Not Operate Correctly”, (Fault 24) to verify suckback function operations.

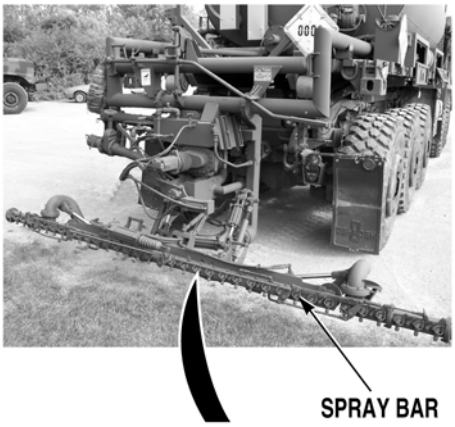
(b) If spray operation starts, verify repair, go to Step 11 of this Fault.

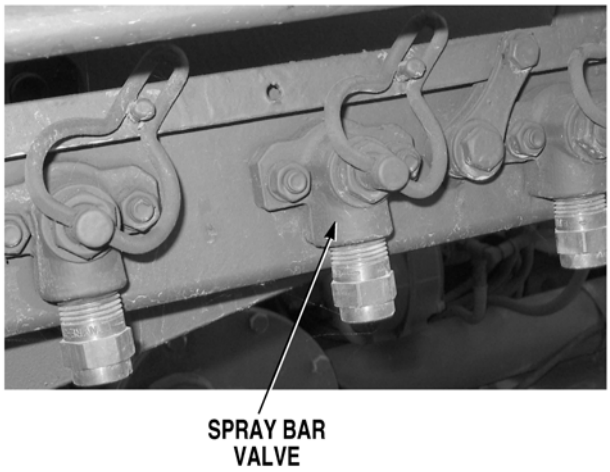




23. SPRAY OPERATION IS NOT STARTED WHEN SPRAYBAR SWITCH IS TURNED ON (CONT).







VERIFY REPAIR

(1) If OFF, start engine, (TM 9-2320-364-10) and allow air system to charge to 100 to 120 psi (690 to 827 kPa).

(2) Set up distributor to circulate material in spray bar, (Para 2-16).

(3) Perform system spray operation, (Para 2-17). Check if spray operations start at all spray bar valves.

(a) If spray operations do not start, problem has not been corrected. Notify Supervisor.

(b) If spray operations start fault has been corrected.

(4) Shut OFF engine, (TM 9-2320-364-10)

24. SUCKBACK FUNCTION DOES NOT OPERATE CORRECTLY.

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)

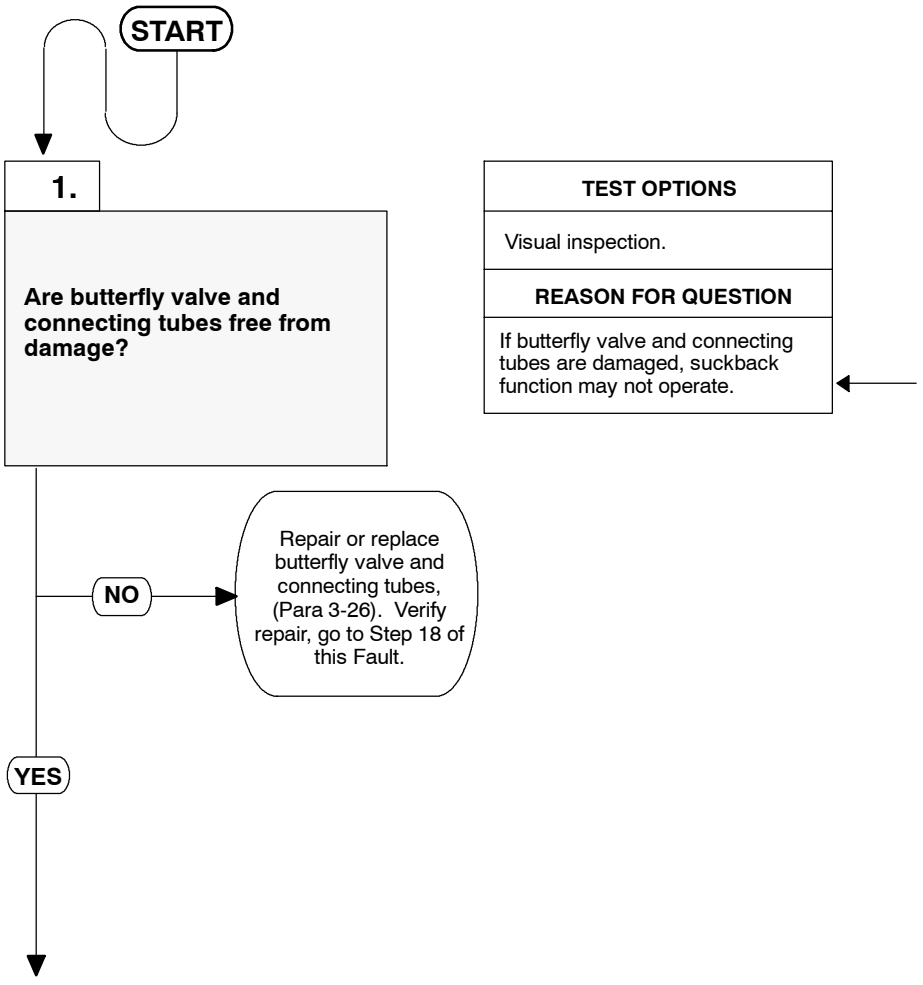
Equipment Condition
Bituminous Distributor loaded on PLS, (Para 2-5)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

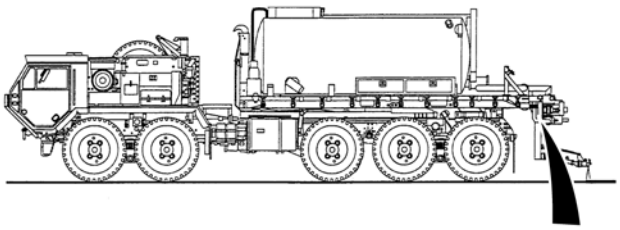
KNOWN INFO

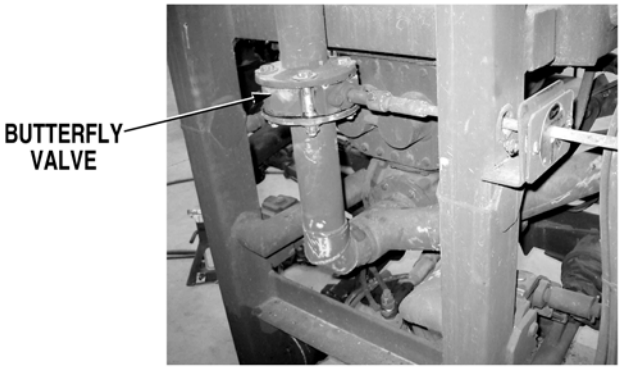
Nothing.

POSSIBLE PROBLEMS

- Butterfly valve and connecting tubes damaged.
- Asphalt pump damaged.
- Strainer housing and gasket damaged.
- Suckback ball valves (3) and connecting tubes damaged.
- Four-way valve and connecting tubes damaged.
- Transfer valve and connecting tubes damaged.
- Hand spray valve and connecting tubes damaged.
- Spray bar valves and connecting tubes damaged.
- Spray bar pivots and connecting tubes damaged.
- Hand spray gun and hose leaking, kinked or damaged.
- Valve settings incorrect.
- Asphalt pump faulty.
- Connecting tubes between hand spray valve and asphalt pump leaking.
- Left spray bar feed tube restricted.
- Spray bar tubes leaking.
- Left spray bar feed tube restricted.
- Right spray bar feed tube restricted.
- Spray bar suckback tubes blocked.







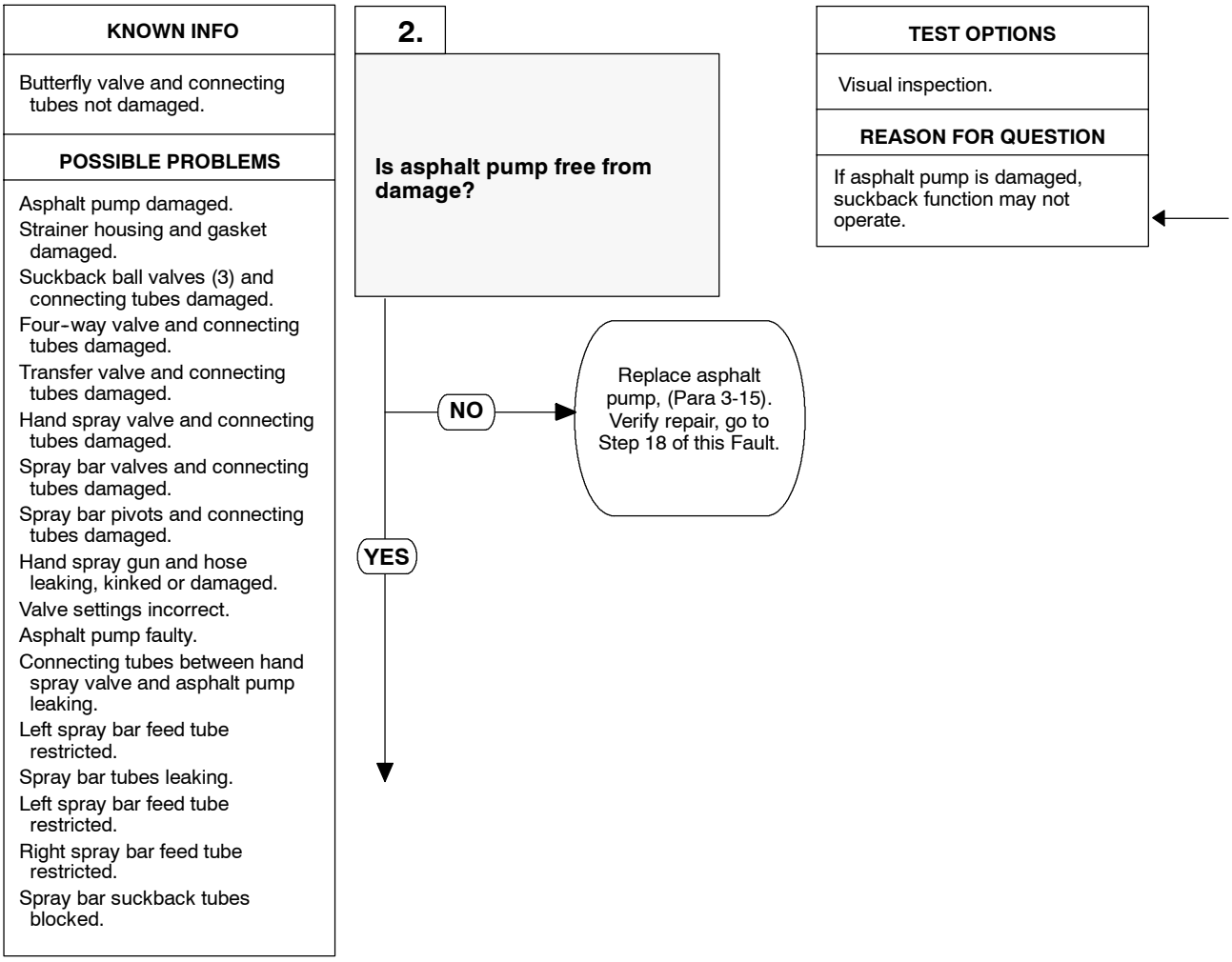
VISUAL INSPECTION

Check that butterfly valve and connecting tubes are free from damage.

(a) If butterfly valve and connecting tubes are not free from damage, replace damaged butterfly valve, (Para 3-26) or notify Supervisor. Verify repair, go to Step 18 of this Fault.

(b) If butterfly valve and connecting tubes are free from damage, go to Step 2 of this Fault.

24. SUCKBACK FUNCTION DOES NOT OPERATE CORRECTLY (CONT).



VISUAL INSPECTION

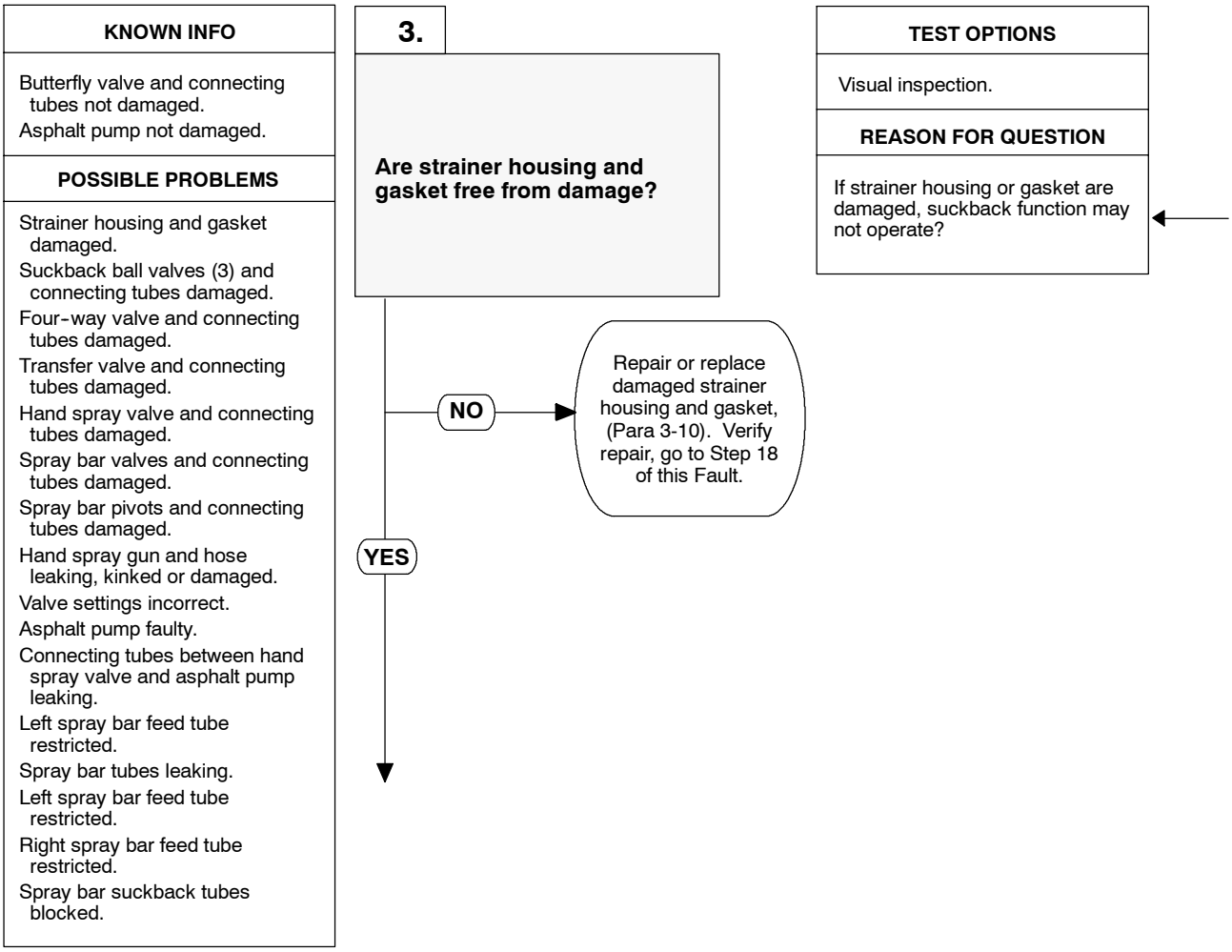
(1) Check if asphalt pump is free from damage.

(a) If asphalt pump is not free from damage, replace asphalt pump, (Para 3-15). Verify repair, go to Step 18 of this Fault.

(b) If asphalt pump is free from damage, go to Step 3 of this Fault.



24. SUCKBACK FUNCTION DOES NOT OPERATE CORRECTLY (CONT).



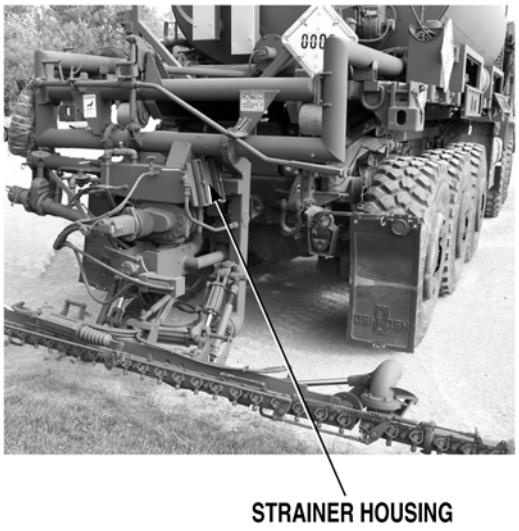
VISUAL INSPECTION

(1) Remove strainer clamps and cover from strainer housing, (Para 3-10).

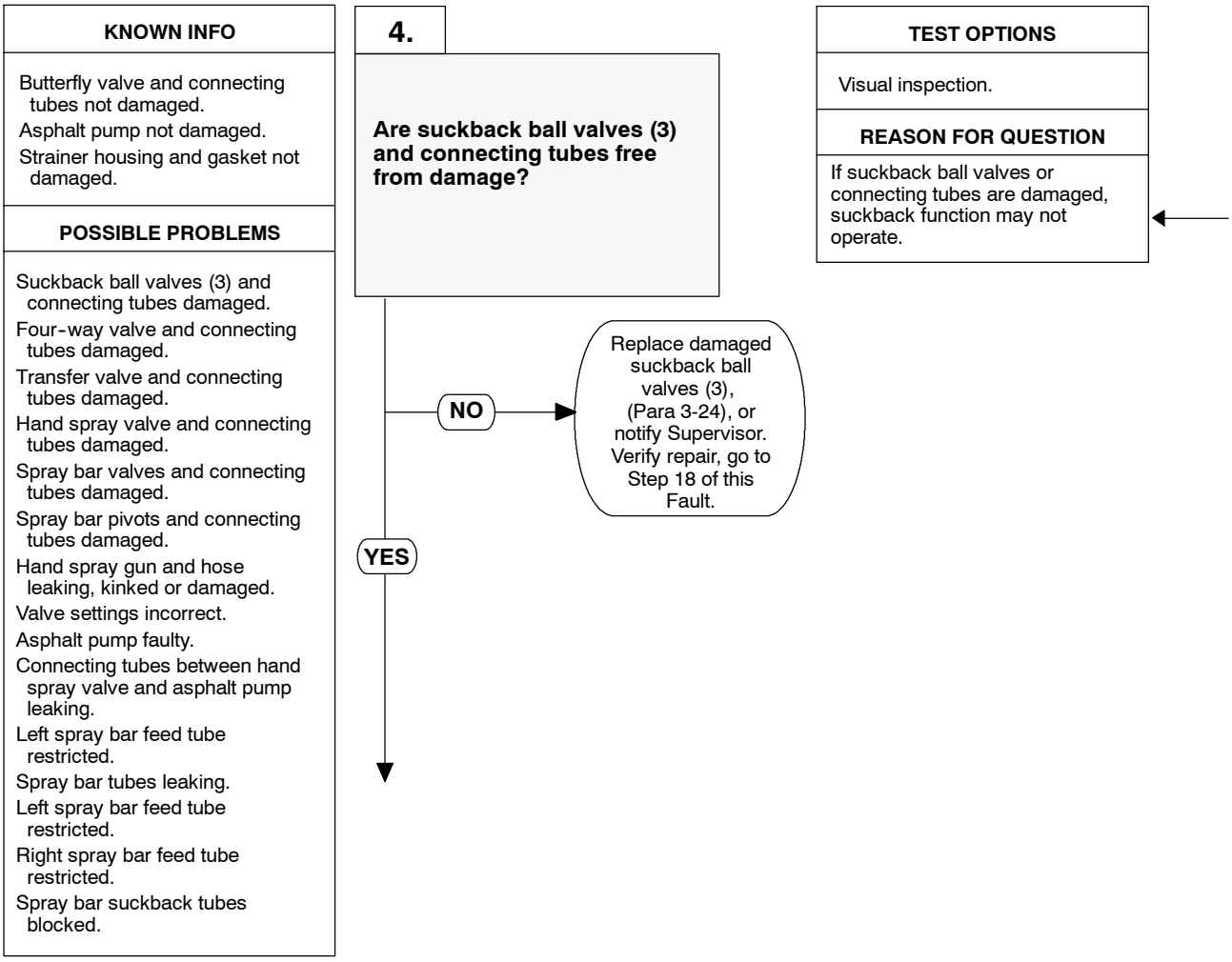
(2) Check if strainer housing and gasket are free of damage.

(a) If strainer housing or gasket are not free from damage, repair or replace damaged strainer housing and gasket, (Para 3-10). Verify repair, go to Step 18 of this Fault.

(b) If strainer housing and gasket are free from damage, go to Step 4 of this Fault.



24. SUCKBACK FUNCTION DOES NOT OPERATE CORRECTLY (CONT).

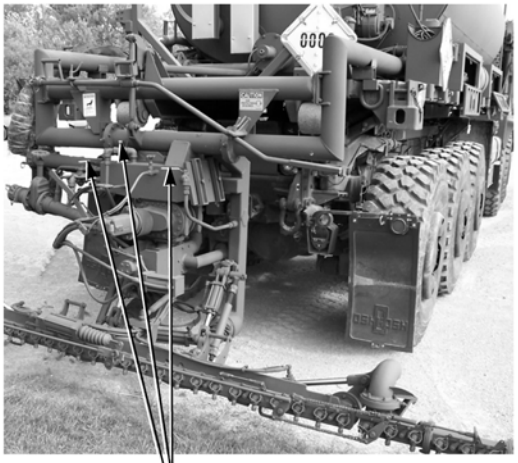


VISUAL INSPECTION

Check if suckback ball valves (3) and connecting tubes are free from damage.

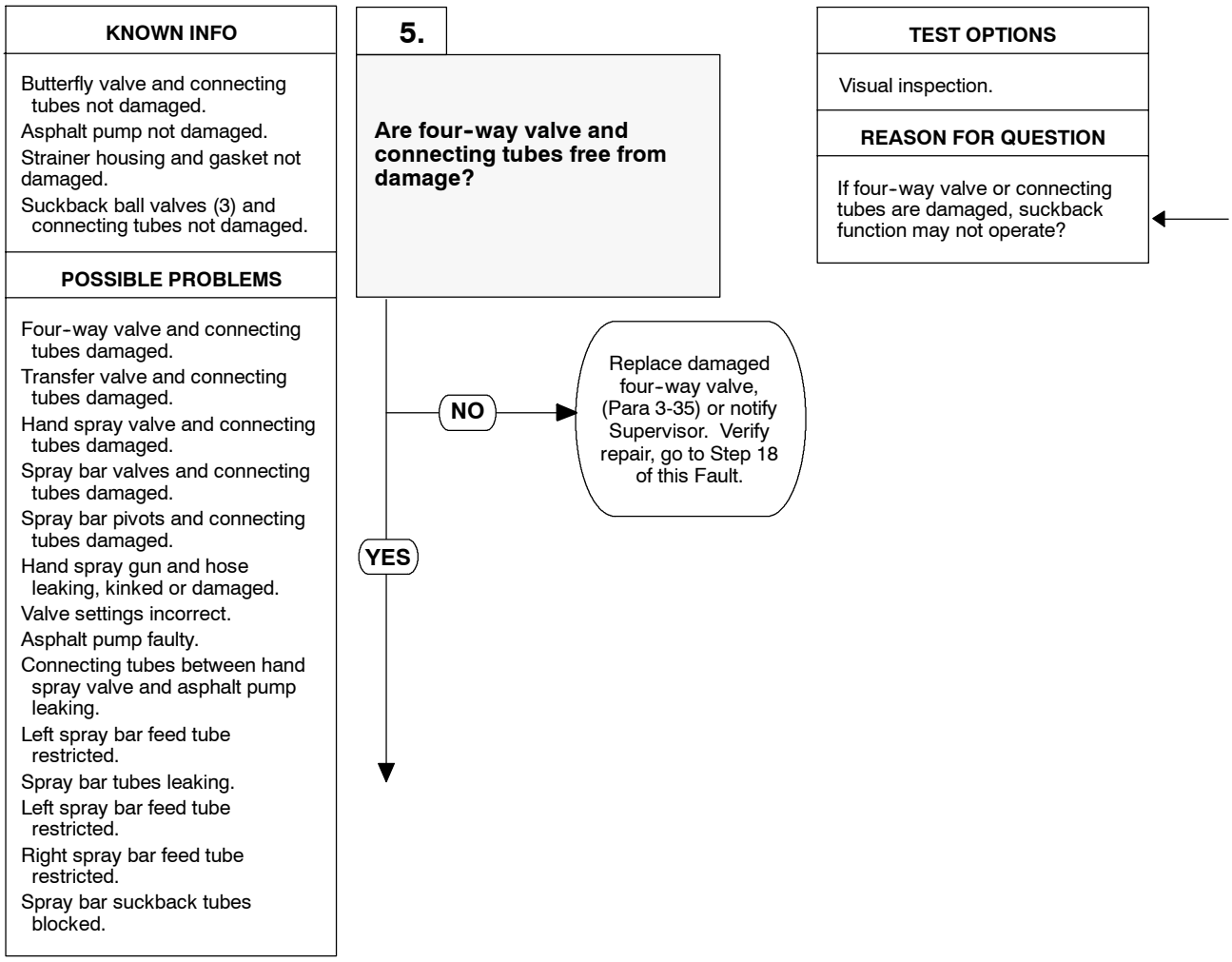
(a) If suckback ball valves (3) and connecting tubes are not free from damage, replace damaged suckback ball valves, (Para 3-24), or notify Supervisor. Verify repair, go to Step 18 of this Fault.

(b) If suckback ball valves (3) and connecting tubes are free from damage, go to Step 5 of this Fault.



SUCKBACK BALL VALVES

24. SUCKBACK FUNCTION DOES NOT OPERATE CORRECTLY (CONT).

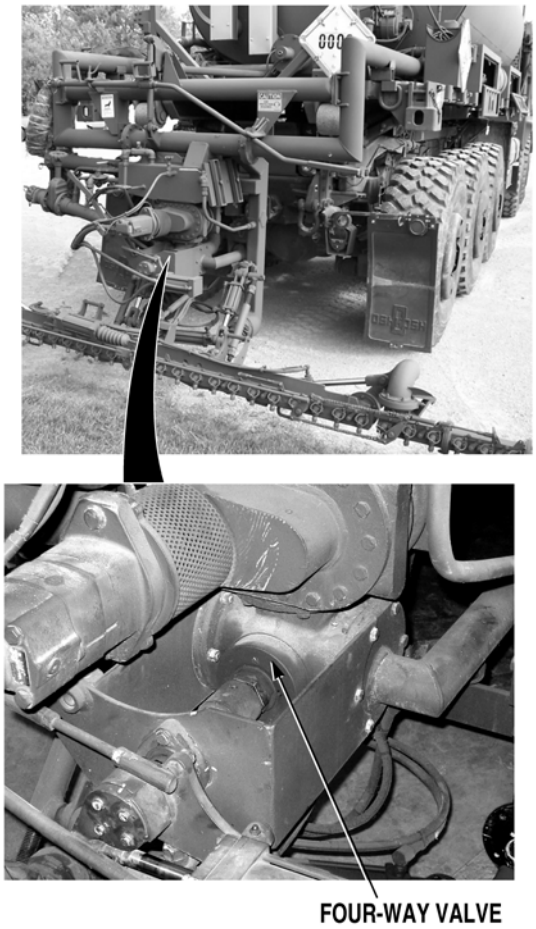


VISUAL INSPECTION

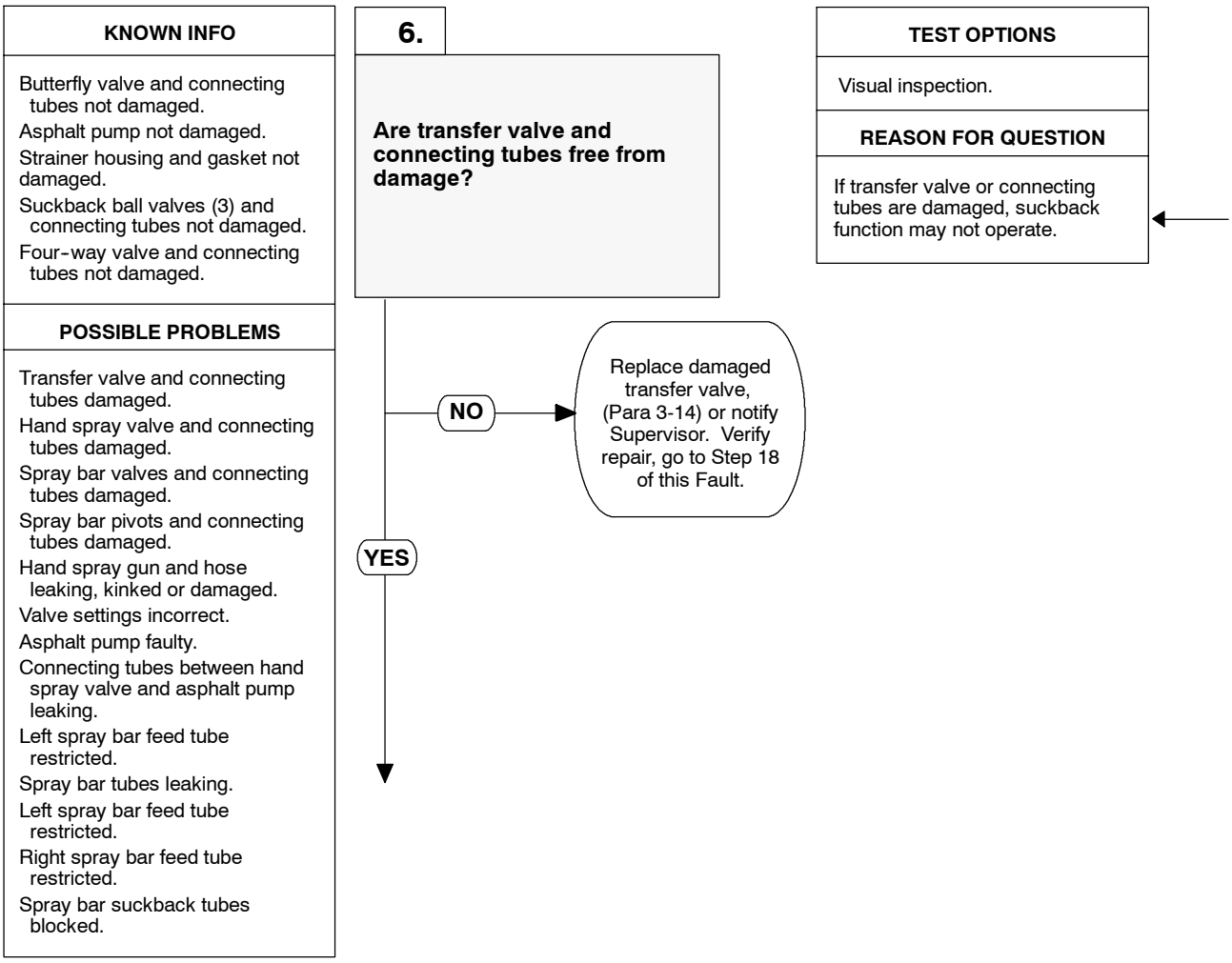
Check if four-way valve and connecting tubes are free from damage.

(a) If four-way valve and connecting tubes are not free from damage, replace damaged four-way valve, (Para 3-35) or notify Supervisor. Verify repair, go to Step 18 of this Fault.

(b) If four-way valve and connecting tubes are free from damage, go to Step 6 of this Fault.



24. SUCKBACK FUNCTION DOES NOT OPERATE CORRECTLY (CONT).

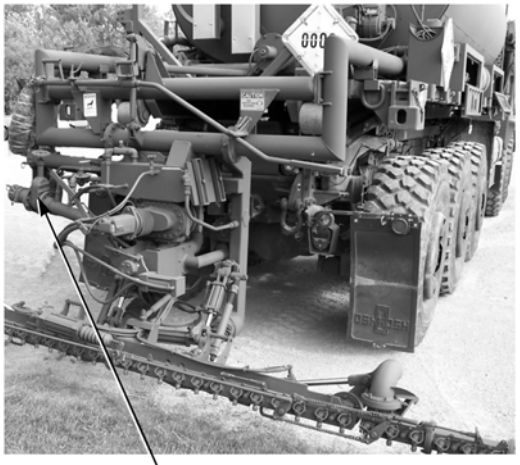


VISUAL INSPECTION

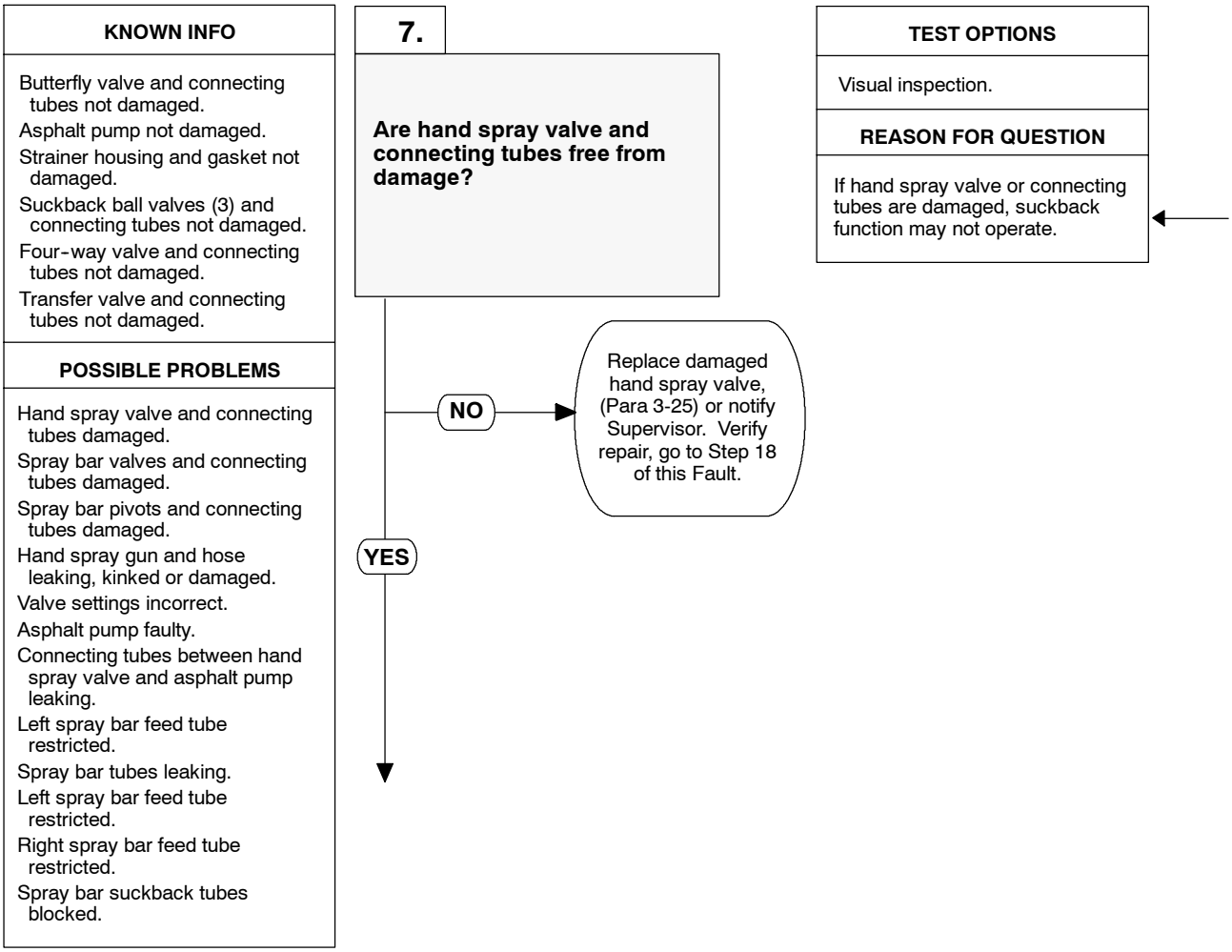
Check if transfer valve and connecting tubes are free from damage.

(a) If transfer valve and connecting tubes are not free from damage, replace damaged transfer valve, (Para 3-14) or notify Supervisor. Verify repair, go to Step 18 of this Fault.

(b) If transfer valve and connecting tubes are free from damage, go to Step 7 of this Fault.



24. SUCKBACK FUNCTION DOES NOT OPERATE CORRECTLY (CONT).





HAND SPRAY VALVE

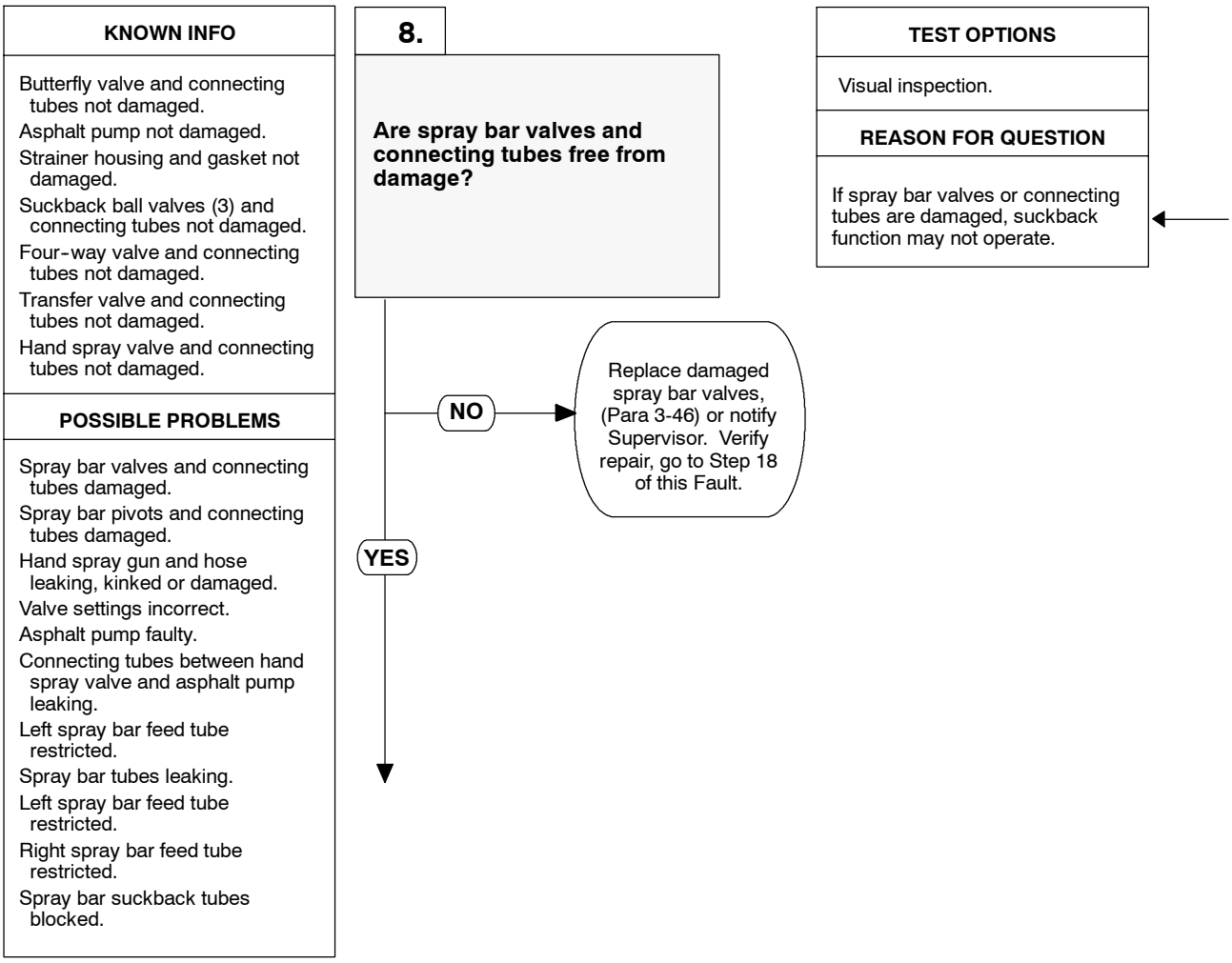
VISUAL INSPECTION

Check if hand spray valve and connecting tubes are free from damage.

(a) If hand spray valve and connecting tubes are not free from damage, replace damaged hand spray valve, (Para 3-25) or notify Supervisor. Verify repair, go to Step 18 of this Fault.

(b) If hand spray valve and connecting tubes are free from damage, go to Step 8 of this Fault.

24. SUCKBACK FUNCTION DOES NOT OPERATE CORRECTLY (CONT).

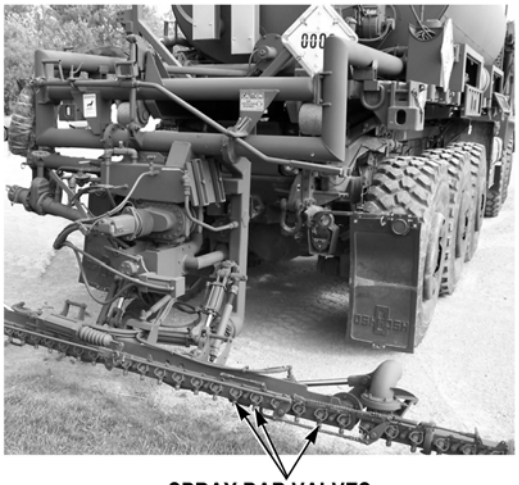


VISUAL INSPECTION

Check if spray bar valves and connecting tubes are free from damage.

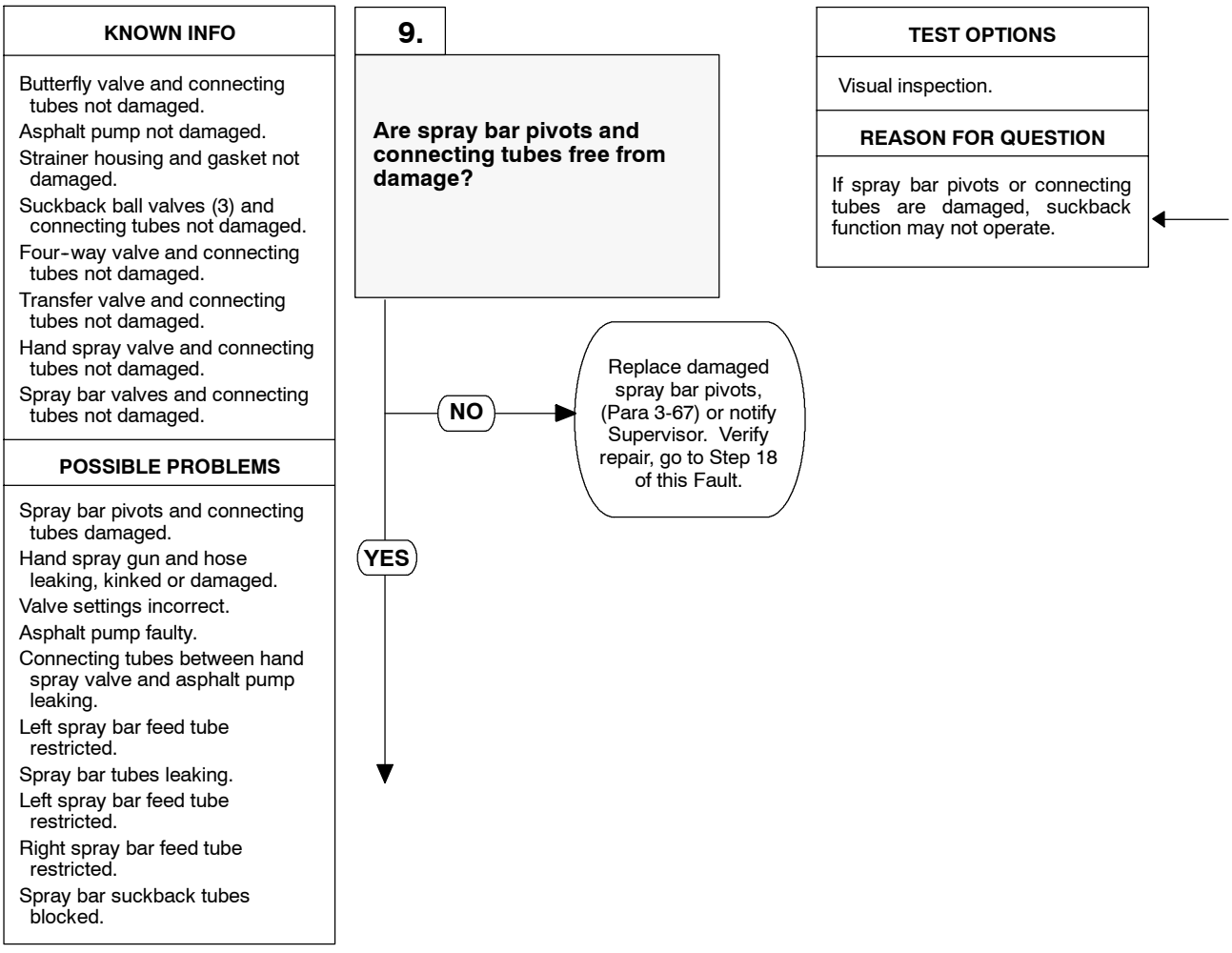
(a) If spray bar valves and connecting tubes are not free from damage, replace damaged spray bar valves, (Para 3-46) or notify Supervisor. Verify repair, go to Step 18 of this Fault.

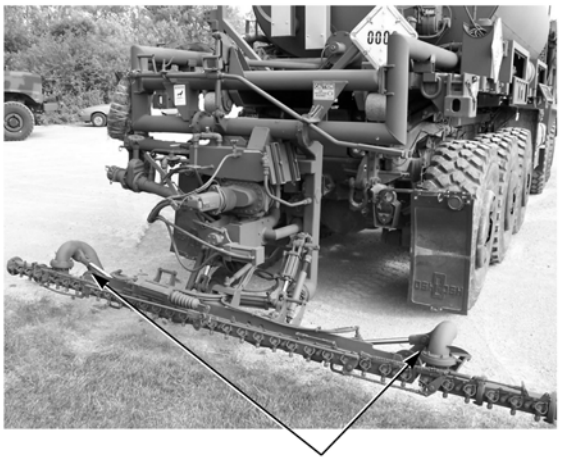
(b) If spray bar valves and connecting tubes are free from damage, go to Step 9 of this Fault.



SPRAY BAR VALVES

24. SUCKBACK FUNCTION DOES NOT OPERATE CORRECTLY (CONT).

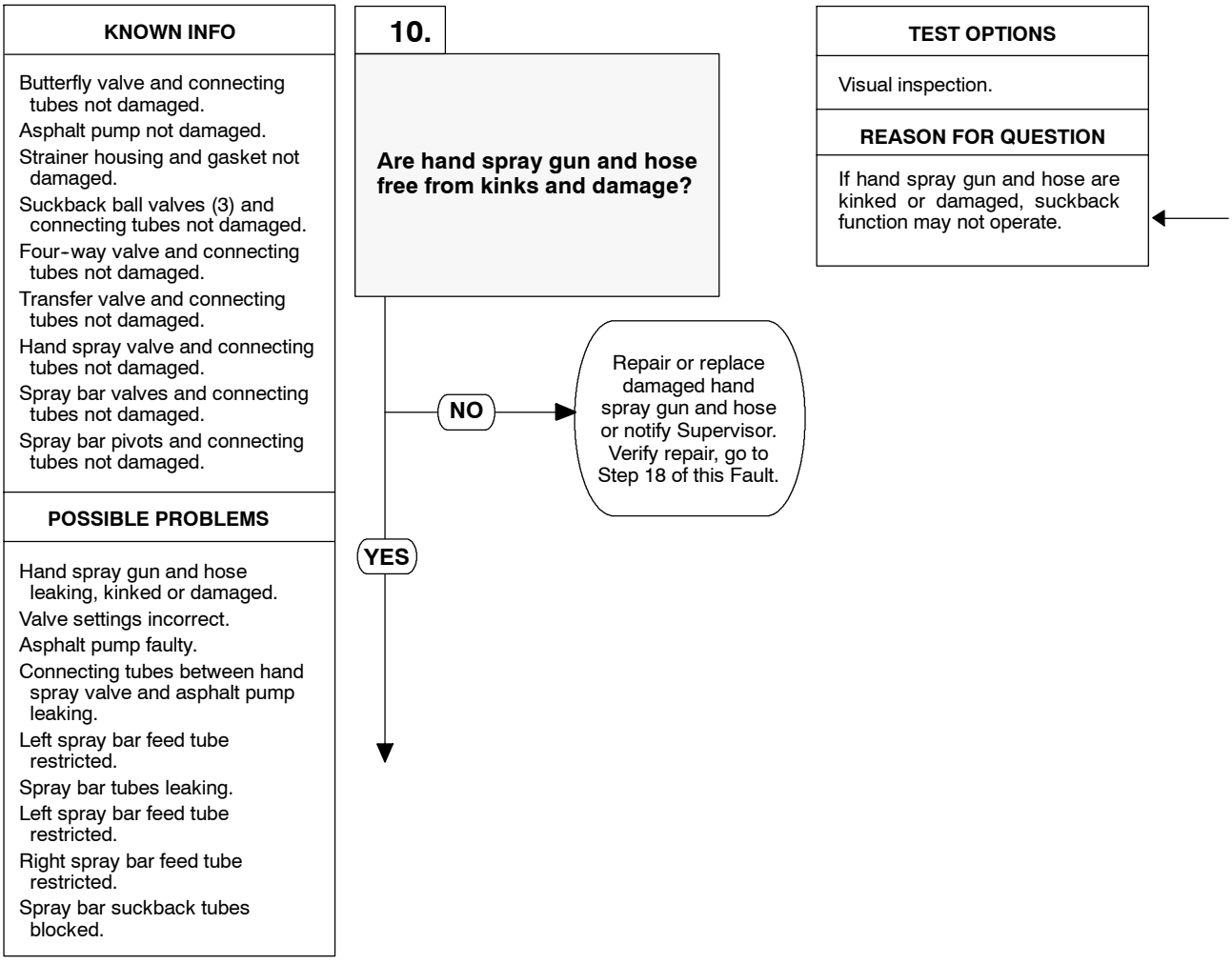




SPRAY BAR PIVOTS

VISUAL INSPECTION
Check if spray bar pivots and connecting tubes are free from damage. (a) If spray bar pivots and connecting tubes are not free from damage, replace damaged spray bar pivots, (Para 3-67) or notify Supervisor. Verify repair, go to Step 18 of this Fault. (b) If spray bar pivots and connecting tubes are free from damage, go to Step 10 of this Fault.

24. SUCKBACK FUNCTION DOES NOT OPERATE CORRECTLY (CONT).





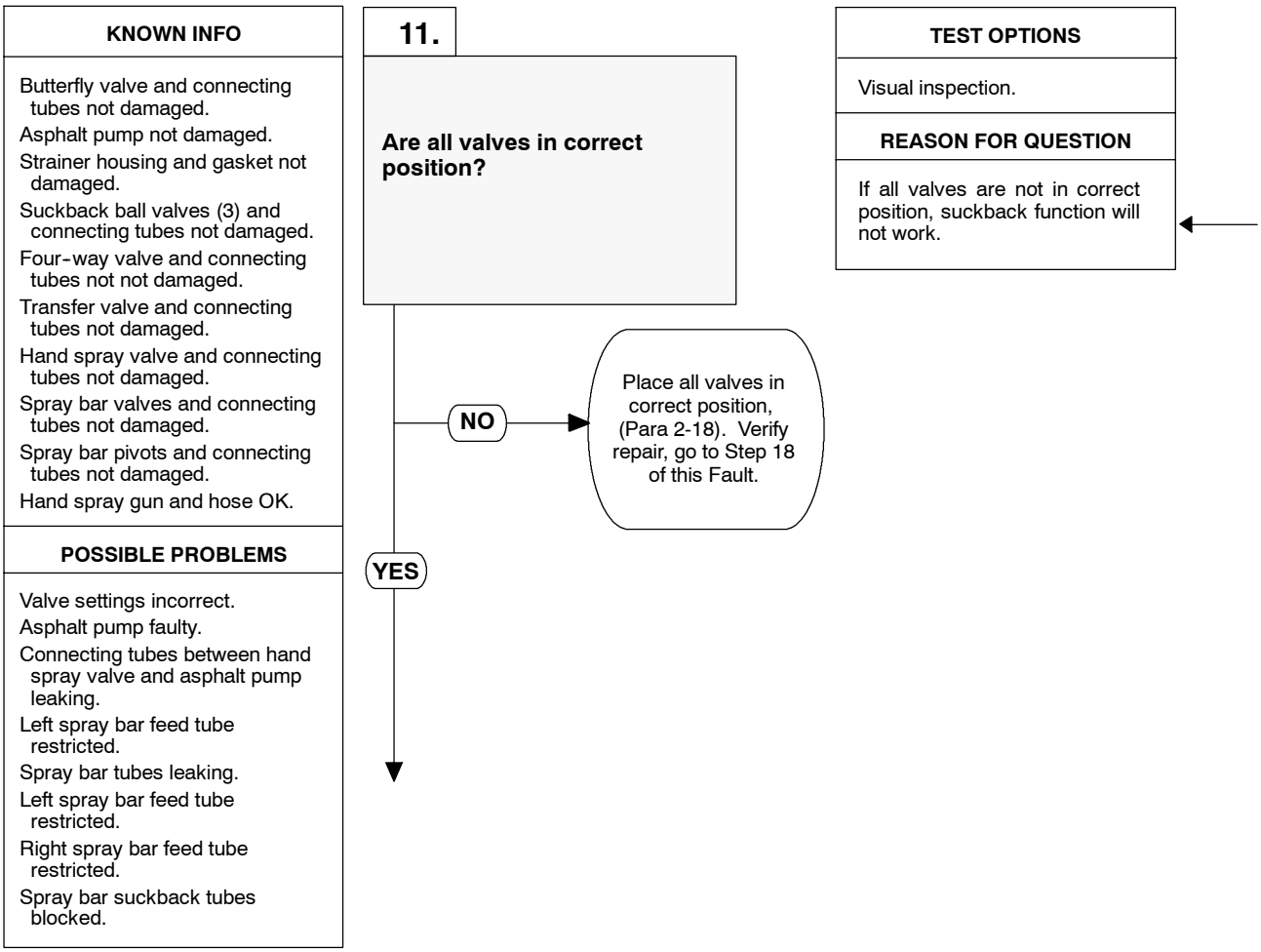
VISUAL INSPECTION

Check if hand spray gun and hoses are free from kinks and damage.

(a) If hand spray gun and hoses are not free from kinks and damage, repair or replace damaged hand spray gun and hose or notify Supervisor. Verify repair, go to Step 18 of this Fault.

(b) If hand spray gun and hoses are free from kinks and damage, go to Step 11 of this Fault.

24. SUCKBACK FUNCTION DOES NOT OPERATE CORRECTLY (CONT).

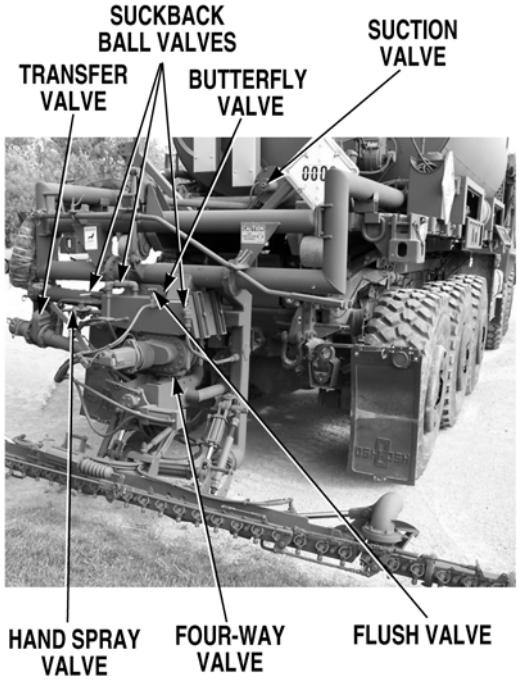


VISUAL INSPECTION

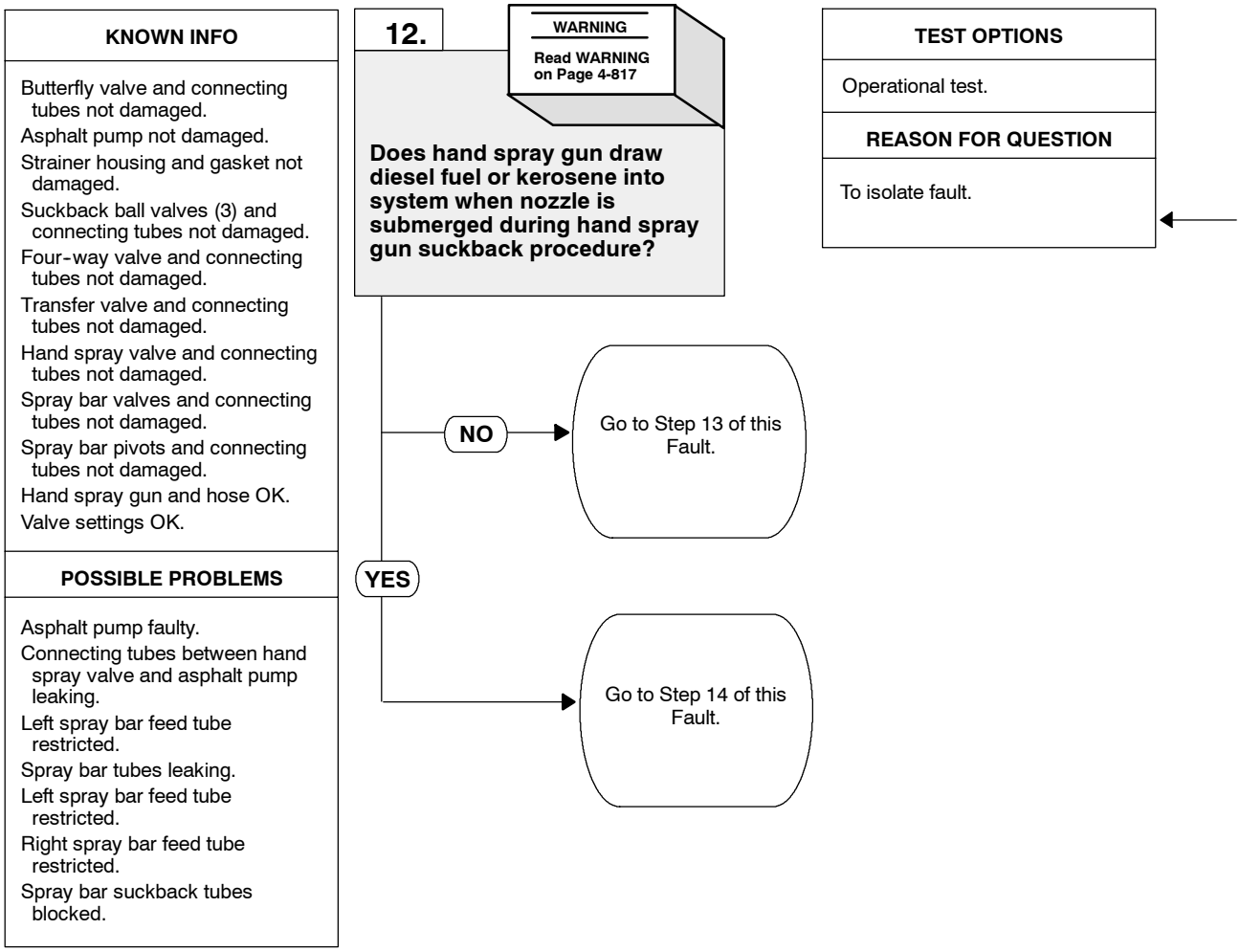
Check if all valves are in correct position, (Para 2-18).

(a) If all valves are not in correct position, place valves in correct position, (Para 2-18). Verify repair, go to Step 18 of this Fault.

(b) If all valves are in correct position go to Step 12 of this Fault.



24. SUCKBACK FUNCTION DOES NOT OPERATE CORRECTLY (CONT).



WARNING

To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.



OPERATIONAL TEST

(1) Set up hand spray gun for suckback operation, (Para 2-18).

(2) Start engine, (TM 9-2320-364-10).

(3) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(4) Turn front control panel POWER switch ON, (Para 2-1).

(5) Turn rear control panel POWER switch ON, (Para 2-1).

(6) Submerge hand spray gun nozzle in diesel fuel or kerosene.

(7) Operate hand spray gun suckback function, (Para 2-18).

(8) Check if diesel fuel or kerosene is drawn into hand spray gun.

(a) If diesel fuel or kerosene is not drawn into hand spray gun, go to Step 13 of this Fault.

(b) If diesel fuel or kerosene is drawn into hand spray gun, go to Step 14 of this Fault.

24. SUCKBACK FUNCTION DOES NOT OPERATE CORRECTLY (CONT).

KNOWN INFO

Butterfly valve and connecting tubes not damaged.
Asphalt pump not damaged.
Strainer housing and gasket not damaged.
Suckback ball valves (3) and connecting tubes not damaged.
Four way valve and connecting tubes not damaged.
Transfer valve and connecting tubes not damaged.
Hand spray valve and connecting tubes not damaged.
Spray bar valves and connecting tubes not damaged.
Spray bar pivots and connecting tubes not damaged.
Hand spray gun and hose OK.
Valve settings OK.

POSSIBLE PROBLEMS

Asphalt pump faulty.
Connecting tubes between hand spray valve and asphalt pump leaking.
Left spray bar feed tube restricted.
Spray bar tubes leaking.
Left spray bar feed tube restricted.
Right spray bar feed tube restricted.
Spray bar suckback tubes blocked.

13.

WARNING

Read WARNING on Page 4-819

Does hand spray gun draw diesel fuel or kerosene into system when nozzle is submerged during hand spray gun suckback procedure after 1 qt (.47 l) of fuel oil or kerosene is added to fill line?

NO → Check and repair leaks from hand spray valve to asphalt pump. Verify repair, go to Step 18 of this Fault. If no leaks are found, asphalt pump may be faulty. Notify Supervisor.

YES → Pump was dry. Verify repair, go to Step 18 of this Fault.

TEST OPTIONS

Operational test.

REASON FOR QUESTION

Suckback function will not work if hand spray gun or hose leaks, or asphalt pump is dry.

WARNING

To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.



OPERATIONAL TEST

(1) Shut off engine, (TM 9-2320-364-10).

(2) Pour 1 qt (.47 l) of diesel fuel or kerosene into fill line, (Para 2-15).

(3) Start engine, (TM 9-2320-364-10).

(4) Turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(5) Turn front control panel POWER switch ON, (Para 2-1).

(6) Turn rear control panel POWER switch ON, (Para 2-1).

(7) Submerge hand spray gun nozzle in diesel fuel or kerosene.

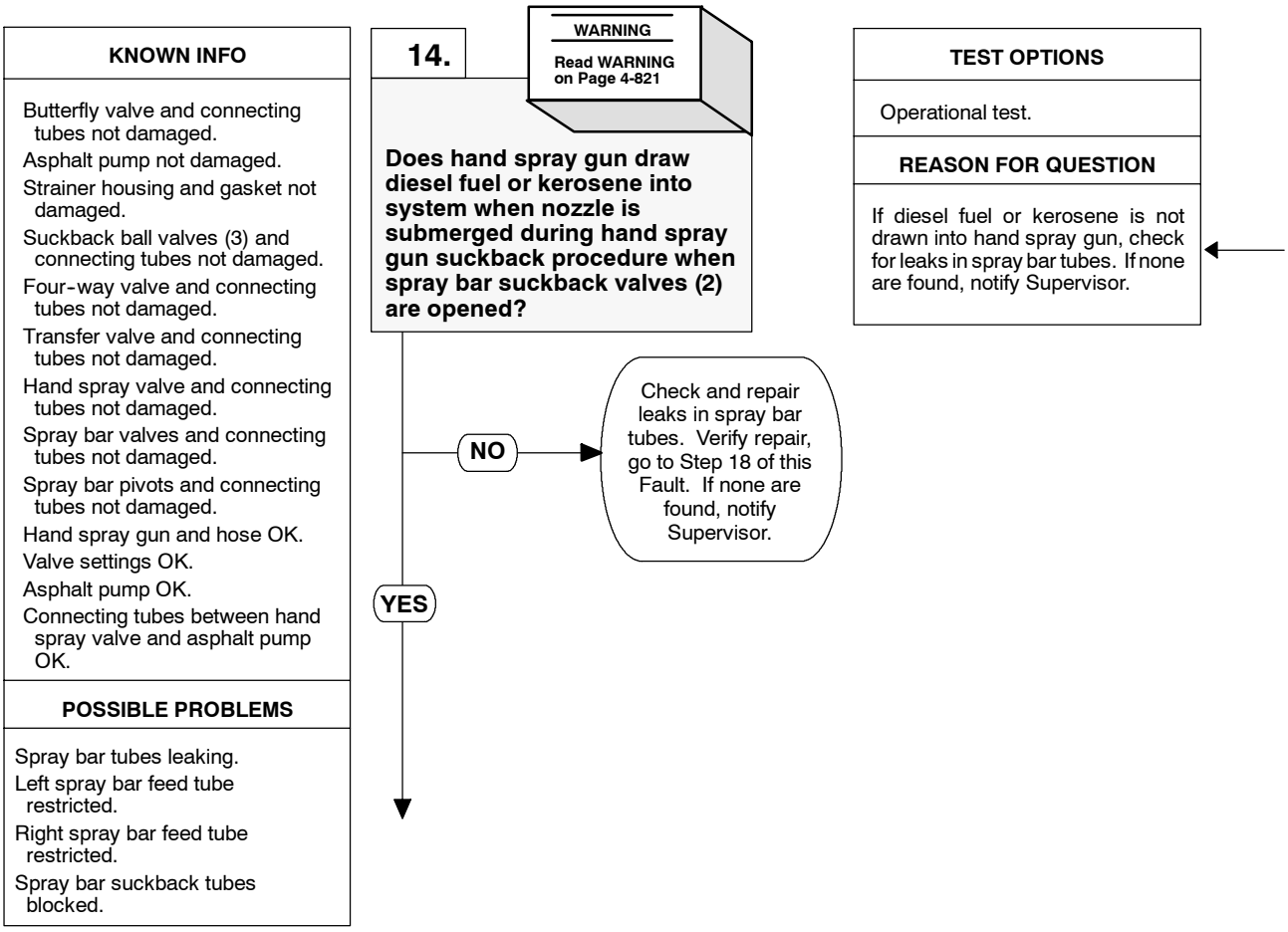
(8) Operate hand spray gun suckback function, (Para 2-18).

(9) Check if diesel fuel or kerosene is drawn into hand spray gun.

  (a) If diesel fuel or kerosene is not drawn into hand spray gun, check and repair leaks from hand spray valve to asphalt pump. If repairs were made, verify repairs go to Step 18 of this Fault. If no leaks are found, asphalt pump may be faulty. Notify Supervisor.

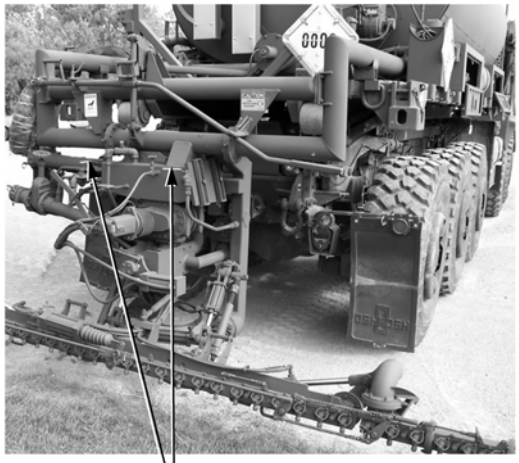
  (b) If diesel fuel or kerosene is drawn into hand spray gun pump was dry, verify repair, go to Step 18 of this Fault.

24. SUCKBACK FUNCTION DOES NOT OPERATE CORRECTLY (CONT).



WARNING

To prevent personal injury when working with fuel, do not smoke or use open flame. Fuel is flammable and may explode. Keep fire extinguisher within reach.



SPRAY BAR SUCKBACK BALL VALVES

OPERATIONAL TEST

(1) Open spray bar suckback ball valves (2), (Para 2-18).

(2) Submerge hand spray gun nozzle in diesel fuel or kerosene.

(3) Operate hand spray gun suckback function, (Para 2-18).

(4) Check if diesel fuel or kerosene is drawn into hand spray gun.

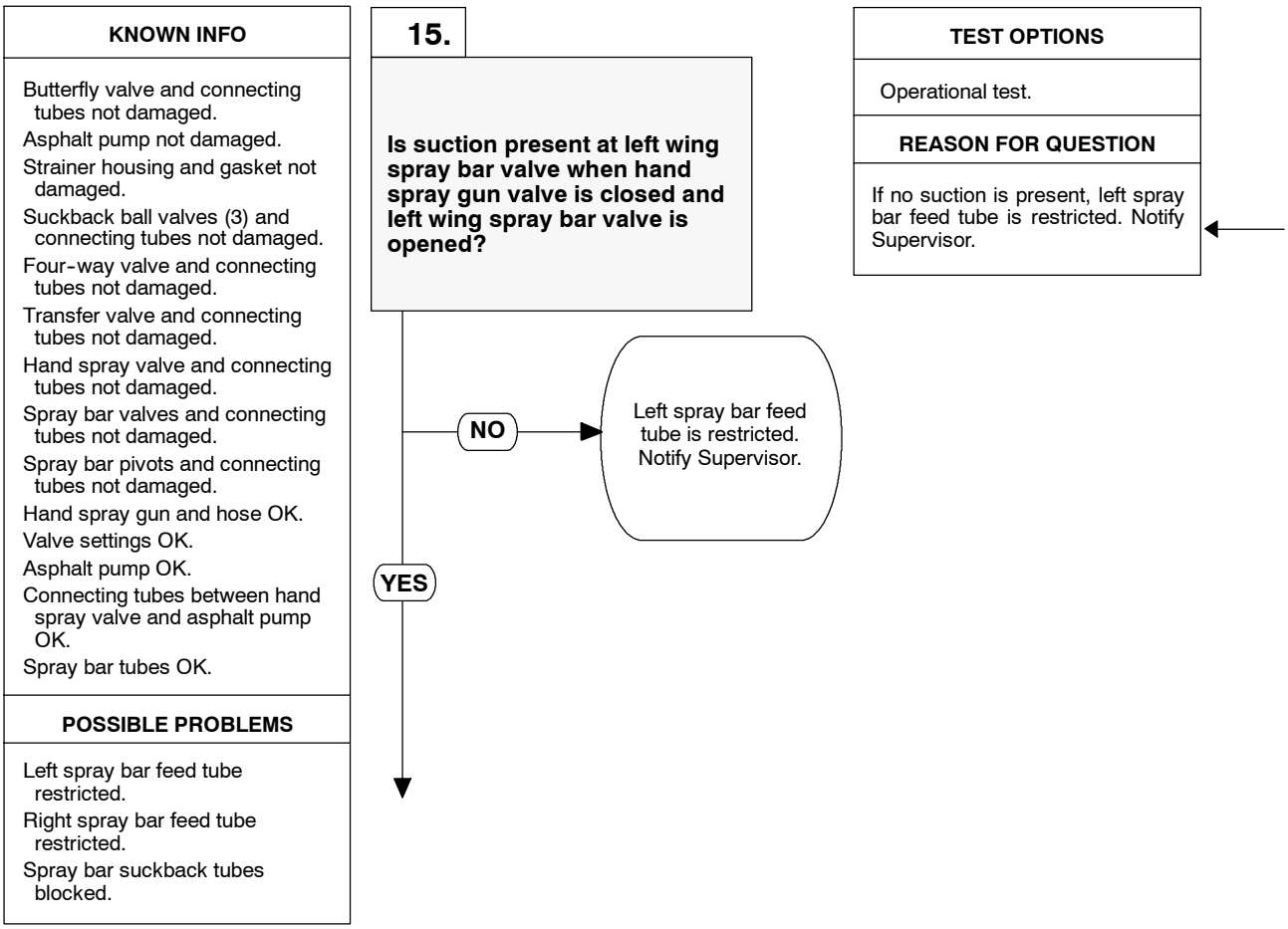
(a) If diesel fuel or kerosene is not drawn into hand spray gun, check and repair leaks in spray bar tubes. Verify repairs, go to Step 18 of this Fault. If no leaks are found, Notify Supervisor.

(b) If diesel fuel or kerosene is drawn into hand spray gun, go to Step 15 of this Fault.

HAND SPRAY GUN



24. SUCKBACK FUNCTION DOES NOT OPERATE CORRECTLY (CONT).





HAND SPRAY VALVE

OPERATIONAL TEST

(1) Close hand spray gun valve, (Para 2-18).

(2) Manually open one left wing spray bar valve, (Para 3-46).

(3) Operate spray bar suckback function, (Para 2-18).

(4) Check if there is suction at opened left wing spray bar valve.

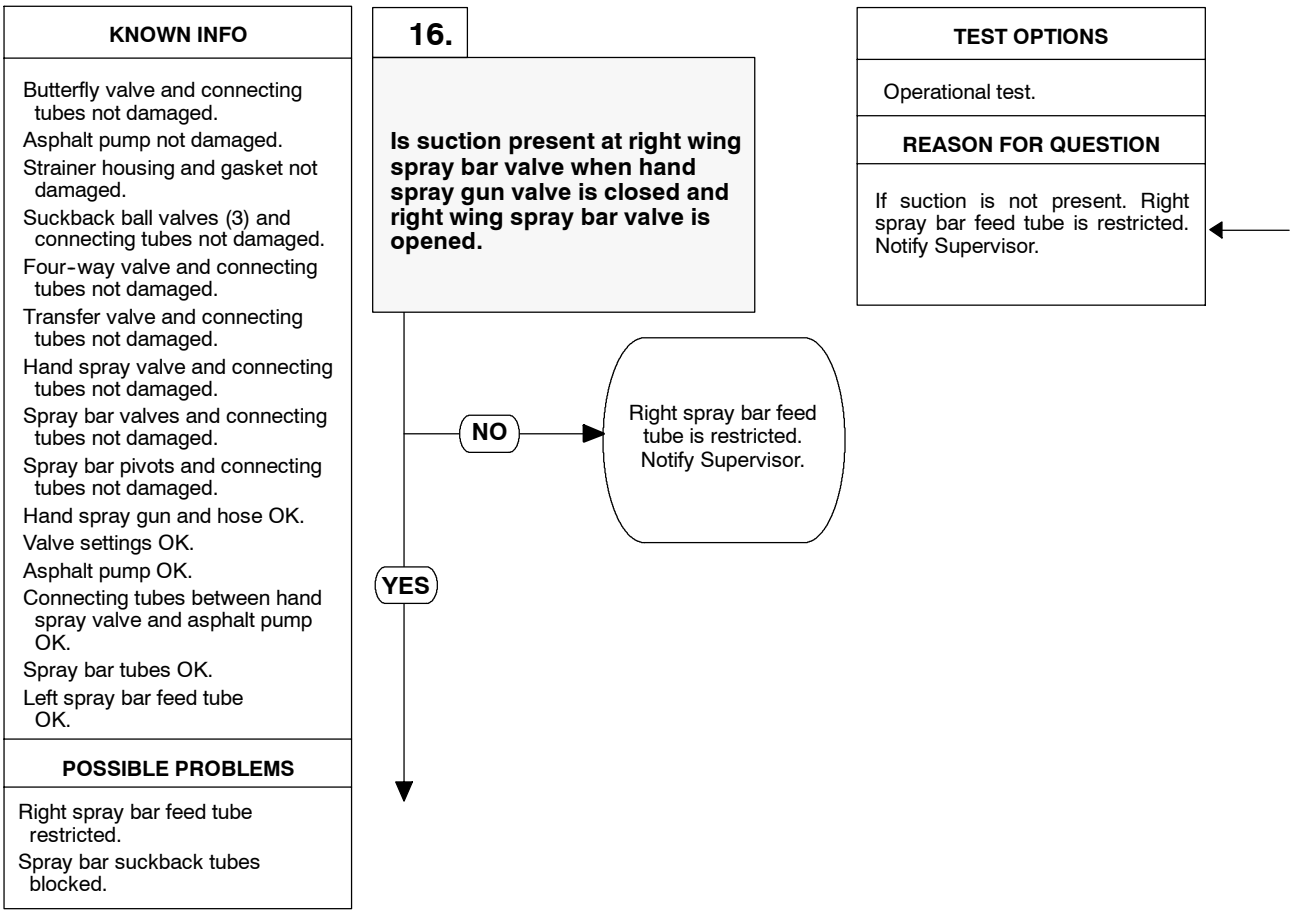
(a) If there is no suction at opened left wing spray bar valve, left spray bar feed tube is restricted. Notify Supervisor.

(b) If there is suction at opened left wing spray bar valve, go to Step 16 of this Fault.



LEFT WING
SPRAY BAR VALVE

24. SUCKBACK FUNCTION DOES NOT OPERATE CORRECTLY (CONT).



OPERATIONAL TEST

(1) Manually close left wing spray bar valve, (Para 3-46).

(2) Manually open one right wing spray bar valve, (Para 3-46).

(3) Operate spray bar suckback function, (Para 2-18).

(4) Check if there is suction at opened right wing spray bar valve.

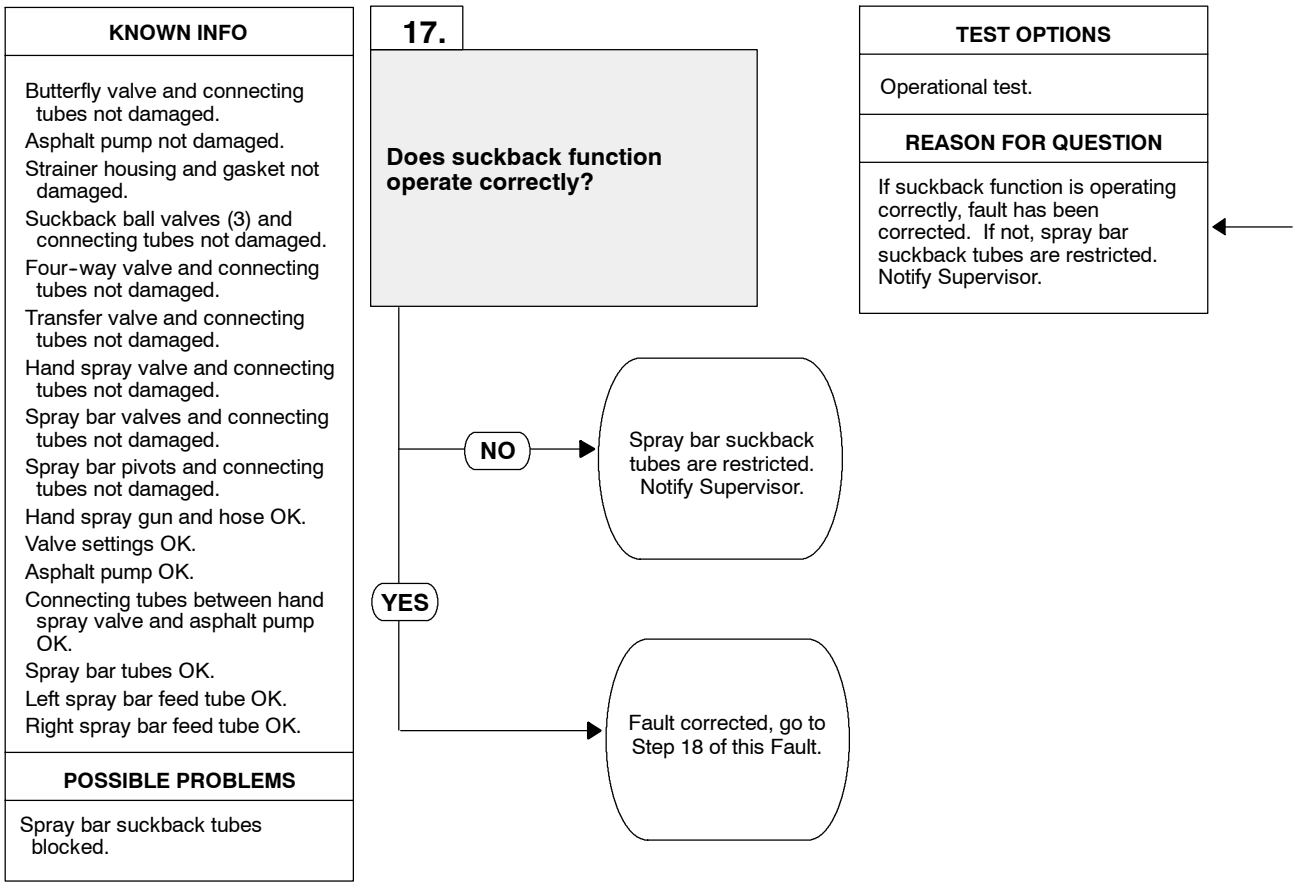
(a) If there is no suction at opened right wing spray bar valve, right spray bar tube is restricted. Notify Supervisor.

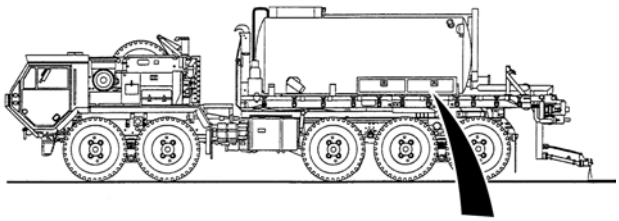
(b) If there is suction at opened right wing spray bar valve, go to Step 17 of this Fault.

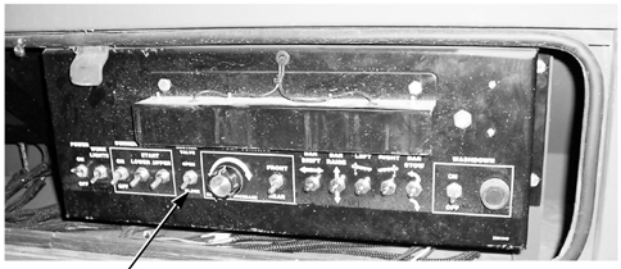


RIGHT WING SPRAY BAR VALVE

24. SUCKBACK FUNCTION DOES NOT OPERATE CORRECTLY (CONT).

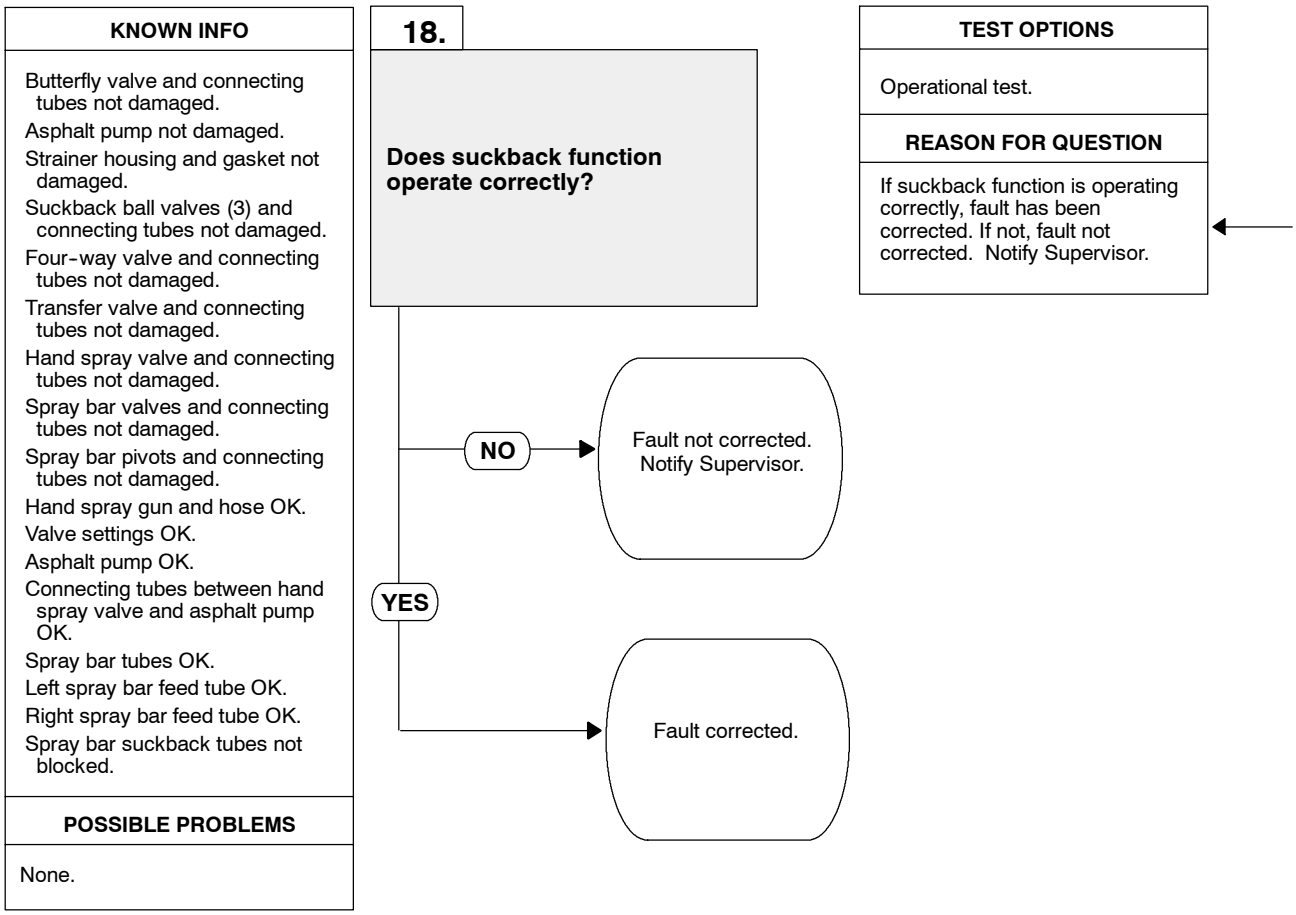


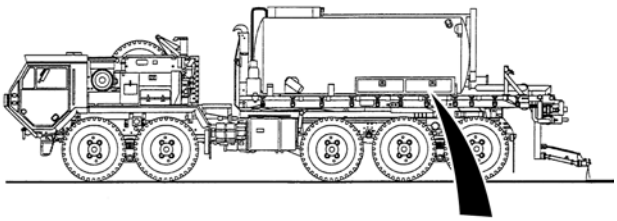


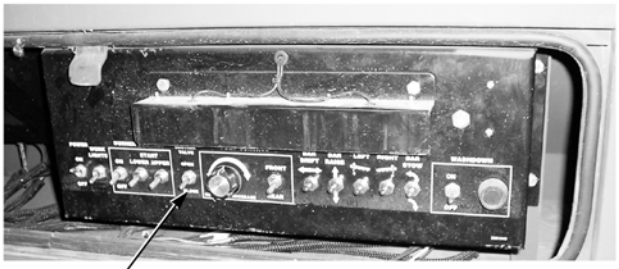


OPERATIONAL TEST	
(1)	Manually close right wing spray bar valve, (Para 3-46).
(2)	Operate spray bar suckback function, (Para 2-18).
(3)	Check if suckback function is operating correctly.
(4)	If suckback function is not operating correctly, spray bar suckback tubes are blocked. Notify Supervisor.
(5)	If suckback function is operating correctly, go to Step 18 of this Fault.

24. SUCKBACK FUNCTION DOES NOT OPERATE CORRECTLY (CONT).







VERIFY REPAIR

(1) If OFF, start engine, (TM 9-2320-364-10).

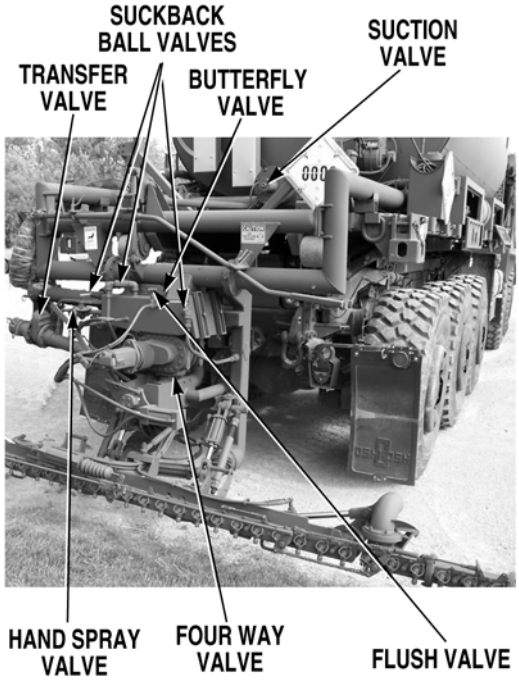
(2) Check that all valves are in the correct position, (Para 2-18).

(3) Operate hand spray and spray bar suckback functions, (Para 2-18). Check if suckback functions are operating correctly.

(a) If suckback functions are not operating correctly, fault not corrected. Notify Supervisor.

(b) If suckback functions are operating correctly, fault has been corrected.

(4) Shut OFF engine, (TM 9-2320-364-10).



25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL).

INITIAL SETUP

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
- Multimeter (Item 8, Appendix F)
- Jumperwire

Personnel Required
- Two

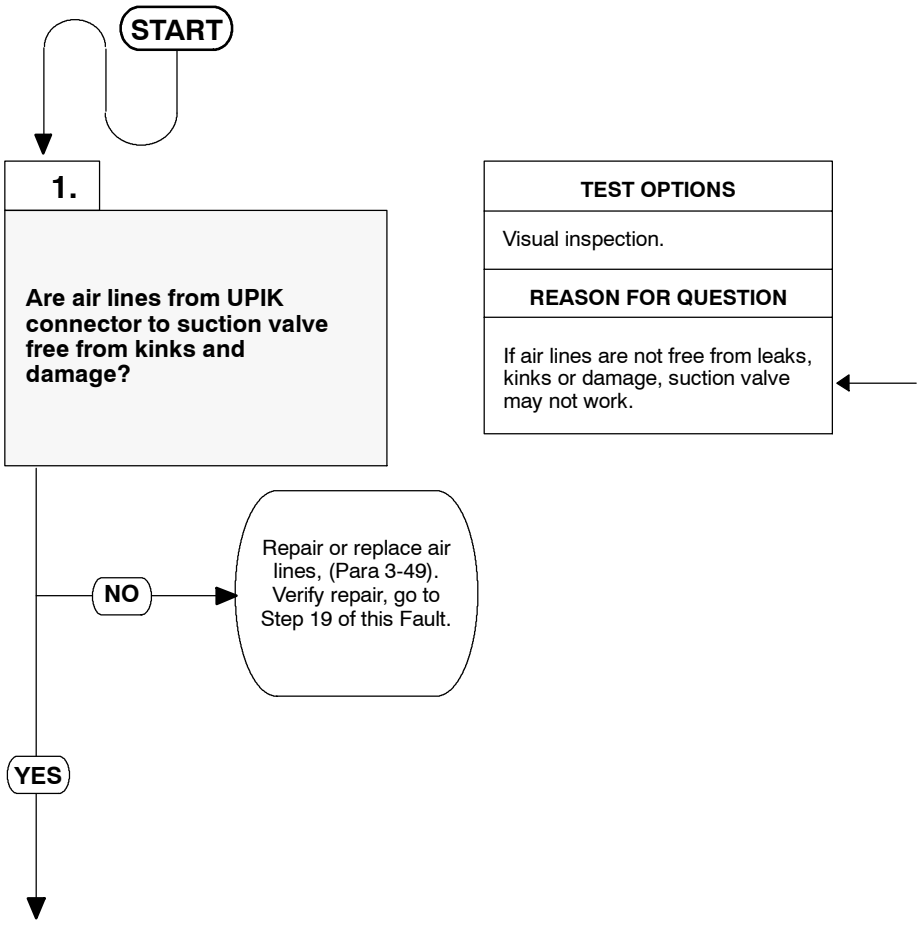
Equipment Condition
- Bituminous Distributor loaded on PLS, (Para 2-5)
- Engine OFF, (TM 9-2320-364-10)
- Wheels chocked, (TM 9-2320-364-10)

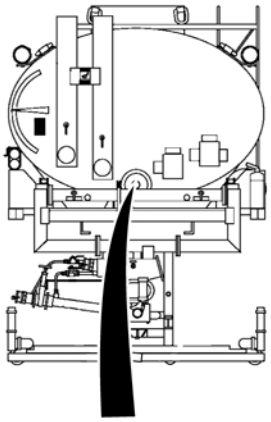
NOTE

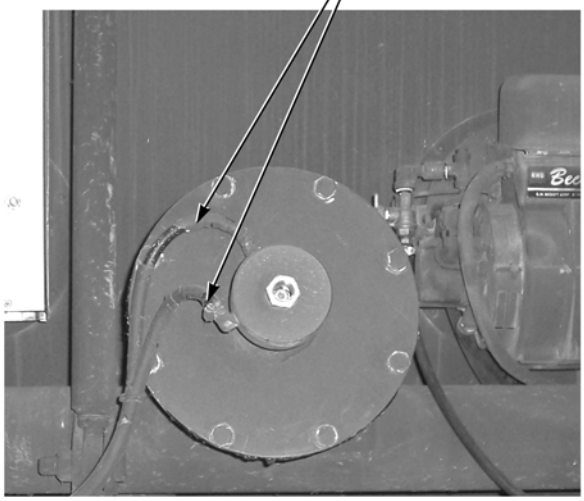
Suction valve is open during circulation, spray and pump off operations. It is closed during tank fill, transfer, suckback and flushing operations.

KNOWN INFO
Nothing.

POSSIBLE PROBLEMS
Air lines between UPIK air connector and suction valve kinked or damaged.
Spray bar is not in lowered position.
Air valve faulty.
Suction valve close air line between air valve and suction valve leaking or blocked.
Suction valve faulty.
Power to rear control panel faulty.
PLS interface faulty.
Air line between UPIK air connector and air valve leaking or blocked.
Suction valve open air line between air valve and suction valve leaking or blocked.
Air valve harness (black wire) faulty.
Mercury switch wire harness (black wire) faulty.
Mercury switch wire harness (red wire) faulty.
Mercury switch faulty.
Rear control panel power (red) wire faulty.
Suction valve switch faulty.
Rear control panel suction valve control (red/blue wire) faulty.
Air valve harness (red wire) faulty.





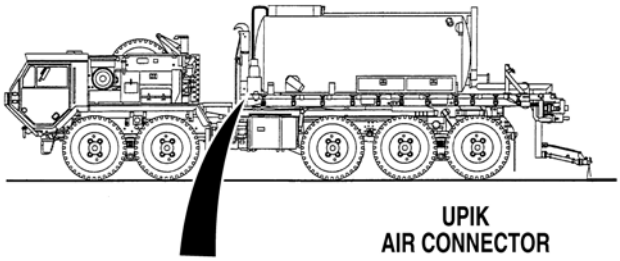


VISUAL INSPECTION

Check if air lines from UPIK air connector to suction valve are free of kinks and damage.

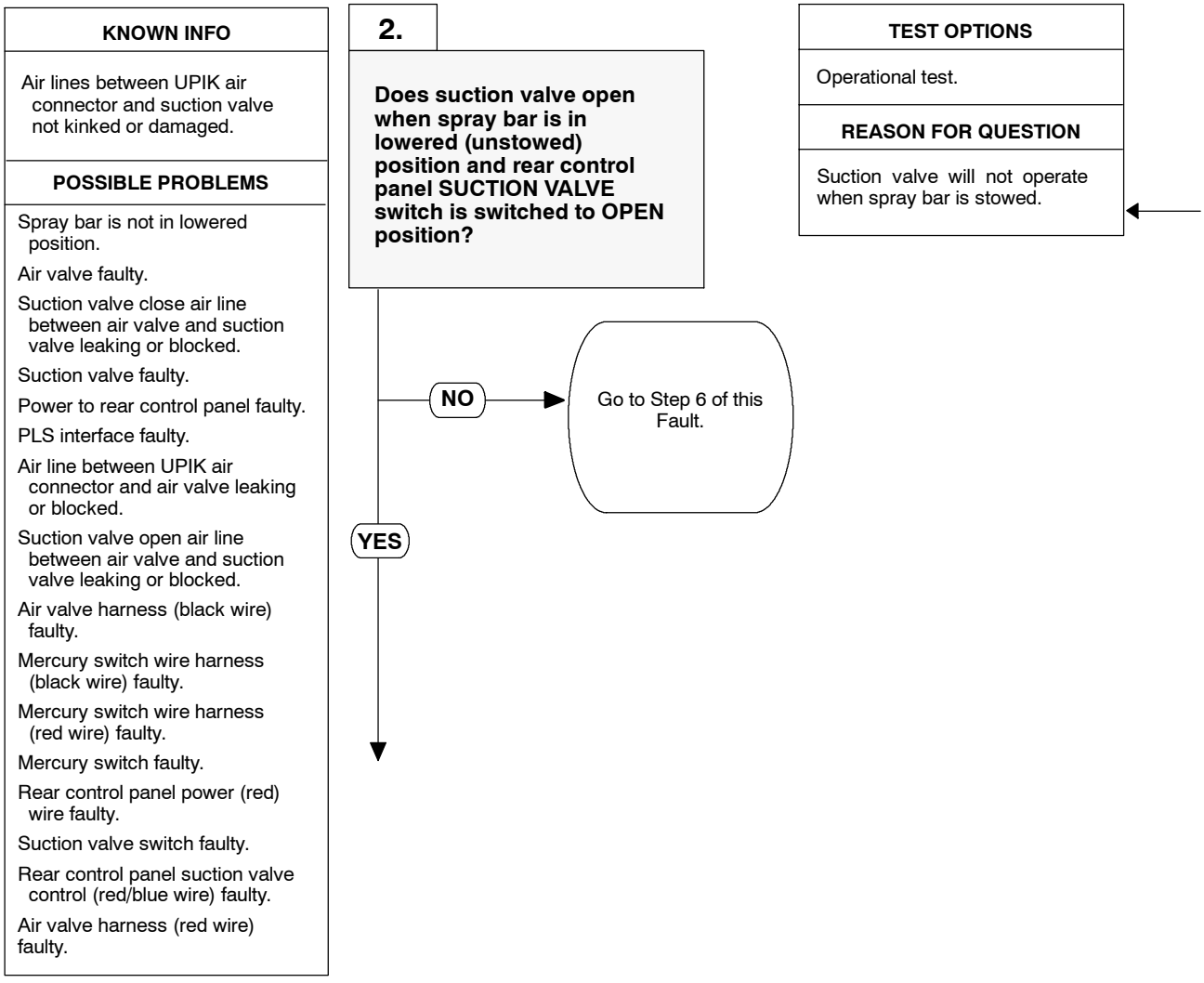
(a) If air lines are not free of kinks and damage, repair or replace damaged air lines, (Para 3-49). Verify repair, go to Step 19 of this Fault.

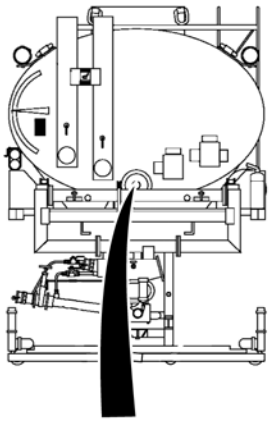
(b) If air lines are free of kinks and damage, go to Step 2 of this Fault.

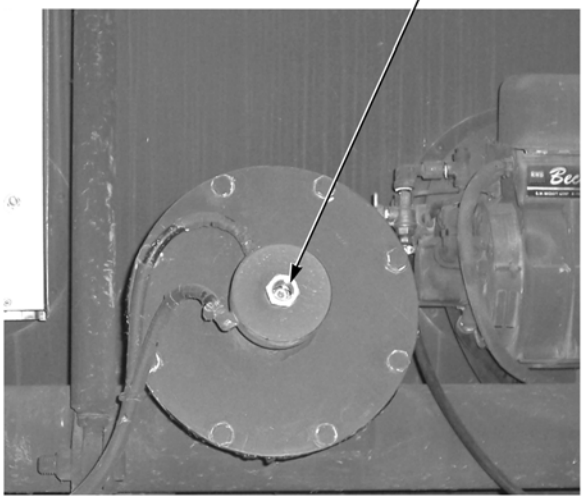




25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL) (CONT).







OPERATIONAL TEST

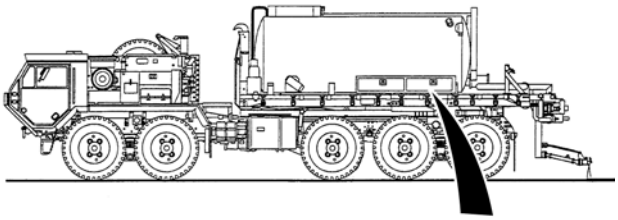
(1) Start engine, (TM 9-2320-364-10) and allow air system to charge to 100 to 120 psi (690 to 827 kPa).

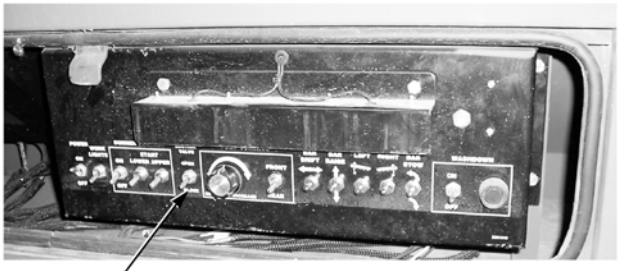
(2) If stowed, operate spray bar unstow function to deploy spray bar, (Para 2-17).

(3) While an assistant switches SUCTION VALVE switch to OPEN position, look through sight glass on suction valve. Check if valve moves to open position.

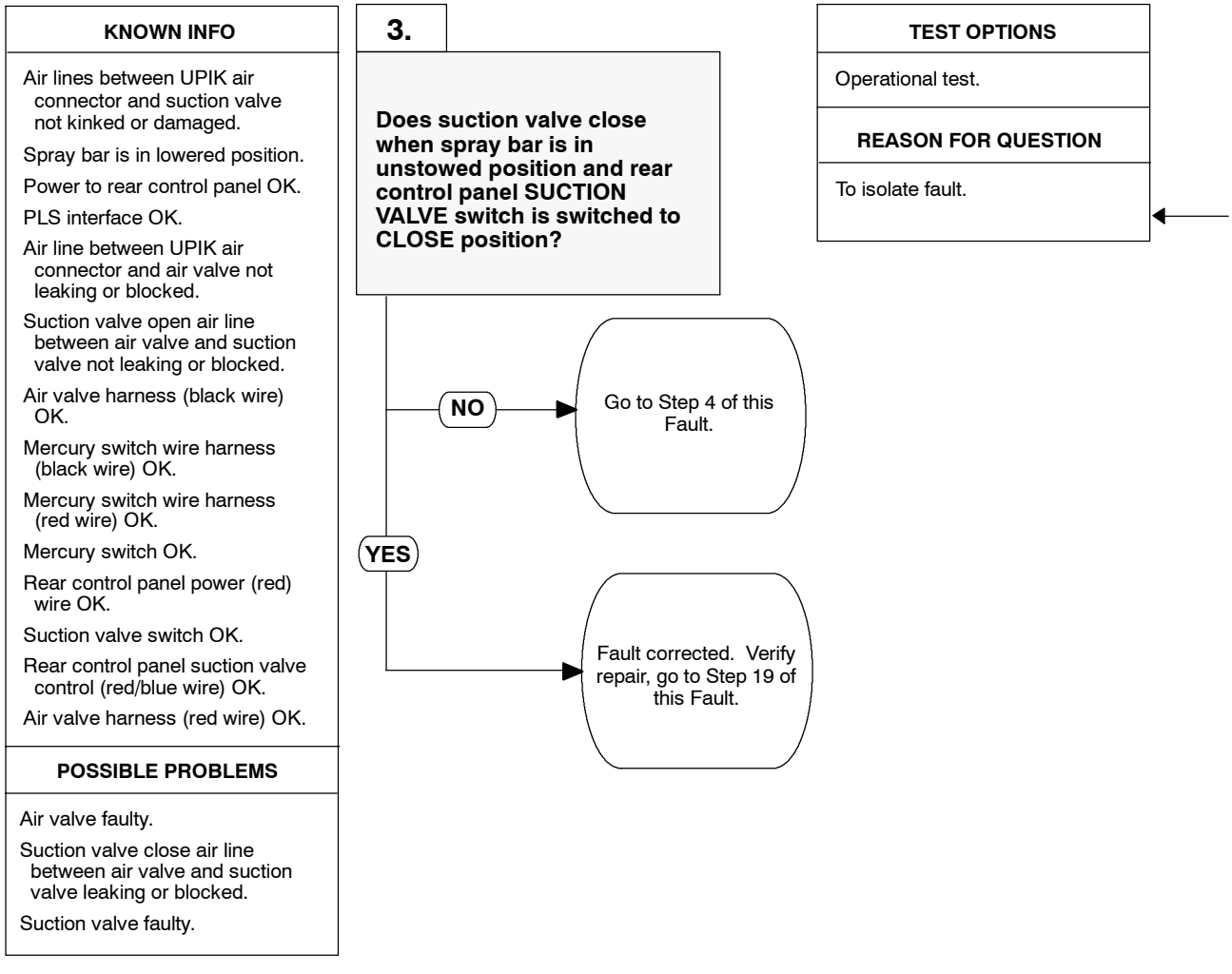
(a) If suction valve does not open, go to Step 6 of this Fault.

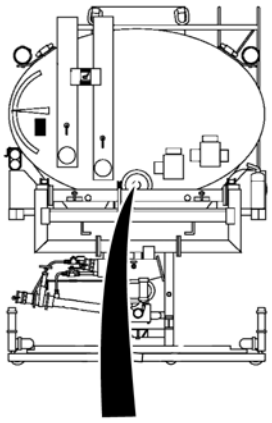
(b) If suction valve opens, go to Step 3 of this Fault.

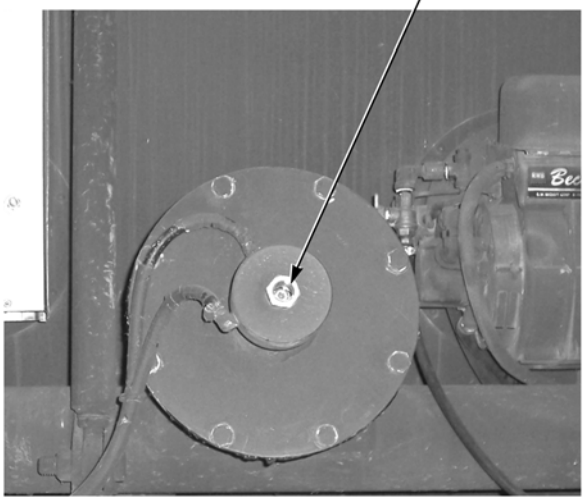




25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL) (CONT).





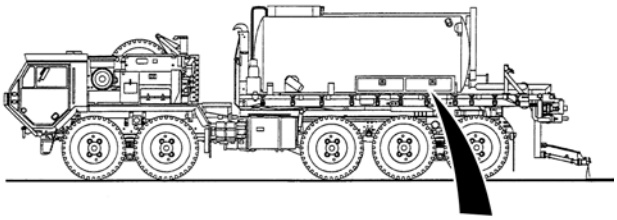


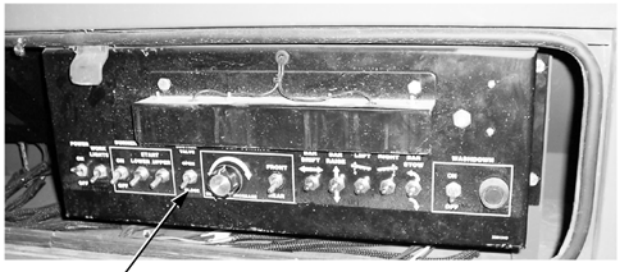
OPERATIONAL TEST

While an assistant switches SUCTION VALVE switch to CLOSE position, (Para 2-21), look through sight glass on suction valve. Check if valve moves to close position.

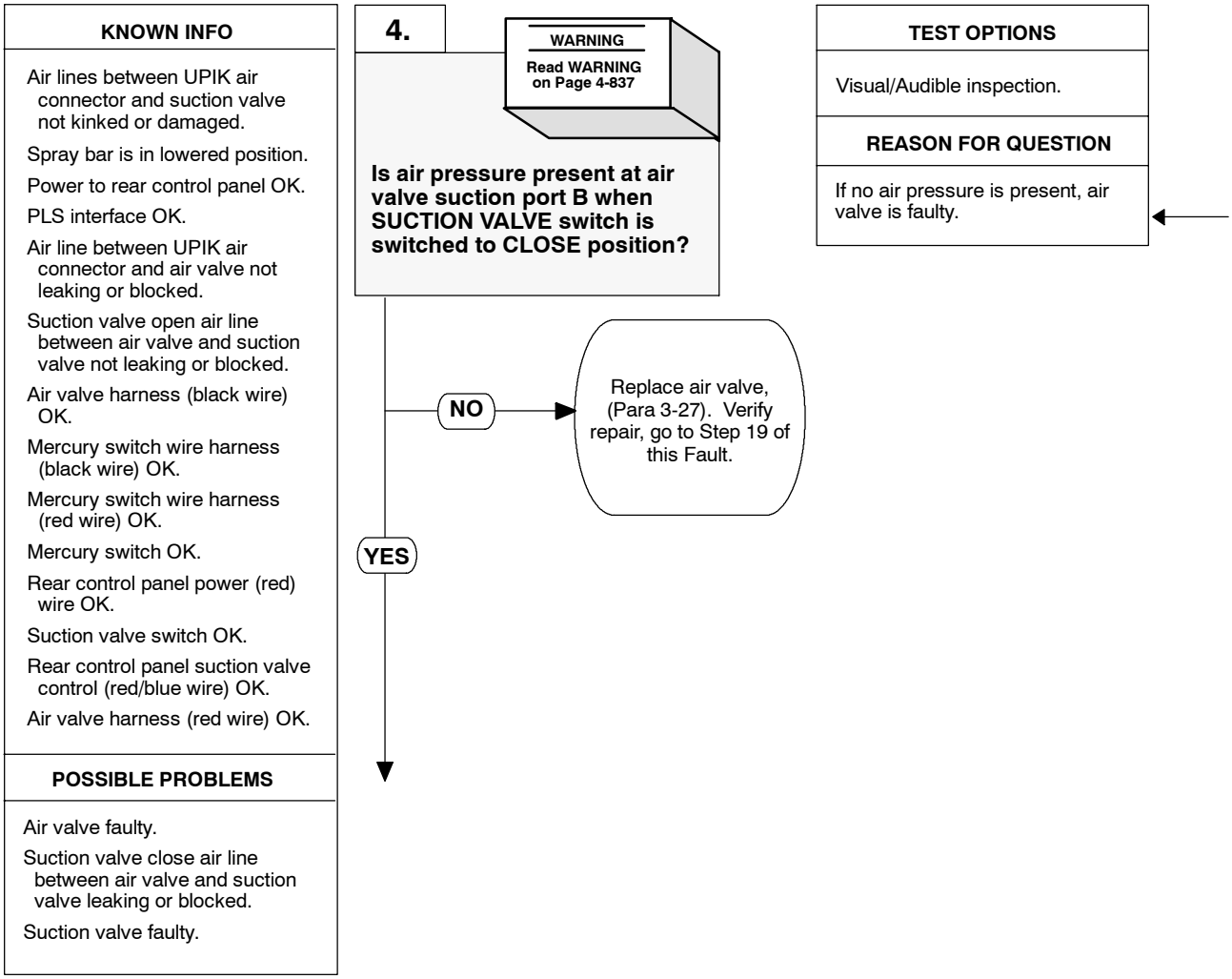
(a) If suction valve does not close, go to Step 4 of this Fault.

(b) If suction valve closes, fault corrected. Verify repair, go to Step 19 of this Fault.



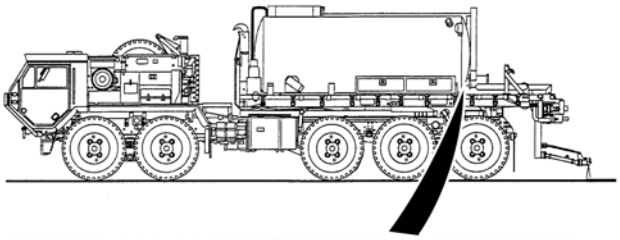


25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL) (CONT).



WARNING

Air lines are under extreme pressure. Ensure all personnel wear protective goggles when working around compressed air. Failure to comply may result in serious injury or death to personnel.



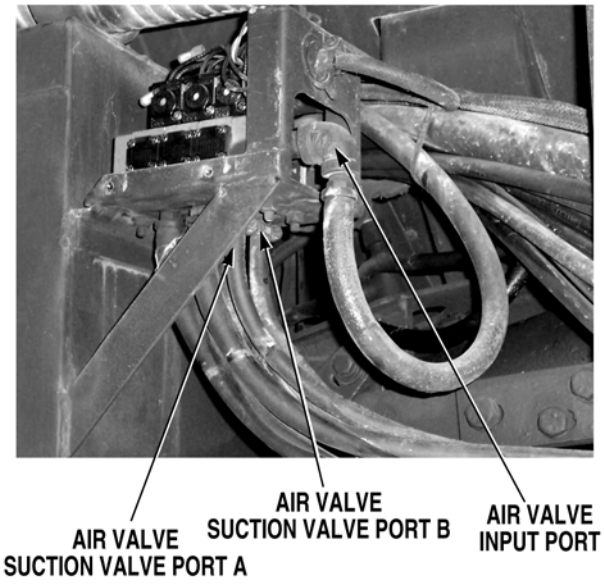
VISUAL/AUDIBLE INSPECTION

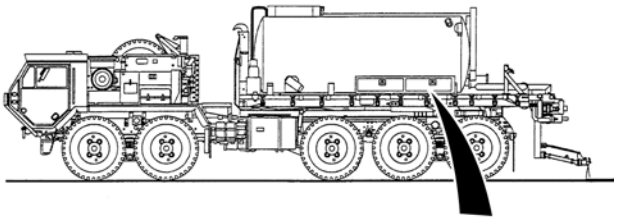
(1) If open, turn suction valve switch to close position, (Para 2-1).

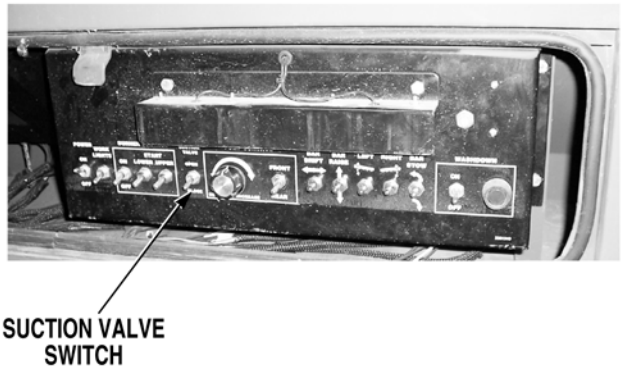
(2) Slowly disconnect air line at air valve suction port B. Listen for air discharging from air connection.

(a) If air is not present at air valve suction port B, replace air valve, (Para 3-27). Verify repair, go to Step 19 of this Fault.

(b) If air is present at air valve suction port B, reconnect air line and go to Step 5 of this Fault.







25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL) (CONT).

KNOWN INFO

Air lines between UPIK air connector and suction valve not kinked or damaged.

Spray bar is in lowered position.

Power to rear control panel OK.

PLS interface OK.

Air line between UPIK air connector and air valve not leaking or blocked.

Suction valve open air line between air valve and suction valve not leaking or blocked.

Air valve harness (black wire) OK.

Mercury switch wire harness (black wire) OK.

Mercury switch wire harness (red wire) OK.

Mercury switch OK.

Rear control panel power (red) wire OK.

Suction valve switch OK.

Rear control panel suction valve control (red/blue wire) OK.

Air valve harness (red wire) OK.

Air valve OK.

POSSIBLE PROBLEMS

Suction valve close air line between air valve and suction valve leaking or blocked.

Suction valve faulty.

5.

WARNING

Read WARNING on Page 4-839

Is air pressure present at suction valve Port B when SUCTION VALVE switch is switched to CLOSE position?

TEST OPTIONS

Visual/Audible inspection.

REASON FOR QUESTION

If air pressure is present, suction valve is faulty. If not, air line between air valve and suction valve is faulty.

NO → Repair or replace air line between air valve and suction valve, (Para 3-49). Verify repair, go to Step 19 of this Fault.

YES → Repair binding or replace suction valve, (Para 3-36). Verify repair, go to Step 19 of this Fault.

WARNING

Air lines are under extreme pressure. Ensure all personnel wear protective goggles when working around compressed air. Failure to comply may result in serious injury or death to personnel.

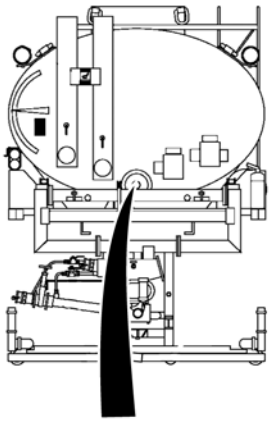
VISUAL/AUDIBLE INSPECTION

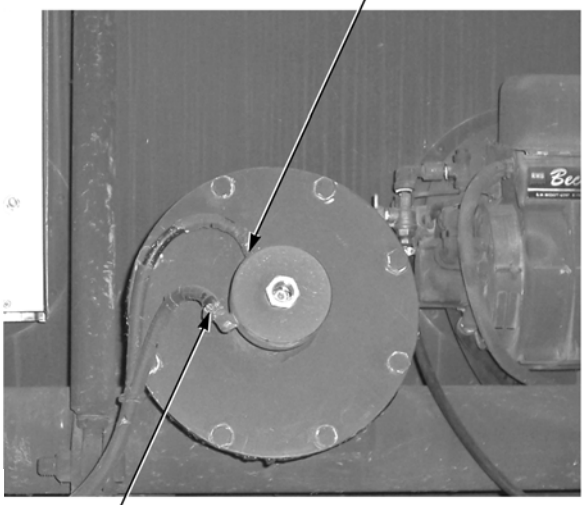
(1) Slowly disconnect air line at suction valve port B, and listen for air discharging from air connection.

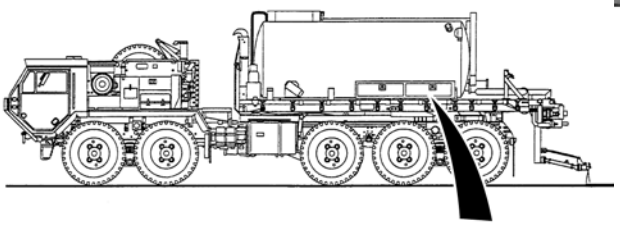
(a) If air is not present at suction valve port B, repair or replace air line between air valve and suction valve, (Para 3-49).

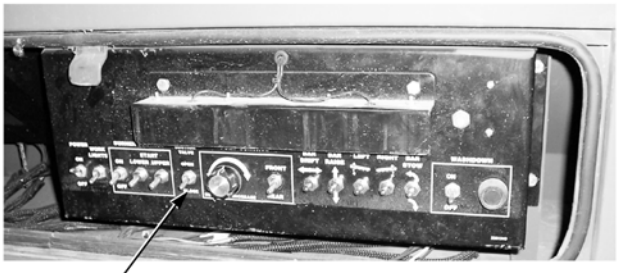
(b) If air is present, remove suction valve. Check for binding. Repair binding or replace suction valve, (Para 3-36).

(2) Verify repair, go to Step 19 of this Fault.

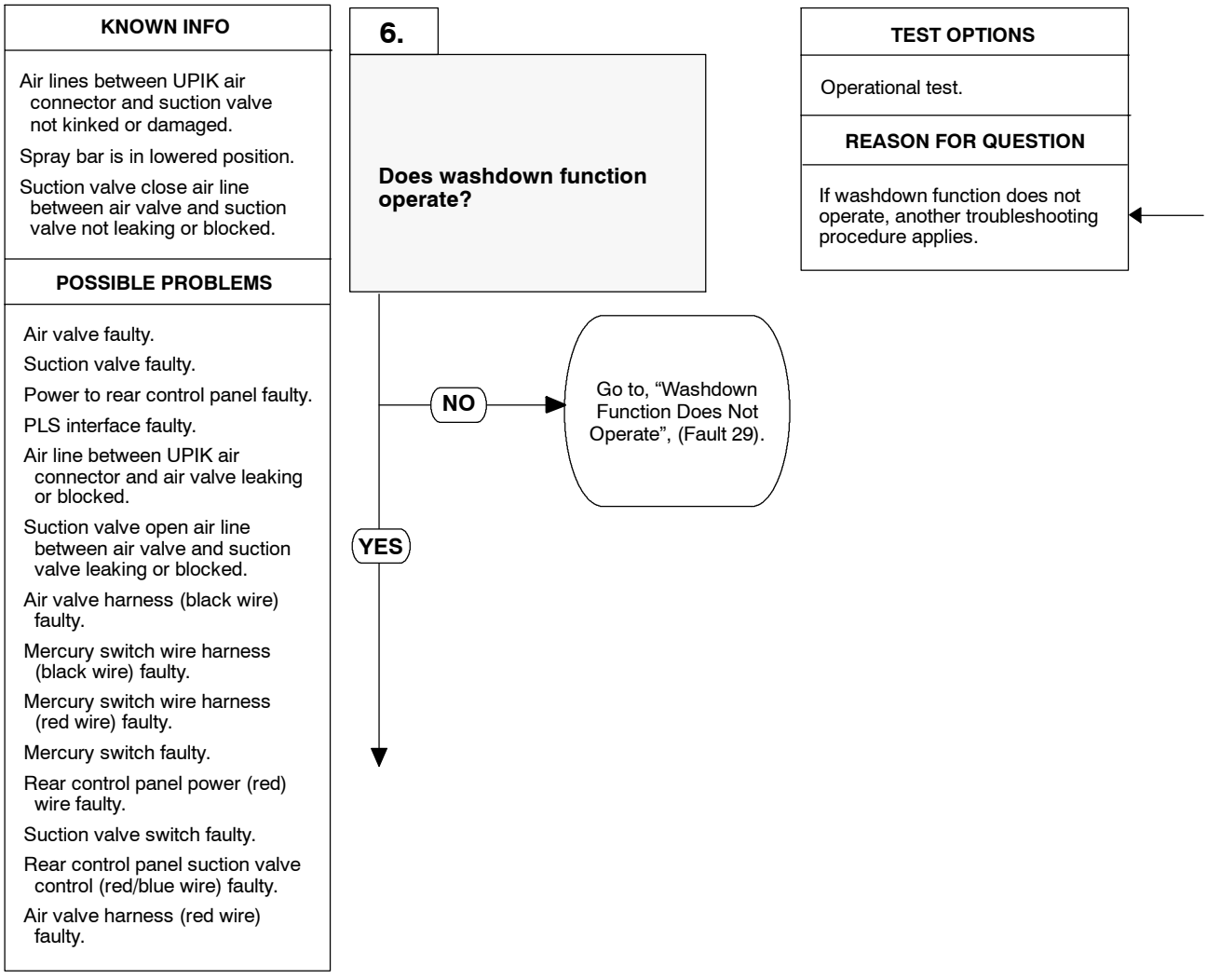


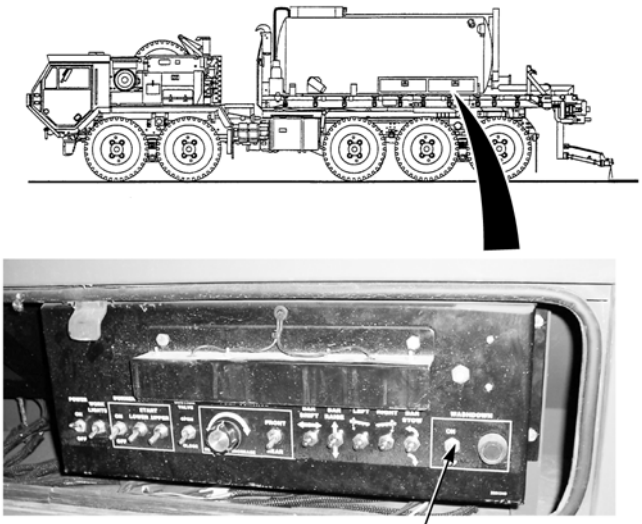






25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL) (CONT).





OPERATIONAL TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Turn front control panel POWER switch ON, (Para 2-1).

(3) Turn rear control panel POWER switch ON, (Para 2-1).

(4) Operate washdown function, (Para 2-21).

  (a) If washdown function does not operate, go to, “Washdown Function Does Not Operate”, (Fault 29).

  (b) If washdown function operates, go to Step 7 of this Fault.

25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL) (CONT).

KNOWN INFO

Air lines between UPIK air connector and suction valve not kinked or damaged.

Spray bar is in lowered position.

Suction valve close air line between air valve and suction valve not leaking or blocked.

Power to rear control panel OK.

POSSIBLE PROBLEMS

Air valve faulty.

Suction valve faulty.

PLS interface faulty.

Air line between UPIK air connector and air valve leaking or blocked.

Suction valve open air line between air valve and suction valve leaking or blocked.

Air valve harness (black wire) faulty.

Mercury switch wire harness (black wire) faulty.

Mercury switch wire harness (red wire) faulty.

Mercury switch faulty.

Rear control panel power (red) wire faulty.

Suction valve switch faulty.

Rear control panel suction valve control (red/blue wire) faulty.

Air valve harness (red wire) faulty.

7.

WARNING

Read WARNING on Page 4-843

Is air pressure present at air valve input port?

NO → Go to Step 8 of this Fault.

YES → Go to Step 9 of this Fault.

TEST OPTIONS

Visual/Audible inspection.

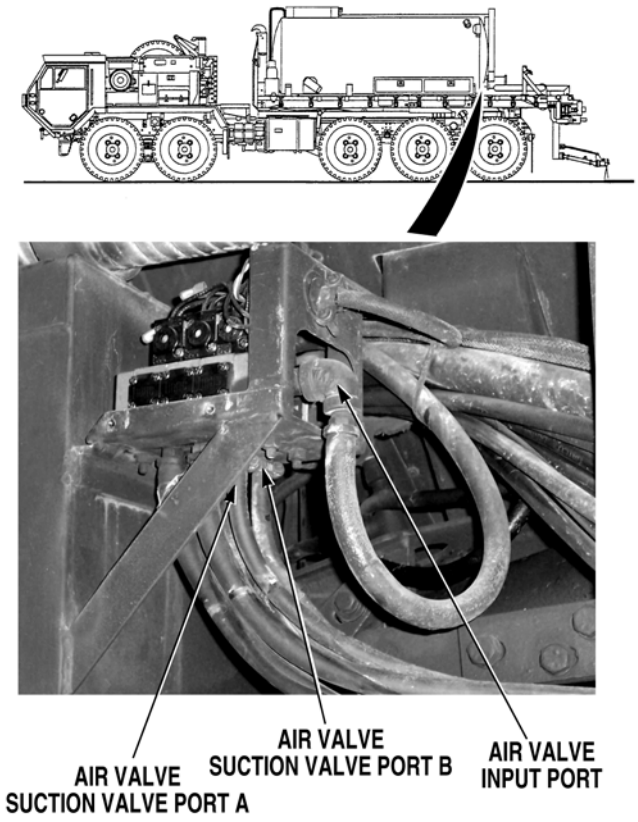
REASON FOR QUESTION

To further isolate fault.

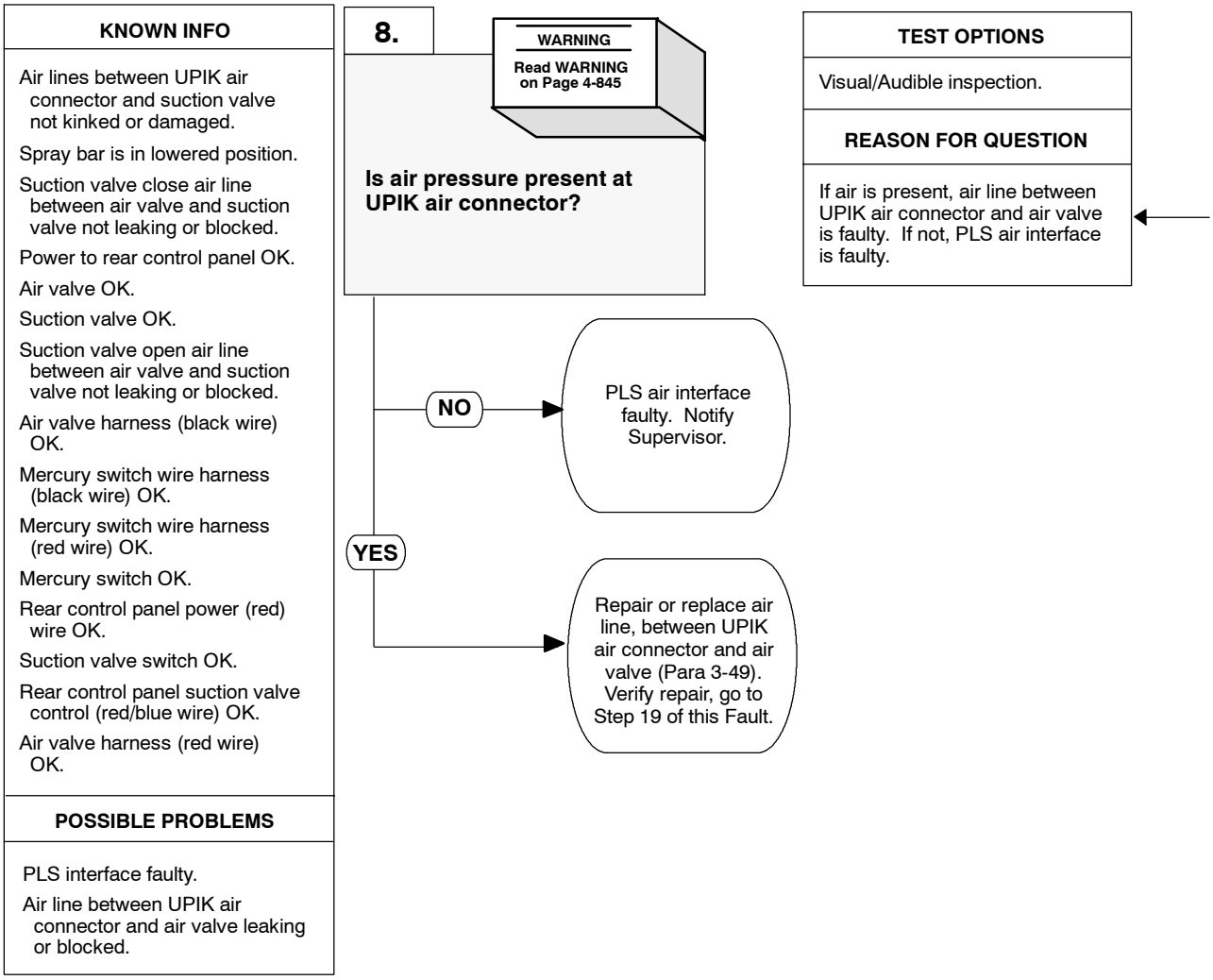
WARNING

Air lines are under extreme pressure. Ensure all personnel wear protective goggles when working around compressed air. Failure to comply may result in serious injury or death to personnel.

VISUAL/AUDIBLE INSPECTION
(1) Turn washdown function OFF, (Para 2-21). (2) Slowly disconnect air line at air valve input port and listen for air discharging from connection. (a) If air is not present at air valve input port, disconnect air line and go to Step 8 of this Fault. (b) If air is present at air valve input port, reconnect air line and go to Step 9 of this Fault.

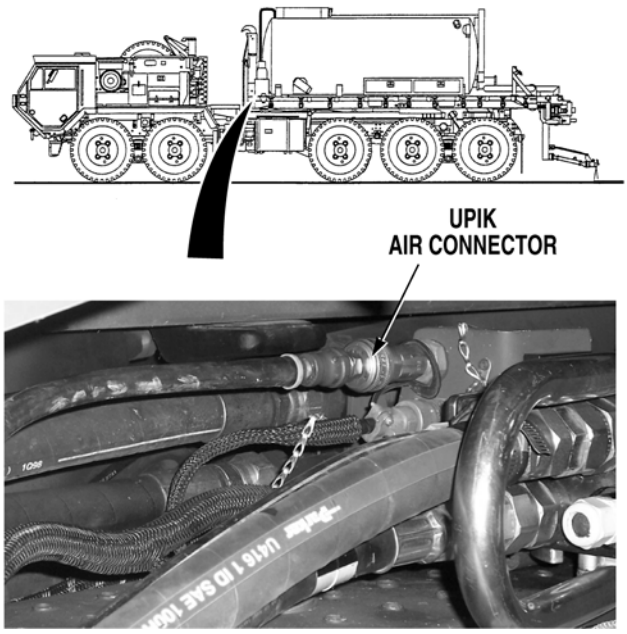


25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL) (CONT).



WARNING

Air lines are under extreme pressure. Ensure all personnel wear protective goggles when working around compressed air. Failure to comply may result in serious injury or death to personnel.

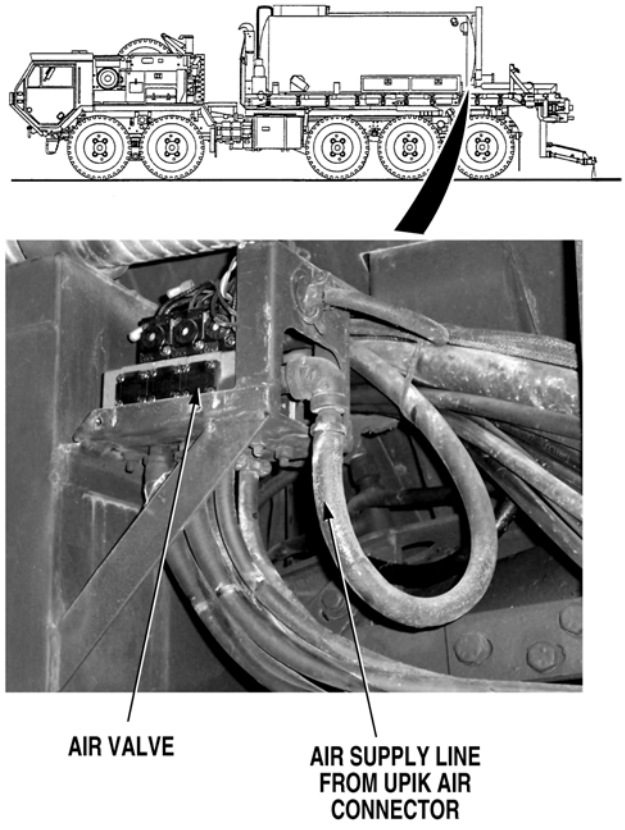


VISUAL/AUDIBLE INSPECTION

Disconnect air line quick disconnect fitting at UPIK air connector. Check for discharging air from line while disconnecting air line.

(a) If air is not present, PLS air interface is faulty. Notify Supervisor.

(b) If air is present, repair or replace air lines between UPIK air connector and air valve, (Para 3-49). Verify repair, go to Step 19 of this Fault.



25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL) (CONT).

KNOWN INFO

Air lines between UPIK air connector and suction valve not kinked or damaged.

Spray bar is in lowered position.

Suction valve close air line between air valve and suction valve not leaking or blocked.

Power to rear control panel OK.

PLS interface OK.

Air line between UPIK air connector and air valve not leaking or blocked.

POSSIBLE PROBLEMS

Air valve faulty.

Suction valve faulty.

Suction valve open air line between air valve and suction valve leaking or blocked.

Air valve harness (black wire) faulty.

Mercury switch wire harness (black wire) faulty.

Mercury switch wire harness (red wire) faulty.

Mercury switch faulty.

Rear control panel power (red) wire faulty.

Suction valve switch faulty.

Rear control panel suction valve control (red/blue wire) faulty.

Air valve harness (red wire) faulty.

9.

WARNING

Read WARNING on Page 4-847

Is air pressure present at air valve suction valve port A, when SUCTION VALVE switch is switched to OPEN position?

NO → Go to Step 11.

YES

TEST OPTIONS

Visual/Audible inspection.

REASON FOR QUESTION

To further isolate fault.

WARNING

Air lines are under extreme pressure. Ensure all personnel wear protective goggles when working around compressed air. Failure to comply may result in serious injury or death to personnel.

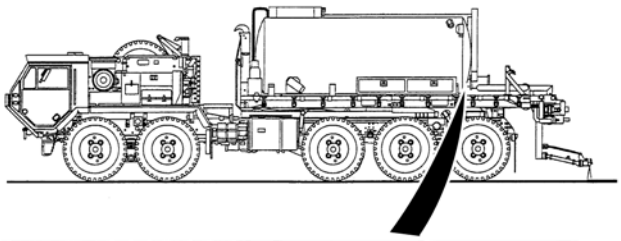
VISUAL/AUDIBLE INSPECTION

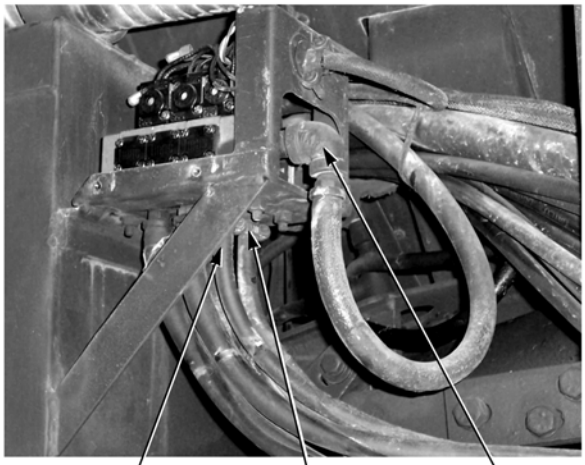
(1) If closed, turn SUCTION VALVE switch to OPEN position, (Para 2-1).

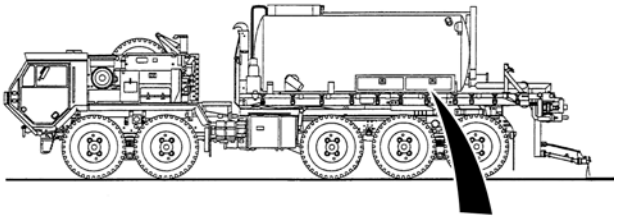
(2) Slowly disconnect air line at air valve suction valve, port A and listen for air discharging from connection.

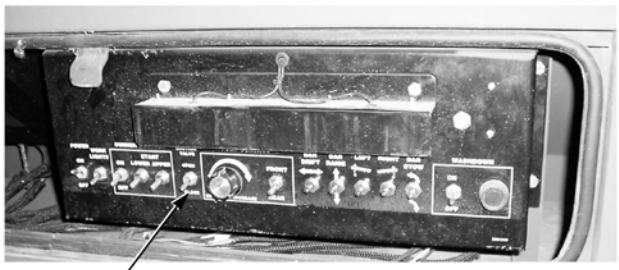
(a) If air is not present at air valve, suction valve, port A reconnect air line and go to Step 11 of this Fault.

(b) If air is present at air valve, suction valve port A, reconnect air line and go to Step 10 of this Fault.









25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL) (CONT).

KNOWN INFO

Air lines between UPIK air connector and suction valve not kinked or damaged.

Spray bar is in lowered position.

Suction valve close air line between air valve and suction valve not leaking or blocked.

Power to rear control panel OK.

PLS interface OK.

Air line between UPIK air connector and air valve not leaking or blocked.

Air valve OK.

Air valve harness (black wire) OK.

Mercury switch wire harness (black wire) OK.

Mercury switch wire harness (red wire) OK.

Mercury switch OK.

Rear control panel power (red) wire OK.

Suction valve switch OK.

Rear control panel suction valve control (red/blue wire) OK.

Air valve harness (red wire) OK.

POSSIBLE PROBLEMS

Suction valve faulty.

Suction valve open air line between air valve and suction valve leaking or blocked.

10.

WARNING

Read WARNING on Page 4-849

Is air pressure present at suction valve port A when SUCTION VALVE switch is switched to OPEN position?

NO → Repair or replace air line between air valve and suction valve, (Para 3-49). Verify repair, go to Step 19 of this Fault.

YES → Repair binding or replace suction valve, (Para 3-36). Verify repair, go to Step 19 of this Fault.

TEST OPTIONS

Visual/Audible inspection.

REASON FOR QUESTION

If air is present, suction valve is faulty. If not, air line between air valve and suction valve is faulty.

WARNING

Air lines are under extreme pressure. Ensure all personnel wear protective goggles when working around compressed air. Failure to comply may result in serious injury or death to personnel.

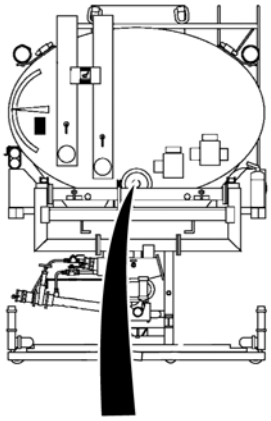
VISUAL/AUDIBLE INSPECTION

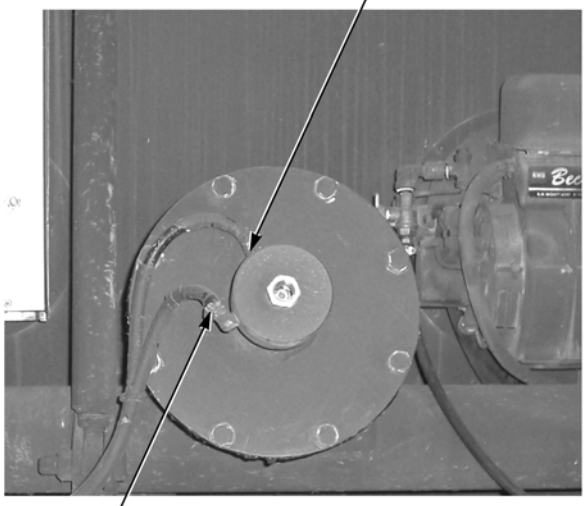
(1) Slowly disconnect air hose at suction valve port A and listen for air discharging from air connection.

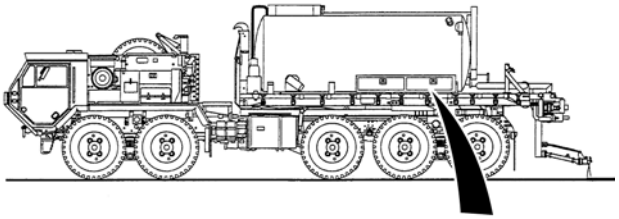
(a) If air is not present at suction valve, port A, repair or replace air line between air valve and suction valve, (Para 3-49).

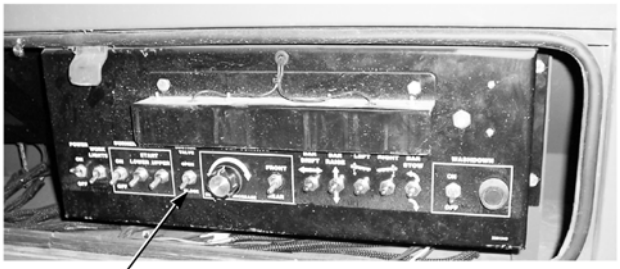
(b) If air is present at a suction valve, remove suction valve. Check for binding. Repair binding or replace suction valve, (Para 3-36).

(2) Verify repair, go to Step 19 of this Fault.









25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL) (CONT).

KNOWN INFO

Air lines between UPIK air connector and suction valve not kinked or damaged.

Spray bar is in lowered position.

Suction valve close air line between air valve and suction valve not leaking or blocked.

Power to rear control panel OK.

PLS interface OK.

Air line between UPIK air connector and air valve not leaking or blocked.

Suction valve OK.

Suction valve open air line between air valve and suction valve not leaking or blocked.

POSSIBLE PROBLEMS

Air valve faulty.

Air valve harness (black wire) faulty.

Mercury switch wire harness (black wire) faulty.

Mercury switch wire harness (red wire) faulty.

Mercury switch faulty.

Rear control panel power (red) wire faulty.

Suction valve switch faulty.

Rear control panel suction valve control (red/blue wire) faulty.

Air valve harness (red wire) faulty.

11.

WARNING

Read WARNING on Page 4-851

Are 10 to 14 VDC measured between red wire at air valve and a known good ground when SUCTION VALVE switch is switched to OPEN position?

NO → Go to Step 16 of this Fault.

YES

TEST OPTIONS

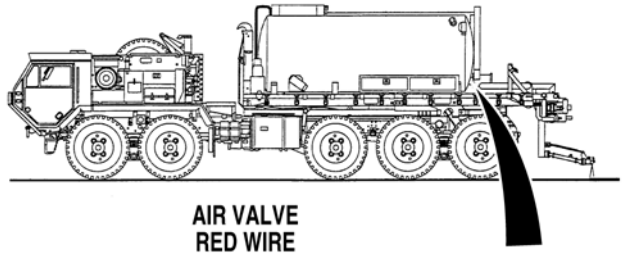
Voltage test.

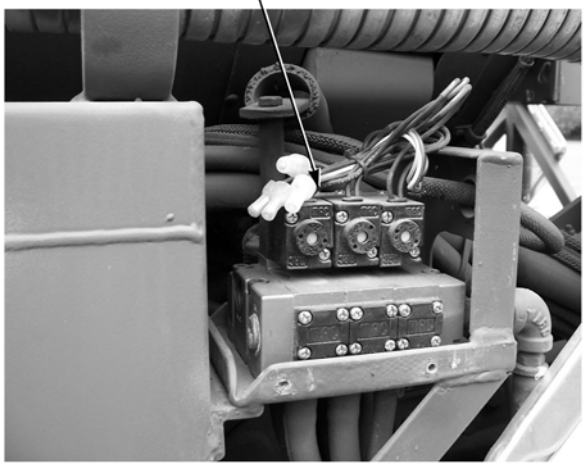
REASON FOR QUESTION

To further isolate fault.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.





VOLTAGE TEST

(1) If installed, remove cover from air valve assembly, (Para 3-27).

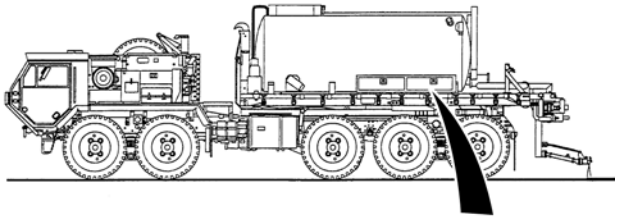
(2) Turn suction valve switch to OPEN position, (Para 2-1).

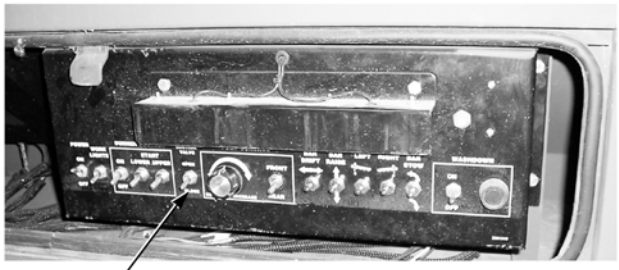
(3) Connect (back probe) positive (+) multimeter lead to red wire at air valve.

(4) Connect negative (-) multimeter lead to a known good ground.

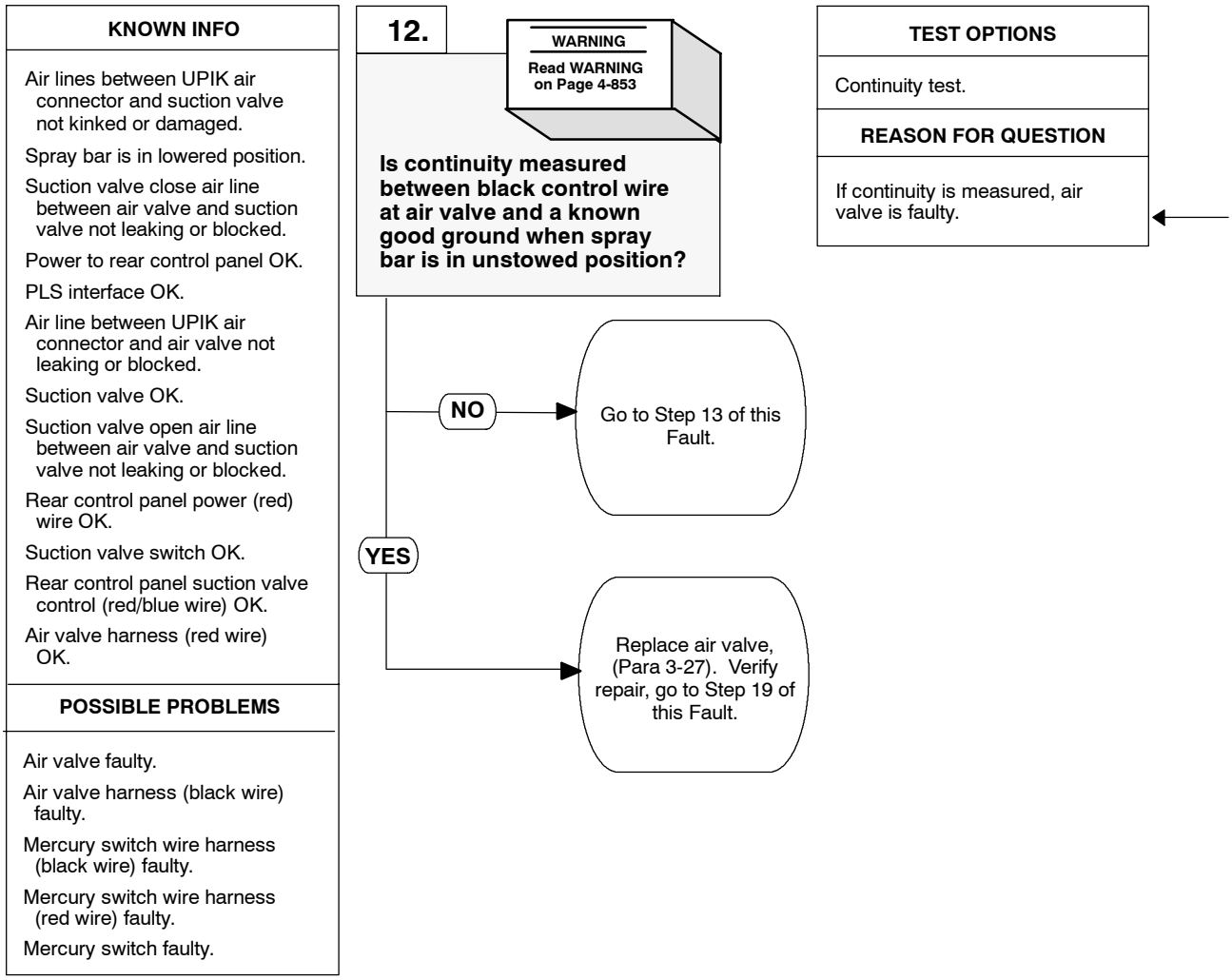
(a) If 10 to 14 VDC are not present, go to Step 16 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 12 of this Fault.





25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL) (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Turn front control panel POWER switch OFF, (Para 2-1).

(2) Turn rear control panel POWER switch OFF, (Para 2-1).

(3) Pull out battery disconnect switch, (TM 9-2320-364-10).

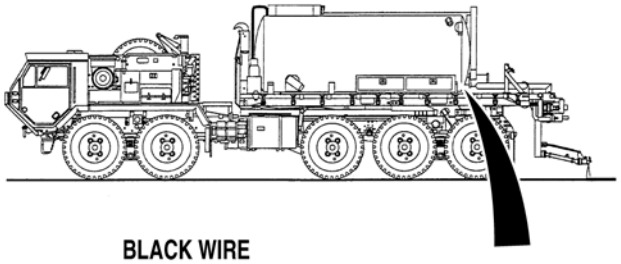
(4) Set multimeter select switch to ohms.

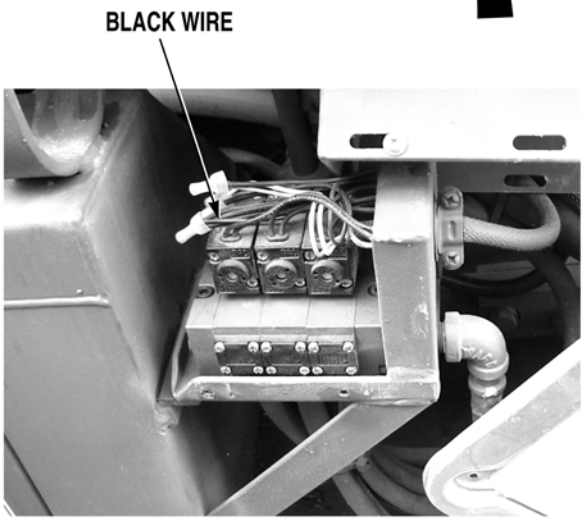
(5) Connect (back probe) positive (+) multimeter lead to black control wire at air valve.

(6) Connect negative (-) multimeter lead to a known good ground.

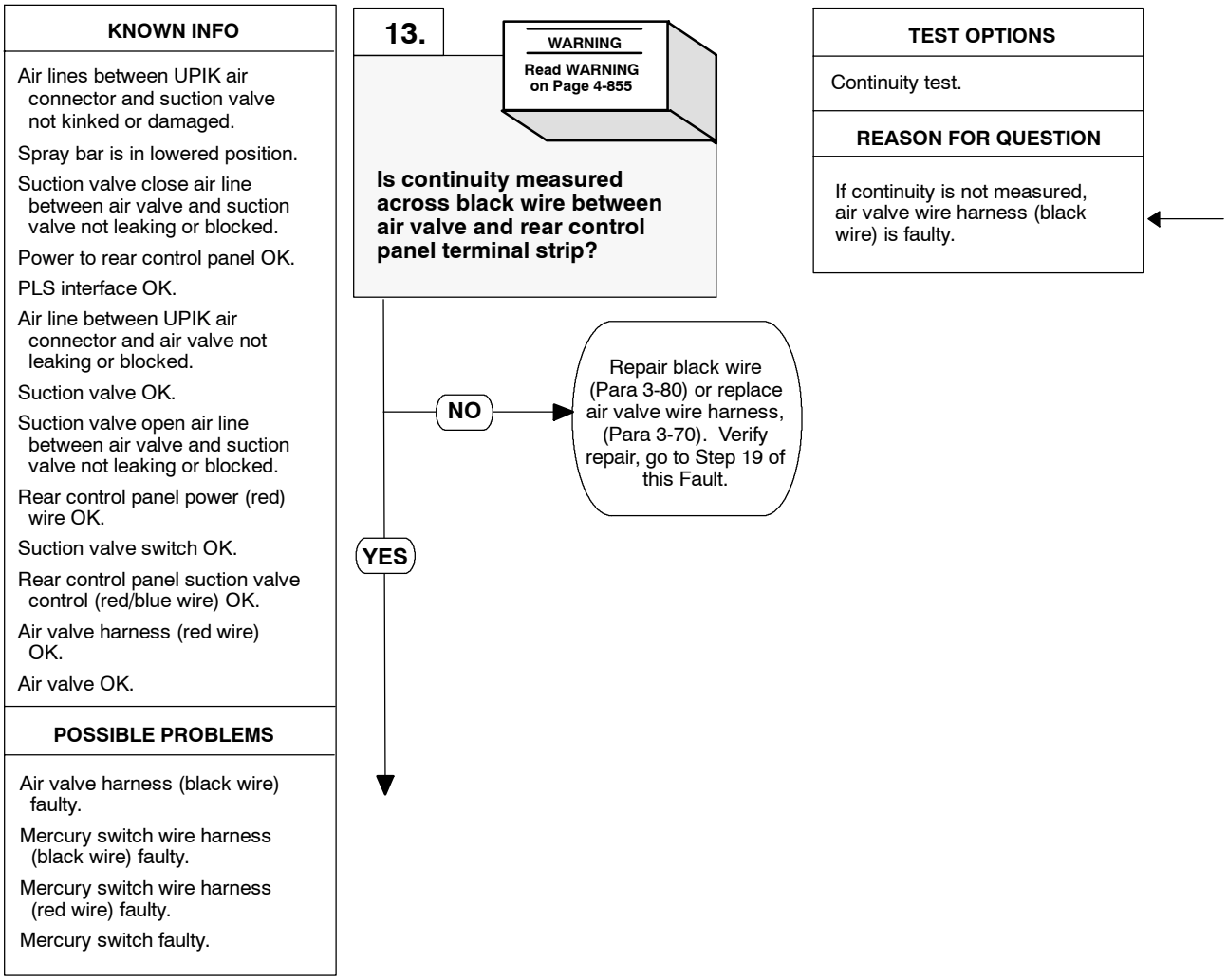
(a) If continuity is not measured, go to Step 13 of this Fault.

(b) If continuity is measured, replace air valve, (Para 3-27). Verify repair, go to Step 19 of this Fault.



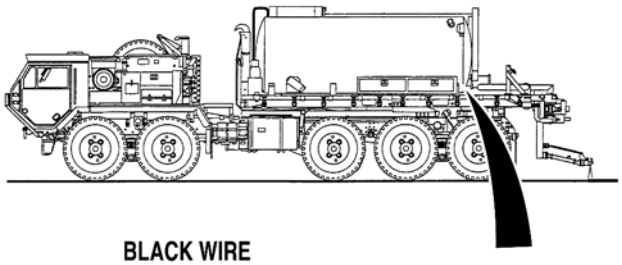


25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL) (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.



CONTINUITY TEST

(1) Remove rear control panel, (Para 3-76).

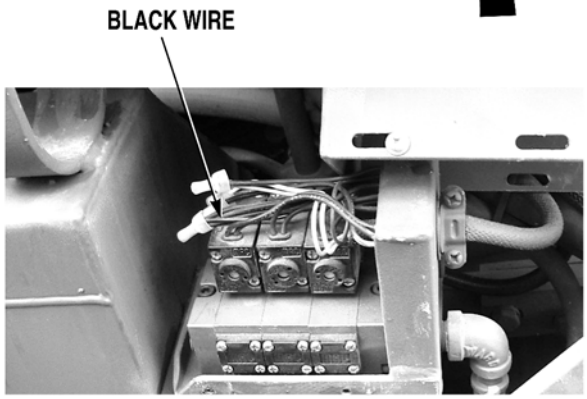
(2) Set multimeter select switch to ohms.

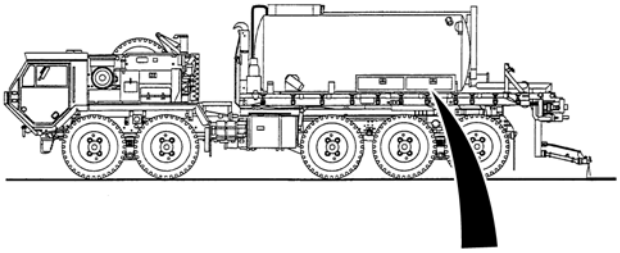
(3) Connect (back probe) positive (+) multimeter lead to black control wire at air valve.

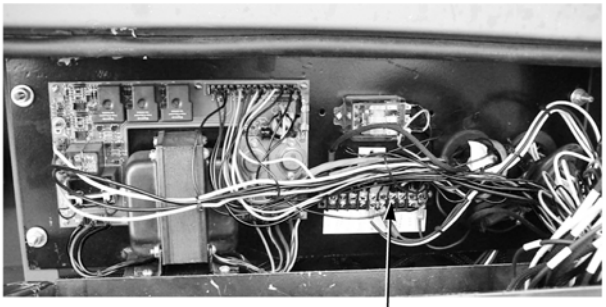
(4) Connect negative (-) multimeter lead to a black wire at rear control panel terminal strip.

(a) If continuity is not measured, repair black wire, (Para 3-80) or replace air valve wire harness, (Para 3-70). Verify repair, go to Step 19 of this Fault.

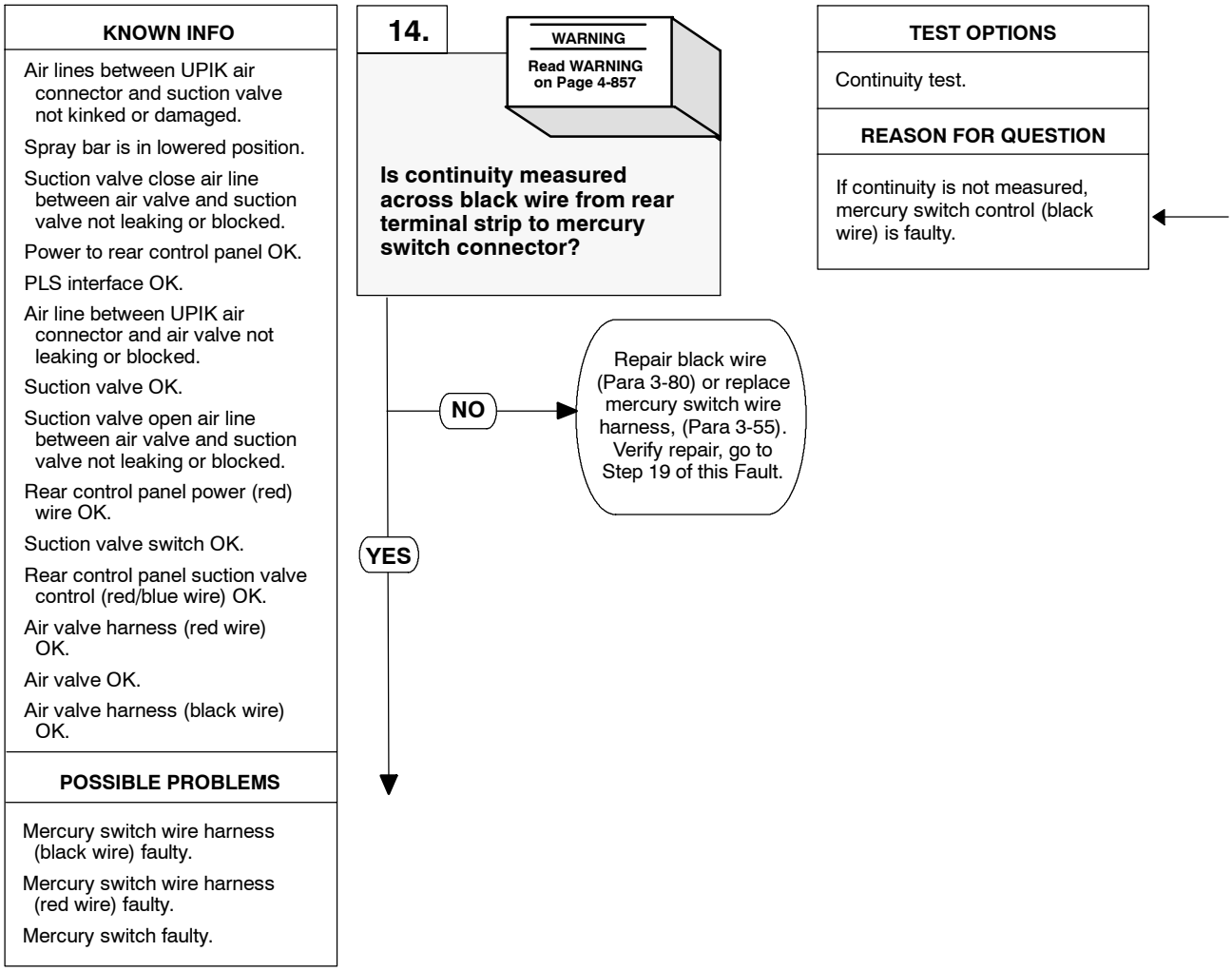
(b) If continuity is measured, go to Step 14 of this Fault.





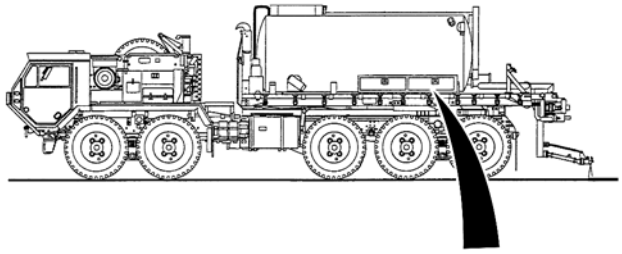


25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL) (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.



CONTINUITY TEST

(1) Set multimeter select switch to ohms.

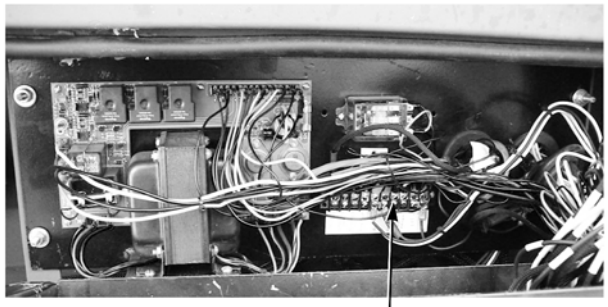
(2) Connect jumperwire between mercury switch harness (black wire) rear control panel terminal strip connector and a known good ground.

(3) Connect positive (+) multimeter lead to mercury switch harness (black wire) at mercury switch connector.

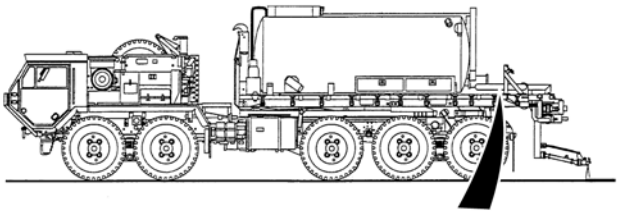
(4) Connect negative (–) multimeter lead to a known good ground.

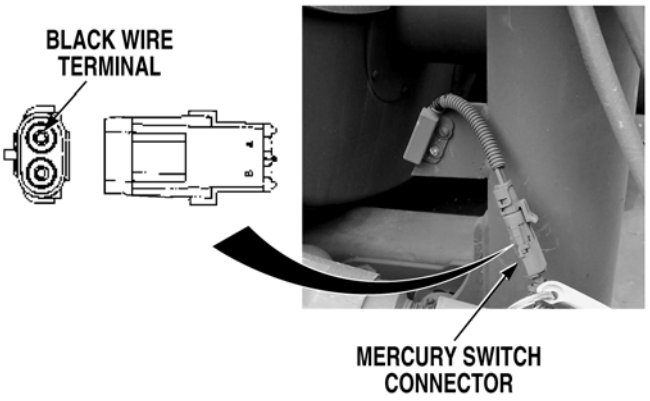
(a) If continuity is not measured, repair black wire, (Para 3-80) or replace mercury switch wire harness, (Para 3-55). Verify repair, go to Step 19 of this Fault.

(b) If continuity is measured, go to Step 15 of this Fault.

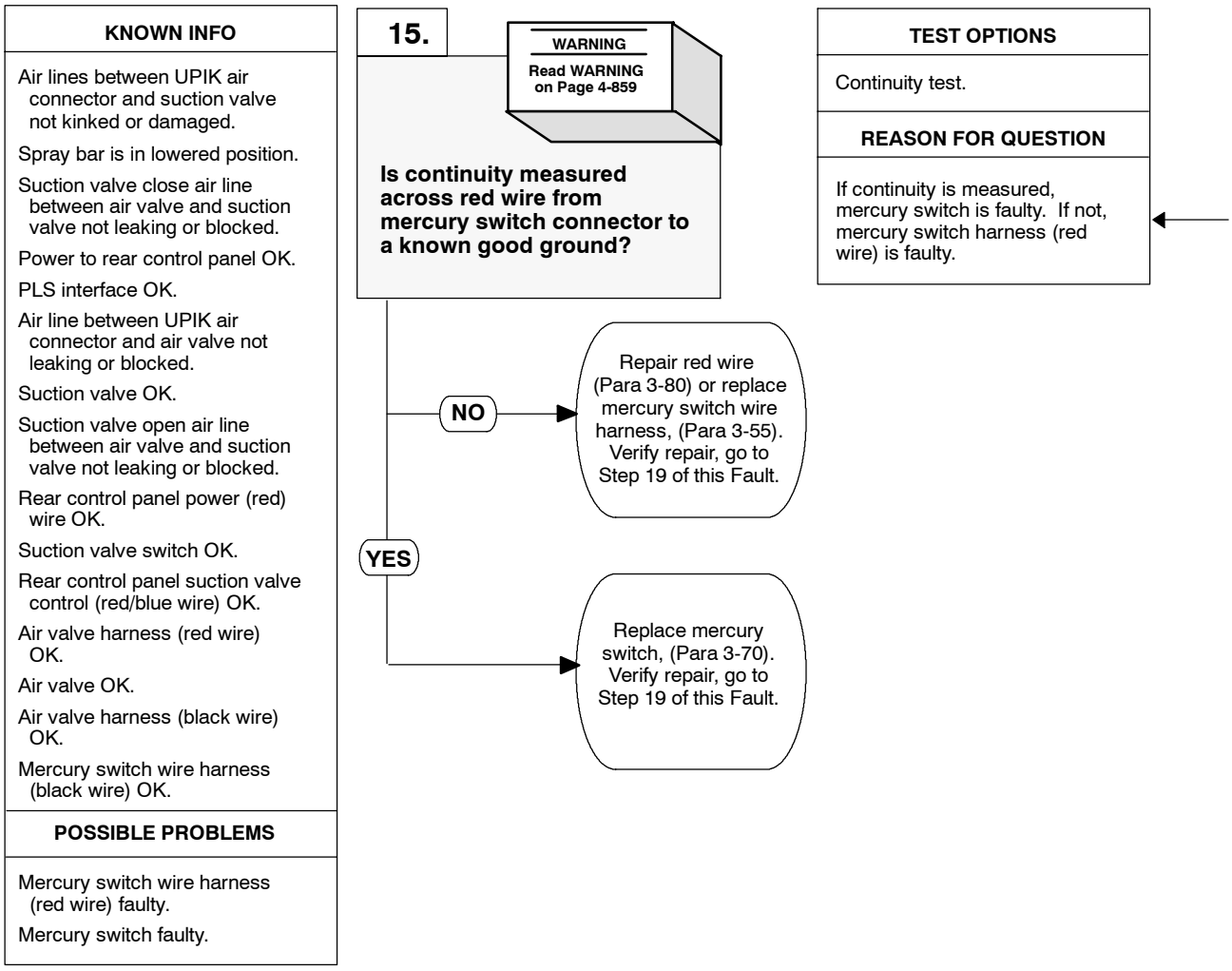


REAR CONTROL PANEL TERMINAL STRIP
MERCURY SWITCH HARNESS (BLACK WIRE) TERMINAL





25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL) (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

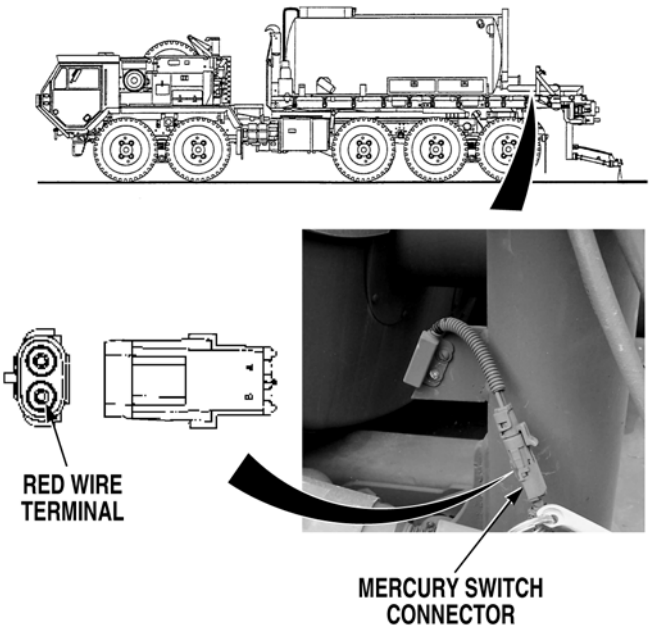
(2) Connect positive (+) multimeter lead to red wire at mercury switch connector.

(3) Connect negative (-) multimeter lead to a known good ground.

  (a) If continuity is not measured, repair red wire, (Para 3-80) or replace mercury switch wire harness, (Para 3-55).

  (b) If continuity is measured, replace mercury switch, (Para 3-70).

(4) Verify repair, go to Step 19 of this Fault.



25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL) (CONT).

KNOWN INFO

Air lines between UPIK air connector and suction valve not kinked or damaged.

Spray bar is in lowered position.

Suction valve close air line between air valve and suction valve not leaking or blocked.

Power to rear control panel OK.

PLS interface OK.

Air line between UPIK air connector and air valve not leaking or blocked.

Suction valve OK.

Suction valve open air line between air valve and suction valve not leaking or blocked.

Air valve OK.

Air valve harness (black wire) OK.

Mercury switch wire harness (black wire) OK.

Mercury switch wire harness (red wire) OK.

Mercury switch OK.

POSSIBLE PROBLEMS

Rear control panel power (red) wire faulty.

Suction valve switch faulty.

Rear control panel suction valve control (red/blue wire) faulty.

Air valve harness (red wire) faulty.

16.

WARNING

Read WARNING on Page 4-861

Are 10 to 14 VDC measured at rear control panel between power (red) wire at suction valve switch and a known good ground?

NO → Repair rear control panel power (red) wire, (Para 3-80). Verify repair, go to Step 19 of this Fault.

YES

TEST OPTIONS

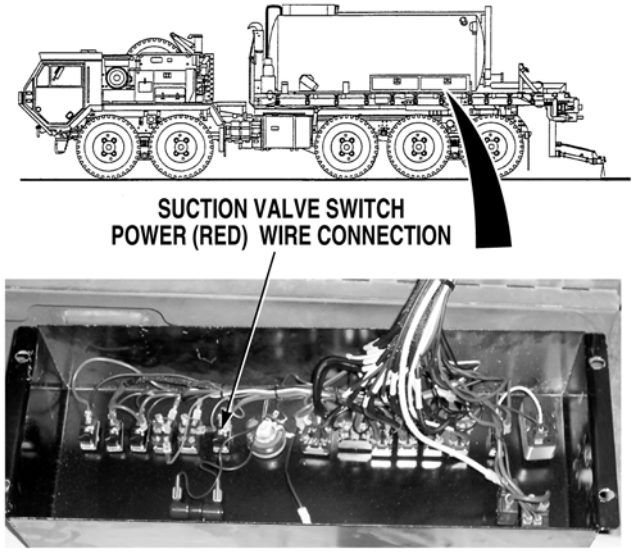
Voltage test.

REASON FOR QUESTION

If 10 to 14 VDC are not present, rear control panel power (red) wire is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.



VOLTAGE TEST

(1) Turn front control panel POWER switch On, (Para 2-1).

(2) Turn rear control panel POWER switch On, (Para 2-1).

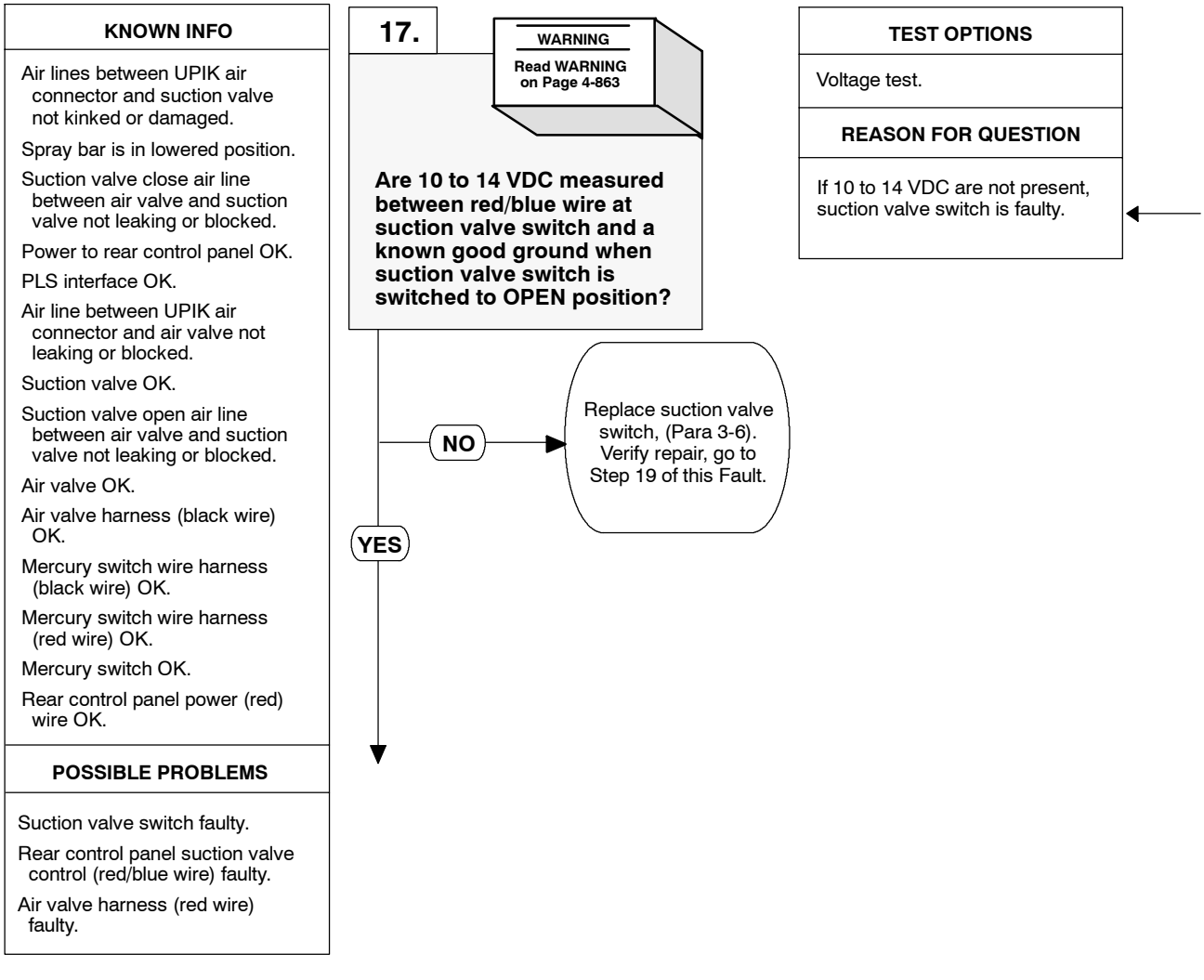
(3) Connect positive (+) multimeter lead at rear control panel to power (red) wire at suction valve switch.

(4) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, repair rear control panel power (red) wire, (Para 3-80). Verify repair, go to Step 19 of this Fault.

(b) If 10 to 14 VDC are not present, go to Step 17 of this Fault.

25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL) (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

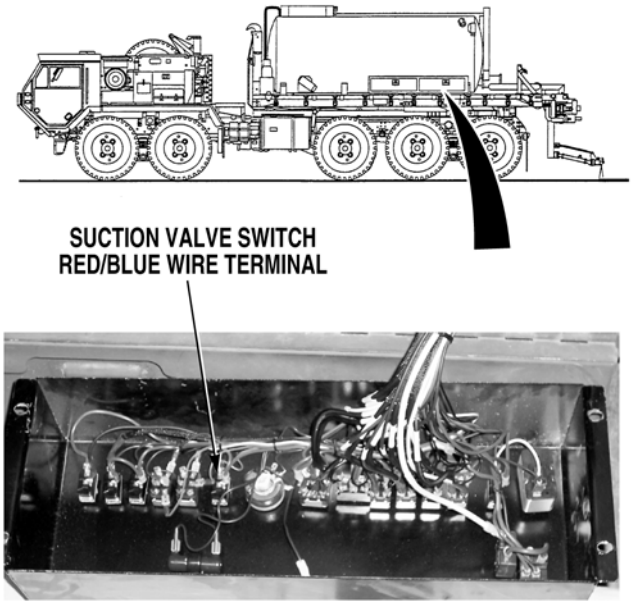
(1) Place SUCTION VALVE switch in OPEN position, (Para 2-1).

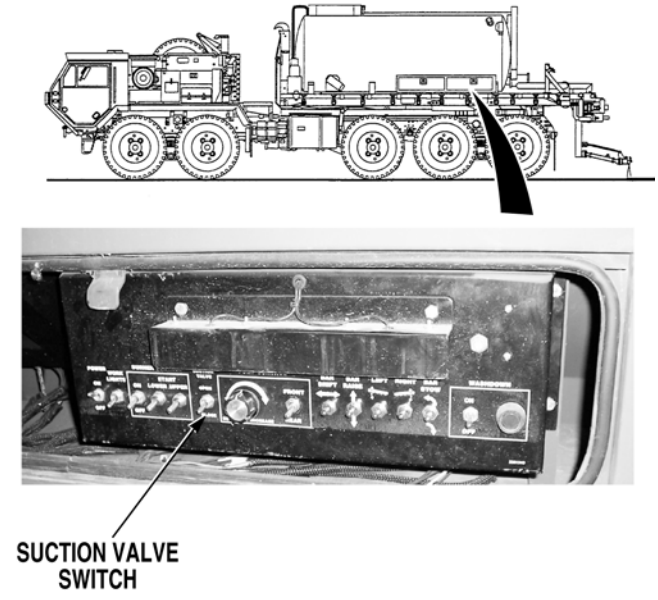
(2) Connect positive (+) multimeter lead to suction valve switch red/blue wire terminal.

(3) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, replace suction valve switch, (Para 3-6). Verify repair, go to Step 19 of this Fault.

(b) If 10 to 14 VDC are not present, go to Step 18 of this Fault.





25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL) (CONT).

KNOWN INFO

Air lines between UPIK air connector and suction valve not kinked or damaged.

Spray bar is in lowered position.

Suction valve close air line between air valve and suction valve not leaking or blocked.

Power to rear control panel OK.

PLS interface OK.

Air line between UPIK air connector and air valve not leaking or blocked.

Suction valve OK.

Suction valve open air line between air valve and suction valve not leaking or blocked.

Air valve OK.

Air valve harness (black wire) OK.

Mercury switch wire harness (black wire) OK.

Mercury switch wire harness (red wire) OK.

Mercury switch OK.

Rear control panel power (red) wire OK.

Suction valve switch OK.

POSSIBLE PROBLEMS

Rear control panel suction valve control (red/blue wire) faulty.

Air valve harness (red wire) faulty.

18.

WARNING

Read WARNING on Page 4-865

Are 10 to 14 VDC measured between rear control panel terminal strip red/blue wire terminal and a known good ground when suction valve switch is switched OPEN?

NO → Repair or replace red/blue wire between suction valve switch and terminal strip, (Para 3-80). Verify repair, go to Step 19 of this Fault.

YES → Repair red wire (Para 3-80) or replace air valve wire harness, (Para 3-70). Verify repair, go to Step 19 of this Fault.

TEST OPTIONS

Voltage test.

REASON FOR QUESTION

If 10 to 14 VDC are present, air valve wire harness (red wire) is faulty. If not, red/blue wire between suction valve switch and terminal strip is faulty.

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

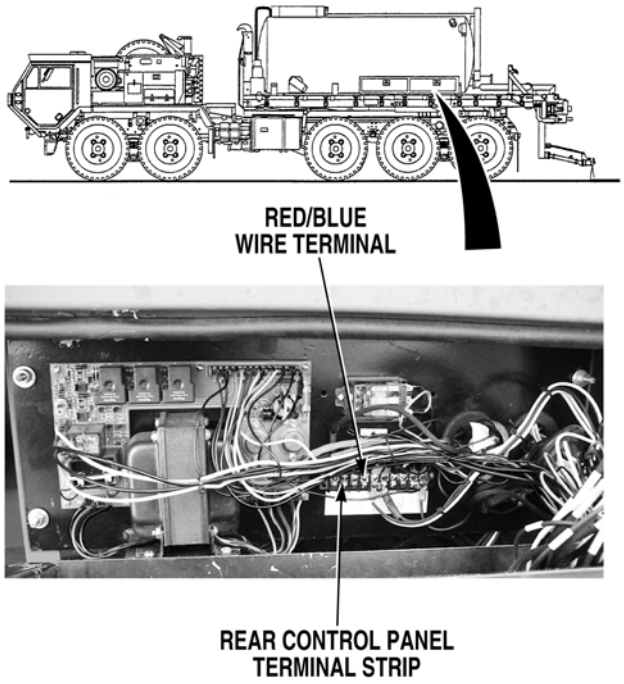
(1) Connect positive (+) multimeter lead to rear control panel terminal strip at red/blue wire terminal.

(2) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, repair or replace red/blue wire between rear panel terminal strip and suction valve switch, (Para 3-80).

(b) If 10 to 14 VDC are present, repair red wire, (Para 3-80) or replace air valve wire harness, (Para 3-70).

(3) Verify repair, go to Step 19 of this Fault.



25. SUCTION VALVE DOES NOT OPERATE CORRECTLY (REAR CONTROL) (CONT).

KNOWN INFO

Air lines between UPIK air connector and suction valve not kinked or damaged.

Spray bar is in lowered position.

Suction valve close air line between air valve and suction valve not leaking or blocked.

Power to rear control panel OK.

PLS interface OK.

Air line between UPIK air connector and air valve not leaking or blocked.

Suction valve OK.

Suction valve open air line between air valve and suction valve not leaking or blocked.

Air valve OK.

Air valve harness (black wire) OK.

Mercury switch wire harness (black wire) OK.

Rear control panel power (red) wire OK.

Suction valve switch OK.

Rear control panel suction valve control (red/blue wire) OK.

Air valve harness (red wire) OK.

Mercury switch wire harness (red wire) OK.

Mercury switch OK.

POSSIBLE PROBLEMS

None.

19.

WARNING

Read WARNING on Page 4-867

Does suction valve control function operate during circulation, spraying and suckback operations?

NO → Fault not corrected. Notify Supervisor.

YES → Fault corrected.

TEST OPTIONS

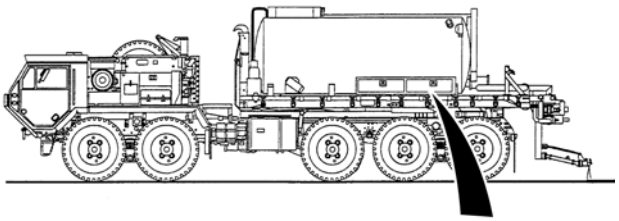
Verify repair.

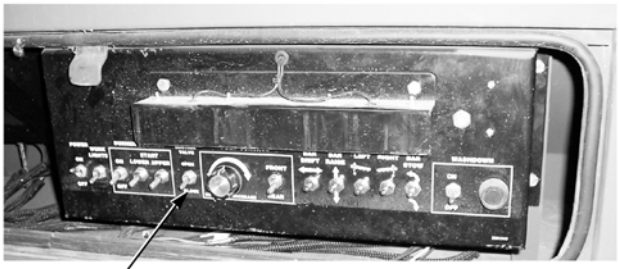
REASON FOR QUESTION

If suction valve controls operate during circulation and spraying operations, fault has been corrected. If not, fault not corrected. Notify Supervisor.

WARNING

12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits Failure to comply may cause injury to personnel.





VERIFY REPAIR

(1) If in, pull battery disconnect switch, (TM 9-2320-364-10).

(2) If removed, install air valve assembly cover, (Para 3-27).

(3) If removed, install rear control panel, (Para 3-76).

(4) Push in battery disconnect switch, (TM 9-2320-364-10).

(5) Start engine, (TM 9-2320-364-10).

(6) Operate circulation in tank function, (Para 2-16).

(7) Operate SUCTION VALVE switch, (Para 2-1). Check if suction valve opens and closes.

  (a) If suction valve does not operate correctly, fault not corrected. Notify Supervisor.

  (b) If suction valve operates correctly, fault has been corrected.

(8) Shut OFF engine, (TM 9-2320-364-10).

26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY.

INITIAL SETUP

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
- Multimeter (Item 8, Appendix F)
- Jumperwire

Personnel Required
- Two

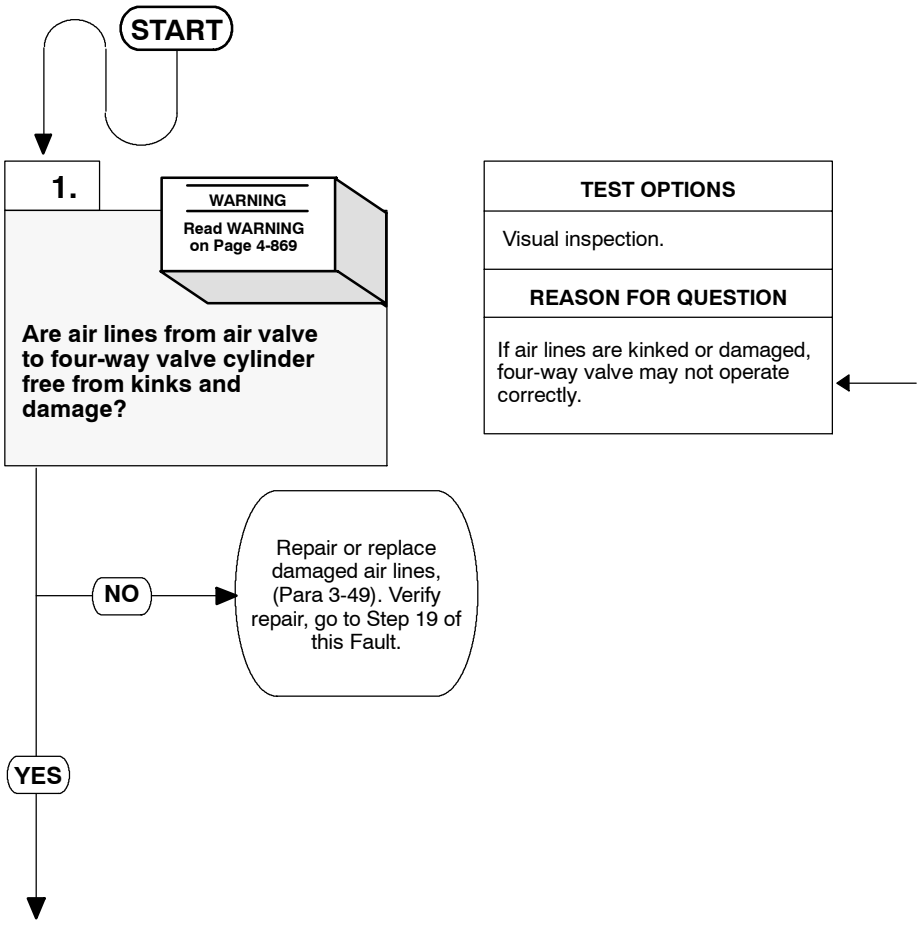
Equipment Condition
- Bituminous Distributor loaded on PLS, (Para 2-5)
- Engine OFF, (TM 9-2320-364-10)
- Wheels chocked, (TM 9-2320-364-10)

KNOWN INFO

Nothing.

POSSIBLE PROBLEMS

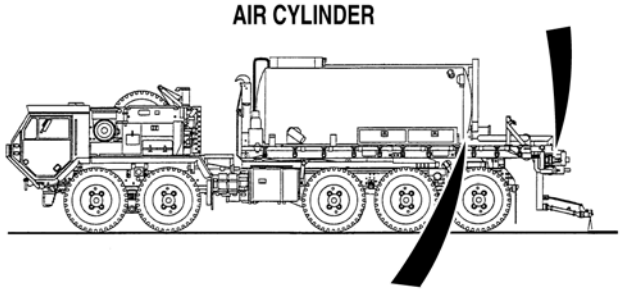
- Air lines kinked or damaged.
- Four-way valve installed (keyed) incorrectly.
- Suction valve does not operate correctly.
- Four-way valve assembly binding.
- Four-way air valve faulty.
- Air lines leaking.
- Power to front control panel SPRAYBAR switch faulty.
- Four-way valve cylinder faulty.
- Rear control panel wire harness (wire 10 white) faulty.
- Front control panel SPRAYBAR switch faulty.
- PLS interface faulty.
- Front control panel wire harness (wire 10 white) faulty.
- Front control panel wire 10 white faulty.



WARNING

Air lines are under extreme pressure. Ensure all personnel wear protective goggles when working around compressed air. Failure to comply may result in serious injury or death to personnel.



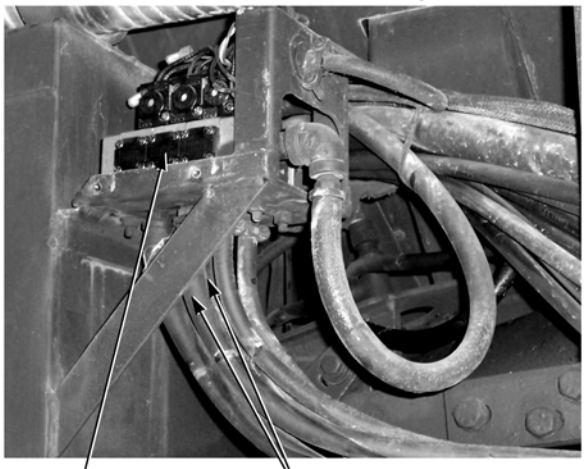


VISUAL INSPECTION

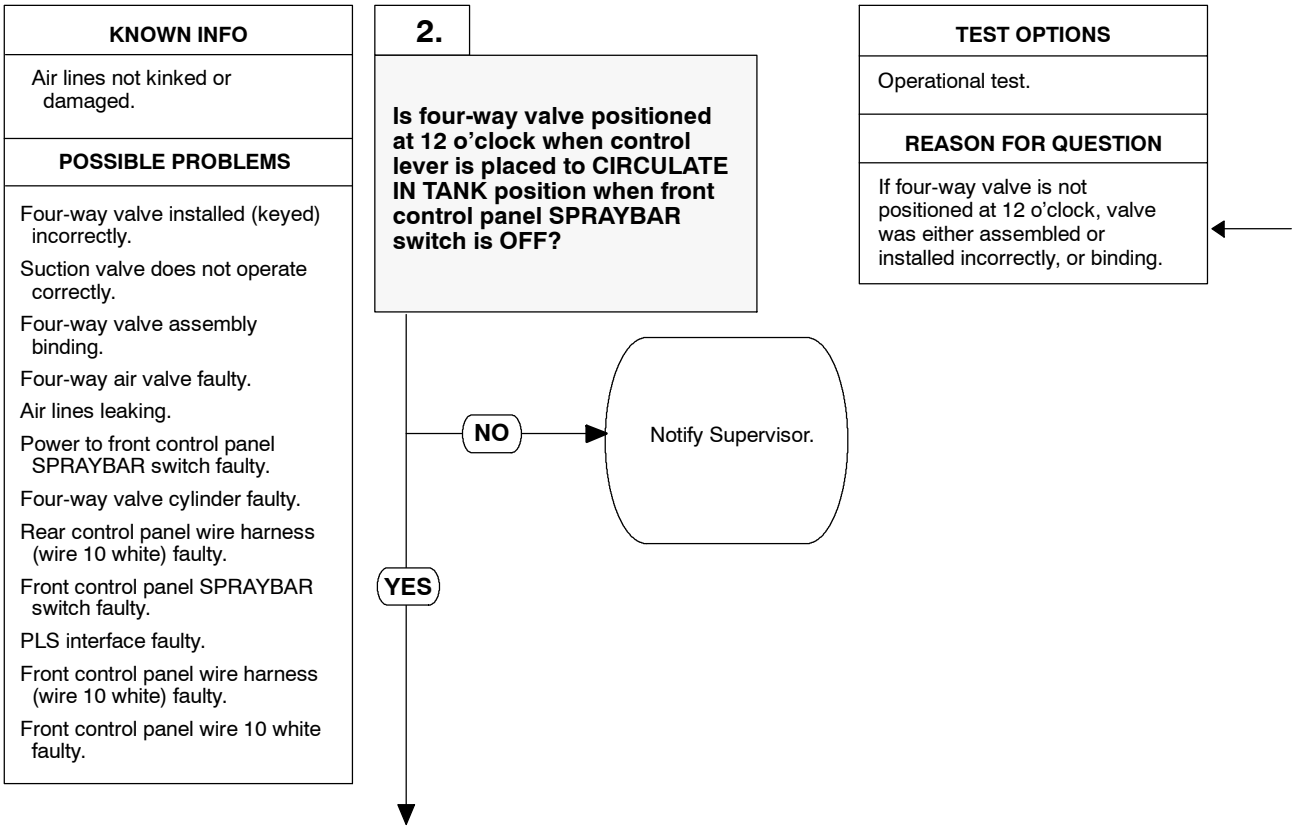
Check air lines from air valve to four-way valve cylinder for kinks and damage.

(a) If air lines are kinked or damaged, repair or replace damaged air lines, (Para 3-49). Verify repair, go to Step 19 of this fault.

(b) If air lines are free of kinks and damage, go to Step 2 of this Fault.



26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY (CONT).



OPERATIONAL TEST

(1) Start engine, (TM 9-2320-364-10) and allow air system to charge to 100 to 120 psi (690 to 827 kPa).

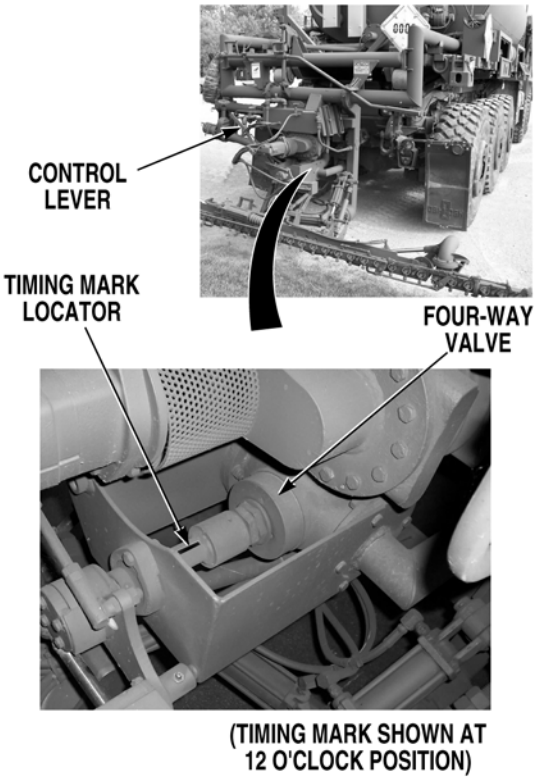
(2) If stowed, operate spray bar unstow function to deploy spray bar, (Para 2-17).

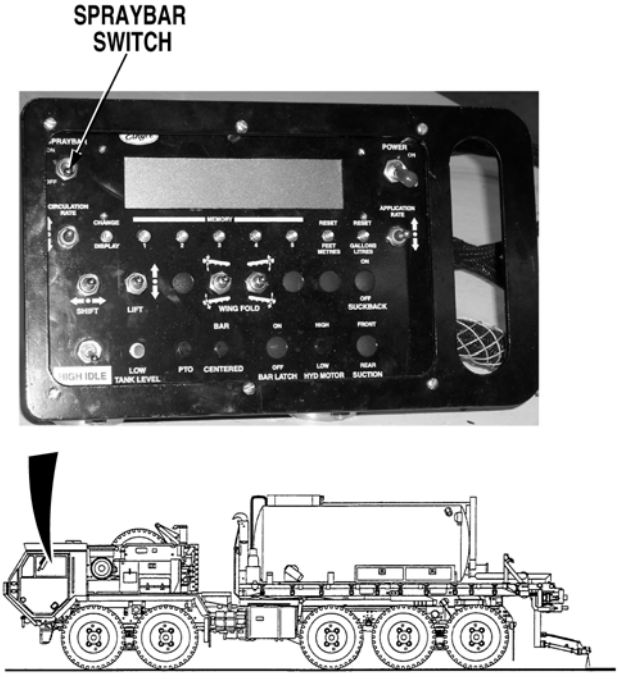
(3) Position four-way valve control lever in CIRCULATE IN TANK position, (Para 2-16).

(4) Check if four-way valve is at the 12 o'clock position.

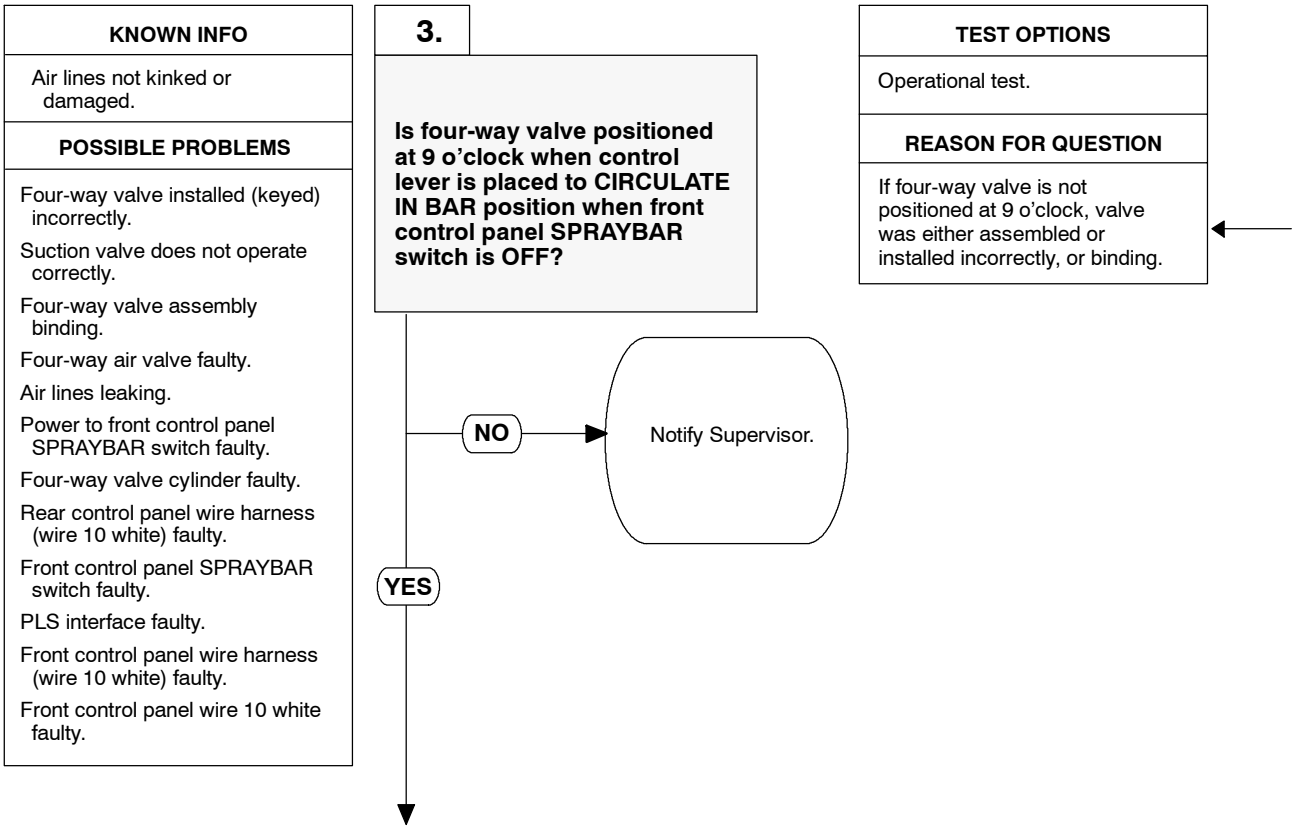
  (a) If valve is not at the 12 o'clock position, notify Supervisor.

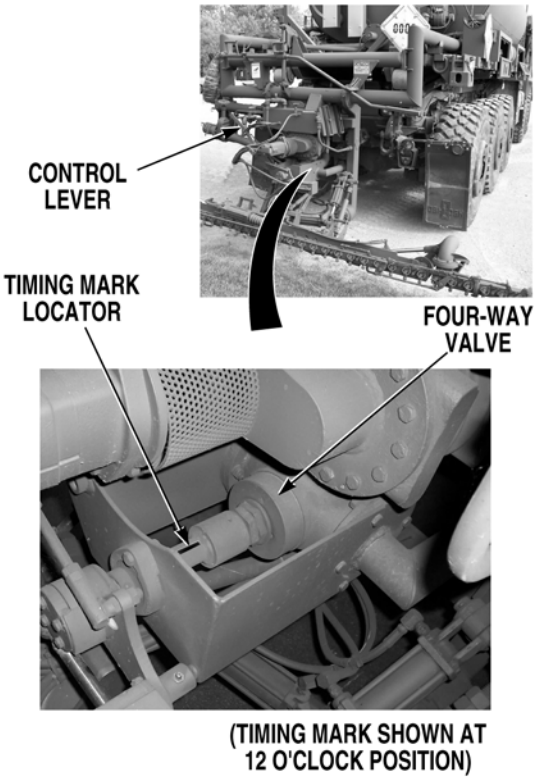
  (b) If valve is at the 12 o'clock position, go to Step 3 of this Fault.





26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY (CONT).





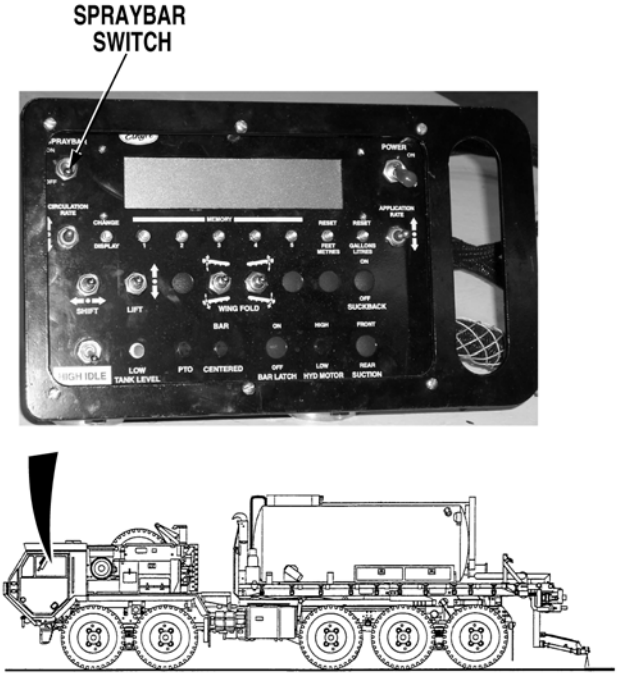
OPERATIONAL TEST

(1) Position four-way valve control lever in CIRCULATE IN BAR position, (Para 2-16).

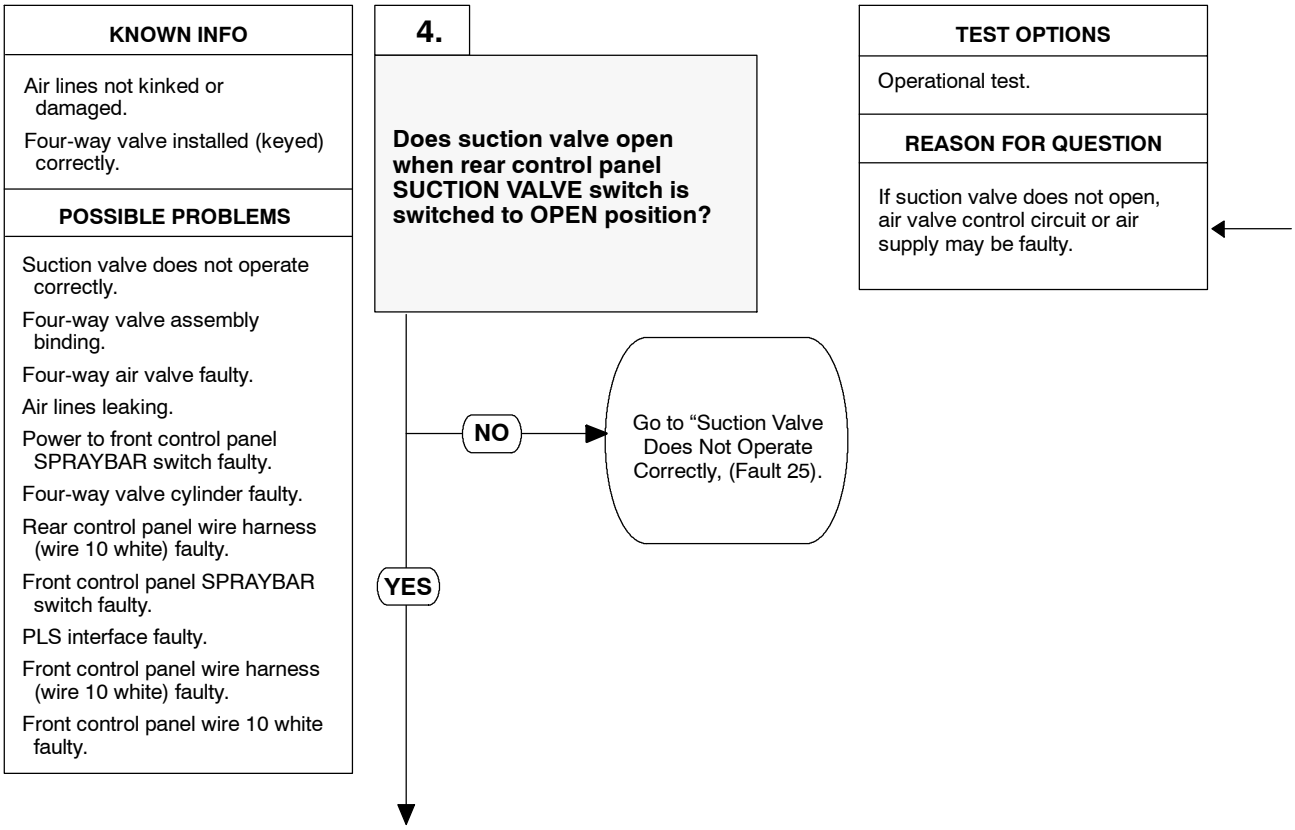
(2) Check if four-way valve is at the 9 o'clock position.

  (a) If valve is not at the 9 o'clock position, notify Supervisor.

  (b) If valve is at the 9 o'clock position, go to Step 4 of this Fault.



26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY (CONT).



OPERATIONAL TEST

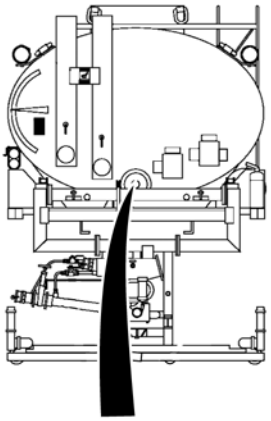
(1) Turn front control panel POWER switch ON, (Para 2-1).

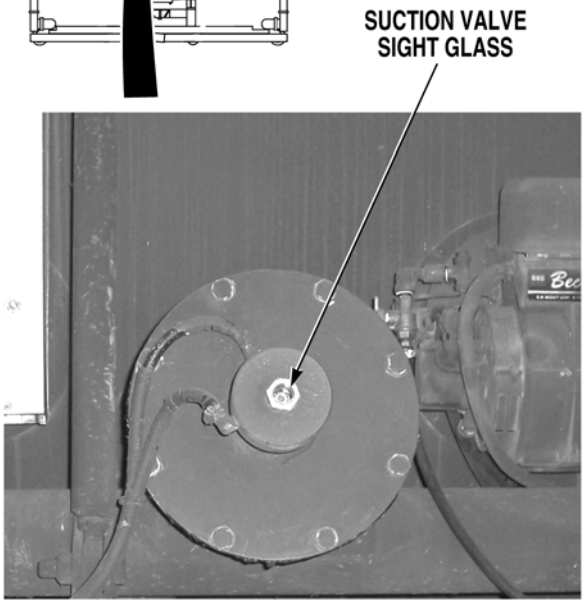
(1) Turn rear control panel POWER switch ON, (Para 2-1).

(3) While an assistant switches rear control panel SUCTION VALVE switch to OPEN position, (Para 2-1), look through sight glass on suction valve. Check if valve moves to open position.

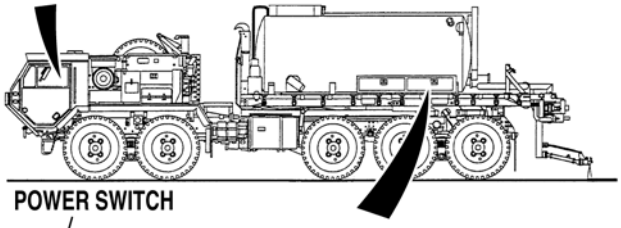
(a) If suction valve does not open, go to “Suction Valve Does Not Operate Correctly,” (Fault 25).

(b) If suction valve opens, go to Step 5 of this Fault.



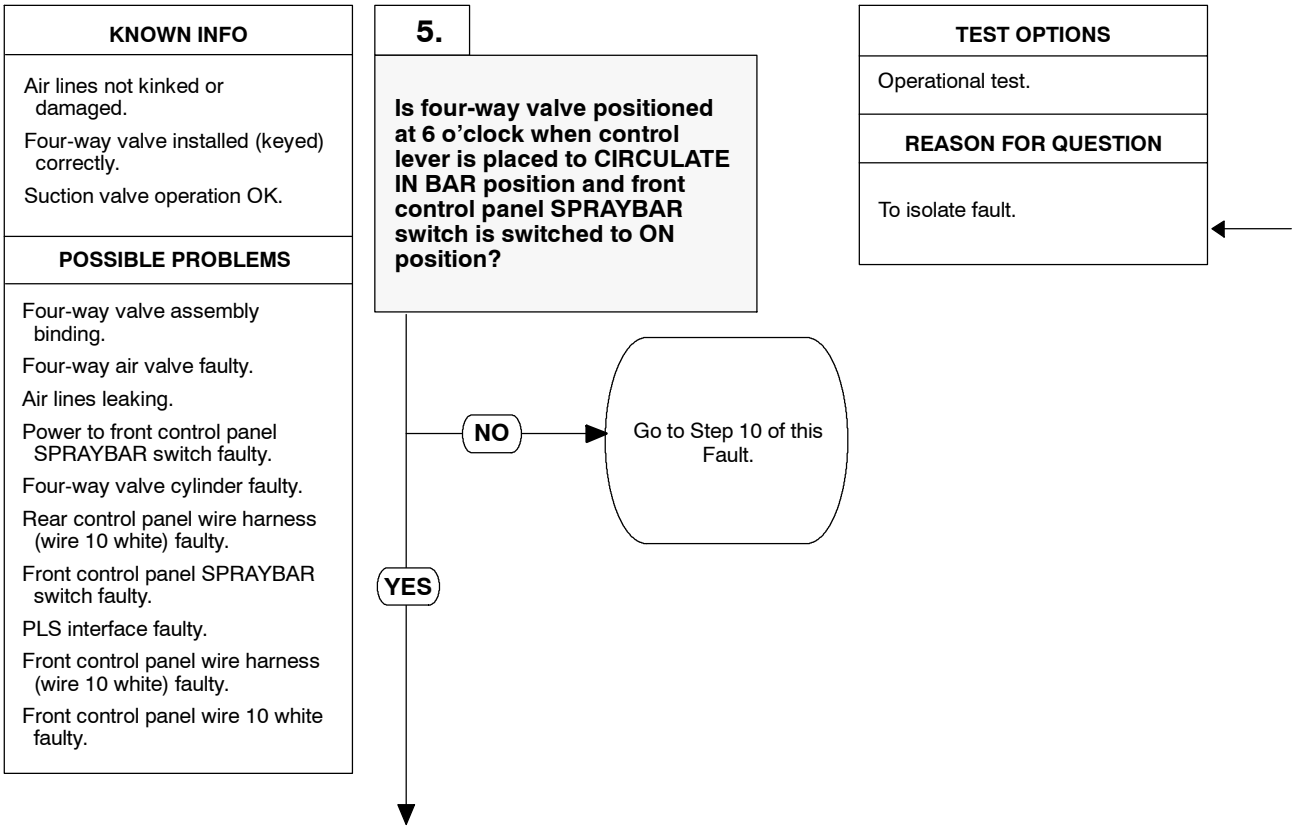


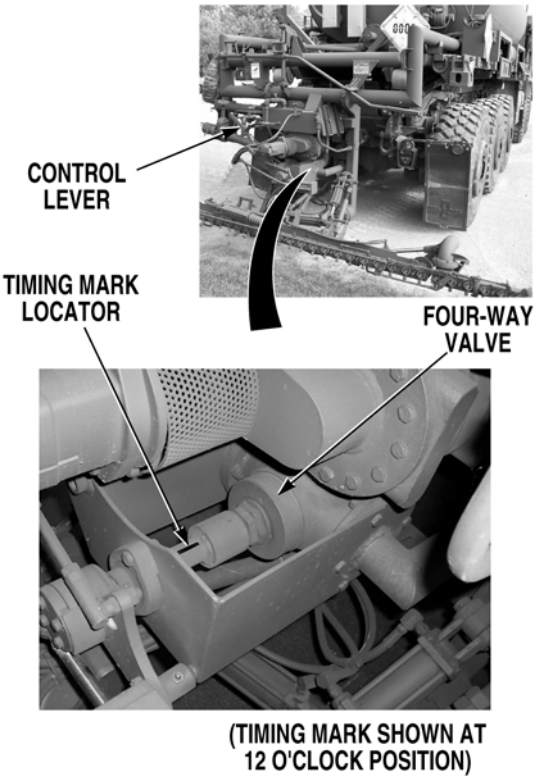






26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY (CONT).





OPERATIONAL TEST

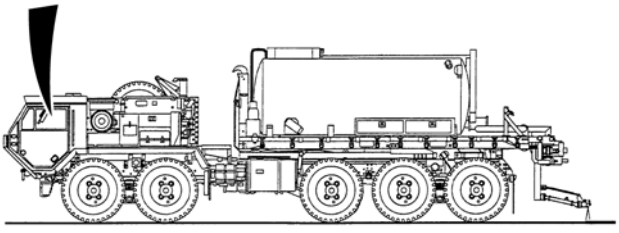
(1) Put control lever in CIRCULATE IN BAR position.

(2) While an assistant switches SPRAYBAR switch to ON position, (Para 2-1), check if four-way valve is positioned at the 6 o'clock position, (cylinder retracts).

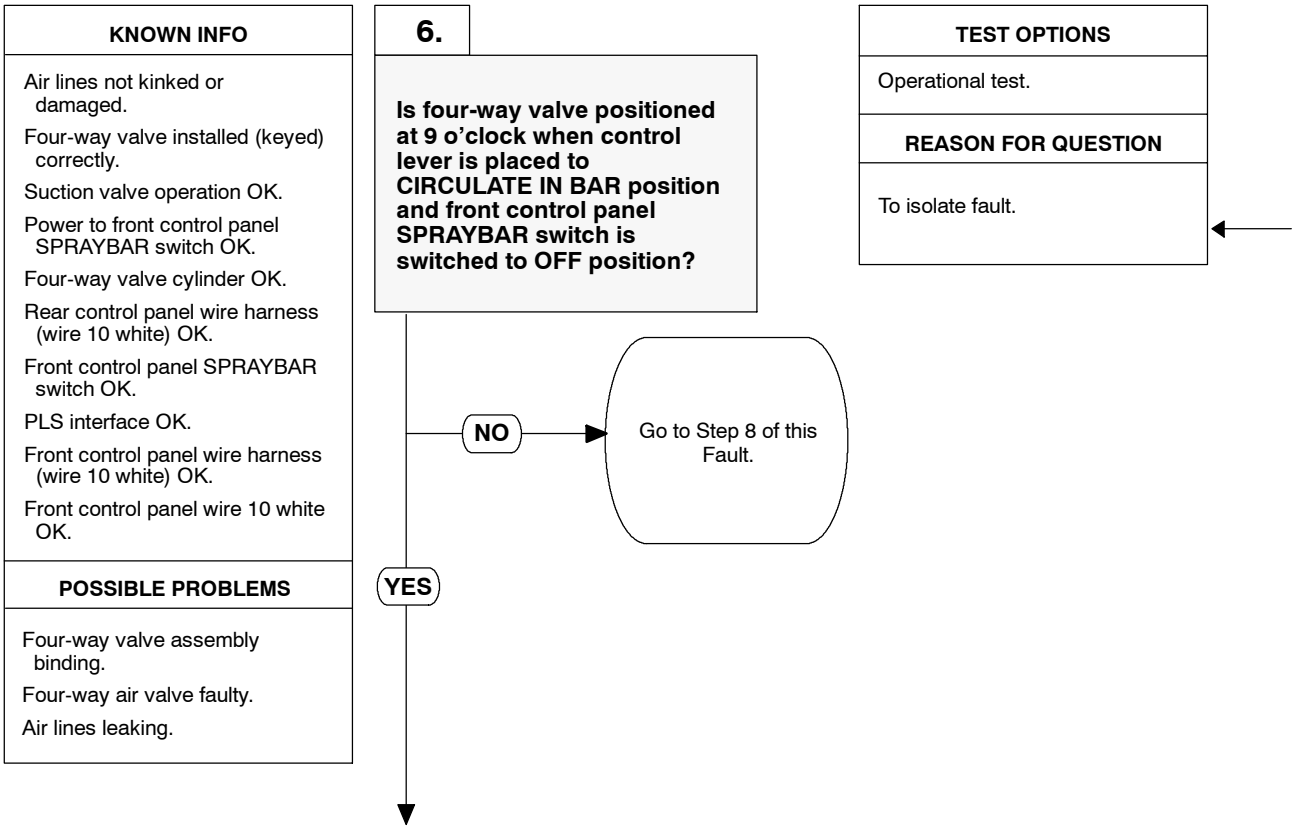
  (a) If valve is not at the 6 o'clock position, go to Step 10 of this Fault.

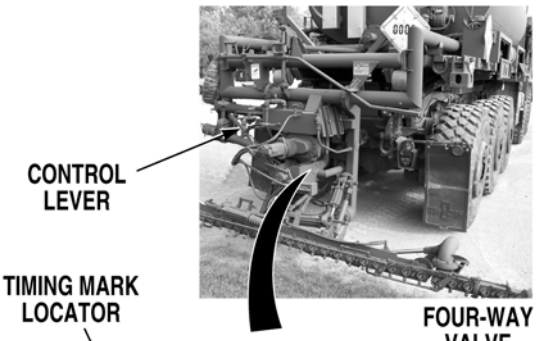
  (b) If valve is at the 6 o'clock position, go to Step 6 of this Fault.

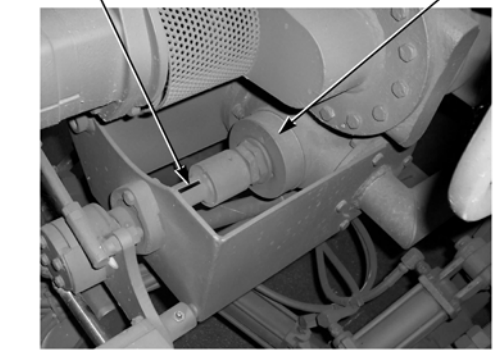




26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY (CONT).







(TIMING MARK SHOWN AT 12 O'CLOCK POSITION)

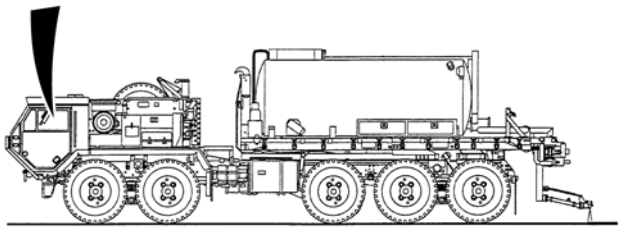
OPERATIONAL TEST

While and assistant switches SPRAYBAR switch to OFF position, (Para 2-1), check if four-way valve is positioned at the 9 o'clock position, (cylinder extends).

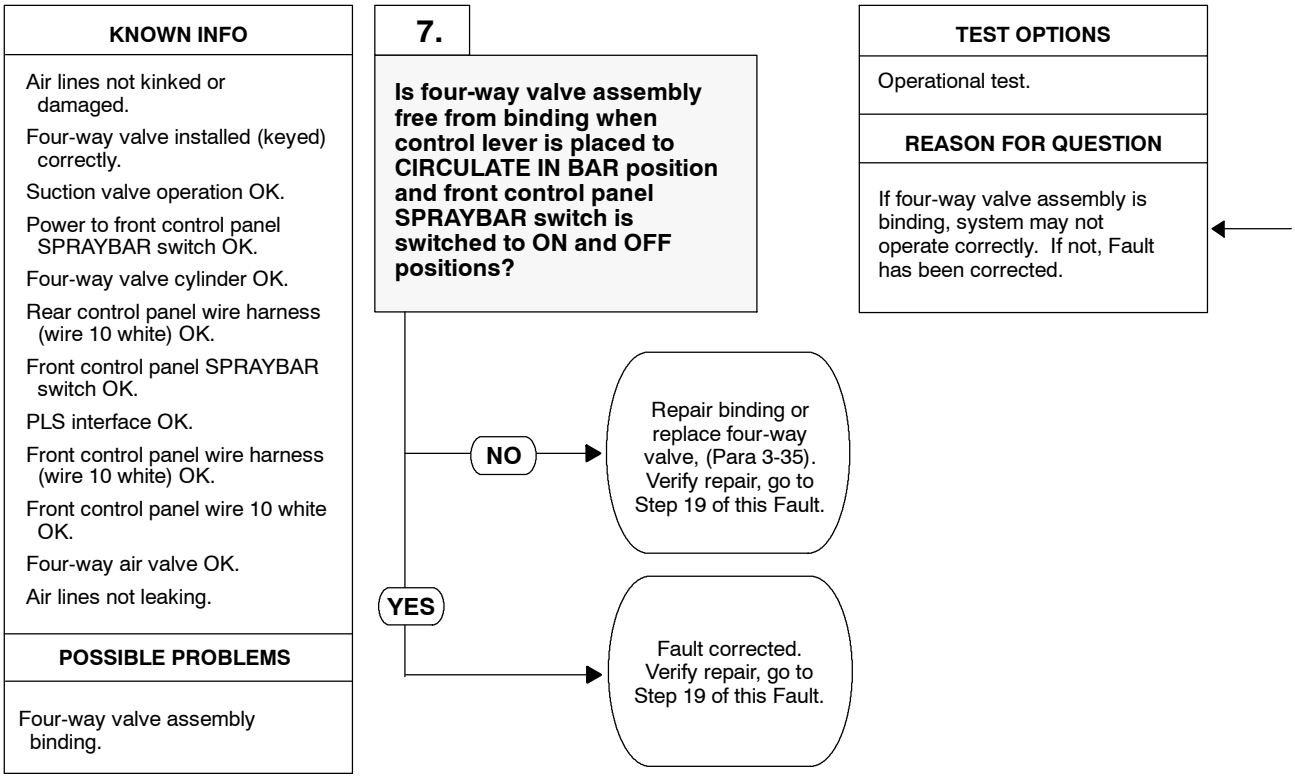
(a) If valve is not at the 9 o'clock position, go to Step 8 of this Fault.

(b) If valve is at the 9 o'clock position, go to Step 7 of this Fault.





26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY (CONT).



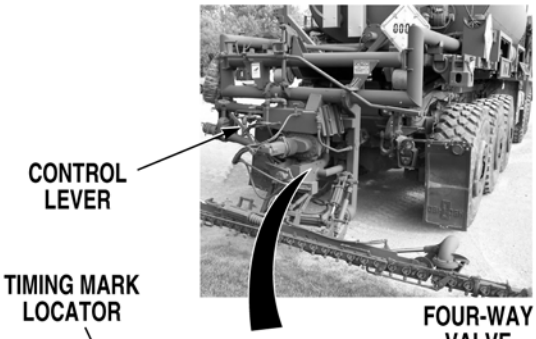
OPERATIONAL TEST

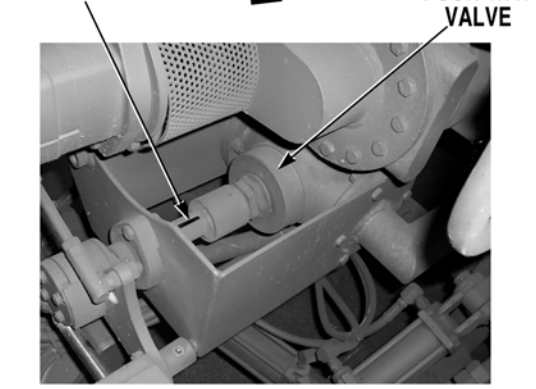
(1) While and assistant switches SPRAYBAR switch to ON and OFF position, (Para 2-1), check if four-way valve is positioned at the 6 o'clock and 9 o'clock positions without binding.

(a) If valve assembly is binding, repair binding or replace four-way valve, (Para 3-35).

(b) If valve assembly is not binding, fault has been corrected.

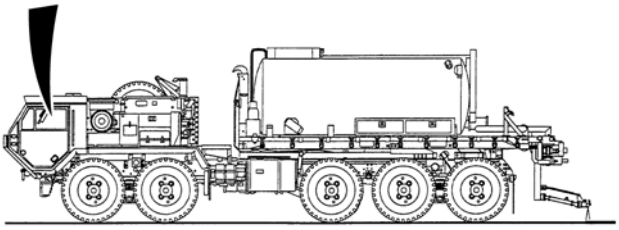
(2) Verify repair, go to Step 19 of this Fault.



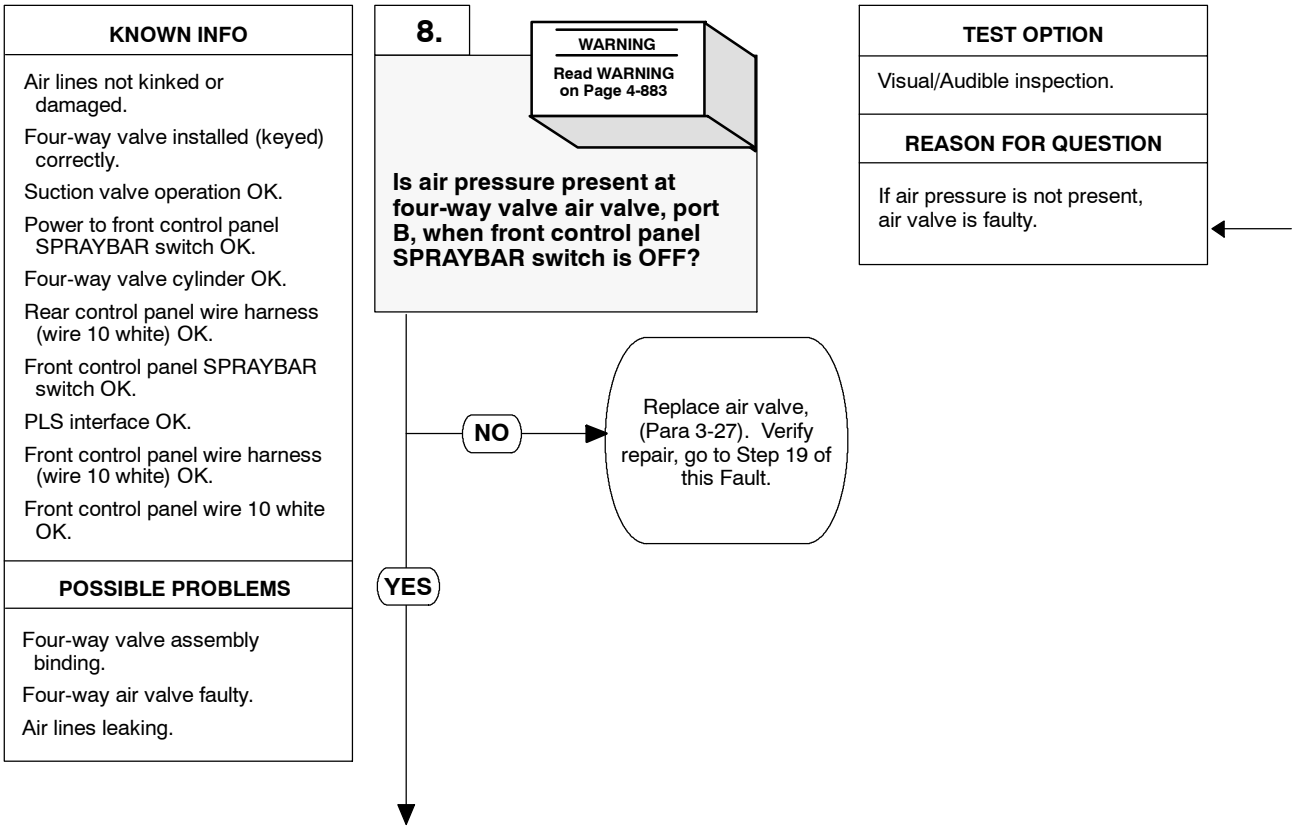


(TIMING MARK SHOWN AT 12 O'CLOCK POSITION)





26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Air lines are under extreme pressure. Ensure all personnel wear protective goggles when working around compressed air. Failure to comply may result in serious injury or death to personnel.

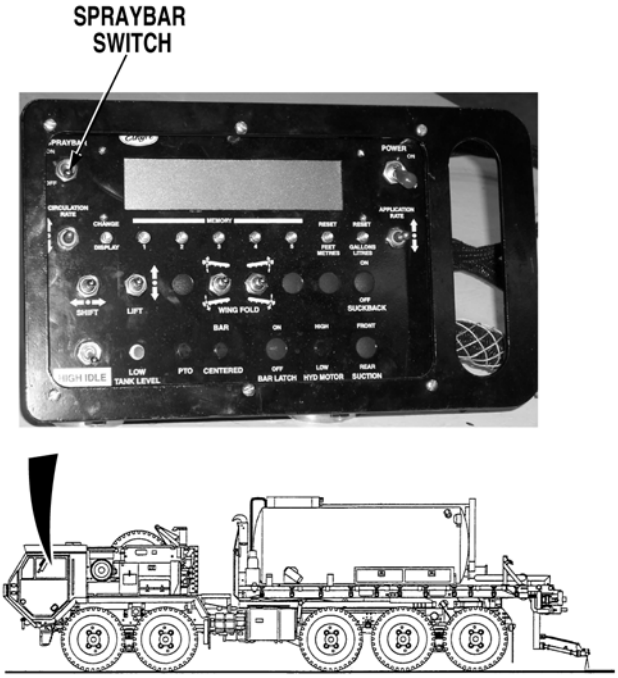
VISUAL/AUDIBLE INSPECTION

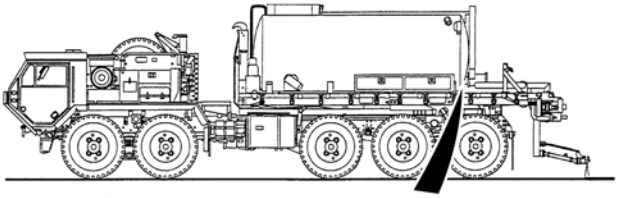
(1) Turn front control panel SPRAYBAR switch OFF, (Para 2-1).

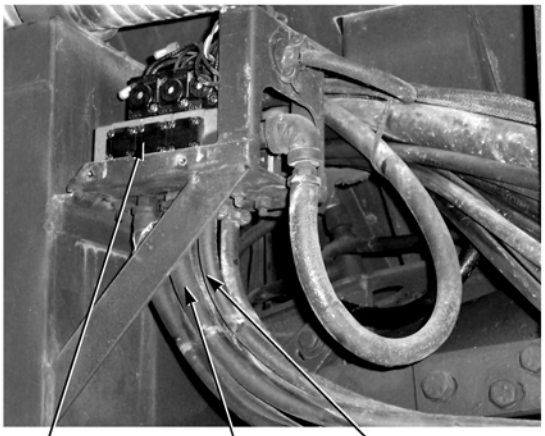
(2) Slowly disconnect air line at air valve four-way valve, port B. Listen for air discharging from air connection.

(a) If air pressure is not present at air valve, port B, replace air valve, (Para 3-27). Verify repair, go to Step 19 of this Fault.

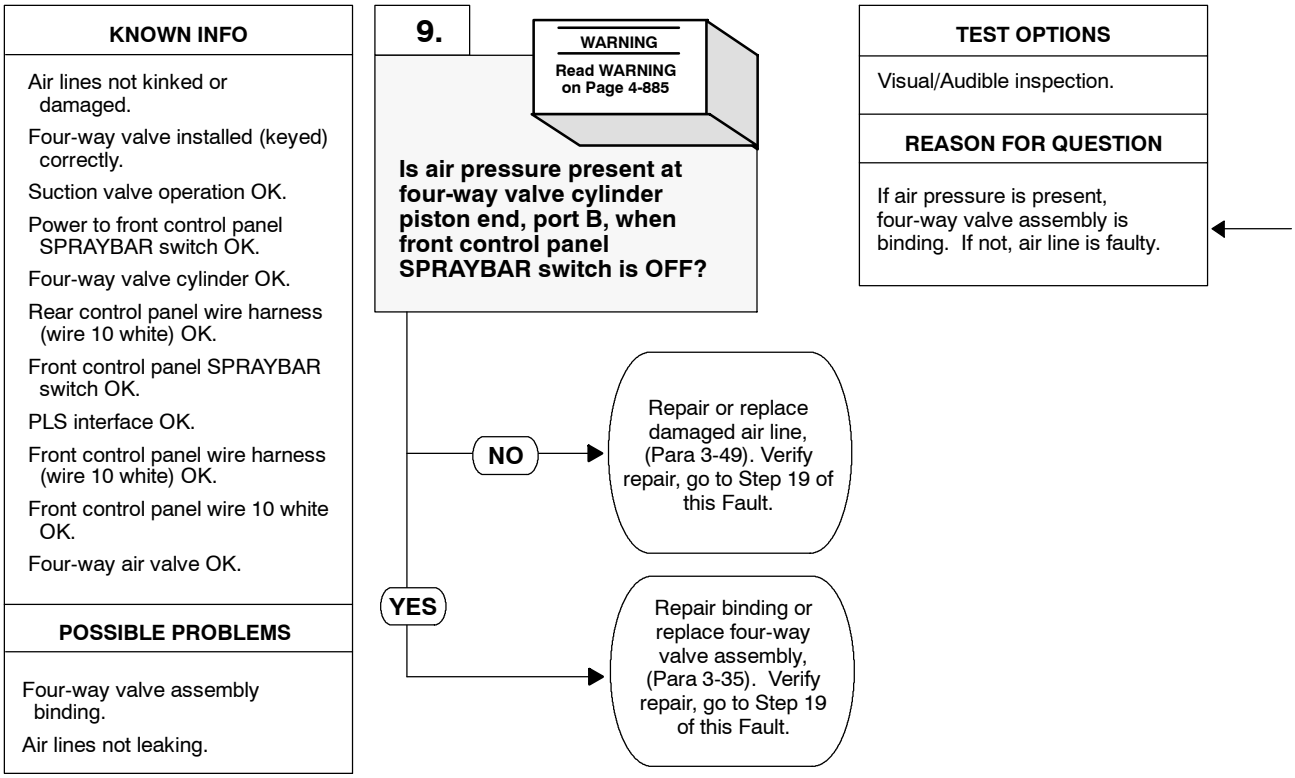
(b) If air pressure is present at air valve, port B, reconnect air line and go to Step 9 of this Fault.







26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Air lines are under extreme pressure. Ensure all personnel wear protective goggles when working around compressed air. Failure to comply may result in serious injury or death to personnel.

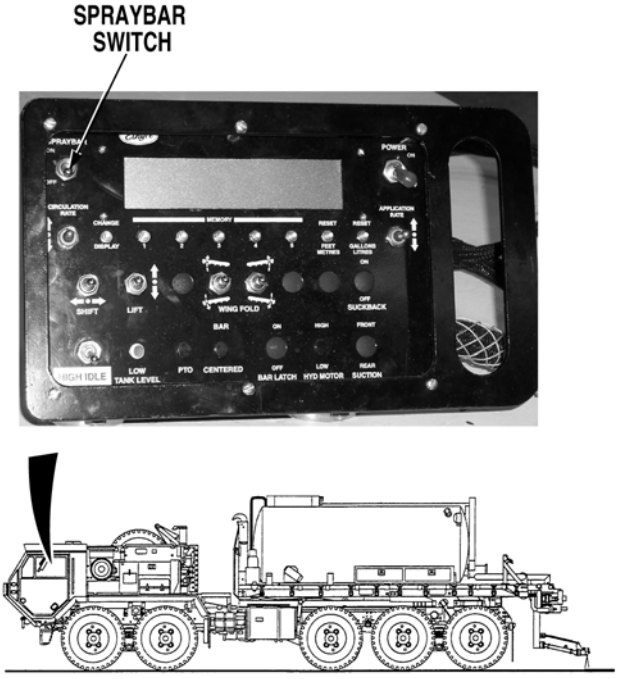
VISUAL/AUDIBLE INSPECTION

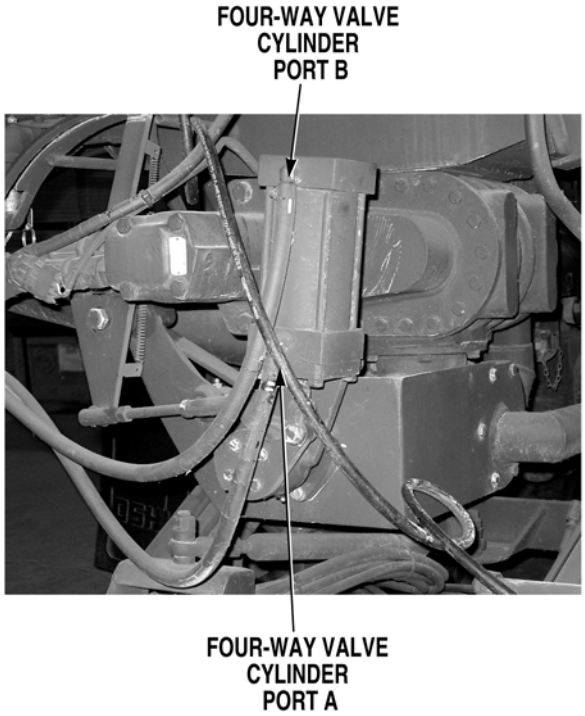
(1) Slowly disconnect air line at four-way valve cylinder piston end, port B. Listen for air discharging from air connection.

(a) If air pressure is not present at cylinder, port B, repair or replace air line, (Para 3-49).

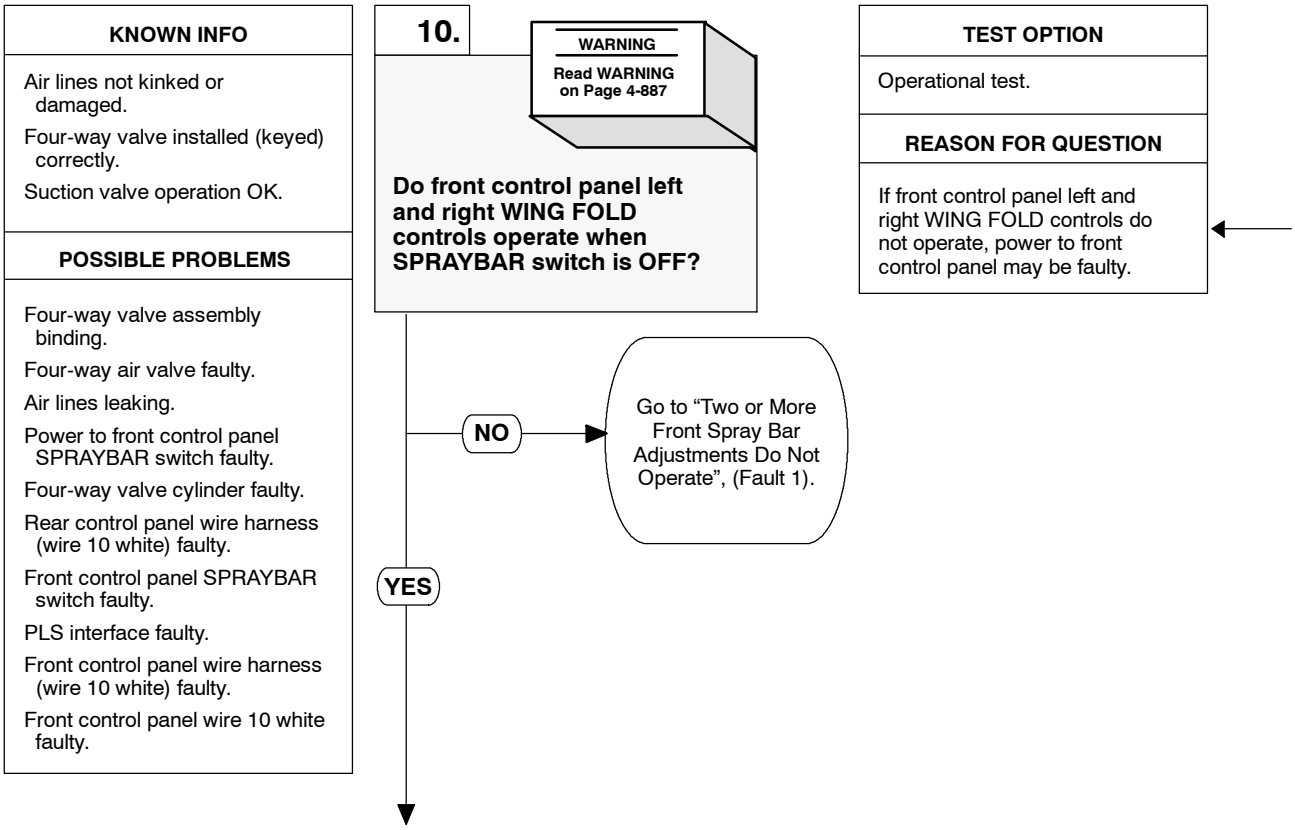
(b) If air pressure is present at cylinder, port B, reconnect air line and repair binding or replace four-way valve, (Para 3-35).

(2) Verify repair, go to Step 19 of this Fault.





26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Air lines are under extreme pressure. Ensure all personnel wear protective goggles when working around compressed air. Failure to comply may result in serious injury or death to personnel.

OPERATIONAL TEST

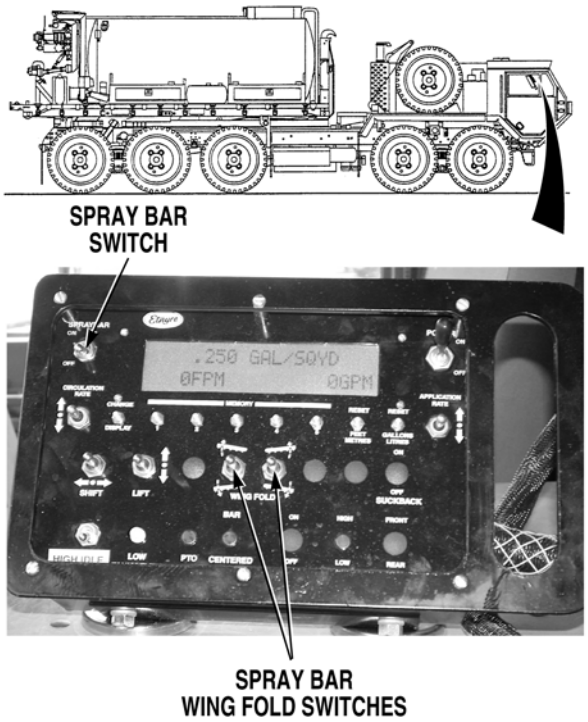
(1) Turn front control panel SPRAYBAR switch OFF, (Para 2-1).

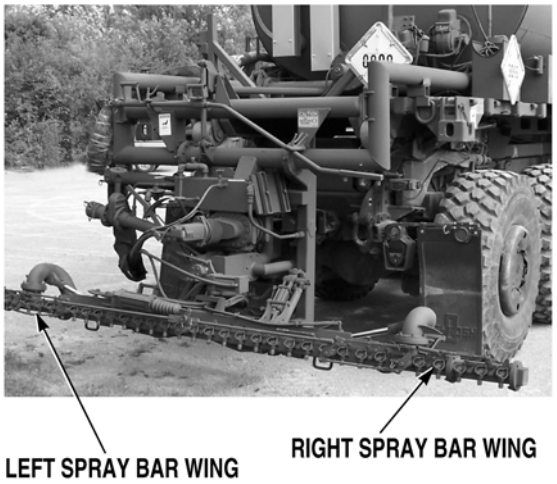
(2) If off, position hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(3) While assistant operates front control panel left and right WING FOLD controls, (Para 2-1), check if left and right spray bar wings fold.

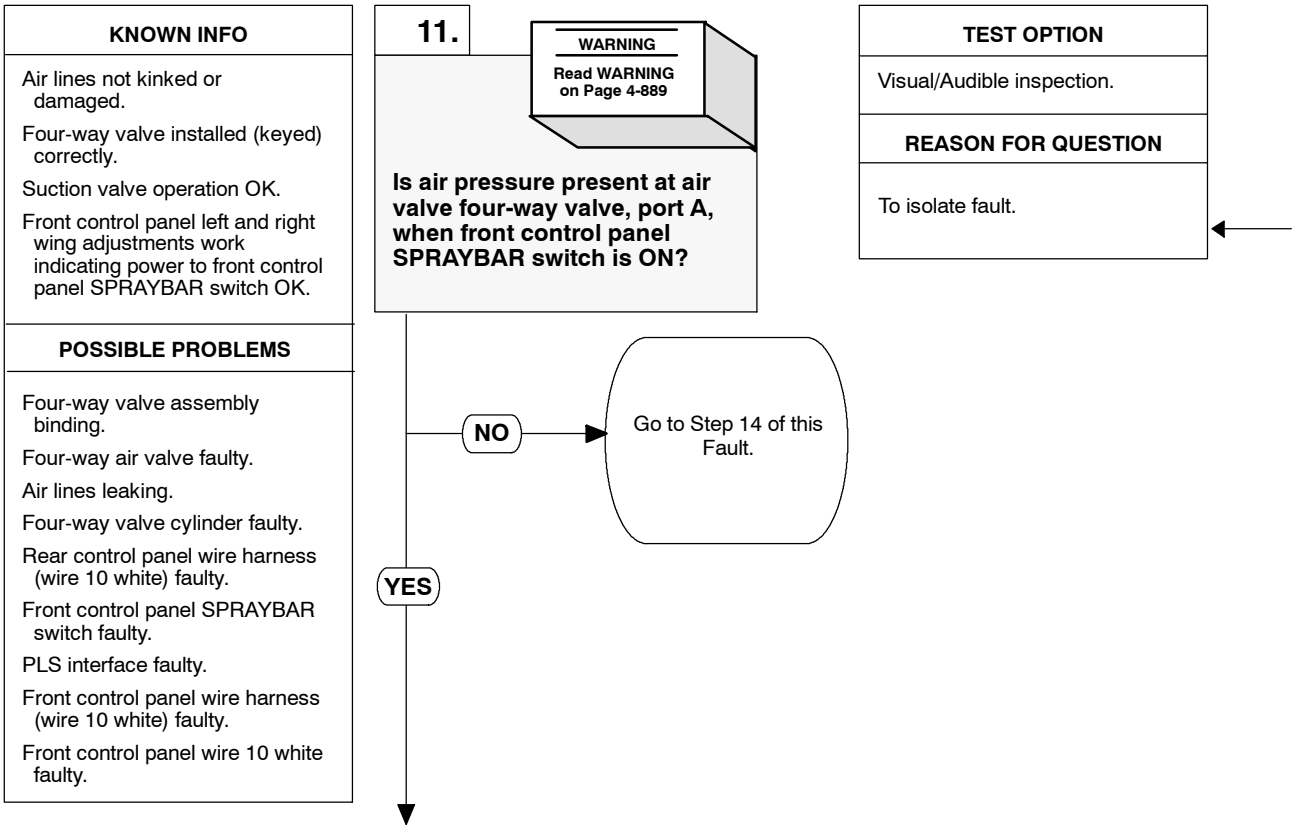
(a) If both spray bar wings do not fold, go to "Two or More Front Spray Bar Adjustments Do Not Operate", (Fault 1).

(b) If both spray bar wings fold, go to Step 11 of this Fault.





26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Air lines are under extreme pressure. Ensure all personnel wear protective goggles when working around compressed air. Failure to comply may result in serious injury or death to personnel.

VISUAL/AUDIBLE INSPECTION

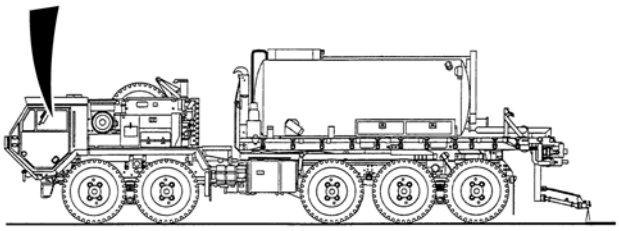
(1) Turn front control panel SPRAYBAR switch ON, (Para 2-1).

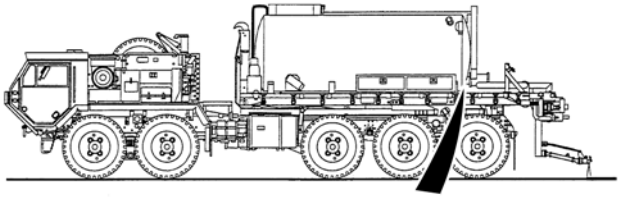
(2) Slowly disconnect air line at four-way valve, port A. Listen for air discharging from air connection.

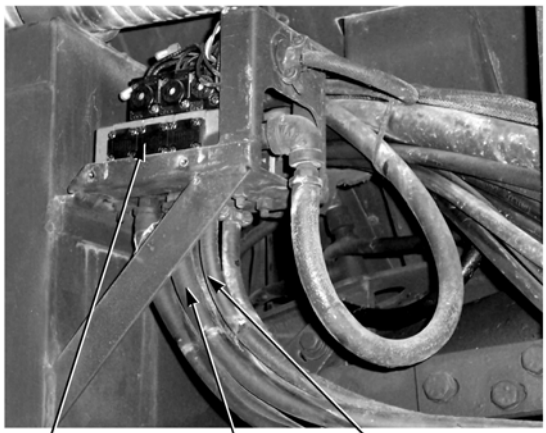
(a) If air pressure is not present at air valve, port A, reconnect air line and go to Step 14 of this Fault.

(b) If air pressure is present at air valve, port A, reconnect air line and go to Step 12 of this Fault.

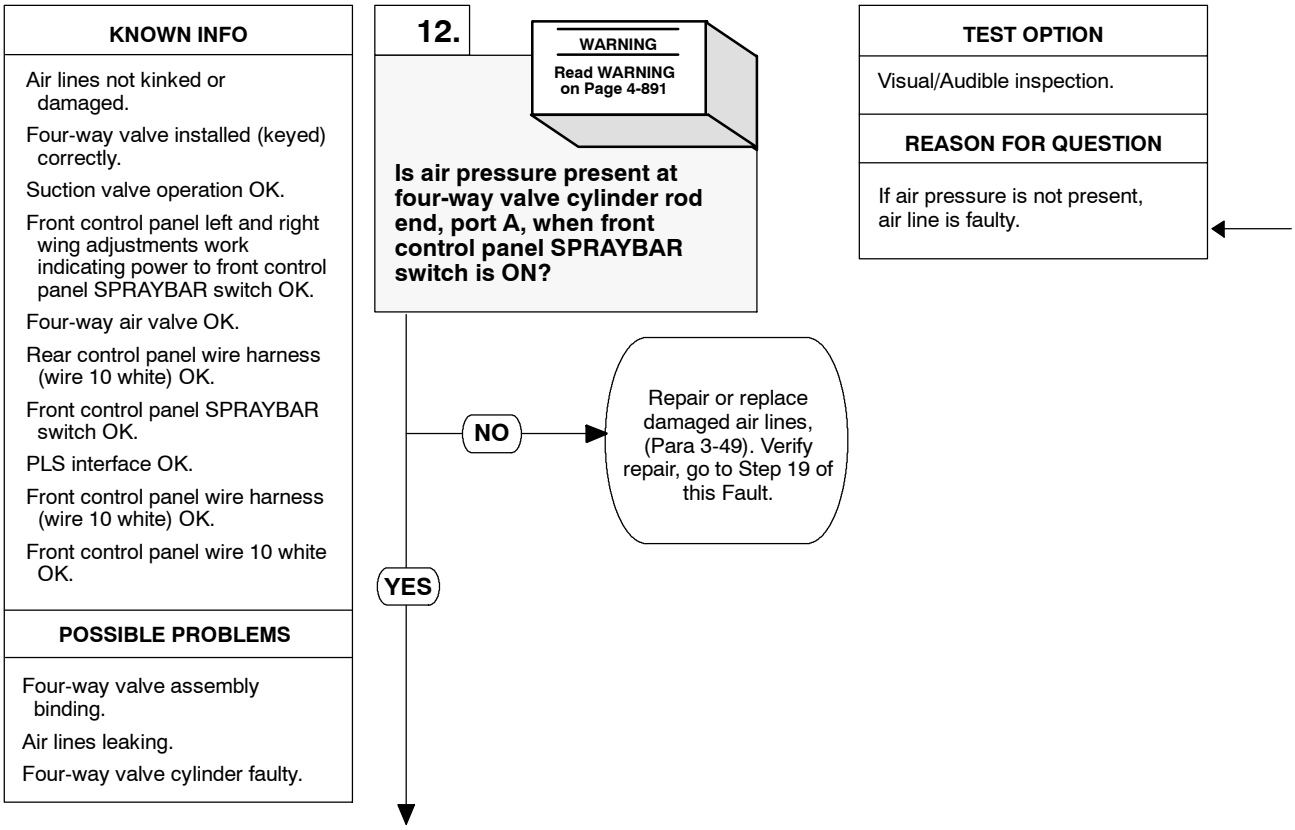








26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Air lines are under extreme pressure. Ensure all personnel wear protective goggles when working around compressed air. Failure to comply may result in serious injury or death to personnel.

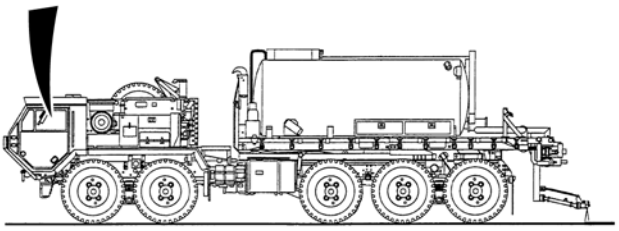
VISUAL/AUDIBLE INSPECTION

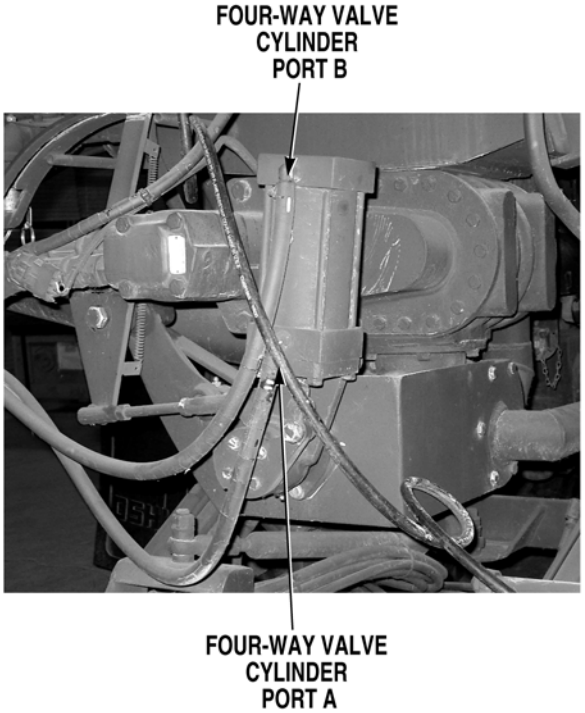
(1) Slowly disconnect air line at four-way valve cylinder rod end, port A. Listen for air discharging from air connection.

(a) If air pressure is not present at cylinder rod end port A, repair or replace air line, (Para 3-49). Verify repair, go to Step 19 of this Fault.

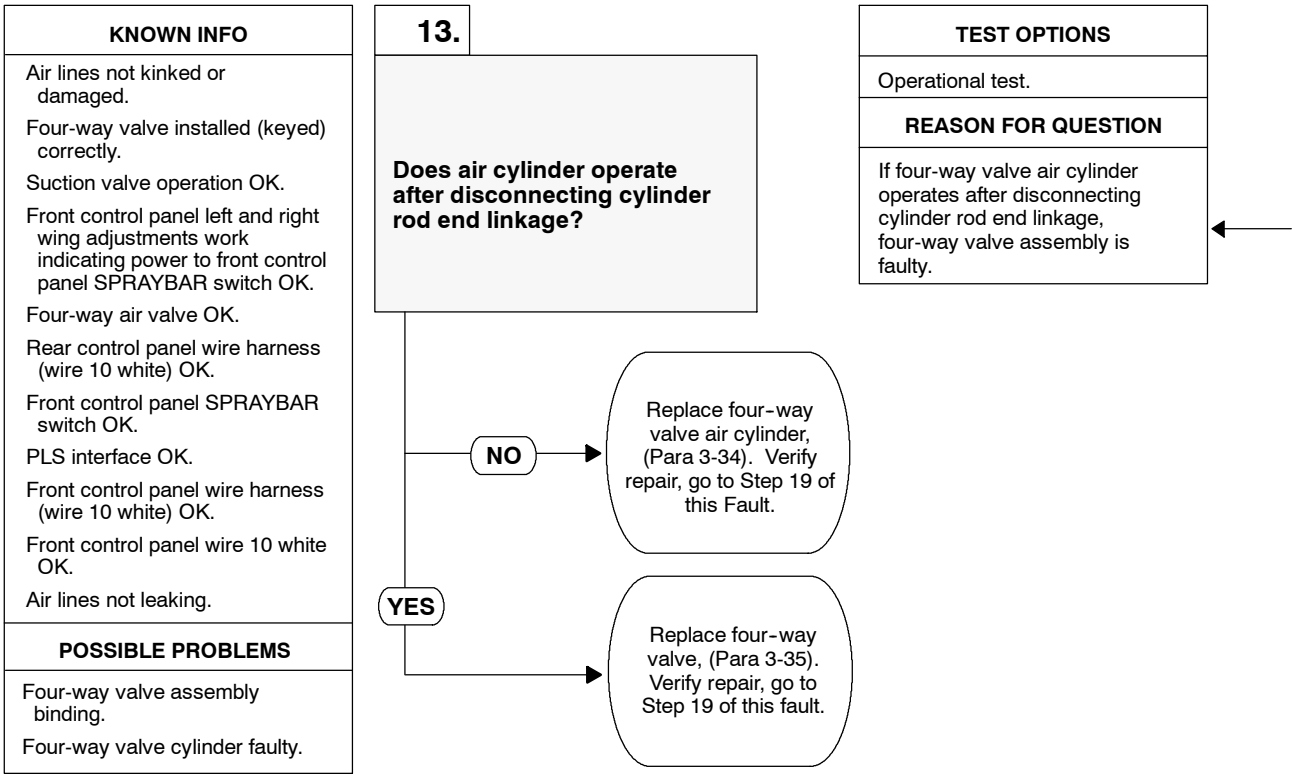
(b) If air pressure is present at cylinder rod end port A, reconnect air line and go to Step 13 of this Fault.







26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY (CONT).



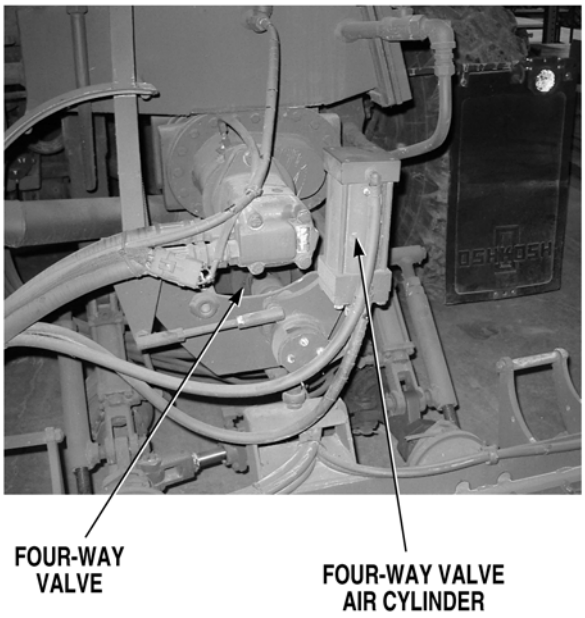
OPERATIONAL TEST

(1) While an assistant switches SPRAYBAR switch to ON and OFF position, (Para 2-1), check if four-way valve is positioned at the 6 o'clock and 9 o'clock positions.

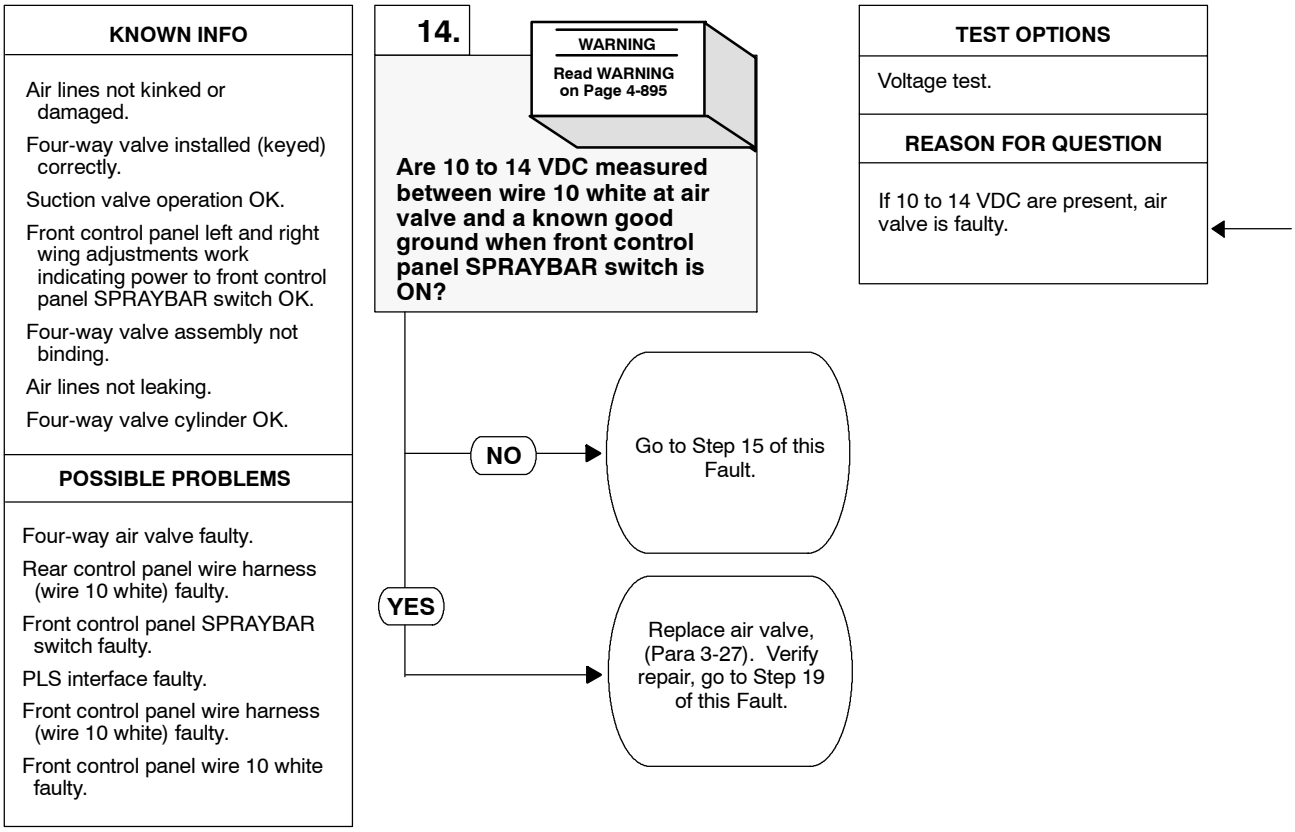
  (a) If cylinder does not operate, replace four-way valve air cylinder, (Para 3-34).

  (b) If valve operates, repair binding or replace four-way valve, (Para 3-35).

(2) Verify repair, go to Step 19 of this Fault.



26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) If installed, remove cover from air valve assembly (Para 3-27).

(3) Turn front control panel POWER switch ON, (Para 2-1).

(4) Turn front control panel SPRAYBAR switch ON, (Para 2-1).

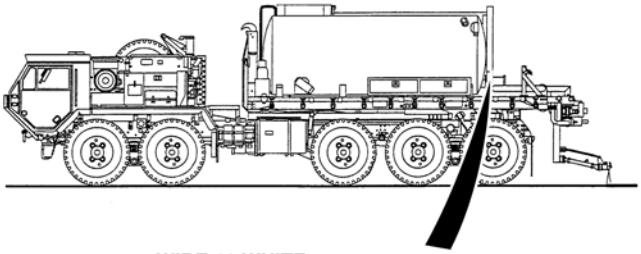
(5) Turn rear control panel POWER switch ON, (Para 2-1).

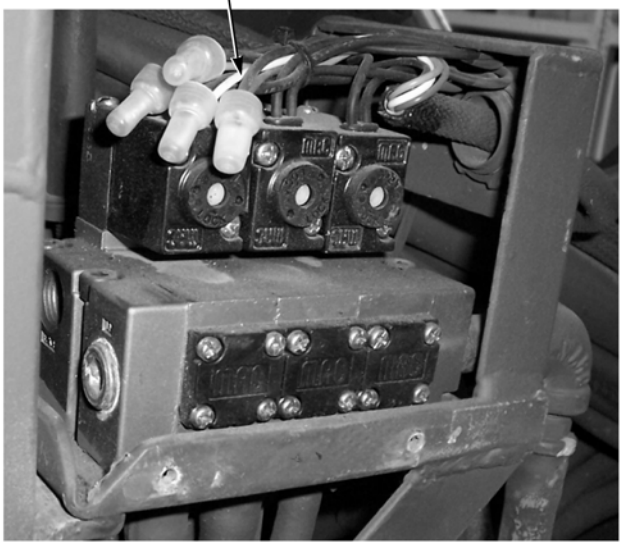
(6) Connect (back probe) positive (+) multimeter lead to wire 10 white at air valve.

(7) Connect negative (-) multimeter lead to a known good ground.

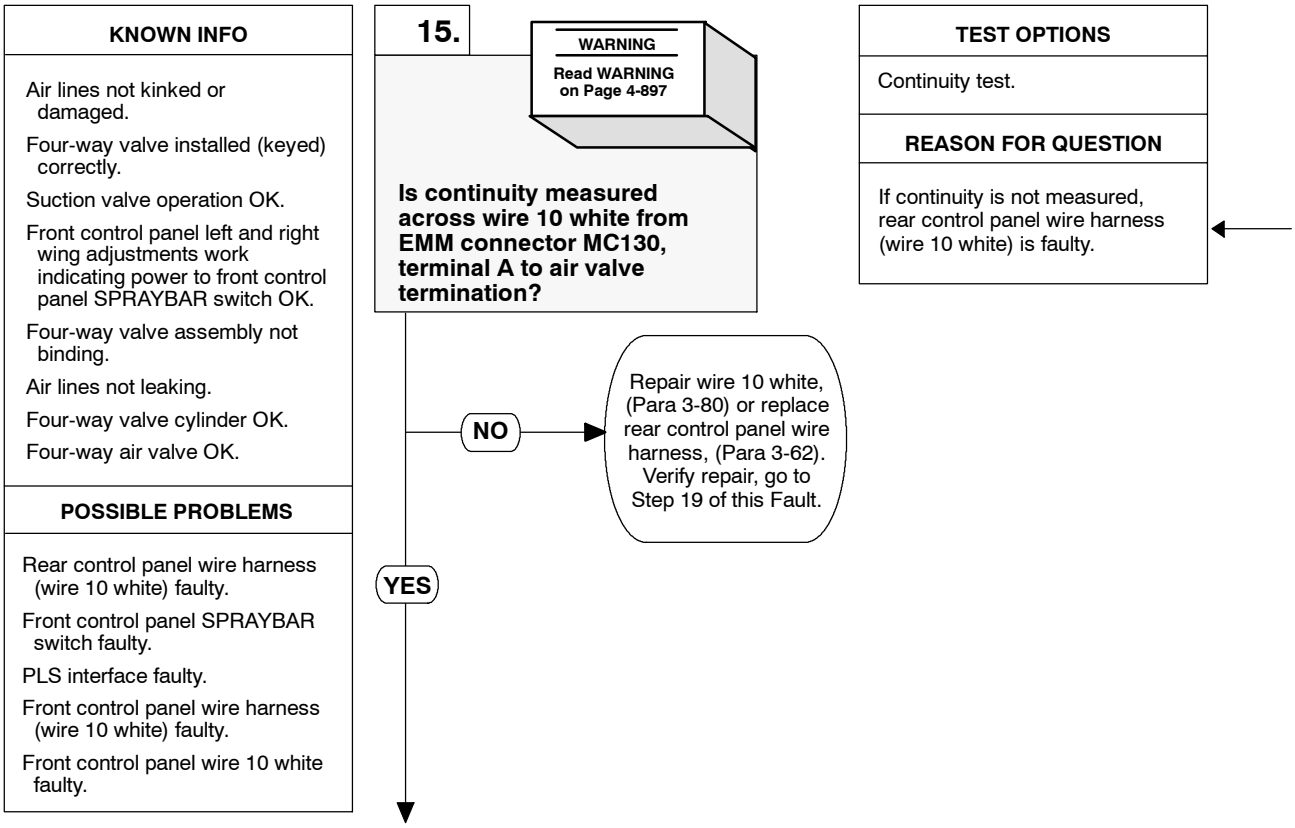
(a) If 10 to 14 VDC are not present, go to Step 15 of this fault.

(b) If 10 to 14 VDC are present, replace air valve, (Para 3-27). Verify repair, go to Step 19 of this Fault.





26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Failure to comply may cause injury or death to personnel.

CONTINUITY TEST

(1) Turn rear control panel POWER switch OFF, (Para 2-1).

(2) Turn front control panel POWER switch OFF, (Para 2-1).

(3) Pull out battery disconnect switch, (TM 9-2320-364-10).

(4) Disconnect UPIK connector MC130, (Para 2-10).

(5) Set multimeter select switch to ohms.

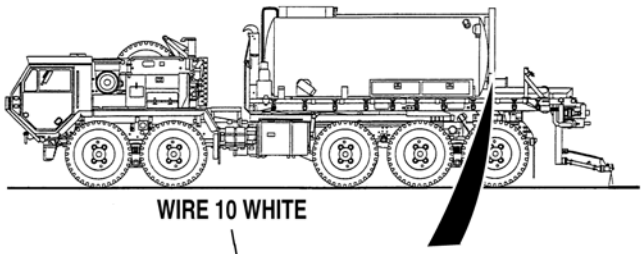
(6) Connect jumperwire between wire 10 white at EMM connector MC130, terminal A and a known good ground.

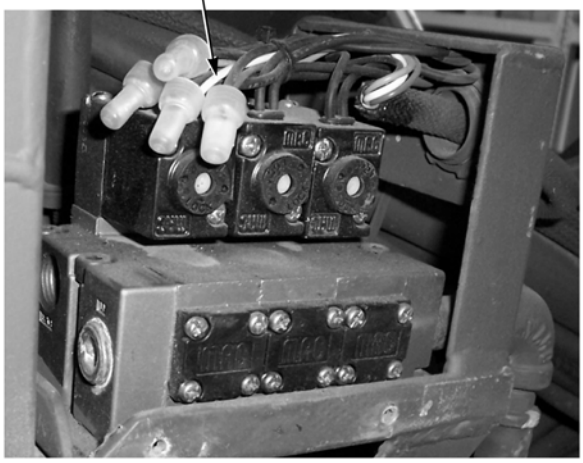
(7) Connect (back probe) positive (+) multimeter lead to wire 10 white at air valve termination.

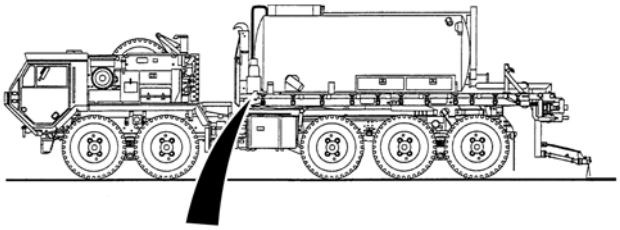
(8) Connect negative (-) multimeter lead to a known good ground.

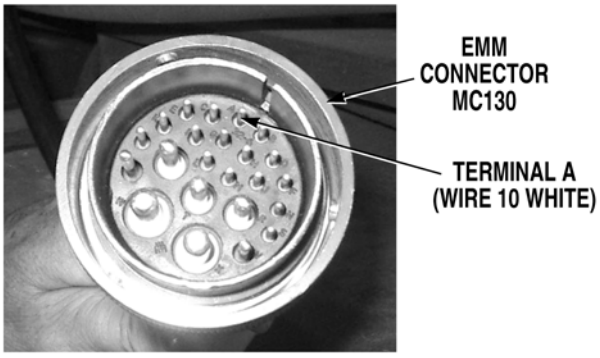
(a) If continuity is not measured, repair wire 10 white, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 19 of this fault.

(b) If continuity is measured, go to Step 16 of this Fault.

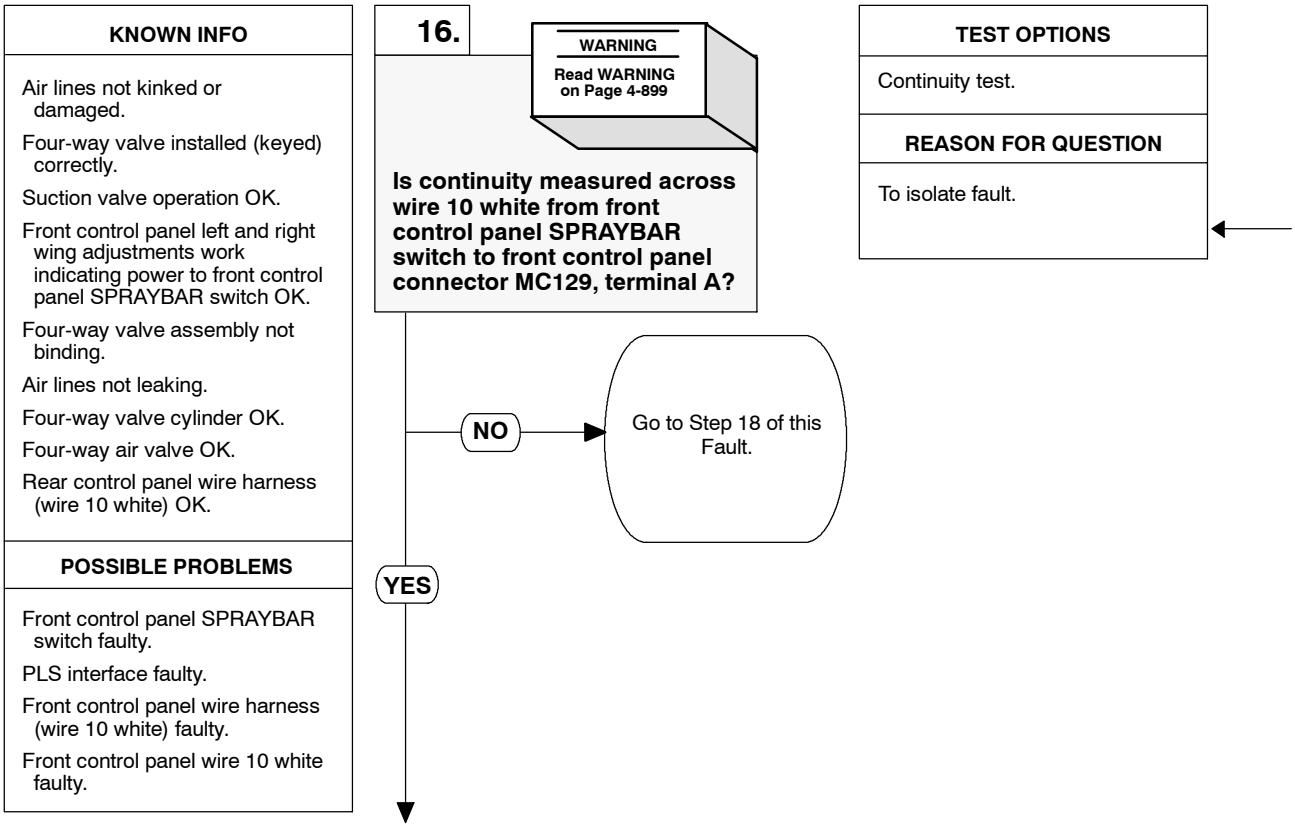








26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Failure to comply may cause injury or death to personnel.

CONTINUITY TEST

(1) Disconnect front control panel connector MC129, (Para 2-10).

(2) Remove front control panel, (Para 3-76).

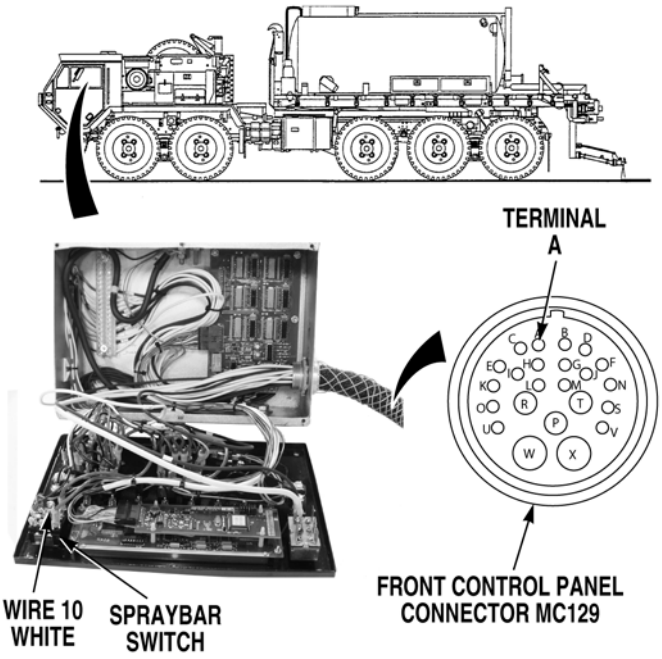
(3) Set multimeter select switch to ohms.

(4) Connect positive (+) multimeter lead to wire 10 white at SPRAYBAR switch terminal.

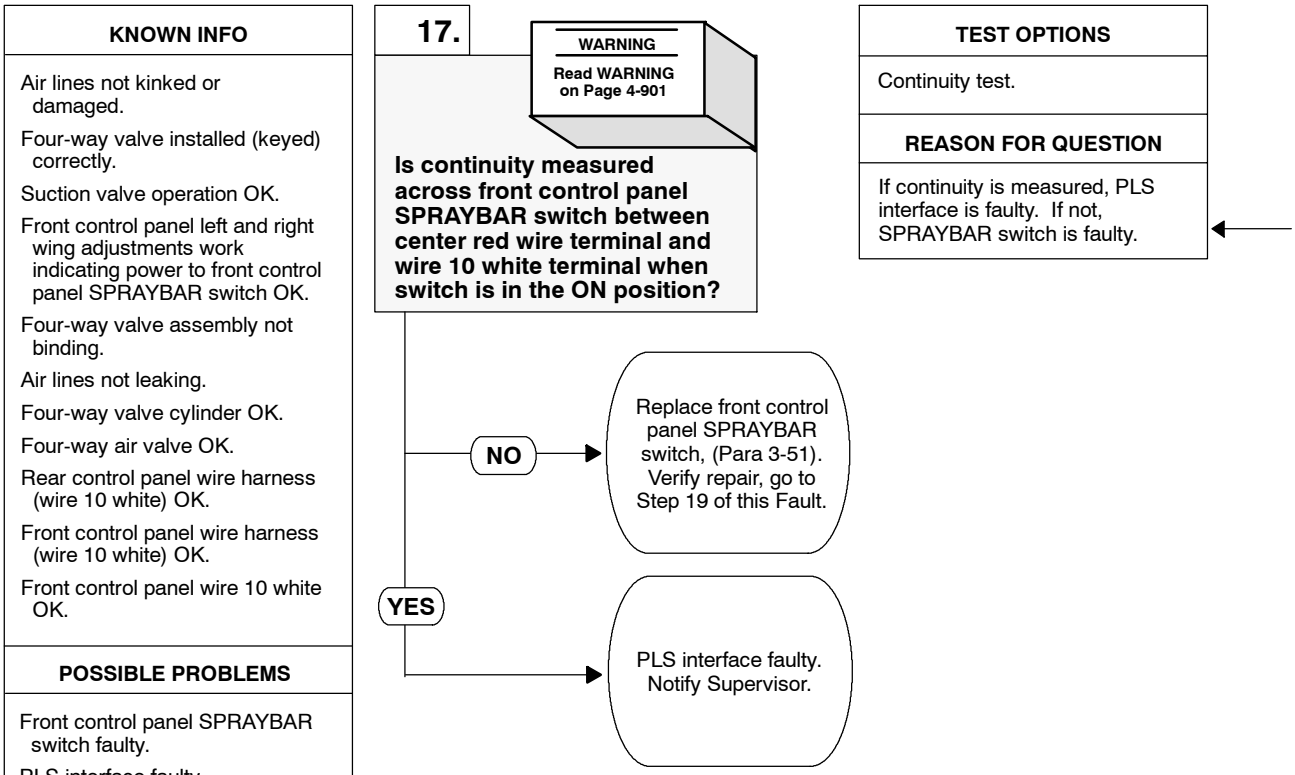
(5) Connect negative (-) multimeter lead to wire 10 white at front control panel connector MC129, terminal A.

(a) If continuity is not measured, go to Step 18 of this fault.

(b) If continuity is measured, go to Step 17 of this Fault.



26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

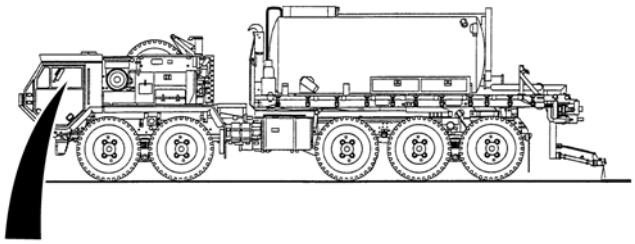
(2) Turn front control panel SPRAYBAR switch ON, (Para 2-1).

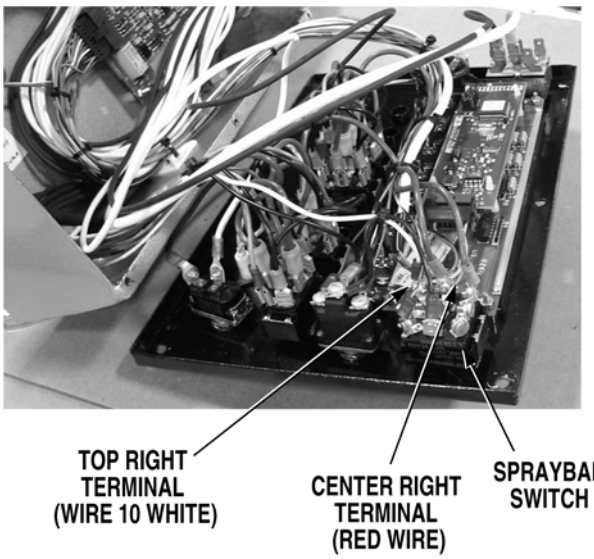
(3) Connect positive (+) multimeter lead to SPRAYBAR switch terminal, wire 10 white.

(4) Connect negative (-) multimeter lead to SPRAYBAR switch terminal terminal, center red wire.

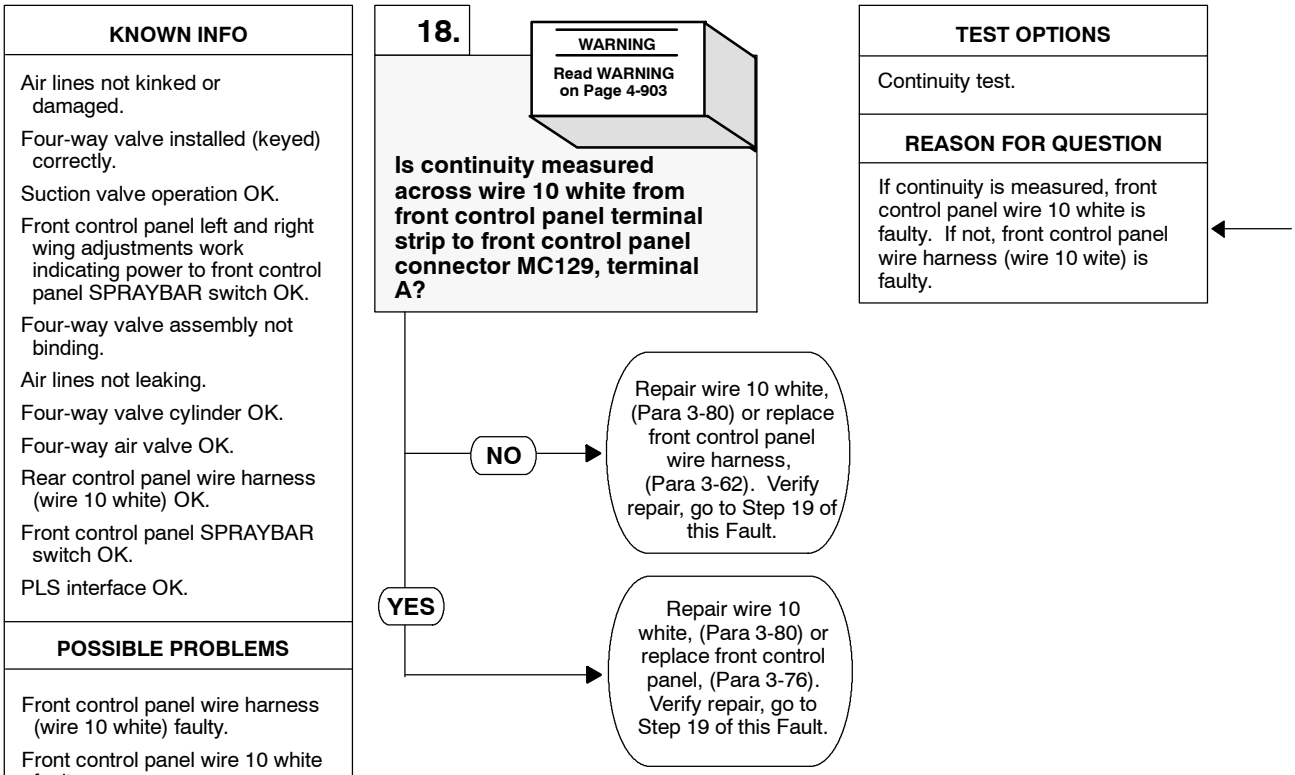
(a) If continuity is not measured, replace front control panel SPRAYBAR switch, (Para 3-51). Verify repair, go to Step 19 of this fault.

(b) If continuity is measured, PLS interface is faulty. Notify Supervisor





26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

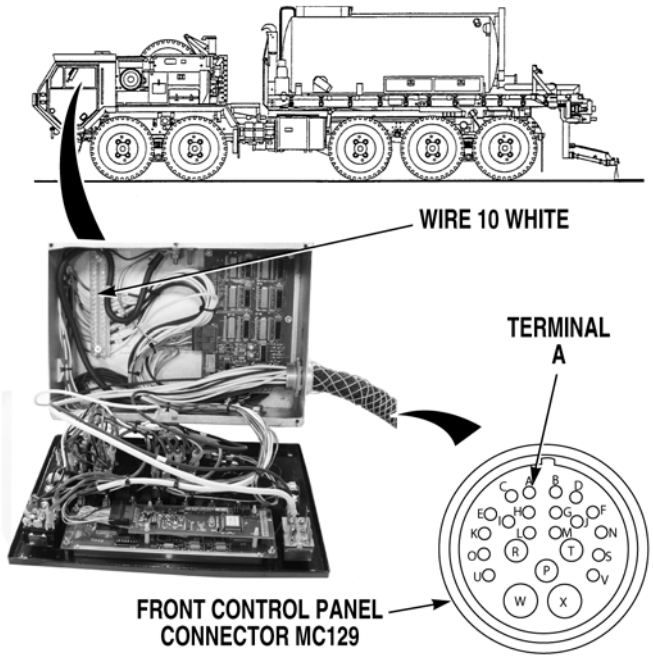
(2) Connect positive (+) multimeter lead to wire 10 white at front control panel terminal strip.

(3) Connect negative (-) multimeter lead to wire 10 white at front control panel connector MC129, terminal A.

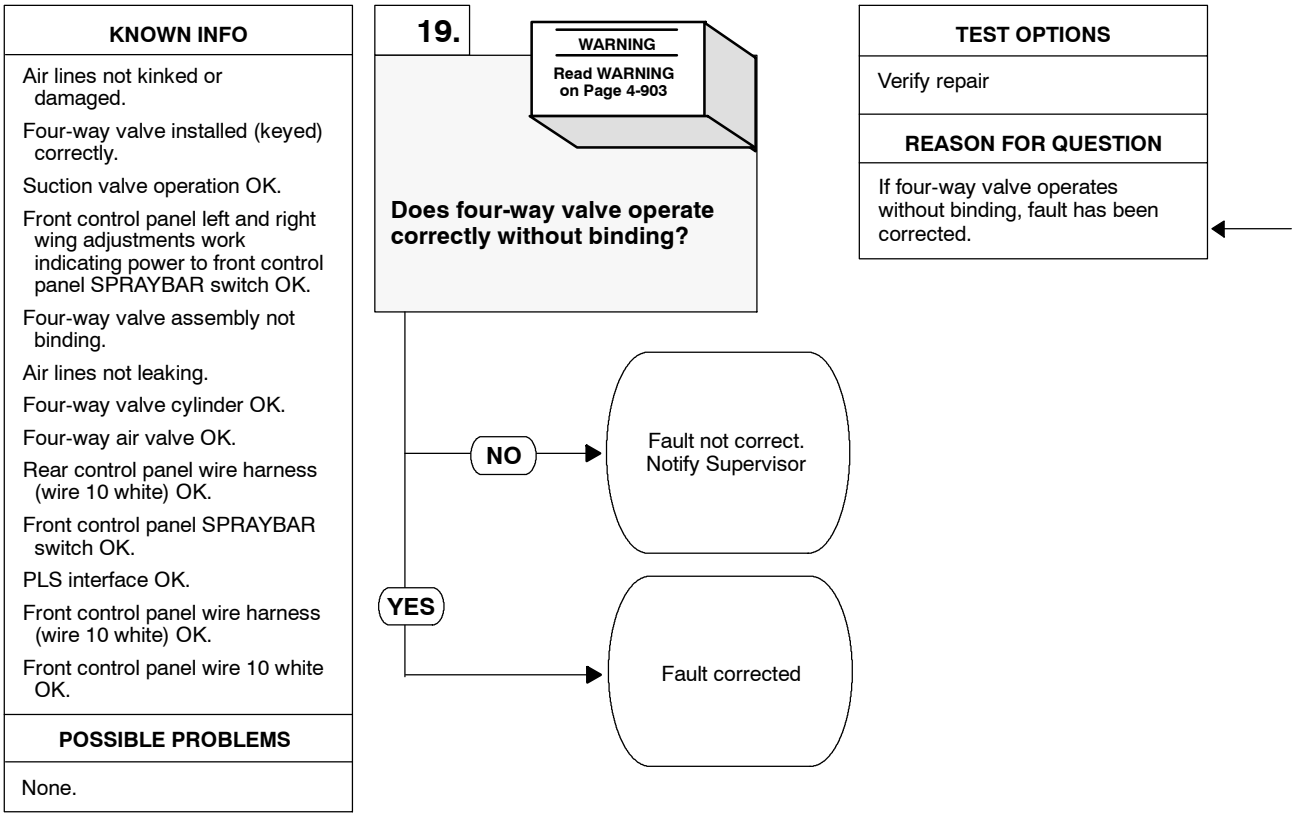
(a) If continuity is not measured, repair wire 10 white, (Para 3-80) or replace front control panel wire harness, (Para 3-62).

(b) If continuity is measured, repair wire 10 white, (Para 3-80) or replace front control panel (Para 3-76).

(4) Verify repair, go to Step 19 of this Fault.



26. FOUR-WAY VALVE DOES NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VERIFY REPAIR

(1) If removed, install cover on air valve assembly, (Para 3-27).

(2) If removed, install rear control panel, (Para 3-76).

(3) If disconnected, connect UPIK connector MC130, (Para 2-10).

(4) If removed, install front control panel, (Para 3-76).

(5) If disconnected, connect front control panel connector MC129, (Para 3-76).

(6) If off, start engine (TM 9-2320-364-10) and allow air system to charge to 100 to 120 psi (690 to 827 kPa).

(7) If off, turn front control panel POWER switch ON, (Para 2-1).

(8) If off, turn rear control panel POWER switch ON, (Para 2-1).

(9) While an assistant switches SPRAYBAR switch to ON and OFF position, (Para 2-1), check if four-way valve is positioned at the 6 o'clock and 9 o'clock position without binding.

  (a) If valve is not positioned at the 6 o'clock and 9 o'clock position without binding. fault has not been corrected. Notify Supervisor.

  (b) If valve is positioned at the 6 o'clock and 9 o'clock position without binding. fault has been corrected.

(10) Turn rear control panel POWER switch OFF, (Para 2-1).

(11) Turn front control panel POWER switch OFF, (Para 2-1).

(12) Turn hydraulic select switch OFF, (TM 9-2320-364-10).

(13) Shut OFF engine, (TM 9-2320-364-10).



FOUR-WAY VALVE

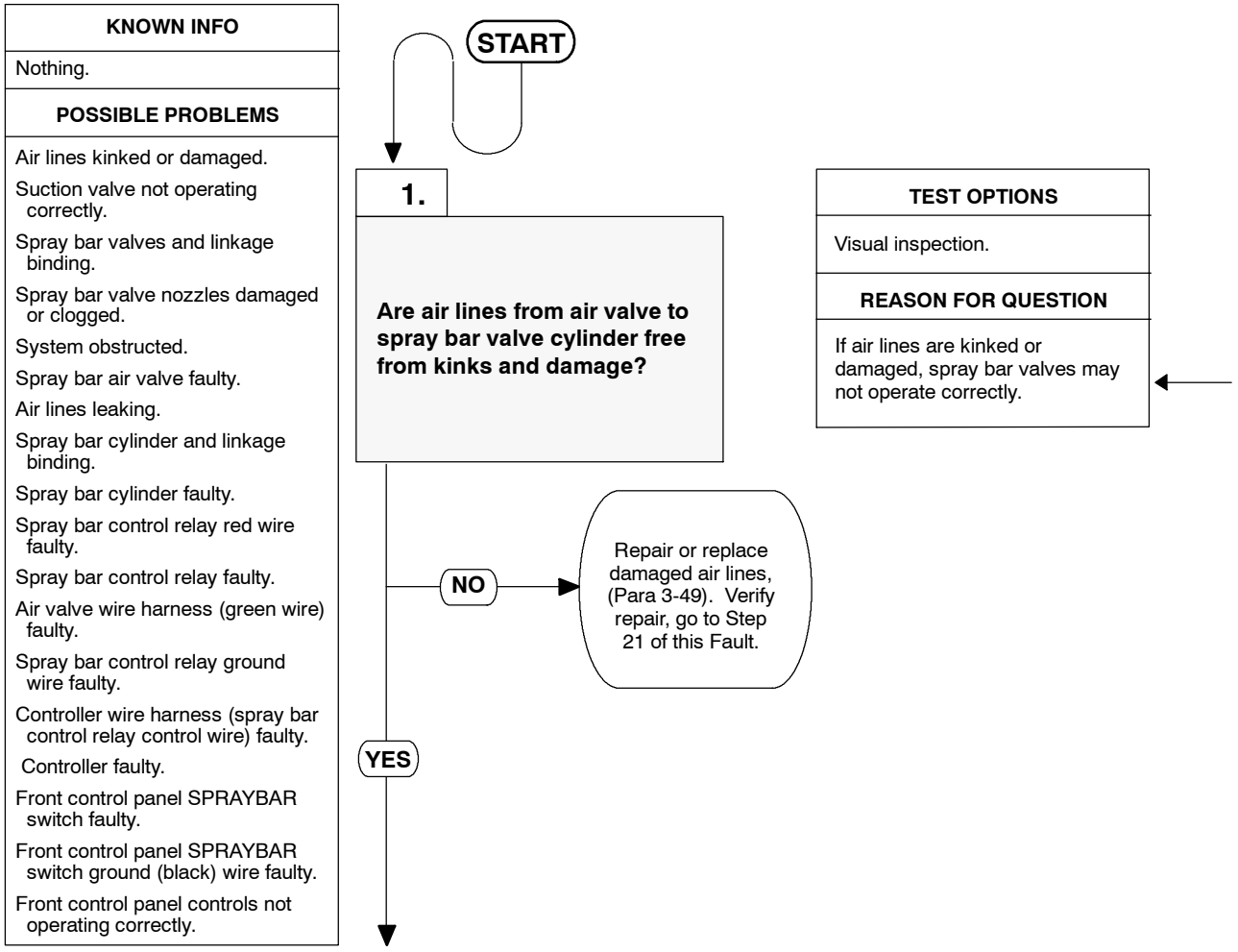
27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY.

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanics: Automotive (Item 14, Appendix F)
Multimeter (Item 8, Appendix F)

Personnel Required
Two

Equipment Condition
Bituminous distributor loaded on PLS, (Para 2-5)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)



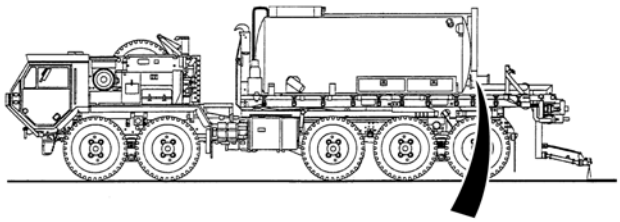


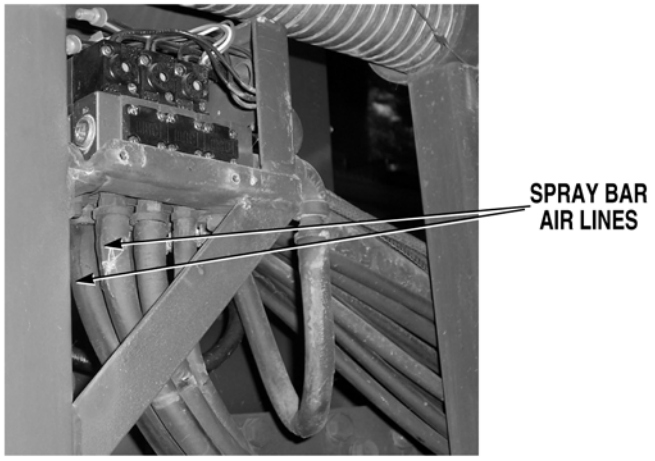
VISUAL INSPECTION

Check air lines from air valve to spray bar valve cylinder for kinks and damage.

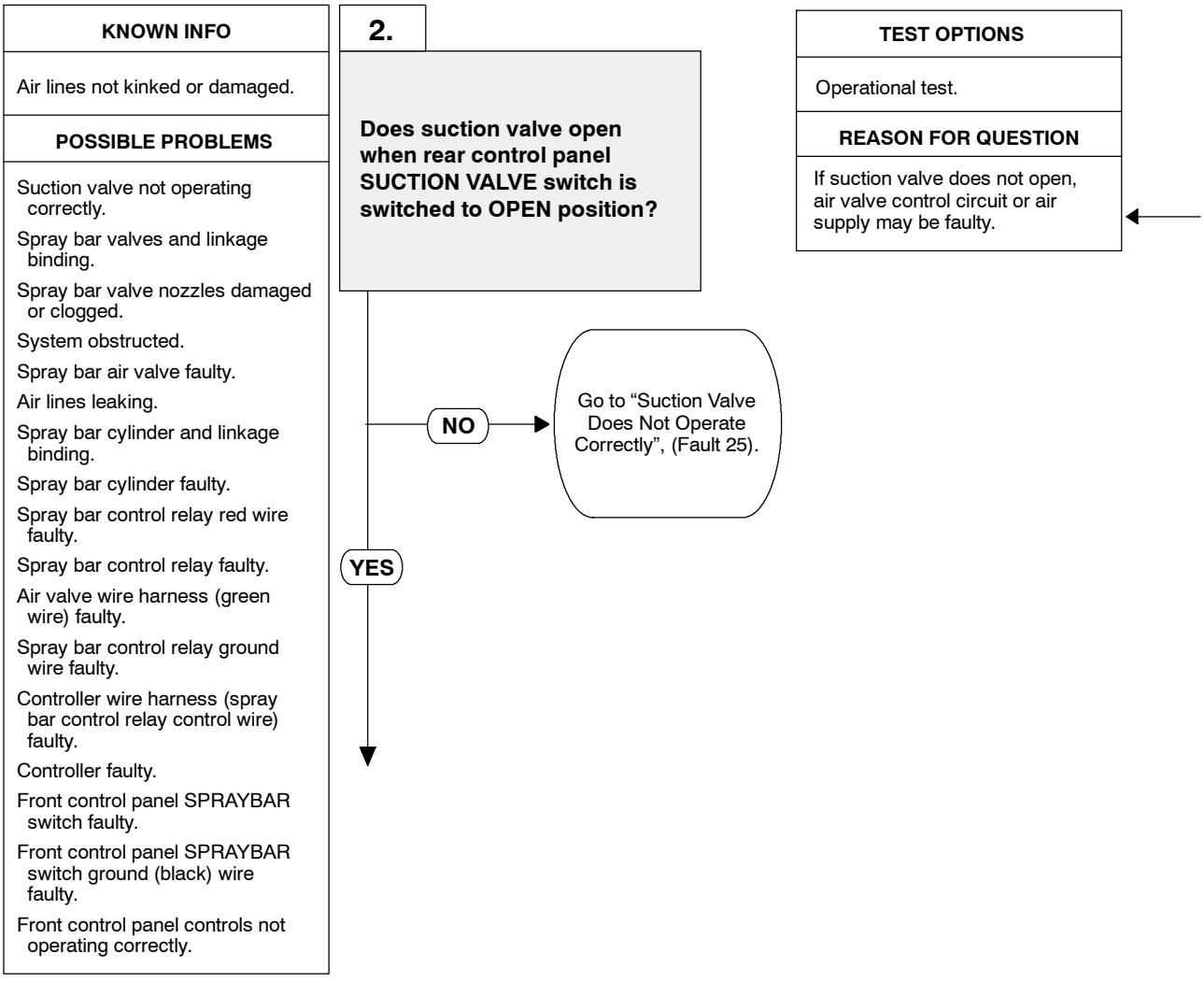
(a) If air lines are kinked or damaged, repair or replace damaged air lines, (Para 3-49). Verify repair, go to Step 21 of this Fault.

(b) If air lines are free from kinks and damage, go to Step 2 of this Fault.





27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



OPERATIONAL TEST

(1) Start engine, (TM 9-2320-364-10) and allow air system to charge 100 to 120 psi (690 to 827 kPa).

(2) If stowed, operate spray bar unstow function to deploy spray bar, (Para 2-17).

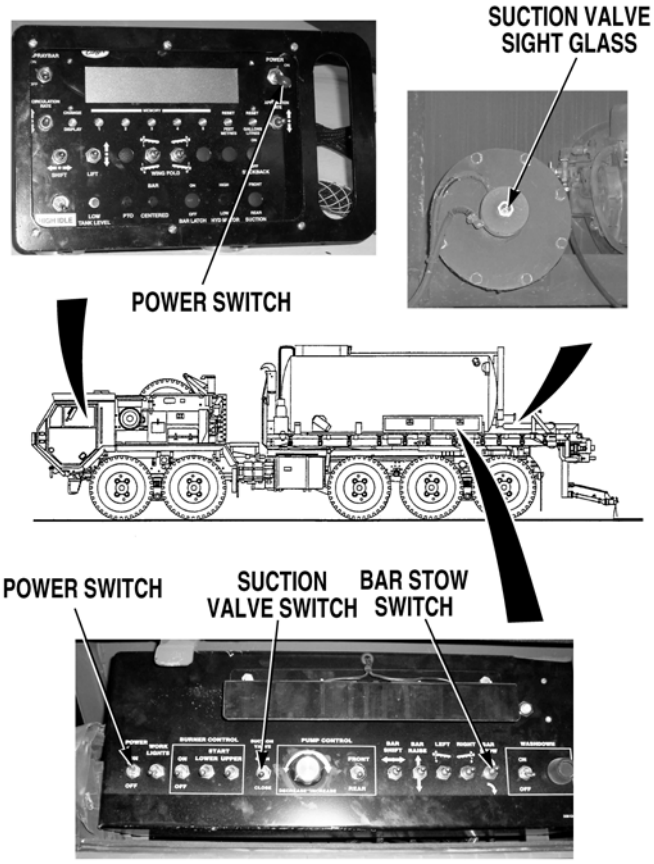
(3) Turn front control panel POWER switch ON, (Para 2-1).

(4) Turn rear control panel POWER switch ON, (Para 2-1)

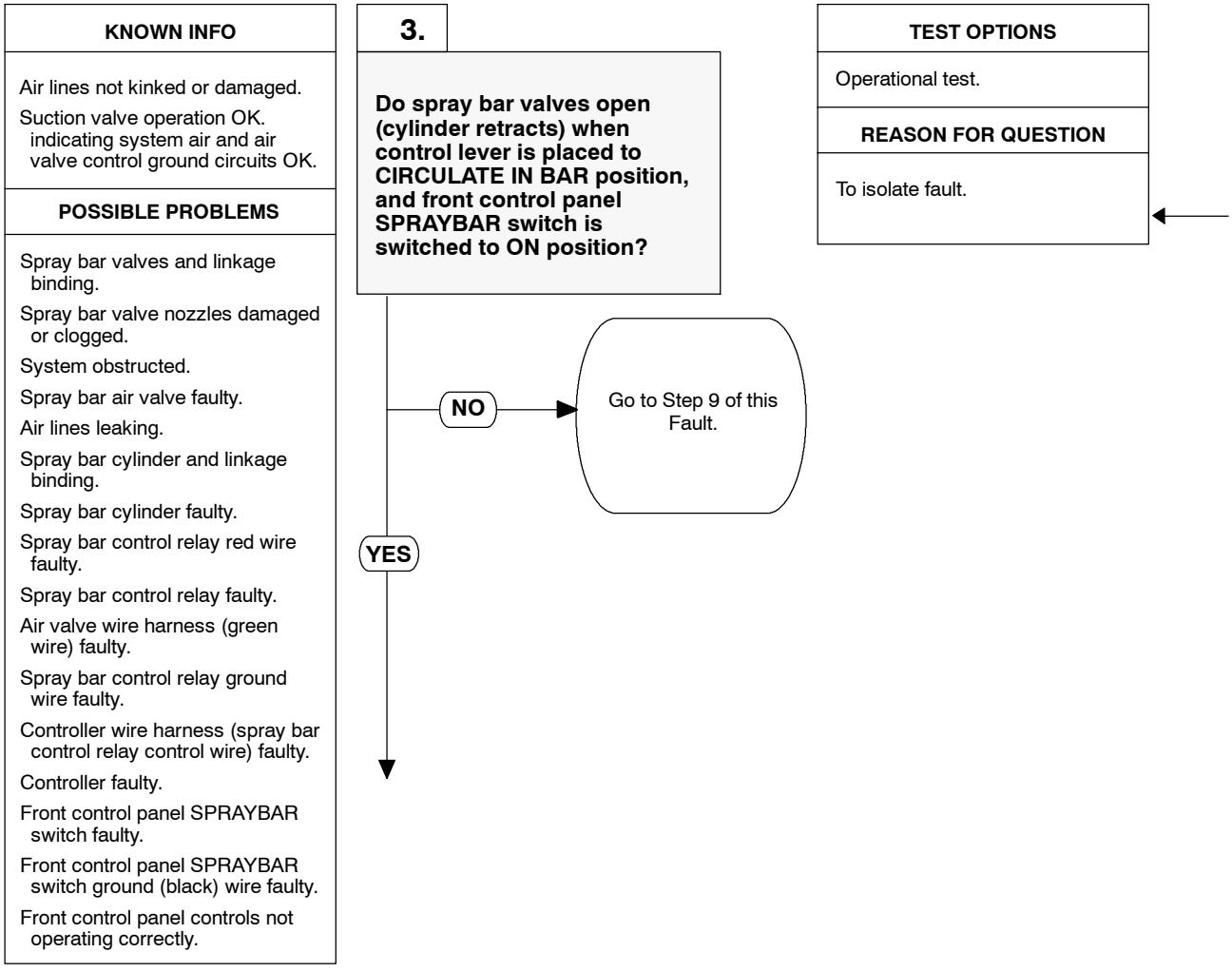
(5) While assistant switches rear control panel SUCTION VALVE switch to OPEN position, look through sight glass on suction valve. Check if valve moves to open position.

(a) If suction valve does not open, go to “Suction Valve Does Not Operate Correctly” (Fault 25).

(b) If suction valve opens, go to Step 3 of this Fault.



27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



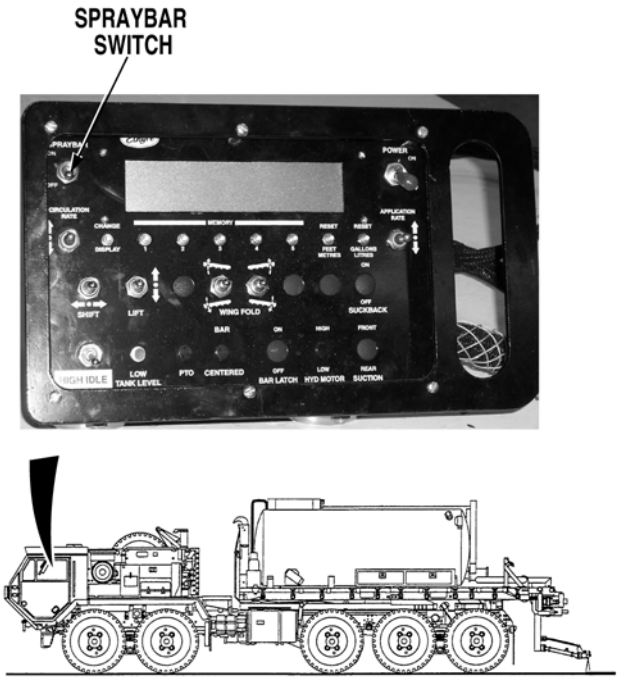
OPERATIONAL TEST

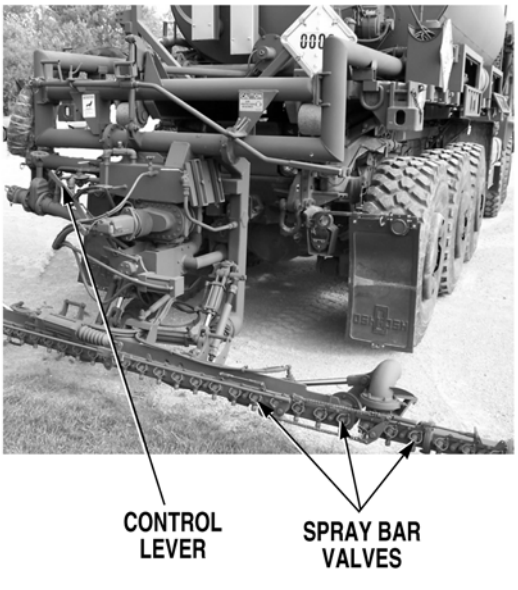
(1) Position four-way valve control lever in CIRCULATE IN BAR position, (Para 2-16).

(2) While assistant switches front control panel SPRAYBAR switch to ON position, check if spray bar valves move to open position (cylinder retracts).

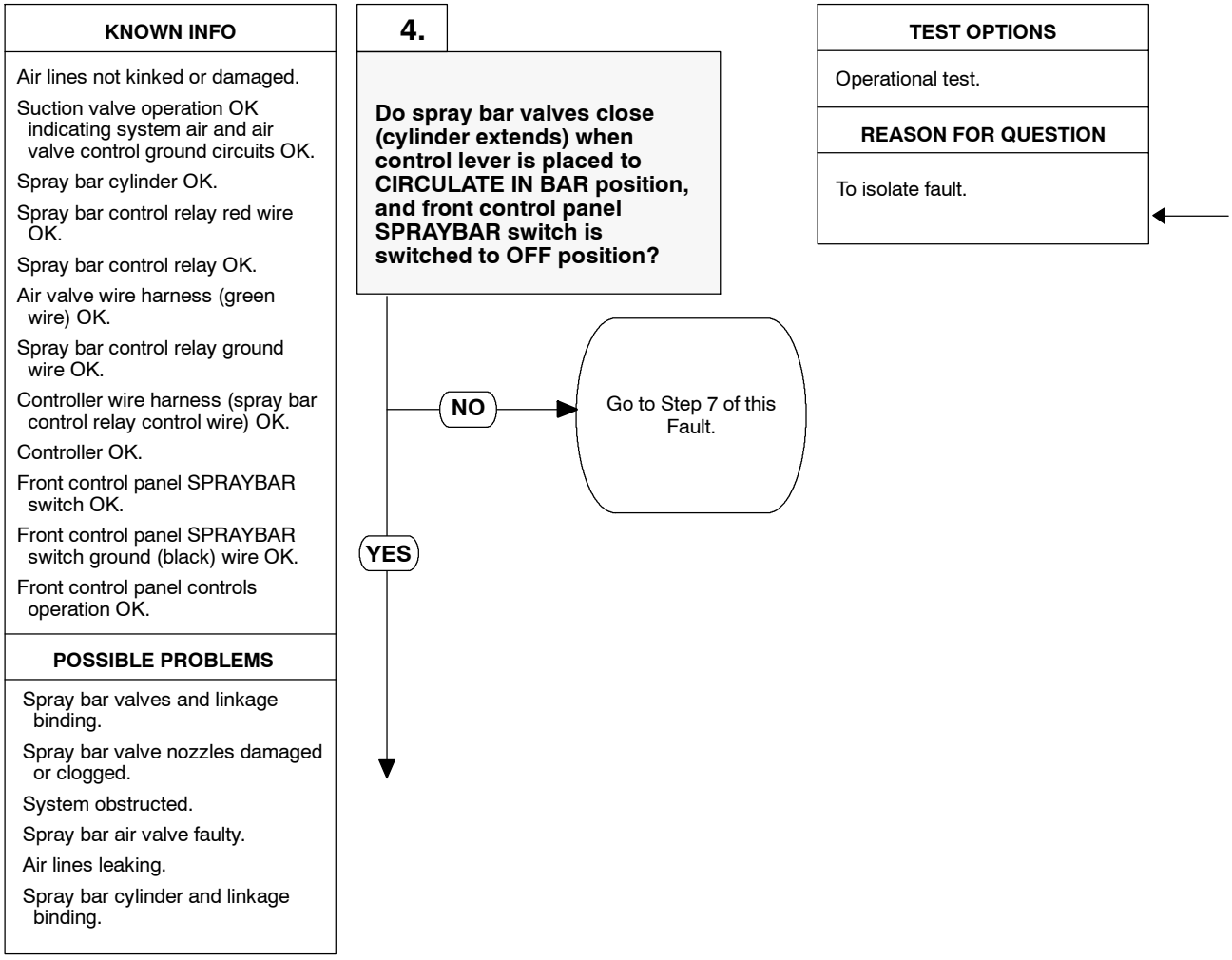
(a) If valves do not move to the open position, go to Step 9 of this Fault.

(b) If valves move to the open position, go to Step 4 of this Fault.



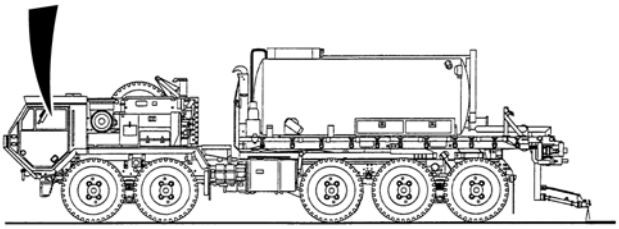


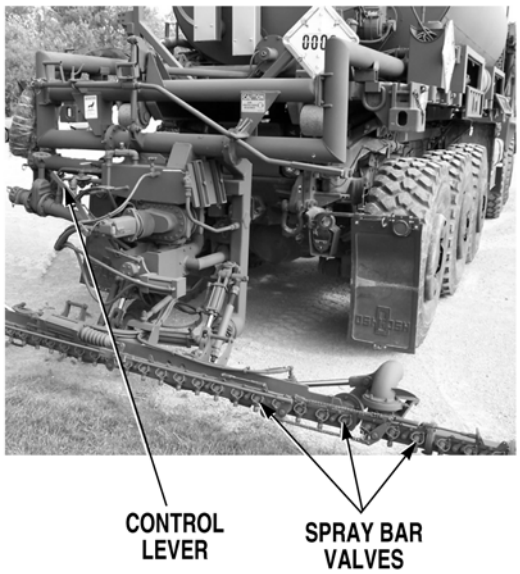
27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



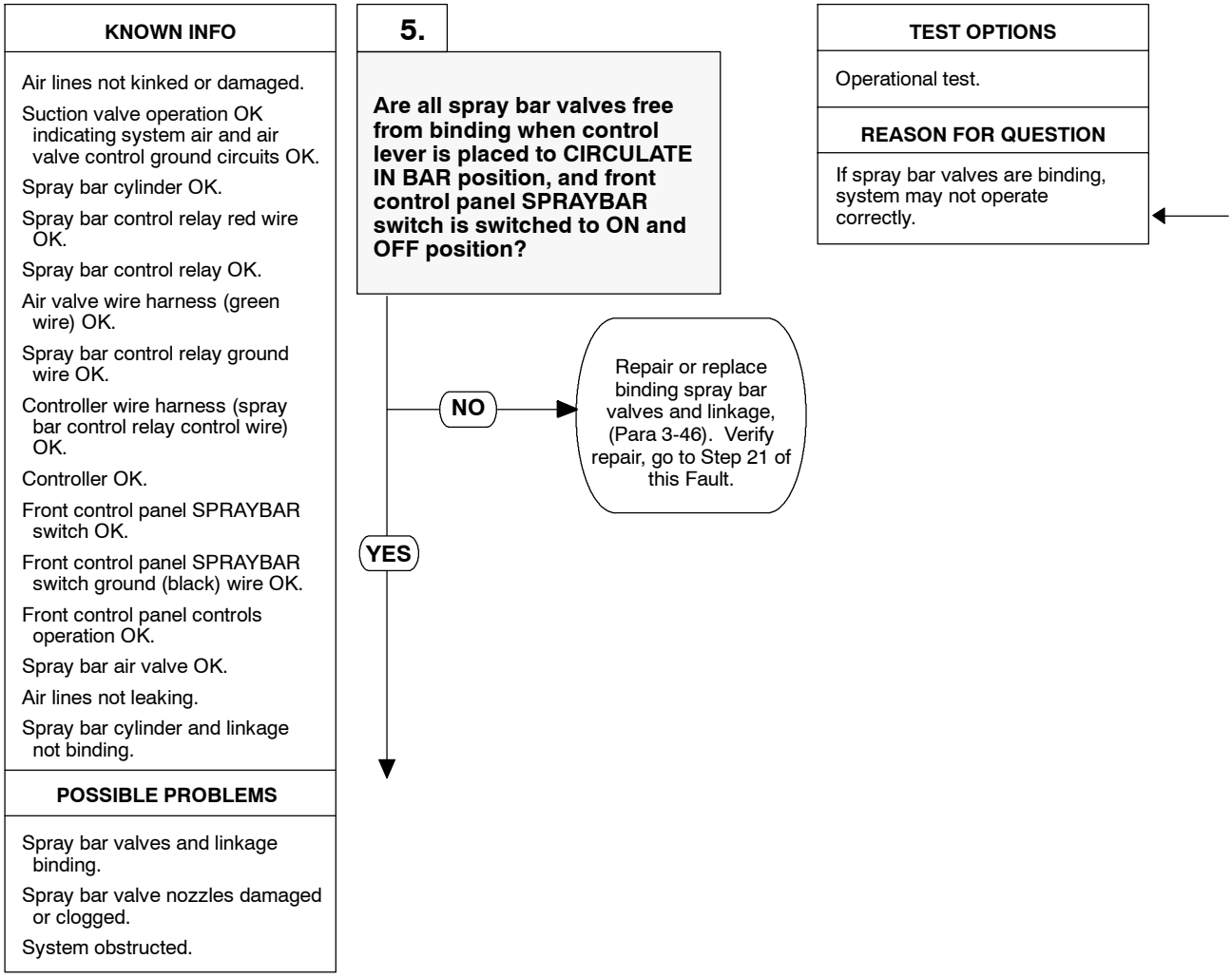
OPERATIONAL TEST
While assistant switches SPRAYBAR switch to OFF position, (Para 2-1), check if spray bar valves move to closed position (cylinder extends). (a) If valves are not positioned to closed position, go to Step 7 of this Fault. (b) If valves are positioned to closed position, go to Step 5 of this Fault.





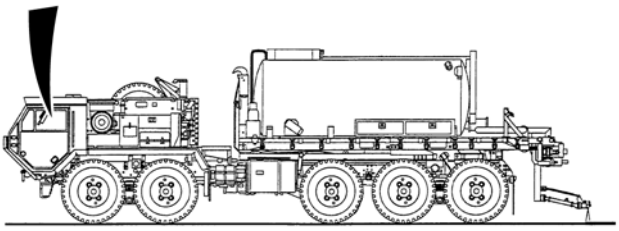


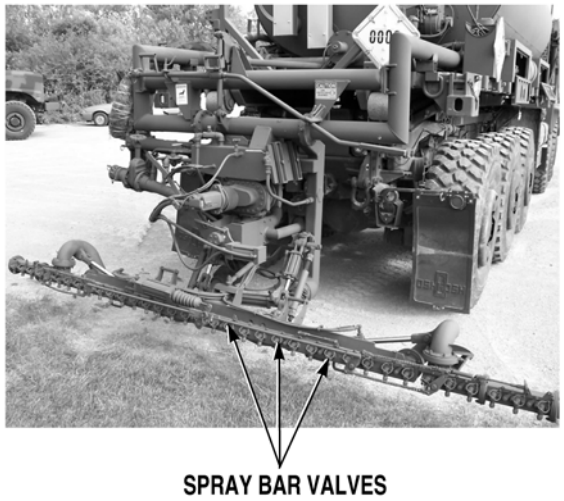
27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



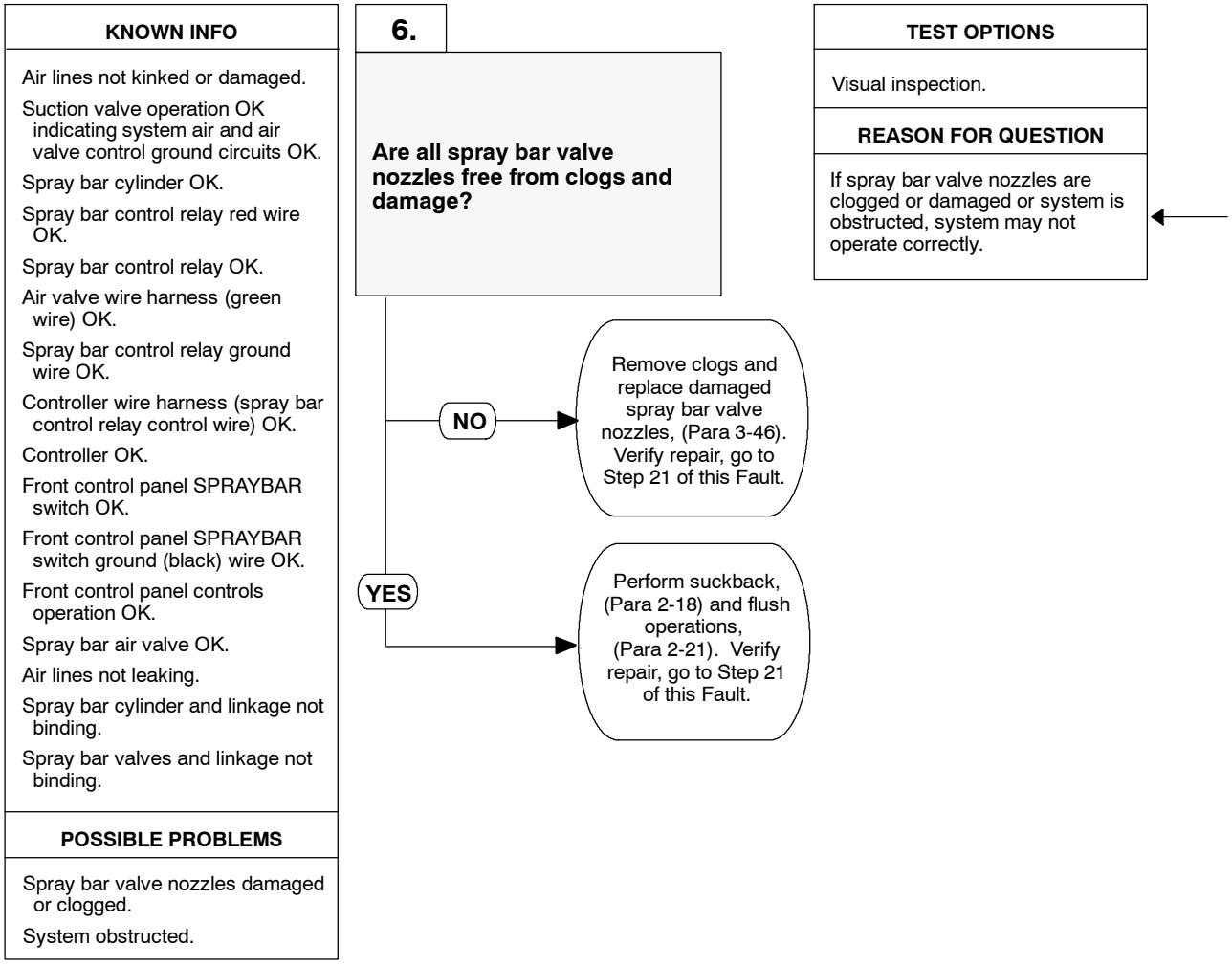


OPERATIONAL TEST
While assistant switches SPRAYBAR switch to ON and OFF positions, (Para 2-1). Check if spray bar valves are positioned to the open and closed positions without binding. (a) If valves are binding, repair or replace binding valves and linkage, (Para 3-46). Verify repair, go to Step 21 of this Fault. (b) If valves are not binding, go to Step 6 of this Fault.





27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



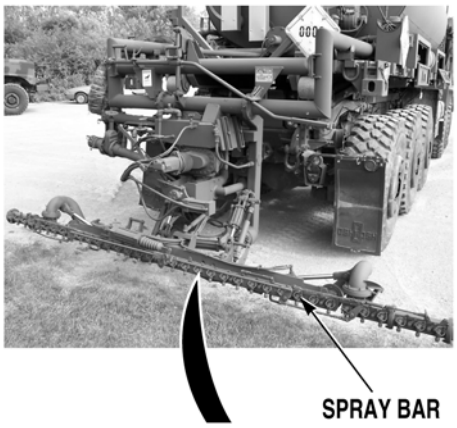
VISUAL INSPECTION

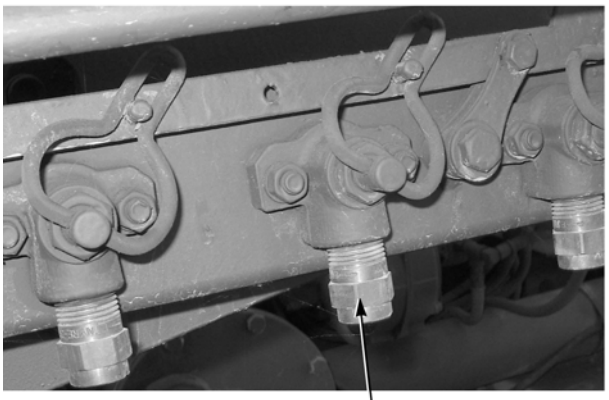
(1) Inspect spray bar valve nozzles for clogs and damage. Remove nozzles if required, (Para 3-46)

  (a) If valve nozzles are clogged or damaged, remove clogs and replace damaged nozzles, (Para 3-46).

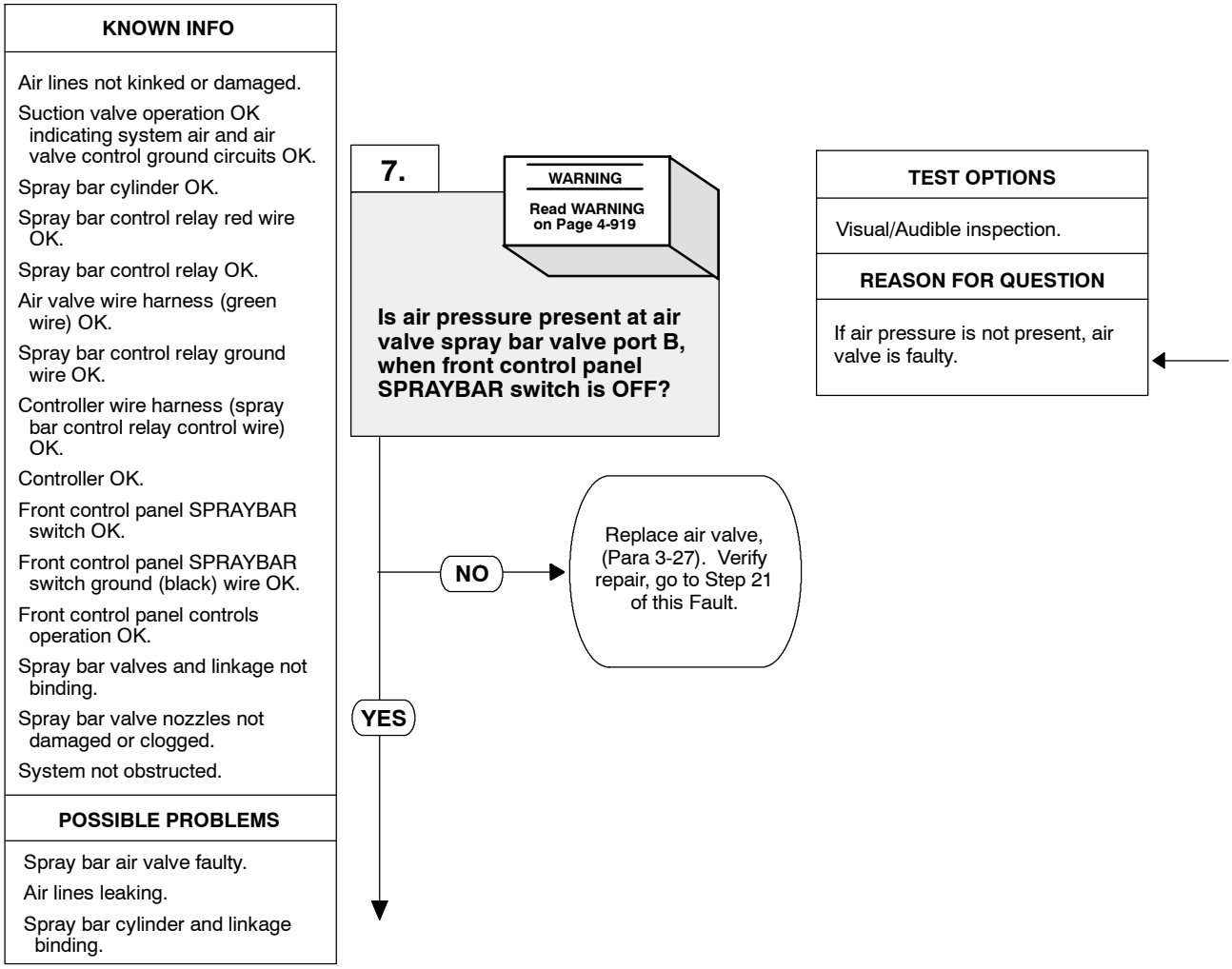
  (b) If valve nozzles are free from clogs and damage, perform suckback, (Para 2-18) and flush operations, (Para 2-21).

(2) Verify repair, go to Step 21 of this Fault.





27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



WARNING

Air lines are under extreme pressure. Ensure all personnel wear protective goggles when working around compressed air. Failure to comply may result in serious injury or death to personnel.

VISUAL/AUDIBLE INSPECTION

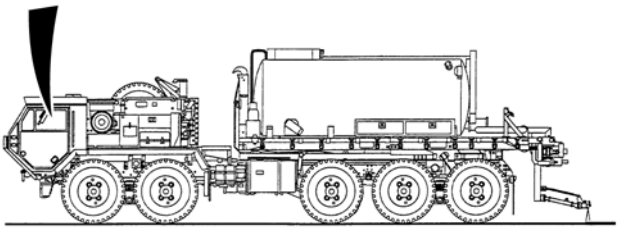
(1) Turn front control panel SPRAYBAR switch OFF, (Para 2-1).

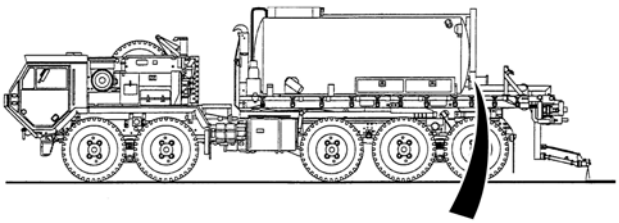
(2) Slowly disconnect air line at air valve spray bar valve port B. Listen for air discharging from air connection.

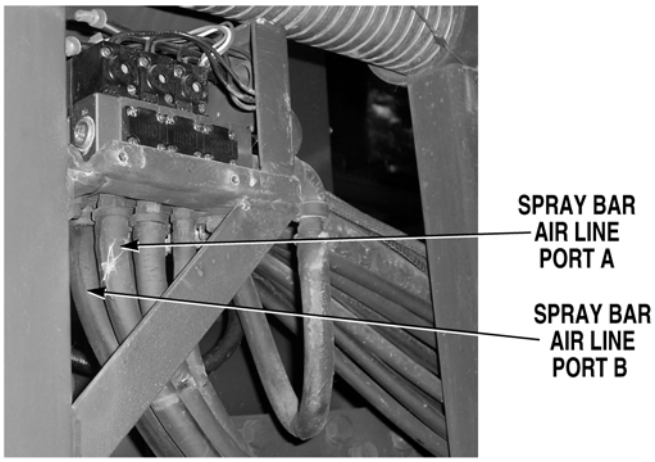
(a) If air pressure is not present at air valve port B, replace air valve, (Para 3-27). Verify repair, go to Step 21 of this Fault.

(b) If air pressure is present at air valve port B, reconnect air line and go to Step 8 of this Fault.

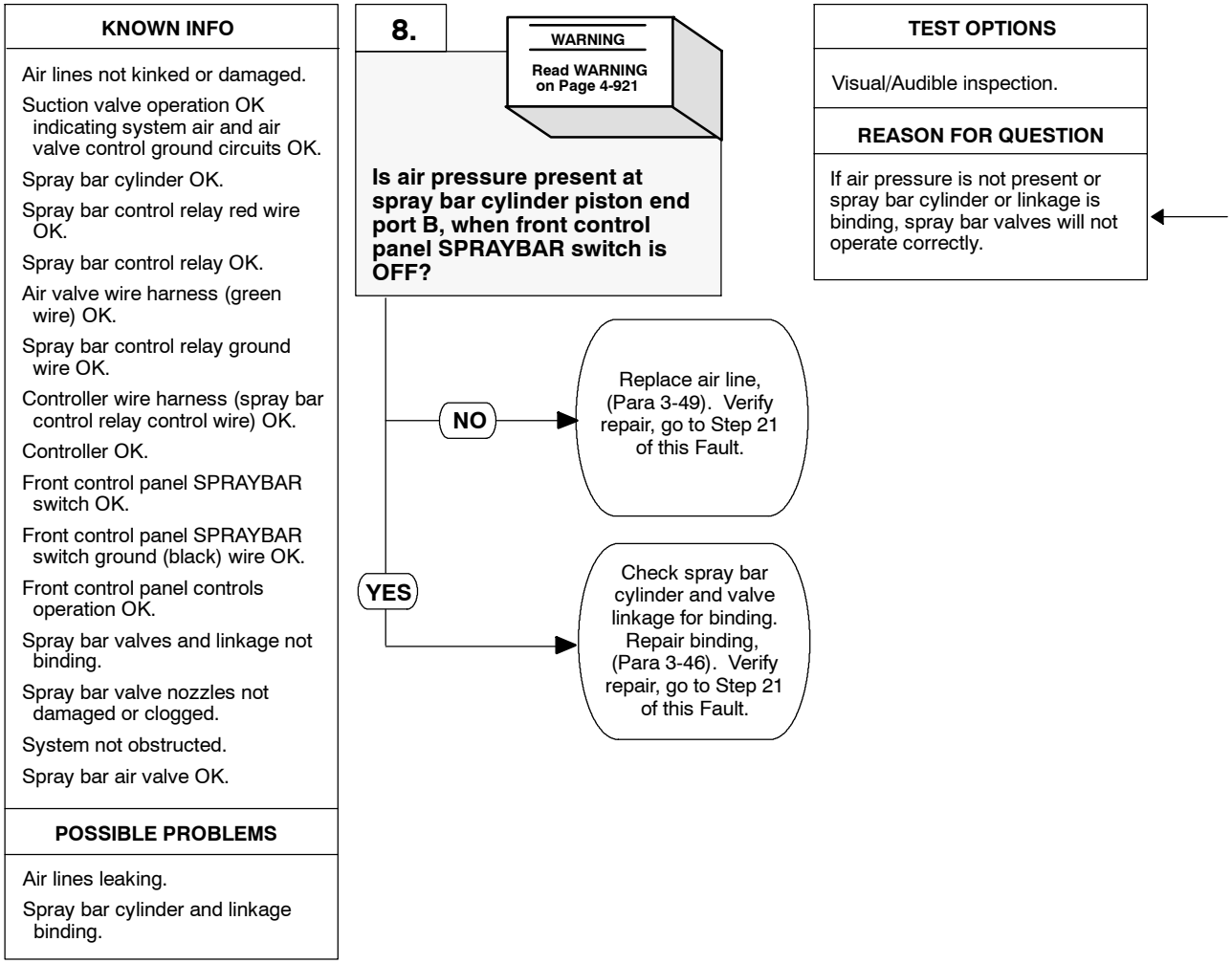








27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



WARNING

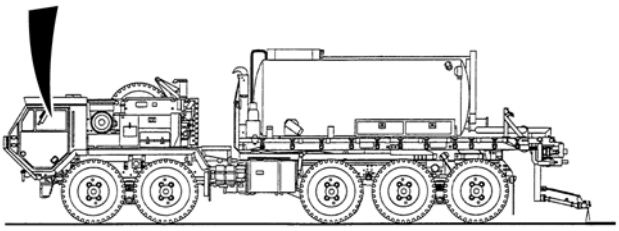
Air lines are under extreme pressure. Ensure all personnel wear protective goggles when working around compressed air. Failure to comply may result in serious injury or death to personnel.

VISUAL/AUDIBLE INSPECTION

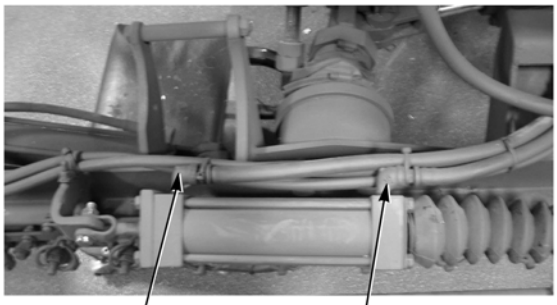
(1) Slowly disconnect air line at spray bar cylinder piston end port B. Listen for air discharging from air connection.
   (a) If air pressure is not present at cylinder port B, repair or replace air line, (Para 3-49).
   (b) If air pressure is present at cylinder port, reconnect air line and check spray bar cylinder and valve linkage for binding. Repair binding, (Para 3-46).

(2) Verify repair, go to Step 21 of this Fault.

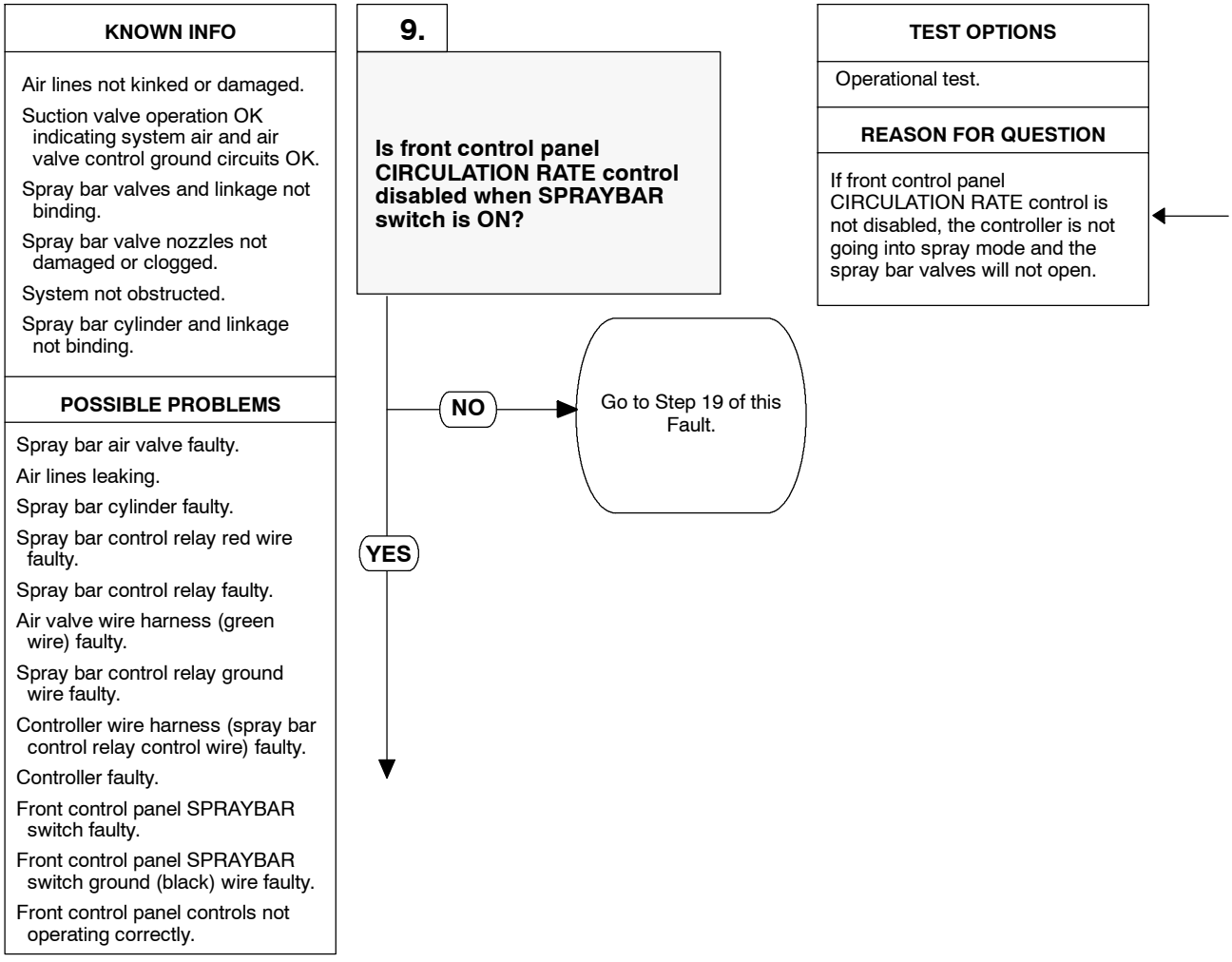


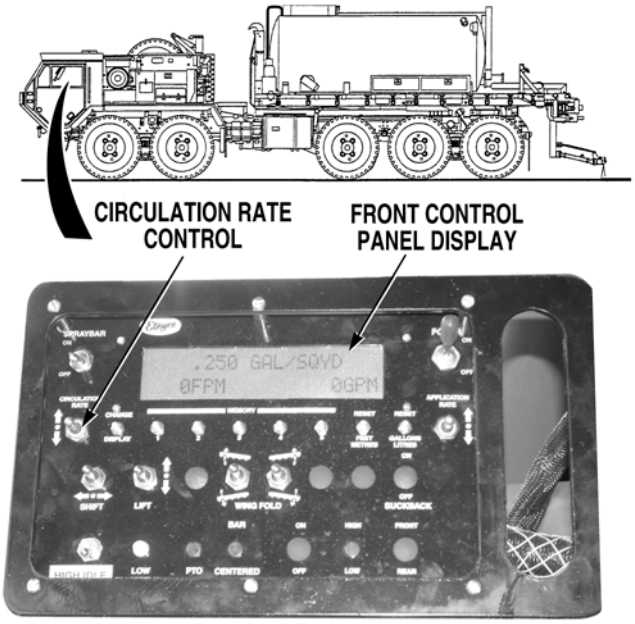






27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).





OPERATIONAL TEST

(1) If OFF, turn hydraulic select switch to CRANE/SRW, (TM 9-2320-364-10).

(2) Position front control panel SPRAYBAR switch to ON position.

NOTE

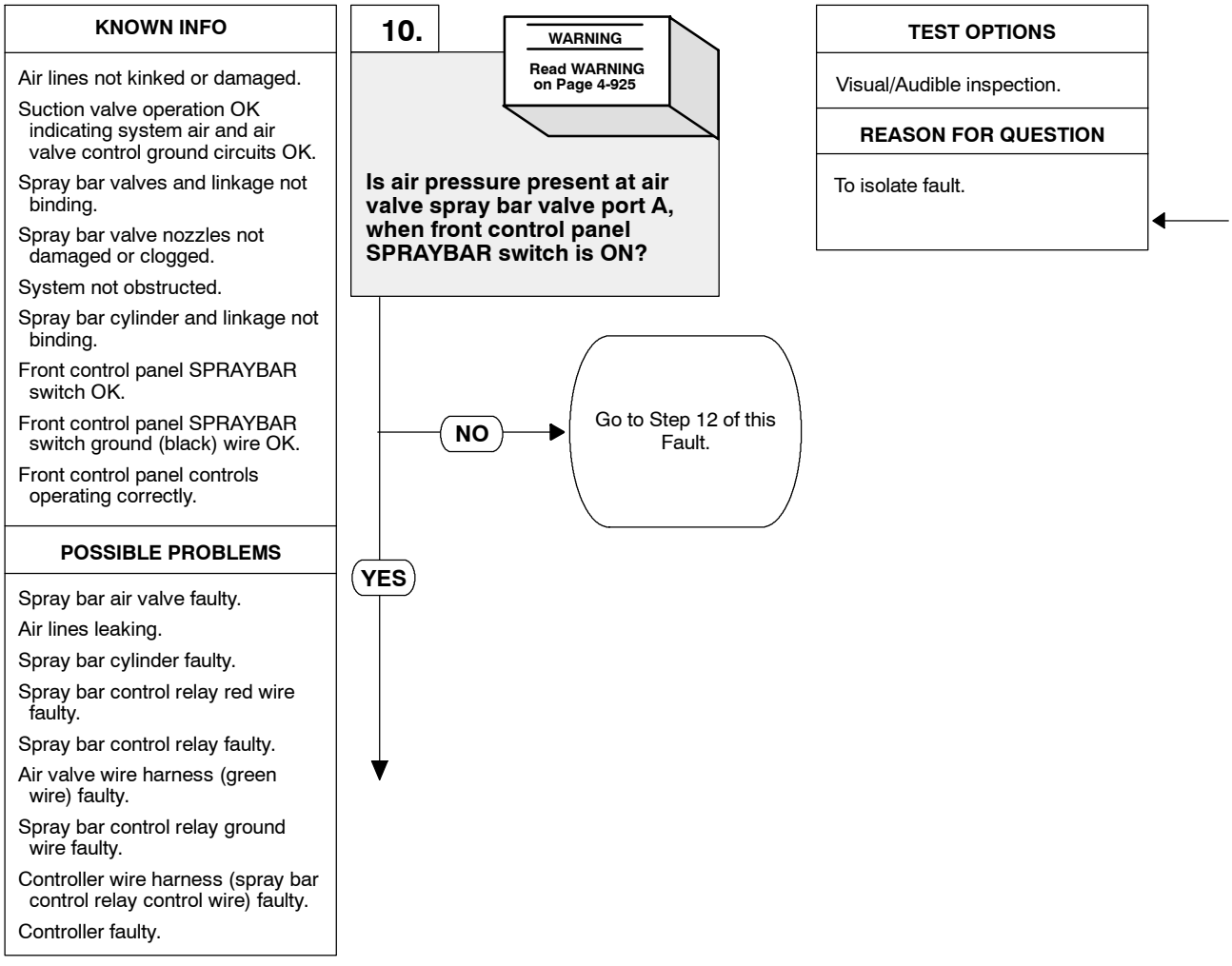
Asphalt pump speed is monitored by observing front control panel GPM (gallons per minute) display.

(3) Adjust front control panel CIRCULATION RATE control, check if asphalt pump speed changes by observing GPM (gallons per minute) display.

(a) If asphalt pump speed (GPM display) changes, control is not disabled. Go to Step 19 of this Fault.

(b) If asphalt pump speed (GPM display) does not change, control is disabled. Go to Step 10 of this Fault.

27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



WARNING

Air lines are under extreme pressure. Ensure all personnel wear protective goggles when working around compressed air. Failure to comply may result in serious injury or death to personnel.

VISUAL/AUDIBLE INSPECTION

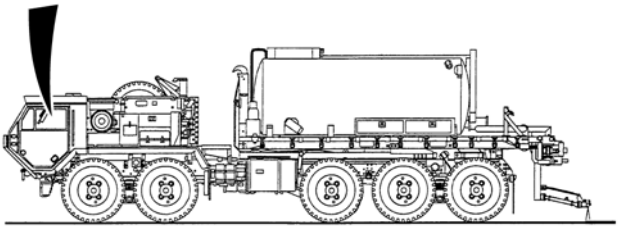
(1) Turn front control panel SPRAYBAR switch ON, (Para 2-1).

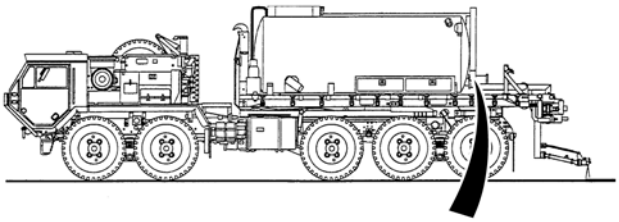
(2) Slowly disconnect air line at spray bar valve, port A. Listen for air discharging from air connection.

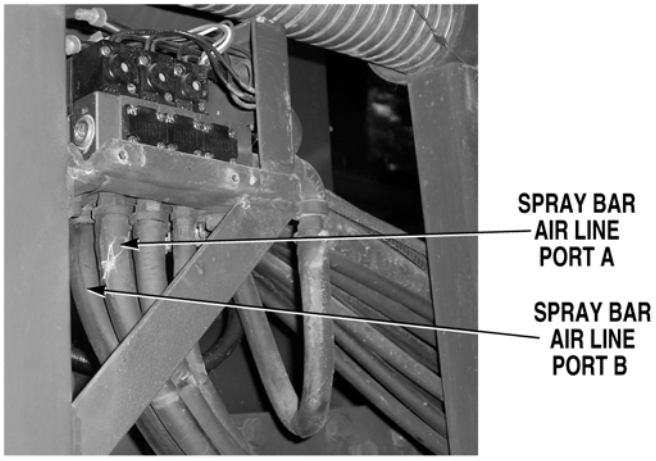
(a) If air pressure is not present at air valve port A, reconnect air line and go to Step 12 of this Fault.

(b) If air pressure is present at air valve port A, reconnect air line and go to Step 11 of this Fault.

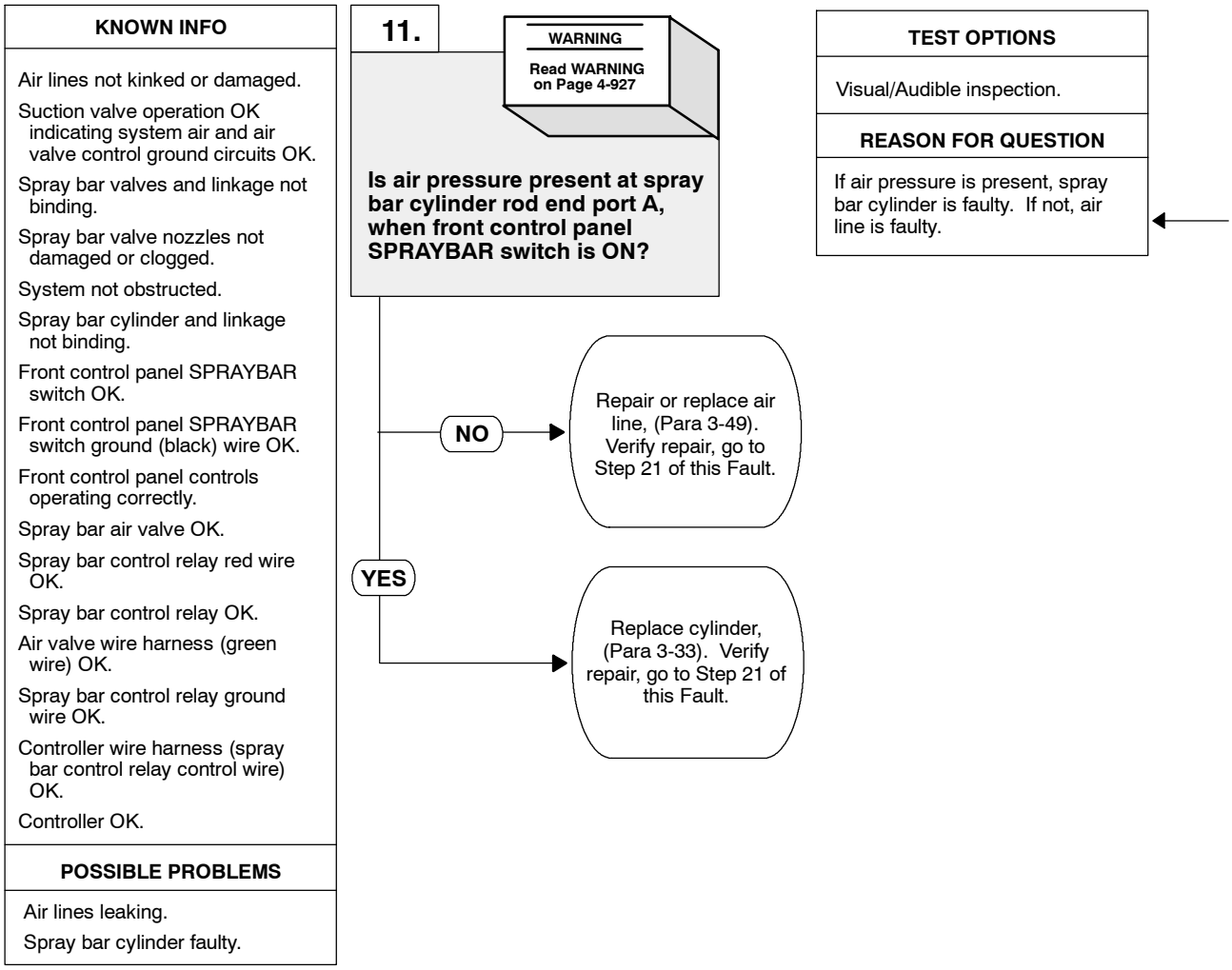








27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



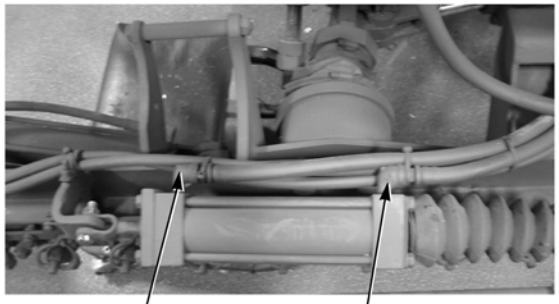
WARNING

Air lines are under extreme pressure. Ensure all personnel wear protective goggles when working around compressed air. Failure to comply may result in serious injury or death to personnel.

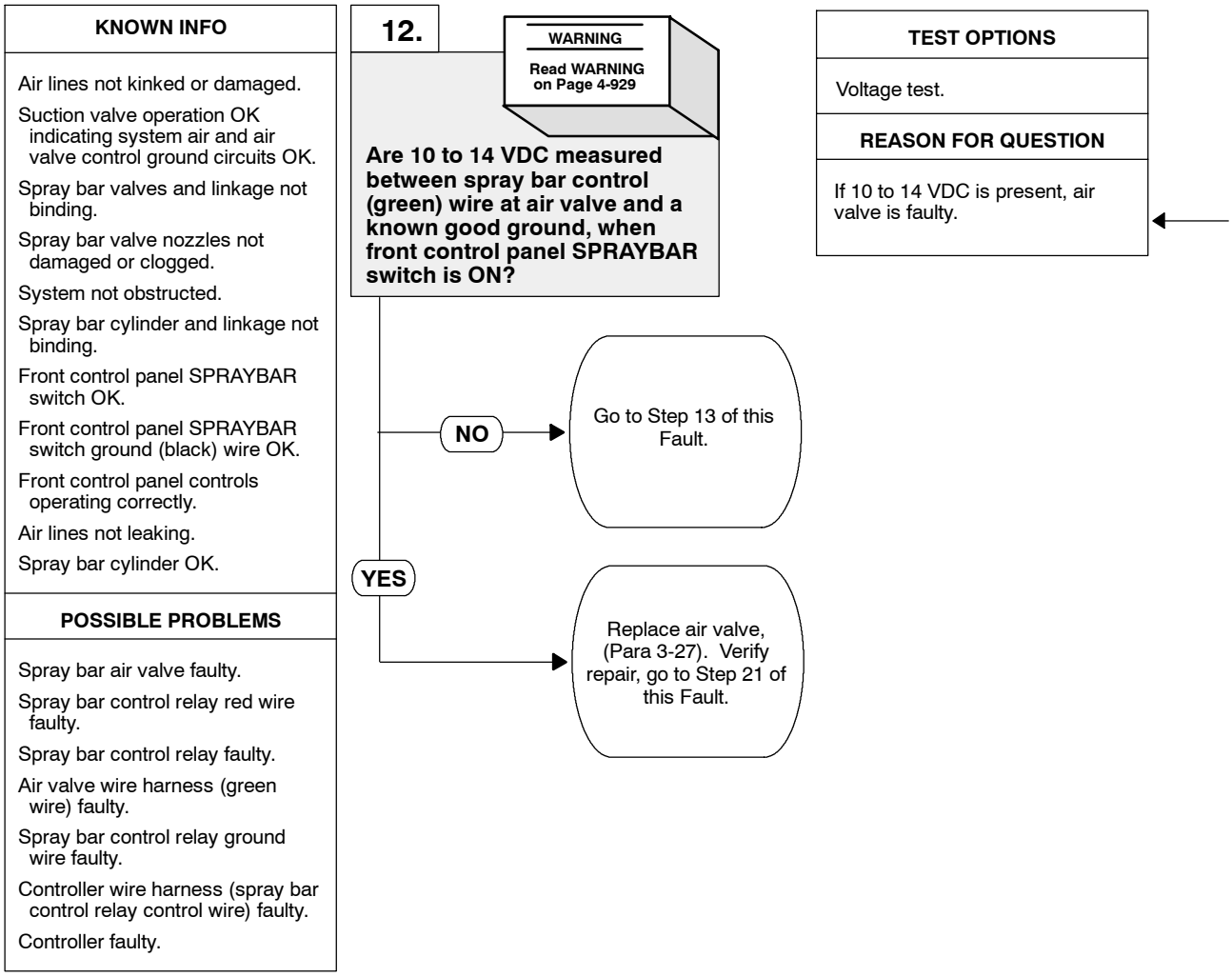
VISUAL/AUDIBLE INSPECTION

(1) Slowly disconnect air line at spray bar cylinder rod end port A. Listen for air discharging from air connection.
   (a) If air pressure is not present at cylinder port, repair or replace air line, (Para 3-49).
   (b) If air pressure is present at cylinder port, replace cylinder, (Para 3-33).
(2) Verify repair, go to Step 21 of this Fault.





27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death may occur.

VOLTAGE TEST

(1) Turn front control panel POWER switch ON, (Para 2-1).

(2) Turn front control panel SPRAYBAR switch ON, (Para 2-1).

(3) Turn rear control panel POWER switch ON, (Para 2-1).

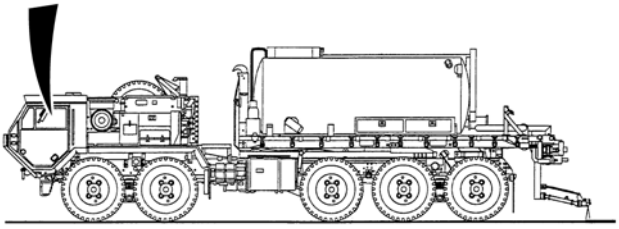
(4) Connect (backprobe) positive (+) multimeter lead to spray bar control (green) wire at air valve.

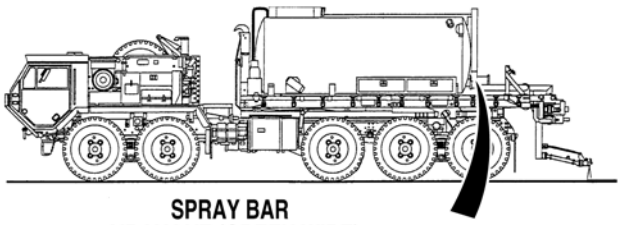
(5) Connect negative (-) multimeter lead to a known good ground.

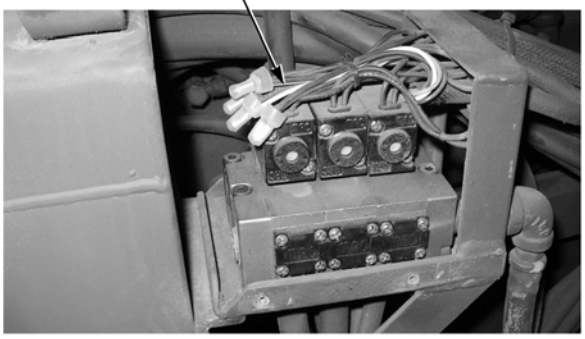
(a) If 10 to 14 VDC are not present, go to Step 13 of this Fault.

(b) If 10 to 14 VDC are present, replace air valve, (Para 3-27). Verify repair, go to Step 21 of this Fault.

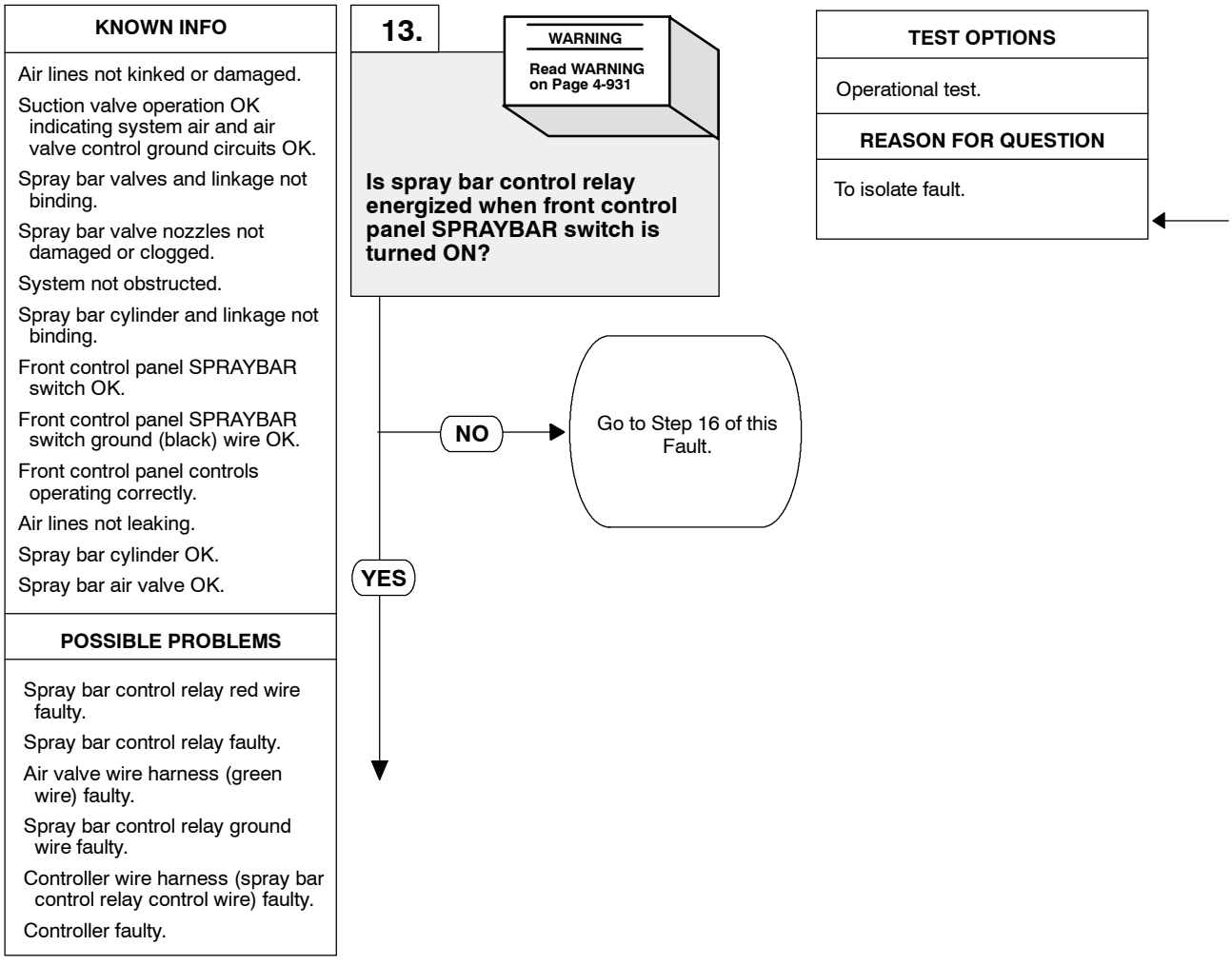








27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death may occur.

OPERATIONAL TEST

(1) Turn rear control panel POWER switch OFF, (Para 2-1).

(2) Remove rear control panel, (Para 3-76).

(3) Turn rear control panel POWER switch ON, (Para 2-1).

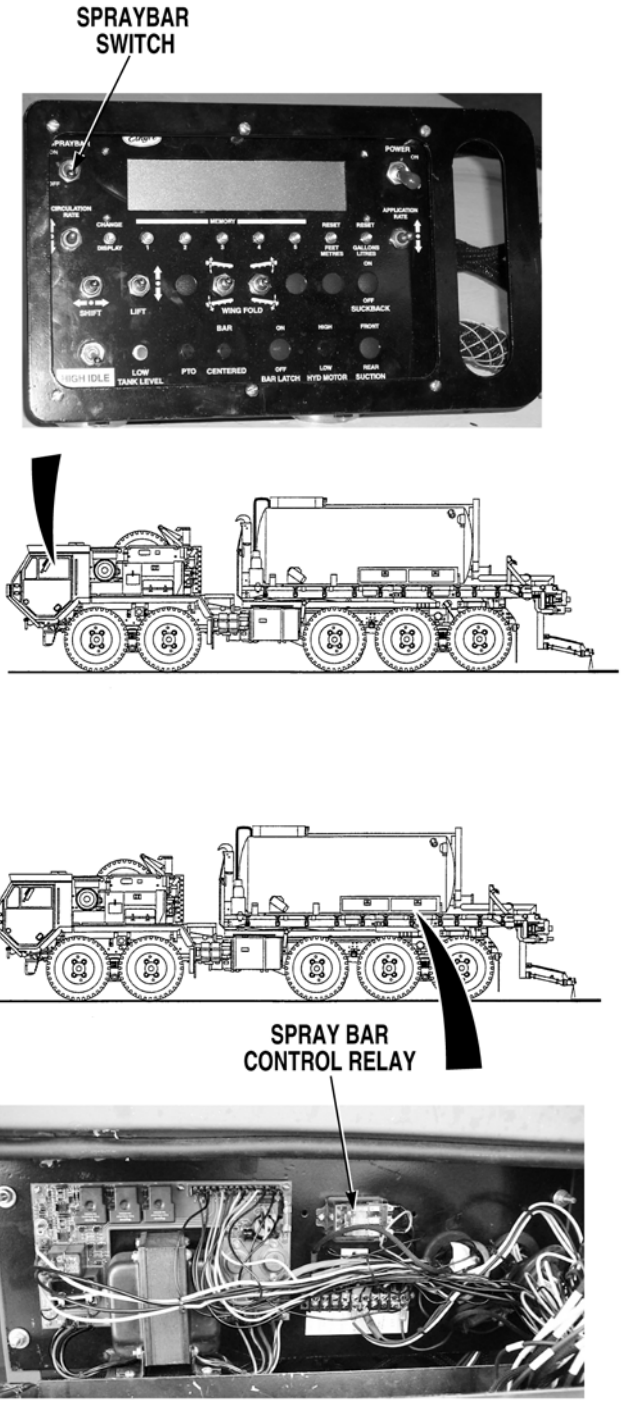
NOTE

Spray bar control relay operation is verified by checking if relay contacts open and close and audible click is heard when relay is energized.

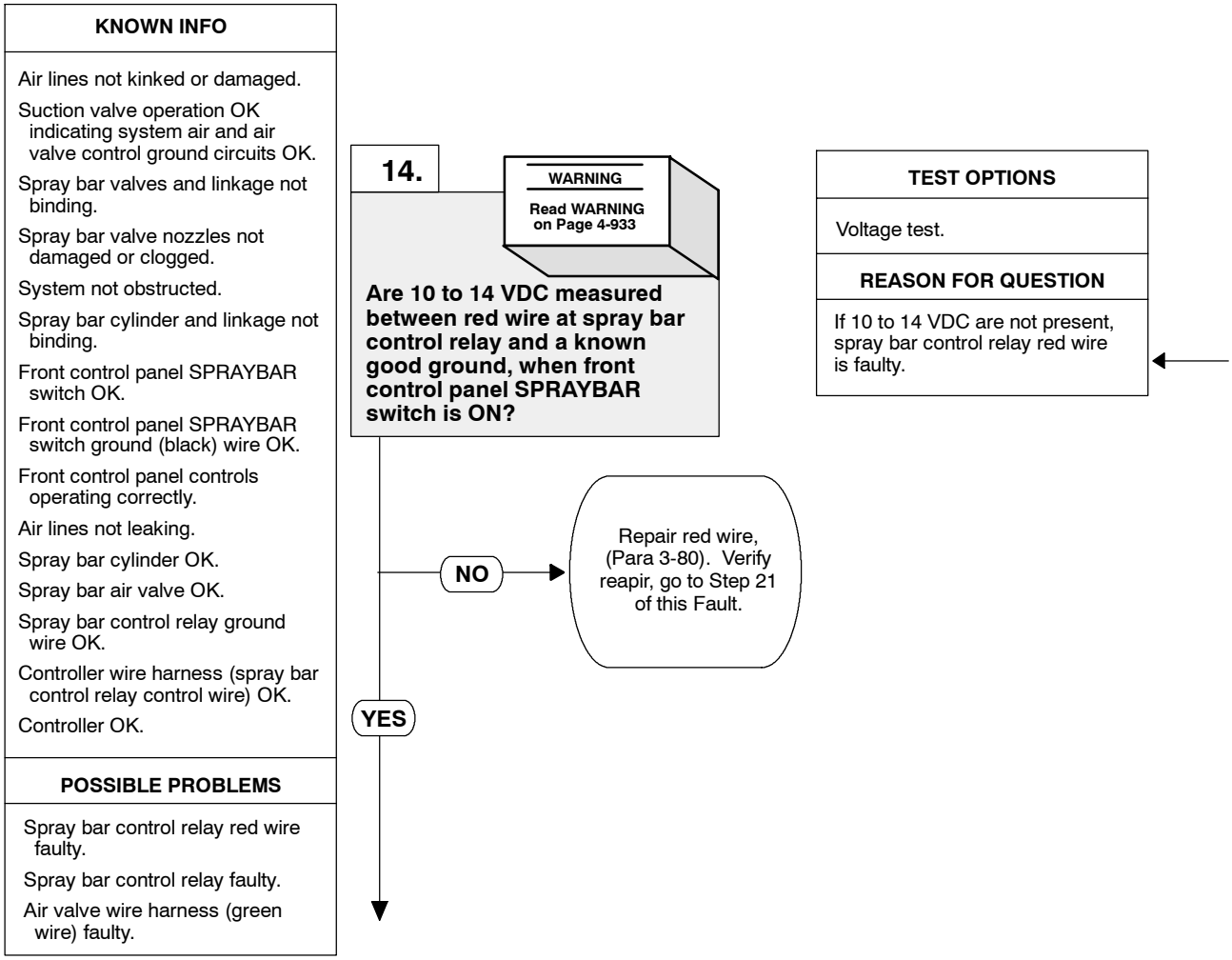
(4) While an assistant turns front control panel SPRAYBAR switch OFF and ON, (Para 2-1), check if spray bar control relay contacts open and close.

(a) If relay contacts do not open and close, go to Step 16 of this Fault.

(b) If relay contacts open and close, go to Step 14 of this Fault.



27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death may occur.

VOLTAGE TEST

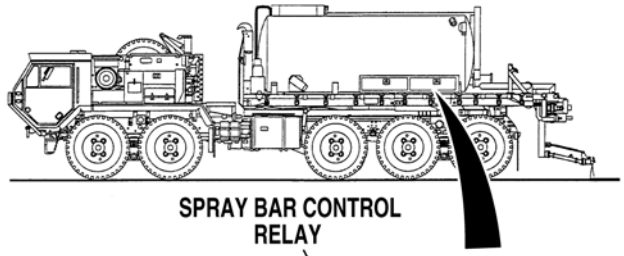
(1) Turn front control panel SPRAYBAR switch ON, (Para 2-1).

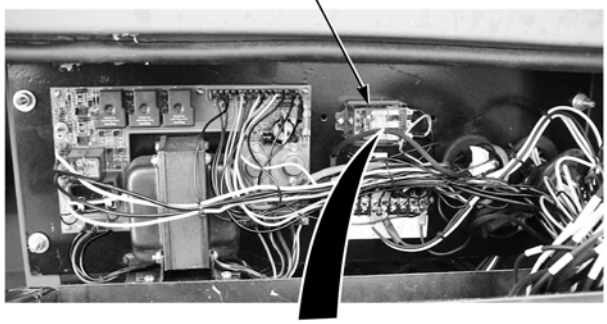
(2) Connect positive (+) multimeter lead to red wire at spray bar control relay.

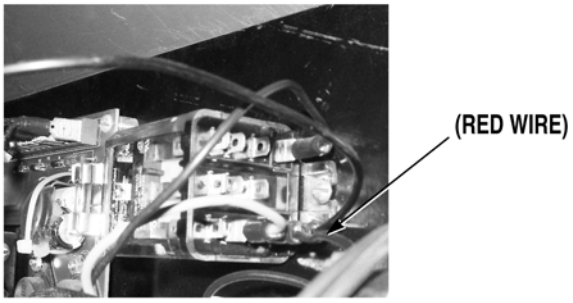
(3) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, repair red wire, (Para 3-80). Verify repair, go to Step 21 of this Fault.

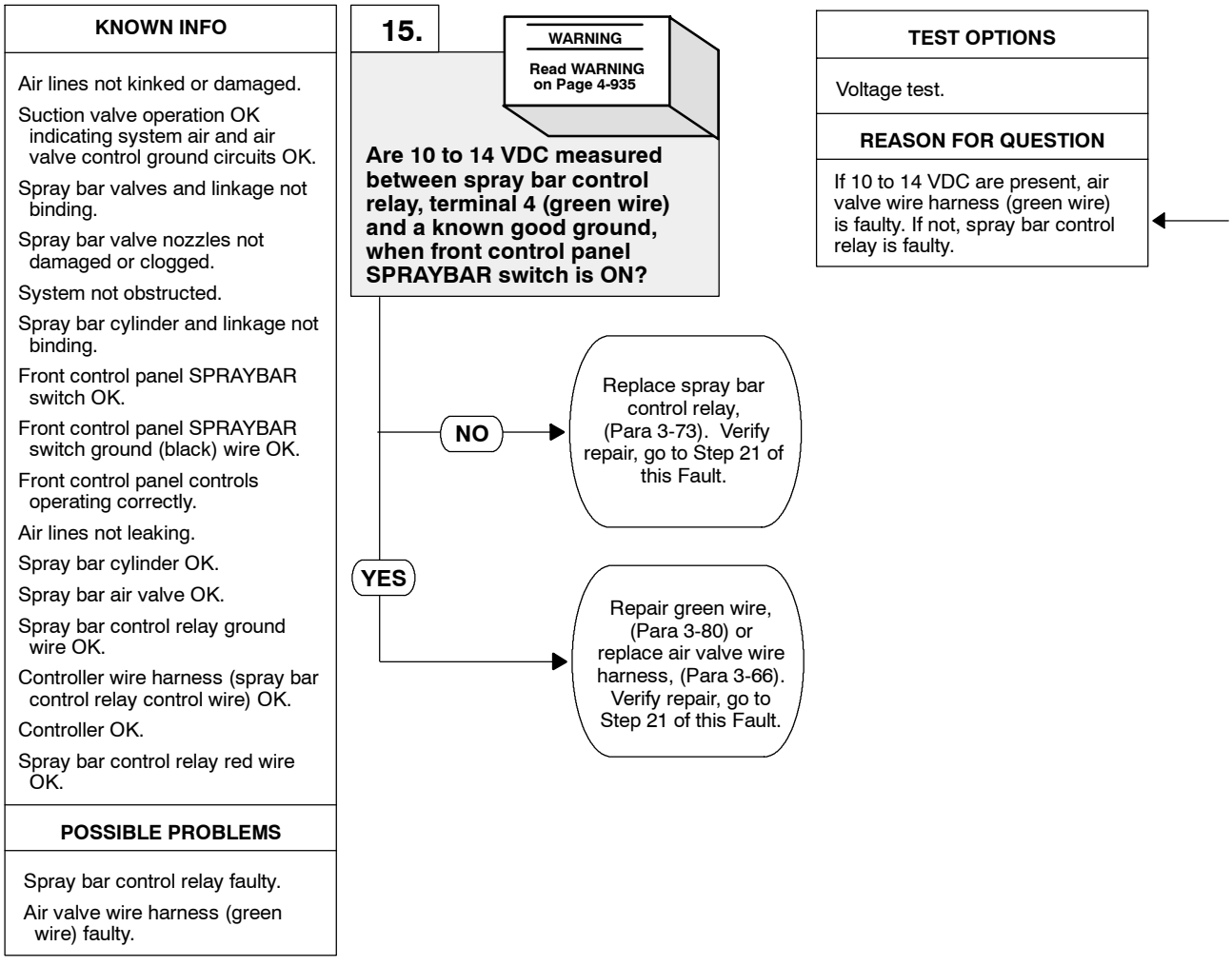
(b) If 10 to 14 VDC are present, go to Step 15 of this Fault.







27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death may occur.

VOLTAGE TEST

(1) Turn front control panel SPRAYBAR switch ON, (Para 2-1).

(2) Connect positive (+) multimeter lead to spray bar control relay, terminal 4 (green wire).

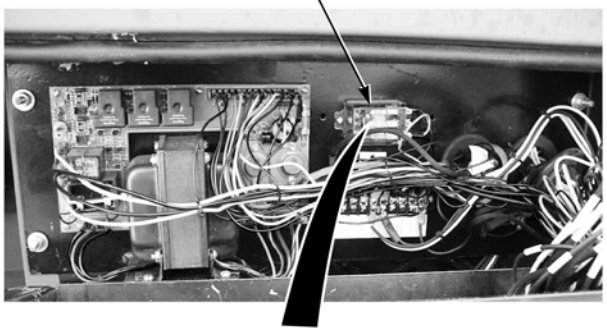
(3) Connect negative (-) multimeter lead to a known good ground.

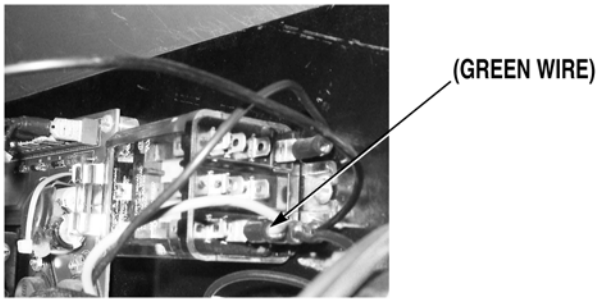
(a) If 10 to 14 VDC are not present, replace spray bar control relay, (Para 3-73).

(b) If 10 to 14 VDC are present, repair green wire, (Para 3-80) or replace air valve wire harness, (Para 3-66).

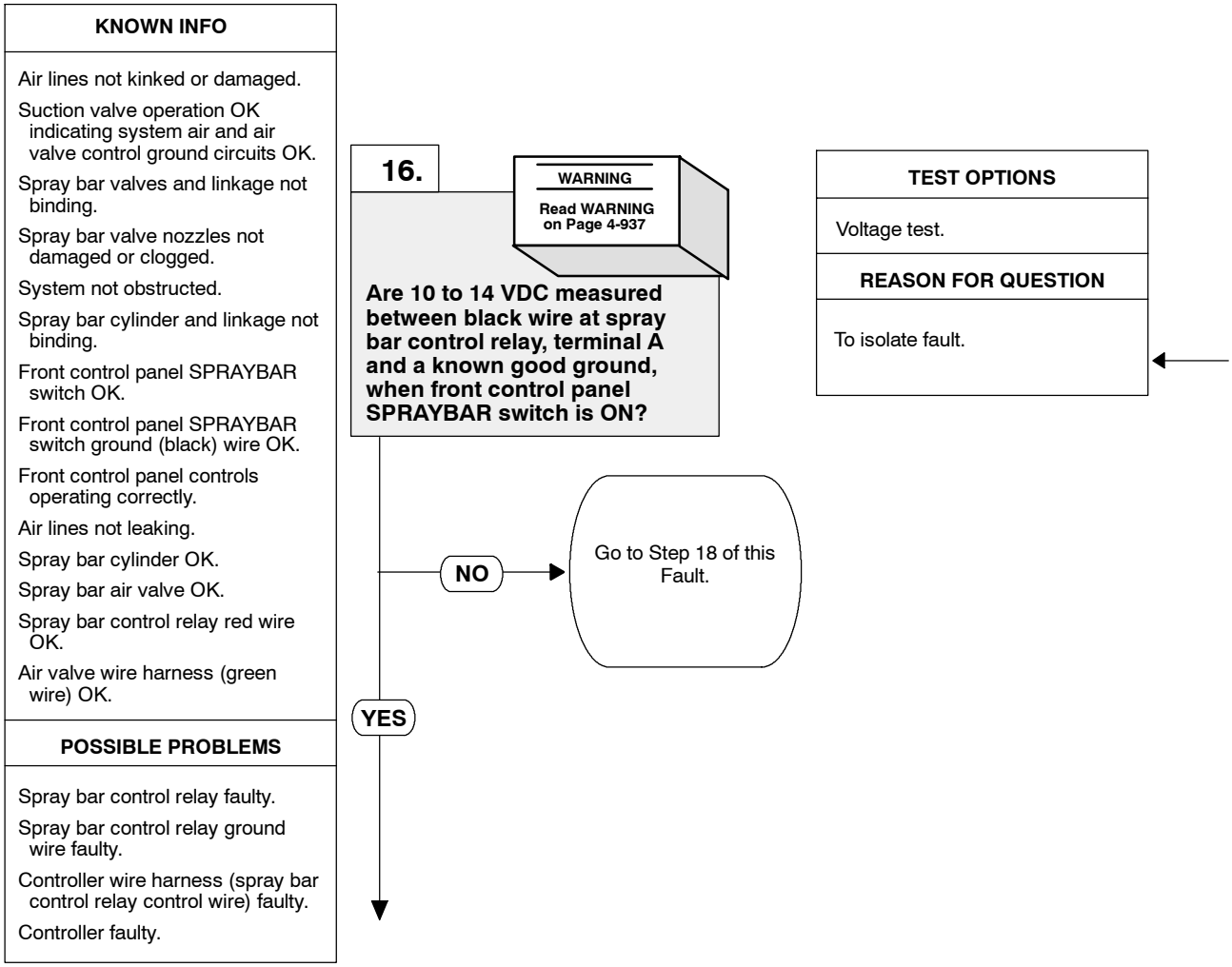
(4) Verify repair, go to Step 21 of this Fault.







27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death may occur.

VOLTAGE TEST

(1) Turn front control panel SPRAYBAR switch ON, (Para 2-1).

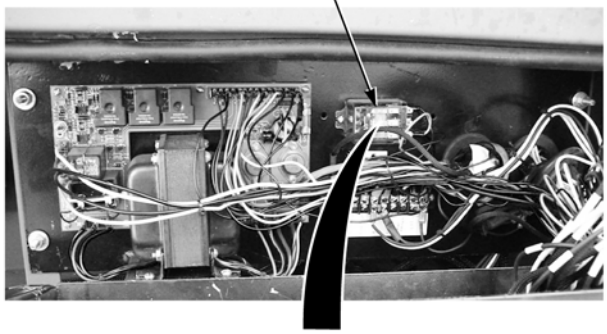
(2) Connect positive (+) multimeter lead to black wire at spray bar control relay, terminal A.

(3) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, go to Step 18 of this Fault.

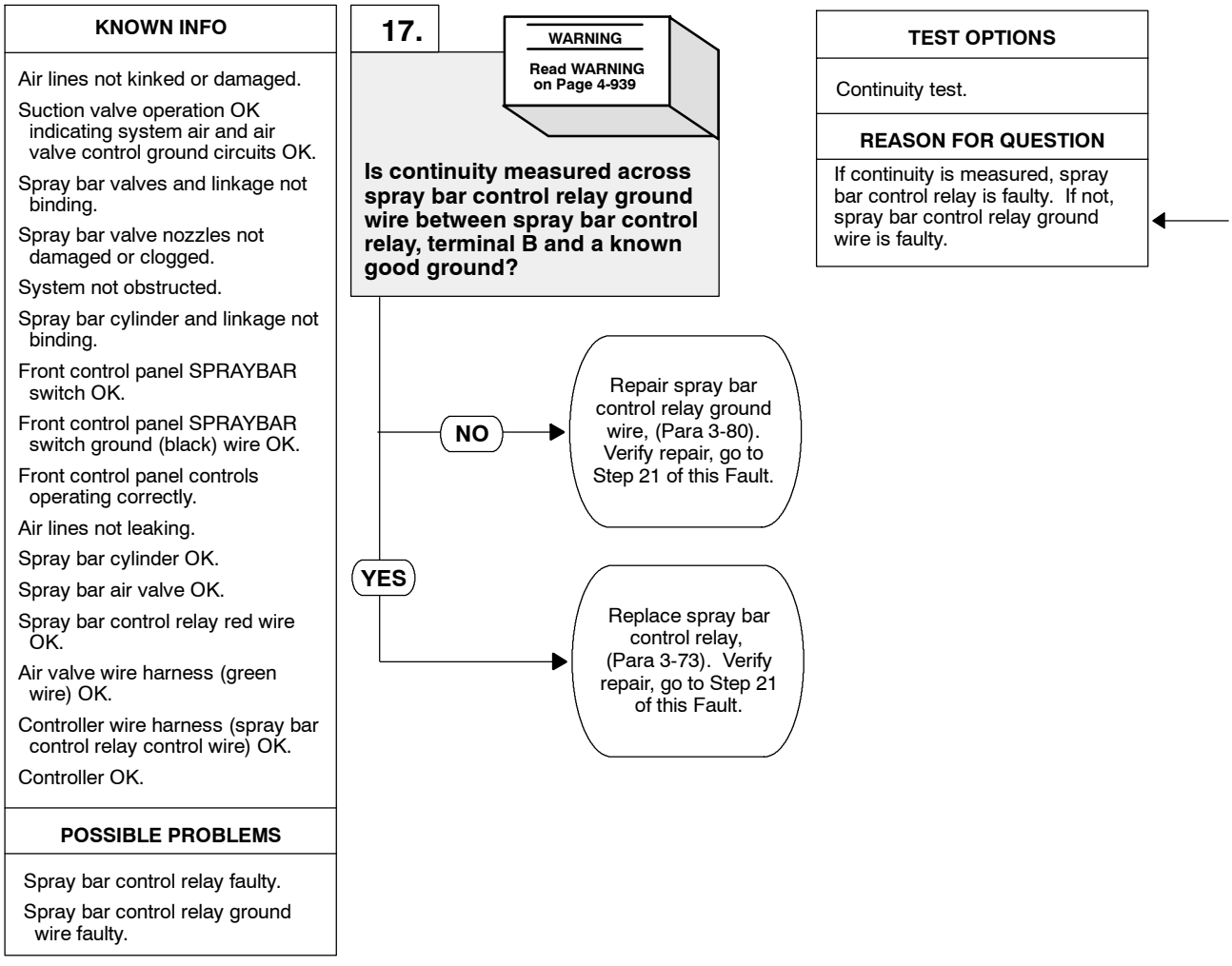
(b) If 10 to 14 VDC are present, go to Step 17 of this Fault.







27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Turn front control panel POWER switch OFF, (Para 2-1).

(4) Turn rear control panel POWER switch OFF, (Para 2-1).

(5) Set multimeter select switch to ohms.

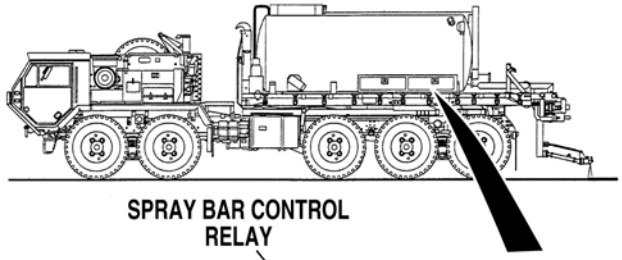
(6) Connect positive (+) multimeter lead to black wire at spray bar control relay, terminal B.

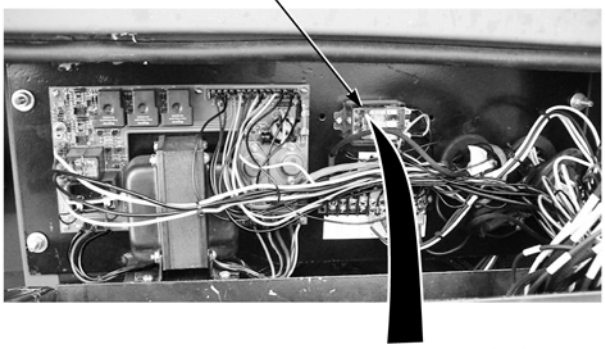
(7) Connect negative (-) multimeter lead to a known good ground.

  (a) If continuity is not measured, repair spray bar control relay ground wire, (Para 3-80).

  (b) If continuity is measured, replace spray bar control relay, (Para 3-73).

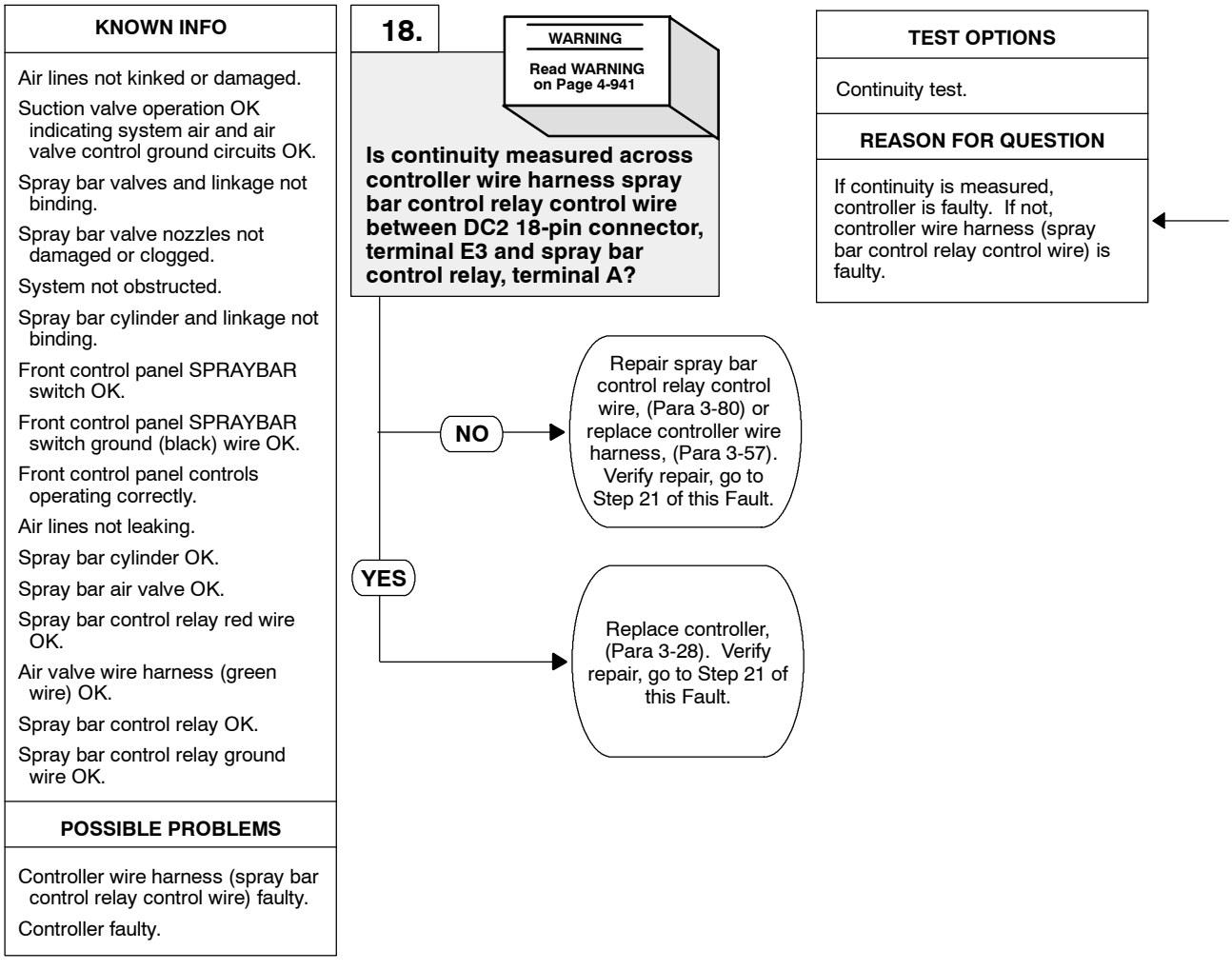
(8) Verify repair, go to Step 21 of this Fault.







27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Turn front control panel POWER switch OFF, (Para 2-1).

(4) Turn rear control panel POWER switch OFF, (Para 2-1).

(5) Remove controller, (Para 3-28).

(6) Disconnect DC2 18-pin connector, (Para 3-23).

(7) Set multimeter select switch to ohms.

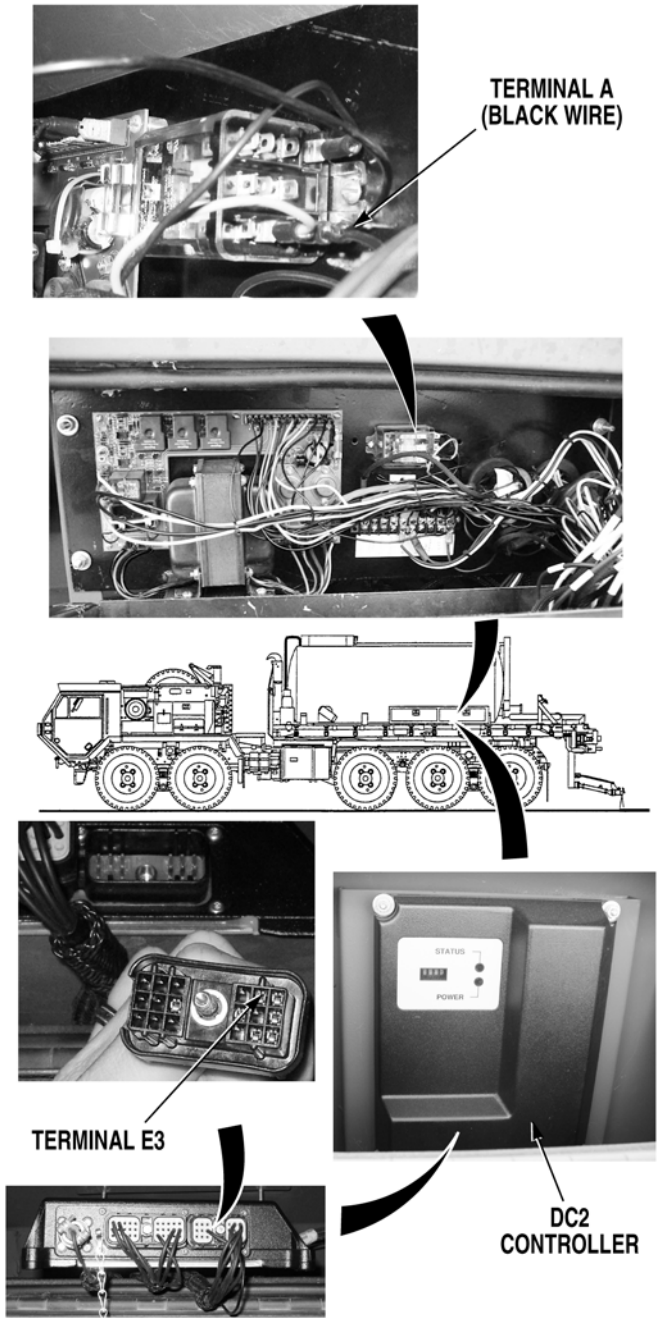
(8) Connect positive (+) multimeter lead to spray bar control relay control wire at DC2 18-pin connector, terminal E3.

(9) Connect negative (-) multimeter lead to spray bar control relay control wire at spray bar control relay, terminal A.

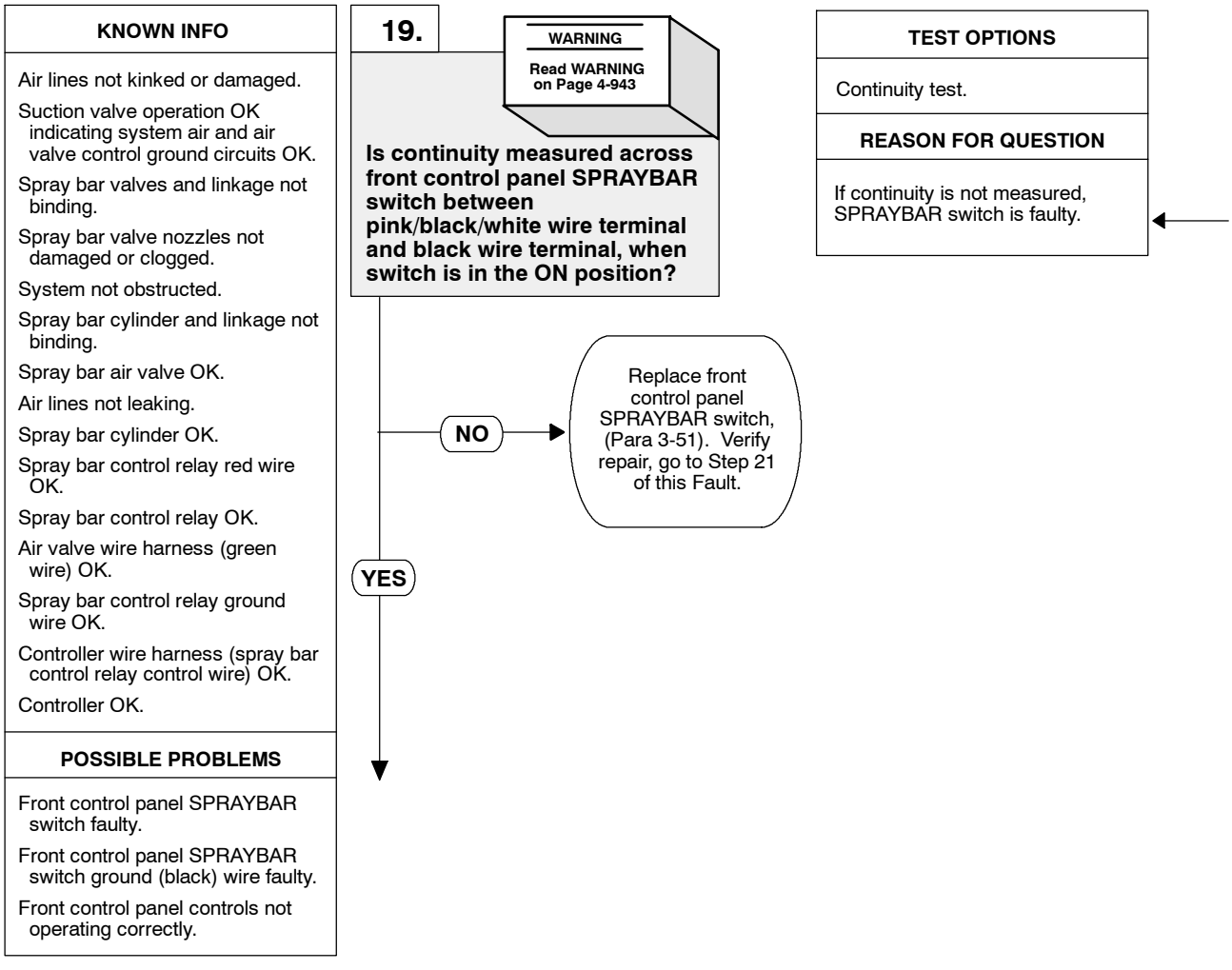
(a) If continuity is not measured, repair spray bar control relay control wire, (Para 3-80) or replace controller wire harness, (Para 3-57).

(b) If continuity is measured, replace controller, (Para 3-28).

(10) Verify repair, go to Step 21 of this Fault.

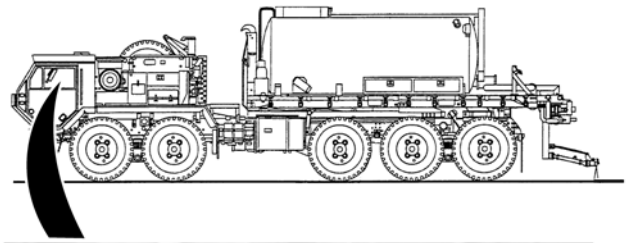


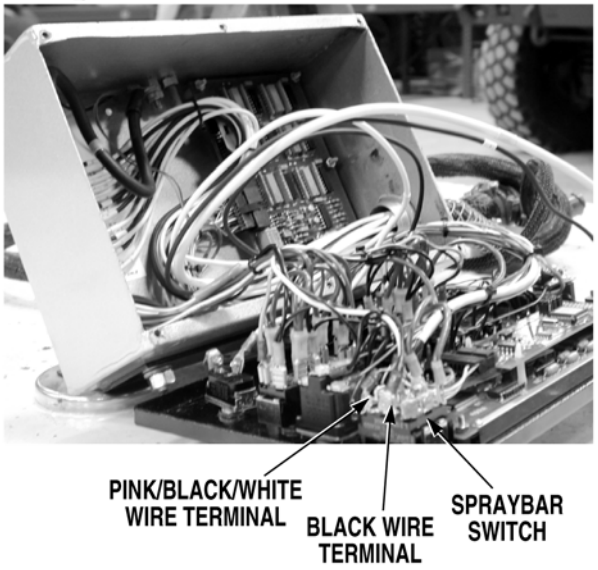
27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits Failure to comply may cause injury to personnel.





CONTINUITY TEST

(1) Shut OFF engine, (TM 9-2320-364-10).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Turn front control panel POWER switch OFF, (Para 2-1).

(4) Turn rear control panel POWER switch OFF, (Para 2-1).

(5) Remove front control panel, (Para 3-76).

(6) Set multimeter select switch to ohms.

(7) Turn front control panel SPRAYBAR switch ON, (Para 2-1).

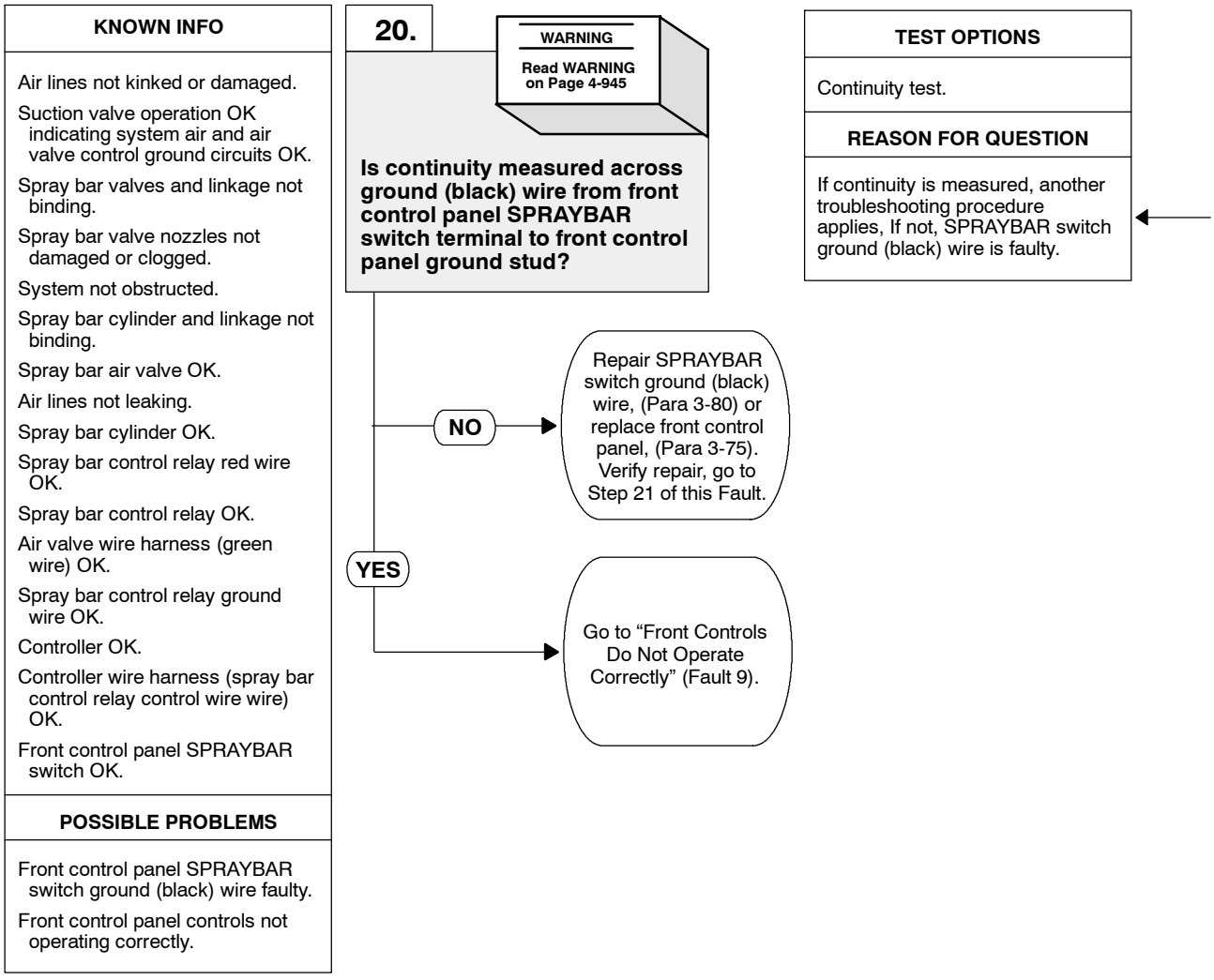
(8) Connect positive (+) multimeter lead to SPRAYBAR switch, pink/black/ white wire terminal.

(9) Connect negative (-) multimeter lead to SPRAYBAR switch, black wire terminal.

(a) If continuity is not measured, replace front control panel SPRAYBAR switch, (Para 3-51). Verify repair, go to Step 21 of this Fault.

(b) If continuity is measured, go to Step 20 of this Fault.

27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death may occur.

CONTINUITY TEST

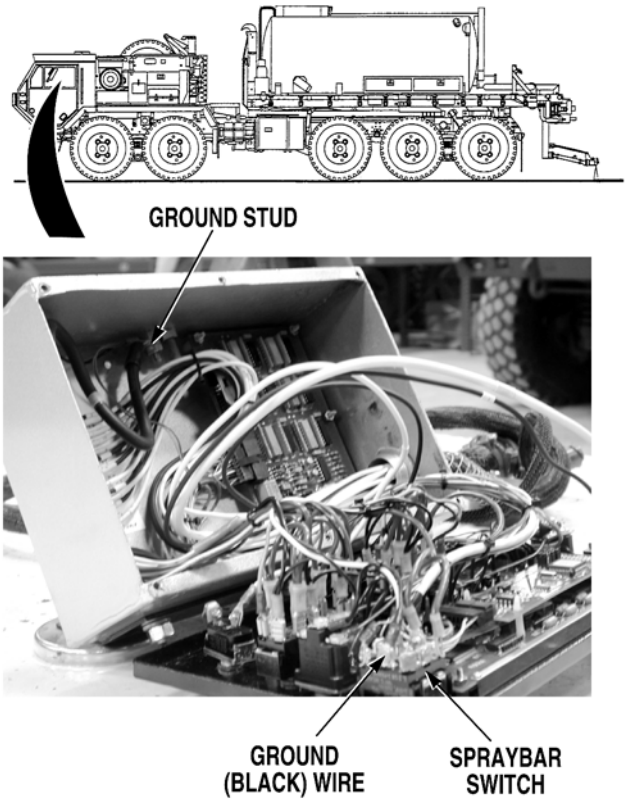
(1) Set multimeter select switch to ohms.

(2) Connect positive (+) multimeter lead to SPRAYBAR switch, black wire terminal.

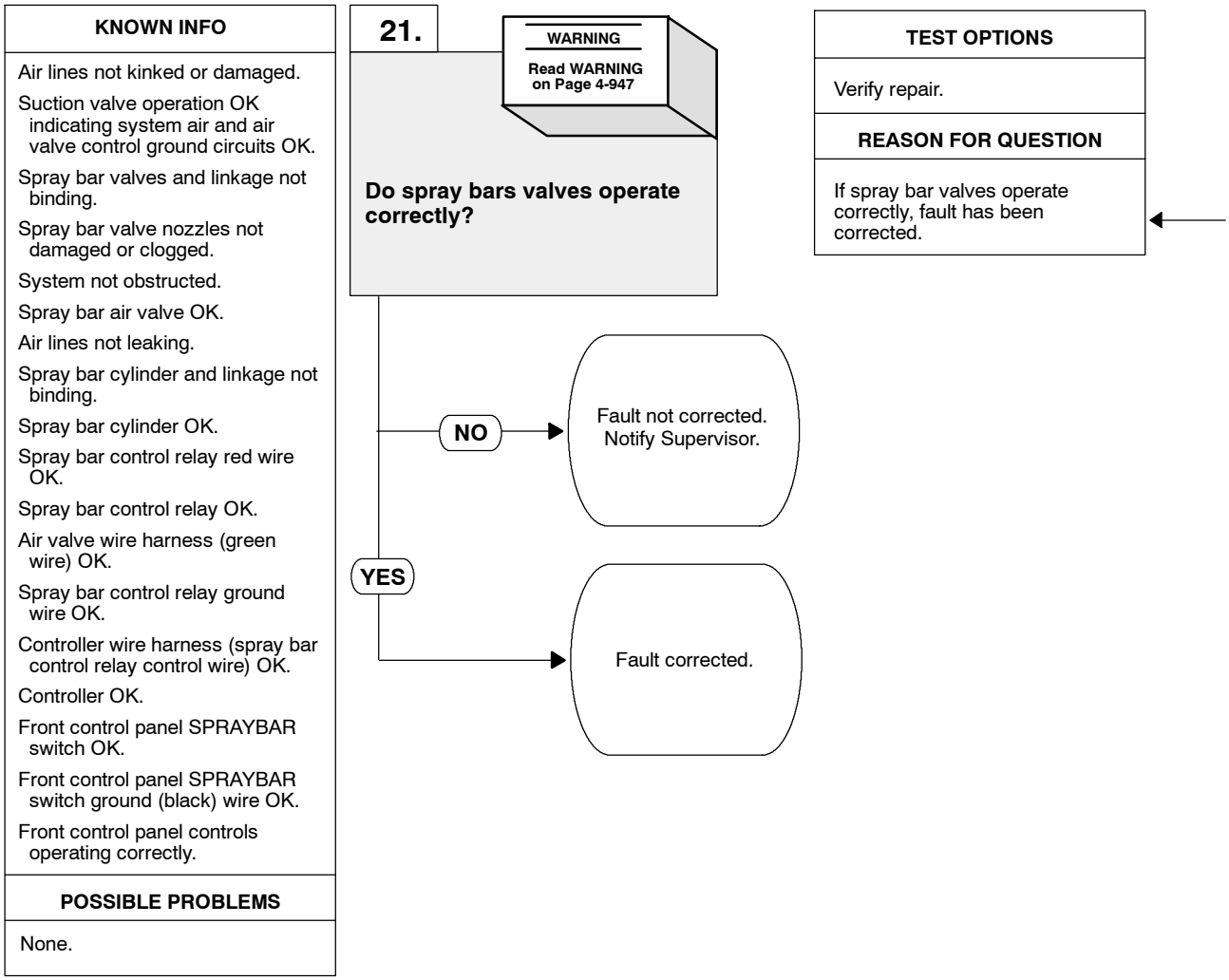
(3) Connect negative (-) multimeter lead to black wire at front control panel ground stud.

(a) If continuity is not measured, repair SPRAYBAR switch ground (black) wire, (Para 3-80) or replace front control panel, (Para 3-75). Verify repair, go to Step 21 of this Fault.

(b) If continuity is measured, go to "Front Controls Do Not Operate Correctly" (Fault 9).

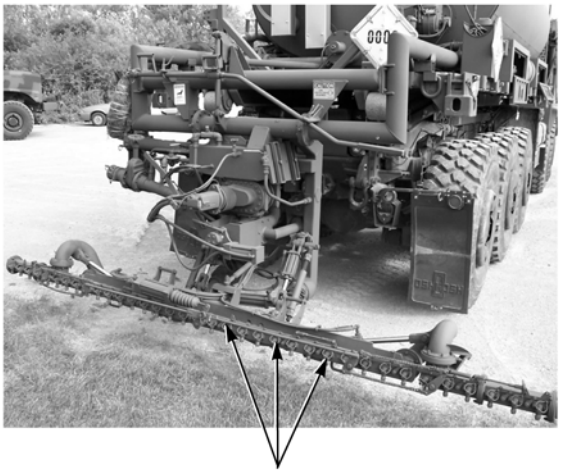


27. SPRAY BAR VALVES DO NOT OPERATE CORRECTLY (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits Failure to comply may cause injury to personnel.



SPRAY BAR VALVES

VERIFY REPAIR

(1) If ON, shut OFF engine, (TM 9-2320-364-10).

(2) If in, pull out battery disconnect switch, (TM 9-2320-364-10).

(3) If removed, install cover on air valve assembly. (Para 3-27).

(4) If removed install rear control panel, (Para 3-75).

(5) If removed, install controller, (Para 3-28).

(6) If removed install front control panel, (Para 3-75).

(7) Push in battery disconnect switch, (TM 9-2320-364-10).

(8) Start engine, (TM 9-2320-364-10) and allow air system to charge to 100 to 120 psi (690 to 827 kPa).

(9) If OFF, turn front control panel POWER switch ON, (Para 2-1).

(10) If OFF, turn rear control panel POWER switch ON, (Para 2-1).

(11) While an assistant switches SPRAYBAR switch to ON and OFF position, (Para 2-1). Check if spray bar valves move to the open and closed positions without binding.

  (a) If valves do not move to the open and closed positions without binding, fault has not been corrected. Notify Supervisor.

  (b) If valves move to the open and closed positions without binding, fault has been corrected.

(12) Turn rear control panel power switch OFF, (Para 2-1).

(13) Turn front control panel power switch OFF, (Para 2-1).

(14) Turn hydraulic select switch OFF, (TM 9-2320-364-10).

(15) Shut OFF engine, (TM 9-2320-364-10).

28. SYSTEM DOES NOT POWER UP.

INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Multimeter (Item 8, Appendix F)

Equipment Condition
Bituminous Distributor loaded on PLS, (Para 2-5)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)

KNOWN INFO

Nothing.

POSSIBLE PROBLEMS

PLS interface connectors loose.
Rear control panel circuit breaker tripped.
Power (red) wire between rear control panel relay and terminal strip faulty.
Rear control panel circuit breaker faulty.
Red jumperwire between rear control panel circuit breaker and rear control panel relay faulty.
Rear control panel relay ground wire faulty.
Rear control panel relay faulty.
Red wire between rear control panel POWER switch and rear control panel relay faulty.
Rear control panel POWER switch faulty.
Rear control panel wire harness (wire 1 black) faulty.
PLS interface faulty.
Front control panel POWER switch faulty.
Front control panel wire harness (wire 1 white) faulty.
Front control panel wire harness (wire 1 black) faulty.
Rear control panel wire harness (wire 1 white) faulty.

START

1. **Are front control panel connector MC129 and UPIK connector MC130 secure?**

WARNING
Read WARNING on Page 4-949

TEST OPTIONS

Visual inspection.

REASON FOR QUESTION

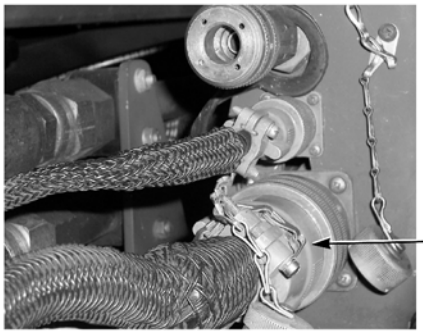
If connectors MC129 and MC130 are not secure, system will not power up.

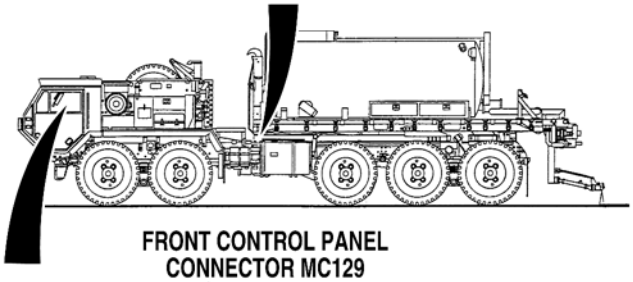
NO → Reconnect PLS interface connectors, (Para 2-10). Verify repair, go to Step 18 of this Fault.

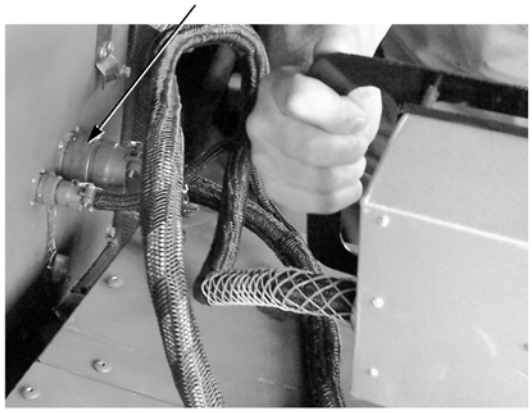
YES

WARNING

12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.







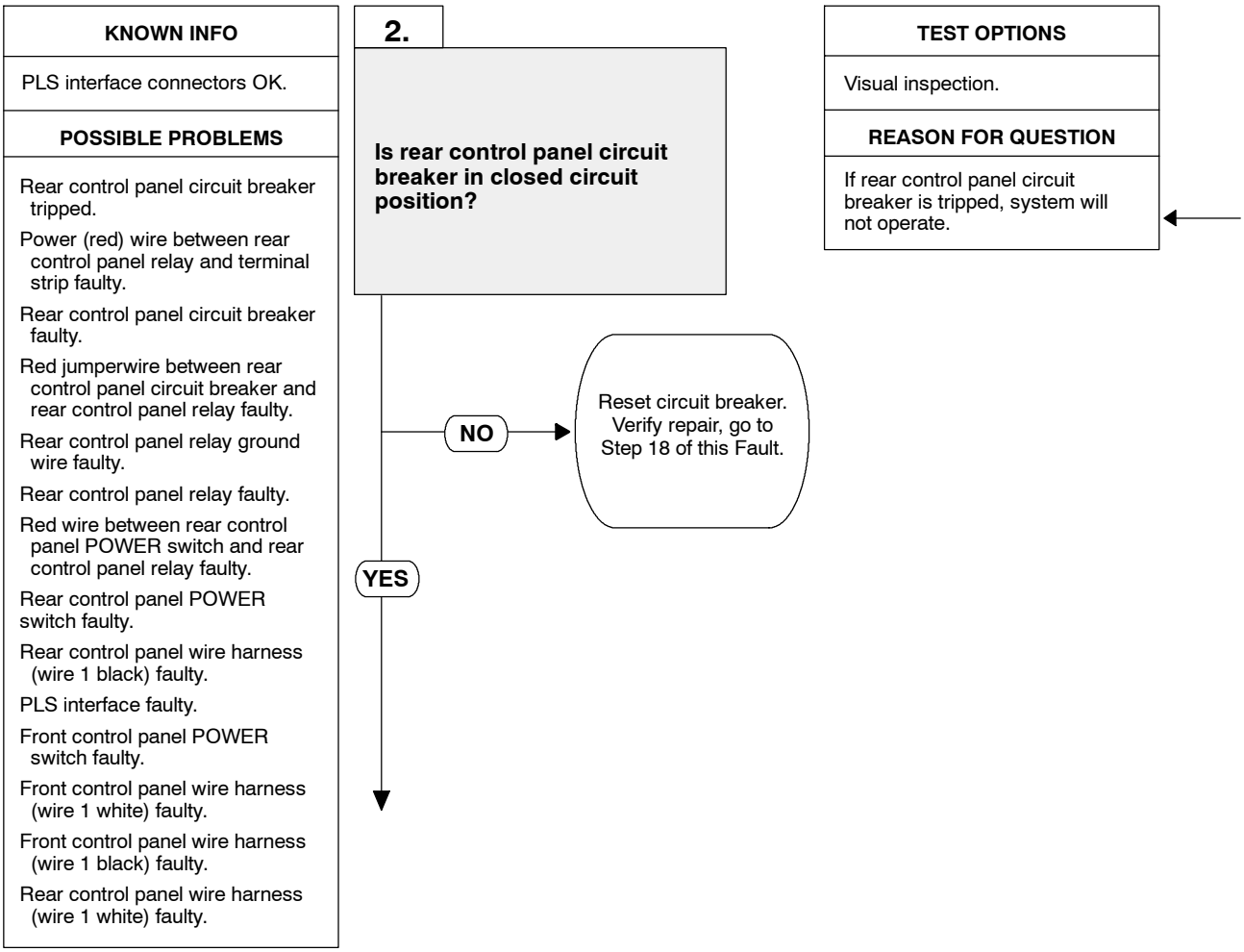
VISUAL INSPECTION

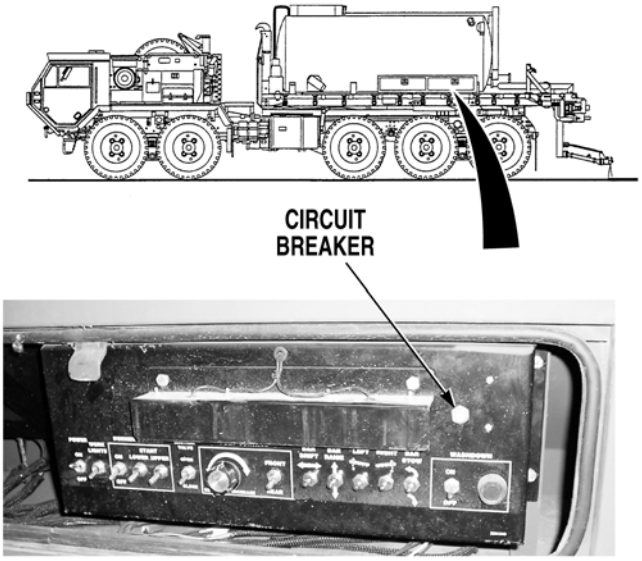
Check front control panel and UPIK connectors for loose connections.

(a) If connectors are loose, reconnect connectors, (Para 2-10). Verify repair, go to Step 18 of this Fault.

(b) If connectors are secure, go to Step 2 of this Fault.

28. SYSTEM DOES NOT POWER UP (CONT).





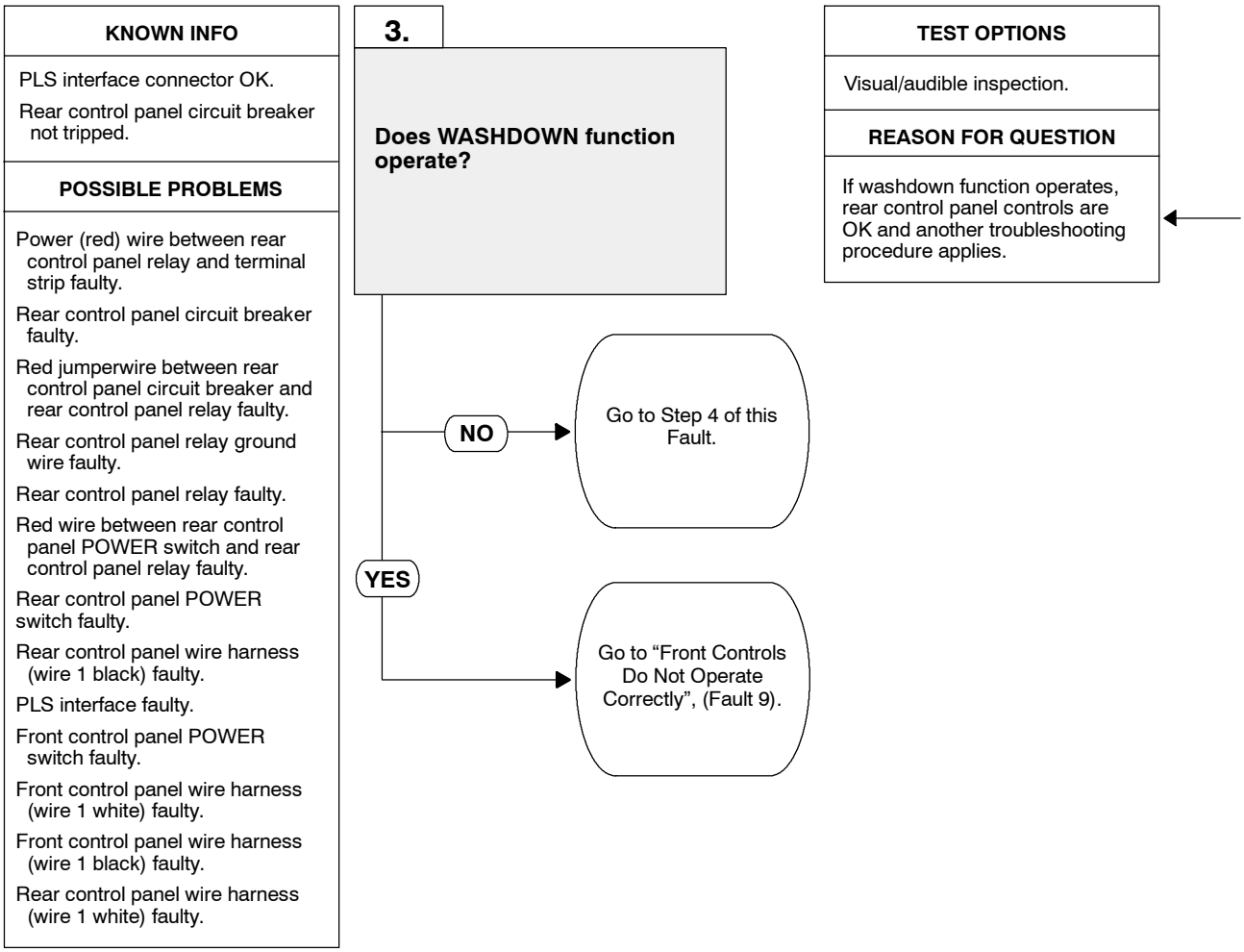
VISUAL INSPECTION

Check if rear control panel circuit breaker has not been tripped?

(a) If circuit breaker is tripped, reset circuit breaker. Verify repair, go to Step 18 of this Fault.

(b) If circuit breaker is not tripped, go to Step 2 of this Fault.

28. SYSTEM DOES NOT POWER UP (CONT).



VISUAL/AUDIBLE INSPECTION

(1) Turn ON front control panel POWER switch, (Para 2-1).

(2) Turn ON rear control panel POWER switch, (Para 2-1).

NOTE

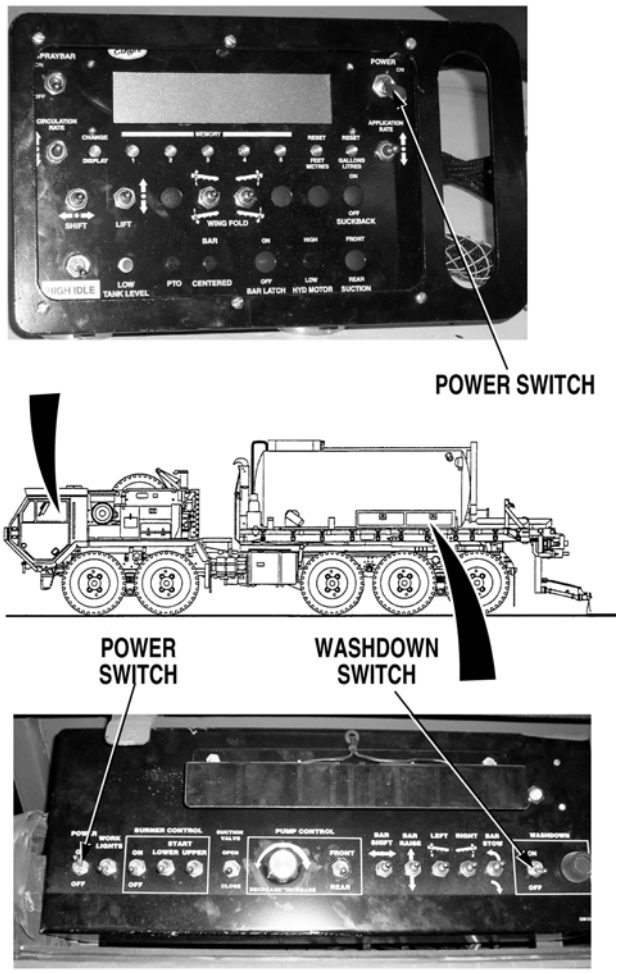
WASHDOWN buzz light will illuminate and buzzer will sound when washdown is operating.

(3) Turn on WASHDOWN switch, (Para 2-1).

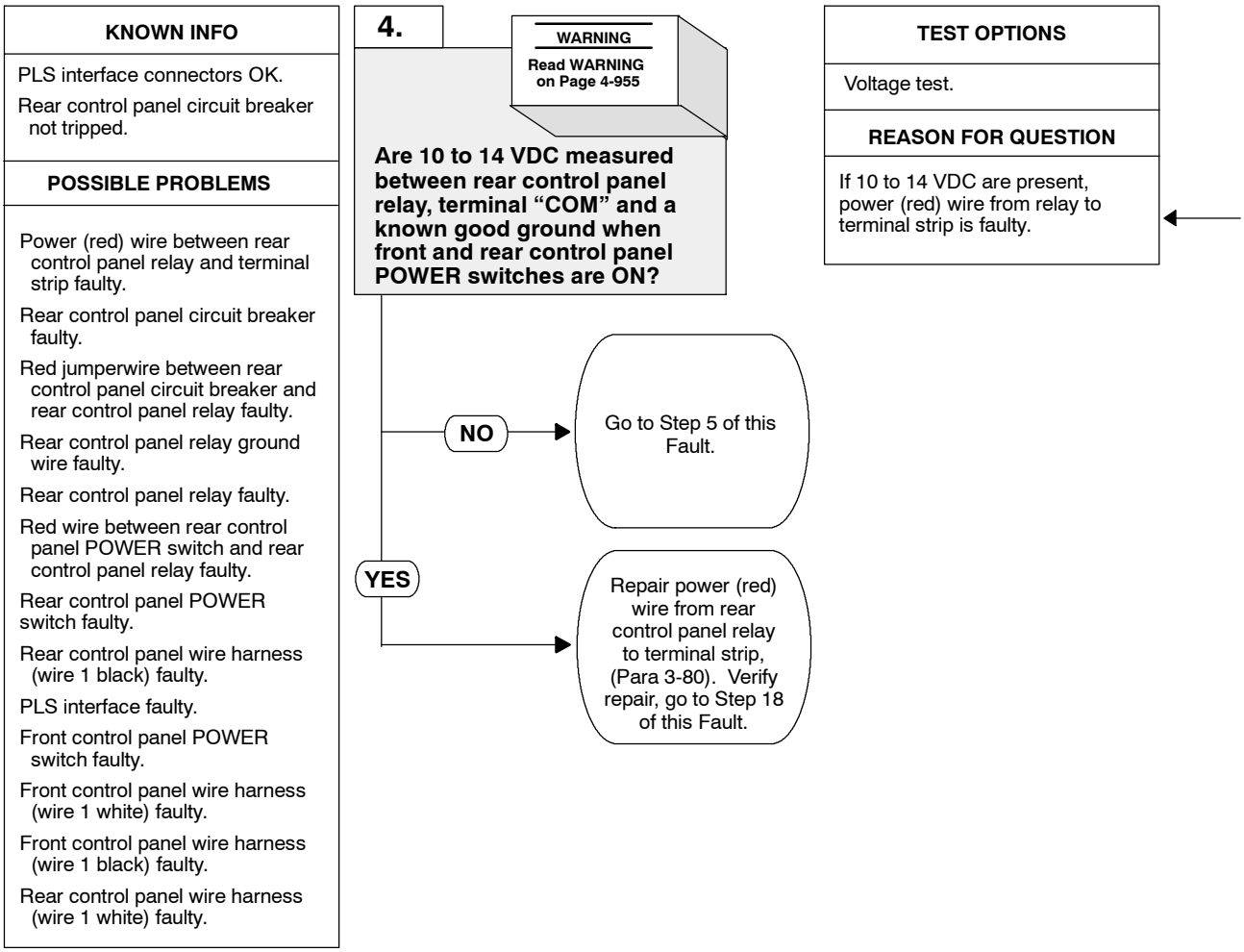
(4) Check if WASHDOWN function operates.

(a) If WASHDOWN function does not operate, go to Step 4 of this Fault.

(b) If WASHDOWN function operates, go to “Front Controls Do Not Operate Correctly”, (Fault 9).



28. SYSTEM DOES NOT POWER UP (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits Failure to comply may cause injury to personnel.

VOLTAGE TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Remove rear control panel, (Para 3-76).

(3) Push in battery disconnect switch, (TM 9-2320-364-10).

(4) Turn front control panel power switch ON, (Para 2-1).

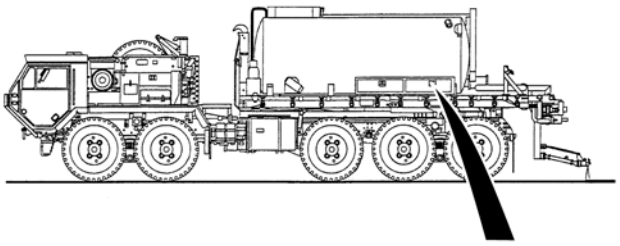
(5) Turn rear control panel power switch ON, (Para 2-1).

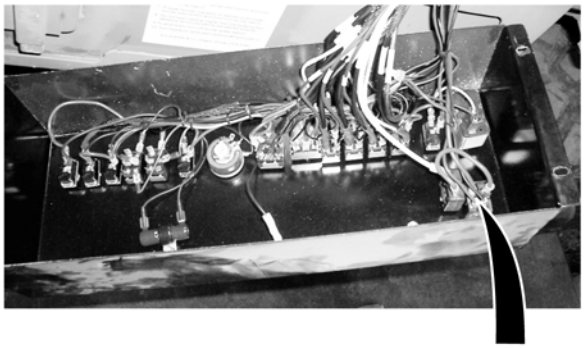
(6) Connect positive (+) multimeter lead to rear control panel relay terminal “COM”.

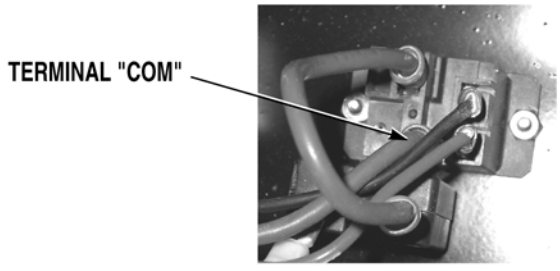
(7) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, go to Step 5 of this Fault.

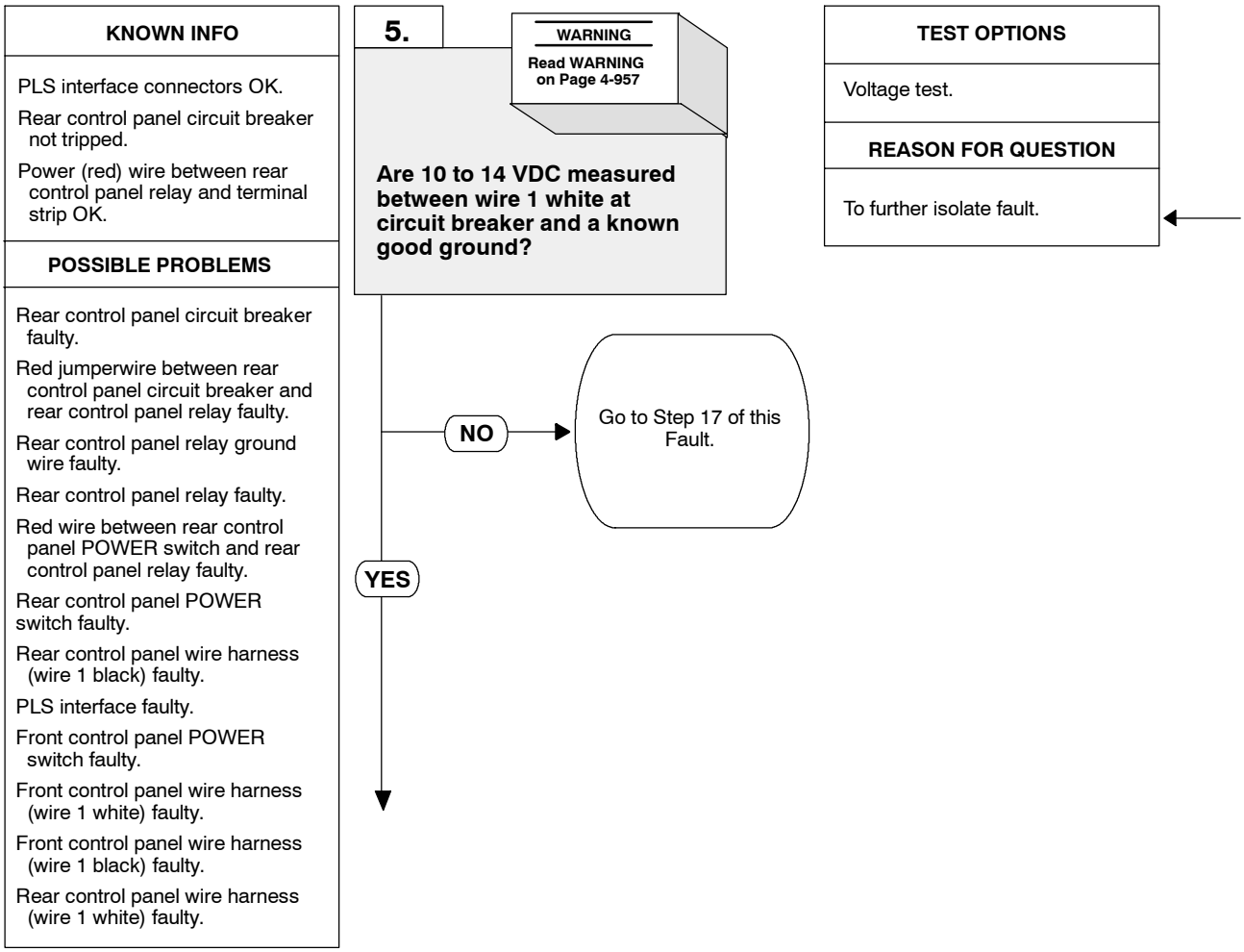
(b) If 10 to 14 VDC are present, repair power (red) wire from rear control panel relay to rear control panel terminal strip, (Para 3-80). Verify repair, go to Step 18 of this Fault.





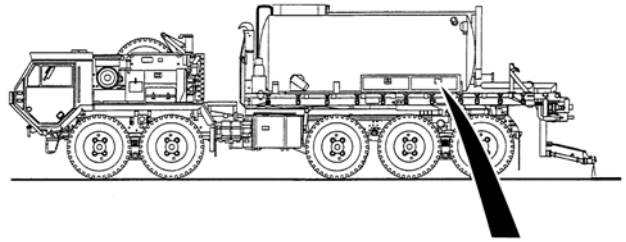


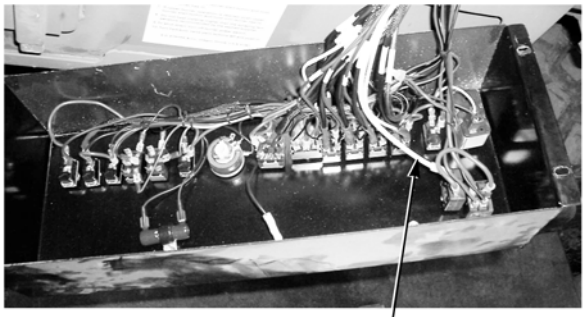
28. SYSTEM DOES NOT POWER UP (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.





REAR CONTROL PANEL
CIRCUIT BREAKER WIRE 1 WHITE

VOLTAGE TEST

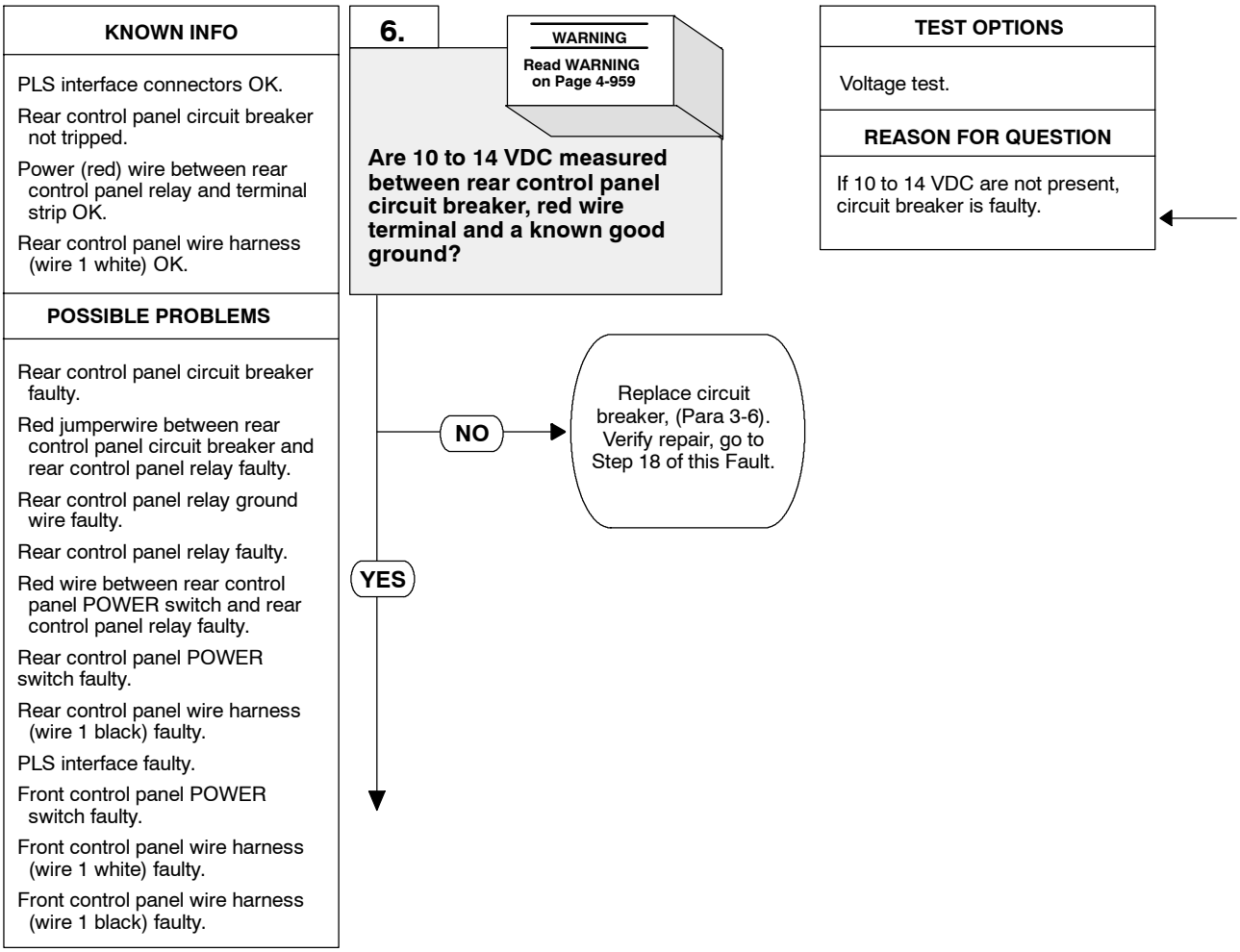
(1) Connect positive (+) multimeter lead to wire 1 white at circuit breaker.

(2) Connect negative (-) multimeter lead to a known good ground.

  (a) If 10 to 14 VDC are not present, go to Step 17 of this Fault.

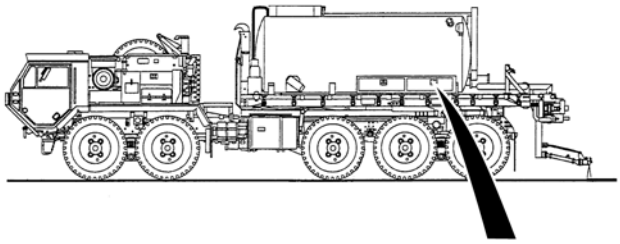
  (b) If 10 to 14 VDC are present, go to Step 6 of this Fault.

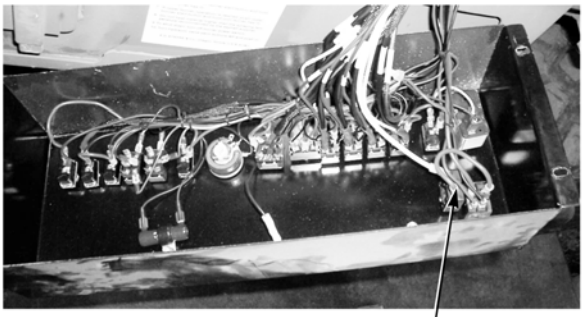
28. SYSTEM DOES NOT POWER UP (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.





REAR CONTROL CIRCUIT BREAKER RED WIRE TERMINAL

VOLTAGE TEST

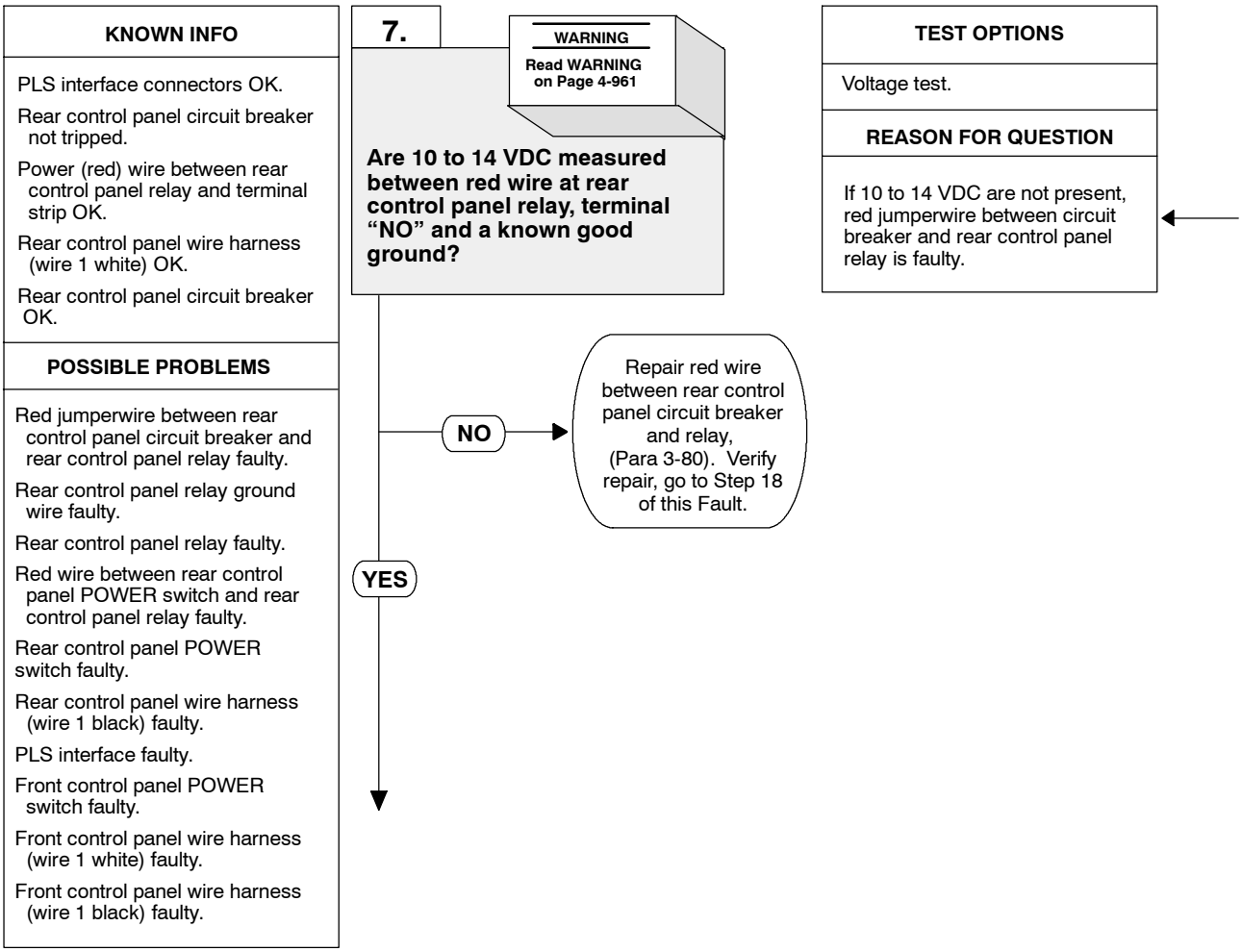
(1) Connect positive (+) multimeter lead to rear control panel circuit breaker, red wire terminal.

(2) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, replace circuit breaker, (Para 3-6). Verify repair, go to Step 18 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 7 of this Fault.

28. SYSTEM DOES NOT POWER UP (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

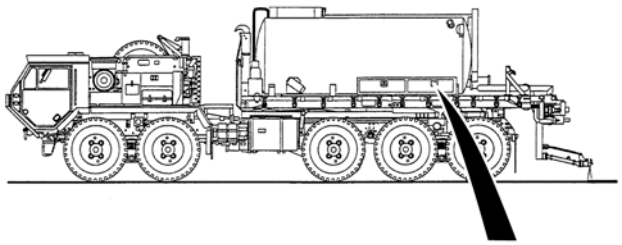
VOLTAGE TEST

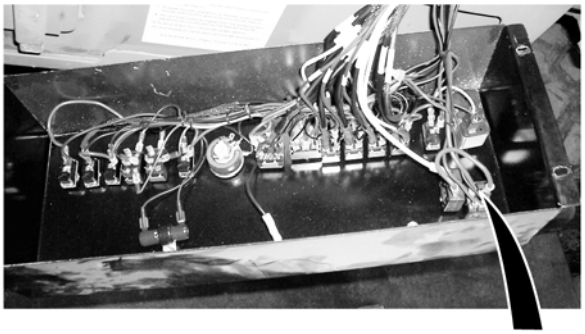
(1) Connect positive (+) multimeter lead to red wire at rear control panel relay, terminal “NO”.

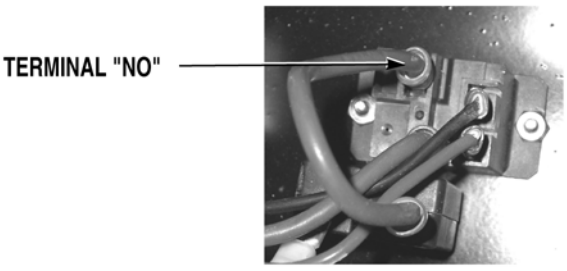
(2) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, repair red wire between rear panel circuit breaker and relay, (Para 3-80). Verify repair, go to Step 18 of this Fault.

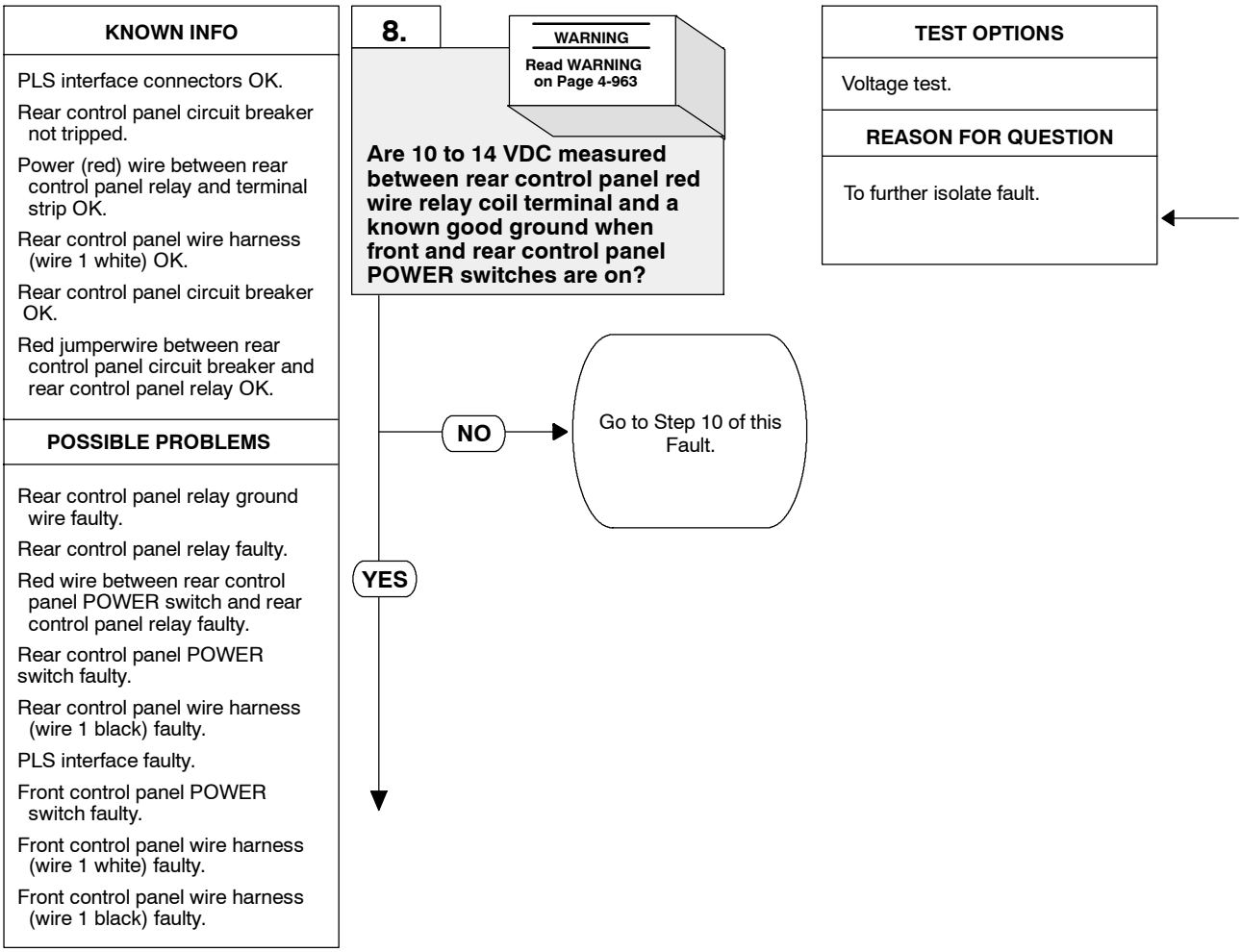
(b) If 10 to 14 VDC are present, go to Step 8 of this Fault.







28. SYSTEM DOES NOT POWER UP (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

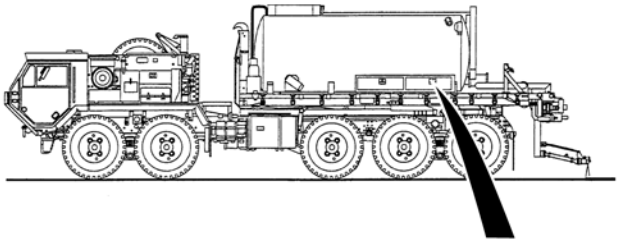
VOLTAGE TEST

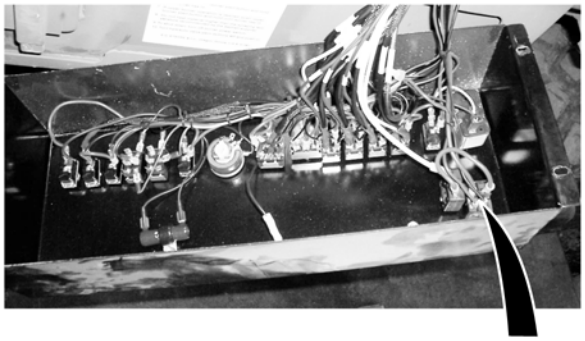
(1) Connect positive (+) multimeter lead to red wire at rear control panel relay, coil terminal.

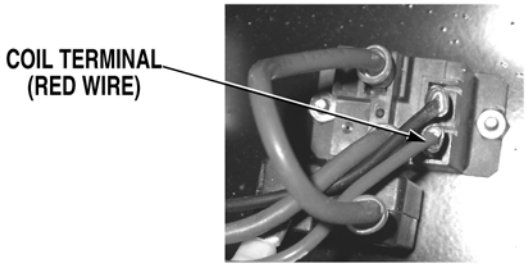
(2) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, go to Step 10 of this Fault.

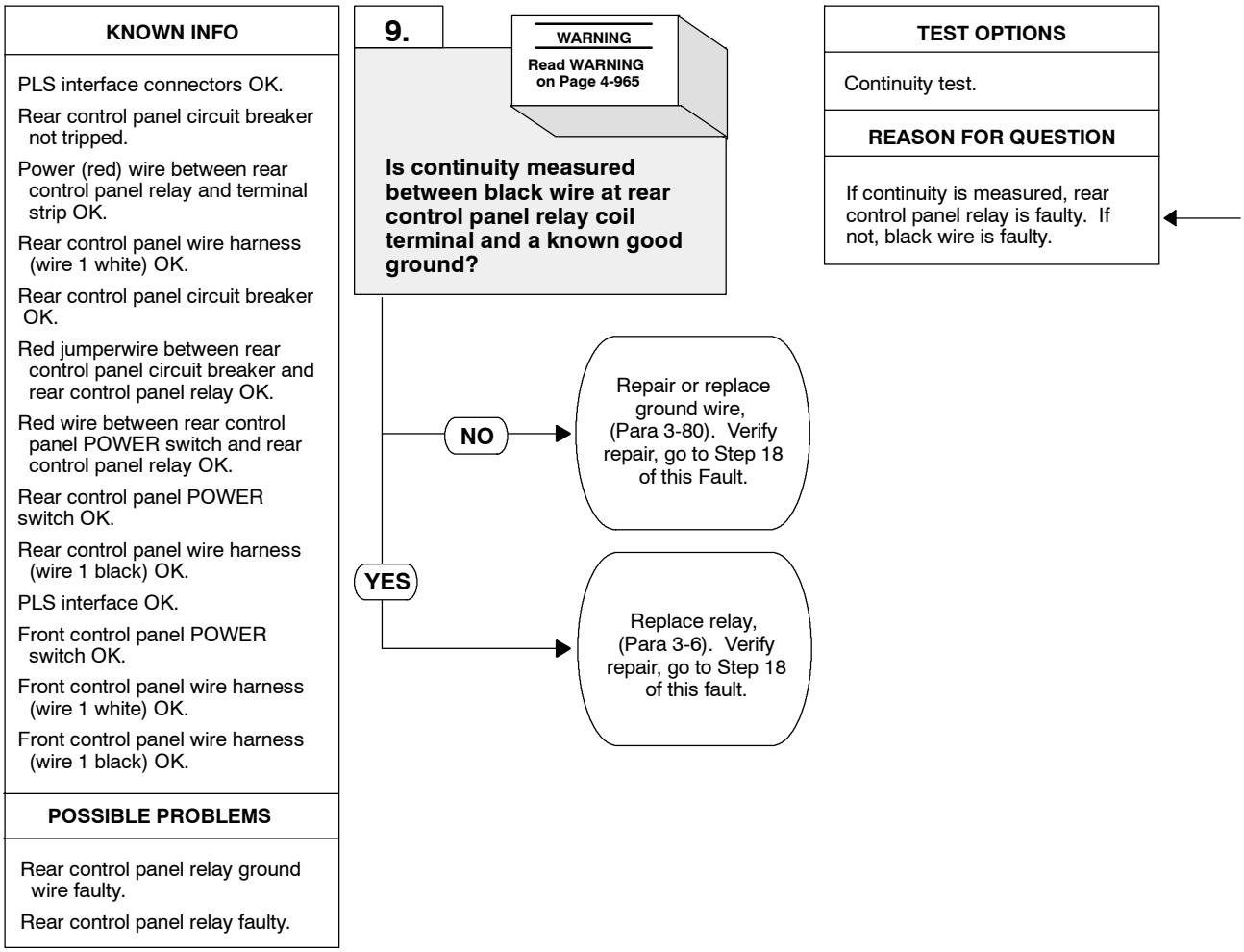
(b) If 10 to 14 VDC are present, go to Step 9 of this Fault.







28. SYSTEM DOES NOT POWER UP (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Set multimeter select switch to ohms.

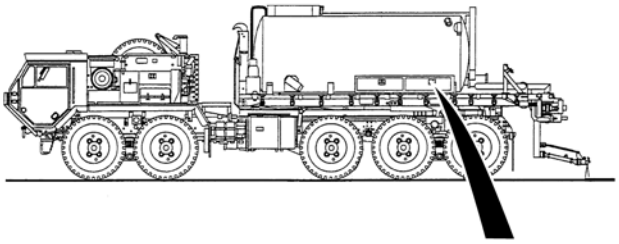
(3) Connect positive (+) multimeter lead to black wire at rear control panel relay, coil terminal.

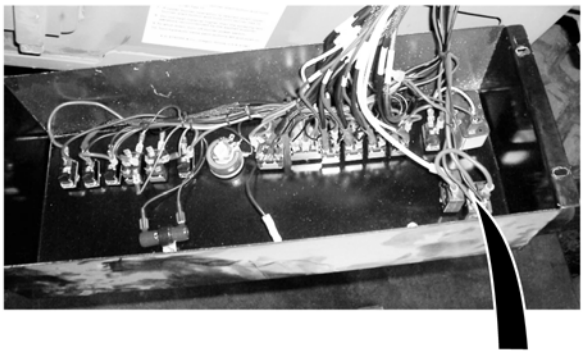
(4) Connect negative (-) multimeter lead to a known good ground.

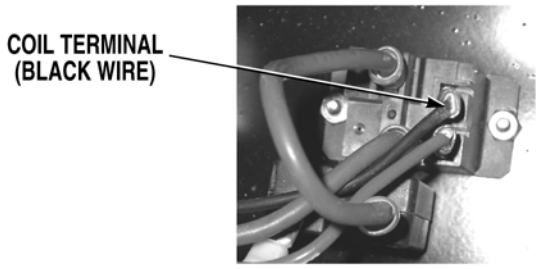
(a) If continuity is not measured, repair or replace black wire, (Para 3-80).

(b) If continuity is measured, replace relay, (Para 3-6).

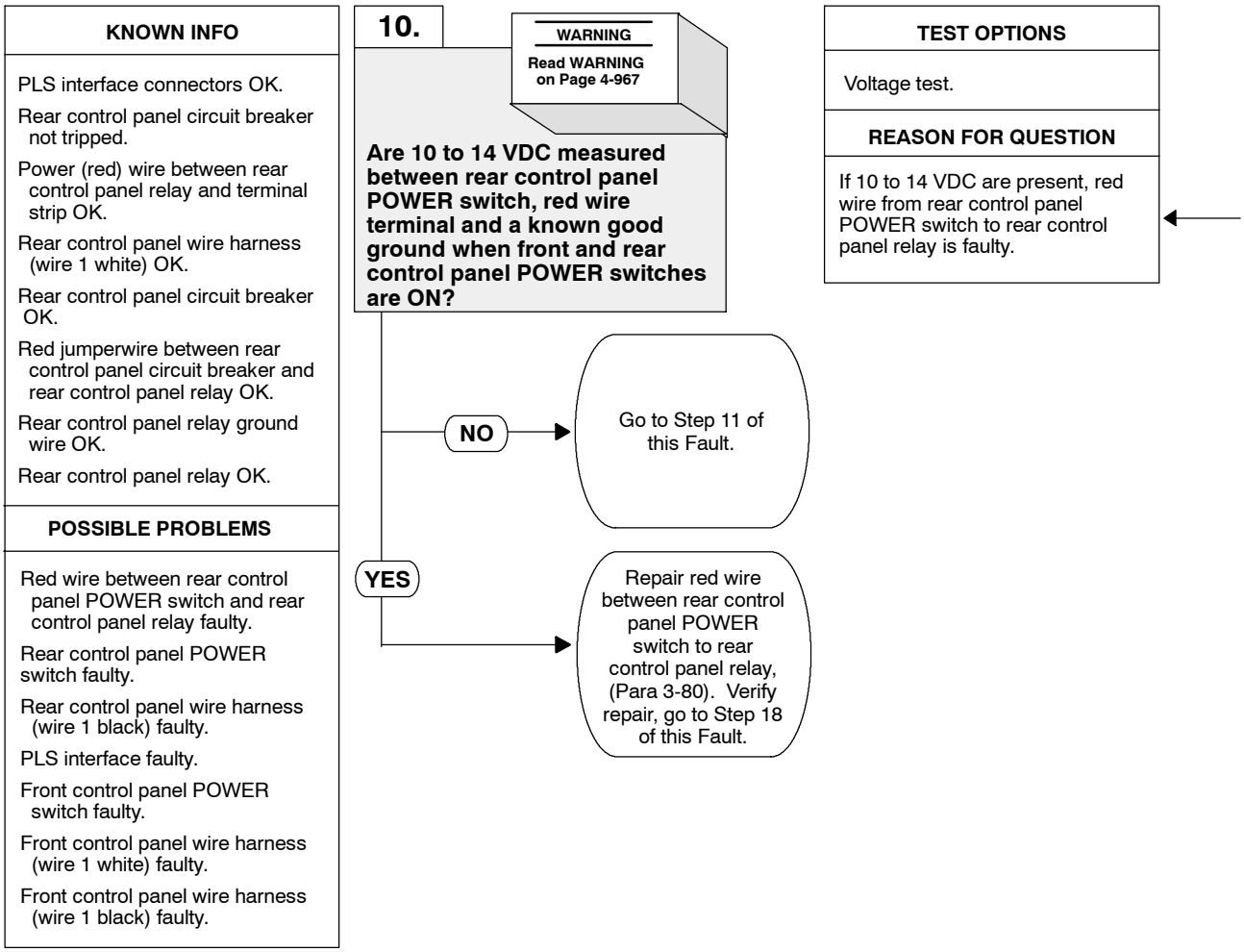
(5) Verify repair, go to Step 18 of this Fault.





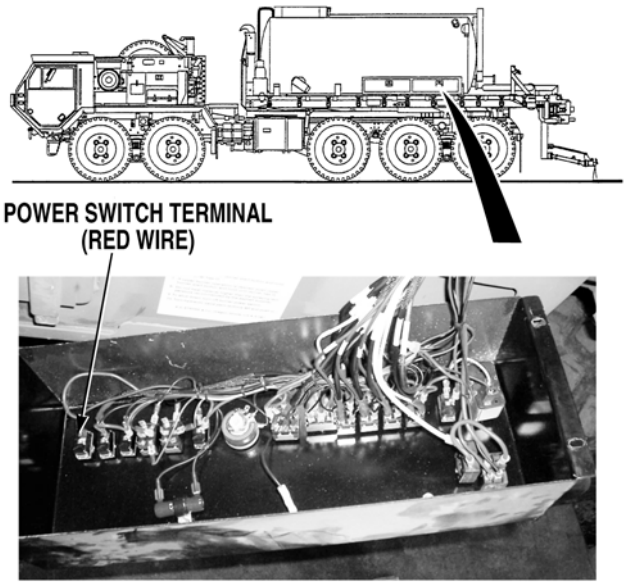


28. SYSTEM DOES NOT POWER UP (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.



VOLTAGE TEST

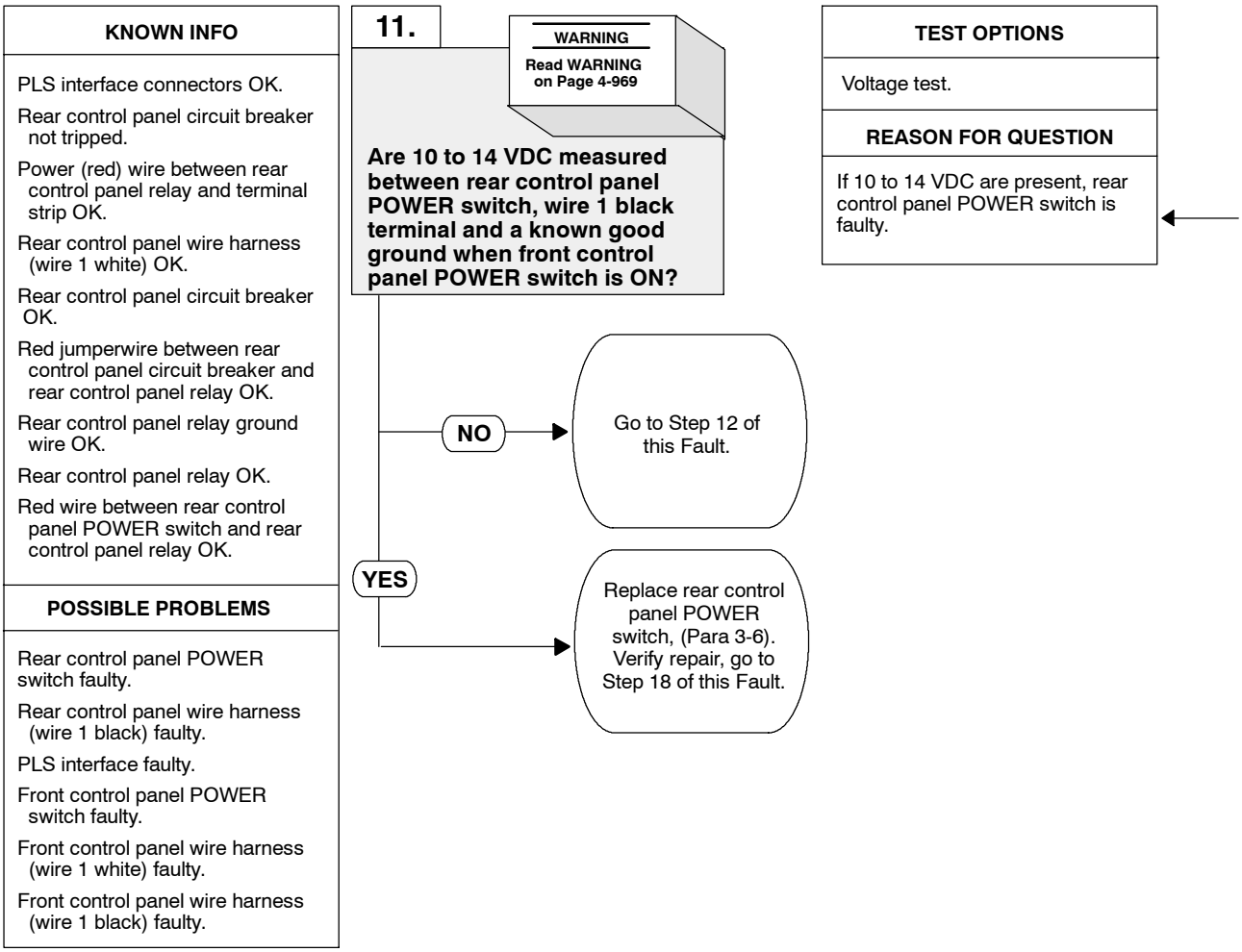
(1) Connect positive (+) multimeter lead to rear control panel POWER switch, red wire terminal.

(2) Connect negative (-) multimeter lead to a known good ground.

  (a) If 10 to 14 VDC are not present, go to Step 11 of this Fault.

  (b) If 10 to 14 VDC are present, repair red wire between rear control panel POWER switch and rear control panel relay, (Para 3-80). Verify repair, go to Step 18 of this Fault.

28. SYSTEM DOES NOT POWER UP (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

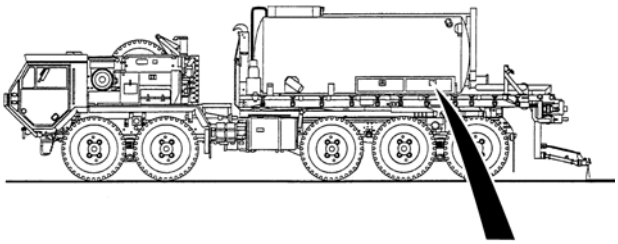
VOLTAGE TEST

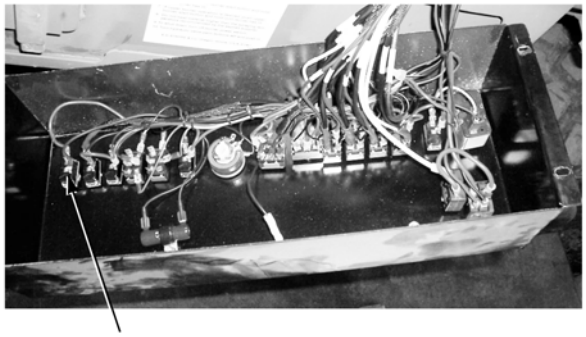
(1) Connect positive (+) multimeter lead to rear control panel POWER switch, wire 1 black terminal.

(2) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, go to Step 12 of this Fault.

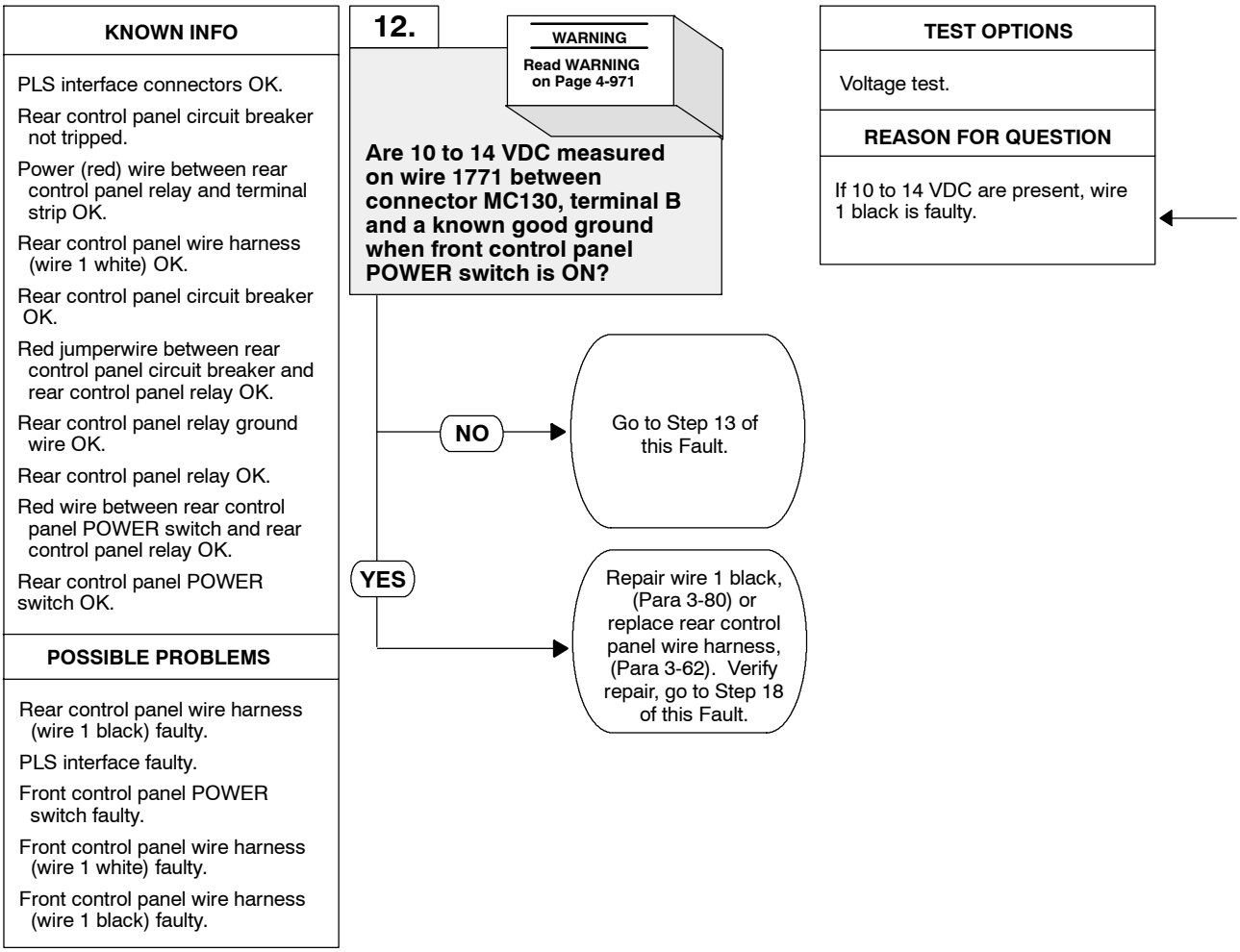
(b) If 10 to 14 VDC are present, replace rear control panel POWER switch, (Para 3-6). Verify repair, go to Step 18 of this Fault.





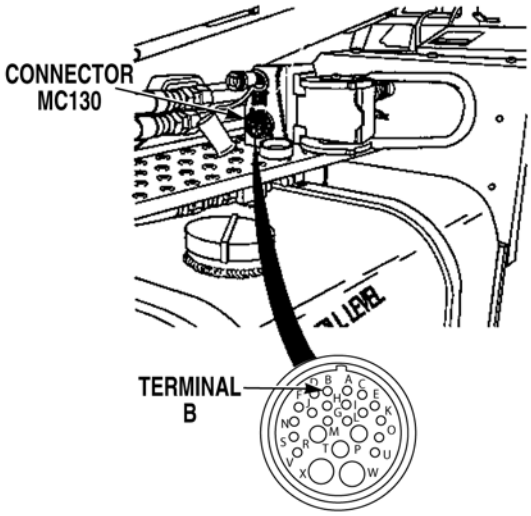
POWER SWITCH TERMINAL
(WIRE 1 BLACK)

28. SYSTEM DOES NOT POWER UP (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.



VOLTAGE TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Disconnect connector MC130 (UPIK).

(3) Push in battery disconnect switch, (TM 9-2320-364-10).

(4) Turn front control panel POWER switch ON, (Para 2-1).

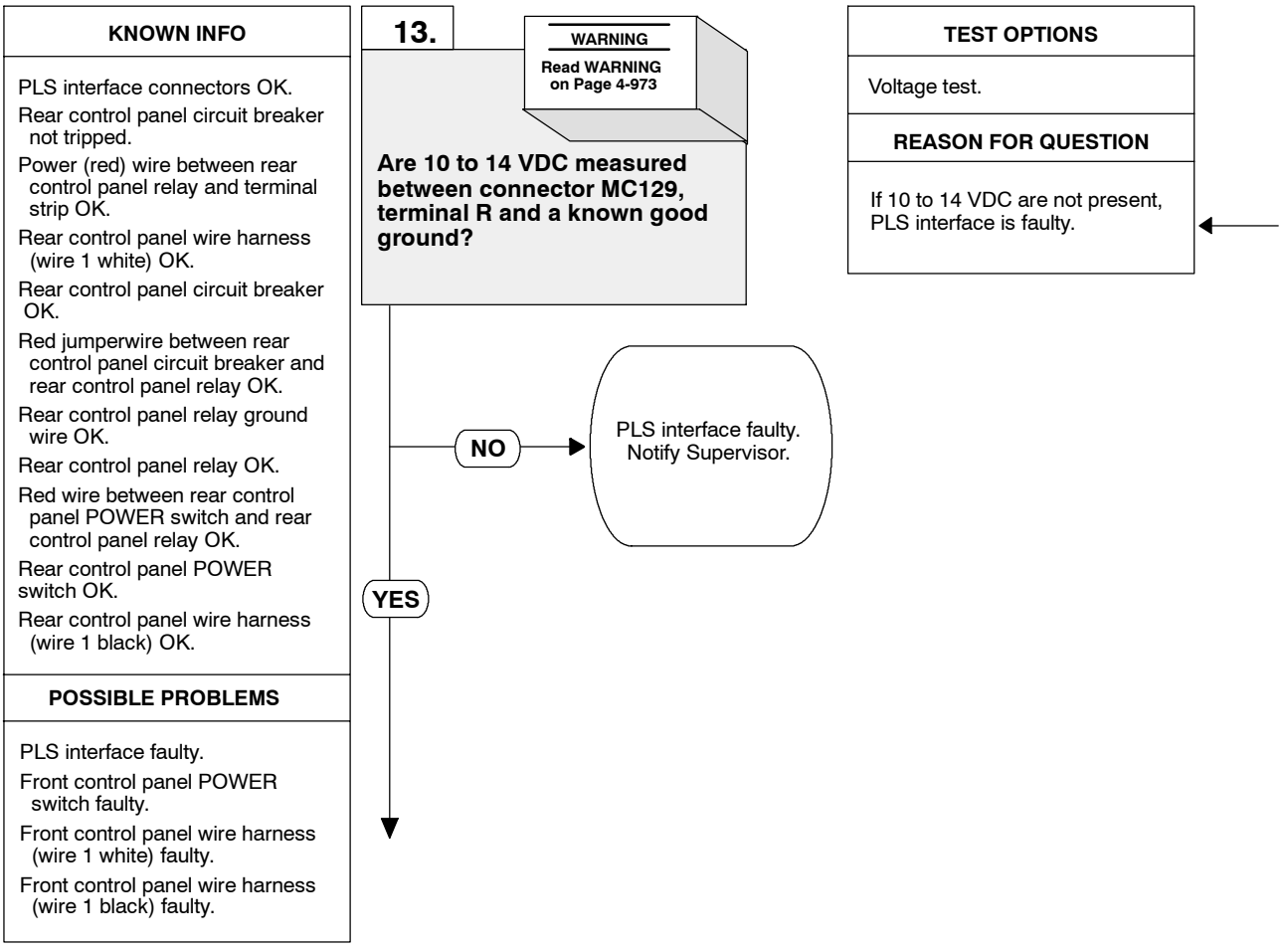
(5) Connect positive (+) multimeter lead to wire 1771 at connector MC130, terminal B.

(6) Connect negative (–) multimeter lead to a known good ground.

  (a) If 10 to 14 VDC are not present, go to Step 13 of this Fault.

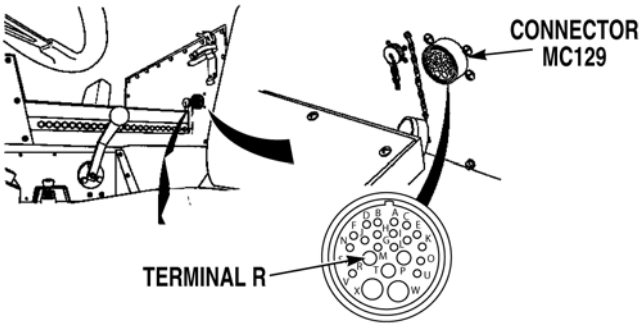
  (b) If 10 to 14 VDC are present, repair wire 1 black, (Para 3-80) or replace rear control panel wire harness (Para 3-62). Verify repair, go to Step 18 of this Fault.

28. SYSTEM DOES NOT POWER UP (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.



VOLTAGE TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Disconnect front control panel connector, MC129, (Para 2-10).

(3) Push in battery disconnect switch, (TM 9-2320-364-10).

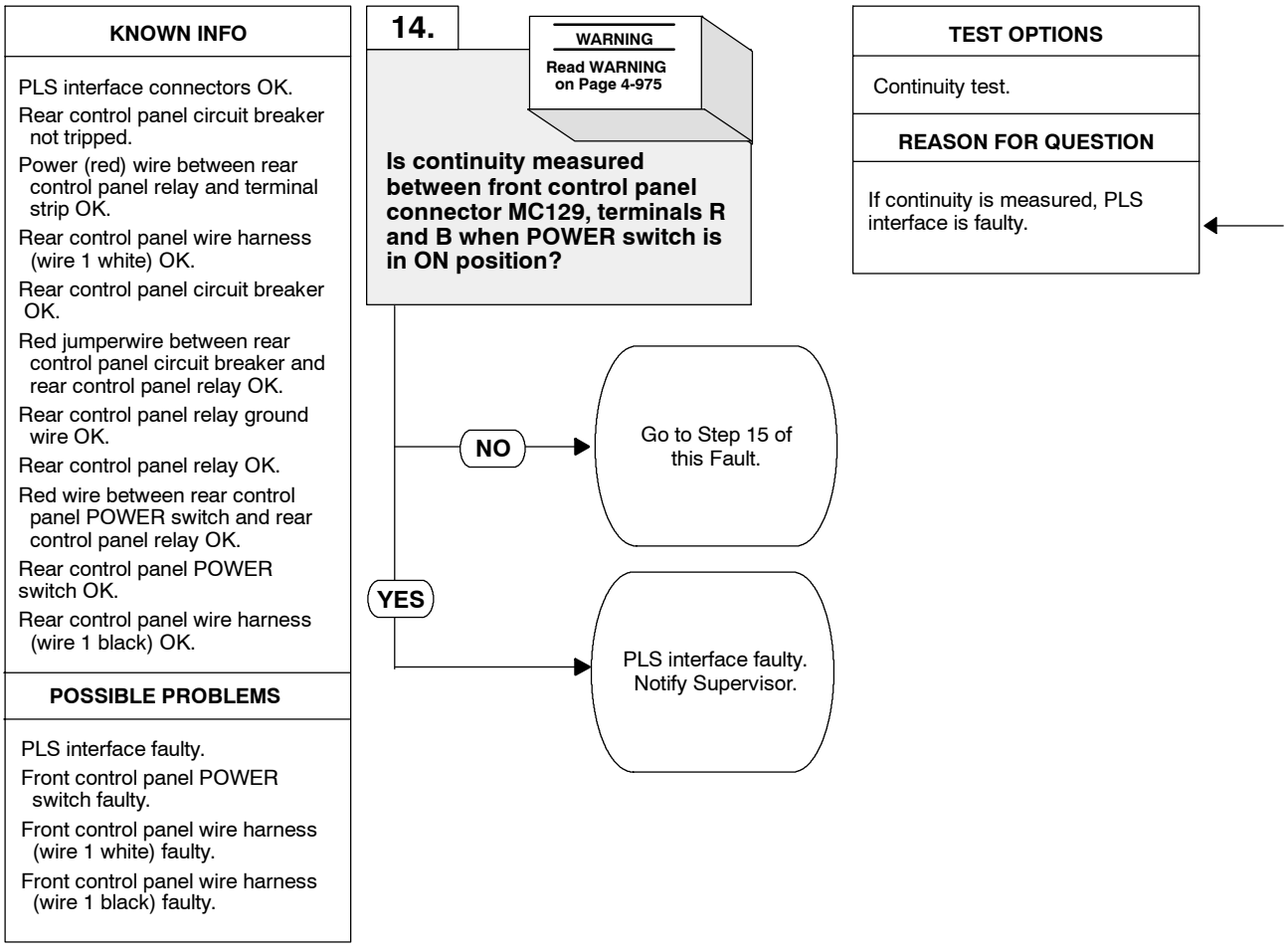
(4) Connect positive (+) multimeter lead to connector MC129, terminal R.

(5) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, PLS interface is faulty. Notify Supervisor.

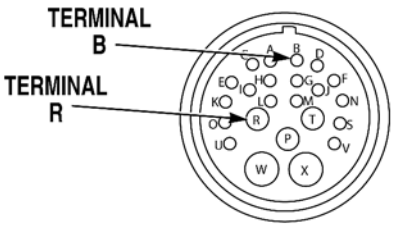
(b) If 10 to 14 VDC are present, go to Step 14 of this Fault.

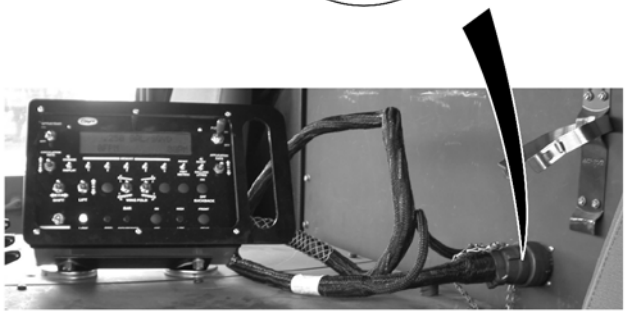
28. SYSTEM DOES NOT POWER UP (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.





CONTINUITY TEST

(1) Turn front control panel POWER switch ON, (Para 2-1).

(2) Set multimeter select switch to ohms.

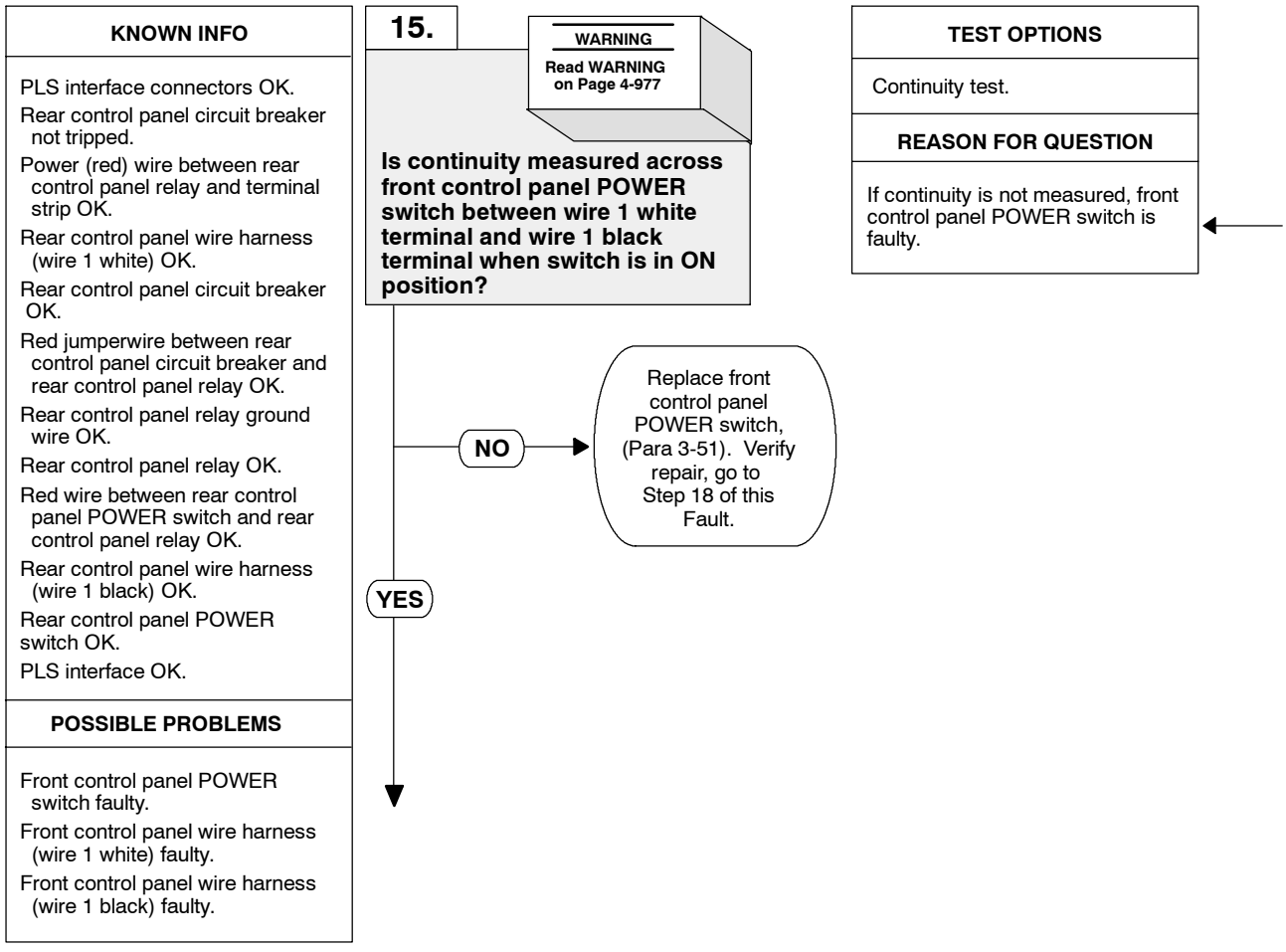
(3) Connect positive (+) multimeter lead to front control panel connector MC129, terminal R.

(4) Connect negative (-) multimeter lead to front control panel connector MC129, terminal B.

(a) If continuity is not measured, go to Step 15 of this Fault.

(b) If continuity is measured, PLS interface is faulty. Notify Supervisor.

28. SYSTEM DOES NOT POWER UP (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Remove front control panel, do not disconnect wires, (Para 3-76).

(2) Turn front control panel POWER switch ON, (Para 2-1).

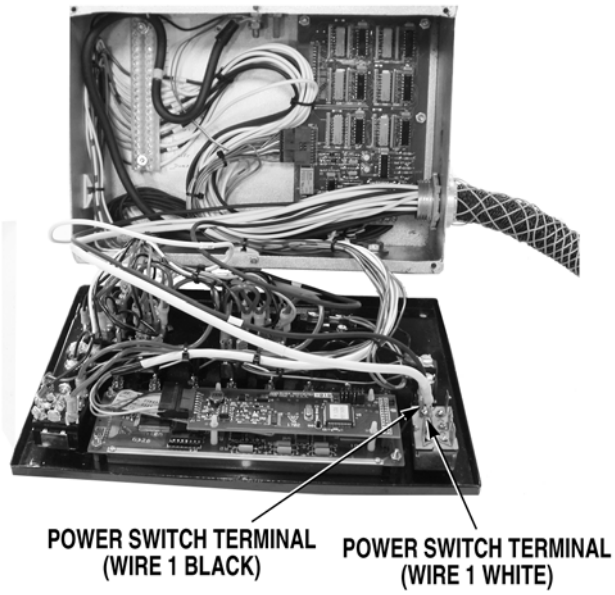
(3) Set multimeter select switch to ohms.

(4) Connect positive (+) multimeter lead to wire 1 white terminal on front control panel POWER switch.

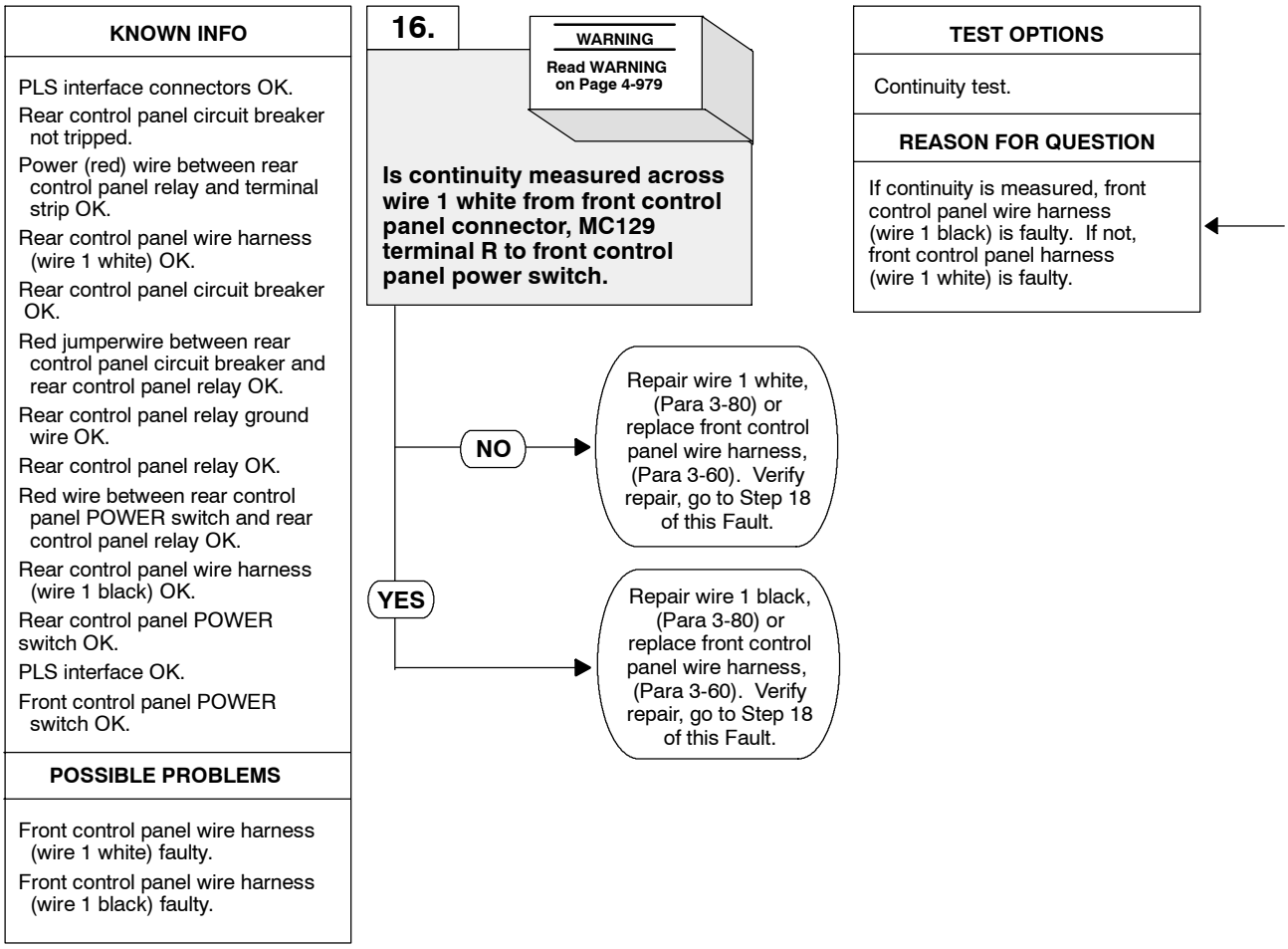
(5) Connect negative (-) multimeter lead to wire 1 black terminal on front control panel POWER switch.

(a) If continuity is not measured, replace front control panel POWER switch, (Para 3-51). Verify repair, go to Step 18 of this Fault.

(b) If continuity is measured, go to Step 16 of this Fault.



28. SYSTEM DOES NOT POWER UP (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

CONTINUITY TEST

(1) Set multimeter select switch to ohms.

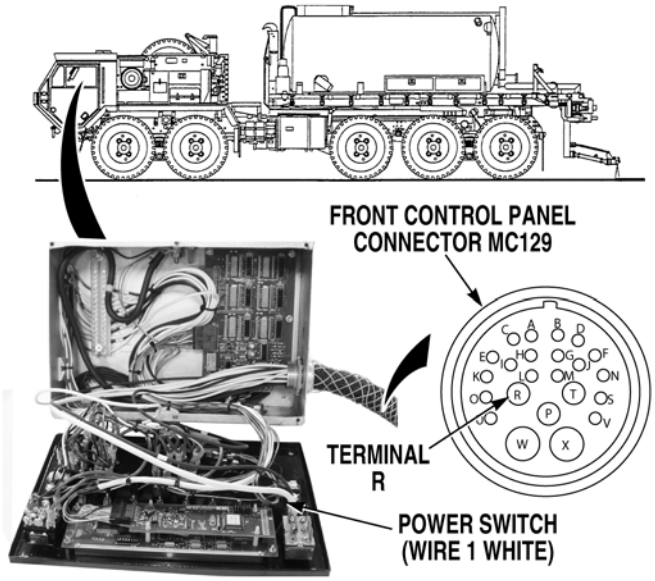
(2) Connect positive (+) multimeter lead to wire 1 white terminal on front control panel connector MC129, terminal R.

(3) Connect negative (-) multimeter lead to wire 1 white at front control panel POWER switch.

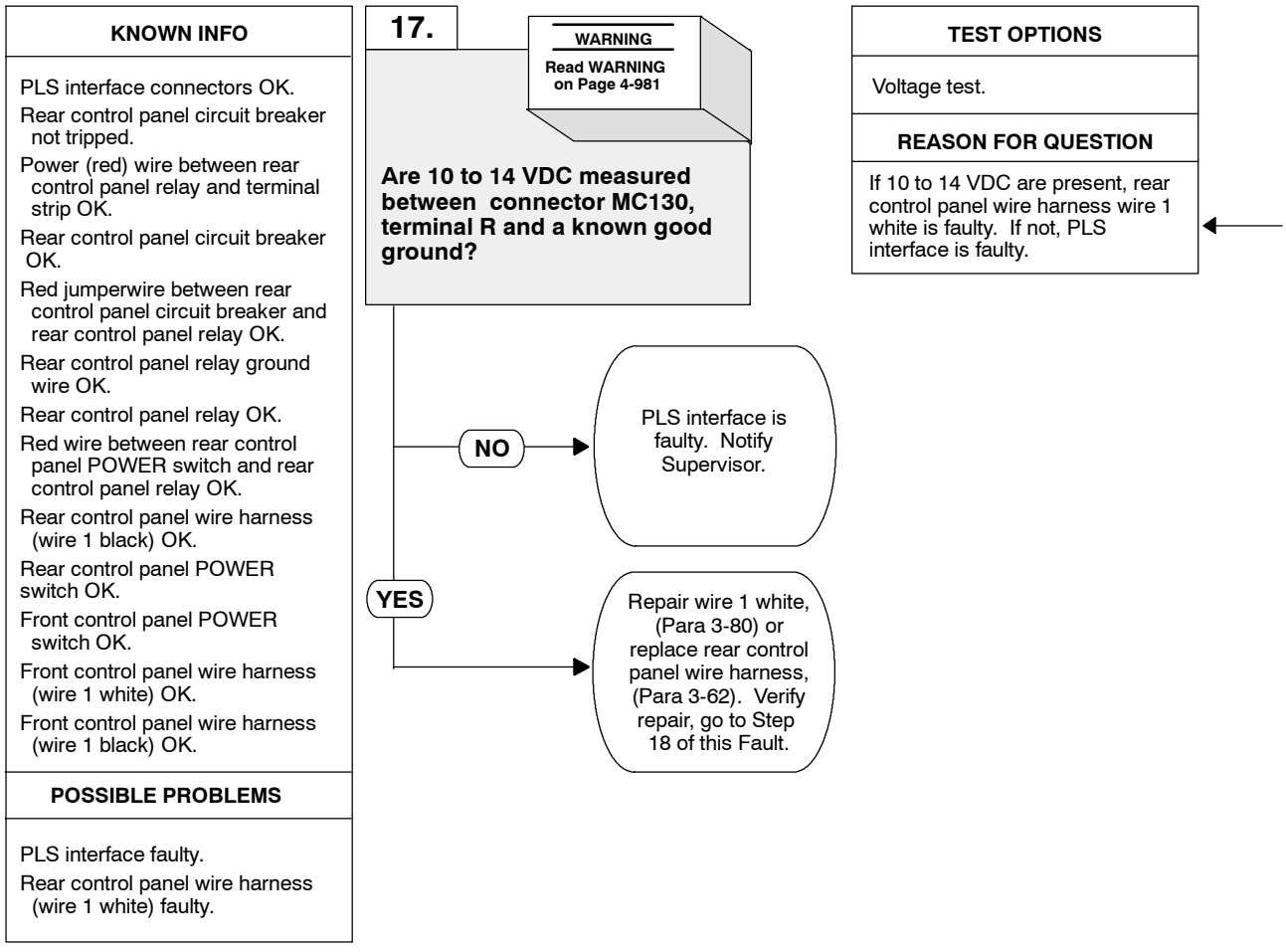
  (a) If continuity is not measured, repair wire 1 white, (Para 3-80) or replace front control panel wire harness, (Para 3-60).

  (b) If continuity is measured, repair wire 1 black, (Para 3-80) or replace front control panel wire harness, (Para 3-60).

(4) Verify repair, go to Step 18 of this Fault.



28. SYSTEM DOES NOT POWER UP (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

VOLTAGE TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Disconnect connector MC130 (UPIK).

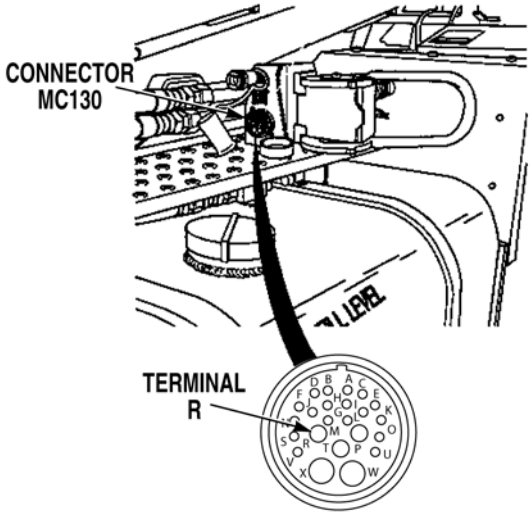
(3) Push in battery disconnect switch, (TM 9-2320-364-10).

(4) Connect positive (+) multimeter lead on connector MC130, terminal R.

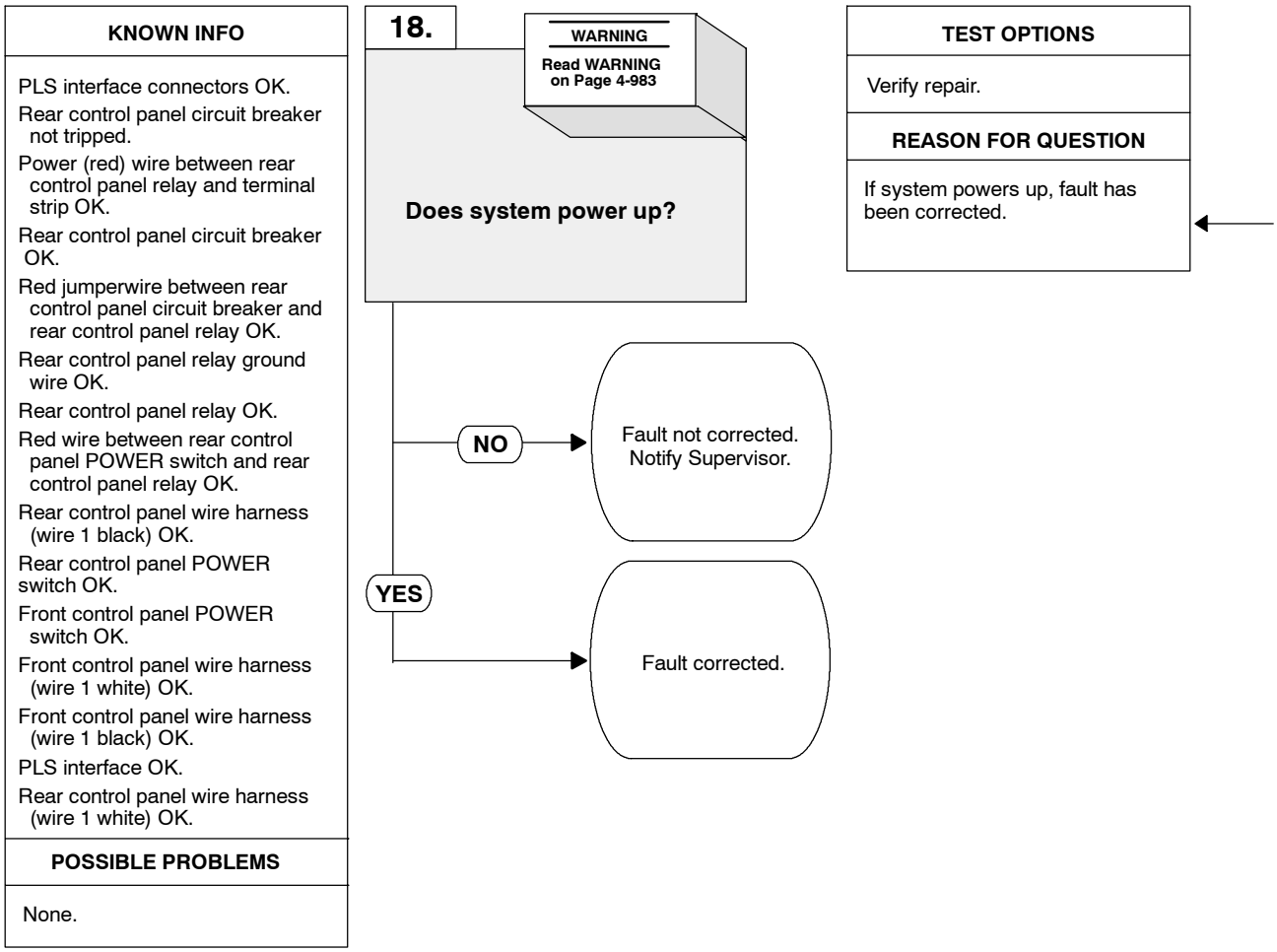
(5) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, PLS interface is faulty. Notify Supervisor.

(b) If 10 to 14 VDC are present, repair wire 1 white, (Para 3-80) or replace rear control panel wire harness, (Para 3-62). Verify repair, go to Step 18 of this Fault.



28. SYSTEM DOES NOT POWER UP (CONT).



WARNING

- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working with these connectors. Failure to comply may cause injury to personnel.

VERIFY REPAIR

(1) If in, pull out battery disconnect switch, (TM 9-2320-364-10).

(2) If removed, replace front control panel, (Para 3-76).

(3) If removed, replace rear control panel, (Para 3-76).

(4) If disconnected, connect connector MC130 (UPIK).

(5) If disconnected, connect front control panel connector MC129.

(6) Push in battery disconnect switch, (TM 9-2320-364-10).

(7) Turn front control panel POWER switch ON, (Para 2-1).

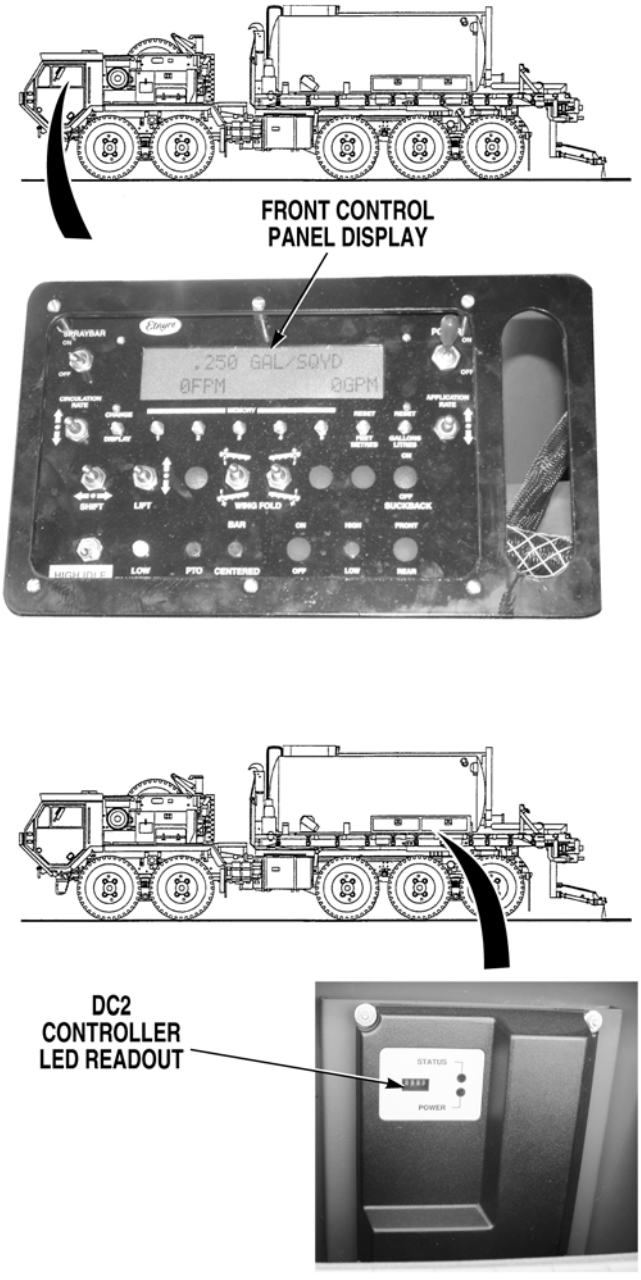
(8) Turn rear control panel POWER switch ON, (Para 2-1).

(9) Check if system powers up. System is powered up when front control panel display and controller LED readout are operating.

  (a) If system does not power up, fault not corrected. Notify Supervisor.

  (b) If system powers up fault has been corrected.

(10) Turn front and rear control panel POWER switches OFF, (Para 2-1).

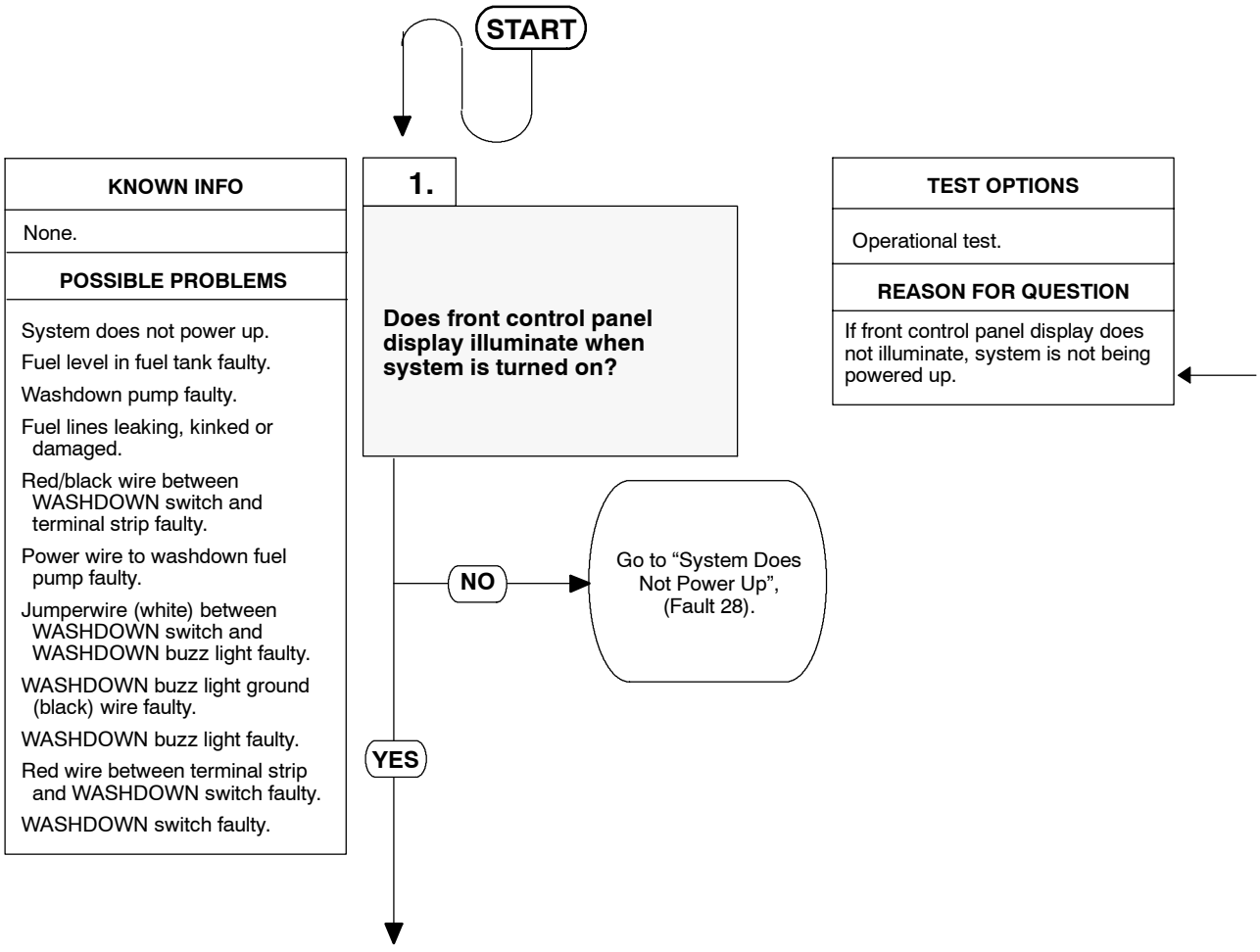


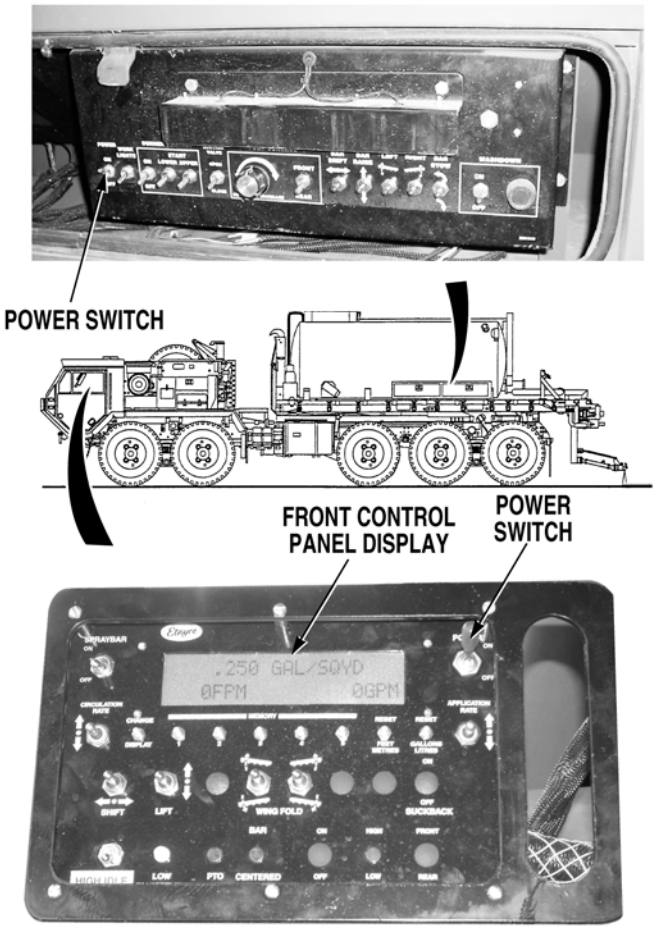
29. WASHDOWN FUNCTION DOES NOT OPERATE.

INITIAL SETUP

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
- Multimeter (Item 8, Appendix F)
- Jumperwire

Equipment Condition
- Bituminous Distributor loaded on PLS, (Para 2-5)
- Engine OFF, (TM 9-2320-364-10)
- Wheels chocked, (TM 9-2320-364-10)





OPERATIONAL TEST

(1) Turn front control panel POWER switch ON, (Para 2-1).

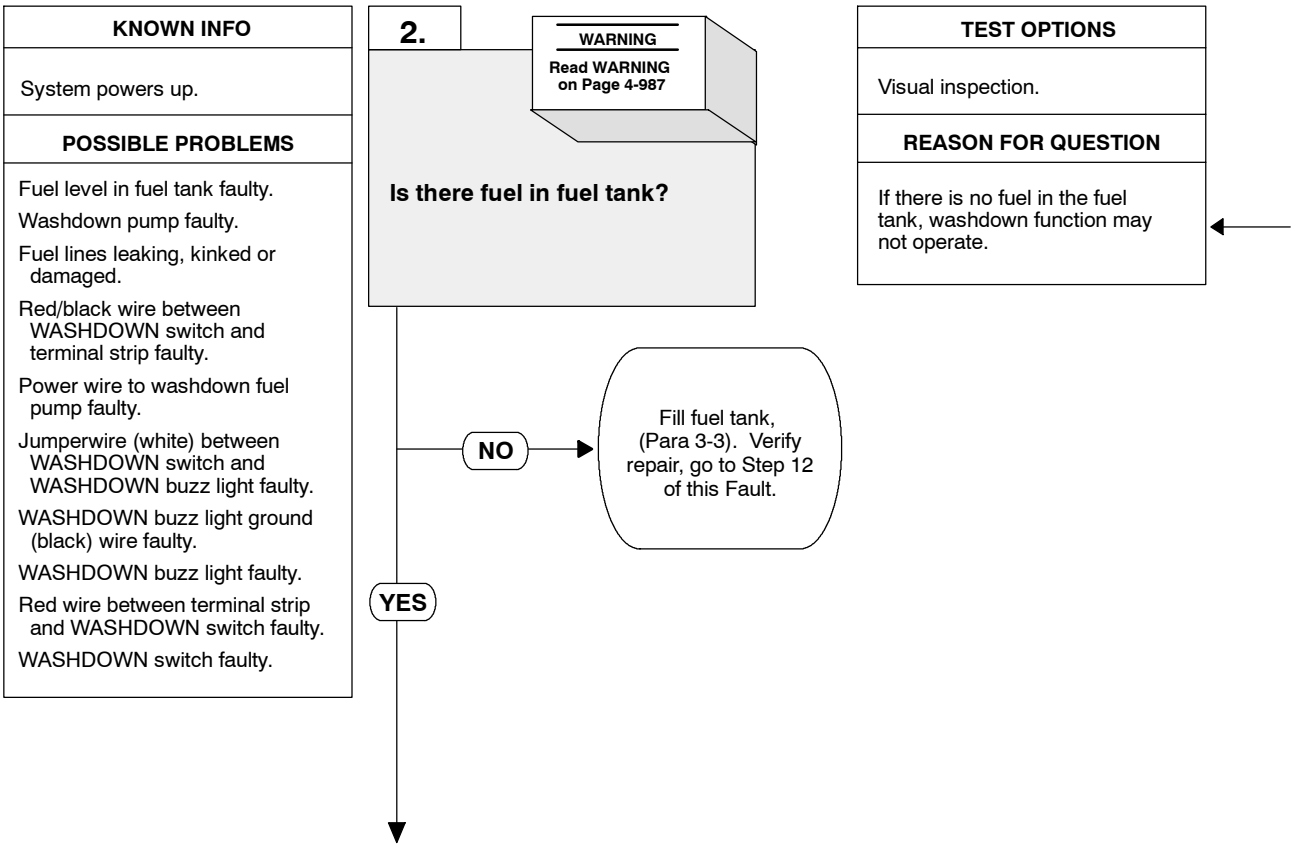
(2) Turn rear control panel POWER switch ON, (Para 2-1).

(3) Check if front control panel display illuminates.

  (a) If display does not illuminate, go to "System Does Not Power Up", (Fault 28).

  (b) If display illuminates, go to Step 2 of this Fault.

29. WASHDOWN FUNCTION DOES NOT OPERATE (CONT).



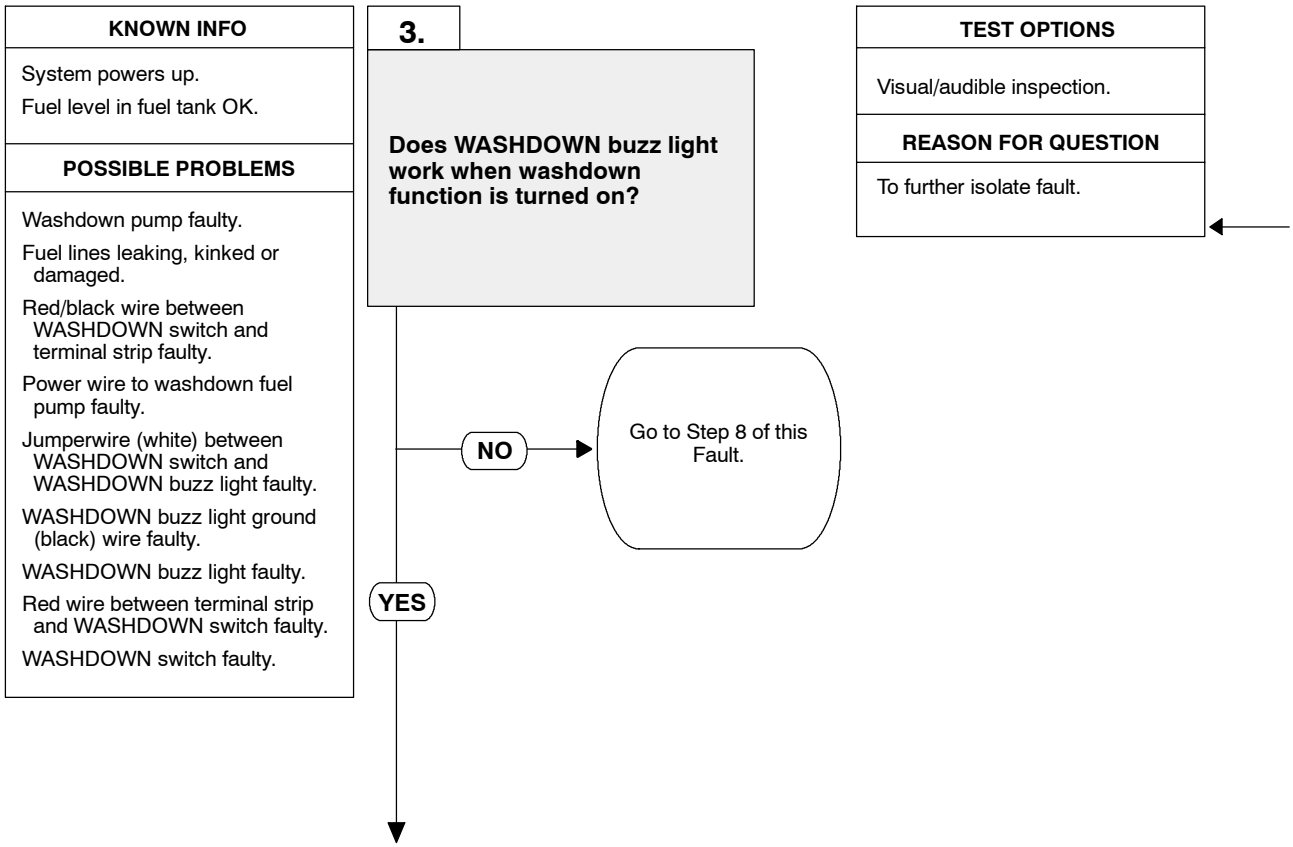
WARNING

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.

VISUAL INSPECTION
Check fuel level in fuel tank. (a) If fuel level is empty or low, fill fuel tank, (Para 3-3). Verify repair, go to Step 12 of this Fault. (b) If fuel level is OK, go to Step 3 of this Fault.



29. WASHDOWN FUNCTION DOES NOT OPERATE (CONT).



VISUAL/AUDIBLE INSPECTION

(1) Turn front control panel POWER switch ON, (Para 2-1).

(2) Turn rear control panel POWER switch ON, (Para 2-1).

NOTE

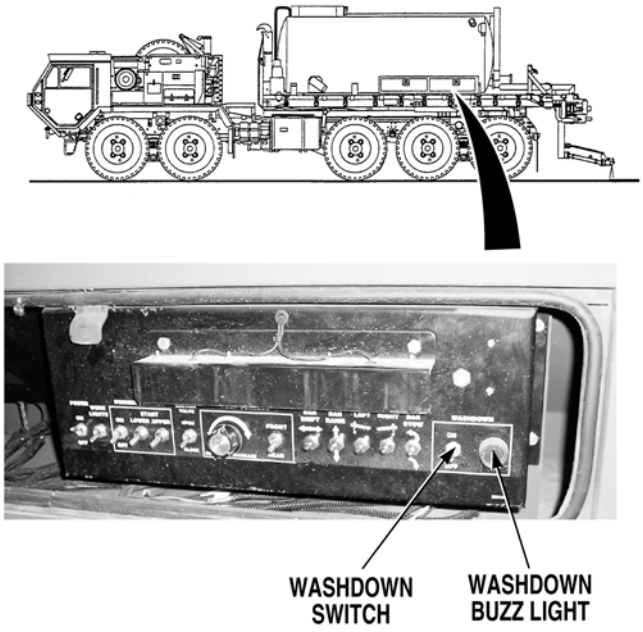
WASHDOWN buzz light will illuminate and buzzer will sound when washdown is operating.

(3) Turn WASHDOWN switch ON, (Para 2-1).

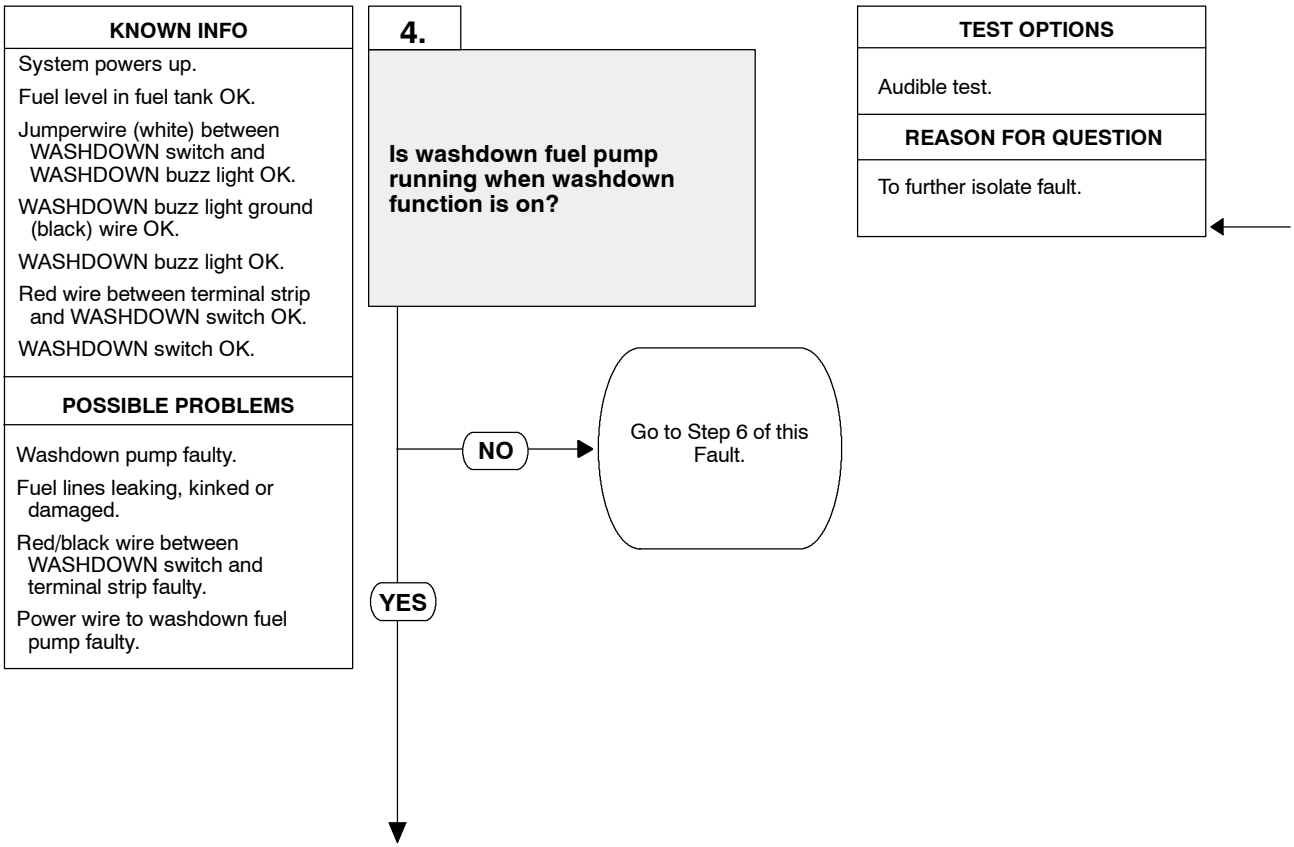
(4) Check if WASHDOWN buzz light is operating.

(a) If WASHDOWN buzz light is not working, go to Step 8 of this Fault.

(b) If WASHDOWN buzz light is working, go to Step 4 of this Fault.



29. WASHDOWN FUNCTION DOES NOT OPERATE (CONT).



AUDIBLE TEST

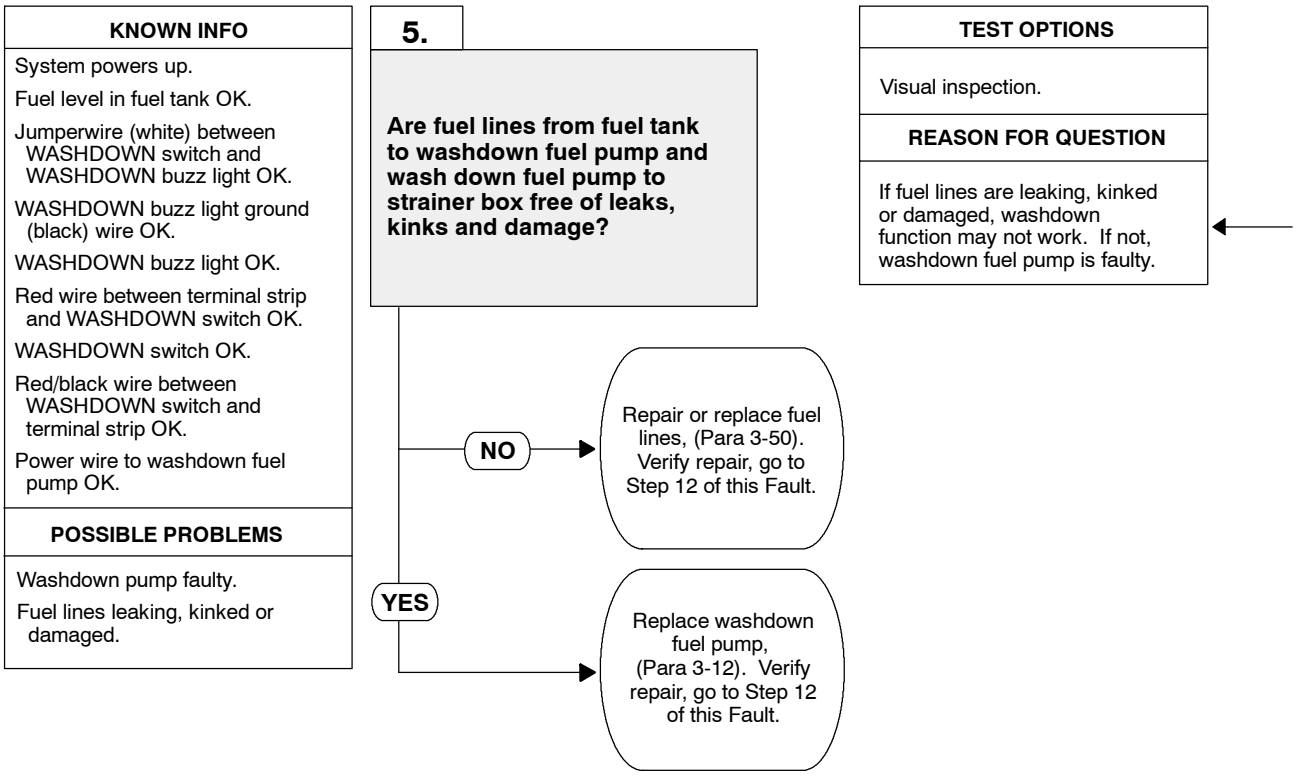
Check if you can hear washdown fuel pump running.

(a) If washdown fuel pump is not running, go to Step 6 of this Fault.

(b) If washdown fuel pump is running, go to Step 5 of this Fault.



29. WASHDOWN FUNCTION DOES NOT OPERATE (CONT).



VISUAL INSPECTION

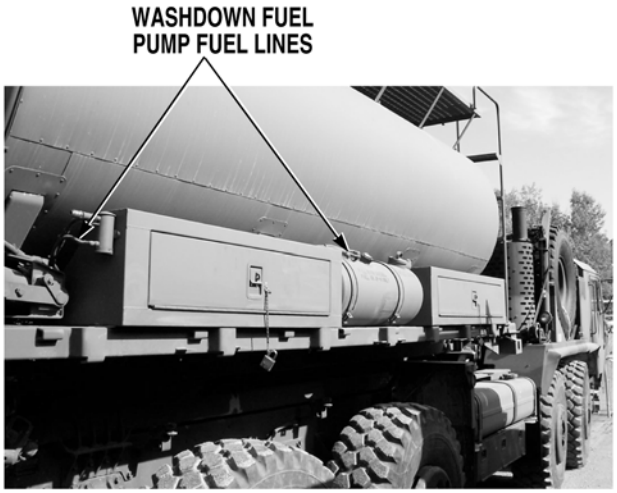
(1) Turn washdown function OFF, (Para 2-21).

(2) Check fuel lines from fuel tank to washdown fuel pump and from washdown fuel pump to strainer box for leaks, kinks and damage.

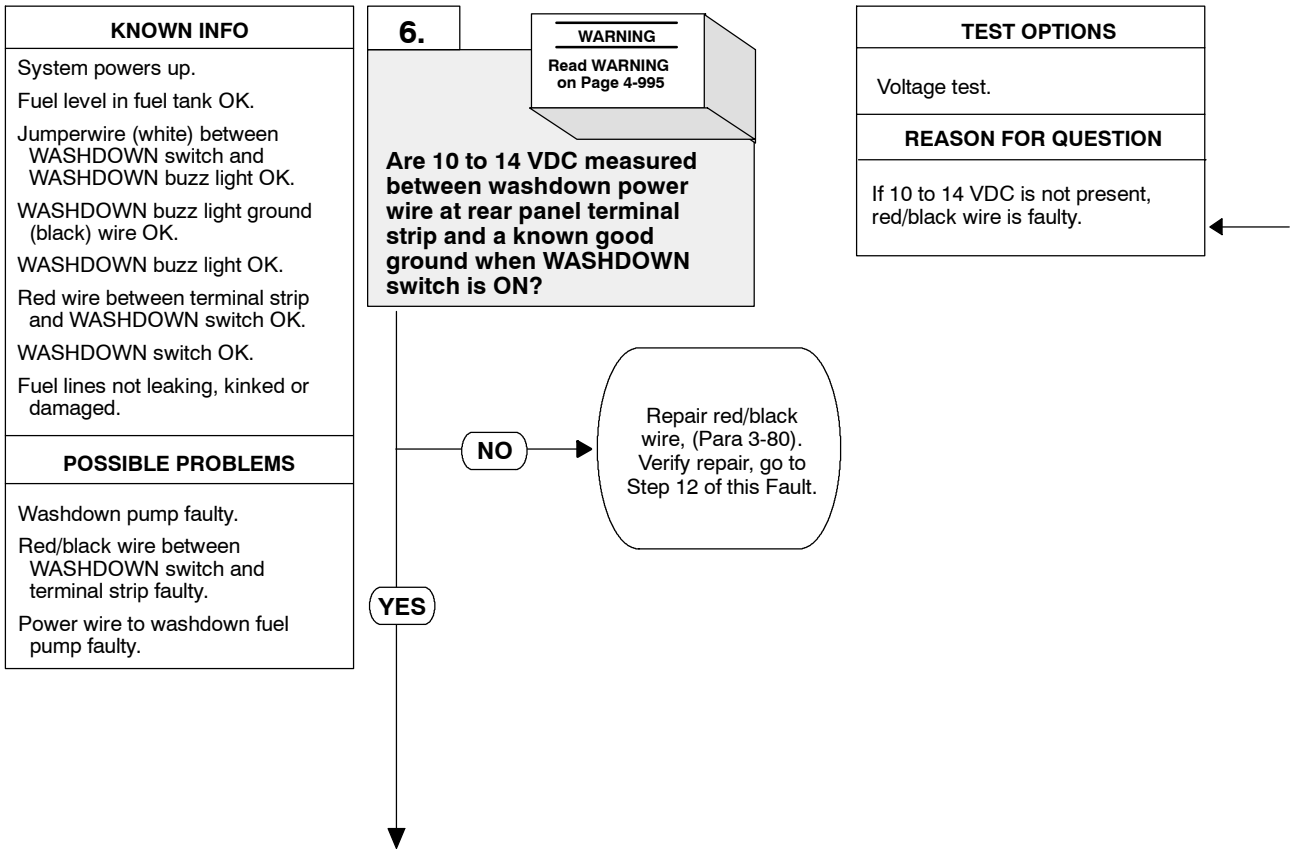
  (a) If fuel lines are not leaking, kinked or damaged. Replace washdown fuel pump, (Para 3-12).

  (b) If fuel lines are leaking, kinked or damaged, repair or replace fuel lines, (Para 3-50).

(3) Verify repair, go to Step 12 of this Fault.



29. WASHDOWN FUNCTION DOES NOT OPERATE (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits Failure to comply may cause injury to personnel.

VOLTAGE TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Remove rear control panel, (Para 3-76).

(3) Push in battery disconnect switch, (TM 9-2320-364-10).

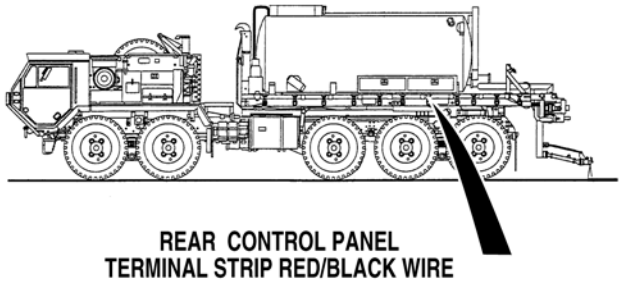
(4) Turn WASHDOWN switch ON, (Para 2-1).

(5) Connect positive (+) multimeter lead to red/black wire at rear control panel terminal strip.

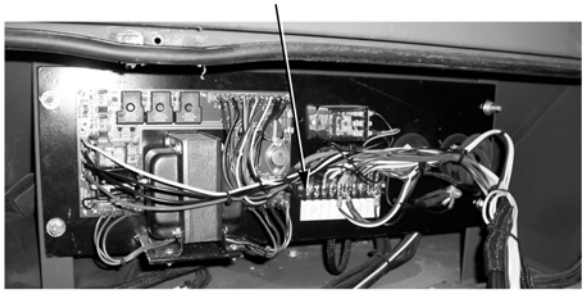
(6) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, repair red/black wire between WASHDOWN switch and rear control panel terminal strip, (Para 3-80). Verify repair, go to Step 12 of this Fault.

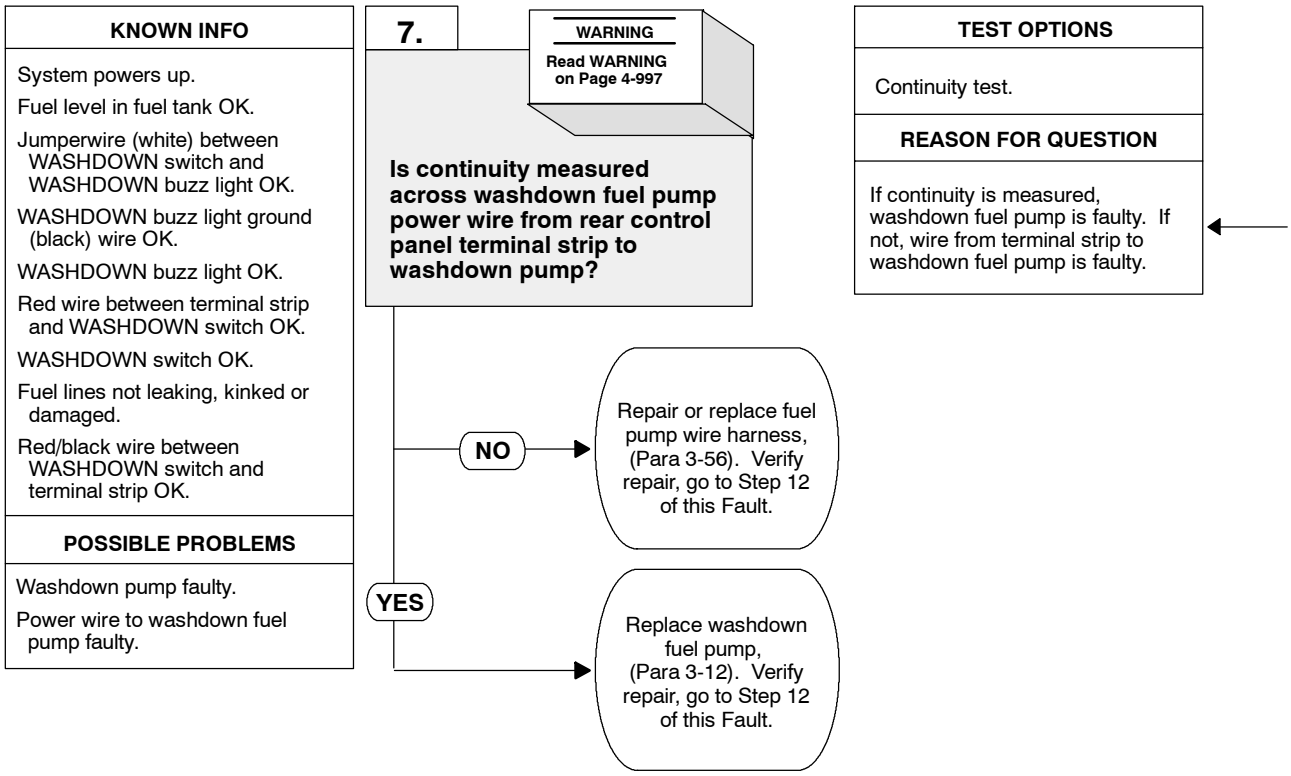
(b) If 10 to 14 VDC are present, go to Step 7 of this Fault.



REAR CONTROL PANEL
TERMINAL STRIP RED/BLACK WIRE



29. WASHDOWN FUNCTION DOES NOT OPERATE (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Turn WASHDOWN switch to OFF position, (Para 2-1).

(2) Pull out battery disconnect switch, (TM 9-2320-364-10).

(3) Cut washdown fuel pump wire at splice.

(4) Set multimeter select switch to ohms.

(5) Connect jumperwire between washdown fuel pump power wire at rear control panel terminal strip and a known good ground.

(6) Connect positive (+) multimeter lead to fuel pump power wire at splice.

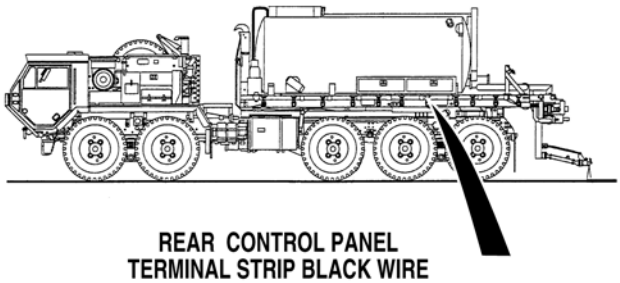
(7) Connect negative (-) multimeter lead to a known good ground.

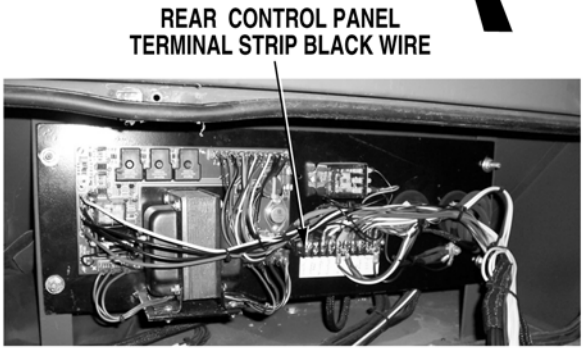
(a) If continuity is not measured, repair or replace fuel pump wire harness, (Para 3-56).

(b) If continuity is measured, replace washdown fuel pump, (Para 3-12).

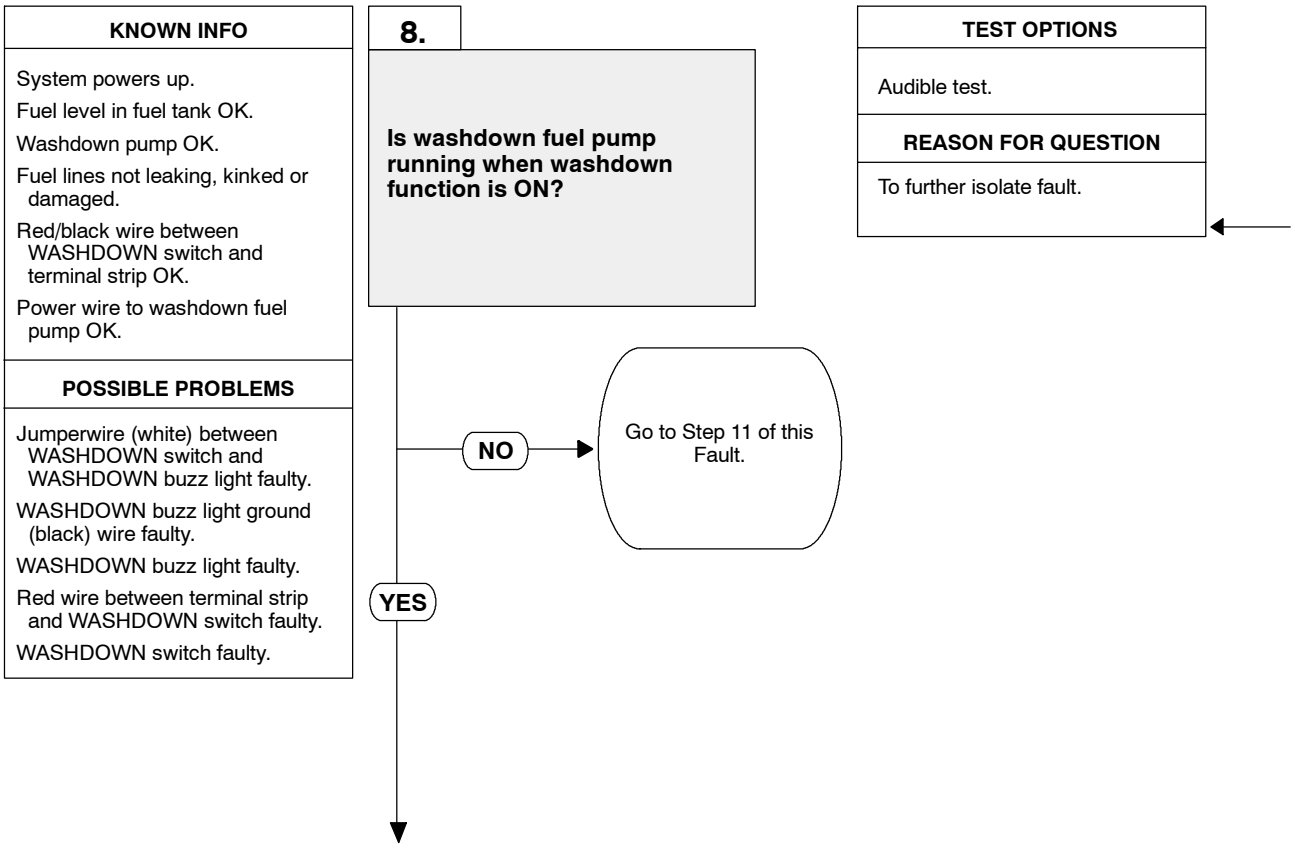
(8) Verify repair, go to Step 12 of this Fault.







29. WASHDOWN FUNCTION DOES NOT OPERATE (CONT).



AUDIBLE TEST

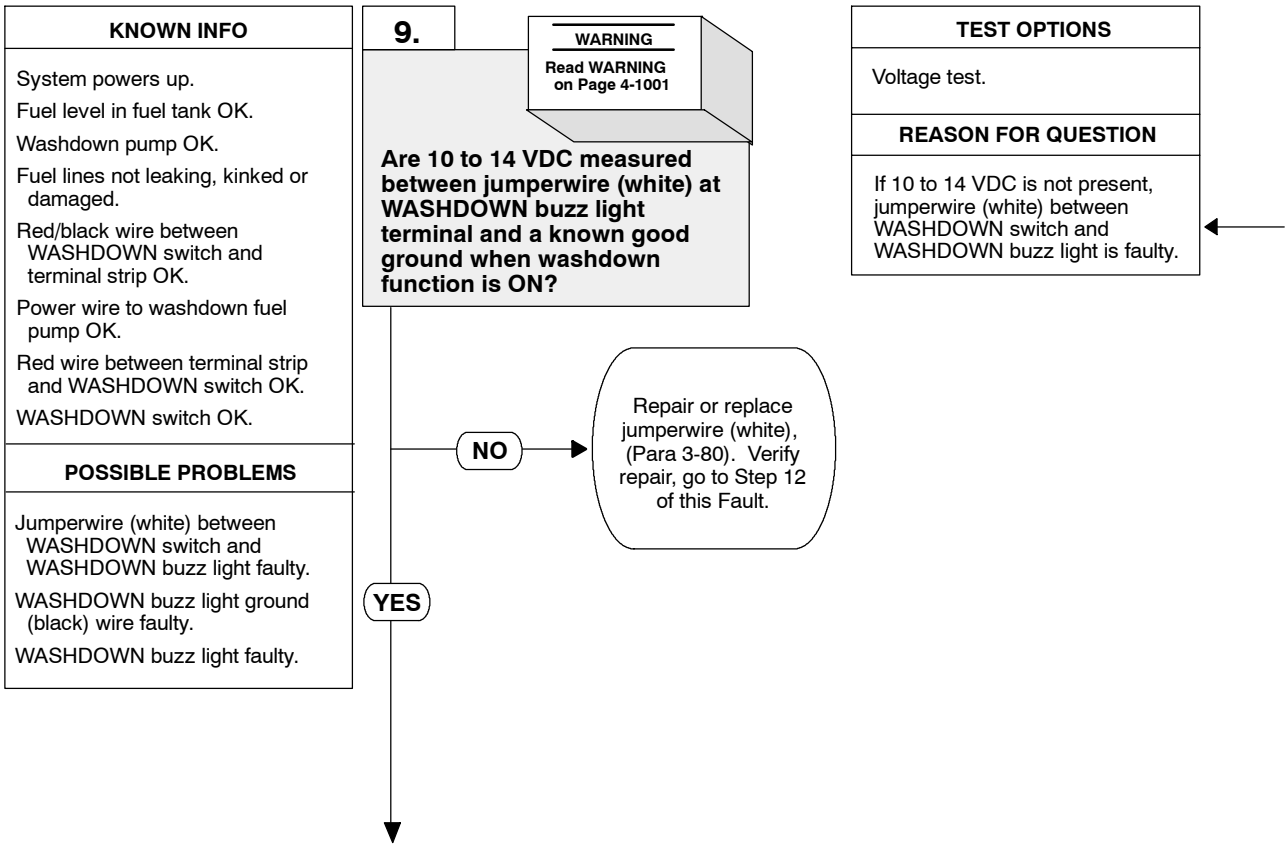
Check if you can hear washdown fuel pump running.

(a) If washdown fuel pump is not running, go to Step 11 of this fault.

(b) If washdown fuel pump is running, go to Step 9 of this Fault.

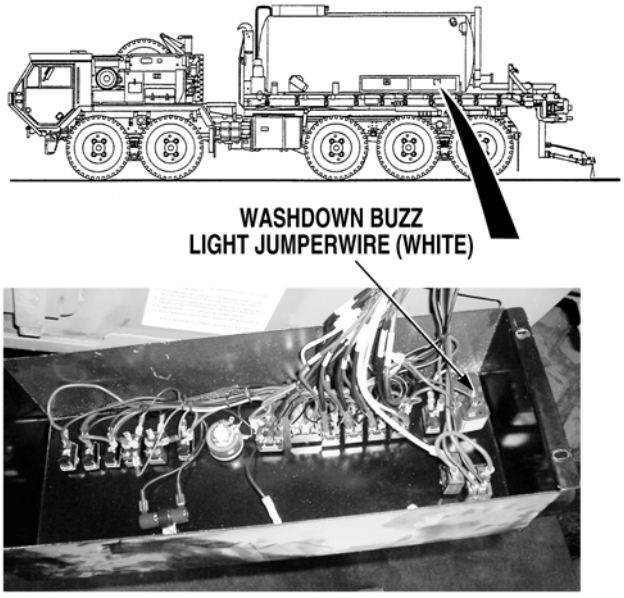


29. WASHDOWN FUNCTION DOES NOT OPERATE (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits Failure to comply may cause injury to personnel.



VOLTAGE TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Remove rear control panel, (Para 3-76).

(3) Push in battery disconnect switch, (TM 9-2320-364-10).

(4) Turn WASHDOWN switch ON, (Para 2-1).

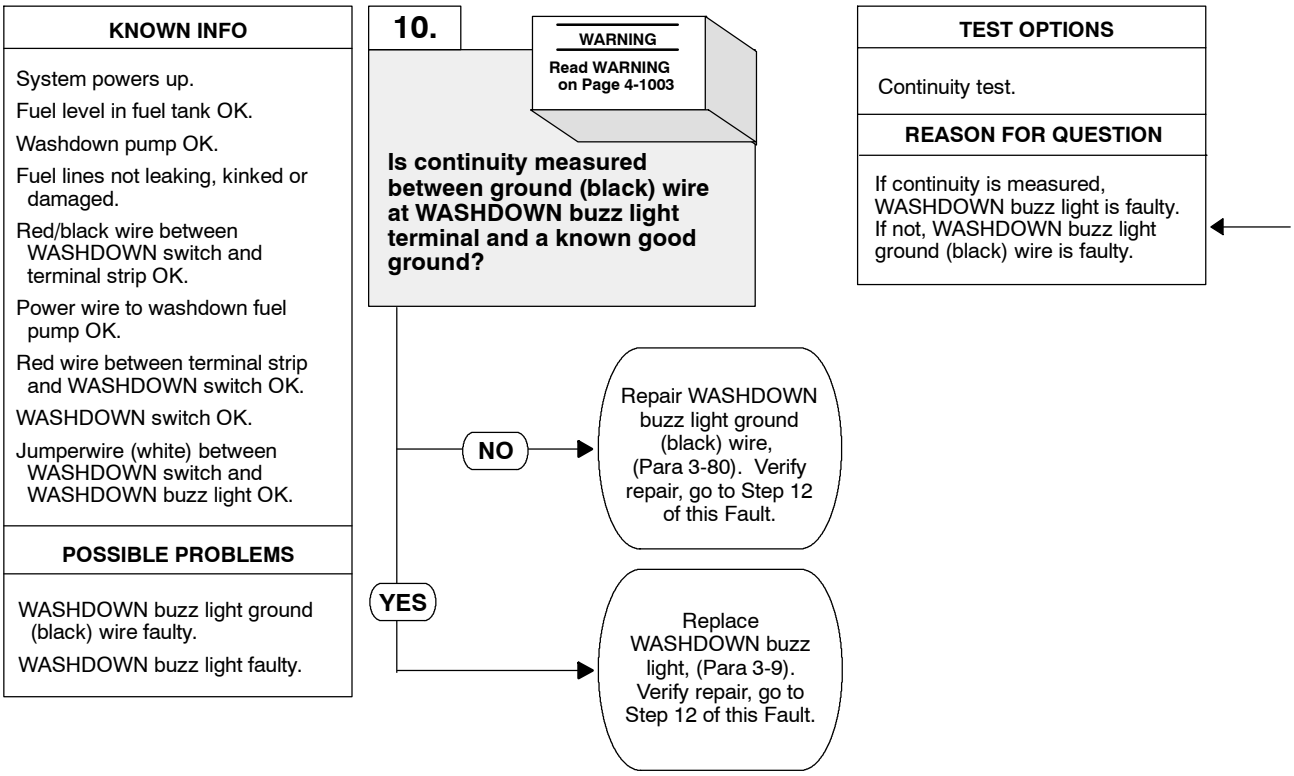
(5) Connect positive (+) multimeter lead to jumperwire (white) wire at WASHDOWN buzz light terminal.

(6) Connect negative (-) multimeter lead to a known good ground.

(a) If 10 to 14 VDC are not present, repair or replace jumperwire (white), (Para 3-80). Verify repair, go to Step 12 of this Fault.

(b) If 10 to 14 VDC are present, go to Step 10 of this Fault.

29. WASHDOWN FUNCTION DOES NOT OPERATE (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Set multimeter select switch to ohms.

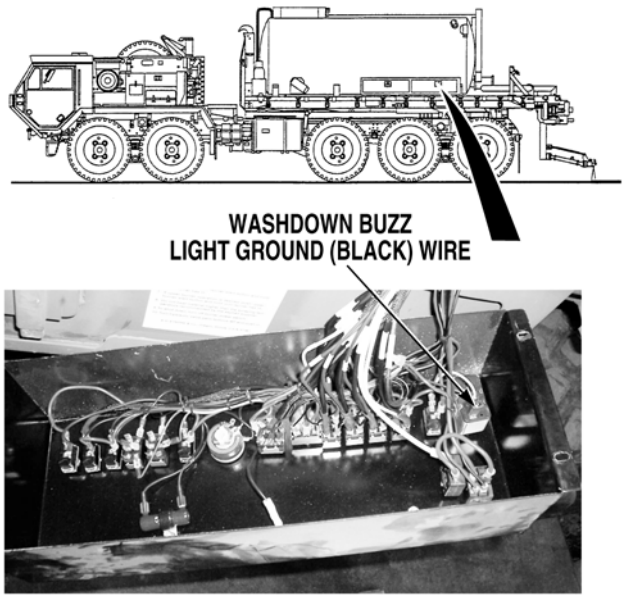
(3) Connect positive (+) multimeter lead to ground (black) wire at WASHDOWN buzz light terminal.

(4) Connect negative (-) multimeter lead to a known good ground.

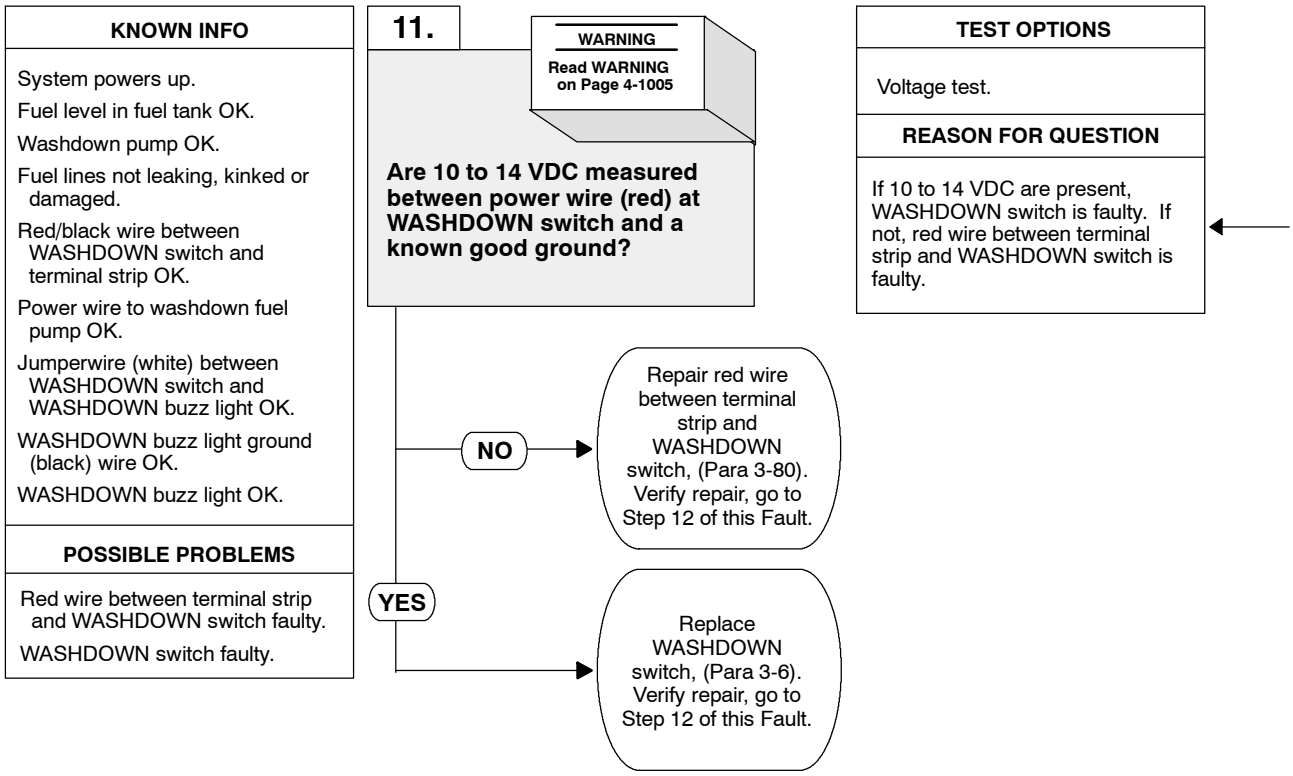
(a) If continuity is not measured, repair WASHDOWN buzz light ground (black) wire, (Para 3-80).

(b) If continuity is measured, replace WASHDOWN buzz light, (Para 3-9).

(5) Verify repair, go to Step 12 of this Fault.



29. WASHDOWN FUNCTION DOES NOT OPERATE (CONT).



WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

VOLTAGE TEST

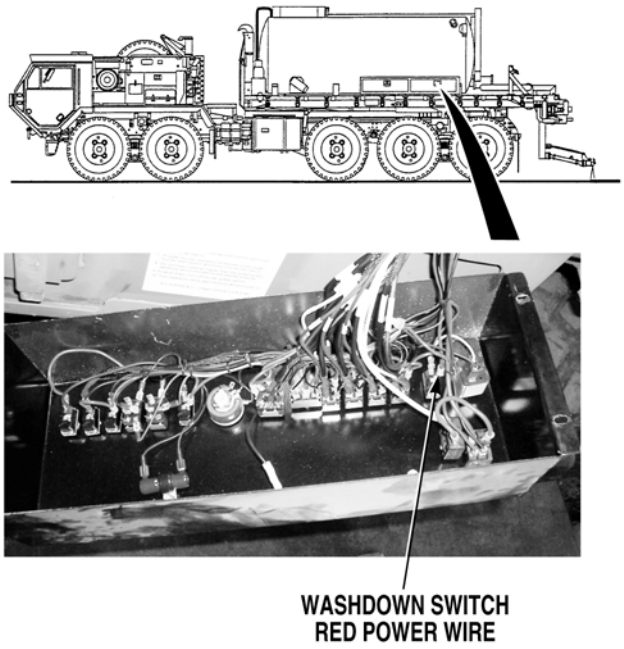
(1) Connect positive (+) multimeter lead to red power wire at WASHDOWN switch.

(2) Connect negative (-) multimeter lead to a known good ground.

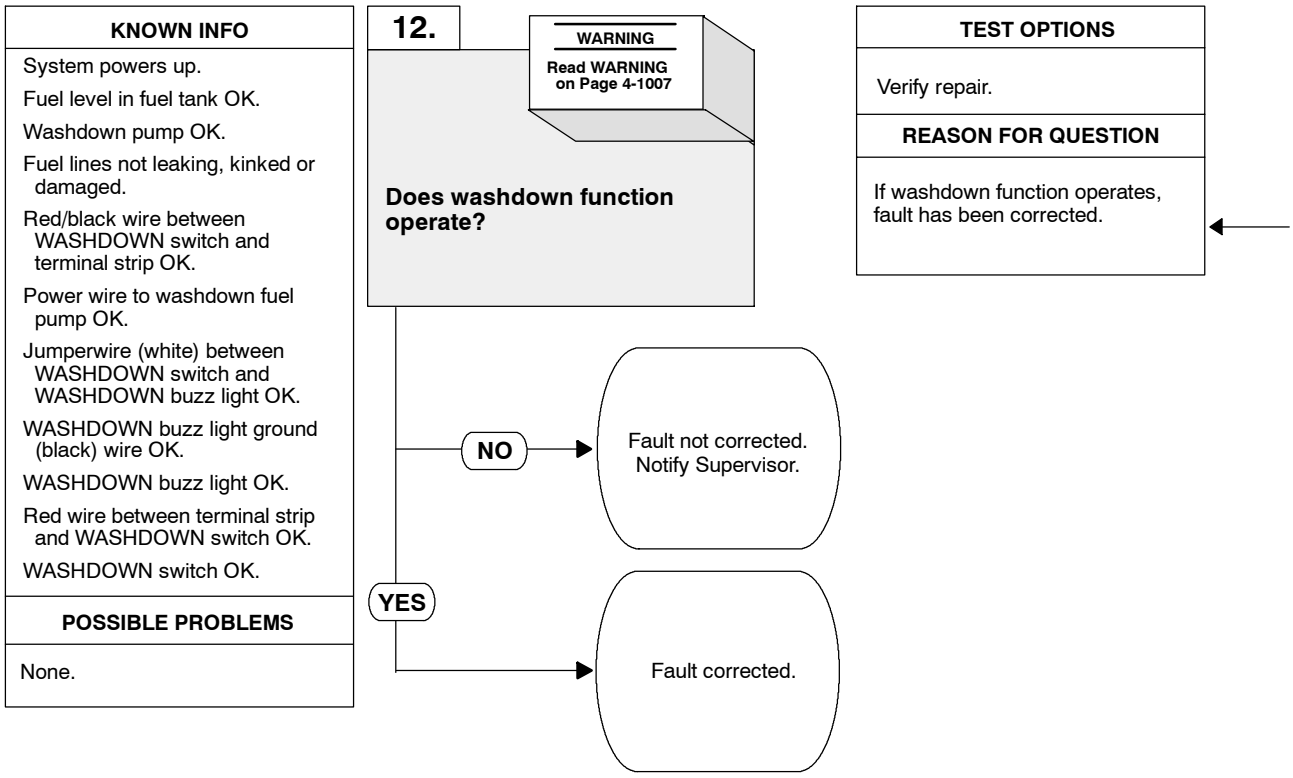
  (a) If 10 to 14 VDC are not present, replace red wire between terminal strip and WASHDOWN switch (Para 3-80).

  (b) If 10 to 14 VDC are present, replace WASHDOWN switch, (Para 3-6).

(3) Verify repair, go to Step 12 of this Fault.

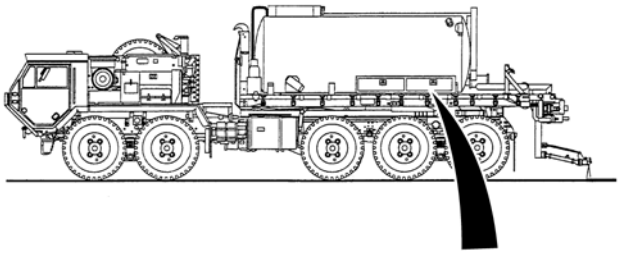


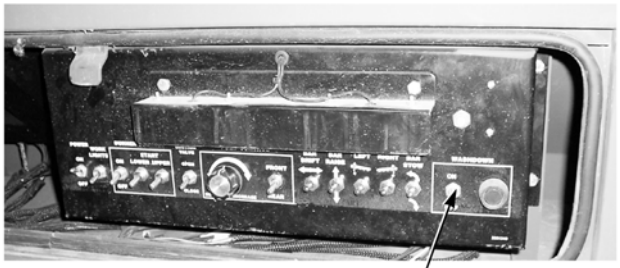
29. WASHDOWN FUNCTION DOES NOT OPERATE (CONT).



WARNING

- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits Failure to comply may cause injury to personnel.
- 12 and 24 VDC are present at interface connectors MC129 and MC130, when battery disconnect is closed. Care must be exercised when working on these connectors. Failure to comply may cause injury to personnel.





VERIFY REPAIR

(1) If in, pull out battery disconnect switch, (TM 9-2320-364-10).

(2) If cut, repair wire at washdown fuel pump power wire, (Para 3-80).

(3) If removed, replace front control panel, (Para 3-76).

(4) If removed, replace rear control panel, (Para 3-76).

(5) If disconnected, connect connector MC130 (UPIK), (Para 2-10).

(6) If disconnected, connect front control panel (connector MC129), (Para 2-10).

(7) Push in battery disconnect switch, (TM 9-2320-364-10).

(8) Turn front control panel POWER switch ON, (Para 2-1).

(9) Turn rear control panel POWER switch ON, (Para 2-1).

(10) Operate washdown function, (Para 2-21).

  (a) If washdown function does not operate, fault not corrected. Notify Supervisor.

  (b) If washdown function operates, fault has been corrected.

(11) Turn front control panel POWER switch OFF, (Para 2-1).

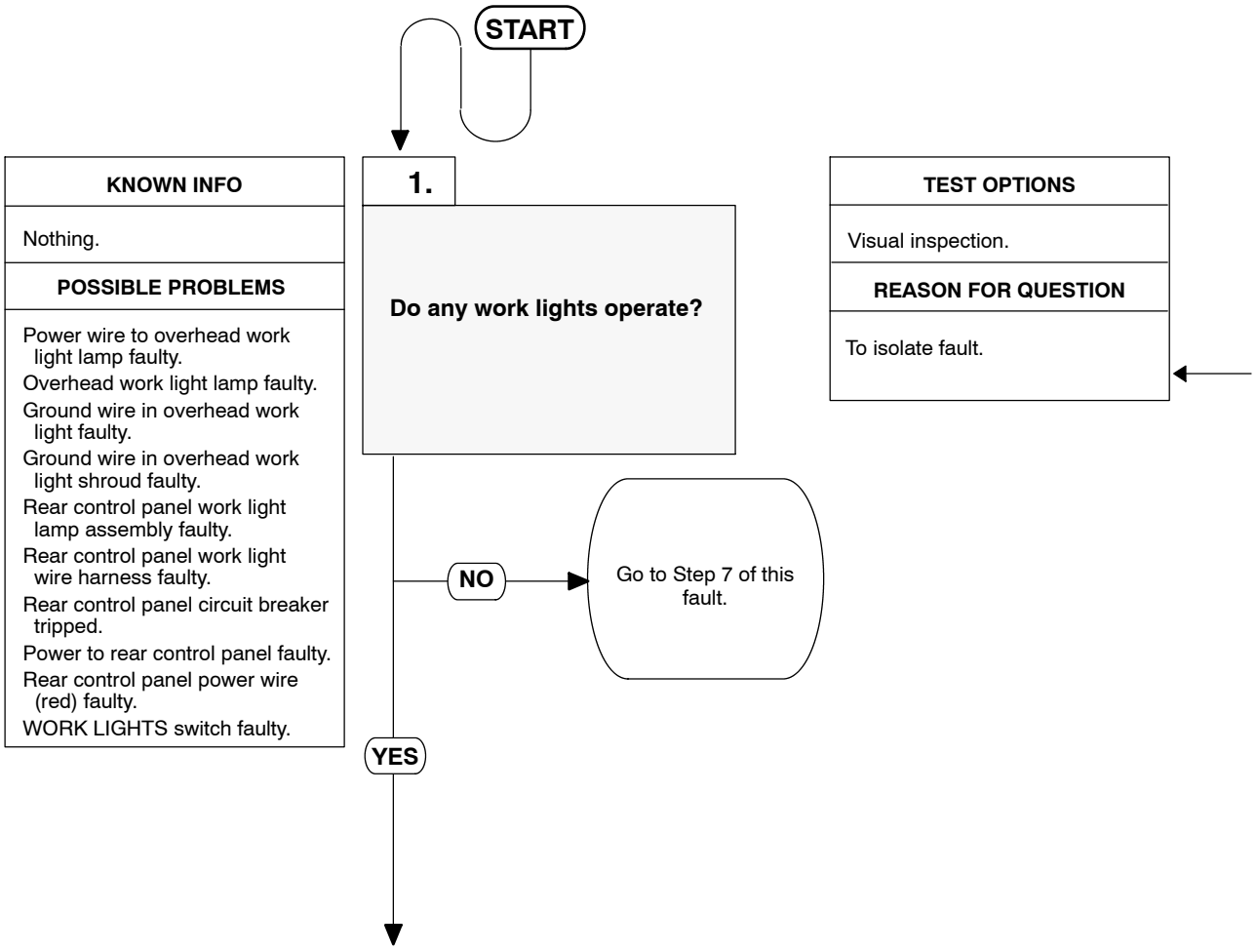
(12) Turn rear control panel POWER switch OFF, (Para 2-1).

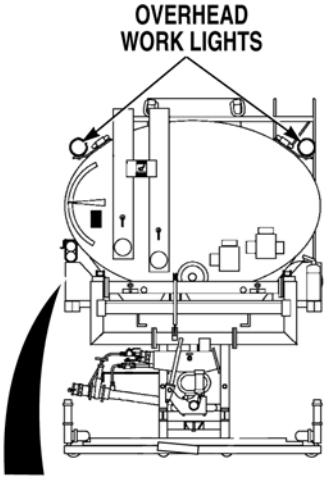
30. WORK LIGHTS AND/OR PANEL LIGHTS DO NOT OPERATE.

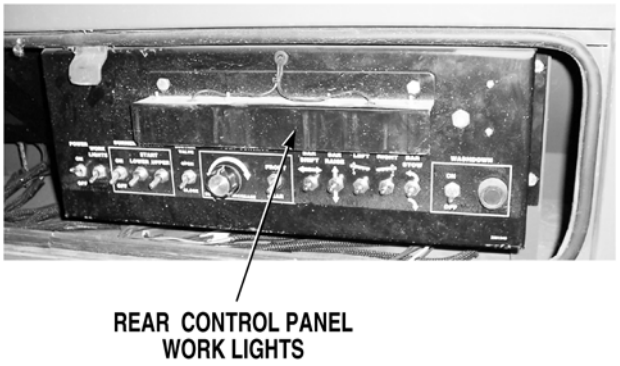
INITIAL SETUP

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Item 14, Appendix F)
Multimeter (Item 8, Appendix F)

Equipment Condition
Bituminous Distributor loaded on PLS, (Para 2-5)
Engine OFF, (TM 9-2320-364-10)
Wheels chocked, (TM 9-2320-364-10)







VISUAL INSPECTION

(1) Turn front control panel POWER switch ON, (Para 2-1).

(2) Turn rear control panel POWER switch ON, (Para 2-1).

(3) Turn WORK LIGHTS switch ON, (Para 2-1).

(4) Check if work lights operate.

  (a) If all work lights do not operate, go to Step 7 of this fault.

  (b) If at least one work light operates, go to Step 2 of this fault.

30. WORK LIGHTS AND/OR PANEL LIGHTS DO NOT OPERATE (CONT).

KNOWN INFO

Rear control panel circuit breaker OK.
Power to rear control panel OK.
Rear control panel power wire (red) OK.
WORK LIGHTS switch OK.

POSSIBLE PROBLEMS

Power wire to overhead work light lamp faulty.
Overhead work light lamp faulty.
Ground wire in overhead work light faulty.
Ground wire in overhead work light shroud faulty.
Rear control panel work light lamp assembly faulty.
Rear control panel work light wire harness faulty.

2.

Do both rear control panel work lights operate?

TEST OPTIONS

Visual inspection.

REASON FOR QUESTION

To further isolate fault.

NO → Go to Step 6 of this Fault.

YES

KNOWN INFO

Rear control panel work light lamp assembly OK.
Rear control panel work light wire harness OK.
Rear control panel circuit breaker OK.
Power to rear control panel OK.
Rear control panel power wire (red) OK.
WORK LIGHTS switch OK.

POSSIBLE PROBLEMS

Power wire to overhead work light lamp faulty.
Overhead work light lamp faulty.
Ground wire to overhead work light faulty.
Ground wire in overhead work light shroud faulty.

3.

WARNING
Read WARNING on Page 4-1011

Are 10 to 14 VDC measured between power wire at non-operating work light and a known good ground?

TEST OPTIONS

Voltage test.

REASON FOR QUESTION

If 10 to 14 VDC are not present, non-working work light wire harness is faulty.

NO → Repair (Para 3-80) or replace non-operating work light wire harness, (Para 3-52). Verify repair, go to Step 10 of this Fault.

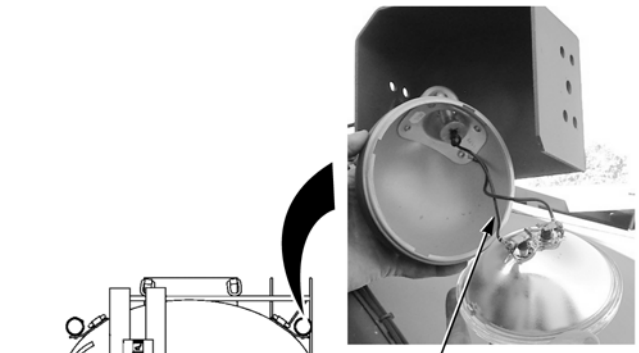
YES

WARNING

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.

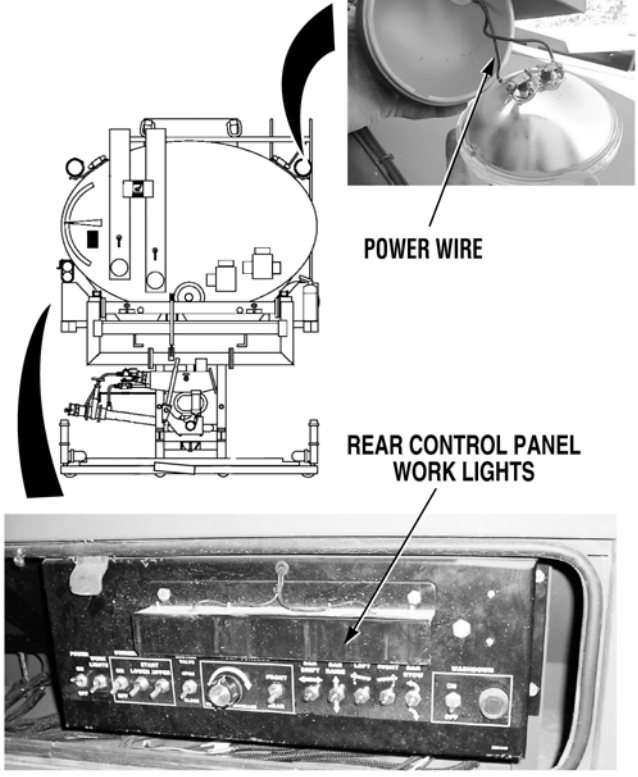
VISUAL INSPECTION

(1) Check if rear control panel work lights operate.
   (a) If rear control panel work lights do not operate, go to Step 6 of this Fault.
   (b) If both rear control panel work lights operate, go to Step 3 of this Fault.

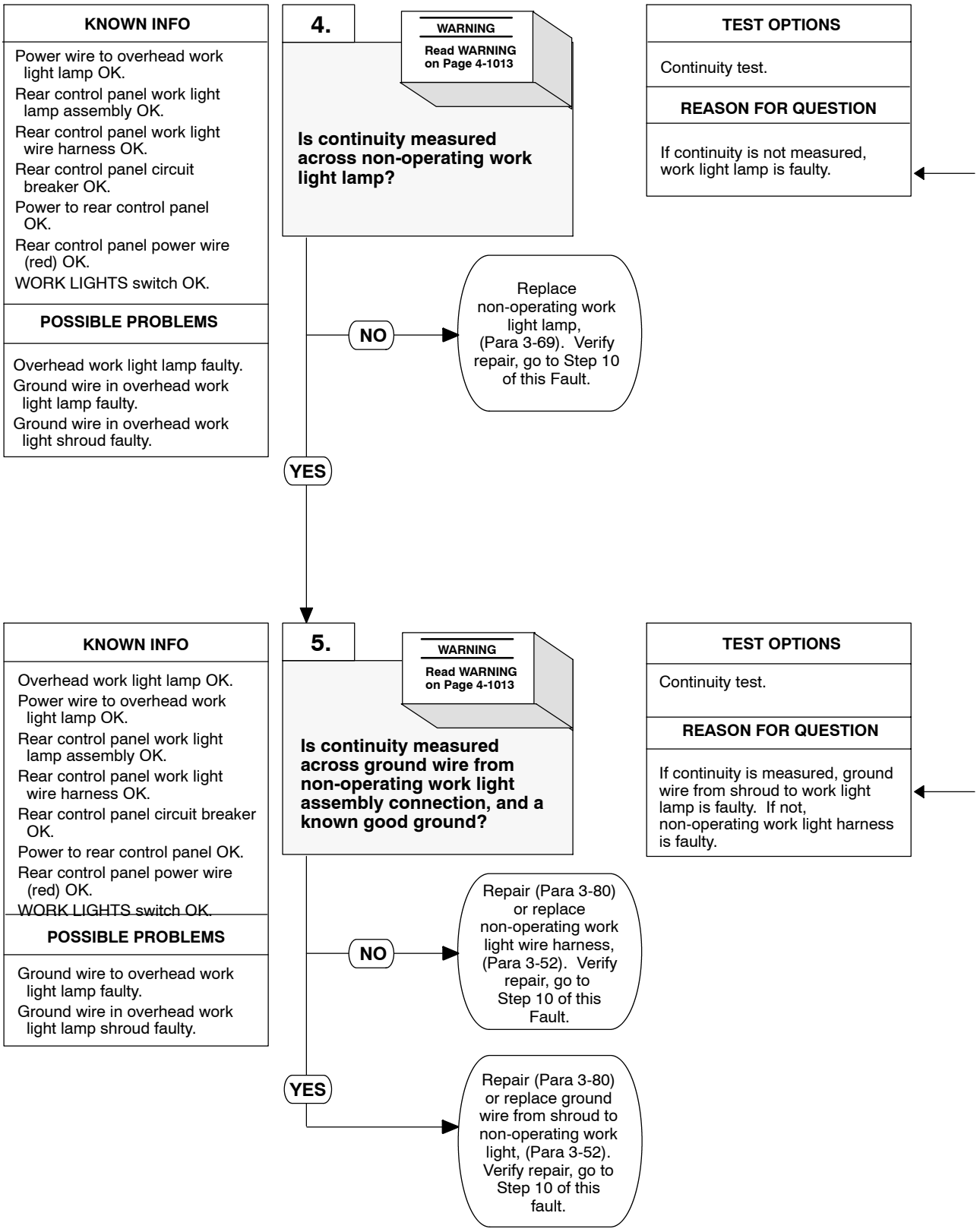


VOLTAGE TEST

(1) Remove non-operating work light from mounting bracket and lamp shroud, (Para 3-69).
(2) Connect positive (+) multimeter lead to power wire at lamp terminal.
(3) Connect negative (-) multimeter lead to a known good ground.
   (a) If 10 to 14 VDC are not present, repair (Para 3-80) or replace, non-operating work light wire harness, (Para 3-52). Verify repair, go to Step 9 of this Fault.
   (b) If 10 to 14 VDC are present, go to Step 4 of this Fault.



30. WORK LIGHTS AND/OR PANEL LIGHTS DO NOT OPERATE (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.

CONTINUITY TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

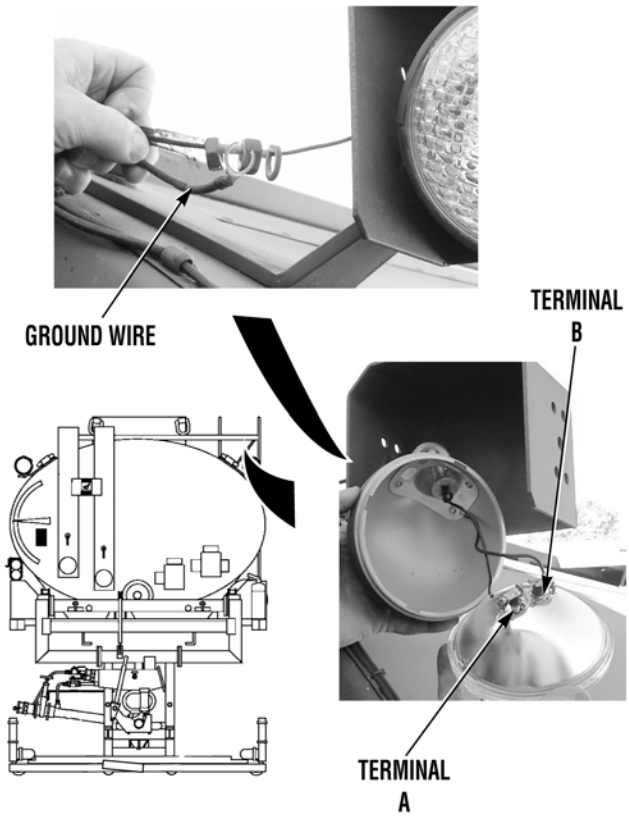
(2) Set multimeter select switch to ohms.

(3) Connect positive (+) multimeter lead to terminal A on non-operating work light lamp.

(4) Connect negative (-) multimeter lead to terminal B on non-operating work light lamp.

(a) If continuity is not measured, replace non-operating work light lamp, (Para 3-69). Verify repair, go to Step 10 of this Fault.

(b) If continuity is measured, go to Step 5 of this Fault.



CONTINUITY TEST

(1) Connect positive (+) multimeter lead to ground wire at non-operating work light assembly connection.

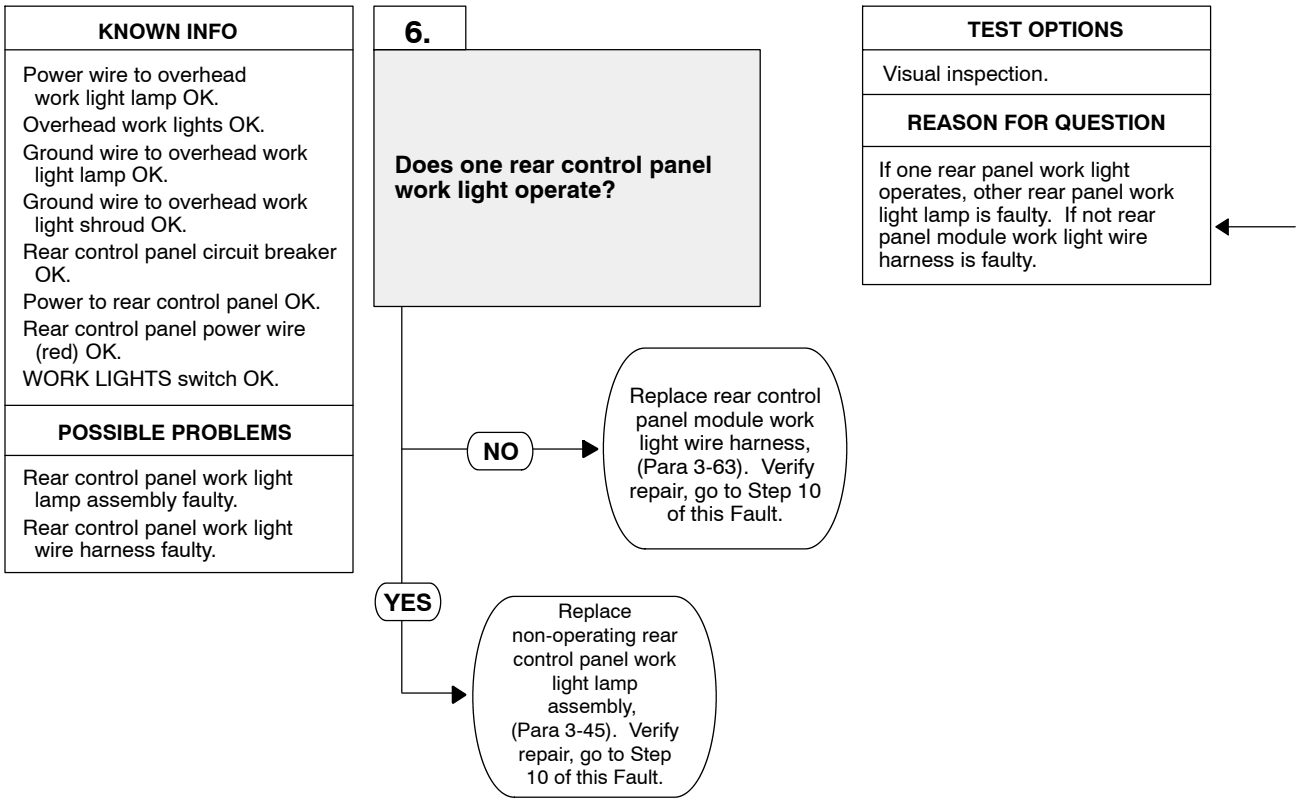
(2) Connect negative (-) multimeter lead to a known good ground.

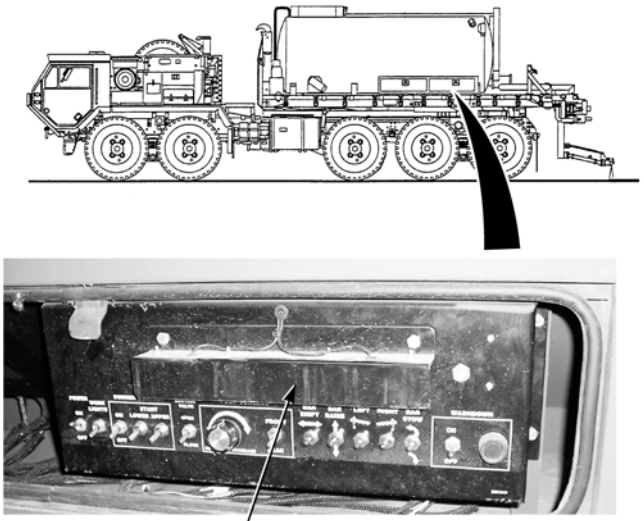
(a) If continuity is not measured, repair, (Para 3-80) or replace non-operating work light wire harness, (Para 3-52).

(b) If continuity is measured, repair, (Para 3-80) or replace ground wire from shroud to non-operating work light lamp, (Para 3-52).

(3) Verify repair, go to Step 10 of this Fault.

30. WORK LIGHTS AND/OR PANEL LIGHTS DO NOT OPERATE (CONT).





REAR CONTROL PANEL
WORK LIGHTS

VISUAL INSPECTION

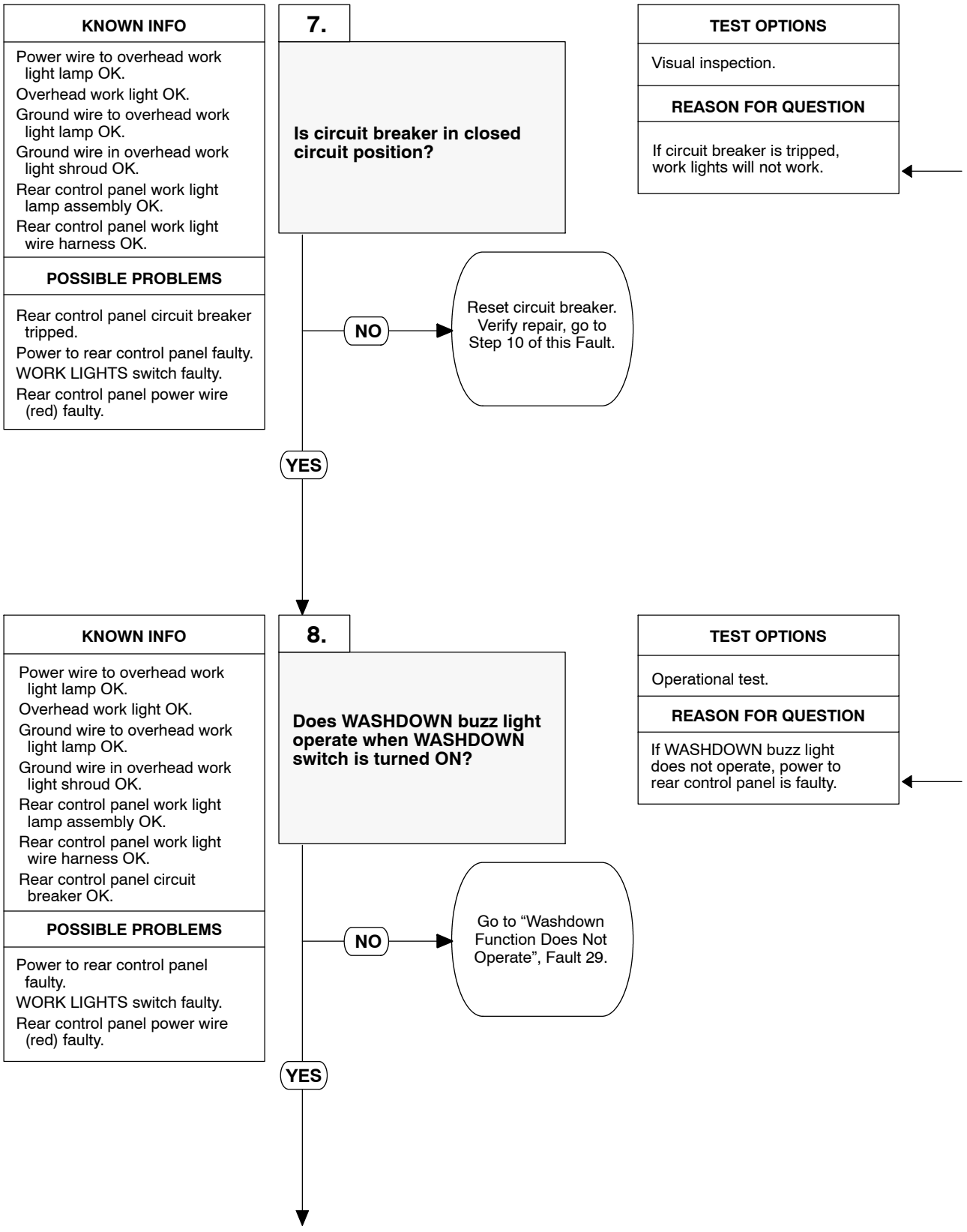
(1) Check if rear control panel work light lamps operate.

(a) If one rear control panel work light operates, replace non-operating work light lamp assembly, (Para 3-45).

(b) If no rear control panel work light lamps operate, replace rear control panel module work light wire harness, (Para 3-63).

(2) Verify repair, go to Step 10 of this fault.

30. WORK LIGHTS AND/OR PANEL LIGHTS DO NOT OPERATE (CONT).

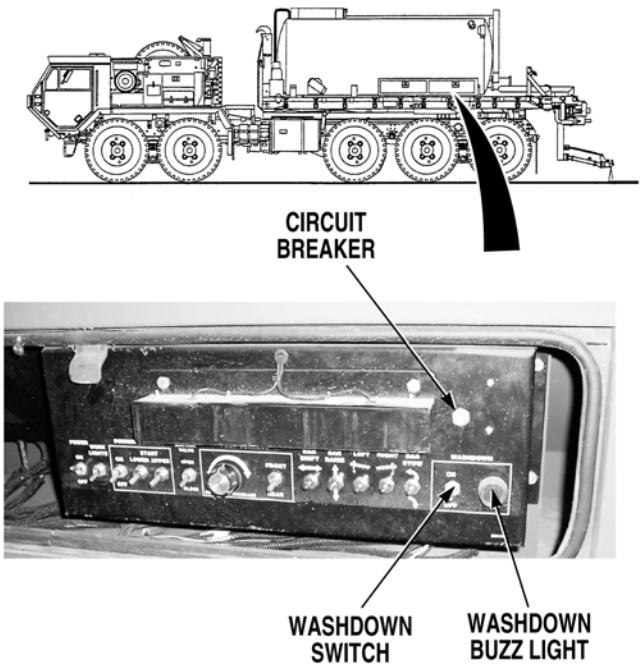


VISUAL INSPECTION

Visually inspect rear control panel circuit breaker.

(a) If circuit breaker is tripped, reset circuit breaker. Verify repair, go to Step 10 of this Fault.

(b) If circuit breaker is not tripped, go to Step 8 of this Fault.



OPERATIONAL TEST

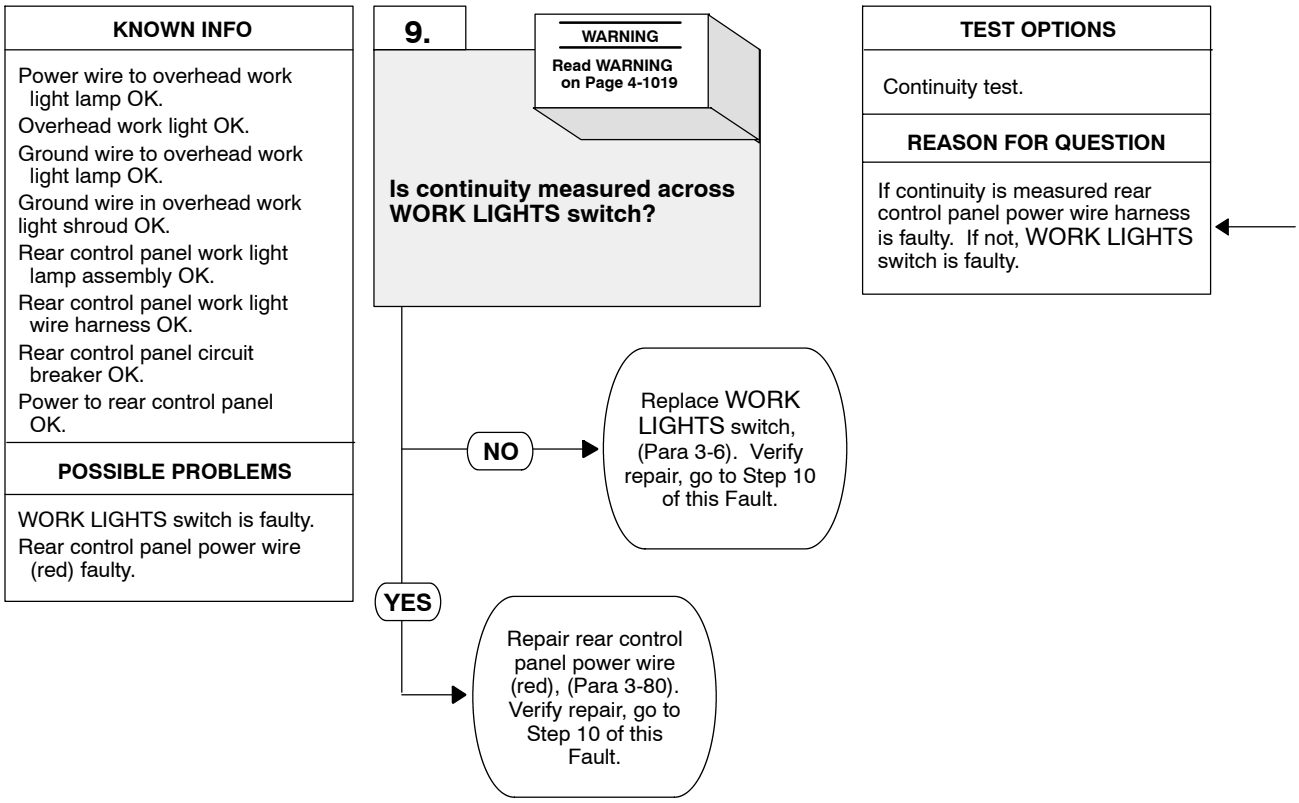
(1) Turn WASHDOWN switch ON, (Para 2-1).

(2) Check if WASHDOWN buzz light operates.

(a) If WASHDOWN buzz light does not operate, go to Washdown Function Does Not Operate, (Fault 29).

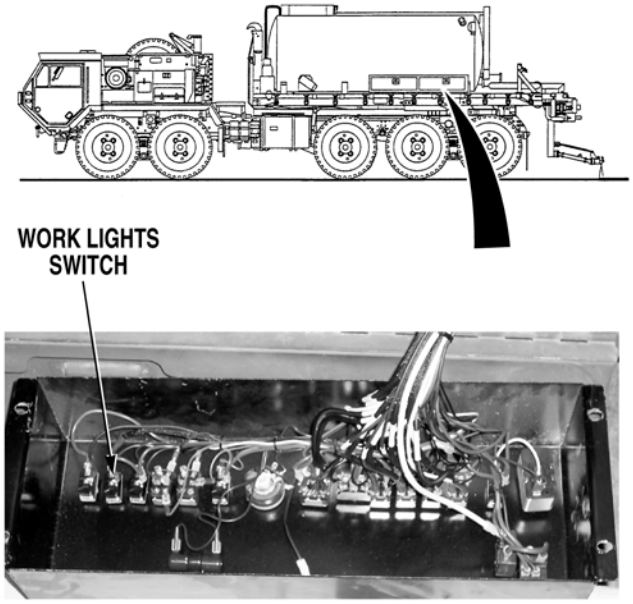
(b) If WASHDOWN buzz light operates, go to Step 9 of this Fault.

30. WORK LIGHTS AND/OR PANEL LIGHTS DO NOT OPERATE (CONT).



WARNING

- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or tools contact positive electrical circuits, a direct short may result. Damage to equipment, injury or death to personnel may occur.
- 12 VDC may be present when battery disconnect is closed. Care must be exercised when working with these circuits. Failure to comply may cause injury to personnel.



CONTINUITY TEST

(1) Pull out battery disconnect switch, (TM 9-2320-364-10).

(2) Remove rear control panel, (Para 3-76).

(3) Turn WORK LIGHTS switch ON, (Para 2-1).

(4) Set multimeter select switch to ohms.

(5) Connect positive (+) multimeter lead to one terminal on work lights switch.

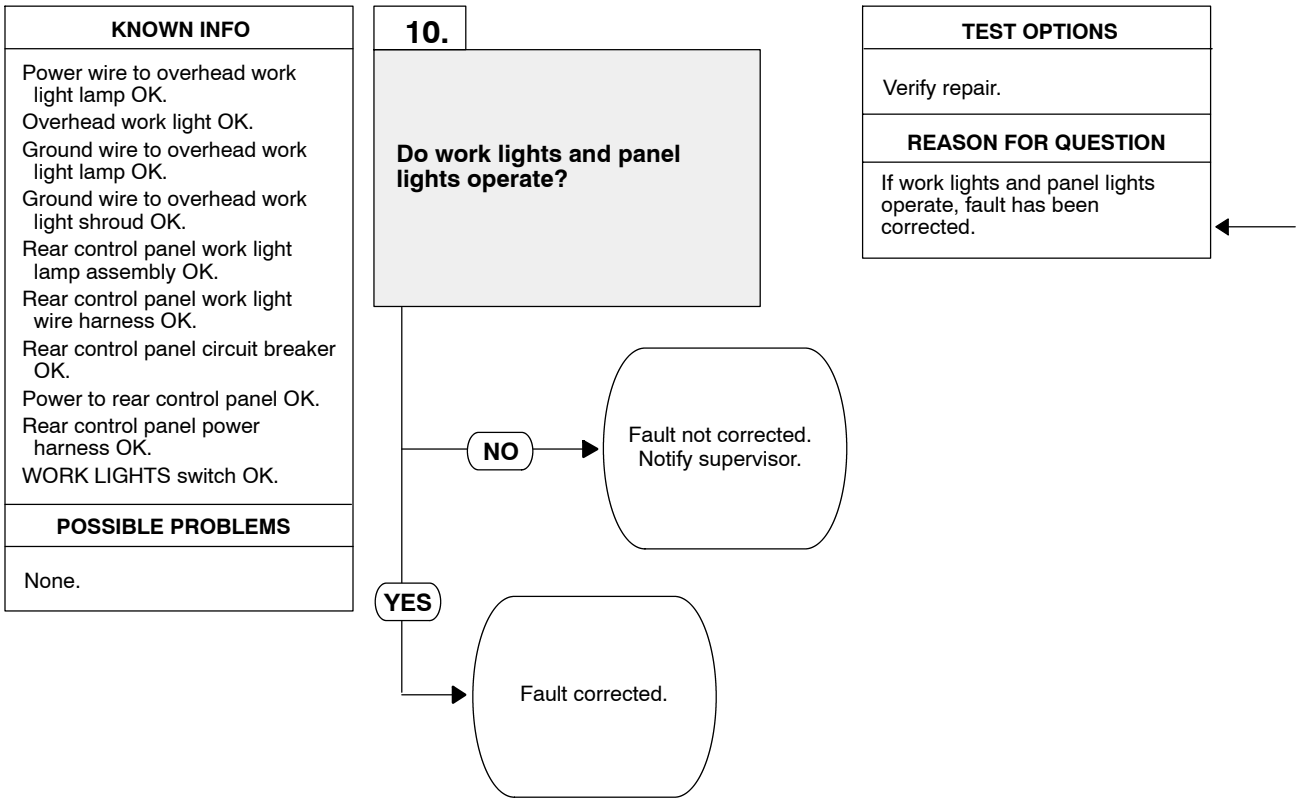
(6) Connect negative (–) multimeter lead to other terminal on work lights switch.

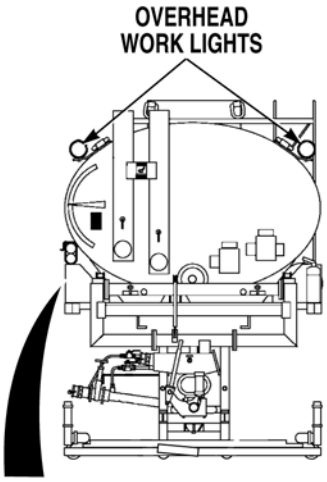
  (a) If continuity is not measured, replace WORK LIGHTS switch, (Para 3-6).

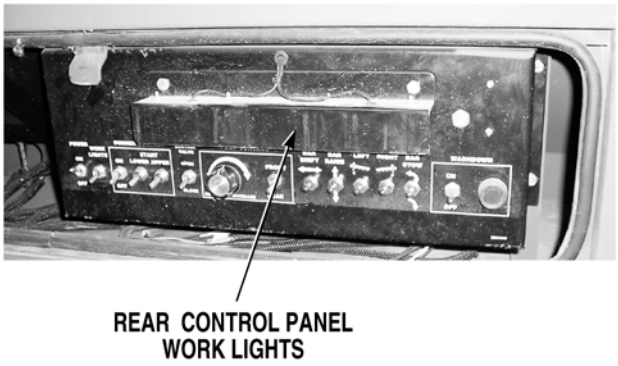
  (b) If continuity is measured, replace rear control panel power wire (red), (Para 3-80).

(7) Verify repair, go to Step 10 of this Fault.

30. WORK LIGHTS AND/OR PANEL LIGHTS DO NOT OPERATE (CONT).







VERIFY REPAIR

(1) If in, pull out battery disconnect switch, (TM 9-2320-364-10).

(2) If removed, install rear control panel, (Para 3-76).

(3) Install work light, (Para 3-69).

(4) Push in battery disconnect switch, (TM 9-2320-364-10).

(5) Turn front control panel POWER switch ON, (Para 2-1).

(6) Turn rear control panel POWER switch ON, (Para 2-1).

(7) Turn WORK LIGHTS switch ON, (Para 2-1).

  (a) If all work lights do not operate, fault not corrected. Notify Supervisor.

  (b) If all work lights operate, fault has been corrected.

(8) Turn work lights switch OFF, (Para 2-1).

(9) Turn rear control POWER switch OFF, (Para 2-1).

(10) Turn front control POWER switch OFF, (Para 2-1).

APPENDIX A

BASIC ISSUE ITEMS (BII) AND ADDITIONAL AUTHORIZATION LIST (AAL)

A-1. SCOPE.

This appendix lists Basic Issue Items (BII) and Additional Authorized Items List (AAL) for the Bituminous Distributor to help you inventory items required for safe and efficient operation.

A-2. GENERAL.

Refer to the following tables for a listing of all BII shipped with and additional items you are authorized for the module:

Section I. BASIC ISSUE ITEMS

Item Name	Quantity	Part Number	National Stock Number
Anti-Foam Agent	1 pt	7220056	
High-Flow Nozzle (1/4 Coin Slot)	41	3351010	4730-01-481-6512
Low-Flow Nozzle (1/16 Coin Slot)	41	3351013	4730-01-481-6510
Bitumen Calculator	2	3390408	3895-00-160-3345
3” Dia. Male Coupling Adapter	2	6600282	4730-14-482-2357
Gloves, Insulated	2 pr	37G2940	8415-00-634-4658
Keys - Storage Box, Padlock w/tether (Keyed-Alike)	4	6001414	5360-01-373-9756
Nozzles Multi-Material V-Slot	2	3352205	4730-01-316-0155
Large Wrench 3-3/4 (Union Nut)	1	3380079	5120-01-090-7921
Medium Wrench 2 (Nuts, Four-Way)	2	3380459	
Medium Wrench 1-1/2 (Bar Height)	1	3380442	
Small Wrench 7/8 (Nozzle)	1	6000376	5120-01-090-7923
20 lb. Fire Extinguisher	1	S165307	
Measuring Stick	1	3390025	
Cab Control Box	1	3370271	3825-00-763-0705
Portable Burner (S/N S2328 thru S3422)	1	6500053	3825-00-763-0705
Lens, Face Shield	1	3380806	
Frame, Face Shield	1	3380807	
Bag, Face Shield	1	3380808	
Cord, Bungee, 15”	1	6445062	
Cord, Bungee, 10”	1	6001266	
Placard Kit	4	6320272	

Section II. ADDITIONAL AUTHORIZATION ITEMS LIST

Item Name	Quantity	Part Number	National Stock Number
Strainer, Manhole	1	3390692	
Gloves	1 pr	6001627	
Protective Bag	1	3380808	
Face Shield	1	3380806	
Head Gear for Face Shield	1	3380807	

APPENDIX B

TORQUE LIMITS

B-1. SCOPE.

This section provides general torque limits for the screws, hoses and fittings used on the truck. Special torque limits are listed in the maintenance procedures for applicable components. The general torque limits given in this appendix shall be used when specific torque limits are not indicated in the maintenance procedure. These general torque limits cannot be applied to screws that retain rubber components. The rubber components will be damaged before the torque limit is reached. If a special torque limit is not given in the maintenance instructions, tighten the screw or nut until it touches the metal bracket then tighten it one more turn.

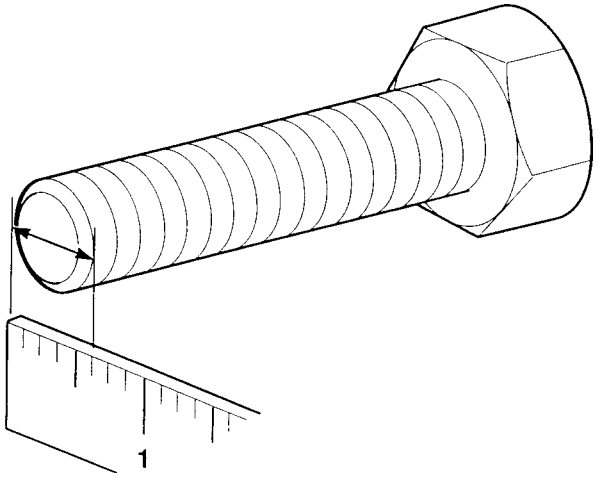
B-2. TORQUE LIMITS.

Table B-1 lists the torque limits for wet flange nuts. Table B-2 lists the torque limits for wet socket head capscrews. Table B-3 lists dry torque limits for capscrews. Dry torque limits are used on screws that do not have high pressure lubricants applied to the threads. Table B-4 lists wet torque limits for capscrews. Wet torque limits are used on screws that have high pressure lubricants applied to the threads. Table B-5 lists the torque limits for SAE 37 degree flare hose connections. Table B-6 lists the torque limits for SAE 45 degree flare hose connections. Table B-7 lists the torque limits for ORS preformed packing face seal hose connections. Table B-8 lists the torque limits for NPSM swivel connections.

B-3. HOW TO USE TORQUE TABLE.

a. Screws and Nuts.

(1) Measure the diameter of the screw you are installing with a ruler.



B-3. HOW TO USE TORQUE TABLE (CONT).

(2) Measure out one inch with a ruler and count the number of threads per inch.

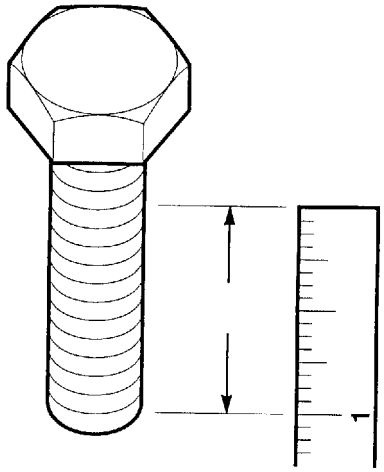
(3) Under the heading SIZE, look down the left hand column until you find the diameter of the screw you are installing (there will usually be two lines beginning with the same size).

(4) In the second column under SIZE, find the number of threads per inch that matches the number of threads per inch you counted in Step 2. (Not required for metric screws.)

(5) To find the grade screw you are installing, match the markings on the head to the correct picture of CAPSCREW HEAD MARKINGS on the torque table.

(6) Look down the column under the picture you found in Step 5 until you find the torque limit (lb-ft or N·m) for the diameter and threads per inch of the screw you are installing.

(7) Use wet torque values.



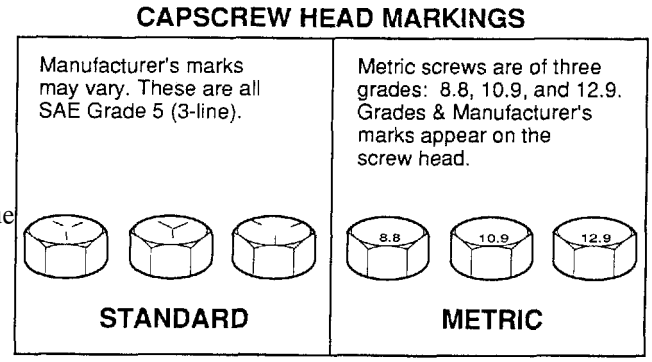


Table B-1. Torque Limits For Wet Flange Nuts

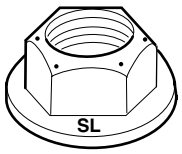
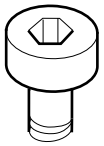
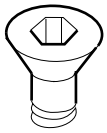
SPIRALOCK FLANGE NUT MARKINGS GRADE 8	DIAMETER		THREADS PER INCH	TORQUE	
	IN.	MM		LB-FT	N·m
	1/4	6.35	20	15	20
	5/16	7.94	18	25	34
	3/8	9.65	16	45	61
	1/2	12.70	13	110	149
	5/8	15.87	11	210	285
	3/4	19.05	10	375	508

Table B-2. Torque Limits For Wet Socket Head Cap Screws

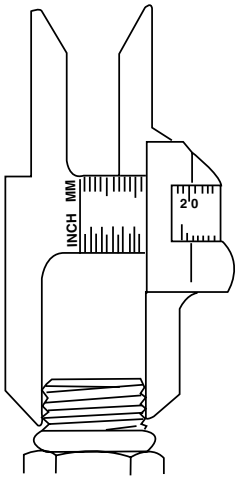
	TORQUE IN FT. LBS. (CAP SCREWS) LUBED		
SOC HEAD/12 PT. 	SIZE	SOC HD OR 12 PT	SOC FLAT HD
	.10-24	5	2.5
	.25-20	12	6
	.31-18	25	12
	.38-16	44	22
	.50-13	70	36
SOC FLAT HEAD 	.56-12	106	53
	.62-11	212	106
	.75-10	375	187
	1.00-8	781	

b. Hoses and Fittings.

NOTE

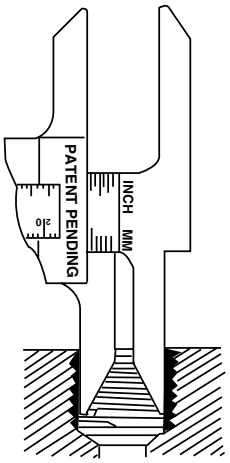
Most fluid piping system sizes are measured by dash numbers. These are universally used abbreviations for the size of the component expressed as the numerator of the fraction with the denominator always being 16. For example, a -04 port is 4/16 or 1/4-inch. Dash numbers are usually nominal (in name only) and are abbreviations that make ordering of components easier.

(1) Measure the I.D./O.D. diameter with a caliper as shown.



O.D.
(MALE THREADS)

(2) Under the heading MALE THREAD O.D. and FEMALE THREAD I.D., match the measurements with the row in table to determine proper torque.



I.D.
(FEMALE THREADS)

(3) To find the sealing surface angle, use a protractor and measure the sealing surface parallel to the center line of the fitting.

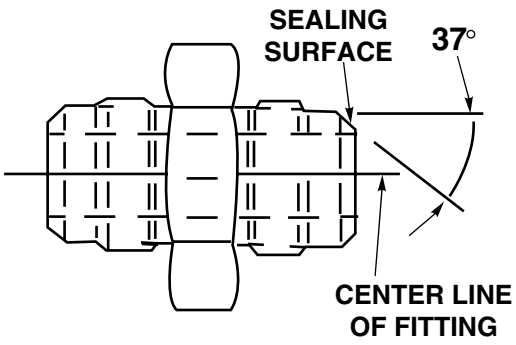
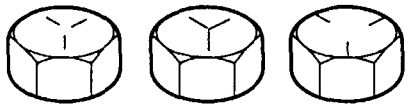
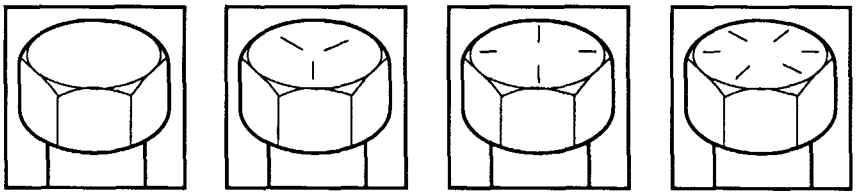


Table B-3. Torque Limits For Dry Fasteners

CAPSCREW HEAD MARKINGS



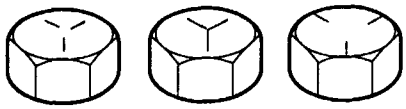


Manufacturer's marks may vary.
These are all SAE Grade 5 (3-line).

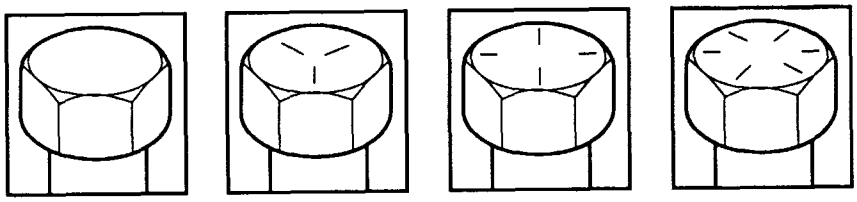
SIZE			TORQUE							
			SAE GRADE NO. 2		SAE GRADE NO. 5		SAE GRADE NO. 6 or 7		SAE GRADE NO. 8	
DIA. INCHES	THREADS PER INCH	MILLIMETERS	POUNDS FEET	NEWTON METERS	POUNDS FEET	NEWTON METERS	POUNDS FEET	NEWTON METERS	POUNDS FEET	NEWTON METERS
1/4	20	6.35	5	7	8	11	10	14	12	16
1/4	28	6.35	6	9	10	14	12	16	14	19
5/16	18	7.94	11	15	17	23	21	28	25	34
5/16	24	7.94	12	16	19	26	24	33	25	34
3/8	16	9.53	20	27	30	41	40	54	45	61
3/8	24	9.53	23	31	35	47	45	61	50	68
7/16	14	11.11	30	41	50	68	60	81	70	95
7/16	20		35	47	55	75	70	95	80	108
1/2	13	12.70	50	68	75	102	95	129	110	149
1/2	20		55	75	90	122	100	136	120	163
9/16	12	14.29	65	88	110	149	135	183	150	203
9/16	18		75	102	120	163	150	203	170	231
5/8	11	15.88	90	122	150	203	190	258	220	298
5/8	18		100	136	180	244	210	285	240	325
3/4	10	19.05	160	217	260	353	320	434	380	515
3/4	16		180	244	300	407	360	488	420	570
7/8	9	22.23	140	190	400	542	520	705	600	814
7/8	14		155	210	440	597	580	786	660	895
1	8	25.40	220	298	580	786	800	1085	900	1220
1	12		240	325	640	868	860	1166	1000	1356
1-1/8	7	25.58	300	407	800	1085	1120	1519	1280	1736
1-1/8	12		340	461	880	1193	1260	1709	1440	1953
1-1/4	7	31.75	420	570	1120	1519	1580	2142	1820	2468
1-1/4	12		460	624	1240	1681	1760	2387	2000	2712
1-3/8	6	34.93	560	759	1460	1980	2080	2820	2380	3227
1-3/8	12		640	868	1680	2278	2380	3227	2720	3688
1-1/2	6	38.10	740	1003	1940	2631	2780	3770	3160	4285
1-1/2	12		840	1139	2200	2983	3100	4204	3560	4827

Table B-4. Torque Limits For Wet Fasteners

CAPSCREW HEAD MARKINGS

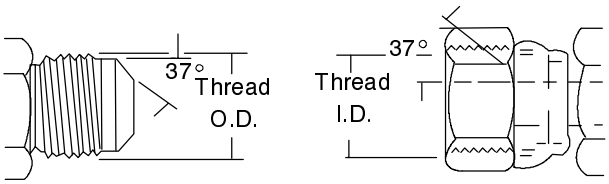


Manufacturer's marks may vary.
These are all SAE Grade 5 (3-line).



SIZE			TORQUE							
			SAE GRADE NO. 2		SAE GRADE NO. 5		SAE GRADE NO. 6 or 7		SAE GRADE NO. 8	
DIA. INCHES	THREADS PER INCH	MILLIMETERS	POUNDS FEET	NEWTON METERS	POUNDS FEET	NEWTON METERS	POUNDS FEET	NEWTON METERS	POUNDS FEET	NEWTON METERS
1/4	20	6.35	4	6	6	8	8	11	9	12
1/4	28	6.35	5	7	7	9	9	12	10	14
5/16	18	7.94	8	11	13	18	16	22	18	24
5/16	24	7.94	9	12	14	19	18	24	20	27
3/8	16	9.53	15	20	23	31	30	41	35	47
3/8	24	9.53	17	23	25	34	30	41	35	47
7/16	14	11.11	24	33	35	47	45	61	55	75
7/16	20		25	34	40	54	50	68	60	81
1/2	13	12.70	35	47	55	75	70	95	80	108
1/2	20		40	54	65	88	80	108	90	122
9/16	12	14.29	50	68	80	108	100	136	110	149
9/16	18		55	75	90	122	110	149	130	176
5/8	11	15.88	70	95	110	149	140	190	170	231
5/8	18		80	108	130	176	160	217	180	244
3/4	10	19.05	120	163	200	271	240	325	280	380
3/4	16		140	190	220	298	280	380	320	434
7/8	9	22.23	110	149	300	407	400	542	460	624
7/8	14		120	163	320	434	440	597	500	678
1	8	25.40	160	217	440	597	600	814	680	922
1	12		170	231	480	651	660	895	740	1003
1-1/8	7	25.58	220	298	600	814	840	1139	960	1320
1-1/8	12		260	353	660	895	940	1275	1080	1464
1-1/4	7	31.75	320	434	840	1139	1100	1492	1360	1844
1-1/4	12		360	488	920	1248	1320	1790	1500	2034
1-3/8	6	34.93	420	570	1100	1492	1560	2115	1780	2414
1-3/8	12		460	624	1260	1709	1780	2414	2040	2776
1-1/2	6	38.10	560	760	1460	1980	2080	2820	2360	3200
1-1/2	12		620	841	1640	2224	2320	3146	2660	3607

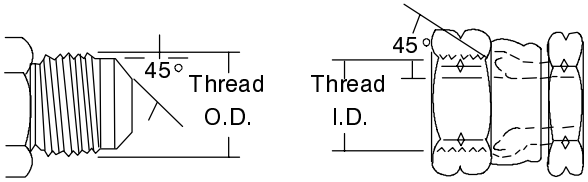
Table B-5. Torque Limits For 37 Degree Flare Hose Connections



Male Half Female Half

INCH SIZE	DASH NO.	THREAD SIZE	TORQUE LB.FT.	TORQUE N·m
1/4	04	7/16-20	11-12	15-16
3/8	06	9/16-18	18-21	24-28
1/2	08	3/4-16	36-39	49-53
5/8	10	7/8-14	57-62	77-84
3/4	12	1 1/16-12	79-87	107-118
7/8	14	1 3/16-12	83-91	113-123
1	16	1 5/16-12	108-113	146-153
1 1/4	20	1 5/8-12	127-133	172-180
1 1/2	24	1 7/8-12	158-167	214-224
2	32	2 1/2-12	245-258	332-350

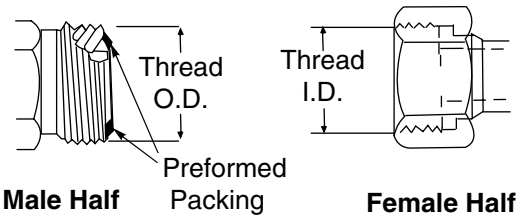
Table B-6. Torque Limits For 45 Degree Flare Hose Connections



Male Half Female Half

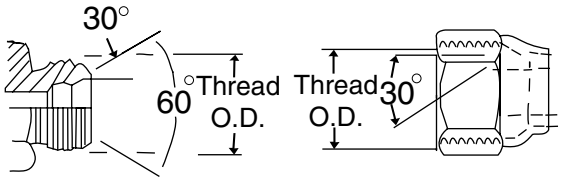
INCH SIZE	DASH NO.	THREAD SIZE	TORQUE LB.FT.	TORQUE N·m
1/4	04	7/16-20	8-9	11-12
3/8	06	5/8-18	18-20	24-27
1/2	08	3/4-16	36-38	49-51
5/8	10	7/8-14	52-54	70-73
3/4	12	1 1/16-14	71-74	97-100

Table B-7. Torque Limits For ORS Preformed Packing Face Seal Hose Connections



INCH SIZE	DASH NO.	THREAD SIZE	TORQUE LB.FT.	TORQUE N·m
1/4	04	9/16-18	10-12	14-16
3/8	06	11/16-16	18-20	24-27
1/2	08	13/16-16	32-35	43-47
5/8	10	1-14	46-50	62-68
3/4	12	1 3/16-12	65-70	88-95
1	16	1 7/16-12	108-113	146-153
1 1/4	20	1 11/16-12	127-133	172-180
1 1/2	24	2-12	158-167	214-226

Table B-8. Torque Limits For NPSM Swivel Connections



INCH SIZE	DASH NO.	NOMINAL THREAD SIZE	TORQUE LB.FT.	TORQUE N·m
1/8	02	1/8-27	3-4	4-5
1/4	04	1/4-18	10-11	14-15
3/8	06	3/8-18	16-18	22-24
1/2	08	1/2-14	25-27	34-37
3/4	12	3/4-14	46-48	62-65
1	16	1-11/2	80-83	108-113
1 1/4	20	1 1/4-11/2	130-134	176-182
1 1/2	24	1 1/2-11/2	160-164	217-222
2	32	2-11/2	170-174	231-240

APPENDIX C

REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL)

Section I. INTRODUCTION C-1

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Section I. INTRODUCTION

C-1. SCOPE.

This Repair Parts and Special Tools List (RPSTL) lists spares and repair parts and tools for maintenance of the Bituminous Distributor Engineering Mission Module for the PLS system.

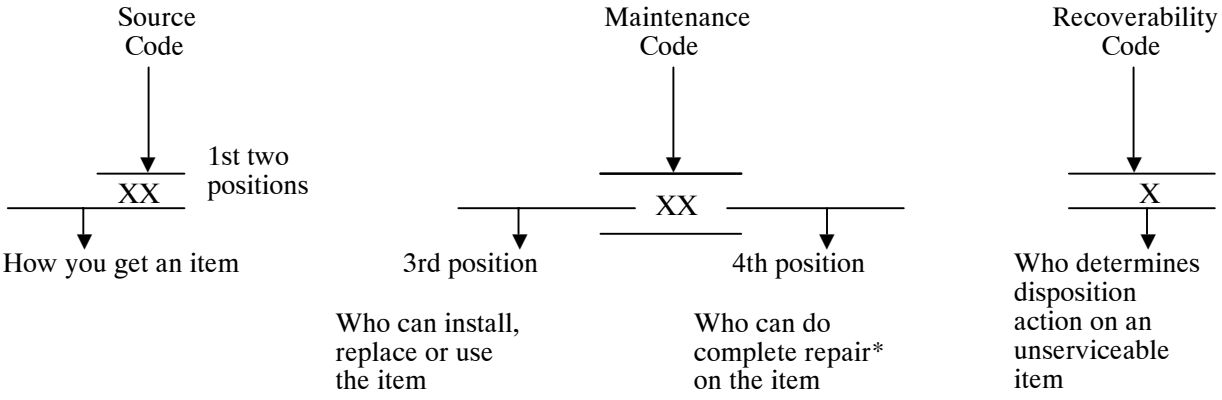
C-2. GENERAL.

This (RPSTL) is divided into two sections; Section I, the introduction; and Section II, the repair parts list.

C-3. EXPLANATION OF COLUMNS (SECTION II).

a. ITEM No. [Column (1)]. Indicates the number used to identify items called out in the illustration. Not all items called out in an illustration will be identified by a part number.

b. SMR CODE [Column (2)]. The Source, Maintenance and Recoverability (SMR) code is a 5-position code containing supply/requisitioning information, maintenance category authorization criteria and disposition instruction, as shown in the following breakout:



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

(1) Source Code. The source code tells you how to get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follows:

Code	Explanation
PA pb pc** pd pe pf pg	Stocked items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the 3rd position of the SMR code. **NOTE: Items coded PC are subject to deterioration.
kd kf kb	Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance category indicated in the 3rd position of the SMR code. The complete kit must be requisitioned and applied.
MO- (Made at org Level) MF- (Made at DS Level) MH- (Made at GS Level) ML- (Made at Specialized Re-pair Act (SRA) MD- (Made at Depot)	Items with these codes are not to be requested/requisitioned individually. They must be made from bulk material which is identified by the part number in the DESCRIPTION column of this IPL. If the item is authorized to you by the 3rd position code of the SMR code, but the source code indicates it is made at a higher level, order the item from the higher level of maintenance.

C-3. EXPLANATION OF COLUMNS (SECTION II) (CONT).

Code	Explanation
AO- (Assembled by org Level) AF- (Assembled by DS Level) AH- (Assembled by GS Level) AL- (Assembled by SRA) AD- (Assembled by Depot)	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the 3rd position code of the SMR code authorizes you to replace the item, but the source code indicated the item is assembled at a higher level, order the item from the higher level of maintenance.

XA- Do not requisition an "XA"-coded item. Order its next higher assembly. (Also, refer to the NOTE below.)

XB- If an "XB" item is not available from salvage, order it using the CAGEC and part number given.

XC- Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturer's part number.

XD- Item is not stocked. Order an "XD"-coded item through normal supply channels using the CAGEC and part number given, if no NSN is available.

NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes, except for those source coded "XA".

(2) Maintenance Code. Maintenance codes tell you the level(s) of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the SMR Code as follows:

(a) The maintenance code entered in the third position tells you the lowest maintenance level authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to one of the following levels of maintenance.

Code	Application/Explanation
C	- Crew or operator maintenance done within organizational maintenance.
O	- Unit Maintenance can remove, replace and use the item.
F	- Direct support level can remove, replace and use the item.
H	- General support level can remove, replace and use the item.
L	- Specialized repair activity can remove, replace and use the item.
D	- Depot level can remove, replace and use the item.

(b) The maintenance code entered in the fourth position indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete repair (i.e., all authorized maintenance functions). (NOTE: Some limited repair may be done on the item at a lower level of maintenance, if authorized by the SMR codes.) This position will contain one of the following maintenance codes:

Code	Application/Explanation
O	- Unit Maintenance is the lowest level that can do complete repair of the item.
F	- Direct support is the lowest level that can do complete repair of the item.
H	- General support is the lowest level that can do complete repair of the item.
L	- Specialized repair activity is the lowest level that can do complete repair of the item.
D	- Depot is the lowest level that can do complete repair of the item.
Z	- Nonreparable. No repair is authorized.
B	- No repair is authorized. (No parts or special tools are authorized for the maintenance of "B"-coded item.) However, the item may be reconditioned by adjusting, lubrication, etc., at the user level.

(3) Recoverability Code. Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the SMR Code as follows:

Code	Application/Explanation
Z	- Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the 3rd position of SMR Code.
O	- Reparable item. When uneconomically reparable, condemn and dispose of the item at organizational level.
F	- Reparable item. When uneconomically reparable, condemn and dispose of the item at the direct support level.
H	- Reparable item. When uneconomically reparable, condemn and dispose of the item at the general support level.
D	- Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item not authorized below depot level.
L	- Reparable item. Condemnation and disposal not authorized below specialized repair activity (SRA).
A	- Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical material or hazardous material). Refer to appropriate manuals/directives for specific instructions.

C-3. EXPLANATION OF COLUMNS (SECTION II) (CONT).

c. NSN [Column (3)]. The National Stock Number for the item is listed in this column.

d. CAGEC [Column (4)]. The Commercial and Government Entity Code (CAGEC) is a 5-digit numeric code which is used to identify the manufacturer, distributor, or Government agency, etc., that supplied the item.

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

NOTE

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

f. DESCRIPTION [Column (6)]. This column includes the following information:

(1) The item name and, when required, a minimum description to identify the item.

(2) Part numbers for bulk materials are referenced in this column in the line item entry for the item to be manufactured/fabricated.

g. QTY [Column (7)]. The QTY (quantity per figure column) indicates the quantity of the item used.

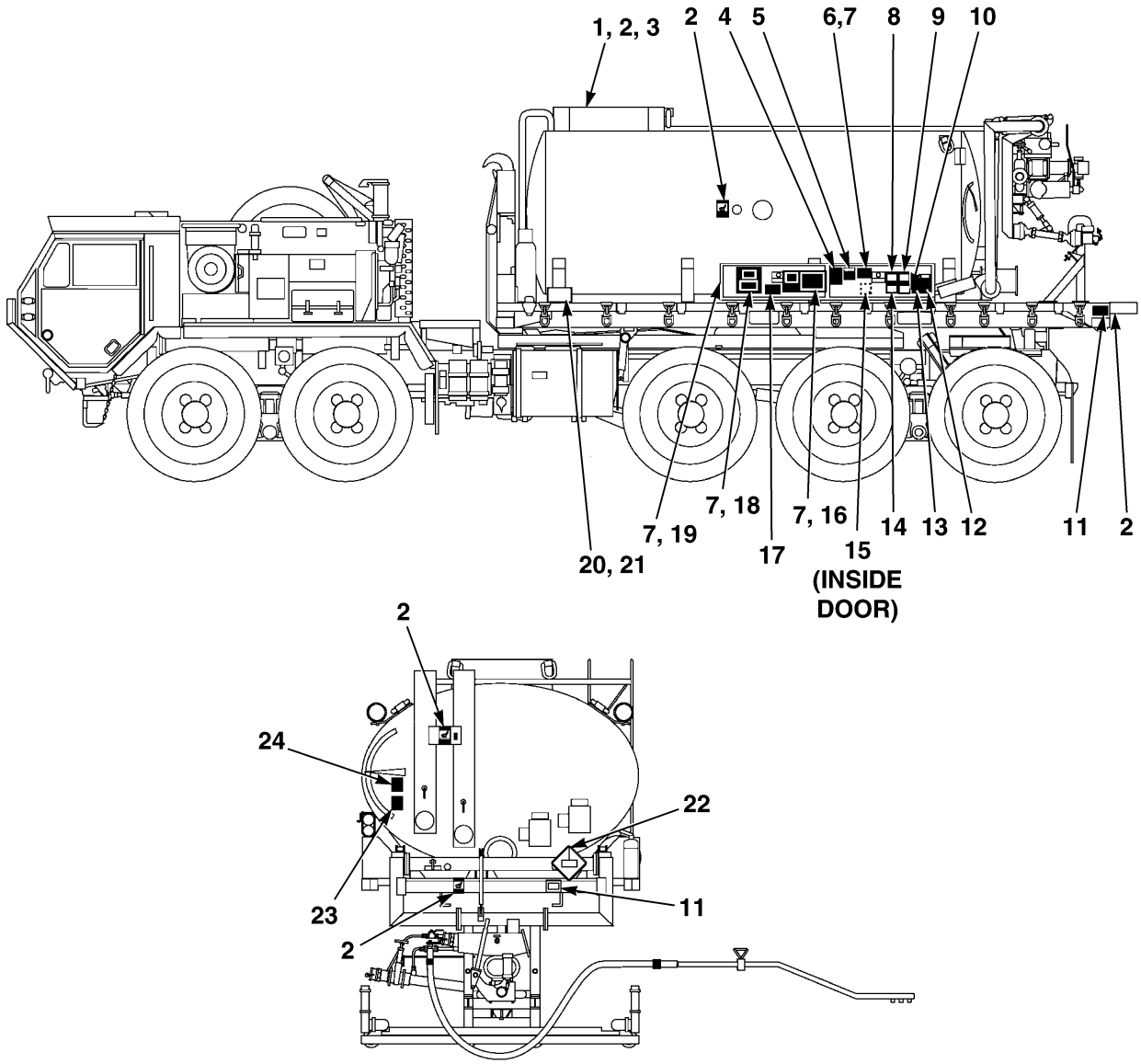


FIG. 1 WARNING AND INSTRUCTION PLATES

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 1 WARNING AND INSTRUCTION PLATES	
1	PAFZZA	7690-01-541-3753	80195	3390679	PLATE,WARNING,MANHOLE	1
2	PAFZZA	9905-01-090-7680	80195	3390684	DECAL,CAUTION,HOT SURFACE	6
3	PAFZZA	7690-01-540-8830	80195	3390708	DECAL,DANGER,CONFINED SPACE	1
4	PAFZZA	7690-01-541-5375	80195	3390686	DECAL,WARNING,BURNER,GENERAL	1
5	PAFZZA	7690-01-540-9443	80195	3390680	DECAL,WARNING,FILL CAP	1
6	PAFZZA		80195	3390655	PLATE,NAME,DISTRIBUTOR,BRASS	1
7	PAFZZA	5320-00-967-8720	80205	MS24662-9	RIVET,BLIND, 12 DIA X .18 LG	48
8	PAFZZA	7690-01-540-8672	80195	3390681	DECAL,WARNING,REMAIN CLEAR	1
9	PAFZZA	7690-01-541-3703	80195	3390682	DECAL,CAUTION,BEFORE STARTING	2
10	PAFZZA	9905-01-090-7679	34623	MA242A-21085	DECAL,CAUTION,SHIELDS	1
11	PAFZZA		80195	6320561	SIGN,EAR PROTECTION REQUIRED	3
12	PAFZZA		80195	3390637	TAG,WARNING,DON'T MIX ASPHALTS	1
13	PAFZZA		80195	3390636	PLATE,WARNING,BURNER	1
14	PAFZZA	9905-01-339-1829	80195	3390678	DECAL,WARNING,READ MANUALS	2
15	PAFZZA	7690-01-540-8731	80195	3390689	DECAL,DIRECTIONS FOR HP BURNER	1
16	PAFZZA		80195	3380883	PLATE,IDENTIFICATION,LIFT DATA	1
17	PAFZZA	7690-01-540-9798	80195	3390685	DECAL,WARNING,SAFETY HAZARDS	1
18	PAFZZA	7690-01-541-2901	80195	3390688	DECAL,LUBE CHART	1
19	PAFZZA		80195	3390745	PLATE,WARRANTY,PLS 2000 EMM	1
20	PBFZZA	7690-01-541-7626	80195	2750530	PLATE,NAME	1
21	PAFZZA	5320-01-217-2227	96906	MS24662-225	RIVET,BLIND	4
22	PAFZZA		67634	126FS	PLACARD,DUOFLIP W/HARDWARE	4
23	PAFZZA	7690-01-541-3877	80195	6320560	DECAL,NOTICE,GAGE REFERENCE	1
24	PAFZZA	7690-01-540-8823	80195	3390659	DECAL,WARNING,GVWR	1

END OF FIGURE

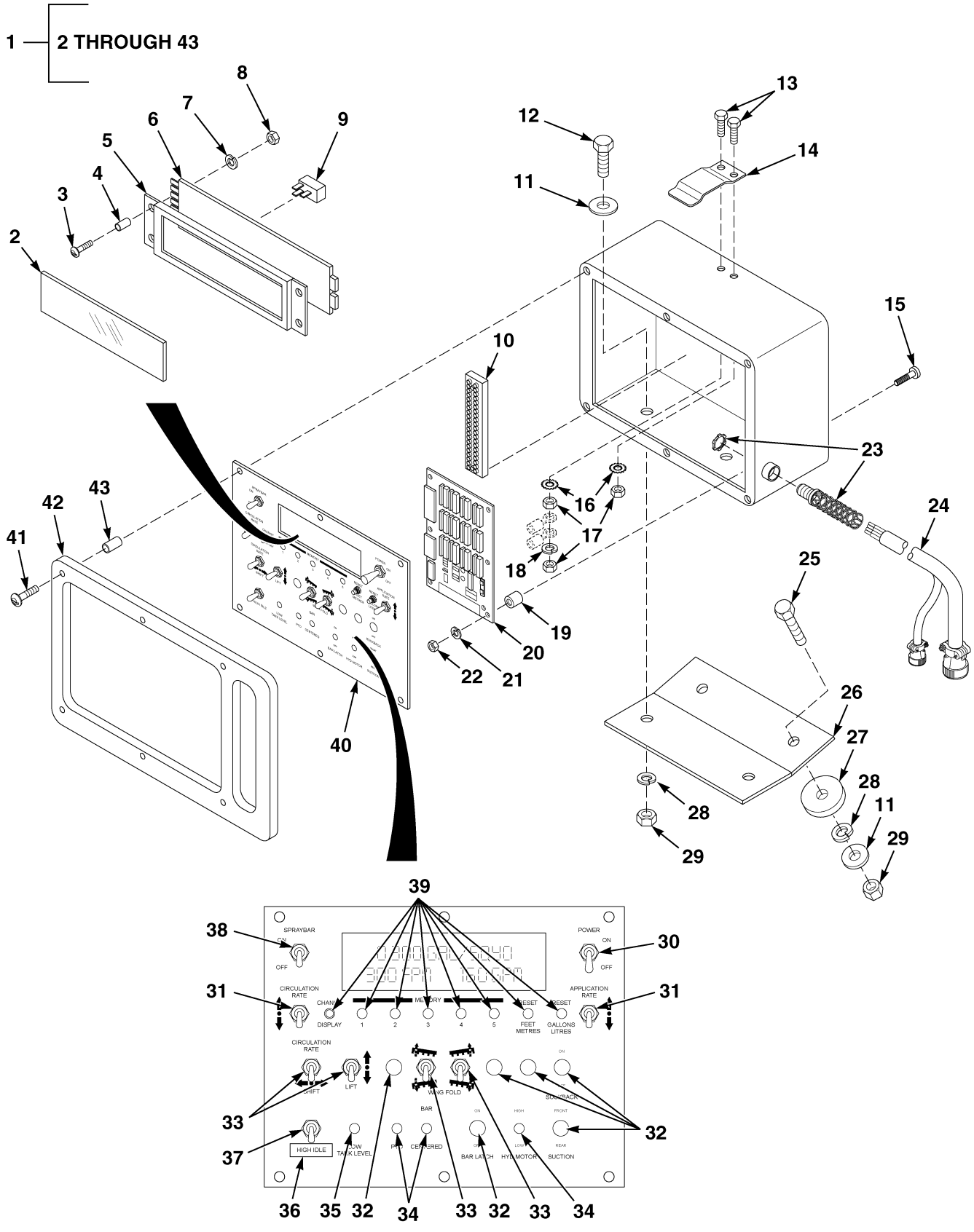


FIG. 2 FRONT CONTROL PANEL

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 2 FRONT CONTROL PANEL	
1	PAFFFA	2540-01-481-4570	80195	3370271	CONTROL BOX,ELECTRIC W/DC2 AND GANG	1
2	PAFZZA	9330-01-540-9773	80195	3361148	•WINDOW,LEXAN DC-2 DISPLAY	1
3	PAFZZA	5305-00-984-4976	80205	MS35206-219	•SCREW,MACHINE,4-40 X 3/4	4
4	PAFZZA	5365-01-540-8840	80195	6702218	•SPACER	4
5	PAFZZA	7025-01-541-6198	05464	03857-23-040	•DISPLAY,LCD	1
6	PAFZZA	5998-01-541-6260	05464	6702196 5/2	•BOARD,DRIVER,DC-2	1
7	PAFZZA	5310-00-543-2410	80205	MS35338-40	•WASHER,LOCK,NO.4	4
8	PAFZZA	5310-00-934-9739	80205	MS35649-242	•NUT,PLAIN,HEX,NO.4	4
9	PAFZZA	6130-01-305-7102	05464	46013-01	•INVERTER,POWER,STAT	1
10	PAFZZA	5940-01-461-2813	08118	8459-1	•STRIP,TERMINAL	1
11	PAFZZA	5310-00-950-1310	96906	MS27183-4	•WASHER,FLAT	2
12	PAFZZA	5305-00-543-4372	80204	B1821BH038C075N	•SCREW,CAP,HEXAGON HD, 3/8-16 X 3/4	2
13	PAFZZA	5305-00-225-3843	80204	B1821BH025C100N	•SCREW,CAP,HEXAGON HD,1/4-20 X 1	2
14	PAFZZA	5340-01-541-5668	80195	3310040	•BRACKET,MEASURING STICK	1
15	PAFZZA	5305-00-984-6221	96906	MS35206-234	•SCREW,MACHINE,PAN HD, NO.6 X 1	6
16	PAFZZA	5310-00-209-0786	96906	MS35335-33	•WASHER,LOCK,1/4	2
17	PAFZZA	5310-00-761-6882	96906	MS51967-2	•NUT,PLAIN,HEXAGON, 1/4-28	3
18	PAFZZA	5310-00-582-5965	44940	850-1040	•WASHER,LOCK,1/4	1
19	PAFZZA	5365-01-364-0791	02929	30F1444	•SPACER,SLEEVE	6
20	PAFZZA	5998-01-541-6258	80195	6702192	•BOARD,INTERFACE	1
21	PAFZZA	5310-00-045-4007	80205	MS35338-41	•WASHER,LOCK,NO. 6	6
22	PAFZZA	5310-00-934-9747	80205	MS35649-262	•NUT,PLAIN,HEX,NO. 6	6
23	PAFZZA	5975-01-434-1773	45152	7HE487	•GRIP,STRAIN,RELIEF	1
24	PAFZZA	6150-01-541-1550	80195	3370272	•HARNESS,FRONT BOX	1
25	PAFZZA	5305-00-068-0500	1FP59	012354-2	•SCREW,CAP,HEX HD	2
26	PFFZZA	5340-01-541-2935	80195	3361249	•BRACKET,MTG PANEL	1
27	XDFZZA		80195	6702501	•MAGNET,DISC	2
28	PAFZZA	5310-00-261-7340	81361	H22-56-52	•WASHER,LOCK,3/8	4
29	PAFZZA	5310-00-732-0558	96906	MS51967-8	•NUT,PLAIN,HEX,3/8-24	4
30	PAFZZA	5930-01-541-6261	80195	7050464	•SWITCH,TOGGLE	1
31	PAFZZA	5930-01-084-2289	80195	6700161	•SWITCH,TOGGLE	2
32	PAFZZA	5340-01-120-7315	28520	2643	•BUTTON PLUG	6
33	PAFZZA	5930-01-321-4987	73559	6GM5M-68	•SWITCH,TOGGLE	4
34	PAFZZA	5340-01-541-0163	28520	2610	•PLUG,HOLE	3
35	PAFZZA	6220-01-541-6257	91802	2194A-12V	•LIGHT,INDICATOR	1
36	PAFZZA	7690-01-540-9603	80195	3390698	•DECAL,HIGH IDLE	1
37	PAFZZA	5930-00-996-1845	73559	HL254-73	•SWITCH,TOGGLE	1
38	PAFZZA	5930-00-400-6214	12489	SB73	•SWITCH,TOGGLE	1
39	PAFZZA	5930-00-758-5190	1Y9E8	8121-S-H-Z-G-E	•SWITCH,PUSH	8
40	PAFZZA	5895-01-541-6251	80195	3361138	•FACEPLATE	1
41	PAFZZA	5305-00-958-4361	96906	MS35207-251	•SCREW,MACHINE	6
42	PFFZZA		80195	3361256	•GUARD,CONTROL BOX, S2000/DC-2,BASIC	1
43	PAFZZA	5365-01-097-5770	80195	3360315	•SPACER,SLEEVE,BITUMETER WHEEL	6
					END OF FIGURE	

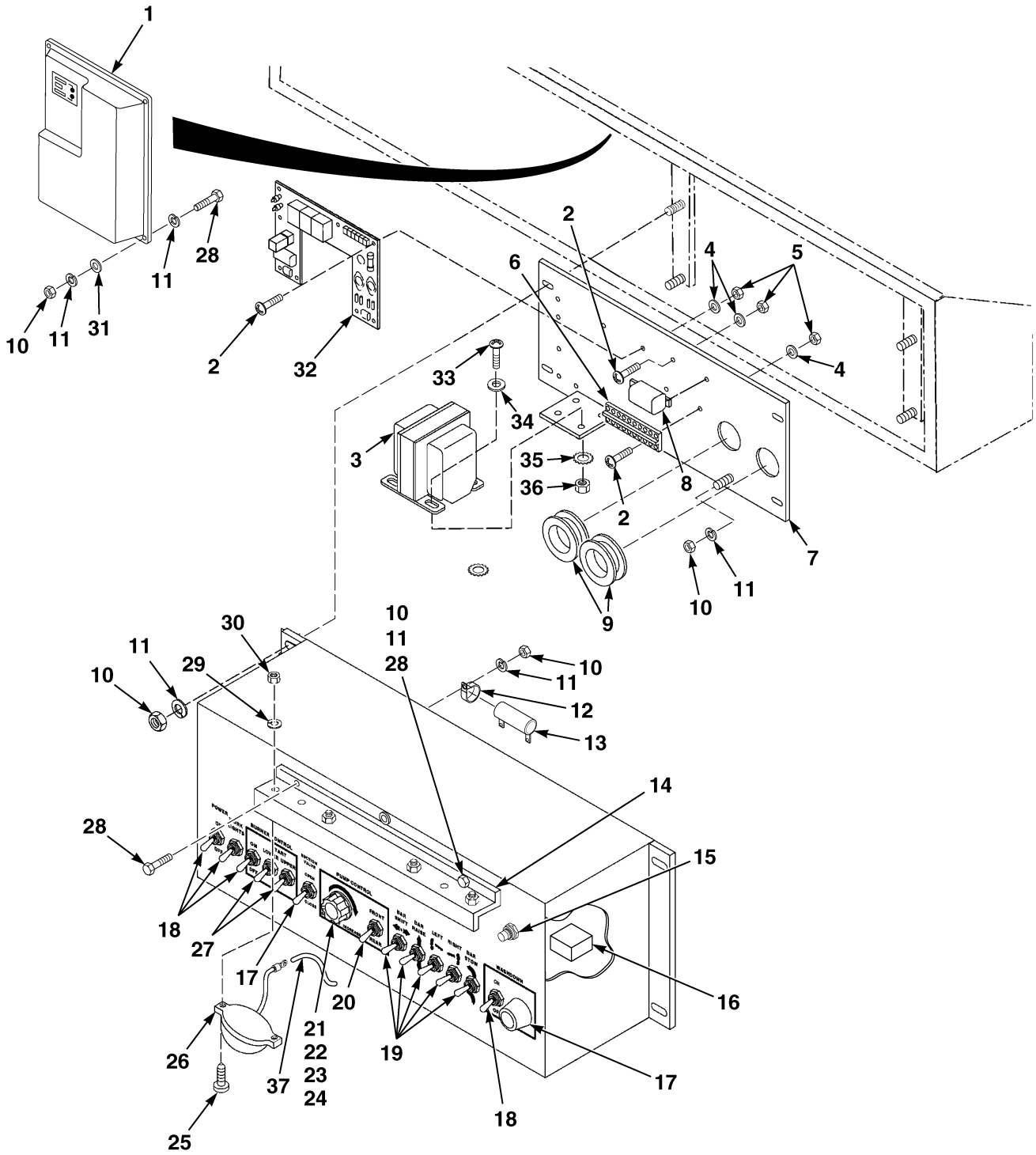


FIG. 3 REAR CONTROL PANEL

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 3 REAR CONTROL PANEL	
1	PAFZZA	6110-01-541-1151	80195	6703077	CONTROLLER ASSEMBLY,APPLICATION RATE	1
2	PAFZZA	5305-00-889-3000	80205	MS35206-230	SCREW,CROSS-RECESSED, NO.6 X 1/2	11
3	PAFZZA	5950-01-541-6216	80195	3370269	TRANSFORMER ASSY	1
4	PAFZZA	5310-00-950-1310	96906	MS27183-4	WASHER,FLAT,NO.6	11
5	PAFZZA	5310-00-934-9747	80205	MS35649-262	NUT,PLAIN,HEX,NO. 6	11
6	PAFZZA	5940-00-983-6051	58586	AA59125/0137TB10	STRIP,TERMINAL	1
7	PFFZZA	5340-01-540-8829	80195	3361026	PLATE ASSEMBLY,MTG	1
8	PAFZZA	5945-00-365-6259	13449	970-0007-080	RELAY,ELECTROMAGNET	1
9	PAFZZA	5325-01-481-1738	4X630	863-000616	GROMMET,RUBBER	2
10	PAFZZA	5310-00-768-0319	96906	MS51968-2	NUT,HEX,1/4-28	11
11	PAFZZA	5310-00-582-5965	80205	MS35338-44	WASHER,LOCK,1/4	15
12	PAFZZA	5340-01-541-6714	80195	3370255	ANGLE,MOUNTING CLAMP	1
13	PAFZZA	5905-01-541-6787	73559	10N580	RESISTOR,FIXED,WIRE	1
14	PFFZZA	6220-01-541-6268	80195	3370293	BRACKET,DOME LIGHT	1
15	PAFZZA	5925-01-533-1565	77342	W58-XB1A4A-25	CIRCUIT BREAKER	1
16	PAFZZA	5945-01-541-6275	02929	66F3425	RELAY,SPST NO,30A,12 VDC	1
17	PAFZZA	6210-01-272-4003	32498	440B	LIGHT,INDICATOR AUDIO-VISUAL	1
18	PAFZZA	5930-00-400-6214	12489	SB73	SWITCH,TOGGLE	4
19	PAFZZA	5930-01-321-4987	73559	6GM5M-68	SWITCH,TOGGLE	5
20	PAFZZA	5930-00-996-1845	73559	HL254-73	SWITCH,TOGGLE	1
21	PAFZZA	5335-01-184-5794	00779	PKES-120B-1/4	KNOB,CONTROL	1
22	PAFZZA	5330-01-540-9722	80195	3361162	FOAM DISK, 1.25X.25	1
23	PAFZZA	5905-01-541-6662	1Y9E8	296-4230	POTENTIOMETER	1
24	PAFZZA	5905-00-100-3962	44655	L25J2R0	RESISTOR,FIXED,WIRE	1
25	PAFZZA	5305-01-540-9801	80195	6702100	SCREW,TRUSS HD	4
26	PAFZZA	6220-01-541-6283	13548	1506	LIGHT,MARKER	2
27	PAFZZA	5930-01-541-6237	363K6	645H/2	SWITCH,TOGGLE	2
28	PAFZZA	5305-00-068-0500	11599	28988-4	SCREW,CAP,HEX HD,1/4-20 X 1/2	6
29	PAFZZA	5310-00-765-3197	96906	MS27183-41	WASHER,FLAT	4
30	PAFZZA	5310-00-934-9757	80205	MS35649-282	NUT,PLAIN,HEXAGON	4
31	PAFZZA	5310-00-823-8804	96906	MS27183-9	WASHER,FLAT,1/4	4
32	PAFZZA	5998-01-541-6269	80195	3370164	CIRCUIT BOARD BURNER IGNITER	1
33	PAFZZA	5305-00-984-6210	96906	MS35206-263	SCREW,MACHINE,PAN H NO. 10 X 1/2	4
34	PAFZZA	5310-00-765-3197	96906	MS27183-41	WASHER,FLAT, NO. 10	4
35	PAFZZA	5310-00-596-7691	96906	MS35335-32	WASHER,LOCK,NO. 10	4
36	PAFZZA	5310-00-934-9758	80205	MS35649-202	NUT,PLAIN,HEXAGON,NO. 10	4
37	PAFZZA	5330-00-048-3863	24617	6701537	WIRE,12 IN	1

END OF FIGURE

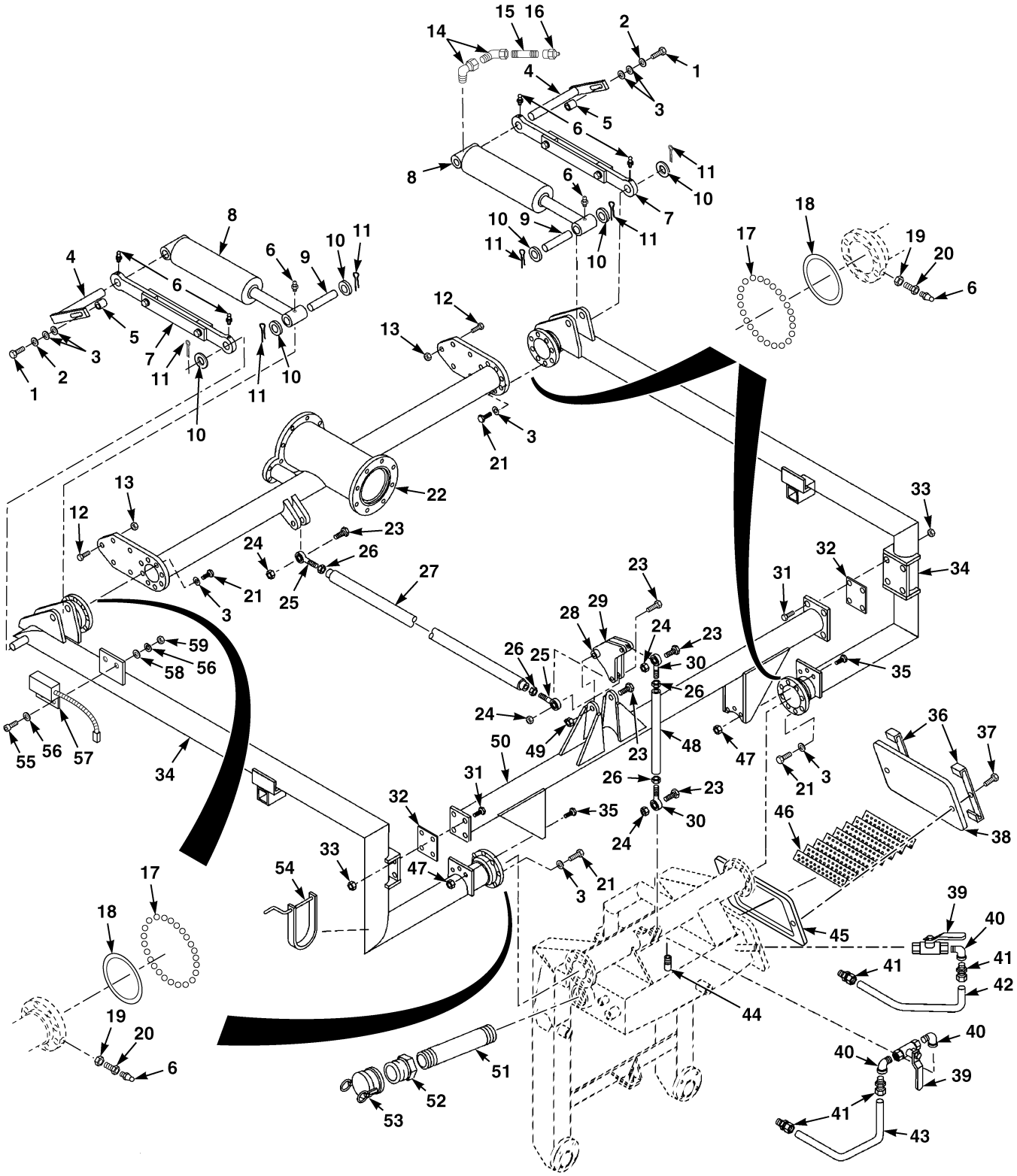


FIG. 4 CIRCULATING SYSTEM SHEET 1 OF 2

92 — 93 THROUGH 100

102 — 103 THROUGH 107

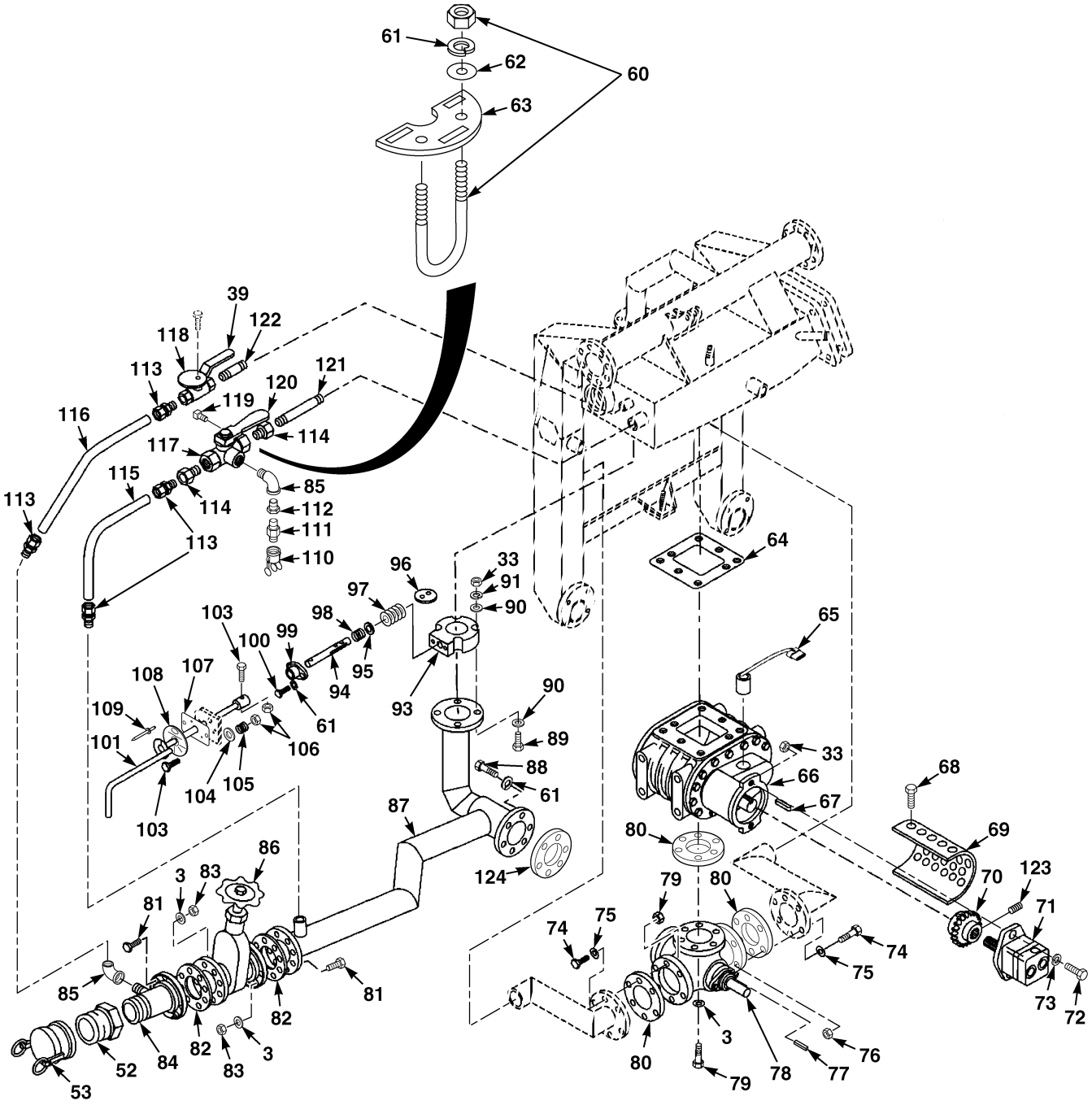


FIG. 4 CIRCULATING SYSTEM SHEET 2 OF 2

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 4 CIRCULATING SYSTEM	
1	PAFZZA	5305-00-638-8920	80204	B1821BH038C225N	SCREW,CAP,HEX HD,3/8-16 X2-1/4	2
2	PAFZZA	5310-00-087-7493	96906	MS27183-13	WASHER,FLAT,3/8	2
3	PAFZZA	5310-00-261-7340	81361	H22-56-52	WASHER,LOCK,3/8	58
4	PAFZZA	5315-01-541-1547	80195	3380747	PIN ASSY,CYLINDER LIFT ARM CYLINDER	2
5	PBFZZA	5365-01-541-2969	80195	3380763	SPACER,PIN HOLDER	2
6	PAFZZA	4730-00-172-0042	81343	AS15004-3	FITTING,LUBRICATION,1/4	10
7	PAFFFA	3040-01-541-1942	80195	3380875	BAR ASSEMBLY,CYLINDER	2
8	PAFZZA	3040-01-541-7295	29260	PMC-5608	CYLINDER,HYDRAULIC	2
9	XDFZZA		80195	3380745	BAR,RETAINER	2
10	PAFZZA	5310-01-541-1541	80195	197070	WASHER,FLAT	6
11	PAFZZA	5315-00-243-1170	80205	MS24665-516	PIN,COTTER,3/16 X 2	6
12	PAFZZA	5305-00-727-2283	96906	B1821BH063F150N	SCREW,CAP,HEX HD,5/8-18 X 1 1/2	10
13	PAFZZA	5310-01-541-3883	80195	9416520	NUT,LOCK,HEX,5/8-18	10
14	PAFZZA	4730-01-541-2134	54578	1104-1/8	ELBOW,PIPE	4
15	PAFZZA	4730-00-188-1846	81346	ASTM A733	NIPPLE,PIPE	2
16	PAFZZA	4730-00-250-7896	6A270	1618-B	FITTING,LUBRICATION	2
17	PAFZZA	3895-00-763-0688	80195	6000290	BALL,METALLIC	94
18	PAFZZA	5331-01-541-1487	8L582	OR-429-2743-744	PACKING,PREFORMED	2
19	PAFZZA	5310-00-835-2036	96906	MS35691-29	NUT,PLAIN,HEXAGON,7/16-14	2
20	PAFZZA	4730-01-541-3873	80195	3352866	SCREW,SPECIAL FITTING	2
21	PAFZZA	5305-00-068-0511	80204	B1821BH038C125N	SCREW,CAP,HEXAGON HD, 3/8-16 X 1-1/4	32
22	PFFZZA	4310-01-481-6540	80195	3341617	FRONT SUCTION ASSY	1
23	PAFZZA	5305-00-922-7994	80204	B1821BH075C250N	SCREW,CAP,HEXAGON HD, 3/4-10 X 2-1/2	4
24	PAFZZA	5310-00-067-6356	81349	M45913/2-12CG5C	NUT,SELF-LOCKING HEX,3/4-10	4
25	PAFZZA	5340-01-540-8730	56644	AB12T	ROD,END	2
26	PAFZZA	5310-00-763-8901	96906	MS51968-23	NUT,PLAIN,HEXAGON,3/4-16	4
27	PAFZZA	3040-01-540-8472	80195	3341598	LINK ASSY,LONG	1
28	PAFZZA	5310-00-153-2051	80195	6100015	WASHER,BRASS	2
29	PBFZZA		80195	3341569	BELLCRANK ASSEMBLY	1
30	PAFZZA	5340-01-541-3335	56644	AM12T	ROD,END	2
31	PAFZZA	5305-01-325-8388	80205	MS90725-113	SCREW,CAP,HEX HD,1/2-13 X 1-1/2	8
32	PAFZZA	5365-01-541-2142	80195	3341749	SEAL,BRASS	AR
33	PAFZZA	5310-00-768-0318	96906	MS51967-14	NUT,HEX,1/2-20	14
34	PFFZZA	4710-01-481-5488	80195	3341605	PIPE ASSEMBLY,LH,METAL	1
34	PFFZZA	4710-01-481-5490	80195	3341588	PIPE ASSEMBLY,RH,METAL	1
35	PAFZZA	5305-00-071-1788	80204	B1821BH044C125N	SCREW,CAP,HEX HD,7/16-14 X 1-1/4	6
36	PAFZZA	5340-01-540-9389	80195	3341964	CLAMP STRAINER BOX LID	2
37	PAFZZA	5305-00-071-2067	80204	B1821BH050C125N	SCREW,CAP,HEX HD,1/2-13 X 1-1/4	4
38	PFFZZA	4730-01-540-8861	80195	3341965	LID,STRAINER BOX	1
39	PAFZZA	4820-00-148-8584	72219	70-105-01	VALVE,BALL	3
40	PAFZZA	4730-00-193-7080	27996	58B713-6	ELBOW,PIPE	3
41	PAFZZA	4730-01-540-9775	30780	VS68NTA-12-12	ADAPTER	4
42	PAFZZA	4710-01-540-8771	80195	3341586	TUBE,SUCKBACK,RH	1
43	PAFZZA	4710-01-541-6113	80195	3341587	TUBE,SUCKBACK,LH	1
44	PAFZZA	4730-01-540-9614	80195	3341639	NIPPLE,PIPE (USED ON S/N S2328 THRU S3422)	1

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
45	PAFZZA	5330-01-541-3867	80195	3341459	GASKET	1
46	PAFZZA	4730-01-540-8815	80195	3341442	STRAINER	1
47	PAFZZA	5310-00-880-8189	96906	MS51967-11	NUT,PLAIN,HEX,7/16-14	6
48	PBFZZA	4710-01-540-8804	80195	3341576	TUBE,THREADED	1
49	PAFZZA	5310-00-842-1190	96906	MS35691-61	NUT,PLAIN,HEXAGON,3/4-16	1
50	XDFZZA		80195	3341600	CROSS TUBE ASSEMBLY	1
51	PAFZZA	4730-01-540-8739	80195	3341847	NIPPLE,PIPE	1
52	PAFZZA	4730-01-082-8504	80195	6600277	ADAPTER	2
53	PAOZZA	4730-00-929-0787	96906	MS27028-15	CAP,QUICK DISCONNECT	2
54	PAFZZA	5340-01-540-8846	80195	3310109	CRANK,TIGHTENING	1
55	PAFZZA	5305-00-978-9358	96906	MS16997-48	SCREW,CAP,SOCKET HD	2
56	PAFZZA	5310-00-014-5850	96906	MS27183-42	WASHER,FLAT,NO. 10	4
57	PAFZZA	5930-01-541-6212	0JZG7	00169	MERCURY,SWITCH	1
58	PAFZZA	5310-00-045-3296	80205	MS35338-43	WASHER,LOCK,NO. 10	2
59	PAFZZA	5310-00-245-3503	80205	MS17828-3C	NUT,SELF-LOCKING,HEX	2
60	PBFZZA		80195	3560170	CLIP ,2.00X2.00X1/4,4 IN LG	1
61	PAFZZA	5310-00-407-9566	80205	MS35338-45	WASHER,LOCK,5/16	10
62	PAFZZA	5310-00-809-3078	96906	MS27183-11	WASHER,FLAT,5/16	2
63	PAFZZA	7690-01-540-8859	80195	S1283AD	LABEL,3 WAY	1
64	PAFZZA	5330-01-540-8774	80195	3352222	GASKET STRAINER BOX	1
65	PAFZZA	6680-01-540-9418	80195	6702531	SENSOR	1
66	PAFZZA	4320-01-540-9357	80195	3341699	PUMP ASSY	1
67	PAFZZA	5315-01-127-3608	80195	2640726	KEYSTOCK,1/4 X 1/4 X 1	1
68	PAFZZA	5305-00-978-9356	96906	MS16997-46	SCREW,CAP,SOCKET HD	1
69	PAFZZA	3020-01-541-7133	80195	3341627	GUARD,ASPHALT PUMP	1
70	PAFZZA	3020-01-541-3713	80195	2660142	SPLINE,GEAR	1
71	PAFZZA	4320-01-541-5429	80195	6602658	MOTOR,HYDRAULIC	1
72	PAFZZA	5305-00-719-5238	80204	B1821BH050F200N	SCREW,CAP,HEX HD,1/2-20 X 2	2
73	PAFZZA	5310-00-584-5272	80205	MS35338-48	WASHER,LOCK,1/2	2
74	PAFZZA	5305-01-325-8387	80205	MS90725-64	SCREW,CAP,HEXAGON H, 3/8-16 X 1-1/4	12
75	PAFZZA	5310-00-582-5965	44940	850-1040	WASHER,LOCK,1/4	12
76	PAFZZA	5310-00-761-6882	96906	MS51967-2	NUT,PLAIN,HEXAGON	12
77	PAFZZA	5315-01-541-7520	80195	6000224	KEY	1
78	PAFFFA	4810-01-481-4576	80195	3341441	VALVE ASSY,4-WAY MANIFOLD,4 IN.	1
79	PAFZZA	5305-01-010-2362	80204	B1821BH038C088D	SCREW,CAP,HEX HD,3/8-16 X 7/8	6
80	PAFZZA	5330-01-541-5800	80195	3340515	GASKET,3-WAY VALVE	3
81	PAFZZA	5305-00-978-9394	96906	MS16997-99	SCREW,SOCKET,3/8-16 X 1	16
82	PAFZZA		80195	6000071	GASKET	1
83	PAFZZA	5310-00-732-0558	96906	MS51967-8	NUT,PLAIN,HEX,3/8-16	16
84	XDFZZA		80195	3341593	PIPE ASSEMBLY,PUMP OFF & HANDSPRAY	1
85	PAFZZA	4730-00-254-2744	96906	MS39230-6	ELBOW,1 IN NPT	2
86	PAFZZA	4820-01-103-5447	05443	G1013	VALVE,GATE	1
87	XDFZZA		80195	3341585	LINE ASSY,RETURN,PUMP OFF	1
88	PAFZZA	5305-00-983-6621	96906	MS16997-80	SCREW,CAP,SOCKET HD,5-16-18 X 1	6
89	PAFZZA	5305-01-540-8732	80195	110456	SCREW	4
90	PAFZZA	5310-00-834-7606	96906	MS35340-48	WASHER,FLAT,1/2	8
91	PAFZZA	5310-00-584-5272	80205	MS35338-48	WASHER,LOCK,1/2	4
92	PAFZZA	4820-01-541-1501	80195	3301208	VALVE ASSY,BUTTERFLY	1

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
93	XAFZZA		80195	3301207	•BODY	1
94	XAFZZA		80195	3341883	•STEM,BUTTERFLY VALVE	1
95	XAFZZA		80195	3341364	•WASHER,FLAT	1
96	XAFZZA		80195	3340025	•DISC	1
97	XAFZZA	5330-00-411-9135	80195	3340023	•PACKING,VALVE	5
98	XAFZZA		80195	3340045	•SPRING,COMPRESSION	1
99	XAFZZA		80195	3340022	•CAP,GLAND DUAL VALVE 2 1/2	1
100	XAFZZA		80195	6000572	•SCREW,CAP,HEX HD,DRILLED	2
101	PAFZZA	5340-01-541-1827	80195	3380606	EXTENSION ASSEMBLY BUTTERFLY VALVE,BID	1
102	PAFFFA	4820-01-541-3355	80195	3341604	CONTROL ASSEMBLY BUTTERFLY VALVE	1
103	PAFZZA	5305-00-071-2509	80204	B1821BH025C150N	•SCREW,CAP,HEX HD 1/4-20 X 1-1/2	2
104	PAFZZA	5310-00-823-8804	96906	MS27183-9	•WASHER,FLAT,1/4	2
105	PAFZZA	5360-00-597-2132	61208	1473	•SPRING,HELICAL COMPRESSION	2
106	PAFZZA	5310-01-540-9411	80195	9416509	•NUT,LOCK,HEX,1/4-20 0.25,GR8,PN	2
107	PFFZZA	5340-01-540-8810	80195	3341961	•BRACKET,SUPPORT BUTTERFLY VALVE	1
108	PAFZZA	7690-01-541-2974	80195	3390651	LABEL,BUTTERFLY VALVE	1
109	PAFZZA	5320-00-967-8720	80205	MS24662-9	RIVET,BLIND,12 DIA X .18 LG	2
110	PAFZZA	5342-01-117-6594	80195	6600250	CAP,DUST	1
111	PAFZZA	4730-01-082-6472	80195	6600248	ADAPTER,1 IN BRASS	1
112	PAFZZA	4730-00-196-1469	96906	MS51953-121	NIPPLE,PIPE	1
113	PAFZZA	4730-01-540-9775	30780	VS68NTA-12-12	ADAPTER	4
114	PAFZZA	4730-00-193-0879	0AT62	23A7M11	BUSHING,PIPE	2
115	PFFZZA	4710-01-541-2137	80195	3341615	TUBE TRANSFER	1
116	PFFZZA	4710-01-541-6848	80195	3341616	TUBE,SUCKBACK TRANSFER	1
117	PAFZZA	4820-01-540-9338	73848	309-9710-16	VALVE	1
118	PAFZZA	7690-01-541-2974	80195	3390651	LABEL,BUTTERFLY VALVE BID UNIT	1
119	PAFZZA	5305-00-054-9258	96906	MS51955-2	SETSCREW	1
120	PAFZZA	5340-01-541-2905	80195	3380695	HANDLE,VALVE,OFFSET HANDSPRAY	1
121	PAFZZA	4730-01-542-4181	80195	0190726	NIPPLE,PIPE	1
122	PAFZZA	4730-01-363-6779	80195	6200519	NIPPLE,PIPE	1
123	PAFZZA	5305-00-724-5898	96906	MS51963-83	SETSCREW	2
124	PAFZZA	5330-01-541-2902	80195	3340519	GASKET	1

END OF FIGURE

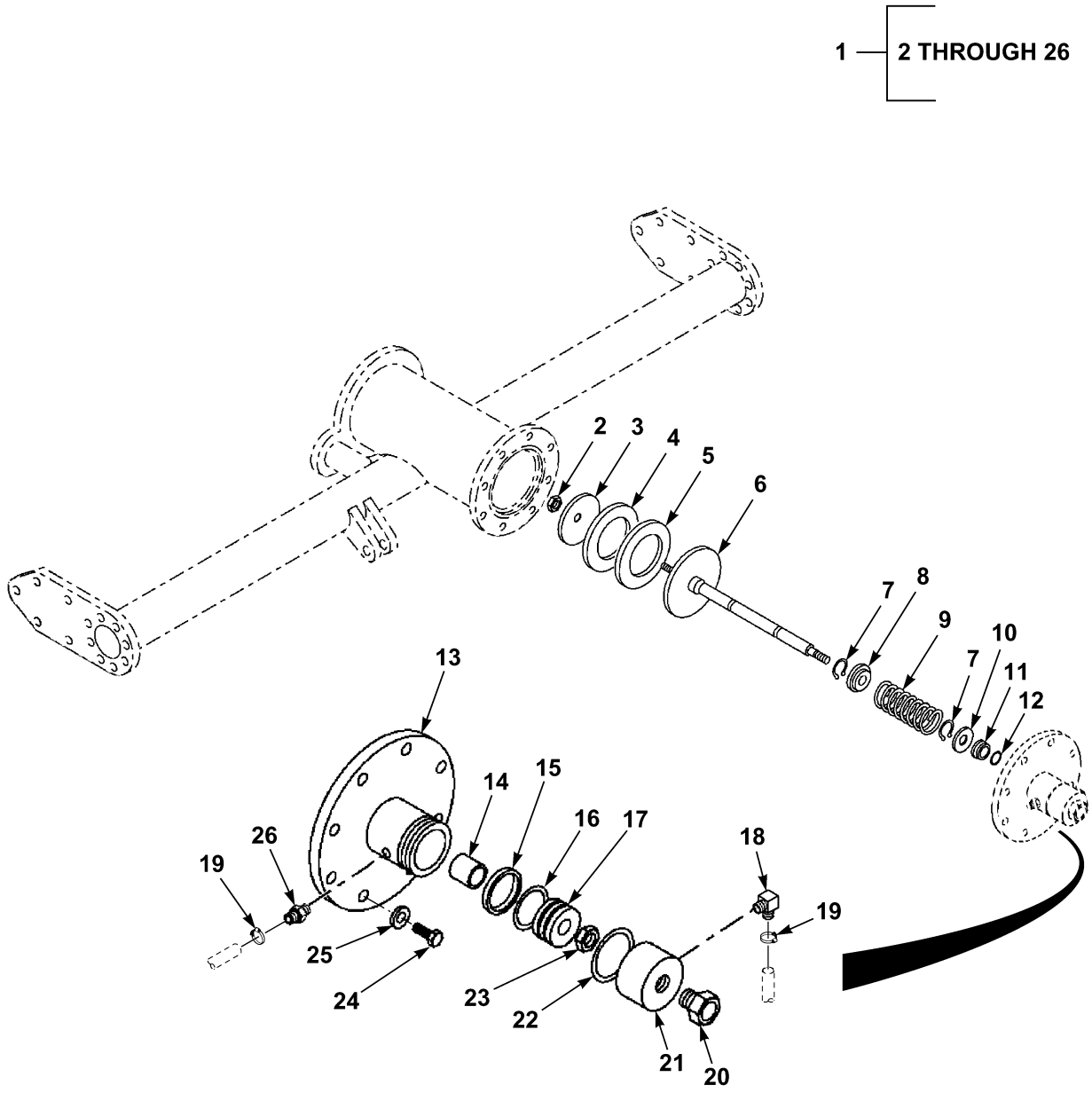


FIG. 5 SUCTION VALVE ASSEMBLY

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 5 SUCTION VALVE ASSEMBLY	
1	PAFFFA	4810-01-540-8825	80195	3341412	VALVE ASSY,REAR SUCTION	1
2	PAFZZA	5310-00-225-6408	81349	M45913/1-10FG5C	•NUT,SELF-LOCKING,HEX,5/8-11	1
3	PAFZZA	5330-01-541-3854	80195	2740137	•RETAINER,GASKET	1
4	PAFZZA	4820-01-541-5286	80195	2750597	•GASKET,SEAL	1
5	PAFZZA	5330-01-540-9247	80195	3341491	•GASKET,VALVE	1
6	PAFZZA	3040-01-541-2136	80195	3341455	•SHAFT ASSEMBLY,REAR SUCTION VALVE	1
7	PAFZZA	5325-00-530-7968	96906	MS16624-1100	•RING,RETAINING	2
8	PAFZZA	4310-01-540-9733	80195	3341117	•RETAINER,SPRING INSIDE	1
9	PAFZZA	5360-01-540-9765	80195	6602234	•SPRING	1
10	PAFZZA	5310-01-541-0230	80195	3341419	•STOP,PISTON BODY	1
11	PAFZZA	5330-00-966-2267	18876	10607928-1	•SEAL,PLAIN ENCASED	1
12	PAFZZA	5330-01-541-4192	8L582	OR-214-2885-633	•PACKING,PREFORMED	1
13	PAFZZA	4810-01-541-6739	80195	3341416	•BODY ASSEMBLY,VALVE	1
14	PAFZZA	3120-00-880-1973	26124	16DU24	•BUSHING,SLEEVE	1
15	PAFZZA	5331-01-541-1497	5F263	1252019C1	•SEAL	1
16	PAFZZA	5331-01-540-8822	80195	6602233	•PACKING,PREFORMED	1
17	PAFZZA	4810-01-541-2605	80195	3341418	•VALVE,PISTON HEAD	1
18	PAFZZA	4730-01-049-4807	93061	129HB-4-4	•ELBOW,PIPE TO HOSE	1
19	PAFZZA	4730-00-871-6729	10988	214-335	•CLAMP,HOSE	2
20	PAFZZA	6680-01-541-0167	39428	1079K13	•SIGHT PLUG,3/4 HI PRESS	1
21	PAFZZA	3040-01-541-0683	80195	3341420	•CAP,CYLINDER	1
22	PAFZZA	5330-01-540-9736	80195	3341414	•GASKET,VALVE SUCTION	1
23	PAFZZA	5310-00-067-6356	81349	M45913/2-12CG5C	•NUT,SELF-LOCKING HEX,3/4-10	1
24	PAFZZA	5305-00-021-3801	96906	MS35307-411	•SCREW,CAP,HEX HD	8
25	PAFZZA	5310-00-584-5272	80205	MS35338-48	•WASHER,LOCK,1/2	8
26	PAFZZA	4730-00-200-0531	93061	125HBL-4-4	•ADAPTER	1

END OF FIGURE

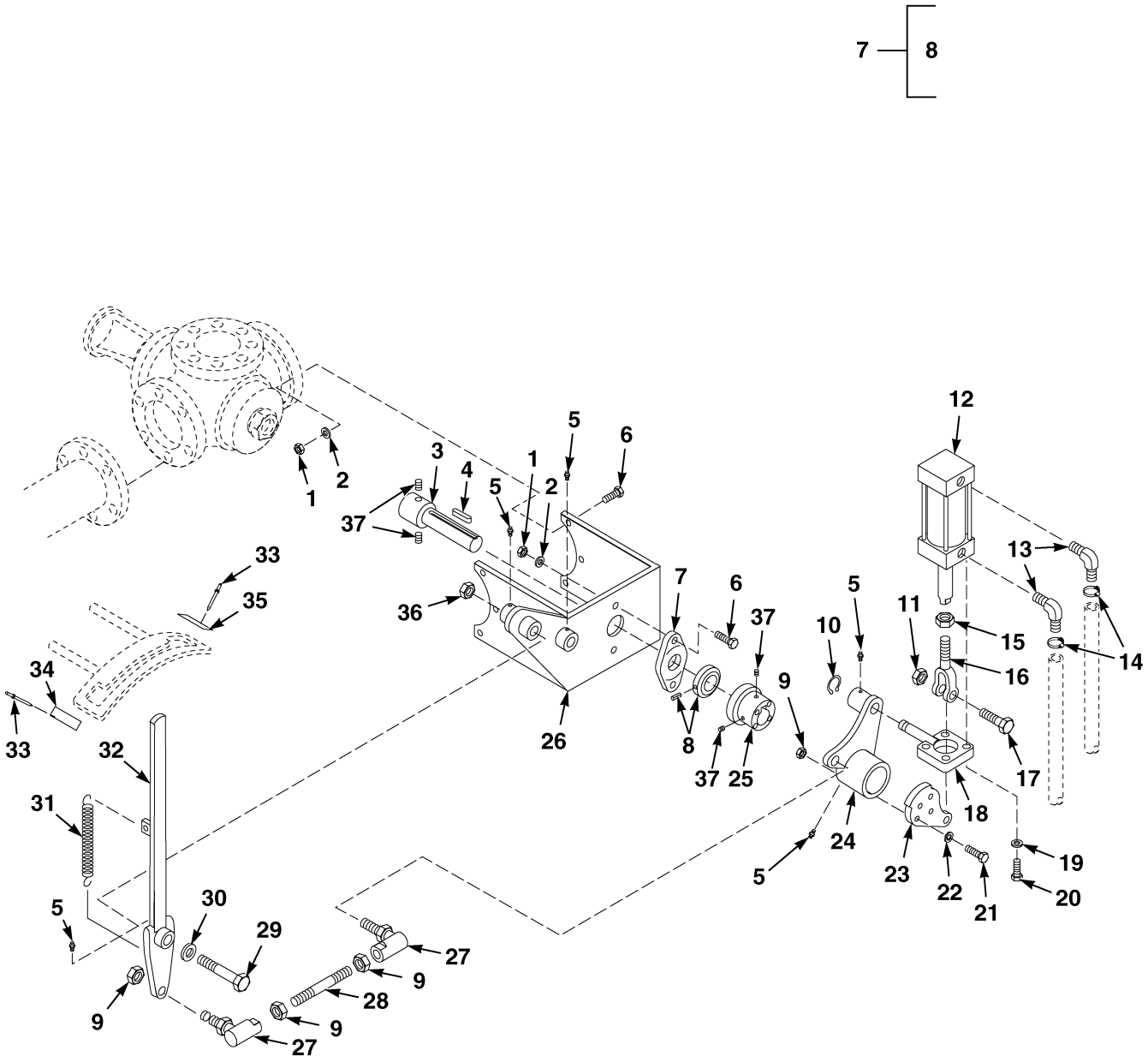


FIG. 6 FOUR-WAY VALVE ASSEMBLY

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 6 FOUR-WAY VALVE ASSEMBLY	
1	PAFZZA	5310-00-811-1377	81349	M45913/1-16FG5C	NUT,SELF-LOCKING,HEX,3/8	8
2	PAFZZA	5310-00-637-9541	08999	R10-5.50-3	WASHER,LOCK,3/8	8
3	PAFZZA	3040-01-541-7249	80195	3361150	SHAFT,EXTENSION ROTARY ACTUATOR	1
4	PAFZZA	5315-01-541-2922	80195	3360873	KEY,EXTENSION ROTARY ACTUATOR	1
5	PAFZZA	4730-00-050-4208	81343	AS15003-1	FITTING,LUBRICATION,1/8 X 11/16	5
6	PAFZZA	5305-00-418-2843	72582	454906	SCREW,CAP,HEX HD,3/8-16 X 1-1/2	8
7	PAFZZA	3130-01-541-0784	80195	6420191	BEARING,BALL,FLANGE	1
8	XAFZZA		80195	6420191-XA	•COLLAR W/SETSCREW	1
9	PAFZZA	5310-00-880-7745	96906	MS51968-11	NUT,PLAIN,HEXAGON,7/16-20	4
10	PAFZZA	5325-00-298-6563	96906	MS16624-62	RING,RETAINING	1
11	PAFZZA	5310-00-241-6659	81349	M45913/3-7CG8C	NUT,SELF-LOCKING HEX	1
12	PAFZZA	3040-01-541-8101	0UTY3	S9425	CYLINDER	1
13	PAFZZA	4730-01-541-5896	73848	HN16-06X06	BARB,HOSE,90 DEG	2
14	PAFZZA	4730-00-871-6729	10988	214-335	CLAMP,HOSE	2
15	PAFZZA	5310-00-768-0318	96906	MS51967-14	NUT,HEX 1/2-20	1
16	PAFZZA	4730-00-871-6729	80195	3352768	YOKE,4-WAY VALVE	1
17	PAFZZA	5305-00-071-2056	80204	B1821BH044C175N	SCREW,CAP,HEX HD	1
18	PAFZZA	5340-01-541-6756	80195	3361170	MOUNT ASSEMBLY,CYLINDER PIVOT	1
19	PAFZZA	5310-00-407-9566	80205	MS35338-45	WASHER,LOCK,5/16	4
20	PAFZZA	5305-00-051-4078	80204	B1821BH031F125N	SCREW,CAP,HEX HD	4
21	PAFZZA	5305-00-068-0515	80205	B1821BH025F100N	SCREW,CAP,HEX HD	4
22	PAFZZA	5310-00-582-5965	80205	MS35338-44	WASHER,LOCK,1/4	4
23	PAFZZA	3040-01-540-8481	80195	3341449	LEVER ASSEMBLY,4-WAY ACTUATOR	1
24	PAFZZA	3040-01-541-2779	80195	3341470	LEVER ASSEMBLY,VALVE ACTUATOR	1
25	PAFZZA	3040-01-541-8754	80195	3341446	ACTUATOR,HUB VALVE	1
26	PAFZZA	5340-01-541-2612	80195	3341448	BRACKET,LEVER,4-WAY VALVE	1
27	PAFZZA	3040-01-083-2834	80195	6100126	BALL JOINT	2
28	PAFZZA	4810-01-541-1800	80195	3352767	LINK,ADJUSTING,4-WAY VALVE	1
29	PAFZZA	5305-00-947-4362	80204	B1821BH075C500N	SCREW,CAP,HEX HD	1
30	PAFZZA	5310-00-087-7493	96906	MS27183-13	WASHER,FLAT,3/8	1
31	PAFZZA	5360-01-541-6746	80195	3341464	SPRING	1
32	PAFZZA	5340-01-541-2878	80195	3361141	SHIFT ASSY,4-WAY VALVE	1
33	PAFZZA	5320-00-967-8720	80205	MS24662-9	RIVET,BLIND,12 DIA X .18 LG	4
34	PAFZZA		80195	3361154	LABEL,VALVE POS CIRCULATE IN TANK-LOAD	1
35	PAFZZA		80195	3361153	LABEL,VALVE POS CIRCULATE IN BAR	1
36	PAFZZA	5310-00-838-1702	96906	MS35691-57	NUT,PLAIN,HEX	1
37	PAFZZA	5305-00-724-5903	80205	MS51963-85	SETSCREW	4

END OF FIGURE

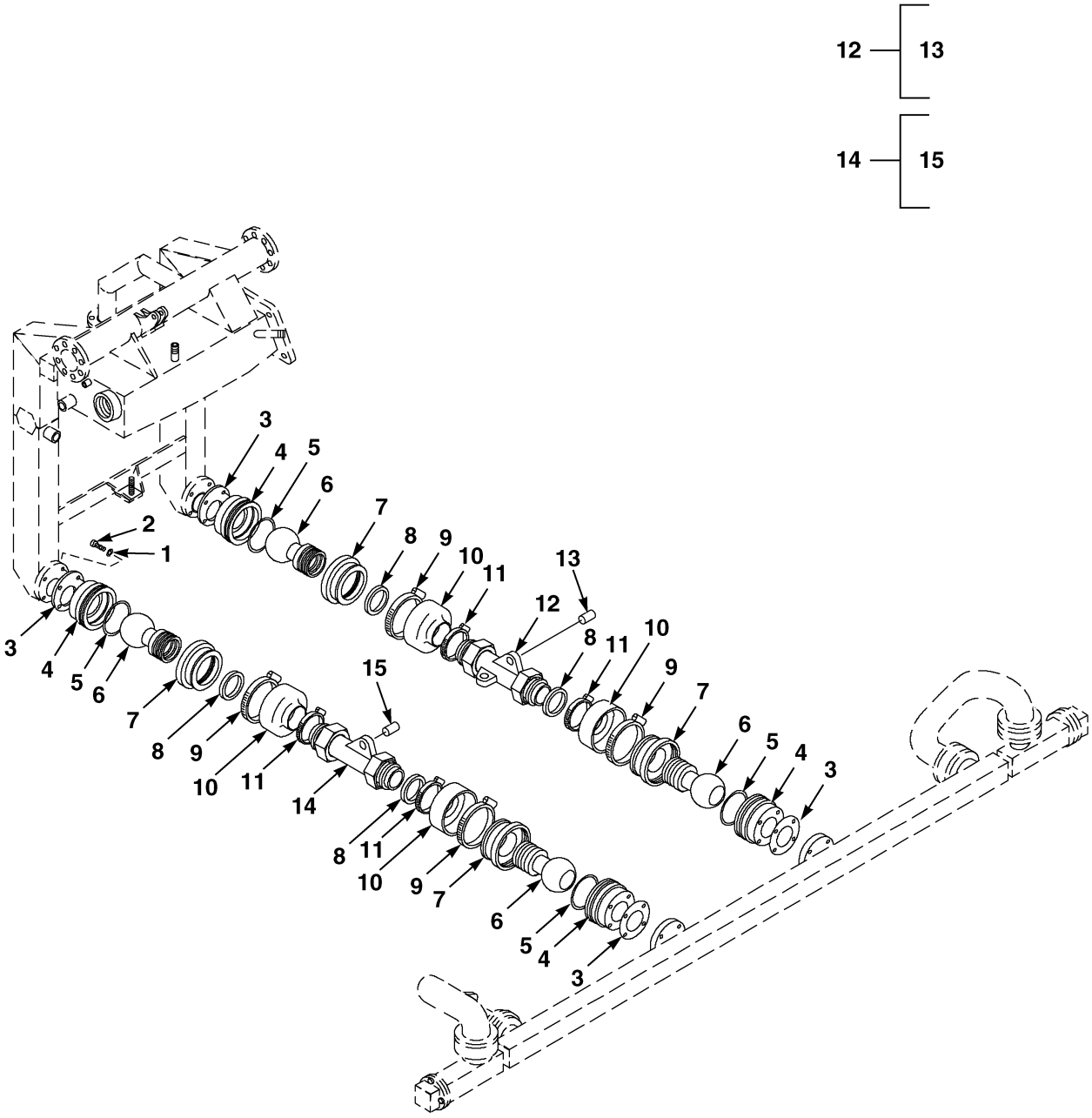


FIG. 7 DISTRIBUTING LINES

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 7 DISTRIBUTING LINES	
1	PAFZZA	5310-00-261-7340	81361	H22-56-52	WASHER,LOCK,3/8	16
2	PAFZZA	5305-00-978-9394	96906	MS16997-99	SCREW,SOCKET,3/8-16 X 1	16
3	PAFZZA	5330-01-541-0648	80195	3352614	GASKET,BALL NUT	4
4	PFFZZA	3110-01-540-8819	80195	3352610	CASE,BALL	4
5	PAFZZA	5331-01-540-8848	8L582	OR-351-2820-744	PACKING,PREFORMED	4
6	PBFZZA	4820-01-540-8779	80195	3361253	BALL	4
7	PAFZZA	5310-01-540-9609	80195	3352611	NUT,BALL	4
8	PAFZZA	4730-01-541-1504	80195	6602235	SEAL,NUT,BRASS	4
9	PAFZZA	4730-01-540-8883	73848	H96	CLAMP,HOSE	4
10	PAFZZA	5340-01-541-5331	80195	3352859	BOOT BALL JOINT COVER	4
11	PAFZZA	4730-00-127-8822	81646	6848	CLAMP,HOSE	4
12	PFFZZA	4710-01-540-9978	80195	3341563	FEED TUBE ASSY,RH	1
13	PAFZZA	3120-00-900-6288	01289	439B656PC16	•BEARING,SLEEVE	1
14	PFFZZA	4710-01-541-4324	80195	3341562	FEED TUBE ASSY,LH	1
15	PAFZZA	3120-00-900-6288	01289	439B656PC16	•BEARING,SLEEVE	1

END OF FIGURE

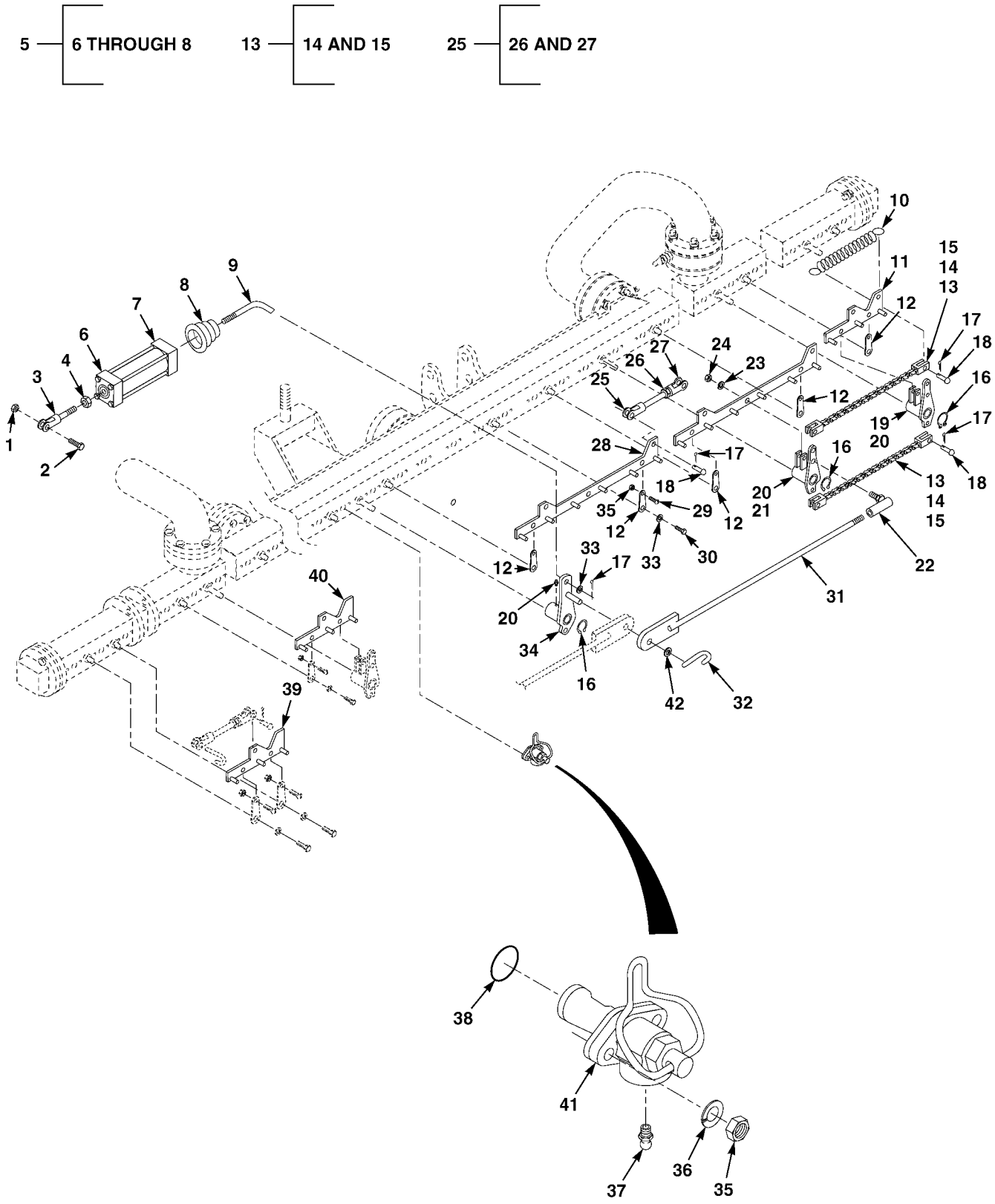


FIG. 8 SPRAY BAR-GANG ON/OFF

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 8 SPRAY BAR-GANG ON/OFF	
1	PAFZZA	5310-00-225-6409	81349	M45913/1-14FG5C	NUT,SELF-LOCKING,HEX,7/16	1
2	PAFZZA	5305-00-071-2056	80204	B1821BH044C175N	SCREW,CAP,HEX HD,7/16-14 X1-3/4	1
3	PAFZZA		80195	6600296	YOKE	1
4	PAFZZA	5310-00-488-9327	96906	MS35650-3394	NUT,PLAIN,HEX HD,1/2	1
5	PAFZZA	3040-01-028-1495	80195	3360795	CYLINDER ASSY,CONTROL	1
6	PAFZZA	5340-01-541-5746	80195	3360738	•BASE,CYLINDER YOKE,MOUNT	1
7	PAFZZA	3040-01-541-4835	80195	3360792	•RETAINER,BOOT CYLINDER	1
8	PAFZZA	2530-00-125-5456	60117	C00256	•BOOT,VEHICULAR COMP	1
9	PAFZZA	3040-01-540-9176	80195	3320411	LINK,CONNECTING BAR ON AND OFF	1
10	PAFZZA	5360-01-540-8892	84830	LE-093G-7	SPRING,HELICAL	1
11	PAFZZA		80195	3352799	BAR ASSEMBLY,CONTROL	1
12	PAFZZA	3040-01-541-6731	80195	2650637	LEVER,GUIDE,SPRAYBAR	20
13	PAFZZA	4010-01-541-2927	80195	3352476	CHAIN ASSEMBLY SPRAYBAR,GANG,SAM	4
14	XAFZZA		80195	3350231	•END,ROD,MALE ADJUSTABLE CHAIN	1
15	XAFZZA		80195	3350232	•END,ROD,FEMALE ADJUSTABLE CHAIN	1
16	PAFZZA	5325-00-418-2893	79136	5160-87	RING,RETAINING	5
17	PAFZZA	5315-00-236-8353	80205	MS24665-306	PIN,COTTER,3/32 x 1-1/2	18
18	PAFZZA	5315-00-488-6290	81349	MS9464-14	PIN,STRAIGHT,HEADED	17
19	PAFFFA	3895-01-544-5324	80195	3353401	TOGGLE ASSEMBLY,RH SPRAYBAR	2
20	PAFZZA	4730-00-172-0042	81343	AS15004-3	FITTING,LUBRICATION,1/4	5
21	PAFFFA		80195	3353400	TOGGLE ASSEMBLY,LH SPRAYBAR	2
22	PAFZZA	3040-01-083-2834	80195	6100126	BALL JOINT	2
23	PAFZZA	5310-00-209-0965	80205	MS35338-47	WASHER,LOCK,7/16	2
24	PAFZZA	5310-00-880-7745	96906	MS51968-11	NUT,PLAIN,HEXAGON,7/16-20	2
25	PAFZZA	3895-00-145-6346	80195	3350567	LINK ASSEMBLY	4
26	XAFZZA	5310-00-880-7746	96906	MS51968-5	•NUT,PLAIN,HEX,5/16-18	1
27	XAFZZA		80195	3350571	•YOKE,ADJUSTING LINK	1
28	PAFZZA	3895-01-544-5281	80195	3352750	BAR ASSEMBLY,CONTROL	4
29	PAFZZA	5305-00-071-2505	80204	B1821BH025C088N	SCREW,CAP,HEX HD,1/4-20 X 7/8	10
30	PAFZZA	5305-00-269-3206	80204	B18.2.1	SCREW,CAP,HEXAGON,HD, 3/8-16 X 1/2	10
31	PAFZZA	3040-01-540-9050	80195	3352858	ROD ASSEMBLY,CONTROL	2
32	PAFZZA	5315-00-150-4819	80195	3350708	PIN,SPECIAL,HOOK	1
33	PAFZZA	5310-00-809-4061	96906	MS27183-15	WASHER,FLAT	10
34	PAFZZA	3895-01-544-5402	80195	3353402	TOGGLE ASSEMBLY,PULL PIN	1
35	PAFZZA	5310-00-761-6882	96906	MS51967-2	NUT,PLAIN,HEXAGON,1/4-20	72
36	PAFZZA	5310-00-407-9566	80205	MS35338-45	WASHER,LOCK,5/16	72
37	PFFZZA	4730-01-481-6512	80195	3351010	NOZZLE .469	36
37	PAFZZA	4730-01-316-0155	80195	3352205	NOZZLE,V TYPE NOMINAL 3.5 GPM	36
37	PFFZZA	4730-01-481-6510	80195	3351013	NOZZLE .06 1/16	36
38	PAFZZA	5331-01-541-0213	8L582	OR-022-2842-803	PACKING,PREFORMED	30
39	PAFZZA	3895-01-544-5257	80195	3352751	BAR ASSEMBLY,CONTROL	1
40	PAFZZA	3895-01-544-5299	80195	3352758	BAR ASSEMBLY,CONTROL	1
41	PAFZZA	4820-01-543-9216	80195	3352743	VALVE,FLIP	36
42	PAFZZA	5310-00-283-8803	96906	MS27183-21	WASHER, FLAT, SB	1

END OF FIGURE

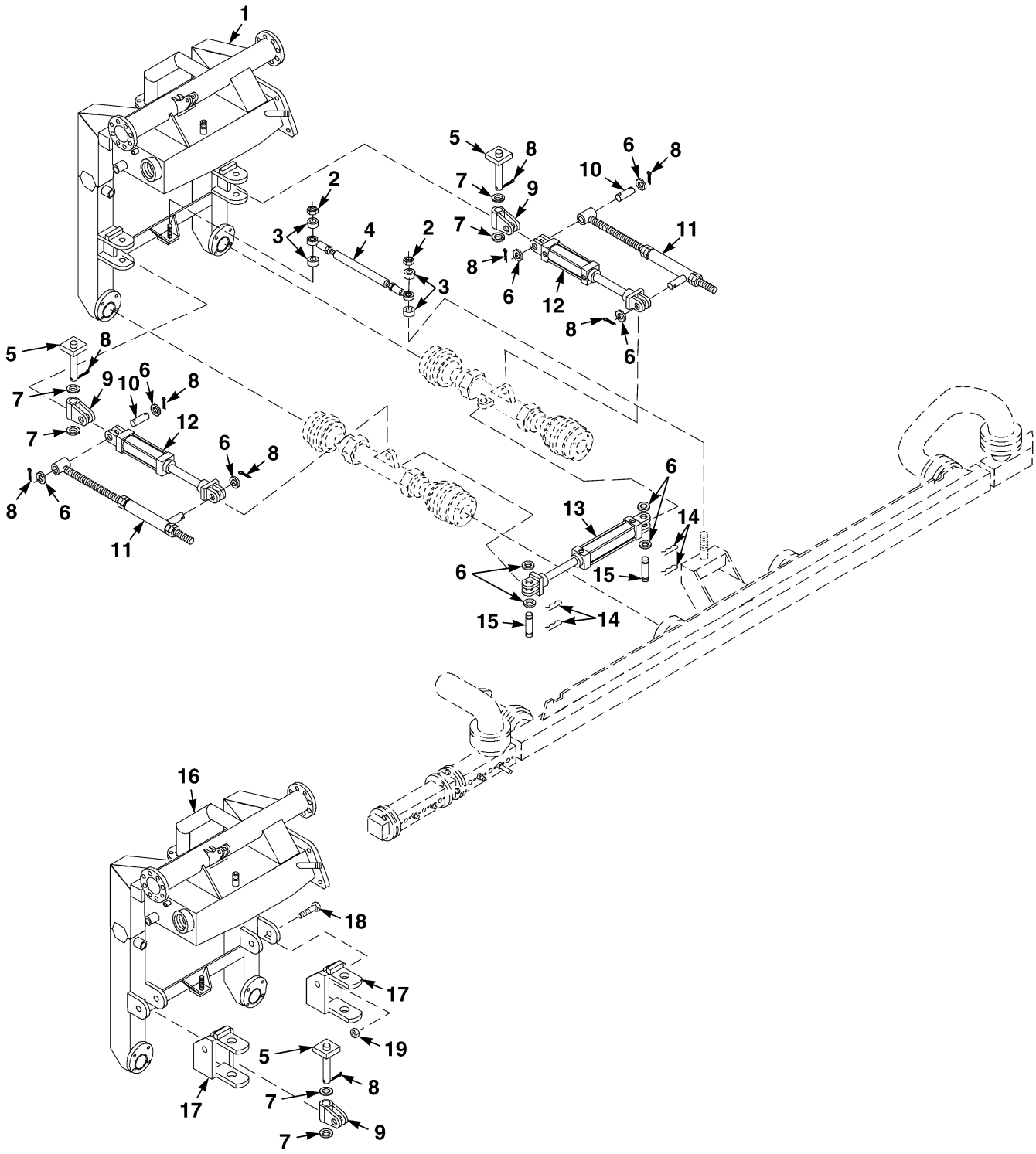


FIG. 9 SPRAY BAR RAISE AND SHIFT

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 9 SPRAY BAR RAISE AND SHIFT	
1	XDFZZA		80195	3342064	PIPE ASSEMBLY,STRAINER BOX AND DROP (USED ON S/N S2328 THRU S3422)	1
2	PAFZZA	5310-00-763-8905	96906	MS51968-20	NUT,PLAIN,HEXAGON,5/8	2
3	PFFZZA	5365-01-540-9374	80195	3341411	SPACER	4
4	PAFZZA	2510-01-541-6287	80195	3352880	ROD ASSEMBLY,STABILIZER BAR	1
5	PAFZZA	5315-01-541-0679	80195	3352795	PIN ASSEMBLY,CARRY ARM	2
6	PAFZZA	5310-01-540-8853	80195	3311425	WASHER,FLAT,MODIFIED	10
7	PAFZZA	5310-00-153-2051	80195	6100015	WASHER,BRASS	8
8	PAFZZA	5315-00-239-8032	80205	MS24665-513	PIN,COTTER,3/16 X 1-1/2	12
9	PFFZZA	5340-01-541-4242	80195	3352660	LUG ASSEMBLY,LIFT CYLINDER	2
10	PAFZZA	5315-01-541-1824	80195	3311654	PIN,HEIGHT ADJUSTING SPRAYBAR	2
11	PAFZZA	5305-01-540-8834	80195	3311687	LUG AND SCREW ASSY,HEIGHT ADJUSTING	2
12	PAFZZA	3040-01-541-8537	80195	3301387	CYLINDER,HYDRAULIC	2
13	PAFZZA	3040-01-541-1129	80195	6602231	CYLINDER,HYDRAULIC	1
14	PAFZZA	5315-01-054-8531	53711	2491848	PIN,LOCK	4
15	PAFZZA	5315-01-541-1824	80195	3311654	PIN,HEIGHT ADJUSTING	2
16	PAFZZA	4710-01-540-8877	80195	3353399	STRAINER BOX,DROP PIPE ASSEMBLY (USED ON S/N S3605 AND SUBSEQUENT)	1
17	XDFZZA		80195	3353395	LUG ASSEMBLY (USED ON S/N S3605 AND SUBSEQUENT)	2
18	PAFZZA	5305-01-325-8388	80205	MS90725-113	SCREW,CAP,HEX HD,1/2-13 X 1-1/2 (USED ON S/N S3605 AND SUBSEQUENT)	4
19	PAFZZA	5310-00-225-6993	81349	M45913/1-8CG5C	NUT,SELF-LOCKING,HEX,1/2-13 (USED ON S/N S3605 AND SUBSEQUENT)	4
					END OF FIGURE	

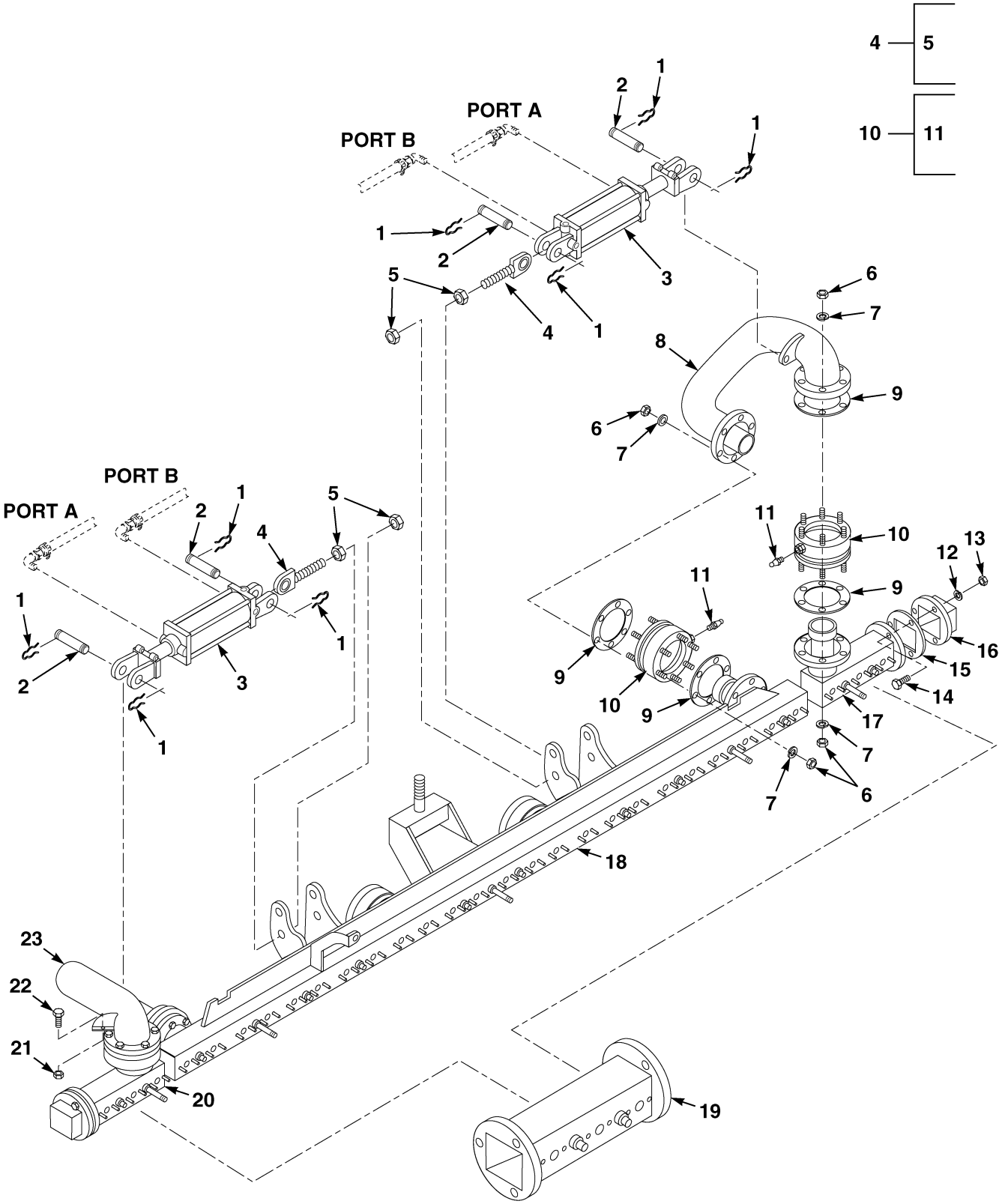


FIG. 10 SPRAYBAR WING-UP-HYDRAULIC

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 10 SPRAYBAR WING-UP-HYDRAULIC	
1	PAFZZA	5315-01-054-8531	53711	2491848	PIN,LOCK	8
2	PBFZZA	5315-01-541-1824	80195	3311654	PIN,HEIGHT ADJUSTING	4
3	PAFZZA	3040-01-540-8479	73848	CYR2010AR	CYLINDER,HYDRAULIC	2
4	PAFFFA	5340-01-541-4179	80195	3352591	END ASSEMBLY,ROD	2
5	PAFZZA	5310-00-891-3426	96906	MS35691-73	•NUT,HEX,1-8	2
6	PAFZZA	5310-00-880-7744	96906	MS51967-5	NUT,HEX,5/16-18	48
7	PAFZZA	5310-00-407-9566	80205	MS35338-45	WASHER,LOCK,5/16	48
8	PAFZZA	4710-01-540-8728	80195	3352721	TUBE ASSY,RH	1
9	PAFZZA	5330-01-540-8708	80195	3352615	GASKET,SWIVEL SPRAYBAR	8
10	PAFZZA	4730-01-542-4664	80195	7230219	SWIVEL ASSEMBLY,HINGE	4
11	PAFZZA	4730-00-172-0042	81343	AS15004-3	•FITTING,LUBRICATION,1/4	4
12	PAFZZA	5310-00-261-7340	81361	H22-56-52	WASHER,LOCK,3/8	6
13	PAFZZA	5310-00-732-0558	96906	MS51967-8	NUT,PLAIN,HEX,3/8-25	6
14	PAFZZA	5305-00-068-0511	80204	B1821BH038C125N	SCREW,CAP,HEXAGON,HD, 3/8-16 X 1-1/4	6
15	PAFZZA	5330-01-540-9799	80195	3352592	GASKET,FLANGE SPRAYBAR	4
16	PAFZZA	5340-01-541-1867	80195	3352624	CAP,END SPRAYBAR	2
17	PAFZZA	4710-01-541-2900	80195	3352726	TUBE ASSEMBLY,RH STUB WING	1
18	PAFZZA	3895-01-544-5316	80195	3352725	TUBE ASSEMBLY,CENTER	1
19	PAFZZA	3895-01-544-5251	80195	3352728	BAR EXTENSION,ON/OFF	2
20	PAFZZA	4710-01-541-5683	80195	3352727	TUBE ASSEMBLY,LH STUB WING	1
21	PAFZZA	5310-00-088-1251	81349	M45913/1-4CG5C	NUT,SELF-LOCKING,1/4-20	2
22	PAFZZA	5305-00-068-0509	80204	B1821BH025C125N	SCREW,CAP,HEX HD,1/4-20 X 1-1/4	2
23	PAFZZA	4710-01-541-1806	80195	3352722	TUBE ASSY,LH	1
					END OF FIGURE	

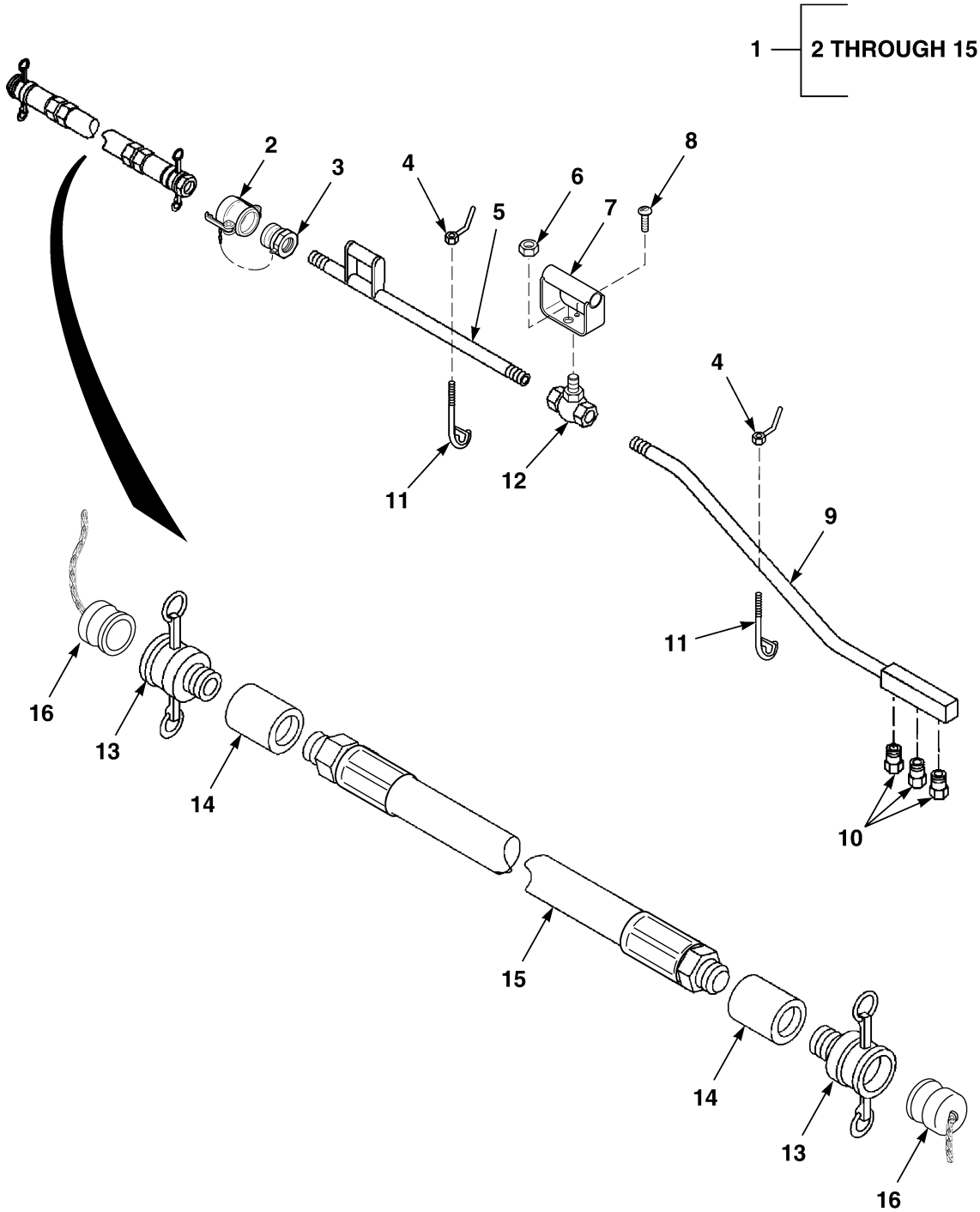


FIG. 11 HANDSPRAY AND LOADING HOSE

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 11 HANDSPRAY AND LOADING HOSE	
1	PAFFFA		80195	3380805	HANDSPRAY GUN ASSY	1
2	PAFZZA	2590-01-485-6527	58536	A-A-59326/10-8	•CAP ASSEMBLY,DUST	1
3	PAFZZA	4730-01-082-6472	80195	6600248	•ADAPTER,1 IN BRASS	1
4	PAFZZA	5310-01-104-4679	80195	3350795	•NUT,PLAIN,WING	2
5	PAFZZA	4710-01-082-6576	80195	3380022	•TUBE ASSEMBLY,HAND SPRAY GUN	1
6	PAFZZA	5310-00-880-7745	96906	MS51968-11	•NUT,PLAIN,HEXAGON,7/16-20	1
7	PAFZZA	5340-01-541-2135	80195	3380873	•HANDLE,HANDSPRAY VALVE	1
8	PAFZZA	5305-00-984-6210	96906	MS35206-263	•SCREW,MACHINE,PAN HD, NO.10 X 1/2	1
9	PAFZZA	4710-01-098-1928	80195	3380024	•TUBE ASSEMBLY,OFFSET,HAND SPRAY GUN	1
10	PAFZZA	4730-01-316-0155	80195	3352205	•NOZZLE,V TYPE,NOMINAL 3.5 GPM	3
11	PAFZZA	5306-01-541-2981	80195	3380809	•HOOK,BAR HOLD CLAMP	2
12	PAFFFA	4820-01-541-4194	80195	3380804	•VALVE ASSY, GUN HANDSPRAY	1
13	PAFZZA	4730-01-356-0779	80195	6600249	•COUPLER,BRASS	2
14	PAFZZA	4730-01-541-5297	54578	336-1-2	•COUPLING,PIPE	2
15	PAFZZA	4720-00-409-8746	80195	6600392	•HOSE,HANDSPRAY,1 IN X 25 FT	1
16	PAFZZA	4730-01-036-7498	58536	AA59326X23	PLUG,QUICK DISCONNECT	2

END OF FIGURE

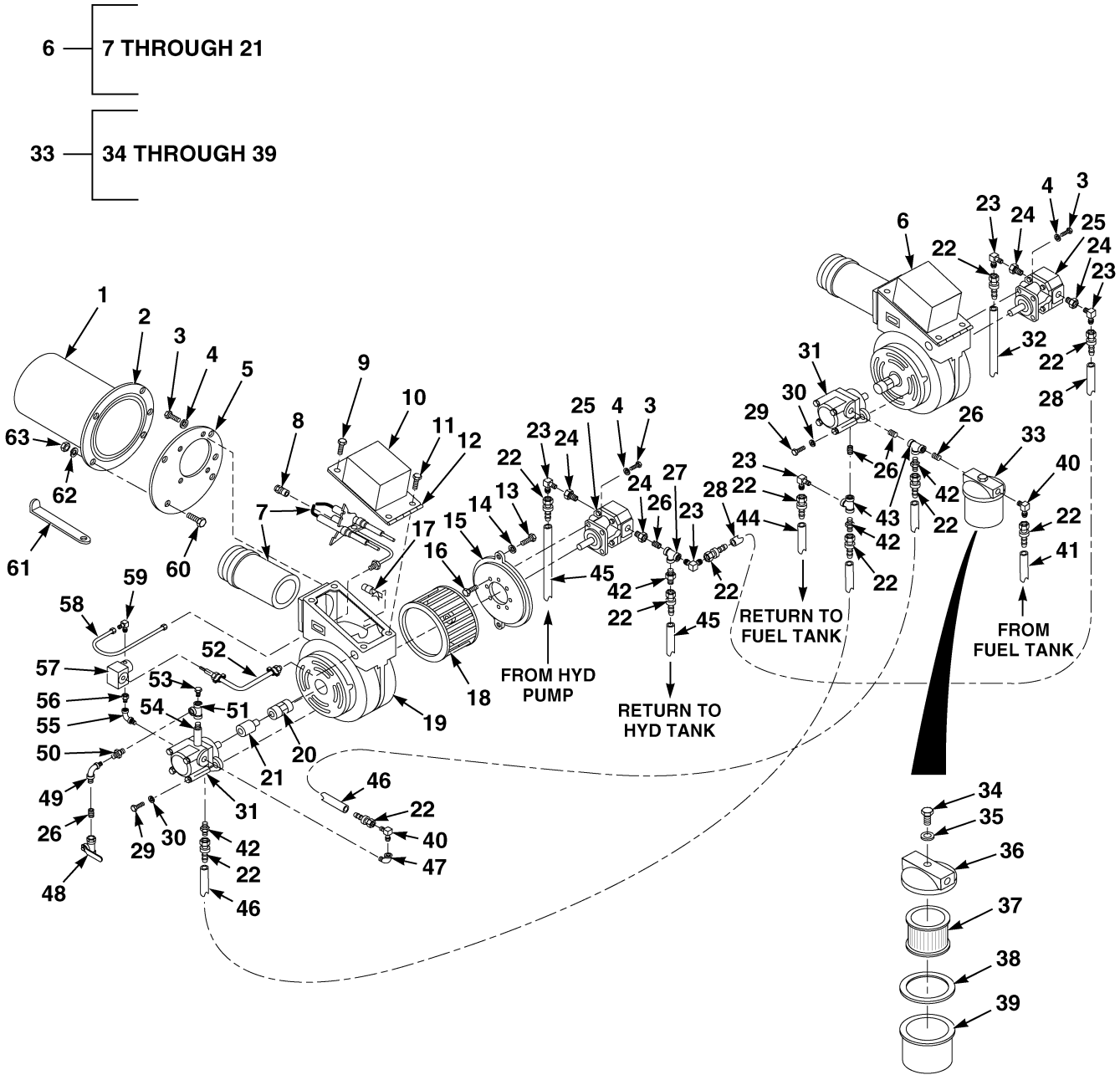


FIG. 12 FUEL OIL BURNERS

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 12 FUEL OIL BURNERS	
1	PAFZZA	3895-00-160-5721	80195	6500041	COMBUSTION TUBE	2
2	XDFZZA		80195	3331277	FLUE MOUNTING	2
3	PAFZZA	5305-00-068-0502	57498	95423596	SCREW,CAP,HEX HD,1/4-20 X 3/4	16
4	PAFZZA	5310-00-582-5965	44940	850-1040	WASHER,LOCK,1/4	16
5	XDFZZA		80195	3331308	FLANGE,BURNER MOUNT	2
6	PAFZZA	3895-01-544-5227	80195	7710007	BURNER ASSEMBLY,HI-PRESSURE SIGNAL FLUE	2
7	XAFZZA		80195	6500337	•TUBE,BURNER,AIR	2
8	PAFZZA	4530-01-542-4632	73007	9000	•NOZZLE,BURNER,2.0GPH, 30 HOLLOW	2
9	XAFZZA		80195	6001257	•SCREW,MACHINE	2
10	XAFZZA		80195	6500344	•TRANSFORMER,IGNITION	2
11	PAFZZA	5305-00-984-6212	80205	MS35206-265	•SCREW,MACHINE,NO. 10 X 3/4	4
12	XAFZZA		80195	3380782	•BRACKET,MOUNTING TRANSFORMER	2
13	PAFZZA	5306-00-226-4825	80204	B1821BH031C075N	•SCREW,CAP, HEX HD,5/16-18 X 3/4	2
14	PAFZZA	5310-00-010-3320	96906	MS35338-7	•WASHER,LOCK,5/16	2
15	XAFZZA		80195	3331257	•PLATE,MOTOR MOUNT	1
16	PAFZZA	5305-00-068-0502	1FP59	012345-4	•SCREW,CAP,HEX HD,1/4-20 X 3/4	4
17	XAFZZA	5961-01-534-0937	51384	7006U	•SEMICONDUCTOR DEVICE	1
18	XAFZZA		51384	2383U	•WHEEL,BLOWER,BURNER	1
19	PAFZZA	3040-01-541-8163	80195	6500343	•HOUSING ASSEMBLY,BURNER, HI PRESSURE	1
20	PAFZZA	3010-00-857-2090	75665	L050-1/2 BORE X	•COUPLING,SHAFT,FLEX	1
21	PAFZZA	3040-01-542-4968	80195	3331263	•SHAFT,BURNER	1
22	PAFZZA	4730-00-288-9311	79470	10006-406	ADAPTER,STRAIGHT	11
23	PAFZZA	4730-00-902-8991	29510	118755	ELBOW,PIPE TO TUBE	5
24	PAFZZA	4730-01-131-7679	81873	84001930-001	ADAPTER,STRAIGHT	4
25	PAFZZA	4320-01-541-1813	80195	6601961	MOTOR,HYDRAULIC	2
26	PAFZZA	4730-00-196-2055	96906	MS51953-25B	NIPPLE,PIPE	5
27	PAFZZA	4730-00-249-2029	54578	1105-1/4	TEE,PIPE	1
28	MFFZZA		1J3N0	6600324-16	HOSE,NONMETALLIC,MAKE FROM P/N 7212-381, CAGE 1J3N0,16 IN	1
29	PAFZZA	5306-00-225-8499	80205	MS90725-34	SCREW,CAP,HEX HD,5/16-18 X 1	8
30	PAFZZA	5310-00-407-9566	80205	MS35338-45	WASHER,LOCK,5/16	8
31	PAFZZA		51384	21188	PUMP,FUEL BURNER,HI PRESSURE	2
32	MFFZZA		1J3N0	6600324-228	HOSE,NONMETALLIC,MAKE FROM P/N 7212-381, CAGE 1J3N0,228 IN	1
33	PAFZZA	4330-00-192-8794	72692	1A25A	FILTER ASSEMBLY,FLUID	1
34	XAFZZA		64030	6500342-NHA-A	•SCREW,FILTER	1
35	XAFZZA		64030	6500342-NHA-B	•GASKET,FILTER SCREW	1
36	XAFZZA		64030	6500342-NHA-D	•COVER,FILTER	1
37	PAFZZA	4330-00-219-4709	64030	1A-30	•FILTER ELEMENT,OIL	1
38	PAFZZA	5330-01-282-2640	64030	58846	•SEAL,PLAIN ENCASED	1
39	XAFZZA		64030	6500342-NHA-C	•HOUSING,FILTER	1
40	PAFZZA	4730-00-231-5605	81343	AS4854-01	ELBOW,PIPE	1
41	MFFZZA		1J3N0	6600324-121	HOSE,NONMETALLIC,MAKE FROM P/N 7212-381, CAGE 1J3N0,121 IN	1

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
42	PAFZZA	4730-00-995-1559	96906	MS51500A6	ADAPTER,STRAIGHT	3
43	PAFZZA	5730-01-540-8863	54578	1105R-3/8-3/8-1/4	TEE,PIPE	2
44	MFFZZA		1J3N0	6600324-115	HOSE,NONMETALLIC,MAKE FROM P/N 7212-381, CAGE 1J3N0,115 IN	1
45	MFFZZA		1J3N0	6600324-225	HOSE,NONMETALLIC,MAKE FROM P/N 7212-381, CAGE 1J3N0,225 IN	2
46	MFFZZA		1J3N0	6600324-35	HOSE,NONMETALLIC,MAKE FROM P/N 7212-381, CAGE 1J3N0,35 IN	2
47	PAFZZA	4730-00-253-4414	96906	MS39230-4	ELBOW,PIPE	1
48	PAFZZA	4820-01-542-4595	03DL9	T-100-1N	VALVE,BALL,1/4	1
49	PAFZZA	4730-00-246-9215	24617	105423	ELBOW,PIPE	1
50	PAFZZA	4730-00-226-8874	30780	1-4X1-8FGS	REDUCER,PIPE	1
51	PAFZZA	4730-00-891-0330	29510	105416	TEE,PIPE	1
52	PAFZZA	5975-01-083-1879	03743	C-750	BOX CONNECTOR,ELECTRICAL	2
53	PAFZZA	4730-01-223-0565	96906	MS51518B2	PLUG,TUBE FITTING	1
54	PAFZZA	4730-01-541-1538	80195	115075	NIPPLE,PIPE	1
55	PAFZZA	4730-00-246-9215	24617	105423	ELBOW,PIPE	1
56	PAFZZA	4730-00-226-8874	80195	105440	NIPPLE,PIPE	2
57	PAFZZA	4730-00-891-0330	3ZZN5	8262G014-12VDC	VALVE,FUEL,12V	2
58	PFFZZA	5975-01-083-1879	80195	6309067	TUBE,.19 COPPER	2
59	PAFZZA	4730-01-223-0565	30327	649F03X02	ELBOW,TUBE	2
60	PAFZZA	4730-01-541-1538	96906	MS51105-360	SCREW,CAP,HEXAGON	8
61	XDFZZA	4730-00-246-9215	80195	3331270	HOLDER,TUBE	2
62	PAFZZA	4730-01-541-3886	81718	H2525M	WASHER,LOCK 3/8	8
63	PAFZZA	4810-01-540-8693	80205	MS35649-262	NUT,PLAIN,HEX	8

END OF FIGURE

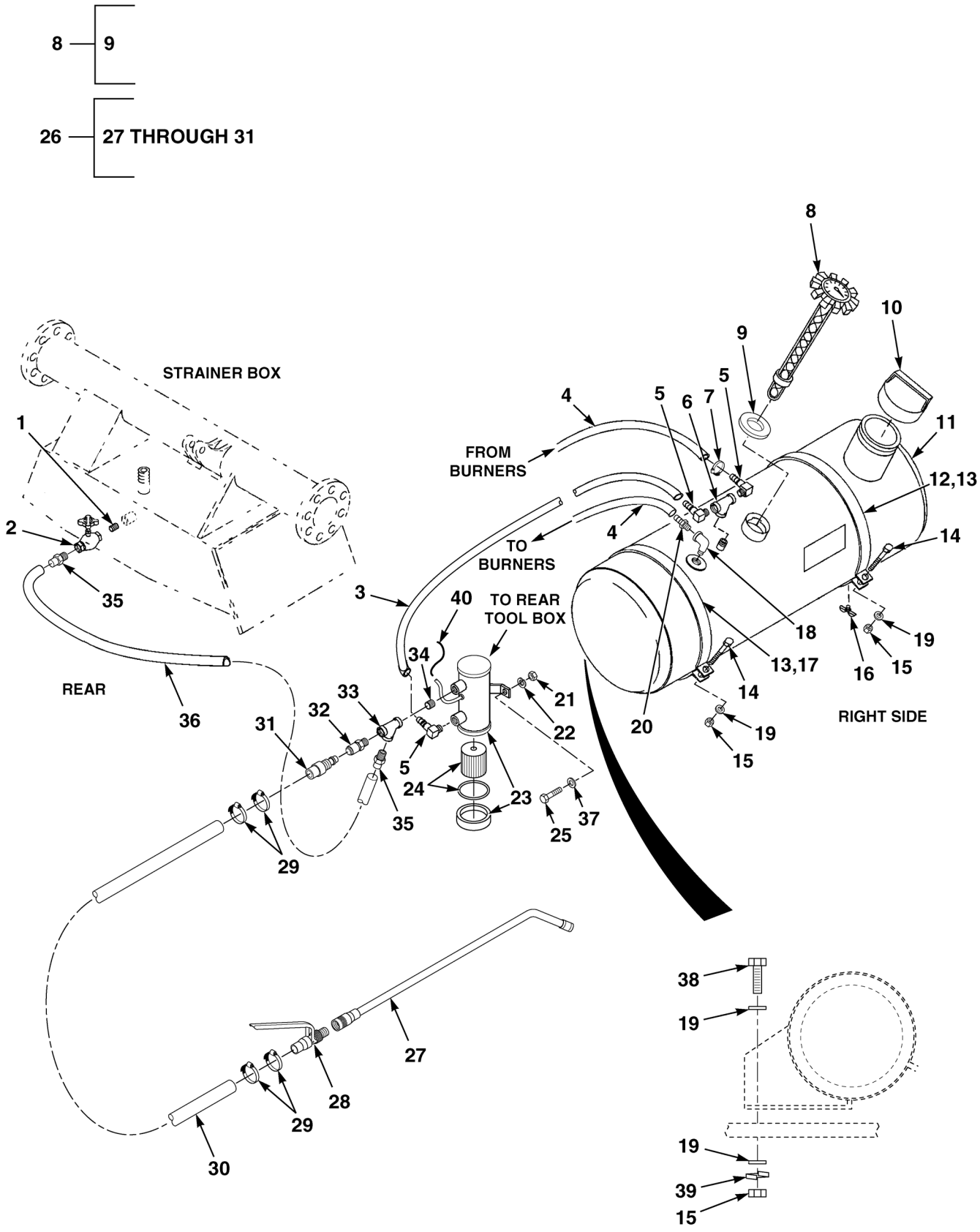


FIG. 13 FUEL TANK, BURNERS AND SELF FLUSHING

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 13 FUEL TANK, BURNERS AND SELF FLUSHING	
1	PAFZZA	4710-01-540-9454	96906	MS51953-25B	NIPPLE,PIPE	1
2	PAFZZA	4820-01-088-9178	80195	6600303	VALVE ASSEMBLY	1
3	MFFZZA		1J3N0	6600324-84	HOSE,NONMETALLIC,MAKE FROM P/N 7212-381, CAGE 1J3N0,84 IN	1
4	MFFZZA		1J3N0	6600324-127	HOSE,NONMETALLIC,MAKE FROM P/N 7212-381, CAGE 1J3N0,127 IN	2
5	PAFZZA	4730-01-049-4807	75755	T28077	ELBOW,HOSE TO PIPE	3
6	PAFZZA	4730-00-249-2029	54578	1105-1/4	TEE,PIPE	1
7	PAFZZA	4730-00-871-6729	10988	214-335	CLAMP,HOSE	1
8	PAFZZA	6680-01-540-9580	80195	3380800	GAGE ASSEMBLY	1
9	XAFZZA	5330-01-541-1505	80195	3380799	•GASKET, FUEL GAUGE	1
10	PAFZZA	5342-01-540-9792	10203	5343-15	CAP ASSEMBLY,FUEL TANK	1
11	PAFFFA	2910-01-541-6586	80195	3331394	TANK ASSEMBLY,FUEL	1
12	PFFZZA	5340-01-541-4186	80195	3331399	STRAP,SUPPORTING,RH	1
13	PAFZZA	5342-01-211-3897	45152	124623A	STRAP, LINER	2
14	PAFZZA	5305-00-782-9489	80204	B1821BH038C200N	SCREW,CAP,HEX HD,3/8-16 X 2	2
15	PAFZZA	5310-00-811-1377	81349	M45913/1-16FG5C	NUT,SELF-LOCKING,HEX,3/8	6
16	PAFZZA	4820-01-102-9950	80195	6600162	COCK,DRAIN	1
17	PFFZZA	5340-01-541-2590	80195	3331398	STRAP,SUPPORT,LH	1
18	PAFZZA	4730-00-950-9858	92679	121835R1	ELBOW,HOSE TO PIPE	1
19	PAFZZA	5310-00-802-4701	80205	MS15795-813	WASHER,FLAT,3/8	12
20	PAFZZA	4730-01-216-9994	24161	4-4MPX	ADAPTER,STRAIGHT,PIPE TO HOSE	1
21	PAFZZA	5310-00-761-6882	96906	MS51967-2	NUT,PLAIN,HEXAGON,1/4-28	2
22	PAFZZA	5310-00-582-5965	80205	MS35338-44	WASHER,LOCK,1/4	2
23	PAFZZA	2910-01-454-6830	70842	610-1049	PUMP,FUEL,ELECTRICAL	1
24	PAFZZA	2910-01-541-8592	70842	610-1086	FILTER W/GASKET	1
25	PAFZZA	5305-00-068-0502	57498	95423596	SCREW,CAP,HEX HD,1/4-20 X 3/4	2
26	PAFFFA	4720-01-541-0807	80195	3361014	HOSE/WAND ASSEMBLY	1
27	PAFZZA	3740-01-110-9078	80195	4480132	•WAND-SPRAYER	1
28	PAFZZA	3740-01-110-9078	29670	149-403	•VALVE AND NOZZLE	1
29	PAFZZA	4730-00-871-6729	10988	214-335	•CLAMP,HOSE	4
30	MFFZZA		1J3N0	6600324-300	•HOSE,NONMETALLIC,MAKE FROM P/N 7212-381, CAGE 1J3N0,300 IN	1
31	PAFZZA	4730-01-541-6092	0MJ99	24KAAN13MPX	•COUPLING,QUICK CONNECT	1
32	PAFZFF	4730-01-544-5416	80195	3361694	COUPLING ASSEMBLY,WASHDOWN	1
33	PAFZZA	4730-00-891-0330	29510	105416	TEE,PIPE	1
34	PAFZZA	4730-01-541-3886	80195	105440	NIPPLE,PIPE	1
35	PAFZZA	4730-01-541-2914	24161	80448	END,HOSE	2
36	MFFZZA		1J3N0	6600324-244	HOSE,NONMETALLIC,MAKE FROM P/N 7212-381, CAGE 1J3N0,244 IN	1
37	PAFZZA	5310-00-550-5054	80205	MS15795-809	WASHER,FLAT,1/4	2
38	PAFZZA	5305-00-781-3927	80205	B1821BH038C350N	SCREW,CAP,HEX HD,3/8-16 X 3-1/2	4
39	PAFZZA	5310-00-261-7340	81361	H22-56-52	WASHER,LOCK,3/8	4
40	PAFZZA		80195	6702567	HARNESS	1
					END OF FIGURE	

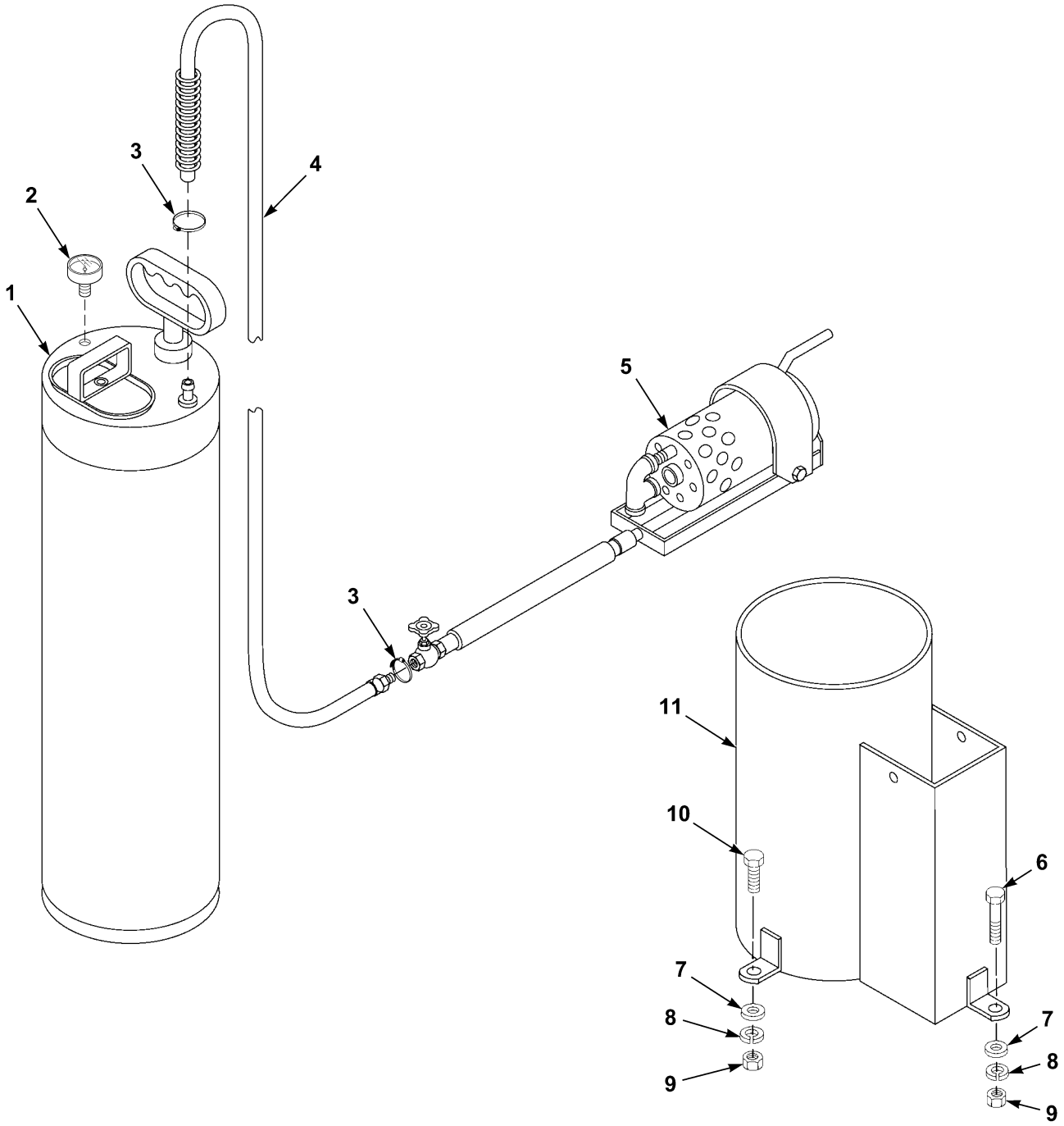


FIG. 14 PORTABLE GENERATING BURNER (USED ON S/N S2328 THRU S3422)

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 14 PORTABLE GENERATING BURNER (USED ON S/N S2328 THRU S3422)	
1	PAFZZA	3895-00-758-9710	80195	7700086	TANK,DISTRIBUTOR	1
2	PAFZZA	6685-00-574-7538	80195	7700046	GAGE,PRESSURE,DIAL INDICATING	1
3	PAFZZA	4730-00-497-6589	45152	1346740	CLAMP,HOSE	2
4	PAFZZA	4720-00-228-1216	80195	7700065	HOSE ASSY,NONMETALLIC	1
5	PFFLAA	4520-01-479-9271	80195	3331382	BURNER ASSEMBLY,SPRAY	1
6	PAFZZA	5305-01-458-1670	80204	B1821BH038C550N	SCREW,CAP,HEX HD,3/8-16 X 5.5	1
7	PAFZZA	5310-00-087-7493	96906	MS27183-13	WASHER,FLAT,3/8	3
8	PAFZZA	5310-00-209-0965	80205	MS35338-47	WASHER,LOCK,7/16	3
9	PAFZZA	5310-00-732-0558	96906	MS51967-8	NUT,PLAIN,HEX 3/8-26	3
10	PAFZZA	5305-00-782-9489	80204	B1821BH038C200N	SCREW,CAP,HEX HD 3/8-16 X 2	2
11	PFFZZA	3895-01-542-6773	80195	3330277	BURNER CARRIER	1
					END OF FIGURE	

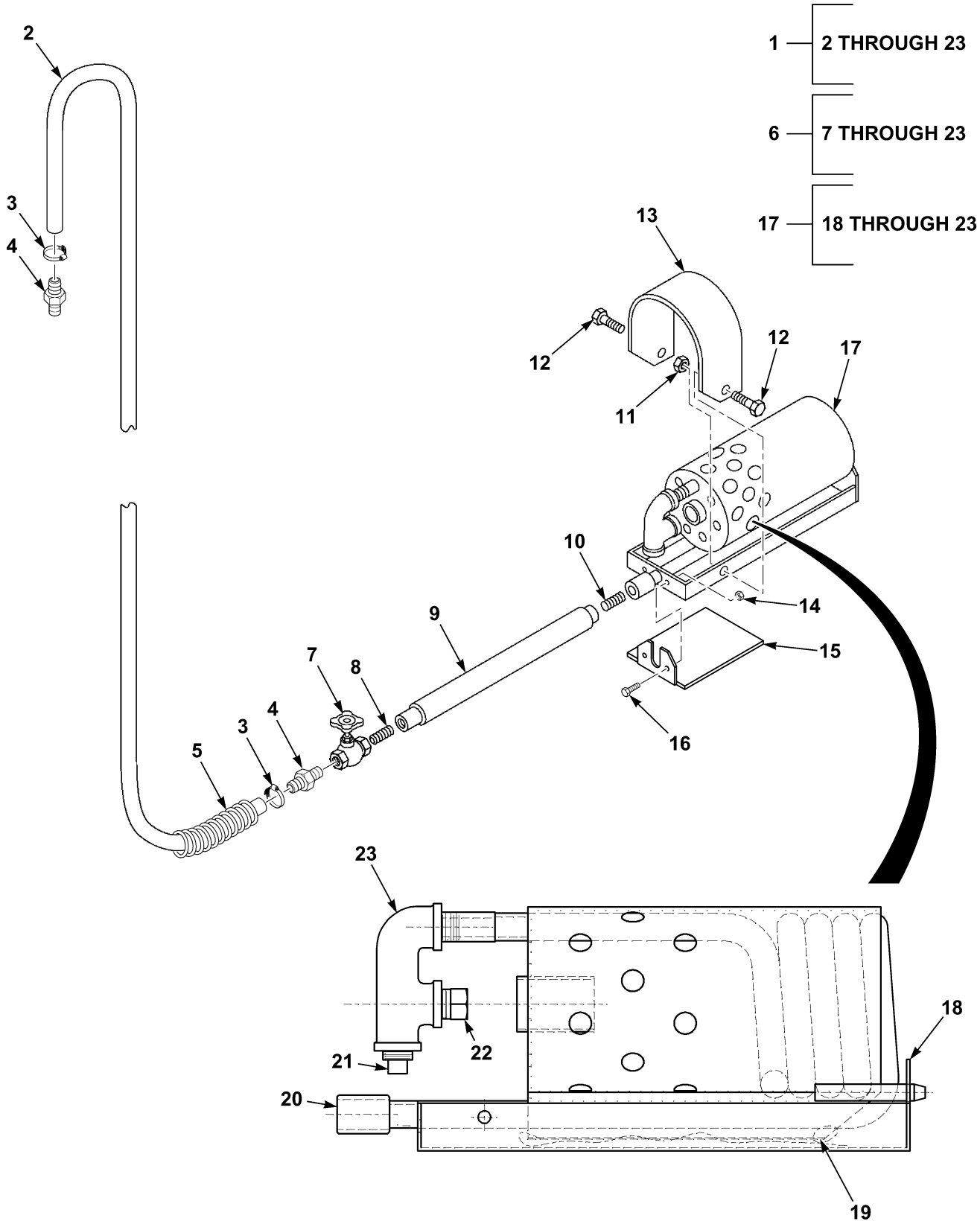


FIG. 15 PORTABLE GENERATING BURNER (USED ON S/N S3605 AND SUBSEQUENT)

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 15 PORTABLE GENERATING BURNER (USED ON S/N S3605 AND SUBSEQUENT)	
1	PAFFFA	3895-01-544-5243	80195	3331433	BURNER ASSEMBLY,PORTABLE	1
2	PAFZZA	4720-01-541-2831	80195	3331431	•HOSE ASSEMBLY,PORTABLE BURNER,25 FT	1
3	PAFZZA	4730-00-871-6729	10988	214-335	•CLAMP,HOSE	2
4	PAFZZA	4730-00-028-7021	01276	4738-4-4B	•ADAPTER,STRAIGHT	2
5	PAFZZA	4720-01-540-8788	24164	G83801-0009	•SPRING,GUARD	1
6	PAFFFA	3895-01-544-4266	80195	3331401	•BURNER ASSEMBLY,PORTABLE	1
7	PAFZZA	4820-01-096-9108	80195	6600194	••VALVE,GLOBE	1
8	PAFZZA	4730-00-196-2055	96906	MS51953-25B	••NIPPLE,PIPE	1
9	PAFZZA	5340-01-541-5312	80195	2630080	••HANDLE,REMOVABLE BURNER	1
10	PAFZZA	4730-00-188-1864	81346	A733S-49CFB	••NIPPLE,PIPE	1
11	PAFZZA	5310-00-088-1251	81349	M45913/1-4CG5C	••NUT,SELF-LOCKING,1/4-20	2
12	PAFZZA	5305-00-071-2506	80204	B1821BH025C050N	••SCREW,CAP,HEX HD,1/4-20 X 1/2	2
13	PFFZZA	5340-01-541-2795	80195	2630163	••COVER,GENERATING BURNER	1
14	PAFZZA	5310-00-088-1251	81349	M45913/1-4CG5C	••NUT,SELF-LOCKING,1/4-20	2
15	PFFZZA	5340-01-541-3375	80195	3331383	••BRACKET,MOUNTING	1
16	PAFZZA	5305-00-988-1723	80205	MS35206-279	••SCREW,MACHINE,1/4-20 X 1/2	2
17	PAFFFA	3895-01-544-5275	80195	3330003	••BURNER ASSEMBLY,SMALL	1
18	PFFZZA	5340-01-540-8694	80195	3330013	•••PAN,BURNER,SMALL	1
19	PAFZZA	5640-01-015-4200	0UHC8	621-4807-004-00-00	•••WICK	1
20	XAFFFA		80195	3330005	•••COIL ASSEMBLY,BURNER,SMALL	1
21	XAFZZA	4730-00-044-4581	7X677	445686	•••PLUG,PIPE	1
22	XAFZZA	5998-01-249-4488	80195	3330002	•••PLUG,VAPORIZING	1
23	XAFZZA		80195	3331036	•••HOLDER,MODIFIED VAPOR PLUG	1

END OF FIGURE

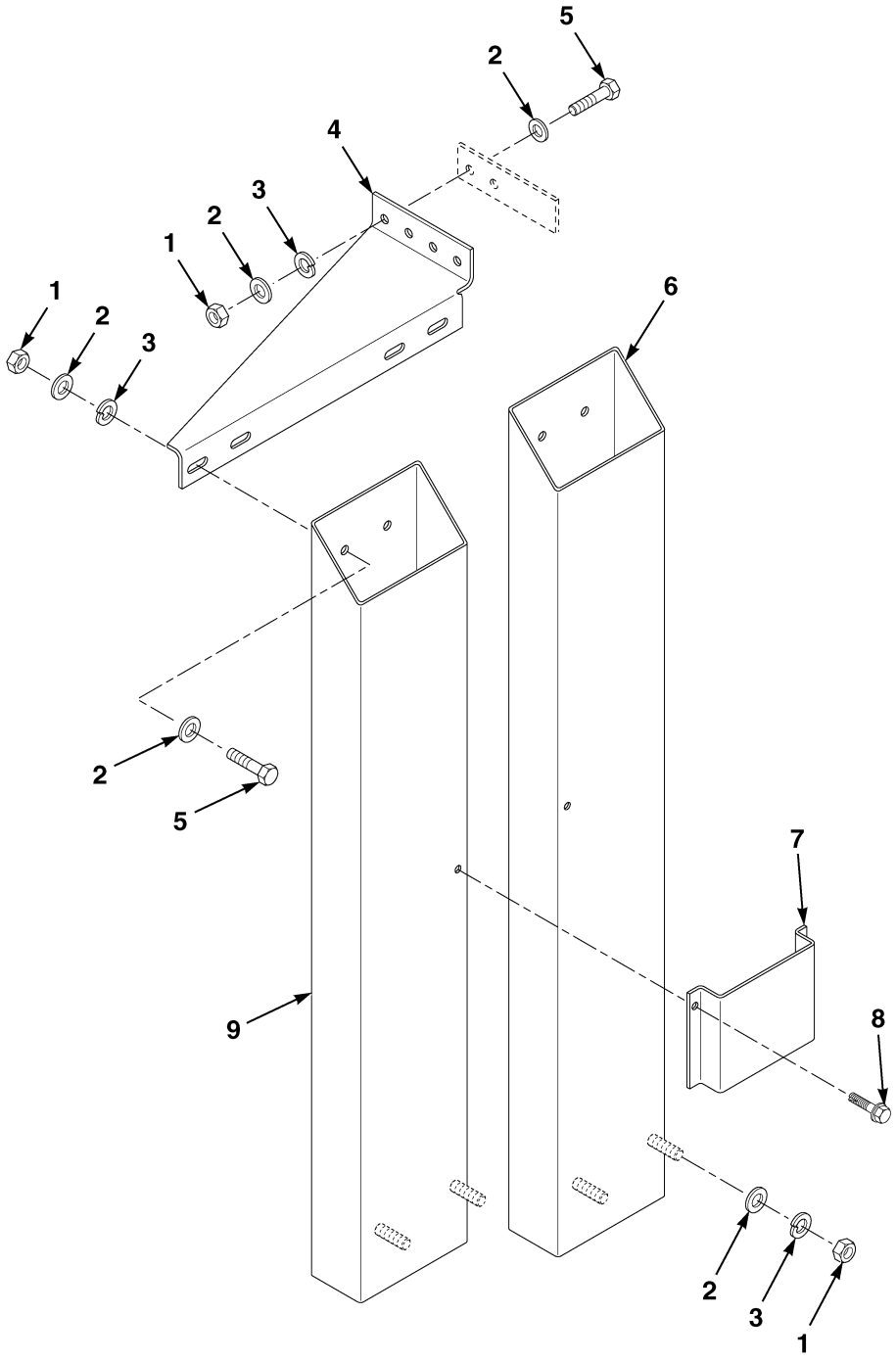


FIG. 16 EXHAUST STACKS

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 16 EXHAUST STACKS	
1	PAFZZA	5310-00-880-7744	96906	MS51967-5	NUT,HEX,5/16-18	10
2	PAFZZA	5310-00-087-7493	96906	MS27183-13	WASHER,FLAT,3/8	16
3	PAFZZA	5310-00-407-9566	80205	MS35338-45	WASHER,LOCK,5/16	10
4	PFFZZA	5340-01-540-9967	80195	3380769	BRACKET,FLUE TOP	1
5	PAFZZA	5306-00-226-4829	80204	B1821BH031C125N	BOLT, MACHINE	6
6	PFFZZA	4520-01-541-5319	80195	3301401	STACK ASSEMBLY,FLUE	1
7	PAFZZA	5342-01-083-3888	80195	3390562	BRACKET,CAUTION PLATE,H.S.	1
8	PAFZZA	5305-01-116-6616	96906	MS51869-115	SCREW,TAPPING,1/4-20 X 3/4	2
9	PFFZZA	4520-01-541-5903	80195	3301398	STACK ASSEMBLY,FLUE	1

END OF FIGURE

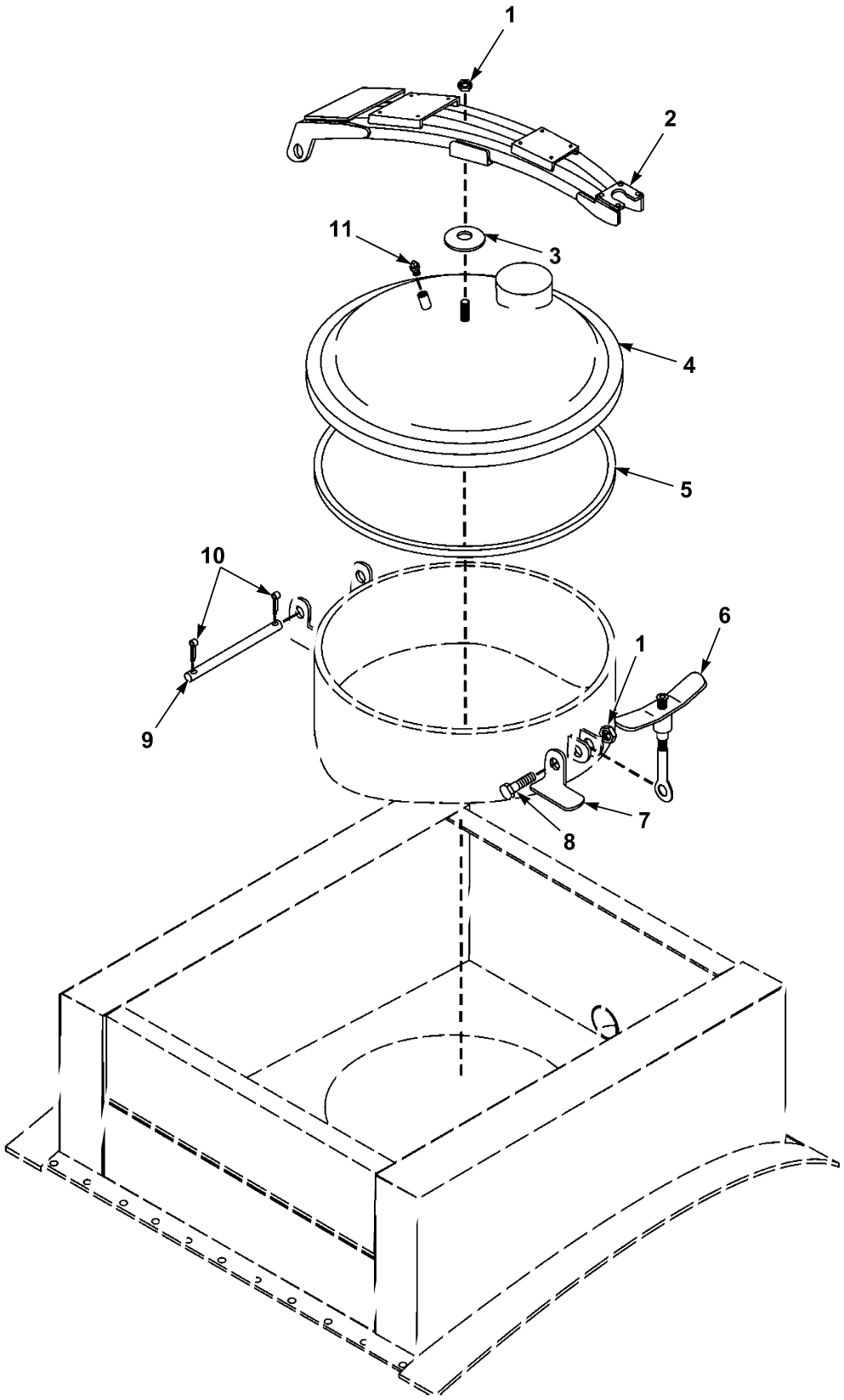


FIG. 17 MANHOLE AND SPILLBOX

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 17 MANHOLE AND SPILLBOX	
1	PAFZZA	5310-00-225-6993	81349	M45913/1-8CG5C	NUT,SELF-LOCKING,HEX,1/2-13	2
2	PFFZZA	5340-01-541-2875	80195	2700244	STRONGBACK ASSEMBLY	1
3	PBFZZA	5340-01-540-9318	80195	2700241	REINFORCER	1
4	PFFZZA	2510-01-541-8095	80195	3301368	COVER ASSEMBLY	1
5	PAFZZA	5330-01-540-9730	80195	2700248	GASKET,MANHOLE COVER	1
6	PAFZZA	5340-01-540-8821	80195	2700243	HOLD DOWN ASSEMBLY	1
7	PAFZZA	5340-01-541-2810	80195	2700234	COVER,PROP	1
8	PAFZZA	5305-00-071-2071	80204	B1821BH050C200N	SCREW,CAP,HEX HD,1/2-13 X 2	1
9	PAFZZA	5315-01-540-8683	80195	2700233	HINGE,SHAFT	1
10	PAFZZA	5315-00-234-1627	80205	MS24665-391	PIN,COTTER	2
11	PAFZZA	4730-01-118-2594	72582	444867	PLUG,PIPE	1
					END OF FIGURE	

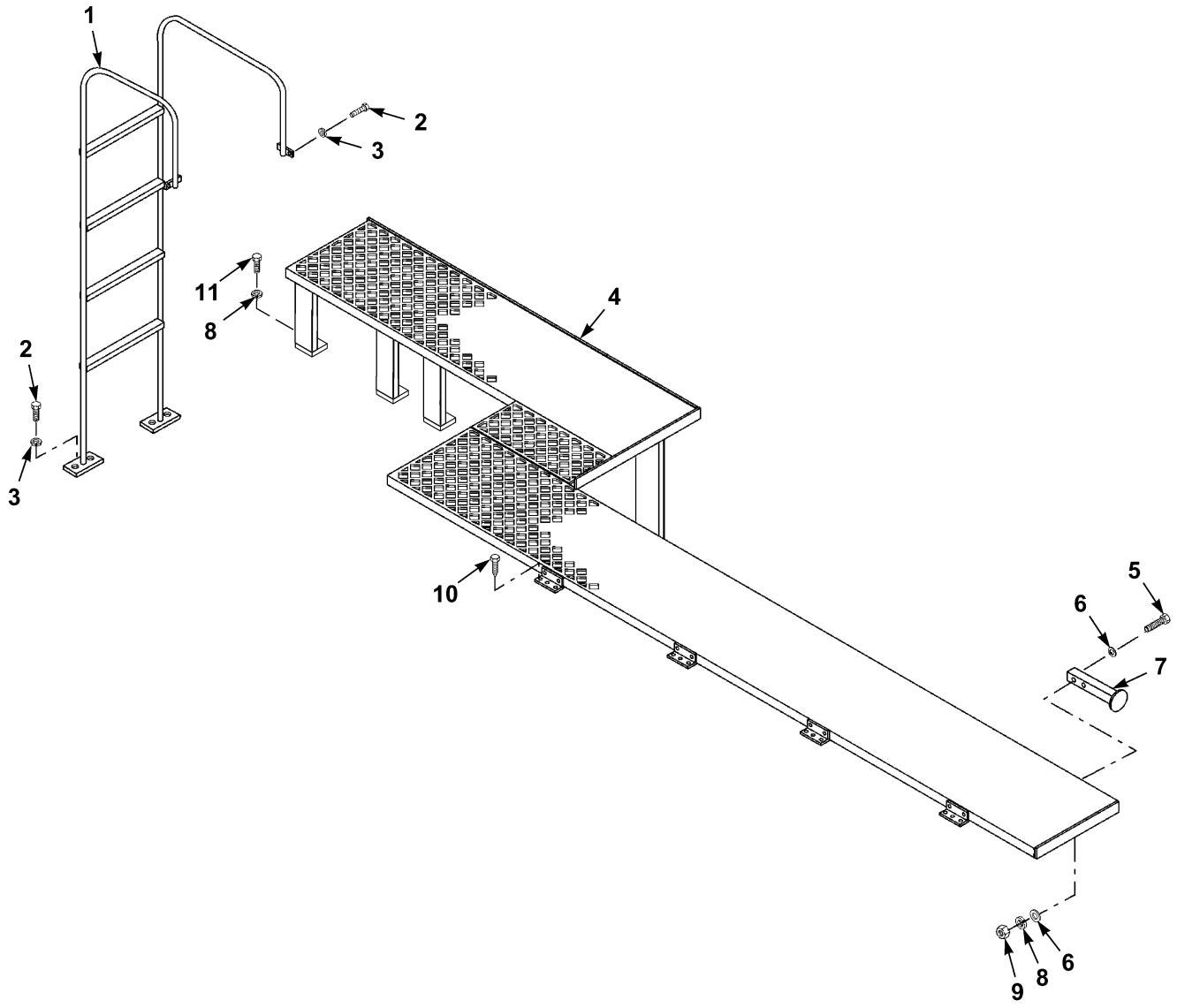


FIG. 18 LADDER AND WALKWAY ASSEMBLY

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 18 LADDER AND WALKWAY ASSEMBLY	
1	PFFZZA	5440-01-541-4496	80195	3301377	LADDER ASSEMBLY	1
2	PAFZZA	5306-00-226-4825	80204	B1821BH031C075N	SCREW,CAP, HEX HD,5/16-18 X 3/4	8
3	PAFZZA	5310-00-407-9566	80205	MS35338-45	WASHER,LOCK,5/16	8
4	XDFZZA		80195	3331384	WALKWAY ASSEMBLY	1
5	PAFZZA	5305-00-071-2071	80204	B1821BH050C200N	SCREW,CAP,HEX HD,1/2-13 X 2	2
6	PAFZZA	5310-00-767-9425	80205	MS15795-818	WASHER,FLAT,1/2	2
7	XDFZZA		80195	3301448	BRACKET, BAR STOP	1
8	PAFZZA	5310-00-584-5272	80205	MS35338-48	WASHER,LOCK,1/2	7
9	PAFZZA	5310-00-768-0318	96906	MS51967-14	NUT,HEX,1/2-20	2
10	PAFZZA	5305-01-195-5468	39428	94059A546	SCREW ASSY,WASHER	27
11	PAFZZA	5305-01-325-8388	80205	MS90725-113	SCREW,CAP,HEX HD,1/2-13 X 1-1/2	5

END OF FIGURE

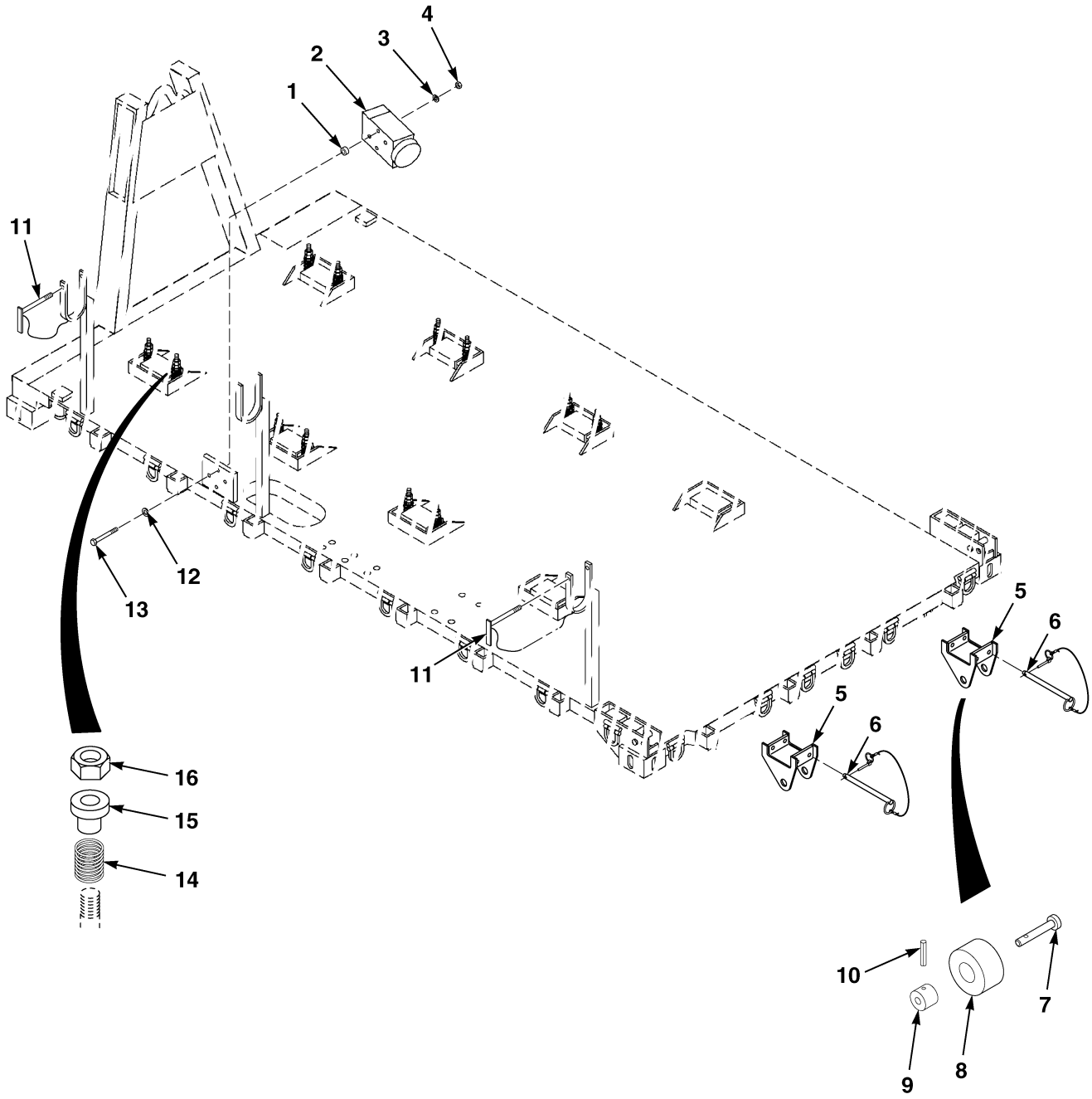
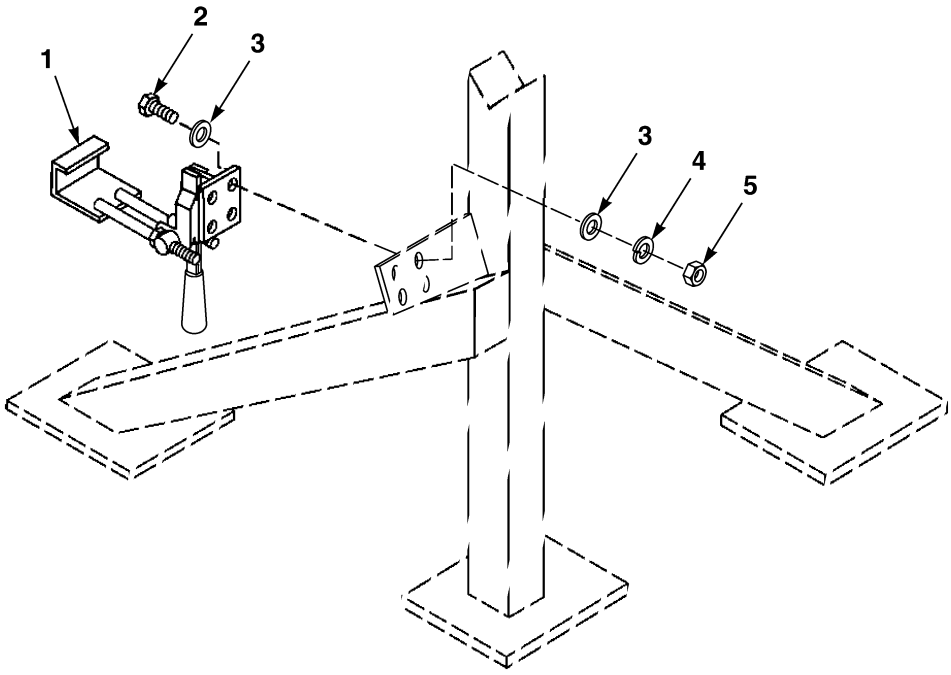


FIG. 19 FLAT RACK ASSEMBLY AND RADAR INSTALLATION

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 19 FLAT RACK ASSEMBLY AND RADAR INSTALLATION	
1	PAFZZA	5365-01-541-0239	45152	2155850	SPACER,1 INCH	4
2	PAFZZA	6680-01-541-4810	80195	3370212	SPEED SENSOR,RADAR HEAD	1
3	PAFZZA	5310-00-582-5965	80205	MS35338-44	WASHER,LOCK,1/4	4
4	PAFZZA	5310-00-761-6882	96906	MS51967-2	NUT,PLAIN,HEXAGON ,/4-28	4
5	PAFZZA	5340-01-372-3866	45152	2HL806	BRACKET SET,ANGLE	2
6	PAFZZA	5315-01-372-2508	45152	1726750	PIN,QUICK RELEASE	4
7	PAFZZA	3040-01-372-8553	19207	12440542	SHAFT,SHOULDERED	2
8	PAFZZA	5340-01-421-6471	75272	124405330	WHEEL,SOLID,NONMETALLIC	2
9	PAFZZA	3040-01-423-1782	19207	12440534	COLLAR,SHAFT	2
10	PAFZZA	5315-01-422-3900	19207	12440533	PIN,SPRING	2
11	PAFZZA	5340-01-540-8846	80195	3310109	CRANK,TIGHTENING	2
12	PAFZZA	5310-00-823-8804	96906	MS27183-9	WASHER,FLAT,1/4	2
13	PAFZZA	5305-00-267-8966	80204	B1821BH025F400N	SCREW,CAP,HEXAGON, 5/16-24 X 1 1/4	4
14	PAFZZA	5360-01-540-8782	80195	6001225	SPRING,LIGHT LOAD,COMPRESSION	16
15	PAFZZA	5365-01-541-2220	80195	770058	BUSHING ASSY,RING RBX4	16
16	PAFZZA	5310-00-225-6992	81349	M45913/1-14CG5C	NUT,SELF-LOCKING,HEX,7/8-9	12

END OF FIGURE



TYPICAL TWO LOCATIONS

FIG. 20 SPRAY BAR SADDLE

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 20 SPRAY BAR SADDLE	
1	PAFZZA	4030-01-541-5333	80195	3380772	CLAMP ASSEMBLY,BAR HOLD	2
2	PAFZZA	5305-00-071-1788	80204	B1821BH044C125N	SCREW,CAP,HEX HD,7/16-14 X 1 1/4	8
3	PAFZZA	5310-00-087-7493	96906	MS27183-13	WASHER,FLAT,3/8	16
4	PAFZZA	5310-00-209-0965	80205	MS35338-47	WASHER,LOCK,7/16	8
5	PAFZZA	5310-00-896-0903	96906	MS51967-12	NUT,PLAIN,HEX	8
					END OF FIGURE	

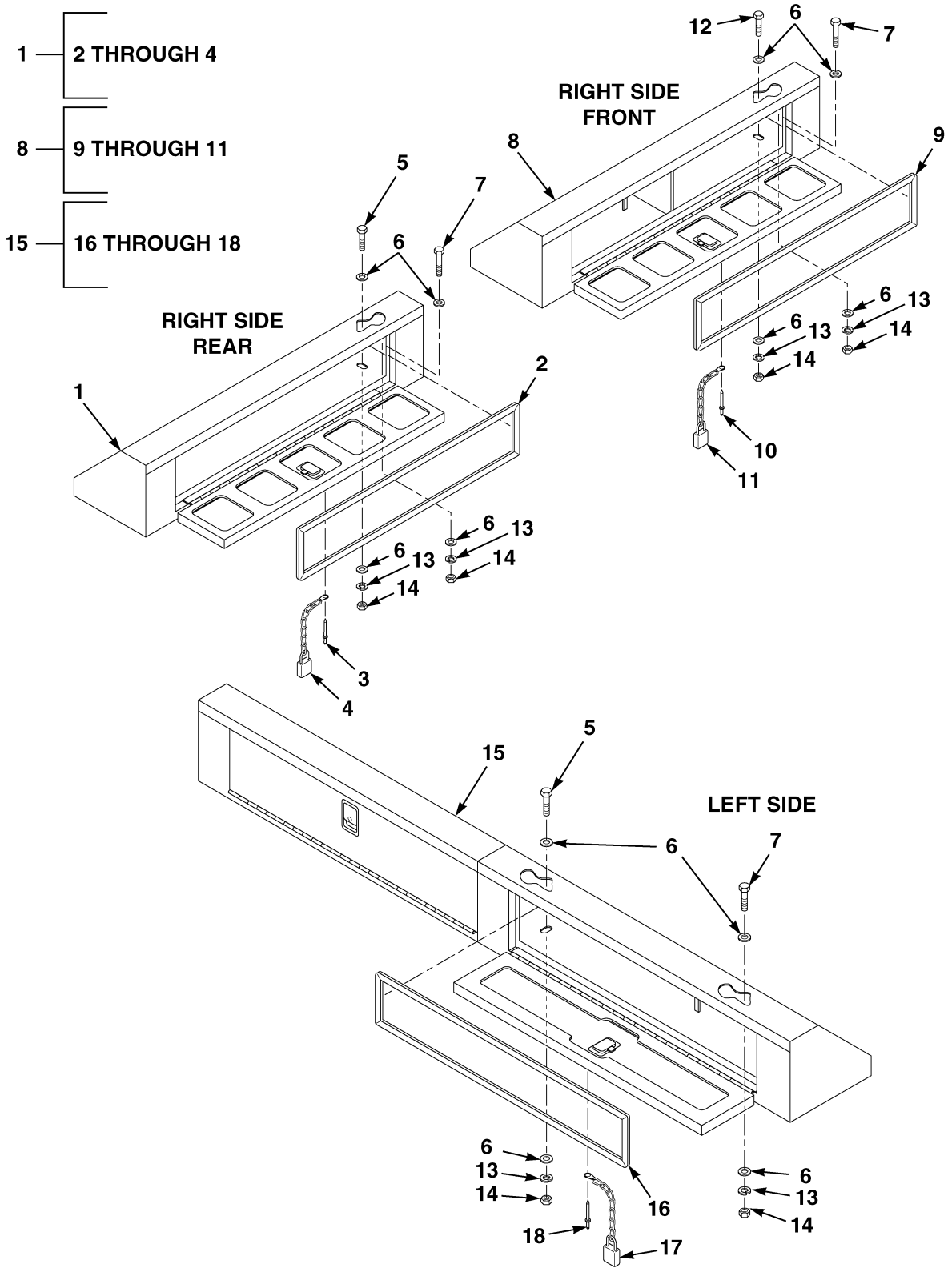


FIG. 21 TOOL BOXES

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 21 TOOL BOXES	
1	PAFFFA	2540-01-541-6278	80195	3311885	TOOLBOX ASSEMBLY,RH REAR	1
2	MFFZZA		80195	6320659-122	•SEAL,TRIM,MAKE FROM P/N 6320659, CAGE 80195, 122 IN	1
3	PAFZZA	5320-01-542-8465	80205	MS24662-230	•RIVET,POP	1
4	PAFZZA	5340-00-158-3807	58536	AA59487-2SC	•PADLOCK	1
5	PAFZZA	5305-00-781-3927	80205	B1821BH038C350N	SCREW,CAP,HEX HD,3/8-16 X 3-1/2	5
6	PAFZZA	5310-00-087-7493	96906	MS27183-13	WASHER,FLAT,3/8	28
7	PAFZZA	5305-00-857-6886	80204	B1821BH038C450N	SCREW,CAP,HEX HD,3/8-16 X 4-1/2	7
8	PAFFFA	2540-01-541-6266	80195	3311883	TOOLBOX ASSEMBLY,RH FRONT	1
9	MFFZZA		80195	6320659-104	•SEAL,TRIM,MAKE FROM P/N 6320659, CAGE 80195,104 IN	1
10	PAFZZA	5320-01-542-8465	80205	MS24662-230	•RIVET,POP,.187 X .687 .625 HD	1
11	PAFZZA	5340-00-158-3807	58536	AA59487-2SC	•PADLOCK	1
12	PAFZZA	5305-01-325-8387	80205	MS90725-64	SCREW,CAP,HEXAGON,HD, 3/8-16 X 1-1/2	2
13	PAFZZA	5310-00-637-9541	08999	R10-5.50-3	WASHER,LOCK,3/8	14
14	PAFZZA	5310-00-732-0558	96906	MS51967-8	NUT,PLAIN,HEX 3/8-24	14
15	PAFFFA	2540-01-541-2859	80195	3311887	TOOLBOX ASSEMBLY,LH REAR	1
16	MFFZZA		80195	6320659-93	•SEAL,TRIM,MAKE FROM P/N 6320659, CAGE 80195,93 IN	1
17	PAFZZA	5340-00-158-3807	58536	AA59487-2SC	•PADLOCK	2
18	PAFZZA	5320-01-542-8465	80205	MS24662-230	•RIVET,POP	2

END OF FIGURE

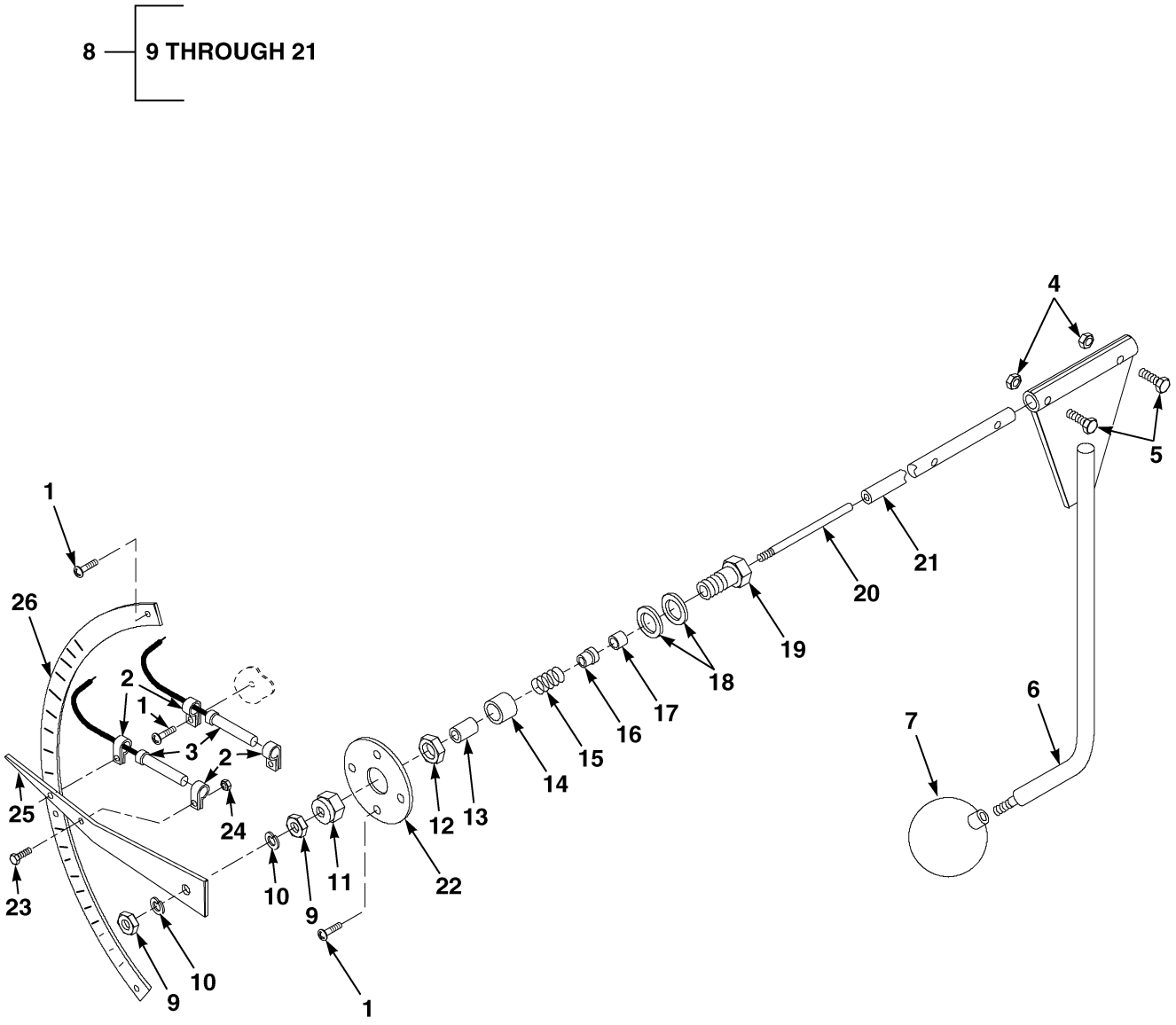


FIG. 22 TANK GAGE ASSEMBLY

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 22 TANK GAGE ASSEMBLY	
1	PAFZZA		7J925	OCW1	SCREW,TAPPING	7
2	PAFZZA	4730-01-122-3338	11083	5D-1026	CLAMP,HOSE	4
3	PAFZZA	6150-01-540-9594	80195	3370281	HARNESS,TANK GAGE	1
4	PAFZZA	5310-00-829-9981	96906	MS35649-2312	NUT,PLAIN,HEXAGON	2
5	PAFZZA	5306-00-225-8499	80205	MS90725-34	SCREW,CAP,HEX HD,5/16-18 X 1	2
6	PAFFFA	6680-01-541-1463	80195	3361057	STEM ASSY,59X89 OVL TANK GAGE	1
7	PAFZZA	4510-01-082-9687	80195	6600335	FLOAT,BALL	1
8	PAFFFA	6680-01-540-9236	80195	3301166	STEM/PACKING ASSY,TANK GAGE	1
9	PAFZZA	5310-01-197-4030	45152	EE42127	•NUT,HEX, 3/16-18	2
10	PAFZZA	5310-00-514-6674	96906	MS35335-34	•WASHER,LOCK,5/16	2
11	XAFZZA		80195	3360828	•NUT,ASSY,PACKING RETAINER	1
12	PAFZZA	5310-00-891-3426	96906	MS35691-73	•NUT,HEX,1-8	1
13	XAFZZA		80195	3301164	•SPACER,TANK GAGE	1
14	PAFZZA	5365-01-484-4681	80195	3301352	•SPACER	1
15	PAFZZA	5360-01-082-9161	80195	3360192	•SPRING	1
16	PAFZZA	3895-01-082-8490	80195	3360187	•SLEEVE	1
17	PAFZZA	3895-00-561-8442	80195	TG31	•PACKING	1
18	XAFZZA		80195	3360825	•GASKET,ASB	2
19	XAFZZA		80195	3301163	•SCREW,FITTING TANK GAGE	1
20	XAFZZA		80195	3360824	•SHAFT,GAGE	1
21	XAFZZA		80195	630333	•PIPE ASSEMBLY	1
22	PAFZZA	5340-01-541-6223	80195	3341199	COVER	1
23	PAFZZA	5305-00-068-0500	11599	28988-4	SCREW,CAP,HEX HD,1/4-20 X 1/2	2
24	PAFZZA	5310-00-088-1251	81349	M45913/1-4CG5C	NUT,SELF-LOCKING,1/4-20	2
25	PAFZZA	5355-01-540-8898	80195	3301181	DIAL POINTER, S.STL	1
26	PAFZZA	5355-01-541-2166	80195	3380861	DIAL,BLANK	1

END OF FIGURE

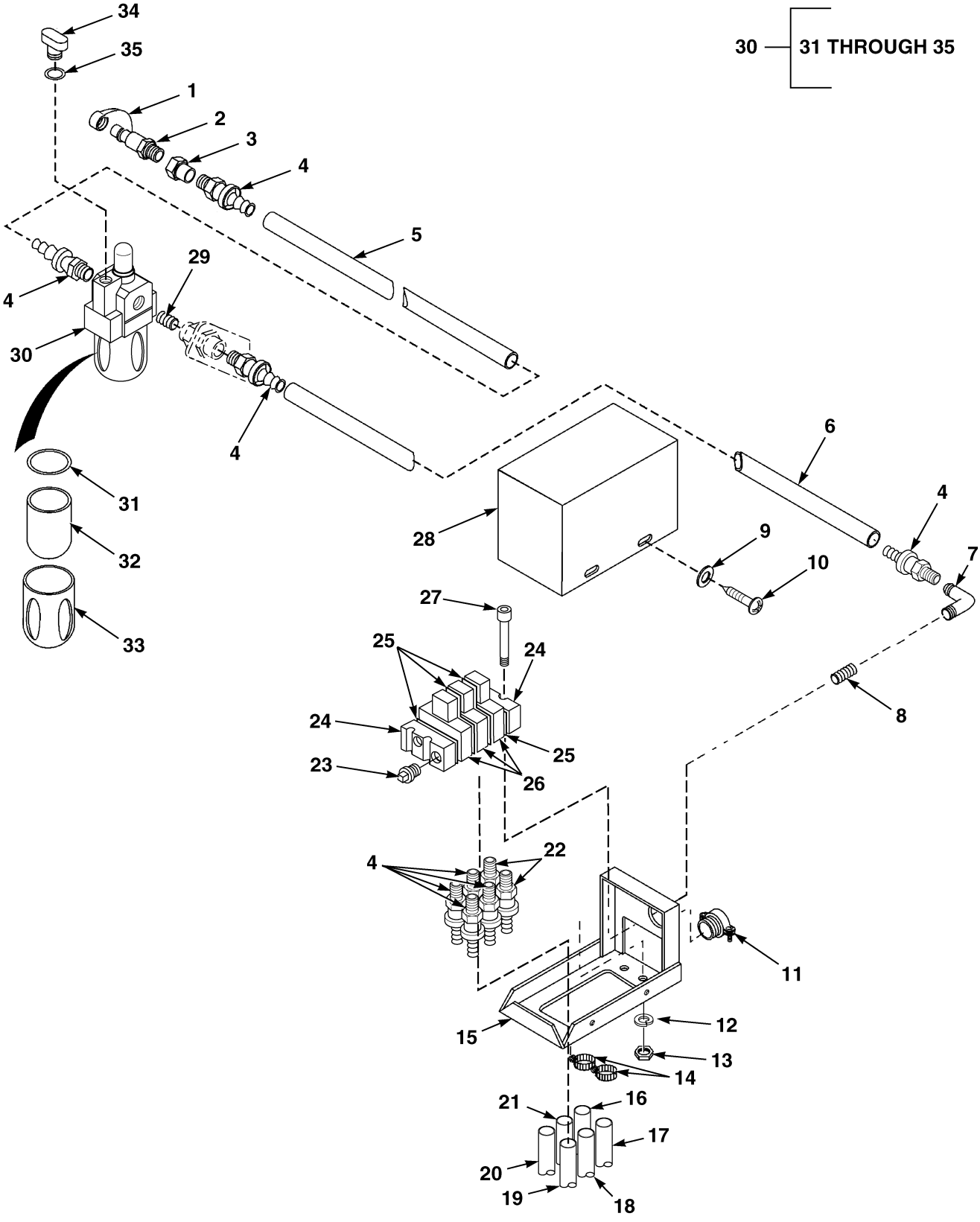


FIG. 23 AIR SUPPLY

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 23 AIR SUPPLY	
1	PAFZZA	5340-01-506-3696	97111	13226E7995-1	PLUG,PROTECTIVE,DUS	1
2	PAFZZA	4730-00-221-2138	94894	1837	COUPLING, QUICK DIS	1
3	PAFZZA	4730-00-202-6491	93061	209P-6-4	BUSHING,PIPE	1
4	PAFZZA	4730-00-288-9311	79470	10006-406	ADAPTER,STRAIGHT	8
5	MFFZZA		80195	6600324-186	HOSE,NONMETALLIC MAKE FROM P/N 7212-381, CAGE 1J3N0,186 IN	1
6	MFFZZA		1J3N0	6600324-128	HOSE,NONMETALLIC MAKE FROM P/N 7212-381, CAGE 1J3N0,128 IN	1
7	PAFZZA	4730-00-246-9215	24617	105423	ELBOW,PIPE	1
8	PAFZZA	4730-00-188-1864	81346	A733S-49CFB	NIPPLE,PIPE	1
9	PAFZZA	5310-00-809-8544	96906	MS27183-7	WASHER,FLAT	2
10	PAFZZA	5305-00-045-7606	96906	MS24626-43	SCREW,TAPPING	2
11	PAFZZA	5975-01-083-1879	03743	C-750	BOX CONNECTOR ELECTRICAL	1
12	PAFZZA	5310-00-582-5965	80205	MS35338-44	WASHER,LOCK,1/4	4
13	PAFZZA	5310-00-761-6882	96906	MS51967-2	NUT,PLAIN,HEXAGON 1/4-28	4
14	PAFZZA	4730-01-122-3338	11083	5D-1026	CLAMP,HOSE	2
15	PFFZZA	5340-01-541-4187	80195	3361242	BRACKET,MOUNTING AIR VALVE	1
16	MFFZZA		80195	6309255-100	HOSE,NONMETALLIC,MAKE FROM P/N 6309255, CAGE 80195,100 IN	1
17	MFFZZA		80195	6309255-105	HOSE,NONMETALLIC,MAKE FROM P/N 6309255, CAGE 80195,105 IN	1
18	MFFZZA		80195	6600324-204	HOSE,NONMETALLIC,MAKE FROM P/N 7212-381, CAGE 1J3N0,204 IN	1
19	MFFZZA		80195	6600324-216	HOSE,NONMETALLIC,MAKE FROM P/N 7212-381, CAGE 1J3N0,216 IN	1
20	MFFZZA		80195	6600324-192	HOSE,NONMETALLIC,MAKE FROM P/N 7212-381, CAGE 1J3N0,192 IN	1
21	MFFZZA		80195	6600324-198	HOSE,NONMETALLIC,MAKE FROM P/N 7212-381, CAGE 1J3N0,198 IN	1
22	PAFZZA	4730-01-083-3977	80195	6600305	ADAPTER,STRAIGHT	2
23	PAFZZA	4730-01-118-2594	72582	444867	PLUG,PIPE	1
24	PBFZZA	4730-01-541-0229	80195	6601456	PLATE,END	2
25	PBFZZA	5330-01-540-9375	97999	16358	GASKET	4
26	PAFZZA	4810-01-541-0042	0MJ99	914B-PM-551BA	VALVE,AIR	3
27	PAFZZA	5305-00-978-9387	96906	MS16977-68	SCREW,CAP,SOCKET HD,1/4-20X2 1/4	4
28	PFFZZA	4810-01-541-5284	80195	3361243	LID ASSEMBLY	1
29	PAFZZA		80195	444097	ADAPTER,STRAGHT	1
30	PAFZZA	4930-01-083-6045	80195	6600137	LUBRICATOR,AIR LINE	1
31	XAFZZA		80195	7420238	•PACKING,PREFORMED	1
32	XAFZZA		80195	7420240	•GLASS BOWL,OILER	1
33	XAFZZA		80195	7420225	•BOWL	1
34	XAFZZA		80195	6600137-NHA-A	•FILLER SCREW,OILER	1
35	XAFZZA		80195	6600137-NHA-B	•PACKING,PREFORMED	1

END OF FIGURE

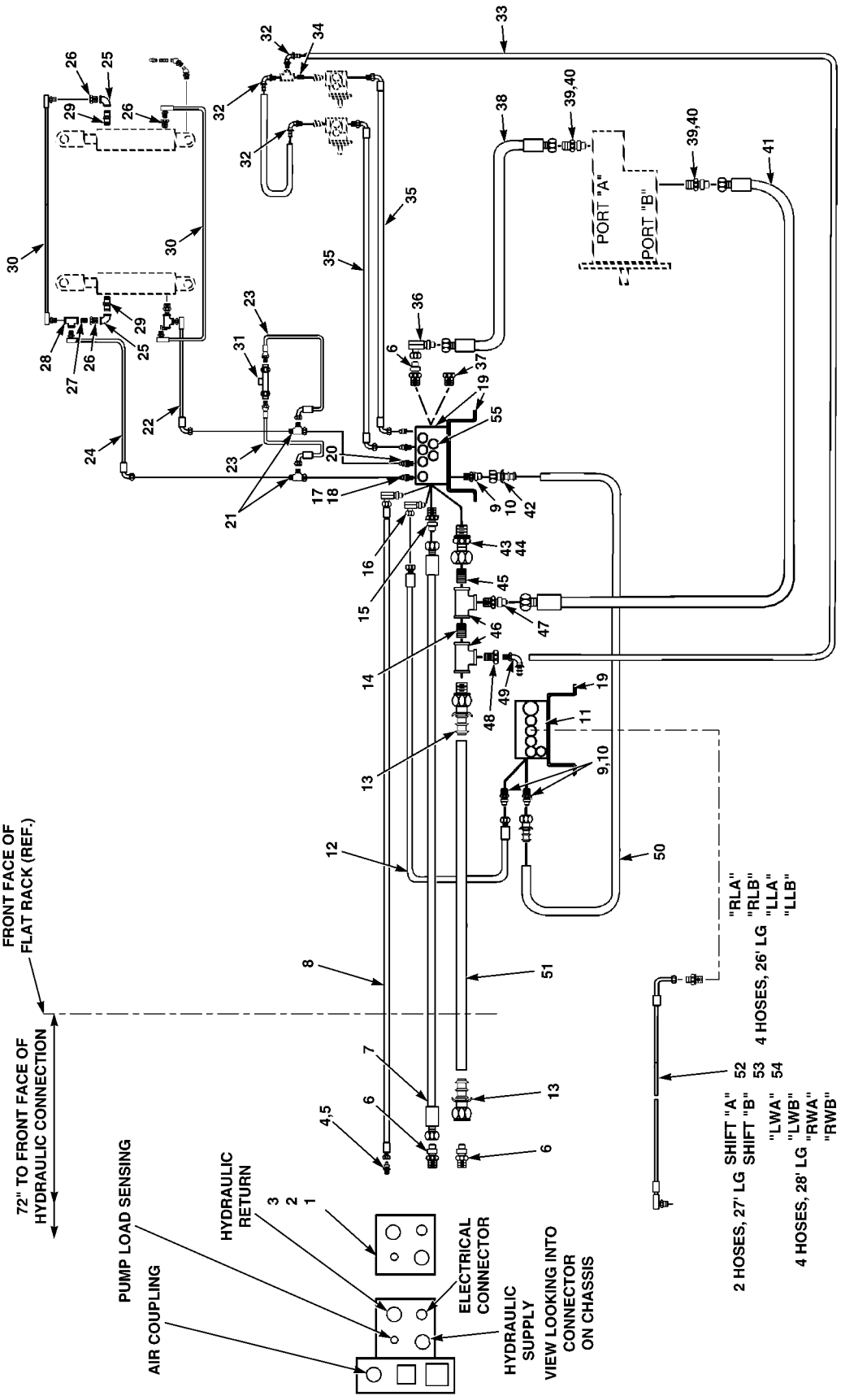


FIG. 24 HYDRAULIC SCHEMATIC

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 24 HYDRAULIC SCHEMATIC	
1	PAFZZA		1C1F4	2P510-1-3-1-MC	COUPLE,QUICK HYDRAULIC	1
2	PAFZZA	5935-01-521-2007	1C1F4	S P510	CONNECTOR ASSEMBLY,ELECTRICAL	1
3	PAFZZA	5305-00-983-6621	96906	MS16997-80	SCREW,CAP,SOCKET HD,5-16-18 X 1	2
4	PAFZZA	4730-01-311-4243	30327	848-FSO-04X08	ADAPTER,STRAIGHT	1
5	PAFZZA	5331-01-479-0599	02697	2-021 N0552	O-RING	1
6	PAFZZA	4730-00-714-6079	96906	MS51525A16-12	ADAPTER,STRAIGHT	3
7	PAFZZA	4720-01-541-1512	80195	6602962	HOSE ASSEMBLY	1
8	PAFZZA	4720-01-540-9965	80195	6602667	HOSE ASSEMBLY	1
9	PAFZZA	4730-01-156-4835	30780	8F5BX-S	ADAPTER,STRAIGHT	3
10	PAFZZA	5331-01-479-0614	02697	2-014N0552	O-RING	1
11	PAFZZA	4730-01-540-8702	80195	3361246	MANIFOLD,HYDRAULIC	1
12	PAFZZA	4720-01-541-7052	80195	6602959	HOSE ASSEMBLY	1
13	PAFZZA	4730-01-348-6240	24161	16C4-16MP	ADAPTER,STRAIGHT	2
14	PAFZZA	4730-00-196-2072	96906	MS51953-124B	NIPPLE,PIPE	1
15	PAFZZA	4730-00-710-5571	96906	MS51525A12	ADAPTER,STRAIGHT	1
16	PAFZZA	4730-00-822-5609	96906	MS51527A8	ELBOW,TUBE TO BOSS	1
17	PAFZZA	4730-01-007-5232	96906	MS51525A4Z	ADAPTER,STRAIGHT	1
18	PAFZZA	5331-00-805-2966	81349	MS28778-4	O-RING	1
19	XDFZZA		80195	3361247	BRACKET	2
20	PAFZZA	5340-01-541-1817	80195	3361335	PLUG,ORIFICE	1
21	PAFZZA	4933-01-214-6263	01276	203102-4-4S	TEE,SWIVEL	2
22	PAFZZA	4720-01-541-6697	80195	3341644	HOSE ASSEMBLY	1
23	PAFZZA	4720-01-540-9764	80195	3341645	HOSE ASSEMBLY	2
24	PAFZZA	4720-01-541-1117	80195	3341643	HOSE ASSEMBLY	1
25	PAFZZA	4730-00-249-3917	19206	7119098	ELBOW,PIPE	2
26	XDFZZA	3110-00-142-4363	80195	142209	BUSHING,PIPE,1/2X3/8	3
27	PAFZZA	4730-00-188-1864	81346	A733S-49CFB	NIPPLE,PIPE	2
28	PAFZZA	4730-01-540-8873	54578	1105R-3/8-1/4-3/8	TEE,PIPE	2
29	PAFZZA	4820-01-540-8839	58143	28000-504-3.0	VALVE,LIMIT,FLOW	2
30	PAFZZA	4720-01-540-9339	80195	3341641	HOSE ASSEMBLY	2
31	PAFZZA	4820-00-238-5372	29771	F20B	VALVE,NEEDLE	1
32	PAFZZA	4730-00-136-2018	30554	80-1000-3	ELBOW,PIPE TO HOSE	3
33	MFFZZA		1J3N0	6600324-128	HOSE,NONMETALLIC,MAKE FROM P/N 7212-381, CAGE 1J3N0,128 IN	1
34	PAFZZA	4730-01-322-9122	80195	6200292	NIPPLE,PIPE	1
35	PAFZZA	4720-01-540-8886	80195	3331392	HOSE ASSEMBLY,MANIFOLD TO BURNER	2
36	PAFZZA	4730-01-540-9356	7S593	6500-16-16	ELBOW,90 DEG	1
37	XDFZZA		80195	9410356	PLUG	2
38	PAFZZA	4720-01-540-8880	80195	6602965	HOSE ASSEMBLY	1
39	PAFZZA	4730-01-096-9138	96906	MS39324-12-10	ADAPTER,STRAIGHT	2
40	PAFZZA	5331-01-541-0786	02697	2-016 N0552	•O-RING	1
41	PAFZZA	4720-01-541-3891	80195	6602958	HOSE ASSEMBLY	1
42	PAFZZA	4730-01-237-2813	13174	KA08-08NL	ADAPTER,STRAIGHT	1
43	PAFZZA	4730-01-117-5649	01276	213-2266-12-12	ADAPTER,STRAIGHT	1
44	PAFZZA	5331-01-479-0634	02697	2-018 N0552	•O-RING	1
45	PAFZZA	4730-01-541-0748	73848	848-FS-12X16	ADAPTER,STRAIGHT	1
46	PAFZZA	4730-00-249-2033	19422	BM11378-107	PIPE,TEE	2

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
47	PAFZZA	4730-01-189-2118	09505	848-FS-16X16	ADAPTER,STRAIGHT	1
48	PAFZZA	4730-00-014-2263	24617	142263	BUSHING,PIPE	1
49	PAFZZA	4730-00-106-5501	29510	176056H1	ELBOW,PIPE TO HOSE	2
50	MFFZZA		1J3N0	6600662-84	HOSE,NONMETALLIC,MAKE FROM P/N 7212-501, CAGE 1J3N0,84 IN	1
51	MFFZZA		80195	6601564-198	HOSE,NONMETALLIC,MAKE FROM P/N 881-16, CAGE 1J3N0,198 IN	17
52	PAFZZA	4720-01-540-8828	80195	3341706	HOSE ASSEMBLY,324 IN	4
53	PAFZZA	4720-01-541-3888	80195	3341707	HOSE ASSEMBLY,312 IN	2
54	PAFZZA	4720-01-541-1516	80195	3341705	HOSE ASSEMBLY,336 IN	4
55	PAFZZA	4730-01-481-8343	80195	6602665	MANIFOLD ASSEMBLY,HYDRAULIC	1

END OF FIGURE

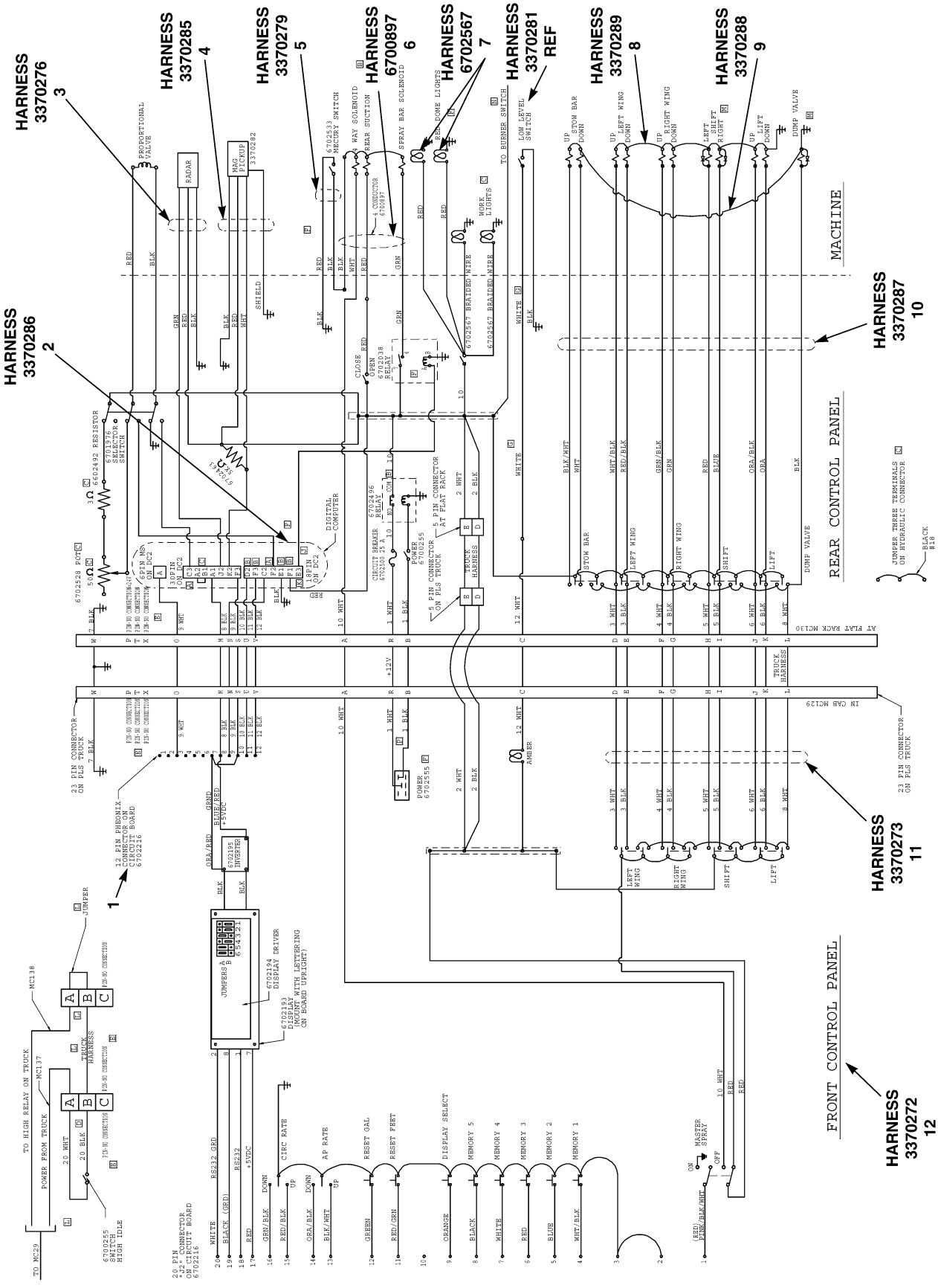


FIG. 25 HARNESS CONTROL PANELS

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 25 HARNESS CONTROL PANELS	
1	PAFZZA	5935-01-349-1821	5Y407	1754643	CONNECTOR,PLUG ELECTRICAL	1
2	PAFZZA	6150-01-541-0165	80195	3370286	HARNESS,DC2	1
3	PAFFFA	6150-01-541-0168	80195	3370276	HARNESS,RADAR,RADAR BRAIDED	1
4	PAFZZA	6150-01-541-0162	80195	3370285	HARNESS,PUMP SPEED MAG PICKUP	1
5	PAFFFA	6150-01-540-9590	80195	3370279	HARNESS,MERCURY SWITCH	1
6	PAFZZA		80195	6700897	HARNESS	1
7	PAFZZA		80195	6702567	HARNESS	2
8	PAFZZA	6150-01-541-0189	80195	3370289	HARNESS,GROUNDS SOLENOID GROUND	1
9	PAFFFA	6150-01-541-4805	80195	3370288	HARNESS ASSEMBLY,HYDRAULIC MANIFOLD GROUND	1
10	PAFFFA	6150-01-541-0176	80195	3370287	HARNESS,HYDRAULIC MANIFOLD	1
11	PAFFFA	6150-01-541-1555	80195	3370273	HARNESS,MAIN REAR CONTROL BOX	1
12	PAFFFA	6150-01-541-1550	80195	3370272	HARNESS,FRONT CONTROL BOX	1

END OF FIGURE

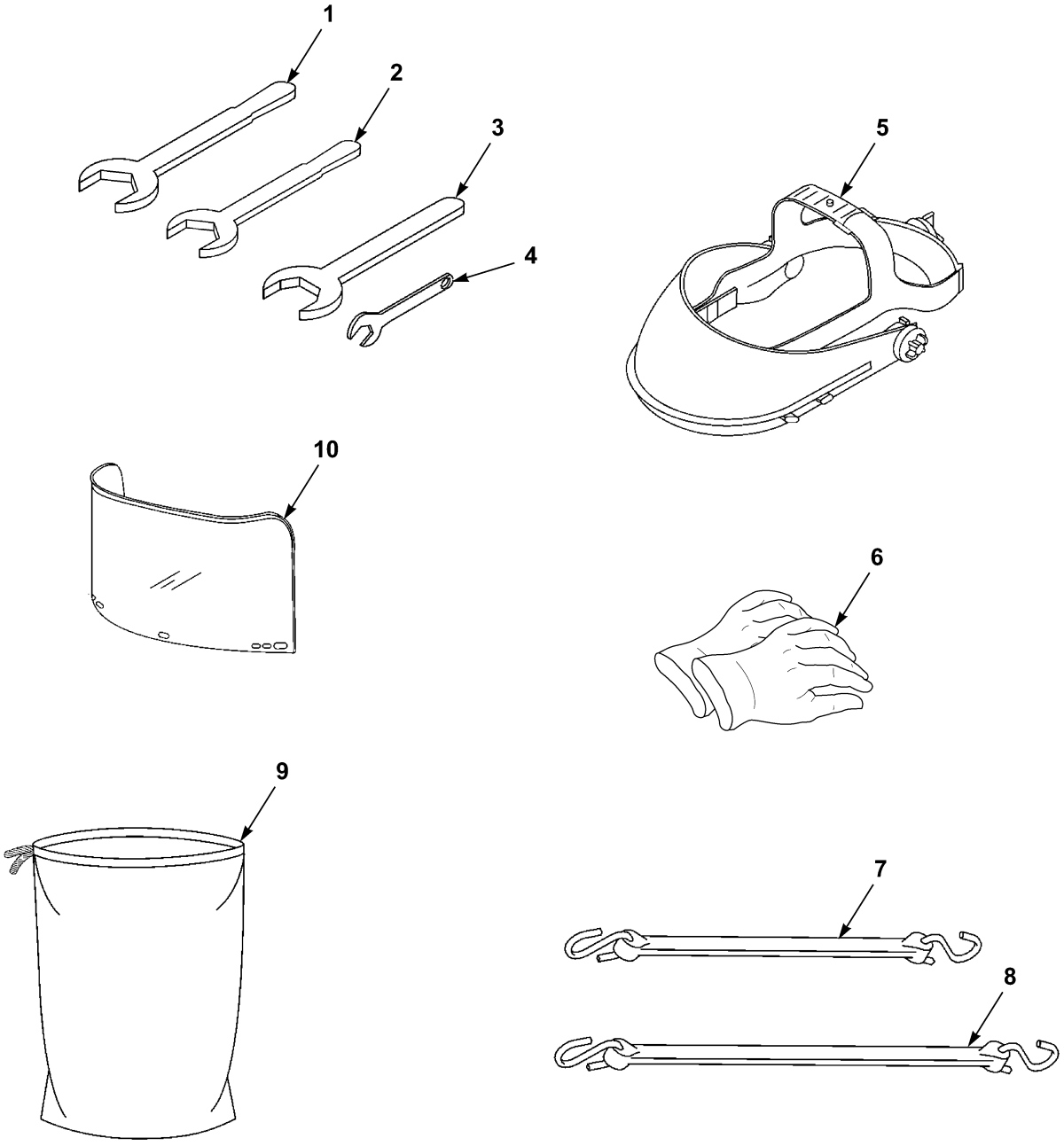


FIG. 26 MISCELLANEOUS TOOLS

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 26 MISCELLANEOUS TOOLS	
1	PAFZZA	5120-01-090-7921	80195	3380079	WRENCH,3 3/4 UNION 2 IN UNION	1
2	PAFZZA	5120-01-541-5949	80195	3380442	WRENCH, 1 1/2 INCH	1
3	PAFZZA	5120-01-541-5948	80195	3380459	WRENCH, 2" OPEN END	2
4	PAFZZA	5120-01-090-7923	34623	MA326-21230	WRENCH,OPEN END	1
5	PAFZZA	4240-01-540-9082	34AR2	170-SB	HEADGEAR,SHIELD	1
6	XDFZZA	8415-01-092-3910	81349	MIL-G-44013	GLOVES,HEAT PROTECT	1
7	PAFZZA	5340-00-340-0980	0GPL7	197940	STRAP,ELASTIC	1
8	PAFZZA	5340-01-029-9084	13435	13018	STRAP,ELASTIC	1
9	PAFZZA	3895-00-493-8795	80195	3380808	BAG,FACE SHIELD	1
10	PAFZZA	4240-01-022-7702	22166	4118	VISOR,FACESHIELD	1
					END OF FIGURE	

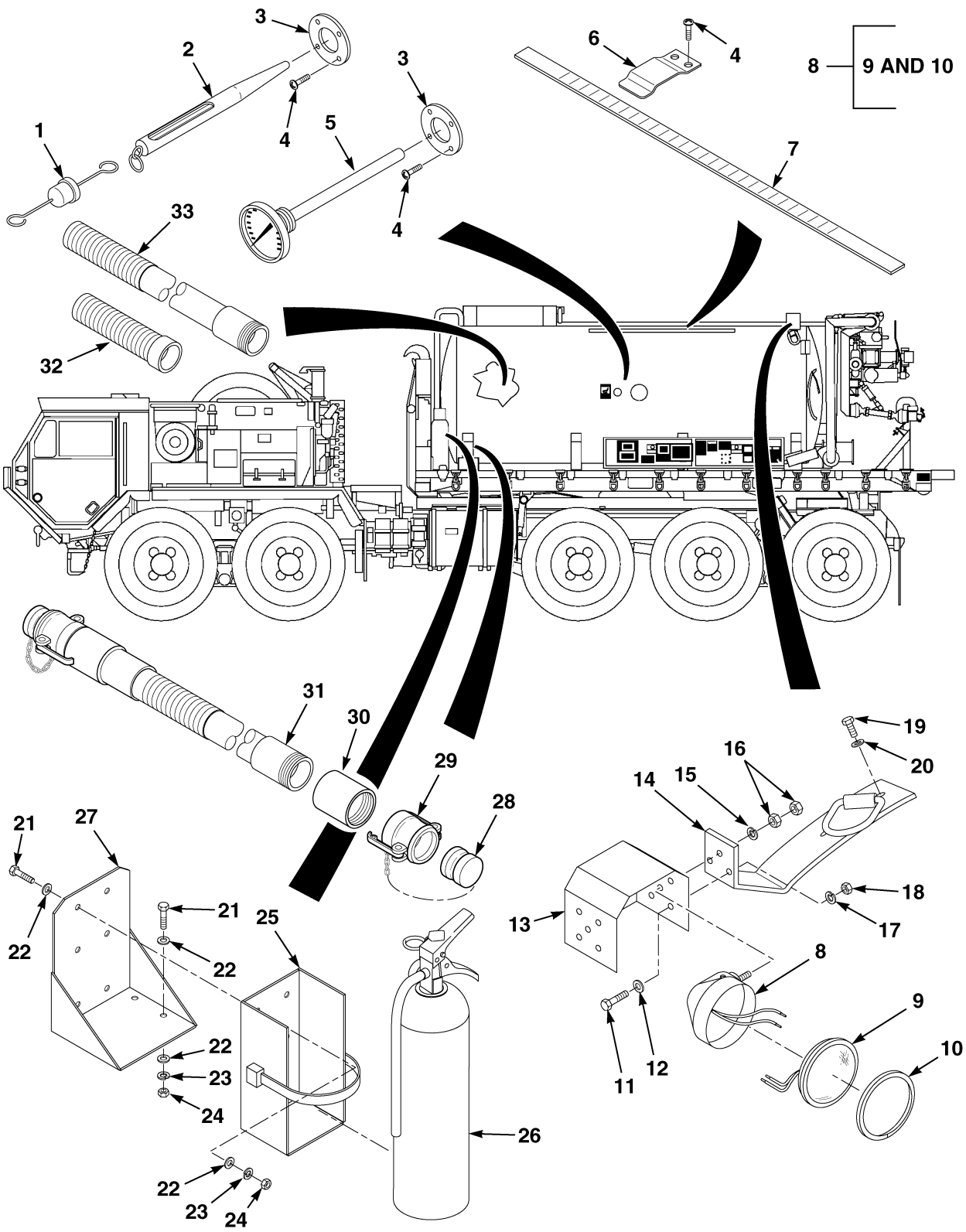


FIG. 27 MISCELLANEOUS ATTACHMENTS

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION	(7) QTY
					FIG. 27 MISCELLANEOUS ATTACHMENTS	
1	PAFZZA	3895-00-493-8795	80195	3300038	CAP,TANK THERMOMETER	1
2	PAFZZA	6685-00-193-0201	55683	1656-6500034	THERMOMETER,SELF-N 50-600 DEG	1
3	PAFZZA	5340-01-541-6223	80195	3341199	COVER	2
4	PAFZZA		7J925	OCW1	SCREW,TAPPING	12
5	PAFZZA	6685-01-541-5298	80195	6500038	THERMOMETER,50-550 DEG	1
6	PAFZZA	5340-01-541-5668	80195	3310040	BRACKET,MEASURING STICK	1
7	PAFZZA	3895-00-160-5646	80195	3390434	MEASURING STICK	1
8	PAFFFA	6220-00-702-0002	0WAG0	FL12V-0002	FLOODLIGHT	2
9	PAFZZA	6240-00-733-2984	00501	310062	•LAMP,INCANDESCENT	1
10	PAFZZA	6220-01-169-2790	72635	88-05990	•RETAINER,LENS	1
11	PAFZZA	5306-01-075-8519	80205	MS90725-36	BOLT,MACHINE,5/16-18 X 1-1/4	2
12	PAFZZA	5310-00-809-3078	96906	MS27183-11	WASHER,FLAT	2
13	PBFZZA	6220-01-541-6208	80195	3370292	GUARD,WORKLITE	2
14	PFFZZA	6220-01-541-2154	80195	3380730	PLATE ,PICK-UP AND WORK LIGHT	2
15	PAFZZA	5310-00-209-5116	96906	MS35335-37	WASHER,LOCK	2
16	PAFZZA	5310-00-768-0318	96906	MS51967-14	NUT,HEX,1/2-20	4
17	PAFZZA	5310-00-407-9566	80205	MS35338-45	WASHER,LOCK,5/16	2
18	PAFZZA	5310-00-880-7744	96906	MS51967-5	NUT,HEX,5/16-18	2
19	PAFZZA	5305-00-939-9204	75755	19H1901	SCREW,CAP,HEX HD,1/4-16 X 2	2
20	PAFZZA	5310-00-809-8533	96906	MS27183-23	WASHER,FLAT	2
21	PAFZZA	5305-00-068-0511	80204	B1821BH038C125N	SCREW,CAP,HEXAGON,HD, 3/8-16 X 1-1/4	2
22	PAFZZA	5310-00-087-7493	96906	MS27183-13	WASHER,FLAT,3/8	4
23	PAFZZA	5310-00-637-9541	08999	R10-5.50-3	WASHER,LOCK,3/8	2
24	PAFZZA	5310-00-880-7744	96906	MS51967-5	NUT,HEX,5/16-18	2
25	PAFZZA	4210-01-112-1097	20722	9314413-1252	BRACKET,FIRE EXT	1
26	PAFZZA	4210-01-290-0755	58536	AA393-B2D	FIRE EXTINGUISHER,20LB ABC	1
27	PFFZZA	4210-01-540-8836	80195	3380751	BRACKET,FIRE EXTINGUISHER	1
28	PAFZZA	4730-00-929-0790	58536	AA59326X1	PLUG,QUICK DISCONNET	2
29	PAFZZA	4730-00-938-7998	58536	AA59326V18	COUPLING HALF,QUICK DISCONNECT	2
30	PAFZZA	4730-00-585-2201	80195	6200059	COUPLING,PIPE	2
31	PAFZZA	4720-01-082-7289	80195	6601926	HOSE,METAL,15 FT TAR AND ASPHALT	1
32	PAFZZA	4710-01-541-3878	80195	3301403	EXTENSION ASSEMBLY,OVERFLOW,EXTERNAL	1
33	PAFZZA	4710-01-540-8875	80195	3301369	OVERFLOW ASSEMBLY,INTERNAL	1
					END OF FIGURE	

APPENDIX D

MAINTENANCE ALLOCATION CHART (MAC)

Section III. INTRODUCTION

D-1. GENERAL.

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

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

Field – includes two columns: Unit Maintenance and Direct Support Maintenance. The Unit Maintenance column is divided again into two more subcolumns, C for Operator or Crew and O for Unit Maintenance.

Sustainment – includes two subcolumns: General Support (H) and Depot (D).

c. Section III lists the tools and test equipment required for each maintenance function as referenced from Section II.

d. Section IV lists remarks (identified by an alphabetic code in Column 6 of the MAC) to provide a ready reference to the definition of the remark.

D-2. MAINTENANCE FUNCTIONS.

Maintenance functions will be limited to and defined as follows:

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

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

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

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

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

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

D-2. MAINTENANCE FUNCTIONS (CONT).

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

h. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and is shown as the 3rd position code of the SMR code.

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

(1) Service includes inspection, testing, service, adjustment, alinement, calibration and/or replacement.

(2) Fault locate/troubleshooting is the process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or Unit Under Test (UUT).

(3) Disassemble/Assemble encompasses the step-by-step taking apart (or breakdown) of a spare/functional group coded item to the level of its least componency identified as maintenance significant (i.e., assigned an SMR code) for the category of maintenance under consideration.

(4) Actions include welding, grinding, riveting, straightening, facing, remachining and/or resurfacing.

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

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

D-3. EXPLANATION OF COLUMNS IN SECTION II.

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

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

c. Column 3, Maintenance Function. Column 3 lists the functions to be performed on the item listed in Column 2.

d. Column 4, Maintenance Level. Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s), the level of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance levels, appropriate work time figures will be shown for each level. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance levels are as follows:

Field:

C Operator or Crew Maintenance

O Unit Maintenance

F Direct Support Maintenance

Sustainment:

H General Support Maintenance

D Depot Maintenance

***** Asterisk indicates level of maintenance authorized to complete this function. No time is established.

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

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

D-4. EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, SECTION III.

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

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

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

d. Column 4, National Stock Number. The national stock number of the tool or test equipment.

e. Column 5, Tool Number. The manufacturer's part number.

D-5. EXPLANATION OF COLUMNS IN REMARKS, SECTION IV.

a. Column 1, Reference Code. An alphabetic code listed in the sixth column of the MAC and first column of the Remarks section to identify remarks made to the MAC.

b. Column 2, Remarks. The complete text of the remarks made to the MAC.

Section II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND TEST EQUIPMENT	(6) REMARKS CODE
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
0613	Air Valve Wire Harness	Replace		0.4				1,3	
0613	Speed Sensor Wire Harness	Replace		1.3				1,3	
0613	Mercury Switch Wire Harness	Replace		0.4				1,3	
0613	Fuel Pump Wire Harness	Replace		0.4				1,3	
0613	Controller Wire Harness	Replace		0.1				1,3	
0613	Burner and Main Manifold Wire Harness	Replace		2.0				1,3	
0613	Burner Manifold Solenoid Ground Wire Harness	Replace		0.4				1,3	
0613	Front Control Panel Wire Harness	Replace		1.0				1,3	
0613	Radar Ground Speed Sensor Wire Harness	Replace		0.7				1,3	
0613	Rear Control Panel Wire Harness	Replace		1.5				1,3	
0613	Rear Control Panel Module Light Wire Harness	Replace		0.4				1,3	
0613	Solenoid Ground Wire Harness	Replace		0.3				1,3	
0613	Burner Wire Harness	Replace		1.0				1,3	
0613	PLS Lock-Out Assembly Wire Harness	Replace		0.2				1,3	
0613	Wire	Repair		0.2				1	A
2406	Hydraulic Hose(s)	Replace		*				1	A
2406	Hydraulic Pressure	Adjust		0.3				1	A
7300	Asphalt Pump	Replace		4.0				1,2	
7300	Ball Valve	Replace		1.0				1,2	

Section II. MAINTENANCE ALLOCATION CHART (CONT).

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND TEST EQUIPMENT	(6) REMARKS CODE
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
7300	Bituminous Spreader	Lube	3.3					1,2	
7300	Burner	Replace		1.0				1,2,3	
7300	Burner	Service		2.0				1,4	
7300	Burner Fuel Pump	Replace		2.5				1,2	
7300	Burner Hydraulic Motor	Replace		1.5				1	
7300	Burner Manifold	Replace		1.5				1,2	
7300	Butterfly Valve	Replace		2.3				1.2	
7300	Circulating System Hydraulic Cylinder	Replace		1.5				1,2	
7300	Exhaust Stack	Replace		0.5				1	
7300	Four-way Valve	Replace		4.0				1,2	
7300	Four-Way Valve Air Cylinder	Replace		1.0				1	
7300	Fuel Filter	Replace		0.5				1,2	
7300	Fuel Pump	Replace		0.8				1,2,3	
7300	Fuel Pump	Service		0.3				1,2	
7300	Gang Valve Control Air Cylinder	Replace		1.0				1	
7300	Hatch	Replace		0.5				1	
7300	Hydraulic Cylinder	Replace		1.5				1,2	
7300	Hydraulic Motor	Replace		1.5				1,2	
7300	Level Indicator	Replace		0.5				1	
7300	Main Manifold	Replace		1.0				1	
7300	Needle Relief Valve	Replace		0.4				1	
7300	UPIK Stowage Block and Cover	Replace		0.4				1	
7300	Placard Assembly	Replace		0.2				1	
7300	Four-Way Valve Shaft Bearing	Replace		0.5				1,2	
7300	Distribution Line Boot and Ball	Replace		2.7				1,2	

Section II. MAINTENANCE ALLOCATION CHART (CONT).

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND TEST EQUIPMENT	(6) REMARKS CODE
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
7300	Oiler	Service		0.4				1,2	
7300	Strainer	Service		0.5				1,2	
7300	Suction Valve	Replace		1.2				1,2	
7300	Transfer Valve	Replace		1.0				1	
7300	Spray Bar Pivots and End Tubes	Replace		2.3				1	
7300	Spray Bar Pivot Lug	Replace		0.8				1	
7300	Burner Trasformer	Replace		0.6				1	
7300	Burner Ignition Controller	Replace		0.6				1	
7300	Portable Burner	Replace		0.7				1	
7300	Control Panel (Front)	Replace		0.2				1	
7300	Control Panel (Rear)	Replace		0.3				1	
7303	Controller	Replace		1.0				1	
7303	Air Valve	Replace		0.5				1,3	
7303	Radar Ground Speed Sensor	Replace		0.5				1,3	
7303	Rear Control Panel Light	Replace		0.5				1,3	
7303	Spray Bar Valve(s)	Replace		0.3				1	
7303	Air Line (s)	Replace		*				1,3	
7303	Front Control Panel Switch	Replace		0.3				1,3	
7303	Work Light Wire Harness	Replace		1.0				1,3	
7303	Work Light	Replace		0.5				1,3	
7303	Mercury Switch	Replace		0.2				1,3	
7317	Spray Bar	Adjustment		1.0				1	
7318	Fuel Tank	Replace		1.3				1	

Section II. MAINTENANCE ALLOCATION CHART (CONT).

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND TEST EQUIPMENT	(6) REMARKS CODE
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
7318	Fuel Line	Replace		*				1	A
7318	Portable Burner Fuel Supply Valve	Replace		0.3				1,3	

Section III. TOOL AND TEST EQUIPMENT REQUIREMENTS

REFERENCE CODE	MAINTENANCE LEVEL	NOMENCLATURE	NSN	TOOL PART NUMBER
1	O	TOOL KIT, General Mechanic's: Automotive	5180-00-177-7033	SC 5180-90-N26
2	O	Shop Equipment, Common No. 2	4910-00-754-0650	SC 4910-95-A72-HR
3	O	TOOL KIT, Electrical	5180-00-876-9336	75505264
4	O	Pressure Test Kit	4910-01-378-9068	3SK911

Section IV. REMARKS

REFERENCE CODE	REMARKS
A	No specific times established. Times required for inspection, service, or test will depend on extent of testing required.

APPENDIX E

EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

E-1. SCOPE.

This appendix lists expendable supplies and materials you will need to operate and maintain the Bituminous Distributor. These items are authorized to you by CTA50-970, Expendable Items (Except Medical, Class V, Repair Parts and Heraldic Items) or CTA8-100, Army Medical Department Expendable/Durable Items.

E-2. EXPLANATION OF COLUMNS.

a. Column 1, Item Number. This number is assigned to the entry in the listing and is referenced in the narrative task box to identify the material (e.g., "Compound, Cleaning, Item 5, Appendix C").

b. Column 2, Level. This is the maintenance level approved to use the item listed.

c. Column 3, National Stock Number. This is the National Stock Number assigned to the item; use it to request or requisition the item.

d. Column 4, Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Commercial and Government Entity (CAGE) code in parentheses followed by the part number.

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

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
1	O	5975-01-273-8133	Cable Ties (96906) MS3367-3 12 inches long, 100 per package	Pk
2	O	8030-01-087-8254 8030-00-155-6444	Compound, Antiseize (81349) MIL-A-907 8 ounce can with brush applicator 16 ounce aerosol can	Oz Oz
3	O	9150-00-189-6267 9150-01-177-3988 9150-00-191-2772 9150-00-183-7807	Hydraulic Oil, OE/HDO 10 (81349) MIL-L-2104 1 quart can 12 quart box 55 gallon drum bulk	Qt Qt Gl Gl
4	O	9140-00-286-5294	Oil, Fuel, Diesel (81348) VVF800GRADEDF2RE Bulk	Gl
5	O	8030-01-388-5606	Primer “N” (05972) Loctite 7649 1.75 oz bottle	Oz
6	O	8030-01-051-3373	Sealing Compound (05972) Loctite #510 50 ml tube	Ml
7	O		Sealing Compound (05972) Loctite #545 50 ml bottle (p/n 54531)	Ml
8	O	8030-01-054-0740 8030-01-166-0675 8030-00-204-9149	Sealing Compound (05972) Loctite #567 50 ml bottle 50 ml tube 250 ml tube	Ml Ml Ml
9	O	9905-00-720-3577	Tags, Identification (16956) 12-105 white	Ea
10	O	5970-00-547-0966	Tape, Electrical (19207) BISEALTYPE3	Ea

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
11	O	5330-01-125-5704	Preformed Packing Assortment (C-7-88)	Ea
12	O	6850-00-664-5685 6850-00-264-9038 6850-01-378-0679	Solvent, Dry-cleaning (58536) A-A-711 (81348) P-D-680 1 quart can 5 gallon can (Environmentally Compliant Solvent) (0K209) Breakthrough 5 gallon can	 Qt Gl Gl
13	O	8030-00-148-9833	Sealing Compound (05972) Loctite #271 (80244) MIL-S-46163 Type 1 Grade K 10 ml bottle	Ml
14	O	8030-01-104-5392 8030-01-014-5869 8030-01-025-1692	Sealing Compound (05972) Loctite #242 (80244) MIL-S-46163A Type 2 Grade N 10 ml bottle 50 ml bottle 250 ml bottle	 ml ml ml

APPENDIX F

TOOL IDENTIFICATION LIST

Section II. INTRODUCTION

F-1. SCOPE.

This appendix lists all of the tools needed to repair the Bituminous Distributor.

F-2. GENERAL.

This appendix is a list of tools, both common and special, test equipment and tool kits used at unit level and direct support maintenance to repair the Bituminous Distributor. This list is arranged alphabetically and shows the Description, CAGE, Part Number (Part No.) and, National Stock Number (NSN). The item number (Item No.) corresponds to the item number found in the task box of maintenance procedures.

Section II. COMMON TOOLS, TEST EQUIPMENT AND TOOL KITS

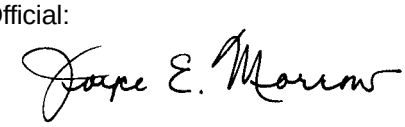
Item No.	Description	CAGE	Part No.	NSN
1	Adapter	98441	0503-8-6	4730-00-968-5578
2	Adapter, Straight, PI	61349	GAH20-1/4 NPT-V	4730-01-373-0474
3	Cap and Plug Set	19207	10935405	5340-00-450-5718
4	Crimping Tool	33287	J35123	5120-01-355-0844
5	Gage, Pressure, Dial	61349	356021	6685-01-373-7976
6	Goggles, Industrial	80204	ANSI Z87.1	4140-00-269-7912
7	Hose Assembly, Nome	53790	SMS-20-060-A	4720-01-373-9871
8	Multimeter	80058	ANURM105C	6625-00-999-6282
9	Pan, Drain (4 gal)	36540	17942	4940-00-387-9592
10	Pressure Test Kit	45152	3SK911	4910-01-378-9068
11	Soldering Kit, Torch	61112	LP-999G	3439-00-542-0531

Section II. COMMON TOOLS, TEST EQUIPMENT AND TOOL KITS

Item No.	Description	CAGE	Part No.	NSN
12	Test Fitting	53790	TCM 20-3/8-JIC-V	4730-01-368-7589
13	Tool Kit, Electrical	19204	7550526	5180-00-876-9336
14	Tool Kit, General Mechanic's: Automotive	50980	SC 5180-90-CL-N26	5180-00-177-7033
15	Wrench, Combination 1 1/4 in.	05506	1173	5120-00-228-9517
16	Wrench, Combination 1 3/8 in.	05506	1176	5120-00-228-9519
17	Wrench, Torque (0 to 175 lb-ft [0-237 N·m])	08194	1753LDF	5120-01-396-5751

By Order of the Secretary of the Army:

Official:



JOYCE E. MARROW
Administrative Assistant to the
Secretary of the Army

0617002

GEORGE W. CASEY, JR.
General, United States Army
Chief of Staff

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PUBLICATION/FORM NUMBER	DATE	TITLE
TM 9-3990-257-13&P	30 June 2007	Bituminous Distributor, M4, Operator, Unit, Direct Support Maintenance Manual & RPSTL

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON (Provide exact wording of recommended changes, if possible).
	0004 00-2	4-7				Wrong POC is listed.



**Reference to line numbers within the paragraph or subparagraph.*

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Your Name		Your Signature

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PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

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Your Name		Your Signature

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PUBLICATION NUMBER	DATE	TITLE
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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE
1 Centimeter=10 Millimeters=0.01 Meters=0.3937 Inches
1 Meter=100 Centimeters=1000 Millimeters=39.37 Inches
1 Kilometer=1000 Meters=0.621 Miles

WEIGHTS
1 Gram=0.001 Kilograms=1000 Milligrams=0.035 Ounces
1 Kilogram=1000 Grams=2.2 Lb
1 Metric Ton=1000 Kilograms=1 Megagram=1.1 Short Tons

LIQUID MEASURE
1 Milliliter=0.001 Liters=0.0338 Fluid Ounces
1 Liter=1000 Milliliters=33.82 Fluid Ounces

SQUARE MEASURE
1 Sq Centimeter=100 Sq Millimeters=0.155 Sq Inches
1 Sq Meter=10,000 Sq Centimeters=10.76 Sq Feet
1 Sq Kilometer=1,000,000 Sq Meters=0.386 Sq Miles

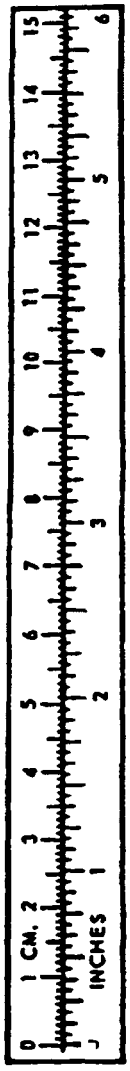
CUBIC MEASURE
1 Cu Centimeter=1000 Cu Millimeters=0.06 Cu Inches
1 Cu Meter=1,000,000 Cu Centimeters=35.31 Cu Feet

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



PIN: 077306-000