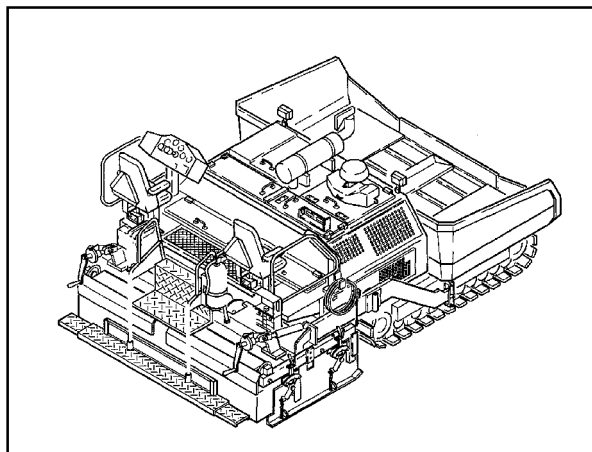


TECHNICAL MANUAL

**ORGANIZATIONAL
MAINTENANCE MANUAL**



**PAVING MACHINE,
BITUMINOUS MATERIAL,
CRAWLER MOUNTED,
DIESEL ENGINE DRIVEN
NSN 3895-01-379-1102
END ITEM CODE (EIC: E47)**

**INGERSOLL-RAND COMPANY
MODEL 780T
CONTRACT NUMBER DAAE07-93C-0501**

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DISTRIBUTION RESTRICTION STATEMENT A. Approved for Public Release; Distribution Is Unlimited.

WARNING

HAZARDOUS FLUIDS

Cleaning solvent P-D-680, hydraulic oil, and diesel fuel can be dangerous. When you use these fluids, be sure that your work area is well ventilated. Avoid prolonged breathing of vapors or skin contact with the liquid. **WEAR GLOVES AND EYE PROTECTION.**

IF YOU GET CLEANING SOLVENT, HYDRAULIC OIL, OR DIESEL FUEL IN YOUR EYES OR ON YOUR SKIN, FLUSH THE LIQUID AWAY WITH WATER FOR 15 MINUTES; THEN GET IMMEDIATE MEDICAL ATTENTION.

Do not use cleaning solvent, hydraulic oil, or diesel fuel near an open flame, arcing equipment, or other ignition sources. The flash point for P-D-680, Type III cleaning solvent is 200°F (93.3°C).

NEVER MIX GASOLINE OR JP-4 WITH PAVING MACHINE FUEL.

Post signs that read "NO SMOKING WITHIN 50 FEET" and keep at least a B-C fire extinguisher within easy reach when working on fuel system.

DO NOT WORK ON FUEL SYSTEM WHEN ENGINE IS HOT.

Shut down engine before refueling. Do not remove fuel tank cap until rear and dispenser ground wires are properly connected.

Fuel fumes can accumulate in STE/ICE-R transit case. Do not open, use, or store the transit case near open flame.

Clean up spilled oils, cleaning solvent, or fuel with rags or absorbent materials.

Refer to FM-21-11 for artificial respiration or other first aid procedures.

HIGH PRESSURE FLUIDS

High pressure hydraulic oil or diesel fuel leaks are hard to see. Always use cardboard, wood, or similar material to check for leaks in a pressurized fluid system. Slowly bleed off pressure prior to opening a high pressure circuit.

USING BARE HANDS OR LOOKING CLOSELY TO FIND LEAKS OR QUICKLY OPENING A HIGH PRESSURE CIRCUIT CAN CAUSE LOSS OF LIMB, LOSS OF VISION, OR OTHER SERIOUS INJURY.

FALLING EQUIPMENT HAZARDS

NEVER WORK UNDER OR AROUND HEAVY EQUIPMENT OR COMPONENTS RAISED BY PAVING MACHINE HYDRAULICS UNLESS EQUIPMENT IS SECURELY BLOCKED.

KEEP CLEAR WHEN EQUIPMENT IS BEING RAISED OR LOWERED. ENSURE ALL LIFTING EQUIPMENT IS IN GOOD CONDITION AND ARE OF ADEQUATE LIFTING CAPACITY.

WARNING

MOVING EQUIPMENT HAZARDS

can cause severe injury or death to personnel.

TURN OFF IGNITION SWITCH AND REMOVE KEY PRIOR TO PERFORMING MAINTENANCE ON ROTATING EQUIPMENT.

If working on or near running engine, avoid loose clothing and shield yourself from rotating engine components.

ELECTRICAL SHOCK AND BATTERY EXPLOSION HAZARDS

ELECTRICAL SHOCK, SHORT CIRCUIT, OR BATTERY EXPLOSION CAN CAUSE SEVERE INJURY OR DEATH.

Turn off ignition switch and remove key when working on paving machine electrical system.

Disconnect batteries and remove jewelry when working in immediate area of battery or starter circuits.

TO AVOID POSSIBLE BATTERY EXPLOSION, TURN VTM POWER SWITCH OFF BEFORE CONNECTING VTM TO POWER SOURCE.

DEATH OR SERIOUS INJURY

could occur if compressed air is directed against the skin. Do not use compressed air for cleaning or drying unless the pressure is/has been reduced to 30 psi (207 kPa) or less. When working with compressed air, always use chip guards, eye protection, and other personal protective equipment.

CONTACT WITH SEALANT MATERIALS

and cleaning agents used on fasteners, pipe threads, and electrical connections can cause serious eye damage or skin irritation. WEAR GLOVES AND EYE PROTECTION WHEN USING.

IF YOU GET SEALANT OR SEALANT CLEANING AGENTS IN YOUR EYES, FLUSH WITH WATER AND GET IMMEDIATE MEDICAL ATTENTION.

WARNING

CONTACT WITH HOT SURFACES

can cause serious burns to personnel.

ALLOW ENGINE TO COOL BEFORE PERFORMING MAINTENANCE ON THE MUFFLER, EXHAUST PIPE, EXHAUST MANIFOLD, TURBOSUPERCHARGER, OR COOLING SYSTEM.

DO NOT TOUCH HEATED PAVING MACHINE COMPONENTS WITH BARE HANDS. IF MAINTENANCE OF A HEATED SURFACE IS NECESSARY, USE INSULATED PADS AND GLOVES.

DO NOT REMOVE RADIATOR CAP WHEN ENGINE IS HOT; STEAM AND HOT COOLANT CAN ESCAPE AND BURN PERSONNEL.

Use thick waste cloth to cover radiator cap when removing; avoid gloves. HOT ENGINE COOLANT CAN SOAK THROUGH GLOVES, CAUSING HANDS TO BE SERIOUSLY SCALDED.

EYE AND EAR HAZARDS

Snap rings and retaining rings can act as projectiles when released, and could cause severe eye injury.

WEAR EYE PROTECTION WHEN REMOVING OR INSTALLING SNAP RINGS OR RETAINING RINGS.

Hearing protection is required when working on or around the paving machine while the engine is running.

FAILURE TO WEAR HEARING PROTECTION CAN RESULT IN PERMANENT HEARING LOSSES TO PERSONNEL.

HAND HAZARD

Do not use hands between tractor and tow arm as multiple pinch points exist.

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TECHNICAL MANUAL
ORGANIZATIONAL MAINTENANCE MANUAL

PAVING MACHINE, BITUMINOUS MATERIAL;
CRAWLER MOUNTED, DIESEL ENGINE DRIVEN
NSN 3895-01-379-1102
END ITEM CODE (EIC: e47)
INGERSOLL-RAND COMPANY, MODEL 780T
CONTRACT NUMBER DAAE07-93C-0501

REPORTING OF ERRORS

Reporting Errors and Recommending Improvements. You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publication and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, U.S. Army Tank-automotive and Armaments Command, AMSTA-IM-MMAA, Warren, MI 48397-5000. A reply will be furnished to you.

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HOW TO USE THIS MANUAL

This manual provides Preventive Maintenance Checks and Services, diagnostic procedures, and task-oriented maintenance procedures authorized for use by Unit level maintenance personnel by the Maintenance Allocation Chart (MAC) in Appendix B.

The front cover includes a quick reference index of important topics. The pages that cover a topic listed in this index have a black tab in line with the index block. Thumb through the manual to find the related pages. An alphabetical index is provided at the back of the manual, as well as at the start of each chapter. Special indexes are provided in the diagnostics section to help you locate specific flowcharts quickly.

Use the diagnostic section to troubleshoot failed electric and/or hydraulic equipment functions. Electrical and hydraulic foldout schematics are located at the back of the diagnostic section for convenient reference.

When mechanical equipment failures are found or reported, refer to the related Functional Group in the MAC, Appendix B, before looking for an applicable repair procedure. The MAC will quickly indicate if an appropriate repair action is authorized at the Unit level. Some equipment repair actions are authorized at the Direct and/or General Support level, and will not be found in this manual.

Each authorized maintenance task is preceded by a task summary. The task summary lists the tools, materials, equipment, and personnel required to perform the task. Using the task summary as a check list, make sure that you have all the tools, materials, and assistance required before travelling to an equipment repair site or starting the task.

CHAPTER 1

INTRODUCTION

SECTION I. GENERAL INFORMATION

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1.1. SCOPE.

a. Type of Manual: Unit Maintenance.

b. Model Number and Equipment Name: Ingersoll-Rand Company Model 780T Crawler Mounted, Diesel Engine Driven, Bituminous Material Paving Machine, NSN 3895-01-379-1102.

c. Purpose of Equipment: The Paving Machine is used to repair damaged or worn landing pads, airfields, taxiways, roads and parking areas in combat-related facilities, as well as maintenance and new road construction. The paving machine will also be used to construct extensions to existing facilities, roads, airfields, and taxiways.

1.2. MAINTENANCE FORMS, RECORDS, AND REPORTS.

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

1.3. CORROSION PREVENTION AND CONTROL.

Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any corrosion problem be reported, so the problem can be corrected and improvements can be made to prevent the problem in the future.

While corrosion is typically associated with rusting of metals, it also includes the deterioration of other materials, such as

rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials may indicate a corrosion problem.

If a corrosion problem is identified, report it using an SF 368, Product Quality Deficiency Report. Completed forms should be submitted to the address specified in DA PAM 738-750. Use of key words such as "corrosion", "rust", "deterioration", or "cracking" will ensure the information is identified as a CPC problem.

1.4. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE.

Procedures for destruction of Army materiel to prevent enemy use are listed in TM 720-244-6.

1.5. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

If the Paving Machine needs improvement, let us know. Send us your EIR. You, the user, are the only one who can tell us what you do not like about the equipment. Let us know why you don't like the design. Put it on SF 368 (Product Quality Deficiency Report). Mail it to: Commander, U.S. Army Tank-automotive and Armaments Command, Attn: AMSTA-TR-E/MPA, Warren, MI 48397-5000.

1.6. WARRANTY INFORMATION.

The Paving Machine warranty is detailed in Warranty Technical Bulletin (WTB), TB 5-3895-373-14.

1.7. OFFICIAL NOMENCLATURE.

This list provides a cross-reference between the nomenclature used in the manual and the nomenclature specified in the Repair Parts and Special Tools List (RPSTL). Nomenclature Cross- Reference List

Manual Nomenclature	Official Nomenclature
Paving Machine	780T Bituminous Asphalt Paving Machine
Screed	Hydraulic Vibratory Extendable Screed, ES-80 (Diesel)
Hopper	Aggregate Feeder
Hopper Wing	Aggregate Feeder
Auger	Screw Conveyor
Flashing	Solid Rubber Sheet
Dipstick	Liquid Gauge Rod-cap
Bendix	Electric Engine Drive
Coolant Temperature Sensor	Thermostatic Switch
Hydraulic Oil	Thermostatic Switch
Temperature Sensor	
Hemi Auger Flight	Screw Conveyor Auger
Quarter Auger Flight	Screw Conveyor Auger
Sound Foam	Sound Control Batten
Alternator	Engine AC Generator
Latch	Pawl Fastener
Fuel/Water Separator	Fluid Filter
Fuel Spray Wand	Nozzle and Hose Assembly
Assembly	
Pump Drive Gearbox	Angle Drive Unit
Speed Reduction Gearbox	Speed Gear Assembly

1.8. USE OF METRIC UNITS.

The equipment described herein contains metric components and requires metric common tools. Therefore, metric units are used for components or systems which are metrically dimensioned, and no U.S. standard unit is applicable. In all other situations, U.S. standard units and metric units are both referenced.

1.9. PREPARATION FOR STORAGE OR SHIPMENT.

Instructions are provided in Chapter 2.

1.10. LUBRICATION ORDER.

For lubrication intervals and instructions, refer to Lubrication Order, LO 5-3895-373-12.

SECTION II. EQUIPMENT DESCRIPTION AND DATA

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1.11. CHARACTERISTICS, CAPABILITIES, AND DATA.

The paving machine is a turbosupercharged, 4-cylinder, diesel powered, hydraulically driven tracked vehicle. The engine is coupled to a dual main pump drive gearbox which drives two propulsion pumps in tandem with two auxiliary pumps and one auxiliary vibration pump. The propulsion pumps supply hydraulic pressure to the track drive motors. The auxiliary hydraulic pumps are used to operate all controls and cylinder drive functions.

Control handles on the operator control panel control each track drive motor located on the undercarriage of the paving machine. Paving speed is from 0 to 135 fpm (0 to 41 mpm) with travel speed (switch selected) of 0 to 3.2 mph (0 to 5, 2 kph). Hydraulic cylinders automatically maintain tension on the 12-inch wide steel track pad. A high wear-resistant rubber pad is attached to each track pad. Spring applied hydraulically released disc brakes are located between the hydraulic drive motors and torque hubs. In the event that hydraulic pressure or electrical power is lost, the brakes are automatically applied.

Push rollers are located in front of the material hopper and are designed to ride against the rear wheels of the paving material haul truck. The push rollers allow the paving machine to push the haul truck forward, while continuing to receive material into the hopper and spread the paving material at the same time. Hopper wings are hydraulically raised and lowered from the operator control console. Dual slat conveyors move the paving material from the hopper to the auger, and are independently controlled from the operator control console. Two electric actuators control flow gates that meter the amount of material conveyed to the augers. Two 12-inch (304 mm) augers spread the paving material in front of the screed.

Four diesel fuel-fired burners are located on the screed. The burners heat the screed plates to approximately 300°F (150°C) to prevent paving material from sticking to the screed plates. The screed is hydraulically extendable from 8 to 14 feet (2, 4 to 4, 3 m) and can be extended further to 16 feet (4, 9 m) with bolt-on screed and auger extensions. Mechanical adjustments on the screed control the thickness, slope, and crown of the paving material. The screed vibrator provides the initial compaction of the paving material. The amount of compaction is controlled by the frequency and amplitude of vibration. Vibration is controlled by the screed

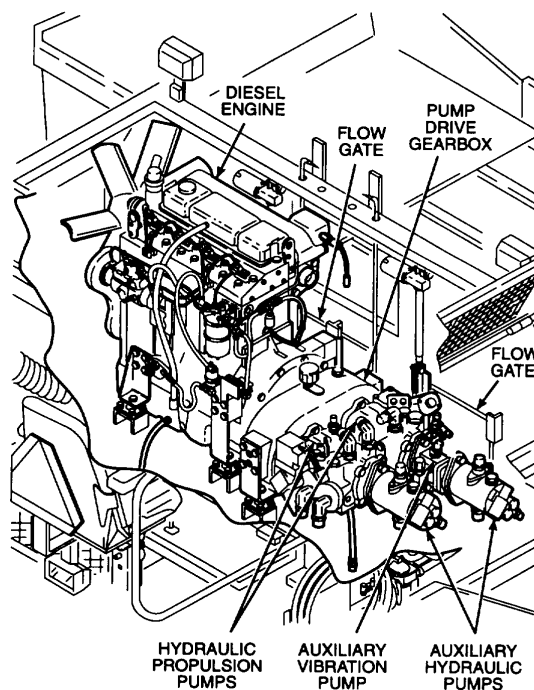
vibration control valve, located underneath the operator platform on the rear tractor bulkhead.

1.12. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.

The following provides the location and description of major paving machine components maintained by the organizational maintenance activity.

1.12.1. Engine Compartment. The engine compartment houses the paving machine drive system and hydraulic power components, air cleaner, filters, radiator, hydraulic oil cooler, exhaust system, and flow gates. These components are described as follows:

a. Drive System and Hydraulic Power. The paving machine drive system includes a turbosupercharged diesel engine with a pump drive gearbox adapted to the engine flywheel. Directly coupled to the gearbox drives are two main hydraulic propulsion pumps. The propulsion pumps provide hydraulic power to the left and right track drive motors. Two auxiliary hydraulic pumps, and one vibration pump are connected to the propulsion pumps in tandem. These pumps provide hydraulic power to non-propulsion hydraulic functions needed to operate the paving machine.



b. Engine Fuel Filter and Fuel Injection Pump. The fuel filter removes particulate from the fuel supply before it enters the fuel injection pump. The injection pump distributes equal amounts of high pressure fuel to the engine's fuel injection system prior to engine internal combustion cycle.

c. Fuel Lift Pump. The fuel lift pump is a cam shaft driven mechanical transfer pump. The lift pump transfers diesel fuel from the fuel tank to the fuel injection pump.

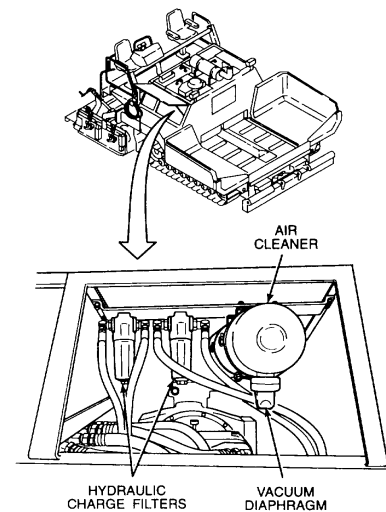
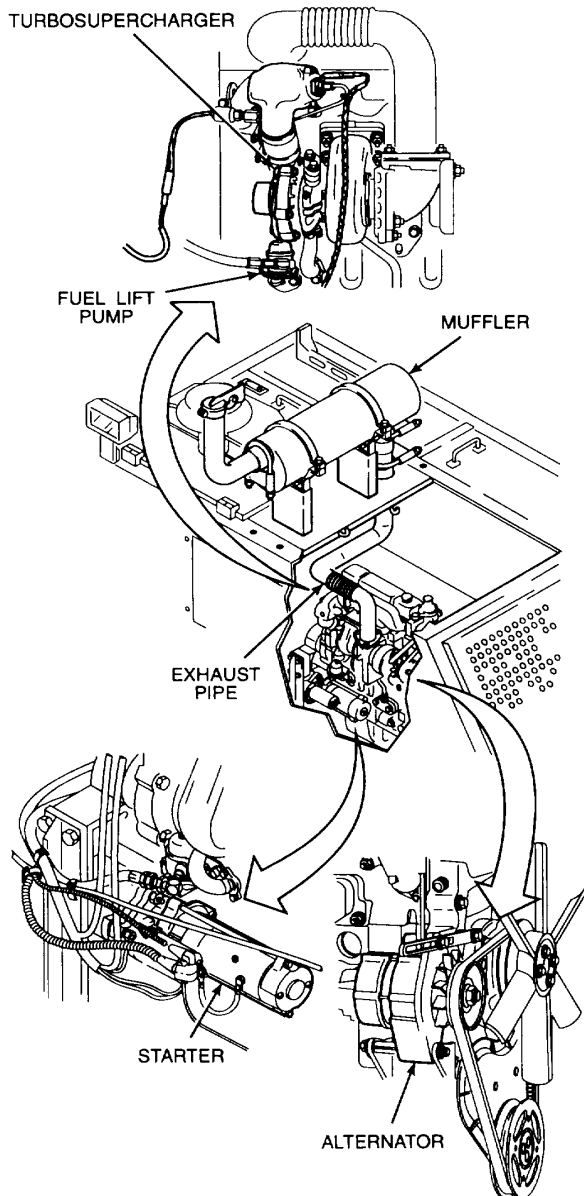
d. Turbosupercharger. The turbosupercharger forces compressed air into the combustion chamber for improved combustion, fuel efficiency, and horsepower. The turbosupercharger is driven by waste exhaust gas energy.

e. Alternator. The alternator produces a +24 VDC 45 amp output to operate the paving machine's electrical systems and keep the batteries charged.

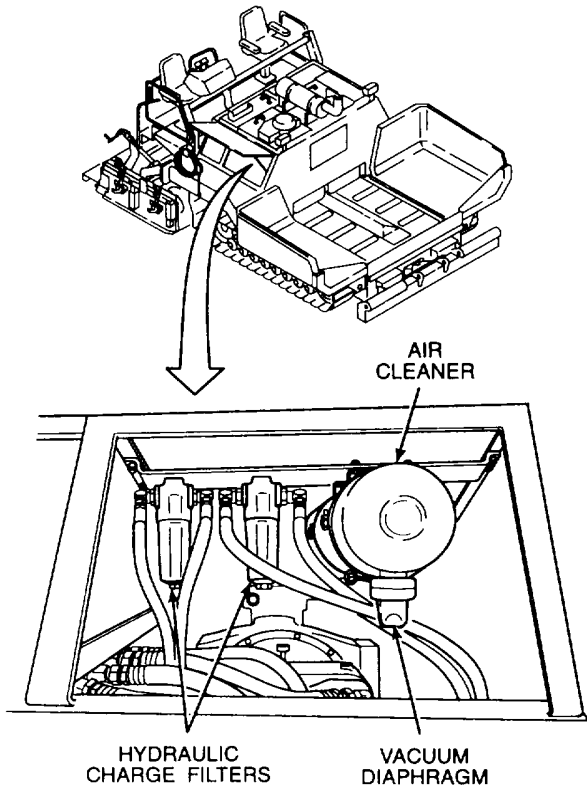
f. Starter. The starter uses a +24 VDC, high amperage supply to turn over the engine, starting the engine combustion cycle.

g. Exhaust pipe and muffler. The exhaust pipe is a flexible duct attached to the exhaust output of the turbosupercharger. The muffler is clamped to the output of the exhaust pipe and mounted to a removal support bracket over the engine compartment. The exhaust pipe and muffler are easily removed as a unit from the paving machine.

h. Air Cleaner. The air cleaner contains a replaceable filter element. Air being supplied to the turbosupercharger and engine is drawn in from outside the engine compartment through the filter element. The air cleaner has an internal dust seal preventing large dirt particles from entering the filter element. This collected dirt and dust is vented out of the air cleaner through a vacuum diaphragm.

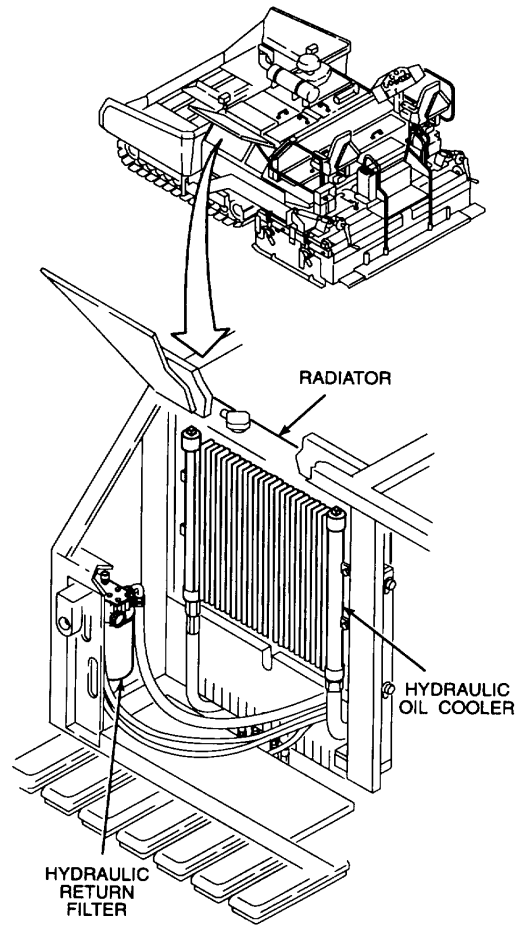


i. Hydraulic Charge Filters. Two hydraulic charge filters are located above the hydraulic pumps. Charge pressure oil from the propulsion intake is routed into the charge filters and back to the propulsion pumps. The charge filters service the high pressure side of the hydraulic system. The filters remove contaminants from the hydraulic oil prior to the oil being sent to the return manifold and other hydraulic systems.



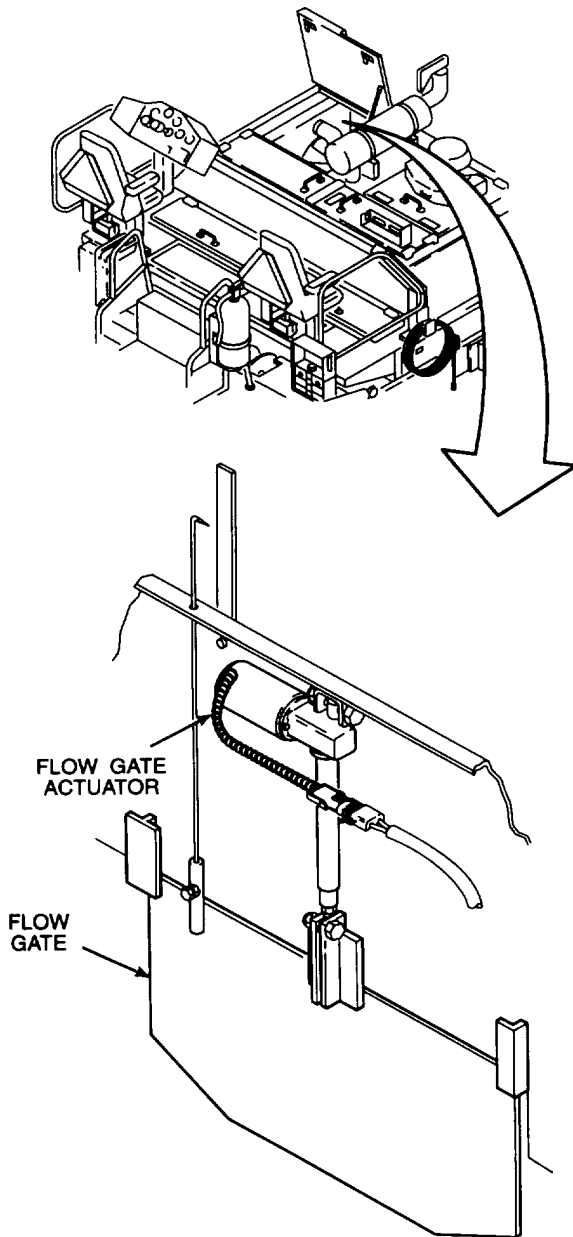
j. Radiator. The radiator absorbs heat from the engine coolant circulating through its coils. A flow of outside air is forced between the radiator coils to maintain normal engine operating temperature.

k. Hydraulic Oil Cooler. Hydraulic oil passes through the hydraulic oil cooler before entering the hydraulic reservoir. The oil cooler removes heat from the oil, protecting it against thermal breakdown.



l. Hydraulic Return Filter. The return filter is on the low pressure, return side of the hydraulic system. Oil from separate hydraulic circuits is returned to the hydraulic reservoir by way of the hydraulic return manifold. All oil from the return manifold passes through the return filter. The return filter protects against contamination. A pressure gauge on the filter housing displays filter pressure at the input to the return filter. This gauge indicates a clogged filter by registering an above normal system pressure.

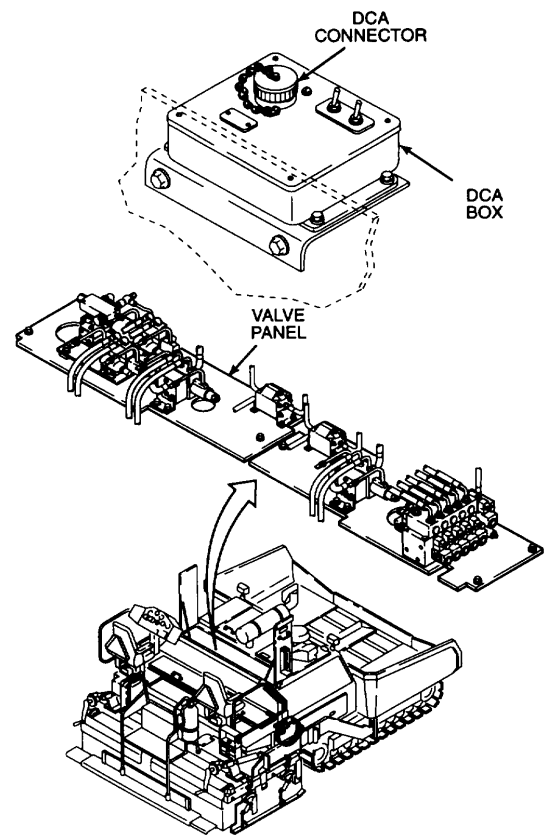
m. Flow Gates. Two flow gates are located on the front engine compartment bulkhead. Position of the flow gates control the amount of paving material that passes from the hopper to the screed. The flow gates are raised and lowered by separate +12 volt DC actuators. The actuators can be run from the operator switch panel or from the screed control panels.



1.12.2. Valve Panel Compartment. The valve panel compartment is located behind the engine compartment. The hydraulic oil reservoir and fuel tank are located underneath the valve panel. Major paving machine components found in the compartment are as follows:

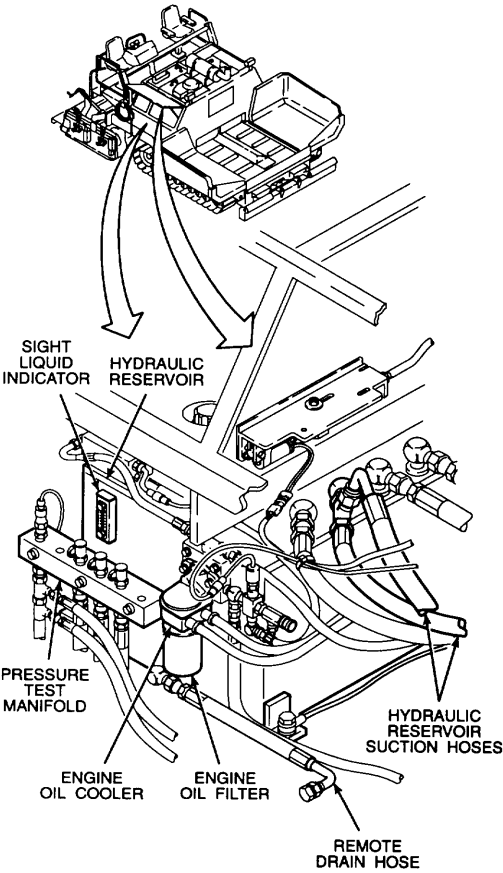
a. Valve Panel. The valve panel is the mounting location for all major control valves for the propulsion system, auger/ conveyor system, tow point control system, vibration system, stack valve, and major system flow dividers.

b. Diagnostic Connector Assembly (DCA) Box and Connector. The paving machine is equipped with STE/ICER transmitters to monitor machine systems. Wiring from the transmitters is routed to the DCA connector in the DCA box. The DCA connector provides the interface for hookup and operation of a STE/ICE-R test set.



c. Hydraulic Reservoir. The hydraulic reservoir is the only hydraulic oil reservoir on the paving machine. The reservoir includes a fill cap, sight liquid indicator measuring oil level and temperature, and remote drain hose. A removable reservoir cover is fitted with four suction ports and four return ports. The suction ports are fitted with strainer elements inside the reservoir.

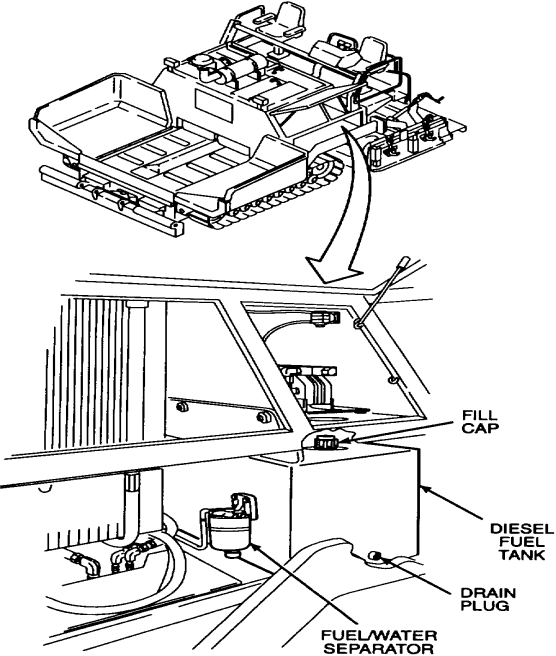
d. Engine Oil Cooler and Filter. Hot engine oil returning to the oil reservoir is routed through the engine oil cooler and engine oil filter mounted on the hydraulic reservoir. Engine coolant circulates in the oil cooler head to remove excess heat from the oil. The engine oil filter has a disposable filter element that removes contaminating particles from the oil.



e. Pressure Test Manifold. The pressure test manifold has four active test ports. The test ports allow DS/GS personnel to check the hydraulic oil pressure in the left and right auxiliary pump circuits and in the hydraulic brake release circuit with a quick disconnect pressure gauge.

f. Diesel Fuel Tank. The diesel fuel tank is the fuel reservoir for the engine, screed burner, and washdown fuel systems. The tank is equipped with a fill cap, fill port strainer, drain plug, and float-type fuel level transmitter. The tank fuel level is displayed on an electric fuel gauge on the operator gauge panel.

g. Fuel/Water Separator. The fuel/water separator removes moisture from diesel fuel being pumped to the engine, and is located on the front side of the fuel tank. Fuel input to the separator is directly from the fuel tank. The separator output is the supply line to the fuel lift pump.



1.12.3. Battery and Toolbox Storage Compartments.

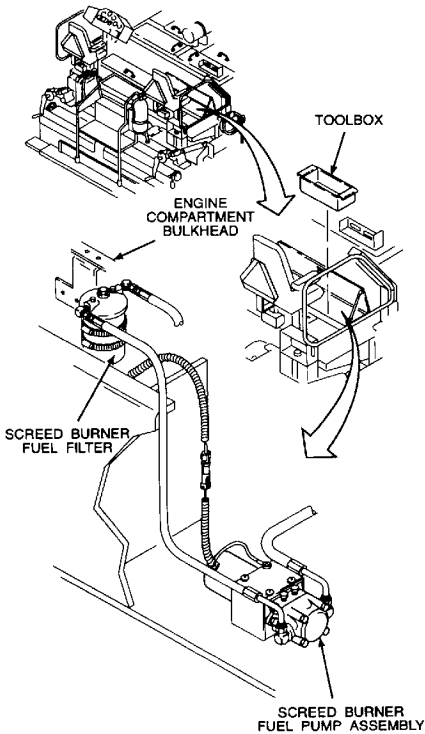
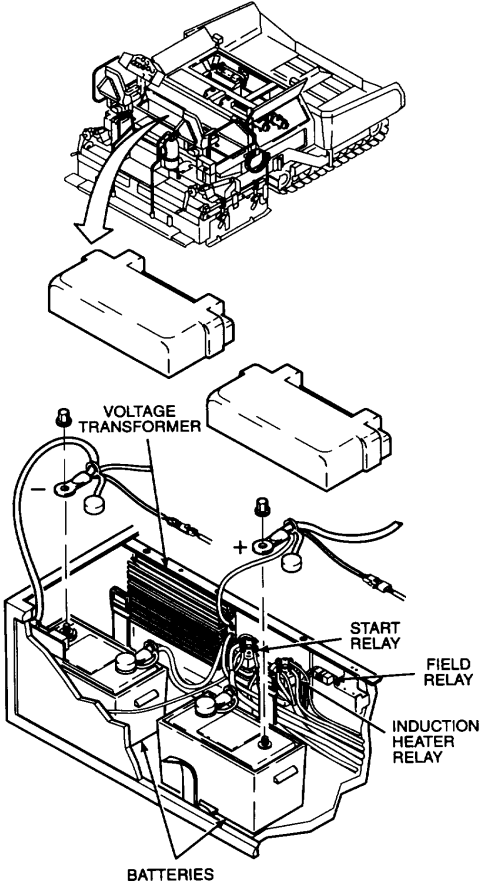
The battery and tool storage compartments are just behind and below the valve panel. Paving machine components found in the compartment are as follows:

a. Batteries and Voltage Transformer. The paving machine uses two maintenance free 12 VDC storage batteries connected in series. Each battery is housed in a separate battery box. The battery charging circuit is routed through a voltage transformer which regulates voltage to operate both paving machine 12 VDC and 24 VDC electrical systems. A start relay, induction heater relay, and field relay are mounted next to the voltage transformer.

b. Toolbox. The removable toolbox contains the tools needed by the paving machine crew to change paving widths.

A grease gun is included in the toolbox for completing the daily lubrication requirements.

c. Screed Burner Fuel Pump Assembly and Filter. The screed burner fuel pump assembly is mounted under the toolbox. The fuel filter is mounted on the engine compartment bulkhead. The fuel filter removes particulates from the fuel supply before they can reach the screed burner fuel pump assembly. The fuel pump assembly includes a 12 VDC motor, flexible coupling, and replaceable pump. The pump output is routed to the screed burner fuel lines. The screed burner fuel pump assembly is turned on and off at the left hand screed control panel.



1.12.4. **Track Drive System.** The track drive system propels the paving machine. The track drive system is a parallel system driving both left and right tracks. Main components of the track drive system are as follows:

a. **Hydraulic Propulsion Motor.** The hydraulic propulsion motor is a two speed fixed displacement motor. High or low speed selection is made by a moveable internal port plate. The high or low speed port plate position is controlled by a solenoid valve activated by the travel switch on the operator gauge panel. The motor shaft mates with the speed reduction gearbox. Hydraulic power to drive the motors is provided by the hydraulic propulsion pumps.

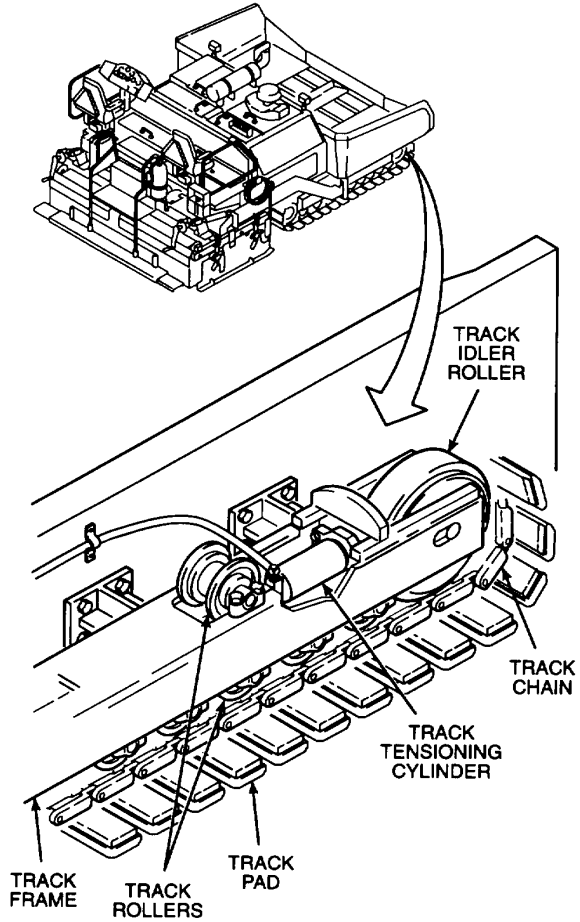
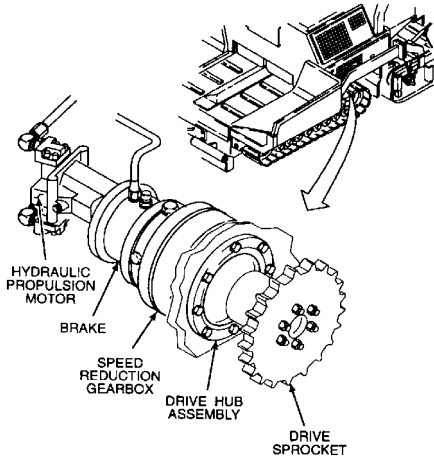
b. **Speed Reduction Gearbox and Brake.** The speed reduction gearbox is mounted to the drive hub assembly from inside the paving machine frame. The gearbox converts a high speed, low torque input to a low speed, high torque output. An integral spring applied hydrostatically released brake engages whenever hydraulic power is lost, or the control handles are placed in the neutral position.

c. **Drive Sprocket Gear.** The drive sprocket gear is directly attached to the drive hub axle internal to the drive hub assembly and connected to the speed reduction gearbox. The axle spins on two sets of conical bearings. The drive sprocket gear is bolted to the outboard face of the drive hub assembly.

d. **Track Idler Roller and Tensioning Cylinder.** The track idler roller slides forward and backward in the track frame. During operation, the track tensioning cylinder keeps a constant load on the idler roller, removing slack from the track chain.

e. **Track Rollers.** Track rollers support the track chain. Two track rollers are mounted to the top of the track frame, and eight are mounted to the bottom of the track frame.

f. **Track Chain.** The track chain consists of interconnected links where each link has a track guide and hardened rubber track pad. This provides a large surface contact area with the ground. The track chain provides the travelling surface for the paving machine and creates traction to allow movement.



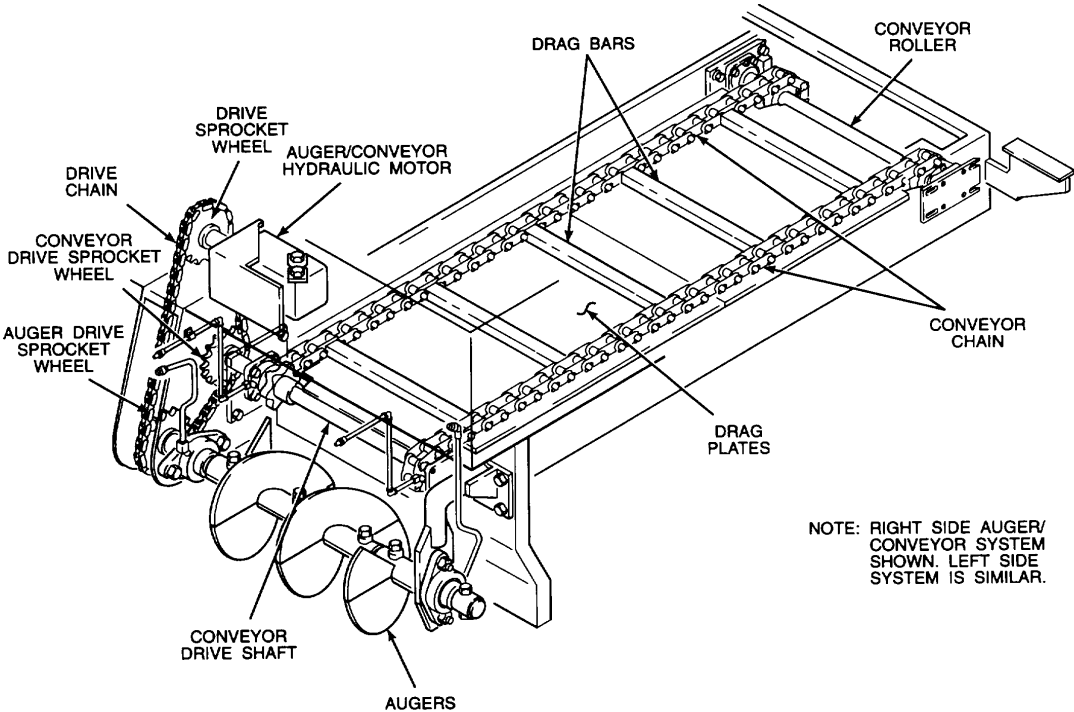
1.12.5. Hopper Auger/Conveyor Systems. The paving machine is equipped with right and left independently controlled auger/conveyor systems. Each system is driven by a hydraulic motor mounted on the main frame bulkhead. The main auger/conveyor system components are as follows:

a. **Conveyors.** There are two conveyors located in the hopper. Each conveyor consists of conveyor rollers, drive shafts, conveyor chains with drag bars, conveyor drive sprocket wheels, and drag plates. When the auger/conveyor system is turned on, the conveyors pull paving material from the hopper back to the augers in front of the screed.

b. **Augers.** Two spiral augers are used to move the paving material deposited by the conveyors. When

the auger/conveyor drive is turned on, the spiral augers spread paving material evenly across the width of the screed.

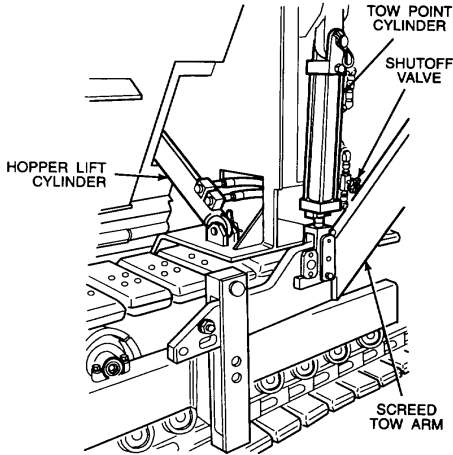
c. **Auger/Conveyor Drive System.** The conveyors and augers are driven by two hydraulic motors. The hydraulic motors are turned on and off at the operator switch panel or at the screed control panels. Reverse control switches on the switch panel allow each conveyor and auger to be run in reverse. Speed control valves can be manually adjusted to speed up or slow down conveyor and auger rotation. Each motor is connected to a drive sprocket wheel and drive chain. The drive chain engages with the conveyor drive sprocket wheel and auger drive sprocket wheel. The position of the motors and sprocket wheels is adjustable for maintaining chain tension.



1.12.6. Hydraulic Cylinders. Several equipment motions are controlled by hydraulic cylinders. The location and description of these cylinders are as follows:

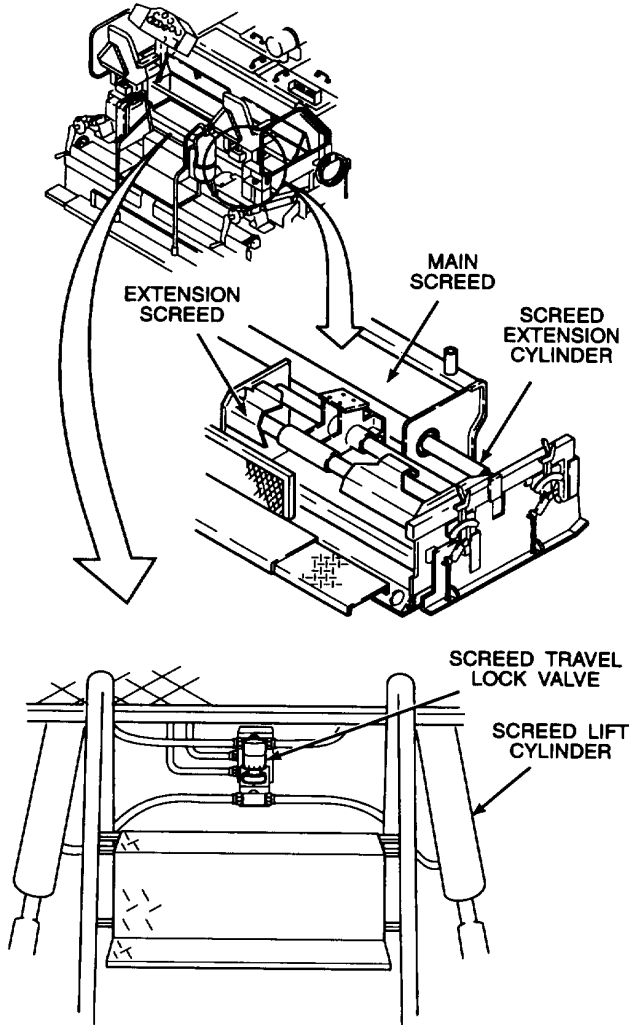
a. Hopper Lift Cylinders. The hopper lift cylinders raise or lower the hopper wings to receive material from a material handling truck, or feed material into the conveyors. The hopper lift cylinders are located on each side of the hopper. The cylinders are controlled from the operator switch panel.

b. Tow Point Cylinders. The tow point cylinders are used to raise or lower the leading ends of the screed tow arms to change the screed tow point. This adjustment changes the depth of the attack angle adjustment. The tow point cylinders can be controlled from switches on operator switch panel and screed control panels. Hydraulic oil to the tow point cylinder is through a manual shutoff valve and a pressure relief valve. When the tow point cylinder is not used (disconnected) and the screed tow arm pinned, the shutoff valve should be closed to prevent movement of the tow point cylinder. The relief valve allows for relief of excessive pressure from damaging the tow point cylinder should the screed run over an obstacle causing pressure on the tow point cylinder.



c. Screed Lift Cylinders. The screed lift cylinders raise the screed to the travel position and lower the screed for paving. The screed lift cylinders are controlled from the operator switch panel. When in the raised position, the screed travel lock valve must be closed for safety. Closing the screed travel lock valve closes the lift cylinder bleed circuits, allowing the screed to be raised, but not lowered. The screed travel lock valve must be partially opened and screed lift switch placed in the down, FLOAT, position to lower the screed.

d. Screed Extension Cylinders. The screed extension cylinders are located inside the main screed. The extension cylinders move the extension screeds in and out. This function is used to widen or narrow the width of the screed contact surface. The screed extension cylinders can be controlled from the operator switch panel and the screed control panels.

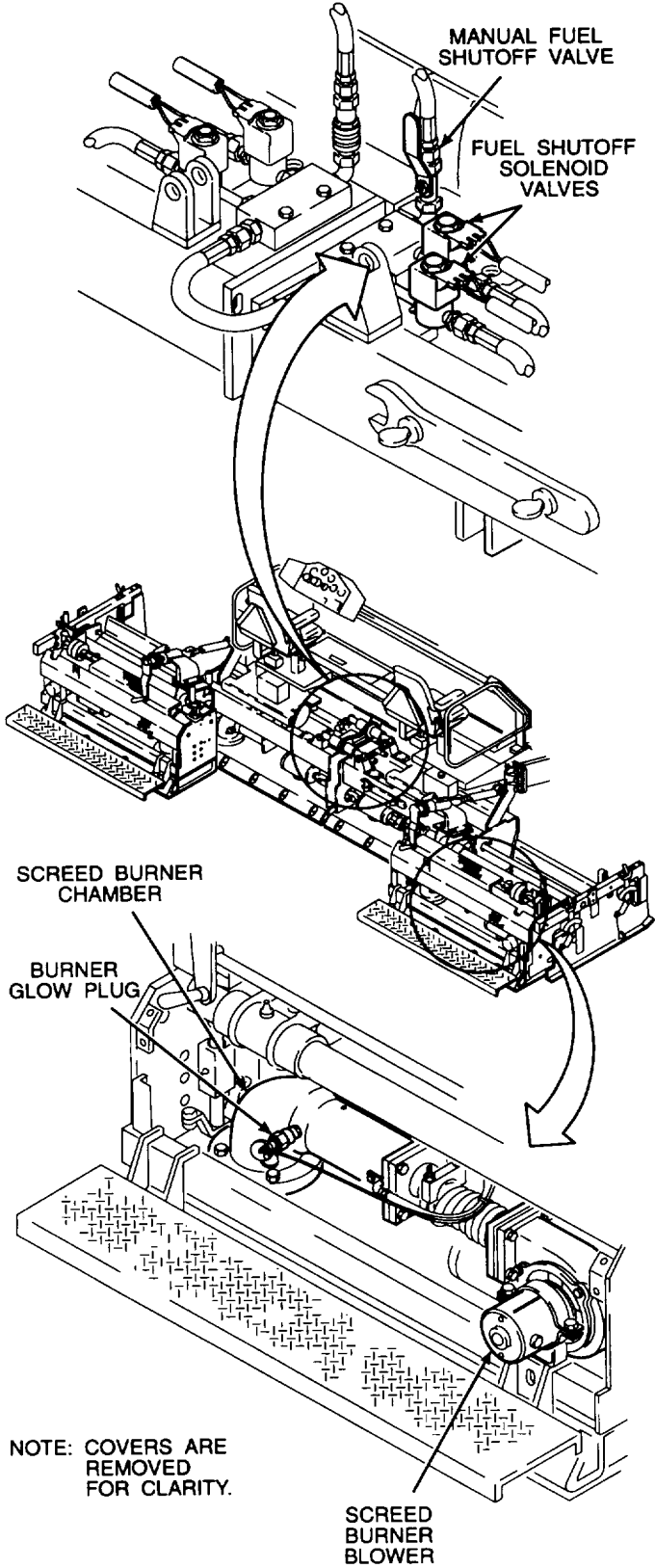


1.12.7. Screed Burner System. A screed burner system is located in each of the main and extension screeds. The burner systems are used to heat screed plates to approximately the same temperature as the paving material. Heating the screed plates prevents hot aggregate mixtures from cooling and sticking to the bottom of the screed. The left burner systems are controlled from the left screed control panel. The right burner systems are controlled from the right screed control panel. The main screed burner system components are as follows:

a. Screed Burner Chambers. Separate burner chambers are located on the left and right sides of the main screed and on the left and right extension screeds. A fuel spray nozzle and forced air duct are located on the input side of the burner chamber. When burner fuel flow is turned on, the spray nozzle atomizes the incoming fuel and the fuel is ignited by a 12 VDC glow plug. In normal use, fuel combustion continues until the fuel flow is shut off.

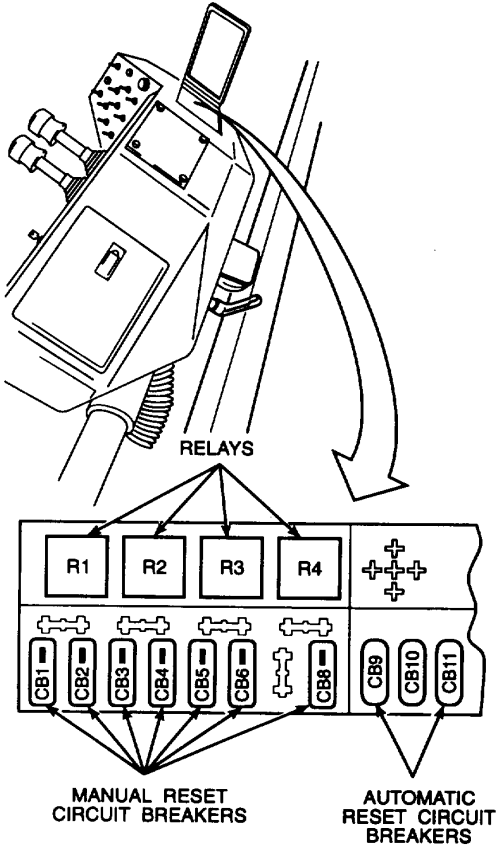
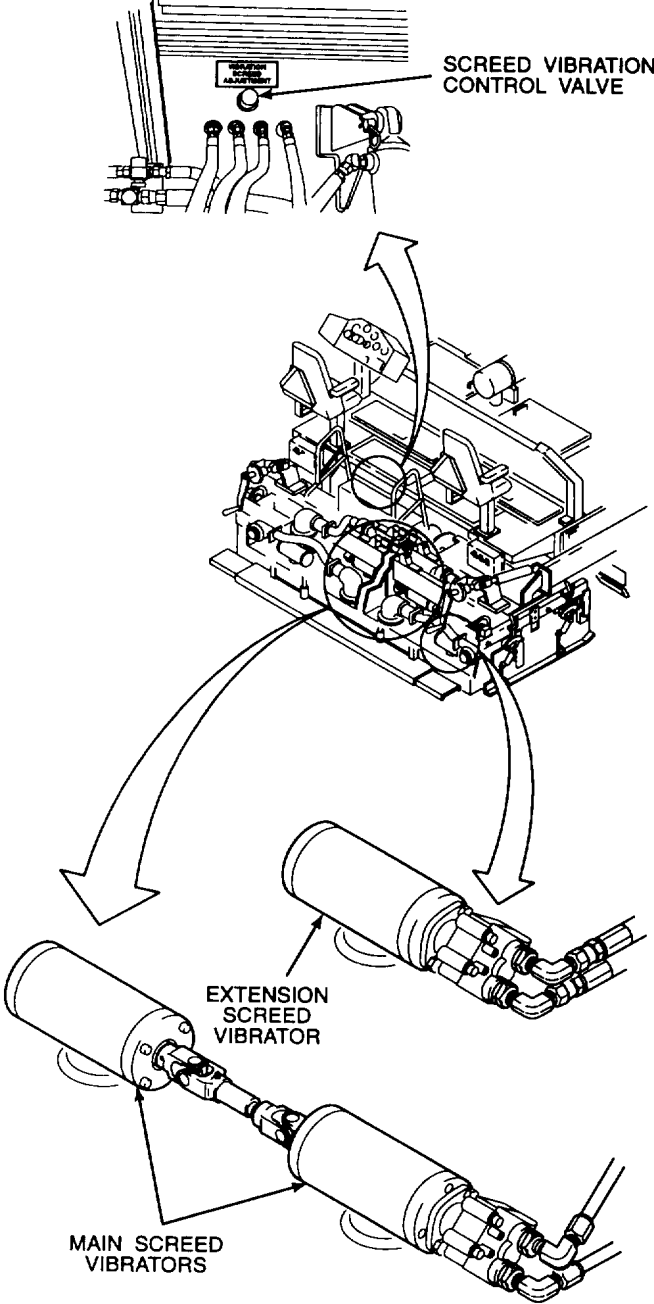
b. Screed Burner Blowers. The burner blowers consist of a fan rotor mounted on the shaft of a 12 VDC motor. The blowers force combustion air into the burner chambers for increased combustion efficiency. The blower motors are controlled from both left and right screed control panels.

c. Manual Fuel Shutoff Valves. Manual fuel shutoff valves are used to turn fuel flow on and off to the burner chambers. The paving machine is equipped with four solenoid controlled valves controlling fuel flow to each screed burner. The +12 VDC solenoid valves are activated by switches on the screed control panels. The manual fuel shutoff valve provides a backup shutoff capability in case of solenoid valve failure.



1.12.8. Screed Vibrators. Screed vibrators are located on the main screed and left and right extension screeds. The vibrators are eccentric weighted shafts driven by hydraulic motors. Rotation of the eccentric shaft causes the screed to vibrate. The vibrator motors are turned on and off at the operator switch panel. When the switch is placed up, "AUTO" position, the vibrators run only when the paving machine is travelling forward. An adjustable flow control is used to adjust vibration frequency. The vibrators are used to compact the paving material passing underneath the screed plates.

1.12.9. Relay and Circuit Breaker Panel. A relay and circuit breaker panel is located inside the operator control panel. The relay and breaker panel is equipped with four relays and ten circuit breakers. Two relays turn separate voltages on and off to the neutral start and engine induction heater relays located on the voltage transformer panel. The other two relays control automatic functions of the screed vibration and auger/conveyor drives. There are seven manual reset circuit breakers and three breakers that automatically reset 10 seconds after an overload condition is removed.



1.13. EQUIPMENT DATA.

DIMENSIONS

Overall Length 192 in (4,88 m)
 Overall Height..... 101 in (2,56 m)

Width, Hopper Down 130 in (3,30 m)
 Width, Hopper Up 104 in (2,64 m)

Main Screed Plate 14 in x 96 in.
 (356 x 2438 mm)
 Extension Screed Plate 14 in x 43 in.
 (356 x 915 mm)
 Screed Plate Thickness.....0.375 in(9,53 mm)

WEIGHT

Shipping..... 19,900 lb (9000 kg)
 Operational.....21,200 lb (9616 kg)

CAPACITIES

Hopper..... 16,000 lb (7258 kg)
 JP8 Fuel 28 gal (106 e)
 Hydraulic Oil 32 gal (121 Q)
 Engine Oil..... 7.7 qt (7,3 l)
 Speed Reduction Drive Gear Lube 4.6 pt (2,2 Q)
 Pump Drive Gear Lube..... 4.5 pt (2,13 l)
 Engine Coolant..... 6.5 gal (24,6 l)

TRAVEL SPEED) 0 to 3.2 mph (0 to 5,2 kph)

PAVING PARAMETERS

Width, Standard..... 8 to 14 ft
 (2,4 to 4,3 m)
 With Cutoff Shoes,
 Extensions 4 to 16 ft
 (1,2 to 4,9 m)
 Thickness 0 to 8 in
 (0 to 20 cm)
 Positive Crown..... 2 in (50 mm)
 Negative Crown..... 1 in (25 mm)
 Paving Speed 0 to 135 fpm
 (0 to 41 mpm)

TRACKS

Length (on ground) 73 in (186 cm)
 Pad Width 12 in (30,5 cm)

TRACK TENSION CYLINDERS

Type Hydraulic cylinder
 Make Texas Hydraulics
 Model R3400304800AZ
 Bore..... 3.5 in (89 mm)
 Rod Diameter 3.0 in (76 mm)
 Stroke..... 3.0 in (76 mm)
 Operating Pressure 2000 psi (13 790 kPa)

ENGINE

Model Perkins T4.236
 Type Diesel, 4-stroke
 Cylinder Arrangement Vertical, in-line
 Combustion System Direct injection
 Bore..... 3.875 in(98,4 mm)
 Stroke..... 5.00 in (127 mm)
 Compression Ratio 15.5:1
 Firing Order 1-3-4-2
 Dry Weight,
 Less Accessories 611 lb (277 kg)
 Horsepower..... 102 bhp @ 2,600 rpm

INJECTION PUMP

Make Lucas
 Type 550
 Operating Pressure 440 psi (3034 kPa)

TURBOSUPERCHARGER

Oil Pressure 30 psi (207 kPa) minimum
 Maximum Boost
 Pressure..... 11 to 13.5 psi (76 to 93 kPa)

STARTER

Make Delco-Remy
 Series 28MT-24V
 Type 171
 Model 10479605

ALTERNATOR

Make Bosch
 Series 0120488206
 Model K1-28V 3/45A
 Output Voltage +24 VDC

1.13. EQUIPMENT DATA - Continued.

VOLTAGE TRANSFORMER

Make.....Sure Power Industries, Inc.
 Model.....DUVAC II (41203)
 Input.....+12 VDC
 Output.....+24 VDC
 Output Current.....20 amperes, maximum

BATTERIES

Make.....Douglas Battery Mfg Co.
 Model.....31-5T
 Cold Cranking Current.....1000 amperes
 Engine Starting Voltage.....+24 VDC
 Operating Systems Voltage.....+12 VDC

AIR CLEANER

Make.....Donaldson Co.
 Model.....FWG08-0026
 Filter ElementP10-1246

FUEL FILTER

Make.....Perkins
 Element TypePaper
 Valve Type.....Vent, gravity feed

FUEL/WATER SEPARATOR

Make.....Perkins
 Model.....LZV002A317
 Drain Type.....Screw, gravity vent

HYDRAULIC PROPULSION PUMP

Make.....Sauer- Sunstrand
 Model.....M46-2695
 Type.....Variable displacement
 Pressure5000 psi (34475 kPa)
 Flow RateVariable, 0 to 2.8 cu in./rev.
 (0 to 0,046 {/rev.)

HYDRAULIC PROPULSION MOTOR

Make.....Linde Hydraulics Corp.
 Model.....BMV50.2CX-X-CM-CS-15-X-X
 Type.....12040013
 Pressure6000 psi
 (41 370 kPa) maximum
 Flow Rate1.53 to 3.06 cu in./rev.
 (0,025 to 0,050 V/rev.)
 Maximum Speed4200 rpm

SPEED REDUCTION GEARBOX (WITH BRAKE)

MakeReginna
 Model443900
 TypeRR750TF6S/1.016
 Ratio.....65:1
 Service Brake.....Hydrostatic, spring-engaged, hydraulic
 release, multiple disc, planetary drive
 Brake Release Pressure350 psi (2413 kPa)

HIGH SPEED SHIFT VALVE

MakeCamel Precision Co., Ltd.
 ModelWE 42-G02-B2
 Type2-speed

AUXILIARY HYDRAULIC PUMP

MakeEaton
 Model24383LAH
 Pressure.....2500 psi (17 238 kPa)
 Flow Rate7.9 gpm (30 /min)
 @ 3000 rpm

AUXILIARY VIBRATION PUMP

MakeIngersoll-Rand (Rework)
 Part Number.....13014741
 Pressure.....2500 psi (17 238 kPa)
 Flow Rate1.03 gpm (3,9 l/min)
 @ 3000 rpm

HYDRAULIC STACK VALVE

MakeDelta Power Hydraulic
 TypeSolenoid actuated
 Number of Controls5
 Operating pressure2500 psi (17 238 kPa)

HOPPER LIFT CYLINDERS

MakeTexas Hydraulics
 ModelS20012616SPAZ
 Bore.....2.0 in (51 mm)
 Rod Diameter.....1.0 in (25,4 mm)
 Stroke.....12.75 in(324 mm)
 Operating Pressure.....3000 psi (20 685 kPa)

SCREED EXTENSION CYLINDER

MakeTexas Hydraulics
 ModelS20036020SHAZ
 Bore.....1.0 in (25,4 mm)
 Stroke.....36.0 in (914,4 mm)
 Operating Pressure.....3000 psi (20 685 kPa)

1.13. EQUIPMENT DATA - Continued.

SCREED LIFT CYLINDERS

Make.....Texas Hydraulics
 Model.....S20015016SPAZ
 Bore.....2.0 in (51 mm)
 Rod Diameter1.0 in (25,4 mm)
 Stroke15.0 in (381 mm)
 Operating Pressure3000 psi (20 685 kPa)

TOW POINT CYLINDER

Make.....Prince Mfg Co.
 Model.....SAE 8410
 Bore.....2 in (51 mm)
 Rod Diameter1 in (25,4 mm)
 Stroke10 in (254 mm)
 Operating Pressure2500 psi (17 238 kPa)

SCREED VIBRATION MOTOR

MakeGressen Mfg Co.
 ModelMGG20020BAIA3
 Operating Pressure2000 psi
 (13 790 kPa) continuous
 Flow rate1.95 gpm (7,38 l/min.)
 Vibration Frequency0 to 33.3 Hz

FIRE EXTINGUISHER

PortableDry chemical, 18 lb (8,2 kg)
 MakeKidde Fire Extinguisher Co.
 ModelPRO20TCM
 Rated10-A:80-BC

SECTION III. PRINCIPLES OF OPERATION

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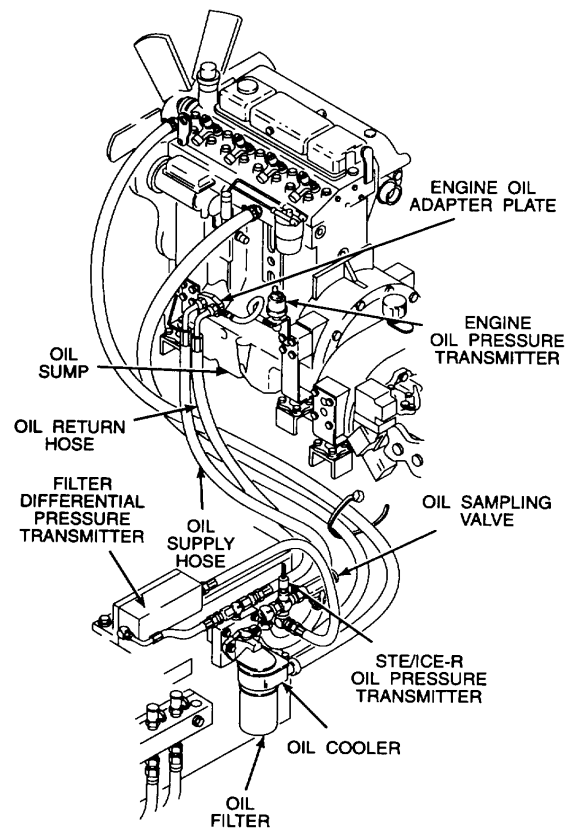
1.14. ENGINE LUBRICATION SYSTEM.

The main components of the engine lubrication system include the oil pump, oil cooler, oil filter, and oil pressure sensing devices. The lubrication of the engine is of the force feed type. The oil is circulated by a gear type pump internal to the engine balancer unit mounted to the bottom of the engine block inside the oil sump. The oil is drawn through a sump strainer tube to the pump. Oil is then pumped to the engine internal oil passages.

The oil pump provides a high pressure oil flow to a through port on the engine oil adapter plate. A supply hose connected to the port routes the high pressure oil to the oil cooler and filter. A pressure tap off the high pressure port supplies oil to an engine oil pressure transmitter. The resistance of the transmitter changes based on the sensed oil pressure. A pressure gauge on the operator gauge panel displays the oil pressure.

Inside the oil cooler high pressure oil flows through cooling vanes and into the oil filter. Engine coolant circulates through the oil cooler, removing excess heat from the engine oil. A replaceable filter element in the oil filter removes particulates from the engine oil. Filtered oil is routed back to the return port on the engine oil adapter plate. Oil returned from cooling and filtration flows into the engine oil gallery inside the engine block. The oil is then routed throughout the engine.

An oil sampling valve and STE/ICER oil pressure transmitter are located at the input to the oil cooler and filter. Oil filter input and output pressures are monitored by a differential pressure transmitter. When filter contamination inhibits oil flow, the transmitter turns on. The transmitter condition can be detected at the DCA connector using STE/ICER Test Nos. 35 and 36.



1.15. FUEL SYSTEM.

1.15.1. Engine Combustion Fuel System.

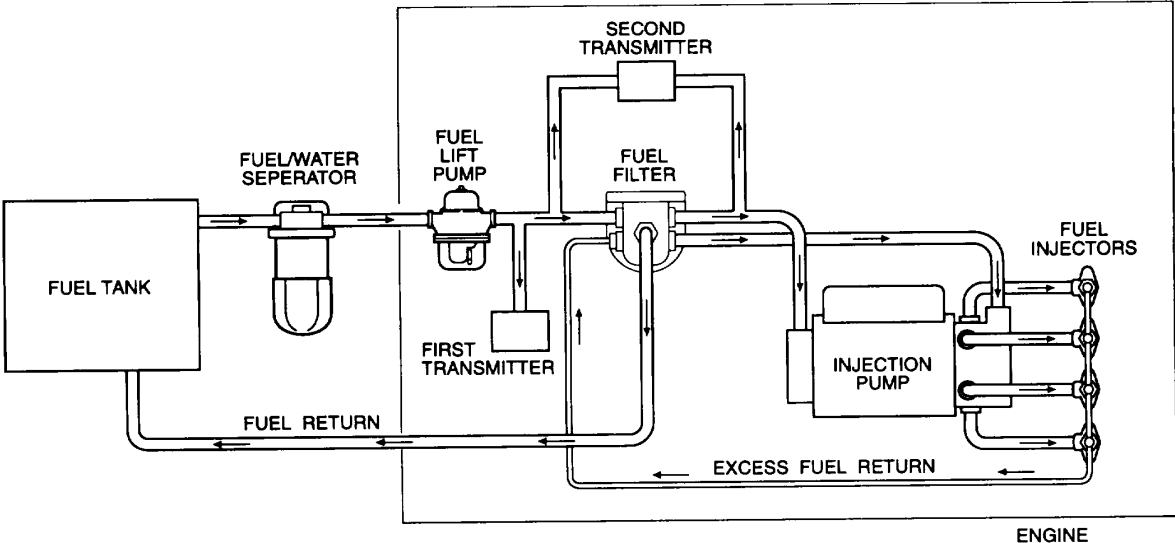
The engine combustion fuel system consists of a fuel tank, fuel/water separator, fuel lift pump, fuel filter, two test transmitters, fuel injection pump, and engine fuel injectors.

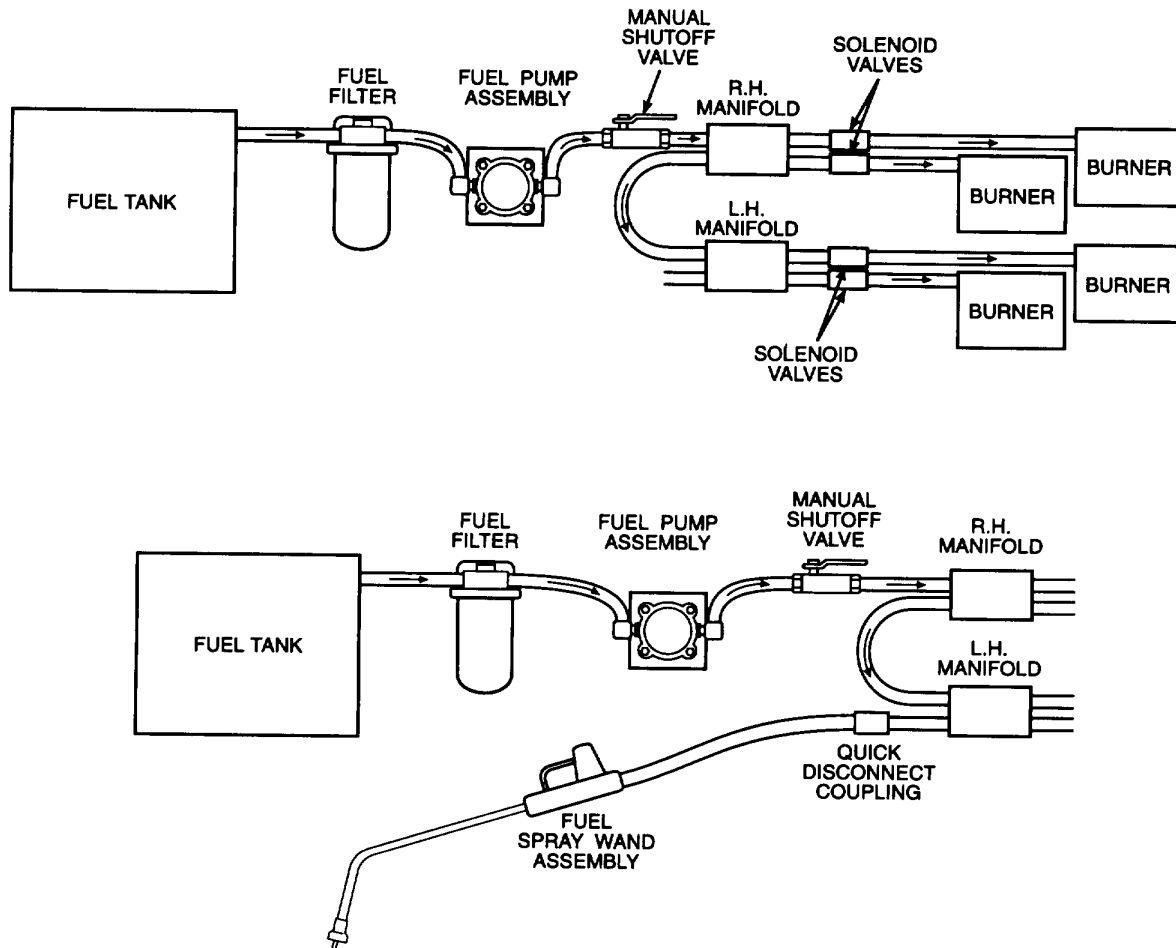
The fuel tank is a 28 gal (106 Q) fuel storage source for the paving machine. The fuel tank fill contains a strainer for filtering out large particles. An electrical fuel level transmitter controls the fuel gauge on the operator control panel. The fuel tank outputs to a fuel/water separator.

A diaphragm-type fuel lift pump draws fuel from the fuel tank through a fuel/water separator, forcing the fuel on to the test transmitters and the fuel filter. The fuel pump is driven by an eccentric on the engine cam. A lever on the fuel pump can be used to manually feed fuel through the system.

The fuel pump output is sent to the first transmitter which measures fuel pressure for use by the STE/ICER Test Set, Test No. 24. The second transmitter measures fuel pressure into the fuel filter and compares it with the fuel pressure out of the fuel filter for STE/ICER Test No. 26. The fuel filter has two inputs that remove impurities from the fuel supply through a filter. One input is from the fuel lift pump and the second input is from the overflow of the injectors on the engine. Two outputs from the fuel filter feed the injection pump. A third output is a return to the fuel tank for excess fuel.

Fuel is forced from the fuel filter to a fuel injection pump. This pump uses both a high pressure and a low pressure input. The pump is driven by engine timing gears to provide fuel to each cylinder injector. Excess fuel supplied to the injectors is returned to the fuel filter.





1.15.2. Screed Burner Fuel System. The screed burner fuel system consists of fuel tank, fuel filter, fuel pump assembly, manual shutoff valve, two manifolds, four solenoid valves, and four screed burners.

The fuel filter has one input and one output. The filter removes impurities from the fuel supply by passing the fuel through a filter. From the filter, the fuel is sent to a fuel pump assembly.

The fuel pump assembly consists of an electric motor shaft coupled to a single stage pump. The motor is controlled from the left screed control panel. The pump has a continuous output of 7 gph (26 V/hr).

From the fuel pump, fuel is supplied to a manifold through a manual shutoff valve.

The right hand manifold is a divider with one input and three outputs. One output is the input to the left hand manifold. The remaining two outputs are to the screed burners on the right side of the screed. The left hand manifold has one output used

by the spray wand assembly and two outputs for the screed burners on the left side of the screed.

Electrical solenoid valves control the flow of fuel from the manifolds to the burners. These valves are controlled by separate switches on the screed control panels. This allows for independent burner operation.

1.15.3. Washdown Spray Assembly Fuel System.

The washdown spray assembly fuel system consists of fuel tank, fuel filter, fuel pump assembly, manual shutoff valve, two manifolds, four solenoid valves, and spray wand assembly. The fuel pump that draws fuel to the screed burners also provides fuel for the spray washdown system.

The spray wand assembly consists of a 10 ft (3 m) quick disconnect hose, fitting, and a trigger type control wand. The spray wand assembly is primarily used to spray fuel on components that are directly exposed to paving material. This prevents paving material from sticking, and allows the material to be removed from machine components by scraping or other mechanical means.

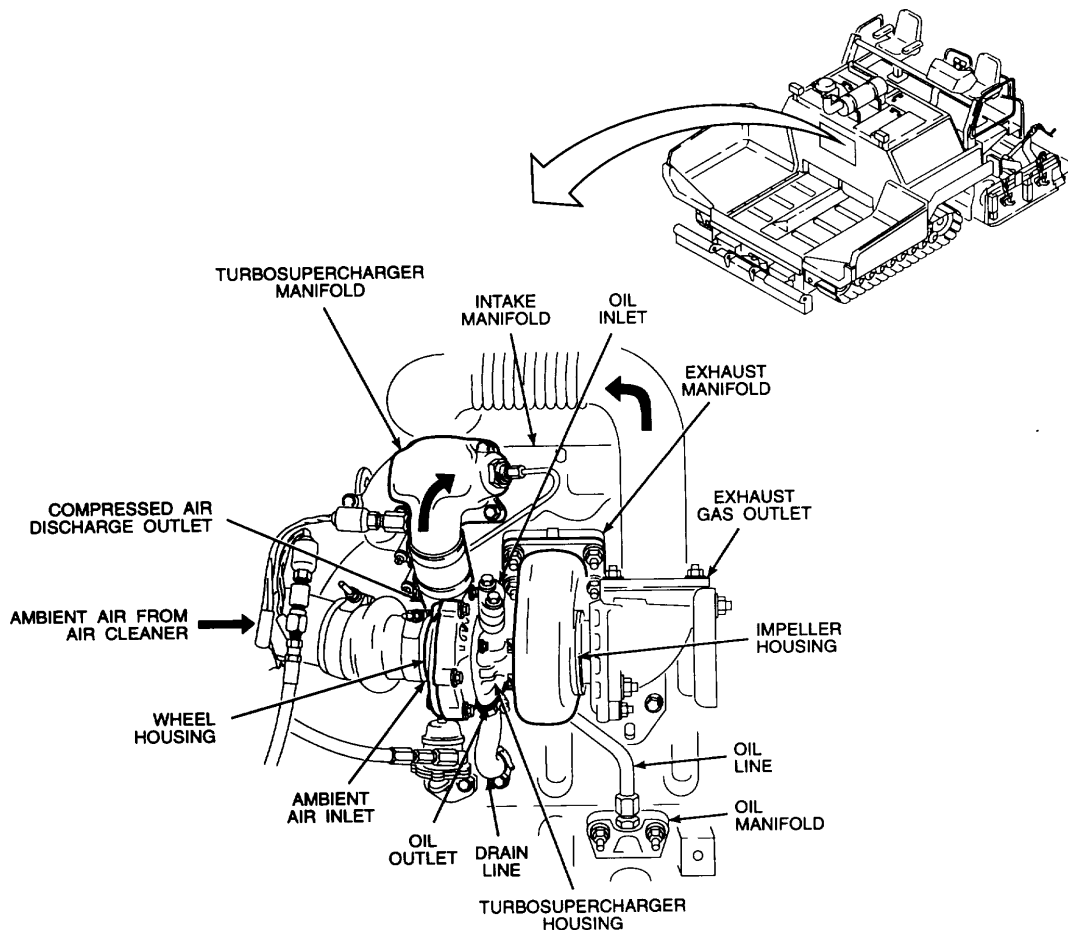
1.16. TURBOSUPERCHARGER.

The turbosupercharger is designed to increase the overall efficiency of the engine. Power to drive the turbosupercharger is extracted from the waste energy in the engine exhaust gas.

The turbosupercharger consists of a wheel housing, turbosupercharger housing and impeller housing. The wheel housing, which encloses the turbosupercharger housing provides an ambient air inlet and a compressed air discharge outlet connected to the intake turbosupercharger manifold. The center turbosupercharger housing has a radial inward flow compressor wheel, impeller shaft, and center lubrication connections for oil inlet and oil outlet fittings. The turbosupercharger housing serves to support the rotating assembly, bearings, and seals. The impeller housing consists of the exhaust gas outlet and provides the mounting surface to the exhaust manifold.

The turbosupercharger receives air from the air cleaner to the ambient air inlet. The power of the exhaust gas drives the impeller shaft inside the impeller housing. This force is transmitted to the turbosupercharger housing where air is drawn through the ambient air inlet and compressed. The compressed air flows out of the turbosupercharger housing into the compressed air discharge outlet, and into the intake manifold on the engine.

Lubricating oil for the turbosupercharger is supplied under pressure through the engine oil adapter plate. From the adapter plate, the oil flows into an oil line which is connected to the oil inlet on the turbosupercharger housing. The oil returns by gravity to the engine oil sump through an external oil line extending from the oil outlet into a drain line and back into the engine.



1.17. ENGINE COOLING SYSTEM.

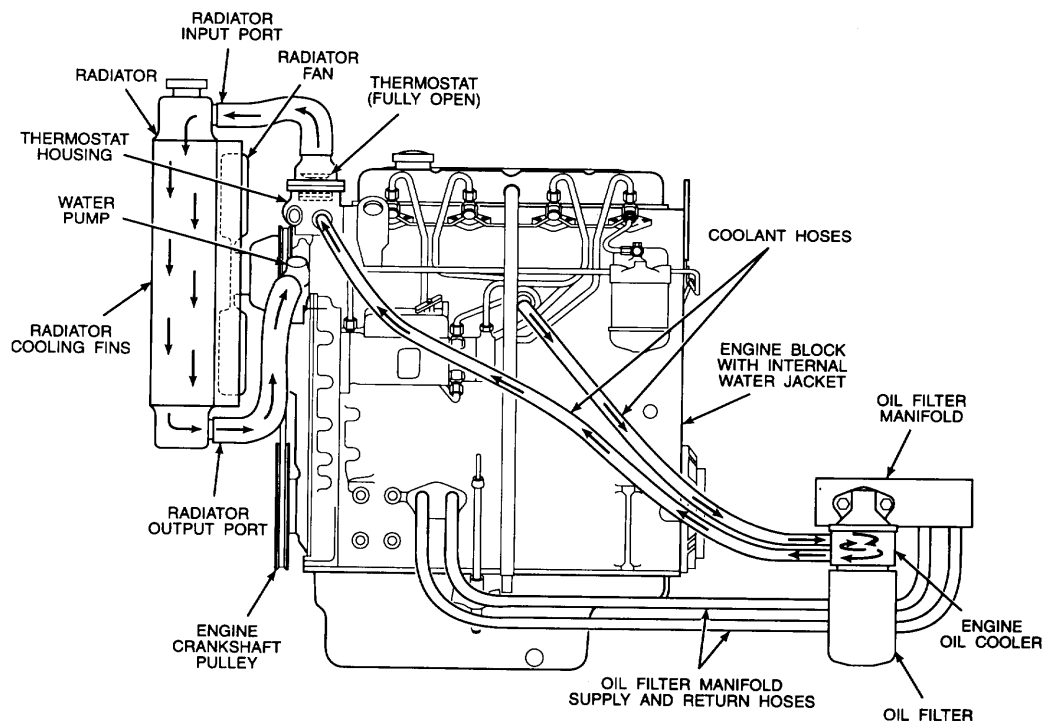
The engine cooling system is a closed loop system; engine coolant is contained and recirculated within the system. The system includes a radiator, radiator fan, water pump, engine water jacket, and thermostat. A remote mounted engine oil cooler is also included. Engine coolant flow through the oil cooler removes excess heat from the engine oil as it recirculates through the oil filter manifold and oil filter. Ancillary devices (not shown) include a water temperature sensor and gauge, a high temperature shutdown sensor and fuel shutoff solenoid, and a DCA transducer.

The radiator fan and water pump are belt driven by the engine crankshaft pulley. The water pump circulates coolant whenever the engine is running. The pump directs the coolant flow into a water jacket that surrounds the engine cylinders and cylinder head. The water jacket channels the output flow from the water pump to the bottom of the engine. A thermostat housing is located at the top of the engine. Increased fluid pressure within the water jacket forces coolant to flow through either a bypass port or output port in the thermostat housing. The bypass port leads to the input side of the water pump. The output port is connected to the radiator input port. A pair of coolant hoses also provides a continuous flow of coolant to and from the engine oil cooler.

When the engine is first started, the thermostat is closed. The closed thermostat opens the bypass port to the water pump and shuts off coolant flow to the radiator. The coolant continues to recirculate through the water pump, oil cooler, and water jacket while the engine warms up.

When the temperature of the recirculating coolant reaches 177°F (80°C), the thermostat starts to open, which diverts some of the coolant flow from the bypass port to the radiator input port. When the coolant temperature reaches 208°F (98°C), the thermostat completely opens. The fully open thermostat shuts off the bypass port, which sends the full flow of coolant to the radiator input port. Increased fluid pressure within the radiator forces an equal volume of coolant out of the radiator output port and back to the water pump.

While the heated coolant flows through the radiator, the radiator fan pulls a flow of outside air through the radiator cooling fins, which removes heat from the recirculating coolant. At normal engine operating temperatures, the expected temperature drop across the radiator circuit (input port to output port) is approximately 10°F (5°C).



1.18. PAVING MACHINE ELECTRICAL SYSTEM.

The paving machine electrical system is a 12 VDC system with the exception of a 24 VDC alternator and 24 VDC engine starter. Two 12 VDC wet storage batteries are used in series as the power source. An electronic voltage transformer allows for both the 12 VDC and the 24 VDC to be used without interference. Details of the individual circuits are explained in the following paragraphs.

1.18.1. Electrical System Power Distribution. The paving machine battery supplies 12 VDC to the voltage transformer.

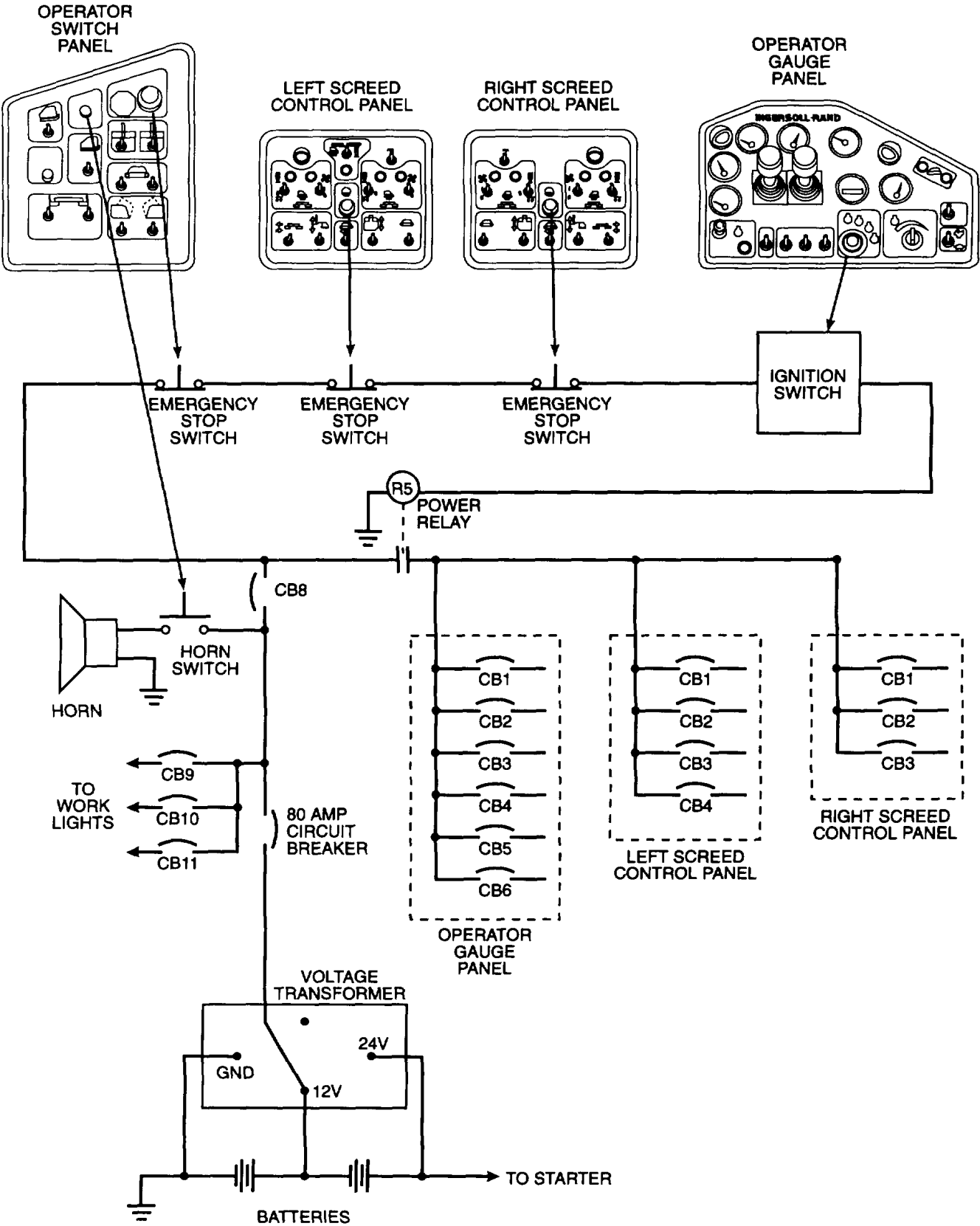
From the voltage transformer, this 12 VDC is routed to the 80 amp circuit breaker. Through the 80 amp circuit breaker, 12 VDC is applied to the contacts of the power relay, the horn switch, and to circuit breakers (CB) 8 through 11.

The voltage through CB8 is sent to the emergency stop switch on the operator switch panel. From the operator emergency stop switch, the voltage is sent to the emergency stop switches on the screed control panels. With all three

emergency stop switches in the normal, pulled out position, the voltage is applied to the ignition switch. In all positions of the ignition switch other than STOP, the voltage is applied to the coil of the power relay (R5). When any of the three emergency stop switches is pushed in, all power to the paving machine is turned off, except to the horn and the work lights.

With power relay (R5) energized, 12 VDC is passed through the contacts of the power relay to supply voltage to CBI through CB6 on the operator gauge panel. Power is also supplied to CB11 through CB4 on the left screed control panel and CB 1 through CB3 on the right screed control panel.

CB9 through CB11 supply power to the work light switches on the operator gauge panel.



1.18.2. Battery/Starting Circuit. The engine starting circuit is controlled by the fuel shutoff solenoid and start relay. The fuel shutoff solenoid is energized through contacts in the high temperature shutdown sensor and the DCA engine test switch. The start relay is energized through relays controlled by the control handles.

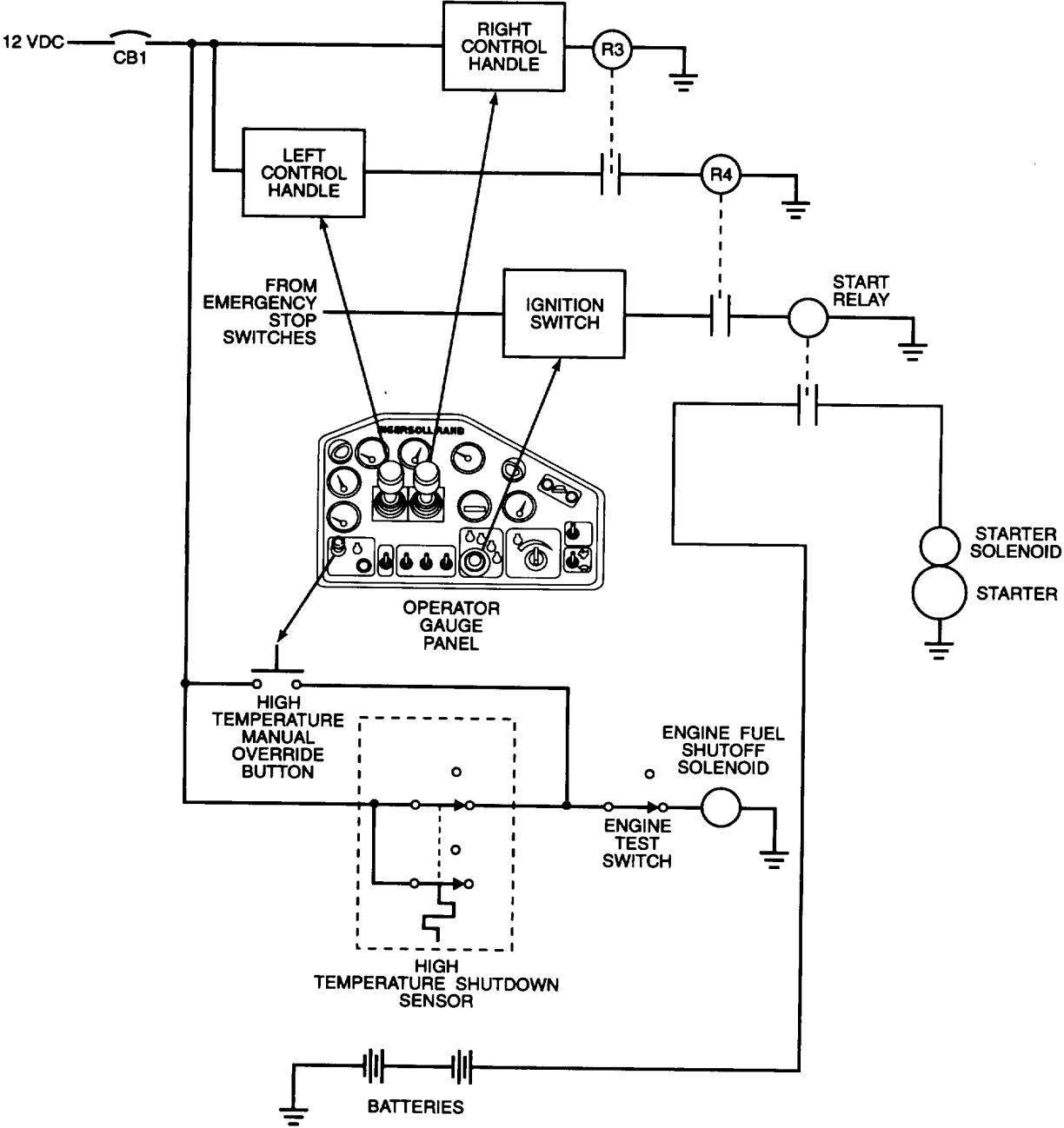
Electrical power at 12 VDC is supplied from CB1 to the normally closed contacts of the high temperature shutdown sensor. When engine temperature is below 220°F (105°C), the 12 VDC passes through the temperature shutdown sensor to the DCA engine test switch. The DCA ENGINE CRANK switch spring return the closed position and is only used when testing the engine. The electrical power passes through the ENGINE CRANK switch to energize the fuel shutoff solenoid.

When engine temperature is above 220°F (105°C), the high temperature shutdown sensor contacts open and prevent the fuel shutoff solenoid from being energized. This cuts off fuel to the engine and prevents the engine from being started. In emergencies, the high temperature manual override button may

be pushed and held to allow starting the engine. The override button supplies power to the engine fuel shutoff solenoid from CBI as long as the button is held. This bypasses the engine high temperature shutdown sensor.

Electrical power from CB1 is also routed to both control handles. With the left control handle in the center detent position, the control handle sends a 12 VDC signal to the contacts of relay R3. With the right control handle in the center detent position, the control handle passes a 12 VDC signal which energizes relay R3. This closes the contacts of relay R4. With relay R4 energized, the start position of the ignition switch sends 12 VDC through the contacts of relay R4. This signal energizes the coil of the start relay. The batteries send 24 VDC through the contacts of the start relay, engaging the starter solenoid and turning the starter.

Releasing the ignition switch from the "START" position removes the voltage from the coil of the start relay and disengages the starter.



1.18.3. Alternator/Charging Circuits. The alternator/charging circuits consist of the alternator, voltage transformer, and the storage batteries.

The alternator is belt driven from the crankshaft pulley on the paving machine engine. Alternating current (AC) is generated as the coils of the rotor pass a pair of magnetic poles in the stator. The AC is rectified to direct current (DC) through a series of diodes, which form a rectifier circuit.

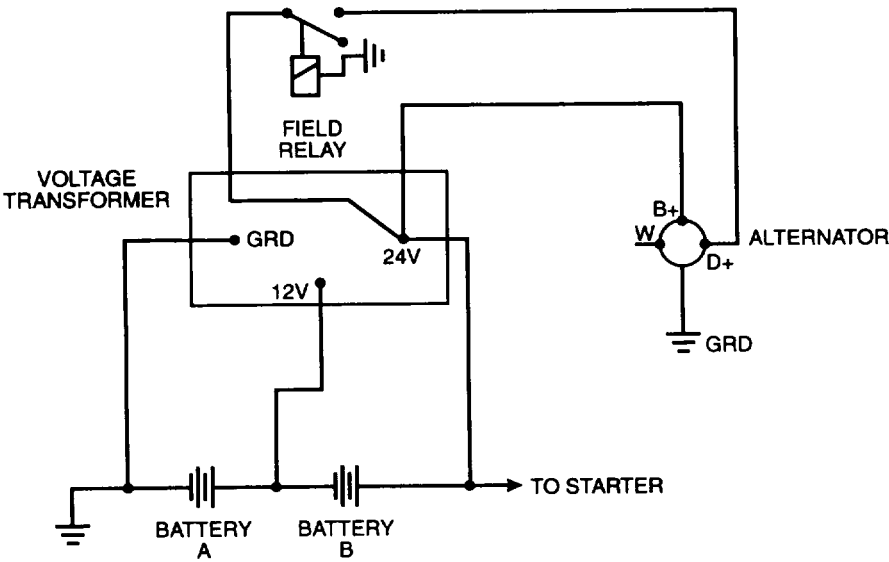
Batteries A and B are connected in series to supply 24 V to the 24 V post on the voltage transformer. When the ignition switch is turned on, the field relay closes sending 24 VDC excitation voltage to the alternator D+ terminal for engine initial startup. The 24 V output charging voltage of alternator B+ terminal is directly connected to the 24 V post on the voltage transformer. The 24 VDC output of the voltage transformer is applied to the POS terminal of battery B. Because 12 VDC is applied to the NEG terminal and 24 VDC is sent to the POS terminal, the batteries are charged with a difference of 12 VDC. The voltage transformer simply converts the 24 VDC into 12 VDC to charge the batteries.

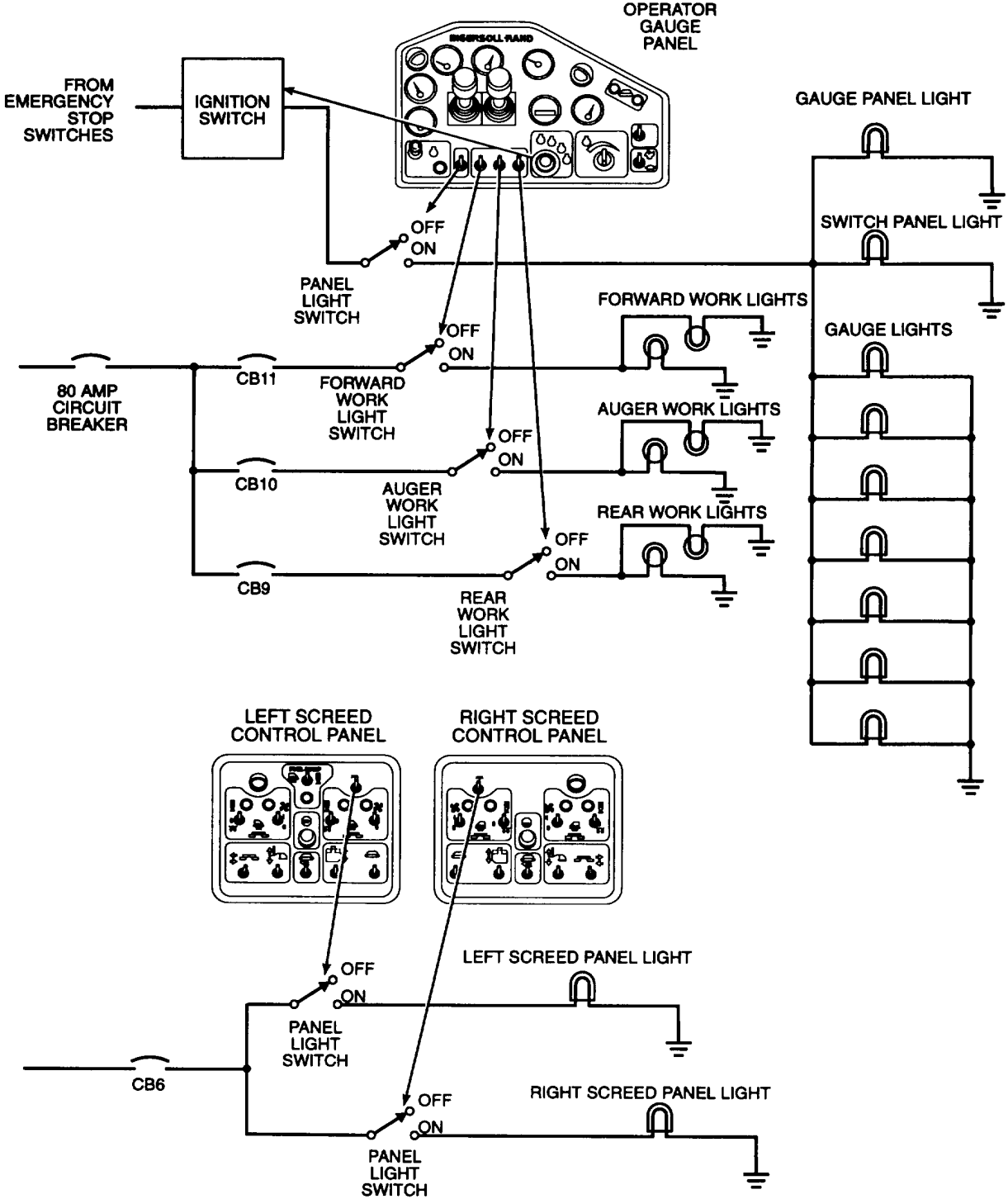
1.18.4. Paving Lighting Circuits. Operator control panel lights, instrument lights, and work lights are controlled from the operator gauge panel. Screenshot control panel lights are controlled from the screed control panels. All paving machine lights are operated by toggle switches.

The ignition switch receives power from CB8 through the three emergency stop switches. When in the ON position, the ignition switch supplies 12 VDC power to the panel light switch. Where the panel light switch is in the up, ON position, the operator gauge panel and operator switch panel lights are lit. The gauges on the operator gauge panel also have internal lights that are lit when the panel light switch is ON.

12 VDC from the 80 amp circuit breaker feeds power to the rear work lights through CB9, the auger work lights through CB 10, and the forward work lights through CB 11. Each circuit breaker feeds a toggle switch on the operator gauge panel for independent control of each light.

CB6 supplies 12 VDC to the left and right screed control panels for panel lights. The 12 VDC is applied to a toggle switch that controls the panel lights.





1.18.5. Engine Controls and Indicators Circuit. The engine controls consist of the high temperature shutdown circuit and high temperature manual override button. The indicator circuits service all the individual gauges on the operator gauge panel. The engine can be stopped in an emergency using any of the emergency stop switches on the operator switch panel or either screed control panel. High engine temperature can also shut down the engine when the temperature exceeds the normal operating range.

The engine starting circuit supplies 12 VDC to the high temperature shutdown sensor. When engine temperature is less than 220°F (105°C), the 12 VDC is passed through the temperature shutdown sensor and DCA engine test switch to energize the fuel shutoff solenoid.

When the coolant temperature reaches 214°F (101°C), the high temperature shutdown sensor engages, illuminating the high temperature warning light on the operator gauge panel. When the coolant temperature reaches 220°F (105°C), the high temperature shutdown sensor switch will open, removing the 12 VDC to the engine fuel shutoff solenoid and shutting down the engine. By pressing and holding the high temperature manual override button on the operator gauge panel, 12 VDC from CBI is routed to the engine fuel shutoff solenoid. This will allow the engine to start and operate as long as the override button is held.

All engine instruments are located on the operator gauge panel. The voltage for all the instruments is supplied from the "ON" position of the ignition switch. Each gauge, with the exception of the voltmeter, is controlled by a separate transmitter. The voltmeter uses the power directly from the ignition switch. Each individual instrument circuit is discussed in the following paragraphs.

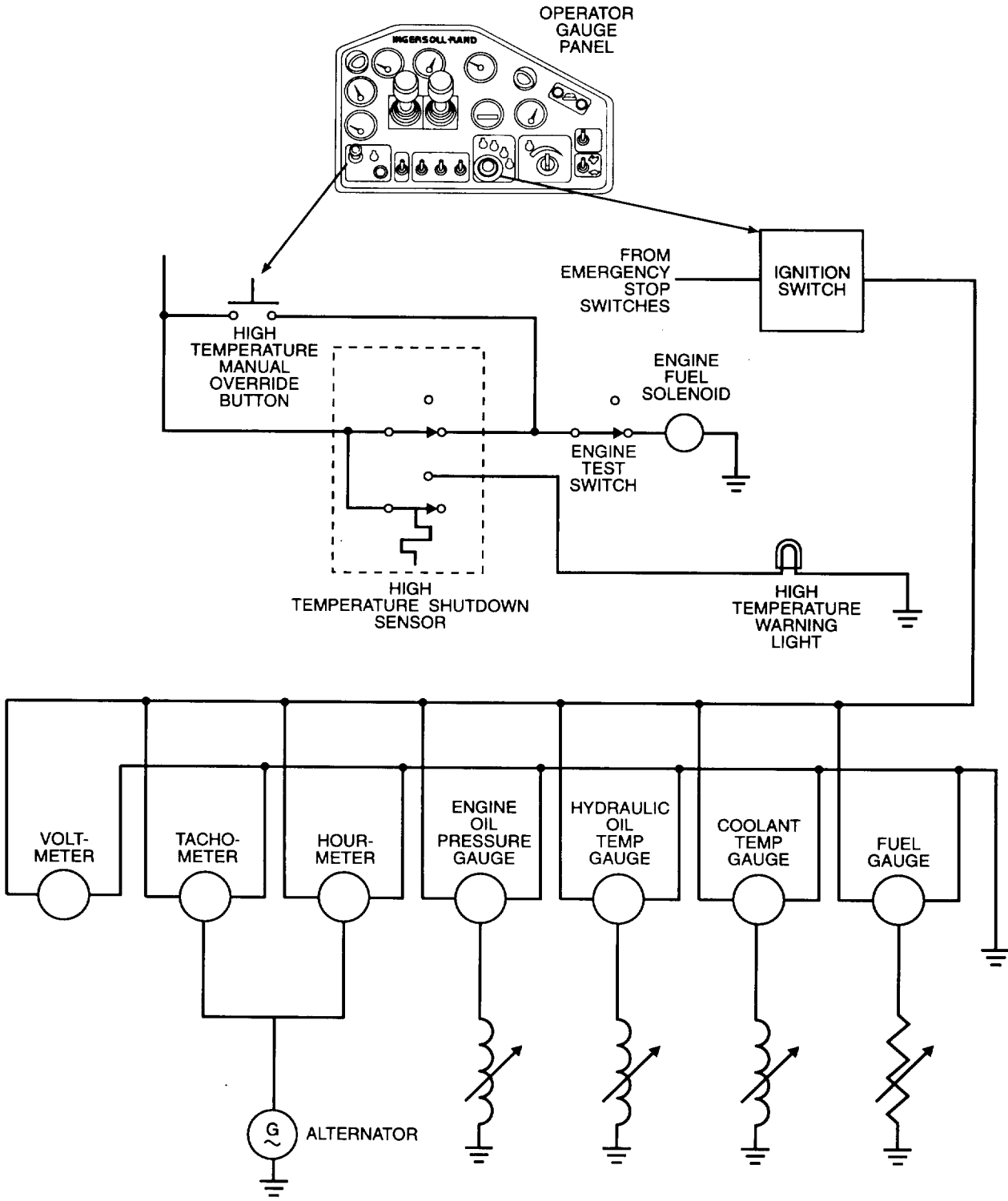
The fuel gauge receives a signal from the transmitter located in the fuel tank. A floating arm is attached to a variable resistor. As the fuel goes down, the arm drops toward the bottom of the tank. This drop causes an increase in the resistance of the variable resistor. The increase is sensed by the fuel gauge, setting the position of the fuel gauge needle. The fuel gauge reads from 0 to I (indicating full).

The voltmeter uses the 12 VDC from the ignition switch as input. The voltage is applied to a square wave oscillator. The amplitude of the square wave is measured and used to position the needle within the voltage gauge. The gauge reads from 8 to 16 volts.

The hourmeter and the tachometer receive a common AC signal input from the alternator. The hourmeter uses the input to power a motor that is gear-coupled to a counter. The readings are in hours and tenths of an hour. The tachometer input is applied to a counter that counts the number of alternating cycles of AC inputs. The number is used to position the dial on the tachometer. The tachometer indicates from 0 to 4000.

The coolant temperature and hydraulic oil temperature sensors are moving coil-type transmitters. As the temperature increases, a metal cylinder expands. This expansion is detected by a coil surrounding the metal cylinder and is sent to the gauge as a change in impedance. The change is measured in the gauge and displayed as a needle movement. Both temperature gauges read from 100° to 250°F (38° to 121°C).

The engine oil pressure transmitter is a diaphragm-type sensor. As the pressure changes, the position of the diaphragm changes. A change in the diaphragm position is sensed by a coil that surrounds the diaphragm. The output of the coil is transmitted to the gauge and converted into a needle movement. The engine oil pressure gauge reads from 0 to 150 psi (0 to 1034 kPa).



1.18.6. Screed Burner Controls and Indicators

Circuit. The screed burner circuit consists of the screed fuel pump, glow plugs, solenoid valves, screed blowers, indicator lights, and control switches.

There are four screed burners, one each for the left and right main and extension screeds. Each screed control panel includes controls for the main and extension screed burners for that side. With the exception of the screed fuel pump switch on the left screed control panel, the two screed control panels are identical. Only the left side will be discussed here.

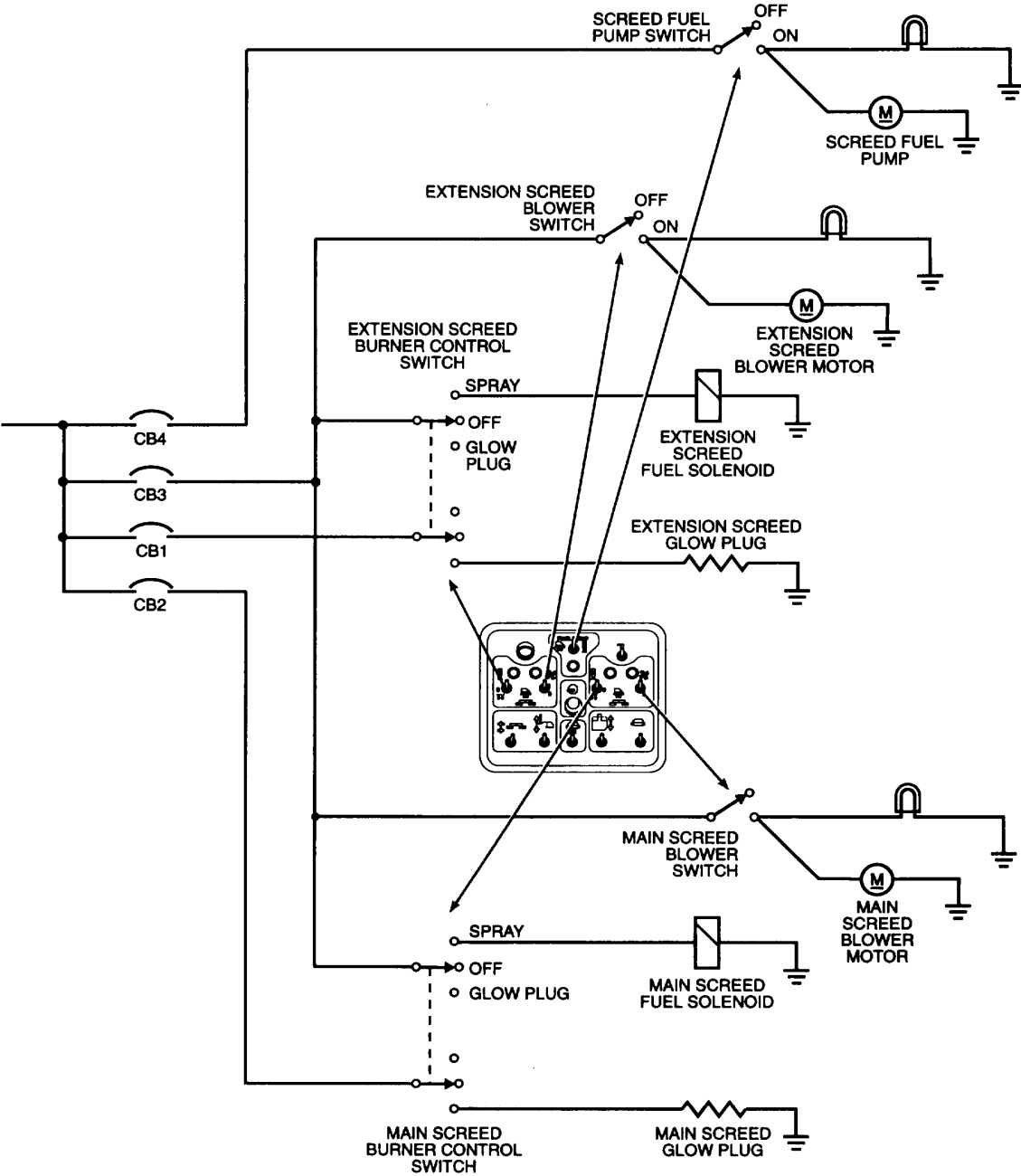
Circuit breaker CB4 supplies power to the screed fuel pump. Placing the screed fuel pump switch on the left screed control panel in the up, ON position, energizes the screed fuel pump and the indicator light.

Circuit breaker CB3 supplies 12 VDC to one contact on the main and extension screed burner control switches mounted on the screed control panel. Placing the main screed burner control switch in the up, SPRAY position, routes power to

the main screed fuel line isolation valve solenoid and the screed burner indicator light. The extension screed burner control switch performs a similar function for the extension screed burner.

Circuit breaker CB2 supplies power to the main screed glow plug through a second contact on the main screed burner control switch. Placing the main screed burner control switch in the down, PREHEAT position, supplies power to the main screed glow plug. The glow plug position is a momentary contact position; the glow plugs will remain energized only as long as the switch is held. The extension screed burner control switch performs the same function for the extension screed burners with the exception that electrical power is supplied by CB1.

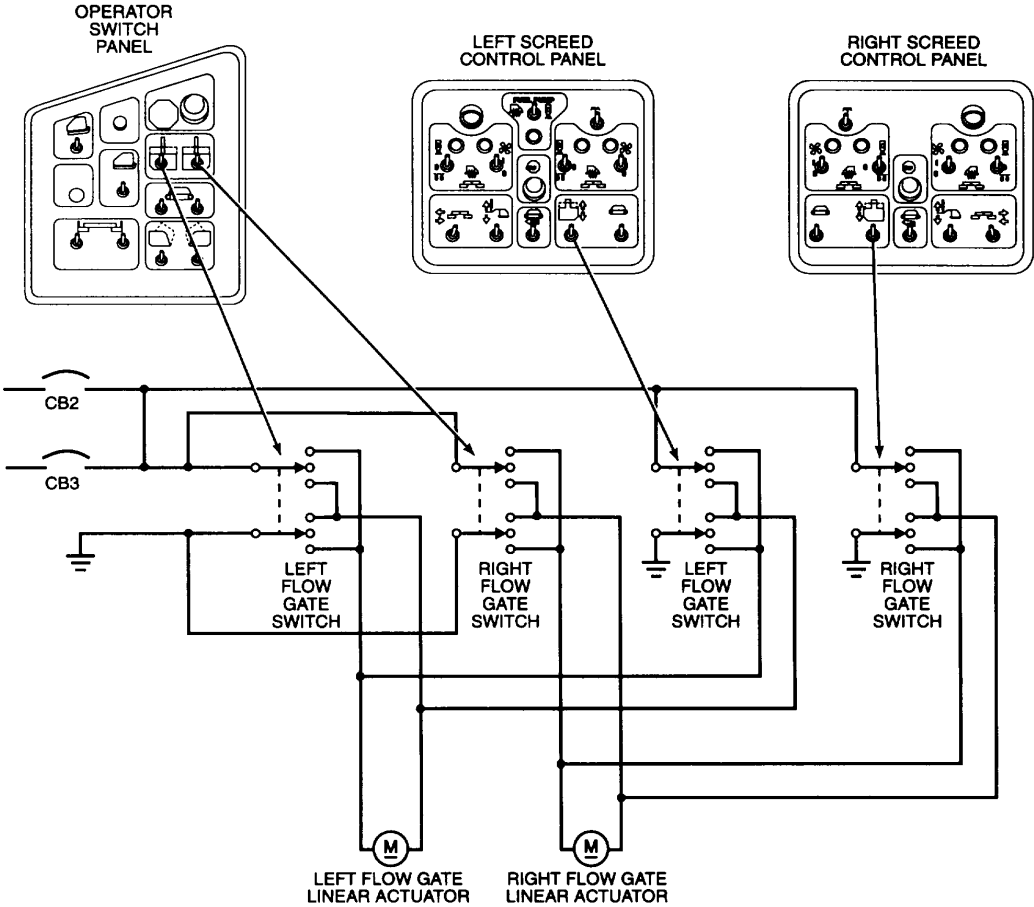
Circuit breaker CB3 also supplies power to the screed blower switches mounted on the screed control panel. Placing the main screed blower switch in the up, ON position, energizes the screed blower motor and indicator light. The extension screed blower switch performs a similar function for the extension screed blowers.



1.18.7. Flow Gate Electrical Circuit. The flow gate electrical circuit consists of four toggle switches and two reversible, linear actuators. All four switches are double-pole/double-throw (DPDT), three-position (center off), and spring-loaded return to off.

The operator switch panel controls both flow gates with a left flow gate switch and a right flow gate switch. Each screed control panel also controls the flow gate on that side.

Circuit breakers CB2 and CB3 jointly power the flow gate circuit. Each flow gate switch has two inputs. One input is 12 VDC. The other input is ground. Placing the flow gate switch in the up, RAISE position, applies 12 VDC to one output line and ground to the other. The flow gate switch output drives the flow gate linear actuator. The flow gate linear actuator contains a reversible DC motor. Placing the flow gate switch in the down, LOWER position, reverses polarity to the output contacts, and the linear actuator reverses direction.



1.18.8. STE/ICE and Diagnostic Connector Circuit.

The STE/ICE and diagnostic connector circuit consists of a diagnostic connector assembly, four pressure transmitters, two pressure differential switches, a tachometer generator, temperature sensor, and current shunt.

The diagnostic connector assembly (DCA box) contains the electrical connector to mate the paving machine diagnostic sensors with the STE/ICE Vehicle Test Meter (VTM). The DCA box provides the power for the test set.

Within the DCA box is the vehicle identification code resistor to identify to the vehicle test meter the type of internal combustion engine being tested. The DCA box contains two toggle switches. The ENGINE CRANK switch disables the engine fuel shutoff solenoid to prevent the engine from starting during certain tests. The ZERO OFFSET switch is used during engine coolant temperature tests to set the sensor to zero. 24 VDC from the paving machine is sent to the DCA connector on the DCA box for power for the vehicle test meter.

Four pressure transmitters are used on the paving machine to check engine fuel pressure, engine oil pressure, turbosupercharger outlet pressure, and air cleaner outlet pressure. These sensors are as follows:

Fuel and oil pressure transmitters measure the engine fuel lift pump and engine oil pump outlet pressures.

The turbosupercharger outlet pressure transmitter measures the discharge pressure of the turbosupercharger.

The air cleaner pressure transmitter measures air cleaner outlet pressure in respect to the ambient air pressure.

Two differential pressure switches are used to measure the restriction of engine fuel and engine oil through the filters. This is used to determine if the filters are clogged or need changing. The pressure difference will display as a PASS/FAIL indication.

The tachometer generator used to measure engine speed is a pulse detector. The detector is mounted on the timing gear cover and is driven by the timing gears. Engine speed is measured as a series of pulses through the timing gears.

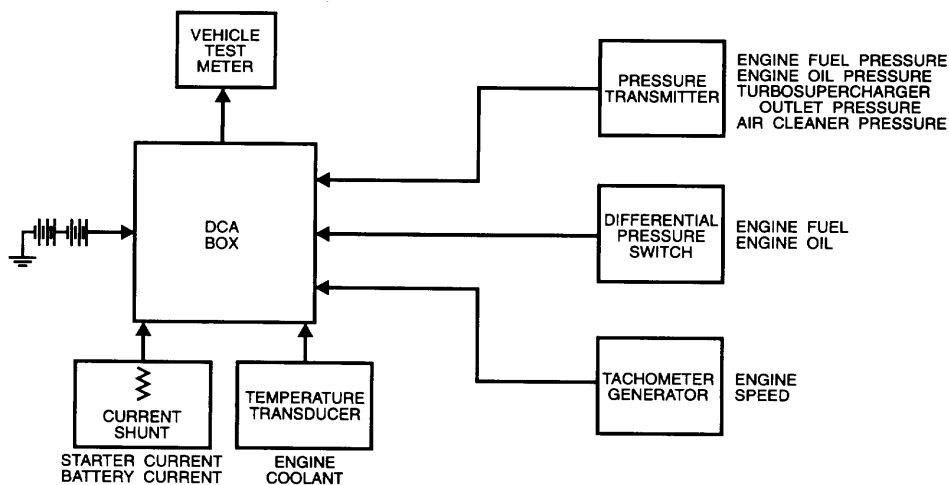
The engine coolant temperature transducer is a resistive temperature sensor installed on the engine near the thermostat housing. It measures the engine coolant temperature.

Engine current measurements are made using a current shunt. Starter tests and battery resistance tests use the current shunt as a detector.

Resistance tests are performed by the voltage test meter. These consist of battery internal resistance, starter circuit resistance, and battery resistance change.

Voltage measurements are performed by the voltage test meter. These consist of starter voltage during cranking, alternator output voltage, and alternator field voltage.

DIAGNOSTICS CONNECTOR ASSEMBLY

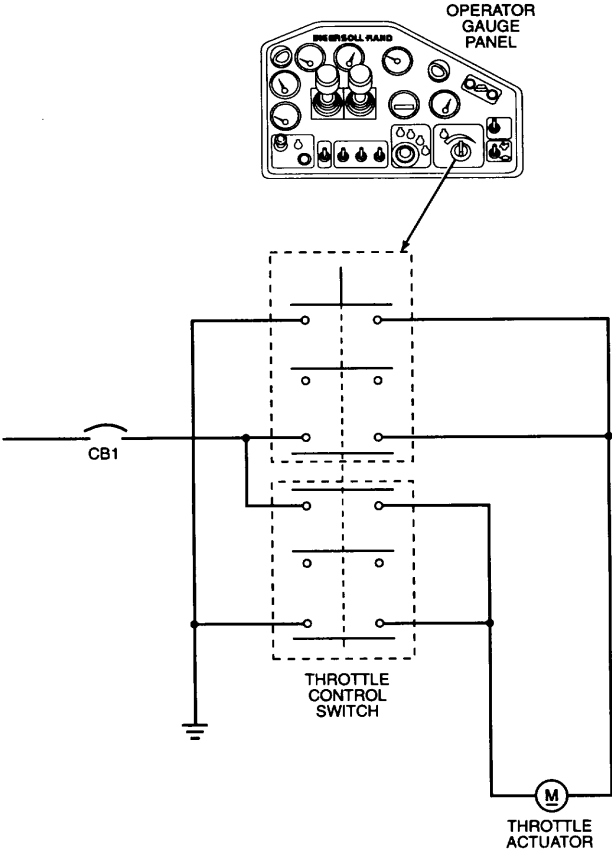


1.18.9. Throttle Control Electrical Circuit. The throttle control switch is a rotary switch with three detents. The clockwise detent sets the throttle actuator to minimum idle speed "IDLE". The counterclockwise detent is for high speed "MAX". The center detent, "HOLD", allows the actuator to stop at any position between idle and high speed.

Electrical power is supplied to the throttle control switch on the operator gauge panel from CB 1. The throttle control switch has two contact blocks with three sets of contacts each. The center contact of each block is not used. When the switch is

moved, voltage is applied through one contact block to the actuator. Ground is routed through the other contact block. This will cause the linear actuator to drive. Moving the throttle control switch to the opposite position will reverse the contacts. This will cause power and ground to be reversed to the actuator, driving it in the opposite direction.

Turning the throttle control switch to one end, then back to mid-position, will cause the actuator to drive in the direction selected, and stop when mid-position is selected. This allows the throttle switch to be a variable or multi-speed set switch while being a limit set switch.



1.19. PUMP DRIVE SYSTEM.

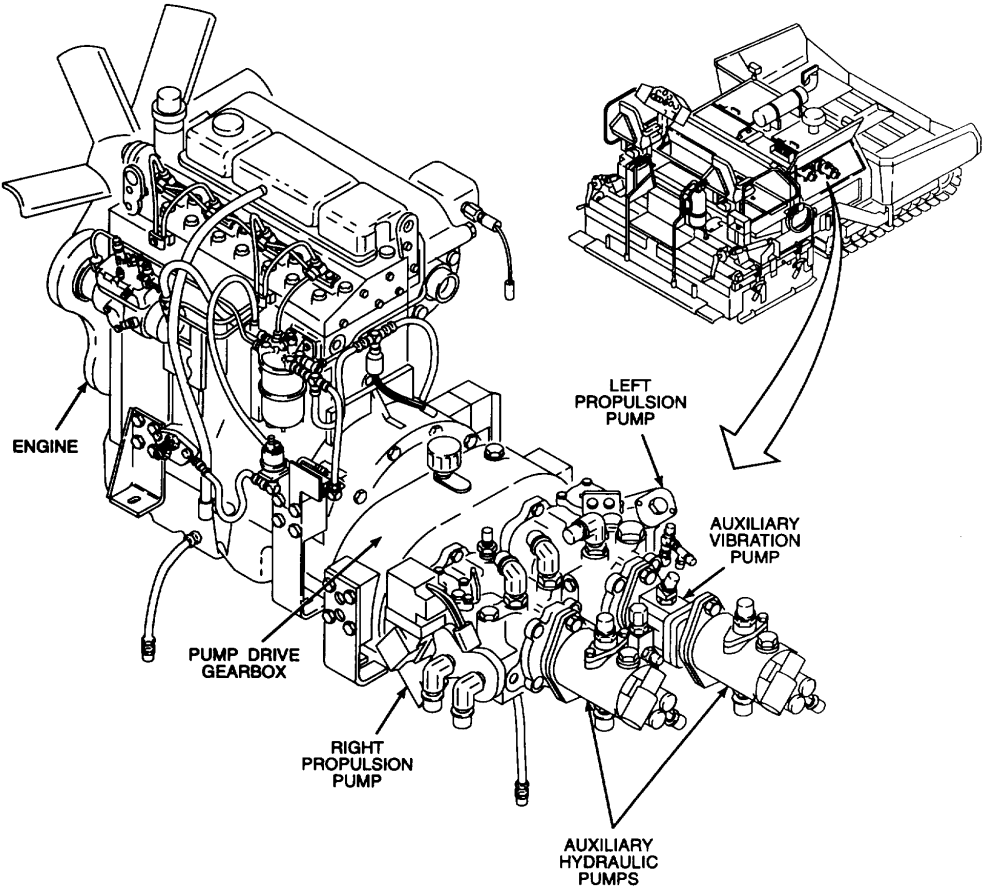
The hydraulic pump drive system consists of the paving machine engine, pump drive gearbox, and five hydraulic pumps.

The Perkins T4.236 turbosupercharged diesel engine flywheel is shaft coupled to the input of the attached pump drive gearbox. The gearbox input drives two output gears at a 1:1 input-to-output ratio.

There are five hydraulic pumps attached in a tandem configuration to the oil-filled gearbox. Coupled directly to the gearbox are two hydraulic propulsion pumps. They provide 5000 psi (34 500 kPa) at 2.8 cu in./rev (46,6 cc/rev) to the left and right hydraulic propulsion motors.

Attached in tandem to the right propulsion pump is one shaft-driven auxiliary hydraulic pump with two outputs. One output provides 0.7 cu in./rev (11,6 cc/rev) while the second output provides 0.58 cu in./rev (9,67 cc/rev), both at 2500 psi (17 200 kPa). Attached to the left propulsion pump is a hydraulic auxiliary vibration pump that provides 0.24 cu in./rev (4,00 cc/rev) at 2000 psi (13 800 kPa). Connected to the vibration pump is a second auxiliary pump with two outputs, the same as the auxiliary pump on the right side.

Both outputs of the left auxiliary pump, and the 0.7 cu in./rev (11,7 cc/rev) output of the right auxiliary pump, are used for the auger/conveyor motor. The 0.58 cu in./rev (9,67 cc/rev) output of the right auxiliary pump is split through a 50/50 flow divider. Half the fluid is used for the stack valve (screed extension, hopper lift, track tensioning, and screed lift cylinders). The other half of the output fluid is used for tow point cylinders and to supplement screed vibration.



1.20. TRACK DRIVE HYDRAULIC SYSTEM.

The track drive system is a hydrostatic system consisting of two variable displacement propulsion pumps driven by the engine through the pump drive gearbox. A pump pilot control valve with integral electronic displacement control is mounted on each propulsion pump's pilot control port. The pump pilot control valve receives an electric signal from the control handle on the operator console gauge panel, which increases or decreases the output of the propulsion pump. Each pump drives a two-speed, variable displacement motor connected to a gearbox with a 65: 1 reduction and built-in brake system. One gearbox is connected to each track drive. Because both tracks are identical, the following applies to either track drive:

The control handles receive 12 VDC from the circuit breaker panel (CB1). Control handle position in either forward or reverse is tracked by an electronic potentiometer on a circuit board. Within the control handle are two cam-activated micro switches which are closed and opened when the control handles are moved out of neutral detent. When the control handles are moved out of neutral in either forward or reverse, a micro switch closes, passing 12 VDC to bias the output transistor on internal circuit boards. The signal then passes through a variable resistor, which varies the voltage signal, depending on control handle position on the potentiometer. Output voltages from 3.6 to 1 volts control reverse propulsion, and voltages from 4.0 to 7 volts control forward propulsion. This voltage is sent to the electrical displacement control valve on the propulsion pump, controlling pump output.

The propulsion pump is a variable displacement pump, supplying a constant pressure with variable flow rates. The output from the propulsion pump is determined by the position of the control handle. As the control handle is moved, an increasing voltage is applied to the displacement control on the pump. As the signal increases, the displacement control changes the signal to the propulsion pump. The variable displacement in the pump increases or decreases the tilt (angle) of the swashplate in the pump. As the pump turns, the swashplate causes pistons to stroke in or out, forcing oil out of the pump.

Hydraulic oil is drawn from the hydraulic reservoir into the propulsion pump by an internal charge pump. The charge pump is a fixed displacement pump within the hydraulic pump

that supplies cool oil from the reservoir to the pump, and supplies oil to operate the control system. The charge pump ensures that the internal oil pressure of the main pump stays constant at 350 psi (2400 kPa). An internal relief valve controls this pressure. The charge pump also circulates charge pressure oil from the pump, through the charge filters, and back to the pump. During operation of the pump and motor, a small amount of hydraulic oil leaks from the main closed circuit and is used to lubricate the rotating parts of the pump and motor. A case drain to the hydraulic reservoir provides relief of this oil. Hot oil flows from the low pressure side of the hydraulic circuit to allow for cooling. The charge pump replaces any oil that is lost to the reservoir through the case drain.

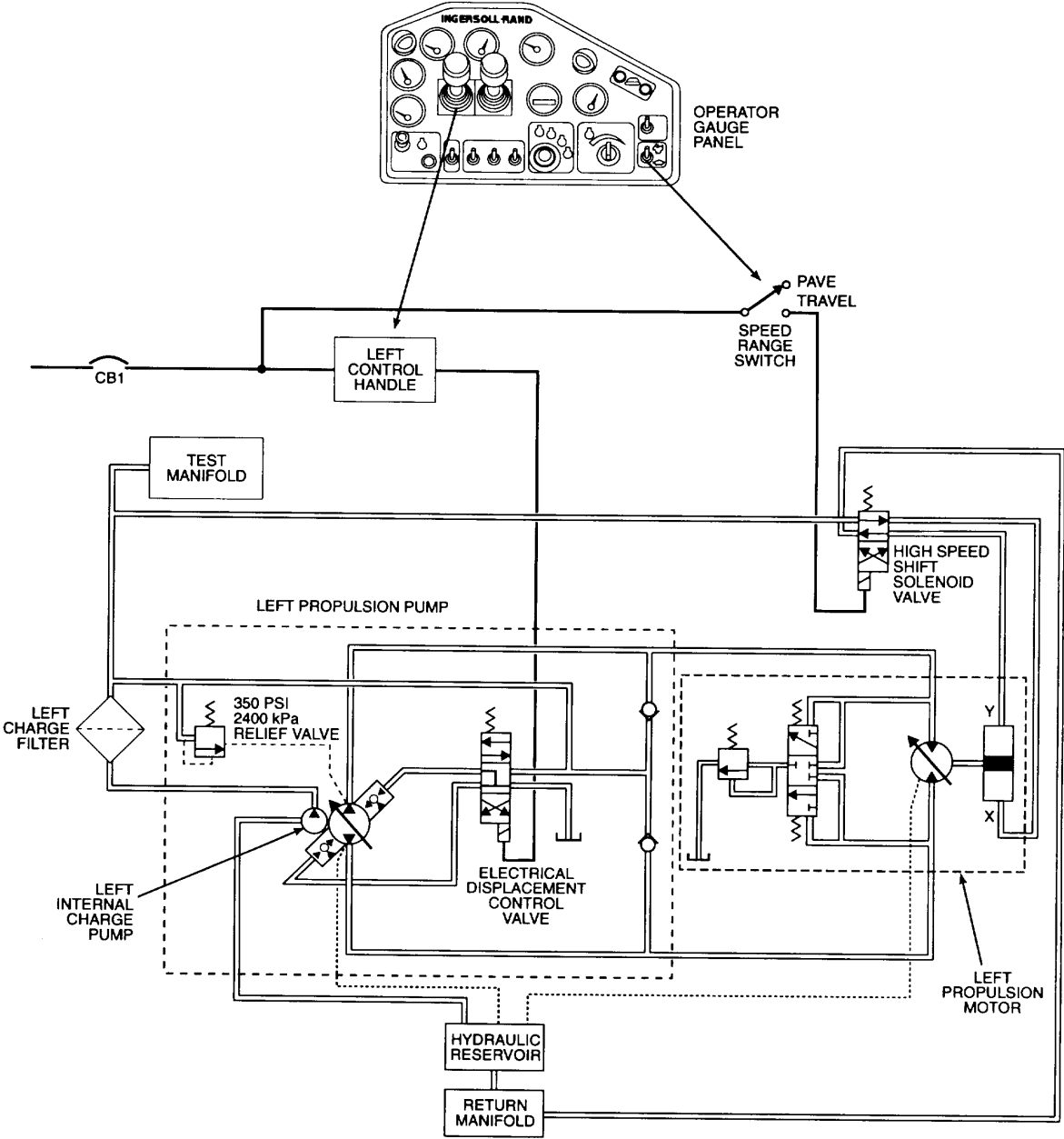
Because the propulsion pump and motor are a closed-loop system, no return other than the case drain is required. The main ports of the pump are connected by hydraulic lines to the input port of the motor. Hydraulic oil flows in either direction from the pump to the motor and then back to the pump. Crossover relief valves protect the high pressure side of the pump by limiting pressure to 5000 psi (34 500 kPa).

The hydraulic oil from the propulsion pump is sent to the two-speed propulsion motor. The swashplate in the motor is limited to two positions, providing two speeds. As the oil flows through the motor, the volume of oil against the swashplates forces the pistons to compress, turning the motor.

The displacement of the propulsion motor is determined by the two-position speed range switch on the operator gauge panel.

With the speed range switch set to down, "tortoise" pave position, the charge pressure fluid is routed through the high speed shift solenoid valve to the variable displacement motor. This sets the motor swashplate to 13° for maximum displacement. When set to the up, travel "hare" position, charge pressure fluid flow is reversed in the high speed shift solenoid valve to set the swashplate at 7 1/2° for minimum displacement.

The propulsion motor is coupled to a speed reduction gearbox at a 65: 1 ratio. The output of the gearbox is attached to the spring-actuated, hydraulically released brakes. The brakes are sprocket-coupled to the paving machine tracks. When hydraulic pressure is removed from the propulsion system the brakes automatically apply, stopping the paving machine.



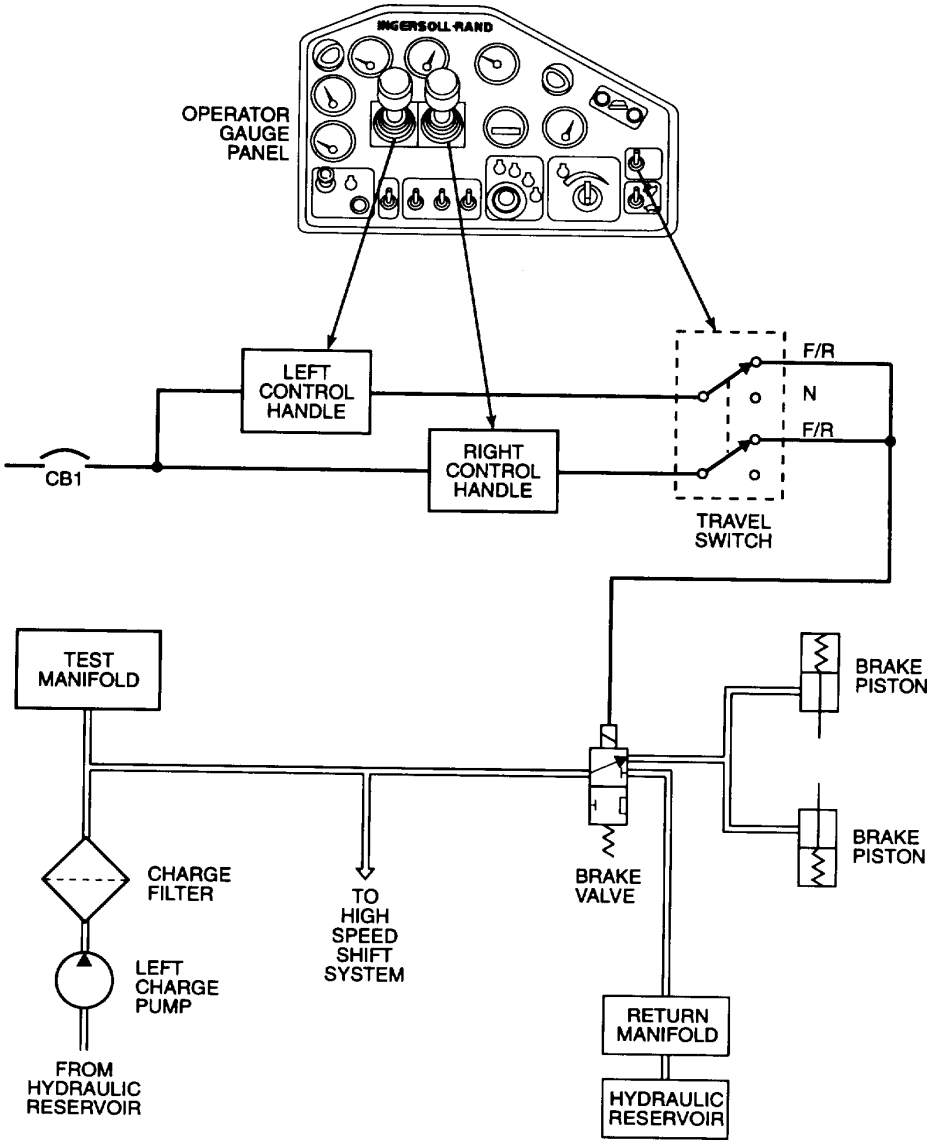
1.20.1. Tractor Brake Circuit. The tractor brake circuit consists of the control handles, disc brakes, solenoid valve, and brake pistons.

The paving machine uses seven steel discs and six sintered discs for system brakes. With no hydraulic pressure to the brake system, the brakes are applied by spring pressure compressing the disc brakes.

The internal charge pump section of the left propulsion pump supplies hydraulic oil for the brake system. The hydraulic oil is sent through a charge filter. After passing through the charge filter, the oil is passed to the brake system. A tap off is also sent to the test manifold where brake pressure can be read. The proper pressure in the brake system is 350 psi (2410 kPa).

The control handles receive electrical power from CB 1. When either of the control handles is moved from the center detent position, the control handle produces a 12 VDC signal. Placing the travel switch in the up, forward/reverse "F/R" position, allows the 12 VDC signal from the control handles to energize the brake valve solenoid. The solenoid repositions the brake valve and passes hydraulic oil to the brake pistons. The piston overcomes the spring pressure and releases the disc brakes.

When the control handles are placed in the center detent position or the travel switch is placed in the down, neutral "N" position, power is removed from the brake valve solenoid. The brake valve repositions and directs the hydraulic oil from the brake pistons to the return manifold. The spring inside the brake pistons forces the hydraulic oil out of the piston and engages the brakes.



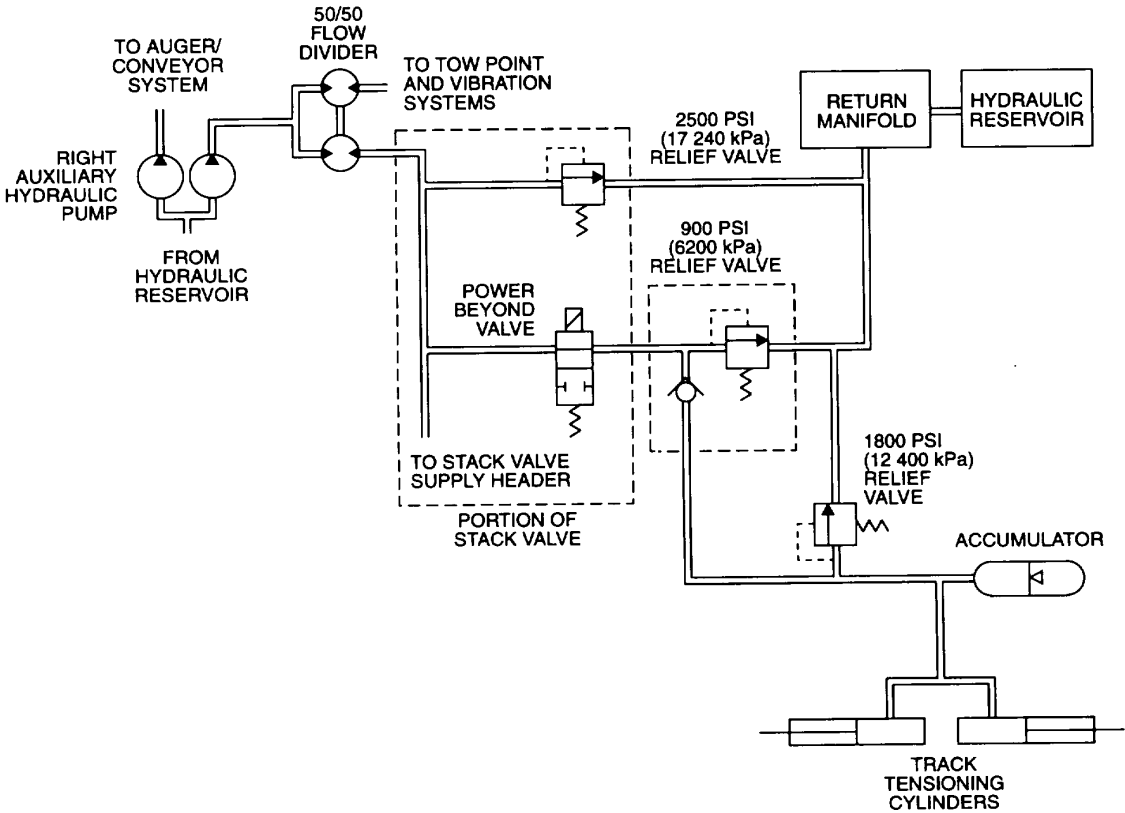
1.20.2. Track Tensioning System. The track tensioning system consists of the right auxiliary hydraulic pump, 50/50 flow divider, hydraulic cylinders, and pressure relief valves.

The track tensioning system operates by maintaining a pressure of 900 (6205 kPa) psi on two hydraulic cylinders. The hydraulic cylinder pushes on the idler roller to maintain track tension.

The right auxiliary hydraulic pump contains two pumps, 0.7 and 0.58 cu in. (11,5 and 9,5 cc) outputs, mounted on a

common shaft. The 0.58 cu in. (9,5 cc) output pump supplies oil to a 50/50 flow divider. The flow divider splits the hydraulic flow, sending half to the stack valve.

When the oil enters the stack valve, overpressure protection is provided by a 2500 psi (17 240 kPa) relief valve. The hydraulic oil exits the stack valve through the power beyond valve. When any stack valve function is used, the power beyond valve shifts and redirects hydraulic flow to the stack valve supply header. This removes hydraulic flow from the track tensioning system.



After the hydraulic oil exits the stack valve, the pressure is reduced by a 900 psi (6200 kPa) relief valve. The excess hydraulic oil is sent to the return manifold and back to the hydraulic reservoir. The reduced pressure fluid is passed through a check valve.

The 900 psi (6200 kPa) hydraulic oil charges a hydraulic accumulator and maintains pressure to the track tensioning cylinders. When one or both tracks encounter an obstacle, the track tensioning cylinder is compressed, sending pressure pulsations into the track tensioning system. The pressure pulsation causes the check valve in the inlet of the track tensioning system to seat. This prevents the pressure pulsation from traveling to the rest of the hydraulic system. If the pulsation is small, it will be absorbed by the hydraulic accumulator. Larger pulses, which increase system pressure beyond 1800 psi (12 400 kPa), cause a relief valve to lift and vent excess pressure to the return manifold.

1.21. ELECTRICALLY CONTROLLED HYDRAULIC CIRCUITS.

The paving machine uses electrically controlled hydraulic circuits for all hydraulic functions. Hydraulic pressure is supplied by two auxiliary pumps and an auxiliary vibration pump.

Hydraulic functions controlled from the operator switch panel are:

- 1) Screed lift
- 2) Auger/conveyor drive
- 3) Extension screed positioning
- 4) Screed vibrator drive
- 5) Hopper wing lift

Hydraulic functions controlled from the screed control panels are:

- 1) Auger/conveyor drive
- 2) Tow point lift
- 3) Extension screed positioning

Auxiliary pumps and auxiliary vibration pump draw hydraulic oil from a common hydraulic reservoir. Pump output is routed through 50/50 flow dividers, pressure relief valves and flow control and solenoid valves. The flow control and solenoid valves control the speed of hydraulic cylinders and motors. Hydraulic oil return is routed to the return manifold. From the return manifold, the oil is forced through a hydraulic oil cooler and a return filter before returning to the hydraulic reservoir. Each individual function is explained in the following paragraphs.

1.21.1. Auger/Conveyor Hydraulic System. The auger/ conveyor drive system consists of electrical controls on both the left and right screed control panels, control switches on the operator switch panel, auger/conveyor control valve, speed control valve, left and right auxiliary hydraulic pumps, and feed limit switches. The left and right auger/conveyor control circuits are identical. The following description applies to both sides.

Electrical power for the auger/conveyor drive system is from CB6 to the screed control panel. The feeder control switch on the screed control panel passes the current to the auger/ conveyor switch on the operator switch panel. The three position switch on the operator switch panel allows for manual control, automatic control, and an off position.

When the feeder control switch on the screed control panel is turned on, and the auger/conveyor reverse control switch is in normal, power is sent to the auger/conveyor switch on the operator switch panel. With MAN selected on the auger/ conveyor switch, the auger/conveyor control valve forward solenoid is actuated and positions the auger/ conveyor control valve.

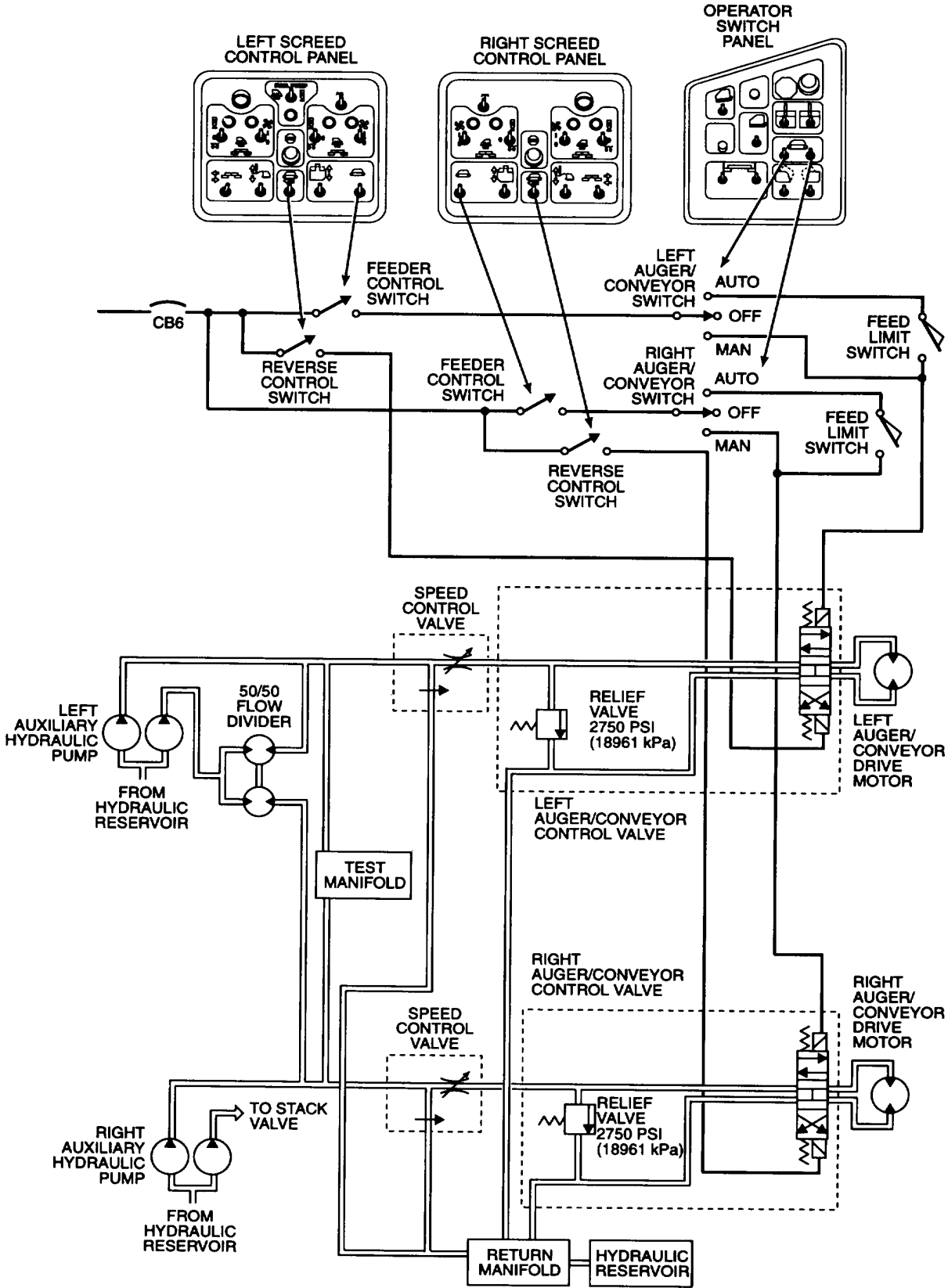
When the auger/conveyor switch on the operator switch panel is placed up, "AUTO" position, power is sent to the feed limit switch mounted on the end gate of the screed. When an insufficient amount of paving material is in the auger chamber the limit switch will be closed. This allows power to pass through the limit switch and energize the auger/conveyor control valve forward solenoid. The solenoid is energized and the valve shifts to the forward position. When the paving material reaches a sufficient level in the auger chamber, the paving material actuates the feed limit switch. The current path to the auger/conveyor control valve forward solenoid is broken. The auger/conveyor control valve forward solenoid is deenergized and the valve returns to the center, off, position.

For reverse operation of the auger/conveyor system, the feeder control switch on the screed control panel must be in the center OFF position. This removes power from the auger/conveyor control valve forward solenoid. When the auger/conveyor reverse control switch is placed in the up,

REVERSE position, power is sent to the auger/conveyor control valve reverse solenoid. The solenoid energizes and repositions the valve to the reverse position. Hydraulic oil for the auger/conveyor drive system is supplied by the auxiliary hydraulic pumps. The left and right auxiliary hydraulic pumps each consist of two pumps, a 0.7 and a 0.58 cu in. (11,5 and 9,5 cc) output, mounted on a common shaft. The 0.7 cu in. (11,5 cc) pump on each side supplies hydraulic oil to the respective sides auger/conveyor drive system. The 0.58 cu in. (9,5 cc) pump on the left auxiliary hydraulic pump provides oil to a 50/50 flow divider. The flow divider splits the output of the pump and delivers half of the flow to each side of the auger/conveyor drive system. The hydraulic oil from the hydraulic pumps is sent to a speed control valve and a test manifold. The test manifold allows the measuring of pressure on the outlet of the hydraulic pumps. The speed control valve is an adjustable relief valve. The valve regulates the speed of auger/conveyor drive motor by regulating the pressure of the hydraulic oil sent to the motor. Excess hydraulic oil from the speed control valve is relieved to the return manifold.

The output of the speed control valve is sent to the auger/ conveyor control valve. The control valve is protected by a 2750 psi (18 961 kPa) relief valve internal to the control valve. The control valve is equipped with two solenoids to position it for forward and reverse. When neither solenoid is energized, the control valve is in the center, off, position. The input and return ports are cross connected allowing hydraulic oil entering the valve to go immediately out the return port to the return manifold. When the forward solenoid is energized, the control valve is positioned to the forward position. This position sends the incoming hydraulic oil to the forward port on the auger/ conveyor drive motor, causing the motor to rotate in the forward direction. When the reverse solenoid is energized, the valve is repositioned to the reverse position. The control valve sends the incoming hydraulic oil to the reverse port on the hydraulic motor, causing the motor to turn in the reverse direction.

The output shaft on the auger/conveyor drive motor is attached to a drive sprocket wheel and chain. The chain drive system allows the hydraulic motor to provide the mechanical power for both the conveyor and auger systems.



1.21.2. Hopper Wing Lift System. The hopper wing lift system consists of switches on the operator switch panel, right auxiliary hydraulic pump, 50/50 flow divider, solenoid valves, and hydraulic cylinders.

Power for the hopper wing lift system originates at CB5. The operator switch panel has switches for both left and right hopper wing lift cylinder control. Power through the spring loaded center OFF switch is directed to the extend or retract solenoid valve and to the power beyond solenoid valve.

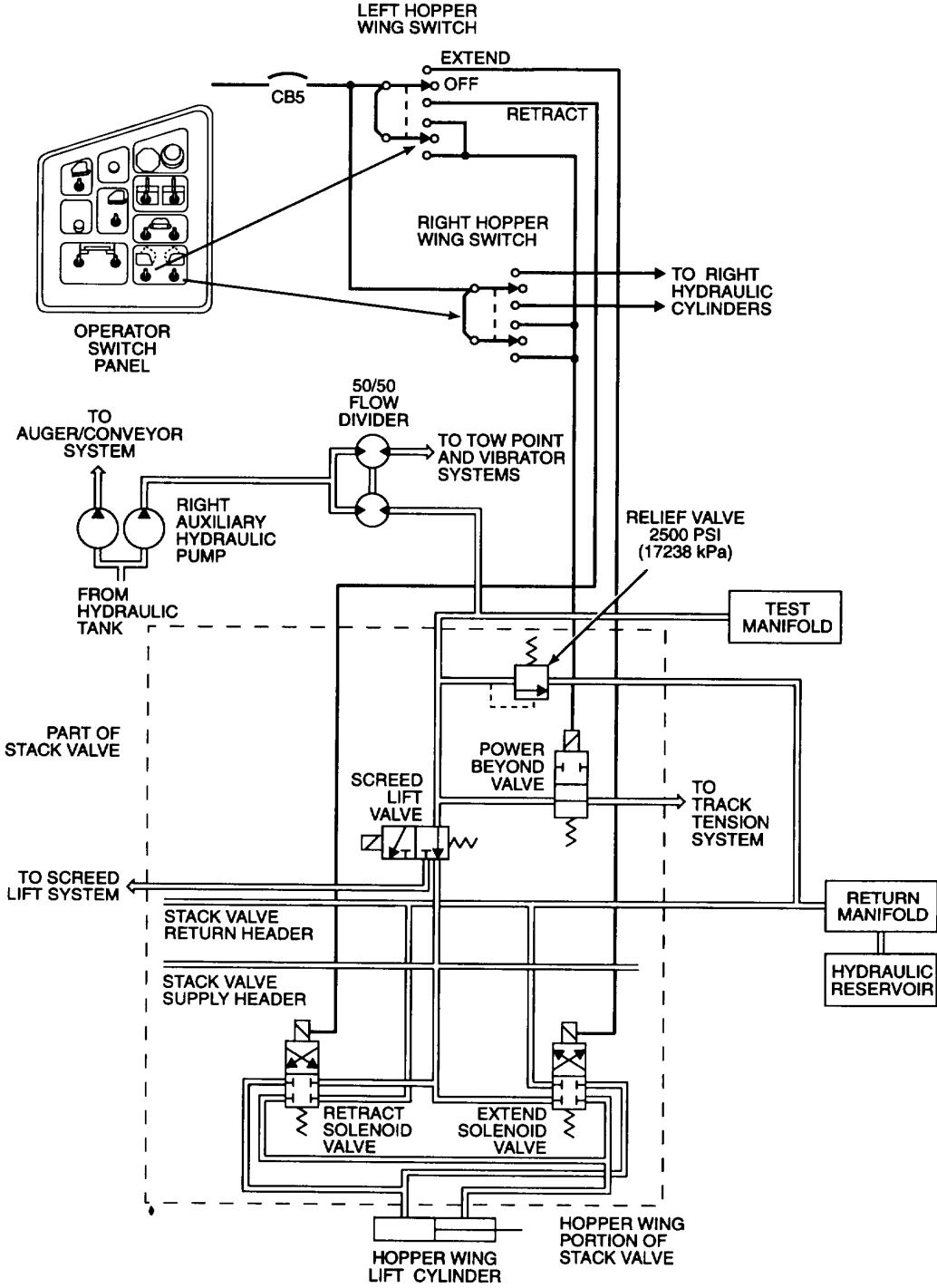
Hydraulic oil for the hopper wing lift system is supplied from the right auxiliary hydraulic pump. The right auxiliary hydraulic pump contains two pumps, 0.7 and 0.58 cu in. (11,5 and 9,5 cc) outputs, mounted on a common shaft. The 0.58 cu in. (9,5 cc) output pump supplies oil to a 50/50 flow divider. The flow divider splits the hydraulic flow, sending half to the stack valve.

Stack valve pressure is regulated at 2500 psi (17 238 kPa) by a pressure relief valve internal to the stack valve. This pressure can be read at the test manifold. The relief valve ports excess hydraulic oil to the return manifold and back to the hydraulic reservoir. The oil that is not routed through the relief valve is routed to the power beyond valve and the screed lift valve. In the normal, deenergized, position the power beyond valve routes all hydraulic oil out of the stack valve and to the track

tensioning system. The power beyond solenoid energizes whenever any hydraulic function on the stack valve is operated. When the power beyond valve solenoid is energized the valve shifts and does not allow any oil to leave the stack valve by way of the track tensioning system. All hydraulic oil entering the stack valve is therefore directed to the screed lift valve. This temporarily removes hydraulic oil from the track tensioning system.

The screed lift valve is normally deenergized, allowing all hydraulic fluid to flow to the stack valve supply header. When the screed lift system is in use, the screed lift valve is energized, redirecting all hydraulic flow from the stack valve to the screed lift system. Since this prevents any hydraulic oil from entering the stack valve supply header, no stack valve functions will operate until the screed lift valve is deenergized. Once hydraulic oil is past the screed lift valve, the fluid enters the stack valve supply header.

When the hopper wing control switch on the operator control console is activated, the extend solenoid or the retract solenoid will energize, repositioning the valve. The valve will allow the hydraulic oil from the stack valve supply header to move the cylinder in the selected direction. The hydraulic oil forced out of the cylinder is directed to the stack valve return header. The stack valve return header directs the hydraulic oil to the return manifold and then to the hydraulic reservoir.



1.21.3. Screed Lift System. The screed lift system consists of the screed lift switch on the operator switch panel, right auxiliary hydraulic pump, 50/50 flow divider, solenoid valves, and two hydraulic cylinders.

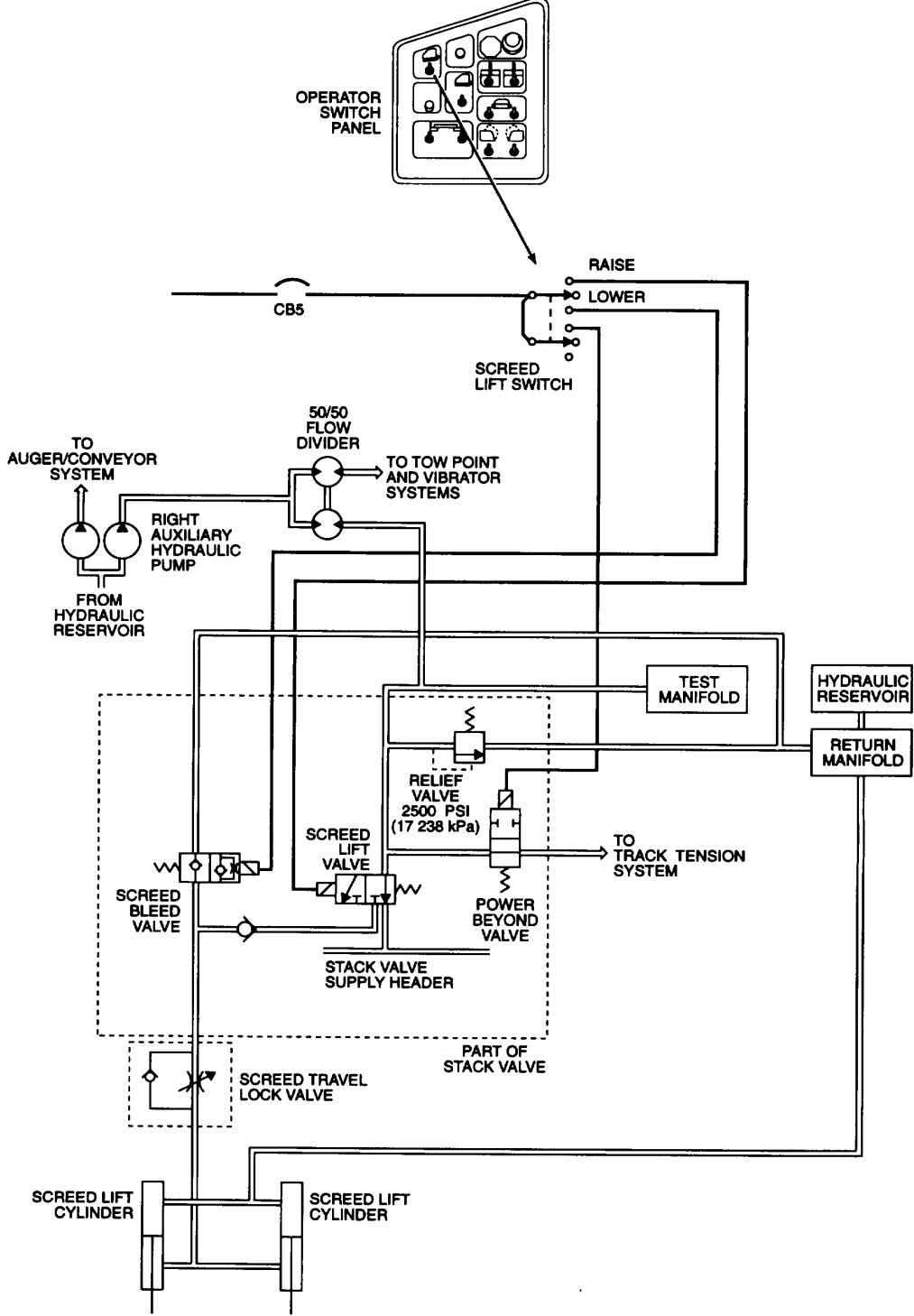
Power for the screed lift circuit is supplied from CBS. From CB5 the power is sent to the screed lift switch on the operator switch panel. The screed lift switch is a three-position center off switch. The switch is momentary contact in the raise position and maintains contact in the lower position. When the switch is placed in the up, LIFT position, power is sent to the screed lift valve solenoid and the power beyond valve solenoid. When the screed lift switch is placed in the down, FLOAT position, power is sent to a bleed valve solenoid to allow the screed to float.

Hydraulic oil for the screed lift system is supplied from the right auxiliary hydraulic pump. The right auxiliary hydraulic pump contains two pumps, 0.7 and 0.58 cu in. (11,5 and 9,5 cc) outputs, mounted on a common shaft. The 0.58 cu in. (9,5 cc) output pump supplies oil to a 50/50 flow divider. The flow divider splits the hydraulic flow, sending half to the stack valve.

Stack valve pressure is regulated at 2500 psi (16 472 kPa) by a pressure relief valve internal to the stack valve. This pressure can be read at the test manifold. The relief valve ports excess hydraulic oil to the return manifold and back to the hydraulic reservoir. The oil that is not routed through the relief valve is

routed to the power beyond valve and the screed lift valve. In the normal, deenergized position, the power beyond valve routes all hydraulic oil out of the stack valve and to the track tensioning system. The power beyond valve solenoid energizes whenever any hydraulic function on the stack valve is operated. When the power beyond valve solenoid is energized, the valve shifts and does not allow any oil to leave the stack valve by way of the track tensioning system. All hydraulic oil entering the stack valve is therefore directed to the screed lift valve. This temporarily removes hydraulic oil from the track tensioning system.

The screed lift valve is normally deenergized, allowing all hydraulic oil to flow to the stack valve supply header. When the screed lift switch on the operator switch panel is placed in the up, LIFT position, the screed lift valve shifts and redirects all hydraulic oil to the screed lift system. The hydraulic oil is sent to the screed lift cylinders causing the screed to raise. When the screed lift switch is placed in the down, FLOAT position, a bleed valve is opened. This allows the hydraulic oil in the screed lift cylinders to return to the return manifold and then to the hydraulic reservoir. The screed travel lock valve installed in the supply line for the screed lift cylinders can be used to prevent the screed from lowering. When the valve is shut, the bypass check valve will seat when hydraulic oil from the cylinders attempts to flow to the return manifold. The screed may not be lowered until the screed travel lock valve is opened. The bypass check valve on the screed travel lock valve allows hydraulic pressure from the stack valve to raise the screed even when the screed travel lock valve is shut.



1.21.4. Tow Point Lift System. The tow point lift system consists of individual switches on the screed control panels, right auxiliary hydraulic pump, 50/50 flow divider, flow regulator valve, a second 50/50 flow divider, solenoid valve, hydraulic cylinders and needle valves.

Power from CB4 is applied to the tow point movement valve raise and lower solenoids. The tow point movement switches provide a return path for the electrical power through ground. The switches are three position, spring centered switches. The raise and lower solenoids reposition the tow point movement valve when energized, redirecting flow to the tow point cylinders.

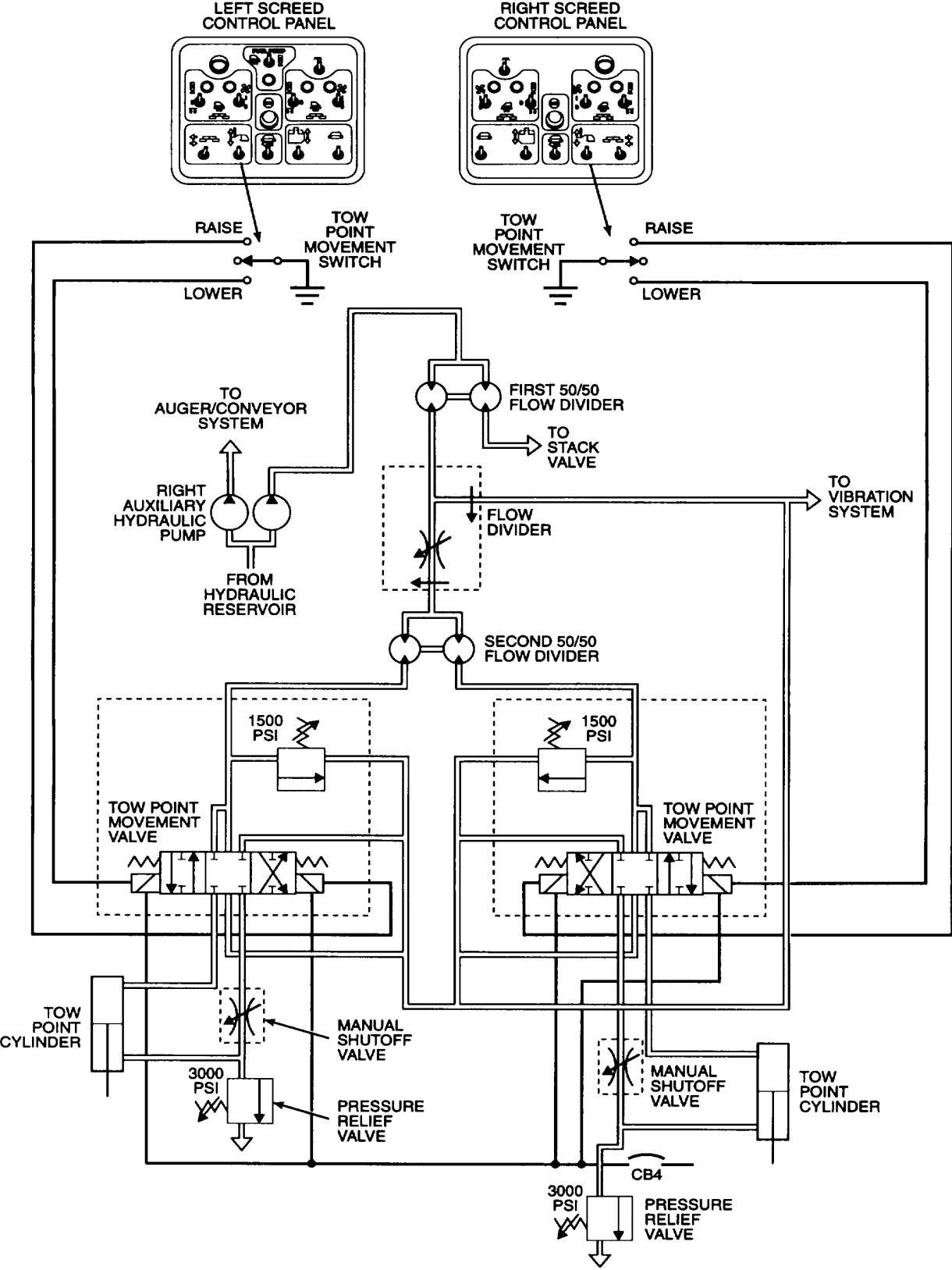
Hydraulic oil for the tow point lift system is supplied from the right auxiliary hydraulic pump. The right auxiliary hydraulic pump contains two pumps, 0.7 and 0.58 cu in. (11,5 and 9,5 cc) outputs, mounted on a common shaft. The 0.58 cu in. (9,5 cc) output pump supplies oil to a 50/50 flow divider.

The flow divider splits the hydraulic flow, sending half to the tow point and screed vibration systems. The flow to the tow point movement system and vibration system is sent through a flow regulator valve to control the speed of the cylinder movement. This adjustable flow is sent

to a second 50/50 flow divider. The flow divider sends half of the hydraulic oil to each tow point movement cylinder. Oil flowing from tow point system is sent to the vibration system.

The output of the flow divider is regulated at 1500 psi (10 343 kPa) by a relief valve. The hydraulic oil is then sent to the tow point control valves. The tow point control valve is a three position solenoid valve with a spring return to the center position. The raise and lower solenoids are energized through the tow point movement switches on the screed control panels. The tow point movement valve routes fluid to the tow point cylinders to raise and lower the tow point. The fluid exiting the tow point movement cylinders is combined with the excess fluid from the 1500 psi (10 343 kPa) relief valves and sent to the screed vibration system. After exiting the vibration system the hydraulic oil is sent to the return manifold and then to the hydraulic reservoir.

A manual shutoff valve and pressure relief valve are at the lower port of each tow point cylinder. When closed, the shutoff valves lock the positions of the tow point cylinder pistons. The pressure relief valves will bypass oil at pressures greater than 3000 psi (20 685 kPa) to protect the cylinder. Downward pressures can exceed 3000 psi during paving operations.



1.21.5. Screed Vibration System. The screed vibration system consists of electrical and hydraulic components. Electrical components include the screed vibrator switch, travel switch, control handles, solenoid valve and two relays. Hydraulic components include right auxiliary hydraulic pump, auxiliary hydraulic vibration pump, flow dividers, pressure regulators, and screed vibration motors.

The screed vibration switch on the operator switch panel energizes the vibration valve solenoid in the manual or automatic mode. Positioning the switch down, "MAN" position, allows 12 VDC from CB6 to energize the vibration valve solenoid.

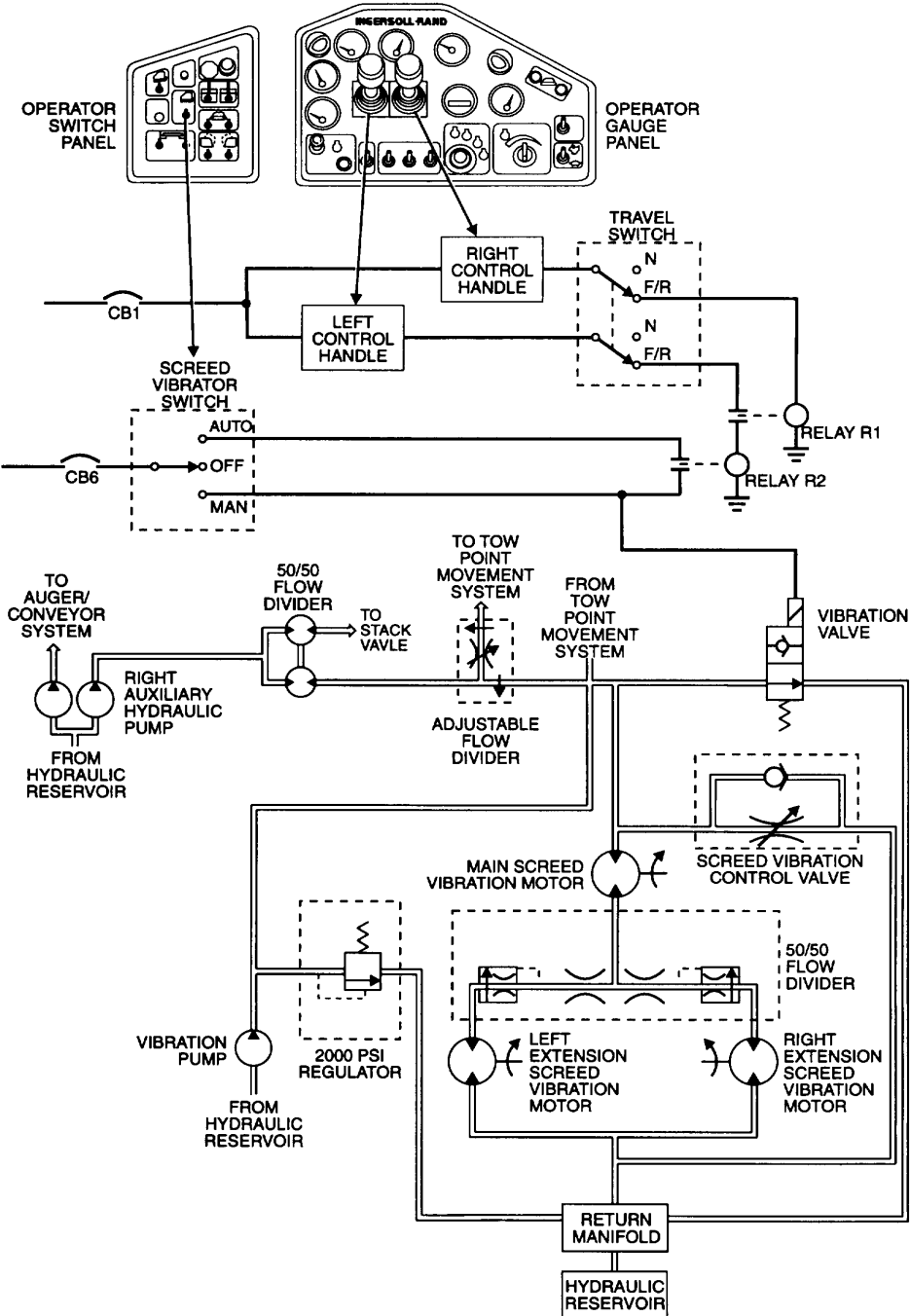
Positioning the switch up, "AUTO" position, requires two conditions to energize the vibration valve solenoid: both control handles must be out of the center detent position, and the travel switch must be in the "F/R" position. Power for the control handles comes from CB1. When the right control handle is out of the center detent position, a 12 VDC signal from the control handle energizes relay R1. When the left control handle is out of the center detent position, a 12 VDC signal is applied to the contacts of relay R1. When relay R1 is energized, the signal will pass through the relay and energize relay R2. When in AUTO mode, power from CB6 is applied to the contacts of relay R2. Energizing relay R2 applies the power from the screed vibration switch to the vibration valve solenoid.

Both the right auxiliary hydraulic pump and the auxiliary hydraulic vibration pump supply hydraulic oil for the screed vibration system.

The right auxiliary hydraulic pump contains two pumps, 0.7 and 0.58 cu in. (11,5 and 9,5 cc) outputs, mounted on a common shaft. The 0.58 cu in. (9,5 cc) output pump supplies oil to a 50/50 flow divider. The 50/50 flow divider splits the hydraulic flow, sending half of the flow to the tow point movement system. The oil returned from the tow point movement system merges with the output of the auxiliary hydraulic vibration pump. A pressure regulator limits the output pressure of the auxiliary hydraulic vibration pump to 2000 psi (13 790 kPa).

The vibration valve directs the combined hydraulic flow to the return manifold or the screed vibration motors. The normally open vibration valve allows hydraulic oil to flow directly to the return manifold. Hydraulic power thus bypasses the vibration motors. When the vibration valve solenoid closes the vibration valve, the combined flow of hydraulic oil powers the main screed vibration motor. The output of the main screed vibration motor is split by a 50/50 flow divider. Half of the flow operates each extension screed vibration motor. Output from the extension screed vibration motors returns to the hydraulic reservoir through the return manifold.

The screed vibration control valve under the operator platform allows some of the hydraulic oil to bypass the screed vibration motors. As the screed vibration control valve is opened, more of the fluid power flows to the return manifold. The reduced flow to the screed vibration motors reduces the screed vibration rate.



1.21.6. Screed Extension System. The screed extension system consists of control switches on operator switch panel and left and right screed control panels, right auxiliary hydraulic pump, 500 flow divider, solenoid valve and hydraulic cylinders. Since the left and right screed extension systems are identical, the following applies to either screed extension system.

Power for the screed extension system originates at CB5. The operator switch panel has switches for both left and right screed extension cylinder control. The left screed control panel controls the left screed extension cylinder while the right screed control panel controls the right screed extension cylinder. Power through the spring loaded center OFF switches is directed to the extend or retract solenoid valves and to the power beyond solenoid valve.

Hydraulic oil for the screed extension system is supplied from the right auxiliary hydraulic pump. The right auxiliary hydraulic pump contains two pumps, 0.7 and 0.58 cu in.

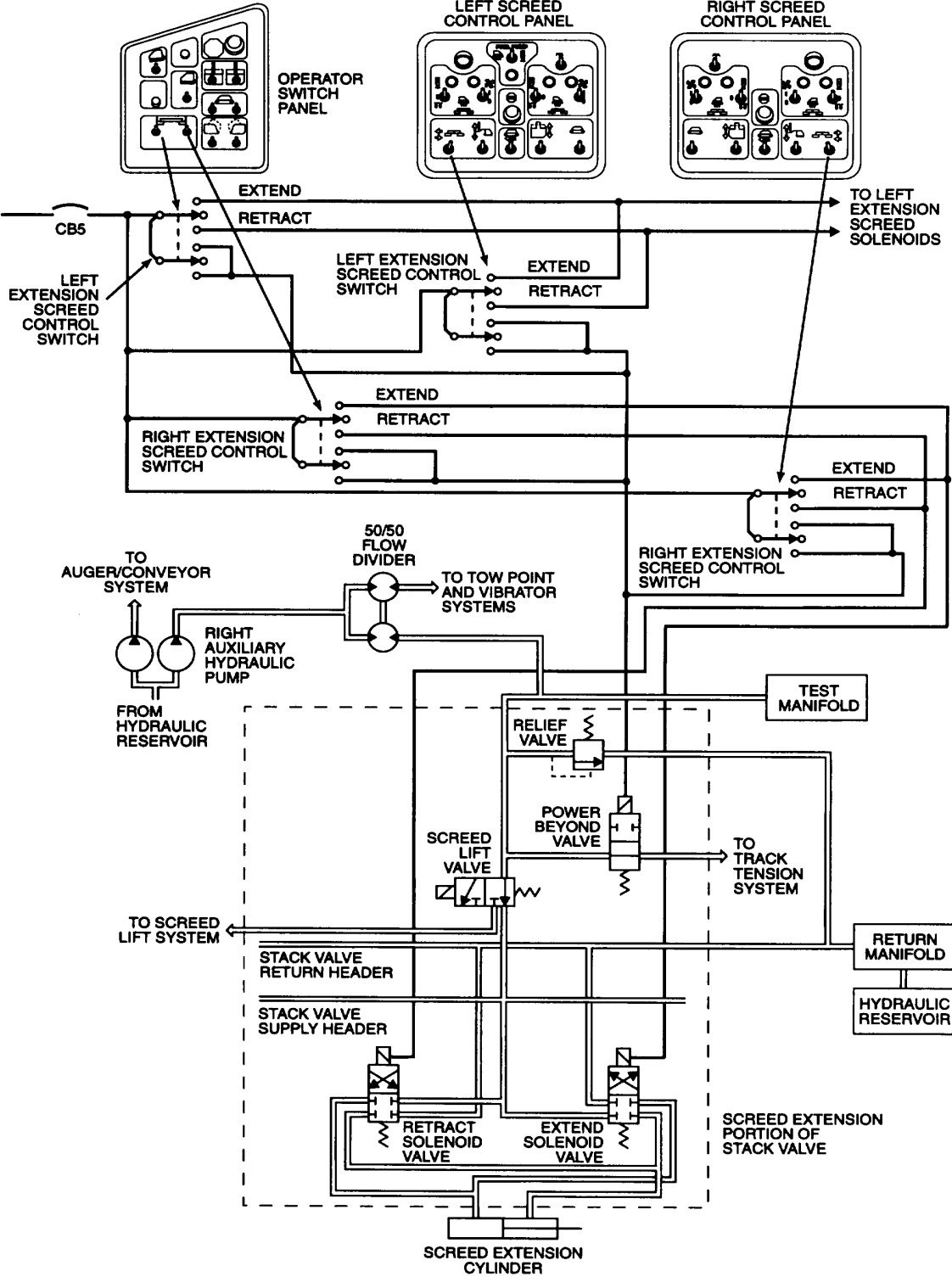
(11,5 and 9,5 cc) outputs, mounted on a common shaft. The 0.58 cu in. (9,5 cc) output pump supplies oil to a 50/50 flow divider. The flow divider splits the hydraulic flow, sending half to the tow point and screed vibration systems and half to the stack valve.

Stack valve pressure is regulated at 2500 psi (17 238 kPa) by a pressure relief valve internal to the stack valve. This pressure can be read at the test manifold. The relief valve ports excess hydraulic oil to the return manifold and back to the hydraulic reservoir.

The oil that is not routed through the relief valve is routed to the power beyond valve. In the normal, deenergized position, the power beyond valve routes all hydraulic oil out of the stack valve and to the track tensioning system. The power beyond solenoid energizes whenever any hydraulic function on the stack valve is operated except when screed is allowed to float on top of paving material during operation. When the power beyond valve solenoid is energized, the valve shifts and does not allow any oil to leave the stack valve by way of the track tensioning system. All hydraulic oil entering the stack valve is therefore directed to the screed lift valve. This temporarily prevents hydraulic oil from flowing to the track tensioning system.

The screed lift valve is normally deenergized, allowing all hydraulic oil to flow to the stack valve supply header. When the screed lift system is in use, the screed lift valve is energized, redirecting all hydraulic flow from the stack valve to the screed lift system. Since this prevents any hydraulic oil from entering the stack valve supply header, no stack valve functions will operate until the screed lift valve is deenergized. Once hydraulic oil is past the screed lift valve, the oil enters the stack valve supply header.

When an extension screed control switch is activated, the extend solenoid or the retract solenoid will energize, repositioning the valve. The valve will allow the hydraulic oil from the stack valve supply header to move the cylinder in the , selected direction. The hydraulic oil forced out of the cylinder is directed to the stack valve return header. The stack valve return header directs the hydraulic oil to the return manifold and then to the hydraulic reservoir.



CHAPTER 2

PAVING MACHINE MAINTENANCE

SECTION I. REPAIR PARTS; TOOLS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

	Para	Page
Common Tools and Test Equipment.....	2.1	2-1
Repair Parts	2.3	2-1
Special Tools, TMDE, and Support Equipment.....	2.2	2-1

2.1. COMMON TOOLS AND TEST EQUIPMENT.

For authorized common tools and equipment, refer to Modified Table of Organization and Equipment (MTOE), CTA 50-970, or CTA 8-100, as applicable to your unit.

The tool kit authorized for general repair of the paver is the general mechanic's automotive tool kit, supply catalog number SC 5180-90-N26.

2.2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.

Test, Measurement, and Diagnostic Equipment (TMDE) and special tools required to support paving machine maintenance are listed in the Maintenance Allocation Chart, Appendix B.

Additional special tools are included in the Repair Parts and Special Tools List (RPSTL), TM 5-3895-373-24P.

2.3. REPAIR PARTS.

Repair parts are listed and illustrated in the Repair Parts and Special Tools List (TM 5-3895-373-24P) covering all levels of maintenance for this equipment.

SECTION II. SERVICE UPON RECEIPT

	Para	Page
Assembly of Equipment.....	2.4.4	2-5
Checking Unpacked Equipment.....	2.4.3	2-5
Scope	2.4	2-2
Shelter Requirements.....	2.4.1	2-2
Unpacking	2.4.2	2-3

2.4. SCOPE.

The following paragraphs cover the unit level equipment services required upon initial receipt of the 780T bituminous asphalt paving machine at your facility.

2.4.1. Shelter Requirements. The 780T paving machine is typically parked out of doors. Where shelter is deemed necessary for long-term storage or maintenance purposes, the applicable equipment dimensions are as specified in Figure 2-1, sheets 1 and 2.

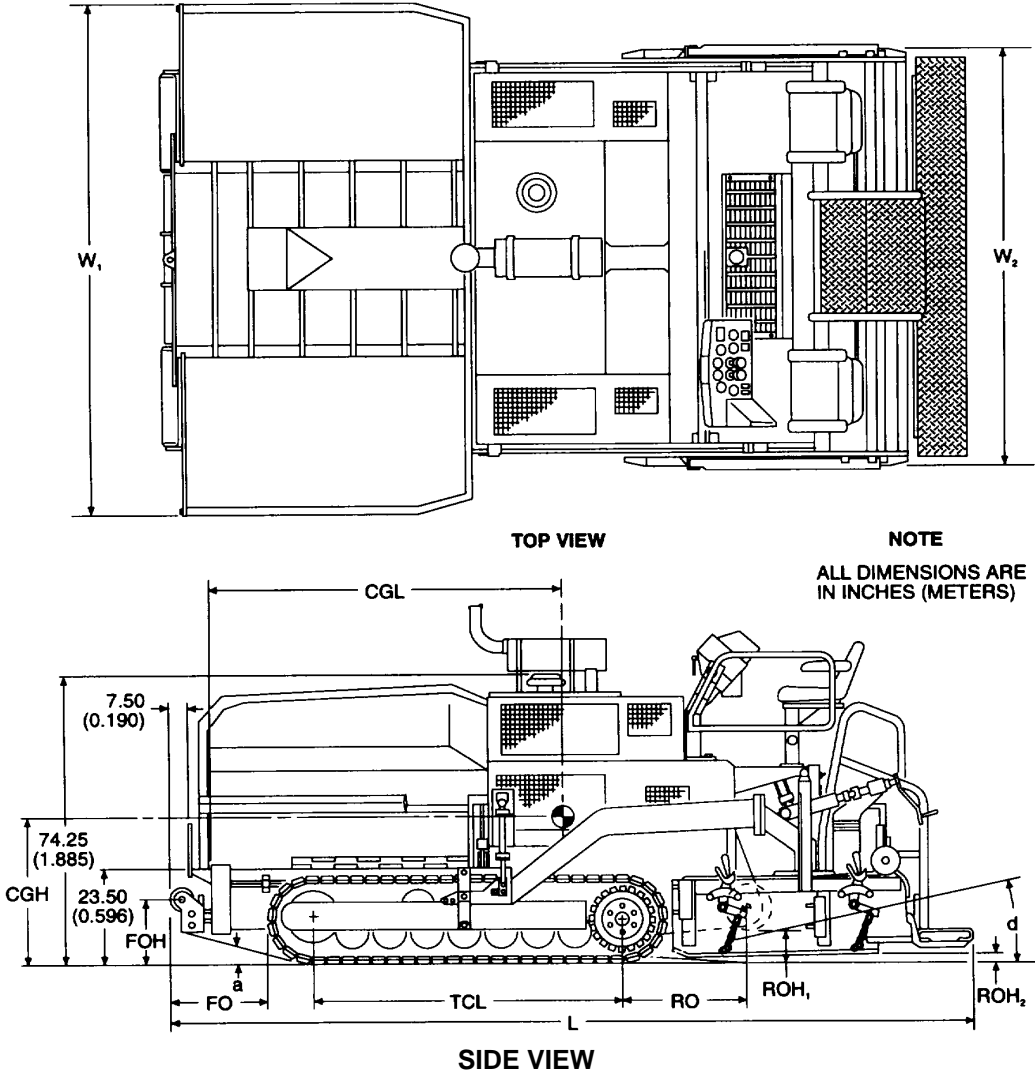
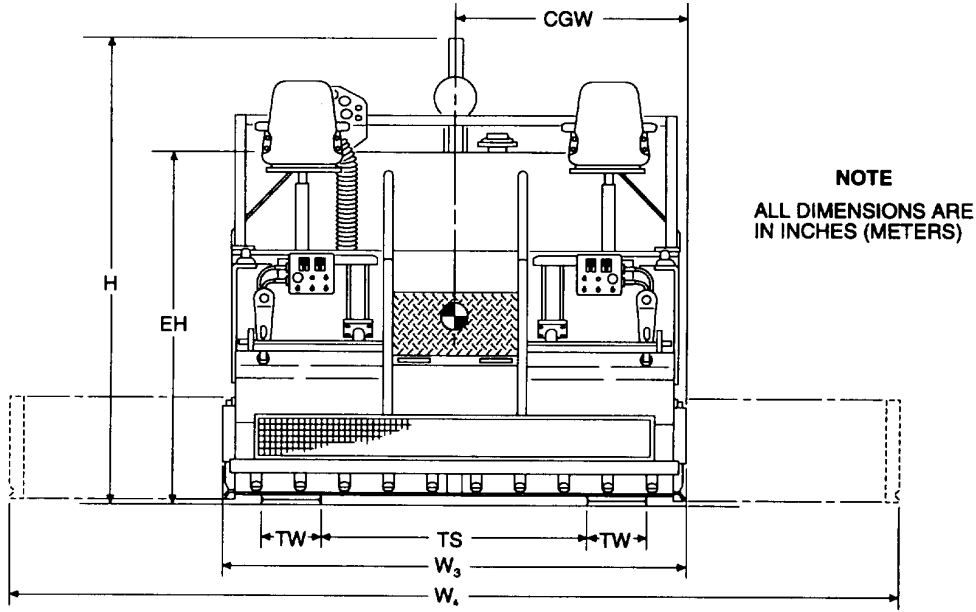


Figure 2-1. 780T Paving Machine Dimensions (Sheet 1 of 2)



NOTE
ALL DIMENSIONS ARE
IN INCHES (METERS)

END VIEW

LEGEND:

H	OVERALL HEIGHT	92.00 (2.336)	CGH	CENTER OF GRAVITY HEIGHT	27.10 (0.688)
W ₁	OVERALL WIDTH	129.75 (3.295)	TCL	TRACK CENTER LINE	78.0 (1.981)
	(HOPPER OPEN).....		FO	FRONT OVERHANG	26.00 (0.660)
W ₂	OVERALL WIDTH	91.75 (2.330)	RO	REAR OVERHANG	27.25 (0.692)
	(HOPPER CLOSED).....		FOH	FRONT OVERHANG HEIGHT	17.00 (0.431)
W ₂	OVERALL WIDTH	96.75 (2.457)	ROH ₁	REAR OVERHANG HEIGHT	6.68 (0.169)
	(WITHOUT ENDGATES)		ROH ₂	REAR OVERHANG HEIGHT	1.50 (0.038)
W ₃	OVERALL WIDTH	104.50 (2.654)	TW	TRACK WIDTH	12.00 (0.304)
	(WITH ENDGATES).....		TS	TRACK SEPARATION	66.25 (1.682)
W ₄	OVERALL WIDTH	175.75 (4.464)	EH	EDGE HEIGHT	68.00 (1.727)
	(SCREED EXTENDED)		a	ANGLE OF APPROACH	16°
L	OVERALL LENGTH	194.00 (4.927)	d	ANGLE OF DEPARTURE	11.3°
CGL	CENTER OF GRAVITY LENGTH	84.12 (2.136)		(SCREED IN RAISED POSITION)	
CGW	CENTER OF GRAVITY WIDTH ...	52.25 (1.327)			
	(WITH ENDGATES)				

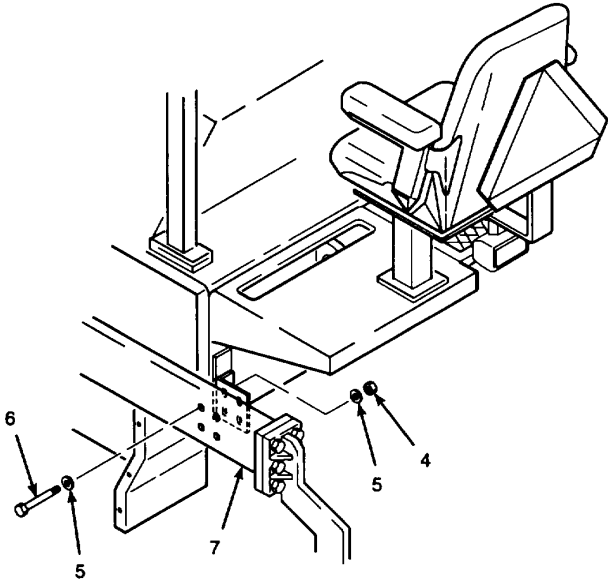
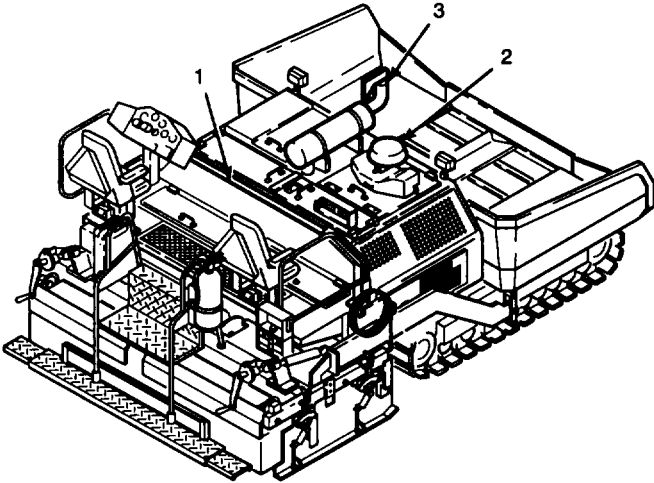
Figure 2-1. 780T Paving Machine Dimensions (Sheet 2 of 2)

The paving machine has 32 hard rubber track pads in contact with the ground at all times. The greatest load force exerted on any one track pad is approximately 12 psi (83 kPa) with the hopper empty and 21 psi (145 kPa) when the hopper is loaded with asphalt.

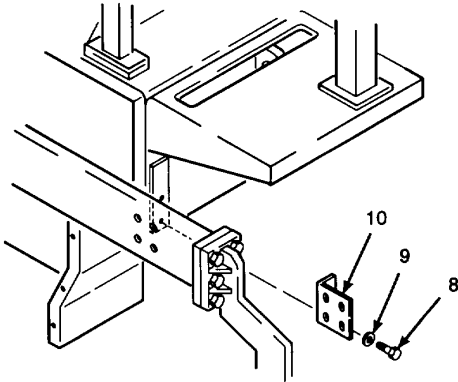
2.4.2. Unpacking. The paving machine is shipped uncrated. Paving machine accessories are packaged in an uncovered shipping crate that is not intended for reuse. However, the shipping crate is well constructed and durable. If reuse of the crate for storage and/or unit transport purposes is desired, avoid rough handling when moving it.

Several paving machine components received special processing for shipment including tiedown and/or protective lubrication coatings. Unpack the paving machine as follows:

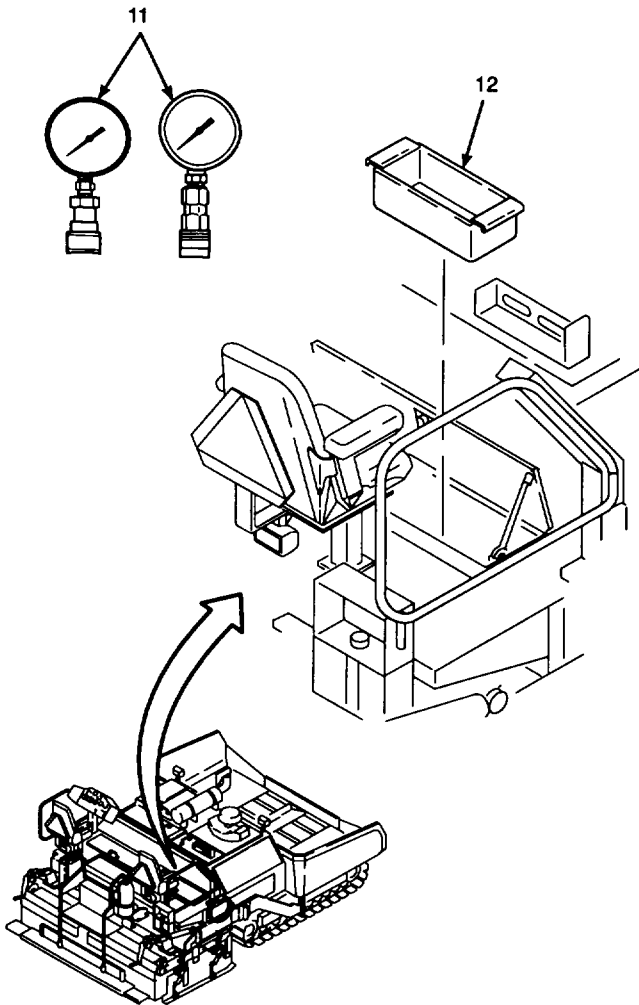
- a. Using cleaning cloths (Item 7, Appendix C), wipe protective grease from surface of control console guide shaft (1). Dispose of used cleaning cloths in accordance with local procedures.



- b. Remove tape securing air cleaner cap assembly (2) and protective cap (3).
- c. Remove hex nuts (4), flat washers (5), and hex head cap screws (6) from screed tow arm (7). Remove hex head cap screws (8), flat washers (9), and shipping bracket (10). Repeat shipping bracket removal for tow arm on opposite side of paving machine. Store all hardware and shipping brackets in the toolbox.



- d. Remove pressure gauges (11) from toolbox (12). Remove protective bubble wrap material from pressure gauges.



- e. Pressure gauges (11) shall be tagged "For Use with 780T Paving Machine only" and properly stored in the Organizational Maintenance Shop. Refer to TM 53895-373-24P, Special Tools List for gauge identification data.

2.4.3. Checking Unpacked Equipment.

- a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on SF 364, Report of Discrepancy.
- b. Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions in DA PAM 738-750.

2.4.4. Assembly of Equipment. The paving machine is shipped assembled and ready for use. Installation of end-gates is required prior to paving. Installation of paving accessories is required prior to paving extended widths. Install the end-gates and extended-width paving accessories per instructions in TM 5-3895-373-10.

SECTION III. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

	Para	Page
Cleaning Agents	2.6	2-7
Fluid Leakage.....	2.8	2-7
General	2.5	2-6
PMCS Procedures.....	2.9	2-8
Preservatives and Lubricants	2.7	2-7

2.5. GENERAL.

Preventive Maintenance Checks and Services (PMCS) means systematic caring, inspecting, and servicing of equipment. This will keep it in good condition and prevent breakdowns. As a paving machine mechanic, your mission is to:

- a. Be sure to perform your PMCS at the scheduled time. Always do your PMCS in the same order, so it becomes a habit. With some practice, anything wrong is quickly spotted.
- b. Do your PMCS at its scheduled interval.
- c. Check to see if items are in good condition, properly assembled or stowed, properly lubricated, and not loose or excessively worn.

(1) Checking that items are in good condition is usually a visual check to see if the items are safe and usable. Good condition means not bent or twisted, chafed or burred, broken or cracked, bare or frayed, dented or collapsed, torn or cut, rusted or rotted, and not leaking.

(2) Checking that items are properly assembled or stowed usually is a visual inspection. See if the items are in normal positions on the vehicle, and if all parts are present.

(3) Excessively worn means worn beyond usable limits and likely to fail before the next scheduled inspection. This includes too much play (lash or lost motion) in linkages and mating parts. This includes unreadable markings, data and caution plates, and other printed matter.

(4) Check welds for loose or chipped paint, rust, or gaps where parts mate together.

d. The specific PMCS procedures do not say "adjust if necessary" or "replace if necessary". It is understood that whenever inspection shows the need for adjustments, repairs, or replacements, that appropriate work will be done.

e. Steel nameplates, caution plates, and instruction plates may rust rapidly. Clean rusty plates well and coat heavily with clear lacquer. Refer to TM 43-0139.

f. General precautions for cleaning are in the maintenance sections.

g. The vehicle operator normally helps the organizational maintenance personnel perform the PMCS. The operator should make sure the paving machine is fairly clean. Do not wash the paving machine immediately before doing PMCS.

h. The only organizational maintenance services are those general procedures listed below, unless approval is given for other service.

(1) Adjust. Make all adjustments by following the procedures given in this manual or in bulletins.

(2) Clean. Clean items by following the general cleaning procedures given in paragraph 2.6.

(3) Service. Normally, service includes draining and refilling items with oil, and changing or cleaning the oil filter, air cleaner, or cartridges.

(4) Tighten. Tighten items with enough force on the wrench handle to tighten according to good mechanical practice. Do not over-tighten; this may strip threads or cause distortion. Tightening includes using lockwashers, lock nuts, lock wire, or cotter pins when needed. Use a torque wrench when the procedure calls for one.

(5) Modification work order application. Write all needed modification work orders (MWO) for the vehicle on DA Form 2408-5.

i. When it is hard to do all of the PMCS procedures at one time, they can sometimes be done in parts. If possible, plan to do all the procedures within one week.

j. Use DA Form 2404 (Equipment Inspection and Maintenance Worksheet) to record any faults that you discover, unless you can fix them. You DO NOT need to record faults that you fix.

2.6. **CLEANING AGENTS.**

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 IH cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

CAUTION

When cleaning underhood areas, engine must be COLD (same temperature as outside air). DO NOT point water or steam at any electrical connection. DO NOT point water stream directly at radiator fins. DO NOT use high pressure water supply system. Damage to engine, electrical system, and other components may result.

NOTE

Use only the authorized cleaning solvents or agents listed in Appendix C.

- a. The paving machine should not be washed right before an inspection. Certain problems, such as oil, hydraulic, or coolant leaks may not show after a wash.
- b. Cleaning engine compartment areas:
 - (1) When using water to clean the engine compartment, always cover alternators and air cleaner inlet using waterproof materials. Use water pressure and volume similar to standard household type water supply system [45 to 70 psi (310 to 483 kPa)].

(2) After cleaning, allow engine to air dry. Do not use compressed air to dry engine. Do not run engine to decrease drying time.

- (3) Remove all covers before starting engine.

CAUTION

Keep cleaning solvents, diesel fuel, and lubricants away from rubber or soft plastic parts. They will deteriorate the material.

2.7. **PRESERVATIVES AND LUBRICANTS.**

All lubrication of the Paving Machine will be in accordance with LO 5-3895-373-12 Lubrication Order.

2.8. **FLUID LEAKAGE.**

It is necessary to know how fluid leakage affects the status of the paving machine. Following are types/classes of leakage you must know to be able to determine the status of the paving machine. Learn these leakage definitions; when in doubt notify your supervisor. Paving machine operation must be halted if any steady stream leak of hydraulic oil is detected.

NOTE

Equipment operation is allowable with minor leakages (Class I or II). Consideration must be given to fluid capacity in the item/system checked/inspected. When in doubt, notify your supervisor.

When operating with Class I or H leaks, continue to check fluid levels as required by PMCS.

Immediately report Class m leaks to supervisor.

- a. Class I Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.
- b. Class II Leakage of fluid great enough to form drops, but not enough to cause drops to drip from item checked/inspected.
- c. Class III Leakage of fluid great enough to form drops that fall from item checked/inspected.

2.9. PMCS PROCEDURES.

a. Preventive Maintenance Checks and Services, Table 2-1, lists inspections and care required to keep the paving machine in good operating condition. It is set up so you can make checks as you walk around the paving machine.

b. The ITEM NUMBER column of Table 2-1 provides numbers for each check or service task. Use these numbers for the TM Number column on DA Form 2404 when recording results of PMCS. The item number is also used on the PMCS routing diagram immediately preceding Table 2-1, to identify the location of each check.

c. The INTERVAL column tells when to do a certain check or service. Intervals are broken down into three groups: calendar time, hours of operation, and 50-hour break-in service. In all cases, check/services of items in the PMCS table should be performed under whichever interval comes first.

d. The LOCATION column gives the location of the item checked.

e. The ITEM TO CHECK/SERVICE column lists the item checked or serviced. This column is combined with the LOCATION column.

f. The PROCEDURE column tells how to do required checks and services. Carefully follow these instructions. If tools are not available, or if directed by procedure, notify the supervisor.

NOTE

Terms "ready/available" and "mission capable" refer to the same status: equipment is on hand and ready to perform its combat missions (DA PAM 738-750).

g. The NOT FULLY MISSION CAPABLE IF: column tells when the paving machine is not mission capable and why the paving machine cannot be used.

h. If anything looks wrong and cannot be fixed, record it on DA Form 2404 IMMEDIATELY. Report it to the supervisor.

i. When performing PMCS, a rag or two is always needed.

j. When checking for "operating condition", look at the component to see if it is serviceable.

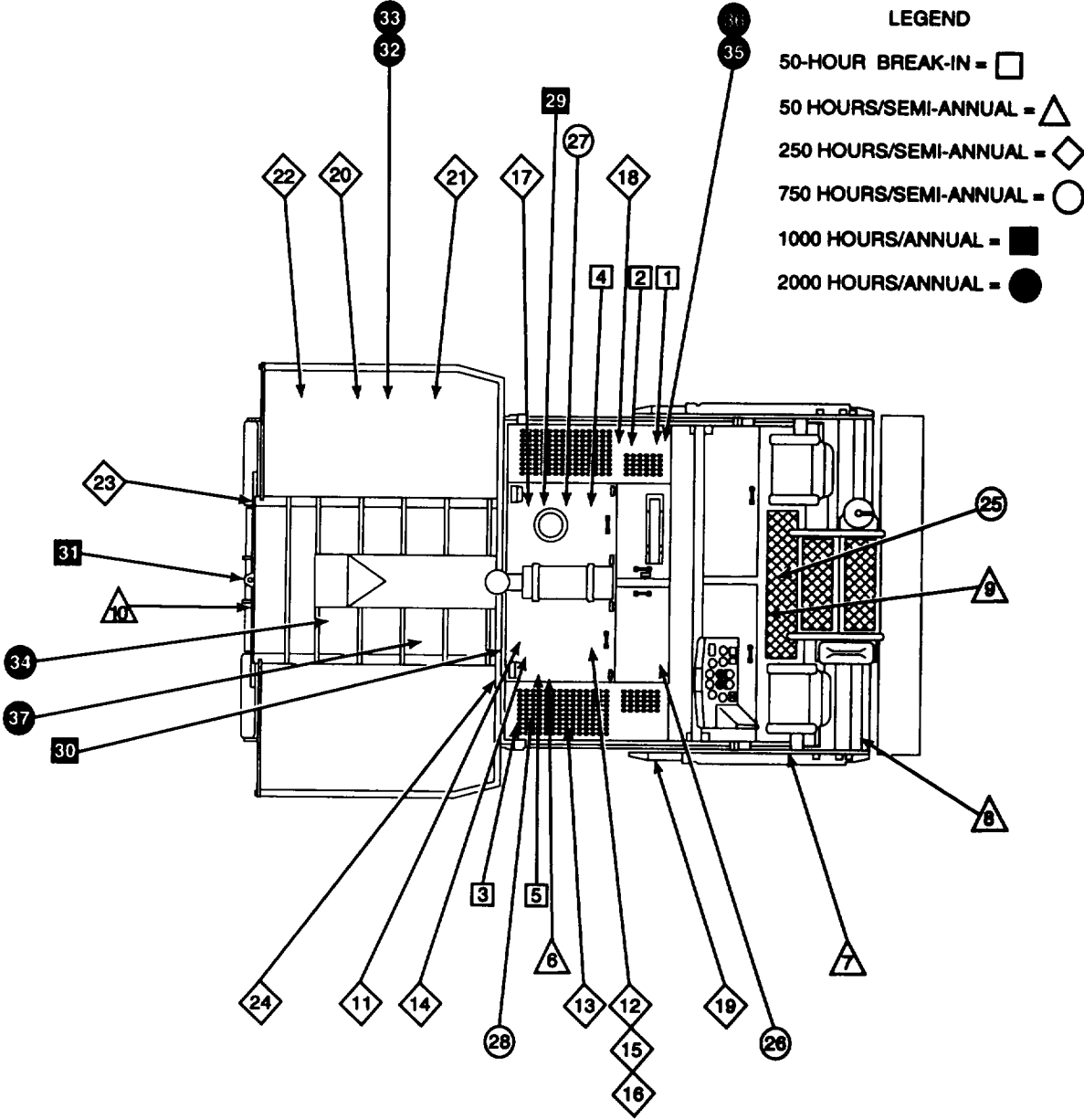


Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine -Continued

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
		<p>NOTE Ensure that all lubrication requirements are performed on the paving machine per LO 5-3895-373-12.</p> <p><u>ENGINE COMPARTMENT</u></p>	<p>CAUTION</p> <p>Wait at least 5 minutes after shutting off the engine to allow oil to drain to oil sump before checking.</p>	
1	50-hour break-in	Engine oil and filter	Change engine oil per LO 5-3895-373-12 and engine oil filter per paragraph 2.23.2.	
2	50-hour break-in	Hydraulic charge filter	Replace hydraulic charge filter per paragraph 2.23.9.	
3	50-hour break-in	Hydraulic return filter	Replace hydraulic return filter per paragraph 2.23.10.	
4	50-hour break-in	Engine idle speed	Check that engine idle speed is set to specifications. Refer to STE/ICE Test 10, paragraph 2.11 for specification.	Engine idle speed is out of adjustment. Refer to paragraph 4.12 for adjustment.
5	50-hour break-in	Engine valve adjustment	Check that engine intake valves and exhaust valves are set to specifications (notify DS Maintenance).	Engine valves are out of adjustment
6	50 hours/ semi-annual	Engine fan belt	Check engine fan belt adjustment per paragraph 2.23.1.	Fan belt will not adjust properly

Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
7	50 hours/ semi-annual	<p>REAR</p> <p>Auger bearing units</p>	<p>Check auger bearing units (1) for wear. Shake auger shaft forward and backward, and up and down. There should be no play or looseness detected in the auger bearing units.</p> <p>NOTE</p> <p>Auger extension (1*) may not be installed on paving machine, but auger extension bearings must be checked. Refer to TM 5-3895-373-10 for installation.</p>	Auger bearing units are worn

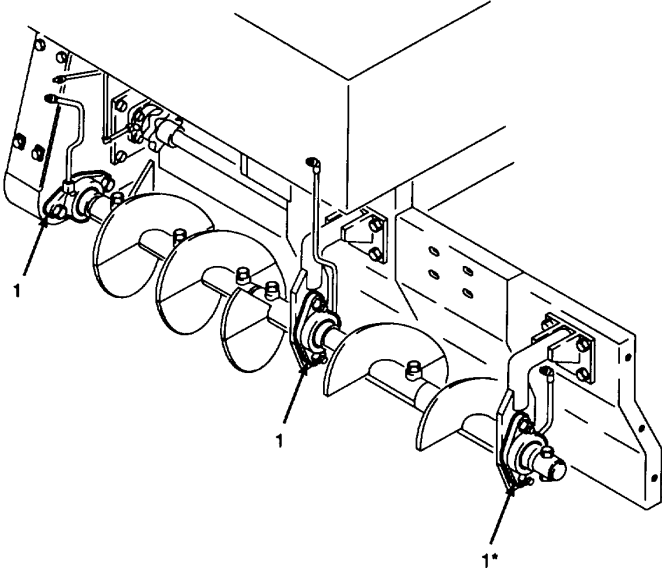


Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
8	50 hours/ semi-annual	Auger flights	<p>Check that all auger flight hex head cap screws (2) are tightened to 45 lb-ft (61 N•m).</p> <p>NOTE</p> <p>Auger extension (2*) may not be installed on paving machine, but auger flight hex head cap screws must be checked. Refer to TM 53895-373-10 for installation.</p>	One or more auger flight hex head cap screws are missing

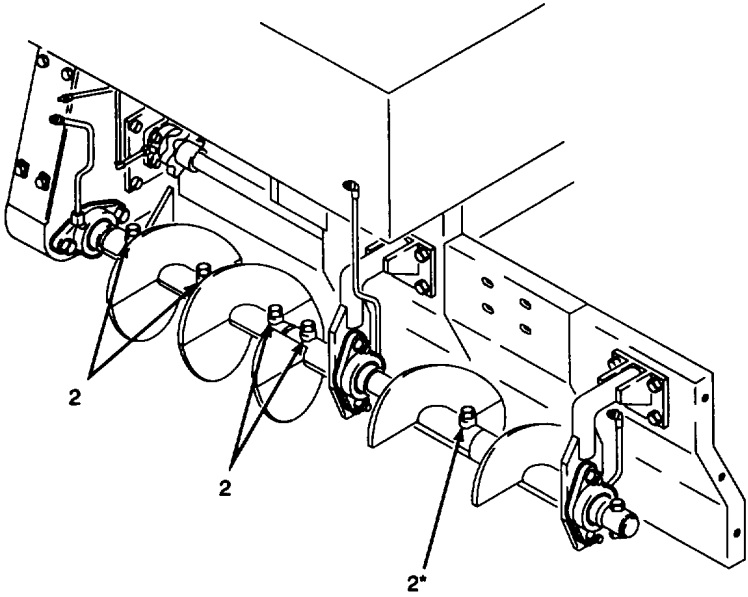


Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
9	50 hours/ semi-annual	Conveyor drive shafts	<p>Check both conveyor drive shafts (3) for free play by grabbing shaft and pulling back and forth.</p> <p>NOTE</p> <p>It may be required to operate the conveyor to move a drag bar from in front of the conveyor shaft. Refer to TM 5-3895-373-10 to allow access to the conveyor shaft.</p>	Either drive shaft end moves inside the bearing

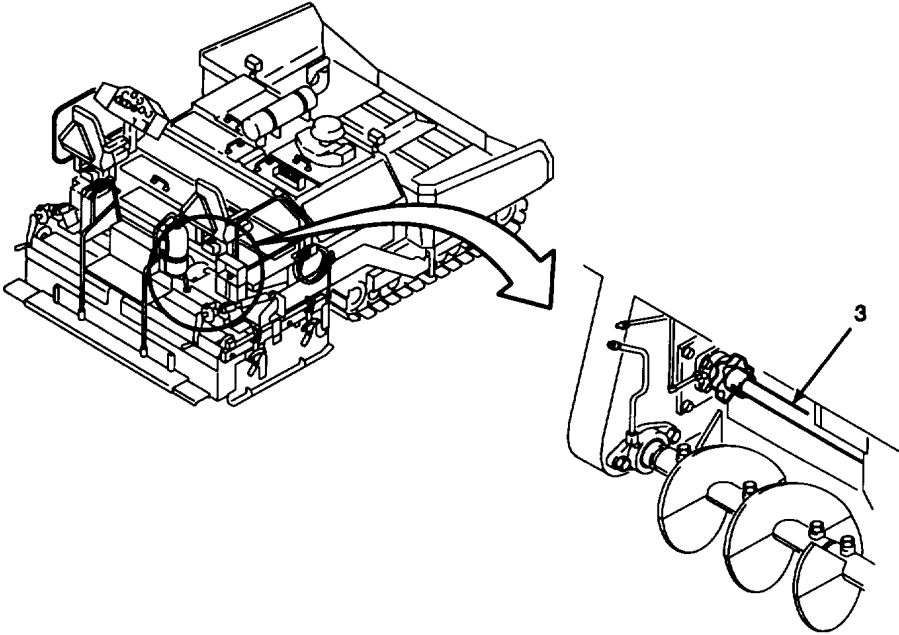


Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

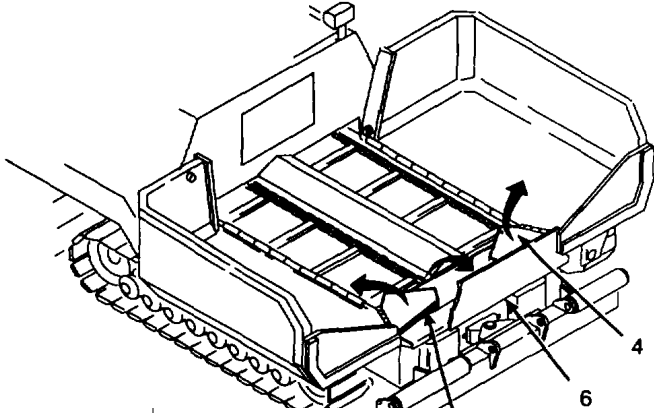
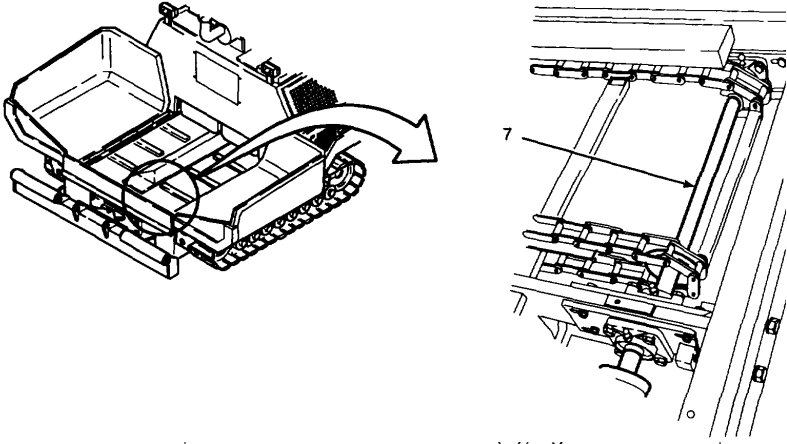
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
10	50 hours/ semi-annual	Conveyor roller shafts	<p>a. Raise left access door (4), right access door (5), and center access door (6).</p>  <p>b. Check conveyor roller shafts (7) for free play by grabbing roller shafts and pulling back and forth.</p>  <p>door (5), and center access door (6).</p>	Either roller shaft moves inside the bearing

Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
11	250 hours/ semi-annual	<u>ENGINE COMPARTMENT</u>	<p>a. Remove engine access cover per paragraph 2.22.</p> <p>b. Open front top left and front top right access doors per TM 5-3895-373-10.</p> <p>c. Remove right access cover per TM 5-3895-373-10.</p> <p>Check turbosupercharger oil return hose clamps (8) for tightness. Check to see that return hose is not worn or leaking.</p>	Any Class III Leak
		Turbosupercharger return hose		

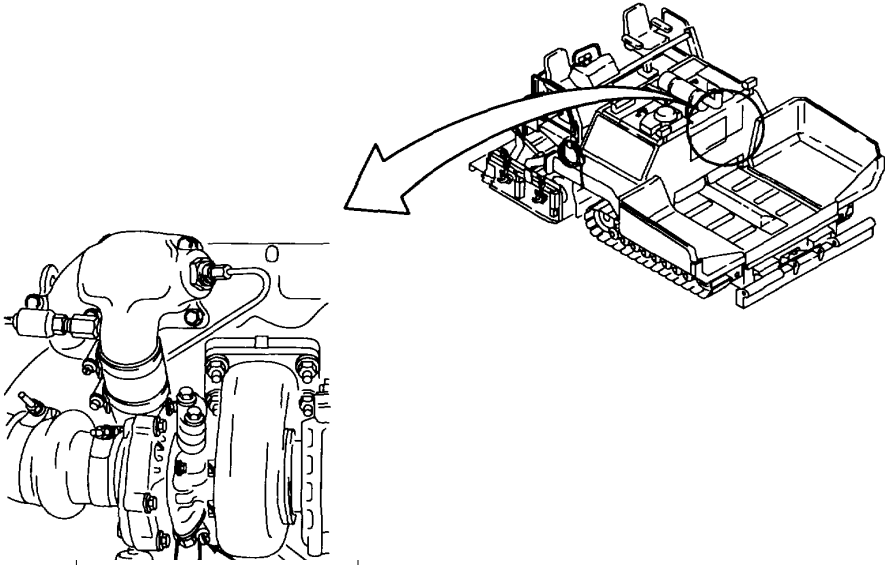
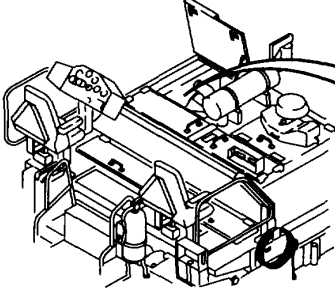
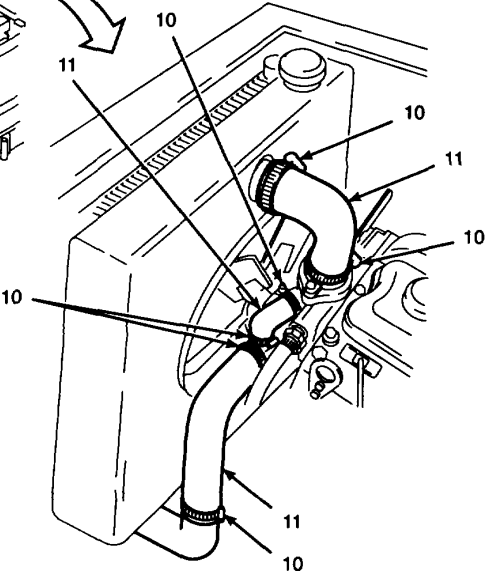
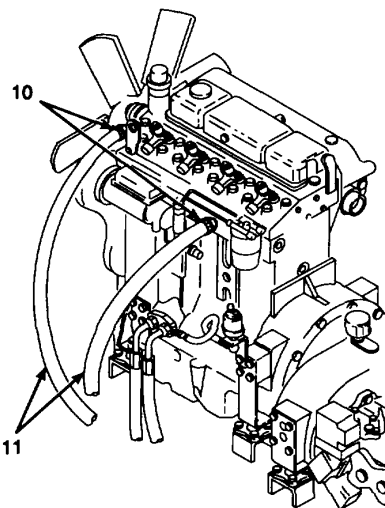


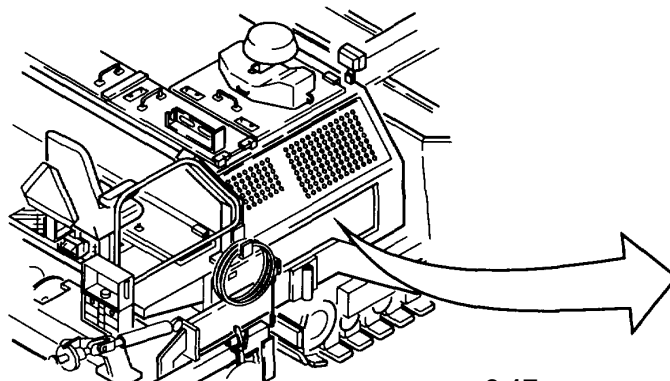
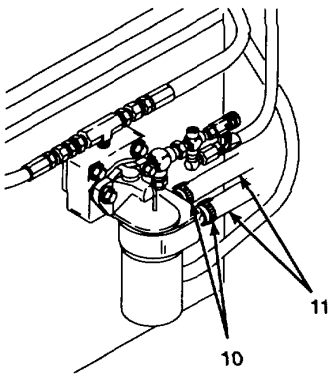
Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
12	250 hours/ semi-annual	Engine oil breather hose	Check engine oil breather hose (9) is not plugged, collapsed, cracked, or crimped.	Oil breather hose is plugged or damaged

Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
13	250 hours/ semi-annual	Engine coolant hoses	Check that all coolant hose clamps (10) are tight and that all coolant hoses (11) are not worn or leaking.	One or more coolant hoses are worn or leaking

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Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
14	250 hours/ semi-annual	Engine fuel filter	Change engine fuel filter element per paragraph 2.23.5.	
15	250 hours/ semi-annual	Engine mounting hardware	Check that there are four mounting hex head cap screws (12) and lockwashers (13) in each engine mounting bracket and that the lockwashers are fully compressed.	One or more engine mounting hex head cap screws are missing or lockwashers are not fully compressed
16	250 hours/ semi-annual	Engine shock mounts	Check that engine resilient mounts (14) between engine mounting brackets and frame are not torn or collapsed.	One or more resilient mounts are torn or collapsed

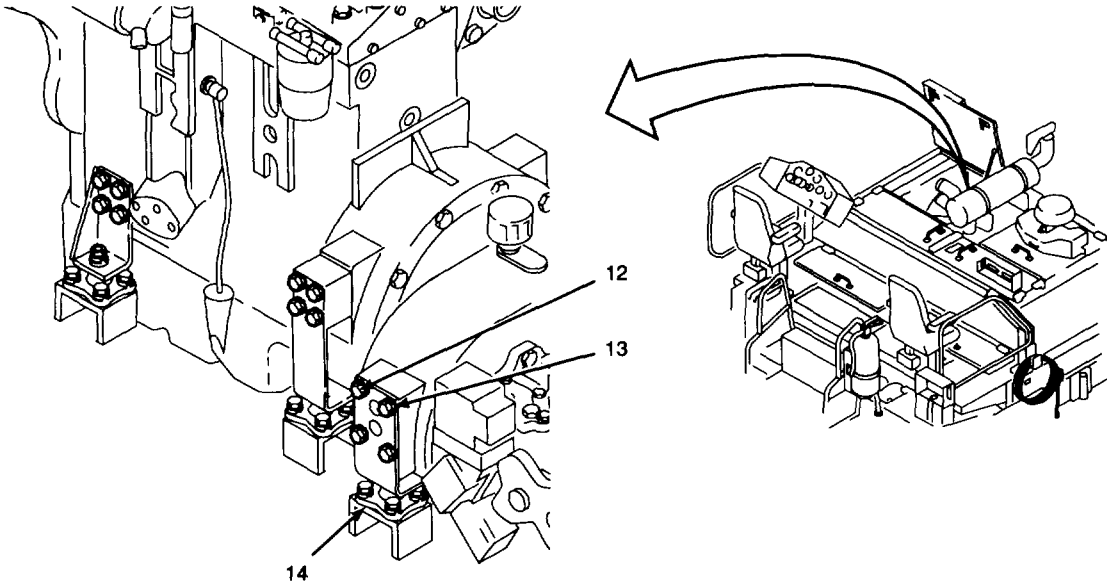


Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
17	250 hours/ semi-annual	Pump drive gearbox	<p>a. Unscrew and remove pump drive gearbox breather (15).</p> <p style="text-align: center;">WARNING</p> <p>Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°C). Failure to do so may result in injury or death to personnel.</p> <p>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, flush eyes with water and get immediate medical attention.</p> <p>b. Clean pump drive gearbox breather by immersing in cleaning solvent upside down and then flushing in clean solvent.</p> <p>c. Install pump drive gearbox breather (15).</p>	Pump drive gearbox breather is broken or missing

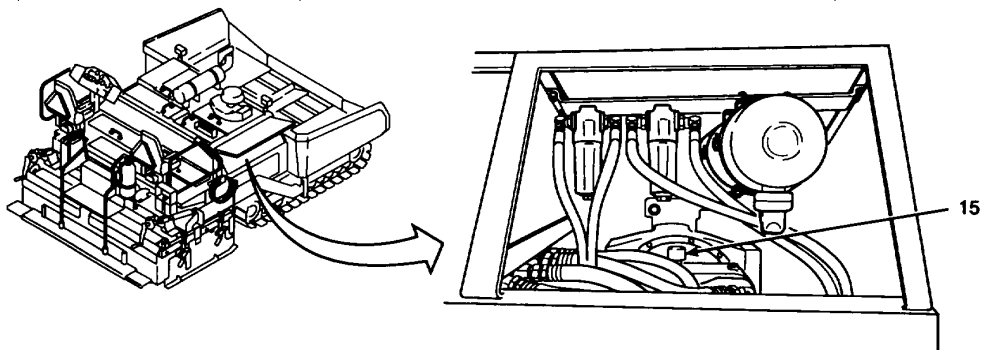


Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
18	250 hours/ semi-annual	Engine oil and oil filter	<p>Change engine oil per LO 5-3895-373-12 and engine oil filter element per paragraph 2.23.2.</p> <ol style="list-style-type: none"> Install engine access cover per paragraph 2.22. Close front top left and front top right access door per TM 5-3895-373-10. Install right access cover per TM 5-3895-373-10. 	
		<u>SIDE</u>		
19	250 hours/ semi-annual	Track drive sprocket gears	<ol style="list-style-type: none"> Check that track drive sprocket gear teeth (16) are not worn to points sharp enough to cut or scratch. Check that track drive sprocket gear mounting stud self-locking nuts (17) are tightened to 355 lb-ft (481 N•m). 	<p>One or more track drive sprocket gear teeth are worn to sharp points</p> <p>One or more track drive sprocket gear mounting stud self-locking nuts are not tight</p>

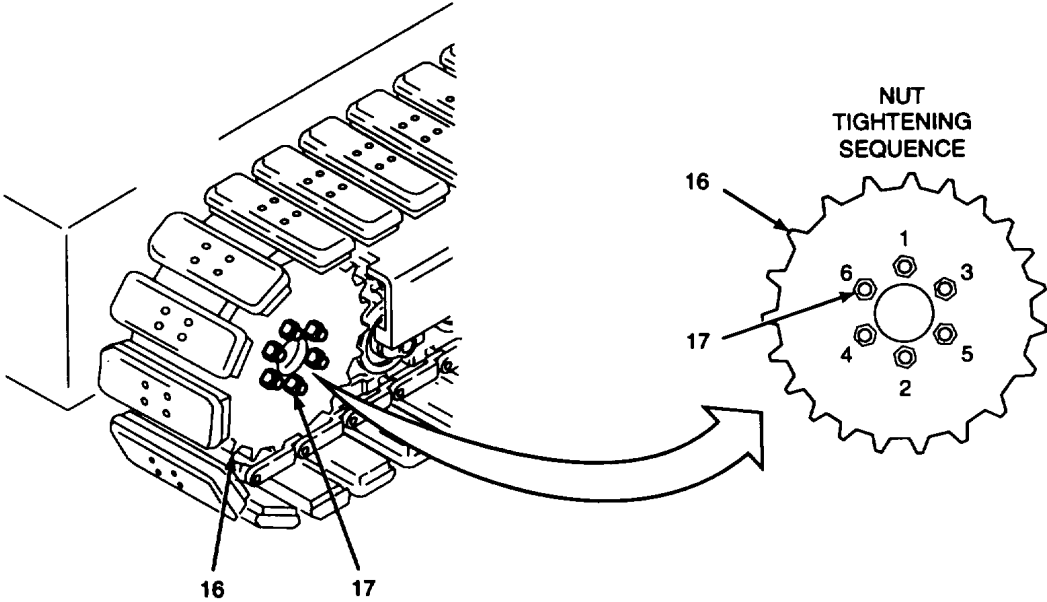


Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
20	250 hours/ semi-annual	Track idlers	<p>Fully raise hopper wings per TM 5-3895-373-10.</p> <p>Check for end play of track idler roller bushings (18) as follows:</p> <p>a. Insert 6 ft pry bar between track frame (19) and track pad (20).</p>	More than 3/4 in. (19 mm) end play of track idler bearings

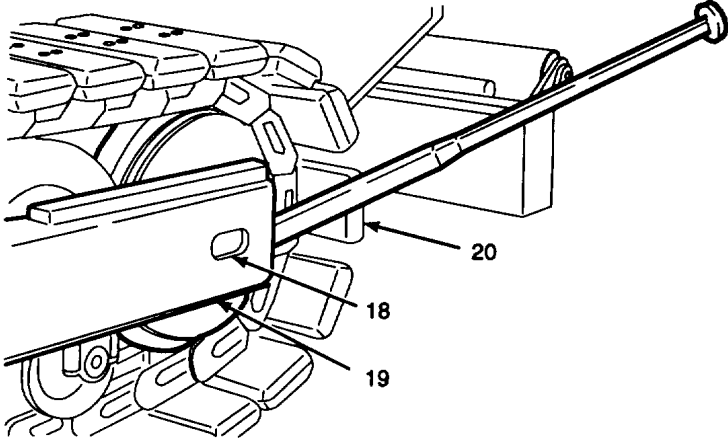


Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

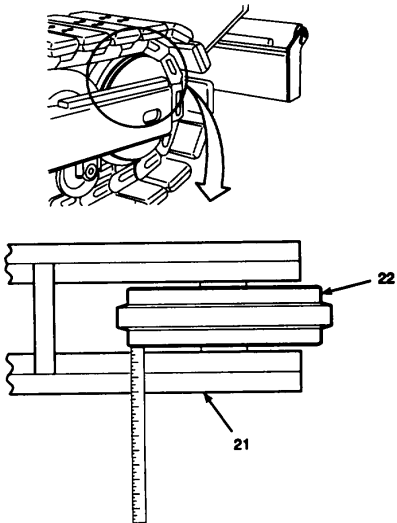
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
			<p>b. Have a second person position ruler on track frame (21) with end of ruler against back outer edge of track idler (22). Record measurement on ruler from track idler to track frame at track frame (19).</p>  <p>The diagram consists of two parts. The top part is a perspective view of a track idler assembly on a paving machine, showing a track idler (22) mounted on a track frame (21). The bottom part is a cross-sectional view showing a ruler placed against the back outer edge of the track idler (22) and the track frame (21). Arrows point from the labels '21' and '22' to their respective parts in the cross-section.</p> <p>c. Apply pressure on pry bar toward paving machine while second person allows ruler to move as track idler (22) moves.</p> <p>d. Release pressure on pry bar without allowing ruler to move. Record measurement on ruler.</p> <p>e. Subtract measurement as recorded in step d from measurement obtained in step b. Measurement calculated is end play of track idler bushings. This measurement must be less than 3/4 in. (19 mm).</p>	

Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

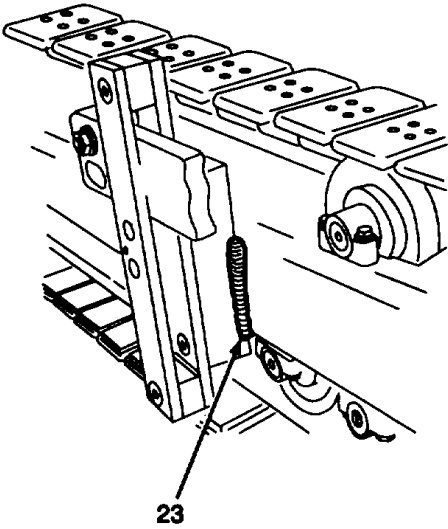
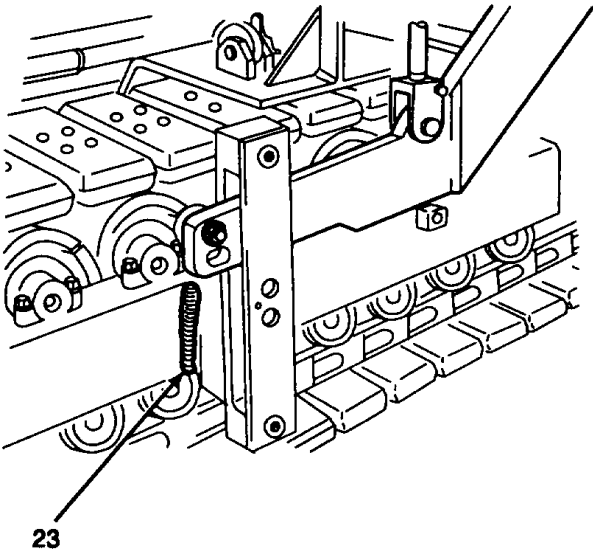
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
21	250 hours/ semi-annual	Frame weld(s)	<p>Hopper wings fully raised per TM 5-3895-373-10.</p> <p>Check rear hopper support weld(s) (23) for breaks or cracks.</p>	Rear hopper support welds are broken or cracked
				

Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
22	250 hours/ semi-annual	Frame weld(s)	Check front hopper support weld(s) (24) for breaks or cracks.	Front hopper support welds are broken or cracked

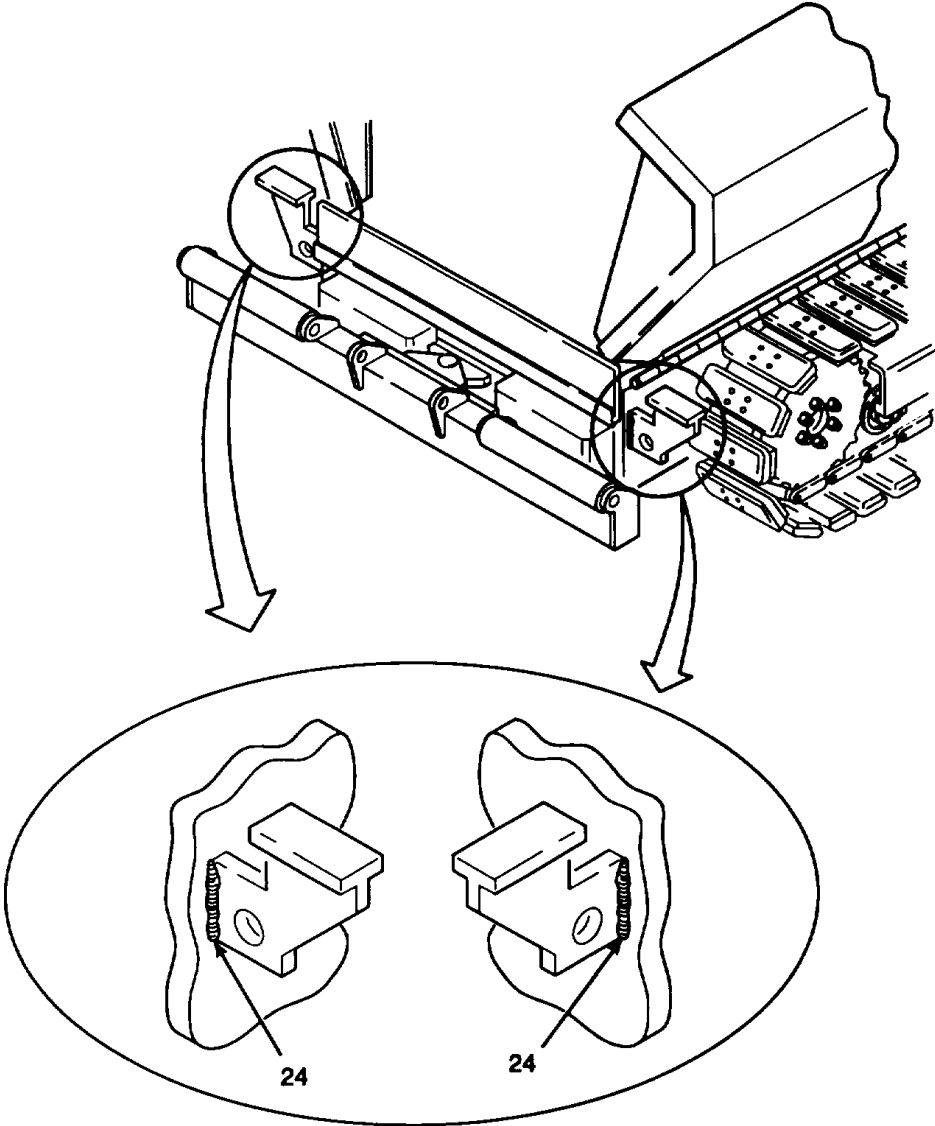
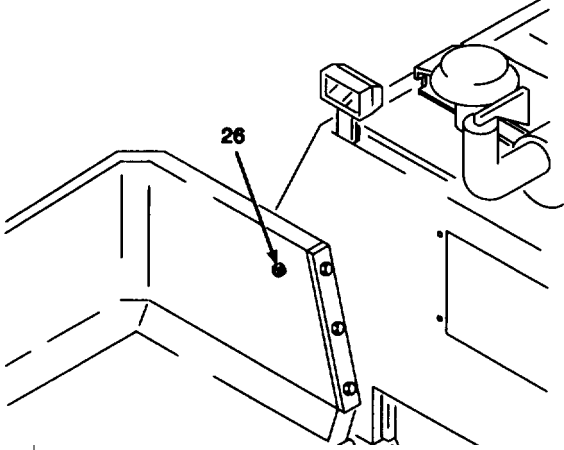
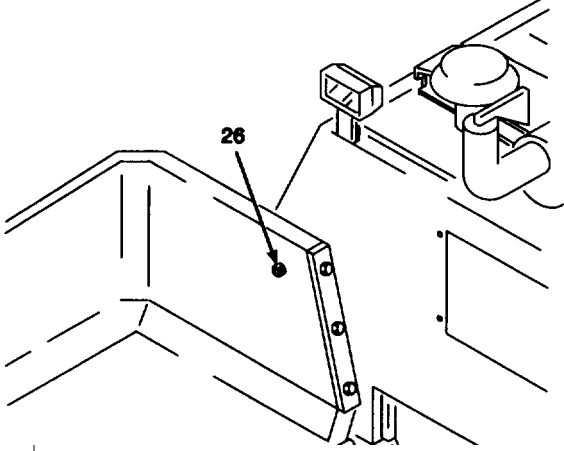
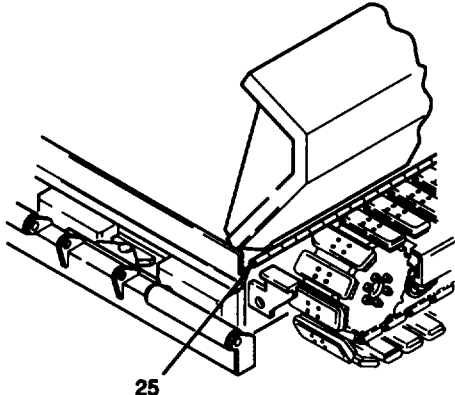
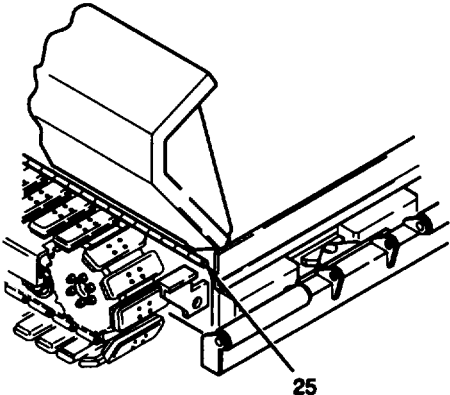


Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
23	250 hours/ semi-annual	FRONT	Check hopper hinge hex head cap screw(s) (25) are tight.	One or more hopper hinge screw(s) are missing
		Hopper hinge screw(s)		
24	250 hours/ semi-annual	Hopper lift cylinder shoulder screw(s)	Check hopper lift cylinder shoulder screw(s) (26) are tight.	One or more shoulder screws are missing
		 <p>2-25</p>		



2-25

Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
25	<p>REAR</p> <p>750 hours/semi-annual</p>	Auger/conveyor drive chain(s)	<p>Check auger/conveyor drive chain tension. Maximum drive chain deflection should be less than 3/4 in. (19,0 mm). If drive chain tension is insufficient, adjust tension per paragraph 15.13.</p>	Drive chain(s) will not adjust

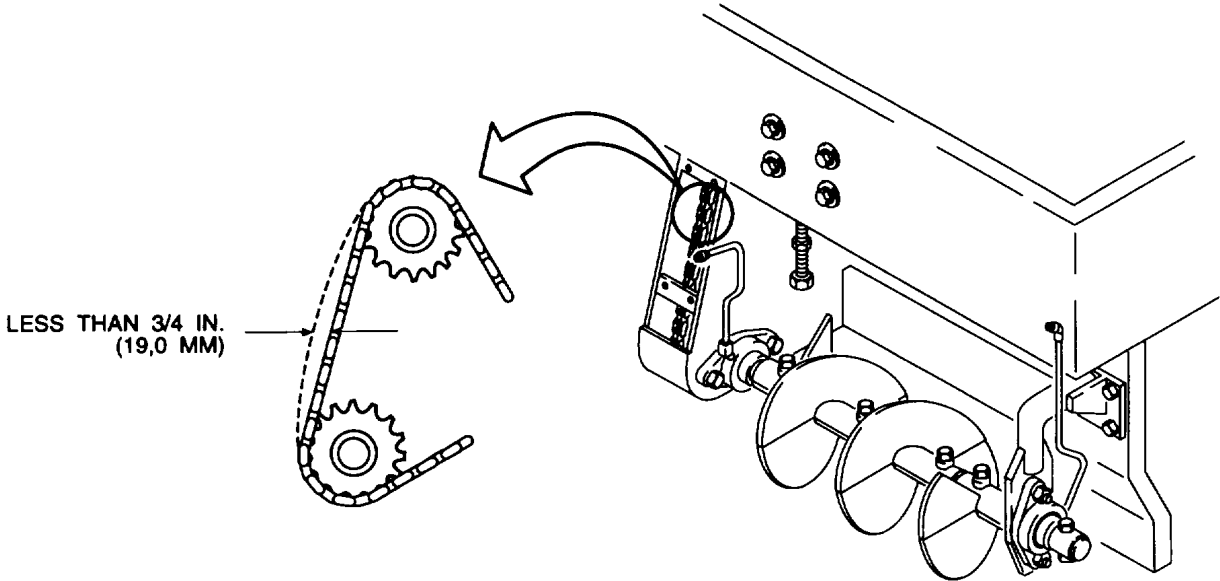


Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
26	750 hours/semi-annual	<u>REAR COMPARTMENT</u>	Replace screed burner and fuel spray fuel filter element per paragraph 2.23.6.	
		Screed burner and fuel spray fuel filter		
27	750 hours/semi-annual	<u>ENGINE COMPARTMENT</u>	Replace hydraulic charge filter elements per paragraph 2.23.9.	
		Hydraulic charge filters		
28	750 hours/semi-annual	Hydraulic return filter	Replace hydraulic return filter element per paragraph 2.23.10.	
WARNING				
If NBC exposure is suspected, all air filter media should be handled by personnel wearing protective equipment. Consult your unit NBC Officer or NBC NCO for appropriate handling or disposal procedures.				
29	1000 hours/annual	Air cleaner filter element	Replace air cleaner filter element per paragraph 4.3.	

Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued -

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
30	1000 hours/annual	FRONT Hopper scraper plate	Check hopper scraper plate clearance per paragraph 15.5.	Scraper plate clearance will not adjust properly
31	1000 hours/annual	Push roller straight headed pin	Inspect push roller straight headed pin for wear, per paragraph 10.2.	Push roller straight headed pin is excessively worn
32	2000 hours/annual	SIDE Track frame mount hex head cap screws	Check that there are four mounting hex head cap screws (27) and lockwashers (28) in each track frame and that lockwashers (28) are fully compressed.	One or more track frame mounting hex head cap screws are missing or lockwashers are not fully compressed

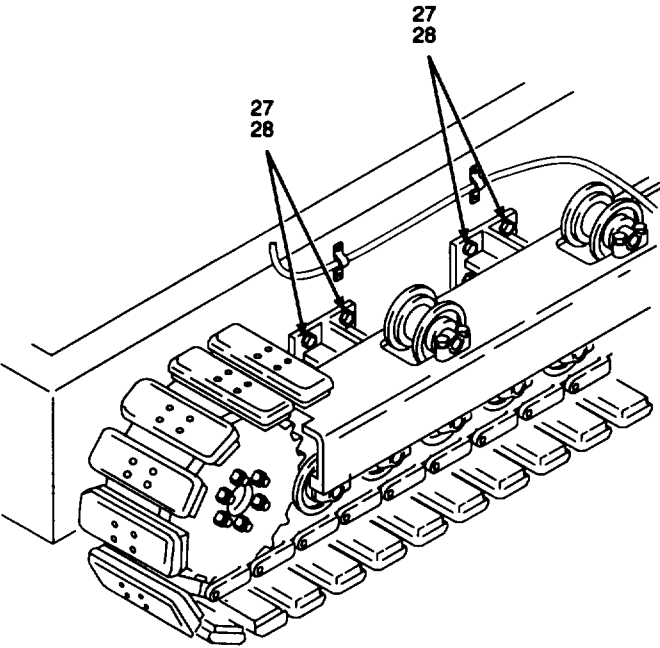


Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
33	2000 hours/annual	<p><u>BOTTOM</u></p> <p>Track chains</p>	<p>Check both track chains (29) as follows:</p> <ol style="list-style-type: none"> Start engine per TM 5-3895-373-10. This ensures track tensioning cylinder extends and track chain is tight. Shut down engine per TM 5-3895-373-10. Select two sections consisting of four links per section on top and bottom of track. Do not select master link. Measure length of each section of four links. Measure from center of track pins as shown. Length of each four-link section must not exceed 20 in. (51 cm). 	<p>Four-link section of track chain measures more than 20 in. (51 cm)</p>

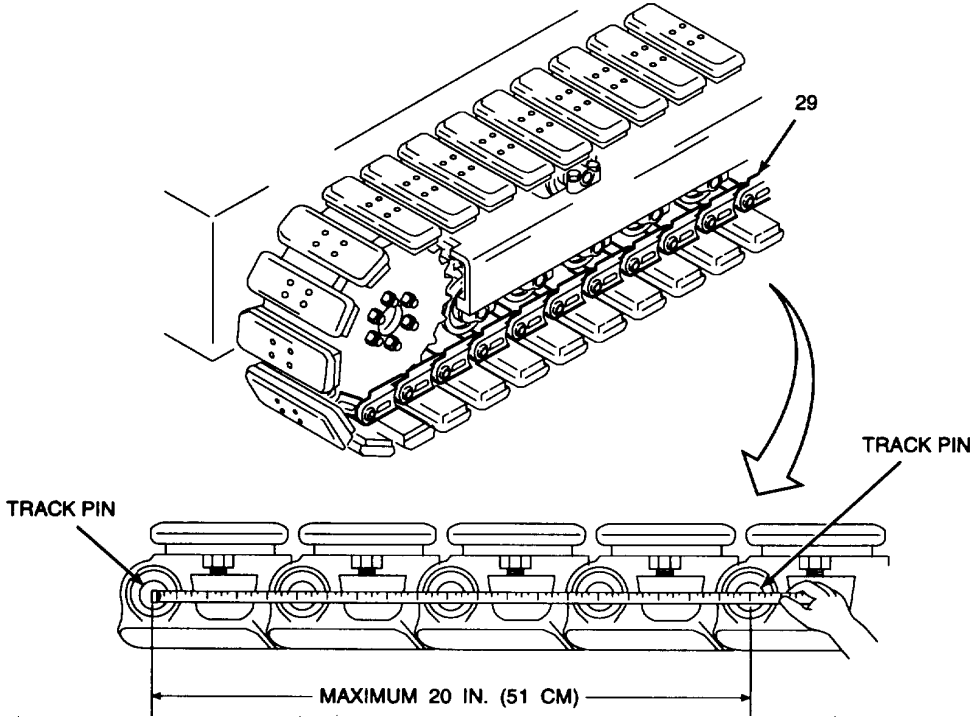


Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued --

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
34	2000 hours/ annual	<p>FRONT</p> <p>Conveyor drag plates</p>	<p>Inspect conveyor drag plates (30) for cracks or holes.</p>	<p>Drag plates are cracked or Have holes</p>

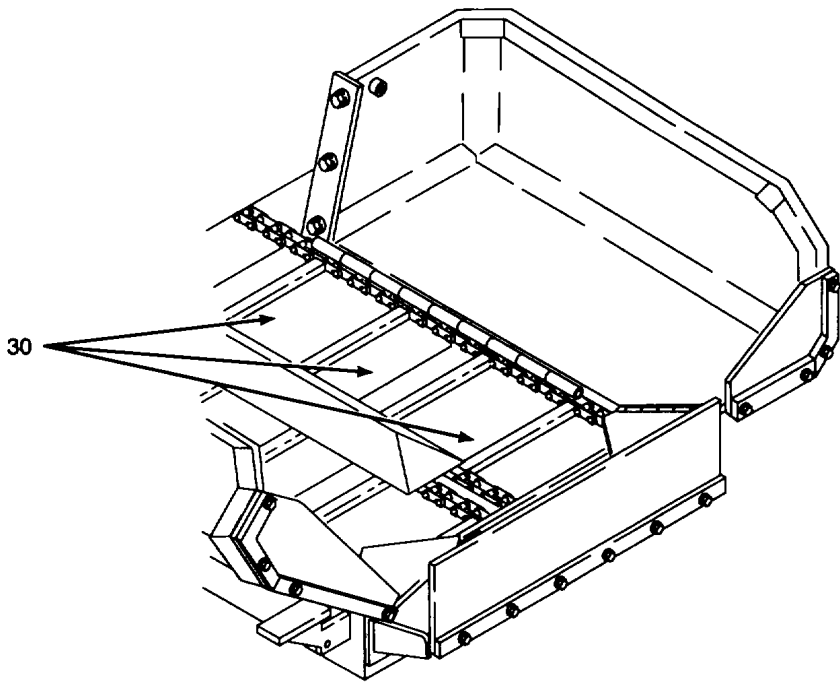


Table 21. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
		<u>BOTTOM</u>		
			WARNING	
			<p>Never crawl under paving machine to perform maintenance unless equipment is securely cribbed. Equipment may fall and cause serious injury or death to personnel.</p> <p>Jack and crib paving machine per paragraph 2.24.2.</p>	
35	2000 hours/annual	Gearbox mounting bolts	<p>a. Check that speed reduction gearbox socket head cap screws (31) are tightened to 45 lb-ft (61 N.m).</p> <p>b. Check that speed reduction gearbox socket head cap screws (32) are tight.</p>	One or more gearbox mounting socket head cap screws are missing
36	2000 hours/annual	Propulsion motor	Check that propulsion motor mounting hex head cap screws (33) are tightened to 125 lb-ft (169 N•m).	One or more propulsion motor mounting hex head cap screws are missing

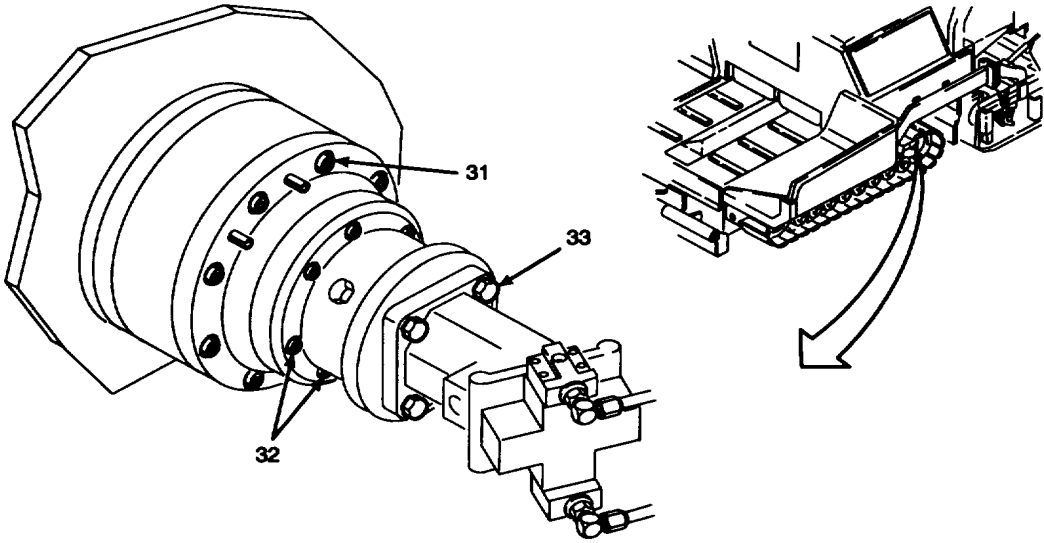
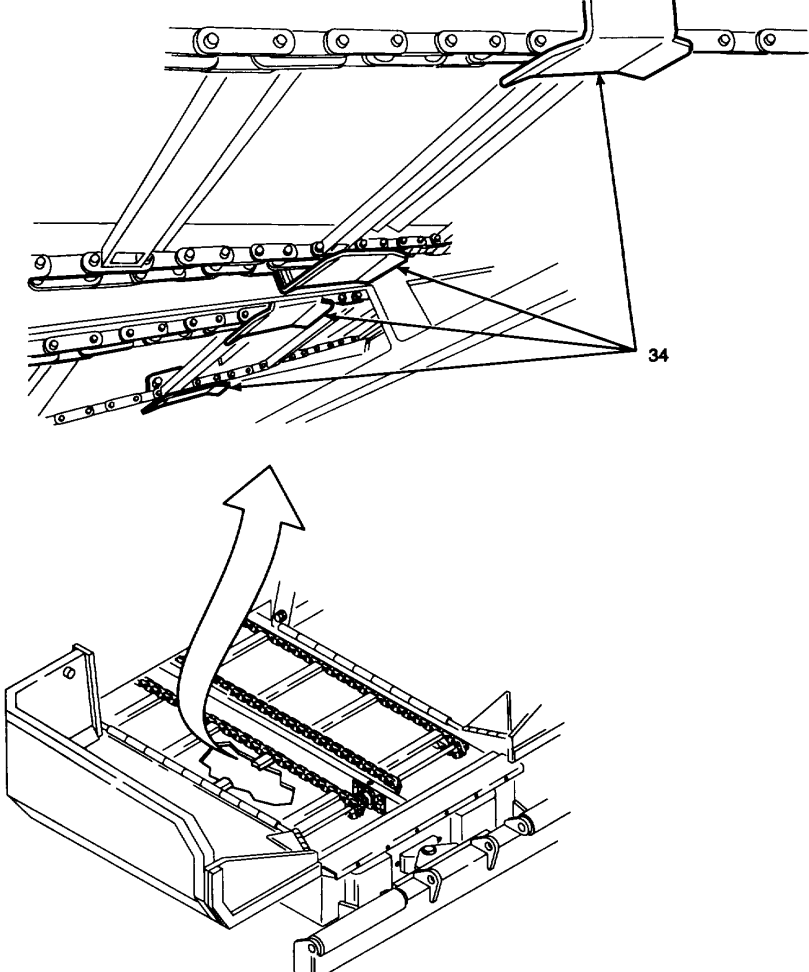


Table 2-1. Preventive Maintenance Checks and Services for Model 780T Bituminous Asphalt Paving Machine - Continued ' -

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
37	2000 hours/annual	Conveyor chain guide bars	<p>Check conveyor chain guide bars (34) for wear grooves deeper than one-half thickness of guide bar.</p> 	Guide bar wear is greater than one-half thickness of guide bar
			<p>Remove paving machine from cribbing per paragraph 2.24.2.</p>	

SECTION IV. DIAGNOSTIC MAINTENANCE PROCEDURES

	Para	Page
Air Intake/Exhaust System Diagnostics.....	2.13	2-65
Alternator/Charging Circuit Diagnostics	2.15	2-83
Battery/Starter Circuit Diagnostics.....	2.17	2-113
DCA Circuit Diagnostics	2.21	2-375
Diagnostic Maintenance Procedures.....	2.10	2-33
Electrical Circuit Diagnostics	2.18	2-129
Engine and Engine Lubrication System Diagnostics.....	2.11	2-35
Engine Cooling System Diagnostics.....	2.14	2-71
Engine Fuel System Diagnostics.....	2.12	2-53
General Diagnostic and STE/ICE-R Maintenance Procedures.....	2.10.2	2-34
How to Perform Diagnostic Maintenance Procedures.....	2.10.1	2-33
Hydraulic System Diagnostics.....	2.19	2-263
Paving Machine Lighting System Diagnostics.....	2.16	2-93
Screed Burner System Diagnostics.....	2.20	2-341

2.10. DIAGNOSTIC MAINTENANCE PROCEDURES.

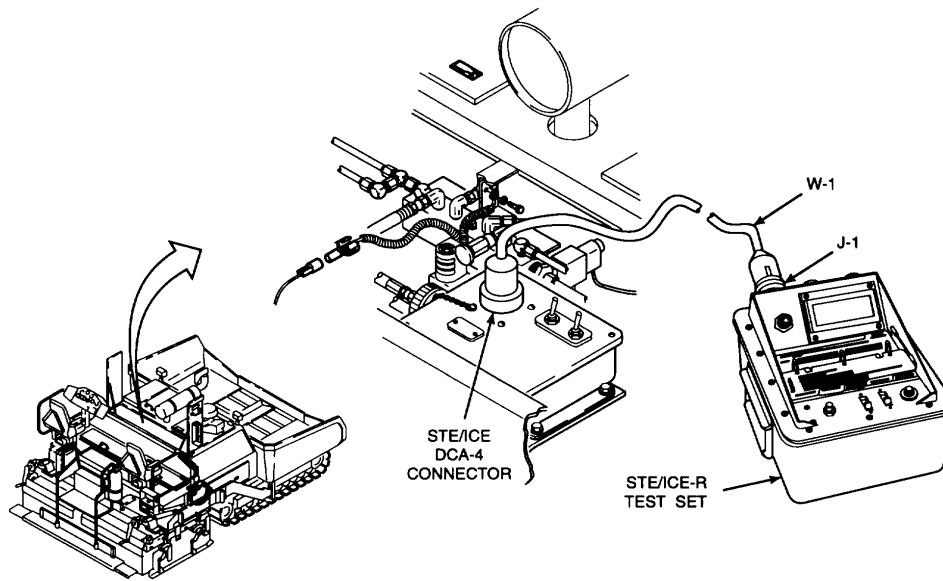
2.10.1. How to Perform Diagnostic Maintenance Procedures. Paving machine diagnostic procedures are presented in a logic flowchart. A separate flowchart is provided for each major system of the machine. In some procedures separate flowcharts are used to troubleshoot specific paving machine functions.

Each diagnostic flowchart uses a series of logical steps. The steps are numbered in sequence, starting with number "1". Each numbered step presents you with a diagnostic procedure and a question about the outcome of the procedure. For each step an INFO KNOWN block states what is known about the problem at the time. A POSSIBLE PROBLEMS block indicates what problems could be causing the malfunction. TEST OPTIONS presents methods or test equipment available for performing the procedure. A REASON FOR QUESTION block states the logic behind the procedure. The basic information required for troubleshooting is presented in upper case text.

When performing a diagnostic procedure, start with step number "1". Perform each step in sequence and answer the related questions. Each question can be answered with "YES" or "NO". Based on the "YES" or "NO" answer, continue through the flowchart until you remedy the problem or until the problem is referred to the Direct Support (DS) level of maintenance.

The numbered diagnostic procedures and related information blocks are always presented on the left hand page. On the facing right hand page, support information for use by less experienced personnel is presented in lower case text. Procedural WARNINGS and CAUTIONS to be observed are given here. All personnel shall observe the warning and caution statements.

Paving machine electrical and hydraulic system diagrams are included for reference at the end of the maintenance manual.



2.10.2. General Diagnostic and STE/ICE-R Maintenance Procedures.

Throughout the diagnostic maintenance procedures, access door(s), access cover(s), and panel(s) must be removed or opened. When a diagnostic step requires this, the access door(s), access cover(s) or panel(s) are listed under the reference information for that step. All access door(s), access cover(s), and panel(s) open/close/removal/install procedures are in TM 5-3895-373-10. The engine access cover and screed cover plate(s) removal/installation is in paragraph 2.22.

Open or remove the listed access door(s), access cover(s), or panel(s) and perform the task before going on to the next access door(s), access cover(s), or panel(s). The fault/failure may be under the first panel.

After a fault is corrected, ensure all access door(s), access cover(s), and panel(s) are closed/installed per TM 5-3895373-10 or paragraph 2.22.

In certain steps of the diagnostic maintenance procedures, the STE/ICE-R is used as a method of determining the condition of the particular system. To use the STE/ICE-R:

1. Open center top right access door and center top left access door per TM 5-3895-373-10.
2. Remove electrical connector cover.

CAUTION

Do not connect STE/ICE-R to diagnostic connector DCA-4 while STE/ICE-R power switch is on. Damage to connector may result.

Connect DCA cable W-1 to J-1 on STE/ICE-R before connecting to the paving machine. Damage to the connector may result.

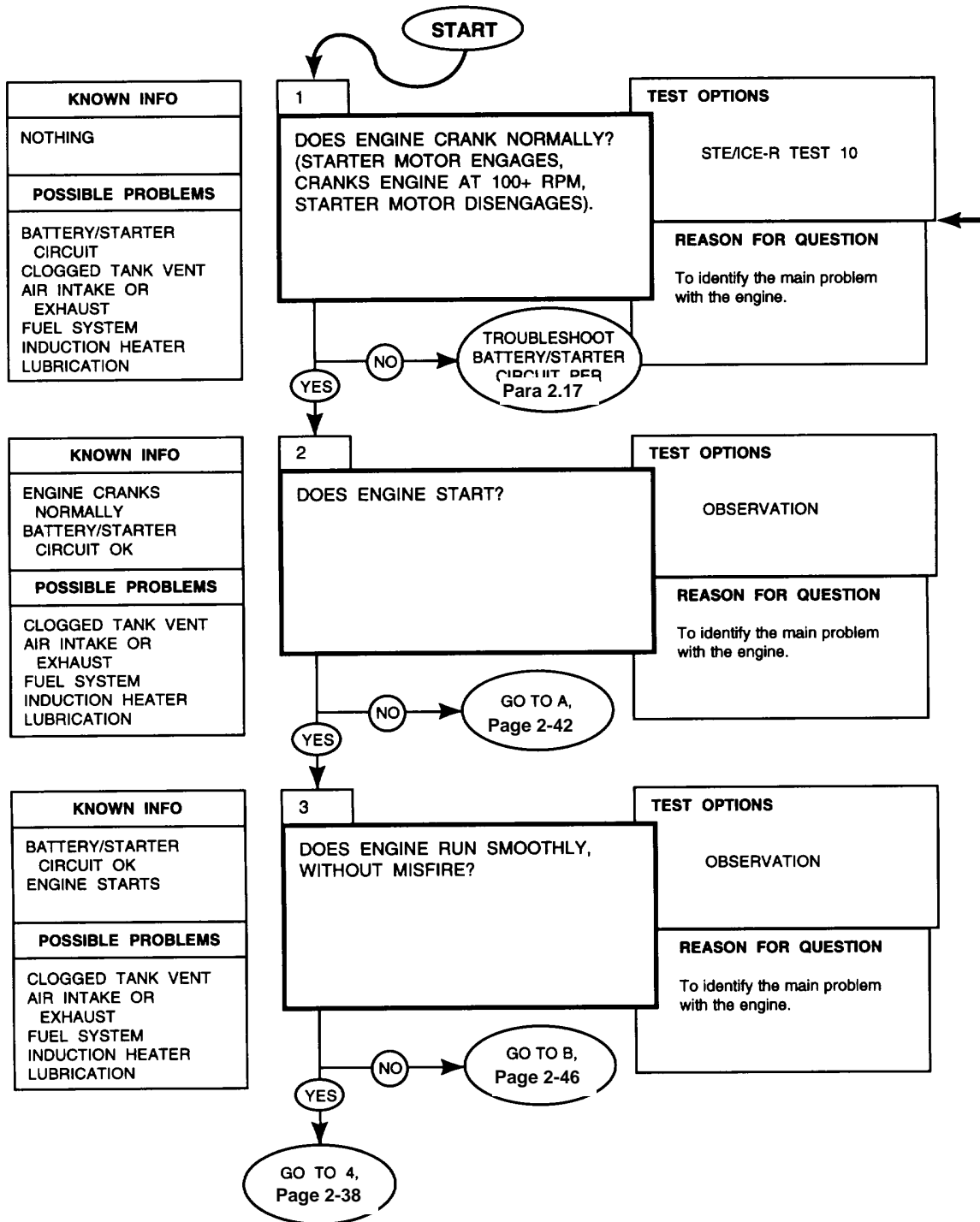
3. Use cable W-1 from the STE/ICE-R test set. Connect cable W-1 to STE/ICE-R J-1 and to STE/ICE DCA-4 connector.
4. Perform STE/ICE-R confidence tests per TM 9-4910-57112&P.
5. Perform STE/ICE-R diagnostic test per applicable step in diagnostic procedure.
6. After completion of testing, set PUSH ON/PULL OFF switch to pull off.
7. Disconnect cable W-1 from STE/ICE DCA4 connector and from STE/ICE-R J-1.
8. Install electrical connector cover.
9. Close center top left access door and center top right access door per TM 5-3895-373-10.

2.11. ENGINE AND ENGINE LUBRICATION SYSTEM DIAGNOSTICS.

Perform these diagnostic tests whenever you detect a problem with the engine's performance or if sent here from another diagnostic test.

ENGINE AND ENGINE LUBRICATION SYSTEM

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

ENGINE AND ENGINE LUBRICATION SYSTEM

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for general information and for connecting/disconnecting STE/ICE-R test set. Shut down engine on completion per TM 5-3895-373-10. Refer to paragraphs 1.14 through 1.17 for engine system operating principles.

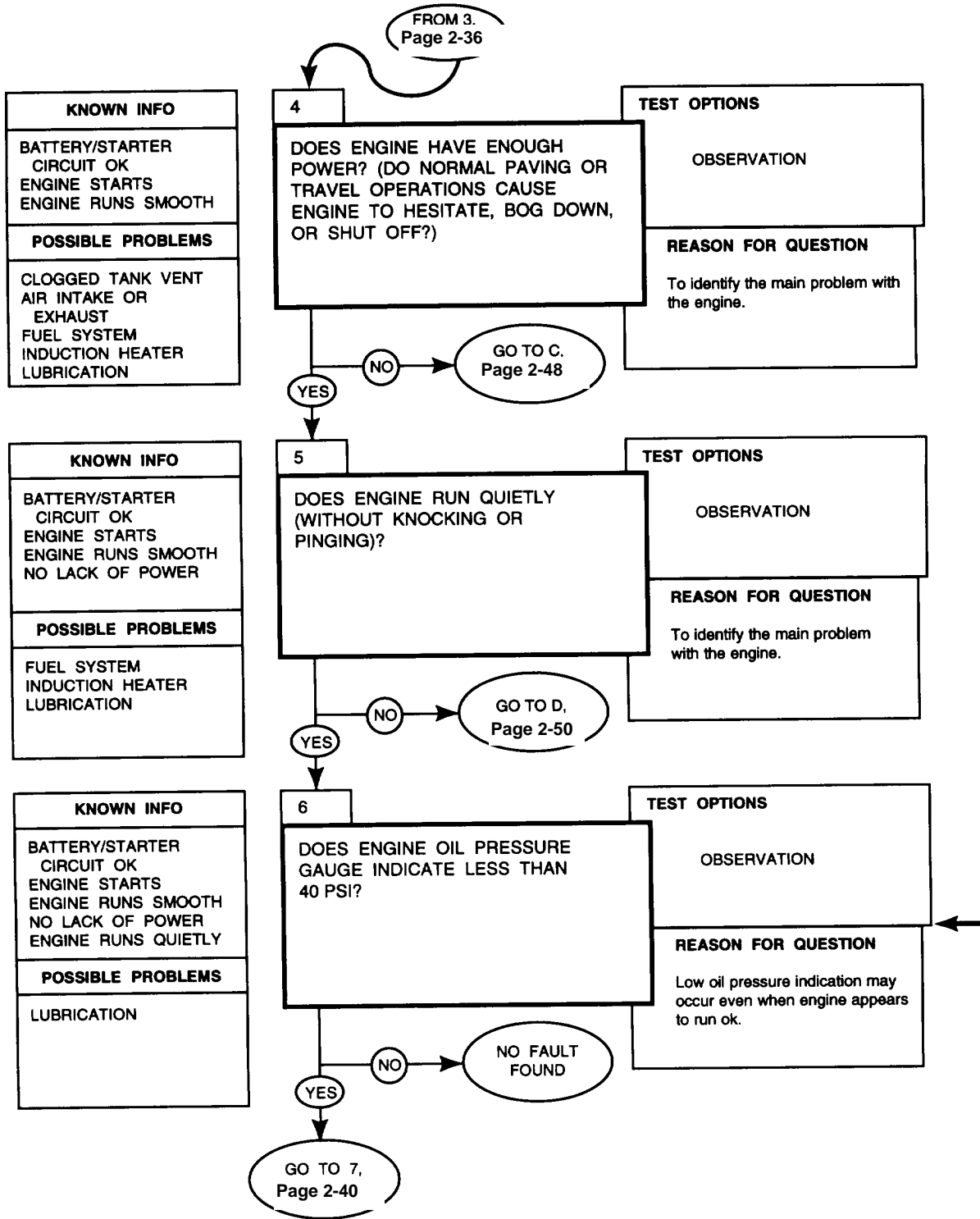
ENGINE SPEED - STE/ICE-R TEST 10	
DESCRIPTION TEST PROCEDURES- Continued	
Measures engine speed in the range of 50 to 5000 rpm using pulse tachometer generator. DCA Test Pins: c and d	
PRE-TEST PROCEDURES	
Run confidence test per TM 9-4910-571-12&P.	
POSSIBLE ERROR MESSAGES	
None	
TEST PROCEDURES	
1. Set TEST SELECT switches to 10.	4. Turn ignition switch to start position and crank engine for 10 seconds per TM 5-3895-373-10.
2. Set ENGINE CRANK switch on DCA housing to TEST to prevent engine from starting.	5. Observe displayed value. Displayed values are in rpm. If .9.9.9.9 is displayed, engine speed is not within test range. Expected display value is 100 rpm minimum.
3. Press and release TEST button.	6. Start engine per TM 5-3895-373-10.
	7. Set throttle control to IDLE per TM 5-3895-373-10.
	8. Repeat step 5. Expected display value is 500 to 850 rpm (650 rpm is nominal).
	9. Set throttle control to MAX per TM 5-3895-373-10.
	10. Repeat step 5. Expected display value is 2640 +40 rpm (2650 rpm is nominal).
	11. Shut down engine per TM 5-3895-373-10.

If STE/ICE-R reading does not approach expected value, check pulse tachometer generator per DCA diagnostics, paragraph 2.21.

Cranking rpms will vary with temperature. At -22°F (-30°C) cranking rpms may be as low as 80 rpm, minimum.

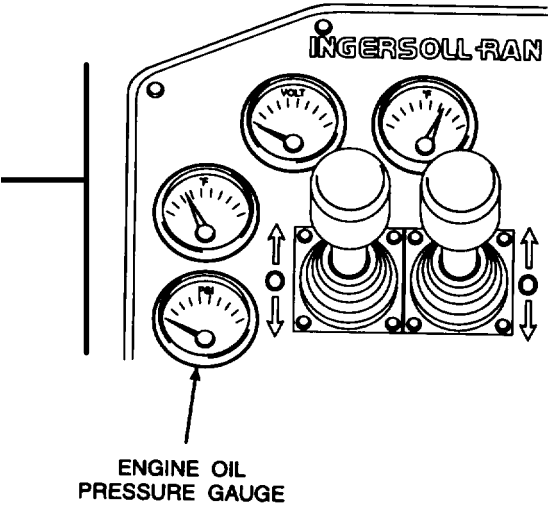
ENGINE AND ENGINE LUBRICATION SYSTEM

DIAGNOSTIC FLOWCHART



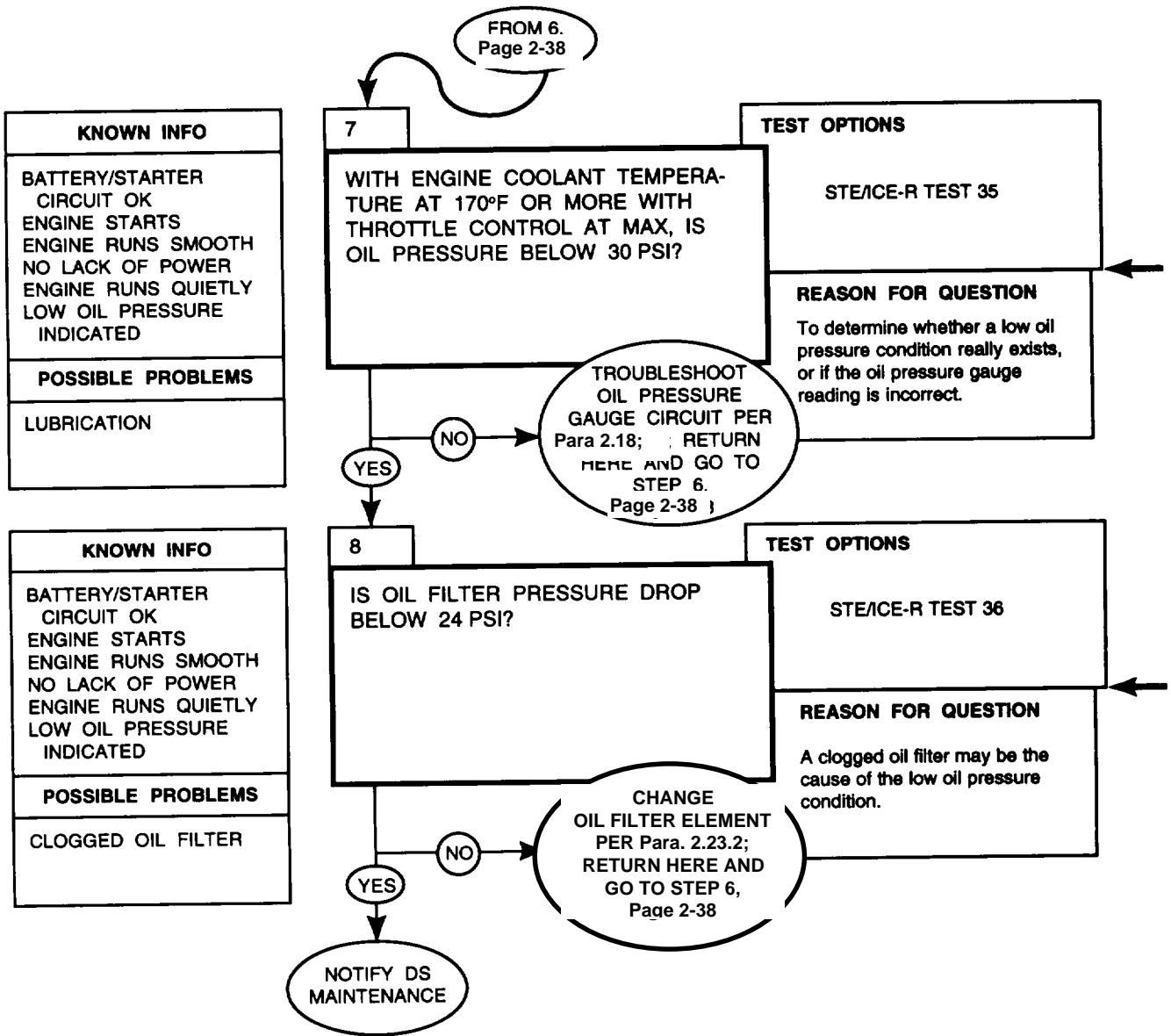
REFERENCE INFORMATION

ENGINE AND ENGINE LUBRICATION SYSTEM



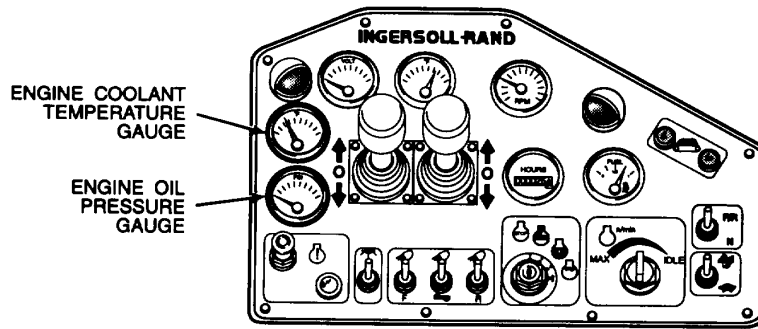
ENGINE AND ENGINE LUBRICATION SYSTEM

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

ENGINE AND ENGINE LUBRICATION SYSTEM



OIL PRESSURE TEST - STE/ICE-R TEST 35	
DESCRIPTION TEST PROCEDURES	
Measures engine oil pressure. Transmitter: 12258932-6 DCA Test Pins: y and z Measurement Range: 0 to 100 psi	<ol style="list-style-type: none"> 1. Set TEST SELECT switches to 35. 2. Make sure no stimulus is applied to transmitter (shut
PRE-TEST PROCEDURES	
Run confidence test per TM 9-4910-571-12&P.	<ol style="list-style-type: none"> 3. Press and hold TEST button until CAL appears on display. 4. Release TEST button and wait for offset value to appear on display. If offset value is within -15 to +15 psi, proceed.
POSSIBLE ERROR MESSAGES	
005 Required offset test was not performed.	<ol style="list-style-type: none"> 5. Press and release TEST button. 6. Run warm engine at test speed per TM 5-3895-373-10. 7. Observe displayed value. Displayed values are in pounds per inch (psi). Expected display values are: @500 to 850 rpm 10 psi, minimum @2640 ±40 rpm 40 psi, minimum

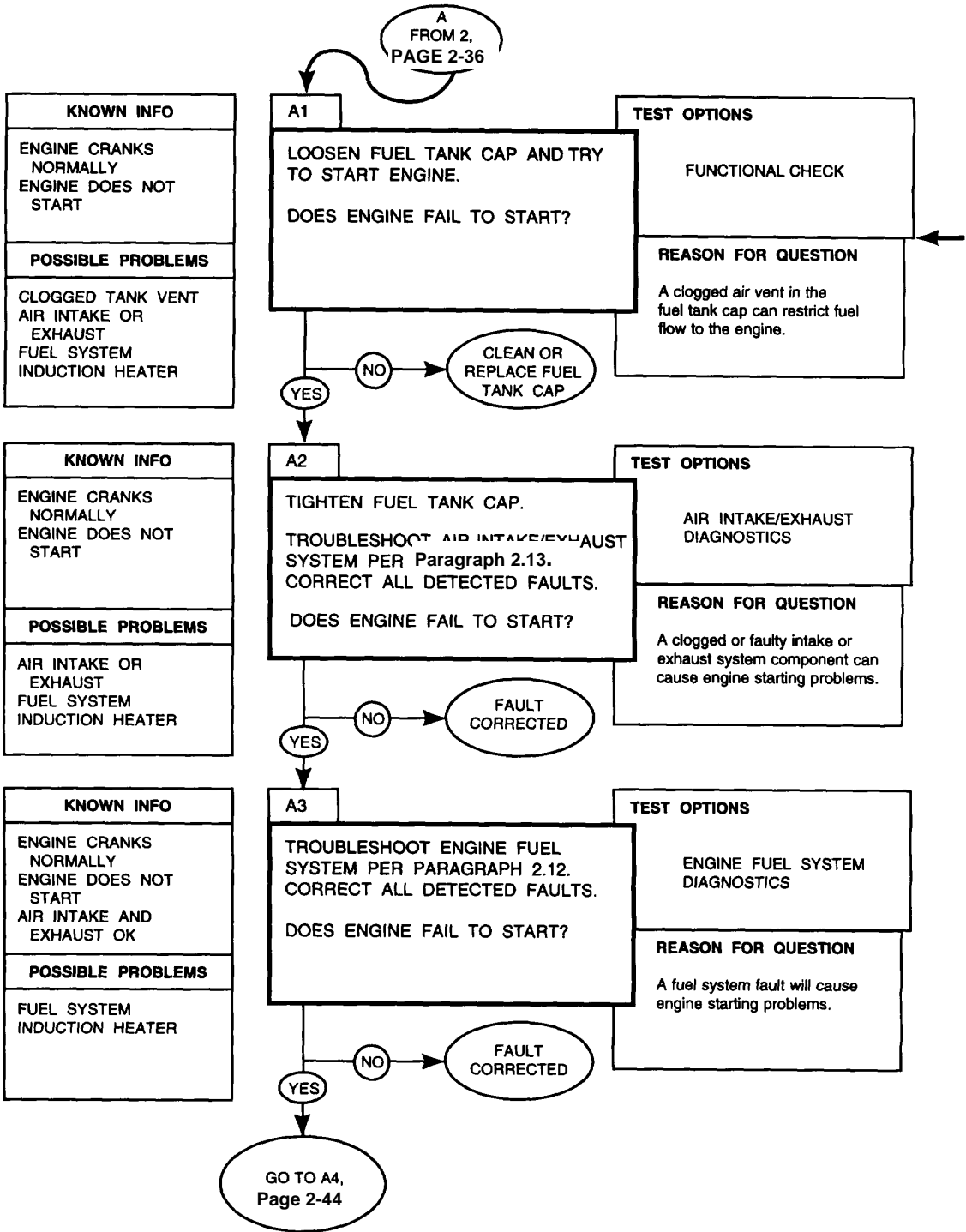
STE/ICE-R test #35 measures the true oil pressure under low and fast idle conditions.

OIL FILTER PRESSURE DROP TEST - STE/ICE-R TEST 36	
DESCRIPTION	TEST PROCEDURES
Measures the pressure drop across the engine oil filter as indicator of filter element clogging. DCA Test Pins: AC and AD Measurement Range: 0 to 25 psi	<ol style="list-style-type: none"> 1. Set TEST SELECT switches to 36. 2. Shut engine off.
3. Press and hold TEST button until CAL appears on display.	
PRE-TEST PROCEDURES	
Run confidence test per TM 9-4910-571-12&P. proceed.	<ol style="list-style-type: none"> 4. Release TEST button and wait for offset value to appear on display. If offset value is within -3.75 to +3.75 psi,
POSSIBLE ERROR MESSAGES	
005 Required offset test was not performed.	<ol style="list-style-type: none"> 5. Press and release TEST button. 6. Run warm engine with throttle control at MAX per TM 5-3895-373-10. 7. Observe displayed value. Displayed values are in pounds per inch (psi). Expected display value is 24 psi, maximum.

STE/ICE-R test #36 measures the pressure drop across the oil filter. A pressure drop reading over 24 psi indicates that the engine oil filter element needs to be changed.

ENGINE AND ENGINE LUBRICATION SYSTEM

DIAGNOSTIC FLOWCHART



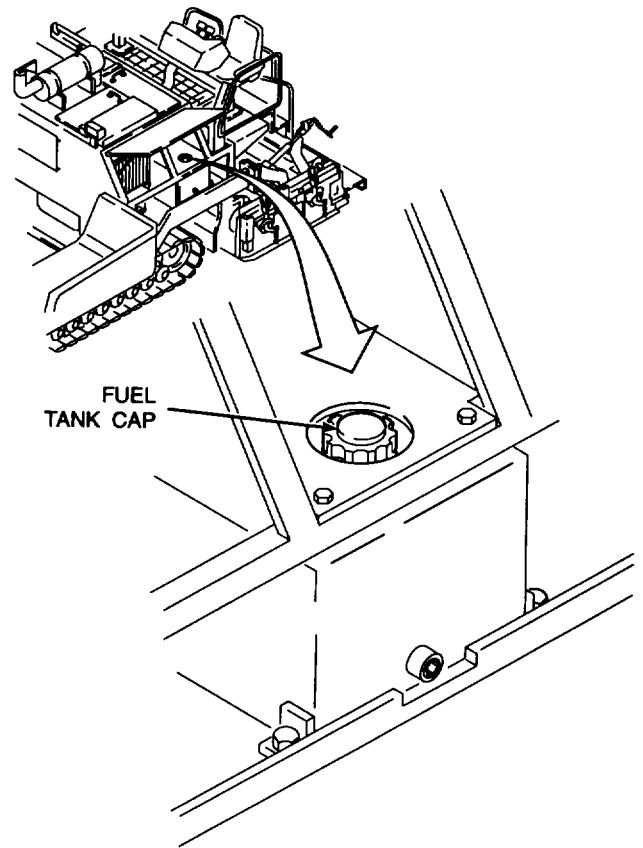
REFERENCE INFORMATION

ENGINE AND ENGINE LUBRICATION SYSTEM

Open left access door per TM 5-3895-373-10 to gain access to fuel tank cap. Close left access door per TM 5-3895-373-10.

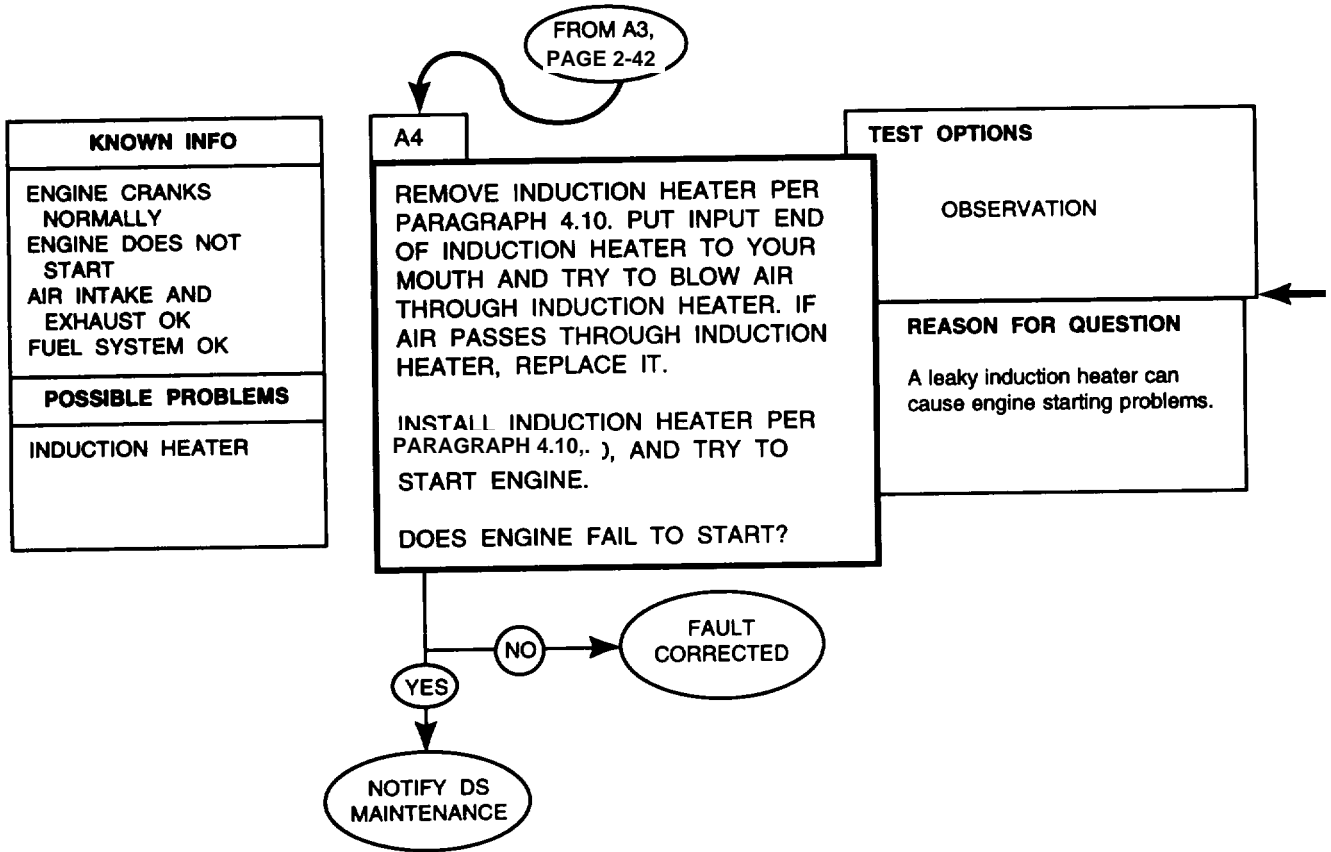
A blocked tank vent port in the fuel tank cap can set up a vacuum in the fuel tank. A fuel tank vacuum pressure will slow fuel flow to the pump and engine.

Refer to paragraph 4.5 for fuel tank repair.



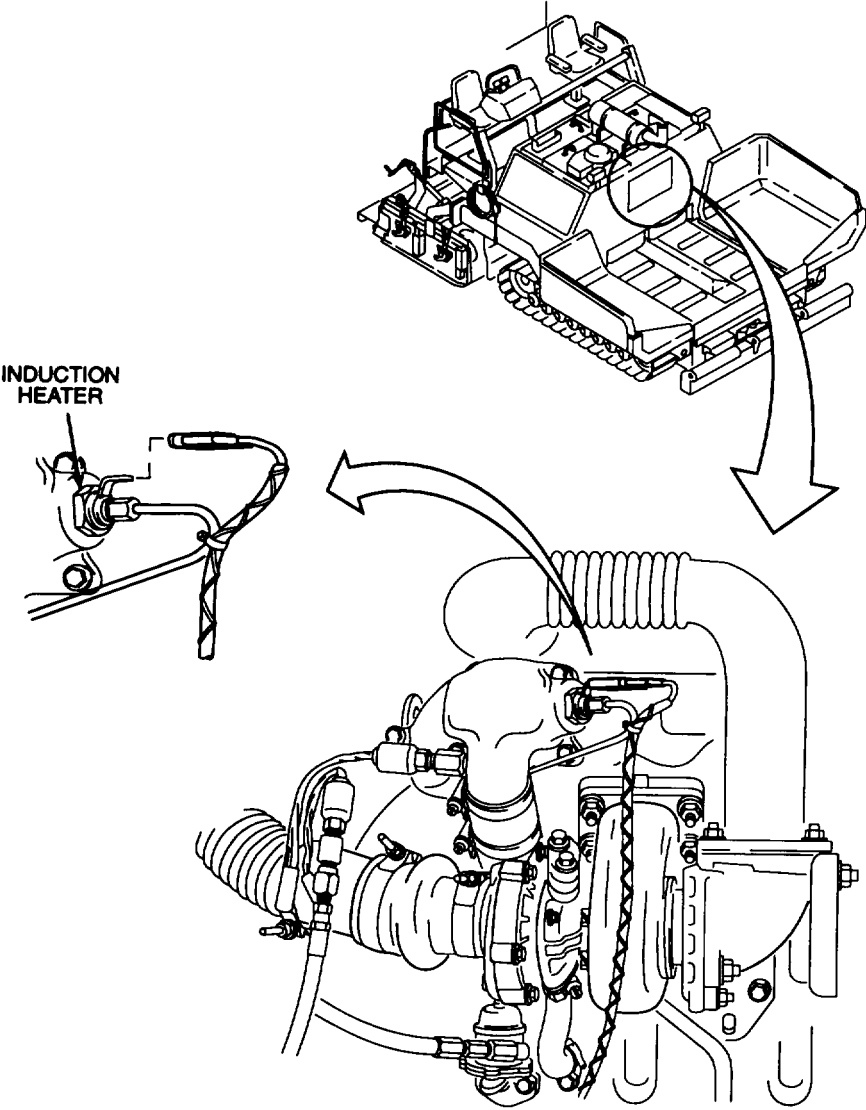
ENGINE AND ENGINE LUBRICATION SYSTEM

DIAGNOSTIC FLOWCHART



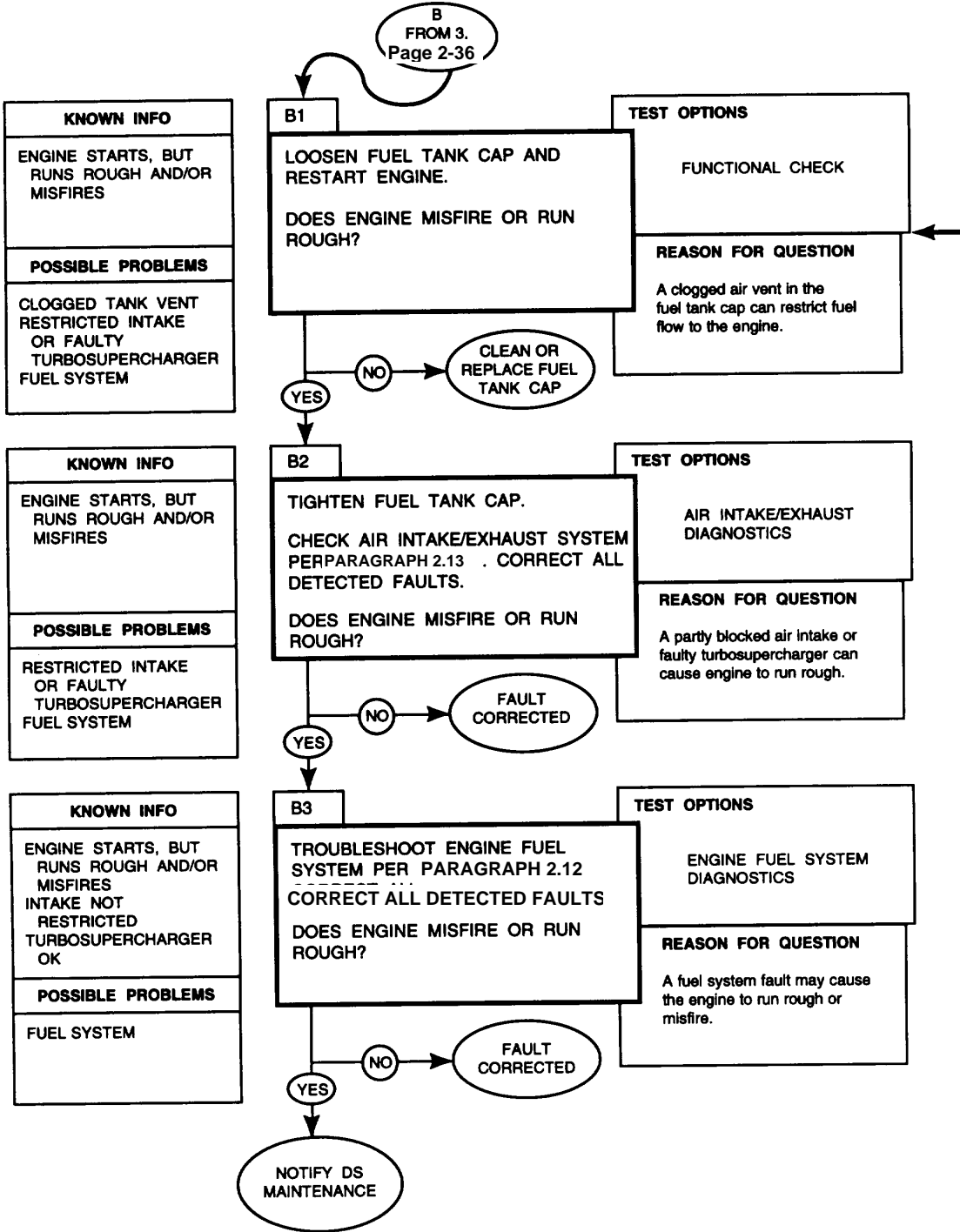
REFERENCE INFORMATION

ENGINE AND ENGINE LUBRICATION SYSTEM



ENGINE AND ENGINE LUBRICATION SYSTEM

DIAGNOSTIC FLOWCHART

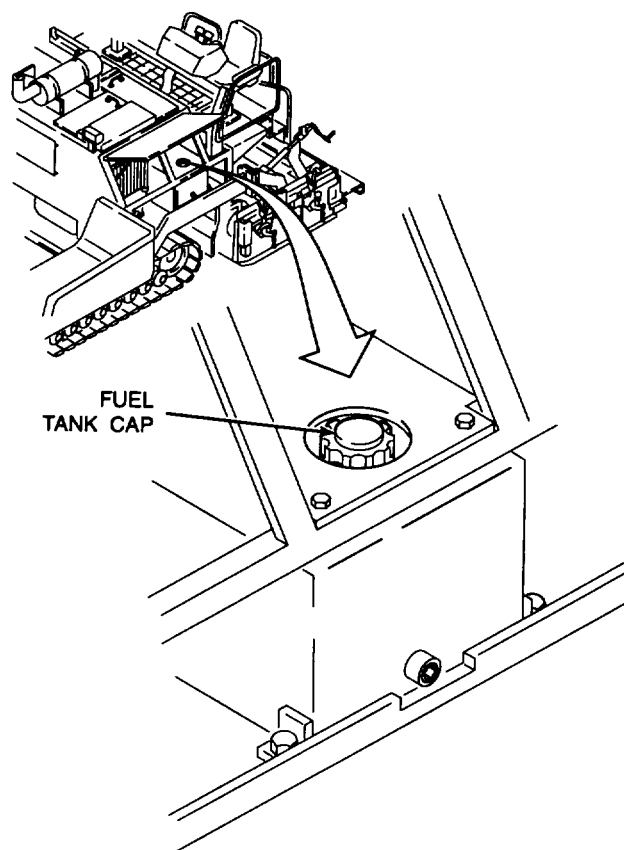


REFERENCE INFORMATION

ENGINE AND ENGINE LUBRICATION SYSTEM

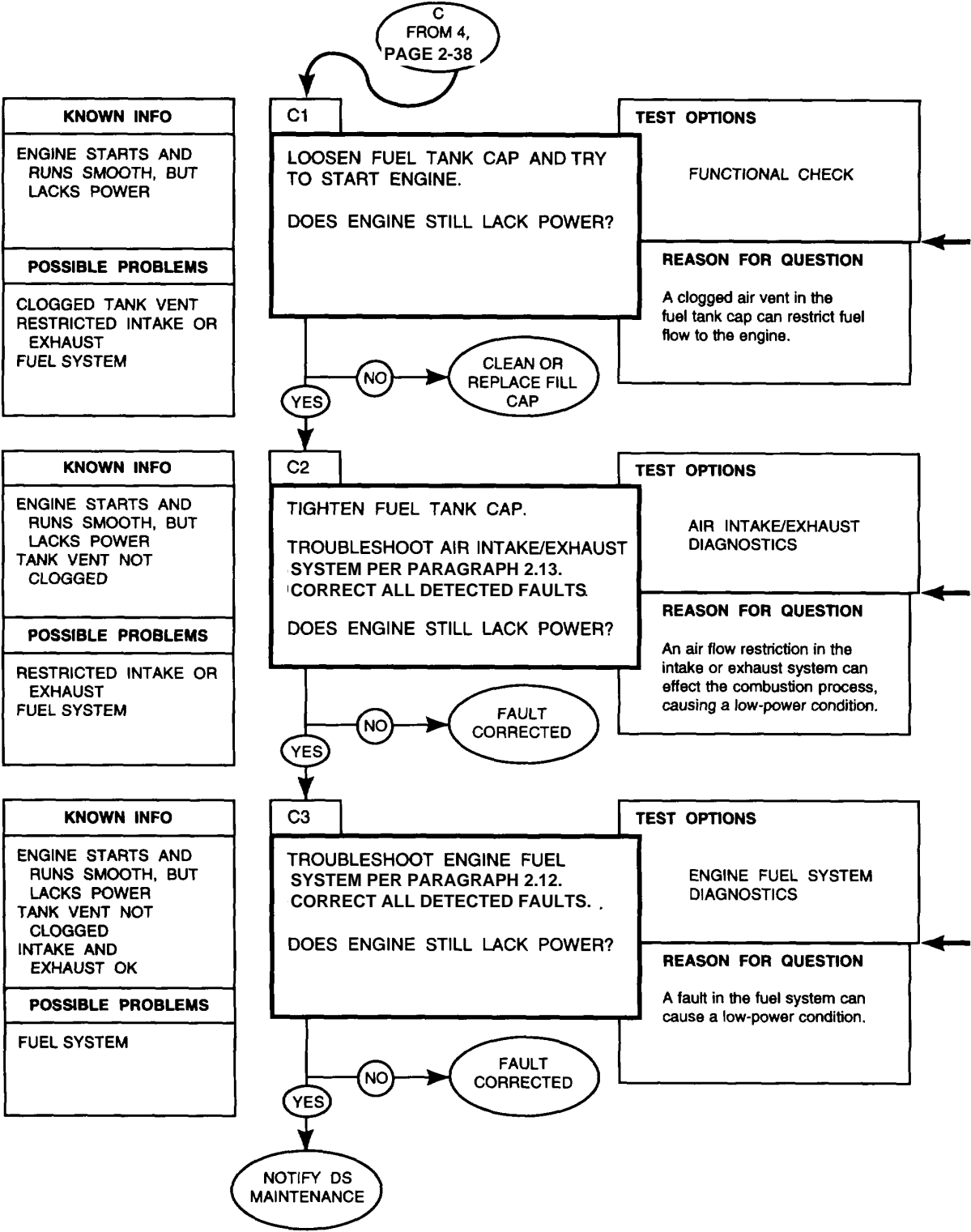
A blocked tank vent port in the fuel tank cap can set up a vacuum in the fuel tank. A fuel tank vacuum pressure will slow fuel flow to the pump and engine.

Refer to paragraph 4.5 for fuel tank repair.



ENGINE AND ENGINE LUBRICATION SYSTEM

DIAGNOSTIC FLOWCHART

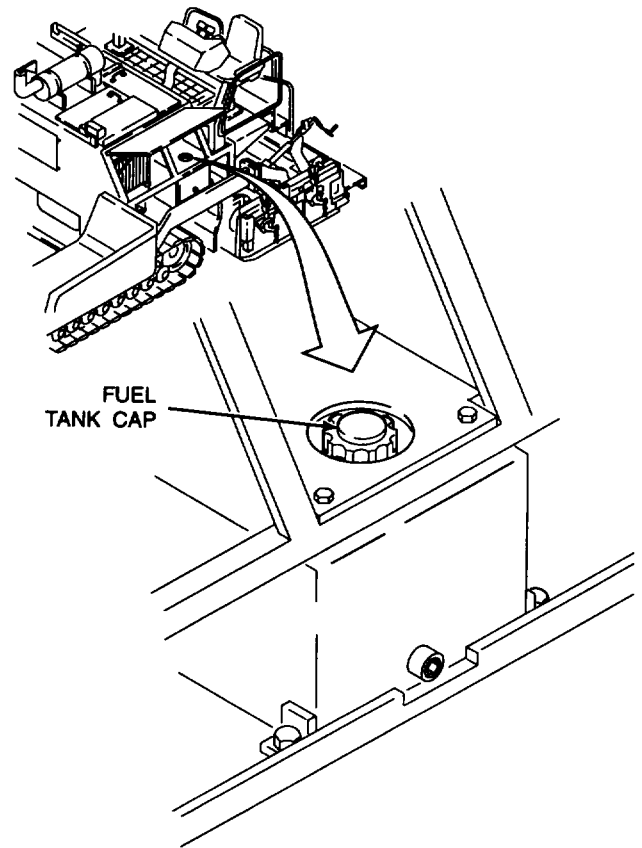


REFERENCE INFORMATION

ENGINE AND ENGINE LUBRICATION SYSTEM

A blocked tank vent port in the fuel tank cap can set up a vacuum in the fuel tank. A fuel tank vacuum pressure will slow fuel flow to the pump and engine.

Refer to paragraph 4.5 for fuel tank repair.



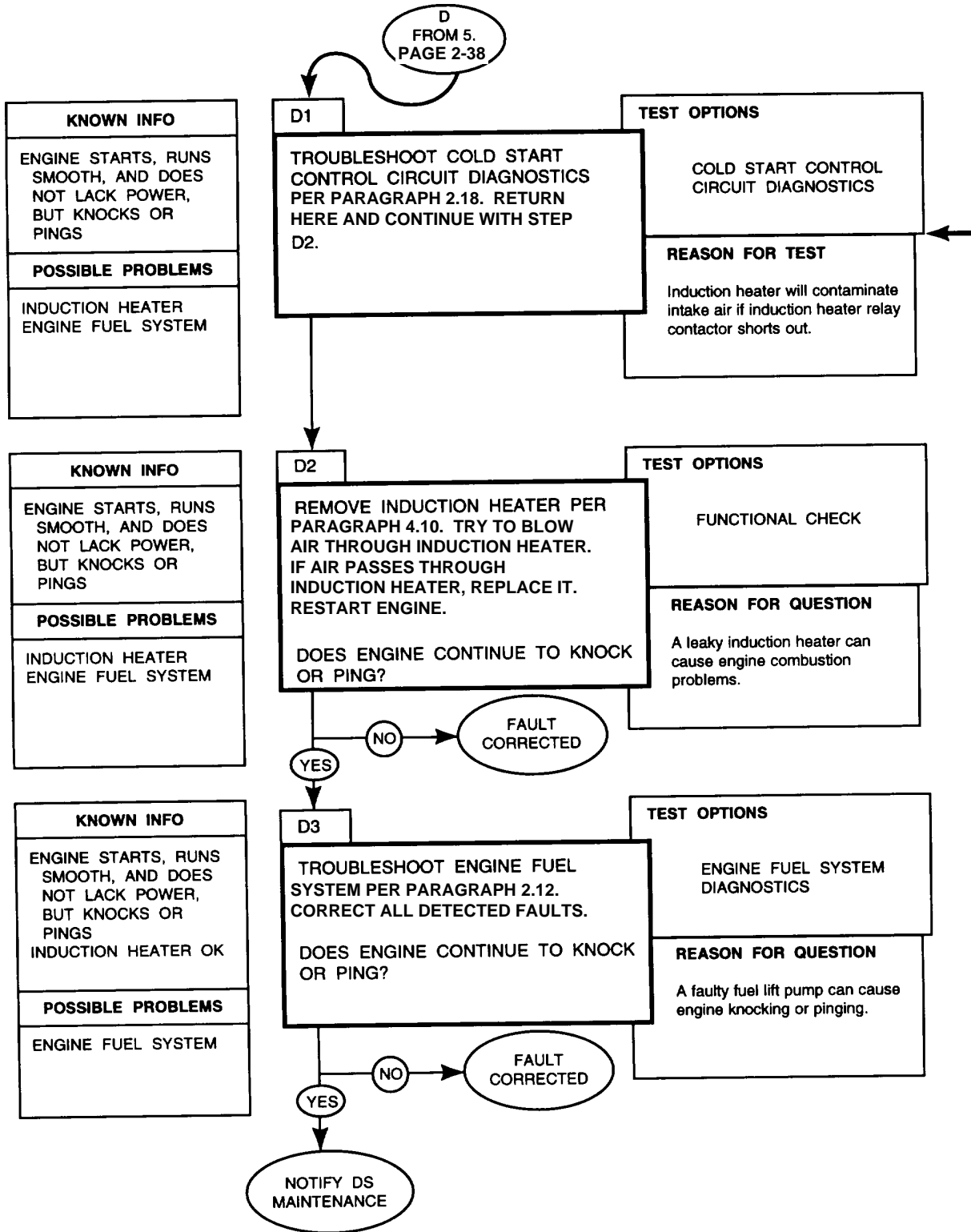
A restricted air cleaner, air induction port, or exhaust pipe or muffler will cause a heavy black exhaust and high fuel usage.

Among fuel system faults that can cause the engine to have a low power output are:

1. faulty fuel lift pump
2. clogged/dirty fuel filter
3. air in the fuel system
4. blocked fuel feed line

ENGINE AND ENGINE LUBRICATION SYSTEM

DIAGNOSTIC FLOWCHART

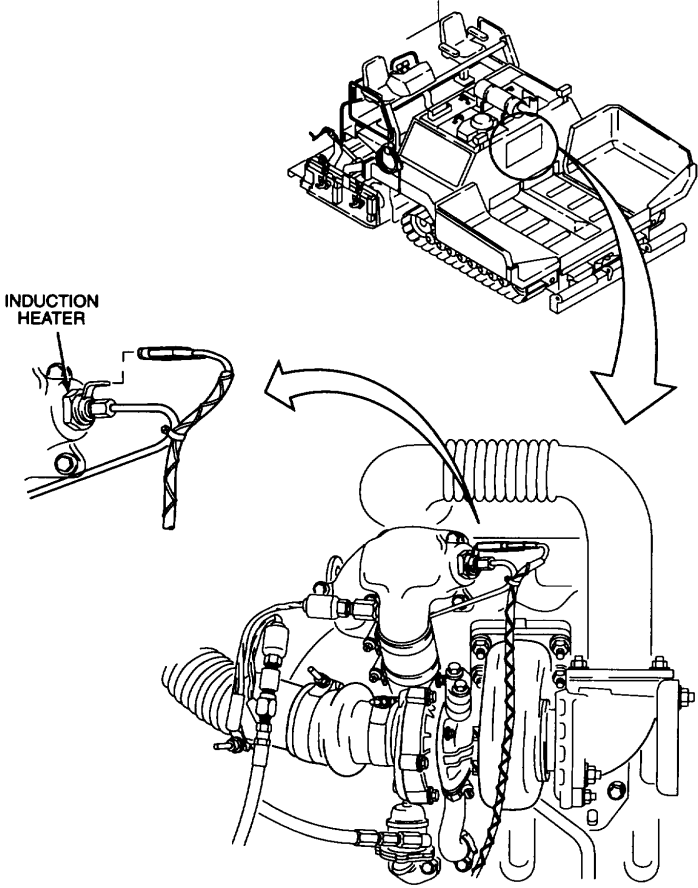


REFERENCE INFORMATION

ENGINE AND ENGINE LUBRICATION SYSTEM

Induction heater preignites the fuel/air mix in the engine's intake manifold and combustion chamber. Use of the cold start feature is necessary only under extreme cold conditions.

A white exhaust after startup that turns black as engine temperature rises is a good indication that the induction heater is leaking fuel into the intake. This can be caused by a fault in the cold start control circuit or by a leaky induction heater.

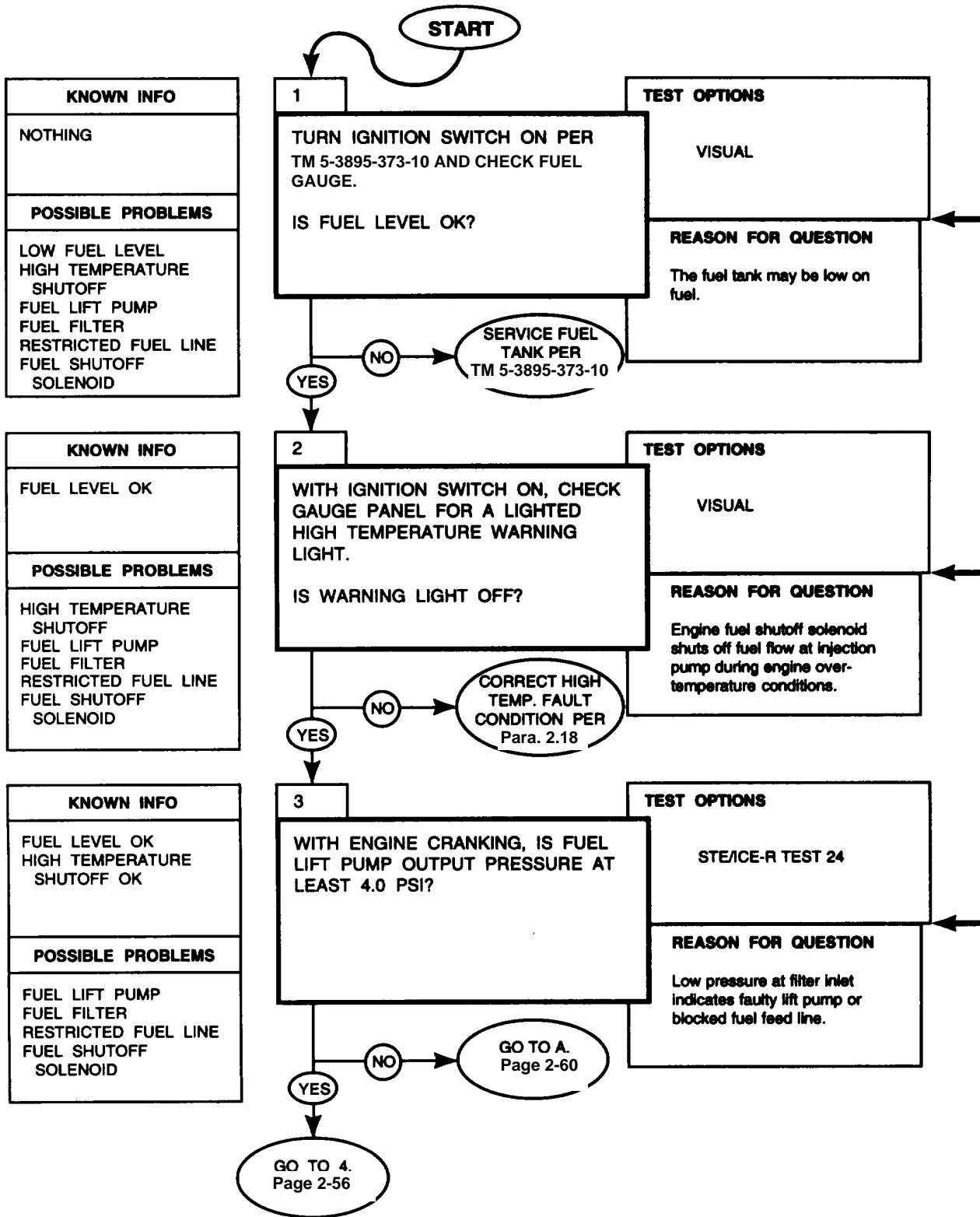


2.12. ENGINE FUEL SYSTEM DIAGNOSTICS.

Perform these tests whenever you have a problem with the engine fuel system or if sent here from another diagnostic test.

ENGINE FUEL SYSTEM

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

ENGINE FUEL SYSTEM

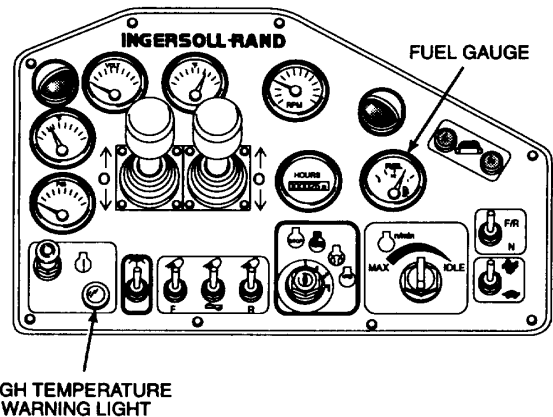
Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA. Refer to paragraph 1.15 for fuel system operating principles

CAUTION

Do not try to check the fuel level with any kind of gauge rod. The fuel tank filler neck is equipped with a fuel strainer. Trying to insert a gauge rod into the filler neck will damage the strainer.

A faulty fuel level transmitter could be giving you a false gauge reading. If in doubt about the fuel level, fill the fuel tank.

+12 VDC to the fuel shutoff solenoid opens fuel flow path at the input to the fuel injection pump.



FUEL SUPPLY PRESSURE - STE/ICE-R TEST 24

DESCRIPTION

Measures the outlet pressure of the fuel pump.
 Transmitter: 12258932-5
 DCA Test Pins: u and v

PRE-TEST PROCEDURES

Run confidence test per TM 9-4910-571-12&P. Wait for one minute after turning engine off to run confidence test.

POSSIBLE ERROR MESSAGES

005 Required offset test was not performed.

TEST PROCEDURES

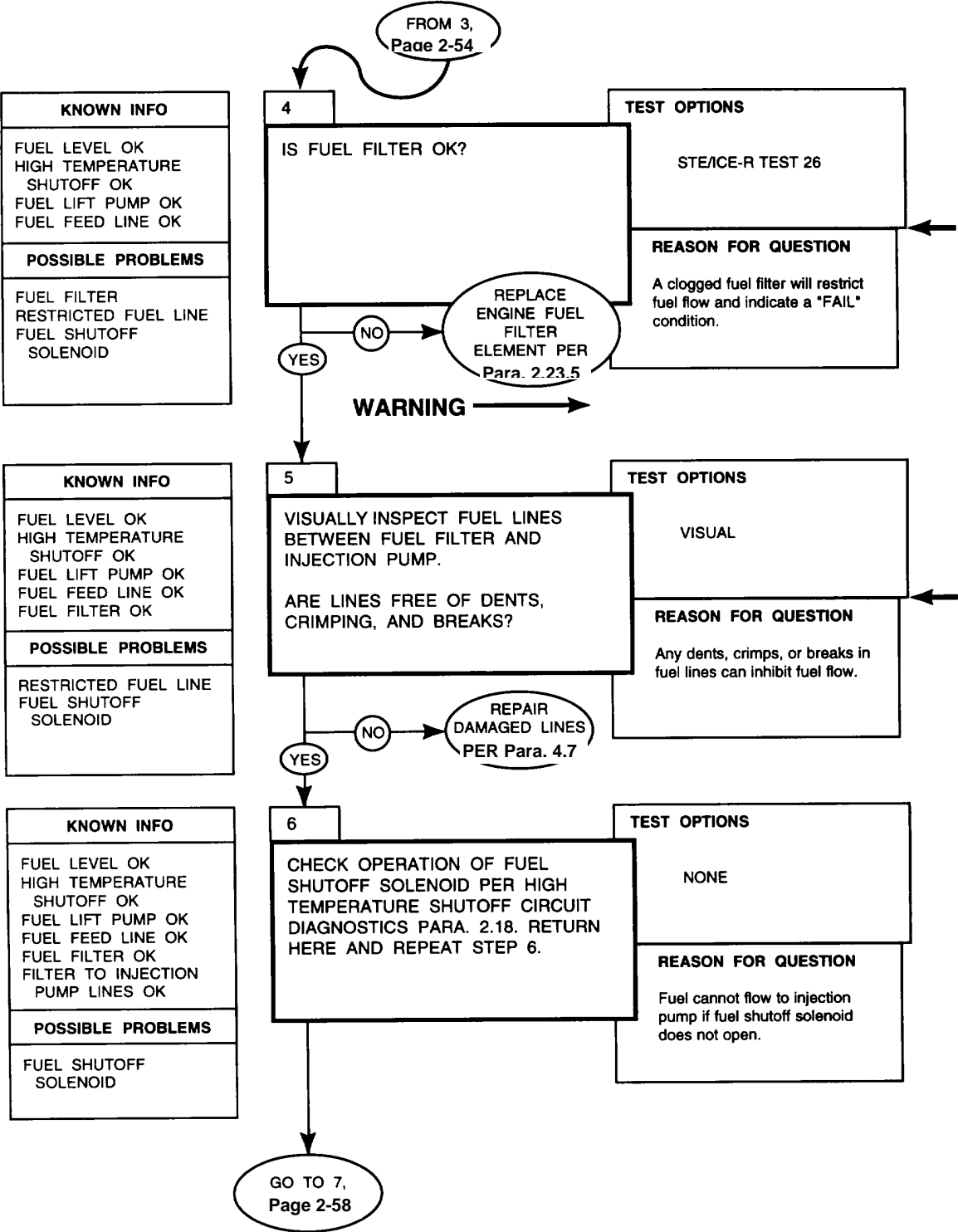
1. Turn engine off per TM 5-3895-373-10.
2. Set TEST SELECT switches to 24.
3. Press and hold TEST button until CAL appears on display.
4. Release TEST button and wait for offset value to appear on display. If offset value is within -4.5 and +4.5, proceed. If not, go to DCA troubleshooting in TM 9-4910-571-12&P.
5. Press and release TEST button.
6. Run engine at test speed per TM 5-3895-373-10.
7. Observe displayed value. Display values are in pounds per square Inch (psi). Expected minimum values are:

Cranking	4.0 psi
@500 to 850 rpm	7.9 psi
@2640 ±40 rpm	6.1 psi

If STE/ICE-R reading does not approach expected value, check transmitter per DCA diagnostics, paragraph 2.21.

ENGINE FUEL SYSTEM

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

ENGINE FUEL SYSTEM

FUEL FILTER PRESSURE DROP - STEACE-R TEST 26

DESCRIPTION

Detects clogging via opening of a differential pressure transmitter across the fuel filter.
 Transmitter: 12258938
 DCA Test Pins: s and t

PRE-TEST PROCEDURES

Run confidence test per TM 9-4910-571-12&P.

POSSIBLE ERROR MESSAGES

None

TEST PROCEDURES

1. Set TEST SELECT switches to 26.
2. Run engine with throttle control at MAX per TM 5-3895-373-10.
3. Press and release TEST button.
4. Observe displayed value. Expected display is PASS. If .9.9.9.9 is displayed, voltage is not within test range.

If STE/ICE-R display is FAIL or .9.9.9.9, check differential pressure transmitter per paragraph 2.21.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

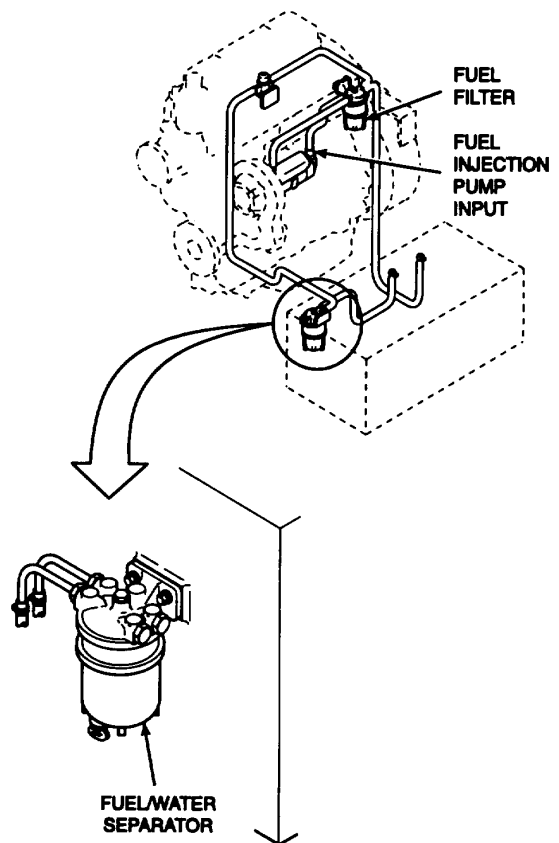
Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Direct contact with a high pressure fuel spray may cause serious injury. Wear protective goggles and gloves. Avoid direct contact with fuel spray. If fuel spray penetrates your skin, get medical aid immediately.

To gain access to fuel lines, open front top left access door, front top right access door, left access door, and left access cover per TM 53895-373-10. Remove engine access cover per paragraph 2.22.

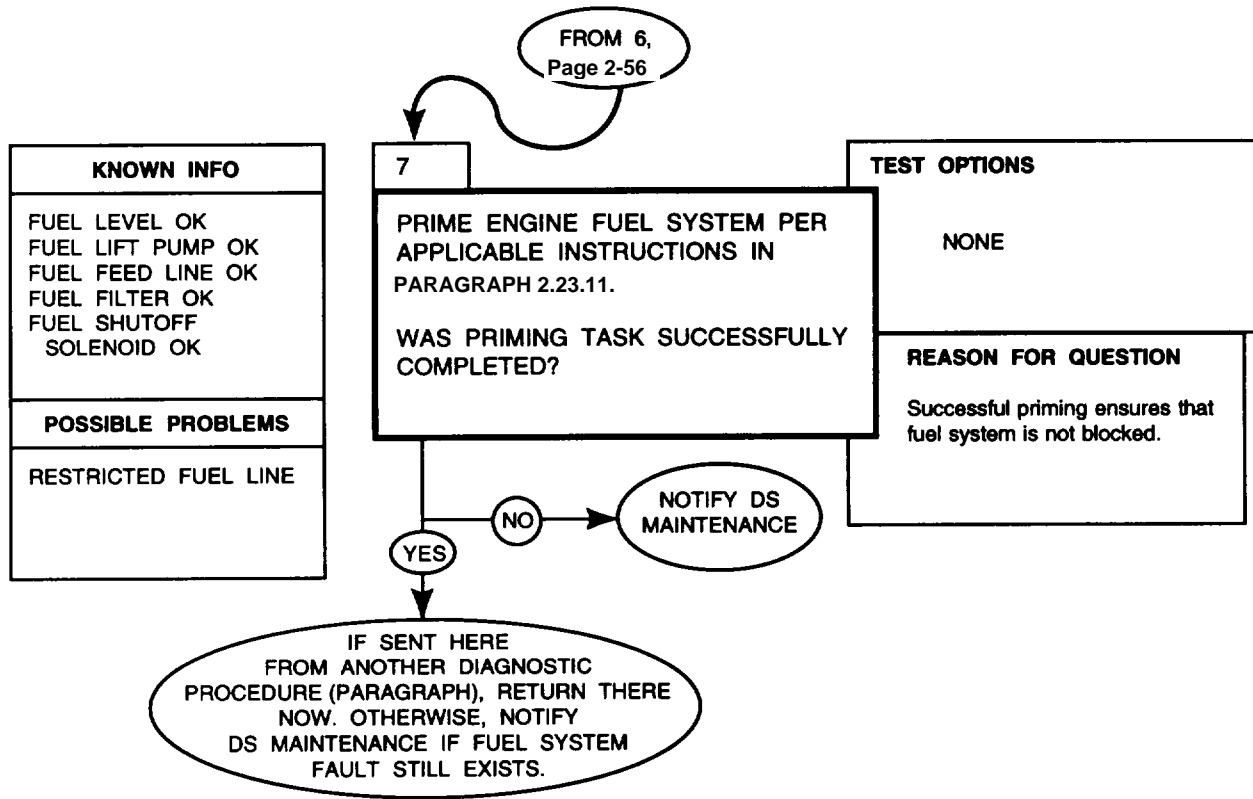
Close front top left access door, front top right access door, left access door, and left access cover per TM 5-3895-373-10 and install engine access cover per paragraph 2.22.

If uncertain of fuel pressure at the injection pump, very slowly loosen fuel injection pump input straight adapter until fuel just starts to drip. If fuel continues to drip, the line and adapter are under pressure. Stop cranking the engine and retighten the adapter.



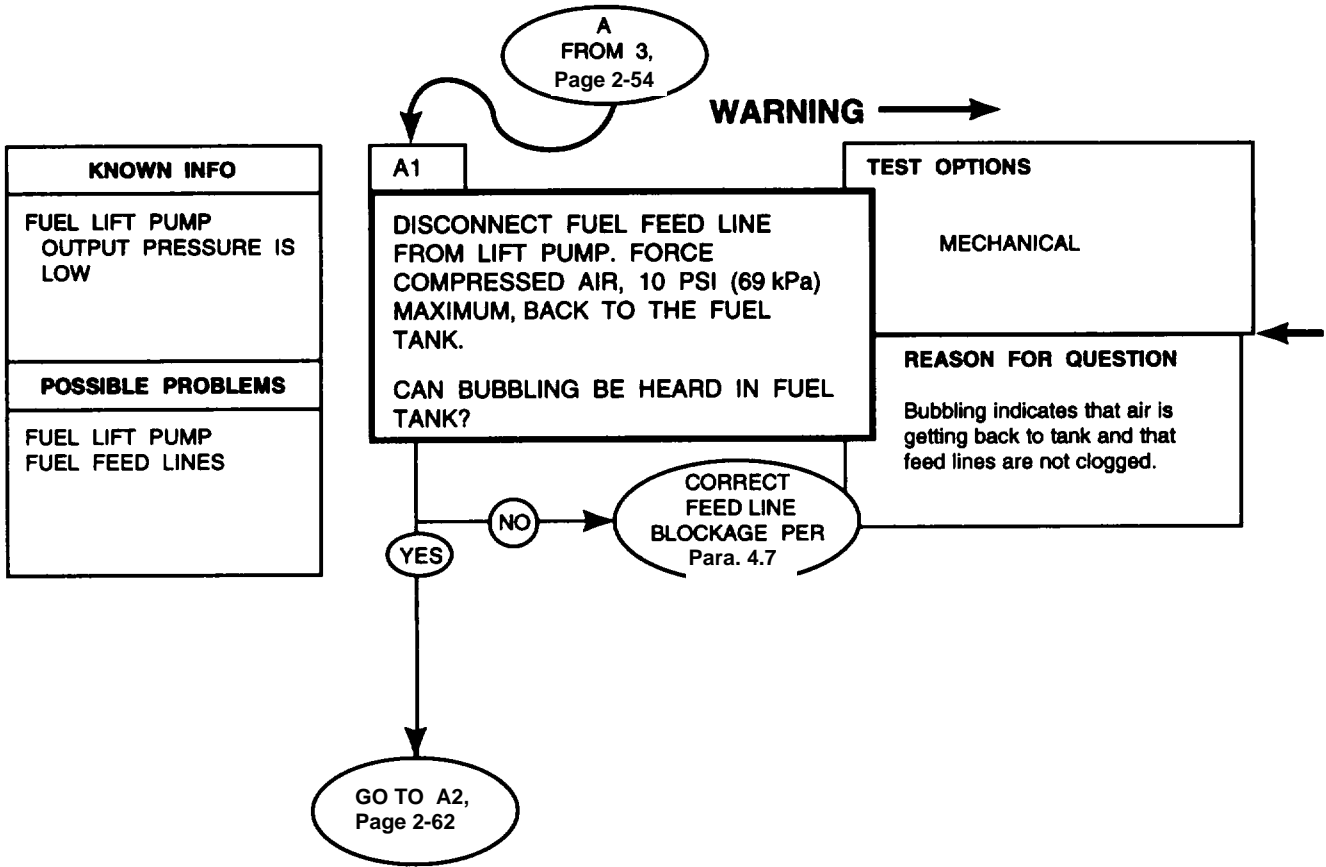
ENGINE FUEL SYSTEM

DIAGNOSTIC FLOWCHART



ENGINE FUEL SYSTEM

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

ENGINE FUEL SYSTEM

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death: Always wear safety glasses/goggles at all times.

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

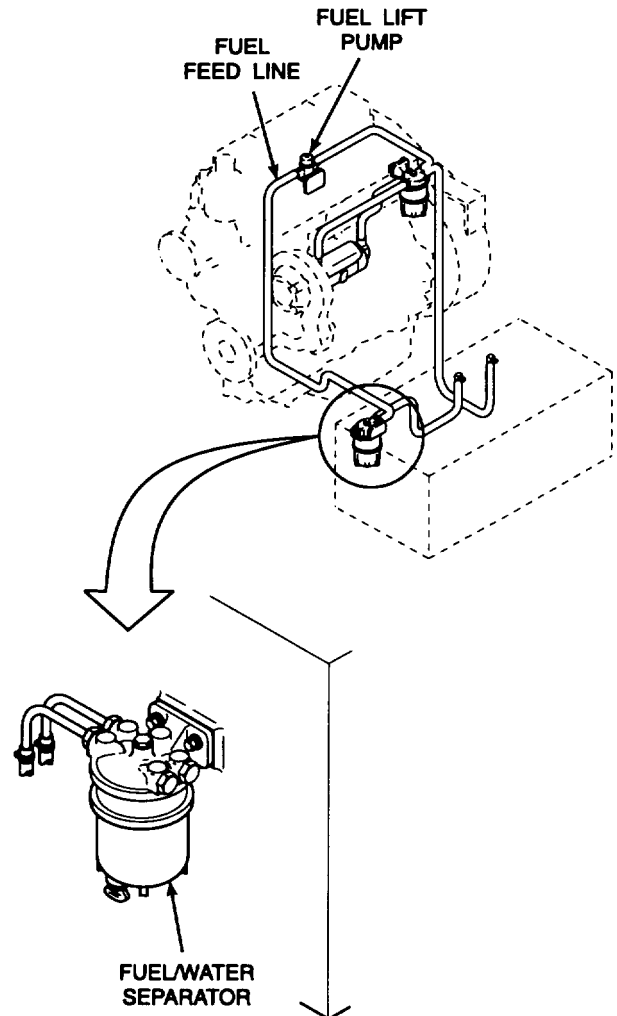
WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/face shield and gloves). Failure to take proper precautions may result in severe injury or loss of vision.

To gain access to fuel lines, open front top left access door, front top right access door, left access door, and left access cover per TM 53895-373-10. Remove engine access cover per paragraph 2.22.

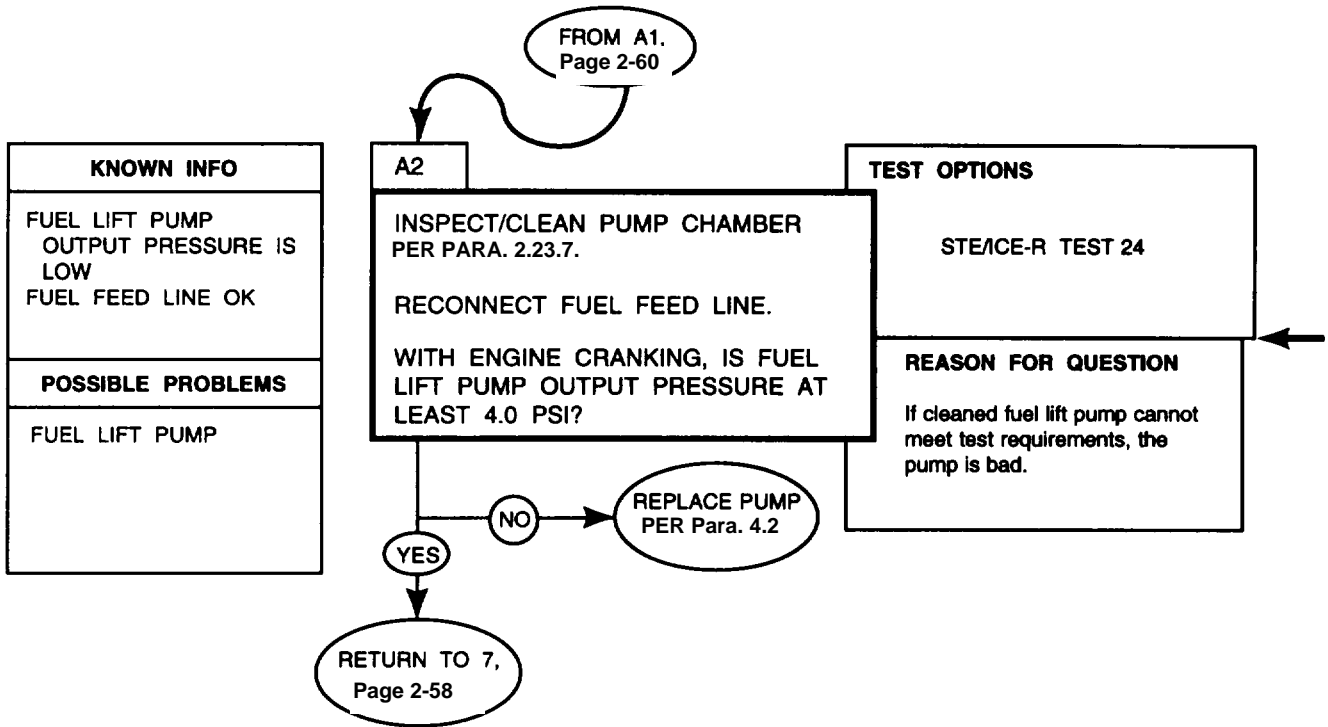
Close front top left access door, front top right access door, left access door, and left access cover per TM 5-3895-373-10 and install engine access cover per paragraph 2.22.

Check fuel line from tank to fuel/water separator, and from separator to fuel lift pump. Feed lines should not be dented, crimped, cracked, or broken. Any deformity will inhibit fuel flow.



ENGINE FUEL SYSTEM

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

ENGINE FUEL SYSTEM

By manually pumping the lift pump, you can determine that fuel is being pumped, but you will not know if it is at the correct pressure.

FUEL SUPPLY PRESSURE - STEICE-R TEST 24							
DESCRIPTION TEST PROCEDURES							
Measures the outlet pressure of the fuel pump. Transmitter 12258932-5 DCA Test Pins: u and v	<ol style="list-style-type: none"> 1. Shut down engine per TM 5-3895-373-10. 2. Set TEST SELECT switches to 24. 						
PRE-TEST PROCEDURES							
Run confidence test per TM 94910-571-12&P. Wait for one minute after turning engine off to run confidence test.	<ol style="list-style-type: none"> 3. Press and hold TEST button until CAL appears on display. 4. Release TEST button and wait for offset value to appear on display. If offset value is within -4.5 and +4.5, proceed. If not, go to DCA troubleshooting in TM 9-4910-571-12&P. 						
POSSIBLE ERROR MESSAGES							
005 Required offset test was not performed.	<ol style="list-style-type: none"> 5. Press and release TEST button. 6. Run engine at test speed per TM 5-3895-373-10. 7. Observe displayed value. Display values are in pounds per square inch (psi). Expected values are: <table style="margin-left: 20px;"> <tr> <td>Cranking</td> <td>4.0 psi</td> </tr> <tr> <td>@500 to 850 rpm</td> <td>7.9 psi</td> </tr> <tr> <td>@2640 ±40 rpm</td> <td>6.1 psi</td> </tr> </table> 	Cranking	4.0 psi	@500 to 850 rpm	7.9 psi	@2640 ±40 rpm	6.1 psi
Cranking	4.0 psi						
@500 to 850 rpm	7.9 psi						
@2640 ±40 rpm	6.1 psi						

If STEICE-R reading does not approach expected value, check transmitter per DCA diagnostics, paragraph 2.21.

2.13. AIR INTAKE/EXHAUST SYSTEM DIAGNOSTICS.

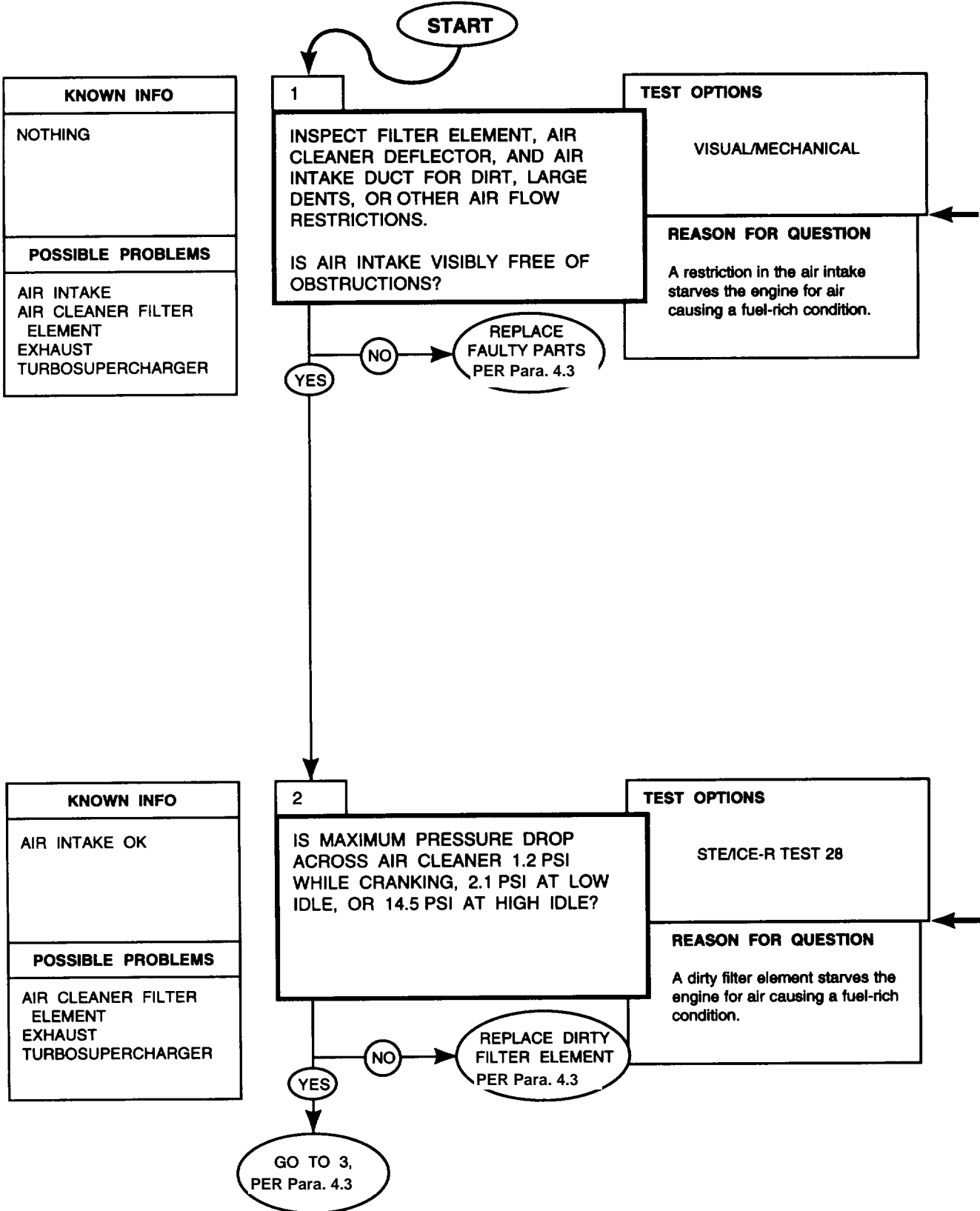
Perform air intake and exhaust system tests whenever the engine is running badly, when exhaust emissions are black (fuel-rich), or if sent here by another diagnostic test.

WARNING

Allow engine to cool before performing maintenance on the muffler, exhaust pipe, exhaust manifold, or turbosupercharger. Direct contact with hot surfaces can cause serious burns. If maintenance of a heated surface is necessary, use insulated pads and gloves.

AIR INTAKE/EXHAUST SYSTEM

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

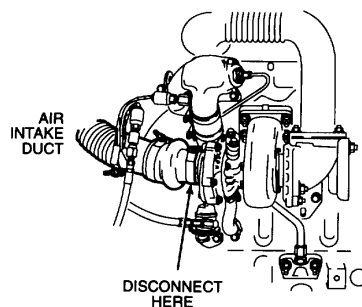
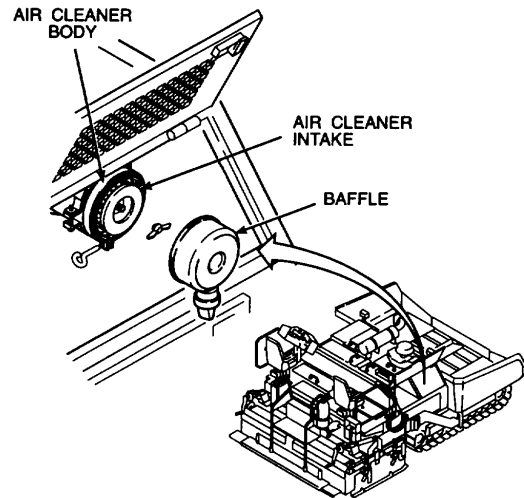
AIR INTAKE/EXHAUST SYSTEM

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA. Refer to paragraph 1.16 for turbosupercharged intake and exhaust system operating principles.

Symptoms of intake/exhaust problems include hard starting, lack of power, and/or emission of a black, fuel-rich exhaust.

To gain access to air intake components, open front top left access door, front top right access door, and right access door per TM 5-3895-373-10. Remove engine access cover per paragraph 2.22.

A thorough visual inspection of air intake system requires removal of baffle, air cleaner filter element, air cleaner deflector, and ducting. Make sure that the air intake is not blocked in any manner. Replace filter element, if visibly clogged.

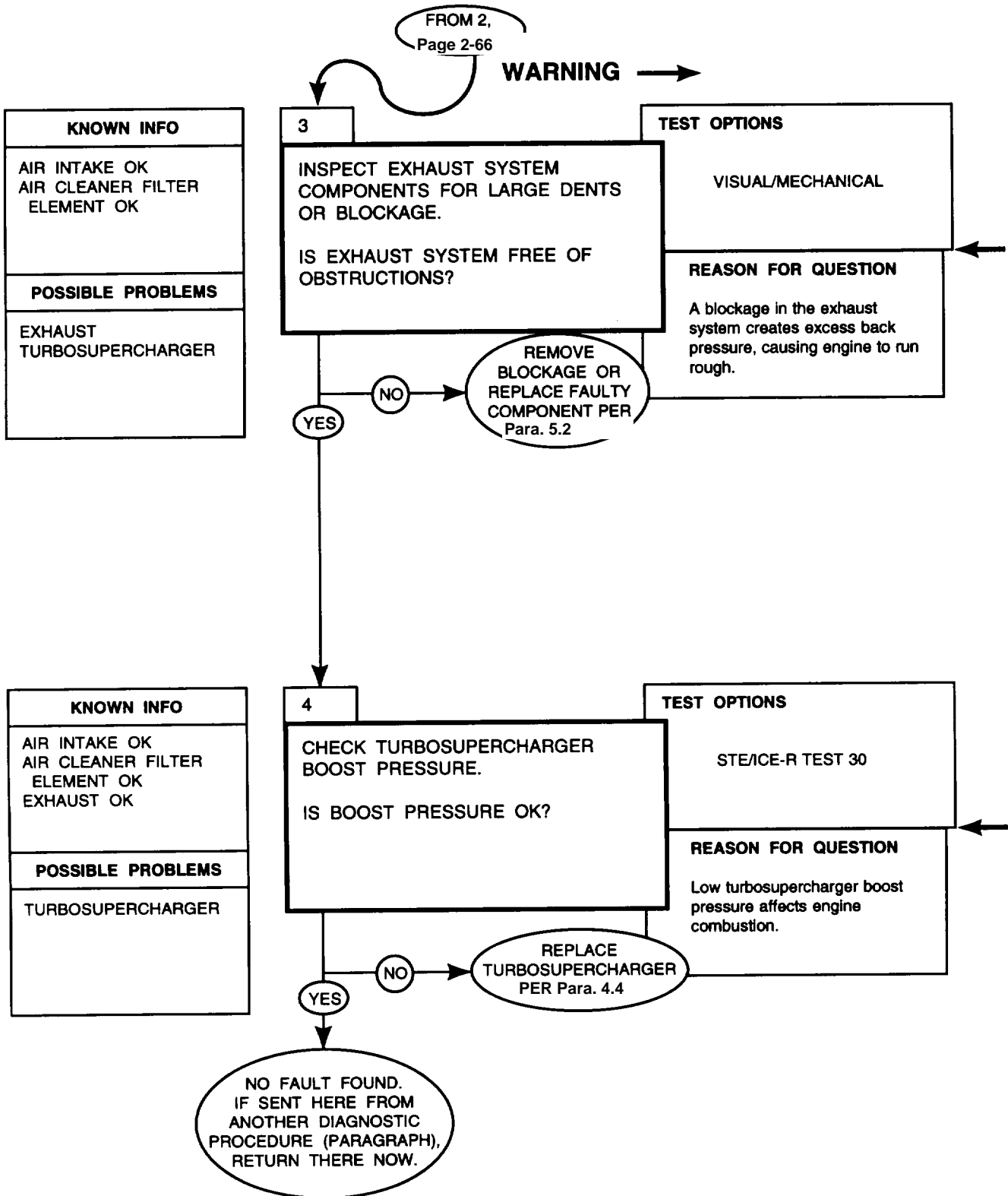


AIR CLEANER PRESSURE DROP TEST - STE/ICE-R TEST 28							
<p>DESCRIPTION Measures pressure drop across air cleaner to detect extent of air cleaner clogging. Transmitter: 12258932-2 DCA Test Pins: AA and AB</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Shut down engine per TM 5-3895-373-10. 2. Set TEST SELECT switches to 28. 3. Press and hold TEST button until CAL appears on display. 4. Release TEST button and wait for offset value to appear on display. If offset value is within -9 and +9, proceed. 5. Press and release TEST button. 6. Run engine at test speed per TM 5-3895-373-10. 7. Observe displayed value. Displayed values are in pounds per square inch (psi). Expected maximum values are: <table style="margin-left: 40px;"> <tr> <td>Cranking</td> <td>1.2 psi</td> </tr> <tr> <td>@500 to 850 rpm</td> <td>2.1 psi</td> </tr> <tr> <td>@2640 ±40 rpm</td> <td>14.5 psi</td> </tr> </table> 	Cranking	1.2 psi	@500 to 850 rpm	2.1 psi	@2640 ±40 rpm	14.5 psi
Cranking	1.2 psi						
@500 to 850 rpm	2.1 psi						
@2640 ±40 rpm	14.5 psi						
<p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-12&P.</p>							
<p>POSSIBLE ERROR MESSAGES 005 Required offset test was not performed.</p>							

If STE/ICE-R reading does not approach expected value, check transmitter per DCA diagnostics, paragraph 2.21.

AIR INTAKE/EXHAUST SYSTEM

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

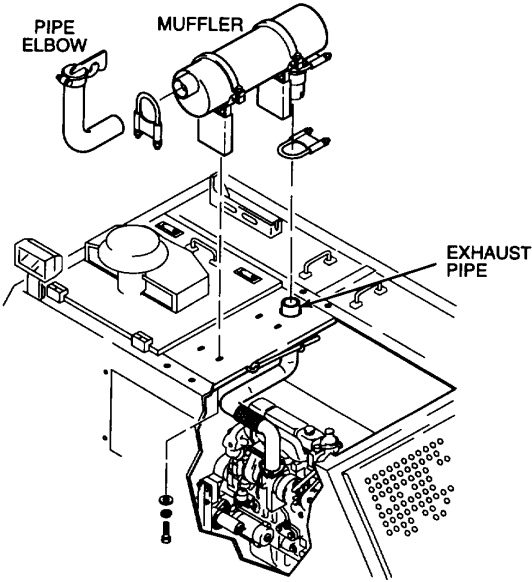
AIR INTAKE/EXHAUST SYSTEM

WARNING

Allow engine to cool before performing maintenance on the muffler, exhaust pipe, exhaust manifold, or turbosupercharger. Direct contact with hot surfaces can cause serious burns. If maintenance of a heated surface is necessary, use insulated pads and gloves.

Do not touch hot exhaust system with bare hands; injury to personnel will result.

After completing diagnostic checks, close front top left access door, front top right access door, and right access door per TM 5-3895-373-10. Install engine access cover per paragraph 2.22.



TURBOSUPERCHARGER BOOST PRESSURE TEST - STE/ICE-R TEST 30

<p>DESCRIPTION Measures discharge pressure of the turbosupercharger. Transmitter: 12258932-4 DCA Test Pins: w and x</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Shut down engine per TM 5-3895-373-10. 2. Set TEST SELECT switches to 30. 3. Press and hold TEST button until CAL appears on display. 4. Release TEST button and wait for offset value to appear on display. If offset value is within -7.5 and +7.5 5. Press and release TEST button. 6. Run engine at test speed per TM 5-3895-373-10. 7. Observe displayed value. Displayed values are in inches of Mercury (in. Hg). Expected maximum values are: <table border="0"> <tr> <td>Cranking</td> <td>1.1 in. Hg</td> </tr> <tr> <td>@500 to 850 rpm</td> <td>0.2 in. Hg</td> </tr> <tr> <td>@2640 ±40 rpm</td> <td>13.6 in Hg</td> </tr> </table> 	Cranking	1.1 in. Hg	@500 to 850 rpm	0.2 in. Hg	@2640 ±40 rpm	13.6 in Hg
Cranking	1.1 in. Hg						
@500 to 850 rpm	0.2 in. Hg						
@2640 ±40 rpm	13.6 in Hg						
<p>PRE-TEST PROCEDURES</p> <p>Run confidence test per TM 9-4910-571-24&P.</p>							
<p>POSSIBLE ERROR MESSAGES 005 Required offset test was not performed.</p>							

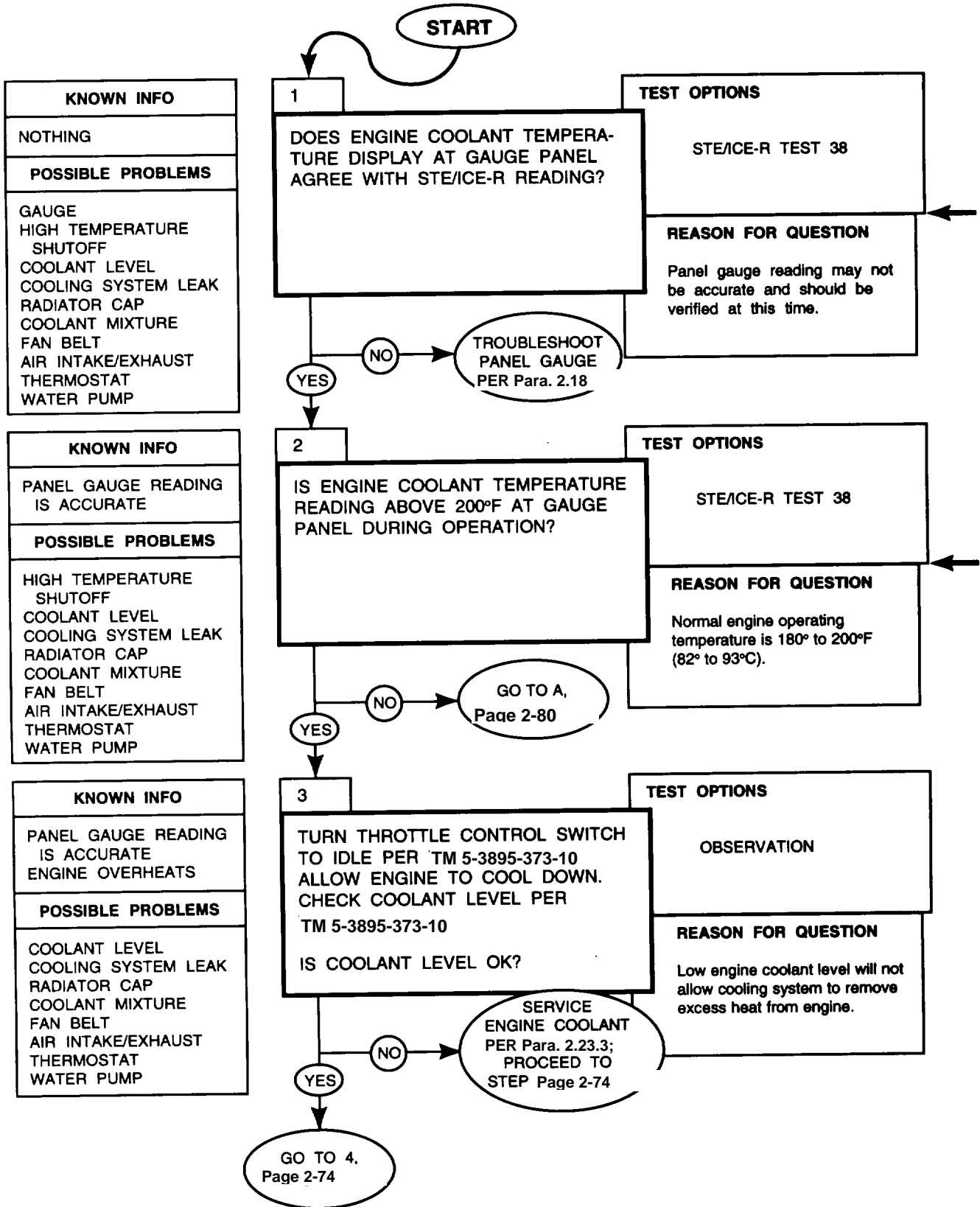
If STE/ICE-R reading does not approach expected value, check transmitter per DCA diagnostics, paragraph 2.21.

2.14. ENGINE COOLING SYSTEM DIAGNOSTICS.

Perform engine cooling system diagnostics whenever, under normal load conditions, the engine operating temperature is below 180°F (82°C) or above 200F (93°C) or if you are sent here by another diagnostic test.

ENGINE COOLING SYSTEM

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

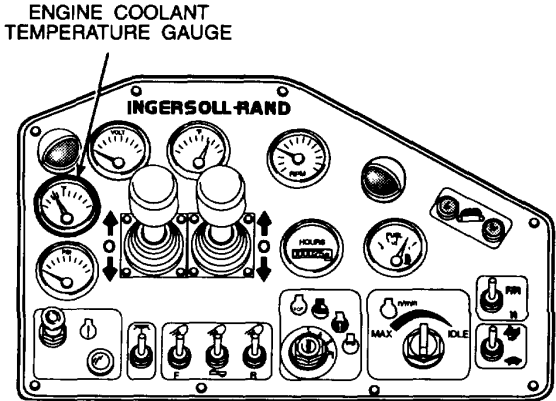
ENGINE COOLING SYSTEM

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA. Refer to paragraph 1.17 for engine cooling system operating principles.

Check engine temperature at gauge panel.

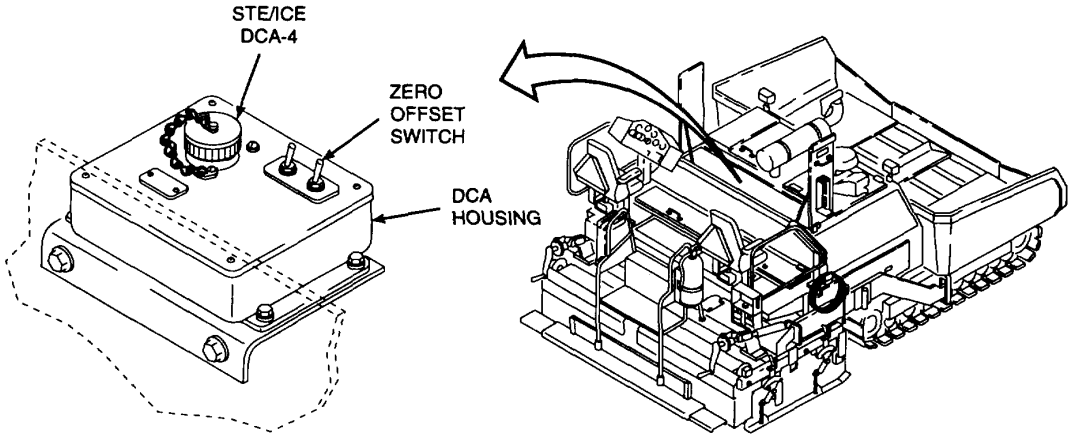
STE/ICE-R test 38 will confirm the operating temperature of the engine.

To verify accuracy of panel temperature gauge, check results of STE/ICE-R test against panel gauge reading.



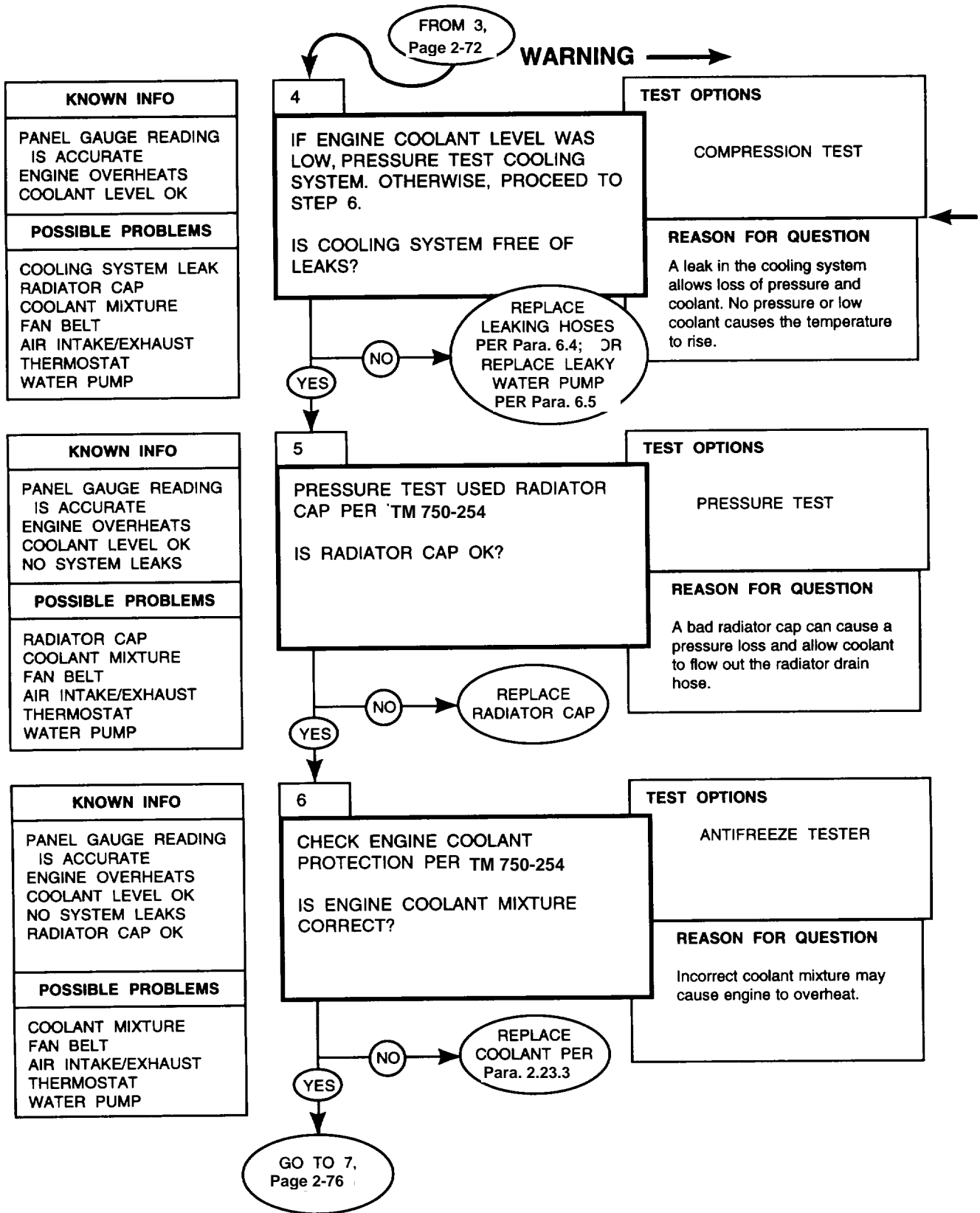
ENGINE COOLANT TEMPERATURE - STE/ICE-R TEST 38	
<p>DESCRIPTION Measures the engine coolant temperature. Transducer: 12258933 DCA Test Pins: n and p Measurement Range: 120 to 300°F</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Set TEST SELECT switches to 38. 2. Set Zero Offset switch on DCA housing to TEST. 3. Press and hold TEST button until CAL appears on display. 4. Release TEST button and wait for offset value to appear on display. If offset value is within -45 and +45, proceed. 5. Press and release TEST button. 6. Set Zero Offset switch on DCA housing to RUN. 7. Observe displayed value. Displayed values are in degrees Fahrenheit (°F). Expected value, under normal loading/operating conditions, is between 180° to 200°F.
<p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-24&P.</p>	
<p>POSSIBLE ERROR MESSAGES 005 Required offset test was not performed.</p>	

If STE/ICE-R reading does not approach expected value, check transducer per DCA diagnostics, paragraph 2.21.



ENGINE COOLING SYSTEM

DIAGNOSTIC FLOWCHART



WARNING

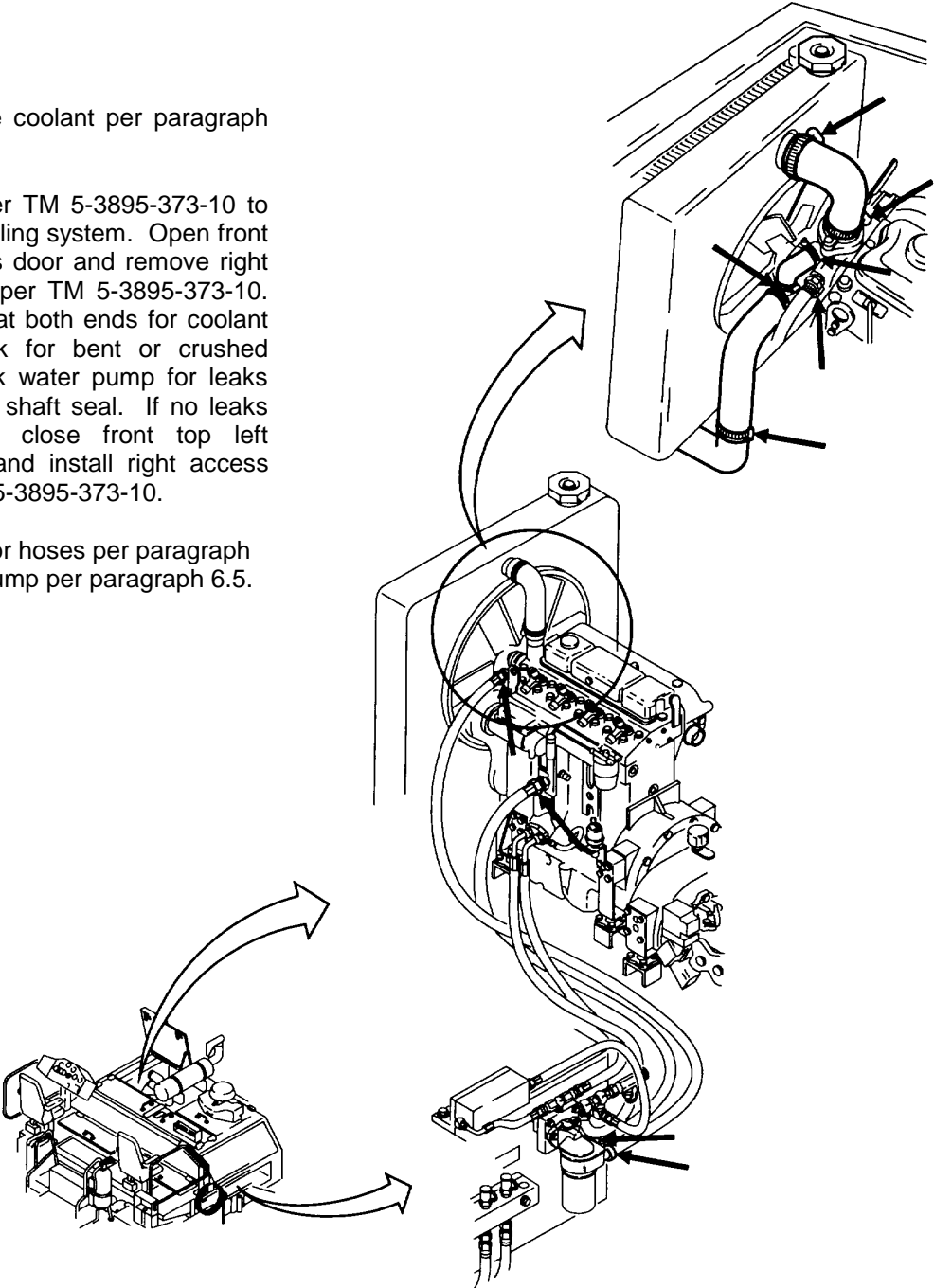
Do not remove the radiator pressure cap when the engine is hot; steam and hot coolant can escape and burn personnel.

Use extreme care when removing the radiator pressure cap. Sudden release of pressure can cause a steam flash which could seriously injure personnel. Slowly loosen cap to the first stop to relieve pressure before removing cap completely. After use, securely tighten cap.

Service engine coolant per paragraph 2.23.3.

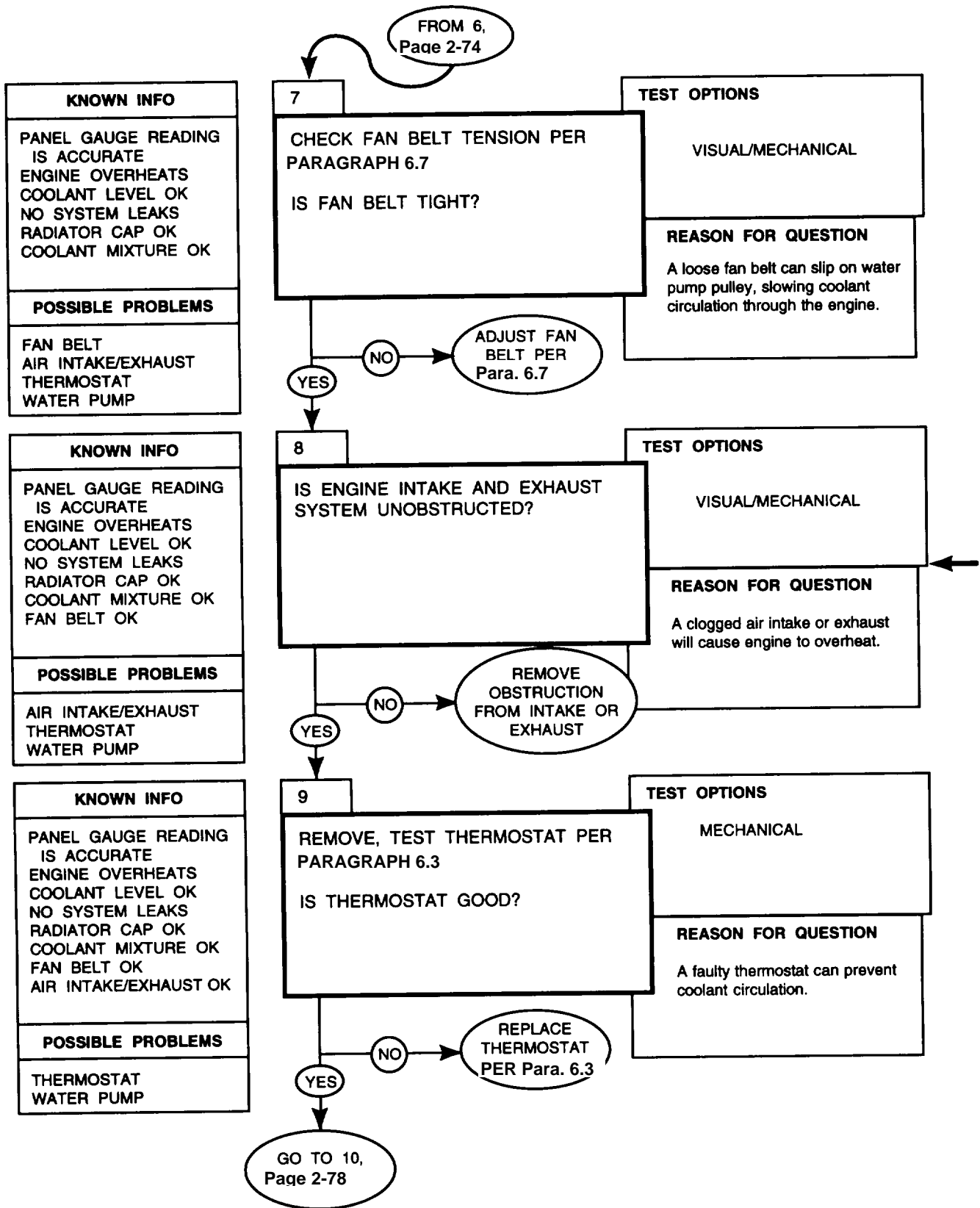
Run engine per TM 5-3895-373-10 to pressurize cooling system. Open front top left access door and remove right access cover per TM 5-3895-373-10. Check hoses at both ends for coolant leaks. Check for bent or crushed hoses. Check water pump for leaks around center shaft seal. If no leaks are detected, close front top left access door and install right access cover per TM 5-3895-373-10.

Replace leaking radiator hoses per paragraph 6.4 or leaking water pump per paragraph 6.5.



ENGINE COOLING SYSTEM

DIAGNOSTIC FLOWCHART



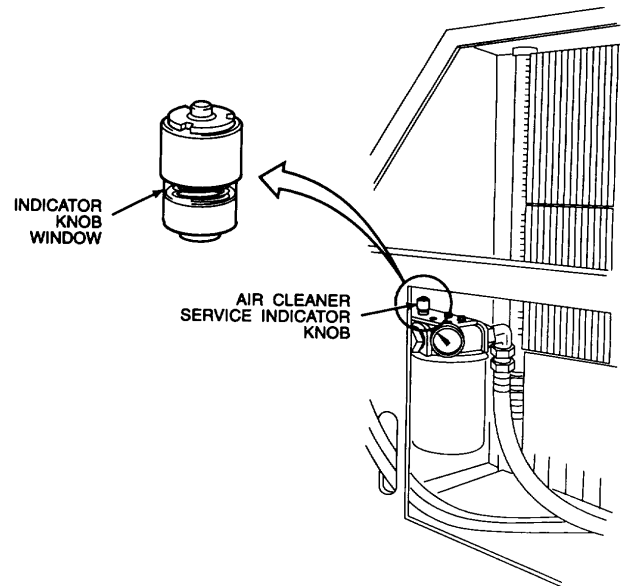
REFERENCE INFORMATION

ENGINE COOLING SYSTEM

Check air cleaner service indicator knob. If window is red, replace clogged air cleaner.

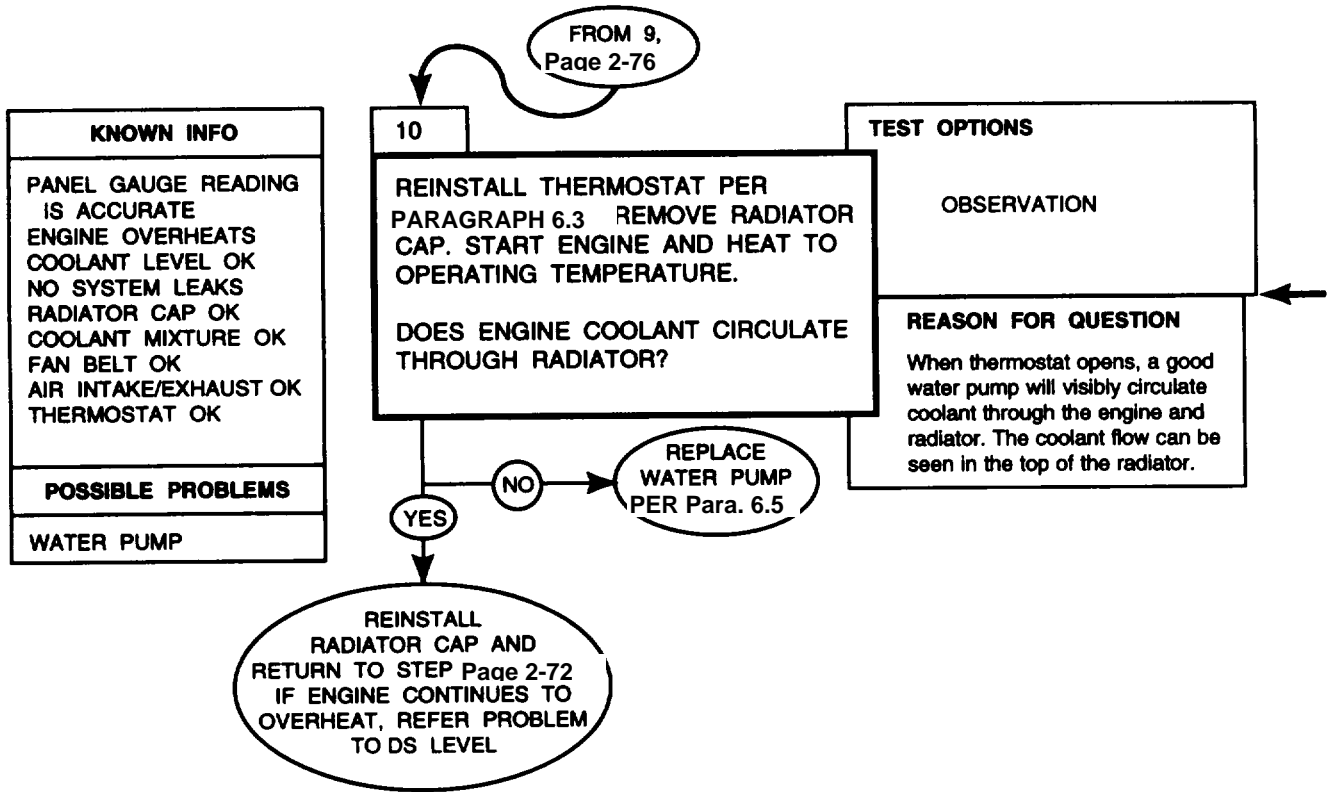
Check the following components for dents, crimping, or other damage that could impede air flow.

- Intake pipe and air cleaner cap assembly
- Air cleaner deflector
- Air cleaner output hose
- Exhaust pipe
- Muffler
- Pipe elbow
- Protective cap



ENGINE COOLING SYSTEM

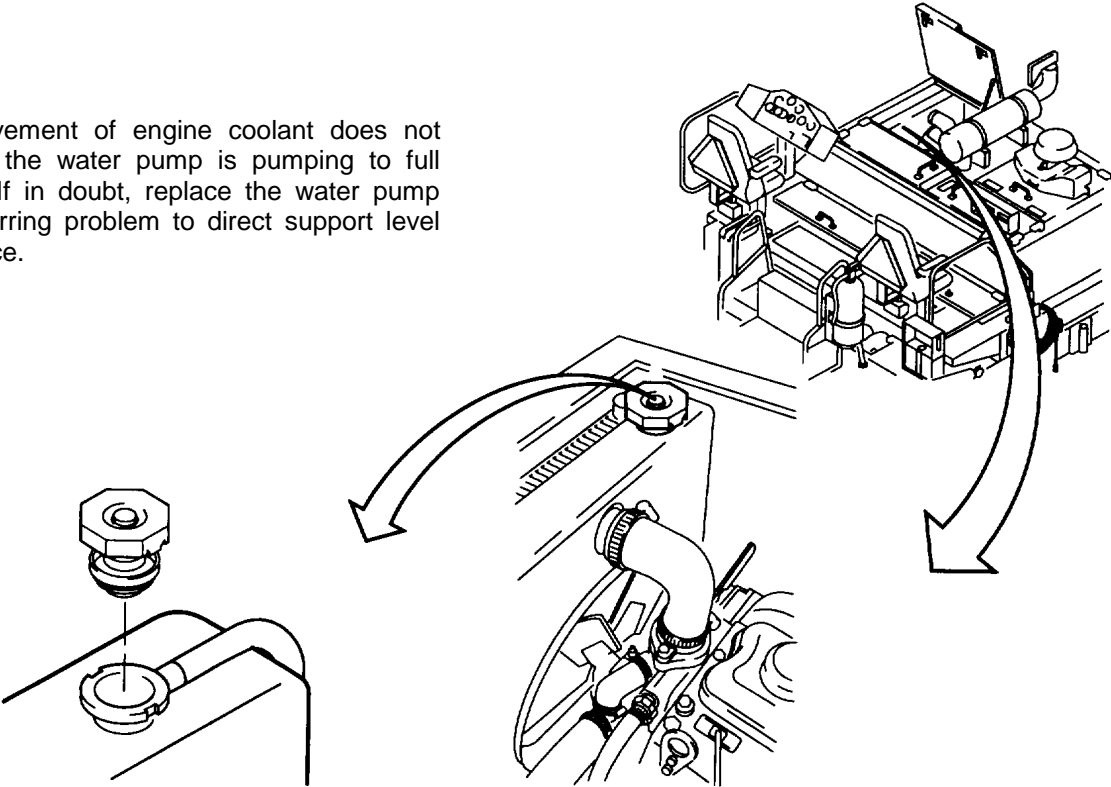
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

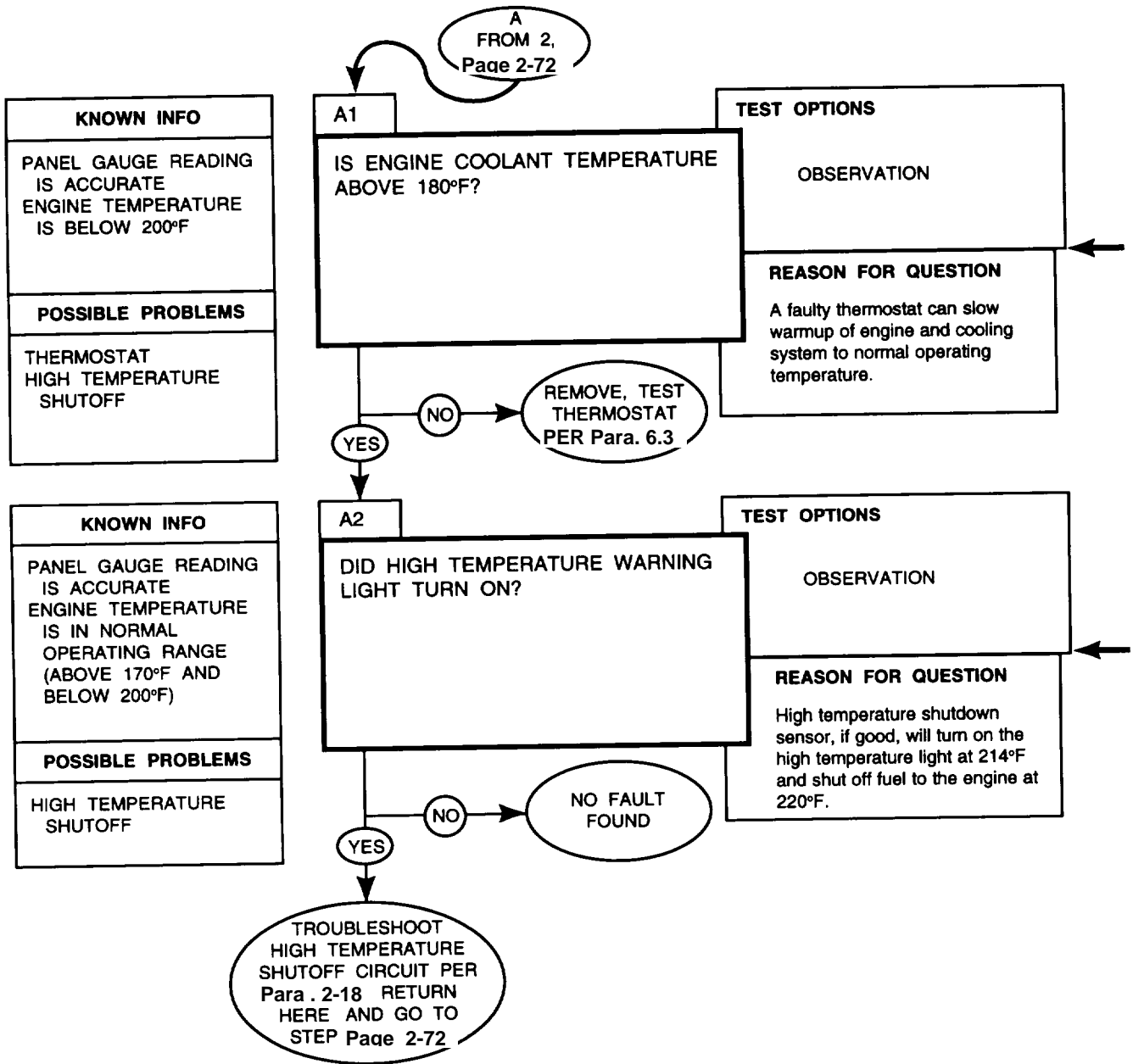
ENGINE COOLING SYSTEM

Visual movement of engine coolant does not mean that the water pump is pumping to full capacity. If in doubt, replace the water pump before referring problem to direct support level maintenance.



ENGINE COOLING SYSTEM

DIAGNOSTIC FLOWCHART

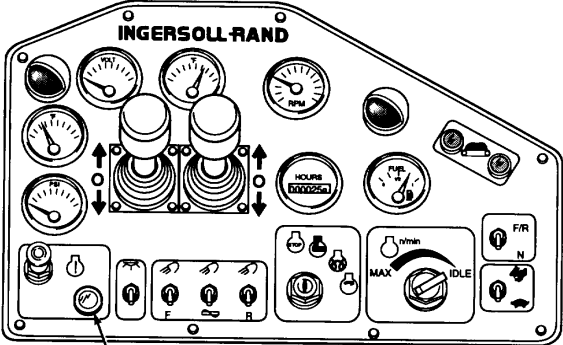


REFERENCE INFORMATION

ENGINE COOLING SYSTEM

CAUTION

If engine is permitted to operate at temperatures below 173°F, fuel can bypass piston rings and contaminate the engine oil. Continued operation at low temperatures will cause engine damage.



HIGH TEMPERATURE WARNING LIGHT

2.15. ALTERNATOR/CHARGING CIRCUIT DIAGNOSTI(

Perform alternator and charging system test whenever a low voltage output is indicated at the gauge panel, or if you are sent here by another diagnostic test.

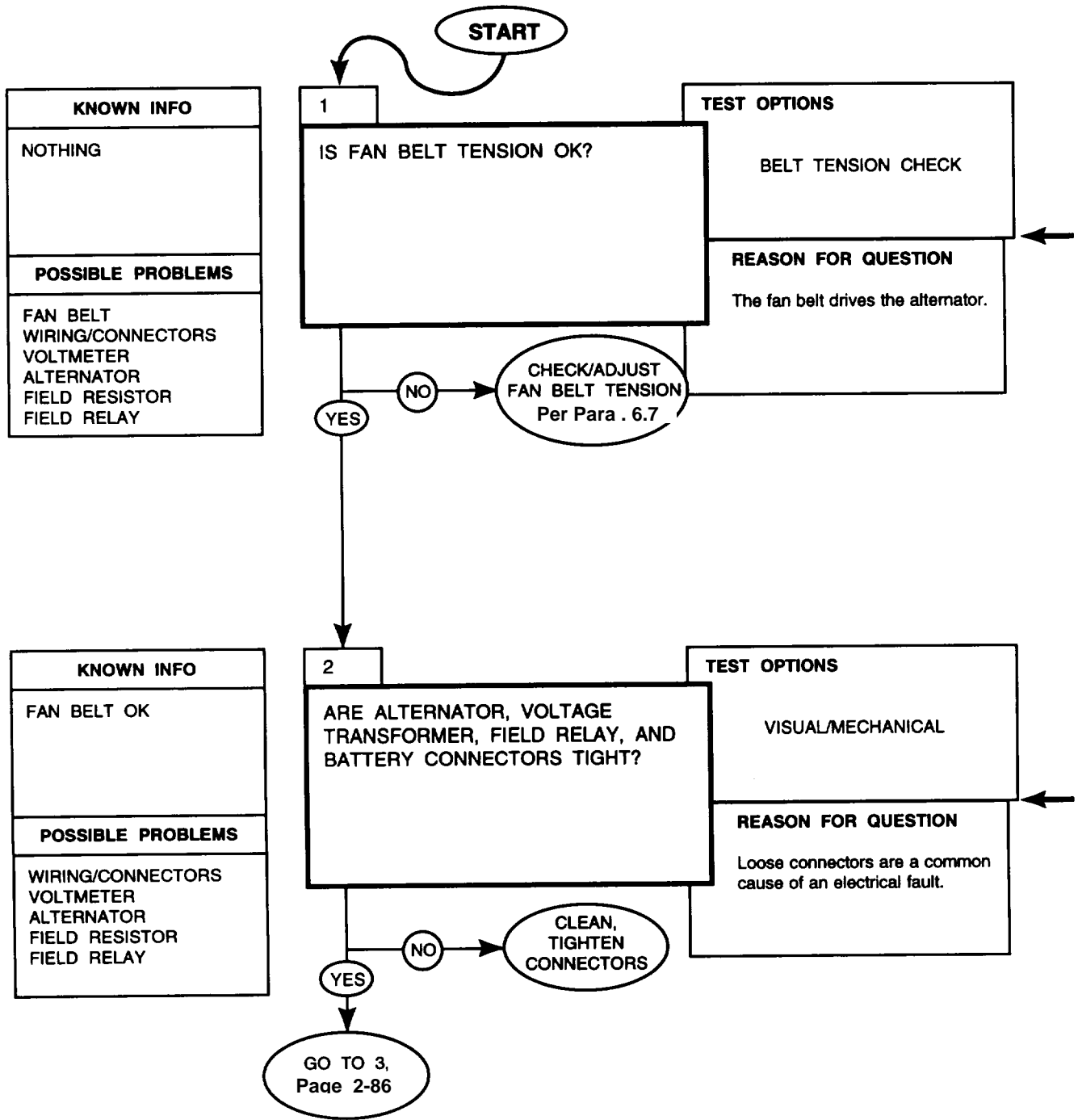
Stay alert when performing alternator and charging circuit tests. Some tests are performed on live electrical circuits and can present a severe shock or burn hazard. Some of the voltage checks are performed under high

current conditions. Be very careful when performing these tests.

If you have engine starting difficulties (slow or no engine cranking), you should refer directly to paragraph 2.17 for battery circuit diagnostics. Battery circuit diagnostics will refer you here only after the battery circuit is checked and found to be good.

ALTERNATOR/CHARGING CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

ALTERNATOR/CHARGING CIRCUIT

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA. Refer to paragraph 1.18.3 for alternator and charging circuit operating principles.

Refer to paragraph 2.23.1 for fan belt adjustment.

Open front top left access door per TM 5-3895-373-10 to gain access to fan belt.

BAD ELECTRICAL CONNECTIONS ARE A COMMON CHARGE CIRCUIT PROBLEM.

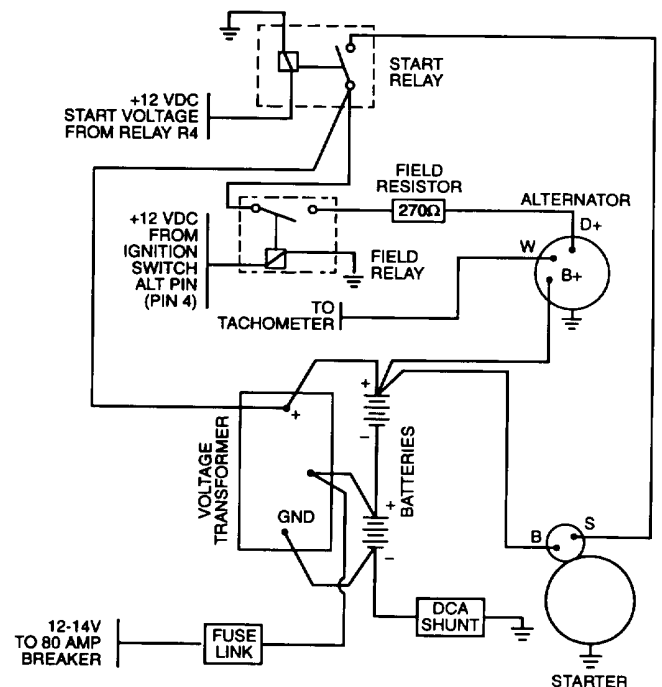
To gain access to electrical components, open front top left and front top right access doors and rear top left and rear top right access doors per TM 5-3895-373-10. Remove engine access cover per paragraph 2.22.

Disconnecting and cleaning charging circuit connectors may solve your problem. To be certain that all circuit connectors are making good contact, you must take time to remove, check, and thoroughly clean each connector.

If you have engine starting difficulties (slow or no engine cranking), refer directly to paragraph 2.17 for battery/starter circuit diagnostics.

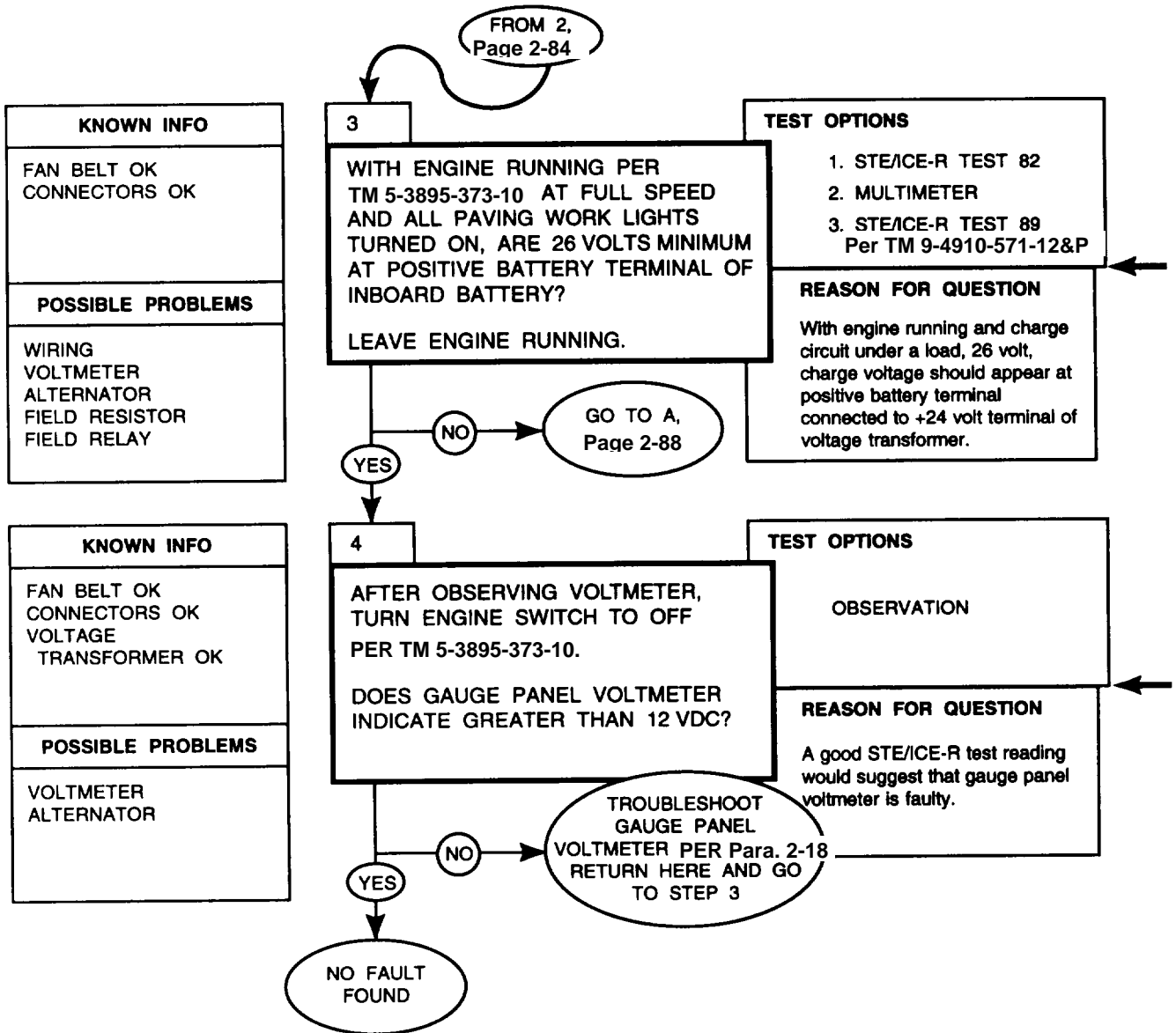
Battery/starter circuit diagnostics will refer you here only after the battery circuit is checked and found to be good.

Reference electrical schematic at back of manual for complete circuit wiring.



ALTERNATOR/CHARGING CIRCUIT

DIAGNOSTIC FLOWCHART



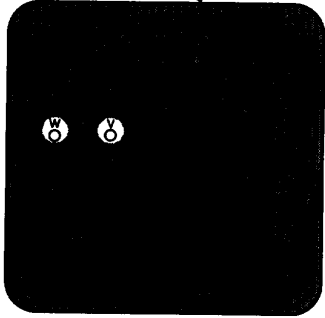
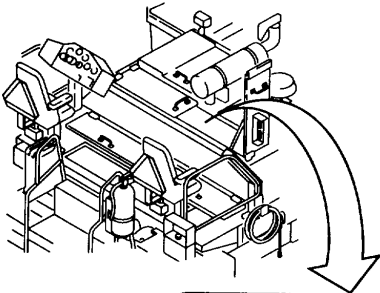
REFERENCE INFORMATION

ALTERNATOR/CHARGING CIRCUIT

Open rear top left access door per TM 5-3895-373-10 to gain access to battery. Remove cover from battery per paragraph 7.19.

ALTERNATOR OUTPUT VOLTAGE - STE/ICE-R TEST 82	
DESCRIPTION Measures voltage at alternator output at +24 volt battery terminal. DCA test terminal. DCA Test Pins: V and W Measurement Range: 0 to 32 Vdc	TEST PROCEDURES 1. Set TEST SELECT switches to 82. 2. Start paving machine, set engine at MAX, and turn all work lights on 3. Press and release TEST button. 4. Observe displayed value. Displayed values are in volts DC. Expected display value is 26 volts, minimum. If .9.9.9.9 is displayed, voltage is not within test range.
PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-12&P.	
POSSIBLE ERROR MESSAGES None	

MULTIMETER
To check output with multimeter, connect positive (+) lead to terminal V, and connect negative (-) lead to terminal W on DCA connector. If DCA connector or harness is suspect, check voltage at battery.

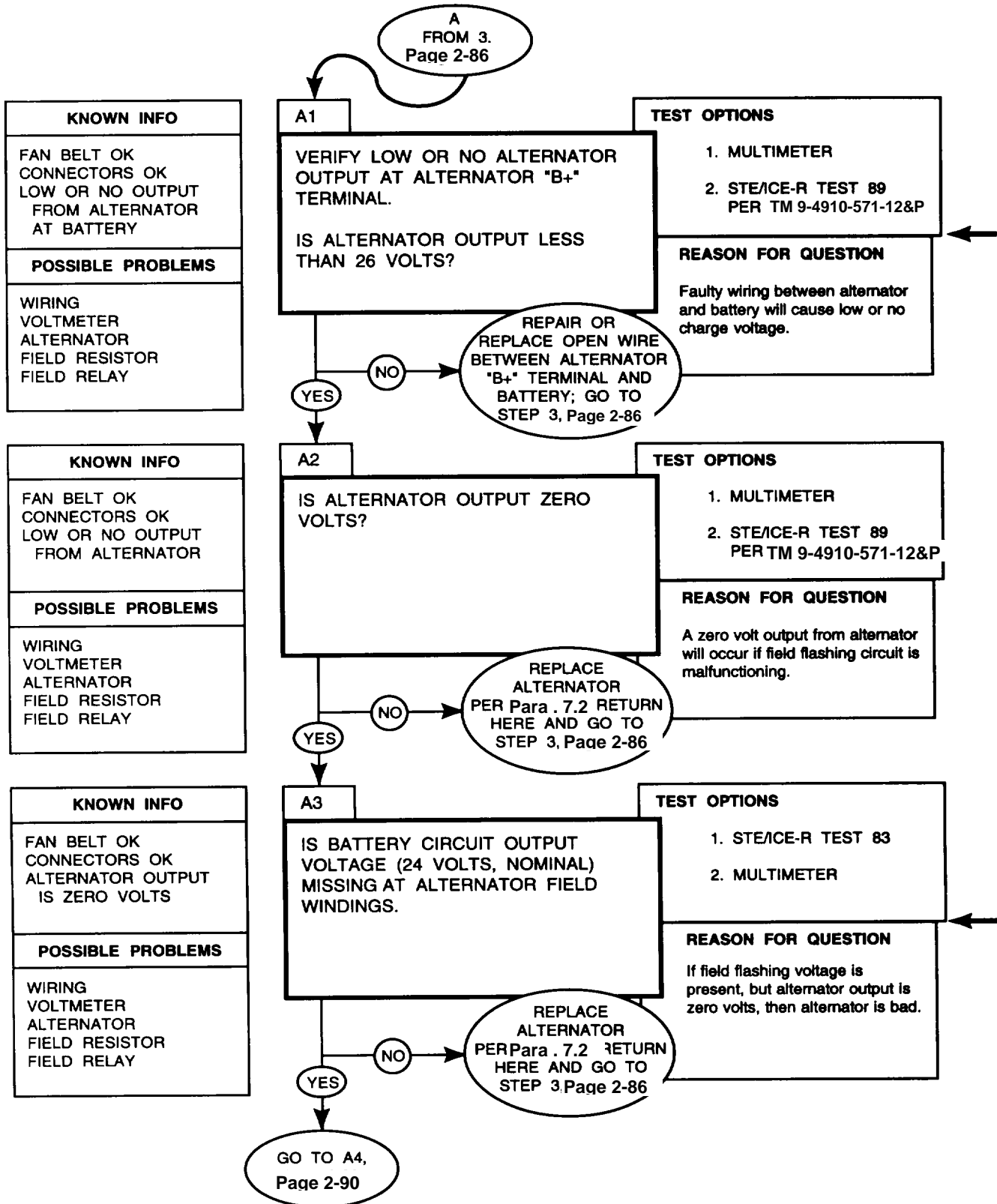


Install battery cover per paragraph 7.19.

After completing diagnostic checks, close front top left, front top right, rear top left, and rear top right access doors per TM 5-3895-373-10. Install engine access cover per paragraph 2.22.

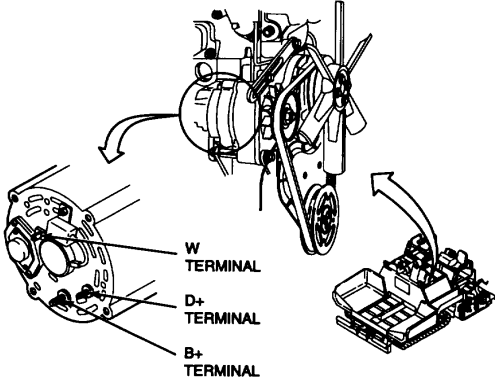
ALTERNATOR/CHARGING CIRCUIT

DIAGNOSTIC FLOWCHART

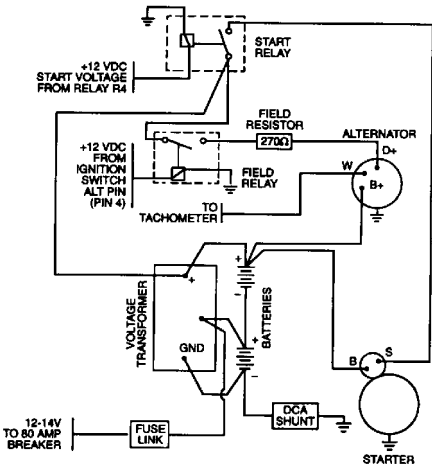


REFERENCE INFORMATION

Reference electrical schematic at back of manual for complete circuit wiring.



ALTERNATOR/CHARGING CIRCUIT

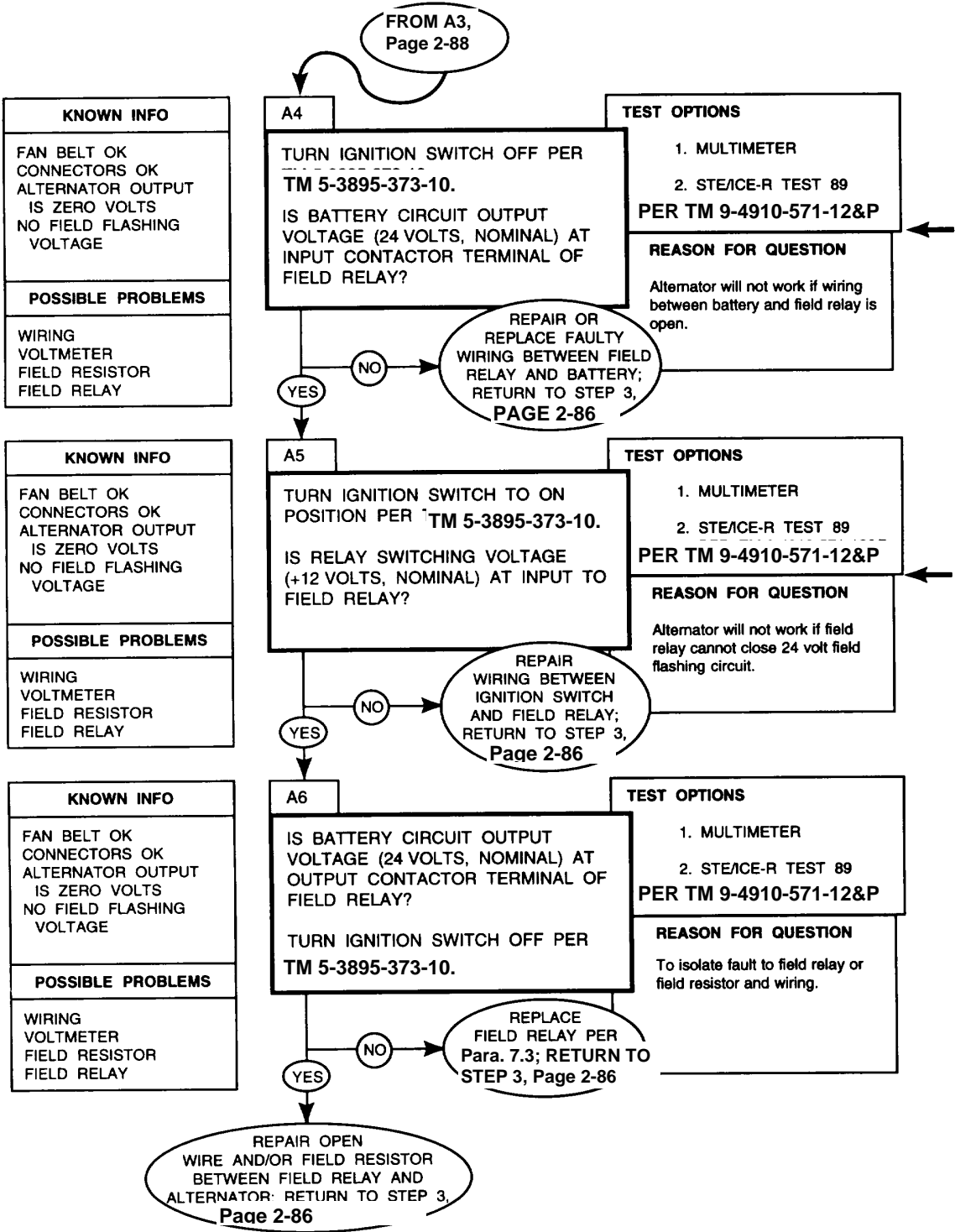


ALTERNATOR FIELD VOLTAGE TEST 83

ALTERNATOR FIELD VOLTAGE TEST 83	
<p>DESCRIPTION Measures voltages present at alternator field windings DCA Test Pins: O and M Measurement Range: 0 to 32 Vdc</p> <p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-12&P</p> <p>POSSIBLE ERROR MESSAGES None</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Set TEST SELECT switches to 83. 2. Start paving machine and turn throttle control switch to MAX position. 3. Press and release TEST button. 4. Observe displayed value. Displayed values are in volts DC. Expected display value is 24 volts nominal with batteries fully charged. If .9.9.9.9 is displayed, voltage is not within test range.

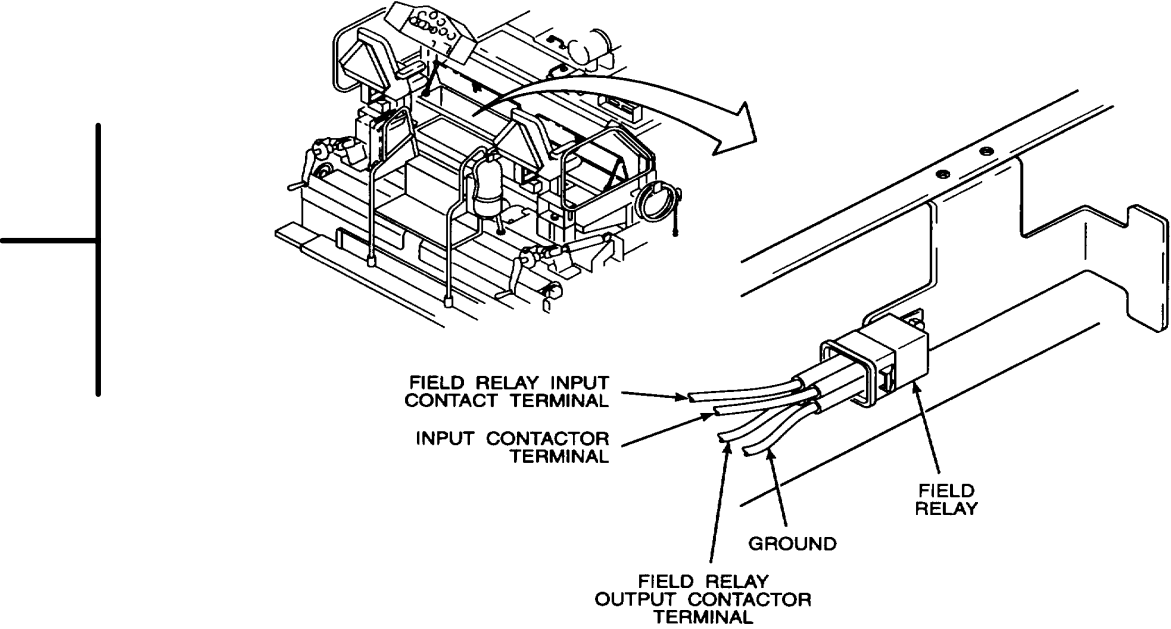
ALTERNATOR/CHARGING CIRCUIT

DIAGNOSTIC FLOWCHART



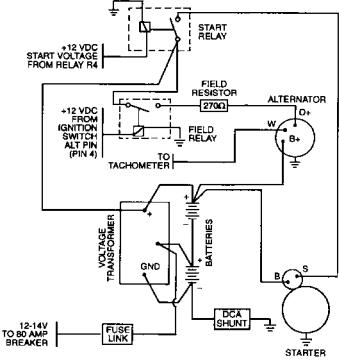
REFERENCE INFORMATION

ALTERNATOR/CHARGING CIRCUIT



Reference electrical schematic at back of manual for complete circuit wiring.

After completing diagnostic checks, close front top left, front top right, rear top left, and rear top right access doors per TM 5-3895373-10. Install engine access cover per paragraph 2.22.



2.16. PAVING MACHINE LIGHTING SYSTEM DIAGNOSTICS.

Paving machine lighting system tests should be performed any time operator panel lights, gauge panel lights, screed control panel lights, or paving machine work lights are not working.

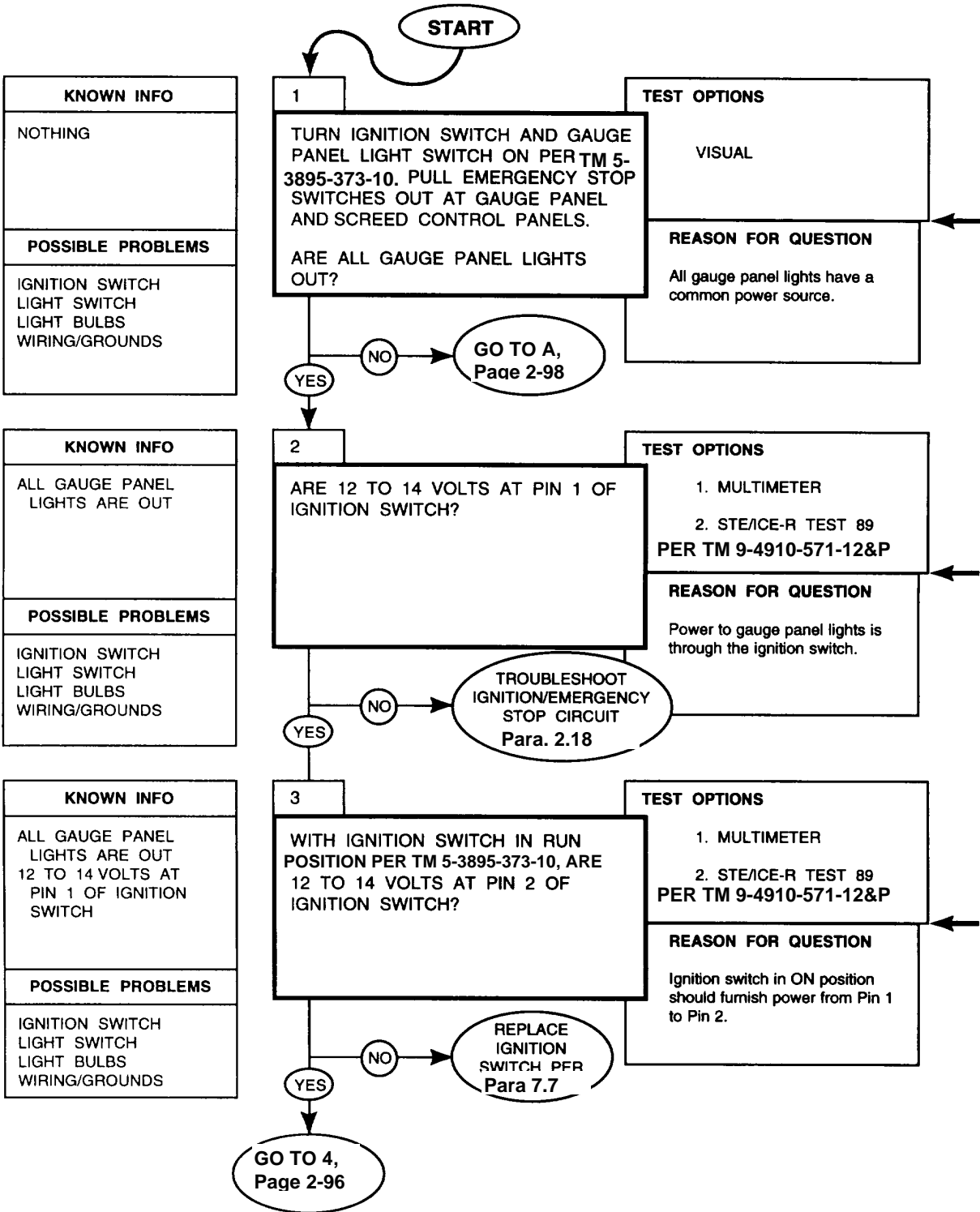
Paving machine lighting system tests are divided into three diagnostic groups. Refer to the following index for the location of the diagnostic procedure that applies to your lighting fault.

Diagnostic Index

Fault Location	Page
Operator Gauge Panel Lighting.....	2-94
Screed Control Panel Lighting.....	2-100
Work Light Circuits	2-106

OPERATOR GAUGE PANEL LIGHTING

DIAGNOSTIC FLOWCHART

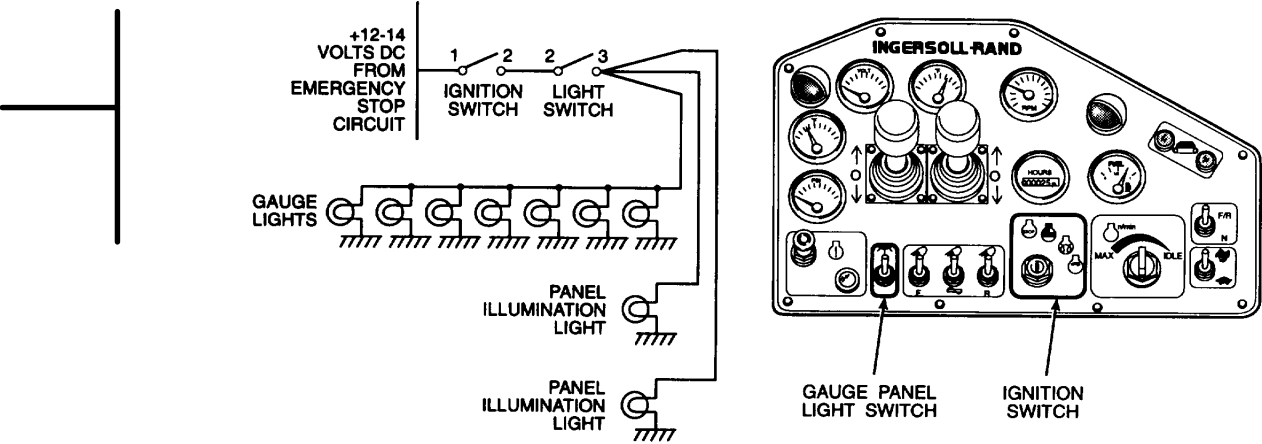


REFERENCE INFORMATION

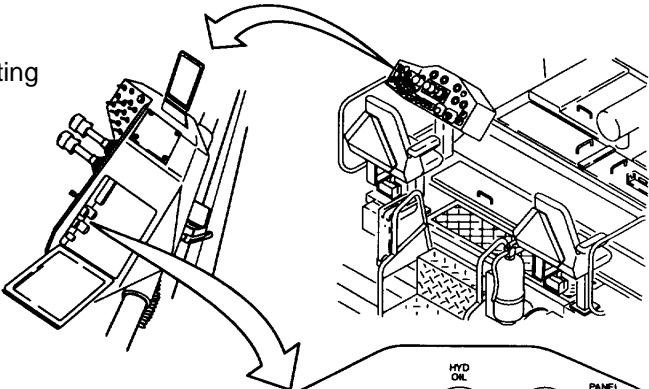
OPERATOR GAUGE PANEL LIGHTING

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA.

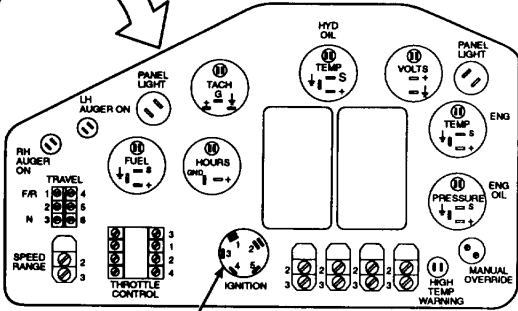
Reference electrical schematic at back of manual for complete circuit wiring.



Refer to paragraph 1.18.4 for lighting system description.



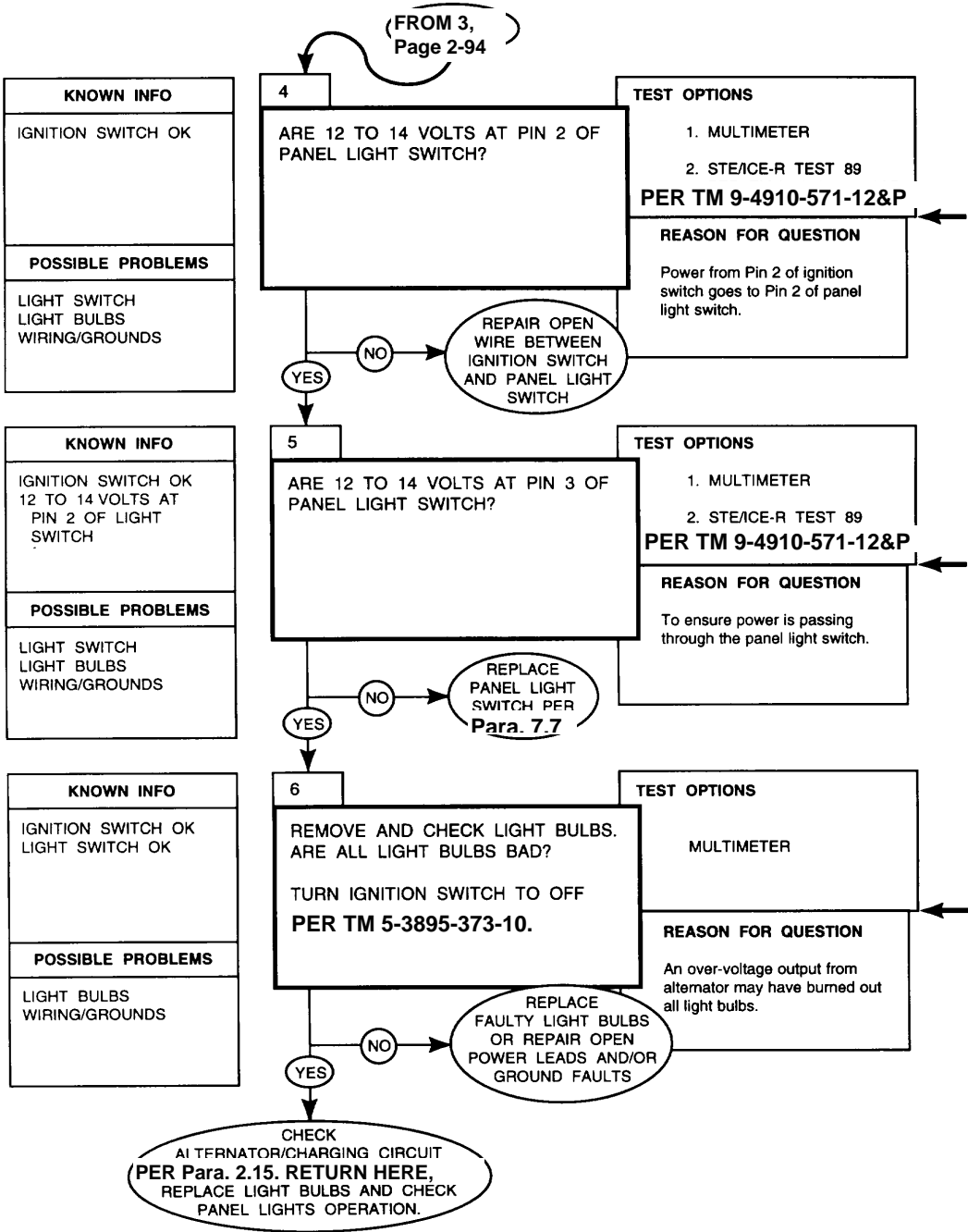
Remove gauge panel per paragraph 7.6 to gain access to ignition switch terminals



IGNITION SWITCH
GAUGE PANEL - REAR VIEW

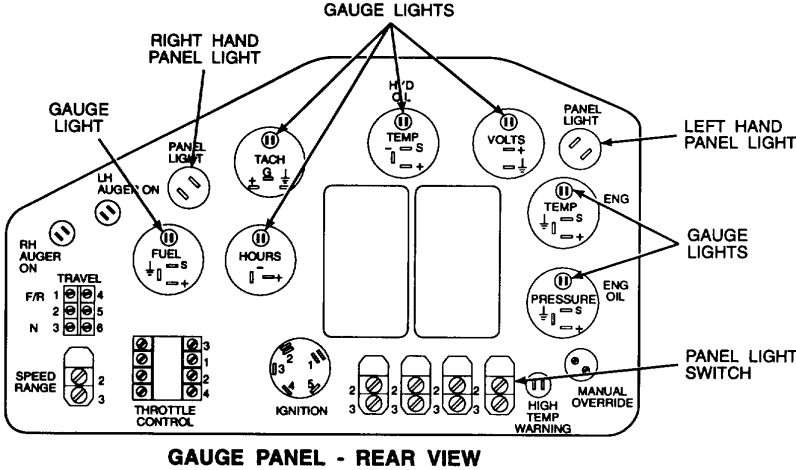
OPERATOR GAUGE PANEL LIGHTING

DIAGNOSTIC FLOWCHART

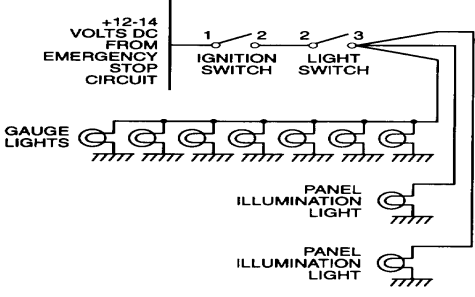


REFERENCE INFORMATION

OPERATOR GAUGE PANEL LIGHTING



GAUGE PANEL - REAR VIEW



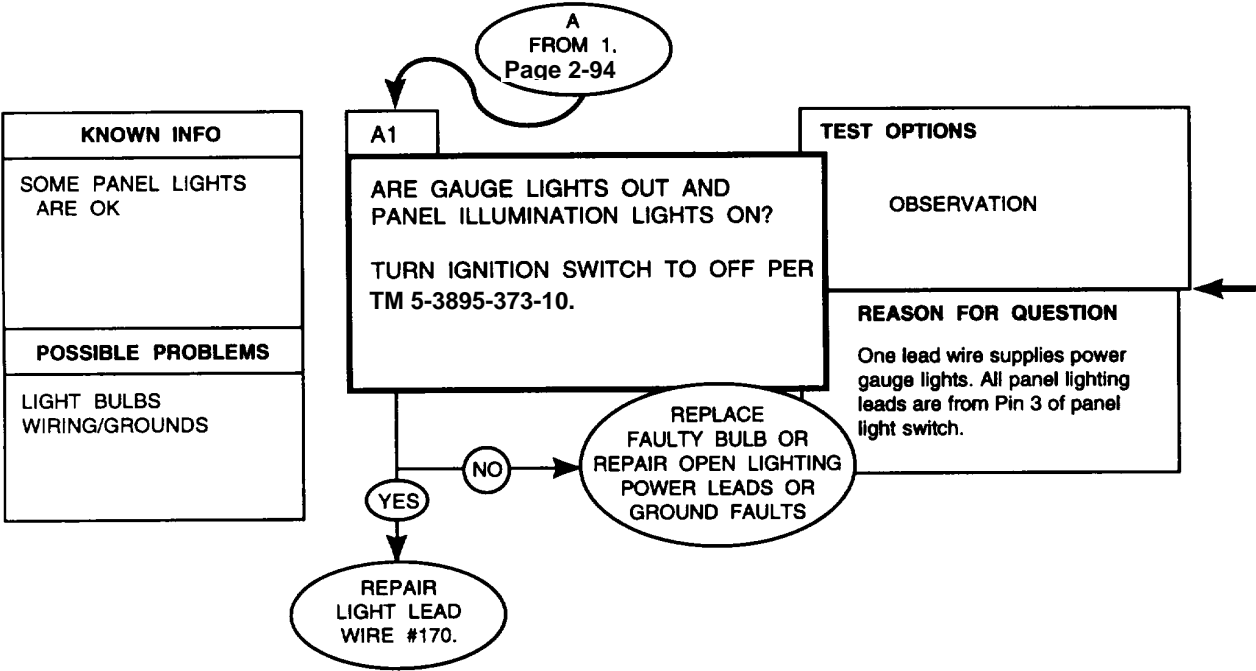
Reference electrical schematic at back of manual for complete circuit wiring.

Check and replace all light bulbs. A voltage spike or power surge can blow all light bulbs. Check work lights and screed control panels to see if these light bulbs are blown.

After completing diagnostic checks, install gauge panel per paragraph 7.6.

OPERATOR GAUGE PANEL LIGHTING

DIAGNOSTIC FLOWCHART



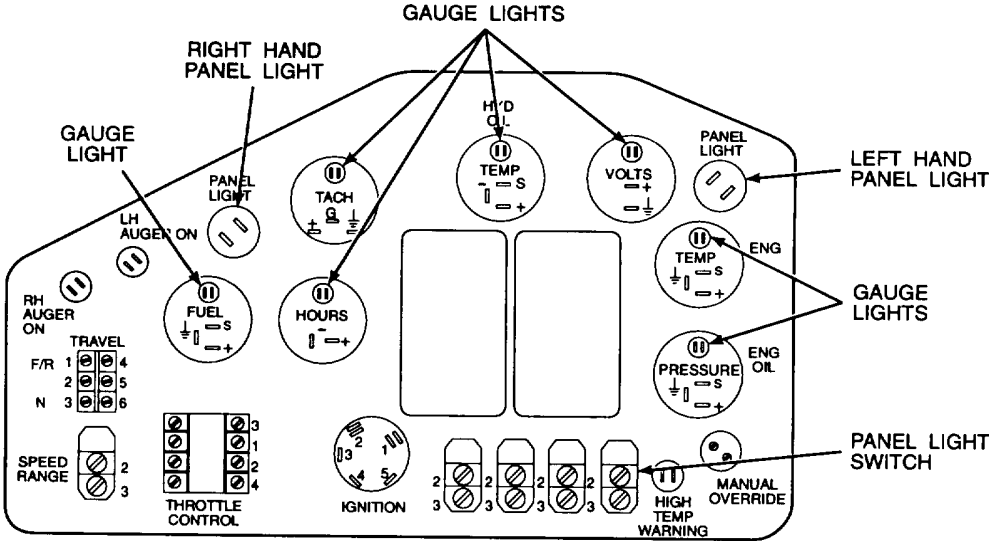
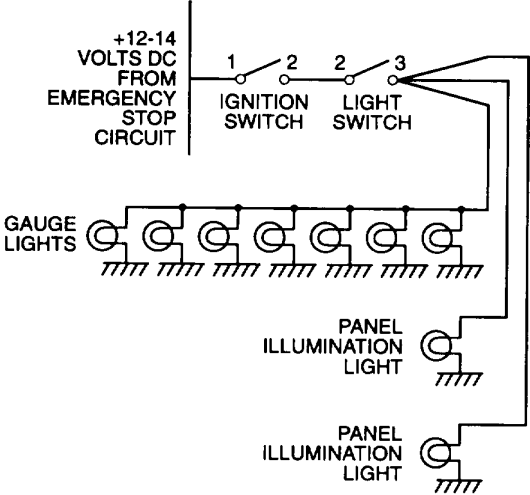
REFERENCE INFORMATION

OPERATOR GAUGE PANEL LIGHTING

NOTE

Three wires are attached to pin 3 of panel light switch. One powers the right hand panel light, one powers the left hand panel light, and one powers the gauge lights.

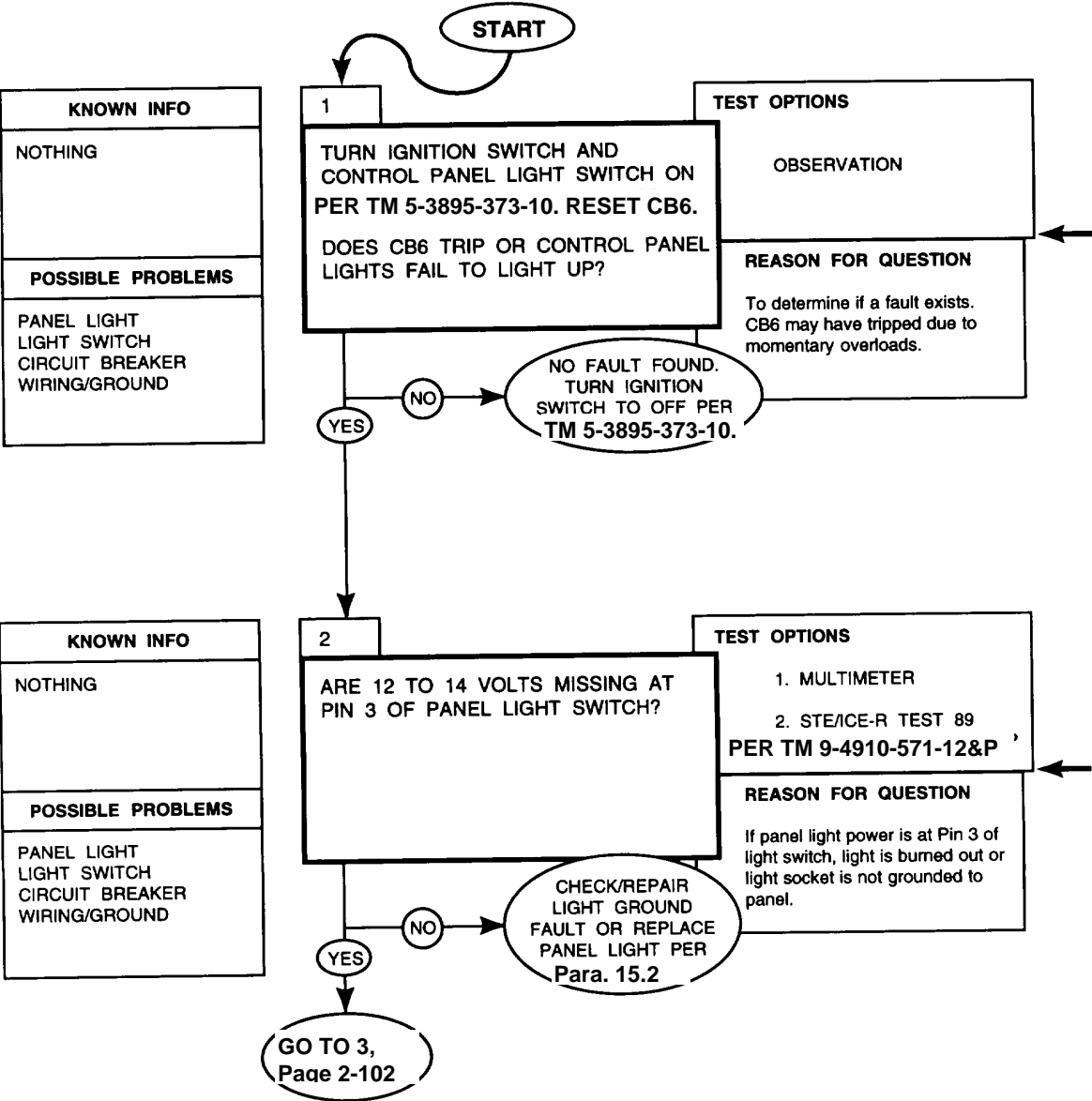
Reference electrical schematic at back of manual for complete circuit wiring.



GAUGE PANEL - REAR VIEW

SCREED CONTROL PANEL LIGHTING

DIAGNOSTIC FLOWCHART



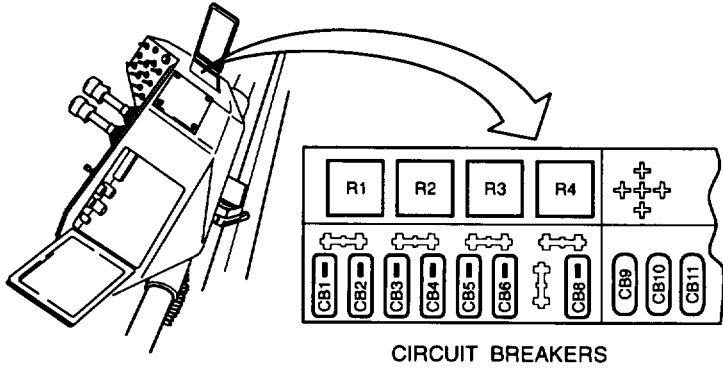
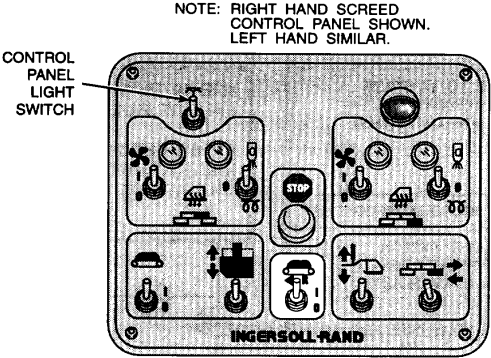
REFERENCE INFORMATION

SCREED CONTROL PANEL LIGHTING

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA.

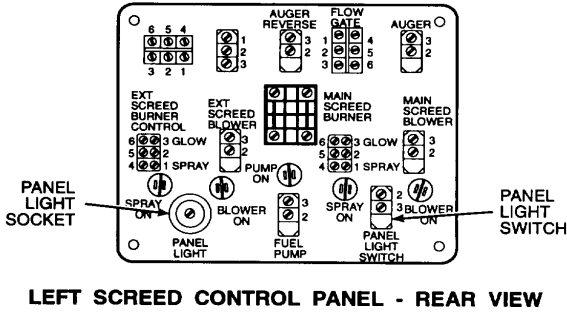
Open gauge panel access door per TM 5-3895-373-10.

Panel light bulb cannot be replaced. If panel light is bad, replace complete fixture.



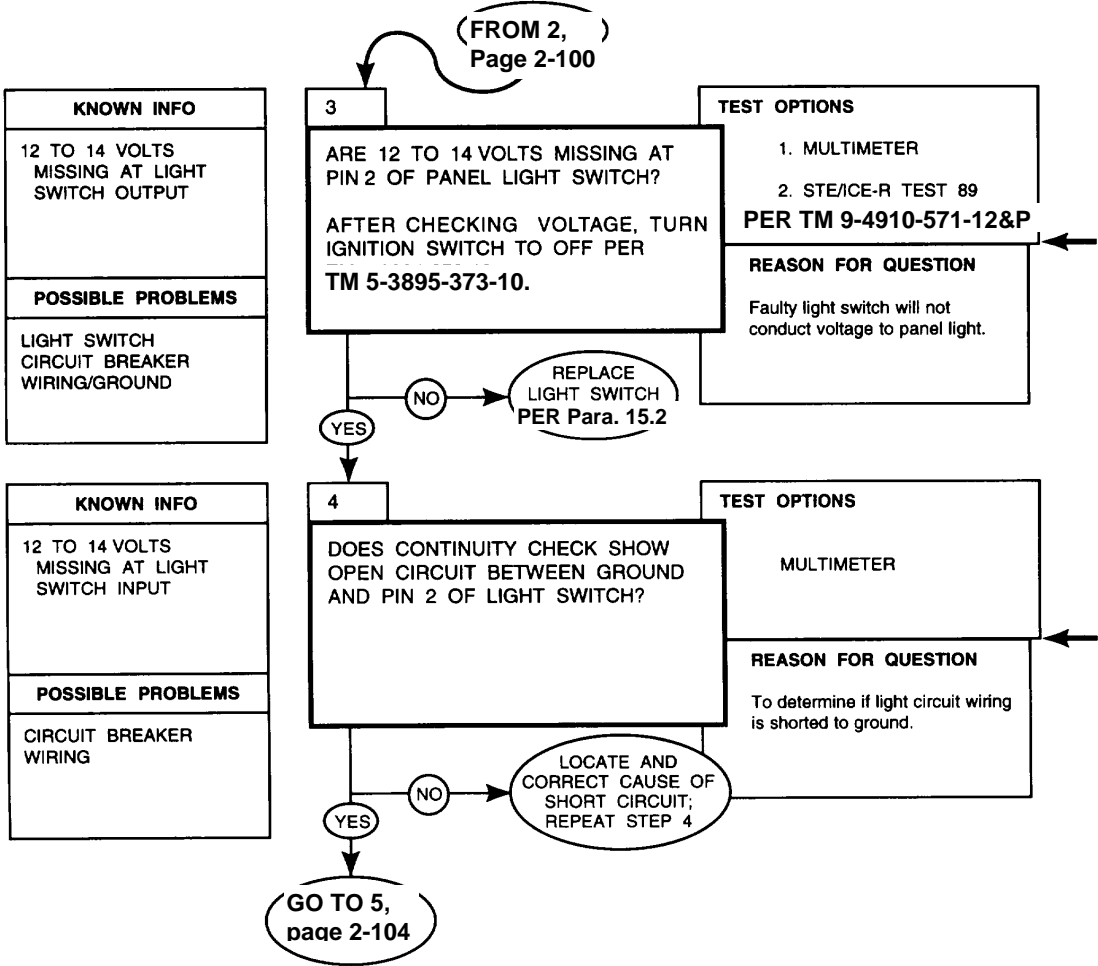
NOTE

The left and right screed control panels are the same except that the LH control panel has the fuel pump switch. Gain access to panel light switch per paragraph 15.2 step a.



SCREED CONTROL PANEL LIGHTING

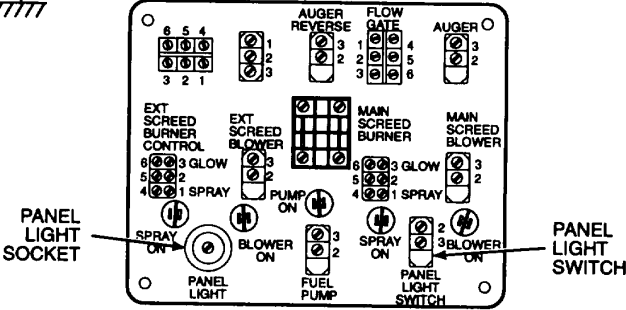
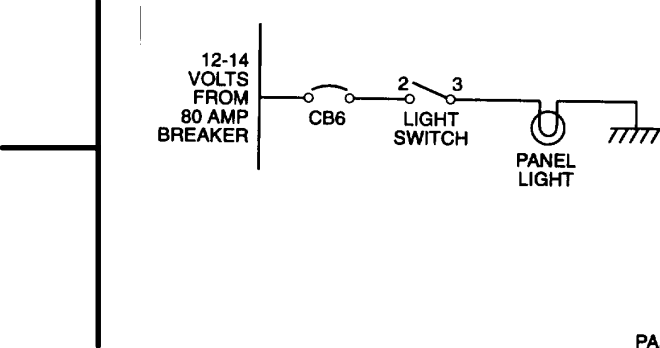
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

SCREED CONTROL PANEL LIGHTING

Reference electrical schematic at back of manual for complete circuit wiring.



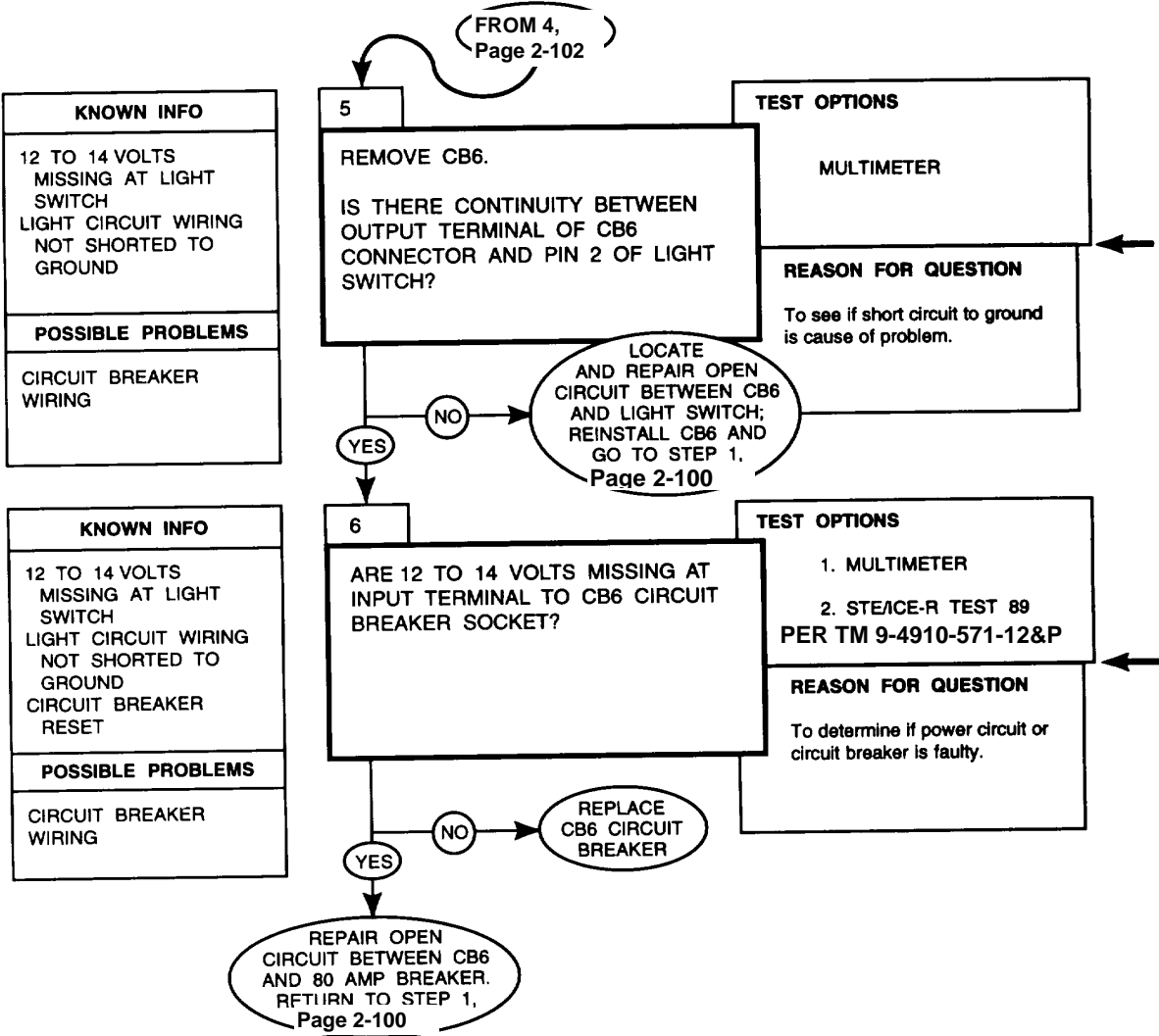
LEFT SCREED CONTROL PANEL - REAR VIEW

NOTE

The left and right screed control panels are the same except that the LH control panel has the fuel pump switch.

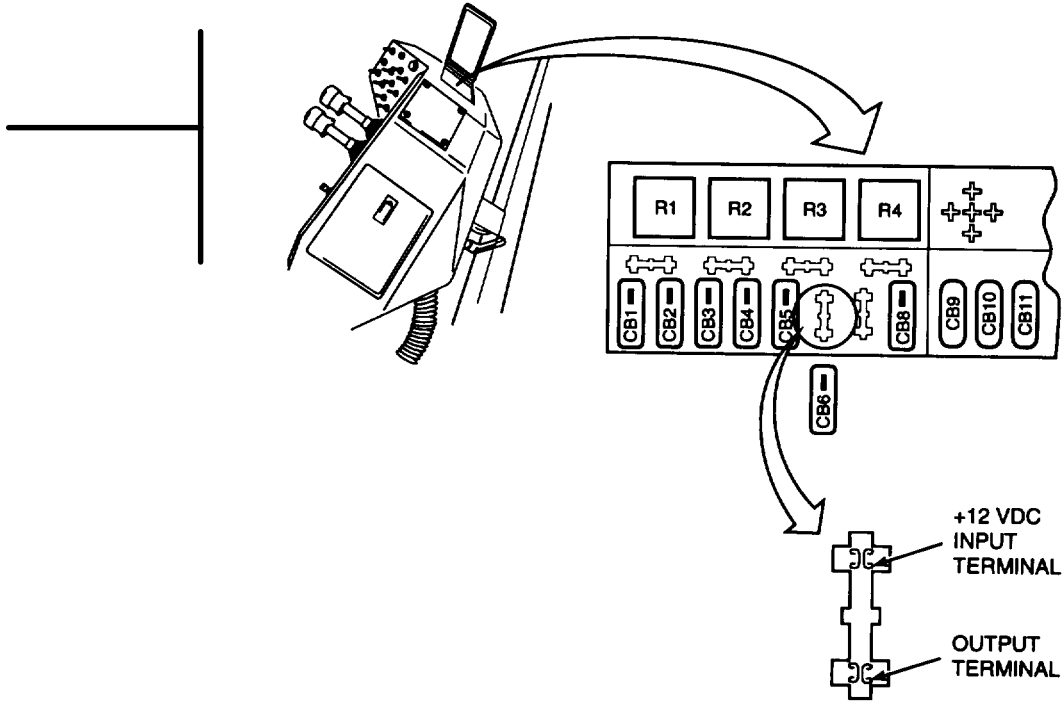
SCREED CONTROL PANEL LIGHTING

DIAGNOSTIC FLOWCHART



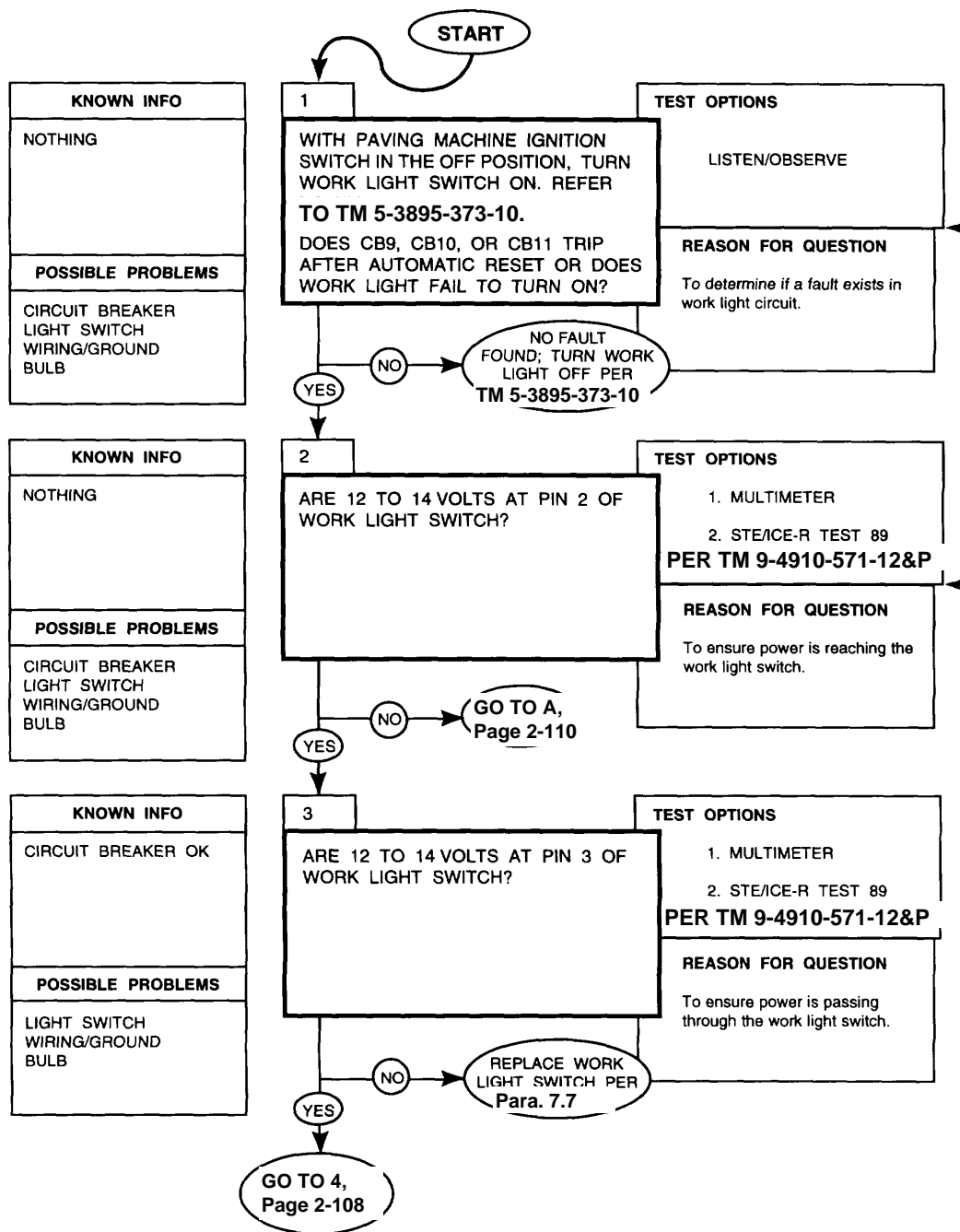
REFERENCE INFORMATION

SCREED CONTROL PANEL LIGHTING



Reinstall circuit breaker CB6.

After completing diagnostic checks, close gauge panel access door(s) per TM 5-3895373-10 and install screed control panel per paragraph 15.2.



REFERENCE INFORMATION

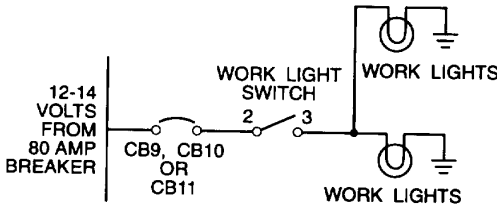
WORK LIGHT CIRCUITS

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures.
Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA.

The diagnostic procedure is the same for all three work light circuits. Use this diagnostic procedure to troubleshoot any one of the three work light circuits.

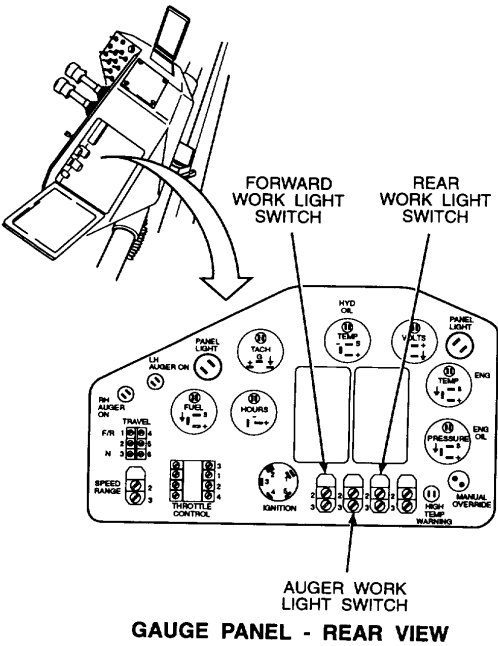
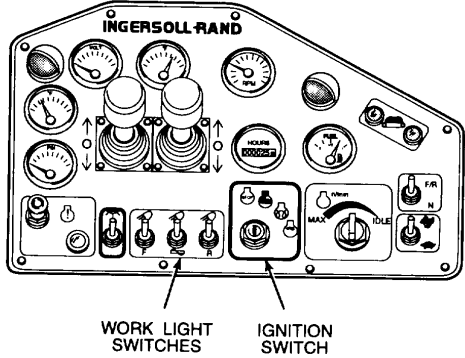
Work light voltage is available at work light switches when ignition switch is on or off.

Refer to paragraph 7.7 for gauge panel repairs.



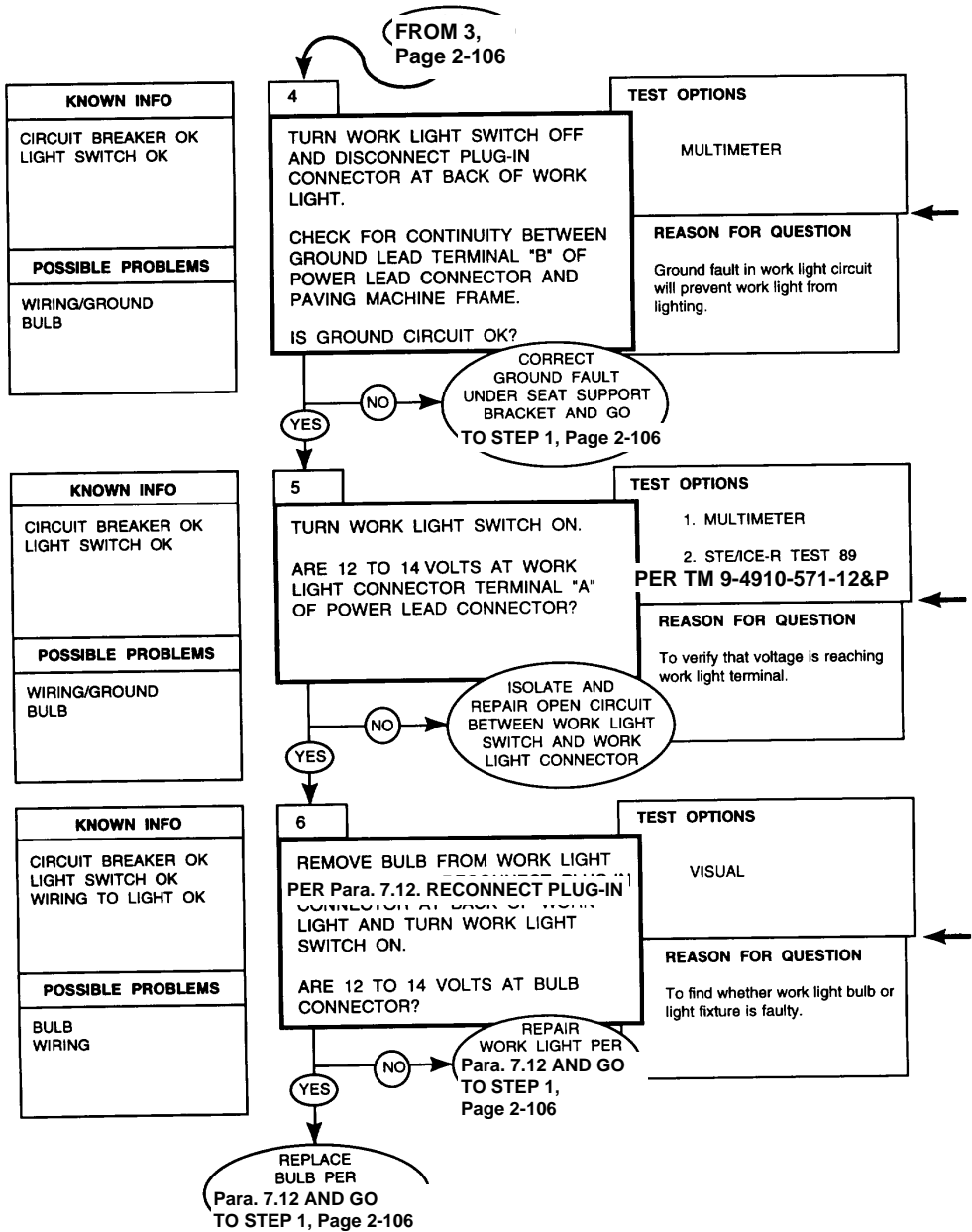
Reference electrical schematic at back of manual for complete circuit wiring.

Remove gauge panel per paragraph 7.6 to gain access to work light switch terminals.



WORK LIGHT CIRCUITS

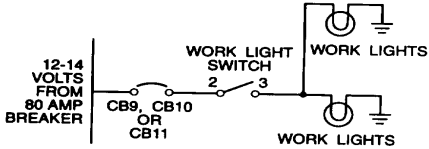
DIAGNOSTIC FLOWCHART



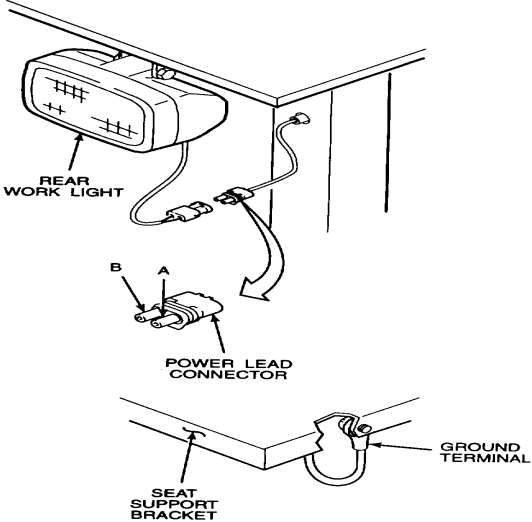
REFERENCE INFORMATION

WORK LIGHT CIRCUITS

A rear work light is shown here. All work light connectors are identical.



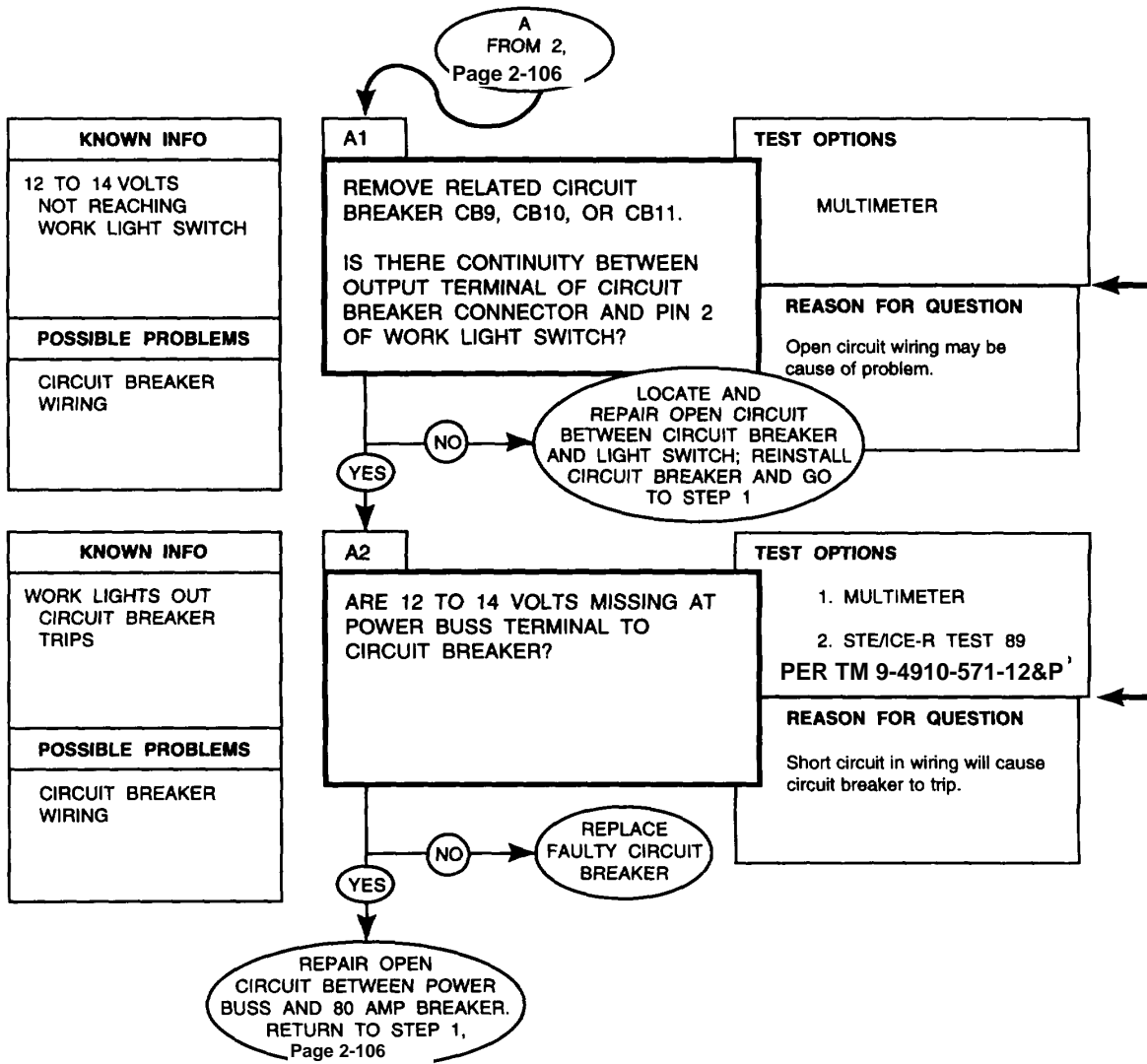
Reference electrical schematic at back of manual for complete circuit wiring.



After completing diagnostic checks, install gauge panel per paragraph 7.6.

WORK LIGHT CIRCUITS

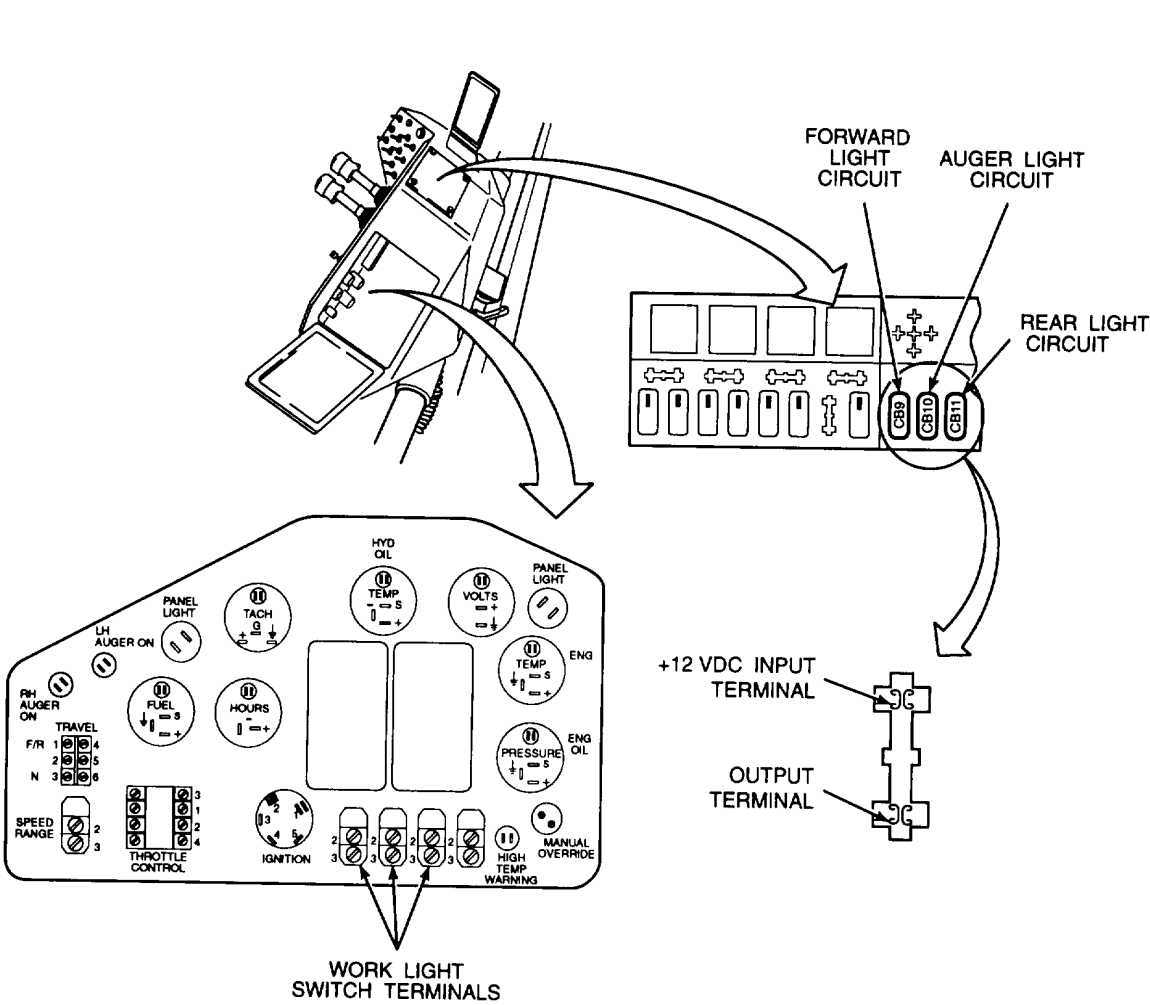
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

WORK LIGHT CIRCUITS

Open gauge panel access door per TM 5-3895-373-10 to gain access to circuit breakers.



After completing diagnostic checks, close gauge panel access door(s) per TM 5-3895-373-10 and install gauge panel per paragraph 7.6.

2.17. BATTERY/STARTER CIRCUIT DIAGNOSTICS.

Perform battery and starter circuit tests whenever an apparent low charge condition is indicated, if starter will not engage, or if sent here by another diagnostic test.

WARNING

Battery and starter circuit tests are performed on live electrical circuits and can present a shock or burn hazard. Be very careful when performing these tests.

NOTE

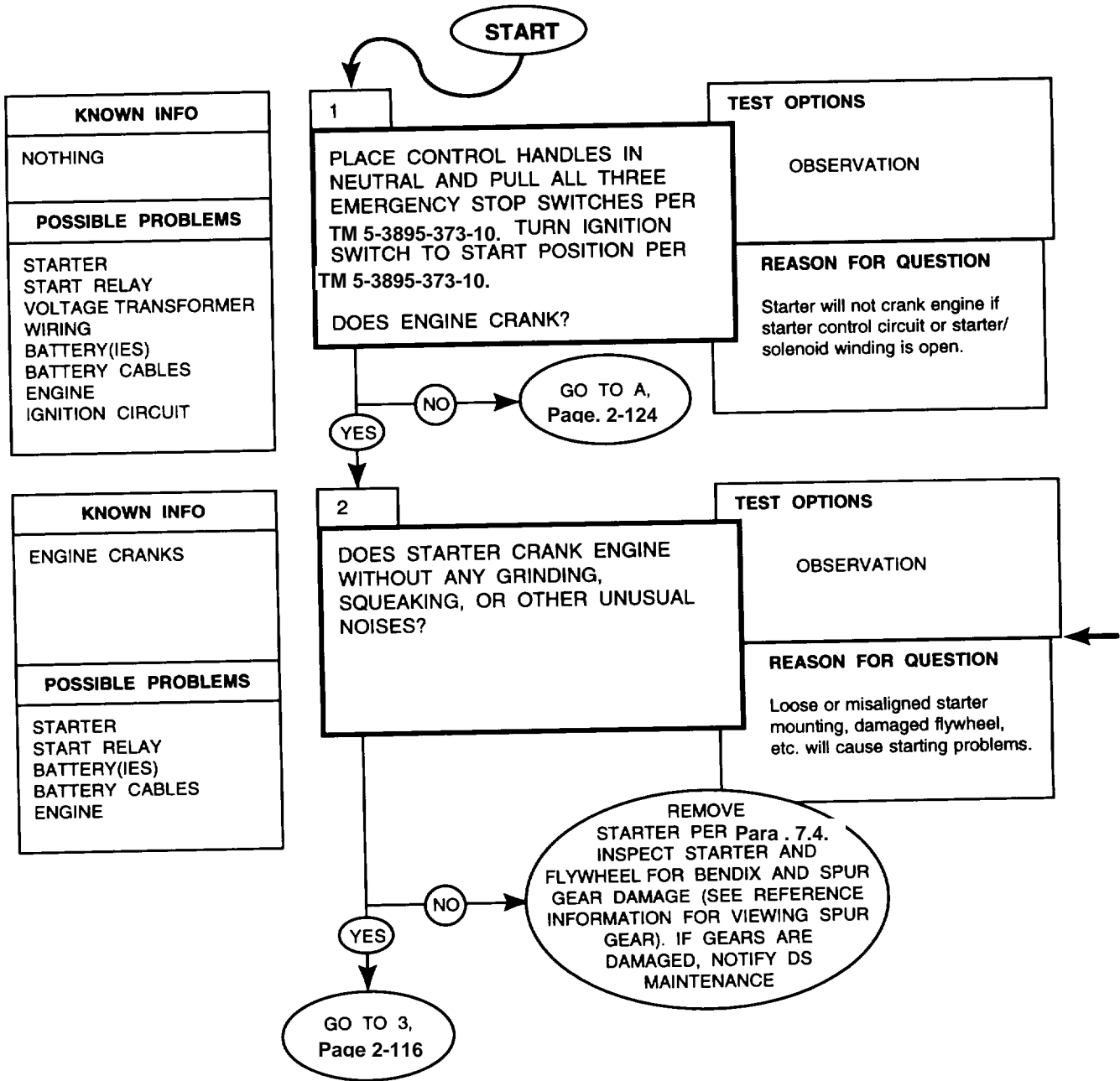
A low charge or high circuit resistance is indicated when the starter solenoid will not fully engage, or engine cranks slowly when starting.

An open starter or starter control circuit is indicated when nothing happens when the ignition switch is turned to the start position.

Refer to TM 5-3895-373-10 for location of controls and indicators.

BATTERY/STARTER CIRCUIT

DIAGNOSTIC FLOWCHART



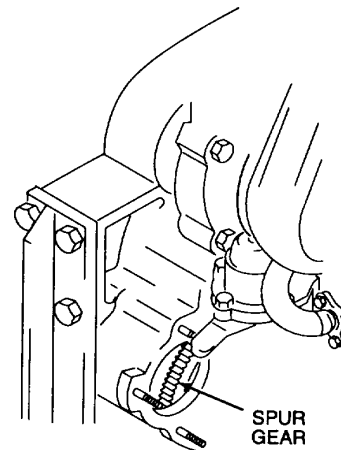
REFERENCE INFORMATION

BATTERY/STARTER CIRCUIT

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA. Refer to paragraph 1.18.2 for battery/starter circuit operating principles.

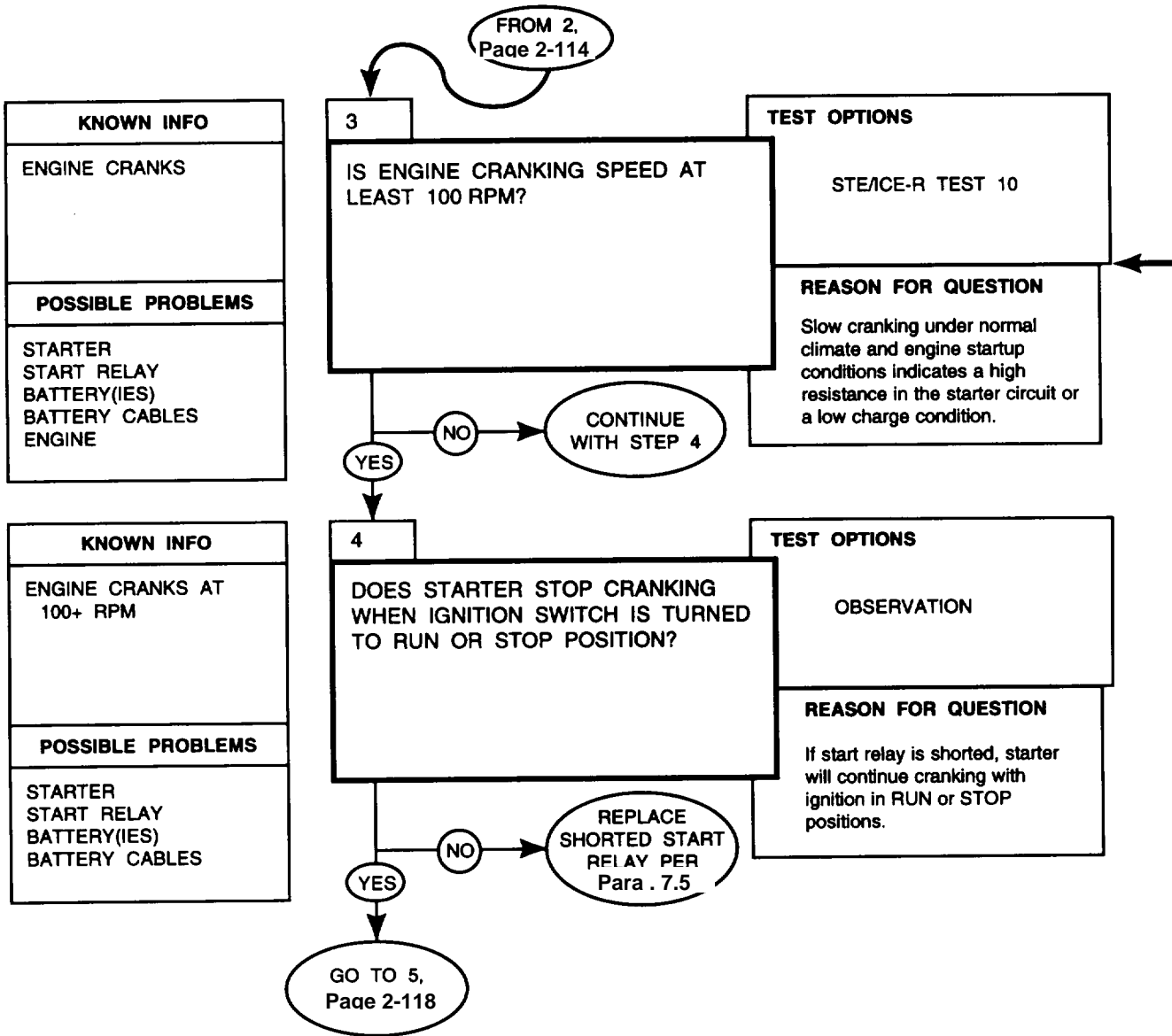
TO VIEW FLYWHEEL SPUR GEAR:

1. Turn ignition switch off and remove key.
2. Turn engine over by grasping fan blades with hands and rotating fan in either direction. Rotate fan only about 1/8 turn at a time.
3. Visually inspect exposed portions of flywheel spur gear between each partial turn of the fan for missing or damaged spur gear teeth.



BATTERY/STARTER CIRCUIT

DIAGNOSTIC FLOWCHART

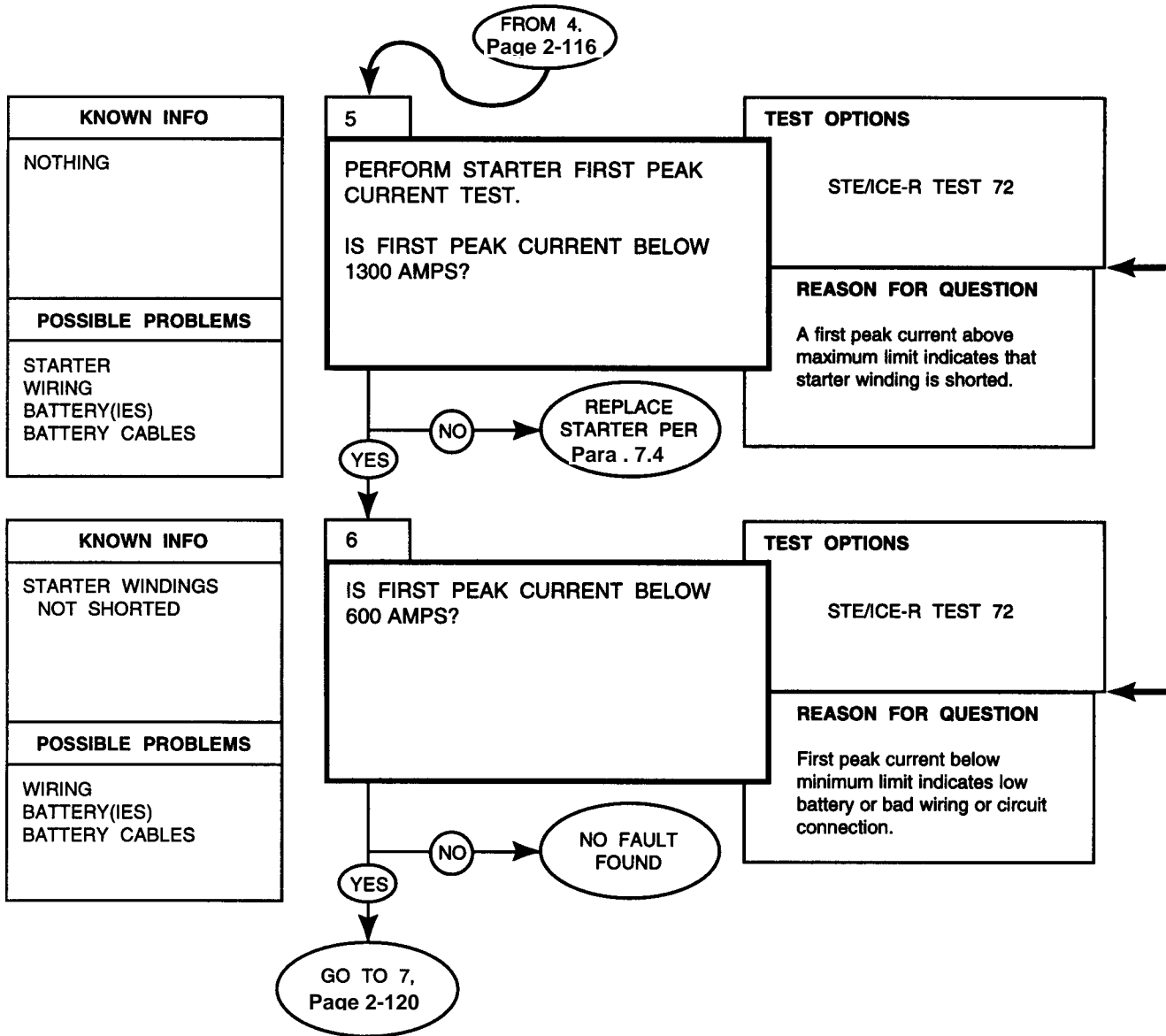


ENGINE SPEED -STE/CE-R TEST 10	
<p>DESCRIPTION Measures engine speed in the range of 50 to 5000 rpm using tachometer generator. DCA Test Pins: c and d</p> <p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-12&P.</p> <p>POSSIBLE ERROR MESSAGES None</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Set TEST SELECT switches to 10. 2. Set ENGINE CRANK switch on DCA housing to TEST to prevent engine from starting. 3. Press and release TEST button. 4. Turn ignition switch to start position and crank engine. 5. Observe displayed value. Displayed values are in rpm. If .9.9.9.9 is displayed, engine speed is not within test range. Expected display values are: <ul style="list-style-type: none"> Cranking 100 rpm minimum Idle 500 to 850 Full Speed 2640 +40 rpm

If STE/ICE-R reading does not approach expected value, check pulse tachometer generator per DCA diagnostics, paragraph 2.21.

BATTERY/STARTER CIRCUIT

DIAGNOSTIC FLOWCHART



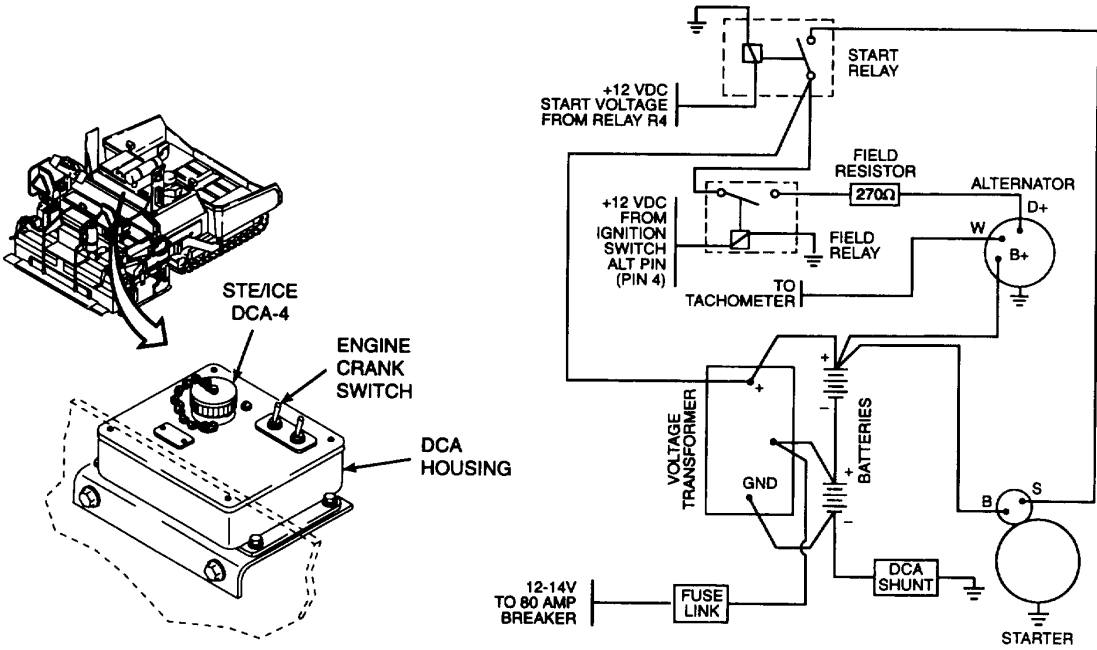
REFERENCE INFORMATION

BATTERY/STARTER CIRCUIT

STE/ICE-R Test 72 provides a good overall assessment of complete starting system. Tests condition of the starting circuit and battery's ability to deliver starting current. Peak currents less than nominal indicate relatively high resistance caused by poor connections, faulty wiring, or low battery voltage.

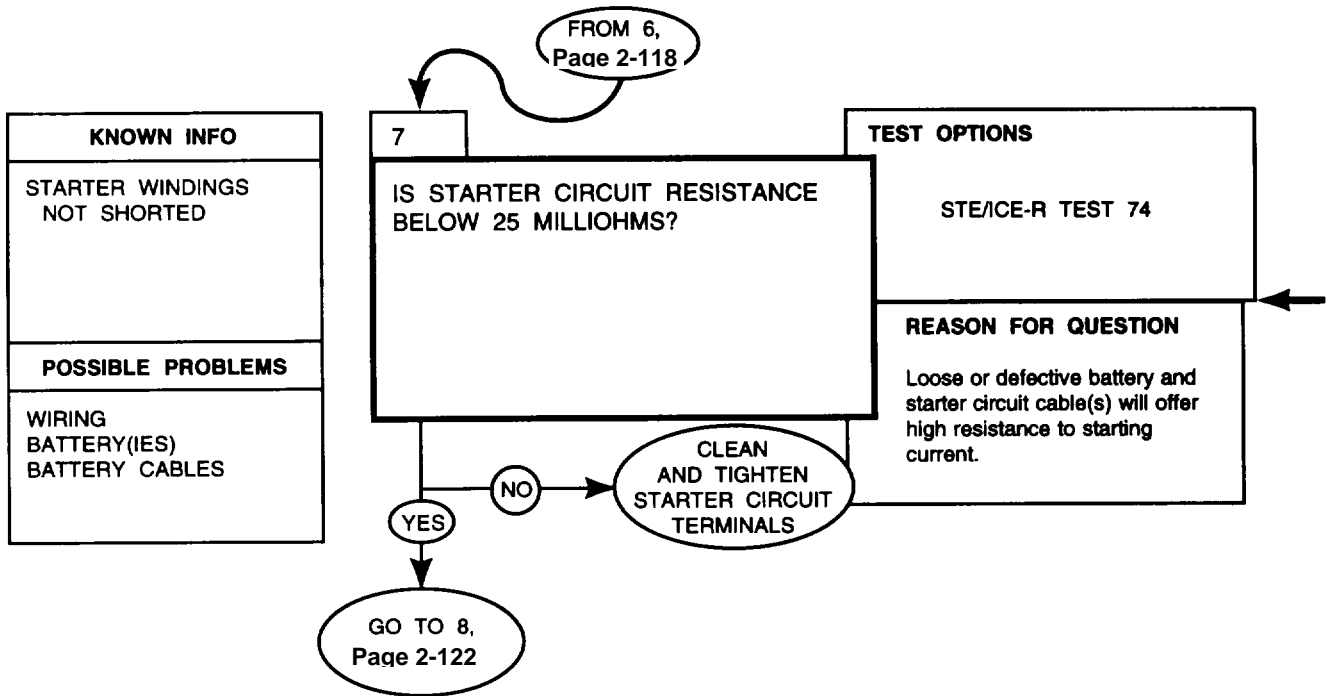
STARTER FIRST PEAK CURRENT TEST - STE/ICE-R TEST 72	
<p>DESCRIPTION Measures current through battery ground path shunt at the moment the starter is engaged and prior to armature movement. DCA Test Pins: X and Y Measurement Range: 0 to 1000 amps</p> <p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-12&P.</p> <p>POSSIBLE ERROR MESSAGES E005 Offset not performed. 4910-571-12&P. E008 VTM does not detect battery voltage. E013 VTM cannot use data received. E020 No first peak information was detected by the VTM.</p> <p>NOTE: If .9.9.9.9 is displayed, current first peak is more than 3000 amp and cannot be measured. If E013 is displayed, then check battery connections and correct as necessary. Repeat test procedure. If E013 persists after 3 tests, VTM cannot perform test.</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Set ENGINE CRANK switch on DCA housing to TEST position to prevent starting. 2. Make sure all accessory drive functions are turned OFF. 3. Set TEST SELECT switches to 72. 4. Press and hold TEST button until CAL appears on display. 5. Release TEST button and wait for offset value to appear on display. If offset value is within -150 to +150 amps, proceed. If not, refer to DCA troubleshooting in TM 9- 6. Press and release TEST button. 7. When GO appears on display, engage starter for 2 seconds or until one of the following appears on the display: OFF .9.9.9.9 A valid current reading An error message 8. Observe displayed value. Displayed values are in amperes (amps). Expected minimum value is 600 amps, nominal.

Reference electrical schematic at back of manual for complete circuit wiring.



BATTERY/STARTER CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

BATTERY/STARTER CIRCUIT

STARTER FIRST PEAK CURRENT TEST - STE/ICE-R TEST 72

DESCRIPTION

Measures the combined resistance of the starter circuit internal to the batteries.

Shunt: 12258937-1

DCA Test Pins: X, Y, V, and W

Measurement Range: 0 to 999.9 milliohms

PRE-TEST PROCEDURES

Run confidence test per TM 9-4910-571-12&P.

POSSIBLE ERROR MESSAGES

- E002 Transducer not connected..
- E005 Offset not performed.
- E008 VTM does not detect battery voltage.
- E013 VTM cannot use data received.
- E020 No first peak information was detected by the VTM.
- E021 VTM cannot calculate result because current is over current probe's range

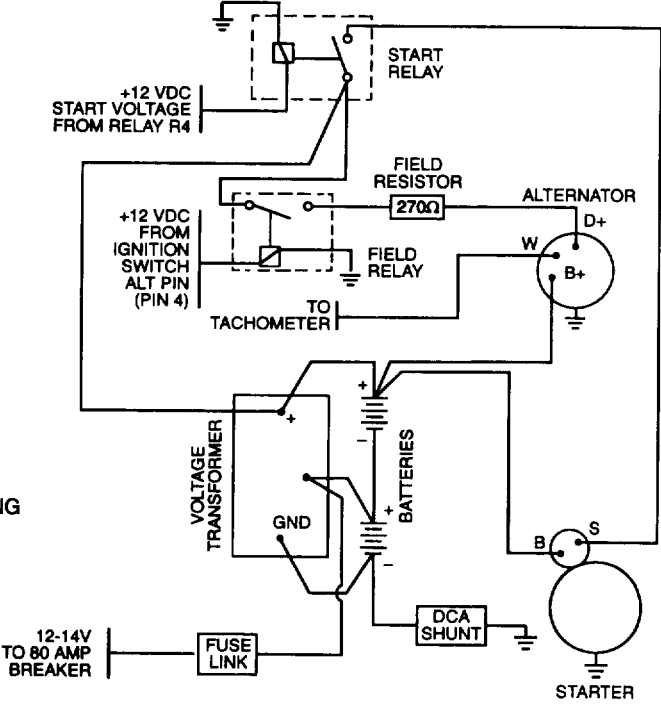
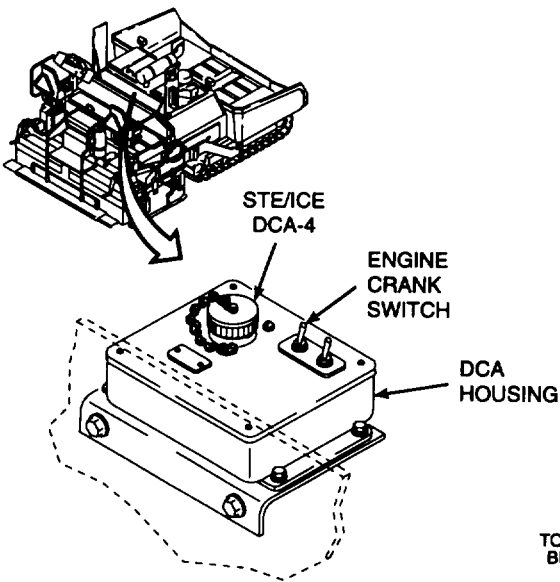
TEST PROCEDURES

1. Set ENGINE CRANK switch on DCA housing to TEST.
2. Make sure all accessory drive functions are turned OFF.
3. Set TEST SELECT switches to 74.
4. Press and hold TEST button until CAL appears on display
5. Release TEST button and wait for offset value to appear on display. If offset value is within -150 to +150 amps, proceed. If not, refer to DCA troubleshooting in TM 9-4910-571-12&P.
6. Press and release TEST button.
7. When GO appears on display, engage starter for 2 seconds or until one of the following appears on the display:
 - OFF
 - .9.9.9.9

A valid current reading
An error message

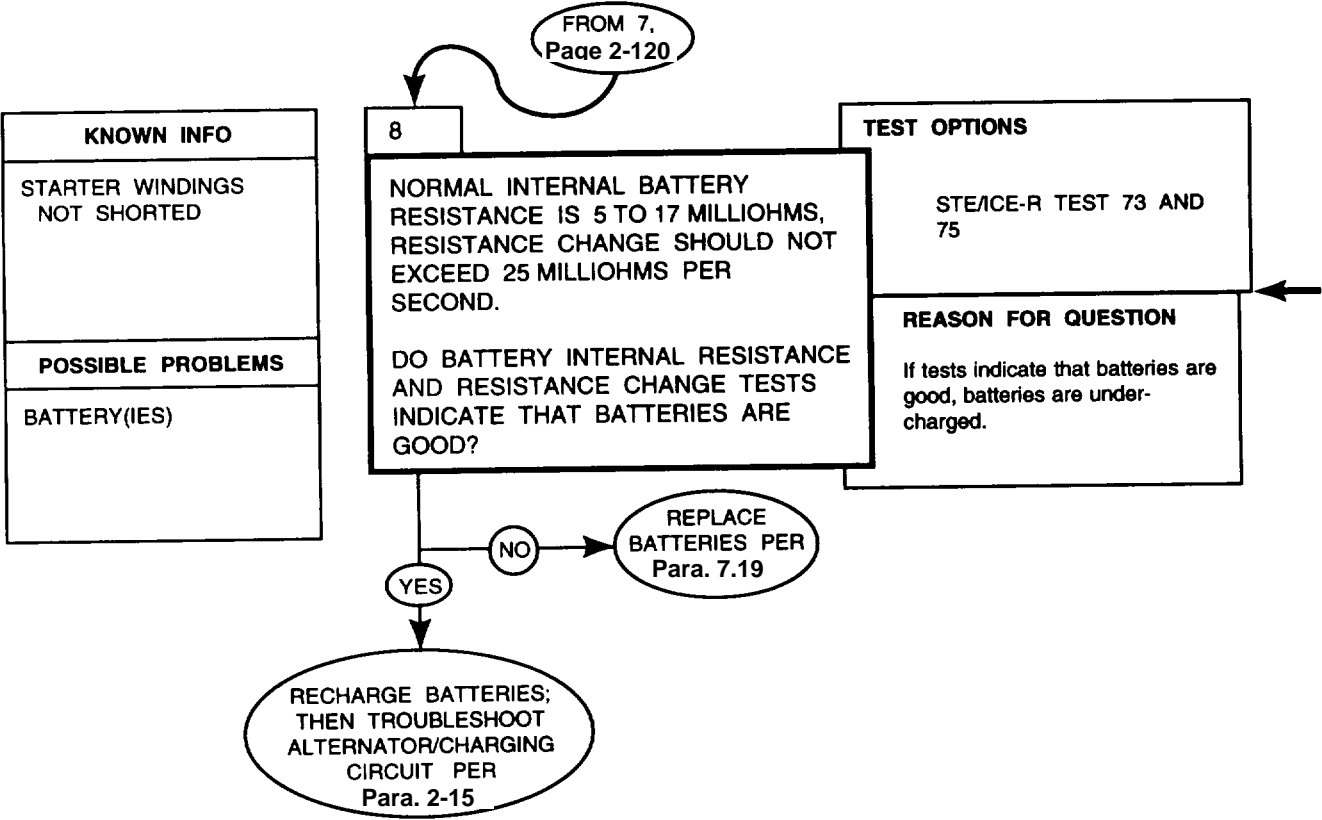
8. Observe displayed value. Displayed values are in milliohms. Expected minimum value is 25 milliohms.

NOTE: If .9.9.9.9 is displayed, starter circuit resistance is more than the range of the VTM and cannot be measured. If E013 is displayed, then check battery connections and correct as necessary. Repeat test procedure. If E013 persists after 3 tests, VTM cannot perform test.



BATTERY/STARTER CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

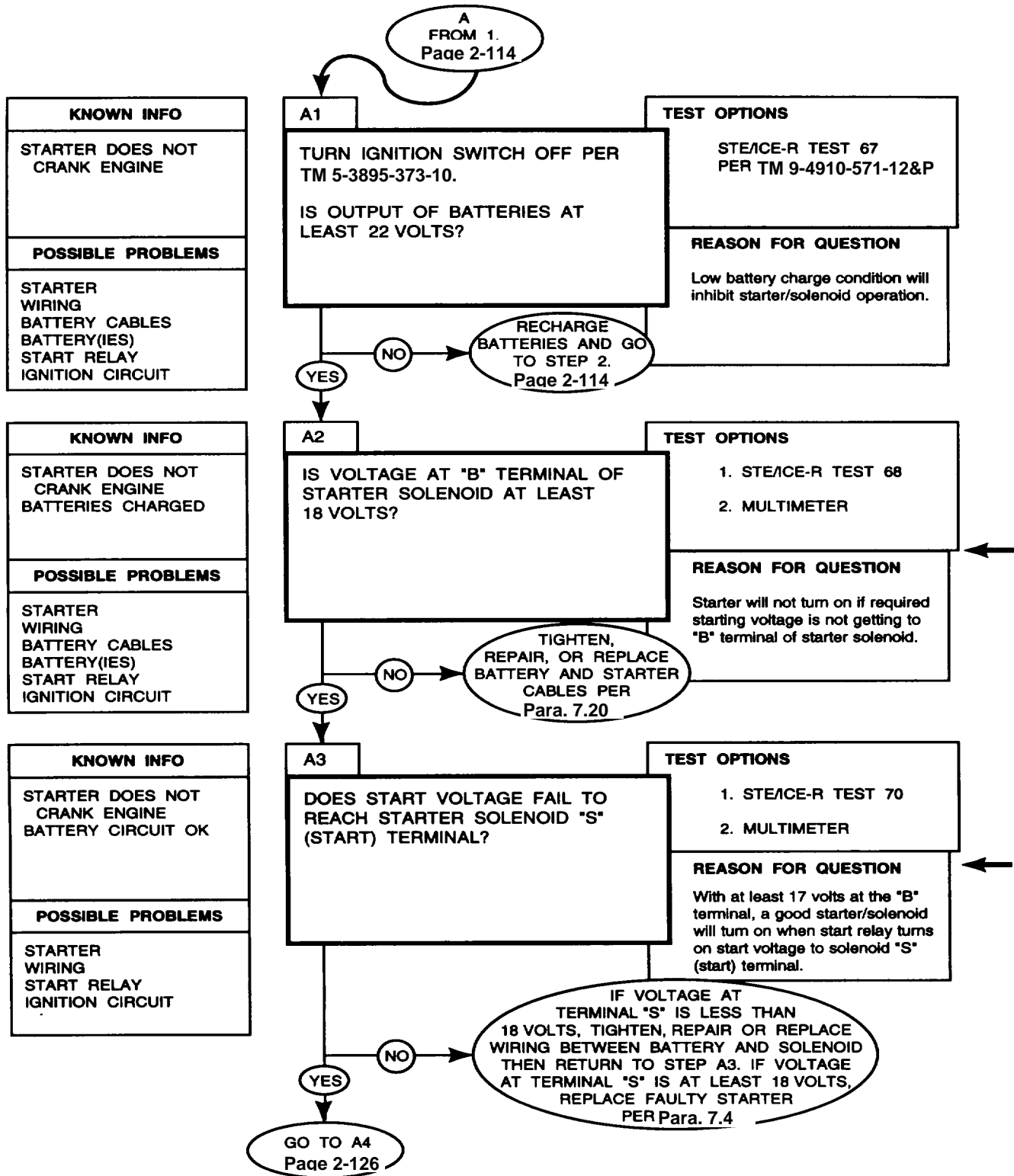
BATTERY/STARTER CIRCUIT

BATTERY INTERNAL RESISTANCE - STE/ICE-R TEST 73					
<p>DESCRIPTION Evaluates battery condition by measuring battery voltage and current simultaneously. Shunt: 12258937-1</p> <p>DCA Test Pins: X, Y, V, and W Measurement Range: 0 to 999.9 milliohms</p> <p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-12&P.</p> <p>POSSIBLE ERROR MESSAGES E002 Transducer not connected. E005 Offset not performed.</p> <p>E008 VTM does not detect battery voltage. E013 VTM cannot use data received. E020 No first peak information was detected by the VTM. E021 VTM cannot calculate result because current is over current probe's range.</p> <p>NOTE: If .9.9.9.9 is displayed, battery internal resistance is more than the range of the VTM and cannot be measured. If E013 is displayed, then check battery connections and correct as necessary. Repeat test procedures. If E013 persists after 3 tests, VTM cannot perform test.</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Set ENGINE CRANK switch on DCA housing to TEST. 2. Make sure all accessory drive functions are turned OFF. 3. Set TEST SELECT switches to 73. 4. Press and hold TEST button until CAL appears on display. 5. Release TEST button and wait for offset value to appear on display. If offset value is within -150 to +150 milliohms, proceed. If not, refer to DCA troubleshooting in TM 9-4910-571-12&P. 6. Press and release TEST button. 7. When GO appears on display, engage starter for 2 seconds or until one of the following appears on the display: <table style="margin-left: 20px;"> <tr><td>OFF</td></tr> <tr><td>.9.9.9.9</td></tr> <tr><td>A valid resistance reading</td></tr> <tr><td>An error message</td></tr> </table> 8. Observe displayed value. Displayed values are in milliohms. Expected value is 5 to 17 milliohms. 	OFF	.9.9.9.9	A valid resistance reading	An error message
OFF					
.9.9.9.9					
A valid resistance reading					
An error message					

BATTERY RESISTANCE CHANGE - STE/CE-R TEST 75					
<p>DESCRIPTION Measures the rate of change of battery resistance as an indicator of battery condition. Shunt: 12258937-1</p> <p>DCA Test Pins: X, Y, V, and W Measurement Range: 0 to 999.9 milliohms per second</p> <p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-12&P.</p> <p>POSSIBLE ERROR MESSAGES E002 Transducer not connected. E005 Offset not performed. E008 VTM does not detect battery voltage. E013 VTM cannot use data received. E020 No first peak information was detected by the VTM. E021 VTM cannot calculate result because current is over current probe's range.</p> <p>NOTE: If .9.9.9.9 is displayed, battery resistance change is more than the range of the VTM and cannot be measured. If E013 is displayed, then check battery connections and correct as necessary. Repeat test procedures. If E013 persists after 3 tests, VTM cannot perform test.</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Set ENGINE CRANK switch on DCA housing to TEST. 2. Make sure all accessory drive functions are turned OFF. 3. Set TEST SELECT switches to 75. 4. Press and hold TEST button until CAL appears on display. 5. Release TEST button and wait for offset value to appear on display. If offset value is within - 150 to +150 milliohms per second, proceed. If not, refer to DCA troubleshooting in TM 9-4910-571-12&P. 6. Press and release TEST button. 7. When GO appears on display, engage starter for 2 seconds or until one of the following appears on the Display: <table style="margin-left: 20px;"> <tr><td>OFF</td></tr> <tr><td>.9.9.9.9</td></tr> <tr><td>A valid resistance reading</td></tr> <tr><td>An error message</td></tr> </table> 8. Observe displayed value. Displayed values are in milliohms per second. Expected maximum value is 25 milliohms per second. 	OFF	.9.9.9.9	A valid resistance reading	An error message
OFF					
.9.9.9.9					
A valid resistance reading					
An error message					

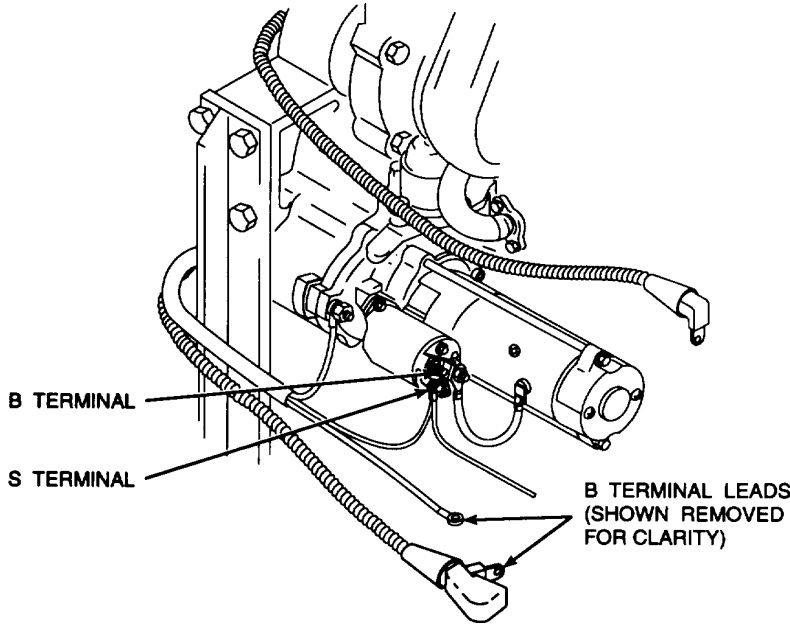
BATTERY/STARTER CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

BATTERY/STARTER CIRCUIT



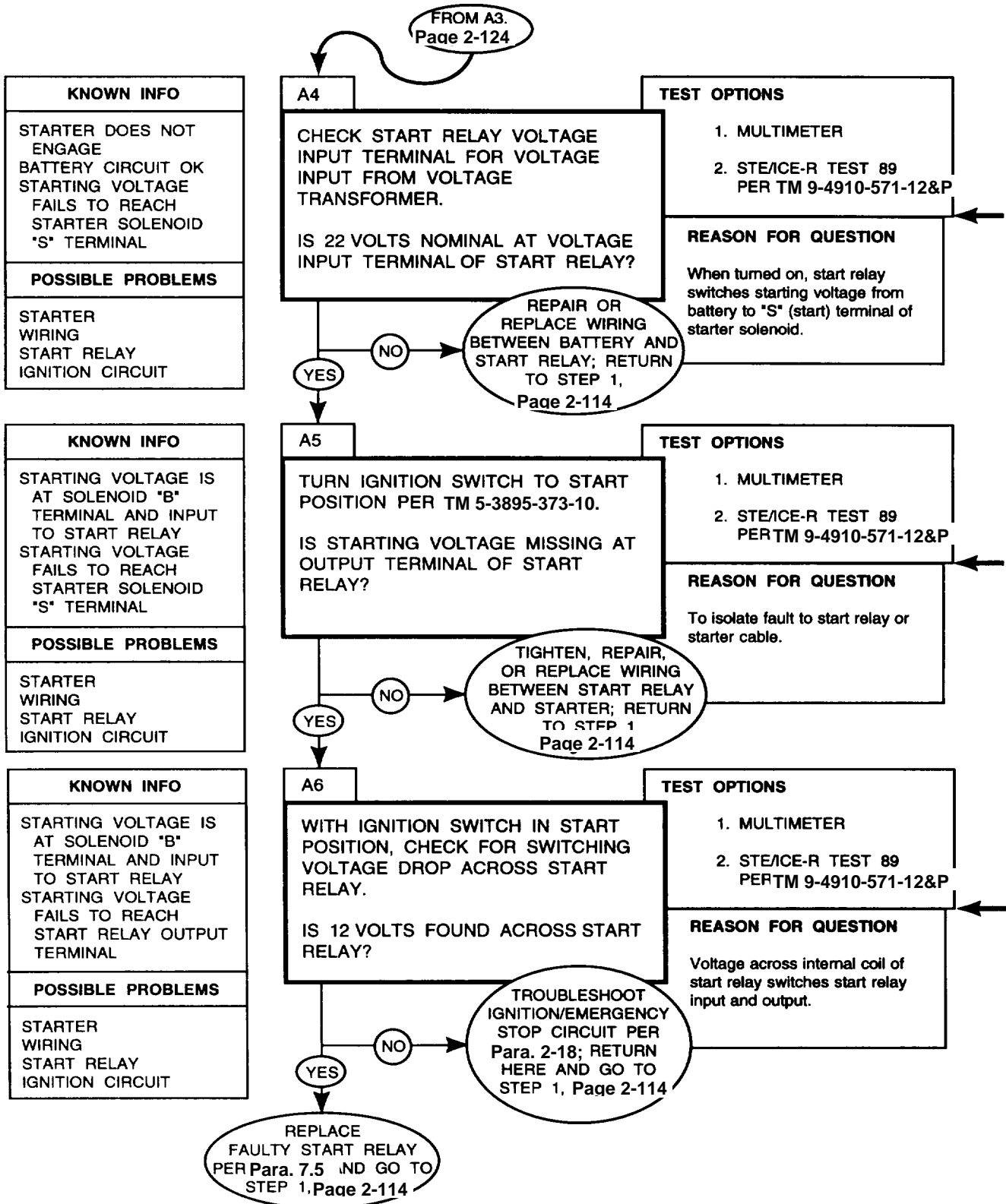
Open engine access cover per paragraph 2.22 to gain access to starter.

STARTER VOLTAGE - STE/ICE-R TEST 68	
<p>DESCRIPTION Measures the voltage present at the starter positive (B) terminal. DCA Test Pins: T and W</p> <p>Measurement Range: 0 to 32 Vdc</p> <p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-12&P.</p> <p>POSSIBLE ERROR MESSAGES None</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Set TEST SELECT switches to 68,. 2. Turn ignition switch to START position for 10 seconds 3. Press and release TEST button. 4. Observe displayed value. Displayed values are in volts. If .9.9.9.9 is displayed, voltage is not within test range. Expected minimum display value is 17 volts.

STARTER SOLENOID VOLTAGE - STE/ICE-R TEST 70	
<p>DESCRIPTION Measures the voltage present at the starter solenoid 'S' terminal. DCA Test Pins: S and W 373-10 Measurement Range: 0 to 32 Vdc</p> <p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-12&P.</p> <p>POSSIBLE ERROR MESSAGES None</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Set TEST SELECT switches to 70. 2. Turn ignition switch to START position per TM 5-3895-373-10. 3. Press and release TEST button. 4. Observe displayed value. Displayed values are in volts. If .9.9.9.9 is displayed, voltage is not within test range. Expected minimum display value is 18 volts.

BATTERY/STARTER CIRCUIT

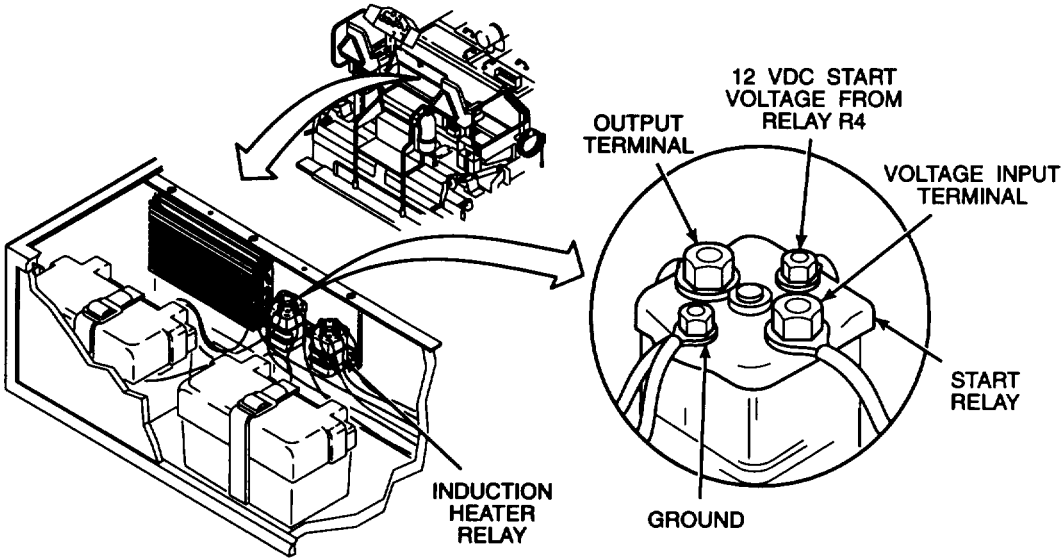
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

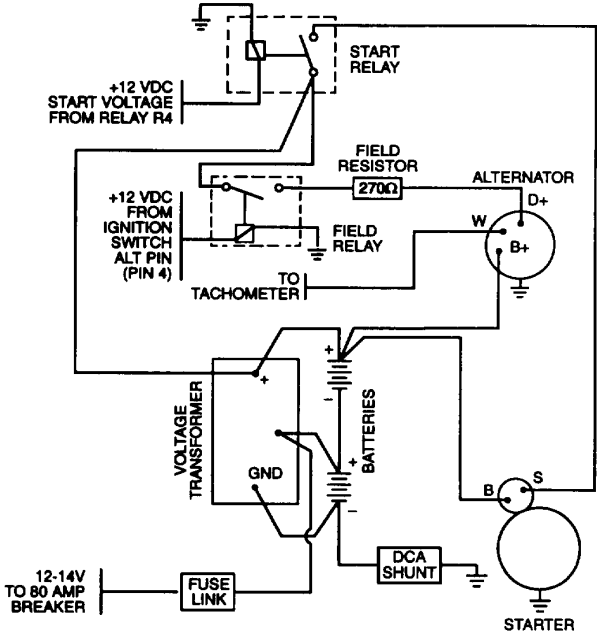
BATTERY/STARTER CIRCUIT

Open rear top left access door per TM 5-3895-373-10 to gain access to start relay.



Reference electrical schematic at back of manual for complete circuit wiring.

After completing diagnostic checks, close rear top left access door per TM 5-3895-373-10 and install engine access cover per paragraph 2.22.



2.18. ELECTRICAL CIRCUIT DIAGNOSTICS.

Perform these diagnostic tests whenever you detect a problem with an electrical control circuit, or if sent here from another diagnostic procedure.

These diagnostic procedures cover all electrical circuits except the lighting system, the screed burner system, hydraulic valve solenoid circuits, and the DCA circuits. The location of diagnostic procedures for electrical controls in these systems are listed in the Table of Contents.

Refer to the diagnostic index for troubleshooting a specific control switch or indicator circuit. Each electrical control circuit is identified by the related switch or indicator located on one of the three paving machine control panels.

NOTE

When checking live circuit voltage, all references to 12 vdc are nominal. The actual voltage measured should be equal to the voltage at the 12 vdc terminal of the voltage transformer.

When a fault is isolated to a specific component, the paragraph number of the repair task for replacement of the component is cited in the diagnostic flow chart. If the repair task is general (ie: wiring and harness repair), the repair task is cited in the Reference Information column.

Male connectors on paving machine most often house female terminals (receptacles, jacks). Mating female connectors house male terminals (plugs). Plug/jack nomenclature in text and diagrams is based on nature of connector terminals (male or female), not on appearance of connector housing.

Refer to paragraph 7.21 for harness and lead wire repair.

Throughout this diagnostic procedure, a simplified schematic of the circuit under test is shown. Reference electrical schematic at back of manual for complete circuit wiring.

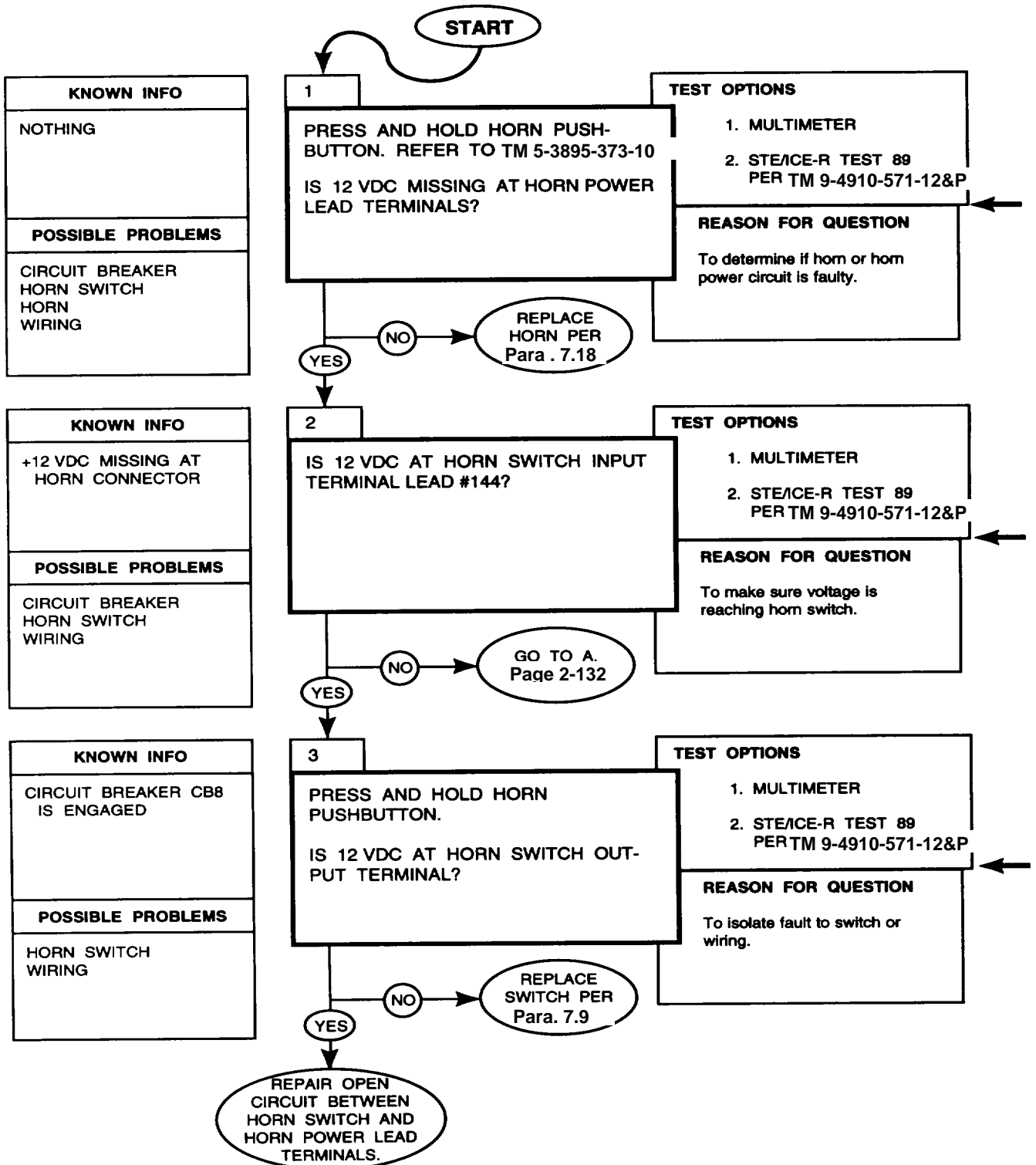
NOTE

Diagnostic Index

Fault Location	Page
Horn Circuit Diagnostics	2-130
Ignition/Emergency Stop Circuit Diagnostics	2-136
Flow Gate Control Circuit Diagnostics	2-174
Panel Gauge Circuit Diagnostics	2-186
High Temperature Shutoff Circuit Diagnostics	2-218
Cold Start Control Circuit Diagnostics	2-230
Engine Throttle Control Circuit Diagnostics	2-236
High Speed Shift Circuit Diagnostics	2-240
Control Handle, Brake, and Stop/Resume Circuit Diagnostics	2-244

HORN CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

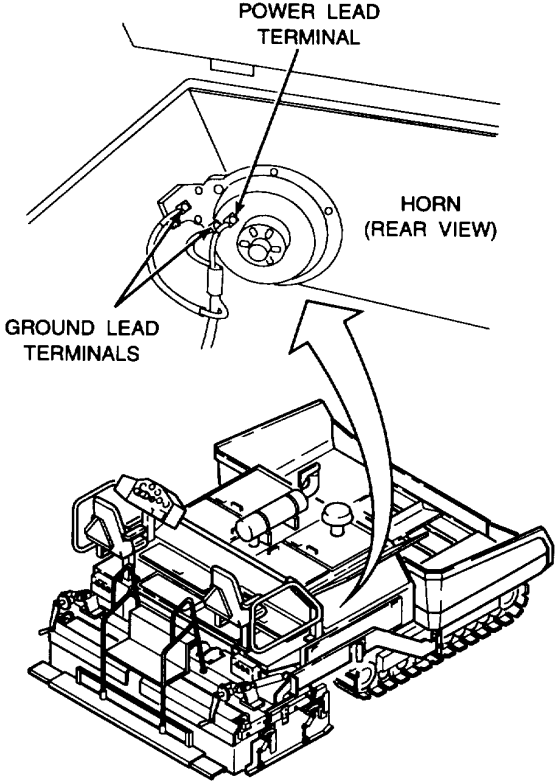
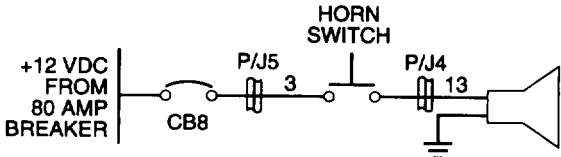
HORN CIRCUIT

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA.

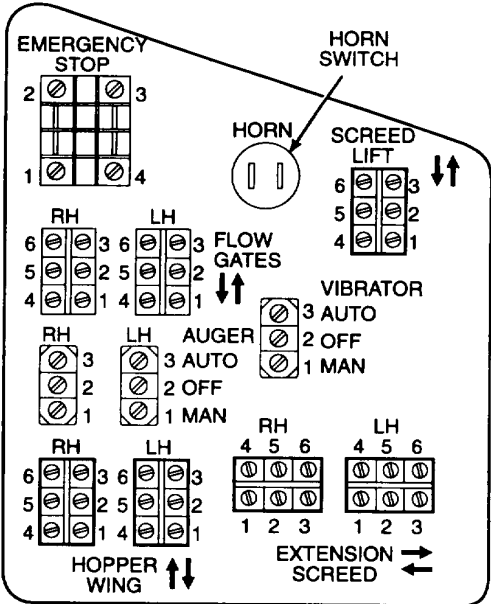
Refer to paragraph 1.18.1 for horn circuit operating principles.

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

Open right access door per TM 5-3895-373-10 to gain access to horn.

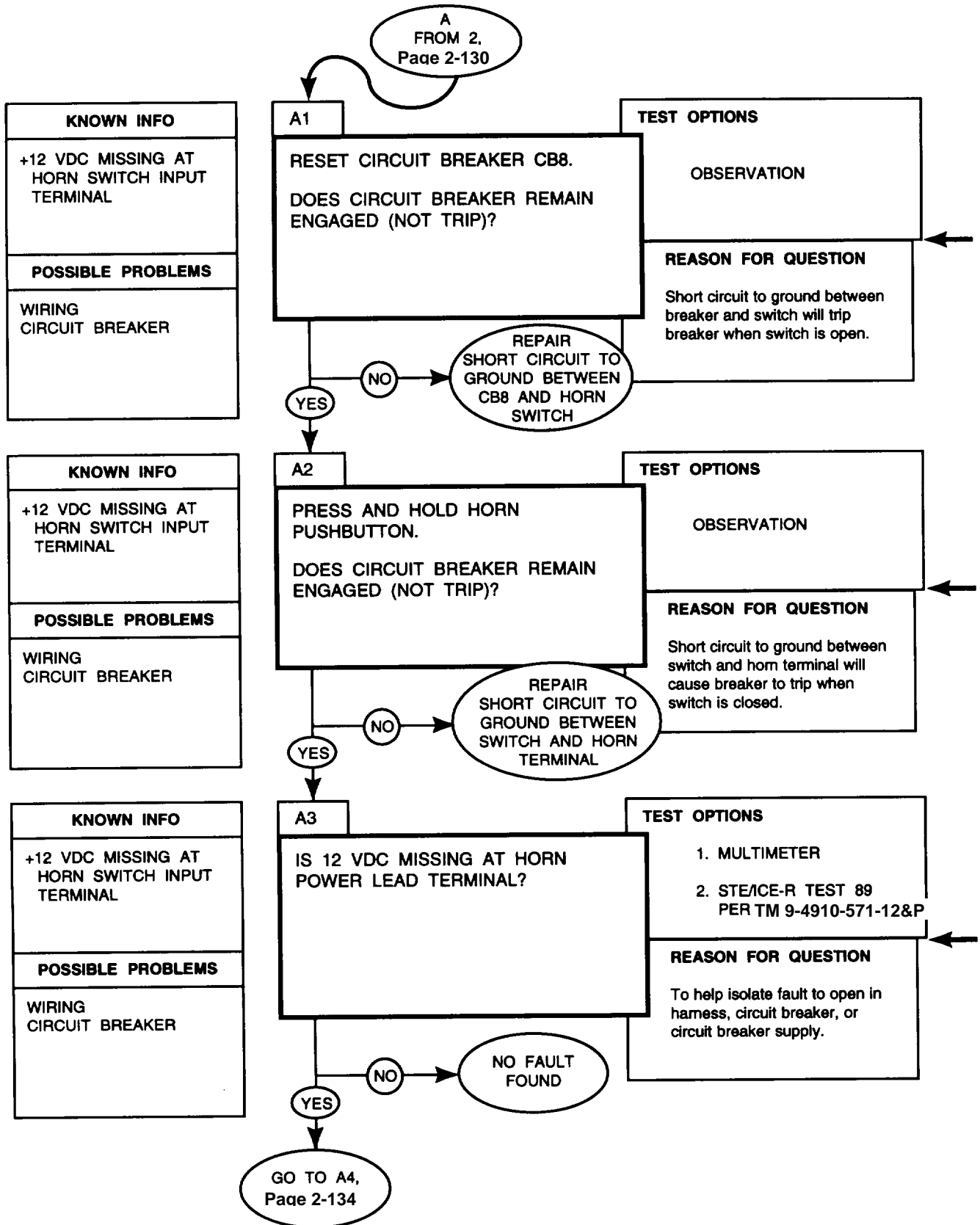


Refer to paragraph 7.21 for harness and lead wire repair.



HORN CIRCUIT

DIAGNOSTIC FLOWCHART



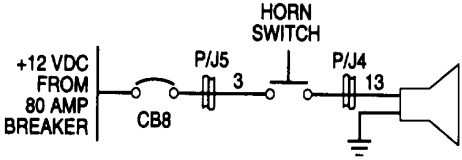
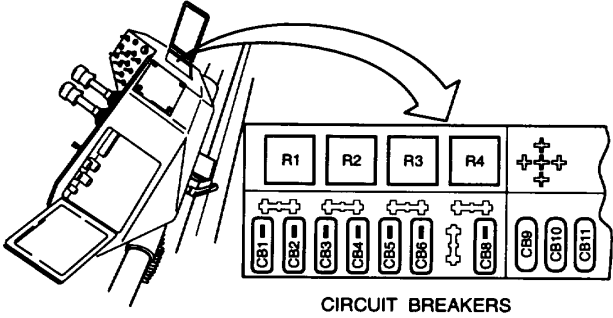
REFERENCE INFORMATION

HORN CIRCUIT

Press the reset button on the breaker if unsure of the breaker condition.

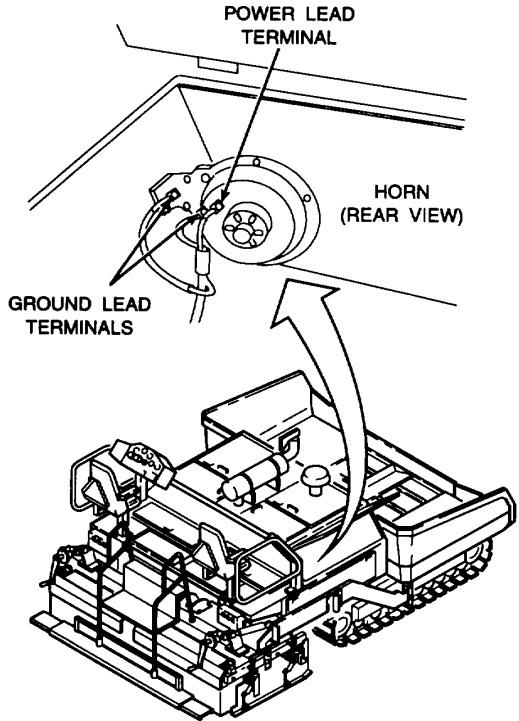
Refer to paragraph 7.21 for harness and lead wire repair.

Open gauge panel access door per TM 5-3895-373-10 to gain access to circuit breakers.



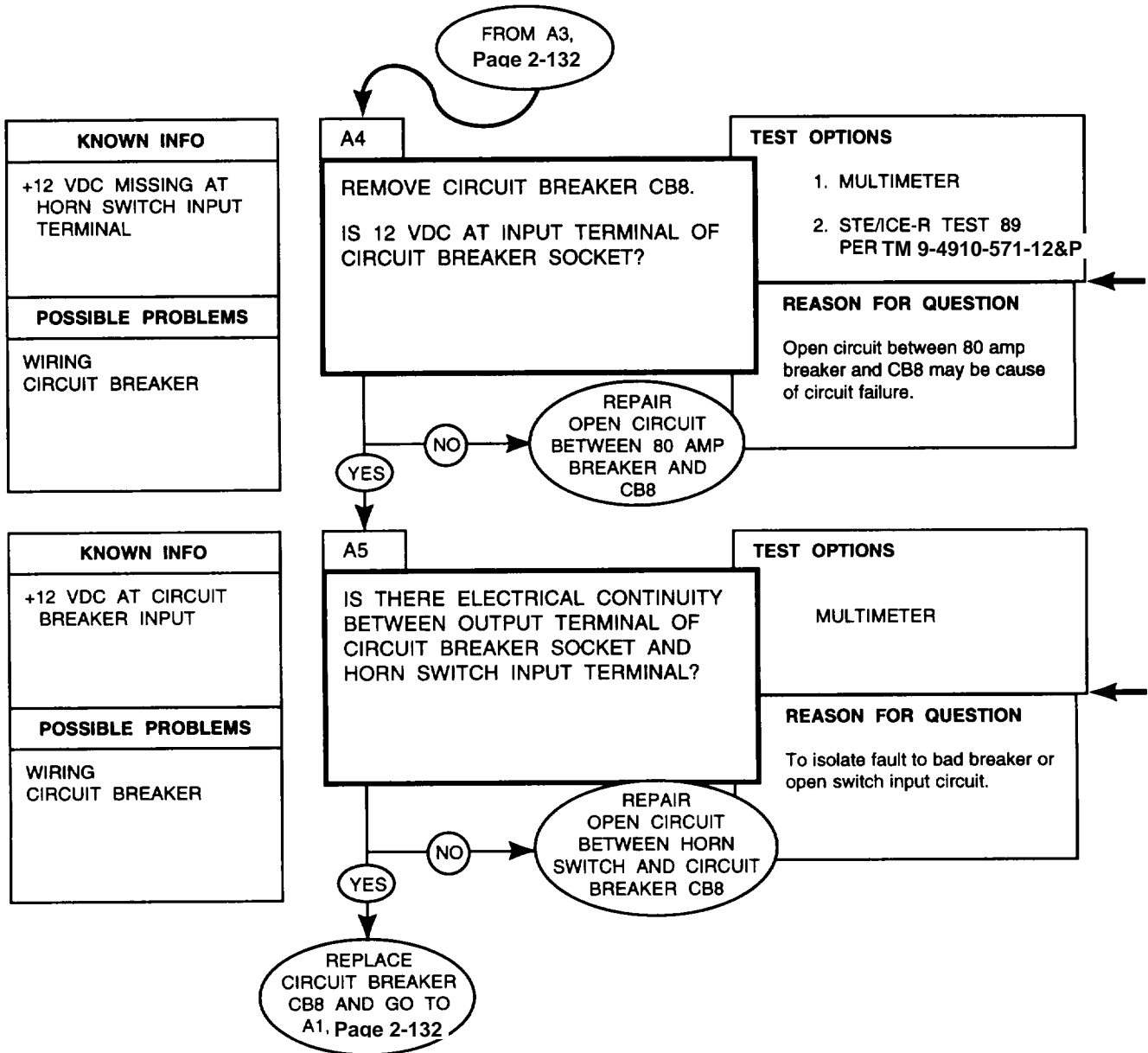
Remove switch panel per paragraph 7.6 to gain access to horn switch terminals.

After completing diagnostic checks, close gauge panel access door(s) and right access door per TM 5-3895-373-10. Install switch panel per paragraph 7.6.



HORN CIRCUIT

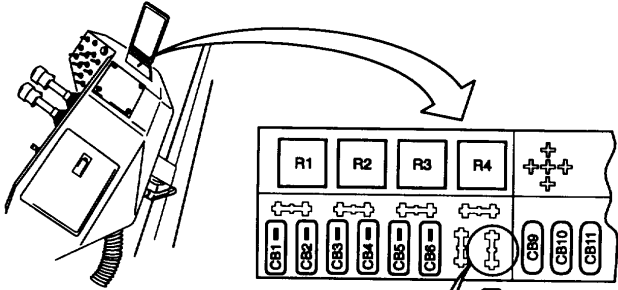
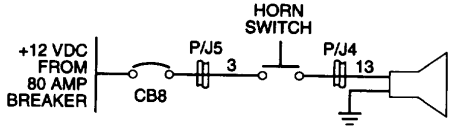
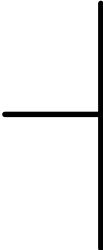
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

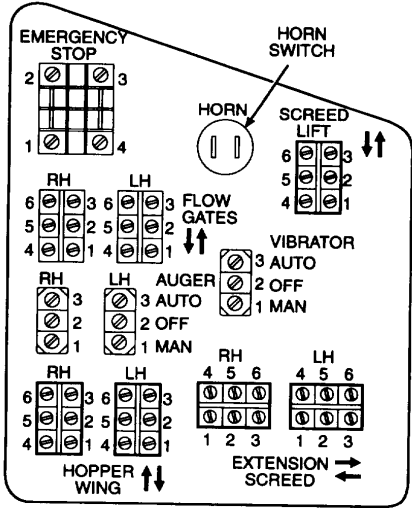
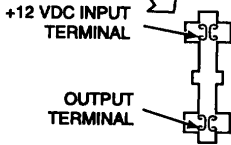
HORN CIRCUIT

Refer to paragraph 7.21 for harness and lead wire repair.



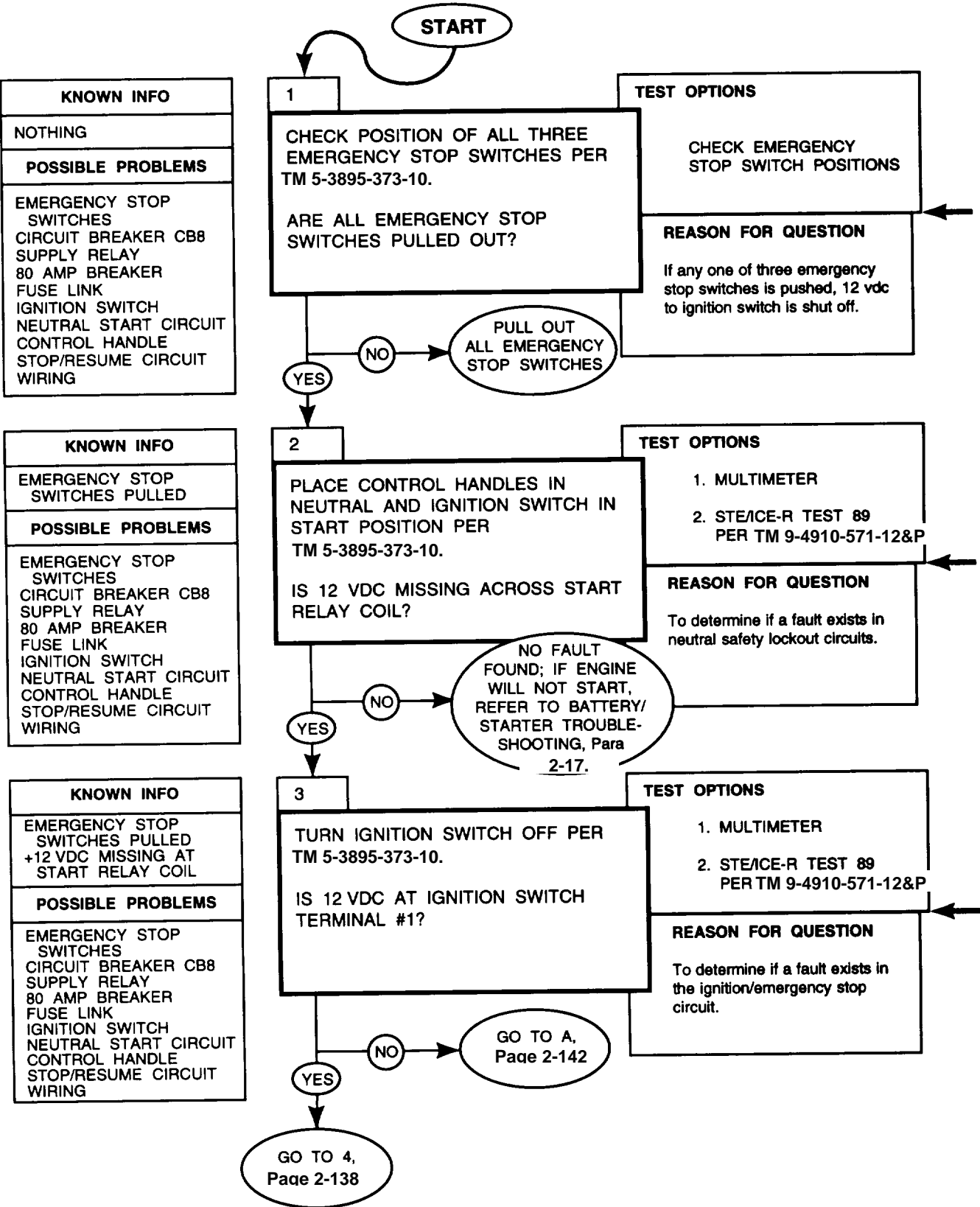
Remove switch panel per paragraph 7.6 to gain access to horn switch terminals.

After completing diagnostic checks, install switch panel per paragraph 7.6.



IGNITION/EMERGENCY STOP CIRCUIT

DIAGNOSTIC FLOWCHART



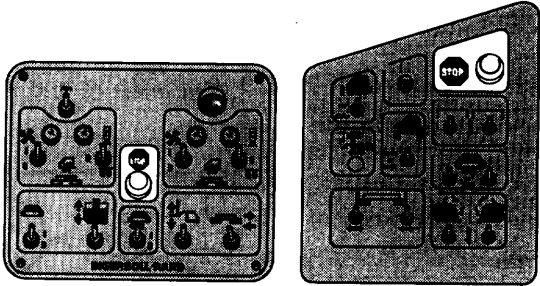
REFERENCE INFORMATION

IGNITION/EMERGENCY STOP CIRCUIT

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA. Refer to paragraph 1.18.1 for a description of the emergency stop circuit.

An emergency stop switch is located on the switch panel and at each of the screed control panels.

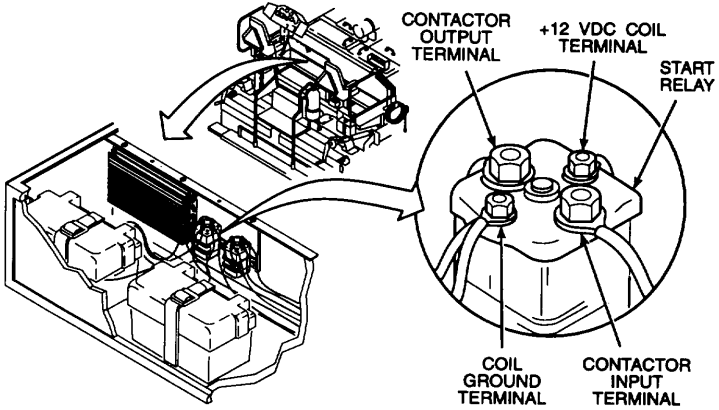
The three emergency stop switches are connected in series. If any one of the three switches is pressed, paving machine electrical power is shut off.



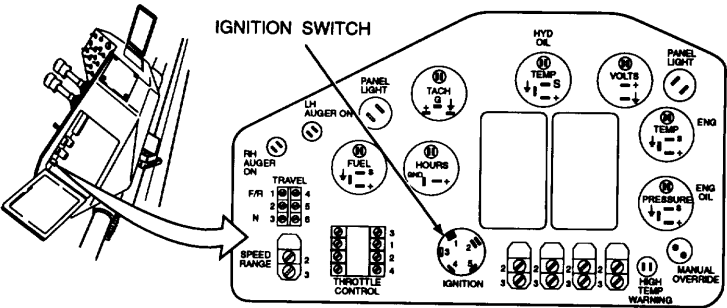
During engine cranking, voltage across relay coil terminals is reduced by starter current draw.

Open rear top left access door per TM 5-3895373-10 to gain access to start relay.

Remove switch panel per paragraph 7.6 to gain access to ignition switch terminals.



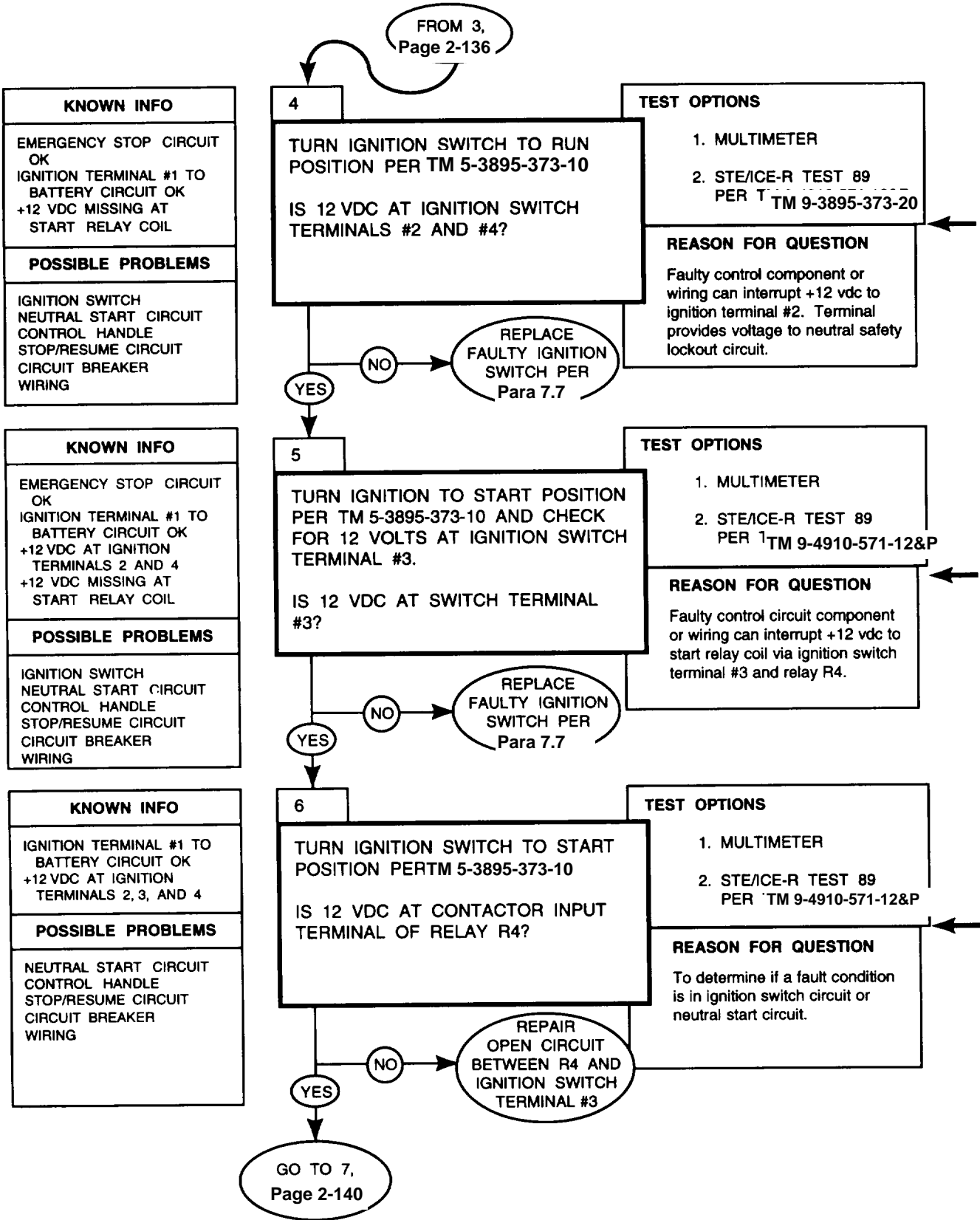
After completing diagnostic checks, close rear top left access door per TM 5-3895-373-10 and install engine access cover per paragraph 2.22.



GAUGE PANEL - REAR VIEW

IGNITION/EMERGENCY STOP CIRCUIT

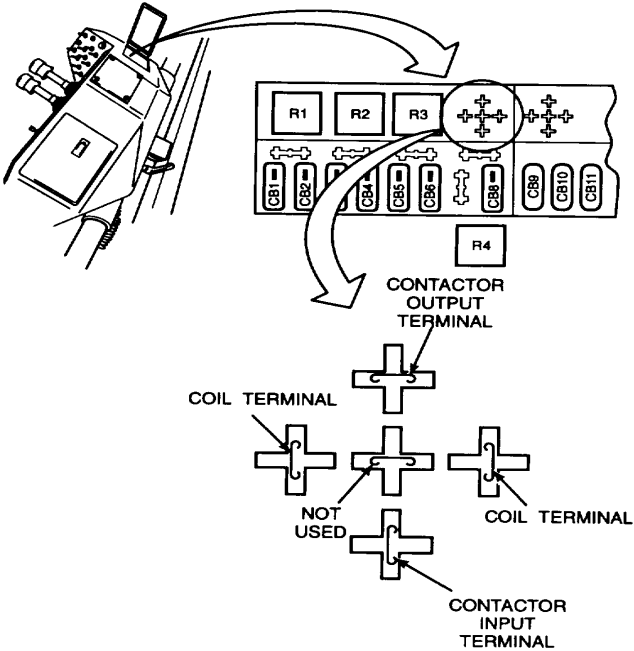
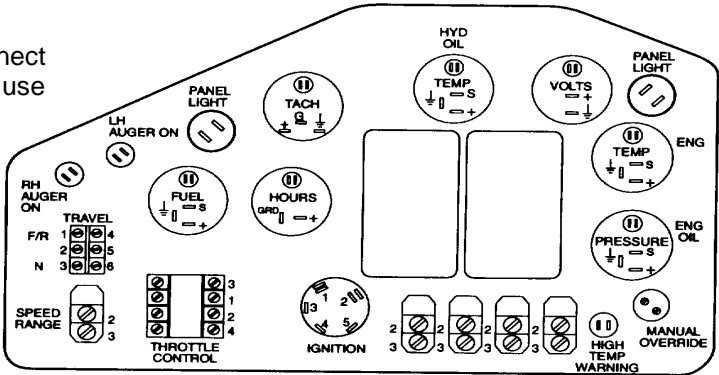
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

IGNITION/EMERGENCY STOP CIRCUIT

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

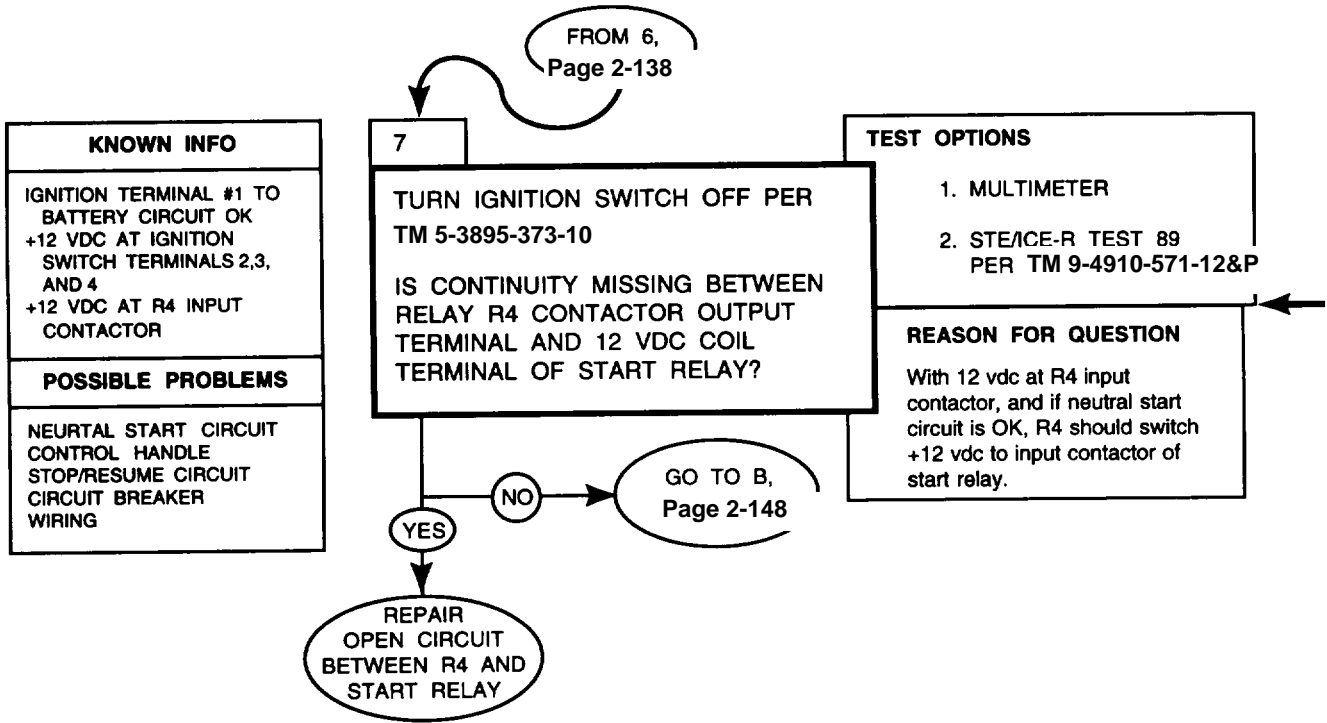


Open gauge panel access door per TM 53895-373-10 to gain access to relay R4.

Refer to paragraph 7.21 for harness and lead wire repair.

IGNITION/EMERGENCY STOP CIRCUIT

DIAGNOSTIC FLOWCHART

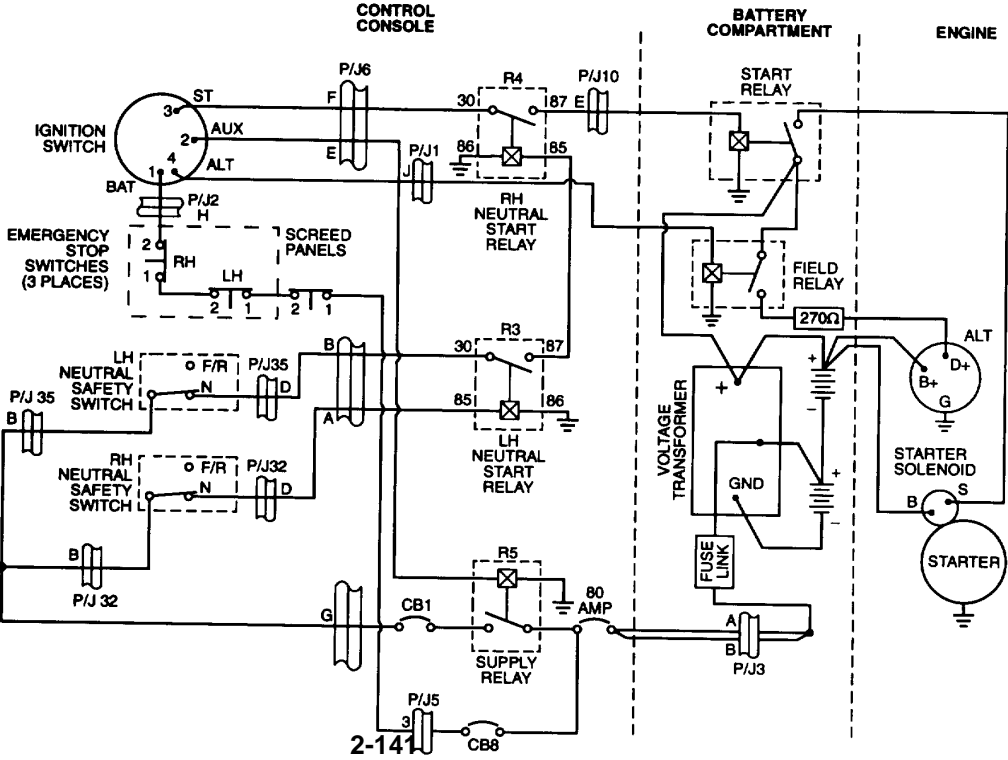
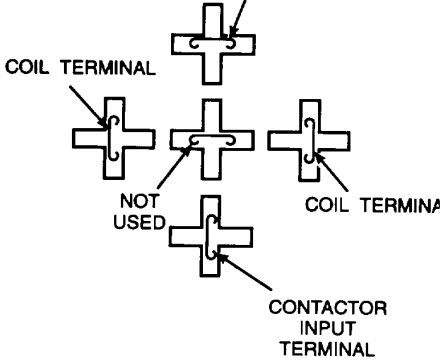
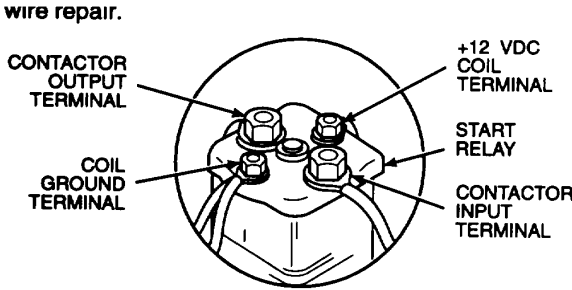
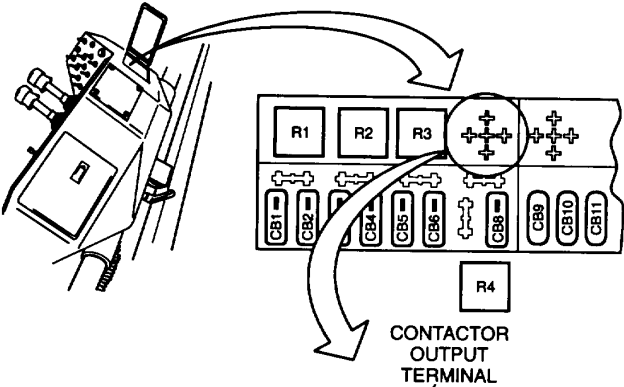


REFERENCE INFORMATION

IGNITION/EMERGENCY STOP CIRCUIT

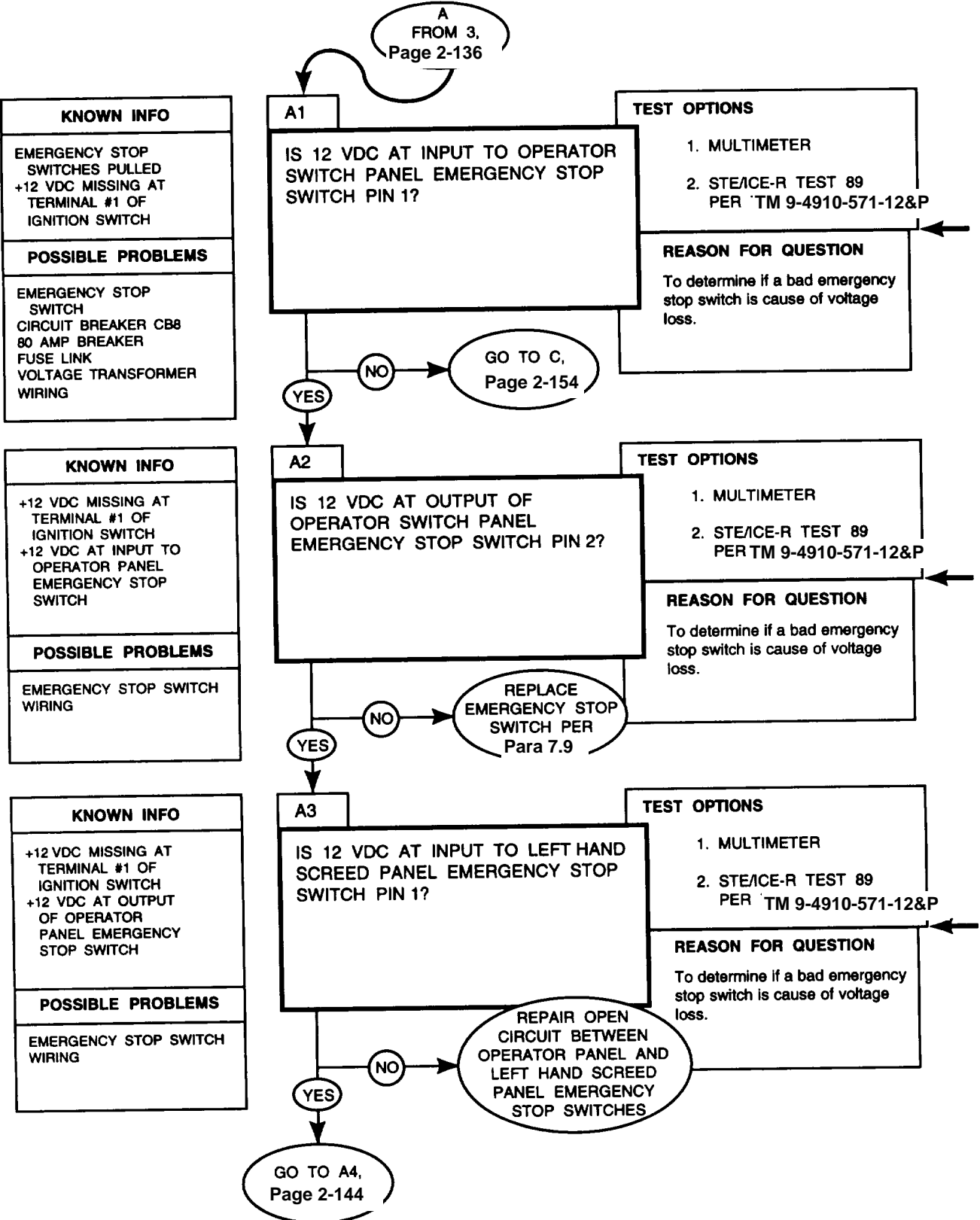
After completing diagnostic checks, close gauge panel access door(s) and rear top left access door per TM 5-3895-373-10. Install gauge panel per paragraph 7.6.

Refer to paragraph 7.21 for harness and lead wire repair.



IGNITION/EMERGENCY STOP CIRCUIT

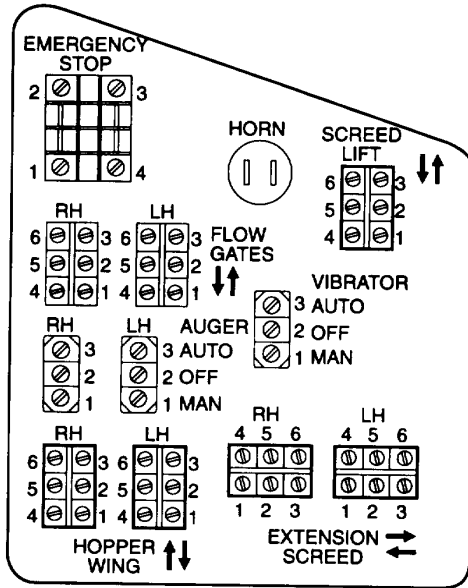
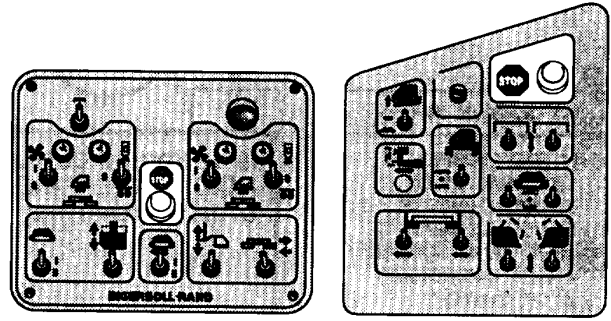
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

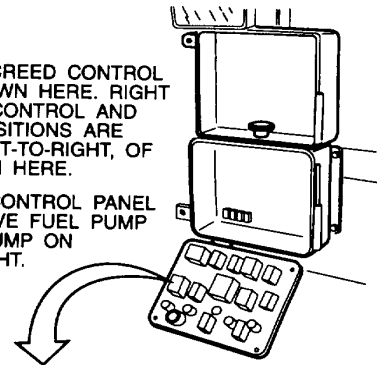
Remove operator switch panel per paragraph 7.6 to gain access to emergency stop switch terminals.

IGNITION/EMERGENCY STOP CIRCUIT



NOTE: LEFT HAND SCREED CONTROL PANEL IS SHOWN HERE. RIGHT HAND PANEL CONTROL AND INDICATOR POSITIONS ARE INVERTED, LEFT-TO-RIGHT, OF THOSE SHOWN HERE.

RIGHT HAND CONTROL PANEL DOES NOT HAVE FUEL PUMP SWITCH OR PUMP ON INDICATOR LIGHT.

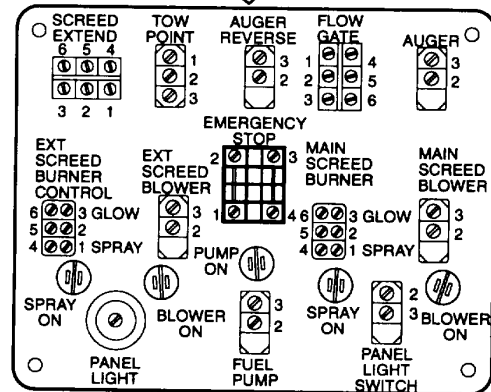


With switch pulled out, +12 vdc should be at both normally-closed contacts.

Refer to the electrical system diagram at the end of the manual for equipment wiring details.

Refer to paragraph 7.21 for harness and lead wire repair.

Gain access to emergency stop switch terminals per paragraph 15.2 step a.



IGNITION/EMERGENCY STOP CIRCUIT

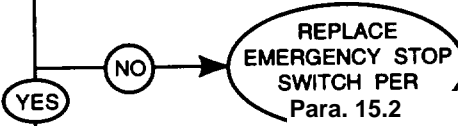
DIAGNOSTIC FLOWCHART

KNOWN INFO
+12 VDC MISSING AT TERMINAL #1 OF IGNITION SWITCH +12 VDC AT INPUT TO LEFT HAND SCREED PANEL EMERGENCY STOP SWITCH
POSSIBLE PROBLEMS
EMERGENCY STOP SWITCH WIRING

A4

IS 12 VDC AT OUTPUT OF LEFT HAND SCREED PANEL EMERGENCY STOP SWITCH PIN 2?

TEST OPTIONS
1. MULTIMETER 2. STE/ICE-R TEST 89 PER TM 9-4910-571-12&P
REASON FOR QUESTION
To determine if a bad emergency stop switch is cause of voltage loss.

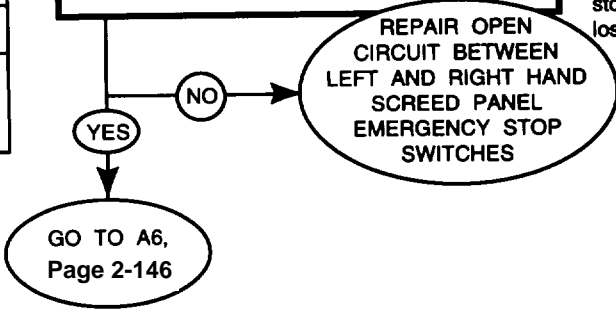


KNOWN INFO
+12 VDC MISSING AT TERMINAL #1 OF IGNITION SWITCH +12 VDC AT OUTPUT OF LEFT HAND SCREED PANEL EMERGENCY STOP SWITCH
POSSIBLE PROBLEMS
EMERGENCY STOP SWITCH WIRING

A5

IS 12 VDC AT INPUT TO RIGHT HAND SCREED PANEL EMERGENCY STOP SWITCH PIN 1?

TEST OPTIONS
1. MULTIMETER 2. STE/ICE-R TEST 89 PER TM 9-4910-571-12&P
REASON FOR QUESTION
To determine if a bad emergency stop switch is cause of voltage loss.



REFERENCE INFORMATION

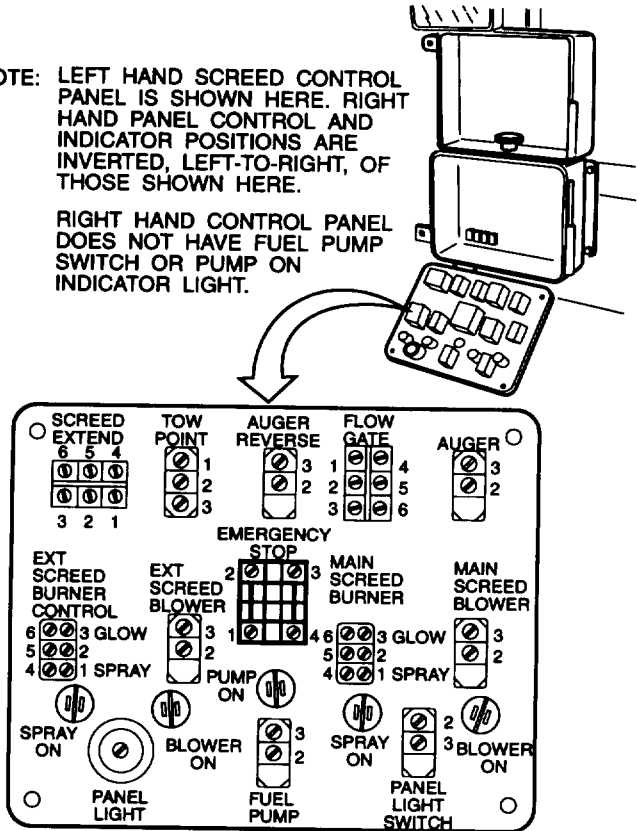
With switch pulled out, +12 vdc should be at both normally-closed contacts.

Gain access to emergency stop switch terminals per paragraph 15.2 step a.

Refer to paragraph 7.21 for harness and lead wire repair.

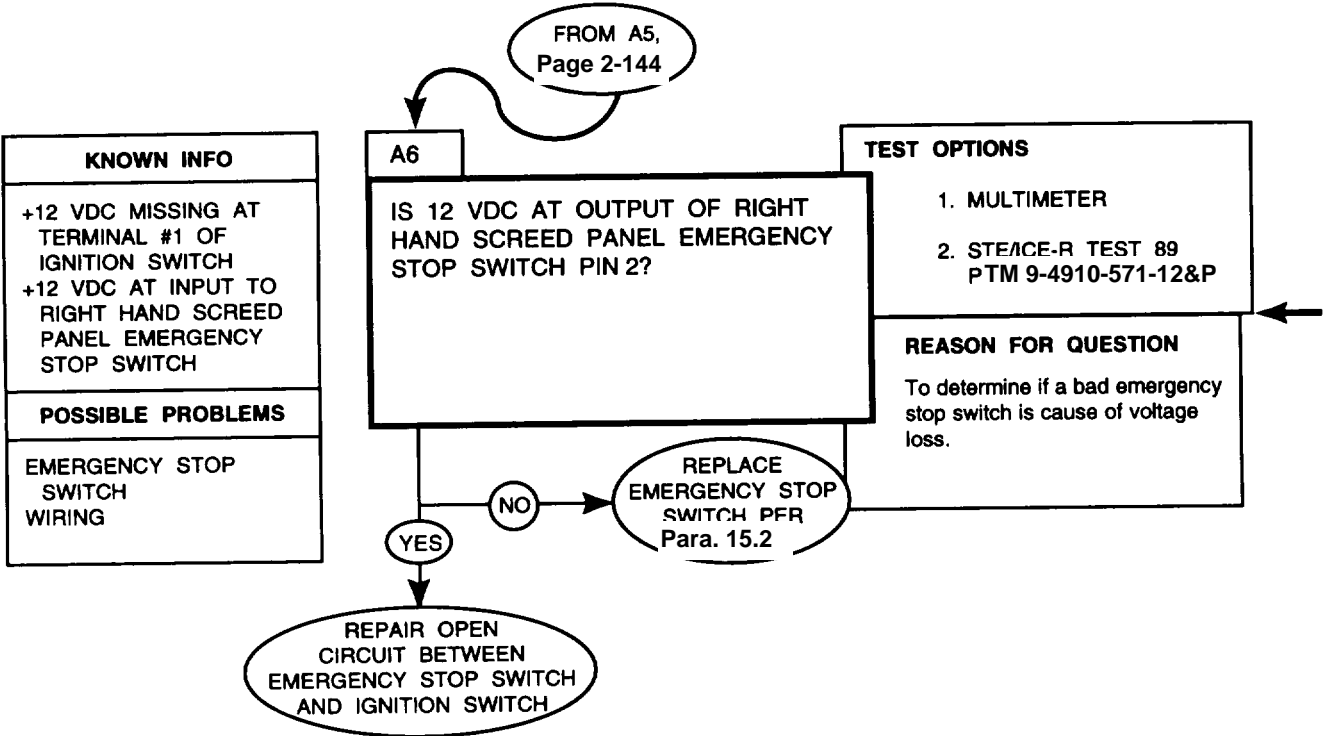
IGNITION/EMERGENCY STOP CIRCUIT

NOTE: LEFT HAND SCREED CONTROL PANEL IS SHOWN HERE. RIGHT HAND PANEL CONTROL AND INDICATOR POSITIONS ARE INVERTED, LEFT-TO-RIGHT, OF THOSE SHOWN HERE. RIGHT HAND CONTROL PANEL DOES NOT HAVE FUEL PUMP SWITCH OR PUMP ON INDICATOR LIGHT.



IGNITION/EMERGENCY STOP CIRCUIT

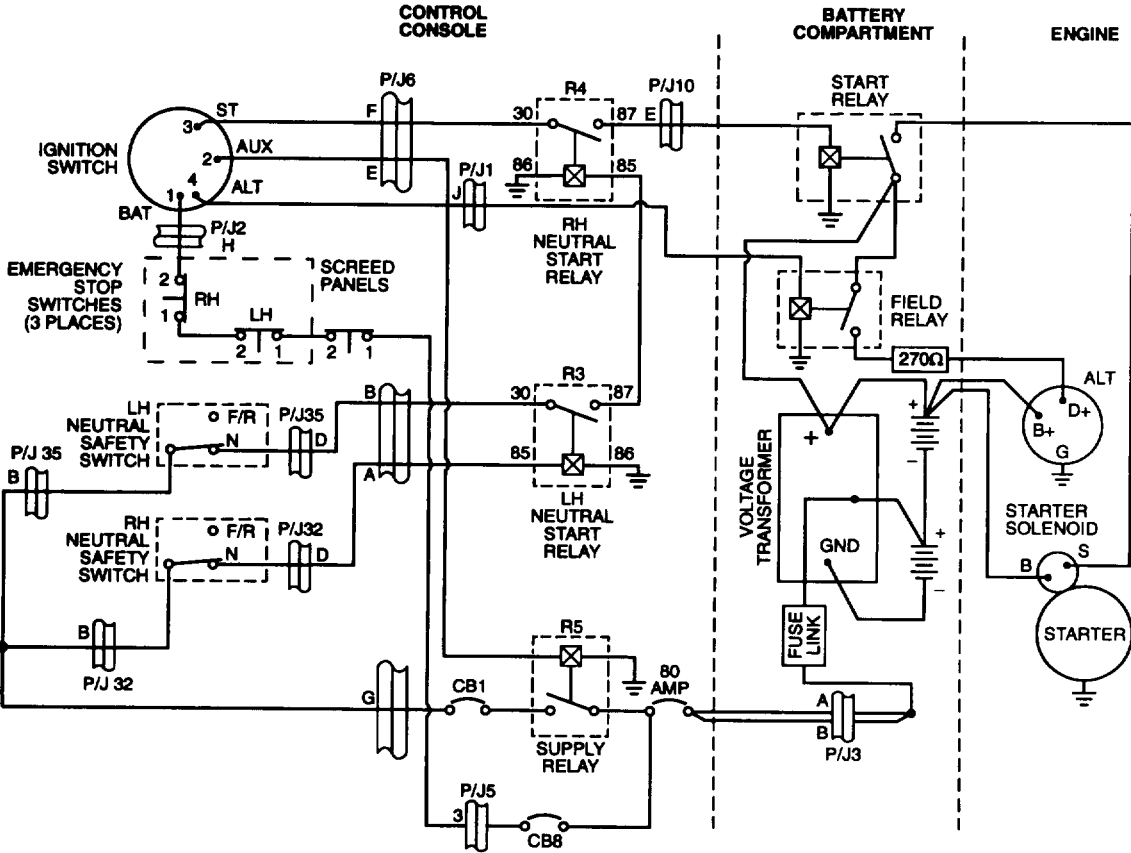
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

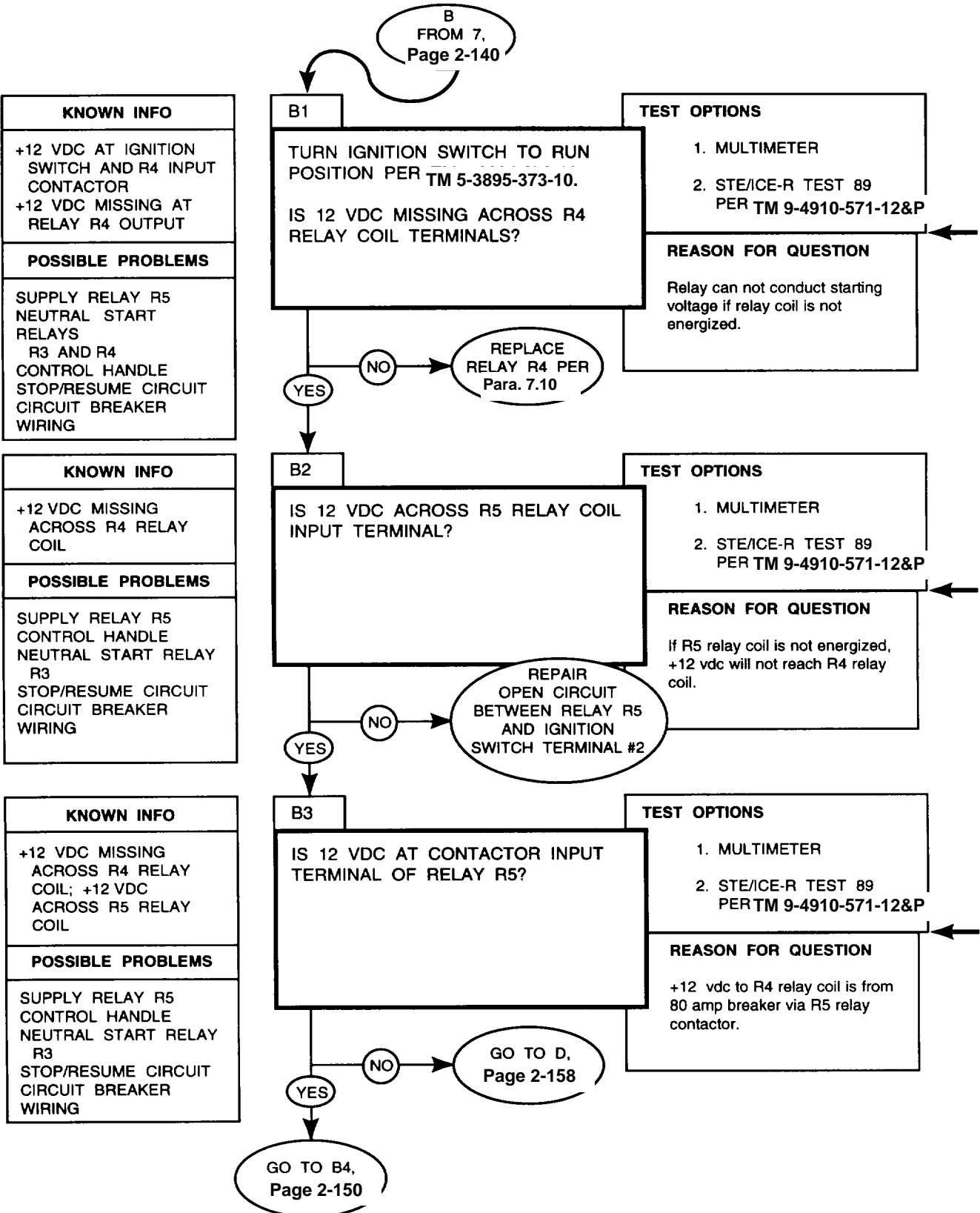
IGNITION/EMERGENCY STOP CIRCUIT

After completing diagnostic checks, close gauge panel access door(s) per TM 5-3895373-10. Install operator switch panel per paragraph 7.6. Install left hand and right hand screed control panels per paragraph 15.2.



IGNITION/EMERGENCY STOP CIRCUIT

DIAGNOSTIC FLOWCHART

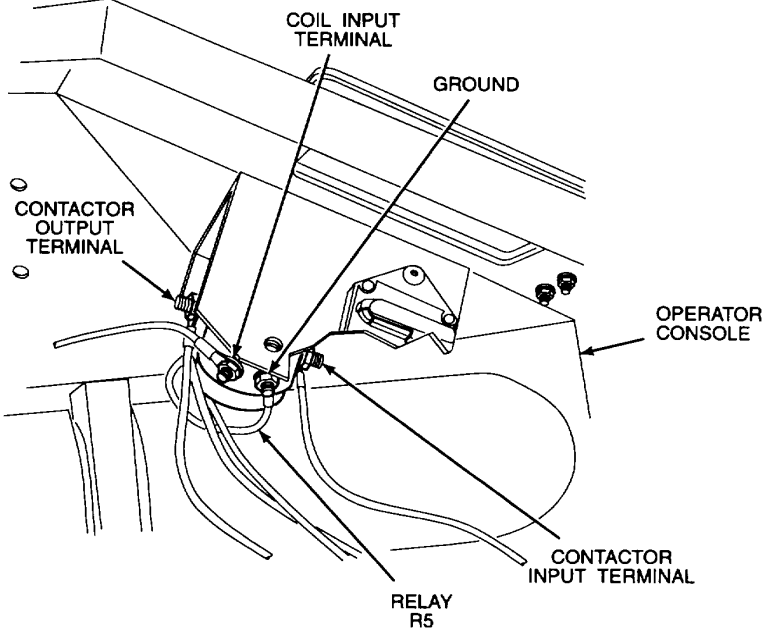
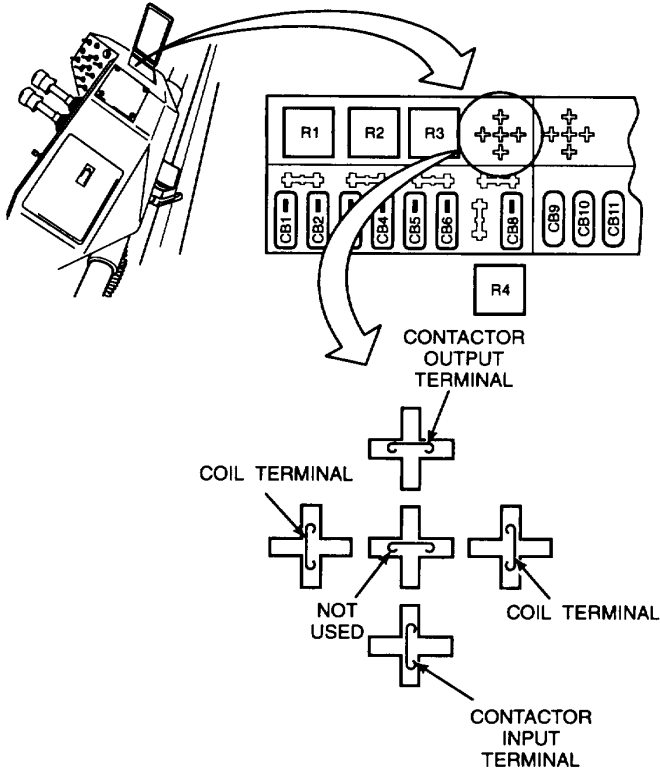


REFERENCE INFORMATION

IGNITION/EMERGENCY STOP CIRCUIT

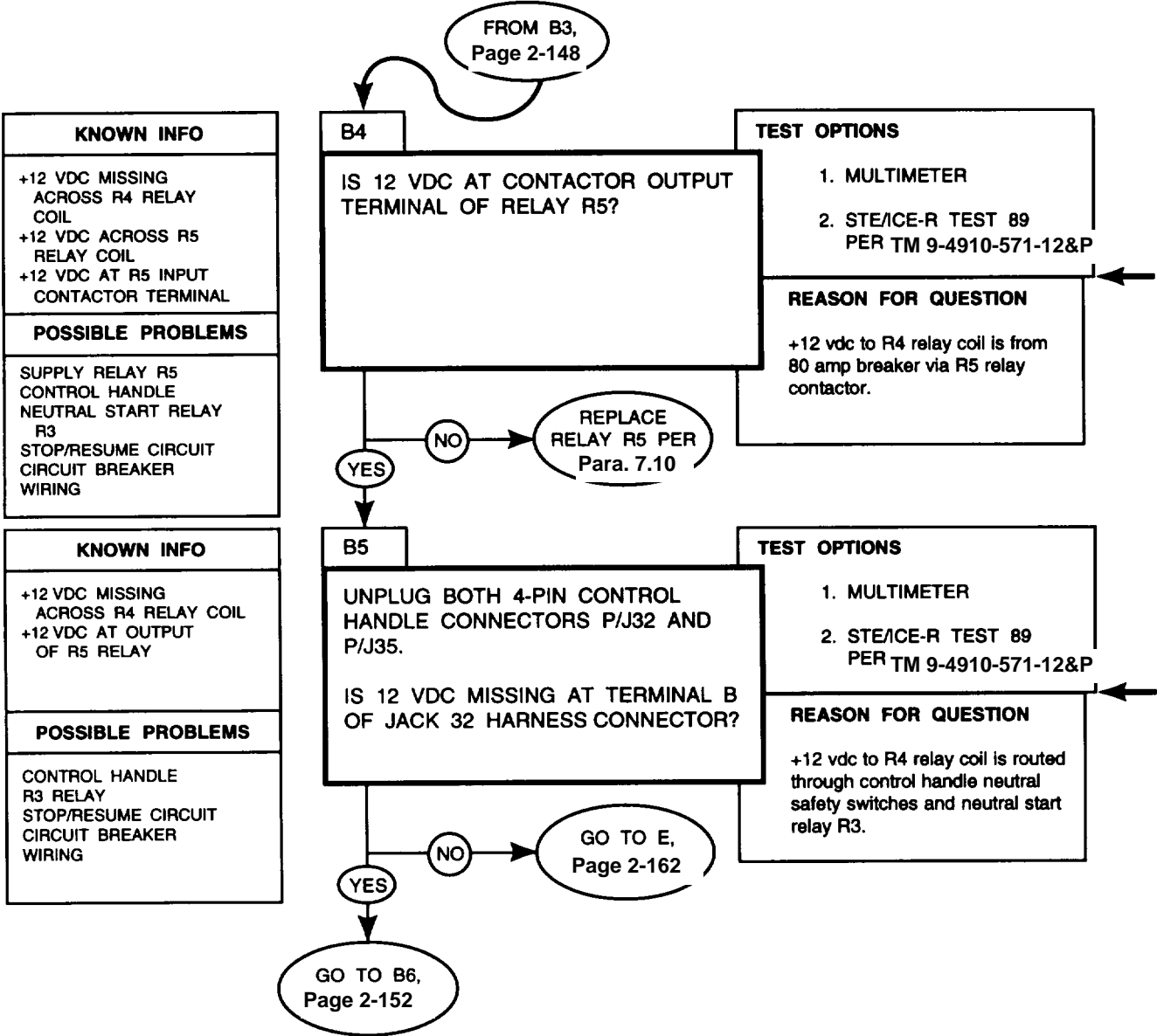
To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

Refer to paragraph 7.21 for harness and lead wire repair.



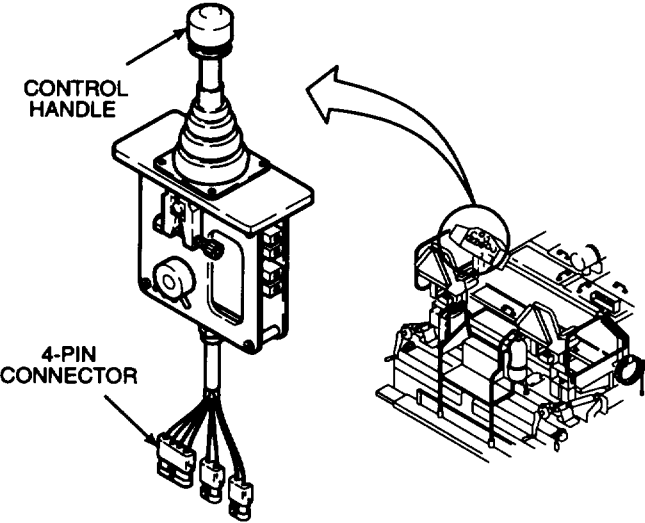
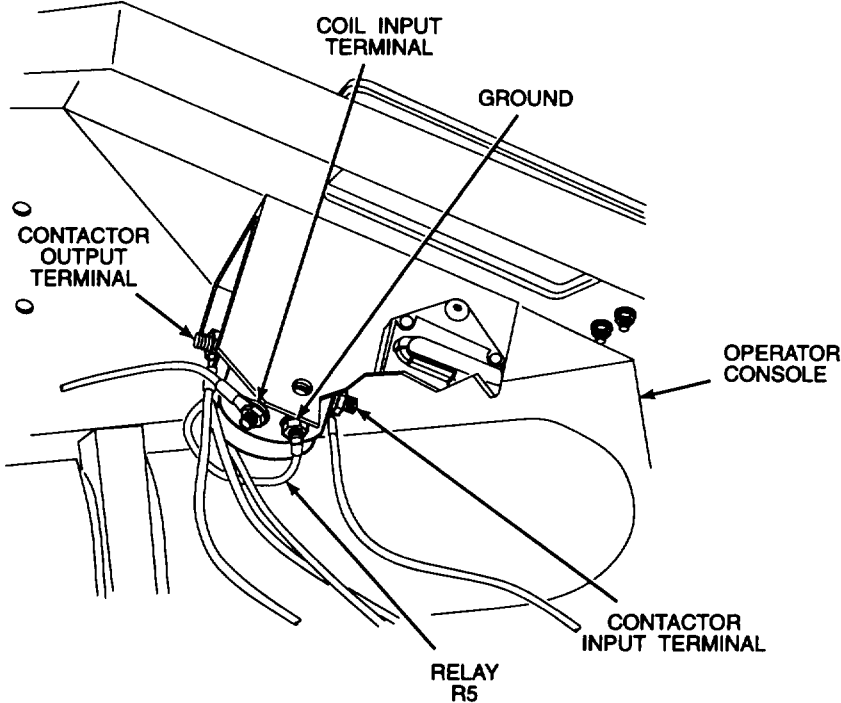
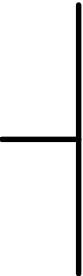
IGNITION/EMERGENCY STOP CIRCUIT

DIAGNOSTIC FLOWCHART



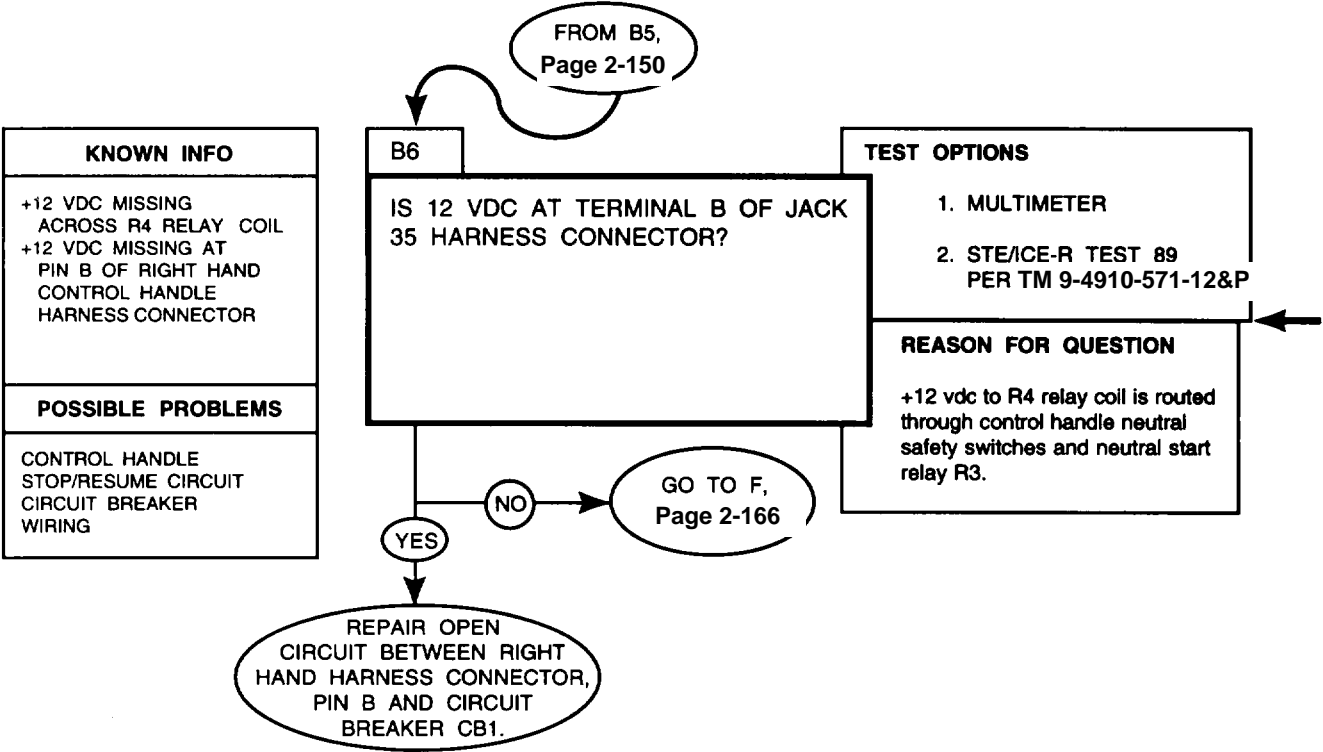
REFERENCE INFORMATION

IGNITION/EMERGENCY STOP CIRCUIT



IGNITION/EMERGENCY STOP CIRCUIT

DIAGNOSTIC FLOWCHART

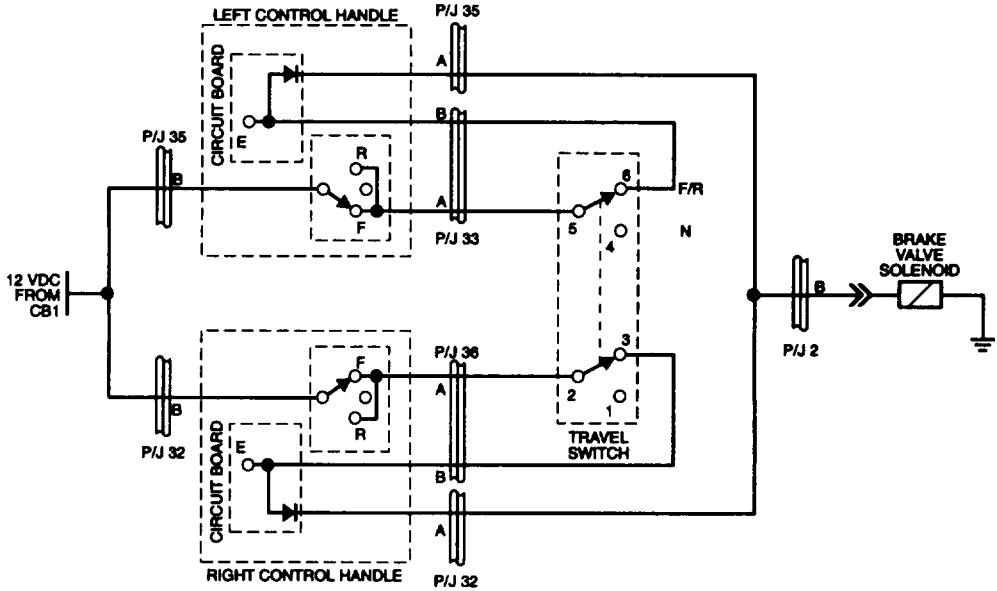


REFERENCE INFORMATION

IGNITION/EMERGENCY STOP CIRCUIT

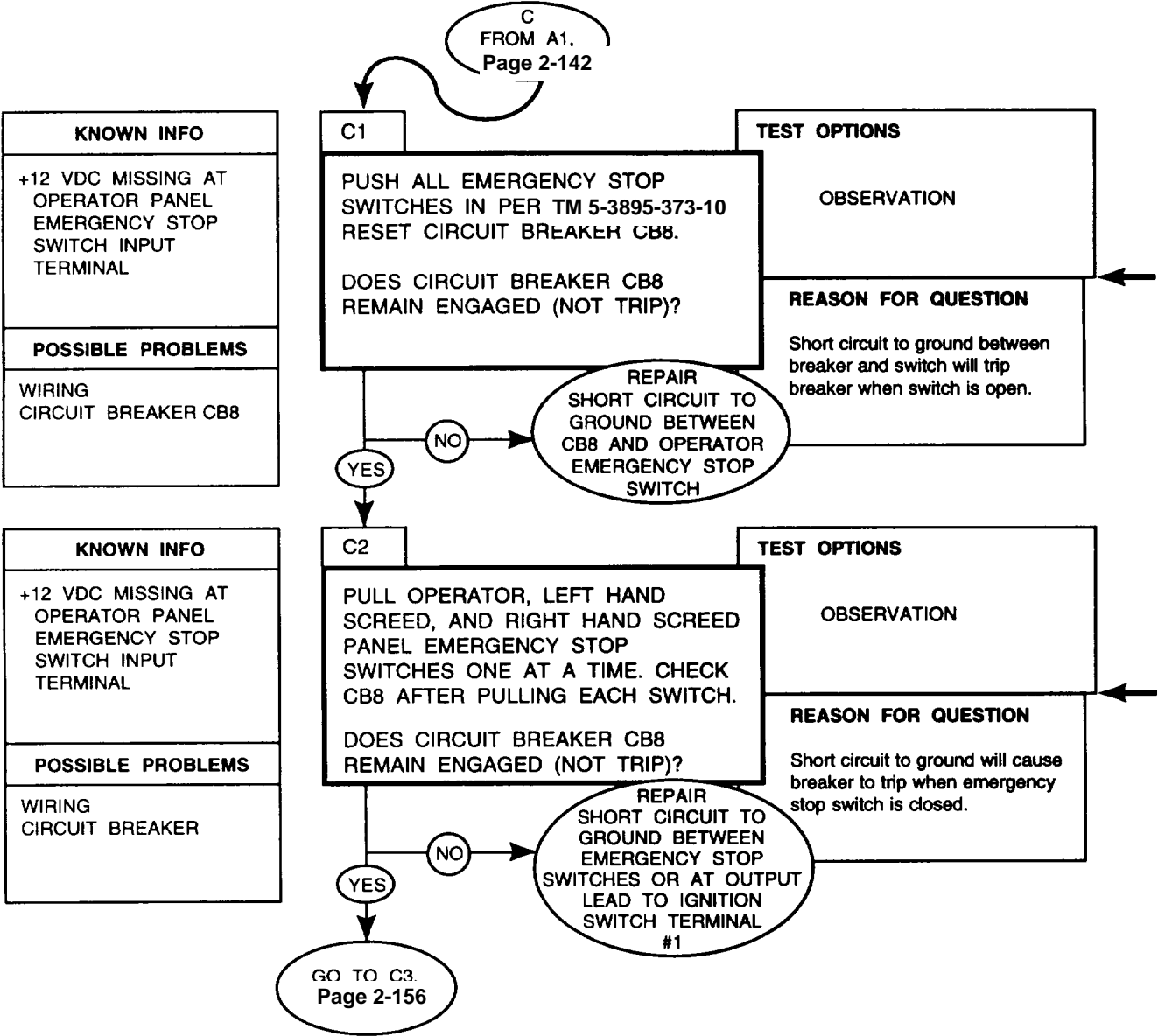
Refer to paragraph 7.21 for harness and lead wire repair.

After completing diagnostic checks, close rear top left access door and gauge panel access door(s) per TM 5-3895-373-10. Install gauge panel per paragraph 7.6. Install left hand and right hand screed control panels per paragraph 15.2.



IGNITION/EMERGENCY STOP CIRCUIT

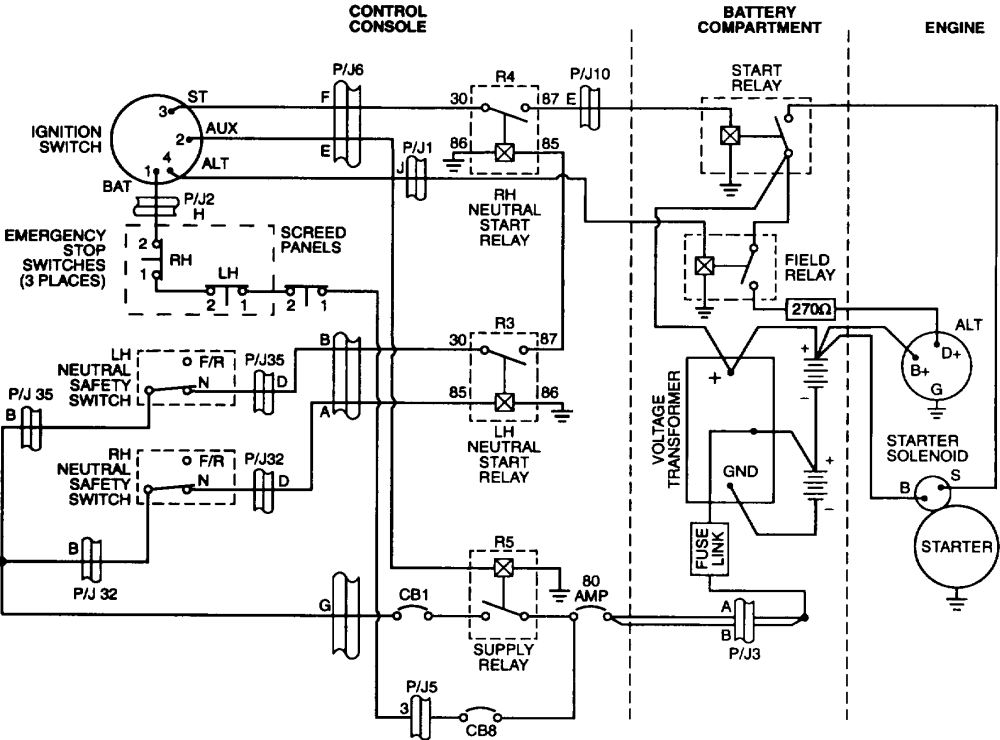
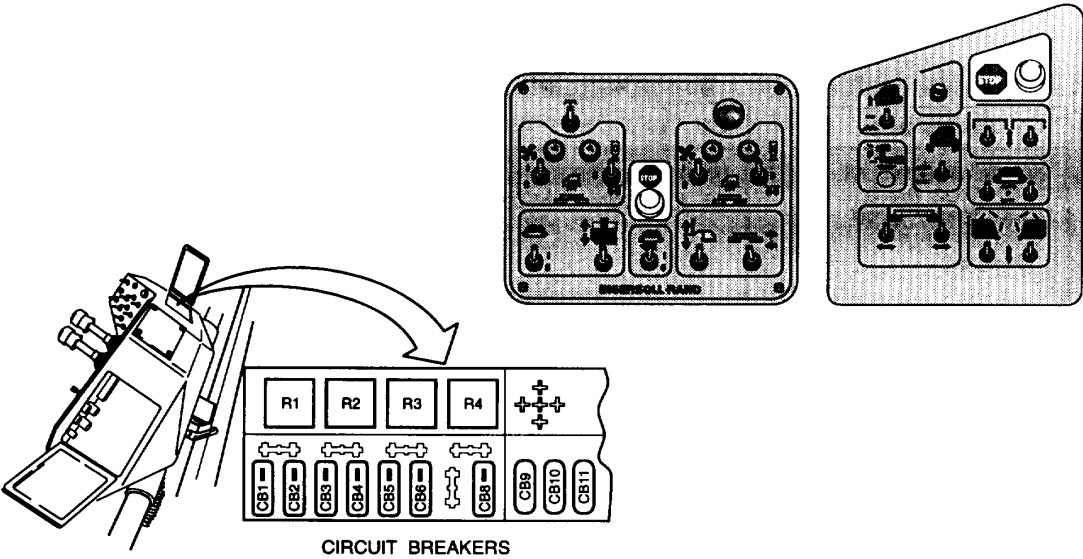
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

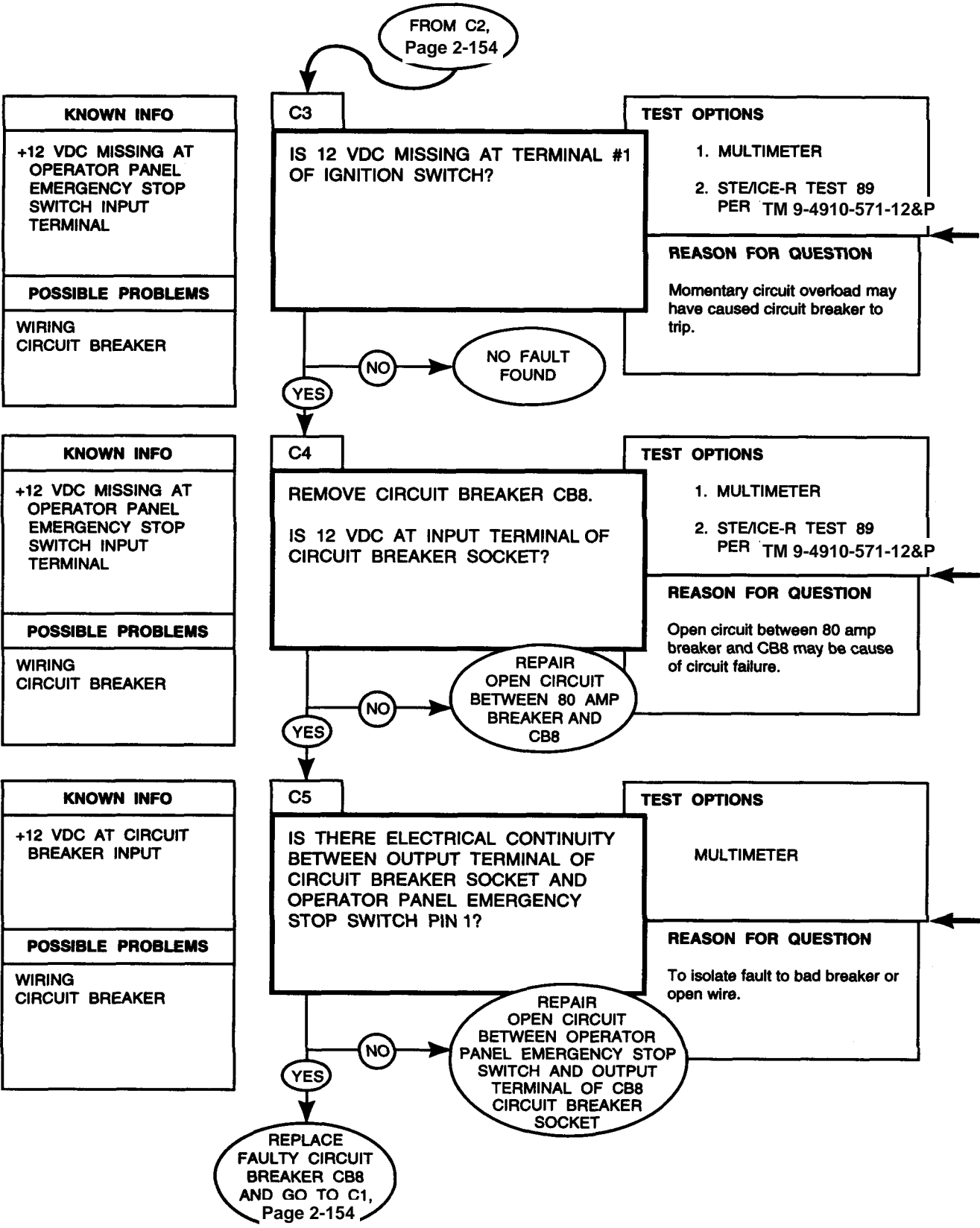
IGNITION/EMERGENCY STOP CIRCUIT

Refer to paragraph 7.21 for harness and lead wire repair.



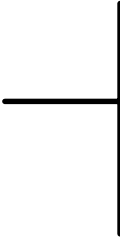
IGNITION/EMERGENCY STOP CIRCUIT

DIAGNOSTIC FLOWCHART

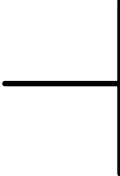


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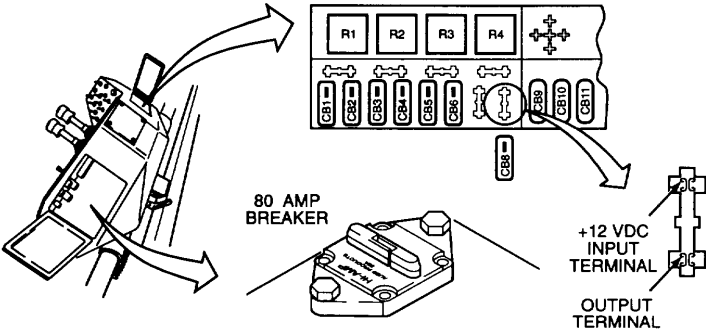
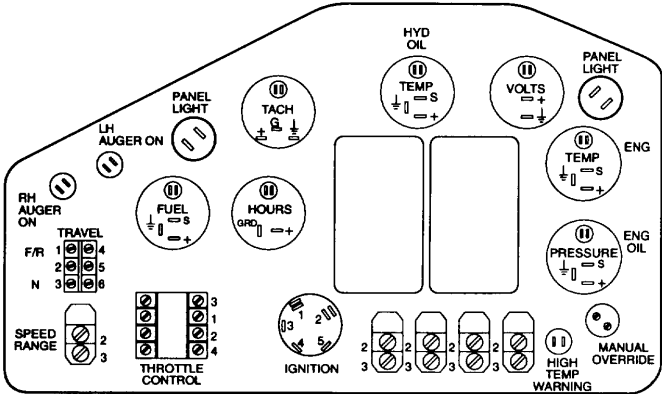
IGNITION/EMERGENCY STOP CIRCUIT



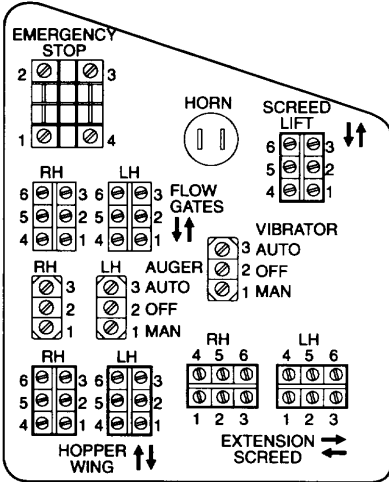
Refer to paragraph 7.21 for harness and lead wire repair.



To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

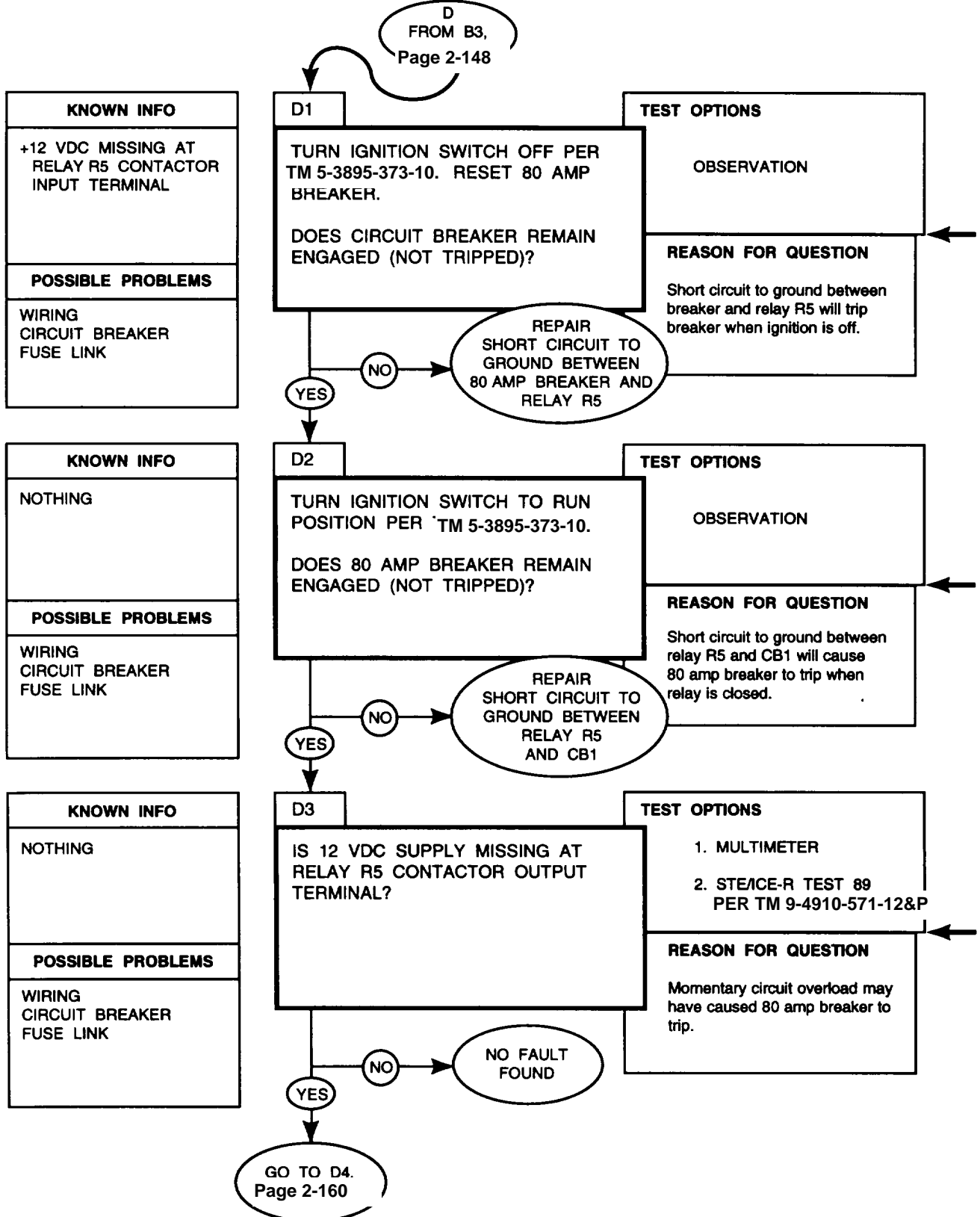


After completing diagnostic checks, close rear top left access door per TM 5-3895-373-10. Install gauge panel and operator switch panel per paragraph 7.6. Install left hand and right hand screed control panels per paragraph 15.2.



IGNITION/EMERGENCY STOP CIRCUIT

DIAGNOSTIC FLOWCHART



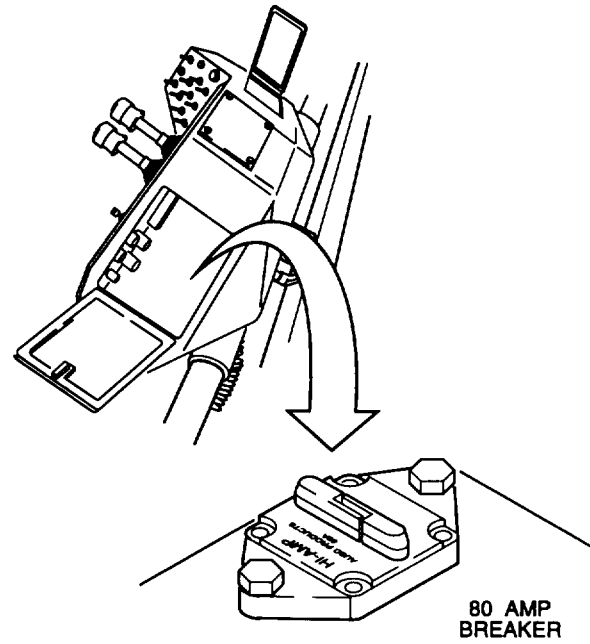
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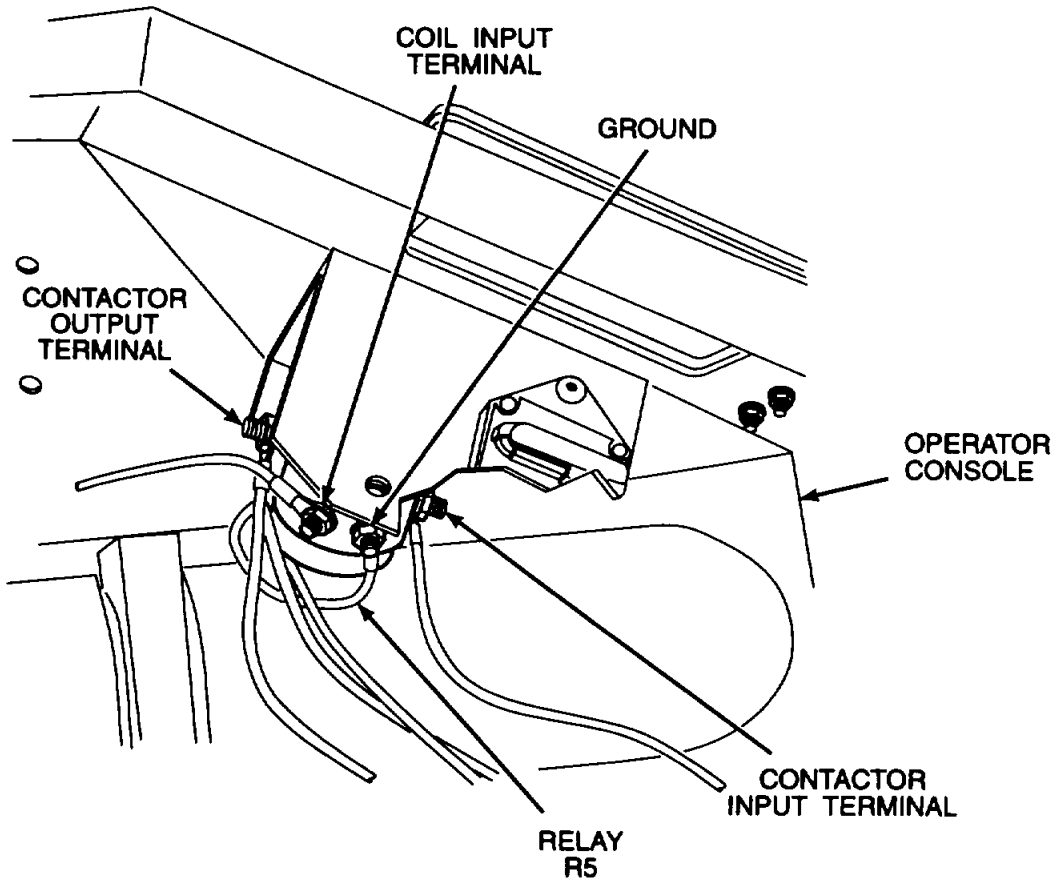
The +12 vdc input to the 80 amp breaker is from the +12 vdc terminal of the voltage transformer. A fuse link is in the harness circuit between the +12 vdc terminal and the 80 amp breaker.

The 80 amp breaker is equipped with a manual reset. If the breaker fails to reset, replace it.

Refer to paragraph 7.21 for harness and lead wire repair.

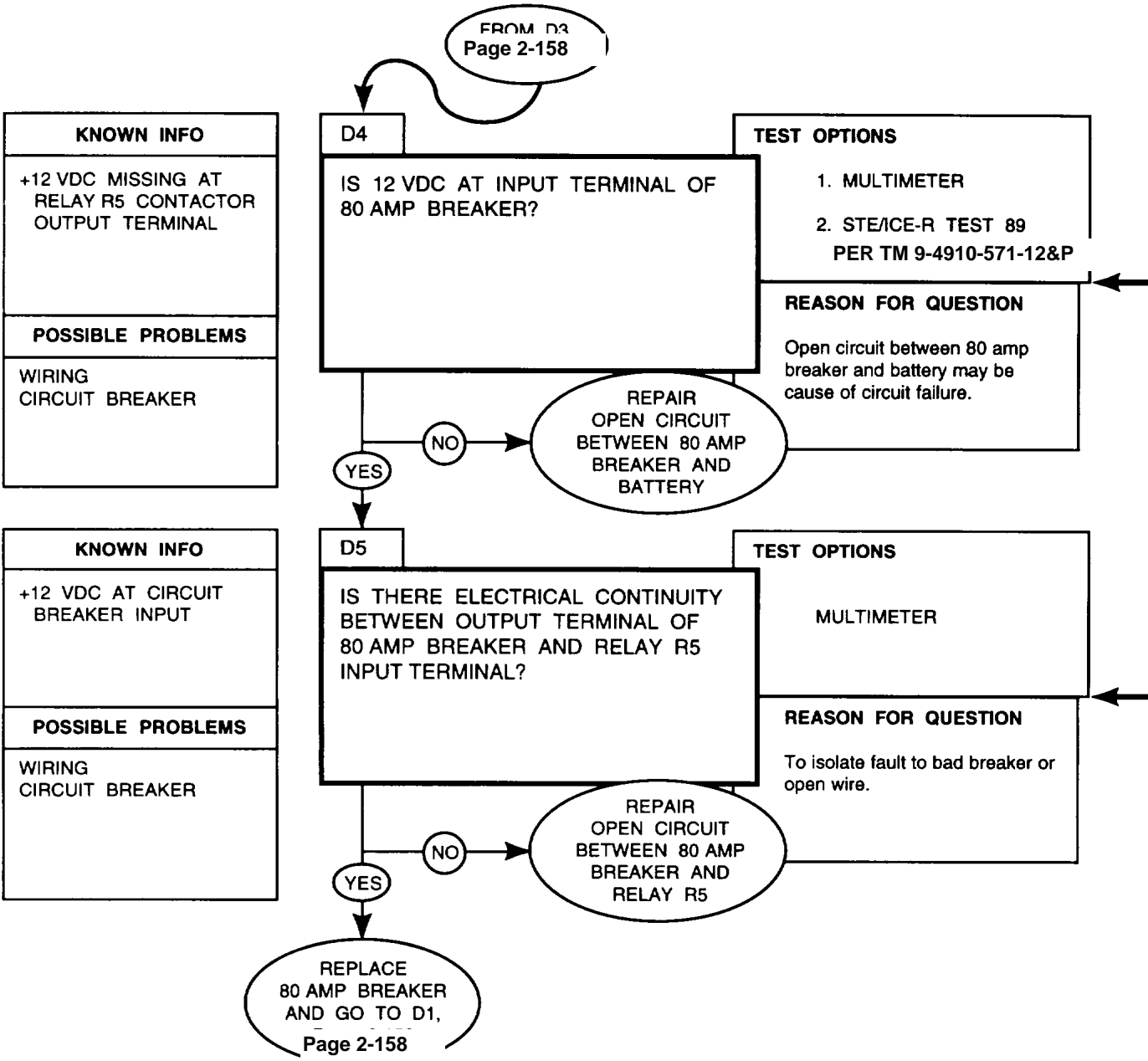
IGNITION/EMERGENCY STOP CIRCUIT





IGNITION/EMERGENCY STOP CIRCUIT

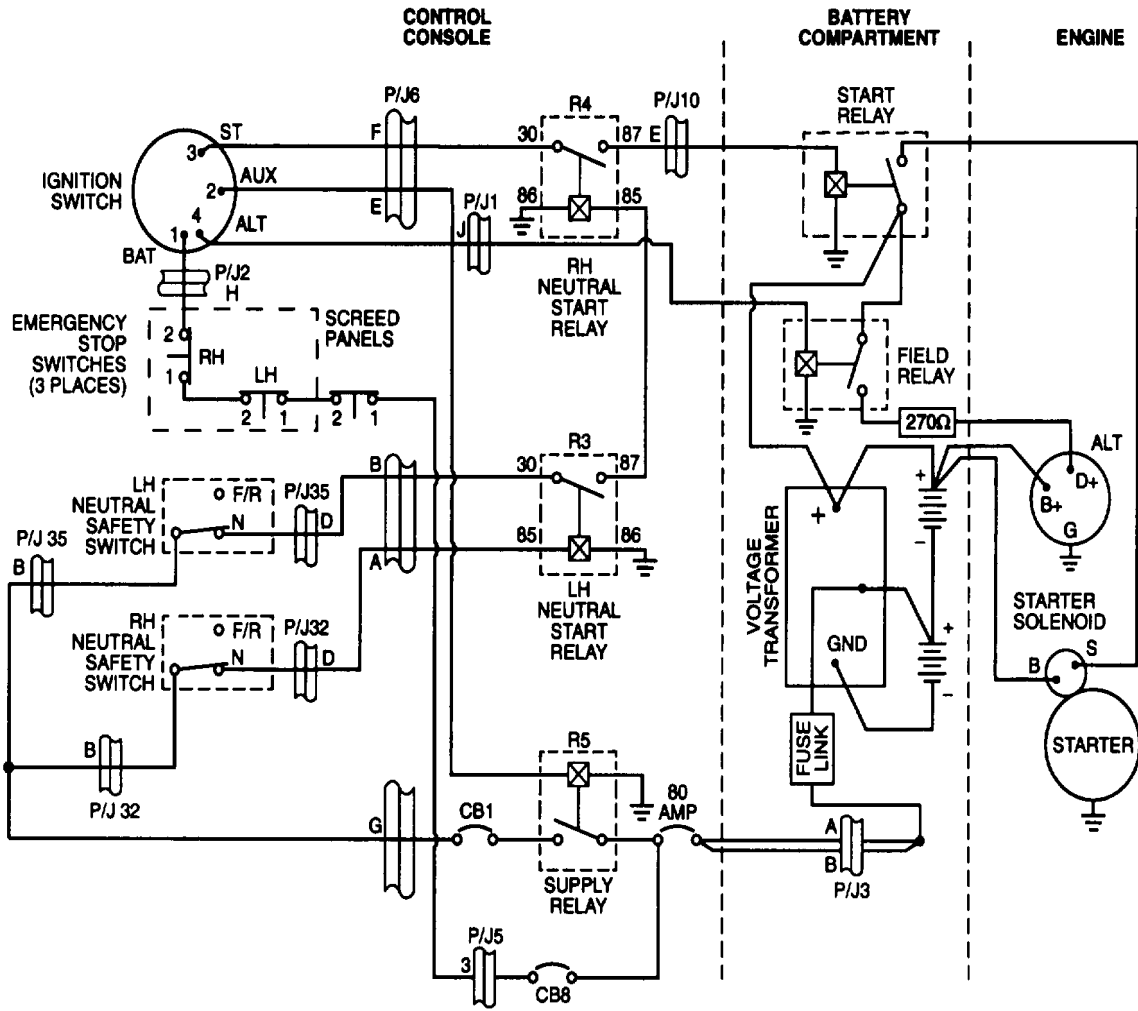
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

IGNITION/EMERGENCY STOP CIRCUIT

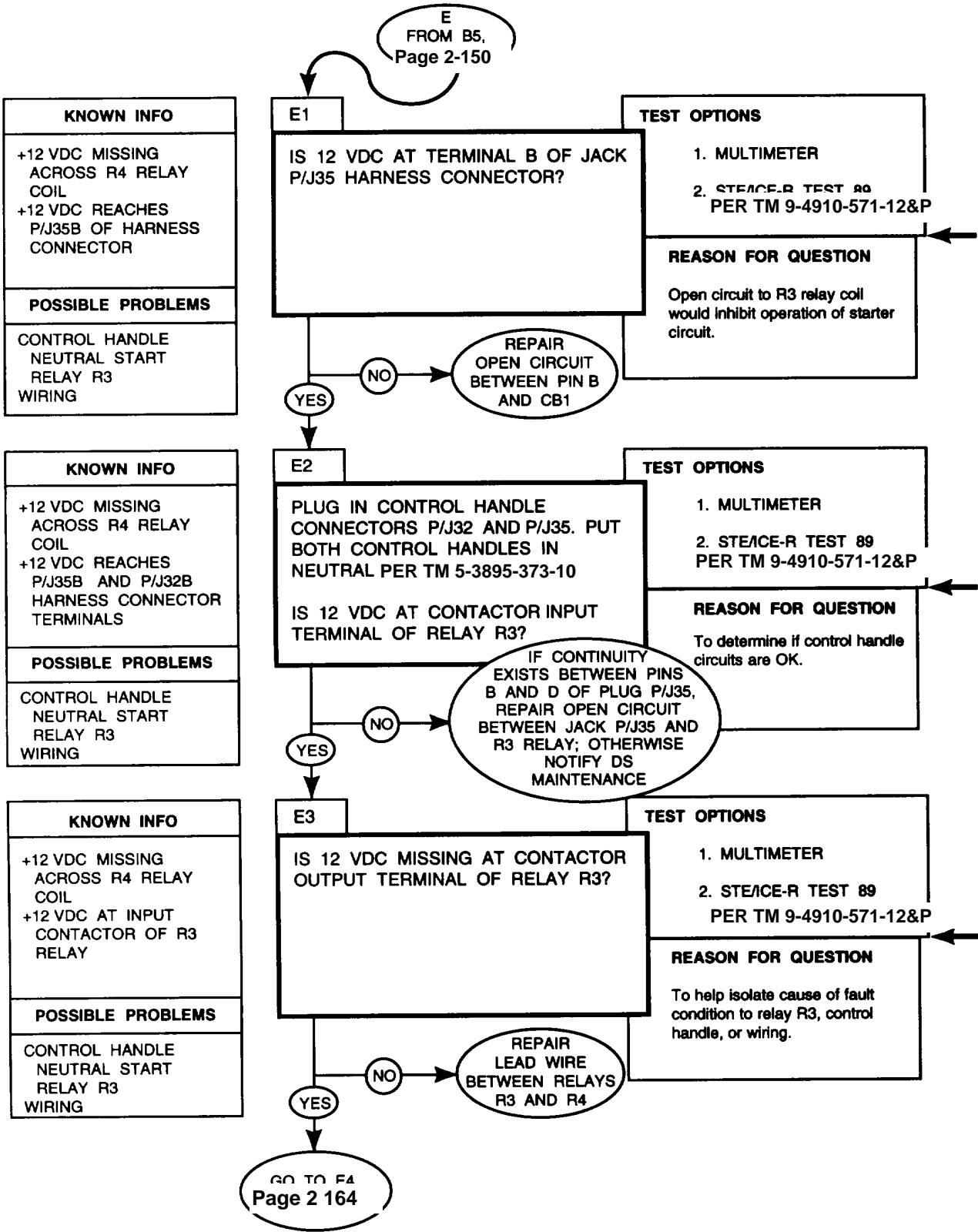
Refer to paragraph 7.21 for harness and lead wire repair.



After completing diagnostic checks, close rear top left access door and gauge panel access door(s) per TM 5-3895-373-10. Install gauge panel per paragraph 7.6.

IGNITION/EMERGENCY STOP CIRCUIT

DIAGNOSTIC FLOWCHART

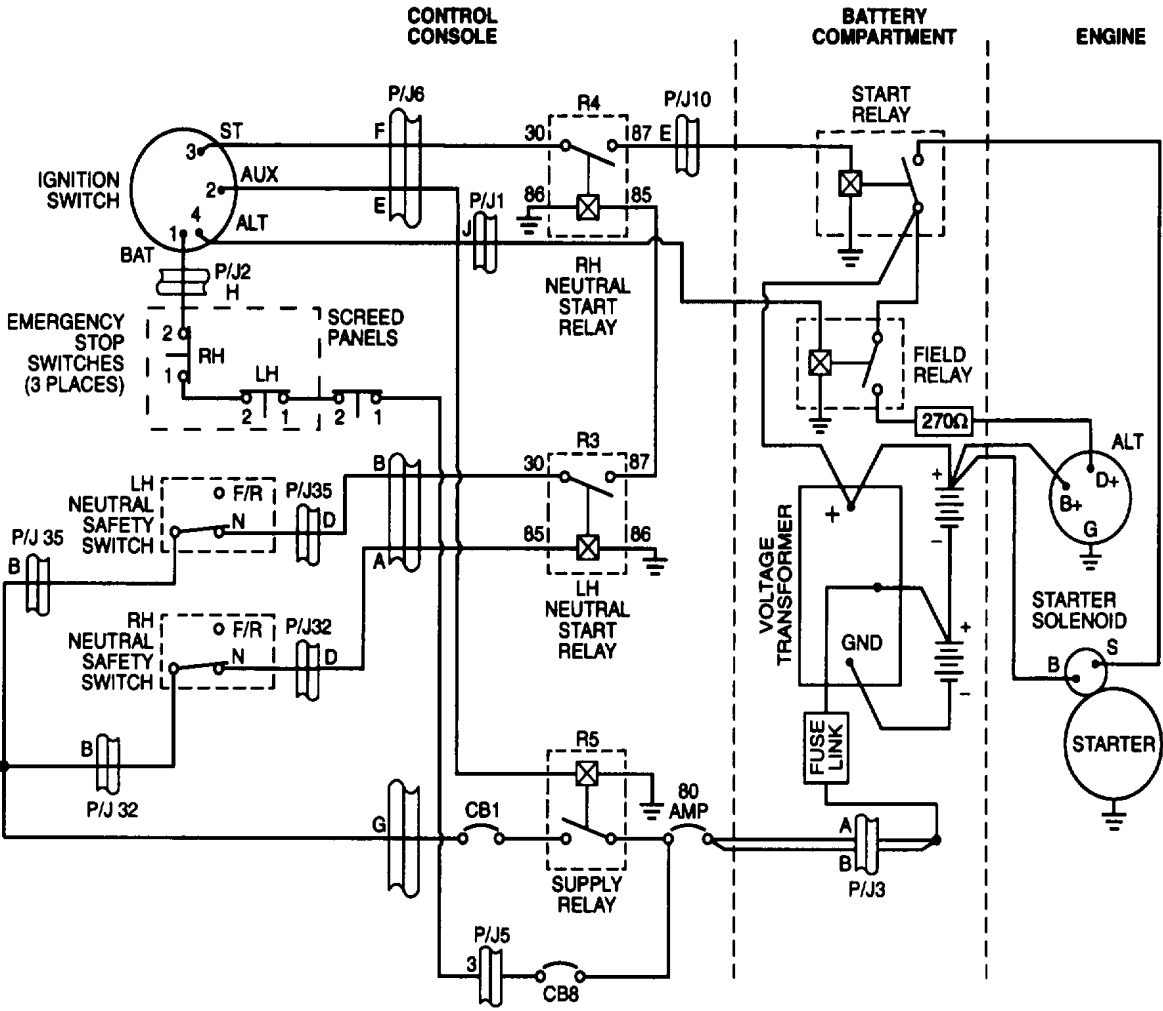


REFERENCE INFORMATION

IGNITION/EMERGENCY STOP CIRCUIT

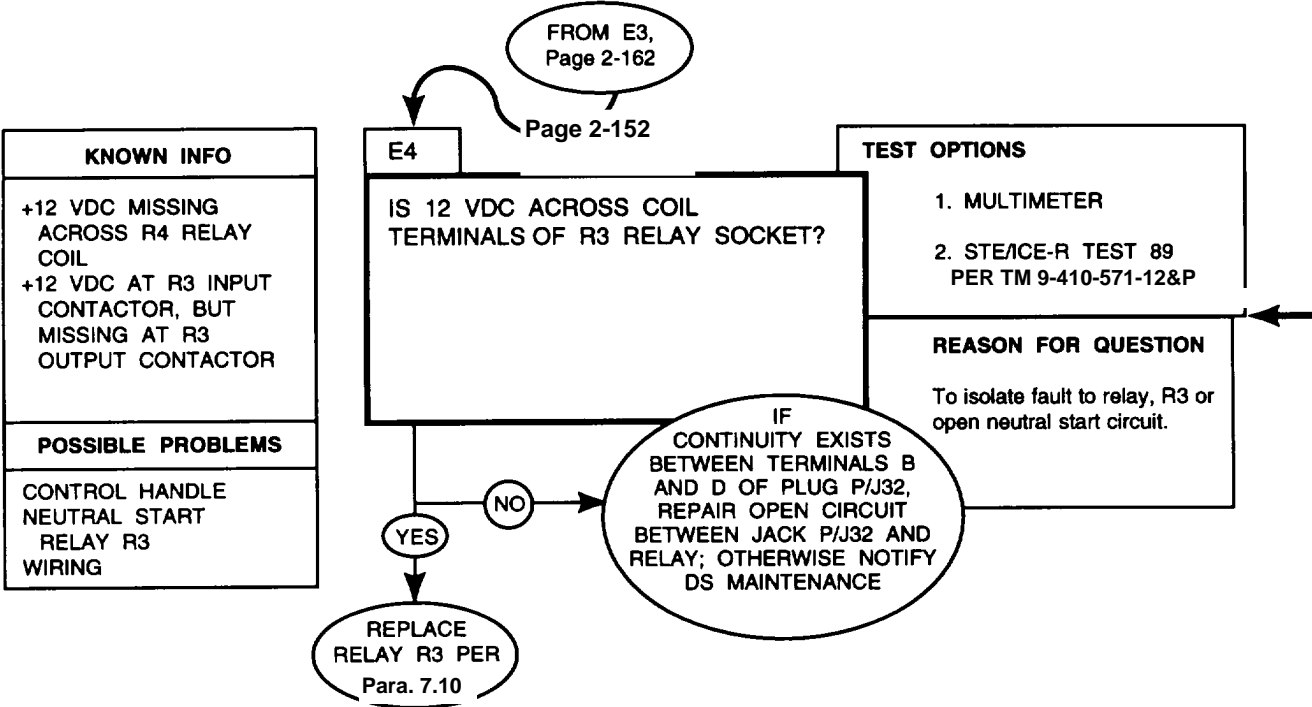
To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

Refer to paragraph 7.21 for harness and lead wire repair.



IGNITION/EMERGENCY STOP CIRCUIT

DIAGNOSTIC FLOWCHART

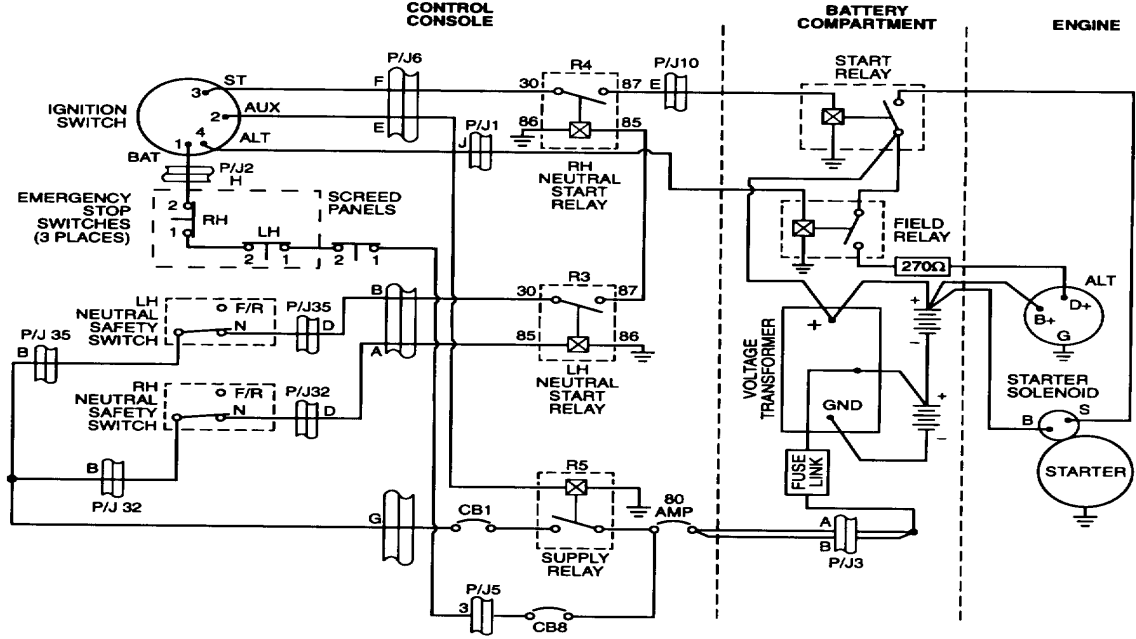
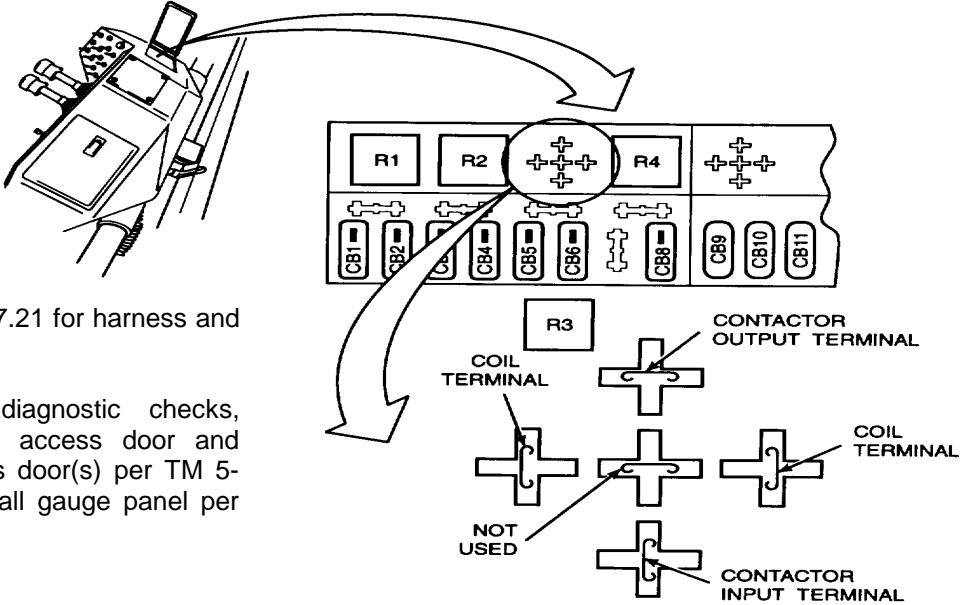


REFERENCE INFORMATION

IGNITION/EMERGENCY STOP CIRCUIT

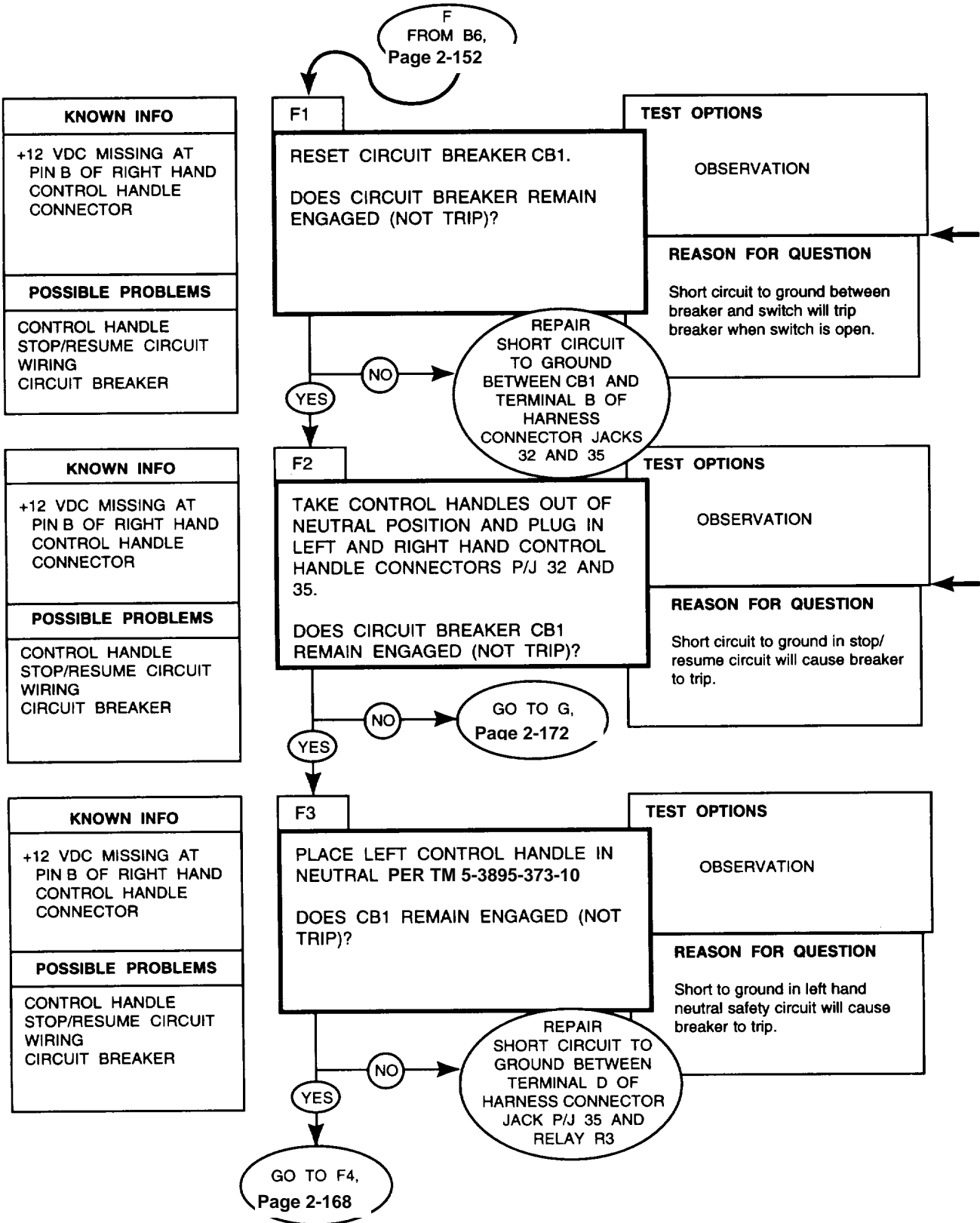
Refer to paragraph 7.21 for harness and lead wire repair.

After completing diagnostic checks, close rear top left access door and gauge panel access door(s) per TM 5-3895-373-10. Install gauge panel per paragraph 7.6.



IGNITION/EMERGENCY STOP

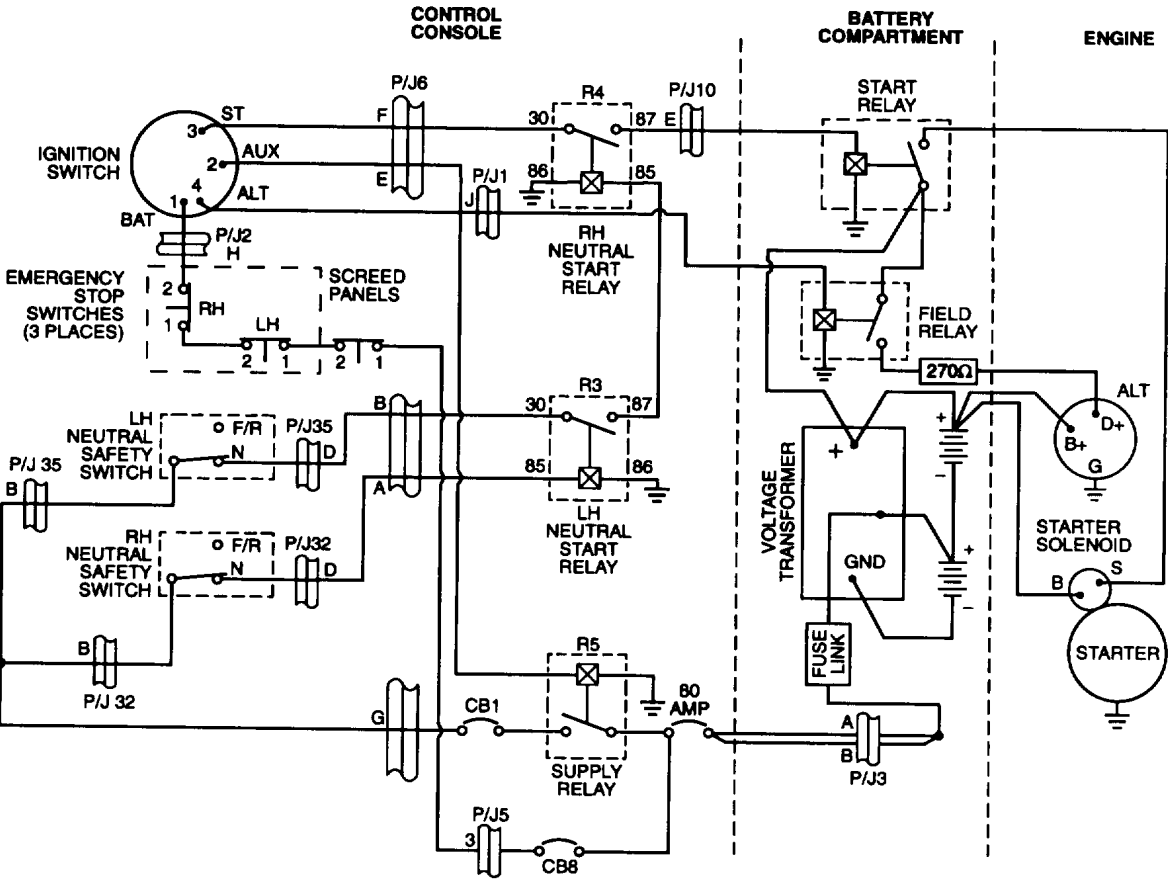
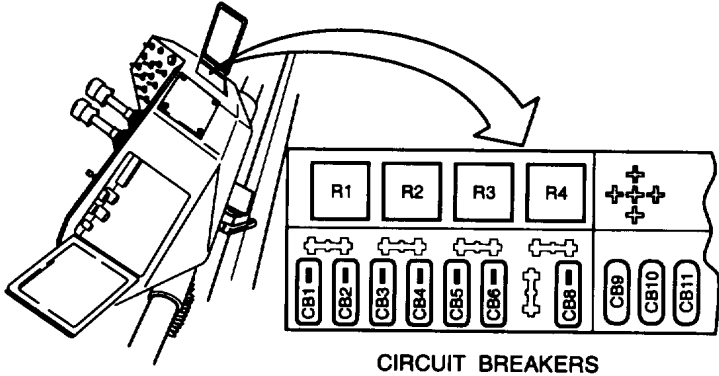
CIRCUIT DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

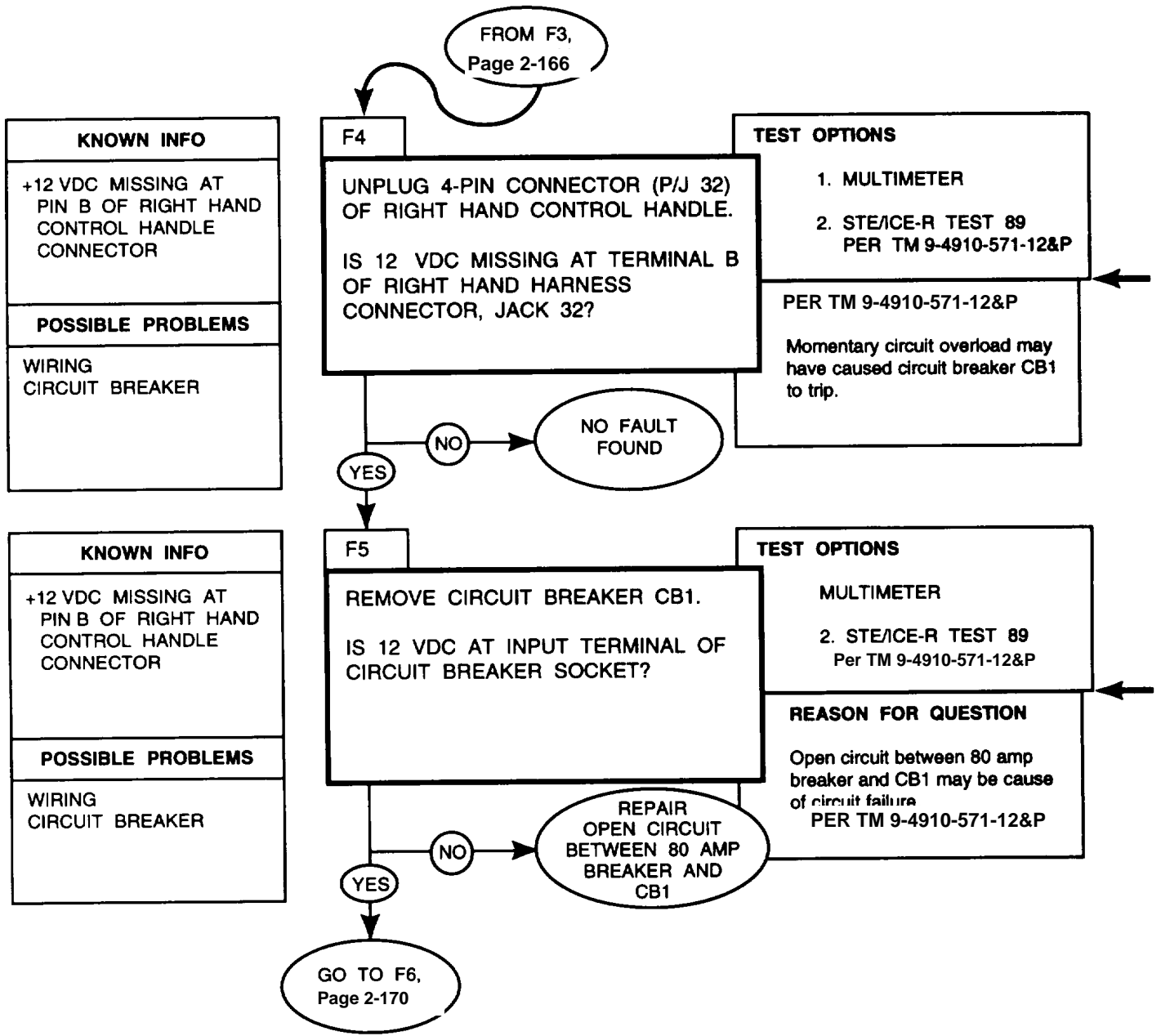
IGNITION/EMERGENCY STOP CIRCUIT

Refer to paragraph 7.21 for harness and lead wire repair.



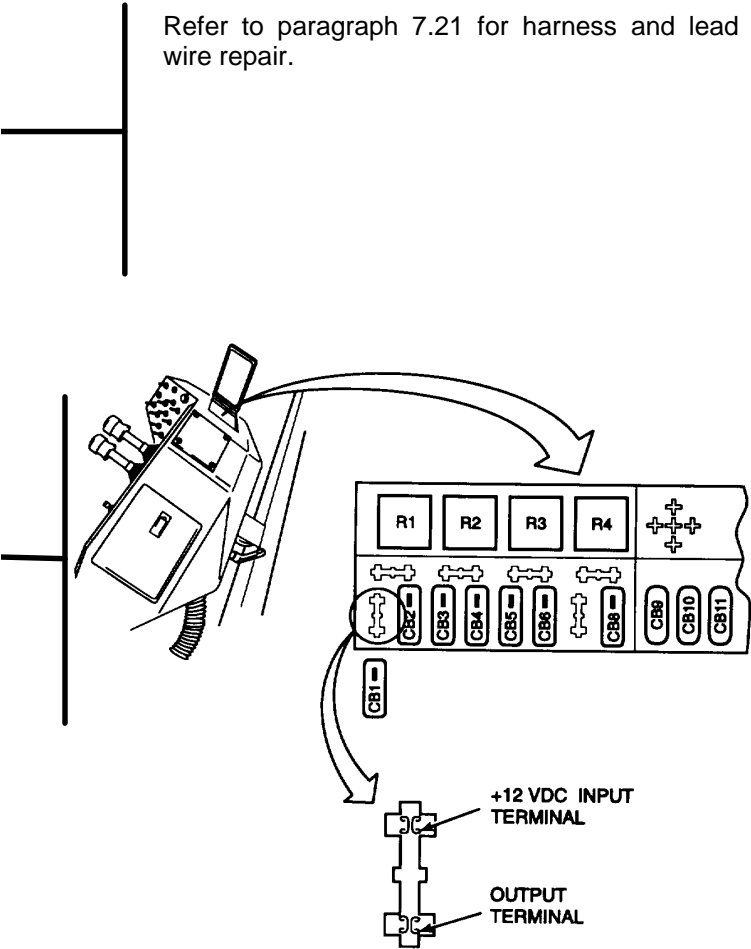
IGNITION/EMERGENCY STOP CIRCUIT

DIAGNOSTIC FLOWCHART

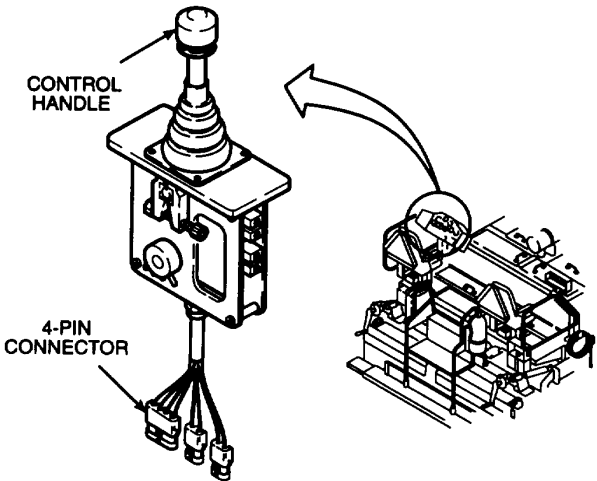


REFERENCE INFORMATION

Refer to paragraph 7.21 for harness and lead wire repair.

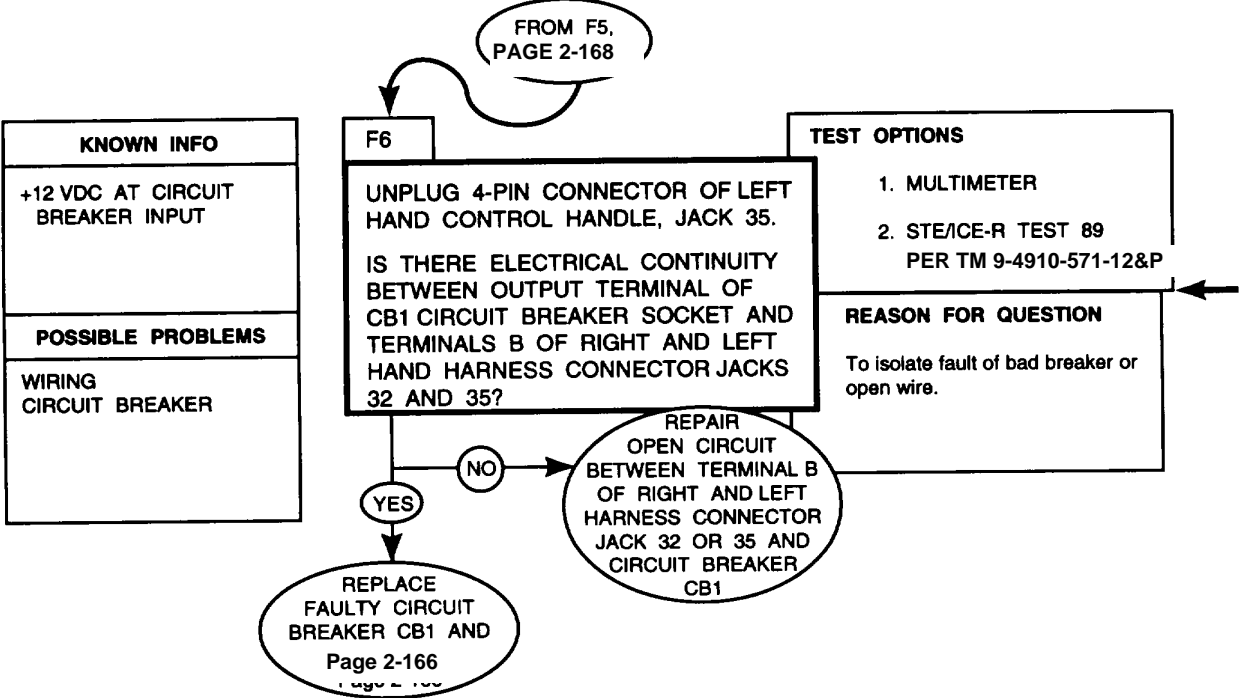


IGNITION/EMERGENCY STOP CIRCUIT



IGNITION/EMERGENCY STOP CIRCUIT

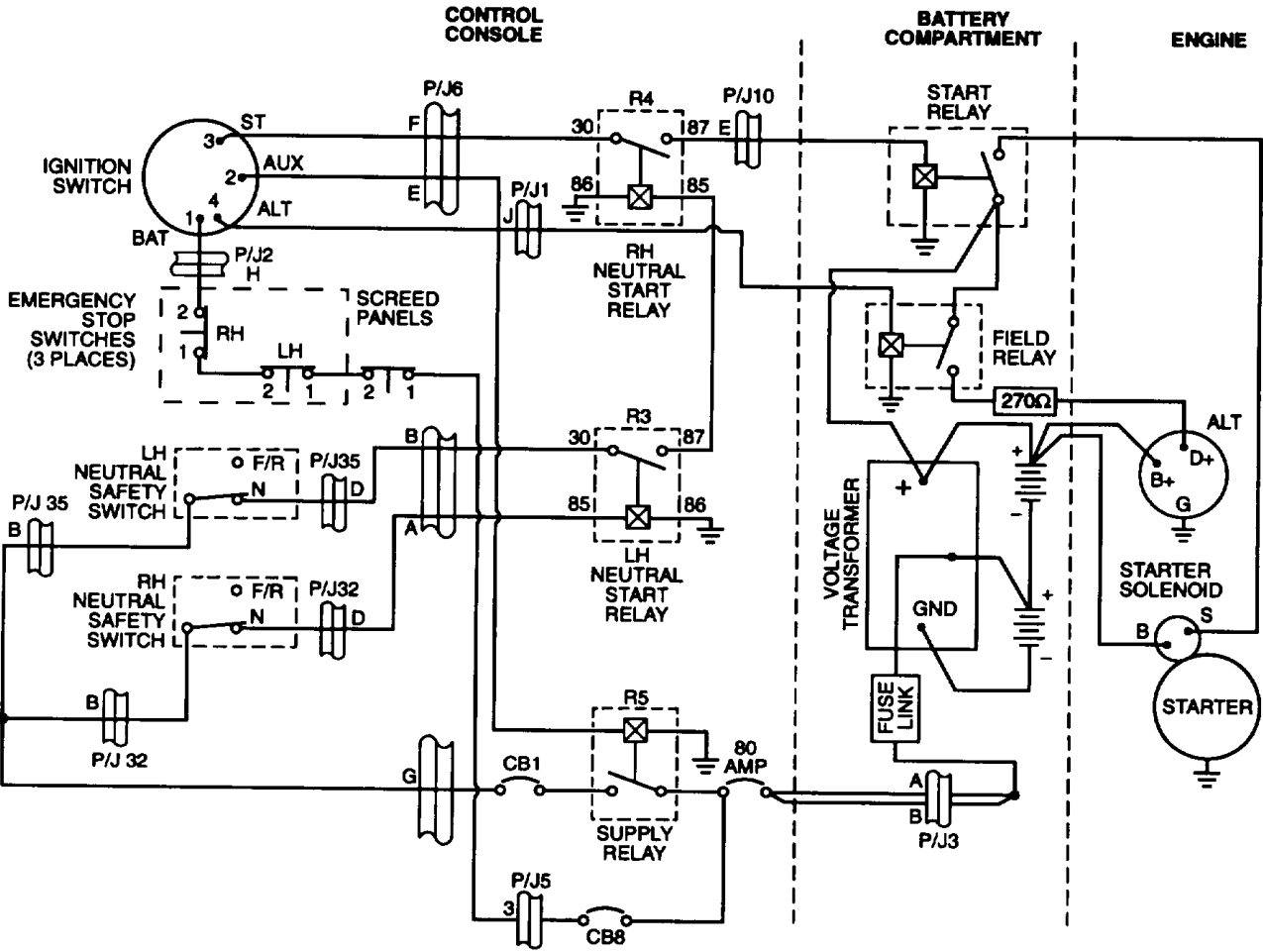
DIAGNOSTIC FLOWCHART



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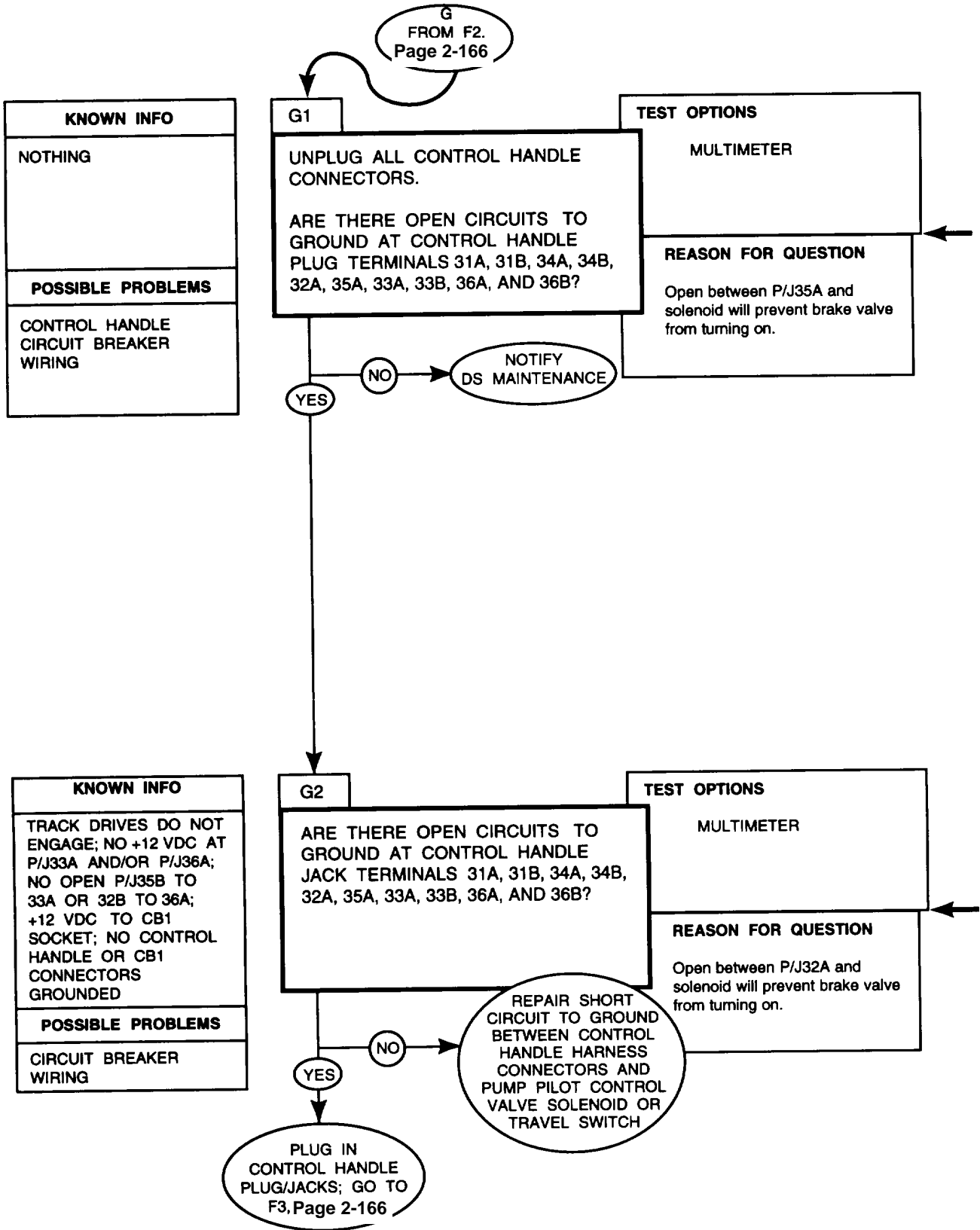
IGNITION/EMERGENCY STOP CIRCUIT

After completing diagnostic checks, close rear top left access door and gauge panel access door(s) per TM 5-3895-373-10. Install gauge panel per paragraph 7.6.



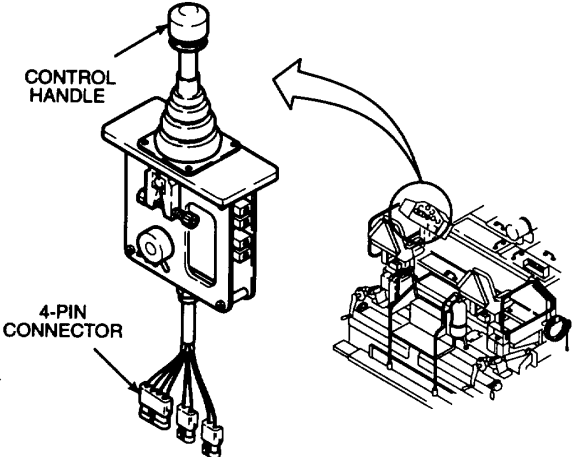
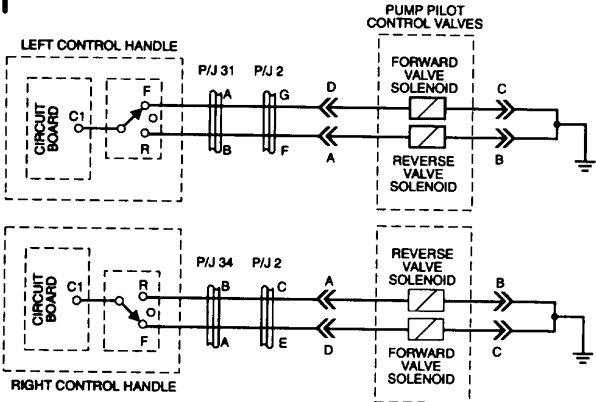
IGNITION/EMERGENCY STOP CIRCUIT

DIAGNOSTIC FLOWCHART



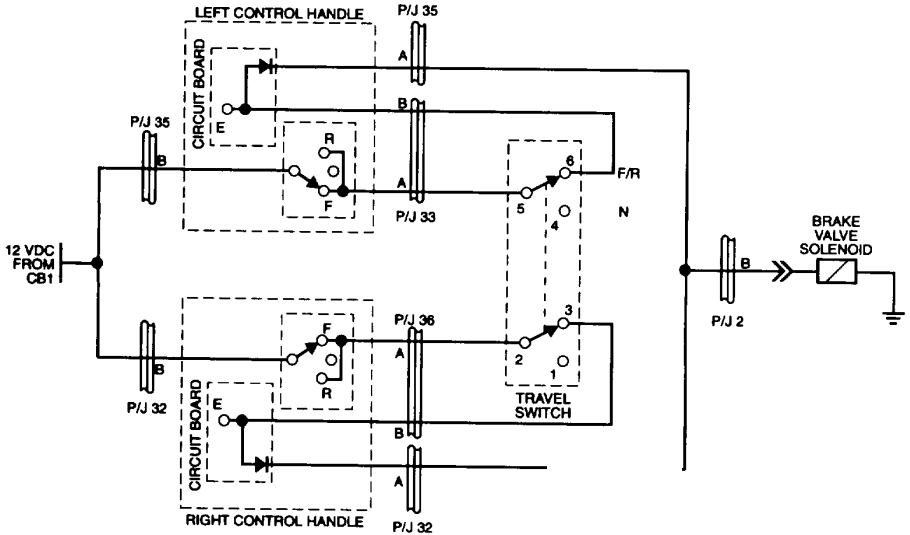
REFERENCE INFORMATION

IGNITION/EMERGENCY STOP CIRCUIT



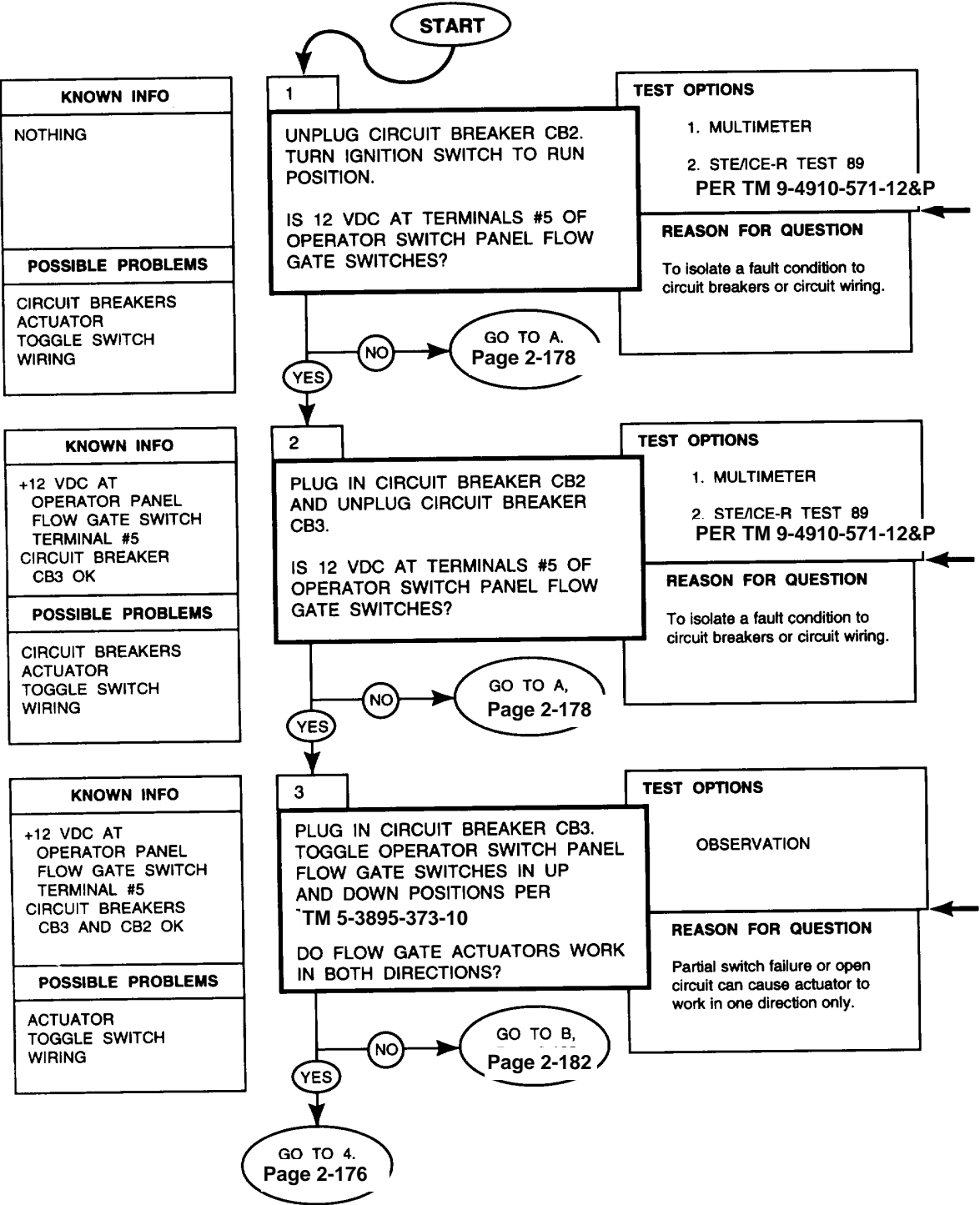
Refer to paragraph 7.21 for harness and lead wire repair.

After completing diagnostic checks, close rear top left access door and gauge panel access door(s) per TM 5-3895-373-10. Install gauge panel per paragraph 7.6.



FLOW GATE CONTROL CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

FLOW GATE CONTROL CIRCUIT

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA.

Open gauge panel access door per TM 5-3895-373-10 to gain access to circuit breaker CB2.

Remove operator switch panel per paragraph 7.6 to gain access to flow gate switch terminals.

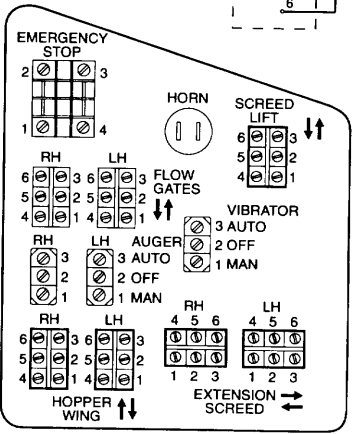
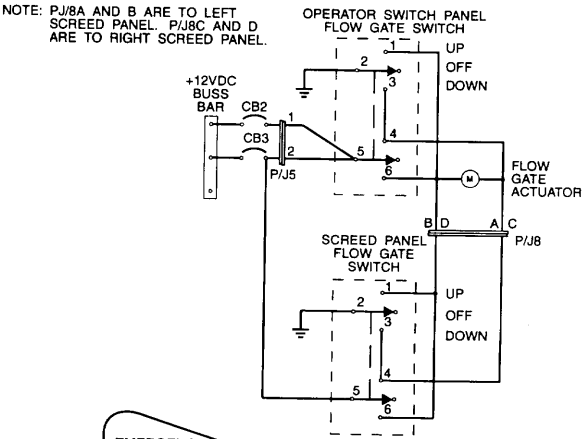
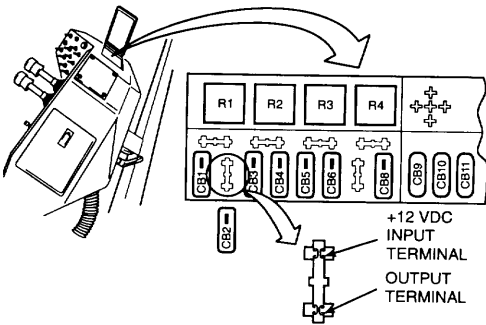
If both flow gates fail, fault will probably be found using procedures in first two steps of flowchart.

Refer to paragraph 1.18.7 for an electrical system description for the flow gate control circuit.

Press the reset button on the breaker if unsure of the breaker condition.

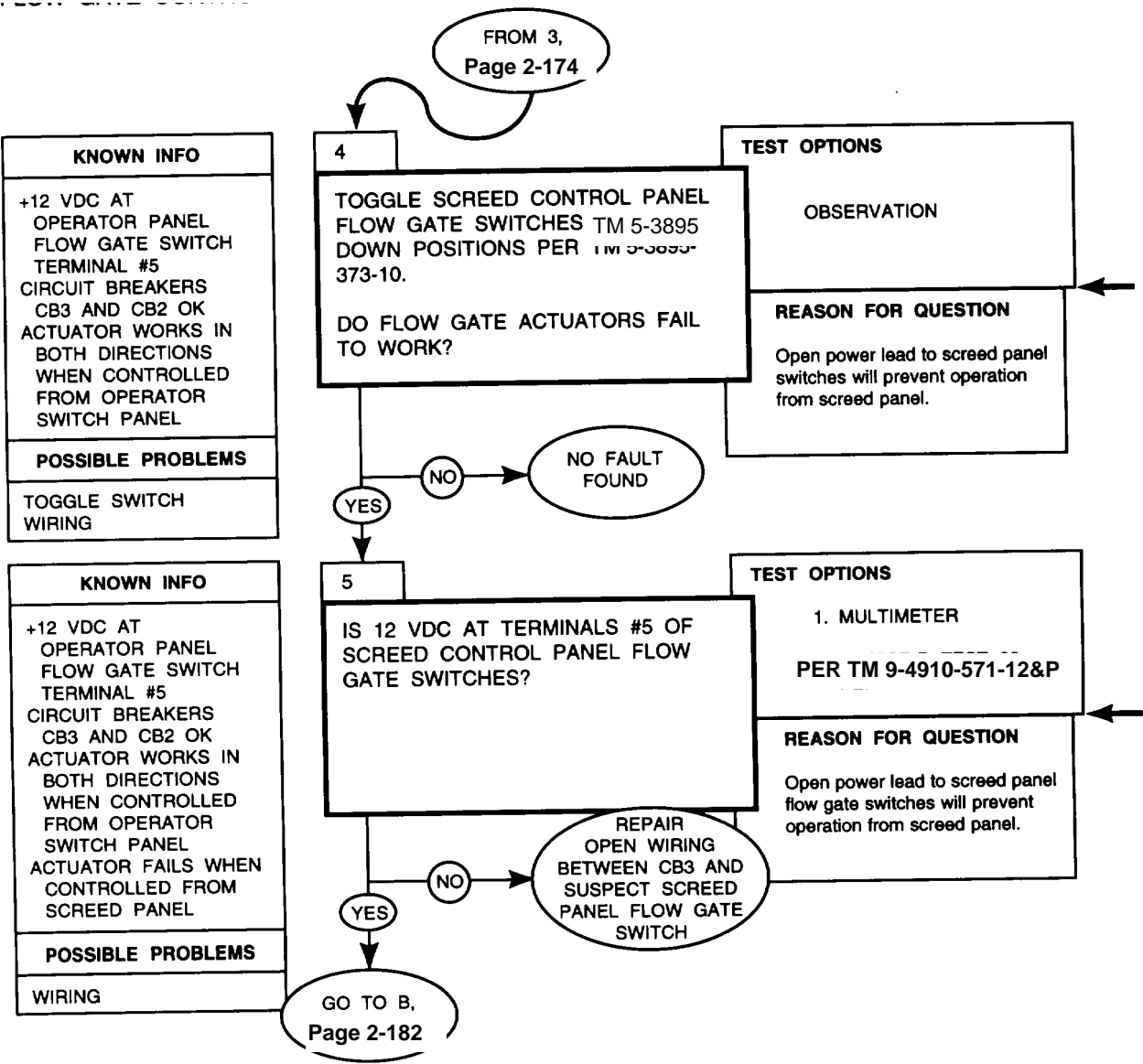
If voltage is missing to only one flow gate actuator, continue diagnostic procedure for related circuit only.

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.



FLOW GATE CONTROL CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

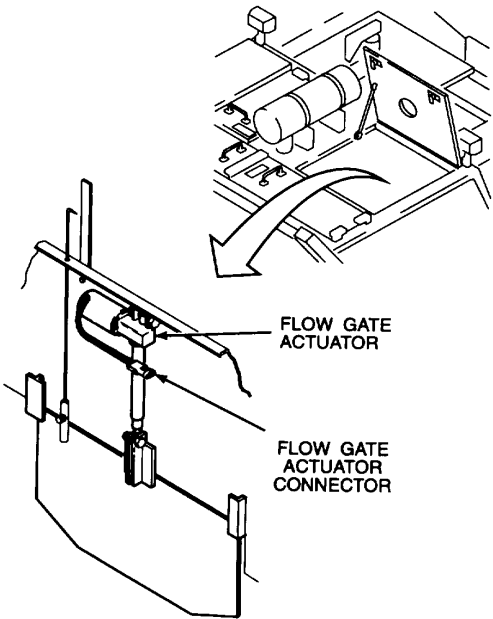
FLOW GATE CONTROL CIRCUIT

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

Refer to paragraph 7.21 for harness and lead wire repair.

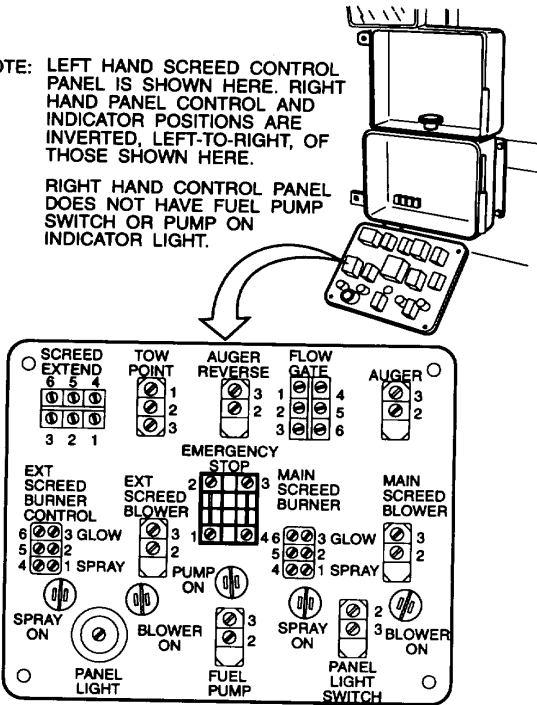
Gain access to flow gate switch terminals per paragraph 15.2 step a.

After completing diagnostic checks, close gauge panel access door(s) per TM 5-3895-373-10. Install operator switch panel per paragraph 7.6. Install screed control panel per paragraph 15.2.



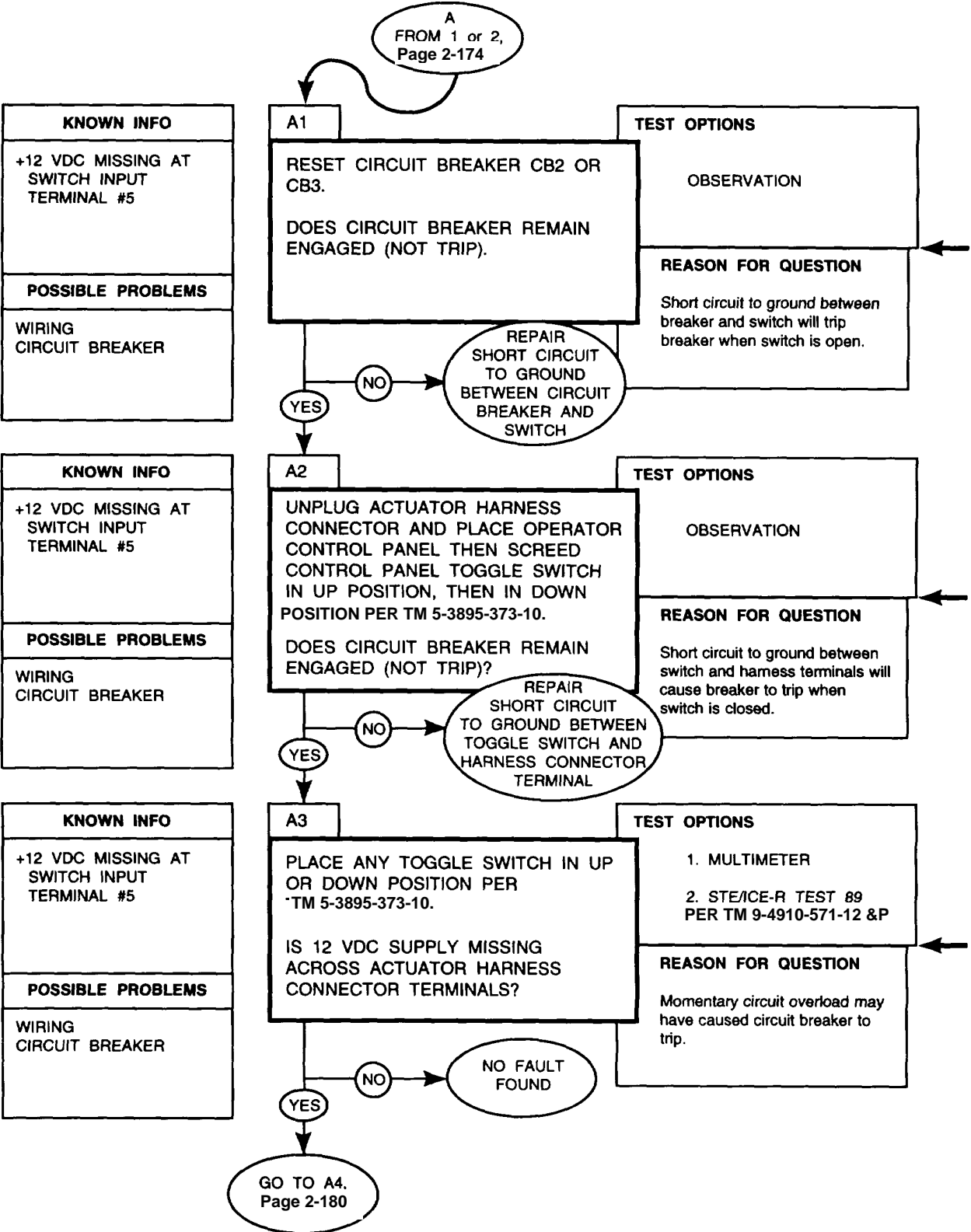
NOTE: LEFT HAND SCREED CONTROL PANEL IS SHOWN HERE. RIGHT HAND PANEL CONTROL AND INDICATOR POSITIONS ARE INVERTED, LEFT-TO-RIGHT, OF THOSE SHOWN HERE.

RIGHT HAND CONTROL PANEL DOES NOT HAVE FUEL PUMP SWITCH OR PUMP ON INDICATOR LIGHT.



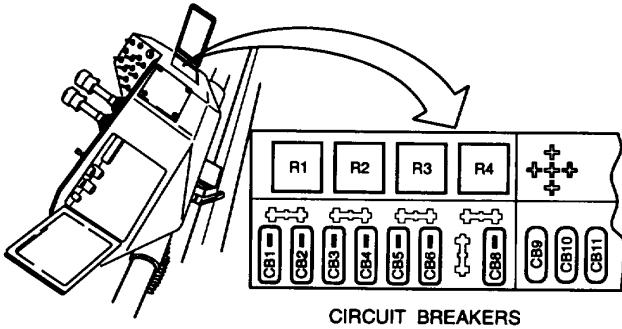
FLOW GATE CONTROL CIRCUIT

DIAGNOSTIC FLOWCHART

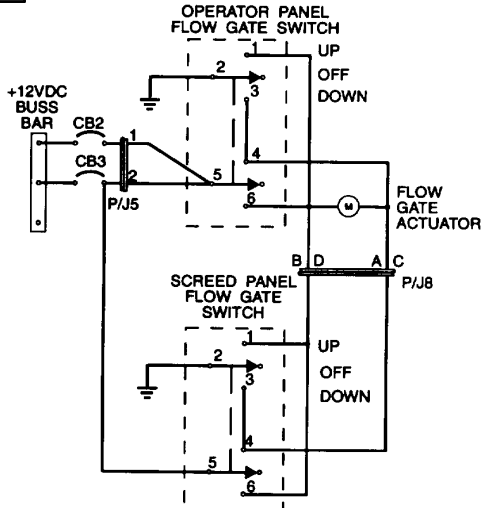


REFERENCE INFORMATION

FLOW GATE CONTROL CIRCUIT



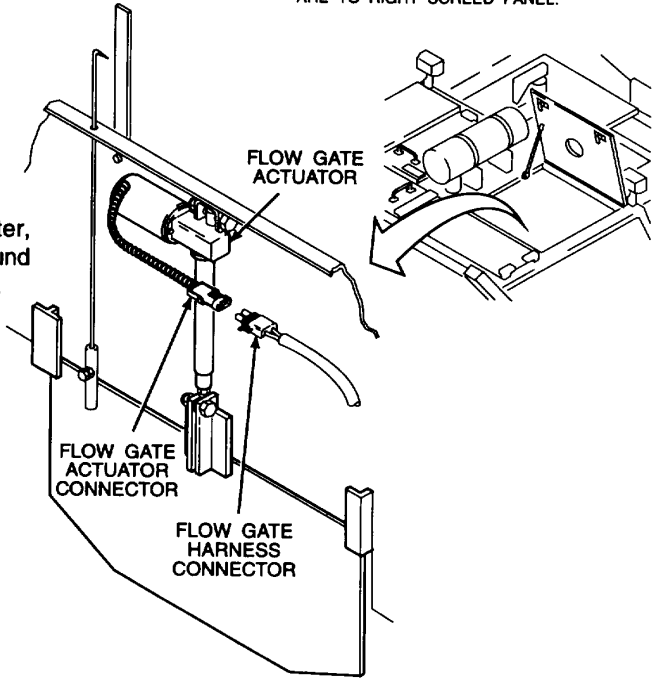
Refer to Paragraph 7.21 for harness and lead wire repair.



NOTE: P/J8A AND B ARE TO LEFT SCREED PANEL. P/J8C AND D ARE TO RIGHT SCREED PANEL.

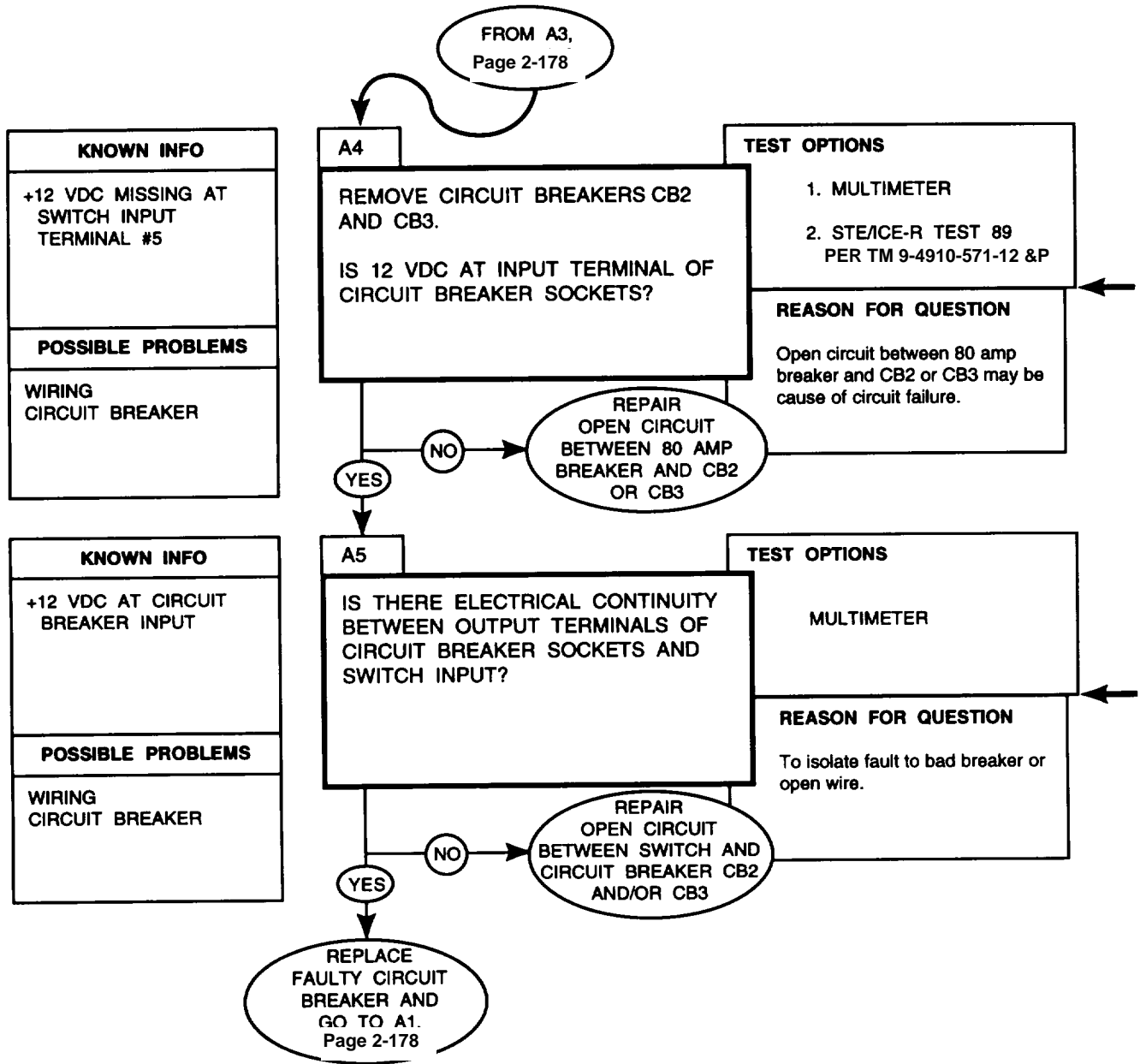
To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

Open front top left and front top right access doors per TM 5-3895-373-10 to gain access to actuator harness



FLOW GATE CONTROL CIRCUIT

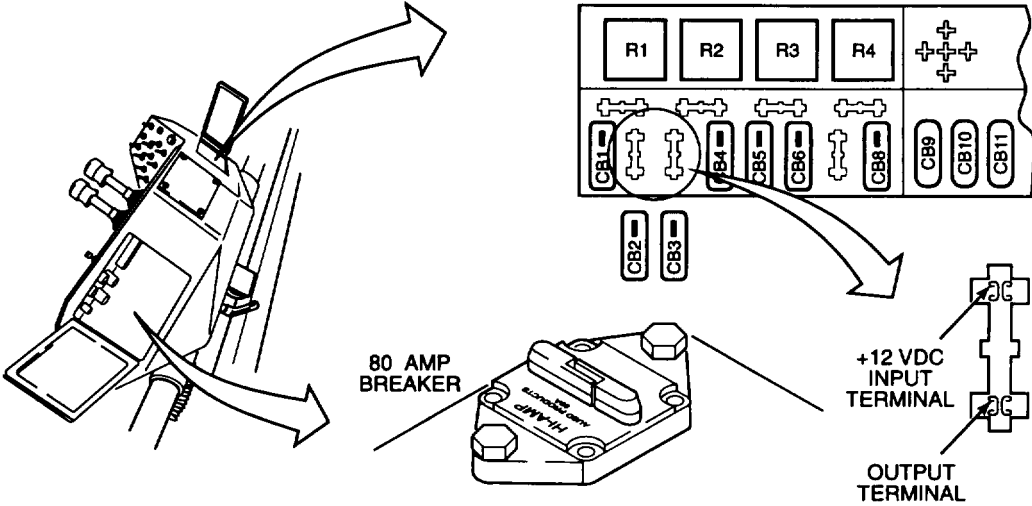
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

FLOW GATE CONTROL CIRCUIT

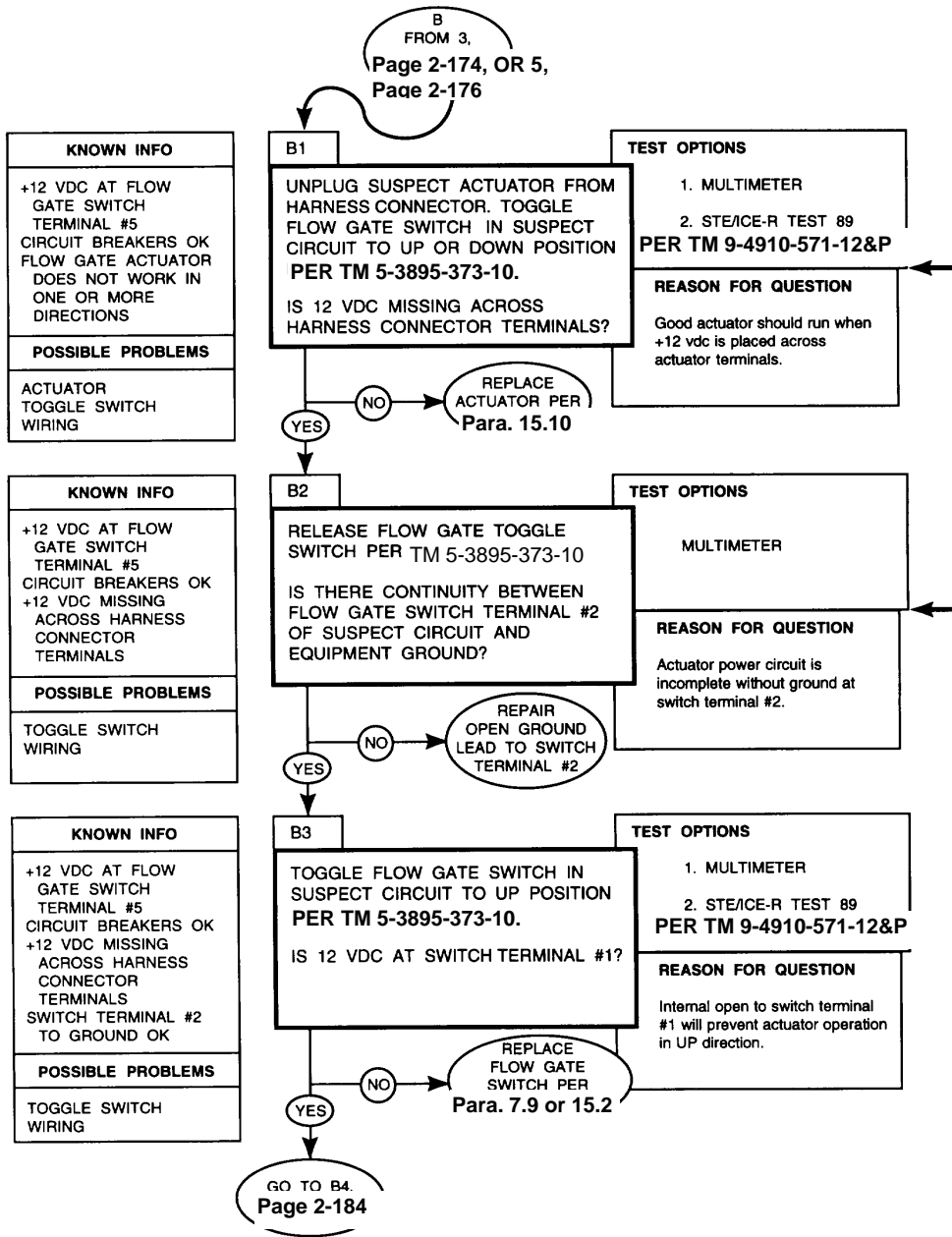
Refer to paragraph 7.21 for harness and lead wire repair.



After completing diagnostic checks, close gauge panel access door(s) and front top left and front top right access doors per TM 5-3895-373-10. Install operator switch panel per paragraph 7.6.

FLOW GATE CONTROL CIRCUIT

DIAGNOSTIC FLOWCHART

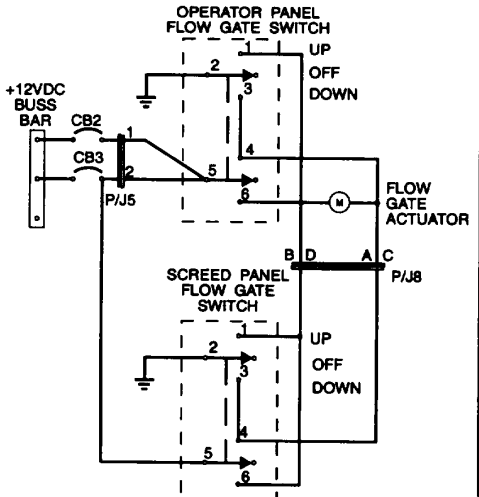
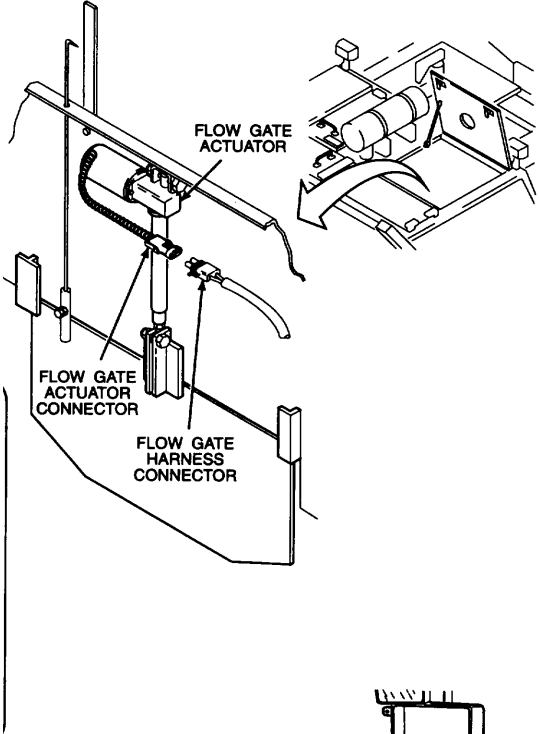
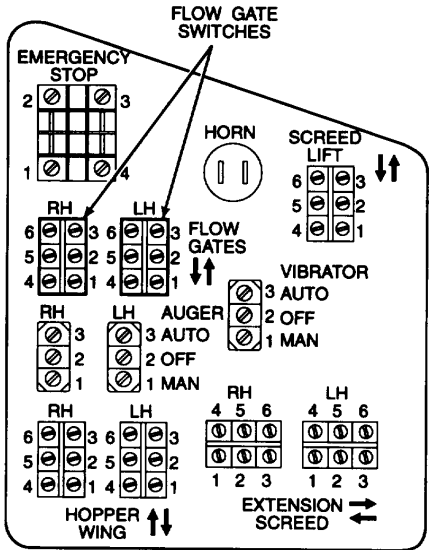


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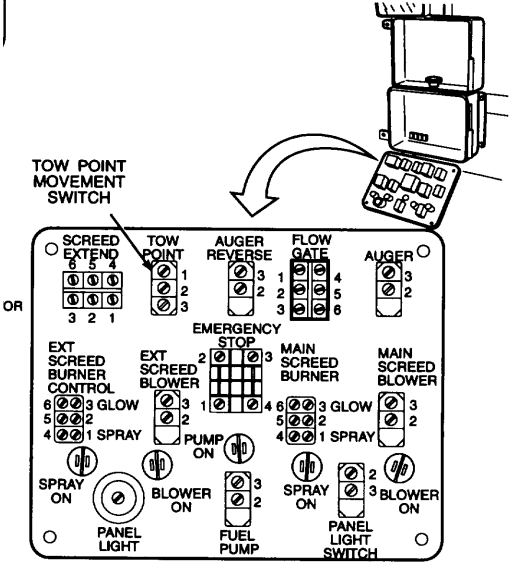
FLOW GATE CONTROL CIRCUIT

Open front top left and front top right access doors per TM 5-3895-373-10 to gain access to actuator harness.

Refer to paragraph 7.21 for harness and lead wire repair.

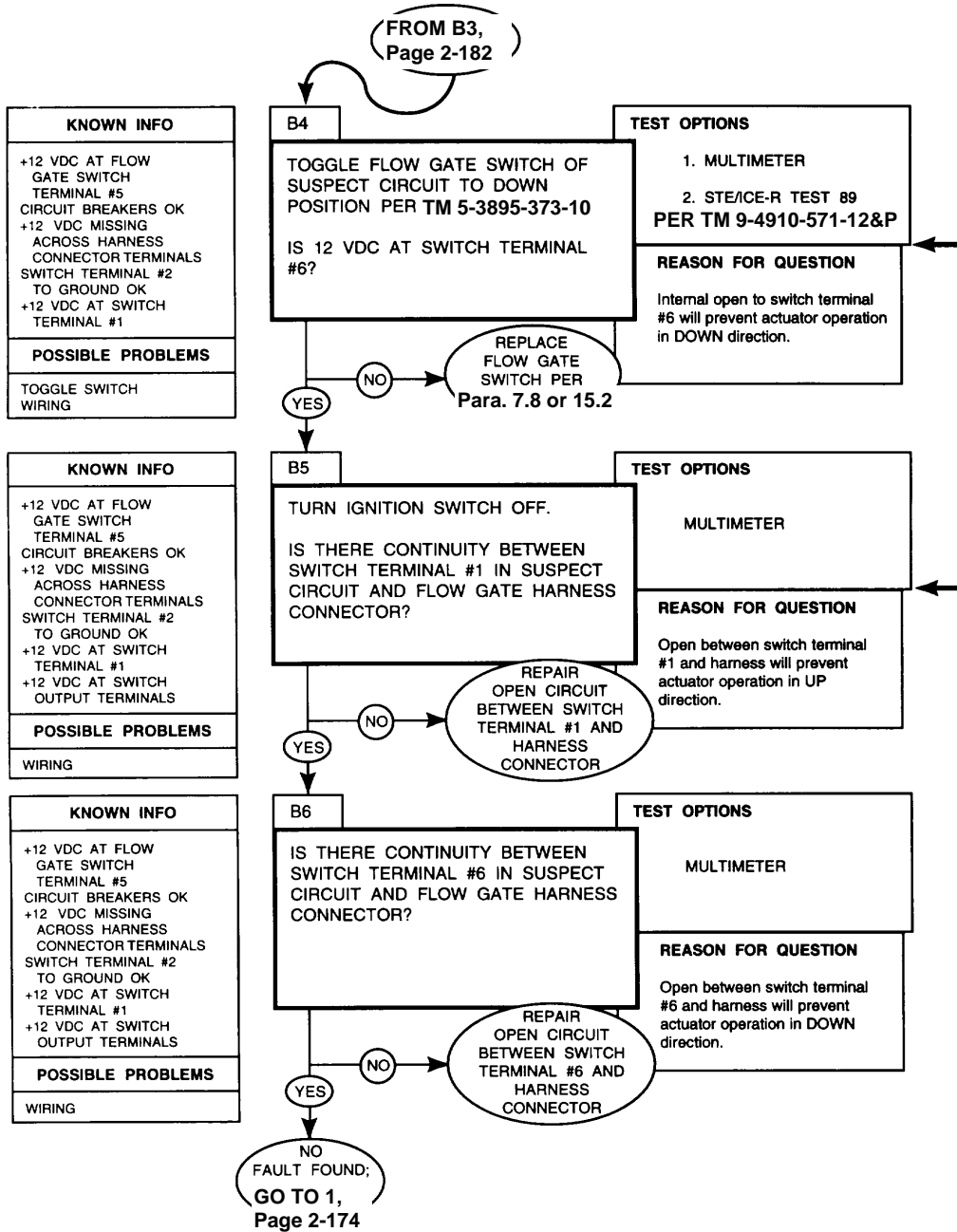


NOTE: P/J8A AND B ARE TO LEFT SCREED PANEL. P/J8C AND D ARE TO RIGHT SCREED PANEL.



FLOW GATE CONTROL CIRCUIT

DIAGNOSTIC FLOWCHART



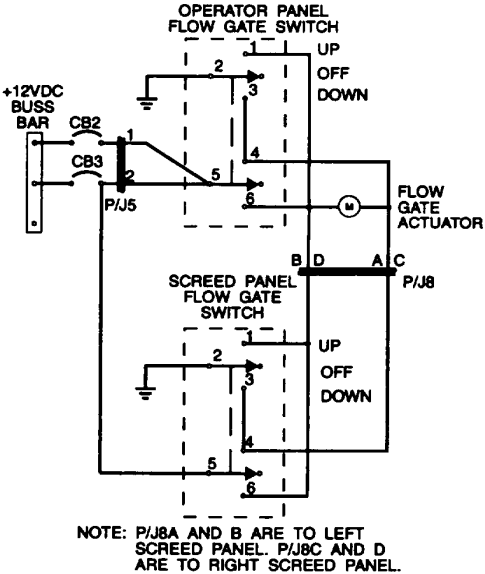
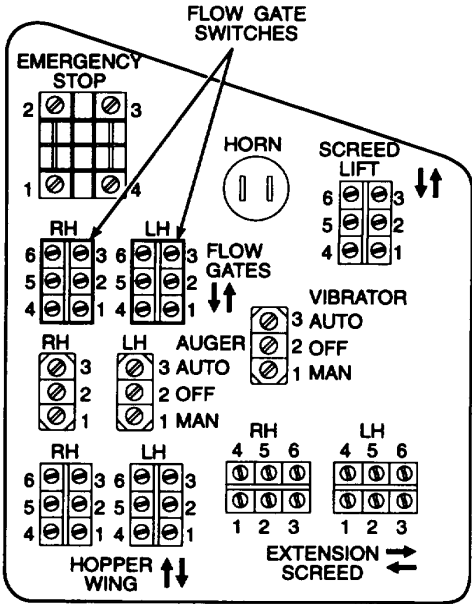
REFERENCE INFORMATION

FLOW GATE CONTROL CIRCUIT

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

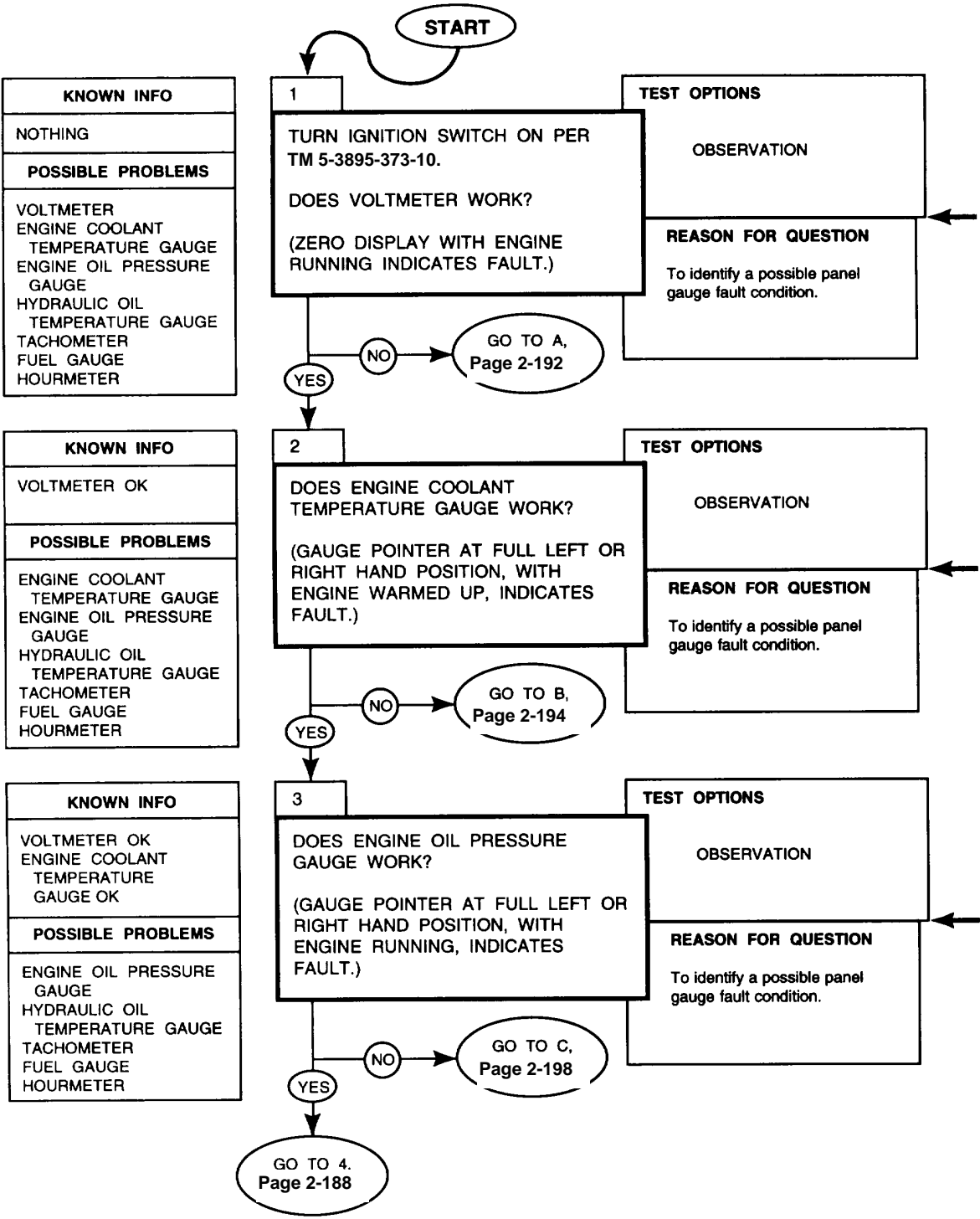
Refer to paragraph 7.21 for harness and lead wire repair.

After completing diagnostic checks, close gauge panel access door(s) and front top left and front top right access doors per TM 53895-373-10. Install operator switch panel per paragraph 7.6.



PANEL GAUGE CIRCUIT

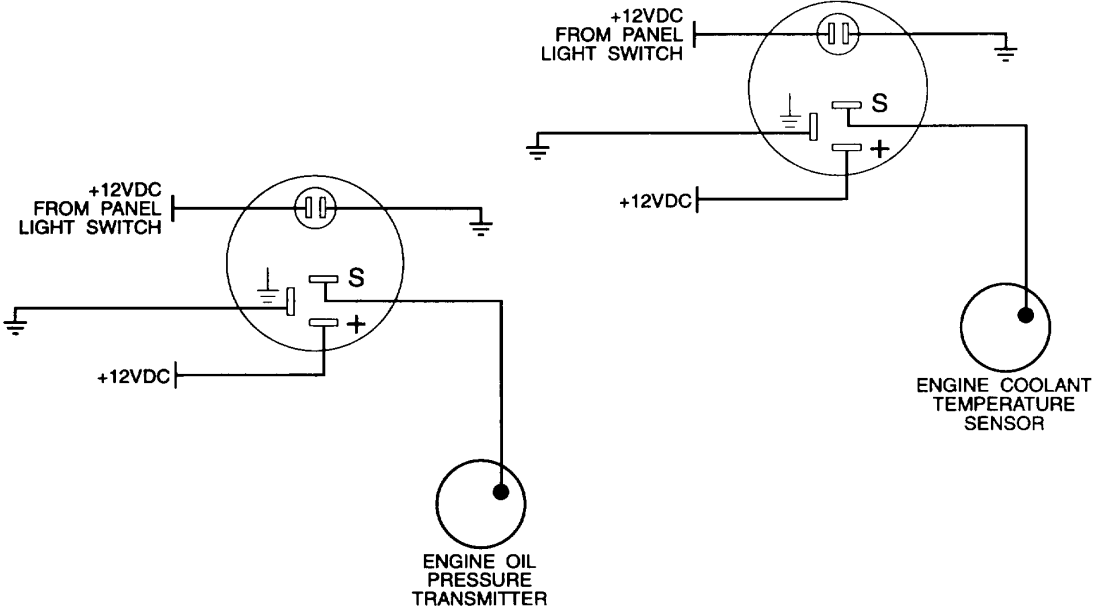
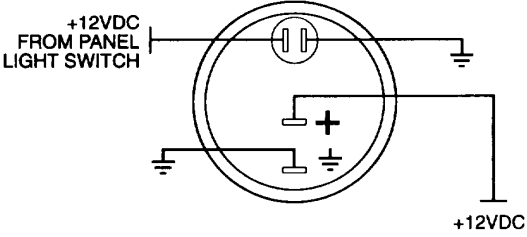
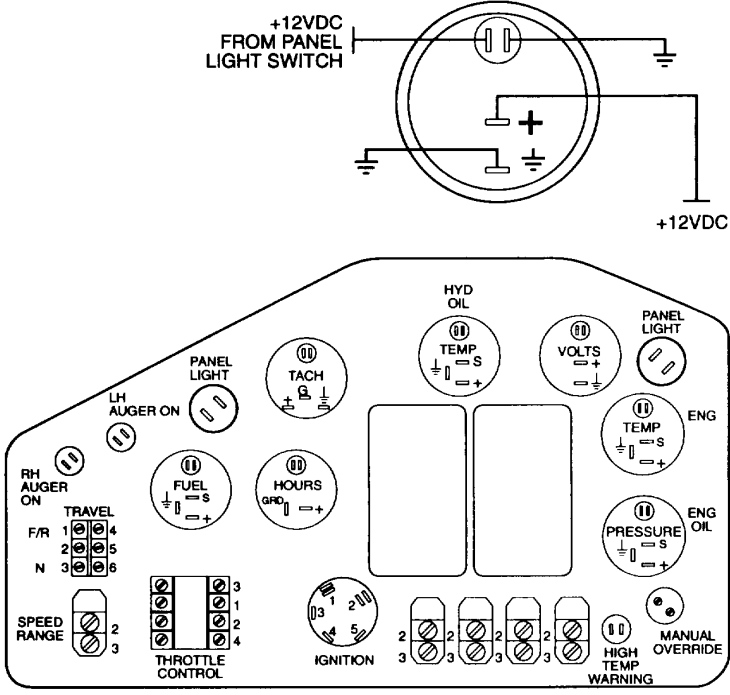
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

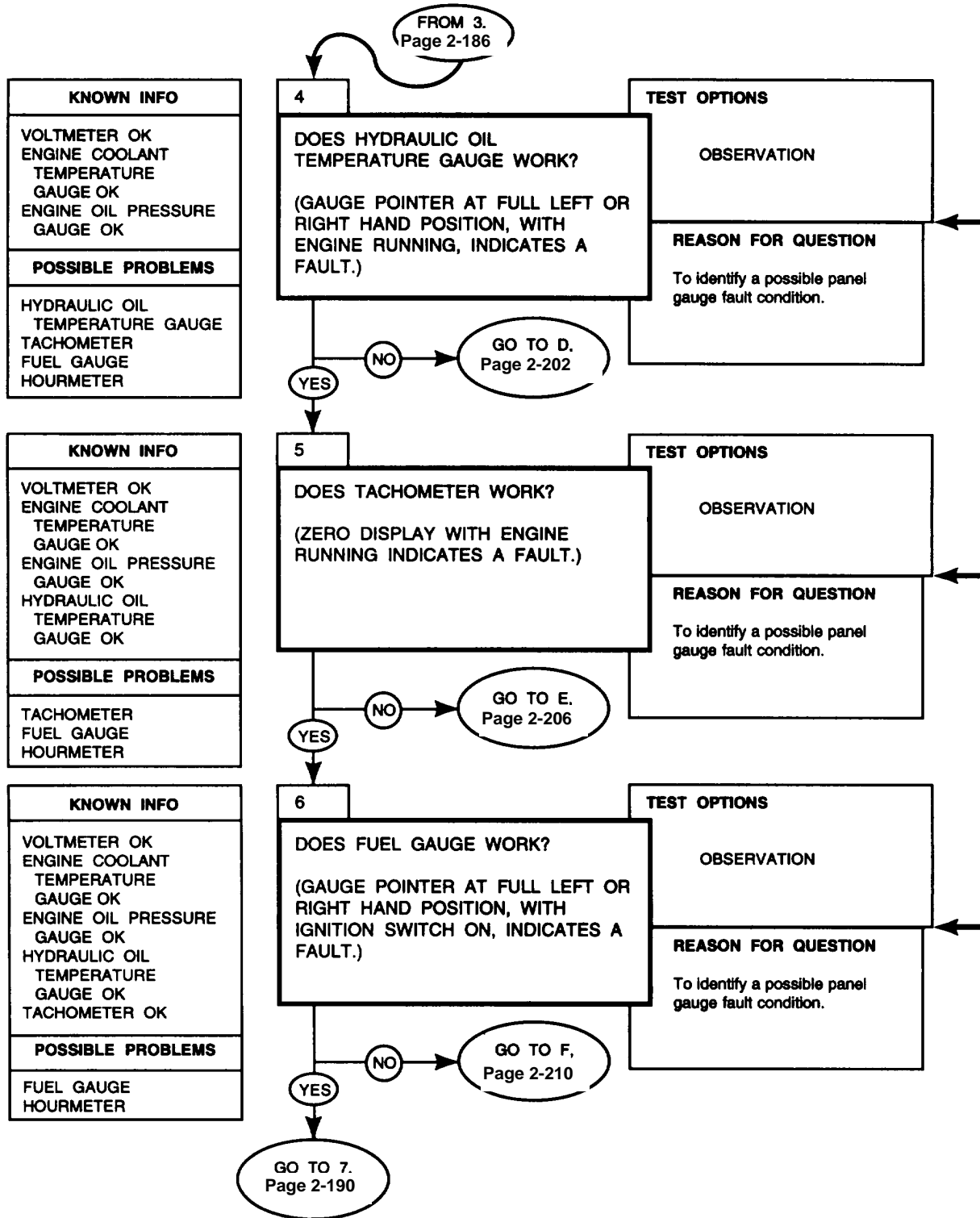
PANEL GAUGE CIRCUIT

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraphs 1.18.5 and 1.18.6 for electrical system description for the panel controls and indicators.



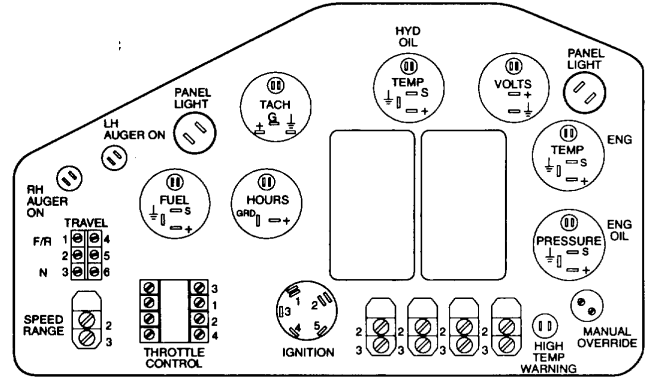
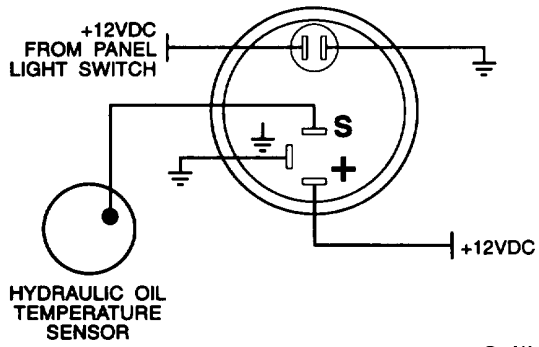
PANEL GAUGE CIRCUIT

DIAGNOSTIC FLOWCHART

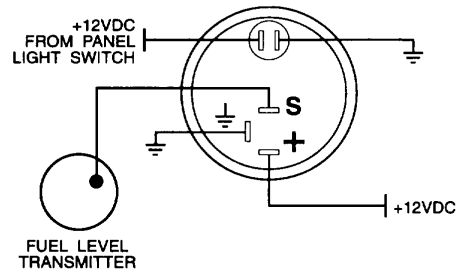
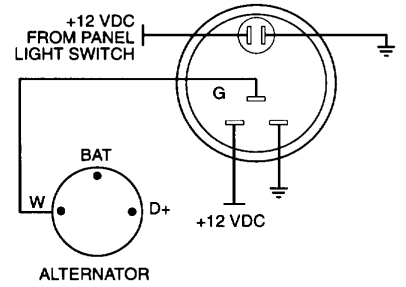


REFERENCE INFORMATION

PANEL GAUGE CIRCUIT

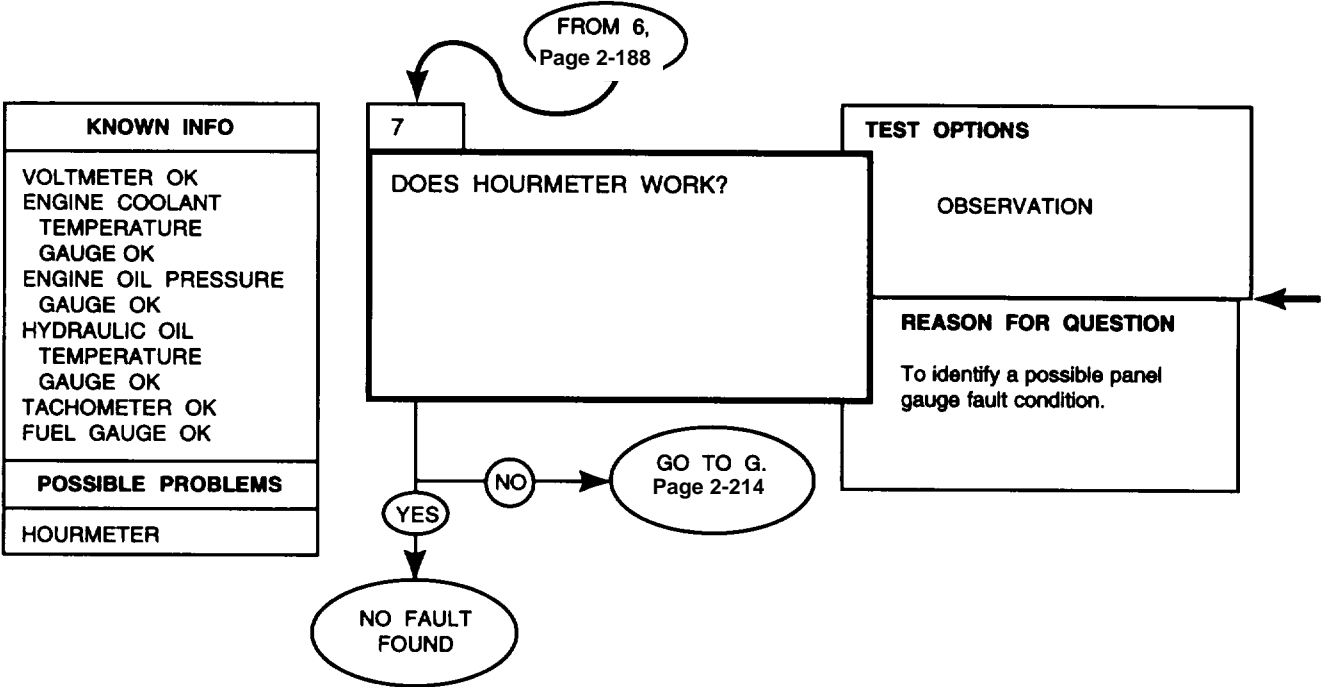


The tachometer and hourmeter share an alternating current signal input from the "W" terminal of the alternator.



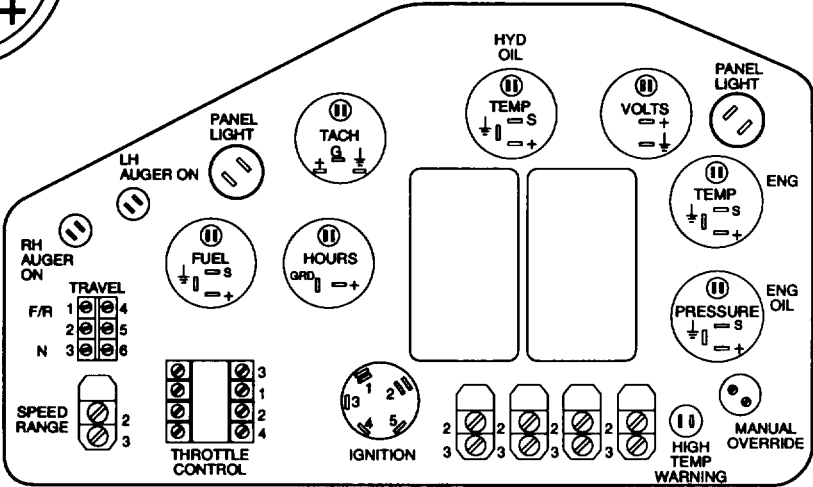
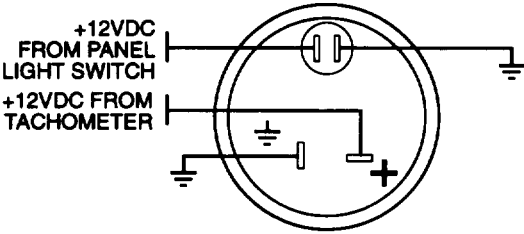
PANEL GAUGE CIRCUIT

DIAGNOSTIC FLOWCHART



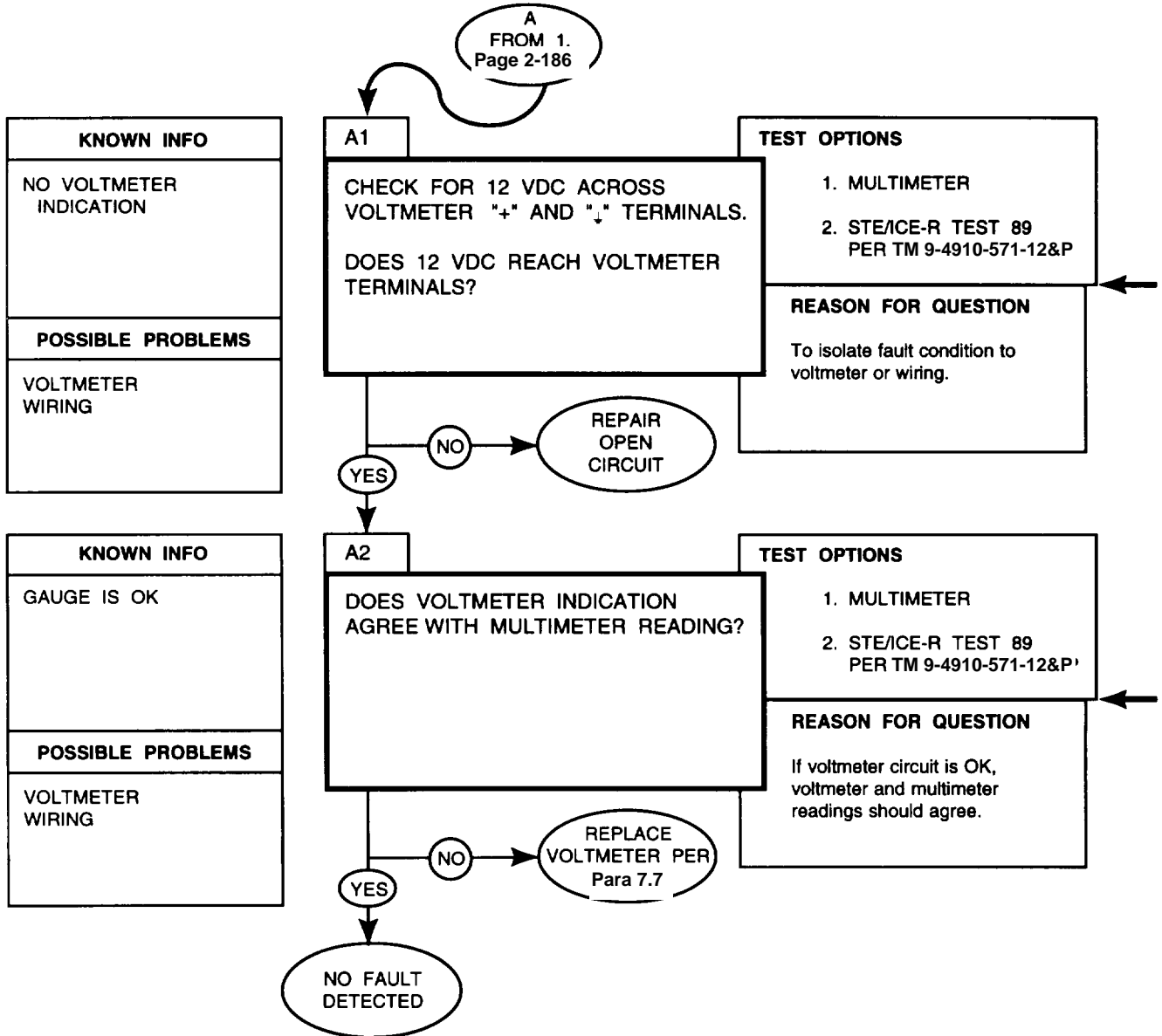
REFERENCE INFORMATION

PANEL GAUGE CIRCUIT



PANEL GAUGE CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

PANEL GAUGE CIRCUIT

Remove gauge panel per paragraph 7.6 to gain access to voltmeter terminals.

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

Refer to the electrical system diagram at the end of the manual for equipment wiring details.

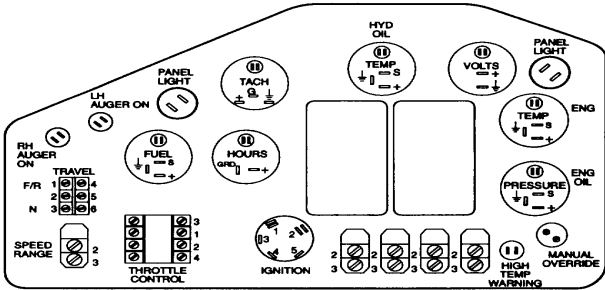
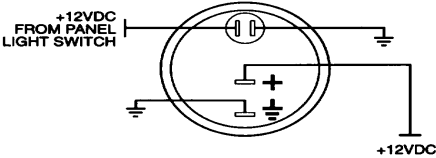
Refer to paragraph 7.21 for harness and lead wire repair.

If the gauge is in calibration, the gauge panel voltmeter display should be within 0.5 volts of the multimeter reading.

A faulty voltmeter will probably indicate 0 (zero) volts.

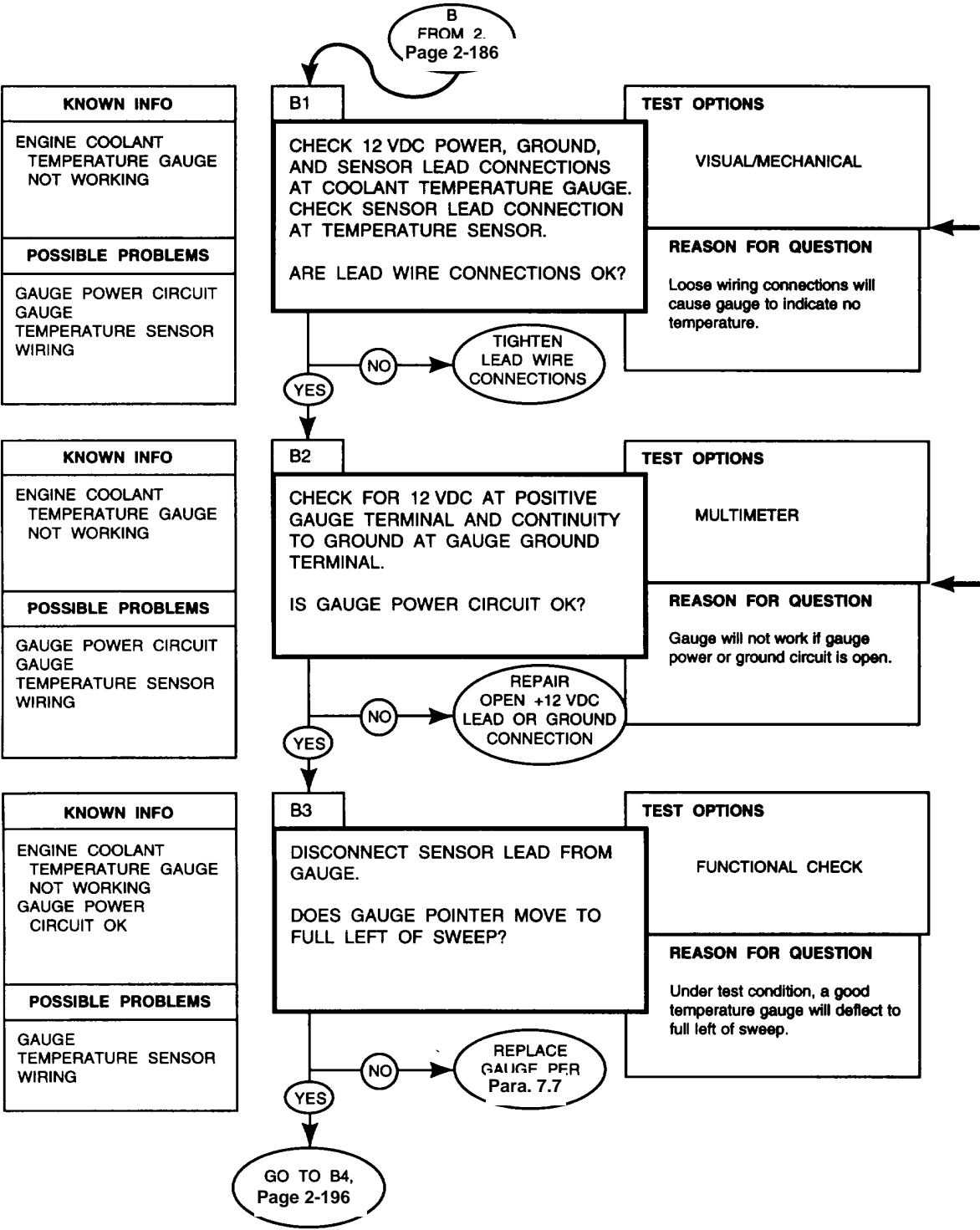
Refer to paragraph 7.7 for voltmeter replacement instructions.

After completing diagnostic checks, install gauge panel per paragraph 7.6.



PANEL GAUGE CIRCUIT

DIAGNOSTIC FLOWCHART

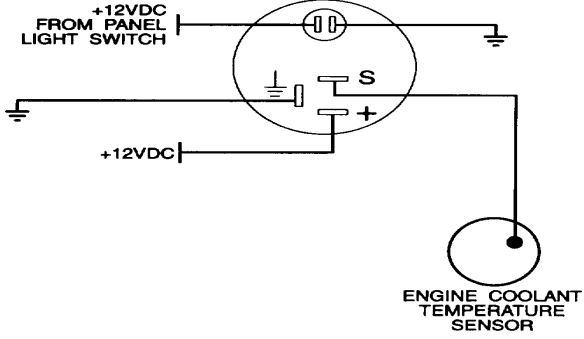
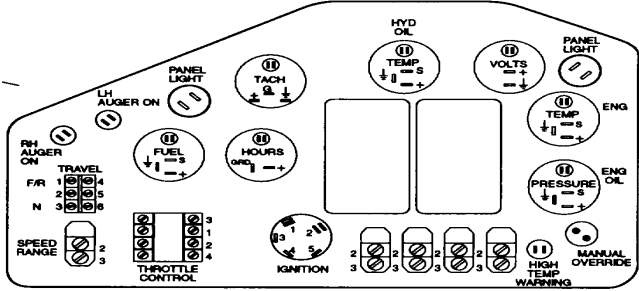
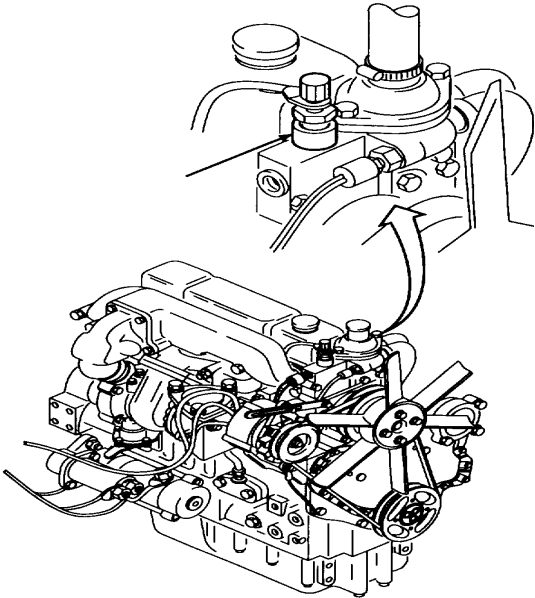


REFERENCE INFORMATION

PANEL GAUGE CIRCUIT

Remove gauge panel per paragraph 7.6 to gain access to coolant temperature gauge terminals. Remove front top left access door per TM 5-3895-373-10 to gain access to temperature sensor.

Refer to paragraphs 1.18.5 and 1.18.6 for electrical system description for the panel controls and indicators.



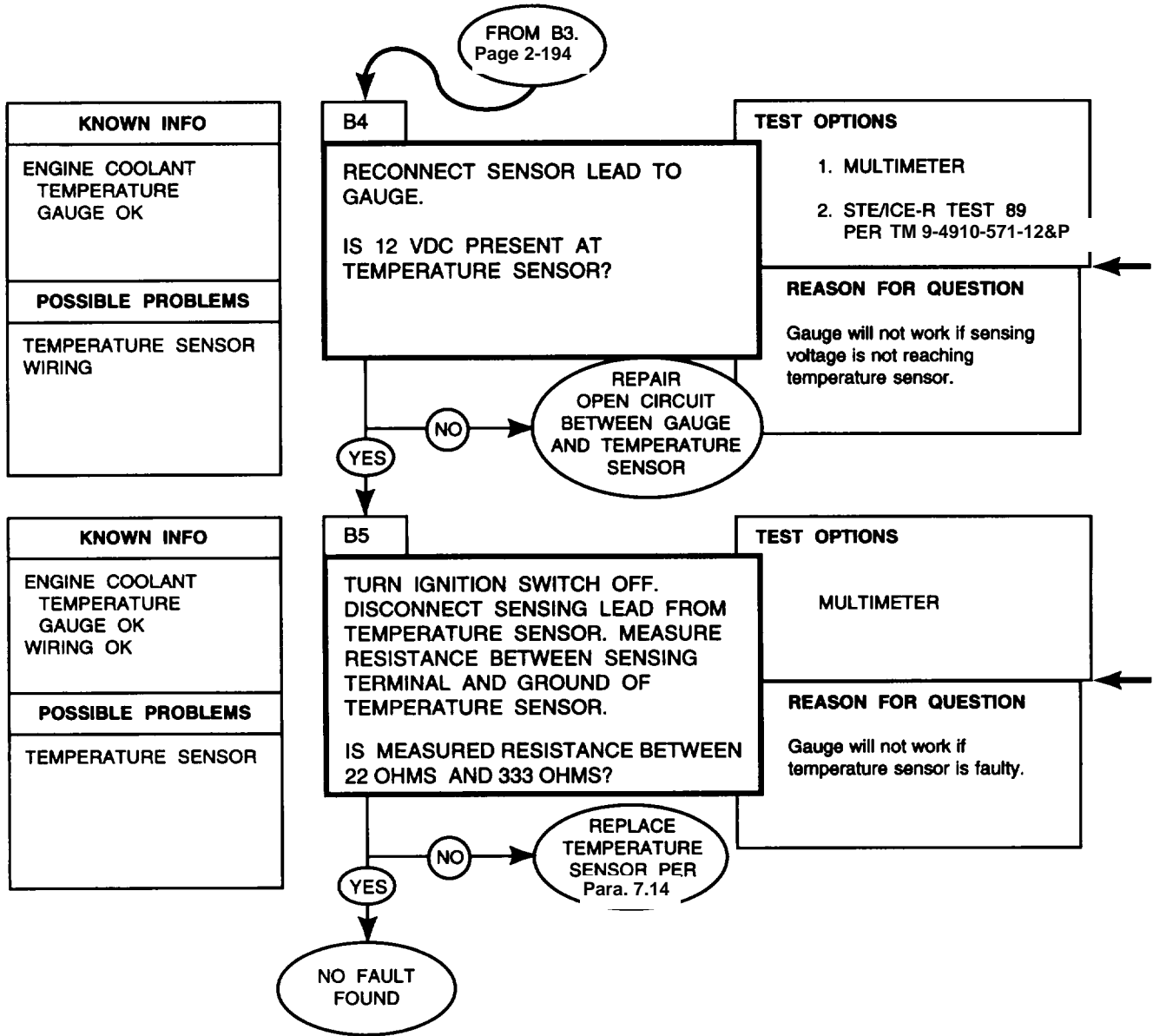
Refer to paragraph 7.21 for harness and lead wire repair.

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

Refer to the electrical system diagram at the end of the manual for equipment wiring details.

PANEL GAUGE CIRCUIT

DIAGNOSTIC FLOWCHART

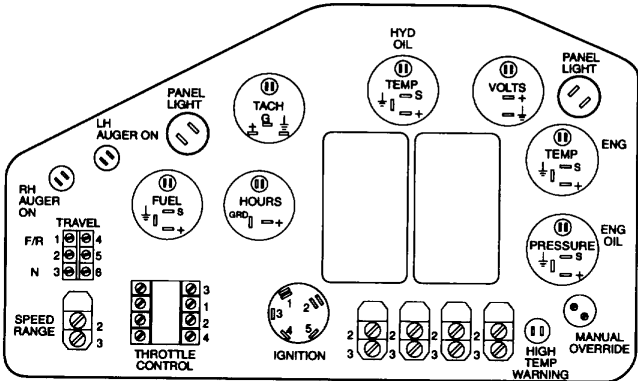


REFERENCE INFORMATION

Refer to paragraphs 1.18.5 and 1.18.6 for electrical system description for the panel controls and indicators.

Refer to paragraph 7.21 for harness and lead wire repair.

PANEL GAUGE CIRCUIT

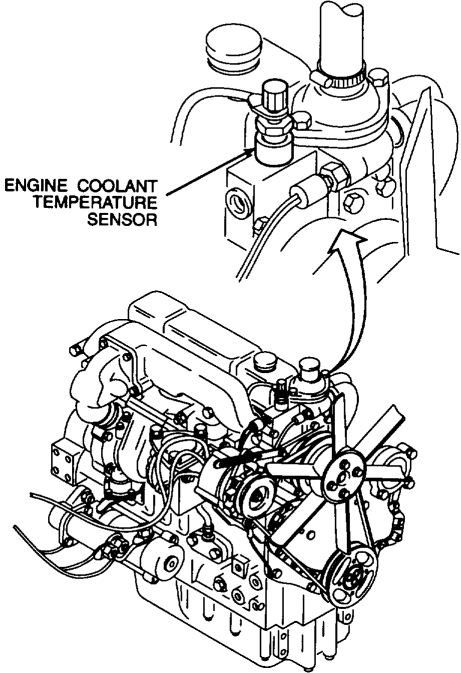


Refer to the electrical system diagram at the end of the manual for equipment wiring details.

Temperature sensor resistance should vary with coolant temperature as follows:

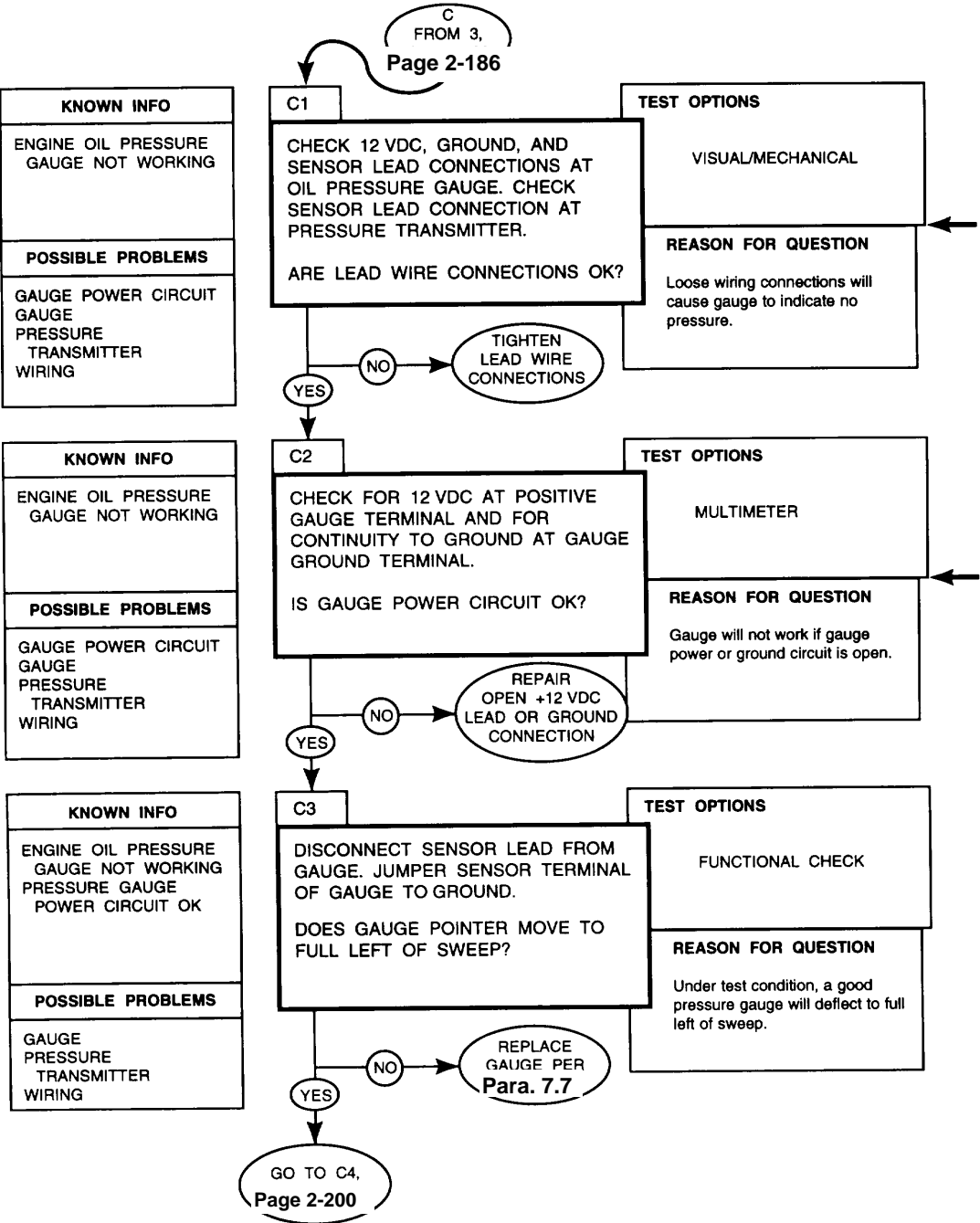
TEMPERATURE:	100	200	250
OHMS:	333	48	22

After completing diagnostic checks, close front top left access door per TM 5-3895-373-10. Install gauge panel per paragraph 7.6.



PANEL GAUGE CIRCUIT

DIAGNOSTIC FLOWCHART

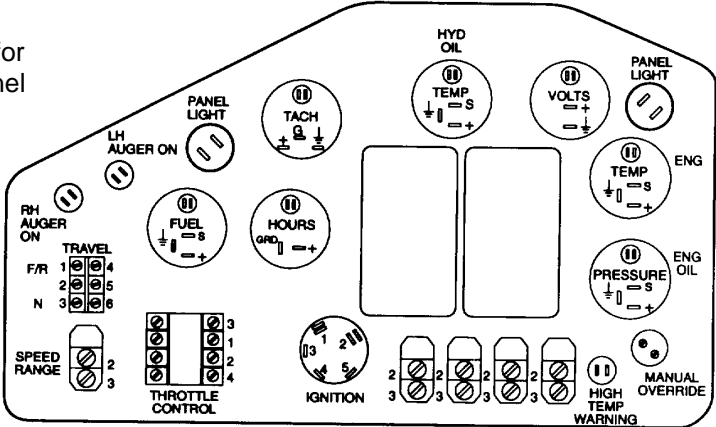


REFERENCE INFORMATION

Remove gauge panel per paragraph 7.6 to gain access to oil pressure gauge terminals.

Refer to paragraphs 1.18.5 and 1.18.6 for electrical system description for the panel controls and indicators.

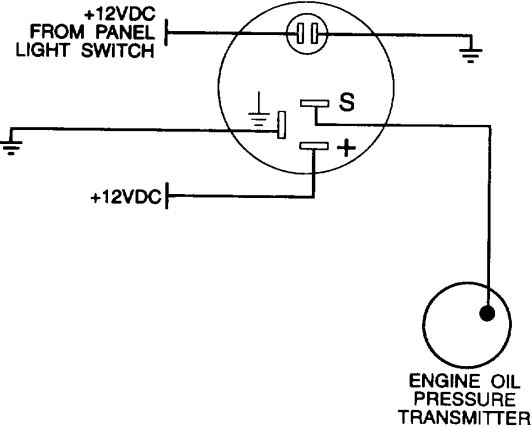
PANEL GAUGE CIRCUIT



To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

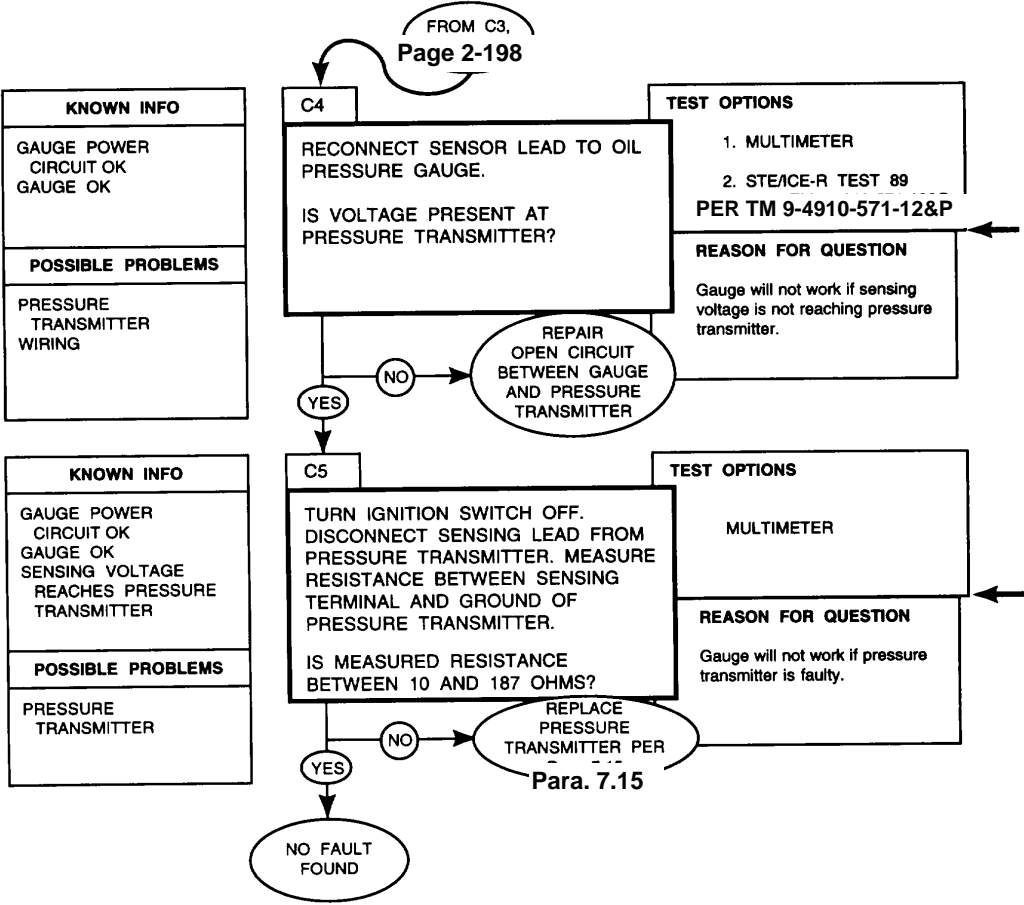
Refer to the electrical system diagram at the end of the manual for equipment wiring details.

Refer to paragraph 7.21 for harness and lead wire repair.



PANEL GAUGE CIRCUIT

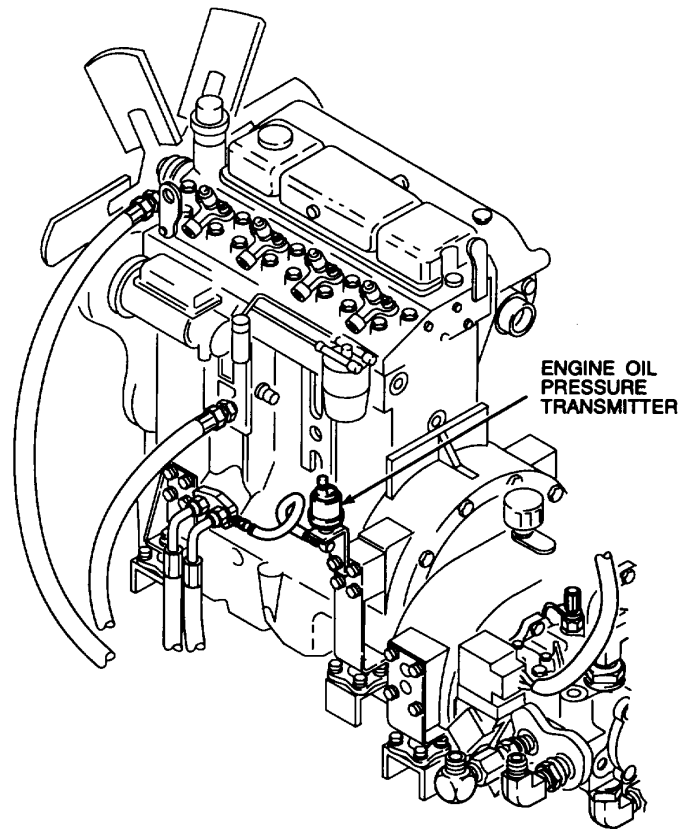
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

PANEL GAUGE CIRCUIT

Refer to paragraph 7.21 for harness and lead wire repair.



Remove front top right access door per TM 5-3895-373-10 to gain access to engine oil pressure transmitter.

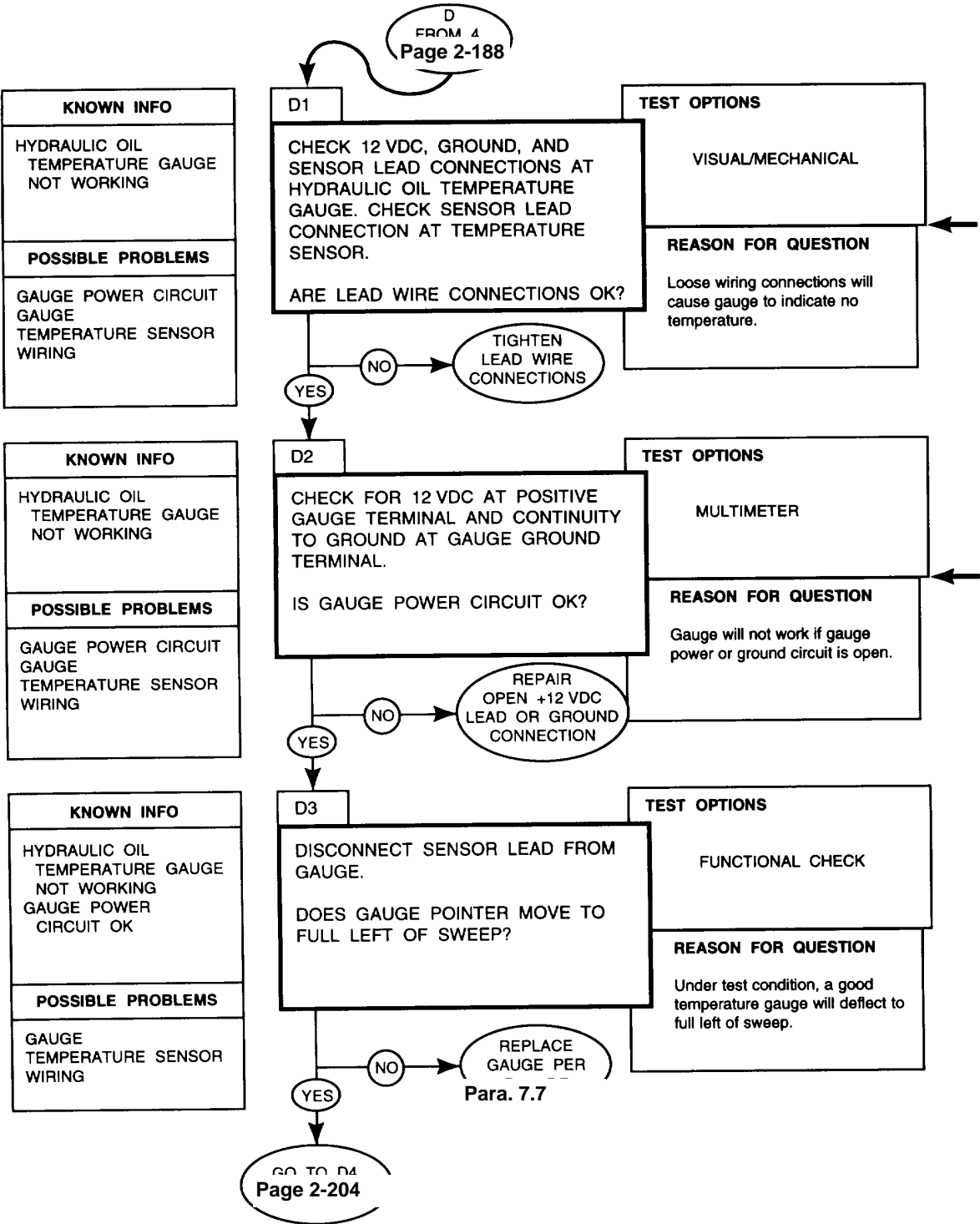
Pressure transmitter resistance should vary with oil pressure as follows:

OIL PRESSURE:	0	60	150
OHMS:	10	90.5	187

After completing diagnostic checks, close front top right access door per TM 5-3895-373-10. Install gauge panel per paragraph 7.6.

PANEL GAUGE CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

Remove gauge panel per paragraph 7.6 to gain access to oil temperature gauge terminals.

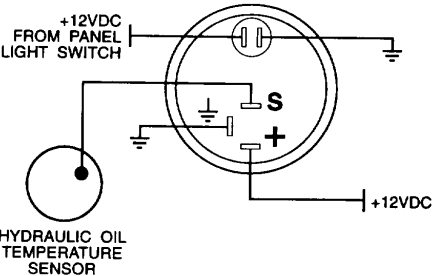
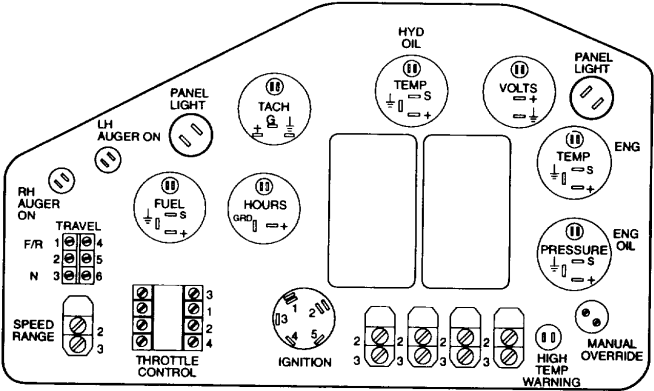
Refer to paragraphs 1.18.5 and 1.18.6 for electrical system description for the panel controls and indicators.

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

Refer to the electrical system diagram at the end of the manual for equipment wiring details.

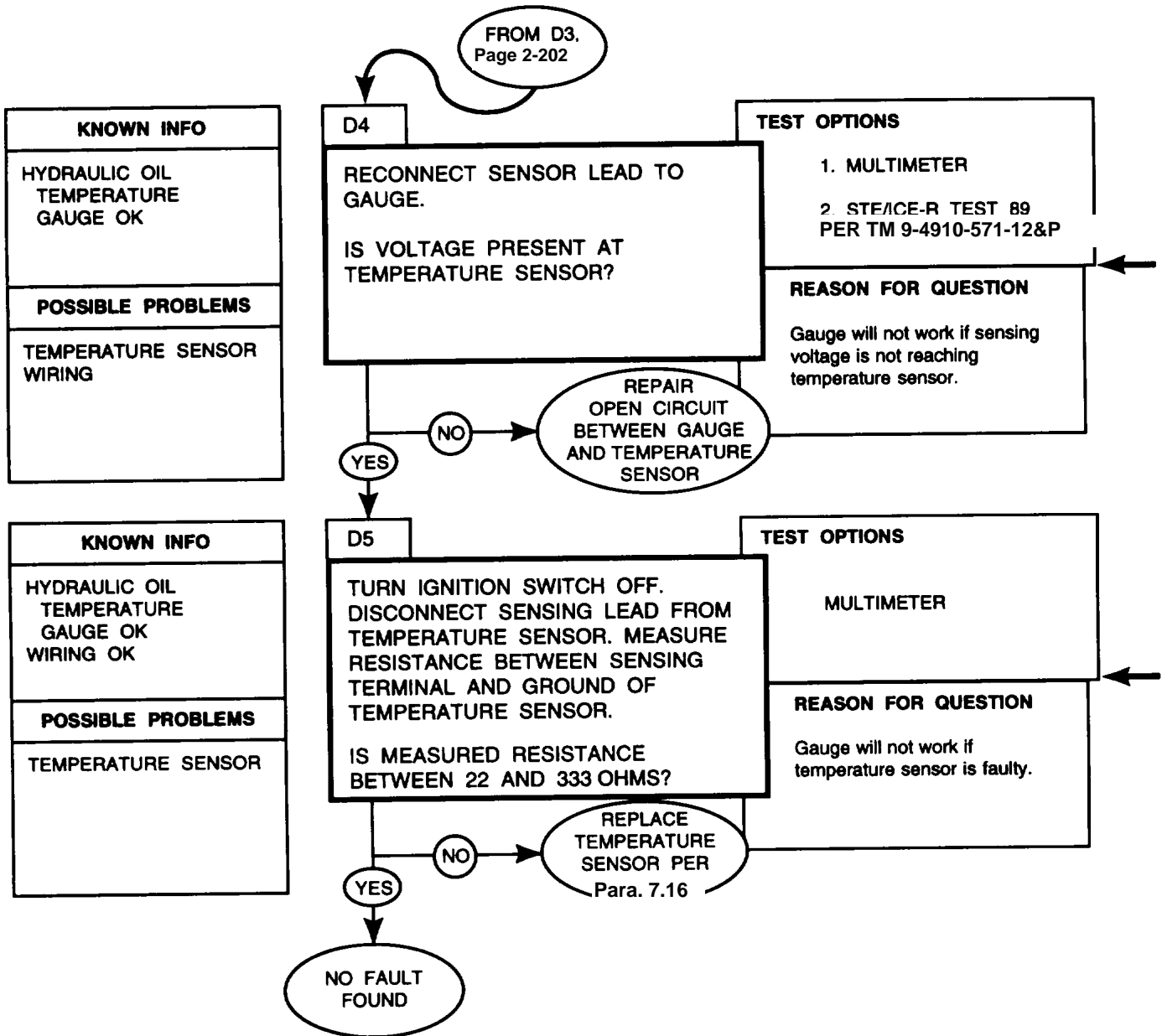
Refer to paragraph 7.21 for harness and lead wire repair.

PANEL GAUGE CIRCUIT



PANEL GAUGE CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

PANEL GAUGE CIRCUIT

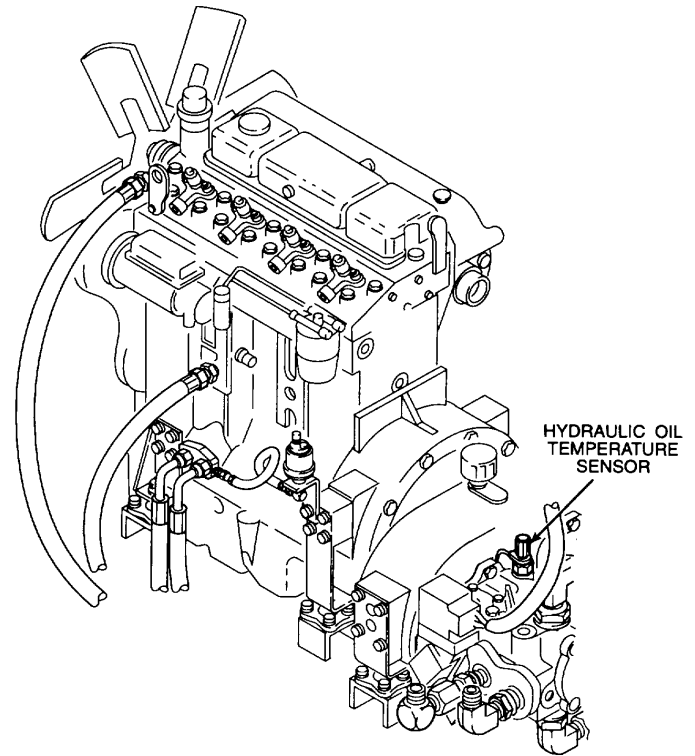
Refer to paragraph 7.21 for harness and lead wire repair.

Open front top right access door per TM 5-3895-373-10 to gain access to hydraulic oil temperature sensor.

Temperature sensor resistance should vary with oil temperature as follows:

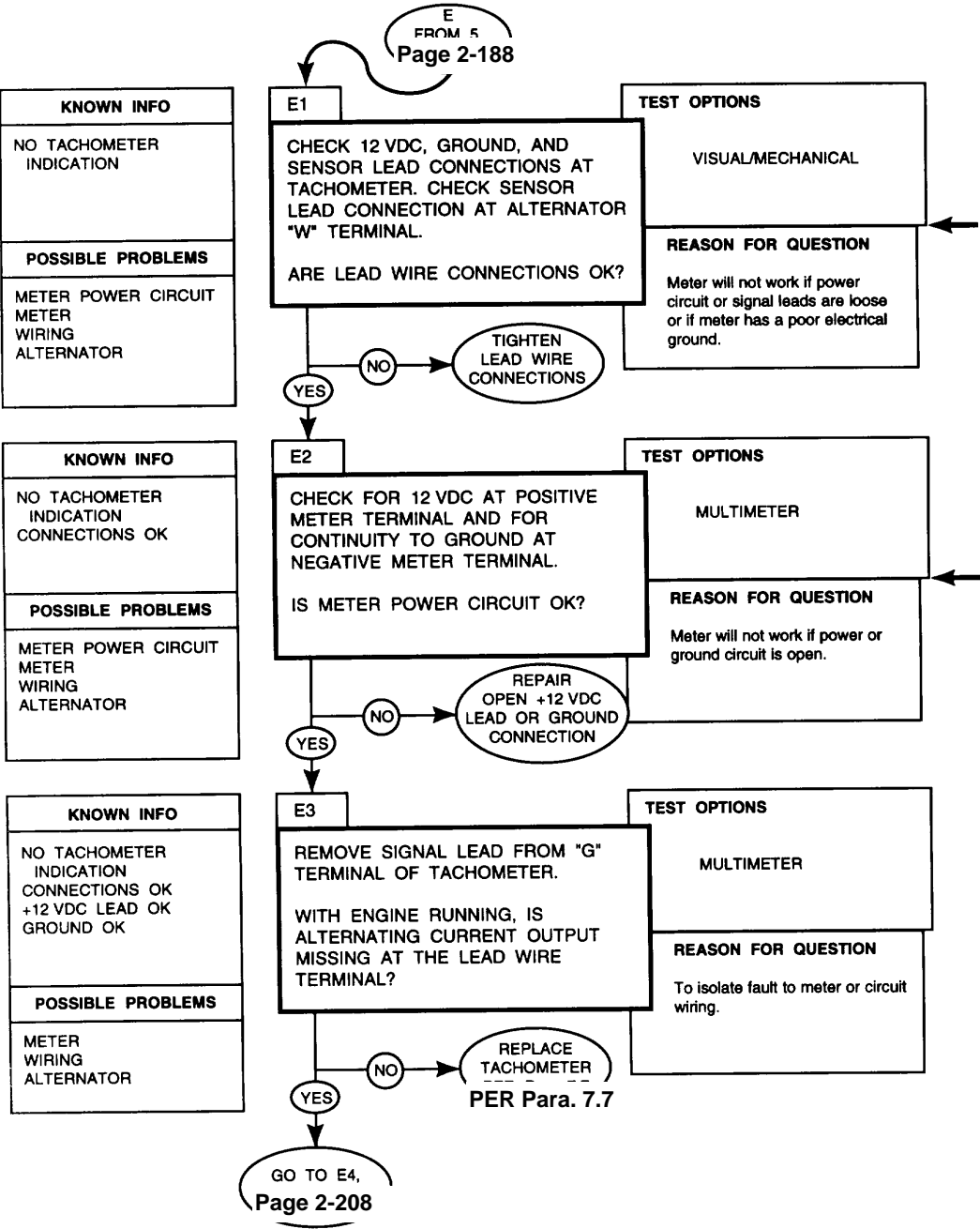
OIL TEMPERATURE (OF):	100	200	250
OHMS:	333	48	22

After completing diagnostic checks, close front top right access door per TM 5-3895-373-10. Install gauge panel per paragraph 7.6.



PANEL GAUGE CIRCUIT

DIAGNOSTIC FLOWCHART

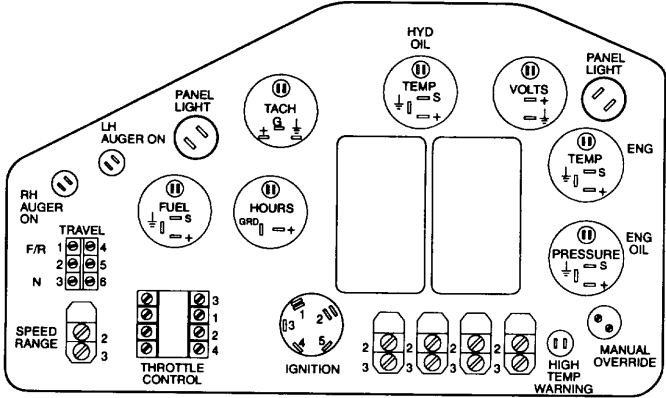


REFERENCE INFORMATION

PANEL GAUGE CIRCUIT

Remove gauge panel per paragraph 7.6 to gain access to tachometer.

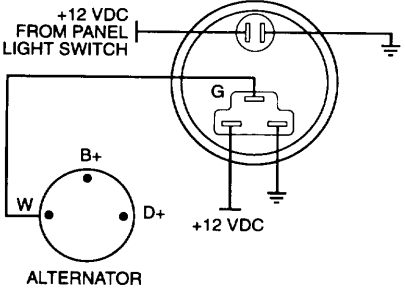
Refer to paragraph 1.18.5 and 1.18.6 for electrical system description for the panel controls and indicators.



The tachometer and hour meter share a common sensing lead input. The input signal is a low-amplitude alternating current signal taken from the alternator windings.

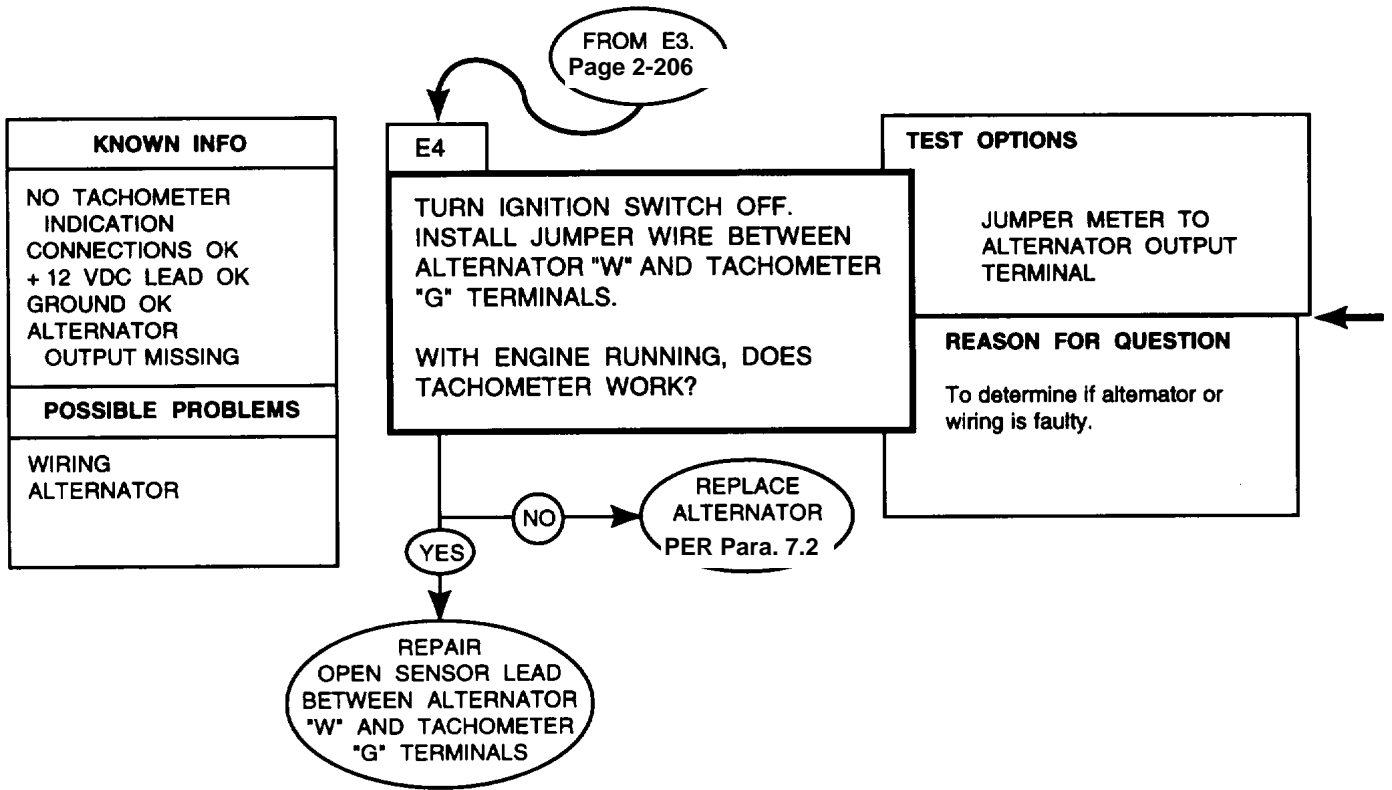
Refer to the electrical system diagram at the end of the manual for equipment wiring details.

Refer to paragraph 7.21 for harness and lead wire repair.



PANEL GAUGE CIRCUIT

DIAGNOSTIC FLOWCHART



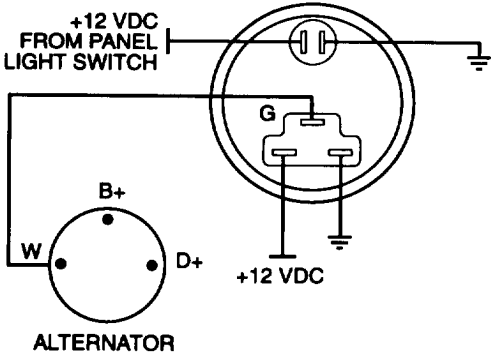
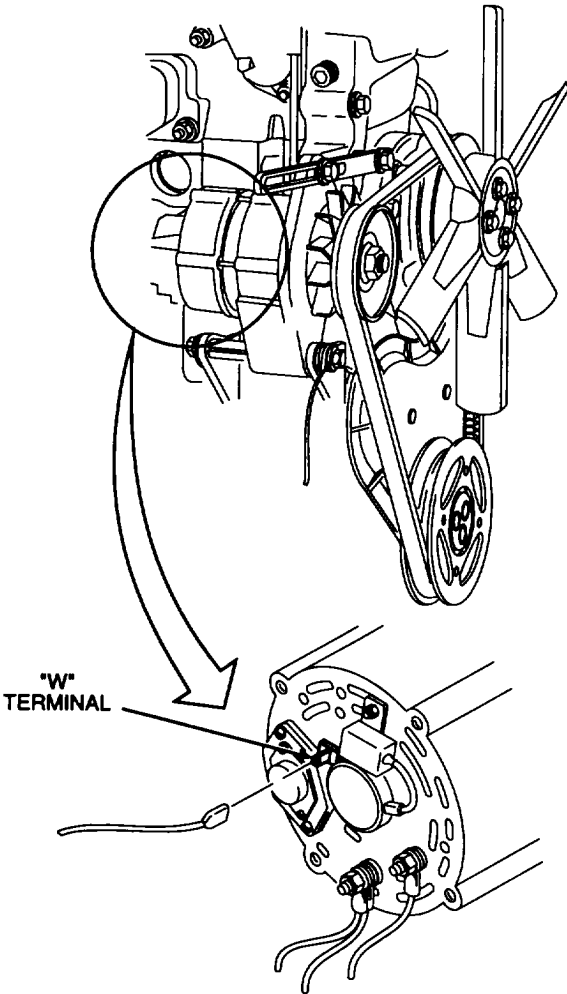
REFERENCE INFORMATION

PANEL GAUGE CIRCUIT

Refer to paragraph 7.21 for harness and lead wire repair.

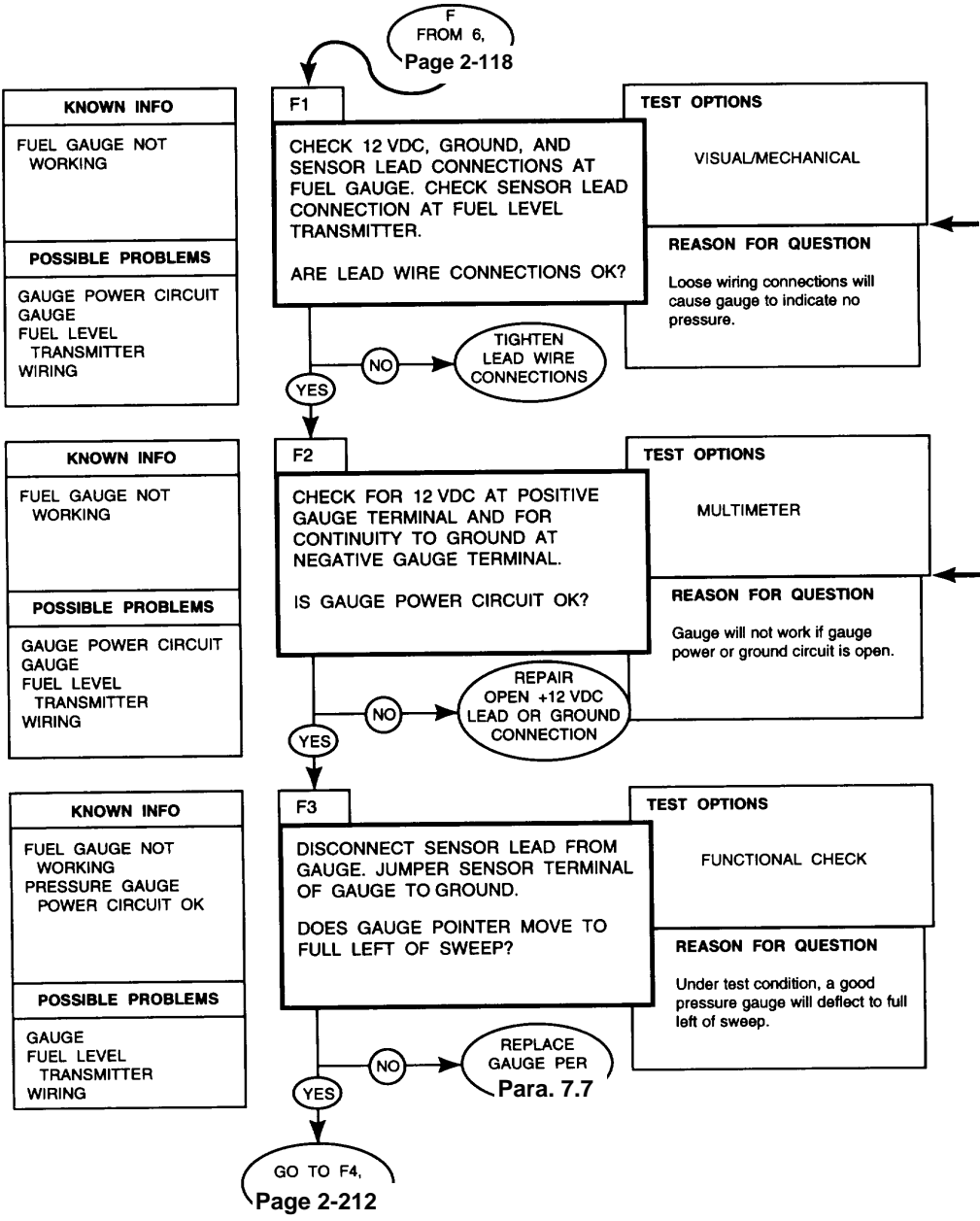
Remove engine access cover per paragraph 2.22 to gain access to alternator.

After completing diagnostic checks, install gauge panel per paragraph 7.6. Install engine access cover per paragraph 2.22.



PANEL GAUGE CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

Remove gauge panel per paragraph 7.6 to gain access to fuel gauge.

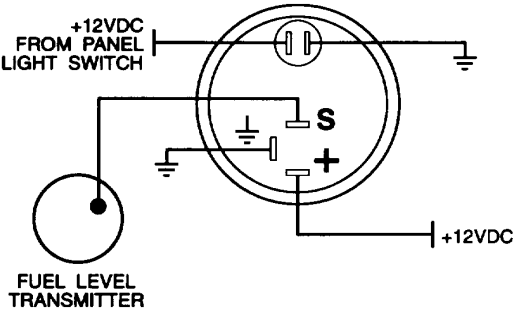
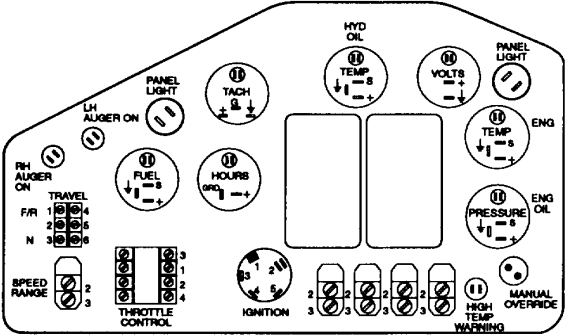
Refer to paragraphs 1.18.5 and 1.18.6 for electrical system description for the panel controls and indicators.

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

Refer to the electrical system diagram at the end of the manual for equipment wiring details.

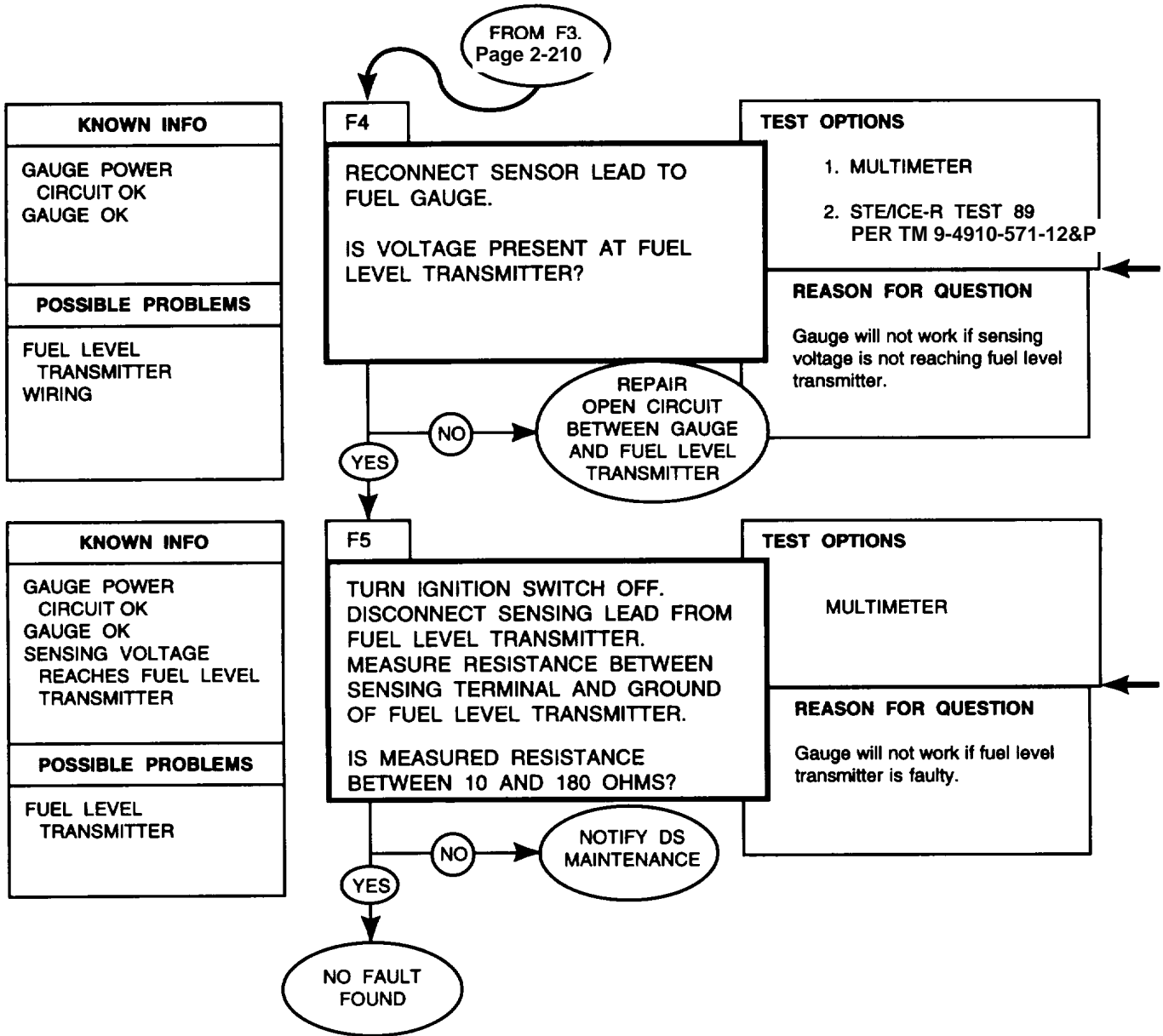
Refer to paragraph 7.21 for harness and lead wire repair.

PANEL GAUGE CIRCUIT



PANEL GAUGE CIRCUIT

DIAGNOSTIC FLOWCHART

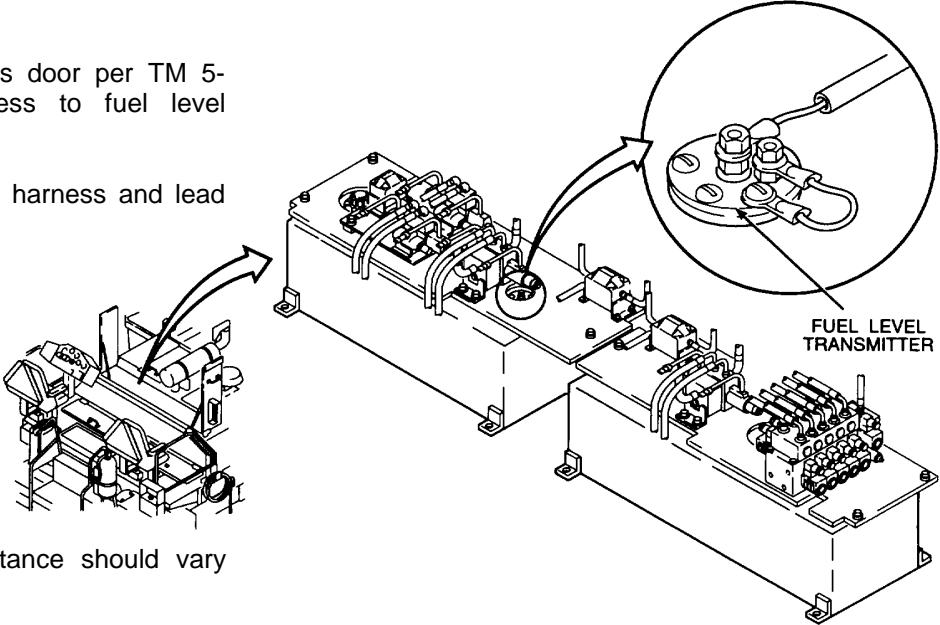


REFERENCE INFORMATION

PANEL GAUGE CIRCUIT

Open center top left access door per TM 5-3895-373-10 to gain access to fuel level transmitter.

Refer to paragraph 7.21 for harness and lead wire repair.



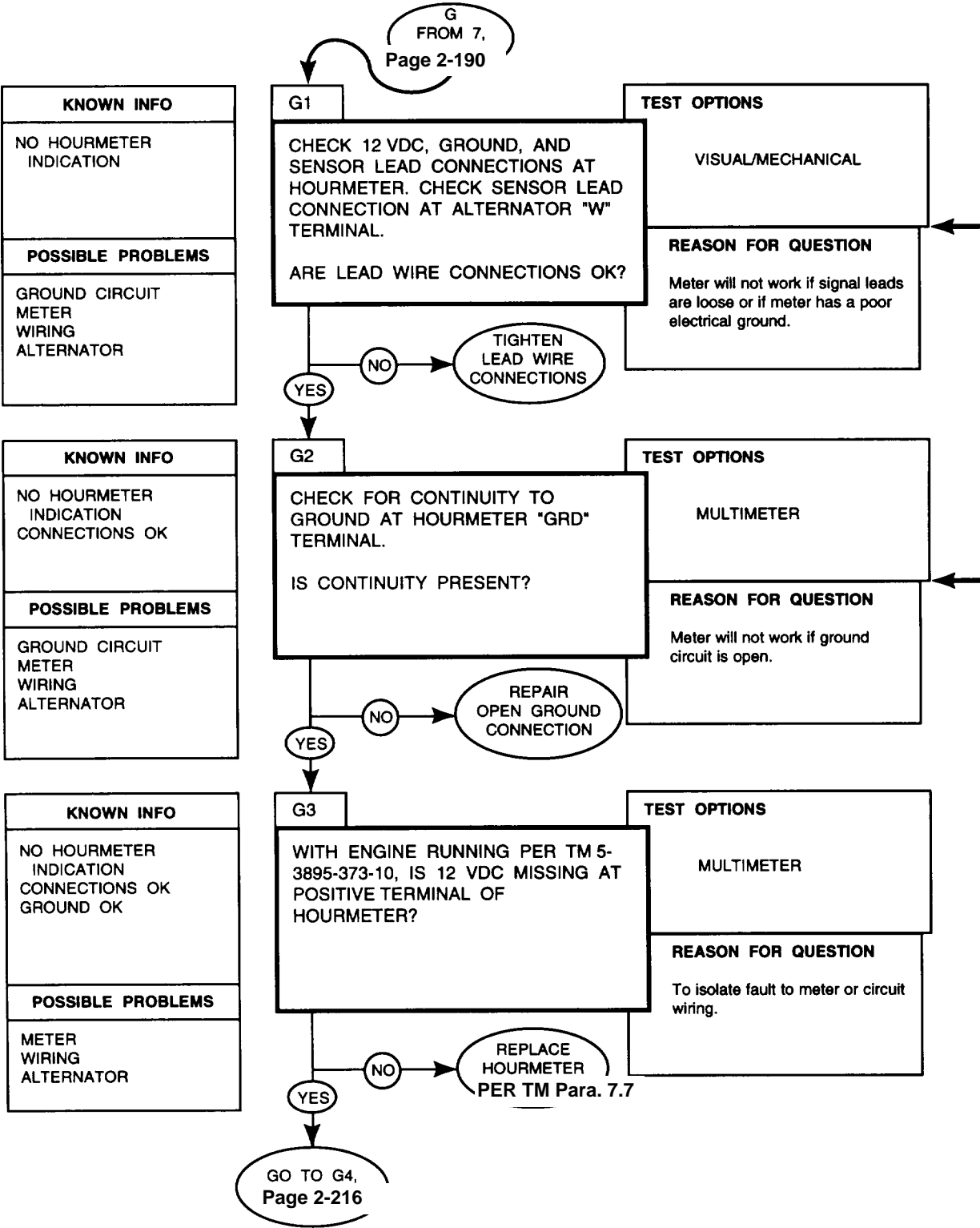
Fuel level transmitter resistance should vary with fuel level as follows:

FUEL LEVEL:	EMPTY	½ FULL	FULL
OHMS:	10	95	180

After completing diagnostic checks, close center top left access door per TM 5-3895-373-10. Install gauge panel per paragraph 7.6.

PANEL GAUGE CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

PANEL GAUGE CIRCUIT

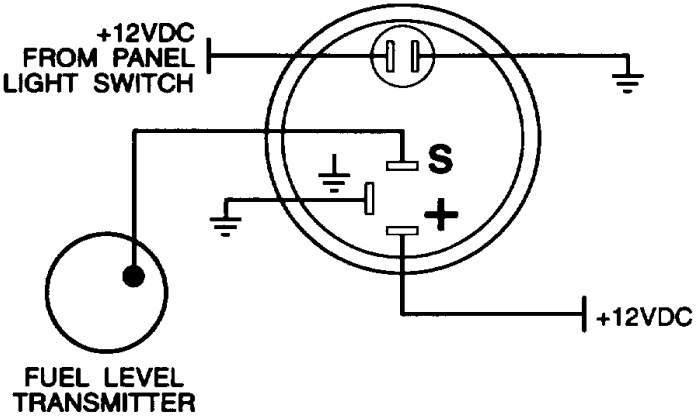
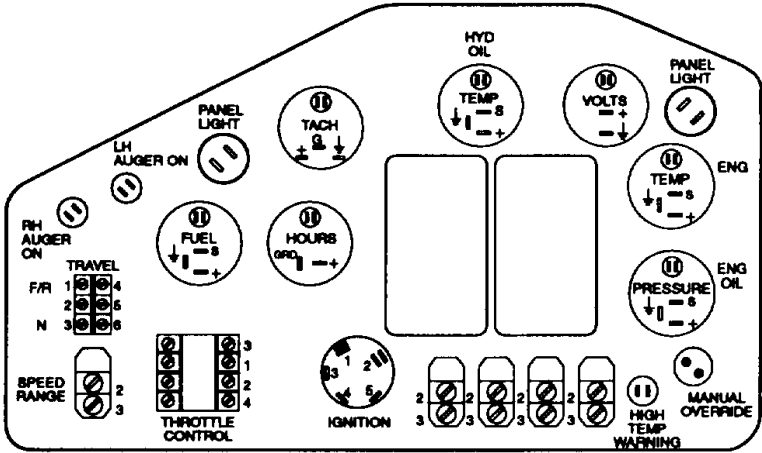
Remove gauge panel per paragraph 7.6 to gain access to hour meter.

Refer to paragraphs 1.18.5 and 1.18.6 for electrical system description for the panel controls and indicators.

The tachometer and hour meter share a common sensing lead input. The input signal is a low-amplitude alternating current signal taken from the alternator windings.

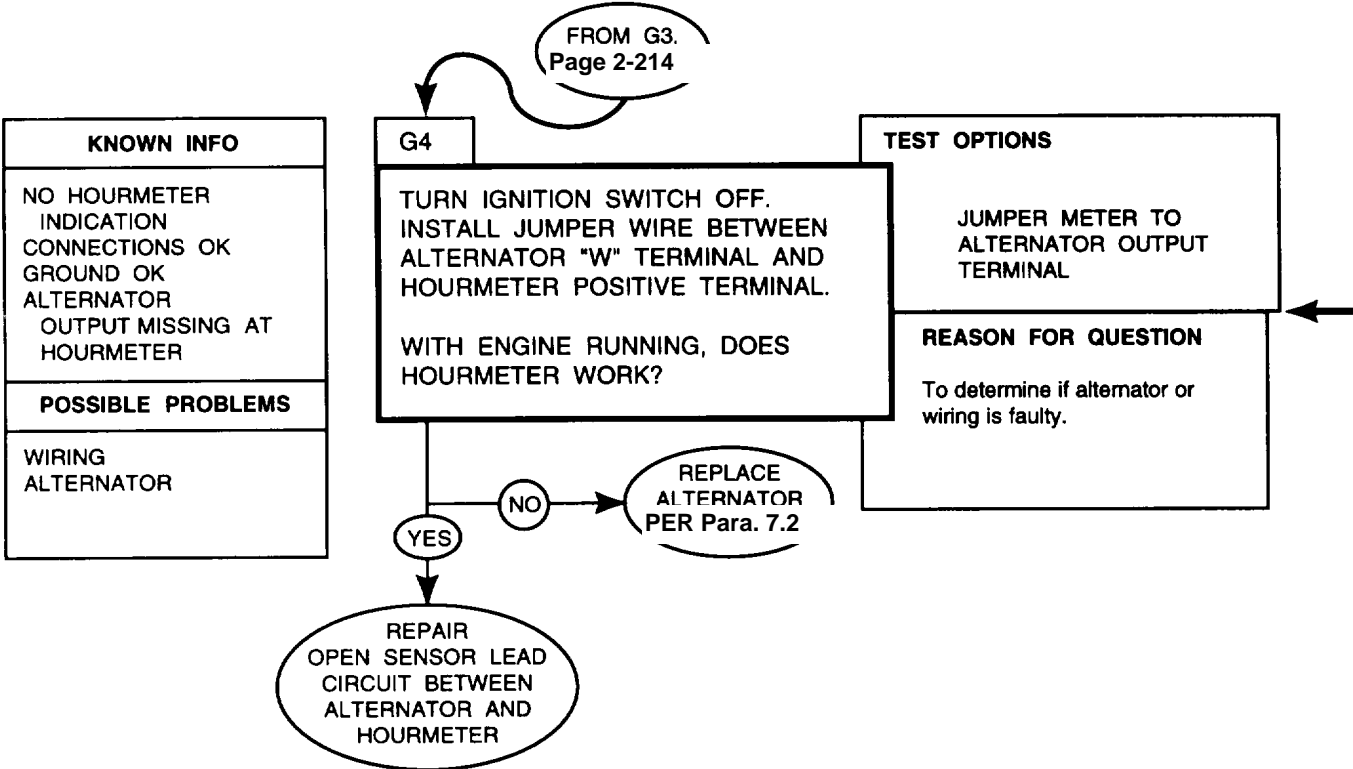
Refer to the electrical system diagram at the end of the manual for equipment wiring details.

Refer to paragraph 7.21 for harness and lead wire repair.



PANEL GAUGE CIRCUIT

DIAGNOSTIC FLOWCHART

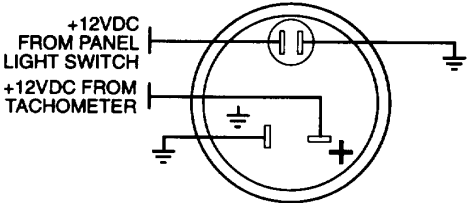


REFERENCE INFORMATION

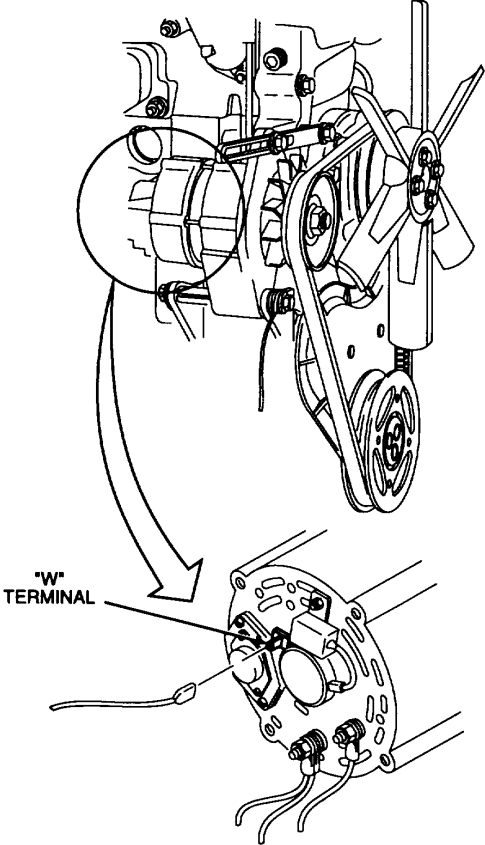
PANEL GAUGE CIRCUIT

Remove engine access cover per paragraph 2.22 to gain access to alternator.

Refer to paragraph 7.21 for harness and lead wire repair.

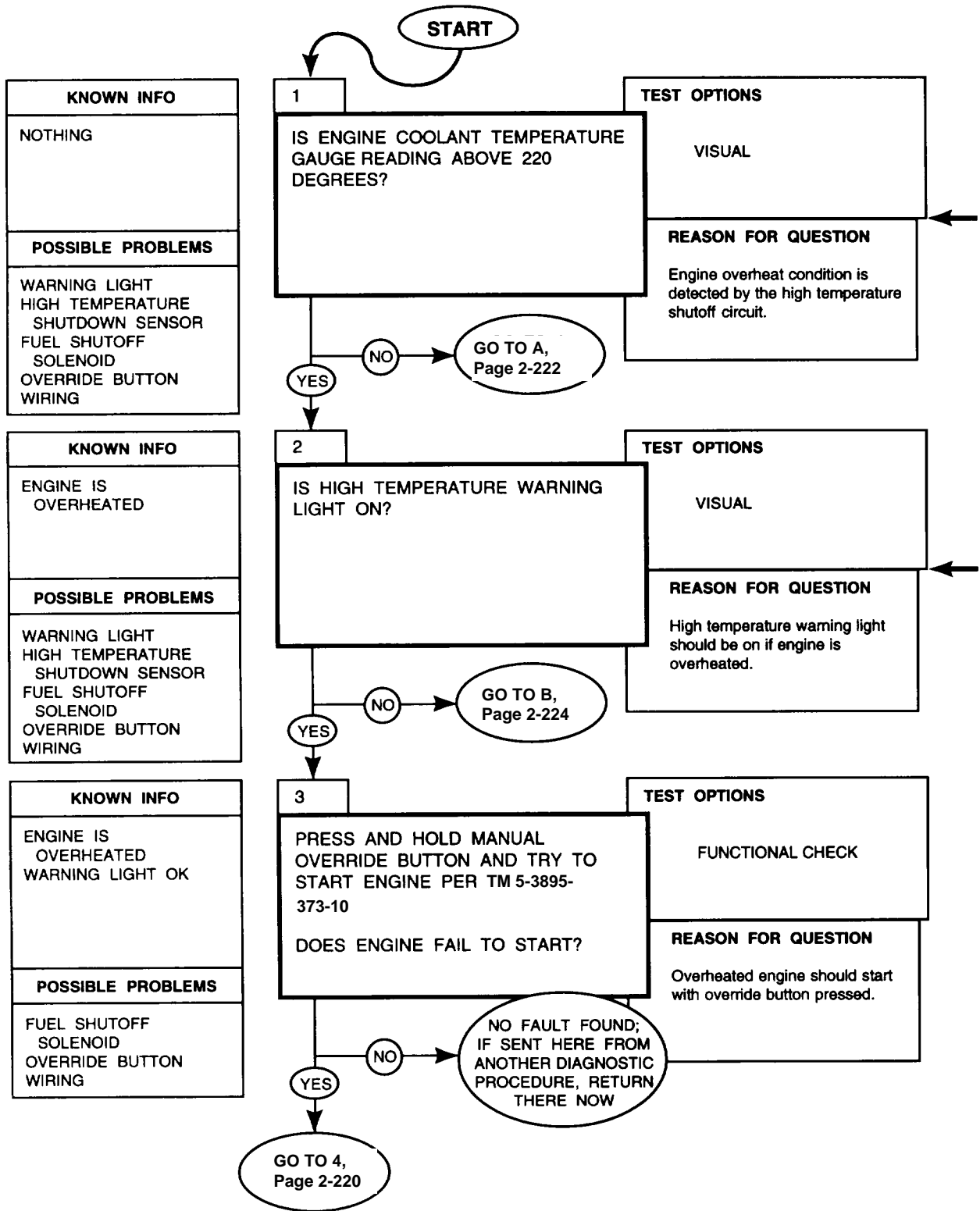


After completing diagnostic checks, install gauge panel per paragraph 7.6. Install engine access cover per paragraph 2.22.



HIGH TEMPERATURE SHUTOFF CIRCUIT

DIAGNOSTIC FLOWCHART



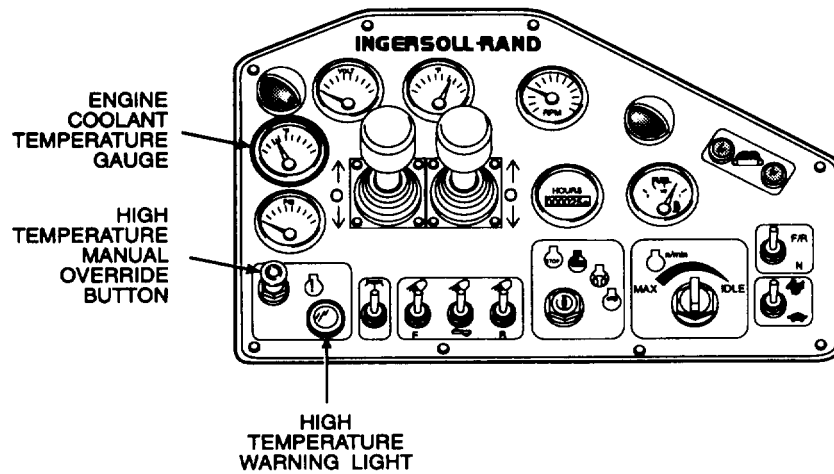
REFERENCE INFORMATION

HIGH TEMPERATURE SHUTOFF CIRCUIT

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA.

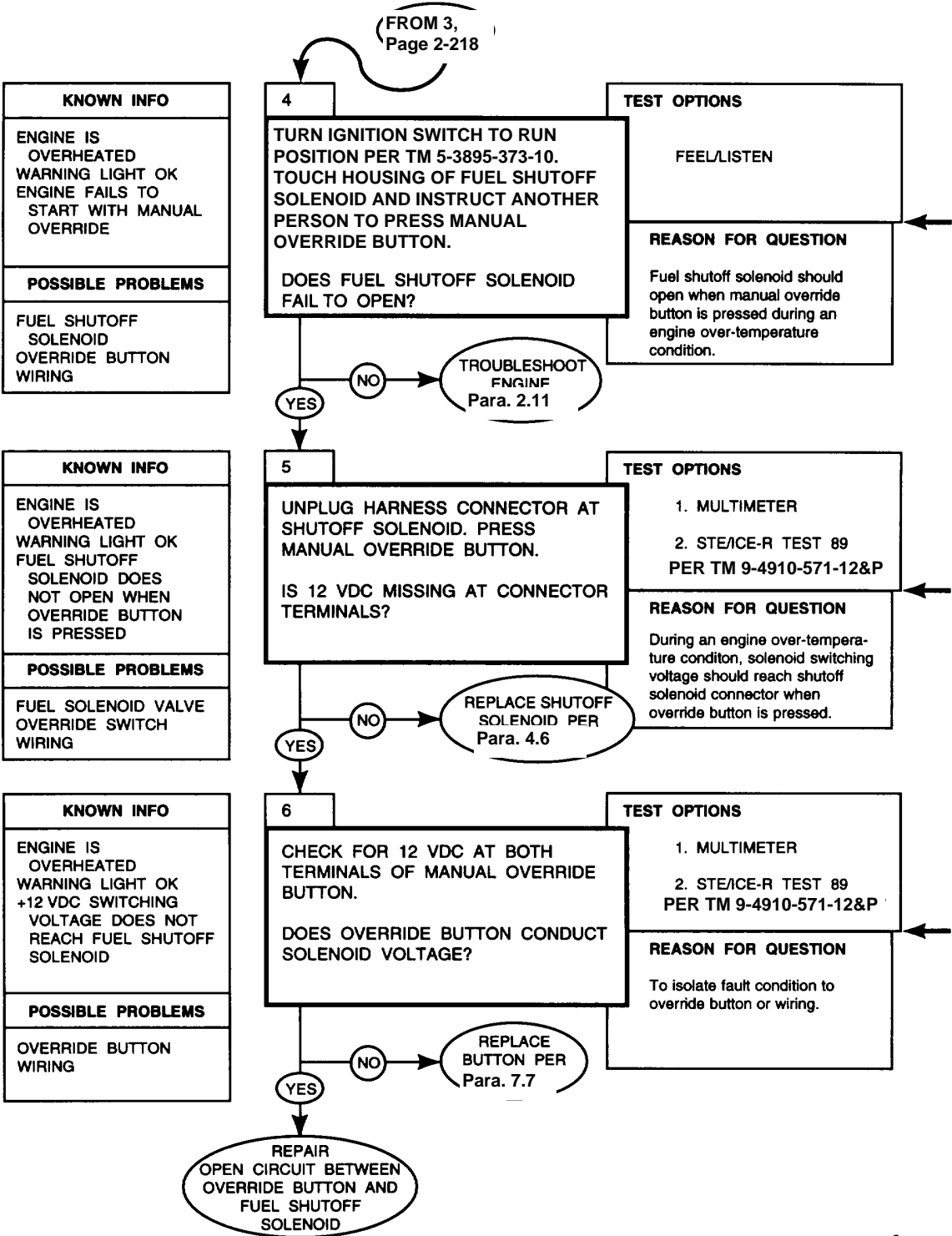
Remove gauge panel per paragraph 7.6 to gain access to engine coolant temperature gauge.

Refer to paragraph 1.18.5 for an electrical system description for the high temperature fuel shutoff circuit.



HIGH TEMPERATURE SHUTOFF CIRCUIT

DIAGNOSTIC FLOWCHART

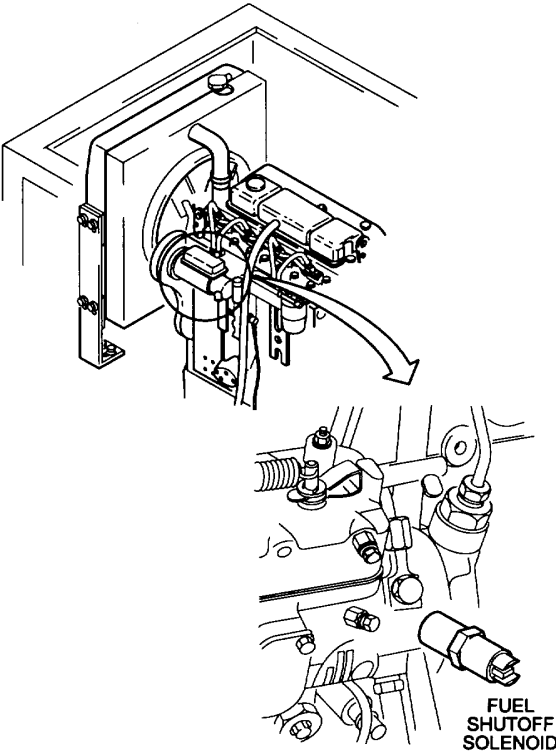


REFERENCE INFORMATION

HIGH TEMPERATURE SHUTOFF CIRCUIT

Open front top left access door per TM 5-3895373-10 to gain access to fuel shutoff solenoid.

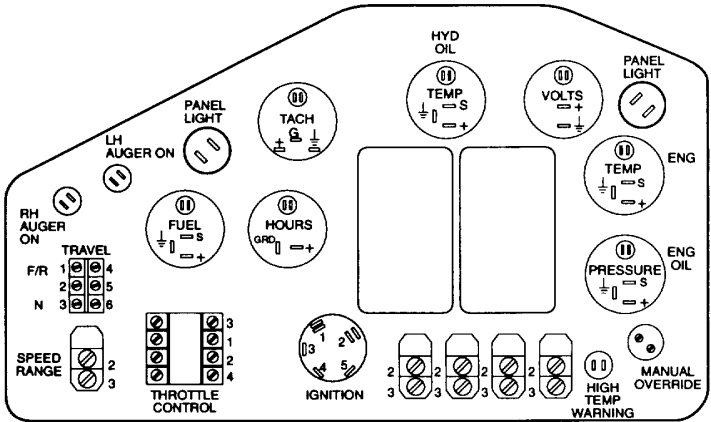
To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.



Refer to the electrical system diagram at the end of the manual for equipment wiring details.

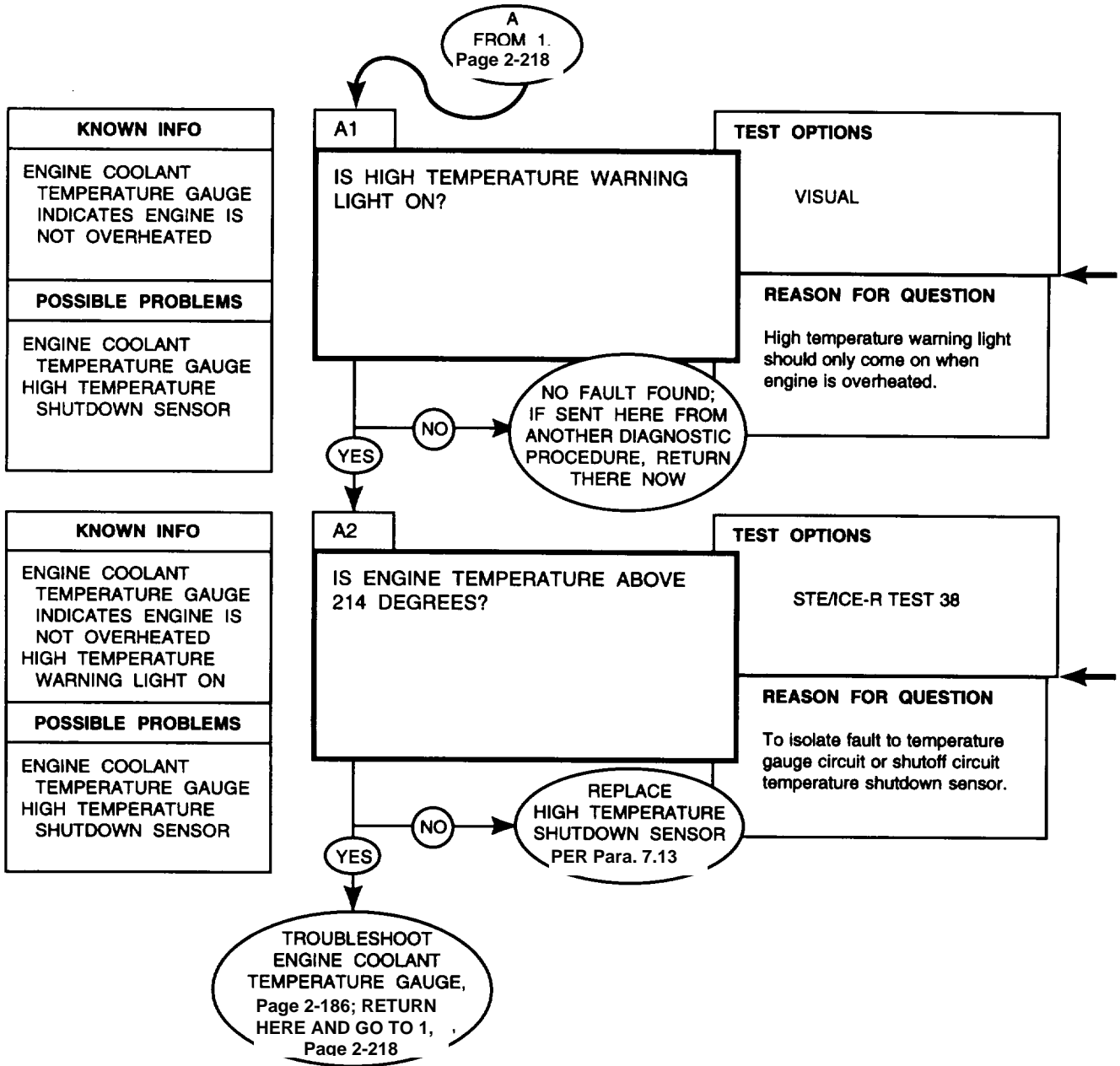
12 VDC should be at both terminals of manual override button when button is pressed.

Refer to paragraph 7.21 for harness and lead wire repair.



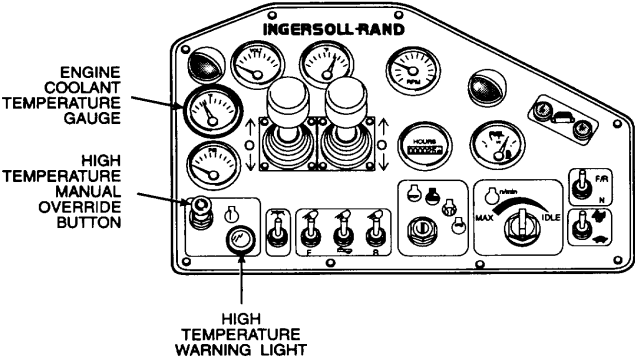
HIGH TEMPERATURE SHUTOFF CIRCUIT

DIAGNOSTIC FLOWCHART



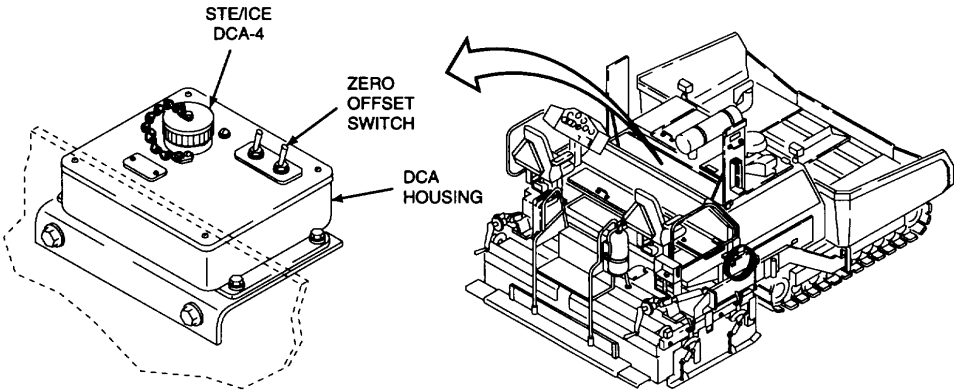
REFERENCE INFORMATION

HIGH TEMPERATURE SHUTOFF CIRCUIT



ENGINE COOLANT TEMPERATURE - STE/ICE-R TEST 38	
DESCRIPTION	TEST PROCEDURES
<p>Measures the engine coolant temperature. Transducer: 12258933 DCA Test Pins: n and p Measurement Range: 120 to 300°F</p>	<ol style="list-style-type: none"> 1. Set TEST SELECT switches to 38. 2. Set Zero Offset switch on DCA housing to TEST. 3. Press and hold TEST button until CAL appears on display. 4. Release TEST button and wait for offset value to appear on display. If offset value is within -45 and +45, proceed. 5. Press and release TEST button. 6. Set Zero Offset switch on DCA housing to RUN. 7. Observe displayed value. Displayed values are in degrees Fahrenheit (°F). Expected value, under normal loading/operating conditions, is between 180° to 200°F.
PRE-TEST PROCEDURES	
Run confidence test per TM 9-4910-571-24&P.	
POSSIBLE ERROR MESSAGES	
005 Required offset test was not performed.	

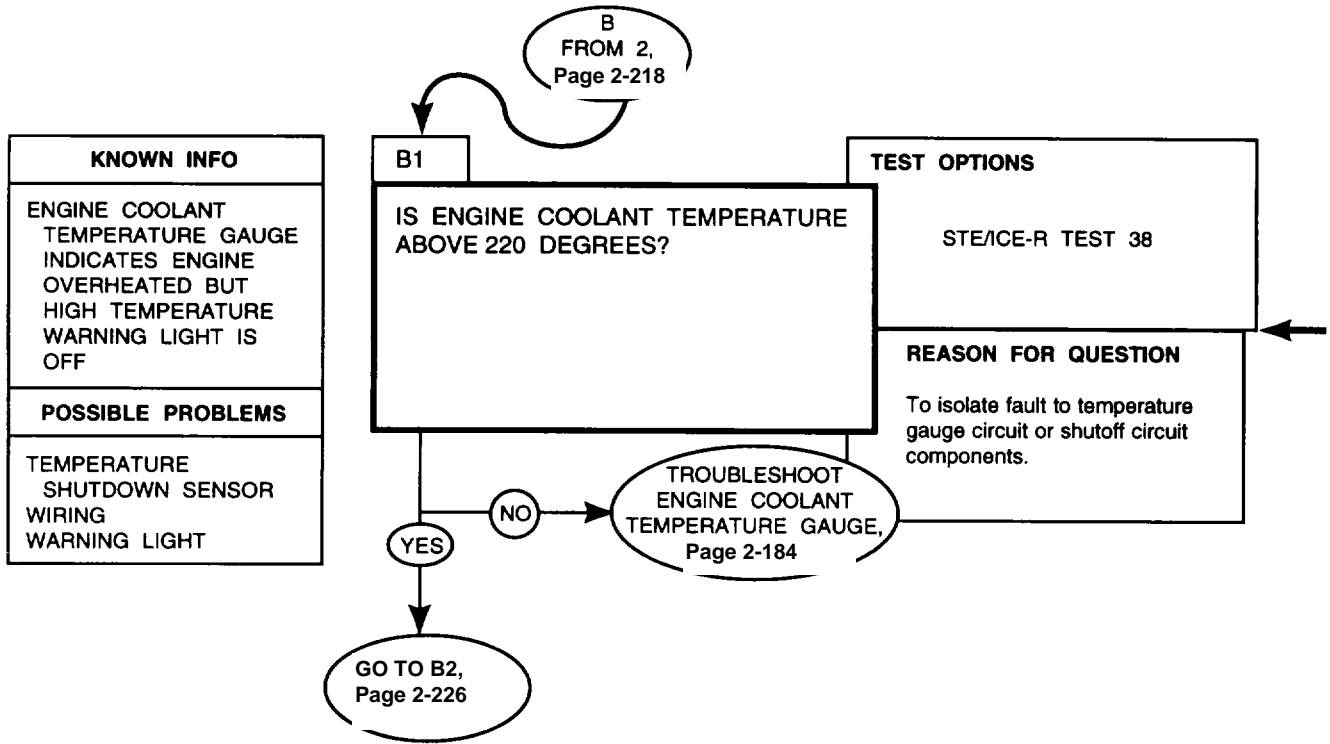
STE/ICE-R test #38 measures the engine coolant temperature in degrees Fahrenheit.



After completing diagnostic checks, install gauge panel per paragraph 7.6.

HIGH TEMPERATURE SHUTOFF CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

HIGH TEMPERATURE SHUTOFF CIRCUIT

ENGINE COOLANT TEMPERATURE - STE/ICE-R TEST 38

DESCRIPTION

Measures the engine coolant temperature.

Transducer: 12258933

DCA Test Pins: n and p

Measurement Range: 120 to 300°F

PRE-TEST PROCEDURES

Run confidence test per TM 9-4910-571-24&P.

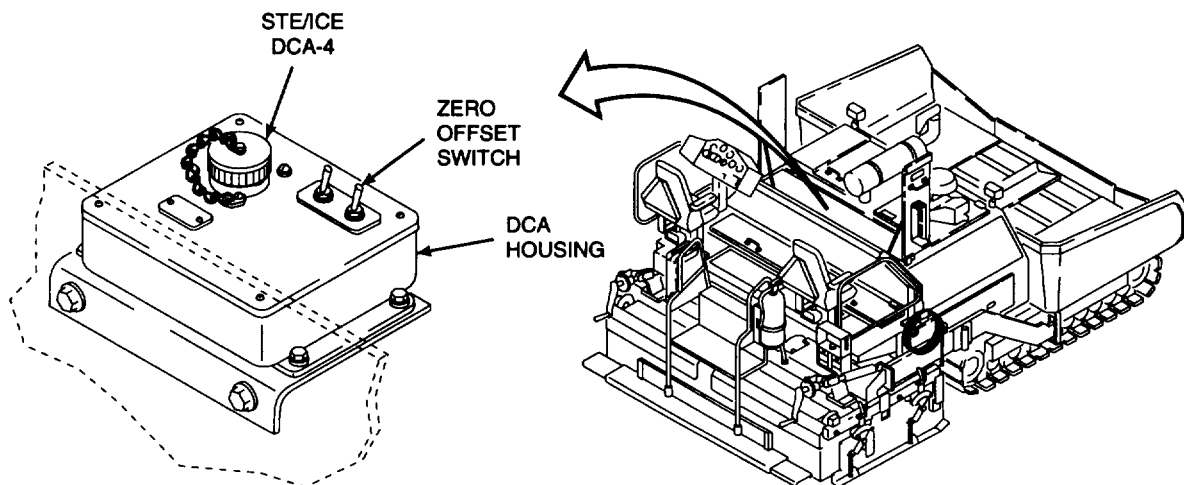
POSSIBLE ERROR MESSAGES

005 Required offset test was not performed.

TEST PROCEDURES

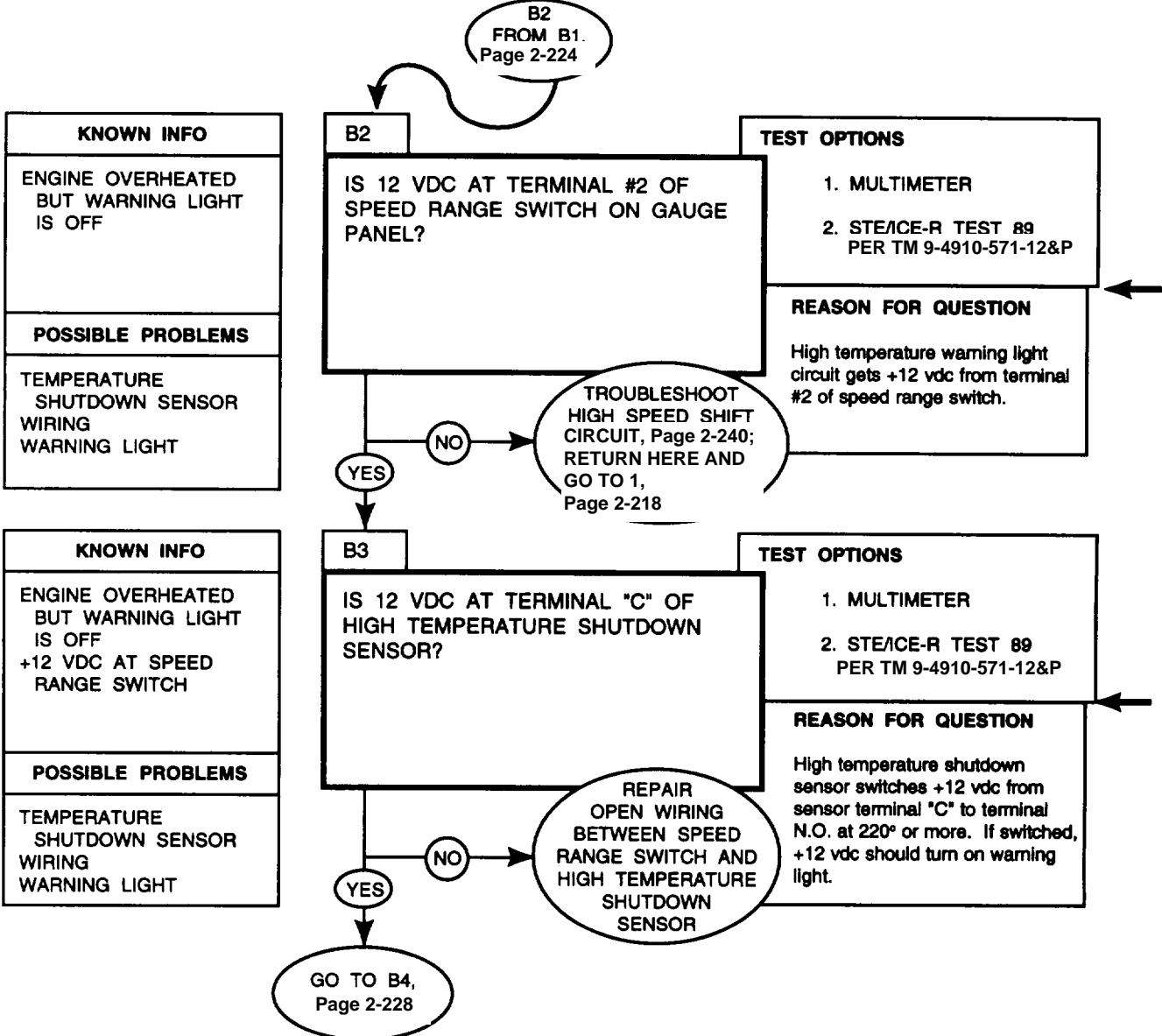
1. Set TEST SELECT switches to 38.
2. Set Zero Offset switch on DCA housing to TEST.
3. Press and hold TEST button until CAL appears on display.
4. Release TEST button and wait for offset value to appear on display. If offset value is within -45 and +45, proceed.
5. Press and release TEST button.
6. Set Zero Offset switch on DCA housing to RUN.
7. Observe displayed value. Displayed values are in degrees Fahrenheit (°F). Expected value, under normal loading/operating conditions, is between 180° to 200°F.

STE/ICE-R test #38 measures the engine coolant temperature in degrees Fahrenheit.



HIGH TEMPERATURE SHUTOFF CIRCUIT

DIAGNOSTIC FLOWCHART

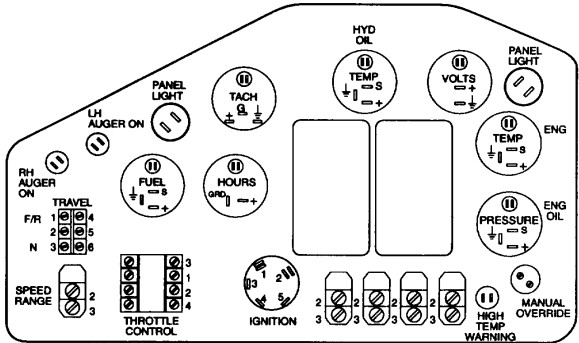


REFERENCE INFORMATION

HIGH TEMPERATURE SHUTOFF CIRCUIT

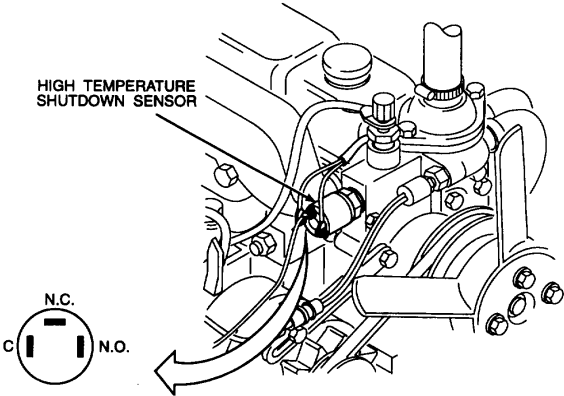
NOTE

In steps B2-B5, engine temperature must be above 220° to perform diagnostic procedures.



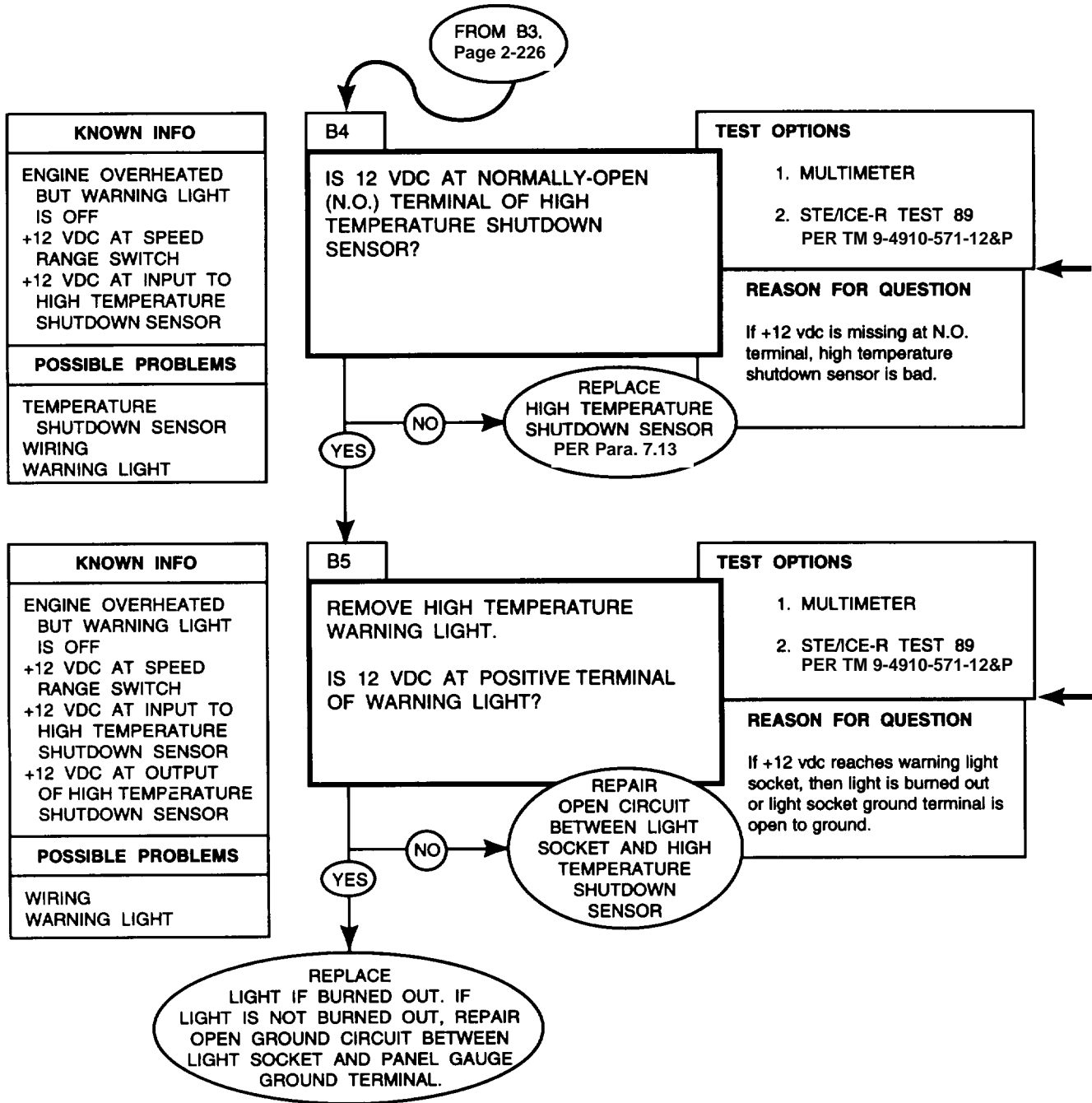
Refer to paragraph 7.21 for harness and lead wire repair.

Open front top left access door per TM 5-3895-373-10 to gain access to high temperature shutdown sensor.



HIGH TEMPERATURE SHUTOFF CIRCUIT

DIAGNOSTIC FLOWCHART

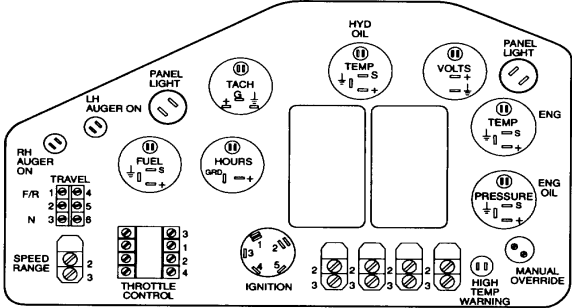
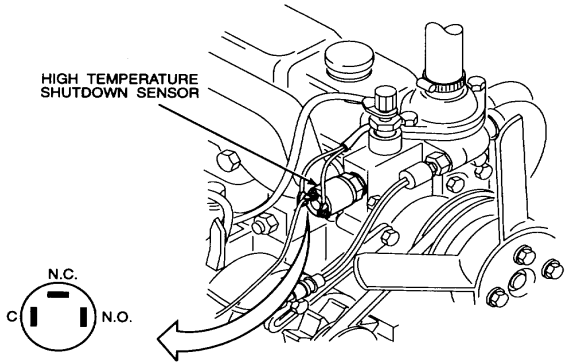


REFERENCE INFORMATION

HIGH TEMPERATURE SHUTOFF CIRCUIT

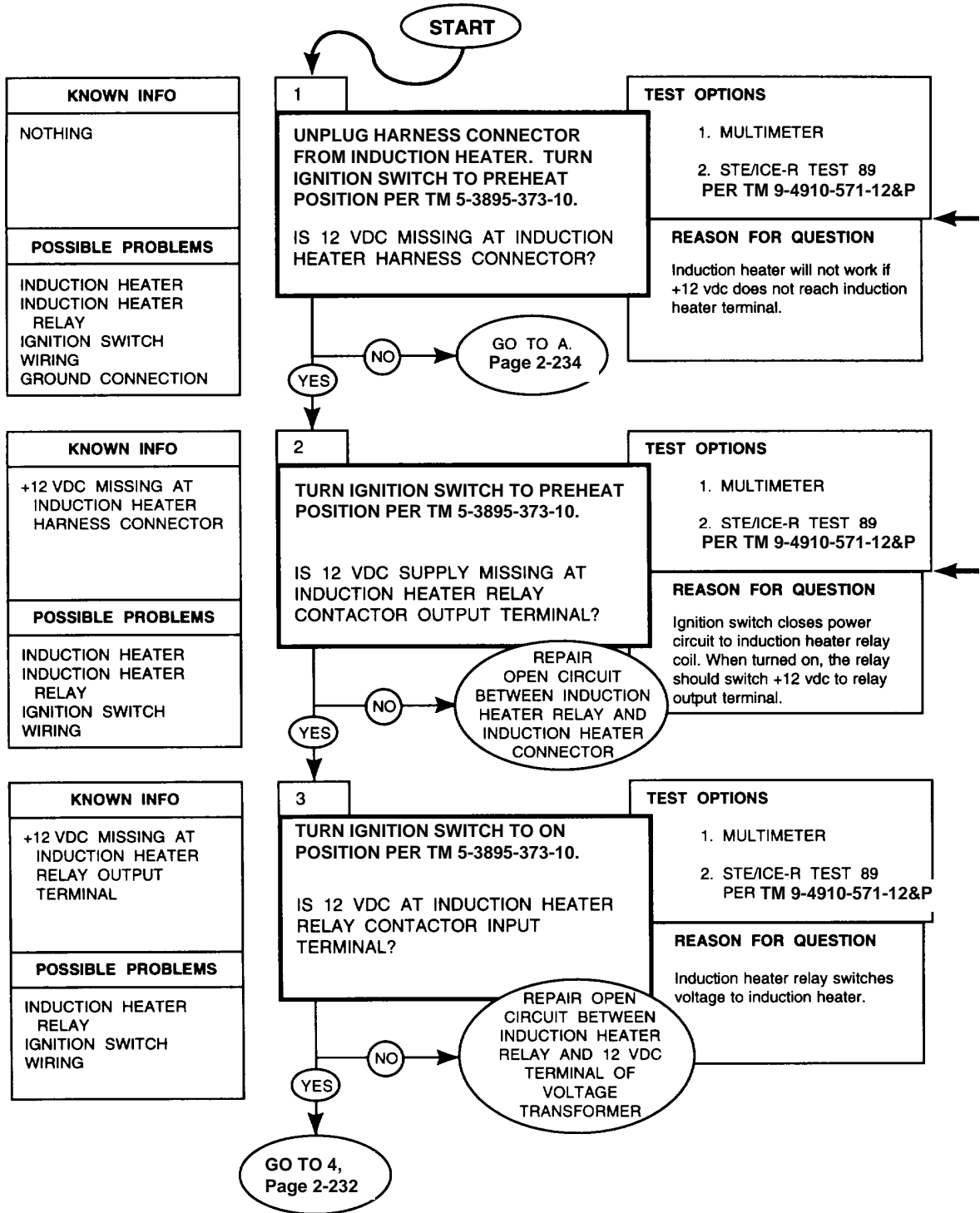
Refer to paragraph 7.21 for harness and lead wire repair.

After completing diagnostic checks, close front top left access door per TM 5-3895-373-10. Install gauge panel per paragraph 7.6.



COLD START CONTROL CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

COLD START CONTROL CIRCUIT

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA.

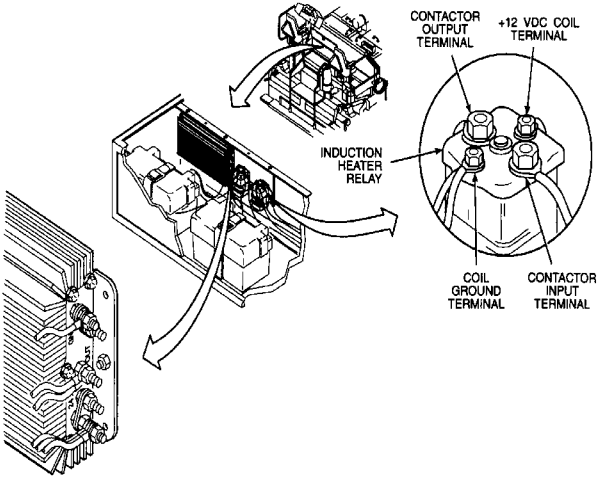
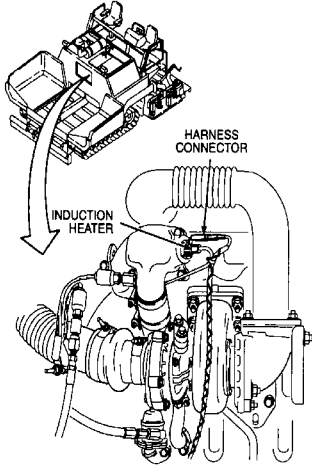
When ignition switch is turned to preheat, the induction heater relay contacts should close, switching +12 vdc through induction heater relay to the induction heater.

Remove engine access cover per paragraph 2.22 to gain access to induction heater.

Refer to the electrical system diagram at the end of the manual for equipment wiring details.

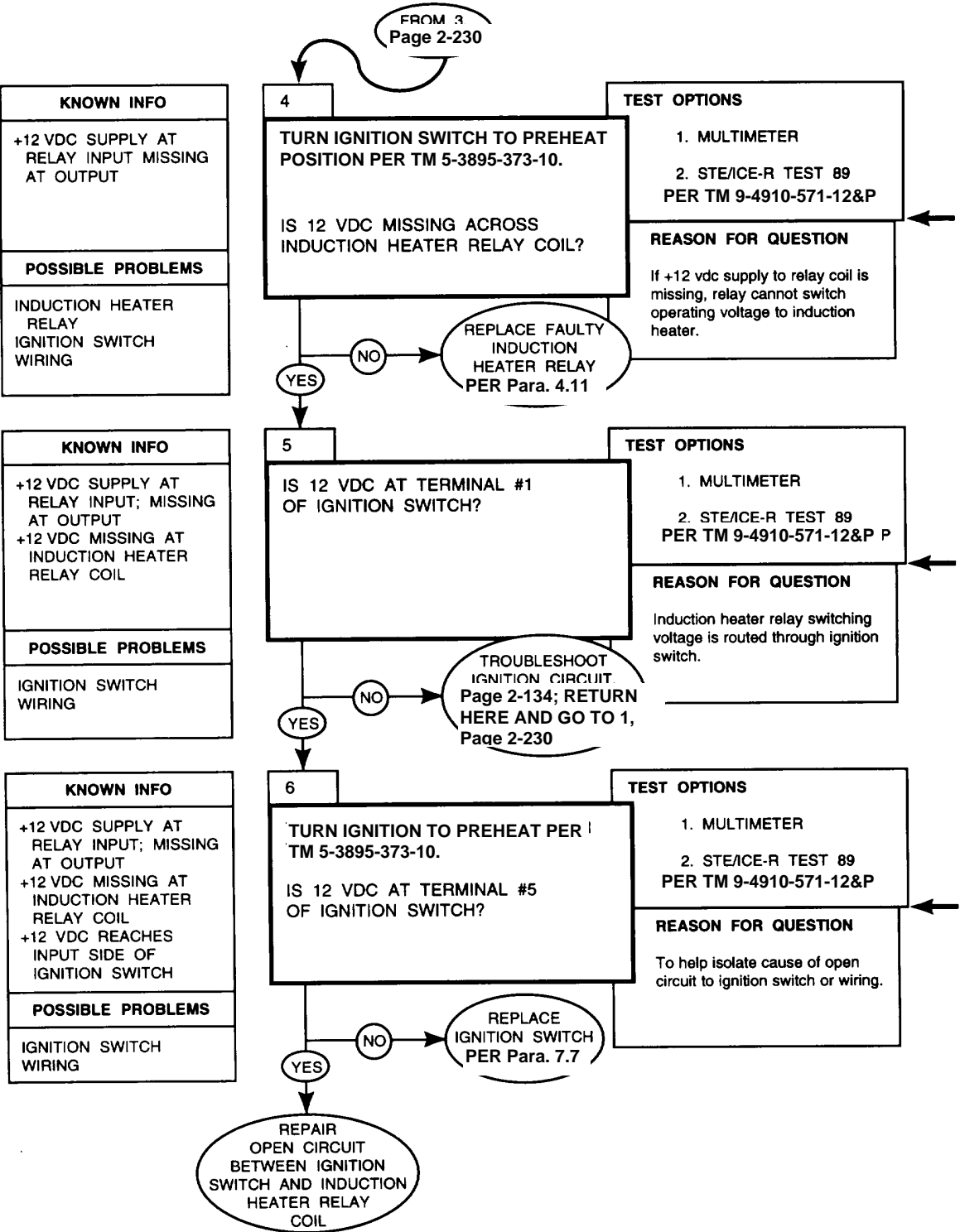
Refer to paragraph 7.21 for harness and lead wire repair.

Open rear top left access door per TM 5-3895-373-10 to gain access to induction heater relay.



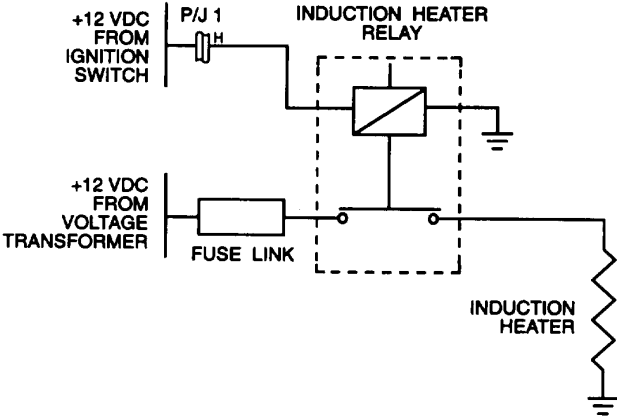
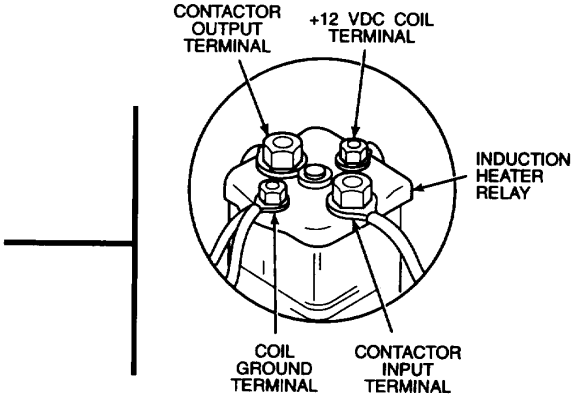
COLD START CONTROL CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

COLD START CONTROL CIRCUIT



+12 vdc voltage at ignition switch terminal #1 is from the +12 vdc terminal of the voltage transformer. The voltage is routed through the 80 amp breaker, circuit breaker CB8, and the emergency stop switch circuit.

Refer to the electrical system diagram at the end of the manual for equipment wiring details.

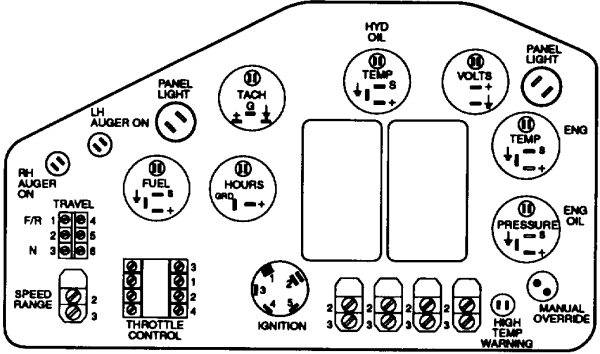
Remove gauge panel per paragraph 7.6 to gain access to ignition switch terminals.

Turning ignition switch to the preheat position should place the +12 vdc supply voltage at output terminal #5 of ignition switch.

Refer to paragraph 7.21 for harness and lead wire repair.

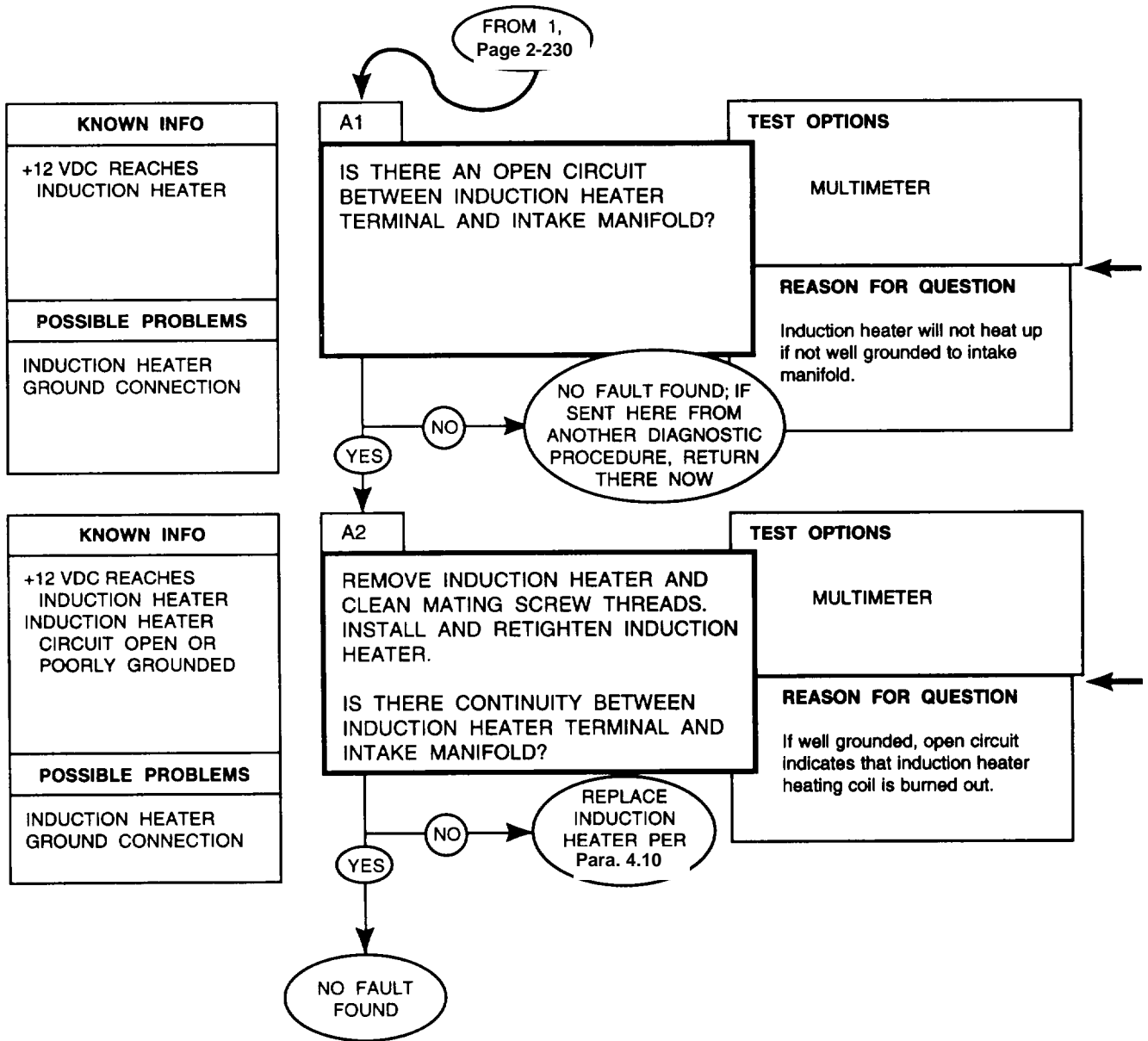
After completing diagnostic checks, close rear top left access door per TM 5-3895-373-10.

Install gauge panel per paragraph 7.6. Install engine access cover per paragraph 2.22.



COLD START CONTROL CIRCUIT

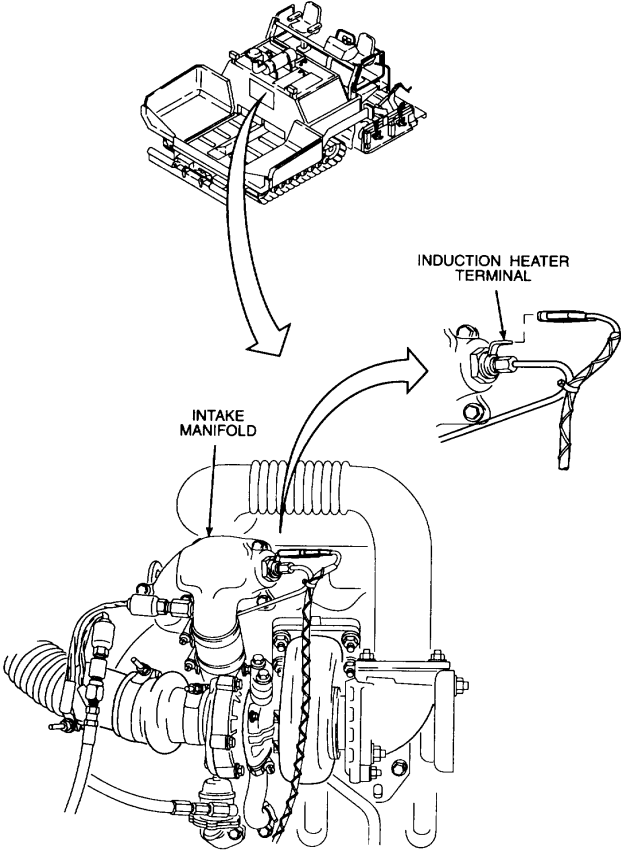
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

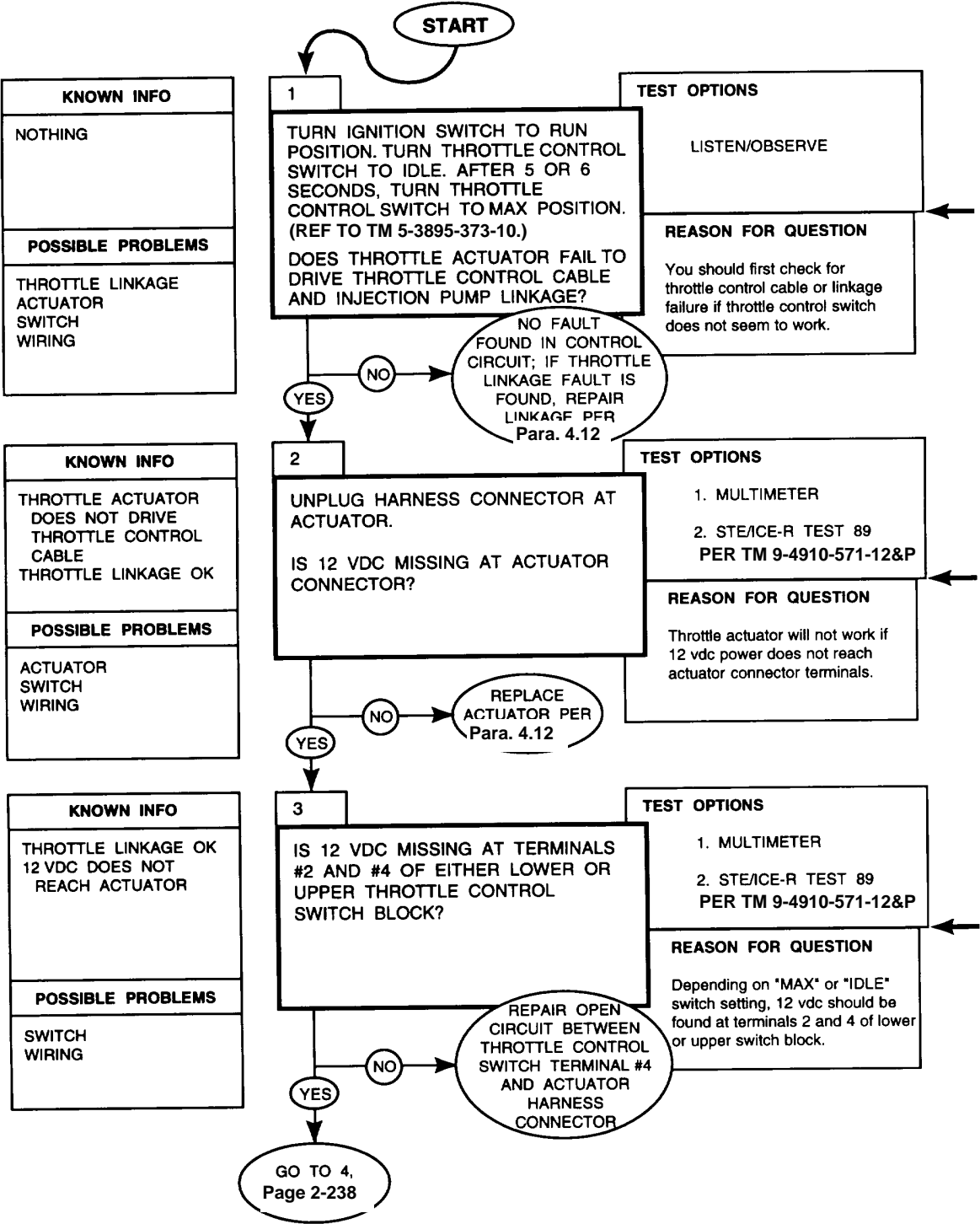
COLD START CONTROL CIRCUIT

After completing diagnostic checks, install engine access cover per paragraph 2.22.



ENGINE THROTTLE CONTROL CIRCUIT

DIAGNOSTIC FLOWCHART

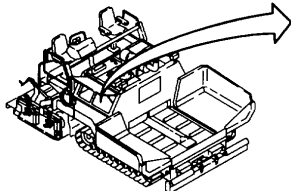


REFERENCE INFORMATION

ENGINE THROTTLE CONTROL CIRCUIT

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA.

Open right access door per TM 5-3895-373-10 to gain access to throttle actuator.



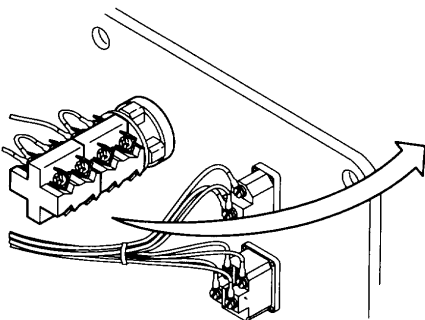
Refer to the electrical system diagram at the end of the manual for equipment wiring details.

12 vdc control voltage should be at harness connector terminal with throttle control switch in either IDLE or MAX position.

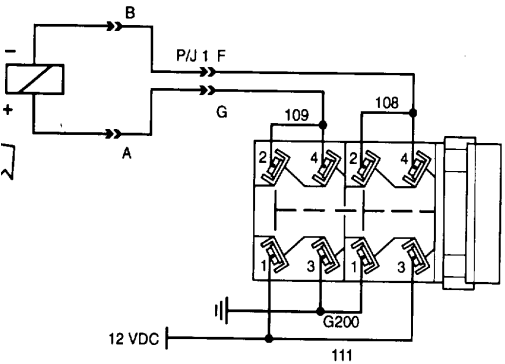
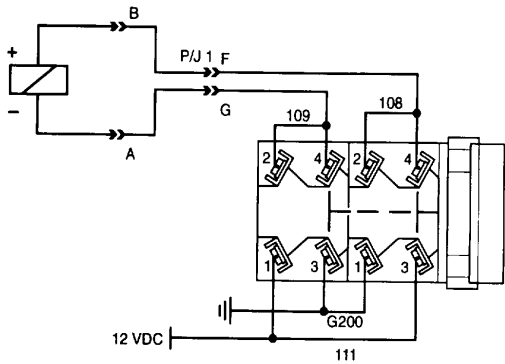
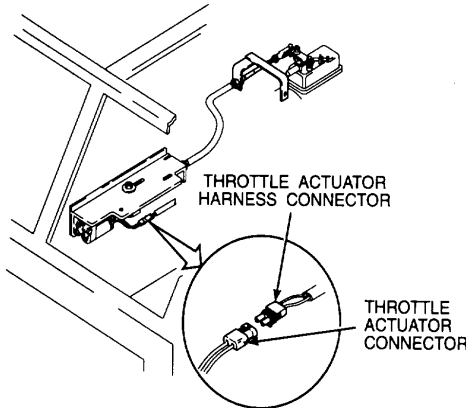
If paving machine starts, circuit breaker CB1 is conducting +12 vdc to the neutral start circuit. Thereby, if throttle control switch circuit loses voltage, problem must be throttle actuator, switch, or open wiring.

Holding engine throttle control switch in IDLE position provides 12 vdc to drive the actuator motor. In MAX position, polarity to the actuator motor is reversed.

Refer to paragraph 7.21 for harness and lead wire repair.

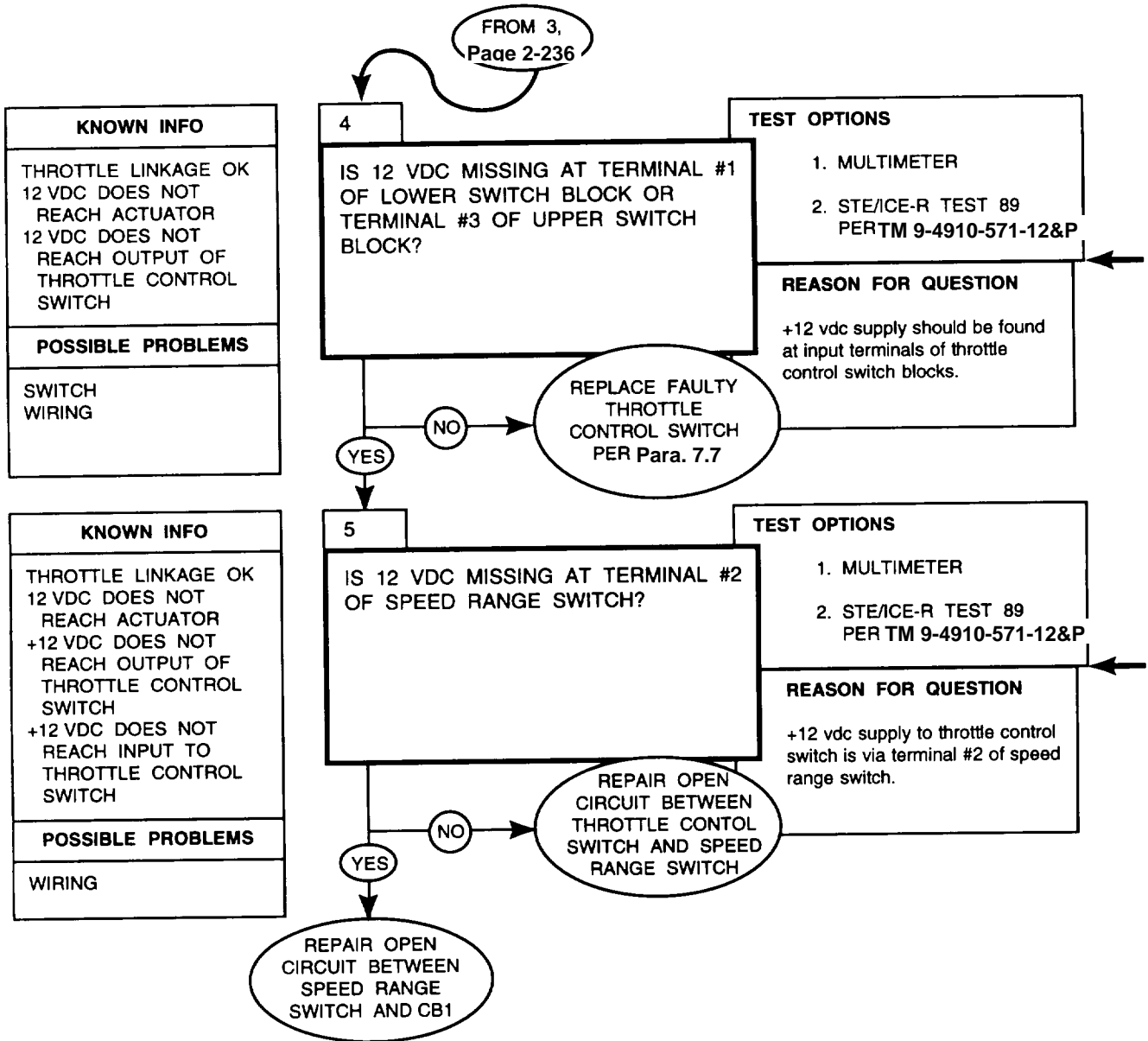


Remove gauge panel per paragraph 7.6 to gain access to throttle control switch terminals.



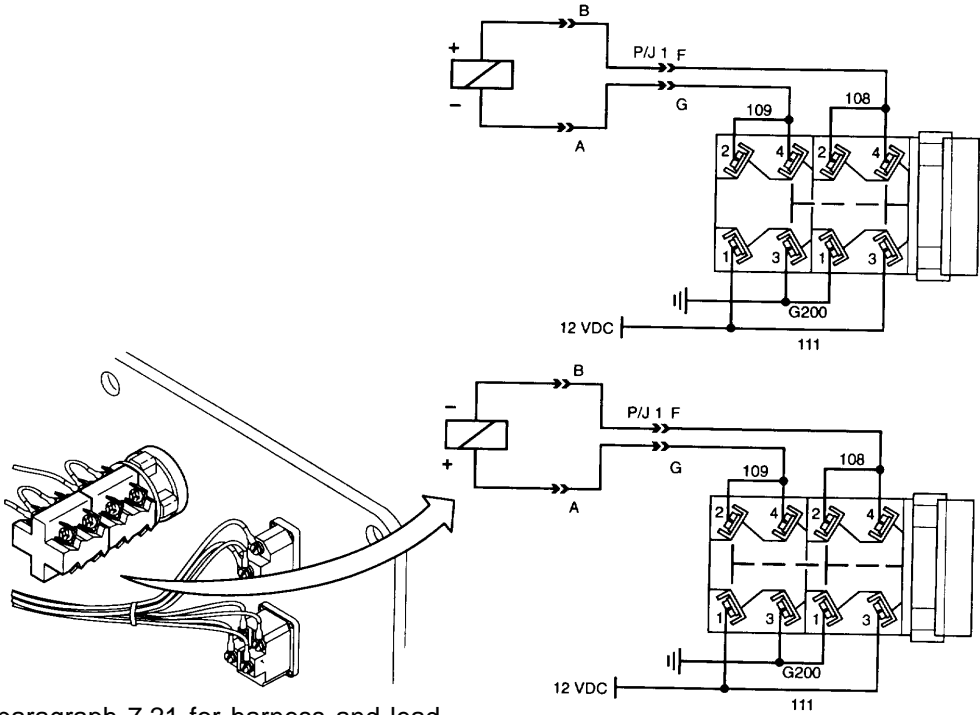
ENGINE THROTTLE CONTROL CIRCUIT

DIAGNOSTIC FLOWCHART



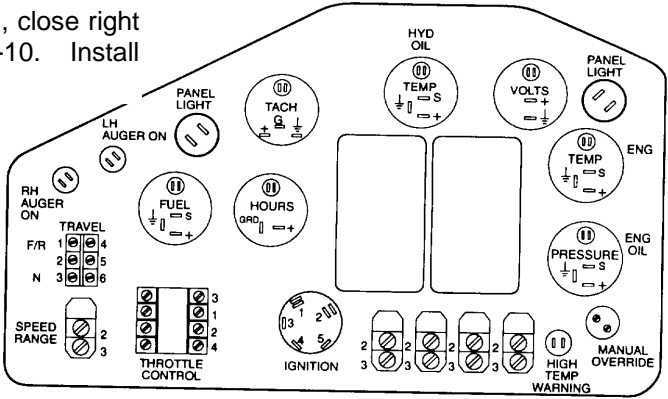
REFERENCE INFORMATION

ENGINE THROTTLE CONTROL CIRCUIT



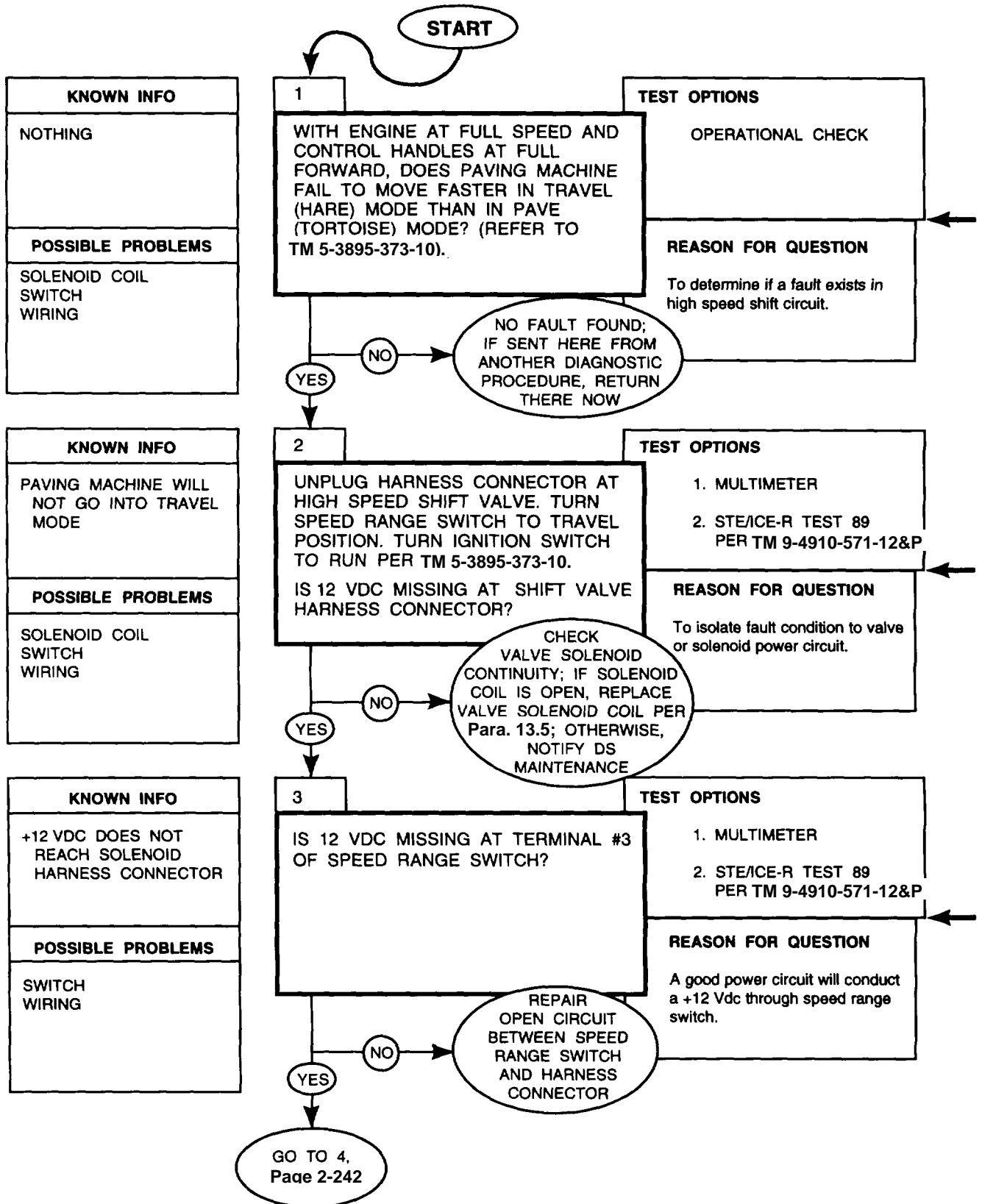
Refer to paragraph 7.21 for harness and lead wire repair.

After completing diagnostic checks, close right access door per TM 5-3895-373-10. Install gauge panel per paragraph 7.6.



HIGH SPEED SHIFT CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

HIGH SPEED SHIFT CIRCUIT

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA.

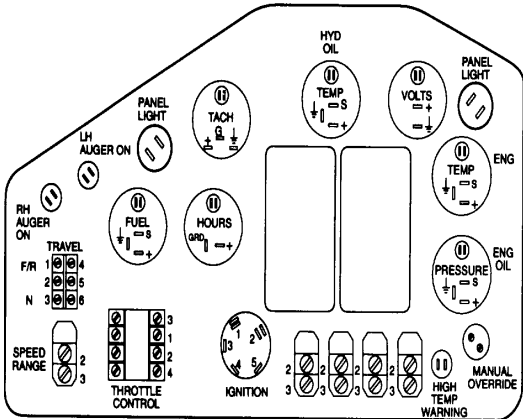
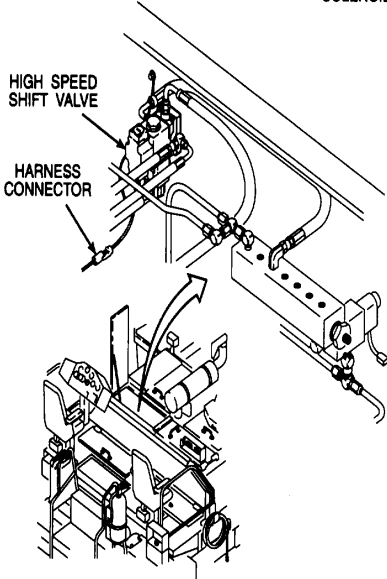
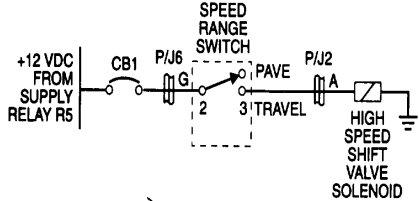
The high speed shift valve reverses flow to the hydraulic propulsion motor control ports. The flow reversal changes the position of a port plate in the motor, producing more shaft revolutions per unit flow.

If paving machine starts, circuit breaker CB1 is conducting +12 vdc to the neutral start circuit. Thereby, if high speed shift circuit fails, problem must be in switch, wiring, solenoid valve, or hydraulic propulsion motor.

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

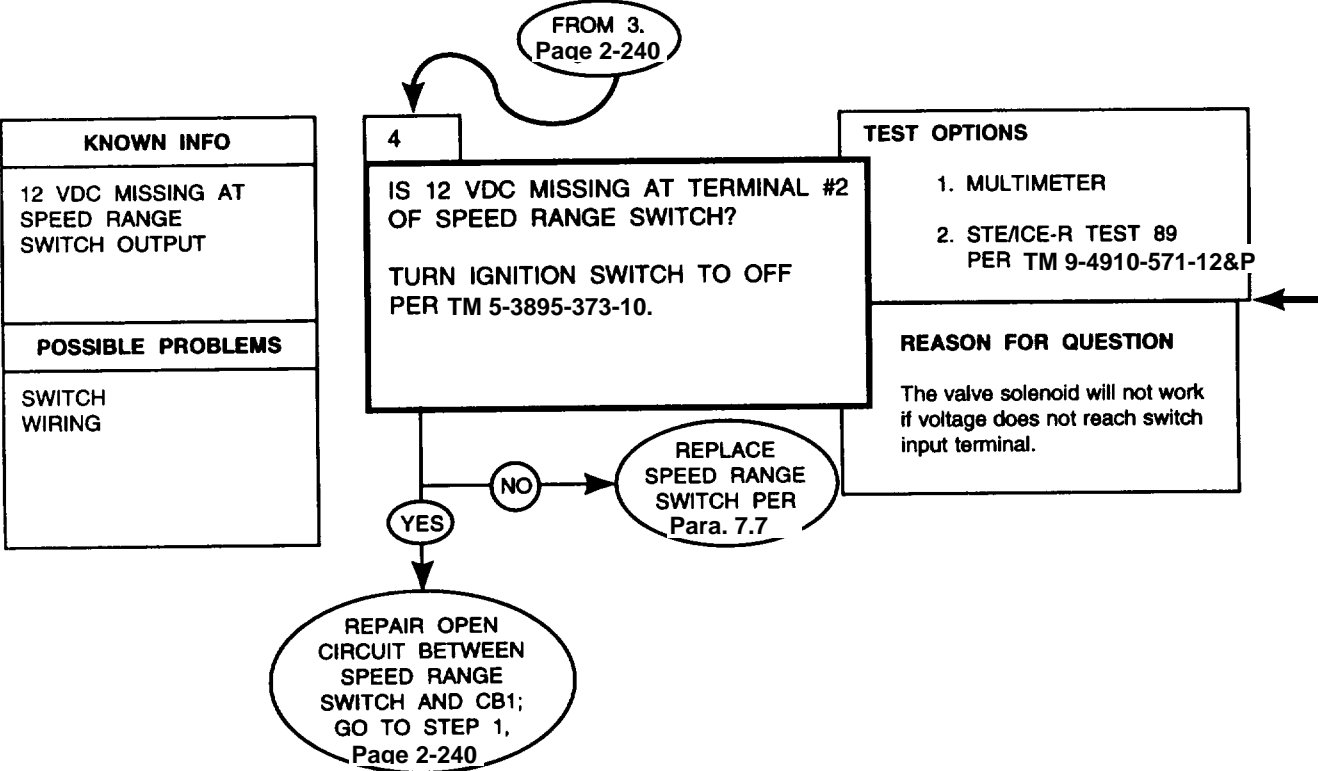
Open center top right and center top left access doors per TM 5-3895-373-10 to gain access to high speed shift valve.

Refer to paragraph 7.21 for harness and lead wire repair.



HIGH SPEED SHIFT CIRCUIT

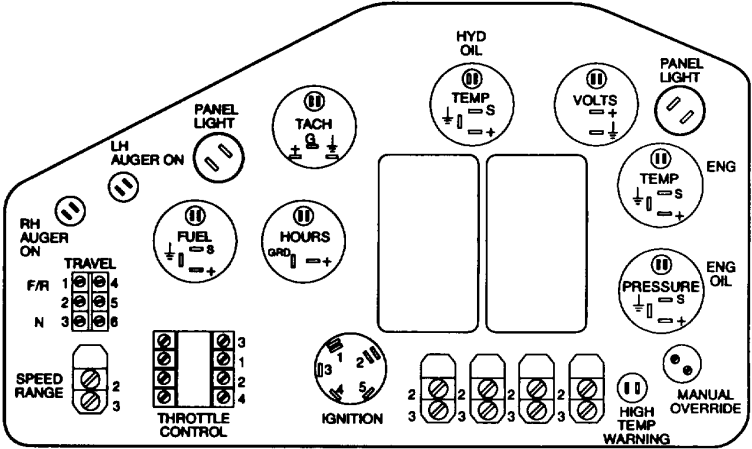
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

HIGH SPEED SHIFT CIRCUIT

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

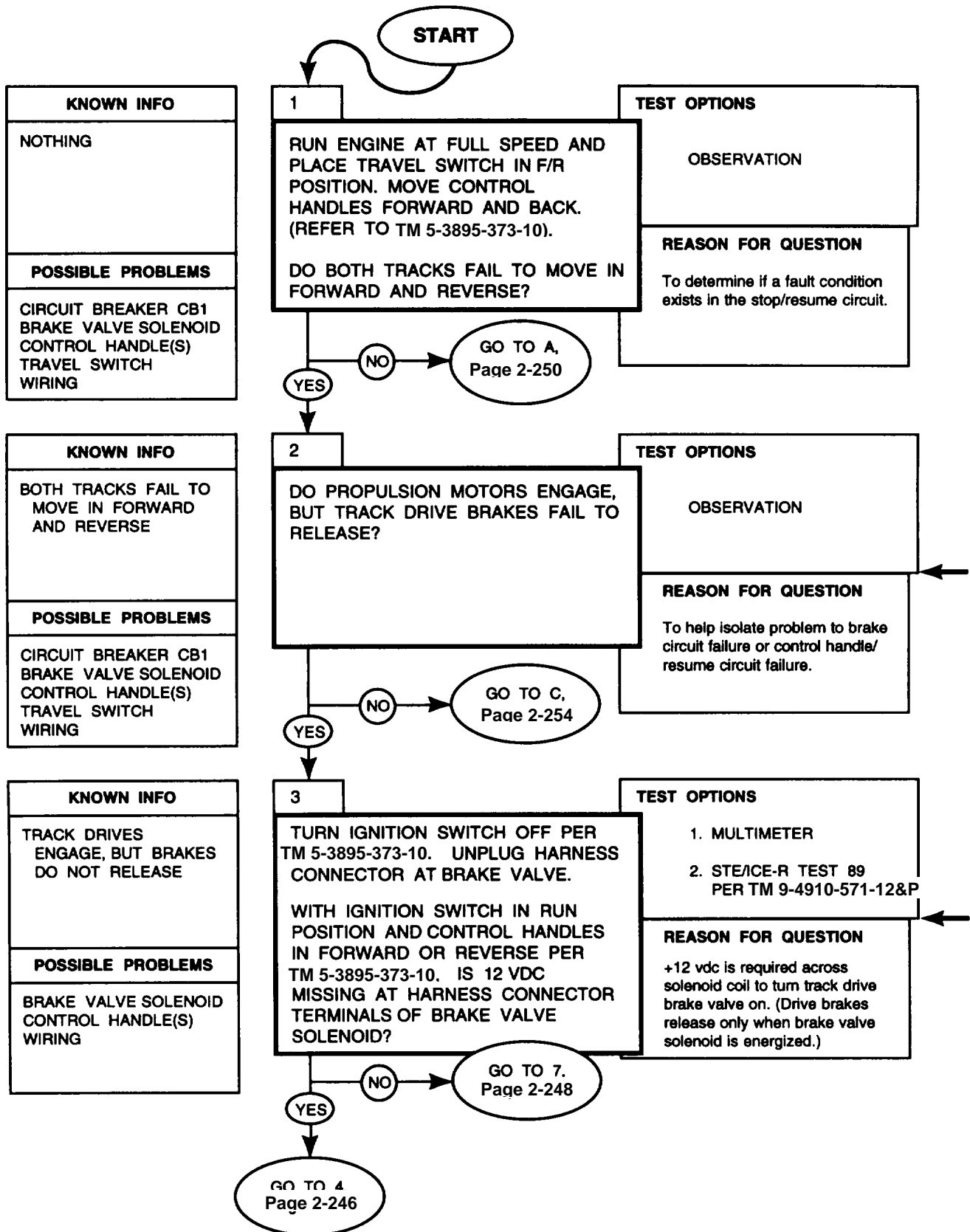


Refer to paragraph 7.21 for harness and lead wire repair.

After completing diagnostic checks, close center top right and center top left access doors per TM 5-3895-373-10.

CONTROL HANDLE, BRAKE, AND STOP/RESUME CIRCUIT

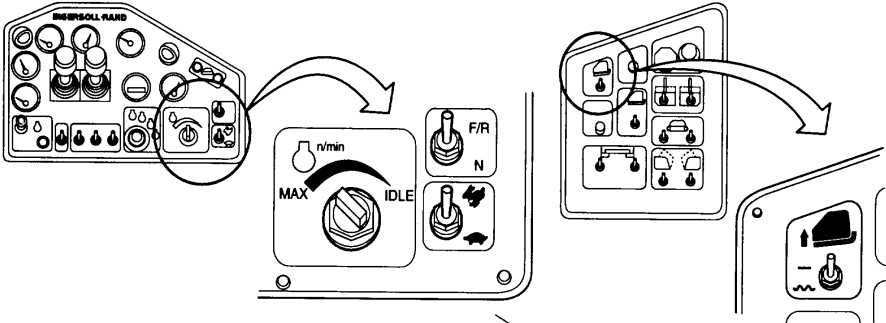
DIAGNOSTIC FLOWCHART



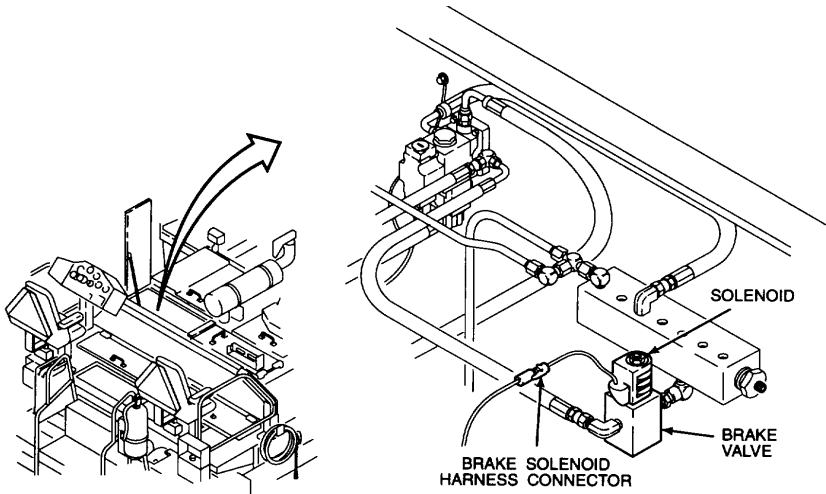
REFERENCE INFORMATION

CONTROL HANDLE, BRAKE, AND STOP/RESUME CIRCUIT

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA.



If both brakes fail to release, the engine will bog down when control handles are placed in forward or reverse direction.



Refer to paragraph 1.20 for a description of control handle and brake circuits.

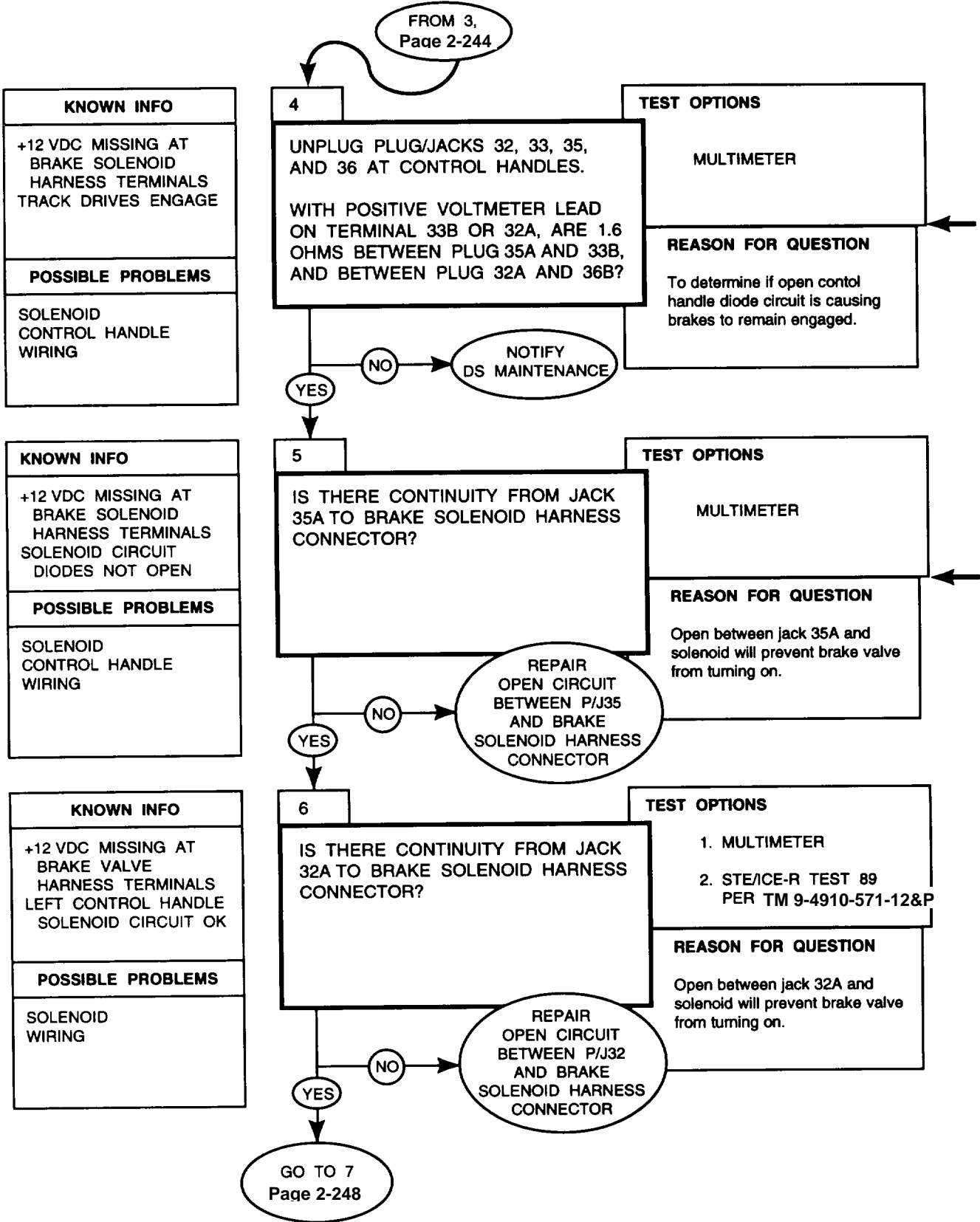
Refer to the electrical system diagram at the end of the manual for equipment wiring details.

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

Open center top right and center top left access doors per TM 5-3895-373-10 to gain access to brake valve.

CONTROL HANDLE, BRAKE, AND STOP/RESUME CIRCUIT

DIAGNOSTIC FLOWCHART

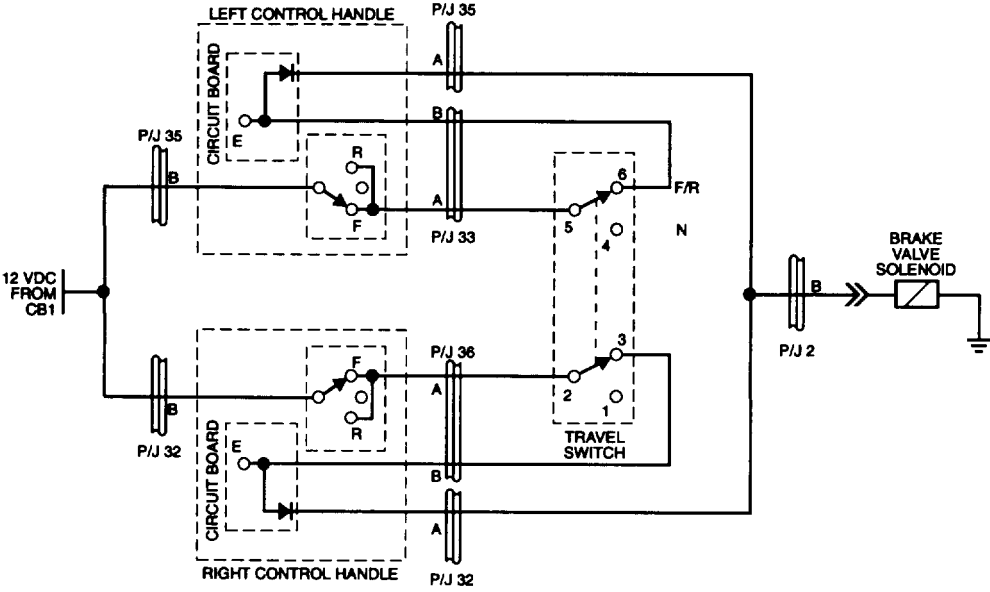


REFERENCE INFORMATION

CONTROL HANDLE, BRAKE, AND STOP/RESUME CIRCUIT

Remove gauge panel per paragraph 7.6 to gain access to control handles.

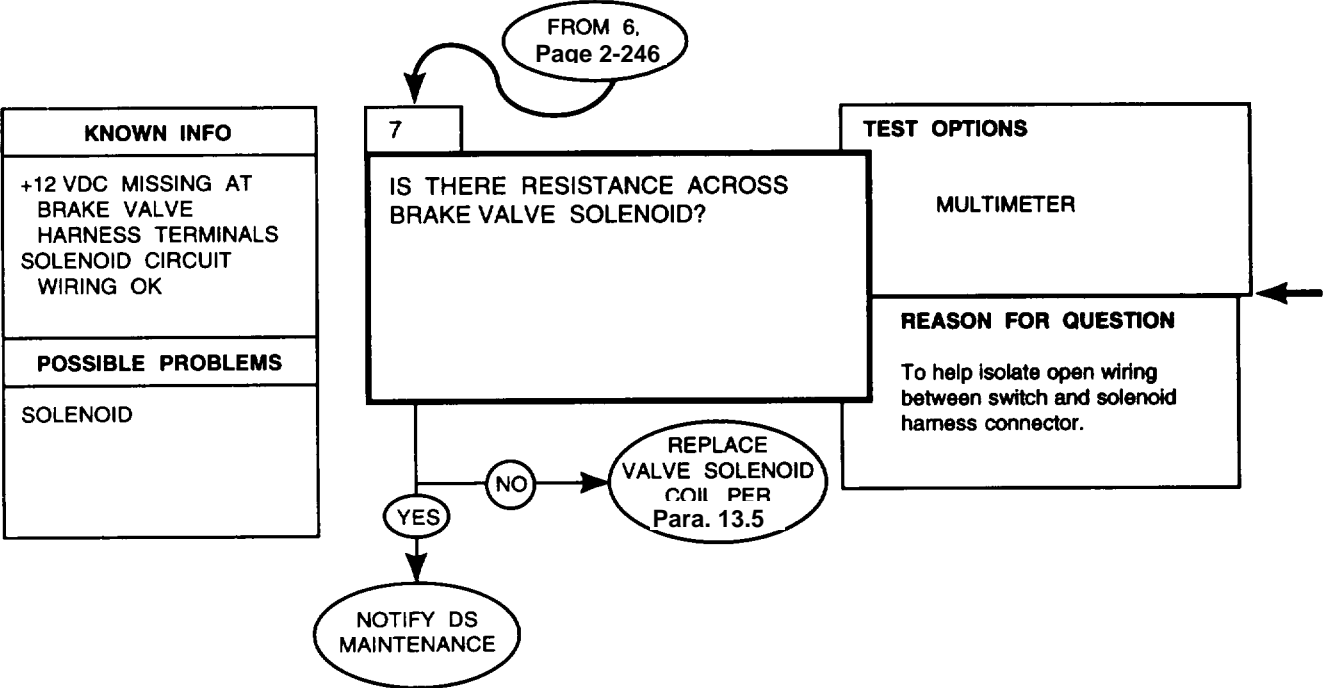
Diode circuit should indicate about 1.6 ohms when forward biased (positive voltmeter lead on plug terminal 33B or 32A). Zero ohms should be indicated when circuit is reverse biased.



Refer to paragraph 7.21 for harness and lead wire repair.

CONTROL HANDLE, BRAKE, AND STOP/RESUME CIRCUIT

DIAGNOSTIC FLOWCHART

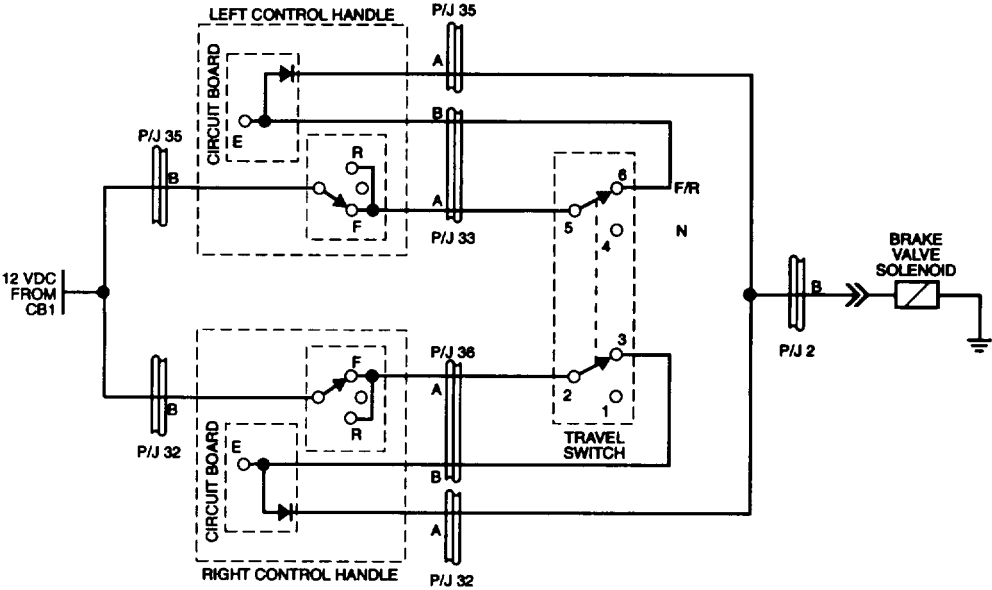


REFERENCE INFORMATION

CONTROL HANDLE, BRAKE, AND STOP/RESUME CIRCUIT

Brake valve solenoid coil resistance should measure between 5.9 and 7.1 ohms.

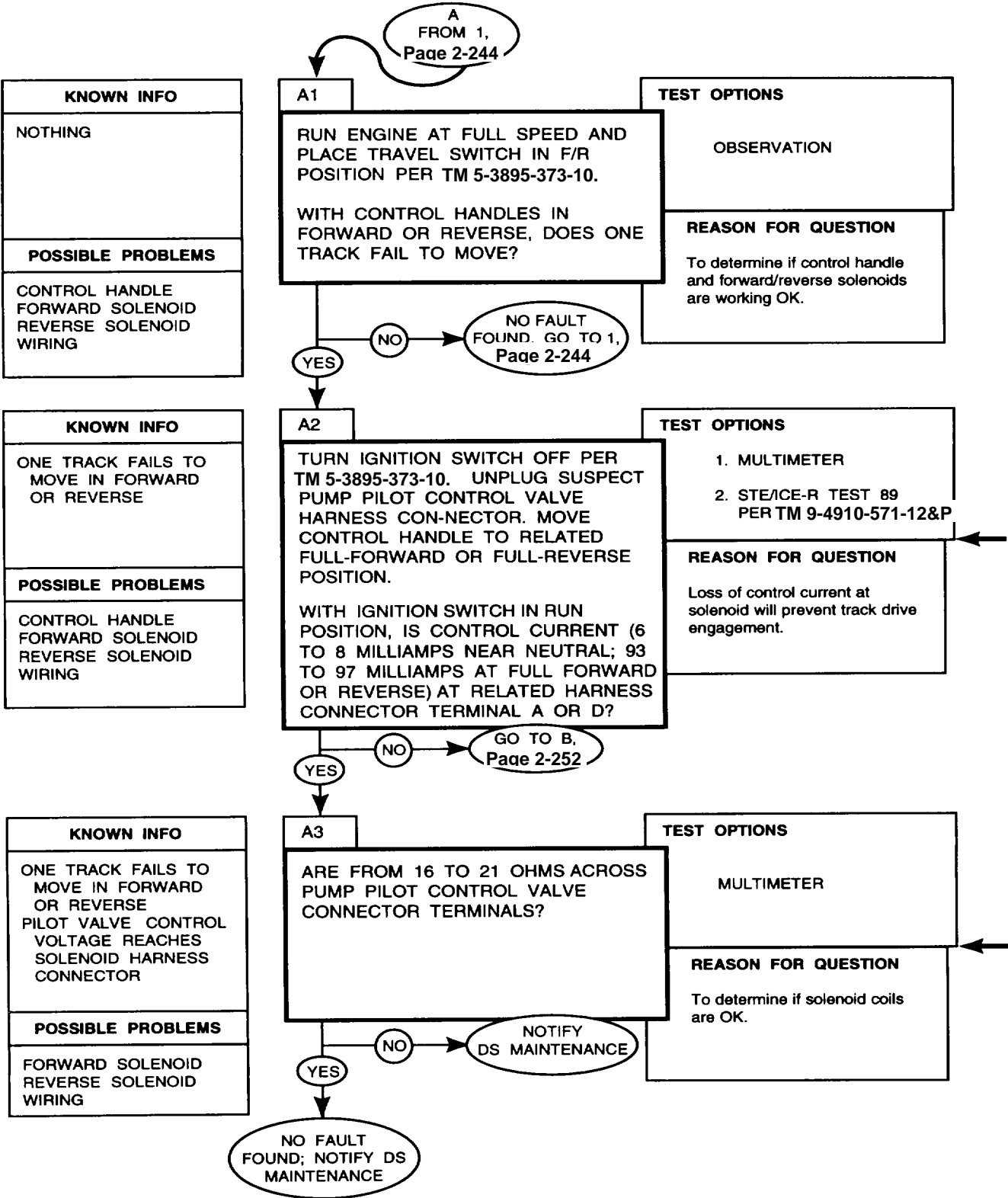
Solenoid coil should be considered good unless it is burned out (open).



After completing diagnostic checks, close center top right and center top left access doors per TM 5-3895-373-10. Install gauge panel per paragraph 7.6.

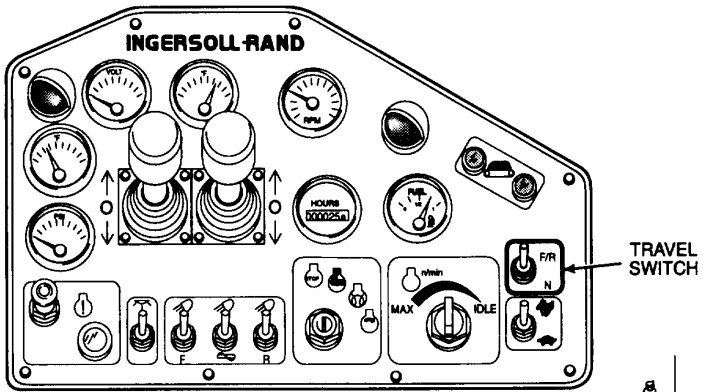
CONTROL HANDLE, BRAKE, AND STOP/RESUME CIRCUIT

DIAGNOSTIC FLOWCHART



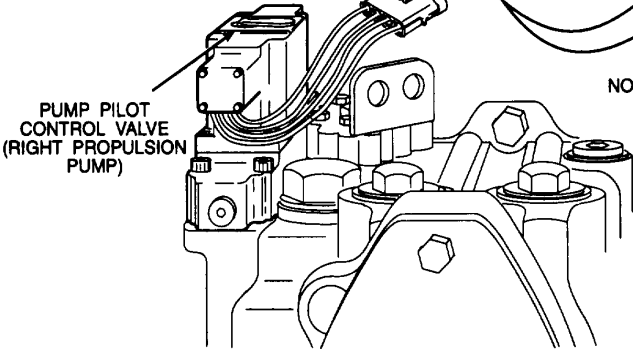
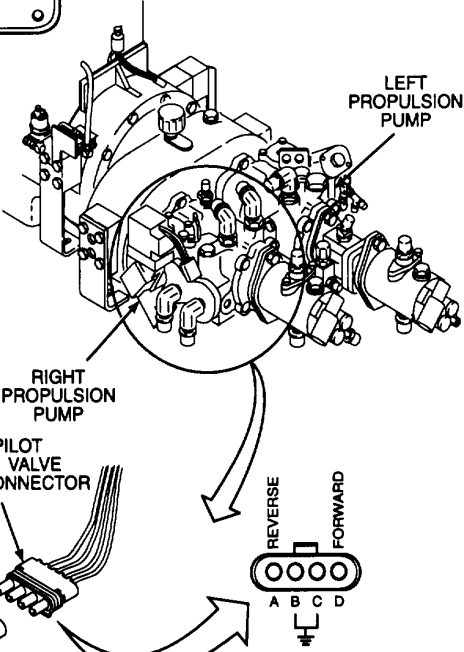
REFERENCE INFORMATION

CONTROL HANDLE, BRAKE, AND STOP/RESUME CIRCUIT



Remove right access cover per TM 5-3895-373-10 to gain access to pump pilot control valve.

To check control current, connect ammeter between pump pilot control valve harness connector terminal A or D and equipment ground.

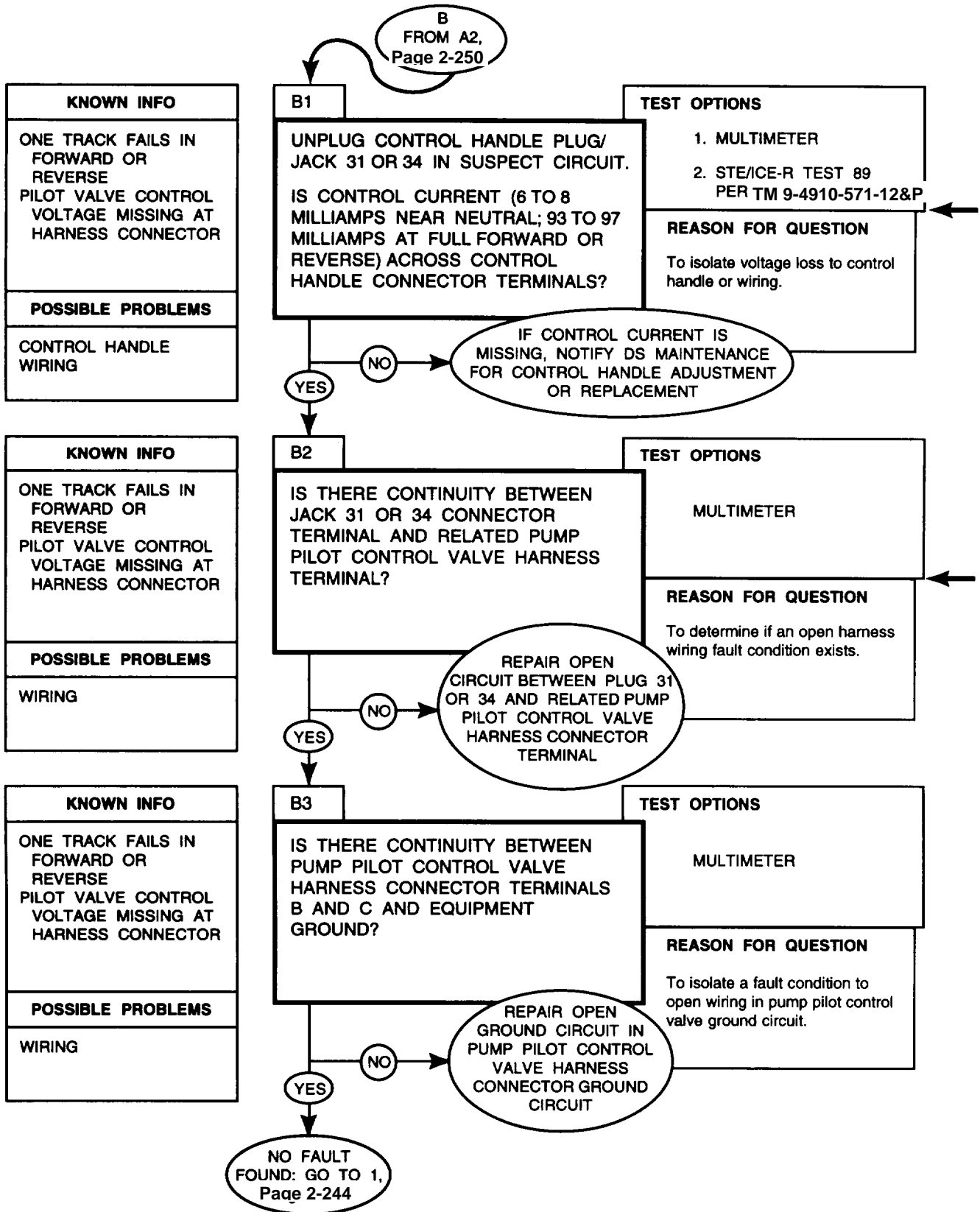


NOTE: PUMP PILOT CONTROL VALVE FOR RIGHT PROPULSION PUMP IS SHOWN HERE. LEFT PUMP PILOT CONTROL VALVE IS ON BOTTOM OUTSIDE CORNER OF LEFT PROPULSION PUMP.

After completing diagnostic checks, install right access cover per TM 5-3895-373-10.

CONTROL HANDLE, BRAKE, AND STOP/RESUME CIRCUIT

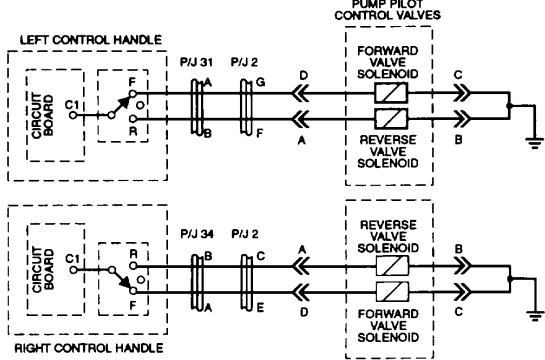
DIAGNOSTIC FLOWCHART



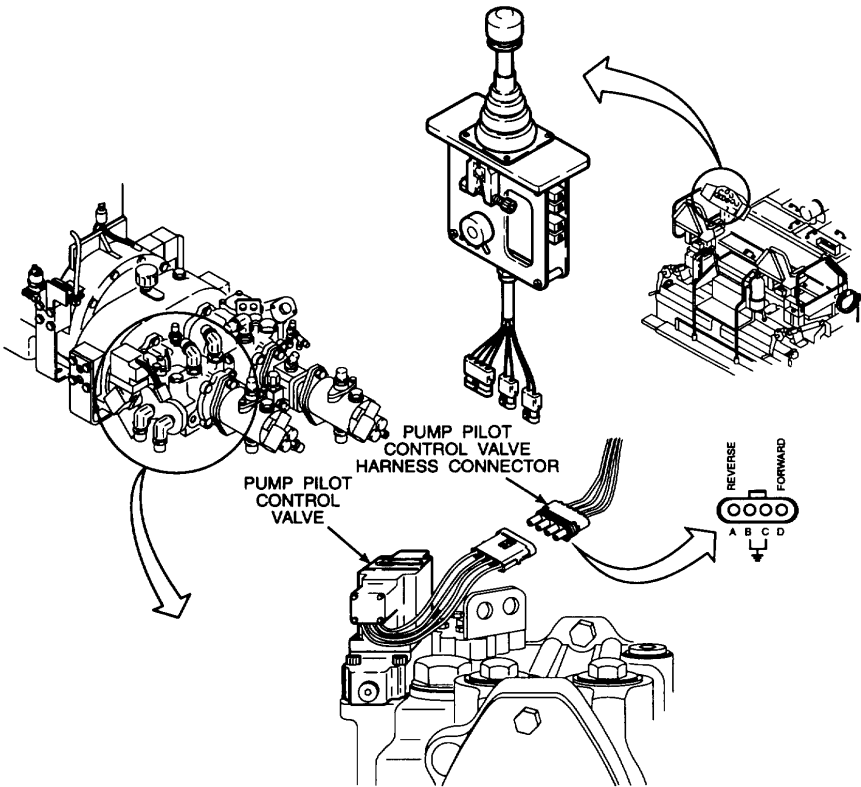
REFERENCE INFORMATION

CONTROL HANDLE, BRAKE, AND STOP/RESUME CIRCUIT

Remove gauge panel per paragraph 7.6 to gain access to control handles.



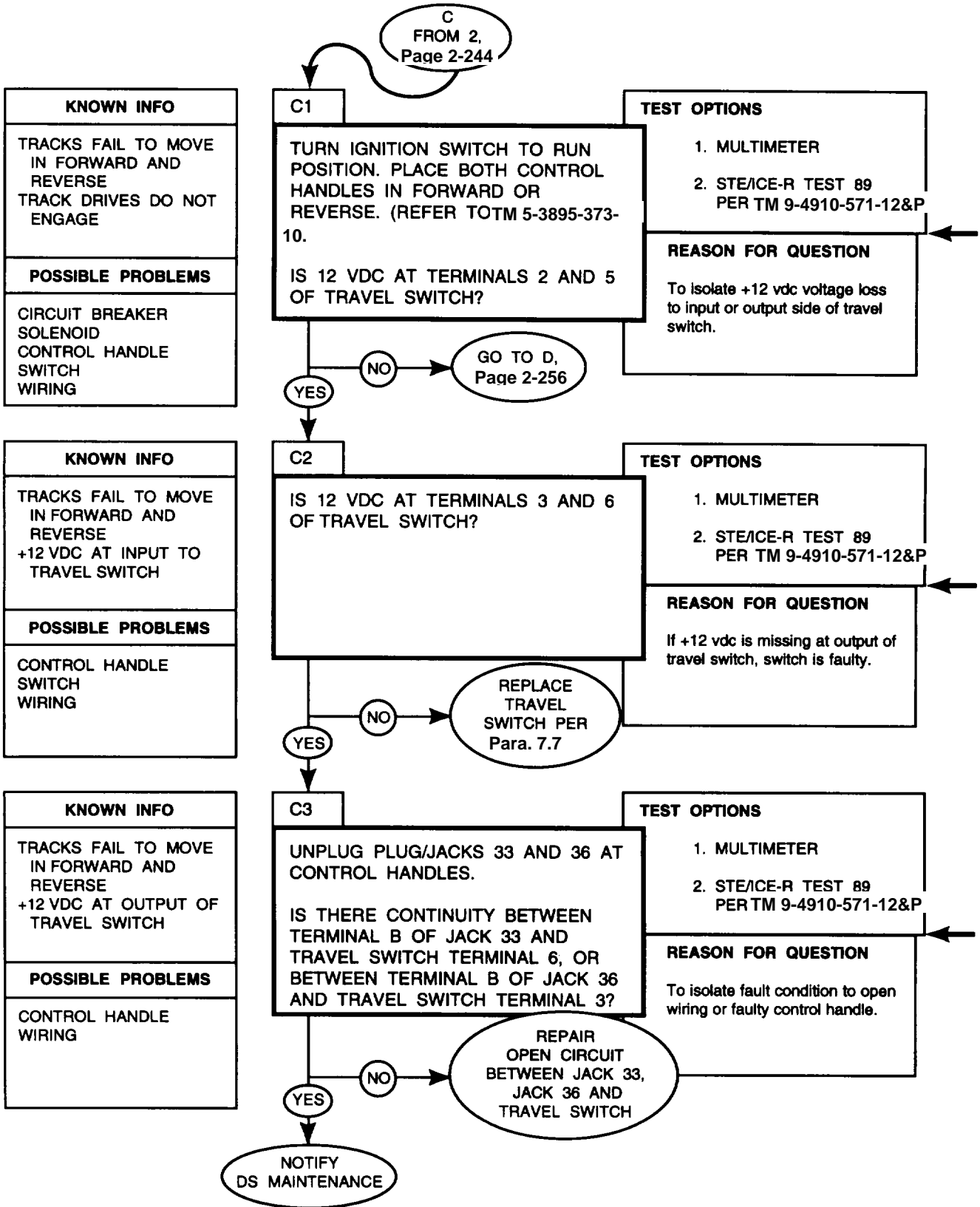
Refer to paragraph 7.21 for harness and lead wire repair.



After completing diagnostic checks, install right access cover per TM 5-3895-373-10. Install gauge panel per paragraph 7.6.

CONTROL HANDLE, BRAKE, AND STOP/RESUME CIRCUIT

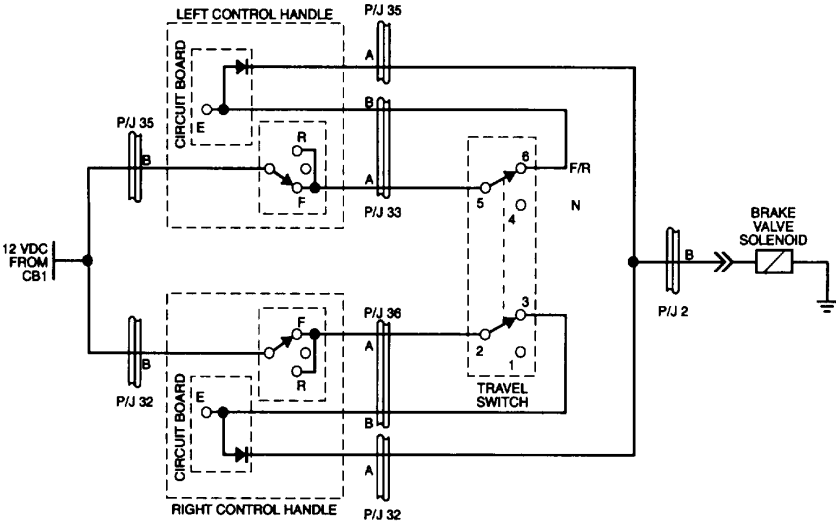
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

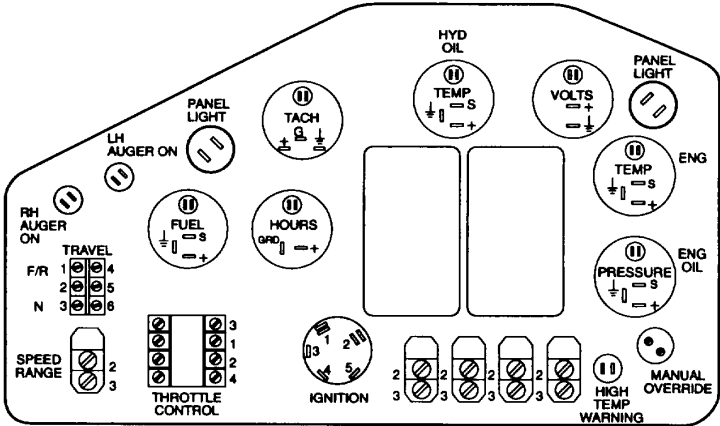
CONTROL HANDLE, BRAKE, AND STOP/RESUME CIRCUIT

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.



Remove gauge panel per paragraph 7.6 to gain access to travel switch terminals.

Refer to paragraph 7.21 for harness and lead wire repair.



CONTROL HANDLE, BRAKE, AND STOP/RESUME CIRCUIT

DIAGNOSTIC FLOWCHART

D FROM C1, Page 2-254

KNOWN INFO
TRACKS FAIL IN FORWARD AND REVERSE TRACK DRIVES DO NOT ENGAGE +12 VDC MISSING AT TRAVEL SWITCH
POSSIBLE PROBLEMS
CONTROL HANDLE CIRCUIT BREAKER WIRING

D1

UNPLUG PLUG/JACKS 33 AND 36 AT CONTROL HANDLES.

IS 12 VDC MISSING AT CONTROL HANDLE PLUG TERMINALS 33A AND 36A?

TEST OPTIONS

- MULTIMETER
- STE/ICE-R TEST 89 PER TM 9-4910-571-12&P

REASON FOR QUESTION

To determine if +12 vdc is reaching control handle circuits.

YES →

NO → REPAIR OPEN CIRCUIT BETWEEN P/J33 AND TRAVEL SWITCH OR P/J36 AND TRAVEL SWITCH

KNOWN INFO
TRACKS FAIL IN FORWARD AND REVERSE TRACK DRIVES DO NOT ENGAGE +12 VDC MISSING AT P/J33A AND/OR P/J36A
POSSIBLE PROBLEMS
CONTROL HANDLE CIRCUIT BREAKER WIRING

D2

TURN IGNITION SWITCH OFF PER TM 5-3895-373-10. UNPLUG PLUG 32 AND 35 AT CONTROL HANDLES.

WITH POSITIVE VOLTMETER LEAD ON TERMINAL 33B OR 32A, ARE 1.6 OHMS BETWEEN CONTROL HANDLE PLUG TERMINALS 35A AND 33B AND BETWEEN TERMINALS 32A AND 36B?

TEST OPTIONS

MULTIMETER

REASON FOR QUESTION

Open diode circuit in control handle will not allow brake valve solenoid to turn on. Power to control handles via P/J32B and 35A is available, or else engine would fail to start.

YES →

NO → REPLACE FAULTY CONTROL HANDLE PER Para. 7.7

KNOWN INFO
TRACKS FAIL IN FORWARD AND REVERSE TRACK DRIVES DO NOT ENGAGE +12 VDC MISSING AT P/J33A AND/OR P/J36A NO OPEN FROM P/J35B TO P/J33B OR FROM P/J32B TO P/J36A
POSSIBLE PROBLEMS
CONTROL HANDLE CIRCUIT BREAKER WIRING

D3

REMOVE CIRCUIT BREAKER CB1. TURN IGNITION SWITCH TO RUN POSITION PER TM 5-3895-373-10.

IS 12 VDC AT INPUT TERMINAL OF CIRCUIT BREAKER SOCKET?

TEST OPTIONS

- MULTIMETER
- STE/ICE-R TEST 89 PER TM 9-4910-571-12&P

REASON FOR QUESTION

Open between P/J32A and solenoid will prevent brake valve from turning on.

YES →

NO → REPAIR OPEN CIRCUIT BETWEEN CB1 AND 80 AMP BREAKER

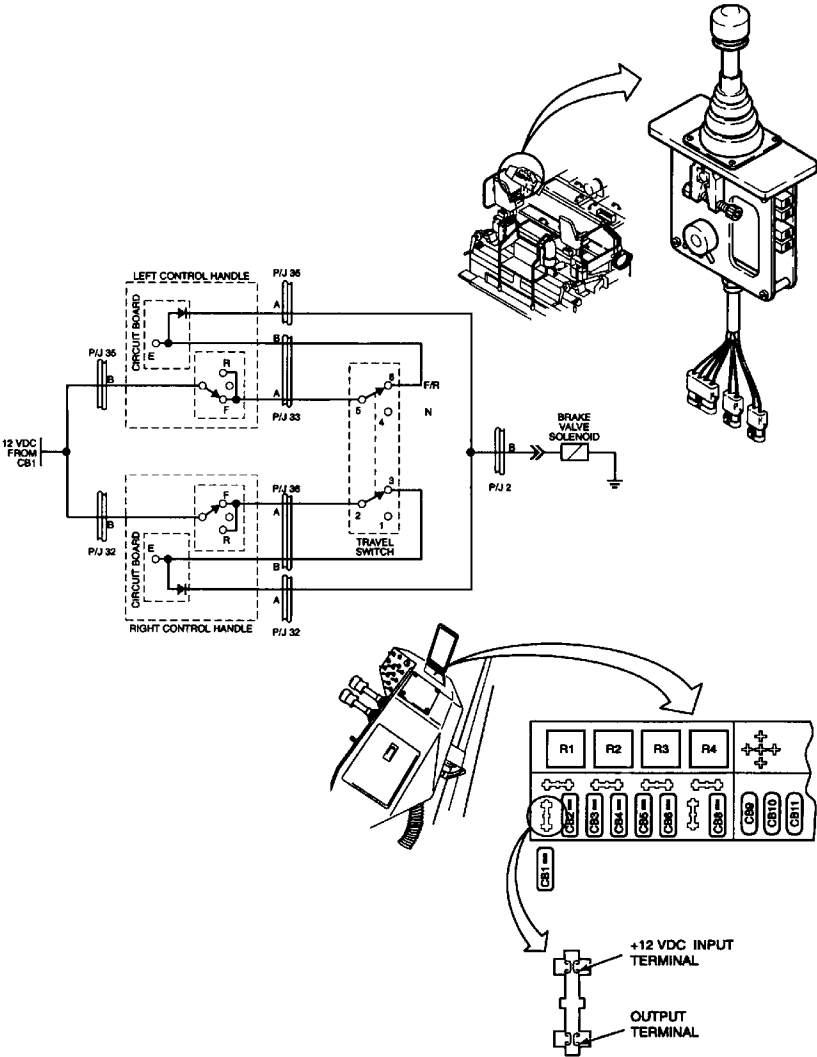
GO TO D4 Page 2-258

REFERENCE INFORMATION

CONTROL HANDLE, BRAKE, AND STOP/RESUME CIRCUIT

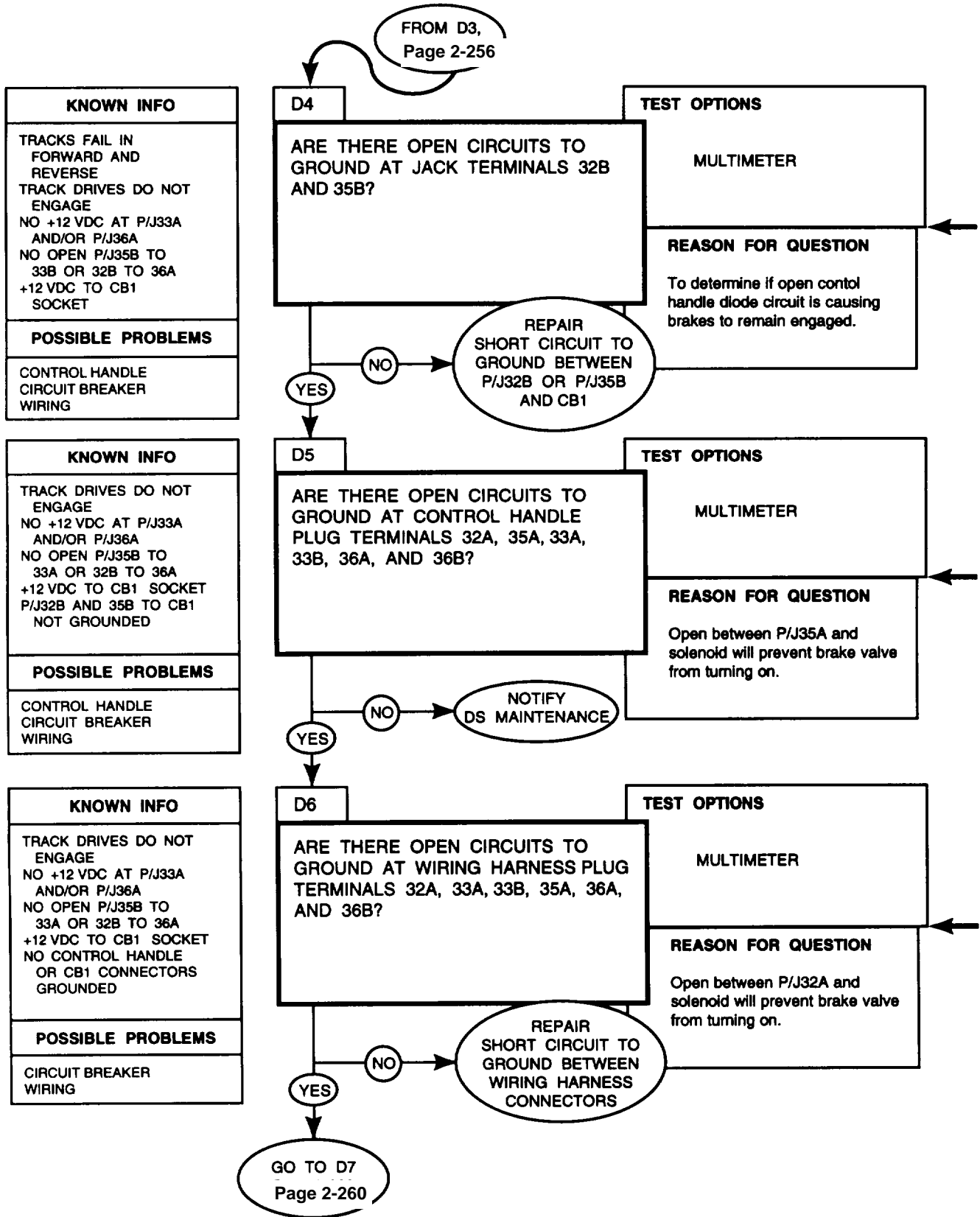
Refer to paragraph 7.21 for harness and lead wire repair.

Diode circuit should indicate about 1.6 ohms when forward biased (positive voltmeter lead on plug terminal 33B or 32A). Zero ohms should be indicated when circuit is reverse biased.



CONTROL HANDLE, BRAKE, AND STOP/RESUME CIRCUIT

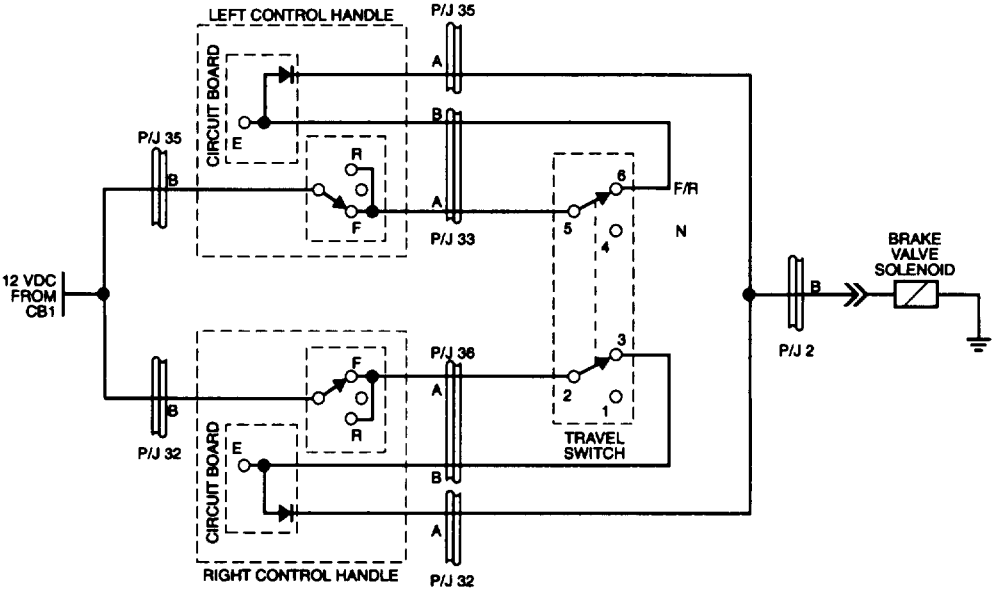
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

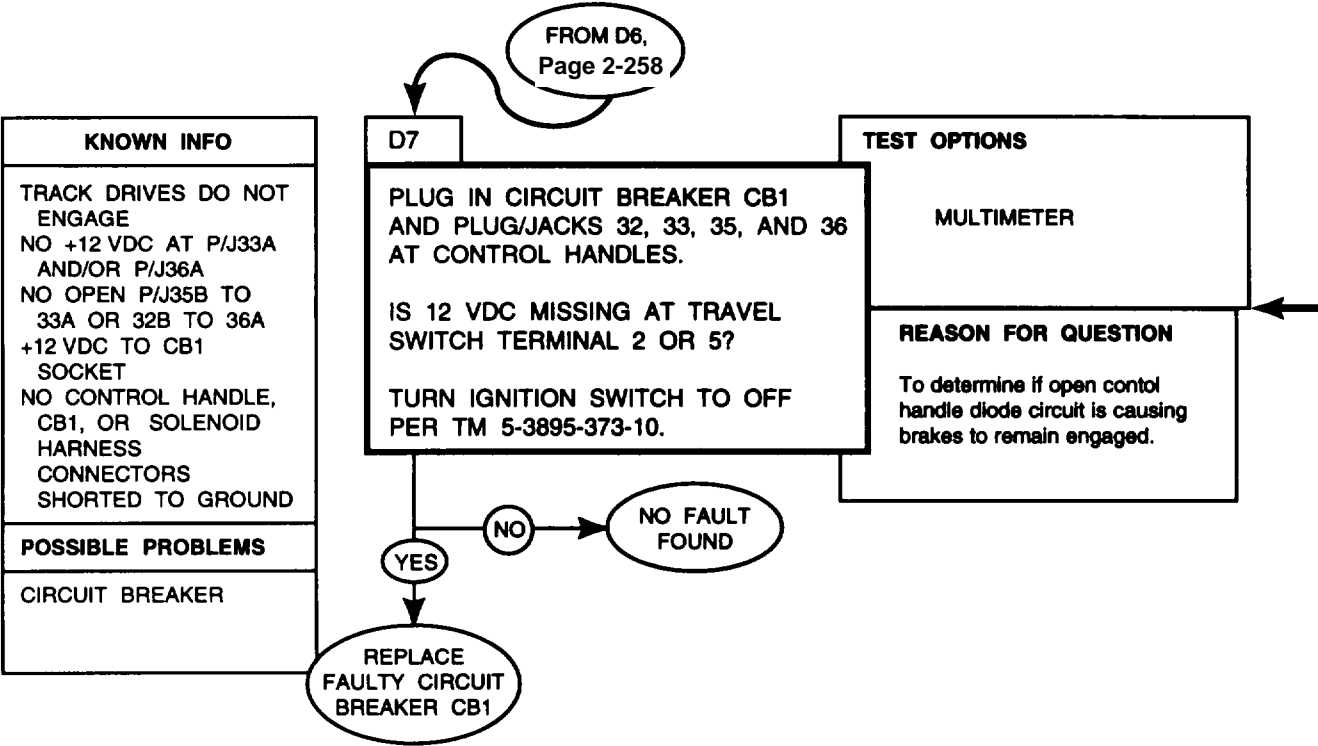
CONTROL HANDLE, BRAKE, AND STOP/RESUME CIRCUIT

Refer to paragraph 7.21 for harness and lead wire repair.



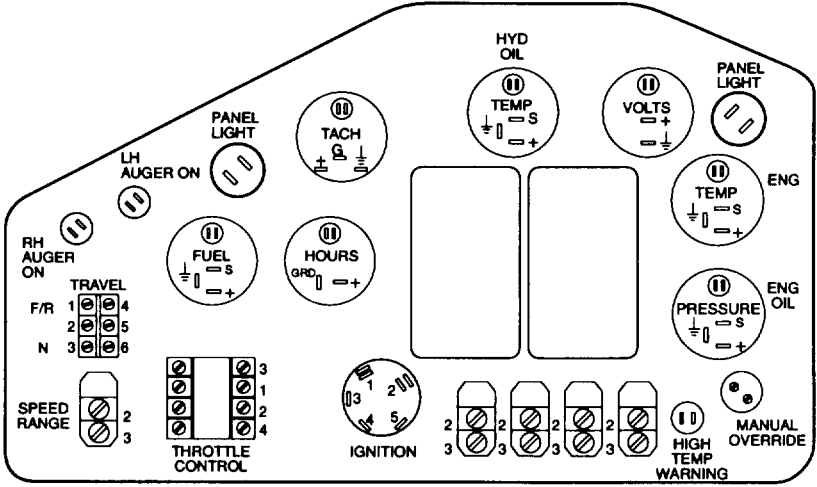
CONTROL HANDLE, BRAKE, AND STOP/RESUME CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

CONTROL HANDLE, BRAKE, AND STOP/RESUME CIRCUIT



After completing diagnostic checks, install gauge panel per paragraph 7.6.

2-261/(2-262 blank)

2.19. HYDRAULIC SYSTEM DIAGNOSTICS.

Perform hydraulic system tests whenever you have a problem with the hydraulic system or if sent here by another diagnostic test.

Most of the paving machine's hydraulic functions share pumping and flow control components with at least one other circuit. Try to determine which hydraulic function is most affected by the fault condition. Refer to the index below for the diagnostic procedure that applies to your system fault.

Hydraulic systems can be hazardous. Always heed the following warnings when troubleshooting or servicing components in the hydraulic system.

WARNING

Hydraulic oil under pressure can penetrate skin or damage eyes. Oil leaks under pressure may not be visible. Use a piece of cardboard or wood to find leaks, but do not use a bare hand. Wear safety goggles for protection. If oil enters skin or eye, get immediate medical attention.

Do not move under any hydraulically controlled component when making adjustments or repairs to the hydraulic system. Lower the component and work from above. If the component must be raised for access, always block it for full support. If a component drops,

severe injury or death to personnel can result.

NOTE

Throughout these hydraulic systems diagnostic procedures, the engine should be running at high idle when performing a functional check of a hydraulic device or circuit.

When diagnosing hydraulic devices that are controlled through the stack valve, references will be made to the stack valve wiring diagram on page 2-265.

When a fault is isolated to a specific component, the paragraph number of the repair task for replacement of the component is cited in the diagnostic flowchart. If the repair task is general (i.e.: wiring and harness repair), the repair task is cited in the Reference Information Column.

Male connectors on paving machine most often house female terminals (receptacles, jacks). Mating female connectors house male terminals (plugs). Plug/jack nomenclature in text and diagrams is based on nature of connector terminals (male or female), not on appearance of connector housing.

Refer to TM 5-3895-373-10 for paving machine switch locations.

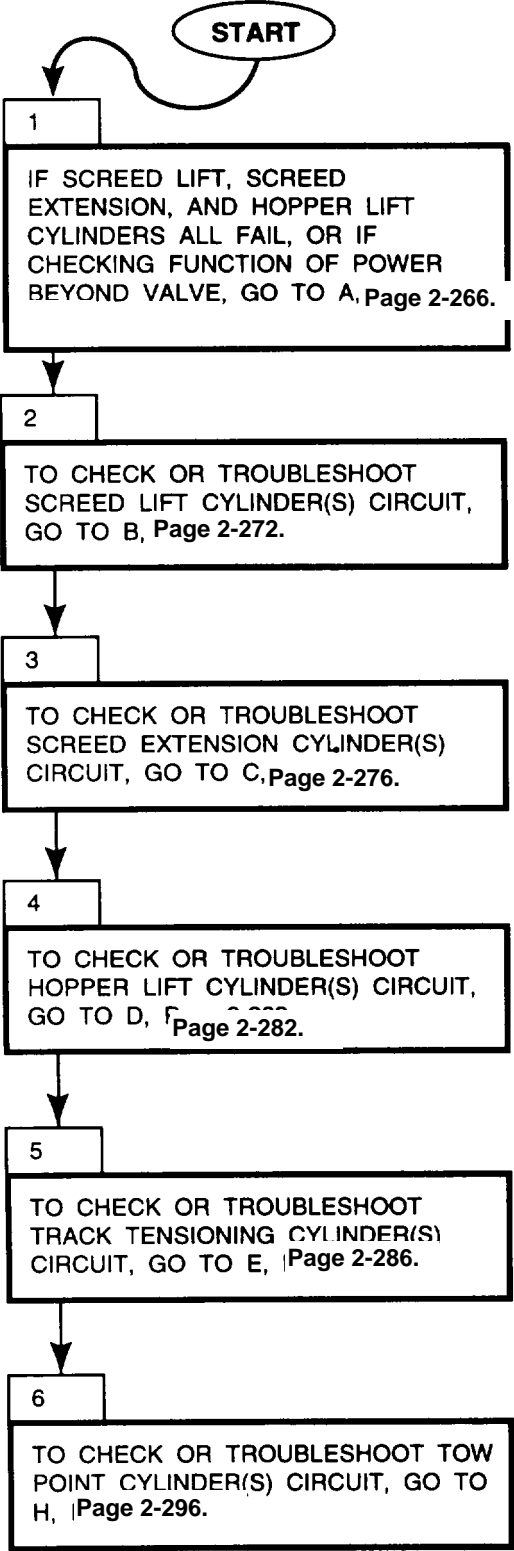
Throughout this diagnostic procedure, a simplified schematic of the circuit under test is shown. Reference electrical schematics at back of manual for complete circuit wiring.

Diagnostic Index

Fault Location	Page
Hydraulic Cylinder Circuits	2-264
Auger/Conveyor Circuit	2-306
Screed Vibrator Circuit	2-324

HYDRAULIC CYLINDER CIRCUITS

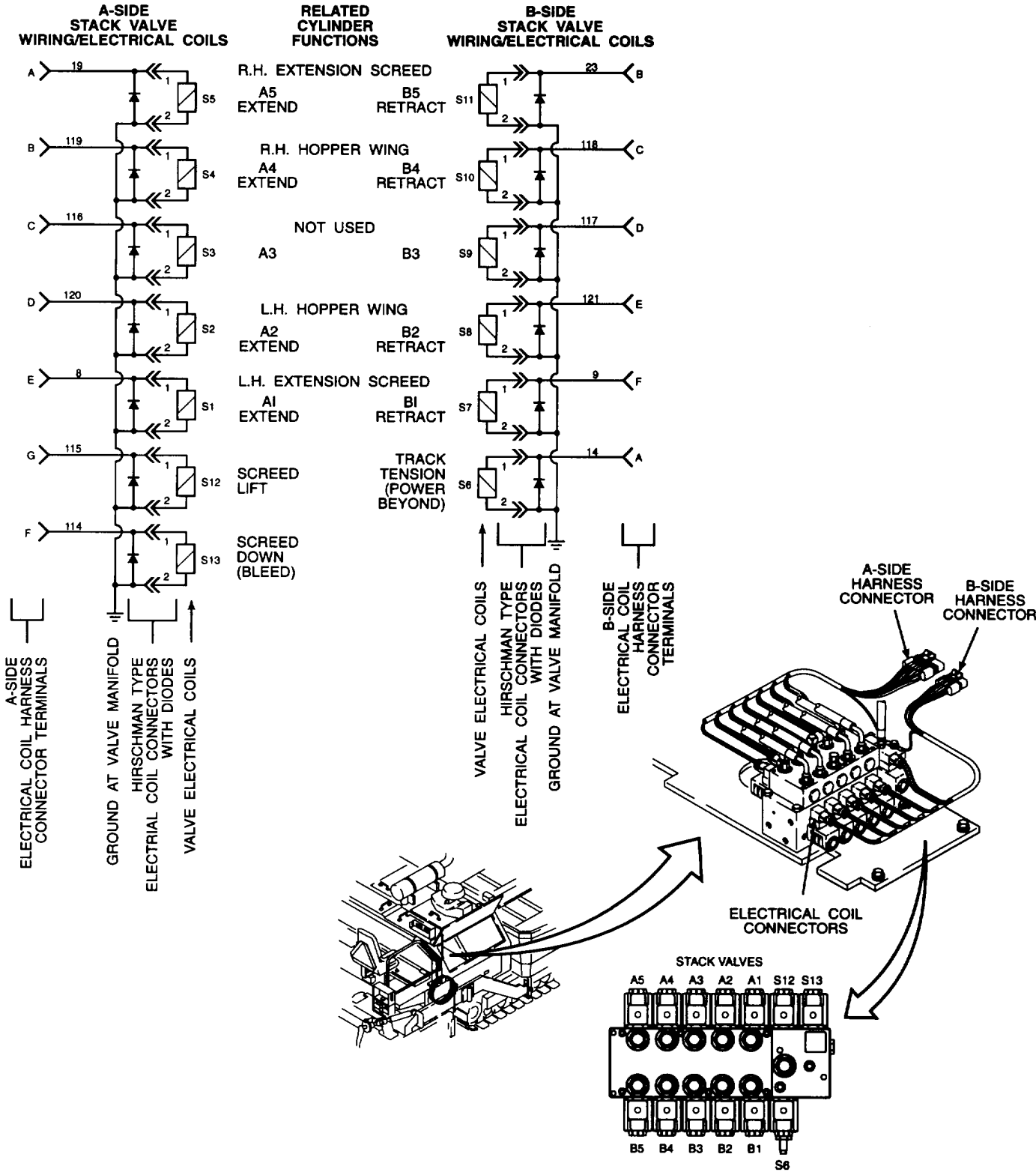
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

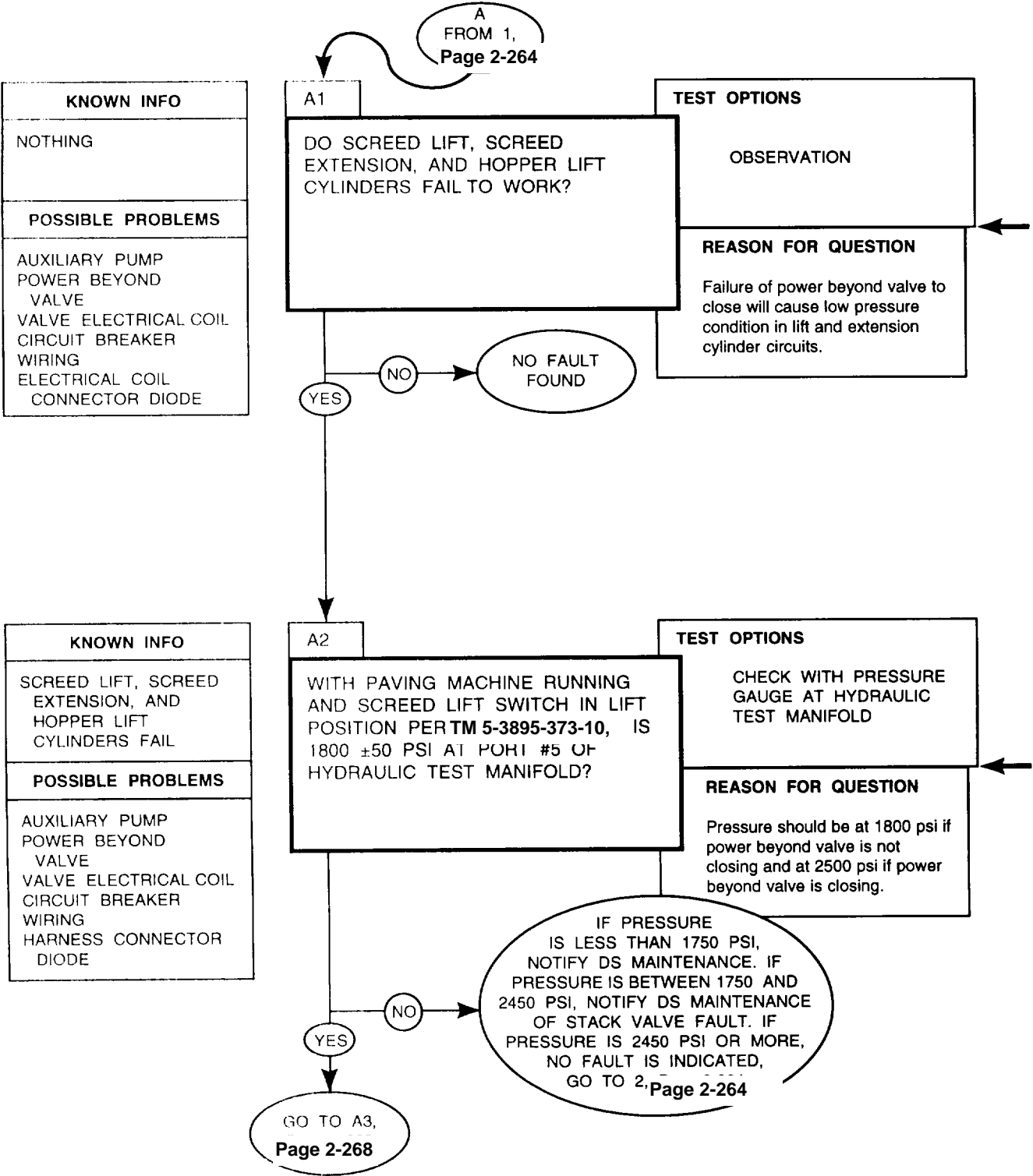
HYDRAULIC CYLINDER CIRCUITS

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA.



HYDRAULIC CYLINDER CIRCUITS

DIAGNOSTIC FLOWCHART



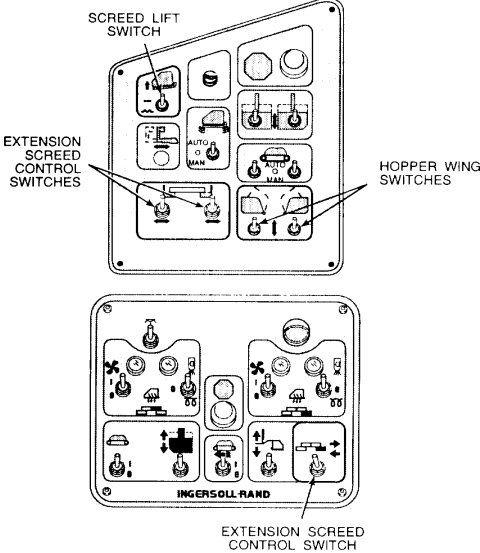
REFERENCE INFORMATION

Refer to paragraphs 1.21.1 through 1.21.6 for functional descriptions of hydraulic cylinder circuits.

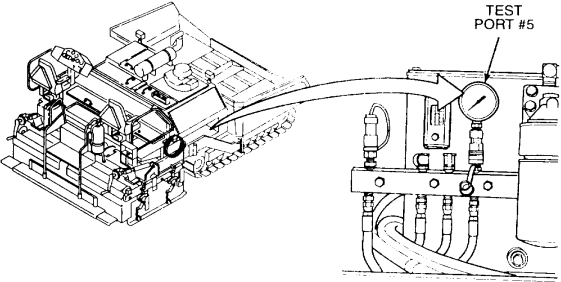
Valve repair actions at the unit level are limited to replacing the valve electrical coil.

HYDRAULIC CYLINDER CIRCUITS

NOTE: RIGHT HAND SCREED CONTROL PANEL SHOWN. LEFT HAND SIMILAR.

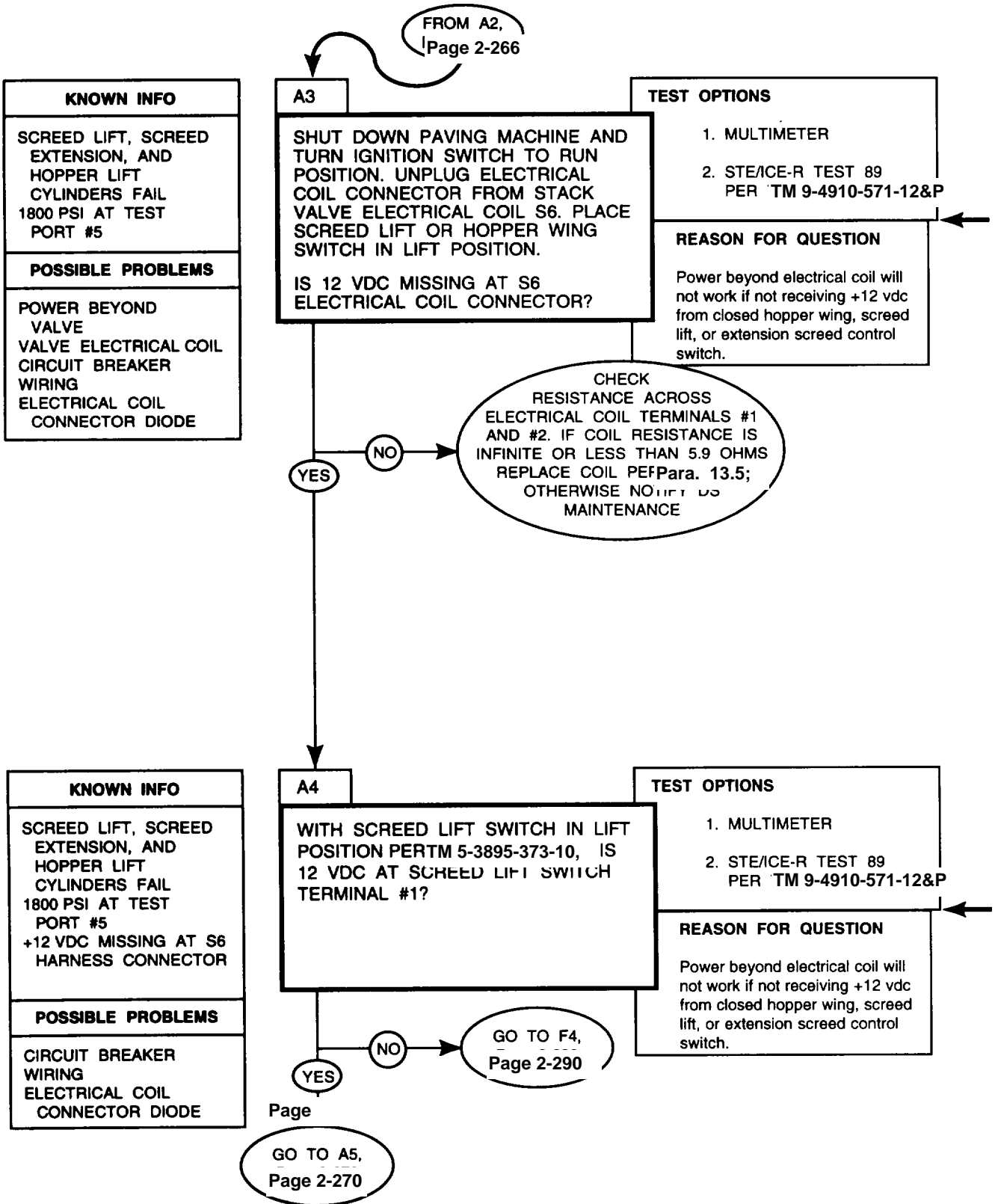


Remove right access cover per TM 5-3895-373-10 to gain access to hydraulic test manifold.



HYDRAULIC CYLINDER CIRCUITS

DIAGNOSTIC FLOWCHART



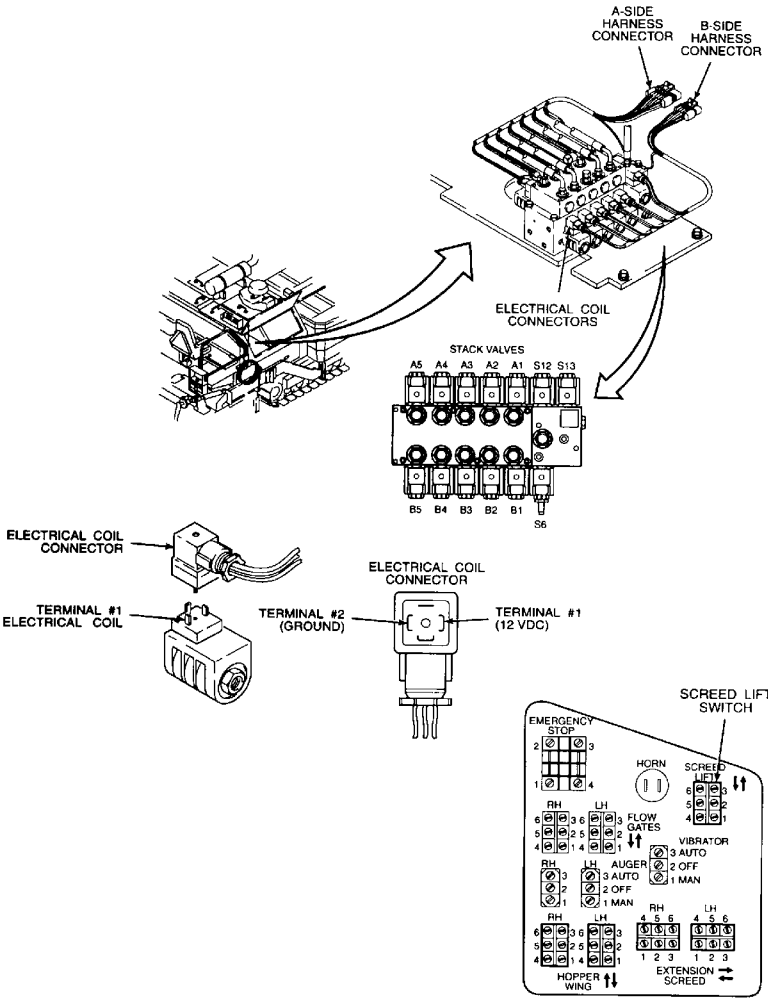
REFERENCE INFORMATION

HYDRAULIC CYLINDER CIRCUITS

Open right access door per TM 5-3895-37310 to gain access to stack valve.

Excessive leakage in extend valve will bleed fluid flow to the reservoir.

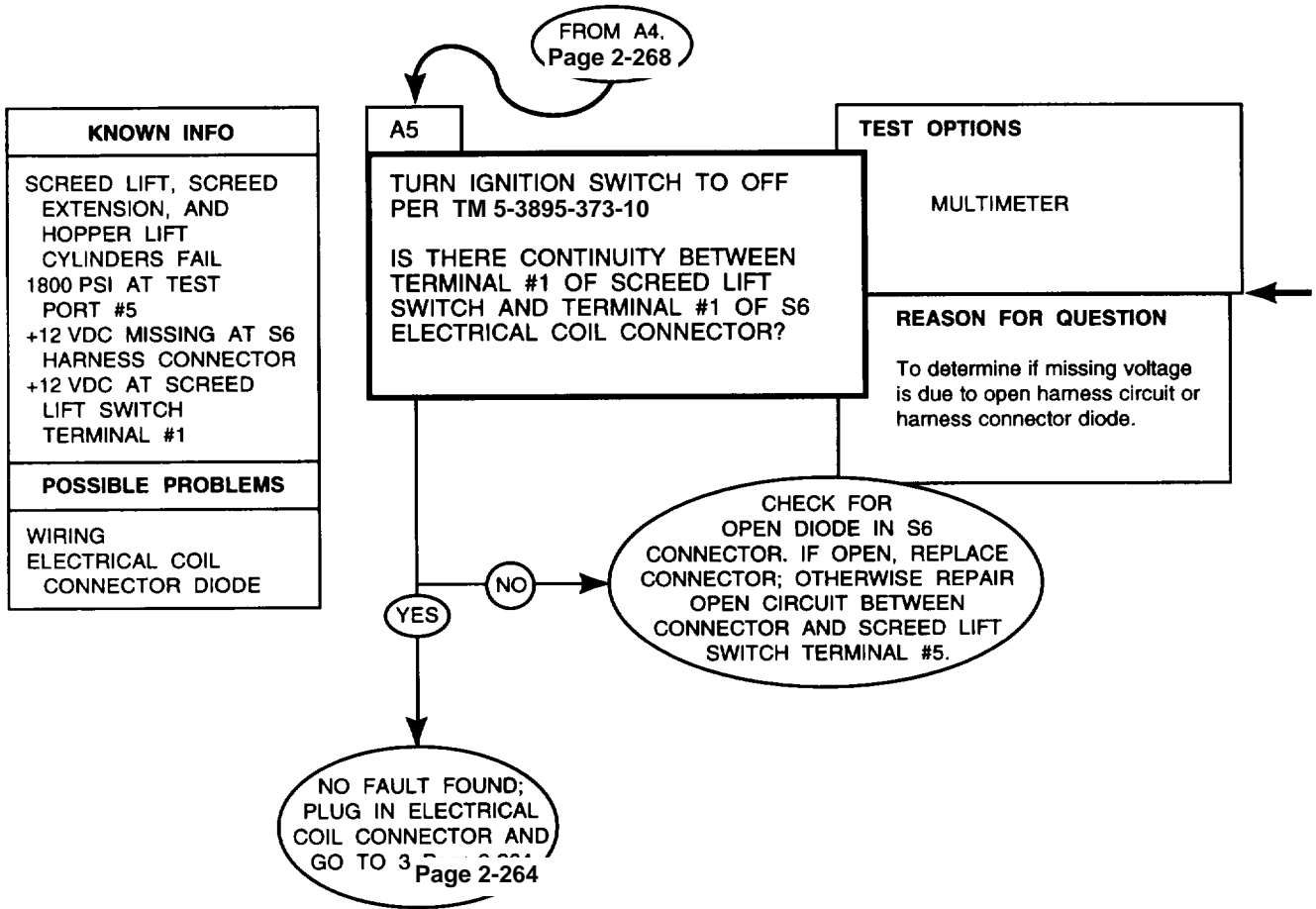
Valve repair actions at the unit level are limited to replacing the valve electrical coil.



To avoid reverse polarity to multimeter, touch negative probe to equipment frame and use positive probe to check switch terminal for +12 volt supply.

HYDRAULIC CYLINDER CIRCUITS

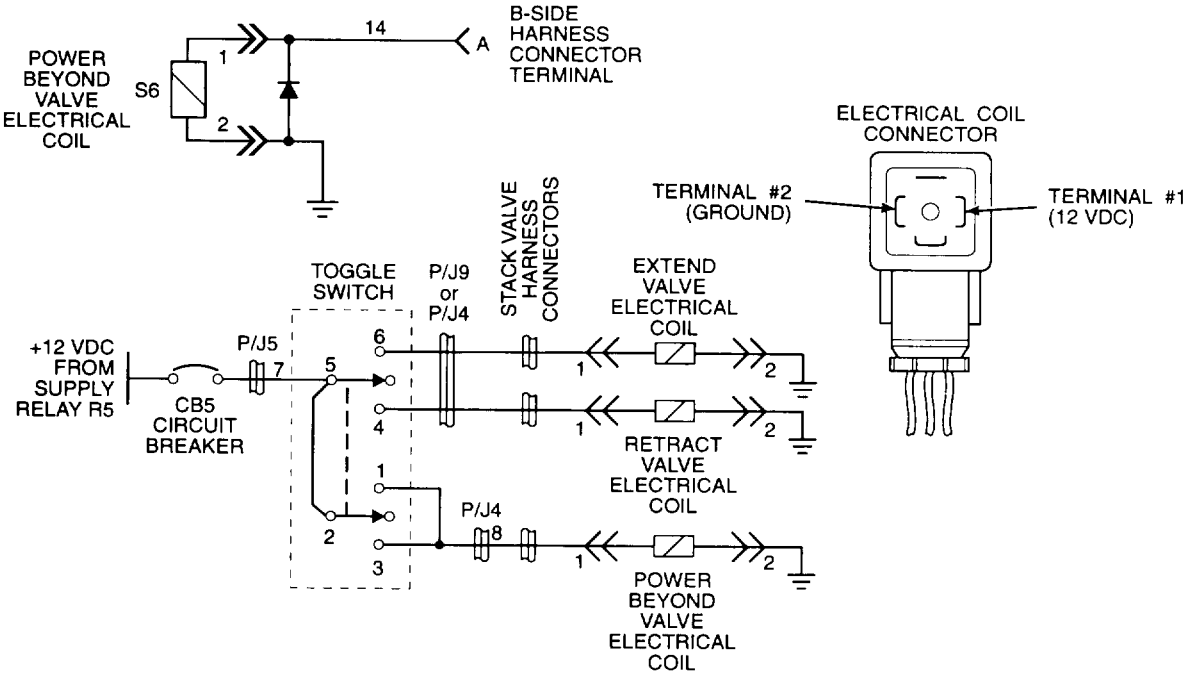
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

HYDRAULIC CYLINDER CIRCUITS

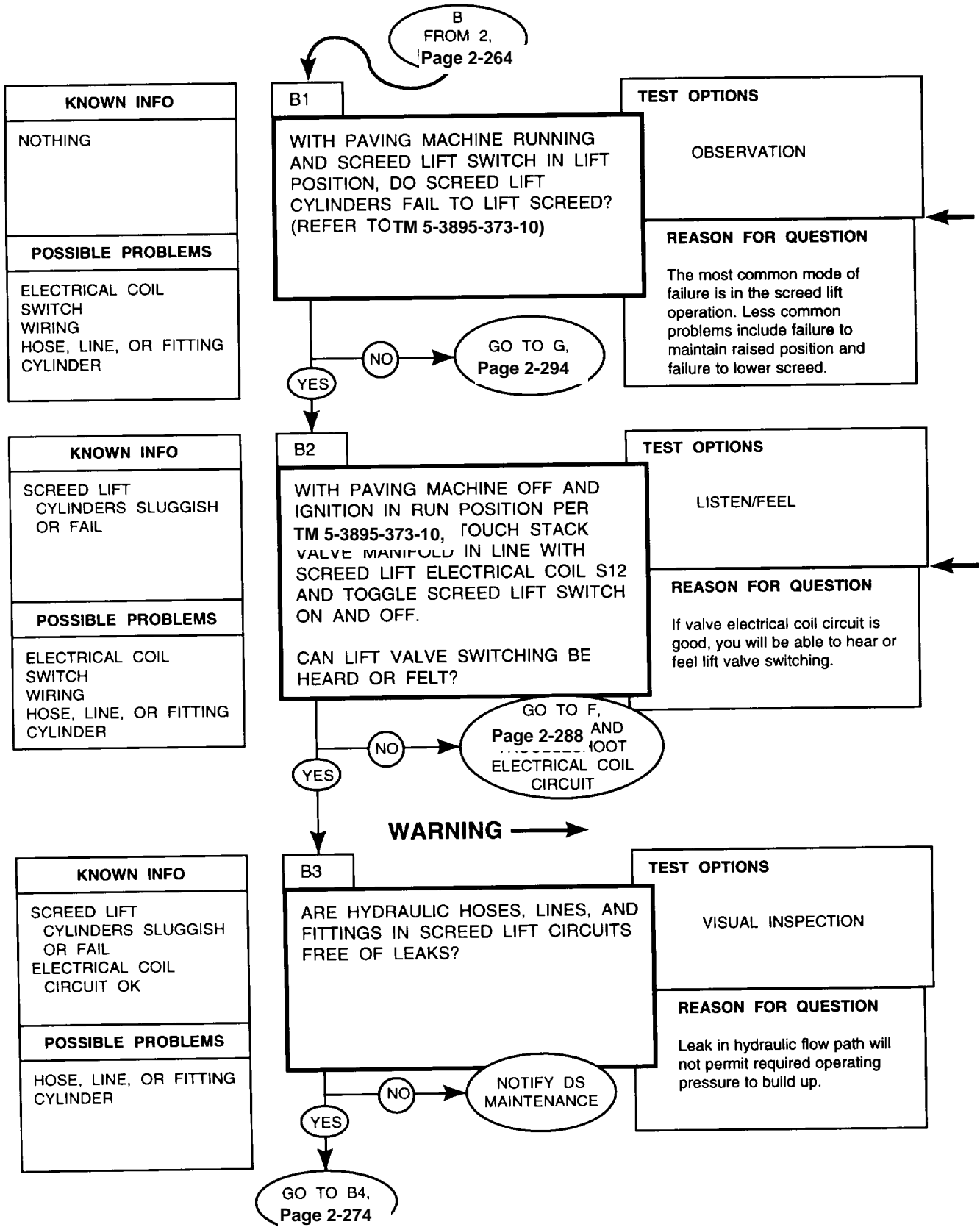
Refer to paragraph 7.21 for harness and lead wire repair.



After completing diagnostic checks, install right access cover and close right access door per TM 5-3895-373-10.

HYDRAULIC CYLINDER CIRCUITS

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

Refer to paragraphs 1.21.1 through 1.21.6 for functional descriptions of hydraulic cylinder circuits.

Valve repair actions at the unit level are limited to replacing the valve electrical coil.

Open right access door per TM 5-3895-373-10 to gain access to stack valve.

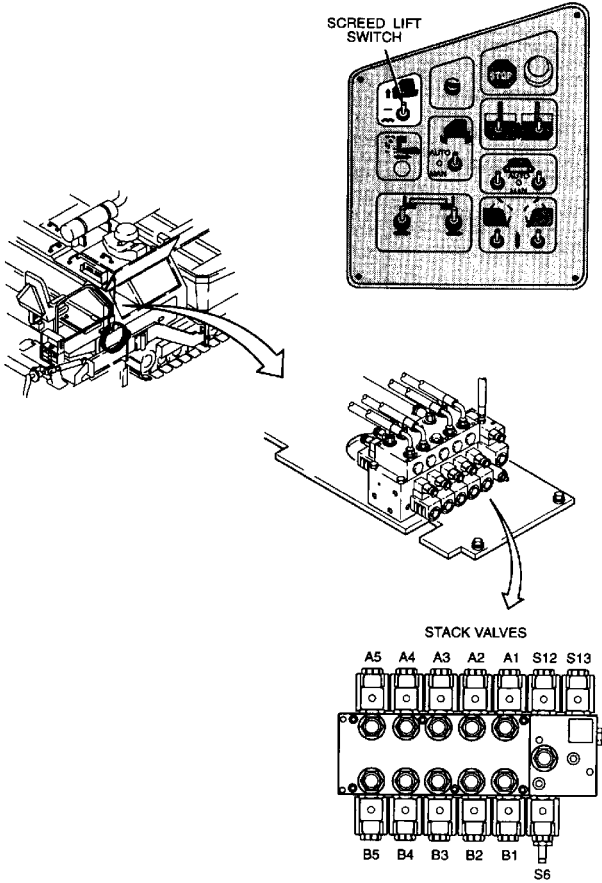
Excessive fluid leakage in screed lift valve will allow proper operation of the hopper lift and screed extension cylinders, but will defeat the screed lift function.

WARNING

Hydraulic oil under pressure can penetrate skin or damage eyes. Oil leaks under pressure may not be visible. Use a piece of cardboard or wood to find leaks, but do not use a bare hand. Wear safety goggles for protection. If oil enters skin or eye, get immediate medical attention.

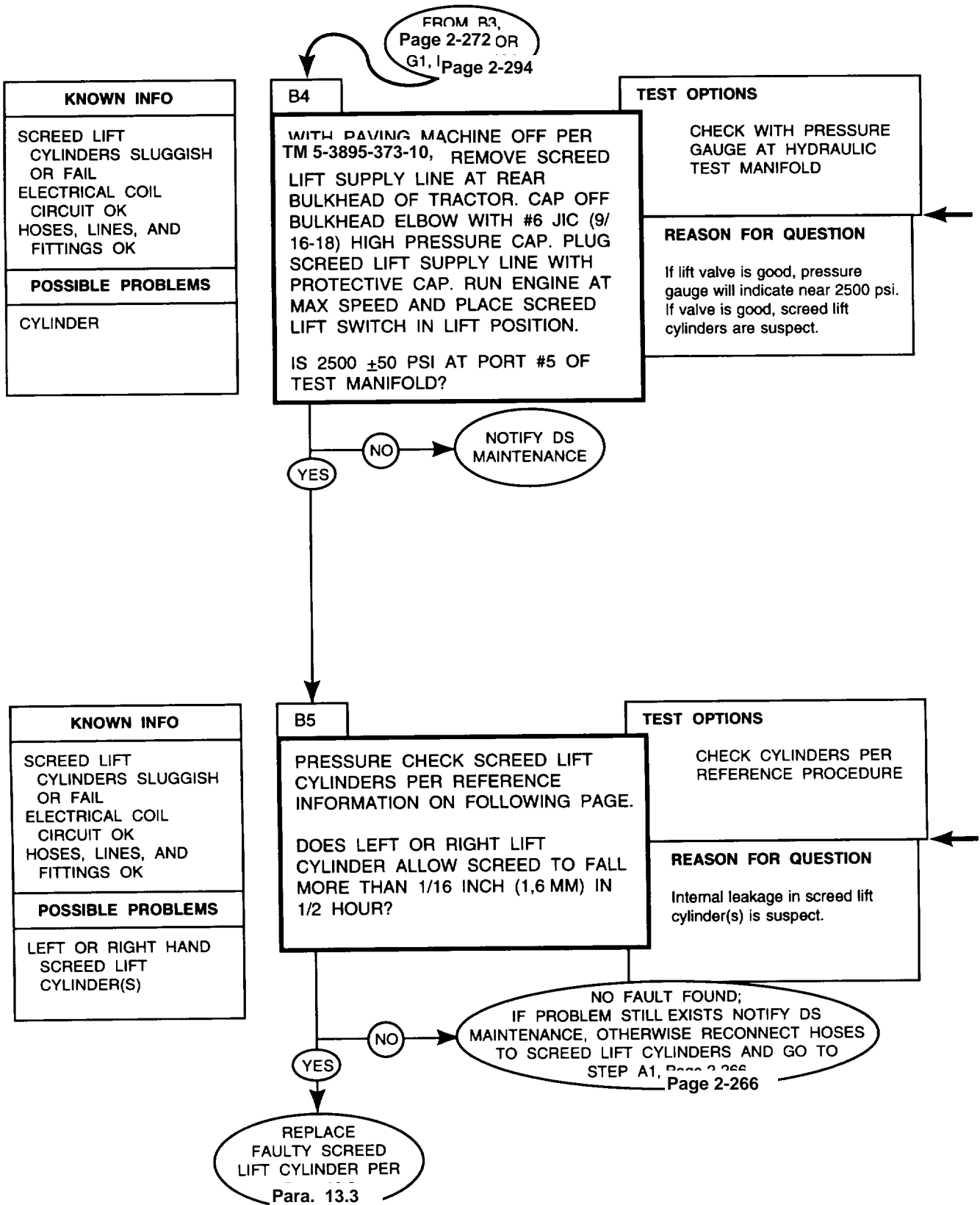
Open center top right and center top left access doors per TM 5-3895-373-10 to gain access to hydraulic hoses, lines, and fittings.

HYDRAULIC CYLINDER CIRCUITS



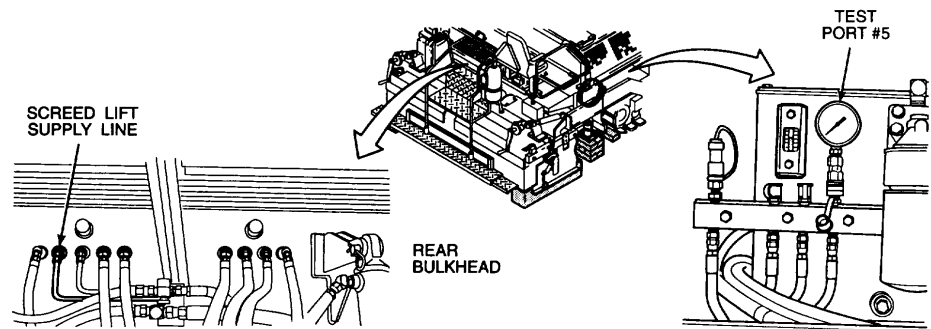
HYDRAULIC CYLINDER CIRCUITS

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

HYDRAULIC CYLINDER CIRCUITS

TEST
PORT #5

SCREED LIFT CYLINDERS - PRESSURE CHECK PROCEDURE

1. With engine running at MAX speed, lift screed to fully-raised position. Place cribbing below both ends of main screed, leaving 1 to 1-1/2 in. air gap between screed plate and cribbing.
2. Support screed in fully-raised position with hydraulic jacks at rear flanges of screed tow arms.
3. Turn paving machine off. Use hydraulic jacks to adjust screed height so that screed lift cylinder clevis pins turn freely in cylinder mounting knuckles.

WARNING

Make sure lift cylinders are not under load before removing hydraulic hoses from lift cylinder retract ports. Hydraulic oil under pressure can penetrate skin or damage eyes.

4. Make sure lift cylinders are not under extension or compression load. Disconnect hoses from bottom (retract) port elbows of screed lift cylinders. Plug hose ends and cap off cylinder retract port elbows; use #6 JIC (9/6-18) high pressure caps.

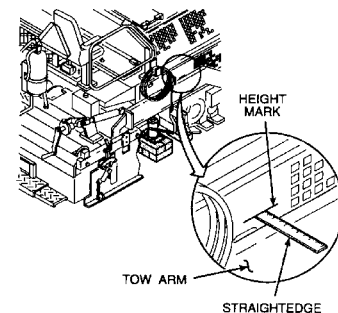
NOTE

When hydraulic jack is lowered, screed is expected to drop slightly. This initial drop will make up for fluid loss that occurred during removal of supply hoses from cylinders.

5. Release both hydraulic jacks at the same time. When screed is stable, use straightedge and

pencil to mark vertical position of left and right tow arms.

6. After 1/2 hour, mark settled position of screed tow arms. Measure distance between upper and lower pencil marks on left and right side of screed. Answer question in paragraph B5 of flowchart.

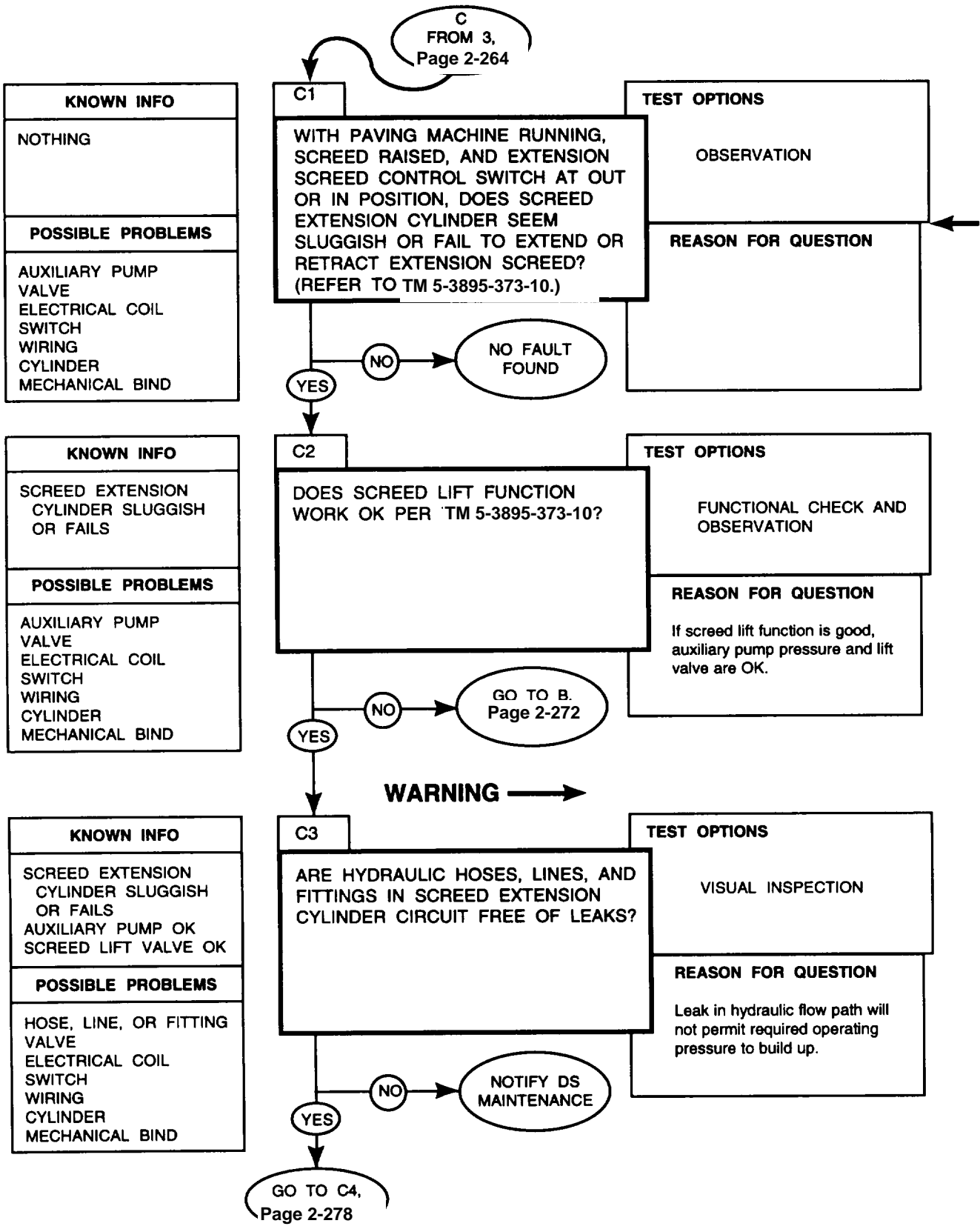


7. Support screed in raised position with hydraulic jacks at rear flanges of screed tow arms. Adjust screed height to remove load from screed lift cylinders.
8. Remove plugs and caps and reconnect screed lift cylinder hoses.

After completing diagnostic checks, close right, center top left, and center top right access doors per TM 5-3895-373-10.

HYDRAULIC CYLINDER CIRCUITS

DIAGNOSTIC FLOWCHART



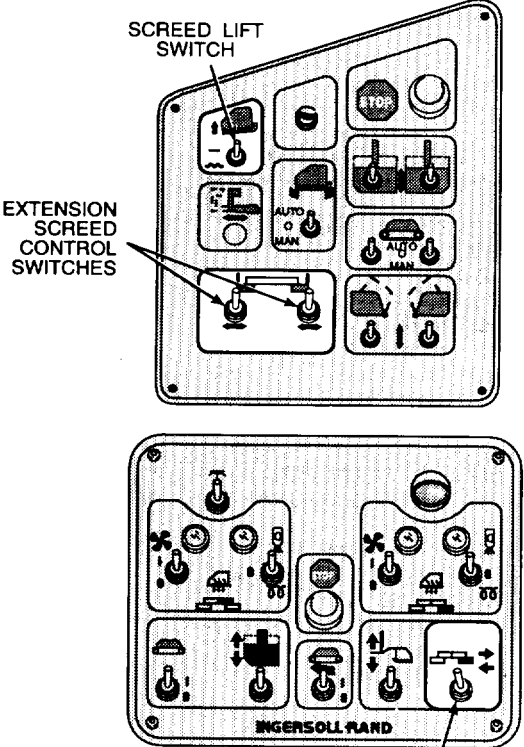
REFERENCE INFORMATION

Refer to paragraphs 1.21.1 through 1.21.6 for functional descriptions of hydraulic cylinder circuits.

Valve repair actions at the unit level are limited to replacing the valve electrical coil.

HYDRAULIC CYLINDER CIRCUITS

NOTE: RIGHT HAND SCREED CONTROL PANEL SHOWN. LEFT HAND SIMILAR.



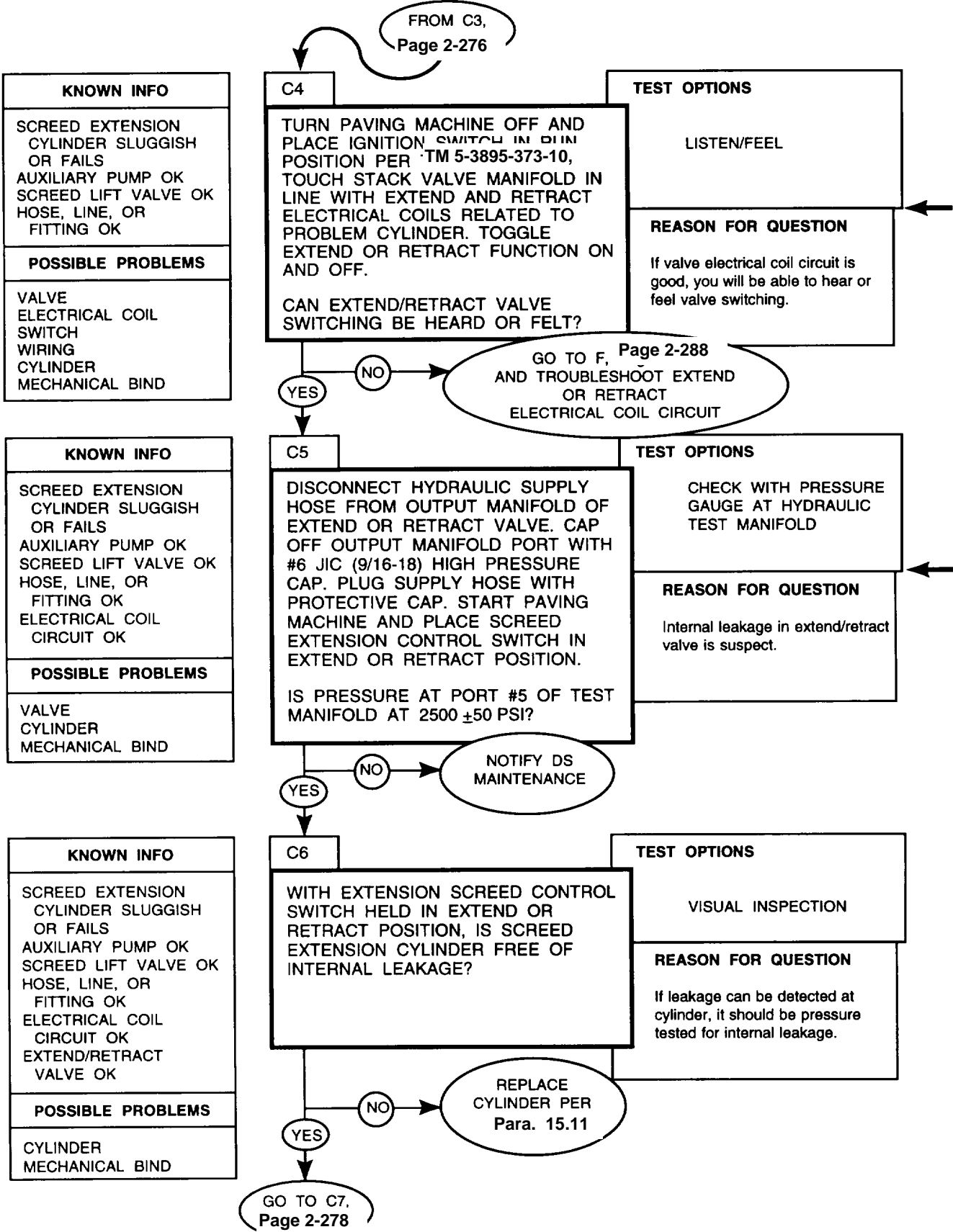
WARNING

Hydraulic oil under pressure can penetrate skin or damage eyes. Oil leaks under pressure may not be visible. Use a piece of cardboard or wood to find leaks, but do not use a bare hand. Wear safety goggles for protection. If oil enters skin or eye, get immediate medical attention.

Open right, center top right, and center top left access doors per TM 5-3895-373-10 to gain access to hydraulic hoses, lines, and fittings.

HYDRAULIC CYLINDER CIRCUITS

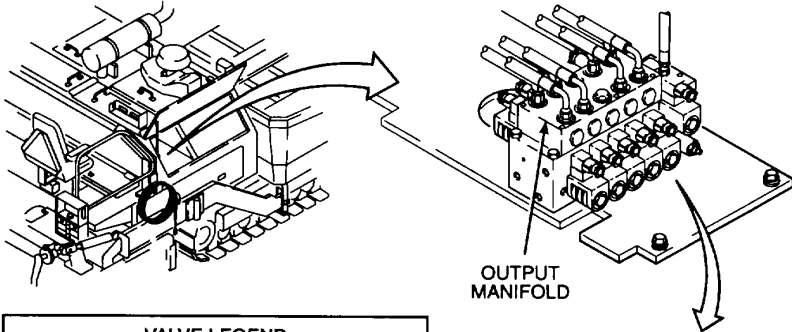
DIAGNOSTIC FLOWCHART



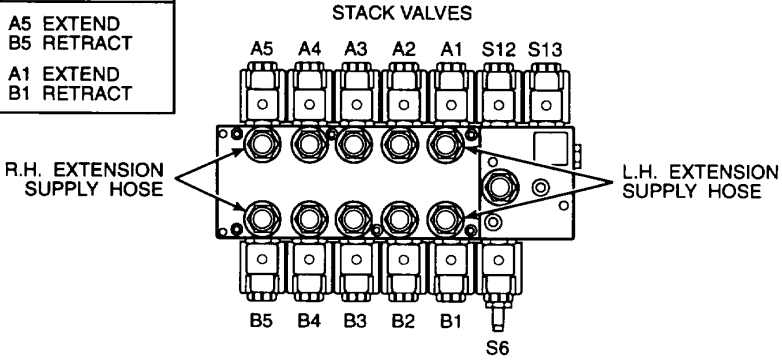
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HYDRAULIC CYLINDER CIRCUITS

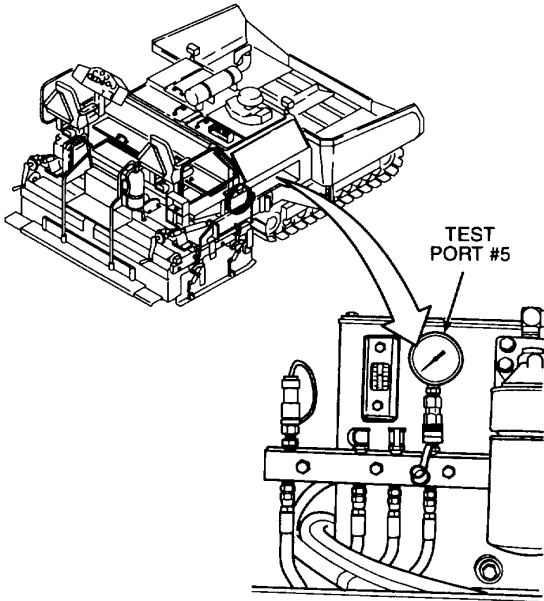
Open right access door per TM 5-3895-373-10 to gain access to stack valve.



VALVE LEGEND	
R.H. SCREED EXTENSION CYLINDER	A5 EXTEND B5 RETRACT
L.H. SCREED EXTENSION CYLINDER	A1 EXTEND B1 RETRACT

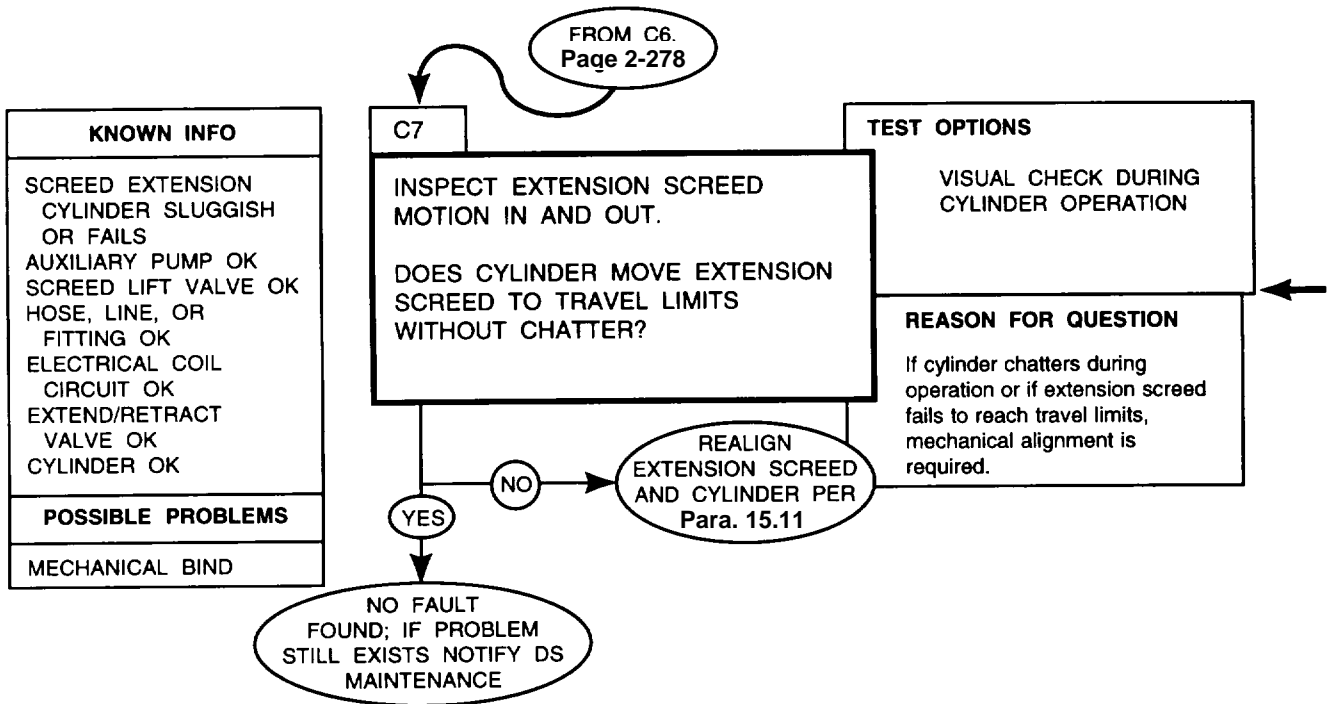


Remove right access cover per TM 5-3895-373-10 to gain access to hydraulic test manifold.



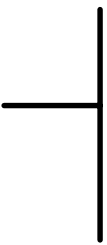
HYDRAULIC CYLINDER CIRCUITS

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

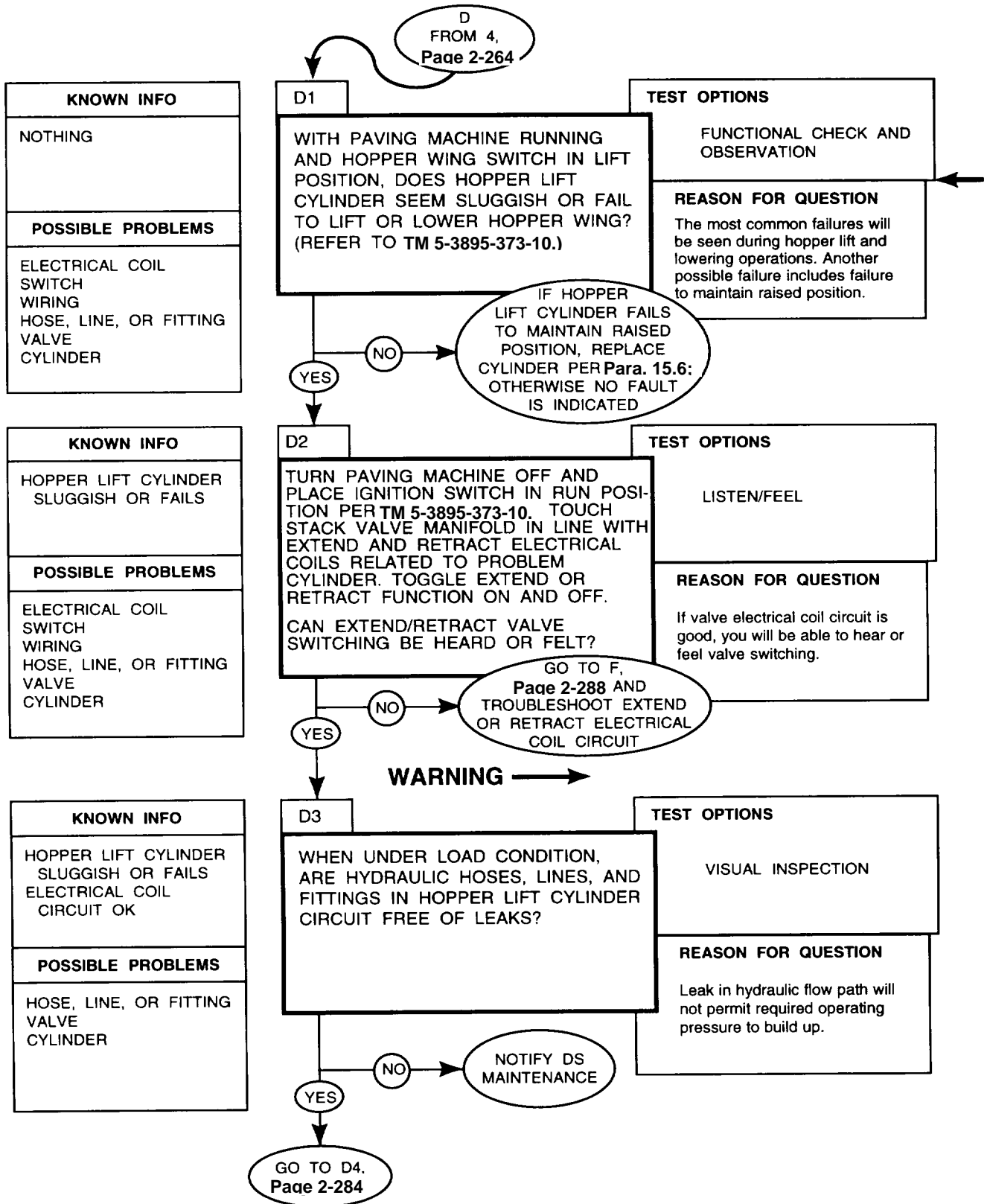
HYDRAULIC CYLINDER CIRCUITS



After completing diagnostic checks, install right access cover per TM 5-3895-373-10. Close right, center top left, and center top right access doors per TM 5-3895-373-10.

HYDRAULIC CYLINDER CIRCUITS

DIAGNOSTIC FLOWCHART

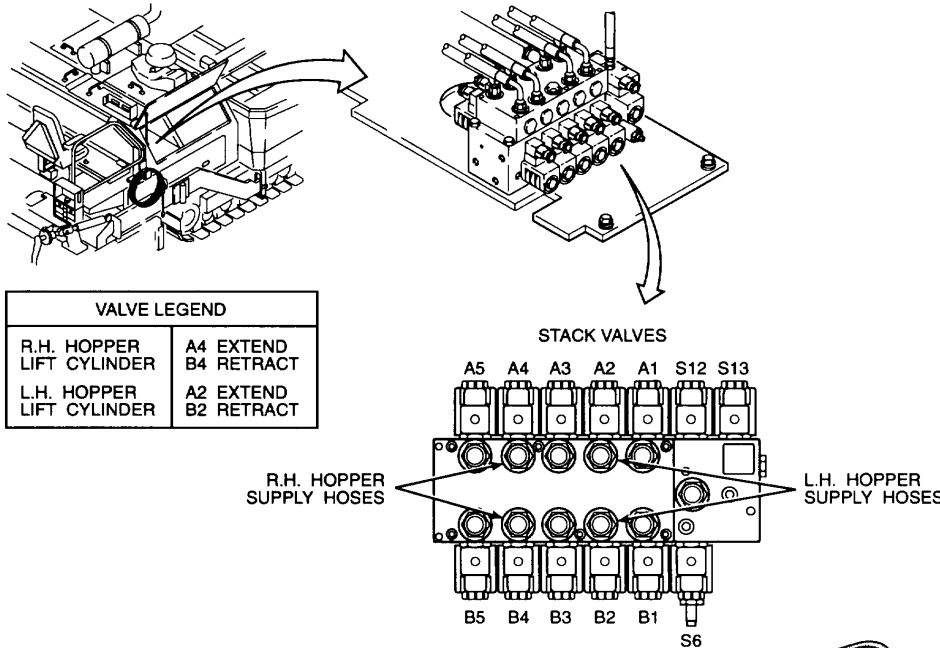


REFERENCE

INFORMATION HYDRAULIC CYLINDER CIRCUITS

Refer to paragraphs 1.21.1 through 1.21.6 for functional descriptions of hydraulic cylinder circuits.

Valve repair actions at the unit level are limited to replacing the valve electrical coil.

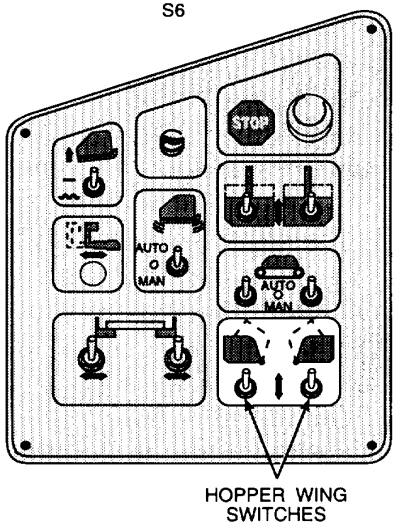


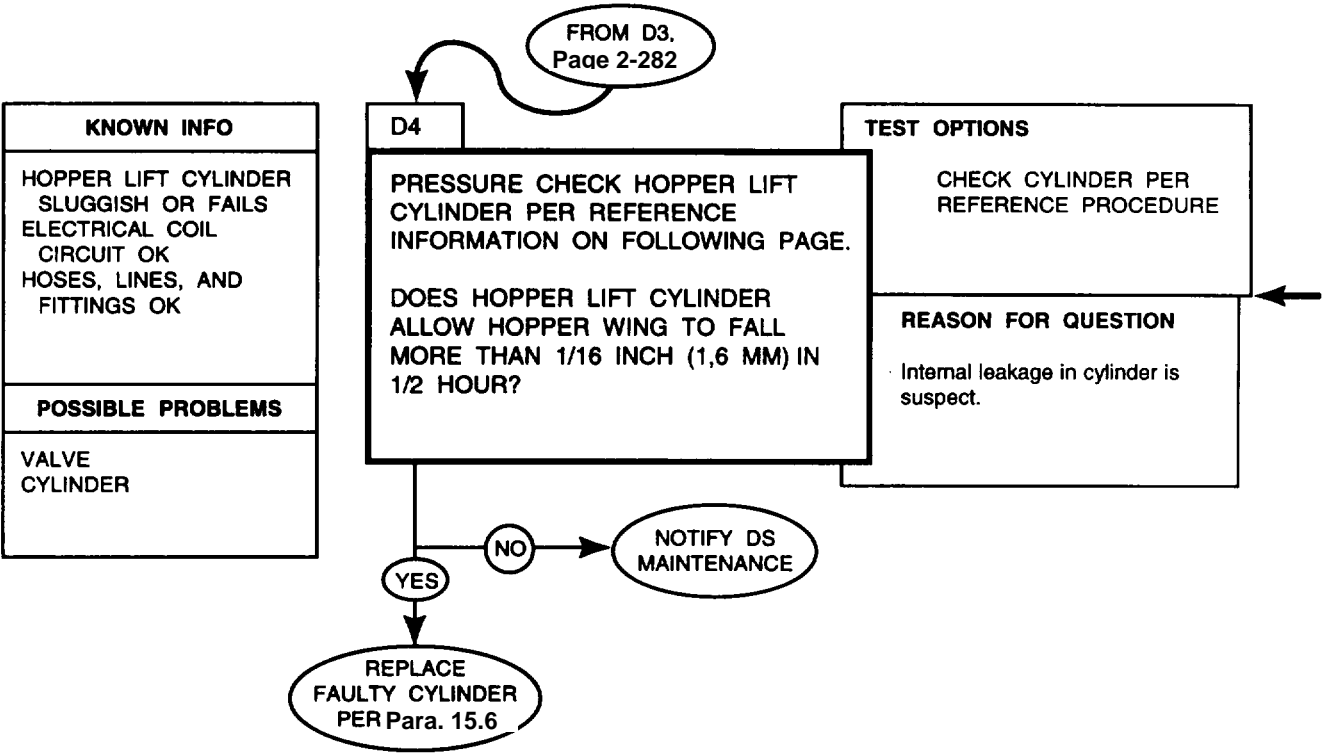
Open right access door per TM 5-3895-373-10 to gain access to stack valve.

WARNING

Hydraulic oil under pressure can penetrate skin or damage eyes. Oil leaks under pressure may not be visible. Use a piece of cardboard or wood to find leaks, but do not use a bare hand. Wear safety goggles for protection. If oil enters skin or eye, get immediate medical attention.

Open right, center top right, and center top left access doors per TM 5-3895-373-10 to gain access to hydraulic hoses, lines, and fittings.





REFERENCE INFORMATION

HYDRAULIC CYLINDER CIRCUITS

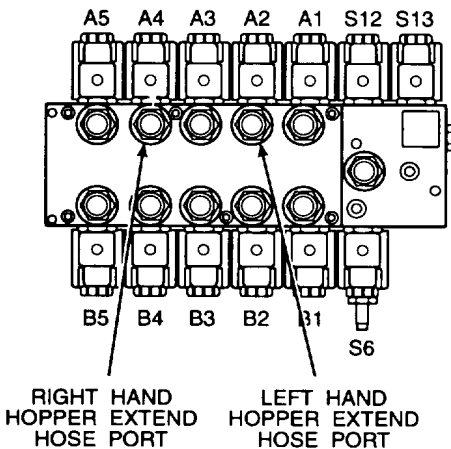
HOPPER LIFT CYLINDER - PRESSURE CHECK PROCEDURE

1. With paving machine running at high idle, raise hopper wing 6 to 8 in. above hopper-wing-down position.
2. Use cribbing and hydraulic jack to relieve weight of hopper wing on lift cylinder. Make sure lower cylinder pivot pin turns freely in cylinder mounting knuckle.

WARNING

Make sure cylinder is not under load before removing hydraulic hose from hopper cylinder extend port of stack valve output manifold. Hydraulic oil under pressure can penetrate skin or damage eyes.

3. Disconnect hydraulic hose from stack valve output manifold extend port (A2 for left hand cylinder or A4 for right hand cylinder). Plug hydraulic hose with high-pressure #6 JIC (9/16-18) plug. Cap off open manifold port with protective cap.



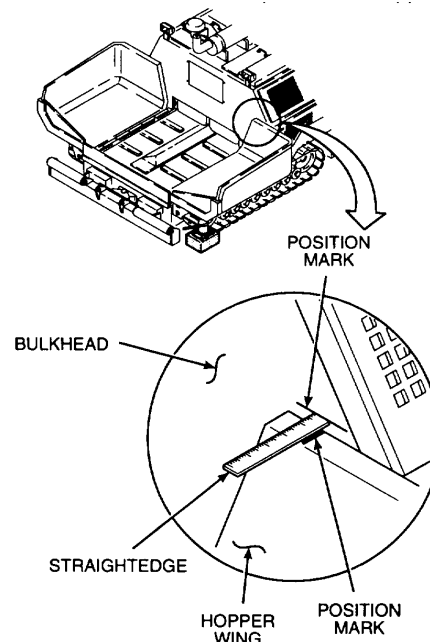
WARNING

Make sure personnel are clear of hopper wing before releasing hydraulic jack. Falling hopper wing can cause serious injury or death.

NOTE

When hydraulic jack is lowered, hopper wing is expected to drop slightly. This initial drop will make up for fluid loss that occurred during removal of supply hose from stack valve manifold.

4. Make sure all personnel are clear of hopper wing. Release hydraulic jack. When hopper wing is stable, use straightedge and pencil to mark vertical position of hopper wing on bulkhead. Mark ruler position on hopper wing.

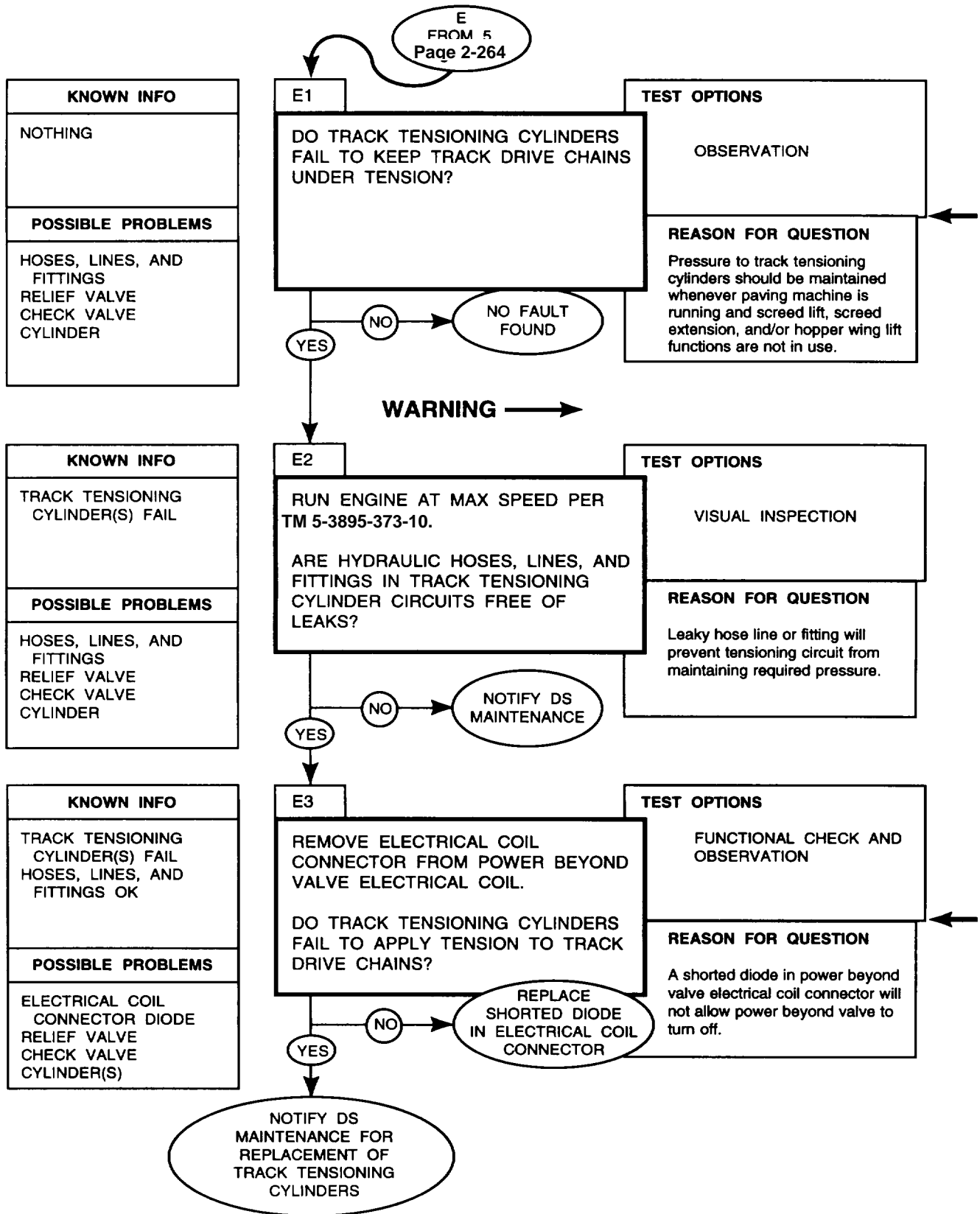


5. After 1/2 hour, mark settled position of hopper wing on tractor bulkhead.
6. Use jack and cribbing to remove load from hopper lift cylinder. Slowly bleed pressure from hose while removing plug. Reconnect cylinder hose at stack valve. Start paving machine and lower hopper wing. Measure distance between pencil marks, and answer question in paragraph D4 of flowchart.

After completing diagnostic checks, install right access cover per TM 5-3895-373-10. Close right, center top left, and center top right access doors per TM 5-3895-373-10.

HYDRAULIC CYLINDER CIRCUITS

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

HYDRAULIC CYLINDER CIRCUITS

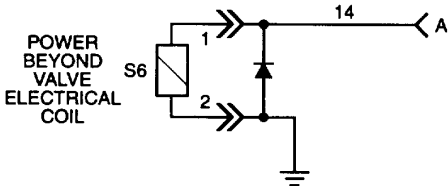
Refer to paragraph 1.20.2 for a functional description of the track tensioning cylinder circuit.

The track tensioning cylinders extend when the power beyond valve is off. The power beyond valve turns on whenever a screed lift, hopper lift, or screed extension cylinder function is in use.

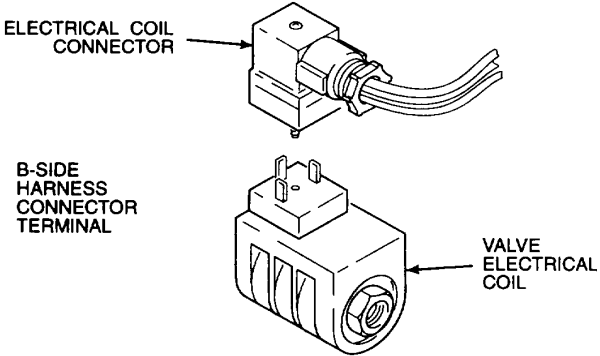
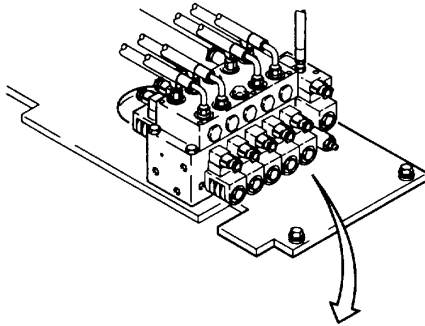
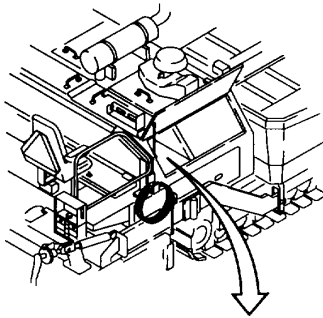
WARNING

Hydraulic oil under pressure can penetrate skin or damage eyes. Oil leaks under pressure may not be visible. Use a piece of cardboard or wood to find leaks, but do not use a bare hand. Wear safety goggles for protection. If oil enters skin or eye, get immediate medical attention.

Open right access door per TM 5-3895-373-10 to gain access to stack valve.



After completing diagnostic checks, close right access door per TM 5-3895-373-10.



HYDRAULIC CYLINDER CIRCUITS

DIAGNOSTIC FLOWCHART

F FROM B2, Page 2-272, C4, Page 2-278, OR D2, Page 2-282

KNOWN INFO
SCREED LIFT, SCREED EXTENSION, OR HOPPER LIFT CYLINDER FAILS
POSSIBLE PROBLEMS
SWITCH VALVE ELECTRICAL COIL CIRCUIT BREAKER WIRING ELECTRICAL COIL CONNECTOR DIODE

F1

REMOVE ELECTRICAL COIL CONNECTOR FROM RELATED STACK VALVE ELECTRICAL COIL. PLACE TOGGLE SWITCH IN FAILED POSITION. (REFER TO TM 5-3895-373-10.)

IS 12 VDC MISSING ACROSS TERMINALS #1 AND #2 OF ELECTRICAL COIL CONNECTOR? (REFER TO ELECTRICAL COIL CONNECTOR DIAGRAM FOR RELATED TERMINALS AND WIRING.)

TEST OPTIONS

1. MULTIMETER
2. STE/ICE-R TEST 89 PER TM 9-4910-571-12&P

REASON FOR QUESTION
Electrical coil will not work if not receiving +12 vdc from toggle switch.

YES →

NO → CHECK RESISTANCE ACROSS ELECTRICAL COIL TERMINALS #1 AND #2. IF COIL RESISTANCE IS INFINITE OR LESS THAN 5.9 OHMS, REPLACE COIL PER Para. 13.5. OTHERWISE NOTIFY DS MAINTENANCE

KNOWN INFO
SCREED LIFT, SCREED EXTENSION, OR HOPPER LIFT CYLINDER FAILS +12 VDC MISSING ACROSS ELECTRICAL COIL CONNECTOR TERMINALS
POSSIBLE PROBLEMS
SWITCH CIRCUIT BREAKER WIRING ELECTRICAL COIL CONNECTOR DIODE

F2

IS THERE CONTINUITY BETWEEN TERMINAL #2 OF ELECTRICAL COIL CONNECTOR AND GROUND TERMINAL AT STACK VALVE MANIFOLD?

TEST OPTIONS

MULTIMETER

REASON FOR QUESTION
Open electrical coil ground circuit will prevent +12 vdc voltage drop across electrical coil.

YES →

NO → REPAIR OPEN CIRCUIT BETWEEN ELECTRICAL COIL CONNECTOR AND GROUND TERMINAL

KNOWN INFO
SCREED LIFT, SCREED EXTENSION, OR HOPPER LIFT CYLINDER FAILS +12 VDC MISSING AT ELECTRICAL COIL CONNECTOR ELECTRICAL COIL GROUND CIRCUIT OK
POSSIBLE PROBLEMS
SWITCH CIRCUIT BREAKER WIRING ELECTRICAL COIL CONNECTOR DIODE

F3

WITH 19TH SWITCH IN RUN AND TOGGLE SWITCH IN FAILED POSITION PER TM 5-3895-373-10. IS 12 VDC MISSING AT RELATED SWITCH OUTPUT TERMINAL?

TEST OPTIONS

1. MULTIMETER
2. STE/ICE-R TEST 89 PER TM 9-4910-571-12&P

REASON FOR QUESTION
Electrical coil will not work if not receiving +12 vdc from toggle switch.

YES →

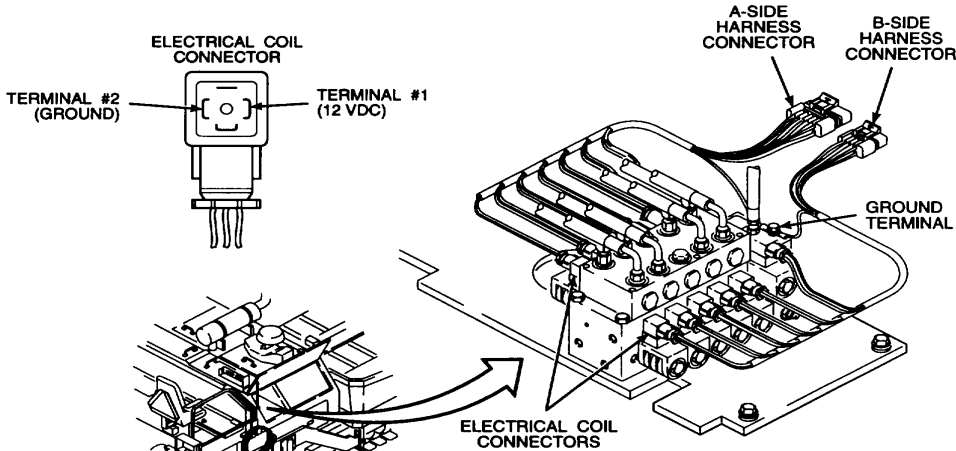
NO → REPAIR OPEN CIRCUIT BETWEEN ELECTRICAL COIL CONNECTOR AND SWITCH

GO TO F4 Page 2-290

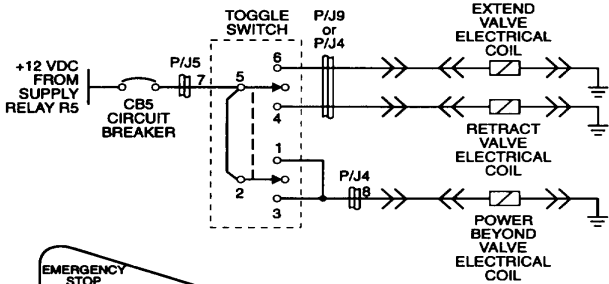
REFERENCE INFORMATION

HYDRAULIC CYLINDER CIRCUITS

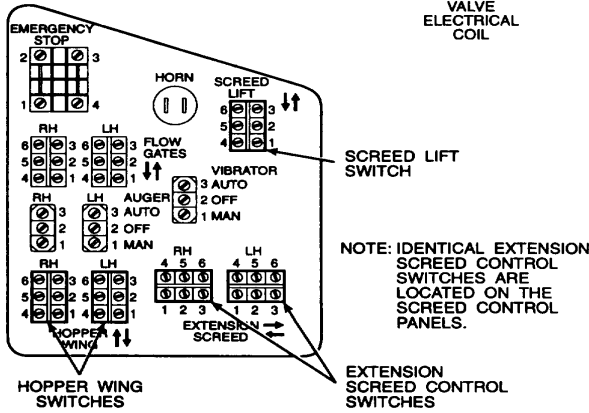
Open right access door per TM 5-3895-373-10 to gain access to stack valve. Refer to page 2-265 for stack valve electrical coil functions, harness wiring, and connector terminal designations.



Refer to paragraph 7.21 for harness and lead wire repair.

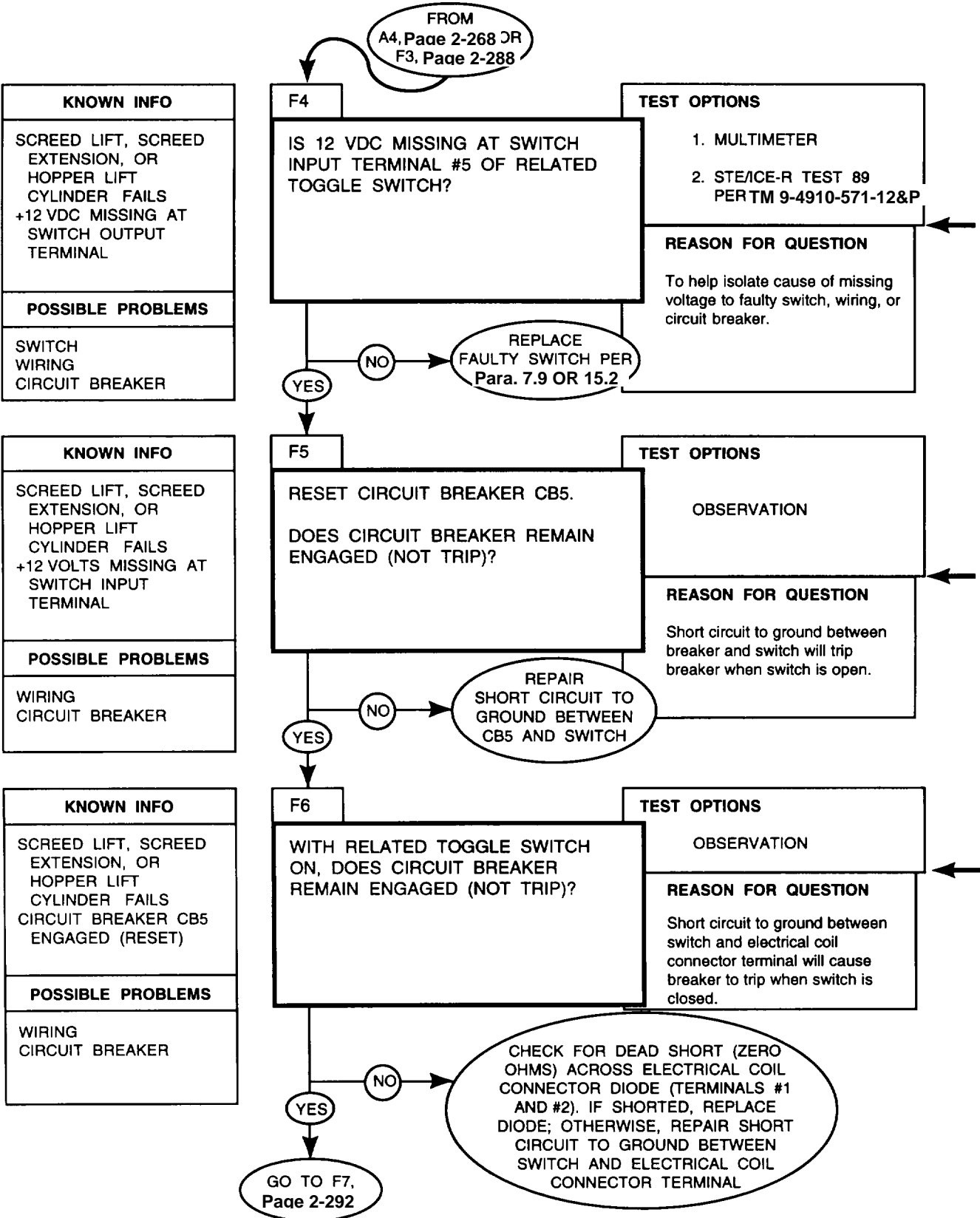


Remove operators switch panel per paragraph 7.6 or screed control panel per paragraph 15.2 to gain access to switch terminals.



HYDRAULIC CYLINDER CIRCUITS

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

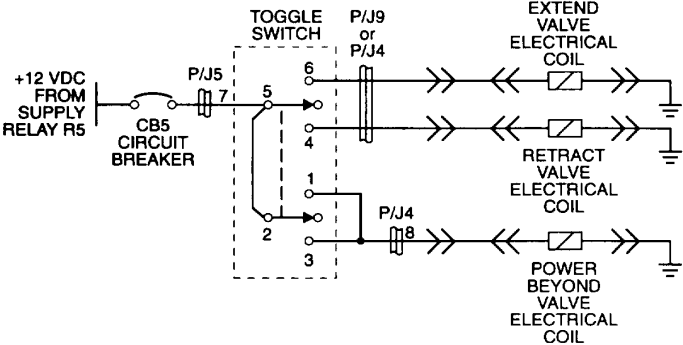
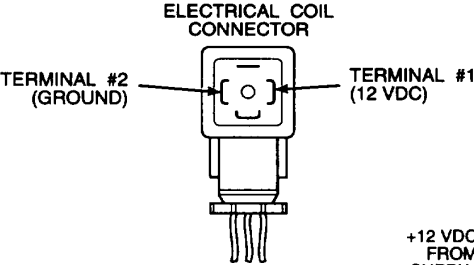
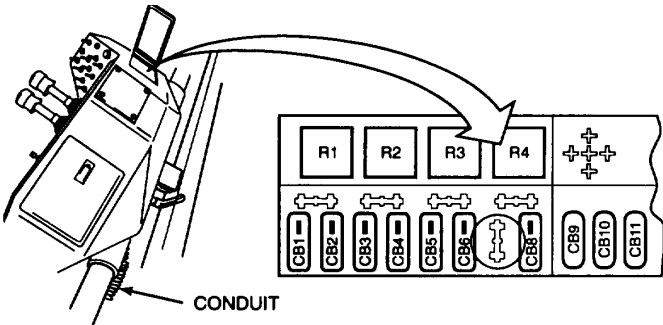
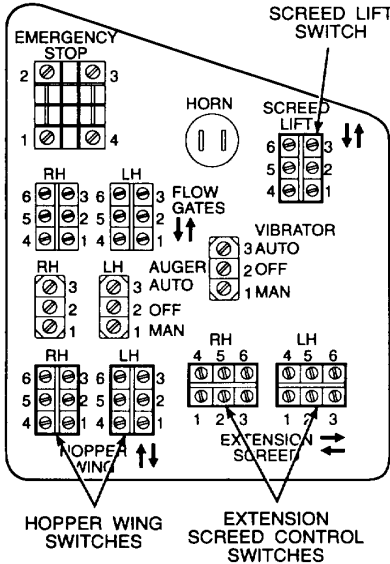
HYDRAULIC CYLINDER CIRCUITS

Cylinder function toggle switches are momentary switches.

Refer to paragraph 7.21 for harness and lead wire repair.

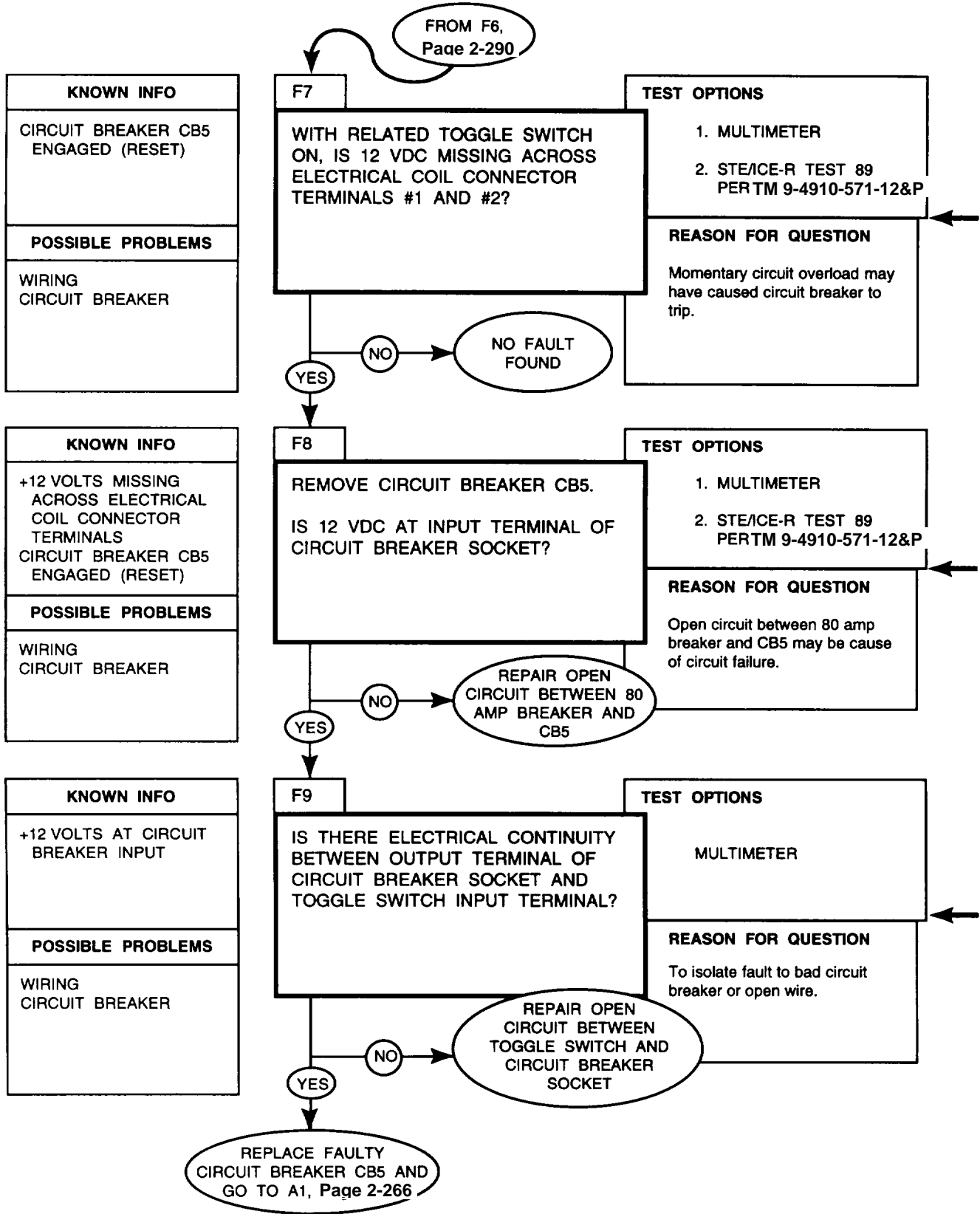
NOTE
IDENTICAL EXTENSION SCREED CONTROL SWITCHES ARE LOCATED ON THE SCREED CONTROL PANELS.

Open gauge panel access doors per TM 5-3895-373-10 to gain access to circuit breakers.



HYDRAULIC CYLINDER CIRCUITS

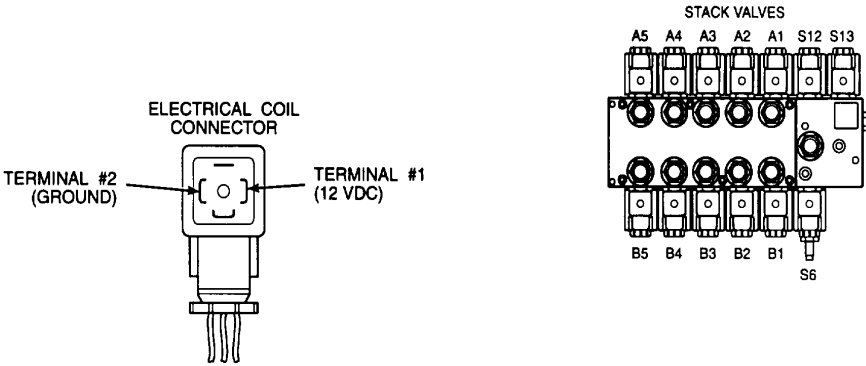
DIAGNOSTIC FLOWCHART



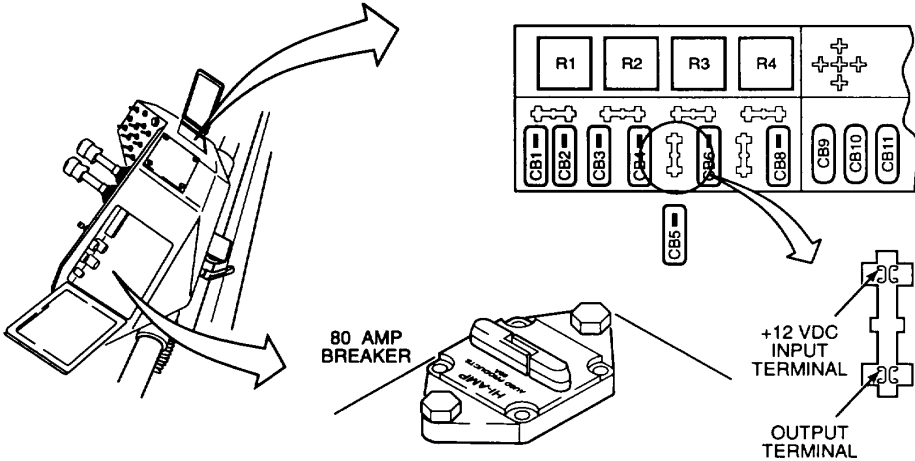
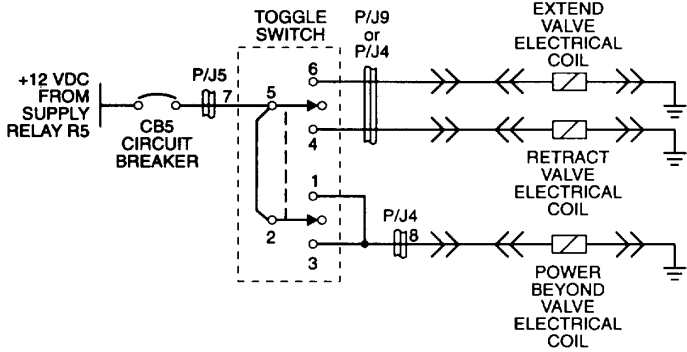
REFERENCE INFORMATION

HYDRAULIC CYLINDER CIRCUITS

Refer to page 2-265 for stack valve electrical coil functions, harness wiring, and connector terminal designations.



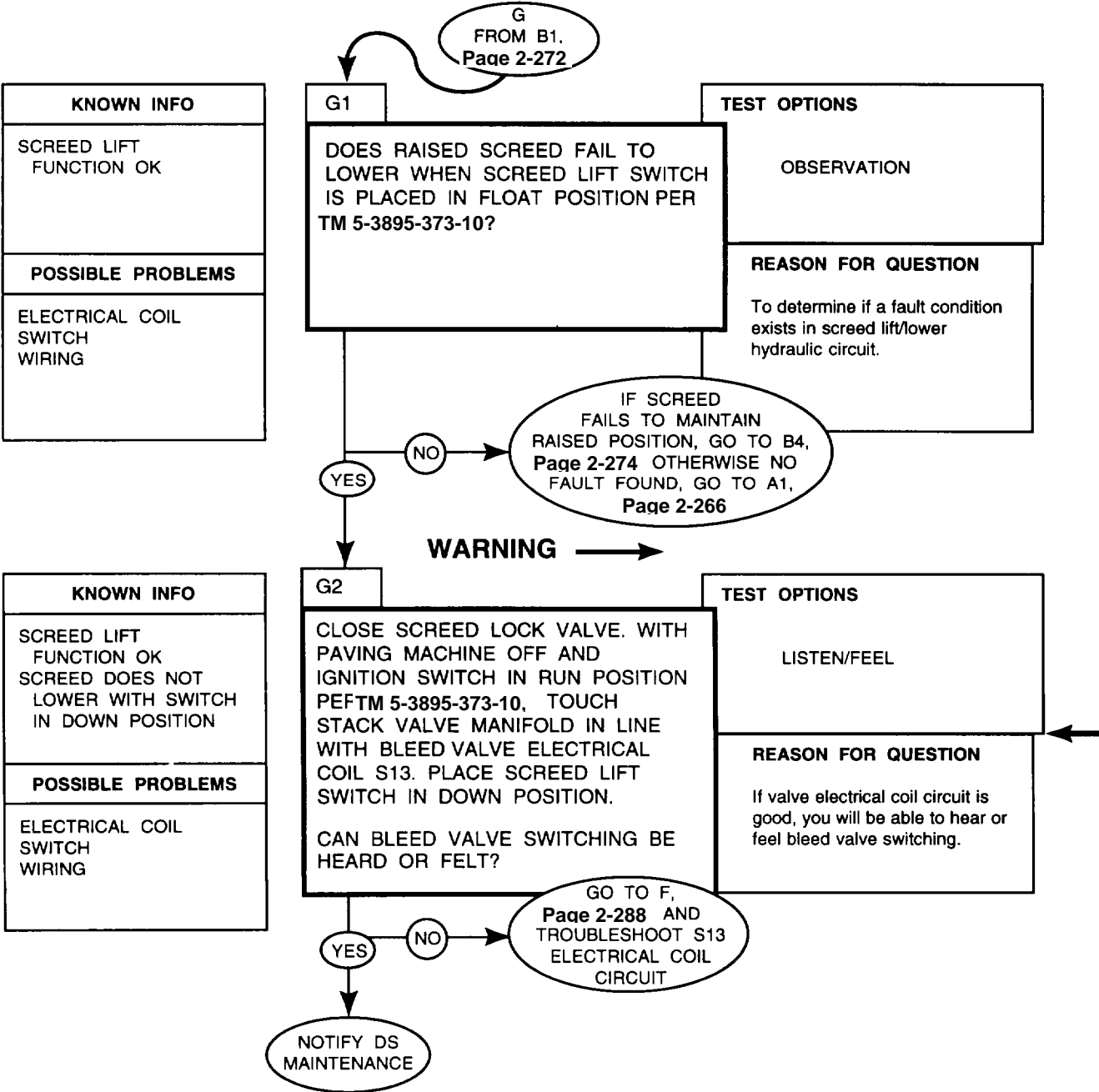
Refer to paragraph 7.21 for harness and lead wire repair.



After completing diagnostic checks, close right access door and gauge panel access doors per TM 5-3895-373-10. Install operator switch panel per paragraph 7.6. Install screed control panel per paragraph 15.2.

HYDRAULIC CYLINDER CIRCUITS

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

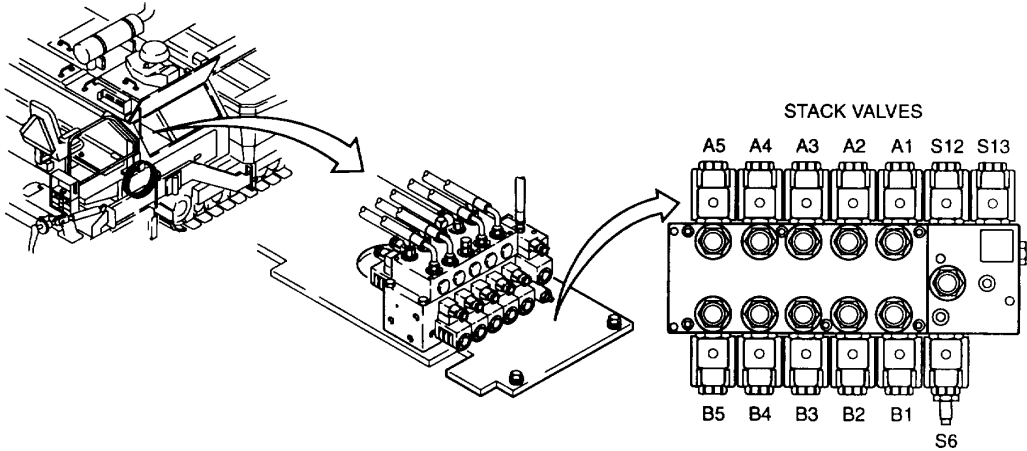
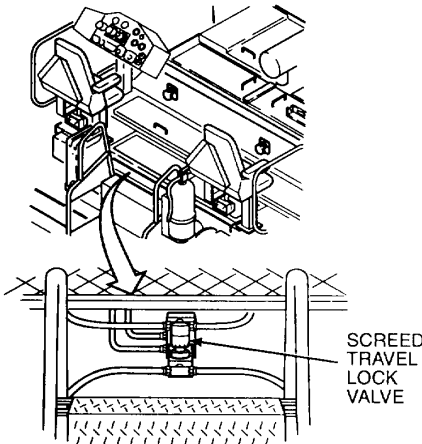
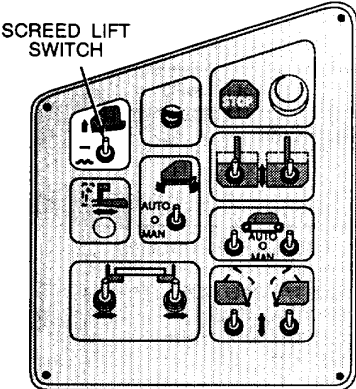
HYDRAULIC CYLINDER CIRCUITS

WARNING

Screed travel lock valve must be closed to prevent screed from falling accidentally during test. Failure to close screed lock valve may result in serious injury to personnel.

Open screed travel lock valve slowly to lower screed. Opening lock valve too much will cause screed to drop quickly and could result in serious injury to personnel.

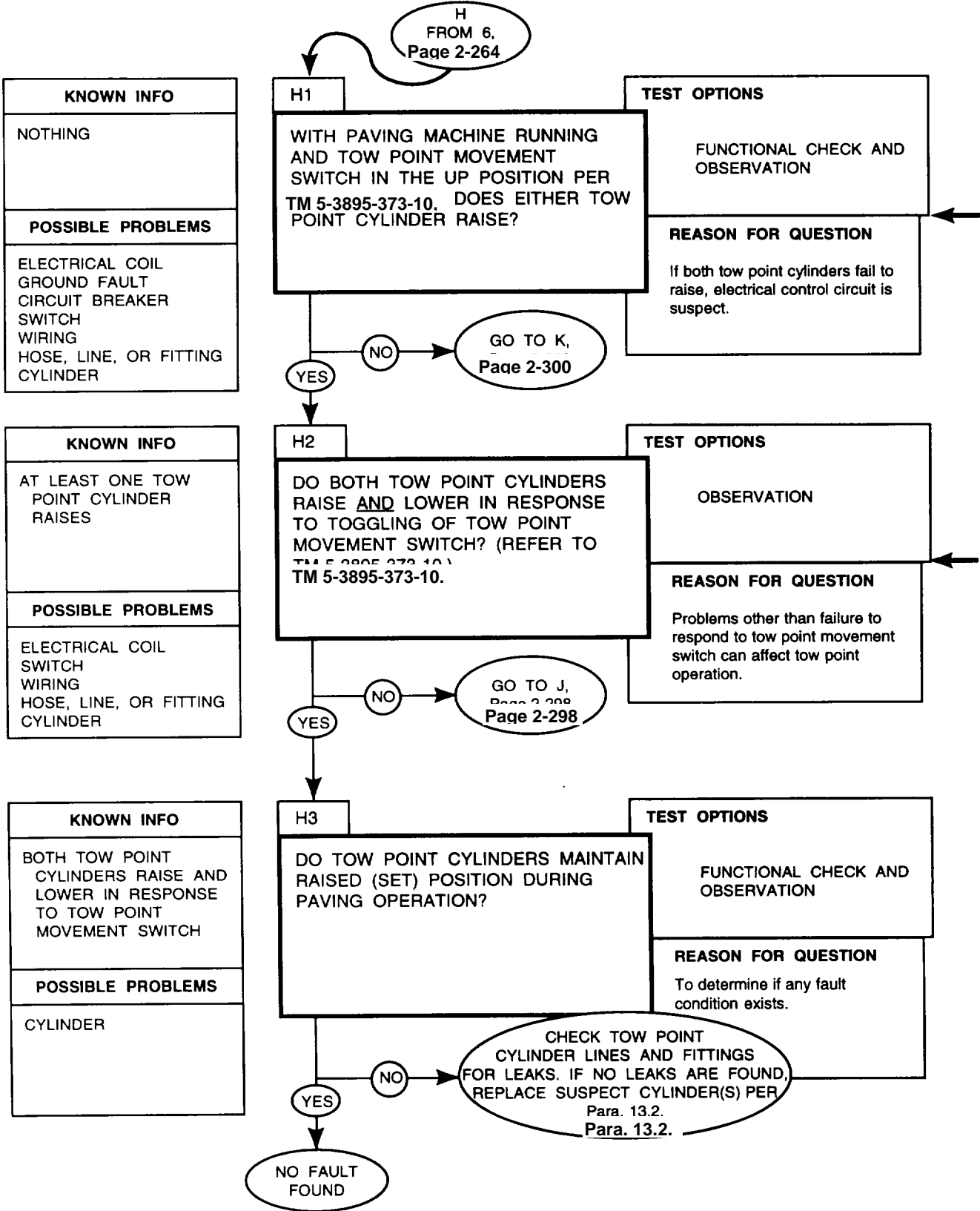
Open right access door per TM 5-3895-373-10 to gain access to stack valve.



After completing diagnostic checks, close right access door per TM 5-3895-373-10.

HYDRAULIC CYLINDER CIRCUITS

DIAGNOSTIC FLOWCHART

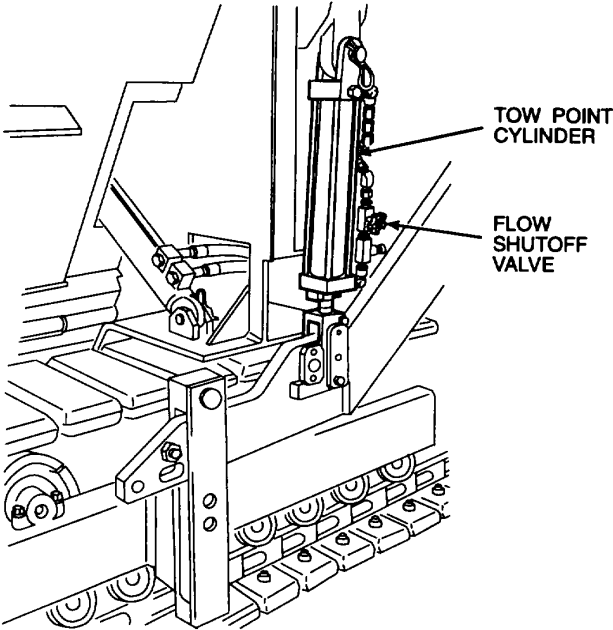


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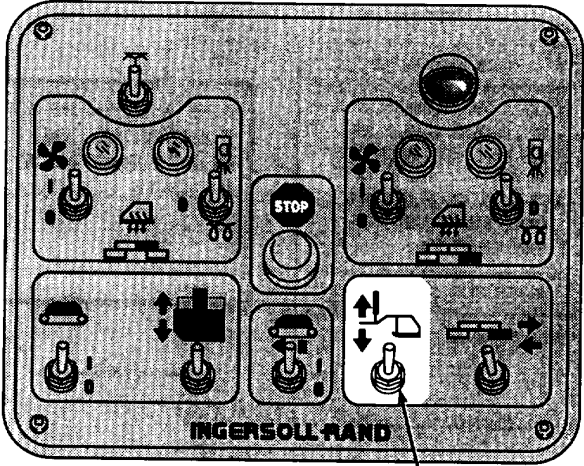
HYDRAULIC CYLINDER CIRCUITS

Refer to paragraph 1.21.1 through 1.21.6 for functional descriptions of hydraulic cylinder circuits.

Valve repair actions at the unit level are limited to replacing the valve electrical coil.



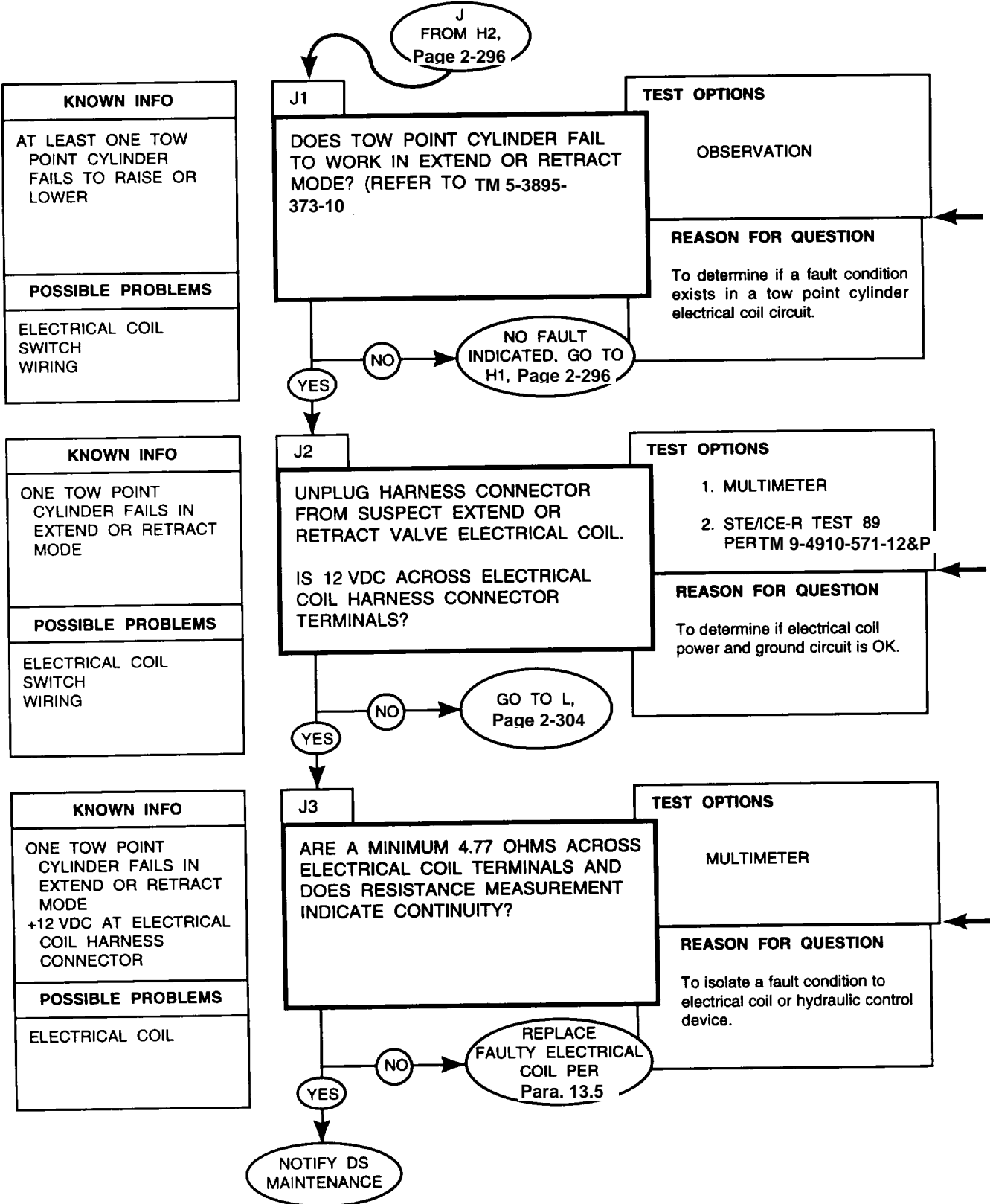
NOTE: RIGHT HAND SCREED CONTROL PANEL SHOWN. LEFT HAND SIMILAR.



TOW POINT MOVEMENT SWITCH

HYDRAULIC CYLINDER CIRCUITS

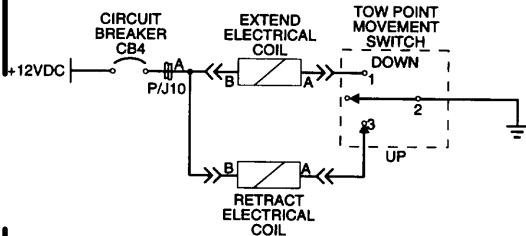
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

The electrical coil power circuits for the tow point cylinders receive their ground through the tow point movement switch. The circuits have a +12 vdc applied whenever the ignition switch is on. The electrical coil ground circuit is completed only when a tow point movement switch is placed in the up or down position.

Refer to paragraph 1.21.4 for an electrical control system description for the tow point cylinders.



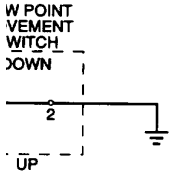
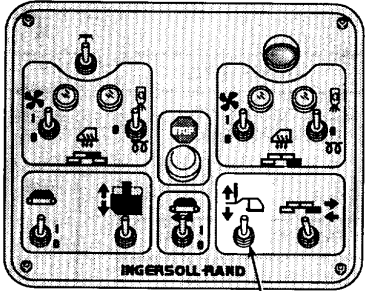
Open center top right and center top left access doors per TM 5-3895-373-10 to gain access to tow point control valves.

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

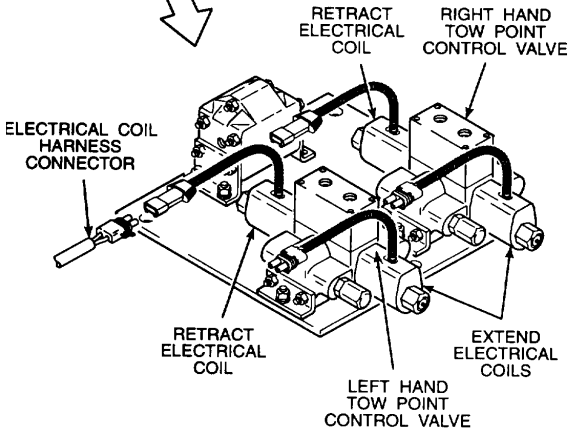
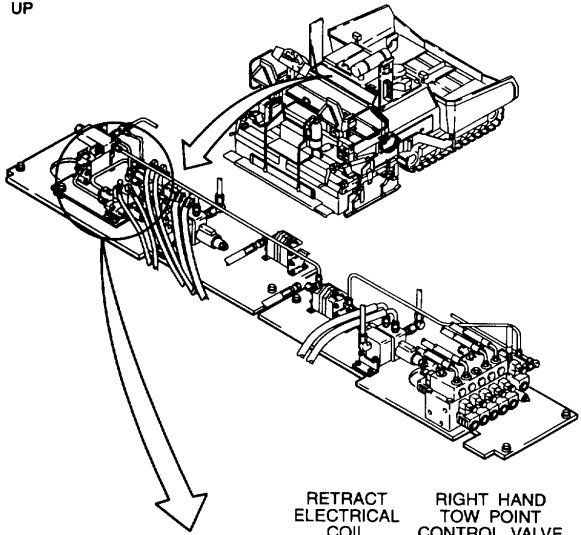
Refer to the electrical system diagram at the end of the manual for equipment wiring details.

After completing diagnostic checks, close center top left and center top right access doors per TM 5-3895-373-10.

NOTE: RIGHT HAND SCREED CONTROL PANEL SHOWN. LEFT HAND SIMILAR.

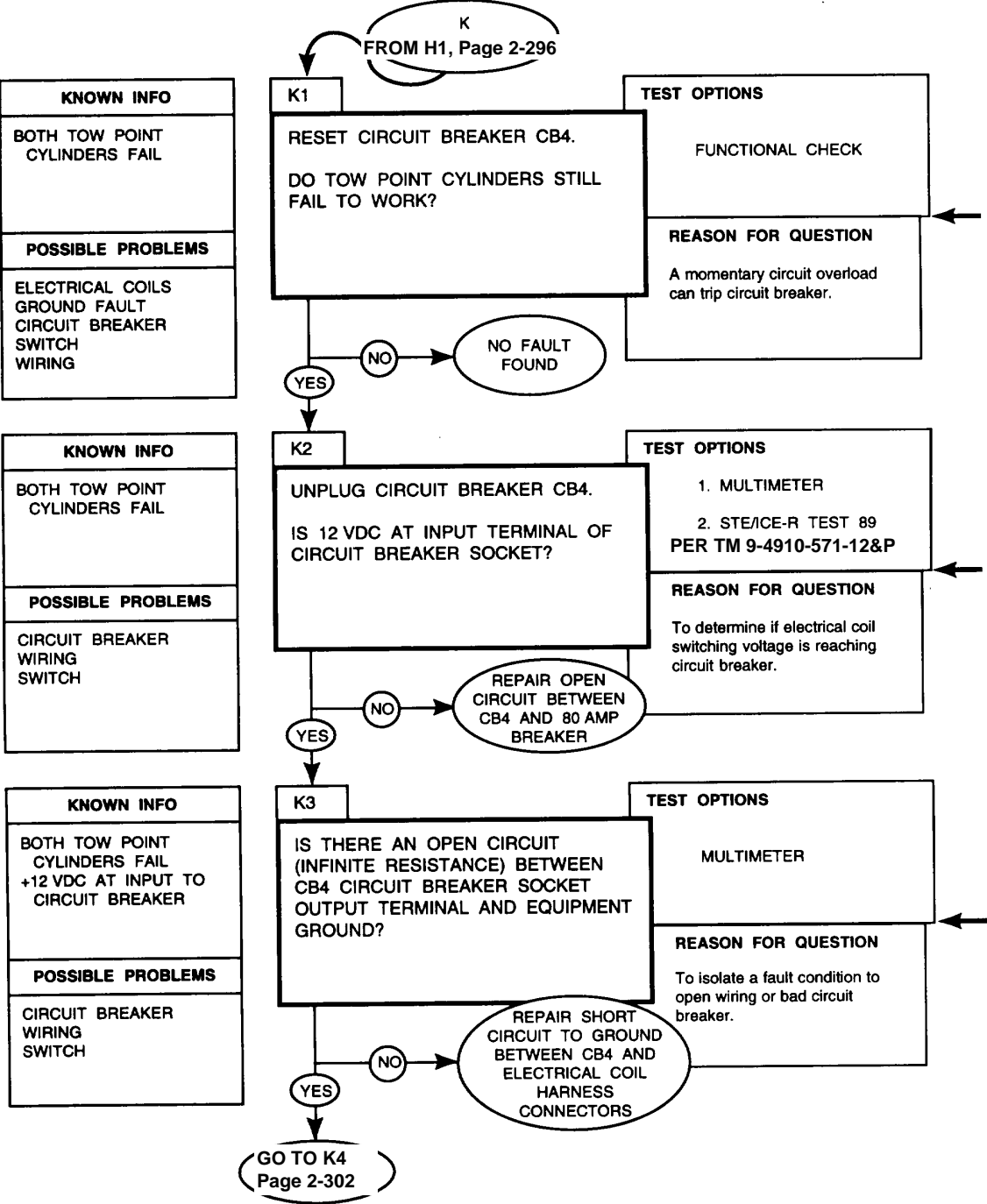


TOW POINT MOVEMENT SWITCH



HYDRAULIC CYLINDER CIRCUITS

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

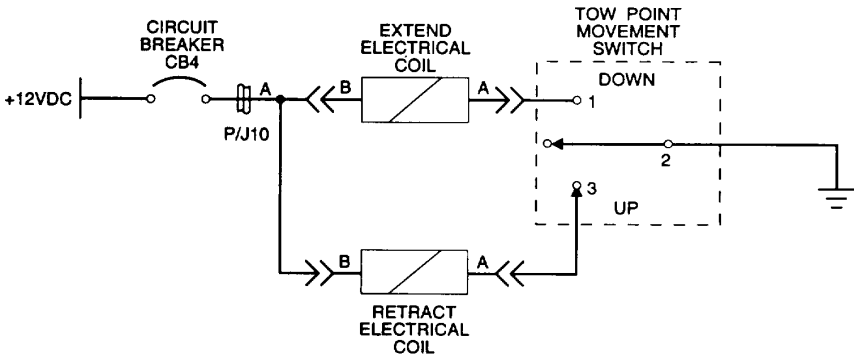
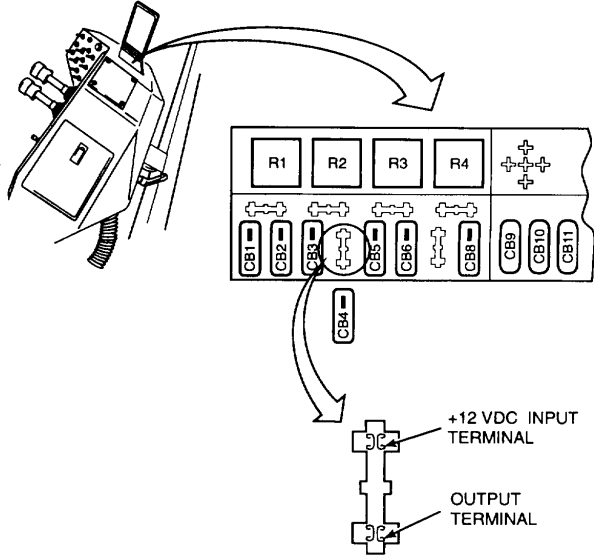
HYDRAULIC CYLINDER CIRCUITS

Press the reset button on the breaker if unsure of the breaker condition.

Open gauge panel access doors per TM 5-3895-373-10 to gain access to circuit breakers.

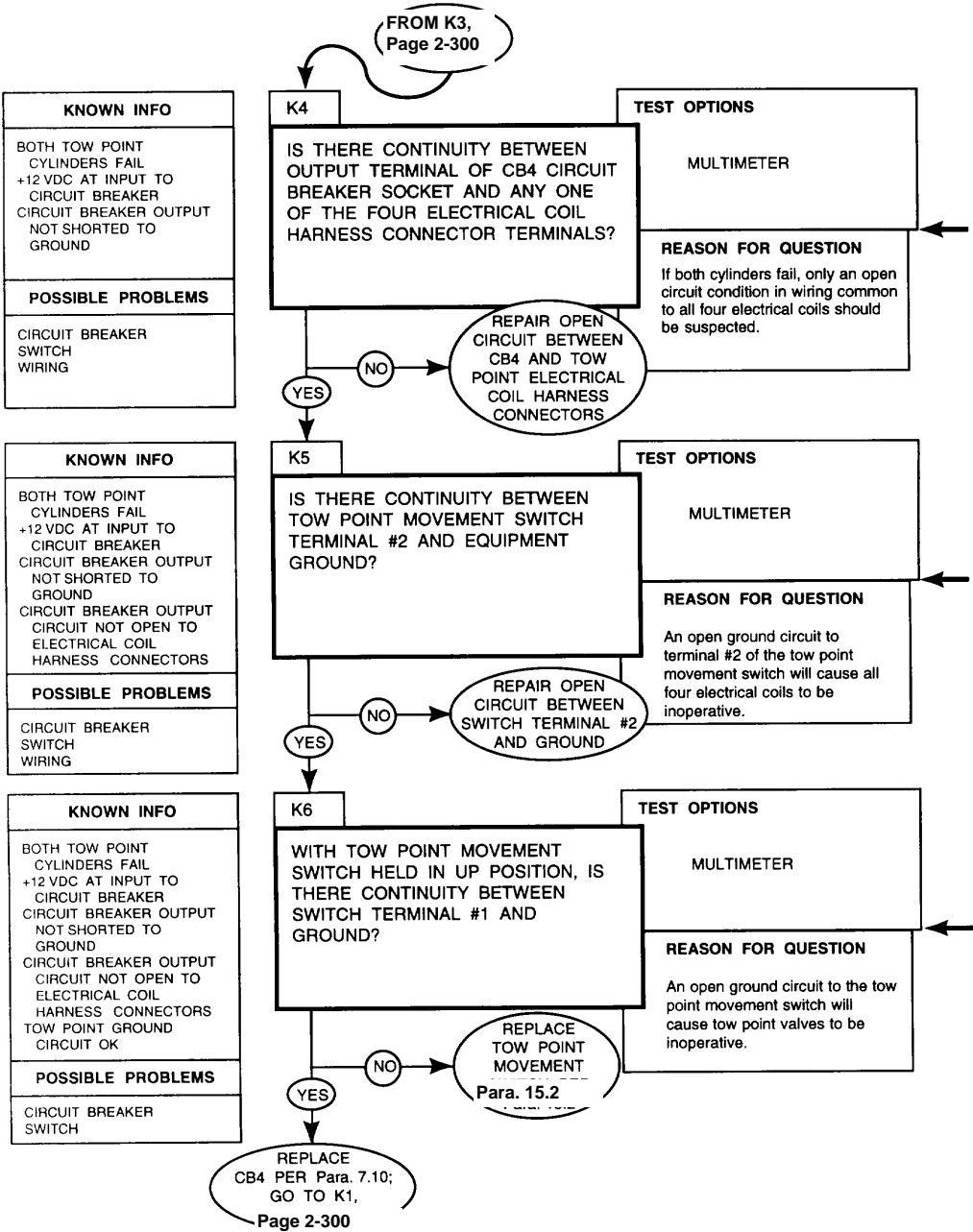
To avoid reverse polarity to multimeter, touch negative probe to equipment frame and use positive probe to check both connector terminals for +12 volt supply.

Refer to paragraph 7.21 for harness and lead wire repair



HYDRAULIC CYLINDER CIRCUITS

DIAGNOSTIC FLOWCHART



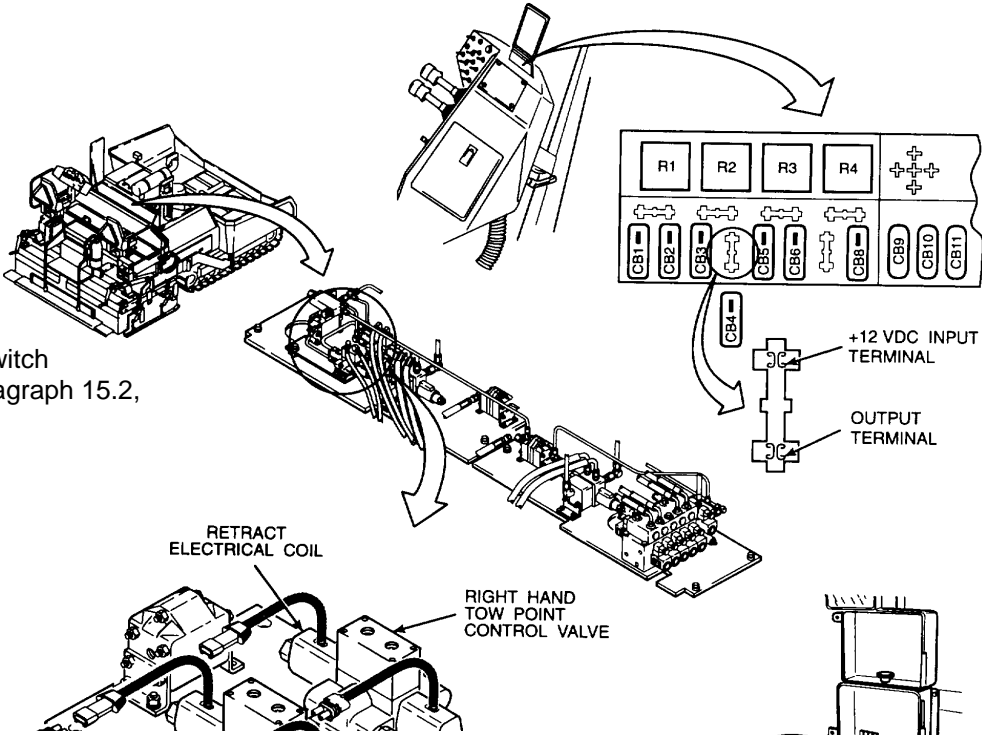
REFERENCE INFORMATION

HYDRAULIC CYLINDER CIRCUITS

Open center top right and center top left access doors per TM 5-3895-373-10 to gain access to tow point control valves.

Refer to paragraph 7.21 for harness and lead wire repair.

Gain access to switch terminals per paragraph 15.2, step a.

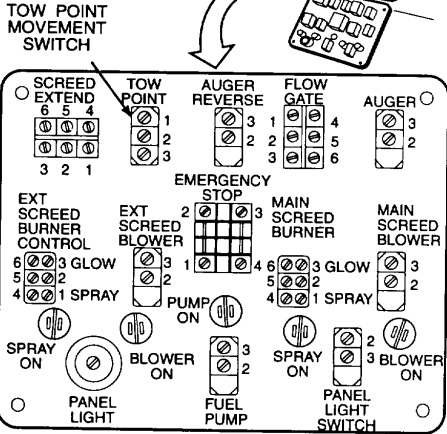


RIGHT HAND TOW POINT CONTROL VALVE

NOTE

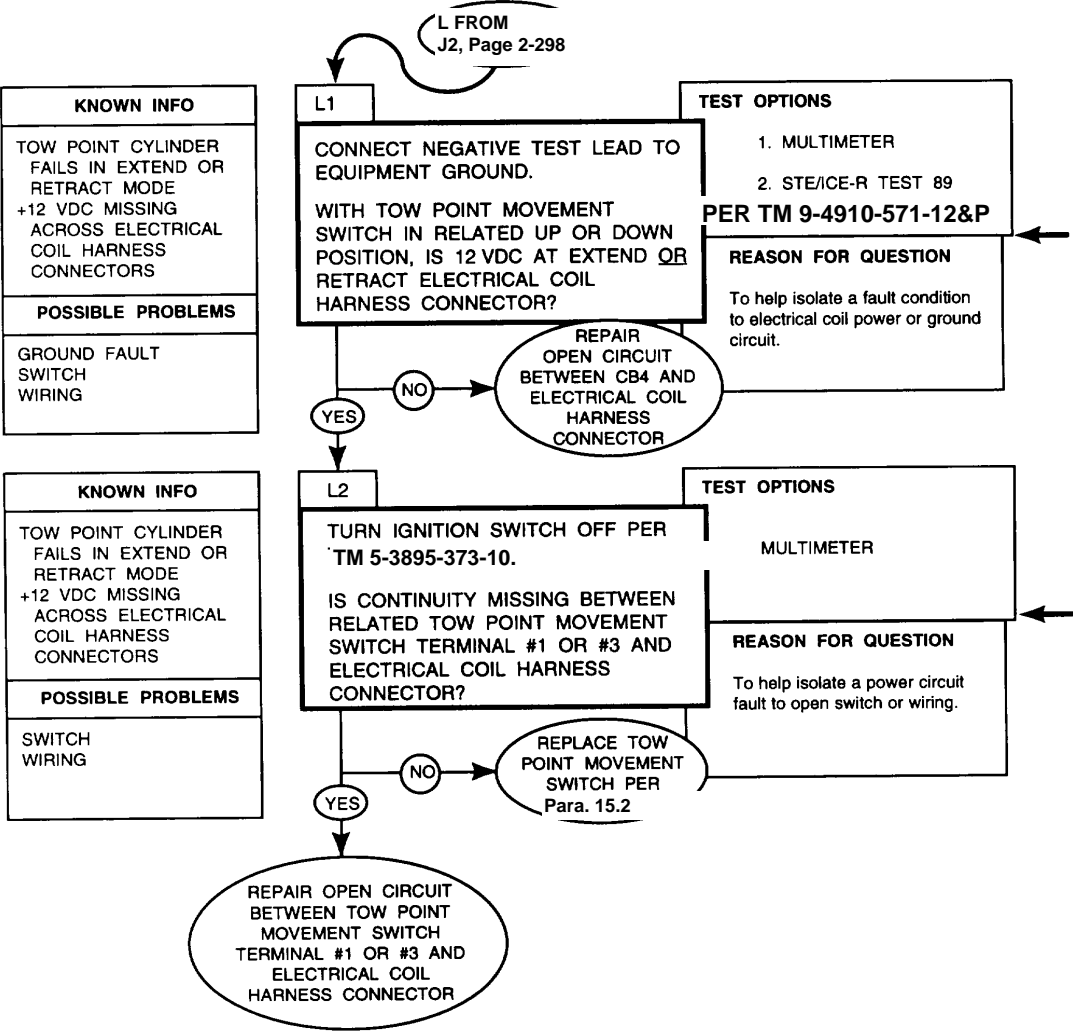
Tow point movement switches are located on both screed control panels.

After completing diagnostic checks, close center top left, center top right, and gauge panel access doors per TM 5-3895-373-10. Install screed control panel per paragraph 15.2.



HYDRAULIC CYLINDER CIRCUITS

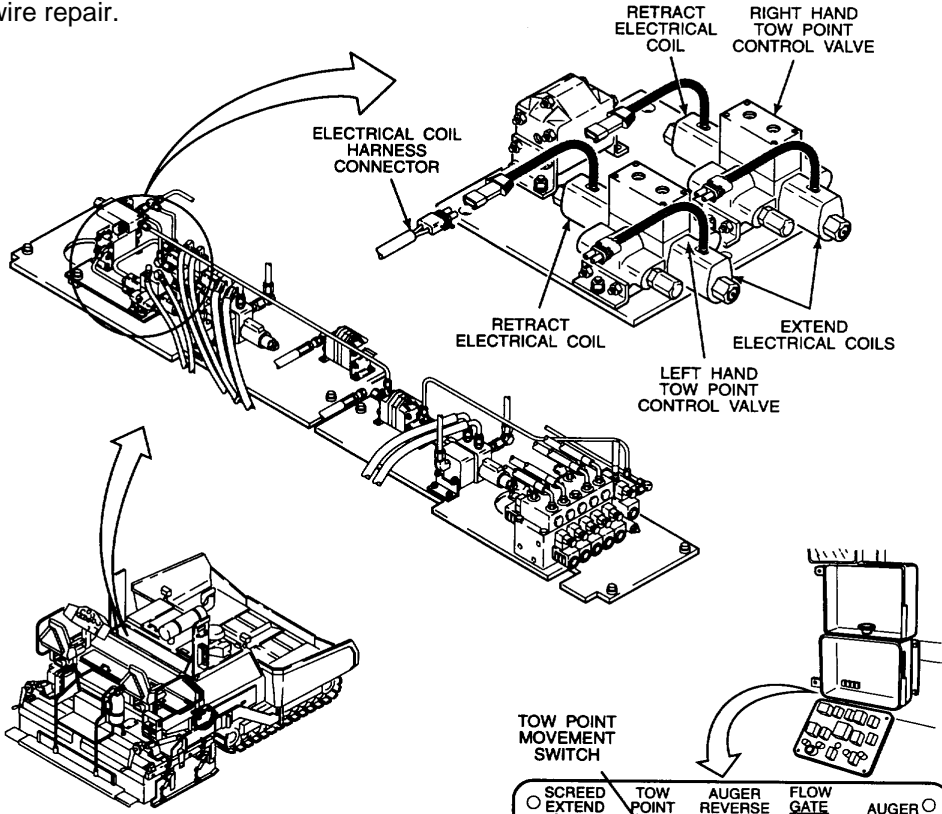
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

HYDRAULIC CYLINDER CIRCUITS

Refer to paragraph 7.21 for harness and lead wire repair.

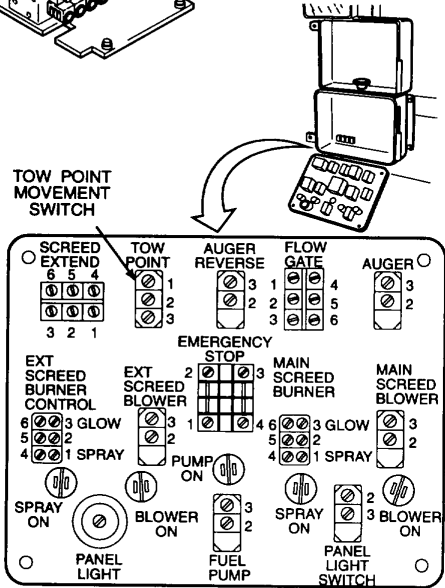


Gain access to tow point switch terminals per paragraph 15.2, step a.

NOTE

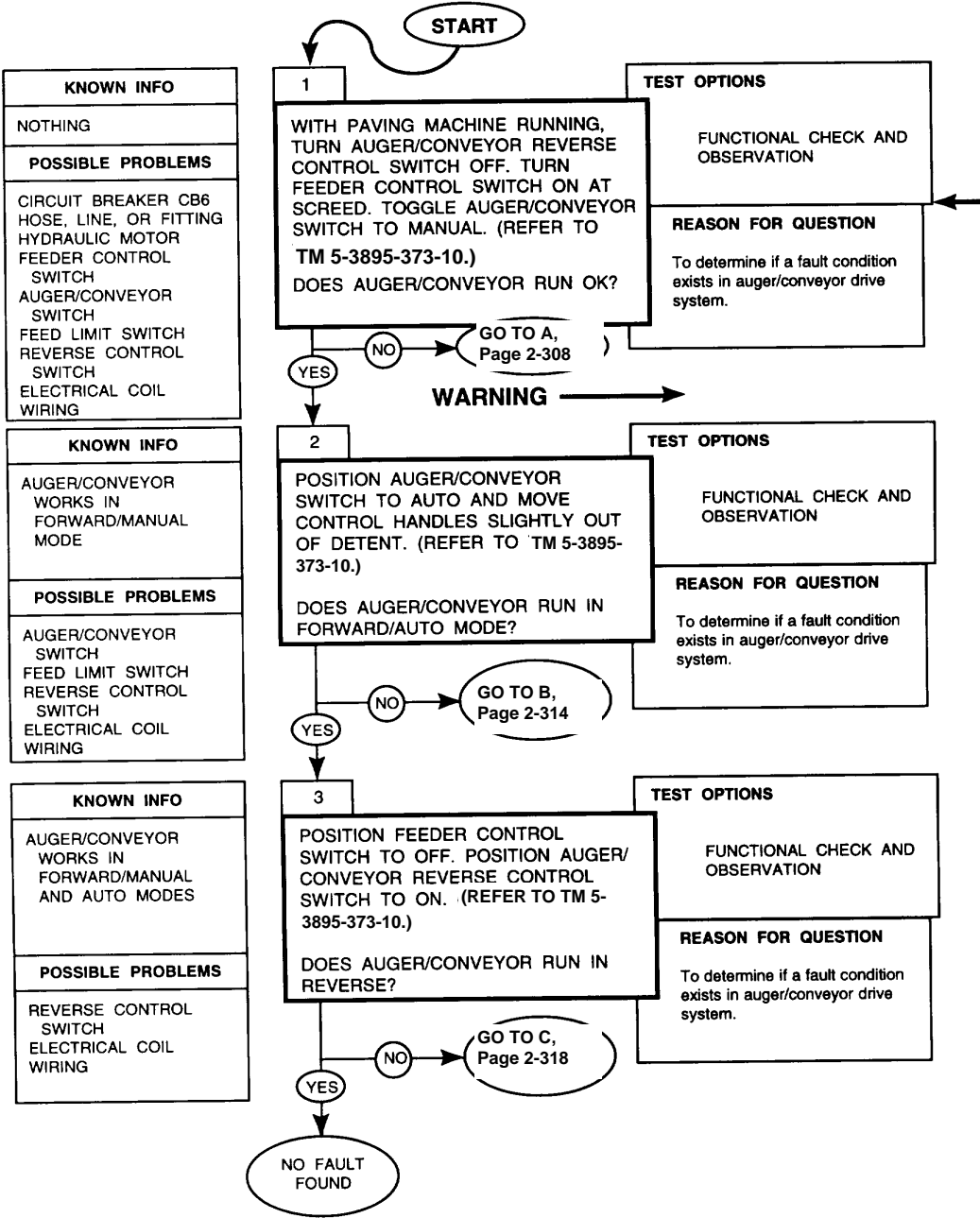
Tow point movement switches are located on both screed control panels.

After completing diagnostic checks, close center top left and center top right access doors per TM 5-3895-373-10. Install screed control panel per paragraph 15.2.



AUGER/CONVEYOR CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

AUGER/CONVEYOR CIRCUIT

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA.

This diagnostic maintenance procedure applies to both the left hand and right hand auger/conveyor systems. If only one side works, use the procedure to check the side that doesn't work. If both systems fail, check either the left hand or right hand system.

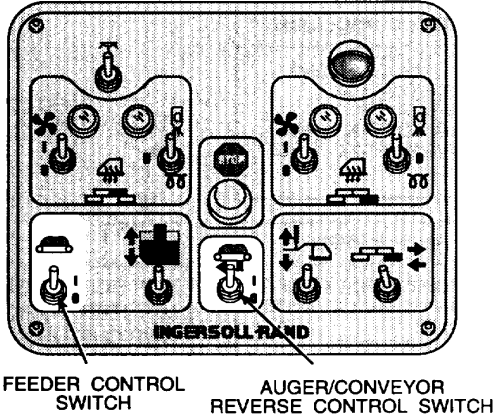
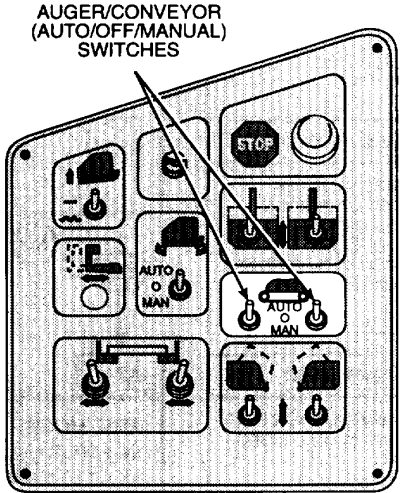
If the left hand auger/conveyor system fails, always check components in the left hand circuit unless the procedure instructs you to do otherwise. If the right hand auger/conveyor system fails, always check components in the right hand circuit unless the procedure instructs you to do otherwise.

WARNING

Ensure all personnel are clear of paving machine before engaging control handles. Paving machine may move causing injury or death.

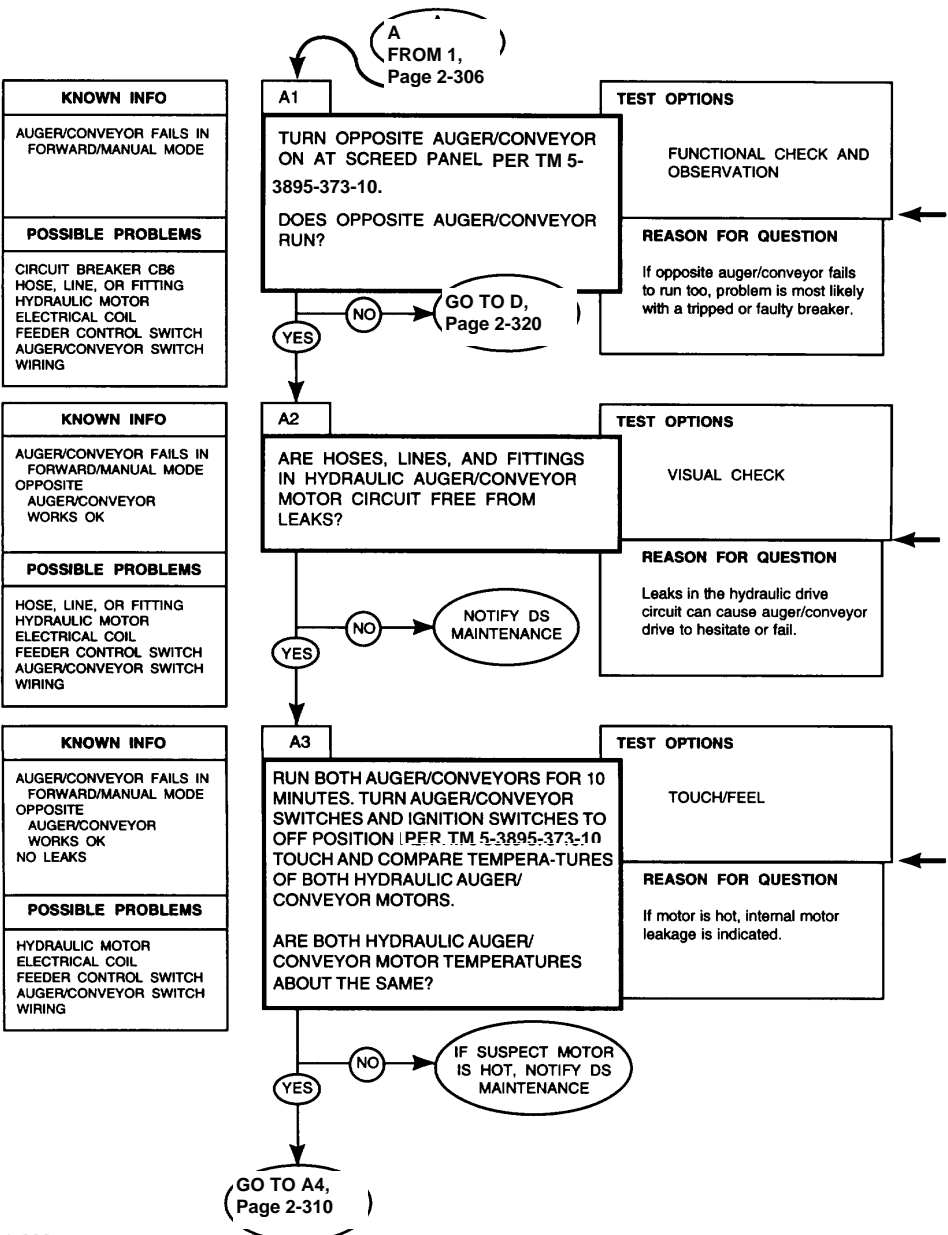
NOTE

Auger/conveyor switches are located on both screed controls boxes.



AUGER/CONVEYOR CIRCUIT

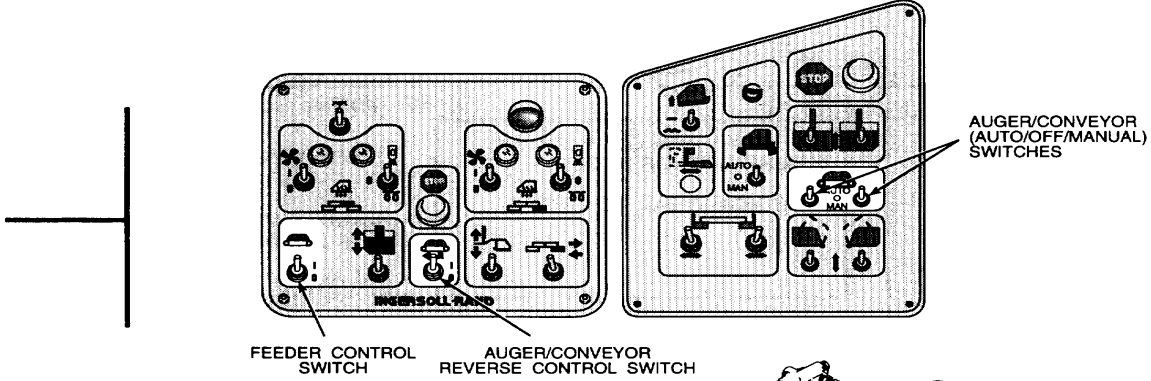
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

AUGER/CONVEYOR CIRCUIT

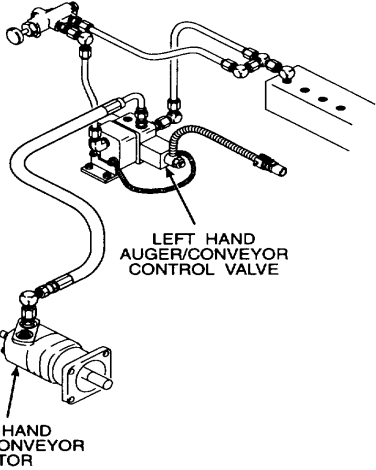
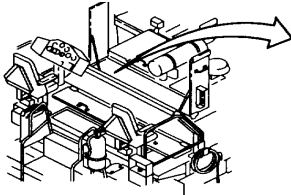
Refer to paragraph 1.21.1 for a functional description of the auger/conveyor drive circuit



NOTE: RIGHT HAND SCREED CONTROL PANEL SHOWN. LEFT HAND SIMILAR.

Open center top left and center top right access doors per TM 5-3595-373-10 to gain access to hydraulic hose, lines, and fittings.

Open rear top left and rear top right access doors per TM 5-3895-373-10 to gain access to hydraulic auger/convey motors.

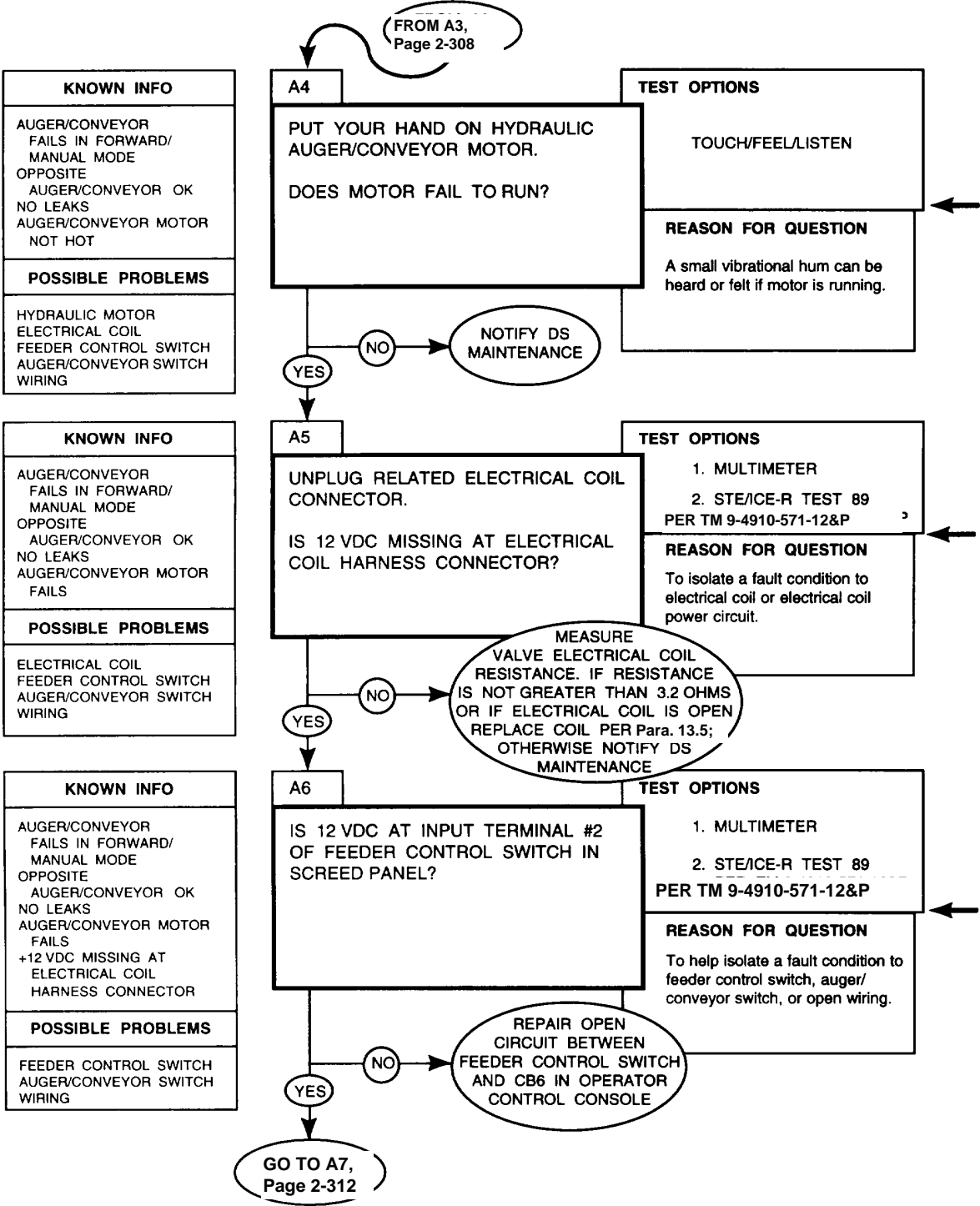


An internal leakage path inside the motor will cause the motor to heat up even though the motor shaft is hesitating, turning very slow, or not turning at all.

Maintenance at the organization level is limited to replacing electrical coil on auger/conveyor control valve.

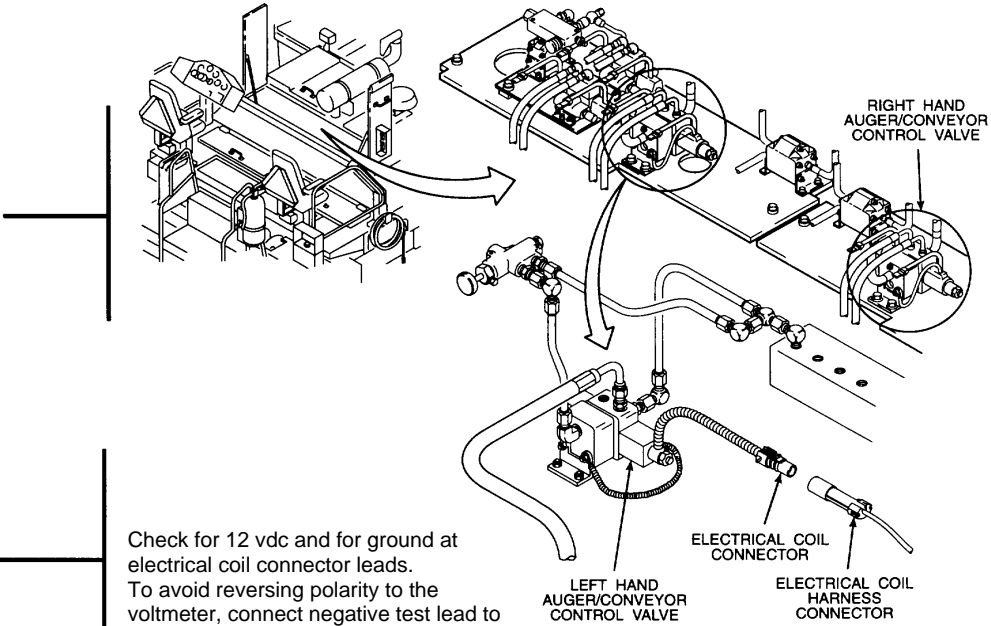
AUGER/CONVEYOR CIRCUIT

DIAGNOSTIC FLOWCHART



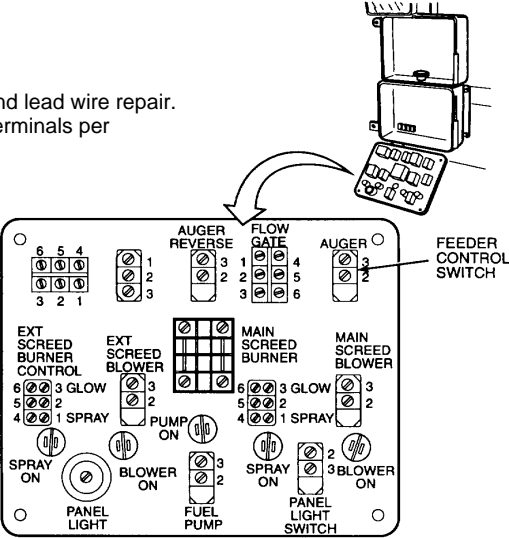
REFERENCE INFORMATION

AUGER/CONVEYOR CIRCUIT



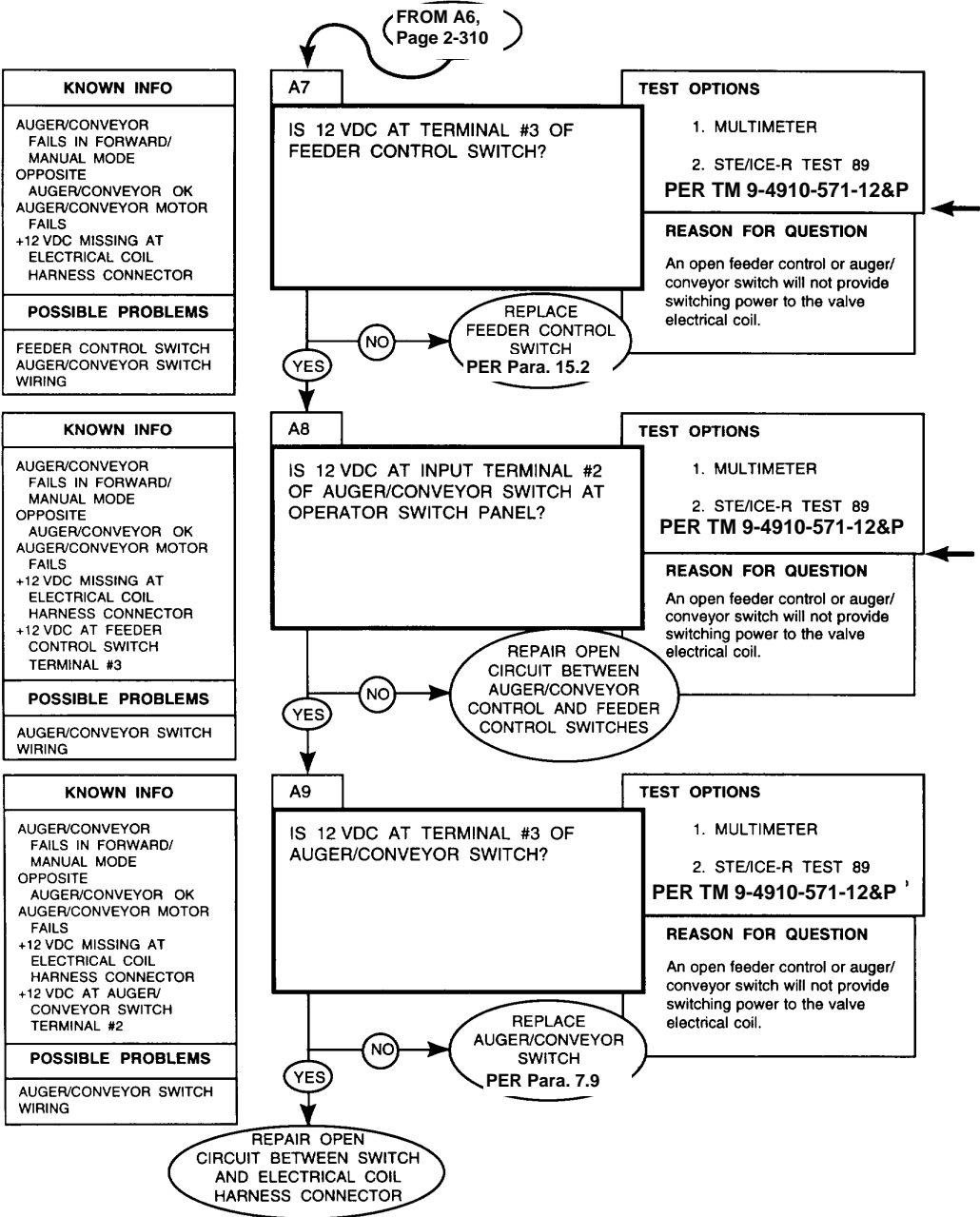
Check for 12 vdc and for ground at electrical coil connector leads. To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

Refer to paragraph 7.21 for harness and lead wire repair. Gain access to feeder control switch terminals per paragraph 15.2, step a.



AUGER/CONVEYOR CIRCUIT

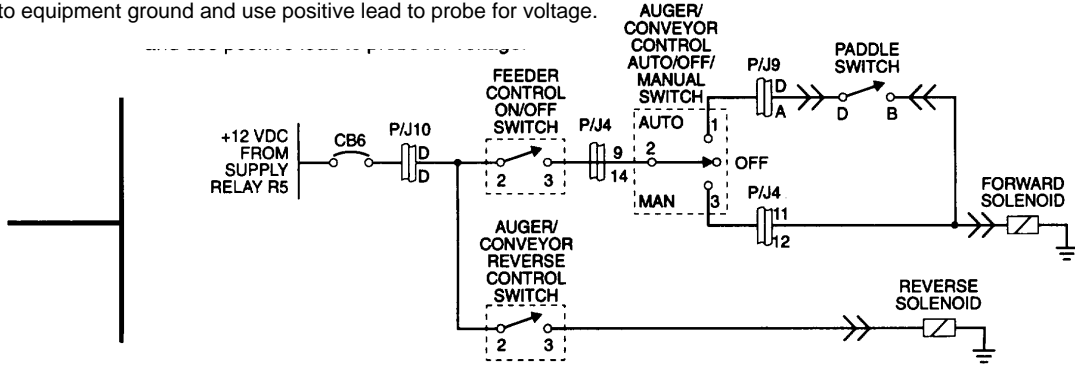
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

AUGER/CONVEYOR CIRCUIT

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.



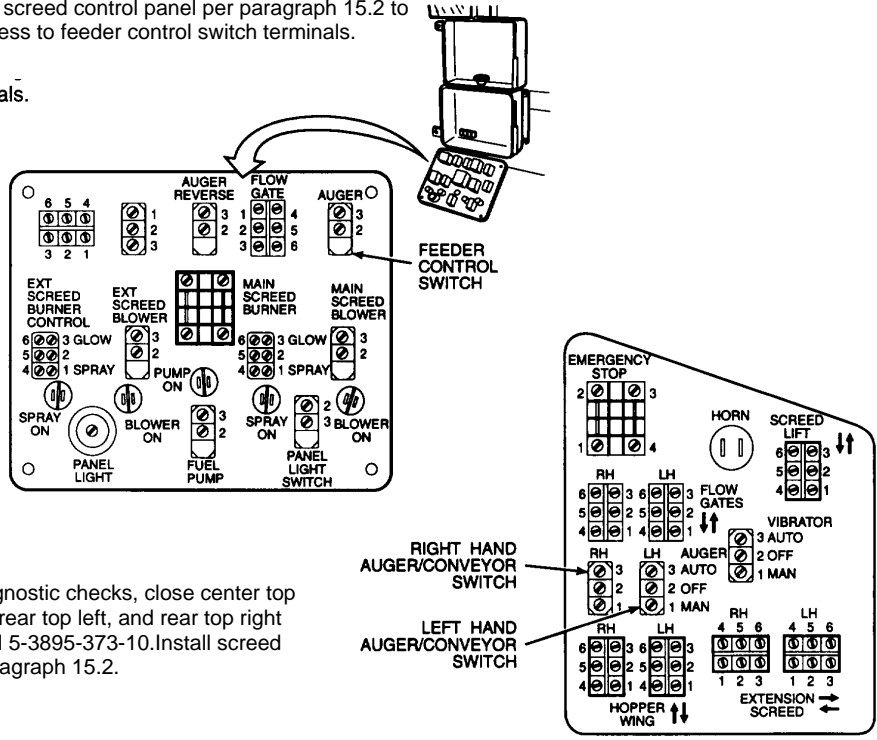
NOTE: UPPER PLUG/JACK TERMINAL NUMBERS AND LETTERS APPLY TO LEFT HAND

Refer to the electrical system diagram at the end of :R/CONVEYOR CIRCUIT. the diagnostic maintenance section for equipment wiring details.

Refer to paragraph 7.21 for harness and lead wire repair.

Remove screed control panel per paragraph 15.2 to gain access to feeder control switch terminals.

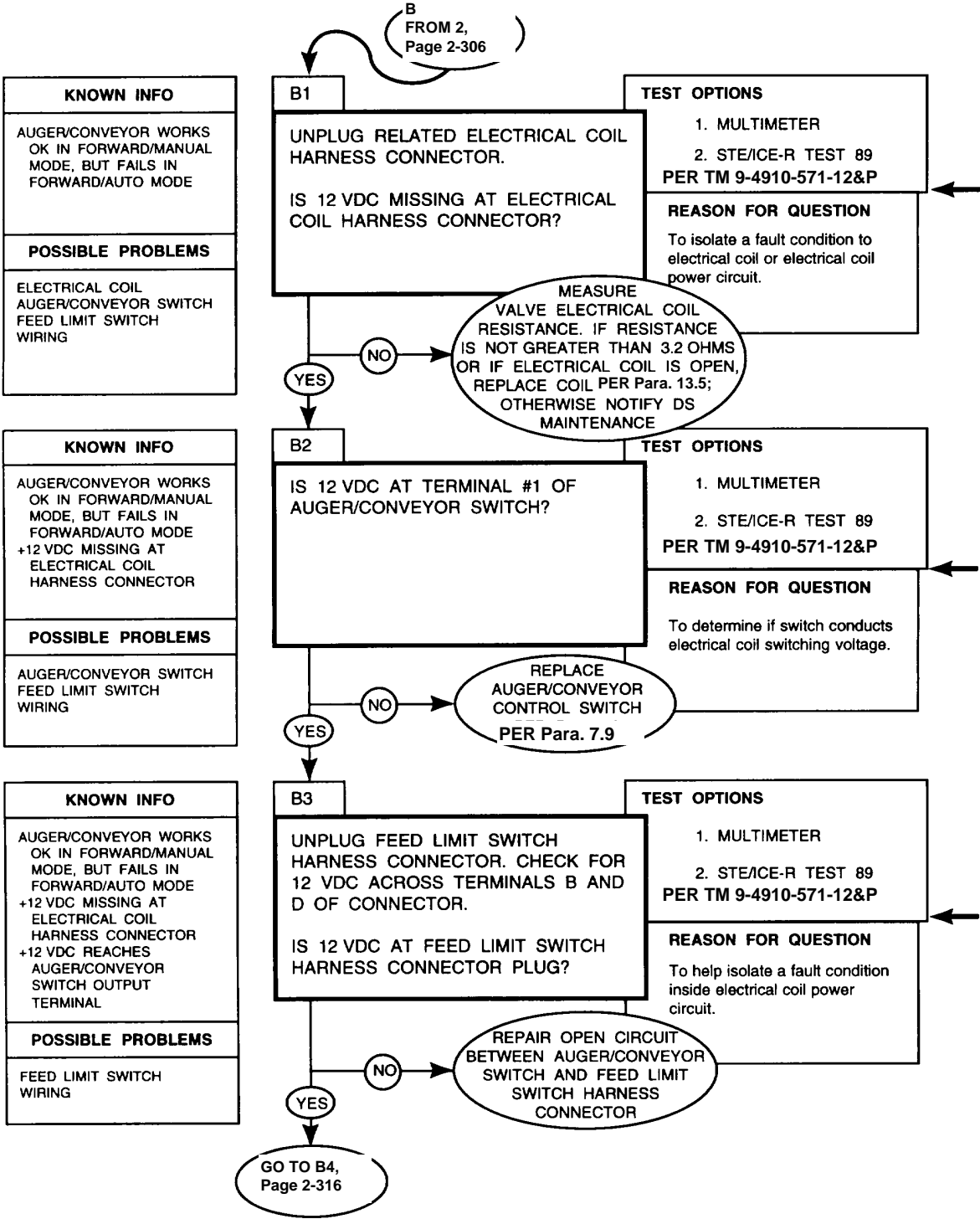
terminals.



After completing diagnostic checks, close center top left, center top right, rear top left, and rear top right access doors per TM 5-3895-373-10. Install screed control panel per paragraph 15.2.

AUGER/CONVEYOR CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

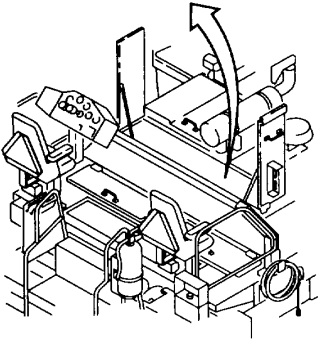
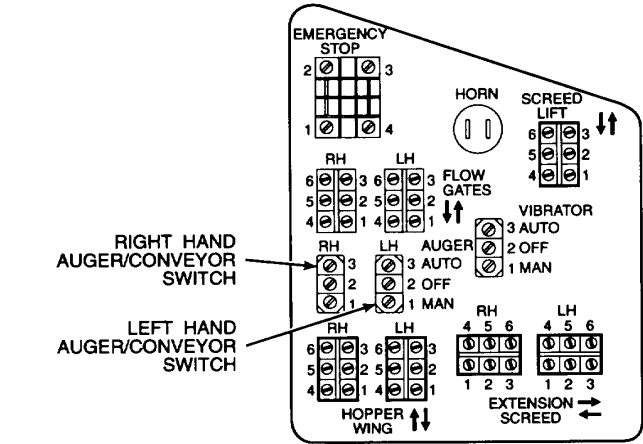
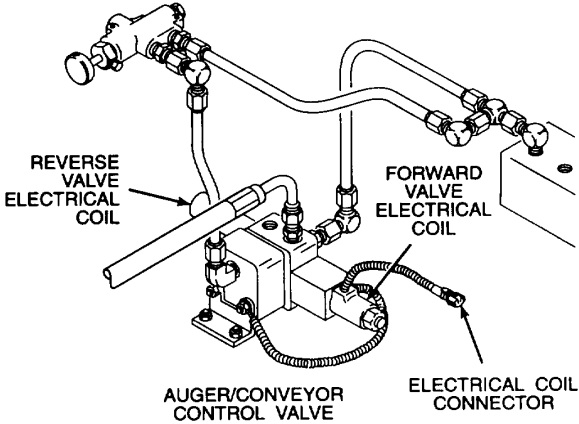
AUGER/CONVEYOR CIRCUIT

Left hand and right hand auger/conveyor electrical control circuits are identical.

In the automatic mode, the feed limit switches turn the auger/conveyor control valve on and off. This controls the feeding of aggregate material to the front of the screed. (Refer to paragraph 1.21.1 for an electrical system description for the auger/conveyor circuit.)

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

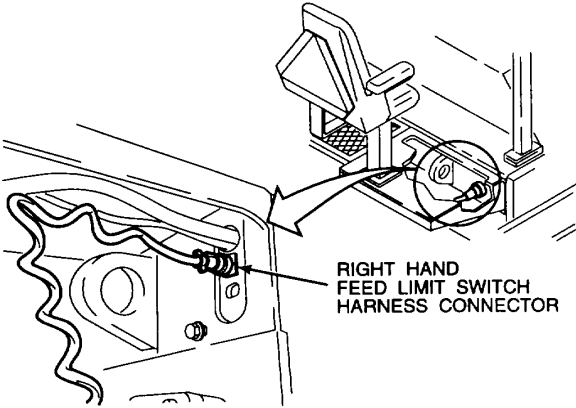
Open center top right and center top left access doors per TM 5-3895-373-10 to gain access to auger/conveyor control valves.



Remove operator switch panel per paragraph 7.6 to gain access to auger/conveyor switch terminals.

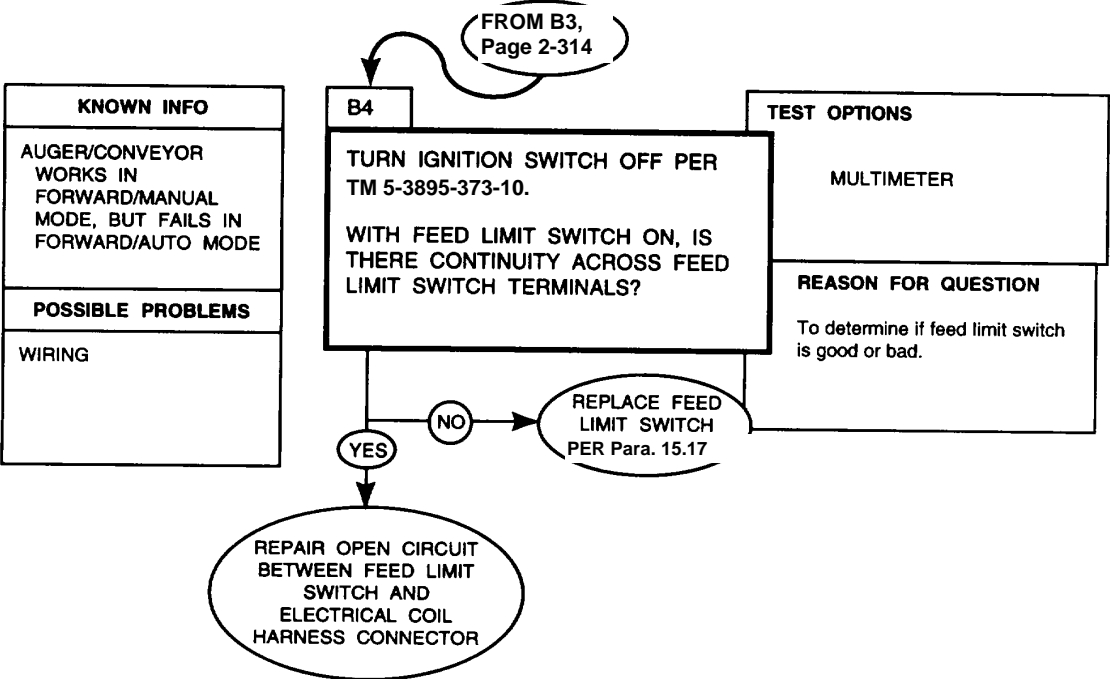
A feed limit switch is mounted on the lower, front, inside corner of the left and right end gates. One feed limit switch is used in each (left and right) auger/conveyor control circuits.

Refer to paragraph 7.21 for harness and lead wire repair.



AUGER/CONVEYOR CIRCUIT

DIAGNOSTIC FLOWCHART



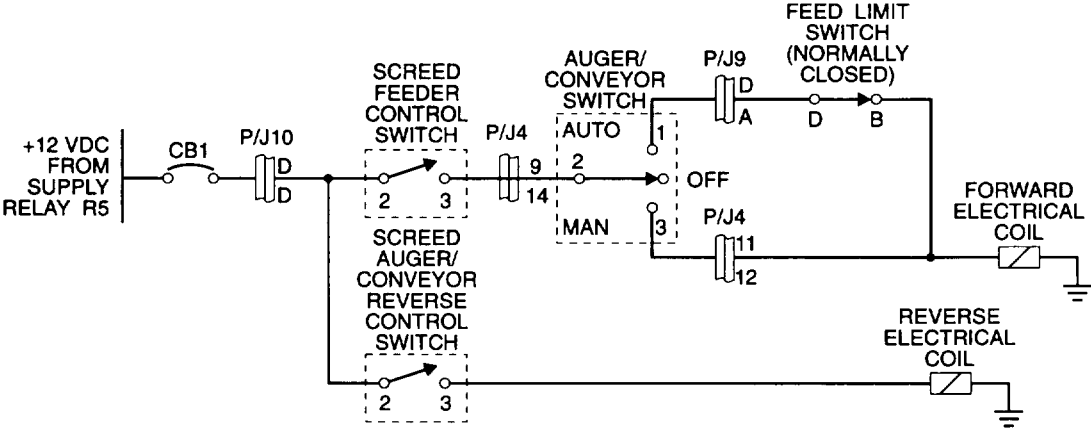
REFERENCE INFORMATION

AUGER/CONVEYOR CIRCUIT

Feed limit switch is normally closed. Pushing switch paddle opens the feed limit switch.

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

Refer to paragraph 7.21 for harness and lead wire repair.

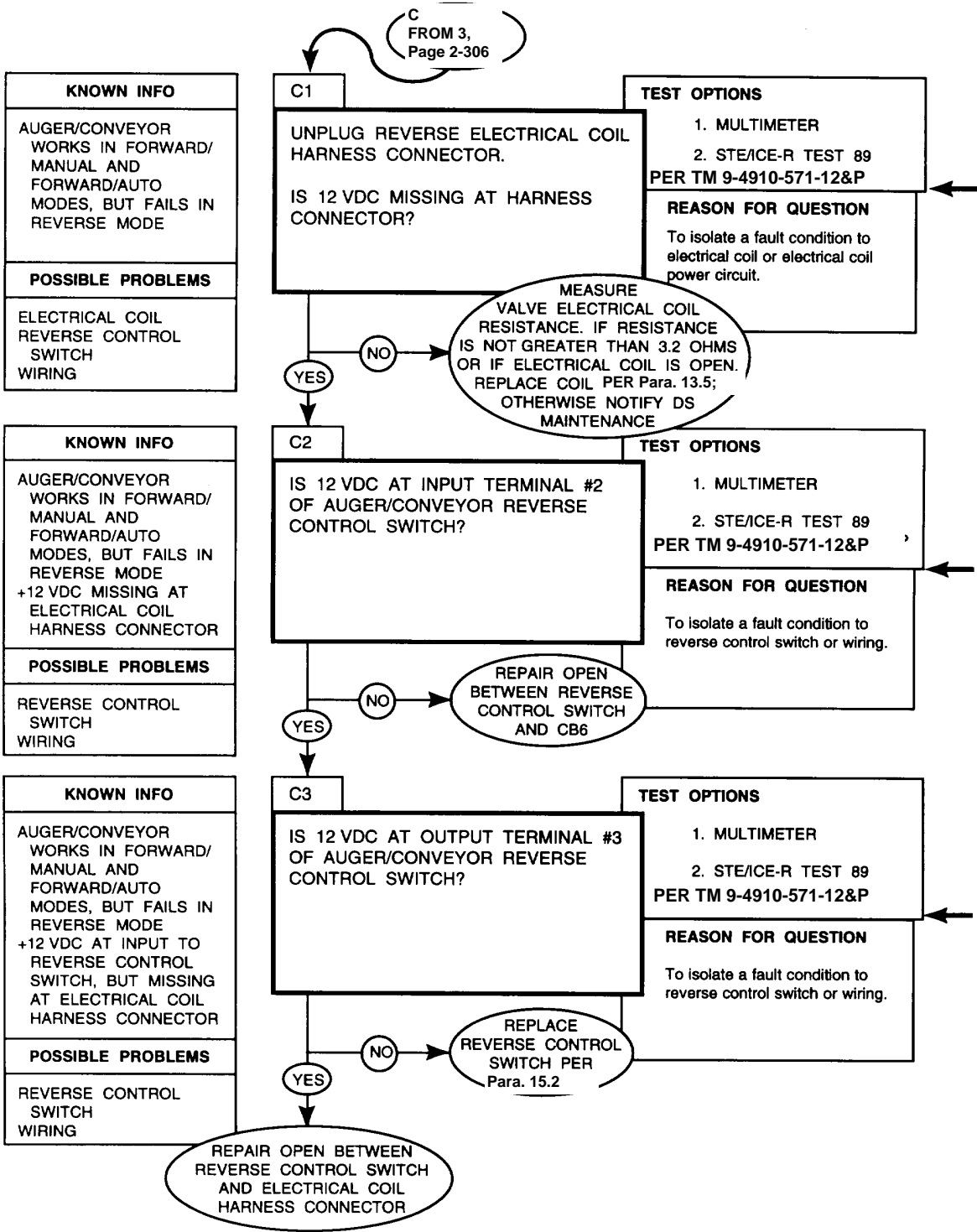


NOTE: UPPER PLUG/JACK TERMINAL NUMBERS AND LETTERS APPLY TO LEFT HAND AUGER/CONVEYOR CIRCUIT.

After completing diagnostic checks, close center top left and center top right access doors per TM 5-3895-373-10. Install operator switch panel per paragraph 7.6.

AUGER/CONVEYOR CIRCUIT

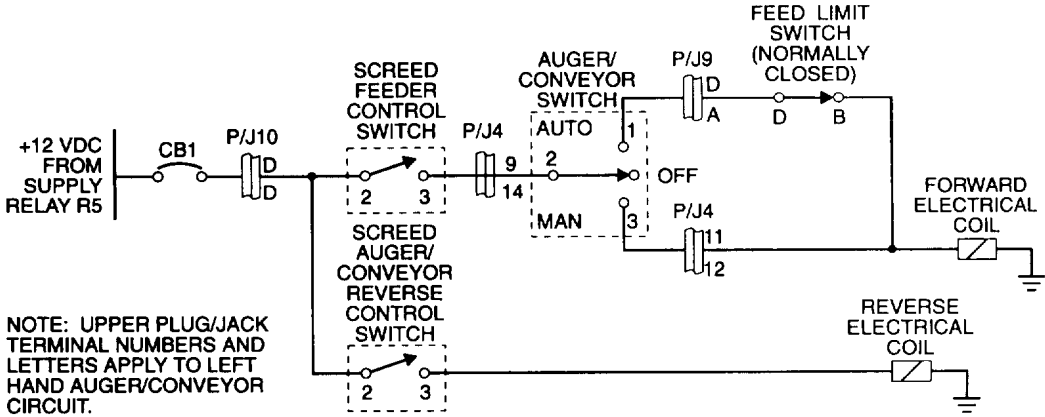
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

AUGER/CONVEYOR CIRCUIT

Open centertop right and centertop left access doors per TM 5-3895-373-10 to gain access to reverse solenoid harness.



NOTE: UPPER PLUG/JACK TERMINAL NUMBERS AND LETTERS APPLY TO LEFT HAND AUGER/CONVEYOR CIRCUIT.

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

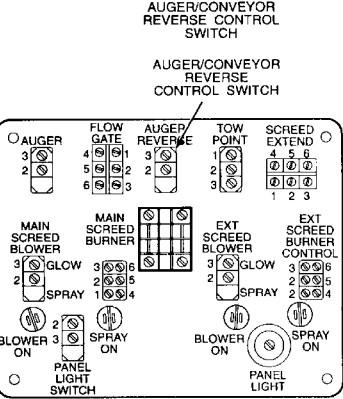
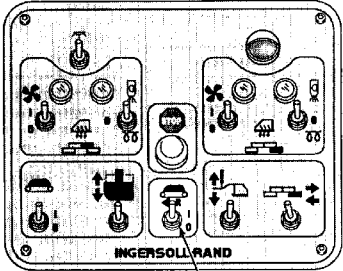
Gain access to auger/conveyor reverse switch terminals per paragraph 15.2, step a.

Refer to the electrical system diagram at the end of the manual for equipment wiring details.

Refer to paragraph 7.21 for harness and lead wire repair.

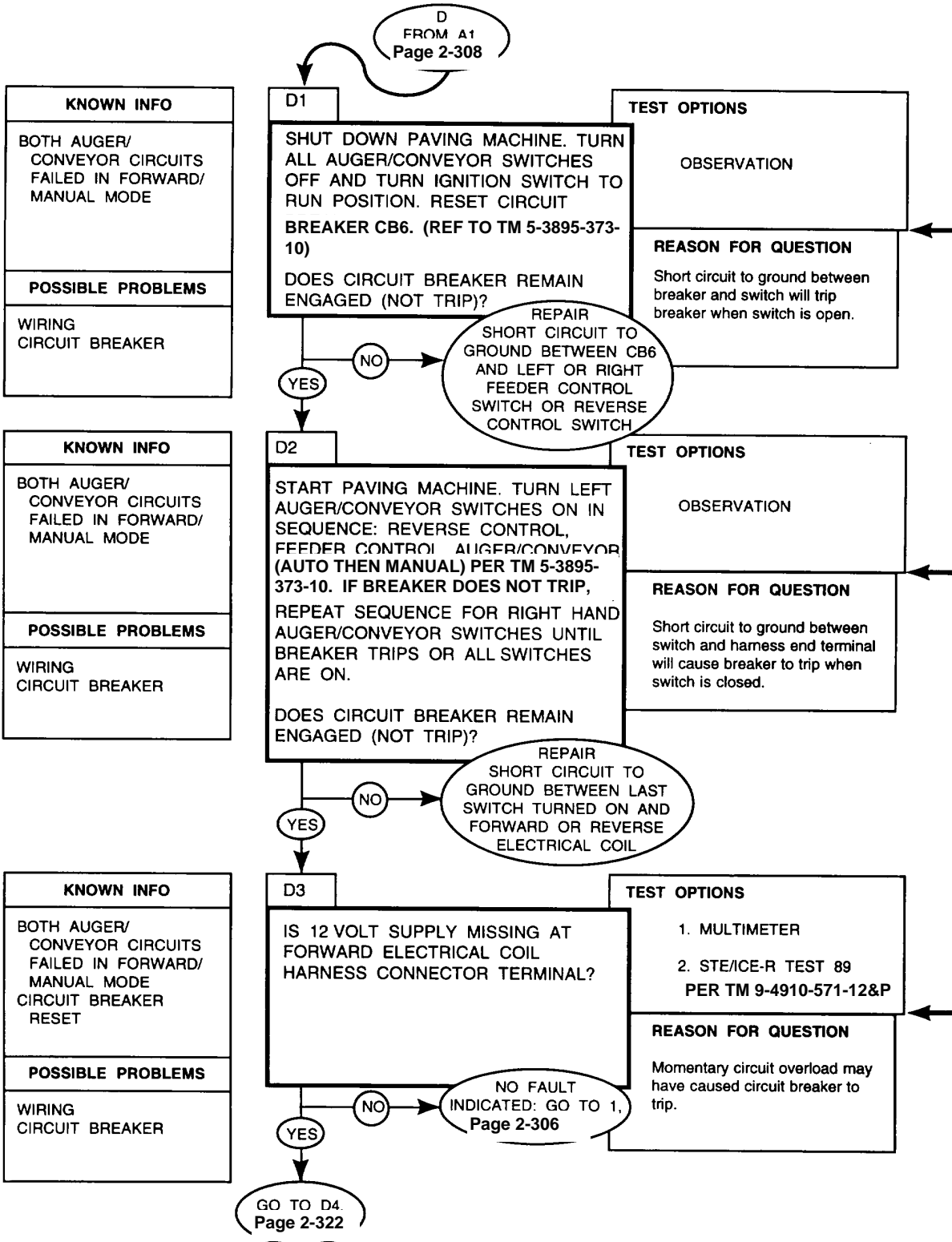
After completing diagnostic checks, close center top left and center top right access doors per TM 5-3895-373-10. Install screed control panel per paragraph 15.2.

NOTE: RIGHT HAND SCREED CONTROL PANEL SHOWN. LEFT HAND SIMILAR.



AUGER/CONVEYOR CIRCUIT

DIAGNOSTIC FLOWCHART

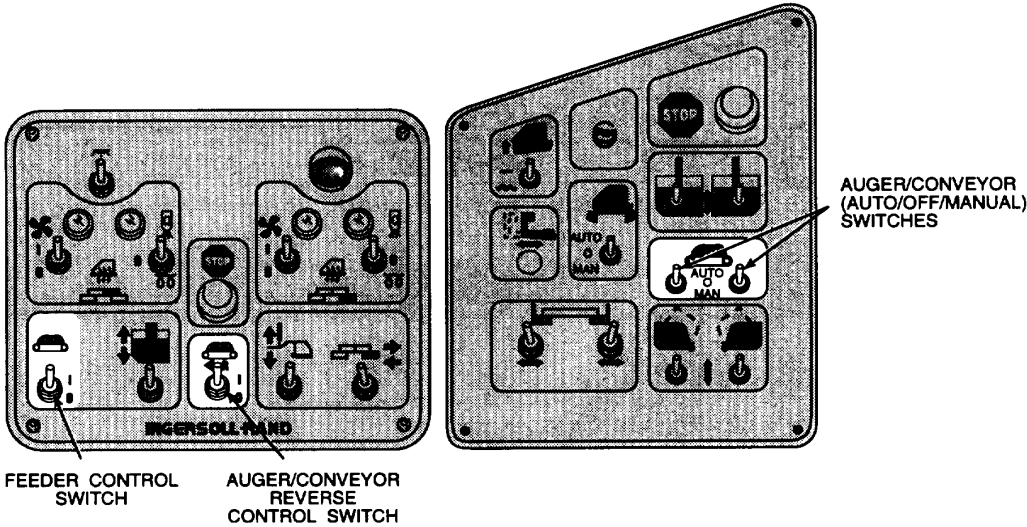
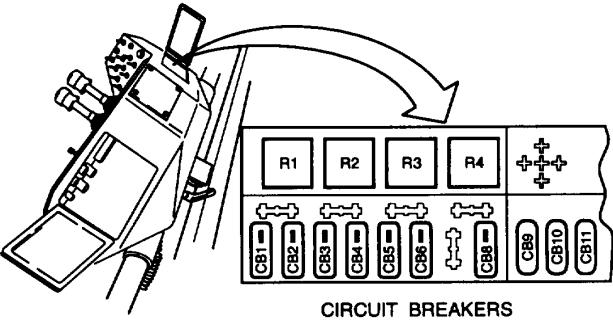


REFERENCE INFORMATION

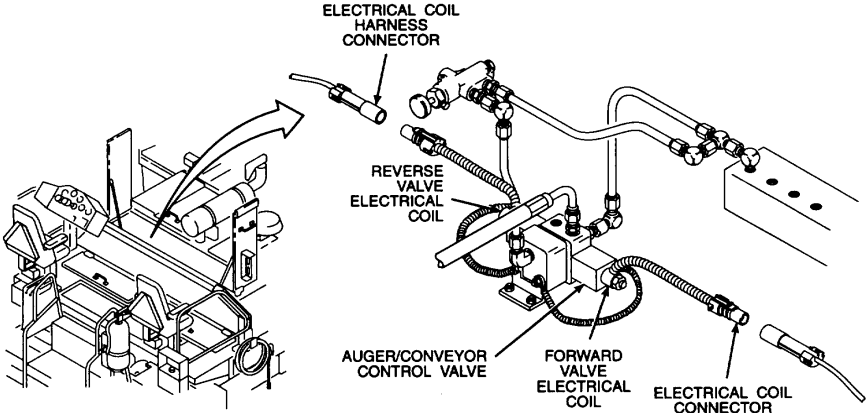
AUGER/CONVEYOR CIRCUIT

Refer to paragraph 7.21 for harness and lead wire repair.

Press the reset button on the breaker if unsure of the breaker condition.

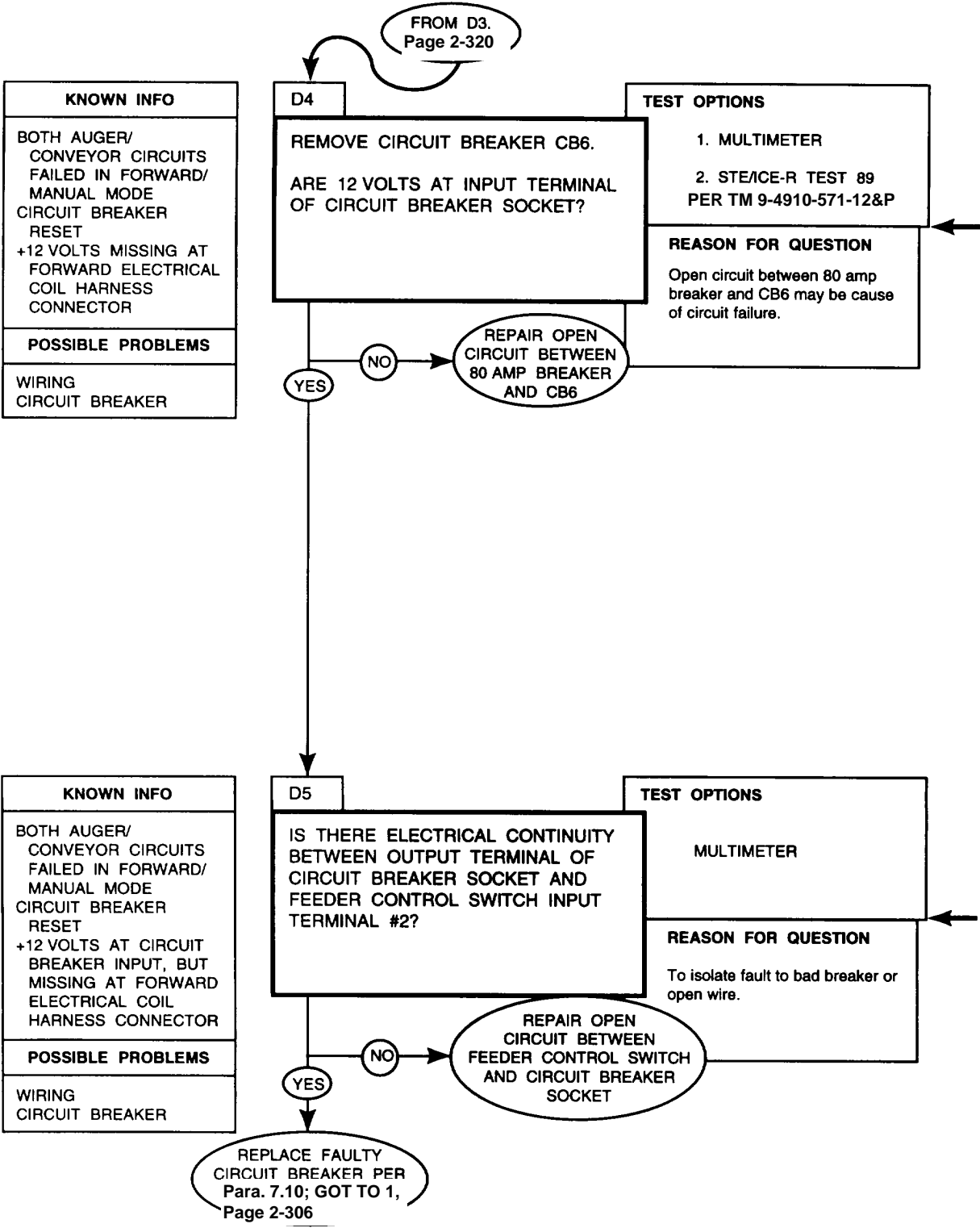


Open center top right and center top left access doors per TM 5-3895-373-10 to gain access to reverse electrical coil harness connector.



AUGER/CONVEYOR CIRCUIT

DIAGNOSTIC FLOWCHART



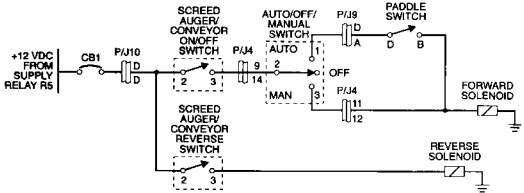
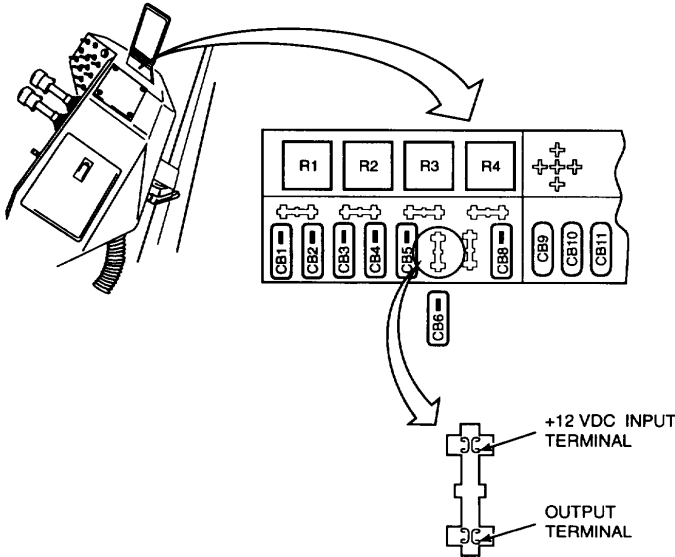
REFERENCE INFORMATION

AUGER/CONVEYOR CIRCUIT

Open gauge panel access doors per TM 53895-373-10 to gain access to circuit breakers.

To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

Refer to paragraph 7.21 for harness and lead wire repair.

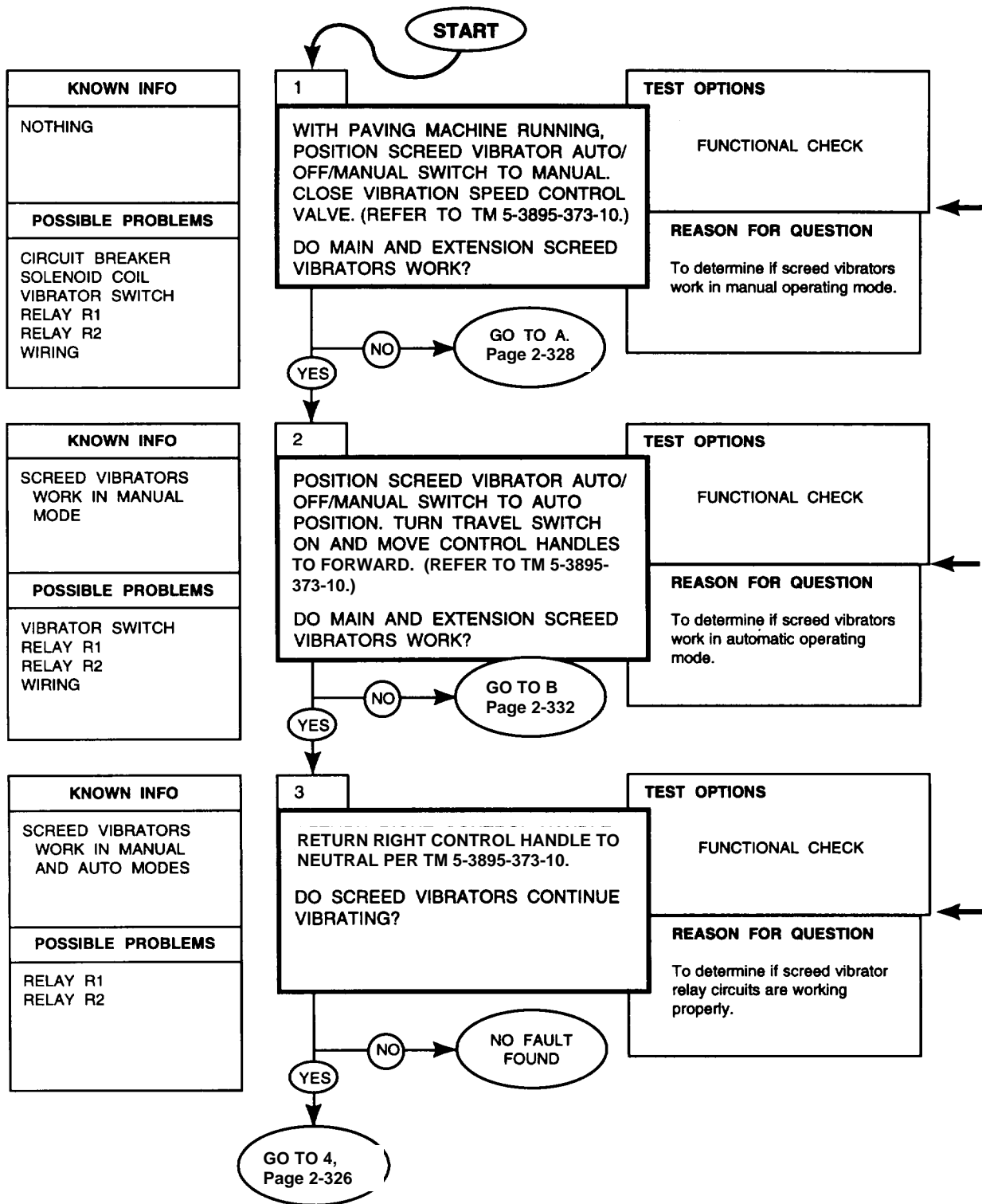


NOTE: UPPER PLUG/JACK TERMINAL NUMBERS AND LETTERS APPLY TO LEFT HAND AUGER/CONVEYOR CIRCUIT.

After completing diagnostic checks, close center top left, center top right, and gauge panel access doors per TM 5-3895-373-10.

SCREED VIBRATOR CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

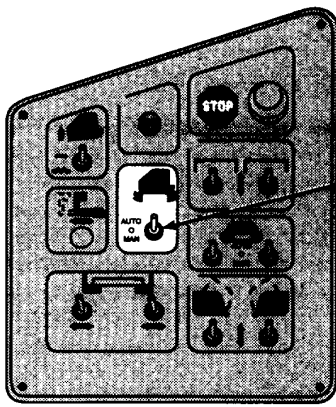
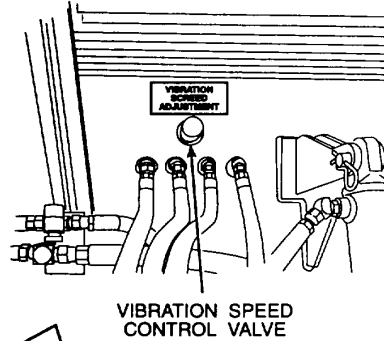
SCREED VIBRATOR CIRCUIT

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA.

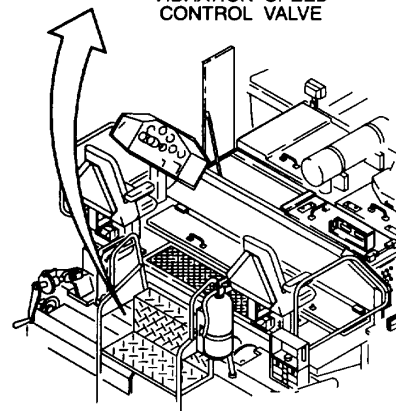
Refer to paragraph 1.21.5 for a functional description of the screed vibrator circuit.

Vibration speed control valve bleeds hydraulic oil to the hydraulic reservoir. Opening the valve reduces oil flow to the vibration motors, resulting in lower vibration speeds. Closing the valve increases oil flow and vibration speed.

Turn valve clockwise to increase vibration speed.



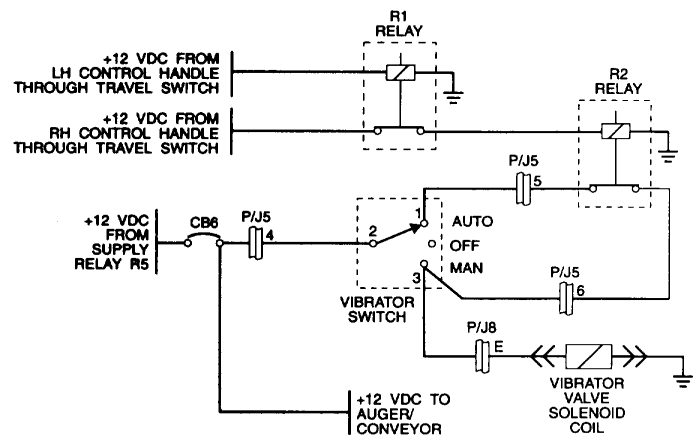
SCREED VIBRATOR AUTO/OFF/MANUAL SWITCH



In automatic operating mode, jumper circuit between vibrator switch terminals #1 and #3 is closed.

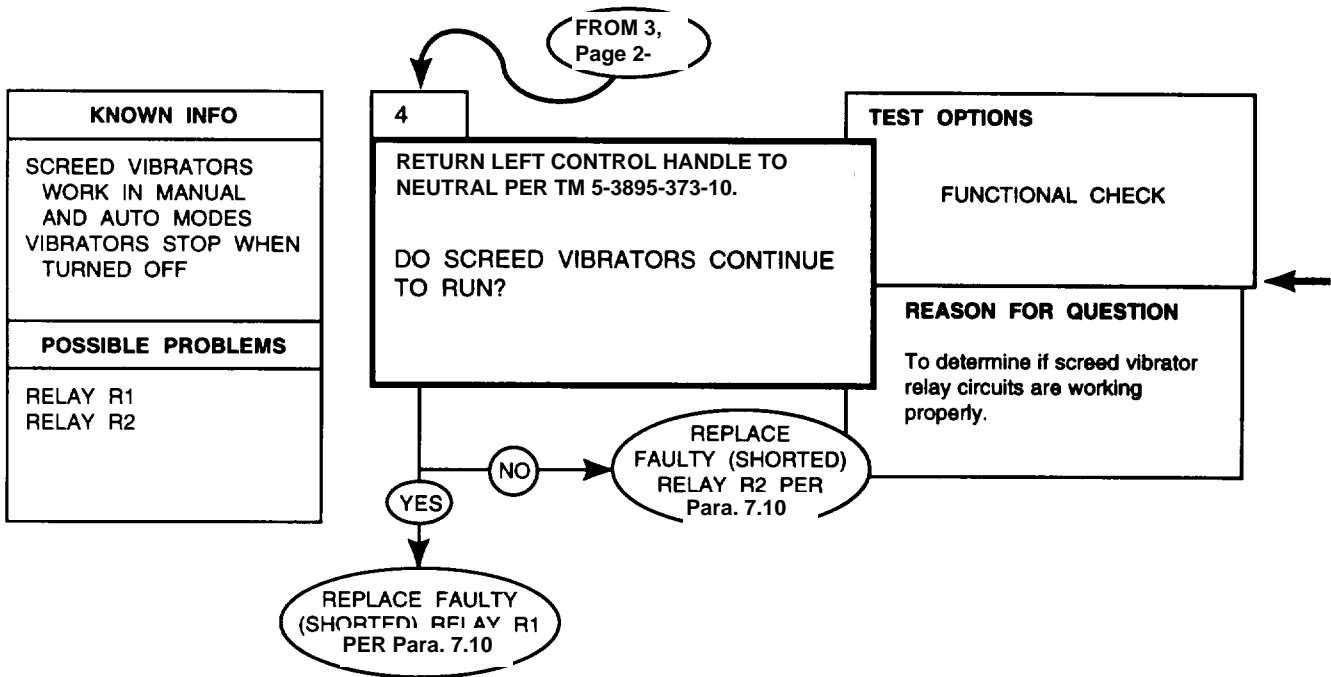
When travel switch is on and control handles are in forward or reverse, closing jumper circuit provides +12 vdc from CB6 to turn on vibrator valve solenoid coil.

When left or right control handle is in neutral, switching voltage to relay R2 is turned off. Unless R1 or R2 relay contactor is shorted, placing either control handle in neutral will open jumper circuit between terminals #1 and #3 of vibrator switch.



SCREED VIBRATOR CIRCUIT

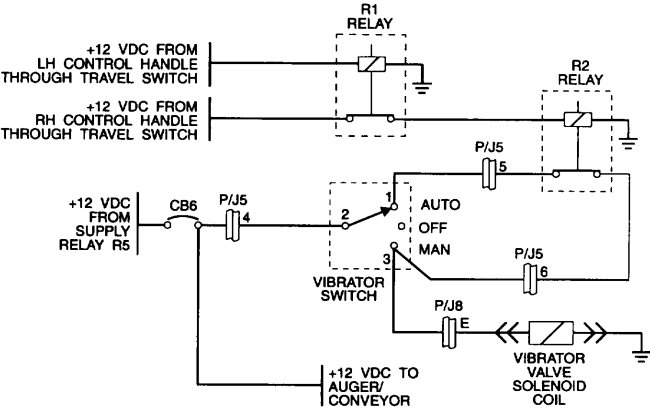
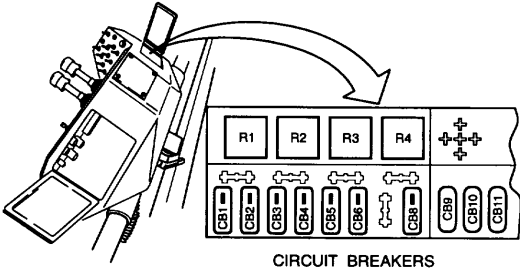
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

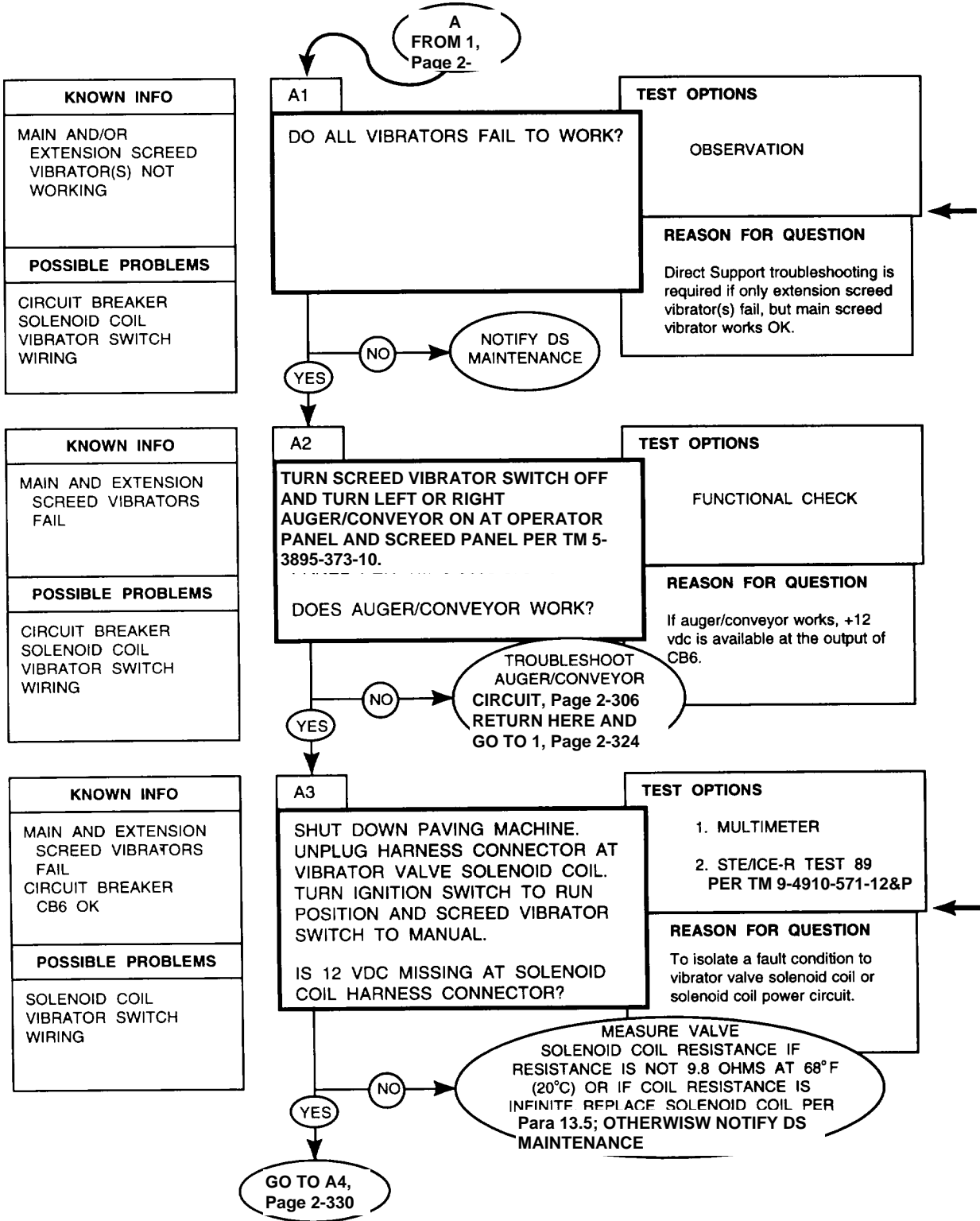
SCREED VIBRATOR CIRCUIT

If relay R2 fails closed (contactors fuse), placing control handles in neutral during AUTO mode operation will not turn screed vibrators off. A similar fault condition will occur if R1 relay contacts fuse (short circuit).



SCREED VIBRATOR CIRCUIT

DIAGNOSTIC FLOWCHART

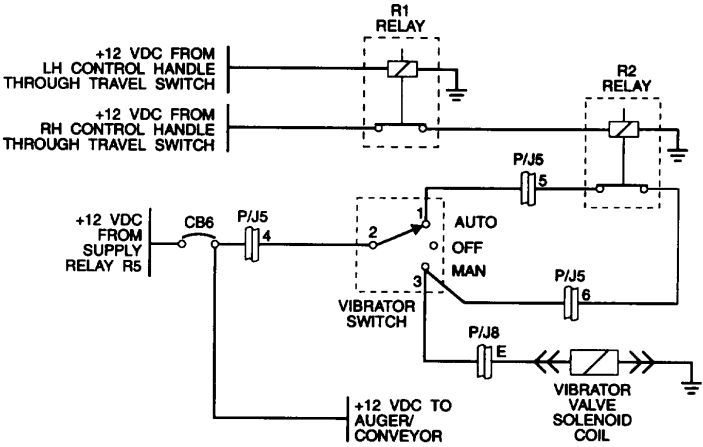


REFERENCE INFORMATION

SCREED VIBRATOR CIRCUIT

Failure of main vibrator motor will inhibit oil flow to extension screed vibrator motors.

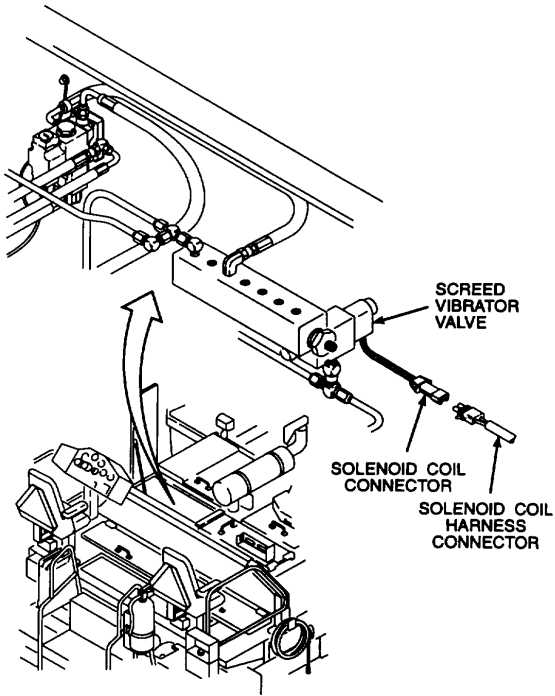
The cams on the vibrator shaft purposely cause the shaft to be unbalanced. When manually turning the vibrator shaft, the cams will normally try to fall to their lowest rotary position. If checking shaft rotation, do not mistake the cam weighing condition for binding or motor damage.



Open center top right and center top left access doors per TM 5-3895-373-10 to gain access to vibrator valve.

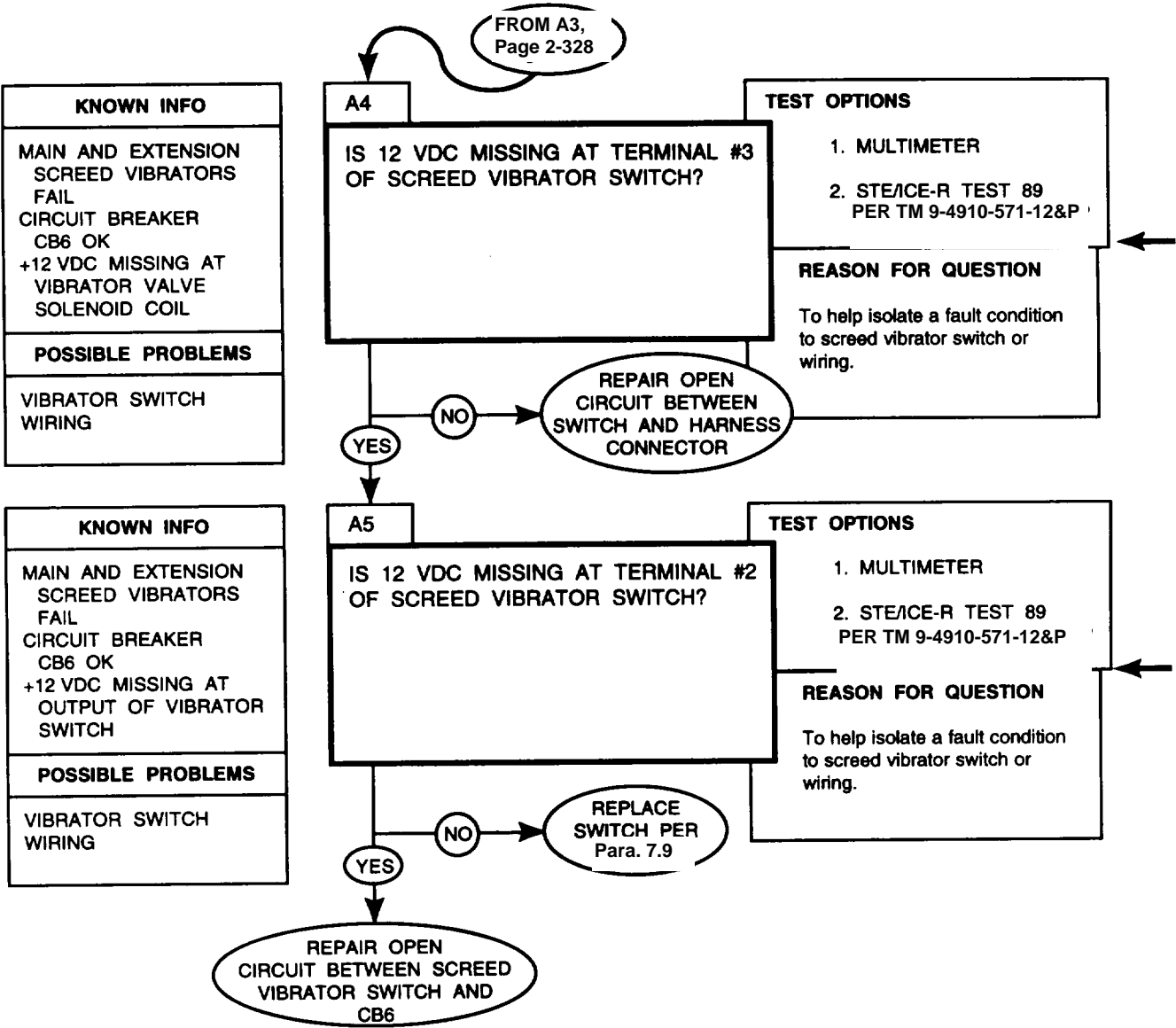
Check for 12 vdc and for ground at solenoid coil harness connector leads.

To avoid reverse polarity to multimeter, touch negative probe to equipment frame and use positive probe to check both connector terminals for +12 volt supply.



SCREED VIBRATOR CIRCUIT

DIAGNOSTIC FLOWCHART

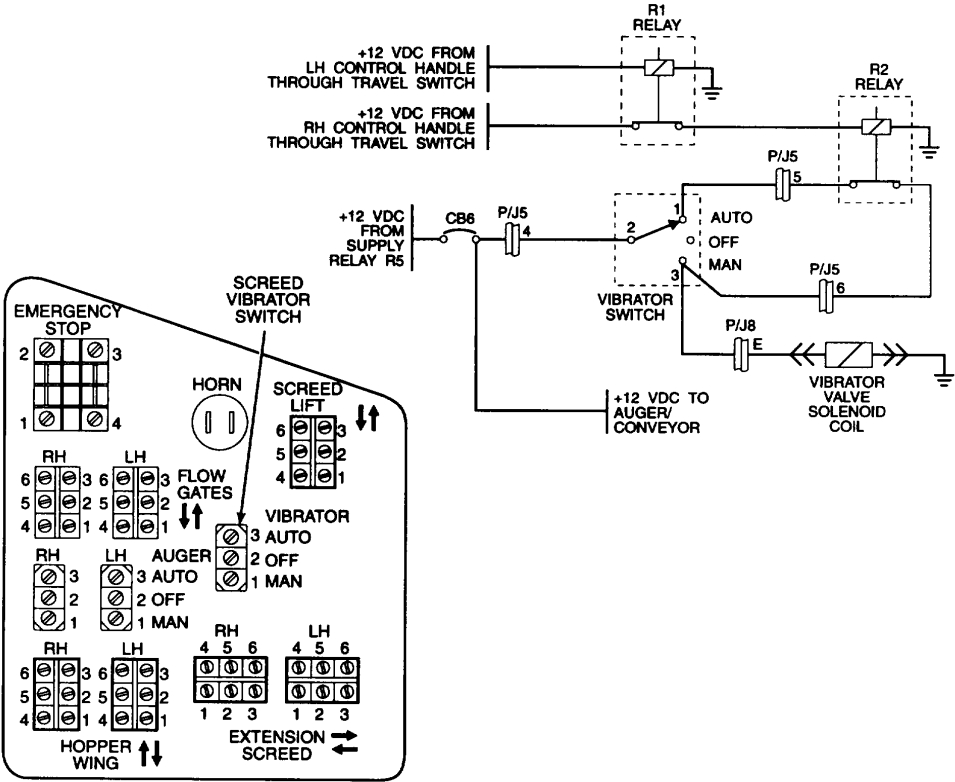


REFERENCE INFORMATION

SCREED VIBRATOR CIRCUIT

Remove operator switch panel per paragraph 7.6 to gain access to screed vibrator switch terminals.

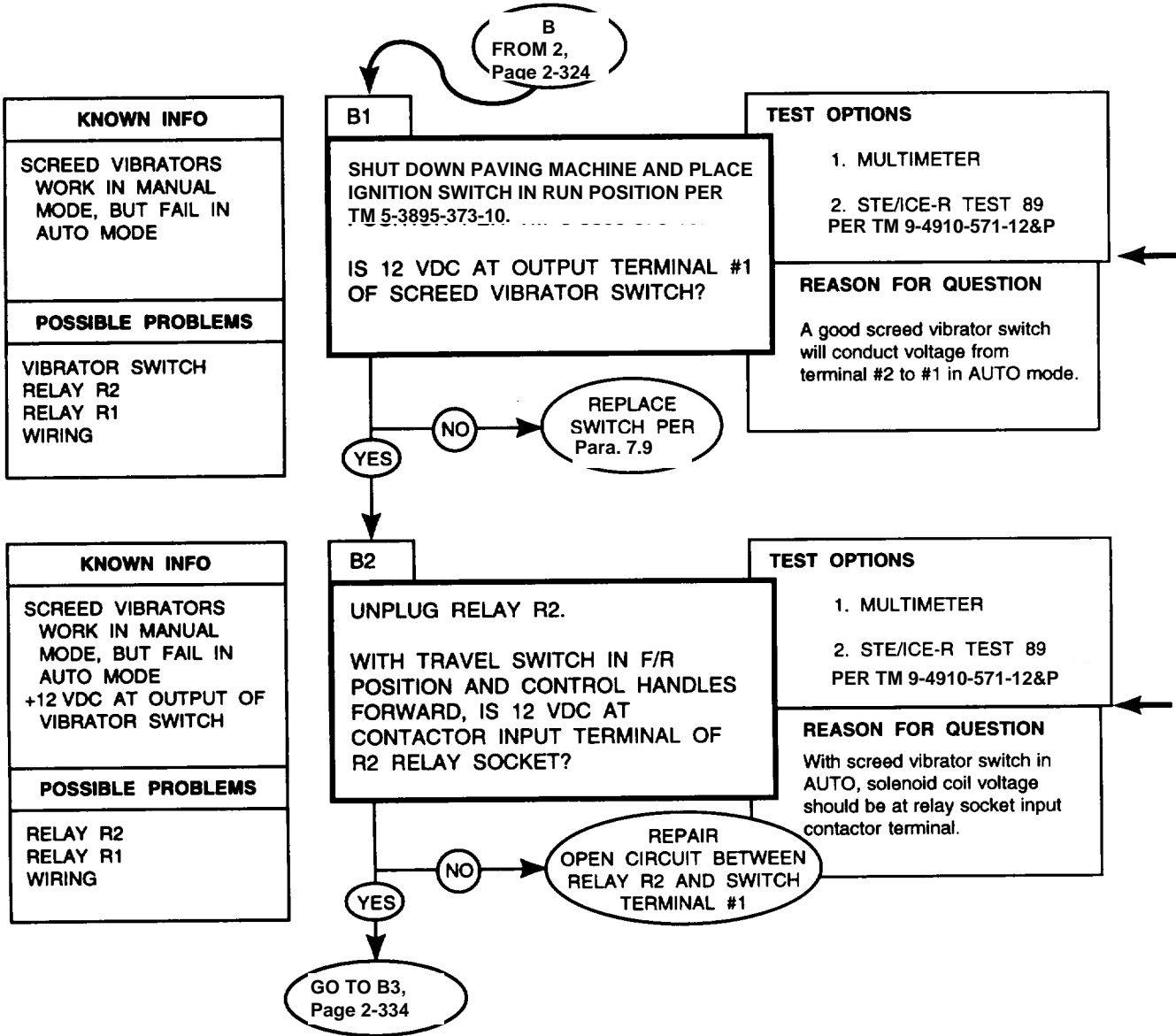
Refer to paragraph 7.21 for harness and lead wire repair.



After completing diagnostic checks, close center top left and center top right access doors per TM 5-3895-373-10. Install operator switch panel per paragraph 7.6.

SCREED VIBRATOR CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

SCREED VIBRATOR CIRCUIT

Remove operator switch panel per paragraph 7.6 to gain access to screed vibrator switch terminals.

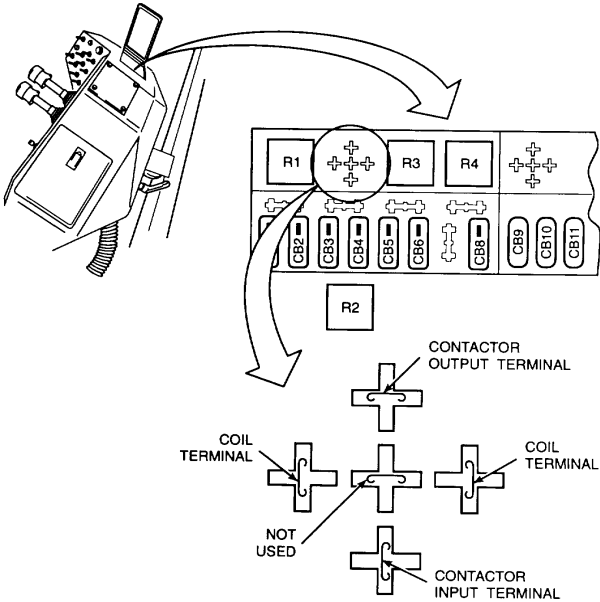
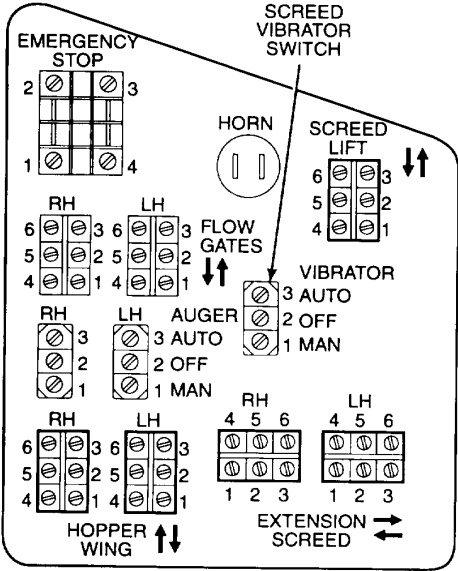
To avoid reversing polarity to the voltmeter, connect negative test lead to equipment ground and use positive lead to probe for voltage.

Refer to the electrical system diagram at the end of the manual for equipment wiring details.

Open gauge panel access doors per TM 53895-373-10 to gain access to circuit breakers.

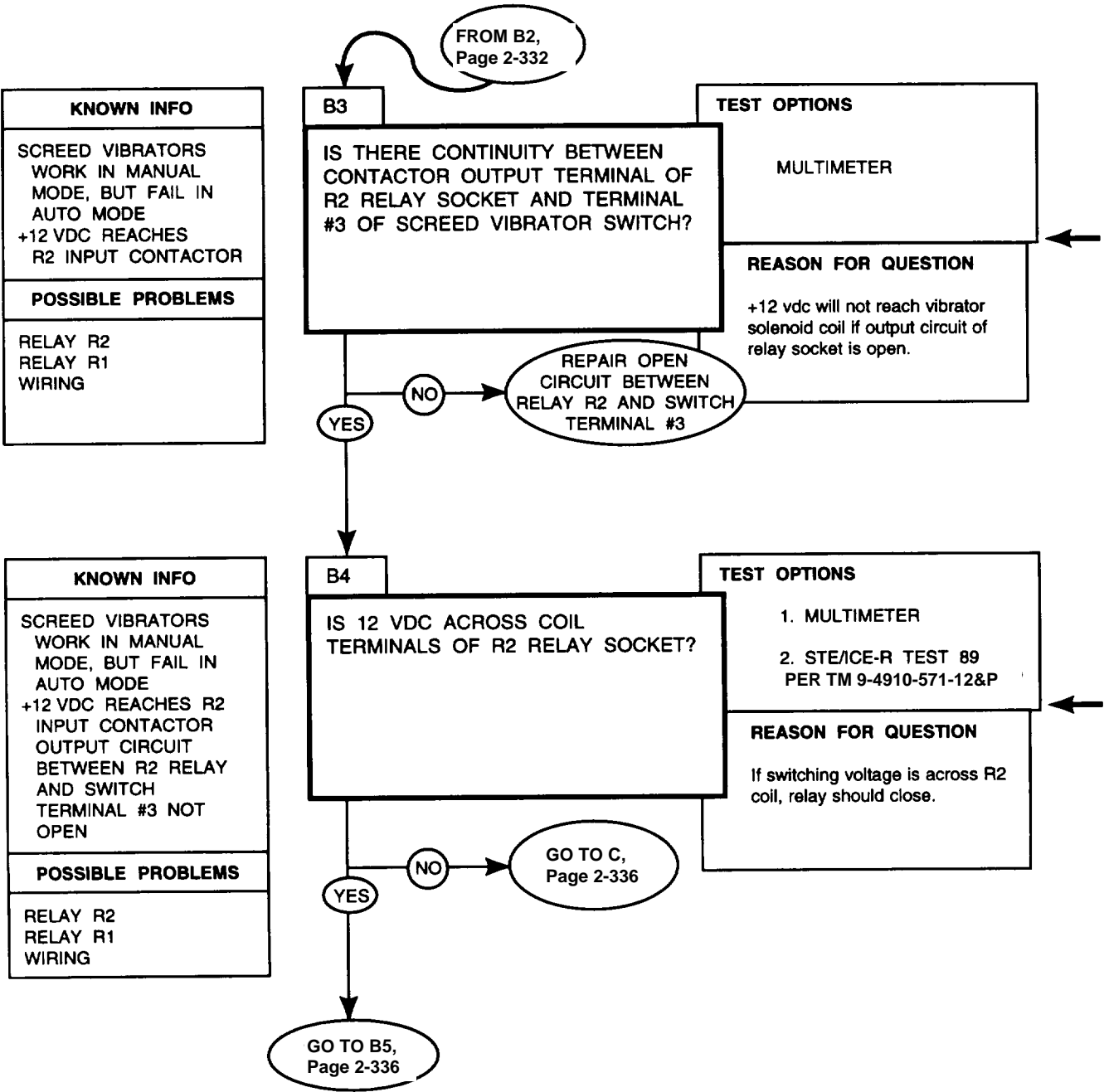
If paving machine moves, +12 vdc is at output terminals of travel switch.

Refer to paragraph 7.21 for harness and lead wire repair.



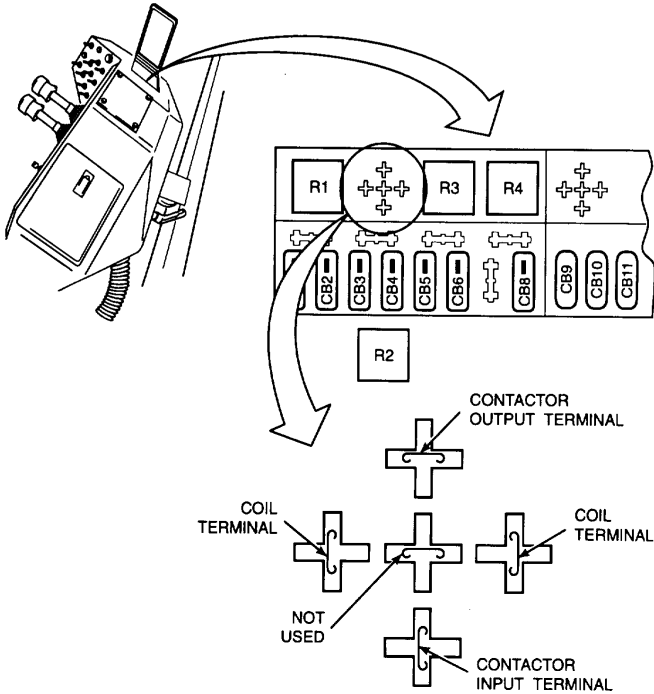
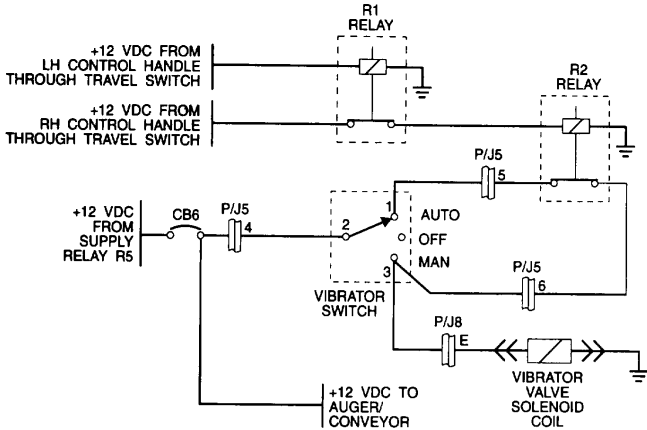
SCREED VIBRATOR CIRCUIT

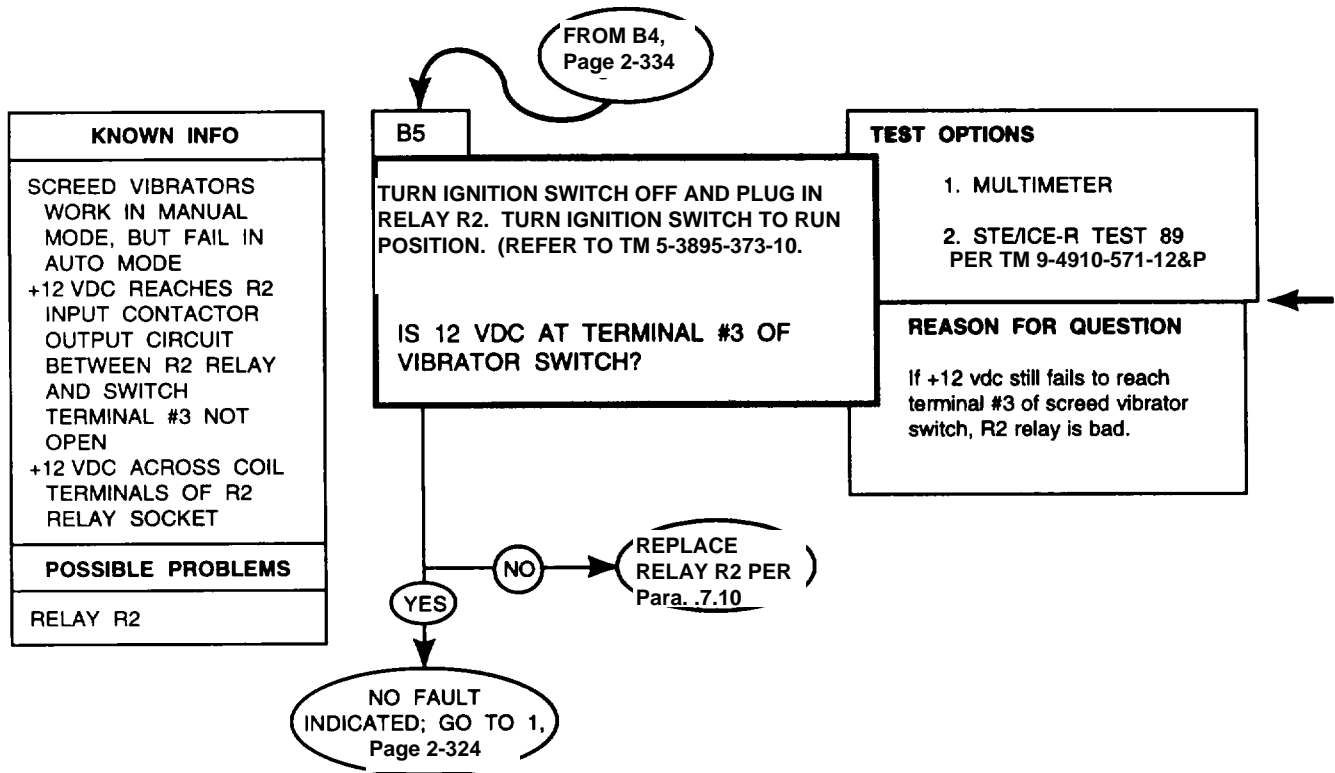
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

SCREED VIBRATOR CIRCUIT





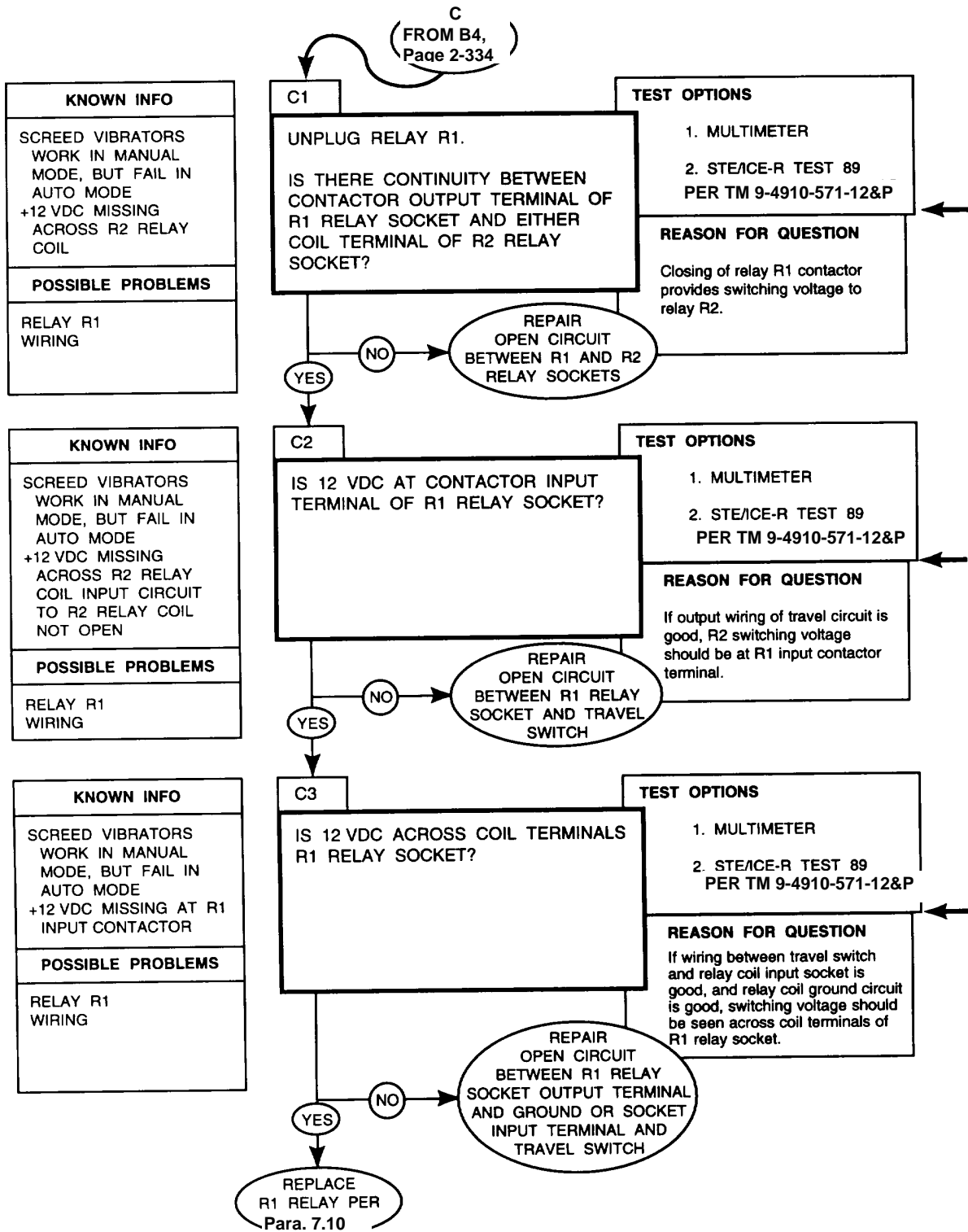
REFERENCE INFORMATION

SCREED VIBRATOR CIRCUIT

After completing diagnostic checks, close gauge panel access doors per TM 5-3895373-10. Install operator switch panel per paragraph 7.6.

SCREED VIBRATOR CIRCUIT

DIAGNOSTIC FLOWCHART

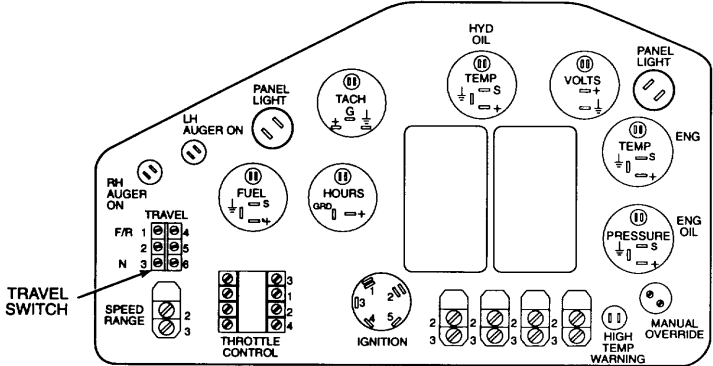
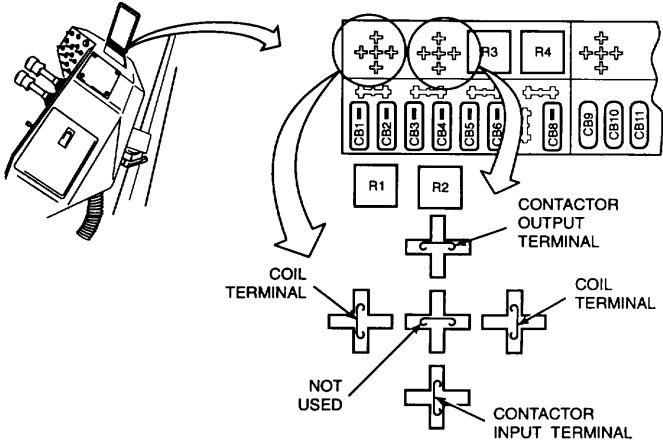


REFERENCE INFORMATION

SCREED VIBRATOR CIRCUIT

Open gauge panel access doors per TM 53895-373-10 to gain access to relays.

Refer to paragraph 7.21 for harness and lead wire repair.



After completing diagnostic checks, close gauge panel access doors per TM 5-3895373-10.

2.20. SCREED BURNER SYSTEM DIAGNOSTICS.

Perform the screed burner system tests whenever you have a problem with screed burner ignition, blower, fuel flow, or flame out, or if sent here by another diagnostic test.

NOTE

Screed burner system failure can result from improper operation. Refer to TM 5-3895-373-10 for proper screed burner operating procedures.

Screed burner system diagnostics are divided into three topics. Which topic applies to your problem depends on what happens when you try to ignite and operate a main or extension screed burner. Burner ignition failure can be caused by a faulty glow plug circuit or by a restricted fuel flow. If ignition is heard and the burner fails to light or flames out, the problem is most likely in the fuel system. If fuel is at the trailing edge of the screed plate and ignition was not heard, the problem is probably in the glow plug circuit. Blower failure is usually detected by listening for blower operation when the switch is turned on.



Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

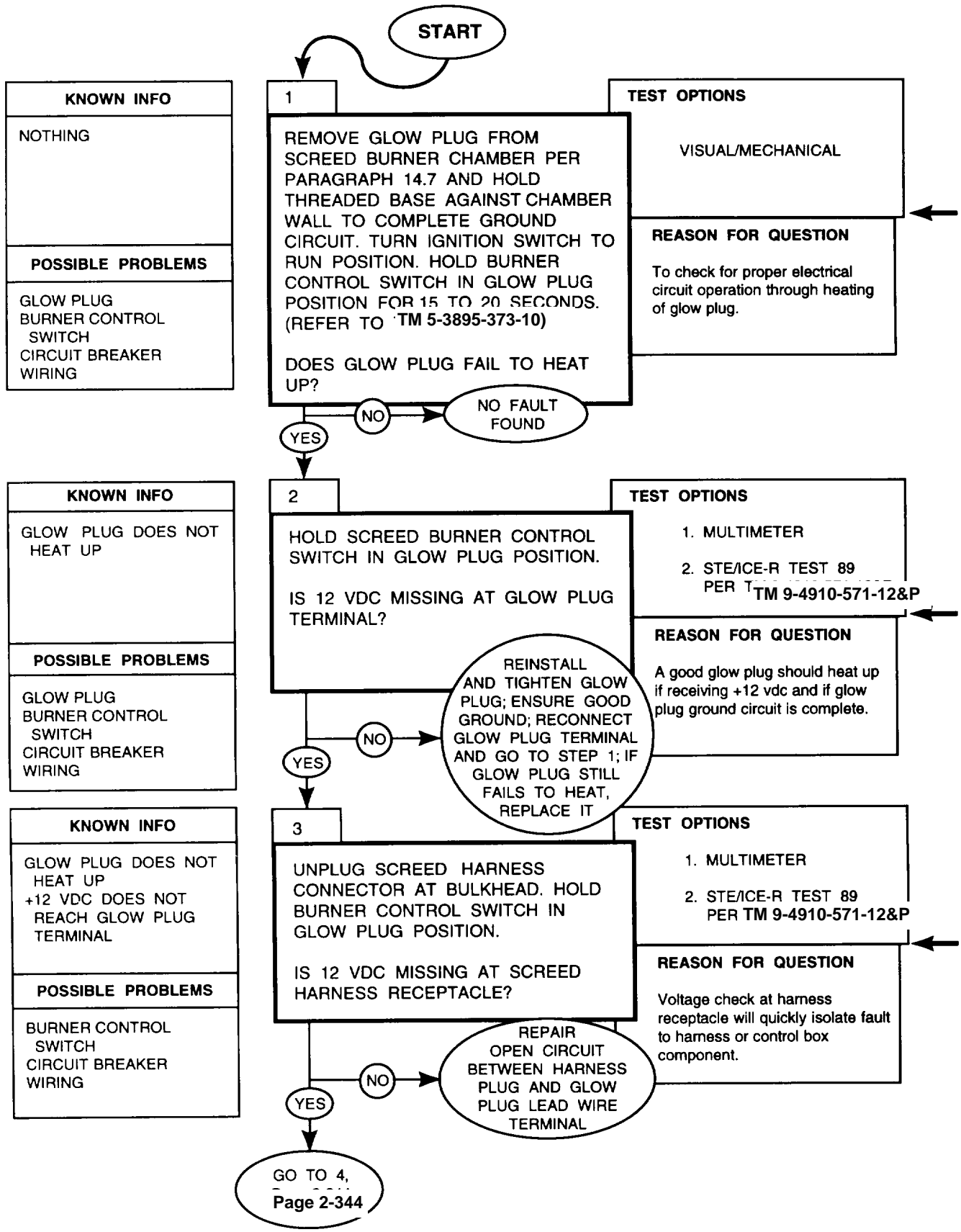
Refer to the following index for the location of the diagnostic procedure that applies to your burner system fault.

Diagnostic Index

Fault Location	Page
Screed Burner Glow Plug Circuit	2-342
Screed Burner Fuel System	2-350
Screed Blower Motor Circuit.....	2-370

SCREED BURNER GLOW PLUG CIRCUIT

DIAGNOSTIC FLOWCHART

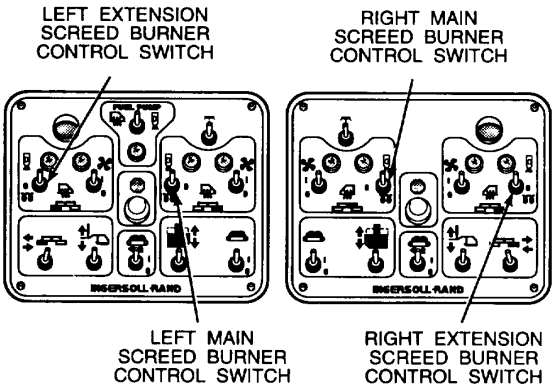


REFERENCE INFORMATION

SCREED BURNER GLOW PLUG CIRCUIT

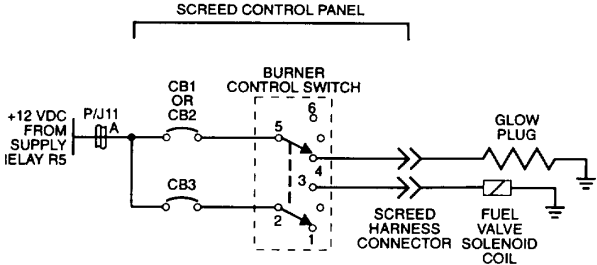
Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA.

Refer to paragraph 1.15.2 for screed burner fuel system principles. Refer to paragraph 1.18.6 for screed burner electrical circuits operation.

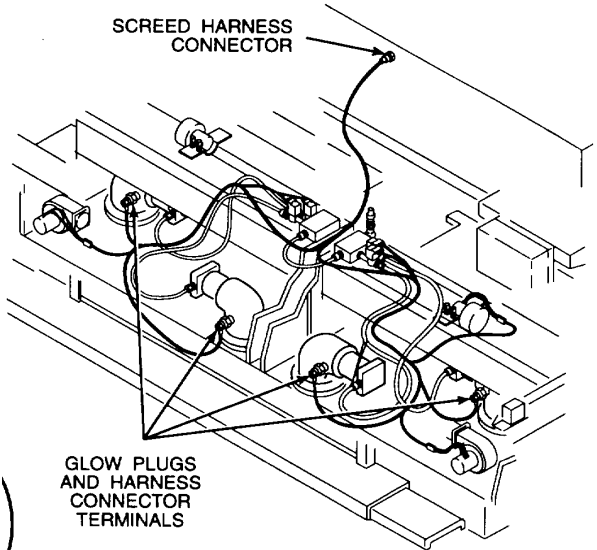
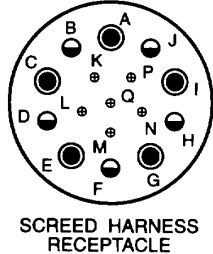


The electrical ground contact at the glow plug seat may be lost due to repeated heating and cooling of the glow plug and burner chamber. To correct a glow plug ground fault, loosen and retighten the glow plug.

Reference electrical schematic at back of manual for complete circuit wiring.

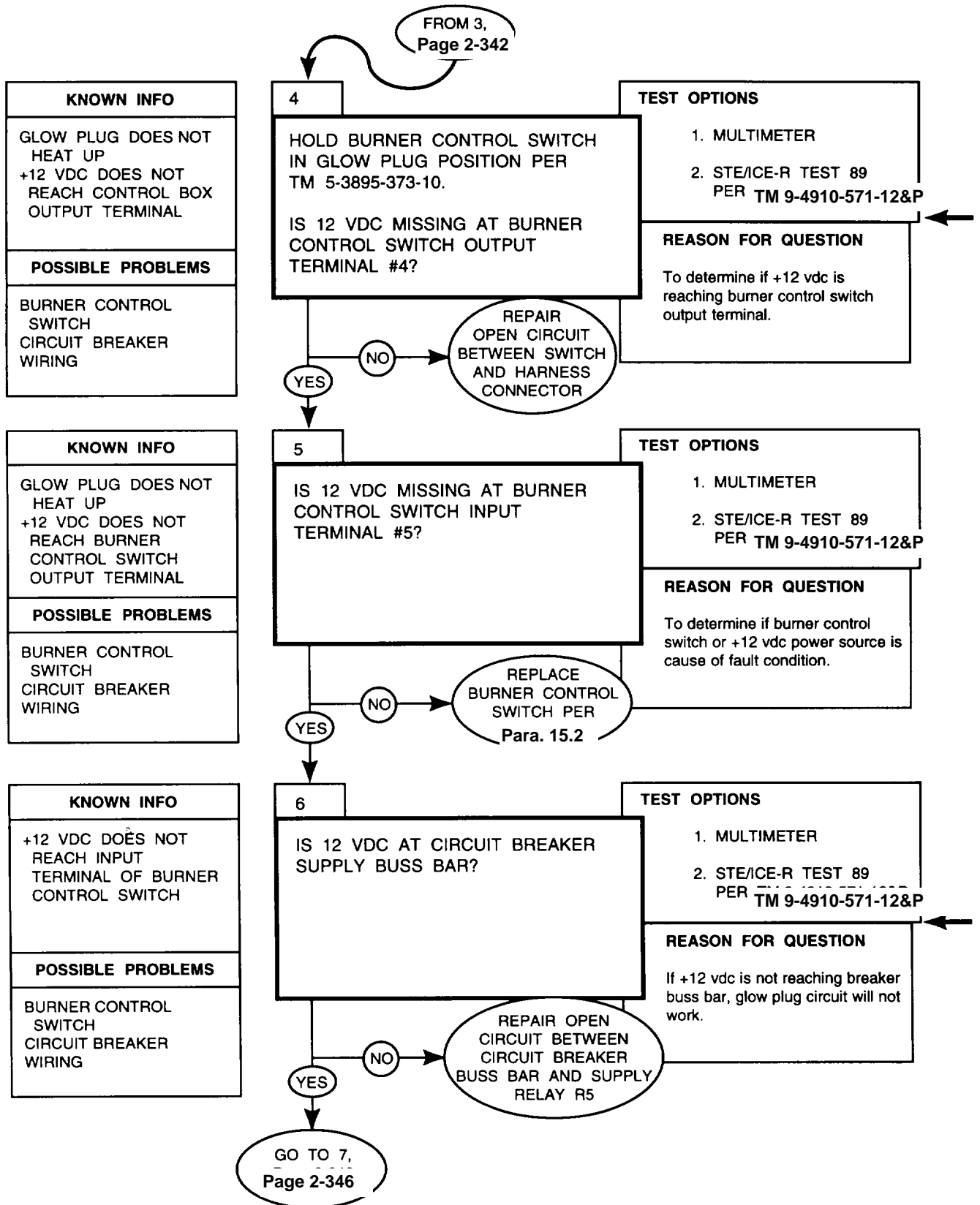


Glow plug power terminals in screed harness receptacle are as follows: Right Hand Main Screed Terminal I Right Hand Extension Screed Terminal G Left Hand Main Screed Terminal A Left Hand Extension Screed Terminal C Refer to paragraph 7.21 for harness and lead wire repair.



SCREED BURNER GLOW PLUG CIRCUIT

DIAGNOSTIC FLOWCHART

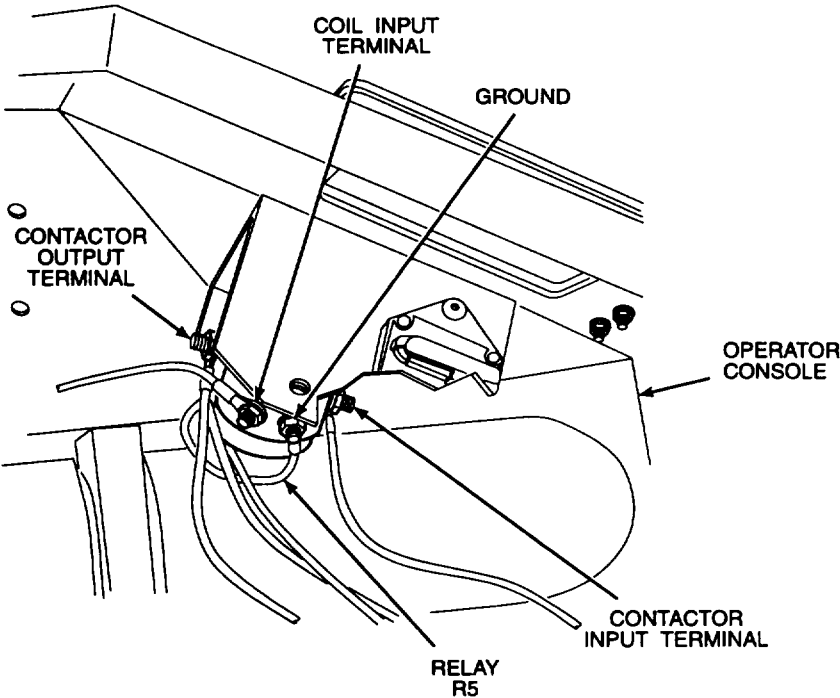
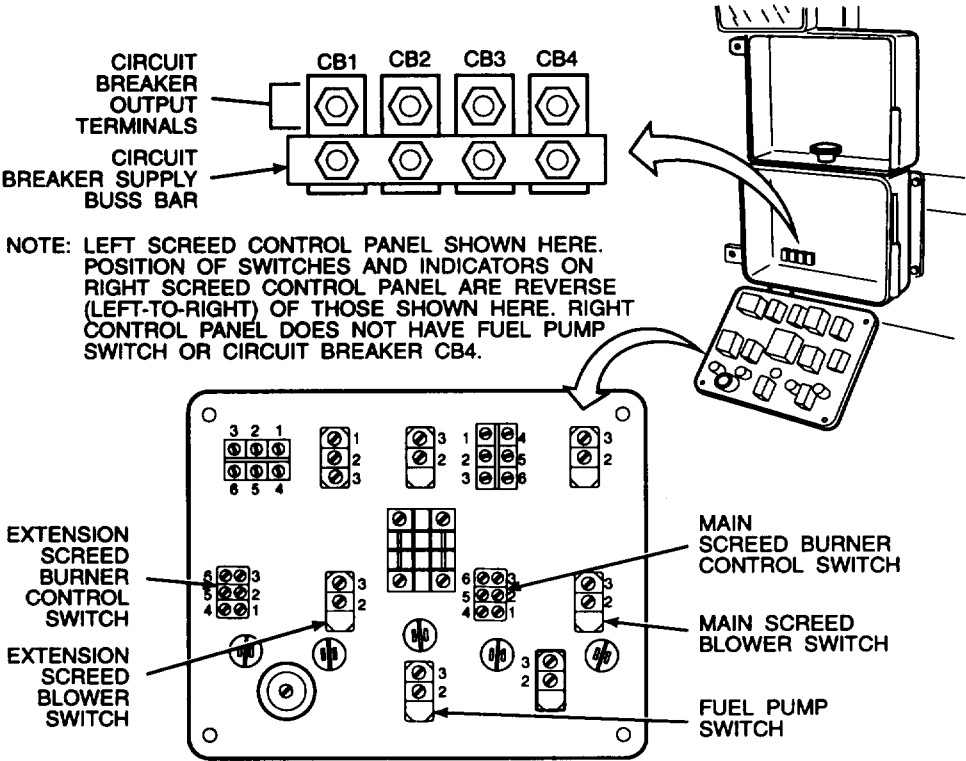


REFERENCE INFORMATION

SCREED BURNER GLOW PLUG CIRCUIT

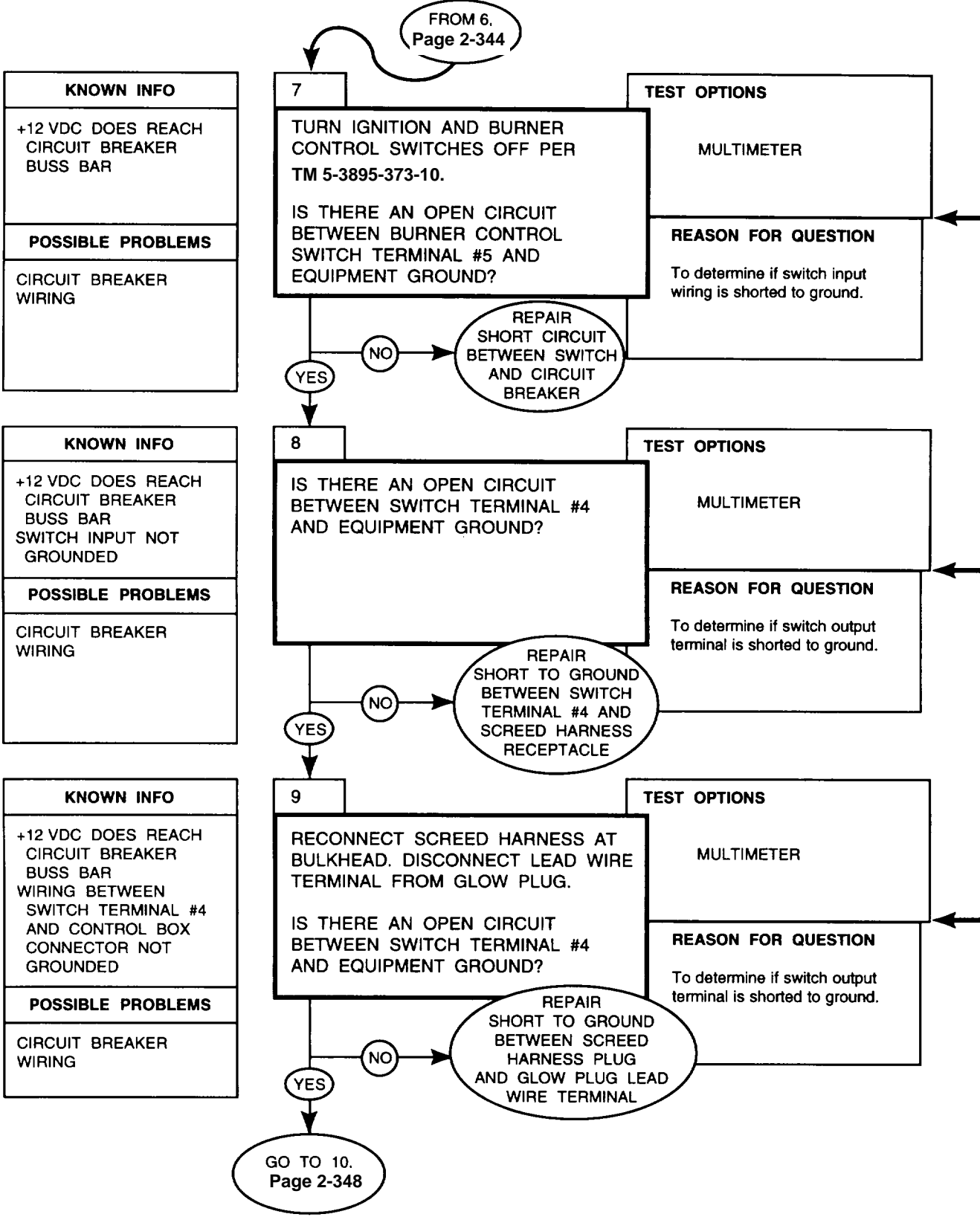
Gain access to glow plug switch terminals per paragraph 15.2, step a.

Refer to paragraph 7.21 for harness and lead wire repair.



SCREED BURNER GLOW PLUG CIRCUIT

DIAGNOSTIC FLOWCHART

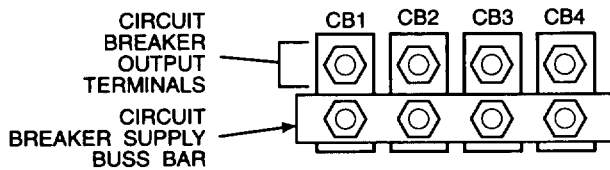
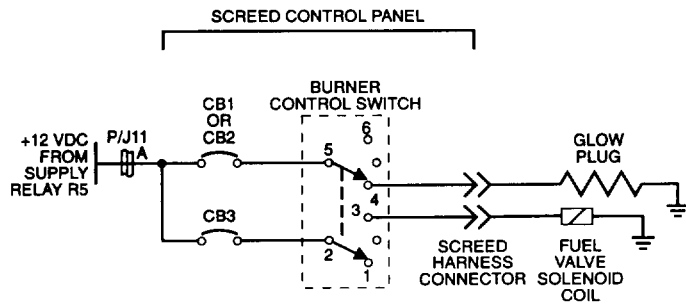


REFERENCE INFORMATION

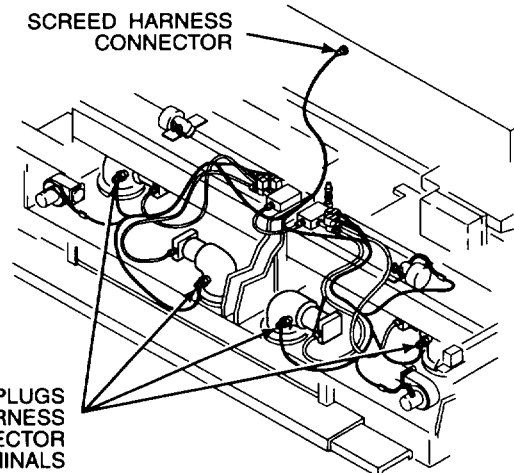
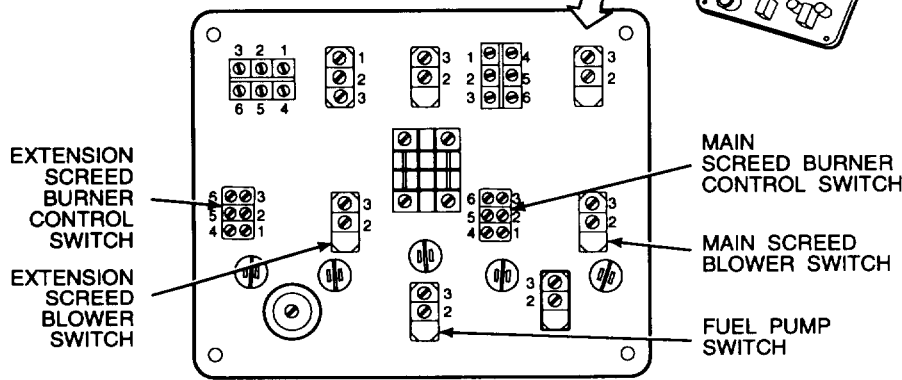
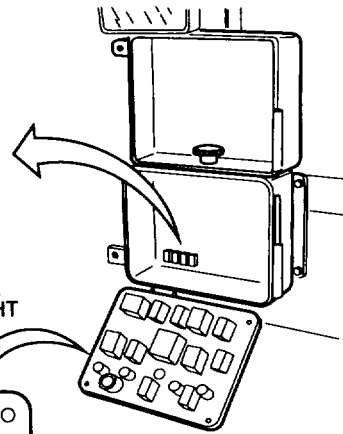
SCREED BURNER GLOW PLUG CIRCUIT

Refer to paragraph 7.21 for harness and lead wire repair.

Reference electrical schematic at back of manual for complete circuit wiring.

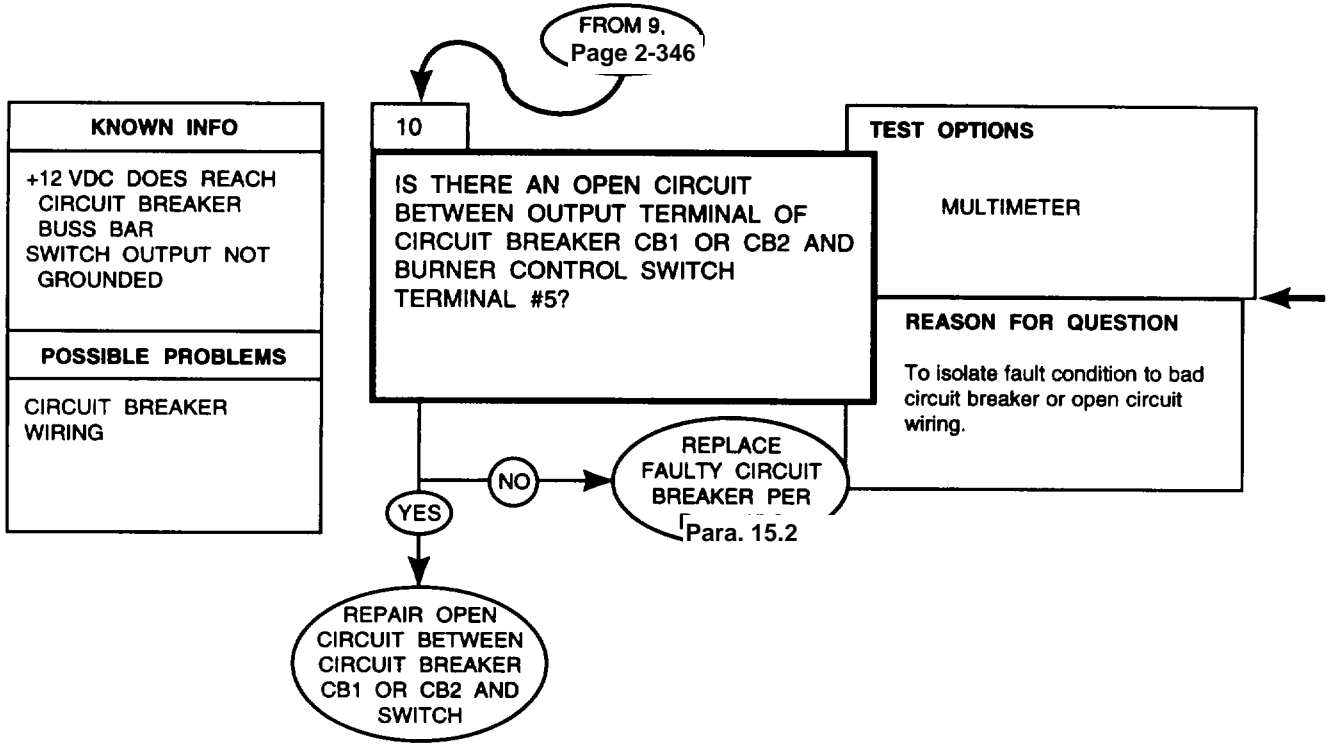


NOTE: LEFT SCREED CONTROL PANEL SHOWN HERE. POSITION OF SWITCHES AND INDICATORS ON RIGHT SCREED CONTROL PANEL ARE REVERSE (LEFT-TO-RIGHT) OF THOSE SHOWN HERE. RIGHT CONTROL PANEL DOES NOT HAVE FUEL PUMP SWITCH OR CIRCUIT BREAKER CB4.



SCREED BURNER GLOW PLUG CIRCUIT

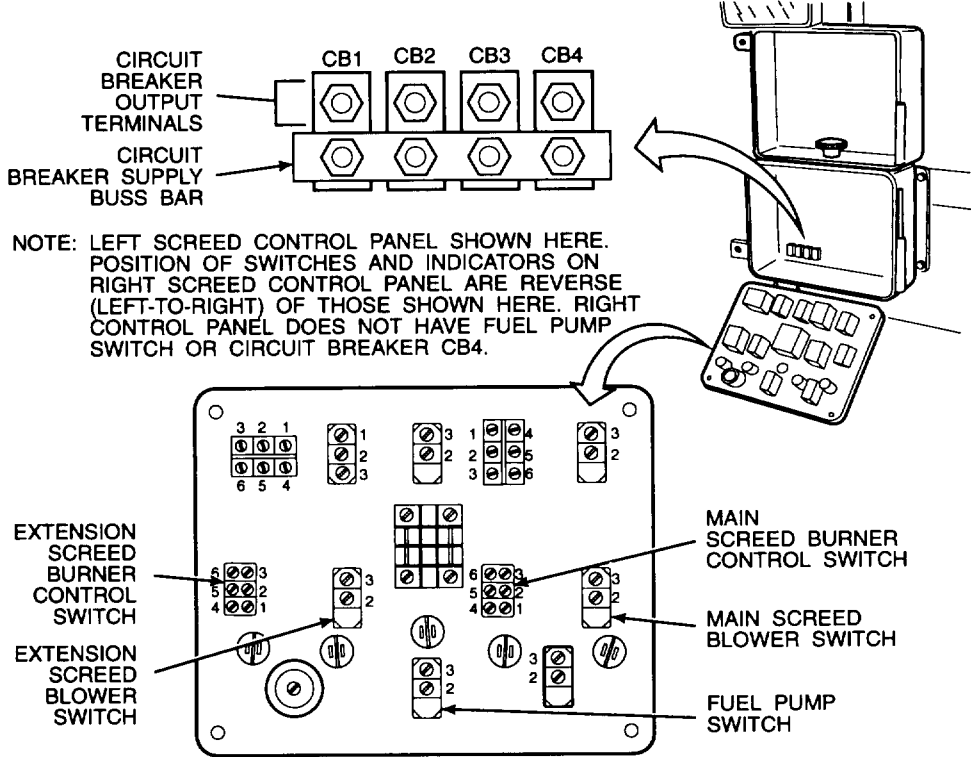
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

SCREED BURNER GLOW PLUG CIRCUIT

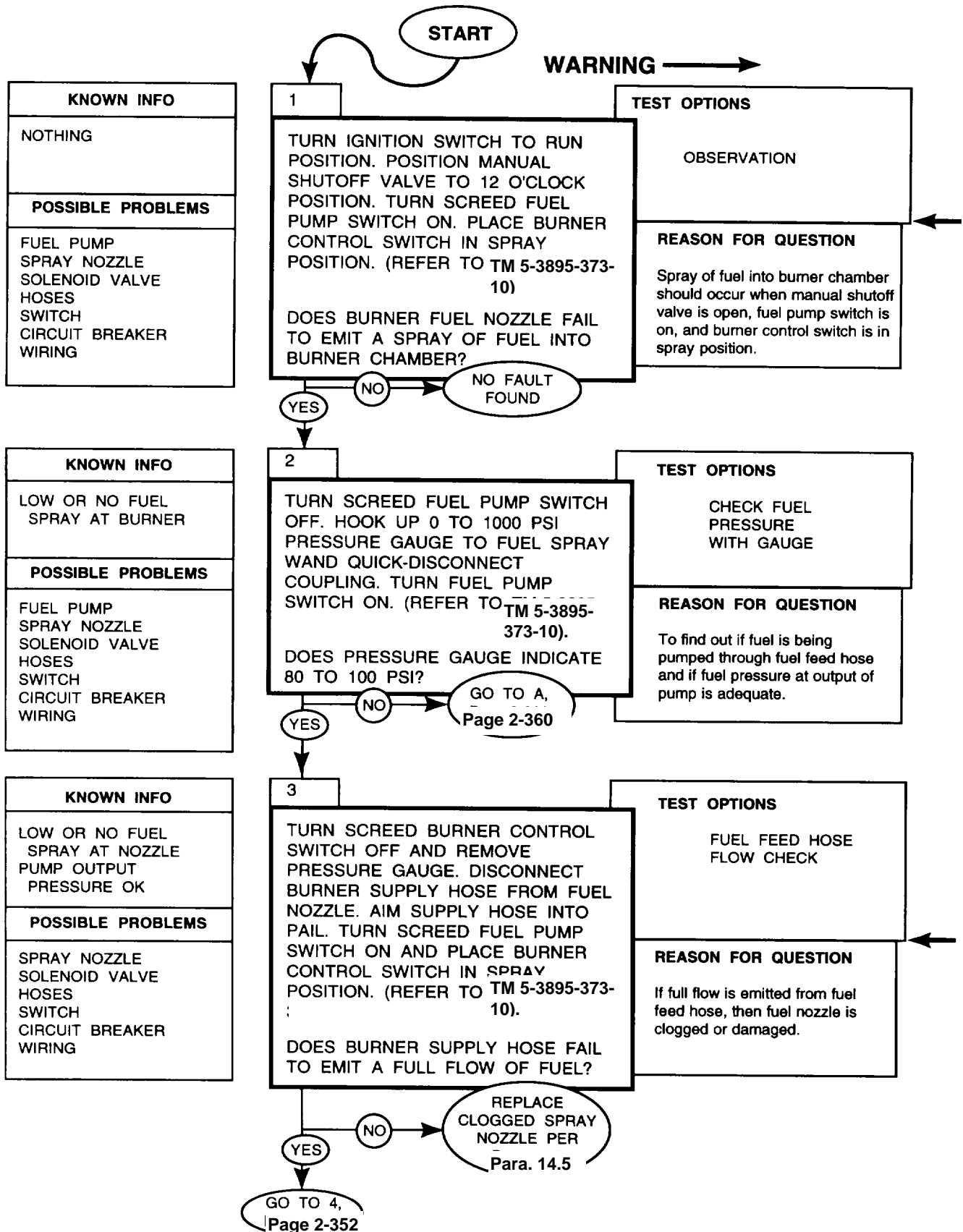
Refer to paragraph 7.21 for harness and lead wire repair.



After completing diagnostic checks, install screed control panel per paragraph 15.2.

SCREED BURNER FUEL SYSTEM

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

SCREED BURNER FUEL SYSTEM

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA.

WARNING

Do not allow fuel to accumulate on screed plate. Igniting burner in presence of excess fuel will cause a minor explosion and could cause injury to personnel. If fuel is seen on screed plate, raise screed to drain off excess fuel.

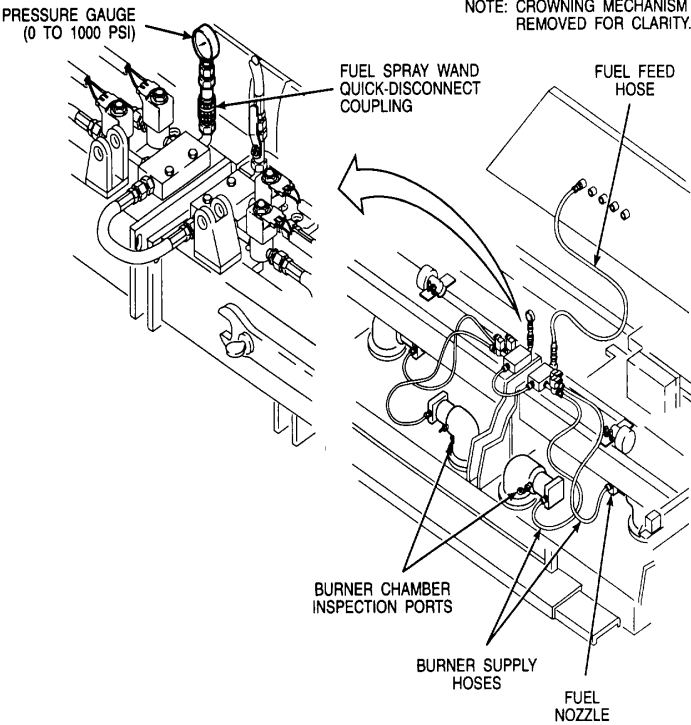
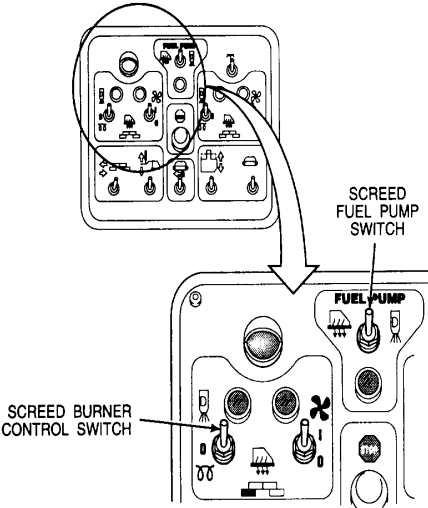
Screed fuel pump switch is located on left hand screed control panel.

Each burner chamber is equipped with an inspection port (shown below). To check for fuel spray from fuel nozzle, rotate cover plate and insert a probe in exposed port. When probe is in port, place burner control switch in spray position for 2 or 3 seconds.

If probe gets wet with fuel, spray nozzle is spraying fuel.

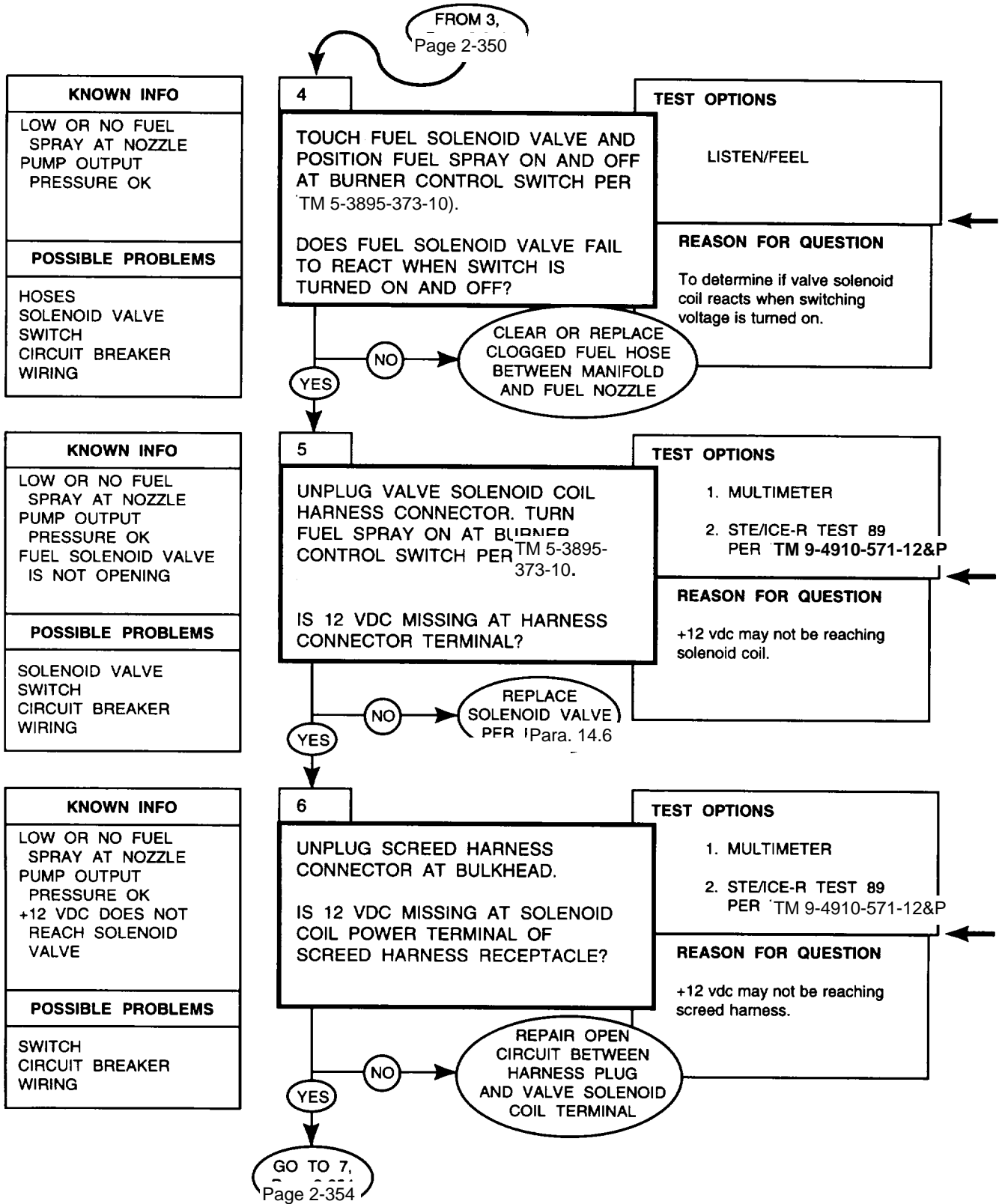
Fuel nozzle ports are extremely small. Any particulate contamination can clog fuel nozzle.

Dispose of fuel collected in pail in accordance with local procedures.



SCREED BURNER FUEL SYSTEM

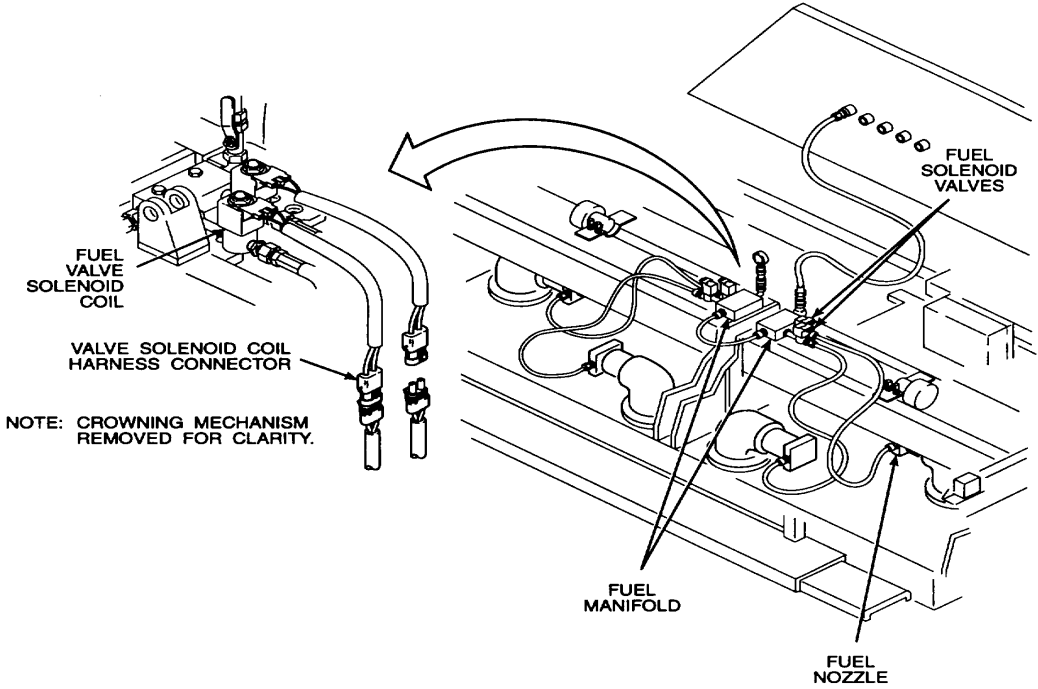
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

SCREED BURNER FUEL SYSTEM

Fuel blockage can occur in manifold or fuel hose to spray nozzle.

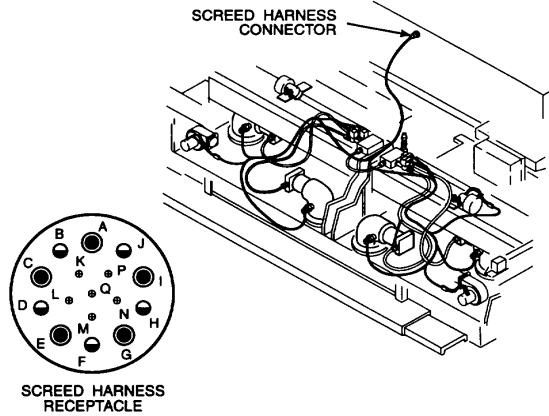


To avoid reverse polarity to multimeter, touch negative probe to equipment frame and use positive probe to check both connector terminals for +12 volt supply.

Valve solenoid coil power terminals in screed harness receptacle are as follows:

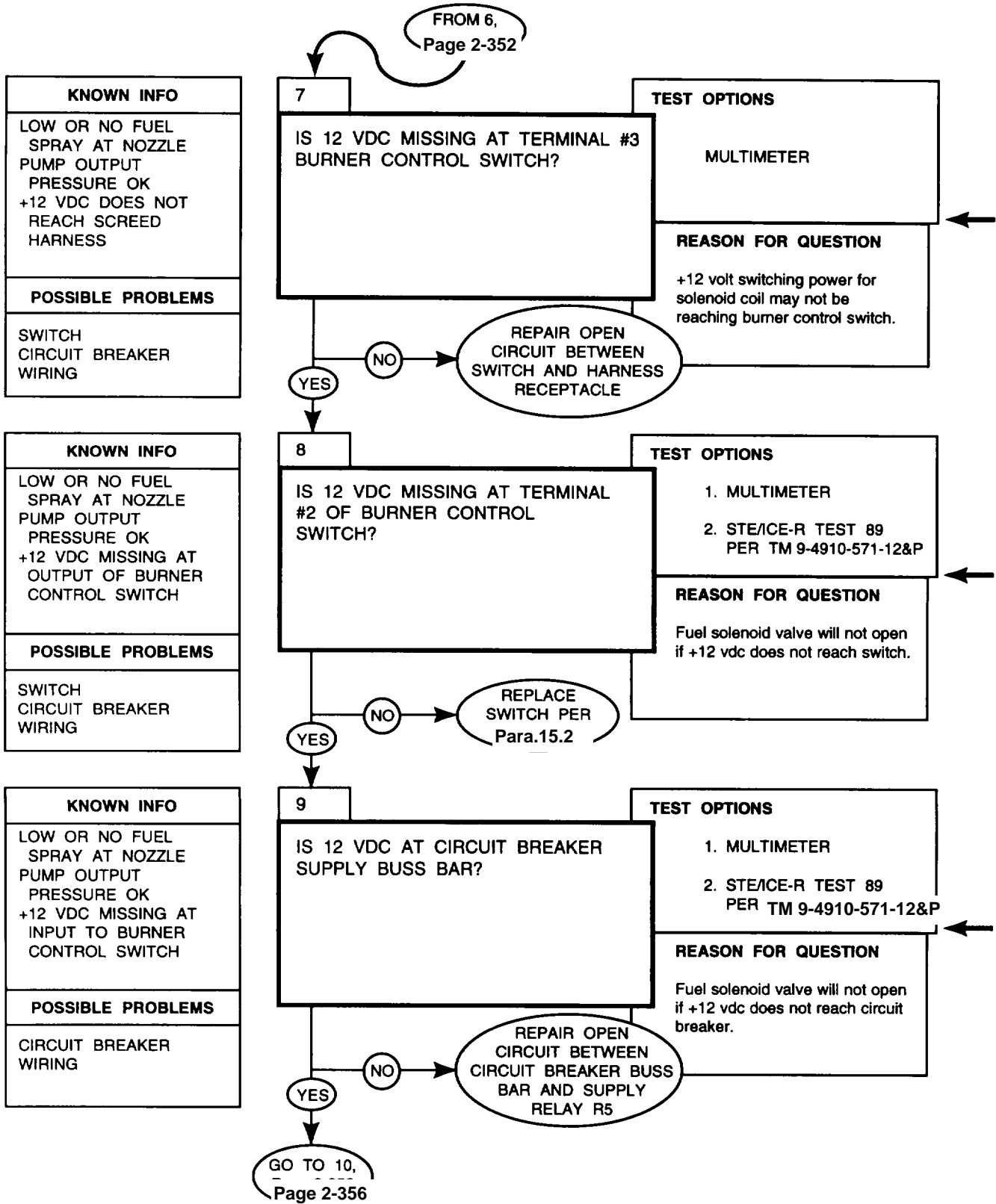
- Right Hand Main Screed Terminal P
- Right Hand Extension Screed Terminal M
- Left Hand Main Screed Terminal D
- Left Hand Extension Screed Terminal L

Refer to paragraph 7.21 for harness and lead wire repair.



SCREED BURNER FUEL SYSTEM

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

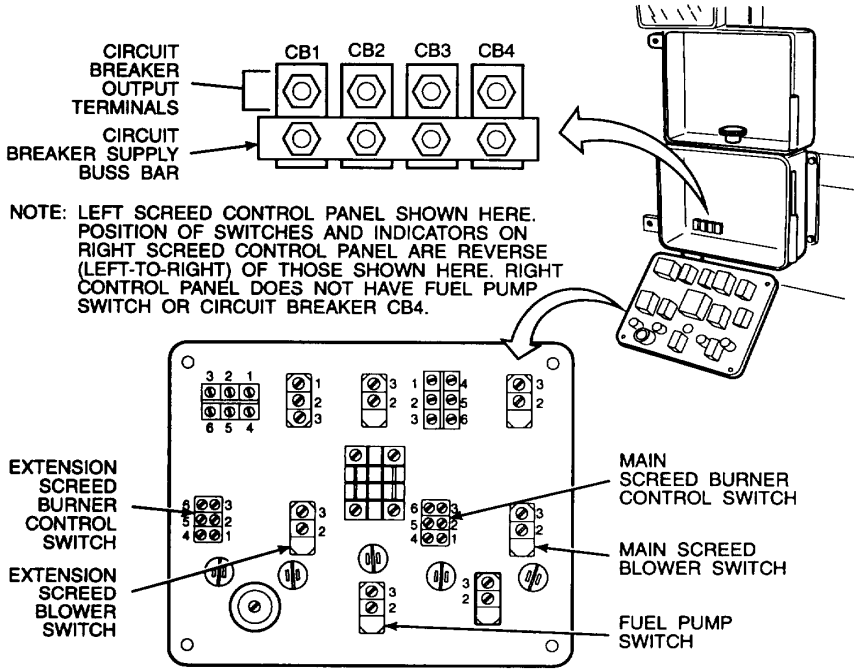
SCREED BURNER FUEL SYSTEM

Gain access to burner control switch terminals per paragraph 15.2, step a.

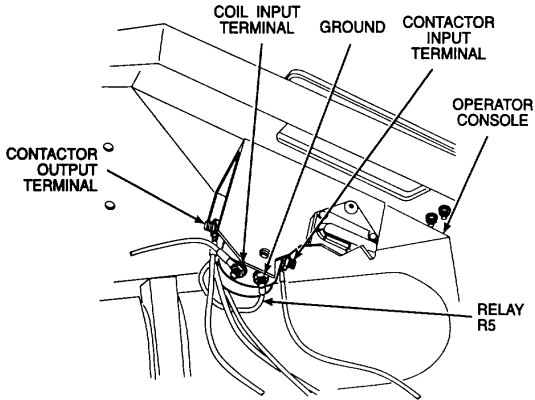
Valve solenoid coil power terminals in screed harness receptacle are as follows:

- Right Hand Main Screed Terminal P
- Right Hand Extension Screed Terminal M
- Left Hand Main Screed Terminal D
- Left Hand Extension Screed Terminal L

Refer to paragraph 7.21 for harness and lead wire repair.

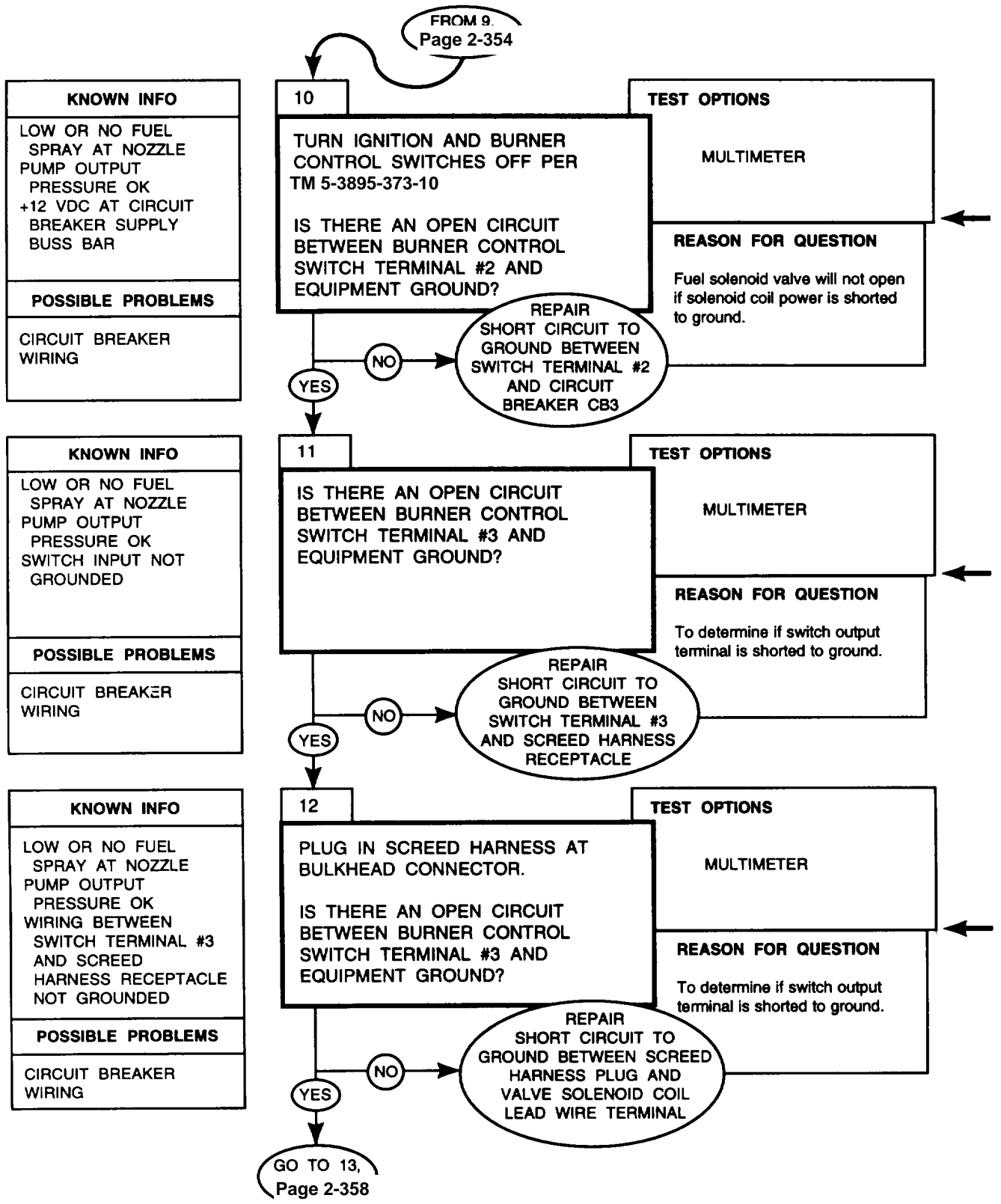


Refer to paragraph 7.21 for harness and lead wire repair.



SCREED BURNER FUEL SYSTEM

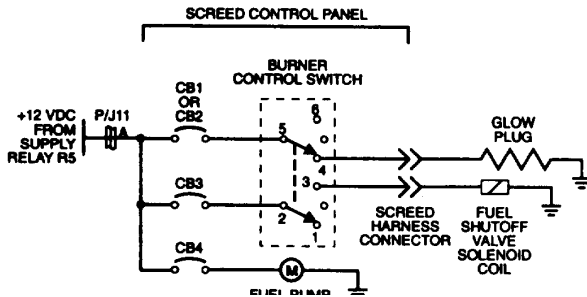
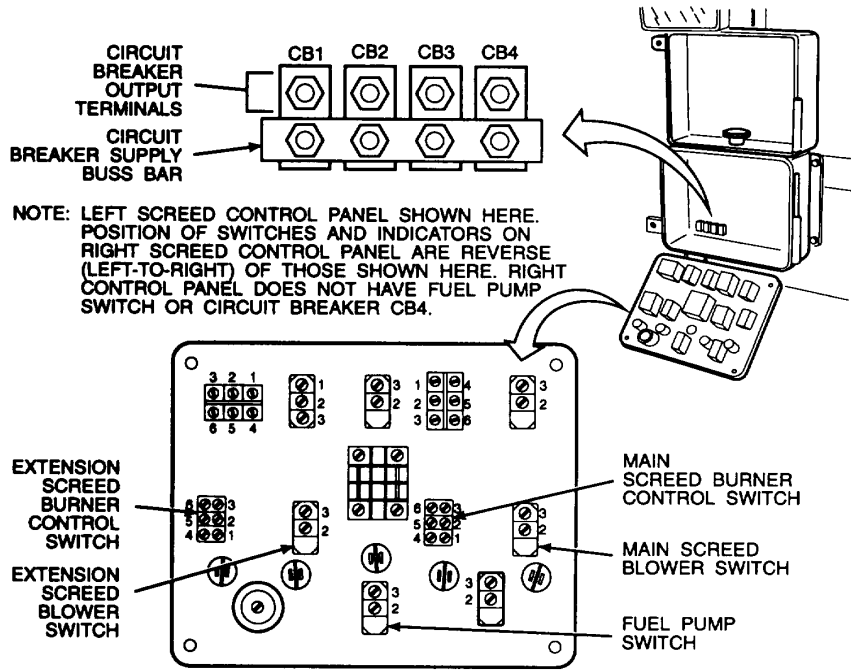
DIAGNOSTIC FLOWCHART



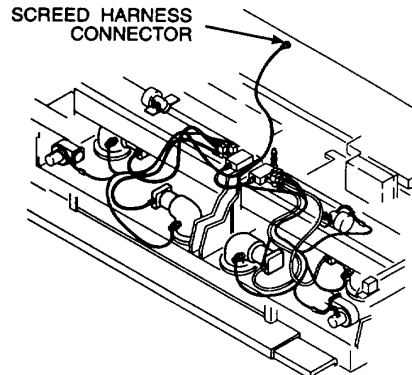
REFERENCE INFORMATION

SCREED BURNER FUEL SYSTEM

Refer to paragraph 7.21 for harness and lead wire repair.

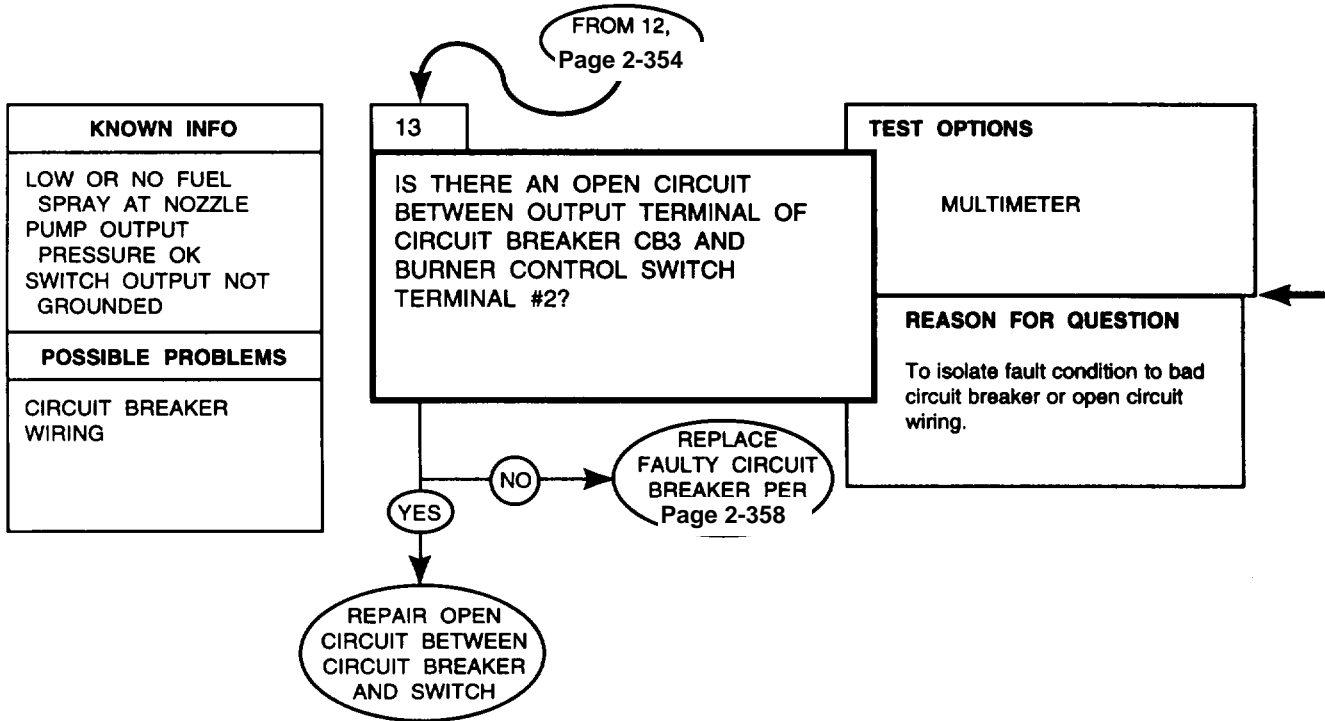


Reference electrical schematic at back of manual for complete circuit wiring.



SCREED BURNER FUEL SYSTEM

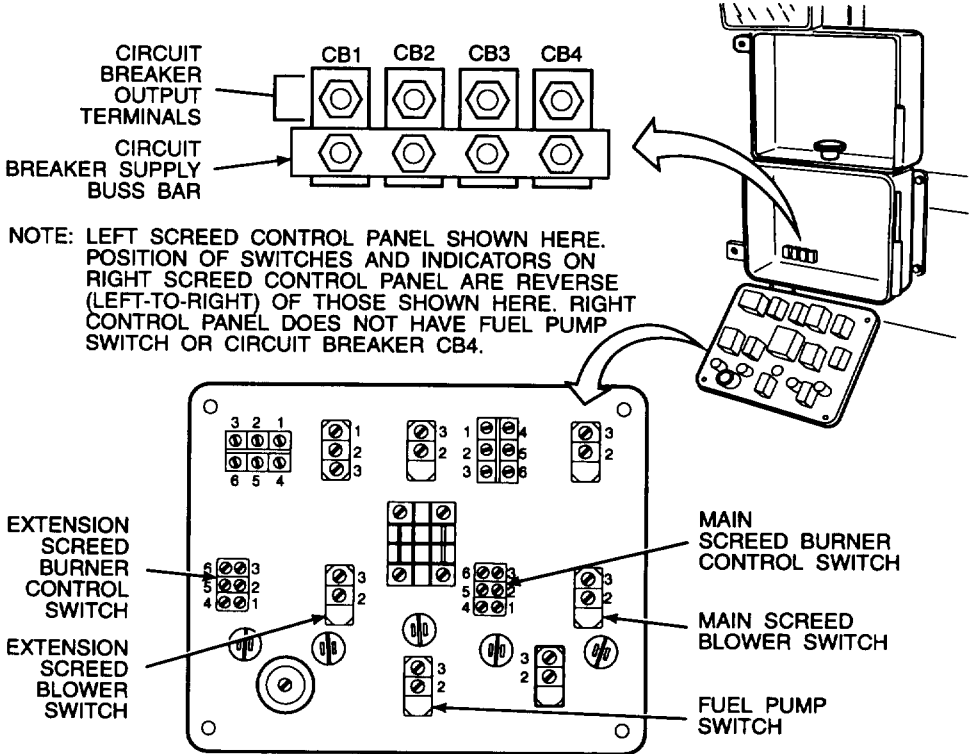
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

SCREED BURNER FUEL SYSTEM

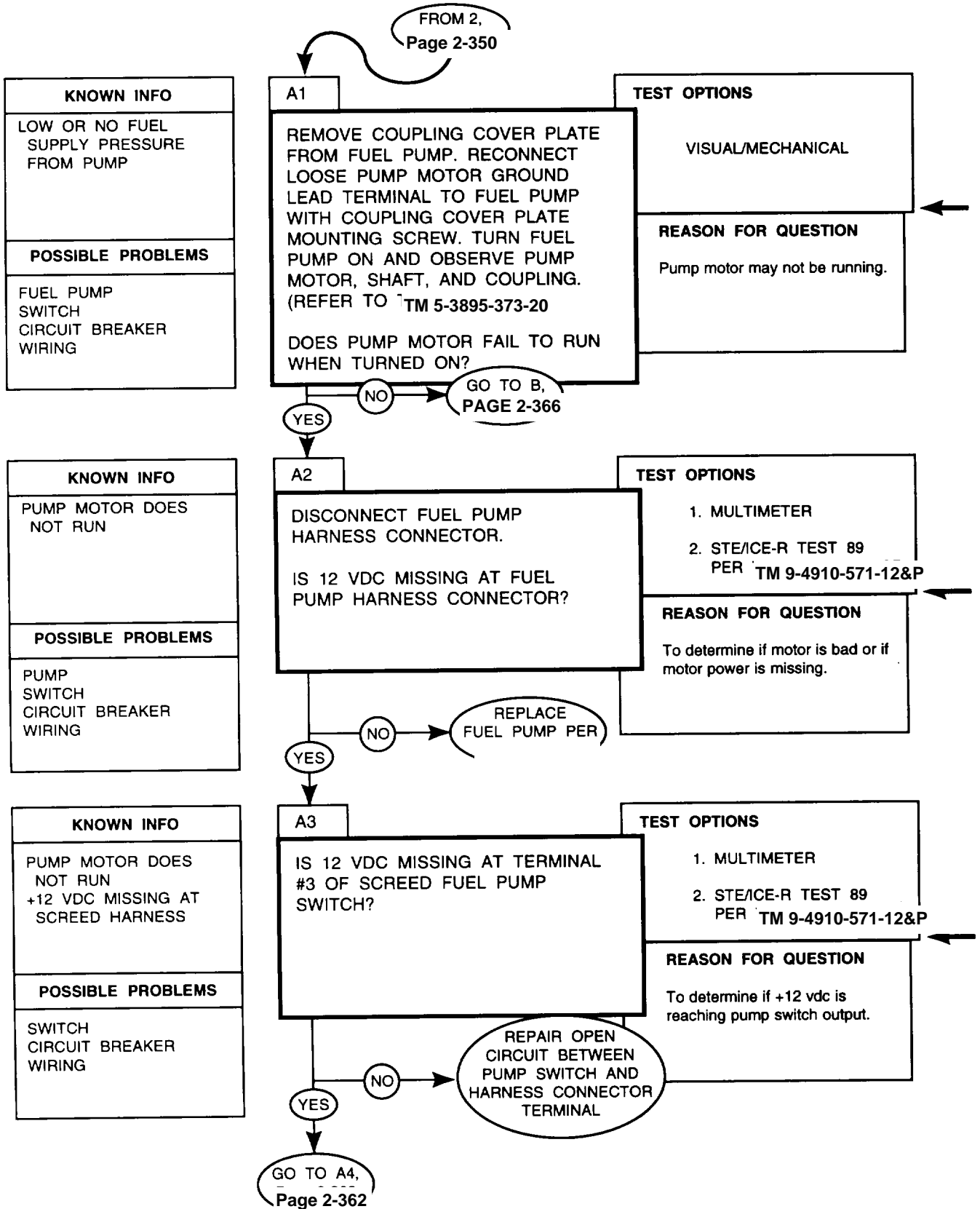
Refer to paragraph 7.21 for harness and lead wire repair.



After completing diagnostic checks, install screed control panel per paragraph 15.2.

SCREED BURNER FUEL SYSTEM

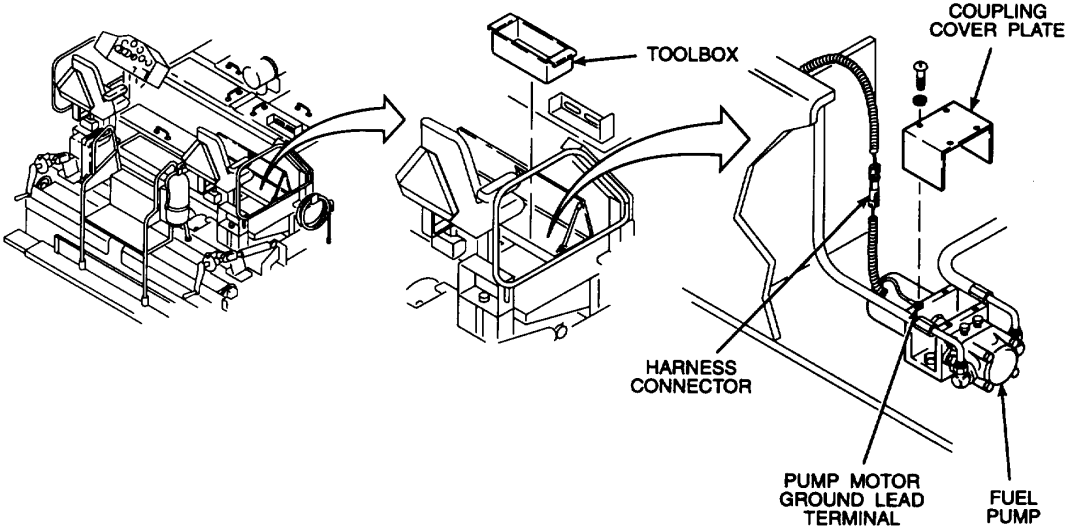
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

SCREED BURNER FUEL SYSTEM

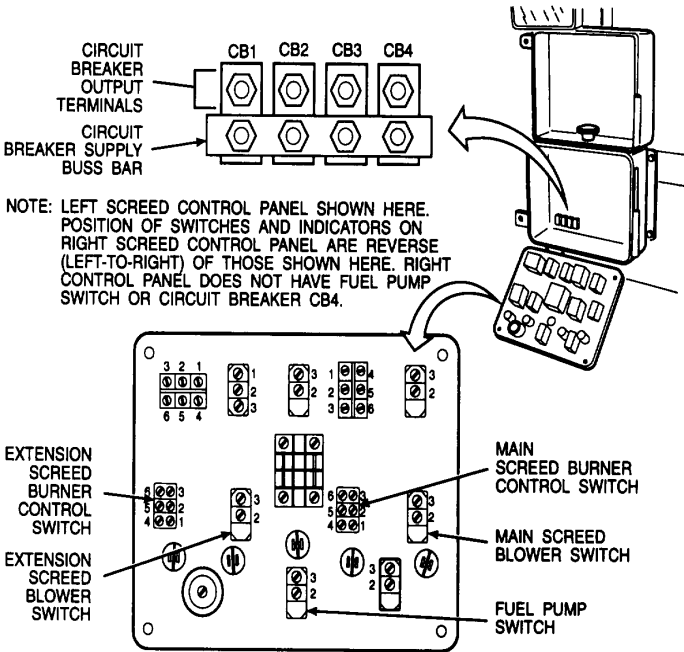
Open rear top right access door per TM 5-3895-373-10 to gain access to fuel pump.



To avoid reverse polarity to multimeter, touch negative probe to equipment frame and use positive probe to check both connector terminals for +12 volt supply.

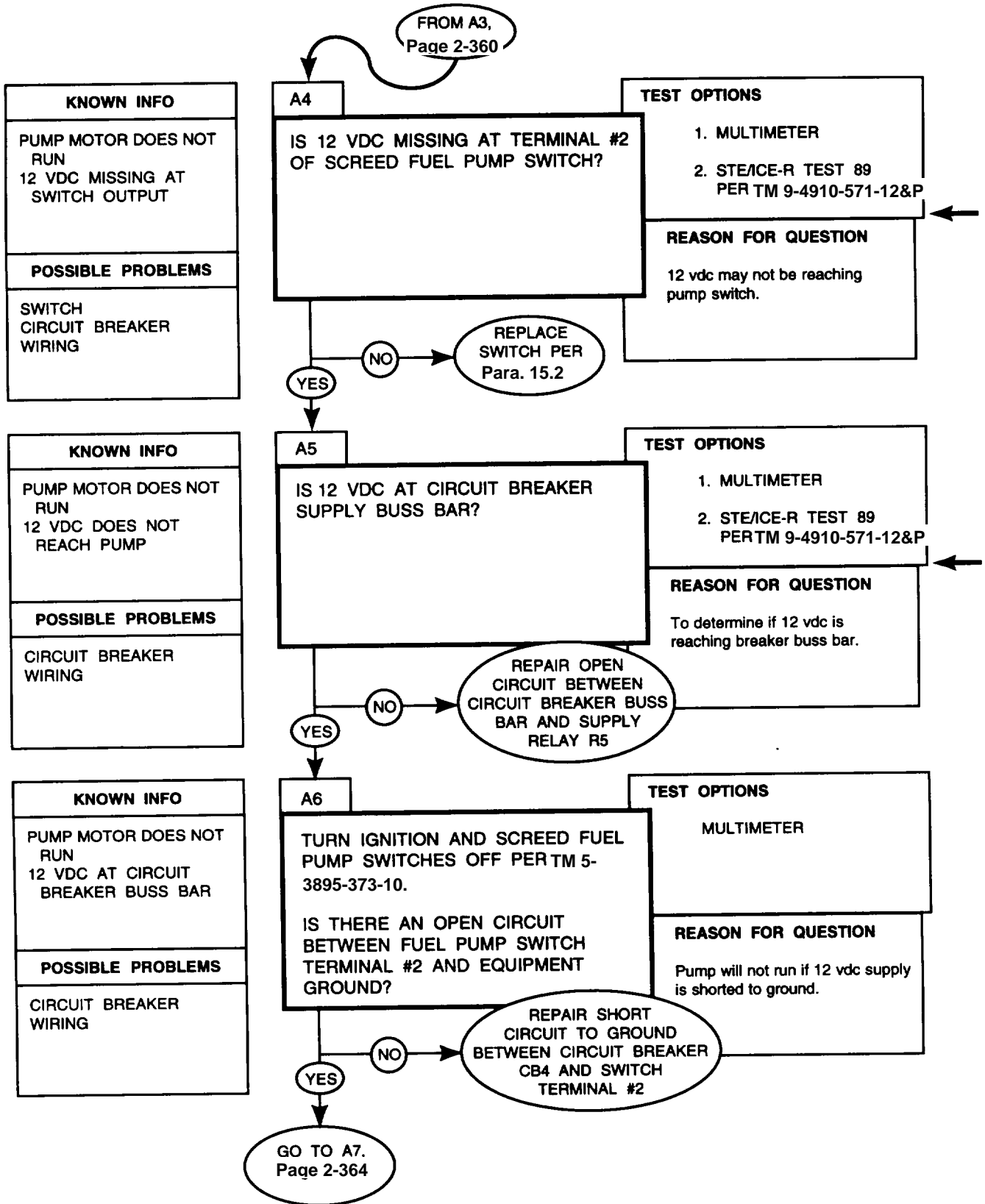
Refer to paragraph 7.21 for harness and lead wire repair.

Gain access to fuel pump switch terminals per paragraph 15.2, step a.



SCREED BURNER FUEL SYSTEM

DIAGNOSTIC FLOWCHART

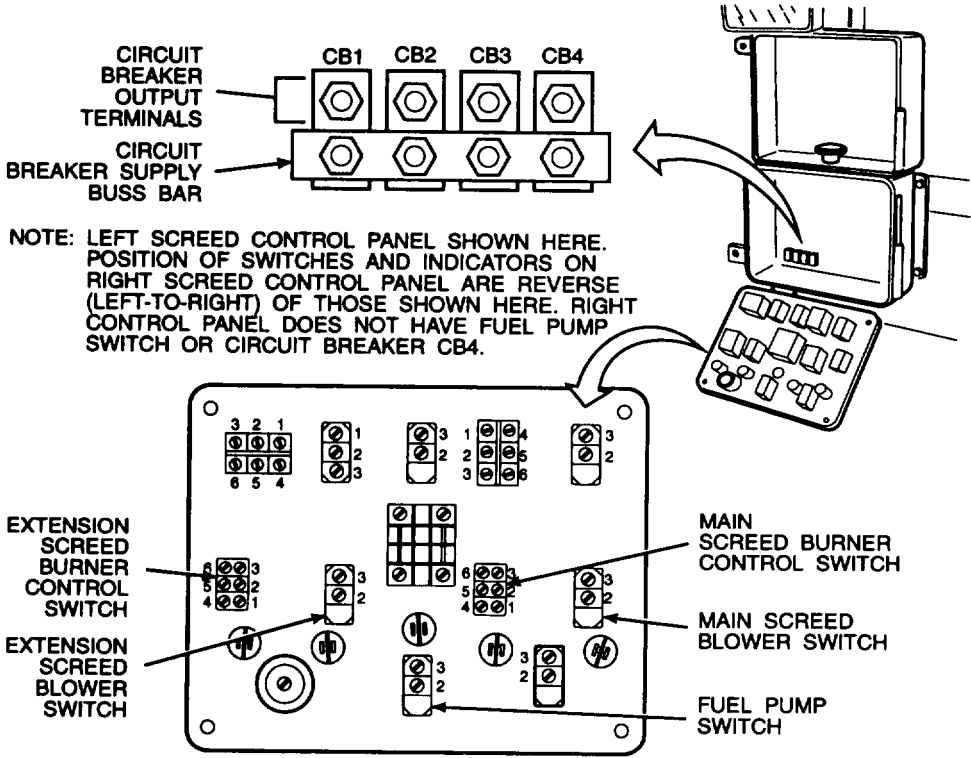


REFERENCE INFORMATION

SCREED BURNER FUEL SYSTEM

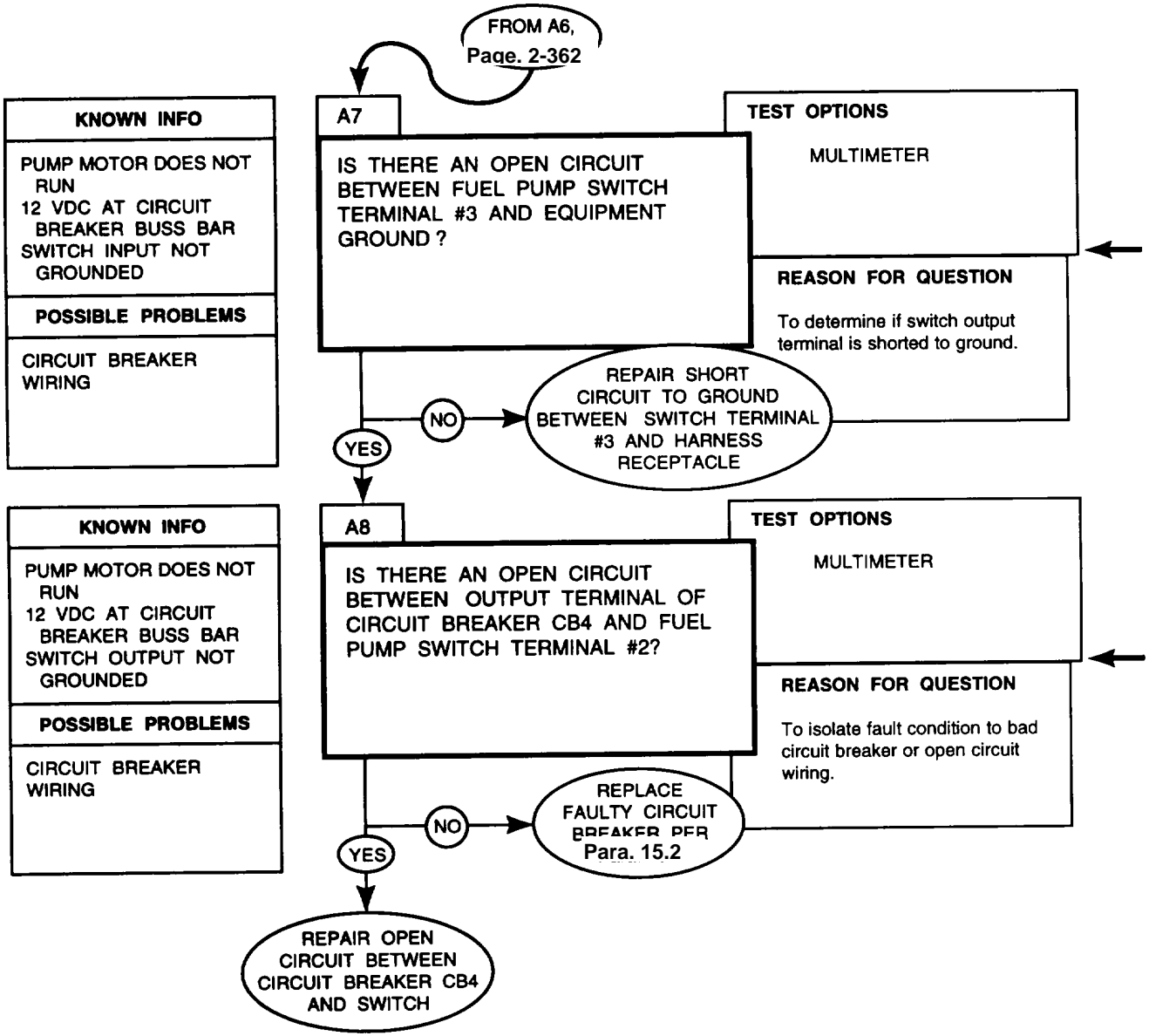
To avoid reverse polarity to multimeter, touch negative probe to equipment frame and use positive probe to check both connector terminals for 12 volt supply.

Refer to paragraph 7.21 for harness and lead wire repair.



SCREED BURNER FUEL SYSTEM

DIAGNOSTIC FLOWCHART

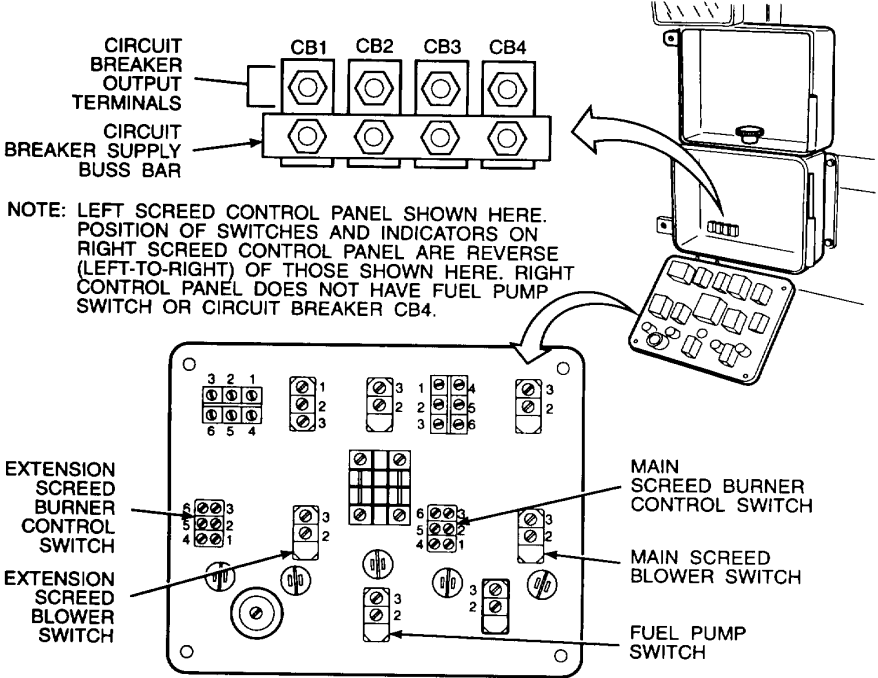
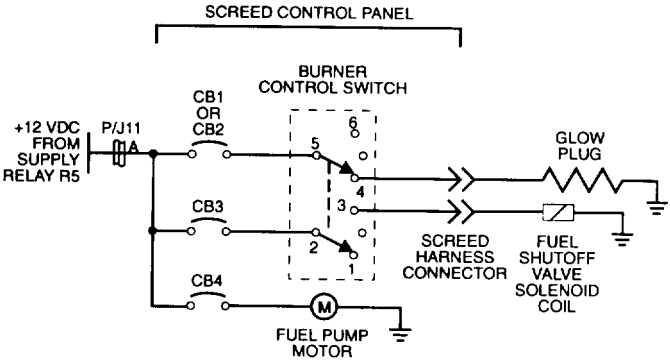


REFERENCE INFORMATION

SCREED BURNER FUEL SYSTEM

Refer to paragraph 7.21 for harness and lead wire repair.

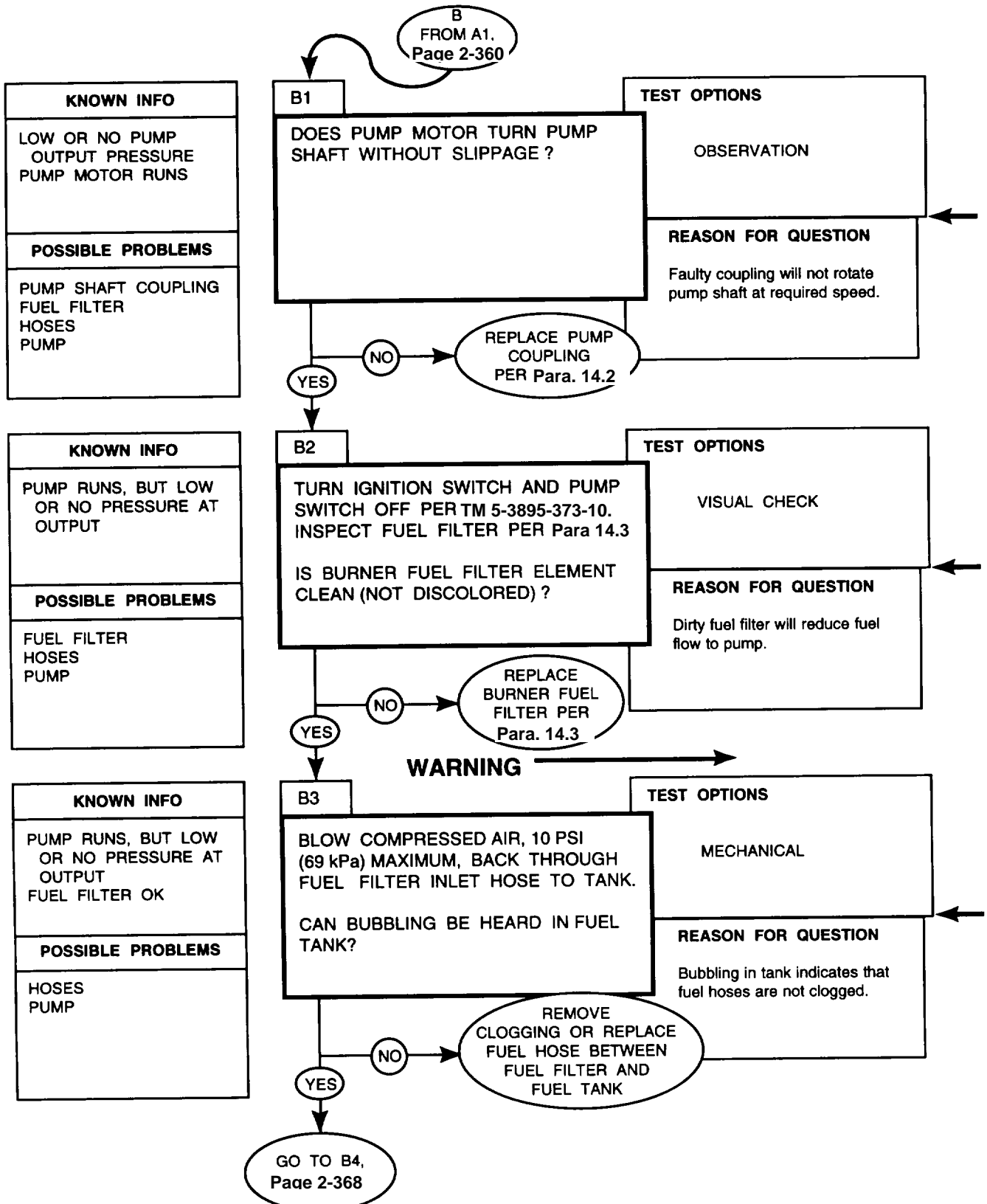
Reference electrical schematic at back of manual for complete circuit wiring.



After completing diagnostic checks, close rear top right access door per TM 5-3895-373-10. Install screed control panel per paragraph 15.2.

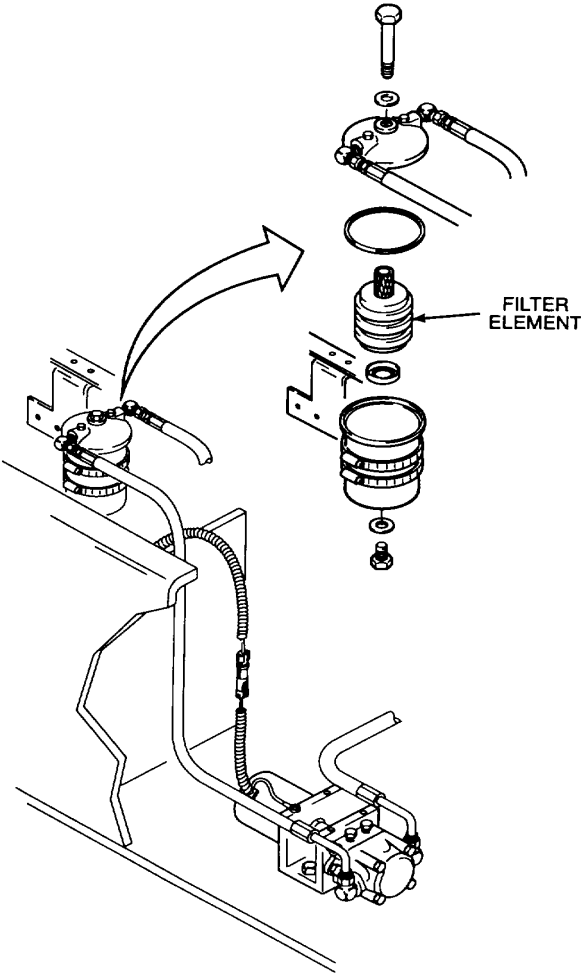
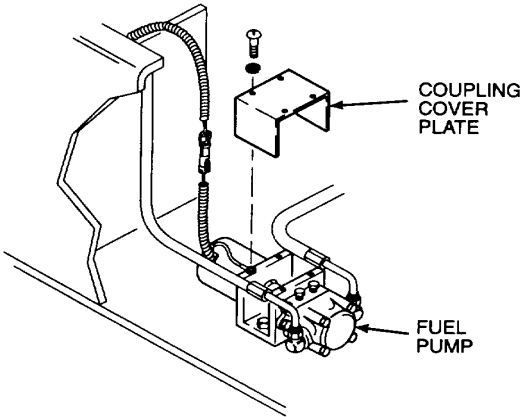
SCREED BURNER FUEL SYSTEM

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

SCREED BURNER FUEL SYSTEM



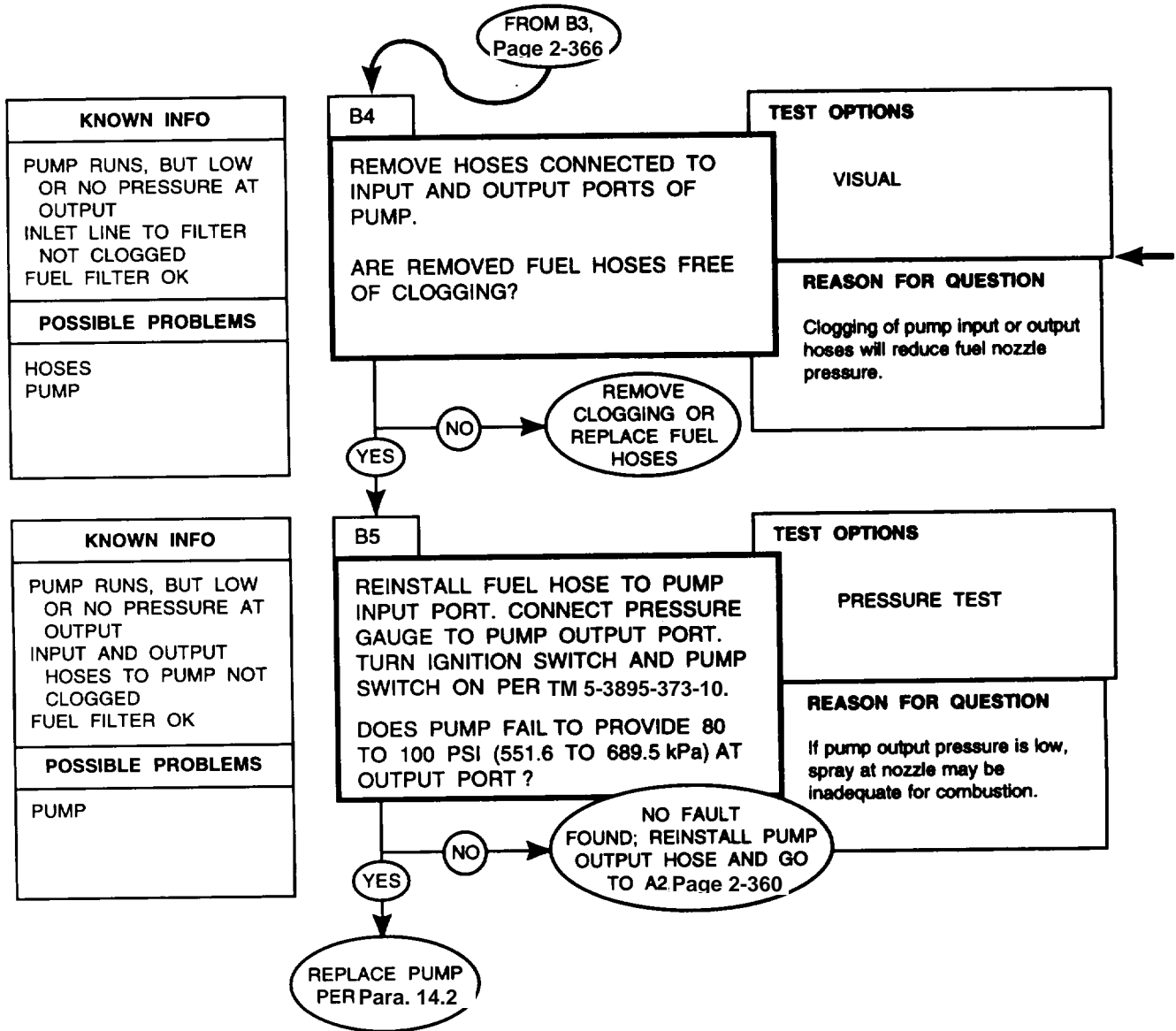
WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/ face shield and gloves). Failure to take proper precautions may result in severe injury or loss of vision.

Refer to paragraph 4.7 for routing and replacement of fuel hoses, lines, and fittings.

SCREED BURNER FUEL SYSTEM

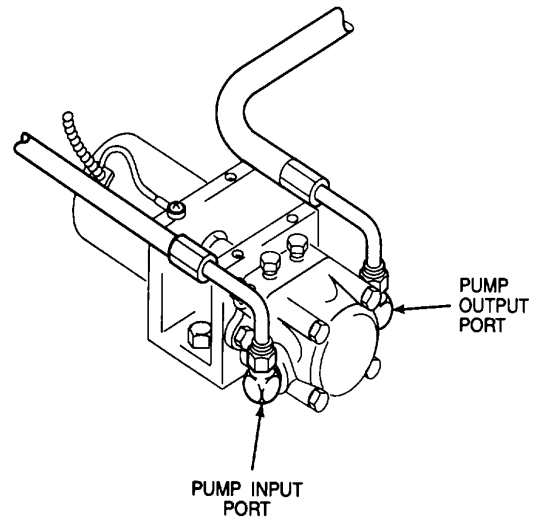
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

SCREED BURNER FUEL SYSTEM

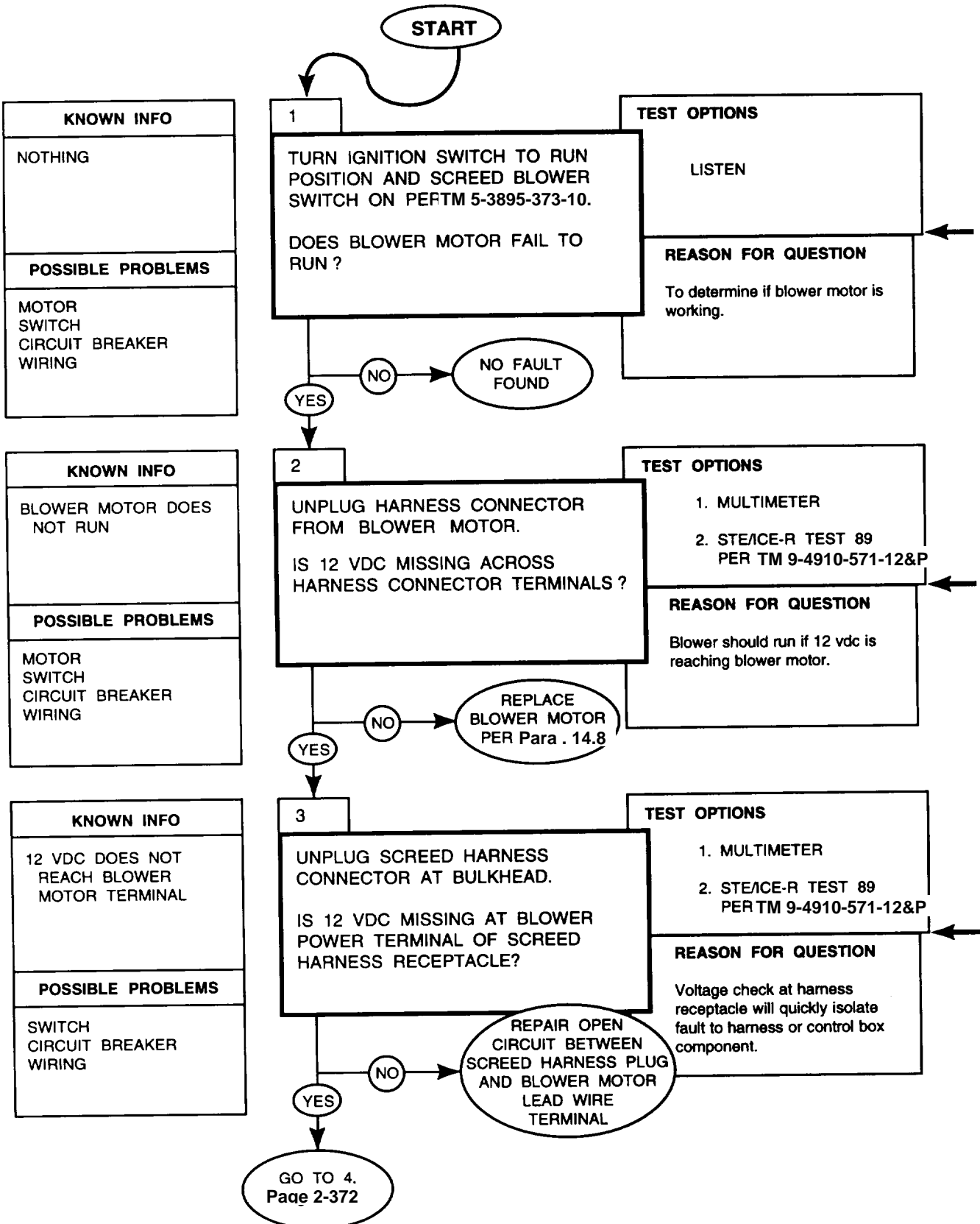
Refer to paragraph 4.7 for routing and replacement of fuel hoses, lines, and fittings.



After completing diagnostic checks, close rear top right access door per TM 5-3895-373-10.

SCREED BLOWER MOTOR CIRCUIT

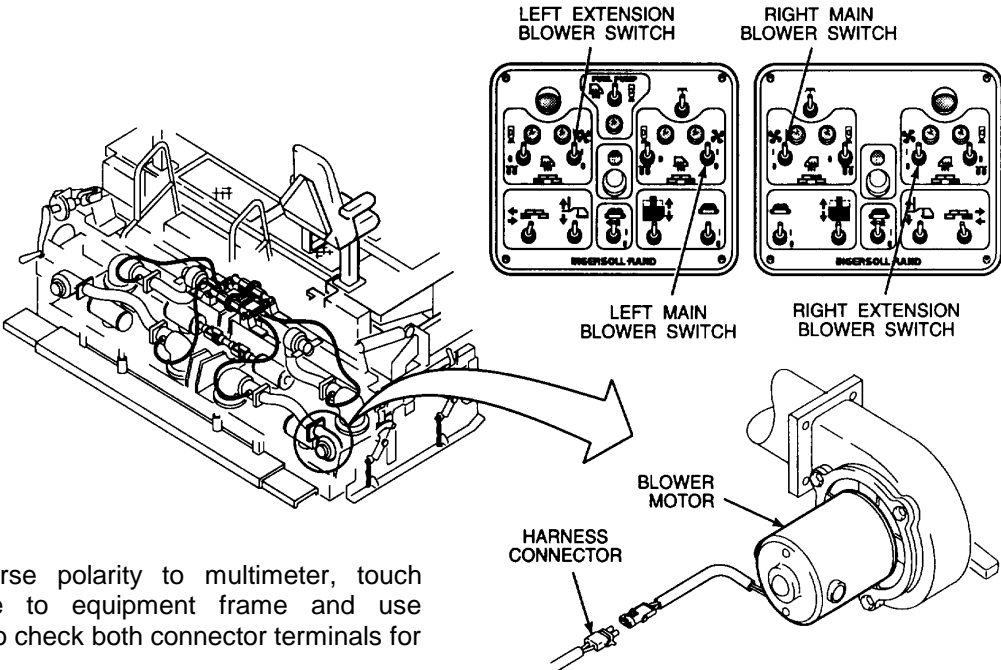
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

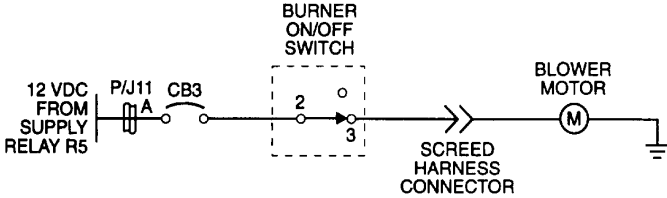
SCREED BLOWER MOTOR CIRCUIT

Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA.



To avoid reverse polarity to multimeter, touch negative probe to equipment frame and use positive probe to check both connector terminals for 12 volt supply.

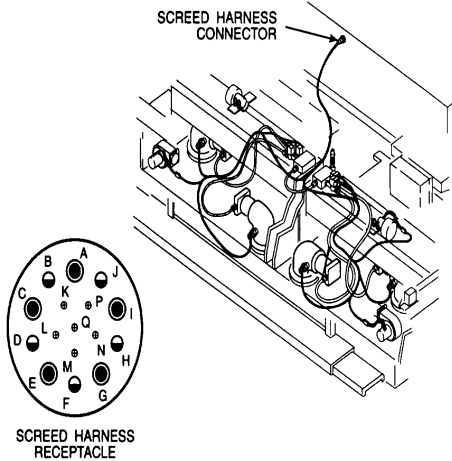
Reference electrical schematic at back of manual for complete circuit wiring.



Blower motor power terminals in harness receptacle are as follows:

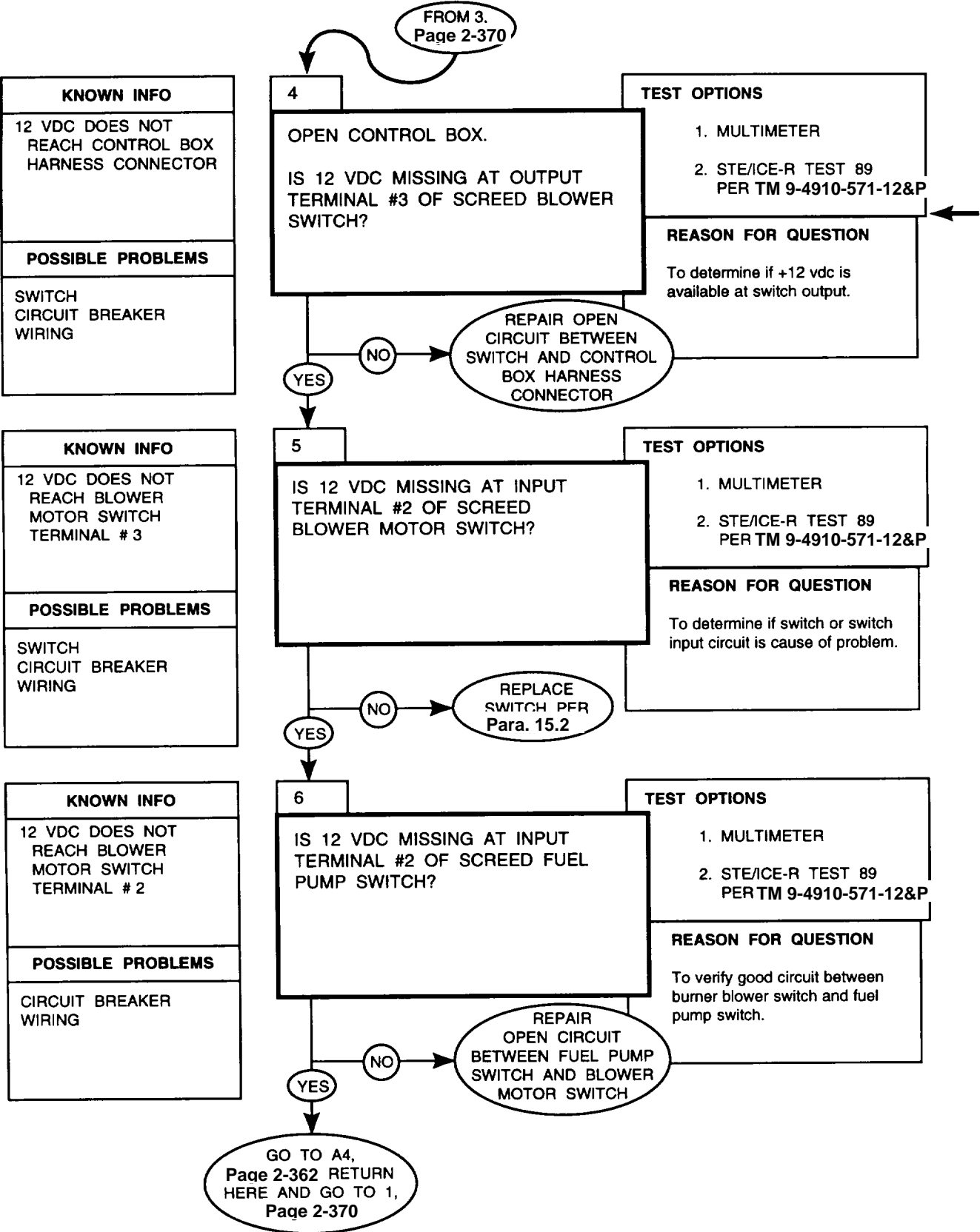
- Right Hand Main Screed - Terminal Q
- Right Hand Extension Screed - Terminal N
- Left Hand Main Screed - Terminal B
- Left Hand Extension Screed - Terminal K

Refer to paragraph 7.21 for harness and lead wire repair.



SCREED BLOWER MOTOR CIRCUIT

DIAGNOSTIC FLOWCHART

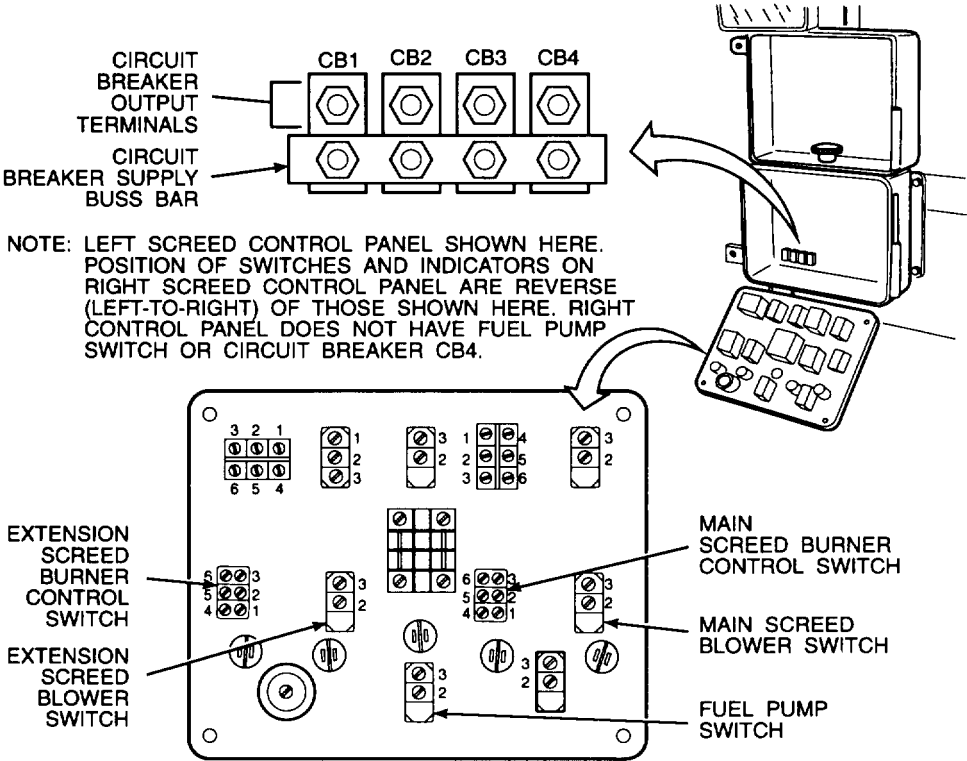


REFERENCE INFORMATION

SCREED BLOWER MOTOR CIRCUIT

Remove screed control panel per paragraph 15.2 to gain access to screed blower switch terminals.

Refer to paragraph 7.21 for harness and lead wire repair.



After completing diagnostic checks, install screed control panel per paragraph 15.2.

2.21. DCA CIRCUIT DIAGNOSTICS.

These DCA diagnostic tests can be run anytime you think there is a problem with the paving machine's DCA or its on board transducers. Do not use this paragraph to test the STE/ICE-R and its cables and transducers. Refer to TM 9-4910-571-12&P to test the STE/ICE-R and for using the STE/ICE-R in the TK mode to substitute for tests run through the DCA.

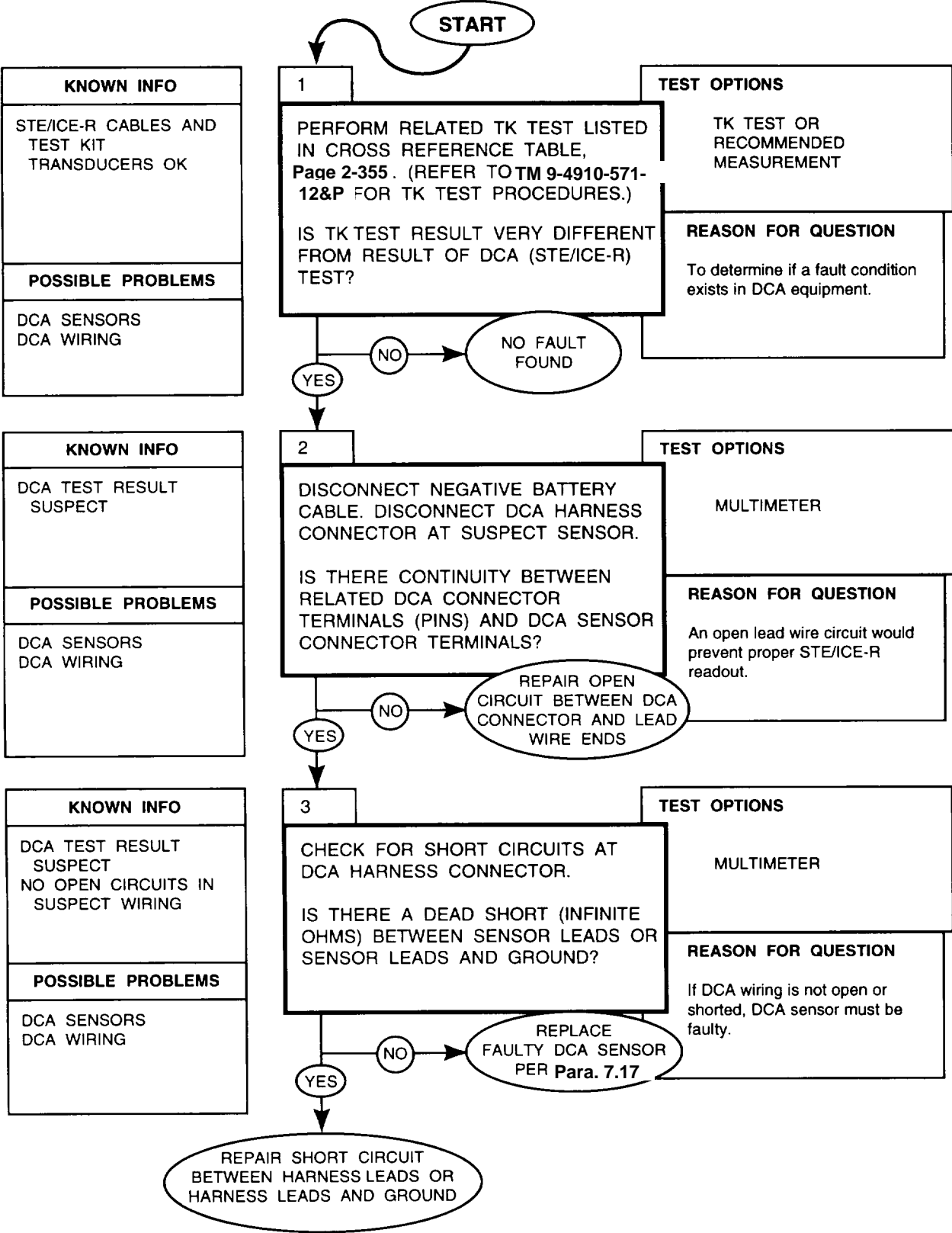
The following table gives a cross reference between DCA tests and TK tests. Use this cross reference to find out how to substitute TK tests for DCA tests if you have suspect DCA transducer or interconnect wiring. A wiring diagram of the DCA assembly is provided for reference on page 2-378. STE/ICE-R test procedures are provided for reference on pages 2-379 through 2-382.

DCA to TK Cross Reference

DCA TEST	PARAMETER	USE TK	TK TEST	MEASUREMENT POINTS
10	RPM	34-PULSE TACHOMETER WITH A W4 CABLE	10	Put in place of tachometer generator.
24	FUEL PRESSURE	17-BLUE PRESSURE TRANSDUCER	50	Install in place of DCA fuel pressure transmitter.
26	FUEL FILTER PRESSURE DROP	17-BLUE PRESSURE TRANSDUCER	50	Install TK pressure transducer in place of DCA differential pressure switch. Measure pressure on both sides of filter; calculate difference. If STE/ICE-R indicates pass and pressure difference is less than 15.5 psi, or if STE/ICE-R indicates fail and pressure difference is greater than 11.5 psi, DCA differential pressure switch is OK.
28	AIR CLEANER PRESSURE DROP	22-RED PRESSURE TRANSDUCER	48	Install in place of DCA air cleaner output pressure transmitter.
30	AIR PRESSURE	22-RED PRESSURE TRANSDUCER	47	Install in place of DCA turbosupercharger output pressure transmitter.
35	OIL PRESSURE	17-BLUE PRESSURE TRANSDUCER	50	Install in place of DCA oil pressure transmitter.
36	OIL FILTER PRESSURE DROP	17-BLUE PRESSURE TRANSDUCER	50	Install TK transducer in place of DCA oil differential pressure switch. Measure pressure on both sides of filter; calculate difference. If difference equals STE/ICE readout +3.0 psi, DCA differential pressure switch is OK.
38	COOLANT TEMPERATURE	N/A	N/A	Check DCA temperature transducer in boiling water. If temperature indication is from 210.5° to 213.5°F, temperature transducer is OK.
67	BATTERY VOLTAGE	NONE REQUIRED	67	VTM takes data through W5 (POWER) cable.
68	STARTER VOLTAGE	W2 CABLE	89	Attach red clip to starter positive terminal, black to battery side of shunt.
70	STARTER SOLENOID VOLTAGE	W2 CABLE	89	Attach red clip to solenoid 'S' terminal, black to starter case.
71	STARTER CURRENT	11-CURRENT PROBE	90	Put probe around negative battery cable between the shunt and the battery.
72	CURRENT FIRST PEAK	11-CURRENT PROBE	72	Put probe around negative battery cable between the shunt and the battery.
73	BATTERY RESISTANCE	11-CURRENT PROBE	73	Put probe around negative battery cable between the shunt and the battery.
74	STARTER CIRCUIT RESISTANCE	11-CURRENT PROBE	74	Put probe around negative battery cable between the shunt and the battery.
75	BATTERY RESISTANCE CHANGE	11-CURRENT PROBE	75	Put probe around negative battery cable between the shunt and the battery.

DCA CIRCUIT

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

DCA CIRCUIT

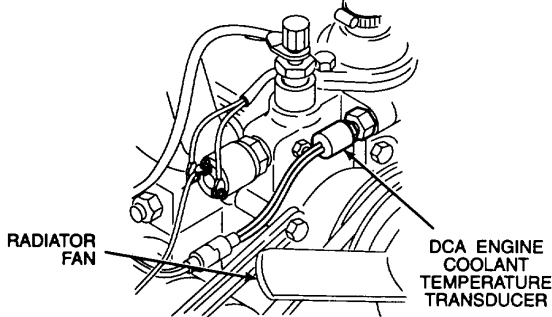
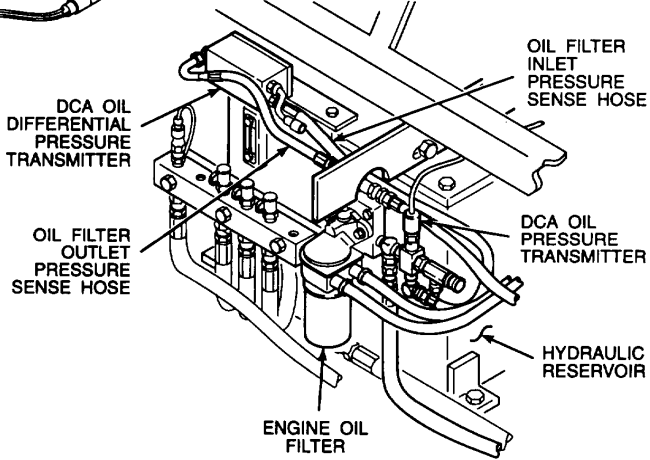
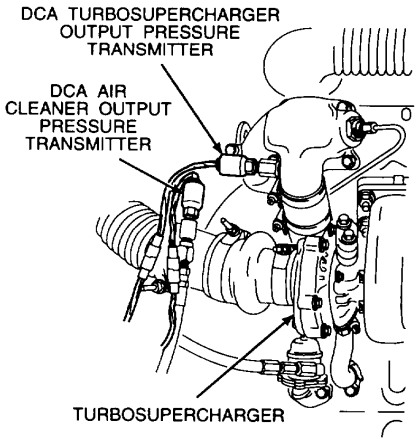
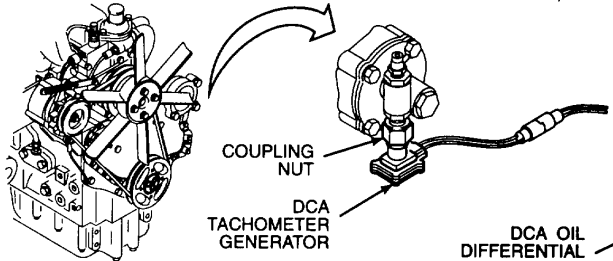
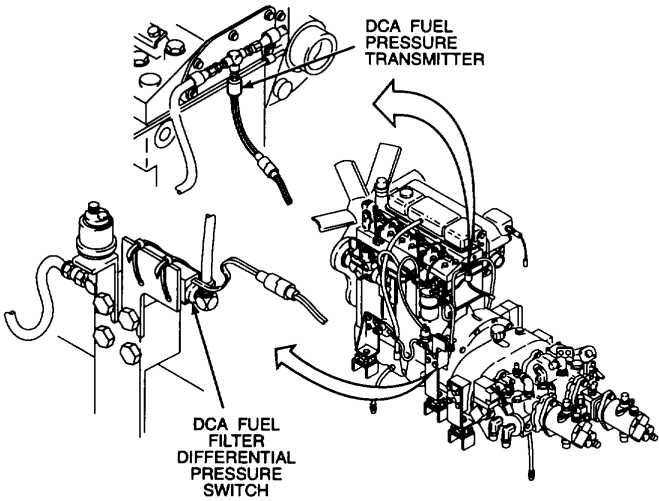
Refer to TM 5-3895-373-10 for engine starting and equipment operating procedures. Refer to paragraph 2.10 for connecting and disconnecting STE/ICE-R test set to DCA.

Gain access to DCA fuel filter differential pressure switch and DCA fuel pressure switch through front top right access door per TM 5-3895-373-10.

Gain access to DCA engine coolant temperature transducer and DCA tachometer generator through front top left access door per TM 5-3895-373-10.

Gain access to DCA turbosupercharger output pressure transmitter and DCA air cleaner output pressure transmitter through engine access cover per paragraph 2.22.

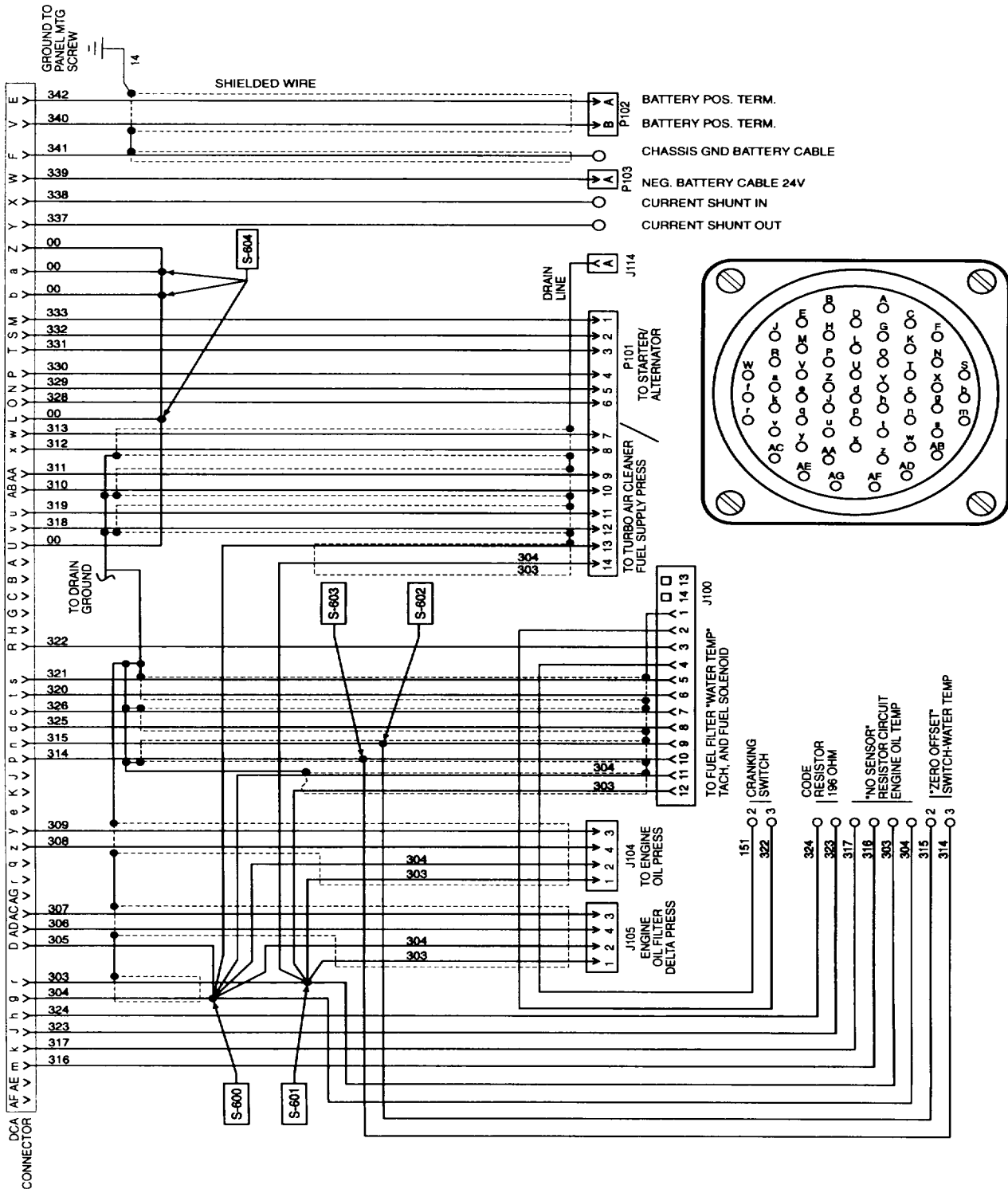
After completion of diagnostics tests, close engine access door(s) per TM 5-3895-373-10 and install engine access cover per paragraph 2.22.



After completion of diagnostics test, close engine access door(s) per TM 5-3895-373-10 and install engine access cover per paragraph 2.22.

DCA CIRCUIT

REFERENCE INFORMATION



REFERENCE INFORMATION

DCA CIRCUIT

ENGINE SPEED --STE/ICE-R TEST 10	
<p>DESCRIPTION Measures engine speed in the range of 50 to 5000 rpm using tachometer generator. DCA Test Pins: c and d</p> <p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-12&P.</p> <p>POSSIBLE ERROR MESSAGES None</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Set TEST SELECT switches to 10. 2. Set ENGINE CRANK switch on DCA housing to TEST to prevent engine from starting. 3. Press and release TEST button. 4. Turn ignition switch to START position and crank engine for 10 seconds per TM 5-3895-373-10. 5. Observe displayed value. Displayed values are in rpm. If .9.9.9.9 is displayed, engine speed is not within test range. Expected display value is 100 rpm minimum. 6. Start engine per TM 5-3895-373-10. 7. Set throttle control to IDLE per TM 5-3895-373-10. 8. Repeat step 5. Expected display value is 500 to 850 rpm (650 rpm is nominal). 9. Set throttle control to MAX per TM 5-3895-373-10. 10. Repeat step 5. Expected display value is 2640 ±40 rpm (2650 rpm is nominal).

FUEL SUPPLY PRESSURE - STE/ICE-R TEST 24							
<p>DESCRIPTION Measures the outlet pressure of the fuel pump. Transmitter: 12258932-5 DCA Test Pins: u and v</p> <p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-1 2&P. Wait for one minute after turning engine off to run confidence test.</p> <p>POSSIBLE ERROR MESSAGES 005 Required offset test was not performed.</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Shut down engine per TM 5-3895-373-10. 2. Set TEST SELECT switches to 24. 3. Press and hold TEST button until CAL appears on display. 4. Release TEST button and wait for offset value to appear on display. If offset value is within -4.5 and +4.5, proceed. If not, go to DCA troubleshooting in TM 9-4910-571-12&P. 5. Press and release TEST button. 6. Run engine at test speed per TM 5-3895-373-10. 7. Observe displayed value. Display values are in pounds per square inch (psi). Expected minimum values are: <table style="margin-left: 20px; border: none;"> <tr> <td style="padding-right: 20px;">Cranking</td> <td style="text-align: right;">7.4 psi</td> </tr> <tr> <td>500 to 850 (650 rpm is normal)</td> <td style="text-align: right;">7.9 psi</td> </tr> <tr> <td>2640 ± 40 (2650 rpm is normal)</td> <td style="text-align: right;">6.1 psi</td> </tr> </table> 	Cranking	7.4 psi	500 to 850 (650 rpm is normal)	7.9 psi	2640 ± 40 (2650 rpm is normal)	6.1 psi
Cranking	7.4 psi						
500 to 850 (650 rpm is normal)	7.9 psi						
2640 ± 40 (2650 rpm is normal)	6.1 psi						

FUEL FILTER PRESSURE DROP - STE/ICE-R TEST 26	
<p>DESCRIPTION Detects clogging via opening of a differential pressure switch across the fuel filter. Transducer: 12258938 DCA Test Pins: s and t</p> <p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-12&P.</p> <p>POSSIBLE ERROR MESSAGES None</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Set TEST SELECT switches to 26. 2. Run engine at MAX per TM 5-3895-373-10. 3. Press and release TEST button. 4. Observe displayed value. Expected display is PASS. If .9.9.9.9 is displayed, voltage is not within test range.

DCA CIRCUIT

REFERENCE INFORMATION

AIR CLEANER PRESSURE DROP TEST - STE/ICE-R TEST 28							
<p>DESCRIPTION Measures pressure drop across air cleaner to detect extent of air cleaner clogging. Transmitter: 12258932-2 DCA Test Pins: AA and AB</p> <p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-12&P.</p> <p>POSSIBLE ERROR MESSAGES 005 Required offset test was not performed.</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Shut down engine per TM 5-3895-373-10. 2. Set TEST SELECT switches to 28. 3. Press and hold TEST button until CAL appears on display. 4. Release TEST button and wait for offset value to appear on display. If offset value is within -9 and +9, proceed. 5. Press and release TEST button. 6. Run engine at test speed per TM 5-3895-373-10. 7. Observe displayed value. Displayed values are in pounds per square inch (psi). Expected maximum values are: <table style="margin-left: 40px; border: none;"> <tr> <td style="padding-right: 20px;">Cranking</td> <td style="text-align: right;">1.2 psi</td> </tr> <tr> <td>500 to 850 (650 rpm is normal)</td> <td style="text-align: right;">2.1 psi</td> </tr> <tr> <td>2640 + 40 (2650 rpm is normal)</td> <td style="text-align: right;">14.5psi</td> </tr> </table> 	Cranking	1.2 psi	500 to 850 (650 rpm is normal)	2.1 psi	2640 + 40 (2650 rpm is normal)	14.5psi
Cranking	1.2 psi						
500 to 850 (650 rpm is normal)	2.1 psi						
2640 + 40 (2650 rpm is normal)	14.5psi						

TURBOSUPERCHARGER BOOST PRESSURE TEST - STE/ICE-R TEST 30							
<p>DESCRIPTION Measures discharge pressure of the turbosupercharger. Transmitter: 12258932-4 DCA Test Pins: w and x</p> <p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571 -24&P.</p> <p>POSSIBLE ERROR MESSAGES 005 Required offset test was not performed.</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Shut down engine per TM 5-3895-373-10. 2. Set TEST SELECT switches to 30. 3. Press and hold TEST button until CAL appears on display. 4. Release TEST button and wait for offset value to appear on display. If offset value is within -7.5 and +7.5, proceed. 5. Press and release TEST button. 6. Run engine at test speed per TM 5-3895-373-10. 7. Observe displayed value. Displayed values are in inches of Mercury (in. Hg). Expected minimum values are: <table style="margin-left: 40px; border: none;"> <tr> <td style="padding-right: 20px;">Cranking</td> <td style="text-align: right;">1.1 in Hg</td> </tr> <tr> <td>500 to 850 (650 rpm is normal)</td> <td style="text-align: right;">0.2 in. Hg</td> </tr> <tr> <td>2640 ± 40 (2650 rpm is normal)</td> <td style="text-align: right;">13.6 in. Hg</td> </tr> </table> 	Cranking	1.1 in Hg	500 to 850 (650 rpm is normal)	0.2 in. Hg	2640 ± 40 (2650 rpm is normal)	13.6 in. Hg
Cranking	1.1 in Hg						
500 to 850 (650 rpm is normal)	0.2 in. Hg						
2640 ± 40 (2650 rpm is normal)	13.6 in. Hg						

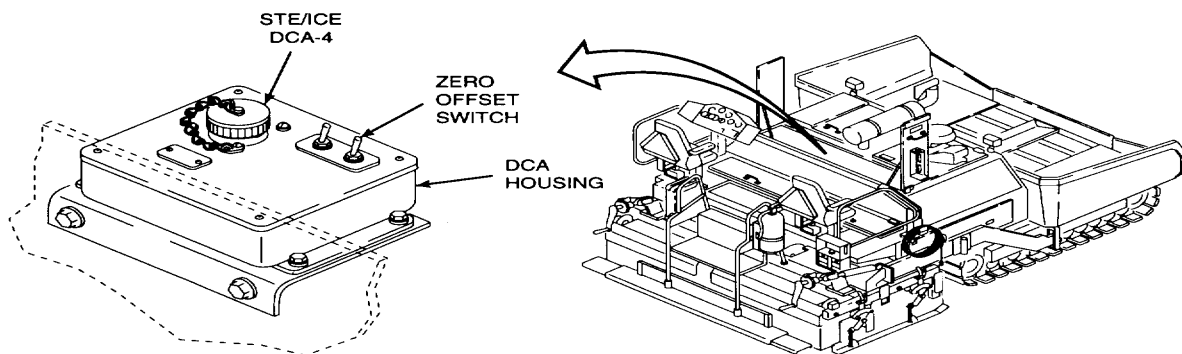
OIL PRESSURE TEST - STE/CE-R TEST 35					
<p>DESCRIPTION Measures engine oil pressure. Transmitter: 12258932-6 DCA Test Pins: y and z Measurement Range: 0 to 100 psi</p> <p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-12&P.</p> <p>POSSIBLE ERROR MESSAGES 005 Required offset test was not performed.</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Set TEST SELECT switches to 35. 2. Make sure no stimulus is applied to transducer (shut engine off). 3. Press and hold TEST button until CAL appears on display. 4. Release TEST button and wait for offset value to appear on display. If offset value is within - 15 to +15 psi, proceed. 5. Press and release TEST button. 6. Run warm engine at test speed per TM 5-3895-373-10. 7. Observe displayed value. Displayed values are in pounds per inch (psi). Expected display values are: <table style="margin-left: 40px; border: none;"> <tr> <td style="padding-right: 20px;">500 to 850 (650 rpm is normal)</td> <td style="text-align: right;">10 psi, minimum</td> </tr> <tr> <td>2640 : 40 (2650 rpm is normal)</td> <td style="text-align: right;">40 psi, minimum</td> </tr> </table> 	500 to 850 (650 rpm is normal)	10 psi, minimum	2640 : 40 (2650 rpm is normal)	40 psi, minimum
500 to 850 (650 rpm is normal)	10 psi, minimum				
2640 : 40 (2650 rpm is normal)	40 psi, minimum				

REFERENCE INFORMATION

DCA CIRCUIT

OIL FILTER PRESSURE DROP TEST - STE/ICE-R TEST 36	
<p>DESCRIPTION Measures the pressure drop across the engine oil filter as indicator of filter element clogging. DCA Test Pins: AC and AD Measurement Range: 0 to 25 psi PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-12&P.</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Set TEST SELECT switches to 36. 2. Shut engine off. 3. Press and hold TEST button until CAL appears on display. 4. Release TEST button and wait for offset value to appear on display. If offset value is within -3.75 to +3.75 psi, proceed. 5. Press and release TEST button. 6. Run warm engine at full speed per TM 5-3895-373-10. 7. Observe displayed value. Displayed values are in pounds per inch (psi). Expected display value is 24 psi, maximum.
<p>POSSIBLE ERROR MESSAGES 005 Required offset test was not performed.</p>	

ENGINE COOLANT TEMPERATURE - STE/ICE-R TEST 38	
<p>DESCRIPTION Measures the engine coolant temperature. Transducer: 12258933 DCA Test Pins: n and p Measurement Range: 120 to 3000F</p> <p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-24&P.</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Set TEST SELECT switches to 38. 2. Set Zero Offset switch on DCA housing to TEST. 3. Press and hold TEST button until CAL appears on display. 4. Release TEST button and wait for offset value to appear on display. If offset value is within -45 and +45, proceed. 5. Press and release TEST button. 6. Set Zero Offset switch on DCA housing to RUN. 7. Observe displayed value. Displayed values are in degrees Fahrenheit (°F). Expected value, under normal loading/operating conditions, is between 180° to 200°F.
<p>POSSIBLE ERROR MESSAGES 005 Required offset test was not performed.</p>	



REFERENCE INFORMATION

DCA CIRCUIT

STARTER MOTOR VOLTAGE - STE/ICE-R TEST 68	
<p>DESCRIPTION Measures the voltage present at the starter positive (B) terminal. DCA test Pins. T and W</p> <p>Measurement Range: 0 to 32 Vdc</p> <p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-12&P.</p> <p>POSSIBLE ERROR MESSAGES None</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Set TEST SELECT switches to 68. 2. Turn ignition switch to START position for 10 seconds per TM 5-3895-373-10. 3. Press and release TEST button. 4. Observe displayed value. Displayed values are in volts. If .9.9.9.9 is displayed, voltage is not within test range. Expected minimum display value is 17 volts.

STARTER SOLENOID VOLTAGE - STE/ICE-R TEST 70	
<p>DESCRIPTION Measures the voltage present at the starter solenoid 'S' terminal. DCA test Pins: S and W</p> <p>Measurement Range: 0 to 32 Vdc</p> <p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-1 2&P.</p> <p>POSSIBLE ERROR MESSAGES None</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Set TEST SELECT switches to 70. 2. Turn ignition switch to START position per TM 5-3895-373-10. 3. Press and release TEST button. 4. Observe displayed value. Displayed values are in volts. If .9.9.9.9 is displayed, voltage is not within test range. Expected minimum display value is 18 volts.

REFERENCE INFORMATION

DCA CIRCUIT

BATTERY/STARTER CIRCUIT - STE/CE-R TESTS 71 THROUGH 75	
<p>DESCRIPTION Measures the rate of change of battery resistance as an indicator of battery condition. Shunt: 12258937-1 DCA Test Pins: X, Y, V, and W Measurement Range: 0 to 999.9 milliohms per second</p> <p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-12&P.</p> <p>POSSIBLE ERROR MESSAGES E002 Transducer not connected. E005 Offset not performed. E008 VTM does not detect battery voltage. E013 VTM cannot use data received. E020 No first peak information was detected by the VTM. E021 VTM cannot calculate result because current is over current probe's range.</p> <p>NOTE: If .9.9.9.9 is displayed, battery resistance change is more than the range of the VTM and cannot be measured. If E013 is displayed, then check battery connections and correct as necessary. Repeat step 7. If E013 persists after 3 tests, VTM cannot perform test.</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Set ENGINE CRANK switch on DCA housing to TEST. 2. Make sure all accessory drive functions are turned OFF. 3. Set TEST SELECT switches to 71, 72, 73, 74, or 75. 4. Press and hold TEST button until CAL appears on display. 5. Release TEST button and wait for offset value to appear on display. If offset value is within -150 to +150 milliohms per second, proceed. If not, refer to DCA troubleshooting in TM 9-4910-571-12&P. 6. Press and release TEST button. 7. When GO appears on display, engage starter for 2 seconds or until one of the following appears on the display: .9.9.9.9 A valid resistance reading An error message 8. Observe displayed value. Displayed values are in milliohms per second. Expected maximum value is 25 milliohms per second.

ALTERNATOR OUTPUT VOLTAGE - STE/ICE-R TEST 82	
<p>DESCRIPTION Measures voltage at alternator output at +24 volt battery terminal. DCA Test Pins: V and W Measurement Range: 0 to 32 Vdc</p> <p>PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-12&P.</p> <p>POSSIBLE ERROR MESSAGES None</p>	<p>TEST PROCEDURES</p> <ol style="list-style-type: none"> 1. Set TEST SELECT switches to 82. 2. Start paving machine, set engine at MAX, and turn all 3. Press and release TEST button. 4. Observe displayed value. Displayed values are in volts DC. Expected display value is 26 volts, minimum. If .9.9.9.9 is displayed, voltage is not within test range.

DCA CIRCUIT

REFERENCE INFORMATION

ALTERNATOR FIELD VOLTAGE - STE/ICE-R TEST 83	
DESCRIPTION Measures voltages present at alternator field windings. DCA Test Pins: 0 and M Measurement Range: 0 to 32 Vdc PRE-TEST PROCEDURES Run confidence test per TM 9-4910-571-12&P.	TEST PROCEDURES 1. Set TEST SELECT switches to 83. 2. Start paving machine and turn throttle control switch to MAX position. 3. Press and release TEST button. 4. Observe displayed value. Displayed values are in volts DC. Expected display value is 24 volts nominal with batteries fully charged. If .9.9.9.9 is displayed, voltage is not within test range.
POSSIBLE ERROR MESSAGES None	

780T VEHICLE TEST CARD

MEASUREMENTS THROUGH DCA-4								
No.	Measurement Name	VTM Test No.	VTM Offset Limits	Operating Conditions	Min	Limits Norm	Max	Units
1	Engine Speed	10	---	Engine, Idle	500	650	850	rpm
	Engine Speed	10	---	Engine, Full Speed	2600	2650	2680	rpm
2	Engine Compression Unbalance	14	---	Warm Engine	---	---	---	%
3	Fuel Supply Pressure	24	-4.5 - +4.5	---	3	6-8	15	psi
4	Fuel Filter Pressure Drop	26	---	---	---	Pass/Fail	---	---
5	Fuel Solenoid Voltage	27	---	Ignition Switch On	---	12.3	---	volts
6	Air Cleaner Pressure Drop	28	-9 to +9	Engine, Full Idle	---	25	psi	
7	Turbosupercharger Outlet Pressure	30	+7.5	Engine, Full Idle	---	0-30.5	---	in.
Hg	Engine Oil Pressure	35	±15	Warm Engine, Low Idle	10	---	---	psi
	Engine Oil Pressure	35	Warm	40	---	---	---	psi
		±15	Engine, Full Idle					
9	Engine Oil Filter Pressure Drop	36	±3.75	Warm Engine, Full Idle	---	---	24	psi
10	Engine Coolant Temperature	38	±45	---	140	170-200	220	deg F.
11	Battery Voltage	67	---	Engine, Off	22	---	---	volts
12	Starter Motor Voltage	68	---	Cranking	17	---	---	volts
13	Starter Negative Cable Voltage Drop	69	---	Cranking	---	---	1.2	volts
14	Starter Solenoid Voltage	70	---	Cranking	18	---	---	volts
15	Starter Current Average	71	±150	Cranking	35	---	600	amp
16	Starter Current First Peak	72	±150	Cranking	600	---	1300	amp
17	Battery Internal Resistance	73	±150	Crank on GO	---	5-17	---	milliohm
18	Starter Circuit Resistance	74	±150	Crank on GO	---	3-22	25	milliohm
19	Battery Resistance Change	75	±150	Crank on GO	---	---	25	milliohm /sec
20	Battery Current	80	±150	Cranking	35	---	600	amp
21	Alternator Output Voltage	82	---	1000-1200 rpm, Access on	---	25-27.5	21.5	volt
22	Alternator Field Voltage	83	---	1000-1200 rpm, Access on	---	24	27.5	volt
23	Alternator Negative Cable Voltage Drop	84	---	1000-1200 rpm	---	---	0.5	volt

780T VEHICLE TEST CARD

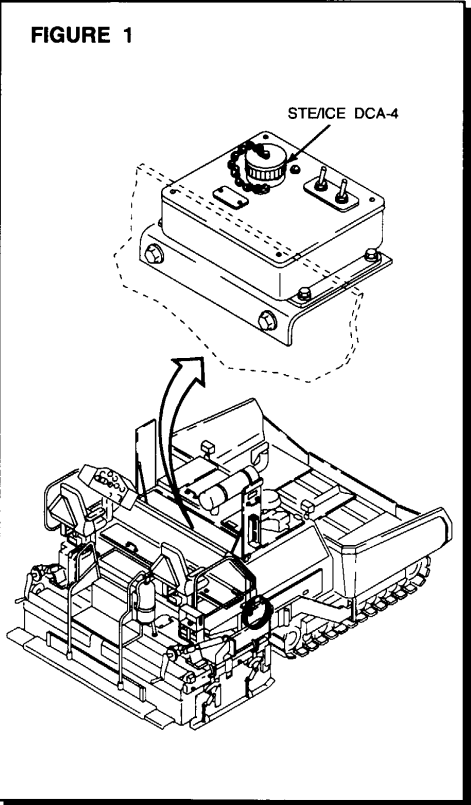
PRE-TEST INSPECTION

- 1. Fan Belts
- 2. Eng. Oil Level
- 3. Coolant Level
- 4. Fuel Level
- 5. Batteries
- 6. Hyd. Oil Level

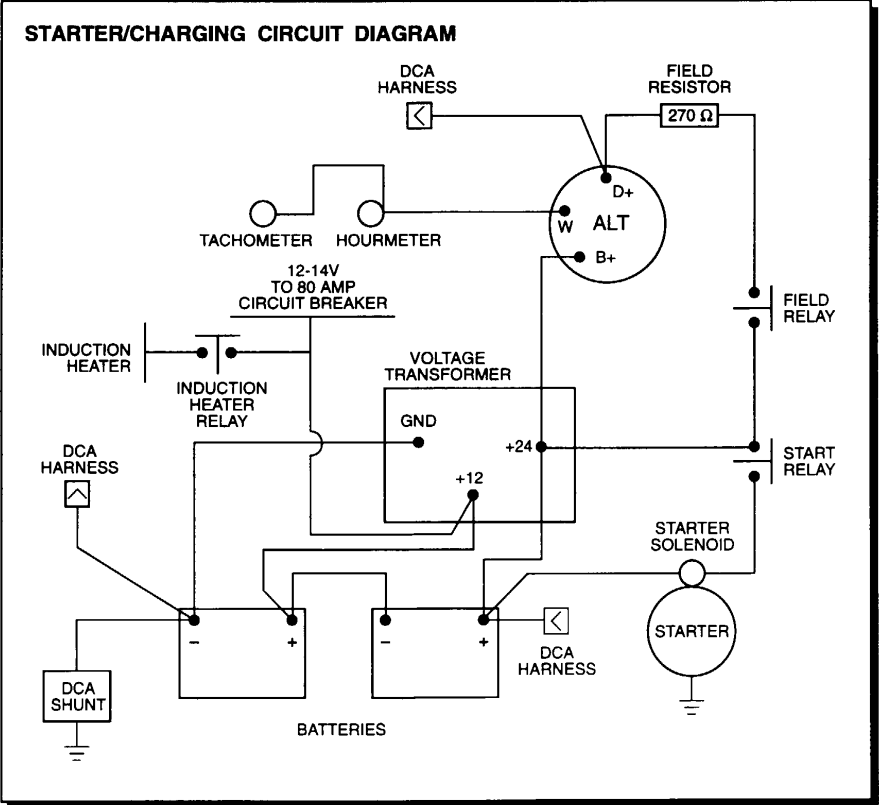
POWERING UP VTM

- 1. Connect VTM to W1 cable. W1 cable attaches to vehicle DCA connector through STE/ICE DCA-4 (see Figure 1).
- 2. Perform confidence test, test 66 (second entry 99).

FIGURE 1



STARTER/CHARGING CIRCUIT DIAGRAM



SECTION V. PAVING MACHINE MAINTENANCE PROCEDURES

	Para	Page
Drain Fuel Tank	2.23.4	2-403
Drain Hydraulic Reservoir	2.23.8	2-420
Engine Coolant	2.23.3	2-396
Engine and Screed Fuel System Bleed.....	2.23.11	2-429
Fan Belt Adjustment	2.23.1	2-391
Ground Handling	2.24	2-436
Hoisting	2.24.4	2-466
Jacking and Cribbing	2.24.2	2-442
Remove and Install Access Plates and Covers.....	2.22	2-388
Replace Engine Fuel Filter Element	2.23.5	2-408
Replace Engine Oil Filter Element	2.23.2	2-393
Replace Fuel Lift Pump Filter Screen	2.23.7	2-417
Replace Hydraulic Charge Filter Element	2.23.9	2-422
Replace Hydraulic Return Filter Element	2.23.10	2-426
Replace Screed Burner and Fuel Spray Fuel Filter Element	2.23.6	2-413
Screed Removal and Installation	2.24.3	2-455
Service	2.23	2-390
Towing/Pushing	2.24.1	2-437

2.22. REMOVE AND INSTALL ACCESS PLATES AND COVERS.

This task covers: a. Remove b. Install

INITIAL SETUP

Tools :
General mechanic's automotive tool kit
(Item 54, Appendix E)

References:
TM 5-3895-373-10
TM 5-3895-373-24P

Materials/Parts:
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Self-locking machine screws

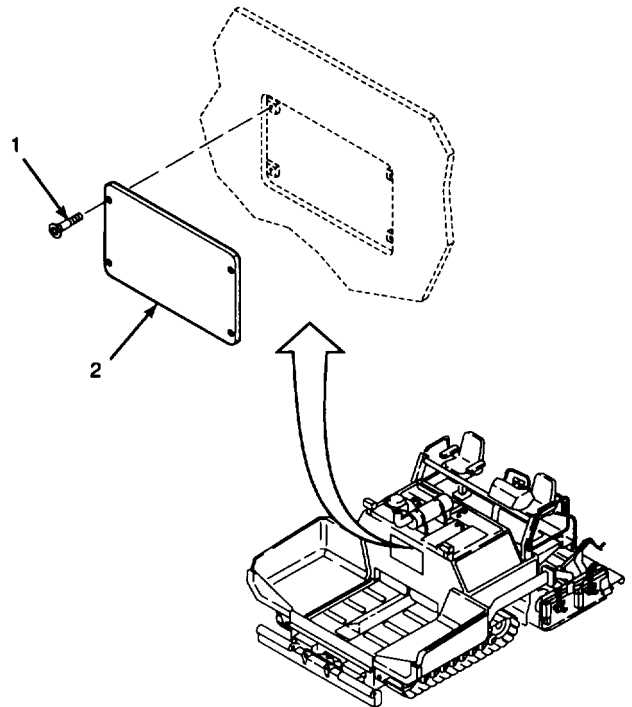
Equipment Condition:
Screed fully lowered per TM 5-3895-373-10.

NOTE

Refer to TM 5-3895-373-10 for access via hinged access doors or walkway. Refer to paragraph 11.2 and 11.3 for repair of access doors, covers.

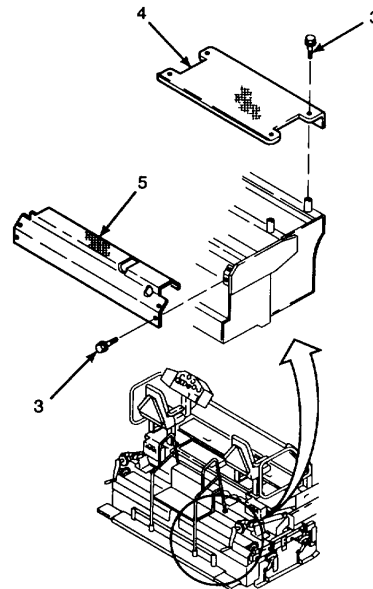
A. REMOVE.

1. REMOVE ENGINE ACCESS COVER.
 - a. Remove socket head cap screws (1).
 - b. Remove engine access cover (2).



GO TO NEXT PAGE

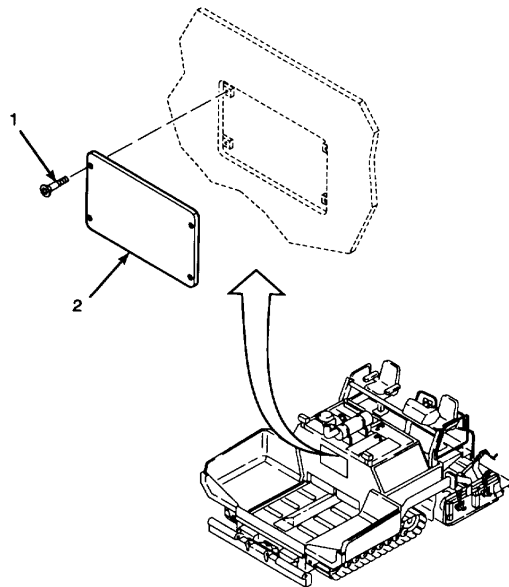
- A. REMOVE - Continued.
- 2. REMOVE SCREED COVER PLATES.
 - a. Remove and discard self-locking machine screws (3).
 - b. Remove cover plates (4 and 5).
- B. INSTALL.
 - 1. INSTALL SCREED COVER PLATES.
 - a. Position cover plates (4 and 5) on screed.
 - b. Install and tighten self-locking machine screws (3).
 - 2. INSTALL ENGINE ACCESS COVER.



WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean threads of socket head cap screws (1) with thread locking compound solvent.



WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- b. Apply thread locking compound to threads of socket head cap screws (1).
- c. Set engine access cover (2) in access port and install socket head cap screws (1). Tighten screws.

END OF TASK

2.23. SERVICE.

The following tasks provide approved servicing procedures for the paving machine. These tasks can be used in cooperation with the Preventive Maintenance Checks and Services Table in paragraph 2.9.

All unit level maintenance shall be performed in accordance with good and safe shop practices. Observe the following general instructions and requirements when performing all maintenance tasks.

a. Thread locking compound is used with most threaded fasteners. If a threaded fastener will not break loose, heat threaded area of fastener from 500° to 600°F (232° to 315°C) with heat gun. If the special solvent used to remove thread locking compound from screw threads fails to remove buildup, discard fastener.

b. Discard all removed gaskets, seals, preformed packings, self-locking nuts, lockwashers, and deformed hardware.

c. Inspect all removed components for obvious wear or damage. Replace all worn, bent, broken, or otherwise damaged parts.

d. Inspect all removed fasteners for thread damage. If thread damage is found, replace fastener. Replace flat washers if galled or bent. Use screw extractor set (Item 15, Appendix E) to remove broken studs or screws.

e. Torque values cited in the text apply to modified SAE Grade 8 fasteners at required clamp loads.

f. Use only authorized replacement parts. Refer to TM 53895-373-24P, Repair Parts and Special Tools List (RPSTL) for authorized replacement parts.

g. Observe all warnings and cautions. Wear protective clothing and equipment as specified. Observe the Safety and Hazard Warnings provided in TACOM technical bulletin TB 43-0216.

2.23.1. FAN BELT ADJUSTMENT.

This task covers:

a. Inspect b. Adjust

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Tensiometer (Item 51, Appendix E)
Torque wrench (Item 68, Appendix E)
Wedge block (Item 4, Appendix D)

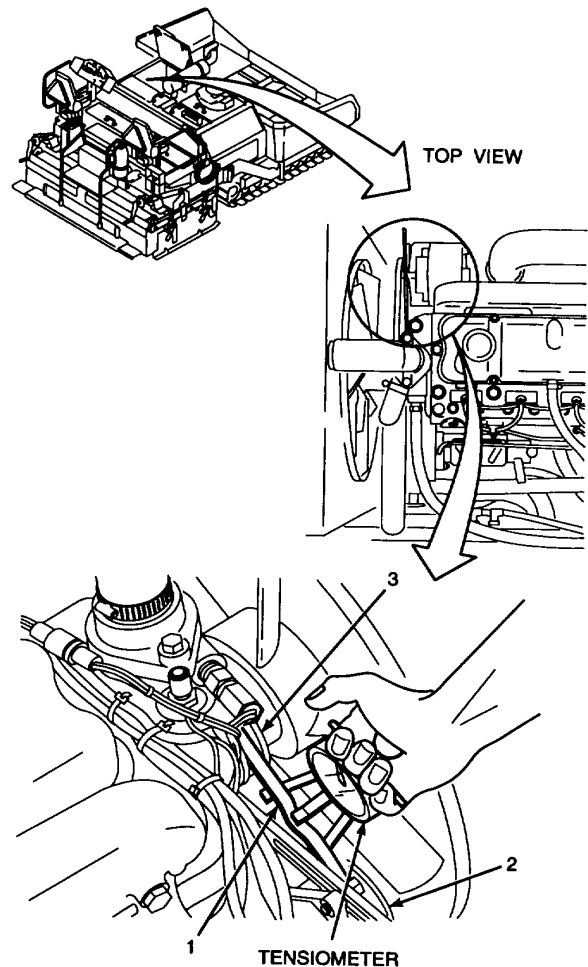
References:

TM 5-3895-373-10

Equipment Condition:Front top left access door open per TM 5-3895-373-10.

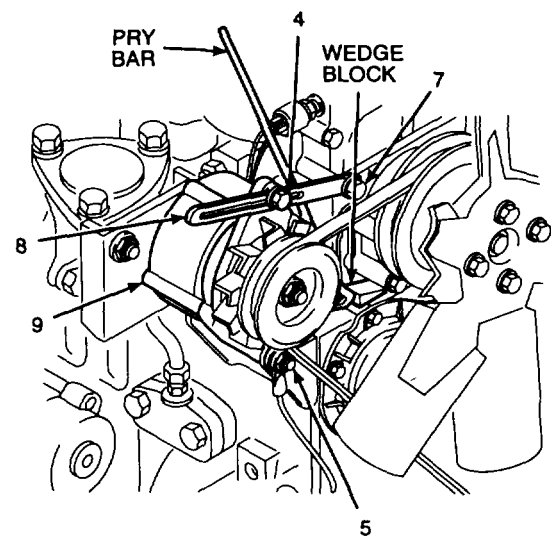
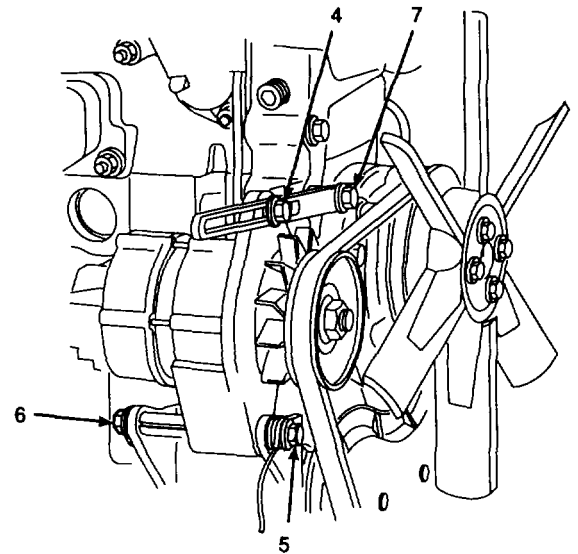
A. INSPECT.

1. INSTALL TENSIO METER ON FAN BELT (1) MIDWAY BETWEEN ALTERNATOR PULLEY (2) AND WATER PUMP PULLEY (3).
2. PUSH DOWN ON TENSIO METER PLUNGER AND READ DIAL INDICATOR. TENSION SHOULD BE 10 LB (45 N) NOMINAL.
3. IF TENSION IS NOT CORRECT, READJUST FAN BELT TENSION PER STEP B.

**GO TO NEXT PAGE**

2.23.1. FAN BELT ADJUSTMENT - Continued.**B. ADJUST.**

1. LOOSEN ADJUSTMENT SCREW (4), HOLD SELF-LOCKING HEX NUT (5), AND LOOSEN PIVOT BOLT (6).
2. ADJUST FAN BELT TENSION.
 - a. Loosen hex head cap screw (7) to allow for movement of belt adjusting arm (8).
 - b. Using wedge block and pry bar, readjust position of alternator (9). When tension feels right, maintain pressure and tighten adjustment screw (4).
 - c. Check fan belt tension per step A.2.
 - d. Repeat steps 1 and c until tensiometer indicates 10 lb (45 N).
3. TIGHTEN ADJUSTMENT SCREW (4) TO 20 LB-FR (27 N•m), HOLD SELF-LOCKING HEX NUT (5), AND TIGHTEN PIVOT BOLT (6) TO 20 LB-FT (27 N•m). REMOVE PRY BAR AND WEDGE BLOCK.
4. TIGHTEN HEX HEAD CAP SCREW (7) TO 14 LB-FT (19 N•m).

**NOTE**

FOLLOW-ON-TASK: Close front top left access door per TM 5-3895-373-10.

END OF TASK

2.23.2. REPLACE ENGINE OIL FILTER ELEMENT.

This task covers:

a. Remove b. Install

INITIAL SETUP

Tools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Drip pan (Item 28, Appendix E)
Oil filter removal tool (Item 36, Appendix E)

References:

TM 5-3895-373-24P

Equipment Condition:

Right access cover removed per TM 5-3895-373-10.

Materials/Parts:

Cleaning solvent (Item 24, Appendix C)
Engine oil (Item 19, Appendix C)
Lint-free cloth (Item 8, Appendix C)
Machinery wiping towel (Item 30, Appendix C)
Oil filter element

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2.23.2. REPLACE ENGINE OIL FILTER ELEMENT - Continued.

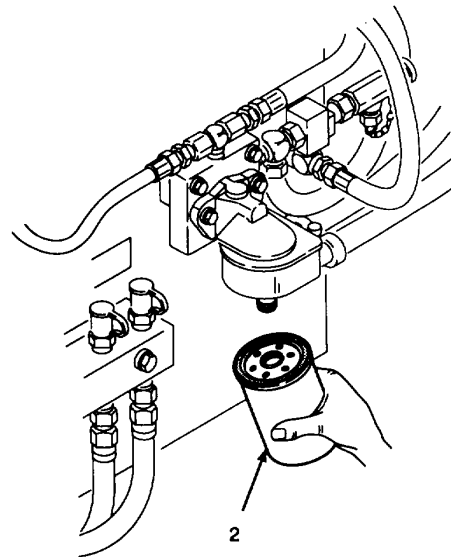
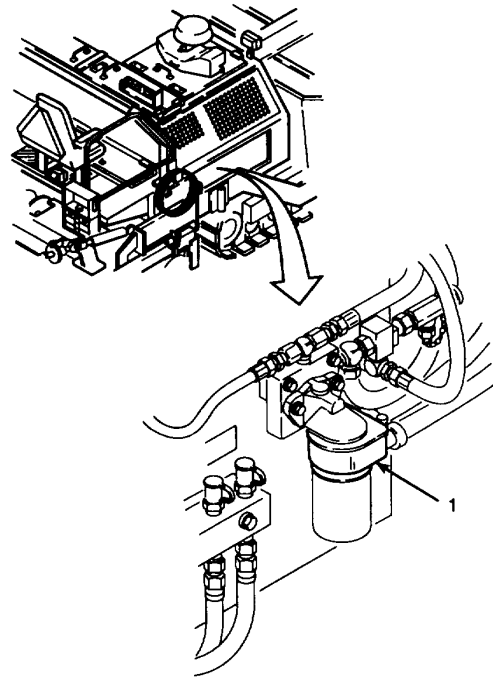
A. REMOVE.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 HI cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

1. CLEAN OUTSIDE OF ENGINE OIL FILTER/COOLER ASSEMBLY (1) WITH A LINT-FREE CLOTH MOISTENED IN CLEANING SOLVENT.
2. PLACE MACHINERY WIPING TOWEL UNDER OIL FILTER/COOLER ASSEMBLY (1) TO CATCH ANY SPILLED ENGINE OIL.
3. REMOVE OIL FILTER ELEMENT (2) USING OIL FILTER REMOVAL TOOL.
4. POUR WASTE OIL FROM OIL FILTER ELEMENT (2) INTO A DRIP PAN. DISPOSE OF WASTE OIL, CONTAMINATED MACHINERY WIPING TOWELS, AND OIL FILTER ELEMENT IN ACCORDANCE WITH LOCAL PROCEDURES.

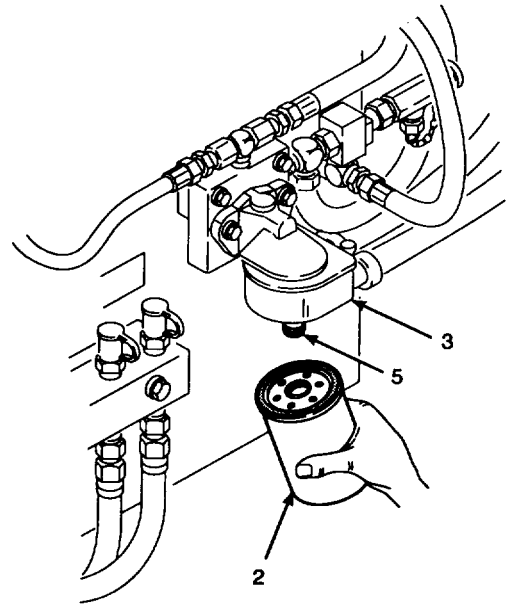
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B. INSTALL.

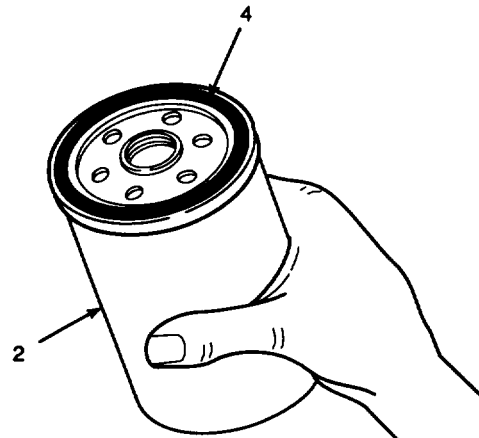
WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.



1. CLEAN INSIDE OF ENGINE OIL COOLER (3) WITH A LINT-FREE CLOTH MOISTENED IN CLEANING SOLVENT.
2. FILL NEW OIL FILTER ELEMENT (2) WITH CLEAN ENGINE OIL UNTIL FULL. ALLOW TIME FOR OIL TO SOAK INTO FILTER ELEMENT.
3. LUBRICATE RUBBER SEAL (4) ON TOP OF OIL FILTER ELEMENT WITH CLEAN ENGINE OIL.
4. HAND ROTATE OIL FILTER ELEMENT (2) ONTO CONNECTOR (5) UNTIL SEATED AGAINST ENGINE OIL COOLER (3).
5. TIGHTEN OIL FILTER ELEMENT (2) AN ADDITIONAL 3/4 TURN USING THE OIL FILTER REMOVAL TOOL.
6. RUN ENGINE AT HIGH IDLE UNTIL OIL TEMPERATURE REACHES NORMAL. CHECK FOR OIL LEAKS.

**NOTE**

FOLLOW-ON-TASK: Install right access cover per TM 5-3895-373-10.

END OF TASK

2.23.3. ENGINE COOLANT.

This task covers:

a. Drain b. Fill c. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E).

Drain pan (Item 27, Appendix E)

Plastic funnel (Item 16, Appendix E)

Radiator filling can, 3 gal (Item 7, Appendix C)

Steel funnel (Item 17, Appendix E)

Torque wrench (Item 68, Appendix E)

Front top left access door open per TM 5-3895-373-10.

References:

TM 5-3895-373-10

TM 5-3895-373-24P

Equipment Condition:

Left access door open per TM 5-3895-373-10.

Left access cover removed per TM 5-3895-373-10.

Right access cover removed per TM 5-3895-373-10.

Materials/Parts:

Antifreeze (Item 4, Appendix C).

Machinery wiping towels (Item 30, Appendix C)

Tags (Item 27, Appendix C)

Thread locking compound (Item 13, Appendix C)

Thread locking compound solvent (Item 25, Appendix C)

Lockwashers

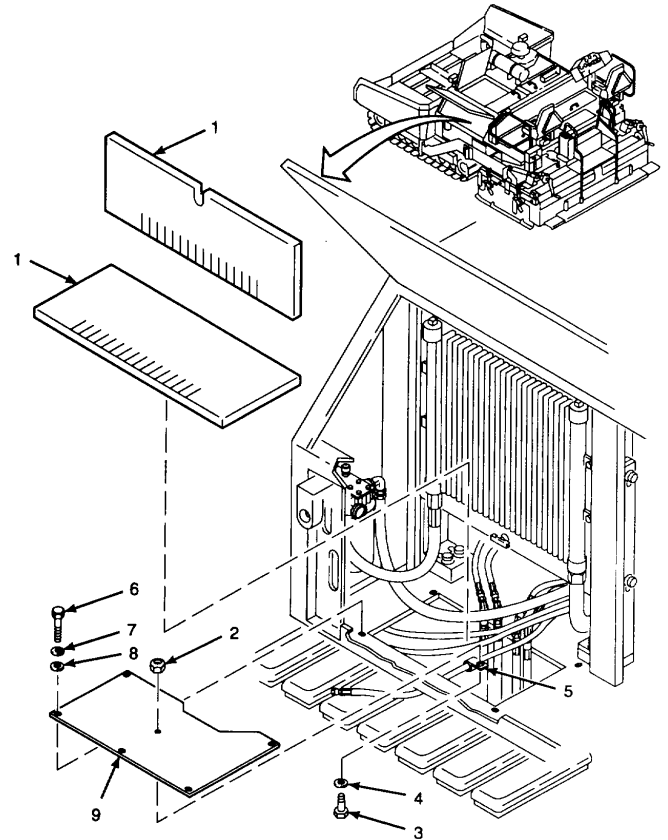
Sound foam

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A. DRAIN.

1. REMOVE ACCESS COVER.

- a. Remove sound foam (1). Clean sound foam mounting surface with putty knife.
- b. Remove hex nut (2), hex head cap screw (3), and flat washer (4) securing clamp (5).
- c. Remove hex head cap screws (6), lockwashers (7), and flat washers (8) securing access cover (9). Remove access cover. Discard lockwashers.



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2.23.3. ENGINE COOLANT - Continued.

- A. DRAIN - Continued.
2. DRAIN ENGINE COOLANT.

WARNING

Do not remove the radiator cap when the engine is hot; steam and hot coolant can escape and burn personnel.

Use a clean, thick, waste cloth or like material to remove the cap. Avoid using gloves. If hot coolant soaks through gloves, personnel could be burned.

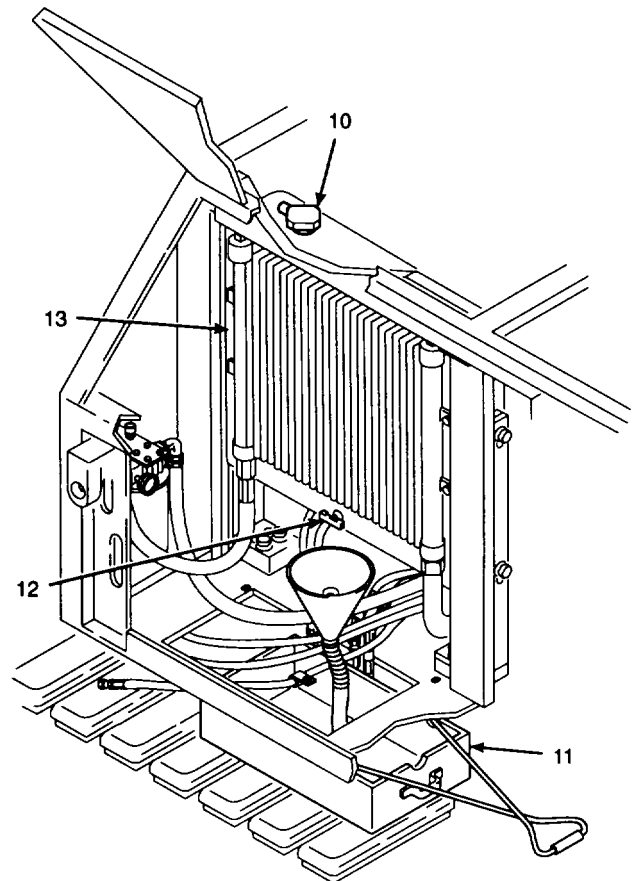
Use extreme care when removing the radiator pressure cap. Sudden release of pressure can cause a steam flash which could seriously injure personnel. Slowly loosen cap to the first stop to relieve pressure before removing cap completely.

- a. With engine cool, remove radiator cap (10).

NOTE

Coolant system holds approximately 6.5 gal (24,6 l) of engine coolant. Drain pan will need to be emptied more than once while draining radiator coolant.

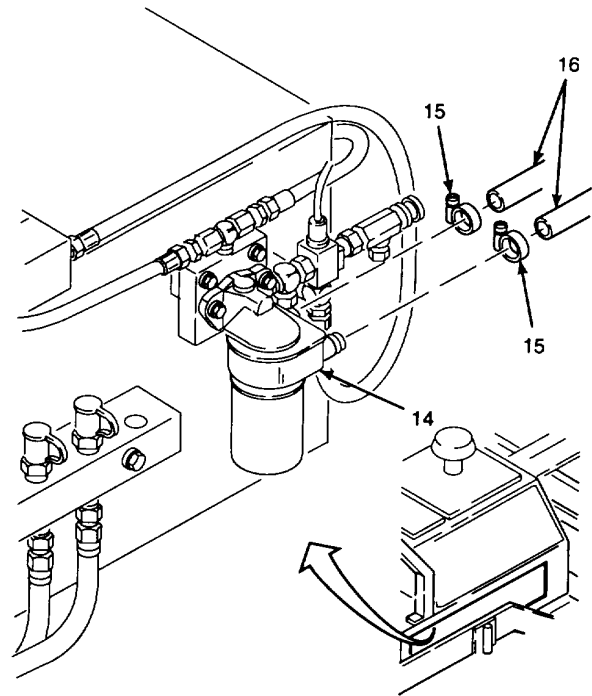
- b. Position drain pan (11) below drain cock (12) on bottom of radiator (13). Remove filter screen from steel funnel. Position funnel below drain cock with spout in drain pan. Open drain cock and allow radiator coolant to drain.



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A. DRAIN - Continued.

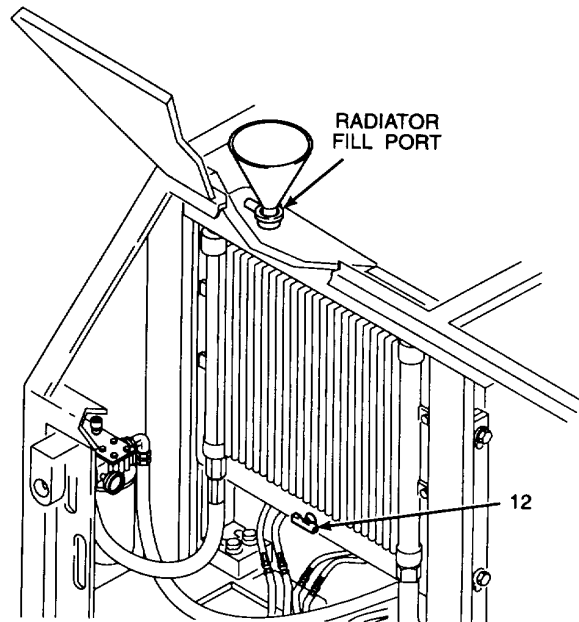
- c. Place machinery wiping towel and drain pan below engine oil filter/cooler assembly (14). Tag coolant hoses (16) for reassembly. Loosen hose clamps (15) and disconnect coolant hoses from oil filter/cooler assembly. Drain all coolant from coolant hoses.
- d. Connect coolant hoses (16) to engine oil filter/cooler assembly (14). Tighten hose clamps (15).
- e. Place water hose in radiator fill port and drain pan below drain cock (12). Run water through radiator and engine until clean water flows from drain cock and coolant hoses (16).
- f. Dispose of used engine coolant in accordance with local procedures.



B. FILL.

1. FILL COOLANT SYSTEM.

- a. Close drain cock (12).
- b. Mix 1-1/2 gal (5.5 ℓ) water with 1-1/2 gal (5.5 ℓ) antifreeze in radiator filling can.
- c. Install plastic funnel in radiator fill port. Fill coolant system with antifreeze/water mixture.
- d. Repeat steps b and c until the radiator appears to be full.



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2.23.3. ENGINE COOLANT - Continued.

- B. FILL - Continued.
- e. Remove funnel and install radiator cap (10).
2. CIRCULATE ENGINE COOLANT SYSTEM.
- a. Start and run engine until engine reaches normal operating temperature, then shut down engine. Refer to TM 5-3895-373-10.

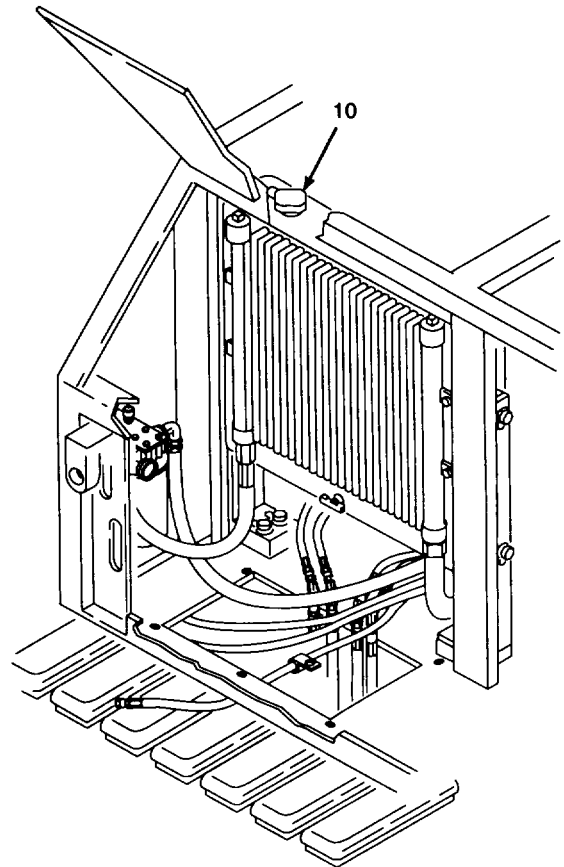
WARNING

Do not remove the radiator cap when the engine is hot; steam and hot coolant can escape and burn personnel.

Use a clean, thick, waste cloth or like material to remove the cap. Avoid using gloves. If hot coolant soaks through gloves, personnel could be burned.

Use extreme care when removing the radiator pressure cap. Sudden release of pressure can cause a steam flash which could seriously injure personnel. Slowly loosen cap to the first stop to relieve pressure before removing cap completely.

- b. With engine cool, remove radiator cap (10).
Top off coolant system if needed.
- c. Replace radiator cap (10).



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C. INSTALL.

1. INSTALL ACCESS COVER.

- a. Position access cover (9) in engine compartment.

WARNING

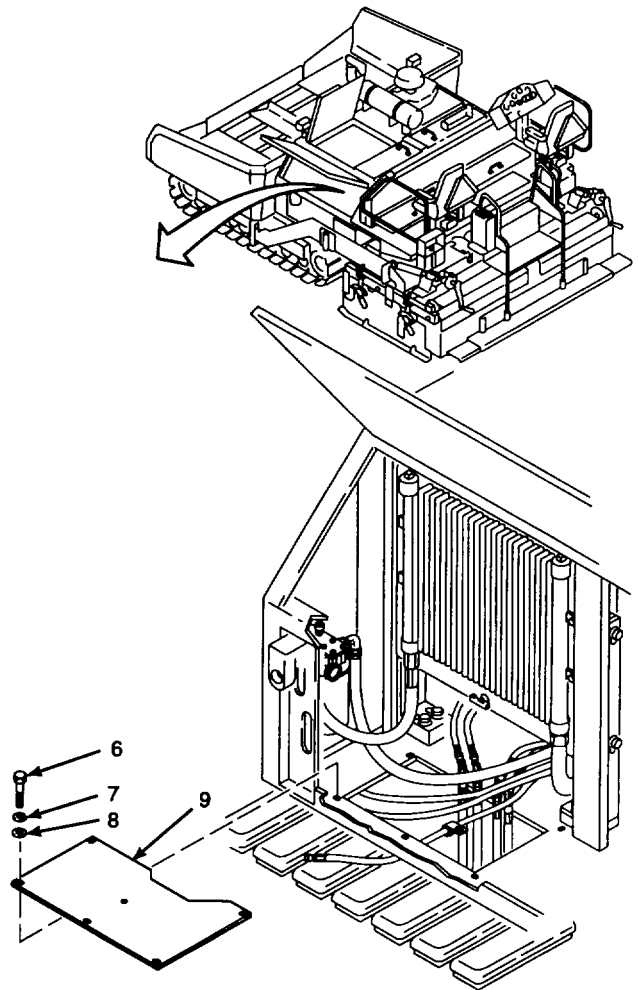
Thread locking compound solvent can cause eye damage. Wear goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- b. Clean hex head cap screws (6) with thread locking compound solvent.
- c. Install flat washers (8) and lockwashers (7) onto hex head cap screws (6).

WARNING

Thread locking compound can cause eye damage. Wear goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- d. Apply thread locking compound to threads of hex head cap screws (6).
- e. Install hex head cap screws (6). Tighten cap screws to 9 lb-ft (12 N•m).



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2.23.3. ENGINE COOLANT - Continued.

- C. INSTALL - Continued.
2. INSTALL CLAMP AND SOUND FOAM.

WARNING

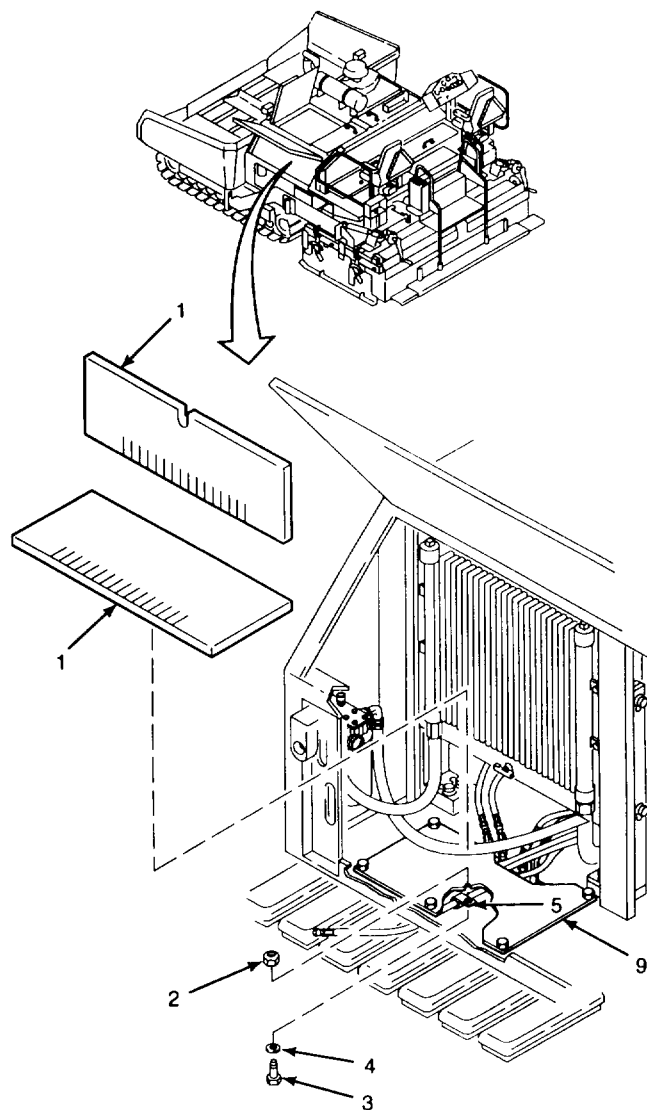
Thread locking compound solvent can cause eye damage. Wear goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- Clean hex head cap screw (3) with thread locking compound solvent.
- Install flat washer (4) onto hex head cap screw (3).

WARNING

Thread locking compound can cause eye damage. Wear goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- Apply thread locking compound to threads of hex head cap screw (3). Insert cap screw through clamp (5) and installed access cover (9).
- Install hex nut (2). Tighten hex nut to 19 lb-ft (26 N•m).
- Install sound foam (1).

**NOTE**

FOLLOW-ON-TASKS: Install left access cover per TM 5-3895-373-10.
 Close left access door per TM 5-3895-373-10.
 Install right access cover per TM 5-3895-373-10.
 Close front top left access door per TM 5-3895-373-10.

END OF TASK

2.23.4. DRAIN FUEL TANK.

This task covers:

a. Drain

b. Clean

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Hand operated pump (Item 33, Appendix E)
Utility pail (Item 26, Appendix E)

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Pipe sealant (Item 22, Appendix C)

References:

TM 5-3895-373-10

Equipment Condition:

Tow point fully raised per TM 5-3895-373-10.
Right side of paving machine jacked and cribbed
per paragraph 2.24.2 (non-track maintenance, 4 in.
cribbing only).
Screed fully raised and cribbed per paragraph 2.24.2.
Screed steps lowered per TM 5-3895-373-10
(alternate method only).
Left access cover removed per TM 5-3895-373-10.
Left access door opened per TM 5-3895-373-10.
Fuel tank filler assembly removed per paragraph 4.5.

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2.23.4. DRAIN FUEL TANK - Continued.

A. DRAIN.

NOTE

There are two methods for draining fuel tank. The primary method is in Step 1 using a hand operated pump. An alternate method is to use the fuel spray washdown system.

1. DRAIN FUEL SPRAY SYSTEM USING HAND OPERATED PUMP.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

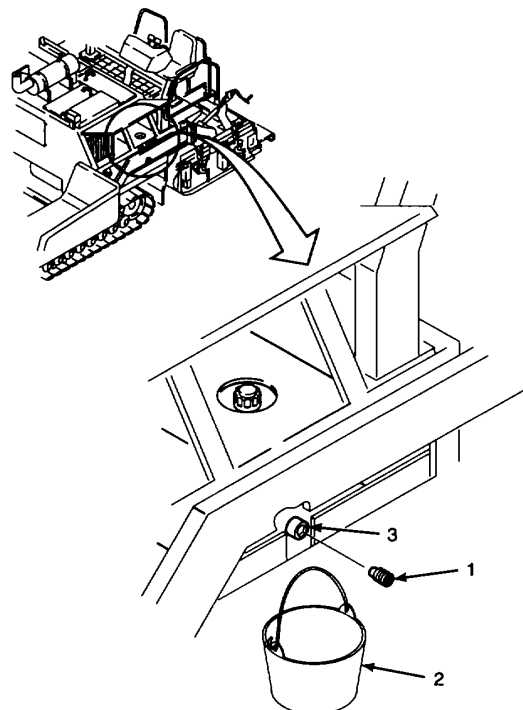
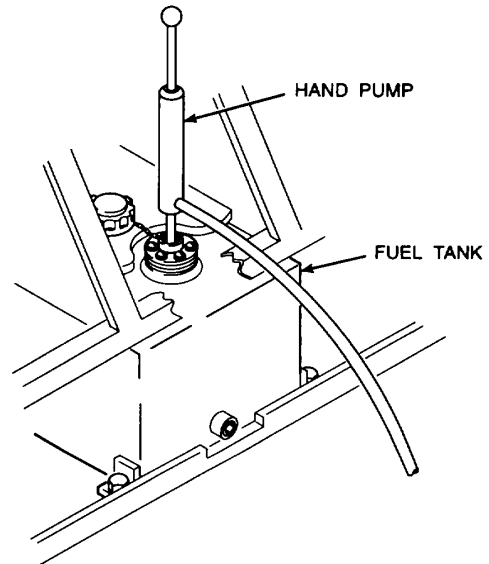
Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- a. Insert hand pump into top of fuel tank.
 - b. Operate hand pump to transfer fuel into suitable container. Dispose of fuel in accordance with local procedures.
 - c. Go to step 3 to drain any remaining fuel.
2. DRAIN REMAINING FUEL FROM TANK DRAIN PORT.

- a. Loosen fuel tank drain plug (1) with hex head wrench.
- b. Hold utility pail (2) up to drain port (3) and remove drain plug (1).
- c. Replace drain plug (1) when utility pail (2) nears 3/4 full. Dispose of fuel in accordance with local procedure.
- d. Repeat steps b and c until no fuel drains from the tank.



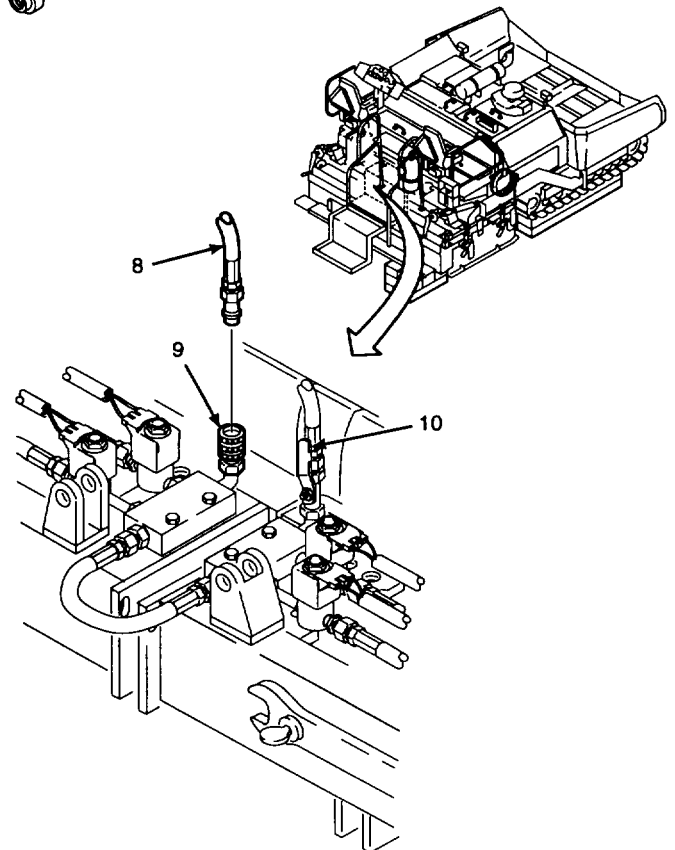
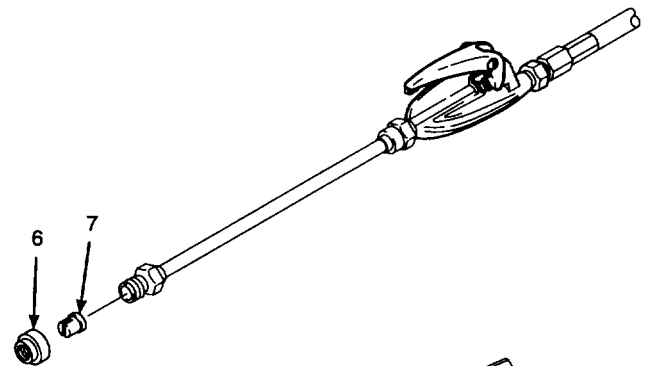
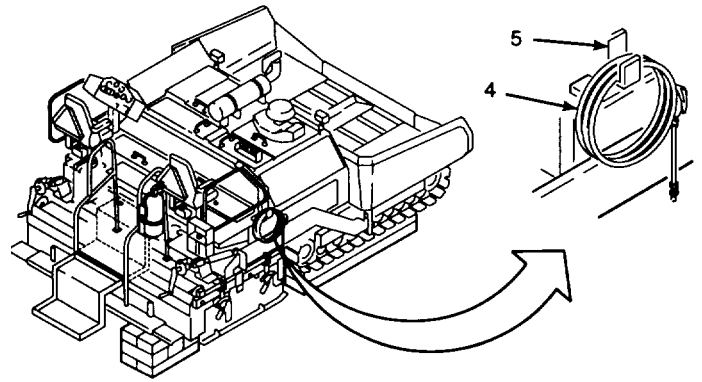
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- A. DRAIN - Continued.
- 3. DRAIN FUEL FROM FUEL TANK USING SPRAY WASH DOWN.

NOTE

The spray wash system is capable of pumping 7 gal (26,5 ℓ) per hour. Fuel tank capacity is 28 gal (106 ℓ).

- a. Remove fuel spray wand assembly (4) from hanger (5) on side of paving machine.
- b. Remove spray tip retainer (6) and spray tip (7) from fuel spray wand. Set spray tip aside and reinstall tip retainer.
- c. Connect hose (8) to quick disconnect coupler (9) located on screed.



WARNING
 Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- d. Set screed burner fuel shutoff valve (10) to open by turning valve handle to the 12 o'clock position.
- e. Turn ignition switch to the run position at the operator control console per TM 5-3895-373-10.
- f. Turn the fuel pump switch UP, on, at left hand screed control panel per TM 5-3895-373-10.

2.23.4. DRAIN FUEL TANK - Continued.

A. DRAIN - Continued.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

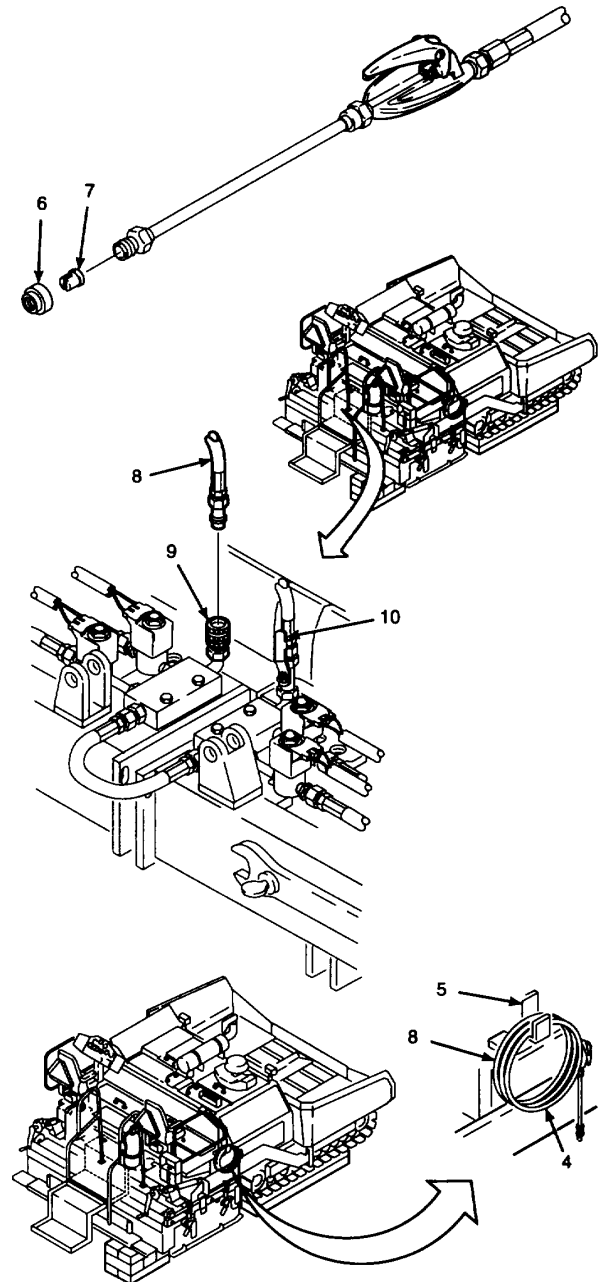
Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- g. Hold end of spray wand in utility pail and squeeze the spray wand trigger to start fuel flow.
- h. When pail is 3/4 full, release spray wand trigger to stop fuel flow. Dispose of fuel in accordance with local procedure.
- i. Repeat steps f and g to remove as much fuel as possible from the fuel tank. Turn fuel pump switch DOWN, off, and shut off and remove key from ignition switch per TM 5-3895-373-10.
- j. Remove spray tip retainer (6) from spray wand. Reinstall spray tip (7) onto spray wand and secure in place with tip retainer.
- k. Set screed burner fuel shutoff valve (10) to closed by turning valve handle to the 3 o'clock position.
- l. Disconnect fuel spray hose (8) from quick disconnect coupler (9).
- m. Coil up hose (8) and return fuel spray wand assembly (4) to hanger (5).
- n. Go to step 2 to drain any remaining fuel.



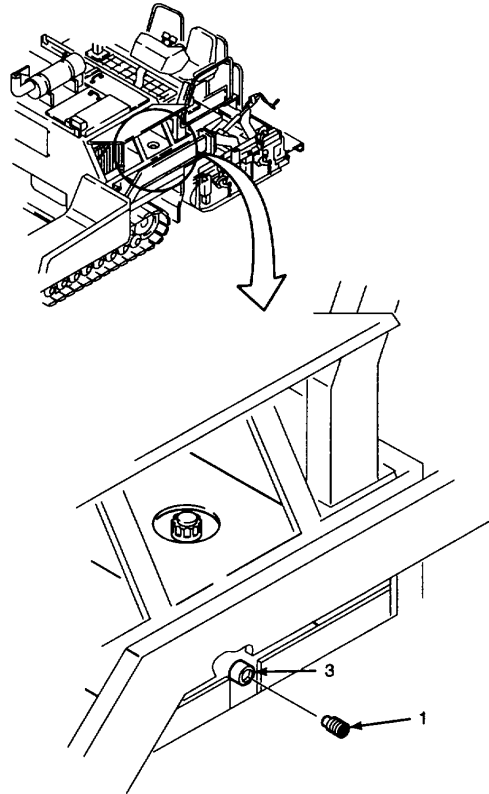
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- B. CLEAN.
1. CLEAN AND REINSTALL FUEL TANK DRAIN PLUG.
 - a. Use cleaning cloth to wipe residue from threads of drain plug (1).

WARNING

Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- b. Apply a thin coating of pipe sealant to threads of fuel tank drain plug (1).
 - c. Thread fuel tank drain plug (1) into fuel tank drain port (3) and tighten.
2. USE CLEANING CLOTHS TO CLEAN UP SPILLED FUEL. DISPOSE OF FUEL SATURATED CLEANING CLOTHS IN ACCORDANCE WITH LOCAL PROCEDURES.



NOTE

FOLLOW-ON-TASKS: Install fuel tank filler assembly per paragraph 4.5.
 Screed steps raised per TM 5-3895-373-10.
 Screed fully raised and cribbing removed per TM 5-3895-373-10.
 Remove cribbing and lower paving machine per paragraph 2.24.2.
 Add fuel per TM 5-3895-373-10.
 Left access cover installed per TM 5-3895-373-10.
 Left access door closed per TM 5-3895-373-10.

END OF TASK

2.23.5. REPLACE ENGINE FUEL FILTER ELEMENT.

This task covers:

- a. Remove b. Install
-

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Crowfoot wrench (Item 62, Appendix E)
Drip pan (Item 28, Appendix E)
O-ring tool (Item 52, Appendix E)
Torque wrench (Item 66, Appendix E)

Materials/Parts:

Cleaning solvent (Item 24, Appendix C)
JP8 fuel (Item 14, Appendix C)
Lint-free cloth (Item 8, Appendix C)
Machinery wiping towel (Item 30, Appendix C)
Fuel filter element
Gaskets
Seal

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Conditions:

Front top right access door open per TM 5-3895-373-10.
Front top left access door open per TM 5-3895-373-10.
Engine access cover removed per paragraph 2.22.

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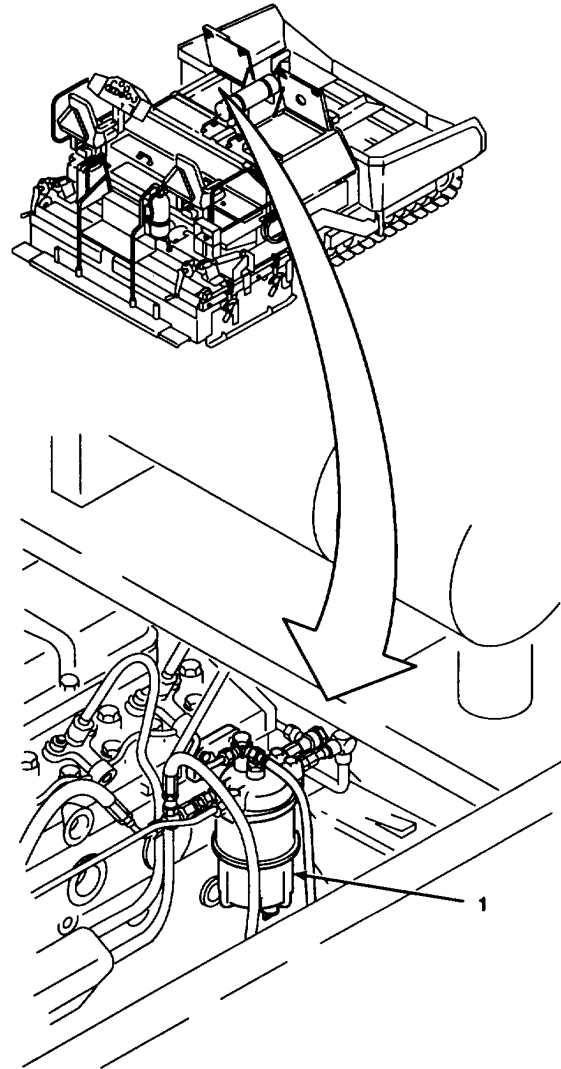
- A. REMOVE.
- 1. REMOVE FUEL INJECTOR TUBE.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- a. Use cleaning solvent and lint-free cloth to clean the outside surface of fuel filter assembly (1).
- b. Place machinery wiping towels below fuel filter assembly (1).



GO TO NEXT PAGE

2.23.5. REPLACE ENGINE FUEL FILTER ELEMENT -Continued.

A. REMOVE - Continued.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- c. Unthread tube coupling nuts (2) and remove metal tube (3) from multiple connector (4).
- d. Loosen fluid passage bolt (5) enough to rotate multiple connector (4) to gain access to bolt (6).

2. REMOVE FUEL FILTER ELEMENT.

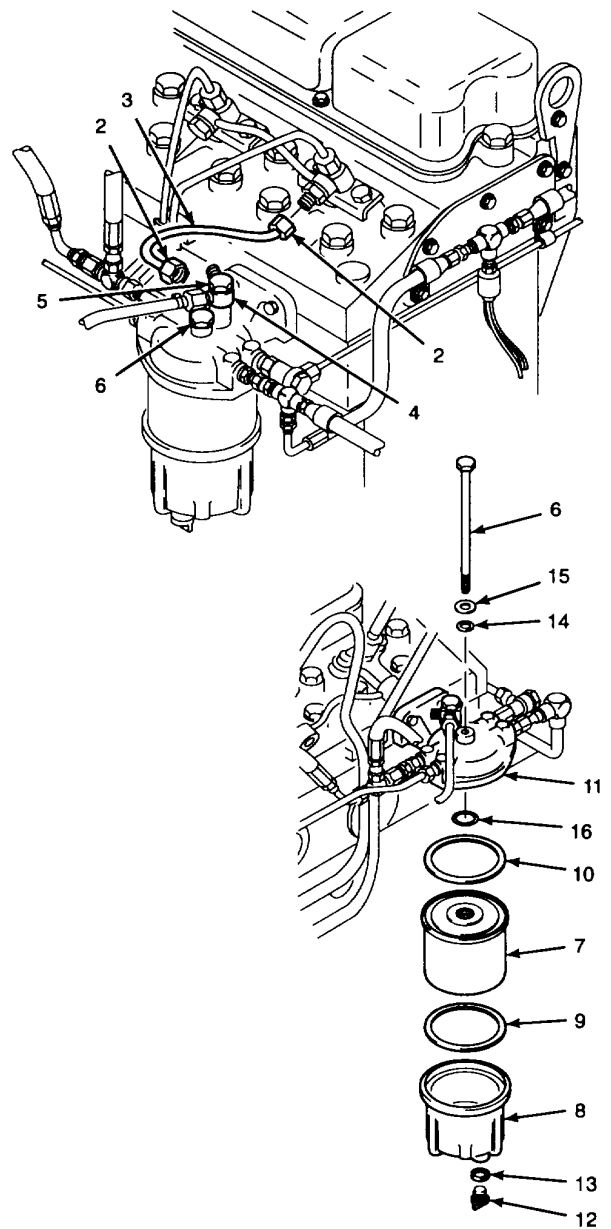
- a. Wrap fuel filter element (7) and bottom cover (8) with a machinery wiping towel.
- b. Hold fuel filter element (7), bottom cover (8), and the machinery wiping towel and remove bolt (6).
- c. Remove fuel filter element (7) and bottom cover (8) together. Drain trapped fuel into a drip pan.

CAUTION

Use caution when removing seals and preformed packings. Scratched or dented seal grooves can cause bypass leakage. Do not use excessive force when removing seals and preformed packings. Use an o-ring tool to remove seals and preformed packings.

d. Separate fuel filter element (7) from bottom cover (8) and remove and discard bottom gasket (9). Remove top gasket (10) from filter head (11) with an o-ring tool. Discard top gasket.

e. Remove thumbscrew (12) and gasket (13) from bottom cover (8). Inspect the gasket for rips, tears, or deformation. Discard the gasket if damaged.



- f. Remove preformed packing (14) and flat washer (15) from bolt (6). Discard preformed packing.
- g. Use an o-ring tool and remove seal (16) from filter head (11). Discard seal.
- h. Dispose of fuel filter element (7), contaminated machinery wiping towels, and waste fuel in accordance with local procedures.

- B. INSTALL.
- 1. INSTALL FUEL FILTER ELEMENT.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 HI cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- a. Use cleaning solvent and lint-free cloth to clean inside of bottom cover (8) and inside of fuel filter head (11).
- b. Install gasket (13) and thumbscrew (12) on bottom cover (8).

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

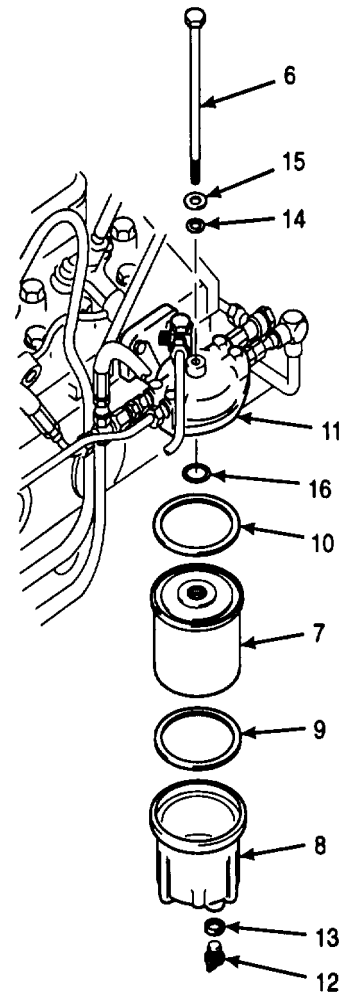
Always wear safety glasses/goggles at all times.

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- c. Coat bottom gasket (9), top gasket (10), and seal (16) with clean fuel.
- d. Install bottom gasket (9) into bottom cover (8).



- e. Seat fuel filter element (7) in bottom cover (8).
- f. Install top gasket (10) into fuel filter head (11).
- g. Install seal (16) into filter head (11).
- h. Install flat washer (15) and preformed packing (14) onto bolt (6).
- i. Squarely seat fuel filter element (7) and bottom cover (8) into filter head (11).
- j. Install bolt (6) through filter head (11) and tighten.

2.23.5. REPLACE ENGINE FUEL FILTER ELEMENT - Continued.

- B. INSTALL - Continued.
2. INSTALL FUEL INJECTOR TUBE.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

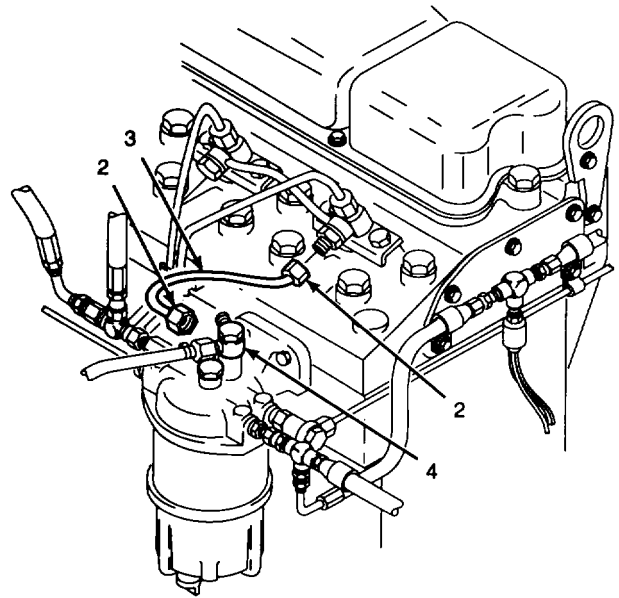
Always wear safety glasses/goggles at all times.

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- a. Align multiple connector (4) with the open threaded end toward the fuel injection pump.
- b. Install metal tube (3) and tighten tube coupling nuts (2). Adjust multiple connector (4) as necessary to properly align the metal tube.

**NOTE**

FOLLOW-ON-TASKS: Bleed engine fuel system per paragraph 2.23.11.
 Close front top right access door per TM 5-3895-373-10.
 Close front top left access door per TM 5-3895-373-10.
 Install engine access cover per paragraph 2.22.

END OF TASK

2.23.6. REPLACE SCREED BURNER AND FUEL SPRAY FUEL FILTER ELEMENT.

This task covers:

- a. Remove b. Install
-

INITIAL SETUP

Tools:

General mechanic's automotive tool kit
(Item 54, Appendix E)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Materials/Parts:

JP8 fuel (Item 14, Appendix C)
Hydraulic fitting sealant (Item 21, Appendix C)
Machinery wiping towels (Item 30, Appendix C)
Protective caps (Item 5, Appendix C)
Tags (Item 27, Appendix C)
Fluid filter element
Gaskets

Equipment Condition:

Rear top left access door open per TM 5-3895-373-10.

GO TO NEXT PAGE

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2.23.6. REPLACE SCREED BURNER AND FUEL SPRAY FUEL FILTER ELEMENT -Continued.

A. REMOVE.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

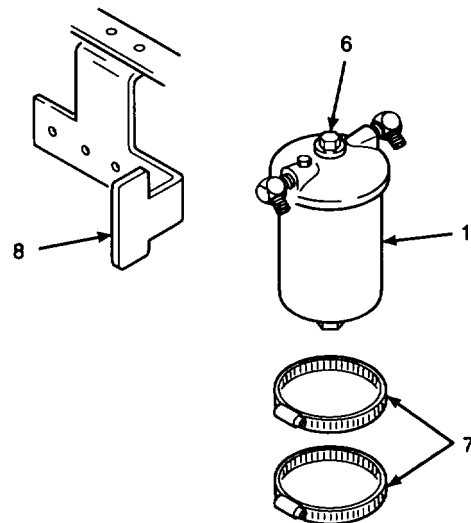
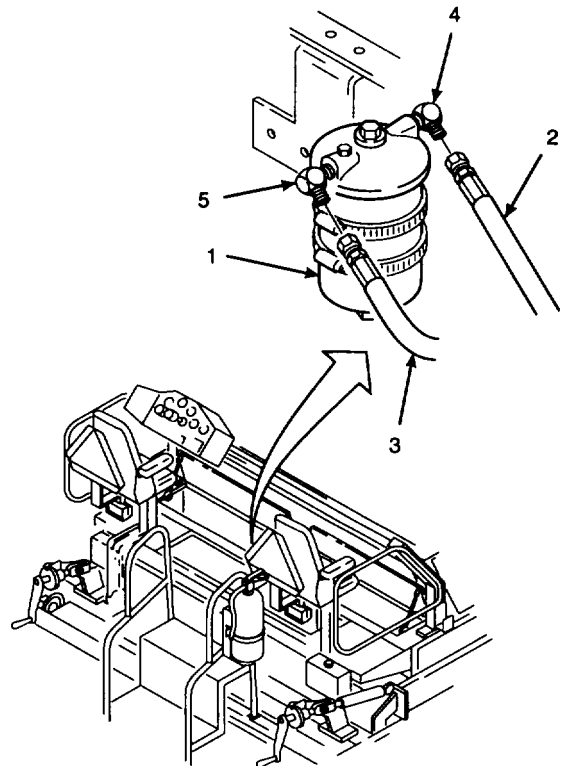
Keep fuel away from open flame or spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

1. DISCONNECT FUEL FILTER HOSES.
 - a. Place a machinery wiping towel under fuel filter assembly (1).
 - b. Tag fuel filter hoses. Remove fuel filter hoses (2 and 3) from elbows (4 and 5).
 - c. Plug hoses with protective caps.

2. REMOVE FUEL FILTER ASSEMBLY.
 - a. While fuel filter assembly (1) is still clamped in place, loosen center bolt (6).
 - b. Loosen hose clamps (7) and remove fuel filter (1) assembly from mounting bracket (8). Dispose of fuel in accordance with local procedures.



**GO TO NEXT PAGE
2-414**

- A. REMOVE - Continued.
3. REMOVE FUEL FILTER ELEMENT.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- a. Hold fuel filter and remove center bolt (6) and gasket (9). Discard gasket. Remove filter bowl (10) with filter element (11) from filter head (12). Remove and discard filter head gasket (13).
- b. Lift filter element (11) from filter bowl (10). Discard fluid filter element and any remaining fuel in accordance with local procedures.

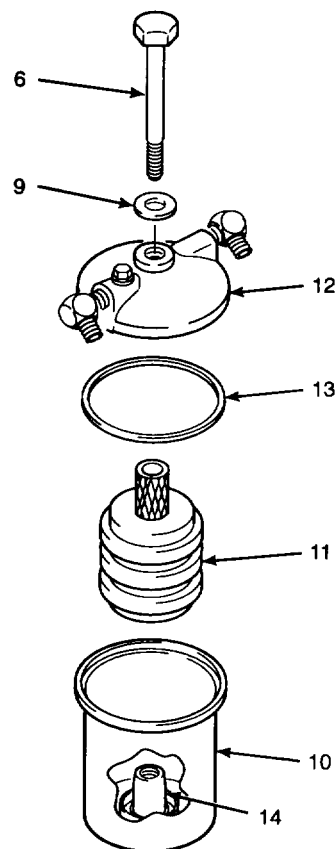
B. INSTALL.

1. INSTALL FUEL FILTER ELEMENT.
 - a. Seat filter element (11) in filter bowl (10), over center spud (14).
 - b. Coat filter head gasket (13) with clean fuel and place on filter bowl (10).

CAUTION

Ensure that filter element is fully seated on center spud or the filter element may be smashed.

- c. Squarely seat filter head (12) onto filter bowl (10). Secure with gasket (9) and center bolt (6). Tighten center bolt.



GO TO NEXT PAGE

2.23.6. REPLACE SCREED BURNER AND FUEL SPRAY FUEL FILTER ELEMENT - Continued.**B. INSTALL - Continued.****WARNING**

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

2. INSTALL FUEL FILTER ASSEMBLY.

- a. Install fuel filter assembly (1) on mounting bracket (8).
- b. Secure with hose clamps (7).

3. CONNECT FUEL FILTER HOSES.**WARNING**

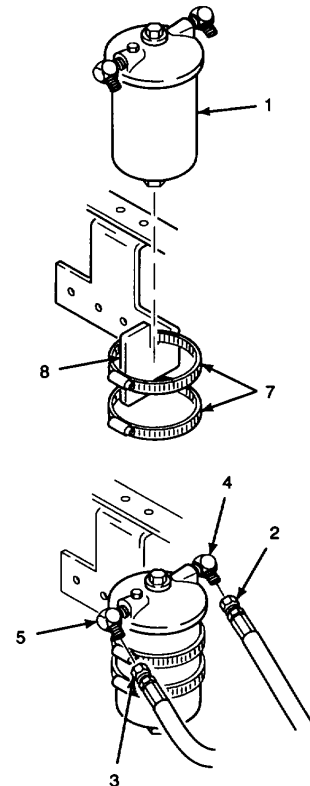
Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

CAUTION

Do not apply hydraulic fitting sealant to leading threads of elbows. Seepage of hydraulic fitting sealant into fuel system may clog fuel nozzle.

NOTE

FOLLOW-ON-TASKS: Bleed screed fuel system per paragraph 2.23.11.
Close rear top left access door per TM 5-3895-373-10.

END OF TASK

- a. Apply a light coating of hydraulic fitting sealant to threads of elbows (4 and 5). Do not apply hydraulic fitting sealant to leading threads. Ensure sealant is used sparingly so as not to clog fuel system components.
- b. Connect fuel filter hoses (2 and 3) to elbows and tighten.

2.23.7. REPLACE FUEL LIFT PUMP FILTER SCREEN.

This task covers: a. Remove b. Clean c. Install

INITIAL SETUP

Tools:

General mechanic's automotive tool kit
(Item 54, Appendix E)

References:

TM 5-3895-373-24P

Equipment Condition:

Engine access cover removed per paragraph 2.22.

Materials/Parts:

Cleaning solvent (Item 24, Appendix C)
Culture swabs (Item 26, Appendix C)
JP8 fuel (Item 14, Appendix C)
Lint-free cloth (Item 8, Appendix C)
Machinery wiping towel (Item 30, Appendix C)
Seal washer
Preformed packing
Filter screen

GO TO NEXT PAGE

2.23.7. REPLACE FUEL LIFT PUMP FILTER SCREEN - Continued.

A. REMOVE.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

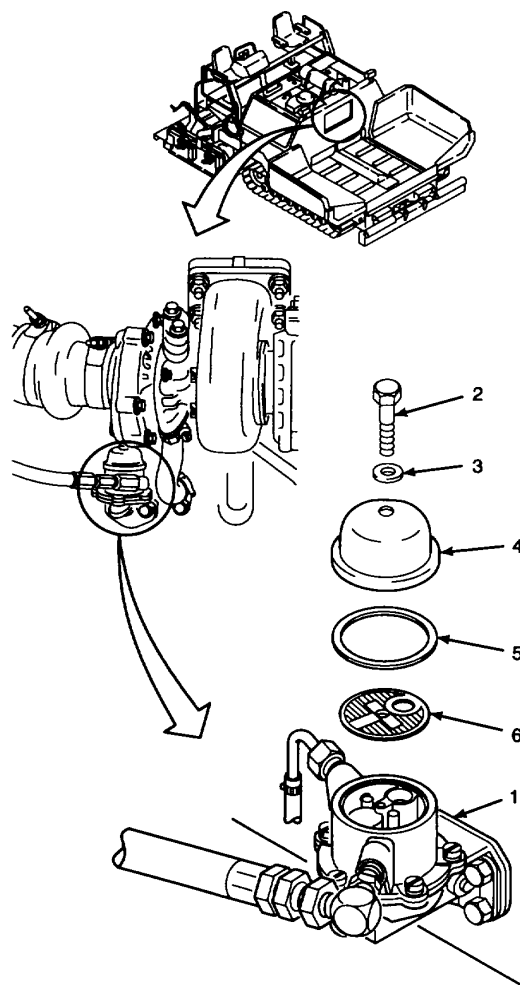
Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 HI cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

1. DAMPEN LINT-FREE CLOTHS WITH CLEANING SOLVENT. WIPE ALL DUST, DIRT, AND OIL OR GREASE BUILDUP FROM OUTER SURFACES OF FUEL LIFT PUMP (1).



2. PLACE MACHINERY WIPING TOWEL UNDER FUEL LIFT PUMP (1).
3. REMOVE CAP SCREW (2) AND SEAL WASHER (3). DISCARD SEAL WASHER.
4. REMOVE FILTER COVER (4) AND PREFORMED PACKING (5). DISCARD PREFORMED PACKING.
5. REMOVE AND DISCARD FILTER SCREEN (6).

GO TO NEXT PAGE

B. CLEAN.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

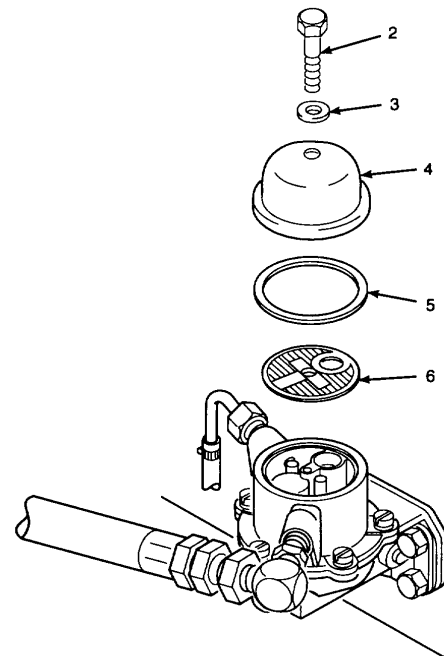
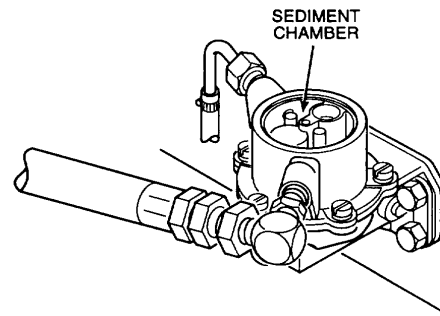
Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

1. USE CLEAN, LINT-FREE CLOTHS TO ABSORB STANDING DIESEL FUEL IN SEDIMENT CHAMBER.
2. USE CULTURE SWABS DAMPENED WITH DIESEL FUEL TO REMOVE ALL TRACES OF SLUDGE AND DEBRIS IN SEDIMENT CHAMBER.
3. DISPOSE OF ALL CLEANING MATERIALS CONTAMINATED WITH DIESEL FUEL IN ACCORDANCE WITH LOCAL PROCEDURES.

C. INSTALL.

1. INSTALL NEW FILTER SCREEN (6) WITH BRASS CROSS BRACE FACING UP.
2. INSTALL NEW PREFORMED PACKING (5) AND FILTER COVER (4).
3. INSTALL NEW SEAL WASHER (3) ON CAP SCREW (2). INSTALL AND TIGHTEN CAP SCREW.



NOTE

FOLLOW-ON-TASKS: Bleed engine fuel system per paragraph 2.23.11.
Install engine access cover per paragraph 2.22.

END OF TASK

2.23.8. DRAIN HYDRAULIC RESERVOIR.

This task covers: a. Drain b. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Drain pan (Item 27, Appendix E)

Materials/Parts:

Hydraulic fitting sealant (Item 21, Appendix C)
Lint-free cloth (Item 8, Appendix C)

References:

TM 5-3895-373-10

Equipment Condition:

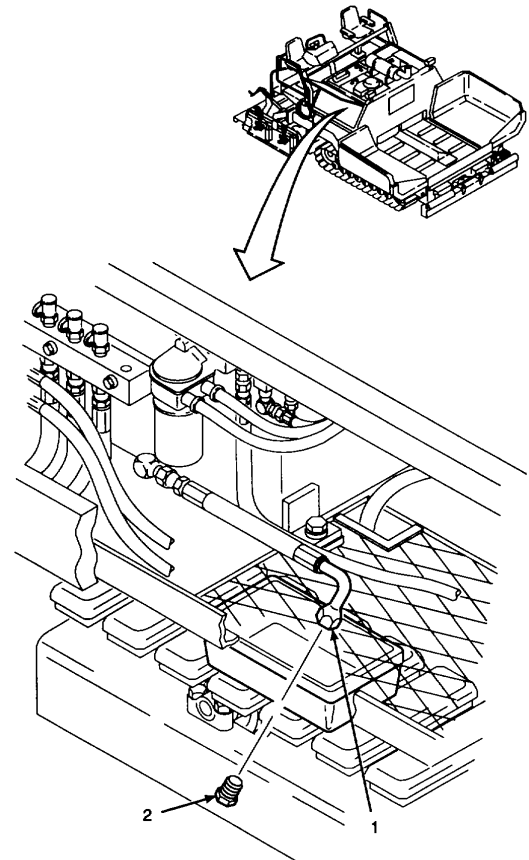
Paving machine jacked and cribbed per paragraph 2.24.2.
(for non-track maintenance, 4 in. cribbing only).
Right access door open per TM 5-3895-373-10.
Right access cover removed per TM 5-3895-373-10.

A. DRAIN.

WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

1. PLACE DRAIN PAN ON TRACK, BELOW OPEN GRATING MND RESERVOIR DRAIN HOSE (1).
2. REMOVE DRAIN PLUG (2) AND DRAIN HYDRAULIC OIL INTO DRAIN PAN. DO NOT ALLOW DRAIN PAN TO OVERFLOW. REINSTALL DRAIN PLUG WHEN OIL LEVEL IS ABOUT 1 IN. (25 MM) FROM TOP OF PAN.
3. DISPOSE OF HYDRAULIC OIL IN ACCORDANCE WITH LOCAL PROCEDURES.
4. REPEAT STEPS 2 AND 3 UNTIL HYDRAULIC RESERVOIR IS FULLY DRAINED. TEN OR MORE REPETITIONS MAY BE REQUIRED.



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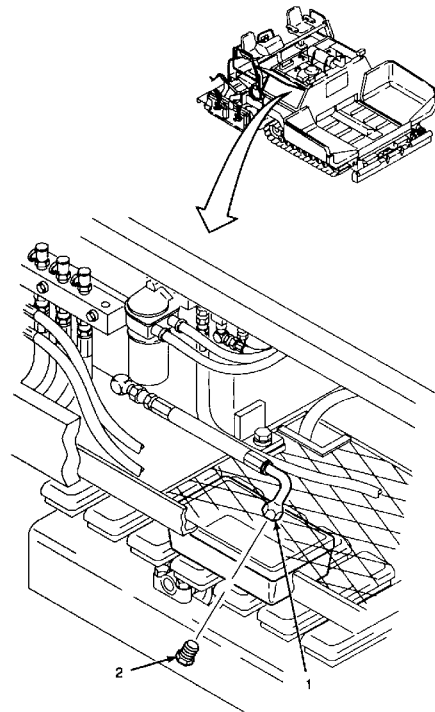
B. INSTALL.

1. USE CLEAN, LINT-FREE CLOTH TO WIPE THREADS OF DRAIN PLUG (2) CLEAN.

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

2. APPLY HYDRAULIC FITTING SEALANT TO THREADS OF DRAIN PLUG (2). INSTALL DRAIN PLUG INTO RESERVOIR HOSE (1) AND TIGHTEN.

**NOTE****FOLLOW-ON-TASKS:**

Remove cribbing and lower paving machine per paragraph 2.24.2. Install right access cover per TM 5-3895-373-10. Close right access door per TM 5-3895-373-10. Add hydraulic oil per TM 5-3895-373-10.

END OF TASK

2.23.9. REPLACE HYDRAULIC CHARGE FILTER ELEMENT.

This task covers: a. Remove b. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Drip pan (Item 28, Appendix E)
O-ring tool (Item 52, Appendix E)
Torque wrench (Item 68, Appendix E)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Right access door open per TM 5-3895-373-10.

Materials/Parts:

Cleaning solvent (Item 24, Appendix C)
Hydraulic oil (Item 18, Appendix C)
Lint free cloth (Item 8, Appendix C)
Machinery wiping towel (Item 30, Appendix C)
Hydraulic charge filter element
O-rings

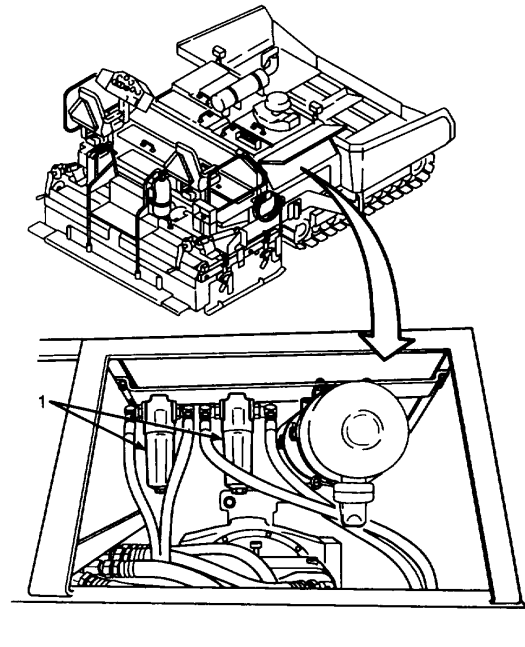
NOTE

This procedure refers to a single hydraulic charge filter. The paving machine uses two filters. This procedure should be used, as needed, to replace either or both charge filters.

A. REMOVE.**WARNING**

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 HI cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.



1. CLEAN OUTSIDE SURFACE OF HYDRAULIC CHARGE FILTER ASSEMBLIES (1) USING CLEANING SOLVENT AND LINT-FREE CLOTH.

GO TO NEXT PAGE

- A. REMOVE - Continued.
- 2. PLACE MACHINERY WIPING TOWEL UNDER FILTER BOWL (2)

WARNING

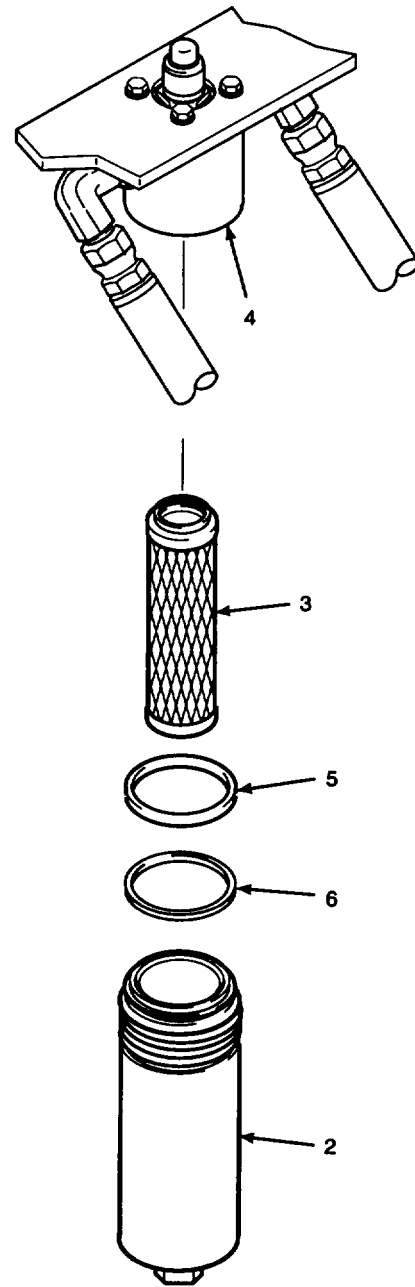
Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

- 3. REMOVE FILTER BOWL (2). POUR WASTE OIL INTO DRIP PAN. DISPOSE OF WASTE OIL IN ACCORDANCE WITH LOCAL PROCEDURES.
- 4. REMOVE FILTER ELEMENT (3) FROM FILTER HEAD (4). DISPOSE OF FILTER ELEMENT, WASTE HYDRAULIC OIL, AND CONTAMINATED MACHINERY WIPING TOWELS IN ACCORDANCE WITH LOCAL PROCEDURES.

CAUTION

Use caution when removing o-rings. Scratched or dented seal grooves can cause bypass leakage. Do not use excessive force when removing o-rings. Use an o-ring tool to remove o-rings.

- 5. USE AN O-RING TOOL AND REMOVE O-RINGS (5 AND 6) FROM FILTER BOWL (2). DISCARD O-RINGS.



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2.23.9. REPLACE HYDRAULIC CHARGE FILTER ELEMENT - Continued.

B. INSTALL.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 HI cleaning solvent is 200°F (93,3°C). Failure to do so may result in injury or death to personnel.

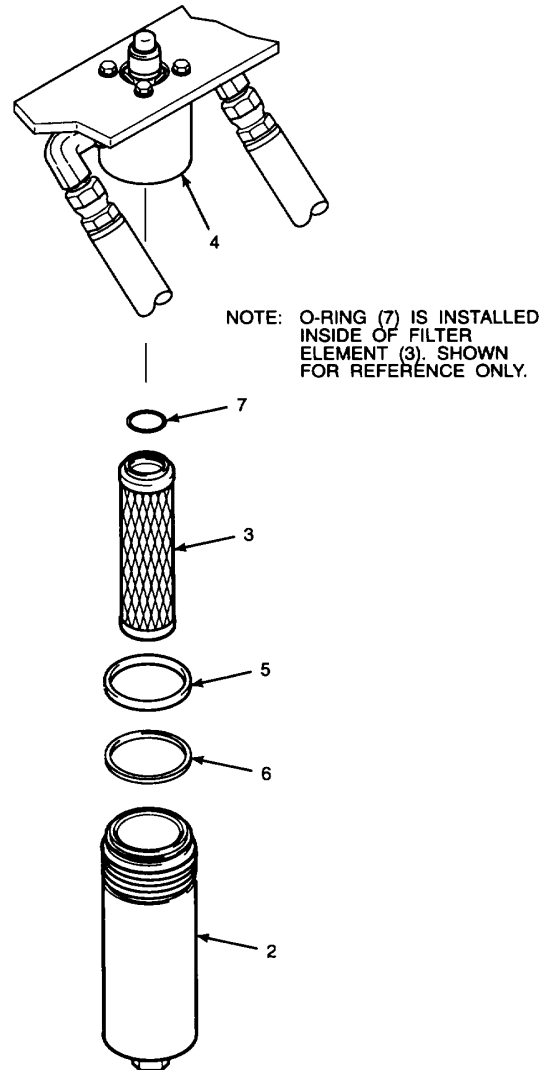
If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

1. CLEAN INSIDE OF FILTER BOWL (2) AND FILTER HEAD (4) USING CLEANING SOLVENT AND LINT-FREE CLOTH.

WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

2. COAT O-RING (7) WITH CLEAN HYDRAULIC OIL.
3. INSTALL FILTER ELEMENT (3) ONTO FILTER HEAD (4).
4. COAT O-RINGS (5 AND 6) WITH CLEAN HYDRAULIC OIL. INSTALL O-RINGS ONTO FILTER BOWL (2).



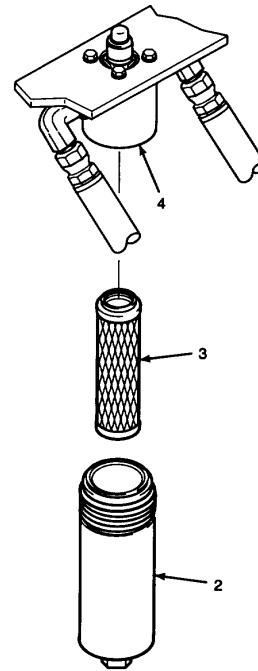
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B. INSTALL - Continued.

WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

5. FILL FILTER BOWL (2) HALF FULL WITH CLEAN HYDRAULIC OIL. RAISE FILTER BOWL OVER FILTER ELEMENT (3) ALLOWING THE HYDRAULIC OIL TO SOAK INTO THE FILTER ELEMENT.
6. INSTALL FILTER BOWL (2) INTO FILTER HEAD (4).
7. TIGHTEN FILTER BOWL TO 10 LB-FT (14 N.m).

**NOTE**

FOLLOW-ON-TASK: Close right access door per TM 5-3895-373-10.

END OF TASK

2.23.10. REPLACE HYDRAULIC RETURN FILTER ELEMENT.

This task covers: a. Remove b. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Drip pan (Item 28, Appendix E)
Oil filter removal tool (Item 36, Appendix E)
O-ring tool (Item 52, Appendix E)

References:

TM 5-3895-373-24P

Equipment Condition:

Left access cover removed per TM 5-3895-373-10.

Materials/Parts:

Cleaning solvent (Item 24, Appendix C)
Hydraulic oil (Item 18, Appendix C)
Lint-free cloth (Item 8, Appendix C)
Hydraulic return fluid filter element

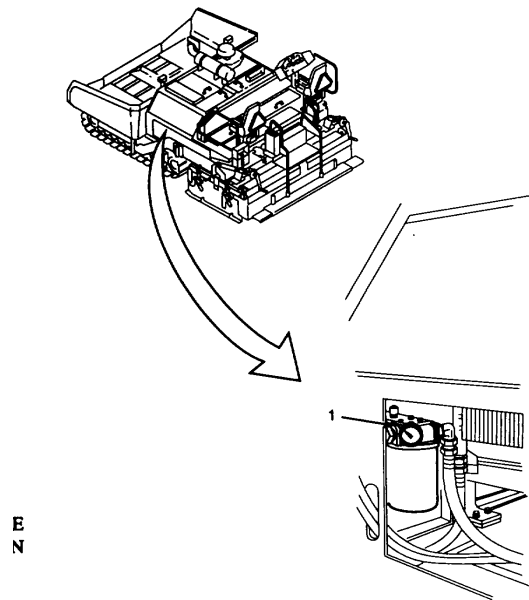
A. REMOVE.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

1. USE CLEANING SOLVENT AND LINT-FREE CLOTH TO CLEAN HYDRAULIC RETURN FILTER ASSEMBLY (1).



E
N

GO TO NEXT PAGE

A. REMOVE - Continued.

WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

2. PLACE A DRIP PAN UNDER HYDRAULIC RETURN FILTER ASSEMBLY.
3. USE AN OIL FILTER REMOVAL TOOL TO REMOVE HYDRAULIC RETURN FILTER ELEMENT (2). DISCARD HYDRAULIC RETURN FLUID FILTER ELEMENT AND EXCESS HYDRAULIC OIL IN ACCORDANCE WITH LOCAL PROCEDURES.

CAUTION

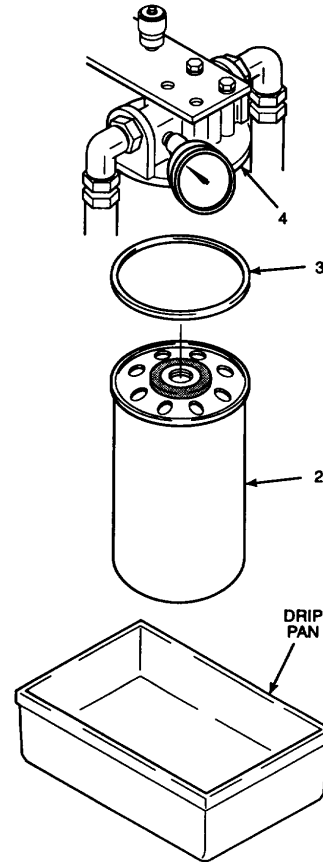
Use caution when removing seals and preformed packings. Scratched or dented seal grooves can cause bypass leakage. Do not use excessive force when removing seals and preformed packings. Use an o-ring tool to remove seals and preformed packings.

4. USE AN O-RING TOOL, AND REMOVE AND DISCARD GASKET (3).
- B. INSTALL.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 1m cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.



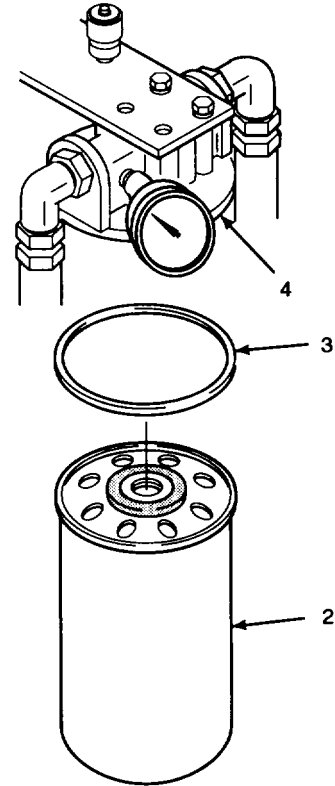
1. USE CLEANING SOLVENT AND LINT-FREE CLOTH TO CLEAN HYDRAULIC RETURN FILTER HEAD (4).

2.23.10. REPLACE HYDRAULIC RETURN FILTER ELEMENT - Continued.

B. INSTALL - Continued.**WARNING**

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

2. COAT GASKET (3) WITH CLEAN HYDRAULIC OIL. PLACE GASKET ON HYDRAULIC RETURN FILTER HEAD (4).
3. FILL HYDRAULIC RETURN FILTER ELEMENT (2) WITH HYDRAULIC OIL. ALLOW TIME FOR FILTER ELEMENT TO ABSORB HYDRAULIC OIL. REPEAT UNTIL FILTER ELEMENT IS FULL.
4. INSTALL HYDRAULIC RETURN FILTER ELEMENT (2). TIGHTEN HAND TIGHT PLUS 3/4 OF A TURN WITH OIL FILTER REMOVAL TOOL.

**NOTE**

FOLLOW-ON-TASK: Install left access cover per TM 5-3895-373-10.

END OF TASK

2.23.11. ENGINE AND SCREED FUEL SYSTEM BLEED.

This task covers: **a. Bleed engine fuel system** **b. Bleed screed fuel system**

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Crowfoot wrench (Item 62, Appendix E)
Drip pan (Item 28, Appendix E)
Torque wrench (Item 66, Appendix E)
Utility pail (Item 26, Appendix E)

Materials/Parts:

Machinery wiping towels (Item 30, Appendix C)

Personnel Required:

Two 62B construction equipment repairers for engine fuel system bleed. First person required to operate fuel lift pump priming lever while second person loosens fuel system vent points.

References:

TM 5-3895-373-10

Equipment Conditions:

Engine access cover removed per paragraph 2.22
(for engine fuel system bleed).
Front top right access door opened per TM 5-3895-373-10
(for engine fuel system bleed).
Front top left access door opened per TM 5-3895-373-10
(for engine fuel system bleed).
Rear top right access door opened per TM 5-3895-373-10
(for screed fuel system bleed).
Rear top left access door opened per TM 5-3895-373-10
(for screed fuel system bleed).
Toolbox removed per TM 5-3895-373-10 (for screed fuel
system bleed).

GO TO NEXT PAGE

2.23.11. ENGINE AND SCREED FUEL SYSTEM BLEED - Continued.**A. BLEED ENGINE FUEL SYSTEM.****WARNING**

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

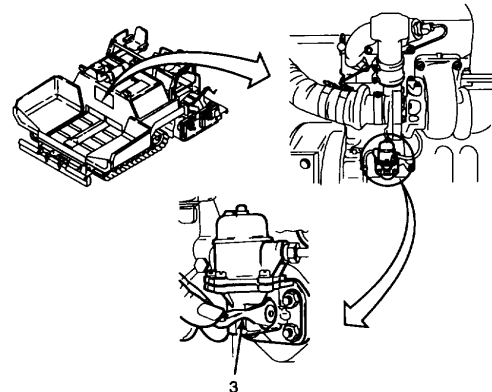
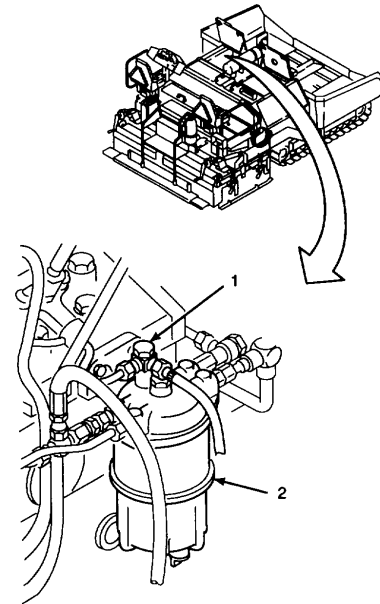
Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

1. LOOSEN FLUID PASSAGE BOLT (1) ON ENGINE FUEL FILTER (2).

NOTE

If the priming lever will not operate, the fuel lift pump lobe on the cam is at top dead center. Rotate the engine by turning radiator fan to move the lobe of the cam from top dead center.

2. OPERATE PRIMING LEVER (3) ON FUEL LIFT PUMP WHILE OBSERVING FUEL FLOW AT FLUID PASSAGE BOLT (1). USE MACHINERY WIPING TOWELS TO CATCH EXCESS FUEL DURING BLEEDING. WHEN FUEL FLOW CONTAINS NO AIR, TIGHTEN FLUID PASSAGE BOLT AND STOP OPERATING PRIMING LEVER.



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A. BLEED ENGINE FUEL SYSTEM - Continued.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

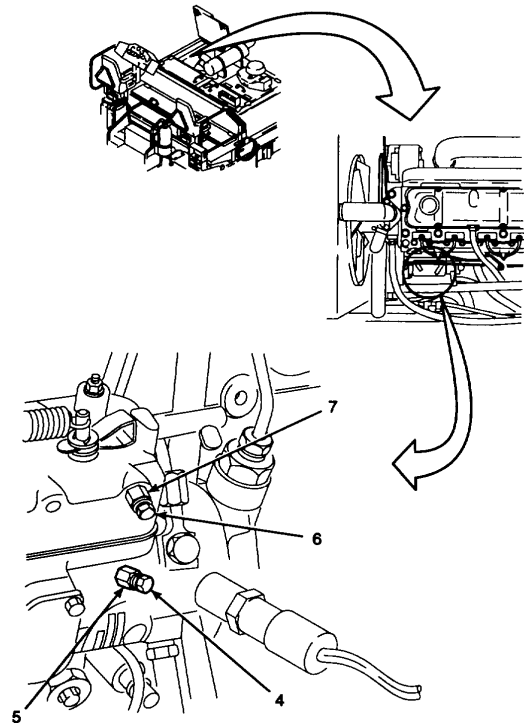
Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

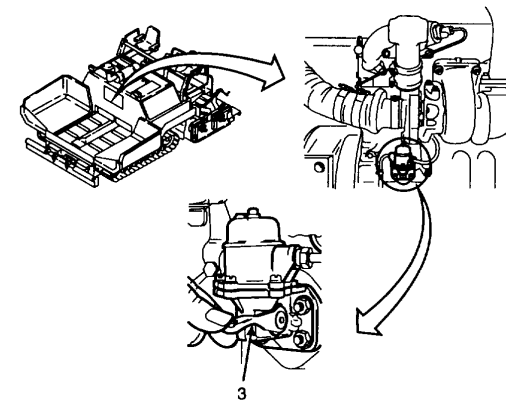
Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.



3. LOOSEN VENT SCREW (4) WHILE HOLDING FLOW RESTRICTOR (5) WITH BACKUP WRENCH. WITH THE HELP OF A SECOND PERSON, OPERATE THE PRIMING LEVER (3) ON FUEL LIFT PUMP WHILE OBSERVING FUEL FLOW AT VENT SCREW. WHEN FUEL FLOW CONTAINS NO AIR, TIGHTEN VENT SCREW AND STOP OPERATING PRIMING LEVER.



4. LOOSEN VENT SCREW (6) WHILE HOLDING FLOW RESTRICTOR (7) WITH BACKUP WRENCH. WITH THE HELP OF A SECOND PERSON, OPERATE THE PRIMING LEVER (3) ON FUEL LIFT PUMP WHILE OBSERVING FUEL FLOW AT VENT SCREW. WHEN FUEL FLOW CONTAINS NO AIR, TIGHTEN VENT SCREW AND STOP OPERATING PRIMING LEVER.

GO TO NEXT PAGE

2.23.11. ENGINE AND SCREED FUEL SYSTEM BLEED - Continued.

A. BLEED ENGINE FUEL SYSTEM - Continued.
WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

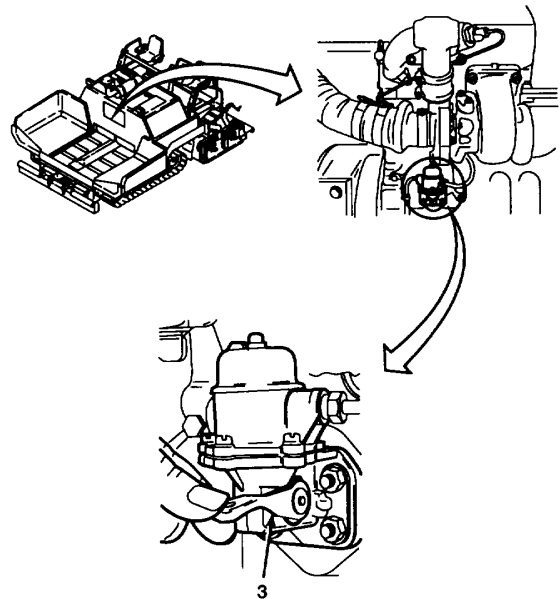
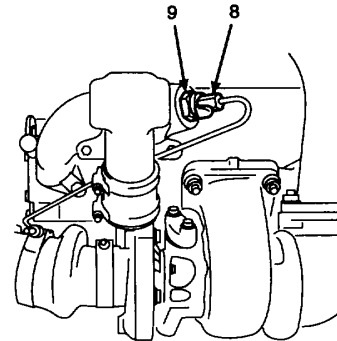
Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

5. LOOSEN TUBE COUPLING NUT (8) ON INDUCTION HEATER (9). OPERATE THE PRIMING LEVER (3) ON FUEL LIFT PUMP UNTIL FUEL WITH NO AIR COMES OUT OF THE FUEL LINE AT TUBE COUPLING NUT. TIGHTEN TUBE COUPLING NUT AND STOP OPERATING PRIMING LEVER.



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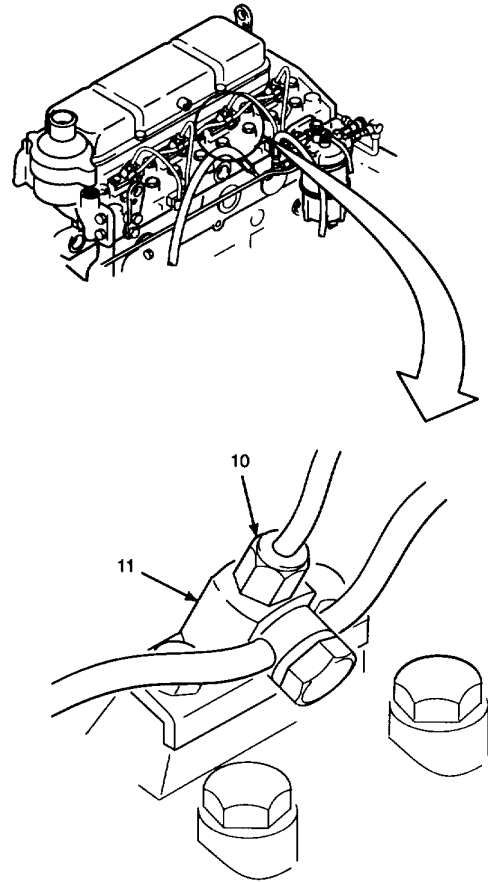
- A. BLEED ENGINE FUEL SYSTEM - Continued.
6. LOOSEN TUBE NUTS (10) AT ANY TWO HIGH PRESSURE FUEL LINES TO FUEL INJECTORS (11).

WARNING

Do not allow tools or other items in the engine compartment when bleeding high pressure fuel lines. Keep clear of radiator fan and rotating pulleys and belts.

When fuel is introduced into the cylinder, it is possible for the engine to start and run while bleeding high pressure fuel lines. If the engine starts, immediately turn the engine to OFF.

7. WITH THE HELP OF ANOTHER PERSON, SET IGNITION SWITCH TO START POSITION PER TM 5-3895-373-10 WHILE WATCHING FOR FUEL FLOW AT LOOSENED TUBE NUTS (10) UNTIL FUEL WITH NO AIR COMES OUT OF BOTH FUEL INJECTOR HIGH PRESSURE FUEL LINES. AS SOON AS FUEL WITH NO AIR IS SEEN, SET IGNITION SWITCH TO OFF POSITION.
8. TIGHTEN TUBE NUTS (10) AT TWO ENGINE FUEL INJECTORS (11) LOOSENED TO BLEED AIR FROM THE FUEL SYSTEM. TIGHTEN, USING A CROWFOOT WRENCH, TO 14 LB-FT (19 N•m).



GO TO NEXT PAGE

2.23.11. ENGINE AND SCREED FUEL SYSTEM BLEED - Continued.

A. BLEED ENGINE FUEL SYSTEM- Continued.**WARNING**

Fuel is very flammable and can explode easily. To avoid serious injury or death:

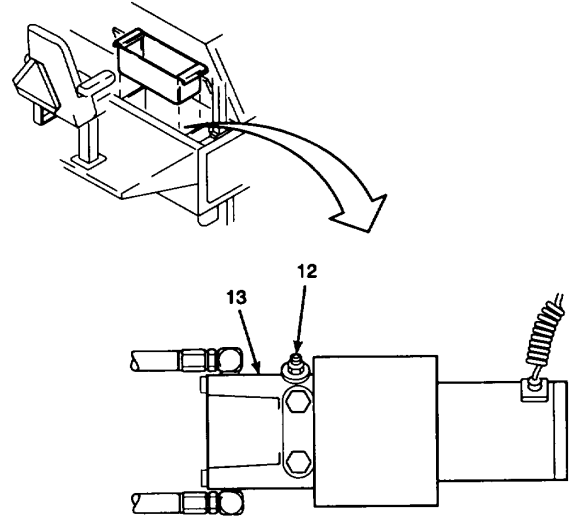
Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.



9. START ENGINE PER TM 5-3895-373-10 AND OPERATE FOR 2 MINUTES WHILE OBSERVING ALL FUEL LINES AND CONNECTIONS FOR FUEL LEAKS. IF FUEL LEAK IS SEEN, REPAIR LEAK AND RECHECK FOR LEAKS.
10. DISPOSE OF MACHINERY WIPING TOWELS IN ACCORDANCE WITH LOCAL PROCEDURES.

B. BLEED SCREED FUEL SYSTEM.

1. OPEN BLEED VALVE (12) ON FUEL PUMP (13).

CAUTION

Do not operate fuel spray system for more than 20 seconds without fuel in fuel pump. Damage to fuel pump will result.

2. PLACE MACHINERY WIPING TOWELS UNDER BLEED VALVE (12). TURN ON FUEL SPRAY WASHDOWN SYSTEM PER TM 5-3895-373-10. AS SOON AS FUEL WITH NO AIR COMES OUT OF FUEL PUMP BLEED VALVE, CLOSE BLEED VALVE. TURN OFF FUEL SPRAY WASHDOWN SYSTEM.

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B. BLEED SCREED FUEL SYSTEM - Continued.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

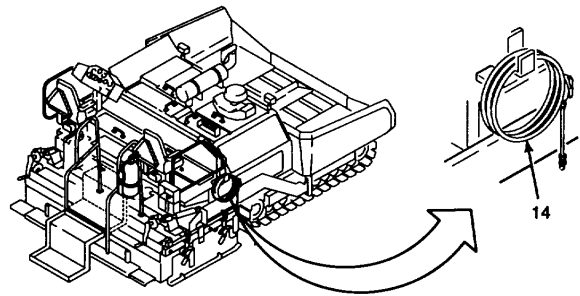
Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

3. ATTACH FUEL SPRAY WAND ASSEMBLY (14) PER TM 5-3895-373-10. OPERATE FUEL SPRAY WASHDOWN SYSTEM INTO UTILITY PAIL UNTIL FUEL WITH NO AIR COMES OUT OF FUEL SPRAY WAND ASSEMBLY. SHUT OFF FUEL SPRAY WASHDOWN SYSTEM.
4. DISCONNECT AND STOW FUEL SPRAY WAND ASSEMBLY (14) PER TM 5-3895-373-10.
5. DISPOSE OF MACHINERY WIPING TOWELS AND WASTE FUEL IN ACCORDANCE WITH LOCAL PROCEDURES.

**NOTE**

FOLLOW-ON-TASKS:

- Install engine access cover per paragraph 2.22 (for engine fuel system bleed).
- Close front top right access door per TM 5-3895-373-10 (for engine fuel system bleed).
- Close front top left access door per TM 5-3895-373-10 (for engine fuel system bleed).
- Close rear top right access door per TM 5-3895-373-10 (for screed fuel system bleed).
- Close rear top left access door per TM 5-3895-373-10 (for screed fuel system bleed).
- Install toolbox per TM 5-3895-373-10 (for screed fuel system bleed).

END OF TASK

2.24. GROUND HANDLING. The following tasks provide approved ground handling procedures for the paving machine. The ground handling procedures remain the same regardless of extreme cold, heat, humidity, or dust.

Ground handling tasks include towing/pushing, jacking (includes cribbing), screed removal and installation, and hoisting.

Screed removal allows easier access to the auger/conveyor and some screed components for maintenance.

2.24.1. TOWING/PUSHING.**This task covers:**

- a. Prepare
- d. Crib
- b. Tow c. Push

INITIAL SETUP:**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)

Chain assembly (Item 9, Appendix E)

Elbow (Item 14, Appendix E)

Screwdriver bit set (Item 37, Appendix E)

Torque wrench (Item 69, Appendix E)

Universal puller kit (Item 31, Appendix E)

References:

TM 5-3895-373-10

Equipment Condition:

Screed raised and locked for travel per TM 5-3895-373-10.

Right access door opened per TM 5-3895-373-10.

Center top right access door open per TM 5-3895-373-10.

Center top left access door open per TM 5-3895-373-10.

Materials/Parts:

Machinery wiping towels (Item 30, Appendix C)

Protective cap (Item 5, Appendix C)

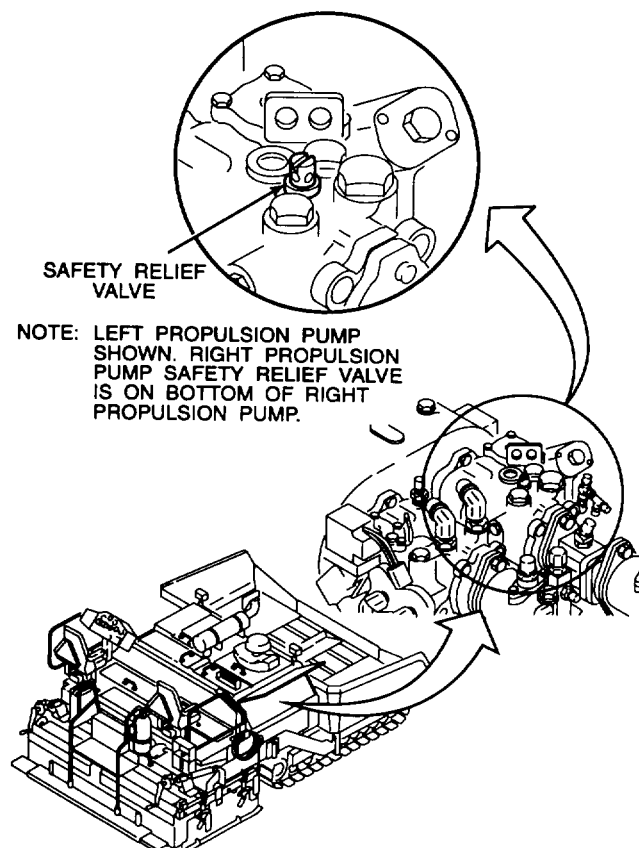
Cribbing

NOTE

The following towing and pushing instructions are provided for loading the paving machine onto a transport trailer. The equipment manufacturer recommends against towing the paving machine over any extended distance. Either procedure is acceptable for loading the paving machine onto an M870 (or equivalent) transport trailer.

A. PREPARE.**1. OPEN PROPULSION PUMP SAFETY RELIEF VALVES.**

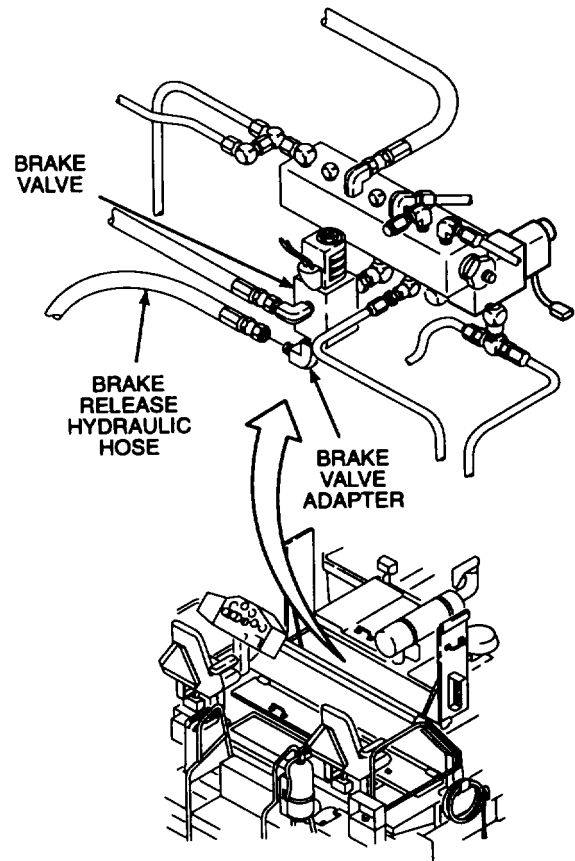
- a. Use screwdriver to open safety relief valves on both propulsion pumps.
- b. Turn safety relief valves one full turn counterclockwise to open.



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2.24.1. TOWING/PUSHING - Continued.**A. PREPARE Continued.****2. RELEASE TRACK DRIVE BRAKES.**

- a. Place machinery wiping towel below brake valve adapter.
- b. Unscrew brake release hydraulic hose from brake valve adapter.
- c. Install protective cap on open brake valve adapter. Dispose of used wiping towel in accordance with local procedures.
- d. Connect outlet of hydraulic pump from universal puller kit to hydraulic hose fitting. Install pressure gauge from universal puller kit on pump.
- e. Pump up brake release pressure to 350 psi (2413 kPa). Maintain brake release pressure until paving machine is towed or pushed onto trailer and tied down.

**B. TOW.****1. TOW PAVING MACHINE ONTO TRAILER.**

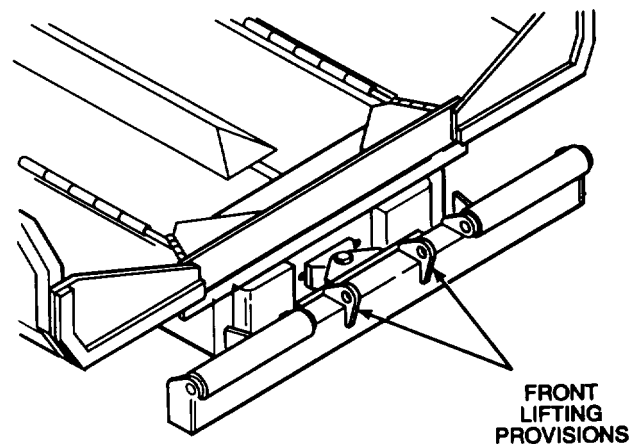
- a. Line up M870 or equivalent transport trailer with front of paving machine. Make sure trailer is level and on firm ground.
- b. Chock front and rear tires on both sides of transport trailer.

The paving machine weighs 21,000 pounds (9534 kg). Tow chain or cable must be capable of safely pulling the paving machine up the trailer incline. Failure to use adequate towing equipment may result in serious injury or death to personnel.

Exercise extreme care when working near a cable or chain under tension. Keep all personnel at an assured clear distance. The whiplash of a broken cable or chain can cause serious injury or death to personnel.

c. Connect chain assembly or cable to front lifting provisions of paving machine.

d. Pull paving machine squarely onto transport trailer with suitable winch or towing vehicle.



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B. TOW Continued.

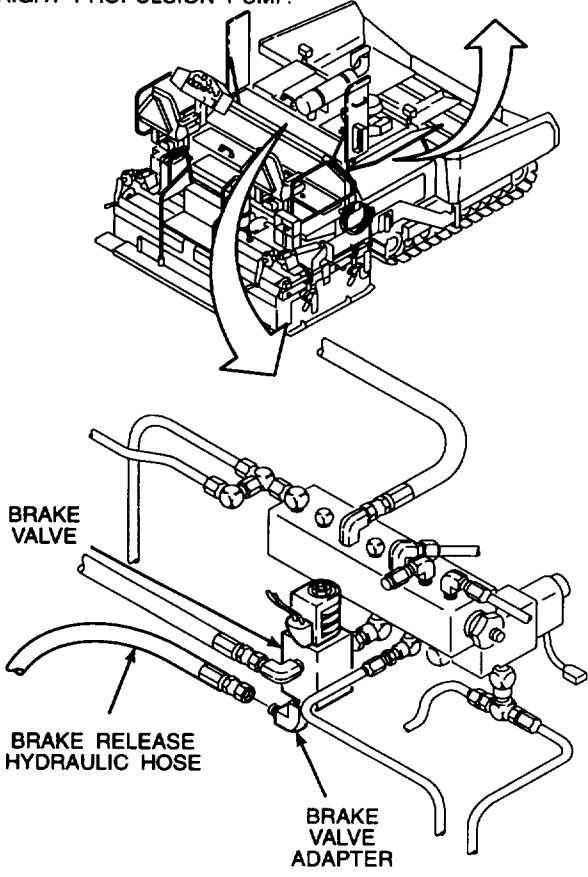
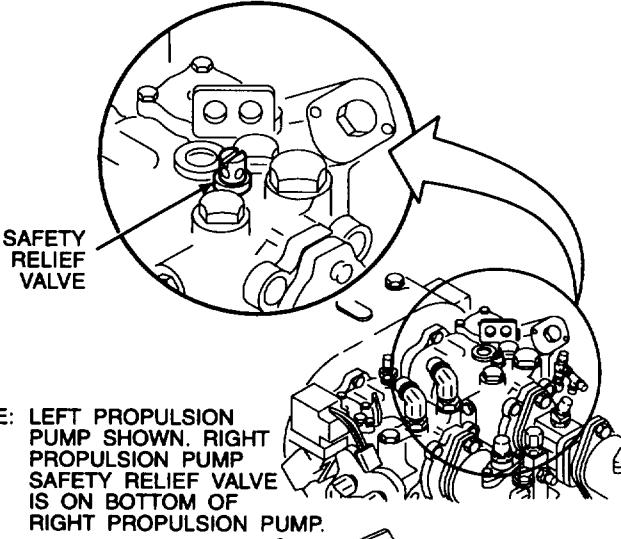
2. RECONNECT TRACK DRIVE BRAKES.

- a. When paving machine is loaded on trailer and ready for transport, relieve brake release pump pressure, disconnect manual hydraulic pump, and reconnect brake release hydraulic hose to brake valve adapter.
- b. Use torque wrench with screwdriver bit to close safety relief valves. Tighten safety relief valves to 102 lb-in (11,5 N•m).

C. PUSH.

1. PUSH PAVING MACHINE ONTO TRAILER.

- a. Line up M870 or equivalent transport trailer with rear of paving machine. Make sure trailer is level and on firm ground.
- b. Chock front and rear tires on both sides of transport trailer.



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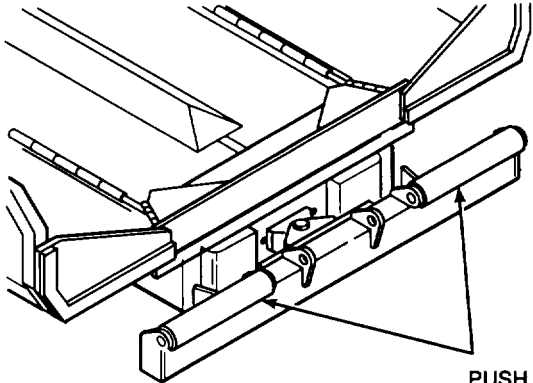
2.24.1. TOWING/PUSHING - Continued.

C. PUSH Continued.



Do not push or pull paving machine from rear. Pushing or pulling on screed at rear of paving machine will cause severe damage to screed components.

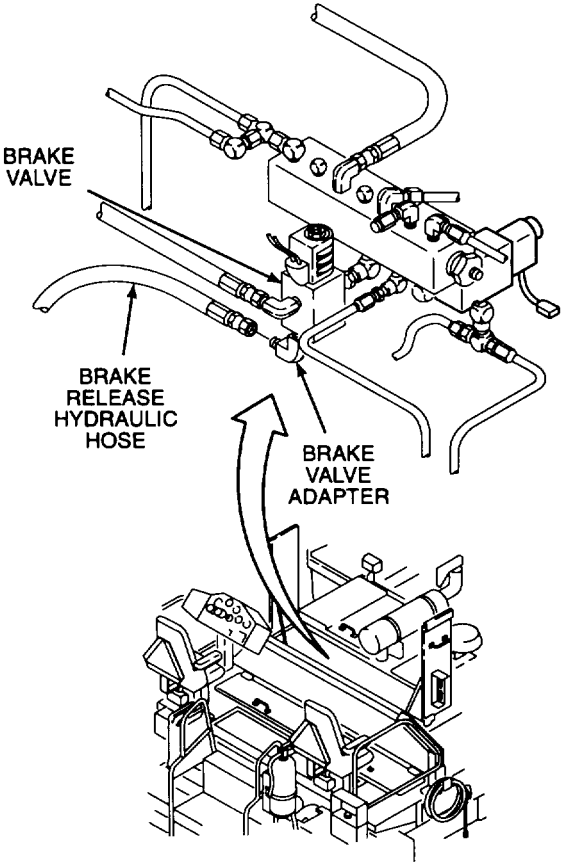
- c. Use suitable vehicle to push on paving machine push rollers. Push paving machine squarely onto transport trailer.



PUSH ROLLERS

2. RECONNECT TRACK DRIVE BRAKE.

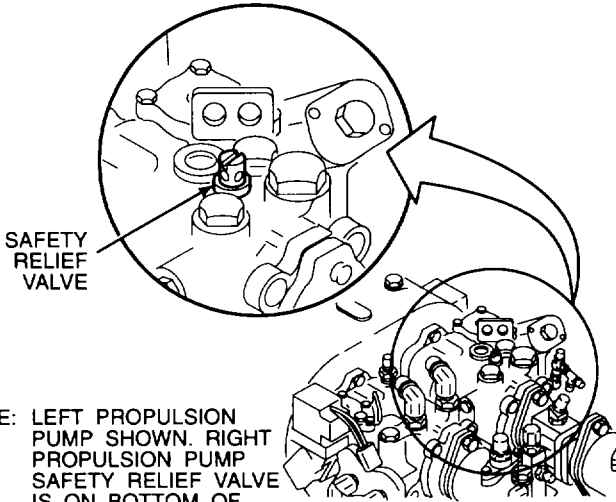
- a. When paving machine is loaded on trailer and ready for transport, relieve brake release pump pressure and disconnect manual hydraulic pump.
- b. Reconnect brake release hydraulic hose to brake valve adapter.
- c. Use torque wrench with screwdriver kit to close safety relief valves. Tighten safety relief valves to 102 lb-in (1 1,5 N•m).



BRAKE VALVE

BRAKE RELEASE HYDRAULIC HOSE

BRAKE VALVE ADAPTER



SAFETY RELIEF VALVE

NOTE: LEFT PROPULSION PUMP SHOWN. RIGHT PROPULSION PUMP SAFETY RELIEF VALVE IS ON BOTTOM OF RIGHT PROPULSION PUMP.

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D. CRIB.**1. CRIB SCREED.****CAUTION**

Main and extension screeds must be supported evenly and securely during transport. Failure to properly support screed may cause screed plate warpage or other equipment damage.

- a. Place cribbing materials of equal height under opposite ends of main and extension screeds. To avoid screed damage, cribbing must evenly support the main and extension screeds.

CAUTION

Open screed travel lock valve very slowly to ease raised screed onto cribbing. Dropping screed quickly may cause equipment damage.

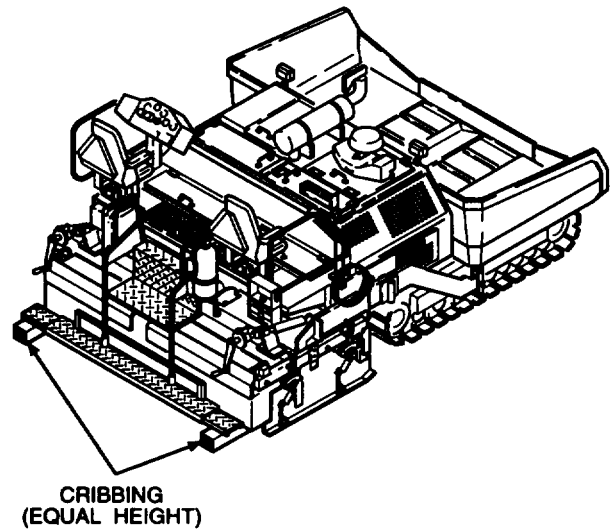
NOTE

Opening screed travel lock valve will not lower screed unless ignition switch is in RUN position and screed lift switch is in DOWN position.

- b. Turn ignition switch on operator control console to RUN position. Place screed lift switch in down, FLOAT position. Refer to TM 5-3895-373-10.
- c. Slowly open screed travel lock valve and ease screed onto cribbing.
- d. Turn screed lift switch off and turn ignition switch to OFF and remove key from ignition switch per TM 53895-373-10.

2. CHOCK FRONT AND REAR OF BOTH DRIVE TRACKS.**NOTE**

FOLLOW-ON-TASKS: Close right access door per TM 5-3895-373-10.
Close center top left access door per TM 5-3895-373-10.
Close center top right access door per TM 5-3895-373-10.
Prepare for shipment per paragraph 2.26.

END OF TASK

2.24.2. JACKING AND CRIBBING.

- This task covers:
- a. Jacking and cribbing for non-track maintenance.
 - b. Remove cribbing and lower after non-track maintenance.
 - c. Jacking and cribbing for track maintenance.
 - d. Remove cribbing and lower after track maintenance.
-

INITIAL SETUP

Tools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Cribbing (Item 2, Appendix D) 2 ea
(for track maintenance)
Hydraulic jack (Item 24, Appendix E)

Materials/Parts:

Cribbing, 4 in. (102 mm) x 12 in. (305 mm) x 8 ft (2,4 m),
2 ea
Cribbing, 9 in. (228,6 mm) x 14 in. (355,6 mm) x 16 in.
(406,4 mm), 2 ea (for track maintenance)
Cribbing, 9 in. (228,6 mm) x 14 in. (355,6 mm) x 16 in.
(406,4 mm), 2 ea (for non-track maintenance) (Item 2,
Appendix D)
Cribbing, 9 in. (228,6 mm) x 14 in. (355,6 mm) x 3 ft (0,9 m),
4 ea (for non-track maintenance)

Equipment Condition:

Screed raised per TM 5-3895-373-10.
Screed travel lock valve closed per TM 5-3895-373-10.

WARNING

Paving machine weighs approximately 21,400 lbs (9707 kg). Ensure machine is securely supported before performing any maintenance. Severe personal injury or death may occur from not supporting machine adequately prior to maintenance.

A. JACKING AND CRIBBING FOR NON-TRACK MAINTENANCE.

NOTE

Paving machine may be driven up on 4 in. high x 12 in. wide x 8 ft long cribbing. Go to step 2.

If using single point overhead lift per paragraph 2.24.4, go to step 2.b and steps 2.e through 2.k.

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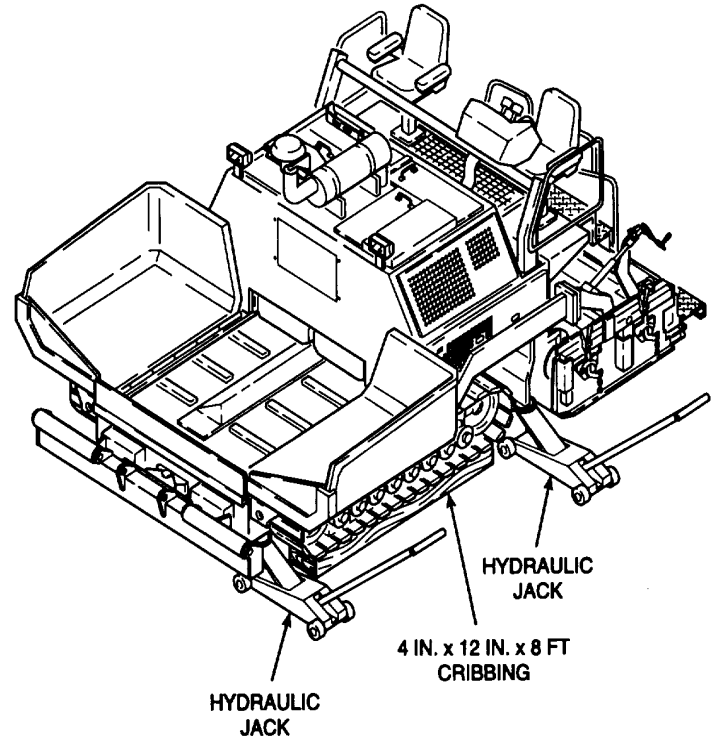
A. JACKING AND CRIBBING FOR NONTRACK MAINTENANCE Continued.

1. RAISE AND CRIB PAVING MACHINE ON 4 IN. CRIBBING.

NOTE

During these steps, one side of the paving machine is raised at a time.

- a. Move paving machine to level concrete pad. If concrete pad is not available, use steel plates to distribute jack loads over larger area.
- b. Position jacks under frame at rear of paving machine and under tiedown at front of paving machine.
- c. Evenly raise one side of paving machine and position 4 in. x 12 in. x 8 ft cribbing under paving machine track.
- d. Lower weight of paving machine onto cribbing.
- e. Raise other side of paving machine by placing jacks under frame at rear of paving machine and under tiedown at front of paving machine.
- f. Evenly raise other side of paving machine and position 4 in. x 12 in. x 8 ft cribbing under paving machine track.
- g. Lower weight of paving machine onto cribbing.

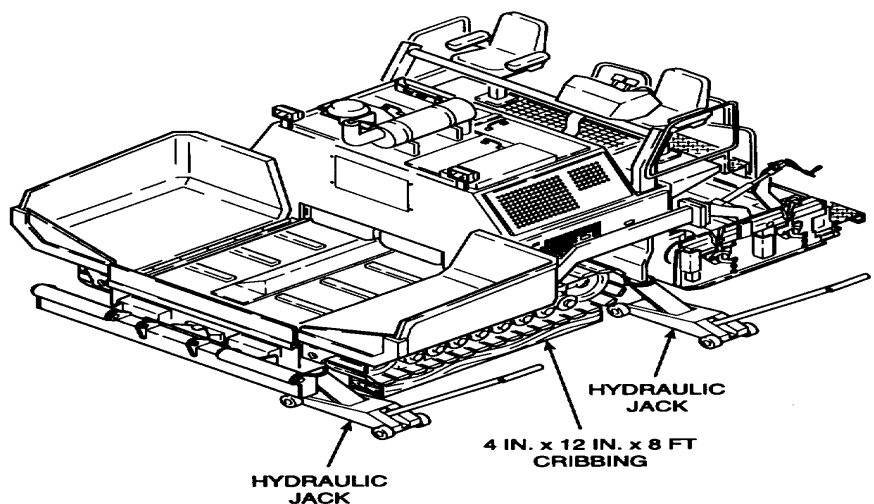


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2.24.2. JACKING AND CRIBBING - Continued.**A. JACKING AND CRIBBING FOR NON-TRACK MAINTENANCE Continued.****2. RAISE AND CRIB PAVING MACHINE ON 14 IN. CRIBBING.****NOTE**

During these steps, one side of the paving machine is raised at a time.

- a. Position jacks under frame at rear of paving machine and under frame at front of paving machine.
- b. Evenly raise one side of paving machine. Remove 4 in. x 12 in. x 8 ft cribbing and position 9 in. x 14 in. x 3 ft cribbing under paving machine track.
- c. Lower weight of paving machine onto cribbing.
- d. Raise other side of paving machine by placing jacks under frame at rear of paving machine and under frame at front of paving machine.
- e. Evenly raise other side of paving machine. Remove 4 in. x 12 in. x 8 ft cribbing and position 9 in. x 14 in. x 3 ft cribbing under paving machine track.
- f. Lower weight of paving machine onto cribbing.
- g. Position cribbing under both ends of main screed.
- h. Place the ignition switch to the RUN position and place the screed lift switch to the down, FLOAT position. Refer to TM 5-3895-373-10.



A. JACKING AND CRIBBING FOR NONTRACK MAINTENANCE Continued.

WARNING

Do not open screed travel lock valve if anyone is near or under the screed. The screed can fall rapidly when the screed travel lock valve is opened. The falling screed can cause severe injury or death.

- i. Slowly open the screed travel lock valve and ease the weight of the screed onto the cribbing. Refer to TM 5-3895-373-10.
- j. Fully close the screed travel lock valve.
- k. Place ignition switch to the STOP position and remove the ignition key. Refer to TM 53895-373-10.

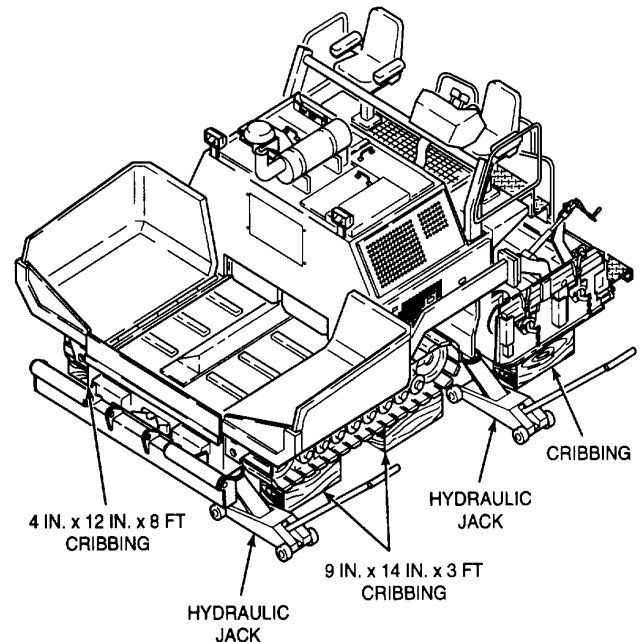
B. REMOVE CRIBBING AND LOWER AFTER NON-TRACK MAINTENANCE.

NOTE

If using single point overhead lift per paragraph 2.24.4, go to step 1.a through 1.e.

1. REMOVE 9 IN. X 14 IN. X 3 FT CRIBBING AND LOWER PAVING MACHINE.

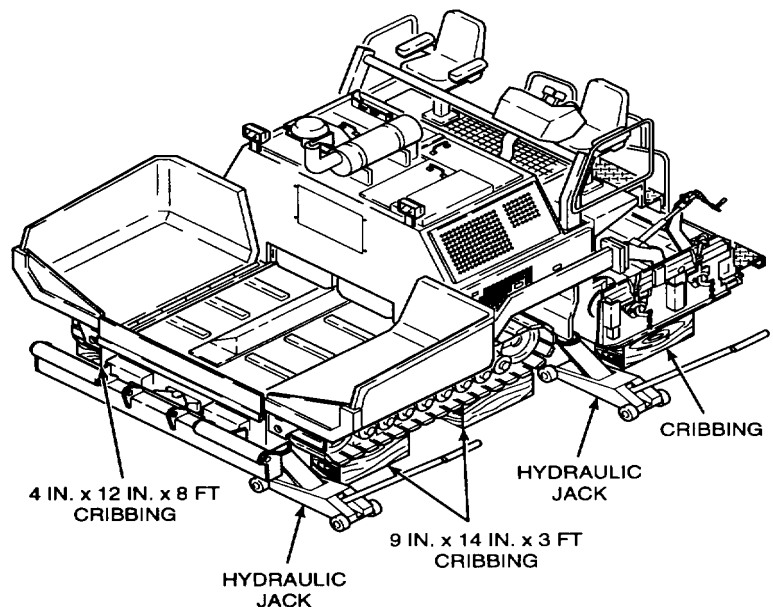
- a. Start paving machine per TM 5-3895-373-10.
- b. Place throttle control switch to MAX position.
- c. Place screed lift switch to the up, RAISE position. Fully raise screed. Refer to TM 53895-373-10.
- d. Shut down paving machine per TM 5-3895373-10.



GO TO NEXT PAGE

2.24.2. JACKING AND CRIBBING - Continued.**B. REMOVE CRIBBING AND LOWER AFTER NON TRACK MAINTENANCE** Continued.

- e. Remove cribbing from under screed (and from under paving machine frame if using single point overhead lift. Lower paving machine onto ground.)
- f. Position jacks under frame at rear of paving machine and under frame at front of paving machine.
- g. Evenly raise one side of paving machine. Remove 9 in. x 14 in. x 3 ft cribbing and position 4 in. x 12 in. x 8 ft cribbing under paving machine track.
- h. Lower weight of paving machine onto cribbing.
- i. Raise other side of paving machine by positioning jacks under frame at front of paving machine and under frame at rear of paving machine.
- j. Remove 9 in. x 14 in. x 3 ft cribbing and position 4 in. x 12 in. x 8 ft cribbing under paving machine track.
- k. Lower weight of paving machine onto cribbing.

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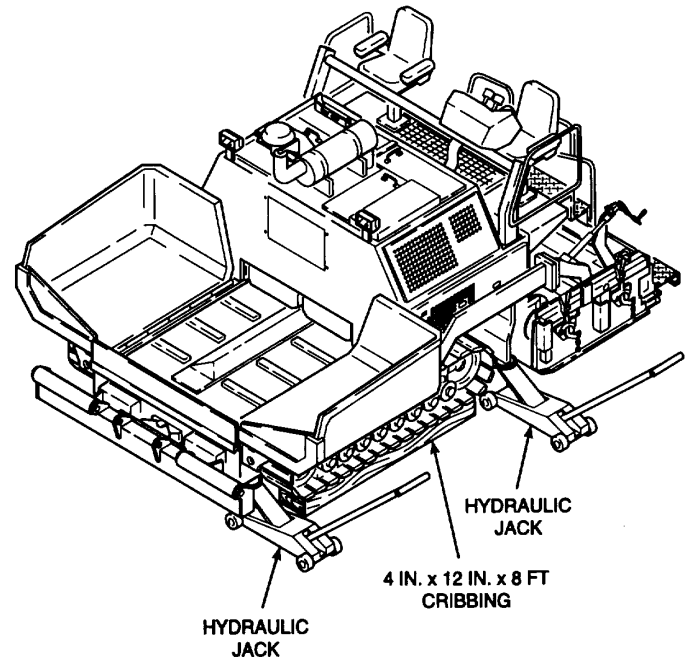
B. REMOVE CRIBBING AND LOWER AFTER NONTRACK MAINTENANCE Continued.

2. REMOVE 4 IN. X 12 IN. X 8 FT CRIBBING AND LOWER PAVING MACHINE.

NOTE

Paving machine may be driven off of 4 in. x 12 in. x 8 ft cribbing.

- a. Position jacks under frame at rear of paving machine and under tiedown at front of paving machine.
- b. Evenly raise side of paving machine. Remove 4 in. x 12 in. x 8 ft cribbing from under paving machine track.
- c. Lower weight of paving machine onto ground.
- d. Raise other side of paving machine by positioning jacks under frame at rear of paving machine and under tiedown at front of paving machine.
- e. Evenly raise side of paving machine. Remove 4 in. x 12 in. x 8 ft cribbing from under paving machine track.
- f. Lower weight of paving machine onto ground.



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2.24.2. JACKING AND CRIBBING Continued.**C. JACKING AND CRIBBING FOR TRACK MAINTENANCE.****WARNING**

Paving machine weighs approximately 21,400 lbs (9707 kg). Ensure machine is securely supported before performing any maintenance. Severe personal injury or death may occur from not supporting machine adequately prior to maintenance.

NOTE

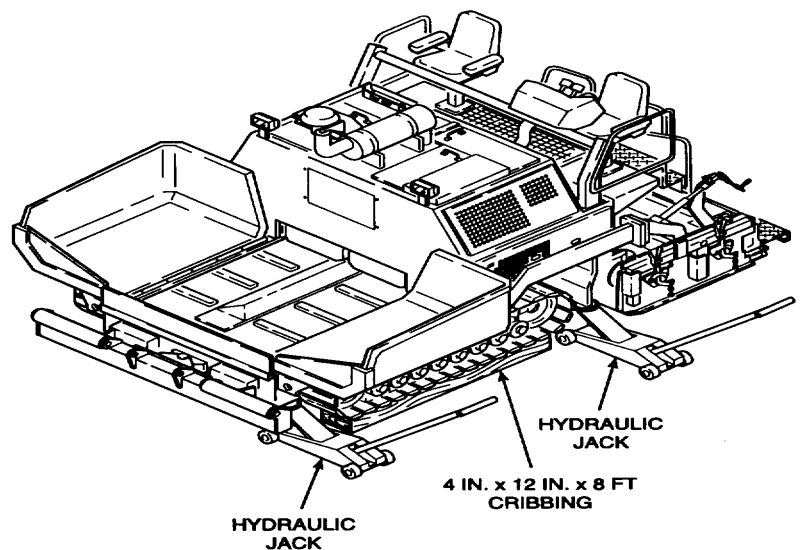
Paving machine may be driven up on 4 in. high x 12 in. wide x 8 ft long cribbing; go to step 2.

If using single point overhead lift per paragraph 2.24.4, go to step 2.b and steps 2.e through 2.k.

1. RAISE AND CRIB PAVING MACHINE ON 4 IN. CRIBBING.**NOTE**

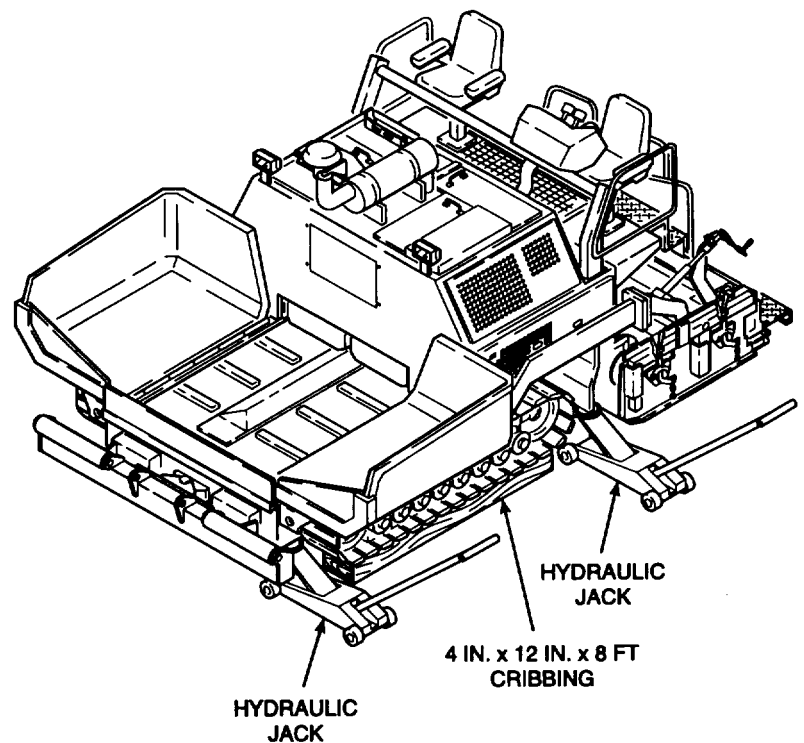
During these steps, one side of paving machine is raised at a time.

a. Move paving machine to level concrete pad. If concrete pad is not available, use steel plates to distribute jack load over larger area.

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C. JACKING AND CRIBBING FOR TRACK MAINTENANCE - Continued.

- b. Position jacks under frame at rear of paving machine and under tiedown at front of paving machine.
- c. Evenly raise one side of paving machine and position 4 in. x 12 in. x 8 ft cribbing under paving machine track.
- d. Lower weight of paving machine onto cribbing.
- e. Raise other side of paving machine by positioning jacks under frame at rear of paving machine and under tiedown at front of paving machine.
- f. Evenly raise other side of paving machine and position 4 in. x 12 in. x 8 ft cribbing under paving machine track.
- g. Lower weight of paving machine onto cribbing.



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2.24.2. JACKING AND CRIBBING - Continued.**C. JACKING AND CRIBBING FOR TRACK MAINTENANCE Continued.****2. RAISE AND CRIB PAVING MACHINE ON 14 IN. CRIBBING.****NOTE**

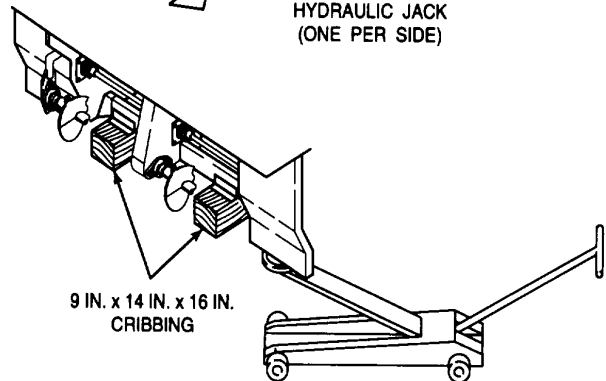
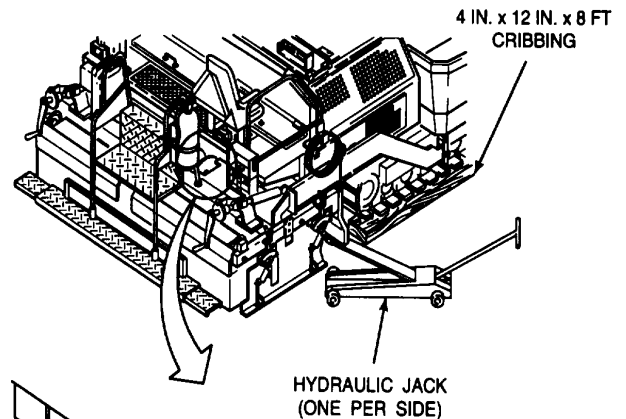
During these steps, the rear of the paving machine is raised, then the front is raised.

- a. Place both jacks under frame at rear of paving machine.



Ensure cribbing is positioned under frame of paving machine with stop tight against rear of paving machine frame. Failure to correctly position cribbing can cause damage to the propulsion motors, gearbox, or auger flights.

- b. Evenly raise rear of paving machine and position 9 in. x 14 in. x 16 in. cribbing (Item 2, Appendix D) under rear of paving machine with short end under frame with stop tight against frame. Rear of cribbing should be clear of augers.
- c. Lower weight of paving machine onto cribbing.



NOTE: SCREED REMOVED FOR CLARITY

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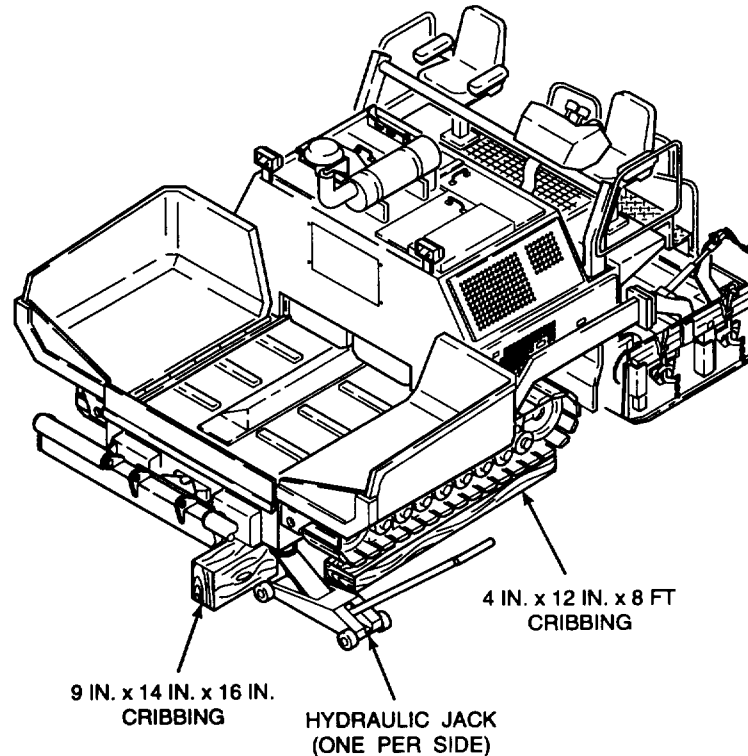
C. JACKING AND CRIBBING FOR TRACK MAINTENANCE Continued.

- d. Raise front of paving machine by placing jacks under frame at front of paving machine.
- e. Evenly raise front of paving machine. Remove 4 in. x 12 in. x 8 ft cribbing and position 9 in. x 14 in. x 3 ft cribbing under paving machine frame.
- f. Lower weight of paving machine onto cribbing.
- g. Position cribbing under both ends of main screed.
- h. Place the ignition switch to the RUN position and place the screed lift switch to the down, FLOAT position. Refer to TM 5-3895-373-10.

WARNING

Do not open screed travel lock valve if anyone is near or under the screed. The screed can fall rapidly when the screed travel lock valve is opened. The falling screed can cause severe injury or death.

- i. Slowly open the screed travel lock valve and ease the weight of the screed onto the cribbing. Refer to TM 5-3895-373-10.
- j. Fully close the screed travel lock valve.
- k. Place ignition switch to the OFF position and remove the ignition key. Refer to TM 5-3895373-10.



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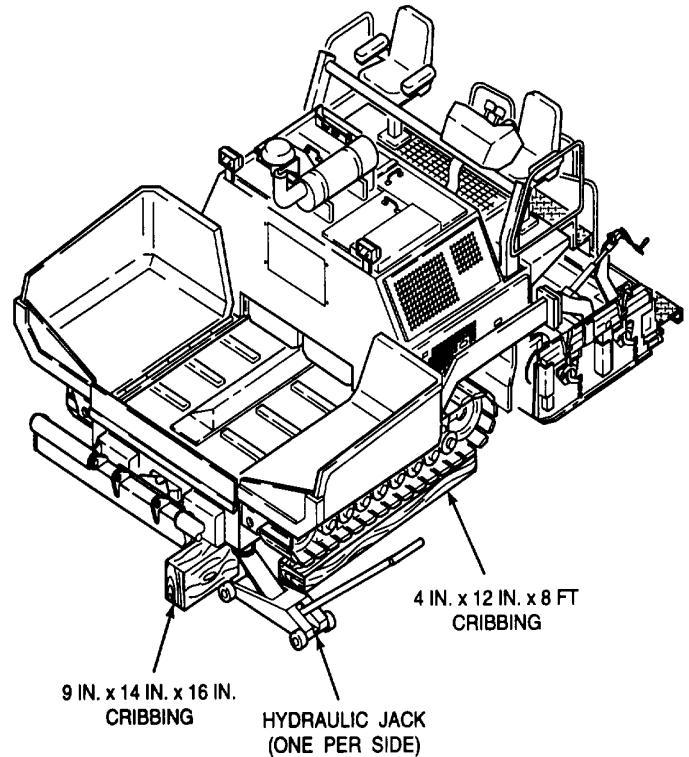
2.24.2. JACKING AND CRIBBING - Continued.**D. REMOVE CRIBBING AND LOWER AFTER TRACK MAINTENANCE.****NOTE**

If using single point overhead lift per paragraph 2.24.4, go to steps 1.a through 1.e, 1.h, 1.1, and 1.m.

If using end lift per paragraph 2.24.4, go to steps 1.a through 1.e, raise front of paving machine and go to steps 1.h and 1.i. Raise rear of paving machine and go to steps 1.1 and 1.m.

1. REMOVE 9 IN. x 14 IN. x 3 FT CRIBBING AND LOWER PAVING MACHINE.

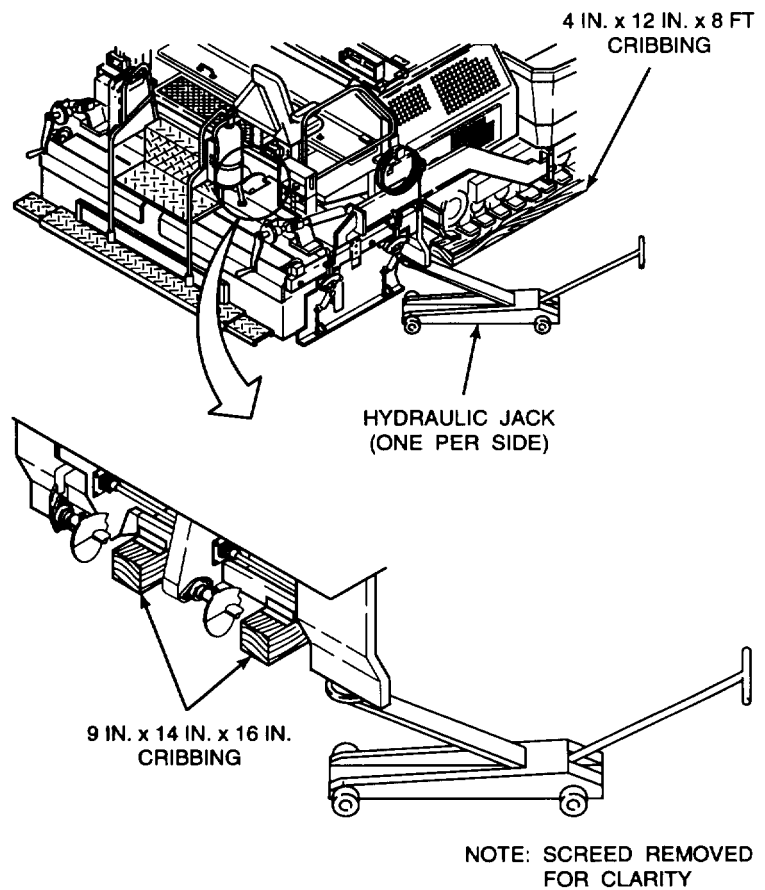
- a. Start paving machine per TM 5-3895-373-10.
- b. Place throttle control switch to MAX position.
- c. Place screed lift switch to the up, RAISE position. Fully raise screed. Refer to TM 53895-373-10.
- d. Shut down paving machine per TM 5-3895373-10.
- e. Remove cribbing from under screed.
- f. Position 4 in. x 12 in. x 8 ft cribbing under both paving machine tracks.
- g. Position both jacks under frame at front of paving machine.
- h. Evenly raise front of paving machine. Remove 9 in. x 14 in. x 3 ft cribbing.
- i. Lower weight of paving machine onto cribbing (or to the ground if using overhead lift).



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D. REMOVE CRIBBING AND LOWER AFTER TRACK MAINTENANCE Continued.

- j. Raise rear of paving machine by placing jacks under frame at rear of paving machine.
- k. Evenly raise rear of paving machine.
- l. Remove cribbing (Item 2, Appendix D) from under paving machine frame.
- m. Lower weight of paving machine onto cribbing (or to the ground if using overhead lift).



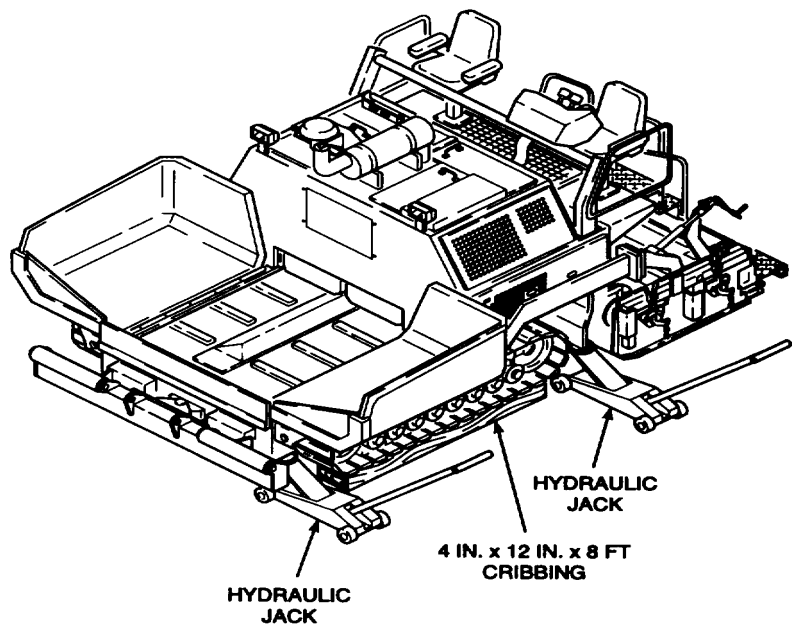
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2.24.2. JACKING AND CRIBBING - Continued.

D. REMOVE CRIBBING AND LOWER AFTER TRACK MAINTENANCE Continued.**2. REMOVE 4 IN. X 12 IN. X 8 FT CRIBBING AND LOWER PAVING MACHINE.****NOTE**

Paving machine may be driven off of 4 in. x 12 in. x 8 ft cribbing.

- a. Position jacks under frame at rear of paving machine and under tiedown at front of paving machine.
- b. Evenly raise side of paving machine. Remove 4 in. x 12 in. x 8 ft cribbing from under paving machine track.
- c. Lower weight of paving machine onto ground.
- d. Raise other side of paving machine by positioning jacks under frame at rear of paving machine and under tiedown at front of paving machine.
- e. Evenly raise side of paving machine. Remove 4 in. x 12 in. x 8 ft cribbing from under paving machine track.
- f. Lower weight of paving machine onto ground.



END OF TASK

2.24.3. SCREED REMOVAL AND INSTALLATION.

This task covers: a. Remove b. Install

INITIAL SETUPTools:

General mechanic's automotive tool kit
 (Item 54, Appendix E)
 Crowbars, 2 ea (Item 11, Appendix E)
 Drip pan (Item 28, Appendix E)
 High pressure caps, 2 ea (Item 8, Appendix E)
 Screwdriver bit set (Item 37, Appendix E)
 Torque wrench (Item 68, Appendix E)

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
 Electrical insulating compound (Item 11, Appendix C)
 Hydraulic fitting sealant (Item 21, Appendix C)
 Lint-free cloth (Item 8, Appendix C)
 Machinery wiping towel (Item 30, Appendix C)
 Tags (Item 27, Appendix C)
 Thread locking compound (Item 12, Appendix C)
 Thread locking compound solvent (Item 25, Appendix C)
 Tie wraps (Item 29, Appendix C)
 Protective caps (Item 5, Appendix C)

Personnel Required:

Three 62B construction equipment repairers. Additional persons needed to hold drip pan, to help remove and install screed lift clevis pins, and to act as spotters for driving tractor away from and toward screed.

References:

TM 5-3895-373-10

Equipment Condition:

Screed lowered onto level concrete or asphalt surface per

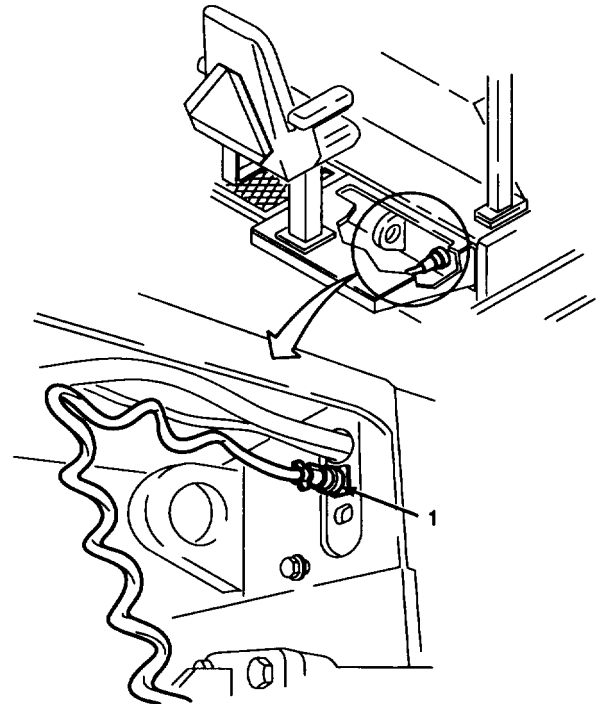
TM 5-3895-373-10.

NOTE

Disconnection procedure for left hand and right hand feed limit switch harness connectors is the same. Right hand feed limit switch harness connector is shown in this procedure.

A. REMOVE.**1. UNPLUG SCREED HARNESS CONNECTORS.**

- a. Unscrew and unplug feed limit switch harness connectors (1) from left and right hand sides of tractor bulkhead.



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2.24.3. SCREED REMOVAL AND INSTALLATION - Continued.**A. REMOVE Continued.**

- b. Unscrew and unplug screed harness plug (2) from center of tractor bulkhead.

2. DISCONNECT SCREED FUEL AND HYDRAULIC HOSES.**WARNING**

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

WARNING

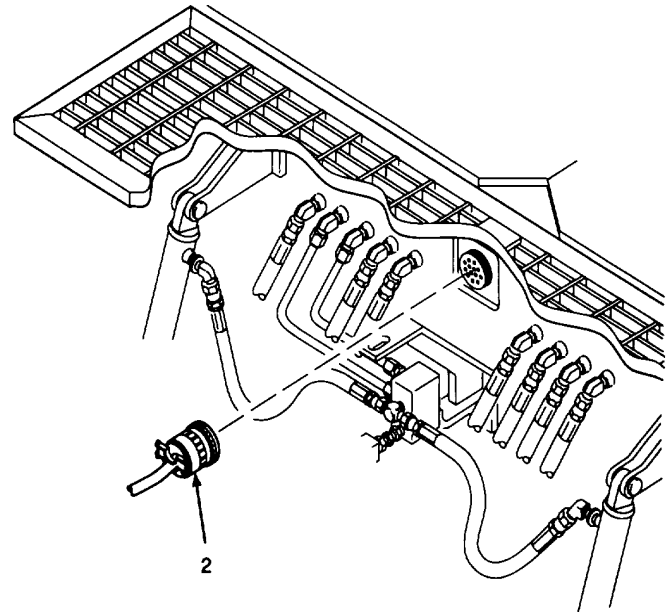
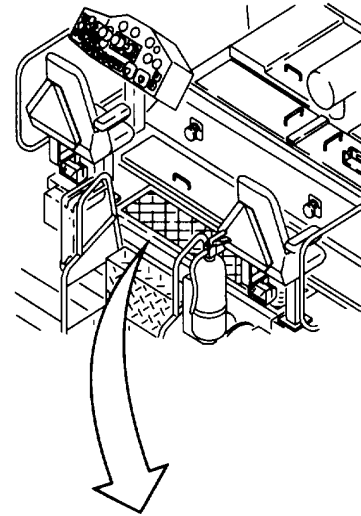
Hydraulic oil under pressure can penetrate skin or damage eyes. To avoid severe injury or loss of limb: Wear safety goggles for protection.

Place folded machinery wiping towel over fitting when loosening.

Slowly open fitting and allow hydraulic oil pressure to bleed off before removing.

If hydraulic oil enters skin or eye, get immediate medical attention.

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.



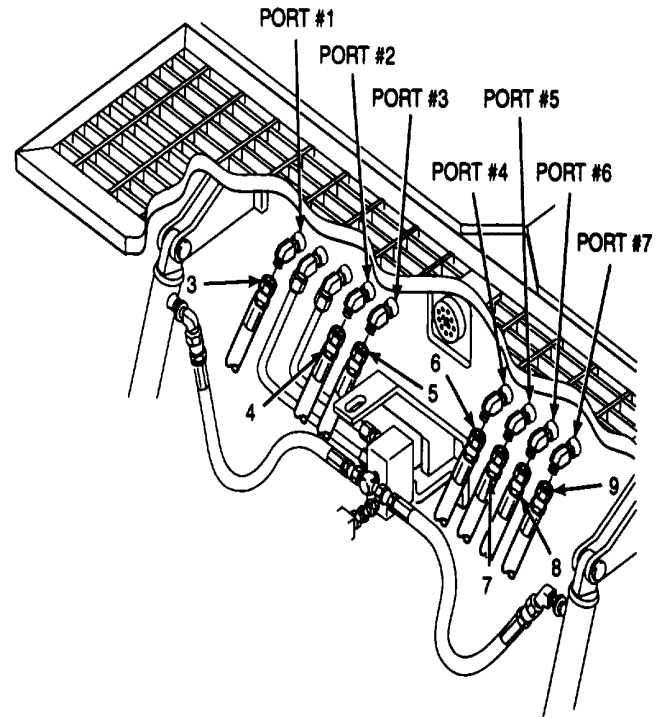
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A. REMOVE - Continued.

CAUTION

Thoroughly clean hydraulic hoses and fittings before disconnecting. Always plug or cap off disconnected fittings to prevent intrusion of contaminants. Failure to properly clean and cap off connectors may result in hydraulic system contamination and equipment damage.

- a. Wipe all dirt and dust from fittings with cleaning cloths. Tag screed burner fuel hose (3) and hydraulic hoses.
- b. Hold drip pan below screed burner fuel hose (3) and disconnect hose. Drain fuel from hose into drip pan. Dispose of fuel in accordance with local procedures.
- c. Plug fuel hose (3) and cap mating port #1 elbow with protective caps.
- d. While another person holds drip pan to collect hydraulic oil, disconnect hydraulic hoses (4 through 9). Drain oil from hose into drip pan. Dispose of oil in accordance with local procedures.
- e. Plug hoses (4 through 9) and cap elbows at ports #2 through #5 with protective caps.

**CAUTION**

Ports #6 and #7 have a continuous high pressure flow of hydraulic oil when paving machine is running. Elbows at ports #6 and #7 must be capped with #6 JIC high pressure caps before paving machine is started.

- f. Cap elbows at ports #6 and #7 with 9/16-18 UNF (#6 JIC) high pressure caps. Tighten high pressure caps.

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2.24.3. SCREED REMOVAL AND INSTALLATION - Continued. ,.

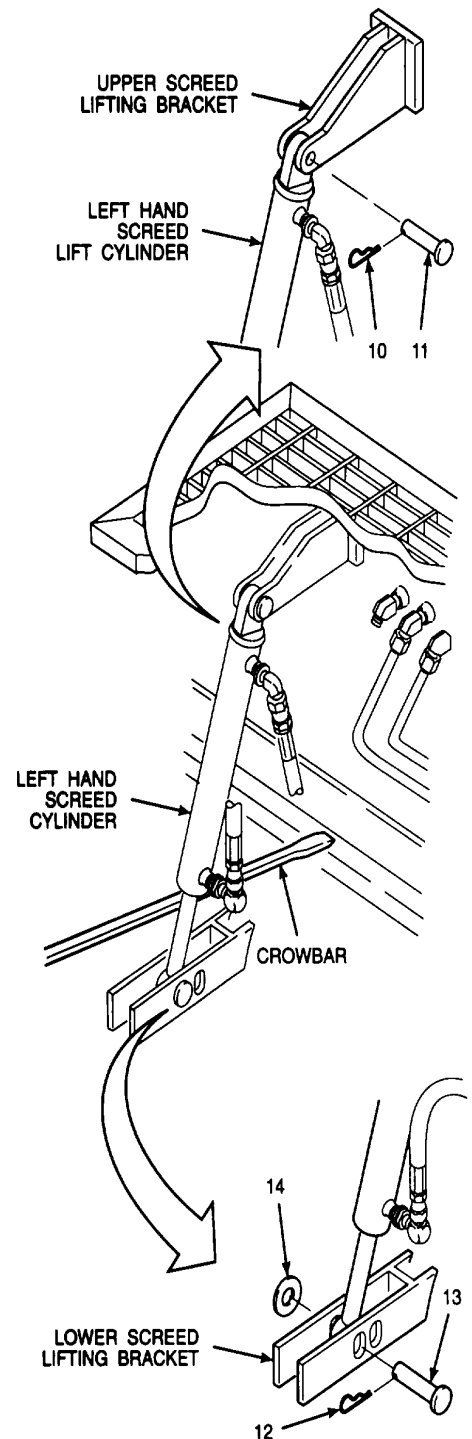
A. REMOVE - Continued.

NOTE

Disconnection procedure for left hand and right hand screed lift cylinders is the same. Left hand screed lift cylinder is shown in this procedure.

3. DISCONNECT SCREED LIFT CYLINDERS.

- a. Check that screed vibrator, extension screed control, and burner fuel pump switches are turned to the OFF position at operator switch panel and screed control panels per TM 5-3895-373-10.
- b. Pull lock pins (10) from left hand and right hand screed lift cylinders.
- c. Start up paving machine and place screed lift switch in down, FLOAT position per TM 5-3895-373-10.
- d. While another person uses crowbar to pry up on cylinder tube of each screed lift cylinder, remove clevis pins (11).
- e. Place screed lift switch in up, RAISE position and partially retract cylinders. Leave cylinder piston rods extended 6 to 8 in. (150 to 200 mm).
- f. Shut off engine and remove key from ignition switch per TM 5-3895-373-10.
- g. Note which pin slot (front or back) is being used in lower screed lifting bracket. While lifting up on the screed lift cylinder have another person pull lock pins (12), clevis pins (13), and flat washers (14).



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A. REMOVE - Continued.

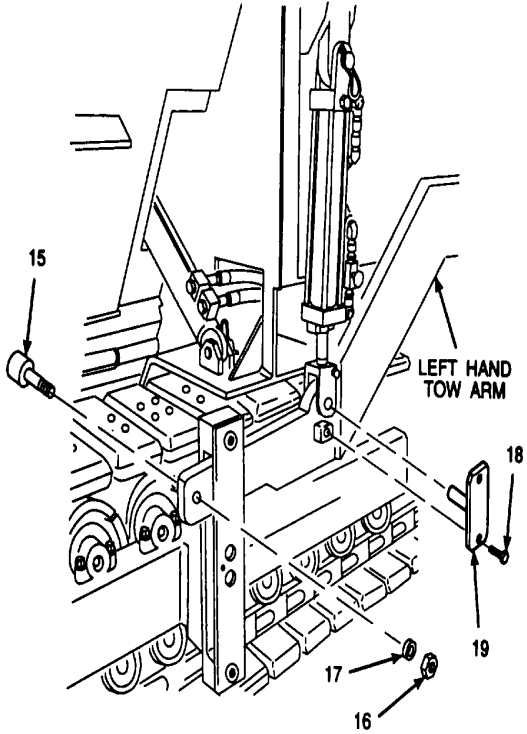
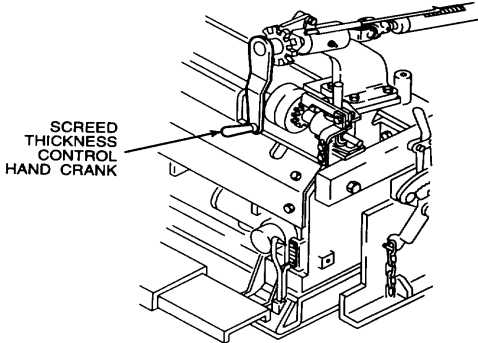
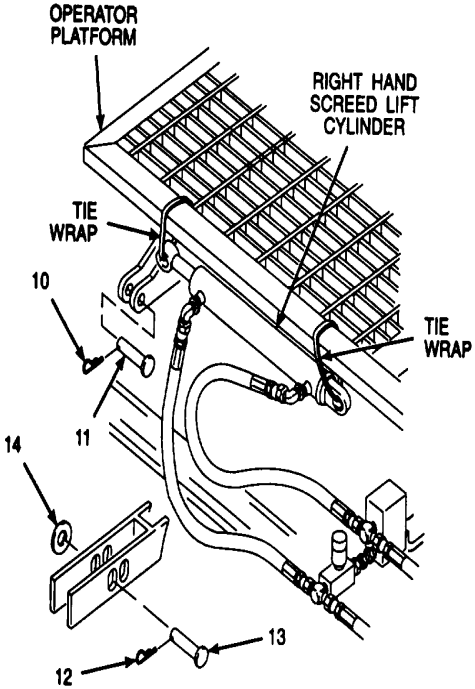
- h. Use tie wraps to suspend screed lift cylinders from grating of operator platform. Secure both ends of each cylinder.
- i. Reinstall clevis pins (11 and 13), lock pins (10 and 12), and flat washer (14) in screed lifting brackets.

4. REMOVE TOW POINT HARDWARE.

NOTE

Removal procedure for left hand and right hand tow point hardware is the same. Left hand tow point hardware is shown in this procedure. Tow point cylinders may need to be raised or lowered to access screwdriver slot in roller (15) with screwdriver bit and socket wrench.

- a. If required, start paving machine. Using tow point control switches, raise or lower tow point cylinders. Refer to TM 5-3895-373-10.
- b. At left hand tow arm, hold head of roller (15) with flat head screwdriver bit and socket wrench. Remove hex nut (16), washer (17), and roller.
- c. Remove hex head cap screw (18).
- d. Using tow point control switches, raise or lower tow point cylinders to free tow point locking pin (19). Final adjustment may be made using screed thickness control while removing tow point locking pin. Refer to TM 53895-373-10. Remove tow point locking pin.
- e. Repeat procedures in steps b, c, and d at right hand tow arm.
- f. Shut down paving machine per TM 5-3895-373-10.



2.24.3. SCREED REMOVAL AND INSTALLATION - Continued.

- A. REMOVE - Continued.
5. DRIVE TRACTOR AWAY FROM SCREED.

WARNING

Stay alert and be prepared to respond immediately to instructions from spotters. Drive tractor at slowest possible speed. Avoid moving control handles too quickly. Failure to keep tractor fully under control may result in serious injury to personnel and/or damage to the equipment.

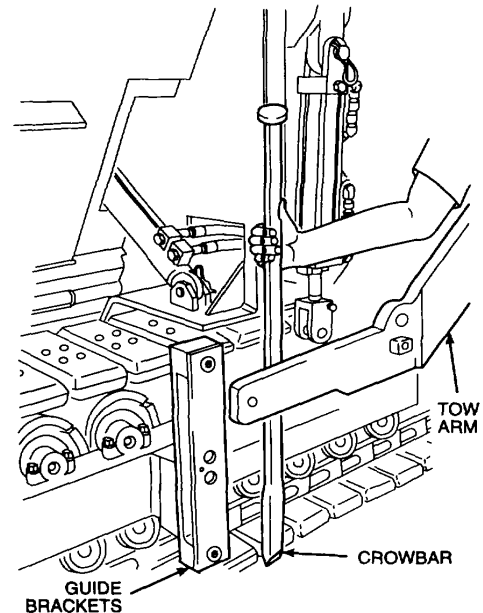
- a. Start paving machine per TM 5-3895-373-10. Place travel switch in F/R position and speed range switch in pave, tortoise position.
- b. With throttle control switch in IDLE position, slowly move (creep) paving machine forward. When leading ends of tow arms are free of guide brackets, stop paving machine.

WARNING

Multiple pinch points exist between tractor components and tow arm. Do not use hands to pull tow arm away from tractor. Use crowbar and keep

hands and feet well clear of tractor. Failure to avoid pinch points may result in serious injury to personnel.

- c. Position a person at each side of the paving machine and, if required, use a crowbar, manually pull the left and right tow arms outward. Secure spread tow arms with crowbars.
- d. Slowly move paving machine forward until clear of screed tow arms. Shut off engine and remove key from ignition switch per TM 5-3895-373-10.



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B. INSTALL.

1. BACK UP TRACTOR TO SCREED.

WARNING

Stay alert and be prepared to respond immediately to instructions from spotters. Drive tractor at slowest possible speed. Avoid moving control handles too quickly. Failure to keep tractor fully under control may result in serious injury to personnel and/or damage to the equipment.

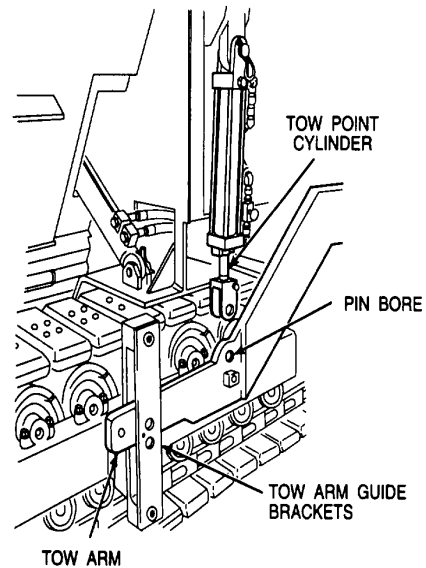
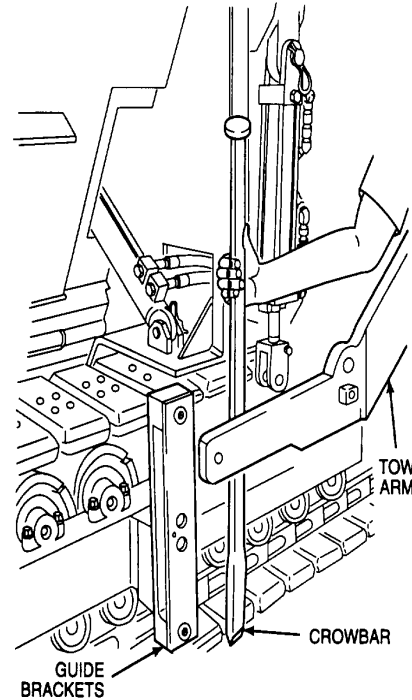
- a. Start paving machine per TM 5-3895-373-10. Place travel switch in F/R position and speed range switch in pave, tortoise position.
- b. With throttle control switch in IDLE position, slowly move (creep) paving machine backward. Back up tractor until rear bulkhead is between leading ends of screed tow arms. Make sure clearance between tractor and tow arms is the same on both sides.

WARNING

Multiple pinch points exist between tractor components and tow arm. Do not use hands to pull tow arm away from tractor. Use crowbar and keep hands and feet well clear of tractor. Failure to avoid pinch points may result in serious injury to personnel.

- c. Position another person at each side of the paving machine and, if required, use a crowbar, pull the left and right tow arms outward. Secure spread of tow arms with crowbars.
- d. Instruct second and third person to act as spotters. Slowly move paving machine backward until leading ends of screed tow arms approach tow arm guide brackets. Stop tractor.
- e. Instruct second and third person to line up leading ends of tow arms with tow arm guide brackets.

- f. Slowly back tractor on instruction from spotters. Stop tractor when leading ends of tow arms are positioned through tow arm guide brackets and tow point cylinders are above pin bores in tow arm.



2.24.3. SCREED REMOVAL AND INSTALLATION - Continued.

B. INSTALL - Continued.

NOTE

Installation procedure for left hand and right hand tow point hardware is the same. Left hand tow point hardware is shown in this procedure.

2. INSTALL TOW POINT HARDWARE.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush with water and get immediate medical attention.

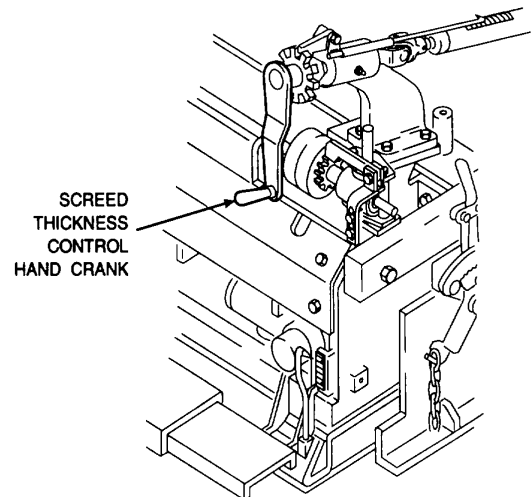
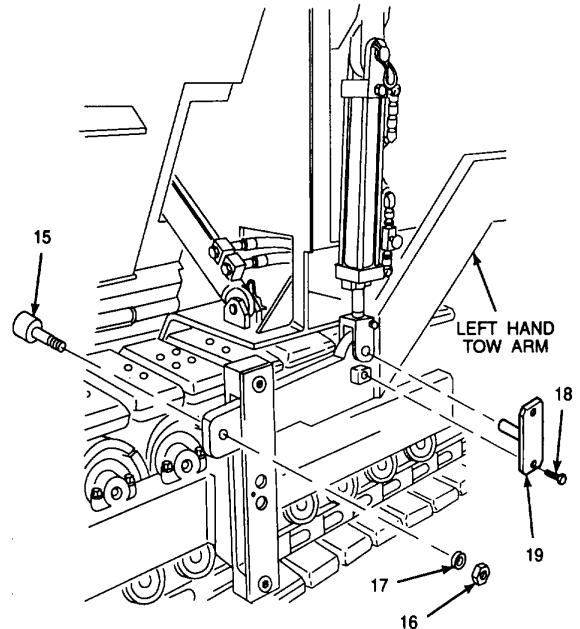
- a. Clean threads of hex head cap screws (18) with thread locking compound solvent. Wipe threads dry with lint-free cloth.
- b. With throttle control switch in IDLE position, jog left hand tow point movement switch up or down per TM 5-3895-373-10 to line up hole in tow point cylinder clevis with hole in tow arm. If further adjustment is required, adjust tow arm up or down with screed thickness control hand crank. Install tow point locking pin (19).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- c. Apply thread locking compound to hex head cap screw (18). Install and tighten cap screw to 37 lb-ft (50 N•m).

- d. Install roller (15), washer (17), and hex nut (16). Hold head of roller with flat head screwdriver bit and socket wrench. Tighten hex nut.
- e. Repeat steps b through d at right hand tow arm.
- f. Shut off engine and remove key from ignition switch per TM 5-3895-373-10.



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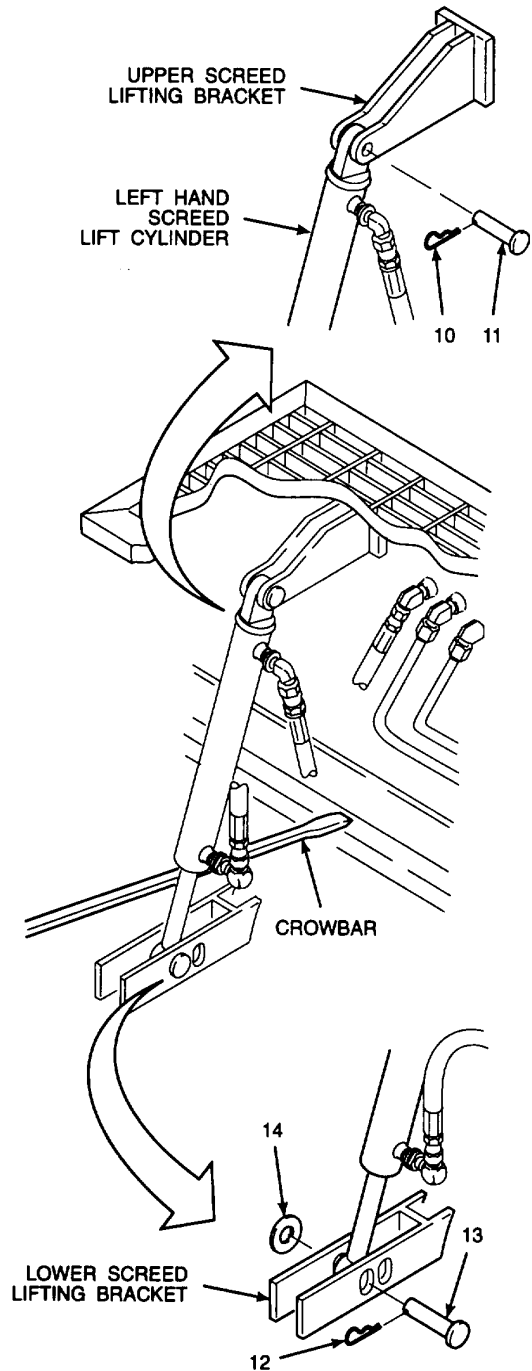
B. INSTALL - Continued.

NOTE

Reconnection procedure for left hand and right hand screed lift cylinders is the same. Left hand screed lift cylinder is shown in this procedure.

3. RECONNECT SCREED LIFT CYLINDERS.

- a. Remove lock pins (12), flat washers (14), and clevis pins (13) from lower screed lifting brackets.
- b. Cut tie wraps securing screed lift cylinders. Position cylinders for installation. Line up holes in piston rod end and lower screed lifting bracket. Install clevis pins (13), flat washers (14), and lock pins (12).
- c. Start up paving machine and place screed lift switch in down position per TM 5-3895-373-10.
- d. Remove lock pins (10) and clevis pins (11) from upper screed lifting brackets.
- e. Have another person use crowbar to pry up on cylinder tube of left hand screed lift cylinder. Line up hole in cylinder tube with hole in upper screed lifting bracket. Install clevis pins (11) and lock pins (10).
- f. Repeat procedure in step e to reconnect right hand screed lift cylinder.
- g. Shut off engine and remove key from ignition switch per TM 5-3895-373-10.



GO TO NEXT PAGE

2.24.3. SCREED REMOVAL AND INSTALLATION - Continued.

B. INSTALL - Continued.

4. RECONNECT SCREED FUEL AND HYDRAULIC HOSES.

WARNING

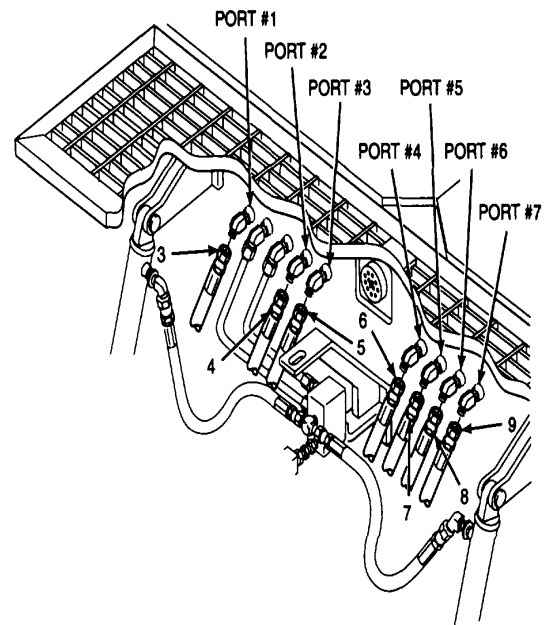
Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

- a. While another person holds drip pan to collect hydraulic oil, disconnect high pressure caps from elbows at ports #6 and #7. Allow all oil to drain from open elbows. Dispose of oil in accordance with local procedures.
- b. Remove plugs from hoses (3 through 9) and caps from mating elbows at ports #1 through #5.
- c. Wipe threads of hose and port elbows dry with clean cleaning cloths.

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- d. Apply hydraulic fitting sealant to threads of elbows at ports #1 through #7. Install and tighten hoses (3 through 9).



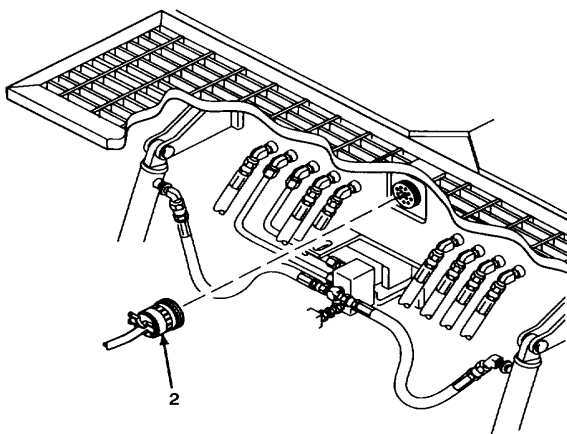
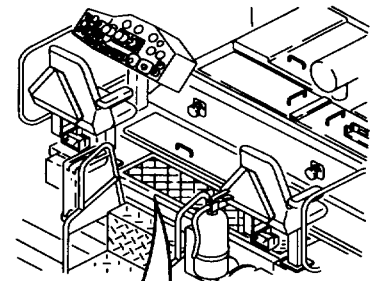
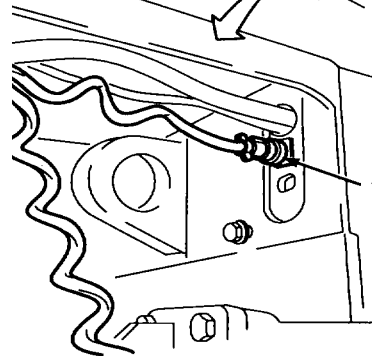
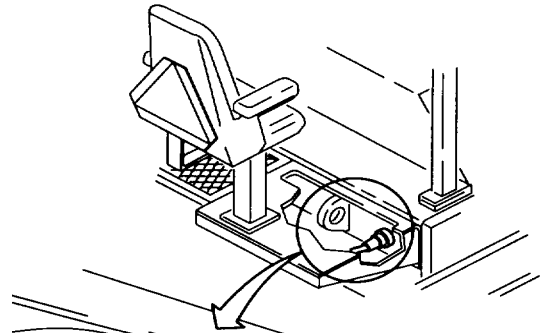
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B. INSTALL - Continued.**NOTE**

Reconnection procedure for left hand and right hand feed limit switch harness connectors is the same. Right hand feed limit switch harness connector is shown in this procedure.

5. PLUG IN SCREED HARNESS CONNECTORS.

- a. Apply electrical insulating compound to pins of left and right feed limit switch harness connectors (1). Reconnect left and right screed limit switch harness connectors.
- b. Apply electrical insulating compound to pins of screed harness plug (2). Reconnect screed harness connector at tractor bulkhead.
- c. Start up paving machine. Operate screed lift, extension screed, and tow point movement functions per TM 53895-373-10 and check bulkhead fittings for leakage. Tighten fittings as needed to stop leakage.
- d. Shut off engine and remove key from ignition switch per TM 5-3895-373-10.
- e. Operate screed burner fuel pump per TM 5-3895-37310 and check screed burner fuel hose fitting for leakage at bulkhead. Tighten fitting as needed to stop leakage.

**END OF TASK**

2.24.4. HOISTING.

- This task covers:
- a. Hoisting entire paving machine (single point)
 - b. Hoisting ends of paving machine
-

INITIAL SETUP

Tools:

- General mechanic's automotive tool kit
(Item 54, Appendix E)
- Cable/chain, 24 ft (7,3 m), 10,000 lbs (4536 kg) lifting capacity, 2 ea, Ref.: TM 5-725
- Cable/chain, 20 ft (6,1 m), 10,000 lbs (4536 kg) lifting capacity, 2 ea, Ref.: TM 5-725
- Cable/chain, 12 ft (3,7 m), 10,000 lbs (4536 kg) lifting capacity, 2 ea, Ref.: TM 5-725
- Cable/chain, 6 ft (1,8 m), 10,000 lbs (4536 kg) lifting capacity, 2 ea, Ref.: TM 5-725
- Rope, 20 ft, 2 ea, Ref.: TM 5-725

Personnel Required:

Three persons required (for single point lift to man guide lines).

References:

TM 5-725

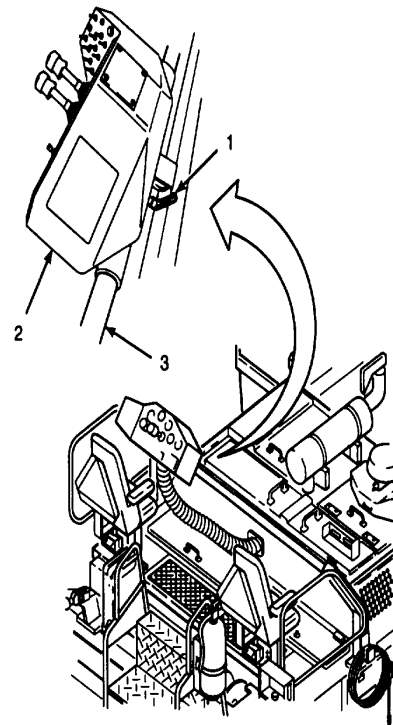
Equipment Condition:

Screed raised per TM 5-3895-373-10.
Screed travel lock valve closed per TM 5-3895-373-10.
Hopper wings fully closed per TM 5-3895-373-10.

A. HOISTING ENTIRE PAVING MACHINE (SINGLE POINT).

1. POSITION OPERATOR CONTROL CONSOLE IN CENTER OF GUIDE SHAFT.

- a. Unlock handle (1) and slide operator control console (2) to center of guide shaft (3).
- b. Lock handle (1) on operator control console.



GO TO NEXT PAGE

A. HOISTING ENTIRE PAVING MACHINE (SINGLE POINT) - Continued.

WARNING

Paving machine weighs approximately 21,400 lbs (9707 kg). Ensure that each cable/chain selected is capable of lifting 10,000 lbs (4536 kg).

Do not lift entire paving machine without four cables/chains attached.

Ensure that overhead lifting device is capable of lifting the entire weight of the paving machine, 21,400 lbs (9707 kg).

Failure to follow all of the above can result in paving machine falling causing personal injury or death.

2. ATTACH LIFTING CABLES/CHAINS TO PAVING MACHINE.

- a. Using 2 ea, 24 ft (7,3 m) lifting cables/chains, attach lifting cables/chains to front lifting lugs (4).
- b. Attach other end of both lifting cables/chains to overhead lifting device.
- c. Using 2 ea, 20 ft (6,1 m) lifting cables/chains, attach lifting cables/chains to rear lifting lugs (5).
- d. Attach other end of both lifting cables/chains to overhead lifting device. Refer to lifting diagram.
- e. Attach ropes to right and left side paving machine tiedown provisions (6) for use as guide ropes.

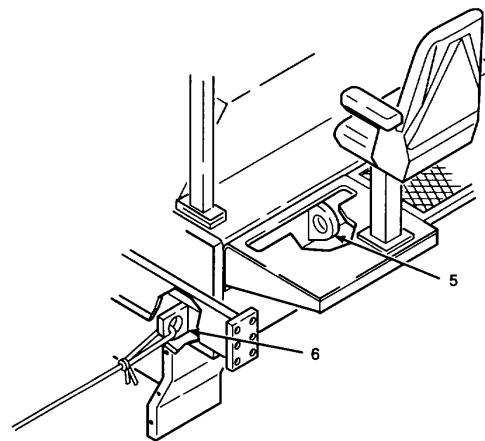
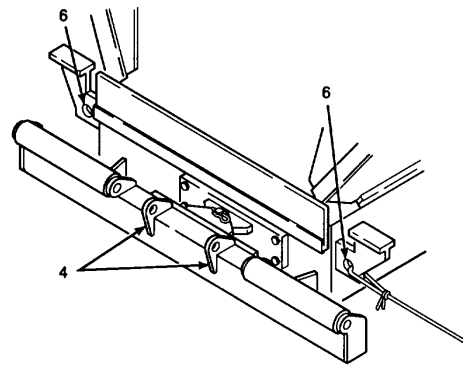
WARNING

Do not allow personnel under paving machine when paving machine is suspended off of the ground with an overhead lifting device. Paving

machine can fall and cause severe injury or death.

Paving machine weighs approximately 21,400 lbs (9707 kg). Ensure machine is securely attached to overhead lifting device and lifting device is capable of lifting entire weight of paving machine before lifting.

- f. Using overhead lifting device, lift paving machine.

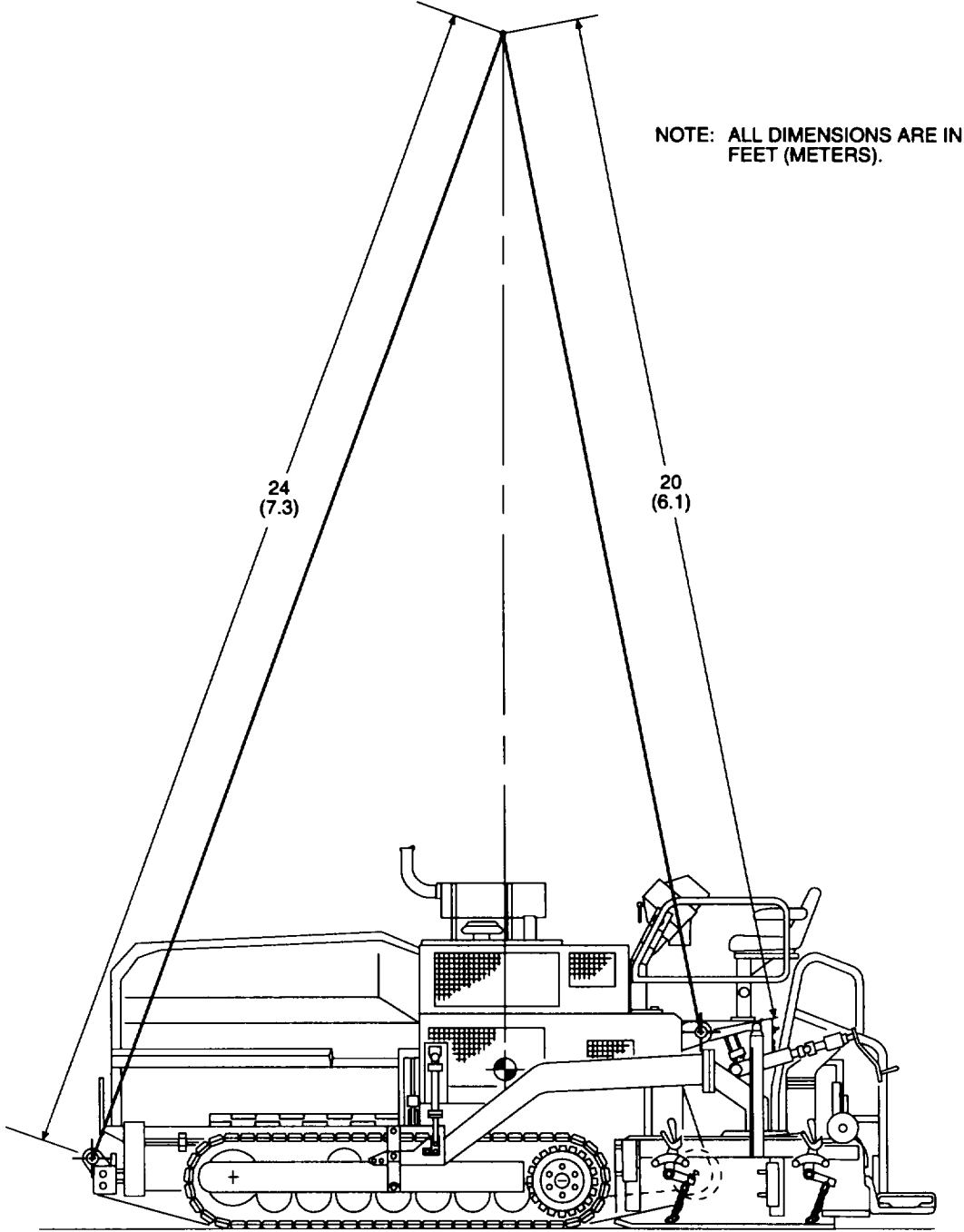


- g. Using overhead lifting device and guide ropes, lower paving machine onto or off of cribbing per 2.24.2 or desired location.
- h. Remove lifting cables/chains and guide ropes from paving machine.

GO TO NEXT PAGE

2.24.4. HOISTING - Continued.

A. HOISTING ENTIRE PAVING MACHINE (SINGLE POINT) - Continued.



GO TO NEXT PAGE

B. HOISTING ENDS OF PAVING MACHINE.

NOTE

These steps can be used to place the paving machine on cribbing by first raising the front (B.1) then the rear (B.2). To remove the paving machine from cribbing, remove the rear (B.2) from cribbing before removing the front (B.1).

1. HOISTING FRONT OF PAVING MACHINE.

WARNING

Paving machine weighs approximately 21,400 lbs (9707 kg). Ensure that each cable/chain selected is capable of lifting 10,000 lbs (4536 kg).

Do not lift entire paving machine without two cables/chains attached.

Ensure that overhead lifting device is capable of lifting the entire weight of the paving machine, 21,400 lbs (9707 kg).

Failure to follow all of the above can result in paving machine falling causing personal injury or death.

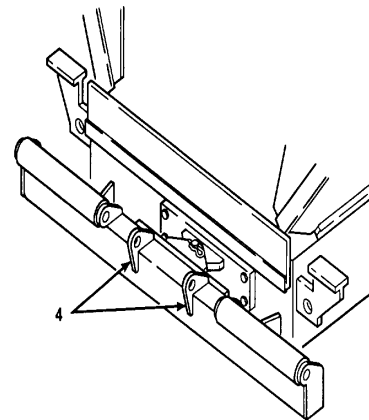
- a. Attach 2 ea, 6 ft (1,8 m) cables/chains to front lifting lugs (4).
- b. Attach other end of both 6 ft (1,8 m) cables/chains to overhead lifting device.

WARNING

Do not allow personnel under paving machine when paving machine is suspended off of the ground with an overhead lifting device. Paving machine can fall and cause severe injury or death.

Paving machine weighs approximately 21,400 lbs (9707 kg). Ensure machine is securely attached to overhead lifting device and lifting device is capable of lifting entire weight of paving machine before performing any lifting. Severe personal injury or death may occur from not securely

- c. Using overhead lifting device, lift front of paving machine.



- d. Using overhead lifting device, lower paving machine attaching machine before lifting. onto or off of cribbing per paragraph 2.24.2.
- e. Remove lifting cables/chains from paving machine. machine.

GO TO NEXT PAGE

2.24.4. HOISTING - Continued.

B. HOISTING ENDS OF PAVING MACHINE- Continued.

2. HOIST REAR OF PAVING MACHINE.

- a. Unlock handle (1) and slide operator control console (2) to center of guide shaft (3).
- b. Lock handle (1) on operator control console (2).

to overhead lifting device and lifting device is capable of lifting entire weight of paving machine before performing any lifting. Severe personal injury or death may occur from not securely attaching machine before lifting.

WARNING

Paving machine weighs approximately 21,400 lbs (9707 kg). Ensure that each cable/chain selected is capable of lifting 10,000 lbs (4536 kg).

Do not lift entire paving machine without two cables/chains attached.

Ensure that overhead lifting device is capable of lifting the entire weight of the paving machine, 21,400 lbs (9707 kg).

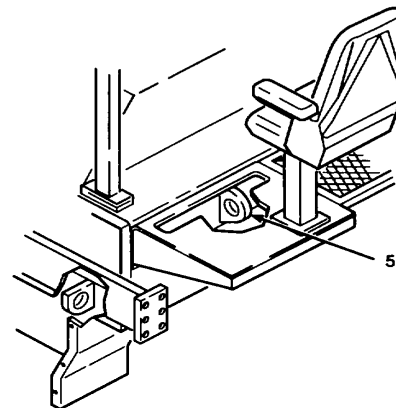
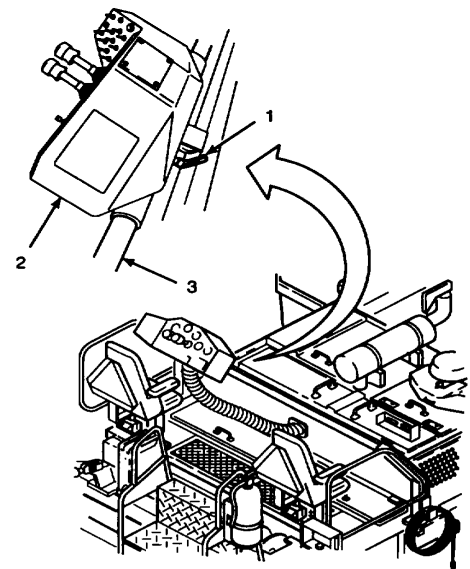
Failure to follow all of the above can result in paving machine falling causing personal injury or death.

- c. Attach 2 ea, 12 ft (3,7 m) cables to rear lifting lugs (5).
- d. Attach other end of both 12 ft (3,7 m) cables to overhead lifting device.

WARNING

Do not allow personnel under paving machine when paving machine is suspended off of the ground with an overhead lifting device. Paving machine can fall and cause severe injury or death.

Paving machine weighs approximately 21,400 lbs (9707 kg). Ensure machine is securely attached



- e. Using overhead lifting device, lift rear of paving (9707 kg).
- f. Using overhead lifting device, lower paving machine onto or off of cribbing per paragraph 2.24.2.
- g. Remove lifting cables from paving machine.

END OF TASK

SECTION VI. - PREPARATION FOR STORAGE OR SHIPMENT

	Para	Page
Administrative Storage	2.25.1	2-471
Preparation for Long Term Storage	2.25.3	2-471
Preparation for Shipment	2.26	2-472
Preparation for Short Term Storage	2.25.2	2-471
Preparation for Storage	2.25	2-471

2.25. PREPARATION FOR STORAGE.

The following paragraphs cover the unit level equipment services required to prepare the 780T bituminous asphalt paving machine for short term and long term storage. Short term storage requirements apply when the paving machine is taken out of use for a period of one month to one year (30 to 360 days). Long term storage requirements apply when the paving machine is taken out of use for any period greater than one year.

2.25.1. Administrative Storage. Administrative storage of equipment issued to and used by Army activities will have Preventive Maintenance Checks and Services (PMCS) performed before storing. When removing the equipment from administrative storage, the PMCS checks should be performed to assure operational readiness.

2.25.2. Preparation for Short Term Storage. Perform the following maintenance procedures whenever the paving machine is taken out of use for at least one month and up to one year.

- a. Fill cooling system with 50% antifreeze conforming to FED O-A 548 and 50% water.
- b. Fill crankcase to operating level per LO 5-3895-37312.
- c. Remove cap assembly from air cleaner intake tube and seal open port of intake tube with tape.
- d. Relieve fan belt tension.
- e. Seal fuel tank cap vent with tape.
- f. Fill pump drive gearbox to operating level per LO 53895-373-12.
- g. Seal pump drive gearbox breather with tape.
- h. Fill speed reduction gearbox to operating level per LO 5-3895-373-12.

- i. Fill hydraulic reservoir to operating level per LO 53895-373-12.
- j. Coat exposed surfaces of all hydraulic cylinder piston rods with engine preservative oil conforming to MIL-L-2 1260.
- k. Seal hydraulic reservoir fill port with tape.
- l. Disconnect battery cables and coat cable ends with preservative compound conforming to MIL-C-11796, Class 3. Wrap battery cable ends with barrier material.
- m. Apply fresh lubricating grease to all lubrication fittings per LO 5-3895-373-12.
- n. Seal all alternator openings with tape.
- o. Seal pipe elbow protective cap with tape.

2.25.3. Preparation for Long Term Storage. Perform the following maintenance procedures whenever the paving machine is taken out of use for any period greater than one year.

- a. Drain cooling system.
- b. Relieve fan belt tension.
- c. Seal all alternator openings with tape.
- d. Preserve engine.
 - (1) Drain crankcase oil.
 - (2) Fill crankcase with MIL-L-21260 preservation oil.
 - (3) Remove fuel injectors.
 - (4) Put 2 tsp of MIL-L-21260 preservation oil into each cylinder.
 - (5) Reinstall fuel injectors.

- e. Remove and package air cleaner filter element. Reassemble air cleaner.
- f. Remove cap assembly from intake tube. Seal open port of intake tube with tape.
- g. Drain fuel tank. Place fuel tank drain plug in paving machine toolbox.
- h. Seal fuel tank cap vent with tape.
- i. Fill pump drive gearbox to operating level per LO 53895-373-12.
- j. Seal pump drive gearbox breather with tape.
- k. Fill speed reduction gearbox to operating level per LO 5-3895-373-12.
- l. Seal speed reduction gearbox breather with tape.
- m. Coat exposed surfaces of all hydraulic cylinder piston rods and machined surfaces of control console guide shaft and screed extension guide shafts with preservative conforming to MIL-C-1 1796, Class 3. Wrap or cover coated surfaces with barrier material.
- n. Disconnect battery cables. Coat battery cable ends with preservative compound conforming to

MIL-C-11796, Class 3. Wrap battery cable ends with barrier material.

- o. Remove batteries and store in accordance with local procedures.
- p. Apply fresh lubricating grease to all lubrication fittings per LO 5-3895-373-12.
- q. Seal pipe elbow protective cap with tape.

2.26. PREPARATION FOR SHIPMENT.

- a. For instructions on preparing the paving machine for shipment, refer to the Bituminous Asphalt Paving Machine Transportability Report. This report is the proponenty of the Military Traffic Management Command (MTMC), ATTN.: MTTE-TRV, Newport News, Virginia. Contact MTMC or the transportation movement officer at your installation for a copy of this report or for additional transportation instructions.
- b. Refer to paragraph 2.4.2 for identification and location of shipping brackets.

CHAPTER 3

DIESEL ENGINE MAINTENANCE

	Para	Page
General Maintenance Procedures	3.1	3-1
Adjust Intake and Exhaust Valves.....	3.2	3-2
Replace Engine Oil Filter/Cooler Assembly Components.....	3.3	3-8
Replace Engine Oil Filter/Cooler Assembly Lines and Fittings.....	3.4	3-13
Replace Exhaust Manifold and Intake Manifold.....	3.5	3-19

3.1. GENERAL MAINTENANCE PROCEDURES.

All unit level maintenance shall be performed in accordance with good and safe shop practices. Observe the following general instructions and requirements when performing diesel engine maintenance.

- a. Thoroughly clean hydraulic hoses and fittings before disconnecting. Always plug or cap off disconnected fittings to prevent dirt and contaminants from entering the system. Failure to clean hoses and fittings and to plug or cap open fittings may result in hydraulic system contamination and equipment damage.
- b. Always tag mating connectors and fittings before disconnecting. Tagging of mating connectors and fittings will ease reassembly and reduce assembly errors.
- c. Use a backup wrench when loosening or tightening inline fittings. Using a backup wrench will prevent unnecessary damage to attached lines and/or smaller fittings.
- d. When removing tie wraps from hoses and wiring, note or mark locations and anchor points. The proper location and installation of tie wraps will prevent undue chafing of hoses and wiring.
- e. Thread locking compound is used with most threaded fasteners. If a threaded fastener will not break loose, heat threaded area of fastener from 500 to 600°F (232° to 315°C) with heater gun. If the special solvent used to remove thread locking compound from screw threads fails to remove buildup, discard fastener.
- f. Discard all removed bearings, gaskets, seals, preformed packings, self-locking nuts, lockwashers, spring pins, and deformed hardware.
- g. Inspect all removed components for obvious wear or damage. Replace all worn, bent, broken, or otherwise damaged parts.
- h. Inspect all removed fasteners for thread damage. If thread damage is found, replace fastener. Replace flat washers if galled or bent. Use screw extractor set (Item 15, Appendix E) to remove broken studs or screws.
- i. Soak gasket seating surfaces with cleaning solvent and scrape with putty knife to remove leftover gasket material and residue.
- j. Torque values cited in the text apply to modified SAE Grade 8 fasteners at required clamping loads.
- k. Use only authorized replacement parts. Refer to TM 53895-373-24P, Repair Parts and Special Tools List (RPSTL) for authorized replacement parts.
- l. Observe all warnings and cautions. Wear protective clothing and equipment as specified. Observe the Safety and Hazard Warnings provided in TACOM Technical Bulletin TB 43-0216.

3.2. ADJUST INTAKE AND EXHAUST VALVES.

This task covers: a. Remove b. Adjust c. Install

INITIAL SETUP

Tools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Thickness gage (Item 18, Appendix E)
Torque wrench (Item 69, Appendix E)

Materials/Parts:

Cleaning solvent (Item 24, Appendix C)
Lint-free cloth (Item 8, Appendix C)
Thread locking compound (Item 13, Appendix C)
Lockwashers
Valve cover gasket
Front top left access door removed per paragraph 11.2.
Muffler and pipes removed per paragraph 5.2.

Personnel Required:

Two 62B construction equipment repairers.
Second person needed to help with lifting and with rotating the radiator fan during adjustment.

References:

TM 5-3895-373-10
TM 5-3895-373-20
TM 5-3895-373-24P

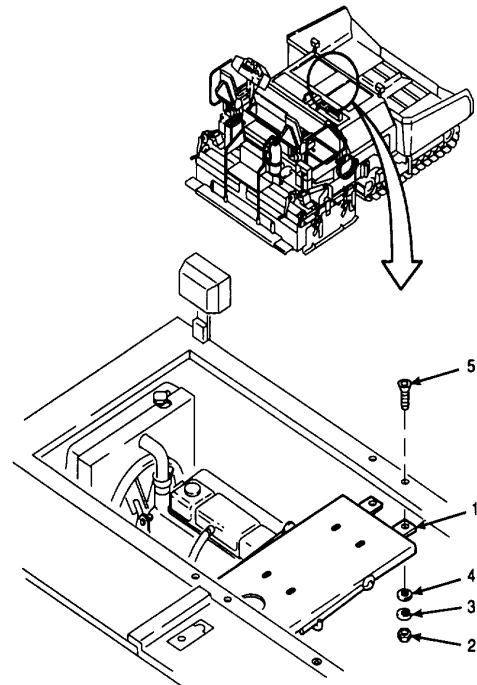
Equipment Condition:

Front top right access door removed per paragraph 11.2.

A. REMOVE.

1. REMOVE MUFFLER SUPPORT BRACKET FROM PAVING MACHINE.

- a. With the help of a second person, support the weight of muffler support bracket (1).
- b. Remove hex nuts (2), lockwashers (3), flat washers (4) and socket head cap screws (5). Discard lockwashers.
- c. Remove muffler support bracket (1).

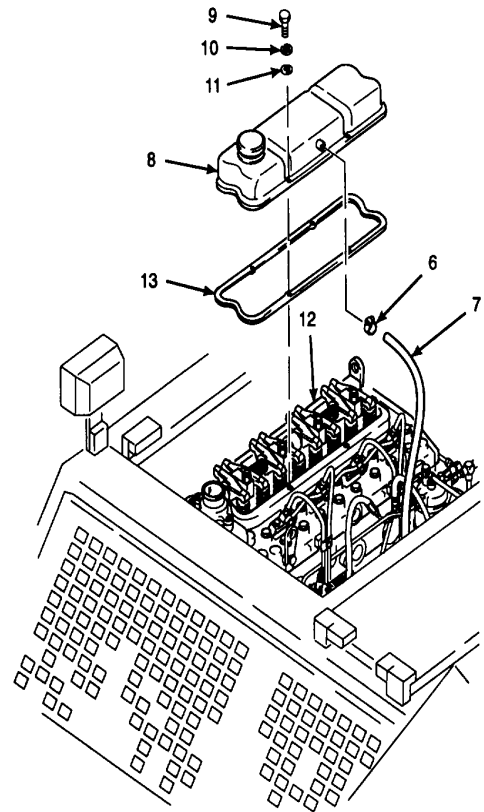


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A. REMOVE - Continued.

2. REMOVE VALVE COVER AND OIL BREATHER HOSE.

- a. Loosen hose clamp (6) and disconnect oil breather hose (7) from valve cover (8).
- b. Remove bolts (9), lockwashers (10) and flat washers (11). Discard lockwashers.
- c. Remove valve cover (8) from cylinder head assembly (12).
- d. Remove and discard valve cover gasket (13).



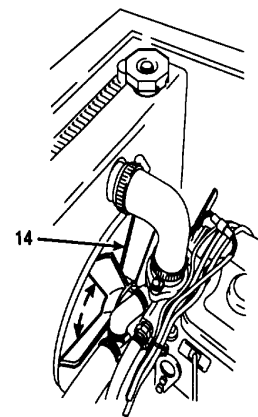
B. ADJUST.

1. ADJUST INTAKE AND EXHAUST VALVE SETTINGS AT CYLINDER NUMBER 1.

NOTE

Rotate the radiator fan clockwise and ensure that the fan belt rotates the crankshaft pulley. If this does not occur, adjust the fan belt tension per TM 5-3895-373-20.

- a. Rotate radiator fan (14) clockwise and ensure that the fan belt rotates the crankshaft pulley.

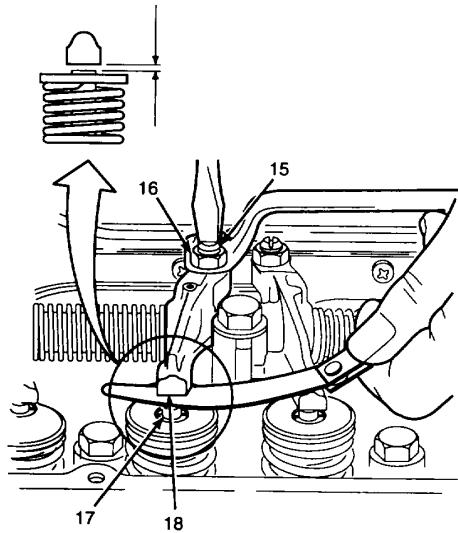
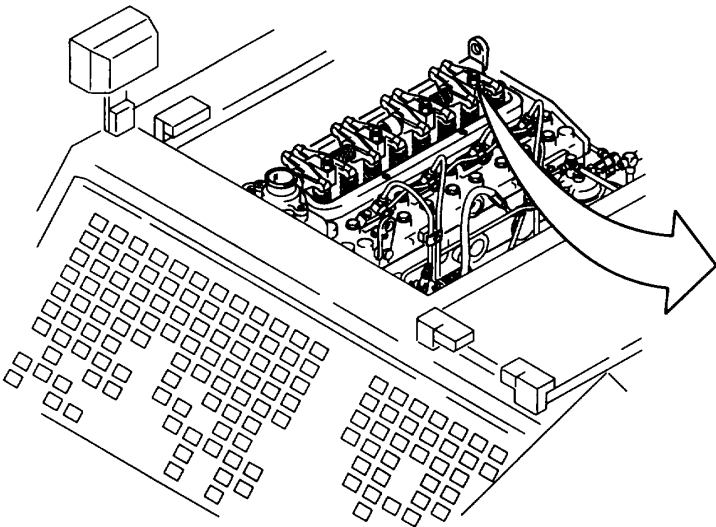
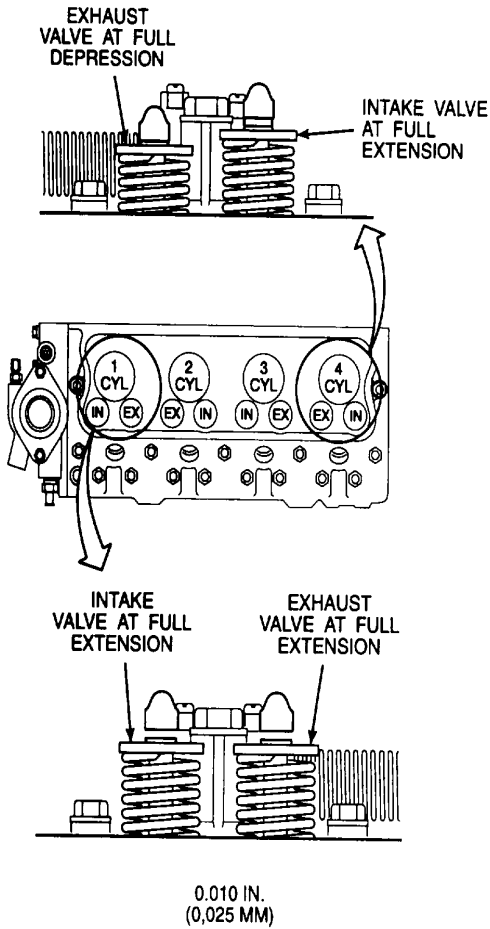


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3.2. ADJUST INTAKE AND EXHAUST VALVES - Continued.

B. ADJUST - Continued.

- b. With the help of a second person, use the radiator fan and rotate the engine until the valves on the number #4 cylinder reach the "rocking" position. A visual inspection of the valves in the rocking position will indicate the period between the opening of the intake valve and the closing of the exhaust valve.
- c. With the number #4 cylinder valves in the rocking position, adjustment to the number #1 cylinder can be performed. A visual inspection of the number #1 cylinder valves will show both the intake and exhaust valves at full extension.
- d. Holding adjustment screw (15) on the intake valve with a flat blade screwdriver, loosen hex nut (16).
- e. Turn the adjustment screw and measure with a thickness gage until there is 0.010 in. (0,25 mm) clearance between the top of valve stem guide (17) and bottom of rocker arm (18).
- f. Hold adjustment screw (15) and tighten hex nut (16).
- g. Repeat steps d, e, and f for the exhaust valve.



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B. ADJUST - Continued.

2. ADJUST INTAKE AND EXHAUST VALVE SETTINGS AT CYLINDER NUMBERS 3, 4, AND 2.

- a. Rotate the engine with the radiator fan until the valves for #2 cylinder are in the rocking position and valves for #3 cylinder are at full extension.
- b. Perform step B.1 on #3 cylinder.
- c. Rotate the engine with the radiator fan until valves for #1 cylinder are in the rocking position and valves for #4 cylinder are at full extension.
- d. Perform step B.1 on #4 cylinder.
- e. Rotate the engine with the radiator fan until valves for #3 cylinder are in the rocking position and valves for #2 cylinder are at full extension.
- f. Perform step B.1 on #2 cylinder.

C. INSTALL.

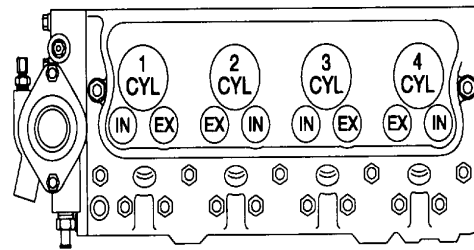
1. CLEAN MATING SURFACES OF VALVE COVER AND CYLINDER HEAD ASSEMBLY.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.



- a. Use a clean, lint-free cloth soaked with cleaning solvent to clean the mating surfaces of valve cover and cylinder head assembly.
- b. Use a parts cleaning brush and cleaning solvent to remove any hard deposits and carbon buildup.

GO TO NEXT PAGE

3.2. ADJUST INTAKE AND EXHAUST VALVES - Continued.

C. INSTALL - Continued.



Use caution when scraping sealing surfaces with putty knife. Putty knife may score sealing surfaces and debris may fall into open ports. Failure to do so may result in poor seal and component damage.

- c. Use a putty knife, if necessary, to remove any gasket material from sealing surfaces. Do not score the sealing surface or allow any gasket material to fall into the cylinder head assembly.
- d. Dry mating surfaces with a clean, lint-free cloth.

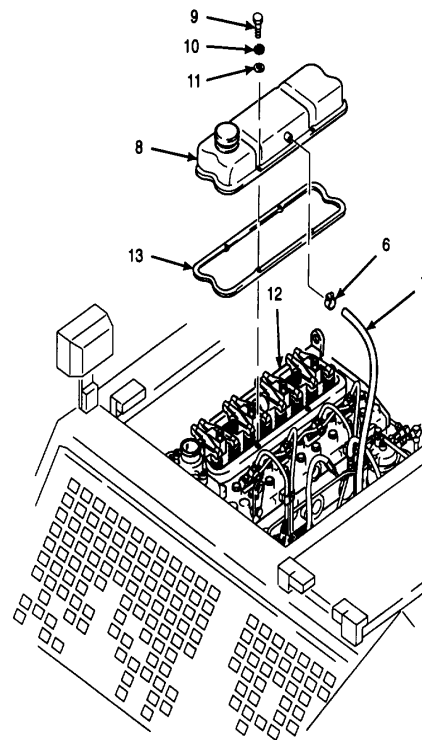
2. INSTALL THE VALVE COVER AND OIL BREATHER HOSE.

- a. Place valve cover gasket (13) onto cylinder head assembly (12).
- b. Place valve cover (8) onto cylinder head assembly (12).
- c. Install flat washers (11), lockwashers (10), and bolts (9).



Do not overtighten bolts. If bolts are overtightened, damage may occur to valve cover or bolts.

- d. Tighten bolts securely.
- e. Connect oil breather hose (7) onto valve cover (8) and tighten hose clamp (6).



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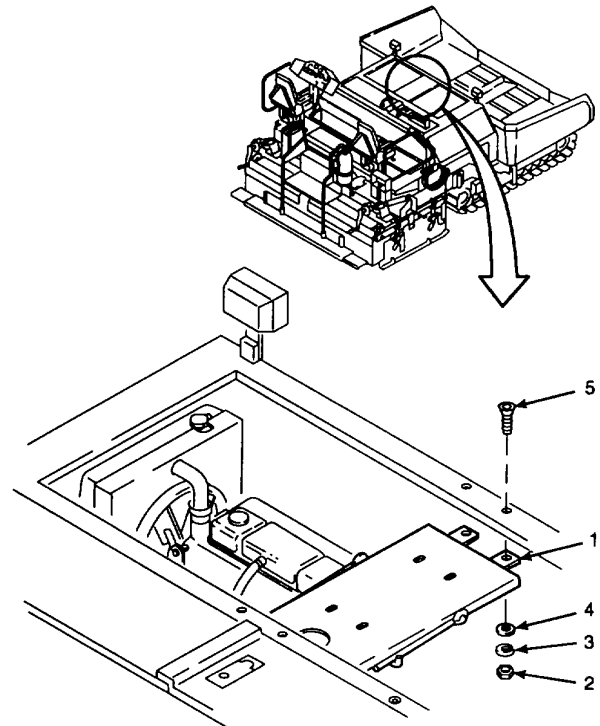
C. INSTALL - Continued.**3. INSTALL MUFFLER SUPPORT BRACKET ONTO PAVING MACHINE.**

- a. With the help of a second person, support the weight of muffler support bracket (1).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- b. Apply thread locking compound to threads of socket head cap screws (5).
- c. Install socket head cap screws (5), flat washers (4), lockwashers (3), and hex nuts (2).
- d. Tighten hex nuts (2) to 37 lb-ft (50 N.m).

**NOTE**

FOLLOW-ON-TASKS: Install muffler and pipes per paragraph 5.2.
 Install front top right access door per paragraph 11.2.
 Install front top left access door per paragraph 11.2.

END OF TASK

3.3. REPLACE ENGINE OIL FILTER/COOLER ASSEMBLY COMPONENTS.

This task covers: **a. Remove** **b. Clean** **c. Install**

INITIAL SETUP:

Tools:

- General mechanic's automotive tool kit
Item 54, Appendix E)
- Drip pan (Item 28, Appendix E)
- Oil filter removal tool (Item 36, Appendix E)
- Torque wrench (Item 69, Appendix E)

References:

- LO 5-3895-373-12
- TM 5-3895-373-24P

Materials/Parts:

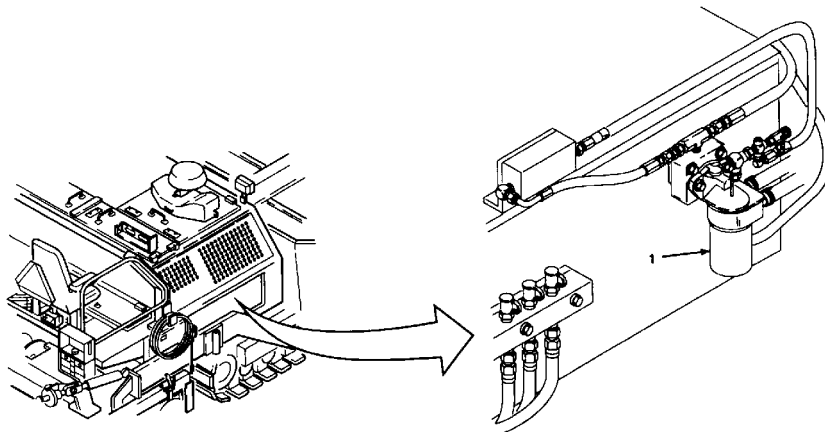
- Cleaning solvent (Item 24, Appendix C)
- Lint-free cloth (Item 8, Appendix C)
- Engine oil (Item 19, Appendix C)
- Machinery wiping towel (Item 30, Appendix C)
- Thread locking compound (Item 12, Appendix C)
- Thread locking compound solvent (Item 25, Appendix C)
- Connectors
- Filter/cooler head gasket
- Hose clamps (If required)
- Lockwashers
- Oil cooler
- Oil cooler gasket
- Oil filter element
- Strainer head

Equipment Condition:

- Engine crankcase oil drained per LO 5-3895-373-12.
- Coolant system drained per paragraph 2.23.3.
- Right access cover removed per paragraph 2.22.

A. REMOVE.

1. REMOVE OIL FILTER ELEMENT AND ENGINE OIL COOLER.
 - a. Place machinery wiping towel below oil filter/cooler assembly (1).



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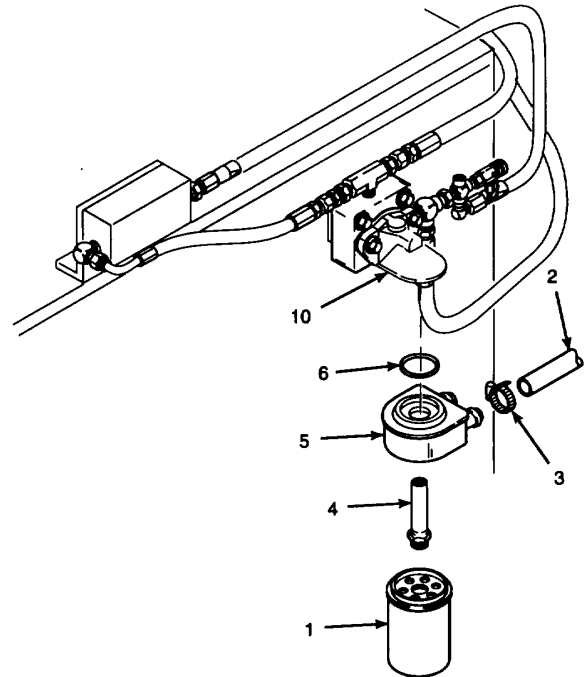
A. REMOVE - Continued.

- b. Remove oil filter element (1) with oil filter removal tool.
- c. Pour waste oil from oil filter element (1) into a drip pan.
- d. Place a drip pan below coolant hoses (2).

CAUTION

Tag coolant hoses for reassembly. If hoses are not installed correctly, flow of coolant will be obstructed.

- e. Loosen hose clamps (3) and remove coolant hoses (2).
- f. Dispose of waste oil, coolant, and oil filter element in accordance with local procedures.
- g. Remove connector (4) and engine oil cooler (5).
- h. Remove and discard gasket (6).



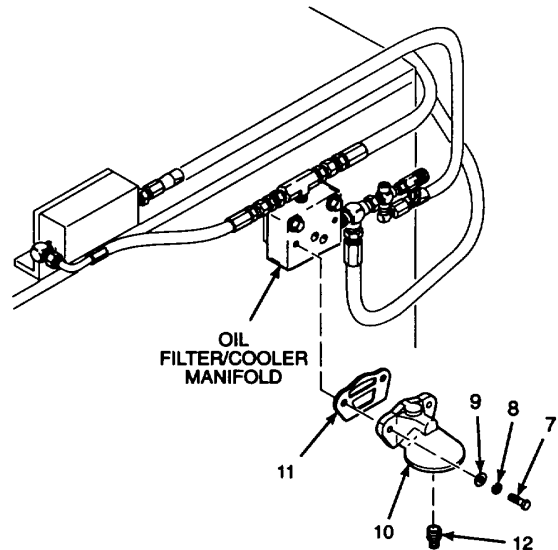
2. REMOVE STRAINER HEAD.

- a. Remove hex head cap screws (7), lockwashers (8), and flat washers (9). Discard lockwashers.
- b. Remove strainer head (10). Remove and discard gasket (11).

NOTE

Do not remove connector unless damaged. Connector must be removed with pliers and threads may be damaged.

- c. If connector (12) is damaged, unscrew and remove connector using pliers. Discard connector.



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3.3. REPLACE ENGINE OIL FILTER/COOLER ASSEMBLY COMPONENTS - Continued.

B. CLEAN.**1. CLEAN CONNECTOR, STRAINER HEAD, AND OIL FILTER/COOLER MANIFOLD.****WARNING**

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 flash point for Type III cleaning solvent is 200(F (93, 30C). 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, flush eyes with water and get immediate medical attention.

CAUTION

Use caution when scraping gasket sealing surfaces with putty knife. Putty knife may score sealing surfaces and debris may fall into open ports. Failure to do so may result in poor sealing and leaking from strainer head.

- a. Use a putty knife, if necessary, to remove any gasket material from sealing surfaces of oil filter/cooler manifold and strainer head. Do not score the sealing surface or allow any gasket material to fall into open ports.
- b. Use a clean lint free cloth and cleaning solvent to clean all parts. Use a parts cleaning brush to remove any hard deposits.
- c. Dry with a clean lint-free cloth.

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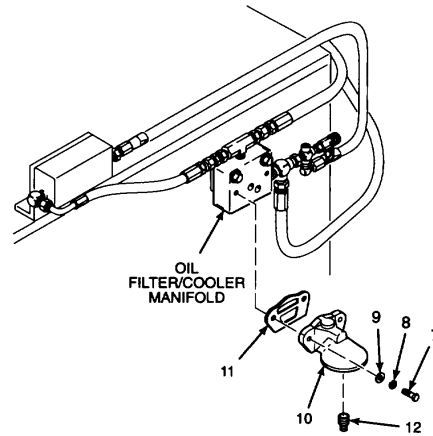
B. CLEAN - Continued.

2. CLEAN CAP SCREW THREADS.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Use thread locking compound solvent to clean threads of cap screws.
- b. Dry with a clean, lint-free cloth.



C. INSTALL.

1. INSTALL STRAINER HEAD.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- a. Install lockwashers (8) and flat washers (9) on hex head cap screws (7). Apply thread locking compound to threads of cap screws.
- b. Install gasket (11) and strainer head (10) with hex head cap screws (7).
- c. Evenly tighten hex head cap screws (7) to 66 lb-ft (90 N.m).

NOTE

If a new connector must be installed, install and tighten connector by hand. Use of any tools on connector will damage threads.

- d. Install and tighten connector (12) by hand.

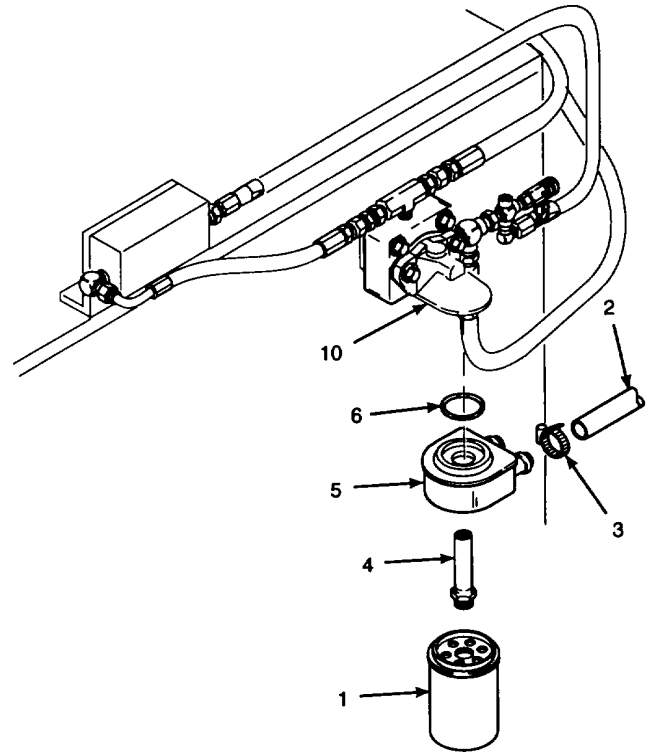
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3.3. REPLACE ENGINE OIL FILTER/COOLER ASSEMBLY COMPONENTS - Continued.**C. INSTALL - Continued.****2. INSTALL ENGINE OIL COOLER.**

- a. Install gasket (6) in mating seat of engine oil cooler (5).
- b. With gasket facing up, seat engine oil cooler (5) in strainer head (10). Make sure that the engine oil cooler ports are facing to the right and are square (90°) to the hydraulic reservoir.
- c. Install connectors (4) and tighten to 27.5 lb-ft (37 N.m).

3. INSTALL OIL FILTER ELEMENT.

- a. Fill oil filter element (1) with clean engine oil until full. Allow time for oil to soak into filter element.
- b. Lubricate rubber seal on top of filter element with clean engine oil.
- c. Hand rotate oil filter element (1) onto connector (4) until seated against engine oil cooler (5).
- d. Tighten oil filter element an additional $\frac{3}{4}$ turn using the oil filter removal tool.

**CAUTION**

**If hoses are not installed correctly,
flow of coolant will be obstructed.**

- e. Slide hose clamps (3) onto coolant hoses (2). Install coolant hoses on oil cooler and tighten hose clamps.

NOTE

FOLLOW-ON-TASKS: Add engine crankcase oil per LO 5-3895-373-12. Fill coolant system per paragraph 2.23.3. Install right access cover per paragraph 2.22.

END OF TASK

3.4. REPLACE ENGINE OIL FILTER/COOLER ASSEMBLY LINES AND FITTINGS - Continued.

A. REMOVE.

CAUTION

Clean hoses and fittings before disconnecting. Always plug or cap off disconnected fittings to prevent intrusion of contaminants. Failure to properly clean and cap off fittings may result in cooling system or engine oil system contamination and equipment damage.

NOTE

Perform the following removal procedures only as needed to replace faulty or damaged components.

1. REMOVE COOLANT HOSES.

- a. Place drip pan below engine oil filter/cooler assembly.

NOTE

Tie wraps are located as needed to secure supply and return coolant hoses away from obstructions.

- b. Remove and discard tie wraps (1).

LEGEND

- | | |
|------------------------------------|------------------------|
| 1. Tie wrap | 10. Reducing bushing |
| 2. Coolant hose | 11. Straight adapter |
| 3. Coolant hose | 12. Oil sampling valve |
| 4. Engine oil pressure transmitter | 13. Elbow |
| 5. Cross | 14. Hose assembly |
| 6. Hose clamp | 15. Straight adapter |
| 7. Hose | 16. Hose assembly |
| 8. Hose | 17. Tee |
| 9. Tee | 18. Straight adapter |

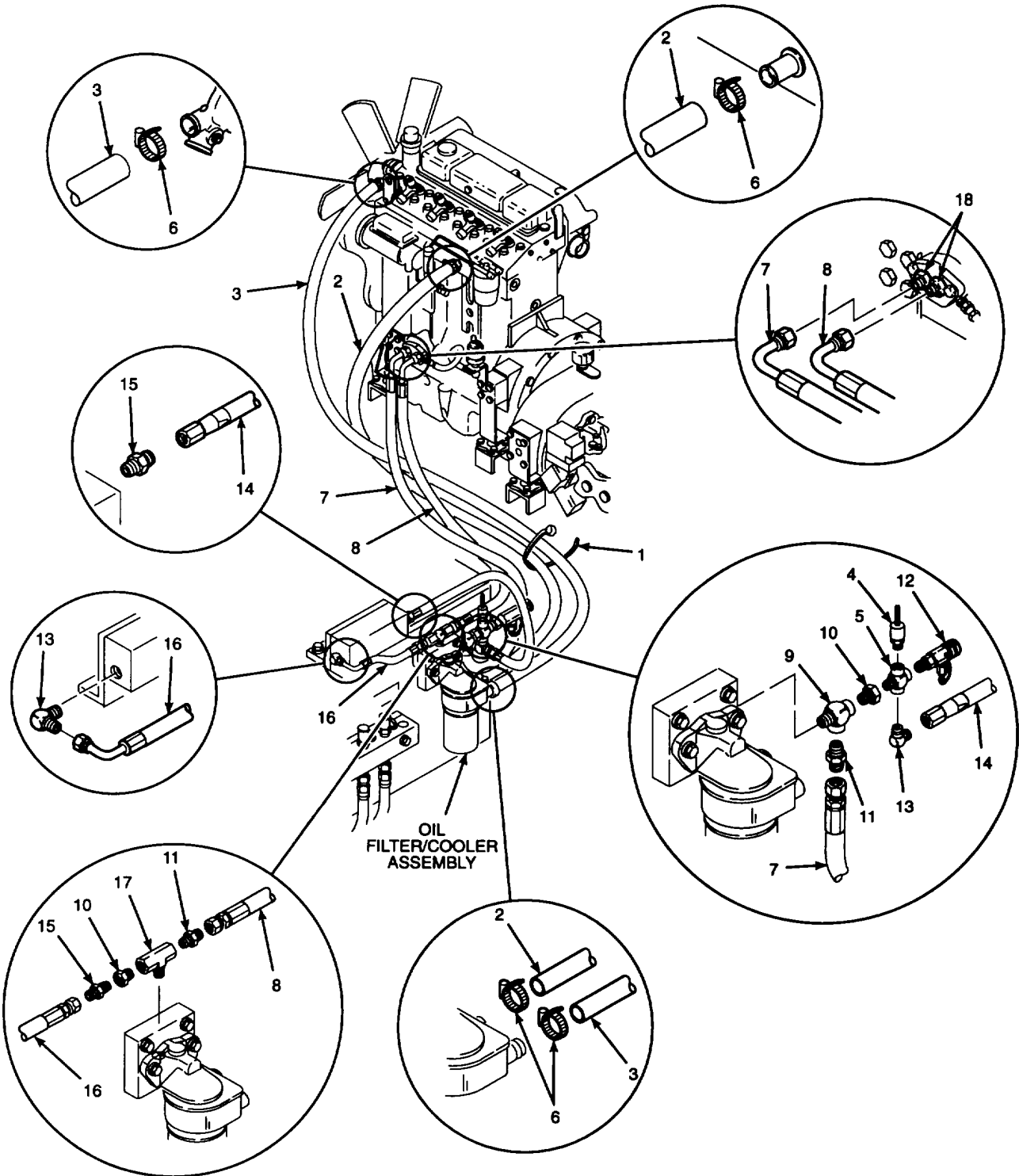
- c. Tag and disconnect coolant hoses (2 and 3) at engine first. Refer to illustration and legend as a guide. With the help of another person to hold the hoses up at the engine, tag and disconnect the hoses at the oil filter/cooler assembly.
- d. Drain coolant into drip pan. Dispose of coolant in accordance with local procedures.

2. REMOVE ENGINE OIL HOSES.

- a. Place machinery wiping towels below fittings to be disconnected.
- b. If applicable, tag and disconnect harness connector from engine oil pressure transmitter (4) and remove transmitter. Install a plug in the open port on cross (5). Install a cap on the exposed threads of the transmitter.
- c. Remove clamps and tag and remove hoses. Remove adapters, and fittings using illustration and legend as a guide. Remove hoses first, then remove adapters and fittings.
- d. Drain all residual oil from disconnected hoses into a drip pan. Dispose of drained fuel in accordance with local procedures.
- e. Cap or plug exposed hoses or fittings to prevent oil system contamination.

GO TO NEXT PAGE

A. REMOVE - Continued.



GO TO NEXT PAGE

3.4. REPLACE ENGINE OIL FILTER/COOLER ASSEMBLY LINES AND FITTINGS - Continued.

B. INSTALL.

1. INSTALL ENGINE OIL HOSES.

- a. Use cleaning cloths to wipe residue from threads of all fittings and adapters to be reinstalled.

NOTE

Adapter pipe thread fittings are coded P in illustration. P-coded fittings require pipe sealant. Adapter hose end fittings are coded H, and require hydraulic fitting sealant.

WARNING

Pipe fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- b. Apply pipe sealant to P-coded fittings of adapters and tees.

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

LEGEND

1. Tie wrap	7. Hose	13. Elbow
2. Coolant hose	8. Hose	14. Hose assembly
3. Coolant hose	9. Tee	15. Straight adapter
4. Engine oil pressure transmitter	10. Reducing bushing	16. Hose assembly
5. Cross	11. Straight adapter	17. Tee
6. Hose clamp	12. Oil sampling valve	18. Straight adapter

- c. Install elbows (13) and tees. Position elbows, cross (5), and tees (17 and 9) as shown in the illustration. Tighten all fittings.

- d. Apply hydraulic fitting sealant to H-coded fittings of adapters.

- e. With the help of another person, route hoses (7 and 8) as shown and connect to straight adapters (18). Route remaining hoses and connect to straight adapter (11) and elbow (13).

- f. Reinstall engine oil pressure transmitter (4). Apply electrical insulating compound to male end of harness connector and connect harness connector to the engine harness.

2. INSTALL COOLANT HOSES.

- a. With the help of another person, route coolant hoses (2 and 3) between engine and oil cooler. Refer to illustration and legend.

- b. Secure hoses to fittings with hose clamps (6).

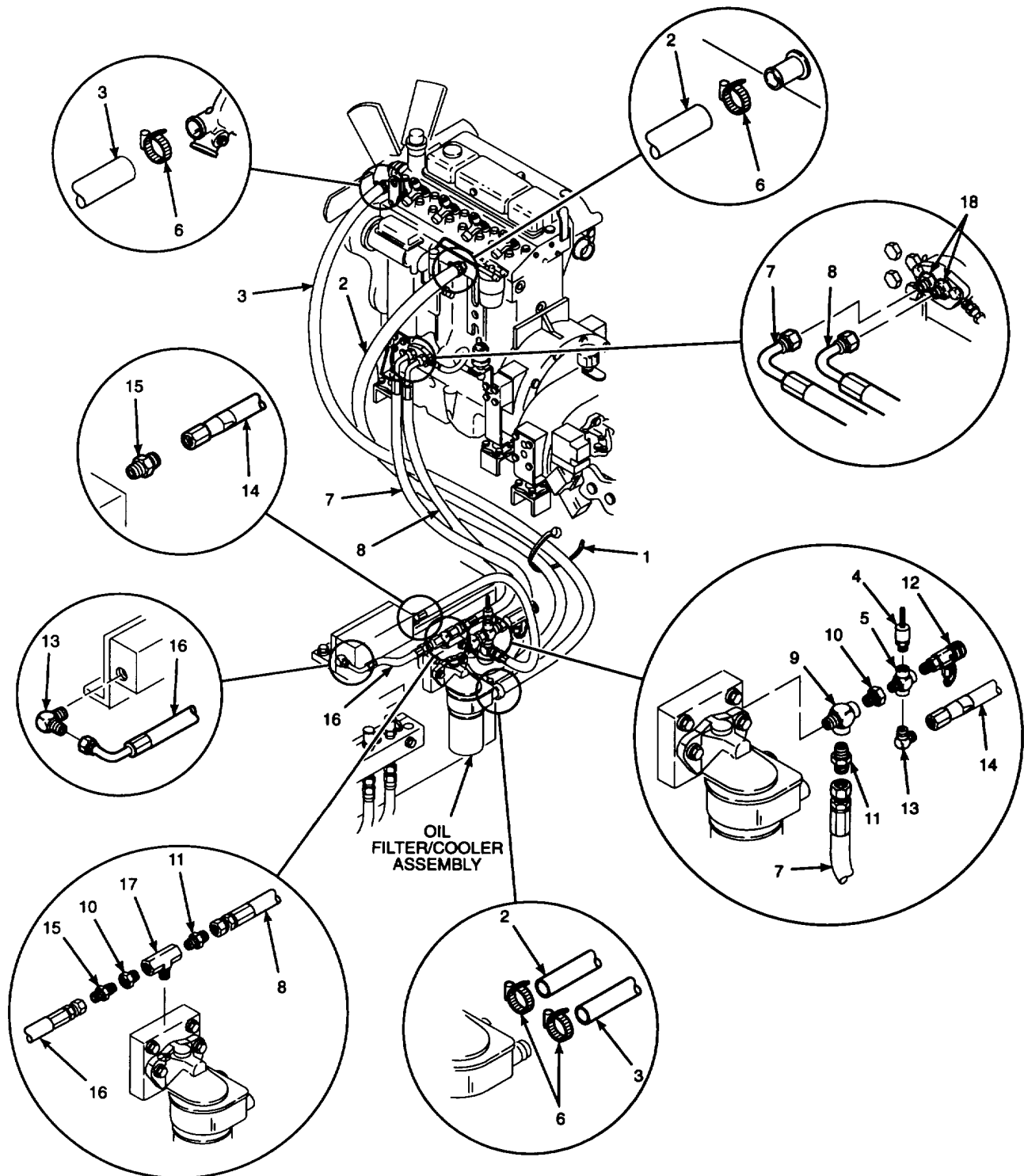
NOTE

Tie wraps are located as needed to secure supply and return coolant hoses away from obstructions.

- c. Place tie wraps as needed to secure coolant hoses away from any obstructions.

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B. INSTALL - Continued.



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3.4. REPLACE ENGINE OIL FILTER/COOLER ASSEMBLY LINES AND FITTINGS - Continued.

B. INSTALL - Continued.

NOTE

FOLLOW-ON-TASKS: Fill coolant system per paragraph 2.23.3.
Check engine oil and fill as needed per TM 5-3895-373-10.
Install right access cover per TM 5-3895-373-10.
Close right access door per TM 5-3895-373-10.
Close left front top access doors per TM 5-3895-373-10.
Close right front top access doors per TM 5-3895-373-10.

END OF TASK

3.5. REPLACE EXHAUST MANIFOLD AND INTAKE MANIFOLD.

This task covers: a. Remove b. Clean c. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Stud remover and setter (Item 50, Appendix E)
Torque wrench (Item 68, Appendix E)

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Flat washers
Gaskets
Nuts
Turbosupercharger mounting studs

Reference:

TM 5-3895-373-24P

Equipment Condition:

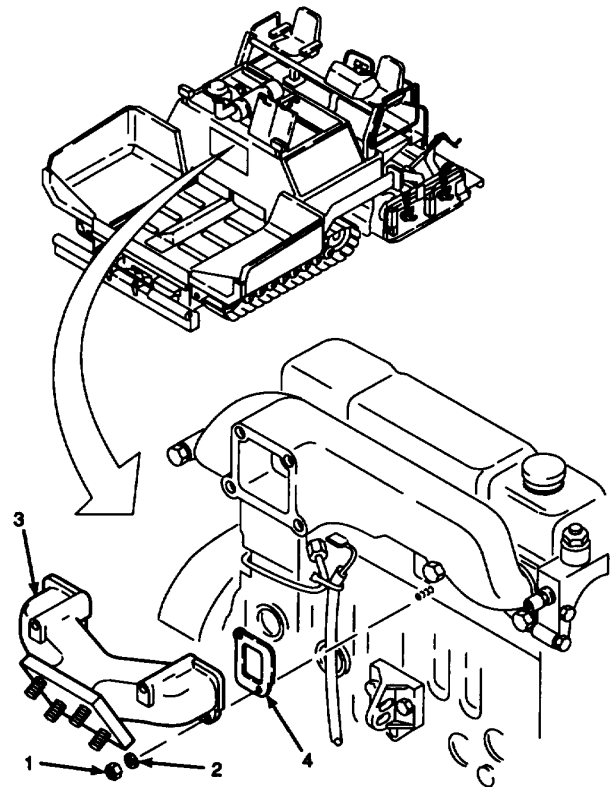
Front top left access door open per TM 5-3895-373-10.
Engine access cover removed per paragraph 2.22.
Turbosupercharger assembly removed per paragraph 4.4.

WARNING

Allow engine to cool before performing maintenance on the muffler, exhaust pipe, exhaust manifold, or turbosupercharger. Do not touch hot exhaust system with bare hands; injury to personnel will result. If maintenance of a heated surface is necessary, use insulated pads or gloves.

A. REMOVE.**1. REMOVE EXHAUST MANIFOLD.**

- a. Remove and discard nuts (1) and flat washers (2).
- b. Remove exhaust manifold (3) and gaskets (4). Discard gaskets.



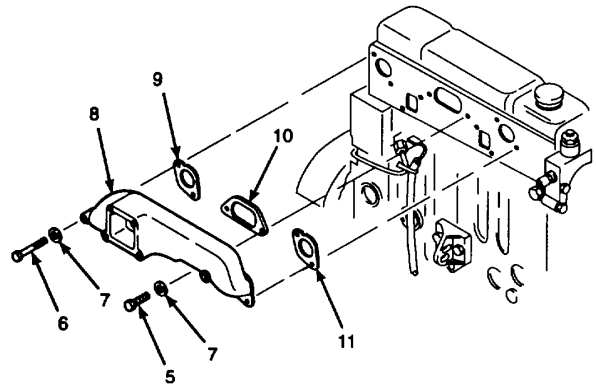
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3.5. REPLACE EXHAUST MANIFOLD AND INTAKE MANIFOLD - Continued.

A. REMOVE - Continued.**2. REMOVE INTAKE MANIFOLD.****NOTE**

Exhaust manifold must be removed to get to hex head cap screws (5) on intake manifold.

- a. Remove hex head cap screws (5 and 6), and washers (7).
- b. Remove intake manifold (8) and gaskets (9, 10, and 11). Discard gaskets.

**B. CLEAN.****CAUTION**

Use caution when scraping manifold mounting surfaces on engine block with putty knife. Putty knife may score sealing surfaces and debris may fall into engine ports. Failure to do so may result in a poor seal and engine damage.

1. **CLEAN MANIFOLD MOUNTING SURFACES ON ENGINE BLOCK. USE A PUTTY KNIFE, IF NECESSARY, TO REMOVE ANY GASKET PIECES OR CARBON BUILD UP. DO NOT SCORE THE SEALING SURFACE OR ALLOW ANY DEBRIS TO FALL INTO ENGINE PORTS.**

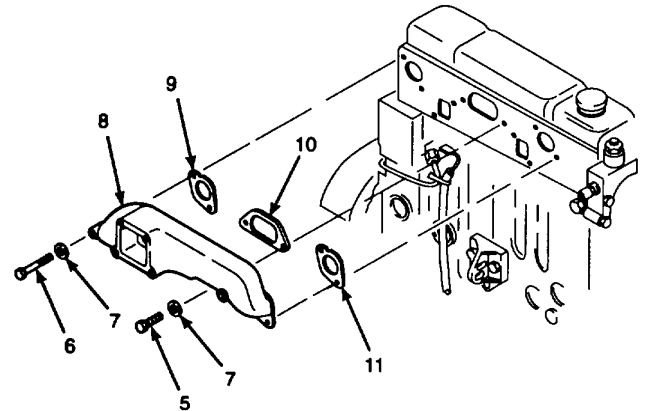
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B. CLEAN - Continued.**WARNING**

Cleaning solvent, PD680, is TOXIC and flammable. Wear protective goggles 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 flash point for Type III cleaning solvent is 200°F (93,30C). 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, flush eyes with water and get immediate medical attention.

2. USE A CLEANING CLOTH AND CLEANING SOLVENT TO WIPE OFF MANIFOLD MOUNTING SURFACE ON ENGINE BLOCK.

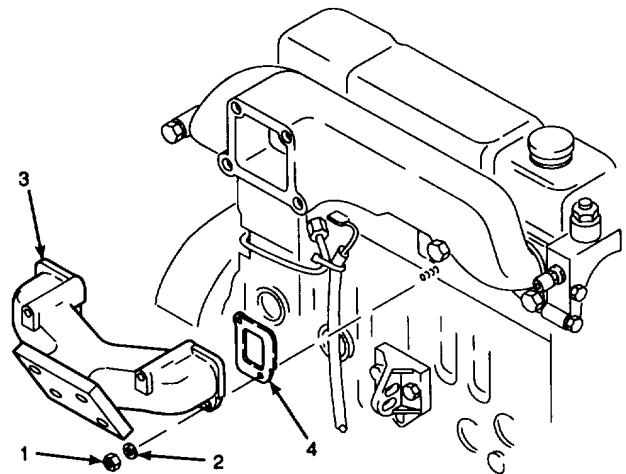
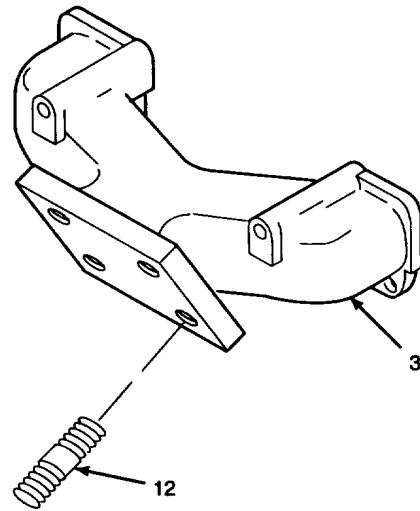
**C. INSTALL.****1. INSTALL INTAKE MANIFOLD.**

- a. Install intake manifold (8) and gaskets (9, 10, and 11) using hex head cap screws (5 and 6) and washers (7).
- b. Tighten hex head cap screws (5 and 6) to 37 lbft (50 N.m).

GO TO NEXT PAGE

3.5. REPLACE EXHAUST MANIFOLD AND INTAKE MANIFOLD - Continued.**C. INSTALL - Continued.****2. INSTALL EXHAUST MANIFOLD.**

- a. Install short end of turbosupercharger mounting studs (12) into exhaust manifold (3). Using a stud remover and setter, tighten studs to 30 lb-ft (41 N.m).
- b. Install gaskets (4) and exhaust manifold (3).
- c. Install flat washers (2) and nuts (1). Tighten nuts to 42 lb-ft (57 N.m).

**NOTE**

FOLLOW-ON-TASKS: Install turbosupercharger assembly per paragraph 4.4.
 Install engine access cover per paragraph 2.22.
 Close front top left access door per TM 5-3895-373-10.

END OF TASK

CHAPTER 4

FUEL SYSTEM MAINTENANCE

	Para	Page
General Maintenance Procedures.....	4.1	4-1
Repair Fuel Tank.....	4.5	4-28
Repair or Replace Fuel Lines, Fittings, and Hoses.....	4.7	4-35
Replace Cold Start Induction Heater.....	4.10	4-62
Replace Fuel Filter Assembly.....	4.9	4-53
Replace Fuel Lift Pump.....	4.2	4-2
Replace Fuel Shutoff Solenoid.....	4.6	4-31
Replace Fuel/Water Separator.....	4.8	4-47
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Replace/Repair Air Intake Components.....	4.3	4-7
Replace Throttle Actuator and Throttle Control Cable.....	4.12	4-69
Replace Turbosupercharger.....	4.4	4-20

4.1. GENERAL MAINTENANCE PROCEDURES.

All unit level maintenance shall be performed in accordance with good and safe shop practices. Observe the following general instructions and requirements when performing fuel system maintenance.

a. All areas of the paving machine exposed to paving material require wash down prior to maintenance. Use spray wash down equipment per TM 5389537310. Use hammers, chisels, and scrapers to remove paving material buildup deposits.

b. Thread locking compound is used with most threaded fasteners. If a threaded fastener will not break loose, heat threaded area of fastener from 500° to 6000F (2320 to 315°C) with heater gun. If the special solvent used to remove thread locking compound from screw threads fails to remove buildup, discard fastener.

c. When removing tie wraps from hoses and wiring, note or mark locations and anchor points. The proper location and installation of tie wraps will prevent undue chafing of hoses and wiring.

d. Always tag mating connectors and fittings before disconnecting. Tagging of mating connectors and fittings will ease reassembly and reduce assembly errors.

e. Inspect all removed components for obvious wear or damage. Replace all worn, bent, broken, or otherwise damaged parts.

f. Inspect all removed components for wear or damage. Replace damaged parts. Replace used lockwashers, self locking nuts, preformed packings, seals, and gaskets.

g. Inspect all removed fasteners for thread damage. If thread damage is found, replace fastener. Replace flat washers if galled or bent. Use screw extractor set (Item 15, Appendix E) to remove broken studs or screws.

h. Clean painted surfaces thoroughly before repainting. Do not paint over rust or corrosion. Reference TM 430139 for equipment painting requirements.

i. Torque values cited in the text apply to modified SAE Grade 8 fasteners at required clamping loads.

j. Use only authorized replacement parts. Refer to TM 5-3895-373-24P, Repair Parts and Special Tools List (RPSTL) for authorized replacement parts.

k. Observe all warnings and cautions. Wear protective clothing and equipment as specified. Observe the Safety and Hazard Warnings provided in TACOM technical bulletin TB 43-0216.

4.2. REPLACE FUEL LIFT PUMP.

This task covers: **a. Remove** **b. Clean** **c. Install**

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Drip pan (Item 28, Appendix E)

References:

TM 5-3895-373-24P

Equipment conditions:

Engine access cover removed per paragraph 2.22.

Materials/Parts:

Cleaning solvent (Item 24, Appendix C)
Lint-free cloth (Item 8, Appendix C)
Machinery wiping towel (Item 30, Appendix C)
Protective caps (Item 5, Appendix C)
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Fuel lift pump
Gasket
Preformed packing

GO TO NEXT PAGE

A. REMOVE.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

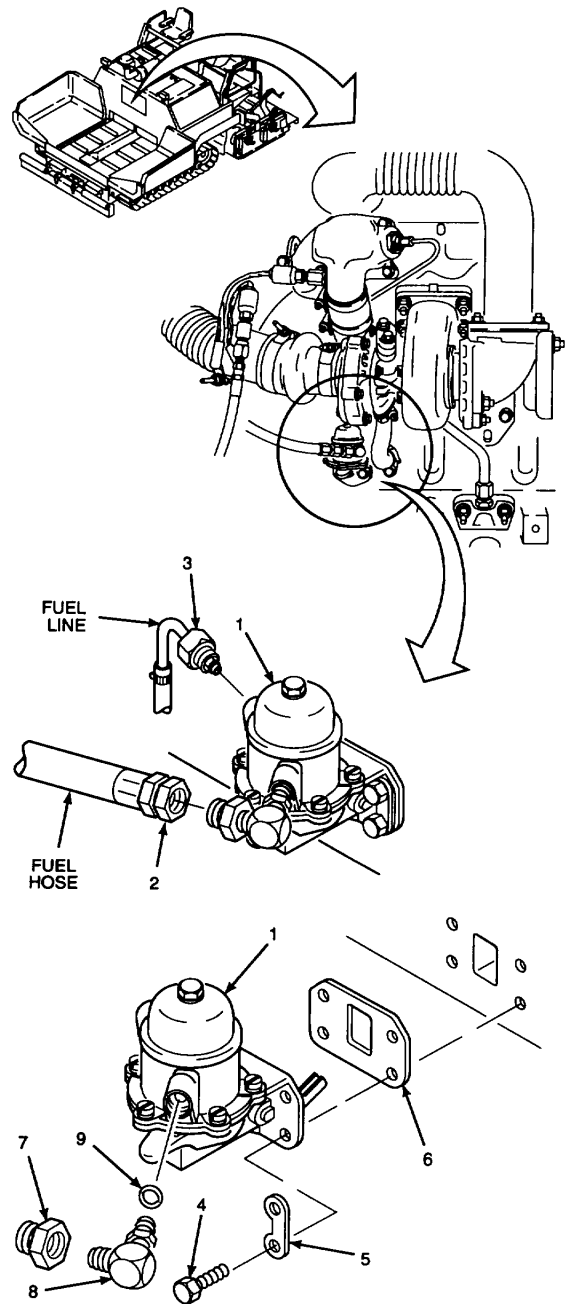
Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

1. DISCONNECT FUEL HOSE AND LINE.

2. REMOVE FUEL LIFT PUMP.

- a. While holding fuel lift pump (1) in place, remove hex head cap screws (4) and retaining plates (5).
- b. Remove the fuel lift pump and drain excess fuel into a drip pan. Dispose of fuel in accordance with local procedures.
- c. Remove and discard gasket (6).
- d. Remove tube reducer (7), elbow (8), and preformed packing (9). Discard preformed packing.



GO TO NEXT PAGE

4.2. REPLACE FUEL LIFT PUMP - Continued.

B. CLEAN.**WARNING**

Cleaning solvent, PD680, is TOXIC and flammable. Wear protective goggles 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 flash point for Type III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

**CAUTION**

Use caution when scraping manifold mounting surfaces on engine block with putty knife. Putty knife may score sealing surfaces and debris may fall into engine ports. Failure to do so may result in a poor seal and engine damage.

1. CLEAN FUEL LIFT PUMP MOUNTING SURFACE ON ENGINE WITH CLEANING SOLVENT. USE PUTTY KNIFE TO REMOVE ANY GASKET MATERIAL RESIDUE FROM ENGINE. WIPE SURFACE DRY WITH A LINT-FREE CLOTH.

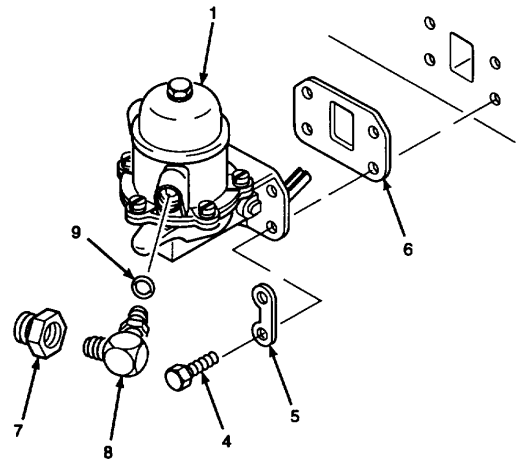
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B. CLEAN - Continued.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

2. CLEAN THREADS OF HEX HEAD CAP SCREWS WITH THREAD LOCKING COMPOUND SOLVENT. WIPE DRY WITH A LINTFREE CLOTH.



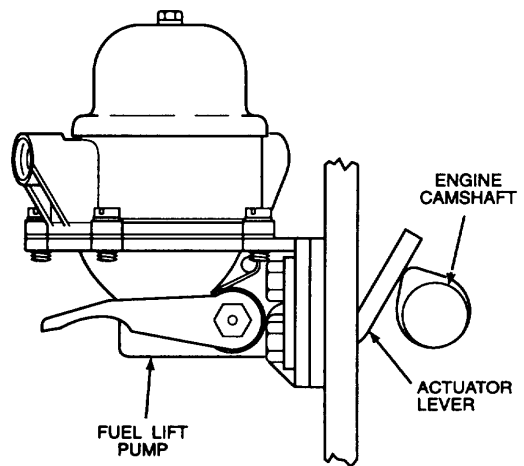
C. INSTALL.

1. INSTALL LIFT PUMP.
 - a. Install preformed packing (9), elbow (8), and tube reducer (7). Rotate elbow to position shown.
 - b. Install gasket (6).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- c. Apply thread locking compound to leading threads of hex head cap screws (4).
- d. Install fuel lift pump (1). When positioning fuel lift pump during installation, make sure pump actuator lever rides on top of engine camshaft. Install retaining plate (5) and hex head cap screw (4). Tighten cap screws to 14 lb-ft (19 N.m).



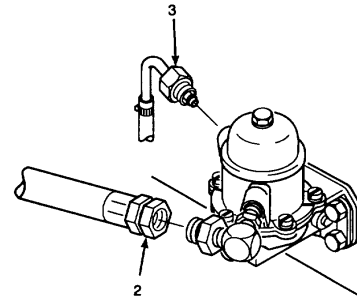
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4.2. REPLACE FUEL LIFT PUMP - Continued.

C. INSTALL - Continued.

Do not overtighten fittings. Overtightening may damage fuel line or fitting and cause leakage.

2. CONNECT FUEL HOSE AND LINE (2 AND 3) AND TIGHTEN FITTINGS. DO NOT OVERTIGHTEN FITTINGS.

**NOTE**

FOLLOW-ON-TASKS: Bleed engine fuel system per paragraph 2.23.11. Install engine access cover per paragraph 2.22.

END OF TASK

4.3. REPLACE/REPAIR AIR INTAKE COMPONENTS.

This task covers: **a. Remove** **b. Clean** **c. Inspect**
 d. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Torque wrench (Item 68, Appendix E)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Electrical insulating compound (Item 11, Appendix C)
Hydraulic fitting sealant (Item 21, Appendix C)
Pipe sealant (Item 22, Appendix C)
Thread locking compound (Item 13, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Air cleaner filter element
Lockwasher
Seal washer
Self-locking hex nut

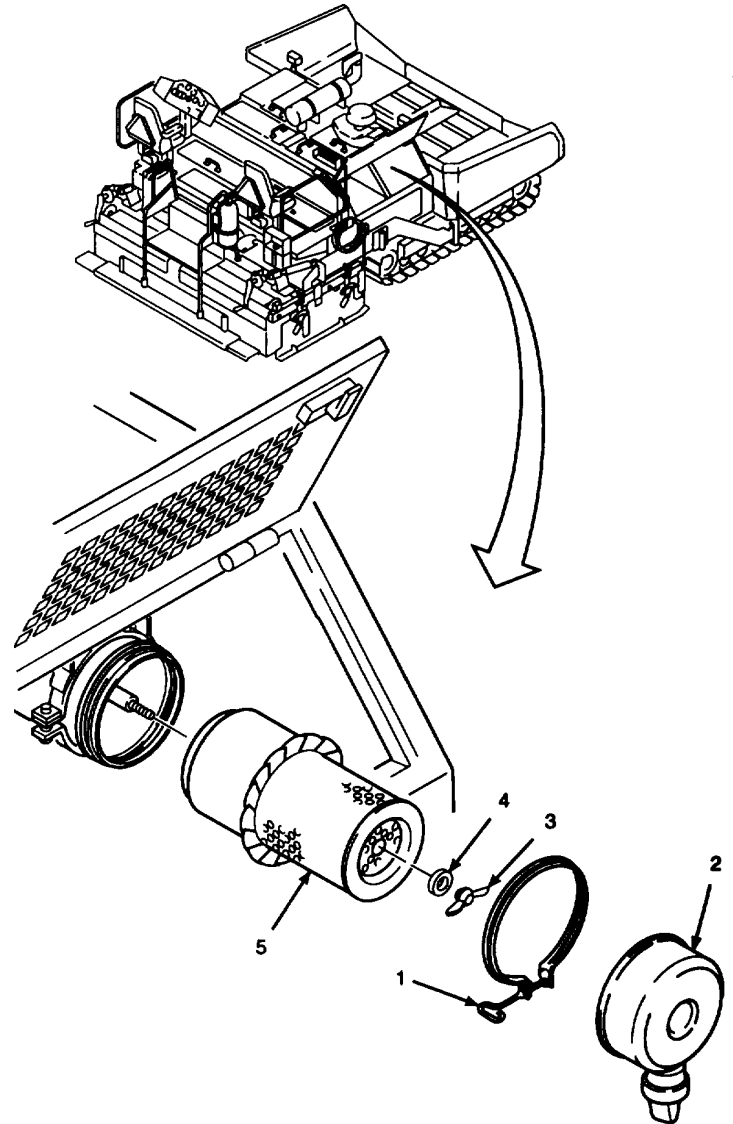
Equipment Condition:

Right access door open per TM 5-3895-373-10.
Left access door open per TM 5-3895-373-10.
Left access cover removed per TM 5-3895-373-10.
Front top right access door open per TM 5-3895-373-10.
Engine access cover removed per paragraph 2.22.

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4.3. REPLACE/REPAIR AIR INTAKE COMPONENTS - Continued.**A. REMOVE.**

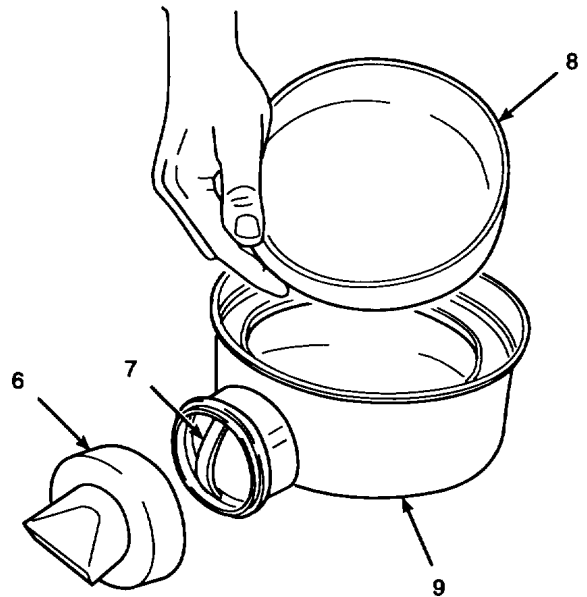
1. REMOVE BAFFLE ASSEMBLY AND AIR CLEANER FILTER ELEMENT.
 - a. Loosen clamp (1). Remove baffle assembly (2) and clamp.
 - b. Remove wing nut (3) with seal washer (4). Discard seal washer.
 - c. Remove and discard air cleaner intake filter element (5).

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A. REMOVE - Continued.

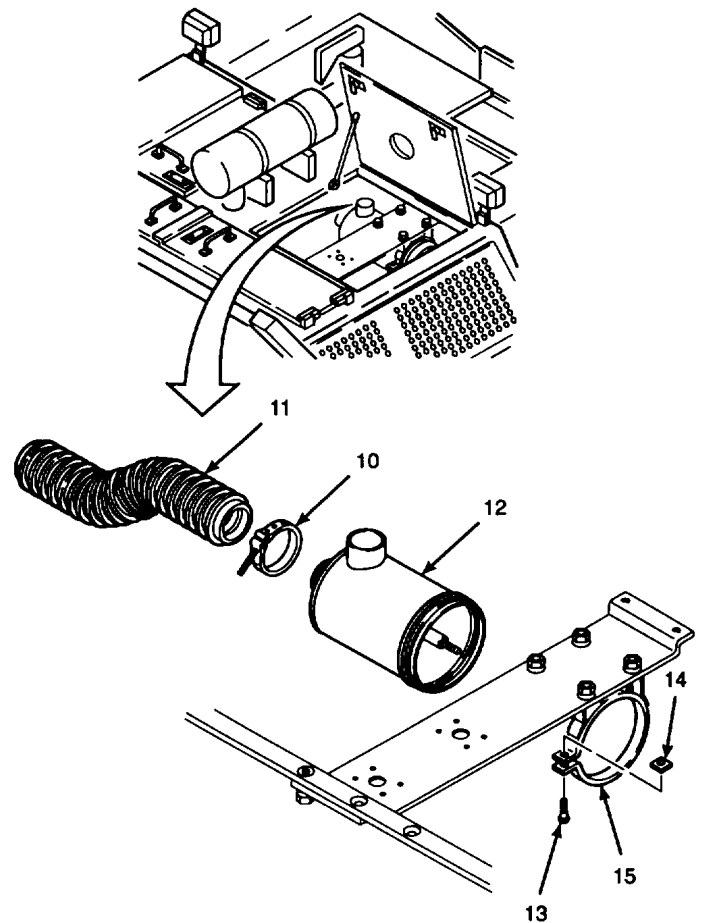
2.DISASSEMBLE BAFFLE COMPONENTS.

- a. Remove vacuum diaphragm (6) and flat spring (7).
- b. Remove baffle (8) from air cleaner intake (9).



3.REMOVE AIR CLEANER DEFLECTOR.

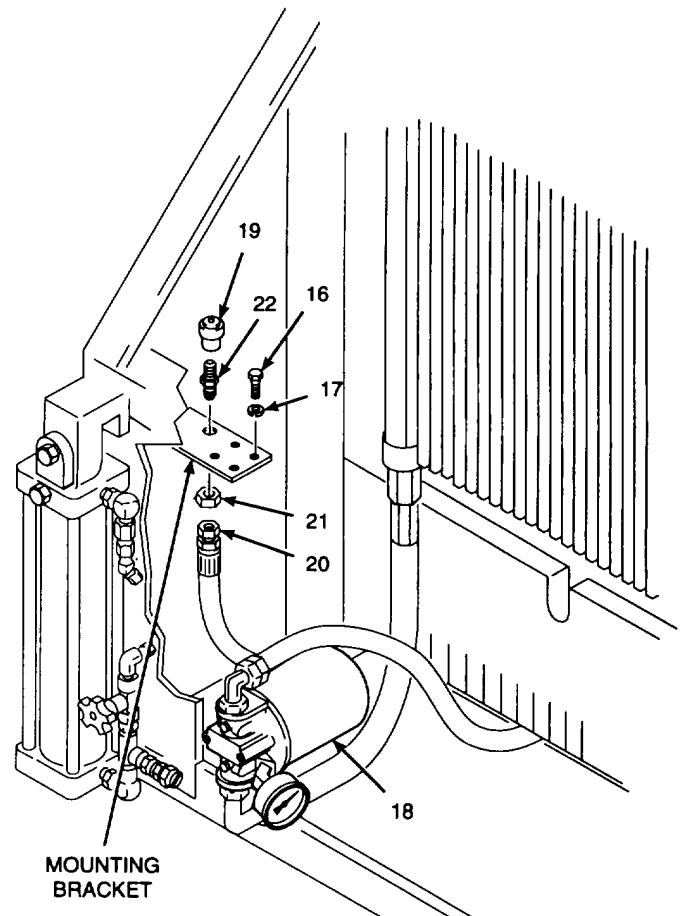
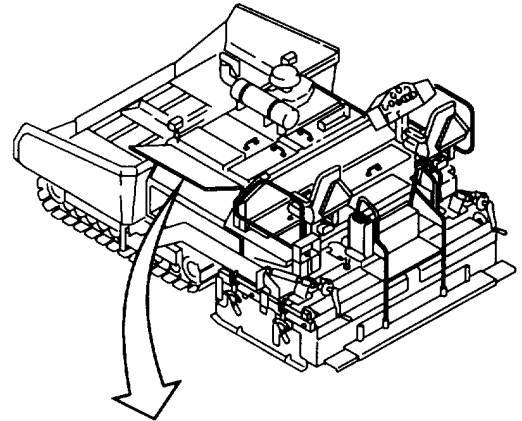
- a. Loosen clamp (10).
- b. Remove clamp (10) from output port of air cleaner deflector (12).
- c. Remove round head screws (13) and square nuts (14). Spread clamps (15) open and remove air cleaner deflector (12).
- d. Remove flexible tube (11) from output port of air cleaner deflector (12).



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4.3. REPLACE/REPAIR AIR INTAKE COMPONENTS - Continued.**A. REMOVE - Continued.**

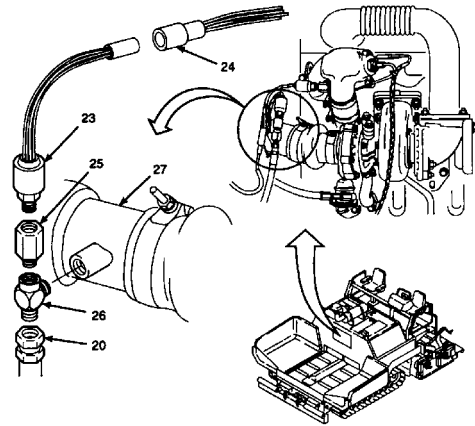
4. REMOVE AIR CLEANER SERVICE INDICATOR KNOB AND AIR PRESSURE TRANSMITTER.
 - a. Remove bolts (16) and lockwashers (17). Discard lockwashers.
 - b. Remove hydraulic return filter (18) from mounting bracket with attached hoses and lay down in engine compartment.
 - c. Remove air cleaner service indicator knob (19). Remove hose (20), self-locking hex nut (21), and bulkhead adapter (22). Discard self-locking hex nut.



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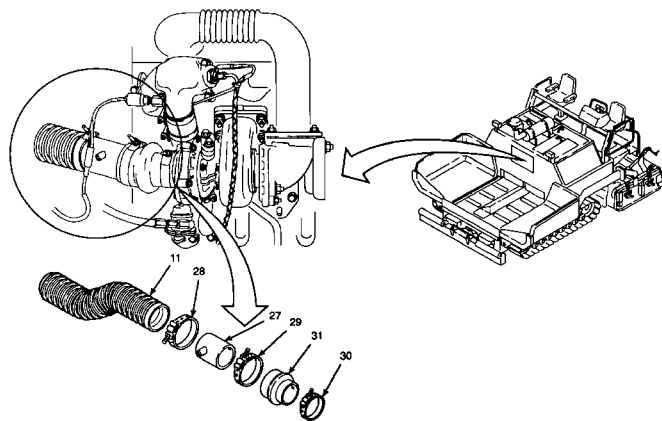
A. REMOVE - Continued.

- d. Through engine access port in fire wall, unplug air pressure transmitter (23) from harness connector (24) and remove from pipe reducer (25).
- e. Remove pipe reducer (25) and hose (20).
- f. Remove tee (26) from pressure sense tube (27).



5. REMOVE FLEXIBLE TUBE, PRESSURE SENSE TUBE, AND REDUCER.

- a. Loosen clamps (28, 29, and 30).
- b. Remove flexible tube (11), clamp (28), and pressure sense tube (27).
- c. Remove clamp (29), reducer (31), and clamp (30).

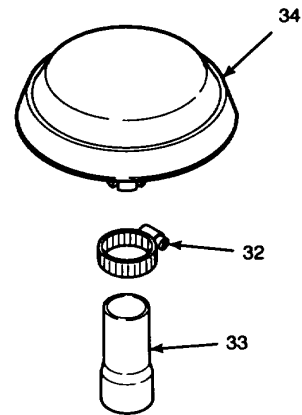


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4.3. REPLACE/REPAIR AIR INTAKE COMPONENTS - Continued.

A. REMOVE - Continued.

6. REMOVE HOSE CLAMP (32) AND EXTENSION TUBE (33) FROM AIR CLEANER CAP ASSEMBLY (34).



B. CLEAN.

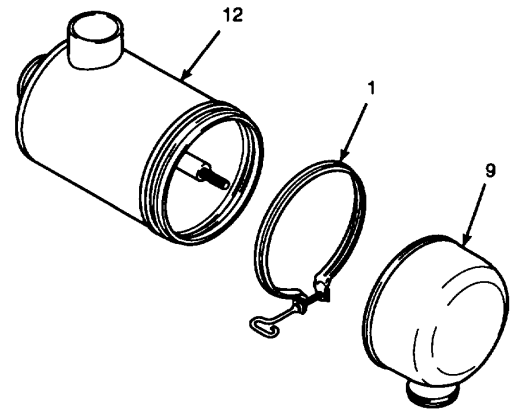
1. CLEAN METAL AIR CLEANER COMPONENTS.
 - a. Lightly tap air cleaner intake (9) and air cleaner deflector (12) on wooden surface to remove dust.

WARNING

Cleaning solvent, PD680, is TOXIC and flammable. Wear protective goggles 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 m cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- b. Use cleaning cloths soaked with cleaning solvent to wipe away dirt, grease, and oily deposits from air cleaner intake (9), air cleaner deflector (12), and clamp (1).

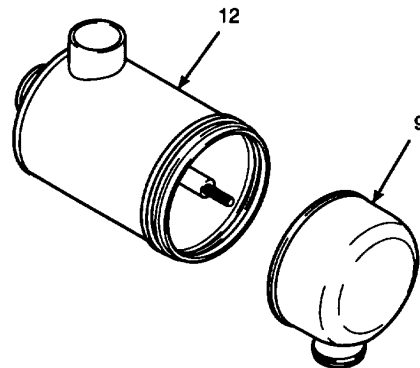


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- B. CLEAN - Continued.
- 2. CLEAN RUBBER COMPONENTS WITH DETERGENT AND WARM WATER.
- 3. CLEAN THREADS OF BOLTS.

WARNING

Thread locking compound solvent can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush with water and get immediate medical attention.



- a. Clean threads of bolts with thread locking compound solvent.
- b. Wipe dry with a clean, cleaning cloth.
- 4. USE CLEANING CLOTH TO WIPE RESIDUE FROM THREADS OF PIPE FITTINGS AND HYDRAULIC FITTINGS.
- C. INSPECT.
- 1. INSPECT AIR CLEANER INTAKE AND AIR CLEANER DEFLECTOR FOR DAMAGE AND DEFORMATION.
- a. Inspect air cleaner intake (9) and air cleaner deflector (12) for cracks, breaks, and holes. If cracks, breaks, or holes are found, replace damaged components.

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4.3. REPLACE AIR INTAKE COMPONENTS - Continued.

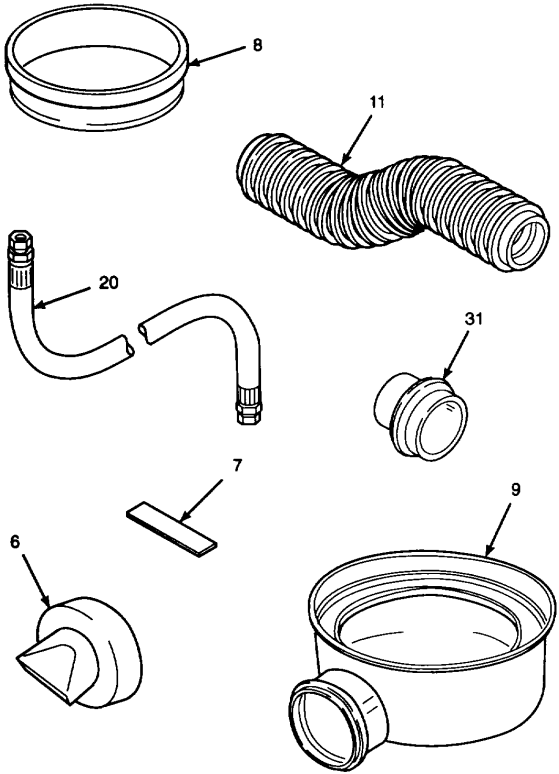
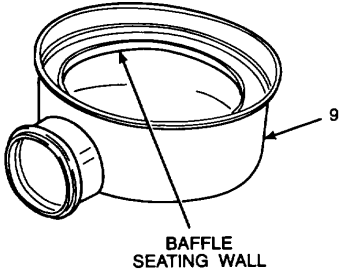
C. INSPECT - Continued.

- b. Inspect condition of baffle seating wall in air cleaner intake (9). If seating wall is bent or deformed, replace air cleaner intake.

CAUTION

Air intake components must be free of leaks to prevent intake of sand, or dust into turbosupercharger. Make sure intake reducer, hose, flexible tube, sense tube, baffle, and air cleaner deflector are free of leaks. Failure to ensure leakproof intake components may result in serious damage to turbosupercharger and engine.

- 2. INSPECT BAFFLE, VACUUM DIAPHRAGM HOSES, AND REDUCER FOR CRACKS, TEARS, OR HOLES.
 - a. Inspect rubber baffle (8) for cracks, tears, or missing material. Replace damaged component.
 - b. Inspect vacuum diaphragm (6), flexible tube and hose (11 and 20), and reducer (31) for cracks, tears, or holes. Replace damaged components.
- 3. INSPECT FLAT SPRING FOR CRACKS OR DEFORMATION.
 - a. Inspect flat spring (7) for cracks, breaks, or missing material. Replace flat spring if damaged.
 - b. If flat spring (7) does not spring back when bent, replace it.



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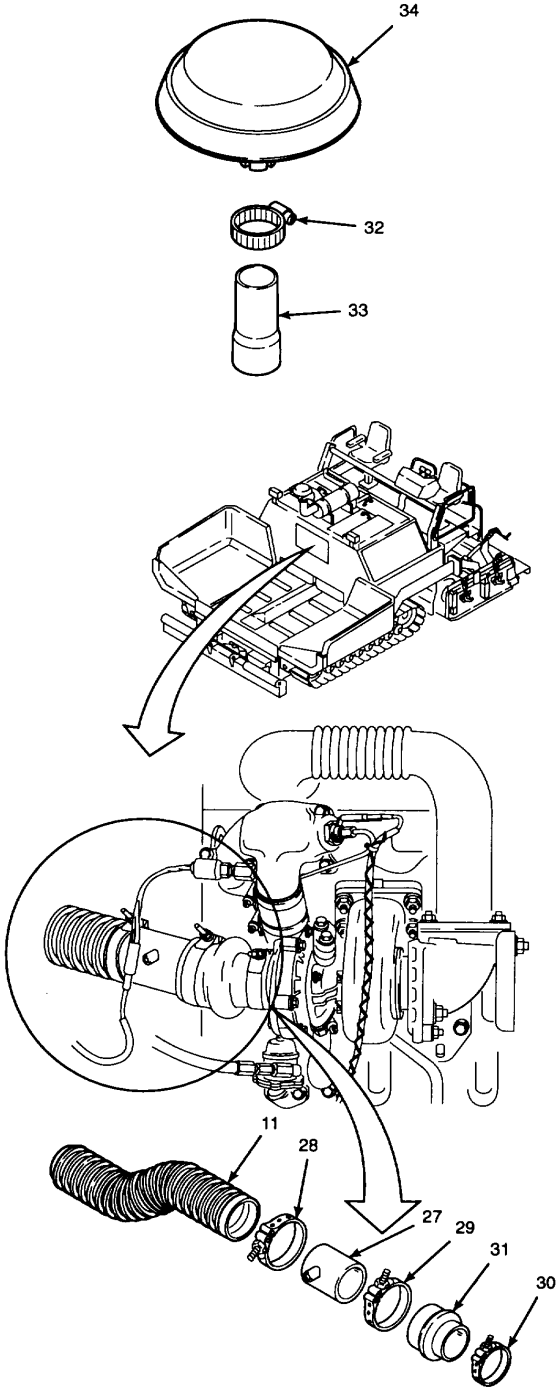
D. INSTALL.

- 1. INSTALL EXTENSION TUBE (33) AND HOSE CLAMP (32) ON AIR CLEANER CAP ASSEMBLY (34).
- 2. INSTALL FLEXIBLE TUBE, PRESSURE SENSE TUBE, AND REDUCER.

CAUTION

Air intake components must be free of leaks to prevent intake of sand, or dust into turbosupercharger. Make sure reducer, hose, flexible tube, sense tube, baffle, and air cleaner deflector are free of leaks. Failure to ensure leakproof intake components may result in serious damage to turbosupercharger and engine.

- a. Install reducer (31) and clamp (30). Tighten clamp.
- b. Install clamp (29) and pressure sense tube (27). Tighten clamp.
- c. Install clamp (28) and flexible tube (11). Tighten clamp.



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4.3. REPLACE/REPAIR AIR INTAKE COMPONENTS - Continued.

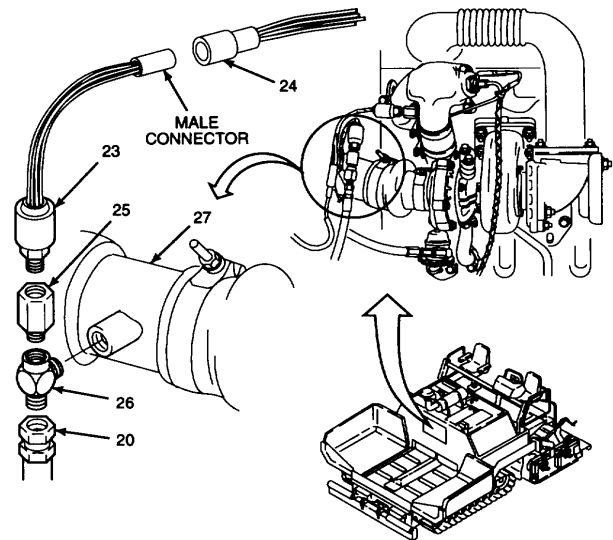
D. INSTALL - Continued.

3. INSTALL AIR PRESSURE TRANSMITTER AND AIR CLEANER SERVICE INDICATOR KNOB.

WARNING

Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- a. Apply pipe sealant to male pipe threads of tee (26), pipe reducer (25), and air pressure transmitter (23).
- b. Install and tighten tee (26) into pressure sense tube (27). Exposed male threads of tee should point downward as shown in illustration.
- c. Install pipe reducer (25) and air pressure transmitter (23) into female thread end of tee (26). Tighten pipe reducer and pressure transmitter.
- d. Apply electrical insulating compound to male connector of air pressure transmitter (23). Plug pressure transmitter connector into harness connector (24).

**WARNING**

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- e. Apply hydraulic fitting sealant to exposed threads of tee (26). Install and tighten hose (20).

GO TO NEXT PAGE

D. INSTALL - Continued.

- f. Install bulkhead adapter (22) and self-locking hex nut (21). Tighten nut.
- g. Install and hand tighten air cleaner service indicator knob (19).

WARNING

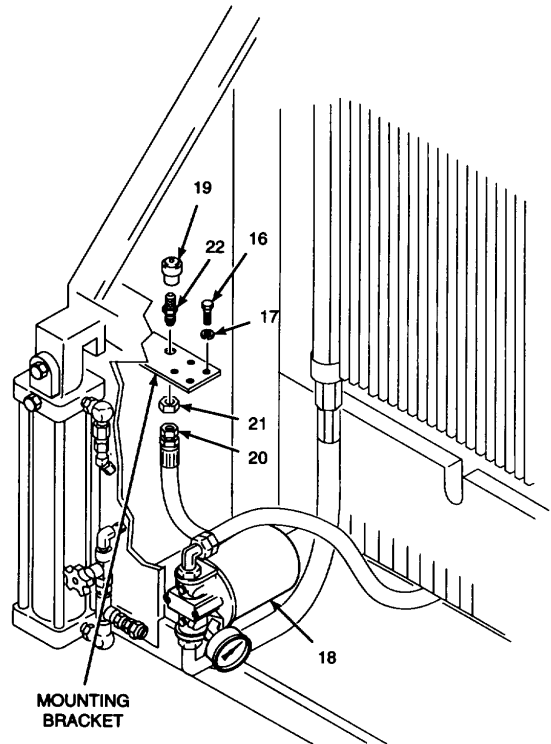
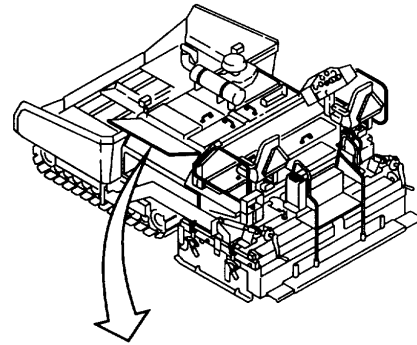
Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- h. Apply hydraulic fitting sealant to exposed threads of installed bulkhead adapter (22). Install and tighten hose (20).
- i. Move hydraulic return filter (18) back to mounting installation.
- j. Install lockwashers (17) onto bolts (16).

WARNING

Thread locking compound can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush with water and get immediate medical attention.

- k. Apply thread locking compound to threads of bolts (16).
- l. Install bolts (16). Tighten to 14 lb-ft (19 N.m).



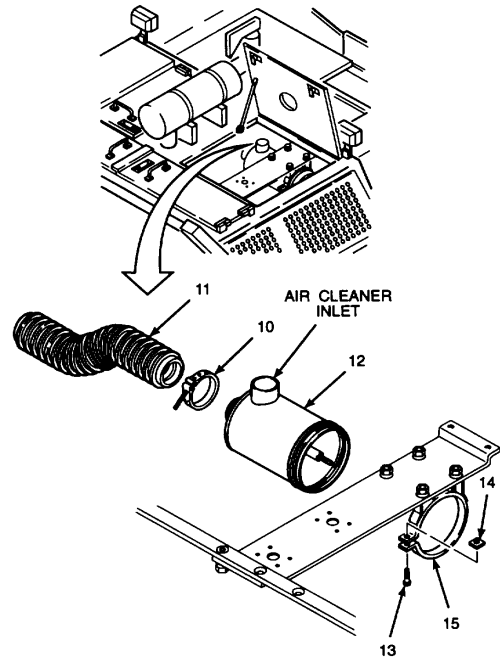
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4.3. REPLACE/REPAIR AIR INTAKE COMPONENTS - Continued.

D. INSTALL - Continued.

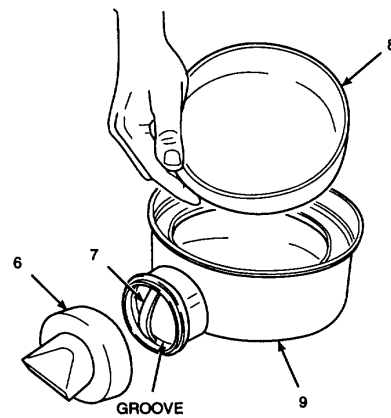
4. INSTALL AIR CLEANER DEFLECTOR.

- a. Install clamp (10) and flexible tube (11) on air cleaner deflector (12). Tighten clamp.
- b. Install air cleaner deflector (12) into clamps (15) with the air cleaner inlet at the 12 o'clock position. Secure clamps with square nuts (14) and round head screws (13). Tighten round head screws.



5. INSTALL BAFFLE COMPONENTS.

- a. Install flat spring (7) in air cleaner intake (9). Seat flat spring ends in inside groove of retaining boss.
- b. Install baffle (8). Make sure baffle is fully seated on mating wall in baffle.
- c. Install vacuum diaphragm (6) over large diameter of retaining boss.



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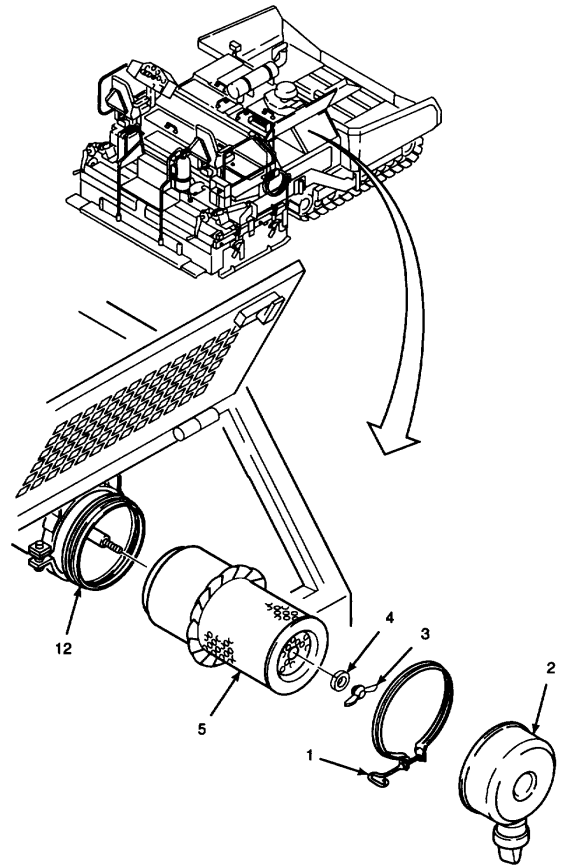
D. INSTALL - Continued.**6. INSTALL AIR CLEANER FILTER ELEMENT.**

- a. Install seal washer (4) on mating groove of wing nut (3).
- b. Install air cleaner filter element (5) inside air cleaner deflector (12). Secure air cleaner filter element with wing nut (3).

CAUTION

Ensure clamp is installed small diameter first onto the air cleaner deflector. Clamp will not seal properly if installed backward.

- c. Install clamp (1) over and beyond clamping boss of air cleaner deflector (12). Position clamp with small diameter first onto air cleaner deflector.
- d. Install baffle assembly (2) on air cleaner deflector (12). Rotate vacuum diaphragm port to 6 o'clock position.
- e. Position clamp (1), large diameter first, over clamping bosses. Check all around clamp for full seating. Finger tighten clamp.

**NOTE**

FOLLOW-ON-TASKS: Install engine access cover per paragraph 2.22.
 Close front top right access door per TM 5-3895-373-10.
 Install left access cover per TM 5-3895-373-10.
 Close left access door per TM 5-3895-373-10.
 Close right access door per TM 5-3895-373-10.

END OF TASK

4.4. REPLACE TURBOSUPERCHARGER.

This task covers: a. Remove b. Clean c. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54 Appendix E)
Torque wrench (Item 68, Appendix E)

Materials/Parts:

Anti-seize compound (Item 9, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Electrical insulating compound (Item 11, Appendix C)
Engine oil, 1 qt can (Item 19, Appendix C)
Lint-free cloth (Item 8, Appendix C)
Compression sleeve
Gasket, exhaust elbow to turbosupercharger
Gasket, exhaust pipe to exhaust elbow
Gasket, hose flange
Gasket, intake elbow manifold to intake manifold
Gasket, oil pipe connector
Gasket, turbosupercharger to exhaust manifold
Lockwashers

Personnel Required:

Two 62B construction equipment repairers. Second one needed to assist in priming turbosupercharger with lubricating oil.

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

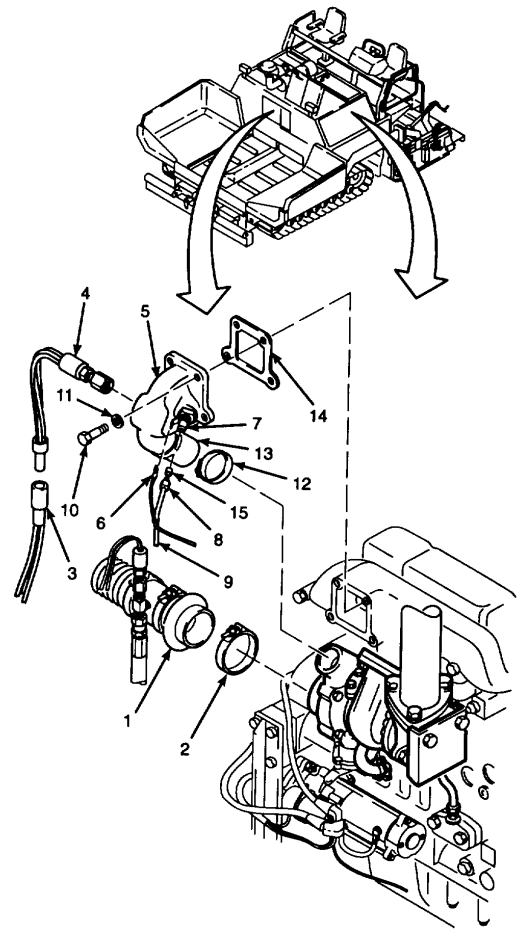
Engine access cover removed, per paragraph 2.22.
Front top left access door open per TM 5-3895-373-10.

GO TO NEXT PAGE

A. REMOVE.

1. REMOVE TURBOSUPERCHARGER INLET HOSE AND TURBOSUPERCHARGER OUTLET ELBOW.

- a. Disconnect turbosupercharger inlet reducer (1) by loosening clamp (2).
- b. Disconnect transmitter harness connector (3).
- c. Remove pressure transmitter (4) from turbosupercharger intake elbow manifold (5).
- d. Unplug lead wire contact (6) from cold start induction heater (7). Unscrew tube coupling nut (8) on fuel pipe (9).
- e. Remove bolts (10) and flat washers (11).
- f. Loosen hose clamp (12).
- g. Remove turbosupercharger intake elbow manifold (5) and disconnect fuel pipe (9) from cold start induction heater (7). Do not remove inlet hose (13) from turbosupercharger intake elbow manifold unless damaged.
- h. Remove gasket (14).
- i. Remove and discard compression sleeve (15).



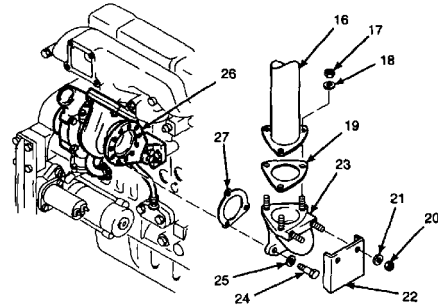
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4.4. REPLACE TURBOCHARGER - Continued.

A. REMOVE - Continued.

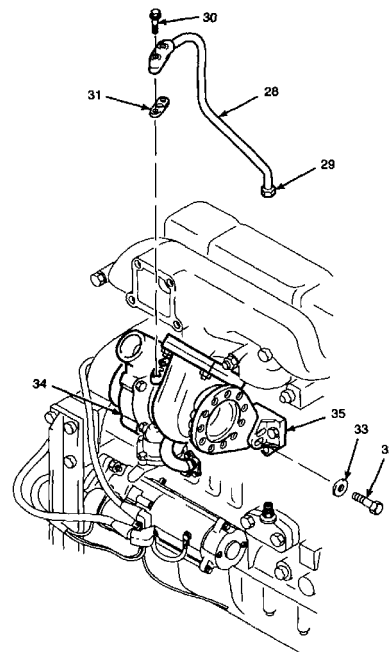
2. REMOVE EXHAUST PIPE.

- a. Disconnect exhaust pipe (16) by removing nuts (17) and washers (18).
- b. Remove and discard gasket (19).
- c. Remove hex nuts (20), flat washers (21), and heat shield (22).
- d. Support exhaust elbow (23) and remove bolts (24) and washers (25). Note positions of bolts on connector flange (26) for reinstallation. Remove exhaust elbow.
- e. Remove and discard gasket (27).



3. REMOVE TURBOSUPERCHARGER.

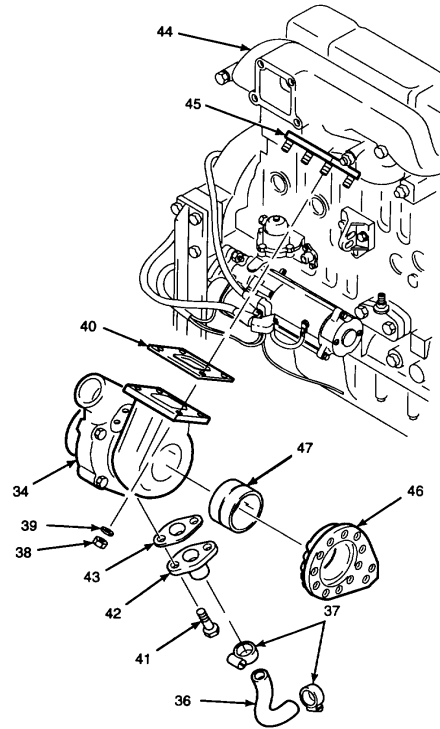
- a. Disconnect oil pipe (28) by loosening hex nut (29).
- b. Remove hex head cap screws (30), oil pipe (28), and gasket (31).
- c. Remove bolts (32) and flat washers (33) securing turbosupercharger (34) to bracket (35).



GO TO NEXT PAGE

A. REMOVE - Continued.

- d. Remove turbosupercharger return hose (36) by loosening hose clamps (37).
- e. Remove nuts (38), flat washers (39), turbosupercharger (34), and gasket (40).
- f. Remove machine screws (41), hose flange (42), and gasket (43).
- g. Place lint-free cloths in openings of intake manifold (44) and exhaust manifold (45) to avoid contamination.
- h. Use a flat-blade screwdriver and a hammer to tap and remove exhaust connector (46) and sleeve (47).



GO TO NEXT PAGE

4.4. REPLACE TURBOCHARGER - Continued.

B. CLEAN.

1. CLEAN TURBOSUPERCHARGER METAL PARTS.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- a. Use a clean, lint-free cloth soaked with cleaning , solvent to clean all metal parts.
- b. Use a parts cleaning brush and cleaning solvent to remove any hard deposits and carbon buildup.

CAUTION

Use caution when scraping gasket sealing surfaces with putty knife. Putty knife may score sealing surfaces and debris may fall into open ports. Failure to do so may result in poor seal and turbosupercharger damage.

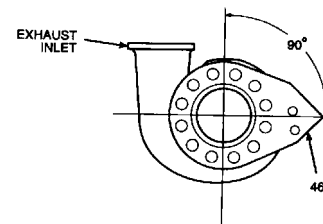
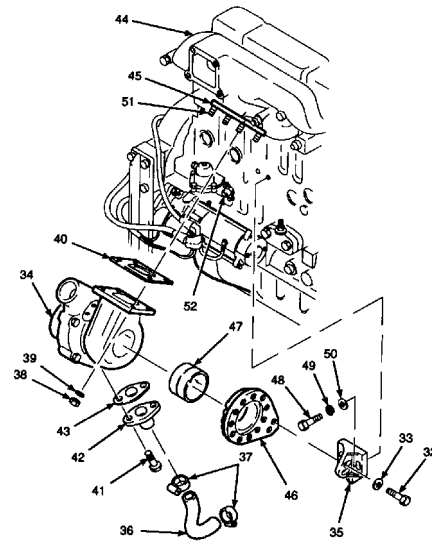
- c. Use a putty knife, if necessary, to remove any gasket material from sealing surfaces. Do not score the sealing surface or allow any gasket material to fall into open ports.
2. CLEAN MOUNTING HARDWARE AND THREADED FITTINGS.
 - a. Using cleaning solvent, clean threads of bolts, screws, and studs. Use a parts cleaning brush to remove any hard deposits from threads.
 - b. Dry with a clean, lint-free cloth.

GO TO NEXT PAGE

C. INSTALL.

1. INSTALL TURBOSUPERCHARGER.

- a. Remove lint-free cloths from openings of intake manifold (44) and exhaust manifold (45).
- b. Remove screws (48), lockwashers (49), flat washers (50), and bracket (35). Discard lockwashers.
- c. Install hose flange (42) and gasket (43) onto turbosupercharger (34) and secure with machine screws (41).
- d. Install turbosupercharger return hose (36) and top hose clamp (37) onto hose flange (42). Tighten hose clamp.
- e. Install flat washers (33) and bolts (32) onto bracket (35).
- f. Install bracket (35) onto exhaust connector (46) and tighten bolts (32) hand tight.
- g. Use a hammer to tap sleeve (47) and exhaust connector (46) onto turbosupercharger (34). Align exhaust connector so wide part of flange is positioned at a 90° angle to exhaust inlet on turbosupercharger.
- h. Install gasket (40) over turbosupercharger mounting studs (51). Install turbosupercharger (34) and secure with flat washers (39) and nuts (38). Tighten nuts hand tight.
- i. Install screws (48), lockwashers (49), and flat washers (50) through bracket (35) into engine. Tighten hand tight.
- j. Place bottom hose clamp (37) over turbosupercharger return hose (36). Reconnect turbosupercharger return hose to return inlet (52) on engine block. Tighten hose clamp.
- k. After aligning and installing all hardware, securely tighten all bolts (32), cap screws (48), and nuts (38).



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4.4. REPLACE TURBOCHARGER - Continued.

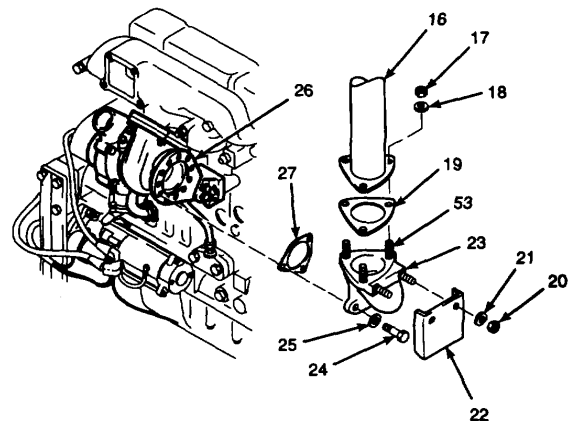
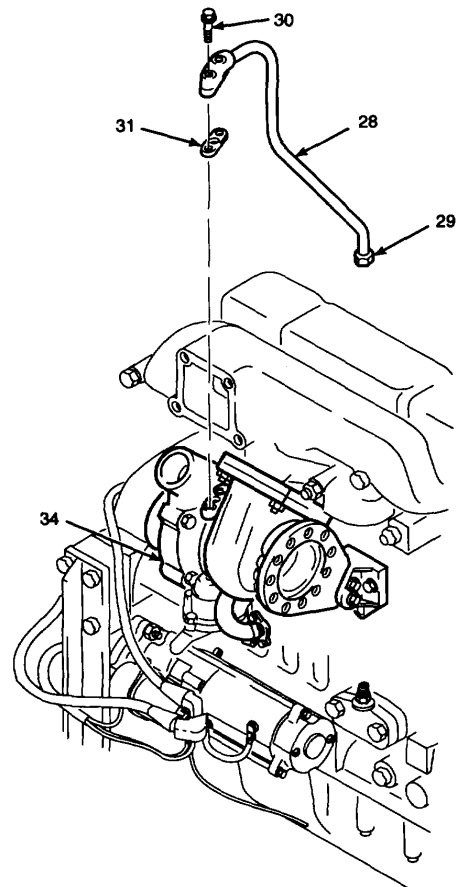
C. INSTALL - Continued.

1. Pour 4 to 5 fluid ozs (118 to 148 ml) of clean engine oil through turbosupercharger inlet port. Turn rotation assembly by hand to pass oil over bearing surfaces.
 - m. Route oil pipe (28) behind turbosupercharger (34) and align connection points. Tighten hex nut (29) hand tight.
 - n. Install gasket (31) and hex head cap screws (30). Tighten cap screws hand tight.
 - o. Securely tighten hex nut (29).
2. INSTALL EXHAUST PIPE.
 - a. Install gasket (27) and exhaust elbow (23) on turbosupercharger and secure with washers (25) and bolts (24). Orient bolts to thread into connector flange (26) as noted in step A.2.d.

WARNING

Anti-seize compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- b. Coat exhaust elbow studs (53) with anti-seize compound. Install gasket (19). Attach exhaust pipe (16) to exhaust elbow (23) using washers (18) and nuts (17). Tighten nuts to 33 lb-ft (45 N_om).
- c. Install heatshield (22). Secure with flat washers (21) and hex nuts (20).



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C. INSTALL - Continued.

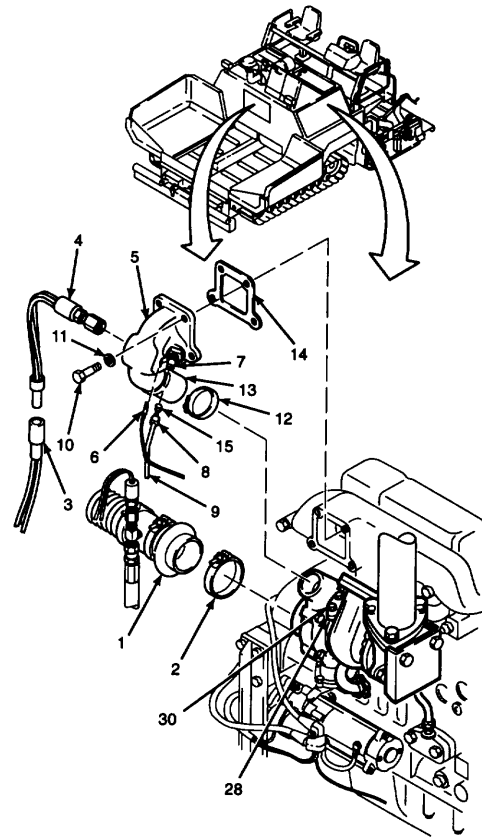
3. INSTALL TURBOSUPERCHARGER INLET HOSE AND TURBOSUPERCHARGER INLET ELBOW.

- a. Slide hose clamp (12) onto inlet hose (13).
- b. Connect inlet hose (13) to turbosupercharger inlet.
- c. Install compression sleeve (15) onto fuel pipe (9).

CAUTION

Do not overtighten tube coupling nut. Overtightening may damage compression sleeve and cause leakage.

- d. Connect fuel pipe (9) to cold start induction heater (7). Tighten tube coupling nut (8). Do not overtighten tube coupling nut.
- e. Install flat washers (11) and bolts (10) into turbosupercharger intake elbow manifold (5).
- f. Place gasket (14) over bolts (10) on turbosupercharger intake elbow manifold.
- g. Install turbosupercharger intake elbow manifold (5) and gasket (14). Tighten bolts (10) to 9 lb-ft (12 N.m).
- h. Tighten hose clamp (12).
- i. Apply electrical insulating compound to cold start induction heater lead wire contact (6). Connect lead wire contact to cold start induction heater (7).
- j. Connect pressure transmitter (4) to turbosupercharger intake elbow manifold (5). Apply electrical insulating compound to transmitter harness connector (3). Connect transmitter harness connector.
- k. With clamp (2) installed on reducer (1), connect reducer to turbosupercharger.
- l. Tighten clamp (2).



- m. With the help of another person, set DCA test switch to TEST. Refer to paragraph 7.17.
- n. Turn engine by the starter per TM 5-3895-373-10 until a steady flow of oil comes out of oil pipe (28). Tighten hex head cap screws (30) to 16 lb-ft (22 N.m).
- o. Set DCA test switch to RUN. Refer to paragraph 7.17.

NOTE

FOLLOW-ON-TASKS: Install engine access cover per paragraph 2.22.
Close front top left access door per TM 5-3895-373-10.

END OF TASK

4.5. REPAIR FUEL TANK.

This task covers:

a. Remove

b. Install

INITIAL SETUP
Tools:

General mechanic's automotive tool kit
(Item 54, Appendix E)

Materials/Parts:

Cleaning solvent (Item 24, Appendix C)
Lint-free cloth (Item 8, Appendix C)
Fuel tank filler breather assembly
Lockwashers
Machine screws

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Left access door open per TM 5-3895-373-10.
Left access cover removed per TM 5-3895-373-10.

- A. REMOVE.
1. REMOVE FUEL TANK FILLER ASSEMBLY.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

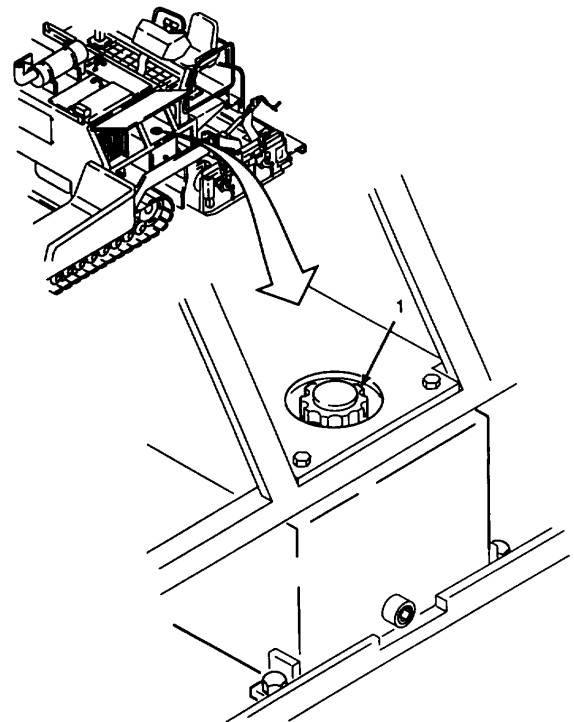
Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- a. Remove fuel tank cap (1).



GO TO NEXT PAGE

- A. REMOVE - Continued.
- b. Remove machine screws (2) and lockwashers (3). Discard lockwashers.
 - c. Remove filler neck (4), gasket (5), strainer (6), and gasket (7).
2. CLEAN MOUNTING SURFACE.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

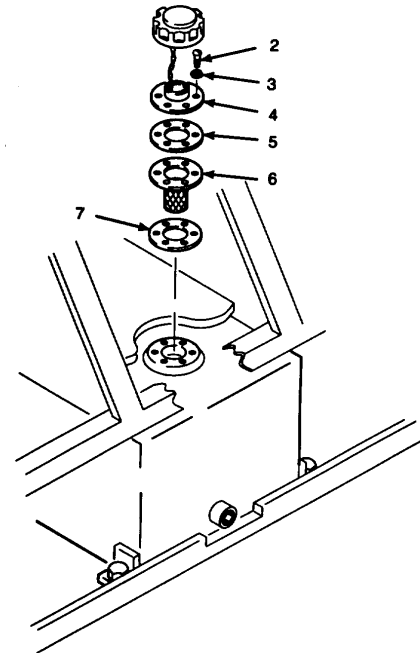
Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

CAUTION

Use caution when scraping gasket material from fuel tank flange. Do not scratch or gouge sealing surfaces when scraping gasket material. Poor sealing and fuel tank leakage may result from scratches or gouges in fuel tank sealing surface. Do not allow any gasket material to fall into fuel tank.

- a. Scrape off any gasket material from fuel tank flange using putty knife.



WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 m cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- b. Wipe flange area with cleaning solvent and lint-free cloth.

GO TO NEXT PAGE

4.5. REPAIR FUEL TANK - Continued.

B. INSTALL.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

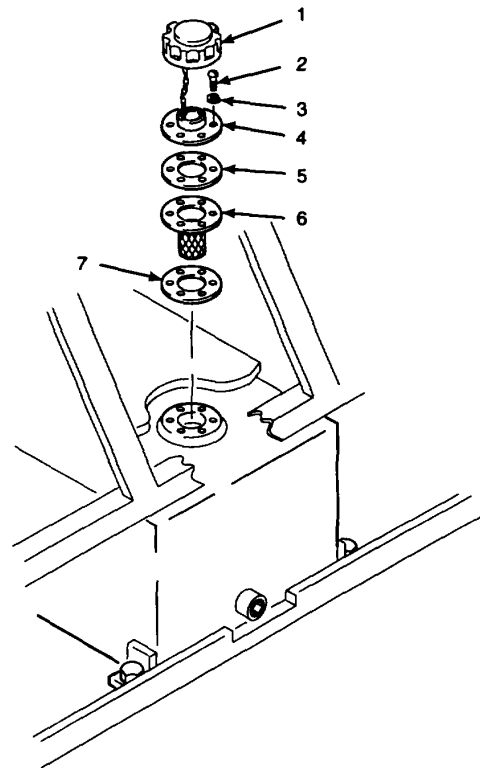
1. ASSEMBLE BREATHER AND FILLER NECK.

- a. Align mounting holes on gasket (7) with the mounting holes on fuel tank and place the gasket onto the fuel tank.
- b. Align mounting holes of fuel strainer (6) with mounting holes on the fuel tank and place the fuel strainer onto gasket (7).
- c. Align mounting holes of gasket (5) with mounting holes on the fuel tank and place the gasket onto fuel strainer (6).
- d. Align mounting holes of filler neck (4) with the mounting holes on fuel tank and place the filler neck onto gasket (5)

2. INSTALL FILLER/BREATHER ASSEMBLY.

CAUTION

Before installing machine screws, visually inspect that all mounting holes are aligned. Gasket misalignment can cause gasket damage and possible leakage.



- a. Visually inspect that mounting holes in filler neck (4), gaskets (5 and 7), and fuel strainer (6) are aligned with mounting holes in fuel tank.

CAUTION

Do not use metric screws that come with new fuel tank filler assembly. Obtain correct machine screws from the supply system.

- b. Install machine screws (2) and lockwashers (3).
- c. Install fuel tank cap (1).

NOTE

FOLLOW-ON-TASKS: Install left access cover per TM 5-3895-373-10.
Close left access door per TM 5-3895-373-10.

END OF TASK

4.6. REPLACE FUEL SHUTOFF SOLENOID - Continued.

A. REMOVE - Continued.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

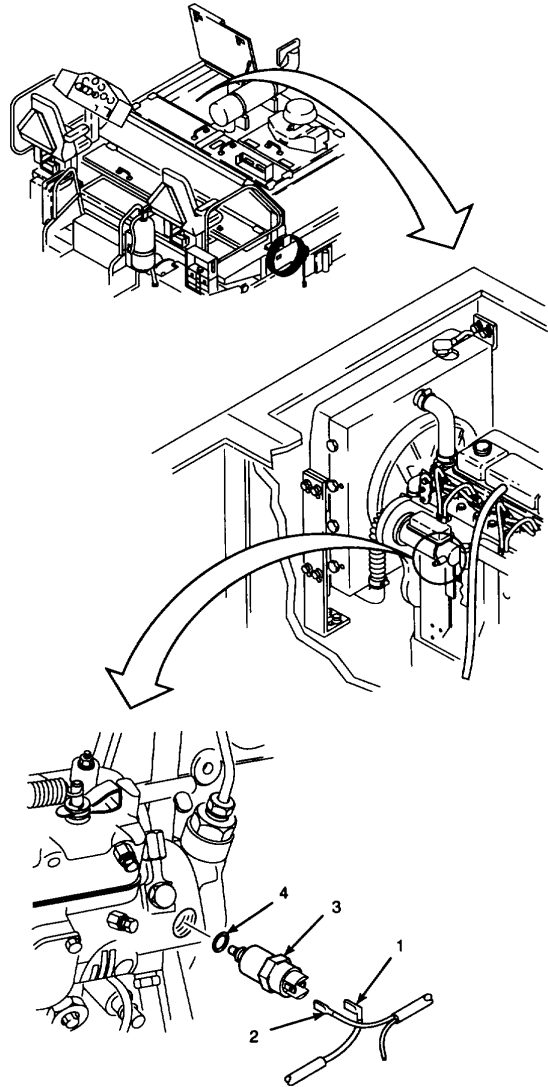
Keep fuel away from open flame or any spark (ignition source).

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

2. DISCONNECT QUICK DISCONNECT TERMINAL (1) AND CONNECTOR (2) FROM FUEL SHUTOFF SOLENOID (3).
3. PLACE MACHINERY WIPING TOWELS BELOW FUEL SHUTOFF SOLENOID (3). REMOVE FUEL SHUTOFF SOLENOID AND PREFORMED PACKING (4) FROM FUEL INJECTION PUMP. DISCARD FUEL SHUTOFF ELECTRICAL SOLENOID AND PREFORMED PACKING.
4. USE A CLEANING CLOTH TO WIPE UP ANY FUEL THAT MAY SPILL FROM FUEL INJECTION PUMP. DISCARD MACHINERY WIPING TOWELS IN ACCORDANCE WITH LOCAL PROCEDURES.



GO TO NEXT PAGE

B. INSTALL.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

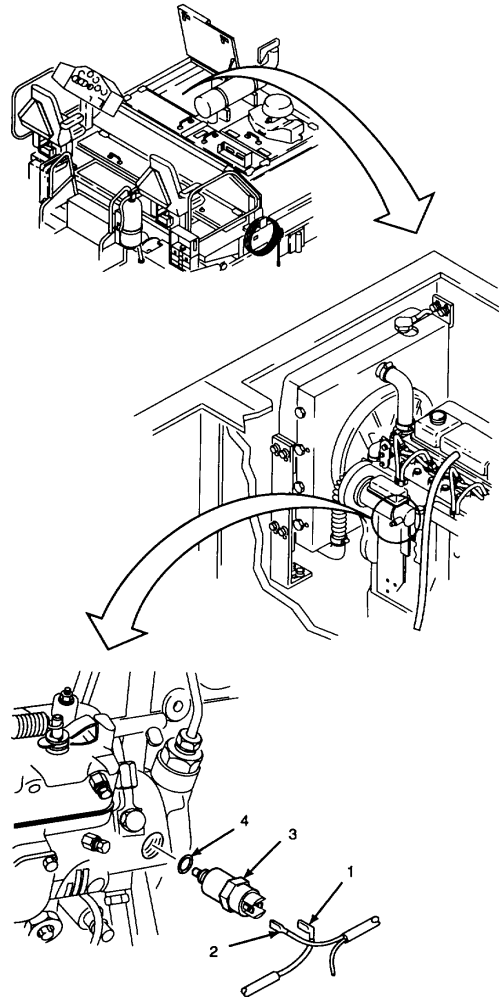
Keep fuel away from open flame or any spark (ignition source).

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

1. LUBRICATE PREFORMED PACKING (4) ON FUEL SHUTOFF SOLENOID (3) WITH PETROLATUM.
2. INSTALL FUEL SHUTOFF SOLENOID (3) INTO FUEL INJECTION PUMP.
3. APPLY ELECTRICAL INSULATING COMPOUND TO CONNECTOR (2) AND QUICK DISCONNECT TERMINAL (1).
4. INSTALL CONNECTOR (2) AND QUICK DISCONNECT TERMINAL (1) ONTO FUEL SHUTOFF SOLENOID.

**NOTE**

FOLLOW-ON-TASK: Close front top left access door per TM 5-3895-373-10.

END OF TASK

4.7. REPAIR OR REPLACE FUEL LINES, FITTINGS, AND HOSES.

This task covers:**a. Remove****b. Install****INITIAL SETUP****Tools:**

General mechanic's automotive tool kit
 (Item 54, Appendix E)
 Drip pan (Item 28, Appendix E)
 Torque wrench (Item 68, Appendix E)
 Utility pail (Item 26, Appendix E)

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
 Hydraulic fitting sealant (Item 21, Appendix C)
 Machinery wiping towel (Item 30, Appendix C)
 Pipe sealant (Item 22, Appendix C)
 Protective caps (Item 5, Appendix C)
 Tags (Item 27, Appendix C)
 Thread locking compound (Item 12, Appendix C)
 Thread locking compound solvent (Item 25,
 Appendix C)
 Tie wraps (Item 29, Appendix C)
 Brass compression sleeves
 Hose clamps
 Lockwashers
 Rubber compression sleeves

References:

TM 5-3895-373-10
 TM 5-3895-373-24P

Equipment Condition:

Left access door opened per TM 5-3895-373-10.
 Left access cover removed per TM 5-3895-373-10.
 Right access door opened per TM 5-3895-373-10.
 Right access cover removed per TM 5-3895-373-10.
 Front top left access door opened per TM 5-3895-373-10.
 Front top right access door opened per TM 5-3895-373-10.
 Center top right access door opened per TM 5-3895-373-10.
 Center top left access door opened per TM 5-3895-373-10.
 Engine access cover removed per paragraph 2.22.

NOTE

This task provides information necessary to repair and replace fuel lines. Look over the illustrations and the legend, order only those components required for the specific replacements/repairs to be performed. All compression sleeves, hose clamps, and lockwashers should be replaced if removed. All tie wraps removed during task should be replaced. Mark tie wrap locations and anchor points as needed.

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4.7. REPAIR OR REPLACE FUEL LINES, FITTINGS, AND HOSES - Continued.

A. REMOVE.**WARNING**

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

CAUTION

Thoroughly clean hoses and fittings before disconnecting. Always plug or cap off disconnected fittings to prevent intrusion of contaminants. Failure to properly clean and cap off connectors may result in system contamination and equipment damage.

NOTE

Perform the following procedures only as needed to replace faulty or damaged components.

1. LOWER FUEL LEVEL IN FUEL TANK TO PREVENT SIPHONING.

- a. Lower fuel tank level below elbow (1) per paragraph 4 2.23.4.
- b. Place a machinery wiping towel beneath elbow (1).
- c. Tag and disconnect fuel hose (2) from elbow (1). Secure the hose above fuel tank level to prevent siphoning.

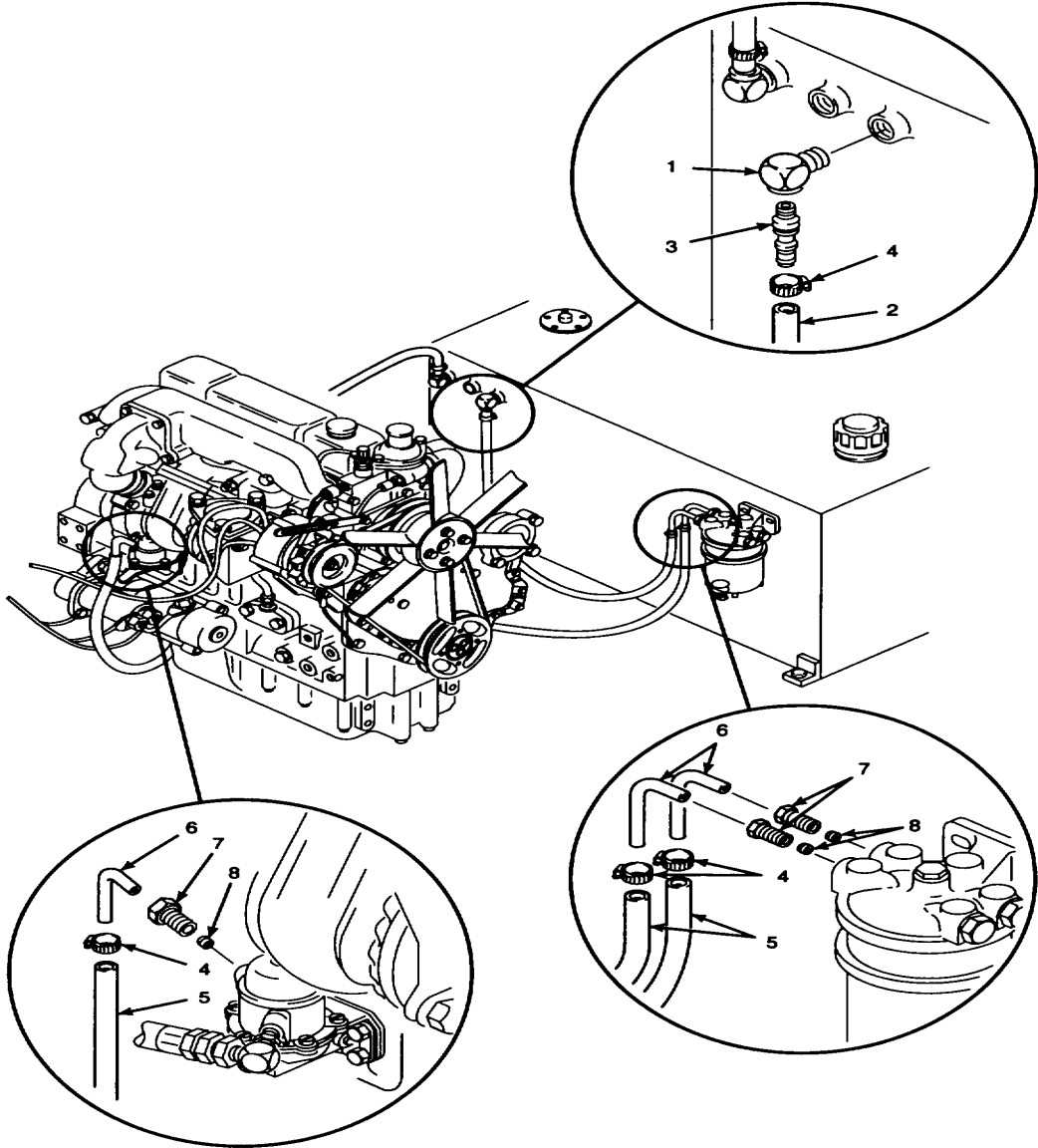
2. REMOVE FUEL/WATER SEPARATOR AND FUEL LIFT PUMP HOSES AND ADAPTERS.

- a. Place a drip pan below the fuel/water separator.
- b. Tag and disconnect fuel hoses, lines, and fittings using the illustration and legend as a guide. Remove hoses or lines first, then remove fittings.
- c. Cut and remove any tie wraps that are securing the fuel hoses or lines being removed.
- d. Drain all residual fuel into a utility pail. Dispose of fuel in accordance with local procedures.
- e. Cap or plug exposed fuel system hoses or fittings to prevent fuel system contamination.

GO TO NEXT PAGE

A. REMOVE - Continued.

- 1. Elbow
- 2. Fuel hose
- 3. Straight adapter
- 4. Hose clamp
- 5. Fuel hose
- 6. Metal tube
- 7. Tube coupling nut
- 8. Brass compression sleeve



GO TO NEXT PAGE

4.7. REPAIR OR REPLACE FUEL LINES, FITTINGS, AND HOSES - Continued.

- A. REMOVE - Continued.
- 3. REMOVE FUEL LIFT PUMP, ENGINE FUEL FILTER, AND FUEL INJECTION PUMP TUBES, HOSES, AND ADAPTERS.
 - a. Place a machinery wiping towel beneath the lower-most fitting of the fuel hose that is to be removed.
 - b. Remove clamps, hoses, adapters, fittings, tie wraps, and mounting hardware as required for the specific repair or replacement being performed. Use the illustrations and legend as a guide.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death: Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

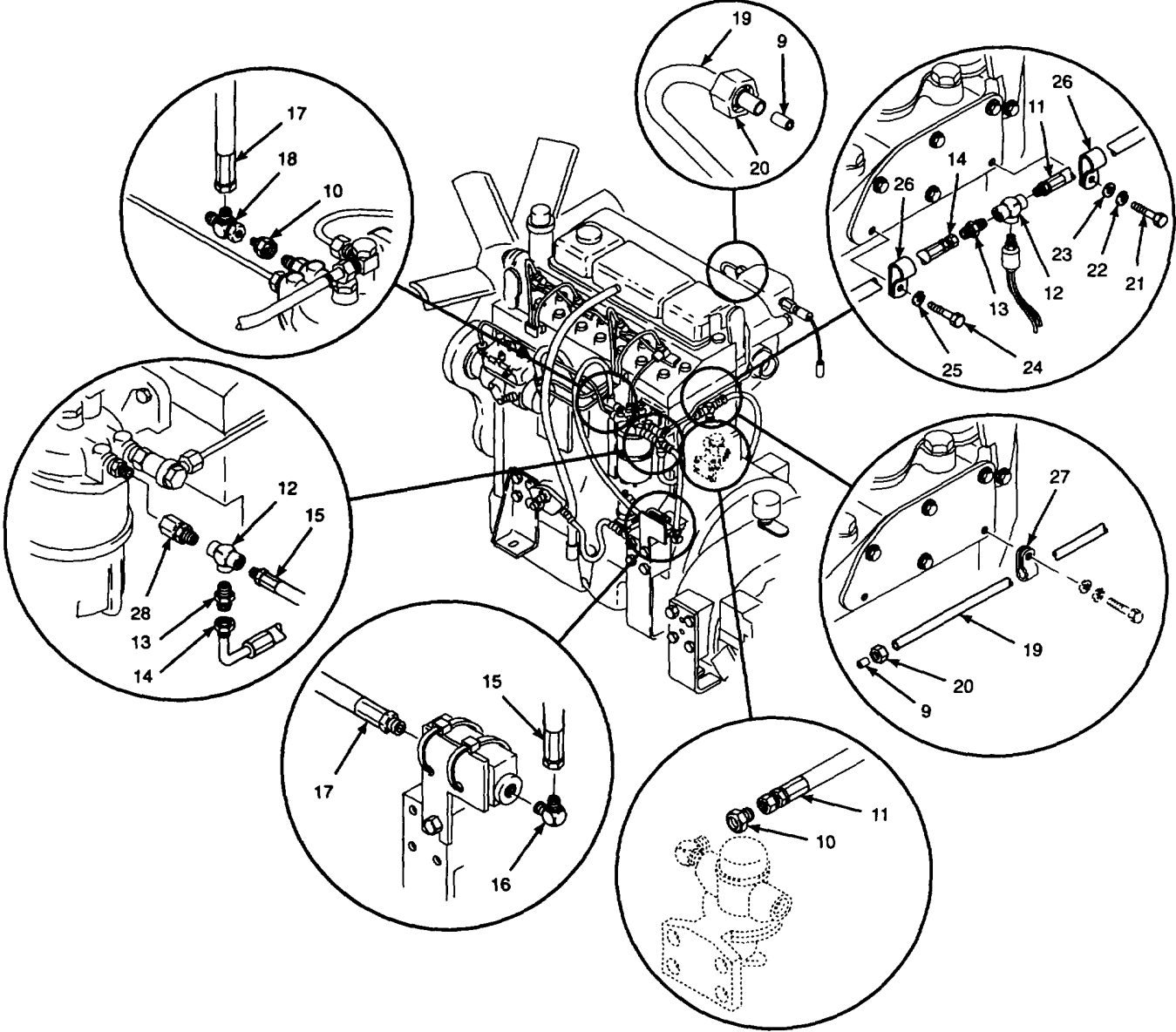
- c. Drain all residual fuel from disconnected fuel lines and hoses into a utility pail. Dispose of fuel in accordance with local procedures.
- d. Cap or plug exposed fuel system lines, hoses, and fittings to prevent fuel system contamination.

GO TO NEXT PAGE

A. REMOVE - Continued.

- 9. Rubber compression sleeve
- 10. Tube reducer
- 11. Hose
- 12. Tee
- 13. Straight adapter
- 14. Hose
- 15. Hose
- 16. Elbow
- 17. Hose
- 18. Swivel tee

- 19. Fuel pipe
- 20. Tube coupling nut
- 21. Screw
- 22. Lockwasher
- 23. Flat washer
- 24. Screw
- 25. Lockwasher
- 26. Clamp
- 27. Clamp
- 28. Straight adapter

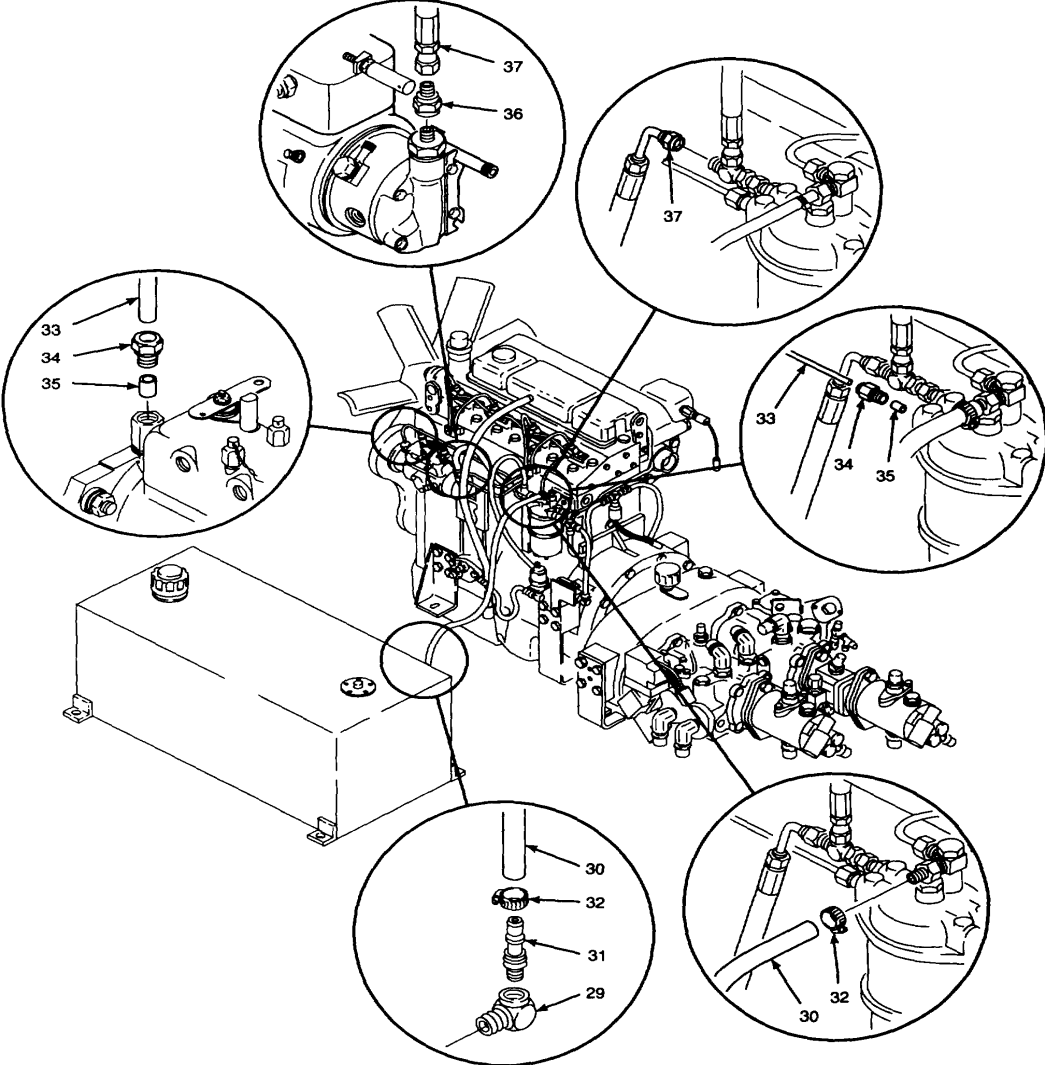


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4.7. REPAIR OR REPLACE FUEL LINES, FITTINGS, AND HOSES - Continued.

A. REMOVE - Continued

- 29. Elbow
- 30. Fuel hose
- 31. Straight adapter
- 32. Hose clamp
- 33. Metal tube
- 34. Tube nut
- 35. Gasket
- 36. Tube reducer
- 37. Hose



GO TO NEXT PAGE

B. INSTALL.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

1. INSTALL FUEL LIFT PUMP, ENGINE FUEL FILTER, AND FUEL INJECTION PUMP TUBES, HOSES, AND ADAPTERS.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean threads of screws with thread locking compound solvent.

- b. Use cleaning cloths to wipe residue from threads on all fuel hoses and adapters to be installed.

WARNING

Pipe sealant and hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

NOTE

Adapter pipe thread fittings are coded P in the illustrations. P-coded fittings require pipe sealant.

Adapter hose end fittings are coded H and require hydraulic fitting sealant.

- c. Apply pipe fitting sealant to P-coded fittings and adapters. Apply hydraulic fitting sealant to H-coded fittings.
- d. Position adapters and fittings as shown in the illustrations.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

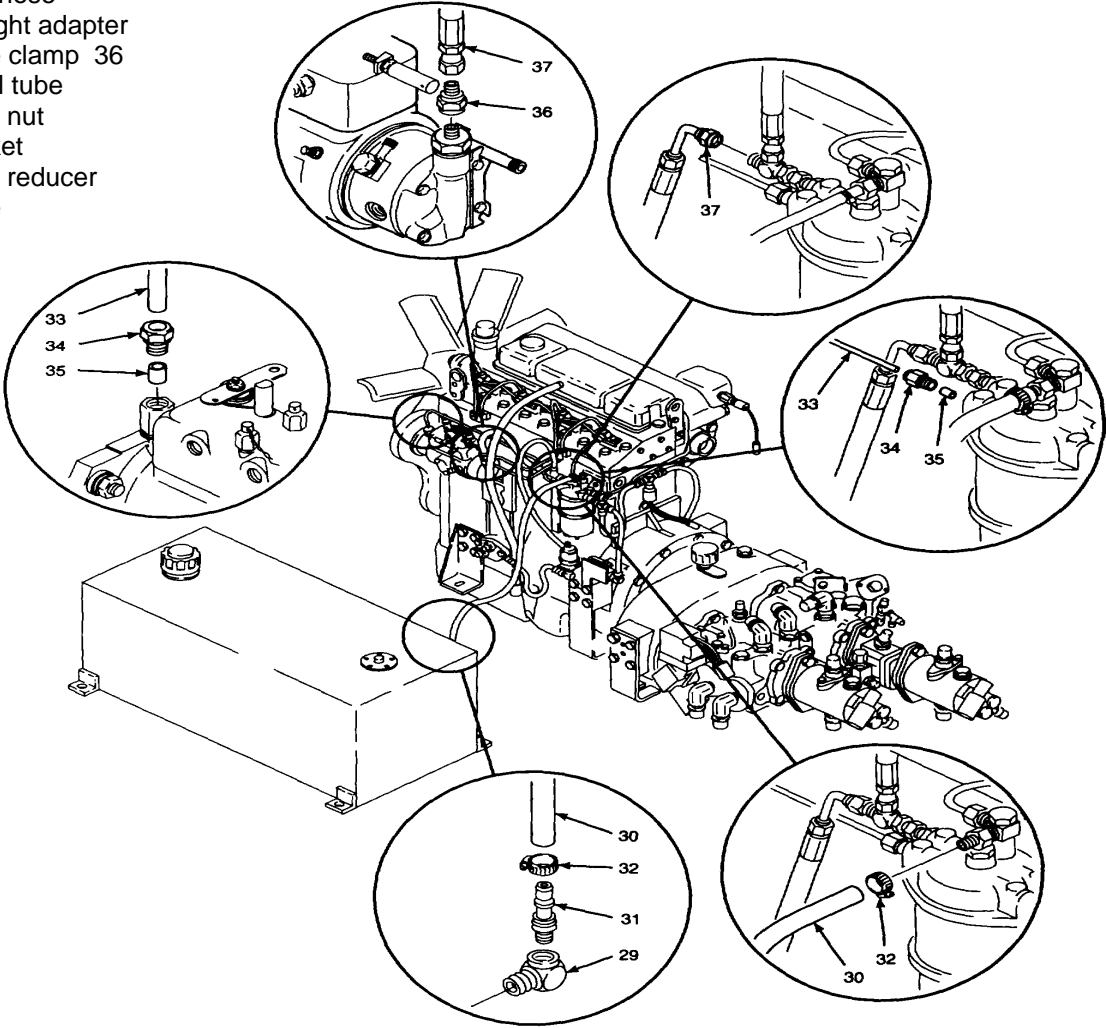
- e. Apply thread locking compound to threads of screws (21 and 24) prior to installing. Tighten screws to 21 lb-ft (28 N•m).

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4.7. REPAIR OR REPLACE FUEL LINES, FITTINGS, AND HOSES - Continued.

B. INSTALL - Continued.

- 29. Elbow
- 30. Fuel hose
- 31. Straight adapter
- 32. Hose clamp
- 33. Metal tube
- 34. Tube nut
- 35. Gasket
- 36. Tube reducer
- 37. Hose

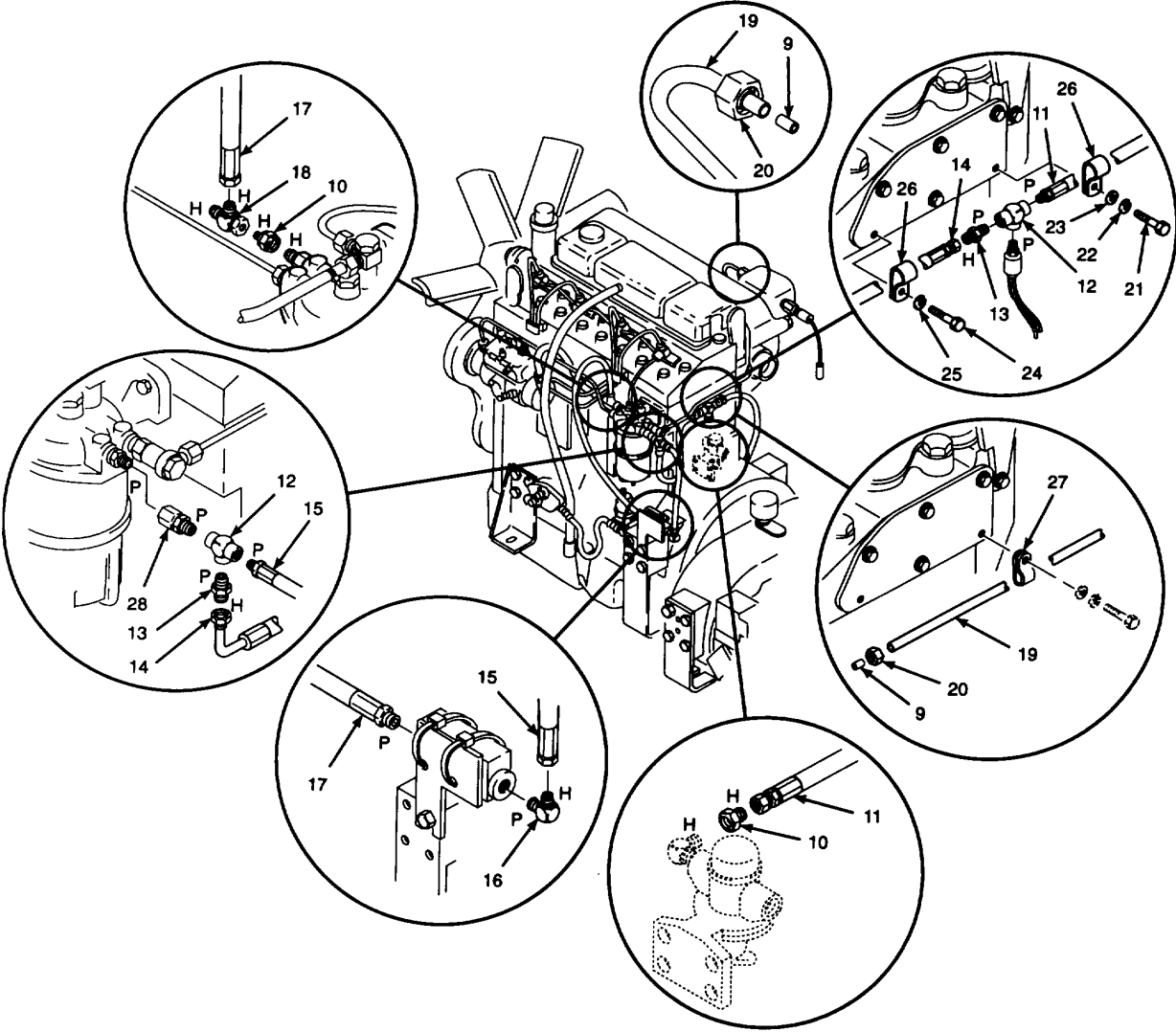


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B. INSTALL - Continued.

- 9. Rubber compression sleeve
- 10. Tube reducer
- 11. Hose
- 12. Tee
- 13. Straight adapter
- 14. Hose
- 15. Hose
- 16. Elbow
- 17. Hose
- 18. Swivel tee

- 19. Fuel pipe
- 20. Tube coupling nut
- 21. Screw
- 22. Lockwasher
- 23. Flat washer
- 24. Screw
- 25. Lockwasher
- 26. Clamp
- 27. Clamp
- 28. Straight adapter



GO TO NEXT PAGE

4.7. REPAIR OR REPLACE FUEL LINES, FITTINGS, AND HOSES - Continued.

- B. INSTALL - Continued.
2. INSTALL FUEL/WATER SEPARATOR HOSES AND ADAPTERS.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

NOTE

To prevent siphoning of fuel from fuel tank, connect fuel hose (2) to the fuel tank only after all other fuel system connections have been completed.

- a. Use cleaning cloths to wipe residue from threads on all adapters to be installed.

WARNING

Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

NOTE

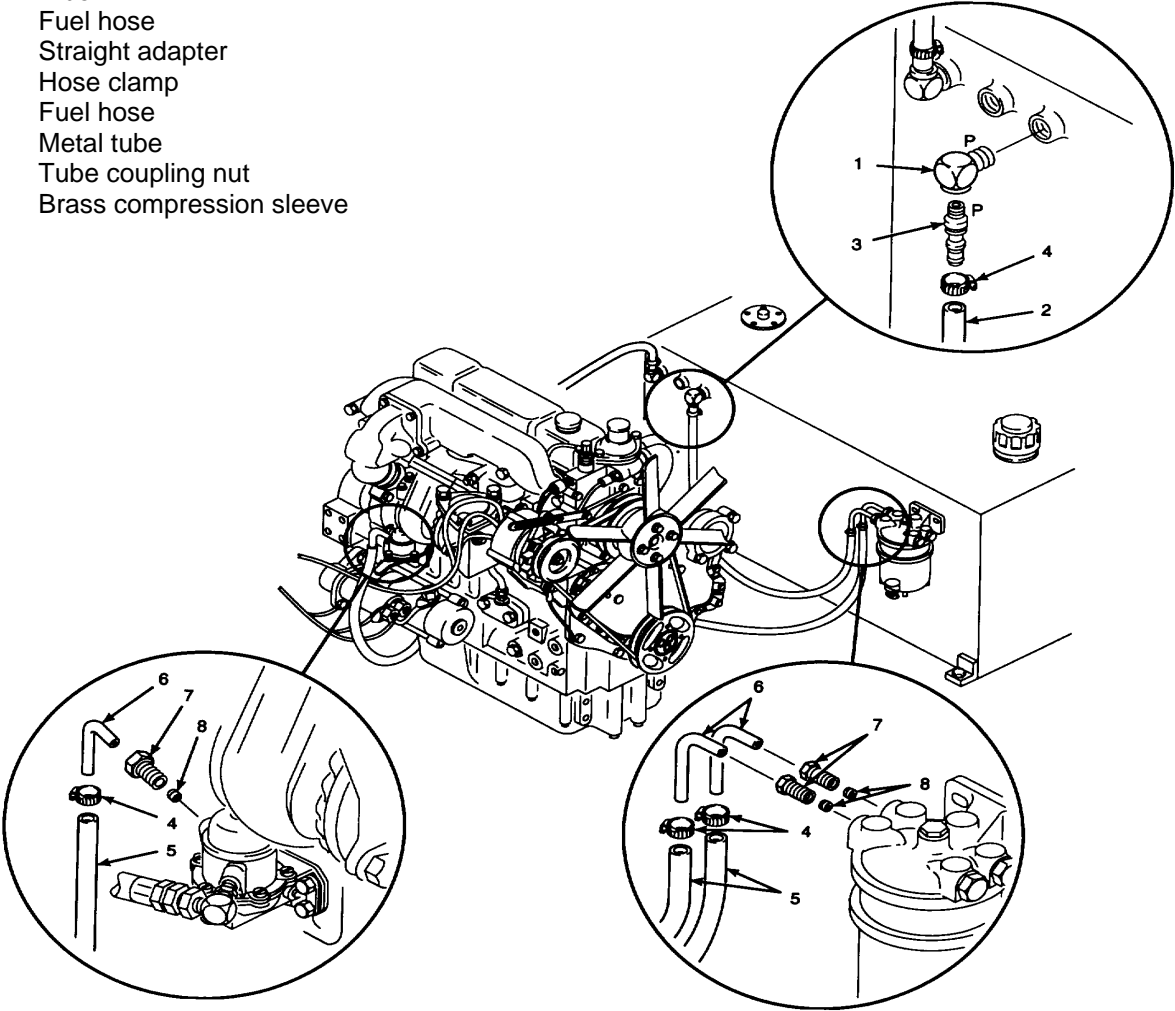
Adapter pipe thread fittings are coded P in the illustrations. P-coded fittings require pipe sealant.

- b. Apply pipe sealant to P-coded fittings on adapters.
- c. Position adapters as shown in the illustration. Tighten all fittings.
- d. Reconnect fuel hose (2) to straight adapter (3) and tighten hose clamp (4).

GO TO NEXT PAGE

B. INSTALL - Continued.

- 1. Elbow
- 2. Fuel hose
- 3. Straight adapter
- 4. Hose clamp
- 5. Fuel hose
- 6. Metal tube
- 7. Tube coupling nut
- 8. Brass compression sleeve



GO TO NEXT PAGE

4.7. REPAIR OR REPLACE FUEL LINES, FITTINGS, AND HOSES - Continued.

B. INSTALL - Continued.

NOTE

FOLLOW-ON-TASKS: Bleed engine fuel system per paragraph 2.23.11.
Install engine access cover per paragraph 2.22.
Close center top left access door per TM 5-3895-373-10.
Close center top right access door per TM 5-3895-373-10.
Close front top left access door per TM 5-3895-373-10.
Close front top right access door per TM 5-3895-373-10.
Install left access cover per TM 5-3895-373-10.
Close left access door per TM 5-3895-373-10.
Install right access cover per TM 5-3895-373-10.
Close left access door per TM 5-3895-373-10.

END OF TASK

4.8. REPLACE FUEL/WATER SEPARATOR.

This task covers: a. Remove b. Clean c. Install

INITIAL SETUPTools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Drip pan (Item 28, Appendix E)
Torque wrench (Item 68, Appendix E)

Materials/Parts:

JP8 fuel (Item 14, Appendix C)
Lint-free cloth (Item 8, Appendix C)
Machinery wiping towel (Item 30, Appendix C)
Tags (Item 27, Appendix C)
Thread locking compound (Item 13, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Fuelwater separator
Lockwashers
Plug seals

Personnel Required:

Two 62B construction equipment repairers. Second person needed to bleed fuel system.

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Left access cover removed per TM 5-3895-373-10.
Engine access cover removed per paragraph 2.22.

GO TO NEXT PAGE

4.8. REPLACE FUEL/WATER SEPARATOR - Continued.

- A. REMOVE.
- 1. REMOVE FUEL LINES.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

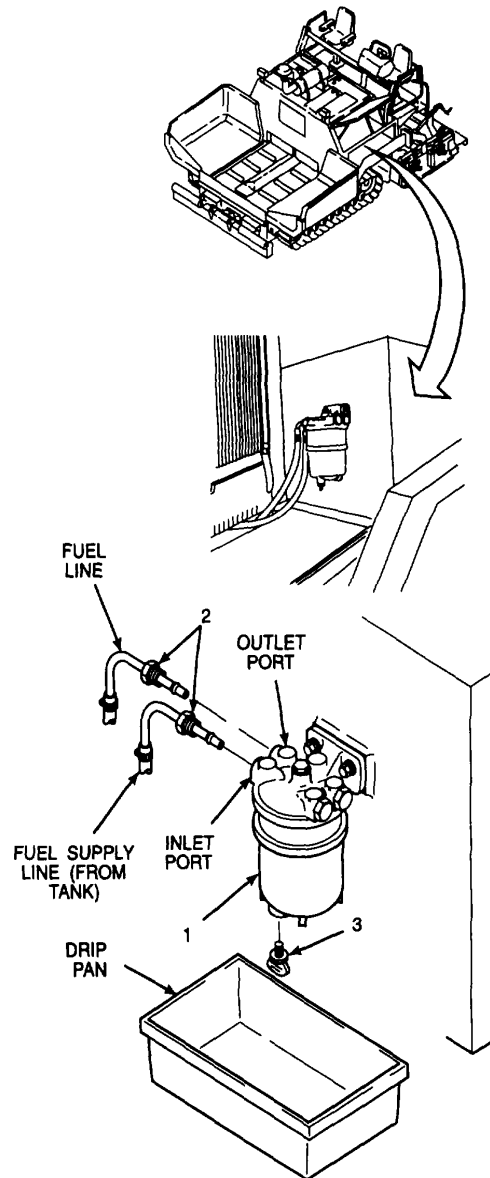
- a. Place drip pan below fuel/water separator (1).
- b. Loosen tube coupling nuts (2) and remove fuel lines from fuel/water separator. Plug fuel lines. Tag fuel lines for proper reinstallation.

NOTE

Fuel may run out of fuel supply line connected to fuel/water separator inlet port when disconnected. Position line above fuel tank to prevent leakage of fuel.

- c. Secure disconnected ends of fuel lines above fuel tank to avoid fuel spillage.

- d. Remove drain plug (3) and drain fuel from fuel/water separator into drip pan. Reinstall drain plug. Dispose of waste fuel in accordance with local procedures.



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- A. REMOVE - Continued.
- 2. REMOVE FUEL/WATER SEPARATOR.

WARNING

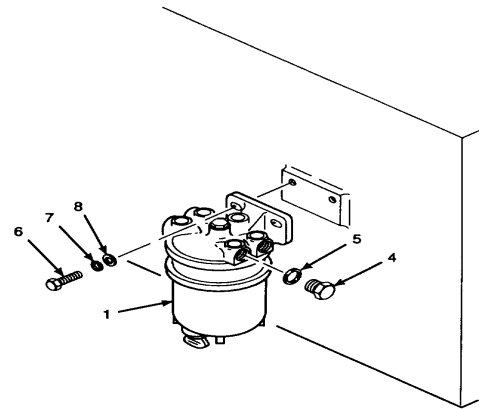
Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.



- a. Remove plugs (4). Remove and discard plug seals (5).
 - b. Remove bolts (6), lockwashers (7), flat washers (8), and fuel/water separator (1). Discard lockwashers and fuel/water separator.
- B. CLEAN.
- 1. CLEAN FUEL LINES AND TUBE COUPLING NUTS.
 - a. Dampen lint-free cloth with clean fuel.
 - b. Keep ends of disconnected fuel lines above tank level to avoid fuel spillage. Wipe all dust, dirt, oil, or grease from metal fuel lines and tube coupling nuts.
 - c. Wipe fuel lines and tube coupling nuts dry with lint-free cloth. Secure cleaned fuel lines above tank level.

GO TO NEXT PAGE

4.8. REPLACE FUEL/WATER SEPARATOR - Continued.

- B. CLEAN - Continued.
- 2. CLEAN BOLT THREADS.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean threads of bolts with thread locking compound solvent and a lint-free cloth.
- b. Wipe bolt threads dry with lint-free cloth.

C. INSTALL.

- 1. INSTALL PLUG SEALS, PLUGS, AND FUEL LINES.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

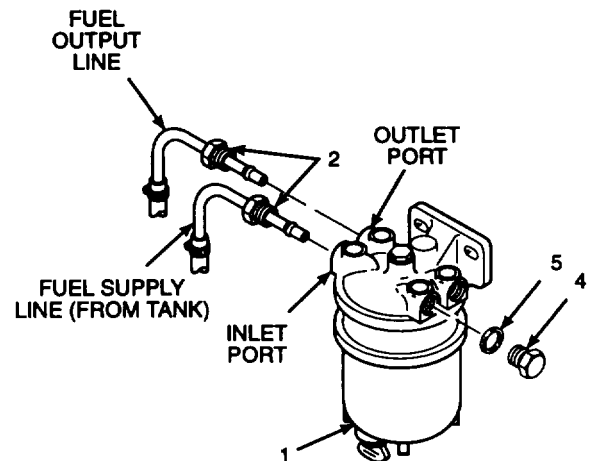
Always wear safety glasses/goggles at all times.

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- a. Install plug seals (5) on plugs (4). Install and tighten plugs in fuel/water separator (1).
- b. Insert fuel output line into outlet port. Install and tighten tube coupling nut (2).



- c. With fuel/water separator (1) above fuel tank, insert fuel supply line into inlet port. Install and tighten tube coupling nut (2). Secure fuel/water separator above tank level.

GO TO NEXT PAGE

- C. INSTALL - Continued.
- 2. PURGE AIR FROM FUEL/WATER SEPARATOR.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

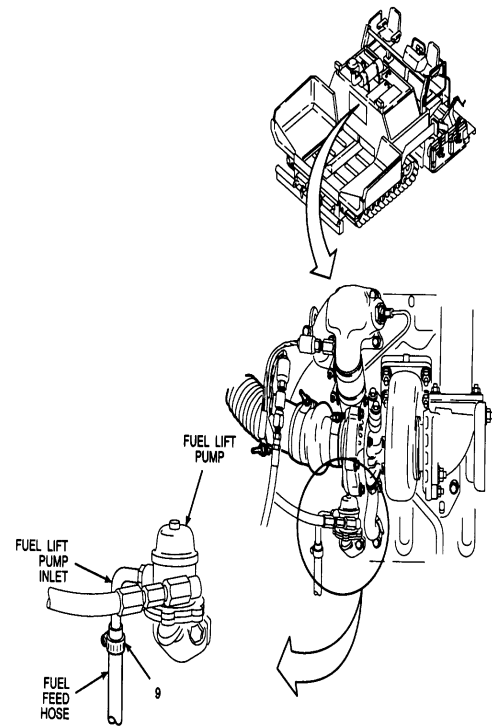
Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- a. Place machinery wiping towel below fuel lift pump.
- b. Loosen hose clamp (9) and remove fuel feed hose from fuel lift pump inlet.
- c. Place thumb over open end of fuel feed hose and hold it over machinery wiping towel.
- d. Instruct another person to move fuel/water separator below tank fuel level.

- e. Allow trapped air to bleed from fuel lines and fuel/water separator. When full fuel stream flows from hose, cap off flow with thumb.
- f. Install fuel feed hose to inlet of fuel lift pump. Tighten hose clamp (9).



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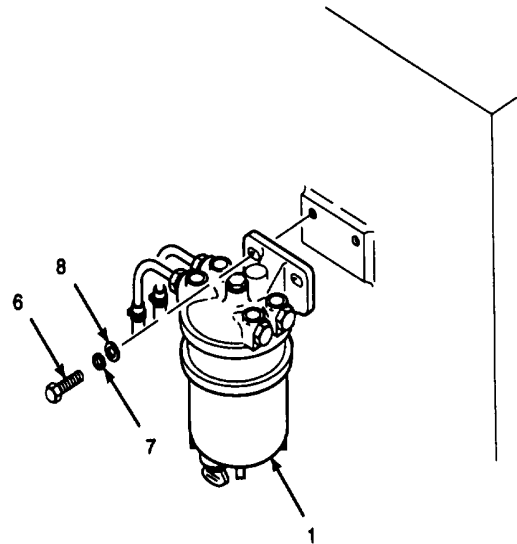
4.8. REPLACE FUEL/WATER SEPARATOR- Continued.

- C. INSTALL - Continued.
3. INSTALL FUEL/WATER SEPARATOR.
- a. Install lockwashers (7) and flat washers (8) onto bolts (6).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- b. Apply thread locking compound to threads of bolts (6).
- c. Secure fuelwater separator (1) to fuel tank with bolts (6). Tighten bolts to 19 lb-ft (26 N•m).

**NOTE**

FOLLOW-ON-TASKS: Install engine access cover per paragraph 2.22.
Install left access cover per paragraph TM 5-3895-373-10.

END OF TASK

4.9. REPLACE FUEL FILTER ASSEMBLY.

This task covers: a. Remove b. Install

INITIAL SETUP

Tools:

- General mechanic's automotive tool kit (Item 54, Appendix E)
- Drip pan (Item 28, Appendix E)
- O-ring tool (Item 52, Appendix E)
- Torque wrench (Item 68, Appendix E)

- Preformed packings
- Ring spacers
- Rubber compression sleeves

References:

- TM 5-3895-373-10
- TM 5-3895-373-24P

Materials/Parts:

- Cleaning cloth (Item 7, Appendix C)
- JP8 fuel (Item 14, Appendix C)
- Hydraulic fitting sealant (Item 21, Appendix C)
- Machinery wiping towels (Item 30, Appendix C)
- Protective caps (Item 5, Appendix C)
- Thread locking compound (Item 12, Appendix C)
- Thread locking compound solvent (Item 25, Appendix C)
- Fuel filter assembly
- Flat washers
- Gasket
- Lockwashers

Equipment condition:

- Front top left access door opened per TM 5-3895-373-10.
- Front top right access door opened per TM 5-3895-373-10.

- A. REMOVE.
1. REMOVE FUEL FILTER ASSEMBLY FROM CYLINDER HEAD ASSEMBLY AND DRAIN FUEL FILTER.

- a. Place a machinery wiping towel below fuel filter assembly (1).

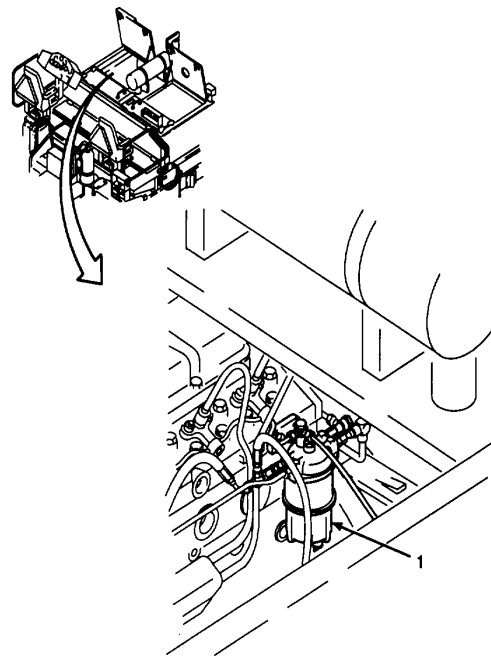
WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times. Keep at least a B-C fire extinguisher within easy reach when working with fuel or any fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.



4.9. REPLACE FUEL FILTER ASSEMBLY - Continued.

A. REMOVE - Continued.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

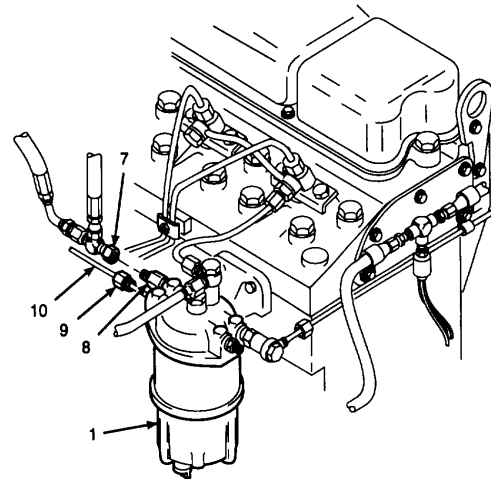
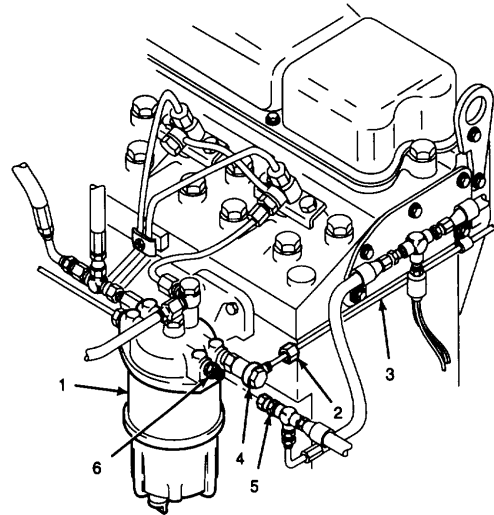
Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- b. Disconnect tube coupling nut (2) on induction heater fuel pipe (3) from fuel filter assembly (1) at multiple connector (4). Fuel pipe cannot be removed from the filter assembly at this time.
- c. Disconnect fuel inlet hose straight swivel adapter (5) from fuel filter assembly (1) at straight adapter (6). Place a plug in the open fuel line.
- d. Disconnect fuel outlet line swivel tee (7) from fuel filter assembly (1) at tube reducer (8).

- e. Disconnect tube nut (9) on fuel injection pump metal tube (10) from fuel filter assembly (1). Tube cannot be removed from the filter assembly at this time.



GO TO NEXT PAGE

A. REMOVE - Continued.

WARNING

Fuel is very flammable and can explode easily.

To avoid serious injury or death: Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

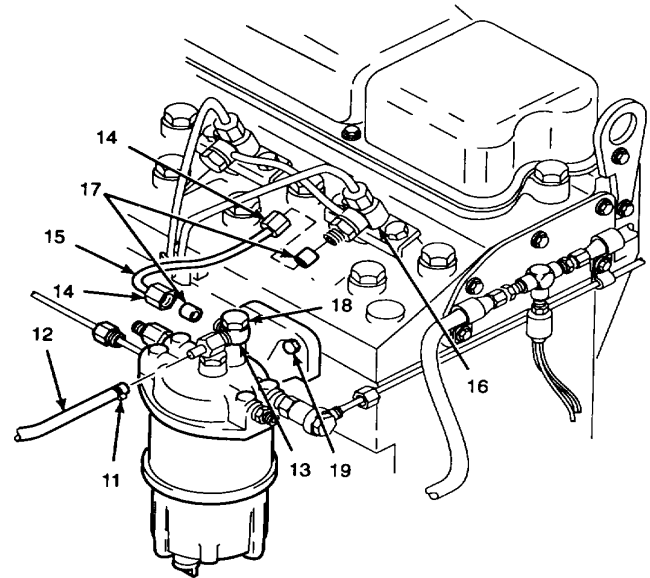
Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

of waste fuel in accordance with local procedures.

l. Remove and discard gasket (24) and rubber compression sleeve (25) from induction heater fuel pipe and fuel injection pump line.



f. Loosen hose clamp (11) and disconnect fuel hose (12) from the tube at multiple connector (13).

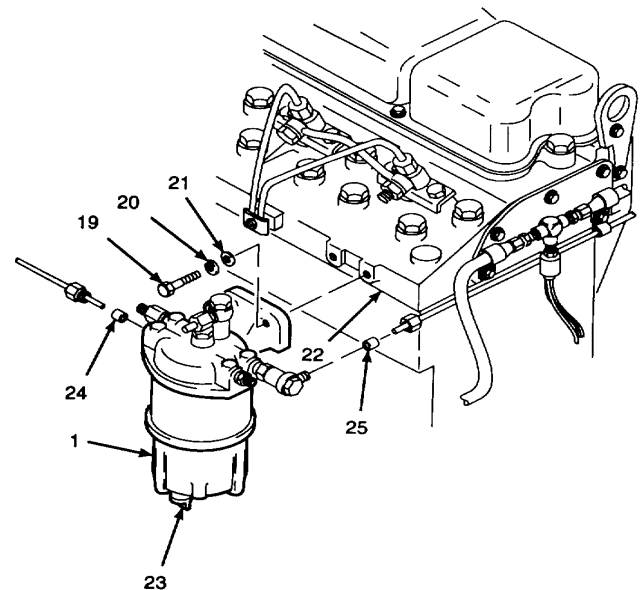
g. Unthread tube coupling nuts (14) and remove metal tube (15) from multiple connector (13) and fuel injector (16). Remove and discard rubber compression sleeves (17).

h. Loosen fluid passage bolt (18) enough to rotate multiple connector (13) to gain access to hex head cap screws (19).

i. Remove hex head cap screws (19), lockwashers (20), washers (21), and fuel filter assembly (1) from cylinder head assembly (22). Discard lockwashers. Take care not to spill fuel when removing the filter assembly.

j. Place fuel filter assembly (1) over a drip pan. Unscrew filter assembly drain plug (23) located on the bottom of the filter assembly.

k. Drain all the fuel from the fuel filter assembly into the drip pan and install drain plug (23). Dispose



GO TO NEXT PAGE

4.9. REPLACE FUEL FILTER ASSEMBLY - Continued.

- A. REMOVE - Continued.
- 2. REMOVE FITTINGS AND CONNECTORS FROM FUEL FILTER ASSEMBLY.

WARNING

Fuel is very flammable and can explode easily.

To avoid serious injury or death: Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

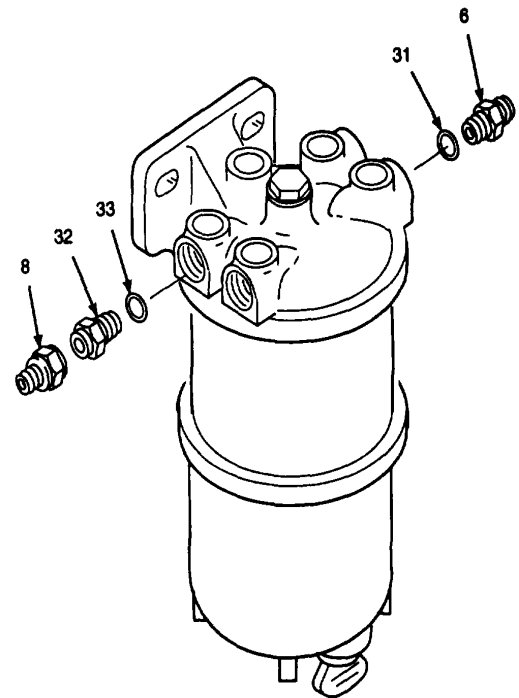
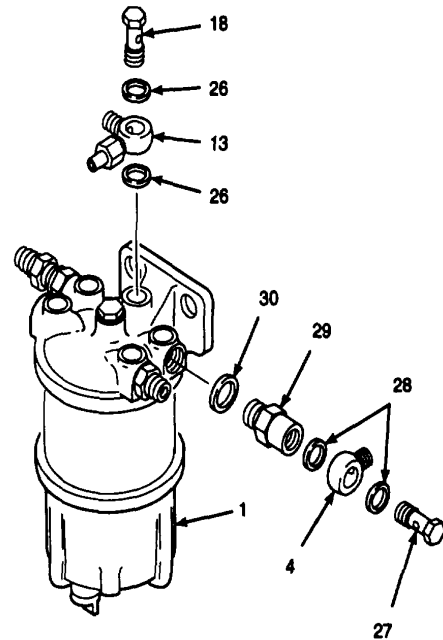
Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- a. Remove fluid passage bolt (18), multiple connector (13) and flat washers (26) from fuel filter assembly (1). Discard flat washers.
- b. Remove fluid passage bolt (27), multiple connector (4) and ring spacers (28). Discard ring spacers.
- c. Remove check valve (29) and flat washer (30). Discard flat washer.
- d. Remove straight adapter (6). Use an o-ring tool and remove preformed packing (31). Discard preformed packing.
- e. Remove tube reducer (8) and straight adapter (32). Use an o-ring tool and remove preformed packing (33). Discard preformed packing.

- f. Discard fuel filter assembly (1).



GO TO NEXT PAGE

- B. INSTALL.
- 1. INSTALL FITTINGS AND CONNECTORS ONTO FUEL FILTER ASSEMBLY.

threads of straight adapter and install tube reducer (8).

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- a. Lubricate preformed packing (33) with clean fuel.

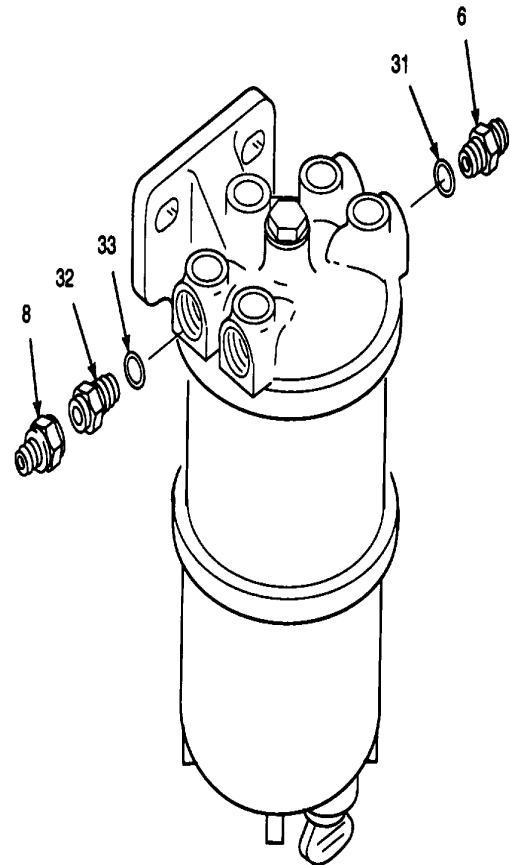
WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

CAUTION

Be careful not to damage preformed packing when sliding over threads. Sharp edges of thread can cut or damage preformed packing. Damaged preformed packing will cause leakage and affect performance.

- b. Install preformed packing (33) and straight adapter (32). Apply hydraulic fitting sealant to



- c. Lubricate preformed packing (31) with clean fuel.
- d. Install preformed packing (31) and straight adapter (6).

GO TO NEXT PAGE

4.9. REPLACE FUEL FILTER ASSEMBLY - Continued.

B. INSTALL - Continued.

WARNING

Fuel is very flammable and can explode easily.

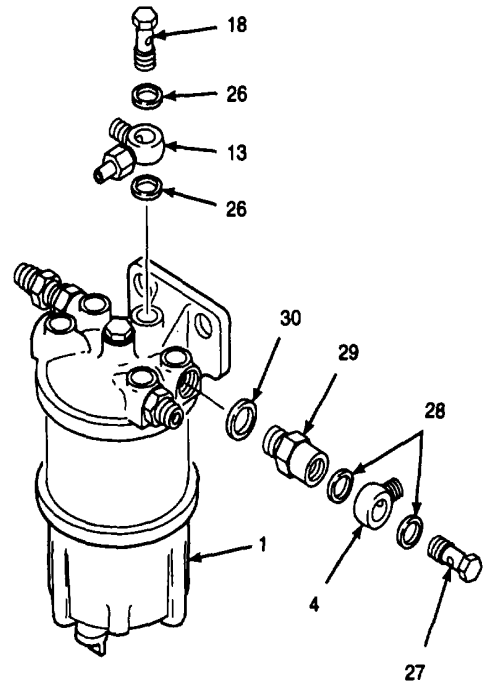
To avoid serious injury or death: Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.



- e. Install flat washer (30) and check valve (29).
- f. Install ring spacers (28), multiple connector (4) and fluid passage bolt (27). Adjust the multiple connector to point toward the engine. Tighten the fluid passage bolt.
- g. Install flat washers (26), multiple connector (13) and fluid passage bolt (18) into fuel filter assembly (1). Do not tighten fluid passage bolt at this time.

GO TO NEXT PAGE

- B. INSTALL - Continued.
2. INSTALL FUEL FILTER ASSEMBLY.

WARNING

Fuel is very flammable and can explode easily.

To avoid serious injury or death: Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

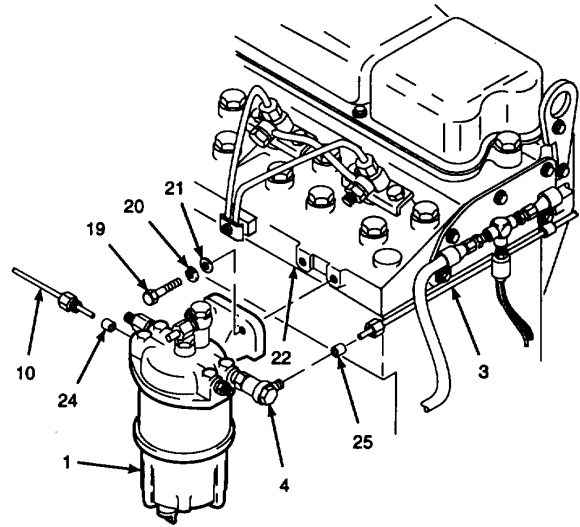
Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- a. Place gasket (24) onto fuel injection pump metal tube (10). Place rubber compression sleeve (25) onto induction heater fuel pipe (3).

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- b. Clean hex head cap screw threads (19) with a clean cleaning cloth soaked in thread locking compound solvent.



WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- c. Install lockwasher (20) and washer (21) onto hex head cap screw (19). Apply thread locking compound to cap screws.
- d. Hold fuel filter assembly (1) in position to place metal tube (10) into fuel filter assembly and induction heater fuel pipe (3) into multiple connector (4) but do not tighten at this time.
- e. Secure fuel filter assembly (1) onto cylinder head assembly (22) using hex head cap screws (19) with lockwashers (20) and washers (21). Tighten cap screws to 42 lb-ft (57 N•m).

GO TO NEXT PAGE

4.9. REPLACE FUEL FILTER ASSEMBLY - Continued.

B. INSTALL - Continued.

WARNING

Fuel is very flammable and can explode easily.

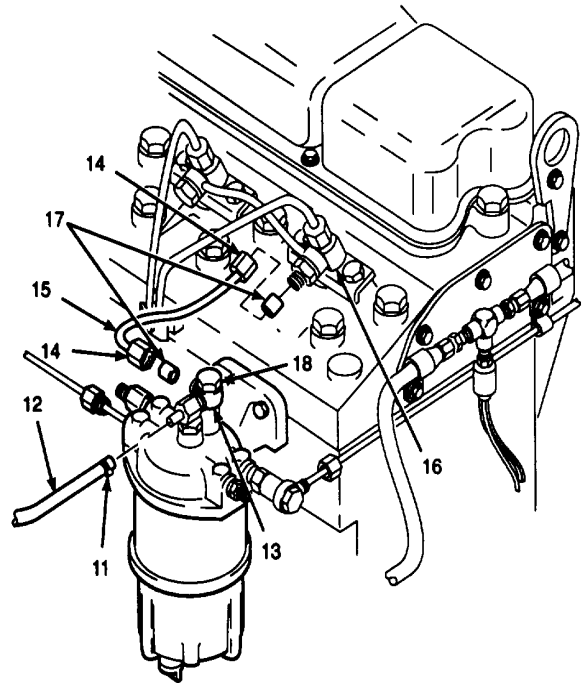
To avoid serious injury or death: Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.



- f. Adjust multiple connector (13) so that one fitting is pointing toward the front of the engine and the other is pointed away from the cylinder head assembly. Tighten fluid passage bolt (18).
- g. Lubricate rubber compression sleeves (17) with clean fuel.
- h. Install rubber compression sleeves (17) onto metal tube (15) and connect to multiple connector (13) and fuel injector (16). Tighten tube coupling nuts (14).
- i. Connect fuel hose (12) to the tube at multiple connector (13). Tighten hose clamp (11).

GO TO NEXT PAGE

B. INSTALL - Continued.

WARNING

Fuel is very flammable and can explode easily.

To avoid serious injury or death: Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

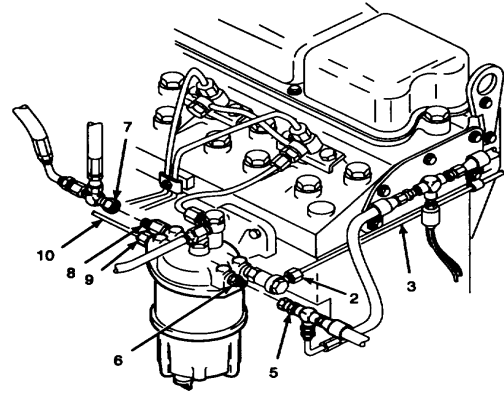
Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- j. Apply hydraulic fitting sealant to thread of tube reducer (8). Connect swivel tee (7) to tube reducer. Tighten swivel tee.
- k. Apply hydraulic fitting sealant to threads of straight adapter (6). Connect straight swivel adapter (5) to straight adapter. Tighten straight swivel adapter.
- l. Tighten tube coupling nut (2) on induction heater fuel pipe (3) and tube nut (9) on fuel injection pump metal tube (10).

**NOTE****FOLLOW-ON-TASKS:**

Bleed engine fuel system per paragraph 2.23.11.
Close front top left access door per TM 5-3895-373-10.
Close front top right access door per TM 5-3895-373-10.

END OF TASK

4.10. REPLACE COLD START INDUCTION HEATER.

This task covers: a. Remove b. Install

INITIAL SETUP

Tools:

General mechanic's automotive tool kit
 (Item 54, Appendix E)
 Crowfoot wrench (Item 63, Appendix E)
 Torque wrench (Item 66, Appendix E)

References:

TM 5-3895-373-10
 TM 5-3895-373-24P

Equipment Condition:

Front top left access door open per TM 5-3895-373-10.
 Front top right access door open per TM 5-3895-373-10.
 Engine access cover removed per paragraph 2.22.

Materials/Parts:

Anti-seize compound (Item 9, Appendix C)
 Electrical insulating compound (Item 11, Appendix C)
 Machinery wiping towel (Item 30, Appendix C)
 Compression sleeves
 Induction heater

A. REMOVE.

1. DISCONNECT INDUCTION HEATER FUEL PIPE.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

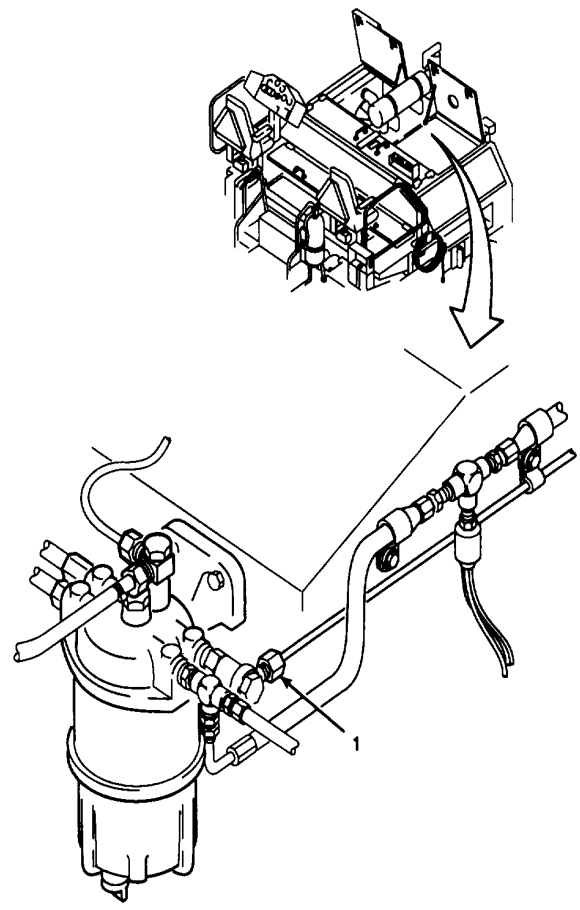
Always wear safety glasses/goggles at all times.

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- a. Place machinery wiping towels beneath fuel filter and tube coupling nut (1).
- b. Unscrew tube coupling nut (1).



GO TO NEXT PAGE

A. REMOVE Continued.

WARNING

Fuel is very flammable and can explode easily.

To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

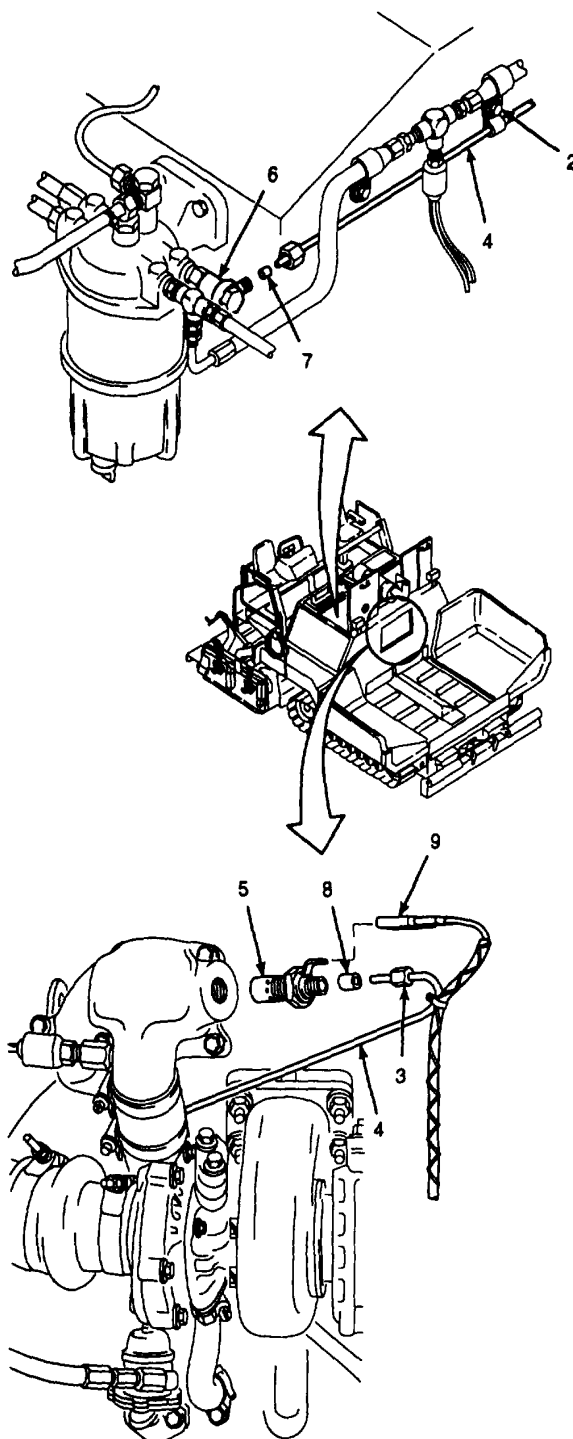
NOTE

Do not loosen clamp mounting screw (2) on cylinder head end cover. Coolant will leak from cylinder head if screw is loosened. Fuel pipe will slide through clamp without loosening screw.

- c. Unscrew tube coupling nut (3). Grasp fuel pipe (4) and slide fuel pipe from induction heater (5) and from fuel filter multiple connector (6).
- d. Remove and discard compression sleeves (7 and g).

2. REMOVE INDUCTION HEATER.

- a. Unplug lead wire electrical contact (9) from induction heater terminal.
- b. Remove and discard used induction heater (5).



GO TO NEXT PAGE

4.10. REPLACE COLD START INDUCTION HEATER - Continued.**B. INSTALL.****1. INSTALL INDUCTION HEATER.****WARNING**

Anti-seize compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- a. Coat threads and mating surface of new induction heater (5) with anti-seize compound.
- b. Install induction heater (5) and tighten to 10 lb-ft (14 N•m) using crowfoot socket wrench.
- c. Apply electrical insulating compound to induction heater terminal.
- d. Connect lead wire electrical contact (9) to induction heater terminal.

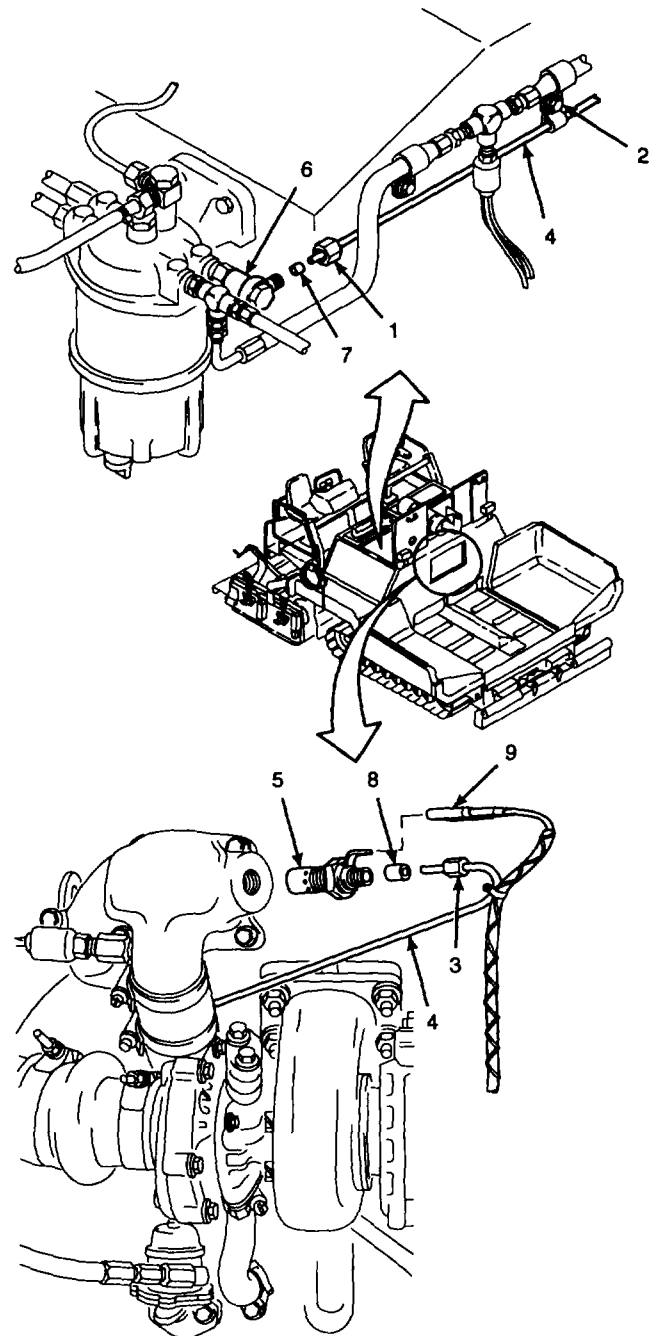
2. CONNECT INDUCTION HEATER FUEL PIPE.

- a. Install compression sleeves (7 and 8) on fuel pipe (4).
- b. Slide fuel pipe through clamp and into fuel filter multiple connector (6) and induction heater (5).

CAUTION

Do not overtighten tube coupling nuts. Overtightening may damage compression sleeve and cause leakage.

- c. Tighten tube coupling nuts (1 and 3). Do not overtighten tube coupling nuts.

**NOTE**

FOLLOW-ON-TASKS: Close front top left access door per TM 5-3895-373-10.
Close front top right access door per TM 5-3895-373-10.
Install engine access cover per paragraph 2.22.

END OF TASK

4.11. REPLACE INDUCTION HEATER RELAY.

This task covers: a. Remove b. Install

INITIAL SETUP:

Tools:

- General mechanic's automotive tool kit (Item 54, Appendix E)
- Torque wrench, 0 to 175 lb-ft (Item 68, Appendix E)
- Torque wrench, 5 to 150 lb-in (Item 69, Appendix E)

References:

- TM 5-3895-373-10
- TM 5-3895-373-24P

Equipment Condition:

- Rear top left access door open per TM 5-3895-373-10.
- Left access cover removed per TM 5-3895-373-10.

Materials/Parts:

- Electrical insulating varnish (Item 32, Appendix C)
- Thread locking compound (Item 13, Appendix C)
- Thread locking compound solvent (Item 25, Appendix C)
- Induction heater relay

A. REMOVE.

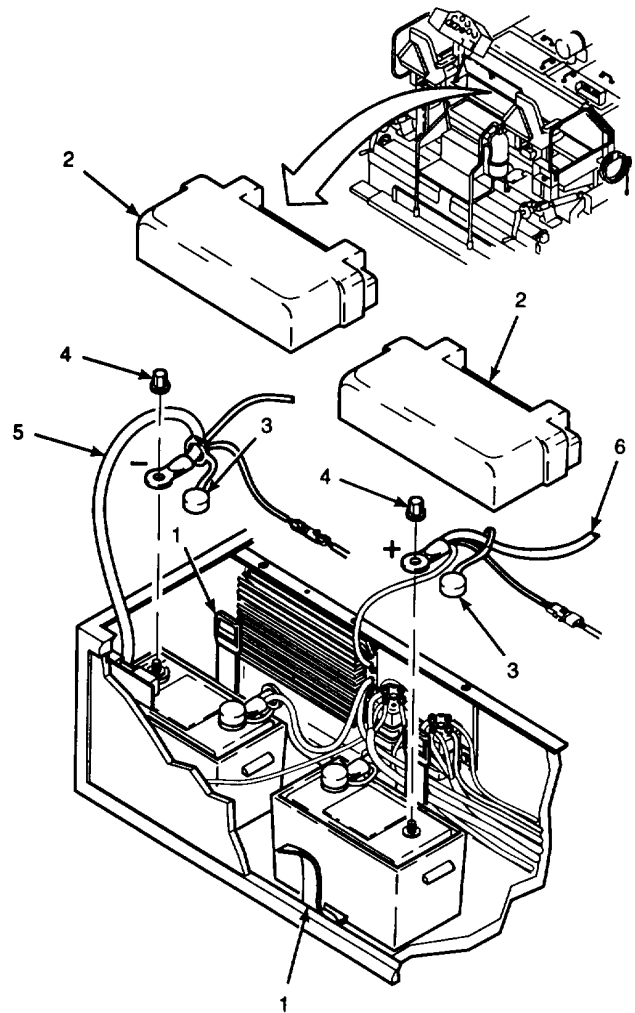
1. REMOVE BATTERY CABLES.

- a. Unbuckle battery box holddown straps (1) and remove battery box covers (2) from both batteries.
- b. Lift rubber battery terminal caps (3) from battery terminals.



When disconnecting batteries, disconnect negative battery cable before disconnecting positive battery cable. Failure to disconnect batteries in the proper sequence may lead to electrical shock or short circuit and result in severe personnel injury.

- c. Remove battery nut (4) and negative battery cable (5) from negative terminal of outboard battery.
- d. Remove battery nut (4) and positive battery cable (6) from positive terminal of inboard battery.



GO TO NEXT PAGE

4.11. REPLACE INDUCTION HEATER RELAY - Continued.

A. REMOVE Continued.

2. REMOVE RELAY WIRES.

- a. Remove hex nuts (7) and flat washers (8) from both relay switch terminals.
- b. Remove wire 166 (9) and wire 103 (10) from relay switch terminal. Remove wire 165 (1) from opposite relay switch terminal.
- c. Remove hex nuts (12) and flat washers (13) from both relay coil terminals.
- d. Remove wire 164 (14) and ground wire G201 (15) from relay coil terminals.

3. REMOVE RELAY FROM PANEL.

- a. Remove hex head cap screws (16), flat washers (17), and ground wire G201 (15) from relay (18).
- b. Remove relay (18) from panel.

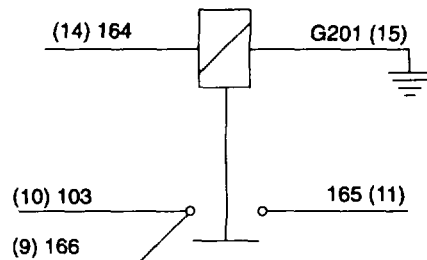
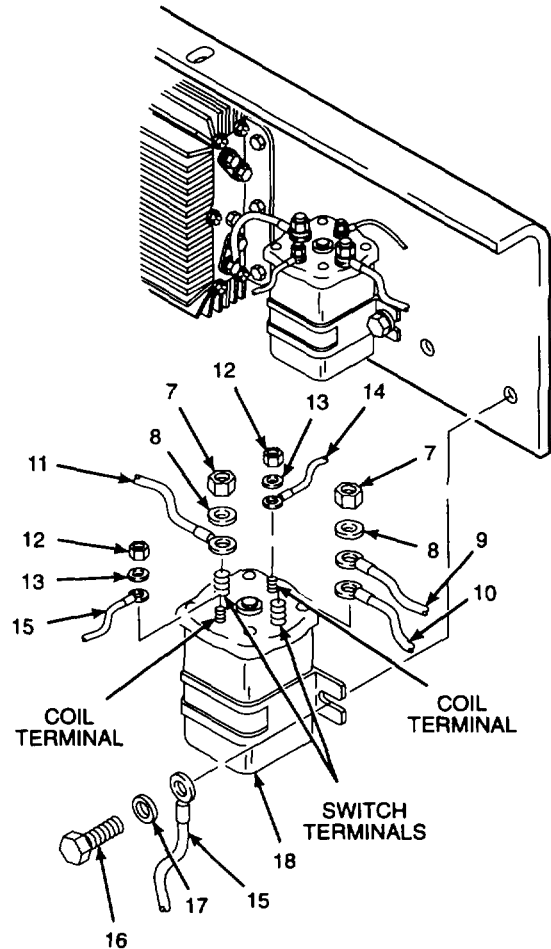
B. INSTALL.

1. INSTALL RELAY ON PANEL.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush with water and get immediate medical attention.

- a. Clean hex head cap screws (16) with thread locking compound solvent.
- b. Install flat washers (17) and ground wire G201 (15) onto hex head cap screw (16).



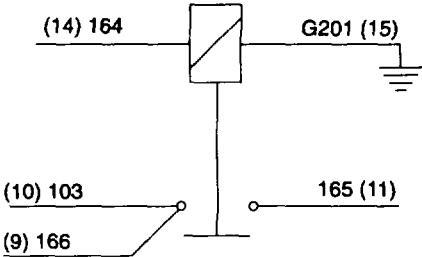
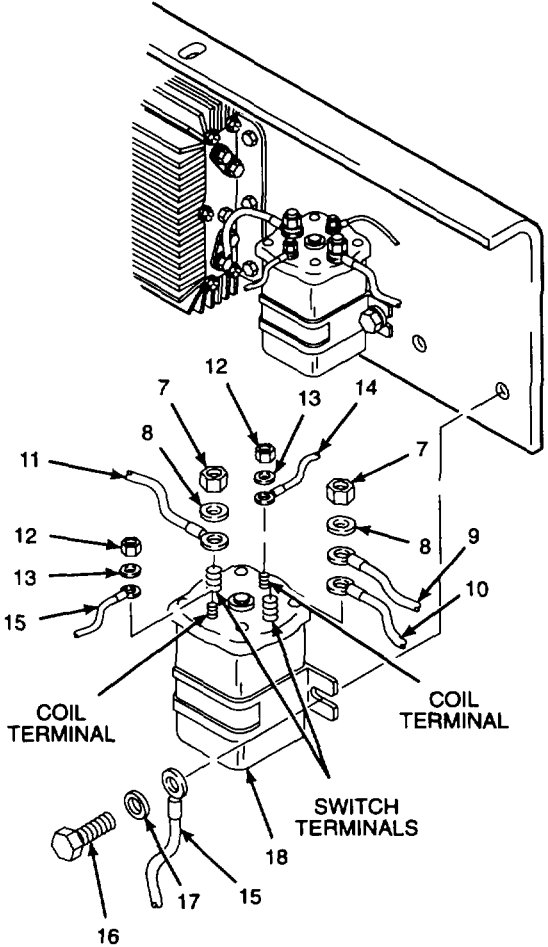
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B. INSTALL Continued.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- c. Apply thread locking compound to threads of hex head cap screws (16).
 - d. Install relay (18) and ground wire G201 (15) with flat washers (17) and hex head cap screws (16). Tighten cap screws to 9 lb-ft (12 N•m).
2. CONNECT RELAY WIRES TO RELAY.
- a. Install ground wire G201 (15) and wire 164 (14) to relay coil terminals.
 - b. Install flat washers (13) and hex nuts (12) onto both relay coil terminals. Tighten hex nuts to 18 lb-in (0,9 N•m).
 - c. Install wire 165 (11), wire 103 (10), and wire 166 (9) to relay switch terminals.
 - d. Install flat washers (8) and hex nuts (7) onto both relay switch terminals, Tighten hex nuts to 65 lb-in (7,3 N•m).



WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- e. Apply electrical insulating varnish to relay terminals.

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4.11. REPLACE INDUCTION HEATER RELAY - Continued.

B. INSTALL Continued.

3. INSTALL BATTERY CABLES.

WARNING

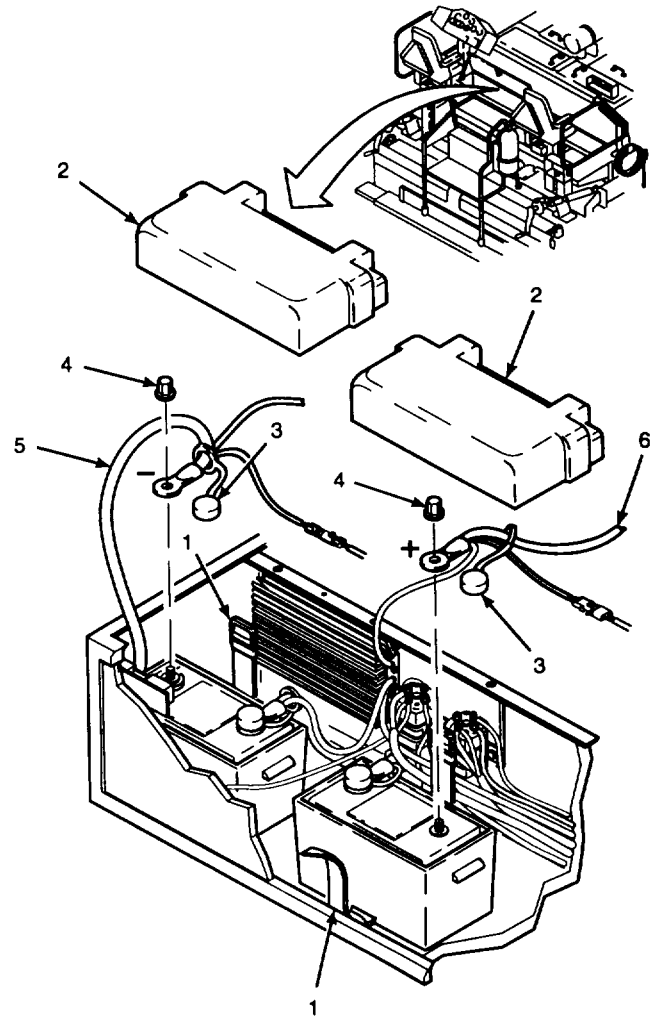
When connecting batteries, connect positive battery cable before connecting negative battery cable. Failure to connect batteries in the proper sequence may lead to electrical shock or short circuit and result in severe personnel injury.

- a. Reconnect positive battery cable (6) and battery nut (4) to positive terminal of inboard battery.
- b. Reconnect negative battery cable (5) and battery nut (4) to negative terminal of outboard battery.

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- c. Apply electrical insulating varnish to terminals on battery.
- d. Install rubber battery terminal caps (3) onto battery terminals.
- e. Install battery box covers (2) on both batteries and buckle battery box holddown straps (1).

**NOTE**

FOLLOW-ON-TASKS: Close rear top left access door per TM 5-3895-373-10.
Install left access cover per TM 5-3895-373-10.

END OF TASK

4.12. REPLACE THROTTLE ACTUATOR AND THROTTLE CONTROL CABLE.

This task covers: a. Remove b. Install c. Adjust

INITIAL SETUP

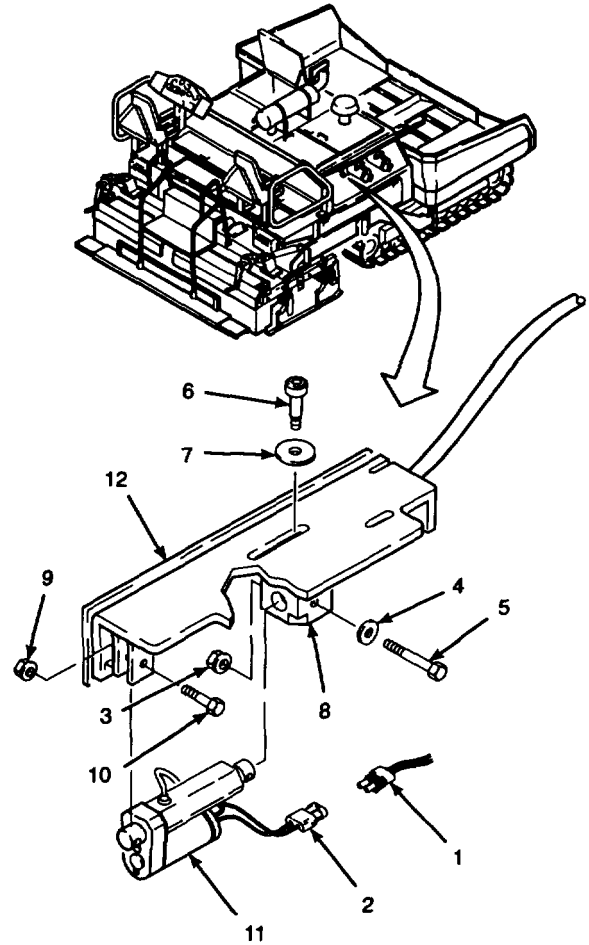
Tools:
General mechanic's automotive tool kit
(Item 54, Appendix E)

References:
TM 5-3895-373-10
TM 5-3895-373-24P

Materials/Parts:
Electrical insulating compound (Item 11, Appendix C)
Cotter pin
Throttle actuator
Throttle control cable
Self-locking hex nuts

Equipment Condition:
Right access door opened per TM 5-3895-373-10.
Front top left access door opened per TM 5-3895-373-10.
Front top right access door opened per TM-5893-373-10.

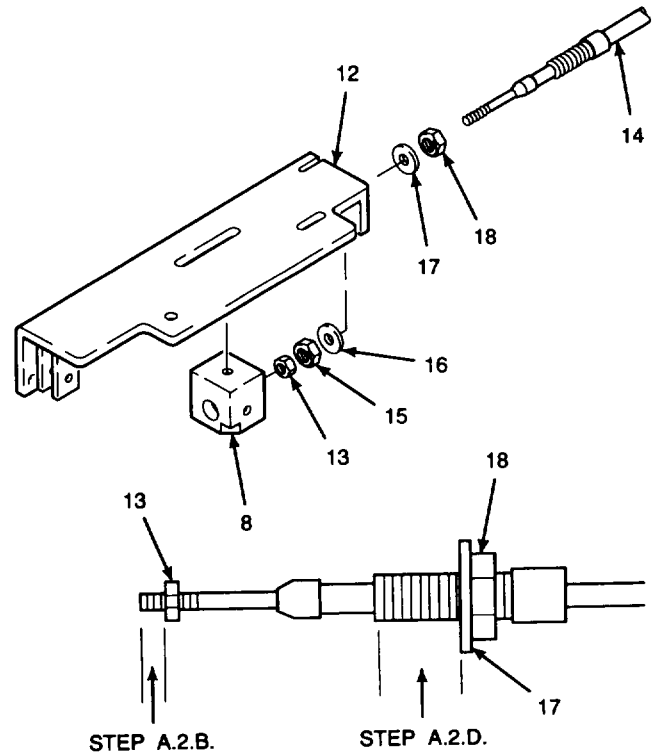
- A. REMOVE.
1. REMOVE THROTTLE ACTUATOR.
 - a. Disconnect engine harness electrical connector (1) from throttle actuator electrical connector (2).
 - b. Remove self-locking hex nut (3), flat washer (4), and hex head cap screw (5). Discard self-locking hex nut.
 - c. Remove shoulder screw (6) and washer (7) from sliding block (8).
 - d. Remove self-locking hex nut (9) and hex head cap screw (10). Discard self-locking hex nut.
 - e. Remove throttle actuator (11) from actuator mounting bracket (12).



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4.12. REPLACE THROTTLE ACTUATOR AND THROTTLE CONTROL CABLE - Continued.

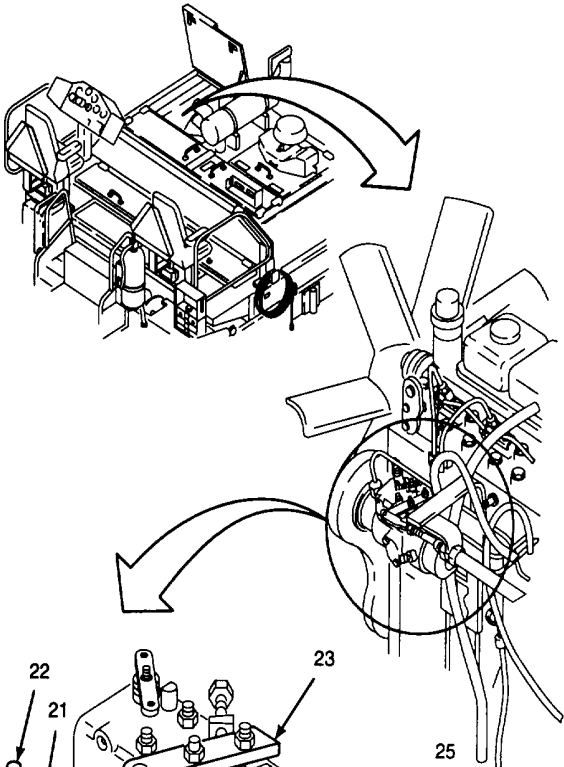
- A. REMOVE Continued.
2. REMOVE THROTTLE CONTROL CABLE.
- Loosen hex nut (13) but leave it flush against sliding block (8).
 - Unthread sliding block (8) and remove it from throttle control cable (14). Measure threads from hex nut (13) to end of the throttle control cable. Record on illustration. This measurement is needed during installation. Remove hex nut.
 - Remove hex nut (15) and washer (16) and pull throttle control cable out of actuator mounting bracket (12).
 - Measure threads from washer (17). Record on illustration. This measurement is needed during installation. Remove washer and hex nut (18).



GO TO NEXT PAGE

A. REMOVE Continued.

- e. Loosen hex nut (19) on clevis (20).
- f. Remove cotter pin (21) from clevis pin (22). Discard cotter pin.
- g. Remove clevis pin (22) from clevis (20) and disconnect clevis from throttle lever (23).
- h. Remove clevis (20) from throttle control cable (14).
- i. Loosen hex nut (24).
- j. Pull throttle control cable (14) from throttle cable bracket (25) and remove the throttle control cable from the paving machine.
- k. Measure threads from washer (26). Record on illustration. This measurement is needed during installation.



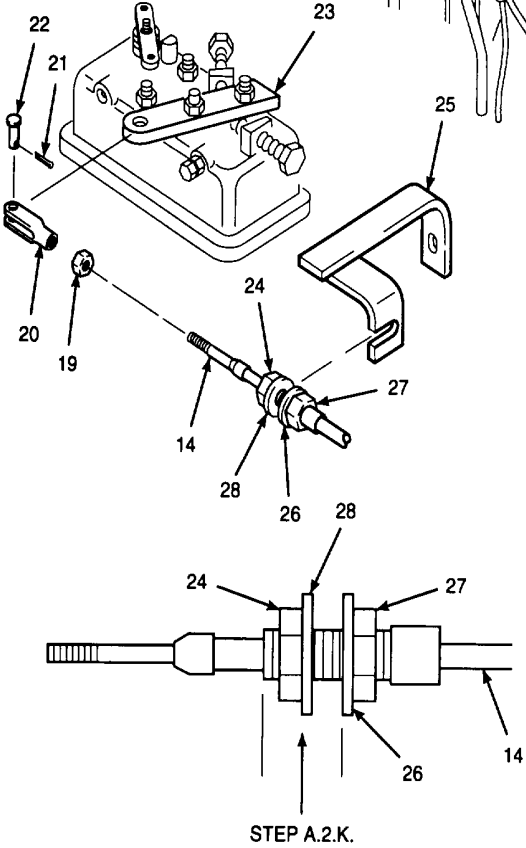
B. INSTALL.

1. INSTALL THROTTLE CONTROL CABLE.

NOTE

If installing replacement throttle, cable hex nuts and washers will be supplied assembled to throttle control cable.

- a. Adjust hex nut (27) and washer (26) on throttle control cable (14) to measurement recorded in step A.2.k.
- b. Slide throttle control cable (14) through throttle cable bracket (25).
- c. Tighten hex nut (24) and washer (28) finger tight against throttle cable bracket (25).
- d. Install hex nut (19) and clevis (20) onto throttle control cable (14). Do not install cotter pin (21) or clevis pin (22) at this time.



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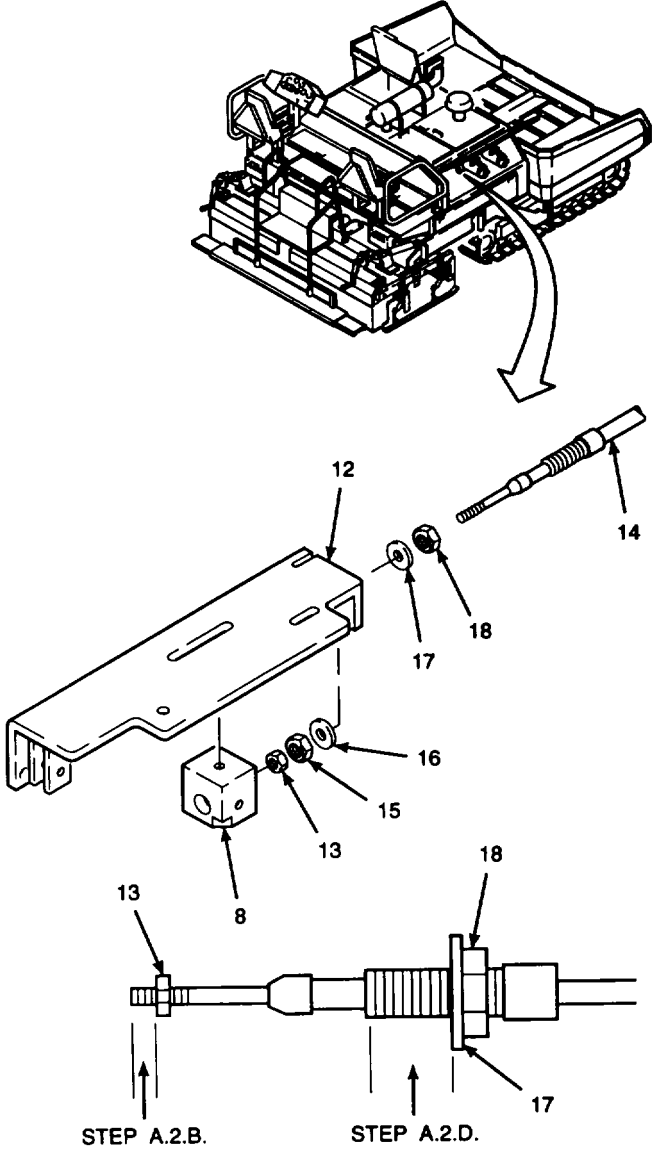
4.12. REPLACE THROTTLE ACTUATOR AND THROTTLE CONTROL CABLE - Continued.

B. INSTALL Continued.

- e. Adjust hex nut (18) and washer (17) on throttle control cable (14) to measurement recorded in step A.2.d.
- f. Remove hex nuts (13 and 15) and washer (16) from throttle control cable (14).
- g. Slide throttle control cable (14) through actuator mounting bracket (12).
- h. Install washer (16) and hex nut (15). Tighten hex nut.
- i. Install hex nut (13) onto throttle control cable (14).

Place hex nut to measurement recorded in step A.
.b.

- j. Thread sliding block (8) onto throttle control cable (14) up to hex nut (13). Tighten hex nut.



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B. INSTALL Continued.

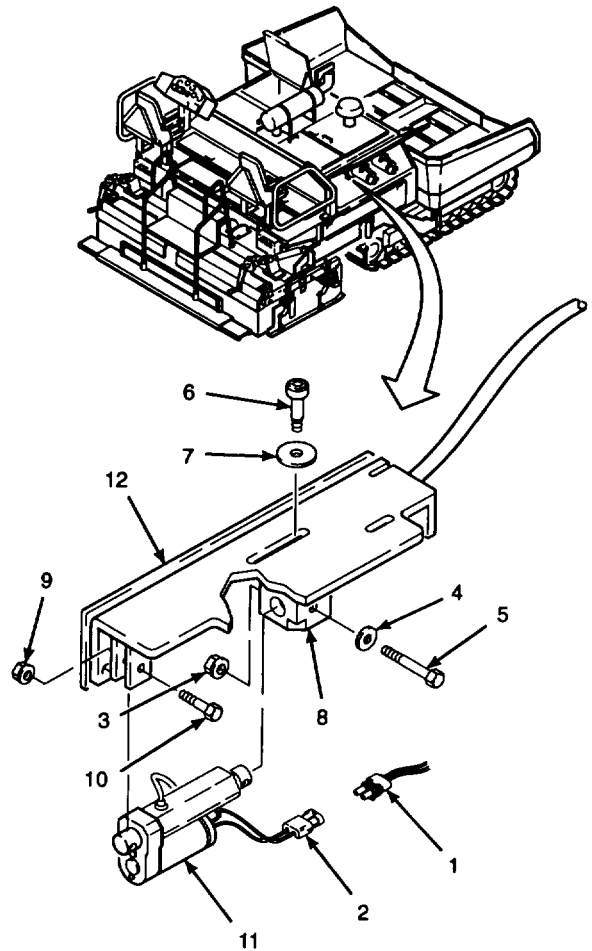
2. INSTALL THROTTLE ACTUATOR.

- a. Slide rod end of throttle actuator (11) into sliding block (8). Secure in place with hex head cap screw (5), flat washer (4), and self-locking hex nut (3).
- b. Install throttle actuator (11) into actuator mounting bracket (12). Secure in place with hex head cap screw (10) and self-locking hex nut (9).



Sliding block is made of plastic. If the shoulder screw is overtightened, the threads in the sliding block can be stripped.

- c. Install shoulder screw (6) and washer (7) through actuator mounting bracket (12) and into sliding block (8). Hand tighten shoulder screw with allen key until it bottoms in sliding block. Do not overtighten shoulder screw or threads in sliding block can be stripped.
- d. Apply electrical insulating compound to throttle actuator electrical connector (2).
- e. Connect engine harness electrical connector (1) to throttle actuator electrical connector (2).



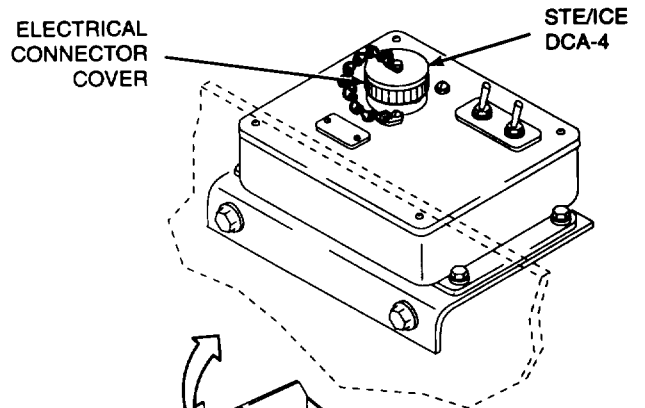
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4.12. REPLACE THROTTLE ACTUATOR AND THROTTLE CONTROL CABLE - Continued.

C. ADJUST.

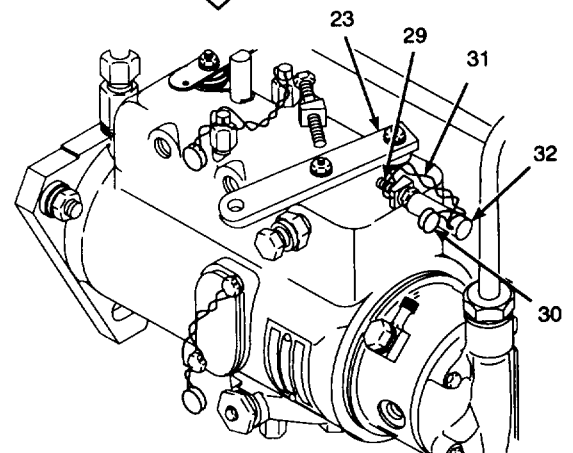
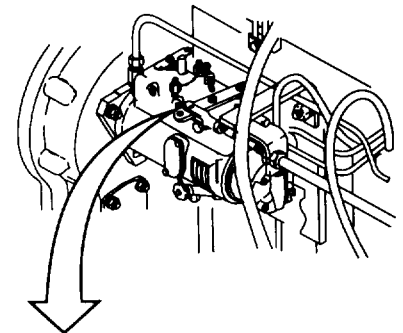
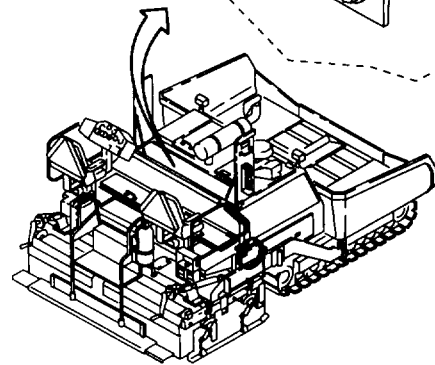


Throttle actuator must travel to the end of stroke, in both directions, when throttle control switch is in the MAX or idle positions. If the throttle actuator is not allowed to reach full stroke in both directions, then position current will continue to flow after the actuator has physically stopped and severe damage to the actuator will occur.



1. ADJUST FUEL INJECTION PUMP ENGINE IDLE SPEED.

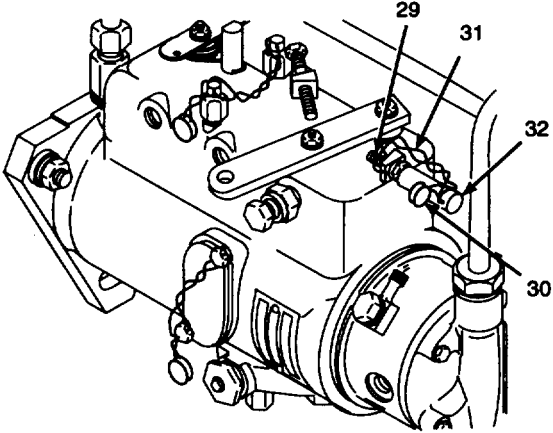
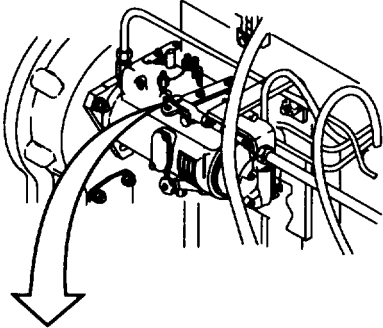
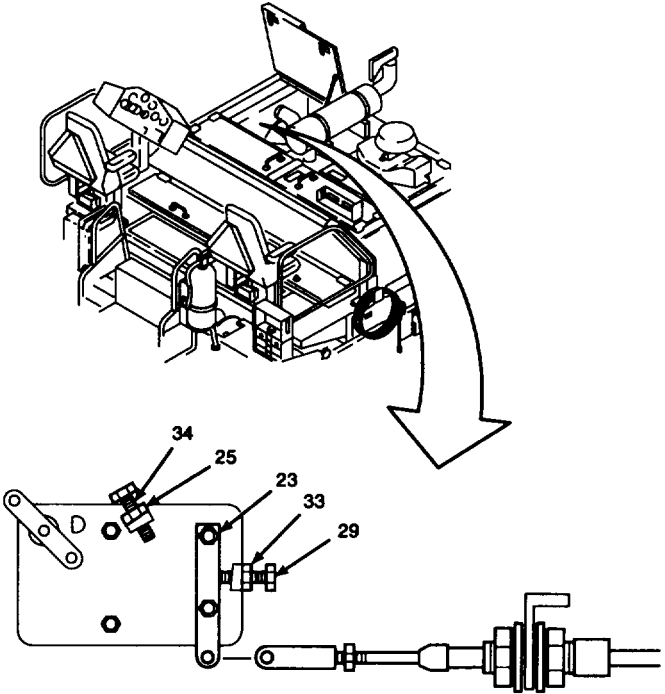
- a. Remove electrical connector cover from STE/ICE DCA-4. Connect STE/ICE-R, using cable W-1, between STE/ICE DCA-4 connector and STE/ICE-R. Perform confidence test per TM 9-4910-571-12&P.
- b. Start engine per TM 5-3895-373-10.
- c. Set STE/ICE-R for test 10 per TM 9-4910-571-12&P.
- d. Move throttle lever (23) against high speed set screw (29). STE/ICE-R engine speed should be between 2600 rpm and 2680 rpm. If engine speed is within specifications, go to step g.
- e. Remove antipilferage seal (30) and wire rope (31). Remove sleeve (32).



GO TO NEXT PAGE

C. ADJUST - Continued.

- f. Loosen nut (33) and adjust high speed set screw (29) for a reading of 2650 rpm on STE/ICE-R. Tighten nut.
- g. Move throttle lever (23) against low speed set screw (34). STE/ICE-R engine speed should be between 500 rpm and 850 rpm. If engine speed is within specifications, go to step i.
- h. Loosen nut (35) and adjust low speed set screw (34) for a reading of 650 rpm on STE/ICE-R.
- i. Shut down engine per TM 5-3895-373-10.



- j. Install sleeve (32) over high speed set screw (29). Route wire rope (31) through sleeve and over threads of high speed set screw. Twist wire rope and install and crimp anti-pilferage seal (30) over wire rope.

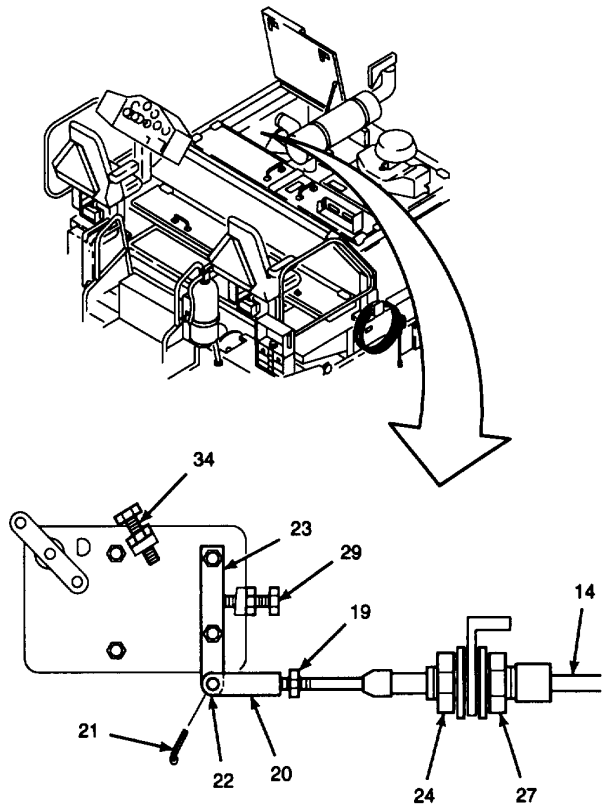
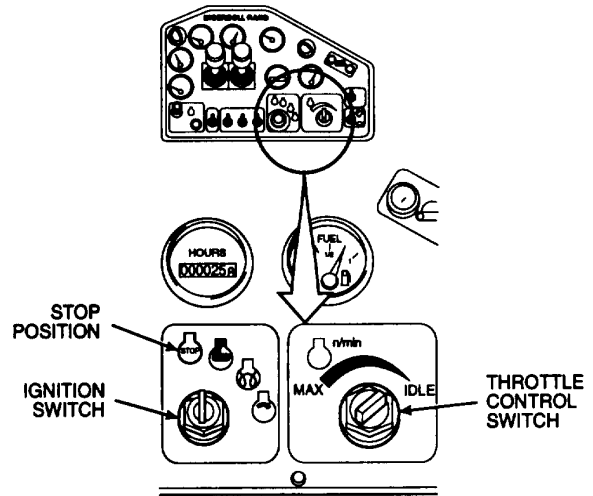
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4.12. REPLACE THROTTLE ACTUATOR AND THROTTLE CONTROL CABLE - Continued.

C. ADJUST Continued.

2. ATTACH AND TIGHTEN THROTTLE CONTROL CABLE.

- a. Turn ignition switch to the ON position per TM 53895-373-10.
- b. Set throttle control switch to MAX position. Ensure that the throttle actuator is fully retracted.
- c. Turn ignition switch to the STOP position per TM 53895-373-10.
- d. Move throttle lever (23) against high speed set screw (29). Adjust clevis (20) so that clevis pin (22) fits through both clevis and throttle lever. Install clevis pin.
- e. Install cotter pin (21) into clevis pin (22).
- f. Tighten hex nut (19) against clevis (20).
- g. Position ignition switch to ON position per TM 53895-373-10.
- h. Set throttle control switch to IDLE. Check position of throttle lever (23). Throttle lever should be just touching low speed set screw (34) without putting pressure on throttle lever or throttle control cable (14).
- i. If throttle lever (23) is:
 just touching low speed set screw (34) go to step m
 tight against low speed set screw (34), go to step j.
 not touching low speed set screw (34) go to step k.

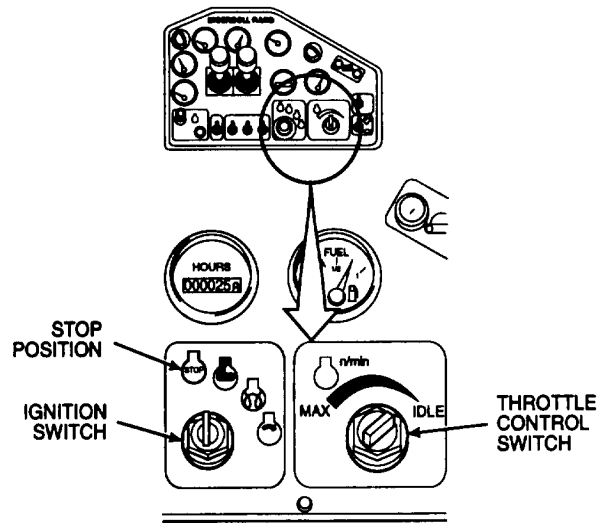


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C. ADJUST Continued.

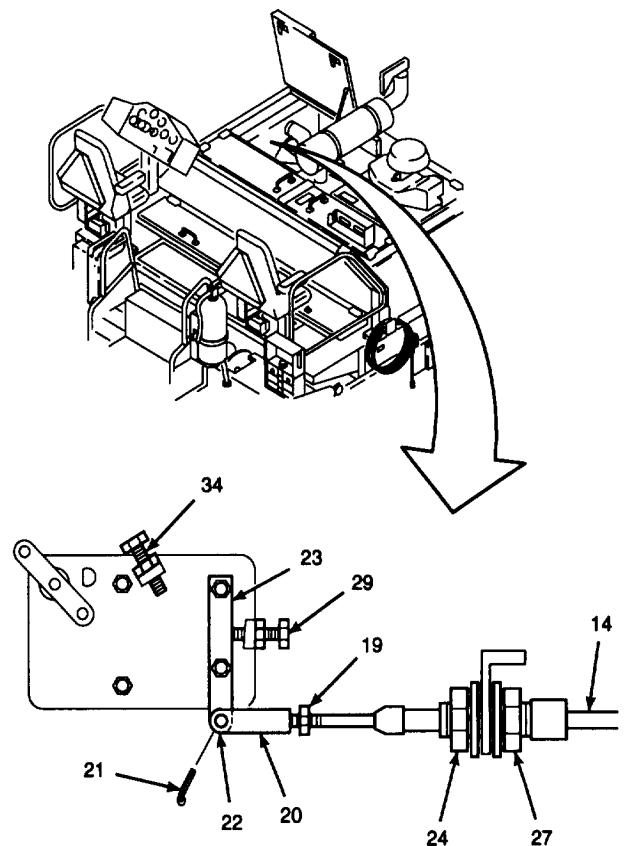
j. If throttle lever (23) is tight against low speed set screw (34), set throttle control switch to MAX.

- (1) Remove cotter pin (21) and clevis pin (22).
- (2) Loosen hex nut (19) and screw clevis (20) two turns further onto throttle control cable (14). Tighten hex nut.
- (3) Position and hold throttle lever (23) against high speed set screw (29). Reposition throttle control cable (14) by loosening hex nut (27) and tightening hex nut (24) until clevis (20) aligns with throttle lever.
- (4) Install clevis pin (22) and cotter pin (21).
- (5) Set throttle control switch to IDLE. Check position of throttle lever (23). Throttle lever should be just touching adjustment screw without putting pressure on throttle lever or throttle control cable (14).
- (6) Repeat steps (1) thru (5) as required.



k. If throttle lever (23) is not touching low speed set screw (34), set throttle control switch to MAX.

- (1) Remove cotter pin (21) and clevis pin (22).
- (2) Loosen hex nut (19) and screw clevis (20) two turns further out on throttle control cable (14). Tighten hex nut.
- (3) Position and hold throttle lever (23) against high speed set screw. Reposition throttle control cable (14) by loosening hex nut (24) and tightening hex nut (27) until clevis (20) aligns with throttle control lever.
- (4) Install clevis pin (22) and cotter pin (21).
- (5) Set throttle control switch to IDLE. Check position of throttle lever (23). Throttle lever should be just touching low speed set screw (34). If not just touching set screw, repeat steps (1) through (5).

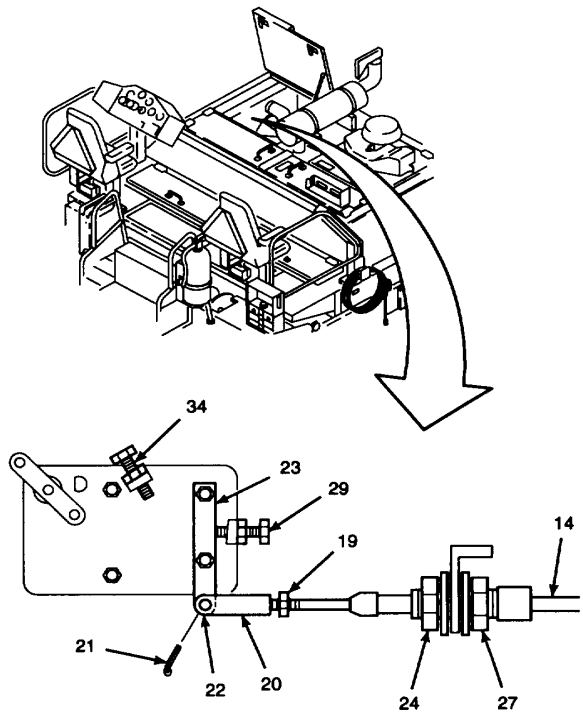
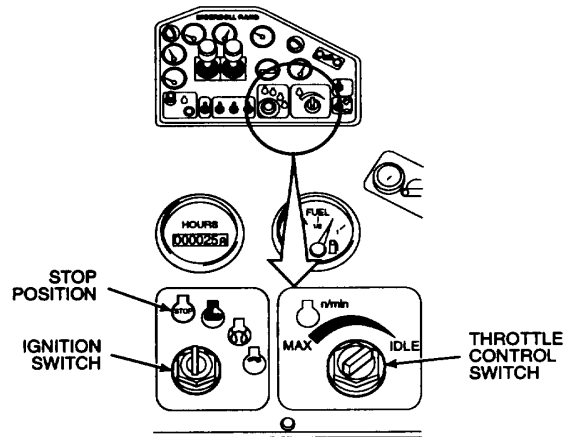


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4.12. REPLACE THROTTLE ACTUATOR AND THROTTLE CONTROL CABLE - Continued.

C. ADJUST Continued.

- i. Start engine per TM 5-3895-373-10.
- m. Set STE/ICE-R for test 10 per TM 9-4910-571-12&P.
- n. Set throttle control switch to MAX per TM 5-3895373-10. STE/ICE-R engine speed should be between 2600 rpm and 2680 rpm. If engine speed is within specifications, go to step o. If engine speed is not within tolerance, repeat steps j and k.
- o. Set throttle control switch to IDLE per TM 5-3895373-10. STE/ICE-R engine speed should be between 650 rpm and 850 rpm. If engine speed is within tolerance, no further adjustment is required. If engine speed is not within tolerance, repeat steps j and k.
- p. Shut down engine per TM 5-3895-373-10.
- q. Remove STE/ICE-R per TM 9-4910-571-12&P.



NOTE

FOLLOW-ON-TASKS: Close right access door per TM 5-3895-373-10.
 Close front top left access door per TM 5-3895-373-10.
 Close front top right access door per TM 5-3895-373-10.

END OF TASK

CHAPTER 5

EXHAUST SYSTEM MAINTENANCE

General Maintenance Procedures	Para 5.1	Page 5-1
Replace Exhaust Muffler and Pipes	5.2	5-2

5.1. GENERAL MAINTENANCE PROCEDURES.

All unit level maintenance shall be performed in accordance with good and safe shop practices. Observe the following general instructions and requirements when performing exhaust system maintenance.

a. Thread locking compound is used with most threaded fasteners. If a threaded fastener will not break loose, heat threaded area of fastener from 500° to 600°F (232° to 315°C) with heater gun. If the special solvent used to remove thread locking compound from screw threads fails to remove buildup, discard fastener.

b. Inspect all removed components for obvious wear or damage. Replace all worn, bent, broken, or otherwise damaged parts.

c. Inspect all removed fasteners for thread damage. If thread damage is found, replace fastener. Replace flat washers if galled or bent. Use screw extractor set (Item 15, Appendix E) to remove broken studs or screws.

d. Use only authorized replacement parts. Refer to TM 53895-373-24P, Repair Parts and Special Tools List (RPSTL) for authorized replacement parts.

e. Torque values cited in the text apply to modified SAE Grade 8 fasteners at required clamping loads.

f. Observe all warnings and cautions. Wear protective clothing and equipment as specified. Observe the Safety and Hazard Warnings provided in TACOM technical bulletin TB 43-0216.

5.2. REPLACE EXHAUST MUFFLER AND PIPES.

This task covers: a. Remove b. Install

INITIAL SETUPTools:

General mechanic's automotive tool kit
(Item 54, Appendix E)

Crowfoot wrench (Item 54, Appendix E)

Torque wrench (Item 68, Appendix E)

Materials/Parts:

Anti-seize compound (Item 9, Appendix C)

Gasket

Exhaust muffler

Exhaust pipe

Lockwashers

Loop clamps

Pipe elbow

Pipe reducer

Protective cap assembly

Self-locking hex nut

References:

TM 5-3895-373-10

TM 5-3895-373-24P

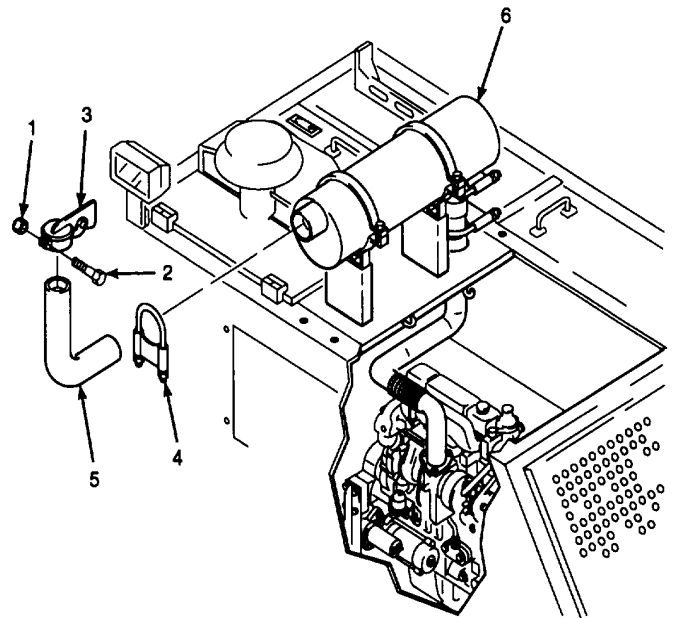
Equipment Condition:

Front top left access door open per TM 5-3895-373-10.

Engine access cover removed per paragraph 2.22.

A. REMOVE.**1. REMOVE PIPE ELBOW.**

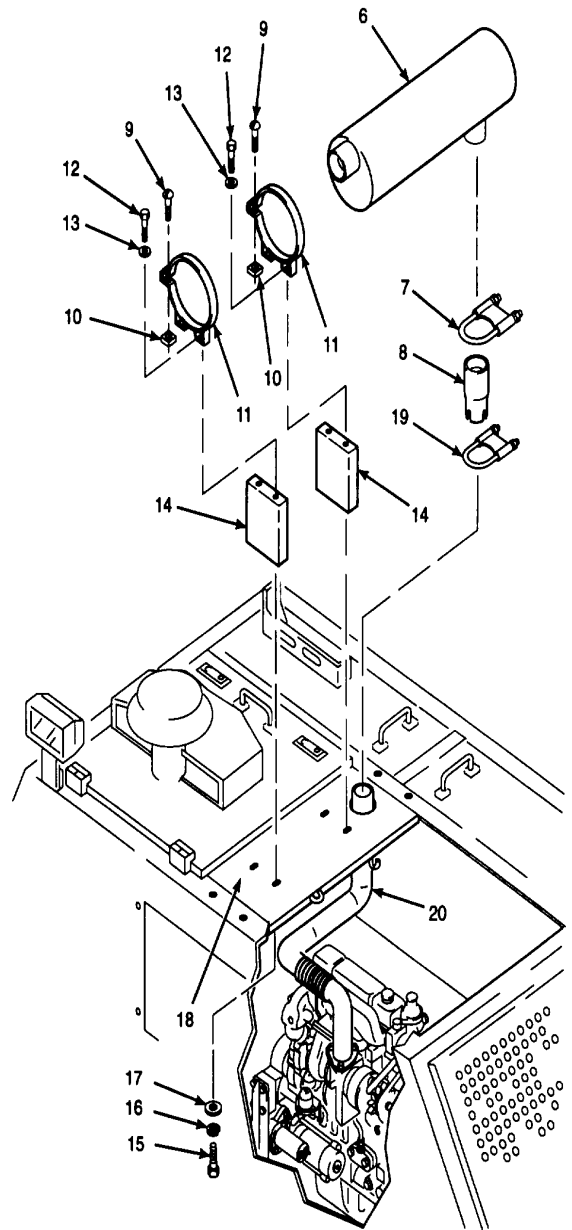
- a. Remove self-locking hex nut (1) and bolt (2) securing protective cap (3). Discard selflocking hex nut.
- b. Remove and discard protective cap assembly (3).
- c. Loosen two nuts on clamp (4) securing pipe elbow (5) to exhaust muffler (6).
- d. Remove and discard pipe elbow (5).
- e. Remove and discard loop clamp (4).



GO TO NEXT PAGE

- A. REMOVE Continued.
- 2. REMOVE EXHAUST MUFFLER AND MUFFLER BRACKETS.

- a. Loosen nuts securing clamp (7) to pipe reducer (8).
- b. Remove screws (9) and nuts (10) from muffler mounting clamps (11).
- c. Pull apart muffler mounting clamps (11) and lift exhaust muffler (6) off pipe reducer (8) and remove from machine. Discard exhaust muffler.
- d. Remove bolts (12) and flat washers (13) securing muffler mounting clamps (11) to muffler brackets (14). Discard muffler mounting loop clamps.
- e. Remove and discard loop clamp (7).
- f. Remove hex head cap screws (15), lockwashers (16), and flat washers (17) securing muffler brackets (14) to muffler support bracket (18). Discard lockwashers.
- g. Remove muffler brackets (14).



- 3. REMOVE EXHAUST PIPE.

CAUTION

Hold exhaust pipe when removing pipe reducer to prevent exhaust pipe elbow area from breaking. Cracks or breaks in the flex material result in carbon monoxide leakage.

- a. Loosen nuts on clamp (19) securing pipe reducer (8) to exhaust pipe (20).
- b. Remove and discard loop clamp (19).
- c. Remove pipe reducer (8). Discard pipe reducer.

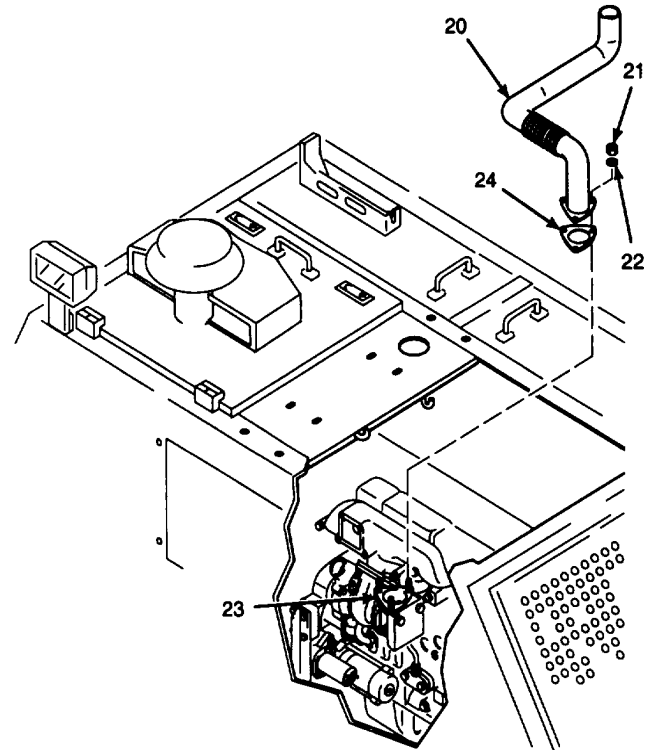
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5.2. REPLACE EXHAUST MUFFLER AND PIPES - Continued.**A. REMOVE Continued.**

- d. Remove nuts (21) and washers (22) securing exhaust pipe (20) to exhaust elbow (23).

Do not allow pieces of the gasket to fall into the exhaust elbow. Gasket material in the engine can destroy the engine or lead to engine failure. If material does fall into the exhaust elbow and cannot be removed, notify next higher level maintenance immediately.

- e. Lift exhaust pipe (20) off exhaust elbow studs and remove through engine compartment. Discard exhaust pipe.
- f. Remove and discard gasket (24).

**B. INSTALL.**

1. INSTALL EXHAUST PIPE.



Use caution when scraping gasket material from exhaust elbow. Do not scratch or gouge exhaust elbow sealing surface when scraping gasket material. Poor sealing and carbon monoxide leakage may result from scratches or gouges in exhaust elbow sealing surface.

- a. Use putty knife to remove all gasket material from exhaust elbow (23).
- b. Place gasket (24) over studs on exhaust elbow (23). flush eyes with water and get immediate medical attention.
- c. Install exhaust pipe (20) over studs on exhaust elbow (23). Ensure gasket (24) and exhaust pipe end are aligned together correctly.

WARNING

Anti-seize compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- d. Coat exhaust elbow stud threads with anti-seize compound and install washers (22) and nuts (21). Tighten to 45 lb-ft (61 N•m).

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B. INSTALL - Continued.

WARNING

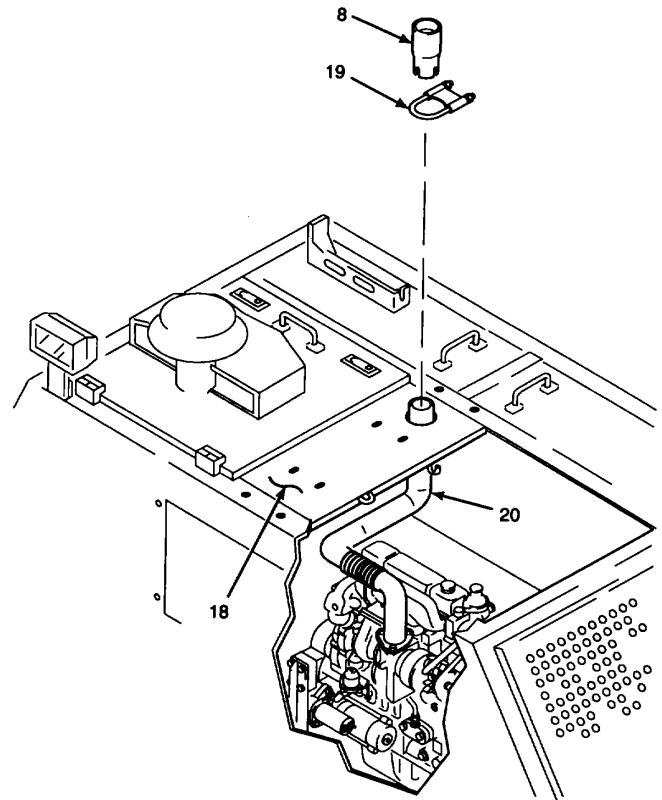
Anti-seize compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- e. Coat threads of clamp (19) with anti-seize compound and install clamp over non-flared end of pipe reducer (8). Tighten clamp nuts hand tight.

CAUTION

Hold exhaust pipe when installing pipe reducer to prevent exhaust pipe flex area from breaking. A break in the flex will cause a carbon monoxide leak.

- f. Install pipe reducer (8) and clamp (19) over exhaust pipe (20) through pipe opening in muffler support bracket (18).
- g. Orient clamp (19) with nuts facing rear of paving machine. Tighten clamp nuts to 45 lb-ft (61 N•m).



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5.2. REPLACE EXHAUST MUFFLER AND PIPES - Continued.

B. INSTALL - Continued.

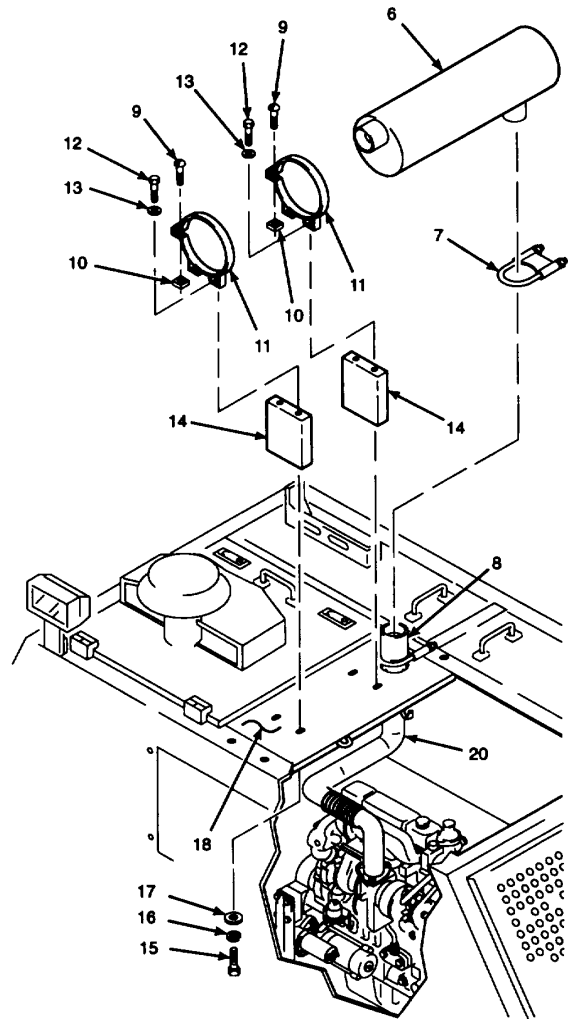
2. INSTALL MUFFLER BRACKETS AND EXHAUST MUFFLER.

- a. Install muffler brackets (14) to muffler support bracket (18) using hex head cap screws (15), lockwashers (16), and flat washers (17). Do not tighten.
- b. Install muffler mounting clamps (11) to muffler brackets (14) using bolts (12) and flat washers (13). Tighten, using crowfoot wrench, to 25 lb-ft (34 N.).

WARNING

Anti-seize compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- c. Coat threads of clamp (7) with anti-seize compound and install over non-flared end of pipe reducer (8). Tighten hand tight.
- d. Insert exhaust muffler (6) inlet over pipe reducer (8) and set exhaust muffler in muffler mounting clamps (11).
- e. Coat threads of screws (9) with anti-seize compound and secure muffler mounting clamps (11) with screws and nuts (10). Tighten to 25 lb-ft (34 N•m).
- f. Tighten hex head cap screws (15) to 25 lb-ft (34 N•m).
- g. Tighten clamp (7) nuts to 45 lb-ft (61 N•m).

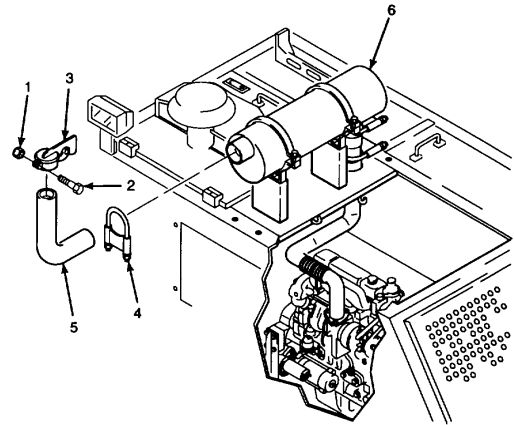


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B. INSTALL - Continued.**3. INSTALL PIPE ELBOW.****WARNING**

Antiseize compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- a. Coat threads of clamp (4) with antiseize compound and install over outlet of exhaust muffler (6).
- b. Insert short end of pipe elbow (5) into outlet of exhaust muffler (6).
- c. Ensure pipe elbow (5) exhaust end is facing up and clamp nuts are facing down. Tighten clamp nuts to 45 lb-ft (61 N•m).
- d. Mount protective cap (3) on exhaust end of pipe elbow (5). Align protective cap flapper to open facing the front of paving machine.
- e. Install self-locking hex nut (1) and bolt (2) through protective cap clamp. Tighten to 19 lb-ft (26 N•m).

**NOTE**

FOLLOW-ON-TASKS: Close front top left access door per TM 5-3895-373-10. Install engine access cover per paragraph 2.22.

END OF TASK

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CHAPTER 6

COOLING SYSTEM MAINTENANCE

	Para	Page
General Maintenance Procedures.....	6.1	6-1
Remove, Test, and Install Thermostat	6.3	6-8
Replace Coolant Hoses.....	6.4	6-10
Replace Fan Belt.....	6.7	6-19
Replace Radiator Fan.....	6.6	6-17
Replace Radiator and Radiator Shroud.....	6.2	6-2
Replace Water Pump	6.5	6-12

6.1. GENERAL MAINTENANCE PROCEDURES.

All unit level maintenance shall be performed in accordance with good and safe shop practices. Observe the following general instructions and requirements when performing cooling system maintenance.

- a. Thread locking compound is used with most threaded fasteners. If a threaded fastener will not break loose, heat threaded area of fastener from 500° to 600°F (232° to 315°C) with heater gun. If the special solvent used to remove thread locking compound from screw threads fails to remove buildup, discard fastener.
- b. Always tag mating connectors and fittings before disconnecting. Tagging of mating connectors and fittings will ease reassembly and reduce assembly errors.
- c. Discard all removed gaskets, seals, preformed packings, self-locking nuts, lockwashers, spring pins, and deformed hardware.
- d. Inspect all removed components for obvious wear or damage. Replace all worn, bent, broken, or otherwise damaged parts. Test leaky radiator in accordance with procedures in TM 750-254.
- e. Inspect all removed fasteners for thread damage. If thread damage is found, replace fastener. Replace flat washers if galled or bent. Use screw extractor set (Item 15, Appendix E) to remove broken studs or screws.
- f. Clean painted surfaces thoroughly before repainting. Do not paint over rust or corrosion. Reference TM 430139 for equipment painting requirements.
- g. Torque values cited in the text apply to modified SAE Grade 8 fasteners at required clamping loads.
- h. Use only authorized replacement parts. Refer to TM 5389537324P, Repair Parts and Special Tools List (RPSTL) for authorized replacement parts.
- i. Observe all warnings and cautions. Wear protective clothing and equipment as specified. Observe the Safety and Hazard Warnings provided in TACOM technical bulletin TB 43-0216.

6.2. REPLACE RADIATOR AND RADIATOR SHROUD.

This task covers: a. Remove b. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Hex head driver socket (Item 45, Appendix E)
Socket wrench set (Item 70, Appendix E)
Torque wrench (Item 66, Appendix E)

Materials/Parts:

Thread locking compound (Item 12 Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Lockwashers
Radiator
Radiator shroud

A. REMOVE.**1. REMOVE RADIATOR.****NOTE**

Due to tight spacing of radiator brackets, a 3/8 in. drive socket wrench set is recommended for removing and installing radiator and shroud.

- a. Loosen hose clamps (1) and disconnect coolant hoses (2 and 3) from radiator (4).

Personnel Required:

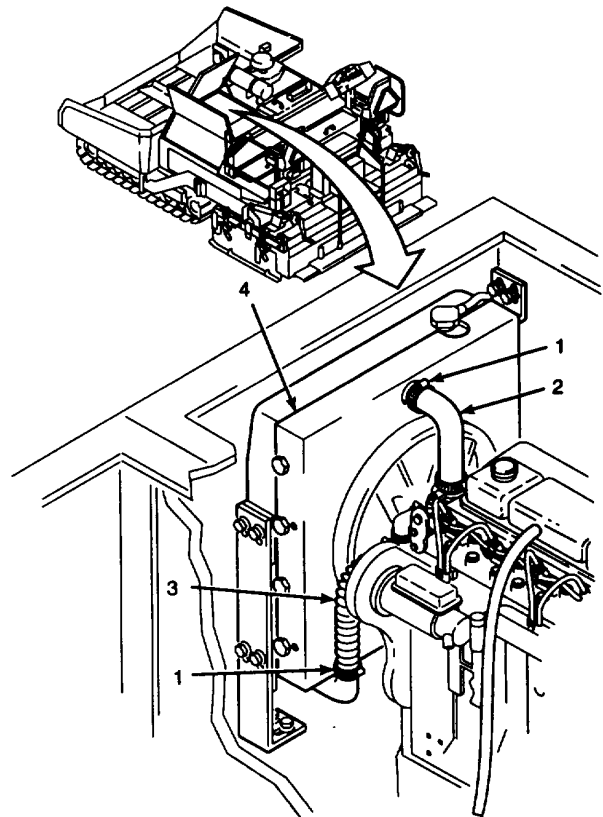
Two 62B construction equipment repairers.
Second person needed to lift radiator.

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

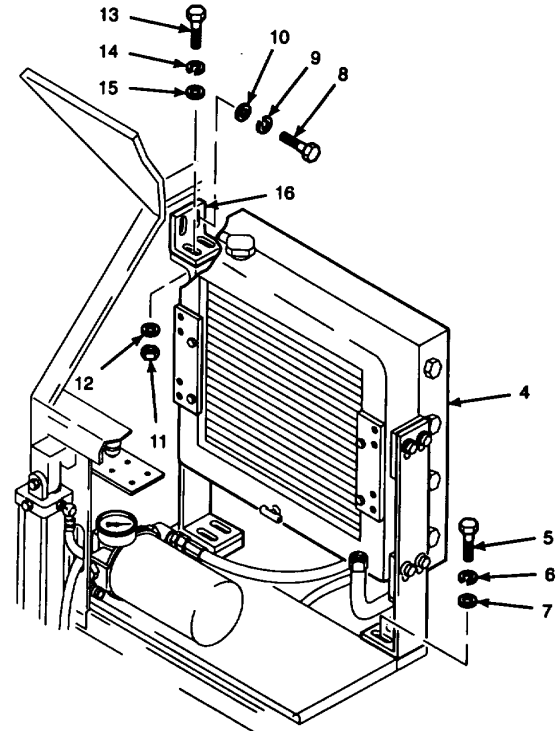
Hydraulic oil cooler removed per paragraph 8.2.
Drain engine coolant per paragraph 2.23.3.



GO TO NEXT PAGE

A. REMOVE - Continued.

- b. Remove hex head cap screws (5 and 8), lockwashers (6 and 9), and flat washers (7 and 10). Discard lockwashers.
- c. Remove hex nuts (11), flat washers (12), hex head cap screws (13), lockwashers (14), flat washer (15), and radiator bracket (16). Discard lockwashers.
- d. Make sure hydraulic hoses are clear of mounting brackets (23 and 24).



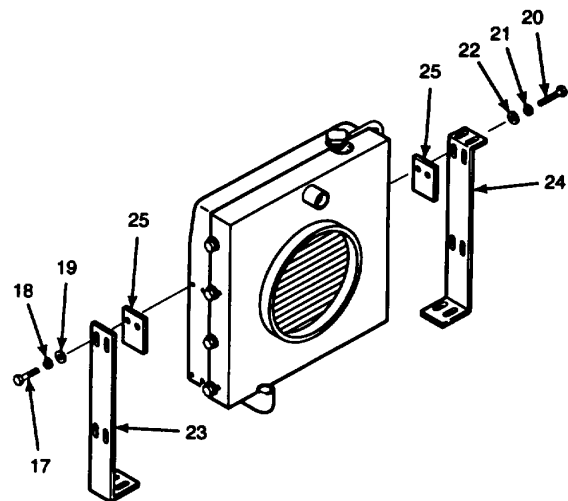
WARNING

To avoid personal injury, use a hoist or get assistance when lifting components that weigh more than 50 lbs (23 kg). Ensure all chains, hooks, slings, etc. are in good condition and are of correct capacity. Ensure hooks are positioned correctly. Always use a spreader bar when necessary. The lifting hooks must not be side loaded.

- e. With the help of another person, lift radiator (4) through front top left access door.

2. DISASSEMBLE RADIATOR AND RADIATOR SHROUD.

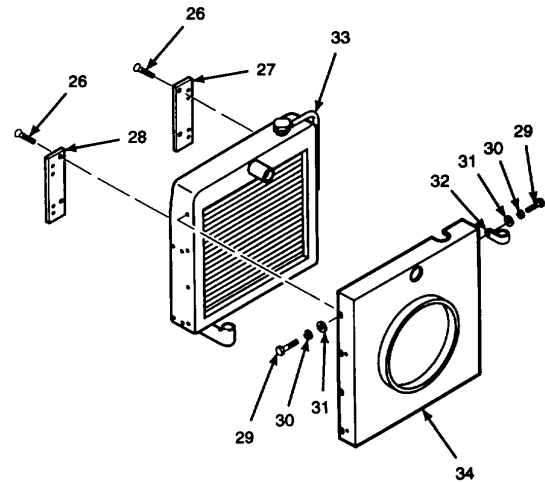
- a. Remove hex head cap screws (17 and 20), lockwashers (18 and 21), and flat washers (19 and 22). Discard lockwashers.
- b. Remove mounting brackets (23 and 24) and spacers (25).



GO TO NEXT PAGE

6.2. REPLACE RADIATOR AND RADIATOR SHROUD - Continued.**A. REMOVE - Continued.**

- c. Use a hex head driver socket and remove socket head cap screws (26) and mounting plates (27 and 28). Mark mounting plates L and R for proper position on installation.
- d. Remove hex head cap screws (29), lockwashers (30), flat washers (31), and clamps (32). Discard lockwashers.
- e. Remove clamps (32) from radiator overflow hose (33).
- f. Remove radiator shroud (34).

**B. INSTALL.****1. ASSEMBLE RADIATOR AND RADIATOR SHROUD.****WARNING**

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean threads of socket head cap screws (26) and hex head cap screws (29) with thread locking compound solvent.
- b. Install radiator shroud (34).
- c. Install lockwashers (30) and flat washers (31) onto hex head cap screws (29).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush with water and get immediate medical attention.

- d. Apply thread locking compound to threads of hex head cap screws (29).

GO TO NEXT PAGE

B. INSTALL - Continued.

- e. Install clamps (32) onto radiator overflow hose (33) and secure to radiator shroud (34) with hex head cap screws (29), lockwasher (30), and flat washer (31). Tighten cap screws to 37 lb-ft (50 N•m).

WARNING

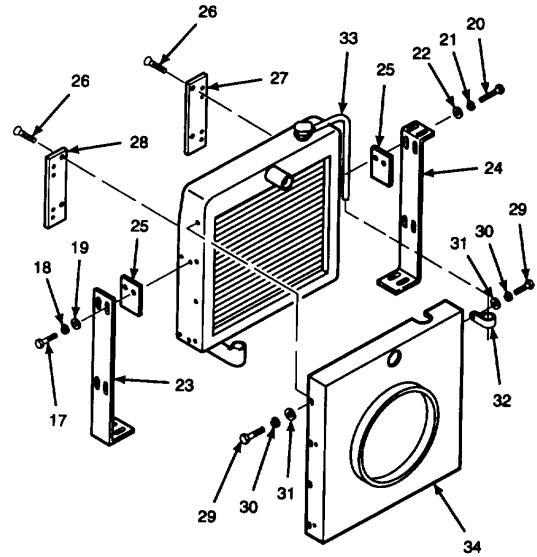
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- f. Clean threads of hex head cap screws (17 and 20) with thread locking compound solvent.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- g. Apply thread locking compound to threads of socket head cap screws (26).
- h. Position mounting plates (27 and 28) per L (left) or R (right) markings on plates.
- i. Install mounting plates (27 and 28) and socket head cap screws (26). Tighten cap screws using hex head driver socket to 37 lb-ft (50 N•m).
- j. Install flat washers (19 and 22) and lockwashers (18 and 21) onto hex head cap screws (17 and 20).
- k. Apply thread locking compound to threads of hex head cap screws (17 and 20).
- l. Install spacers (25) and mounting brackets (23 and 24).
- m. Install hex head cap screws (17 and 20). Do not tighten cap screws at this time.



6.2. REPLACE RADIATOR AND RADIATOR SHROUD - Continued.**B. INSTALL - Continued.****2. INSTALL RADIATOR.****WARNING**

To avoid personal injury, use a hoist or get assistance when lifting components that weigh more than 50 lbs (23 kg). Ensure all chains, hooks, slings, etc. are in good condition and are of correct capacity. Ensure hooks are positioned correctly. Always use a spreader bar when necessary. The lifting hooks must not be side loaded.

WARNING

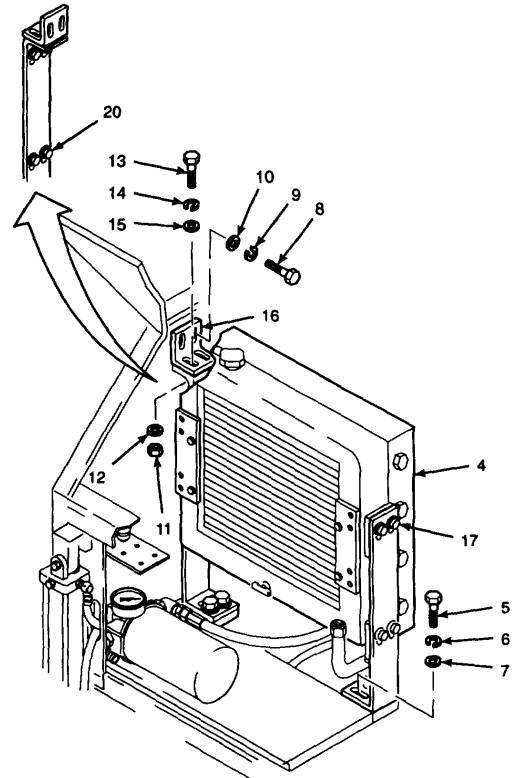
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean threads of hex head cap screws (13, 8, and 5) with thread locking compound solvent.
- b. With the help of another person, lower radiator (4) through front top left access door.
- c. Install flat washers (7 and 10) and lockwashers (6 and 9) onto hex head cap screws (5 and 8) and lockwashers (14) and flat washers (15) onto hex head cap screws (13).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- d. Apply thread locking compound to threads of hex head cap screws (5, 8, and 13).

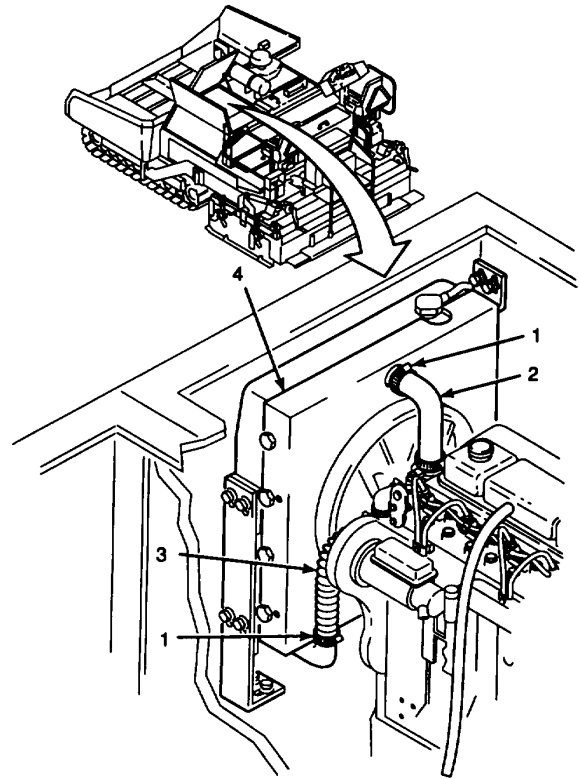


- e. Install hex head cap screws (5). Do not tighten at this time.
- f. Install radiator bracket (16), hex head cap screws (8 and 13), flat washers (12), and hex nuts (11). Do not tighten cap screws or hex nuts at this time.
- h. Tighten hex head cap screws (20, 17, 8, and 5) and hex nut (11) to 37 lb-ft (50 N•m).
- g. Move radiator and shroud as necessary to position engine fan in center of shroud opening.

GO TO NEXT PAGE

B. INSTALL - Continued.

- i. Connect coolant hoses (2 and 3) to radiator (4) and tighten hose clamps (1).

**NOTE**

FOLLOW-ON-TASKS: Fill coolant system per paragraph 2.23.3.
Replace hydraulic oil cooler per paragraph 8.2.

END OF TASK

6.3. REMOVE, TEST, AND INSTALL THERMOSTAT.

This task covers: **a. Remove** **b. Test** **c. Install**

Tools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Torque wrench (Item 68, Appendix E)

Materials/Parts:

Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Gasket

References:

TM 5-3895-373-10
TM 5-3895-373-24P
TM 750-254

Equipment Conditions:

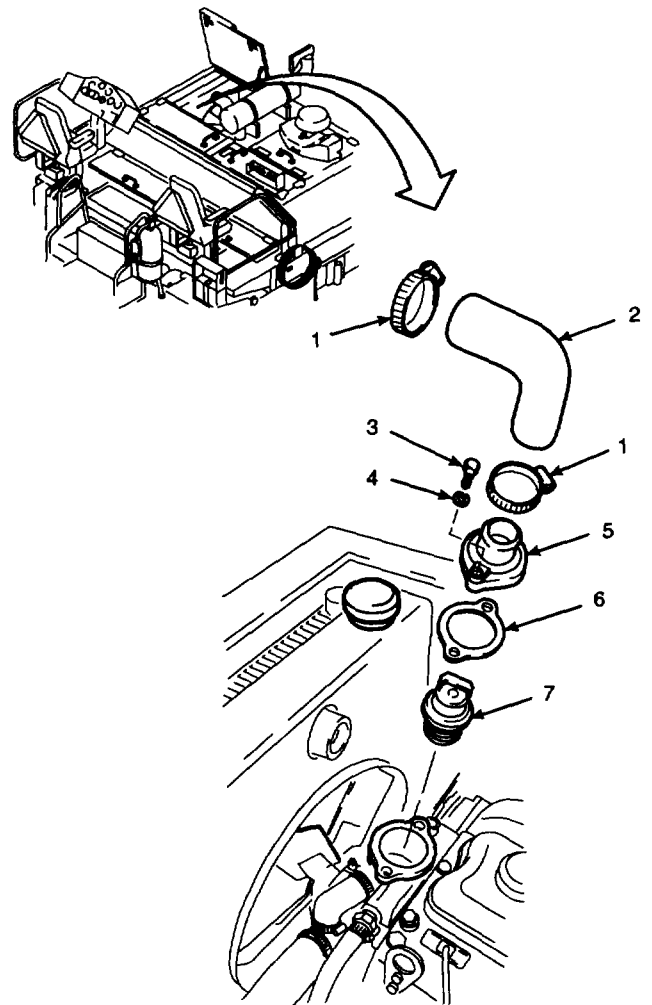
Drain engine coolant per paragraph 2.23.3.

A. REMOVE.**1. REMOVE UPPER COOLANT HOSE.**

- a. Loosen hose clamps (1) on upper coolant hose (2).
- b. Remove upper coolant hose (2).

2. REMOVE THERMOSTAT.

- a. Remove hex head cap screws (3) and lockwashers (4) securing connection (5). Remove connection. Discard lockwashers.
- b. Remove and discard gasket (6). Remove thermostat (7).

**B. TEST.****1. TEST THERMOSTAT PER TM 750-254.**

2. THERMOSTAT SHOULD START TO OPEN AT 1700 TO 180°F (77° TO 82°C) AND BE FULLY OPEN AT 208°F (98°C).

GO TO NEXT PAGE

C. INSTALL.

1. INSTALL CONNECTION AND THERMOSTAT ONTO ENGINE.



When scraping gasket material from surface of parts, be careful not to scratch or gouge metal surfaces.

Do not allow gasket material to fall into engine block. Gasket material may cause blockage of the coolant system and damage the water pump, thermostat, or engine.

- a. Scrape excess gasket material from gasket seal area (8) using putty knife. Do not scratch sealing surface or allow gasket material to fall into engine block.
- b. Install thermostat (7) and new gasket (6).

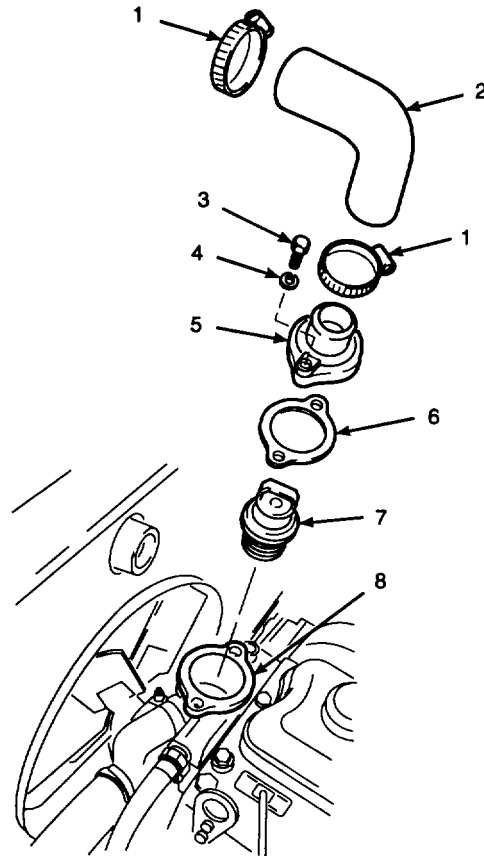


Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- c. Clean threads of hex head cap screws (3) with thread locking compound solvent.



Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.



- d. Install lockwashers (4) on hex head cap screws (3). Apply thread locking compound to cap screws.
- e. Install connection (5) using hex head cap screws (3). Tighten cap screws to 37 lb-ft (50 N•m).

2. REPLACE UPPER COOLANT HOSE.

- a. Slide hose clamps (1) over upper coolant hose (2). Install upper coolant hose between connection (5) and radiator.
- b. Tighten hose clamps (1).

NOTE

FOLLOW-ON-TASK: Fill coolant system per paragraph 2.23.3.
END OF TASK

6.4. REPLACE COOLANT HOSES.

This task covers: a. Remove b. Replace

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)

Materials/Parts:

Bottom coolant hose
Coolant bypass hose
Hose clamps (If required)
Top coolant hose

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Drain engine coolant per paragraph 2.23.3.

A. REMOVE.**1. REMOVE UPPER COOLANT HOSE.**

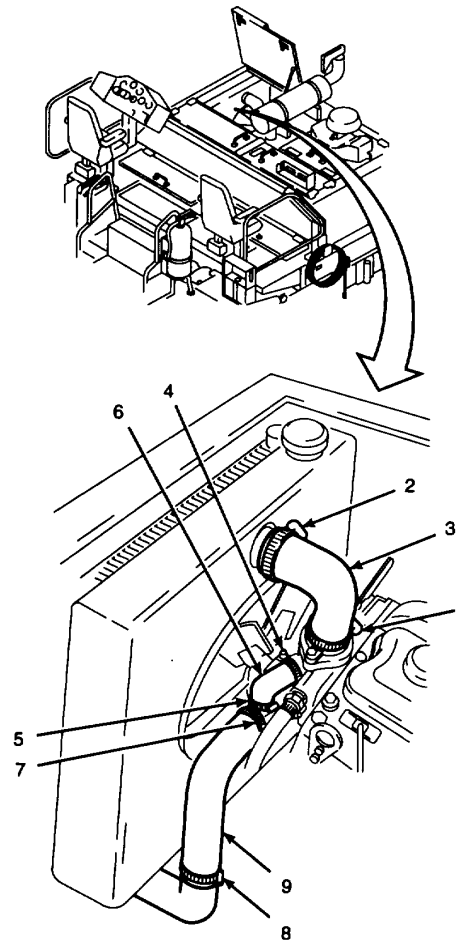
- a. Loosen hose clamps (1 and 2).
- b. Remove upper coolant hose (3).
- c. Remove hose clamps (1 and 2) from upper coolant hose (3).
- d. Discard upper coolant hose (3).

2. REMOVE COOLANT BYPASS HOSE.

- a. Loosen hose clamps (4 and 5).
- b. Remove coolant bypass hose (6).
- c. Remove hose clamps (4 and 5) from coolant bypass hose (6).
- d. Discard coolant bypass hose (6).

3. REMOVE LOWER COOLANT HOSE.

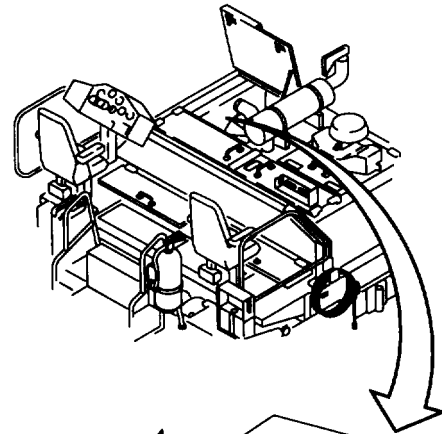
- a. Loosen hose clamps (7 and 8).
- b. Remove lower coolant hose (9).
- c. Remove hose clamps (7 and 8) from lower coolant hose (9).
- d. Discard lower coolant hose (9).



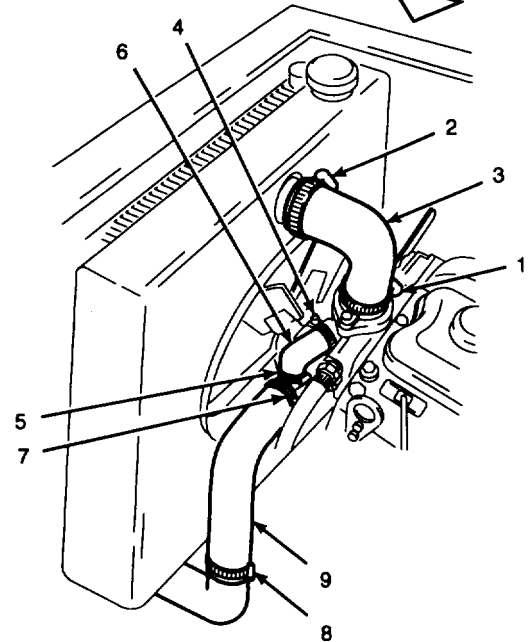
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B. REPLACE.**1. INSTALL UPPER COOLANT HOSE.**

- a. Position hose clamps (1 and 2) over ends of upper coolant hose (3).
- b. Attach upper coolant hose (3) over radiator and thermostat housings.
- c. Tighten hose clamps (1 and 2) on both ends of upper coolant hose (3).

**2. INSTALL COOLANT BYPASS HOSE.**

- a. Position hose clamps (4 and 5) over ends of coolant bypass hose (6).
- b. Attach coolant bypass hose (6) over water pump and thermostat housings.
- c. Tighten hose clamps (4 and 5) on both ends of coolant bypass hose (6).

**3. INSTALL LOWER COOLANT HOSE.**

- a. Position hose clamps (7 and 8) over ends of lower coolant hose (9).
- b. Attach lower coolant hose (9) over water pump and radiator.
- c. Tighten hose clamps (7 and 8) on both ends of lower coolant hose (9).

NOTE

FOLLOW-ON-TASK: Fill coolant system per paragraph 2.23.3.

END OF TASK

6.5. REPLACE WATER PUMP.

This task covers: a. Remove b. Clean c. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54 Appendix E)
Drip pan (Item 28, Appendix E)
Torque wrench (Item 68, Appendix E)

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Machinery wiping towel (Item 30, Appendix C)
Gaskets
Lockwashers
Water pump
Woodruff key

References:

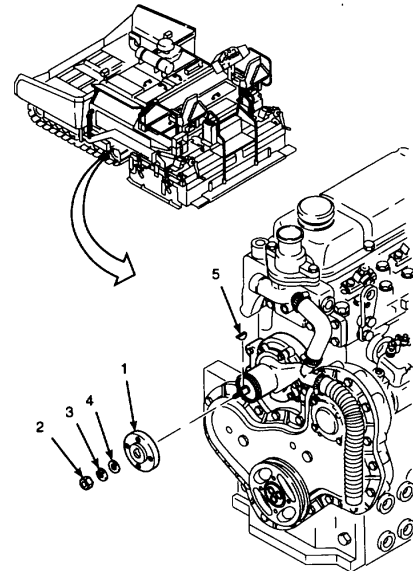
TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Engine access cover removed per paragraph 2.22.
Radiator fan removed per paragraph 6.6.

A. REMOVE.**1. REMOVE PULLEY HUB.**

- a. Grasp and hold pulley hub (1) with vise grips.
- b. Remove hex nut (2), lockwasher (3), and flat washer (4). Discard lockwasher.
- c. Remove pulley hub (1).
- d. Remove and discard woodruff key (5).

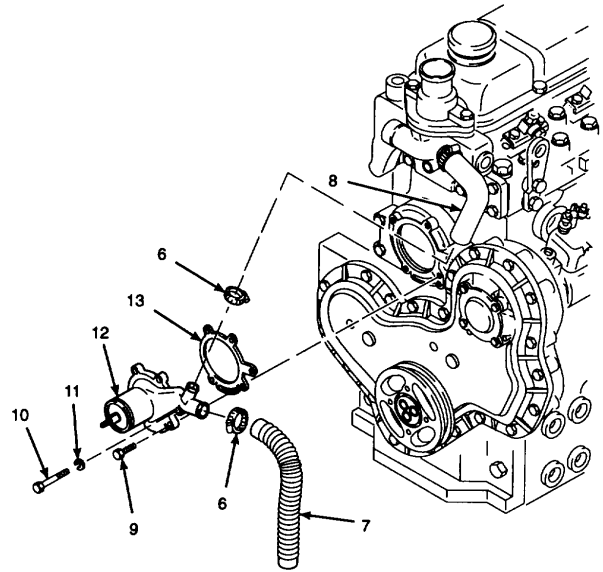


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A. REMOVE - Continued.

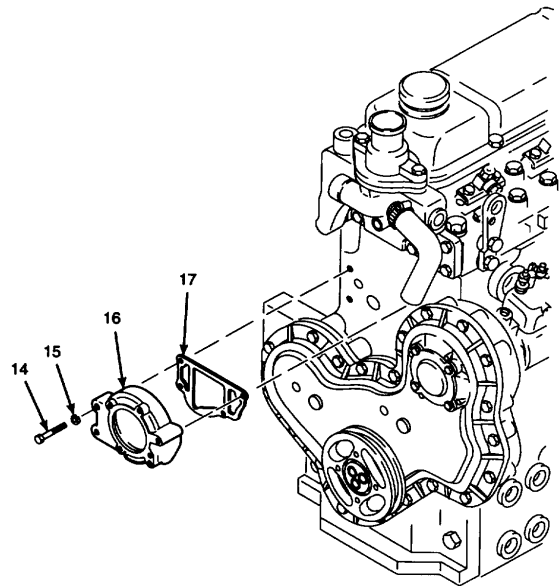
2. REMOVE WATER PUMP BODY ASSEMBLY FROM PUMP CAP.

- a. Place machinery wiping towel and drip pan under front of engine.
- b. Loosen hose clamps (6) on coolant hose (7) and coolant bypass hose (8).
- c. Remove coolant hose (7) and coolant bypass hose (8) from water pump body.
- d. Remove bolts (9).
- e. Remove bolt (10), and lockwasher (11). Discard lockwasher.
- f. Remove water pump body assembly (12).
- g. Remove and discard gasket (13).



3. REMOVE PUMP CAP FROM ENGINE.

- a. Remove hex head cap screws (14) and lockwashers (15). Discard lockwashers.
- b. Remove pump cap (16).
- c. Remove and discard gasket (17).



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6.5. REPLACE WATER PUMP - Continued.**B. CLEAN.**

1. CLEAN PUMP CAP.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- a. Use a cleaning cloth soaked with cleaning solvent to clean pump cap.
- b. Use a parts cleaning brush and cleaning solvent to remove any hard deposits and carbon buildup.

CAUTION

Use caution when scraping gasket sealing surfaces with putty knife. Putty knife may score sealing surfaces and debris may fall into open ports. Failure to do so may result in poor seal and equipment damage.

- c. Use a putty knife, if necessary, to remove any gasket material from sealing surfaces. Do not score the sealing surface or allow any gasket material to fall into open ports on engine.

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B. CLEAN - Continued.

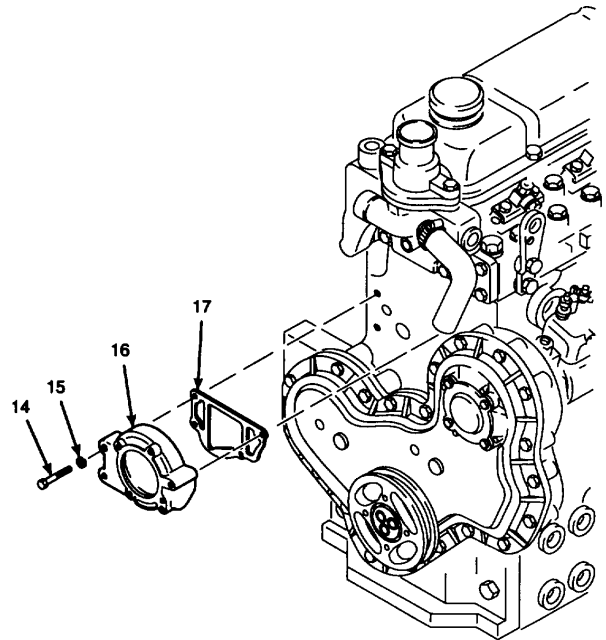
2. CLEAN BOLTS, CAP SCREWS, AND THREADS OF WATER PUMP SHAFT.

- a. Using cleaning solvent, clean threads of bolts, cap screws, and water pump shaft. Use a parts cleaning brush to remove any hard deposits from threads.
- b. Dry with a cleaning cloth.

C. INSTALL.

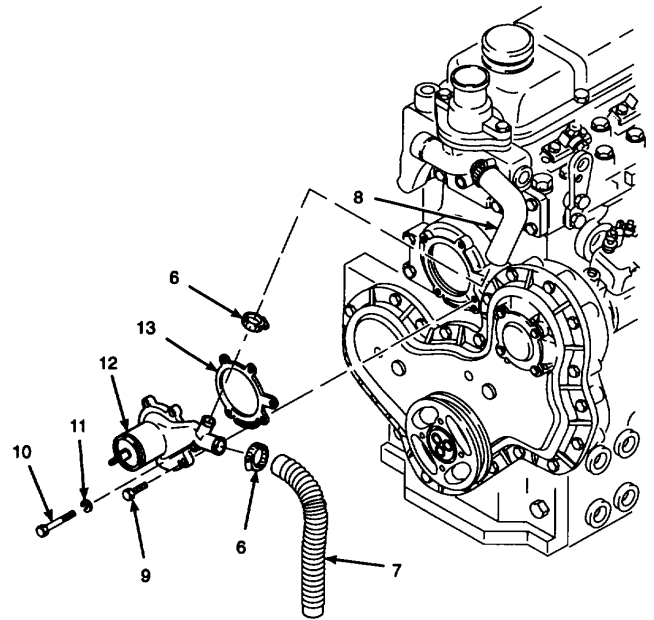
1. INSTALL PUMP CAP ONTO ENGINE.

- a. Install gasket (17) and pump cap (16) onto engine.
- b. Install lockwashers (15) and hex head cap screws (14). Tighten cap screws to 42 lb-ft (57 N•m).



2. INSTALL WATER PUMP BODY ASSEMBLY ONTO PUMP CAP.

- a. Install gasket (13) and water pump body assembly (12) onto pump cap.
- b. Install lockwasher (11), and bolt (10).
- c. Install bolts (9).
- d. Tighten bolt (10) to 42 lb-ft (57 N•m).
- e. Tighten bolts (9) to 21 lb-ft (28 N•m).
- f. Install coolant hose (7) and coolant bypass hose (8) onto water pump body assembly (12).
- g. Tighten hose clamps (6).

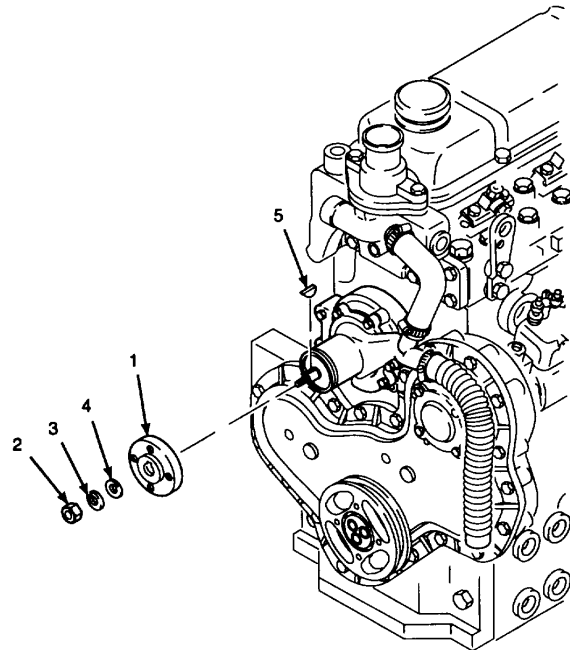


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6.5. REPLACE WATER PUMP - Continued.

C. INSTALL - Continued.**3. INSTALL PULLEY HUB.**

- a. Install woodruff key (5) and pulley hub (1).
- b. Install flat washer (4), lockwasher (3), and hex nut (2).
- c. Grasp and hold pulley hub (1) with vise grip pliers.
- d. Tighten hex nut (2) to 60 lb-ft (81 N•m).
- e. Remove vise grip pliers from pulley hub (1).

**NOTE**

FOLLOW-ON-TASKS: Install radiator fan per paragraph 6.6. Install engine access cover per paragraph 2.22.

END OF TASK

6.6. REPLACE RADIATOR FAN.

This task covers:

a. Remove

b. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Torque wrench (Item 68, Appendix E)
Equipment Condition:

Materials/Parts:

Thread locking compound (Item 12, Appendix C)

Thread locking compound solvent (Item 25, Appendix C)
Radiator fan

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Hydraulic oil cooler removed per paragraph 8.2.
Radiator and radiator shroud removed per paragraph 6.2.
Fan belt removed per paragraph 6.7.

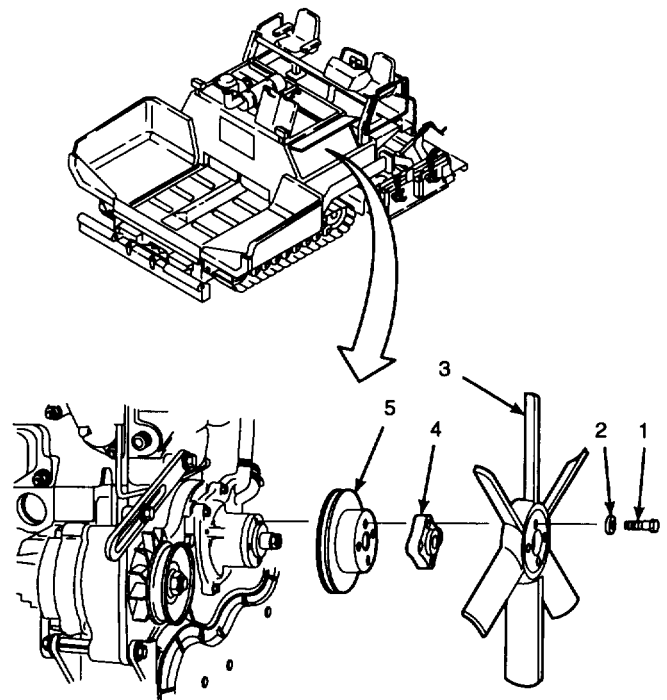
A. REMOVE.

1. REMOVE BOLTS (1) AND FLAT WASHERS (2).
2. REMOVE RADIATOR FAN (3) AND SPACER (4).

NOTE

Bolts (1) and flat washers (2), with radiator fan (3) and spacer (4), secure water pump pulley to engine.

3. REMOVE WATER PUMP PULLEY (5).

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6.6. REPLACE RADIATOR FAN - Continued.

B. INSTALL.

WARNING

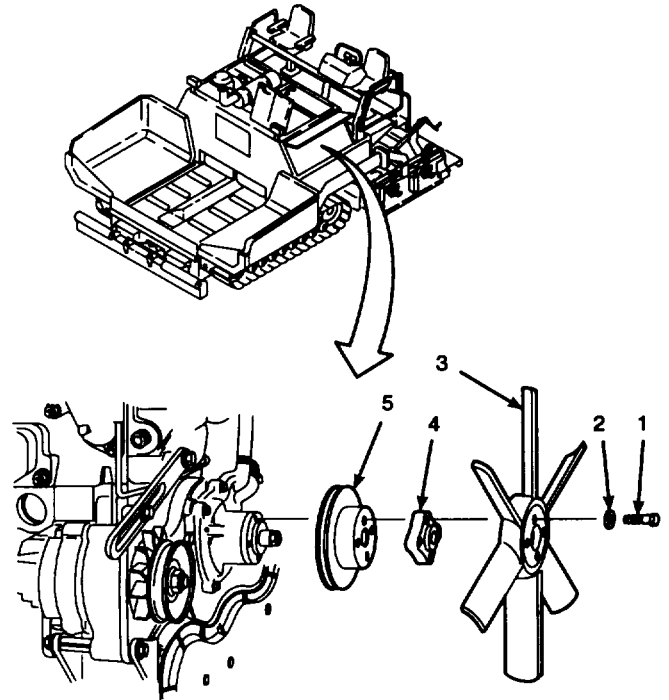
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush with water and get immediate medical attention.

1. CLEAN THREADS OF BOLTS (1) WITH THREAD LOCKING COMPOUND SOLVENT.
2. INSTALL WATER PUMP PULLEY (5), SPACER (4) AND RADIATOR FAN (3).
3. INSTALL FLAT WASHERS (2) ONTO BOLTS (1).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

4. APPLY THREAD LOCKING COMPOUND TO THREADS OF BOLTS (1).
5. INSTALL BOLTS (1) AND TIGHTEN TO 21 LBFT (28 N•m).

**NOTE**

FOLLOW-ON TASKS: Install and adjust fan belt per paragraph 6.7.
 Install radiator and radiator shroud per paragraph 6.2.
 Install hydraulic oil cooler per paragraph 8.2.

END OF TASK

6.7. REPLACE FAN BELT.

This task covers: a. Remove b. Install c. Adjust

INITIAL SETUP

Tools:

General mechanic's automotive tool kit
 (Item 54, Appendix E)
 Tensiometer (Item 51, Appendix E)
 Torque wrench (Item 68, Appendix E)
 Wedge block (Item 3, Appendix D)

References:

TM 5-3895-373-10
 TM 5-3895-373-24P

Equipment Condition:

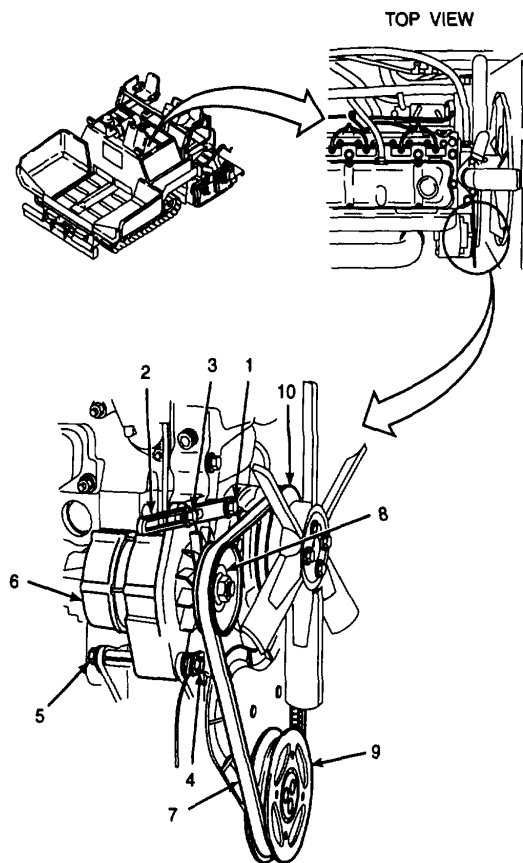
Front top left access door open per TM 5-3895-373-10.

Materials/Parts:

Fan belt

- A. REMOVE.
 - 1. LOOSEN ALTERNATOR.
 - a. Loosen hex head cap screw (1) to allow for movement of belt adjusting arm (2).
 - b. Loosen adjustment screw (3) securing belt adjusting arm (2).
 - c. Secure self-locking hex nut (4) and loosen pivot bolt (5) on bottom of alternator (6).
 - 2. REMOVE FAN BELT.
 - a. Push alternator (6) toward engine block to free fan belt (7).
 - b. Remove fan belt (7) from alternator pulley (8), crankshaft pulley (9), and water pump pulley (10).
 - c. Slide fan belt (7) between fan blades and radiator shroud one fan blade at a time. Remove and discard fan belt.
- B. INSTALL.
 - 1. INSTALL FAN BELT.
 - a. Install fan belt (7) between fan blades and radiator shroud one fan blade at a time.

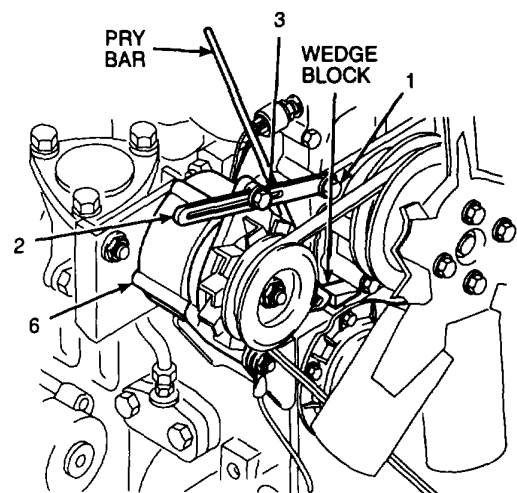
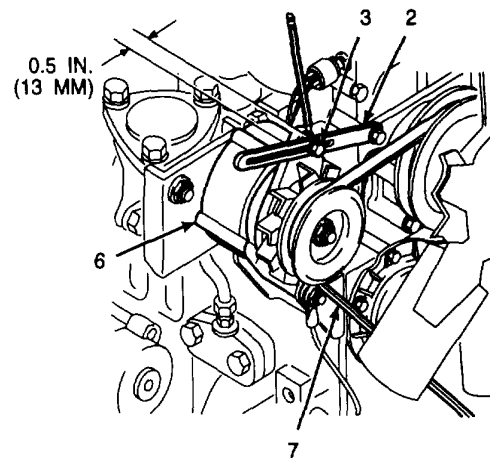
- b. Seat fan belt (7) on water pump pulley (10), crankshaft pulley (9), and alternator pulley (8).



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6.7. REPLACE FAN BELT - Continued.**B. INSTALL- Continued.****2. TIGHTEN ALTERNATOR.**

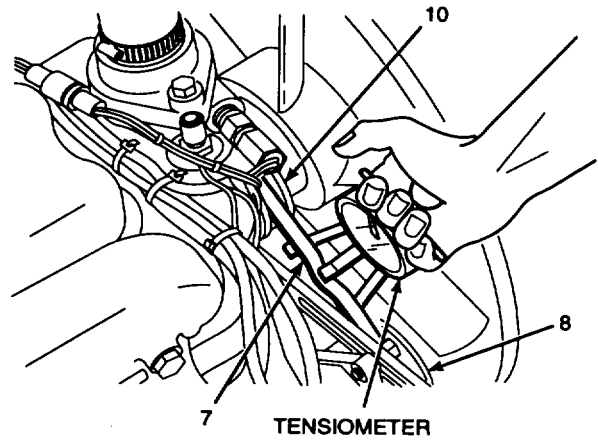
- a. Manually pull alternator (6) away from engine block until fan belt (7) is snug.
- b. While holding alternator (6) tight against fan belt (7), mark centerline position of sliding adjustment screw (3) on belt adjusting arm (2).
- c. Place a second mark 0.5 in. (13 mm) beyond the first on belt adjusting arm (2).
- d. Using wedge block and a pry bar, pull alternator (6) to line up second mark on belt adjusting arm (2) with centerline of adjustment screw (3). Tighten adjustment screw to 20 lb-ft (27 N•m).
- e. Tighten hex head cap screw (1) to 14 lb-ft (19 N•m).

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C. ADJUST.

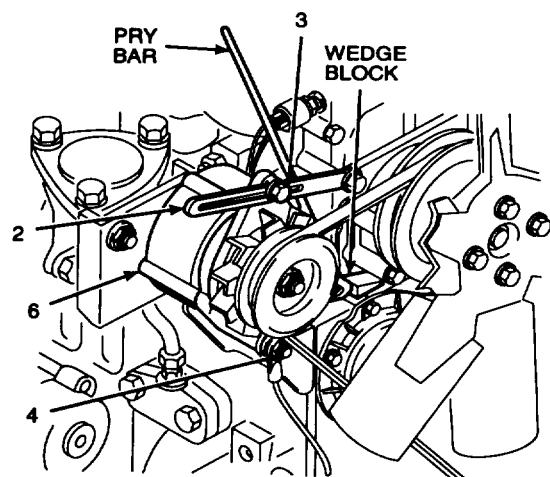
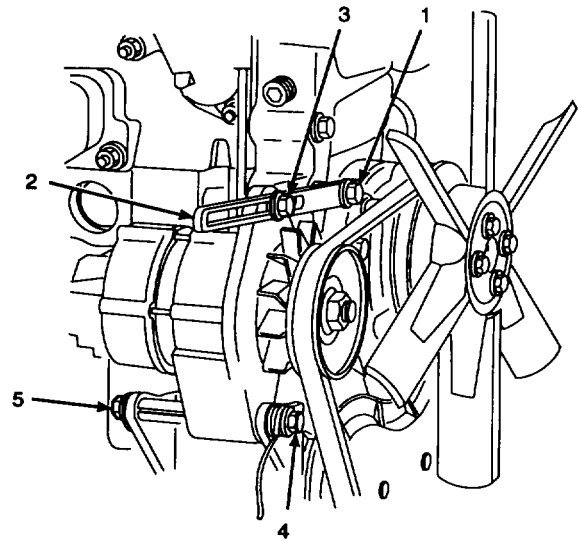
1. CHECK FAN BELT TENSION.

- a. Install tension meter on fan belt (7) midway between alternator pulley (8) and water pump pulley (10).
- b. Push down on tension meter plunger and read dial indicator. Tension should be 10 lb (45 N) nominal.
- c. Hold self-locking hex nut (4) and tighten pivot bolt (5) to 20 lb-ft (27 N•m). Recheck tension on fan belt (7). If necessary, readjust fan belt tension per step C.2.



2. ADJUST FAN BELT TENSION.

- a. Loosen adjustment screw (3), hold self-locking hex nut (4), and loosen pivot bolt (5).
- b. Loosen hex head cap screw (1) to allow for movement of belt adjusting arm (2).
- c. Using wedge block and pry bar, readjust position of alternator (6). When tension feels right, maintain pressure and tighten adjustment screw (3) to 20 lb-ft (27 N•m).
- d. Tighten hex head cap screw (1) to 14 lb-ft (19 N•m).
- e. Check fan belt tension per step C.1.
- f. Repeat steps a through d until tension meter indicates 10 lb (45 N).
- g. Hold self-locking hex nut (4) and tighten pivot bolt (5) to 20 lb-ft (27 N•m). Remove pry bar and wedge block.



NOTE

FOLLOW-ON-TASK: Close front top left access door per TM 5-3895-373-10.

END OF TASK

CHAPTER 7

ELECTRICAL SYSTEM MAINTENANCE

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Repair/Replace Operator Control Console Assembly	7.6	7-23
Repair Switch Panel Assembly	7.9	7-79
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Replace Battery Cables	7.20	7-143
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Replace DCA and Pressure Transmitters	7.17	7-117
Replace Engine Oil Pressure Transmitter Components	7.15	7-113
Replace Field Relay	7.3	7-12
Replace High Temperature Shutdown Sensor	7.13	7-109
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Replace Storage Batteries and Battery Boxes	7.19	7-139

7.1. GENERAL MAINTENANCE PROCEDURES.

All unit level maintenance shall be performed in accordance with good and safe shop practices. Observe the following general instructions and requirements when performing electrical system maintenance.

- a. When removing tie wraps from hoses and wiring, note or mark locations and anchor points. The proper location and installation of tie wraps will prevent undue chafing of hoses and wiring.
- b. Always tag mating connectors and fittings before disconnecting. Tagging of mating connectors and fittings will ease reassembly and reduce assembly errors.
- c. Thread locking compound is used with most threaded fasteners. If a threaded fastener will not break loose, heat threaded area of fastener from 500° to 600°F (232° to 315°C) with heater gun. If the special solvent used to remove thread locking compound from screw threads fails to remove buildup, discard fastener.
- d. Discard all removed gaskets, seals, preformed packings, self-locking nuts, and lockwashers.
- e. Inspect all removed components for obvious wear or damage. Replace all worn, bent, broken, or otherwise damaged parts.
- f. Inspect all removed fasteners for thread damage. If thread damage is found, replace fastener. Replace flat washers if galled or bent.

Use screw extractor set (Item 15, Appendix E) to remove broken studs or screws.

- g. Repair damaged harness wiring and terminals according to instructions in paragraph 7.20.

NOTE

Male connectors on paving machine most often house female terminals (receptacles, jacks). Mating female connectors house male terminals (plugs). Plug/jack nomenclature in text and diagrams is based on nature of connector terminals (male or female), not on appearance of connector housing.

- h. To keep connections moisture free, always apply electrical insulating compound to male connector of plug/jack type electrical connectors.
- i. To seal screw fastened electrical connections against moisture, always apply electrical insulating varnish to reinstalled terminals and fasteners.
- j. Use only authorized replacement parts. Refer to TM 53895-373-24P, Repair Parts and Special Tools List (RPSTL) for authorized replacement parts.
- k. Observe all warnings and cautions. Wear protective clothing and equipment as specified. Observe the Safety and Hazard Warnings provided in TACOM technical bulletin TB 43-0216.

7.2. REPLACE ALTERNATOR.

This task covers: a. Remove b. Install

INITIAL SETUPTools:

General mechanic's automotive tool kit
(Item 54, Appendix E)

Torque wrench (Item 68, Appendix E)

Materials/Parts:

Electrical insulating compound (Item 11, Appendix C)

Electrical insulating varnish (Item 32, Appendix C)

Thread locking compound (Item 13, Appendix C)

Thread locking compound solvent (Item 25, Appendix C)

Alternator

Lockwashers

Self-locking hex nut

References:

TM 5-3895-373-10

TM 5-3895-373-24P

Equipment Condition:

Engine access cover removed per paragraph 2.22.

Left access cover removed per TM 5-3895-373-10.

Rear top left access door open per TM 5-3895-373-10.

Front top left access door open per TM 5-3895-373-10.

GO TO NEXT PAGE

7.2. REPLACE ALTERNATOR - Continued.

A. REMOVE.

WARNING

Disconnect batteries prior to removing alternator. Failure to disconnect batteries may lead to electrical shock or short circuit and result in severe personnel injury or damage to equipment.

1. DISCONNECT BATTERIES.

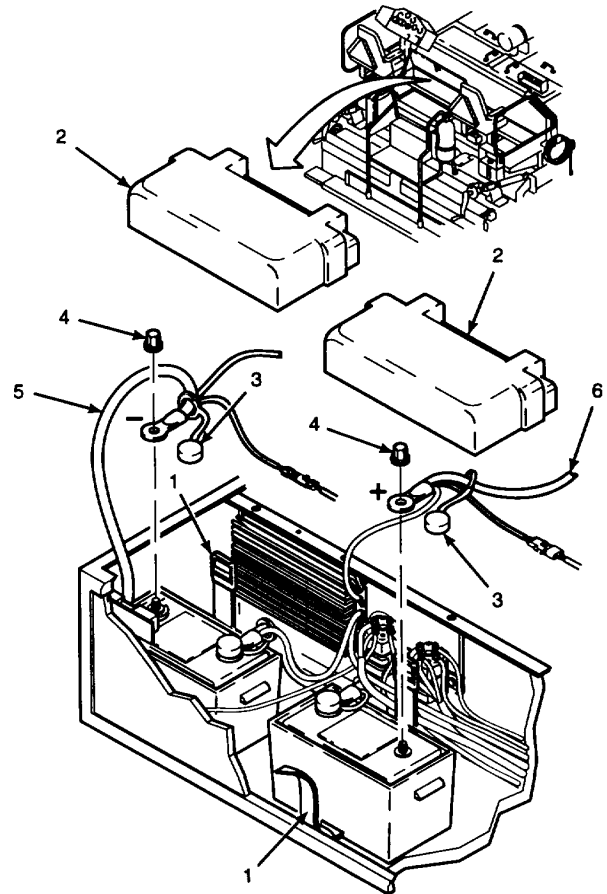
- a. Unbuckle battery box holddown straps (1) and remove battery box covers (2) from both batteries.
- b. Lift rubber battery terminal caps (3) from battery terminals.

WARNING

When disconnecting batteries, disconnect negative battery cable before disconnecting positive battery cable. Failure to disconnect batteries in the proper sequence may lead to electrical shock or short circuit and result in severe personnel injury.

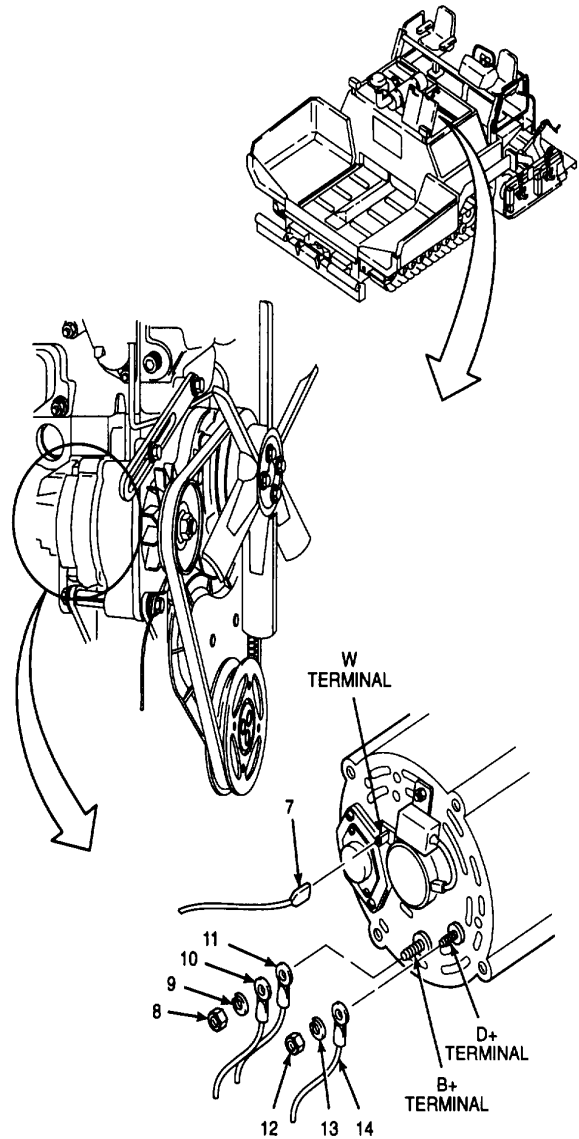
- c. Remove battery nut (4) and negative battery cable (5) from negative terminal of outboard battery.

- d. Remove battery nut (4) and positive battery cable (6) from positive terminal of inboard battery.



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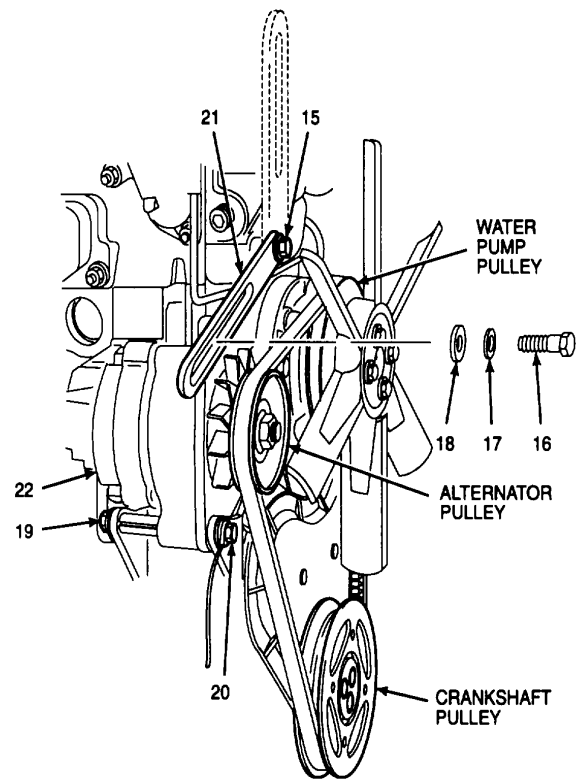
- A. REMOVE - Continued.
- 2. DISCONNECT ALTERNATOR WIRING.
 - a. Unplug tachometer sensor wire 102 (7) from alternator W terminal.
 - b. Remove hex nut (8) and lockwasher (9) from alternator B+ terminal. Discard lockwasher.
 - c. Remove alternator output wire 160 (10) and DCA wire 329 (11) from alternator B+ terminal.
 - d. Remove hex nut (12) and lockwasher (13) from alternator D+ terminal. Discard lockwasher.
 - e. Remove alternator excitation wire 328 (14) from alternator D+ terminal.



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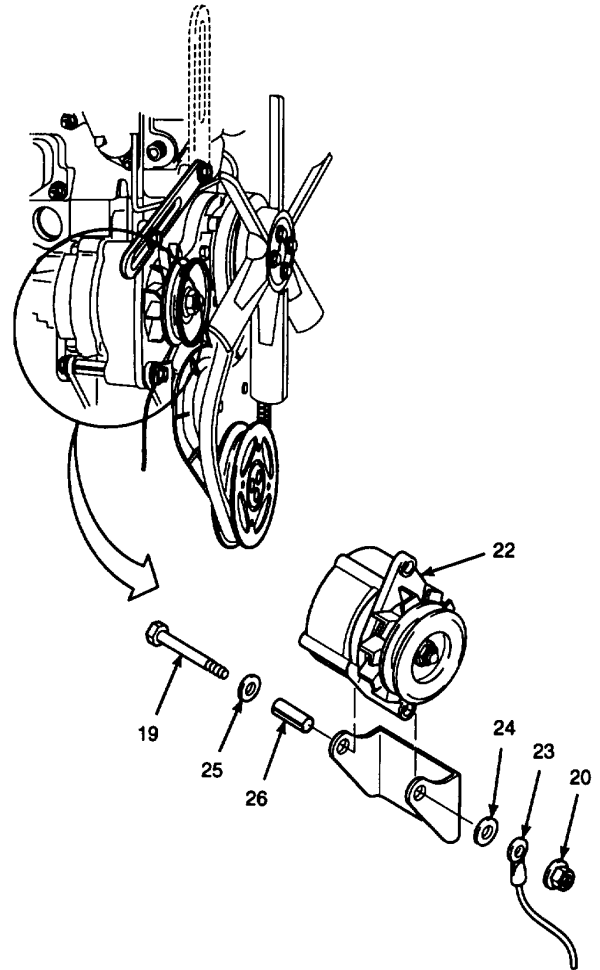
7.2. REPLACE ALTERNATOR - Continued.

- A. REMOVE - Continued.
- 3. DISCONNECT ALTERNATOR FROM TOP BRACKET.
 - a. Loosen hex head cap screw (15).
 - b. Remove adjustment screw (16) and flat washers (17 and 18).
 - c. Hold pivot bolt (19) and loosen self-locking hex nut (20).
 - d. Rotate belt adjusting arm (21) away from alternator (22). Pull alternator toward engine block and remove fan belt from alternator pulley.



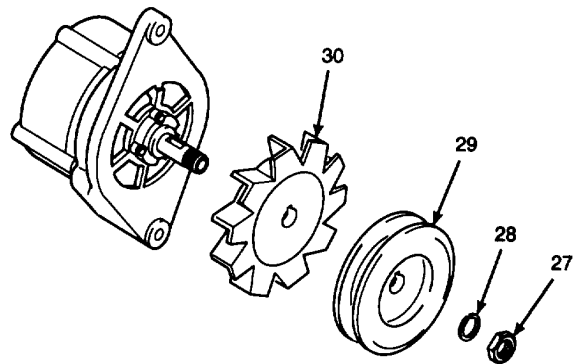
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- A. REMOVE - Continued.
- 4. REMOVE ALTERNATOR.
 - a. Remove self-locking hex nut (20), ground wire (23), and washer (24). Discard self-locking hex nut.
 - b. While supporting alternator (22), remove pivot bolt (19) and bushing blank (25). Lift alternator (22) from bottom bracket.
 - c. If necessary, remove sleeve spacer (26). Tap spacer out with a hammer.



- 5. REMOVE ALTERNATOR PULLEY AND FAN.
 - a. Remove hex nut (27) and lockwasher (28). Discard lockwasher.
 - b. Remove alternator pulley (29) and fan (30).

- B. INSTALL.
- 1. INSTALL ALTERNATOR FAN AND PULLEY.
 - a. Install alternator fan (30) and pulley (29).
 - b. Install lockwasher (28) and hex nut (27). Tighten hex nut to 51 lb-ft (69 N•m) while holding shaft with alien key.



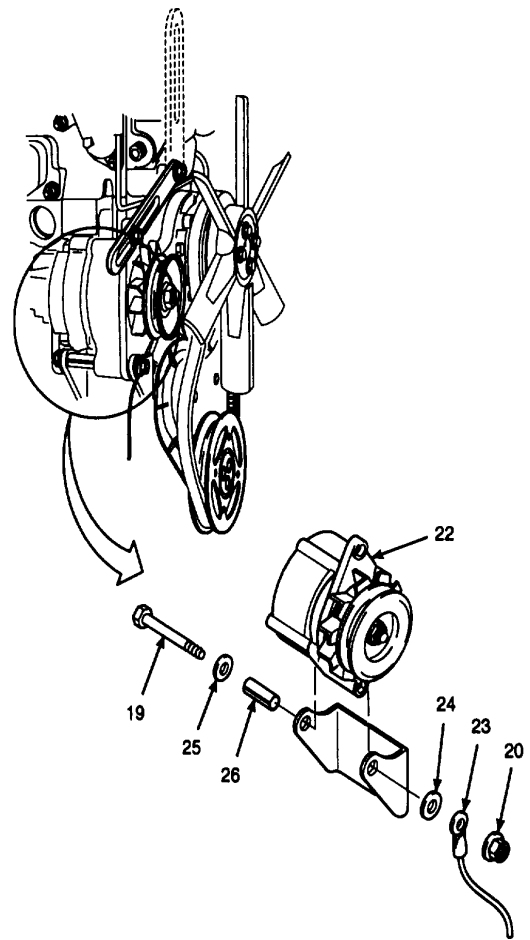
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7.2. REPLACE ALTERNATOR - Continued.

B. INSTALL - Continued.

2. INSTALL ALTERNATOR.

- a. If removed, install sleeve spacer (26) into bottom bracket. Insert spacer from direction shown in illustration. Installed spacer should stick out a little from outside edge of bracket. Use a hammer if necessary.
- b. Install alternator (22), bushing blank (25), and pivot bolt (19).
- c. Install washer (24), ground wire (23), and self-locking hex nut (20). Do not tighten nut at this time.



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- B. INSTALL - Continued.
3. RECONNECT ALTERNATOR BELT
ADJUSTING ARM.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

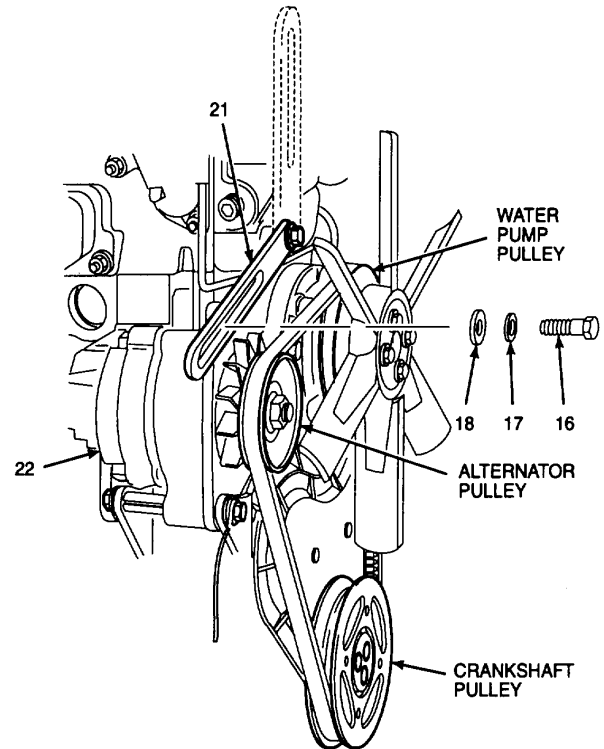
- a. Clean threads of adjustment screw with thread locking compound solvent.
- b. Install flat washers (17 and 18) onto adjustment screw (16).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- c. Apply thread locking compound to threads of adjustment screw (16).

- d. Rotate belt adjusting arm (21) toward alternator (22). Install adjustment screw (16) through belt adjusting arm into alternator.
- e. Seat fan belt onto water pump pulley, crankshaft pulley, and alternator pulley.



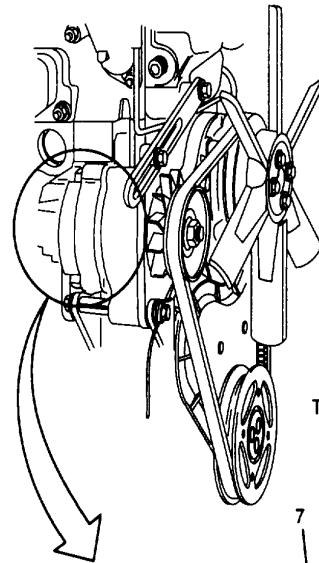
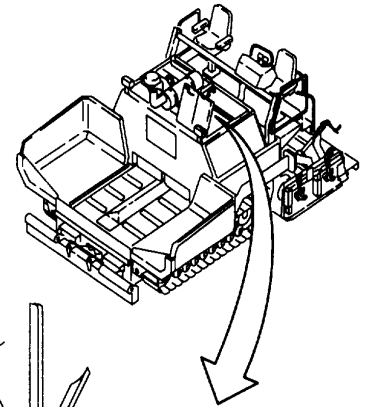
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7.2. REPLACE ALTERNATOR - Continued.

B. INSTALL - Continued.

4. RECONNECT ALTERNATOR WIRING.

- a. Apply electrical insulating compound to alternator W terminal.
- b. Reconnect tachometer sensor wire 102 (7) to alternator W terminal.
- c. Reconnect DCA wire 329 (11) and alternator output wire 160 (10) to alternator B+ terminal.
- d. Install lockwasher (9) and hex nut (8) on alternator B+ terminal. Tighten hex nut.
- e. Reconnect alternator excitation wire 328 (14) to alternator D+ terminal.
- f. Install lockwasher (13) and hex nut (12) to alternator D+ terminal. Tighten hex nut.

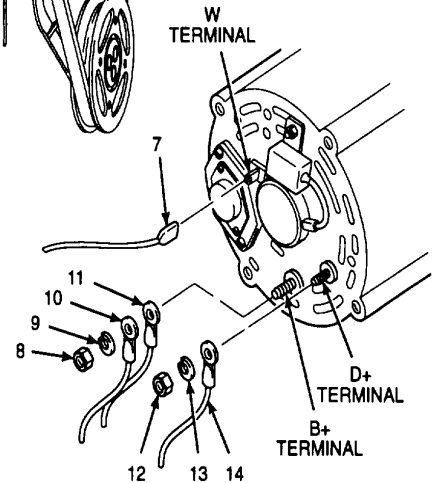


TERMINAL	WIRE NO.	INDEX NO.
B+	160	10
B+	329	11
D+	328	14
W	102	7
GROUND	330	23

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- g. Apply electrical insulating varnish to all alternator electrical terminals.



GO TO NEXT PAGE

B. INSTALL - Continued.

5. RECONNECT BATTERIES.

WARNING

When connecting batteries, connect positive battery cable before connecting negative battery cable. Failure to connect batteries in the proper sequence may lead to electrical shock or short circuit and result in severe personnel injury.

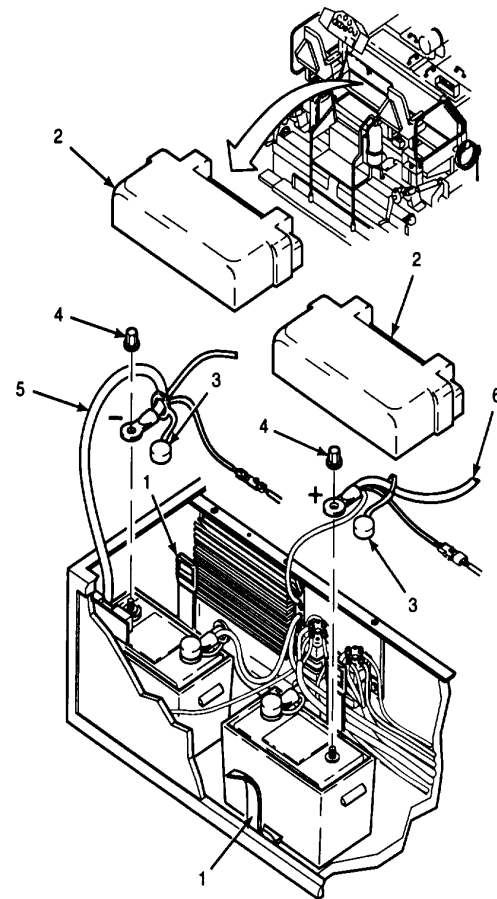
- a. Reconnect positive battery cable (6) and battery nut (4) to positive terminal of inboard battery.
- b. Reconnect negative battery cable (5) and battery nut (4) to negative terminal of outboard battery.

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- c. Apply electrical insulating varnish to terminals to battery.
- d. Install rubber battery terminal caps (3) onto battery terminals.

- e. Install battery box covers (2) on both batteries and buckle battery box hold-down straps (1).



NOTE

FOLLOW-ON-TASKS:

- Adjust fan belt tension per paragraph 2.23.1.
- Install engine access cover per paragraph 2.22.
- Install left access cover per TM 5-3895-373-10.
- Close rear top left access door per TM 5-3895-373-10.
- Close front top left access door per TM 5-3895-373-10.

END OF TASK

7.3. REPLACE FIELD RELAY.

This task covers: a. Remove b. Install

INITIAL SETUP

Tools:

General mechanic's automotive tool kit
(Item 54, Appendix E)

Reference:

TM 5-3895-373-10
TM 5-3895-373-24P

Materials/Parts:

Electrical insulating compound (Item 11, Appendix C)
Electrical insulating varnish (Item 32, Appendix C)
Thread locking compound (Item 13, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Field relay

Equipment Condition:

Rear top left access door open per TM 5-3895-373-10.

A. REMOVE.

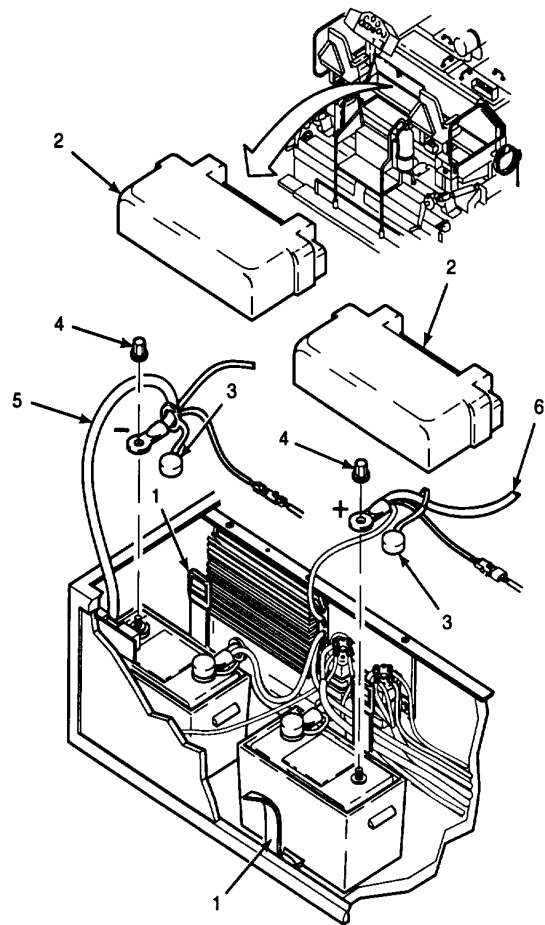
1. REMOVE HARNESS CONNECTOR (1) FROM FIELD RELAY (2).
2. REMOVE HEX NUT (3), FLAT WASHER (4), AND GROUND WIRE (5).
3. REMOVE SOCKET HEAD CAP SCREW (6).
4. REMOVE FIELD RELAY (2). DISCARD FIELD RELAY IN ACCORDANCE WITH LOCAL PROCEDURES.

B. INSTALL.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush with water and get immediate medical attention.

1. CLEAN THREADS OF SOCKET HEAD CAP SCREW (6) WITH THREAD LOCKING COMPOUND SOLVENT.



GO TO NEXT PAGE

B. INSTALL - Continued.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

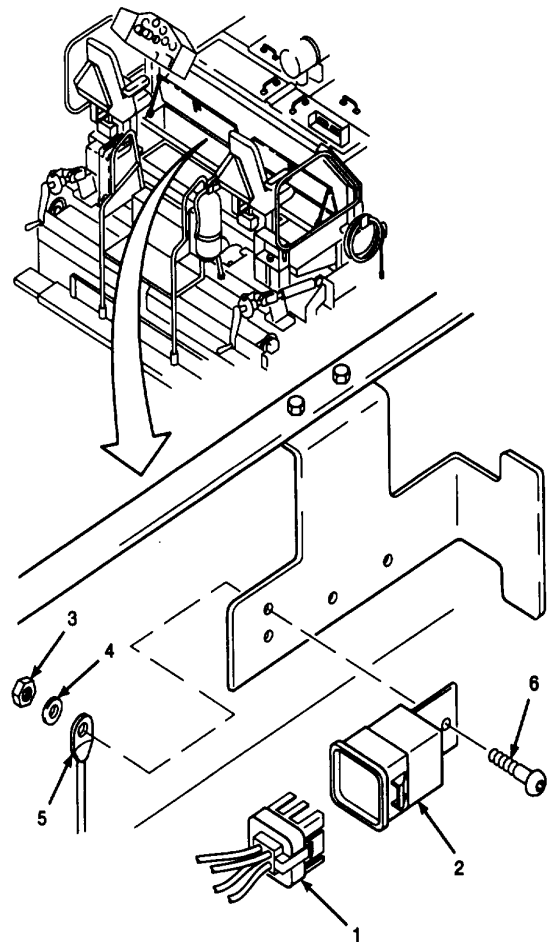
2. APPLY THREAD LOCKING COMPOUND TO THREADS OF SOCKET HEAD CAP SCREW (6).
3. INSTALL FIELD RELAY (2) AND SOCKET HEAD CAP SCREW (6). TIGHTEN SOCKET HEAD CAP SCREW.
4. INSTALL GROUND WIRE (5), FLAT WASHER (4), AND HEX NUT (3).

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

5. APPLY ELECTRICAL INSULATING VARNISH TO HEX NUT (3) AND GROUND WIRE (5).

6. APPLY ELECTRICAL INSULATING COMPOUND TO HARNESS CONNECTOR (1) AND CONNECT TO FIELD RELAY (2).



NOTE

FOLLOW-ON-TASK: Close rear top left access door per TM 5-3895-373-10.

END OF TASK

7.4. REPLACE STARTER.

This task covers: a. Remove b. Install

INITIAL SETUP

Tools:

General mechanic's automotive tool kit
(Item 54, Appendix E)

Torque wrench (Item 68, Appendix E)

References:

TM 5-3895-373-10

TM 5-3895-373-24P

Material/Parts:

Cleaning cloth (Item 7, Appendix C)

Cleaning cloth (Item 7, Appendix C)

Electrical insulating varnish (Item 32, Appendix C)

Thread locking compound (Item 12, Appendix C)

Thread locking compound solvent (Item 25, Appendix C)

Lockwashers

Starter

Equipment Condition:

Engine access cover removed per paragraph 2.22.

Front top left access door open per TM 5-3895-373-10.

Rear top left access door open per TM 5-3895-373-10.

Rear top left access door open per TM 5 -3895-373-10.

A. REMOVE.

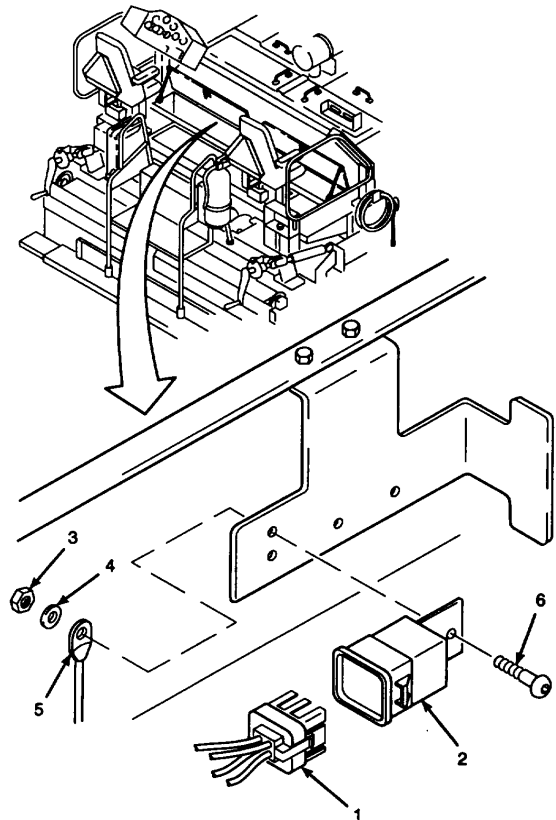
1. REMOVE BATTERY CABLES.

- a. Unbuckle battery box holddown straps (1) and remove battery box covers (2) from both batteries.
- b. Lift rubber battery terminal caps (3) from battery terminals.

WARNING

When disconnecting batteries, disconnect negative battery cable before disconnecting positive battery cable. Failure to disconnect batteries in the proper sequence may lead to electrical shock or short circuit and result in personnel injury.

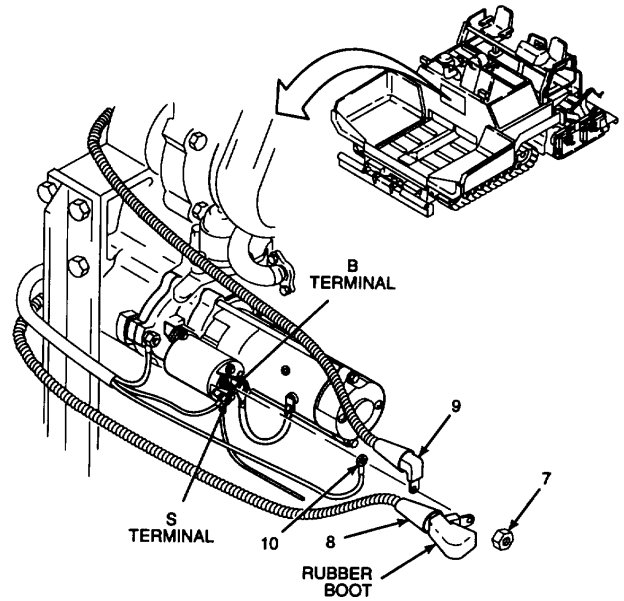
- c. Remove battery nut (4) and negative battery cable (5) from negative terminal of outboard battery.
- d. Remove battery nut (4) and positive battery cable (6) from positive terminal of inboard battery.



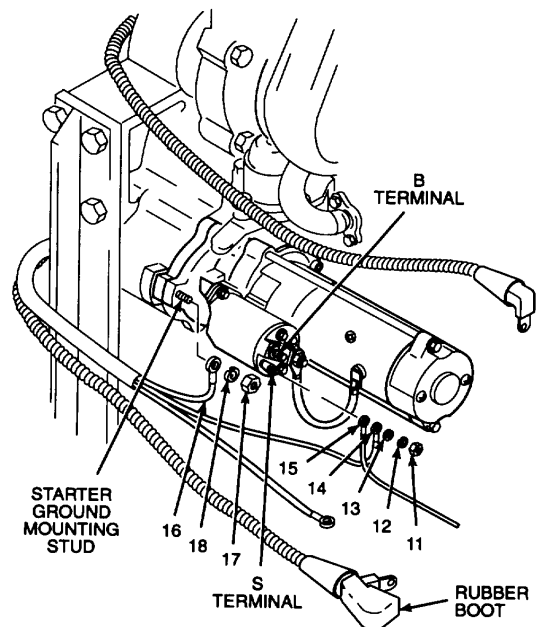
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- A. REMOVE - Continued.
- 2. REMOVE STARTER CABLES AND ENGINE HARNESS WIRES.

- a Pull off rubber boot covering starter B terminal.
- b. Remove hex nut (7) from starter B terminal. Remove slave cable (8), positive battery cable (9), and wire 331 (10) from starter B terminal.



- c. Remove hex nut (11), lockwasher (12), and flat washer (13) from starter S terminal. Remove wire 332 (14) and wire 166 (15) from starter S terminal. Discard lockwasher.
- d. Locate wire 333 (16) on one of the starter mounting studs. Remove hex nut (17) and lockwasher (18). Remove wire 333 from starter ground mounting stud. Discard lockwasher.



GO TO NEXT PAGE

7.4. REPLACE STARTER - Continued.

A. REMOVE - Continued.

3. REMOVE STARTER.

- a. Remove remaining hex nuts (19) and lockwashers (20) from starter mounting studs. Remove starter (21) from engine. Discard lockwashers.
- b. Remove spacer (22) from starter mounting studs.
- c. Wipe down starter mounting surface (23) and spacer (22) with cleaning cloth.

B. INSTALL.

1. INSTALL STARTER.

WARNING

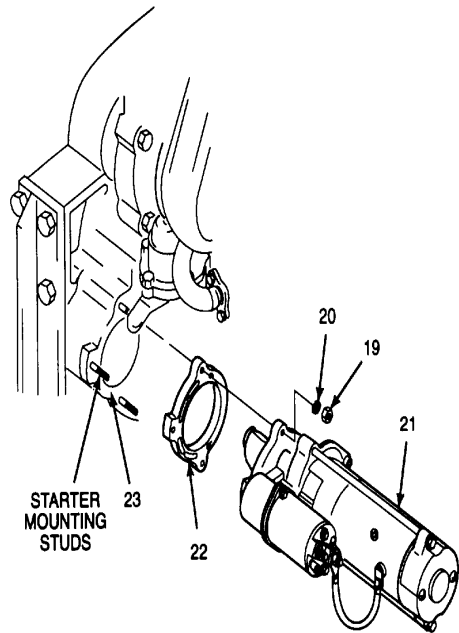
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean starter mounting studs with thread locking compound solvent.
- b. Install spacer (22) and starter (21) on starter mounting studs.
- c. Install lockwashers (20) on the two starter mounting studs not used to secure wire 333.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

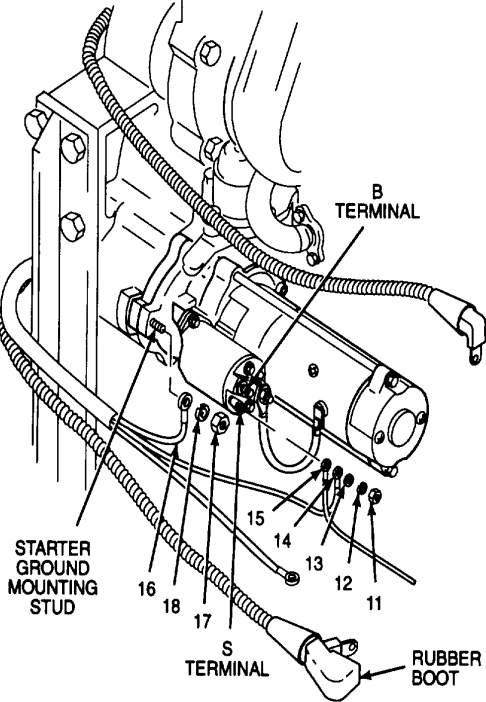
- d. Apply thread locking compound to threads of starter mounting studs.



- e. Install hex nuts (19) onto the two starter mounting studs not used to secure wire 333. Tighten hex nuts to 42 lb-ft (57 N•m).

GO TO NEXT PAGE

- B. INSTALL - Continued.
- 2. INSTALL STARTER CABLES AND ENGINE HARNESS WIRES.
 - a. Install wire 333 (16) onto starter ground mounting stud. Install lockwasher (18) and hex nut (17). Tighten hex nut to 42 lb-ft (57 N•m).
 - b. Install wire 166 (15) and wire 332 (14) onto starter S terminal. Install flat washer (13), lockwasher (12), and hex nut (11) and tighten hex nut.



NOTE

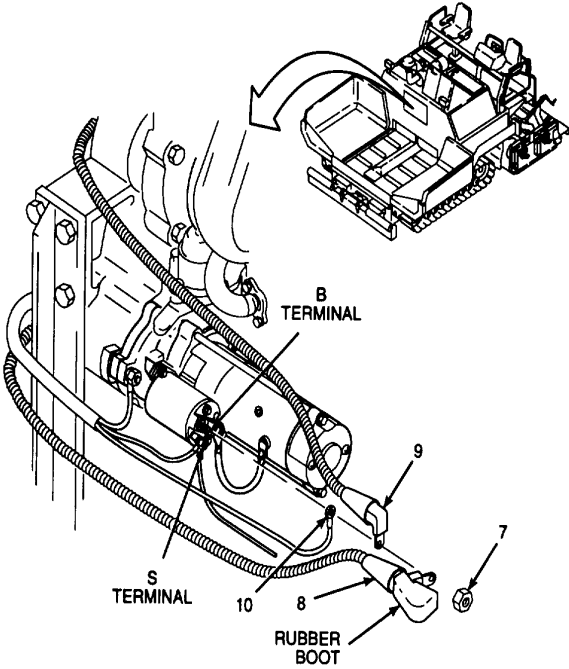
Do not use lockwasher that comes with starter and is installed on starter B terminal. Discard lockwasher.

- c. Install wire 331 (10) onto starter B terminal. Install positive battery cable (9) and slave cable (8). Install and tighten hex nut (7).

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- d. Coat starter B and S terminals with electrical insulating varnish. Place rubber boot from slave cable over starter B terminal.



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7.4. REPLACE STARTER - Continued.

B. INSTALL - Continued.

3. INSTALL BATTERY CABLES.

WARNING

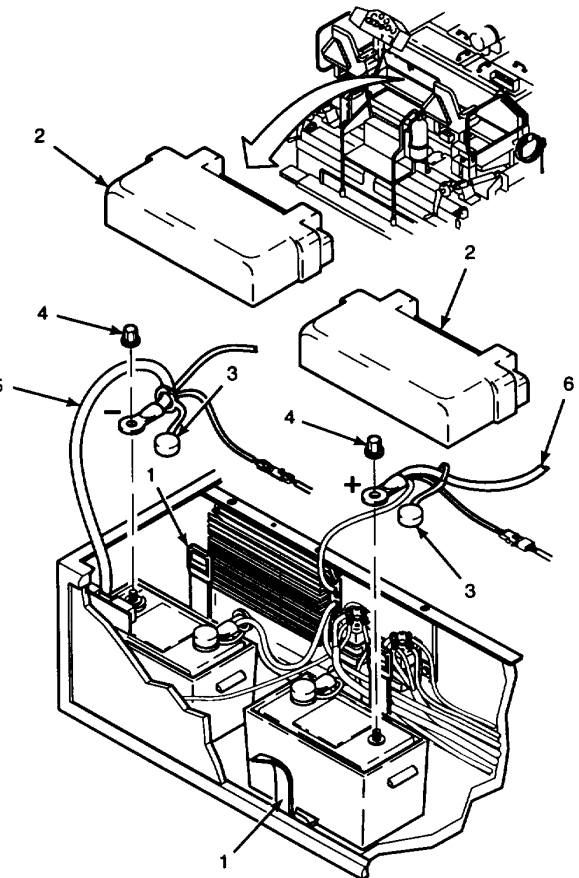
When connecting batteries, connect positive battery cable before connecting negative battery cable. Failure to connect batteries in the proper sequence may lead to electrical shock or short circuit and result in personnel injury.

- a. Reconnect positive battery cable (6) and battery nut (4) to positive terminal of inboard battery.
- b. Reconnect negative battery cable (5) and battery nut (4) to negative terminal of outboard battery.

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- c. Apply electrical insulating varnish to battery terminals.



- d. Install rubber battery terminal caps (3) onto battery terminals.
- e. Install battery box covers (2) and buckle battery box hold-down straps (1).

NOTE**FOLLOW-ON-TASKS:**

Install engine access cover per paragraph 2.22.
 Close rear top left access door per TM 5-3895-373-10.
 Close front top left access door per TM 5-3895-373-10.
 Install left access cover per TM 5-3895-373-10.

END OF TASK

7.5. REPLACE START RELAY.

This task covers: a. Remove b. Install

INITIAL SETUP

Tools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Torque wrench, 0 to 175 lb-ft (Item 68, Appendix E)
Torque wrench, 5 to 150 lb-in (Item 69, Appendix E)

Material/Parts:

Electrical insulating varnish (Item 32, Appendix C)
Electrical insulating varnish (Item 32, Appendix C)
Tags (Item 27, Appendix C)
Thread locking compound (Item 13, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Start relay

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Rear top left access door open per TM 5-3895-373-10.
Left access cover removed per TM 5-3895-373-10.

A. REMOVE.

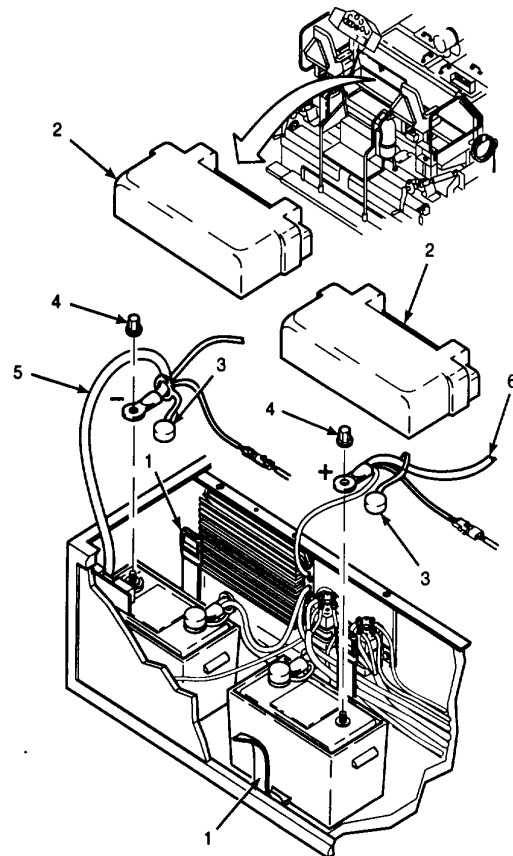
1. REMOVE BATTERY CABLES.

- a. Unbuckle battery box holddown straps (1) and remove battery box covers (2) from both batteries.
- b. Lift rubber battery terminal caps (3) from battery terminals.

WARNING

When disconnecting batteries, disconnect negative battery cable before disconnecting positive battery cable. Failure to disconnect batteries in the proper sequence may lead to electrical shock or short circuit and result in severe personnel injury.

- c. Remove battery nut (4) and negative battery cable (5) from negative terminal of outboard battery.
- d. Remove battery nut (4) and positive battery cable (6) from positive terminal of inboard battery.

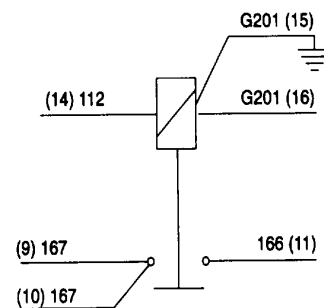
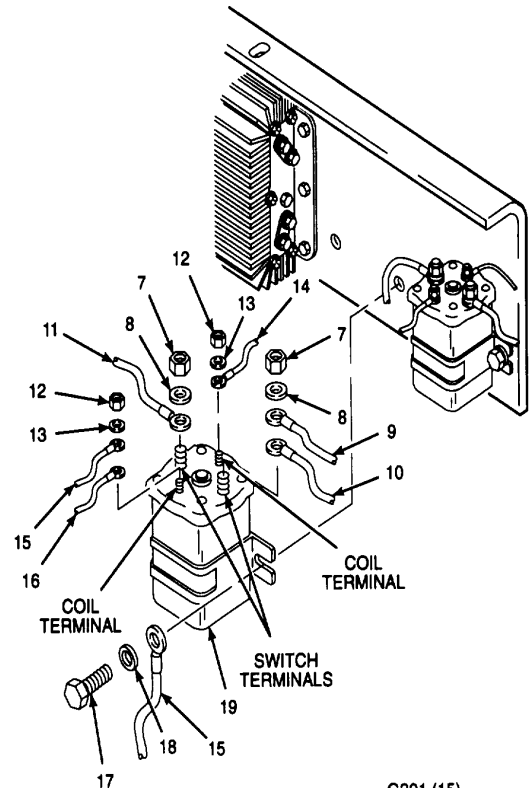


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7.5. REPLACE START RELAY - Continued.

- A. REMOVE - Continued.
- 2. REMOVE RELAY WIRES.
 - a. Remove hex nuts (7) and flat washers (8) from both relay switch terminals.
 - b. Tag and remove wires 167 (9 and 10) from relay switch terminal. Tag and remove wire 166 (11) from opposite relay switch terminal.
 - c. Remove hex nuts (12) and flat washers (13) from both relay coil terminals.
 - d. Tag and remove wire 112 (14) and wires G201 (15 and 16) from relay coil terminals.
- 3. REMOVE RELAY FROM TRANSFORMER PANEL.
 - a. Remove hex head cap screws (17) and flat washers (18). Tag and remove ground wire G201 (15) from relay (19).
 - b. Remove relay (19) from transformer panel.
- B. INSTALL.
- 1. INSTALL RELAY ON TRANSFORMER PANEL.

- b. Install flat washer (18) and ground wire G201 (15) onto hex head cap screw (17).



WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush with water and get immediate medical attention.

- a. Clean hex head cap screws (17) with thread locking compound solvent.

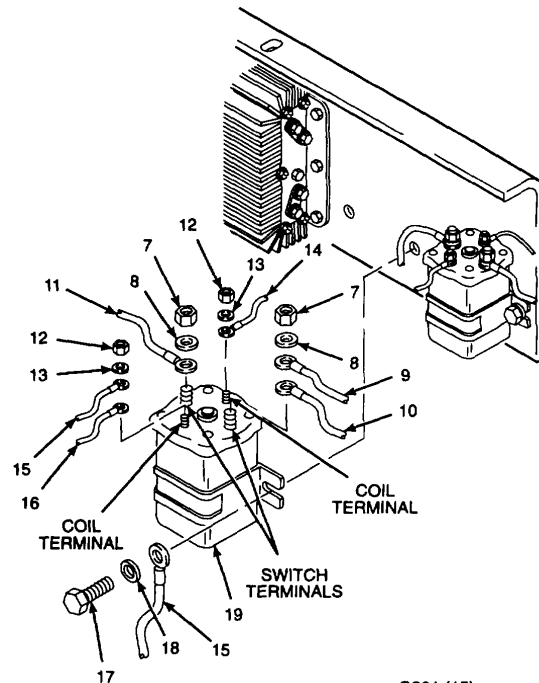
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B. INSTALL - Continued.

WARNING

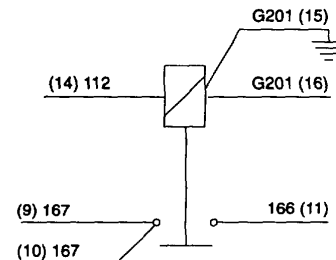
Thread locking compound can cause eye damage./ Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- c. Apply thread locking compound to threads of hex head cap screws (17).
- d. Install relay (19) with flat washers (18), ground wire G201 (15), and hex head cap screws (17). Tighten cap screws to 9 lb-ft (12 N.m).



2. CONNECT RELAY WIRES TO RELAY.

- a. Install wires G201 (15 and 16) and wire 112 (14) to relay coil terminals.
- b. Install flat washers (13) and hex nuts (12) onto both relay coil terminals. Tighten hex nuts to 18 lb-in (0,9 N.m).
- c. Install wire 166 (11) to relay switch terminal. Install wires 167 (9 and 10) to opposite side relay switch terminal.
- d. Install flat washers (8) and hex nuts (7) onto both relay switch terminals. Tighten hex nuts to 65 lb-in (7,3 N.m).



WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- e. Apply electrical insulating varnish to relay terminals.

GO TO NEXT PAGE

7.5. REPLACE START RELAY - Continued.

B. INSTALL - Continued.

3. INSTALL BATTERY CABLES.

WARNING

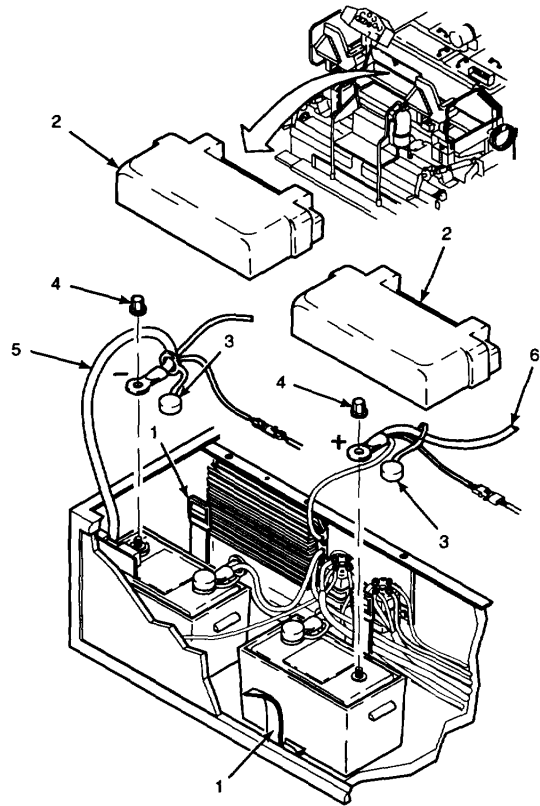
When connecting batteries, connect positive battery cable before connecting negative battery cable. Failure to connect batteries in the proper sequence may lead to electrical shock or short circuit and result in severe personnel injury.

- a. Reconnect positive battery cable (6) and battery nut (4) to positive terminal of inboard battery.
- b. Reconnect negative battery cable (5) and battery nut (4) to negative terminal of outboard battery.

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- c. Apply electrical insulating varnish to terminals of battery.
- d. Install rubber battery terminal caps (3) onto battery terminals.
- e. Install battery box covers (2) on both batteries and buckle battery box holddown straps (1).

**NOTE**

FOLLOW-ON-TASKS: Close rear top left access door per TM 5-3895-373-10.
Install left access cover per TM 5-3895-373-10.

END OF TASK

7.6. REPAIR/REPLACE OPERATOR CONTROL CONSOLE ASSEMBLY.

This task covers: **a. Remove** **b. Clean** **c. Install**

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Bushing press tool (Item 1, Appendix D)
Hex head driver socket (Item 43, Appendix E)
Hex head driver socket (Item 44, Appendix E)
Slide hammer puller (Item 32, Appendix E)
Torque wrench (Item 68, Appendix E)
Wire scratch brush (Item 6, Appendix E)

Materials/Parts:

Adhesive (Item 3, Appendix C)
Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Electrical insulating compound (Item 11,
Appendix C)
Electrical insulating varnish (Item 32,
Appendix C)
Lint-free cloth (Item 8, Appendix C)
Tags (Item 22, Appendix C)
Thread locking compound (Item 12,
Appendix C)
Thread locking compound solvent (Item 25,
Appendix C)
Tie wraps (Item 29, Appendix C)
Cover plate seal
Door seals
Lockwashers
Panel seals
Self-locking hex nuts
Self-locking nuts
Self-locking screws
Sleeve bushings

Personnel Required:

Three 62B construction equipment repairers.
Two extra persons
to assist with removing and installing operator
control console.

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Center top right access door open per TM 5-
3895-373-10.
Center top left access door open per TM 5-
3895-373-10.
Operator control console protective cover
removed and stowed
per TM 5-3895-373-10.
Rear top left access door open per TM 5-
3895-373-10.

GO TO NEXT PAGE

7.6. REPAIR/REPLACE OPERATOR CONTROL CONSOLE ASSEMBLY - Continued.

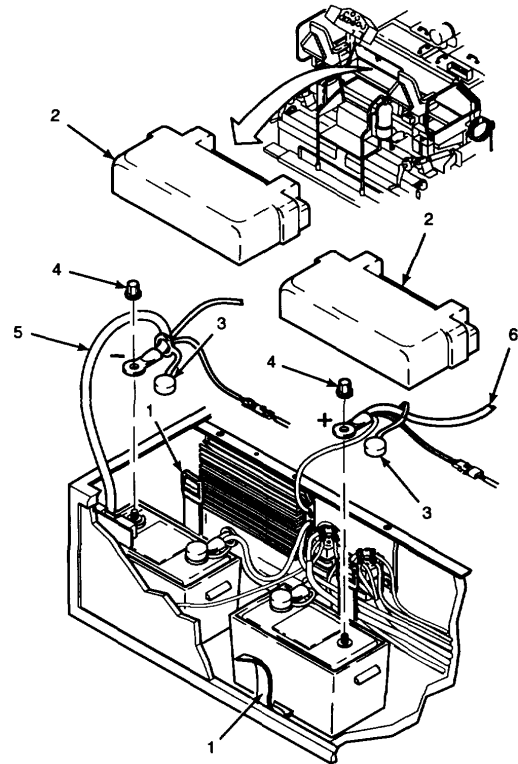
A. REMOVE.**1. DISCONNECT BATTERY CABLES.**

- a. Unbuckle battery box holddown straps (1) and remove battery box covers (2) from both batteries.
- b. Remove rubber battery terminal covers (3) from battery terminals.

WARNING

When disconnecting batteries, disconnect negative battery cable before disconnecting positive battery cable. Failure to disconnect batteries in the proper sequence may lead to electrical shock or short circuit and result in personnel injury.

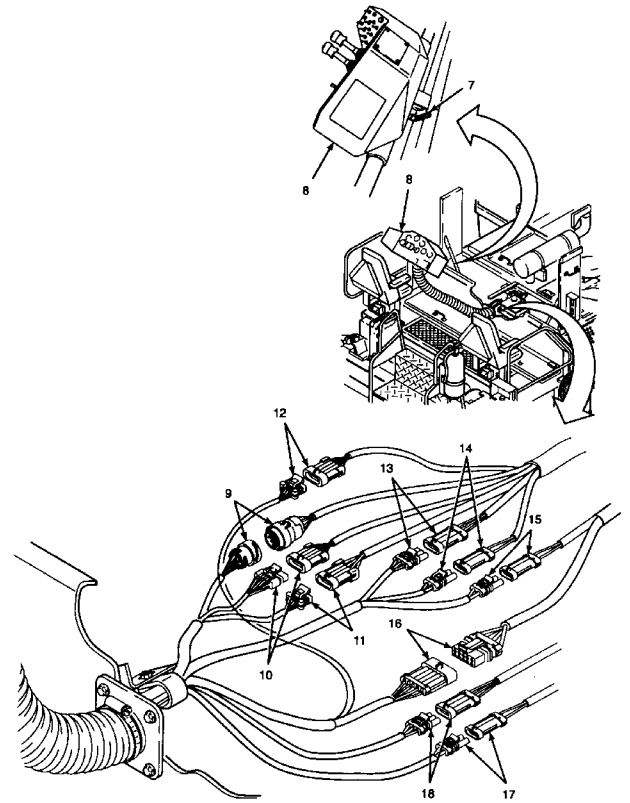
- c. Remove battery nut (4) and negative battery cable (5) from negative terminal of outboard battery.
- d. Remove battery nut (4) and positive battery cable (6) from positive terminal of inboard battery.
- e. Set negative battery cable (5) and positive battery cable (6) aside where the cables are unable to contact battery terminals.

**GO TO NEXT PAGE**

A. REMOVE - Continued.

2. DISCONNECT ELECTRICAL CONNECTORS AND REMOVE HARNESS CLAMP, HARNESS SUPPORT ANGLE, AND CONDUIT MOUNTING FLANGE FROM FRONT PLATE.

- a. Unlock handle (7) and slide operator control console (8) to the far left.
- b. Lock handle (7) so operator control console (8) will not slide.
- c. Inside the front plate, tag and disconnect electrical connectors (9 through 18).

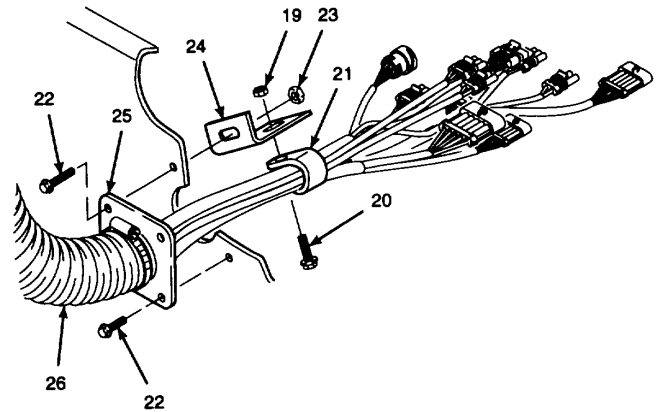


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7.6. REPAIR/REPLACE OPERATOR CONTROL CONSOLE ASSEMBLY - Continued.

A. REMOVE - Continued.

- d. Remove self-locking nut (19) and hex head cap screw (20). Discard self-locking nut.
- e. Remove harness clamp (21).
- f. Remove self-locking screws (22), self-locking hex nuts (23), harness support angle (24), and conduit mounting flange (25), with conduit (26) attached. Discard self-locking screw and self-locking hex nut.



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A. REMOVE - Continued.

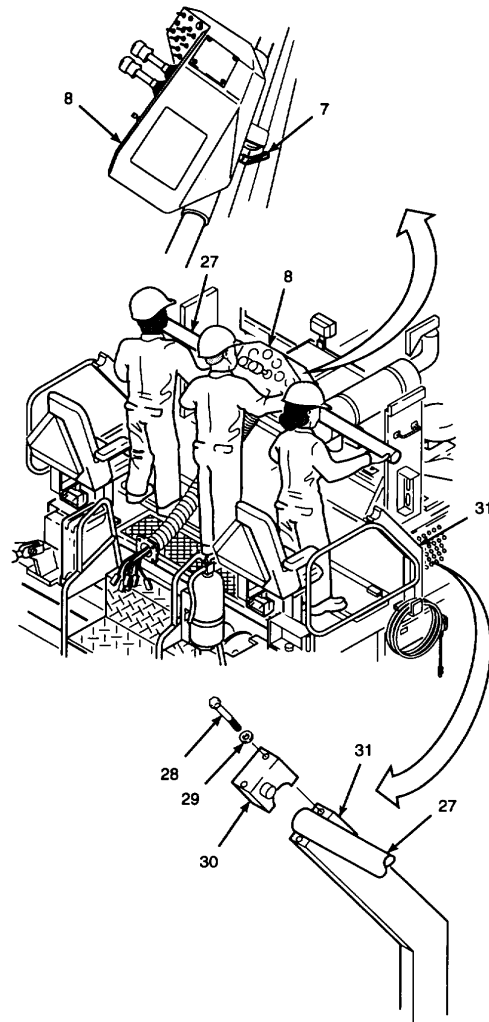
3. REMOVE CLAMP CAPS, OPERATOR CONTROL CONSOLE, AND GUIDE SHAFT FROM CONSOLE SUPPORTS.

- a. Unlock handle (7) by turning counterclockwise. Slide operator control console to center of guide shaft (27). Lock handle.
- b. Remove hex head cap screws (28), washers (29), and clamp caps (30) from both left and right sides.

WARNING

The operator control console and guide shaft weigh approximately 200 lbs (90 kg). To avoid personnel injury, use a hoist or get assistance when lifting the control console and guide shaft.

- c. With the help of two other persons, lift operator control console (8) and guide shaft (27) from console support (31) slots. Set control console and shaft down on operator platform.
- d. With operator control console (8) and guide shaft (27) laying on the operator platform, unlock handle (7) and pull the shaft from the control console while standing on the ground alongside the operator platform.
- e. Set guide shaft (27) down.
- f. Remove operator control console (8) with attached wiring harnesses from paving machine, and set it down on a clean work surface.

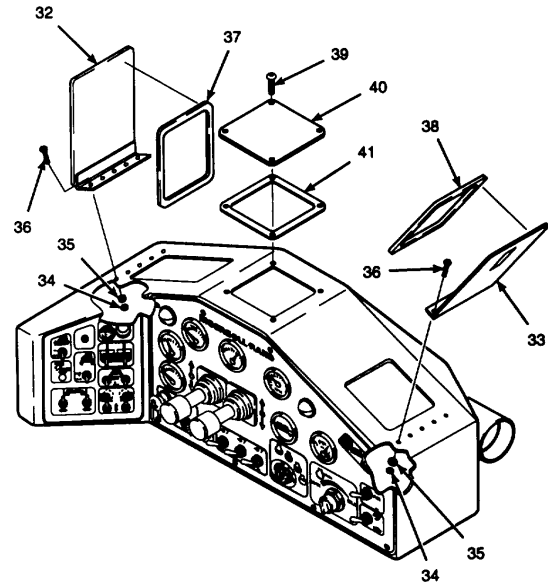


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7.6. REPAIR/REPLACE OPERATOR CONTROL CONSOLE ASSEMBLY - Continued.

A. REMOVE - Continued.**4. REMOVE GAUGE PANEL LEFT AND RIGHT ACCESS DOORS, DOOR SEALS, COVER PLATE, AND COVER PLATE SEAL.**

- a. Open gauge panel left and right access doors (32 and 33) per TM 3895-373-10.
- b. Remove hex nuts (34), flat washers (35), and screws (36).
- c. Remove gauge panel left access door (32) and gauge panel right access door (33).
- d. Remove door seals (37 and 38) from gauge panel left and right access doors. Discard foam rubber door seals.
- e. Remove button head cap screws (39) from cover plate (40). Remove cover plate.
- f. Remove cover plate seal (41) from cover plate (40). Discard panel seal.



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A. REMOVE - Continued.

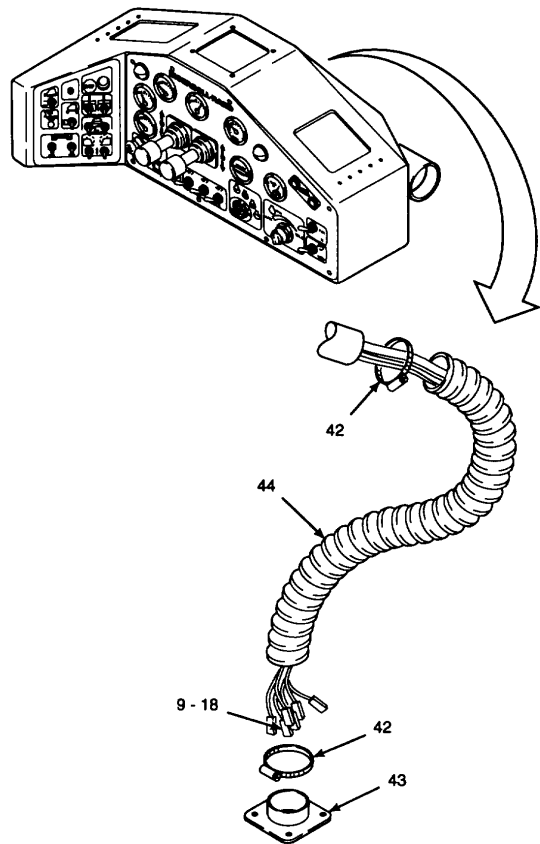
5. LOOSEN AND REMOVE CLAMPS, CONDUIT MOUNTING FLANGE, AND CONDUIT.

- a. Remove hose clamps (42) and conduit mounting flange (43) from conduit (44).
- b. Place electrical connectors (9 through 18) inside end of conduit (44).

CAUTION

Do not use excessive force when removing conduit from wiring harnesses. Damage to electrical connectors and wires may result from excessive force on wiring harnesses. Pull wiring harnesses and electrical connectors one at a time carefully through conduit when removing conduit.

- c. Carefully pull electrical connector (9 through 18) harnesses through conduit one at a time. Use caution not to damage electrical connectors, or pull wires out of electrical connectors.



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7.6.. REPAIR/REPLACE OPERATOR CONTROL CONSOLE ASSEMBLY - Continued.

A. REMOVE - Continued.

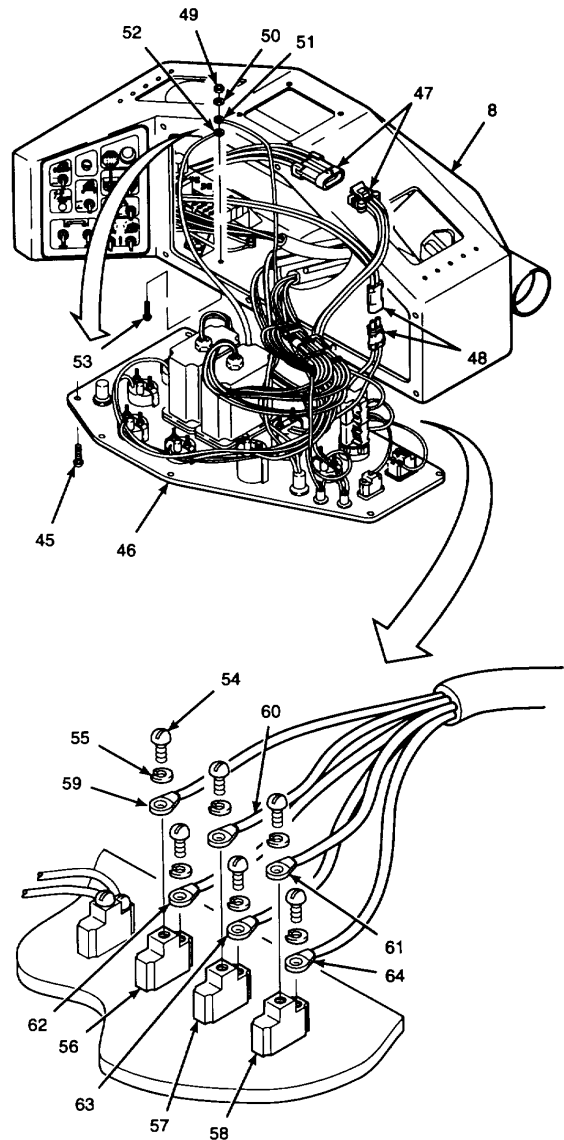
6. REMOVE GAUGE PANEL ASSEMBLY AND PANEL SEAL FROM OPERATOR CONTROL CONSOLE.

- a. Remove button head cap screws (45).

CAUTION

Do not allow gauge panel assembly to hang from wires and wiring harnesses. Excessive strain on wires and wiring harnesses may result in damaged or broken wires and connections.

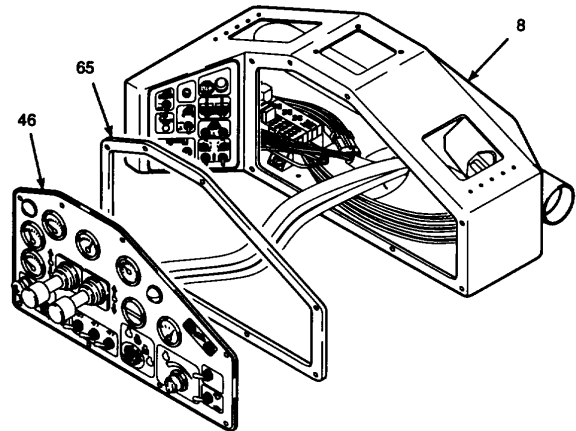
- b. Tilt gauge panel assembly (46) forward, allowing room to work inside operator control console (8). Do not allow gauge panel assembly to hang from wires and wiring harnesses.
- c. Tag and disconnect electrical connectors (47 and 48).
- d. Cut and remove tie wraps as needed to separate harnesses. Discard tie wraps.
- e. Remove self-locking hex nut (49), flat washer (50), ground wires (51 and 52), and button head cap screw (53). Discard self-locking hex nut.
- f. Remove terminal screws (54) and lockwashers (55) from rear work light switch (56), auger work light switch (57), and forward work light switch (58). Discard lockwashers.
- g. Tag and remove ring terminals (59, 60, 61, 62, 63, and 64).



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A. REMOVE - Continued.

- h. Remove gauge panel assembly (46) from operator control console (8).
- i. Remove panel seal (65). Discard panel seal.



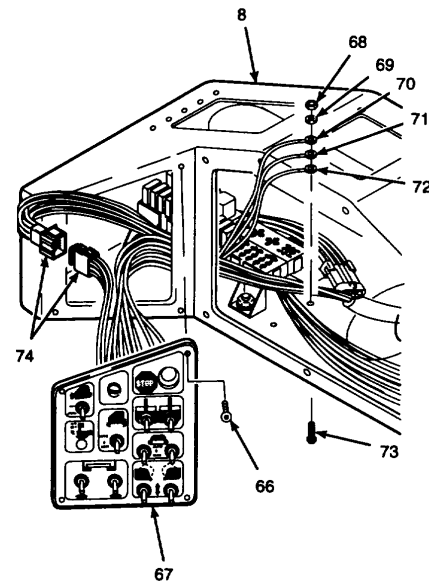
7. REMOVE SWITCH PANEL ASSEMBLY AND PANEL SEAL FROM OPERATOR CONTROL CONSOLE.

- a. Remove button head cap screws (66).

CAUTION

Do not allow switch panel assembly to hang from wires and wiring harnesses. Excessive strain on wires and wiring harnesses may result in damaged or broken wires and connections.

- b. Remove switch panel assembly (67) far enough from operator control console (8) to allow room to work on back side of switch panel.
- c. Remove self-locking hex nut (68), flat washer (69), ground wires (70, 71, and 72), and button head cap screw (73). Tag ground wires. Discard self-locking hex nuts.
- d. Tag and disconnect electrical connector (74).
- e. Cut and remove tie wraps as needed. Discard tie wraps.

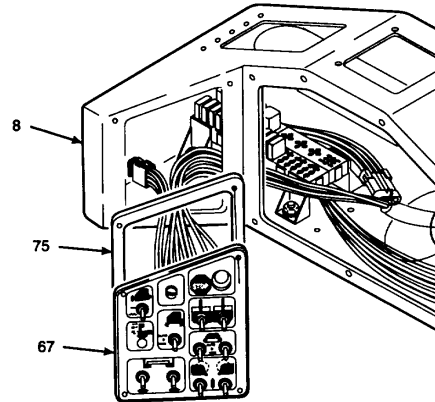


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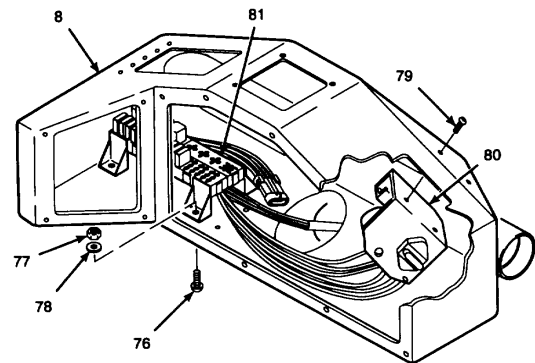
7.6. REPAIR/REPLACE OPERATOR CONTROL CONSOLE ASSEMBLY - Continued.

A. REMOVE - Continued.

- f. Remove switch panel assembly (67) and harness from operator control console (8).
- g. Remove panel seal (75). Discard panel seal.

**8. REMOVE RELAY AND CIRCUIT BREAKER ASSEMBLY AND ASSEMBLED RELAY MOUNTING BRACKET FROM OPERATOR CONTROL CONSOLE.**

- a. Remove button head cap screws (76), hex nuts (77), and flat washers (78).
- b. Remove button head cap screws (79) from assembled relay mounting bracket (80).
- c. Remove relay and circuit breaker assembly (81) and assembled relay mounting bracket (80) from operator control console (8).

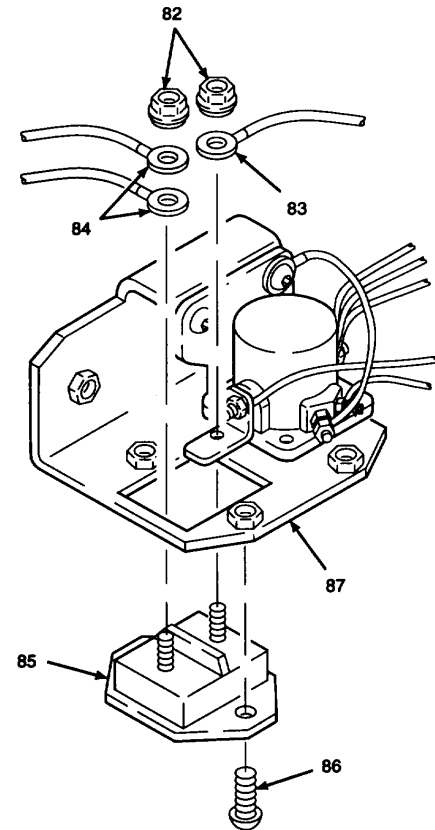


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A. REMOVE - Continued.

9. REMOVE CIRCUIT BREAKER, TERMINAL, AND POWER RELAY FROM RELAY MOUNTING BRACKET.

- a. Remove self-locking nuts (82), wire 142 (83), and wires 103 (84) from circuit breaker (85). Discard self-locking nuts. Tag wires.
- b. Remove button head cap screws (86) from circuit breaker (85).
- c. Remove circuit breaker (85) from relay mounting bracket (87).

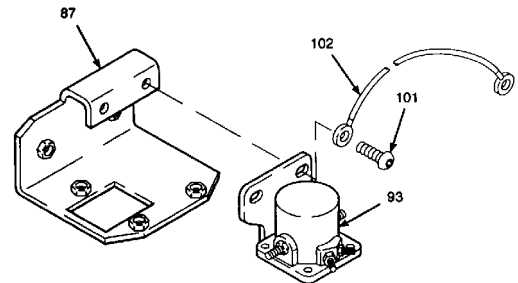
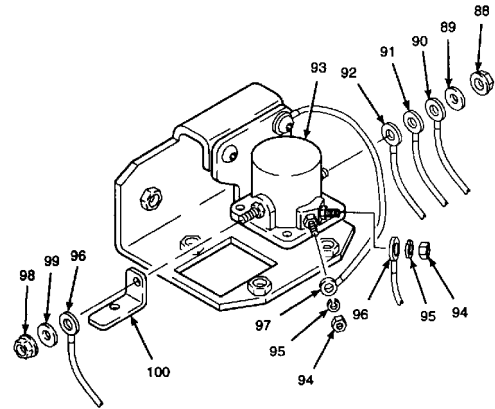


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7.6. REPAIR/REPLACE OPERATOR CONTROL CONSOLE ASSEMBLY - Continued.

A. REMOVE - Continued.

- d. Remove hex nut (88), flat washer (89), wire 41 (90), wire 40 (91), and wire 141 (92) from power relay (93). Tag wires.
- e. Remove hex nuts (94), lockwashers (95), wire 48 (96), and ground wire (97) from power relay (93). Tag wire.
- f. Remove hex nut (98), flat washer (99), wire 48 (96), and terminal (100). Tag wire.
- g. Remove button head cap screws (101), power relay (93), and ground wire (102) from relay mounting bracket (87).

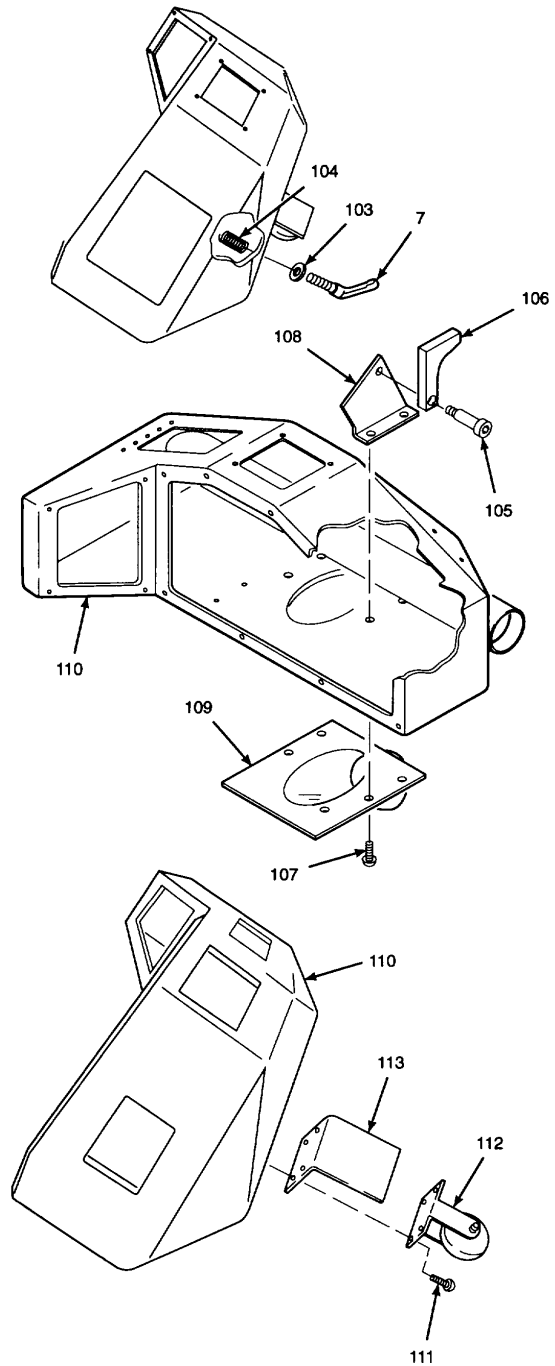


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A. REMOVE - Continued.

10. REMOVE HANDLE, SPRING, BRAKE SHOE, CLAMP MOUNTING BRACKET, AND CONDUIT BRACKET FROM CONTROL CONSOLE ASSEMBLY.

- a. Unscrew and remove handle (7) and flat washer (103).
- b. Remove spring (104), shoulder screw (105), and brake shoe (106).
- c. Remove button head cap screws (107), clamp mounting bracket (108), and conduit mounting flange (109) from console frame (110).



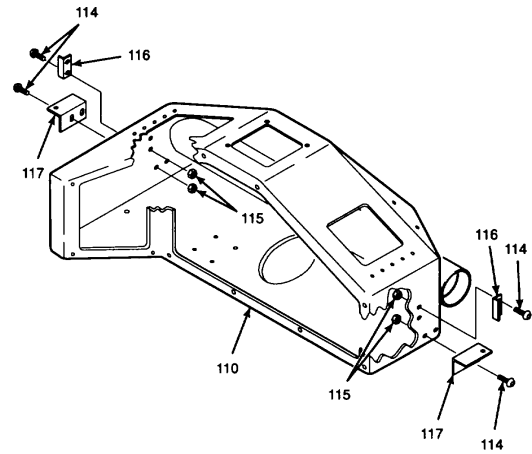
11. REMOVE BUTTON HEAD CAP SCREWS (111), CASTER ASSEMBLY (112), AND ROLL STOP BRACKET (113) FROM CONSOLE FRAME (110).

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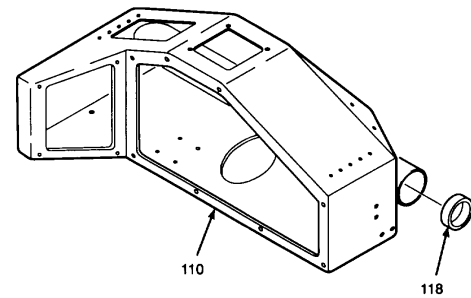
7.6. REPAIR/REPLACE OPERATOR CONTROL CONSOLE ASSEMBLY - Continued.

A. REMOVE - Continued.

12. REMOVE BUTTON HEAD CAP SCREWS (114), HEX NUTS (115), AND CONSOLE SUPPORT ANGLES (116 AND 117) FROM CONSOLE FRAME (110).



13. USE A SLIDE HAMMER PULLER TO REMOVE SLEEVE BUSHINGS (118) FROM CONSOLE FRAME (110). DISCARD SLEEVE BUSHINGS.



GO TO NEXT PAGE

A. REMOVE - Continued.**14. DISASSEMBLE CASTER ASSEMBLY.**

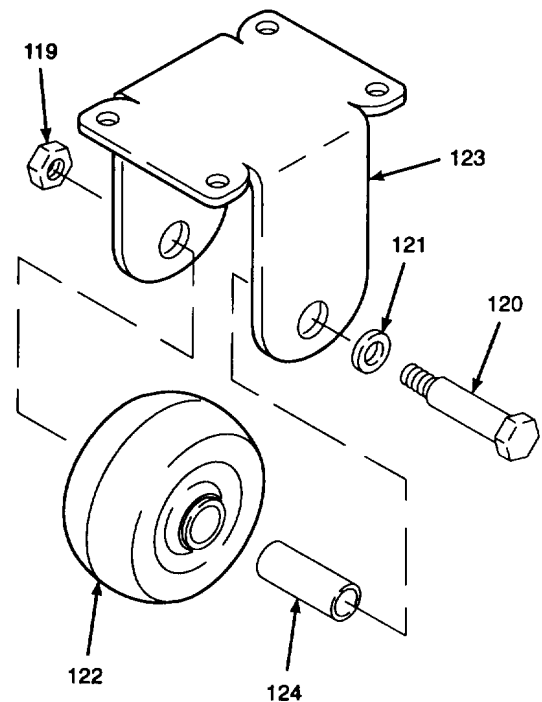
- a. Remove hex nut (119) from axle bolt (120).
- b. Remove axle bolt (120), flat washer (121), and caster wheel (122) from rigid wheel mount (123).
- c. Remove sleeve bushing (124) from caster wheel (122).

B. CLEAN.**WARNING**

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 m cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

1. RINSE ALL NON-ELECTRICAL COMPONENTS WITH CLEANING SOLVENT.
2. USE A PUTTY KNIFE AND WIRE SCRATCH BRUSH TO REMOVE PANEL AND DOOR SEAL RESIDUE FROM OPERATOR CONTROL CONSOLE, ACCESS DOORS, AND COVER PLATE.
3. DRY ALL CLEANED COMPONENTS WITH A CLEANING CLOTH.



GO TO NEXT PAGE

7.6. REPAIR/REPLACE OPERATOR CONTROL CONSOLE ASSEMBLY - Continued.

B. CLEAN - Continued.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/ glasses when using. Avoid goggles/ glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

4. CLEAN HEX HEAD CAP SCREWS COATED WITH THREAD LOCKING COMPOUND WITH THREAD LOCKING COMPOUND SOLVENT.
5. WIPE HEX HEAD CAP SCREWS DRY WITH A CLEAN, LINT-FREE CLOTH.

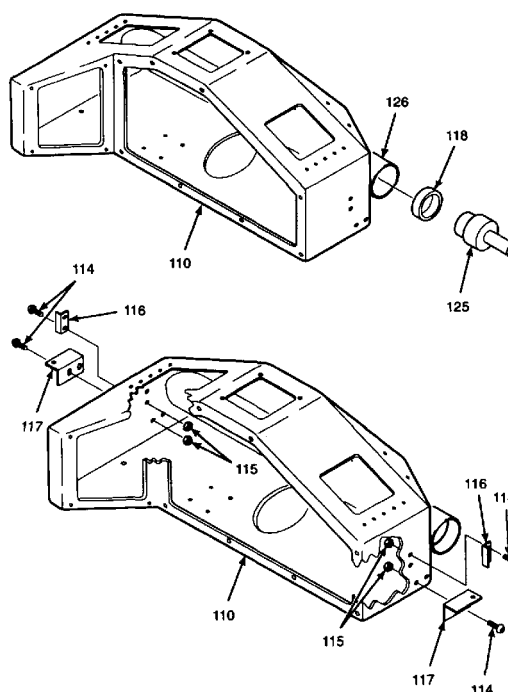
C. INSTALL.

1. INSTALL SLEEVE BUSHINGS INTO OPERATOR CONTROL CONSOLE.

- a. Place sleeve bushing (118) onto bushing press tool (125).
- b. Position sleeve bushing (118) in shaft housing (126) on console frame (110).
- c. Tap on bushing press tool (125) with a hammer to install sleeve bushing (118) into shaft housing (126) until fully seated.
- d. Repeat procedure for second sleeve bushing on other side of console frame (110).

2. INSTALL CONSOLE SUPPORT ANGLES ONTO OPERATOR CONTROL CONSOLE.

- a. Install console support angles (117 and 116) onto console frame (110) and secure with button head cap screws (114) and hex nuts (115).
- b. Tighten hex nuts (115) to 9 lb-ft (12 N.m).

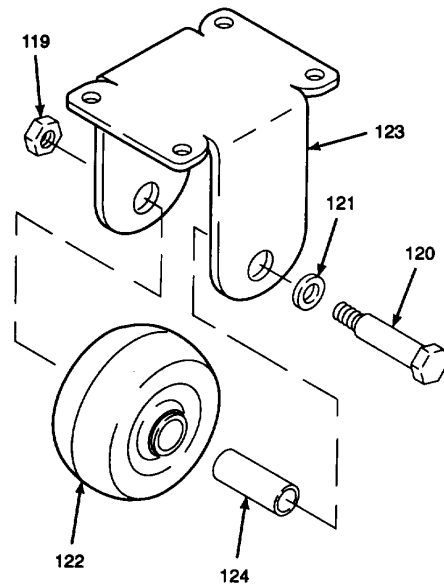


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C. INSTALL - Continued.

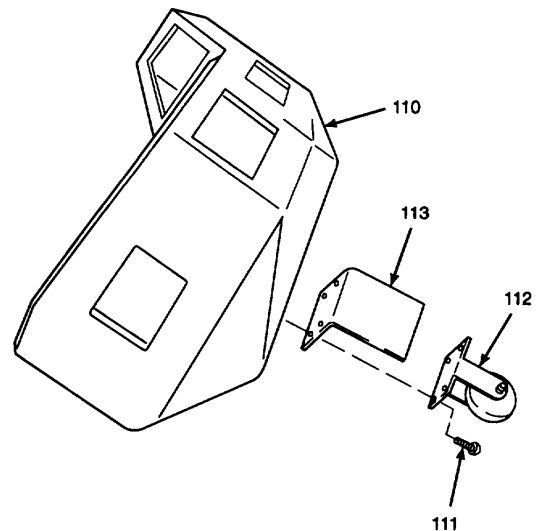
3. REASSEMBLE CASTER ASSEMBLY.

- a. Install sleeve bushing (124) into caster wheel (122).
- b. Install caster wheel (122) into rigid wheel mount (123).
- c. Install flat washer (121) onto axle bolt (120).
- d. Install axle bolt (120) and hex nut (119). Tighten hex nut.



4. INSTALL ROLL STOP BRACKET AND CASTER ASSEMBLY ONTO CONSOLE FRAME (110).

- a. Install roll stop bracket (113) and caster assembly (112) with button head cap screws (111).
- b. Tighten socket head cap screws (111) to 19 lb-ft (25 N.m) using hex head driver socket (Item 44, Appendix E).



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7.6 . REPAIR/REPLACE OPERATOR CONTROL CONSOLE ASSEMBLY - Continued.

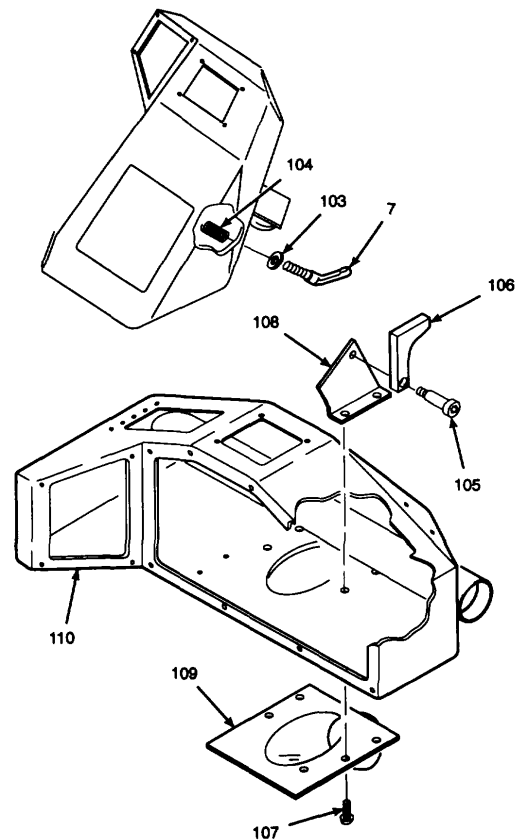
C. INSTALL - Continued.**5. INSTALL CONDUIT MOUNTING FLANGE, CLAMP MOUNTING BRACKET, BRAKE SHOE, SPRING, AND HANDLE ONTO CONSOLE FRAME.**

- a. Install clamp mounting bracket (108) inside console frame (110).

NOTE

Conduit mounting flange is installed using two button head cap screws in the right side mounting holes. Left side cap screws secure ground wire connections during internal operator control console reassembly.

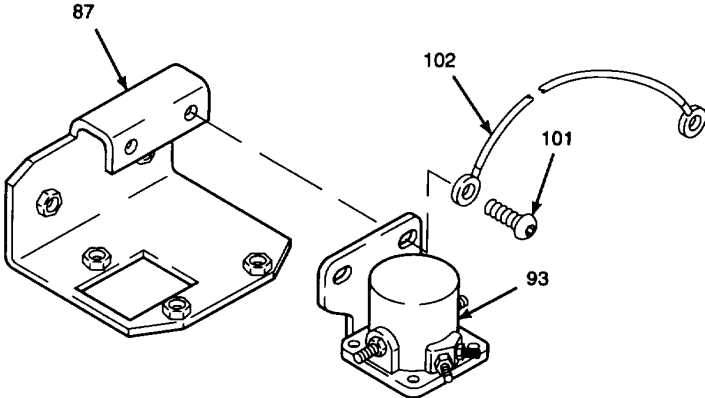
- b. Install conduit mounting flange (109) and secure clamp mounting bracket (108) with button head cap screws (107) in right side mounting holes. Tighten button head cap screws to 9 lb-ft (12 N.m) using hex head driver socket (Item 43, Appendix E).
- c. Install brake shoe (106) and shoulder screw (105).
- d. Install flat washer (103) onto handle (7).
- e. Install handle (7) through console frame. Thread handle through spring (104) and into brake shoe (106). Do not tighten handle to locked position.

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C. **INSTALL Continued.**

6. **INSTALL POWER RELAY, TERMINAL, AND CIRCUIT BREAKER ONTO RELAY MOUNTING BRACKET.**

a. Install power relay (93), ground wire (102), and button head cap screw (101) onto relay mounting bracket (87). Ensure ground wire is placed in between mounting bracket and button head cap screw. Tighten button head cap screw.

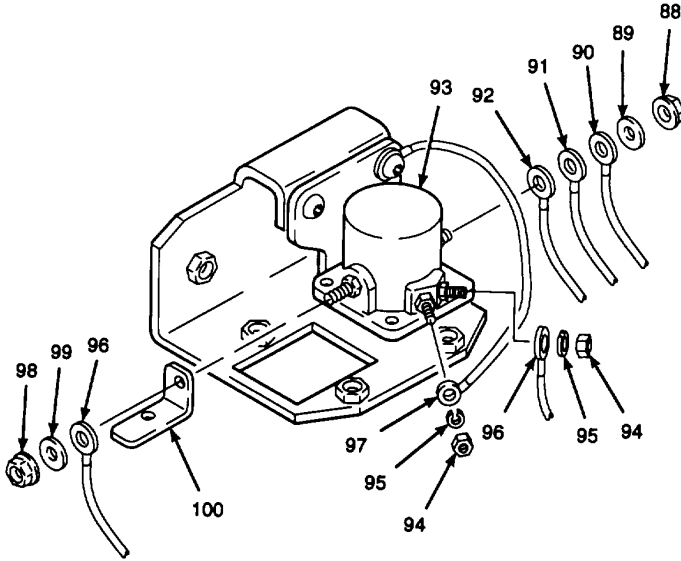


b. Install terminal (100), wire 48 (96), flat washer (99), and hex nut (98) onto power relay (93) terminal. Tighten hex nut.

c. Install ground wire (97), lockwashers (95), and hex nut (94) on power relay (93) terminal. Tighten hex nut.

d. Install wire 48 (96), lockwasher (95), and hex nut (94) on power relay (93) terminal. Tighten hex nut.

e. Install wire 141 (92), wire 40 (91), wire 41 (90), flat washer (89), and hex nut (88) onto power relay (93) terminal. Tighten hex nut.



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7.6. REPAIR/REPLACE OPERATOR CONTROL CONSOLE ASSEMBLY - Continued.

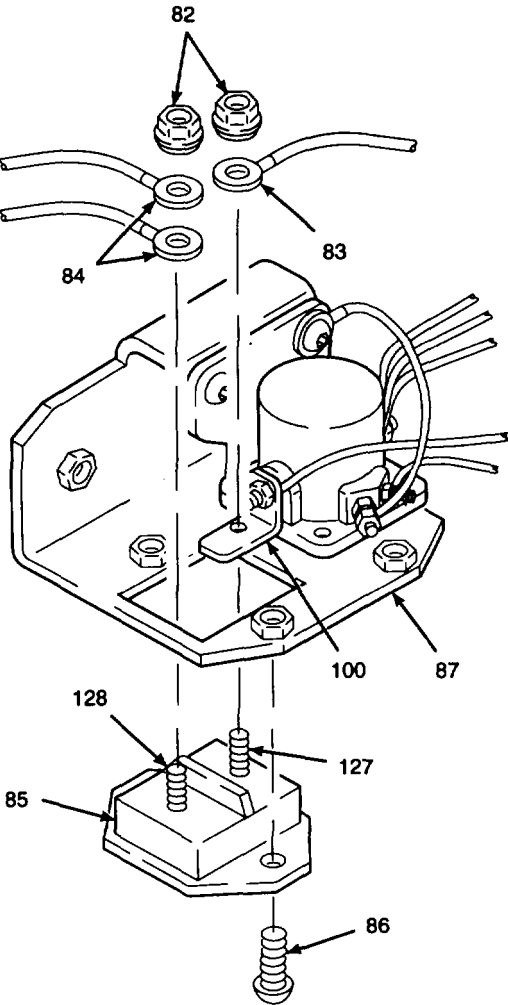
C. INSTALL - Continued.

- f. Install circuit breaker (85) with button head cap screws (86) onto relay mounting bracket (87). Ensure circuit breaker terminal (127) is aligned with terminal (100). Tighten button head cap screws.
- g. Install wires 103 (84) and self-locking nut (82) onto circuit breaker terminal (128). Tighten nut.
- h. Install wire 142 (83) and self-locking nut (82) onto circuit breaker terminal (127). Tighten nut.

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- i. Apply electrical insulating varnish to all wire connections.



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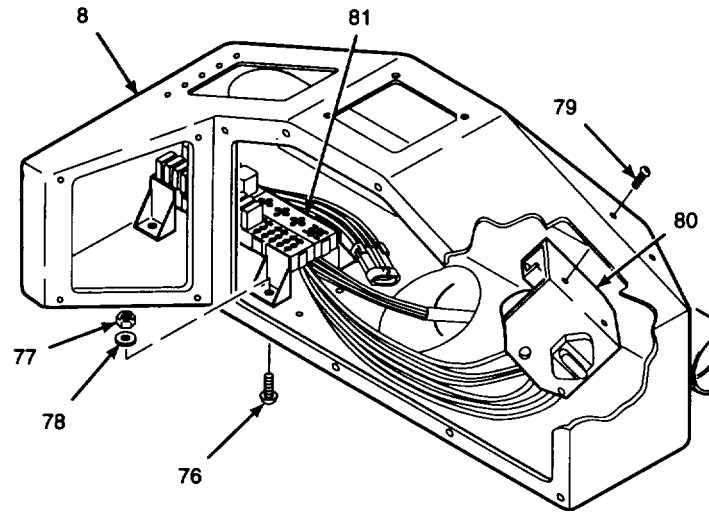
C. **INSTALL - Continued.**

7. **INSTALL RELAY AND CIRCUIT BREAKER ASSEMBLY AND ASSEMBLED RELAY MOUNTING BRACKET INTO OPERATOR CONTROL CONSOLE.**

NOTE

Ensure wires are routed through conduit mounting flange as tagged.

- a. Place relay and circuit breaker assembly (81) and assembled relay mounting bracket (80) into operator control console (8).
- b. Install button head cap screws (79) through operator control console and into assembled relay mounting bracket (80). Tighten to 9 lb-ft (12 N•m).
- c. Install button head cap screws (76) through bottom of operator control console (8) and into relay and circuit breaker assembly (81).
- d. Install flat washers (78) and hex nuts (77) onto button head cap screws (76). Tighten hex nuts to 9 lb-ft (12 N•m).



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7.6. REPAIR/REPLACE OPERATOR CONTROL CONSOLE ASF' Continued.

C. INSTALL - Continued.

8. INSTALL PANEL SEAL AND SWITCH PANEL ASSEMBLY ONTO OPERATOR CONTROL CONSOLE.

WARNING

Adhesive is TOXIC and extremely flammable. Keep away from heat, sparks, and open flames. Use only in well ventilated areas. Do not breathe vapors or swallow and avoid contact with eyes and skin. Failure to do so may result in injury or death to personnel.

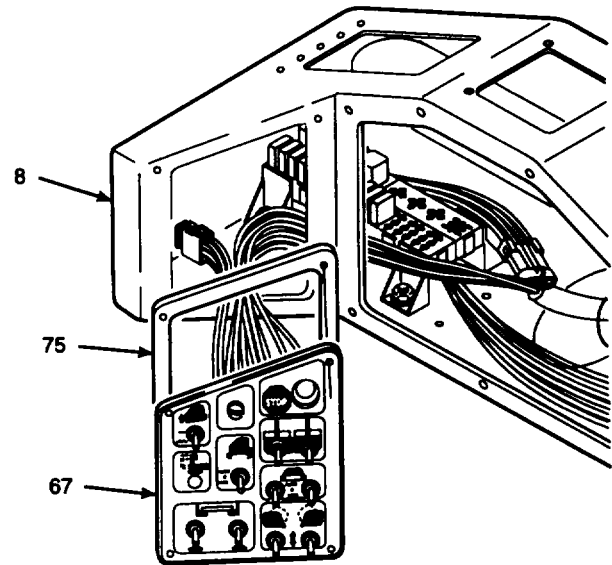
If personnel become dizzy while using adhesive, immediately get fresh air and medical attention. If personnel swallow adhesive, do not induce vomiting. Get immediate medical attention. If adhesive contacts eyes, flush eyes with water for 15 minutes and get immediate medical attention. If adhesive contacts skin, wash thoroughly with soap and water.

- a. Apply adhesive to seal area on operator control console (8) where switch panel assembly (67) will be installed.
- b. Install panel seal (75) over adhesive on operator control console. Line up holes in panel seal with holes drilled in operator console (8).

NOTE

Ensure wires are routed through conduit mounting flange as tagged.

- c. Install switch panel assembly (67) harness into operator control console assembly (8). Leave switch panel assembly face down on work surface.



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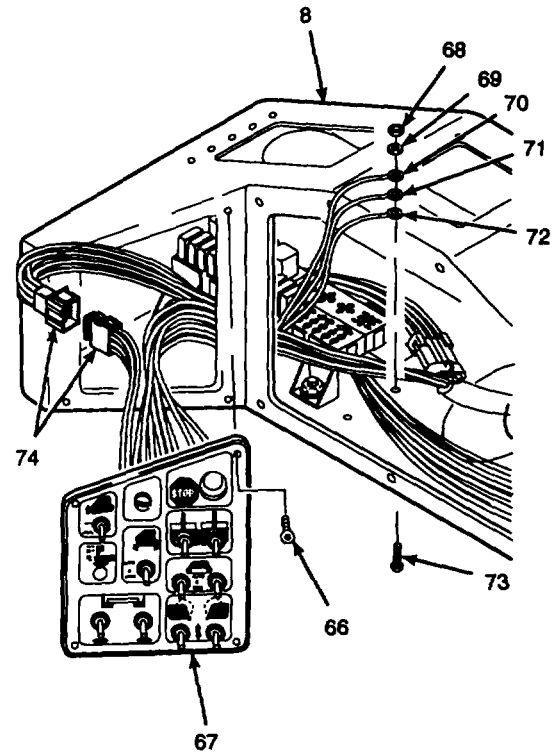
C. INSTALL - Continued.

- d. Install button head cap screw (73), ground wires (72, 71, and 70), flat washer (69), and self-locking hex nut (68). Tighten hex nut to 9 lb-ft (12 N•m).

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- e. Apply electrical insulating varnish to ground connections.
- f. Apply electrical insulating compound to male end of electrical connector (74) and reconnect.
- g. Install tie wraps where previously removed.
- h. Install switch panel assembly (67) into position on operator control console (8).
- i. Install and tighten button head cap screws (66).



GO TO NEXT PAGE

7.6. REPAIR/REPLACE OPERATOR CONTROL CONSOLE ASSEMBLY - Continued.

C. INSTALL - Continued.

9. INSTALL PANEL SEAL AND GAUGE PANEL ASSEMBLY ONTO OPERATOR CONTROL CONSOLE.

WARNING

Adhesive is **TOXIC** and extremely flammable. Keep away from heat, sparks, and open flames. Use only in well ventilated areas. Do not breathe vapors or swallow and avoid contact with eyes and skin. Failure to do so may result in injury or death to personnel.

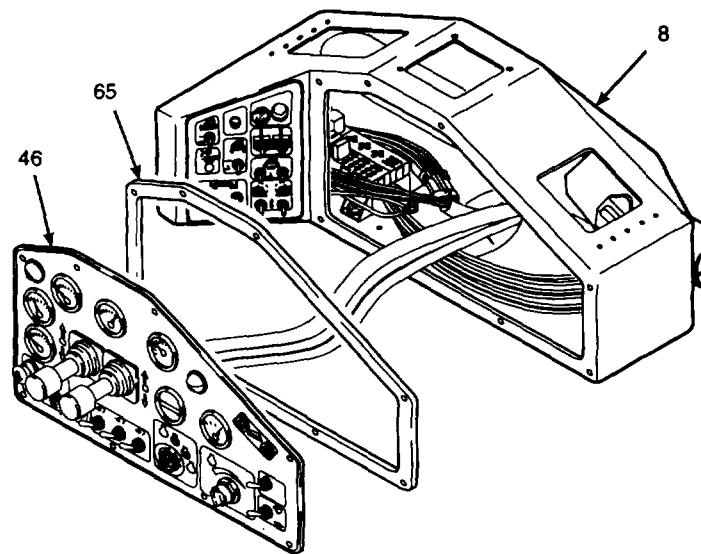
If personnel become dizzy while using adhesive, immediately get fresh air and medical attention. If personnel swallow adhesive, do not induce vomiting. Get immediate medical attention. If adhesive contacts eyes, flush eyes with water for 15 minutes and get immediate medical attention. If adhesive contacts skin, wash thoroughly with soap and water.

- a. Apply adhesive to seal area on operator control console (8) around gauge panel assembly (46) opening.
- b. Install panel seal (65) over adhesive on operator control console (8). Line up holes in panel seal with holes in operator control console to mount gauge panel assembly (46).

NOTE

Ensure wires are routed through conduit mounting flange as tagged.

- c. Install gauge panel assembly (46) harness into operator control console. Leave gauge panel assembly face down on work surface.



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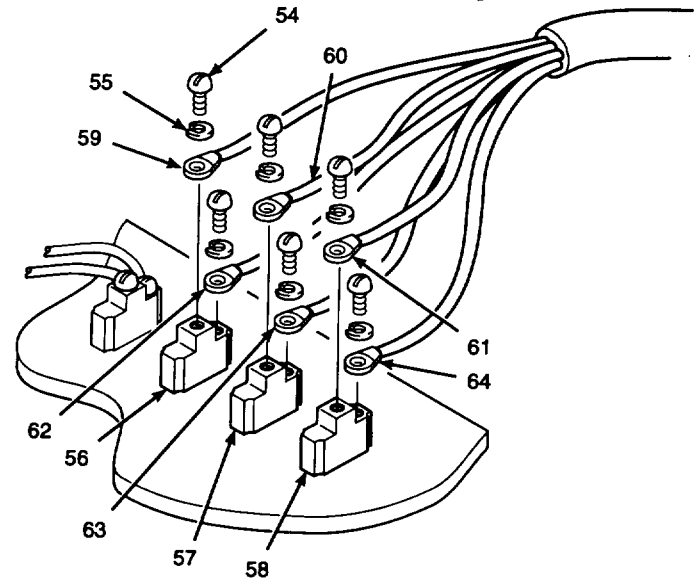
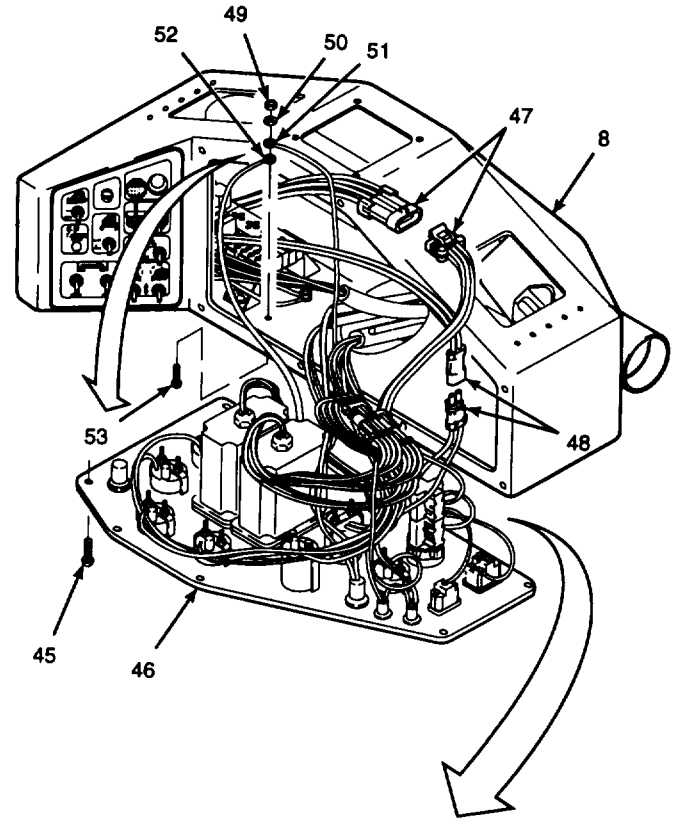
C. INSTALL - Continued.

- d. Install button head cap screws (53), ground wires (52 and 51), flat washers (50), and self-locking hex nut (49). Tighten hex nut to 9 lb-ft (12 N•m).
- e. Install ring terminals (64, 63, 62, 61, 60, and 59) with lockwashers (55) and terminal screws (54) onto forward work light switch (58), auger work light switch (57) and rear work light switch (56). Refer to wiring diagram.

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

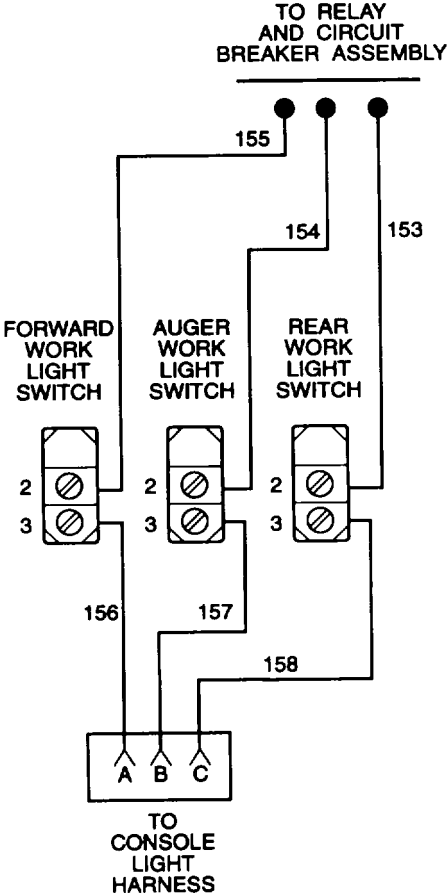
- f. Apply electrical insulating varnish to ground wires (52 and 51) and ring terminals (64, 63, 62, 61, 60, and 59).
- g. Apply electrical insulating compound to male end of electrical connectors (48 and 47) and reconnect.
- h. Install tie wraps where previously removed.
- i. Install gauge panel assembly (46) into position on operator control console.
- j. Install and tighten button head cap screws (45).



GO TO NEXT PAGE

7.6. REPAIR/REPLACE OPERATOR CONTROL CONSOLE ASSEMBLY - Continued.

C. INSTALL - Continued.



GO TO NEXT PAGE

C. INSTALL - Continued.

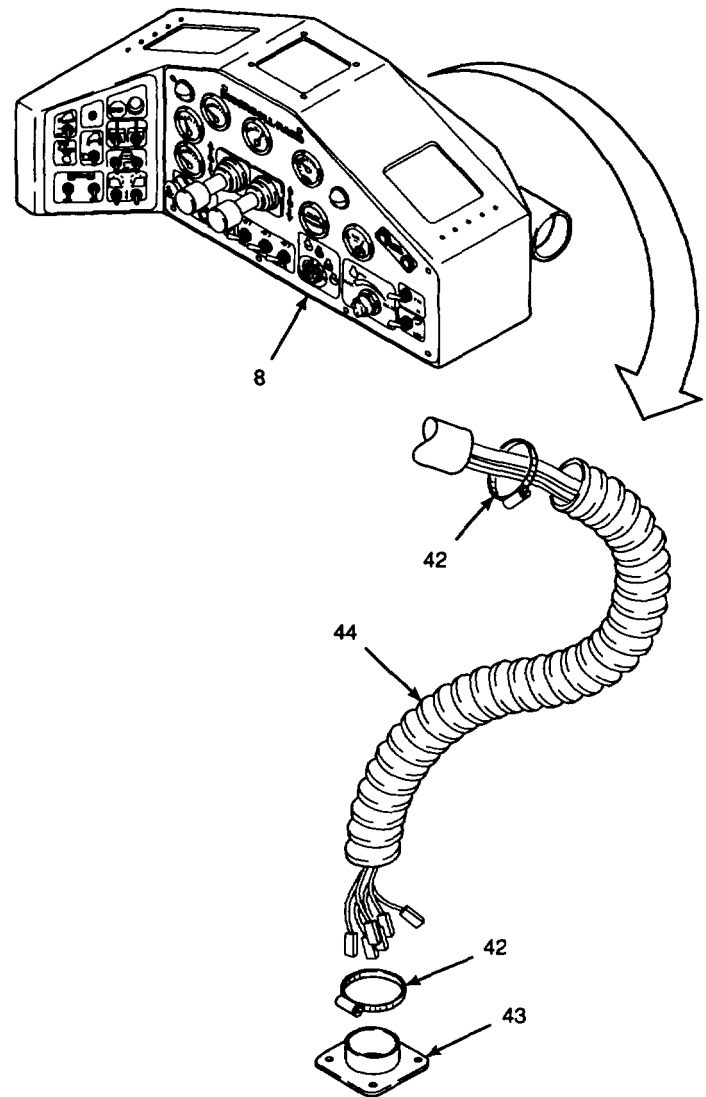
10. INSTALL HOSE CLAMPS ONTO CONDUIT, INSTALL CONDUIT ONTO OPERATOR CONTROL CONSOLE, AND INSTALL CONDUIT MOUNTING FLANGE.

- a. Install hose clamps (42) onto conduit (44). Do not tighten.

CAUTION

Do not use excessive force when installing wiring harnesses through conduit. Damage to electrical connectors and wires may result from excessive force on wiring harnesses. Pull wiring harnesses and electrical connectors one at a time carefully through conduit.

- b. Carefully feed operator control console wire harnesses through conduit (44) one at a time. Use caution not to allow electrical connectors to bind and become damaged inside conduit. Bunch conduit up at open end and pull electrical connectors through.
- c. Install conduit (44) onto operator control console (8) and secure by tightening hose clamp (42).
- d. Feed harness connectors through conduit mounting flange (43) and install conduit mounting flange onto conduit (44). Tighten hose clamp (42).



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7.6. REPAIR/REPLACE OPERATOR CONTROL CONSOLE ASSEMBLY - Continued.

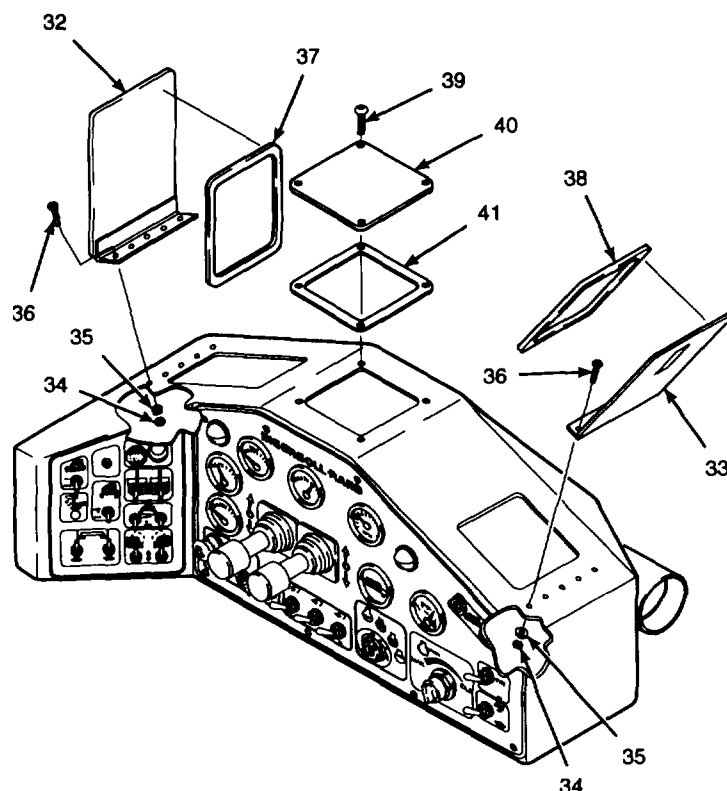
C. INSTALL - Continued.

11. INSTALL GAUGE PANEL LEFT AND RIGHT SEALS AND ACCESS DOORS AND COVER PLATE ONTO OPERATOR CONTROL CONSOLE.

WARNING

Adhesive is TOXIC and extremely flammable. Keep away from heat, sparks, and open flames. Use only in well ventilated areas. Do not breathe vapors or swallow and avoid contact with eyes and skin. Failure to do so may result in injury or death to personnel.

If personnel become dizzy while using adhesive, immediately get fresh air and medical attention. If personnel swallow adhesive, do not induce vomiting. Get immediate medical attention. If adhesive contacts eyes, flush eyes with water for 15 minutes and get immediate medical attention. If adhesive contacts skin, wash thoroughly with soap and water.



- a. Apply adhesive to cover plate (40) seal area.
- b. Install cover plate seal (41) onto cover plate (40).
- c. Apply adhesive to gauge panel left access door (32) and gauge panel right access door (33) seal area.
- d. Install door seals (38 and 37) onto gauge panel left access door (32) and gauge panel right access door (33).
- e. Install cover plate (40) and secure with button head cap screws. (39). Tighten cap screws.
- f. Install gauge panel left access door (32) and gauge screws panel right access door (33), both in the open position, and secure with screws (36), flat washers (35), and hex nuts (34). Tighten hex nuts.
- g. Close gauge panel left and right access doors (32 and 33) per TM 5-3895-373-10.

NOTE

For repair and adjustment of door latches, refer to paragraph 11.2.

GO TO NEXT PAGE
7-50

C. **INSTALL - Continued.**

12. **INSTALL GUIDE SHAFT INTO OPERATOR CONTROL CONSOLE, AND SECURE ONTO CONSOLE SUPPORTS WITH CLAMP CAPS.**

- a. Place operator control console (8) on deck of paving machine.
- b. With the help of two other persons, lift guide shaft (27) and slide shaft into operator control console (8), ensuring handle (7) is loosened to allow shaft to pass through. Center control console on shaft.
- c. Lock handle (7) so operator control console (8) will not move.

WARNING

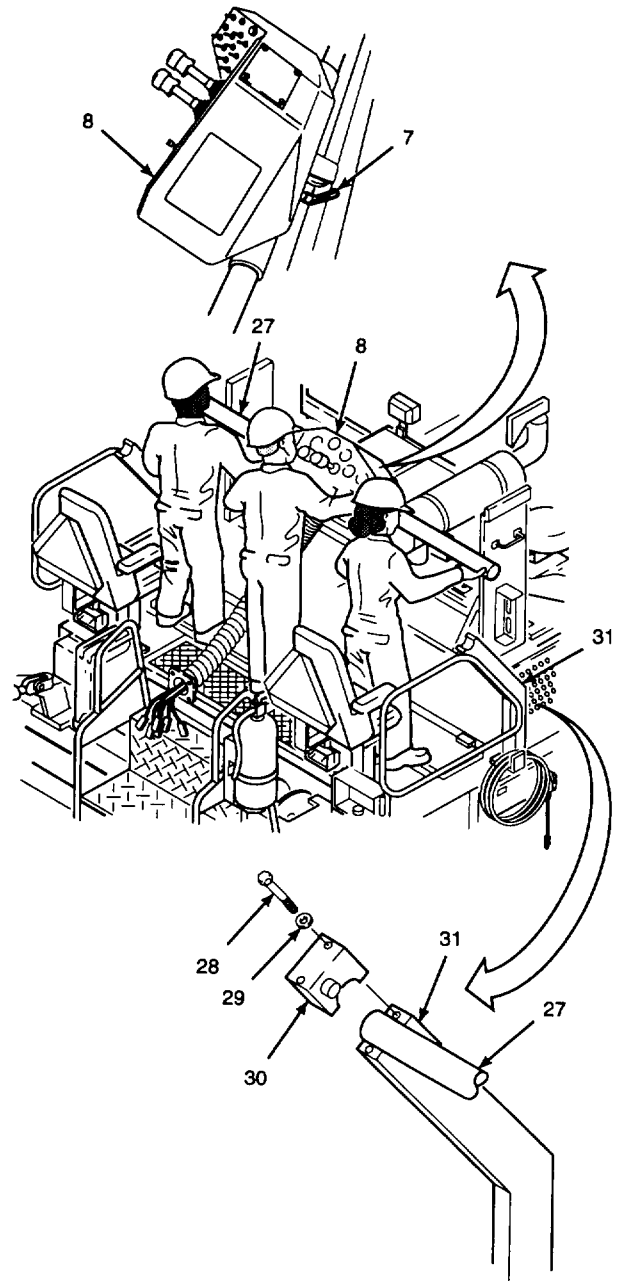
The operator control console and guide shaft weigh approximately 200 lbs (90 kg). To avoid personnel injury, use a hoist or get assistance when lifting the control console and shaft.

- d. Lift assembled guide shaft (27) and operator control console (8), and set ends of shaft in slots on console support (31). Ensure shaft is centered in right and left console supports.
- e. Install flat washers (29) onto hex head cap screws (28).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- f. Apply thread locking compound to threads of hex head cap screws (28).
- g. Install hex head cap screws (28), washers (29), and clamp caps (30) into console support (31). Tighten cap screws to 90 lb-ft (122 N•m).



- h. Check and adjust operator control console (8) per step B.2.j through m in paragraph 11.4.
- i. Slide operator control console (8) to left as far as it will go and lock handle (7).

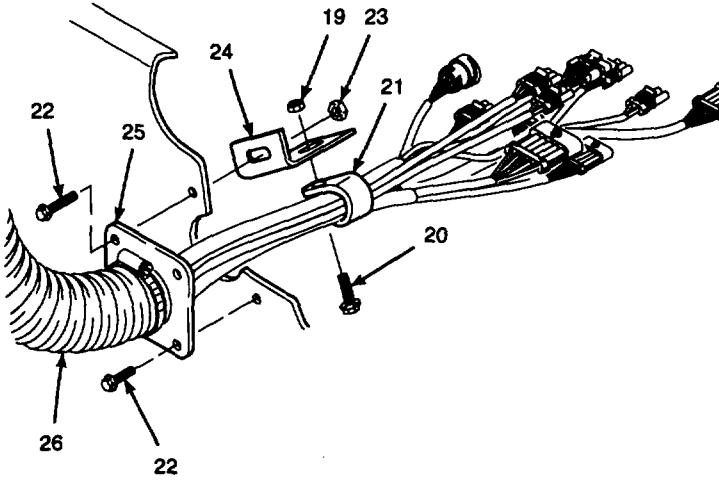
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7.6. REPAIR/REPLACE OPERATOR CONTROL CONSOLE ASSEMBLY- Continued.

C. INSTALL - Continued.

13. INSTALL CONDUIT MOUNTING FLANGE, HARNESS SUPPORT ANGLE, AND HARNESS CLAMP, AND CONNECT ELECTRICAL CONNECTORS.

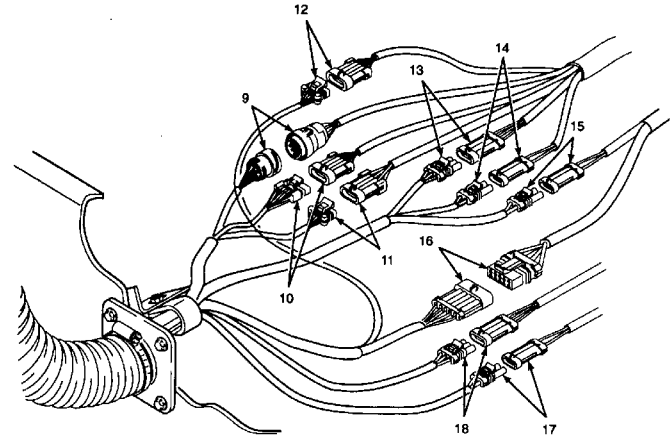
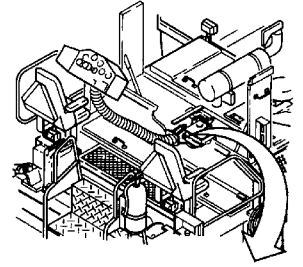
- a. Install conduit (26) assembly onto front plate, feeding electrical connectors inside front plate.
- b. Install conduit mounting flange (25) and harness support angle (24).
- c. Install self-locking screws (22) through conduit mounting flange (25) and harness support angle (24). Secure with self-locking hex nuts (23).
- d. Install harness clamp (21), hex head cap screw (20), and self-locking nut (19).



GO TO NEXT PAGE

C. INSTALL - Continued.

- e. Apply electrical insulating compound to male ends of electrical connectors (18 through 9).
- f. Reconnect electrical connectors (18 through 9).



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7.6. REPAIR/REPLACE OPERATOR CONTROL CONSOLE ASSEMBLY - Continued.

C. INSTALL - Continued.

14. CONNECT BATTERY CABLES.

WARNING

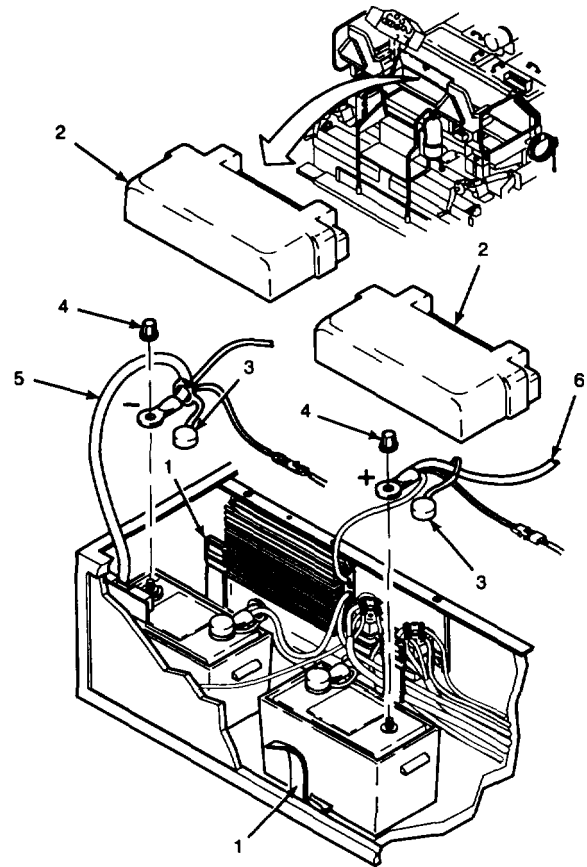
When connecting batteries, connect positive battery cable before connecting negative battery cable. Failure to connect batteries in the proper sequence may lead to electrical shock or short circuit and result in personnel injury.

- a. Reconnect positive battery cable (6) and battery nut (4) to positive terminal of inboard battery.
- b. Reconnect negative battery cable (5) and battery nut (4) to negative terminal of outboard battery.

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- c. Apply electrical insulating varnish to terminals on batteries.
- d. Install rubber battery terminal covers (3) onto battery terminals.
- e. Install battery box covers (2) on both batteries and buckle battery box holddown straps (1).

**NOTE**

FOLLOW-ON-TASKS: Close center top left access door per TM 5-3895-373-10.
 Close center top right access door per TM 5-3895-373-10.
 Close rear top left access door per TM 5-3895-373-10.
 Install operator control console protective cover per TM 5-3895-373-10.

END OF TASK

7.7. REPAIR GAUGE PANEL ASSEMBLY.

This task covers: a. Remove b. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Jeweler's screwdriver set (Item 38, Appendix E)
Six-point screwdriver set (Item 39, Appendix E)

References:

TM 5-3895-373-24P

Equipment Condition:

Gauge panel assembly removed from operator control console per paragraph 7.6.

Materials/Parts:

Electrical insulating compound (Item 11, Appendix C)
Electrical insulating varnish (Item 32, Appendix C)
Tags (Item 27, Appendix C)
Dust and moisture boots
Key washer
Lockwashers
O-rings
Preformed packings

GO TO NEXT PAGE

7.7. REPAIR GAUGE PANEL ASSEMBLY- Continued.

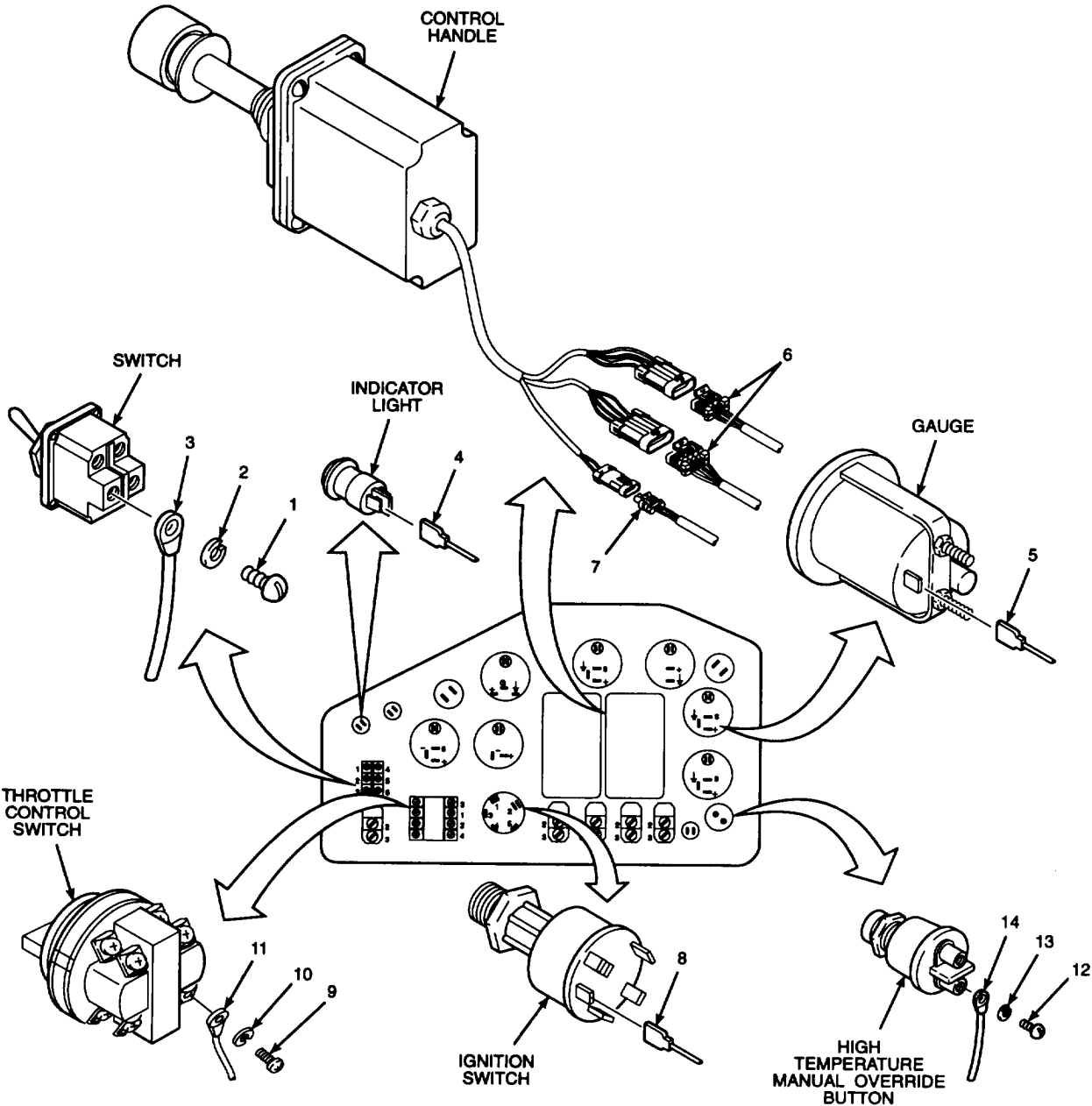
A. REMOVE.**1. REMOVE RING TERMINALS AND ELECTRICAL CONTACTS AND DISCONNECT ELECTRICAL CONNECTORS FROM GAUGE PANEL COMPONENTS.****CAUTION**

Ensure wires and electrical connectors are tagged for reassembly. Paving machine functions will be affected by incorrect wiring installation.

- a. Tag all wires and electrical connectors for reassembly.
- b. Use a jeweler's screwdriver set to remove terminal screws (1) and lockwashers (2) from switches. Discard lockwashers.
- c. Remove ring terminals (3) from switches.
- d. Remove harness connectors (4) from indicator lights.
- e. Remove terminal plugs (5) from gauges.
- f. Disconnect electrical connectors (6 and 7) from control handle electrical connectors.
- g. Remove harness lug terminals (8) from ignition switch.
- h. Use a jeweler's screwdriver set to remove terminal screws (9) and lockwashers (10) from throttle control switch. Discard lockwashers.
- i. Remove ring terminals (11) from throttle control switch.
- j. Use a jeweler's screwdriver set to remove screws (12) and lockwashers (13) from high temperature manual override button. Discard lockwashers.
- k. Remove ring terminals (14) from high temperature manual override button.

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A. REMOVE - Continued.



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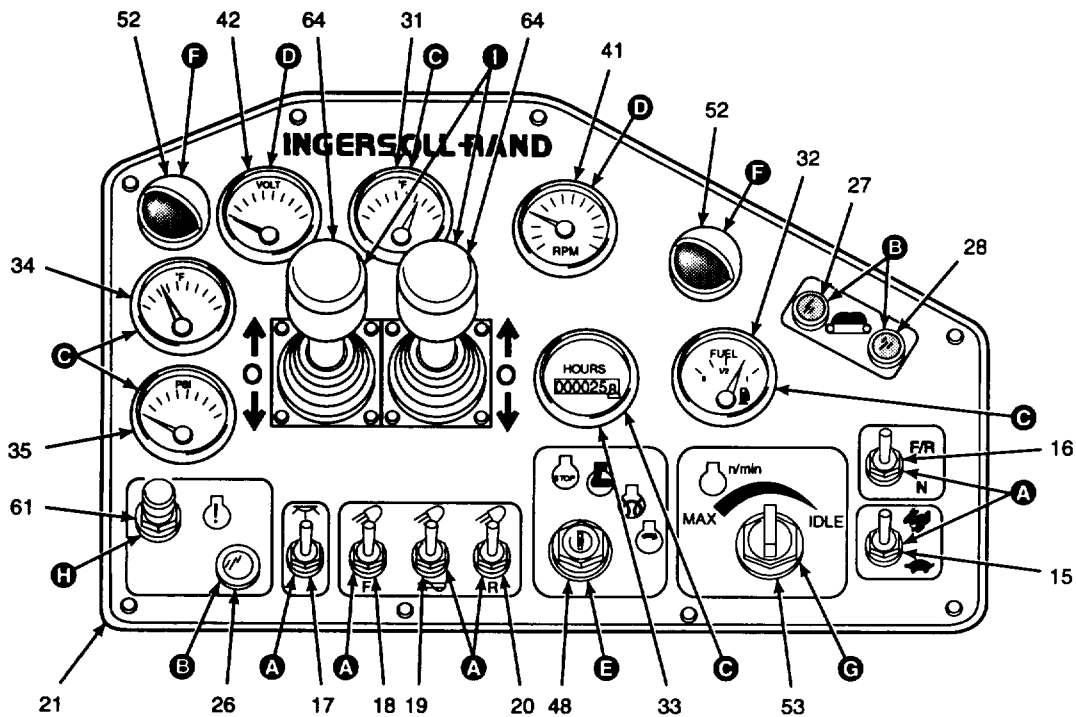
7.7. REPAIR GAUGE PANEL ASSEMBLY - Continued

A REMOVE - Continued.**2. REMOVE GAUGE PANEL COMPONENTS FROM GAUGE PANEL.**

- a. Remove and tag switches (15 through 20) from gauge panel (21) by removing hex nuts (22), lockwashers (23), and dust and moisture boots (24). Pull switches from rear of gauge panel. Remove hex nut (25). Discard lockwashers and dust and moisture boots. Refer to legend and illustration.
- b. Remove indicator lights (26, 27, and 28) from gauge panel (21) by removing lockwashers (29) and o-rings (30). Pull indicator lights from front of gauge panel. Discard lockwashers and o-rings. Refer to legend and illustration.
- c. Remove gauges (31 through 35) from gauge panel (21) by removing knurled nuts (36) and mounting clamps (37). Pull gauge from front of gauge panel and remove preformed packing (38). Remove lampholder (39) and lamp (40) from gauge. Discard preformed packing. Discard incandescent lamp if burned out. Refer to legend and illustration.
- d. Remove tachometer and voltmeter (41 and 42) from gauge panel (21) by removing knurled nuts (43) and mounting clamps (44). Pull tachometer and voltmeter from front of gauge panel and remove preformed packing (45). Remove lampholder (46) and lamp (47) from gauge. Discard preformed packing. Discard incandescent lamp if burned out. Refer to legend and illustration.
- e. Remove ignition switch (48) from gauge panel (21) by using a flat-blade screwdriver and a hammer to tap notch in screw cover (49) and loosen ignition switch. Remove screw cover and remove ignition switch through back of gauge panel. Remove lockwasher (50) and hex nut (51). Refer to legend and illustration.
- f. Remove panel lamp units (52) by pressing with a finger from behind gauge panel (21). Refer to legend and illustration.
- g. Remove throttle control switch (53) from gauge panel (21) by using an adjustable wrench to loosen and remove knob (54). Remove key washer (55). Remove and discard key washer (56) and pull switch through back of gauge panel. Remove spacer rings (57 through 60). Do not discard spacer rings if not replacing throttle control switch.
- h. Remove high temperature manual override button (61) from gauge panel (21) by using needlenose pliers to loosen hex nut (62) behind gauge panel. Unscrew and remove button (63) and pull switch through back of gauge panel.
- i. Remove control handles (64) from gauge panel (21) by using a six point screwdriver set to remove pan head cap screws (65), collar seals (66), and mounting plate (67). Pull control handles through back of gauge panel, feeding boot (68) through gauge panel. If repairing control handles, install retaining plate and secure with pan head cap screws back onto control handles.

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A. REMOVE - Continued.

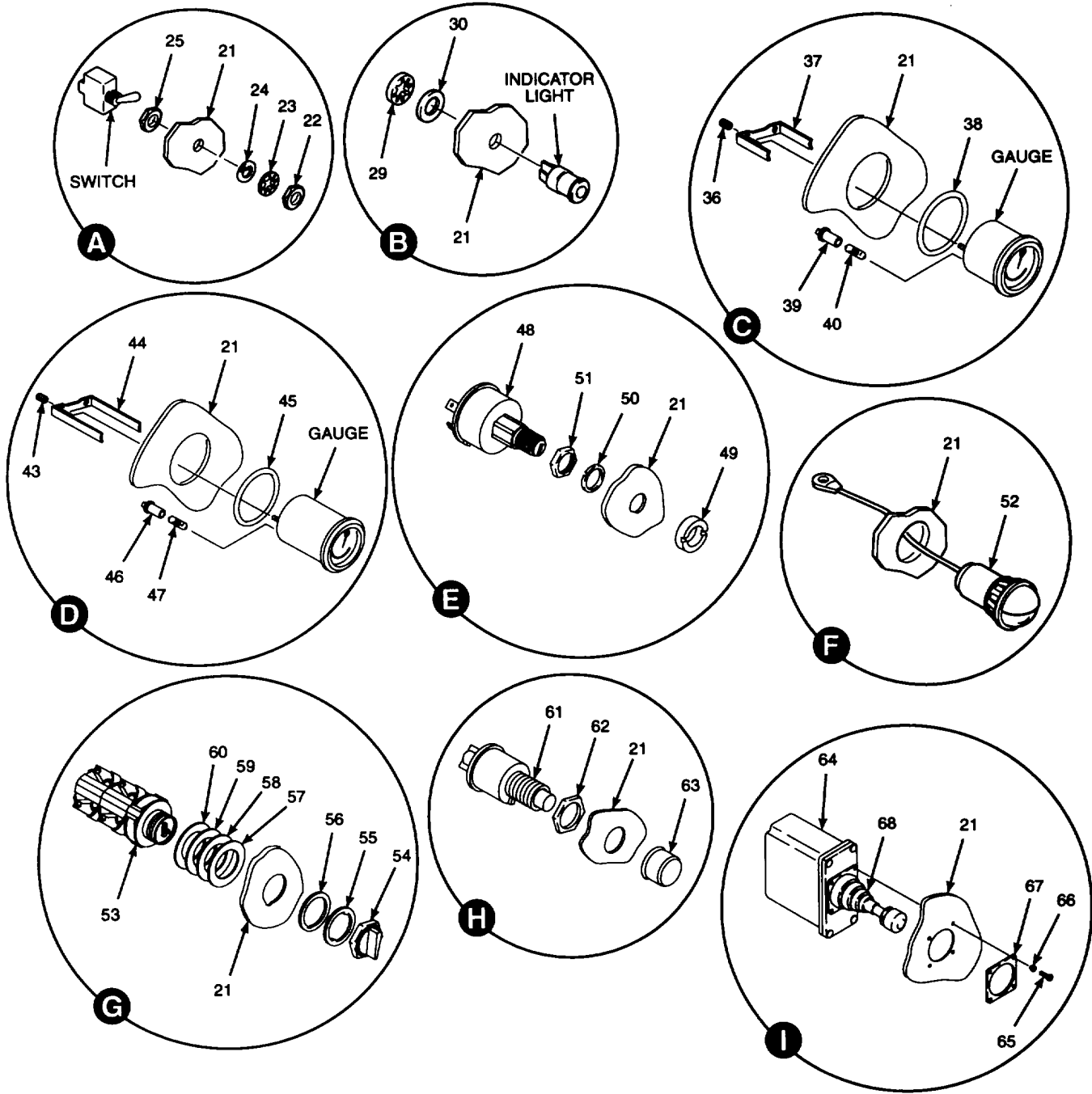


- | | | |
|--|--------------------------------------|---|
| 15. Speed range switch | 32. Fuel gauge | 51. Hex nut |
| 16. Travel switch | 33. Hourmeter | 52. Panel lamp unit |
| 17. Panel light switch | 34. Engine coolant temperature gauge | 53. Throttle control switch |
| 18. Forward work light switch | 35. Engine oil pressure gauge | 54. Knob |
| 19. Auger work light switch | 36. Knurled nuts | 55. Key washer |
| 20. Rear work light switch | 37. Mounting clamps | 56. Key washer |
| 21. Gauge panel | 38. Preformed packing | 57. Spacer ring |
| 22. Hex nuts | 39. Lampholder | 58. Spacer ring |
| 23. Lockwashers | 40. Lamp | 59. Spacer ring |
| 24. Dust and moisture boots | 41. Tachometer | 60. Spacer ring |
| 25. Hex nut | 42. Voltmeter | 61. High temperature manual override button |
| 26. High temperature warning indicator light | 43. Knurled nuts | 62. Hex nut |
| 27. Auger/conveyor indicator light (LH) | 44. Mounting clamps | 63. Boot |
| 28. Auger/conveyor indicator light (RH) | 45. Preformed packing | 64. Control handle |
| 29. Lockwashers | 46. Lampholder | 65. Pan head cap screw |
| 30. O-rings | 47. Lamp | 66. Collar seals |
| 31. Hydraulic oil temperature gauge | 48. Ignition switch | 67. Retaining plate |
| | 49. Screw cover | 68. Boot |
| | 50. Lockwasher | |

GO TO NEXT PAGE

7.7. REPAIR GAUGE PANEL ASSEMBLY - Continued.

A. REMOVE - Continued.



GO TO NEXT PAGE

B. INSTALL.**1. INSTALL GAUGE PANEL COMPONENTS ONTO GAUGE PANEL.**

- a. Install control handles (64) into gauge panel (21) by inserting control handles through back of gauge panel, feeding boot (68) through gauge panel. Install retaining plate (67) over boot, aligning holes in boot with holes in gauge panel. Install and tighten collar seals (66) and pan head cap screws (65). Refer to legend and illustration.
- b. Install high temperature manual override button (61) through back of gauge panel (21). Install boot (63) and turn until tight. Use needlenose pliers to tighten hex nut (62) from behind gauge panel.

NOTE

Throttle control switch needs to be positioned correctly for functions to work.

- c. Install spacer rings (57 through 60) onto throttle control switch (53). Insert throttle control switch through back of gauge panel (21). Install key washer (55 and 56), and knob (54).
- d. Turn throttle control switch (53) to MAX and IDLE settings to ensure switch is correctly aligned with settings. Loosen knob (54) to turn and adjust switch positions as necessary. Use an adjustable wrench to tighten knob when settings are correct.
- e. Install panel lamp unit (52) by pushing panel lamp unit into mounting hole on front of gauge panel (21). Orient panel lamp units in the direction of illumination shown.

NOTE

Do not use nameplate furnished with ignition switch.

- f. Install hex nut (51) and lockwasher (50) onto ignition switch (48). Install ignition switch through back of gauge panel (21). Install screw cover (49). Use a flatblade screwdriver and a hammer to carefully tap notch in screw cover to tighten ignition switch. Refer to legend and illustration.
- g. Install preformed packings (45) onto tachometer and voltmeter (41 and 42). Insert tachometer and voltmeter through front of gauge panel (21) and secure with mounting clamps (44) and knurled nuts (43). Plug lamp (47) into lampholder (46). Install lampholder into gauge. Refer to legend and illustration.
- h. Install preformed packings (38) onto gauges (31 through 35). Insert gauges through front of gauge panel (21) and secure with mounting clamps (37) and knurled nuts (36). Plug lamp (40) into lampholder (39). Install lampholder into gauge. Refer to legend and illustration.
- i. Install indicator lights (26, 27, and 28) through front of gauge panel (21). Secure with o-rings (30) and lockwashers (29). Refer to legend and illustration.

NOTE

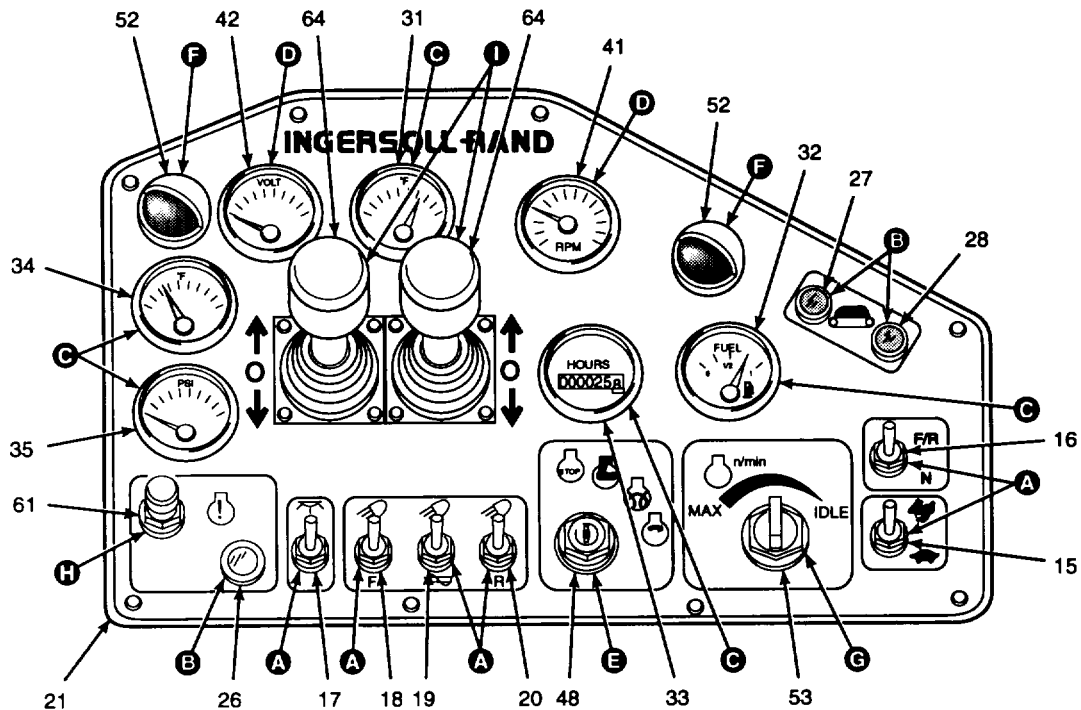
Gauge panel (21) has tabs for correct positioning of switches (15 through 20).

- j. Install hex nuts (25) onto switches (15 through 20). Install switches through rear of gauge panel (21). Install dust and moisture boots (24), lockwashers (23), and hex nuts (22). Tighten hex nuts. Refer to legend and illustration.
- k. Refer to wiring diagram and connect all wire harness terminals.

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7.7. REPAIR GAUGE PANEL ASSEMBLY - Continued.

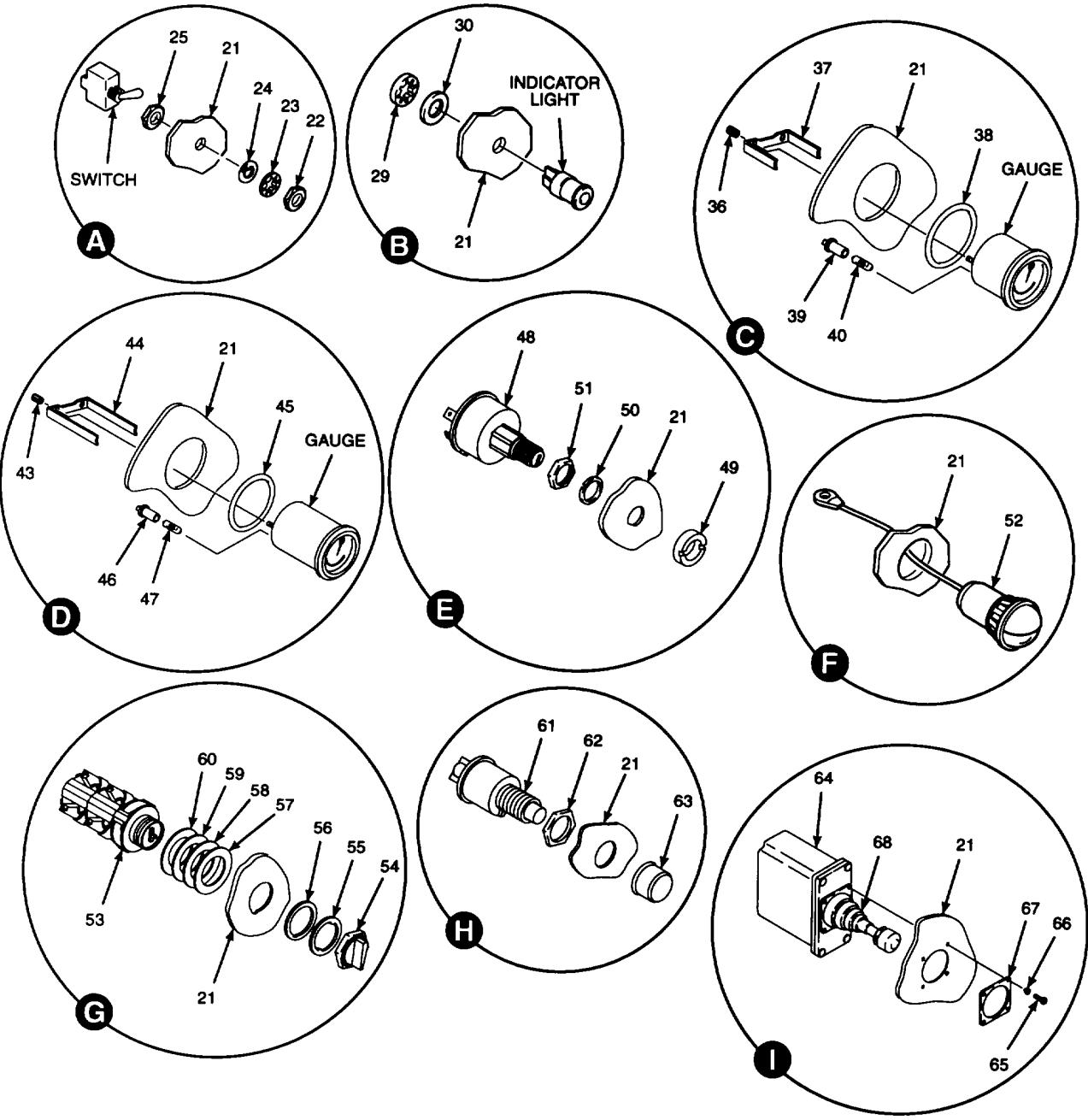
B. INSTALL - Continued.



- | | | |
|--|--------------------------------------|---|
| 15. Speed range switch | 32. Fuel gauge | 51. Hex nut |
| 16. Travel switch | 33. Hourmeter | 52. Panel lamp unit |
| 17. Panel light switch | 34. Engine coolant temperature gauge | 53. Throttle control switch |
| 18. Forward work light switch | 35. Engine oil pressure gauge | 54. Knob |
| 19. Auger work light switch | 36. Knurled nuts | 55. Key washer |
| 20. Rear work light switch | 37. Mounting clamps | 56. Key washer |
| 21. Gauge panel | 38. Preformed packing | 57. Spacer ring |
| 22. Hex nuts | 39. Lampholder | 58. Spacer ring |
| 23. Lockwashers | 40. Lamp | 59. Spacer ring |
| 24. Dust and moisture boots | 41. Tachometer | 60. Spacer ring |
| 25. Hex nut | 42. Voltmeter | 61. High temperature manual override button |
| 26. High temperature warning indicator light | 43. Knurled nuts | 62. Hex nut |
| 27. Auger/conveyor indicator light (LH) | 44. Mounting clamps | 63. Boot |
| 28. Auger/conveyor indicator light (RH) | 45. Preformed packing | 64. Control handle |
| 29. Lockwashers | 46. Lampholder | 65. Pan head cap screw |
| 30. O-rings | 47. Lamp | 66. Collar seals |
| 31. Hydraulic oil temperature gauge | 48. Ignition switch | 67. Retaining plate |
| | 49. Screw cover | 68. Boot |
| | 50. Lockwasher | |

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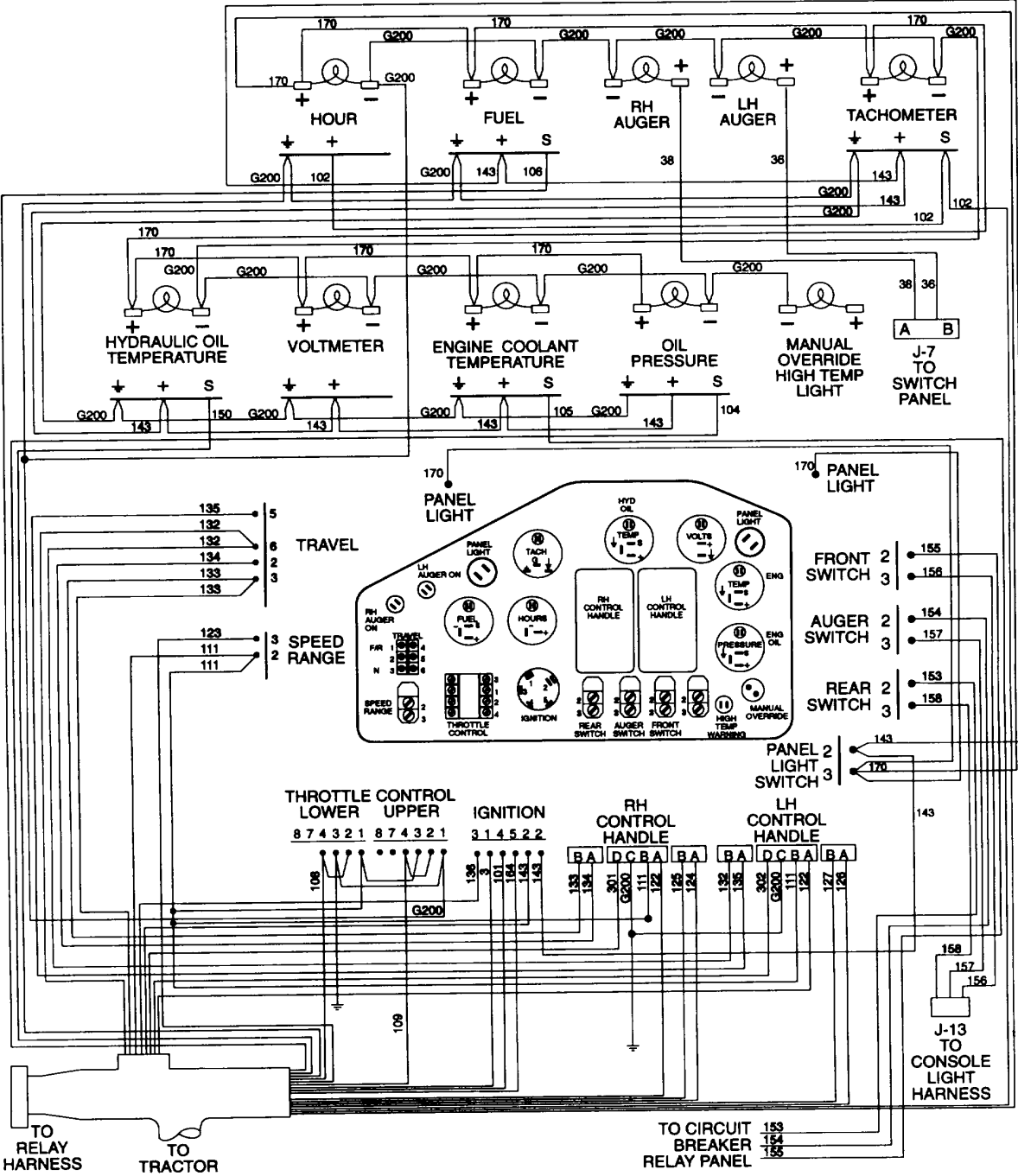
B. INSTALL - Continued.



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7.7. REPAIR GAUGE PANEL ASSEMBLY - Continued.

B. INSTALL - Continued.



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B. INSTALL Continued.

2. CONNECT ELECTRICAL CONNECTORS AND INSTALL ELECTRICAL CONTACTS AND RING TERMINALS ONTO GAUGE PANEL COMPONENTS.

WARNING

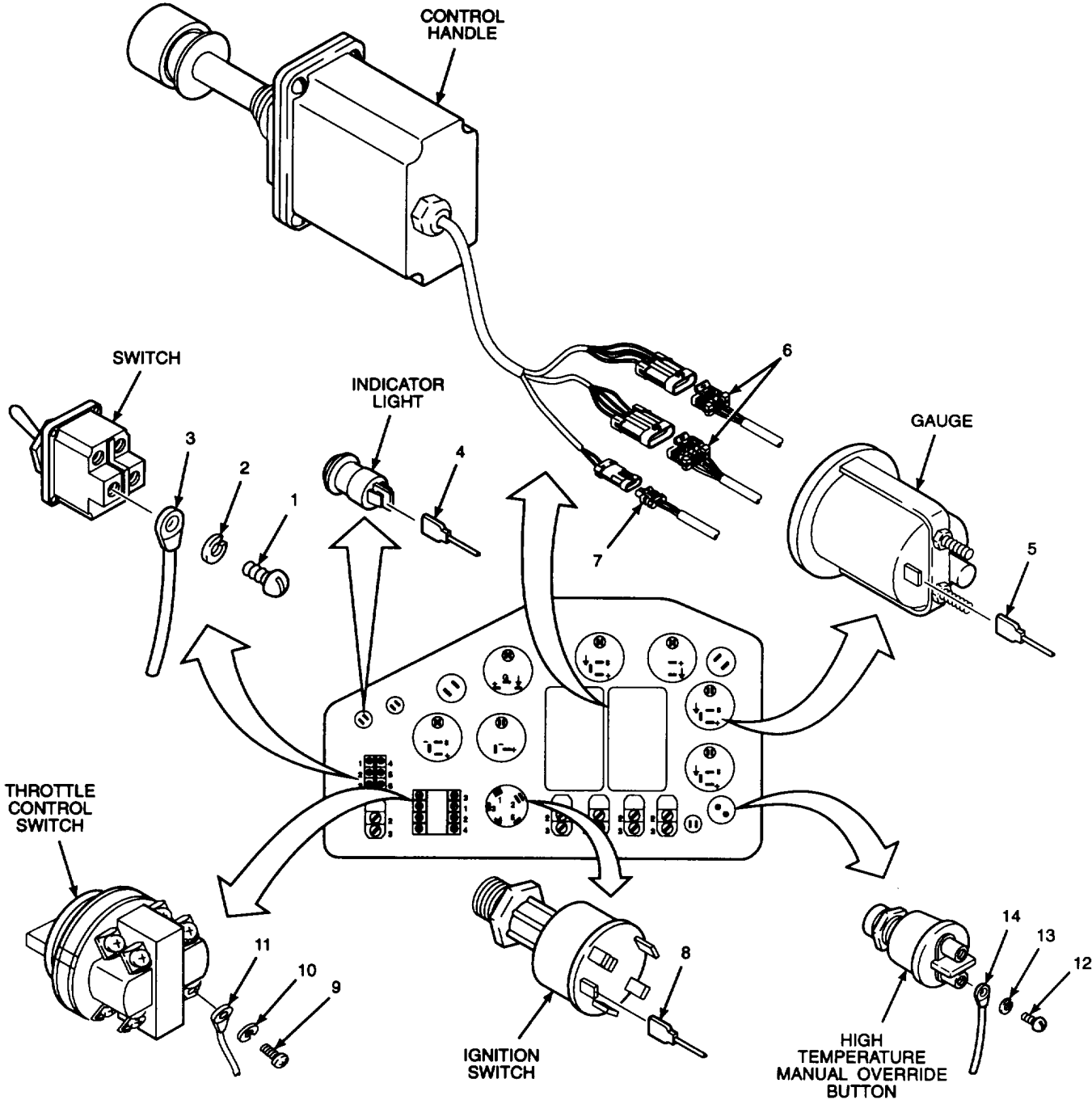
Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- a. Install ring terminals (14) onto high temperature manual override button. Use a jeweler's screwdriver set to install lockwashers (13) and screws (12). Apply electrical insulating varnish to ring terminals.
- b. Install ring terminals (11) onto throttle control switch. Use a jeweler's screwdriver set to install lockwashers (10) and terminal screws (9). Apply electrical insulating varnish to ring terminals.
- c. Apply electrical insulating compound to ignition switch terminals. Install harness lug terminals (8) onto ignition switch terminals.
- d. Apply electrical insulating compound to electrical connectors (7 and 6). Connect electrical connectors to control handle electrical connectors.
- e. Apply electrical insulating compound to terminals of gauges. Install terminal plugs (5) into gauges.
- f. Apply electrical insulating compound to terminal plugs of indicator lights. Install harness connectors (4) to indicator lights.
- g. Install ring terminals (3) onto switches. Use a jeweler's screwdriver set to install lockwashers (2) and terminal screws (1). Apply electrical insulating varnish to ring terminals.

GO TO NEXT PAGE

7.7. REPAIR GAUGE PANEL ASSEMBLY - Continued.

B. INSTALL - Continued.



NOTE

FOLLOW-ON-TASK: Install gauge panel onto operator control console assembly per paragraph 7.6.

END OF TASK

7.8. ADJUST/CALIBRATE CONTROL HANDLES.

This task covers: a. Calibrate b. Adjust

INITIAL SETUP:

Tools:

General mechanic's automotive tool kit
(Item 54, Appendix E)

Combination square (Item 48, Appendix E)

Digital multimeter (Item 25, Appendix E)

Jeweler's screwdriver set (Item 38, Appendix E)

Gauge panel right access door open

Materials/Parts:

Electrical insulating compound (Item 11, Appendix C)

References:

TM 5-3895-373-10

Equipment Condition:

Gauge panel left access door open
per TM 5-3895-373-10.

per TM 5-3895-373-10.

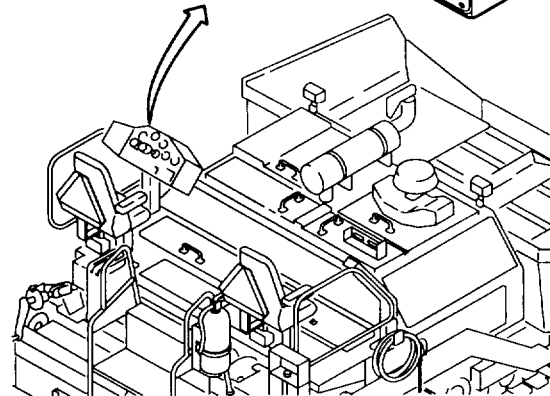
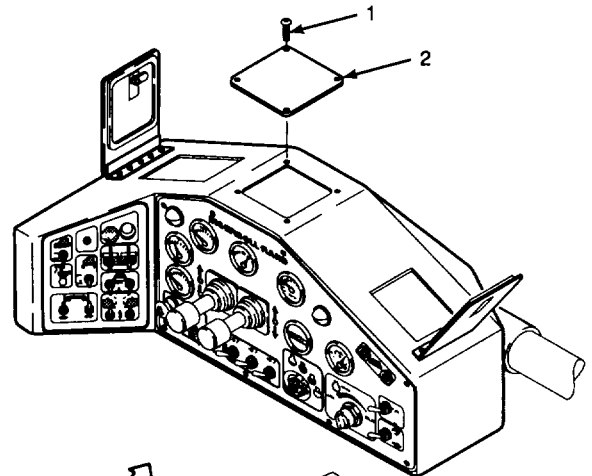
A. CALIBRATE.

NOTE

Calibration will adjust control handles to a starting point for the actual tracking adjustment performed in step B.

1. CALIBRATE LEFT CONTROL HANDLE FORWARD THRESHOLD AND GAIN.

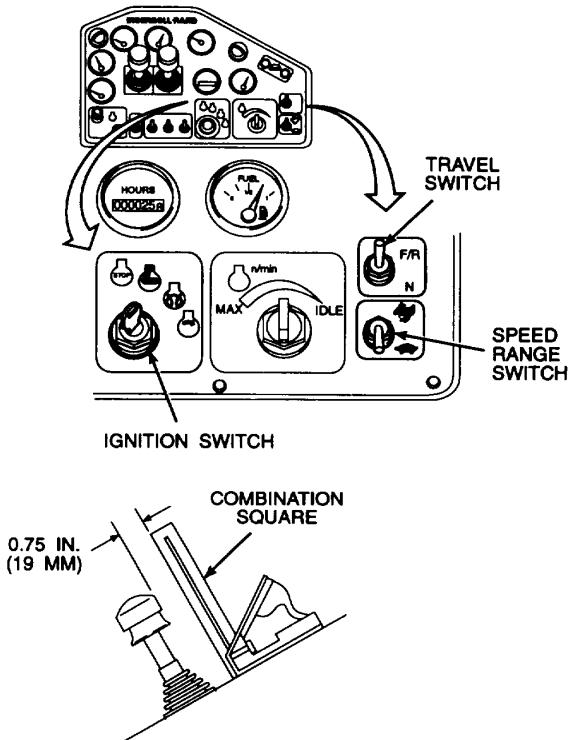
- a. Remove button head cap screws (1) and cover plate (2) from operator control console.



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7.8. ADJUST/CALIBRATE CONTROL HANDLES - Continued.

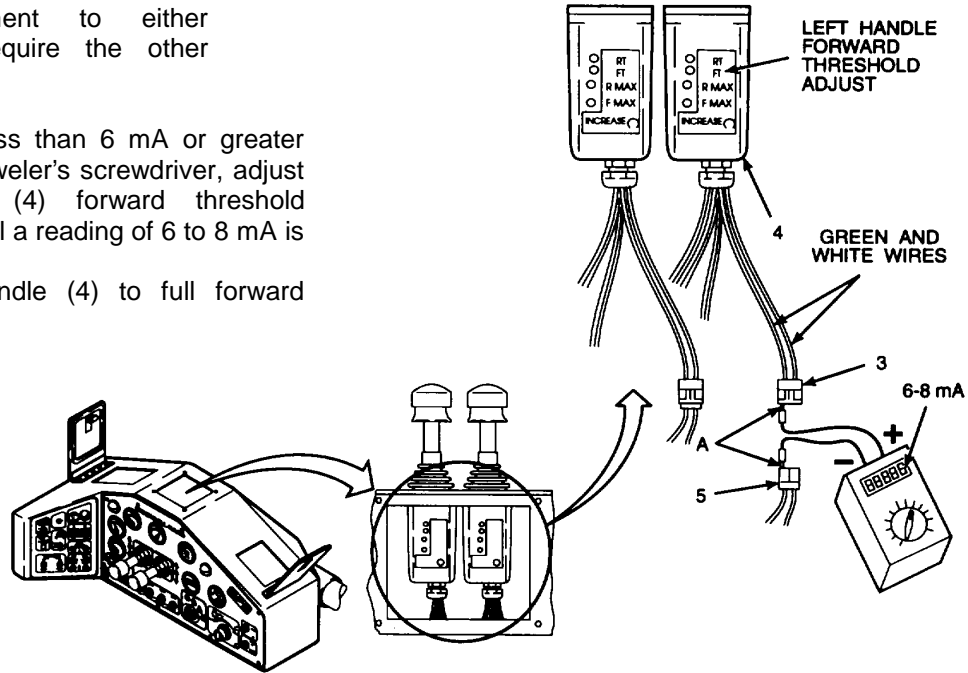
- A. CALIBRATE Continued.
 - b. Turn ignition switch to the ON position. Refer to TM 5-3895-373-10.
 - c. Set speed range switch to the down, "tortoise" pave position. Refer to TM 5-3895-373-10.
 - d. Set travel switch to the up, forward/reverse "F/R" position. Refer to TM 5-3895-373-10.
 - e. Disconnect electrical connector P31 (3) (green and white wires) on the left control handle (4) from electrical connector J31 (5).
 - f. Set digital multimeter for mA DC reading.
 - g. Insert digital multimeter positive lead into terminal A on electrical connector P31 (3).
 - h. Insert digital multimeter negative lead into terminal A on electrical connector J31 (5).
 - i. Move left control handle (4) 0.75 in. (19 mm) from neutral to forward position. Use a combination square and the top of the handle as references.
 - j. Digital multimeter should read 6 to 8 mA.



NOTE

The forward threshold potentiometer (FT) and the maximum forward threshold potentiometer interact on each other. An adjustment to either potentiometer will require the other setting to be checked.

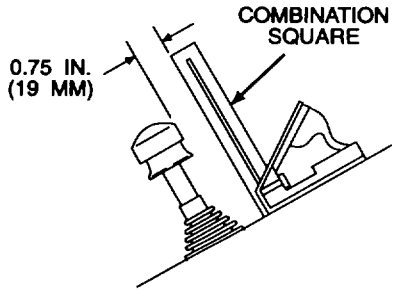
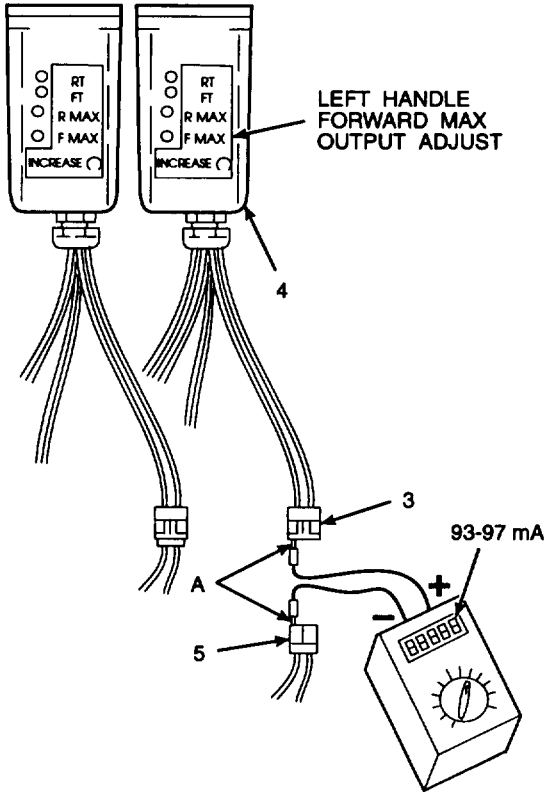
- k. If meter reading is less than 6 mA or greater than 8 mA, using a jeweler's screwdriver, adjust left control handle (4) forward threshold potentiometer (FT) until a reading of 6 to 8 mA is obtained.
- l. Move left control handle (4) to full forward position.



GO TO NEXT PAGE

A. CALIBRATE Continued.

- m. Digital multimeter should show an increasing output of 93 to 97 mA as left control handle (4) is moved away from center position.
- n. If meter reading is less than 93 mA or greater than 97 mA, using a jeweler's screwdriver, adjust left control handle (4) potentiometer (FMAX) until reading between 93 mA and 97 mA is obtained. To increase, turn adjustment screw clockwise. To decrease mA reading, turn adjustment screw counterclockwise.
- o. Return left control handle (4) back to the 0.75 in.(19 mm) position as in step j.
- p. Digital multimeter should read 6 to 8 mA.
- q. If meter reading is less than 6 mA or greater than 8 mA, using a jeweler's screwdriver, adjust left control handle (4) threshold potentiometer (FT). To increase, turn adjustment screw clockwise. To decrease mA reading, turn adjustment screw counterclockwise.
- r. If an adjustment is made, recheck full forward position.
- s. Return left control handle (4) to the center, neutral, position.
- t. Remove digital multimeter leads from left control handle (4) electrical connector P31 (3) and J31 (5) and connect the connectors.



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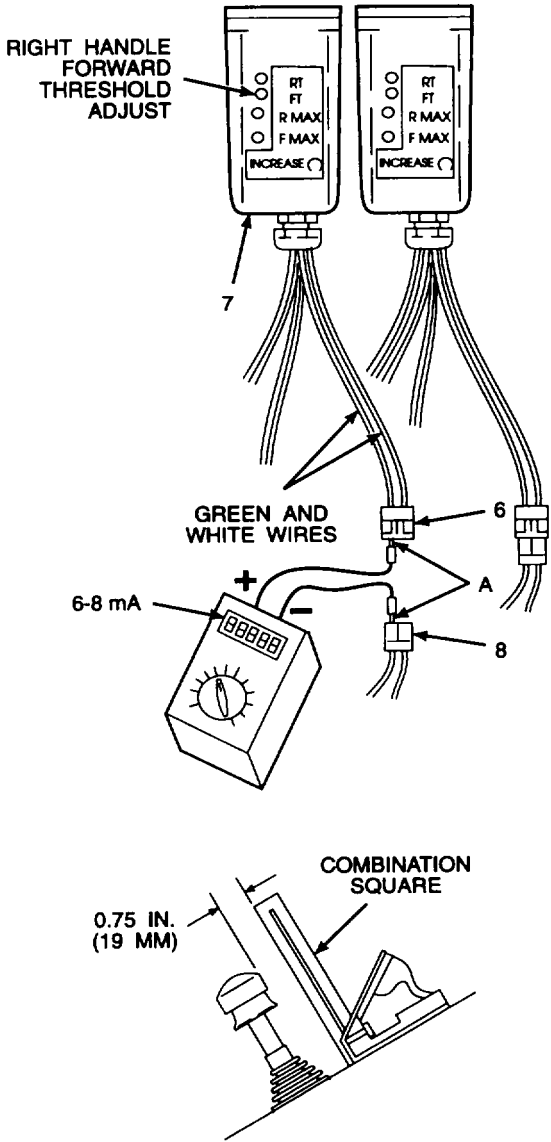
7.8. ADJUST/CALIBRATE CONTROL HANDLES - Continued.

- A. CALIBRATE Continued.
- 2. CALIBRATE RIGHT CONTROL HANDLE FORWARD THRESHOLD AND GAIN.
 - a. Disconnect electrical connector P34 (6) (green and white wires) on right control handle (7) from electrical connector J34 (8).
 - b. Insert digital multimeter positive lead into terminal A on electrical connector P34 (6).
 - c. Insert digital multimeter negative lead into terminal A on electrical connector J34 (8).
 - d. Move right control handle (7) 0.75 in. (19 mm) from center, neutral, to forward position. Use a combination square and the top of the handle as references.
 - e. Multimeter should read between 6 to 8 mA.

NOTE

The forward threshold potentiometer (FT) and the maximum forward threshold potentiometer interact on each other. An adjustment to either potentiometer will require the other setting to be checked.

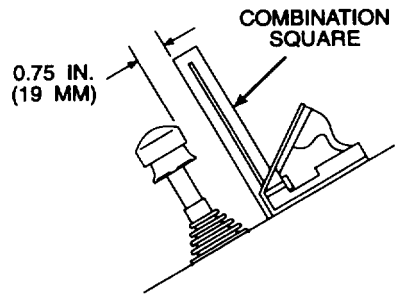
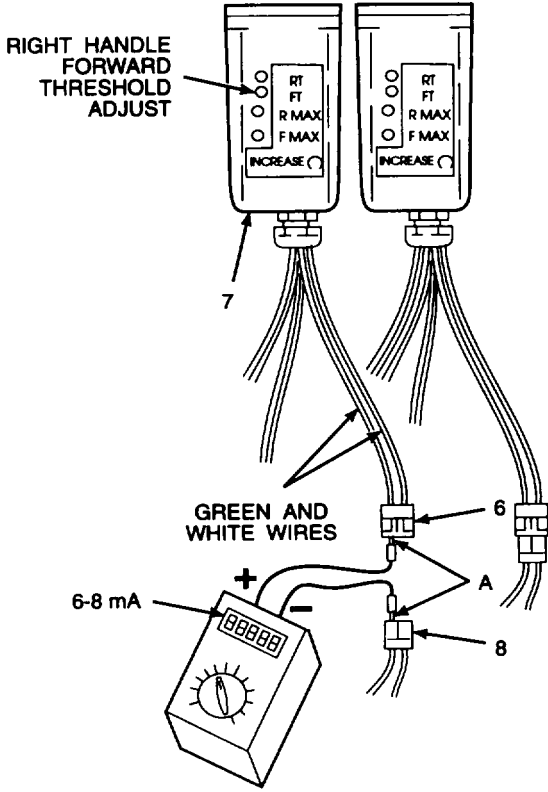
- f. If meter reading is less than 6 mA or greater than 8 mA, using a jeweler's screwdriver, adjust right control handle (7) threshold potentiometer (FT). To increase, turn adjustment screw clockwise. To decrease mA reading, turn adjustment screw counterclockwise.
- g. Move right control handle (7) to full forward position.



GO TO NEXT PAGE

A. CALIBRATE Continued.

- h. Digital multimeter should show an increasing output of 93 to 97 mA as right control handle (7) is moved away from center, neutral, position.
- i. If meter reading is less than 93 mA or greater than 97 mA, using a jeweler's screwdriver, adjust right control handle (7) potentiometer (FMAX) until reading between 93 mA and 97 mA is obtained. To increase, turn adjustment screw clockwise. To decrease mA reading, turn adjustment screw counterclockwise.
- j. Return right control handle (7) to the 0.75 in. (19 mm) position as in step d.
- k. Digital multimeter should read 6 to 8 mA.
- l. If meter reading is less than 6 mA or greater than 8 mA, using a jeweler's screwdriver, adjust control handle threshold potentiometer (FT) on right control handle (7). To increase, turn adjustment screw clockwise. To decrease mA reading, turn adjustment screw counterclockwise.
- m. Return right control handle (7) to the center, neutral, position.
- n. Remove digital multimeter leads from right control handle (7) electrical connector P34 (6) and J34 (8) and connect the connectors.



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7.8. ADJUST/CALIBRATE CONTROL HANDLES - Continued.

A. CALIBRATE - Continued.

3. CALIBRATE LEFT CONTROL HANDLE REVERSE THRESHOLD AND GAIN.

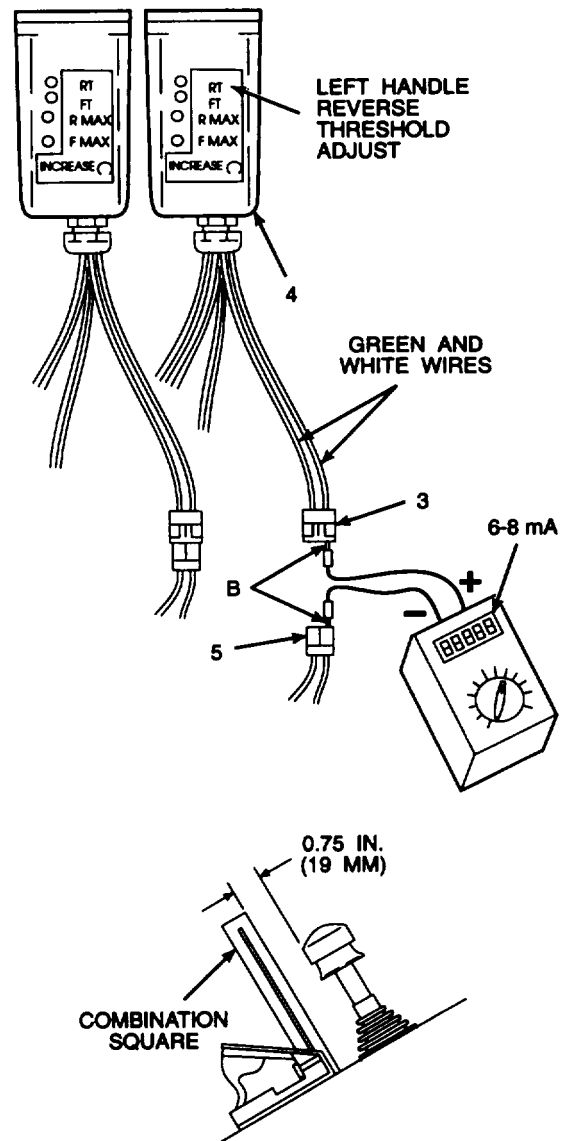
- a. Disconnect electrical connector P31 (3) green and white wires) on left control handle (4) from electrical connector J31 (5).
- b. Insert positive digital multimeter lead into terminal B on electrical connector P31 (3).
- c. Insert negative digital multimeter lead into terminal B on electrical connector J31 (5).
- d. Move left control handle (4) 0.75 in. (19 mm) from neutral to reverse position. Use a combination square and the top of the handle as references.
- e. Digital multimeter should read 6 to 8 mA.

NOTE

The forward threshold potentiometer (FT) and the maximum forward threshold potentiometer interact on each other. An adjustment to either potentiometer will require the other setting to be checked.

f. If meter reading is less than 6 mA or greater than 8 mA, using a jeweler's screwdriver, adjust left control handle (4) reverse threshold potentiometer (RT) until a reading of 6 to 8 mA is obtained. To increase mA reading, turn adjustment screw clockwise. To decrease mA reading, turn adjustment screw counter-clockwise.

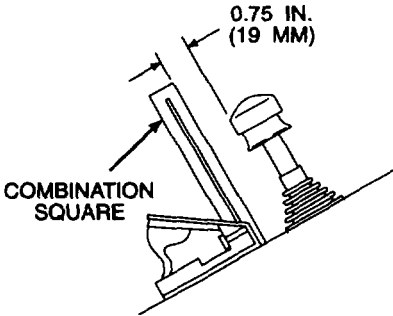
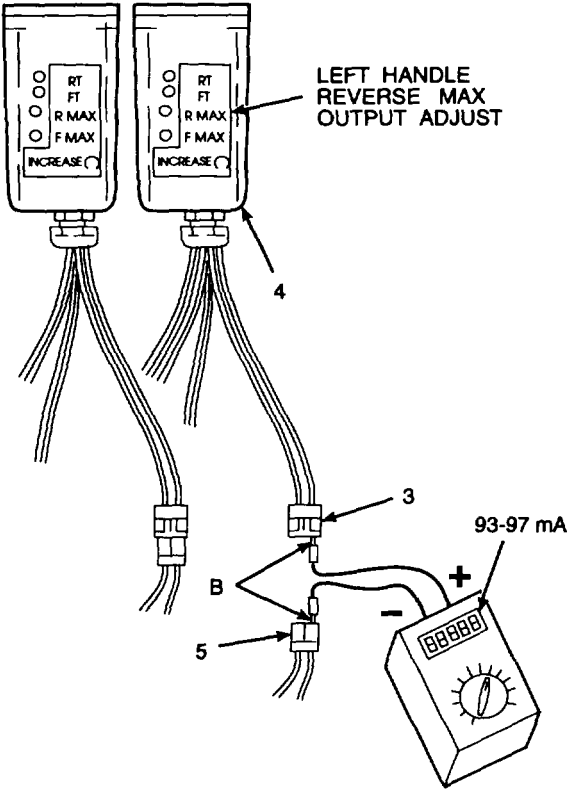
g. Move left control handle (4) to full reverse position.



GO TO NEXT PAGE

A. CALIBRATE Continued.

- h. Digital multimeter should show an increasing output of 93 to 97 mA as left control handle (4) is moved away from center position.
- i. If meter reading is less than 93 mA or greater than 97 mA, using a jeweler's screwdriver, adjust left control handle (4) potentiometer (RMAX) until reading between 93 mA and 97 mA is obtained. To increase, turn adjustment screw clockwise. To decrease mA reading, turn adjustment screw counterclockwise.
- j. Return left control handle (4) back to 0.75 in. (19 mm) position as in step d.
- k. Digital multimeter should read 6 to 8 mA.
- l. If meter reading is less than 6 mA or greater than 8 mA, using a jeweler's screwdriver, adjust left control handle (4) reverse threshold potentiometer (RT). To increase, turn adjustment screw clockwise. To decrease mA reading, turn adjustment screw counterclockwise.
- m. If an adjustment is made, recheck full reverse position.
- n. Return left control handle (4) to center, neutral, position.
- o. Remove digital multimeter leads from left control handle (4) electrical connector P31 (3) and J31 (5) and connect the connectors.



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7.8. ADJUST/CALIBRATE CONTROL HANDLES - Continued

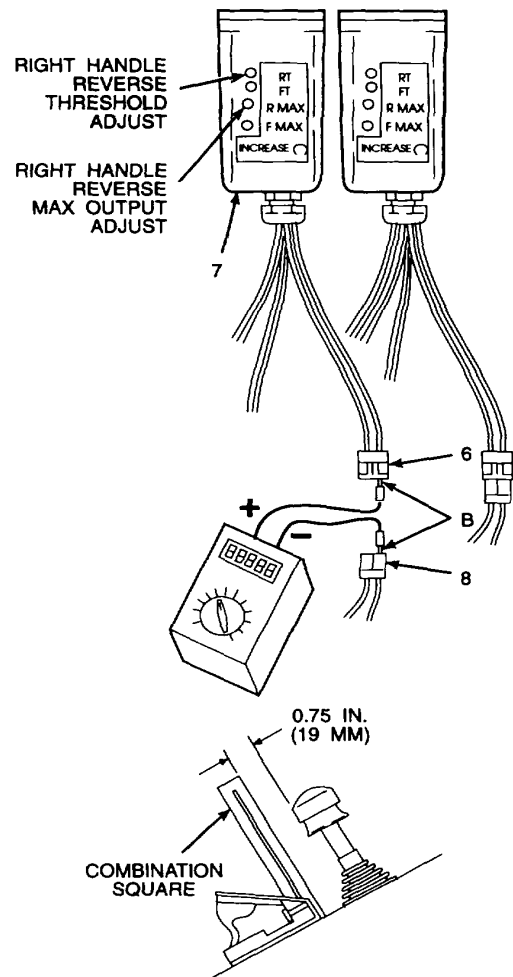
A. CALIBRATE Continued.
 4. CALIBRATE RIGHT CONTROL HANDLE REVERSE THRESHOLD AND GAIN.

- a. Disconnect electrical connector P34 (6) (green and white wires) on right control handle (7) from electrical connector J34 (8).
- b. Insert positive digital multimeter lead into right control handle (7) electrical connector P34 (6), terminal B.
- c. Insert negative digital multimeter lead into electrical connector J34 (8), terminal B.
- d. Move right control handle (7) 0.75 in. (19 mm) from neutral to reverse position. Use a combination square and the top of the handle as references.
- e. Digital multimeter should read between 6 to 8 mA.

NOTE

The forward threshold potentiometer (FT) and the maximum forward threshold potentiometer interact on each other. An adjustment to either potentiometer will require the other setting to be checked.

- f. If meter reading is less than 6 mA or greater than 8 mA, using a jeweler's screwdriver, adjust right control handle (7) reverse threshold potentiometer (RT). To increase, turn adjustment screw clockwise. To decrease mA reading, turn adjustment screw counterclockwise.
- g. Move right control handle (7) to full reverse position.
- h. Digital multimeter should show an increasing output of 93 to 97 mA as right control handle (7) is moved away from center position.
- i. If meter reading is less than 93 mA or greater than 97 mA, using a jeweler's screwdriver, adjust right control handle (7) potentiometer (RMAX) until reading between 93 mA and 97 mA is obtained. To increase, turn adjustment screw clockwise. To decrease mA reading, turn adjustment screw counterclockwise.
- j. Return right control handle (7) back to the 0.75 in. (19 mm) position as in step d.

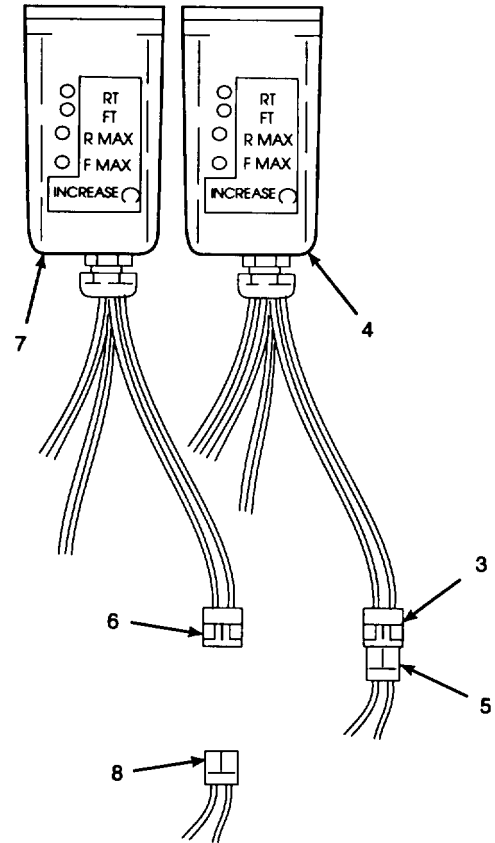


- k. Digital multimeter should read 6 to 8 mA.
- l. If meter reading is less than 6 mA or greater than 8 mA, using a jeweler's screwdriver, adjust right control handle (7) threshold potentiometer (RT). To increase, turn adjustment screw clockwise. To decrease mA reading, turn adjustment screw counterclockwise.
- m. If any adjustment is made, recheck the full reverse position.
- n. Return right control handle (7) to the center, neutral, position.
- o. Turn paving machine ignition to OFF when calibration is complete. Refer to TM 5-3895-373-10.

GO TO NEXT PAGE

A. CALIBRATE Continued.

- p. Remove digital multimeter leads from right control handle (7) and electrical connectors P34 (6) and J34 (8).
- q. Disconnect electrical connector P31 (3) (green and white wires) on left control handle (4) from electrical connector J31 (5).
- r. Apply electrical insulating compound to electrical connectors P31 (3) on left control handle (4) and P34 (6) on right control handle (7).
- s. Connect electrical connector P31 (3) to electrical connector J31 (5) and electrical connector P34 (6) to electrical connector J34 (8).



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7.8. ADJUST/CALIBRATE CONTROL HANDLES - Continued.

B. ADJUST.

1. ADJUST LEFT AND RIGHT CONTROL HANDLE FORWARD TRACKING.

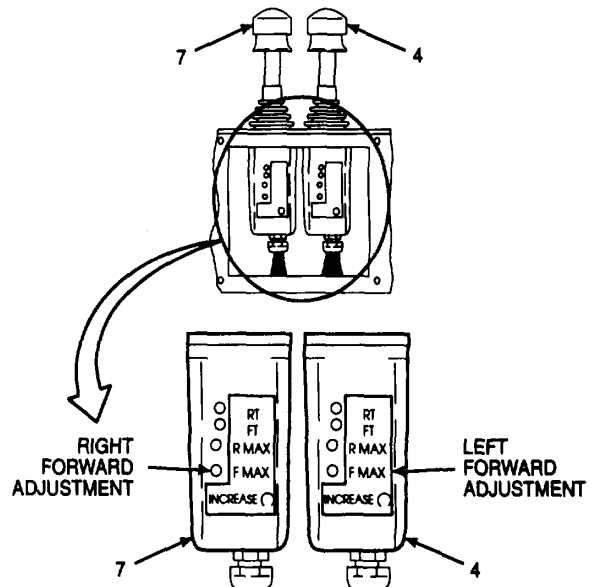
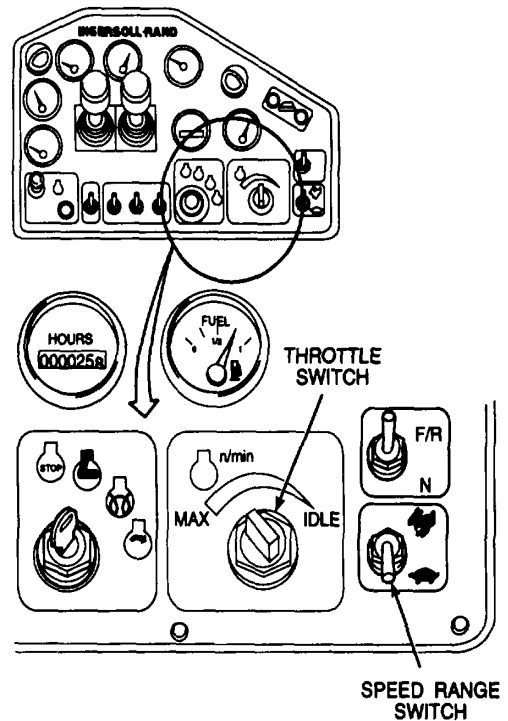
- a. Start paving machine engine. Refer to TM 5-3895-37310.
- b. Set throttle to left, "MAX" position. Ensure speed range switch is in the down, "tortoise" pave position.
- c. Drive paving machine until hydraulic oil temperature is 180°F (82°C).
- d. Ensure screed is fully raised per TM 5-3895-373-10.
- e. Move left and right control handles together to full forward position.
- f. Check to see if one track is moving slower or faster than the other one. Paving machine will veer to the right or left with both control handles in same position.
- g. Bring the paving machine to a stop by returning both control handles to the center, neutral, position.

NOTE

When adjusting FMAX potentiometers, speed of slower track must always be increased.

- h. Shut off engine and remove key from ignition switch per TM 5-3895-373-10.
- i. If left track is moving faster than the right track, adjust FMAX potentiometer clockwise on right control handle (7) to increase right track speed.
- j. If right track is moving faster than the left track, adjust FMAX potentiometer clockwise on left control handle (4) to increase left track speed.
- k. Start paving machine engine. Refer to TM 5-3895-37310.
1. Drive paving machine forward to ensure left and right track are moving together at the same speed when both control handles (4 and 7) are in the same position.

- m. Return control handles (4 and 7) to the center, neutral, position when adjustment is completed.



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B. ADJUST-Continued.

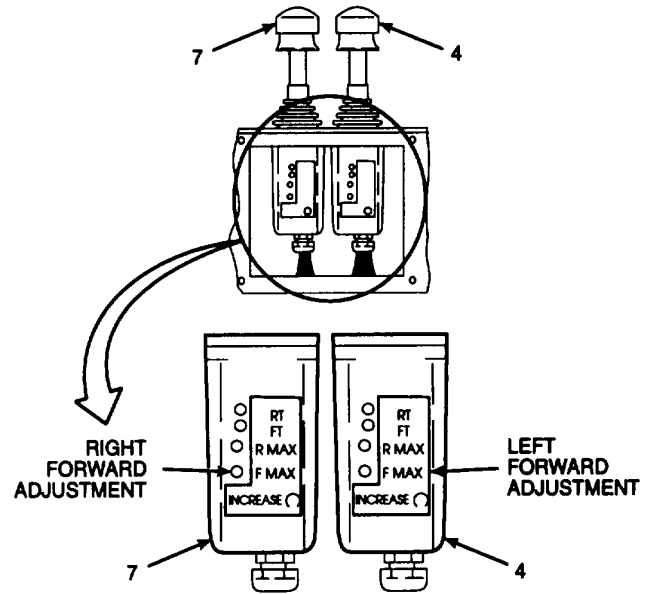
2. ADJUST LEFT AND RIGHT CONTROL HANDLE REVERSE TRACKING.

- a. Move left and right control handles (4 and 7) together to full reverse position.
- b. Check to see if one track is moving slower or faster than the other one. Paving machine will veer to the right or left with both control handles in same position.
- c. Bring the paving machine to a stop by returning both control handles to the center, neutral, position.

NOTE

When adjusting RMAX potentiometers, speed of slower track must always be increased.

- d. Shut off engine and remove key from ignition switch per TM 5-3895-373-10.
- e. If left track is moving faster than the right track, adjust RMAX potentiometer clockwise on right control handle (7) to increase right track speed.
- f. If right track is moving faster than the left track, adjust RMAX potentiometer clockwise on left control handle (4) to increase left track speed.
- g. Start paving machine. Refer to TM 5-3895-373-10.
- h. Drive paving machine in reverse to ensure left and right track are moving together at the same speed when both control handles (4 and 7) are in the same position.
- i. Return control handles (4 and 7) to the center, neutral, position and turn paving machine off when adjustment is complete. Refer to TM 5-3895-373-10.
- j. Recheck the forward adjustments.

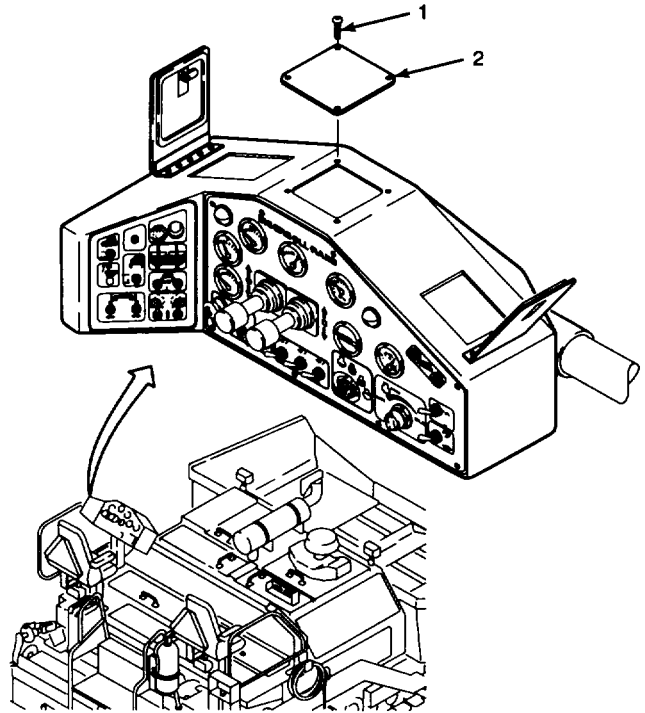


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7.8. ADJUST/CALIBRATE CONTROL HANDLES - Continued.

B. ADJUST - Continued.

- k. Install cover plate (2) and button head cap screws (1).

**NOTE**

FOLLOW-ON-TASKS: Close gauge panel left access door per TM 5-3895-373-10.
Close gauge panel right access door per TM 5-3895-373-10.

END OF TASK

7.9. REPAIR SWITCH PANEL ASSEMBLY.

This task covers: a. Remove b. Install

INITIAL SETUP

Tools:

General mechanic's automotive tool kit
 (Item 54, Appendix E)
 Jeweler's screwdriver set (Item 38, Appendix E)

References:

TM 5-3895-373-24P

Equipment Condition:

Switch panel removed from operator control console assembly per paragraph 7.6.

Materials/Parts:

Electrical insulating compound (Item 11, Appendix C)
 Electrical insulating varnish (Item 32, Appendix C)
 Tags (Item 27, Appendix C)
 Dust and moisture boots
 Lockwashers
 Panel seal washer
 Switches

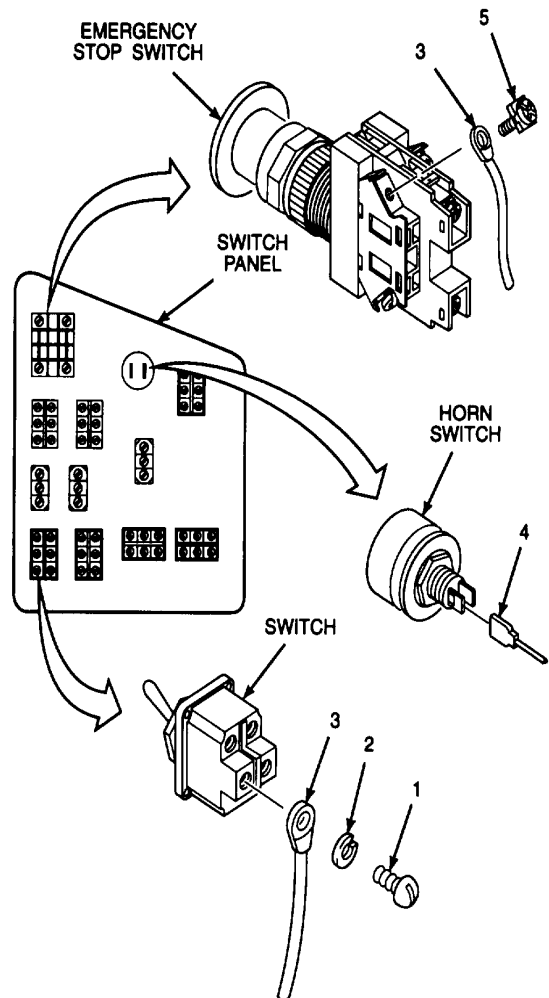
A. REMOVE.

1. TAG AND REMOVE RING TERMINALS AND LUG TERMINALS FROM SWITCH PANEL COMPONENTS.



Ensure wires and electrical connectors are tagged for reassembly. Paving machine functions will be affected by incorrect wiring installation.

- a. Tag all wires and connectors for reassembly.
- b. Remove terminal screws (1) and lockwashers (2) from switches using the jeweler's screwdriver set. Discard lockwashers.
- c. Remove ring terminals (3) from switches.
- d. Remove lug terminals (4) from horn switch.
- e. Remove terminal screws (5) and ring terminals (3) from emergency stop switch.



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7.9. REPAIR SWITCH PANEL ASSEMBLY - Continued.

A. REMOVE Continued.

2. REMOVE SWITCH PANEL SWITCHES AND HORN SWITCH FROM SWITCH PANEL.

- a. Remove switches (6 through 15) from switch panel (16) by removing hex nuts (17), lockwashers (18), and dust and moisture boots (19). Pull switches from rear of switch panel. Remove hex nuts (20). Discard lockwashers and dust and moisture boots. Refer to legend and illustration.
- b. Remove horn switch (21) from switch panel (16) by removing hex nut (22) and panel seal washer (23). Pull horn switch from front of switch panel. Discard panel seal washer. Refer to legend and illustration.

3. REMOVE AND DISASSEMBLE EMERGENCY STOP SWITCH.

- a. Unscrew and remove pushbutton (24), and bezel (25) from emergency stop switch (26).
- b. Pull emergency stop switch (26) from rear of switch panel (16) and remove bezel gasket (27).

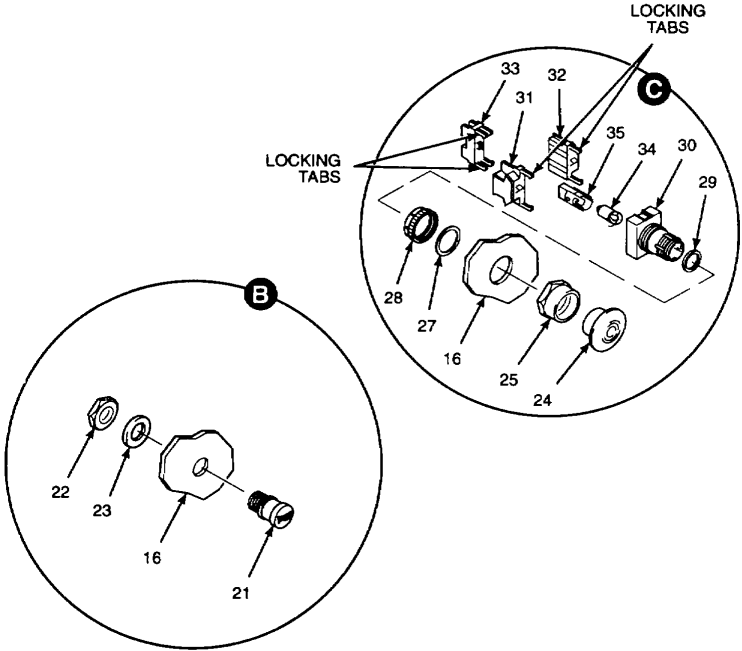
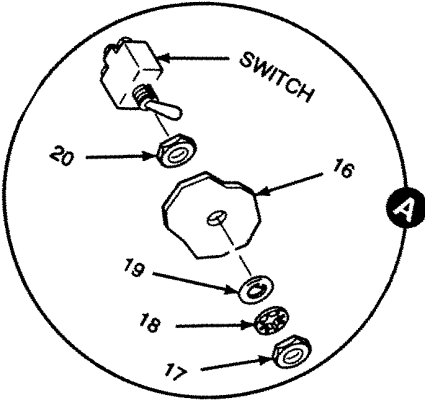
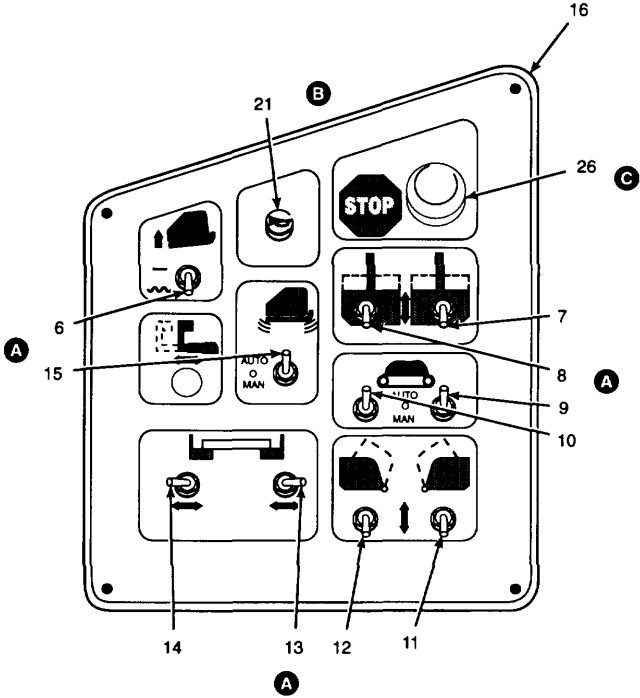
NOTE

If bezel gasket (27) requires replacement, replace entire operator switch (30). If bezel gasket is not discarded, retain for reassembly.

- c. Remove adjustment ring (28), and seal (29). Retain seal for reassembly.
- d. Pry apart locking tabs to separate operator switch (30), contact blocks (31 and 32), and voltage adapter (33).
- e. Remove lamp (34) from lampholder (35). Remove lampholder from contact blocks (31 and 32).
- f. Slide contact blocks (31 and 32) apart.

GO TO NEXT PAGE

- A. REMOVE - Continued.
- 6. Screed lift switch
- 7. RH flow gate switch
- 8. LH flow gate switch
- 9. RH auger/conveyor switch
- 10. LH auger/conveyor switch
- 11. RH hopper wing switch
- 12. LH hopper wing switch
- 13. RH extension screed control switch
- 14. LH extension screed control switch
- 15. Screed vibrator switch
- 16. Switch panel
- 17. Hex nut
- 18. Lockwasher
- 19. Dust and moisture boot
- 20. Hex nut
- 21. Horn switch
- 22. Hex nut
- 23. Panel seal washer
- 24. Pushbutton
- 25. Bezel
- 26. Emergency stop switch
- 27. Bezel gasket



- 28. Adjustment ring
- 29. Seal
- 30. Operator switch
- 31. Contact block
- 32. Contact block
- 33. Voltage adapter
- 34. Lamp
- 35. Lampholder

GO TO NEXT PAGE

7.9. REPAIR SWITCH PANEL ASSEMBLY - Continued.

- B. INSTALL.
1. ASSEMBLE AND INSTALL EMERGENCY STOP SWITCH.
 - a. Slide contact blocks (31 and 32) together and install lampholder (35) into contact blocks.
 - b. Install lamp (34) into lampholder (35).
 - c. Install voltage adapter (33) onto contact blocks (31 and 32).
 - d. Connect voltage adapter (33) and contact blocks (31 and 32) together with operator switch (30).
 - e. Install seal (29), adjustment ring (28), and bezel gasket (27) onto operator switch (30).
 - f. Install operator switch (30) into switch panel (16). Install bezel (25).
 - g. Back adjustment ring (28) to tighten emergency stop switch (26) against switch panel (16). Install pushbutton (24) and tighten. Refer to legend and illustration.
 2. INSTALL SWITCH PANEL SWITCHES AND HORN SWITCH ONTO SWITCH PANEL.
 - a. Install horn switch (21) through front of switch panel (16). Install panel seal washer (23) and hex nut (22). Tighten hex nut. Refer to legend and illustration.

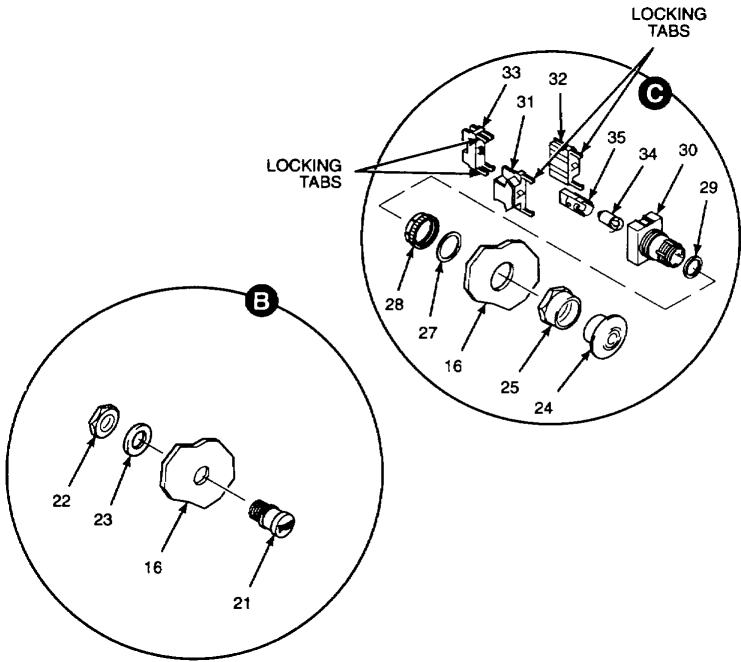
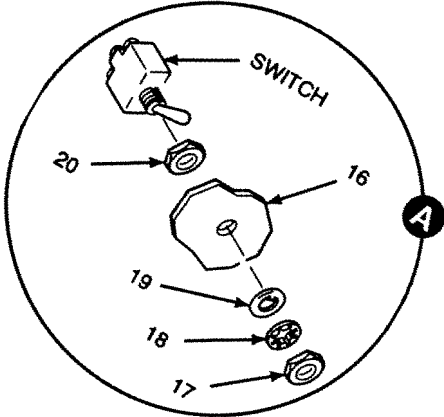
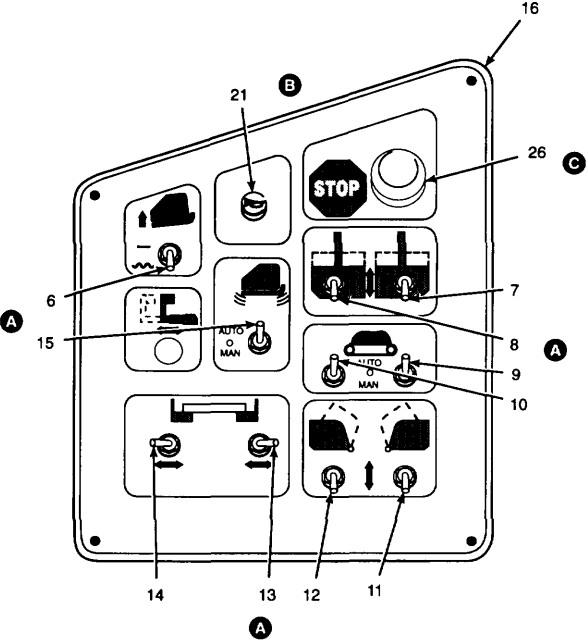
NOTE

Switch panel (16) has tabs for correct positioning of switches (6 through 15).

- b. Install hex nut (20). Install switches (15 through 6) through rear of switch panel (16). Install dust and moisture boot (19), lockwashers (18), and hex nuts (17). Refer to legend and illustration.

GO TO NEXT PAGE

- A. REMOVE - Continued.
- 6. Screed lift switch
- 7. RH flow gate switch
- 8. LH flow gate switch
- 9. RH auger/conveyor switch
- 10. LH auger/conveyor switch
- 11. RH hopper wing switch
- 12. LH hopper wing switch
- 13. RH extension screed control switch
- 14. LH extension screed control switch
- 15. Screed vibrator switch
- 16. Switch panel
- 17. Hex nut
- 18. Lockwasher
- 19. Dust and moisture boot
- 20. Hex nut
- 21. Horn switch
- 22. Hex nut
- 23. Panel seal washer
- 24. Pushbutton
- 25. Bezel
- 26. Emergency stop switch
- 27. Bezel gasket

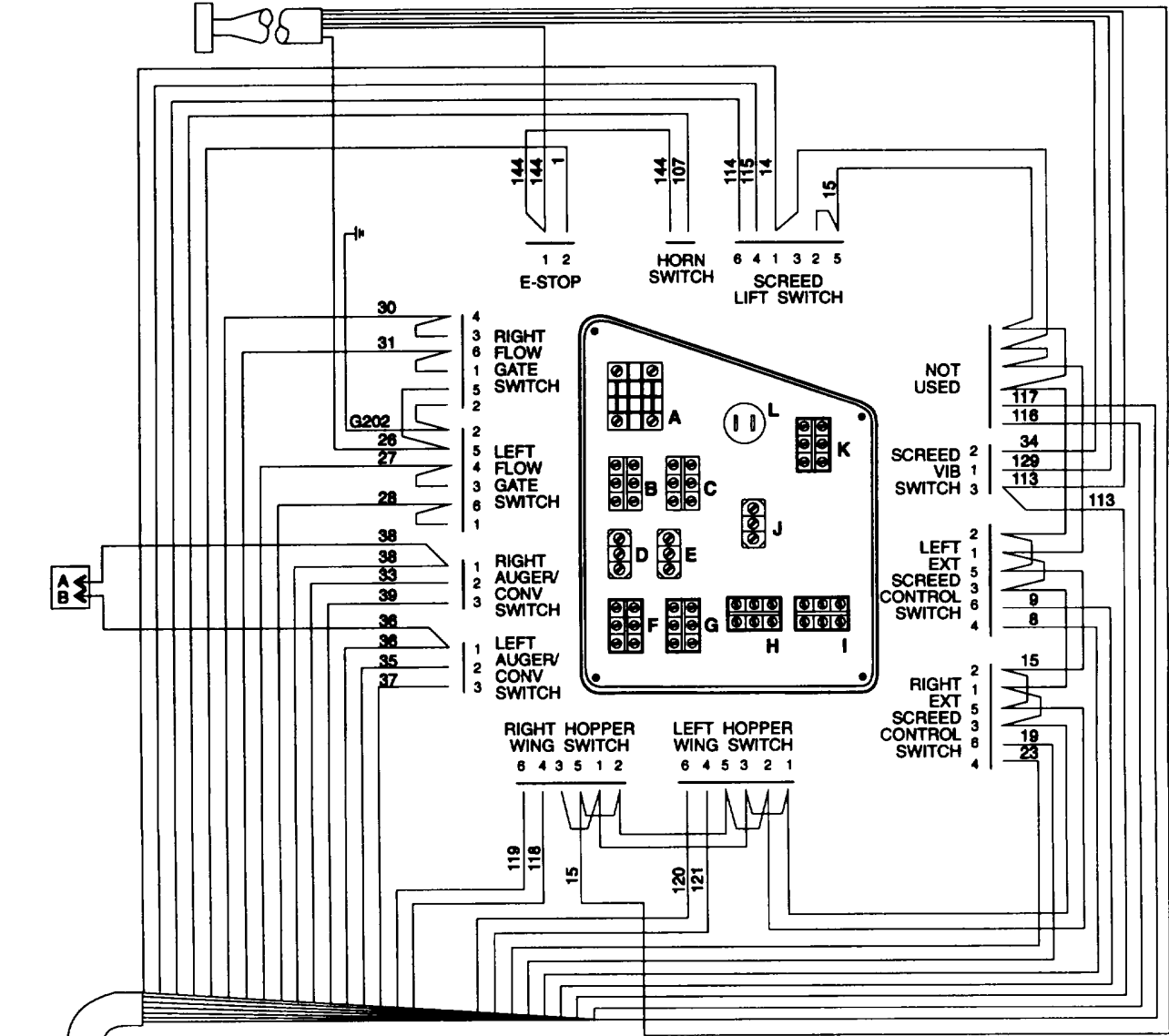


- 28. Adjustment ring
- 29. Seal
- 30. Operator switch
- 31. Contact block
- 32. Contact block
- 33. Voltage adapter
- 34. Lamp
- 35. Lampholder

GO TO NEXT PAGE

7.9. REPAIR SWITCH PANEL ASSEMBLY - Continued.

B. INSTALL - Continued.



- LEGEND**
- A. EMERGENCY STOP
 - B. RH FLOW GATE SWITCH
 - C. LH FLOW GATE SWITCH
 - D. RH AUGER/CONV SWITCH
 - E. LH AUGER/CONV SWITCH
 - F. RH HOPPER WING SWITCH
 - G. LH HOPPER WING SWITCH
 - H. RH EXT SCREED CONTROL SWITCH
 - I. LH EXT SCREED CONTROL SWITCH
 - J. SCREED VIBRATOR SWITCH
 - K. SCREED LIFT SWITCH
 - L. HORN SWITCH

GO TO NEXT PAGE

- B. INSTALL Continued.
3. INSTALL LUG TERMINALS AND RING TERMINALS ONTO SWITCH PANEL COMPONENTS.
- Install ring terminals (3) onto emergency stop switch. Secure ring terminals with terminal screws (5).
 - Apply electrical insulating compound to terminals on horn switch. Install lug terminals (4) onto horn switch.

NOTE

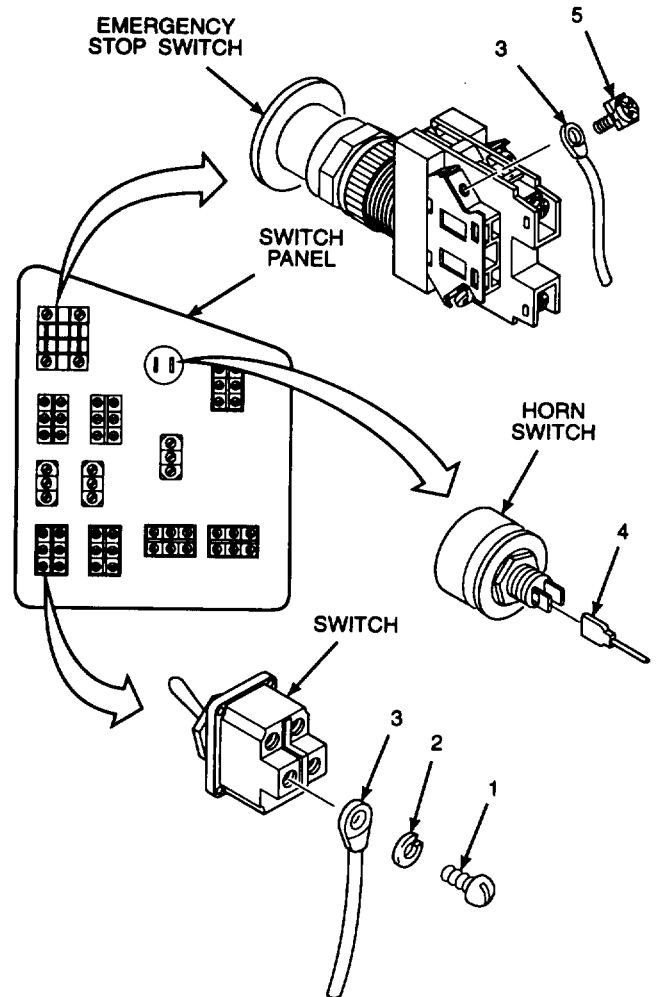
Wires for truck hitch (not used) are to be insulated from each other and taped together.

- Install ring terminals (3) onto switches. Install lockwashers (2) and terminal screws (1) onto switches using the jeweler's screwdriver set.

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well-ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- Apply electrical insulating varnish to ring terminals (3).



NOTE

FOLLOW-ON-TASK: Install switch panel onto operator control console assembly per paragraph 7.6.

END OF TASK

7.10. REPLACE/REPAIR RELAY AND CIRCUIT BREAKER ASSEMBLY.

This task covers: a. Disassemble b. Assemble

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)

References:

TM 5-3895-373-24P

Electrical connector repair kit
(Item 53, Appendix E)

Equipment Condition:

Relay and circuit breaker assembly removed from operator control console assembly per paragraph 7.6.

Materials/Parts:

Electrical insulating compound
(Item 11, Appendix C)

Buss bar female terminal

Circuit breaker holders

Circuit breakers

Holder legs

Quick disconnect terminal

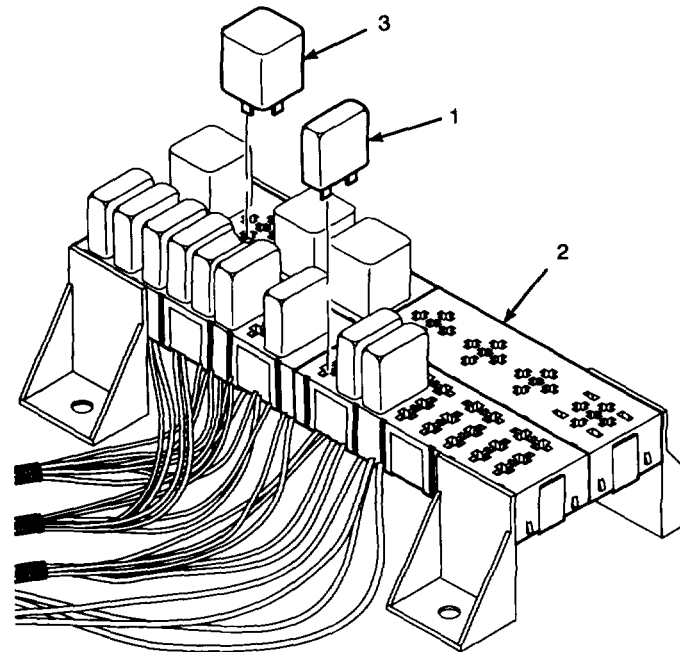
Relay holders

Relays

Secondary locks

A. DISASSEMBLE.**1. REMOVE CIRCUIT BREAKERS AND RELAYS FROM RELAY/CIRCUIT BREAKER HOLDER.**

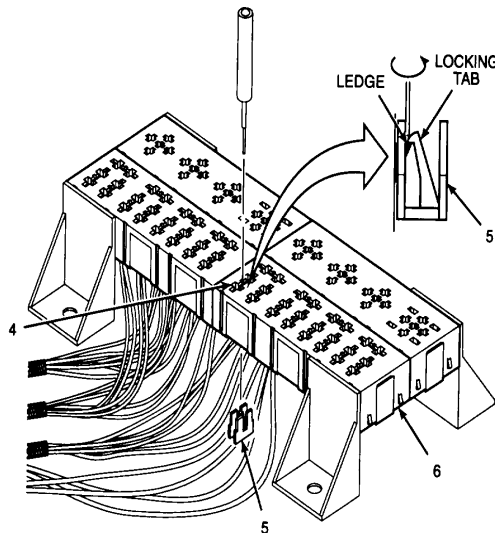
- a. Remove circuit breakers (1) by pulling each breaker from its terminal on relay/circuit breaker holder (2).
- b. Remove relays (3) by pulling each relay from its terminal on relay/circuit breaker holder (2).



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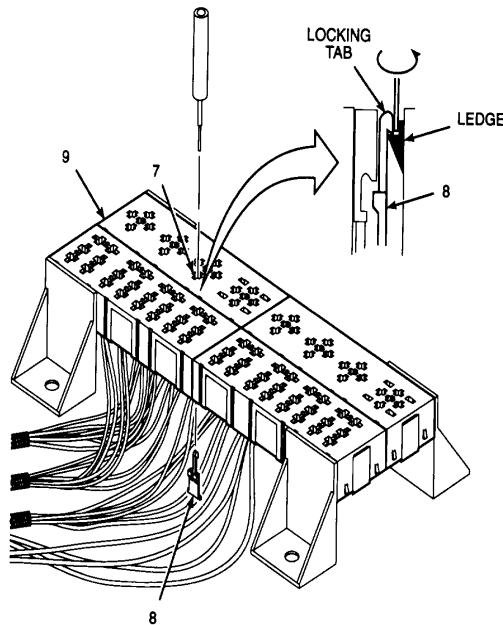
- A. DISASSEMBLE - Continued.
- 2. REMOVE SECONDARY LOCKS FROM CIRCUIT BREAKER TERMINALS.

- a. Insert flat-blade connector remover from electrical connector repair tool kit into circuit breaker terminal (4).
- b. Pry locking tab on secondary lock (5) from ledge inside circuit breaker terminal by twisting flat-blade connector removal tool toward center of the terminal.
- c. With locking tab free, pull secondary lock (5) from bottom of circuit breaker holder (6). Discard secondary lock.



- 3. REMOVE SECONDARY LOCKS FROM RELAY TERMINALS.

- a. Insert flat-blade connector removal tool into relay terminal (7).
- b. Pry locking tab on secondary lock (8) from ledge inside terminal by twisting the flat-blade connector removal tool toward center of relay terminal (7).
- c. With locking tab free pull secondary lock (8) from bottom of relay holder (9). Discard secondary lock.



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7.10. REPLACE/REPAIR RELAY AND CIRCUIT BREAKER ASSEMBLY - Continued.

- A. DISASSEMBLE - Continued.
- 4. REMOVE CIRCUIT BREAKER QUICK DISCONNECT TERMINALS AND BUSS BAR FEMALE TERMINALS FROM CIRCUIT BREAKER HOLDERS.
 - a. Insert two flat-blade connector removal tools into circuit breaker terminals (4).
 - b. Press in on circuit breaker quick disconnect terminal (10) locking tabs to unlock terminal from circuit breaker holder (6).
 - c. Pull circuit breaker quick disconnect terminals (10) from bottom of circuit breaker holder (6).

CAUTION

All six tabs must be released before attempting removal of buss bar female terminal. Do not attempt to remove buss bar female terminal without all six tabs released. Damage to buss bar female terminal may result from tabs not released prior to removal.

- d. Repeat procedures to remove buss bar female terminal (11) from bottom of circuit breaker holder (6).

- 5. REMOVE RELAY QUICK DISCONNECT TERMINALS FROM RELAY HOLDER.

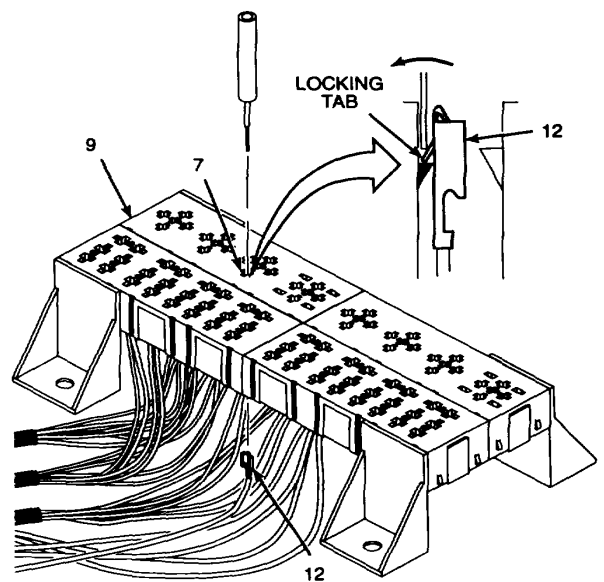
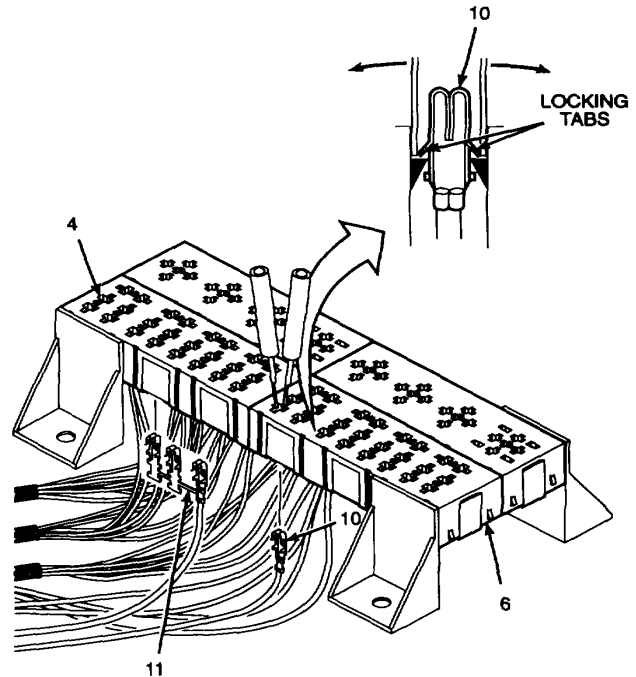
- a. Insert flat-blade electrical connector removal tool into relay terminal (7). Refer to illustration.
- b. Press in on relay quick disconnect terminal (12) locking tabs to unlock terminal from relay holder (9).
- c. Pull wire with relay quick disconnect terminals (12) from bottom of relay holder (9).

NOTE

Relay and circuit breaker assembly components cannot be repaired individually. Once components are assembled they cannot be taken

apart. Discard relay and circuit breaker assembly if defective.

- 6. DISCARD RELAY AND CIRCUIT BREAKER ASSEMBLY IF DEFECTIVE OR DAMAGED.



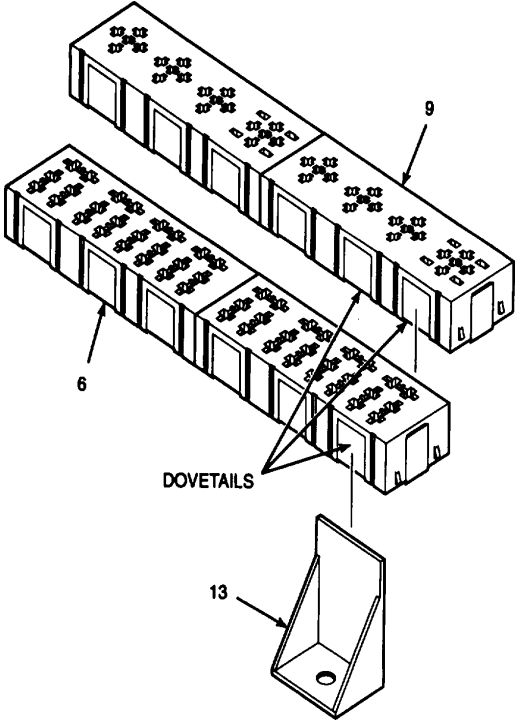
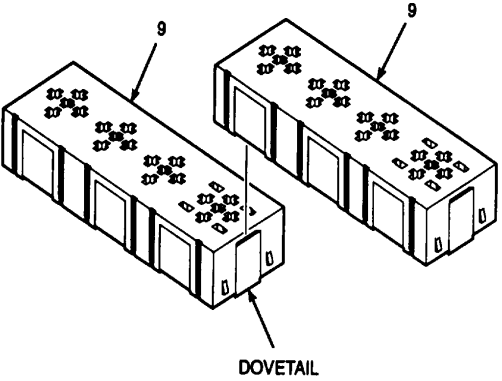
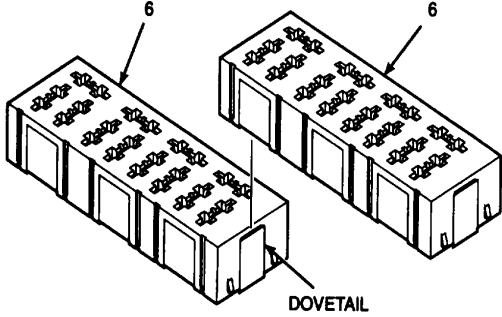
B. ASSEMBLE.

- 1. ASSEMBLE RELAY AND CIRCUIT BREAKER ASSEMBLY BY CONNECTING CIRCUIT BREAKER HOLDERS, RELAY HOLDERS, AND HOLDER LEG TOGETHER.

NOTE

Ensure the correct parts are being assembled together. Once parts are assembled they cannot be taken apart.

- a. Assemble circuit breaker holders (6) together by sliding mating dovetails together until an audible click is heard.
- b. Assemble relay holders (9) together by sliding mating dovetails together until an audible click is heard.
- c. Connect circuit breaker holders (6) together with assembled relay holders (9) by sliding mating dovetails together until an audible click is heard.
- d. Connect holder legs (13) to each corner of circuit breaker holders (6) and relay holders (9) by sliding mating dovetails together until an audible click is heard.



GO TO NEXT PAGE

7.10. REPLACE/REPAIR RELAY AND CIRCUIT BREAKER ASSEMBLY - Continued.

B. ASSEMBLE - Continued.

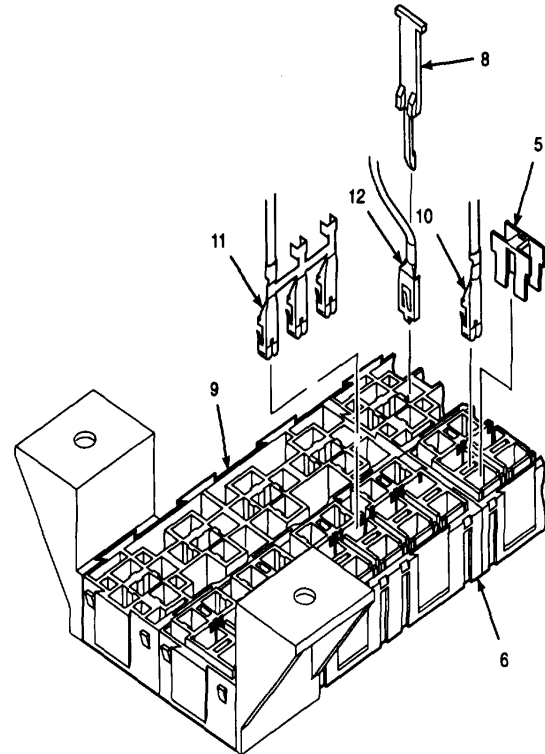
NOTE

Inspect all wire terminals and secondary locks to ensure locking tabs are present and not damaged.

2. INSTALL CIRCUIT BREAKER QUICK DISCONNECT TERMINALS, BUSS BAR FEMALE TERMINALS, AND RELAY QUICK DISCONNECT TERMINALS INTO RELAY/CIRCUIT BREAKER HOLDER. SECURE QUICK DISCONNECT TERMINALS IN PLACE WITH SECONDARY LOCKS.

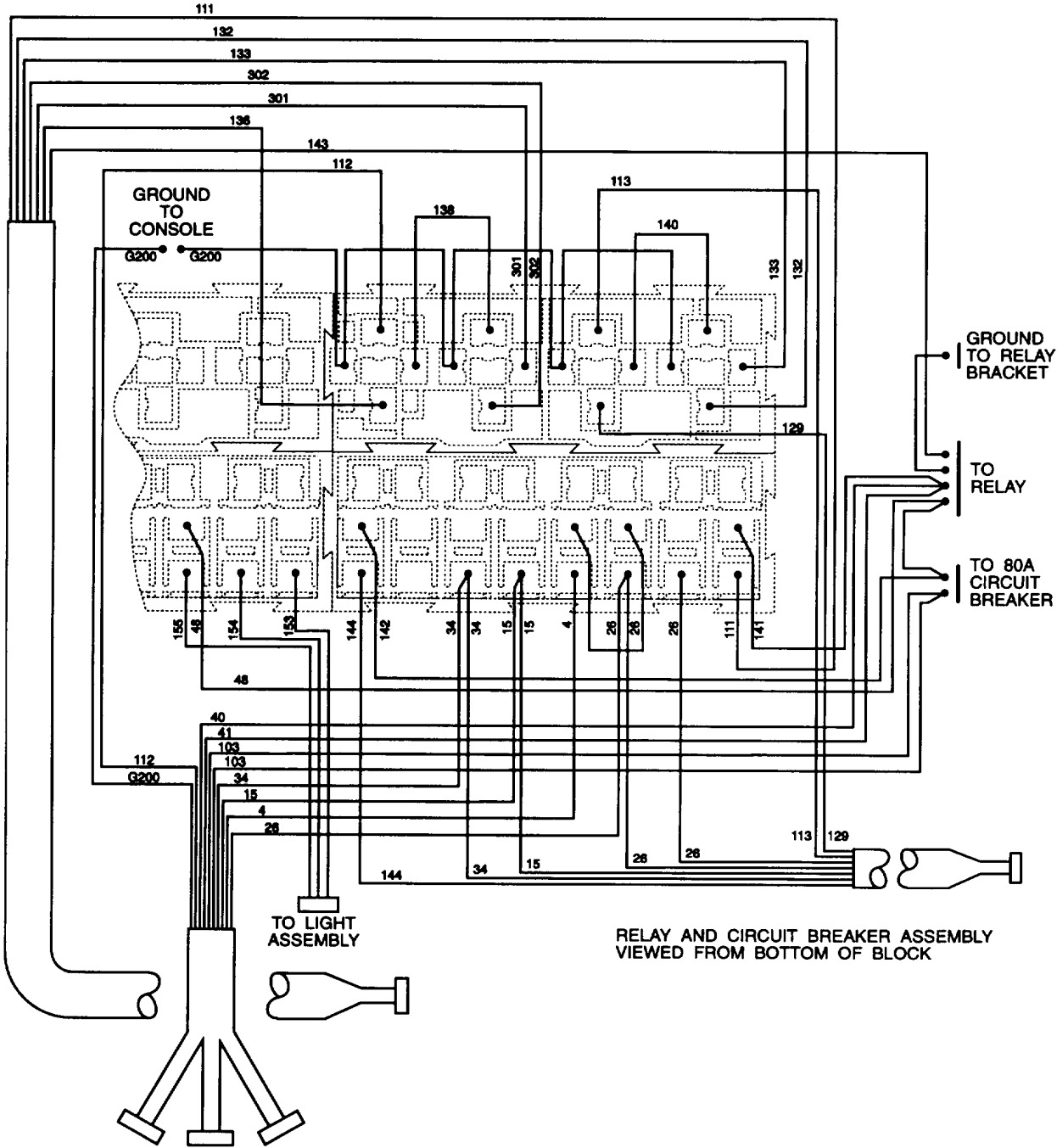
- a. Refer to wiring diagram and connect all circuit breaker quick disconnect terminals (10) and buss bar female terminals (11). Push each quick disconnect terminal and buss bar female terminal into terminal cavities until an audible click is heard.
- b. Refer to wiring diagram and connect all relay quick disconnect terminals (12). Push each relay quick disconnect terminal into terminal cavities until an audible click is heard.
- c. Install secondary locks (5) into circuit breaker cavities. Push secondary locks up from the bottom of circuit breaker holder (6) until an audible click is heard.

- d. Install secondary locks (8) into relay cavities. Push secondary locks up from the bottom of relay holder (9) until an audible click is heard.



GO TO NEXT PAGE

B. ASSEMBLE - Continued.



GO TO NEXT PAGE

7.10. REPLACE/REPAIR RELAY AND CIRCUIT BREAKER ASSEMBLY - Continued.

B. ASSEMBLE - Continued.

- e. Apply electrical insulating compound to relay/circuit breaker holder (2), circuit breakers (1), and relays (3).

NOTE

Relays are all alike and are interchangeable on relay panel.

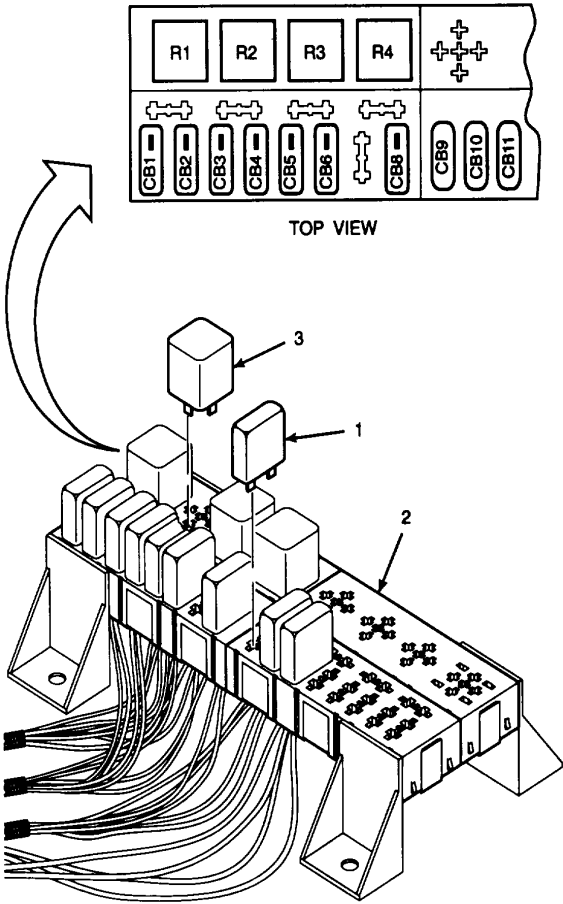
- f. Install relays (3) into relay/circuit breaker holder (2).

NOTE

Circuit breakers CB1 through CB8 are alike and CB9 through CB 11 are alike.

- g. Refer to table below and illustration and install circuit breakers (1) into relay/circuit breaker holder (2).

CIRCUIT BREAKER	VALUE (AMPS)
CB1	15
CB2	20
CB3	20
CB4	10
CB5	15
CB6	10
CB8	15
CB9	15
CB01	15
CB11	15



NOTE

FOLLOW-ON-TASK: Install relay and circuit breaker assembly per paragraph 7.6.

END OF TASK

7.11. REPLACE/REPAIR VOLTAGE TRANSFORMER.

This task covers:

a. Disconnect	b. Repair	c. Remove
d. Install	e. Connect	

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Crowfoot wrench (Item 60, Appendix E)
Hex head driver socket (Item 45, Appendix E)
Socket wrench set (Item 70, Appendix E)
Torque wrench, 0 to 300 lb-ft (0 to 407 N•m)
(Item 66, Appendix E)
Torque wrench, 5 to 150 lb-in (0,6 to 17 N•m)
(Item 69, Appendix E)

Materials/Parts:

Electrical insulating varnish (Item 32, Appendix C)
Tags (Item 27, Appendix C)
Thread locking compound (Item 13, Appendix C)
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Fuse covers
Lockwashers
Stamped fuses
Voltage transformer

Personnel Required:

Two 62B construction equipment repairers. Second person needed to support voltage transformer during removal and installation.

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Rear top left access door open per TM 5-3895-373-10.
Left access cover removed per TM 5-3895-373-10.

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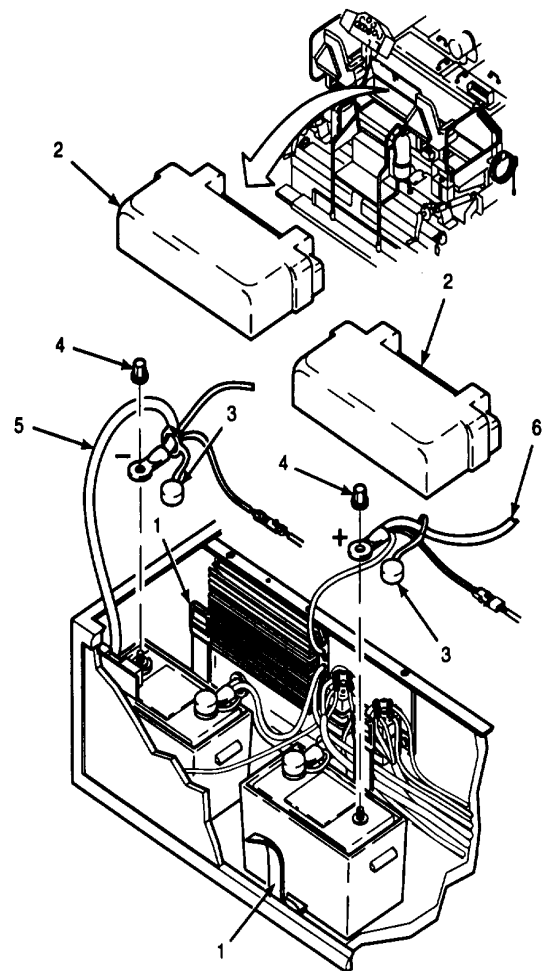
7.11. REPLACE/REPAIR VOLTAGE TRANSFORMER - Continued.

A. DISCONNECT.

WARNING

When disconnecting batteries, disconnect negative battery cable before disconnecting positive battery cable. Failure to disconnect batteries in the proper sequence may lead to electrical shock or short circuit and result in severe personnel injury.

1. UNBUCKLE BATTERY BOX HOLDDOWN STRAPS (1) AND REMOVE BATTERY BOX COVERS (2).
2. LIFT RUBBER BATTERY TERMINAL CAPS (3) FROM BATTERY TERMINALS.
3. REMOVE BATTERY NUT (4) AND NEGATIVE BATTERY CABLE (5) FROM OUTBOARD BATTERY.
4. REMOVE BATTERY NUT (4) AND POSITIVE BATTERY CABLE (6) FROM INBOARD BATTERY.



GO TO NEXT PAGE

B. REPAIR.

1. REMOVE ELECTRICAL CONNECTIONS.



Ensure terminal studs are not loosened during hex nut removal. If studs are loosened, ensure they are hand tightened only. Damage to the voltage transformer may occur if the studs are overtightened.

NOTE

It may be necessary to hold jam nuts with a backup wrench to allow removal of hex nuts, and to ensure studs are not loosened.

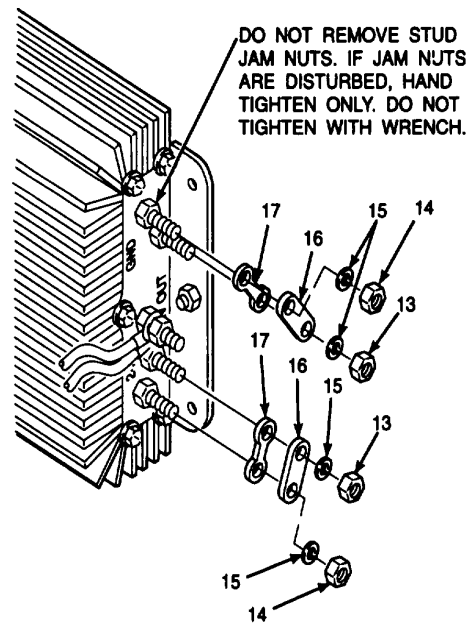
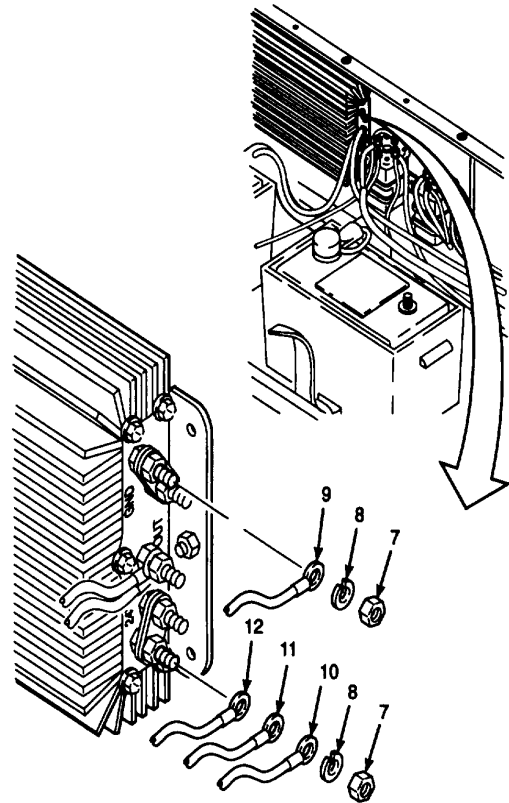
- a. Remove hex nuts (7) and lockwashers (8) from voltage transformer ground and 24 V terminals. Discard lockwashers.
- b. Tag and remove wire terminal G200 (9) from voltage transformer ground terminal.
- c. Tag and remove wire terminal 167 (10), wire terminal 160 (11), and wire terminal 161 (12) from voltage transformer 24 V terminal.

2. REMOVE FUSES.

- a. Use a backup wrench and remove hex nuts (13), hex nuts (14), and flat washers (15).
- b. Remove and discard fuse covers (16) and stamped fuses (17).

3. INSTALL FUSES.

- a. Install fuses (17) and fuse covers (16).
- b. Use a backup wrench and install flat washers (15), hex nuts (13), and hex nuts (14). Using crowfoot wrench, tighten hex nuts to 100 lb-in (11 N•m).



GO TO NEXT PAGE

7.11. REPLACE/REPAIR VOLTAGE TRANSFORMER - Continued.

- B. REPAIR - Continued.
- 4. INSTALL ELECTRICAL CONNECTIONS.
 - a. Reconnect wire terminal 161 (12), wire terminal 160 (11), and wire terminal 167 (10) to voltage transformer 24 V terminal.
 - b. Reconnect wire terminal G200 (9) to voltage transformer ground terminal.

CAUTION

Do not overtighten nuts installed on terminal studs. Overtightening can cause the stud to turn and cause internal damage to the voltage transformer.

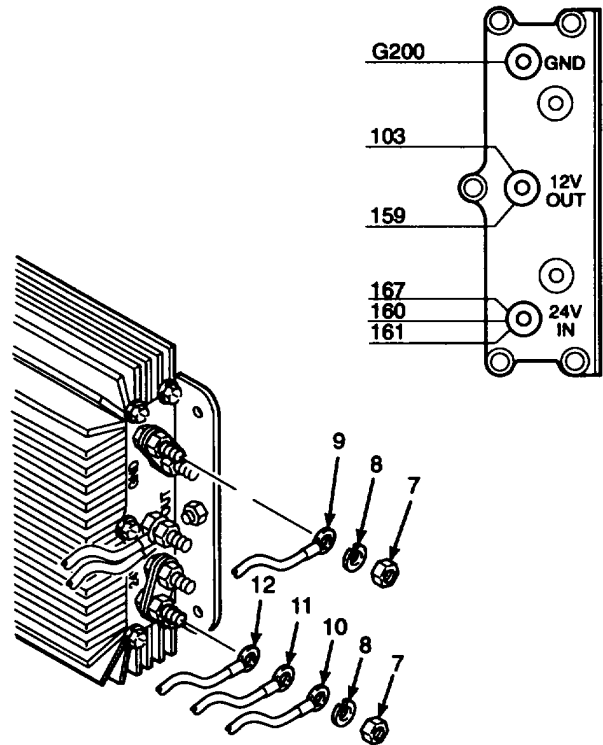
- c. Use a backup wrench and install lockwashers (8) and hex nuts (7) on voltage transformer ground and 24 V terminals. Using crowfoot wrench, tighten hex nuts to 100 lb-in (11 N•m).

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy

during use, get immediate medical attention.

- d. Apply electrical insulating varnish to voltage transformer ground and 24 V terminals.



GO TO NEXT PAGE

- C. REMOVE.
- 1. REMOVE ELECTRICAL CONNECTIONS.

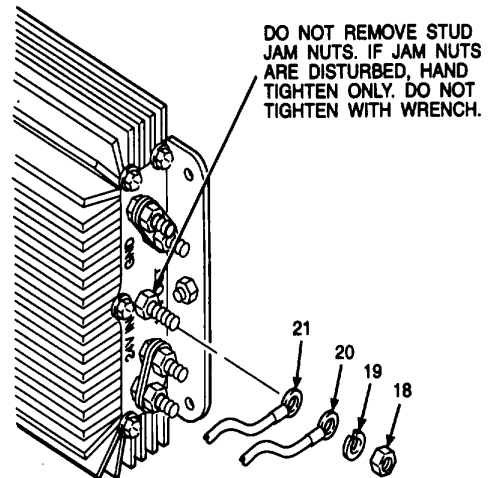
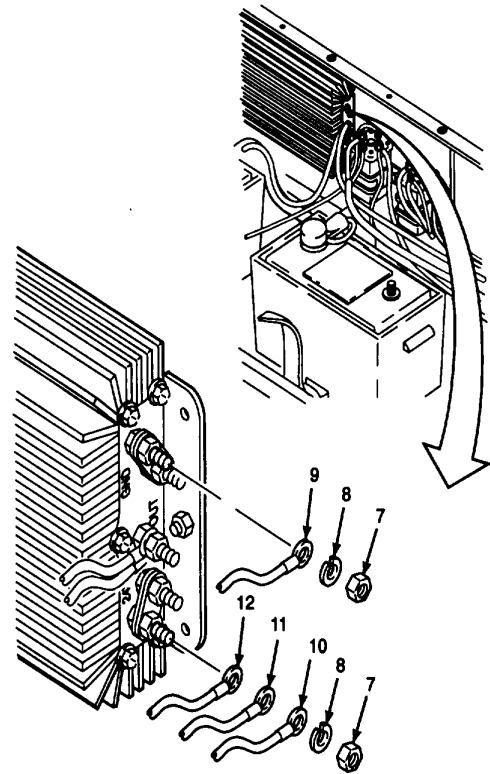
CAUTION

Ensure terminal studs are not loosened during hex nut removal. If studs are loosened, ensure they are hand tightened only. Damage to the voltage transformer may occur if the studs are overtightened.

NOTE

It may be necessary to hold jam nuts with a backup wrench to allow removal of hex nuts, and to ensure studs are not loosened.

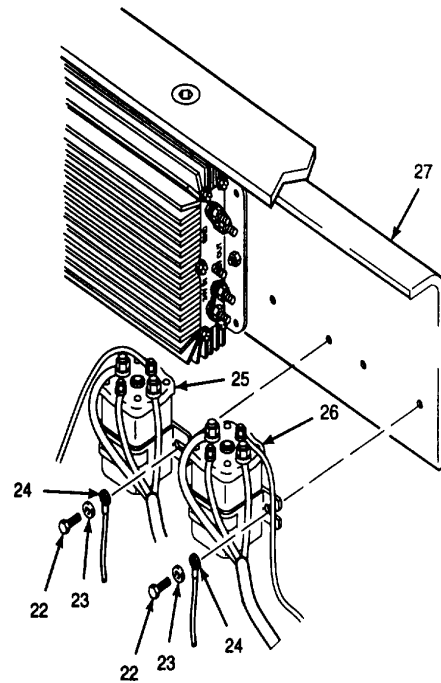
- a. Use a backup wrench and remove hex nuts (7) and lockwashers (8) from voltage transformer ground and 24 V terminals. Discard lockwashers.
- b. Tag and remove wire terminal G200 (9) from voltage transformer ground terminal.
- c. Tag and remove wire terminal 167 (10), wire terminal 160 (11), and wire terminal 161 (12) from voltage transformer 24 V terminal.
- d. Remove hex nut (18) and lockwasher (19) from voltage transformer 12 V terminal. Discard lockwasher.
- e. Tag and remove wire terminals 103 and 159 (20 and 21) from voltage transformer 12 V terminal.



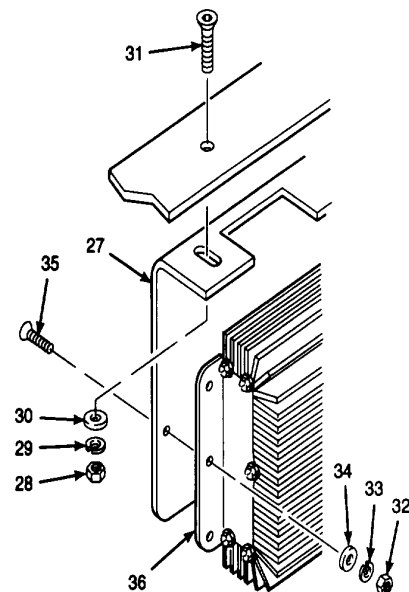
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7.11. REPLACE/REPAIR VOLTAGE TRANSFORMER - Continued.

- C. REMOVE - Continued.
- 2. REMOVE RELAYS.
 - a. Remove hex head cap screws (22), flat washers (23), and ground wire terminals (24). Tag wires.
 - b. Remove start relay (25) and induction heater relay (26) from transformer panel (27). Be careful not to damage wiring.



- 3. REMOVE VOLTAGE TRANSFORMER.
 - a. With the help of another person to support transformer panel (27), remove hex nuts (28), lockwashers (29), flat washers (30), and socket head cap screws (31). Discard lockwashers.
 - b. Remove transformer panel (27) from paving machine.
 - c. Remove hex nuts (32), lockwashers (33), flat washers (34), and socket head cap screws (35). Discard lockwashers.
 - d. Remove voltage transformer (36) from transformer panel (27).



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D. INSTALL.

1. INSTALL VOLTAGE TRANSFORMER.

WARNING

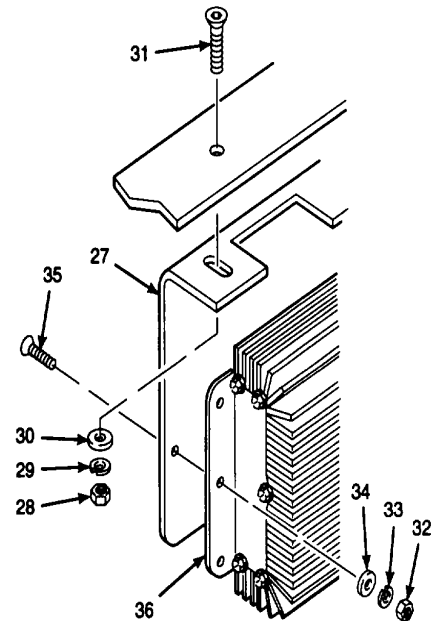
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean threads of socket head cap screws (31 and 35) with thread locking compound solvent.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- b. Apply thread locking compound (Item 13, Appendix C) to threads of socket head cap screws (35).
- c. Install voltage transformer (36) onto transformer panel (27).
- d. Install socket head cap screws (35), flat washer (34), lockwashers (33), and hex nuts (32).
- e. Tighten hex nuts (32) to 9 lb-ft (12 N-m).
- f. Apply thread locking compound (Item 12, Appendix C) to threads of socket head cap screws (31).
- g. With the help of another person, install transformer panel (27) into paving machine and secure with socket head cap screws (31), flat washers (30), lockwashers (29), and hex nuts (28).
- h. Using hex head driver socket, tighten socket head cap screws (31) to 37 lb-ft (50 N•m).



GO TO NEXT PAGE

7.11. REPLACE/REPAIR VOLTAGE TRANSFORMER - Continued.

D. INSTALL - Continued.

2. INSTALL ELECTRICAL CONNECTIONS.

- a. Reconnect wire terminals 103 and 159 (20 and 21) to voltage transformer 12 V terminal.



Do not overtighten nuts installed on terminal studs. Overtightening can cause the stud to turn and cause internal damage to the voltage transformer.

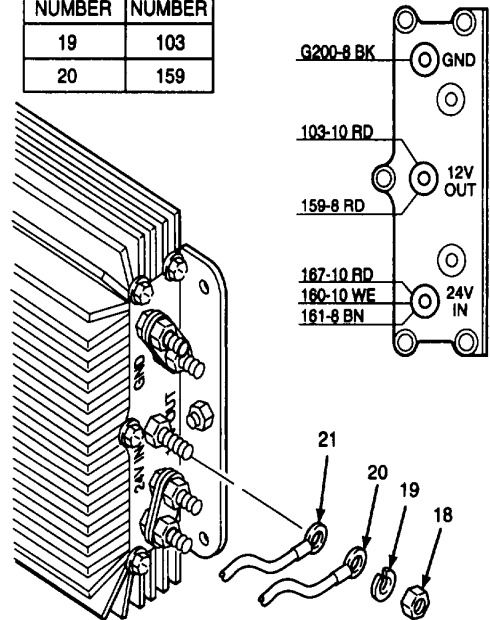
- b. Use a backup wrench and install lockwasher (19) and hex nut (18) on voltage transformer 12 V terminal. Using crowfoot wrench, tighten hex nut to 100 lb-in (11 N•m).
- c. Reconnect wire terminal 161 (12), wire terminal 160 (11), and wire terminal 167 (10) to voltage transformer 24 V terminal.
- d. Install lockwasher (8) and hex nut (7) in voltage transformer 24 V terminal. Using crowfoot wrench, tighten hex nut to 100 lb-in (11 N m).
- e. Reconnect wire terminal G200 (9) to voltage transformer ground terminal.
- f. Install lockwasher (8) and hex nut (7) on voltage transformer ground terminal. Using crowfoot wrench, tighten hex nut to 100 lb-in (11 N•m).



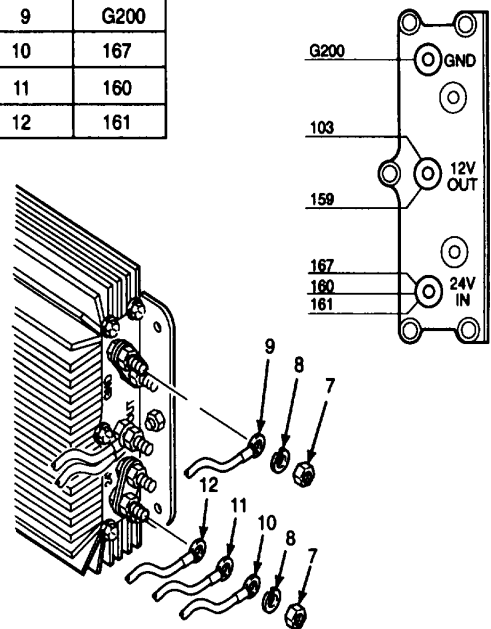
Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- g. Coat all terminals and hex nuts with electrical insulating varnish.

INDEX NUMBER	WIRE NUMBER
19	103
20	159



INDEX NUMBER	WIRE NUMBER
9	G200
10	167
11	160
12	161



GO TO NEXT PAGE

D. INSTALL - Continued.

3. INSTALL RELAYS.

WARNING

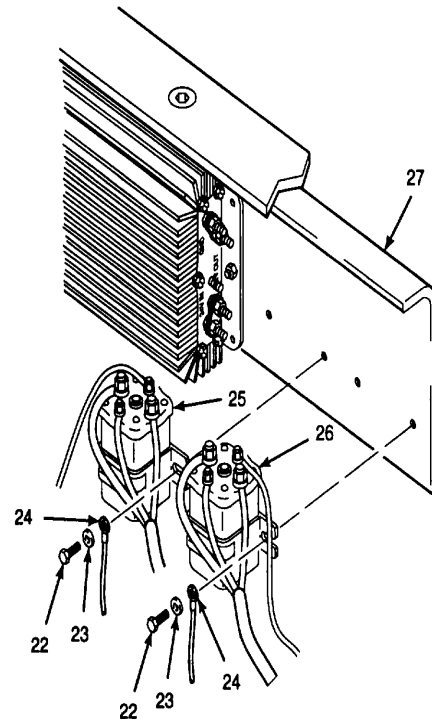
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean threads of hex head cap screws (22) with thread locking compound solvent.
- b. Install flat washer (23) and ground wire terminal (24) on hex head cap screw (22).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- c. Apply thread locking compound (Item 13, Appendix C) to threads of hex head cap screws (22).
- d. Install start relay (25) and induction heater relay (26) onto transformer panel (27) and secure with hex head cap screws (22).
- e. Tighten hex head cap screws (22) to 9 lb-ft (12 N•m).



NOTE: VOLTAGE TRANSFORMER WIRING IS CONNECTED BUT NOT SHOWN FOR CLARITY.

GO TO NEXT PAGE

7.11. REPLACE/REPAIR VOLTAGE TRANSFORMER - Continued.

E. CONNECT.

WARNING

When connecting batteries, connect positive battery cable before connecting negative battery cable. Failure to connect batteries in the proper sequence may lead to electrical shock or short circuit and result in severe personnel injury.

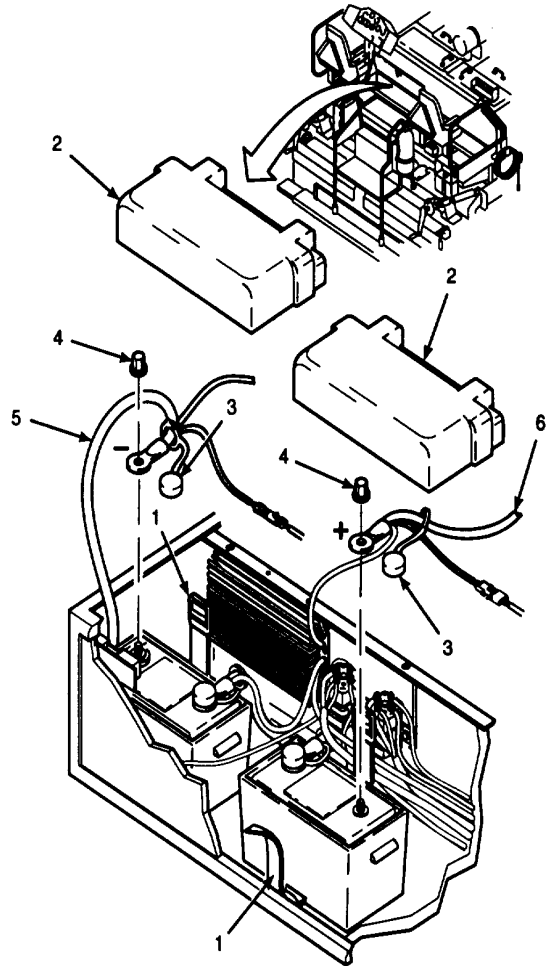
1. RECONNECT POSITIVE BATTERY CABLE (6) AND BATTERY NUT (4) TO POSITIVE TERMINAL OF INBOARD BATTERY.
2. RECONNECT NEGATIVE BATTERY CABLE (5) AND BATTERY NUT (4) TO NEGATIVE TERMINAL OF OUTBOARD BATTERY.

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

3. APPLY ELECTRICAL INSULATING VARNISH TO BATTERY TERMINALS.
4. INSTALL RUBBER BATTERY TERMINAL CAPS (3) ONTO BATTERY TERMINALS.

5. INSTALL BATTERY BOX COVERS (2) AND BUCKLE BATTERY BOX HOLDDOWN STRAPS (1).



NOTE

FOLLOW-ON-TASKS: Close rear top left access door per TM 5-3895-373-10.
Install left access cover per TM 5-3895-373-10.

END OF TASK

7.12. REPLACE/REPAIR WORK LIGHTS.

This task covers: a. Remove b. Repair c. Install

INITIAL SETUP

Tools:

General mechanic's automotive tool kit
 (Item 54, Appendix E)
 Electrical connector repair kit (Item 53, Appendix E)
 Solder (Item 47, Appendix E)
 Soldering iron (Item 23, Appendix E)

Materials/Parts:

Bulb
 Wire terminals
 Electrical insulating compound (Item 11, Appendix C)
 Self-locking nuts
 Self-locking hex nuts

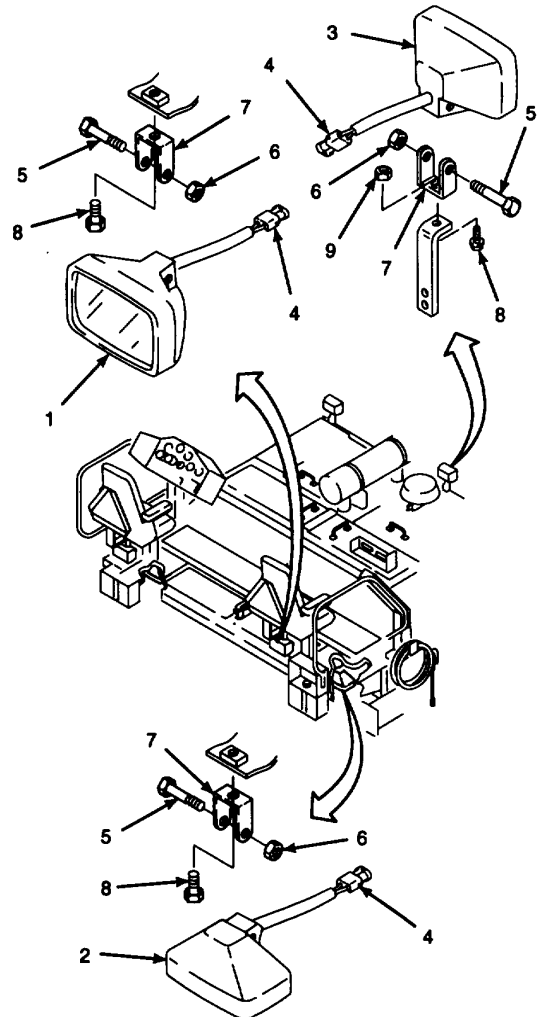
References:

TM 5-3895-373-24P

NOTE

There are three left hand work lights and three right hand work lights on the paving machine. This procedure refers to replacement and repair of right hand work lights. Procedure is identical for left hand work lights. Right hand work lights are shown in this procedure.

- A. REMOVE.
1. DISCONNECT WORK LIGHT (1, 2, OR 3) AT CONNECTOR (4).
 2. REMOVE HEX HEAD CAP SCREW (5) AND SELF-LOCKING NUT (6). REMOVE WORK LIGHT FROM MOUNTING BRACKET (7). DISCARD SELF-LOCKING NUTS.
 3. FOR REAR (1) AND AUGER (2) WORK LIGHTS, REMOVE MACHINE SCREW (8) AND MOUNTING BRACKET (7). FOR FORWARD (3) WORK LIGHTS, REMOVE MACHINE SCREW (8), SELF-LOCKING HEX NUT (9), AND MOUNTING BRACKET (7). DISCARD SELF-LOCKING HEX NUT.



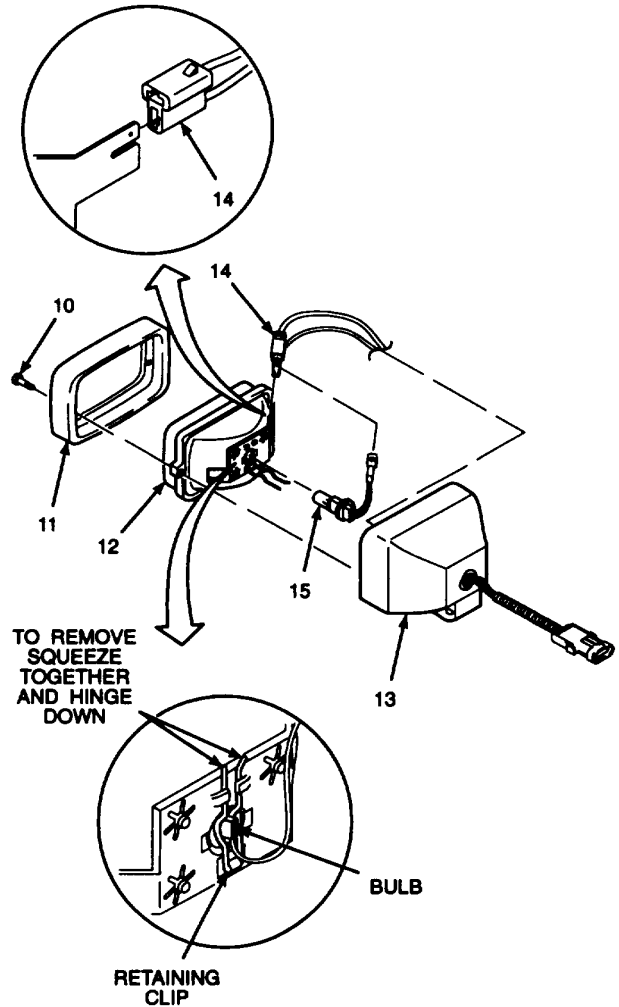
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7.12. REPLACE/REPAIR WORK LIGHTS- Continued.

B. REPAIR.

1. REMOVE BULB.

- a. Remove machine screws (10) and bezel (11).
- b. Pull light unit (12) as far as possible from housing (13) without putting tension in the wiring.
- c. Unplug bulb lead wire from wire harness connector (14) and remove connector from bracket on back of light unit (12).
- d. Squeeze bulb retaining clip ends together and hinge down to release bulb (15).
- e. Remove and discard quartz halogen bulb (15).

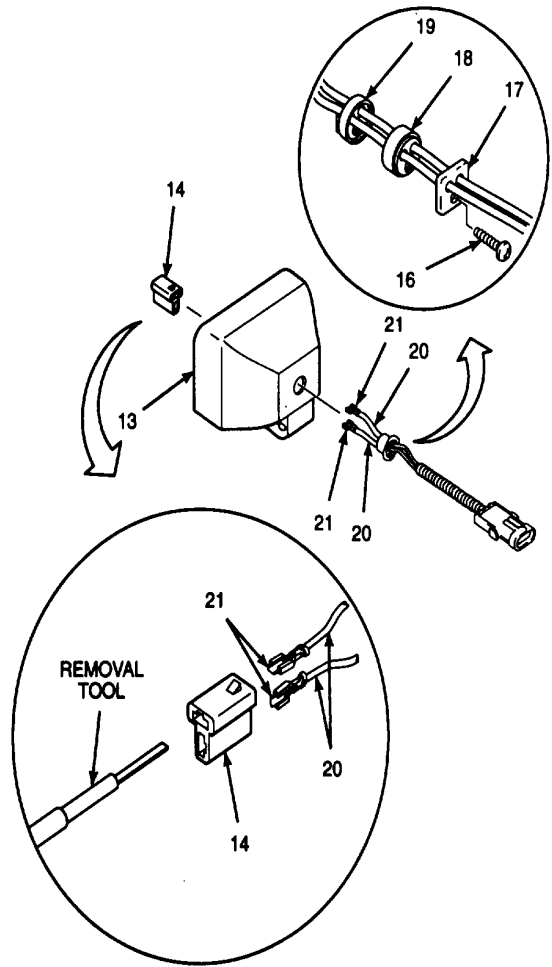


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B. REPAIR - Continued.

2. REMOVE WIRE HARNESS CONNECTOR.

- a. Remove machine screw (16) and slide outer wireholder (17) away from rubber grommet (18).
- b. Pull rubber grommet (18) and inner wireholder (19) through the back of housing (13).
- c. Tag wire harness connector (14) and remove wire harness connector (14) using a removal tool.
- d. Remove wire harness (20) from housing (13).
- e. Use wire cutters and remove wire terminals (21) from wire harness (20) by cutting the wire at the base of the terminal. Discard wire blade terminals.
- f. Slide inner wireholder (19), rubber grommet (18), and outer wireholder (17) from wire harness (20).



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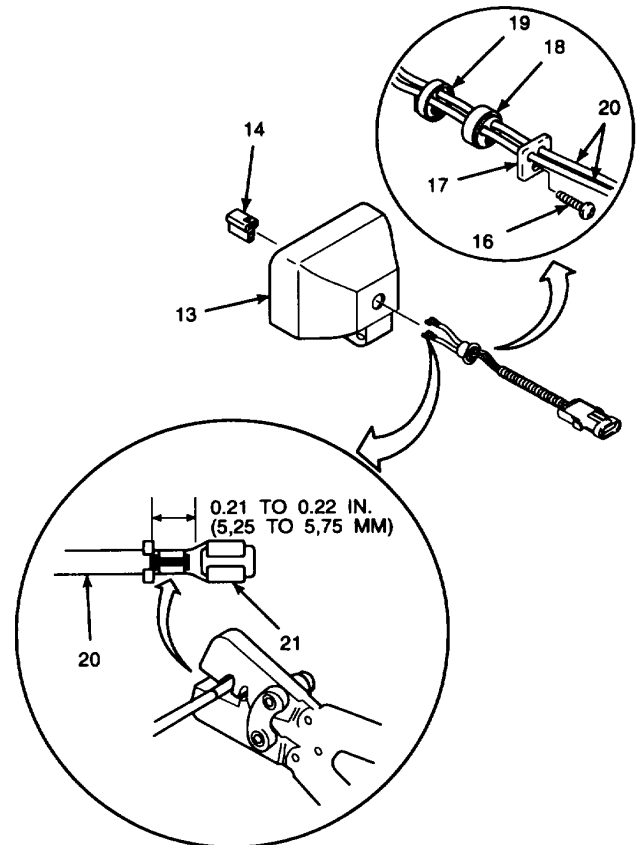
7.12. REPLACE/REPAIR WORK LIGHTS - Continued.**B. REPAIR - Continued.****3. INSPECT LIGHT UNIT AND WIRE HARNESS.**

- a. Inspect light unit for chips or cracks to lens or reflector. Check bracket and bulb holder for damage. Replace damaged light unit.
- b. Inspect components of electrical harness for cracks, breaks, charring, or other signs of damage. Repair damaged wire harness per paragraph 7.20.

4. INSTALL WIRE HARNESS CONNECTOR.

- a. Slide outer wireholder (17), rubber grommet (18), and inner wireholder (19) onto wire harness (20).
- b. Use wire strippers to remove approximately 0.21 to 0.22 in. (5,25 to 5,75 mm) of wire jacket from wire harness (20) wires.
- c. Crimp wire terminals (21) onto wire harness (20) wires at crimp wings, using a crimping tool.
- d. Solder wire harness (20) wires on wire terminals (21) per MIL-STD-2000A with a soldering iron.
- e. Install wire harness (20) into housing (13).
- f. Insert inner wireholder (19) and rubber grommet (18) into the hole in back of housing (13).
- g. Slide outer wireholder (17) against rubber grommet (18). Slide inner wireholder (19) against rubber grommet.

- h. Install machine screw (16) through outer wireholder (17) and rubber grommet (18). Tighten screw to expand rubber grommet.
- i. Install wire terminals (21) into wire harness connector (14).

**GO TO NEXT PAGE**

B. REPAIR - Continued.

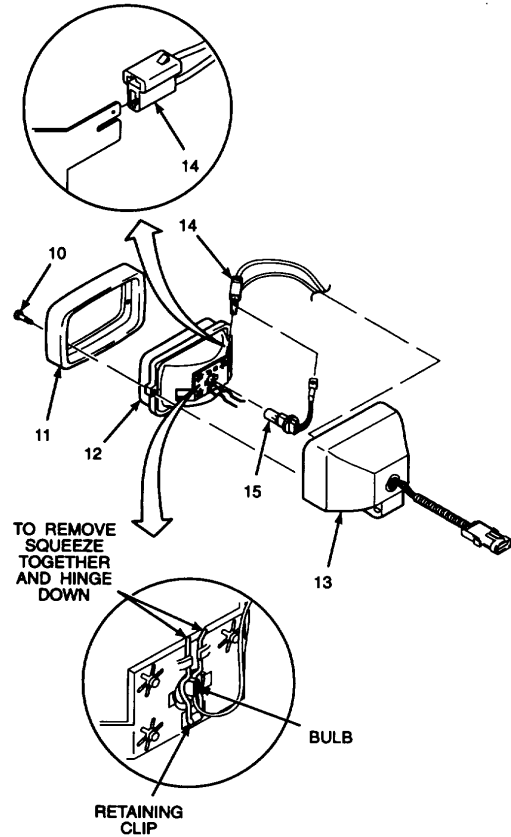
5. INSTALL BULB.

- a. Install bulb (15) and secure with retaining clip.
- b. Install bulb lead wire into wire harness connector (14) and install connector on bracket.

NOTE

When installing light unit (12) into housing (13) on auger work light and rear work light, the word TOP will be at bracket. The wide part of the bezel (11) will also be positioned at the word TOP on the light unit.

- c. Install light unit (12) into housing (13). Make sure that light unit is positioned in housing so that the word TOP, on face of light unit, is at top of work light when installed on paving machine.
- d. Install bezel (11) and machine screw (10). Position bezel so that wide part of bezel is at top of work light when installed on paving machine.



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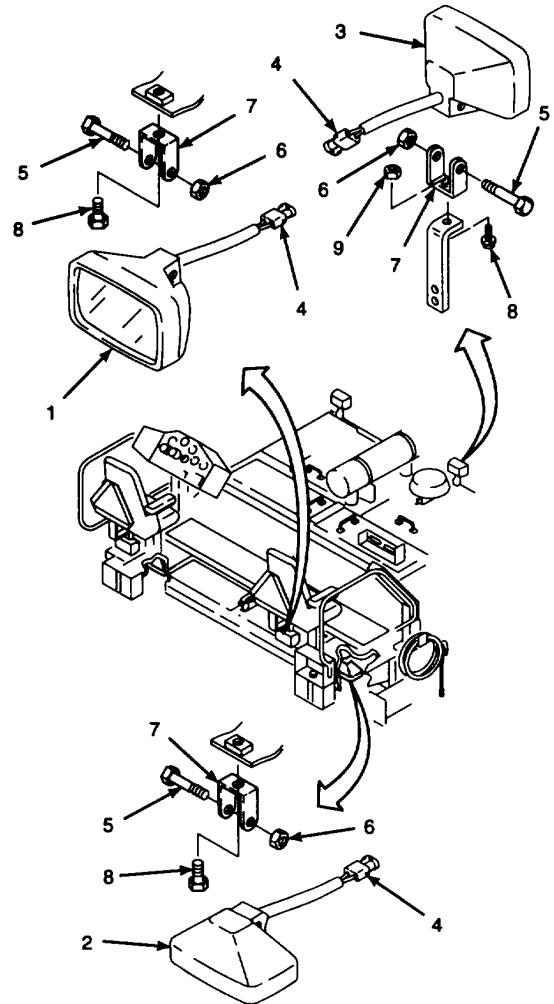
7.12. REPLACE/REPAIR WORK LIGHTS - Continued.

C. INSTALL.

NOTE

Work lights (1 and 2) are assembled with the light unit and bezel upside down. The word TOP on the light unit will be positioned at mounting bracket (7).

1. FOR REAR AND AUGER WORK LIGHTS (1 AND 2), INSTALL MOUNTING BRACKET (7) AND MACHINE SCREW (8). FOR FORWARD WORK LIGHTS (3), INSTALL BRACKET, SELFLOCKING HEX NUT (9), AND MACHINE SCREW.
2. POSITION WORK LIGHT (1, 2, OR 3) ONTO MOUNTING BRACKET (7). SECURE WORK LIGHT TO BRACKET WITH HEX HEAD CAP SCREW (5), AND SELF-LOCKING NUT (6).
3. APPLY ELECTRICAL INSULATING COMPOUND TO CONNECTOR (4). RECONNECT WORK LIGHT (1, 2, OR 3) AT CONNECTOR.



END OF TASK

7.13. REPLACE HIGH TEMPERATURE SHUTDOWN SENSOR.

This task covers: a. Remove b. Install

INITIAL SETUP

Tools:

General mechanic's automotive tool kit
(Item 54, Appendix E)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Materials/Parts:

Electrical insulating varnish (Item 32, Appendix C)
Machinery wiping towel (Item 30, Appendix C)
Pipe sealant (Item 22, Appendix C)
Protective caps (Item 5, Appendix C)
Tags (Item 27, Appendix C)
High temperature shutdown sensor

Equipment Condition:

Front top left access door opened per TM 5-3895-373-10.

A. REMOVE.

1. PLACE A MACHINERY WIPING TOWEL BELOW HIGH TEMPERATURE SHUTDOWN SENSOR.

WARNING

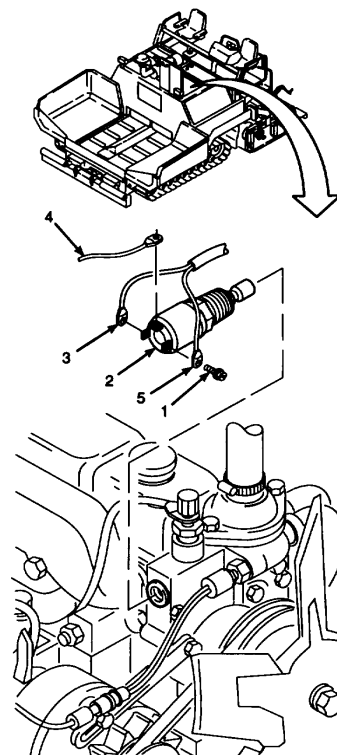
Do not remove the high temperature shutdown sensor when the engine is hot; steam and hot coolant can escape and burn personnel. Allow engine to cool before removing high temperature shutdown sensor.

2. REMOVE SELF-LOCKING SCREWS (1) FROM HIGH TEMPERATURE SHUTDOWN SENSOR (2).
3. TAG AND REMOVE WIRE TERMINAL 151 (3), WIRE TERMINAL 111 (4), AND WIRE TERMINAL 152 (5) FROM HIGH TEMPERATURE SHUTDOWN SENSOR (2).

NOTE

Some engine coolant may leak from mounting hole when high temperature shutdown sensor is removed. Have new temperature shutdown sensor ready to install, or plug mounting hole when temperature shutdown sensor is removed.

4. REMOVE HIGH TEMPERATURE SHUTDOWN SENSOR (2). DISCARD HIGH TEMPERATURE SHUTDOWN SENSOR.
5. INSTALL PROTECTIVE PLUG INTO HIGH TEMPERATURE SHUTDOWN SENSOR MOUNTING HOLE.



GO TO NEXT PAGE

7.13. REPLACE HIGH TEMPERATURE SHUTDOWN SENSOR - Continued.

B. INSTALL.

WARNING

Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

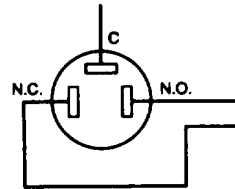
1. APPLY PIPE SEALANT TO THREADS OF HIGH TEMPERATURE SHUTDOWN SENSOR (2).
2. INSTALL HIGH TEMPERATURE SHUTDOWN SENSOR.
3. REFER TO ILLUSTRATION AND INSTALL WIRE TERMINALS (3, 4, AND 5) ONTO HIGH TEMPERATURE SHUTDOWN SENSOR (2) USING SELF-LOCKING SCREWS (1).

WARNING

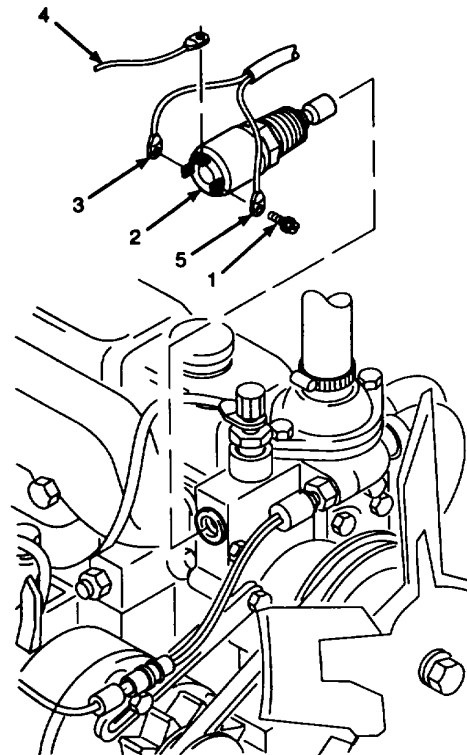
Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention

4. APPLY ELECTRICAL INSULATING VARNISH TO WIRE TERMINALS (3, 4, AND 5).

5. DISPOSE OF CONTAMINATED MACHINERY WIPING TOWEL IN ACCORDANCE WITH LOCAL PROCEDURES.



TERMINAL	WIRE TERMINAL NO.	INDEX NO.
N.C.	151	3
N.O.	152	5
C	111	4



NOTE

FOLLOW-ON-TASK: Close front top left access door per TM 5-3895-373-10.

END OF TASK

7.14. EPLACE COOLANT TEMPERATURE SENSOR.

This task covers: **a. Remove** **b. Replace**

INITIAL SETUPTools:

General mechanic's automotive tool kit
(Item 54, Appendix E)

Materials/Parts:

Electrical insulating varnish (Item 32, Appendix C)
Machinery wiping towel (Item 30, Appendix C)
Pipe sealant (Item 22, Appendix C)
Protective caps (Item 5, Appendix C)
Coolant temperature sensor

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Front top left access door opened per TM 5-3895-373-10.

A. REMOVE.

1. PLACE A MACHINERY WIPING TOWEL AROUND COOLANT TEMPERATURE SENSOR (1).

WARNING

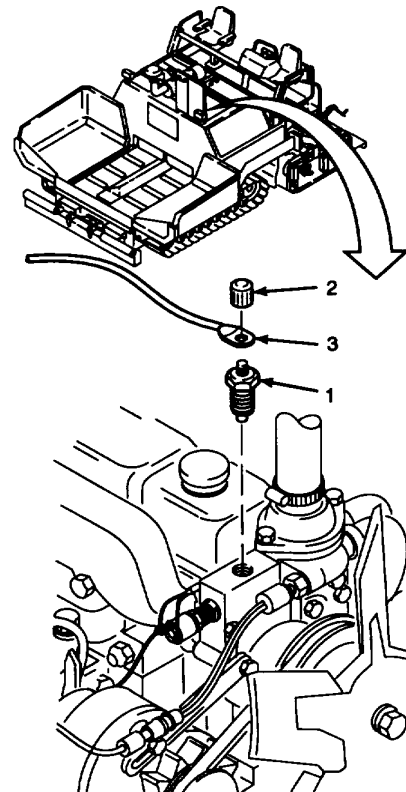
Do not remove coolant temperature sensor when the engine is hot; steam and hot coolant can escape and burn personnel. Allow engine to cool before removing coolant temperature sensor

2. UNSCREW KNURLED NUT (2) FROM COOLANT TEMPERATURE SENSOR (1). REMOVE ENGINE WIRE HARNESS RING TERMINAL (3).

NOTE

Some engine coolant may leak from mounting hole when coolant temperature sensor is removed. Have new sensor ready to install, or plug mounting hole when sensor is removed.

3. REMOVE COOLANT TEMPERATURE SENSOR (1). DISCARD COOLANT TEMPERATURE SENSOR.
4. INSTALL PROTECTIVE CAP INTO COOLANT TEMPERATURE SENSOR (1) MOUNTING HOLE.



GO TO NEXT PAGE

7.14. REPLACE COOLANT TEMPERATURE SENSOR- Continued.**B. REPLACE.****WARNING**

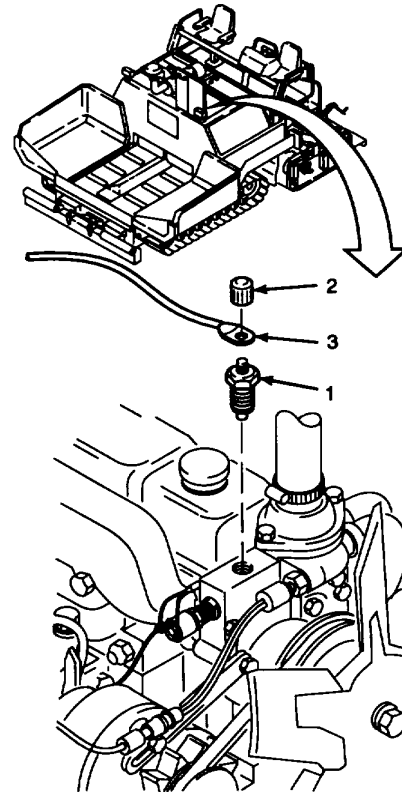
Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

1. APPLY PIPE SEALANT TO THREADS OF COOLANT TEMPERATURE SENSOR (1).
2. REMOVE PROTECTIVE CAP.
3. INSTALL COOLANT TEMPERATURE SENSOR (1).
4. INSTALL ENGINE WIRE HARNESS RING TERMINAL (3) ONTO COOLANT TEMPERATURE SENSOR (1). SECURE WITH KNURLED NUT (2).

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

5. APPLY ELECTRICAL INSULATING VARNISH TO ENGINE WIRE HARNESS RING TERMINAL (3).
6. DISPOSE OF CONTAMINATED MACHINERY WIPING TOWELS IN ACCORDANCE WITH LOCAL PROCEDURES.

**NOTE**

FOLLOW-ON-TASK: Close front top left access door per TM 5-3895-373-10.

END OF TASK

7.15. REPLACE ENGINE OIL PRESSURE TRANSMITTER COMPONENTS.

This task covers: a. Remove b. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix D)
Torque wrench (Item 68, Appendix E)

Materials/Parts:

Cleaning cloths (Item 7, Appendix C)
Electrical insulating varnish (Item 32, Appendix C)
Hydraulic fitting sealant (Item 21, Appendix C)
Pipe sealant (Item 22, Appendix C)
Protective caps (Item 5, Appendix C)
Engine oil pressure transmitter

References:

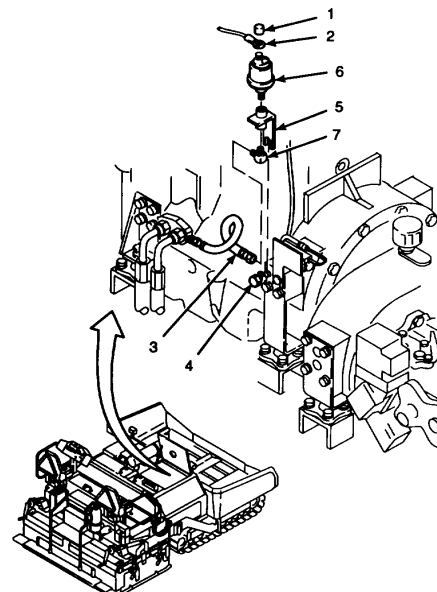
TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Front top right access door opened per TM 5-3895-373-10.

A. REMOVE.

1. REMOVE KNURLED NUT (1) AND ENGINE WIRE HARNESS RING TERMINAL (2).
2. DISCONNECT OIL PRESSURE TRANSMITTER HOSE (3). PLUG HOSE WITH PROTECTIVE CAP.
3. LOOSEN HEX HEAD CAP SCREW (4), AND REMOVE BRACKET (5).
4. UNSCREW ENGINE OIL PRESSURE TRANSMITTER (6) FROM BRACKET (5). DISCARD PRESSURE TRANSMITTER.
5. REMOVE ELBOW (7) FROM BRACKET (5).

**B. INSTALL.**

1. USE CLEANING CLOTH TO WIPE RESIDUE FROM THREADS OF ELBOW (7).

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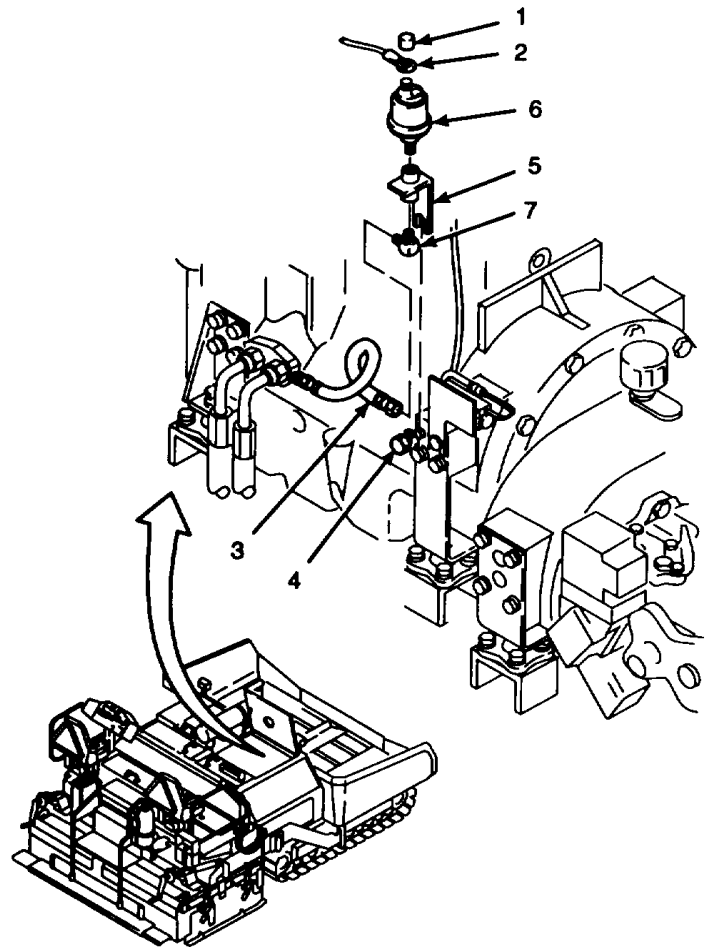
7.15. REPLACE ENGINE OIL PRESSURE TRANSMITTER COMPONENTS- Continued.

B. INSTALL - Continued.

WARNING

Pipe sealant and hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

2. APPLY PIPE SEALANT TO THREADS OF ELBOW (7).
3. INSTALL ELBOW (7) INTO BRACKET (5). REFER TO ILLUSTRATION.
4. APPLY PIPE SEALANT TO THREADS OF ENGINE OIL PRESSURE TRANSMITTER (6).
5. INSTALL ENGINE OIL PRESSURE TRANSMITTER (6) INTO BRACKET (5).
6. INSTALL BRACKET (5) ON ENGINE AND SECURE WITH HEX HEAD CAP SCREW (4).
7. TIGHTEN CAP SCREW TO 95 LB-FT (122 N•m).
8. APPLY HYDRAULIC FITTING SEALANT TO THREADS OF ELBOW (7).
9. INSTALL HOSE (3) ONTO THREADS OF ELBOW (7).
10. INSTALL ENGINE WIRE HARNESS RING TERMINAL (2) ONTO ENGINE OIL PRESSURE TRANSMITTER (6). SECURE WITH KNURLED NUT (1).

**WARNING**

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

11. ELECTRICAL INSULATING VARNISH TO ENGINE WIRE HARNESS RING TERMINAL (2).

NOTE

FOLLOW-ON-TASK: Close front top right access door per TM 5-3895-373-10.

END OF TASK

7.16. REPLACE HYDRAULIC OIL TEMPERATURE SENSOR.**This task covers:****a. Remove****b. Install****INITIAL SETUP**Tools:

General mechanic's automotive tool kit
(Item 54, Appendix E)

Materials/Parts:

Electrical insulating varnish (Item 32, Appendix C)
Pipe sealant (Item 22, Appendix C)
Protective cap (Item 5, Appendix C)
Hydraulic oil temperature sensor

References:

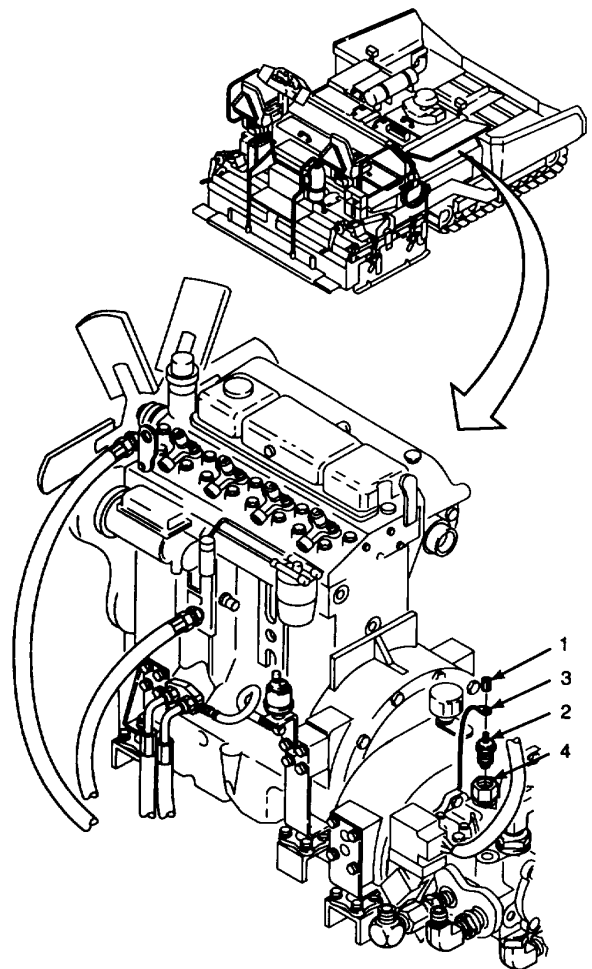
TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Right access door opened per TM 5-3895-373-10.

A. REMOVE.

1. UNSCREW KNURLED NUT (1) FROM HYDRAULIC OIL TEMPERATURE SENSOR (2). REMOVE GAUGE PANEL HARNESS RING TERMINAL (3).
2. USING A BACKUP WRENCH, HOLD STRAIGHT ADAPTER (4) AND REMOVE HYDRAULIC OIL TEMPERATURE SENSOR (2). DISCARD HYDRAULIC OIL TEMPERATURE SENSOR.
3. INSTALL PROTECTIVE CAP INTO HYDRAULIC OIL TEMPERATURE SENSOR (2) MOUNTING HOLE.

**GO TO NEXT PAGE**

7.16. REPLACE HYDRAULIC OIL TEMPERATURE SENSOR - Continued.

B. INSTALL.

WARNING

Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

1. APPLY PIPE SEALANT TO THREADS OF HYDRAULIC OIL TEMPERATURE SENSOR (2).
2. REMOVE PROTECTIVE CAP.
3. INSTALL HYDRAULIC OIL TEMPERATURE SENSOR (2) INTO STRAIGHT ADAPTER (4).
4. INSTALL GAUGE PANEL HARNESS RING TERMINAL (3) ONTO HYDRAULIC OIL TEMPERATURE SENSOR (2). SECURE WITH KNURLED NUT (1).

WARNING

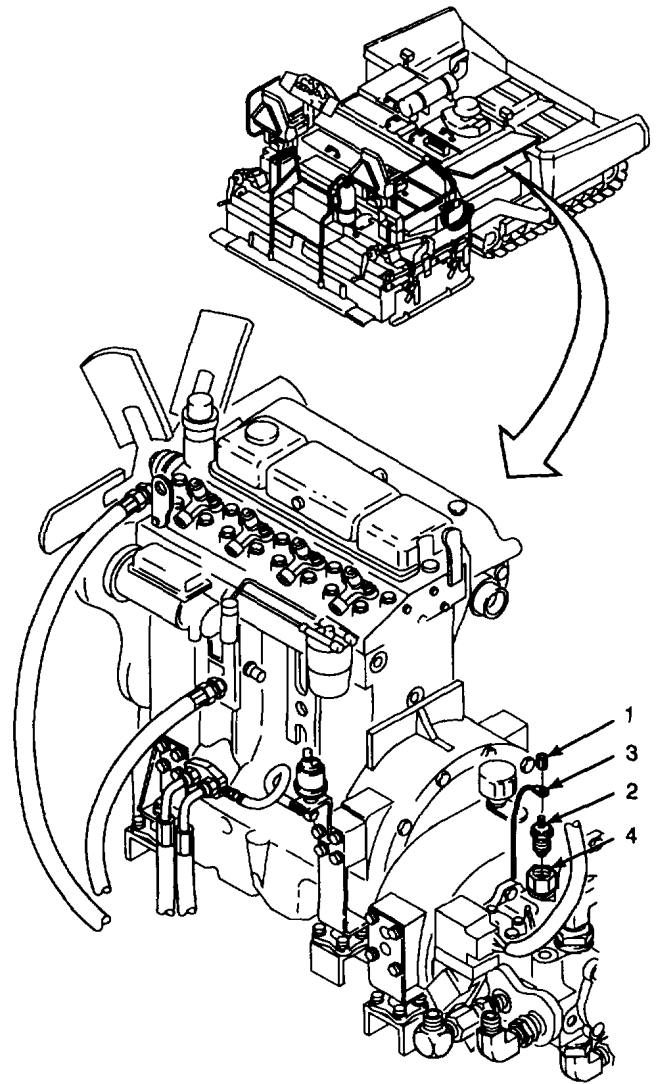
Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

5. APPLY ELECTRICAL INSULATING VARNISH TO GAUGE PANEL HARNESS RING TERMINAL (3).

NOTE

FOLLOW-ON-TASK: Close right access door per TM 5-3895-373-10.

END OF TASK



7.17. REPLACE DCA AND PRESSURE TRANSMITTERS.

This task covers: **a. Remove** **b. Install**

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Bench vise (Item 55, Appendix E)
Crowfoot wrench (Item 64, Appendix E)
Pipe plug (Item 30, Appendix E)
Torque wrench (Item 68, Appendix E)
Screwdriver bit set (Item 37, Appendix E)

Materials/Parts:

Cleaning cloths (Item 7, Appendix C)
Electrical insulating compound (Item 11, Appendix C)
Electrical insulating varnish (Item 32, Appendix C)
Hydraulic fitting sealant (Item 21, Appendix C)
Machinery wiping towel (Item 30, Appendix C)
Pipe sealant (Item 22, Appendix C)
Protective caps (Item 5, Appendix C)
Tags (Item 27, Appendix C)
Thread locking compound (Item 13, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Tie wraps (Item 29, Appendix C)
Air pressure transmitter
Engine coolant temperature transducer
Fuel filter differential pressure switch
Fuel pressure transmitter
Instrument shunt
Lock screws
Lockwashers
Oil filter differential pressure transmitter
Oil pressure transmitter
Self-locking nuts
Self-locking screws
Tachometer signal generator
Terminal block
Toggle switches
Turbosupercharger output pressure transmitter

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Center top right access door open per TM 5-3895-373-10
(DCA housing).
Center top left access door open per TM 5-3895-373-10
(DCA housing).
Right access cover removed per TM 5-3895-373-10
(oil pressure transmitter or oil filter differential pressure transmitter).
Front top right access door open per TM 5-3895-373-10
(fuel pressure transmitter or fuel filter differential pressure transmitter).
Front top left access door opened per TM 5-3895-373-10
(tachometer signal generator or engine coolant temperature transducer).
Left access cover removed per TM 5-3895-373-10
(instrument shunt).
Rear top left access door opened per TM 5-3895-373-10
(instrument shunt).
Engine access cover open per paragraph 2.22
(turbosupercharger output pressure transmitter or air pressure transmitter).

NOTE

This task covers replacement of diagnostic connector assembly (DCA) components. Perform only those procedures required to replace damaged or faulty components.

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7.17. REPLACE DCA AND PRESSURE TRANSMITTERS - Continued.

A. REMOVE.

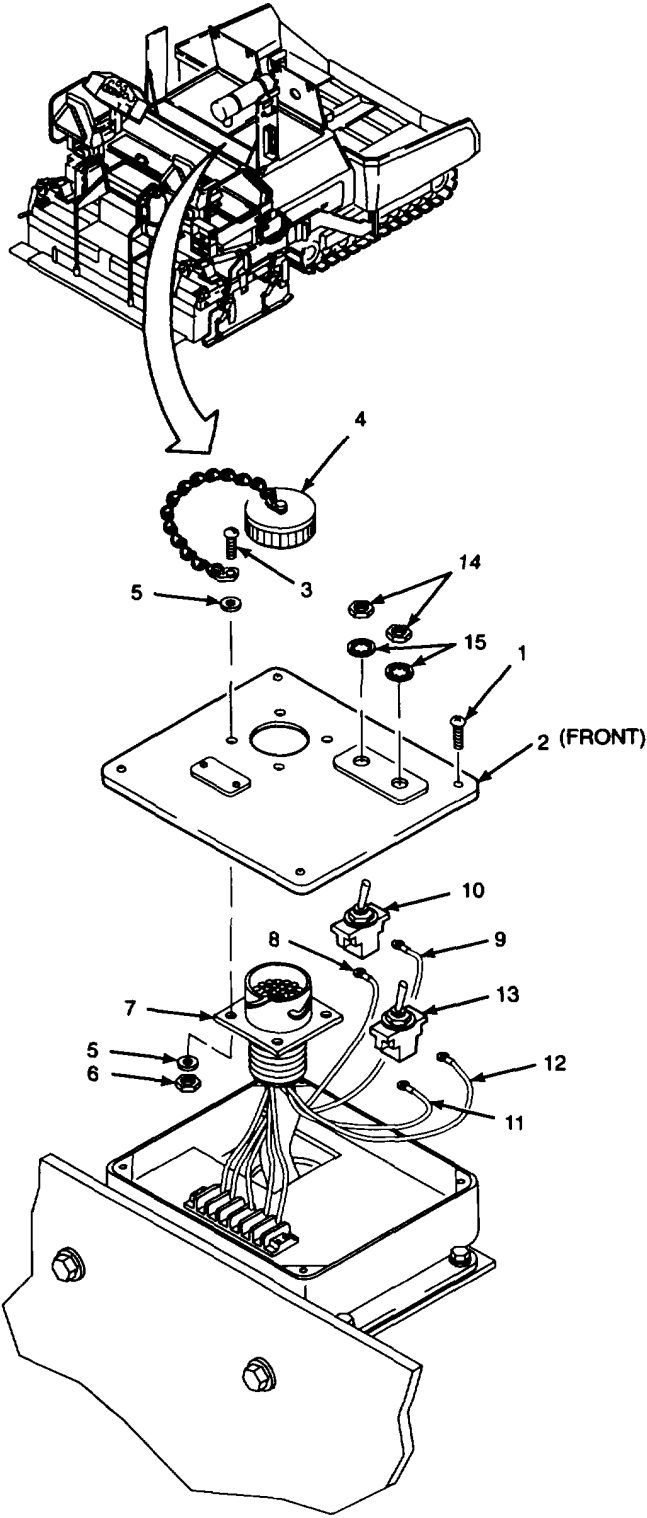
1. REMOVE DCA HOUSING COVER.

- a. Using flat head bit from screwdriver bit set, remove screws (1) and lift housing cover (2) from DCA housing.
- b. Remove machine screws (3), electrical component cover (4), flat washers (5), and hex nuts (6) from DCA harness connector (7).
- c. Tag and disconnect wires 151 (8) and 322 (9) from engine crank toggle switch (10).
- d. Tag and disconnect wires 314 (11) and wire 315 (12) from zero offset toggle switch (13).

NOTE

Toggle switch "ON" markings are positioned toward front of housing cover (2).

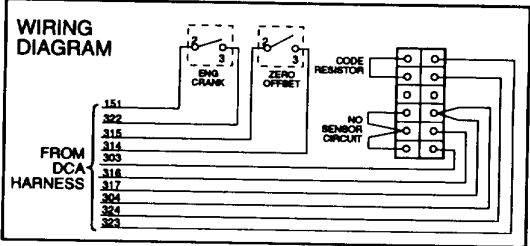
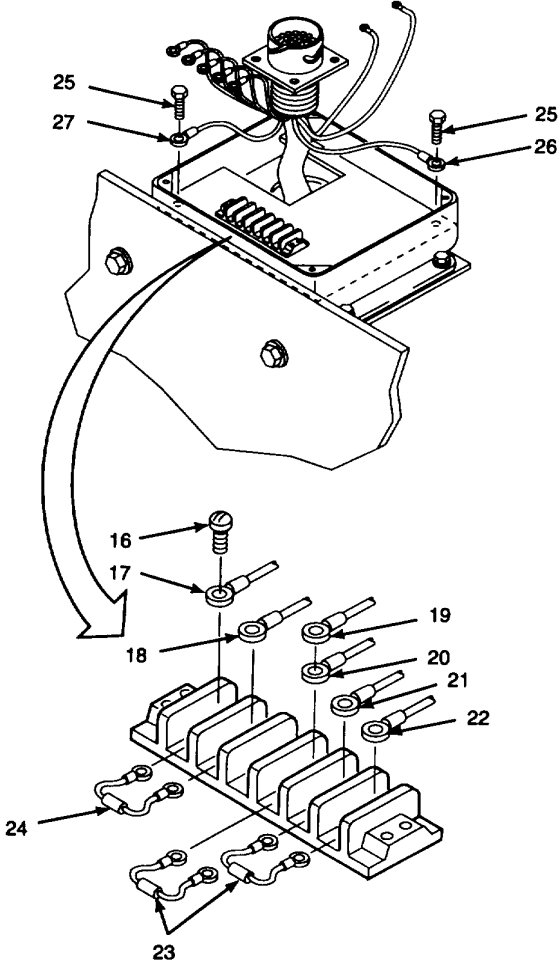
- e. Remove hex nuts (14), lockwashers (15), engine crank toggle switch (10) and zero offset toggle switch (13).



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A. REMOVE - Continued.

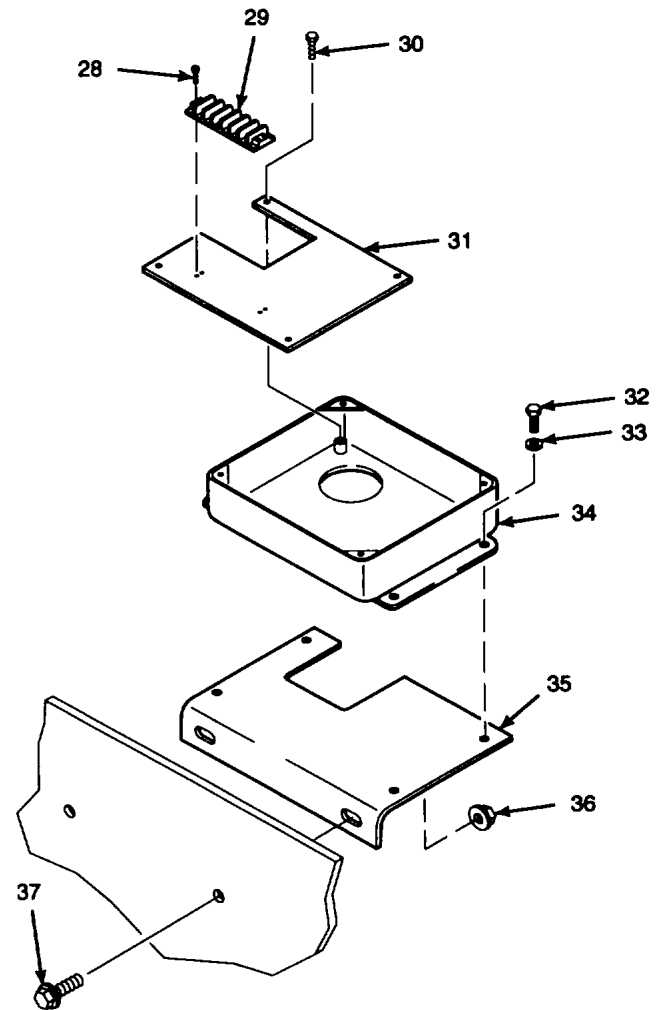
- 2. DISCONNECT DCA HARNESS FROM TERMINAL BOARD AND GROUND CONNECTIONS.
 - a. Remove terminal screws (16). Tag and remove each DCA harness wire (17 through 22).
 - b. Tag and remove sensor circuit resistors (23) and code resistor (24).
 - c. Remove machine screws (25). Tag and remove ground wires (26 and 27).



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7.17. REPLACE DCA AND PRESSURE TRANSMITTERS - Continued.**A. REMOVE - Continued.****3. REMOVE DCA HOUSING AND BRACKET.**

- a. Remove machine screws (28) and terminal board (29).
- b. Remove machine screws (30) and equipment panel (31).
- c. Remove bolts (32) and flat washers (33).
- d. Remove DCA housing (34) from bracket (35).
- e. Remove self-locking nuts (36) and lock screws (37). Remove bracket (35) from engine cowling. Discard self-locking nuts and lock screws.

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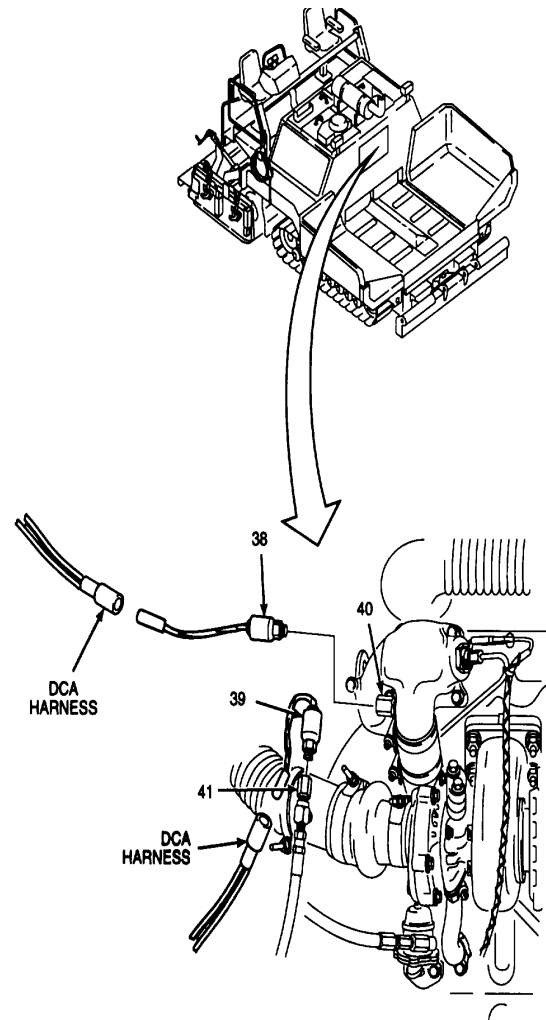
A. REMOVE - Continued.

4. REMOVE TURBOSUPERCHARGER OUTPUT PRESSURE TRANSMITTER AND AIR PRESSURE TRANSMITTER.

WARNING

Allow engine to cool before performing maintenance on the muffler, exhaust pipe, exhaust manifold, or turbosupercharger. Do not touch hot exhaust system with bare hands; injury to personnel will result. If maintenance of a heated surface is necessary, use insulated pads and gloves.

- a. Allow engine to cool before removing turbo supercharger output pressure transmitter (38) and air pressure transmitter (39).
- b. Tag and disconnect turbosupercharger output pressure transmitter (38) and air pressure transmitter (39) from DCA harness.
- c. Unscrew turbosupercharger output pressure transmitter (38) from pipe reducer (40) in turbosupercharger intake elbow manifold. If necessary, use backup wrench.
- d. Unscrew air pressure transmitter (39) from pipe reducer (41) in turbosupercharger pressure sense tube. If necessary, use backup wrench.



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7.17. REPLACE DCA AND PRESSURE TRANSMITTERS - Continued.

A. REMOVE - Continued.

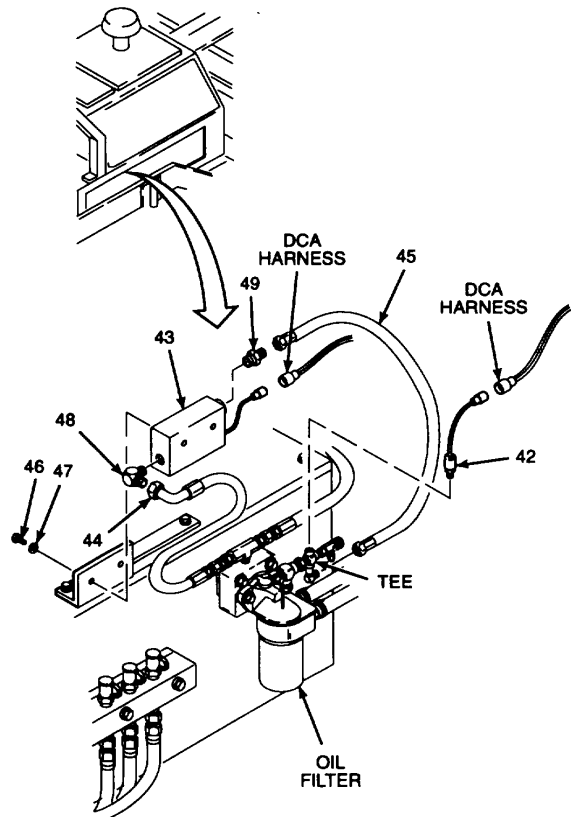
5. REMOVE OIL PRESSURE TRANSMITTER AND OIL FILTER DIFFERENTIAL PRESSURE TRANSMITTER.

WARNING

Do not remove engine oil line fittings while engine oil is hot. Oils can burn when in contact with very hot surfaces or if ignited when released as a spray. Keep ignition sources away. Provide adequate ventilation. Wear protective clothing/ equipment.

- a. Allow engine to cool before disconnecting oil pressure transmitter (42) and oil filter differential pressure transmitter (43).
- b. Place machinery wiping towel below oil filter.
- c. Tag and unplug oil pressure transmitter (42) from DCA harness.
- d. Remove oil pressure transmitter (42) and plug opening in mating tee to prevent contamination.
- e. Tag and unplug oil filter differential pressure transmitter (43) from DCA harness.
- f. Tag and disconnect hoses (44 and 45) from oil filter differential pressure transmitter (43). Plug hoses to prevent contamination.

- g. Remove hex head cap screws (46) and flat washers (47). Remove oil filter differential pressure transmitter (43). Discard lockwashers.
- h. Place oil filter differential pressure transmitter (43) in a bench vise. Remove elbow (48) and straight adapter (49) from oil filter differential pressure transmitter.
- i. Wipe up oil spillage with cleaning cloths. Leave machinery wiping towel in place.



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A. REMOVE - Continued.

6. REMOVE FUEL PRESSURE TRANSMITTER AND FUEL FILTER DIFFERENTIAL PRESSURE SWITCH.

WARNING

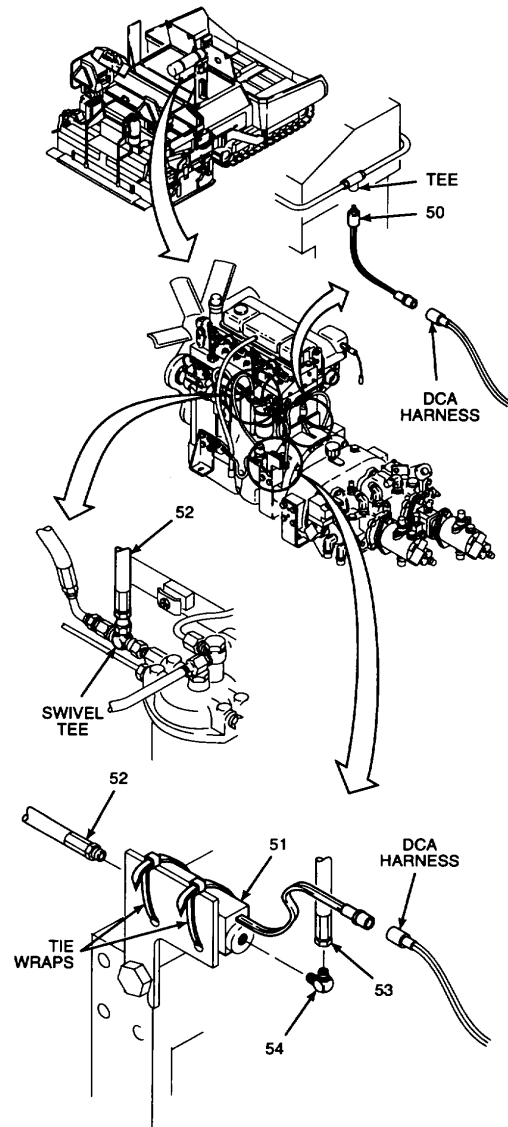
Fuel is very flammable and can explode easily. To avoid serious injury or death: Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source). Keep at least a BC fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine. Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- a. Allow engine to cool before removing fuel pressure transmitter (50) and fuel filter differential pressure switch (51).
- b. Tag and disconnect fuel pressure transmitter (50) and fuel filter differential pressure switch (51) from DCA harness.
- c. Place machinery wiping towel below engine fuel filter and fuel pressure transmitter and differential pressure switch (50 and 51).
- d. Unscrew fuel pressure transmitter (50). Plug opening in fuel line tee to prevent contamination.
- e. Tag and remove fuel hose (52) from swivel tee near fuel filter. Tag and remove fuel hose (53) from fuel filter differential pressure switch (51) elbow (54). Cap swivel tee and plug fuel hose to prevent contamination.

- f. Wipe up fuel spillage with cleaning cloths. Leave machinery wiping towels in place.
- g. Cut tie wraps and remove fuel filter differential pressure switch (51) with fuel hose (52) from paving machine.



- h. Clamp fuel filter differential pressure switch (51) in bench vise. Remove fuel hose (52) and elbow (54).

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7.17. REPLACE DCA AND PRESSURE TRANSMITTERS - Continued.

A. REMOVE - Continued.

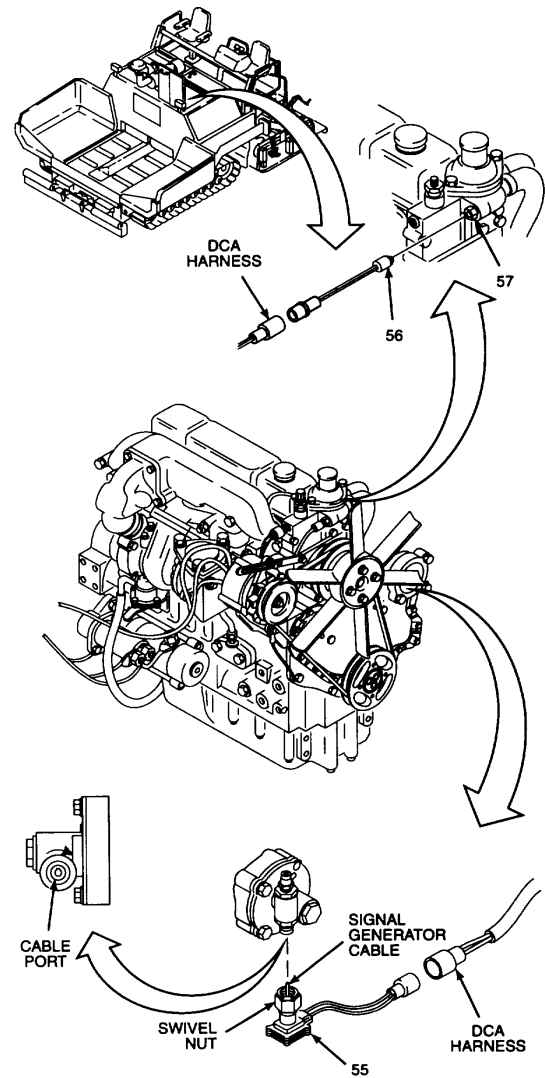
7. REMOVE TACHOMETER SIGNAL GENERATOR AND ENGINE COOLANT TEMPERATURE TRANSDUCER.

WARNING

Do not remove the engine coolant temperature transducer or tachometer signal generator when the engine is hot; steam and hot coolant can escape and burn personnel.

Use a clean, thick, waste cloth or like material to remove the engine coolant temperature transducer. Avoid using gloves. If hot water soaks through gloves, personnel could be burned.

- a. Allow engine to cool before removing tachometer signal generator (55) and engine coolant temperature transducer (56).
- b. Tag and disconnect tachometer signal generator (55) from DCA harness.
- c. Use crowfoot wrench to unscrew swivel nut and remove tachometer signal generator (55).
- d. Disconnect engine coolant temperature transducer (56) from DCA harness. Remove tie wrap if necessary.
- e. Place machinery wiping towel below engine coolant temperature transducer (56).
- f. Unscrew engine coolant temperature transducer (56). Hold pipe bushing (57) with backup wrench if necessary. Plug open port of bushing with 1/4 in. pipe plug to prevent coolant leakage.
- g. Wipe up coolant spillage with cleaning cloths. Leave machinery wiping towel in place.



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- A. REMOVE - Continued.
- 8. REMOVE INSTRUMENT SHUNT.

WARNING

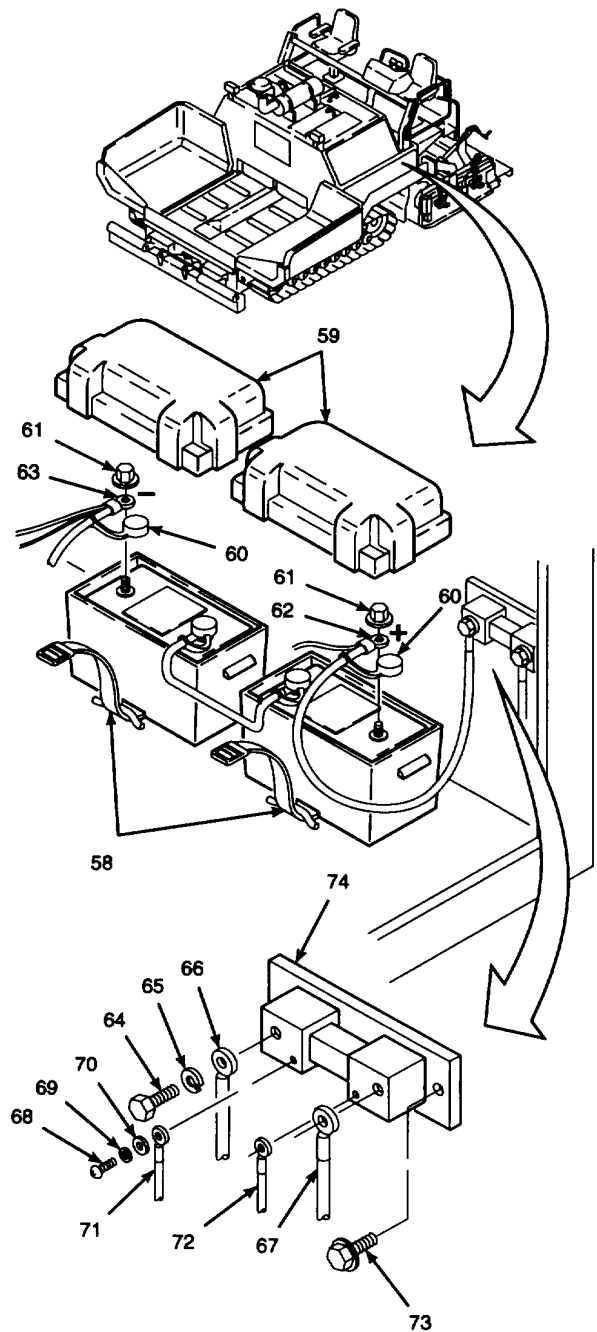
Disconnect batteries prior to performing maintenance in immediate battery or starter area. Failure to disconnect batteries may lead to electrical shock or short circuit and result in severe personnel injury or damage to equipment.

- a. Unbuckle battery box holddown straps (58) and remove battery box covers (59) from both batteries.

WARNING

When disconnecting batteries, disconnect negative battery cable before disconnecting positive battery cable. Failure to disconnect batteries in the proper sequence may lead to electrical shock or short circuit and result in severe personnel injury.

- b. Remove battery terminal caps (60) and battery nuts (61). Disconnect negative battery cable (62) and positive battery cable (63) from batteries.
- c. Remove hex head cap screws (64), lockwashers (65), negative terminal lead (66), and ground cable (67).
- d. Remove machine screws (68), lockwashers (69), and flat washers (70). Discard lockwashers.
- e. Tag and remove shunt leads 338 (71) and 337 (72).
- f. Remove self-locking screws (73) and instrument shunt (74). Discard self-locking screws.



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7.17. REPLACE DCA AND PRESSURE TRANSMITTERS - Continued.**B. INSTALL.**

1. INSTALL BRACKET, DCA HOUSING, AND TERMINAL BOARD.

WARNING

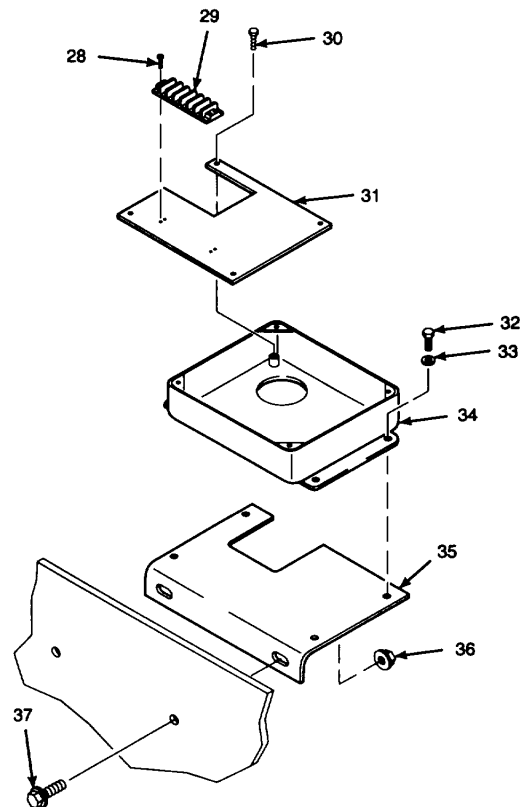
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean bolts (32) with thread locking compound solvent. Wipe bolts dry with cleaning cloth.
- b. Position bracket (35) against engine cowling and secure in place with lock screws (37) and self-locking nuts (36).
- c. Position DCA housing (34) on bracket (35), in line with mounting holes.
- d. Install flat washers (33) on bolts (32).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- e. Coat threads of bolts (32) with thread locking compound.
- f. Install bolts (32). Tighten to 11 lb-ft (15 N•m).
- g. Install machine screws (28) and terminal board (29).
- h. Place equipment panel (31) inside of DCA housing (34). Install and tighten two machine screws (30) in opposite corners of housing.



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B. INSTALL Continued.

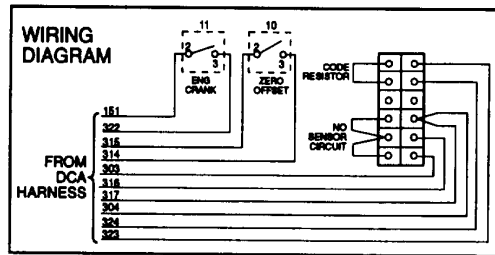
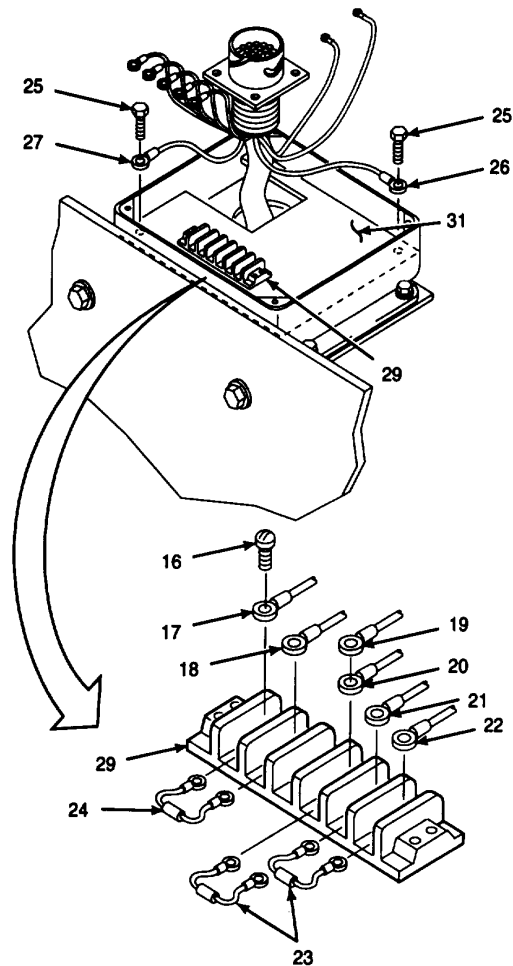
2. CONNECT DCA HARNESS.

- a. Install ground wires (26 and 27) and secure wires and equipment panel (31) with machine screws (25).
- b. Install code resistor (24) and sensor circuit resistors (23) on terminal board (29).
- c. Refer to wiring diagram and install DCA harness wires (17 through 22) on terminal board (29). Secure wires and resistors (23 and 24) with terminal screws (16).

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- d. Apply even coating of electrical insulating varnish to terminals of installed harness wires (17 through 22), resistors (23 and 24), and ground wires (26 and 27).



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7.17. REPLACE DCA AND PRESSURE TRANSMITTERS Continued.

- B. INSTALL Continued.
- 3. INSTALL DCA HOUSING COVER.

NOTE

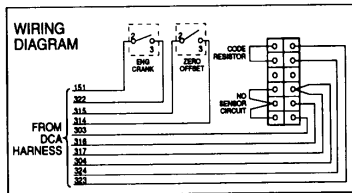
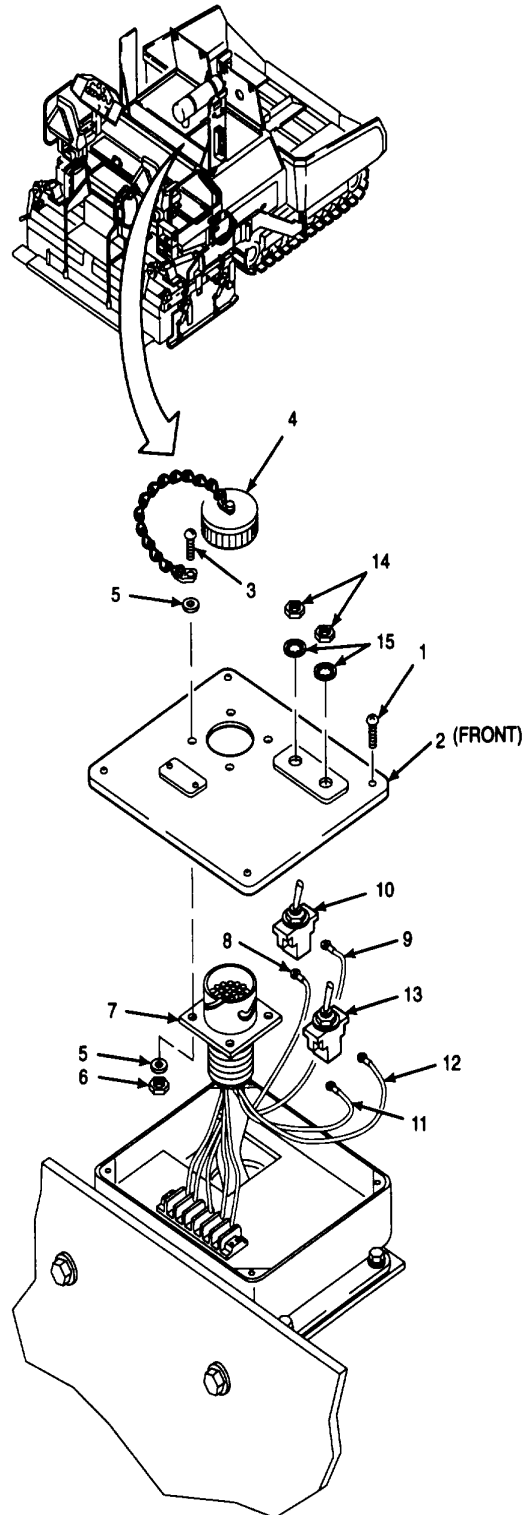
Toggle switch "ON" markings should face toward front of housing cover (2).

- a. Install engine crank toggle switch (10) and zero offset toggle switch (13) into housing cover (2).
- b. Install lockwashers (15) and hex nuts (14) onto engine crank toggle switch (10) and zero offset toggle switch (13).
- c. Connect wires 314 (11) and 315 (12) to zero offset toggle switch (13). Refer to wiring diagram below.
- d. Connect wires 151 (8) and 322 (9) to engine crank toggle switch (10).

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- e. Apply even coating of electrical insulating varnish to terminals of toggle switches (10 and 13).
- f. Install DCA harness connector (7) and electrical component cover (4) with machine screws (3), flat washers (5), and hex nuts (6).
- g. Using flat head bit from screwdriver bit set, install housing cover (2) and screws (1).



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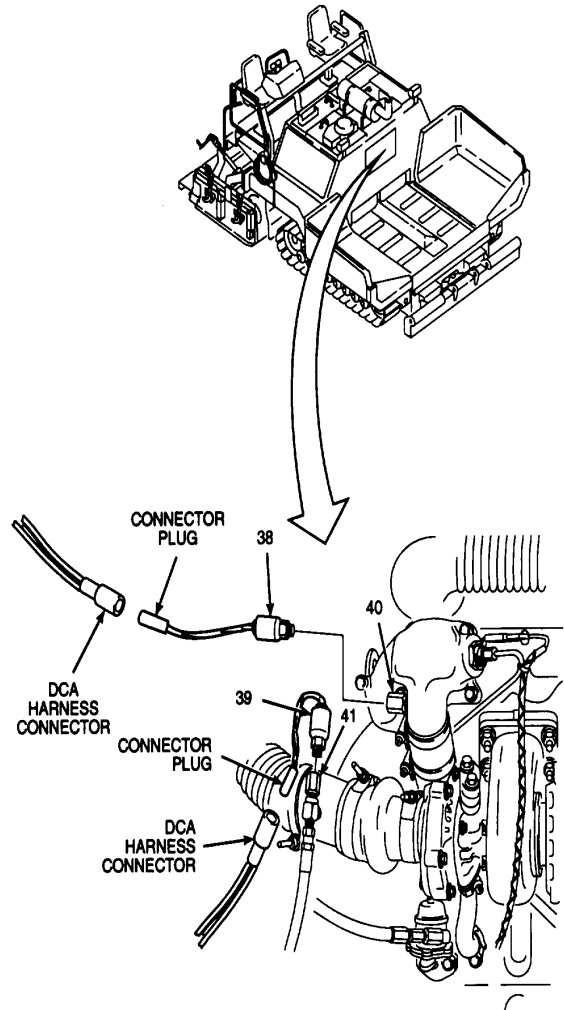
- B. INSTALL Continued.
- 4. INSTALL TURBOSUPERCHARGER OUTPUT PRESSURE TRANSMITTER AND AIR PRESSURE TRANSMITTER.

WARNING

Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- a. Apply pipe sealant to threads of pressure transmitters (38 and 39).
- b. Install turbosupercharger output pressure transmitter (38) in pipe reducer (40). Snug up, but do not overtighten pressure transmitter.
- c. Install air pressure transmitter (39) in pipe reducer (41). Snug up, but do not overtighten pressure transmitter.
- d. Apply electrical insulating compound to connector plugs of pressure transmitters (38 and

- 39). Plug connector plugs into mating DCA harness connectors.
- e. Install tie wraps as needed to secure harness components.



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7.17. REPLACE DCA AND PRESSURE TRANSMITTERS - Continued.

B. INSTALL Continued.

5. INSTALL OIL PRESSURE TRANSMITTER AND OIL FILTER DIFFERENTIAL PRESSURE TRANSMITTER.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- Clean hex head cap screws (46) with thread locking compound solvent. Wipe dry with cleaning cloth.
- Clean threads of elbow (48) and straight adapter (49) with cleaning cloth.
- Install flat washers (47) on hex head cap screws (46).

WARNING

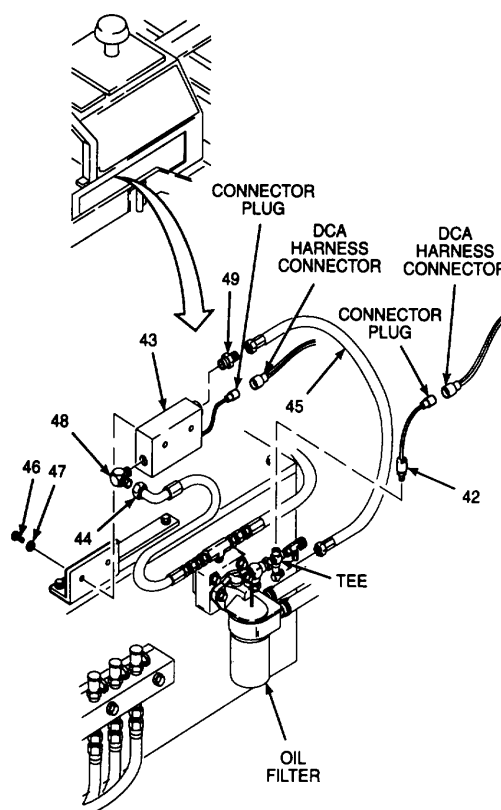
Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- Apply thread locking compound to threads of hex head cap screws (46).
- Install oil filter differential pressure transmitter (43) with flat washers (47) and hex head cap screws (46). Tighten hex head cap screws.

WARNING

Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- Apply pipe sealant to threads of elbow (48) and straight adapter (49).



- Install elbow (48) and straight adapter (49) in oil filter differential pressure transmitter (43). Open end of elbow should aim straight out from paving machine.
- Install and tighten hose (44) on elbow (48).
- Install and tighten hose (45) on straight adapter (49). Hold straight adapter with a backup wrench.
- Apply pipe sealant to threads of oil pressure transmitter (42). Install and tighten oil pressure transmitter.
- Apply electrical insulating compound to connector plugs of pressure transmitters (42 and 43).
- Plug connector plugs of pressure transmitters (42 and 43) into mating DCA harness connectors.
- Remove machinery wiping towel. If saturated, dispose of towels in accordance with local procedures.

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- B. INSTALL - Continued
- 6. INSTALL FUEL PRESSURE TRANSMITTER AND FUEL FILTER DIFFERENTIAL PRESSURE SWITCH.

WARNING

Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

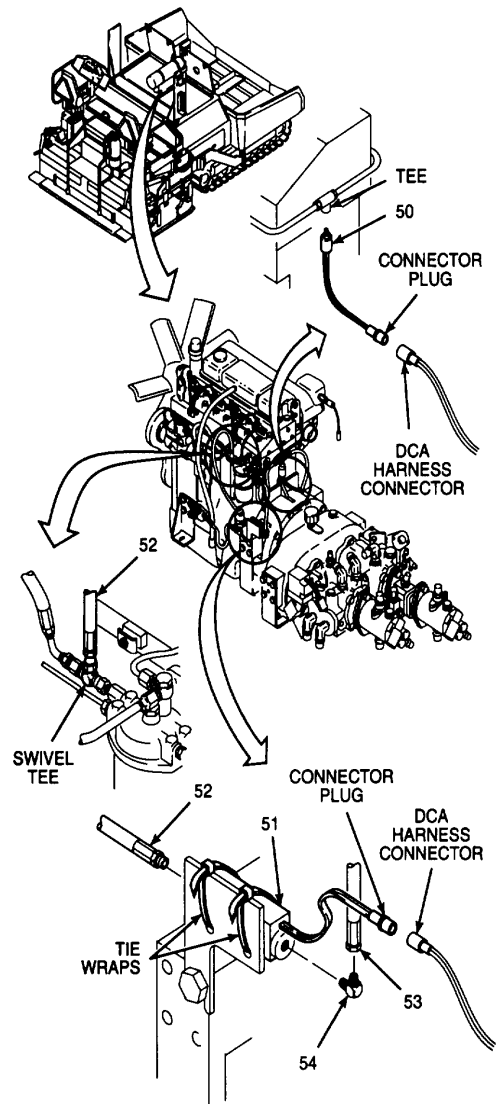
- a. Apply pipe sealant to threads of fuel pressure transmitter (50). Install and tighten fuel pressure transmitter in mating tee.
- b. Apply pipe sealant to male pipe threads of fuel hose (52) and elbow (54).
- c. Install fuel filter differential pressure switch (51) in bench vise. Install male end of fuel hose (52) and elbow (54) into pressure switch. Elbow is installed in end with wire leads.
- d. Install fuel filter differential pressure switch (51) on mating bracket with tie wraps.

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- e. Apply hydraulic fitting sealant to exposed threads of swivel tee at fuel filter and threads of elbow (54).
- f. Install and tighten female end of fuel hose (52) to mating swivel tee and fuel hose (53) to elbow (54).

- g. Apply electrical insulating compound to connector plug of fuel pressure transmitter and fuel filter differential pressure switch (50 and 51).



- h. Plug connector plugs of fuel pressure transmitter and fuel filter differential pressure switch (50 and 51) into mating DCA harness connectors.
- i. Remove machinery wiping towels. If saturated, dispose of towels in accordance with local procedures.

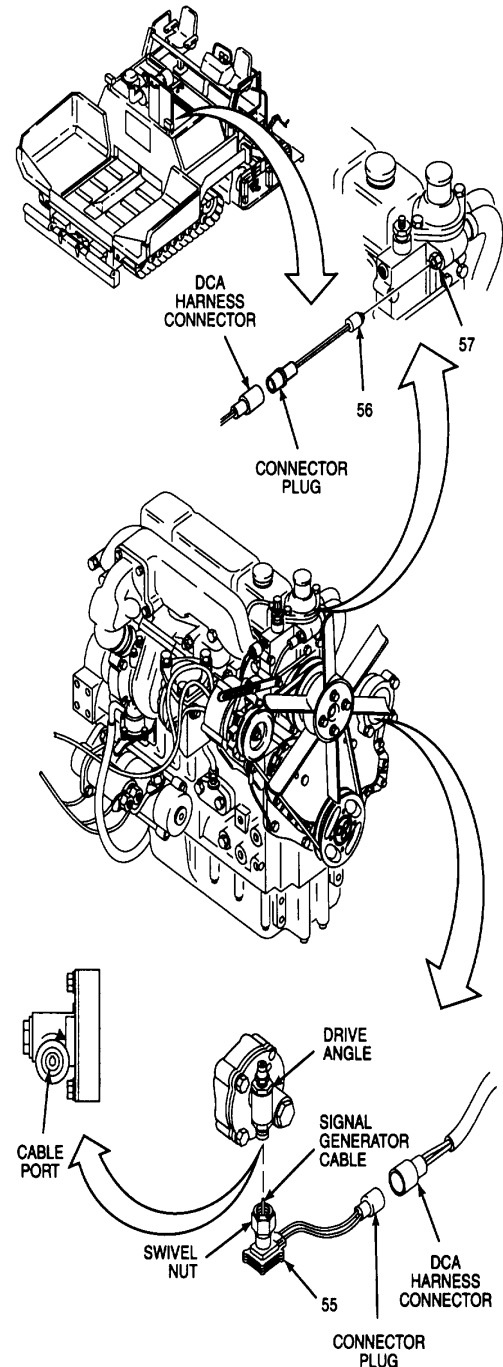
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7.17. REPLACE DCA AND PRESSURE TRANSMITTERS Continued.

B. INSTALL Continued.

7. INSTALL TACHOMETER SIGNAL GENERATOR AND ENGINE COOLANT TEMPERATURE TRANSDUCER.

- a. Install tachometer signal generator (55) in mating drive angle. Make sure signal generator cable lines up and seats in cable port of drive angle. Tighten tachometer signal generator swivel nut with crowfoot wrench.
- b. Apply electrical insulating compound to connector plug of tachometer signal generator (55).
- c. Plug connector plug of tachometer signal generator (55) into mating DCA harness connector.
- d. Remove pipe plug from pipe bushing (57). Install and tighten engine coolant temperature transducer (56) into pipe bushing. Use backup wrench, if necessary.
- e. Apply electrical insulating compound to connector plug of engine coolant temperature transducer (56).
- f. Plug connector plug of engine coolant temperature transducer (56) into mating DCA harness connector.



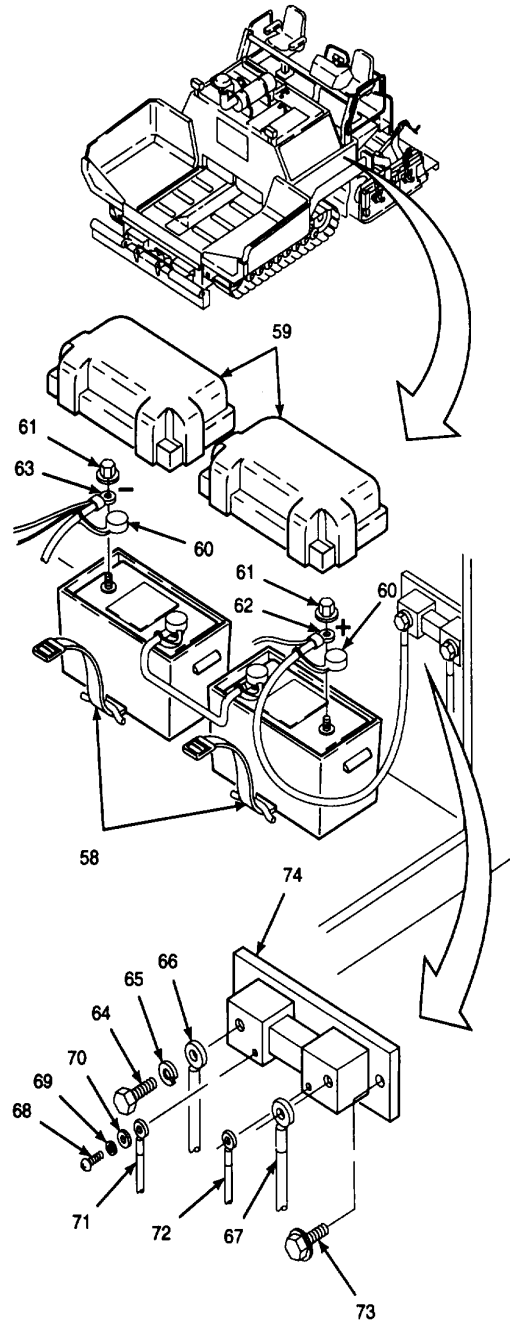
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- B. INSTALL Continued.
8. INSTALL INSTRUMENT SHUNT.
- a. Install instrument shunt (74) with self-locking screws (73).
 - b. Connect shunt leads 337 (72) and 338 (71) to shunt with flat washers (70), lockwashers (69), and machine screws (68).
 - c. Connect ground cable (67) and negative terminal lead (66) to shunt (74) with hex head cap screws (64) and lockwashers (65). Tighten cap screws.

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- d. Apply even coating of electrical insulating varnish to terminals of installed negative terminal lead, ground cable, and shunt leads (66, 67, 71, and 72).
- e. Connect negative battery cable (62) and positive battery cable (63) to batteries. Install battery nuts (61).
- f. Apply electrical insulating varnish to battery terminals and battery nuts (61).
- g. Install battery terminal caps (60).
- h. Place battery box covers (59) on battery boxes and secure with battery box holddown straps (58).



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7.17. REPLACE DCA AND PRESSURE TRANSMITTERS Continued.

B. INSTALL Continued.

NOTE

FOLLOW-ON-TASKS:

**Install right access cover per TM 5-3895-373-10.
Install left access cover per TM 5-3895-373-10.
Close rear top left access door per TM 5-3895-373-10.
Close center top left access door per TM 5-3895-373-10.
Close center top right access door per TM 5-3895-373-10.
Close front top left access door per TM 5-3895-373-10.
Close front top right access door per TM 5-3895-373-10.
Install engine access cover per paragraph 2.22.
Check and add radiator coolant per TM 5-3895-373-10.**

END OF TASK

7.18. REPLACE HORN.

This task covers: a. Remove b. Install

INITIAL SETUPTools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Torque wrench (Item 68, Appendix E)

Materials/Parts:

Adhesive (Item 2, Appendix C)
Electrical insulating varnish (Item 32, Appendix C)
Tags (Item 27, Appendix C)
Horn unit
Lockwashers
Self-locking hex nut

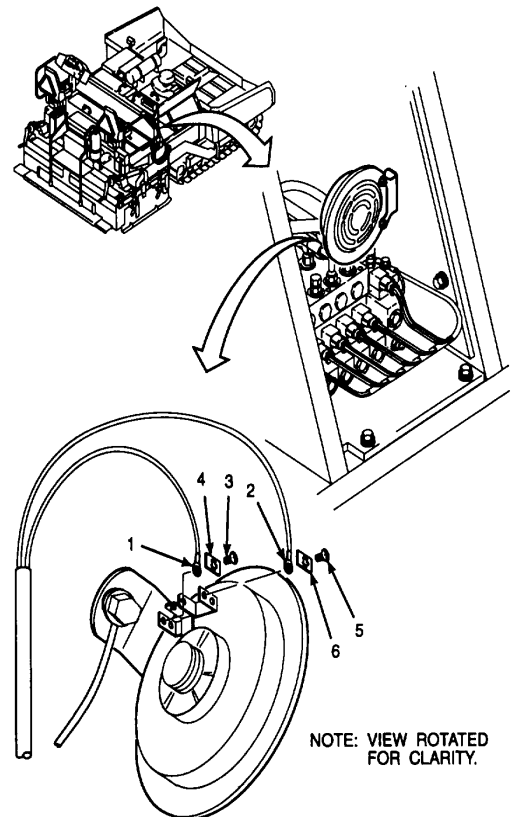
References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Right access door open per TM 5-3895-373-10.
Center top right access door open per TM 5-3895-373-10.

- A. REMOVE.
1. DISCONNECT WIRING.
- a. Tag lead wire 107 (1) and ground wire (2) for reassembly.
 - b. Remove screw (3), lockwasher (4), and lead wire 107 (1).
 - c. Remove screw (5), lockwasher (6), and ground wire (2).



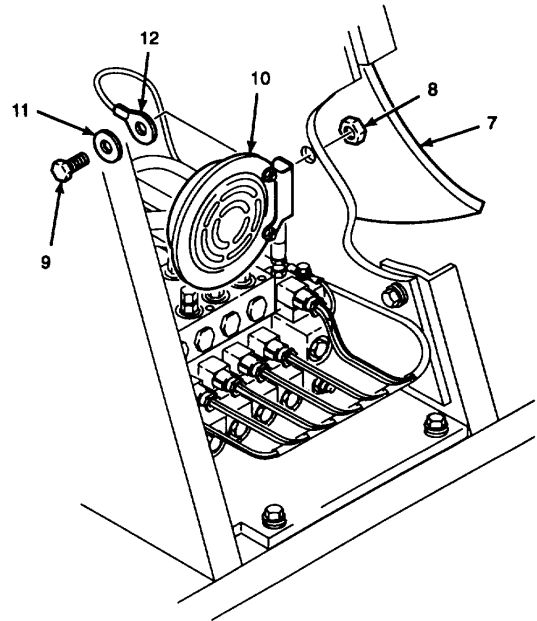
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7.18. REPLACE HORN Continued.

A. REMOVE Continued.

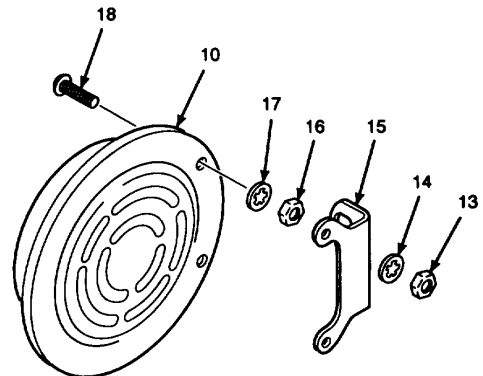
2. REMOVE HORN.

- a. Peel back sound foam (7) to access self-locking hex nut (8). Hold bolt (9) with a wrench and remove nut. Discard self-locking hex nut.
- b. Support horn (10) and remove bolt (9), flat washer (11), and ground wire (12).
- c. Remove horn (10) from paving machine.



3. REMOVE MOUNTING BRACKET.

- a. Remove hex nuts (13) and lockwashers (14). Discard lockwashers.
- b. Remove mounting bracket (15).
- c. Remove hex nuts (16), lockwashers (17), and bolts (18). Discard lockwashers.
- d. Discard horn unit (10).



B. INSTALL.

1. INSTALL MOUNTING BRACKET.

- a. Install bolts (18), lockwashers (17), and hex nuts (16). Tighten hex nuts.
- b. Install mounting bracket (15) and secure with lockwashers (14) and hex nuts (13). Tighten hex nuts.

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- B. INSTALL Continued.
- 2. INSTALL HORN.

NOTE

Install horn at an angle to keep rainwater from entering.

- a. Install horn (10), ground wire (12), flat washer (11), and bolt (9).
- b. Install self-locking hex nut (8). Tighten nut to 19 lb-ft (26 N•m).

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

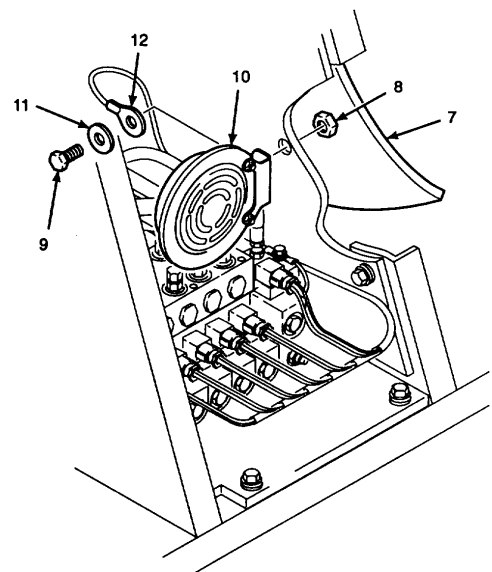
- c. Apply electrical insulating varnish to ground wire (12) connection.

WARNING

Adhesive is TOXIC and extremely flammable. Keep away from heat, sparks, and open flames. Use only in well ventilated areas. Do not breathe vapors or swallow and avoid contact with eyes and skin. Failure to do so may result in injury or death to personnel.

If personnel become dizzy while using adhesive, immediately get fresh air and medical attention. If personnel swallow adhesive, do not induce vomiting. Get immediate medical attention. If adhesive contacts eyes, flush eyes with water for 15 minutes and get immediate medical attention. If adhesive contacts skin, wash thoroughly with soap and water.

- d. Apply adhesive to back of sound foam (7) and place over self-locking hex nut (8).



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7.18. REPLACE HORN Continued.

- B. INSTALL Continued.
3. CONNECT WIRING.
- a. Connect ground wire (2) and secure with lockwasher (6) and screw (5).
 - b. Connect lead wire 107 (1) and secure with lockwasher (4) and screw (3).

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- c. Apply electrical insulating varnish to electrical connections.

NOTE**FOLLOW-ON-TASKS:**

**Close right access door per TM 5-3895-373-10.
Close center top right access door per TM 5-3895-373-10.**

END OF TASK

7.19. REPLACE STORAGE BATTERIES AND BATTERY BOXES.

This task covers: a. Remove b. Install

INITIAL SETUP

Tools:

General mechanic's automotive tool kit
(Item 54, Appendix E)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Materials/Parts:

Electrical insulating varnish (Item 32, Appendix C)
Battery boxes
Battery box holddown straps Panels
Storage batteries

Equipment Condition:

Left access cover removed per TM 5-3895-373-10.
Rear top left access door open per TM 5-3895-373-10.

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7.19. REPLACE STORAGE BATTERIES AND BATTERY BOXES Continued.

A. REMOVE.

WARNING

Disconnect batteries prior to performing maintenance in immediate battery or starter area. Failure to disconnect batteries may lead to electrical shock or short circuit and result in severe personnel injury or damage to equipment.

1. DISCONNECT BATTERIES.

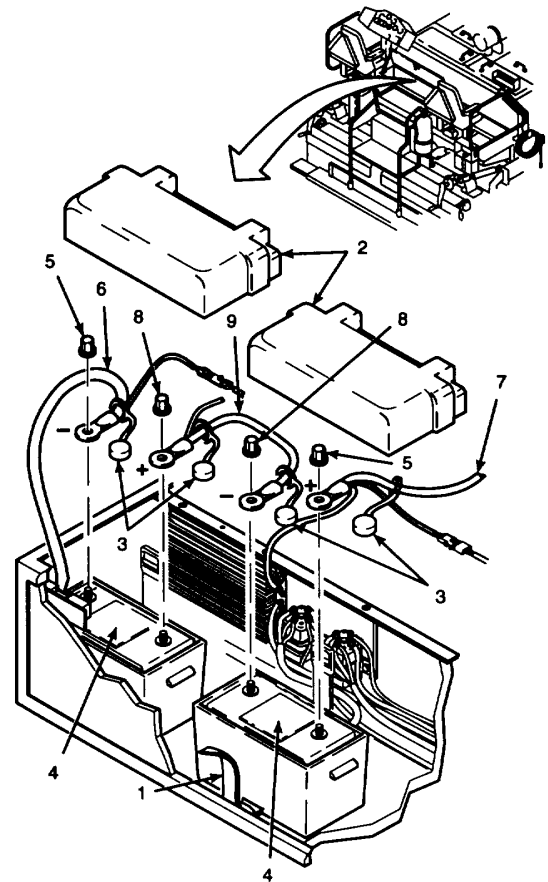
- a. Unbuckle battery box holddown straps (1) and remove battery box covers (2) from both batteries.
- b. Lift battery terminal caps (3) from battery terminals.
- c. Remove panels (4).

WARNING

When disconnecting batteries, disconnect negative battery cable before disconnecting positive battery cable. Failure to disconnect batteries in the proper sequence may lead to electrical shock or short circuit and result in severe personnel injury.

- d. Remove battery nut (5) and negative battery cable (6) from negative terminal of outboard battery.

- e. Remove battery nut (5) and positive battery cable (7) from positive terminal of inboard battery.
- f. Remove battery nuts (8).
- g. Remove jumper battery cable (9) from negative terminal of inboard battery and from positive terminal of outboard battery.



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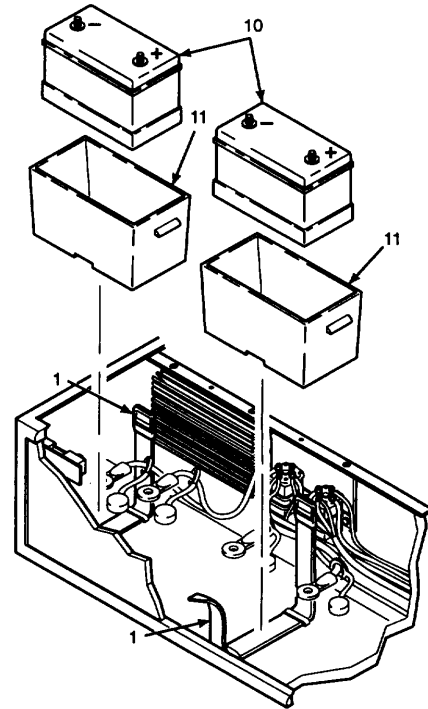
- A. REMOVE Continued.
- 2. REMOVE BATTERIES.

WARNING

Battery acid is extremely corrosive. Take care when handling batteries. Spilled battery acid can cause equipment damage and injury to personnel. If battery acid contacts skin, flush skin with water and get immediate medical attention.

- a. Remove batteries (10) and battery boxes (11) from battery compartment using handles on battery boxes. Remove inboard battery by lifting straight up through rear top left access opening. Remove outboard battery from side of machine through left access cover opening.
 - b. Remove batteries (10) from battery boxes (11).
 - c. Remove battery box holddown straps (1).
 - d. Discard battery boxes (11) and battery box holddown straps (1). Dispose of used storage batteries in accordance with local procedures.
- B. INSTALL.
- 1. INSTALL BATTERIES.
 - a. Place batteries (10) in battery boxes (11).

- b. Install battery box holddown straps (1) through slots in floor of battery compartment.
- c. Place batteries (10) and battery boxes (11) in battery compartment. Make sure terminals are oriented correctly. Install inboard battery by lowering through rear top left access opening. Install outboard battery through left access cover opening on side of machine.



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7.19. REPLACE STORAGE BATTERIES AND BATTERY BOXES Continued.

B. INSTALL Continued.

2. RECONNECT BATTERIES.

WARNING

When connecting batteries, connect positive battery cable before connecting negative battery cable. Failure to connect batteries in the proper sequence may lead to electrical shock or short circuit and result in severe personnel injury.

- a. Reconnect jumper battery cable (9) to positive terminal of outboard battery and to negative terminal of inboard battery.
- b. Install battery nuts (8).
- c. Reconnect positive battery cable (7) and battery nut (5) to positive terminal of inboard battery.
- d. Reconnect negative battery cable (6) and battery nut (5) to negative terminal of outboard battery.

WARNING

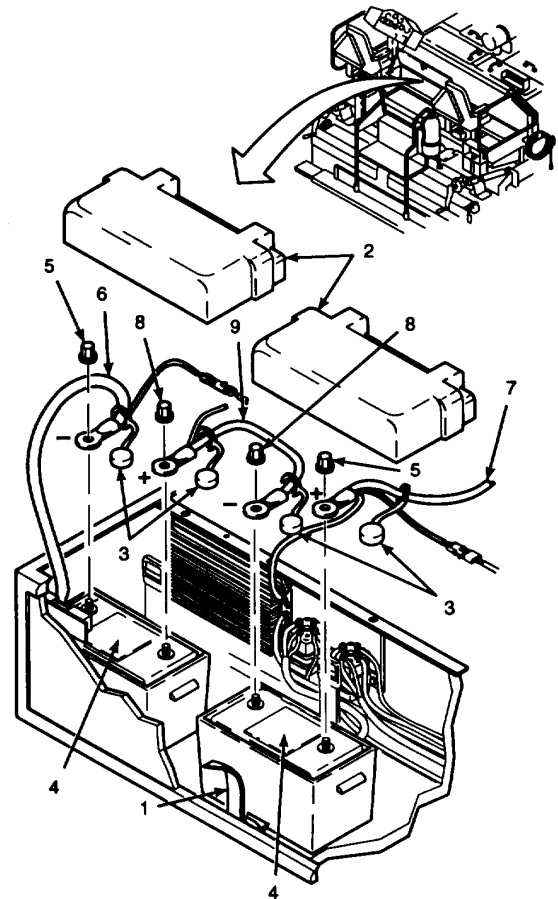
Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- e. Apply electrical insulating varnish to terminals of batteries.

f. Install panels (4).

g. Install battery terminal caps (3) onto battery terminals.

h. Install battery box covers (2) and buckle battery box hold-down straps (1) on both batteries.

**NOTE****FOLLOW-ON-TASKS:**

Install left access cover per TM 5-3895-373-10.
Close rear top left access door per TM 5-3895-373-10.

END OF TASK

7.20. REPLACE BATTERY CABLES.

This task covers: a. Remove b. Install

INITIAL SETUP

Tools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Torque wrench (Item 68, Appendix E)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Materials/Parts:

Electrical insulating compound (Item 11, Appendix C)
Electrical insulating varnish (Item 32, Appendix C)
Tags (Item 27, Appendix C)
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Tie wraps (Item 29, Appendix C)
Jumper battery cable
Lockwashers
Negative battery cable
Positive battery cable
Shunt ground cable
Slave cable
Slave ground cable
Slave receptacle

Equipment Condition:

Engine access cover removed per paragraph 2.22.
Left access door open per TM 5-3895-373-10.
Left access cover removed per TM 5-3895-373-10.
Center top right access door open per TM 5-3895-373-10.
Center top left access door open per TM 5-3895-373-10.
Front top right access door open per TM 5-3895-373-10.
Rear top left access door open per TM 5-3895-373-10.

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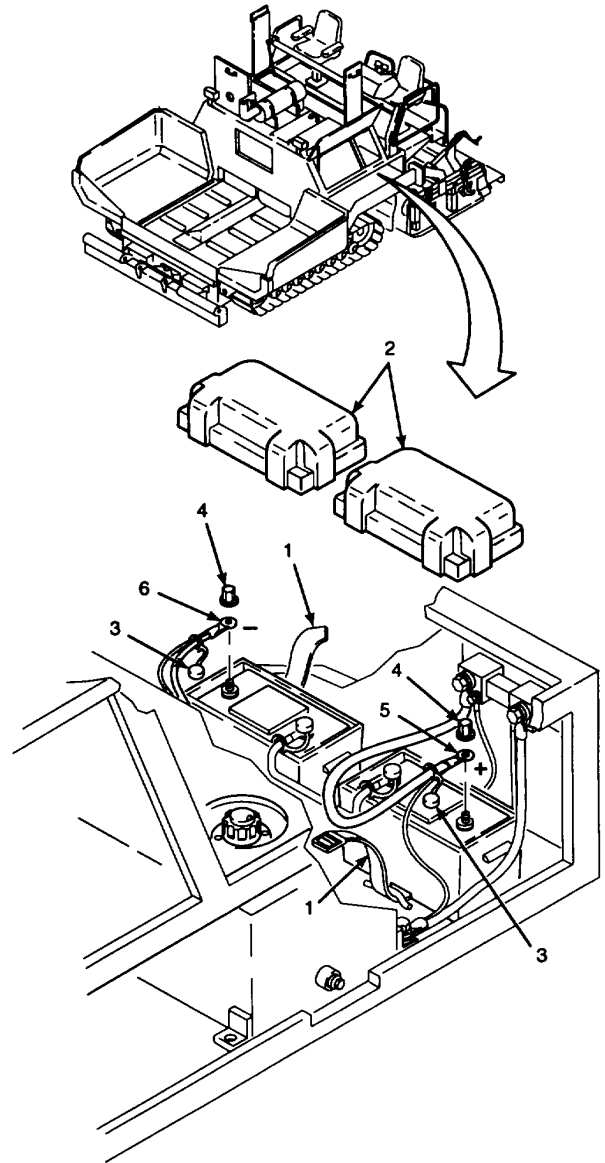
7.20. REPLACE BATTERY CABLES Continued.

- A. REMOVE.
1. DISCONNECT BATTERIES.
- a. Unbuckle battery box holddown straps (1) and remove battery box covers (2) from both batteries.
- b. Lift battery terminal caps (3) from battery terminals.

WARNING

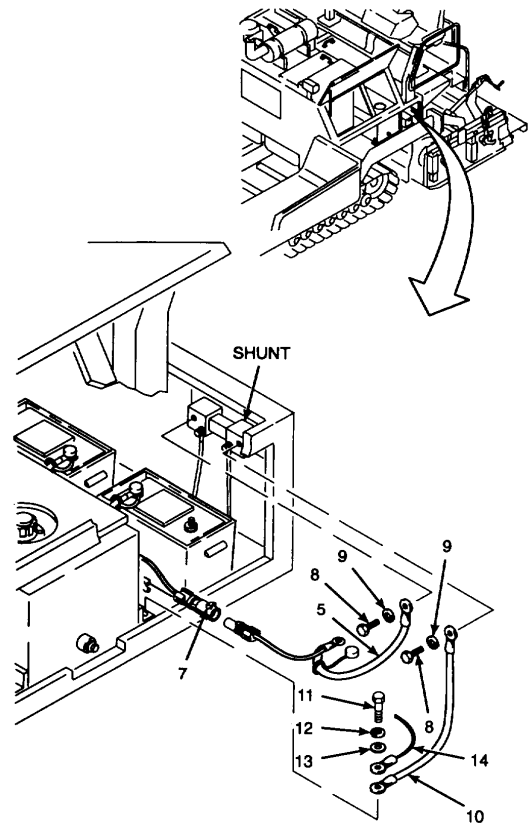
When disconnecting batteries, disconnect negative battery cable before disconnecting positive battery cable. Failure to disconnect batteries in the proper sequence may lead to electrical shock or short circuit and result in severe personnel injury.

- c. Remove battery nut (4) and negative battery cable (5) from negative terminal of outboard battery. Remove battery nut (4) and positive battery cable (6) from positive terminal of inboard battery.



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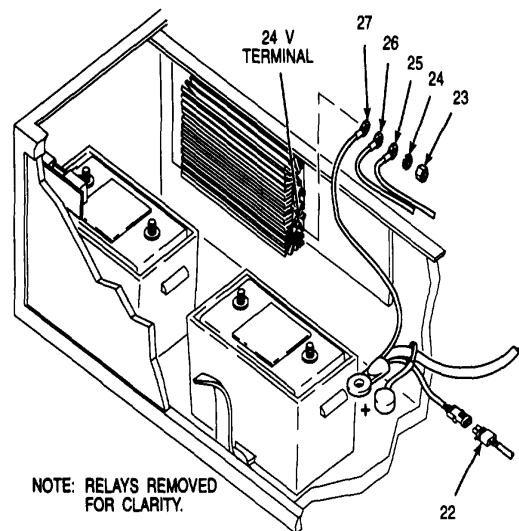
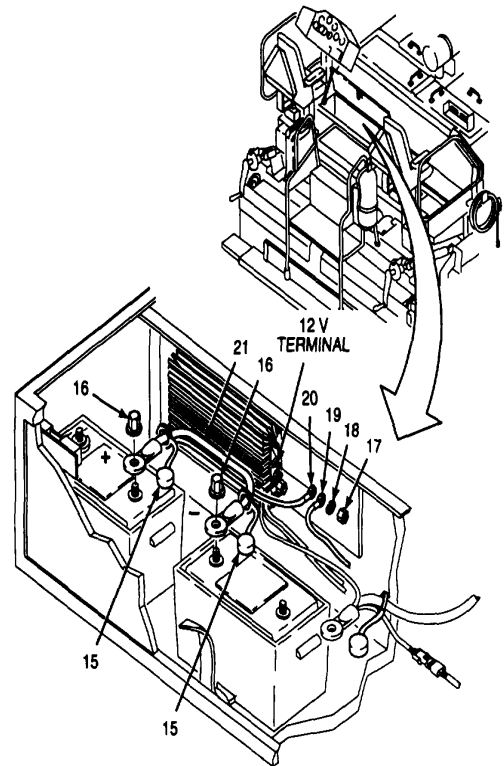
- A. REMOVE Continued.
- 2. REMOVE NEGATIVE BATTERY CABLE AND SHUNT GROUND CABLE.
 - a. Tag and disconnect DCA harness connector (7) from negative battery cable (5) harness.
 - b. Remove hex head cap screws (8), lockwashers (9) and negative battery cable (5) and shunt ground cable (10) from shunt. Discard lockwashers.
 - c. Remove hex head cap screw (11), lockwasher (12), and flat washer (13). Discard lockwasher.
 - d. Move DCA ground wire (14) aside and remove shunt ground cable (10).



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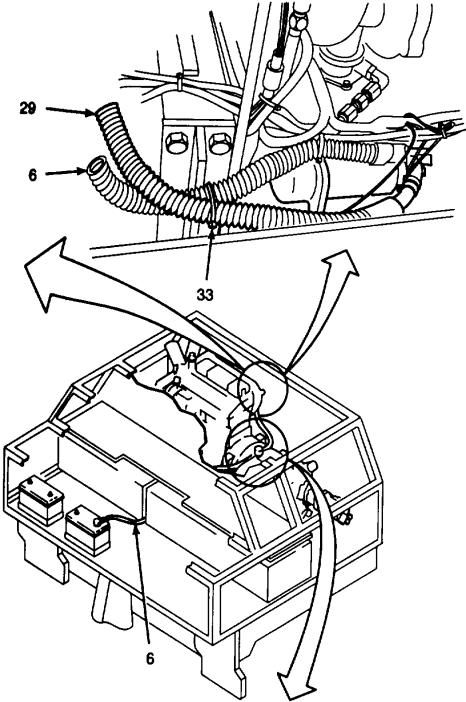
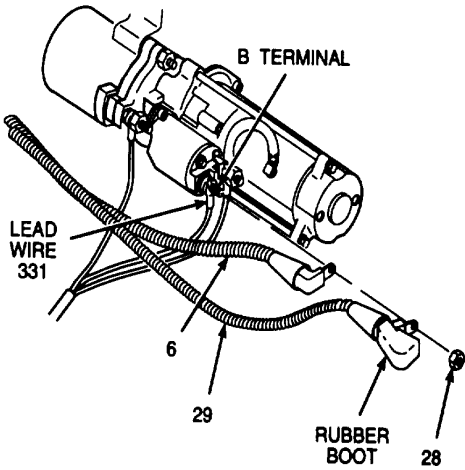
7.20. REPLACE BATTERY CABLES Continued.

- A. REMOVE Continued.
- 3. REMOVE JUMPER BATTERY CABLE.
 - a. Lift battery terminal caps (15) from battery terminals.
 - b. Remove battery nuts (16).
 - c. Remove hex nut (17) and lockwasher (18) from voltage transformer 12 V terminal. Discard lockwasher.
 - d. Tag and remove lead wire 166 (19) and jumper lead wire (20) from voltage transformer 12 V terminal.
 - e. Remove jumper battery cable (21).
- 4. REMOVE POSITIVE BATTERY CABLE.
 - a. Tag and disconnect DCA harness connector (22) from positive battery cable harness.
 - b. Remove hex nut (23) and lockwasher (24) from voltage transformer 24 V terminal. Discard lockwasher.
 - c. Tag and remove lead wire 167 (25), lead wire 160 (26), and lead wire 161 (27) from voltage transformer 24 V terminal.



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A. REMOVE Continued.

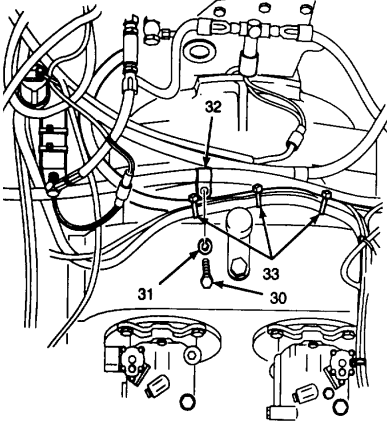


- d. Reach in through engine access cover area in hopper and remove rubber boot covering starter B terminal. Remove hex nut (28) from starter B terminal.

NOTE

When removing slave cable (29) and positive battery cable (6), ensure lead wire 331 is not removed from starter B terminal.

- e. Remove slave cable (29) and positive battery cable (6) from starter B terminal.
- f. Remove cap screw (30), lockwasher (31), and clamp (32) from the flywheel housing. Discard lockwasher.



NOTE

Tie wraps are located as needed.

- g. Cut tie wraps (33) and remove positive battery cable from paving machine. Discard tie wraps.

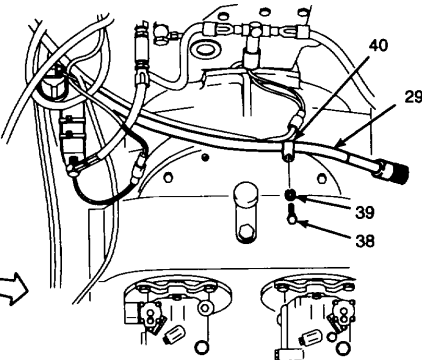
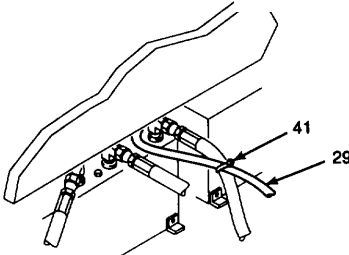
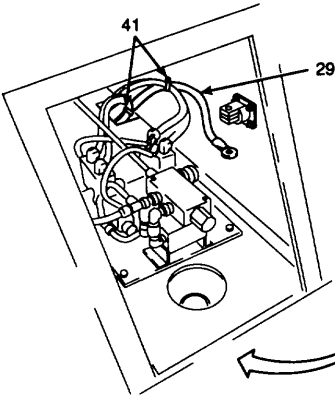
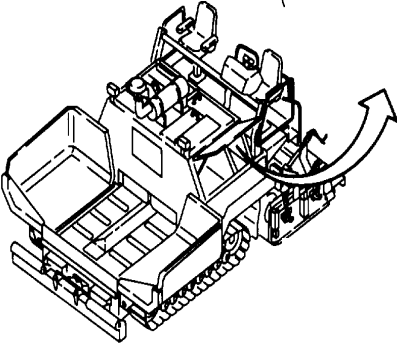
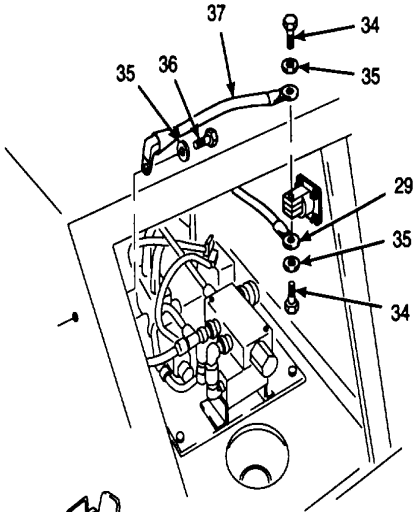
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7.20. REPLACE BATTERY CABLES Continued.

- A. REMOVE Continued.
- 5. REMOVE SLAVE CABLES.
 - a. Remove socket head cap screw (34) and flat washer (35) securing slave cable (29) to slave receptacle.
 - b. Remove cap screw (36) and flat washer (35).
 - c. Remove socket head cap screw (34), flat washer (35), and slave ground cable (37) from the slave receptacle and the ground at the cowling frame.
 - d. Remove cap screw (38) and lockwasher (39) from engine flywheel housing. Discard lockwasher.
 - e. Remove clamp (40) from engine flywheel housing and from slave cable (29).

NOTE
Tie wraps are located as needed.

- f. Cut tie wraps (41) and remove slave cable (29) from paving machine. Discard tie wraps.

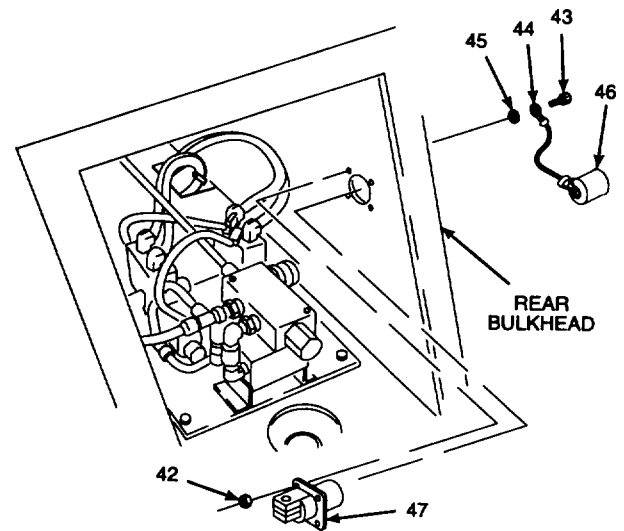


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A. REMOVE - Continued.

6. REMOVE SLAVE RECEPTACLE.

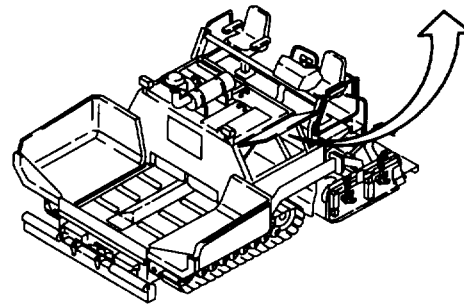
- a. Remove hex nuts (42), socket head cap screws (43), cap string bracket (44), and flat washers (45).
- b. Remove cap (46).
- c. Pull slave receptacle (47) from paving machine through front of rear bulkhead.



B. INSTALL.

1. INSTALL SLAVE RECEPTACLE.

- a. Install slave receptacle (47) into paving machine through front of rear bulkhead.
- b. Install cap string bracket (44) and flat washers (45) onto socket head cap screws (43).
- c. Install socket head cap screws (43) through rear of rear bulkhead and through slave receptacle (47).
- d. Secure slave receptacle (47) by installing hex nuts (42) on socket head cap screws (43).
- e. Install cap (46) onto slave receptacle (47).



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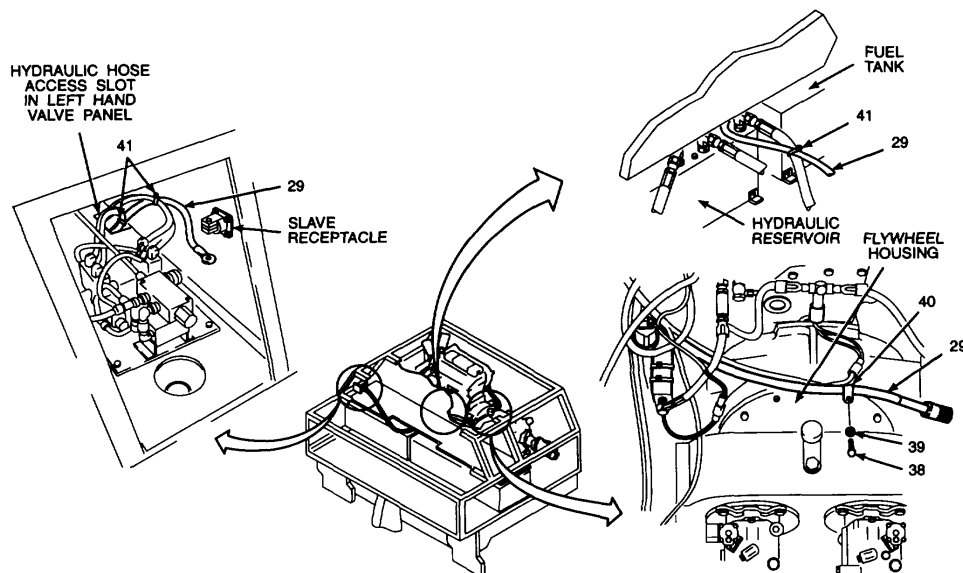
7.20. REPLACE BATTERY CABLES - Continued.**B. INSTALL - Continued.****2. INSTALL SLAVE CABLES.**

- a. Refer to illustration and install slave cable (29) into paving machine as follows: starting at starter, bring slave cable across back of engine over flywheel housing. Run cable across the top of the fuel tank and hydraulic reservoir under the valve panel. Bring the slave receptacle end of the cable through the hydraulic hose access slot in the left hand valve panel and up to the slave receptacle.
- b. Install clamp (40) on slave cable (29).
- c. Install clamp on engine flywheel housing and secure with lockwasher (39) and cap screw (38). Tighten cap screw to 42 lb-ft (57 N•m).

NOTE

Tie wraps are located as needed.

- d. Refer to illustration and install tie wraps (41) on slave cable (29).



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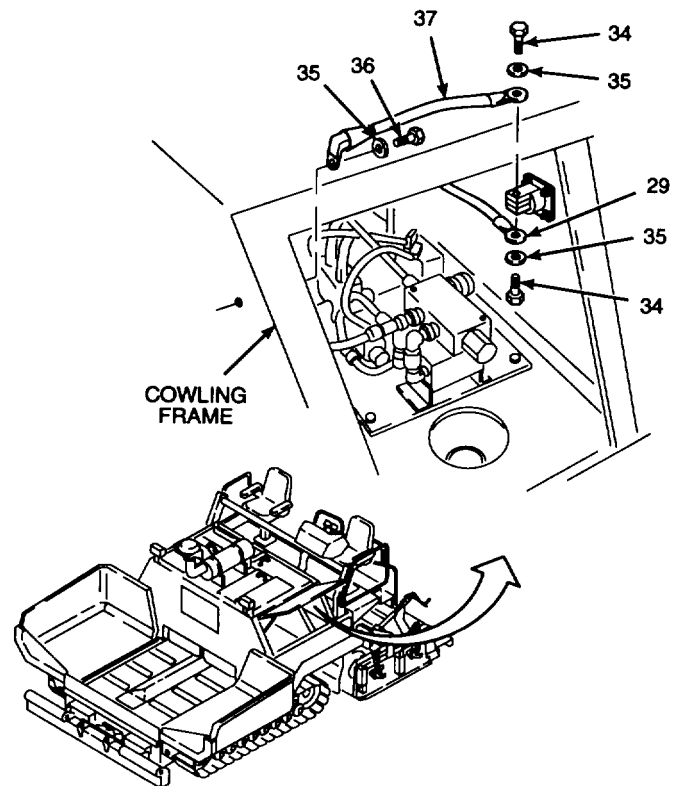
B. INSTALL - Continued.

- e. Connect slave cable (29) to slave receptacle and secure with flat washer (35) and socket head cap screw (34).

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- f. Tighten socket head cap screw (34) to 15 lb-ft (20 N•m). Apply electrical insulating varnish to cap screw and slave receptacle.
- g. Connect slave ground cable (37) ground at cowling frame with flat washer (35) and cap screw (36).
- h. Connect slave ground cable (37) to slave receptacle with flat washer (35) and socket head cap screw (34).
- i. Tighten cap screws (34 and 36) to 15 lb-ft (20 N•m). Apply electrical insulating varnish to cap screws, slave receptacle, and ground connection.



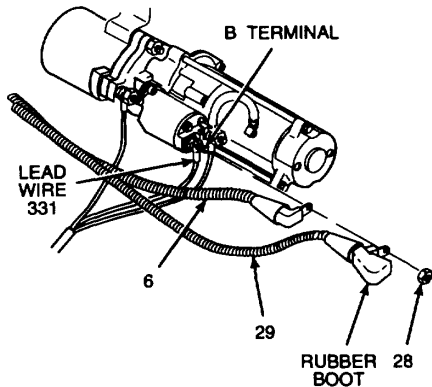
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7.20. REPLACE BATTERY CABLES - Continued.

B. INSTALL - Continued.

3. INSTALL POSITIVE BATTERY CABLE.

- a. Refer to illustration and install positive battery cable (6) into paving machine as follows: starting at starter, bring positive battery cable across back of engine over flywheel housing. Insert battery end of cable into opening between the hydraulic reservoir and fuel tank and push through to battery compartment. Bring end of cable up to positive terminal of inboard battery.

**NOTE**

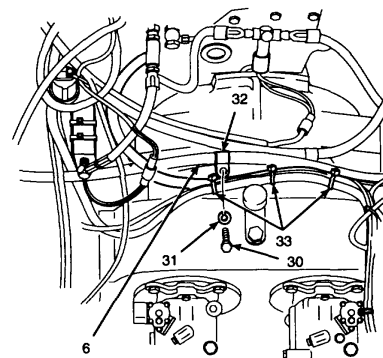
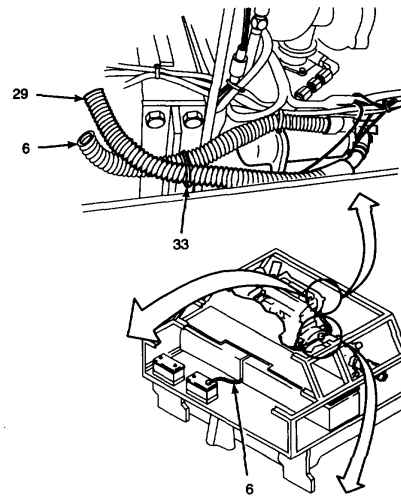
Before installing positive battery cable (6) and slave cable (29), ensure lead wire 331 is installed on starter B terminal.

- b. Reconnect positive battery cable (6) and slave cable (29) to starter B terminal.

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- c. Install hex nut (28) on starter B terminal. Apply electrical insulating varnish to hex nut and starter B terminal. Place rubber boot from slave cable over starter B terminal.
- d. Install clamp (32) onto positive battery cable (6).
- e. Install clamp on engine flywheel housing and secure with lockwasher (31) and cap screw (30). Tighten cap screw to 42 lb-ft (57 N•m).

**NOTE**

Tie wraps are located as needed.

- f. Install tie wraps (33) on positive battery cable (6) as needed to secure cable.

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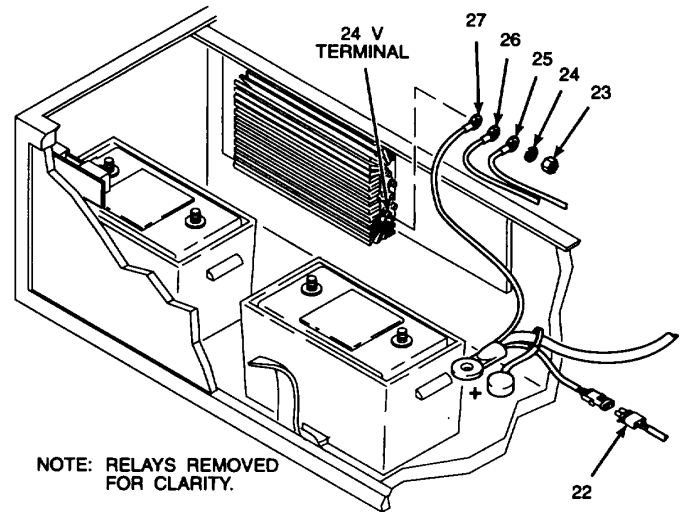
B. INSTALL - Continued.

- g. Reconnect lead wire 161 (27), lead wire 160 (26), and lead wire 167 (25) to voltage transformer 24 V terminal.

WARNING

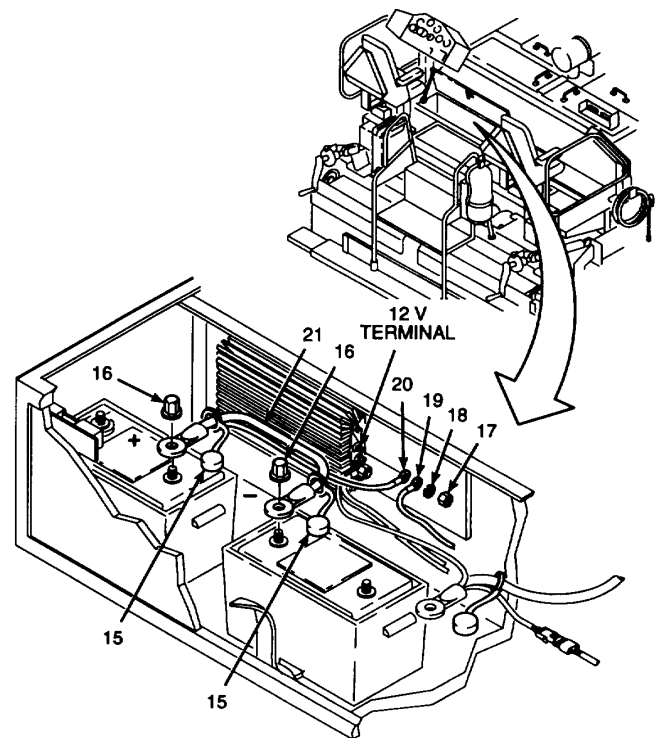
Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- h. Install lockwasher (24) and hex nut (23) on voltage transformer 24 V terminal. Apply electrical insulating varnish to hex nut and voltage transformer 24 V terminal.
- i. Apply electrical insulating compound to DCA harness connector (22). Connect DCA harness connector to positive battery cable harness.
- j. Do not reconnect positive battery cable (6) to battery terminal.



4. INSTALL JUMPER BATTERY CABLES.

- a. Install jumper battery cable (21) to positive terminal of outboard battery and negative terminal of inboard battery.
- b. Install battery nuts (16). Apply electrical insulating varnish to battery terminals and battery nuts.
- c. Install battery terminal caps (15) to battery terminals.
- d. Reconnect jumper lead wire (20) terminals and lead wire 166 (19) to voltage transformer 12 V terminal.
- e. Install lockwasher (18) and hex nut (17) on voltage transformer 12 V terminal. Apply electrical insulating varnish to hex nut and voltage transformer 12 V terminal.



GO TO NEXT PAGE

7.20. REPLACE BATTERY CABLES - Continued.

B. INSTALL - Continued.

5. INSTALL NEGATIVE BATTERY CABLE AND SHUNT GROUND CABLE.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush with water and get immediate medical attention.

- a. Clean threads of hex head cap screws (8 and 11) with thread locking compound solvent.
- b. Install flat washer (13) and lockwasher (12) onto hex head cap screw (11).

WARNING

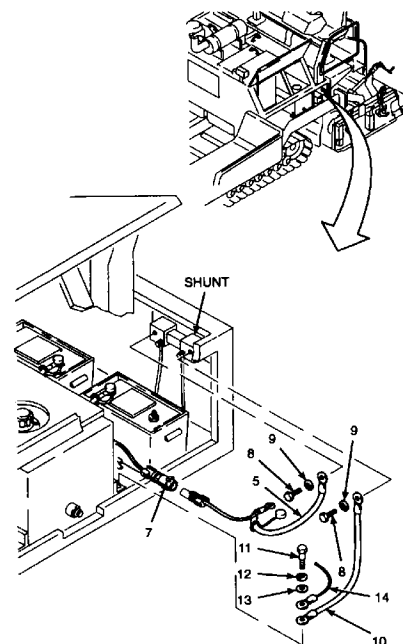
Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- c. Apply thread locking compound to threads of hex head cap screw (11).
- d. Install shunt ground cable (10) and DCA ground wire (14) to fuel tank mounting bracket and secure with hex head cap screw (11).

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- e. Tighten hex head cap screw (11) to 30 lb-ft (40 N•m). Apply electrical insulating varnish to cap screw and fuel tank mounting bracket.
- f. Install lockwashers (9) onto hex head cap screws (8).



- g. Apply thread locking compound to threads of hex head cap screws (8).
- h. Install negative battery cable (5) and shunt ground cable (10) to shunt and secure with hex head cap screws (8).
- i. Tighten hex head cap screws (8) to 15 lb-ft (20 N•m). Apply electrical insulating varnish to cap screws and shunt.
- j. Apply electrical insulating compound to DCA harness connector (7). Connect DCA harness connector to negative battery cable harness.

GO TO NEXT PAGE

B. INSTALL - Continued.**6. RECONNECT BATTERIES.****WARNING**

When connecting batteries, connect positive battery cable before connecting negative battery cable. Failure to connect batteries in the proper sequence may lead to electrical shock or short circuit and result in severe personnel injury.

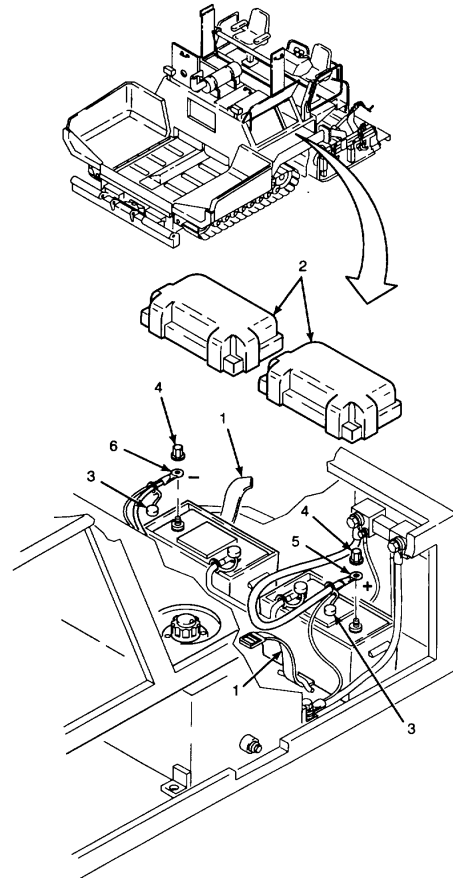
- a. Reconnect positive battery cable (6) and battery nut (4) to positive terminal of inboard battery.
- b. Reconnect negative battery cable (5) and battery nut (4) to negative terminal of outboard battery.

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- c. Apply electrical insulating varnish to terminals and to battery.

- d. Install battery terminal caps (3) to battery terminals.
- e. Install battery box covers (2) on both batteries and buckle battery box holddown straps (1).

**NOTE**

FOLLOW-ON-TASKS: Install engine access cover per paragraph 2.22.
 Install left access cover per TM 5-3895-373-10.
 Close left access door per TM 5-3895-373-10.
 Close center top left access door per TM 5-3895-373-10.
 Close center top right access door per TM 5-3895-373-10.
 Close front top right access door per TM 5-3895-373-10.
 Close front top left access door per TM 5-3895-373-10.
 Close rear top left access door per TM 5-3895-373-10.

END OF TASK

7.21. REPAIR ELECTRICAL HARNESESSES.

This task covers:

a. Remove b. Repair c. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
 (Item 54, Appendix E)
 Electrical connector repair kit (Item 53, Appendix E)
 Heater gun (Item 21, Appendix E)
 Solder (Item 47, Appendix E)
 Soldering iron (Item 23, Appendix E)
 Left access cover removed per TM 5-3895-373-10.

References:

TM 5-3895-373-10
 TM 5-3895-373-24P
 MIL-STD-2000A

Equipment Condition:

Rear top left access door opened per TM 5-3895-373-10.

Materials/Parts:

Adhesive (Item 1, Appendix C)
 Electrical insulating compound (Item 11, Appendix C)
 Electrical insulating varnish (Item 32, Appendix C)
 Electrical tape (Item 17, Appendix C)
 Tape (Item 28, Appendix C)
electrical
 Tie wraps (Item 29, Appendix C)
and to Dust and moisture boots
 Electrical coil connectors
 Electrical connectors
 Pin terminals
 Ring terminals
 Shrink tubing
 Spade terminals
 Splice clips
 Tongue terminals

NOTE

**Open other access door(s) and remove
 access
 cover(s) as necessary to repair**

**harnesses. Refer to paragraph 2.22
 TM 5-3895-373-10.**

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A. REMOVE.

WARNING

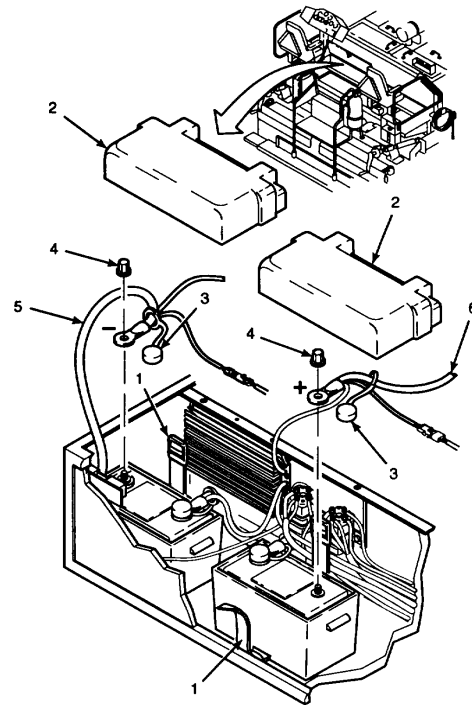
Disconnect batteries prior to performing maintenance on paving machine electrical system. Failure to disconnect batteries may lead to electrical shock or short circuit and result in severe personnel injury or damage to equipment.

1. UNBUCKLE BATTERY BOX HOLDDOWN STRAPS (1) AND REMOVE BATTERY BOX COVERS (2) FROM BOTH BATTERIES.
2. LIFT BATTERY TERMINAL CAPS (3) FROM BATTERY TERMINALS.

WARNING

When disconnecting batteries, disconnect negative battery cable before disconnecting positive battery cable. Failure to disconnect batteries in the proper sequence may lead to electrical shock or short circuit and result in severe personnel injury.

3. REMOVE BATTERY NUT (4) AND NEGATIVE BATTERY CABLE (5) FROM NEGATIVE TERMINAL OF OUTBOARD BATTERY.
4. REMOVE BATTERY NUT (4) AND POSITIVE BATTERY CABLE (6) FROM POSITIVE TERMINAL OF INBOARD BATTERY.



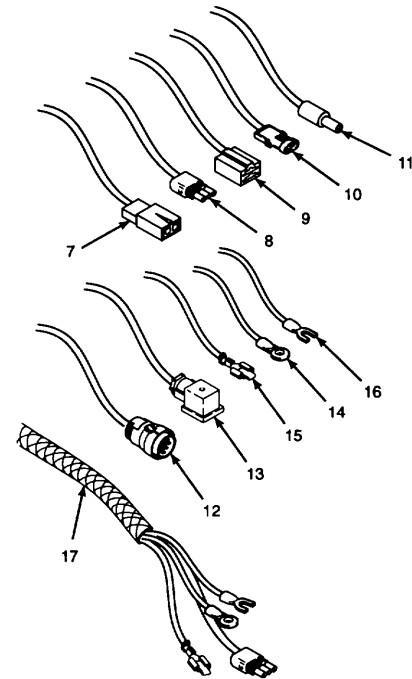
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7.21. REPAIR ELECTRICAL HARNESES - Continued.

B. REPAIR.

NOTE

This procedure covers the removal and installation of electrical connectors and electrical coil connectors; ring terminals, tongue terminals, and spade terminals; and the repair of electrical harnesses by installation of a wire by "piggyback" method on the harness itself. This paragraph provides a listing of types of electrical connectors and terminals and methods of repair and replacement. Perform only those procedures listed to repair or replace the defective electrical connector or terminal.



1. GENERAL REPAIR INSTRUCTIONS.

- a. Refer to illustration and chart below for a listing of the types of electrical connectors and wire terminals in the first column. The second column lists specific tools required for repair of the item listed. If a specific tool is not listed, then the use of common tools in the electrical connector repair kit is all that is required. The third column lists the paragraph where the instructions to repair the item occurs.

ITEM TO BE REPAIRED	TOOL REQUIRED	PARAGRAPH
Electrical connector (7)	Narrow, flat-blade tool	B.2
Electrical connector (8)	Round, hollow tool	B.2
Electrical connector (9)	Wide, flat-blade tool	B.2
Electrical connector (10)	Wide, flat-blade tool	B.2
Electrical connector (11)	Round, hollow tool	B.2
Electrical connector (12)	Round, hollow tool	B.2
Electrical coil connector (13)		B.3
Ring terminal (14)		B.4
Tongue terminal (15)		B.4
Spade terminal (16)		B.4
Wiring harness (17)		B.5

- b. Cut tie wraps that are in the way of accessing electrical connectors, terminals, and wiring harnesses. Discard tie wraps.

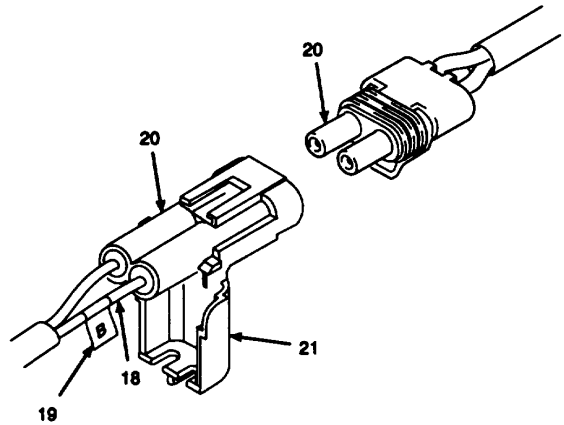
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B. REPAIR - Continued.

2. REPAIR ELECTRICAL CONNECTORS.

a. Tag and disconnect electrical connector halves and remove secondary locks.

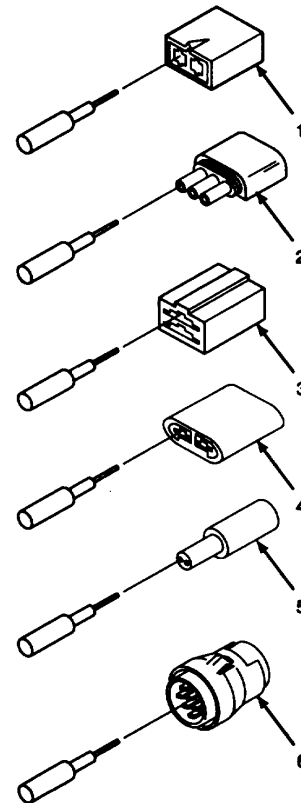
- (1) Determine what type of electrical connector will be serviced. Refer to chart in paragraph B.1.
- (2) Tag each wire (18) to be removed from electrical connector by marking on a piece of tape, in pen, which terminal wire came from.
- (3) Place tape (19) onto wire (18) to be removed.
- (4) Pull electrical connector (20) halves apart.



NOTE

When removed, some secondary locks will not remain attached to electrical connectors. If secondary locks are not attached to connectors, remove them entirely from the connectors.

- (5) Use a flat-blade screwdriver to remove secondary lock (21) on electrical connector (20), where applicable.
- b. Remove pin terminals from electrical connectors and wiring harness.
- (1) Determine which pin terminal removal tool to use. Refer to chart in paragraph B.1.
 - (2) Insert appropriate tool into open end of electrical connector (1 through 6) to release pin terminals.

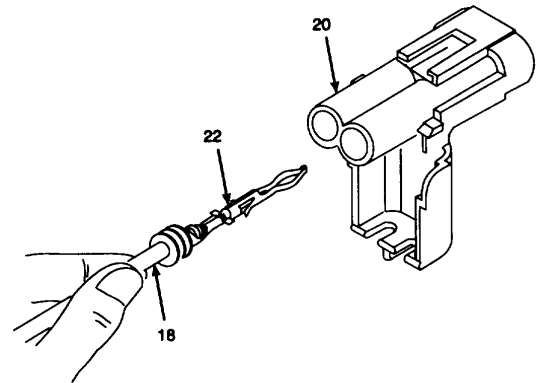


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7.21. REPAIR ELECTRICAL HARNESES - Continued.

B. REPAIR - Continued.

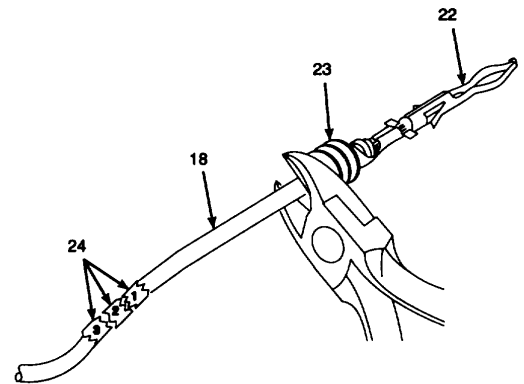
- (3) Grasp electrical connector and gently pull on wire (18) from behind electrical connector (20).
- (4) Pull pin terminals (22) determined faulty from each electrical connector.



NOTE

Terminals must be cut from wiring harness directly behind dust and moisture boot to conserve wire length in electrical harness.

- (5) Use wire cutters to cut, one wire at a time, pin terminals (22) from wires (18). Cut directly behind dust and moisture boot (23) to conserve wire length. Discard pin terminal and dust and moisture boot.
- (6) Do not allow wire harness identification tags (24) to fall from wire (18).

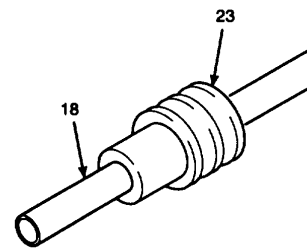


- c. Install new pin terminals onto wiring harness and into electrical connectors.

NOTE

Ensure dust and moisture boot is installed with ribbed end of boot away from cut end of wire.

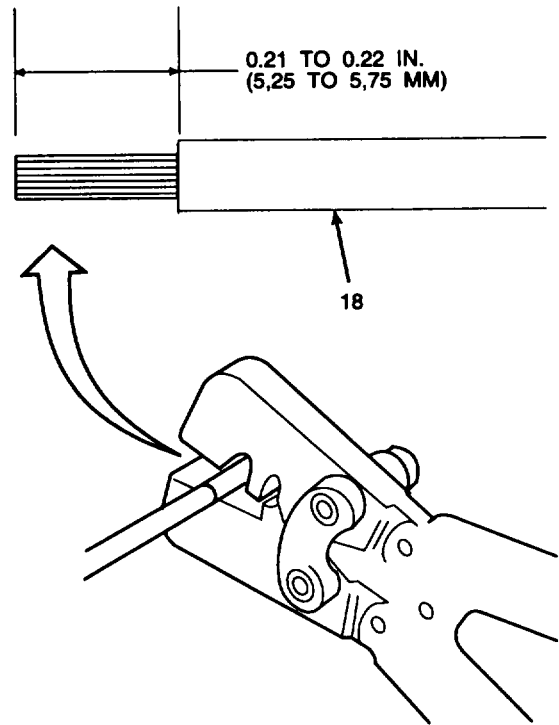
- (1) Slip dust and moisture boot (23) over cut end of wire (18), away from end of wire to allow room for wire strippers.



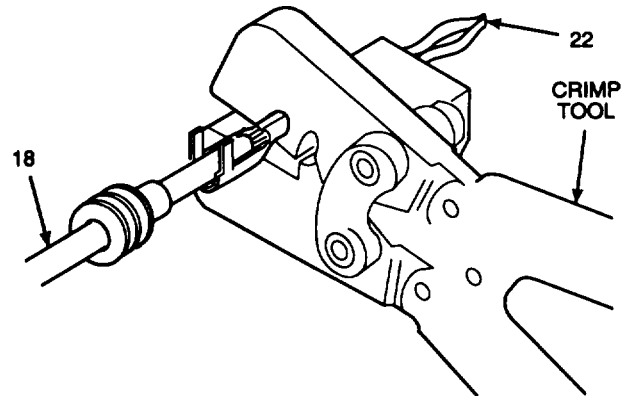
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B. REPAIR - Continued.

- (2) Use wire strippers to remove approximately 0.21 to 0.22 in. (5,25 to 5,75 mm) of wire jacket from wire (18).



- (3) Crimp pin terminal (22) onto wire (18) at crimp wings, using crimp tool.
- (4) Solder wire (18) on pin terminal (22) per MILSTD-2000A with soldering iron.

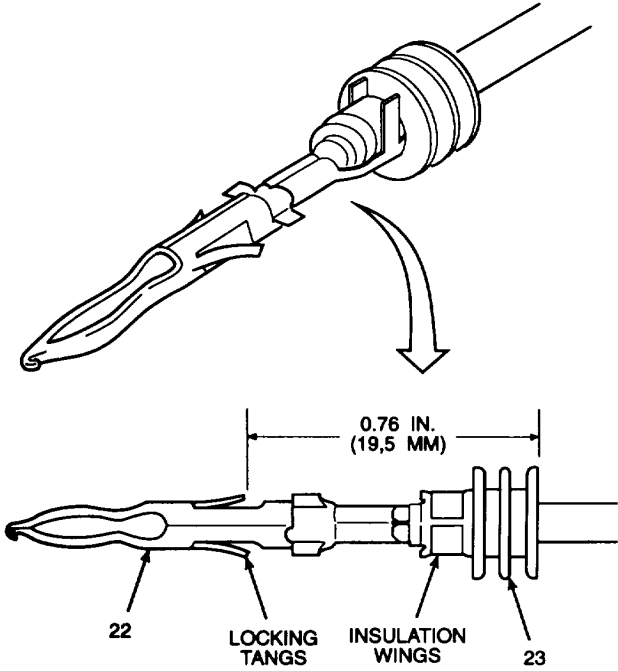


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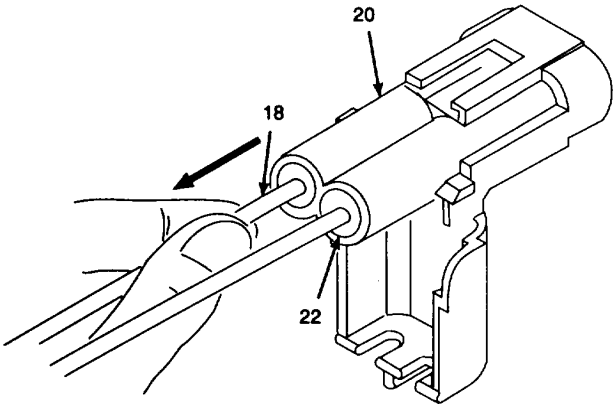
7.21. REPAIR ELECTRICAL HARNESES - Continued.

B. REPAIR - Continued.

- (5) Slide dust and moisture boot (23) into pin terminal (22), allowing approximately 0.76 in. (19,5 mm) from edge of pin terminal locking tangs to back of boot.
- (6) Use needle nose pliers to bend pin terminal (22) insulation wings over dust and moisture boot (23).



- (7) Install pin terminals (22) into electrical connector (20) until an audible "click" is heard.
- (8) Pull gently backward on wire (18) to seat pin terminal (22) inside electrical connector (20).



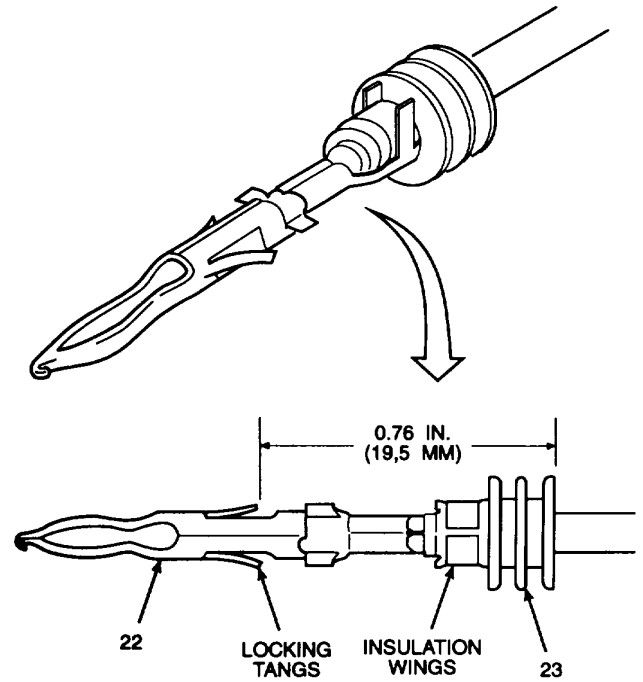
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B. REPAIR - Continued.

NOTE

Some electrical connectors do not use all cavities. A seal plug is required when one or more cavities are not in use. If seal plugs or dust and moisture boots are not available at the time of repair, it is permissible to fill the unused terminal with adhesive.

- d. Install seal plugs, dust and moisture boots, and secondary locks onto electrical connectors and connect electrical connector halves.
 - (1) Install seal plugs (25) into unused terminals on electrical connectors (20).
 - (2) Install secondary locks (21) where applicable.
 - (3) Apply electrical insulating compound to male half of electrical connectors (20).
 - (4) Connect electrical connector (20) halves.

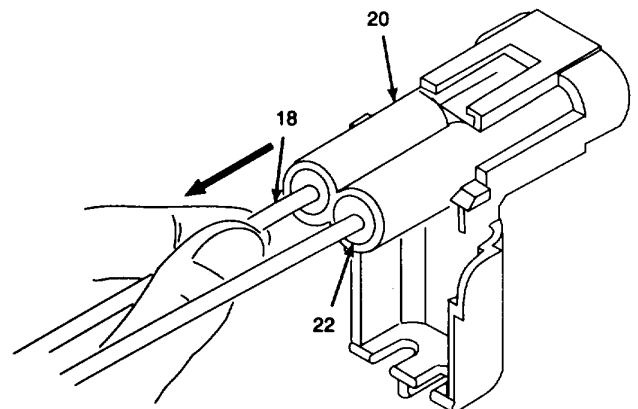


3. REPAIR ELECTRICAL COIL CONNECTORS.

NOTE

Electrical coil connectors are found on the stack valve.

- a. Remove electrical coil connector from wiring harness.
 - (1) Remove screw (26) and pull electrical coil connector (27) from stack valve (28).
 - (2) Remove and discard moisture seal (29).



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7.21. REPAIR ELECTRICAL HARNESSES - Continued.

B. REPAIR Continued.

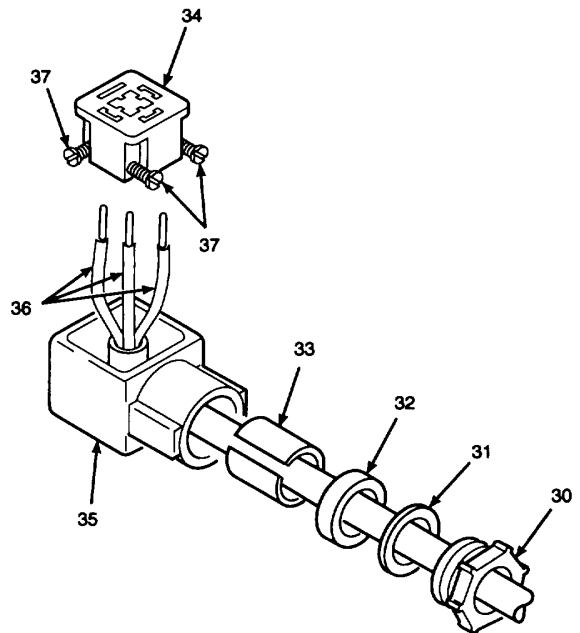
- (3) Loosen and remove nut (30) and washer (31).

NOTE

Use care not to cut wire insulation.

- (4) Use a small, flat blade screwdriver to pry out seal (32).
- (5) Use a knife to cut and remove shrink tubing (33). Discard shrink tubing.
- (6) Note position of base (34) as installed in cover (35) using straight cavity as a reference.
- (7) Use a small, flat blade screwdriver to pry cover (35) from base (34).
- (8) Note, on paper, the positions of wires (36) on base (34) terminals, using numbers printed on terminals for reference.
- (9) Loosen screws (37) and pull wires (36) from terminals in base (34). Discard base.
- (10) Pull cover (35), seal (32), washer (31), and nut (30) from wires (36). Discard cover, seal, washer, and nut.

- (3) Tighten screws (37) to secure wires (36).
- (4) Snap cover (35) over base (34). Position base into cover as noted during disassembly.
- (5) Install shrink tubing (33) into opening on cover (35), as far as it can go.
- (6) Secure shrink tubing (33) to wires with a heat gun.



b. Install electrical coil connector on wiring harness.

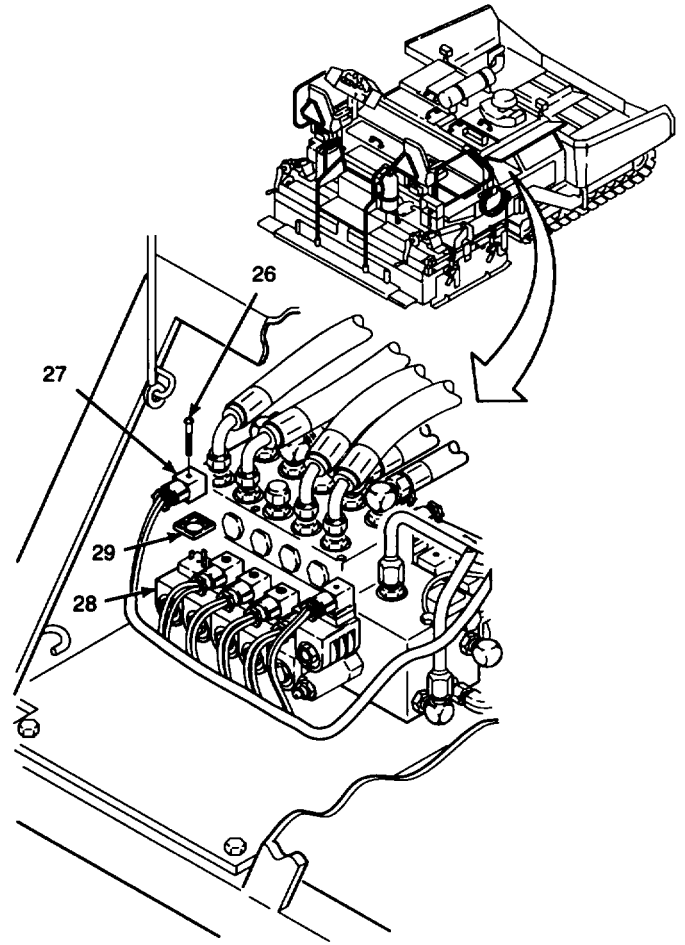
- (1) Install nut (30), washer (31), seal (32), shrink tubing (33), and cover (35) onto wires (36).
- (2) Install wires (36) into base (34) terminals, referring to note made during disassembly.

- (7) Install seal (32) over shrink tubing (33).
- (8) Install washer (31) and secure with nut (30).

GO TO NEXT PAGE

B. REPAIR - Continued.

- (9) Apply electrical insulating compound to male terminals of electrical coil on stack valve (28).
- (10) Install moisture seal (29) and electrical coil connector (27) onto stack valve (28) and secure with screw (26). Do not overtighten screw.



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7.21. REPAIR ELECTRICAL HARNESSES - Continued.

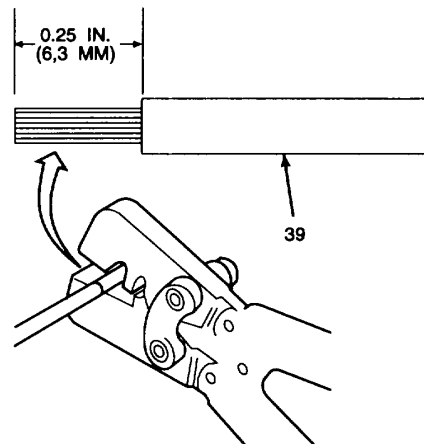
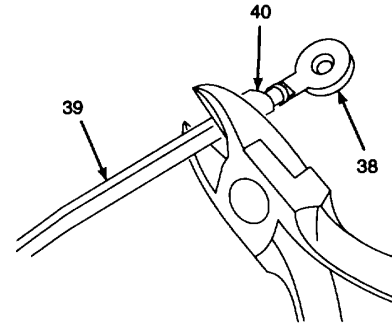
B. REPAIR Continued.

4. REPAIR RING, TONGUE, AND SPADE TERMINALS.

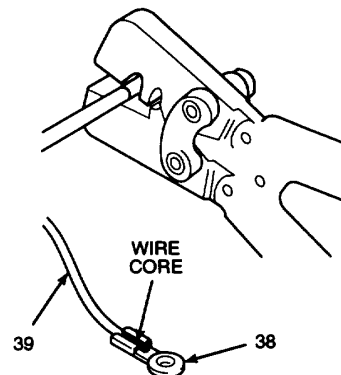
NOTE

Ring, tongue, and spade terminals are identically repaired. In this paragraph, a ring terminal is shown as an example.

- Remove terminal (38) from wire (39) by cutting directly behind edge of shrink tubing (40). Discard terminal.
- Slide new shrink tubing (40) onto wire (39).
- Use wire strippers to strip approximately 0.25 in. (6,3 mm) of wire (39).



- Crimp new terminal (38) onto wire (39) using crimp tool.
- Solder wire (39) core on terminal per MIL-STD-2000A with soldering iron.



GO TO NEXT PAGE

B. REPAIR - Continued.

- f. Slide shrink tubing (40) over terminal (38) at wire connection.
- g. Secure shrink tubing (40) onto terminal (38) with a heat gun.

5. REPAIR ELECTRICAL WIRING HARNESSSES BY RUNNING A REPLACEMENT WIRE "PIGGYBACK" ALONG EXISTING WIRING HARNESS.

NOTE

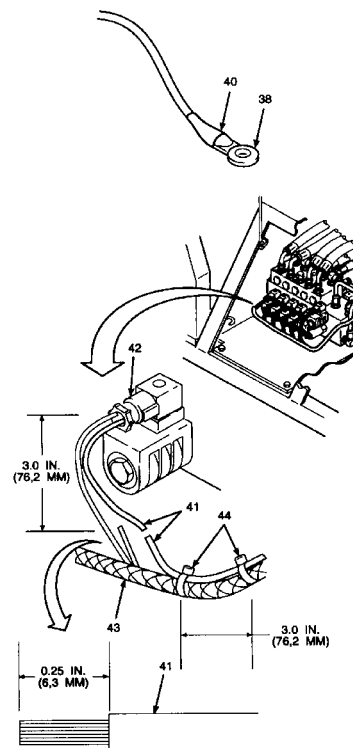
The following is an example of how to replace a damaged wire by piggybacking a replacement wire along side electrical wiring harness to be repaired. Treat each end as a separate repair. You may replace a connector on one end and splice on the opposite end.

- a. After determining a wire is damaged inside a wiring harness, repair using one of the following methods:
- b. Cut defective wire (41) about 3.0 in. (76,2 mm) from connector (42) on both ends of wiring harness and continue with steps d through i.
- c. Remove pin terminals from connectors at each end of affected wire and replace with new wire and pin terminals. Refer to B.2 and proceed to step d.
- d. Using a replacement wire of same gauge, install wire along harness cover (43) on wiring harness, fastening wire to harness cover with tie wraps (44) at 3.0 in.(76,2 mm) intervals.

NOTE

Allow at least 1.0 in. (25,4 mm) of slack in replacement wire for splicing.

- e. Use wire strippers to strip approximately 0.25 in. (6,3 mm) from ends of defective wire (41).
- f. Install shrink tubing over defective wire (41) and slide away from ends of wire to allow splicing.
- g. Splice and solder wires together per MIL-STD-2000A with soldering iron and splice clips.
- h. Cover soldered joint with shrink tubing and secure with heat gun.
- i. Repair any rips or tears in wiring harness cover (43) with electrical tape.



- 6. REPLACE ANY TIE WRAPS THAT HAVE BEEN REMOVED FROM WIRING HARNESS DURING REPAIR PROCESS AS NEEDED.

GO TO NEXT PAGE

7.21. REPAIR ELECTRICAL HARNESES - Continued.

C. INSTALL.

WARNING

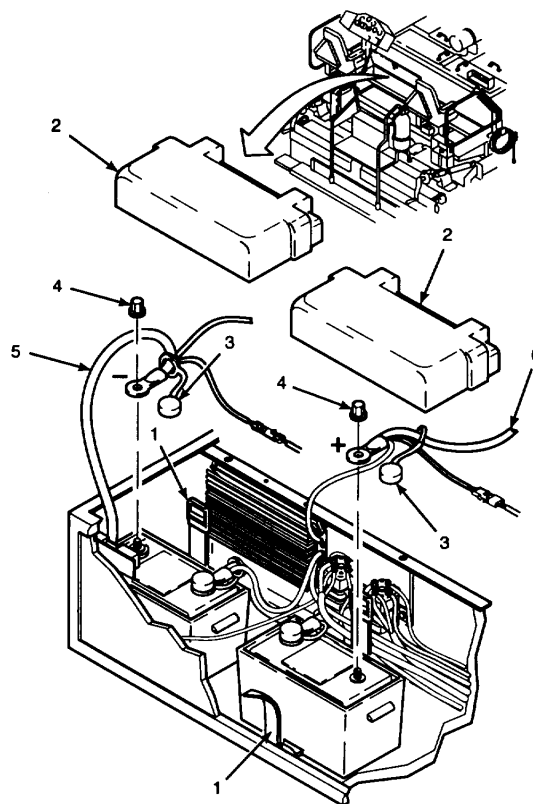
When connecting batteries, connect positive battery cable before connecting negative battery cable. Failure to connect batteries in the proper sequence may lead to electrical shock or short circuit and result in personnel injury.

1. RECONNECT POSITIVE BATTERY CABLE (6) AND BATTERY NUT (4) TO POSITIVE TERMINAL OF INBOARD BATTERY.
2. RECONNECT NEGATIVE BATTERY CABLE (5) AND BATTERY NUT (4) TO NEGATIVE TERMINAL OF OUTBOARD BATTERY.

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

3. APPLY ELECTRICAL INSULATING VARNISH TO BATTERY TERMINALS.
4. INSTALL BATTERY TERMINAL COVERS (3) ONTO BATTERY TERMINALS.
5. INSTALL BATTERY BOX COVERS (2) AND BUCKLE BATTERY BOX HOLDDOWN STRAPS (1).

**NOTE**

FOLLOW-ON-TASKS: Close rear top left access door per TM 5-3895-373-10.
Install left access cover per TM 5-3895-373-10.

NOTE

Close other access door(s) and install access cover(s) removed during this procedure. Refer to paragraph 2.22 and to TM 5-3895-373-10.

END OF TASK

CHAPTER 8

TRANSMISSION SYSTEM MAINTENANCE

	Para	Page
General Maintenance Procedures.....	8.1	8-1
Replace Hydraulic Charge Filter Assembly.....	8.3	8-9
Replace Hydraulic Oil Cooler	8.2	8-2

8.1. GENERAL MAINTENANCE PROCEDURES.

All unit level maintenance shall be performed in accordance with good and safe shop practices. Observe the following general instructions and requirements when performing transmission system maintenance.

a. Thoroughly clean hydraulic hoses and fittings before disconnecting. Always plug or cap off disconnected fittings to prevent dirt and contaminants from entering the system. Failure to clean hoses and fittings and to plug or cap open fittings may result in hydraulic system contamination and equipment damage.

b. Always tag mating connectors and fittings before disconnecting. Tagging of mating connectors and fittings will ease reassembly and reduce assembly errors.

c. Use a backup wrench when loosening or tightening inline fittings. Using a backup wrench will prevent unnecessary damage to attached lines and/or smaller fittings.

d. Thread locking compound is used with most threaded fasteners. If a threaded fastener will not break loose, heat threaded area of fastener from 500° to 600°F (232° to 315°C) with heater gun. If the special solvent used to remove thread locking compound from screw threads fails to remove buildup, discard fastener.

e. Discard all removed gaskets, seals, preformed packings, self-locking nuts, and lockwashers.

f. Inspect all removed components for obvious wear or damage. Replace all worn, bent, broken, or otherwise damaged parts.

g. Inspect all removed fasteners for thread damage. If thread damage is found, replace fastener. Replace flat washers if galled or bent. Use screw extractor set (Item 15, Appendix E) to remove broken studs or screws.

h. Torque values cited in the text apply to modified SAE Grade 8 fasteners at required clamping loads.

i. Use only authorized replacement parts. Refer to TM 53895-373-24P, Repair Parts and Special Tools List (RPSTL) for authorized replacement parts.

j. Observe all warnings and cautions. Wear protective clothing and equipment as specified. Observe the Safety and Hazard Warnings provided in TACOM technical bulletin TB 43-0216.

8.2. REPLACE HYDRAULIC OIL COOLER.

This task covers:

a. Remove b. Clean c. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Combination wrench (Item 58, Appendix E)
Combination wrench (Item 57, Appendix E)
Torque wrench (Item 68, Appendix E)
Utility pail (Item 26, Appendix E)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Left access door opened per TM 5-3895-373-10.
Left access cover removed per TM 5-3895-373-10.
Front top left access door opened per TM 5-3895-373-10.

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Hydraulic fitting sealant (Item 21, Appendix C)
Machinery wiping towel (Item 30, Appendix C)
Pipe sealant (Item 22, Appendix C)
Protective caps (Item 5, Appendix C)
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Hydraulic oil cooler
Lockwashers
Sound foam

GO TO NEXT PAGE

A. REMOVE.

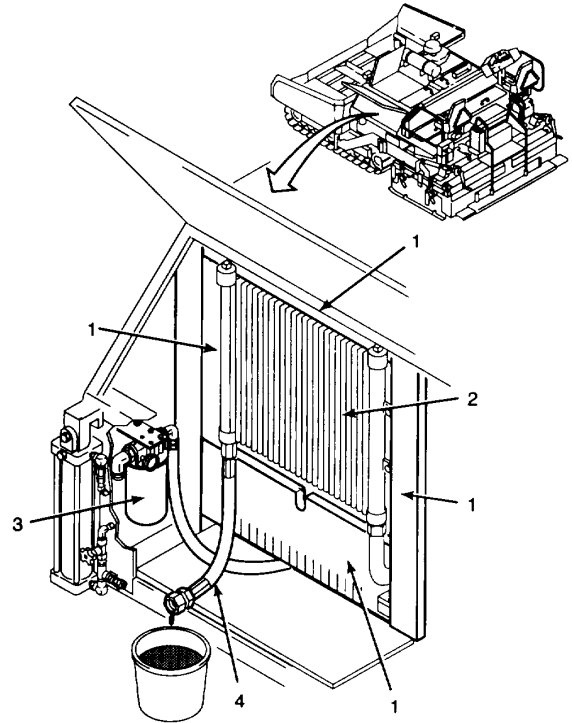
1. DRAIN HYDRAULIC OIL FROM HYDRAULIC OIL COOLER.

- a. Remove sound foam (1) from engine compartment. Discard sound foam.

WARNING

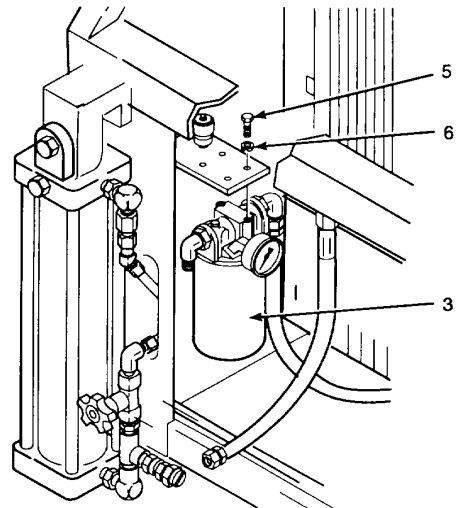
Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

- b. Place machinery wiping towels below hydraulic oil cooler (2) and hydraulic return filter (3). Using a 1-1/2 in. combination wrench, disconnect hose (4) from hydraulic oil return filter.
- c. Drain hydraulic oil into a utility pail. Hydraulic oil cooler and lines hold less than one gallon of oil. Dispose of hydraulic oil in accordance with local procedures.
- d. Cap off open hose and hydraulic return filter port fittings with protective caps.



2. REMOVE HYDRAULIC RETURN FILTER.

- a. Remove bolt (5) and lockwashers (6). Discard lockwashers.
- b. Pull hydraulic return filter (3) out toward center of engine compartment, and lay it down.



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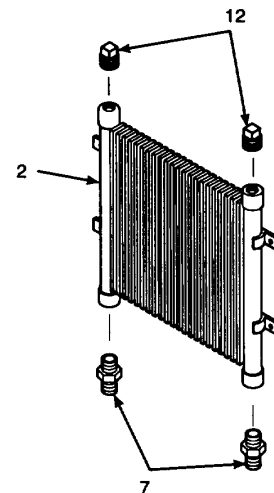
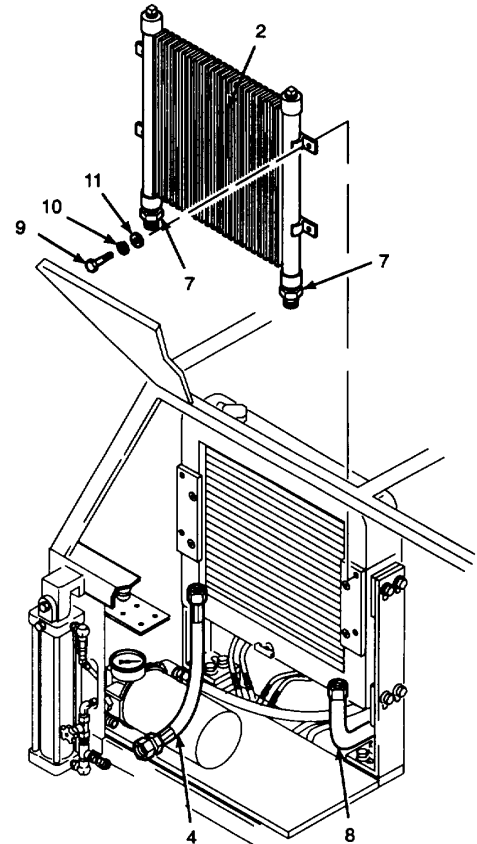
8.2. REPLACE HYDRAULIC OIL COOLER - Continued.

- A. REMOVE - Continued.
3. REMOVE HYDRAULIC OIL COOLER FROM ENGINE COMPARTMENT.

WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

- a. Using 1-3/8 in. and 1-1/2 in. combination wrenches, secure straight adapters (7) and disconnect hose (4) and inlet tube (8) from hydraulic oil cooler (2). Cap off open hose, oil cooler, and tube fittings with protective caps.
- b. While supporting hydraulic oil cooler (2), remove hex head cap screws (9), lockwasher (10), and flat washer (11). Discard lockwashers.
- c. From front top left access opening, lift hydraulic oil cooler (2) out of engine compartment.
- d. Remove straight adapters (7) and pipe plugs (12) from hydraulic oil cooler (2). Cap off open ports with protective caps.



GO TO NEXT PAGE

B. CLEAN.

1. CLEAN BOLTS AND HEX HEAD CAP SCREWS.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean threads of bolts and hex head cap screws with a cleaning cloth and thread locking compound solvent.
- b. Wipe bolts and hex head cap screws dry with a cleaning cloth.

2. CLEAN PIPE PLUGS AND STRAIGHT ADAPTERS.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 m cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- a. Clean pipe sealant from threads of pipe plugs with a cleaning cloth and cleaning solvent
- b. Wipe straight adapters and pipe plugs dry with a cleaning cloth.

GO TO NEXT PAGE

8.2. REPLACE HYDRAULIC OIL COOLER - Continued.

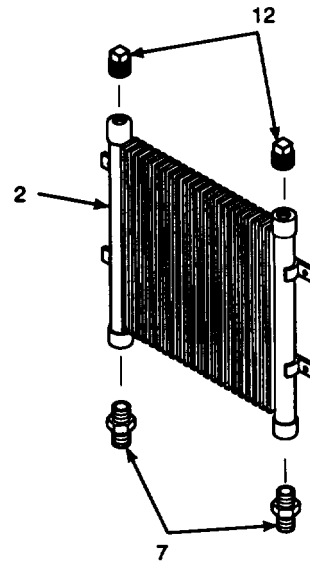
C. INSTALL.

1. INSTALL PIPE PLUGS AND STRAIGHT ADAPTERS.

WARNING

Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- a. Apply pipe sealant to threads of pipe plugs (12) and pipe threads of straight adapters (7).
- b. Install and tighten pipe plugs (12) in top of hydraulic oil cooler (2).
- c. Using a 1-3/8 in. combination wrench, install and tighten straight adapters (7) in bottom of hydraulic oil cooler (2).



GO TO NEXT PAGE

C. INSTALL - Continued.

2. INSTALL HYDRAULIC OIL COOLER.

- a. Lower hydraulic oil cooler (2) through front top left access door opening.
- b. Install lockwashers (10) and flat washers (11) onto hex head cap screws (9).

WARNING

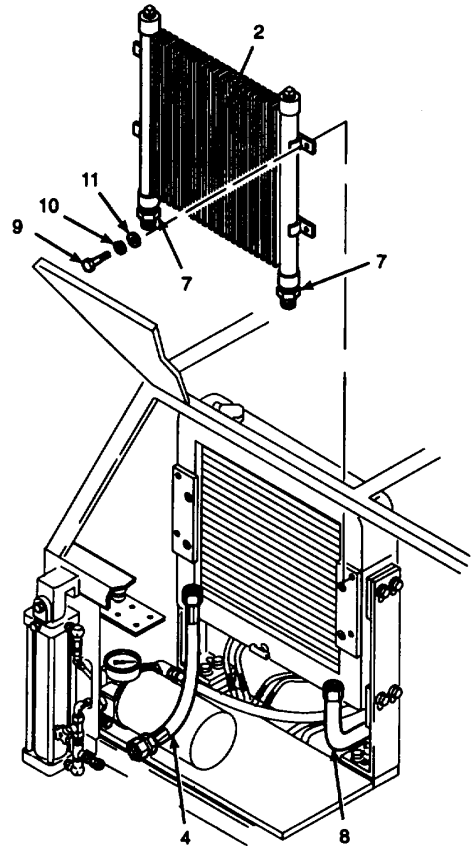
Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- c. Apply thread locking compound to threads of hex head cap screws (9).
- d. Install hex head cap screws (9) with lockwashers (10) and flat washers (11). Tighten to 37 lb-ft (50 N.m).

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- e. Apply hydraulic fitting sealant to threads of installed straight adapters (7).
- f. Using combination wrenches, secure installed straight adapters (7), and connect inlet tube (8) and hose (4) to hydraulic oil cooler (2).



GO TO NEXT PAGE

8.2. REPLACE HYDRAULIC OIL COOLER - Continued.

C. INSTALL - Continued.

- g. Install lockwashers (6) onto bolts (5).

WARNING

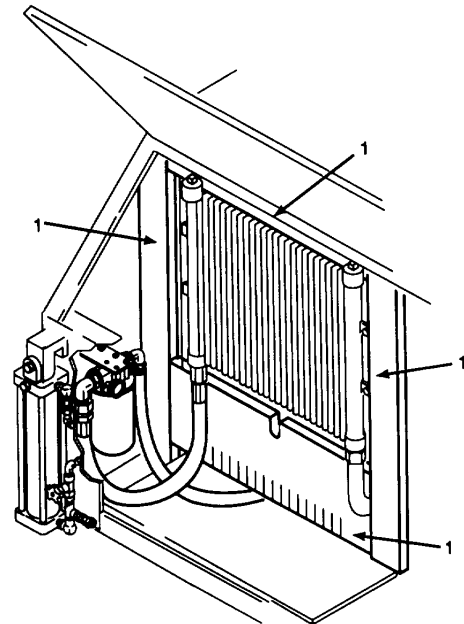
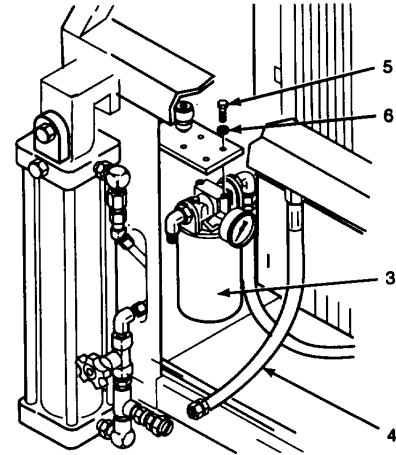
Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- h. Apply thread locking compound to threads of bolts (5).
 i. Secure hydraulic return filter (3) with bolts (5) and lockwashers (6). Tighten bolts to 14 lb-ft (19 N.m).

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- j. Apply hydraulic fitting sealant to adapter threads on hydraulic return filter (3). Install free end of hose (4) with 1-1/2 in. combination wrench.
 k. Install sound foam (1) into engine compartment.
 l. Start and warm up paving machine per TM 5-3895373-10. With paving machine at high idle, raise and lower screed two or three times.
 m. Shut down paving machine.



NOTE

FOLLOW-ON TASKS: Add hydraulic oil per TM 5-3895-373-10.
 Close front top left access door per TM 5-3895-373-10.
 Close left access door per TM 5-3895-373-10.
 Install left access cover per TM 5-3895-373-10.

END OF TASK

8.3. REPLACE HYDRAULIC CHARGE FILTER ASSEMBLY.

This task covers: a. Remove b. Clean c. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Deep socket wrench (Item 59, Appendix E)
Drip pan (Item 28, Appendix E)
O-ring tool (Item 52, Appendix E)
Torque wrench (Item 68, Appendix E)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Conditions:

Front top right access door open per TM 5-3895-373-10.
Right access door open per TM 5-3895-373-10.

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Hydraulic fitting sealant (Item 21, Appendix C)
Hydraulic oil (Item 18, Appendix C)
Lint-free cloth (Item 8, Appendix C)
Machinery wiping towels (Item 30, Appendix C)
Protective caps (Item 5, Appendix C)
Thread locking compound (Item 13, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Hydraulic charge filter
Filter element
Lockwashers
O-rings
O-ring ring seal
Preformed packings

GO TO NEXT PAGE

8.3. REPLACE HYDRAULIC CHARGE FILTER ASSEMBLY - Continued.

NOTE

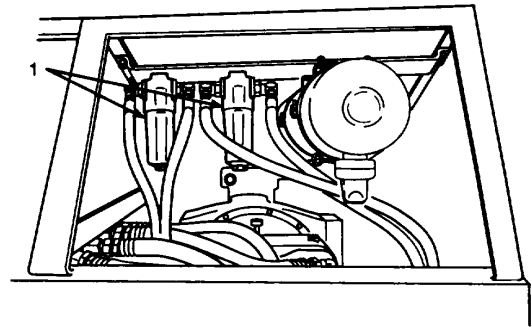
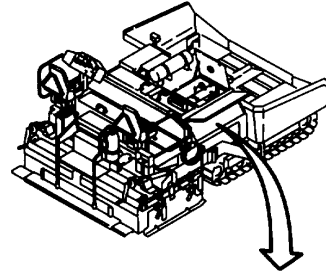
This procedure refers to replacing one hydraulic charge filter assembly. The paving machine has two charge filter assemblies. This procedure should be used, as needed, to replace either or both hydraulic charge filter assemblies.

A. REMOVE.**WARNING**

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

1. CLEAN OUTSIDE SURFACE OF HYDRAULIC CHARGE FILTER ASSEMBLY (1) WITH CLEANING SOLVENT AND CLEANING CLOTH. PAY PARTICULAR ATTENTION TO HOSE ENDS AND HYDRAULIC FITTINGS.

**GO TO NEXT PAGE**

A. REMOVE - Continued.

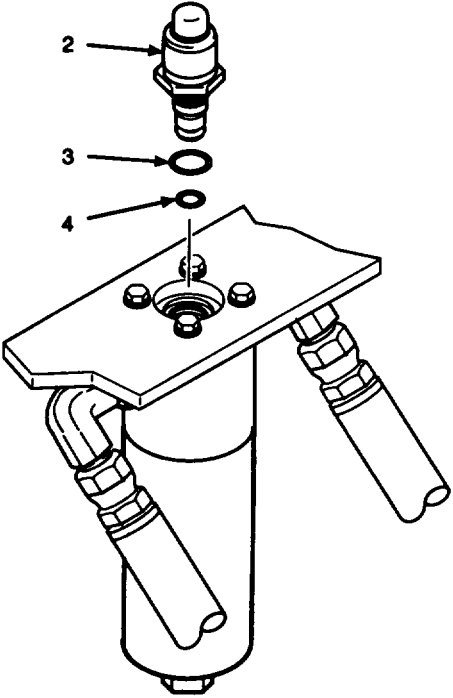
NOTE

Use of all removal and installation procedures is not required if replacing entire hydraulic charge filter assembly. If replacing entire filter assembly, proceed with step 4 and follow procedure to remove filter head. Use procedures as needed to replace faulty or damaged components.

CAUTION

Use caution when removing o-rings. Scratched or dented o-ring grooves can cause bypass leakage. Do not use excessive force when removing o-rings. Use an o-ring tool to remove o-rings.

- 2. REMOVE CLOGGING INDICATOR (2) USING A 1-1/16 INCH DEEP SOCKET WRENCH. USE O-RING TOOL TO REMOVE O-RINGS (3 AND 4).



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8.3. REPLACE HYDRAULIC CHARGE FILTER ASSEMBLY - Continued.

- A. REMOVE - Continued.
- 3. REMOVE FILTER BOWL AND FILTER ELEMENT.

WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

NOTE

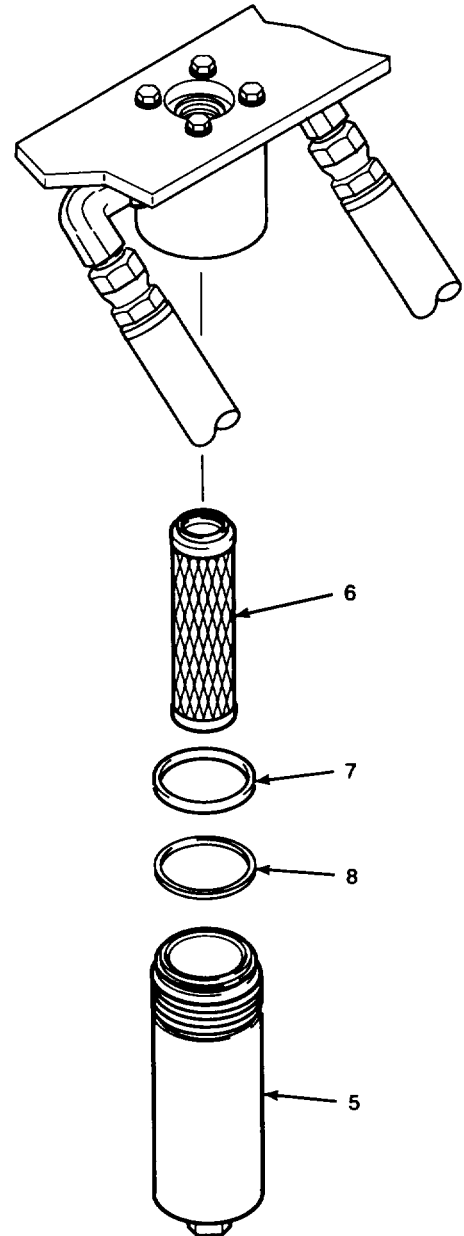
Filter bowl may be full of hydraulic oil.

- a. Place machinery wiping towels under filter bowl (5).
- b. Remove filter bowl (5) and drain hydraulic oil into a drip pan. Keep filter bowl upright during removal.
- c. Remove filter element (6).
- d. Dispose of hydraulic oil, contaminated machinery wiping towels, and filter element in accordance with local procedures.

CAUTION

Use caution when removing seals and o-rings. Scratched or dented seal grooves can cause bypass leakage. Do not use excessive force when removing seals and o-rings. Use an o-ring tool to remove seals and o-rings.

- e. Use o-ring tool to remove o-ring (7) and o-ring ring seal (8). Discard o-ring and o-ring ring seal.

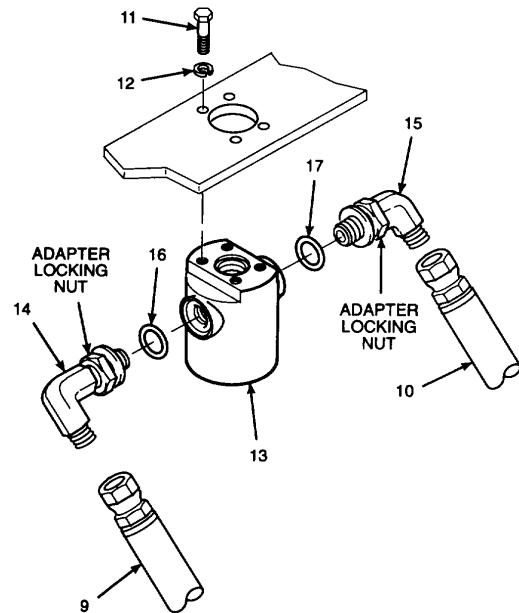


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A. REMOVE - Continued.

4. REMOVE FILTER HEAD.

- a. Disconnect hydraulic hoses (9 and 10). Plug hose ends to prevent contamination.
- b. Loosen adapter locking nuts.
- c. Remove bolts (11), lockwashers (12), and filter head (13). Discard lockwashers.
- d. Remove adapters (14 and 15). Remove and discard preformed packings (16 and 17).



B. CLEAN.

WARNING

Cleaning solvent, P-D-680, is **TOXIC and flammable**. Wear protective goggles 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 HI cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

1. CLEAN HYDRAULIC CHARGE FILTER PARTS.

- a. Use cleaning solvent and a lint-free cloth to clean out inside of filter bowl. Wipe dry with a clean lint-free cloth.
- b. Use cleaning solvent and a lint-free cloth to wipe off filter end surface and clogging indicator area of filter head.
- c. Let dry completely before reassembling.

2. CLEAN BOLT AND ADAPTER THREADS.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles./glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush with water and get immediate medical attention.

- a. Use thread locking compound solvent to clean threads of bolts.
- b. Dry with a cleaning cloth.
- c. Use cleaning cloth to wipe residue from threads of adapters.

GO TO NEXT PAGE

8.3. REPLACE HYDRAULIC CHARGE FILTER ASSEMBLY-continued.

C. INSTALL.

1. INSTALL ADAPTERS ONTO FILTER INSTALL FILTER HEAD.

WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

CAUTION

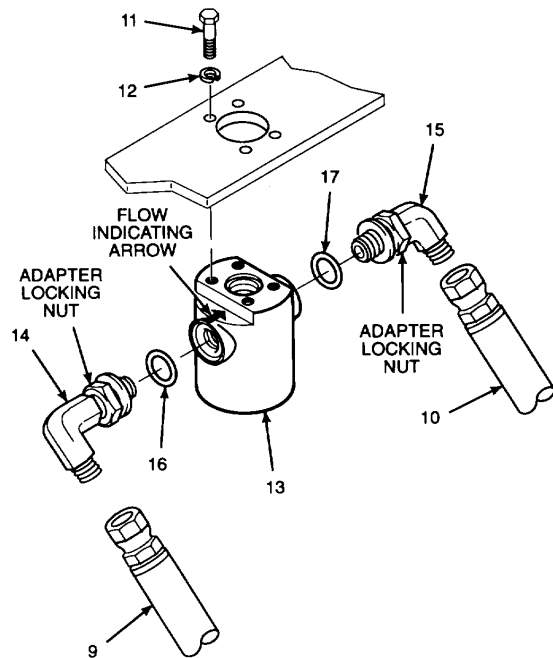
Be careful not to damage preformed packing when sliding over threads. Sharp edges of threads can cut or damage preformed packing. Damaged preformed packing will cause leakage affect performance.

- a. Coat preformed packings (16 and 17) with hydraulic oil and install onto preformed packing end of adapters (14 and 15).
- b. Position filter head (13) so the flow indicating arrow is to your left. Install adapters onto filter head and position so that hose ends of adapters are down and facing toward you at a 45° angle.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- c. Install lockwasher (12) on bolts (11). Apply thread locking compound to threads of bolts.
- d. Install filter head (13) with flow direction arrow pointing toward front of machine and on your left hand side. Secure filter head with bolts (11). Tighten bolts to 11 lb-ft (15N^om).



- e. Tighten adapter locking nuts.

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- f. Apply hydraulic fitting sealant to threads of adapters (14 and 15).
- g. Remove plugs from hoses. Connect hydraulic hoses (9 and 10) to adapters (14 and 15).
- h. Do not overtighten hoses.

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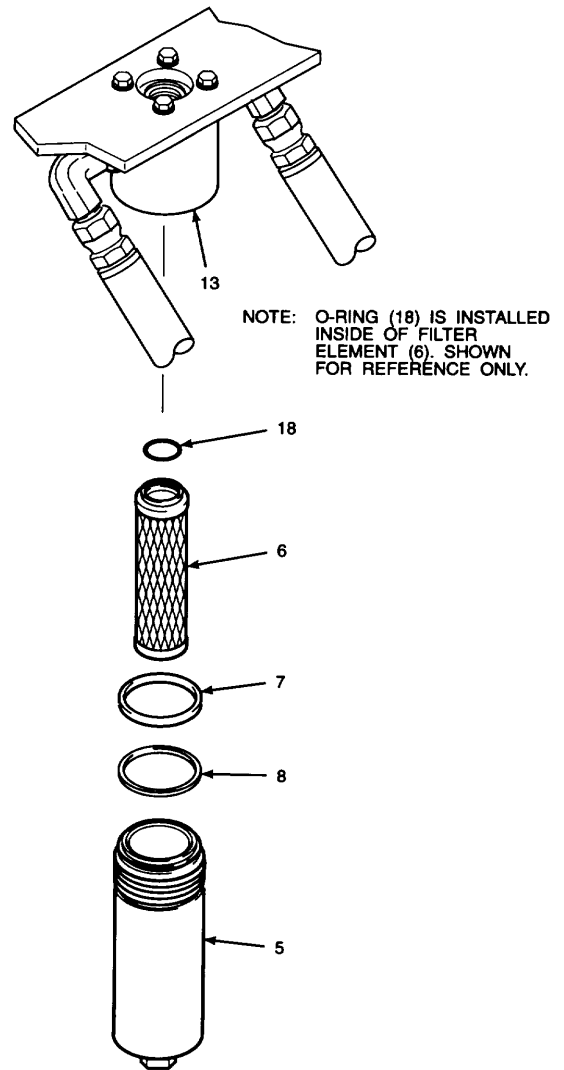
C. INSTALL - Continued.

2. INSTALL FILTER ELEMENT AND FILTER BOWL.

WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

- a. Coat o-ring (18) with clean hydraulic oil.
- b. Install filter element (6) onto filter head (13).
- c. Coat o-ring (7) with hydraulic oil. Install o-ring ring seal (8) into packing ring groove on filter bowl (5).
- d. Fill filter bowl (5) half full with clean hydraulic oil. Raise the cover slowly onto filter element (6) allowing time for the element to soak up the hydraulic oil
- e. Install filter bowl (5) onto filter head (13).
- f. Tighten filter bowl to 10 lb-ft (14 N.m).

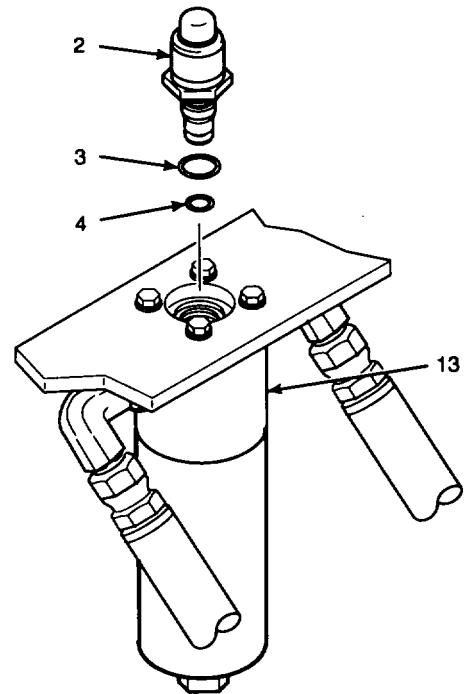


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8.3. REPLACE HYDRAULIC CHARGE FILTER ASSEMBLY - Continued.

C. INSTALL - Continued.

3. LUBRICATE O-RINGS (3 AND 4) WITH CLEAN HYDRAULIC OIL AND INSTALL ON CLOGGING INDICATOR (2). USING A 1-1/16 DEEP SOCKET WRENCH, INSTALL CLOGGING INDICATOR ONTO FILTER HEAD (13). TIGHTEN CLOGGING INDICATOR TO 22 LB-FT (30 N.m).



NOTE

FOLLOW-ON-TASKS: Add hydraulic oil per TM 5-3895-373-10.
Close front top right access door per TM 5-3895-373-1
Close right access door per TM 5-3895-373-10.

END OF TASK

CHAPTER 9

TRACK ASSEMBLY MAINTENANCE

	Para	Page
General Maintenance Procedures.....	9.1	9-1
Replace Track Pad.....	9.3	9-8
Replace Track Tensioning Accumulator	9.2	9-2

9.1. GENERAL MAINTENANCE PROCEDURES.

All unit level maintenance shall be performed in accordance with good and safe shop practices. Observe the following general instructions and requirements when performing track assembly maintenance.

a. Areas of the paving machine exposed to paving material buildup require cleaning prior to disassembly. Use hammers, chisels, and scrapers to remove thickest sections of buildup. If available, use heater gun to soften deposits adhering to components; remove softened buildup with putty knife. When heating paving material, keep second person with fire extinguisher at hand and avoid overheating. If heater gun is not available, use solvent or fuel washdown system to soften paving material.

b. Thoroughly clean hydraulic hoses and fittings before disconnecting. Always plug or cap off disconnected fitting to prevent dirt and contaminants from entering the system. Failure to clean hoses and fittings and to plug or cap open fittings may result in hydraulic system contamination and equipment damage.

c. Always tag mating connectors and fittings before disconnecting. Tagging of mating connectors and fittings will ease reassembly and reduce assembly error

d. Use a backup wrench when loosening or tightening in- line fittings. Using a backup wrench will prevent unnecessary damage to attached lines and/of smaller fittings.

e. Thread locking compound is used with most threaded fasteners. If a threaded fastener will not break loose, heat threaded area of fastener from 500^o 600^o F (232^o to 315^o C) with heater gun.. If the special solvent used to remove thread locking compound from screw threads fails to remove buildup, discard fastener.

f. Discard all removed gaskets, seals, preformed packings, self-locking nuts, lockwasher, spring pins, and deformed hardware.

g. Inspect all removed components for obvious wear of damage. Replace all worn, bent, broken, or otherwise damaged parts.

h. Inspect all removed fasteners for thread damage. If thread damage is found, replace fastener. Replace flat washers if galled or bent. Use screw extractor set (Item 15, Appendix E) to remove broken studs or screws

i. Clean painted surfaces thoroughly before repainting. Do not paint over rust or corrosion. Cover air breather ports and hydraulic components. Do not paint bearings or other parts that require surface lubrication. Reference TM 43-139 for equipment painting requirements

j. Use only authorized replacement parts. Refer to TM 53895-373-24P, Repair Parts and Special Tools List (RPSTL) for authorized replacement parts.

k. Torque values cited in the text apply to modified SAE Grade 8 fasteners at required clamping loads.

l. Observe all warnings and cautions. Wear protective clothing and equipment as specified. Observe the Safety and Hazard Warnings provided in TACOM technical bulletin TB 43-0216.

9.2. REPLACE TRACK TENSIONING ACCUMULATOR.

This task covers:

a. Remove

b. Install

INITIAL SETUP

Tools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Drip pan (Item 28, Appendix E)

References:

TM 5-3895-373-24P

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Hydraulic fitting sealant (Item 21, Appendix C)
Hydraulic oil (Item 18, Appendix C)
Pipe sealant (Item 22, Appendix C)
Protective caps (Item 5, Appendix C)
Accumulator
Preformed packing

GO TO NEXT PAGE

- A. REMOVE.
1. RELIEVE PRESSURE FROM ACCUMULATOR.

WARNING

Cleaning solvent, P-D-680, is **TOXIC** and flammable. Wear protective goggles 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 m cleaning solvent is 200°F (93,3°C). Failure to do so may result in injury or death to personnel.

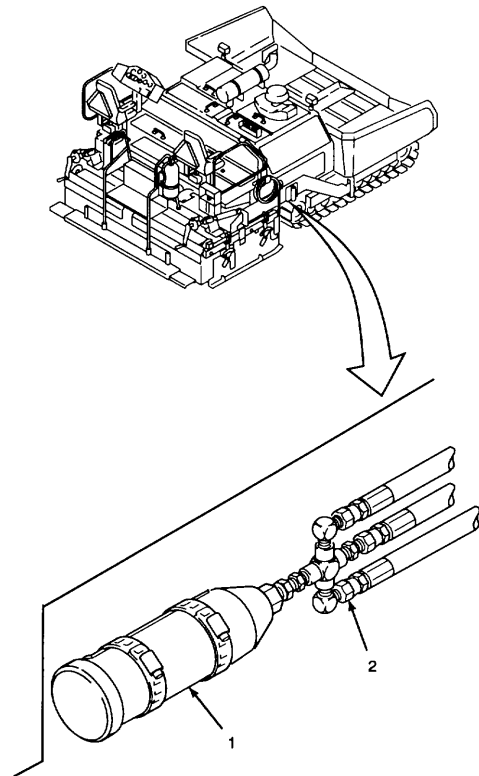
If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Use parts cleaning brush and cleaning solvent to clean all dust, dirt, and oil or grease residue from hydraulic fittings at accumulator (1).
- b. Place drip pan below accumulator (1) under hose (2).

WARNING

Accumulator/adapter connection must be shielded and hydraulic pressure slowly bled off before removing adapter. If line pressure is not allowed to bleed off, adapter connection will emit a high energy spray when opened. Failure to shield connection and slowly bleed off hydraulic pressure may result in serious injuries to personnel.

- c. Cover accumulator (1) and hose (2) with a 2 in. (51 mm) mat of protective cleaning cloths.



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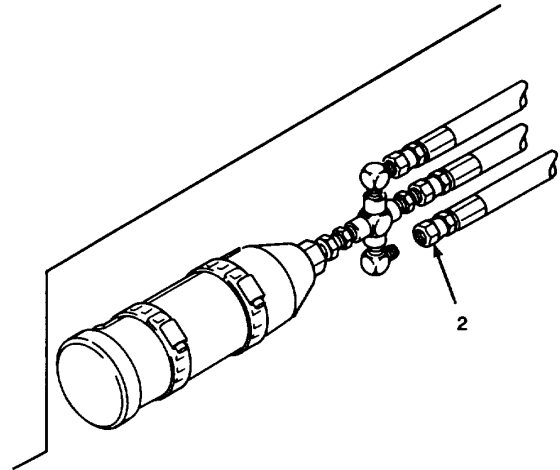
9.2. REPLACE TRACK TENSIONING ACCUMULATOR - Continued.

A. REMOVE - Continued.

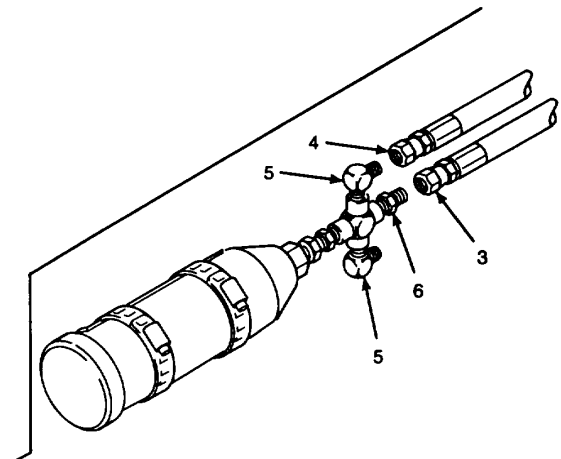
WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

- d. Carefully crack open hose (2) and wait for hydraulic oil to start dripping. Do not remove hose.
- e. Allow 15 minutes for all hydraulic pressure to bleed off, then open hose (2) a little more. After all hydraulic pressure is relieved, disconnect hose.



- f. Disconnect hoses (3 and 4).
- g. Use a cleaning cloth to wipe hydraulic fitting sealant residue from elbows (5) and straight adapter (6).
- h. Plug hoses (2, 3, and 4) and cap elbows (5) and straight adapter (6).

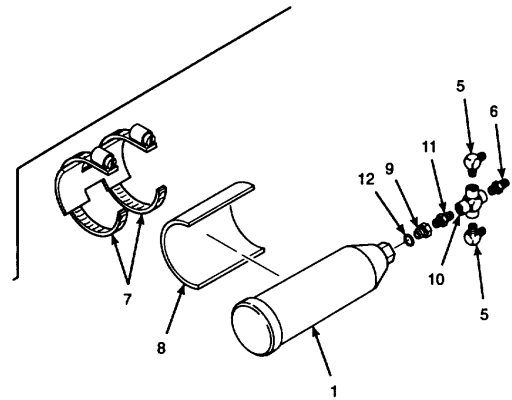


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A. REMOVE - Continued.

2. REMOVE ACCUMULATOR AND FITTINGS.

- a. While holding accumulator (1), loosen hose clamps (7).
- b. Remove accumulator (1) and cushioning pad (8).
- c. Secure accumulator (1) with wrench across hex flats. Unscrew straight adapter (9) with attached cross (10), elbows (5), straight adapter (6), and pipe nipple (11).



WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

- d. Drain hydraulic oil from accumulator (1) into drip pan. Dispose of hydraulic oil in accordance with local procedures.
- e. Remove and discard preformed packing (12).

NOTE

Perform the following removal procedures only as needed to replace damaged or faulty components.

- f. Remove elbows (5) and/or straight adapter (6) and pipe nipple (11) from cross (10).
- g. Remove pipe nipple (11) from straight adapter (9).

GO TO NEXT PAGE

9.2. REPLACE TRACK TENSIONING ACCUMULATOR - Continued.

B. INSTALL.

1. INSTALL ACCUMULATOR AND FITTINGS.

- a. Wipe pipe threads of elbows (5), straight adapter (6), and pipe nipple (11) with cleaning cloth to remove pipe sealant.

WARNING

Pipe fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- b. Apply pipe sealant to pipe threads of elbows (5), straight adapter (6), and pipe nipple (11).
- c. Install and tighten elbows (5), straight adapters (6 and 9), and pipe nipple (11) onto cross (10). Hose fittings of elbows must be in line with adapters.

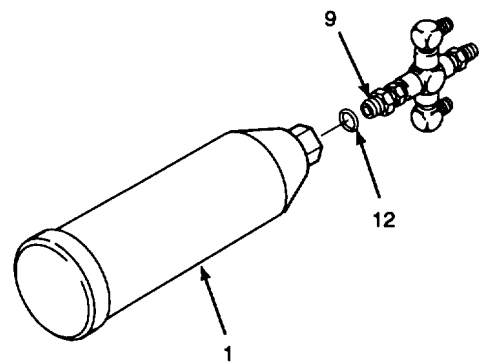
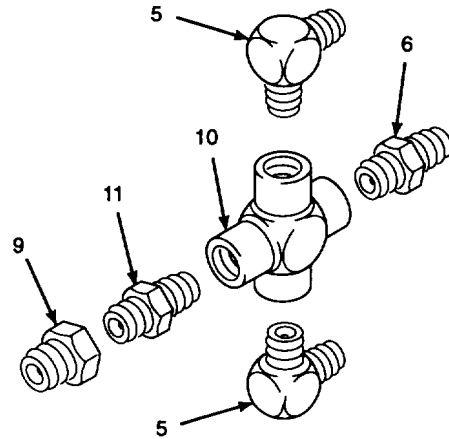
WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

CAUTION

Be careful not to damage preformed packing when sliding over threads. Sharp edges of thread can cut or damage preformed packing. Damaged preformed packing will cause leakage and affect performance.

- d. Lubricate preformed packing (12) with hydraulic oil. Install preformed packing on straight adapter (9).
- e. Hold straight adapter (9) with an open end wrench. Screw accumulator (1) onto straight adapter. Using an adjustable wrench, tighten accumulator until it is tight against adapter.



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B. INSTALL - Continued.

CAUTION

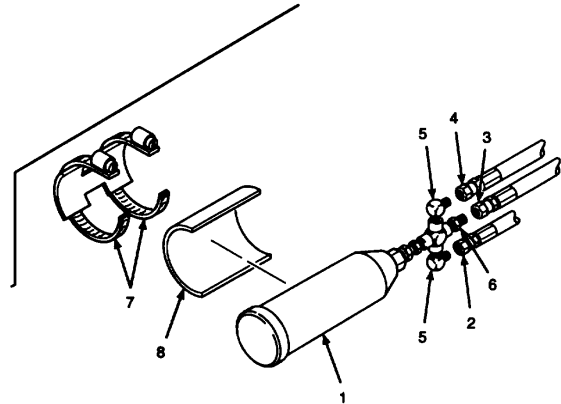
When installing accumulator (1), make sure installed elbows (5) are at equal distances from paving machine frame (straight up and down). Hydraulic hose may get tangled in drive track if accumulator is not installed properly.

2. INSTALL ACCUMULATOR ON PAVING MACHINE FRAME.
 - a. Position cushioning pad (8) between accumulator (1) and accumulator mounting bracket.
 - b. Install and tighten hose clamps (7).

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- c. Apply hydraulic fitting sealant to threads of elbows (5) and straight adapter (6).
- d. Connect and tighten hoses (2, 3, and 4).



END OF TASK

9.3. REPLACE TRACK PAD.

This task covers:

a. Remove

b. Replace

INITIAL SETUP:

Tools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Socket wrench adapter (Item 2, Appendix E)
Torque wrench (Item 67, Appendix E)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Hopper wings fully raised per TM 5-

Material/Parts:

Thread locking compound (Item 12, Appendix C)
Shoulder bolts
Square plain nuts
Track pad

A. REMOVE.

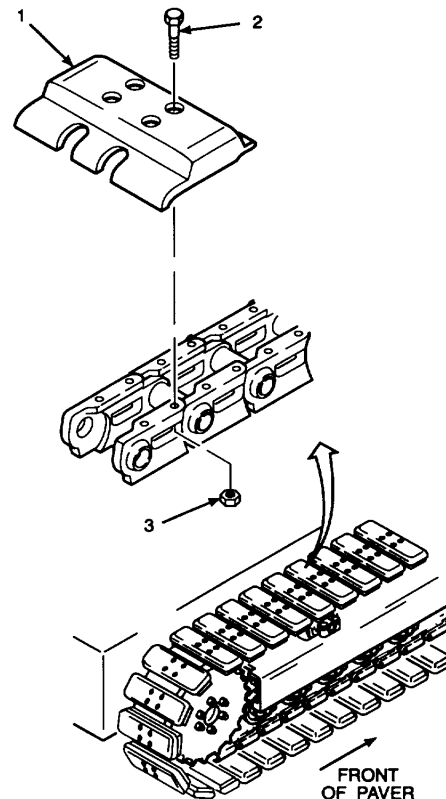
1. DRIVE PAVING MACHINE UNTIL DAMAGED TRACK PAD (1) IS AT UPPER FRONT QUADRANT OF TRACK IDLER ROLLER. REFER TO TM 5-3895-373-10.
2. REMOVE AND DISCARD SHOULDER BOLTS (2), SQUARE PLAIN NUTS (3), AND TRACK PAD (1).

B. REPLACE.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

1. APPLY THREAD LOCKING COMPOUND TO THREADS OF SHOULDER BOLTS (2).
2. INSTALL TRACK PAD (1), SHOULDER BOLTS (2), AND SQUARE NUTS (3). TIGHTEN SHOULDR BOLTS TO 86 LB-FT (117 N⁰m).



END OF TASK

CHAPTER 10

FRAME MAINTENANCE

	Para	Page
General Maintenance Procedures.....	10.1	10-1
Replace/Repair Vehicular Bumper	10.2	10-2

10.1. GENERAL MAINTENANCE PROCEDURES.

All unit level maintenance shall be performed in accordance with good and safe shop practices. Observe the following general instructions and requirements when performing frame maintenance.

a. Areas of the paving machine exposed to paving material buildup require cleaning prior to disassembly. Use hammers, chisels, and scrapers to remove thickest sections of buildup. If available, use heater gun to soften deposits adhering to components; remove softened buildup with putty knife. When heating paving material, keep second person with fire extinguisher at hand and avoid overheating. If heater gun is not available, use solvent or fuel washdown system to soften paving material.

b. Thread locking compound is used with most threaded fasteners. If a threaded fastener will not break loose, heat threaded area of fastener from 500° to 600°F (232° to 315°C) with heater gun. If the special solvent used to remove thread locking compound from screw threads fails to remove buildup, discard fastener.

c. Discard all removed gaskets, seals, preformed packings, self-locking nuts, lockwashers, spring pins, and deformed hardware.

d. Inspect all removed components for obvious wear or damage. Replace all worn, bent, broken, or otherwise damaged parts.

e. Inspect all removed fasteners for thread damage. If thread damage is found, replace fastener. Replace flat washers if galled or bent. Use screw extractor set (Item 15, Appendix E) to remove broken studs or screws.

f. Clean painted surfaces of deposits adhering not paint over rust or corrosion. Do not paint bearings or other parts that require surface lubrication. Reference TM 43-0139 person with fire for equipment painting requirements.

g. Use only authorized replacement parts. Refer to TM 53895-373-24P, Repair Parts and Special Tools List (RPSTL) for authorized replacement parts.

h. Torque values cited in the text apply to modified SAE Grade 8 fasteners at required clamping loads.

i. Observe all warnings and cautions. Wear protective clothing and equipment as specified. Observe the Safety and Hazard Warnings provided in -TACOM technical bulletin TB 43-0216.

10.2. REPLACE/REPAIR VEHICULAR BUMPER COMPONENTS.

This task covers:

- a. Remove
- b. Clean
- c. Inspect
- d. Repair
- e. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Bench vise (Item 55, Appendix E)
Crowbar, 2 ea (Item 11, Appendix E)
Sling strap, 2 ea (Item 49, Appendix E)
Torque wrench (Item 68, Appendix E)
Universal puller kit (Item 31, Appendix E)
Wire scratch brush (Item 6, Appendix E)

Personnel Required:

Two 62B construction equipment rep,
assist with hoisting vehicular bumper

References:

LO 5-3895-373-12
TM 5-3895-373-24P

Materials/Parts:

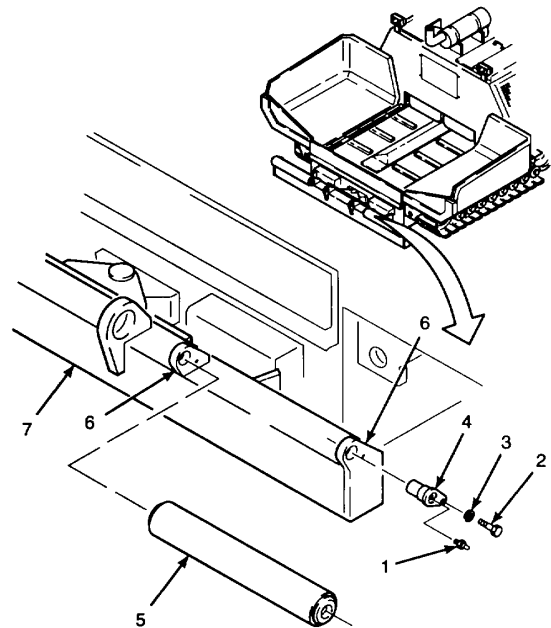
Anti-seize compound (Item 9, Appendix C)
Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Crocus cloth (Item 6, Appendix C)
Grease (Item 15, Appendix C)
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Lockwashers
Lubrication fittings
Push roller
Self-locking hex nut
Spherical bearings
Straight headed pin

GO TO NEXT PAGE

NOTE

There is a left hand and a right hand push roller on the bumper. This procedure refers to replacing and repairing left hand push roller. Procedure is identical for right hand push roller. Left hand push roller is shown in this procedure.

- A. REMOVE.
1. REMOVE PUSH ROLLER AND BEARING SHAFTS FROM VEHICULAR BUMPER.
 - a. Remove and discard lubrication fittings (1).
 - b. Remove hex head cap screws (2) and lockwashers (3). Discard lockwashers.
 - c. Hold, twist and pull bearing shafts (4) from both ends of push roller (5) and roller brackets (6).
 - d. Lift push roller (5) from vehicular bumper (7).



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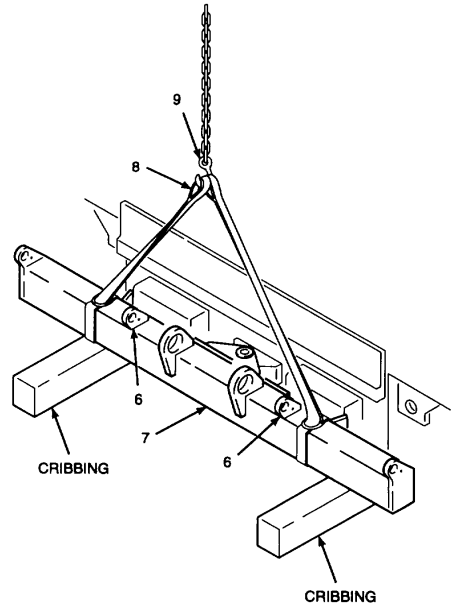
10.2. REPLACE/REPAIR VEHICULAR BUMPER COMPONENTS - Continued.

- A. REMOVE - Continued.
- 2. REMOVE VEHICULAR BUMPER.

WARNING

Vehicular bumper weighs 600 lbs (272 kg). To avoid personal injury, ensure sling straps are in good condition and are of correct capacity. Ensure overhead hoist is in good working condition and hook is positioned correctly. Damage to equipment and personnel injury may result from unexpected movement of vehicular bumper.

- a. Attach sling straps (8) to vehicular bumper (7). Use two sling straps placed on either side of inner roller bracket (6) as shown in illustration.
- b. Attach overhead hoist (9) hook to sling straps (8).
- c. Slowly raise overhead hoist (9) to take up slack in sling straps until weight of vehicular bumper (7) is partially supported by overhead hoist.

**WARNING**

Do not work under vehicular bumper supported only by the overhead hoist. Use cribbing to provide support to vehicular bumper prior to removing straight headed pin. Vehicular bumper may fall and cause injury or death to personnel.

- d. Place cribbing under each end of vehicular bumper (7).

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A. REMOVE - Continued.

NOTE

It may be necessary to use crowbars to rock vehicular bumper in order to remove hex head cap screw from straight headed pin and to remove straight headed pin from main frame pivot point. Weight of vehicular bumper may be pinching hex head cap screw and straight headed pin.

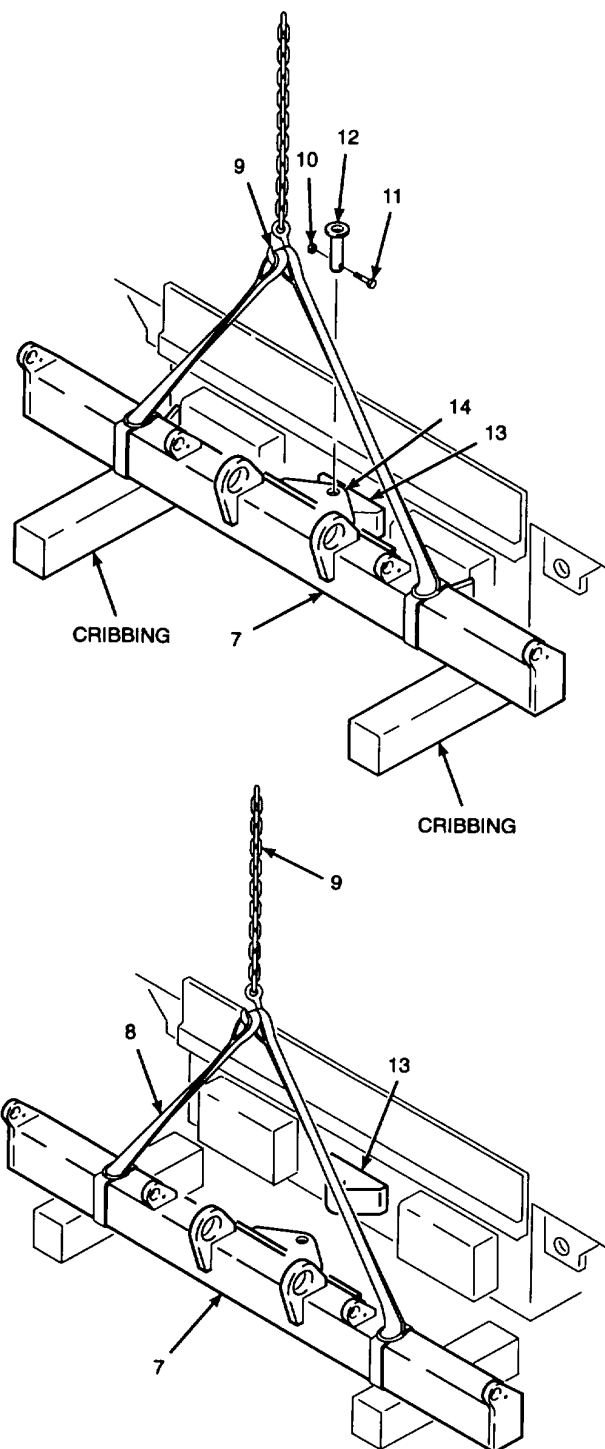
- e. Remove self-locking hex nut (10) and hex head cap screw (11) from straight headed pin (12). Discard self-locking hex nut.
- f. Remove straight headed pin (12) from main frame pivot point (13) and vehicular bumper pivot point (14). Drive pin out by tapping up on the bottom of the pin with a hammer.

WARNING

Use extreme caution when removing vehicular bumper from main frame pivot point. Vehicular bumper weighs approximately 600 lbs (272 kg) and may move suddenly while removing from main frame pivot point causing serious injury.

Do not allow vehicular bumper to swing while hanging from overhead hoist. Vehicular bumper may strike personnel and cause injury.

- g. Raise overhead hoist (9) just enough to take the weight off main frame pivot point (13).
- h. With the help of another person, slide vehicular bumper (7) off main frame pivot point (13).
- i. Lower vehicular bumper (7) so that it is sitting squarely on cribbing.
- j. Disconnect overhead hoist (9) from sling straps (8).
- k. Disconnect sling straps (8) from vehicular bumper (7).



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10.2. REPLACE/REPAIR VEHICULAR BUMPER COMPONENTS - Continued.**B. CLEAN.**

1. CLEAN PUSH ROLLER, BEARING SHAFTS, AND CLEANING SOLVENT AND CLEANING CLOTH. STRAIGHT HEADED PIN.

WARNING

Cleaning solvent, PD680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- a. Clean push roller and straight headed pin with a cleaning cloth and cleaning solvent to remove paving material buildup. Use a

wire scratch brush to remove hard deposits.

- b. Rinse bearing shafts in cleaning solvent to remove dirt, old grease, and any other foreign material.

2. CLEAN BEARING SHAFT HEX HEAD CAP SCREW THREADS.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Use thread locking compound solvent to clean threads of bearing shaft hex head cap screws.
- b. Wipe dry with a cleaning cloth.

3. CLEAN VEHICULAR BUMPER PIVOT POINT AND MAIN FRAME PIVOT POINT WITH

GO TO NEXT PAGE

C. INSPECT.

1. VISUALLY INSPECT BEARING SHAFTS FOR SCORING OR GOUGING ON BEARING SURFACE. REPLACE BEARING SHAFTS IF DAMAGED.
2. INSPECT PUSH ROLLER AND SPHERICAL BEARINGS.
 - a. Roll push roller across a flat surface and check for bending or an out of round shape. If roller is bent or out of round, replace it.
 - b. Check spherical bearings in ends of push roller by rotating by hand. If bearings turn rough or bind, replace bearing per step D.
3. INSPECT STRAIGHT HEADED PIN FOR CRACKS, GOUGES, DENTS, OR NICKS. POLISH OUT ANY RAISED METAL USING CROCUS CLOTH. IF GAUGES OR WEAR EXCEEDS 1/8 IN. (3.18 mm) IN DEPTH OR CRACKS ARE FOUND, REPLACE PIN.

D. REPAIR.

NOTE

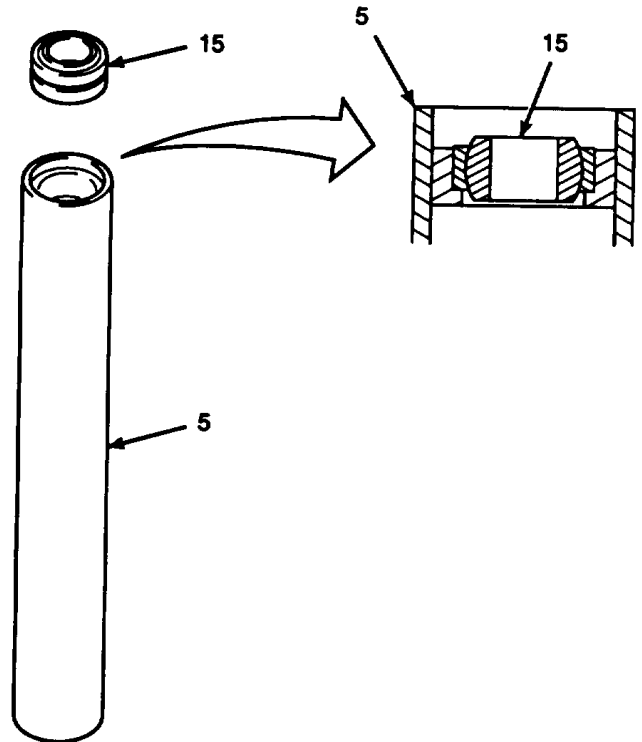
Replace spherical bearings in push roller only if determined necessary by inspection step C.2.b.

1. REMOVE SPHERICAL BEARINGS FROM PUSH ROLLER.
 - a. Place push roller (5) into a bench vise.
 - b. Pull spherical bearings (15) from push roller (5) using universal puller kit with internal jaws.

WARNING

Cleaning solvent, PD680, is TOXIC and flammable. Wear protective goggles 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 m cleaning solvent is 200°F (93,30C). Failure to do so may result in injury or death to personnel.



WARNING

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, flush eyes with water and get immediate medical attention.

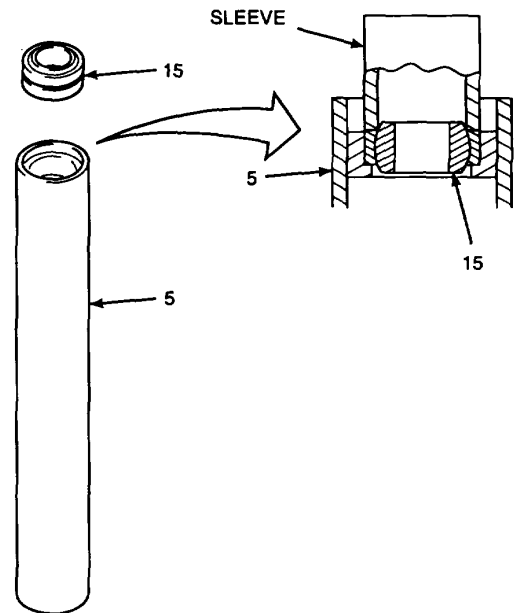
- c. Clean grease and paving material accumulation from push roller bearing bores with a cleaning cloth soaked in cleaning solvent.

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10.2. REPLACE/REPAIR VEHICULAR BUMPER COMPONENTS - Continued.

D. REPAIR - Continued.

2. INSTALL SPHERICAL BEARINGS INTO PUSH ROLLER.
 - a. Seat and square up spherical bearings (15) with push roller bearing bores.
 - b. Place a sleeve from universal puller kit over spherical bearing (15) and tap bearing into push roller (5) until bearing is fully seated in roller. Remove roller from bench vise.



E. INSTALL.

1. INSTALL VEHICULAR BUMPER ONTO MAIN FRAME.

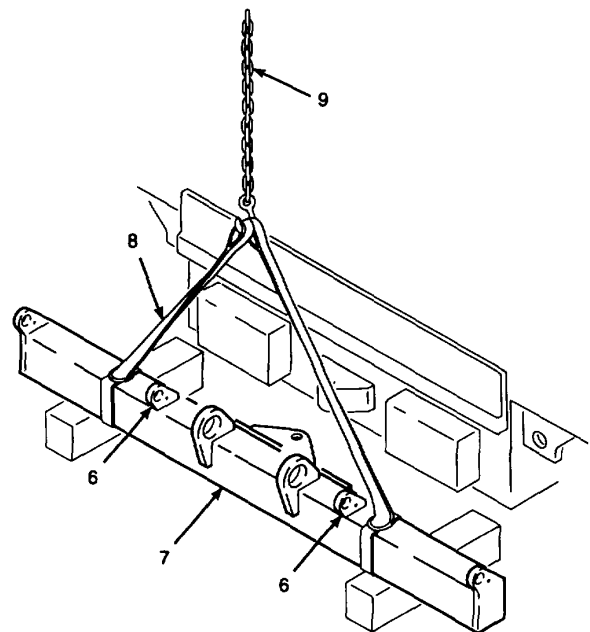
WARNING

Vehicular bumper weighs 600 lbs (272 kg). To avoid personal injury, ensure sling straps are in good condition and are of correct capacity. Ensure overhead hoist is in good working condition and hook is positioned correctly. Damage to equipment and personnel injury may result from unexpected movement of vehicular bumper.

NOTE

Change sling strap positions as needed to ensure vehicular bumper is level when raised with overhead hoist. Holes in vehicular bumper and bumper pivot point will be easier to align.

- a. Attach sling straps (8) to vehicular bumper (7). Use two sling straps placed on either side of inner roller brackets (6) as shown in illustration.
- b. Attach overhead hoist (9) hook to sling straps (8).



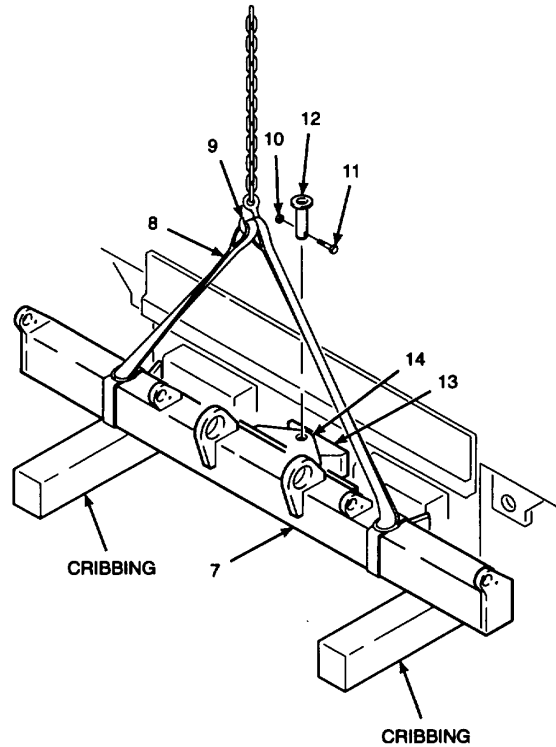
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E. INSTALL - Continued.

WARNING

Do not work under vehicular bumper supported only by overhead hoist. Use cribbing to provide support to vehicular bumper prior to removing straight headed pin. Vehicular bumper may fall and cause injury or death to personnel.

- c. Slowly raise overhead hoist to take up slack in sling straps (8) and lift vehicular bumper (7) off cribbing.
- d. With the help of another person, align and install vehicular bumper (7) so that vehicular bumper pivot point (14) on vehicular bumper is lined up with main frame pivot point (13).

**WARNING**

Antiseize compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- e. Apply antiseize compound and insert straight headed pin (12) through vehicular bumper pivot point (14) and main frame pivot point (13).
- f. Insert hex head cap screw (11) and install self-locking hex nut (10). Tighten hex nut to 37 lb-ft (50 N•m).
- g. Disconnect overhead hoist (9) from sling straps (8). Remove sling straps from vehicular bumper (7).

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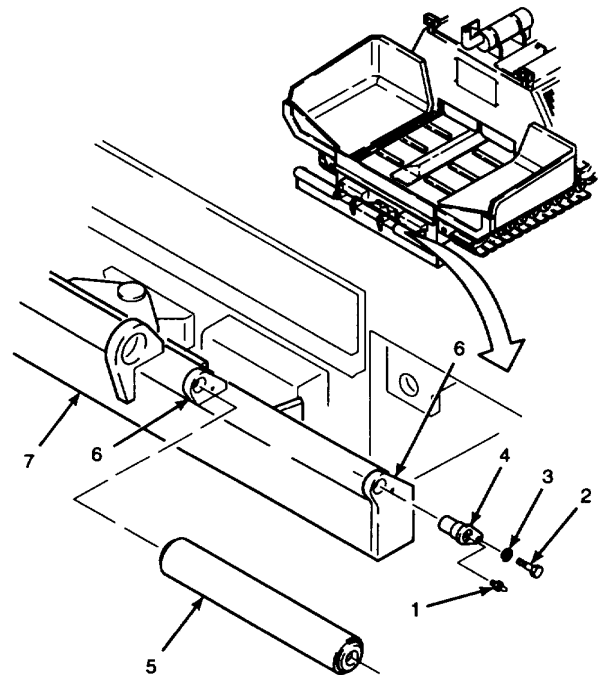
10.2. REPLACE/REPAIR VEHICULAR BUMPER COMPONENTS - Continued.**E. INSTALL - Continued.****2. INSTALL PUSH ROLLER AND BEARING SHAFTS.**

- a. With the help of another person, align push roller (5) with roller brackets (6) on vehicular bumper (7).
- b. Insert bearing shaft (4) through roller brackets (6) and into spherical bearings on both sides of push roller (5).
- c. Install lockwashers (3) onto hex head cap screws (2).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- d. Apply thread locking compound to threads of hex head cap screws (2).
- e. Install hex head cap screws (2) and tighten to 37 lb-ft (50 N•m).



- f. Install lubrication fitting (1) into bearing shaft (4). Do not overtighten.
- g. Lubricate bearings through lubrication fitting (1) in accordance with LO 5-3895-373-12.

END OF TASK

CHAPTER 11

BODY, CAB, AND HOOD MAINTENANCE

	Para	Page
General Maintenance Procedures.....	11.1	11-1
Repair Access Doors and Covers	11.2	11-2
Replace Operator Control Console Support Frame	11.4	11-34
Replace/Repair Seat Assembly.....	11.5	11-41
Replace Walkways, Screenshot Guard Plates, and Screenshot Handrail.....	11.3	11-13

11.1. GENERAL MAINTENANCE PROCEDURES.

All unit level maintenance shall be performed in accordance with good and safe shop practices. Observe the following general instructions and requirements when performing body, cab, and hood maintenance.

- a. Areas of the paving machine exposed to paving material buildup require cleaning prior to disassembly. Use hammers, chisels, and scrapers to remove thickest sections of buildup. If available, use heater gun to soften deposits adhering to components; remove softened buildup with putty knife. When heating paving material, keep second person with fire extinguisher at hand and avoid overheating. If heater gun is not available, use solvent or fuel washdown system to soften paving material.
- b. Thread locking compound is used with most threaded fasteners. If a threaded fastener will not break loose, heat threaded area of fastener from 500° to 6000F (232° to 315°C) with heater gun. If the special solvent used to remove thread locking compound from screw threads fails to remove buildup, discard fastener.
- c. Discard all removed gaskets, seals, preformed packings, self-locking nuts, lockwashers, spring pins, and deformed hardware.
- d. Inspect all removed components for obvious wear or damage. Replace all worn, bent, broken, or otherwise damaged parts.
- e. Inspect all removed fasteners for thread damage. If thread damage is found, replace fastener. Replace flat washers if galled or bent. Use screw extractor set (Item 15, Appendix E) to remove broken studs or screws.
- f. Clean painted surfaces thoroughly before repainting. Do not paint over rust or corrosion. Cover air breather ports and hydraulic components. Do not paint bearings or other parts that require surface lubrication. Reference TM 43-0139 for equipment painting requirements.
- g. Torque values cited in the text apply to modified SAE Grade 8 fasteners at required clamping loads.
- h. Use only authorized replacement parts. Refer to TM 5-3895-373-24P, Repair Parts and Special Tools List (RPSTL) for authorized replacement parts.
- i. Observe all warnings and cautions. Wear protective clothing and equipment as specified. Observe the Safety and Hazard Warnings provided in TACOM technical bulletin TB 43-0216.

11.2. REPAIR ACCESS DOORS AND COVERS.

This task covers: a. Remove b. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Torque wrench (Item 68, Appendix E)

Materials/Parts:

Adhesive (Item 3, Appendix C)
Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Thread locking compound (Item 13, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Door seals
Latches
Lockwashers
Sound foam

Personnel Required:

Two 62B construction equipment repairers. Second person to support access doors during removal.

References:

TM 5-3895-373-10
TM 5-3895-373-24P

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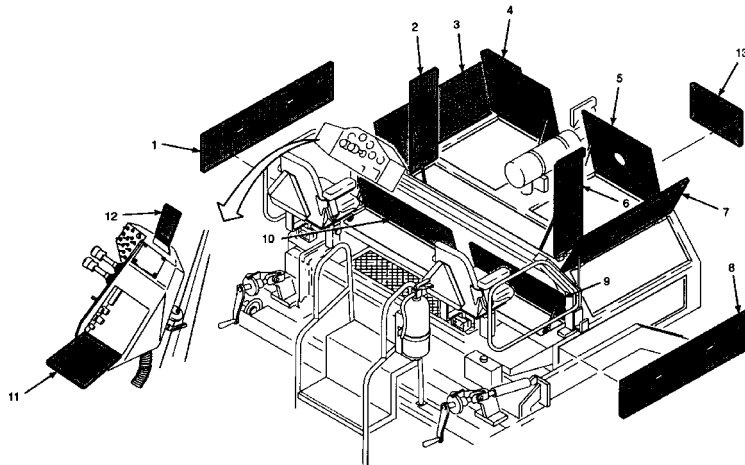
NOTE

This paragraph provides information necessary for the repair of all access doors and covers. Included are typical instructions for the removal of the hinged doors to replace the hinges or doors. Procedures are also included for the replacement of the latches, handles, and sound foam. If replacing the latch or handle, it is not necessary to remove the hinged doors from the machine. It is recommended to remove the hinged doors from the machine for the replacement of the sound foam. Refer to the illustration for the location of all doors and covers on the machine and the repair procedures provided for each.

Legend

Repair Procedure

	Hinges	Latches	Handles	Sound Foam
1. Left access cover		X		
2. Center top left access cover	X	X		
3. Left access door	X		X	
4. Front top left access door	X	X	X	X
5. Front top right access door	X	X	X	X
6. Center top right access door	X	X	X	
7. Right access door	X	X		
8. Right access cover		X		
9. Rear top right access door	X	X		
10. Rear top left access door	X	X		
11. Gauge panel right access door		X		
12. Gauge panel left access door	X			
13. Engine access cover				

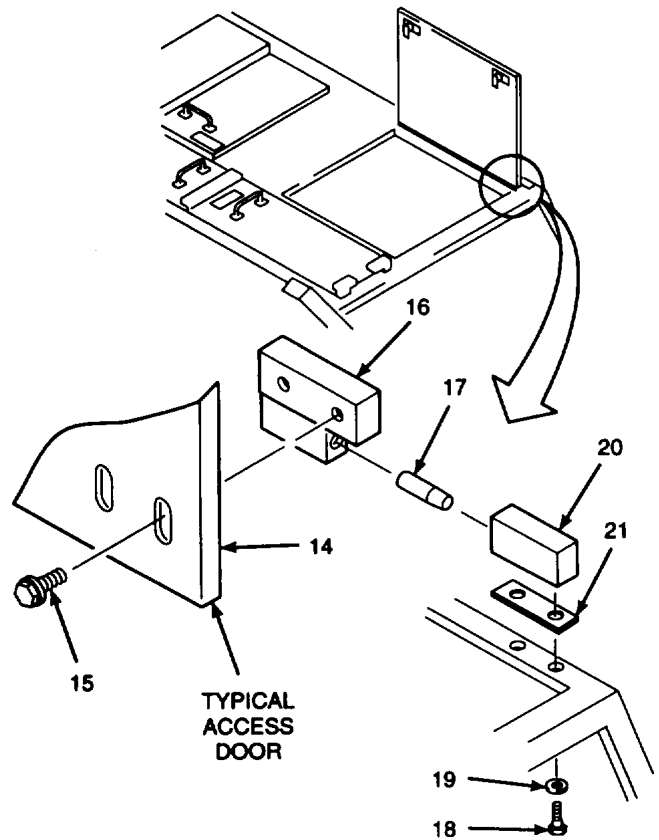


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11.2. REPAIR ACCESS DOORS AND COVERS - Continued.

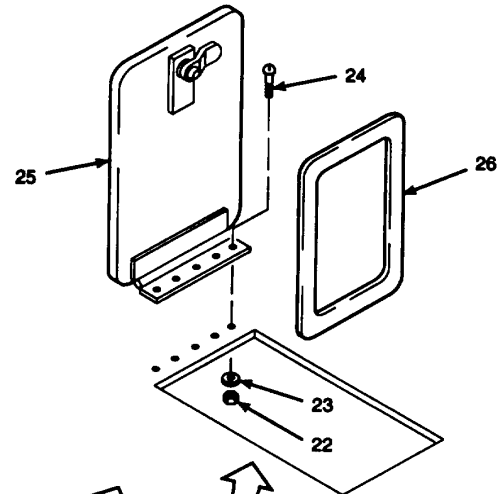
A. REMOVE.

1. REMOVE HINGED ACCESS DOORS AND HINGES.
 - a. Open applicable access door per TM 5-3895-373-10.
 - b. With the help of a second person, support the weight of access door (14) while removing the hinge.
 - c. Remove bolts (15), hinges (16), and dowel pins (17).
 - d. Remove access door (14).
 - e. Remove hex head cap screws (18) and flat washers (19).
 - f. Remove hinge blocks (20) and, if installed, hinge shims (21). Note the location of shims. Shims must be installed in the same location from which they were removed.

**GO TO NEXT PAGE**

A. REMOVE - Continued.

2. REMOVE OPERATOR CONTROL CONSOLE GAUGE PANEL ACCESS DOORS.
 - a. Open gauge panel access doors per TM 5-3895-373-10.
 - b. Remove hex nuts (22), washers (23), screws (24), and gauge panel access door (25).

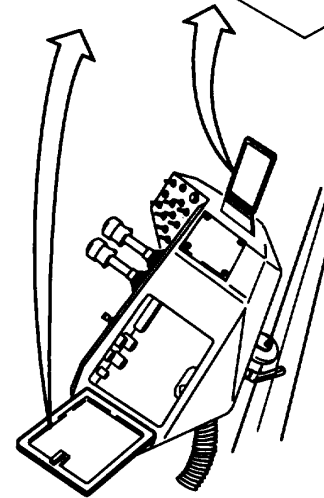


WARNING

Cleaning solvent, PD680, is TOXIC and flammable. Wear protective goggles 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 m cleaning solvent is 200°F (93,3°C). Failure to do so may result in injury or death to personnel.

If personnel become dizzy when using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- c. Remove door seal (26) from gauge panel access door (25). Use a cleaning cloth soaked in cleaning solvent to remove adhesive from door and console surfaces. Scrape off adhesive and gasket residue with a putty knife if necessary.



GO TO NEXT PAGE

11.2. REPAIR ACCESS DOORS AND COVERS - Continued.

A. REMOVE - Continued.

3. REMOVE LATCHES AND HANDLES FROM ACCESS DOOR OR COVER.

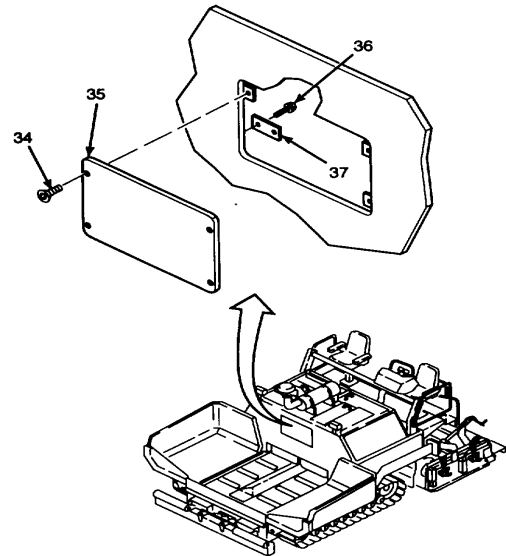
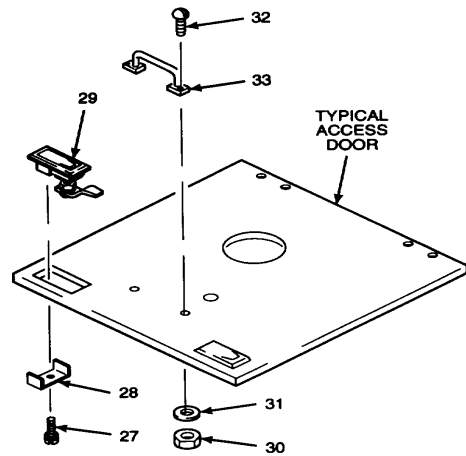
NOTE

If replacing the handle, the sound foam must be removed from the door or cover first to access the handle mounting hardware.

- a. Remove access covers or open access doors per TM 5-3895-373-10.
- b. Remove machine screw (27) and bracket (28) from latch (29). Discard all parts. New hardware is provided with replacement latch.
- c. Remove latch (29).
- d. Remove hex nuts (30), flat washers (31), machine screws (32), and handle (33).

4. REMOVE ENGINE ACCESS COVER AND MOUNTING HARDWARE.

- a. Remove socket head cap screws (34) and engine access cover (35).
- b. Remove hex head cap screws (36) and brackets (37).



GO TO NEXT PAGE

A. REMOVE - Continued.

5. REMOVE SOUND FOAM.

NOTE

If replacing the sound foam on a hinged access door, it is recommended that the door be removed from the machine to prevent pieces of the sound foam from falling into the engine compartment.

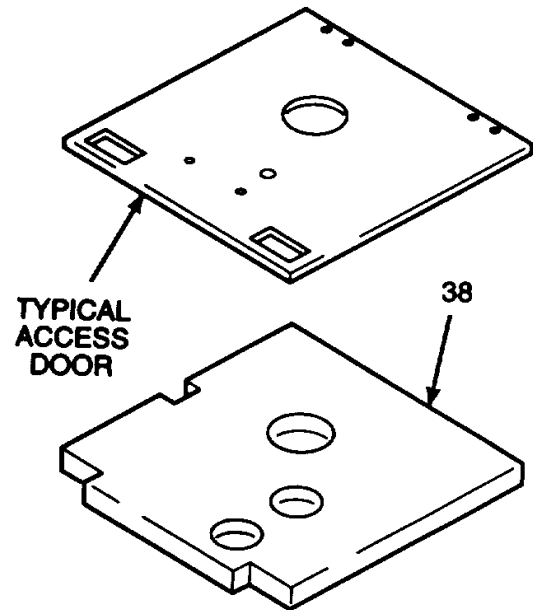
- a. Pull sound foam (38) from surface of access door or access cover. Sound foam may come off in pieces. Remove as much as possible by hand. Use a putty knife to help scrape sound foam from surface of access door or access cover.

WARNING

Cleaning solvent, PD680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°C). Failure to do so may result in injury or death to personnel.

If personnel become dizzy when using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

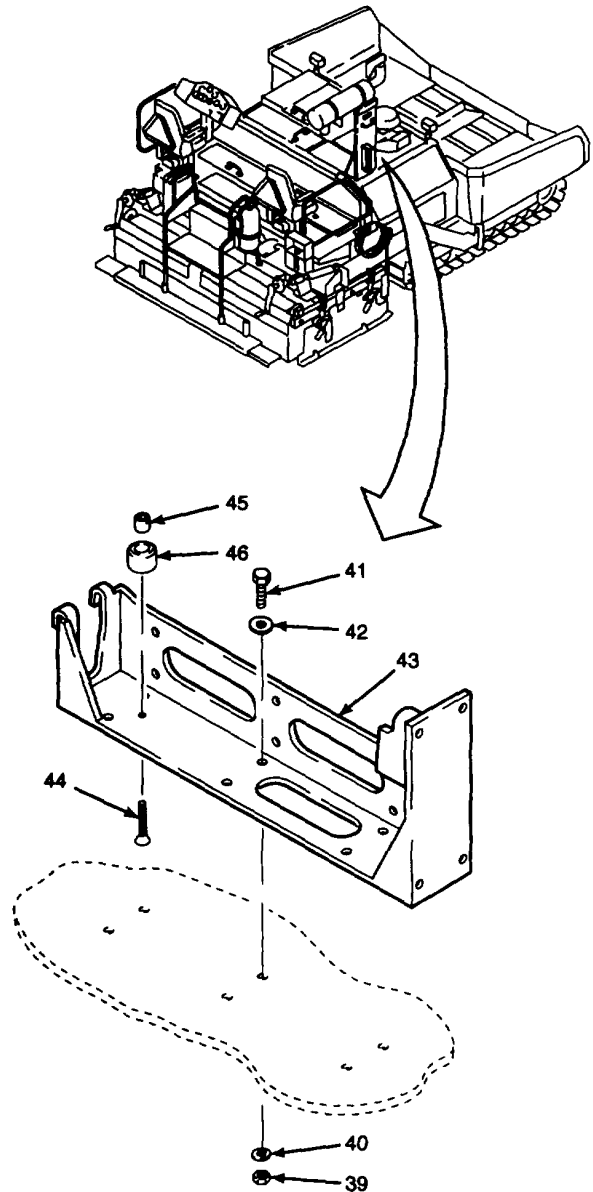
- b. Use a cleaning cloth and solvent to remove sound foam adhesive from surface of access door. If necessary, soak adhesive and sound foam residue with solvent for 15 minutes. Use a putty knife and cleaning solvent to remove any remaining sound foam and adhesive.
- c. When all adhesive has been removed, wipe dry with a cleaning cloth.



GO TO NEXT PAGE

11.2. REPAIR ACCESS DOORS AND COVERS- Continued.**A. REMOVE - Continued.**

6. REMOVE RIFLE BRACKET ASSEMBLY.
 - a. Open center top right access door per TM 5-3895-373-10.
 - b. Remove hex nuts (39), flat washers (40), bolts (41), and flat washers (42).
 - c. Remove rifle bracket (43) from paving machine.
 - d. Remove machine screw (44), screw thread insert (45), and bumper (46).

**GO TO NEXT PAGE**

B. INSTALL.**1. INSTALL RIFLE BRACKET ASSEMBLY.****WARNING**

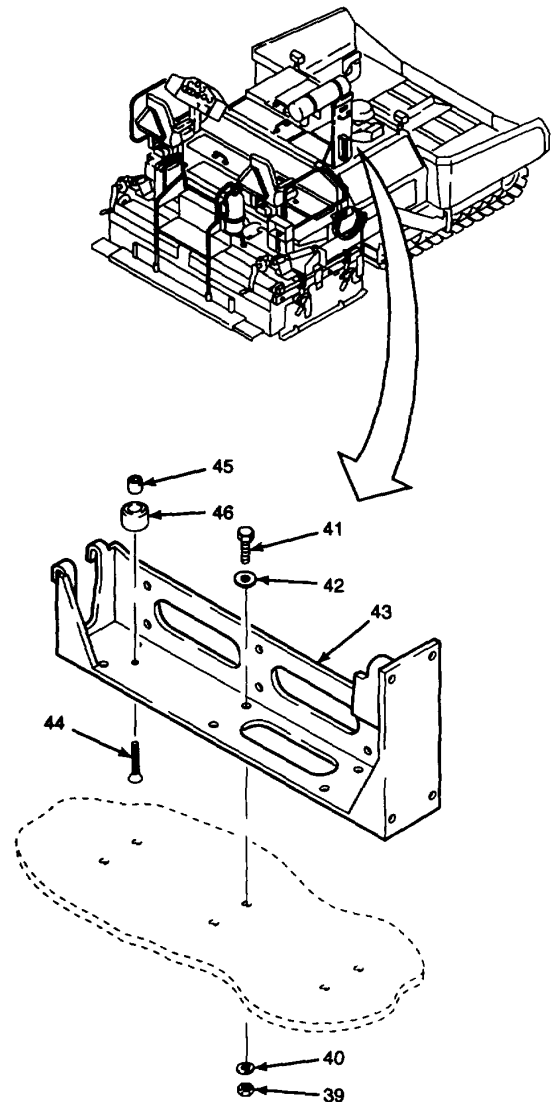
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean threads of machine screw (44) with thread locking compound solvent.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- b. Apply thread locking compound to threads of machine screw (44).
- c. Install screw thread insert (45) into bumper (46). Install bumper onto rifle bracket (43) and secure with machine screw (44). Tighten machine screw.
- d. Position rifle bracket (43) on paving machine.
- e. Clean threads of bolts (41) with thread locking compound solvent.
- f. Install flat washers (42) onto bolts (41).
- g. Apply thread locking compound to threads of bolts (41).
- h. Install flat washers (42), bolts (41), flat washers (40), and hex nuts (39). Tighten hex nuts to 19 lb-ft (26 N•m).

**GO TO NEXT PAGE**

11.2. REPAIR ACCESS DOORS AND COVERS - Continued.

B. INSTALL - Continued.

2. INSTALL LATCHES AND HANDLES.

- a. Remove machine screw (27) and bracket (28) from latch (29).
- b. Install adjust hex nut (47), lockwasher (48), pawl (49), lockwasher (50), and adjust hex nut (51) onto latch (29). Do not tighten adjust hex nut (51).
- c. Install latch (29) and secure with bracket (28) and machine screw (27). Tighten machine screw.

NOTE

If no door seal is on access door, measure thickness of latch panel only.

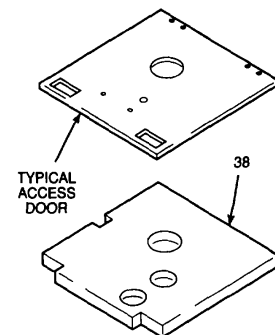
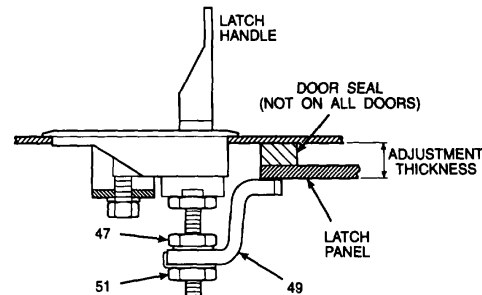
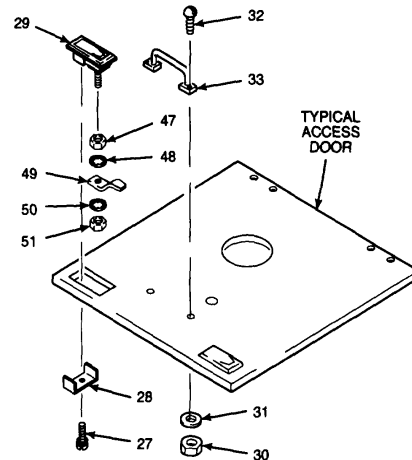
- d. Measure thickness of latch panel and, where applicable, door seal. This total thickness is equal to the required adjustment thickness.
- e. Close latch handle and loosen adjust hex nuts (47 and 51). Screw pawl (49) up or down to the required adjustment thickness.
- f. Tighten both adjust hex nuts (47 and 51).
- g. Install handle (33) and secure with machine screws (32), flat washers (31), and hex nuts (30). Tighten hex nuts.

3. INSTALL SOUND FOAM.

- a. Position sound foam (38), with backing in place, on inside of access door so that cut openings in sound foam fit around all latches and openings in panel. Lightly scribe a line around sound foam to ensure

proper placement after backing is removed.

- b. Remove sound foam (38) and peel off backing to expose adhesive backing.
- c. Carefully position sound foam (38) on access door and press firmly in place.

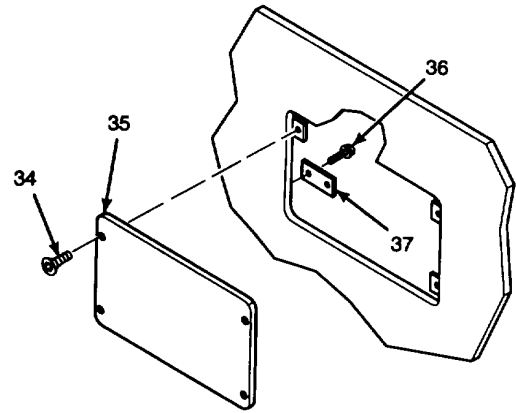


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B. INSTALL - Continued.

4. INSTALL ENGINE ACCESS COVER AND MOUNTING HARDWARE.

- a. Install brackets (37) loosely with hex head cap screws (36).
- b. Install engine access cover (35) with socket head cap screws (34).
- c. Tighten hex head cap screws (36).
- d. Tighten socket head cap screws (34).



5. INSTALL OPERATOR CONTROL CONSOLE GAUGE PANEL ACCESS DOORS.

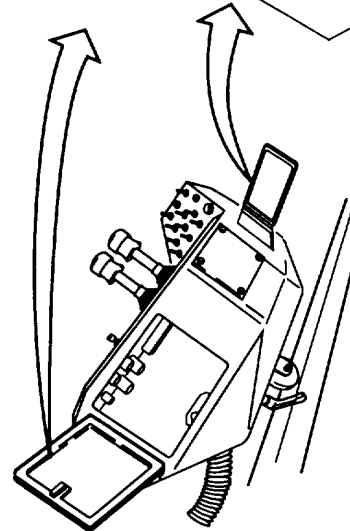
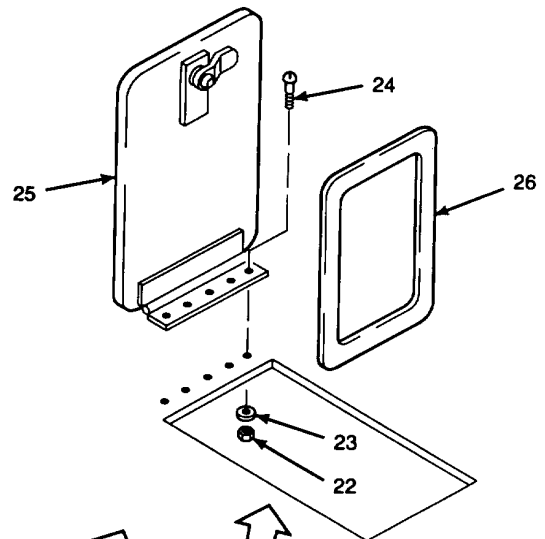
WARNING

Adhesive is **TOXIC** and extremely flammable. Keep away from heat, sparks, and open flames. Use only in well ventilated areas. Do not breathe vapors or swallow and avoid contact with eyes and skin. Failure to do so may result in injury or death to personnel.

If personnel become dizzy while using adhesive, immediately get fresh air and medical attention.

If personnel swallow adhesive, do not induce vomiting and get immediate medical attention. If adhesive contacts eyes, flush eyes with water for 15 minutes. Get immediate medical attention. If adhesive contacts skin, wash thoroughly with soap and water.

- a. Apply adhesive to door seal (26).
- b. Install door seal (26) onto gauge panel access door (25). Press firmly in place.
- c. Install gauge panel access door (25) and secure with screws (24), washers (23), and hex nuts (22). Tighten hex nuts.



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11.2. REPAIR ACCESS DOORS AND COVERS - Continued

B. INSTALL - Continued.

6. INSTALL HINGED ACCESS DOORS AND HINGES.

WARNING

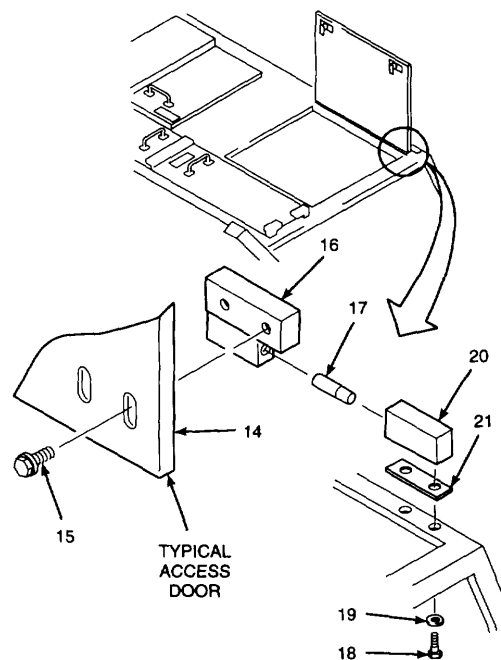
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean threads of hex head cap screws (18) with thread locking compound solvent. Wipe dry with a cleaning cloth.
- b. Install flat washers (19) onto hex head cap screws (18).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- c. Apply thread locking compound to threads of hex head cap screws (18).
- d. Position hinge blocks (20) and, if removed, hinge shims (21).
- e. Secure with flat washers (19), and hex head cap screws (18). Tighten cap screws to 9 lb-ft (12 N•m).
- f. Position access door (14) on paving machine. Have a second person hold access door in place while installing hinges onto door.
- g. Assemble dowel pins (17) and hinges (16) with hinge blocks (20).

**CAUTION**

Before tightening access door hardware, position and center in opening. If access door is not installed properly, access door misalignment and possible equipment damage could occur.

- h. Hold access door (14) in position against hinges (16). Install and finger tighten bolts (15).
- i. Carefully lower access door (14) into the closed position and check door alignment. Door should be centered in opening. If necessary, loosen bolt (15) and adjust door position. When door is aligned, tighten bolt.
- j. Close applicable access doors per TM 5389537310.

END OF TASK

11.3. REPLACE WALKWAYS, SCREED GUARD PLATES, AND SCREED HANDRAIL.

This task covers: a. Remove b. Clean c. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Crowbar (Item 11, Appendix E)
Torque wrench (Item 68, Appendix E)
Wire scratch brush (Item 6, Appendix E)

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Electrical insulating varnish (Item 32, Appendix C)
Thread locking compound (Item 13, Appendix C)
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Lockwashers
Vibration mounts

Personnel Required:

Two 62B construction equipment repairers. Second person to assist in removal and installation of walkways and screed handrails.

References:

TM 5-3895-373-10
TM 5-3895-373-24P

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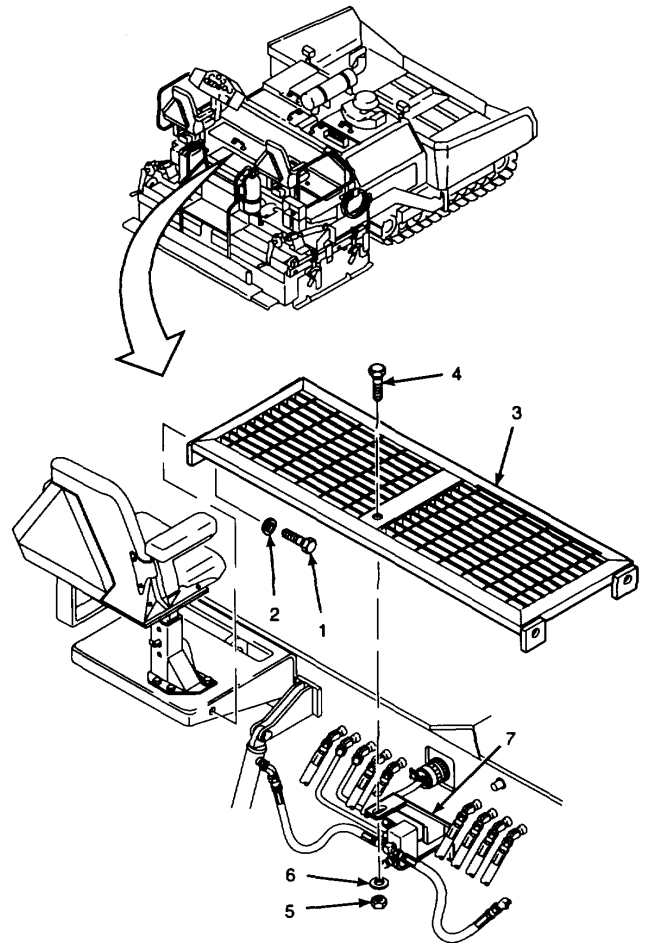
11-13

11.3. REPLACE WALKWAYS, SCREED GUARD PLATES, AND SCREED HANDRAIL - Continued.**NOTE**

This task provides procedures for replacing the deck, screed guard plates, screed steps, screed handrails, and walkway steps. Perform only those steps necessary to complete the maintenance required.

A. REMOVE.

1. REMOVE DECK AND DECK SUPPORT.
 - a. Have a second person support deck support while hardware is removed. Remove hex head cap screws (1) and flat washers (2) from both sides of deck (3).
 - b. Remove hex head cap screw (4), hex nut (5), and flat washer (6).
 - c. With the help of a second person, lift deck (3) from deck support (7). If required, use a crowbar to gently pry deck loose.

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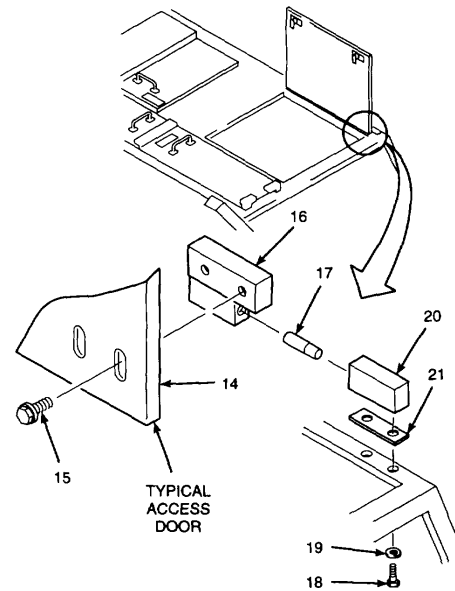
A. REMOVE - Continued.

- d. Remove hex head cap screws (8), lockwashers (9), and flat washers (10) from deck support (7) and screed travel lock valve manifold (11). Discard lockwashers.
- e. Remove hex head cap screw (12) and flat washer (13) while supporting deck support (7).



Ensure that no pressure or force is placed on the screed travel lock valve manifold when removing the deck support. Damage to hydraulic tubes could occur.

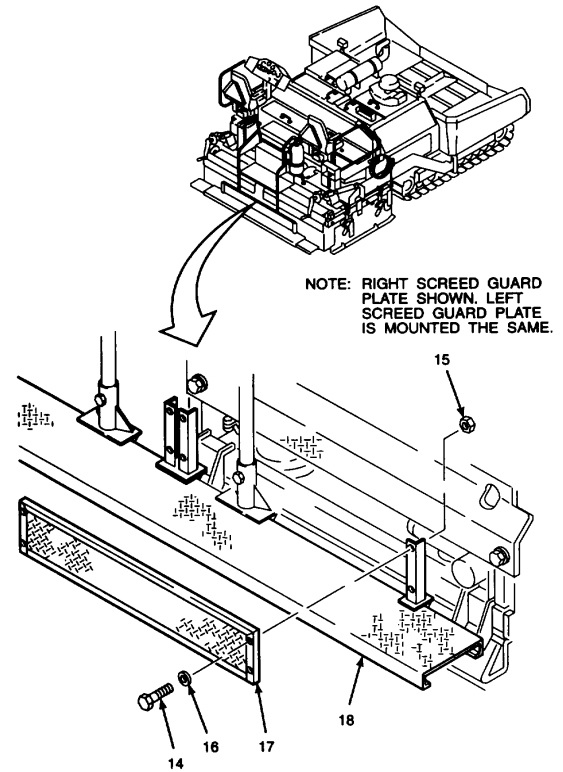
- f. Remove deck support (7). Take care not to put any pressure on screed travel lock valve manifold (11) or damage to hydraulic tubes could occur.



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11.3. REPLACE WALKWAYS, SCREED GUARD PLATES, AND SCREED HANDRAIL- Continued.**A. REMOVE - Continued.**

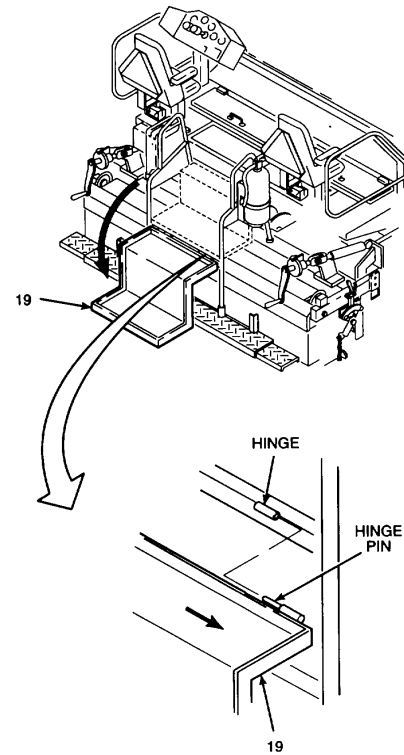
2. REMOVE SCREED GUARD PLATES FROM WALKWAY STEP.
 - a. Remove bolts (14), hex nuts (15), and flat washers (16).
 - b. Remove guard plates (17) from main walkway step (18).



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A. REMOVE - Continued.**3. REMOVE SCREED STEPS.**

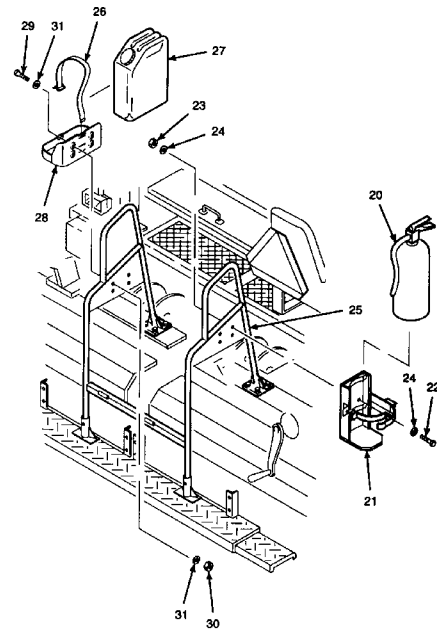
- a. Grab screed steps (19) at the front edge of the top step. Lift and pull the step up and away from the tractor.
- b. With screed steps (19) full back, slide the steps to the right to separate the hinge pins from the hinges.

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11.3. REPLACE WALKWAYS, SCREED GUARD PLATES, AND SCREED HANDRAIL - Continued.

A. REMOVE - Continued.

4. REMOVE SCREED HANDRAIL.
 - a. Remove fire extinguisher (20) from fire extinguisher bracket (21).
 - b. Remove hex head cap screws (22), hex nuts (23), and flat washers (24).
 - c. Remove fire extinguisher bracket (21) from screed handrail (25).
 - d. Unbuckle strap (26) and remove decontamination can (27) from decontamination can bracket (28).
 - e. Remove strap (26).
 - f. Remove hex head cap screws (29), hex nuts (30), flat washers (31), and decontamination can bracket (28).



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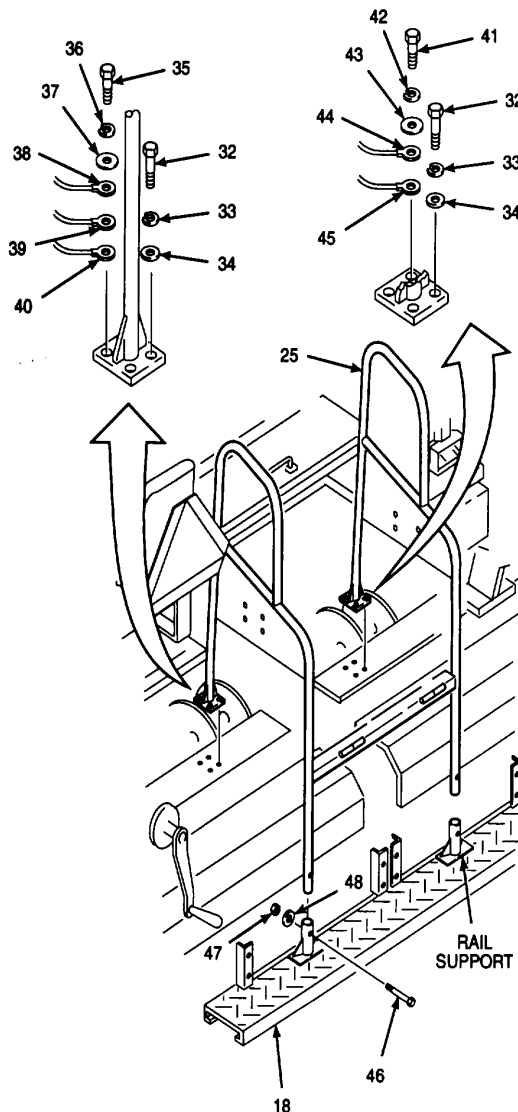
A. REMOVE - Continued.

- g. Remove hex head cap screws (32), lockwashers (33), and flat washers (34) from three places on each screed handrail (25) mounting base. Discard lockwashers.
- h. Remove hex head cap screw (35), lockwasher (36), flat washer (37), and ground wires (38, 39, and 40). Discard lockwasher.
- i. Remove hex head cap screw (41), lockwasher (42), flat washer (43), and ground wires (44 and 45). Discard lockwasher.

NOTE

Removal of screed guard plates is required to gain access to bolts (46) securing handrail (25) to walkway step (18).

- j. Remove bolts (46), hex nuts (47), and flat washers (48) from rail supports of main walkway step (18).
- k. With help of another person, lift and remove screed handrail (25) from screed.



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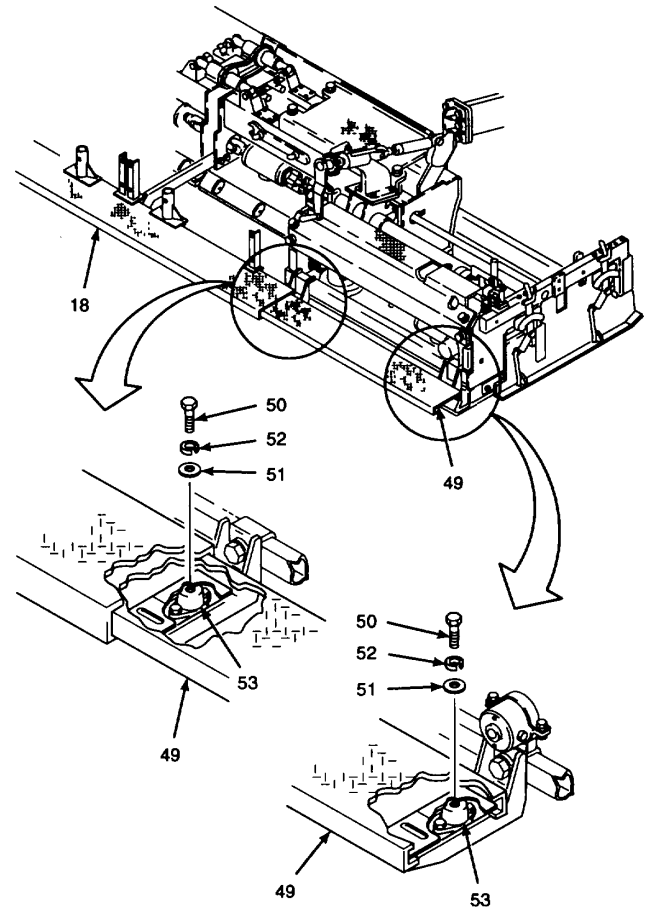
11.3. REPLACE WALKWAYS, SCREED GUARD PLATES, AND SCREED HANDRAIL - Continued.

- A. REMOVE - Continued.
5. REMOVE MAIN WALKWAY STEP AND EXTENSION WALKWAY STEPS FROM SCREED.
- Fully extend extension screeds. Refer to TM 5-3895-373-10.
 - Raise and crib screed. Refer to paragraph 2.24.2.
 - Reach under extension walkway step (49) and remove hex head cap screws (50), flat washers (51), and lockwashers (52) from vibration mounts (53). There are two vibration mounts on each end of the right and left extension walkway steps. Discard lockwashers.

NOTE

Damaged walkway steps may be pinched together, making removal of extension walkway steps difficult. If this is the case, next step may be skipped.

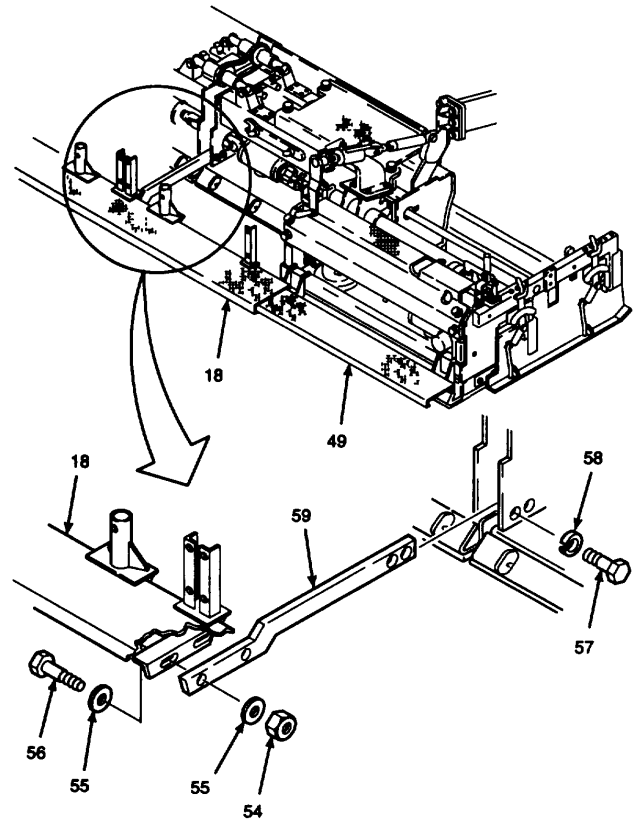
- With the help of another person, pull right and left extension walkway steps (49) free of main walkway step (18).



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A. REMOVE - Continued.

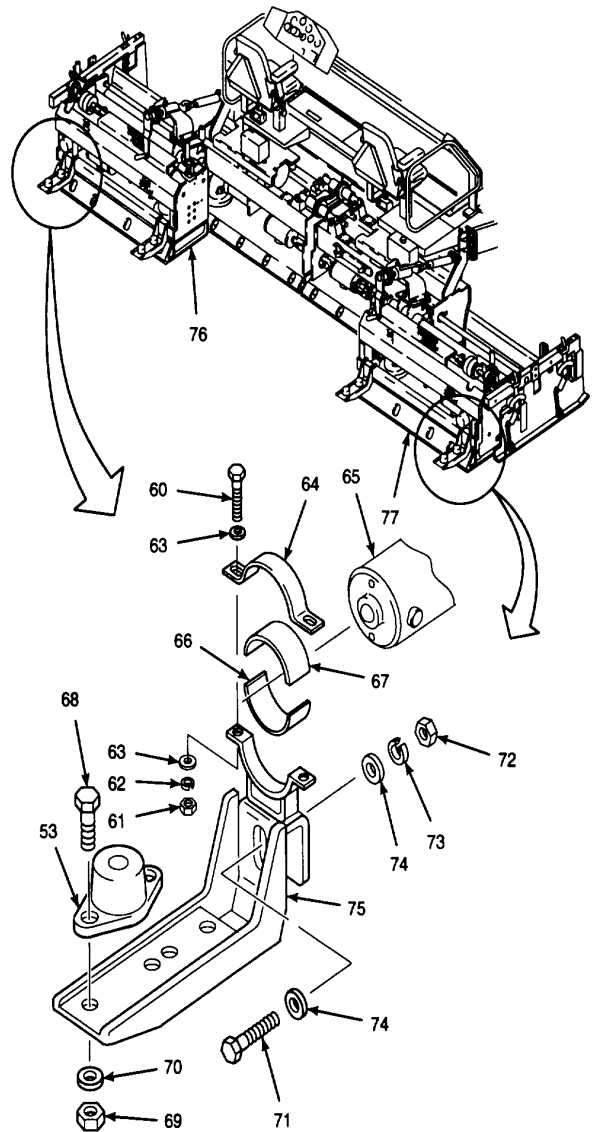
- e. Remove hex nuts (54), flat washers (55), and hex head cap screws (56) from main walkway step (18).
- f. With the help of another person, lift and remove main walkway step (18). If one or both extension walkway steps (49) could not be removed from main walkway step, all walkway steps can be removed as a single unit.
- g. Remove hex head cap screws (57), lockwashers (58), and center step support (59). Discard lockwashers.



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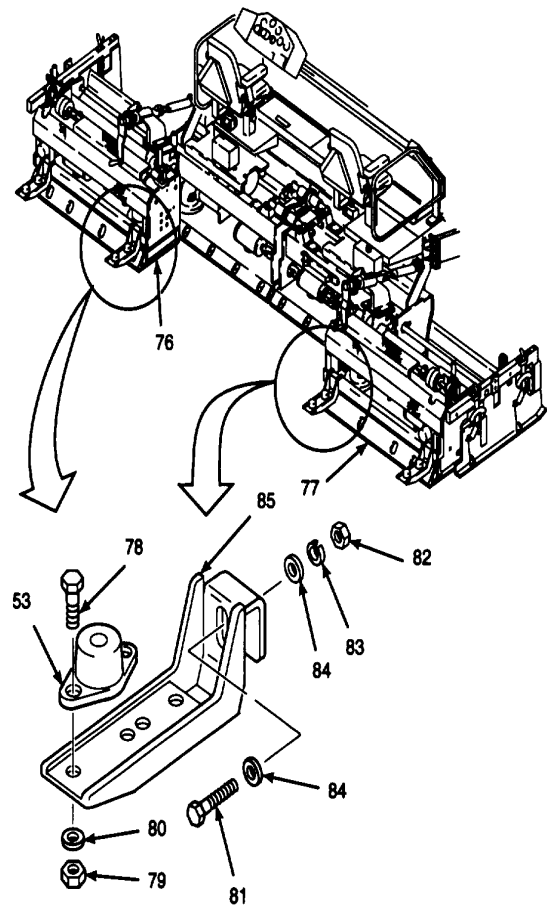
11.3. REPLACE WALKWAYS, SCREED GUARD PLATES, AND SCREED HANDRAIL - Continued.

- A. REMOVE - Continued.
6. REMOVE AND DISASSEMBLE OUTER STEP SUPPORTS.
- a. Remove hex head cap screws (60), hex nuts (61), lockwashers (62), and flat washers (63). Discard lockwashers.
 - b. Remove blower motor clamps (64) from blower motors (65). Move the blower motors out of the way for step support removal.
 - c. Remove cushions (66 and 67).
 - d. Remove bolts (68), hex nuts (69), and flat washers (70) from vibration mounts (53).
 - e. Remove vibration mounts (53) from outer step supports. Discard vibration mounts.
 - f. Remove hex head cap screws (71), hex nuts (72), lockwashers (73), and flat washers (74). Discard lockwashers.
 - g. Remove outer step supports (75) from extension screeds (76 and 77).



GO TO NEXT PAGE

- A. REMOVE - Continued.
- 7. REMOVE AND DISASSEMBLE INNER STEP SUPPORTS.
 - a. Remove bolts (78), hex nuts (79), and flat washers (80) from vibration mounts (53).
 - b. Remove vibration mounts (53) from inner step supports (85). Discard vibration mounts.
 - c. Remove hex head cap screws (81), hex nuts (82), lockwashers (83), and flat washers (84). Discard lockwashers.
 - d. Remove inner step supports (85) from extension screeds (76 and 77).



- B. CLEAN.
- 1. CLEAN MOUNTING HARDWARE.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Remove thread locking compound from threads of all mounting hardware using thread locking compound solvent.
- b. Dry screw threads with a cleaning cloth.

GO TO NEXT PAGE

11.3. REPLACE WALKWAYS, SCREED GUARD PLATES, AND SCREED HANDRAIL - Continued.

- B. CLEAN - Continued.
- 2. CLEAN MOUNTING SURFACES.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- a. Clean mounting surfaces using cleaning solvent, cleaning cloth, and a wire scratch brush.
- b. Dry all parts with a cleaning cloth.

C. INSTALL.

1. ASSEMBLE AND INSTALL INNER STEP SUPPORTS.

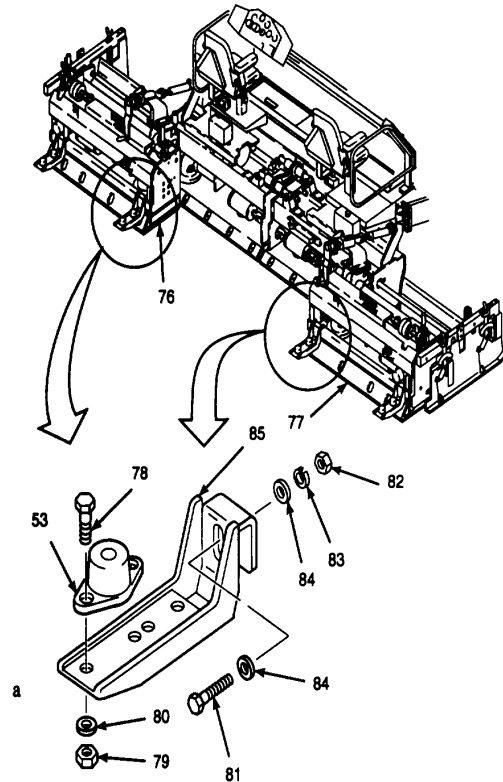
- a. Place inner step supports (85) on extension screeds (76 and 77).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water

and get immediate medical to threads of bolts (78). attention.

- b. Place flat washers (84) onto hex head cap screws (81) and apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screws.



- c. Secure inner step supports (85) with hex head cap screws (81), flat washers (84), lockwashers (83), and hex nuts (82). Tighten hex nuts to 37 lb-ft (50 N•m).
- d. Position vibration mounts (53) on inner step supports (85).
- e. Apply thread locking compound (Item 13, Appendix C)
- f. Secure vibration mounts (53) to inner step supports (85) with bolts (78), flat washers (80), and hex nuts (79). Tighten hex nuts to 19 lb-ft (26 N•m).

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C. INSTALL - Continued.
 2. ASSEMBLE AND INSTALL OUTER STEP SUPPORTS.

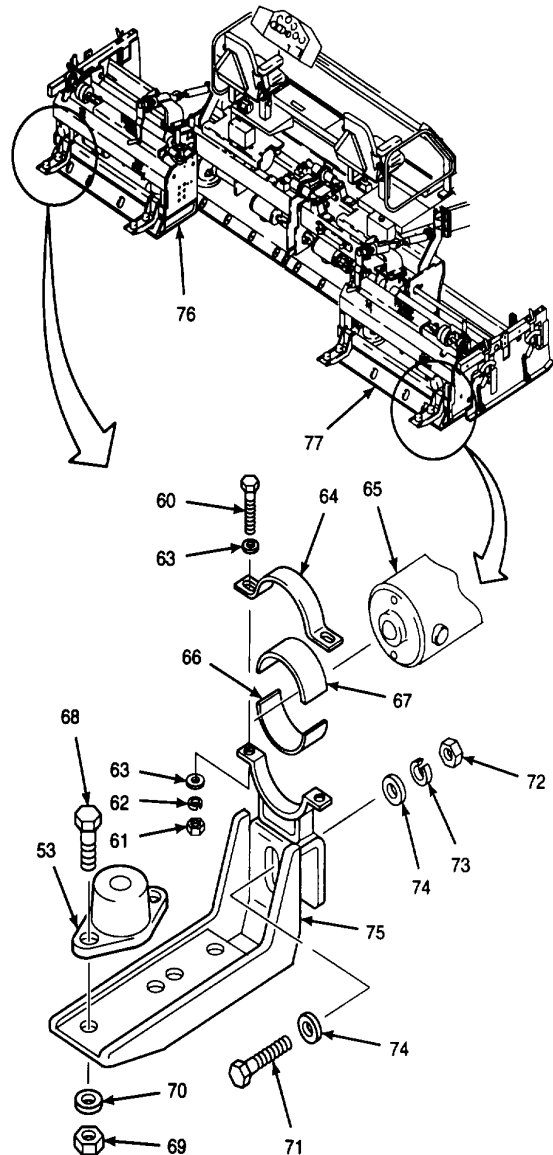
- a. Place outer step supports (75) on extension screeds (76 and 77).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- b. Place flat washers (74) onto hex head cap screws (71) and apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screws.
- c. Secure outer step supports (75) with hex head cap screws (71), flat washers (74), lockwashers (73), and hex nuts (72). Tighten hex nuts to 37 lb-ft (50 N•m).
- d. Position vibration mounts (53) on outer step supports (75).
- e. Apply thread locking compound (Item 13, Appendix C) to threads of bolts (68).
- f. Secure vibration mounts (53) to outer step supports (75) with bolts (68), flat washers (70), and hex nuts (69). Tighten hex nuts to 19 lb-ft (26 N•m).
- g. Set lower cushion (66) onto motor cradles of outer step supports (75).
- h. Place blower motors (65) onto lower cushion (66).
- i. Place upper cushion (67) and blower motor clamps (64) over blower motors (65).

- j. Place flat washers (63) onto hex head cap screws (60) and apply thread locking compound (Item 13, Appendix C) to hex head cap screws.
- k. Secure blower motor clamps (64) with hex head cap screws (60), flat washers (63), lockwashers (62), and hex nuts (61). Tighten hex nuts evenly.



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11.3. REPLACE WALKWAYS, SCREED GUARD PLATES, AND SCREED HANDRAIL- Continued.

C. INSTALL - Continued.

3. INSTALL MAIN WALKWAY STEP AND EXTENSION WALKWAY STEPS TO SCREED.

- a. Temporarily secure center step support (59) to main screed with hex head cap screws (57) and lockwashers (58). Do not fully tighten cap screws at this time.
- b. With the help of another person, align central mount holes of main walkway step (18) with mount holes of center step support (59). Temporarily install hex head cap screws (56), flat washers (55), and hex nuts (54).
- c. With the help of another person, slide left and right extension walkway steps (49) part way into each end of main walkway step (18).
- d. Align mounting holes of extension walkway steps (49) with vibration mounts.
- e. Remove one of two hex head cap screws (57) along with lockwashers (58) from mounting holes of center step support (59).

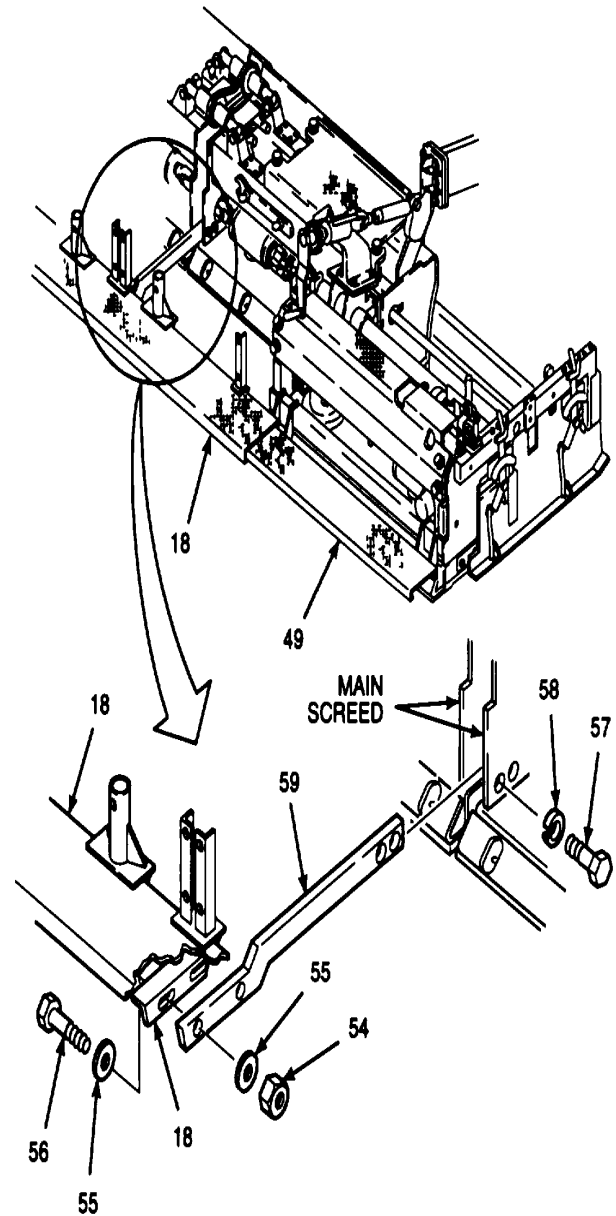
screw (57).

- j. Install second hex head cap screw (57).
- k. Tighten hex head cap screws (57) to 90 lb-ft (122 N•m).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- f. Apply thread locking compound (Item 12, Appendix C) to the threads of hex head cap screw (57).
- g. Install hex head cap screw (57). Do not tighten at this time.
- h. Remove second hex head cap screw (57) along with lockwasher (58).
- i. Apply thread locking compound (Item 12, Appendix C) to threads of hex head cap



GO TO NEXT PAGE

C. INSTALL - Continued.

CAUTION

Do not apply thread locking compound to hex head cap screws (50). Damage to vibration mounts (53) could occur during removal if thread locking compound is applied.

NOTE

There are two vibration mounts on each end of the right and left extension walkway steps.

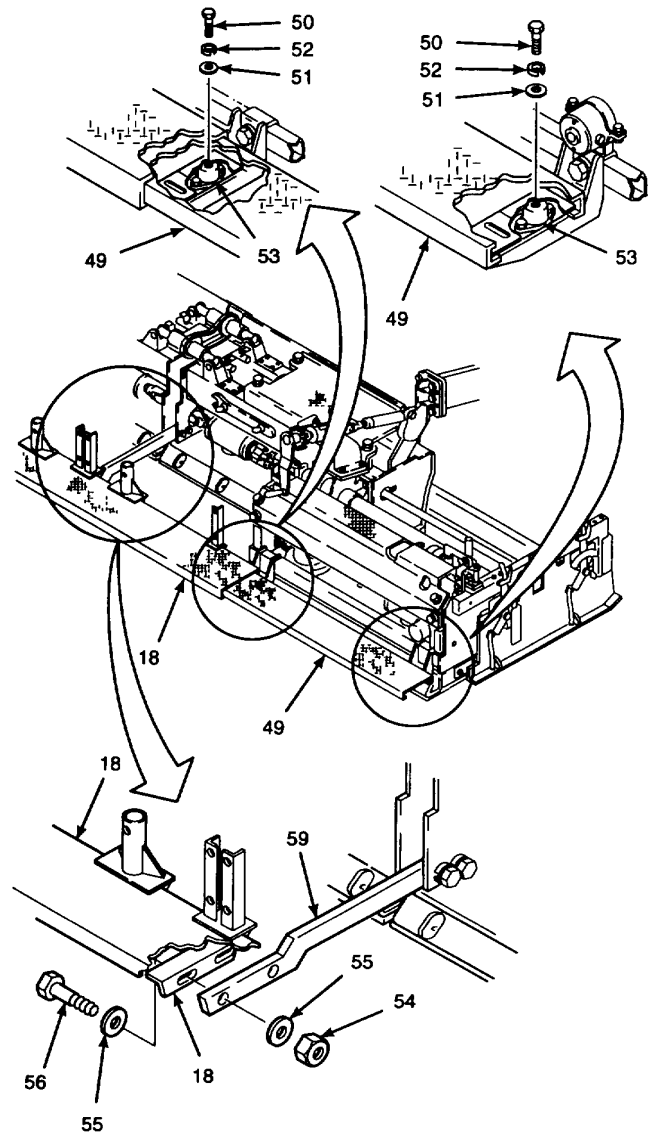
1. Secure extension walkway steps (49) to vibration mounts (53) using hex head cap screws (50), flat washers (51), and lockwashers (52). Do not apply thread locking compound to hex head cap screws.
 - m. Tighten hex head cap screws (50) snug.
 - n. Remove one of two hex head cap screws (56) along with flat washer (55).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- o. Apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screw (56).
- p. Install hex head cap screw (56) through hole in main walkway step (18) and hole in center step support (59). Do not tighten at this time.
- q. Remove second hex head cap screw (56) along with flat washer (55).
- r. Apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screw (56).
- s. Install hex head cap screw (56) through hole in main 2.24.2. walkway step (18) and

- t. Tighten hex nuts (54) to 37 lb-ft (50 N•m).



- u. Remove cribbing from screed. Refer to paragraph
- v. Retract extension screeds and lower screed. Refer to TM 5-3895-373-10.

hole in center step support (59).

11.3. REPLACE WALKWAYS, SCREED GUARD PLATES, AND SCREED HANDRAIL - Continued.

C. INSTALL - Continued.

4. INSTALL SCREED HANDRAIL.

- a. With the help of another person, position rear legs of screed handrail (25) into rail supports on main walkway step (18).

WARNING

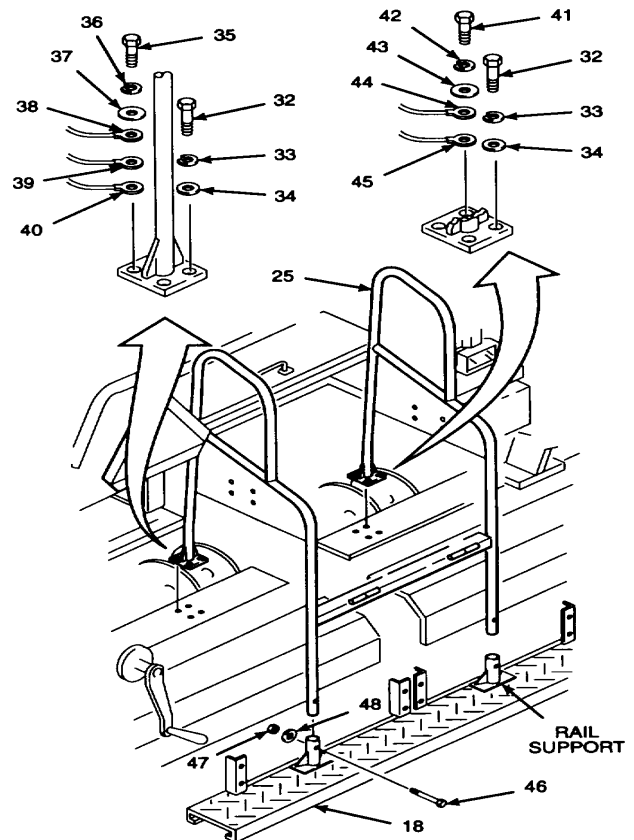
Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- b. Apply thread locking compound (Item 13, Appendix C) to threads of bolt (46).
- c. Install bolts (46), flat washers (48), and hex nuts (47). Tighten bolts to 19 lb-ft (26 N•m).
- d. Install lockwasher (42) and flat washer (43) onto hex head cap screw (41).
- e. Apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screw (41).
- f. Install but do not tighten hex head cap screw (41) and ground wires (44 and 45) into forward right hand screw hole on right side handrail mounting base.
- g. Install lockwasher (36) and flat washer (37) onto hex head cap screw (35).
- h. Apply thread locking compound (Item 13, Appendix C) to threads of hex head cap screw (35).
- i. Install but do not tighten hex head cap screw (35) and ground wires (38, 39, and 40) into forward left hand screw hole on left side handrail mounting base.
- j. Install lockwashers (33) and flat washers (34) onto hex head cap screws (32).
- k. Apply thread locking compound (Item 13,

Appendix C) to threads of hex head cap screws (32).

- l. Install hex head cap screws (32) into remaining screw holes on handrail mounting bases.

- m. Tighten hex head cap screws (41, 35 and 32) to 37 lb-ft (50 N•m).



WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Do not inhale fumes from electrical insulating varnish. Personnel become dizzy or drowsy during use get immediate medical attention.

- n. Apply electrical insulating varnish to ring terminals of ground wires (38, 39, 40, 44, and 45).

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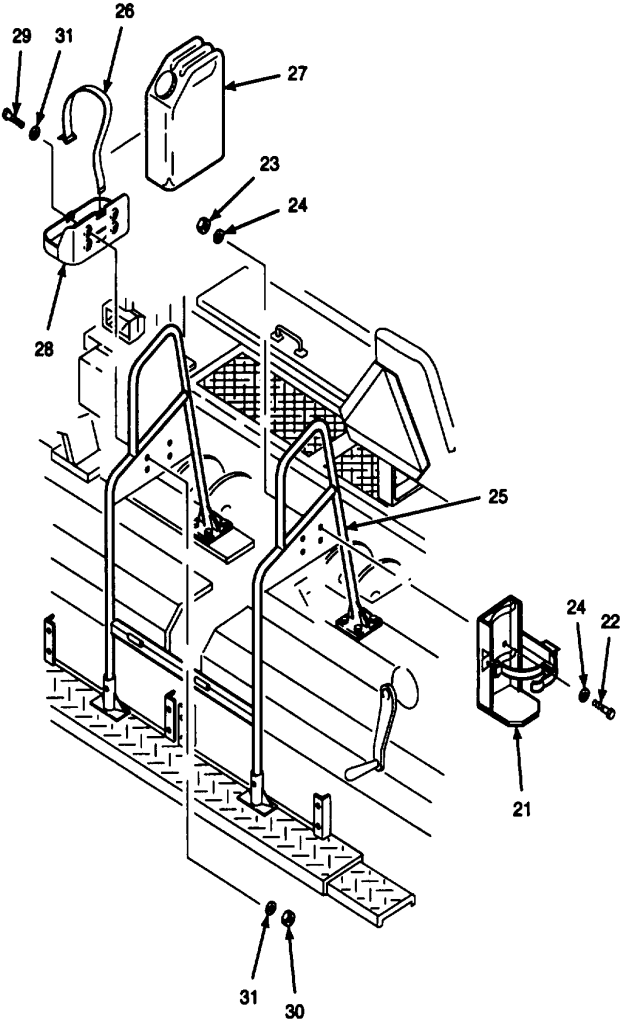
C. INSTALL - Continued.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- o. Place flat washers (31) onto hex head cap screws (29) and apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screws.
- p. Install decontamination can bracket (28) to left side of screed handrail (25) and secure with hex head cap screws (29), flat washers (31), and hex nuts (30). Tighten hex nuts to 37 lb-ft (50 N•m).
- q. Install strap (26) onto decontamination can bracket (28).
- r. Place decontamination can (27) in decontamination can bracket (28). Secure decontamination can with strap (26).

side of screed handrail (25) and secure with hex head cap screws (22), flat washers (24), and hex nuts (23). Tighten hex nuts to 37 lb-ft (50 N•m).



5. INSTALL AND ADJUST FIRE EXTINGUISHER BRACKET.

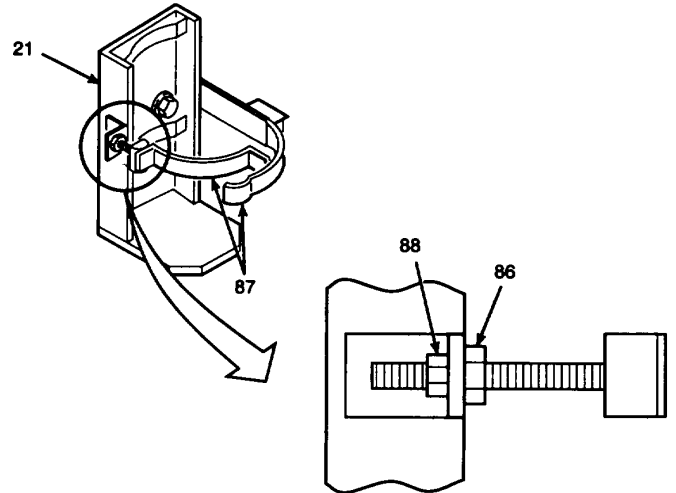
- a. Install flat washers (24) onto hex head cap screws (22).
- b. Apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screws (22).
- c. Install fire extinguisher bracket (21) on right

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11.3. REPLACE WALKWAYS, SCREED GUARD PLATES, AND SCREED HANDRAIL - Continued.

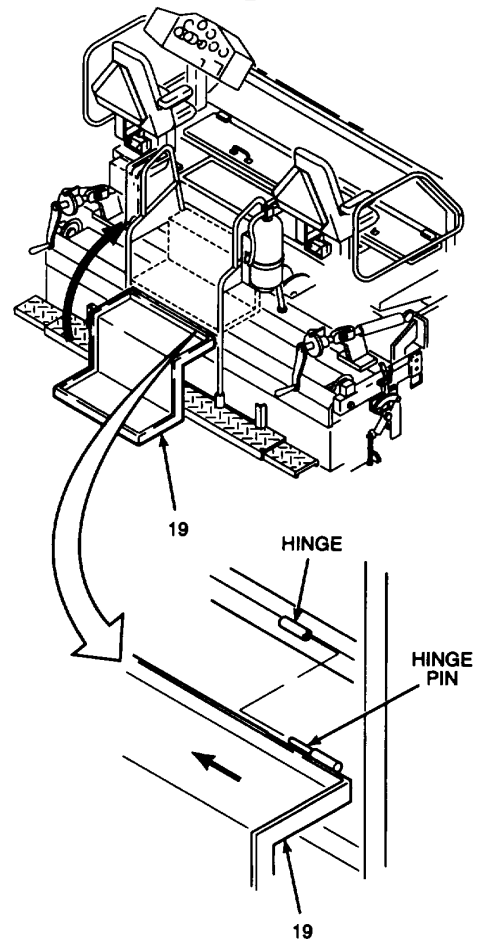
C. INSTALL - Continued.

- d. Loosen hex jam nut (86).
- e. Place fire extinguisher into fire extinguisher bracket (21).
- f. Close locking bracket (87) around fire extinguisher. If the locking bracket does not fit around the fire extinguisher, loosen hex nut (88) and then tighten hex jam nut (86). If the locking bracket is loose around the fire extinguisher, back off hex nut (88). Tighten hex jam nut (86), then tighten hex nut (88).



6. INSTALL SCREED STEPS.

- a. Position screed steps (19) to align the hinge pins with the hinges.
- b. With screed steps (19) full back, slide the steps to the left, so the hinge pins fit into the hinges.
- c. Lift and push screed steps (19) forward until fully seated.



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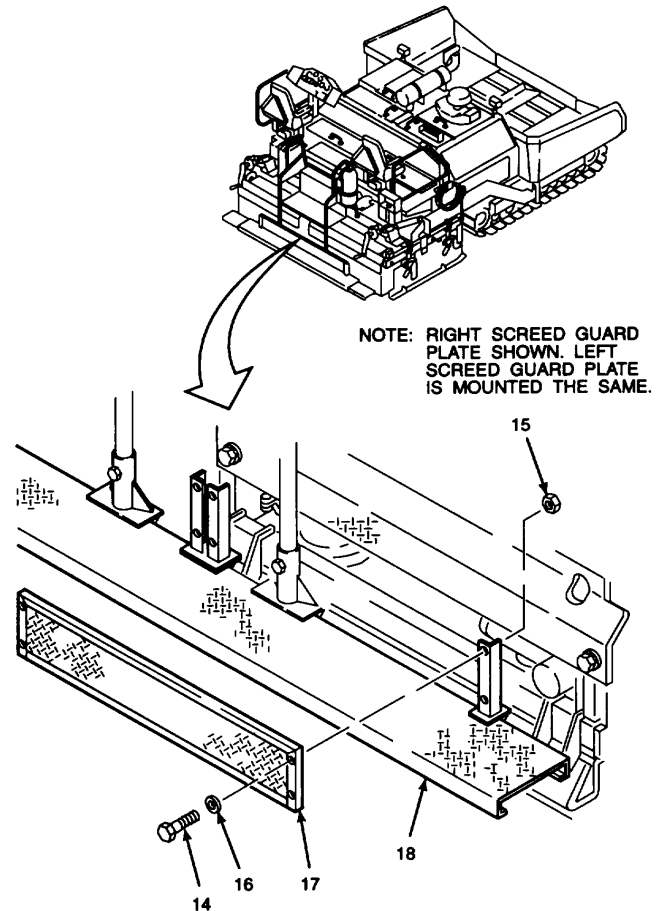
C. INSTALL - Continued.

7. INSTALL SCREED GUARD PLATES ON MAIN WALKWAY STEP.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- a. Install flat washers (16) onto bolt (14) and apply thread locking compound (Item 13, Appendix C) to bolts.
- b. Install screed guard plates (17) on supports of main walkway step (18) and secure with bolts (14), flat washers (16), and hex nuts (15).
- c. Tighten hex nuts (15) to 19 lb-ft (26 N•m).



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11.3. REPLACE WALKWAYS, SCREED GUARD PLATES, AND SCREED HANDRAIL - Continued.

C. INSTALL - Continued.

8. INSTALL DECK SUPPORT AND DECK.

CAUTION

Ensure no pressure is placed on screed travel lock manifold (11) while installing deck support (7). Damage to hydraulic tubes could occur.

- a. Carefully position deck support (7) behind screed travel lock valve manifold (11).
- b. Secure deck support (7) with hex head cap screw (12) and flat washer (13). Do not fully tighten cap screw.
- c. Install lockwashers (9) and flat washers (10) onto hex head cap screws (8).

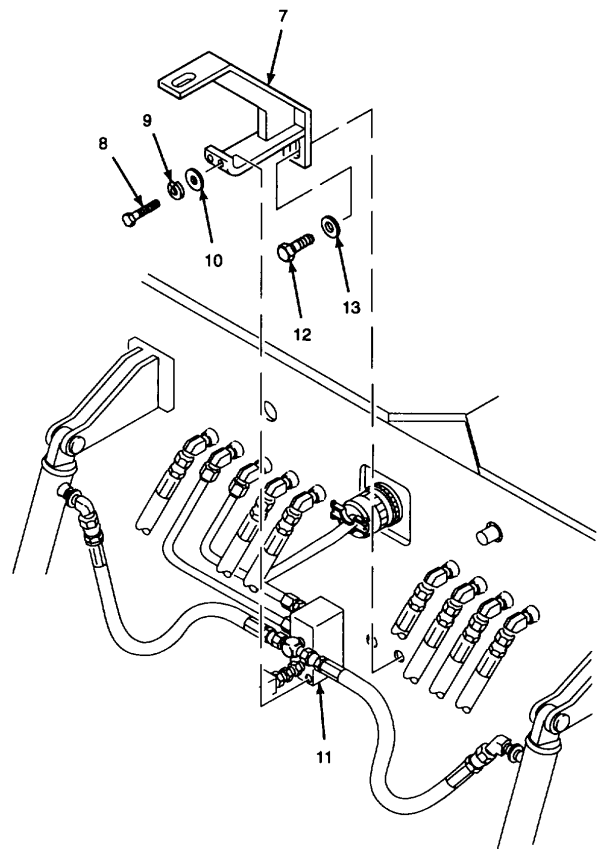
WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- d. Apply thread locking compound (Item 13, Appendix C) to threads of hex head cap screws (8).
- e. Secure screed travel lock valve manifold

(11) on deck support (7) with hex head cap screws (8).

- f. Tighten hex head cap screws (8) to 9 lb-ft (12 N•m).



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C. INSTALL - Continued.

- g. With the help of another person, position deck (3) between seat support weldments. Lower deck support (7) if necessary, by first loosening hex head cap screw (12).

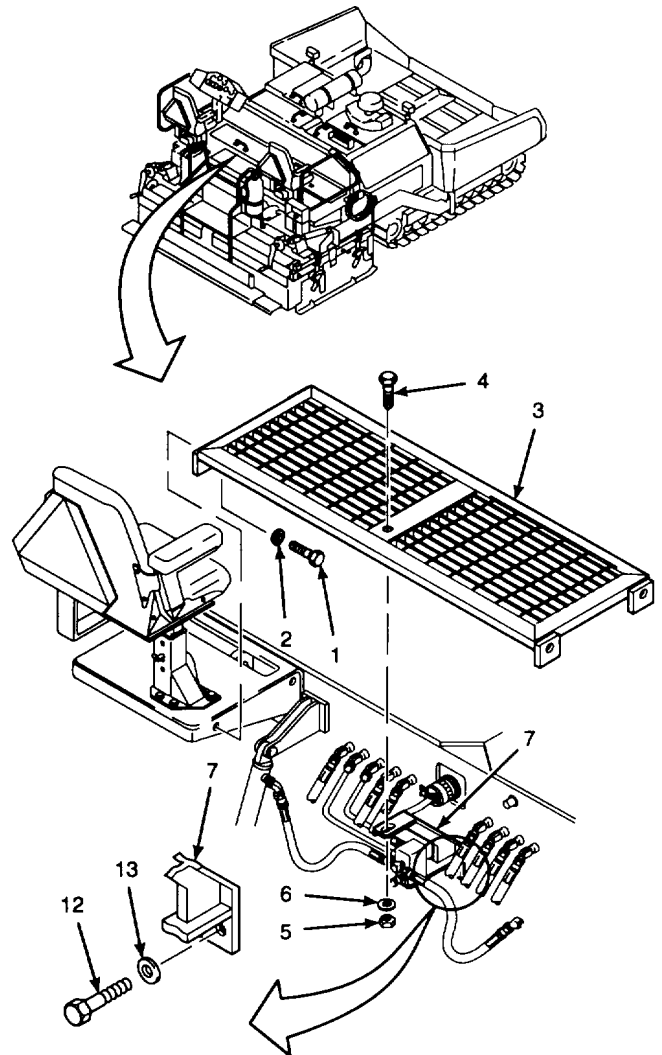
WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- h. Install flat washers (2) onto hex head cap screws (1) and apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screws.
- i. Secure deck (3) to seat weldments with hex head cap screws (1).
- j. Tighten hex head cap screws (1) to 37 lb-ft (50 N•m).
- k. Loosen hex head cap screw (12) and adjust deck support (7) to fit snug against bottom of deck (3).
- 1. Apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screw (4).
- m. Secure deck (3) to deck support (7) with hex head cap screw (4), flat washer (6), and hex nut (5).
- n. Tighten hex nut (5) to 37 lb-ft (50 N•m).
- o. Remove hex head cap screw (12) and flat washer (13).
- p. Install flat washer (13) on hex head cap screw (12). Apply thread locking

compound (Item 12, Appendix C) to threads of cap screw.

- q. Install hex head cap screw (12) with flat washer (13). Tighten hex head cap screw to 37 lb-ft (50 N•m).



END OF TASK

11.4. REPLACE OPERATOR CONTROL CONSOLE SUPPORT FRAME.

This task covers: a. Remove b. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Plastic hammer (Item 20, Appendix E)
Torque wrench (Item 69, Appendix E)

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Self-locking hex nuts

Personnel Required:

Three 62B construction equipment repairers. Three persons needed to lift and support operator control console and guide shaft.

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Left access cover removed per TM 5-3895-373-10.
Right access cover removed per TM 5-3895-373-10.

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A. REMOVE.

1. REMOVE OPERATOR CONTROL CONSOLE AND GUIDE SHAFT.

- a. Center operator control console (1) on guide shaft (2).
- b. Lock control console brake (3) to keep the operator control console from shifting.
- c. With the help of two persons, support operator control console and guide shaft and remove hex head cap screws (4), washers (5), and clamp caps (6 and 7).

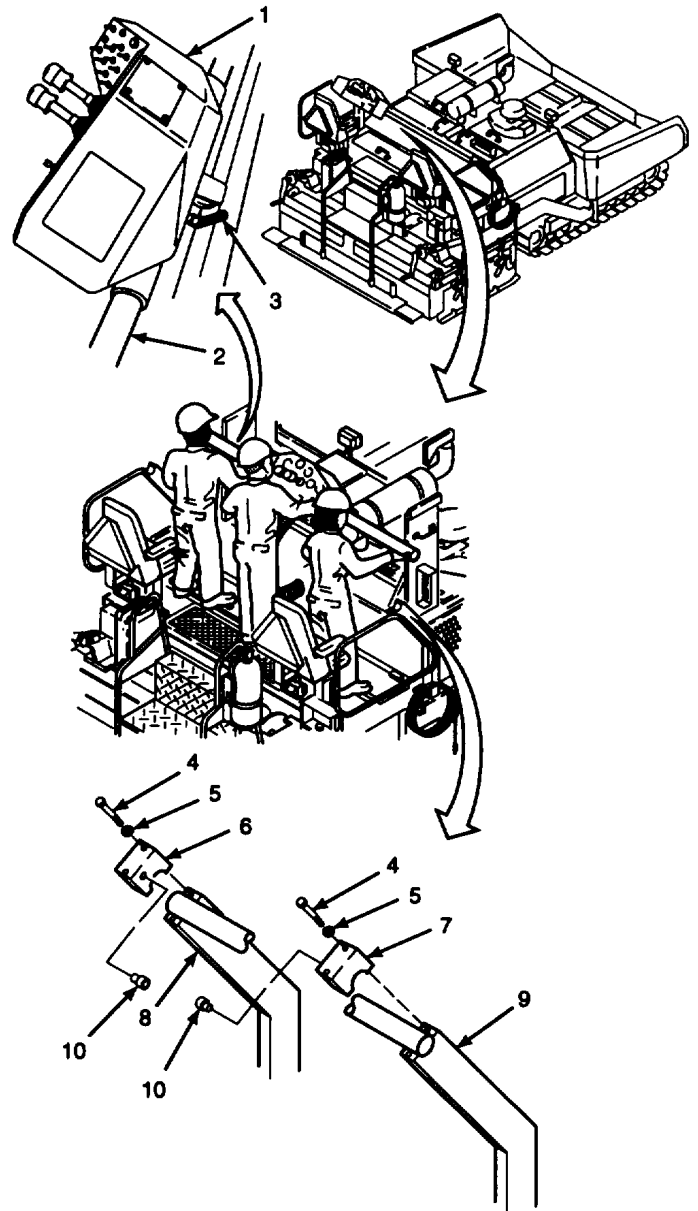
WARNING

The operator control console and guide shaft weigh approximately 200 lbs (90 kg). To avoid personal injury, use a hoist or get assistance when lifting the control console and shaft.

CAUTION

Ensure gauge and switch panels on operator control console are not damaged during control console removal. Position control console on operator platform to ensure gauge and switch panels cannot be damaged.

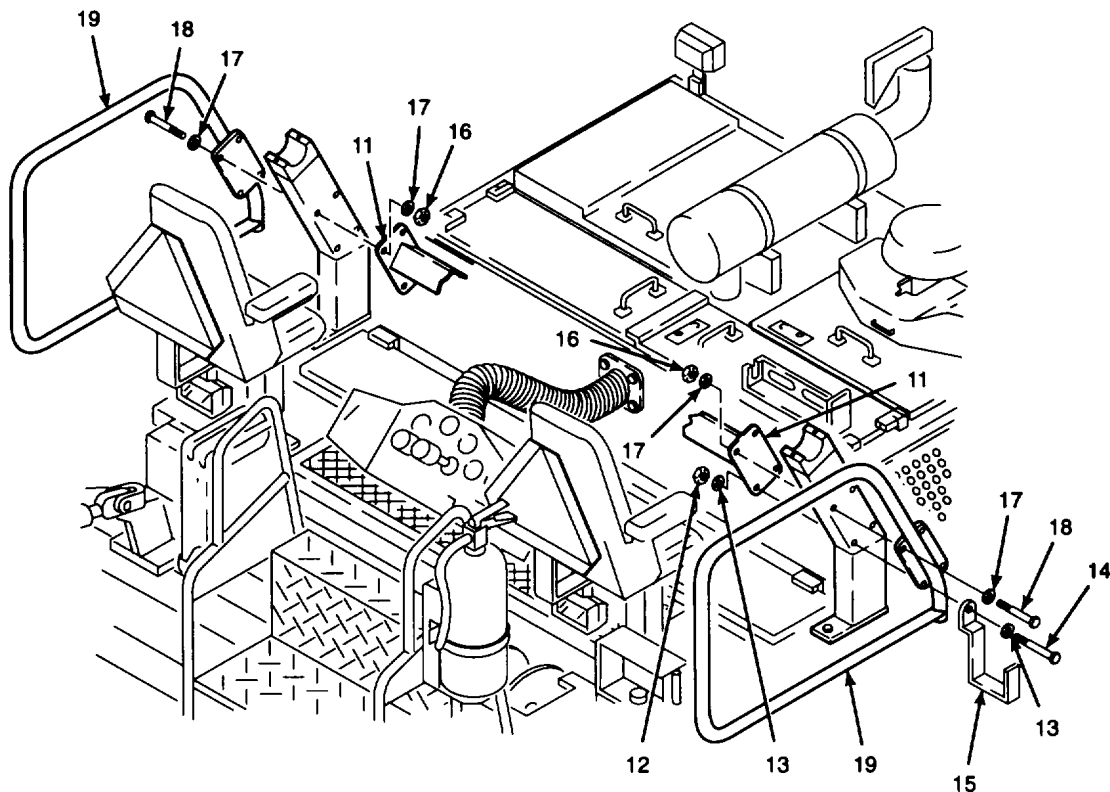
- d. Lift operator control console (1) and guide shaft (2) off of console supports (8 and 9) and place them onto the operator platform.
- e. Loosen control console brake (3) and slide guide shaft (2) out of operator control console (1).
- f. Remove bumpers (10) from clamp caps (6 and 7).



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11.4. REPLACE OPERATOR CONTROL CONSOLE SUPPORT FRAME - Continued.**A. REMOVE - Continued.****2. REMOVE HANDRAILS AND CONSOLE SUPPORTS.**

- a. Support console mounting frame (11).
- b. Remove self-locking hex nut (12), flat washers (13), hex head cap screw (14), and hanger (15). Discard self-locking hex nut.
- c. Remove self-locking hex nuts (16), flat washers (17), hex head cap screws (18), and handrails (19). Discard self-locking hex nuts.
- d. Remove console mounting frame (11).

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A. REMOVE - Continued.

- e. Remove hex head cap screws (20) and flat washers (21) from the base of console supports (8 and 9).
- f. Remove hex head cap screws (22) and flat washers (23) from base of console supports (8 and 9) under operator platform on both sides of machine. Remove console supports from the paving machine.

B. INSTALL.

1. INSTALL HANDRAILS AND CONSOLE SUPPORTS.

WARNING

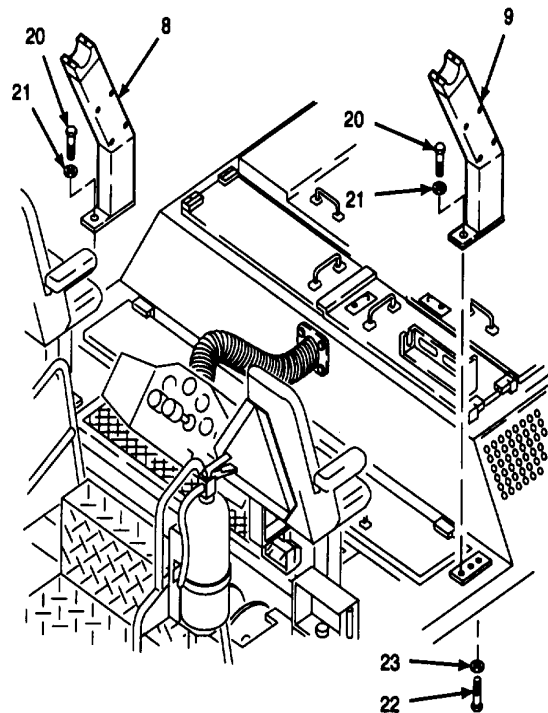
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean threads of hex head cap screws (20 and 22) with thread locking compound solvent.
- b. Wipe hex head cap screws (20 and 22) dry with a cleaning cloth.
- c. Install flat washers (21 and 23) onto hex head cap screws (20 and 22).
- d. Align mounting holes at the base of console supports (8 and 9) with mounting holes on the operator platform.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid

contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.



NOTE

Do not tighten hex head cap screws on console supports until after console mounting frame is installed.

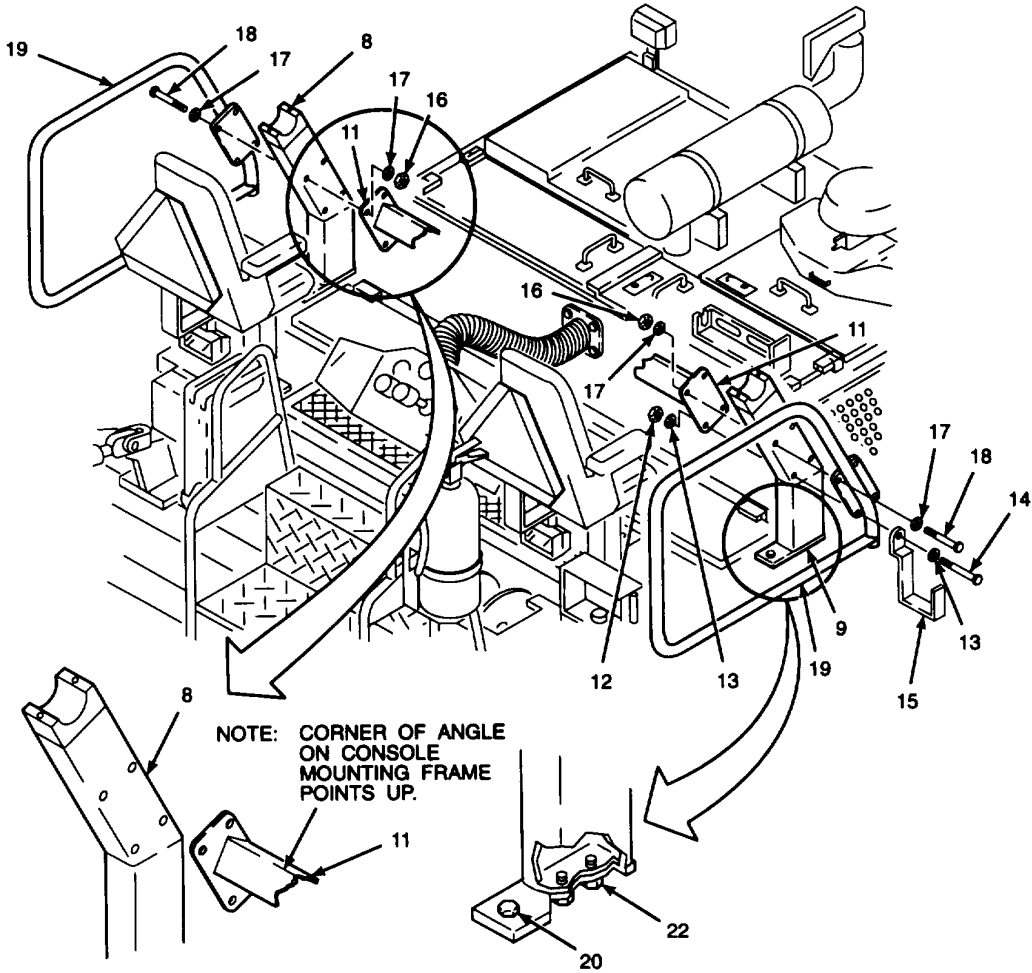
- e. Apply thread locking compound to threads of hex head cap screws (20 and 22) and install into the base of the console supports. Do not tighten hex head cap screws.

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11.4. REPLACE OPERATOR CONTROL CONSOLE SUPPORT FRAME - Continued.

B. INSTALL - Continued.

- f. Align mounting holes on handrails (19) to the holes on console supports (8 and 9).
- g. With the help of another person, install console mounting frame (11), hex head cap screws (18), flat washers (17), handrails (19), and self-locking hex nuts (16). Do not tighten at this time.
- h. Install hex head cap screw (14), flat washers (13), hanger (15), and self-locking hex nut (12). Do not tighten at this time.
- i. Secure console supports (8 and 9) by tightening hex head cap screws (20 and 22) to 90 lb-ft (122 N•m).



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B. INSTALL - Continued.
 2. INSTALL OPERATOR CONTROL CONSOLE AND GUIDE SHAFT.

- a. Support operator control console (1). Slide guide shaft (2) into operator control console.
- b. Lock the operator control console at the center position with control console brake (3).

WARNING

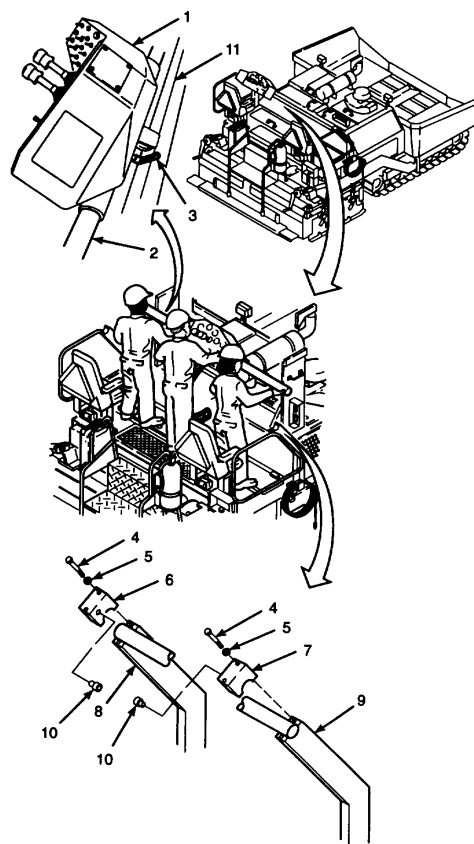
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- c. Clean threads of hex head cap screws (4) with thread locking compound solvent.
- d. Wipe hex head cap screws (4) dry with a cleaning cloth.
- e. Install washers (5) onto hex head cap screws (4).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- f. Apply thread locking compound to threads of hex head cap screws (4).
- g. With the help of two persons, lift and place guide shaft (2) and operator control console (1) onto the top of console supports (8 and 9). Ensure caster wheel on operator control console is positioned against top of console mounting frame (11).

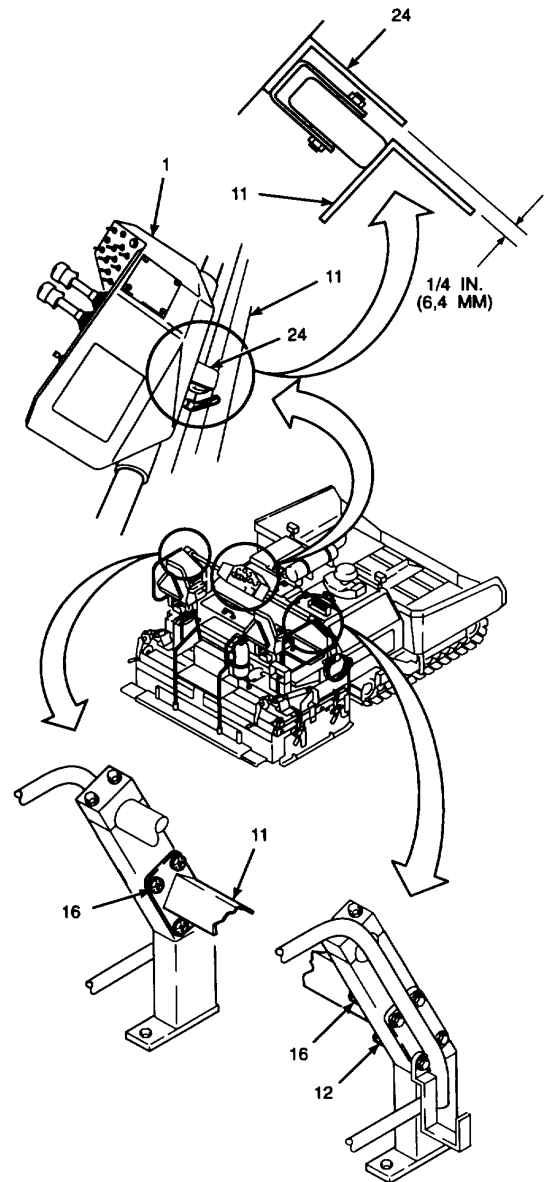


- h. Install hex head cap screws (4), and clamp caps (6 and 7). Tighten cap screws to 90 lb-ft (122 N•m).
- i. Install bumpers (10) onto clamp caps (6 and 7).

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11.4. REPLACE OPERATOR CONTROL CONSOLE SUPPORT FRAME - Continued.**B. INSTALL - Continued.**

- j. Unlock and slide operator control console (1) from side to side completely across the entire length of console mounting frame (11). Check to ensure that there is no binding of movement and that a 1/4 in. (6,4 mm) gap is maintained between roll stop bracket (24) on the control console and the console mounting frame.
- k. If adjustments to the 1/4 in. 6,4 mm) gap need to be made, loosen self-locking hex nuts (12 and 16) and adjust positioning of console mounting frame using a plastic hammer.
- l. Snug self-locking hex nuts (12 and 16) and check operator control console (1) alignment with console mounting frame (11). Continue to adjust alignment until no binding is found and a 1/4 in. (6,4 mm) gap is maintained for full travel of the control console.
- m. Tighten self-locking hex nuts (12 and 16) to 90 lb-ft (122 N•m).

**NOTE**

FOLLOW-ON-TASKS: Install left access cover per TM 5-3895-373-10.
Install right access cover per TM 5-3895-373-10.

END OF TASK

11.5. REPLACE/REPAIR SEAT ASSEMBLY.

This task covers: a. Remove b. Repair c. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Torque wrench (Item 68, Appendix E)

References:

TM 5-3895-373-24P

Materials/Parts:

Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Retaining pin
Self-locking hex nuts

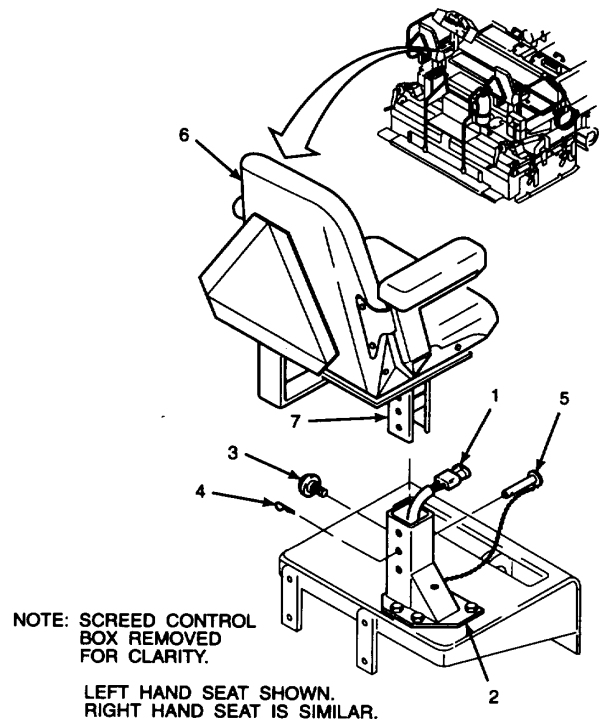
Equipment Condition:

Work light under seat removed per paragraph 7.12.

NOTE

There is a left hand and a right hand seat assembly on the paving machine. Remove the work light only from the side being worked on. This procedure refers to replacing and repairing left hand seat assembly. Use same procedure for right hand seat assembly. Any differences between left hand and right hand seat assemblies are addressed in text. Left hand seat assembly is shown in this procedure.

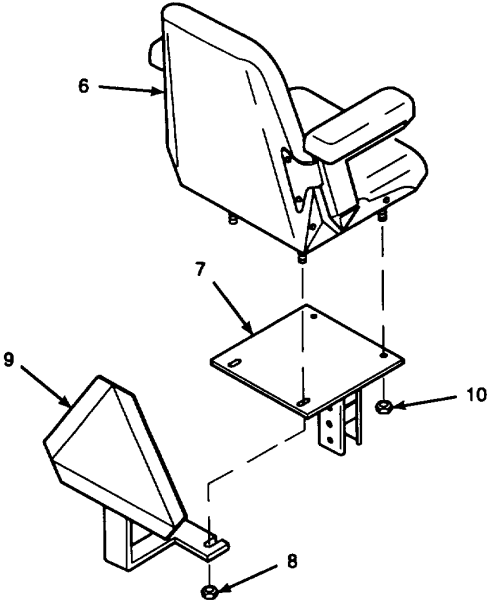
- A. REMOVE.
1. REMOVE ASSEMBLED SEAT AND UPPER SEAT PEDESTAL FROM LOWER SEAT PEDESTAL.
 - a. Push work light wiring harness (1) down into lower seat pedestal (2) to avoid damage to work light wiring harness.
 - b. Remove knob (3) from side of lower seat pedestal facing outside of machine, retaining pin (4), and locking pin (5). Locking pin will be removed but still attached to seat pedestal mounting hex head cap screw. Discard retaining pin.
 - c. Remove assembled seat (6) and upper seat pedestal (7) from lower seat pedestal (2).



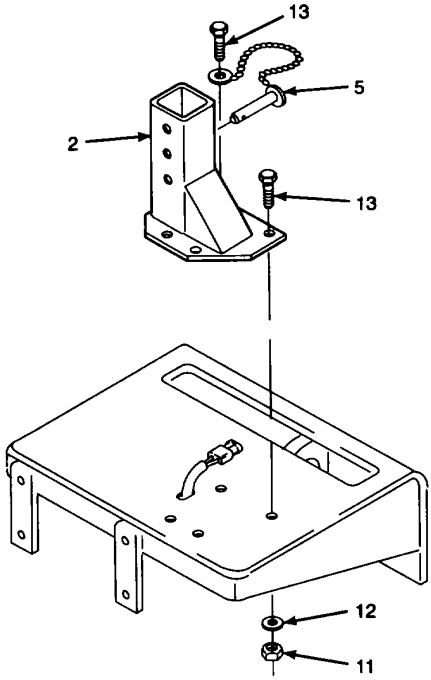
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11.5. REPLACE/REPAIR SEAT ASSEMBLY - Continued.

- A. REMOVE - Continued.
- 2. REMOVE SEAT FROM UPPER SEAT PEDESTAL.
 - a. Remove hex nuts (8) securing slow moving vehicle sign (9) to upper seat pedestal (7). Remove sign.
 - b. Remove hex nuts (10).
 - c. Remove assembled seat (6) from upper seat pedestal (7).



- 3. REMOVE LOWER SEAT PEDESTAL.
 - a. Remove hex nuts (11), flat washers (12), and hex head cap screws (13). Locking pin (5) is secured under one cap screw.
 - b. Remove lower seat pedestal (2) slowly while pulling work light wiring harness out through seat pedestal bottom.

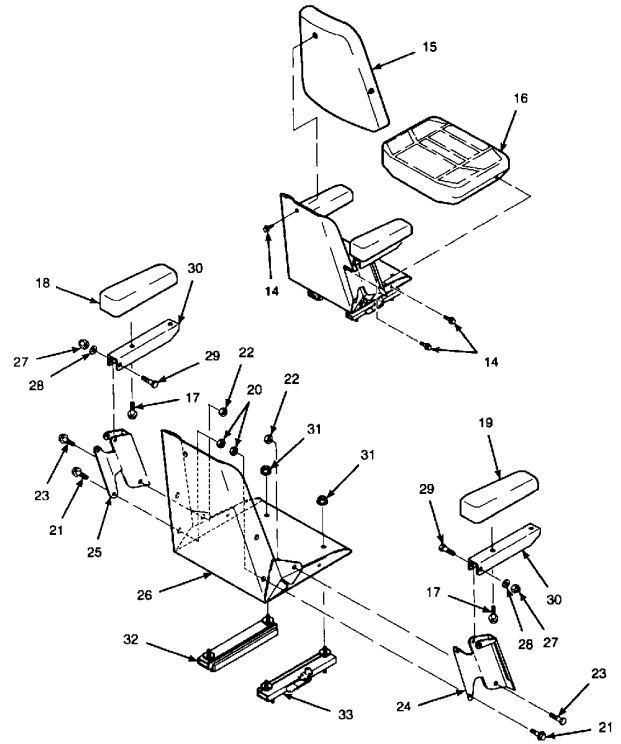


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B. REPAIR.

1. REMOVE CUSHIONS AND SEAT SUPPORTS.

- a. Remove bolts (14). Remove backrest cushion (15) and bottom cushion (16).
- b. Remove bolts (17) and left and right arm cushions (18 and 19).
- c. Remove self-locking hex nuts (20), bolts (21), hex nuts (22), and hex head cap screws (23), and remove right arm bracket (24) and left arm bracket (25) from seat frame (26).
- d. Remove self-locking hex nuts (27), flat washers (28), and bolts (29), and remove arm frames (30) from right and left arm brackets (24 and 25). Discard self-locking hex nuts.
- e. Remove self-locking hex nuts (31) and seat supports (32 and 33) from seat frame (26). Discard self-locking hex nuts.



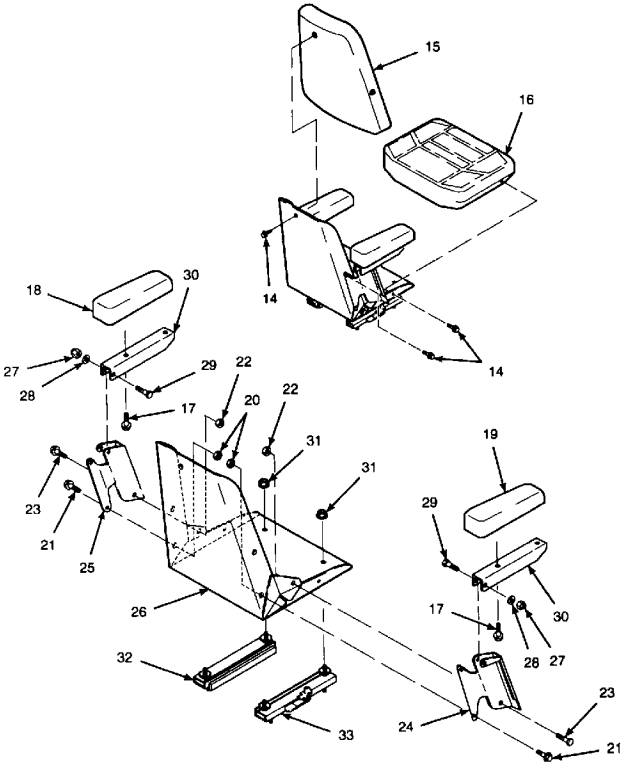
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11.5. REPLACE/REPAIR SEAT ASSEMBLY - Continued.

B. REPAIR - Continued.

2. INSTALL CUSHIONS AND SEAT SUPPORTS.

- a. Position seat frame (26) onto seat supports (32 and 33) with the seat support with the adjustment lever on the right side. Secure with self-locking hex nuts (31).
- b. Align arm frames (30) with left and right arm brackets (25 and 24) and install bolts (29), flat washers (28) and self-locking hex nuts (27). Tighten the hex nut until the arm frame is secured to the arm bracket but is still able to pivot on the bolt.
- c. Align left and right arm brackets (25 and 24) with seat frame (26). Install and tighten hex head cap screws (23), hex nuts (22), bolts (21), and self-locking hex nuts (20).
- d. Position left and right hand arm cushions (18 and 19) onto arm frames (30) with the large end of the cushion toward the back of the seat. Secure with bolts (17).
- e. Position backrest cushion (15) and bottom cushion (16) onto seat frame (26). Secure with bolts (14).



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C. INSTALL.

1. INSTALL LOWER SEAT PEDESTAL.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush with water and get immediate medical attention.

- a. Clean seat mounting studs and hex head cap screws (13) with thread locking compound solvent.

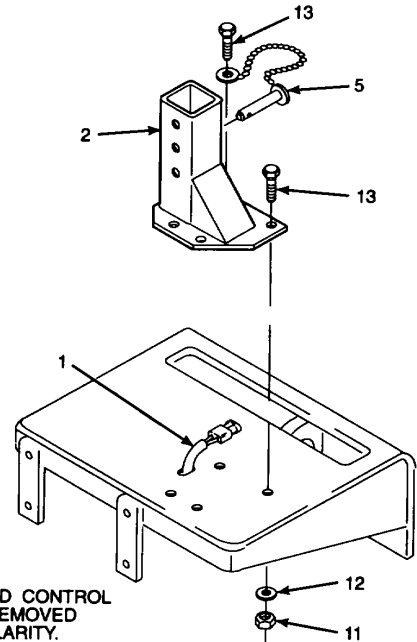
WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

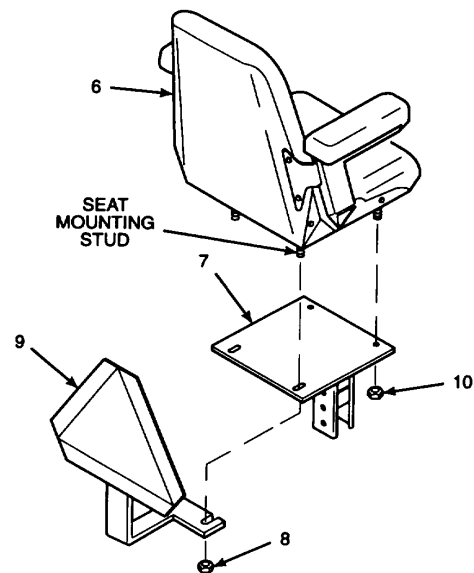
- b. Apply thread locking compound to hex head cap screws (13).
- c. Pull work light wiring harness (1) up through lower seat pedestal (2) bottom and install seat pedestal. Do not pinch wiring under seat pedestal.
- d. If installing left hand seat, install hex head cap screws (13) and secure locking pin (5) with front left hand corner cap screw. Install flat washers (12) and hex nuts (11).
- e. If installing right hand seat, install hex head cap screws (13) and secure locking pin (5) with front right hand corner cap screw. Install flat washers (12) and hex nuts (11).
- f. Tighten hex nuts (11) to 37 lb-ft (50 N.m).

2. ASSEMBLE SEAT TO UPPER SEAT PEDESTAL.

- a. Install assembled seat (6) onto upper seat pedestal (7). Secure front of seat with hex nuts (10).
- b. Install slow moving vehicle sign (9) onto seat mounting studs and secure with hex nuts (8).



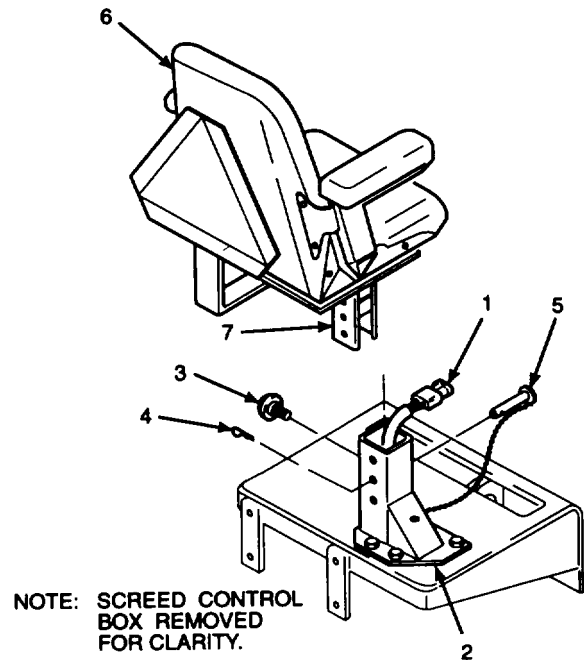
NOTE: SCREED CONTROL BOX REMOVED FOR CLARITY.



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11.5. REPLACE/REPAIR SEAT ASSEMBLY - Continued.

- C. INSTALL - Continued.
3. INSTALL ASSEMBLED SEAT AND UPPER SEAT PEDESTAL ONTO LOWER SEAT PEDESTAL.
- Pull work light wiring harness (1) out through top of lower seat pedestal (2).
 - Install assembled seat (6) and upper seat pedestal (7) into lower seat pedestal (2). Make sure wire harness goes through upper seat pedestal. Do not pinch wire between upper and lower seat pedestals.
 - Set seat to correct height and insert locking pin (5). Install retaining pin (4) and knob (3).

**NOTE**

FOLLOW-ON-TASK: Install work light under seat per paragraph 7.12.

END OF TASK

CHAPTER 12

BODY, CHASSIS, AND ACCESSORY ITEMS MAINTENANCE

	Para	Page
General Maintenance Procedures.....	12.1	12-1
Replace Equipment Data Plates	12.3	12-9
Replace/Repair Fuel Spray Components.....	12.2	12-2

12.1. GENERAL MAINTENANCE PROCEDURES.

All unit level maintenance shall be performed in accordance with good and safe shop practices. Observe the following general instructions and requirements when performing body, chassis, and accessory items maintenance.

a. Areas of the paving machine exposed to paving material buildup require cleaning prior to disassembly. Use hammers, chisels, and scrapers to remove thickest sections of buildup. If available, use heater gun to soften deposits adhering to components; remove softened buildup with putty knife. When heating paving material, keep second person with fire extinguisher at hand and avoid overheating. If heater gun is not available, use solvent or fuel washdown system to soften paving material.

b. Thread locking compound is used with most threaded fasteners. If a threaded fastener will not break loose, heat threaded area of fastener from 500° to 600°F (232° to 315°C) with heater gun. If the special solvent used to remove thread locking compound from screw threads fails to remove buildup, discard fastener.

c. Inspect all removed components for wear or damage. Replace damaged parts. Replace used lockwashers, self-locking nuts, seals, and gaskets.

d. Inspect all removed fasteners for thread damage. If thread damage is found, replace fastener. Replace flat washers if galled or bent. Use screw extractor set (Item 15, Appendix E) to remove broken studs or screws.

e. Clean painted surfaces thoroughly before repainting. Do not paint over rust or corrosion. Cover air breather ports and hydraulic components. Do not paint bearings or other parts that require surface lubrication. Reference TM 43-0139 for equipment painting requirements.

f. Use only authorized replacement parts. Refer to TM 53895-373-24P, Repair Parts and Special Tools List (RPSTL) for authorized replacement parts.

g. Torque values cited in the text apply to modified SAE Grade 8 fasteners at required clamping loads.

h. Observe all warnings and cautions. Wear protective clothing and equipment as specified. Observe the Safety and Hazard Warnings provided in TACOM technical bulletin TB 43-0216.

12.2. REPLACE/REPAIR FUEL SPRAY COMPONENTS.

This task covers: a. Remove b. Disassemble c. Assemble
 d. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Utility pail (Item 26, Appendix E)

References:

TM 5-3895-373-24P

Materials/Parts:

Cleaning cloths (Item 7, Appendix C)
Hydraulic fitting sealant (Item 21, Appendix C)
Pipe sealant (Item 22, Appendix C)
Brass seat
Cable assembly
Preformed packings
Self-locking hex nut
Spray tip
Spring
Tip retainer

GO TO NEXT PAGE

- A. REMOVE.
1. REMOVE FUEL SPRAY WAND ASSEMBLY (1) FROM HANGER ON PAVING MACHINE.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

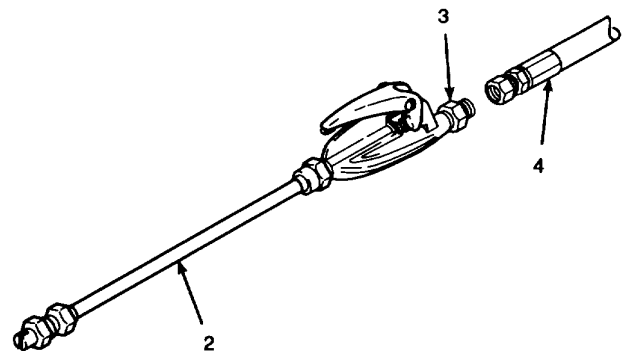
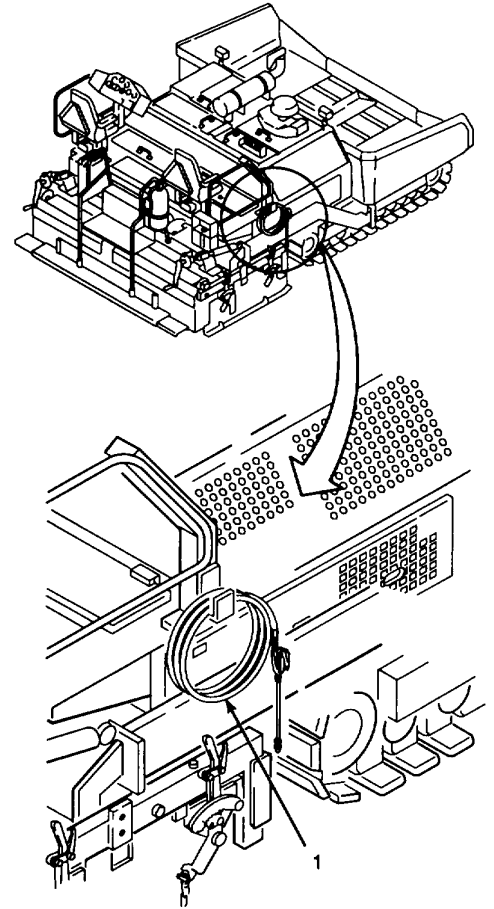
Always wear safety goggles/glasses at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

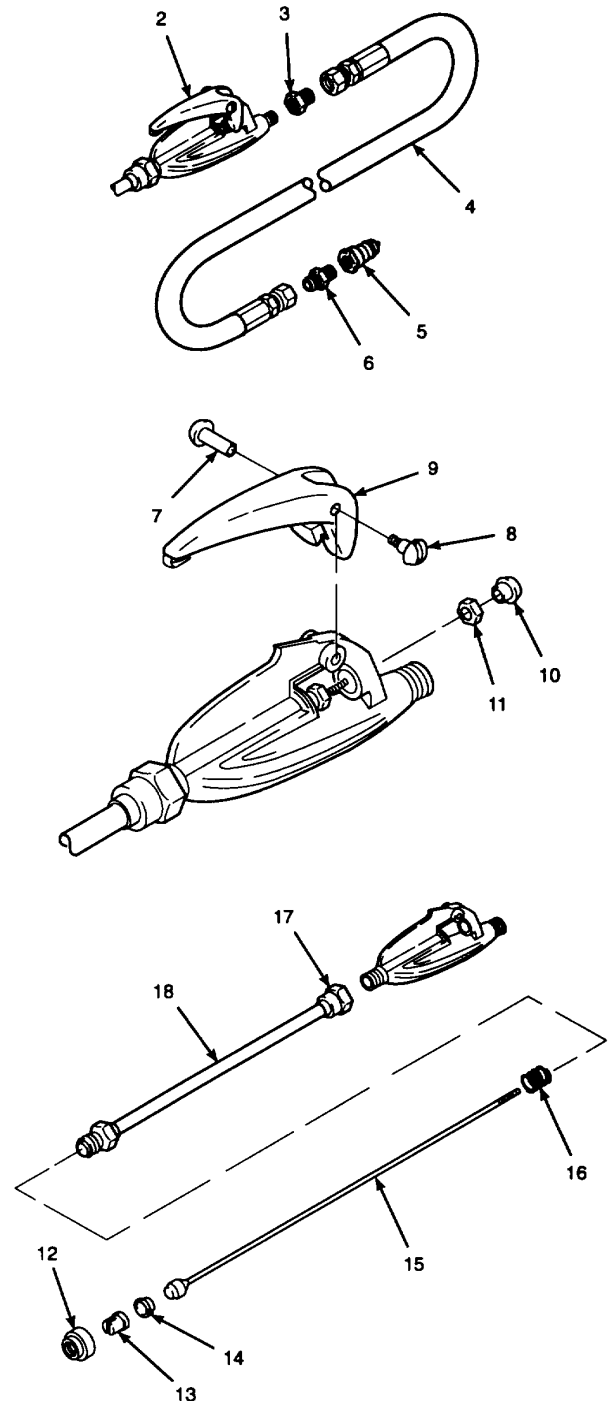
2. REMOVE FUEL SPRAY WAND (2) AND STRAIGHT ADAPTER (3) FROM HOSE (4).
3. DRAIN DIESEL FUEL FROM FUEL SPRAY HOSE (4) INTO UTILITY PAIL. DISPOSE OF DIESEL FUEL IN ACCORDANCE WITH LOCAL PROCEDURES.



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12.2. REPLACE/REPAIR FUEL SPRAY COMPONENTS - Continued.**B. DISASSEMBLE.**

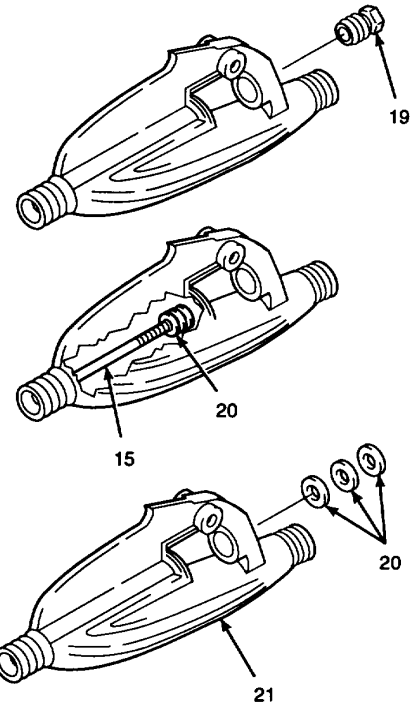
1. REMOVE STRAIGHT ADAPTER (3), FROM FUEL SPRAY WAND (2).
2. REMOVE QUICK DISCONNECT COUPLING (5) AND STRAIGHT ADAPTER (6) FROM HOSE (4).
3. REMOVE HEX NUT, SELF-LOCKING HEX NUT, AND FUEL SPRAY TRIGGER FROM FUEL SPRAY WAND.
 - a. Use a flat-blade screwdriver to hold trigger screw (7) while removing machine screw (8).
 - b. Remove trigger screw (7) and fuel spray trigger (9).
 - c. Remove hex nut (10) and self-locking hex nut (11). Discard self-locking hex nut.
4. REMOVE TIP RETAINER, SPRAY TIP, SEAT, CABLE ASSEMBLY, AND SPRING FROM FUEL SPRAY WAND.
 - a. Remove tip retainer (12), spray tip (13), and seat (14). Discard tip retainer, spray tip, and brass seat.
 - b. Use a finger to press on threaded end of cable assembly (15) in trigger handle. Push in until cable assembly sticks out opposite end of spray wand.
 - c. Remove cable assembly (15) and spring (16). Discard spring compression assembly.
 - d. Loosen tube nut (17) and remove spray tube (18).

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B. DISASSEMBLE - Continued.

5. REMOVE BOLT AND PREFORMED PACKINGS FROM FUEL SPRAY WAND.

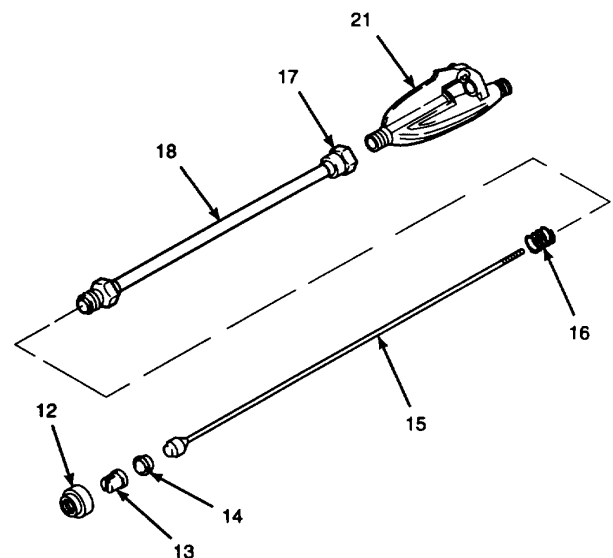
- a. Remove bolt (19).
- b. Insert cable assembly (15), threaded end first, into fuel spray wand.
- c. Push cable assembly into fuel spray wand until preformed packings (20) emerge from body (21). Discard preformed packings.
- d. Remove cable assembly. Discard cable assembly.



C. ASSEMBLE.

1. INSTALL SPRING, CABLE ASSEMBLY, SEAT, SPRAY TIP, AND TIP RETAINER INTO FUEL SPRAY WAND.

- a. Align spray tube (18) with body (21) and secure with tube nut (17).
- b. Install spring (16) onto cable assembly (15).
- c. Install cable assembly (15) and spring (16) into fuel spray wand.
- d. Assemble seat (14) and spray tip (13) into tip retainer (12).
- e. Install assembled seat (14), spray tip (13), and tip retainer (12) onto fuel spray wand. Tighten tip retainer hand tight.



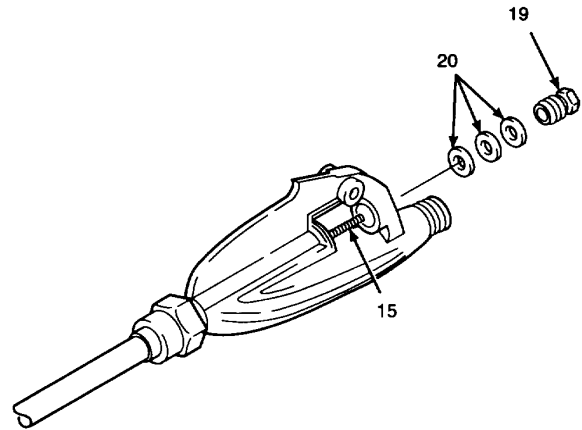
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12.2. REPLACE/REPAIR FUEL SPRAY COMPONENTS - Continued.

C. ASSEMBLE - Continued.

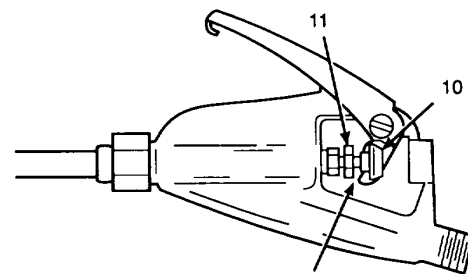
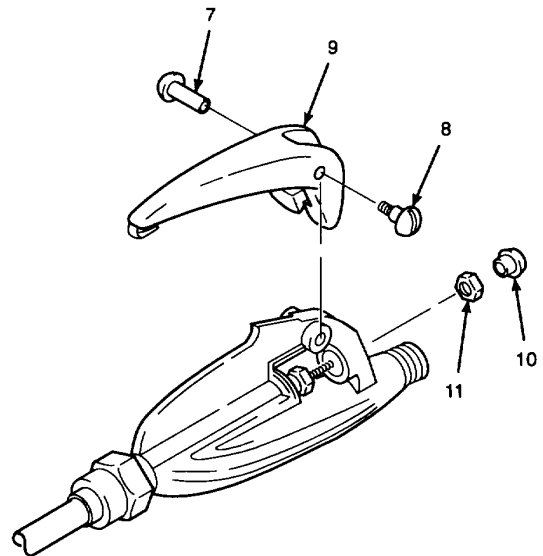
2. INSTALL PREFORMED PACKINGS AND BOLT.

- a. Install preformed packings (20) onto threaded end of cable assembly (15).
- b. Install bolt (19) and push preformed packings (20) into fuel spray wand until bolt threads engage fuel spray wand body threads.
- c. Tighten bolt (19) until snug in fuel spray wand body. Turn bolt an additional 1/4 turn to seat preformed packings (20) inside fuel spray wand.



3. INSTALL FUEL SPRAY TRIGGER, SELFLOCKING HEX NUT, AND HEX NUT ONTO FUEL SPRAY WAND.

- a. Install self-locking hex nut (11). Thread hex nut fully onto cable threads.
- b. Install fuel spray trigger (9) onto fuel spray wand.
- c. Install trigger screw (7) and machine screw (8).
- d. Pull fuel spray trigger upward until fully raised. Install hex nut (10) until it rests against trigger.
- e. While holding trigger up, back-off hex nut (10) two full turns.
- f. Tighten self-locking hex nut (11) against trigger (9) and hex nut (10).
- g. Fuel spray trigger should have approximately 0.125 in. (3 mm) of free play when self-locking hex nut (11) and hex nut (10) are properly adjusted.



APPROXIMATELY
0.125 IN. (3 MM)
FREE PLAY

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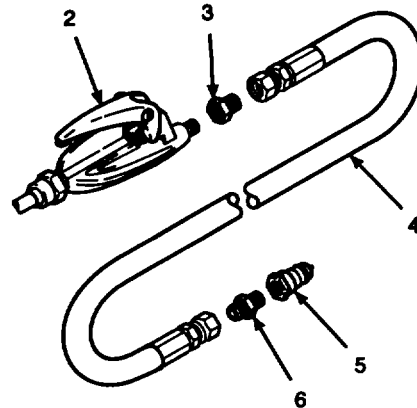
C. ASSEMBLE - Continued.

4. ASSEMBLE HOSE AND FITTINGS.

WARNING

Pipe sealant can cause eye damage or skin irritation. Wash after contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush with water and get immediate medical attention.

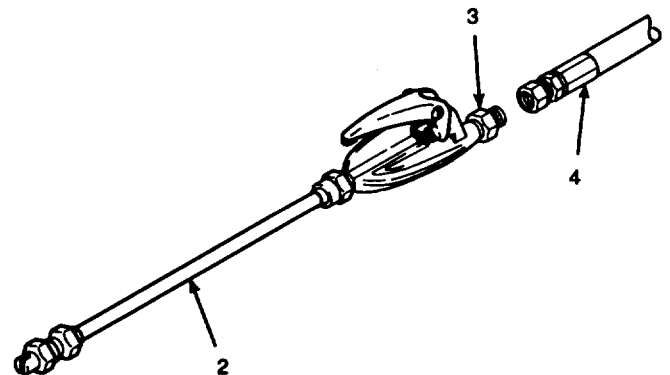
- a. Apply pipe sealant to pipe threads on end of straight adapter (6) and fuel spray wand (2) male threads.
- b. Install quick disconnect coupling (5) onto straight adapter (6) and tighten.
- c. Install straight adapter (3) onto fuel spray wand (2) and tighten.



WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- d. Apply hydraulic fitting sealant to hose end threads of straight adapter (6).
- e. Install straight adapter (6) onto hose (4). Tighten fittings.



D. INSTALL.

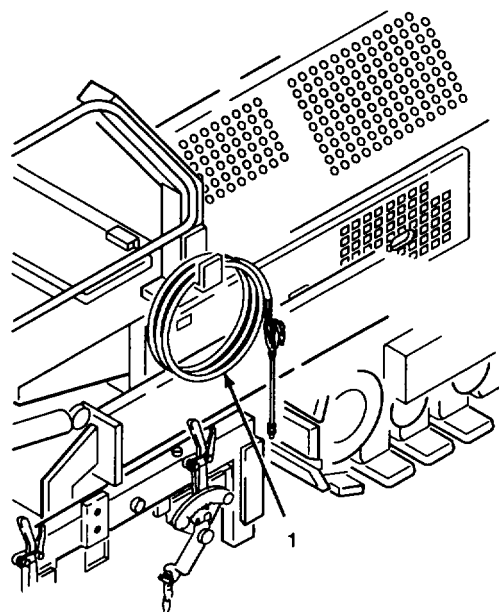
1. INSTALL SPRAY WAND ONTO HOSE.

- a. Apply hydraulic fitting sealant to exposed threads of straight adapter (3).
- b. Install fuel spray wand (2) onto fuel spray hose (4) and tighten.

GO TO NEXT PAGE

12.2. REPLACE/REPAIR FUEL SPRAY COMPONENTS - Continued.

- D. INSTALL - Continued.
2. INSTALL FUEL SPRAY WAND ASSEMBLY (1)
ONTO HANGER ON PAVING MACHINE.



END OF TASK

12.3. REPLACE EQUIPMENT DATA PLATES.

This task covers:

- a. Remove b. Install
-

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Portable electric drill (Item 13, Appendix E)
Prick punch (Item 34, Appendix E)
Torque wrench (Item 68, Appendix E)
Twist drill set (Item 40, Appendix E)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Thread locking compound (Item 13, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Tie wrap (Item 29, Appendix C)
Equipment data plate
Drive screw

NOTE

Damaged, illegible, or missing equipment data plates should be replaced as soon as possible. Refer to TM 5-3895-373-10 for the location of equipment data plates.

This task does not address replacement of tie wrap mounted data tags used to identify oil drain plug locations on the paving machine. However, replacement tie wraps are listed in Materials/Parts listing.

GO TO NEXT PAGE

12.3. REPLACE EQUIPMENT DATA PLATES - Continued.

- A. REMOVE.
- 1. REMOVE TACK MOUNTED DATA PLATE.
 - a. Use diagonal cutting pliers and remove tacks.

NOTE

Drive screws are used to install equipment data plate(s) after tacks are removed.

- b. If data plate is adhesive backed, use putty knife to scrape remaining data plate material from paving machine.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 m cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- c. If necessary, use cleaning cloths and cleaning solvent to remove adhesive residue from data plate mounting surface.

GO TO NEXT PAGE

- A. REMOVE - Continued.
- 2. REMOVE DRIVE SCREW MOUNTED DATA PLATE.
 - a. Use diagonal cutting pliers or hammer and chisel to back drive screws out of data plate.
 - b. If data plate is adhesive backed, use putty knife to scrape remaining data plate material from paving machine.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- c. If necessary, use cleaning cloths and cleaning solvent to remove adhesive residue from data plate mounting surface.
- 3. REMOVE BONDED (ADHESIVE-BACKED) DATA PLATE.
 - a. Use scribe to lightly mark outline of data plate mounting surface on paving machine. Avoid scribing through all layers of paint.
 - b. Use putty knife to scrape damaged equipment data plate from mounting surface on paving machine.

GO TO NEXT PAGE

12.3. REPLACE EQUIPMENT DATA PLATES - Continued.**A. REMOVE - Continued.****WARNING**

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°C). Failure to do so may result in injury or death to personnel.

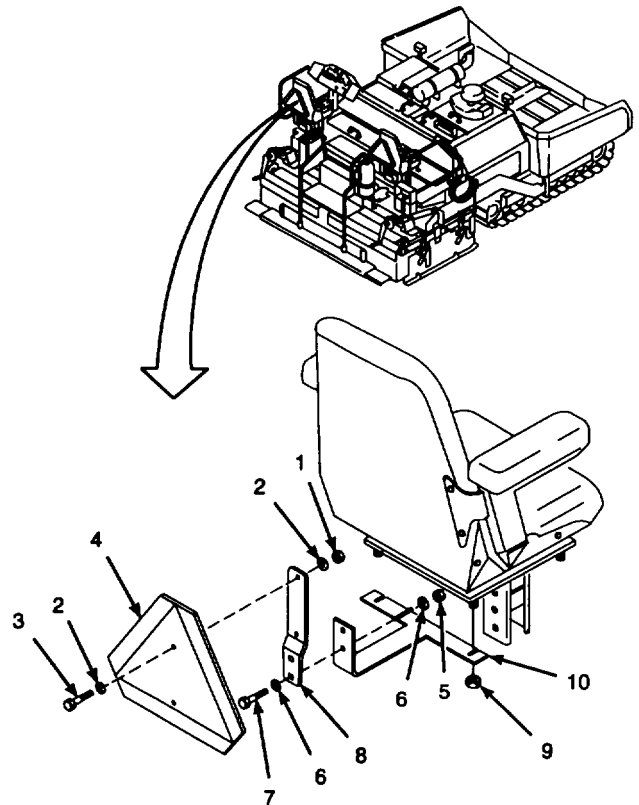
If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

c. Use cleaning cloths and cleaning solvent to remove adhesive residue from data plate mounting surface.

4. REMOVE SLOW MOVING VEHICLE SIGN.**NOTE**

The following procedure covers removal of a slow moving vehicle sign and related mounting brackets. Perform only those steps needed to replace damaged components.

- a. Remove hex nuts (1), flat washers (2), hex head cap screws (3), and slow moving vehicle sign (4).
- b. Remove hex nuts (5), flat washers (6), hex head cap screws (7), and mounting bracket (8).
- c. Remove hex nuts (9) and mounting bracket (10).



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- B. INSTALL.
1. INSTALL SLOW MOVING VEHICLE SIGN.
 - a. Install mounting bracket (10) and hex nuts (9).

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

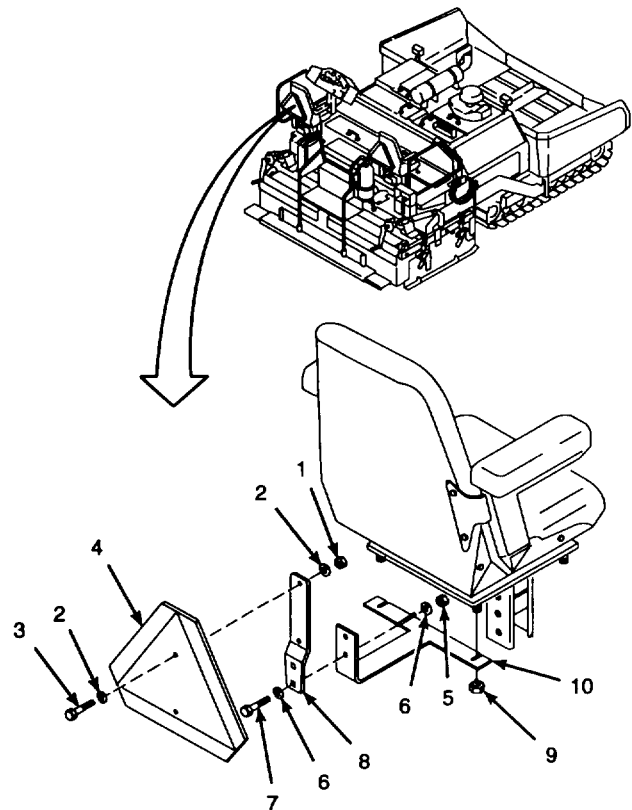
- b. Clean threads of hex head cap screws (3 and 7) with thread locking compound solvent and cleaning cloth.
- c. Install flat washers (6 and 2) onto hex head cap screws (7 and 3).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- d. Apply thread locking compound to threads of hex head caps screws (7 and 3).
- e. Install mounting bracket (8), hex head cap screws (7), and hex nuts (5). Tighten hex nuts to 9 lb-ft (12 N•m).
- f. Install hex head cap screws (3) through slow moving vehicle sign (4) and installed mounting bracket (8).
- g. Install remaining two flat washers (2) and hex nuts (1). Tighten hex nuts to 9 lb-ft (12 N•m).

2. INSTALL BONDED (ADHESIVE-BACKED) DATA PLATE.
 - a. Peel backing paper from adhesive backing of data plate.
 - b. Line up data plate on scribed outline of original data plate mounting location.
 - c. Press data plate evenly and firmly onto mounting surface.



GO TO NEXT PAGE f

12.3. REPLACE EQUIPMENT DATA PLATES - Continued.

- B. INSTALL - Continued.
3. INSTALL DRIVE SCREW MOUNTED DATA PLATE.
- a. If drive screw mounting holes are already at data plate mounting location, skip steps b through d.
 - b. Using replacement data plate as a template, transfer location of data plate holes to mounting surface on paving machine.
 - c. Using hammer and prick punch, center punch location for drilling of each drive screw mounting hole.

WARNING

Metal chips from drilling operation can cause severe eye damage. Wear safety goggles/glasses when using portable drill.

- d. Use a #46 drill from twist drill set and install in portable electric drill. Drill 1/4 in. (6 mm) deep hole at each drive screw mounting location. At thin wall mounting locations, drill through panel.
- e. If data plate has an adhesive backing, peel off backing paper.
- f. Line up data plate with drive screw mounting holes in paving machine. If equipped with an adhesive backing, press data plate onto mounting surface.
- g. Insert leading end of drive screw in data plate mounting hole. Tap drive screws, one at a time, into mounting holes. Make sure head of each drive screw is flush against face of data plate.

END OF TASK

CHAPTER 13

HYDRAULIC LIFT COMPONENTS MAINTENANCE

	Para	Page
General Maintenance Procedures.....	13.1	13-1
Repair Hydraulic Reservoir.....	13.7	13-42
Replace High Speed Shift and Brake Valve Solenoid Assemblies and Stack Valve Electrical Coils.....	13.5	13-26
Replace Hydraulic Return Filter Assembly.....	13.6	13-35
Replace/Repair Vibration Relief Valve.....	13.4	13-18
Replace Screed Lift Cylinder.....	13.3	13-11
Replace Tow Point Cylinder.....	13.2	13-2

13.1. GENERAL MAINTENANCE PROCEDURES.

All unit level maintenance shall be performed in accordance with good and safe shop practices. Observe the following general instructions and requirements when performing hydraulic lift components maintenance.

a. Areas of the paving machine exposed to paving material buildup require cleaning prior to disassembly. Use hammers, chisels, and scrapers to remove thickest sections of buildup. If available, use heater gun to soften deposits adhering to components; remove softened buildup with putty knife. When heating paving material, keep second person with fire extinguisher at hand and avoid overheating. If heater gun is not available, use solvent or fuel washdown system to soften paving material.

b. Thoroughly clean hydraulic hoses and fittings before disconnecting. Always plug or cap off disconnected fittings to prevent dirt and contaminants from entering the system. Failure to clean hoses and fittings and to plug or cap open fittings may result in hydraulic system contamination and equipment damage.

c. Always tag mating connectors and fittings before disconnecting. Tagging of mating connectors and fittings will ease reassembly and reduce assembly errors.

d. Use a backup wrench when loosening or tightening inline fittings. Using a backup wrench will prevent unnecessary damage to attached lines and/or smaller fittings.

e. When removing tie wraps from hoses and wiring, note or mark locations and anchor points. The proper location and installation of tie wraps will prevent undue chafing of hoses and wiring.

f. Thread locking compound is used with most threaded fasteners. If a threaded fastener will not break loose, heat fastener from 500° to 600°F (232° to 315°C) with heater gun. If the special solvent used to remove thread locking compound from screw threads fails to remove buildup, discard fastener.

g. Discard all removed gaskets, seals, preformed packings, self-locking nuts, lockwashers, spring pins, and deformed hardware.

h. Inspect all removed components for obvious wear or damage. Replace all worn, bent, broken, or otherwise damaged parts.

i. Inspect all removed fasteners for thread damage. If thread damage is found, replace fastener. Replace flat washers if galled or bent. Use screw extractor set (Item 15, Appendix E) to remove broken studs or screws.

j. Clean painted surfaces thoroughly before repainting. Do not paint over rust or corrosion. Cover air breather ports and hydraulic components. Do not paint bearings or other parts that require surface lubrication. Reference TM 43-0139 for equipment painting requirements.

k. Torque values cited in the text apply to modified SAE Grade 8 fasteners at required clamping loads.

l. Use only authorized replacement parts. Refer to TM 53895-373-24P, Repair Parts and Special Tools List (RPSTL) for authorized replacement parts.

m. Observe all warnings and cautions. Wear protective clothing and equipment as specified. Observe the Safety and Hazard Warnings provided in TACOM technical bulletin TB 43-0216.

13.2. REPLACE TOW POINT CYLINDER.

This task covers:

- a. Remove b. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Torque wrench (Item 68, Appendix E)
Utility pail (Item 26, Appendix E)

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Hydraulic fitting sealant (Item 21, Appendix C)
Hydraulic oil (Item 18, Appendix C)
Lint-free cloth (Item 8, Appendix C)
Machinery wiping towels (Item 30, Appendix C)
Pipe sealant (Item 22, Appendix C)
Protective caps (Item 5, Appendix C)
Tags (Item 27, Appendix C)
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Preformed Packings
Tow point cylinder

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Conditions:

Screed lowered per TM 5-3895-373-10.
Left access cover removed per TM 5-3895-373-10
(for replacement of left tow point cylinder).
Right access cover removed per TM 5-3895-373-10
(for replacement of right tow point cylinder).

NOTE

There is a left hand and a right hand tow point cylinder on the paving machine. This procedure refers to replacing left hand tow point cylinder. Procedure is identical for right hand tow point cylinder except for direction of hydraulic fittings. Left hand and right hand tow point cylinders are referenced during installation of hydraulic fittings.

GO TO NEXT PAGE

- A. REMOVE.
1. DISCONNECT HOSES.

WARNING

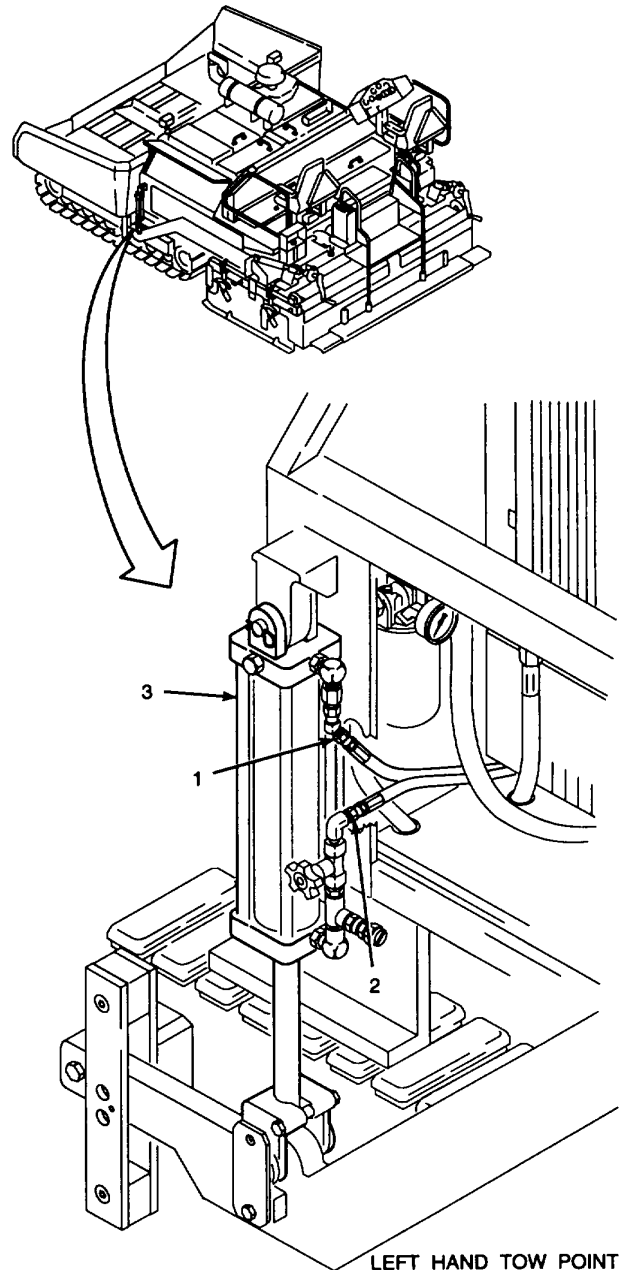
Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles and gloves. Use only in a well ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

CAUTION

Thoroughly clean hydraulic hoses and fittings before disconnecting. Always plug or cap off disconnected fittings to prevent intrusion of contaminants. Failure to properly clean and cap off connectors may result in hydraulic system contamination and equipment damage.

- a. Use cleaning solvent and cleaning cloth to clean around hydraulic hose (1 and 2) fittings on tow point cylinder (3).
- b. Tag hydraulic hoses (1 and 2) to ensure installation in the same location during installation of tow point cylinder.



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13.2. REPLACE TOW POINT CYLINDER - Continued.**A. REMOVE - Continued.****NOTE**

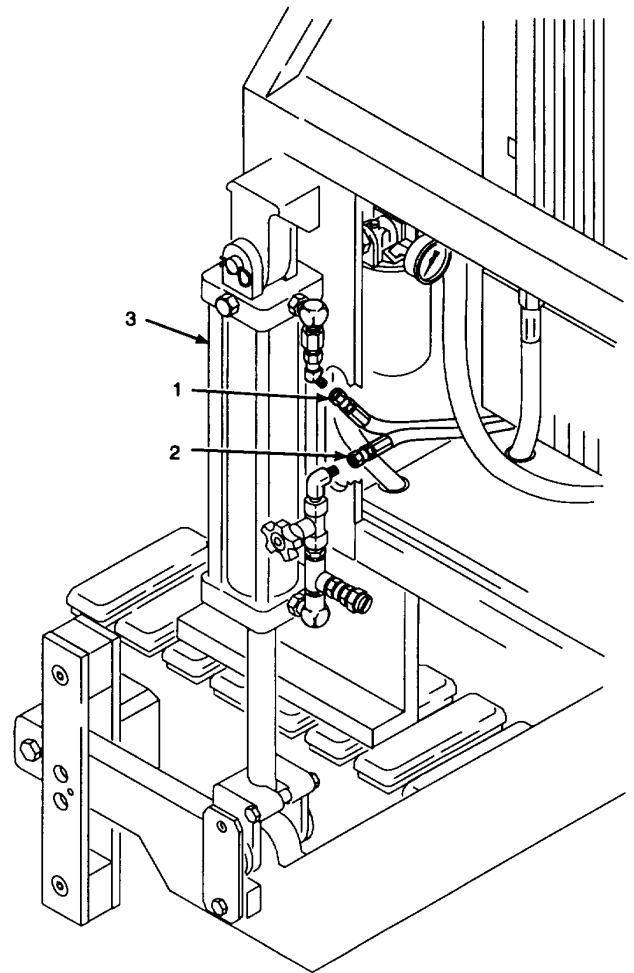
Adjust screed thickness control to relieve any tension on tow point cylinder. This will make cylinder removal easier and lessen the amount of hydraulic oil lost.

- c. Adjust screed thickness control per TM 5-3895-373-10 to null or to a position that relieves any tension on tow point cylinder (3).

WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

- d. Place machinery wiping towels under hydraulic hoses (1 and 2) being disconnected. This will catch any hydraulic oil that leaks from hoses.
- e. Disconnect hydraulic hoses (1 and 2). Plug hose ends.



GO TO NEXT PAGE

- A. REMOVE Continued.
- 2. REMOVE TOW POINT CYLINDER.
 - a. Ensure weight of screed is not on clevis pin (4) at screed tow arm per step A.1.c.
 - b. Remove hex head cap screw (5) and clevis pin (4).
 - c. Remove retaining clips (6) and clevis pin (7).
 - d. Remove tow point cylinder (3).

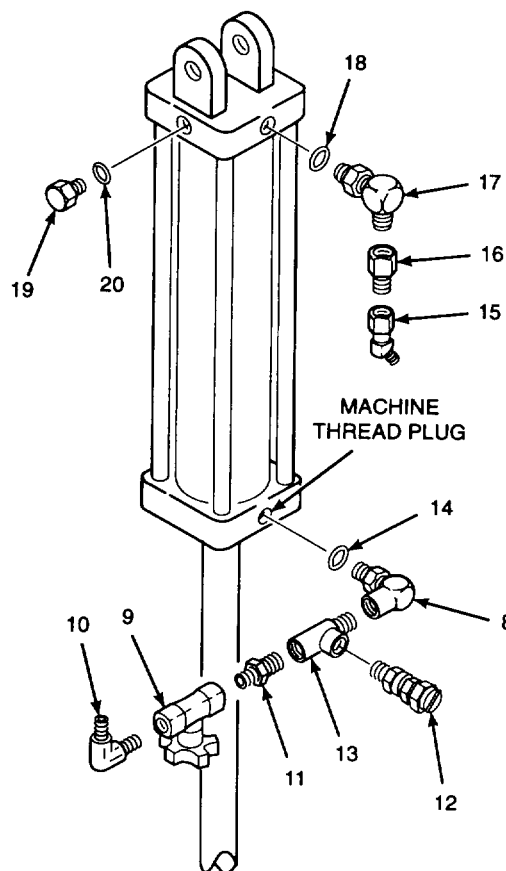
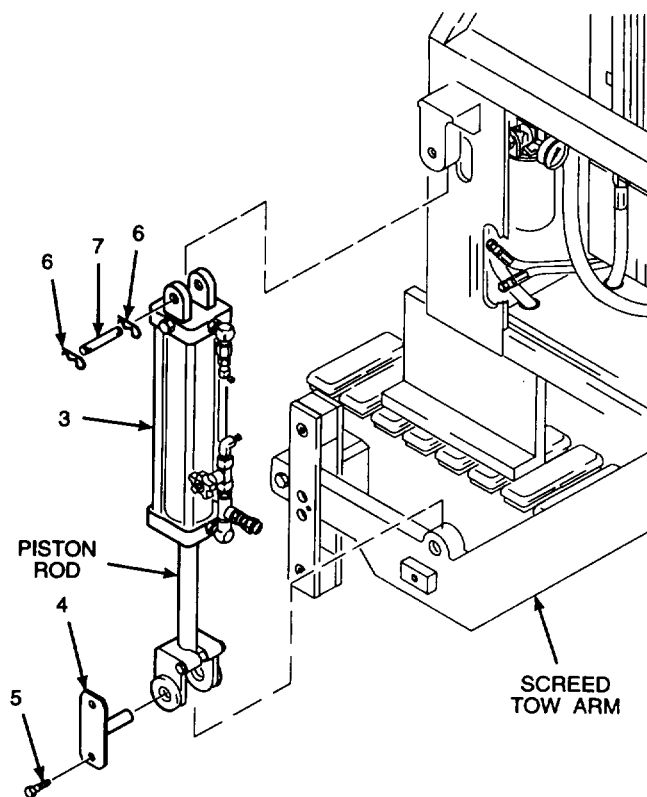
WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

- e. Drain hydraulic oil from tow point cylinder into a utility pail. Dispose of oil in accordance with local procedures.

3. REMOVE GLOBE VALVE, RELIEF VALVE, AND FITTINGS.

- a. Loosen lock nut and rotate elbow (8) about 90° counterclockwise to allow room to unscrew shutoff valve.
- b. Remove globe valve (9) and elbow (10).
- c. Remove pipe reducer (11), relief valve (12), and tee (13).
- d. Remove elbow (8) with lock nut and preformed packing (14). Discard preformed packing.
- e. Remove elbow (15) from tube reducer (16).
- f. Remove tube reducer (16) from elbow (17).
- g. Remove elbow (17) with lock nut and preformed packing (18). Discard preformed packing.
- h. Remove plug (19) with preformed packing (20). Discard preformed packing.



GO TO NEXT PAGE

13.2. REPLACE TOW POINT CYLINDER - Continued.**B. INSTALL.****1. INSTALL GLOBE VALVE, RELIEF VALVE, AND FITTINGS**

- a. Wipe and clean external threads of elbow (8), elbow (10), pipe reducer (11), tee (13), elbow (17), tube reducer (16), and elbow (15) with a cleaning cloth.

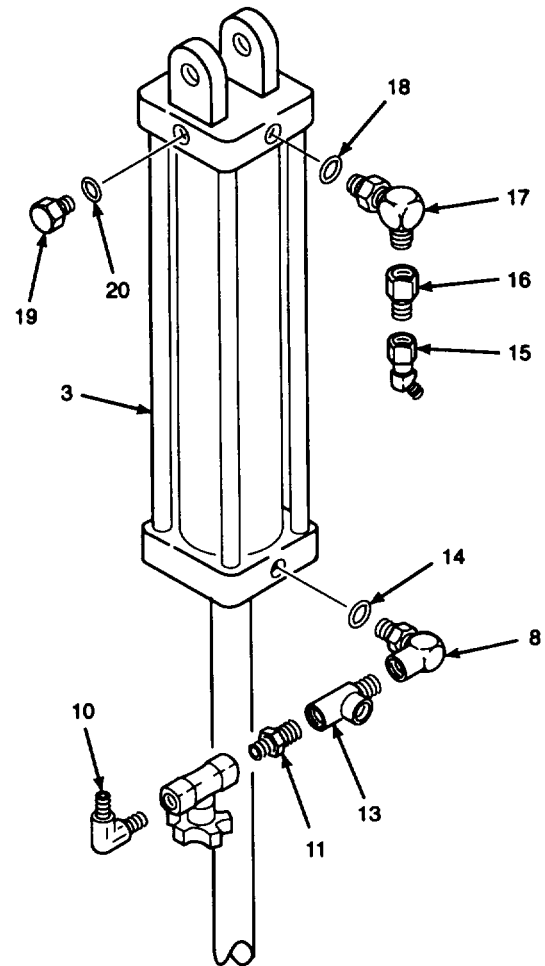
WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

CAUTION

Be careful not to damage preformed packing when sliding over threads. Sharp edges of threads can cut or damage preformed packing. Damaged preformed packing will cause leakage and affect performance.

- b. Lightly coat preformed packings (20, 18, and 14) with clean hydraulic oil. Install packings on elbows (17 and 8) and plug (19).
- c. Install plug (19).
- d. Install lock nuts and elbows (8 and 17) on tow point cylinder (3). Do not tighten lock nut on elbow (17) at this time.



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B. INSTALL Continued.

WARNING

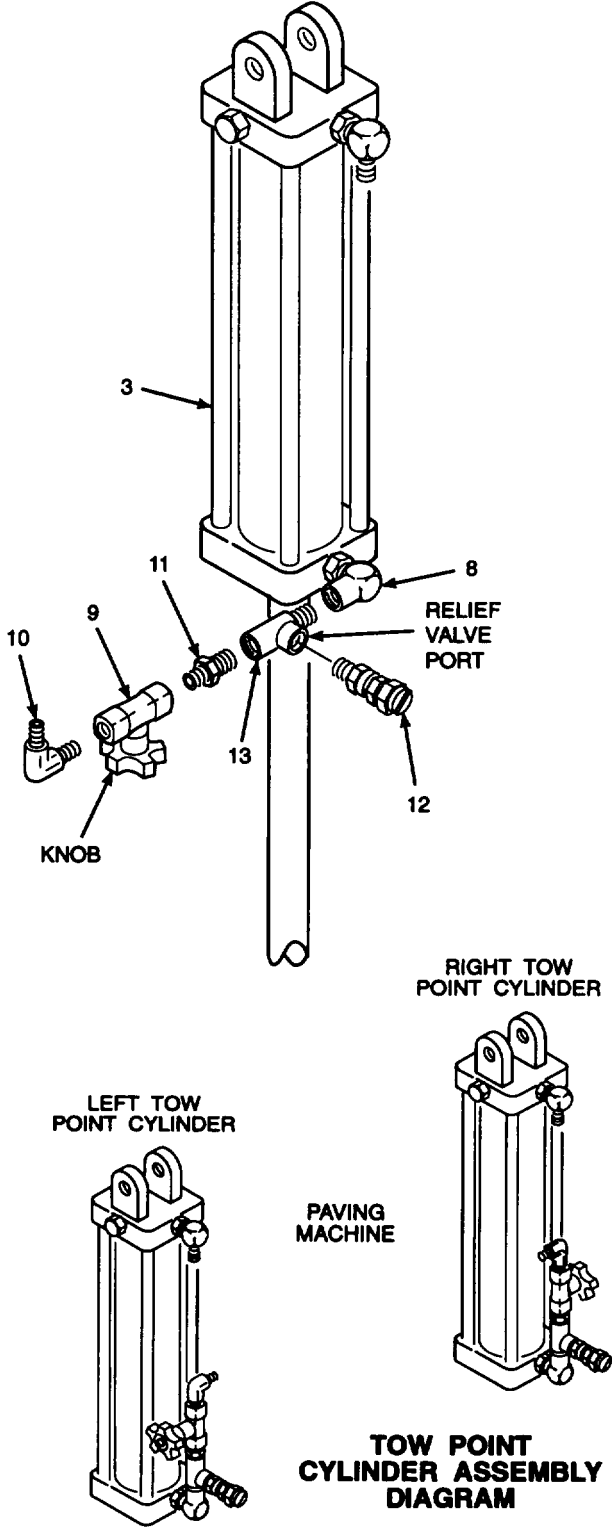
Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- e. Apply pipe sealant to external pipe threads of tee (13).
- f. Install tee (13) and tighten so that relief valve port faces away from tow point cylinder (3).
- g. Apply pipe sealant to threads of relief valve (12) and pipe reducer (11). Install and tighten relief valve and reducer into tee (13). A second wrench may be necessary to hold tee while installing relief valve and reducer.
- h. Install globe valve (9) and tighten so that knob faces out from paving machine when tow point cylinder is installed. Refer to tow point cylinder assembly diagram.
- i. Apply pipe sealant to pipe threads of elbow (10).

Install and tighten elbow so that it points in toward paving machine when cylinder is installed.

Refer to tow point cylinder assembly diagram.

- j. Rotate assembled valves and fittings to align with cylinder as shown in tow point cylinder assembly diagram. Tighten lock nut on elbow (8).



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13.2. REPLACE TOW POINT CYLINDER - Continued.

B. INSTALL Continued.

WARNING

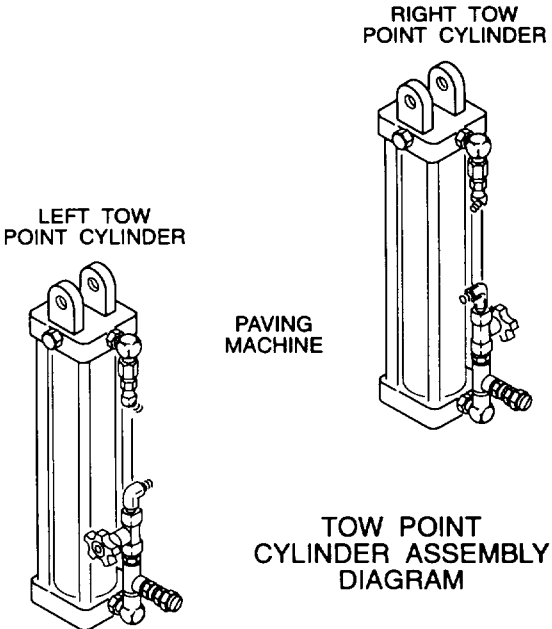
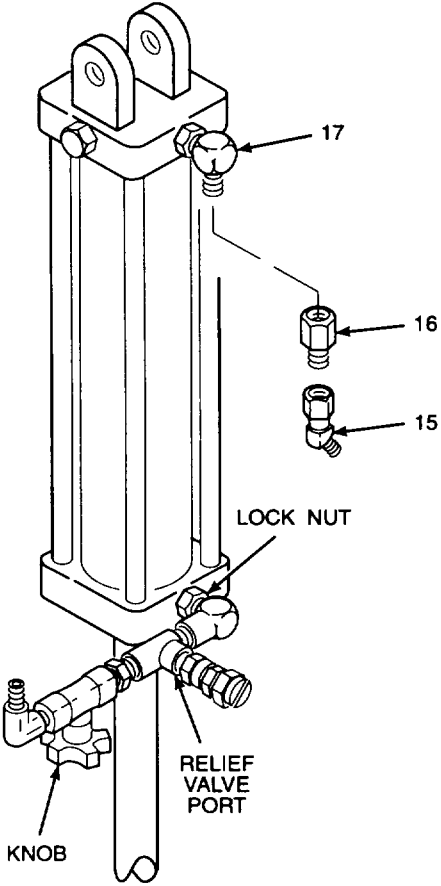
Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- k. Apply pipe sealant to external threads of elbow (17).
- l. Install and tighten tube reducer (16) on elbow (17).

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- m. Apply hydraulic fitting sealant to tube reducer (16) exposed threads.
- n. Install elbow (15) and tighten so that elbow will face in toward paving machine when tow point cylinder is installed. Refer to tow point cylinder assembly diagram.



GO TO NEXT PAGE

B. INSTALL Continued.

2. INSTALL TOW POINT CYLINDER.

- a. Position tow point cylinder (3) so that hole in base of cylinder aligns with mounting bracket in frame. Install clevis pin (7) and retaining clips (6).
- b. Extend piston rod so that holes on rod end clevis align with hole in screed tow arm. Install clevis pin (4).

WARNING

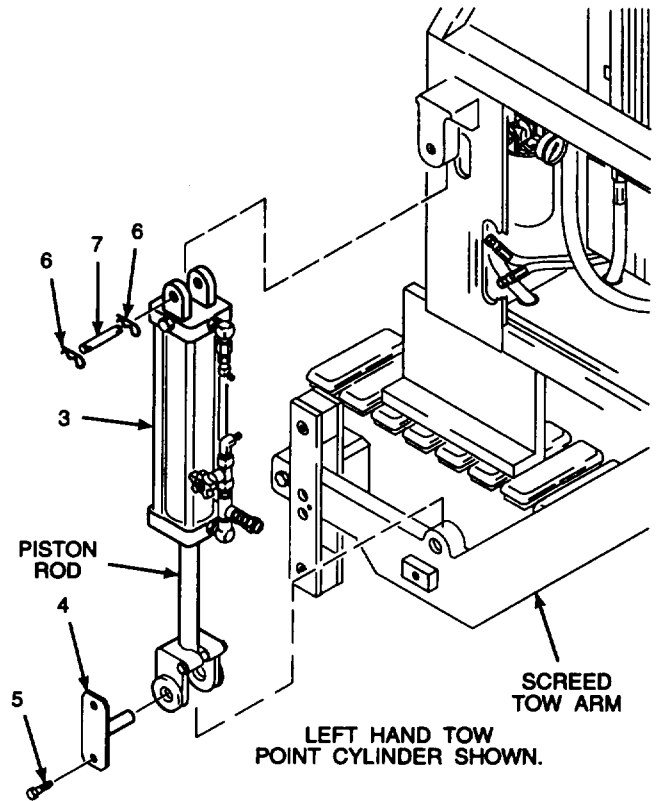
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- c. Clean hex head cap screws (5) with thread locking compound solvent. Wipe dry with lint-free cloth.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- d. Coat hex head cap screw (5) threads with thread locking compound.
- e. Install hex head cap screw (5). Tighten to 37 lb-ft (50 N•m).



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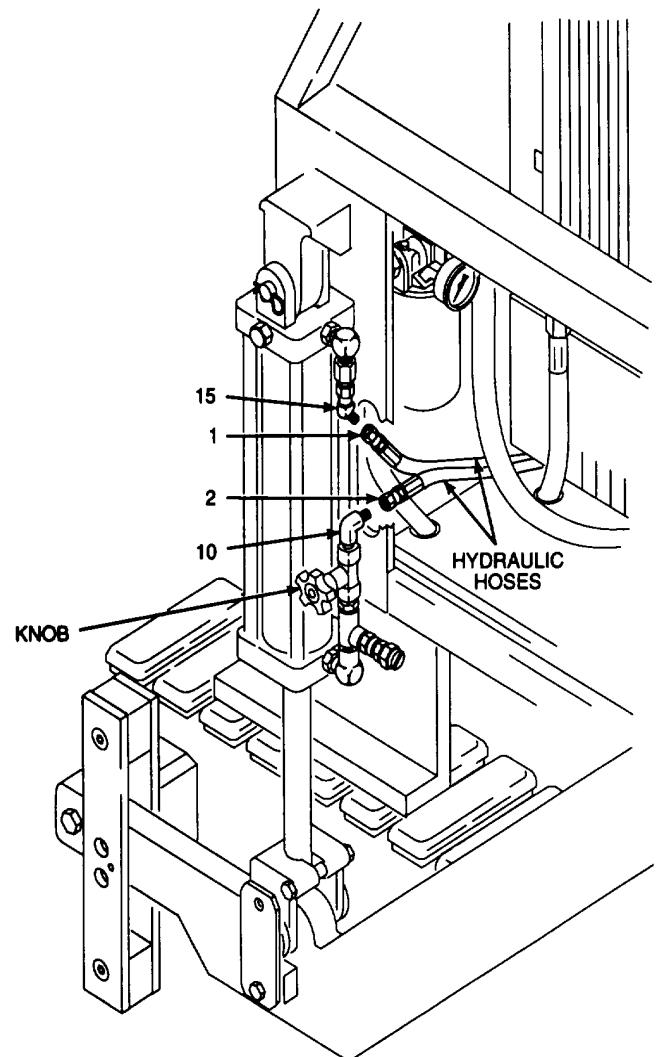
13.2. REPLACE TOW POINT CYLINDER - Continued.

- B. INSTALL Continued.
3. CONNECT HYDRAULIC HOSES.

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- a. Apply hydraulic fitting sealant to exposed threads of elbows (10 and 15).
- b. Connect hydraulic hoses (1 and 2) as tagged and tighten.
- c. Turn knob fully counterclockwise.

**NOTE**

FOLLOW-ON-TASK: Install left or right access cover per TM 5-3895-373-10.

END OF TASK

13.3. REPLACE SCREED LIFT CYLINDER.

This task covers: a. Remove b. Install

INITIAL SETUP:Tools:

General mechanic's automotive tool kit
 (Item 54, Appendix E)
 Utility pail (Item 26, Appendix E)

References:

TM 5-3895-373-10
 TM 5-3895-373-24P

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
 Cleaning solvent (Item 24, Appendix C)
 Hydraulic fitting sealant (Item 21, Appendix C)
 Hydraulic oil (Item 18, Appendix C)
 Machinery wiping towels (Item 30, Appendix E)
 Protective caps (Item 5, Appendix C)
 Tags (Item 27, Appendix C)
 Preformed packings
 Screed lift cylinder

Equipment Conditions:

Screed lowered per TM 5-3895-373-10.
 Screed steps lowered per TM 5-3895-373-10.

GO TO NEXT PAGE

13.3. REPLACE SCREED LIFT CYLINDER - Continued.**NOTE**

There is a left hand and a right hand screed lift cylinder on the paving machine. This procedure refers to replacing left hand screed lift cylinder. Procedure is identical for right hand screed lift cylinder. Left hand screed lift cylinder is shown in this procedure.

- A. REMOVE.
1. DISCONNECT HYDRAULIC HOSES.

WARNING

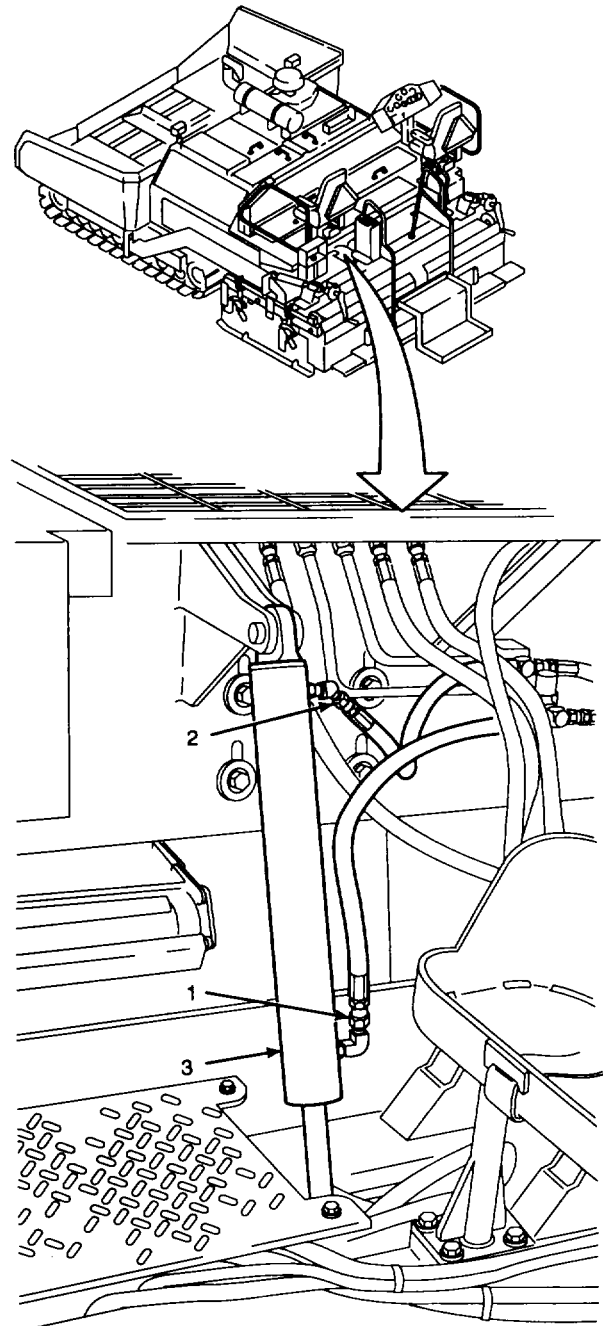
Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles and gloves. Use only in a well ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type HI cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

CAUTION

Thoroughly clean hydraulic hoses and fittings before disconnecting. Always plug or cap off disconnected fittings to prevent intrusion of contaminants. Failure to properly clean and cap off connectors may result in hydraulic system contamination and equipment damage.

- a. Use cleaning solvent and cleaning cloth to clean around hydraulic hose (1 and 2) fittings on screed lift cylinder (3).
- b. Tag hydraulic hoses (1 and 2) for reinstallation.



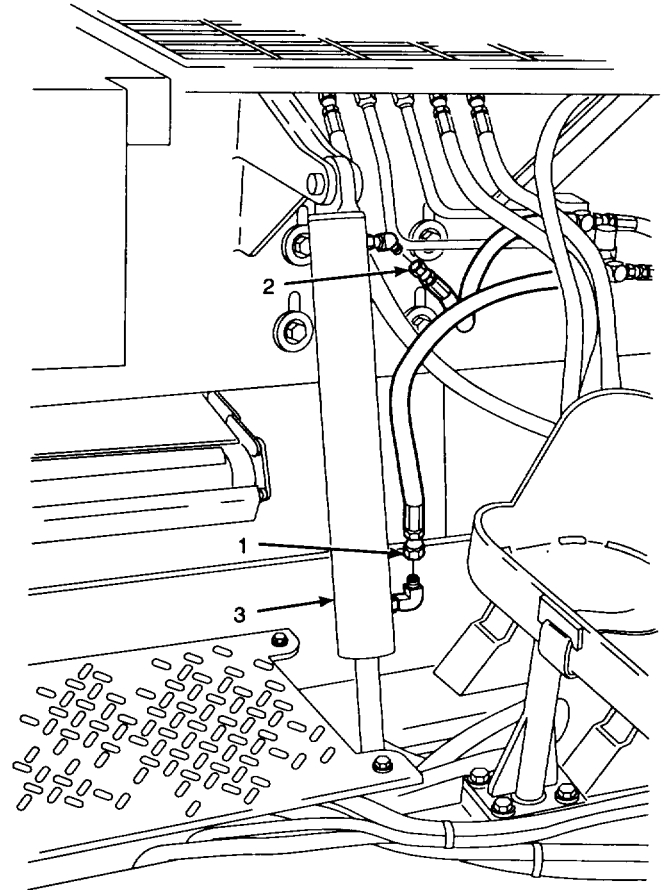
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- A. REMOVE Continued.
- c. Place machinery wiping towel along side screed lift cylinder (3) to catch any hydraulic oil that will leak from hoses when disconnected from cylinder.

WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

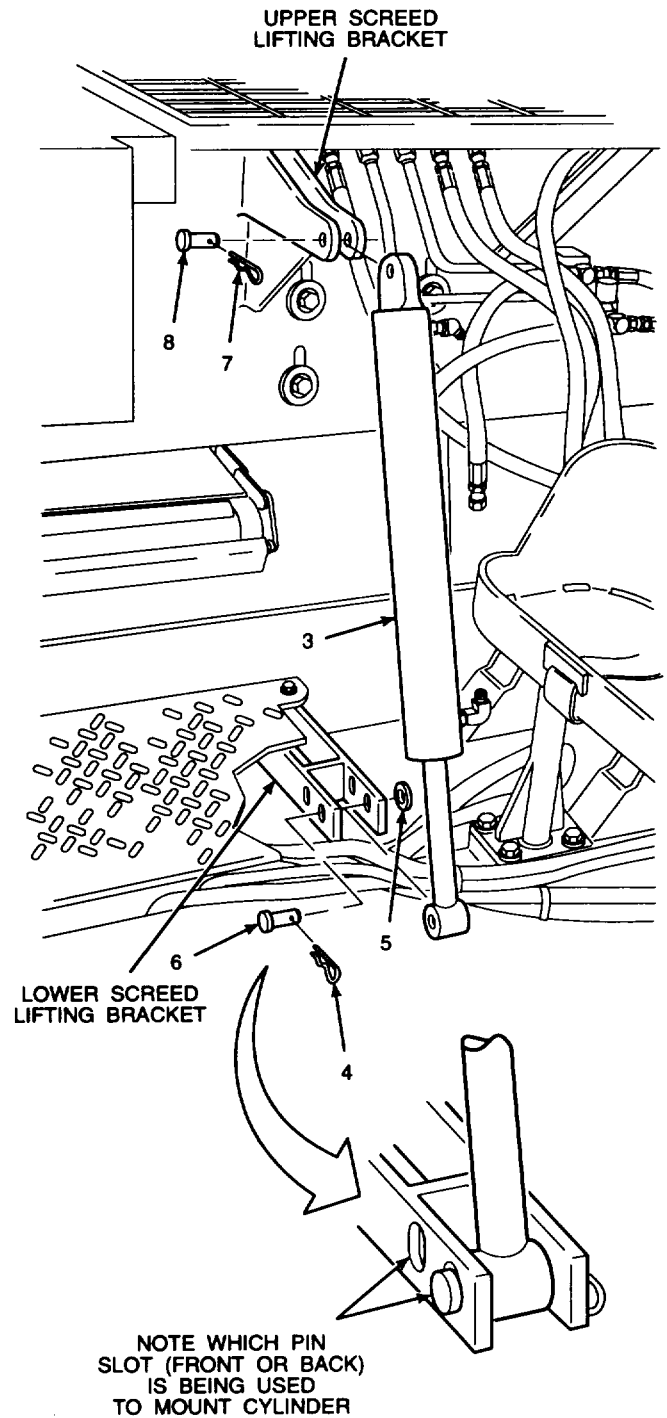
- d. Disconnect hydraulic hoses (1 and 2). Plug hose ends.
- e. Drain hydraulic oil from screed lift cylinder into a utility pail. Dispose of hydraulic oil and contaminated machinery wiping towels in accordance with local procedures. Cap cylinder.



GO TO NEXT PAGE

13.3. REPLACE SCREED LIFT CYLINDER - Continued.

- A. REMOVE Continued.
- 2. REMOVE SCREED LIFT CYLINDER.
 - a. Note which hole in lower screed lifting bracket is used for cylinder mounting.
 - b. Remove lock pin (4), flat washer (5), and clevis pin (6) from lower screed lifting bracket.
 - c. Hold cylinder in place and remove lock pin (7) and clevis pin (8) from upper screed lifting bracket.
 - d. Remove screed lift cylinder (3) from paving machine.



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- A. REMOVE Continued.
- 3. REMOVE ELBOWS.
 - a. Loosen lock nut (9) of elbow (10). Remove elbow and preformed packing (11). Discard preformed packing.
 - b. Loosen lock nut (12) of elbow (13). Remove elbow and preformed packing (14). Discard preformed packing.
- B. INSTALL.
 - 1. INSTALL ELBOWS.

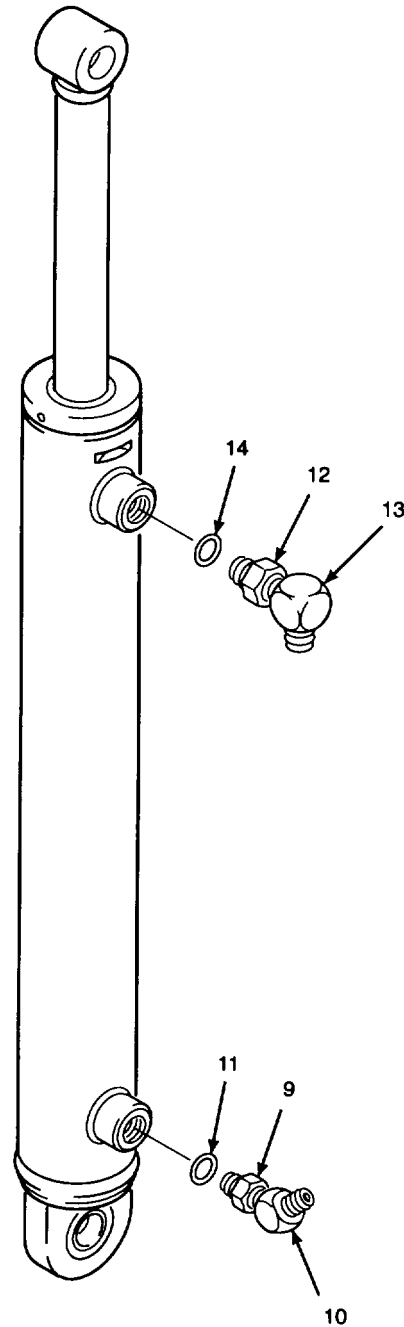
WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

CAUTION

Use caution when installing preformed packings over screw threads. Threads can cut and damage preformed packings. Ensure threads do not damage preformed packings during installation.

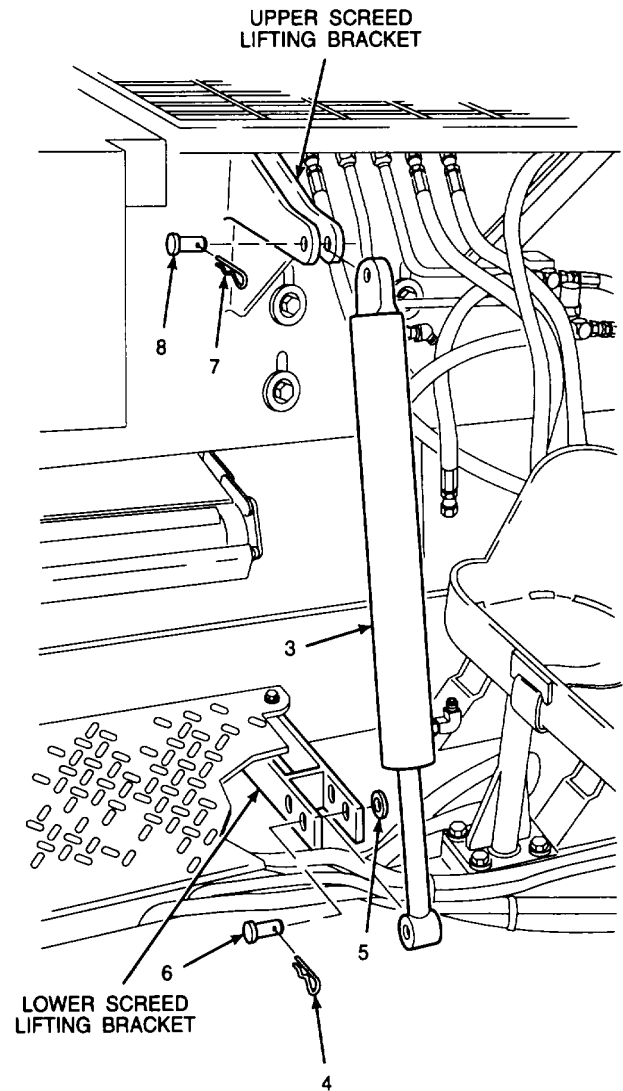
- a. Lubricate preformed packings (11 and 14) with clean hydraulic oil. Install preformed packings on elbows (10 and 13).
- b. Install elbows (10 and 13) until preformed packings (11 and 14) seat in cylinder hose ports.
- c. Elbow (10) is installed closest to cylinder base with 45° threaded end facing piston rod. Elbow (13) is installed closest to piston rod with 90° threaded end facing cylinder base.
- d. Tighten lock nuts (9 and 12).



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13.3. REPLACE SCREED LIFT CYLINDER - Continued.

- B. INSTALL Continued.
2. INSTALL SCREED LIFT CYLINDER.
- Extend screed lift cylinder (3) as needed to fit into paving machine.
 - Line up hole in cylinder rod end and lower screed lifting bracket hole that was used for mounting of old cylinder as noted during disassembly. Install clevis pin (6).
 - Install flat washer (5) and lock pin (4).
 - Line up hole in screed lift cylinder base with hole in upper screed lifting bracket. Install clevis pin (8) and lock pin (7).



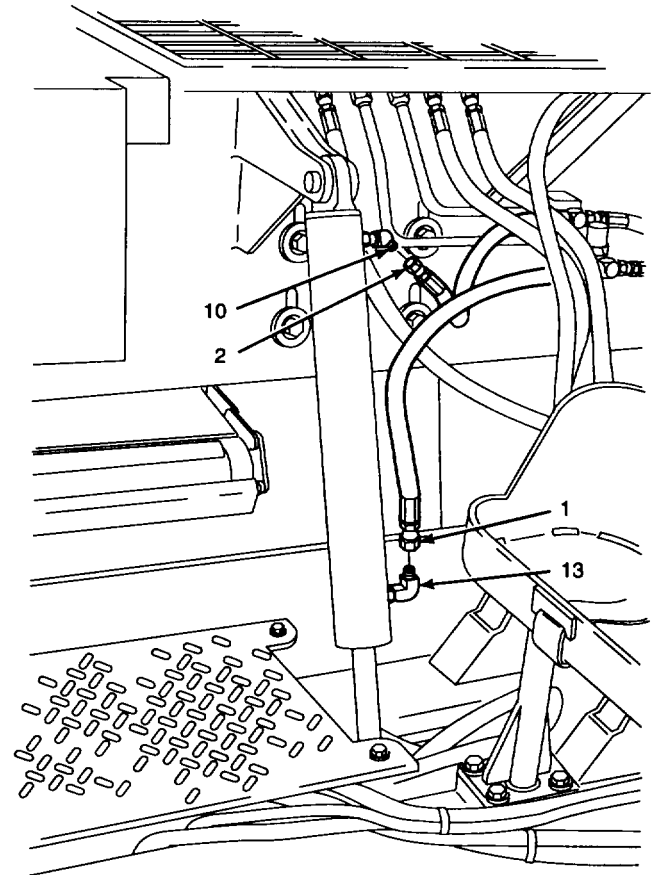
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- B. INSTALL Continued.
3. CONNECT HYDRAULIC HOSES.

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- a. Apply hydraulic fitting sealant to threads of elbows (13 and 10).
- b. Connect hydraulic hoses (1 and 2) as tagged and tighten fittings.

**NOTE**

FOLLOW-ON-TASK: Raise screed steps per TM 5-3895-373-10.

END OF TASK

13.4. REPLACE/REPAIR VIBRATION RELIEF VALVE.

This task covers: a. Remove b. Repair c. Install

INITIAL SETUP

Tools:

- General mechanic's automotive tool kit
 (Item 54, Appendix E)
- Bench vise (Item 55, Appendix E)
- Blowtorch (Item 5, Appendix E)

References:

- TM 5-3895-373-10
- TM 5-3895-373-24P

Equipment condition:

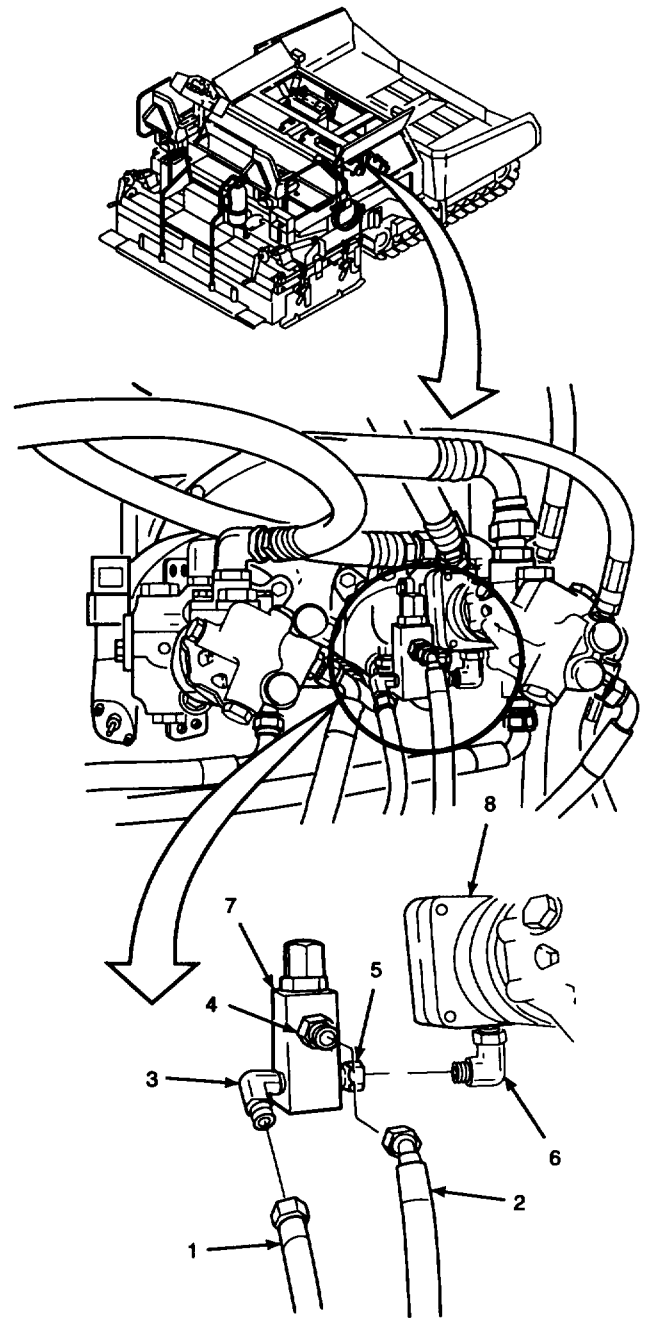
- Right access door open per TM 5-3895-373-10.
- Right access cover removed per TM 5-3895-373-10.

Materials/Parts:

- Cleaning cloth (Item 7, Appendix C)
 - Cleaning solvent (Item 24, Appendix C)
 - Culture swabs (Item 26, Appendix C)
 - Hydraulic fitting sealant (Item 21, Appendix C)
 - Lint-free cloth (Item 8, Appendix C)
 - Machinery wiping towel (Item 30, Appendix C)
 - Pipe sealant (Item 22, Appendix C)
 - Protective caps (Item 5, Appendix C)
 - Thread locking compound (Item 12, Appendix C)
 - Thread locking compound solvent (Item 25, Appendix C)
 - Check ball
 - Flat washers
 - Relief spring
 - Valve seat
 - Vibration relief valve
-

GO TO NEXT PAGE

- A. REMOVE.
1. PLACE A MACHINERY WIPING TOWEL BELOW THE AUXILIARY VIBRATION PUMP.
 2. DISCONNECT HOSES (1 AND 2) FROM ELBOW (3) AND STRAIGHT ADAPTER (4). PLUG HOSES AND CAP ELBOW AND STRAIGHT ADAPTER.
 3. DISCONNECT STRAIGHT ADAPTER (5) FROM ELBOW (6) AND REMOVE VIBRATION R.I.I.F VALVE (7) FROM AUXILIARY VIBRATION PUMP (8). PLUG STRAIGHT ADAPTER AND CAP ELBOW.



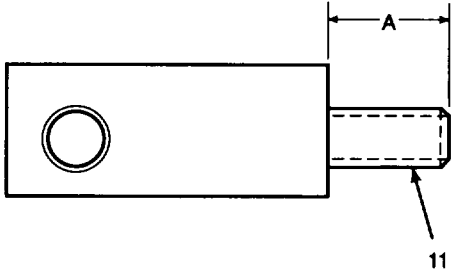
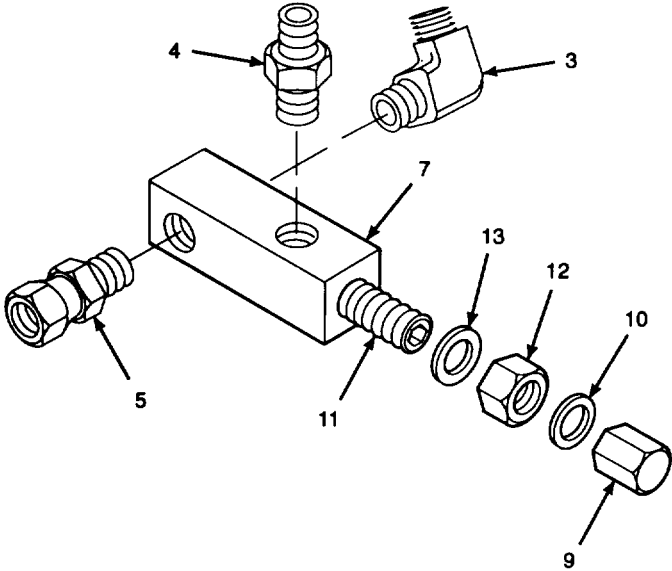
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13.4. REPLACE/REPAIR VIBRATION RELIEF VALVE - Continued.

B. REPAIR.

1. DISASSEMBLE VIBRATION RELIEF VALVE.

- a. Place vibration relief valve (7) in bench vise and remove elbow (3), and straight adapters (4 and 5) from vibration relief valve.
- b. Remove cap nut (9) and flat washer (10). Discard flat washer.
- c. Hold adjusting screw (11) in position and loosen hex nut (12). Remove hex nut and flat washer (13), making sure that the adjusting screw does not turn. Discard flat washer.
- d. Measure the exposed threads on adjusting screw (11). This is measurement (A). This measurement will be needed during assembly.
- e. Remove adjusting screw (11). Take care when removing the adjusting screw, relief spring (14) is putting pressure against the adjusting screw.
- f. Remove relief spring (14) and check ball (15).



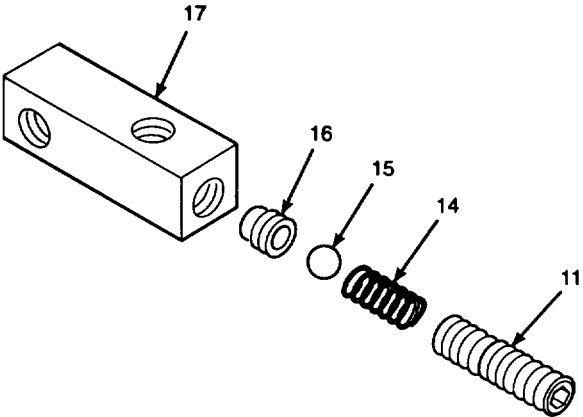
WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

NOTE

Valve seat may require heat to remove. Heat valve seat with blowtorch, if necessary.

- g. Use a culture swab soaked with thread locking compound solvent to loosen valve seat (16) from valve body (17). Heat valve seat with blowtorch if necessary. Remove and discard valve seat.



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- B. REPAIR - Continued.
2. CLEAN VIBRATION RELIEF VALVE AND COMPONENT PARTS.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Use a culture swab soaked in thread locking compound solvent to clean thread locking compound residue from vibration relief valve body.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- b. Rinse valve body and components with cleaning solvent.
- c. Use a culture swab to wipe out valve body inner bores.
- d. Clean threads of all hydraulic fittings by wiping with a cleaning cloth.

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13.4. REPLACE/REPAIR VIBRATION RELIEF VALVE - Continued.**B. REPAIR - Continued.****WARNING**

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/face shield, and gloves). Failure to take proper precautions may result in severe injury or loss of vision.

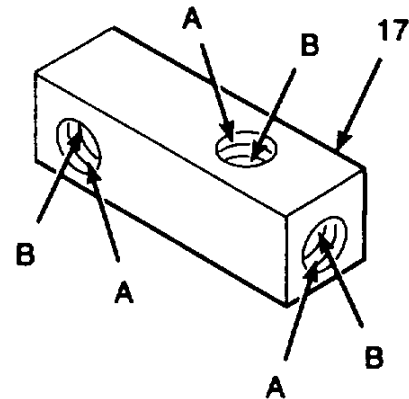
- e. Use 30 psi (207 kPa) maximum compressed air to remove any foreign matter from valve body bores, threaded surfaces, and seal grooves. Dry all parts with a clean, lint-free cloth.
3. INSPECT VALVE BODY, VALVE SEAT, CHECK BALL, RELIEF SPRING, AND ADJUSTING SCREW.
 - a. Visually inspect valve body (17) surfaces A for stripped threads. Use a strong light and inspect inner bores B for foreign material.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°C). Failure to do so may result in injury or death to personnel.

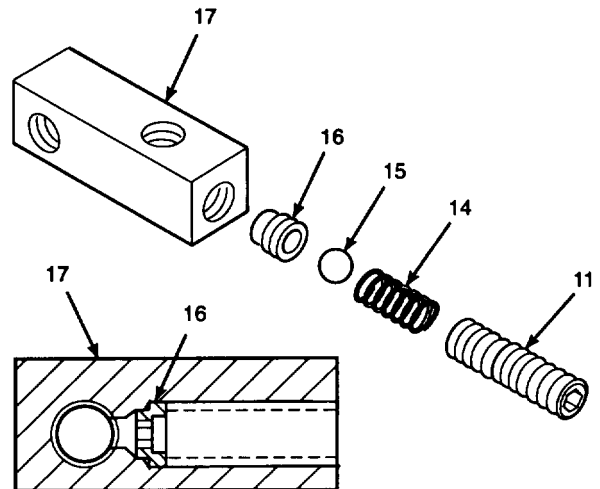
If personnel become dizzy when using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- b. Flush valve body (17) with cleaning solvent to remove any foreign material present. Use a culture swab to remove foreign material from valve body inner bore.



GO TO NEXT PAGE

- B. REPAIR Continued.
 - c. Replace valve body (17) if threads are stripped or if foreign material cannot be removed.
 - d. Inspect relief spring (14) for distortion. Replace spring if distortion is detected.
 - e. Inspect check ball (15) and valve seat (16) for nicks, dents, or excessive wear. Replace check ball and valve seat if damaged.
 - f. Inspect adjusting screw (11) for stripped threads. Replace screw if threads are damaged.
- 4. ASSEMBLE VIBRATION RELIEF VALVE.
 - a. Ensure that valve body (17) is completely dry and free of all contaminants.



WARNING

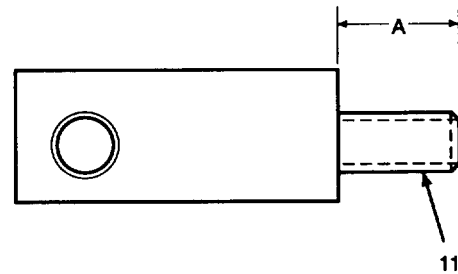
Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- b. Apply a thin coating of thread locking compound to valve seat (16).

CAUTION

Ensure that thread locking compound does not plug the port opening on the valve body. Relief valve failure and hydraulic system failure could result.

- c. Install valve seat (16) into valve body (17) and allow to dry for a minimum of 5 hours. Ensure that thread locking compound does not plug the port opening.
- d. Install check ball (15) and relief spring (14).
- e. Install adjusting screw (11) and set to measurement (A).



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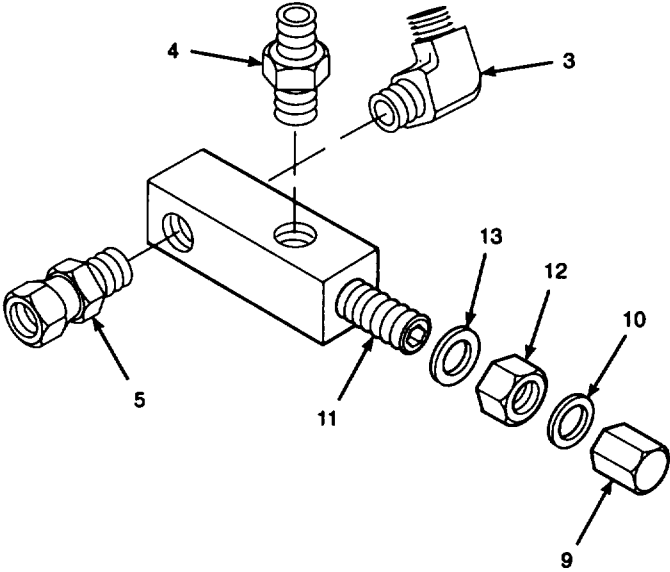
13.4. REPLACE/REPAIR VIBRATION RELIEF VALVE - Continued.

B. REPAIR Continued.

- f. Install flat washer (13) and hex nut (12). Ensure that adjusting screw (11) does not move when tightening the hex nut.
- g. Install flat washer (10) and cap nut (9).
- h. Wipe threads of straight adapters (4 and 5) and elbow (3) with a cleaning cloth to remove any pipe sealant residue.

WARNING

Pipe fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.



- i. Apply pipe fitting sealant to pipe threaded end of straight adapter (4), pipe threads of elbow (3), and male end of straight adapter (5).
- j. Install straight adapters (4 and 5) and elbow (3). Align the elbow so the open end points at a 45° angle from straight adapter (4). Refer to illustration.

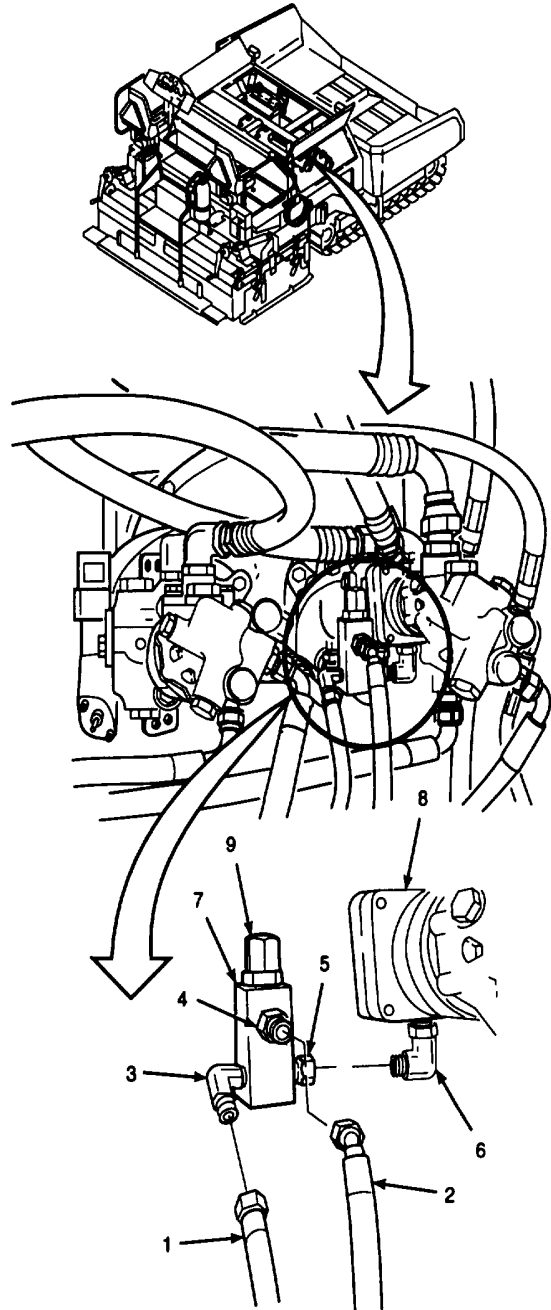
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C. INSTALL.

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

1. APPLY HYDRAULIC FITTING SEALANT TO ELBOW (6).
2. INSTALL VIBRATION RELIEF VALVE (7) BY CONNECTING STRAIGHT ADAPTER (5) TO ELBOW (6) ON AUXILIARY VIBRATION PUMP (8). POSITION RELIEF VALVE SO THAT WHEN TIGHTENED, CAP NUT (9) IS ON TOP.
3. APPLY HYDRAULIC FITTING SEALANT TO EXPOSED THREADS OF ELBOW (3) AND STRAIGHT ADAPTER (4).
4. CONNECT HOSES (1 AND 2) TO ELBOW (3) AND STRAIGHT ADAPTER (4). TIGHTEN HOSES.



NOTE

FOLLOW-ON-TASKS: Install right access cover per TM 5-3895-373-10.
Close right access door per TM 5-3895-373-10.

END OF TASK

13.5. REPLACE HIGH SPEED SHIFT AND BRAKE VALVE SOLENOID ASSEMBLIES AND STACK VALVE ELECTRICAL COILS.

This task covers: a. Remove b. Install

INITIAL SETUPTools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Torque wrench, 0 to 175 lb-ft (Item 68, Appendix E)
Torque wrench, 5 to 150 lb-in (Item 69, Appendix E)

Materials/Parts:

Cleaning solvent (Item 24, Appendix C)
Electrical insulating compound (Item 11, Appendix C)
Electrical insulating varnish (Item 32, Appendix C)
Lint-free cloth (Item 8, Appendix C)
Petrolatum (Item 20, Appendix C)
Tags (Item 27, Appendix C)
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Brake valve solenoid assembly
High speed shift valve solenoid assembly
Lockwasher
Seal kit
Stack valve electrical coil

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Right access door open per TM 5-3895-373-10.
Center top left access door open
per TM 5-3895-373-10.
Center top right access door open
per TM 5-3895-373-10.

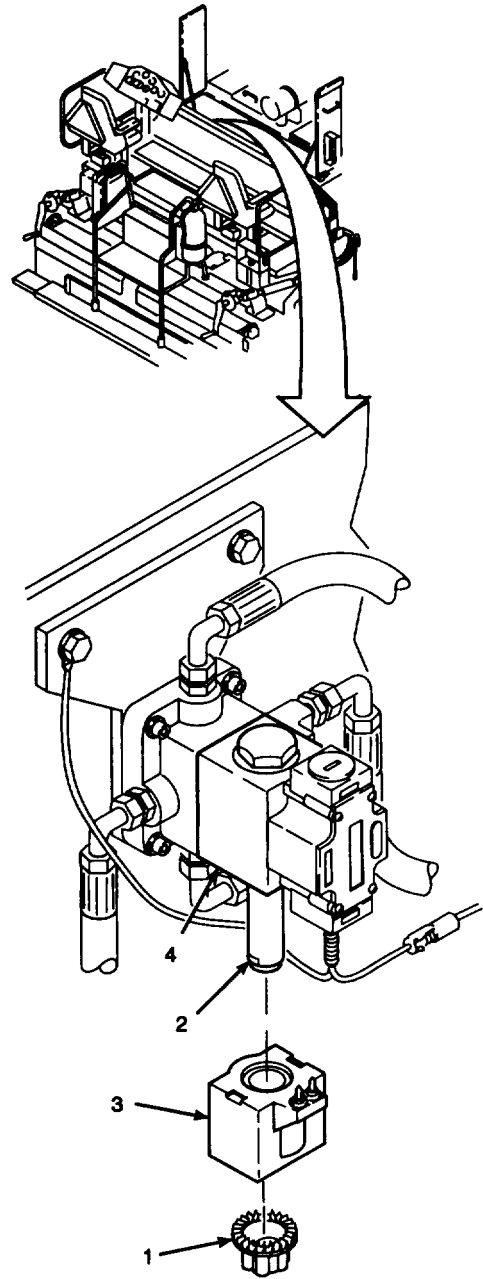
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- A. REMOVE.
1. REMOVE HIGH SPEED SHIFT VALVE SOLENOID ASSEMBLY.

CAUTION

Do not damage plastic nut upon removal from solenoid armature. Plastic nut has a serrated bottom surface and may be difficult to remove. If too much force is used during removal, plastic nut may be damaged or deformed.

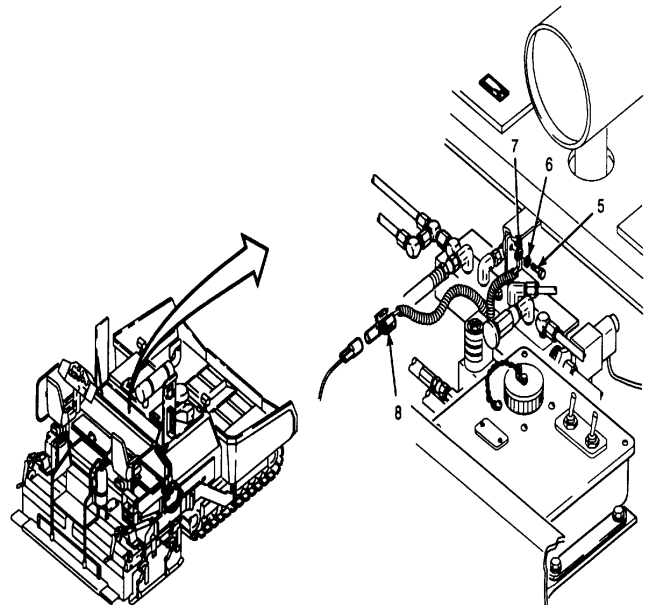
- a. Remove plastic nut (1) from solenoid armature (2).
- b. Unplug solenoid assembly (3) from high speed shift valve (4) and discard.



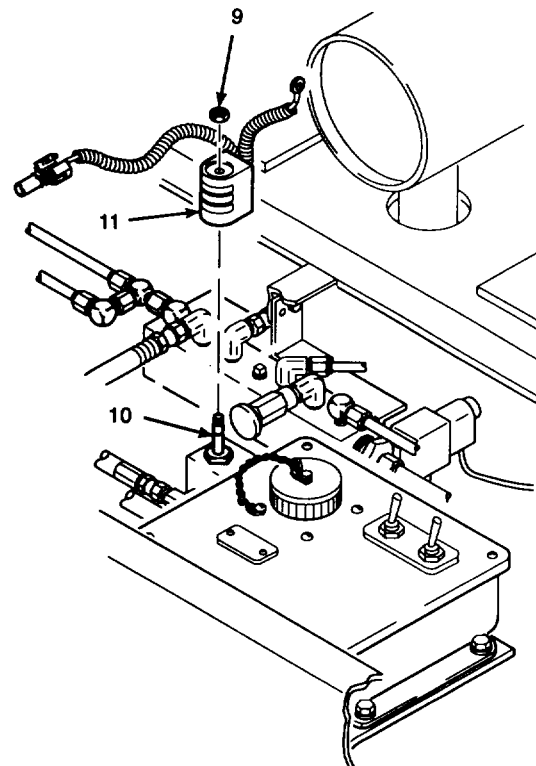
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13.5. REPLACE HIGH SPEED SHIFT AND BRAKE VALVE SOLENOID ASSEMBLIES AND STACK VALVE ELECTRICAL COILS - Continued.

- A. REMOVE - Continued.
2. REMOVE BRAKE VALVE SOLENOID ASSEMBLY.
- a. Remove hex head cap screw (5), lockwasher (6), and ground wire (7). Discard lockwasher.
- b. Tag female end of harness and disconnect male electrical connector (8).



- c. Remove hex nut (9) from solenoid armature (10).
- d. Remove and discard solenoid assembly (11).



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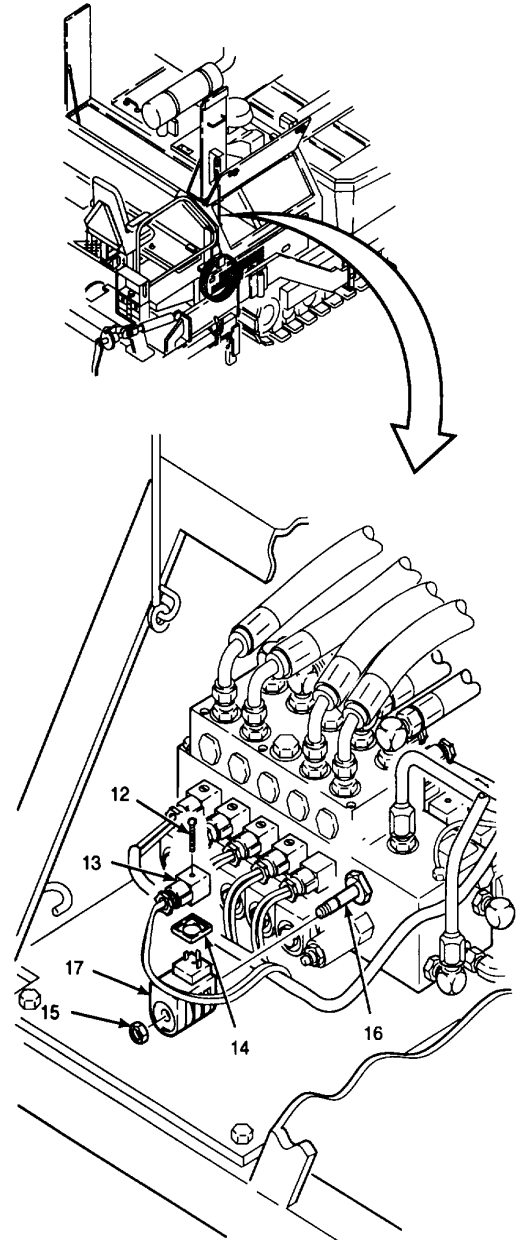
A. REMOVE - Continued.

3. REMOVE STACK VALVE ELECTRICAL COIL.

NOTE

Moisture seal may come off of connector during removal of connector. Do not discard. Save for reinstallation of connector.

- a. Loosen screw (12) and remove connector (13). Retain moisture seal (14) for reassembly.
- b. Remove hex nut (15) from electrical coil armature (16).
- c. Remove and discard electrical coil (17).



GO TO NEXT PAGE

13.5. REPLACE HIGH SPEED SHIFT AND BRAKE VALVE SOLENOID ASSEMBLIES AND STACK VALVE ELECTRICAL COILS - Continued.

B. INSTALL.

1. INSTALL HIGH SPEED SHIFT VALVE SOLENOID ASSEMBLY.

WARNING

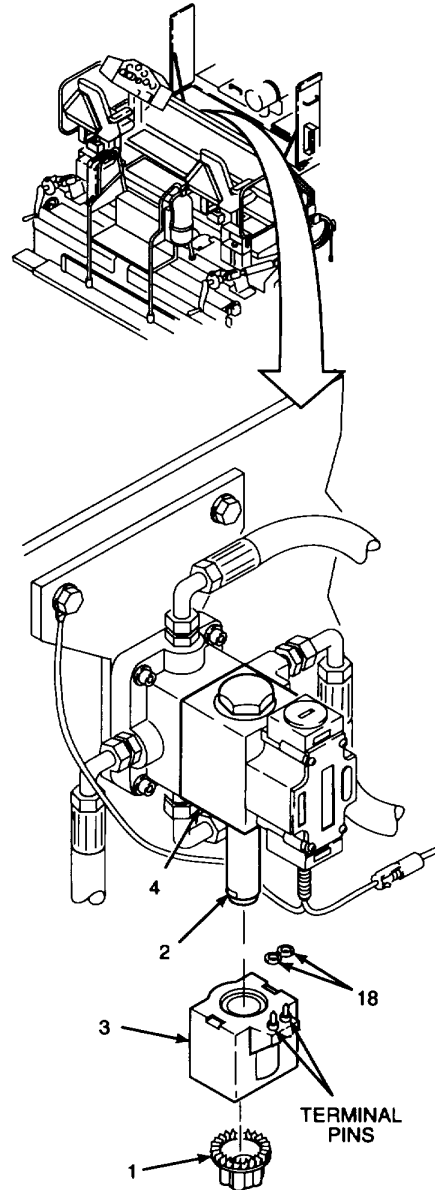
Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles and gloves. Use only in a well ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- a. Wipe off solenoid armature (2) with a lint-free cloth and cleaning solvent.
- b. Locate preformed packings (18) in seal kit. Lubricate preformed packings with petrolatum.
- c. Install preformed packings (18) on solenoid assembly (3).
- d. Apply electrical insulating compound to terminal pins of solenoid assembly (3).
- e. Plug solenoid assembly (3) into high speed shift valve (4).

CAUTION

Do not overtighten plastic nut (1) on solenoid armature (2). Overtightening of plastic nut will strip screw threads.



- f. Install plastic nut (1) onto solenoid armature (2). Tighten by hand until snug, and then tighten an additional 1/4 to 1/2 turn using an adjustable wrench.

B. INSTALL - Continued.

2. INSTALL BRAKE VALVE SOLENOID ASSEMBLY.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 m cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

WARNING

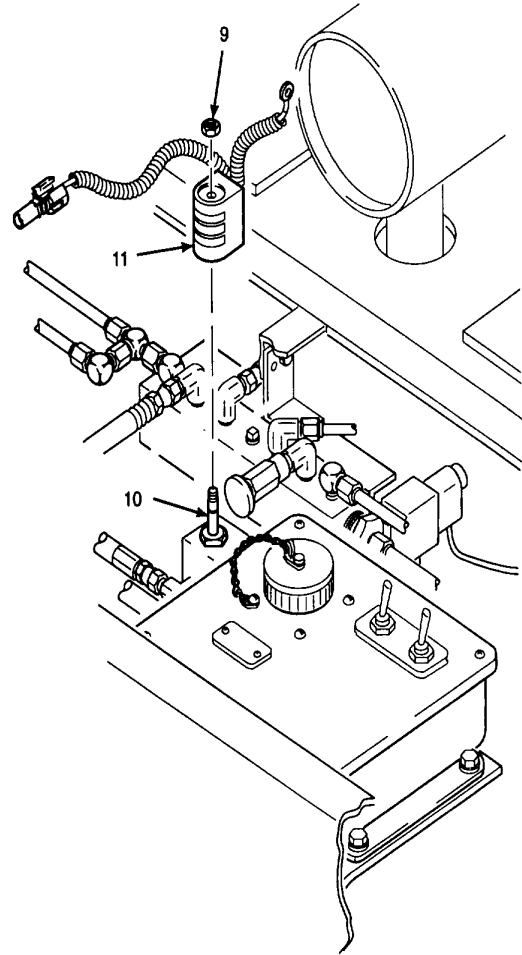
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Wipe off solenoid armature (10) with a lint-free cloth and cleaning solvent. Clean threads of solenoid armature with thread locking compound solvent.
- b. Install solenoid assembly (11) onto solenoid armature (10).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- c. Apply thread locking compound to threads of solenoid armature (10).



- d. Install hex nut (9) onto solenoid armature (10). Tighten to 14 lb-in (1,6 N•m).

13.5. REPLACE HIGH SPEED SHIFT AND BRAKE VALVE SOLENOID ASSEMBLIES AND STACK VALVE ELECTRICAL COILS - Continued.

B. INSTALL - Continued.

- e. Apply electrical insulating compound to male end of electrical connector (8) and install into female harness connector.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- f. Clean threads of hex head cap screw (5) with thread locking compound solvent.
- g. Install lockwasher (6) and ground wire (7) on hex head cap screw (5).

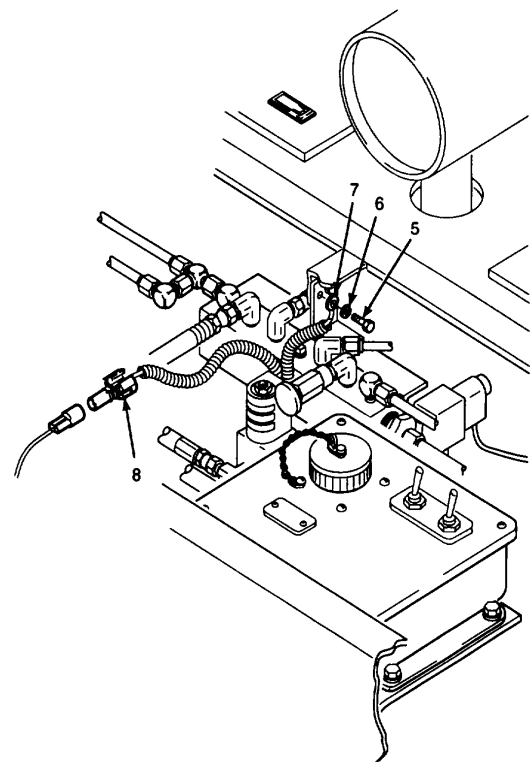
WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- h. Apply thread locking compound to threads of hex head cap screw (5).
- i. Install hex head cap screw (5). Tighten hex head cap screw to 37 lb-ft (50 N•m).

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.



- j. Apply electrical insulating varnish to ground wire (6) ring terminal.

GO TO NEXT PAGE

B. INSTALL- Continued.

3. INSTALL STACK VALVE ELECTRICAL COIL.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- a. Wipe off electrical coil armature (16) with a lint-free cloth and cleaning solvent.

WARNING

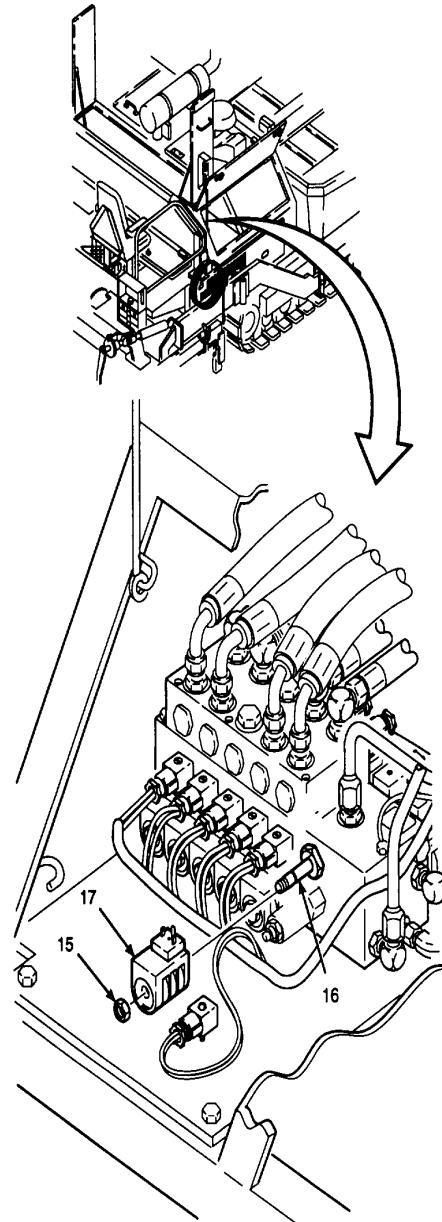
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- b. Clean threads of electrical coil armature (16) with thread locking compound solvent.
- c. Install electrical coil (17) onto electrical coil armature (16).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- d. Apply thread locking compound to threads of electrical coil armature (16).



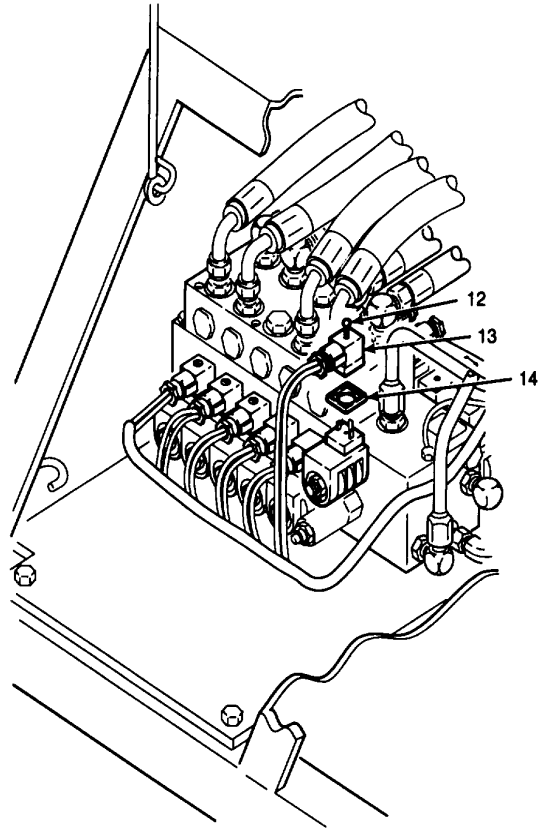
- e. Install hex nut (15) onto electrical coil armature (16). Tighten to 14 lb-in (1,6 N•m).

GO TO NEXT PAGE

13.5. REPLACE HIGH SPEED SHIFT AND BRAKE VALVE SOLENOID ASSEMBLIES AND STACK VALVE ELECTRICAL COILS - Continued.

B. INSTALL - Continued.

- f. Apply electrical insulating compound to spade terminals on electrical coil.
- g. Install moisture seal (14) and connector (13).
- h. Install screw (12).

**NOTE****FOLLOW-ON-TASKS:**

Close right access door per TM 5-3895-373-10.
Close center top left access door per TM 5-3895-373-10.
Close center top right access door per TM 5-3895-373-10.

END OF TASK

13.6. REPLACE HYDRAULIC RETURN FILTER ASSEMBLY.

This task covers: a. Remove b. Install

INITIAL SETUPTools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Bench vise (Item 55, Appendix E)
Combination wrench (Item 58, Appendix E)
Drip pan (Item 28, Appendix E)
Oil filter removal tool (Item 36, Appendix E)
Torque wrench (Item 68, Appendix E)

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Hydraulic fitting sealant (Item 21, Appendix C)
Hydraulic oil (Item 18, Appendix C)
Lint-free cloth (Item 8, Appendix C)
Machinery wiping towels (Item 30, Appendix C)
Pipe sealant (Item 22, Appendix C)
Protective caps (Item 5, Appendix C)
Tags (Item 27, Appendix C)
Thread locking compound (Item 13, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Hydraulic return filter assembly
Lockwashers

Personnel Required:

Two 62B construction equipment repairers. Second person required to hold hydraulic return filter assembly during removal and installation of hydraulic hoses.

References:

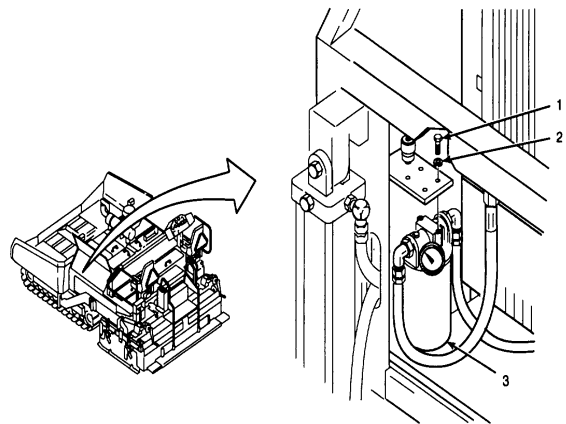
TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Left access door opened per TM 5-3895-373-10.
Left access cover removed per TM 5-3895-373-10.

A. REMOVE.**1. REMOVE HYDRAULIC RETURN FILTER ASSEMBLY WITH ELBOWS.**

- a. Remove bolts (1) and lockwashers (2). Discard lockwashers.
- b. Pull hydraulic return filter assembly (3) out toward center of access cover opening.



GO TO NEXT PAGE

13.6. REPLACE HYDRAULIC RETURN FILTER ASSEMBLY - Continued.

A. REMOVE - Continued.

WARNING

Cleaning solvent, P-D-680, is **TOXIC** and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°C).

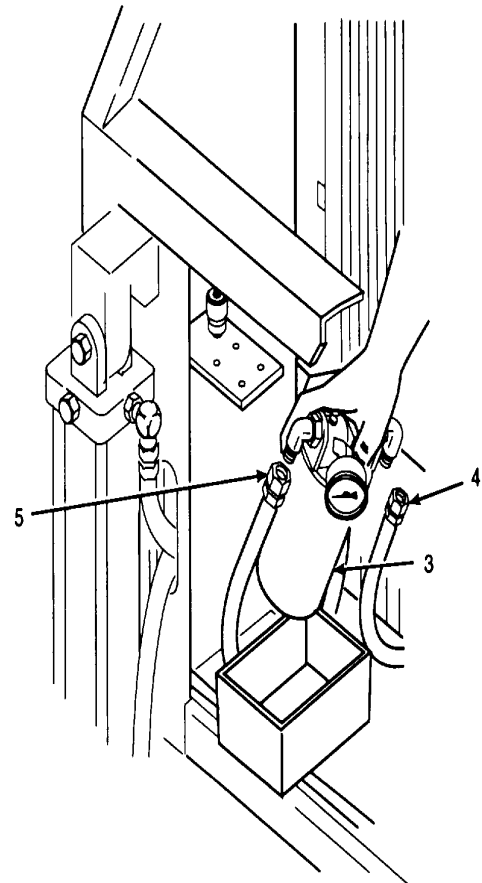
Failure to do so may result in injury or death to personnel. If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- c. Clean hydraulic hose ends and fittings with cleaning solvent and lint-free cloth.
- d. Place machinery wiping towels under hydraulic return filter assembly (3).
- e. Place drip pan under hydraulic return filter assembly (3).

WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

- f. With the help of another person, tag and unscrew hydraulic hoses (4 and 5) with a combination wrench. Drain hydraulic oil from hydraulic return filter assembly into drip pan. Dispose of hydraulic oil and contaminated machinery wiping towels in accordance with local procedures.
- g. Plug hydraulic hoses to prevent contamination.



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A. REMOVE - Continued.
2. REMOVE ELBOWS, PIPE BUSHINGS, AND PRESSURE GAUGE.

- a. Remove pressure gauge (6) and elbow (7).



Filter head is aluminum and may be damaged if excessive pressure is used when clamping in a vise. Use only enough pressure to keep filter head from turning.

- b. Carefully place hydraulic return filter assembly (3) in a vise. Filter head is aluminum and may be damaged by clamping.
- c. Hold pipe bushings (8) with open end wrench. Remove elbows (9). Remove pipe bushings. Discard hydraulic return filter assembly.

B. INSTALL.

1. INSTALL PIPE BUSHINGS, ELBOWS, AND PRESSURE GAUGE.

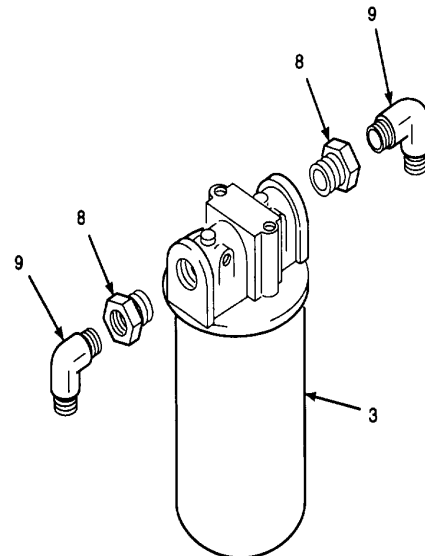
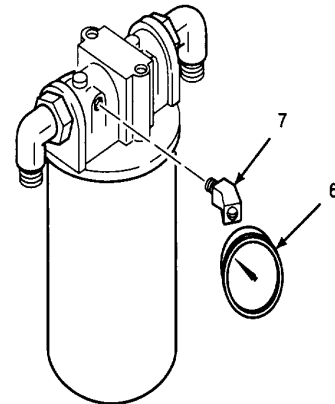
- a. Use cleaning cloth to wipe residue from threads of pipe bushings (8) and elbows (9).
- b. Carefully place hydraulic return filter assembly (3) in a bench vise. Filter head is aluminum and may be damaged by clamping.



Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- c. Apply pipe sealant to male threads of pipe bushings (8). Install pipe bushings onto both sides of hydraulic return filter assembly (3). Tighten pipe bushings.

- d. Apply pipe sealant to male pipe threads of elbows (9). Hold pipe bushings (8) with a wrench and install elbows on both sides of hydraulic return filter assembly (3). Elbows should point straight down when fully tightened.



GO TO NEXT PAGE

13.6. REPLACE HYDRAULIC RETURN FILTER ASSEMBLY - Continued.

B. INSTALL - Continued.

CAUTION

Do not use pressure gauge supplied with new replacement hydraulic return filter assembly. Reuse pressure gauge removed from old filter assembly, or use correct pressure gauge obtained from supply system.

- e. Use cleaning cloth to wipe residue from threads of elbow (7) and pressure gauge (6).

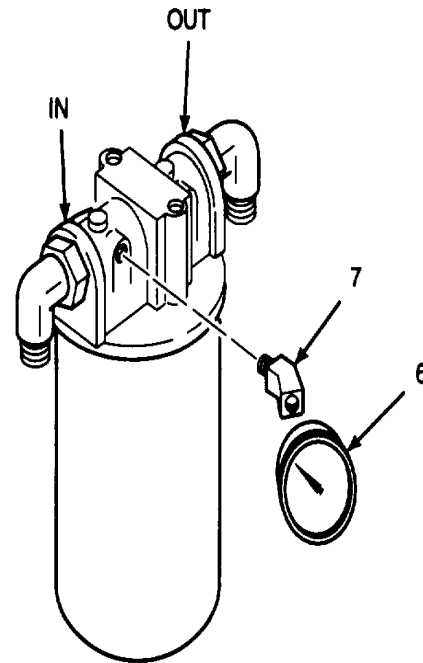
WARNING

Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

CAUTION

Ensure pipe plug is installed on the IN port side of hydraulic return filter head opposite the pressure gauge port.

- f. Apply pipe sealant to male threads of elbow (7). Install elbow into filter head near the IN port. Elbow should point out at an angle toward the left access cover opening.
- g. Apply pipe sealant to male threads of pressure gauge (6). Thread pressure gauge into elbow (7). Ensure the pipe plug is installed opposite the pressure gauge.



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- B. **INSTALL - Continued.**
2. **INSTALL HYDRAULIC RETURN FILTER ASSEMBLY.**

WARNING

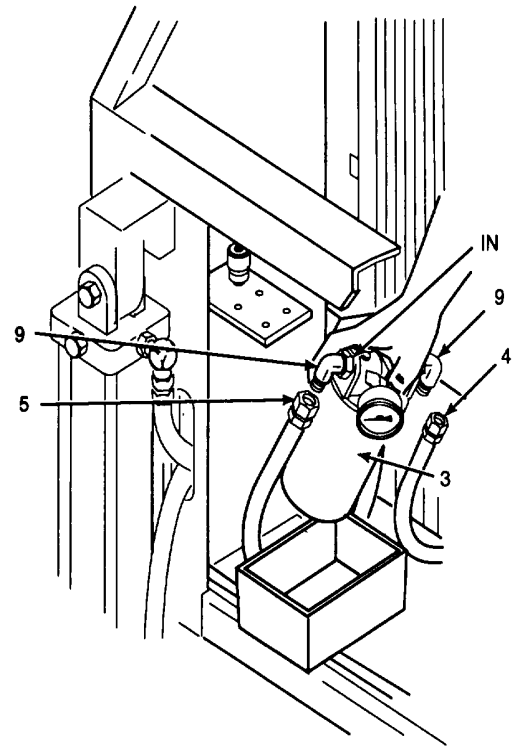
Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- a. Apply hydraulic fitting sealant to threads of elbows (9).

CAUTION

Orient the hydraulic return filter assembly so that the IN port will be facing toward the outside of the paving machine and the pressure gauge is facing toward the operator platform. Filter will not operate properly and system damage could occur if the filter is installed backward.

- b. Orient hydraulic return filter assembly (3) so the IN port is facing the outside of the paving machine.
- c. With the help of another person, position the hydraulic return filter assembly into the access cover opening and install hydraulic hoses (4 and 5). Tighten hoses with a combination wrench.



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13.6. REPLACE HYDRAULIC RETURN FILTER ASSEMBLY - Continued.

B. INSTALL - Continued.

WARNING

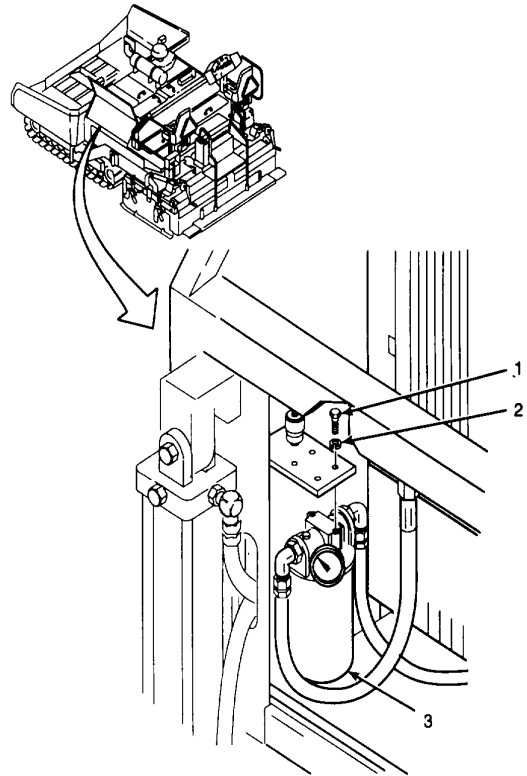
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water get immediate medical attention.

- d. Clean threads of bolts (1) with thread locking compound solvent. Dry with a lint-free cloth.
- e. Install lockwashers (2) onto bolts (1).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water get immediate medical attention.

- f. Apply thread locking compound to threads of bolts (1).
- g. Secure hydraulic return filter assembly (3) with bolts (1).
- h. Tighten bolts to 14 lb-ft (19 N•m).



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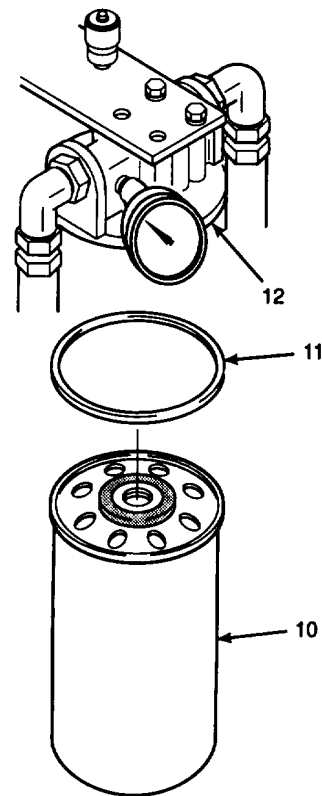
B. INSTALL - Continued.

- i. Use an oil filter removal tool to remove hydraulic return filter element (10).

WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

- j. Coat gasket (11) with clean hydraulic oil. Place gasket on hydraulic return filter head (12).
- k. Fill hydraulic return filter element (10) with hydraulic oil. Allow time for filter element to absorb hydraulic oil. Repeat until filter element is full.
- l. Install hydraulic return filter element (10). Tighten hand tight plus 3/4 of a turn with oil filter removal tool.

**NOTE****FOLLOW-ON-TASKS:**

Add hydraulic oil per TM 5-3895-373-10.
 Install left access cover per TM 5-3895-373-10.
 Close left access door per TM 5-3895-373-10.

END OF TASK

13.7. REPAIR HYDRAULIC RESERVOIR.

This task covers: a. Remove b. Install

INITIAL SETUPTools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Crowbar (Item 12, Appendix E)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Hydraulic fitting sealant (Item 21, Appendix C)
Hydraulic oil (Item 18, Appendix C)
Lint-free cloth (Item 8, Appendix C)
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Filler assembly
Lockwashers
Machine screws
Sight liquid indicator

Equipment Condition:

Center top right access door open per TM 5-3895-373-10.
Right access door open per TM 5-3895-373-10.
Right access cover removed per TM 5-3895-373-10.

GO TO NEXT PAGE

- A. REMOVE.
1. REMOVE FILLER ASSEMBLY.

WARNING

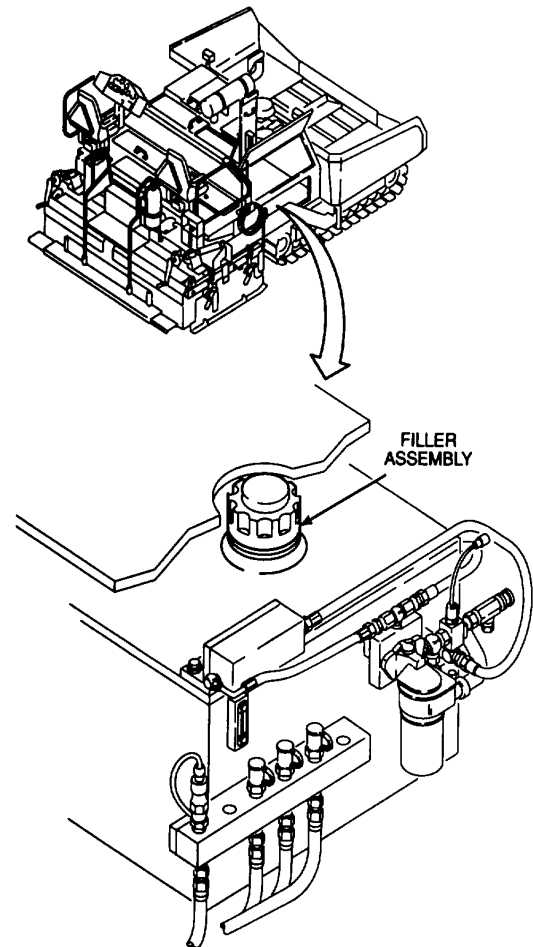
Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles and gloves. Use only in a well ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type m cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

CAUTION

Cleanliness is extremely important when working around an open hydraulic system. Ensure that the area around the filler assembly is clean and free of debris prior to removal. Failure to do so could contaminate the hydraulic system and cause component damage.

- a. Clean exposed surfaces of filler assembly and surrounding area with a clean lint-free cloth soaked in cleaning solvent. Dry area with a clean lint-free cloth.



GO TO NEXT PAGE

13.7. REPAIR HYDRAULIC RESERVOIR- Continued.

A. REMOVE - Continued.



Do not allow any parts or material to fall into hydraulic reservoir. Debris may contaminate hydraulic oil or clog system.

Cleanliness is extremely important when working around an open hydraulic system. Ensure that the area around the sight liquid indicator is clean and free of debris prior to removal. Failure to do so could contaminate the hydraulic system and cause component damage.

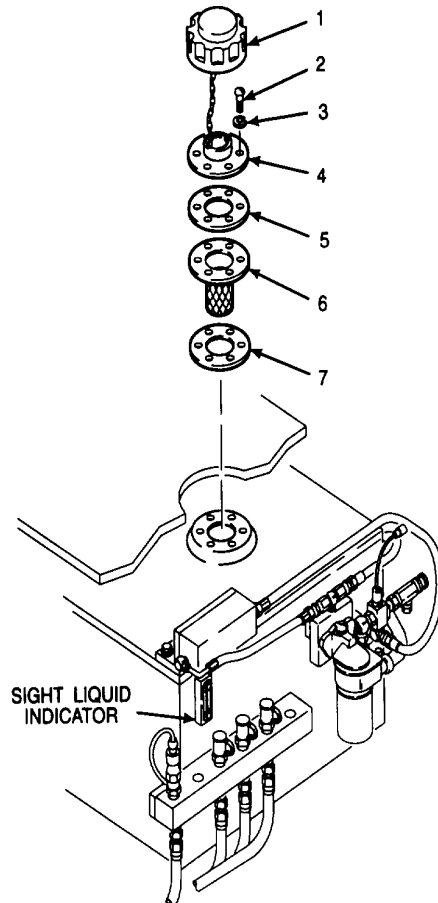
- b. Remove hydraulic reservoir cap (1).
- c. Remove machine screws (2) and lockwashers (3). Discard lockwashers. Be sure to save machine screws for reuse at installation of new filler neck.
- d. Remove and discard used filler neck (4), gasket (5), strainer (6), and gasket (7).

2. REMOVE SIGHT LIQUID INDICATOR.



Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 m cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.



- a. Clean exposed surfaces of sight liquid indicator and surrounding area with a clean lint-free cloth soaked in cleaning solvent. Dry area with a clean lint-free cloth.

GO TO NEXT PAGE

A. REMOVE - Continued.

WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

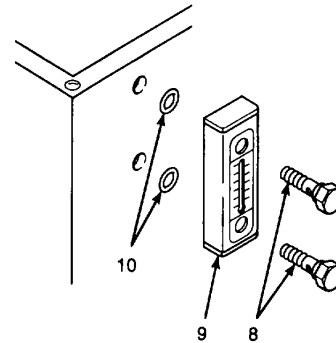
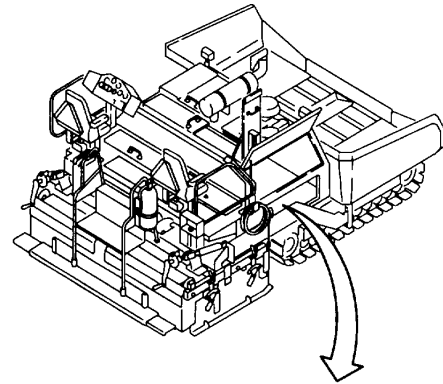
- b. Check hydraulic oil level at sight liquid indicator. Hydraulic oil must be below sight liquid indicator. If necessary, drain oil until level falls below the sight liquid indicator level. Refer to paragraph 2.23.8. Dispose of hydraulic oil in accordance with local procedures.
- c. Remove hex head cap screws (8). Discard hex head cap screws.

CAUTION

Do not allow any parts or material to fall into hydraulic reservoir. Debris may contaminate hydraulic oil or clog system.

- d. Remove and discard sight liquid indicator (9) and preformed packings (10).

- e. Wipe off sight liquid indicator mounting surface with lint-free cloth.



GO TO NEXT PAGE

13.7. REPAIR HYDRAULIC RESERVOIR - Continued.

B. INSTALL.

1. INSTALL FILLER ASSEMBLY.

- a. With mounting holes lined up, install gasket (7), strainer (6), gasket (5), and filler neck (4).



Do not use metric machine screws that come with new filler assembly. Reuse machine screws removed from reservoir or obtain correct screws from supply system.

- b. Discard metric screws supplied with new filler assembly.



Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

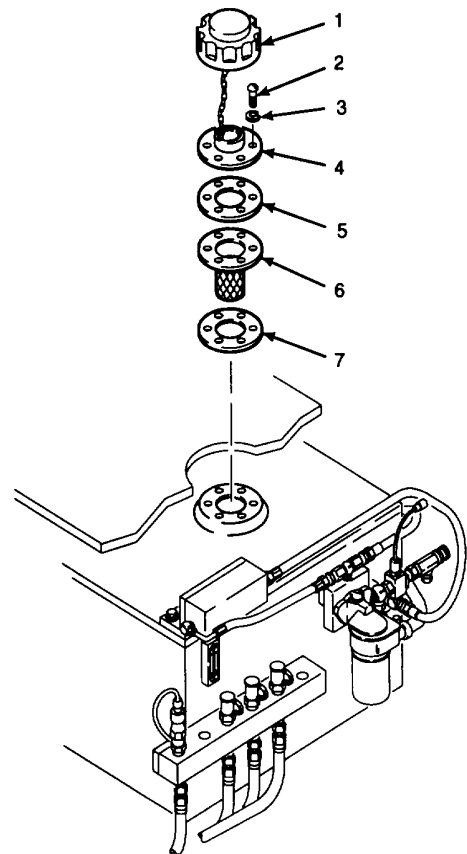
- c. Use a cleaning cloth soaked in thread locking compound solvent to clean the threads of machine screws (2).
- d. Install lockwashers (3) onto machine screws (2).



Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound

contacts eyes, flush eyes with water and get immediate medical attention.

- e. Apply thread locking compound to machine screws (2).
- f. Install machine screws (2). Evenly tighten machine screws.
- g. Install hydraulic reservoir cap (1).



GO TO NEXT PAGE

- B. INSTALL - Continued.
- 2. INSTALL SIGHT LIQUID INDICATOR.

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- a. Apply hydraulic fitting sealant to leading threads of hex head cap screws (8).

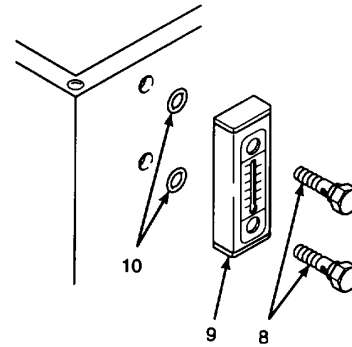
WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

NOTE

Discard flat washers and hex nuts supplied with sight liquid indicator. Flat washers and hex nuts are not used in this application.

- b. Lubricate preformed packing (10) with clean hydraulic oil. Install preformed packing and sight liquid indicator (9).



- c. Install hex head cap screws (8). Tighten evenly.
- d. Add oil to hydraulic reservoir until proper fluid level is seen in the sight liquid indicator per TM 5-3895-373-10.

NOTE

FOLLOW-ON-TASKS:

Install right access cover per TM 5-3895-373-10.
 Close right access door per TM 5-3895-373-10.
 Close center top right access door per TM 5-3895-373-10.

END OF TASK

CHAPTER 14

BURNER MAINTENANCE

	Para	Page
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Replace Burner and Fuel Spray Fuel Pump and Motor.....	14.2	14-2
Replace Burner Glow Plug	14.7	14-57
Replace/Repair Blower Motor.....	14.8	14-59
Replace/Repair Burner and Fuel Spray Fuel Filter Assembly.....	14.3	14-9
Replace/Repair Burner Fuel Solenoid Valve.....	14.6	14-50
Replace Scred Fuel System Hoses and Fittings	14.4	14-15

14.1. GENERAL MAINTENANCE PROCEDURES.

All unit level maintenance shall be performed in accordance with good and safe shop practices. Observe the following general instructions and requirements when performing screed burner maintenance.

a. Areas of the paving machine exposed to paving material buildup require cleaning prior to disassembly. Use hammers, chisels, and scrapers to remove thickest sections of buildup. If available, use heater gun to soften deposits adhering to components; remove softened buildup with putty knife. When heating paving material, keep second person with fire extinguisher at hand and avoid overheating. If heater gun is not available, use solvent or fuel washdown system to soften paving material.

b. Thoroughly clean hoses and fittings before disconnecting. Always plug or cap off disconnected fittings to prevent dirt and contaminants from entering the system. Failure to clean hoses and fittings and to plug or cap open fittings may result in system contamination and equipment damage.

c. Always tag mating connectors and fittings before disconnecting. Tagging of mating connectors and fittings will ease reassembly and reduce assembly errors.

d. Use a backup wrench when loosening or tightening inline fittings. Using a backup wrench will prevent unnecessary damage to attached lines and/or smaller fittings.

e. When removing tie wraps from hoses and

wiring, note or mark locations and anchor points. The proper location and installation of tie wraps will prevent undue chafing of hoses and wiring.

f. Thread locking compound is used with most threaded fasteners. If a threaded fastener will not break loose, heat threaded area of fastener from 500° to 600°F (232° to 315°C) with heater gun. If the special solvent used to remove thread locking compound from screw threads fails to remove buildup, discard fastener.

g. Inspect removed components for wear or damage. Replace damaged parts. Replace used lockwashers, selflocking nuts, seals, gaskets, and preformed packings.

h. Inspect all removed fasteners for thread damage. If thread damage is found, replace fastener. Replace flat washers if galled or bent. Use screw extractor set (Item 15, Appendix E) to remove broken studs or screws.

i. Use only authorized replacement parts. Refer to TM 53895-373-24P, Repair Parts and Special Tools List (RPSTL) for authorized replacement parts.

j. Torque values cited in the text apply to modified SAE Grade 8 fasteners at required clamping loads.

k. Observe all warnings and cautions. Wear protective clothing and equipment as specified. Observe the Safety and Hazard Warnings provided in TACOM technical bulletin TB 43-0216.

14.2. REPLACE BURNER AND FUEL SPRAY FUEL PUMP AND MOTOR.

This task covers: a. Remove b. Install

INITIAL SETUPTools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Torque wrench (Item 68, Appendix E)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Rear top right access door open per TM 5-3895-373-10.

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Electrical insulating compound (Item 11, Appendix C)
Electrical insulating varnish (Item 32, Appendix C)
Hydraulic fitting sealant (Item 21, Appendix C)
Lint-free cloth (Item 8, Appendix C)
Machinery wiping towels (Item 30, Appendix C)
Pipe sealant (Item 22, Appendix C)
Protective caps (Item 5, Appendix C)
Tags (Item 27, Appendix C)
Thread locking compound (Item 13, Appendix C)
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Lockwashers

GO TO NEXT PAGE

A. REMOVE.

NOTE

Fuel pump and motor may be replaced individually. If replacing these items individually, it is not necessary to disassemble the complete fuel pump and motor assembly.

1. REMOVE FUEL PUMP AND MOTOR ASSEMBLY.

- a. Remove toolbox (1).
- b. Disconnect electrical connector (2).

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

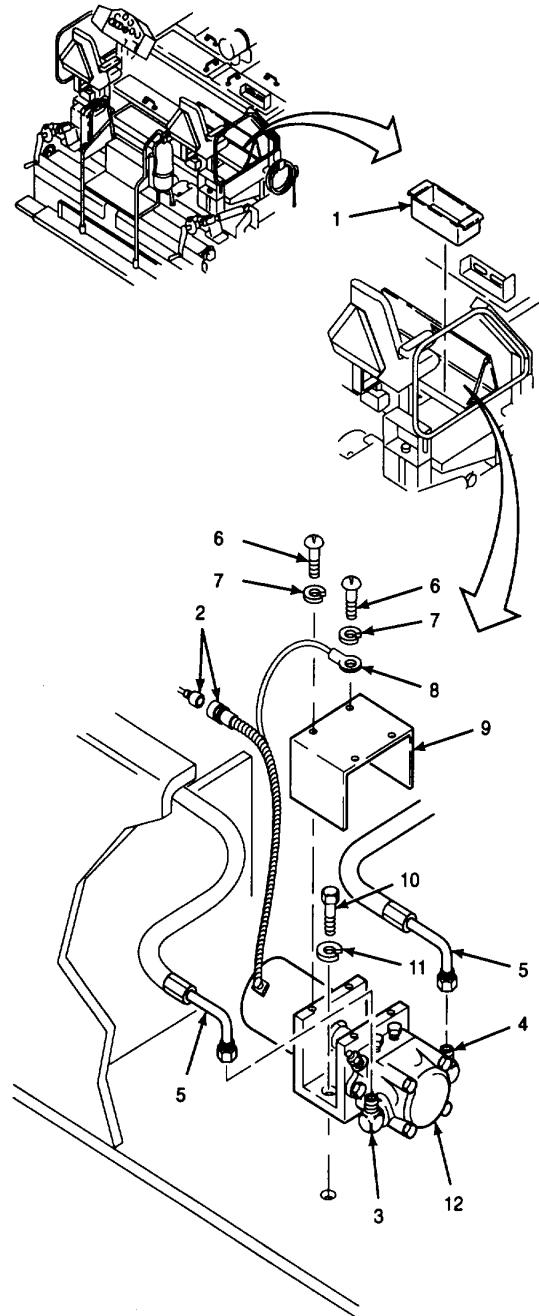
Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- c. Place machinery wiping towel below elbows (3 and 4). Tag and disconnect hoses (5) from elbows. Plug hoses with protective caps.
- d. Wipe up any spilled fuel with machinery wiping towel. Dispose of towel in accordance with local procedures.
- e. Remove machine screw (6) and lockwasher (7) securing lead wire (8). Discard lockwasher.

- f. Remove remaining machine screws (6) and lockwashers (7). Remove cover plate (9). Discard lockwashers.
- g. Remove hex head cap screws (10) and lockwashers (11). Remove fuel pump and motor assembly (12). Discard lockwashers.



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14.2. REPLACE BURNER AND FUEL SPRAY FUEL PUMP AND MOTOR - Continued.

A. REMOVE - Continued.

2. REMOVE MOTOR FROM MOUNTING BRACKET.

- a. Remove hex nuts (13) securing motor (14) to mounting bracket (15). Remove motor.
- b. Loosen set screw (16) and remove coupling body (17) from motor (14).

NOTE

Neoprene insert (18) may remain with either motor coupling body or fuel pump coupling body.

- c. Remove neoprene insert (18) from coupling body (17).

3. REMOVE FUEL PUMP FROM MOUNTING BRACKET.

- a. Remove hex head cap screws (19) and hex nuts (20) securing fuel pump (21) to mounting bracket (15). Remove fuel pump.
- b. Loosen set screw (22) and remove coupling body (23) from fuel pump (21).
- c. Remove elbows (3 and 4) from fuel pump.

B. INSTALL.

1. INSTALL FUEL PUMP ONTO MOUNTING BRACKET.

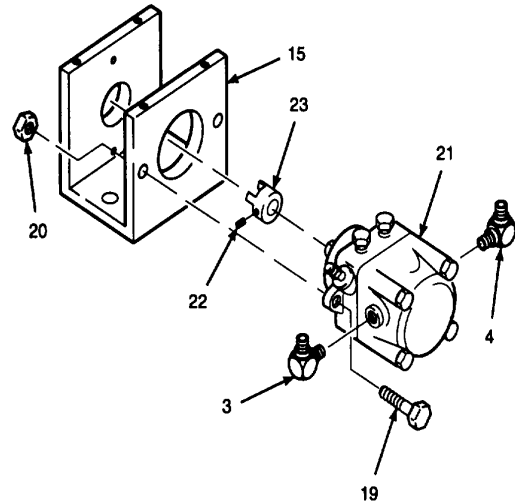
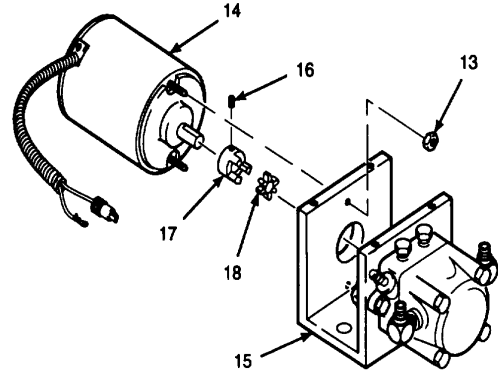
- a. Use cleaning cloth to wipe residue from threads of elbows (3 and 4).

WARNING

Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes,

flush eyes with water and get immediate medical attention.

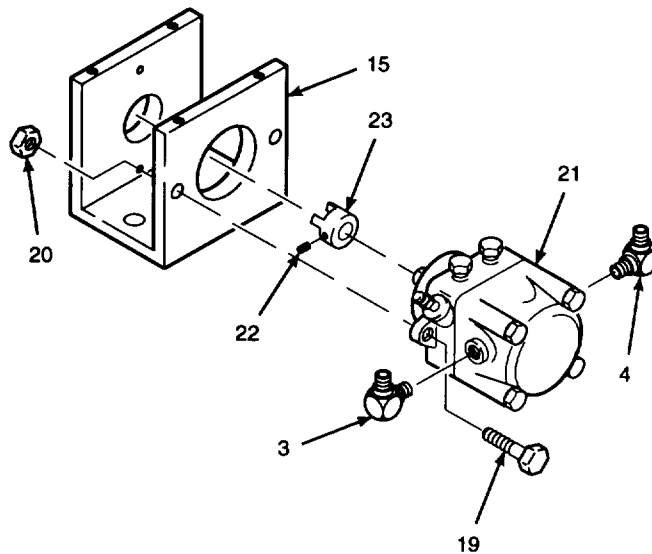
- b. Apply pipe sealant to pipe threads of elbows (3 and 4).



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B. INSTALL - Continued.

- c. Install elbows (3 and 4) onto fuel pump (21). Position elbows so that when fully tightened they point straight up.
- d. Install coupling body (23) onto fuel pump (21) shaft. Make sure that coupling body set screw (22) aligns with flat on pump shaft; tighten set screw.



WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- e. Clean threads of hex head cap screws (19) with thread locking compound solvent. Dry threads with lint-free cloth.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- f. Apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screws (19).
- g. Position fuel pump (21) onto mounting bracket (15). Secure with hex head cap screws (19) and hex nuts (20).
- h. Tighten hex nuts (20) to 37 lb-ft (50 N•m).

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14.2. REPLACE BURNER AND FUEL SPRAY FUEL PUMP AND MOTOR - Continued.

B. INSTALL - Continued.

2. INSTALL MOTOR.

- a. Place coupling body (17) onto motor (14) shaft. Make sure that coupling body set screw (16) aligns with flat on motor shaft; tighten set screw.
- b. Insert neoprene insert (18) into coupling body (17).

WARNING

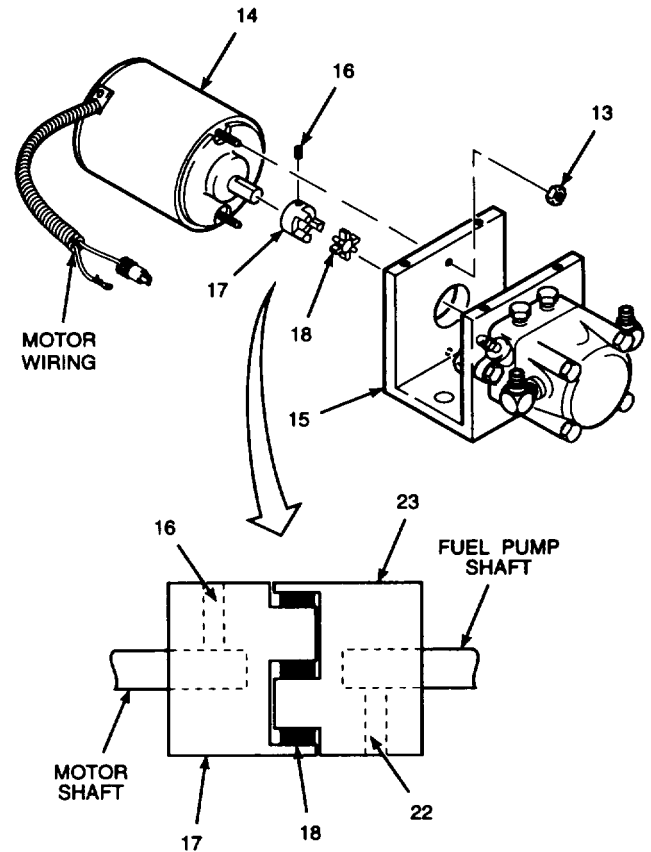
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- c. Clean threads of motor (14) studs with thread locking compound solvent. Dry threads with lint-free cloth.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- d. Apply thread locking compound (Item 13, Appendix C) to threads of motor (14) studs.
- e. Position motor (14) onto mounting bracket (15). Make sure motor wiring is positioned as shown. Rotate coupling body (17) by hand to align neoprene insert (18) with fuel pump coupling body. Secure motor to mounting bracket with hex nuts (13). Tighten hex nuts.
- f. Visually inspect coupling bodies (17 and 23) and neoprene insert (18) to ensure complete engagement of components. If necessary, loosen set screws (16 and 22) to adjust properly.

**GO TO NEXT PAGE**

- B. INSTALL - Continued.
- 3. INSTALL FUEL PUMP AND MOTOR ASSEMBLY.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean threads of hex head cap screws (10) with thread locking compound solvent. Dry threads with lint-free cloth.
- b. Install lockwashers (11) onto hex head cap screws (10).

WARNING

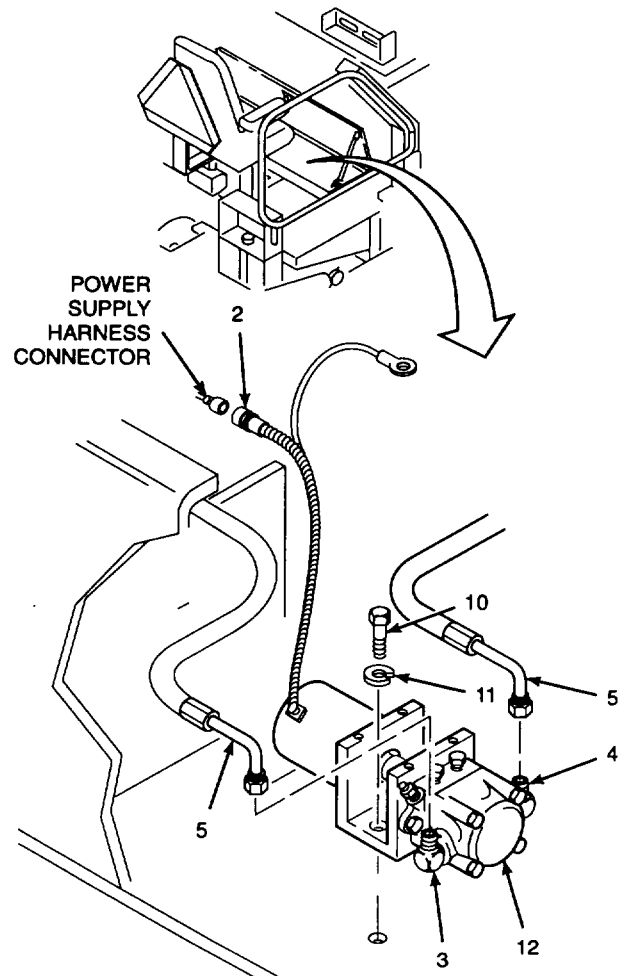
Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- c. Apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screws (10).
- d. Place fuel pump and motor assembly (12) into position in paving machine. Secure with hex head cap screws (10). Tighten cap screws to 37 lb-ft (50 N•m).

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- e. Apply hydraulic fitting sealant to threads of elbows (3 and 4).



- f. Connect hoses (5) to elbows (3 and 4). Tighten hoses.
- g. Apply electrical insulating compound to male end of electrical connector (2) and plug into power supply harness connector.

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14.2. REPLACE BURNER AND FUEL SPRAY FUEL PUMP AND MOTOR - Continued.

B. INSTALL - Continued.

4. INSTALL COVER PLATE.

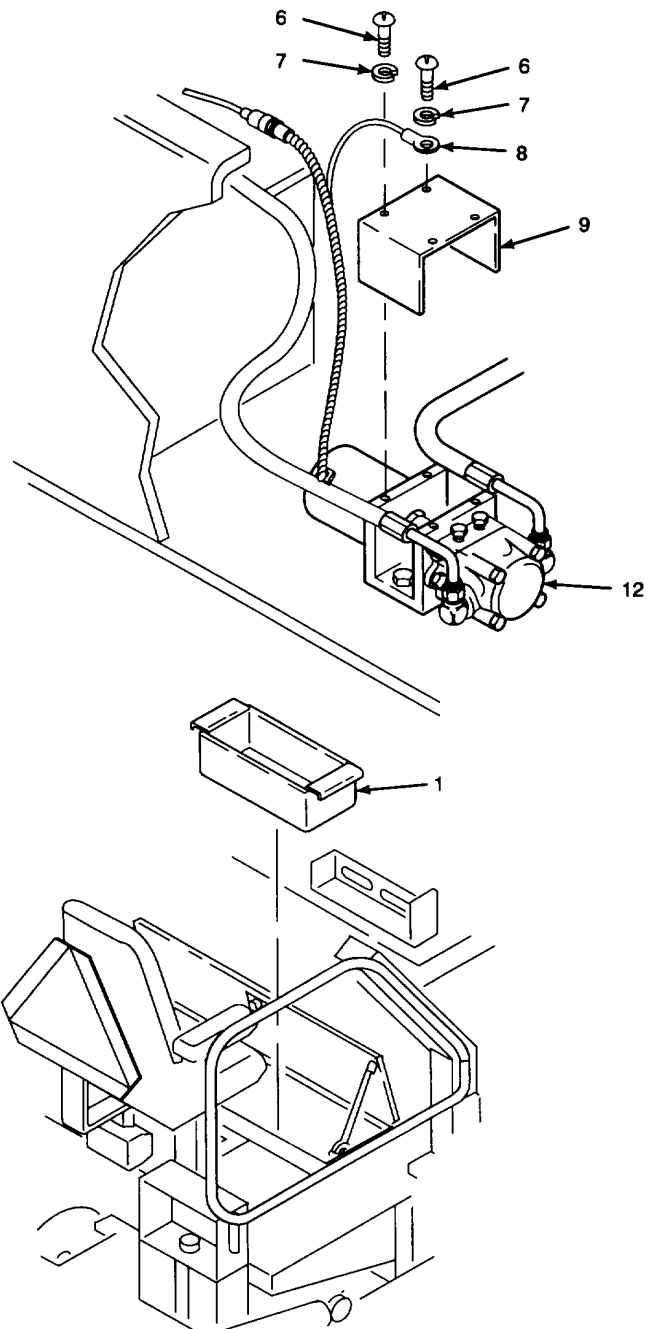
- a. Install cover plate (9) onto fuel pump and motor assembly (12). Secure with three machine screws (6) and lockwashers (7). One cover plate screw will not be installed at this time.
- b. Position lead wire (8) over remaining cover plate (9) hole and secure with machine screw (6) and lockwasher (7).

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- c. Apply electrical insulating varnish to lead wire (8) and machine screw (6).

5. REPLACE TOOLBOX (1).

**NOTE****FOLLOW-ON-TASKS:**

Close rear top right access door per TM 5-3895-373-10.
Bleed screeed fuel system per paragraph 2.23.11.

END OF TASK

14.3. REPLACE/REPAIR BURNER AND FUEL SPRAY FUEL FILTER ASSEMBLY.

This task covers: a. Remove b. Repair c. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Drip pan (Item 28, Appendix E)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Rear top left access door open per TM 5-3895-373-10.

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
JP8 fuel (Item 14, Appendix C)
Hydraulic fitting sealant (Item 21, Appendix C)
Machinery wiping towels (Item 30, Appendix C)
Pipe sealant (Item 22, Appendix C)
Protective caps (Item 5, Appendix C)
Tags (Item 27, Appendix C)
Filter element
Gaskets

GO TO NEXT PAGE

14.3. REPLACE/REPAIR BURNER AND FUEL SPRAY FUEL FILTER ASSEMBLY - Continued.

A. REMOVE.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

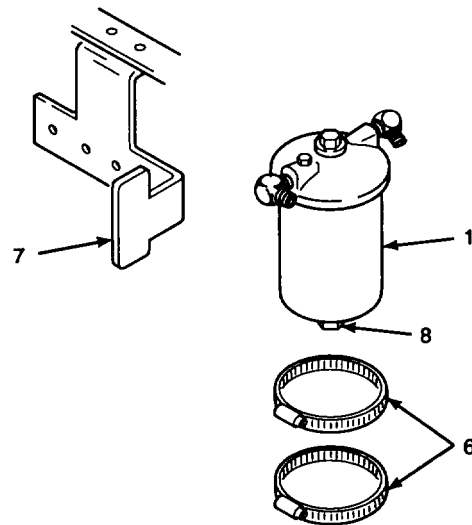
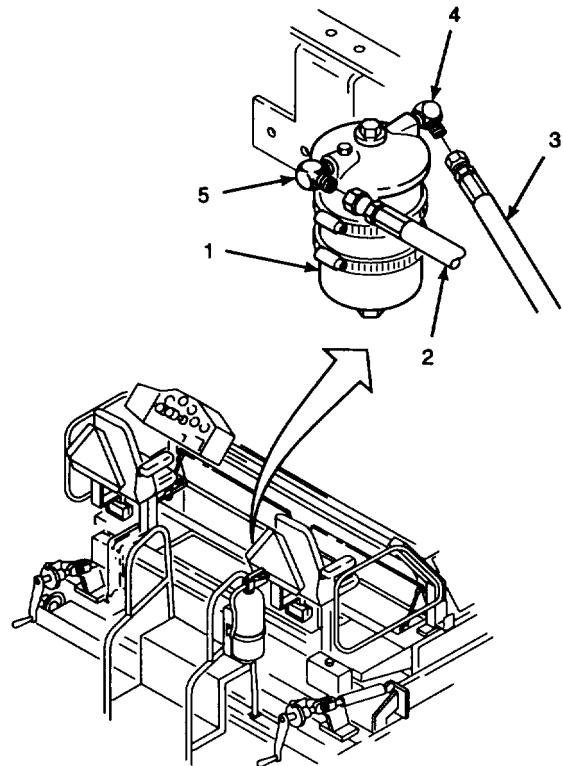
Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

1. DISCONNECT FUEL FILTER HOSES.

- a. Place a machinery wiping towel under fuel filter assembly (1).
- b. Tag fuel filter hoses (2 and 3). Remove fuel filter hoses from elbows (4 and 5).
- c. Plug hoses.

2. REMOVE FUEL FILTER ASSEMBLY.

- a. Loosen hose clamps (6) and remove fuel filter assembly (1) from mounting bracket (7).
- b. Loosen spud bolt (8) and drain fuel from fuel filter assembly (1) into drip pan (Item 23, Appendix E).
- c. Dispose of fuel in accordance with local procedures.



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- B. REPAIR.
1. DISASSEMBLE FUEL FILTER COMPONENTS.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

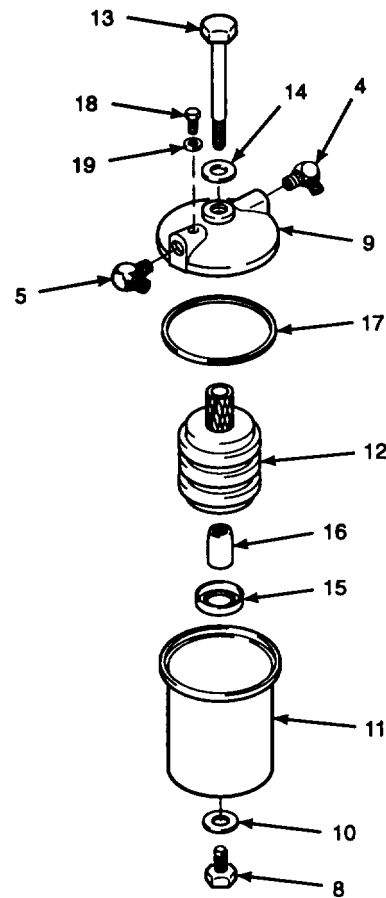
Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- a. Remove elbows (4 and 5) from filter head (9).

NOTE

Center bolt (13) and spud bolt (8) are both screwed into center spud (16). It may be necessary to hold center bolt when removing spud bolt.

- b. Hold filter and remove spud bolt (8), gasket (10), and filter bowl (11). Discard gasket.
- c. Hold filter element (12) and remove center bolt (13), gasket (14), seal (15), and center spud (16). Discard gasket. Discard fluid filter element and any remaining fuel in accordance with local procedures.
- d. Remove filter head gasket (17) from filter bowl (11).
- e. Remove vent screw (18) and vent gasket (19). Discard vent gasket.



14.3. REPLACE/REPAIR BURNER AND FUEL SPRAY

B. REPAIR - Continued.

2. ASSEMBLE FUEL FILTER COMPONENTS.

- a. Seat filter element (12) on center spud (16) and seal (15) and place in filter bowl (11). Secure filter element in place with gasket (10) and spud bolt (8). Tighten spud bolt as tight as possible with fingers.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

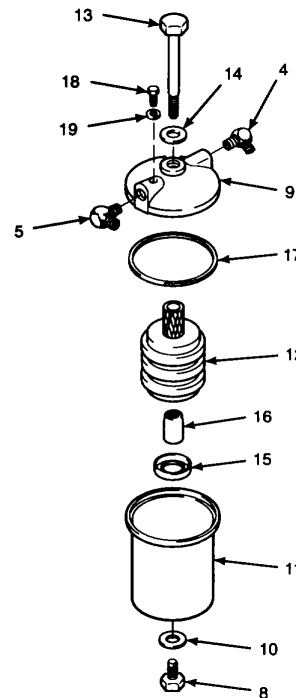
Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- b. Coat filter head gasket (17) with clean fuel and place on filter bowl (11).
- c. Squarely seat filter bowl (11) onto filter head (9). Secure with gasket (14) and center bolt (13).

CAUTION

Ensure that center spud (16) is seated in the bottom of filter bowl (11) or filter element (12) may be smashed.

- d. Hold filter and tighten spud bolt (8) then tighten center bolt (13).
- e. Install vent gasket (19) and vent screw (18) and tighten vent screw.
- f. Use cleaning cloth to wipe residue from threads of elbows (4 and 5).



WARNING

Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- g. Apply a light coating of pipe sealant to pipe threads of elbows (4 and 5). Ensure pipe sealant is used sparingly so as not to clog fuel hoses or other fuel components.
- h. Install pipe thread side of elbows (4 and 5) into filter head (9). Tighten elbows so that they are both pointed in the direction shown. Refer to illustration.

- C. INSTALL.
1. INSTALL FUEL FILTER ASSEMBLY.
 - a. Install fuel filter assembly (1) on mounting bracket (7).
 - b. Secure with hose clamps (6).
 2. CONNECT FUEL FILTER HOSES.

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- a. Apply hydraulic fitting sealant to threads of elbows (4 and 5).

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

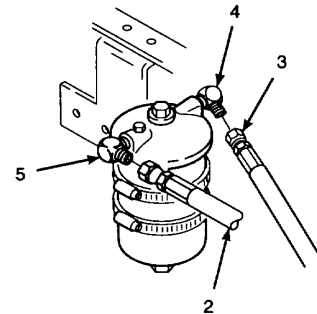
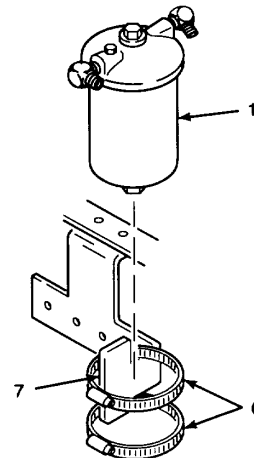
Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- b. Connect fuel filter hoses (2 and 3) to elbows (4 and 5) and tighten hose.



NOTE

FOLLOW-ON-TASKS: Bleed burner and fuel spray fuel system per paragraph 2.23.11. Close rear top left access door per TM 5-3895-373-10.

END OF TASK

14.4. REPLACE SCREED FUEL SYSTEM HOSES AND FITTINGS.

This task covers: a. Remove b. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Drip pan (Item 28, Appendix E)
Torque wrench (Item 68, Appendix E)
Utility pails, 2 ea. (Item 26, Appendix E)

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Hydraulic fitting sealant (Item 21, Appendix C)
Machinery wiping towel (Item 30, Appendix C)
Pipe sealant (Item 22, Appendix C)
Protective caps (Item 5, Appendix C)
Thread locking compound (Item 13, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Tie wraps (Item 29, Appendix C)
Self-locking machine screws
Lockwashers

Personnel Required:

Two 62B construction equipment repairers. Second person required to operate fuel spray wand during pump bleed operation.

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Rear top left access door open per TM 5-3895-373-10.
Rear top right access door open per TM 5-3895-373-10.
Front top left access door open per TM 5-3895-373-10.
Fuel tank level drained to no more than 3/4 full per paragraph 2.23.4 (if replacing screed fuel system hoses and fittings).

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14-15

14.4. REPLACE SCREED FUEL SYSTEM HOSES AND FITTINGS - Continued.

A. REMOVE.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when screed burner is hot; fuel can be ignited by a hot burner chamber.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working on screed burner fuel system.

CAUTION

Clean fuel hoses and fittings before disconnecting. Always plug or cap off disconnected fittings to prevent intrusion of contaminants. Failure to properly clean and cap off connectors may result in fuel system contamination and equipment damage.

NOTE

Perform the following removal procedures only as needed to replace faulty or damaged components.

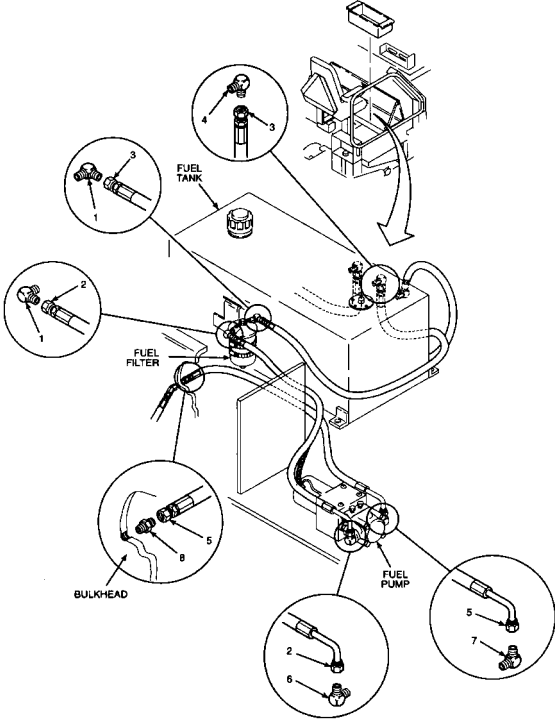
1. REMOVE PUMPING SYSTEM HOSES AND FITTINGS.
 - a. Make sure ignition switch is turned off at the operator control console and that fuel pump switch is turned off at left hand screed control panel per TM 5-3895-37310.
 - b. Place drip pan or dry machinery wiping towel below lower-most fitting of fuel hose to be removed.
 - c. Remove fuel hoses, adapters, and elbows using the illustration and legend as a guide. Remove hoses first, then remove adapters and elbows.
 - d. Drain all residual fuel from disconnected fuel hose into a utility pail. Dispose of drained fuel in accordance with local procedures.
 - e. Cap or plug exposed fuel system hoses and fittings to prevent fuel system contamination.

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A. REMOVE - Continued.

LEGEND

- 1. Elbow
- 2. Fuel hose
- 3. Fuel hose
- 4. Elbow
- 5. Fuel hose
- 6. Elbow
- 7. Elbow
- 8. Straight adapter

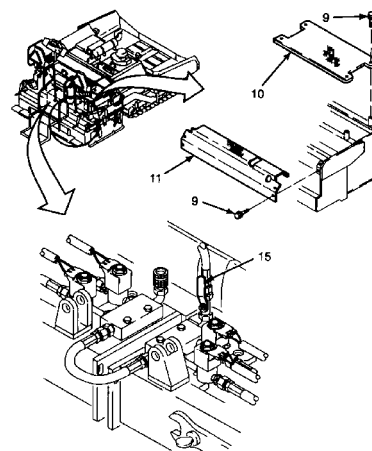


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14.4. REPLACE SCREED FUEL SYSTEM HOSES AN

- A. REMOVE - Continued.
- 2. REMOVE SCREED BURNER FUEL HOSES AND FITTINGS.
 - a. Remove self-locking machine screws (9), cover plate (10), and cover plate (11). Discard machine screws.
 - b. Make sure ignition switch is turned off at the operator control console, and that fuel pump switch is turned off at left hand screed control panel per TM 5-3895-37310.
 - c. If removing fuel hose (12), straight adapter (14), elbow (16), or fuel shutoff valve (15), place machinery wiping towel below elbow (13) and disconnect fuel hose (12). Cap elbow to prevent siphoning and contamination.
 - d. If removing elbow (13), place machinery wiping towels below elbow and disconnect fuel hose (12). Remove elbow (13) and plug bulkhead fitting to prevent siphoning and contamination.
 - e. Turn screed burner fuel shutoff valve (15) to 12 o'clock position at fuel manifold per TM 5-3895373-10.
 - f. Place drip pan or dry machinery wiping towel below lower-most fitting of fuel hose to be removed.
 - g. If removing screed extension fuel hose (19) remove clamp (26) by removing hex head cap screw (23), lockwasher (24), and flat washer (25). Discard lockwasher. Remove clamp from hose.

- h. Cut and remove any tie wraps (22) that are securing fuel hoses being removed.
- i. Remove hoses and adapters using the illustration and legend as a guide. Remove hoses first, then remove adapters and fittings.



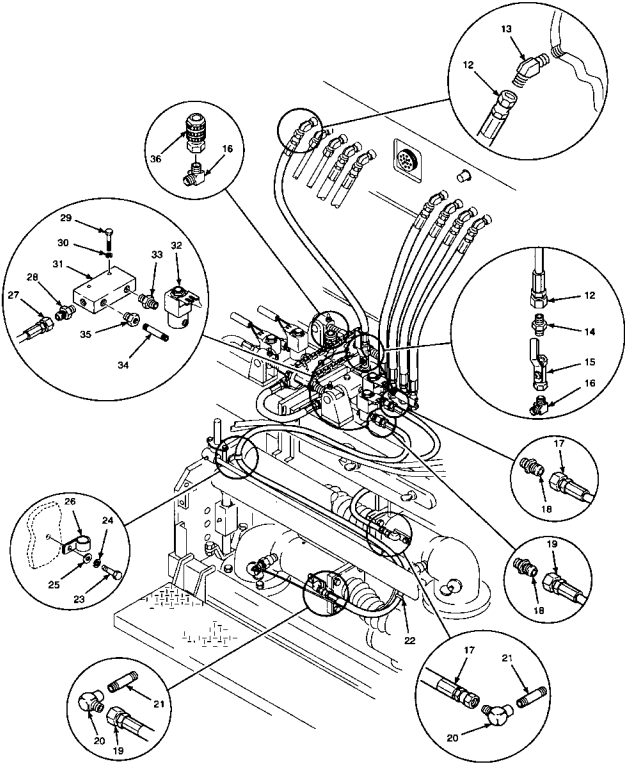
- j. Drain all residual fuel from disconnected fuel hose into a utility pail. Dispose of drained fuel in accordance with local procedures.
- k. Cap or plug exposed fuel system hoses or fittings to prevent fuel system contamination.
- l. In order to remove solenoid valves (32), pipe bushing (35), pipe nipple (34), elbow (16), straight adapter (28), and pipe nipple (33) from fuel manifold (31); first loosen manifold adapters, then remove bolts (29), lockwashers (30), and manifold. Refer to paragraph 14.6 for repair of solenoid valve assemblies.
- m. Cap or plug exposed fuel system hoses and fittings to prevent contamination.

LEGEND

12. Fuel hose	18. Straight adapter	25. Flat washer	31. Fuel manifold
13. Elbow	19. Fuel hose	26. Clamp	32. Solenoid valve
14. Straight adapter	20. Elbow	27. Fuel hose	33. Pipe nipple
15. Screed burner fuel shutoff valve	21. Pipe nipple	28. Straight adapter	34. Pipe nipple
16. Elbow	22. Tie wraps	29. Bolt	35. Pipe bushing
17. Fuel hose	23. Hex head cap screw	30. Lockwasher	36. Quick disconnect coupler
	24. Lockwasher		

A. REMOVE - Continued.

NOTE: RIGHT HAND MAIN AND EXTENSION SCREED BURNER HOSES AND FITTINGS SHOWN HERE. LEFT HAND SCREED BURNER HOSES AND FITTINGS MIRROR THOSE SHOWN, EXCEPT THAT RIGHT HAND HAS THE INLET FUEL HOSE (12) AND SCREED BURNER FUEL SHUTOFF VALVE (15). THE LEFT HAND HAS THE FUEL SPRAY QUICK DISCONNECT COUPLER (36).



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14.4. REPLACE SCREED FUEL SYSTEM HOSES AND FITTINGS - Continued.

B. INSTALL.

1. INSTALL SCREED BURNER FUEL HOSES AND FITTINGS.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush with water and get immediate medical attention.

- a. Clean threads of hex head cap screws and bolts (23 and 29) with thread locking compound solvent.
- b. Use cleaning cloths to wipe residue from threads on all fuel hoses and adapters to be reinstalled.

WARNING

Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

CAUTION

Do not apply pipe sealant to leading threads of adapters or pipe nipples in screed burner system. Seepage of pipe sealant into fuel system may clog fuel nozzle.

NOTE

Adapter pipe thread fittings are coded P in illustration. P-coded fittings require pipe sealant. Adapter hose end fittings are coded H, and require hydraulic fitting sealant.

- c. Apply pipe sealant to P-coded threads of adapters and pipe nipples. Do not apply pipe sealant to leading threads.

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

CAUTION

Do not apply hydraulic fitting sealant to leading threads of adapters. Seepage of hydraulic fitting sealant into fuel system may clog fuel nozzle.

- d. Apply hydraulic fitting sealant to H-coded threads of adapters.
- e. Install pipe nipples and adapters. Position elbows (13 and 20) as shown in the illustration. Tighten all fittings.
- f. Route hoses as shown and connect to adapter fittings. Tighten hose fittings.

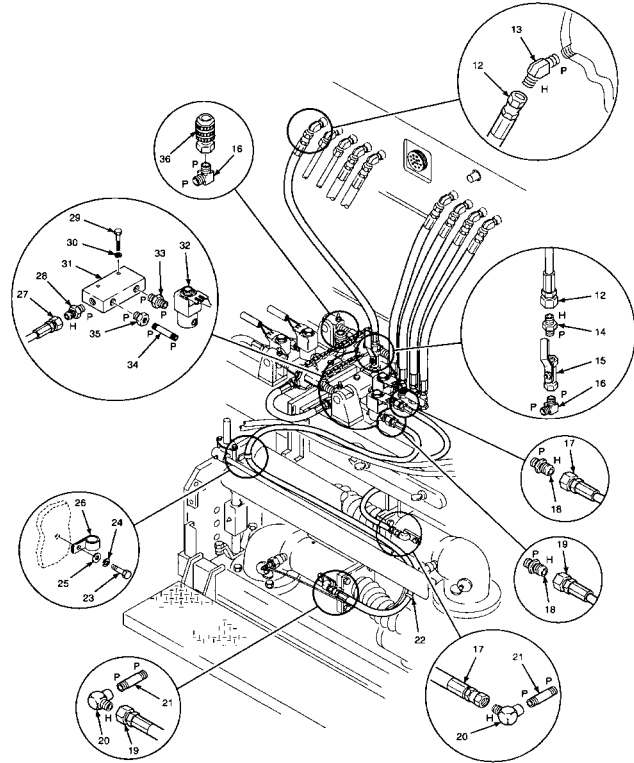
LEGEND

12. Fuel hose	18. Straight adapter	25. Flat washer	32. Solenoid valve
13. Elbow	19. Fuel hose	26. Clamp	33. Pipe nipple
14. Straight adapter	20. Elbow	27. Fuel hose	34. Pipe nipple
15. Screed burner fuel shutoff valve	21. Pipe nipple	28. Straight adapter	35. Pipe bushing
16. Elbow	22. Tie wrap	29. Bolt	36. Quick disconnect coupler
17. Fuel hose	23. Hex head cap screw	30. Lockwasher	
	24. Lockwasher	31. Fuel manifold	

GO TO NEXT PAGE

B. INSTALL - Continued.

NOTE: RIGHT HAND MAIN AND EXTENSION SCREED BURNER HOSES AND FITTINGS SHOWN HERE. LEFT HAND SCREED BURNER HOSES AND FITTINGS MIRROR THOSE SHOWN, EXCEPT THAT RIGHT HAND HAS THE INLET FUEL HOSE (12) AND SCREED BURNER FUEL SHUTOFF VALVE (15). THE LEFT HAND HAS THE FUEL SPRAY QUICK DISCONNECT COUPLER (36).



GO TO NEXT PAGE

14.4. REPLACE SCREED FUEL SYSTEM HOSES AND FITTINGS - Continued.

B. INSTALL - Continued.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

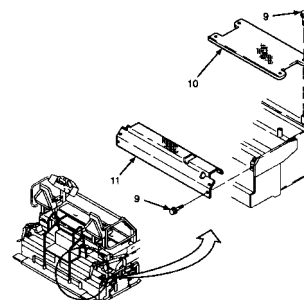
- g. Install lockwashers (24) and flat washers (25) on hex head cap screws (23). Apply thread locking compound to threads of hex head cap screws.
- h. Install clamp (26) over fuel hose (19). Secure with flat washer (25), lockwasher (24), and hex head cap screw (23). Tighten hex head cap screw to 9 lb-ft (12 N•m).

CAUTION

Output of burner fuel solenoid valves (32) are marked "1" and input ports are marked "2." Input ports must face fuel manifold (31) for proper valve operation.

- i. Install elbow (16), pipe bushing (35), pipe nipples (33 and 34), straight adapter (28), and fuel solenoid valves (32) onto fuel manifold (31). Port "2" of solenoid valve must face fuel manifold.
- j. Install straight adapters (28) and fuel hose (27) between fuel manifolds (32).
- k. Install lockwashers (30) onto bolts (29) and apply thread locking compound to threads of bolts.

- l. Position fuel manifolds (32) and secure with bolts (29). Tighten bolts to 37 lb-ft (50 N•m).



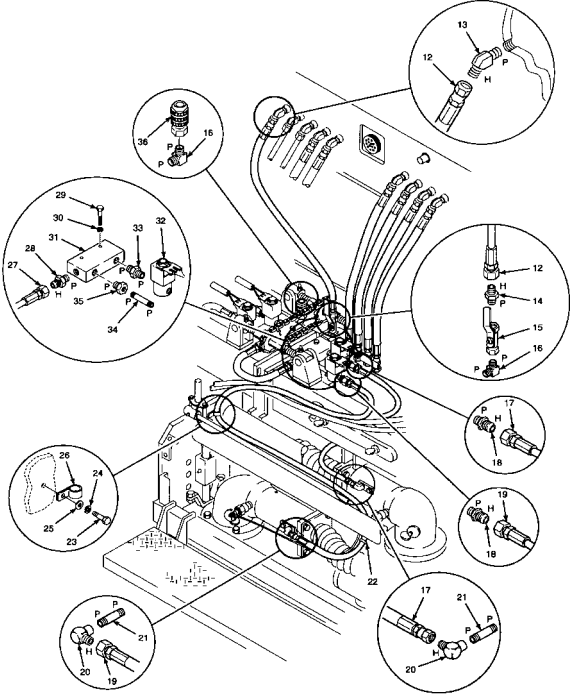
- m. Install screed burner fuel shutoff valve (15), straight adapter (14), and fuel hose (12). Position fuel shutoff valve toward fuel manifold (31) as shown.
- n. If disconnected, reconnect fuel hose (3) to elbow (1).
- o. Turn ignition switch on at operator control console. Turn fuel pump switch on at left hand screed control panel. Open screed burner fuel shutoff valve and place screed burner control switch in spray position per TM 5-3895373-10.
- p. Check installed screed burner system hoses and fittings for leaks. If leaks are found, retighten leaky hose or fitting as needed to stop leakage.
- q. Install tie wraps as needed.
- r. Install cover plates (10 and 11) and self-locking machine screws (9). Tighten screws to 19 lb-ft (26 N•m).

LEGEND

12. Fuel hose	18. Straight adapter	25. Flat washer	32. Solenoid valve
13. Elbow	19. Fuel hose	26. Clamp	33. Pipe nipple
14. Straight adapter	20. Elbow	27. Fuel hose	34. Pipe nipple
15. Screed burner fuel shutoff valve	21. Pipe nipple	28. Straight adapter	35. Pipe bushing
16. Elbow	22. Tie wrap	29. Bolt	36. Quick disconnect coupler
17. Fuel hose	23. Hex head cap screw	30. Lockwasher	
	24. Lockwasher	31. Fuel manifold	

B. INSTALL- Continued.

NOTE: RIGHT HAND MAIN AND EXTENSION SCREED BURNER HOSES AND FITTINGS SHOWN HERE. LEFT HAND SCREED BURNER HOSES AND FITTINGS MIRROR THOSE SHOWN, EXCEPT THAT RIGHT HAND HAS THE INLET FUEL HOSE (12) AND SCREED BURNER FUEL SHUTOFF VALVE (15). THE LEFT HAND HAS THE FUEL SPRAY QUICK DISCONNECT COUPLER (36).



GO TO NEXT PAGE

14.4. REPLACE SCREED FUEL SYSTEM HOSES AND FITTINGS - Continued.

B. INSTALL - Continued.

2. INSTALL PUMPING SYSTEM HOSES AND FITTINGS.

- a. Use cleaning cloths to wipe residue from threads on all fuel hoses and adapters to be reinstalled.

WARNING

Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

CAUTION

Do not apply pipe sealant to leading threads of adapters and elbows in screed burner system. Seepage of pipe sealant into fuel system may clog fuel nozzle.

NOTE

Adapter pipe thread fittings are coded P in illustration. P-coded fittings require pipe sealant. Adapter hose end fittings are coded H, and require hydraulic fitting sealant.

- b. Apply pipe sealant to P-coded threads of adapters and elbows.

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

CAUTION

Do not apply hydraulic fitting sealant to leading threads of adapters and elbows. Seepage of hydraulic fitting sealant into fuel system may clog fuel nozzle.

- c. Apply hydraulic fitting sealant to H-coded threads of straight adapters and elbows.
- d. Install straight adapters and elbows. Position elbows (1, 4, 6, and 7) as shown in the illustration. Tighten all elbows and straight adapters.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.

Do not work on fuel system when screed burner is hot; fuel can be ignited by a hot burner chamber.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working on screed burner fuel system.

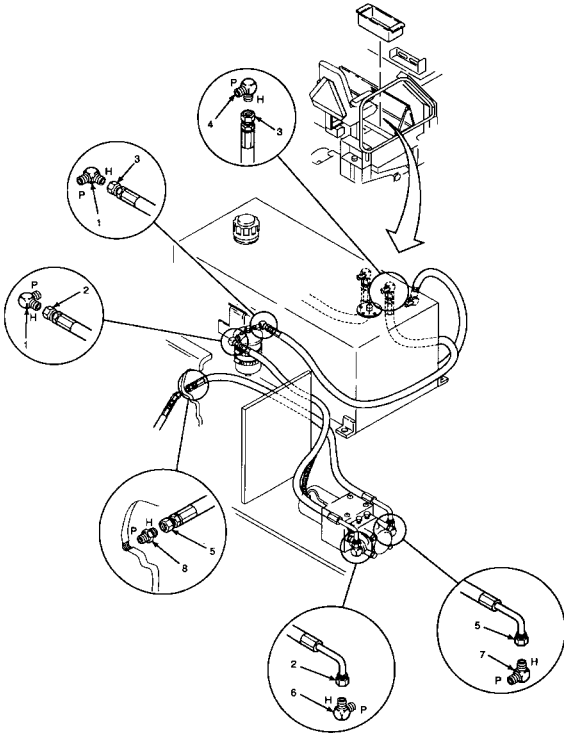
- e. Route fuel hoses as shown and connect to adapter fittings using the illustration and legend as a guide.
- f. Install tie wraps as needed.

GO TO NEXT PAGE

B. INSTALL - Continued.

LEGEND

- 1. Elbow
- 2. Fuel hose
- 3. Fuel hose
- 4. Elbow
- 5. Fuel hose
- 6. Elbow
- 7. Elbow
- 8. Straight adapter



GO TO NEXT PAGE

14.4. REPLACE SCREED FUEL SYSTEM HOSES AND FITTINGS - Continued.

B. INSTALL - Continued.

NOTE

FOLLOW-ON-TASKS: Bleed screed fuel system per paragraph 2.23.11.
Close rear top left access door per TM 5-3895-373-10.
Close rear top right access door per TM 5-3895-373-10.
Close front top left access door per TM 5-3895-373-10.

END OF TASK

14.5. REPLACE BURNER CHAMBER AND FUEL SPRAY NOZZLE.

This task covers: a. Remove b. Disassemble c. Clean
 d. Assemble e. Install f. Adjust

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
 (Item 54, Appendix E)
 Torque wrench (Item 68, Appendix E)

References:

TM 5-3895-373-10
 TM 5-3895-373-24P

Equipment Condition:

Extension screeds fully extended per TM 5-3895-373-10.

Materials/Parts:

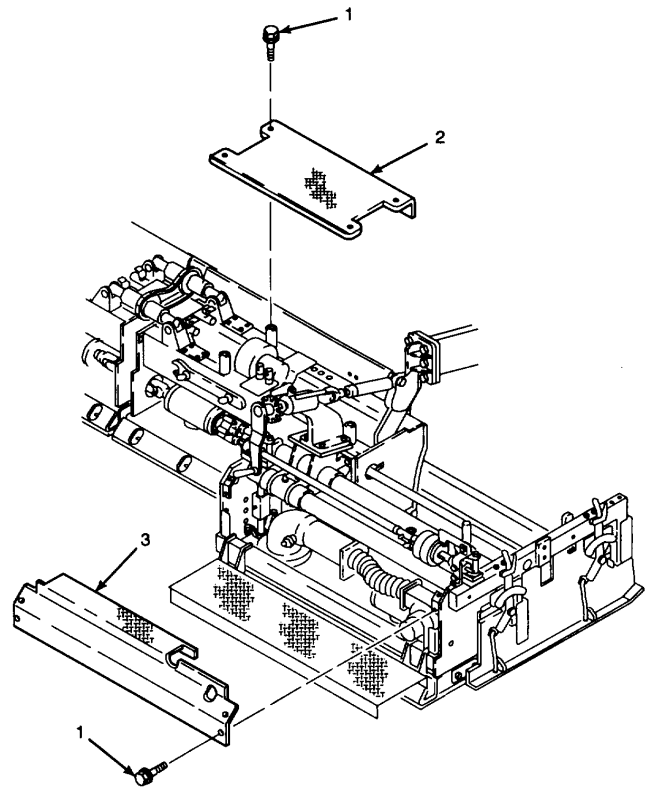
Anti-seize compound (Item 9, Appendix C)
 Carbon removing compound (Item 10, Appendix C)
 Cleaning cloth (Item 7, Appendix C)
 Electrical insulating varnish (Item 32, Appendix C)
 Hydraulic fitting sealant (Item 21, Appendix C)
 Machinery wiping towel (Item 30, Appendix C)
 Pipe sealant (Item 22, Appendix C)
 Protective caps (Item 5, Appendix C)
 Sealing compound (Item 23, Appendix C)
 Tags (Item 27, Appendix C)
 Thread locking compound solvent (Item 25, Appendix C)
 Tie wraps (Item 29, Appendix C)
 Burner chambers
 Fuel nozzles
 Gaskets
 Lockwashers
 Metallic gaskets
 Self-locking machine screws

GO TO NEXT PAGE

14.5. REPLACE BURNER CHAMBER AND FUEL SPRAY NOZZLE - Continued.**NOTE**

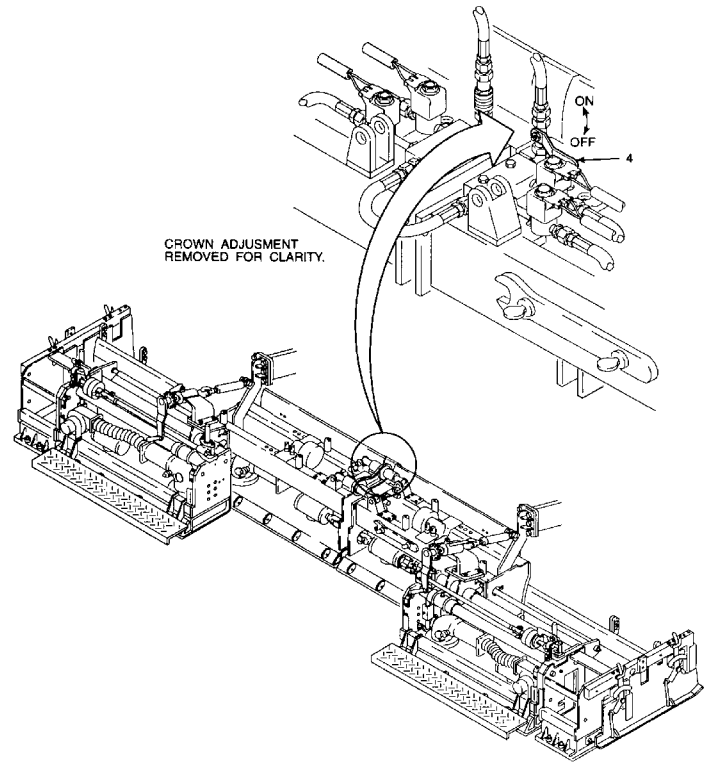
Replacement procedures listed below are applicable to all of the burner chambers and fuel nozzles installed on the paving machine.

- A. REMOVE.
1. REMOVE SCREED COVER PLATES.
- Remove and discard self-locking machine screws (1).
 - Remove screed cover plate (2) from the main screed.
 - Remove screed cover plate (3) from the extension screed.



GO TO NEXT PAGE

- A. REMOVE - Continued.
- 2. REMOVE EXTENSION SCREED BURNER CHAMBER ASSEMBLY.
 - a. Turn screed burner fuel solenoid valve (4) to the 3 o'clock position.



GO TO NEXT PAGE

14.5. REPLACE BURNER CHAMBER AND FUEL SPRAY NOZZLE - Continued.

- A. REMOVE - Continued.
- b. Remove terminal nut (5) and lead wire (6) from glow plug (7).

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

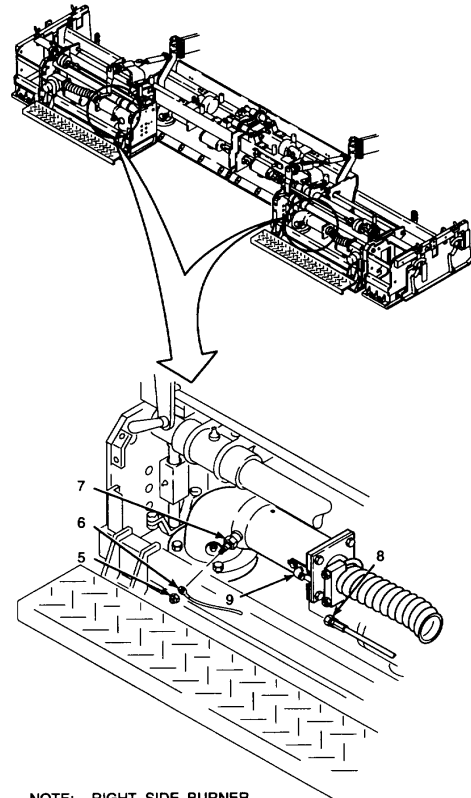
Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or any fuel system.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- c. Place machinery wiping towel beneath hose (8).
- d. Disconnect hose (8) from elbow (9). Plug hose and cap elbow.

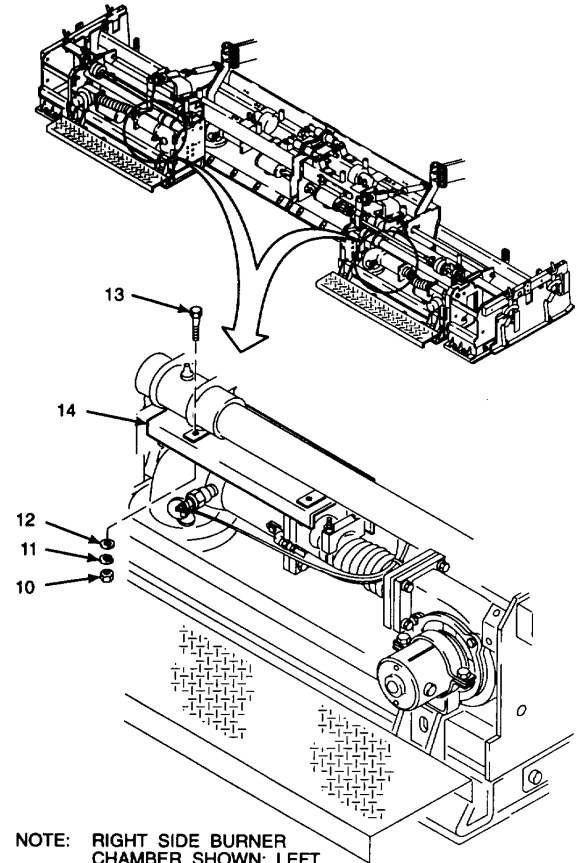


NOTE: RIGHT SIDE BURNER CHAMBER SHOWN; LEFT SIDE IS A MIRROR IMAGE.

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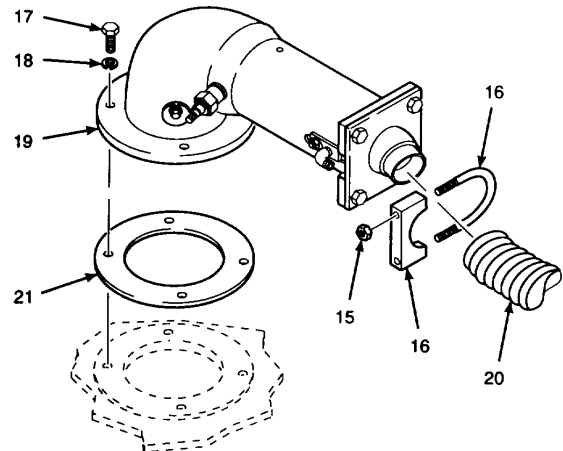
A. REMOVE Continued.

- e. Remove hex nuts (10), lockwashers (11), flat washers (12), and bolts (13) from shield (14). Discard lockwashers.
- f. Slide shield (14) out toward screed blower and remove the shield from the paving machine.



NOTE: RIGHT SIDE BURNER CHAMBER SHOWN; LEFT SIDE IS A MIRROR IMAGE.

- g. Remove hex nuts (15) and clamp (16).
- h. Remove hex head cap screws (17) and lockwashers (18) from burner chamber assembly (19). Discard lockwashers.
- i. Remove flexible pipe (20) from burner chamber assembly (19).
- j. Remove burner chamber assembly (19) and gasket (21) from the paving machine. Discard gasket.

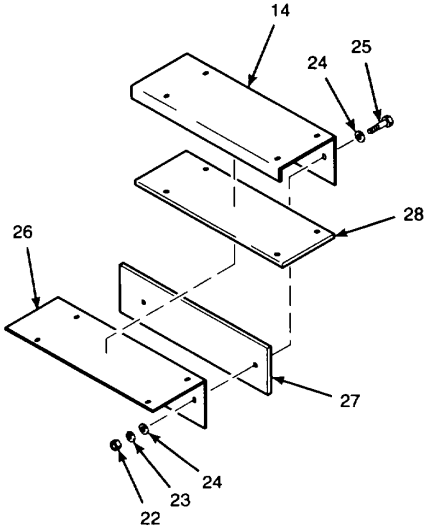


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14.5. REPLACE BURNER CHAMBER AND FUEL SPRAY NOZZLE - Continued.

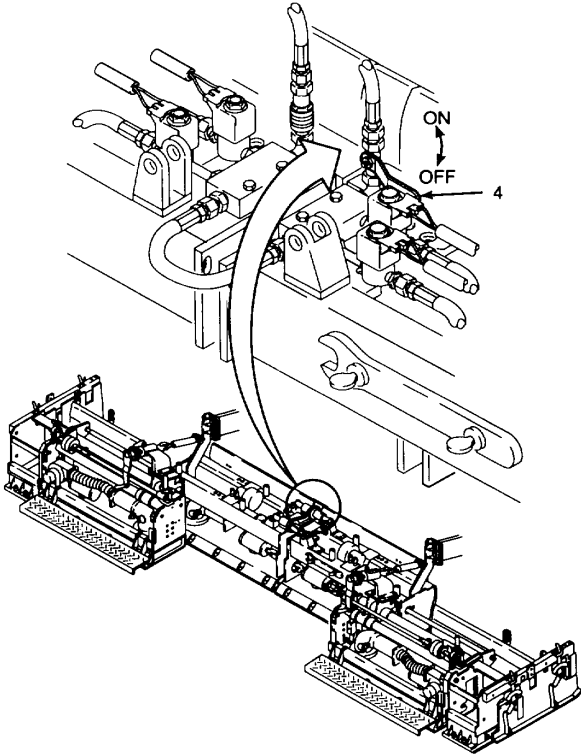
A REMOVE - Continued.

- k. To disassemble shield (14), remove hex nuts (22), lockwashers (23), flat washers (24), and bolts (25). Separate shield (26) and remove insulation (27 and 28) from shield (14).



3. REMOVE MAIN SCREED BURNER CHAMBER ASSEMBLY.

- a. Turn screed burner fuel solenoid valve (4) to the 3 o'clock position.



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- A. REMOVE Continued.
- b. Remove terminal nut (29) and lead wire (30) from glow plug (31).

WARNING

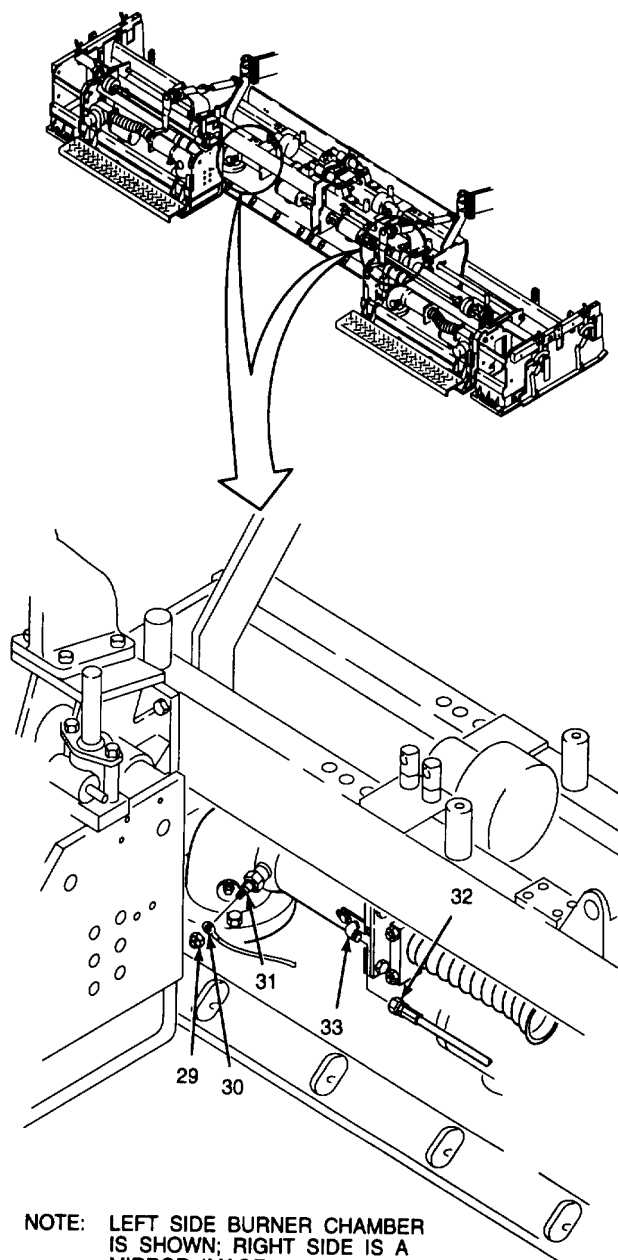
Fuel is very flammable and can explode easily. To avoid serious injury or death: Always wear safety glasses/goggles at all times.

Keep fuel away from open flame or any spark (ignition source).

Keep at least a B-C fire extinguisher within easy reach when working with fuel or any fuel system.

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel lines or fuel tanks.

- c. Place a machinery wiping towel beneath hose (32).
- d. Disconnect hose (32) from elbow (33). Plug hose and cap elbow.

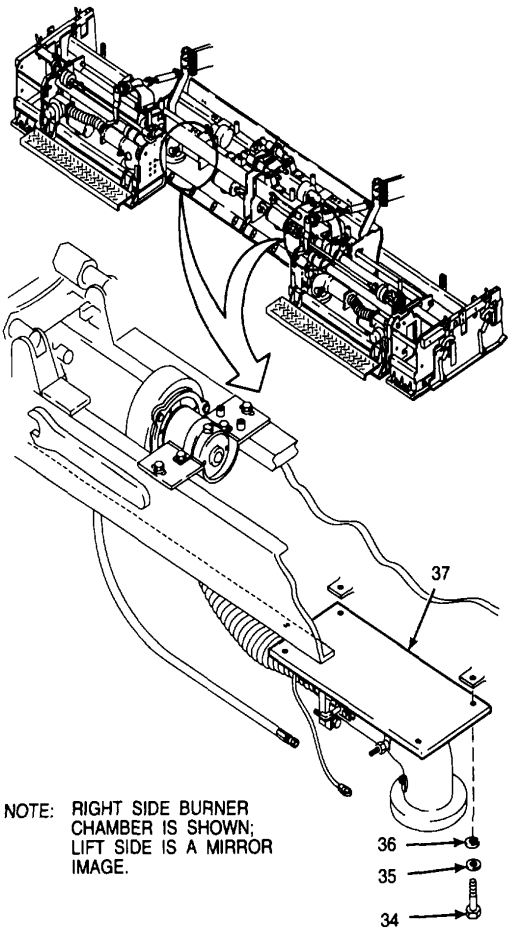


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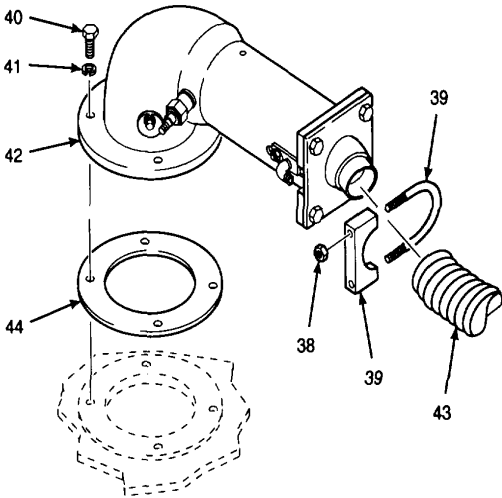
14.5. REPLACE BURNER CHAMBER AND FUEL SPRAY NOZZLE - Continued.

A. REMOVE Continued.

- e. Remove bolts (34), flat washers (35), and lockwashers (36) from shield (37). Discard lockwashers.
- f. Remove shield (37) out toward the rear of paving machine.



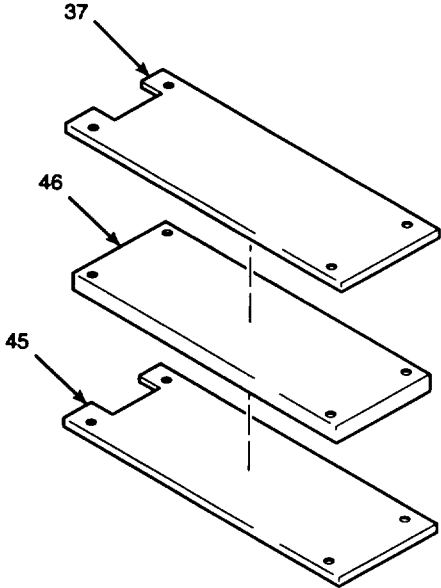
- g. Remove hex nuts (38) and clamps (39).
- h. Remove hex head cap screws (40) and lockwashers (41) from burner chamber assembly (42). Discard lockwashers.
- i. Remove flexible pipe (43) from burner chamber assembly (42).
- j. Remove burner chamber assembly (42) and gasket (44) from the paving machine. Discard gasket.



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A. REMOVE - Continued.

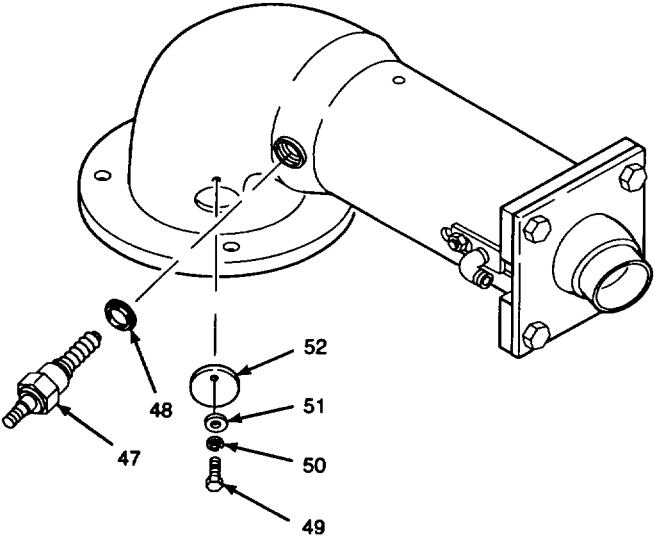
- k. Separate shield plate (45) and remove insulation (46) from shield plate (37).



B. DISASSEMBLE.

1. DISASSEMBLE BURNER CHAMBER ASSEMBLY.

- a. Remove glow plug (47) and gasket (48). Discard metallic gasket.
- b. Remove hex head cap screw (49), lockwasher (50), flat washer (51), and vent cover plate (52). Discard lockwasher.

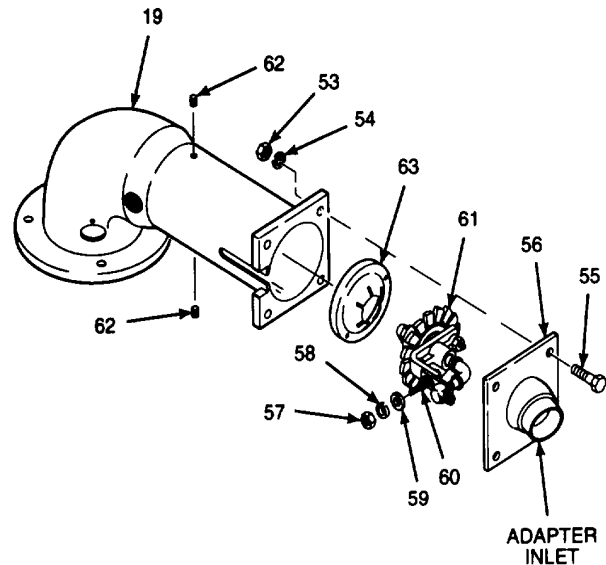


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14.5. REPLACE BURNER CHAMBER AND FUEL SPRAY NOZZLE - Continued.

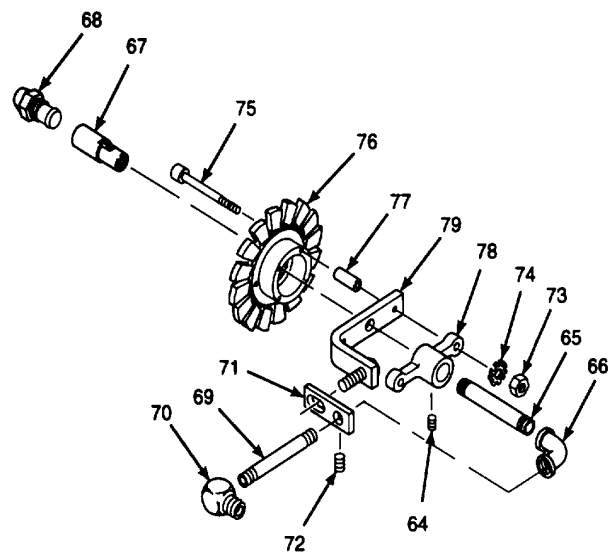
B. DISASSEMBLE Continued.

- c. Remove hex nuts (53), lockwashers (54), and hex head cap screws (55). Remove adapter (56). Note the orientation of the adapter inlet for reassembly. Discard lockwashers.
- d. Remove hex nut (57), lockwasher (58), and flat washer (59) from holder stud (60).
- e. Slide nozzle assembly (61) out of burner chamber assembly (19).
- f. Remove set screws (62) and burner head unit (63) from burner chamber assembly (19).



2. DISASSEMBLE NOZZLE ASSEMBLY.

- a. Remove set screw (64).
- b. Unscrew pipe nipple (65) from elbow (66). Remove pipe nipple, adapter (67), and nozzle (68) as an assembly.
- c. Remove nozzle (68) from adapter (67).
- d. Remove adapter (67) from pipe nipple (65). Tag pipe nipple for reassembly.
- e. Remove pipe nipple (69), elbows (66 and 70), and retainer (71) as an assembly.
- f. Remove set screw (72).
- g. Remove elbow (66) from pipe nipple (69). Tag pipe nipple for reassembly.
- h. Remove pipe nipple (69) and elbow (70) as an assembly from retainer (71).
- i. Remove elbow (70) from pipe nipple (69).
- j. Remove hex nuts (73) and lockwashers (74). Discard lockwashers.
- k. Separate socket head cap screws (75), combustion head (76), spring pins (77), mounting bracket (78), and holder (79).



GO TO NEXT PAGE

C. CLEAN.

1. CLEAN BURNER CHAMBER COMPONENT PARTS.

WARNING

Carbon removing compound is **TOXIC** and caustic. Wear protective goggles 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. Failure to do so may result in injury or death to personnel.

If personnel become dizzy when using carbon removing compound, immediately get fresh air and medical help. If compound contacts skin or clothes, flush with plentiful amounts of water. If compound contacts eyes, flush eyes with plentiful amounts of water for at least 15 minutes and get immediate medical attention.

- a. Soak burner chamber parts with carbon removing compound.
- b. Use a parts cleaning brush and a cleaning cloth to remove any hard deposits and carbon buildup.

CAUTION

Use caution when scraping gasket sealing surfaces with putty knife. Putty knife may score sealing surfaces and debris may fall into open ports. Failure to do so may result in poor seal and component damage.

- c. Use a putty knife, if necessary, to remove any gasket material from sealing surfaces. Do not score the sealing surface.

GO TO NEXT PAGE

14.5. REPLACE BURNER CHAMBER AND FUEL SPRAY NOZZLE - Continued.**C. CLEAN Continued.**

2. CLEAN CAP SCREWS, BOLTS, AND MOUNTING HARDWARE.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Use thread locking compound solvent to clean mounting hardware and threads of cap screws and bolts.
- b. Dry with a cleaning cloth.

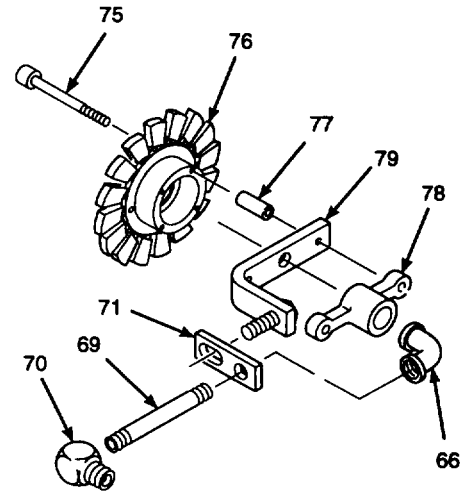
D. ASSEMBLE.

1. ASSEMBLE NOZZLE ASSEMBLY.

WARNING

Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- a. Apply pipe sealant to both threaded ends of pipe nipple (69).
- b. Install elbow (70) onto pipe nipple (69). Tighten elbow.
- c. Place pipe nipple (69) through retainer (71).
- d. Install elbow (66) onto pipe nipple (69). Tighten so that open end of elbow is pointing in the opposite direction of elbow (70).



- e. Place socket head cap screws (75) through combustion head (76).
- f. Place spring pins (77) onto socket head cap screws (75).
- g. Place holder (79) and mounting bracket (78) onto socket head cap screws (75).

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D. ASSEMBLE Continued.

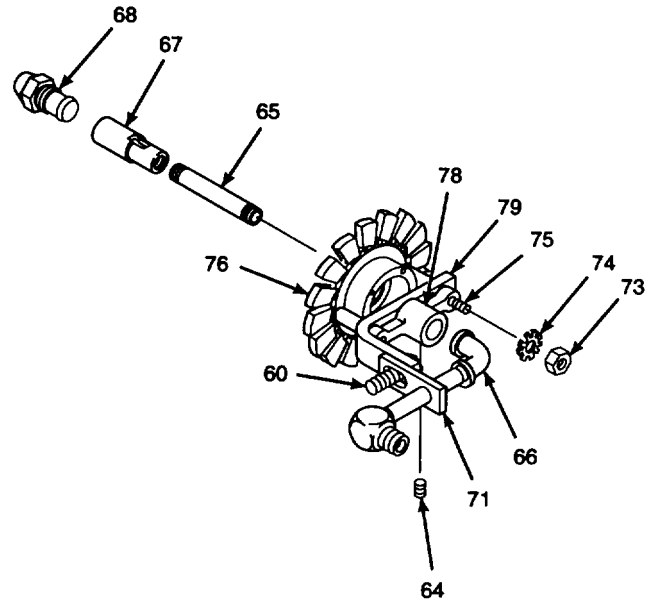
- h. Install lockwashers (74) onto socket head cap screws (75).

WARNING

Sealing compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- i. Apply sealing compound to threads of socket head cap screws (75).
- j. Install and tighten hex nuts (73).
- k. Install adapter (67) onto pipe nipple (65). Tighten adapter.
- l. Install nozzle (68) into adapter (67). Tighten nozzle.
- m. Slide pipe nipple (65) through combustion head (76), holder (79), and mounting bracket (78).

- o. Install pipe nipple (65) into elbow (66). Tighten pipe nipple.
- p. Place retainer (71) onto holder stud (60).
- q. Seat adapter (67) against holder (79).



WARNING

Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- n. Apply pipe sealant to exposed threads of pipe nipple (65).

NOTE
 Ensure adapter (67) seats against holder (79) before tightening set screw (64). This will allow for proper burn adjustment.

- r. Apply sealing compound to threads of set screw (64) and install into mounting bracket (78). Tighten set screw.

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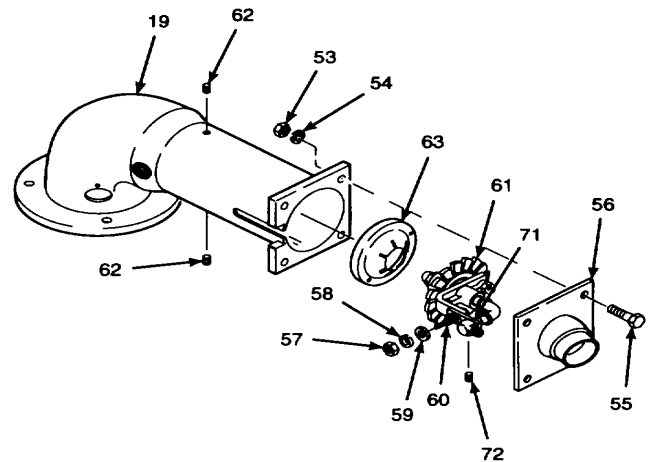
14.5. REPLACE BURNER CHAMBER AND FUEL SPRAY NOZZLE - Continued.

- D. ASSEMBLE Continued.
2. ASSEMBLE BURNER CHAMBER ASSEMBLY.

WARNING

Sealing compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- a. Apply sealing compound to threads of set screws (62).
- b. Install burner head unit (63) into burner chamber assembly (19) and secure with set screws (62). Tighten set screws until flush with outside of burner chamber assembly.
- c. Slide nozzle assembly (61) into burner chamber assembly (19) with holder stud (60) in slot on burner chamber assembly and retainer (71) on the outside of the burner chamber assembly.
- d. Install flat washer (59), lockwasher (58), and hand tighten hex nut (57) onto holder stud (60). Hex nut will be tightened during adjustment.
- e. Apply sealing compound to threads of set screw (72).
- f. Install set screw (72) into retainer (71). Push retainer tight against burner and tighten set screw.
- g. Apply sealing compound to threads of hex head cap screw (55).

**NOTE**

Ensure adapter is positioned as in disassembly.

- h. Install adapter (56) against burner chamber assembly and secure in place with hex head cap screws (55), lockwashers (54), and hex nuts (53). Tighten hex nuts to 37 lb-ft (50 N-m).

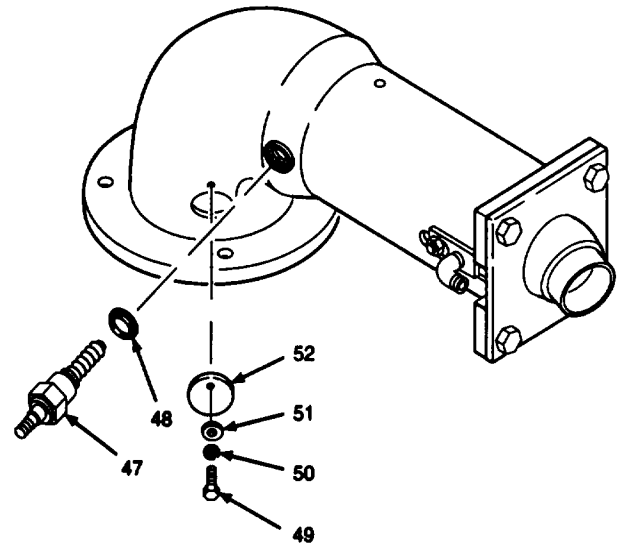
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- D. ASSEMBLE Continued.
- i. Install lockwasher (50) and flat washer (51) onto hex head cap screw (49).

WARNING

Sealing compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- j. Apply sealing compound to threads of hex head cap screw (49).
- k. Install vent cover plate (52) and secure with flat washer (51), lockwasher (50), and hex head cap screw (49). Tighten cap screw to 9 lb-ft (12 N•m).



WARNING

Anti-seize compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- l. Apply anti-seize compound to threads of glow plug (47).
- m. Install gasket (48) and glow plug (47). Tighten glow plug to 33 lb-ft (45 N•m).

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14.5. REPLACE BURNER CHAMBER AND FUEL SPRAY NOZZLE Continued.

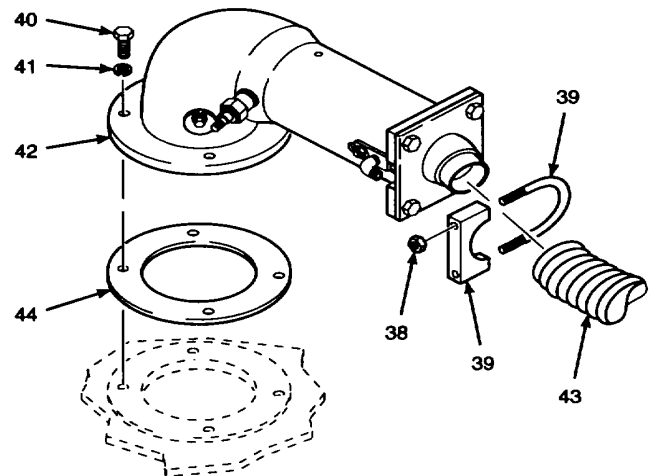
E. INSTALL.

1. INSTALL MAIN SCREED BURNER CHAMBER ASSEMBLY.

NOTE

When installing the burner chamber assembly, make sure that glow plug is pointing out toward the rear of paving machine.

- a. Position gasket (44) and burner chamber assembly (42) onto paving machine.
- b. Connect flexible pipe (43) to burner chamber assembly (42).
- c. Install lockwashers (41) onto hex head cap screws (40).



WARNING

Sealing compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- d. Apply sealing compound to threads of hex head cap screws (40).
- e. Install hex head cap screws (40) into burner chamber assembly (42). Tighten cap screws to 37 lb-ft (50 N•m).
- f. Apply sealing compound to threads of clamp (39).
- g. Install clamp (39) and hex nuts (38). Tighten hex nuts evenly to 9 lb-ft (12 N•m).

GO TO NEXT PAGE

E. INSTALL Continued.

WARNING

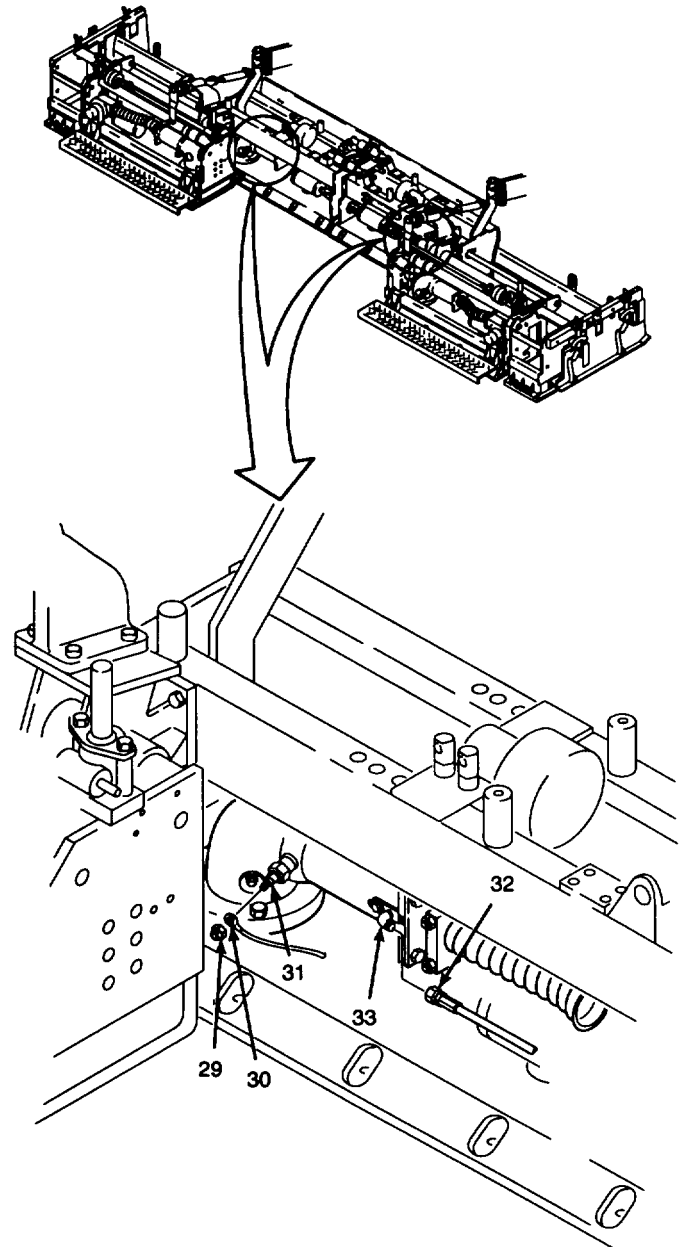
Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- h. Apply hydraulic fitting sealant to threads of elbow (33).
- i. Connect hose (32) to elbow (33).

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- j. Install lead wire (30) and terminal nut (29) onto glow plug (31). Tighten terminal nut. Apply electrical insulating varnish to glow plug terminal.
- k. Use tie wraps as necessary to secure wiring and hoses away from the burner chamber assembly.



GO TO NEXT PAGE

14.5. REPLACE BURNER CHAMBER AND FUEL SPRAY NOZZLE - Continued.

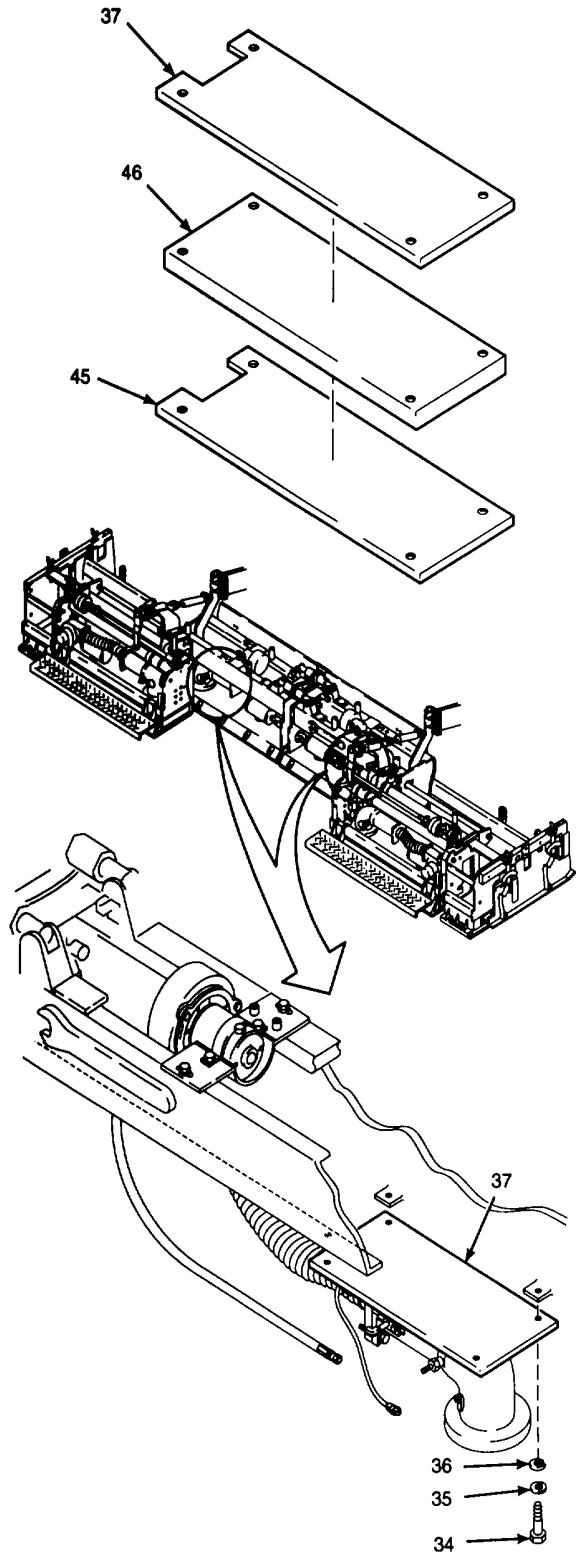
E. INSTALL Continued.

- i. Place shield plate (37), insulation (46), and shield plate (45) together.
- m. Install lockwashers (36) and flat washers (35) onto bolts (34).

WARNING

Sealing compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- n. Apply sealing compound to threads of bolts (34).
- o. Install shield plate (37) and secure with bolts (34). Tighten bolts.



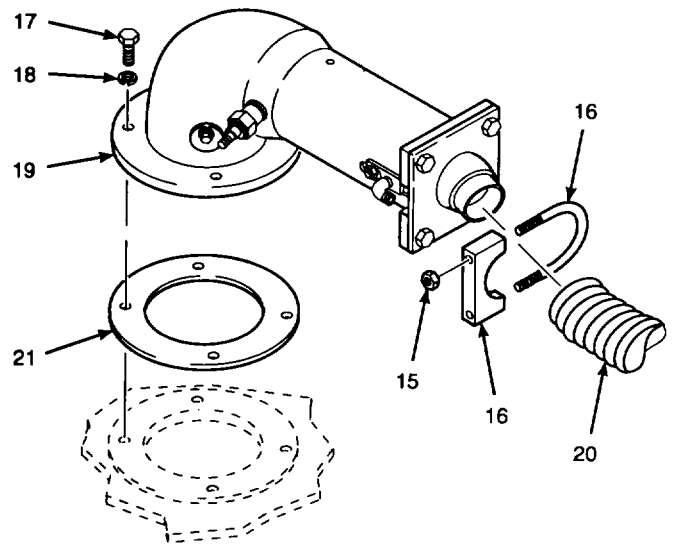
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- E. INSTALL Continued.
2. INSTALL EXTENSION SCREED BURNER CHAMBER ASSEMBLY.

NOTE

When installing the burner chamber assembly, make sure that glow plug is pointing out toward the rear of paving machine.

- a. Position gasket (21) and burner chamber assembly (19) onto the paving machine.
- b. Connect flexible pipe (20) to burner chamber assembly (19).
- c. Install lockwashers (18) onto hex head cap screws (17).



WARNING

Sealing compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- d. Apply sealing compound to threads of hex head cap screws (17).
- e. Install hex head cap screws (17) into burner chamber assembly (19). Tighten cap screws to 37 lb-ft (50 N•m).
- f. Apply sealing compound to threads of clamp (16).
- g. Install clamp (16) and hex nuts (15). Tighten hex nuts evenly to 9 lb-ft (12 N•m).

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14.5. REPLACE BURNER CHAMBER AND FUEL SPRAY NOZZLE - Continued.

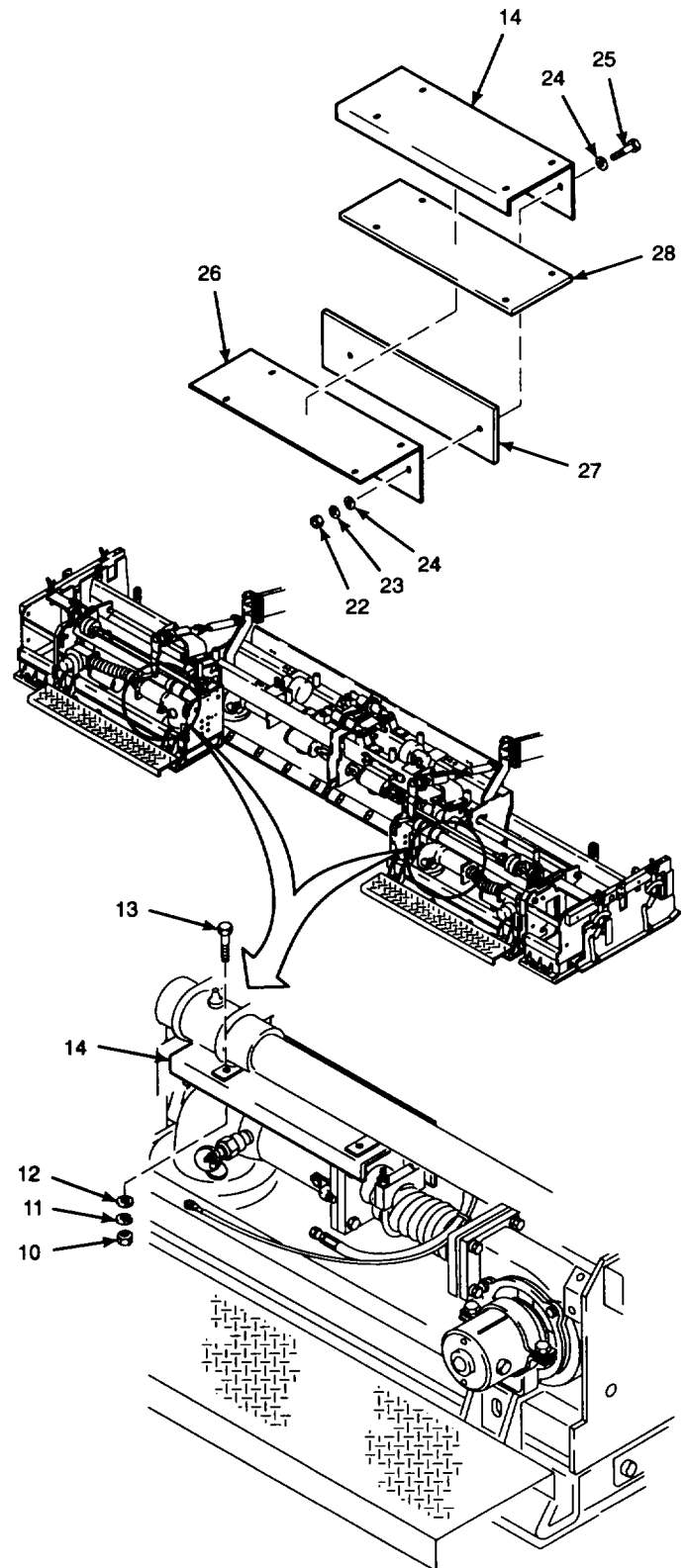
E. INSTALL Continued.

- h. Install flat washers (24) onto bolts (25).

WARNING

Sealing compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- i. Apply sealing compound to threads of bolts (25).
- j. Install insulation (27 and 28) onto shield (14). Place shield (26) over the insulation and secure with bolts (25), lockwashers (23), and hex nuts (22). Tighten hex nuts to 19 lb-ft (26 N•m).
- k. Apply sealing compound to threads of bolts (13).
- l. Install shield (14) and secure with bolts (13), flat washers (12), lockwashers (11), and hex nuts (10). Tighten hex nuts to 19 lb-ft (26 N•m).



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E. INSTALL Continued.

WARNING

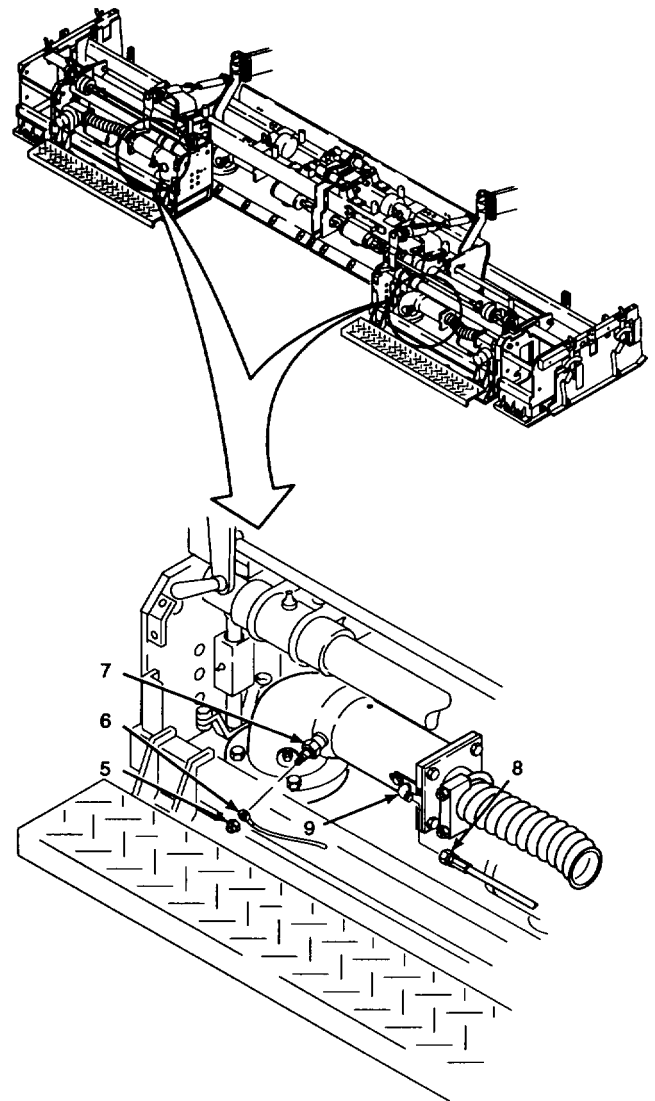
Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- m. Apply hydraulic fitting sealant to threads of elbow (9).
- n. Connect hose (8) to elbow (9).

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

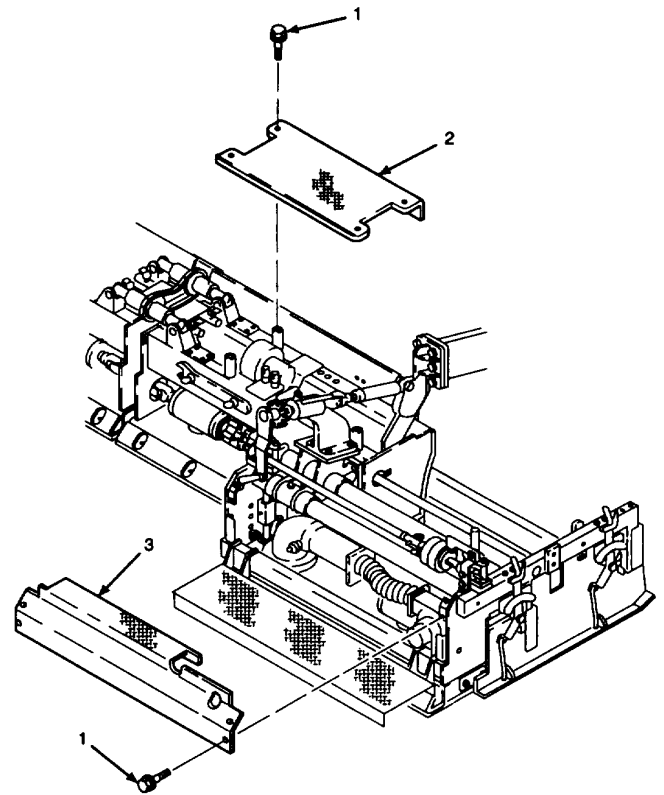
- o. Install lead wire (6) and terminal nut (5) onto glow plug (7). Tighten terminal nut. Apply electrical insulating varnish to glow plug terminal.
- p. Use tie wraps as necessary to secure wiring and hoses away from the burner chamber assembly.



GO TO NEXT PAGE

14.5. REPLACE BURNER CHAMBER AND FUEL SPRAY NOZZLE - Continued.

- E. INSTALL Continued.
3. INSTALL SCREED COVER PLATES.
- Install screed cover plate (3) and self-locking machine screws (1) onto extension screed.
 - Install screed cover plate (2) and self-locking machine screws (1) onto main screed.
 - Tighten self-locking machine screws.



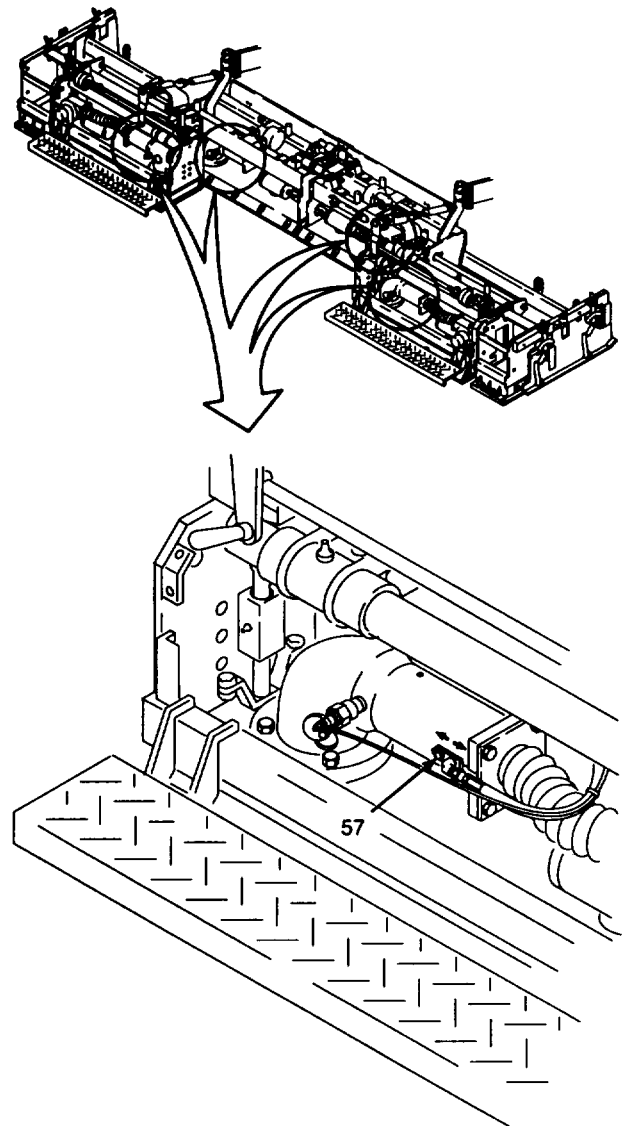
GO TO NEXT PAGE

- F. ADJUST.
1. START PAVING MACHINE AND SCREED BURNER PER TM 5-3895-373-10.
 2. IF SMOKE IS SEEN COMING FROM SCREED BURNER, ADJUST NOZZLE ASSEMBLY FOLLOWING STEPS 3, 4, AND 5. IF NO SMOKE IS SEEN, PROCEED TO STEP 6.

WARNING

Use extreme caution when working near operating burner. Wear protective gloves and goggles when making burner adjustment. Failure to do so may result in severe burns to personnel.

3. LOOSEN HEX NUT (57). USE EXTREME CAUTION AROUND LIT BURNER.
4. SLIDE NOZZLE ASSEMBLY LEFT OR RIGHT TO A POSITION WHERE THE BURNER FLAME CREATES LITTLE OR NO BLACK SMOKE.
5. TIGHTEN HEX NUT (57) TO 42 lb-ft (57 N-m).
6. TURN OFF SCREED BURNER, SHUT OFF ENGINE, AND REMOVE KEY FROM IGNITION SWITCH PER TM 5-3895-373-10.

**NOTE**

FOLLOW-ON-TASK: Extension screeds fully retracted per TM 5-3895-373-10.

END OF TASK

14.6. REPLACE/REPAIR BURNER FUEL SOLENOID VALVE.

This task covers: a. Remove

INITIAL SETUP

Tools:

General mechanic's automotive tool kit (Item 54, Appendix E)

Bench vise (Item 55, Appendix E)

Torque wrench (Item 69, Appendix E)

per TM 5-3895-373-10.

Materials/Parts:

References:

TM 5-3895-373-24P

Screed steps removed

b.

- Cleaning cloth (Item 7, Appendix C)
- Cleaning solvent (Item 24, Appendix C)
- Culture swabs (Item 26, Appendix C)
- Electrical insulating compound (Item 11, Appendix C)
- Hydraulic fitting sealant (item 21, Appendix C)
- Lint-free cloth (Item 8, Appendix C)
- Pipe sealant (Item 22, Appendix C)
- Protective caps (Item 5, Appendix C)
- Tags (Item 27, Appendix C)
- Thread locking compound (Item 13, Appendix C)
- Thread locking compound solvent (Item 25, Appendix C)
- Fuel solenoid valve assembly
- Lockwashers
- Plunger repair kit
- Sleeve assembly
- Solenoid coil

TM 5-3895-373-10

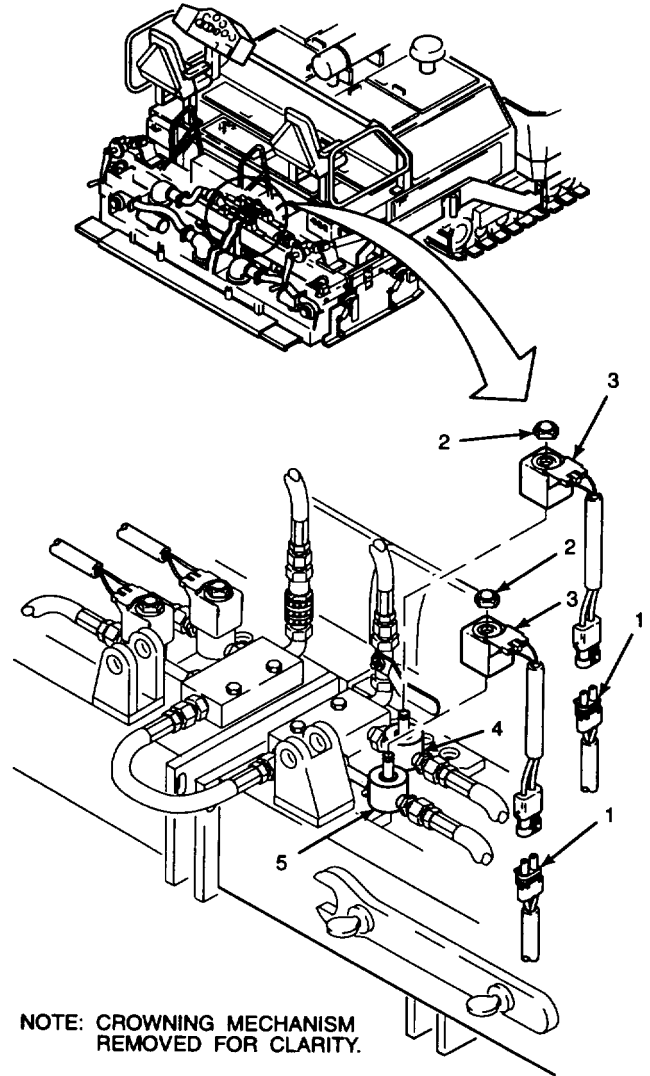
Equipment Condition

NOTE

There are four burner fuel solenoid valve assemblies installed on the paving machine. Two are on the left side and two are on the right side. They are installed as mirror images of each other. This procedure explains the removal of the right side solenoid valve assemblies. The procedure for the left side is identical.

GO TO NEXT PAGE

- A. REMOVE.
1. REMOVE SOLENOID COILS.
 - a. Tag and disconnect electrical harness connectors (1).
 - b. Remove hex nuts (2) and solenoid coils (3) from solenoid valves (4 and 5). Discard solenoid coils.



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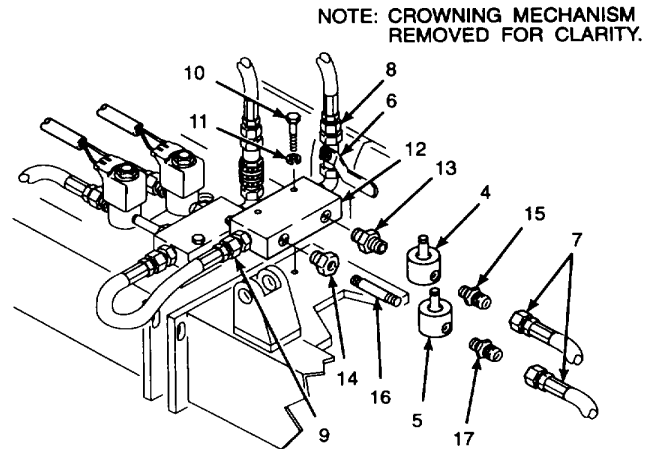
14.6. REPLACE/REPAIR BURNER FUEL SOLENOID VALVE - Continued.

- A. REMOVE Continued.
- 2. REMOVE FUEL SOLENOID VALVES.

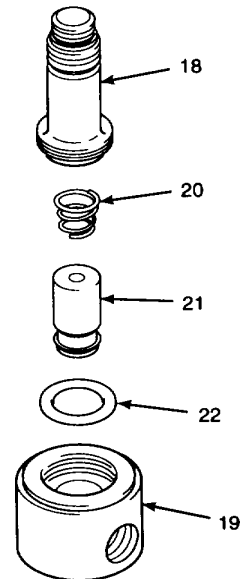
- a. Close fuel shutoff valve (6).



Thoroughly clean fuel system hoses and fittings before disconnecting. Always plug or cap off disconnected fittings to prevent intrusion of contaminants. Failure to properly clean and cap off connectors may result in fuel system contamination and equipment damage.



- b. Tag and disconnect fuel hoses (7). Plug fuel hoses to prevent contamination.
- c. Tag and disconnect fuel hoses (8 and 9). Plug fuel hoses to prevent contamination.
- d. Remove bolts (10) and lockwashers (11). Discard lockwashers. Remove assembled manifold (12) from machine.
- e. Hold manifold (12) in a bench vise and remove solenoid valve (4) by turning pipe nipple (13). Remove solenoid valve (5) by turning pipe bushing (14). Plug pipe fitting connections in manifold to prevent contamination.
- f. Hold solenoid valve (4) in a bench vise and remove pipe nipple (13) and straight adapter (15).
- g. Hold solenoid valve (5) in a bench vise and remove pipe bushing (14), pipe nipple (16), and straight adapter (17).



- B. REPAIR.

NOTE

The repair procedure applies to all solenoid valves.

- 1. DISASSEMBLE SOLENOID VALVE.
 - a. Unscrew and remove sleeve assembly (18) from valve body (19). Discard sleeve assembly.
 - b. Remove and discard coil spring (20), plunger (21), and o-ring (22).

GO TO NEXT PAGE
14-52

B. REPAIR Continued.

2. CLEAN SOLENOID VALVE.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- a. Clean valve body with cleaning solvent and cleaning cloth.
- b. Use a culture swab to wipe out valve body inner bores.

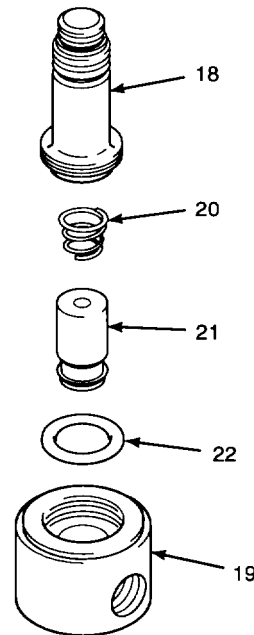
WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa) Use only with effective chip guarding and personal protective equipment (goggles/face shield, gloves, etc.). Failure to take proper precautions may result in severe injury or loss of vision.

- c. Use 30 psi (207 kPa) maximum compressed air to remove any foreign matter from valve body bore, threaded surfaces, and seal grooves. Dry valve body with a clean, lint-free cloth.

3. ASSEMBLE SOLENOID VALVE.

- a. Install o-ring (22), plunger (21), and spring (20) into valve body (19).
- b. Install and tighten sleeve assembly (18).



14.6. REPLACE/REPAIR BURNER FUEL SOLENOID VALVE - Continued.**C. INSTALL.****1. INSTALL FUEL SOLENOID VALVES.****WARNING**

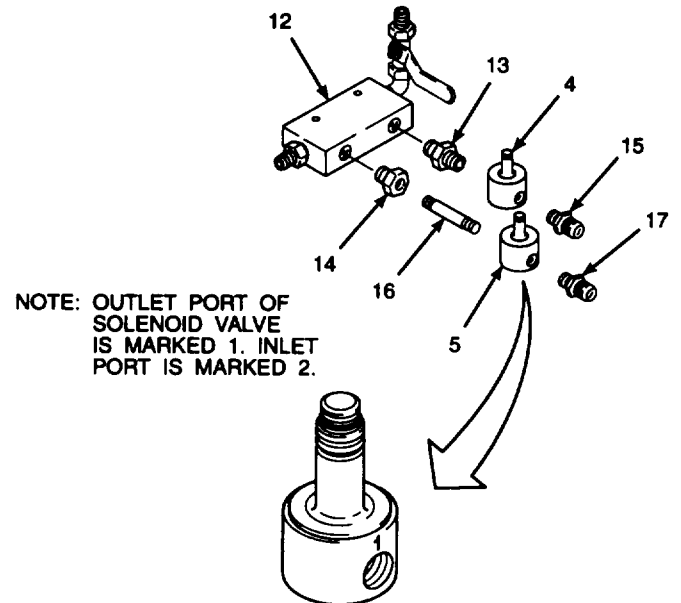
Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

CAUTION

Do not apply pipe sealant to first three threads of adapters, pipe nipple and pipe bushing. Apply only a light coating of pipe sealant to threads. Excessive amounts of pipe sealant can cause clogging of fuel system components.

- a. Apply pipe sealant to 1/8 in. pipe threads of pipe nipple (13) and straight adapters (15 and 17), both ends of pipe nipple (16), and male threaded end of pipe bushing (14).
- b. Place solenoid valve (4) in a bench vise and install pipe nipple (13) to inlet and straight adapter (15) to outlet.
- c. Place solenoid valve (5) in a bench vise and install straight adapter (17) to outlet, pipe nipple (16) to inlet, and pipe bushing (14).
- d. Place manifold (12) into a bench vise and install assembled solenoid valves (4 and 5). Install with inlet port marked 2 toward manifold. Make sure that stems on solenoid valves are pointing straight up when fully tightened.

NOTE: CROWNING MECHANISM REMOVED FOR CLARITY.



Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- e. Use thread locking compound solvent to clean all residue from threads of bolts. Wipe off bolt threads with a lint-free cloth.

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C. INSTALL - Continued.

WARNING

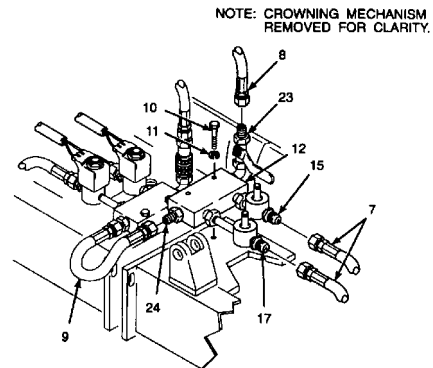
Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- f. Install lockwashers (11) onto bolts (10) and apply thread locking compound to threads of bolts.
- g. Install manifold (12) using bolts (10). Tighten bolts to 9 lb-ft (12 N•m).
- h. Use cleaning cloth to wipe residue from threads of straight adapters (23 and 24).

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- i. Apply hydraulic fitting sealant to threads of straight adapters (23 and 24).
- j. Connect fuel hoses (8 and 9).
- k. Apply hydraulic fitting sealant to threads of straight adapters (15 and 17). Connect fuel hoses (7) to adapters.

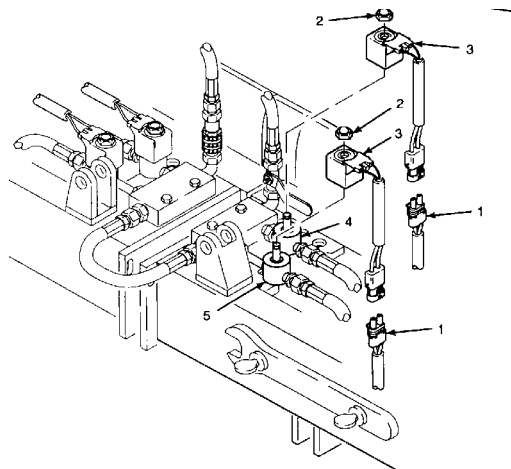
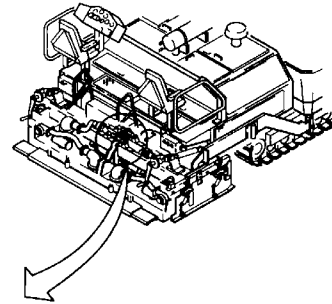


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14.6. REPLACE/REPAIR BURNER FUEL SOLENOID VALVE - Continued.

C. INSTALL - Continued.

2. INSTALL SOLENOID COILS.
 - a. Install solenoid coils (3) onto solenoid valves (4 and 5).
 - b. Install hex nuts (2) on solenoid valves (4 and 5) and tighten to 13 lb-in. (1,5 N•m).
 - c. Apply electrical insulating compound to male end of electrical harness connectors (1).
 - d. Connect electrical harness connectors (1).



NOTE: CROWNING MECHANISM
REMOVED FOR CLARITY.

NOTE

FOLLOW-ON-TASK: Install screed steps per TM 5-3895-373-10.

END OF TASK

14.7. REPLACE BURNER GLOW PLUG.

This task covers: a. Remove b. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Torque wrench (Item 68, Appendix E) Equipment Condition:
Extension screeds fully extended per TM 5-3895-373-10.

Materials/Parts:

Electrical insulating varnish (Item 32, Appendix C)
Glow plug

References:

TM 5-3895-373-24P

NOTE

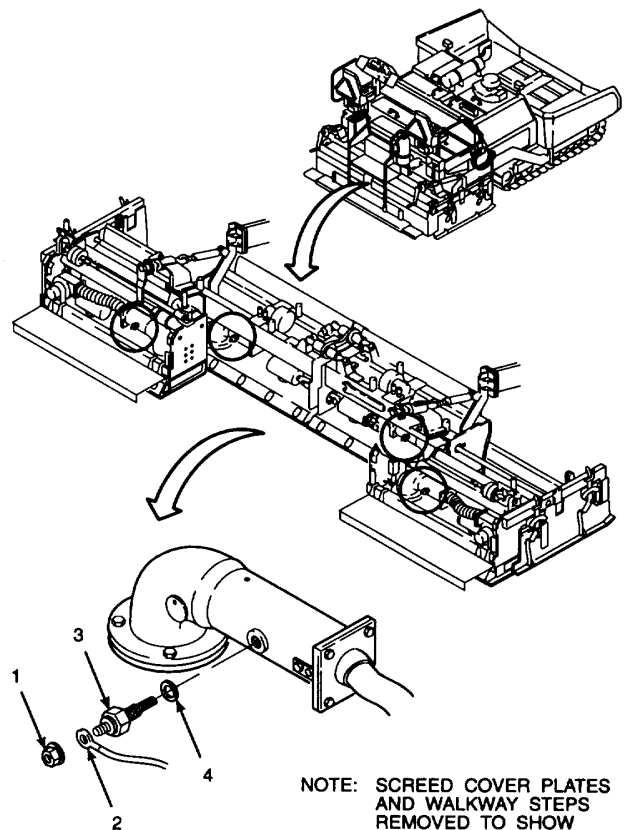
There are four burner glow plugs installed on the paving machine. This procedure can be used to remove the burner glow plug from any or all of the four screed burners.

A. REMOVE.

1. REMOVE TERMINAL NUT (1) AND RING TERMINAL (2) FROM GLOW PLUG (3). DISCARD TERMINAL NUT.
2. REMOVE AND DISCARD GLOW PLUG (3) AND METALLIC GASKET (4).

B. INSTALL.

1. INSTALL METALLIC GASKET (4) ON GLOW PLUG (3) AND INSTALL GLOW PLUG. TIGHTEN TO 33 lb-ft (45 N•m).



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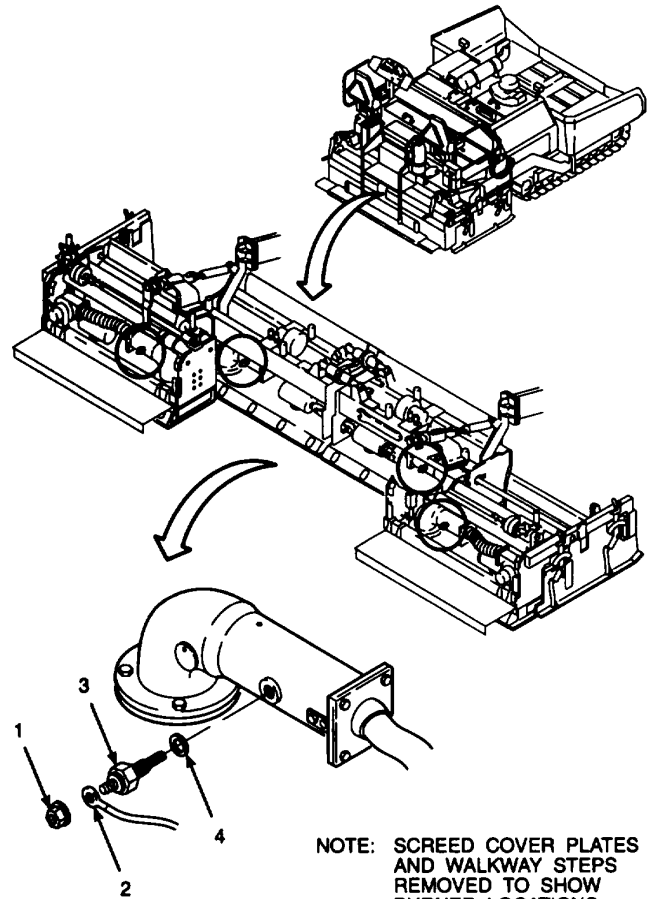
14.7. REPLACE BURNER GLOW PLUG - Continued.

B. INSTALL - Continued.

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

2. INSTALL RING TERMINAL (2) ONTO GLOW PLUG (3) AND SECURE WITH TERMINAL NUT (1). APPLY ELECTRICAL INSULATING VARNISH TO THE RING TERMINAL, TERMINAL NUT, AND GLOW PLUG.

**NOTE**

FOLLOW-ON-TASK: Extension screeds fully retracted per TM 5-3895-373-10.

END OF TASK

14.8. REPLACE/REPAIR BLOWER MOTOR.

This task covers: **a. Remove** **b. Disassemble** **c. Clean**
 d. Assemble **e. Install**

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Hacksaw (Item 19, Appendix E)
Torque wrench (Item 68, Appendix E)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Extension screeds fully extended per TM 5-3895-373-10.

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Electrical insulating compound (Item 11, Appendix C)
Lint-free cloth (Item 8, Appendix C)
Thread locking compound (Item 13, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Exhaust clamps
Lockwashers
Self-locking machine screws

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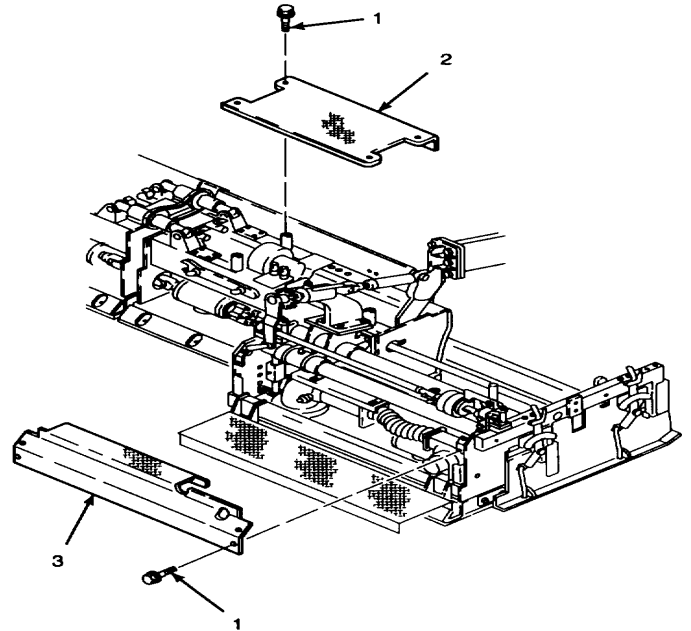
14.8. REPLACE/REPAIR BLOWER MOTOR - Continued.

NOTE

There are four blower motors on the screed. Replacement and repair procedures are applicable to all of the blower motors installed on the screed. Right hand main and extension screed blower motors are shown in this procedure. Differences between right and left blower motors are addressed in text.

NOTE

When replacing more than one blower assembly onto main screed and extension screed, motor rotation orientation must be observed. Motors that rotate counterclockwise must be installed on right main screed and left extension screed. Motors that rotate clockwise must be installed on left main screed and right extension screed. Refer to motor label for correct rotation direction.

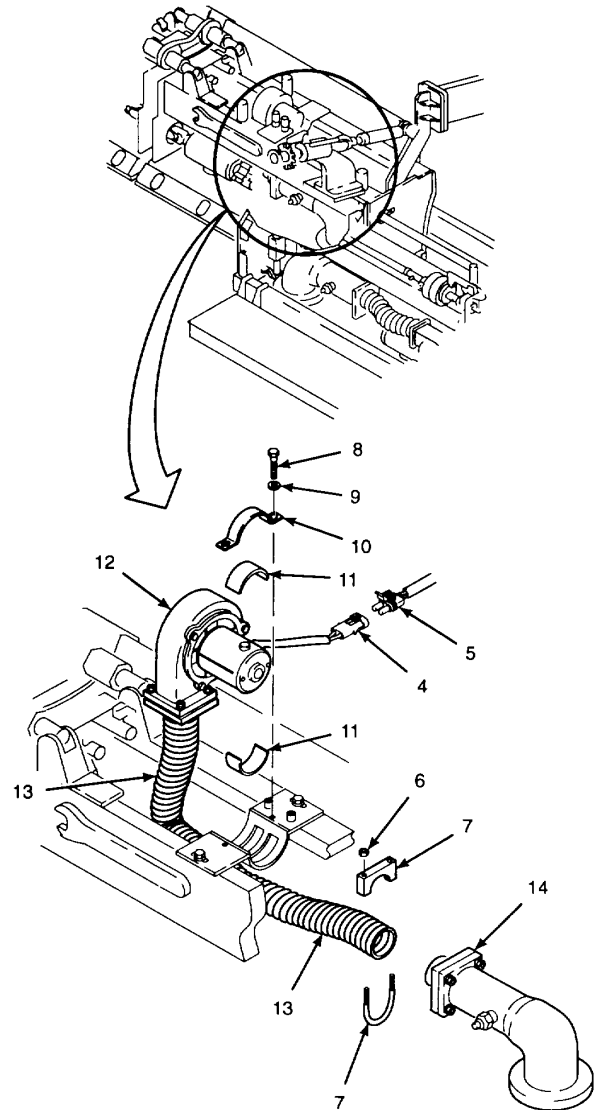
**A. REMOVE.**

1. REMOVE SCREED COVER PLATES.
 - a. Remove and discard self-locking machine screws (1).
 - b. Remove screed cover plate (2) from the main screed.
 - c. Remove screed cover plate (3) from extension screed.

GO TO NEXT PAGE

A. REMOVE - Continued.

2. REMOVE MAIN SCREED BLOWER ASSEMBLIES AND FLEXIBLE PIPE.
 - a. Disconnect blower electrical connector (4) from screed harness electrical connector (5).
 - b. Remove hex nuts (6) and clamp (7). Discard exhaust clamp.
 - c. Remove hex head cap screws (8) and flat washers (9).
 - d. Remove motor mounting clamp (10) and cushions (11).
 - e. Lift blower assembly (12) away from the main screed, disconnecting flexible pipe (13) from adapter (14).

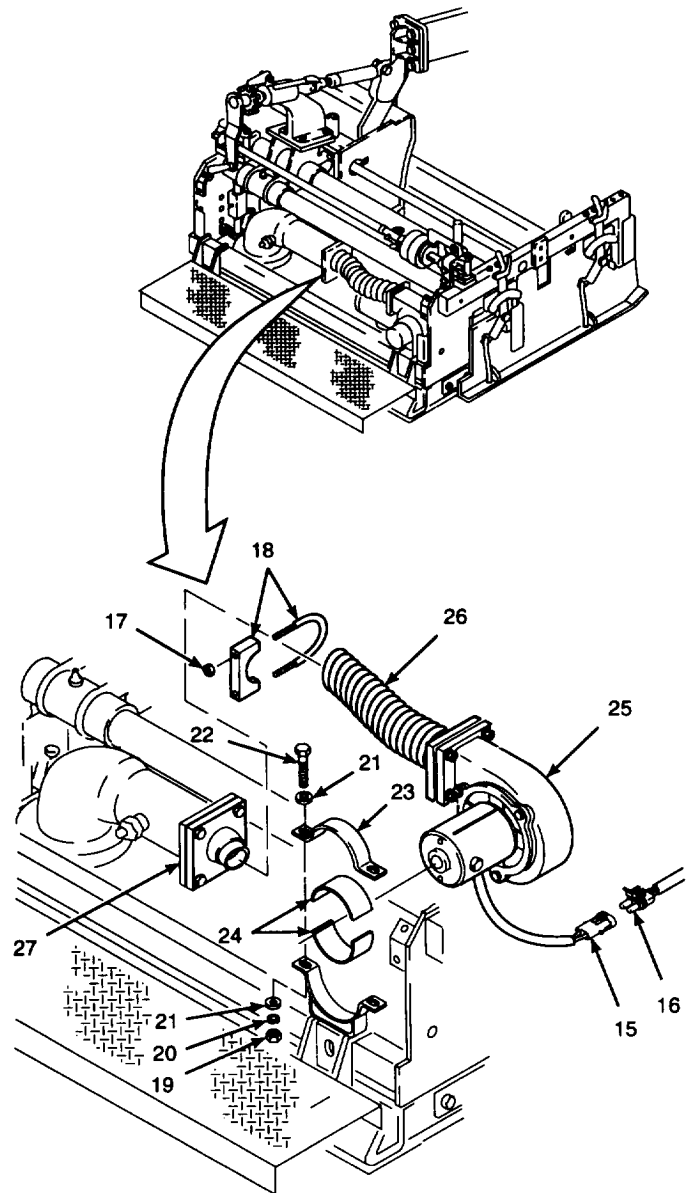


NOTE: ILLUSTRATION SHOWS RIGHT MAIN SCREED. LEFT MAIN SCREED IS A MIRROR IMAGE OF THE RIGHT MAIN SCREED.

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14.8. REPLACE/REPAIR BLOWER MOTOR - Continued.**A. REMOVE - Continued.**

3. REMOVE EXTENSION SCREED BLOWER ASSEMBLIES AND FLEXIBLE PIPE.
 - a. Disconnect blower electrical connector (15) from screed harness electrical connector (16).
 - b. Remove hex nuts (17) and clamp (18). Discard exhaust clamp.
 - c. Remove hex nuts (19), lockwashers (20), flat washers (21), and hex head cap screws (22). Discard lockwashers.
 - d. Remove motor mounting clamp (23) and cushions (24).
 - e. Lift blower assembly (25) away from extension screed, disconnecting flexible pipe (26) from adapter (27).

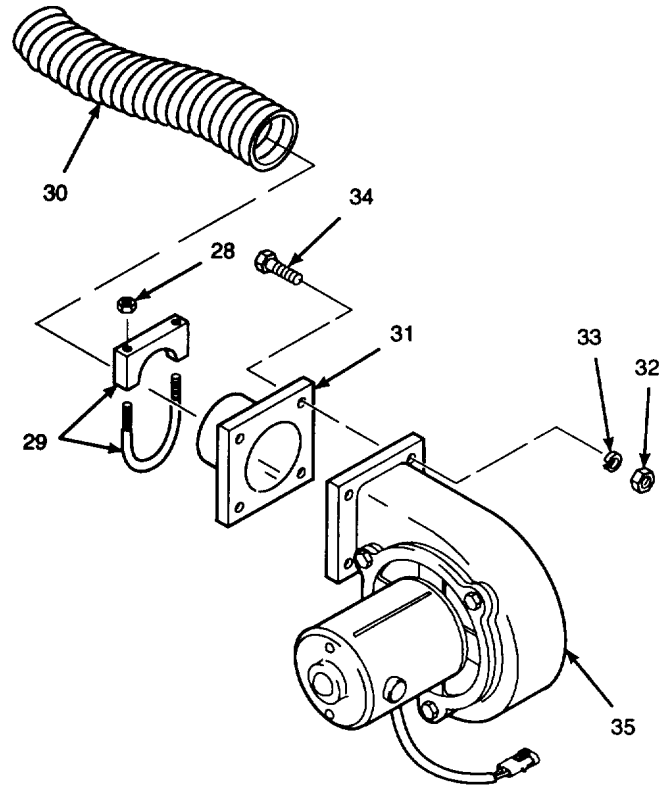


NOTE: ILLUSTRATION SHOWS RIGHT EXTENSION SCREED. LEFT EXTENSION SCREED IS A MIRROR IMAGE OF THE RIGHT EXTENSION SCREED. HEAT SHIELD HAS BEEN REMOVED FOR CLARITY.

GO TO NEXT PAGE

B. DISASSEMBLE.

1. REMOVE FLEXIBLE PIPE AND ADAPTER FROM BLOWER ASSEMBLY.
 - a. Remove hex nuts (28) and clamp (29).
 - b. Disconnect flexible pipe (30) from adapter (31).
 - c. Remove hex nuts (32), lockwashers (33), and hex head cap screws (34). Discard lockwashers.
 - d. Remove adapter (31) from blower assembly (35).



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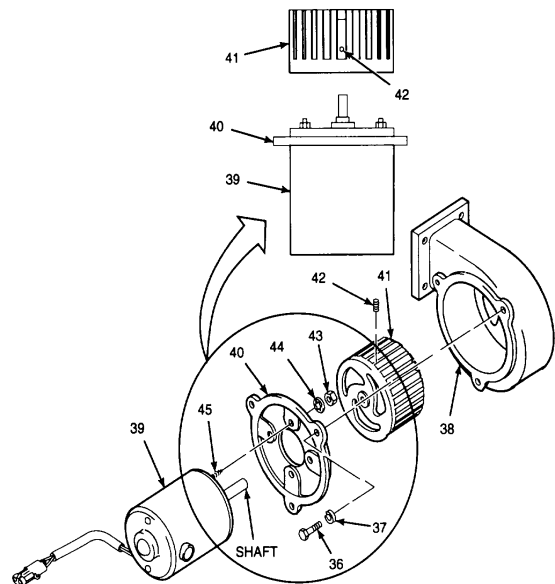
14.8. REPLACE/REPAIR BLOWER MOTOR - Continued.**B. DISASSEMBLE - Continued.**

2. REMOVE BLOWER MOTOR AND FAN ROTOR FROM BODY.
 - a. Remove hex head cap screws (36) and lockwashers (37) from body (38). Discard lockwashers.
 - b. Pull motor (39), motor mounting plate (40), and fan rotor (41), assembled, from body (38).
 - c. Loosen set screws (42) and remove fan rotor (41) from assembled motor (39) and motor mounting plate (40).



When removing the hex nuts that secure motor mounting plate to the motor, ensure that motor does not separate. The machine screws and hex nuts are also used to keep the motor assembled.

- d. Remove hex nuts (43) and lockwashers (44) from machine screws (45), and remove motor mounting plate (40). Reinstall the hex nuts onto the machine screws to ensure that the motor does not come apart. Discard lockwashers.



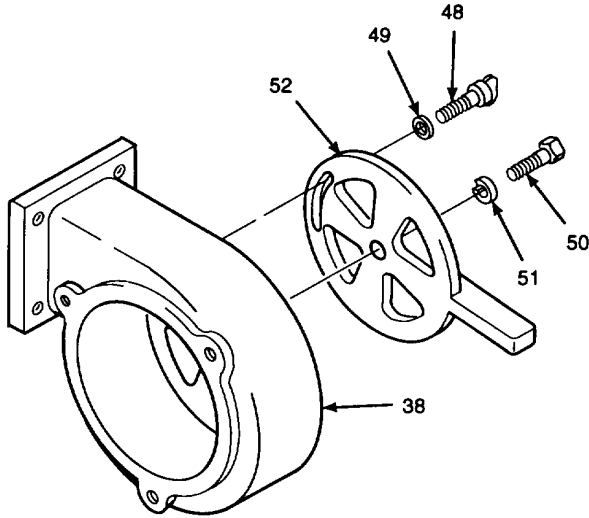
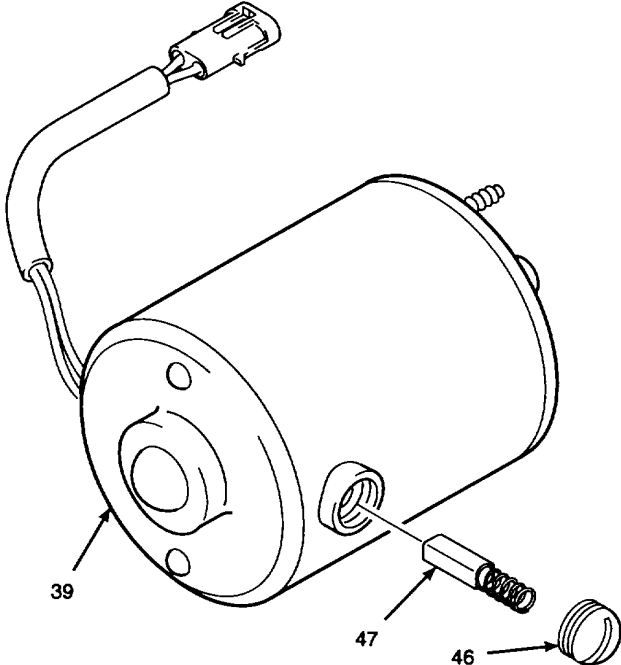
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B. DISASSEMBLE - Continued.

NOTE

The blower motor cannot be repaired except for replacement of the motor brush and spring assembly.

- e. To replace the motor brush and spring assembly, remove brush cap (46) and pull brush and spring assembly (47) from motor (39). Install the new brush and spring assembly. Install and tighten the brush cap.
3. REMOVE AIR CONTROL PLATE FROM BODY.
- a. Remove thumbscrew (48) and flat washer (49).
 - b. Remove hex head cap screw (50) and lockwasher (51). Remove air control plate (52) from body (38). Discard lockwasher.



GO TO NEXT PAGE

14.8. REPLACE/REPAIR BLOWER MOTOR - Continued.

C. CLEAN.**1. CLEAN BLOWER COMPONENT PARTS.****WARNING**

Cleaning solvent, PD680, is **TOXIC** and flammable. Wear protective goggles 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 HI cleaning solvent is 200°F (93,30C). 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, flush eyes with water and get immediate medical attention.

- a. Rinse all metal parts (except electric motor) in cleaning solvent.
- b. Use a parts cleaning brush and cleaning solvent to remove any hard deposits from blower fan rotor, body, and motor mounting plate.
- c. Dry with a clean, lint-free cloth.
- d. Dispose of waste cleaning solvent in accordance with local procedures.

2. CLEAN CAP SCREWS.**WARNING**

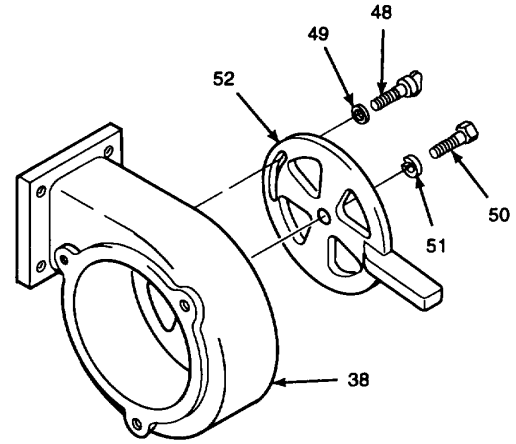
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Use thread locking compound solvent to clean threads of cap screws.
- b. Dry with a clean, cleaning cloth.

GO TO NEXT PAGE
14-66

D. ASSEMBLE.

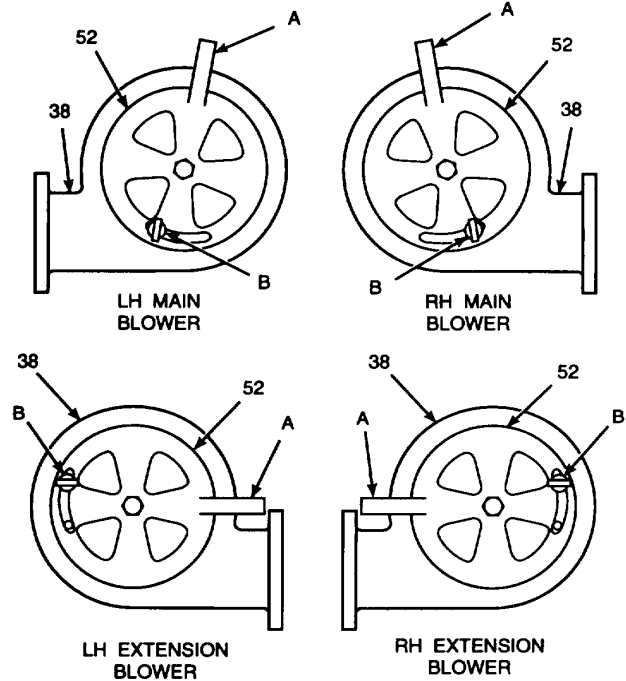
1. INSTALL AIR CONTROL PLATE ONTO BODY.
 - a. Position air control plate (52) onto body (38). Make sure adjust slot lines up with thumbscrew (48) threaded hole in body. Install hex head cap screw (50) and lockwasher (51). Tighten cap screw hand tight.



CAUTION

Due to the position in which each blower is installed, the air control plate must be orientated in a different direction for each blower.

- b. Orient air control plate (52) on body (38) so the handle is in position (A) for each blower motor being assembled. Use the illustration as a guide.
- c. Install thumbscrew (48) and flat washer (49) at position (B) for each blower motor being assembled. Use the illustration as a guide.



GO TO NEXT PAGE

14.8. REPLACE/REPAIR BLOWER MOTOR - Continued.

D. ASSEMBLE - Continued.

2. INSTALL FAN ROTOR AND BLOWER MOTOR INTO BODY.



Hex nuts (43) and machine screws (45) come with new motor (39). Before installing motor mounting plate (40), remove hex nuts and measure the machine screws. Trim the machine screws with hacksaw to 4 in. (102 mm) in length so that there is no interference with the rotation of fan rotor (41). Ensure that the motor does not come apart when the hex nuts are removed. The hex nuts and machine screws are used to keep the motor assembled.

- a. Remove hex nuts (43) from machine screws (45). Measure the machine screw and trim the length to 4 in. (102 mm) with hacksaw so there is no interference with the rotation of fan rotor (41). When removing hex nuts, make sure that motor (39) does not separate.
- b. Install motor (39) shaft through motor mounting plate (40). Use the illustration to properly orient the motor onto the mounting plate for each blower being assembled.
- c. Install lockwashers (44) and hex nuts (43) onto machine screws (45). Tighten hex nuts.

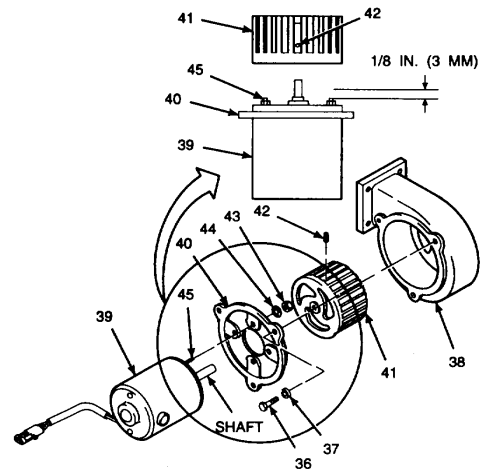


Do not slide the fan rotor tight against the motor. Leave a 1/8 in. (3 mm) gap between the machine screws and the bottom of the fan rotor.

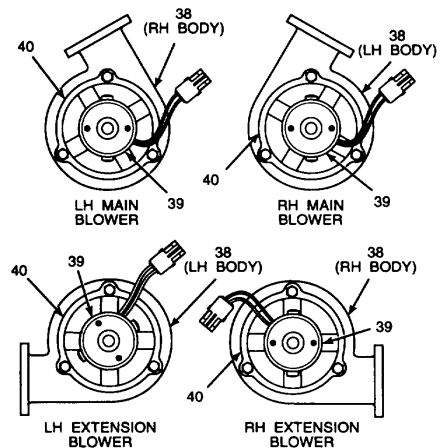
- d. Slide fan rotor (41) onto motor (39) shaft. Ensure that a 1/8 in. (3 mm) gap is maintained between the fan rotor and

machine screws (45).

- e. Tighten set screws (42).
- f. Install motor (39), motor mounting plate (40), and fan rotor (41), assembled, into body (38). Follow the illustration to properly orient the mounting plate onto the body for each blower being assembled.
- g. Install lockwashers (37) and hex head cap screws (36) through motor mounting plate (40) and into body (38). Tighten cap screws. Do not overtighten.



NOTE: ENSURE TO USE CORRECT BODY STYLE (LH OR RH) WHEN ASSEMBLING BLOWER.



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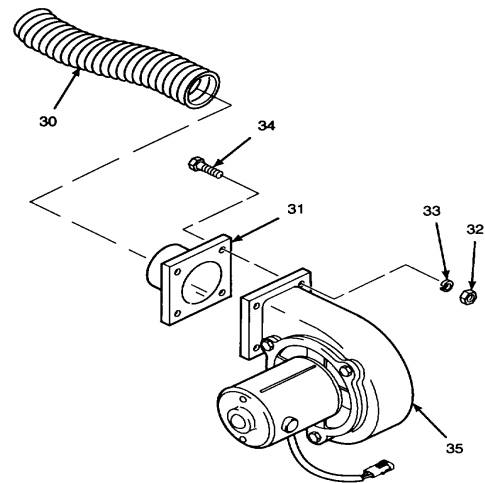
D. ASSEMBLE - Continued.

3. INSTALL ADAPTER AND FLEXIBLE PIPE ONTO BLOWER ASSEMBLY.
 - a. Place adapter (31) onto blower assembly (35).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- b. Apply thread locking compound to hex head cap screws (34).
- c. Install adapter (31), hex head cap screws (34), lockwashers (33), and hex nuts (32). Tighten to 9 lb-ft (12 N•m).
- d. Place flexible pipe (30) onto adapter (31).



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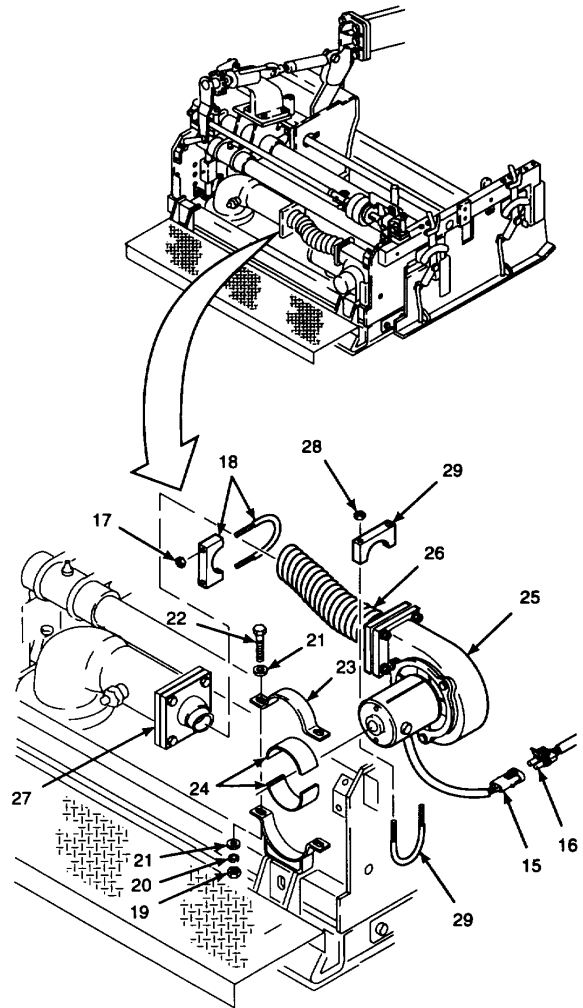
14.8. REPLACE/REPAIR BLOWER MOTOR - Continued.**E. INSTALL.**

1. INSTALL EXTENSION SCREED BLOWER ASSEMBLIES AND FLEXIBLE PIPE.
 - a. Place blower assembly (25) onto extension screed and connect flexible pipe (26) to adapter (27).
 - b. Place cushions (24) above and below blower assembly (25) and install motor mounting clamp (23).
 - c. Install flat washer (21) onto hex head cap screw (22).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- d. Apply thread locking compound to hex head cap screws (22)
- e. Install hex head cap screws (22) lockwashers (20), flat washers (21), and hex nuts (19). Tighten hex nuts evenly until motor is secure in cushions (24).
- f. Apply thread locking compound to threads on clamps (18 and 29)
- g. Install clamps (18 and 29) and hex nuts (17 and 28). Tighten hex nuts evenly to 9 lb-ft (12 N•m).
- h. Apply electrical insulating compound to male end of blower electrical connector (15)
- i. Connect screed harness electrical connector (16) to blower electrical connector (15).



NOTE: ILLUSTRATION SHOWS RIGHT EXTENSION SCREED. LEFT EXTENSION SCREED IS A MIRROR IMAGE OF THE RIGHT EXTENSION SCREED. HEAT SHIELD HAS BEEN REMOVED FOR CLARITY.

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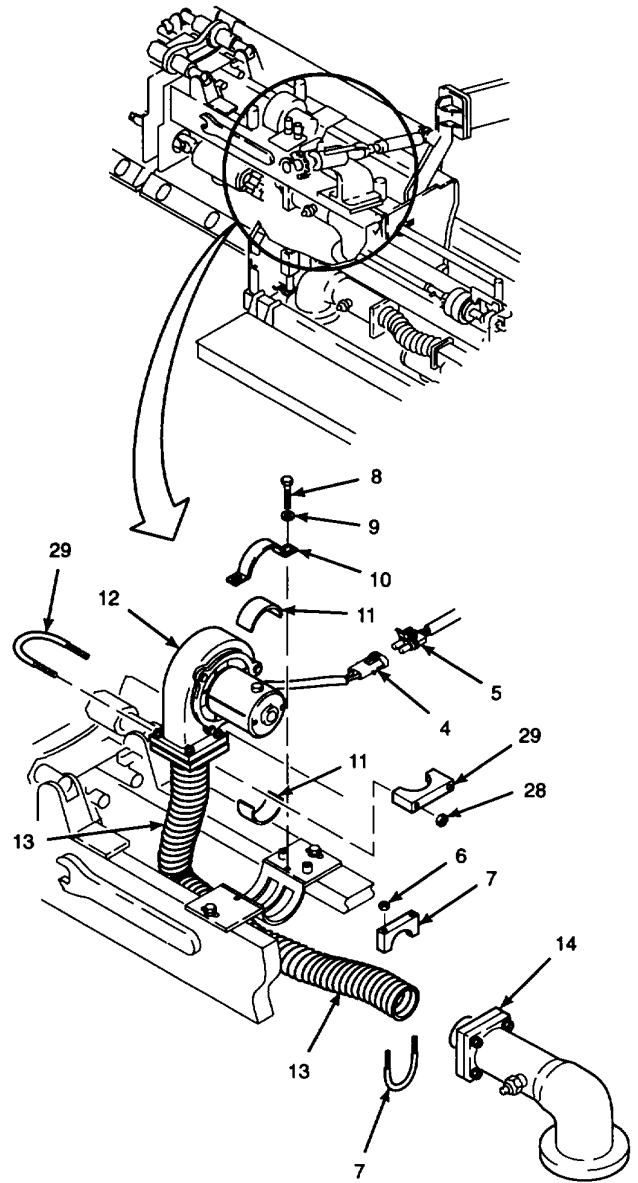
E. INSTALL - Continued.

2. INSTALL MAIN SCREED BLOWER ASSEMBLIES AND FLEXIBLE PIPE.
 - a. Connect flexible pipe (13) onto adapter (14) and place blower assembly (12) onto main screed.
 - b. Place cushions (11) above and below blower assembly (12) and install motor mounting clamp (10).
 - c. Install flat washer (9) onto hex head cap screw (8).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- d. Apply thread locking compound to hex head cap screws (8).
- e. Install flat washers (9) and hex head cap screws (8). Tighten cap screws evenly until motor is secure in cushions (11).
- f. Apply thread locking compound to the threads on clamps (7 and 29).
- g. Install clamps (7 and 29) and hex nuts (6 and 28). Tighten hex nuts evenly to 9 lb-ft 12 N•m).
- h. Apply electrical insulating compound to blower electrical connector (4).
- i. Connect screed harness electrical connector (5) to blower electrical connector (4).



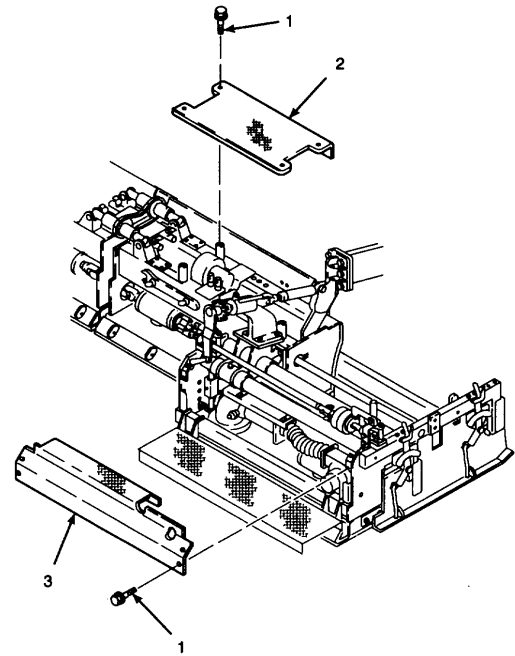
NOTE: ILLUSTRATION SHOWS RIGHT MAIN SCREED. LEFT MAIN SCREED IS A MIRROR IMAGE OF THE RIGHT MAIN SCREED.

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14.8. REPLACE/REPAIR BLOWER MOTOR - Continued.

E. INSTALL - Continued.**3. INSTALL SCREED COVER PLATES.**

- a. Install screed cover plate (3) and self-locking machine screw (1) onto screed extension.
- b. Install screed cover plate (2) and self-locking machine screw (1) onto main screed.
- c. Tighten self-locking machine screws (1) to 19 lb-ft (26 N•m).

**NOTE**

FOLLOW-ON-TASK: Extension screeds fully retracted per TM 5-3895-373-10.

END OF TASK

**CHAPTER 15
PAVING MACHINE COMPONENTS MAINTENANCE**

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Replace Strikeoff Components	15.15	15-102
Replace Thickness Control Components	15.3	15-20

15.1. GENERAL MAINTENANCE PROCEDURES.

All unit level maintenance shall be performed in accordance with good and safe shop practices. Observe the following general instructions and requirements when performing paving machine components maintenance.

- a. Areas of the paving machine exposed to paving material buildup require cleaning prior to disassembly. Use hammers, chisels, and scrapers to remove thickest sections of buildup. If available, use heater gun to soften deposits adhering to components; remove softened buildup with putty knife. When heating paving material, keep second person with fire extinguisher at hand and avoid overheating. If heater gun is not available, use solvent or fuel washdown system to soften paving material.
- b. Thoroughly clean hydraulic hoses and fittings before disconnecting. Always plug or cap off disconnected fittings to prevent dirt and contaminants from entering the system. Failure to clean hoses and fittings and to plug or cap open fittings may result in hydraulic system contamination and equipment damage.
- c. Always tag mating connectors and fittings before disconnecting. Tagging of mating connectors and fittings will ease reassembly and reduce assembly errors.
- d. Use a backup wrench when loosening or tightening inline fittings. Using a backup wrench will prevent unnecessary damage to attached lines and/or smaller fittings.
- e. When removing tie wraps from hoses and wiring, note or mark locations and anchor points. The proper location and installation of tie wraps will prevent undue chafing of hoses and wiring.
- f. Thread locking compound is used with most threaded fasteners. If a threaded fastener will not break loose, heat threaded area of fastener from 500° to 6000F (2320 to 315°C) with heater gun. If the special solvent used to remove thread locking compound from screw threads fails to remove buildup, discard fastener.
- g. Discard all removed gaskets, seals, preformed packings, self-locking nuts, lockwashers, spring pins, and deformed hardware.
- h. Inspect all removed components for obvious wear or damage. Replace all worn, bent, broken, or otherwise damaged parts.
- i. Inspect all removed fasteners for thread damage. If thread damage is found, replace fastener. Replace flat washers if galled or bent. Use screw extractor set (Item 15, Appendix E) to remove broken studs or screws.
- j. Clean painted surfaces thoroughly before repainting. Do not paint over rust or corrosion. Do not paint bearings or other parts that require surface lubrication. Reference TM 430139 for equipment painting requirements.
- k. Torque values cited in the text apply to modified SAE Grade 8 fasteners at required clamping loads.
- l. Use only authorized replacement parts. Refer to TM 5389537324P, Repair Parts and Special Tools List (RPSTL) for authorized replacement parts.
- m. Observe all warnings and cautions. Wear protective clothing and equipment as specified. Observe the Safety and Hazard Warnings provided in TACOM technical bulletin TB 43-0216.

15.2. REPLACE SCREED CONTROL BOX.

This task covers: a. Remove b. Clean c. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Jeweler's screwdriver set (Item 38, Appendix E)
Torque wrench (Item 68, Appendix E)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Materials/Parts:

Adhesive (Item 3, Appendix C)
Cleaning cloths (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Electrical insulating compound (Item 11, Appendix C)
Electrical insulating varnish (Item 32, Appendix C)
Lint-free cloth (Item 8, Appendix C)
Tags (Item 27, Appendix C)
Thread locking compound (Item 13, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Tie wraps (Item 29, Appendix C)
Dust and moisture boots
Foam rubber panel seal
Lockwashers
O-rings

GO TO NEXT PAGE

15.2. REPLACE SCREED CONTROL BOX - Continued.

NOTE

There is a left hand and a right hand screed control box on the paving machine. This procedure refers to replacement of the left hand screed control box. Procedure is identical for right hand screed control box replacement. Differences between left hand and right hand screed control panels are addressed in the text. Left hand screed control box is shown in this procedure.

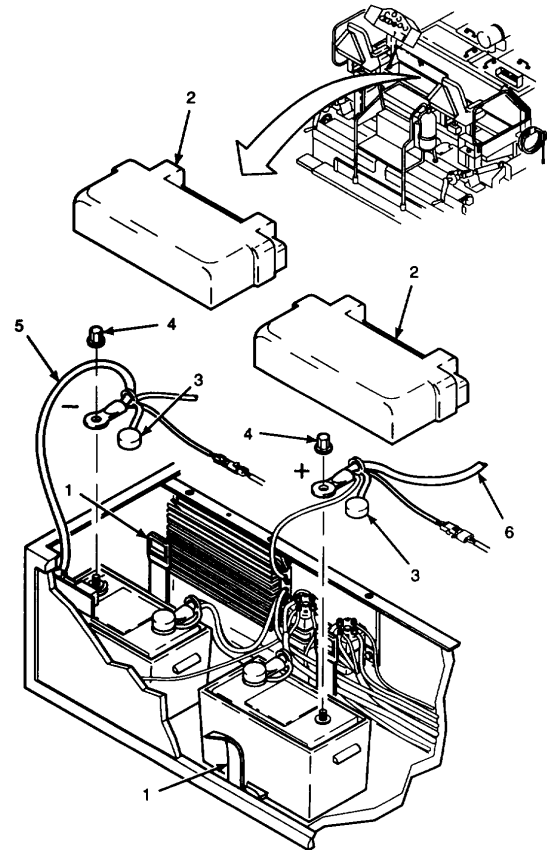
A. REMOVE.

1. REMOVE BATTERY CABLES.
 - a. Unbuckle battery box holddown straps (1) and remove battery box covers (2) from both batteries.
 - b. Lift rubber battery terminal caps (3) from battery terminals.

WARNING

When disconnecting batteries, disconnect negative battery cable before disconnecting positive battery cable. Failure to disconnect batteries in the proper sequence may lead to electrical shock or short circuit and result in personnel injury.

- c. Remove battery nut (4) and negative battery cable (5) from negative terminal of outboard battery.
 - d. Remove battery nut (4) and positive battery cable (6) from positive terminal of inboard battery.
2. REMOVE SCREED CONTROL BOX PROTECTIVE COVER PER TM 5-3895-373-10.

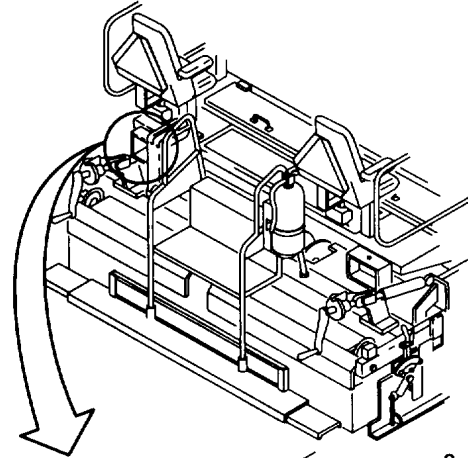


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A. REMOVE - Continued.

3. REMOVE SCREED CONTROL PANEL, PANEL SEAL, AND SCREED CONTROL PANEL COMPONENTS.

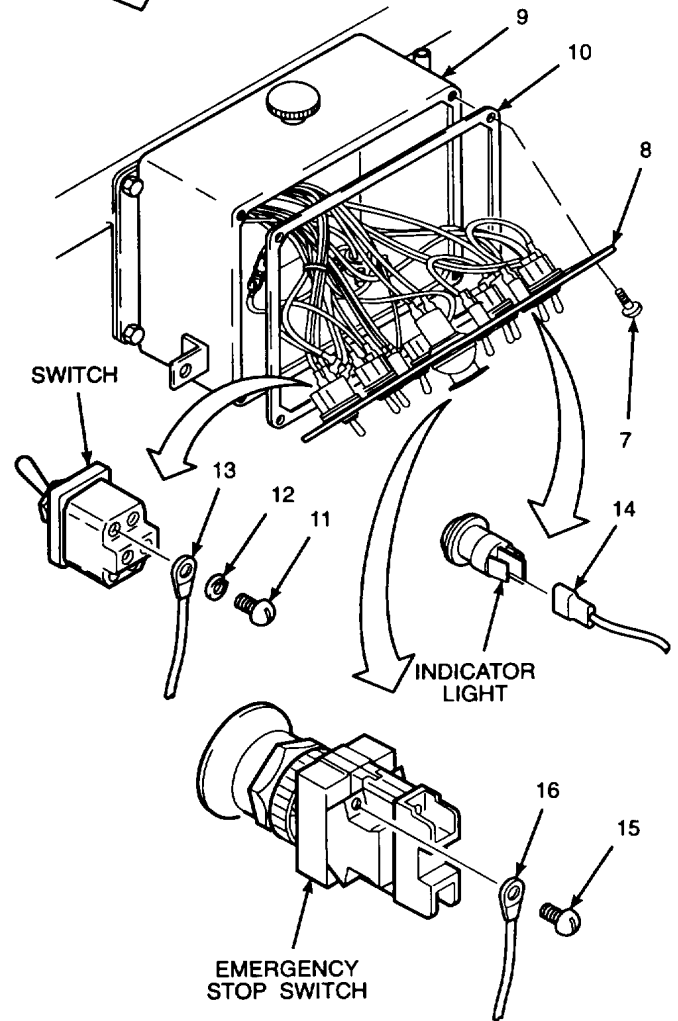
- a. Remove button head cap screws (7) and pull screed control panel (8) far enough from screed control box (9) to access panel seal (10).
- b. Remove panel seal (10). Discard foam rubber panel seal.
- c. Remove tie wraps as needed.



NOTE

Ensure wires are tagged as needed for reassembly. Screed control panel functions will be affected by incorrect wiring installation.

- d. Tag wires for reassembly.
- e. Remove terminal screws (11) and lockwashers (12). Discard lockwashers.
- f. Remove ring terminals (13) from switches.
- g. Pull electrical contacts (14) from indicator lights.
- h. Remove terminal screws (15) from emergency stop switch.
- i. Remove ring terminals (16) from emergency stop switch.



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15.2. REPLACE SCREED CONTROL BOX - Continued.**A. REMOVE - Continued.****NOTE**

Left and right hand screed control panel layouts are reversed (left to right) from one another. Left hand screed control box panel has a fuel pump switch, indicator light, and an additional circuit breaker connection on buss bar.

NOTE

Ensure switches are tagged for reassembly. Not all switches function in the same manner.

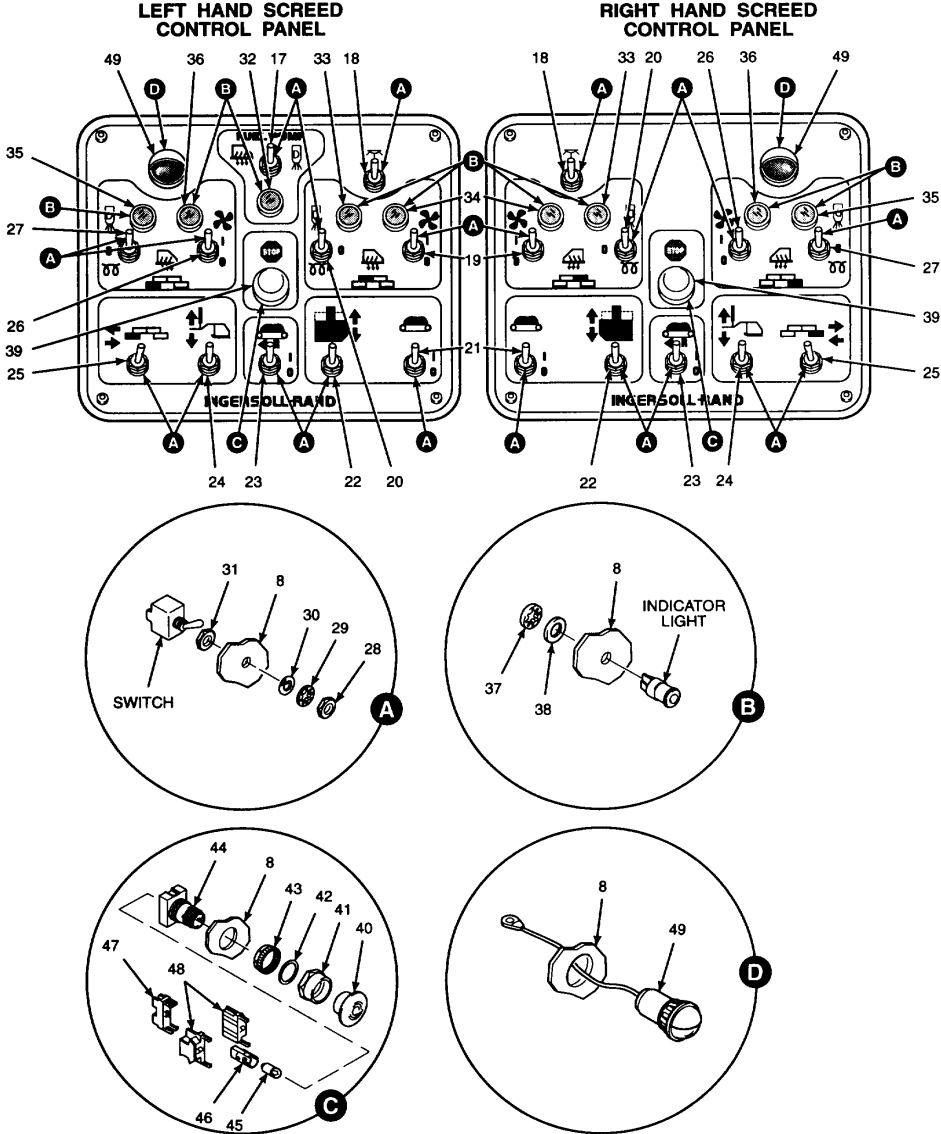
- j. Remove switches (17 through 27) from screed control panel (8) by removing hex nuts (28), lockwashers (29), and dust and moisture boots (30). Tag switches for placement at reassembly. Pull switches from rear of screed control panel. Remove hex nuts (31). Refer to legend and illustration. Discard lockwashers and dust and moisture boots.
- k. Remove indicator lights (32 through 36) from screed control panel (8) by removing lockwashers (37) and orings (38). Pull indicator lights from front of screed control panel. Refer to legend and illustration. Discard lockwashers and orings.
- l. Remove emergency stop switch (39) from screed control panel (8) by removing pushbutton (40), bezel (41), bezel gasket (42), and adjustment ring (43). Pull operator switch (44) from screed control panel (8) and remove lamp (45), lampholder (46), direct voltage adapter (47), and contact blocks (48). Do not discard bezel gasket (42).
- m. Remove panel lamp unit (49) by pressing with a finger from behind screed control panel (8).

LEGEND

- 17. Fuel pump switch (LH only)
- 18. Panel light switch
- 19. Main screed blower switch
- 20. Main screed burner control switch
- 21. Feeder control switch
- 22. Flow gate switch
- 23. Auger/conveyor reverse control switch
- 24. Tow point movement switch
- 25. Extension screed control switch
- 26. Extension screed blower switch
- 27. Extension screed burner control switch
- 28. Hex nut
- 29. Lockwasher
- 30. Dust and moisture boot
- 31. Hex nut
- 32. Screed fuel pump indicator light (LH only)
- 33. Main screed burner on indicator light
- 33. Main screed burner on indicator light
- 34. Main screed blower indicator light
- 35. Extension screed burner on indicator light
- 36. Extension screed blower indicator light
- 37. Lockwashers
- 38. O-rings
- 39. Emergency stop switch
- 40. Pushbutton
- 41. Bezel
- 42. Bezel gasket
- 43. Adjustment ring
- 44. Operator switch
- 45. Lamp
- 46. Lampholder
- 47. Direct voltage adapter
- 48. Contact blocks
- 49. Panel lamp unit

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A. REMOVE - Continued.

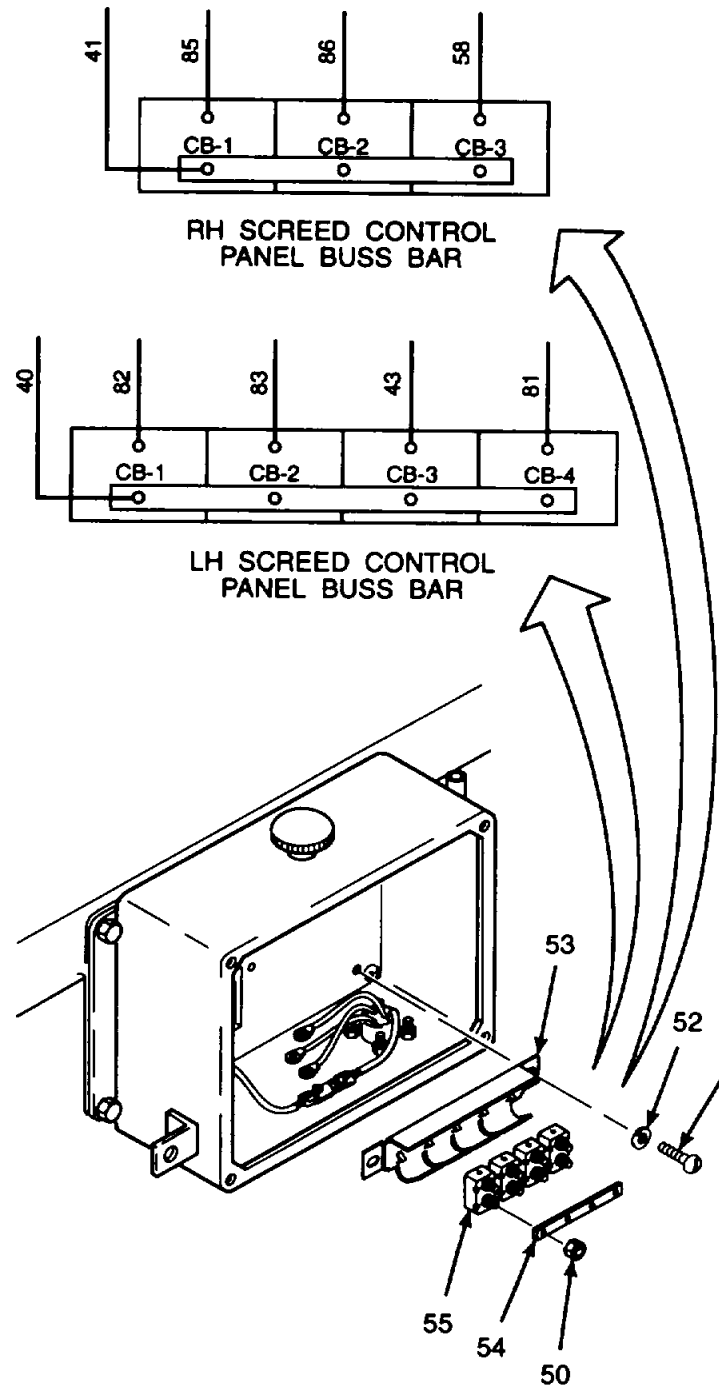


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15.2. REPLACE SCREED CONTROL BOX - Continued.

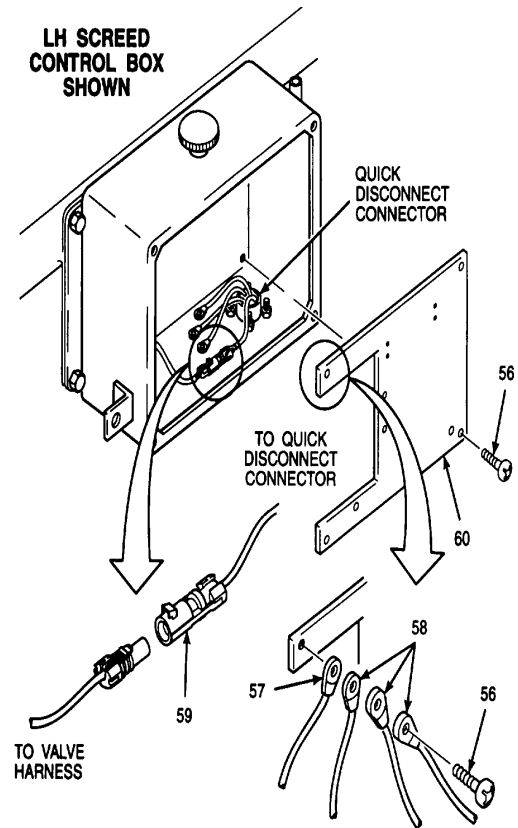
A. REMOVE - Continued.

4. REMOVE BUSS BAR, MOUNTING PANEL, CONNECTOR, AND SCREED CONTROL BOX.
 - a. Remove self-locking nuts (50) and disconnect wires. Discard self-locking nuts.
 - b. Remove machine screws (51) and flat washers (52).
 - c. Remove buss bar mounting bracket (53), buss bar (54), and circuit breakers (55).

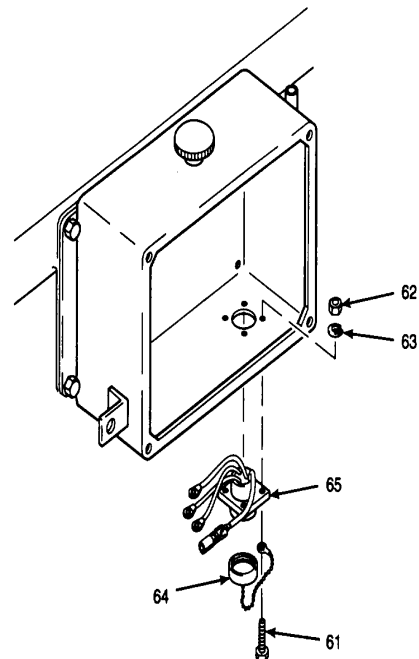


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- A. REMOVE - Continued.
- d. Remove tapping screw (56) and ground wires 17 (57) and G201 (58).
 - e. Unplug electrical connector (59) from valve harness.
 - f. Remove three remaining tapping screws (56) and mounting panel (60).



- g. With jeweler's screwdriver remove machine screws (61), hex nuts (62), lockwashers (63), and protective cap (64). Discard lockwashers.
- h. Pull quick disconnect connector (65) from screed control box through bottom of box.

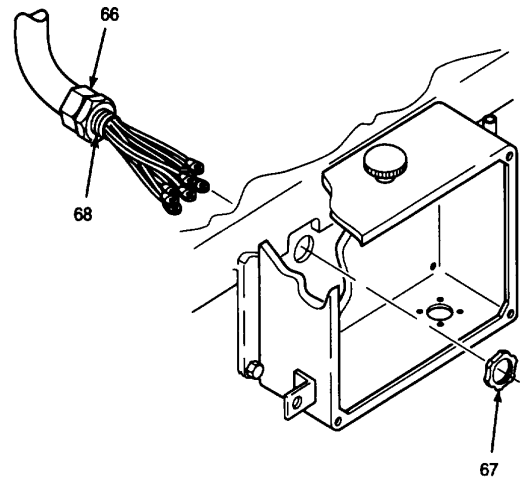


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15.2. REPLACE SCREED CONTROL BOX - Continued.

- A. REMOVE - Continued.
 - i. Remove electrical box connector (66) from rear of screed control box by loosening electrical lock nut (67).
 - j. Carefully feed valve harness (68) wires through electrical lock nut (67) and rear of screed control box.
 - k. Remove hex head cap screws (69), lockwashers (70), and flat washers (71). Discard lockwashers.
 - l. Remove screed control box (72) from paving machine.
 - m. Remove screed control box lock knob (73) from screed control box (72).

- 2. USE A PUTTY KNIFE TO SCRAPE SEAL MATERIAL FROM MATING SURFACES OF SCREED CONTROL BOX AND SCREED CONTROL PANEL. WIPE CLEAN WITH CLEANING CLOTH AND CLEANING SOLVENT.

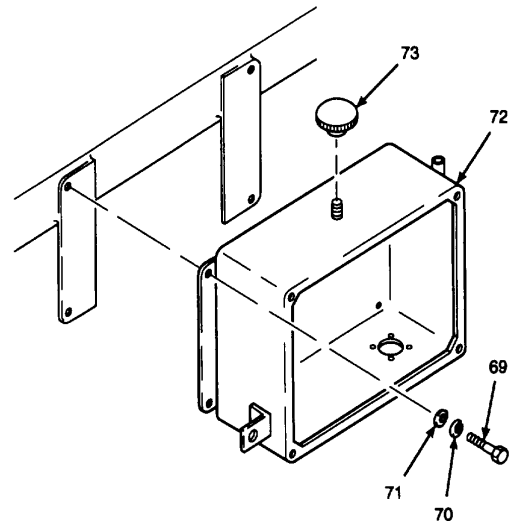


B. CLEAN.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.



- 1. WIPE AREA OF PAVING MACHINE WHERE SCREED CONTROL BOX HAS BEEN REMOVED WITH A CLEANING CLOTH MOISTENED WITH CLEANING SOLVENT.

GO TO NEXT PAGE

- B. CLEAN - Continued.
- 3. DRY ALL PARTS WITH A CLEANING CLOTH.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- 4. CLEAN HEX HEAD CAP SCREWS WITH THREAD LOCKING COMPOUND SOLVENT.
- 5. WIPE HEX HEAD CAP SCREWS DRY WITH A CLEAN, LINT-FREE CLOTH.

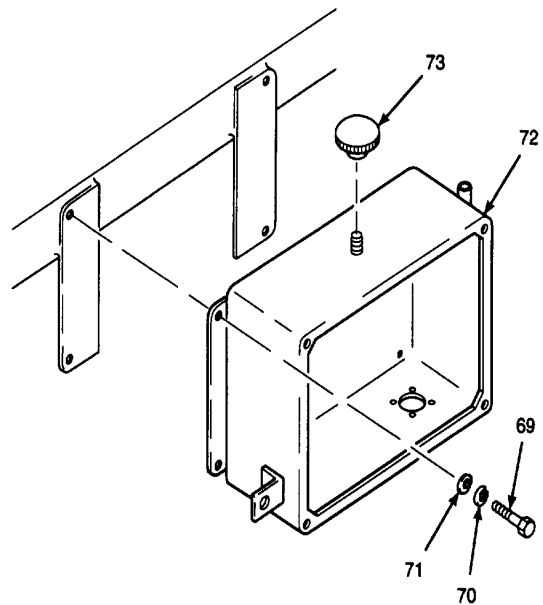
C. INSTALL.

- 1. INSTALL SCREED CONTROL BOX, QUICK DISCONNECT CONNECTOR, MOUNTING PANEL, AND BUSS BAR.
 - a. Install screed control box cover lock knob (73) onto screed control box (72).
 - b. Install lockwashers (70) and flat washers (71) onto hex head cap screws (69).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound

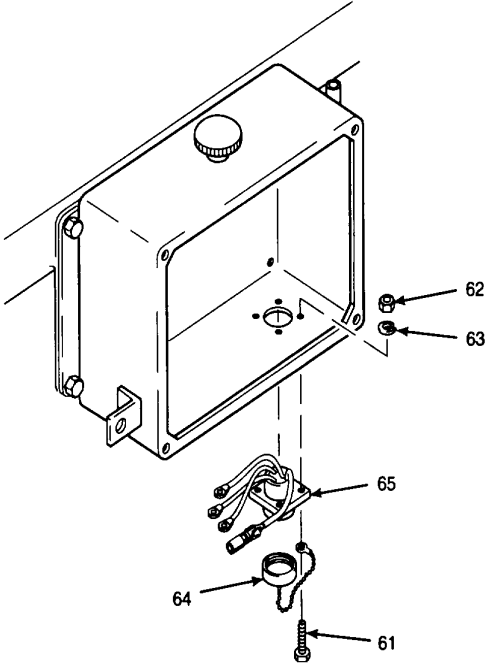
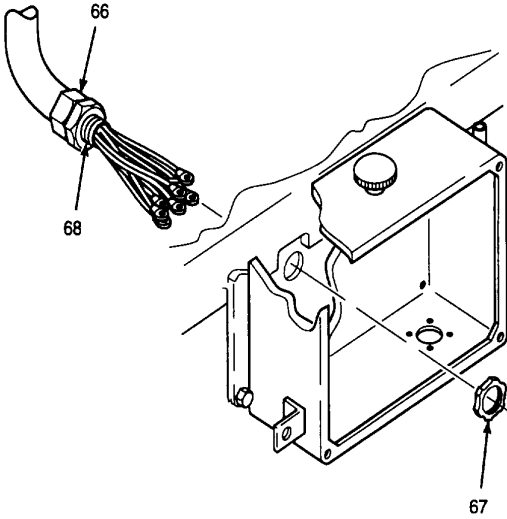
- contacts eyes, flush eyes with water and get immediate medical attention.**
- c. Apply thread locking compound to hex head cap screws (69).
- d. Install screed control box (72) onto paving machine and secure with hex head cap screws (69). Tighten hex head cap screws to 9 lb-ft (12 N•m).



GO TO NEXT PAGE

15.2. REPLACE SCREED CONTROL BOX - Continued.

- C. INSTALL - Continued.
 - e. Carefully feed valve harness (68) wires, in small bundles, into screed control box.
 - f. Install electrical box connector (66) into rear of screed control box.
 - g. Install electrical lock nut (67) over valve harness (68) wires and onto electrical box connector (66). Tighten electrical box connector.
 - h. Install quick disconnect connector (65) through bottom of screed control box.
 - i. Use a jeweler's screwdriver to install machine screws (61), lockwashers (63), protective cap (64), and hex nuts (62).



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C. INSTALL - Continued.

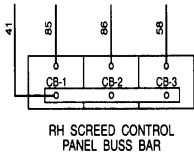
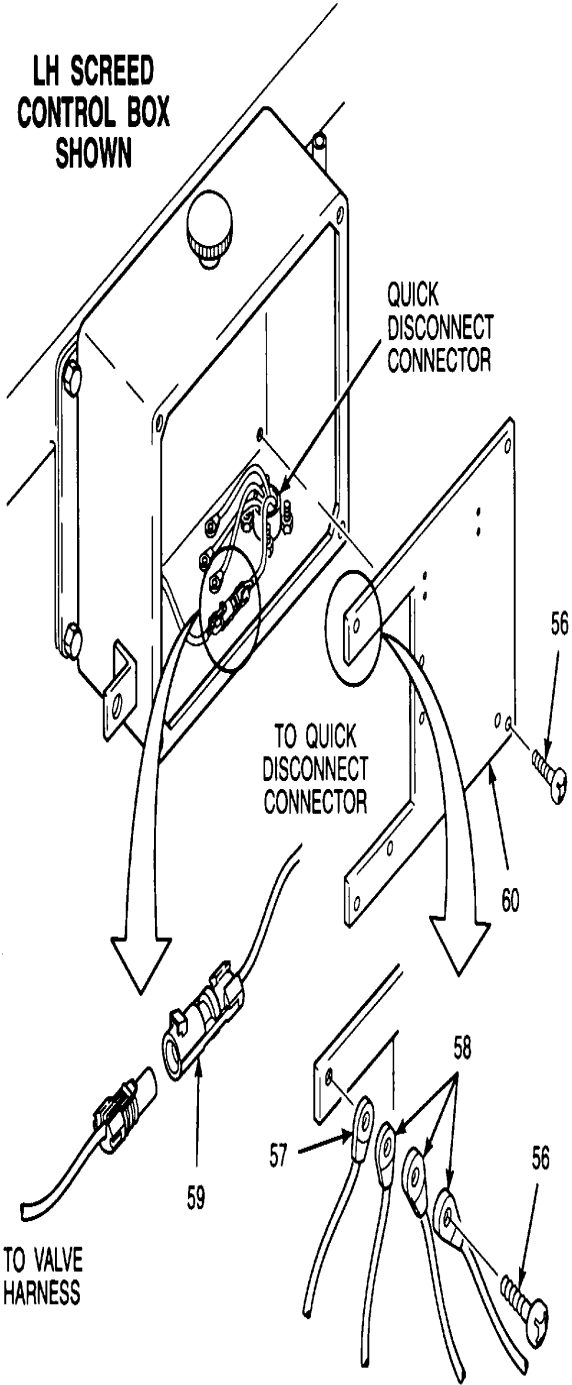
- j. Install mounting panel (60) and secure with tapping screws (56), leaving one screw out to allow for connection of ground wires.
- k. Apply electrical insulating compound to inside terminals of electrical connector (59) and connect to valve harness.

WARNING

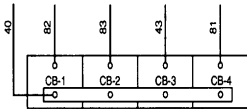
Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- l. Install ground wires 17 (57) and G201 (58) and remaining tapping screw (56). Apply electrical insulating varnish to wires and screw.
- m. Install buss bar mounting bracket (53). Secure with flat washers (52) and machine screws (51).
- n. Install circuit breakers (55), buss bar (54), and wires. Refer to wiring diagram. Secure buss bar and wires with self-locking nuts (50). Apply electrical insulating varnish to wire terminals.

LH SCREED CONTROL BOX SHOWN



RH SCREED CONTROL PANEL BUSS BAR



LH SCREED CONTROL PANEL BUSS BAR

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15.2. REPLACE SCREED CONTROL BOX - Continued.

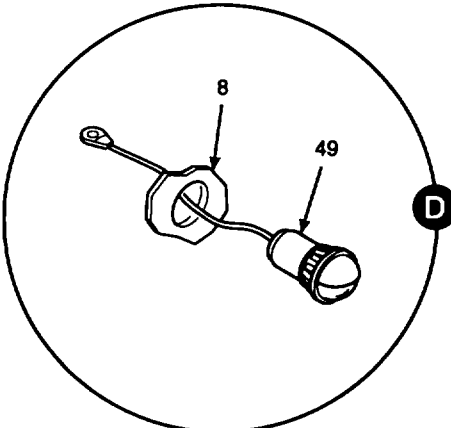
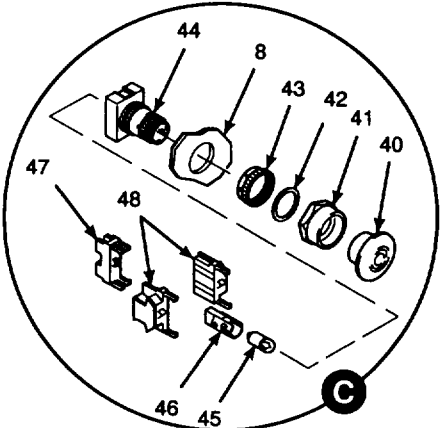
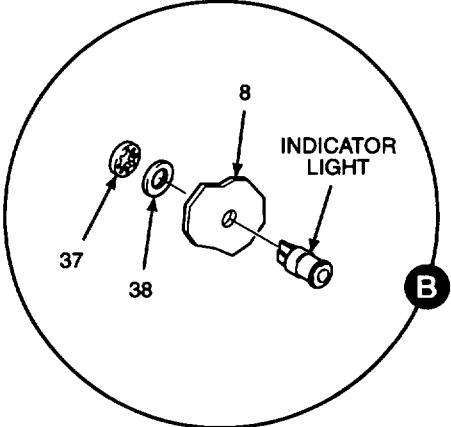
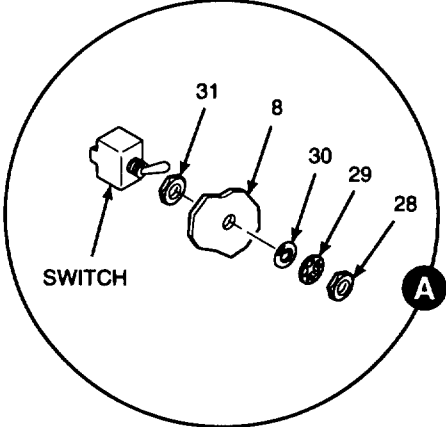
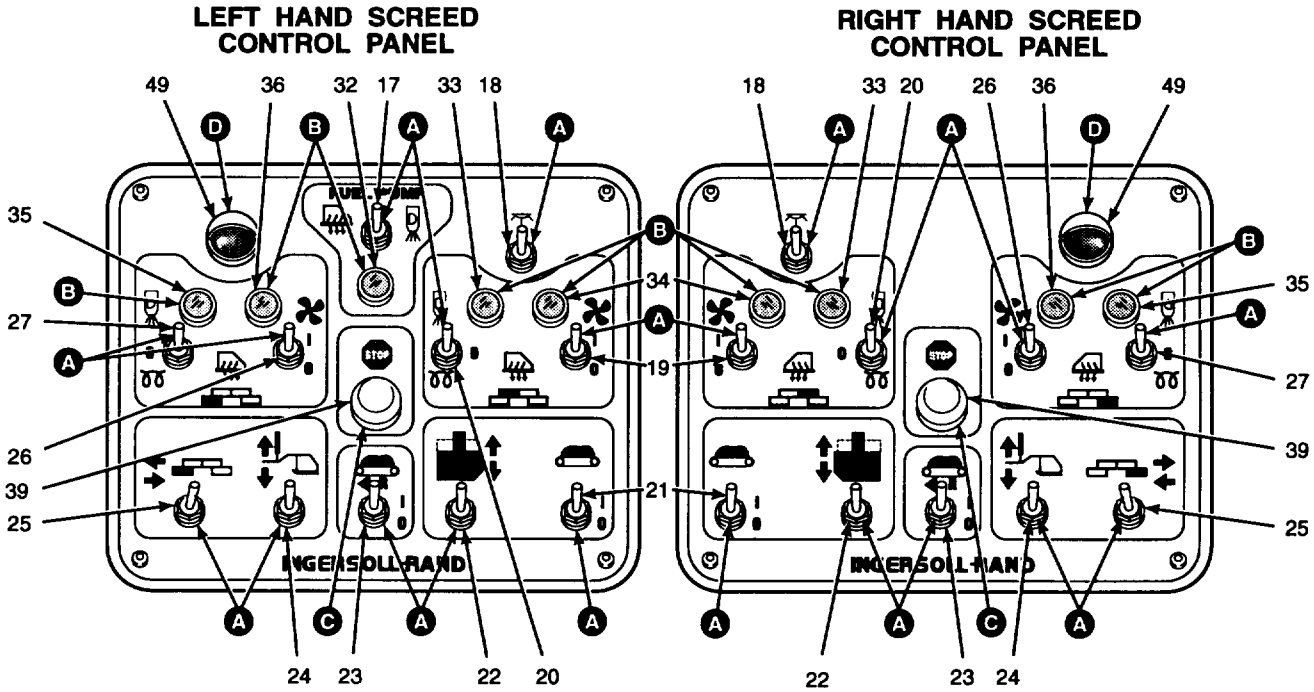
- C. INSTALL - Continued.
2. INSTALL SCREED CONTROL PANEL COMPONENTS, PANEL SEAL, AND SCREED CONTROL PANEL.
- NOTE**
- Left and right hand screed control panel layouts are reversed (left-to-right) from one another. Left hand screed control panel has a fuel pump switch, indicator light, and an additional circuit breaker connection on buss bar.**
- a. Install switches (17 through 27) onto screed control panel (8) by installing hex nut (31) onto switch. Install switch through rear of screed control panel, and install dust and moisture boots (30), lockwashers (29), and hex nuts (28). Refer to legend and illustration.
 - b. Install indicator lights (32 through 36) onto screed control panel (8) by installing indicator light through front of screed control panel. Secure indicator light with o-rings (38) and lockwashers (37). Refer to legend and illustration.
 - c. Assemble emergency stop switch (39) by installing contact blocks (48), direct voltage adapter (47), lampholder (46), and lamp (45) onto operator switch (44). Install assembled switch through rear of screed control panel (8) and secure with adjustment ring (43), bezel gasket (42), bezel (41), and pushbutton (40).
 - d. Install panel lamp unit (49) by pressing with a finger into front of screed control panel (8).

LEGEND

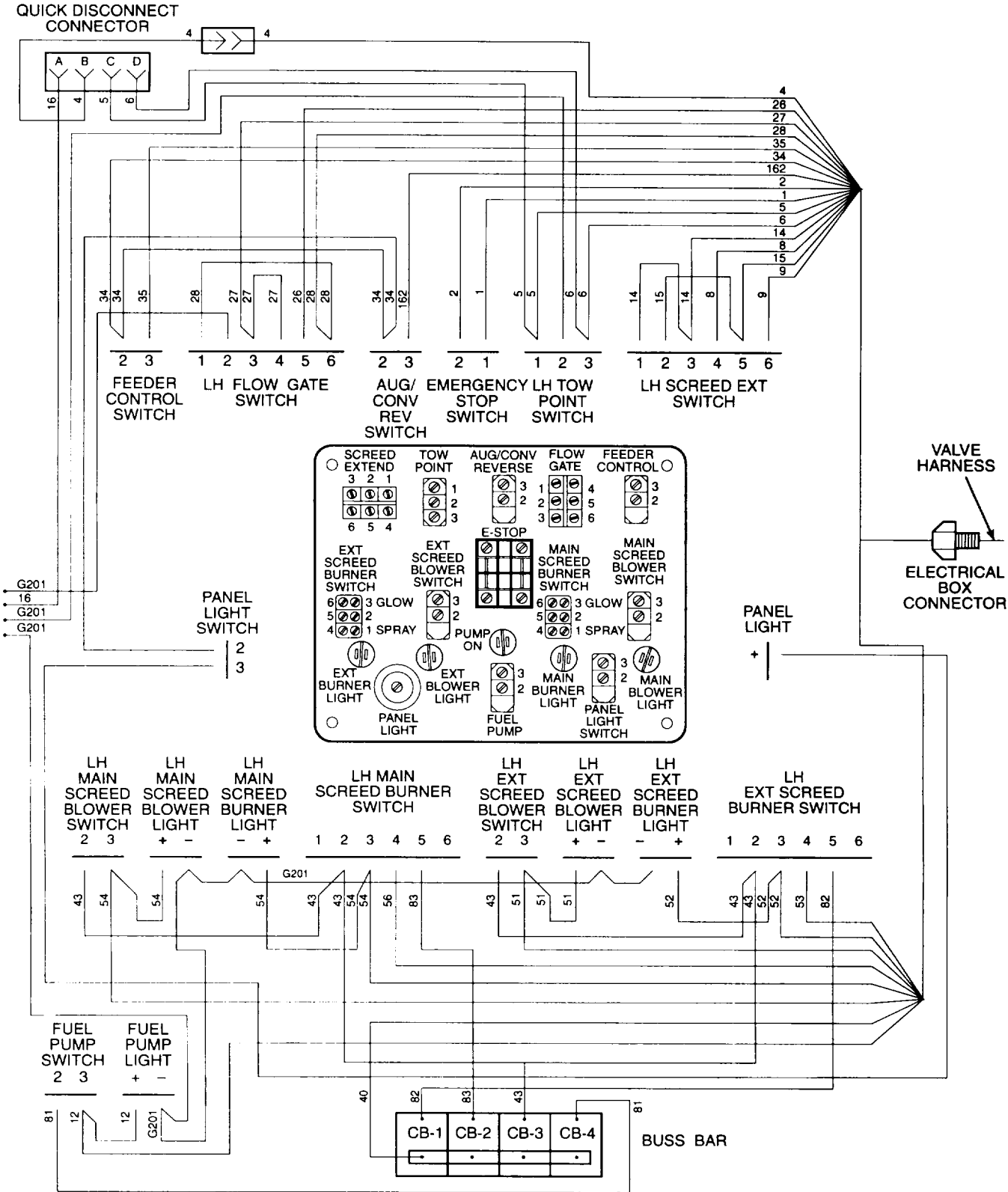
- | | | |
|--|--|----------------------------|
| 17. Fuel pump switch (LH only) | 29. Lockwasher | 39. Emergency stop switch |
| 18. Panel light switch | 30. Dust and moisture boot | 40. Pushbutton |
| 19. Main screed blower switch | 31. Hex nut | 41. Bezel |
| 20. Main screed burner control switch | 32. Screed fuel pump indicator light (LH only) | 42. Bezel gasket |
| 21. Feeder control switch | 33. Main screed burner on indicator light | 43. Adjustment ring |
| 22. Flow gate switch | 34. Main screed blower indicator light | 44. Operator switch |
| 23. Auger/conveyor reverse control switch | 35. Extension screed burner on indicator light | 45. Lamp |
| 24. Tow point movement switch | 36. Extension screed blower indicator light | 46. Lampholder |
| 25. Extension screed control switch | 37. Lockwashers | 47. Direct voltage adapter |
| 26. Extension screed blower switch | 38. O-rings | 48. Contact blocks |
| 27. Extension screed burner control switch | | 49. Panel lamp unit |
| 28. Hex nut | | |

GO TO NEXT PAGE

C. INSTALL - Continued.

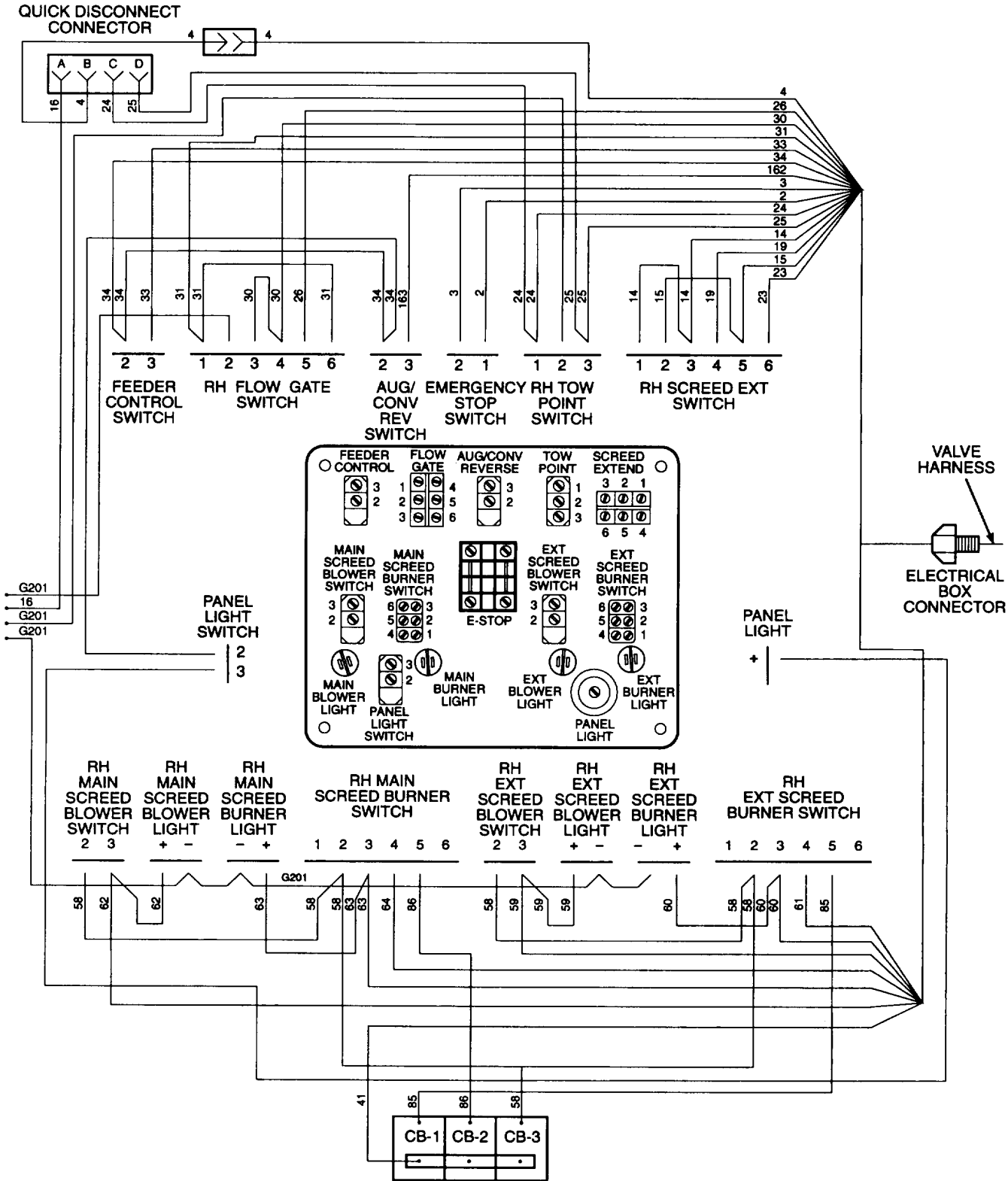


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LEFT HAND SCREED CONTROL PANEL WIRING DIAGRAM

GO TO NEXT PAGE



RIGHT HAND SCREED CONTROL PANEL WIRING DIAGRAM

GO TO NEXT PAGE

15.2. REPLACE SCREED CONTROL BOX- Continued.

C. INSTALL - Continued.

- e. Install ring terminals (16) onto emergency stop switch and secure with terminal screws (15).
- f. Apply electrical insulating compound to indicator light terminals and insert electrical contacts (14) onto indicator lights.

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

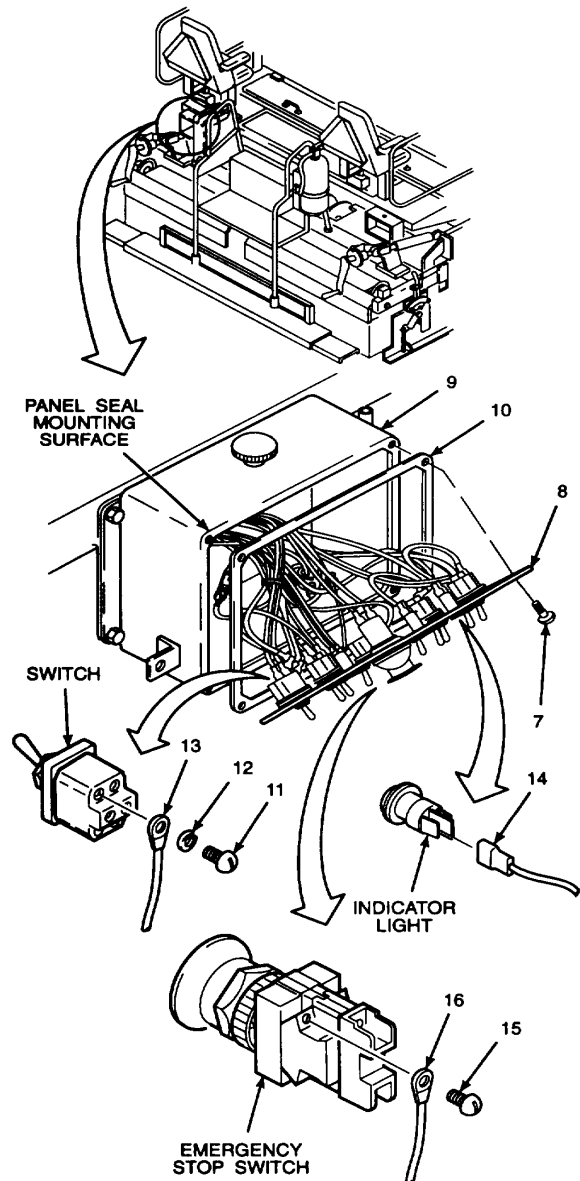
- g. Install ring terminals (13) to switches and secure with lockwashers (12) and terminal screws (11). Refer to wiring diagram for either right or left screed control panel. Apply electrical insulating varnish to ring terminals, lockwashers, and screws.

WARNING

Adhesive is TOXIC and extremely flammable. Keep away from heat, sparks, and open flames. Use only in well ventilated areas. Do not breathe vapors or swallow and avoid contact with eyes and skin. Failure to do so may result in injury or death to personnel.

If personnel become dizzy while using adhesive, immediately get fresh air and medical attention. If personnel swallow adhesive, do not induce vomiting. Get immediate medical attention. If adhesive contacts eyes, flush eyes with water for 15 minutes and get immediate medical attention. If adhesive contacts skin, wash thoroughly with soap and water.

- h. Apply adhesive to panel seal mounting surfaces of screed control box (9).
- i. Install panel seal (10) to screed control box (9) by fitting panel seal over components and pressing onto adhesive.
- j. Install tie wraps as needed.



- k. Install screed control panel (8) and secure with button head cap screws (7).

GO TO NEXT PAGE

- C. INSTALL - Continued.
- 3. INSTALL SCREED CONTROL BOX PROTECTIVE COVER PER TM 5-3895-373-10.
- 4. INSTALL BATTERY CABLES.

WARNING

When connecting batteries, connect positive battery cable before connecting negative battery cable. Failure to connect batteries in the proper sequence may lead to electrical shock or short circuit and result in personnel injury.

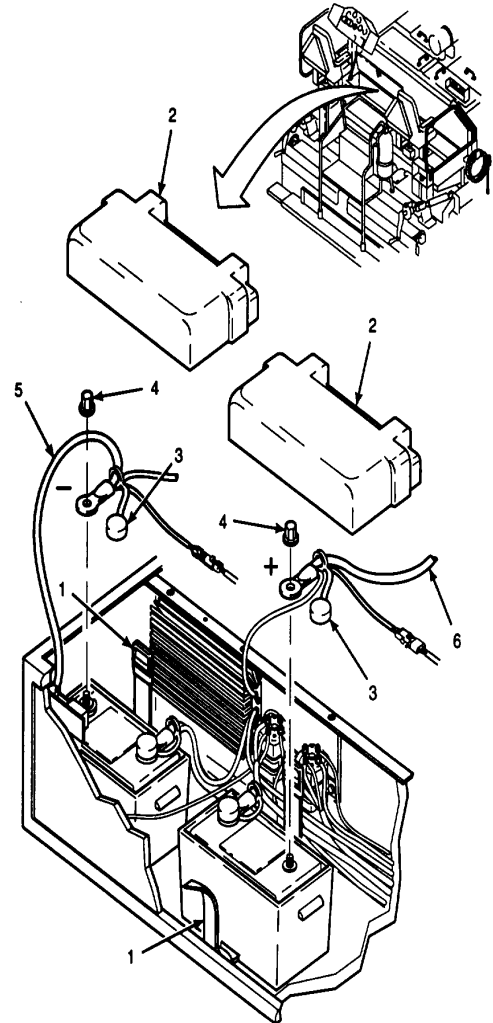
- a. Reconnect positive battery cable (6) and battery nut (4) to positive terminal of inboard battery.
- b. Reconnect negative battery cable (5) and battery nut (4) to negative terminal of outboard battery.

WARNING

Electrical insulating varnish fumes can be harmful if inhaled. Use only in a well ventilated area. Avoid prolonged exposure to fumes. If personnel become dizzy or drowsy during use, get immediate medical attention.

- c. Apply electrical insulating varnish to terminals on batteries.

- d. Install rubber battery terminal caps (3) onto battery terminals.
- e. Install battery box covers (2) on both batteries and buckle battery box holddown straps (1).



END OF TASK

15.3. REPLACE THICKNESS CONTROL COMPONENTS.

This task covers: a. Remove b. Clean c. Install

INITIAL SETUPTools:

General mechanic's automotive tool kit
 (Item 54, Appendix E)
 Bench vise (Item 55, Appendix E)
 Drive pin punch set (Item 35, Appendix E)
 Hex head driver socket (Item 41, Appendix E)
 Plastic hammer (Item 20, Appendix E)
 Socket wrench adapter (Item 2, Appendix E)
 Torque wrench, 0 to 600 lb-ft (Item 67, Appendix E)
 Torque wrench, 0 to 175 lb-ft (Item 68, Appendix E)
 Torque wrench, 5 to 150 lb-in (Item 69, Appendix E)
 Universal puller kit (Item 31, Appendix E)
 Wire scratch brush (Item 6, Appendix E)

Personnel Required:

Two 62B construction equipment repairers. Second person needed to help with removal and installation of screed arm.

References:

TM 5-3895-373-10
 TM 5-3895-373-24P

Equipment Condition:

Paving machine and screed sitting on flat surface per
 TM 5-3895-373-10.
 Extension screeds fully extended per TM 5-3895-373-10.

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
 Cleaning solvent (Item 24, Appendix C)
 Grease (Item 15, Appendix C)
 Thread locking compound (Item 13, Appendix C)
 Thread locking compound (Item 12, Appendix C)
 Thread locking compound solvent (Item 25, Appendix C)
 Bearing assemblies
 Cotter pins
 Lockwashers
 Lubrication fittings
 Plain encased seals
 Retaining rings
 Sleeve bushings
 Spider
 Spring pins
 Tapered cones and rollers

GO TO NEXT PAGE

NOTE

There is a left hand and a right hand thickness control on the screed. This procedure refers to replacement of the right hand thickness control components. Procedure is identical for left hand thickness control components. Right hand thickness control components are shown in this procedure.

- A. REMOVE.
- 1. REMOVE THICKNESS CONTROL COMPONENTS.
 - a. Remove set screw (1) and indicator (2).
 - b. Remove hex nut (3), lockwasher (4), and hex head cap screw (5). Remove catch plate (6). Discard lockwasher.
 - c. Rotate hand crank (7) to remove all tension from threaded rod (8).
 - d. Remove hex nut (9), lockwasher (10), and hex head cap screw (11). Lift link (12) from screed arm bracket (13). Discard lockwasher.
 - e. Hold link (12) and rotate hand crank (7) clockwise. Unscrew and remove link from threaded rod (8).

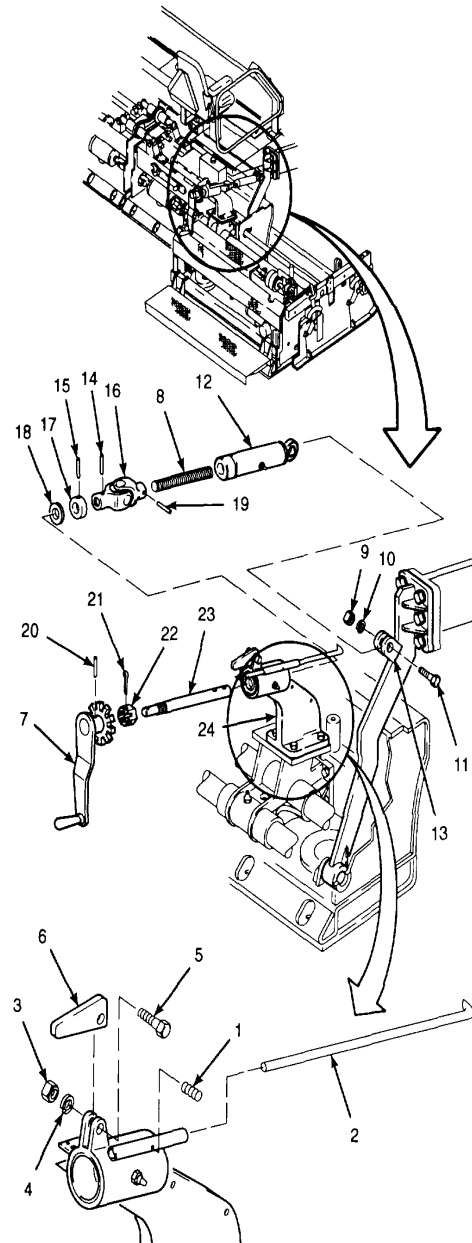
NOTE

A flat washer (18) may or may not be present next to shaft retainer. Remove flat washer if present.

- f. Use drive pin punch to drive out spring pins (14 and 15). Remove threaded rod (8) with universal joint (16), shaft retainer (17), and flat washer (18). Discard spring pins.
- g. Use bench vise to support universal joint (16). Drive out spring pin (19). Discard spring pin. Remove threaded rod (8) from universal joint.
- h. Slide hand crank (7) with shaft components (20 through 23) from mounting bracket (24).

NOTE

Removal of the following components should only be required when replacing damaged hand crank or shaft.

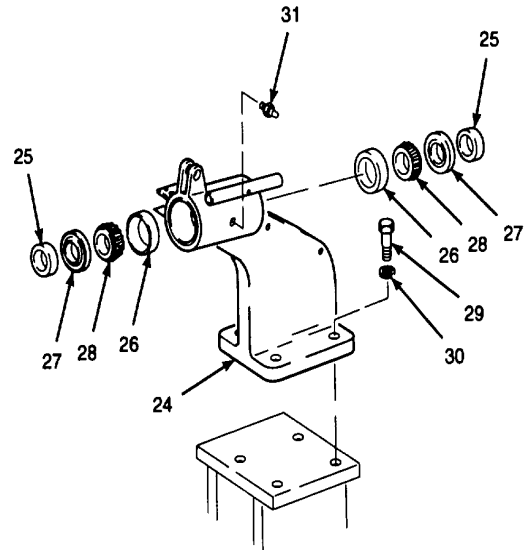


- i. Use drive pin punch to drive out spring pin (20). Remove hand crank (7). Discard spring pin.
- j. Remove cotter pin (21) and slotted hex nut (22) from shaft (23). Discard cotter pin.

15.3. REPLACE THICKNESS CONTROL COMPONENTS - Continued.

- A. REMOVE - Continued.
- 2. REMOVE MOUNTING BRACKET COMPONENTS.
 - a. Insert drive pin punch through center of spacer (25). Working around outer perimeter of opposite bearing cup (26), slowly drive spacer, seal (27), tapered cones and rollers (28), and bearing cup from mounting bracket (24). Discard plain encased seal and tapered cones and rollers.
 - b. Repeat bearing removal procedure, step a, from opposite end of mounting bracket.

- c. Remove hex head cap screws (29), lockwashers (30), and mounting bracket (24). Remove lubrication fitting (31) from mounting bracket. Discard lockwasher.



NOTE

Removal of the following components is only required when replacing damaged mounting bracket or attaching parts.

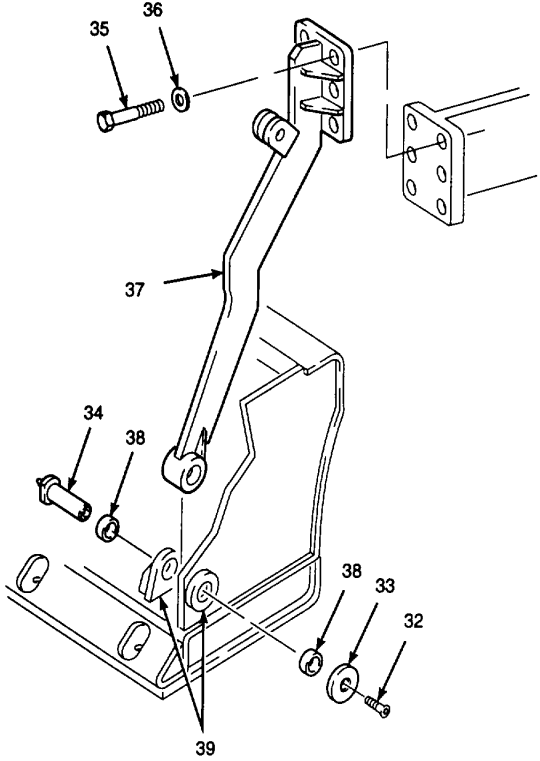
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- A. REMOVE - Continued.
- 3. REMOVE SCREED ARM.
 - a. Remove socket head cap screw (32) and retainer (33).
 - b. Use drive pin punch to drive out pivot pin (34).

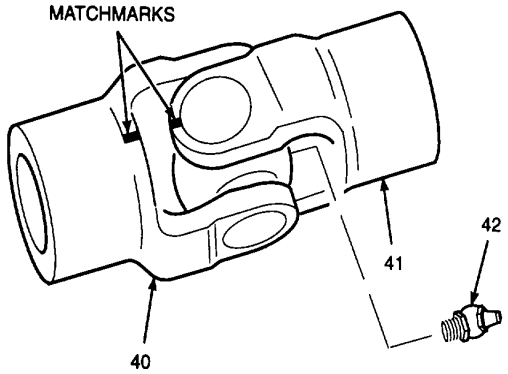
WARNING

Tow arm is heavy and falls when screed arm is removed. Use another person to support tow arm during removal of screed arm. Failure to do so could result in serious injury to personnel or damage to equipment.

- c. With help of another person, remove hex head cap screws (35), flat washers (36), and screed arm (37).
- d. Use drive pin punch to remove sleeve bushings (38) from main screed pivot bores (39). Discard sleeve bushings.



- 4. DISASSEMBLE UNIVERSAL JOINT.
 - a. Put matchmarks on universal joint yokes (40 and 41). Remove lubrication fitting (42). Discard lubrication fitting.



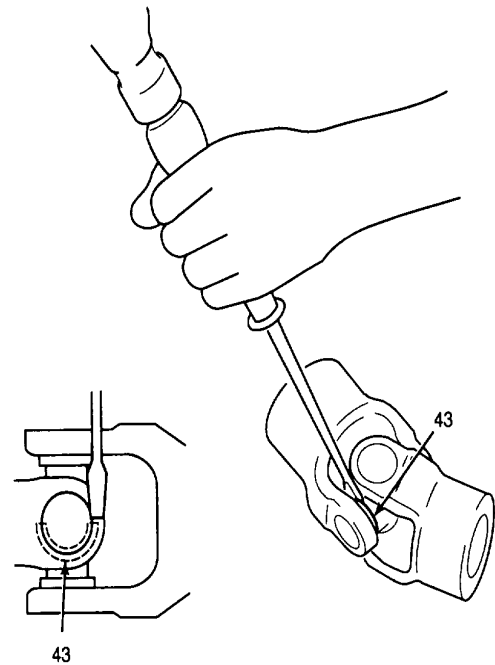
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15.3. REPLACE THICKNESS CONTROL COMPONENTS - Continued.

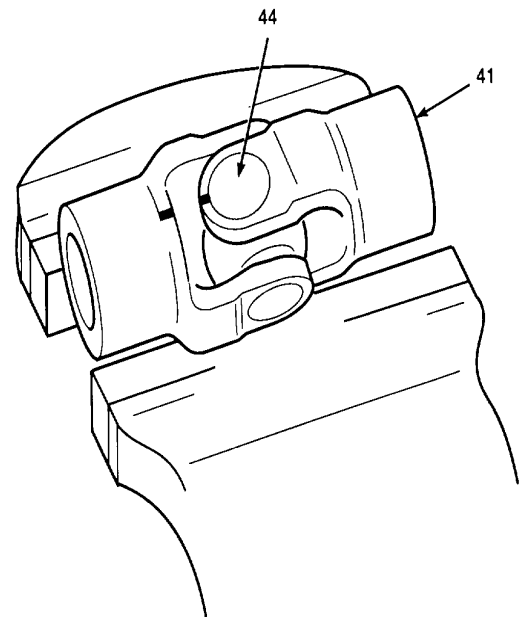
A. REMOVE - Continued.**WARNING**

Use care when removing snap and retaining rings. Snap and retaining rings are under spring tension and can act as projectiles when released and could cause severe eye injury.

- b. Using a flat blade screwdriver and plastic hammer, drive out retaining rings (43) from all bearing assemblies. Discard retaining rings.



- c. Place universal joint in bench vise. Lightly tap universal joint yoke (41) with a plastic hammer to drive out bearing assembly (44). Remove bearing assembly.
- d. Remove bearing assembly (44) at opposite side by turning yoke over and tapping on opposite side of universal joint yoke. Remove universal joint yoke (41).



GO TO NEXT PAGE

- A. REMOVE - Continued.
 - e. Hold spider (45) in bench vise and lightly tap universal joint yoke (40) to remove bearing assembly (44).
 - f. Turn universal joint yoke (40) over and tap opposite side to remove remaining bearing assembly (44).
 - g. Discard spider (45) and bearing assemblies (44).
- B. CLEAN.

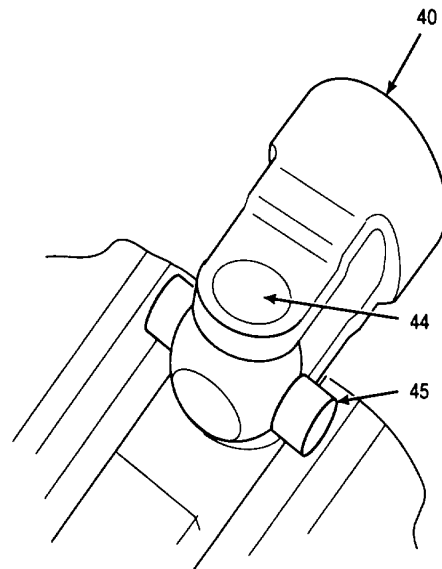
contacts eyes, flush eyes with water and get immediate medical attention.

- 1. CLEAN THICKNESS CONTROL COMPONENTS.
 - a. Clean all components with cleaning solvent. Use a wire scratch brush to remove hardened deposits.
 - b. Wipe cleaned components dry with a cleaning cloth.

WARNING

Cleaning solvent, P-D-680, is **TOXIC and flammable**. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°C). Failure to do so may result in injury or death to personnel.

If personnel become dizzy when using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent



GO TO NEXT PAGE

15.3. REPLACE THICKNESS CONTROL COMPONENTS- Continued.

- B. CLEAN - Continued.
- 2. CLEAN CAP SCREWS AND MOUNTING HARDWARE.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Use thread locking compound solvent to clean threads of cap screws and other mounting hardware. Use a wire scratch brush to remove any hard deposits from threads.
- b. Dry with a cleaning cloth.

C. INSTALL.

1. ASSEMBLE UNIVERSAL JOINT.

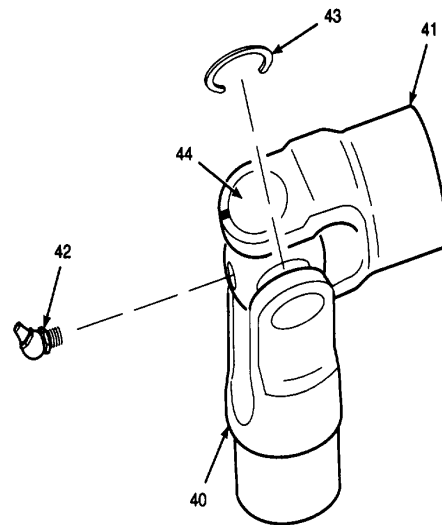
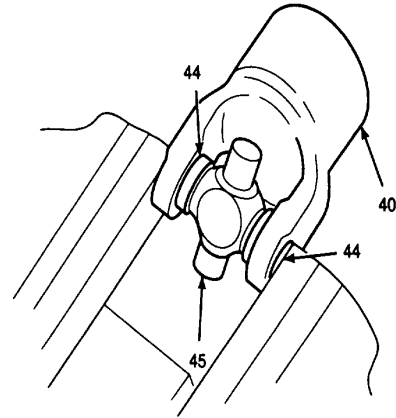
- a. Place bearing assembly (44) in each end of universal joint yoke (40). Center spider (45) between bearing assemblies. Make sure that needle bearings do not fall down in bearing assemblies.
- b. Place universal joint yoke (40), bearing assemblies (44), and spider (45) in a bench vise. Tighten bench vise to force bearing assemblies fully into universal joint yoke.
- c. Repeat steps a and b to install bearing assemblies (44) onto universal joint yoke (41).

WARNING

Use care when installing snap and retaining rings. Snap and retaining rings are under spring tension and can act as projectiles when released and could cause severe eye injury.

- d. Place retaining rings (43) in bearing assemblies (44) retaining ring groove. Using a plastic

hammer, tap retaining ring to drive it onto bearing assembly. Install all four retaining rings.



- e. Adjust clearance between bearing assembly (44) and retaining ring (43) by tapping universal joint yoke with a plastic hammer.
- f. Install lubrication fitting (42) and lubricate with grease.

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- C. INSTALL - Continued.
- 2. INSTALL SCREED ARM.
 - a. Install sleeve bushings (38) into main screed pivot bores (39). If necessary, use a plastic hammer to drive bushing flush with main screed pivot bores.
 - b. Install flat washers (36) onto hex head cap screws (35).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

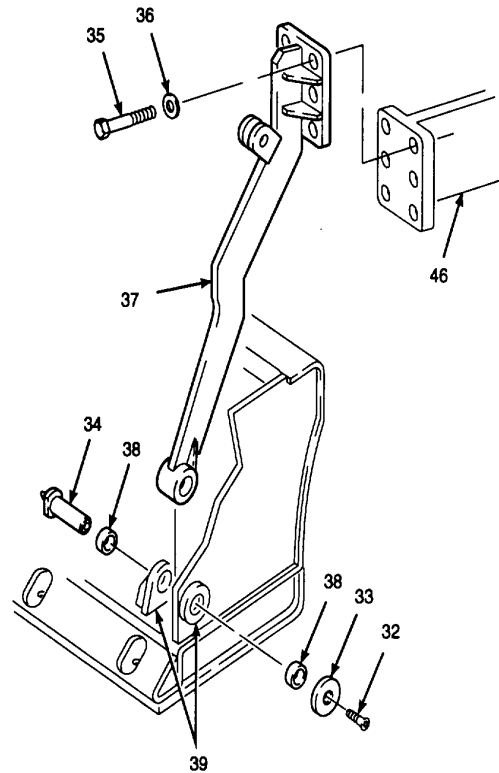
- c. Apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screws (35).

WARNING

Tow arm is heavy. Use another person to help support tow arm during installation. Failure to do so could result in serious injury to personnel or damage to equipment.

- d. Attach screed arm (37) to tow arm (46) using flat washers (36) and hex head cap screws (35). Using socket wrench adapter, tighten cap screws to 180 lb-ft (244 N-m).
- e. With the help of another person, line up screed arm pivot boss with main screed pivot bores (39).

- f. Rotate flats of pivot pin (34) to vertical. From inside of main screed, install pivot pin in pivot bores.
- g. Apply thread locking compound (Item 12, Appendix C) to threads of socket head cap screw (32).
- h. Install retainer (33) and socket head cap screw (32). Tighten cap screw to 37 lb-ft (50 N•m).
- i. Lubricate pivot pin (34) with grease until grease can be seen at bracket joints.



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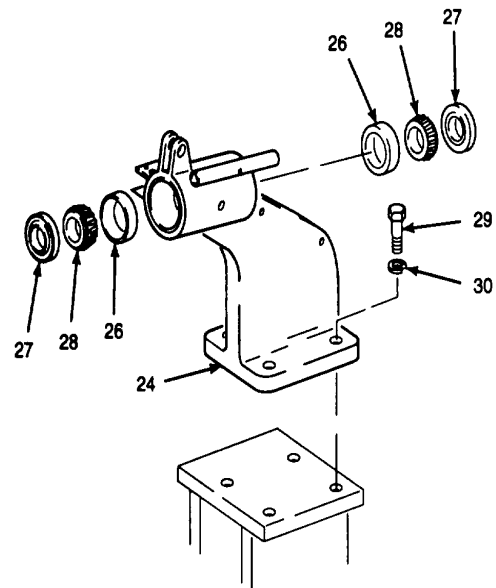
15.3. REPLACE THICKNESS CONTROL COMPONENTS- Continued.

C. INSTALL - Continued.

3. INSTALL MOUNTING BRACKET COMPONENTS.

- a. Use sleeve from universal puller kit to seat bearing cups (26) into mounting bracket (24).
- b. Lubricate one tapered cones and rollers (28) with grease. Seat lubricated tapered cones and rollers in one of the installed bearing cups (26).
- c. With metal side of seal (27) facing in, center seal in bore of mounting bracket (24). Use plastic hammer to gently tap seal to seat against bearing cup (26).
- d. Repeat steps b and c at opposite end of mounting bracket (24).
- e. Install lockwashers (30) onto hex head cap screws (29).

- f. Apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screws (29).
- g. Install mounting bracket (24) and secure with lockwashers (30) and hex head cap screws (29). Tighten cap screws to 90 lb-ft (122 N-m).



WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

GO TO NEXT PAGE

C. INSTALL - Continued.

4. INSTALL THICKNESS CONTROL COMPONENTS.

- a. Place universal joint (16) in bench vise and insert threaded rod (8) into universal joint. Line up mating pin holes and install spring pin (19).
- b. Thread slotted hex nut (22) onto shaft (23).
- c. Install hand crank (7) and spring pin (20) on threaded end of shaft (23).
- d. Lightly lubricate outer surface of spacers (25) with grease. Install spacers into mounting bracket (24) and insert shaft (23) through mounting bracket. Install shaft retainer (17) and spring pin (15).
- e. Install universal joint (16) and spring pin (14).
- f. Tighten slotted hex nut (22) to take up end play. Loosen to align nearest hole in slotted hex nut with through bore in shaft (23). Install cotter pin (21).

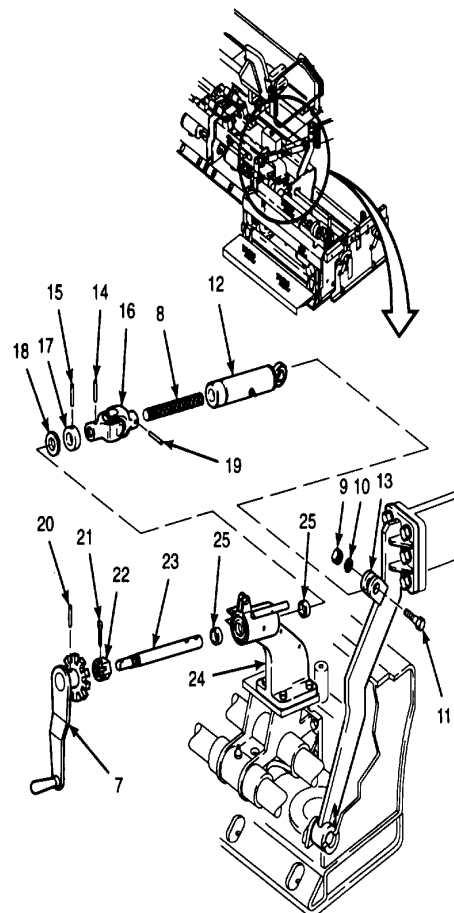
NOTE

If slotted hex nut does not align with bore for cotter pin, add a 1 in. ID flat washer (MS15795826).

- g. If slotted hex nut (22) does not align with bore for cotter pin (21), unscrew slotted hex nut and remove spring pins (14 and 15), universal joint (16), and shaft retainer (17). Install flat washer (MS15795826) onto shaft (23).
- h. Replace shaft retainer (17), universal joint (16), and spring pins (14 and 15). Repeat step f.
- i. Lubricate universal joint (16) with grease until grease can be seen at pivot joints. Apply a light coating of grease to exposed surface of threaded rod (8).
- j. Screw link (12) onto threaded rod (8) several turns. Turn hand crank (7) to align link pivot boss with screed arm bracket (13). Ensure lubrication fitting holes face the outside of the paving machine.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.



- k. Apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screw (11).
- l. Install hex head cap screw (11), lockwasher (10), and hex nut (9). Using a socket wrench adapter tighten hex nut to 180 lb-ft (244 N•m).
- m. Lubricate link (12) with grease until grease can be seen at front face of link.

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15.3. REPLACE THICKNESS CONTROL COMPONENTS - Continued.

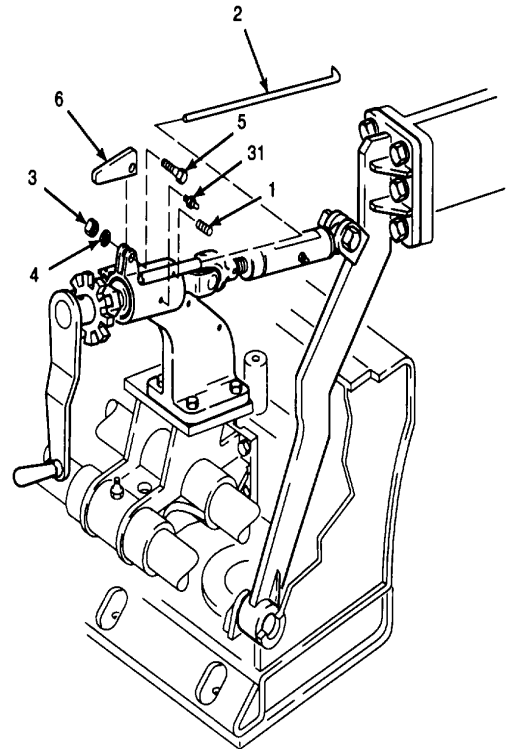
- C. INSTALL - Continued.
5. INSTALL INDICATOR, CATCH PLATE, AND LUBRICATION FITTING.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- Apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screw (5).
- Install catch plate (6), hex head cap screw (5), lockwasher (4), and hex nut (3). Do not overtighten. Catch plate needs to be movable in mounting bracket.
- Install lubrication fitting (31). Lubricate mounting bracket with grease until grease is seen at installed bearings.
- Install indicator (2) and position pointer at zero (0) mark on thickness control decal.
- Apply thread locking compound (Item 13, Appendix C) to threads of set screw (1).

- Install set screw (1). Tighten to 95 lb-in (11 N•m) using hex head driver socket.



NOTE

FOLLOW-ON-TASKS: Extension screeds fully retracted per TM 5-3895-373-10.

END OF TASK

15.4. REPLACE/REPAIR CROWN ADJUSTMENT ASSEMBLY.

This task covers: a. Remove b. Inspect c. Install
 d. Adjust

INITIAL SETUPTools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Snap ring pliers (Item 29, Appendix E)
Straightedge, 8 ft (Item 3, Appendix D)
Torque wrench (Item 69, Appendix E)
Utility pail (Item 26, Appendix E)

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Grease (Item 15, Appendix C)
Hydraulic fitting sealant (Item 21, Appendix C)
Machinery wiping towel (Item 30, Appendix C)
Protective caps (Item 5, Appendix C)
Tags (Item 27, Appendix C)
Connecting link
Lubrication fitting
Retaining rings
Roller chain
Sprocket wheel assembly, 2 ea

References:

LO 5-3895-373-12
TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Paving machine and screed sitting on flat surface per
TM 5-3895-373-10.
Screed steps lowered per TM 5-3895-373-10.

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15.4. REPLACE/REPAIR CROWN ADJUSTMENT ASSEMBLY - Continued.

A. REMOVE.

1. DISCONNECT HYDRAULIC HOSES.

WARNING

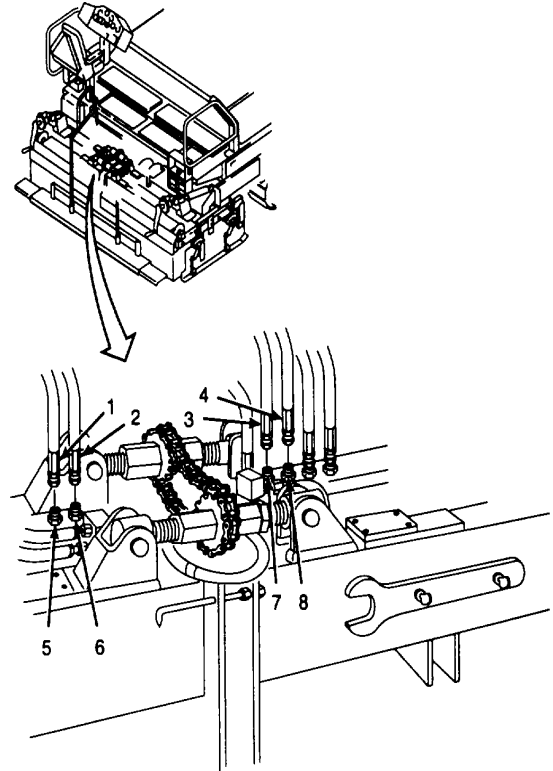
Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

CAUTION

Thoroughly clean hoses and fittings before disconnecting. Always plug or cap off disconnected fittings to prevent intrusion of contaminants. Failure to properly clean and cap off connectors may result in system contamination and equipment damage.

- a. Place machinery wiping towels around fittings of hydraulic hoses (1 through 4).
- b. Wipe all dirt and dust from fittings of hydraulic hoses (1 through 4) with cleaning cloths.
- c. Tag and disconnect hydraulic hoses (1 through 4) from straight adapters (5 through 8). Drain oil from hoses into a utility pail.

- d. Plug hydraulic hoses (1 through 4) and cap straight adapters (5 through 8).
- e. Dispose of saturated machinery wiping towels and waste hydraulic oil in accordance with local procedures.



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- A. REMOVE - Continued.
2. REMOVE SPROCKET WHEEL ASSEMBLIES AND ROLLER CHAIN.
- a. Manually check for slack in both front (9) and rear (10) sprocket wheel assemblies. If assembly mounting pins (11 and 12) are tight, use crown adjustment wrench (13) to loosen hex nut (14) and adjust crown adjustment assembly forward or backward to relieve tension.

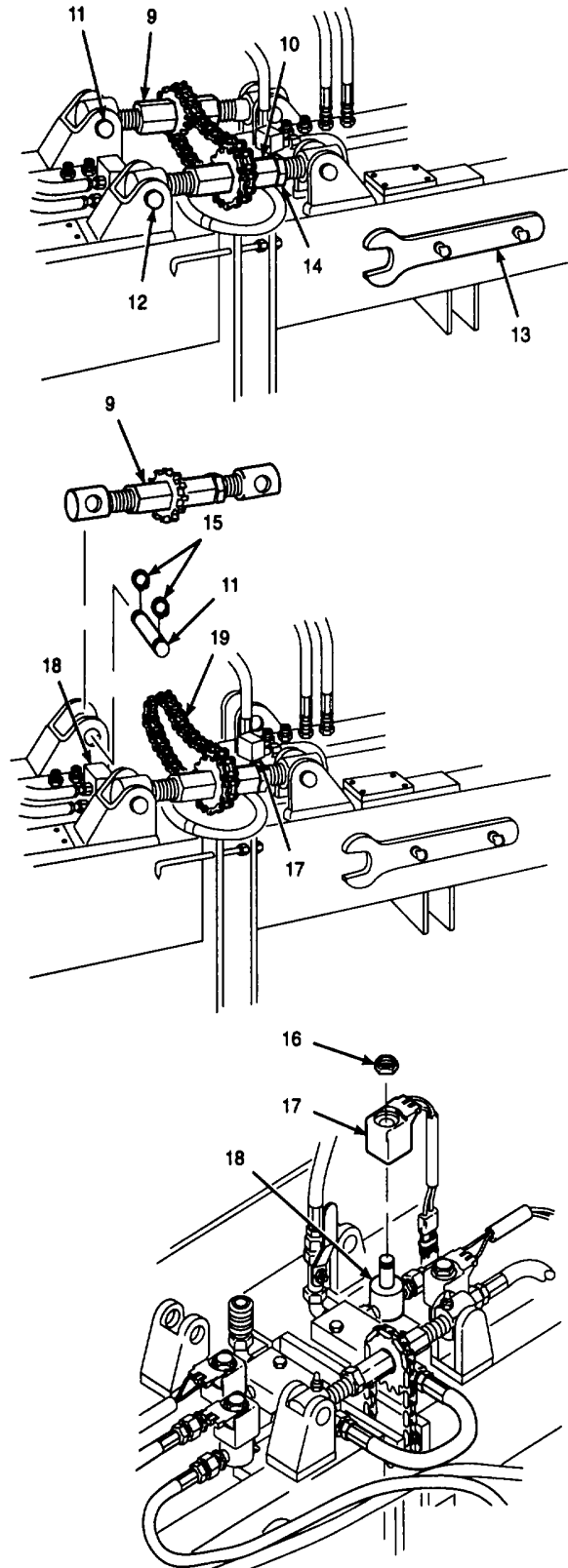
WARNING

Use care when removing retaining rings. Retaining rings are under spring tension and can act as projectiles when released and could cause severe eye injury.

CAUTION

Do not rotate one sprocket wheel at a time when roller chain is disconnected and sprocket wheel is still installed. Sprocket misalignment will occur and proper screed zeroing will not be possible.

- b. Remove retaining rings (15) using snap ring pliers.
- c. Remove hex nuts (16) and solenoid coils (17) from all four solenoid valves (18). Tag solenoid coils for proper installation.
- d. Remove assembly mounting pins (11) and front sprocket wheel assembly (9) from front mounting brackets and roller chain (19).



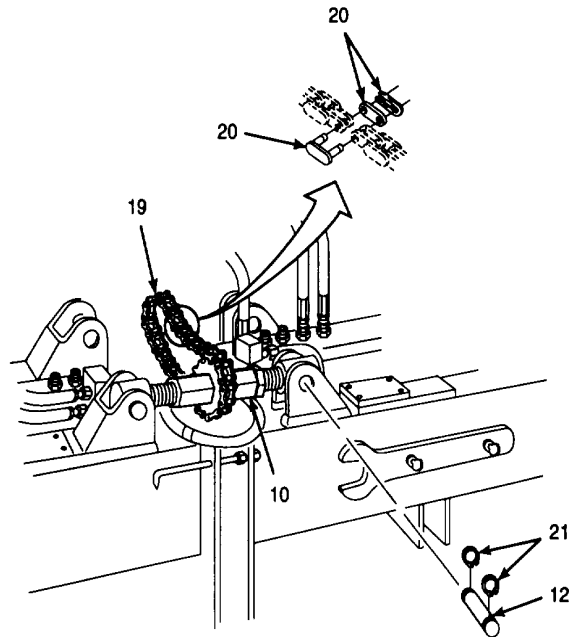
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15.4. REPLACE/REPAIR CROWN ADJUSTMENT ASSEMBLY - Continued.

- A. REMOVE - Continued.
 - e. Disconnect and remove chain connecting link (20).
 - f. Remove roller chain (19).

WARNING

Use care when removing snap and retaining rings. Snap and retaining rings are under spring tension and can act as projectiles when released and could cause severe eye injury.

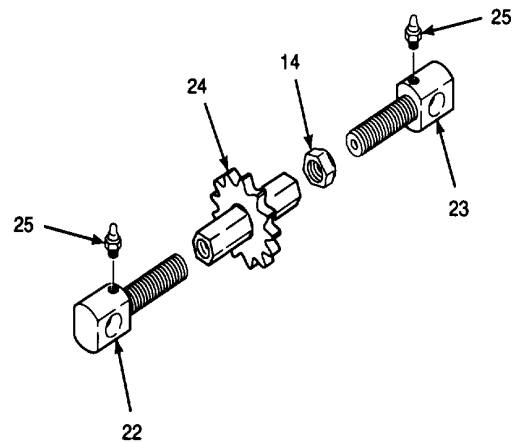


- g. Remove retaining rings (21) using snap ring pliers. Remove assembly mounting pins (12) and rear sprocket wheel assembly (10). Discard retaining rings.
3. DISASSEMBLE SPROCKET WHEEL ASSEMBLY.

NOTE

The following procedure applies to both the front and rear sprocket wheel assemblies. The only difference is the hex nut is installed on the rear sprocket wheel assembly.

- a. Remove left and right hand fluid passage bolts (22 and 23) from sprocket wheel (24).
- b. Remove hex nut (14) from right hand fluid passage bolt (23) on rear sprocket assembly.
- c. Remove lubrication fittings (25) from left and right hand fluid passage bolts (22 and 23). Discard lubrication fittings.



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- B. INSPECT.
- 1. CLEAN COMPONENTS.

WARNING

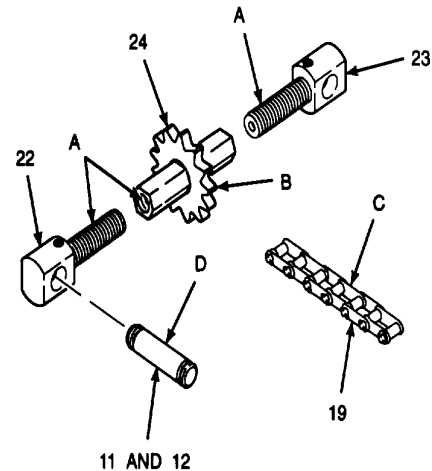
Cleaning solvent, P-D-680, is **TOXIC and flammable**. Wear protective goggles and gloves. Use only in a well ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type HI cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- a. Clean all components with cleaning solvent. Use a parts cleaning brush to remove hardened buildup deposits.
 - b. Wipe cleaned components dry with a cleaning cloth.
2. INSPECT SPROCKET WHEELS AND BOLTS.
- a. Visually inspect sprocket wheel (24), right hand fluid passage bolt (23) and left hand fluid

passage bolt (22), screw threads A, for cross threading. If screw threads are visibly damaged, replace sprocket wheel and bolts.

- b. Visually inspect sprocket wheel (24) for cracked, broken, or worn teeth B. If sprocket teeth are badly worn or damaged, replace sprocket wheel.
- c. Visually inspect roller chain (19) rollers and links C, for wear marks. If excessive wear or damage is evident, replace chain.
- d. Visually inspect polished bearing surfaces D, of assembly mounting pins (11 and 12) for cracking, or wear steps. If cracking or wear steps are found, replace pins as sets for each sprocket wheel assembly.



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15.4. REPLACE/REPAIR CROWN ADJUSTMENT ASSEMBLY - Continued.

C. INSTALL.

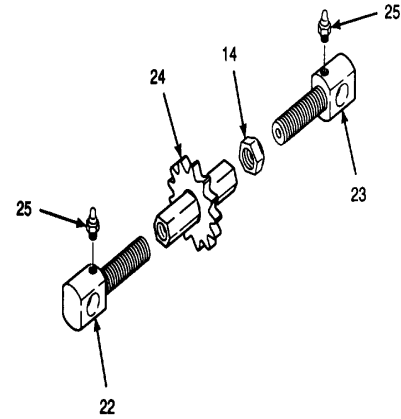
1. ASSEMBLE SPROCKET WHEEL AND BOLTS.

NOTE

The following procedure applies to both the front and rear sprocket wheel assemblies. The only difference is the hex nut is installed on the rear sprocket wheel assembly.

- a. Apply thin coat of grease to left hand and right hand fluid passage bolts (22 and 23).
- b. On rear sprocket assembly only, install hex nut (14) on right hand fluid passage bolt (23).
- c. Screw right and left hand fluid passage bolts (22 and 23) into mating sides of sprocket wheel (24).
- d. Screw left hand and right hand fluid passage bolts (22 and 23) to the same depth on both ends of sprocket wheel (24). Count exposed screw threads or use a steel ruler to ensure matching bolt adjustments.
- e. Install lubrication fittings (25) into left and right hand fluid passage bolts (22 and 23).

projectiles when released and could cause severe eye injury.



2. INSTALL SPROCKET WHEEL ASSEMBLY.

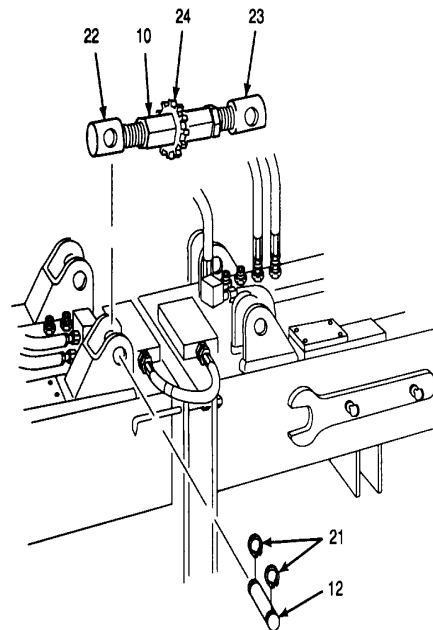
CAUTION

Right hand fluid passage bolts of front and rear sprocket wheel assemblies must be on the right side of the screed. Failure to install right hand fluid passage bolts on the right side will make crown adjustments impossible and may result in equipment damage.

- a. Position rear sprocket wheel assembly (10) on screed. Line up pin bore of left hand fluid passage bolt (22) with its mounting bracket.

WARNING

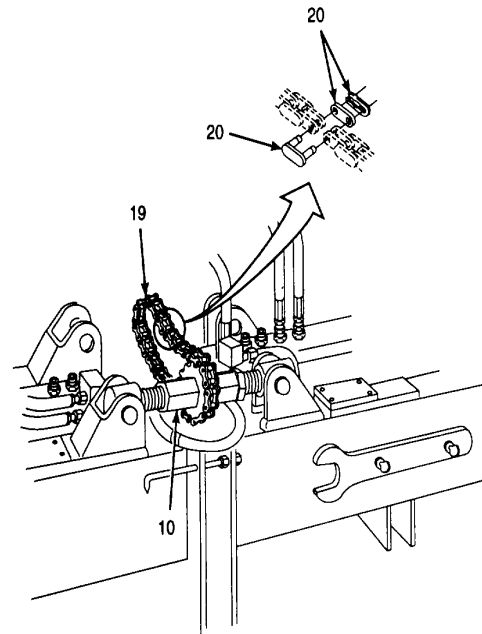
Use care when installing retaining rings. Retaining rings are under spring tension and can act as



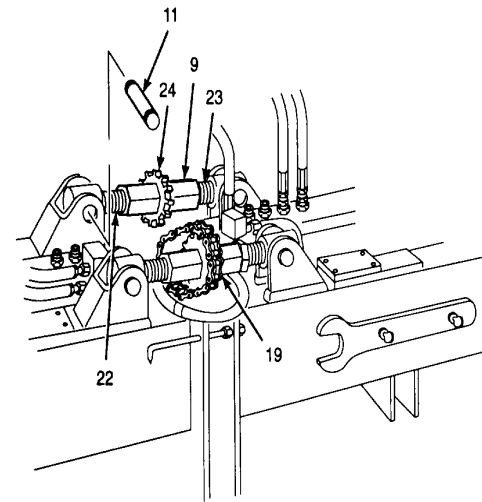
- b. Install left side assembly mounting pin (12). Install retaining rings (21) using snap ring pliers.
- c. Hold right hand fluid passage bolt (23) so that it does not rotate. Adjust sprocket wheel (24) to line up pin bore of the right hand fluid passage bolt with its mounting bracket.
- d. Install right side assembly mounting pin (12). Install retaining rings (21) using snap ring pliers.

C. INSTALL - Continued.

- e. Install roller chain (19) over rear sprocket wheel assembly (10).
- f. Install chain connecting link (20) onto roller chain (19).



- g. Position front sprocket wheel assembly (9) onto mounting bracket on screed. Do not place the sprocket assembly through roller chain (19) at this time.
- h. Line up pin bore of left hand fluid passage bolt (22) with the mounting bracket and install assembly mounting pin (11). Do not install retaining rings at this time.
- i. Hold right hand fluid passage bolt (23) so that it does not rotate. Adjust sprocket wheel (24) to line up pin bore of the right hand fluid passage bolt with the mounting bracket.
- j. Remove assembly mounting pin (11) and front sprocket wheel assembly (9) from the screed.



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15.4. REPLACE/REPAIR CROWN ADJUSTMENT ASSEMBLY - Continued.

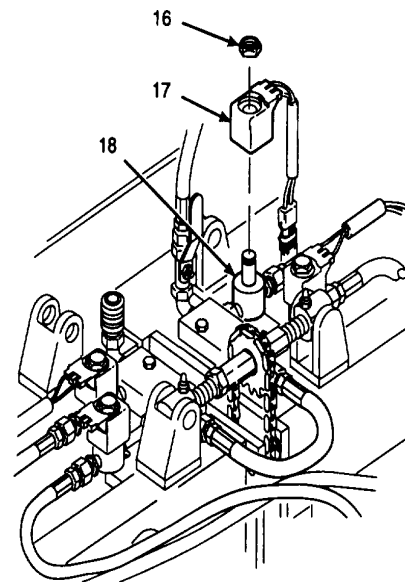
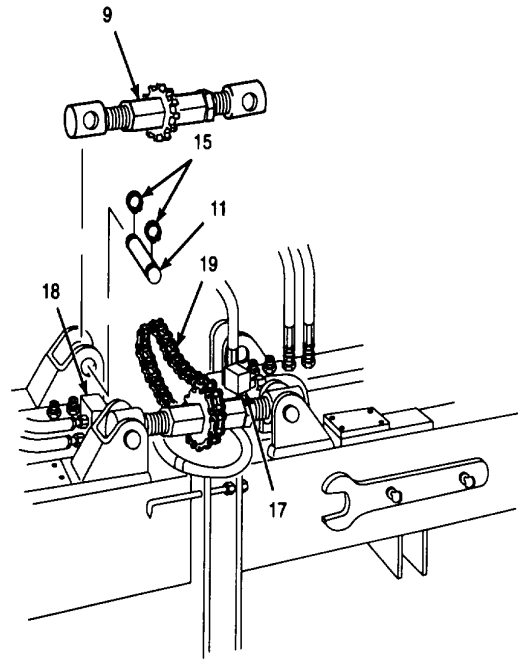
C. INSTALL - Continued.

- k. Place front sprocket wheel assembly (9) through roller chain (19). Keep the sprocket wheel assembly as close to installation position as possible and place the roller chain onto the sprocket wheel.
- l. Install front sprocket wheel assembly (9) into mounting brackets on screed. A slight adjustment may be required to ensure alignment with the mounting brackets.

WARNING

Use care when installing retaining rings. Retaining rings are under spring tension and can act as projectiles when released and could cause severe eye injury.

- m. Install left and right side assembly mounting pins (11). Install retaining rings (15) using snap ring pliers.
- n. Install solenoid coils (17) and hex nuts (16) onto solenoid valves (18).
- o. Tighten hex nuts (16) to 13 lb-in (1,5 N•m).



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- C. INSTALL - Continued.
 - p. Remove plugs from hoses (1 through 4) and caps from mating straight adapters (5 through 8).
 - q. Wipe threads of hoses and straight adapters dry with cleaning cloths.

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- r. Apply hydraulic fitting sealant to straight adapters (5 through 8). Install and tighten hoses (1 through 4).
- D. ADJUST.
 - 1. POSITION/BLOCK UP SCREED FOR CROWN SETUP ADJUSTMENT.

NOTE

Refer to TM 5-3895-373-10 for detailed paving machine operating instructions.

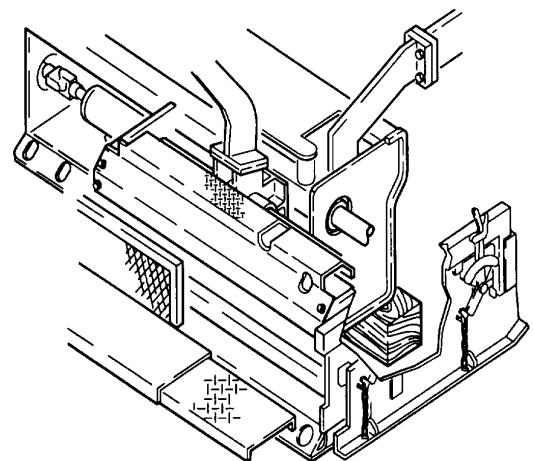
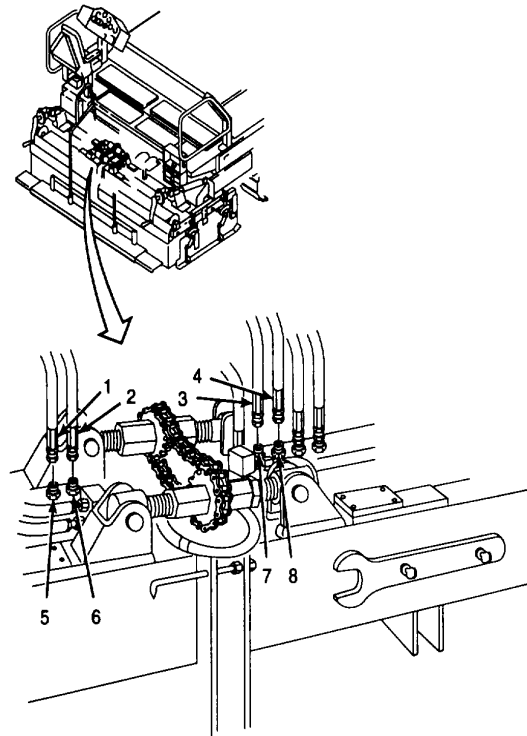
- a. Perform steps b through d by following the paving machine operating instructions in TM 5-3895-373-10.
- b. Start up paving machine. Raise screed to the fully raised position. Fully extend screed extensions.

WARNING

Crown adjustment measurements are performed from below main screed. For safety purposes, the main screed must be cribbed during this adjustment procedure. Failure to properly crib the main screed may result in serious injury or death.

- c. Use cribbing of a size that will allow a mechanic to work underneath the screed. Place cribbing

under the outside ends of the main screed. Do not lower the screed onto the cribbing. The screed has to be suspended without screed plates making contact with cribbing in order to perform zero crown adjustment.



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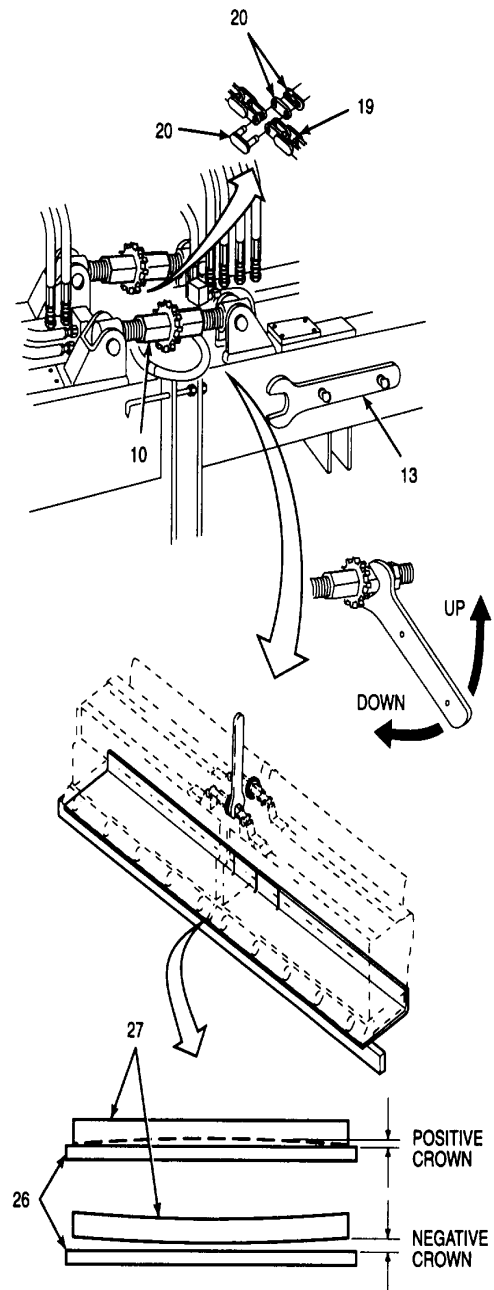
15.4. REPLACE/REPAIR CROWN ADJUSTMENT ASSEMBLY - Continued.

- D. ADJUST - Continued.
- 2. ADJUST MAIN SCREED TRAILING EDGE FOR ZERO CROWN.
 - a. Disconnect and remove connecting link (20) from roller chain (19).
 - b. Position straightedge (26) on bottom trailing edge of main screed (27). Visually check for positive or negative crown (bowing) at center of main screed trailing edge.

NOTE

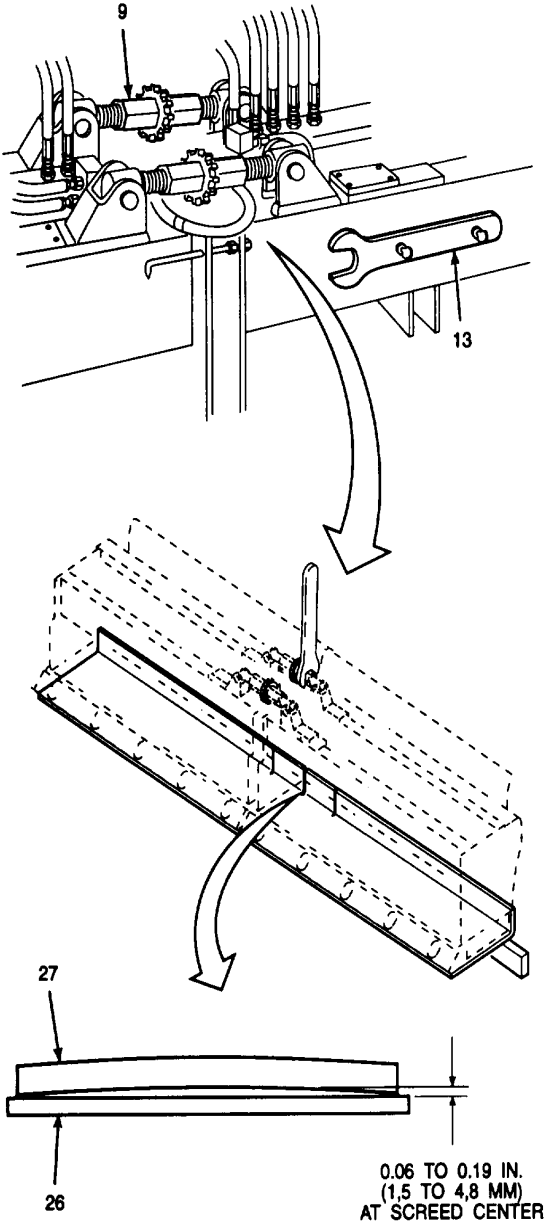
If rear sprocket wheel assembly is not easily moved, it may be necessary to adjust the front sprocket assembly.

- c. Using crown adjustment wrench (13), turn rear sprocket wheel assembly (10) up to eliminate a negative crown and down to eliminate a positive crown along trailing edge of main screed. When adjusted for zero crown, trailing edge of main screed will be flat with straightedge within 0.06 in. (1,5 mm).



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- D. ADJUST - Continued.
- 3. ADJUST MAIN SCREED LEADING EDGE FOR 0.06 TO 0.19 IN. (1,5 TO 4,8 MM) POSITIVE CROWN.
 - a. Position straightedge (26) on bottom leading edge of main screed (27). Visually check crown at center of main screed leading edge.
 - b. Using crown adjustment wrench (13), rotate front sprocket wheel assembly (9) to achieve a 0.06 to 0.19 in. (1,5 to 4,8 mm) positive crown at the center of the main screed leading edge. If crown cannot be obtained, refer to Direct Support for replacement of main screed plate.



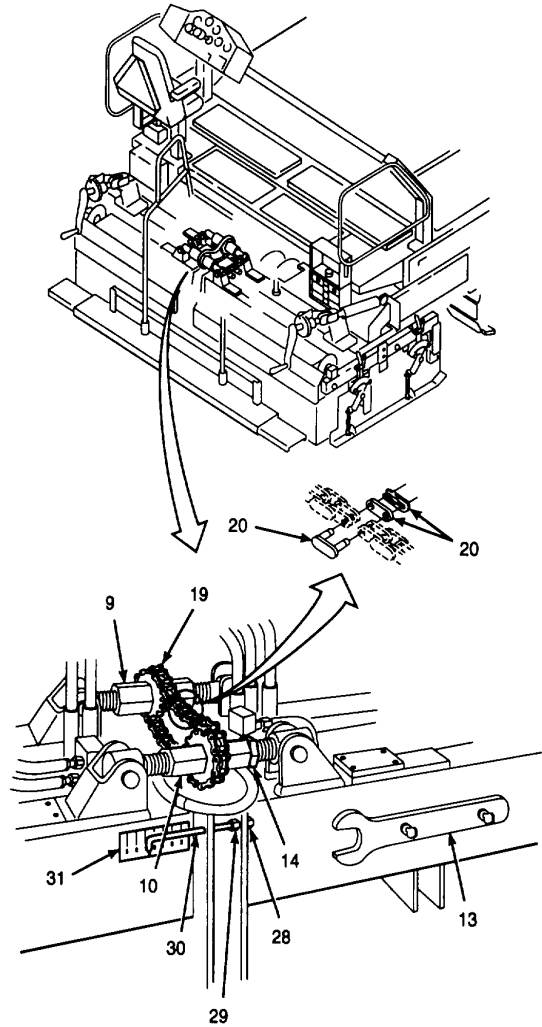
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15.4. REPLACE/REPAIR CROWN ADJUSTMENT ASSEMBLY - Continued.

D. ADJUST - Continued.

- c. Place roller chain (19) over front and rear sprocket wheel assemblies (9 and 10). To align the chain into the sprocket wheel teeth, make small, even adjustments to both sprocket wheel assemblies.
- d. Install connecting link (20) onto roller chain (19).
- e. Tighten hex nut (14) using crown adjustment wrench (13).
- f. Lubricate crown adjustment assembly per LO 53895-373-12.
- g. Recheck front and rear crown. If crown is still out of adjustment, repeat adjustment procedure.
- h. Loosen hex nuts (28 and 29). Move crown pointer (30) so pointer indicates "0" on the scale (31). Tighten hex nuts.

- d. Fully retract extension screeds. Lower screed.



4. REMOVE EXTENSION SCREED CRIBBING.

NOTE

Refer to TM 5-3895-373-10 for detailed paving machine operating instructions.

- a. Perform steps b through d by following paving machine operating instructions in TM 5-3895-373-10.
- b. Start up paving machine. Raise screed to fully raised position.
- c. Remove all cribbing materials from under extension screeds.

NOTE

FOLLOW-ON-TASK: Screed steps raised per TM 5-3895-373-10.

END OF TASK

15.5. REPLACE HOPPER FLASHINGS AND SCRAPERS.

This task covers: a. Remove b. Clean c. Install

INITIAL SETUPTools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Plastic hammer (Item 20, Appendix E)
Torque wrench (Item 68, Appendix E)
Wire scratch brush (Item 6, Appendix E)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Center flashing
Left wing flashing
Right wing flashing
Scraper

Equipment Condition:

Hopper wings fully lowered per TM 5-3895-373-10.

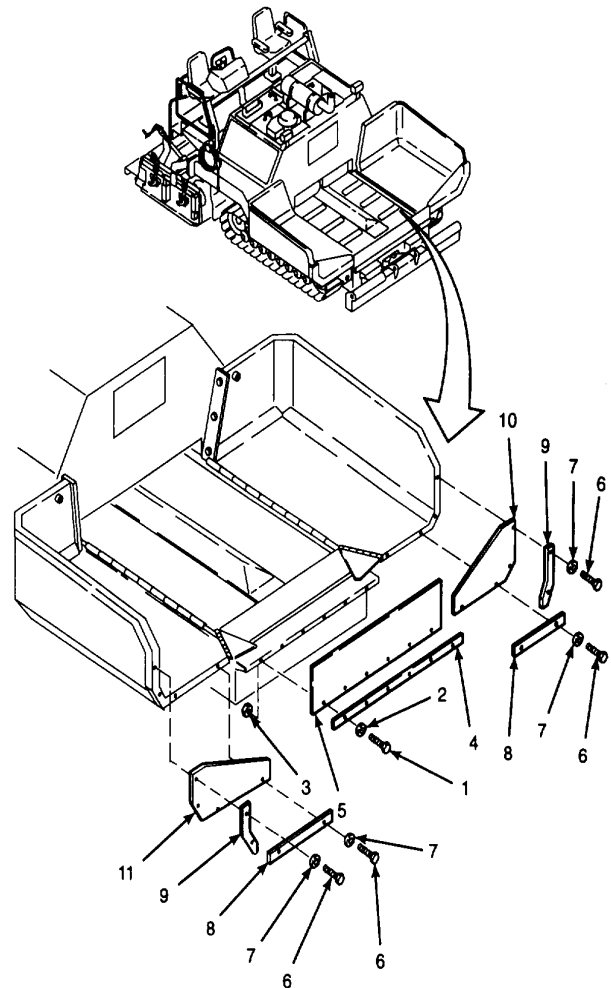
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15.5. REPLACE HOPPER FLASHINGS AND SCRAPERS - Continued.

A. REMOVE.

1. REMOVE RUBBER SHEET FLASHINGS.

- a. Remove hex head cap screws (1), flat washers (2), and hex nuts (3).
- b. Remove retaining plate (4) and center flashing (5). Discard center flashing.
- c. Remove hex head cap screws (6) and flat washers (7).
- d. Remove retaining plates (8 and 9) and left and right wing flashings (10 and 11). Discard wing flashings.

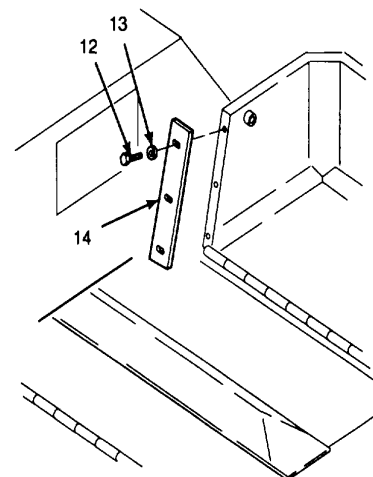


NOTE

There is a left hand and a right hand scraper on the paving machine. Left hand scraper removal is addressed in this procedure. Procedure is identical for right hand scraper removal. Left hand scraper is shown in this procedure.

2. REMOVE WORN OR DAMAGED SCRAPER.

- a. Remove hex head cap screws (12) and flat washers (13).
- b. Remove damaged or worn scraper (14). Discard scraper.



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B. CLEAN.

1. CLEAN METAL PARTS.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- a. Clean all metal parts using cleaning solvent and a cleaning cloth. Use a wire scratch brush to remove buildup deposits.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- b. Use thread locking compound solvent to clean all hex head cap screws. Dry with a clean, cleaning cloth.

2. CLEAN MOUNTING SURFACES.

- a. Clean all mounting surfaces exposed by removal of flashings or scrapers with cleaning solvent and a cleaning cloth. If necessary, use plastic hammer to knock away large buildup deposits.
- b. Use cleaning solvent and a wire scratch brush to remove all remaining buildup deposits from mounting surfaces.

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15.5. REPLACE HOPPER FLASHINGS AND SCRAPERS - Continued.

C. INSTALL.

1. INSTALL RUBBER SHEET FLASHINGS.

WARNING

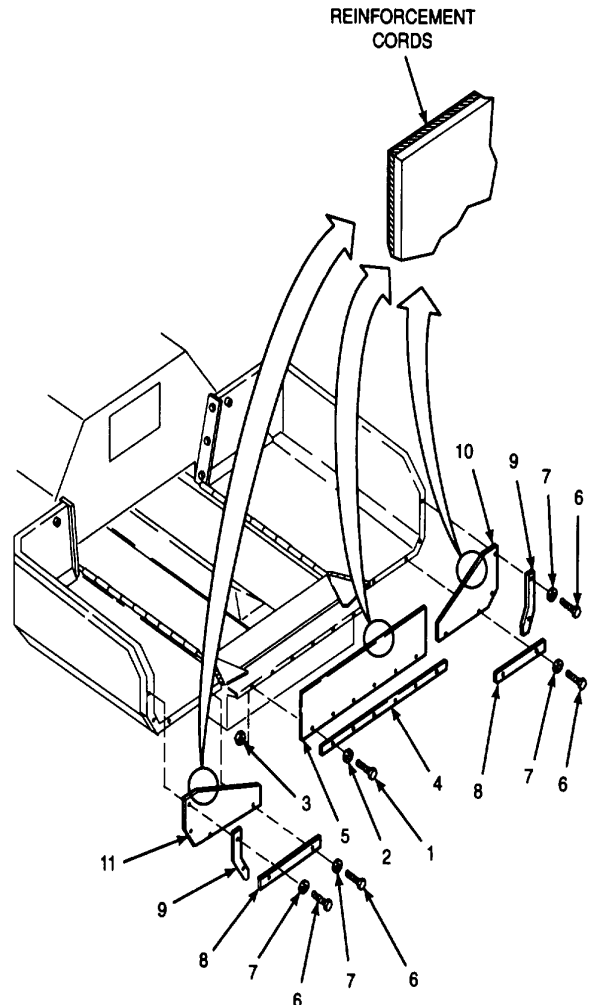
Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- a. Place flat washers (2) onto hex head cap screws (1) and apply thread locking compound to threads of hex head cap screws.

CAUTION

Ensure that center flashing and wing flashings are not installed backward. Place reinforcement cords toward the inside of the hopper.

- b. Install center flashing (5) and retaining plate (4). Secure with hex head cap screws (1) and hex nuts (3).
- c. Place flat washers (7) onto hex head cap screws (6) and apply thread locking compound to threads of cap screws.
- d. Install left and right wing flashings (10 and 11) and retaining plates (8 and 9). Secure with cap screws (6).



GO TO NEXT PAGE

C. INSTALL - Continued.

NOTE

There is a left hand and a right hand scraper on the paving machine. Left hand scraper installation is addressed in this procedure. Procedure is identical for right hand scraper installation. Left hand scraper is shown in this procedure.

2. INSTALL SCRAPER.

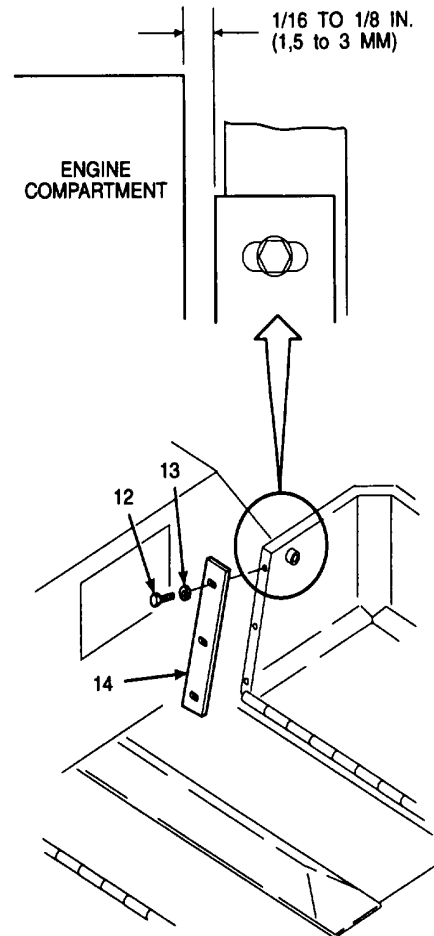
WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- a. Place flat washers (13) onto hex head cap screws (12) and apply thread locking compound to threads of cap screws.
- b. Install scraper (14) using hex head cap screws (12). Hand tighten cap screws.
- c. Position scraper (14) so there is a gap of 1/16 to 1/8 in. (1,5 to 3 mm) between the leading edge of the scraper and the engine compartment bulkhead.
- d. Raise and lower hopper wing per TM 5-3895-373-10 to check clearance of scraper at compartment bulkhead. Ensure 1/16 to 1/8 in.

(1,5 to 3 mm) gap is held at closest point between scraper and compartment bulkhead.

- e. Tighten hex head cap screws (12) to 59 lb-ft (80 N•m).



END OF TASK

15.6. REPLACE HOPPER LIFT CYLINDER.

This task covers: a. Remove b. Install

INITIAL SETUPTools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Chain assembly 2 ea (Item 3, Appendix E)
C-clamp, 2 ea (Item 10, Appendix E)
Drip pan (Item 28, Appendix E)
Hex head driver socket (Item 42, Appendix E)
Socket wrench adapter (Item 2, Appendix E)

Personnel Required:

Two 62B construction equipment repairers. Second person needed for installing shoulder screw inside hopper.

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Grease (Item 15, Appendix C)
Hydraulic fitting sealant (Item 21, Appendix C)
Hydraulic oil (Item 18, Appendix C)
Protective caps (Item 5, Appendix C)
Tags (Item 27, Appendix C)
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)

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NOTE

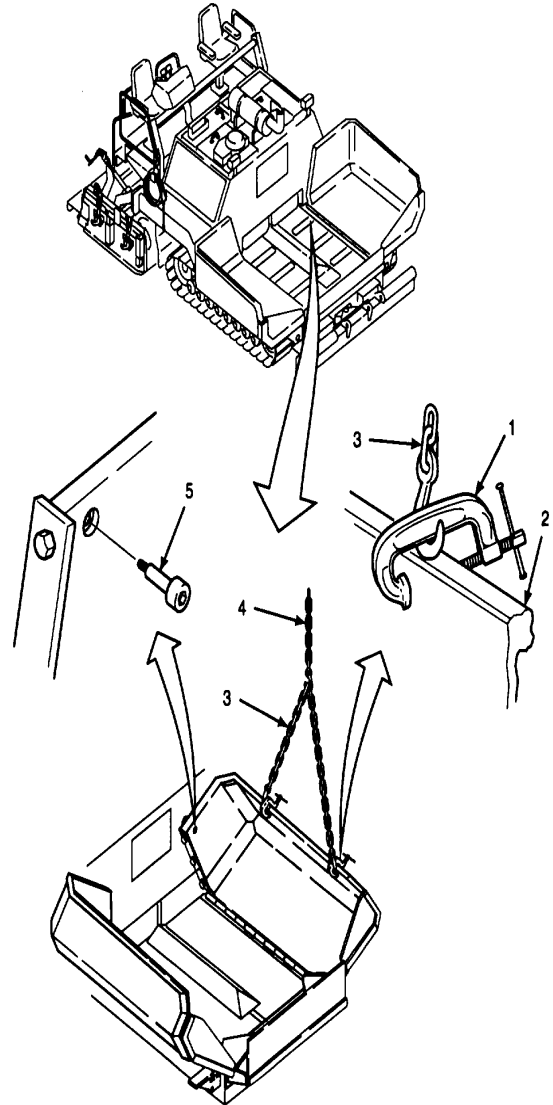
This procedure applies to replacement of both the left and right hopper lift cylinders. Illustrations show the left hopper lift cylinder replacement. The procedures for the right hopper lift cylinder are identical except for placement of plugs and hose fittings.

- A. REMOVE.
1. RAISE HOPPER WING WITH OVERHEAD HOIST.

WARNING

The hopper wing weighs 875 lbs (397 kg). Ensure hoist and slings are in good working condition and have adequate lifting capacity to support hopper wing. Failure to use adequate lifting equipment may result in serious injury or death.

- Attach two C-clamps (1) under top lip of hopper wing (2), about 3 ft (1 m) apart.
- Connect chain assembly (3) between C-clamps.
- Use overhead hoist (4) to remove all slack from lifting sling. Hoist should just start to lift hopper wing enough to take the weight off of shoulder screw (5).
- From inside of hopper, remove shoulder screw (5) using hex head driver socket and socket wrench adapter.



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15.6. REPLACE HOPPER LIFT CYLINDER - Continued

A. REMOVE - Continued.

WARNING

The hopper wing weighs 875 lbs (397 kg). Ensure hoist and slings are in good working condition and have adequate lifting capacity to support hopper wing. Failure to use adequate lifting equipment may result in serious injury or death.

- e. Using the hoist, raise hopper wing as needed to provide access to hopper lift cylinder (6).

2. DISCONNECT HOPPER LIFT CYLINDER HOSES.

WARNING

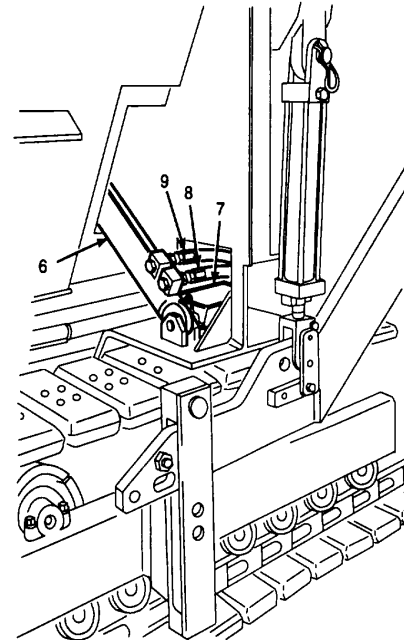
Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles and gloves. Use only in a well ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type III cleaning solvent is 2000F (93,30C). 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, flush eyes with water and get immediate medical attention.

CAUTION

Thoroughly clean hoses and fittings before disconnecting. Always plug or cap off disconnected fittings to prevent intrusion of contaminants. Failure to properly clean and cap off connectors may result in system

contamination and equipment damage.



- a. Use cleaning cloth moistened with cleaning solvent to clean all dust, dirt, and oil or grease residue from hose ends and fittings at hopper lift cylinder (6).
- b. Tag lower cylinder hose "inlet" and upper hose "outlet".
- c. Place drip pan (7) below hydraulic hoses (8 and 9).

WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

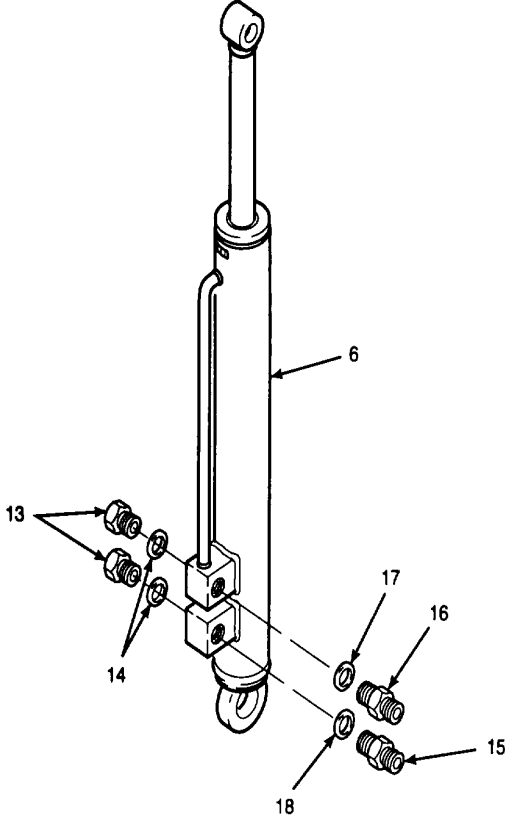
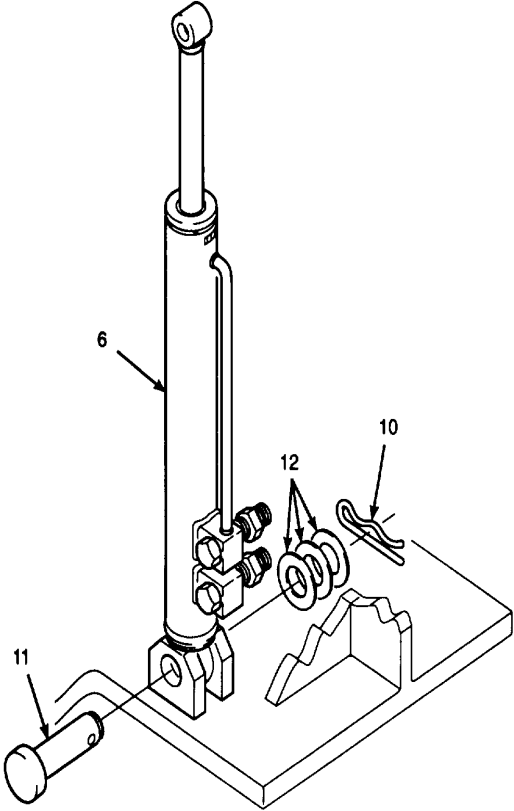
- d. Disconnect hydraulic hoses (8 and 9) from hopper lift cylinder. Drain hydraulic oil from hoses into drip pan. Dispose of waste hydraulic oil in accordance with local procedures.

- A. REMOVE Continued.
- e. Install plugs in hydraulic hoses and cap fittings in cylinder ports.
- 3. REMOVE HOPPER LIFT CYLINDER.
 - a. Remove lock pin (10). Support hopper lift cylinder (6) and remove straight headed pin (11) and flat washers (12).

WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

- b. Remove hopper lift cylinder. Remove protective caps from lift cylinder fittings and drain hydraulic oil into a drip pan. Dispose of waste hydraulic oil in accordance with local procedures.
- 4. REMOVE FITTINGS AND PLUGS.
 - a. Remove plugs (13) and preformed packings (14) from hopper lift cylinder (6). Discard preformed packings.
 - b. Tag and remove straight adapters (15 and 16) and preformed packings (17 and 18). Discard preformed packings.



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15.6. REPLACE HOPPER LIFT CYLINDER - Continued.

B. INSTALL.

1. INSTALL FITTINGS AND PLUGS.

a. Apply a thin film of grease to inner bearing surfaces (19) at both ends of hopper lift cylinder (6).

WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil

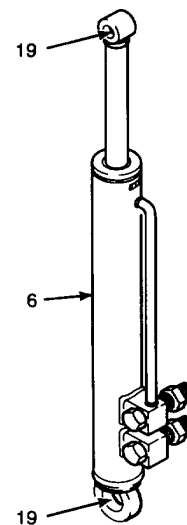
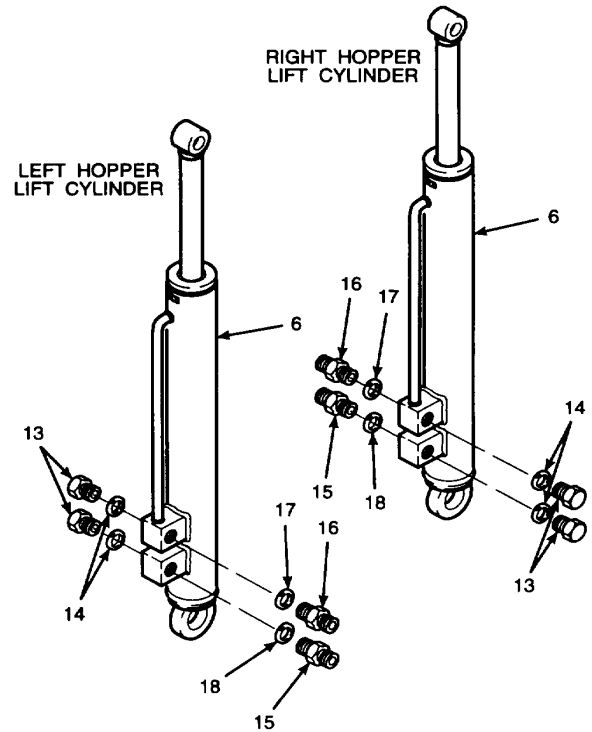
CAUTION

Use caution when installing preformed packings over threads. Threads can cut and damage preformed packings. Ensure threads do not damage preformed packings during installation.

NOTE

Adapters and plugs are installed opposite on the right and left hopper lift cylinders. Follow the illustration to install adapters in the proper direction.

- a. Lubricate preformed packings (14, 17, and 18) with clean hydraulic oil. Install preformed packings on plugs (13), and straight adapters (15 and 16).
 - b. Install and tighten straight adapter (15) into the bottom port of hopper lift cylinder (6).
 - c. Install and tighten straight adapter (16) into the top port of hopper lift cylinder (6).
 - d. Install plugs (13) onto hopper lift cylinder (6). Tighten plugs.
2. INSTALL HOPPER LIFT CYLINDER.



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B. INSTALL - Continued.

NOTE

Installed outlet port adapter is an orifice straight adapter. In order to eliminate pressure inside the hopper lift cylinder, it may be necessary to remove outlet port straight adapter before manually extending the lift cylinder.

- b. Manually extend hopper lift cylinder piston rod. Instruct a second person to position piston rod end (20) for mounting on hopper wing.
- c. From inside hopper, guide a second person in lining up piston rod end (20) bore with mounting hole.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

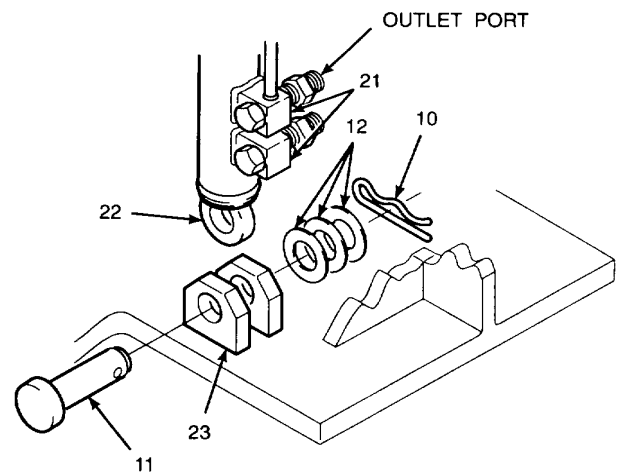
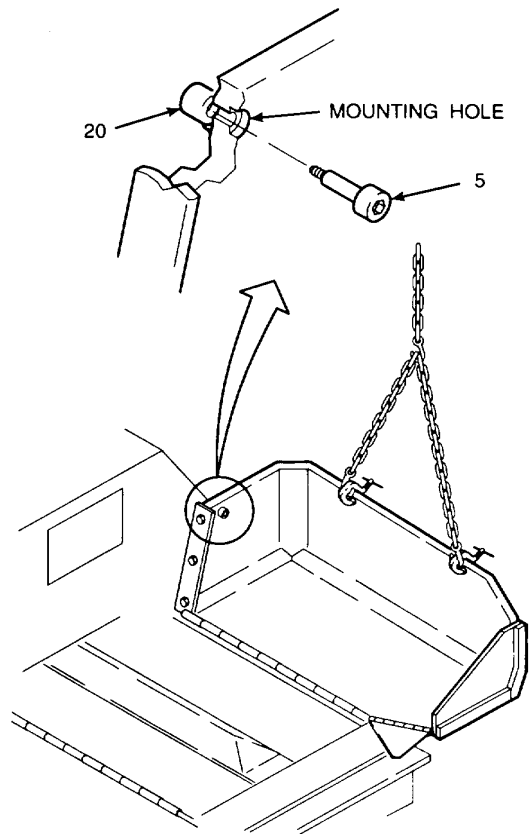
- d. Apply thread locking compound to threads of shoulder screw (5). Install shoulder screw and tighten using hex head driver socket and socket wrench adapter.
- e. Rotate the hopper lift cylinder so that ports (21) are toward the outside of the paving machine and the port fittings are pointed toward the rear of the paving machine.

NOTE

The hoist may need to be repositioned to allow for alignment of the hopper lift cylinder lower pin bore and installation of the straight headed pin.

- f. Place lower cylinder pin bore (22) into paving machine mounting bracket (23).

- g. Install straight headed pin (11), flat washers (12), and lock pin (10).



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15.6. REPLACE HOPPER LIFT CYLINDER Continued.

B. INSTALL Continued.

3. RECONNECT HYDRAULIC HOSES.

WARNING

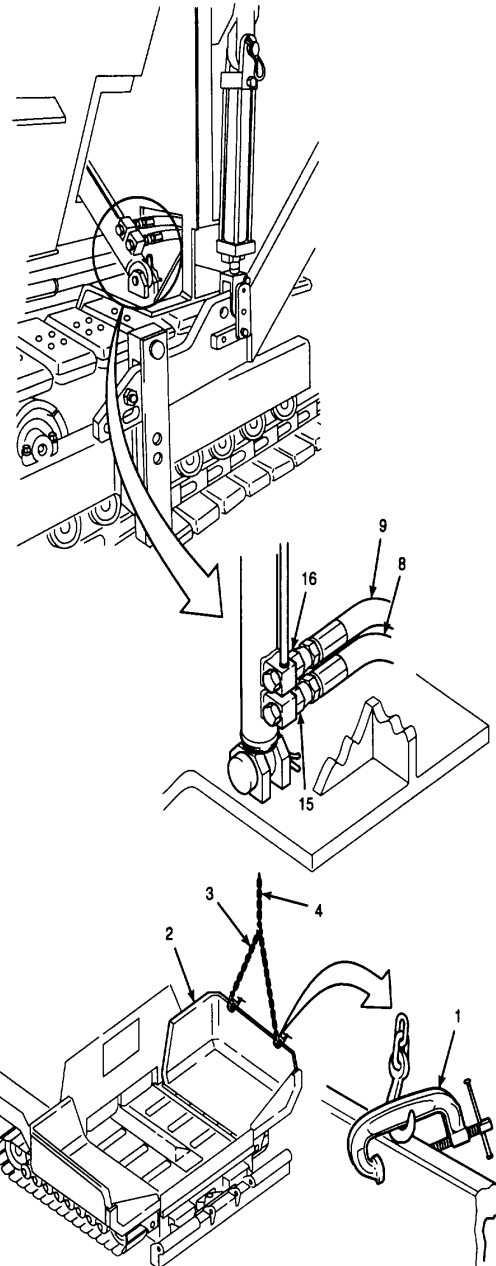
Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- a. Apply hydraulic fitting sealant to exposed threads on straight adapters (15 and 16).
- b. Reconnect hydraulic hose (8) tagged "inlet" to lower port straight adapter (15). Tighten hose.
- c. Reconnect hydraulic hose (9) tagged "outlet" to upper port straight adapter (16). Tighten hose.

WARNING

The hopper wing weighs 875 lbs (397 kg). Ensure hoist and slings are in good working condition and have adequate lifting capacity to support hopper wing. Failure to use adequate lifting equipment may result in serious injury or death.

- d. Slowly lower overhead hoist until hopper wing is in the full-open position. Remove C-clamps (1), chain assembly (3), and overhead hoist (4) from hopper wing (2).

**END OF TASK**

15.7. ADJUST CONVEYOR CHAIN ASSEMBLY TENSION.

This task covers:

- a. Remove b. Adjust c. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
 (Item 54, Appendix E)
 Socket wrench adapter (Item 3, Appendix E)
 Socket wrench set (Item 71, Appendix E)
 Torque wrench (Item 68, Appendix E)

Material/Parts:

Cleaning cloth (Item 7, Appendix C)
 Thread locking compound (Item 12, Appendix C)
 Thread locking compound solvent (Item 25, Appendix C)
 Flow gates fully open per TM 5-3895-373-10.
 Paving machine jacked and cribbed per paragraph 2.24.2.

Personnel Required:

Two 62B construction equipment repairers. Second person needed to assist in lifting conveyor drag plate guard and adjusting conveyor chain.

References:

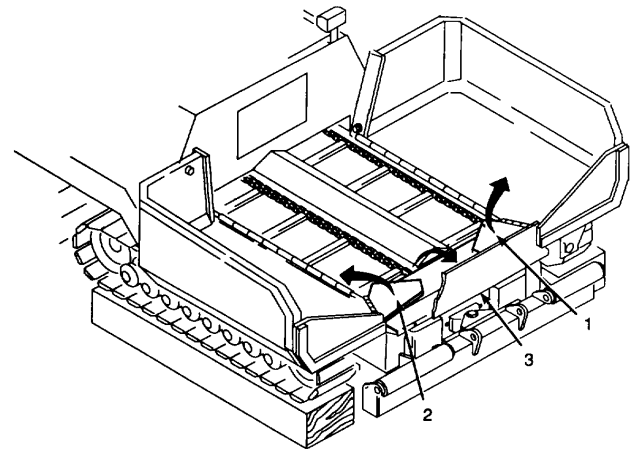
TM 5-3895-373-10
 TM 5-3895-373-24P

Equipment Condition:

Hopper wings fully lowered per TM 5-3895-373-10.

NOTE

There is a left hand and a right hand conveyor chain assembly. This procedure addresses the left hand conveyor chain assembly. Procedure is identical for right hand conveyor chain assembly. Left hand conveyor chain assembly is shown in this procedure.

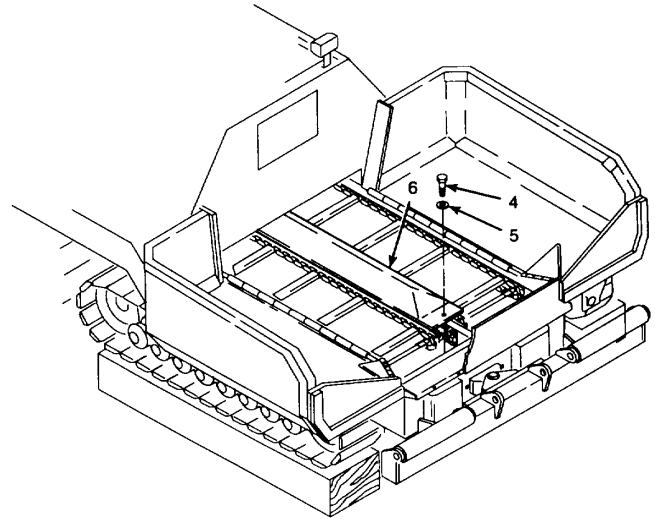


- A. REMOVE.
1. RAISE LEFT ACCESS DOOR (1), RIGHT ACCESS DOOR (2), AND CENTER ACCESS DOOR (3).

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15.7. ADJUST CONVEYOR CHAIN ASSEMBLY TENSION - Continued.

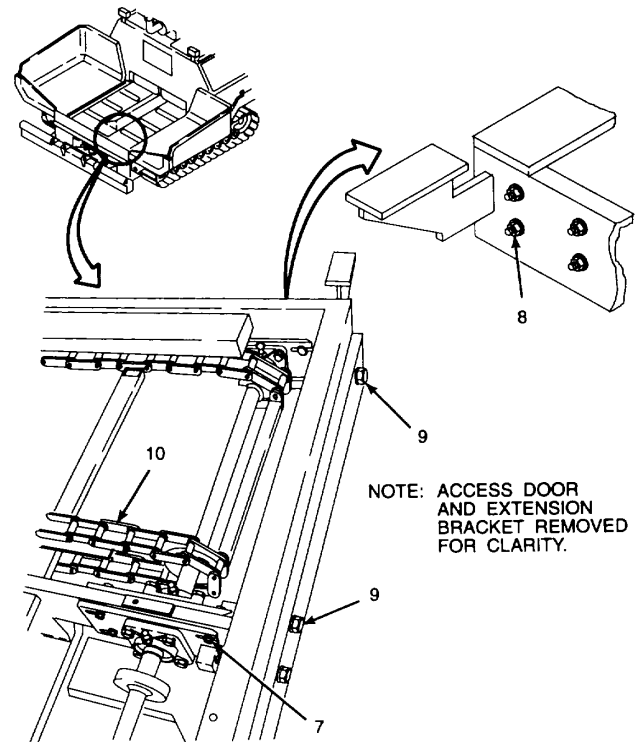
- A. REMOVE - Continued.
- 2. REMOVE HEX HEAD CAP SCREW (4) AND FLAT WASHER (5).
- 3. WITH THE HELP OF A SECOND PERSON, LIFT THE FRONT END OF CONVEYOR DRAG PLATE GUARD (6) AND PLACE CRIBBING UNDER THE FRONT END OF THE CONVEYOR DRAG PLATE GUARD TO GAIN ACCESS TO THE HARDWARE BELOW.
- B. ADJUST.
- 1. LOOSEN HEX NUTS (7).
- 2. LOOSEN HEX NUTS (8) ON SIDE OF CONVEYOR TO BE ADJUSTED.



CAUTION

Both sides of the conveyor chain assembly must be adjusted evenly. Failure to adjust each side of the conveyor chain assembly with the same amount of tension may damage conveyor chain assembly and other conveyor system components.

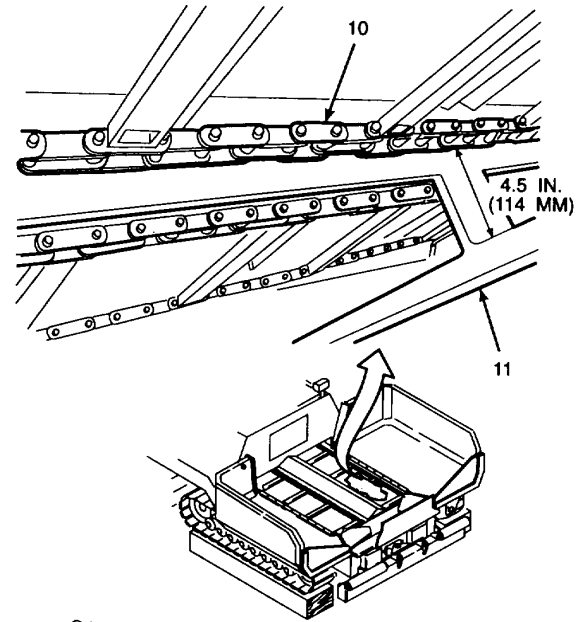
- 3. ADJUST CONVEYOR TENSION BOLTS (9) EVENLY WHILE A SECOND PERSON WATCHES THE SLACK IN CONVEYOR CHAIN ASSEMBLY (10) UNDERNEATH THE PAVING MACHINE.



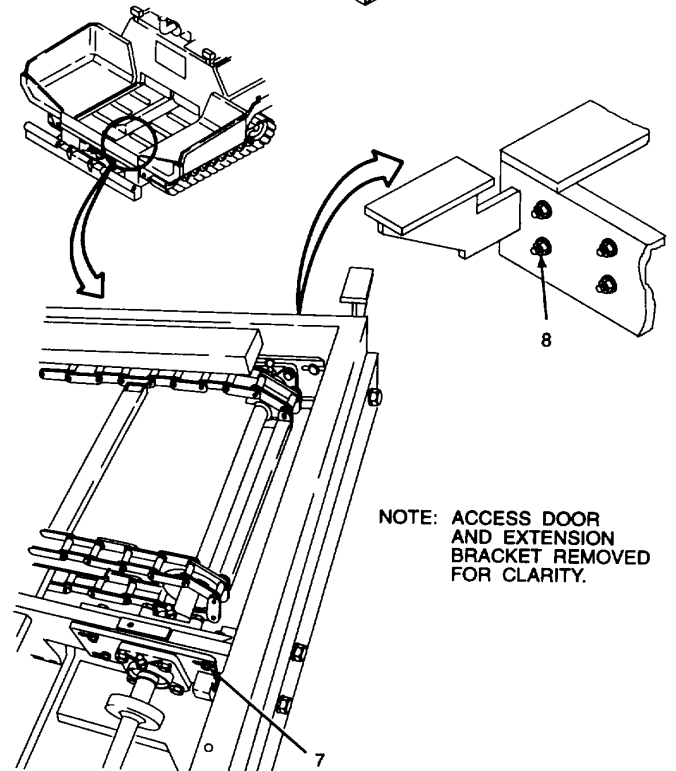
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B. ADJUST - Continued.

4. ADJUST TENSION IN CONVEYOR CHAIN ASSEMBLY (10) UNTIL THE CHAIN ASSEMBLY IS 4.5 IN. (114 MM) ABOVE FRONT MOST MAIN FRAME CROSS MEMBER (11). ENSURE TENSION IN CONVEYOR CHAIN ASSEMBLY IS THE SAME FOR BOTH SIDES BY MEASURING BOTH SIDES.



5. TIGHTEN HEX NUTS (7 AND 8) TO 18 LB-FT (24 N•m).



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15.7. ADJUST CONVEYOR CHAIN ASSEMBLY TENSION - Continued.**C. INSTALL.**

1. WITH THE HELP OF A SECOND PERSON, REMOVE CRIBBING AND LOWER CONVEYOR DRAG PLATE GUARD (6).

WARNING

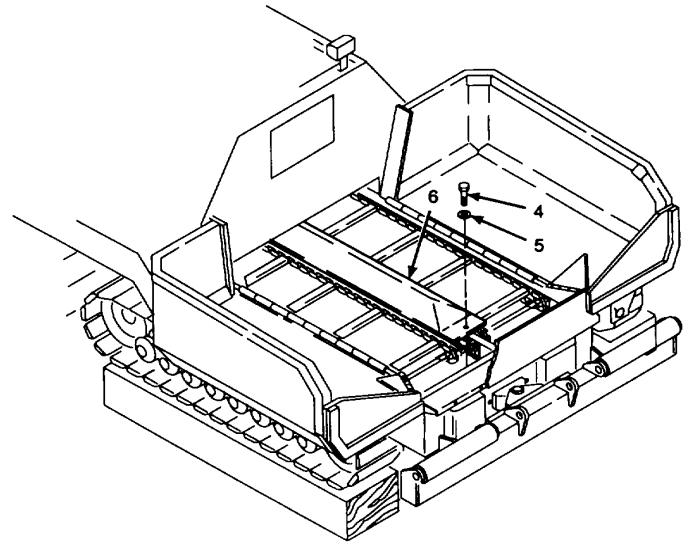
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

2. CLEAN THREADS OF HEX HEAD CAP SCREWS (4) WITH THREAD LOCKING COMPOUND SOLVENT.
3. DRY HEX HEAD CAP SCREWS (4) WITH A CLEANING CLOTH.
4. INSTALL FLAT WASHER (5) ONTO HEX HEAD CAP SCREW (4).

WARNING

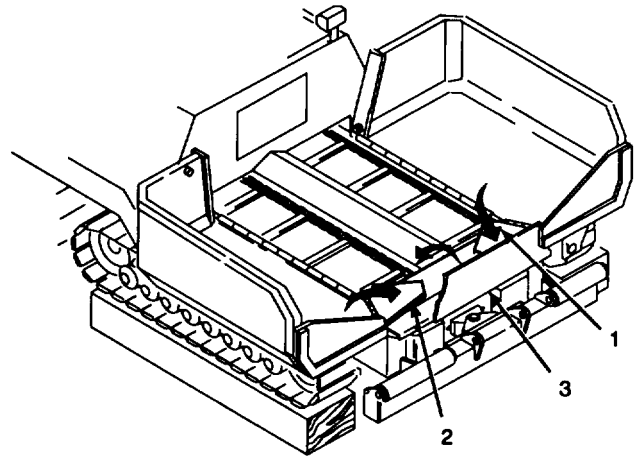
Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

5. APPLY THREAD LOCKING COMPOUND TO THREADS OF HEX HEAD CAP SCREW (4).
6. INSTALL HEX HEAD CAP SCREW (4) AND TIGHTEN TO 90 LB-FT (122 N•m).



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- C. INSTALL - Continued.
- 7. LOWER CENTER ACCESS DOOR (3), RIGHT ACCESS DOOR (2), AND LEFT ACCESS DOOR (1).



NOTE

FOLLOW-ON-TASKS:

Remove cribbing per paragraph 2.24.2.
Lower paving machine per paragraph 2.24.2.

END OF TASK

15.8. REPLACE CONVEYOR DRAG BAR.

This task covers:

- a. Remove b. Install

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
and
Crowbar (Item 11, Appendix E)
Drive pin punch set (Item 35, Appendix E)
Torque wrench (Item 68, Appendix E)

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Conveyor drag bar
Spring pins

Personnel Required:

Two 62B construction equipment repairers. Second person
needed to assist in running machine to position drag bar
to assist in drag bar removal.

References:

TM 5-3895-373-10
TM 5-3895-373-24P

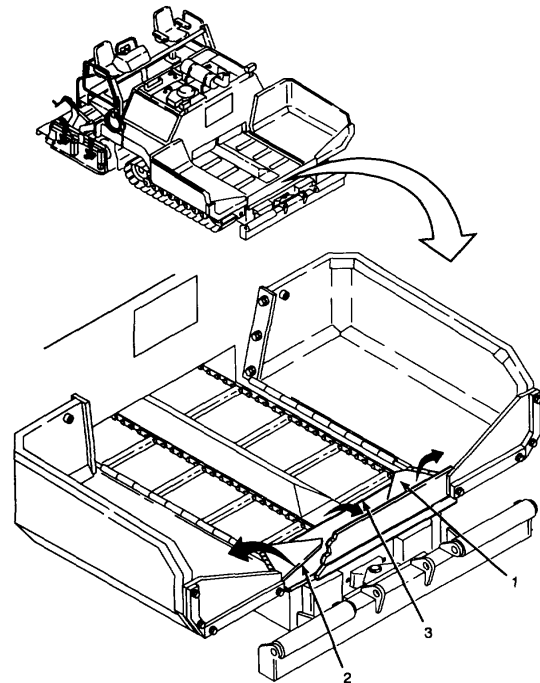
Equipment Condition:

Hopper wings fully lowered per TM 5-3895-373-10.
Flow gates fully open per TM 5-3895-373-10.

NOTE

There are a total of 28 conveyor drag bars on the left hand and right hand conveyor chain assemblies. This procedure refers to replacing one drag bar on the left hand conveyor chain assembly. This procedure should be used, as needed, to replace any or all conveyor drag bars on left hand or right hand conveyor chain assemblies. Left hand conveyor chain assembly is shown in this procedure.

- A. REMOVE.
1. REMOVE SPRING PINS FROM CONVEYOR DRAG BAR.
 - a. Raise left (1), right (2), and center (3) access doors on the front of the hopper.

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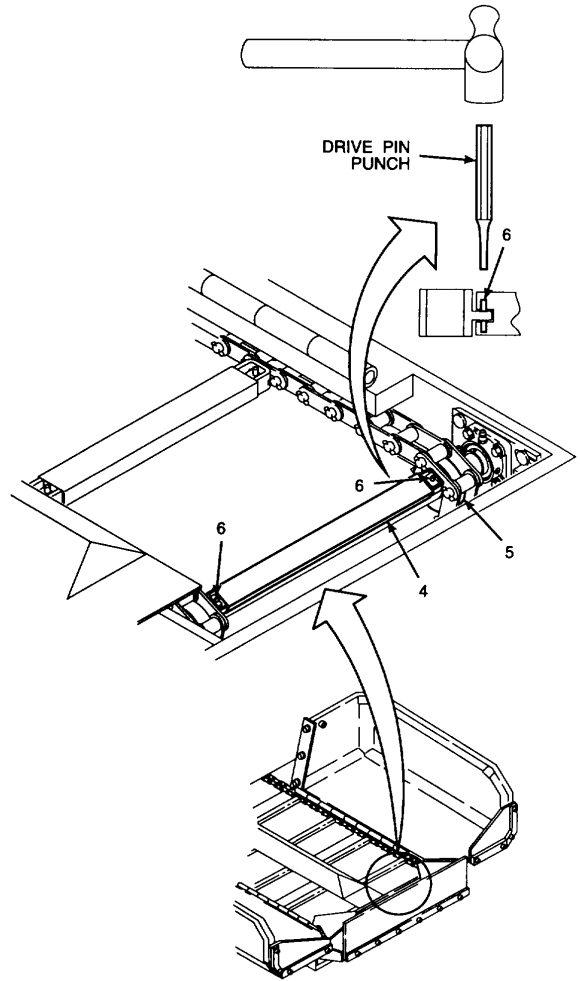
A. REMOVE - Continued.

- b. Start the paving machine. Refer to TM 53895-373-10.
- c. Have second person activate conveyor. When drag bar (4) to be replaced is on top of conveyor idler roller (5), signal second person to stop conveyor.
- d. Shut off engine and remove key from ignition switch. Refer to TM 5-3895-373-10.

NOTE

Buildup of asphalt paving material on drag bars may need to be removed to access spring pins.

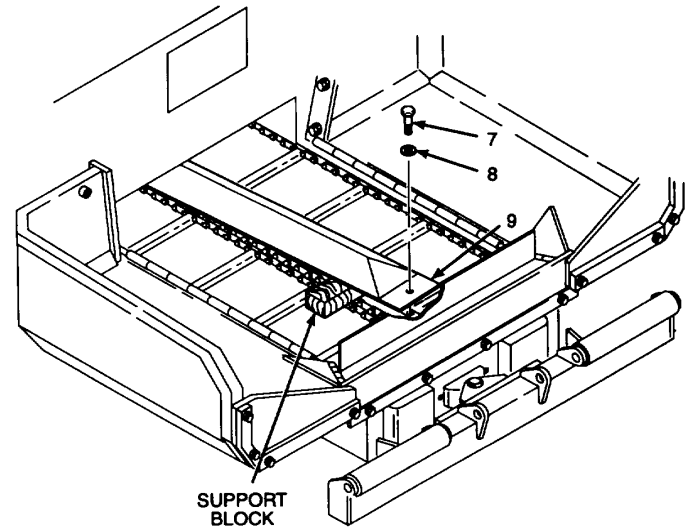
- e. Use a 0.25 in. (0,635 mm) drive pin punch to punch out spring pins (6) from conveyor drag bar (4). Discard spring pins.



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15.8. REPLACE CONVEYOR DRAG BAR - Continued.

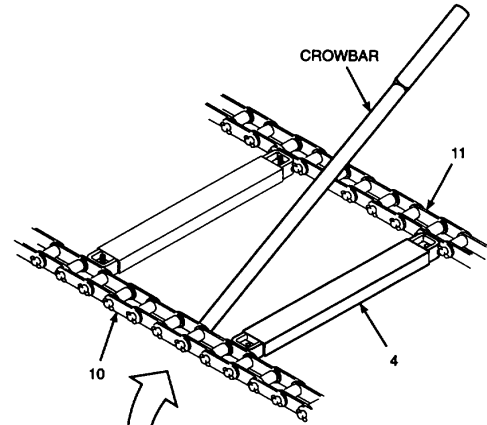
- A. REMOVE - Continued.
2. REMOVE CONVEYOR DRAG BAR FROM CONVEYOR CHAIN ASSEMBLY.
- Start the paving machine. Refer to TM 53895-373-10.
 - Have second person activate conveyor. When drag bar to be replaced is centered in hopper, signal second person to stop conveyor.
 - Shut off engine and remove key from ignition switch. Refer to TM 5-3895-373-10.
 - Remove hex head cap screw (7) and flat washer (8) from conveyor drag plate guard (9) in the hopper.
 - Lift the unsecured end of conveyor drag plate guard (9) and place a support block under it.



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A. REMOVE - Continued.

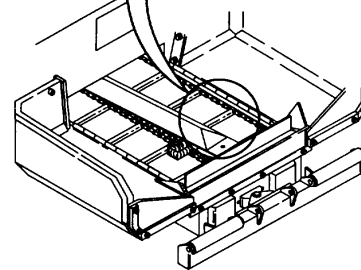
- f. Place one end of a crowbar next to drag bar (4) to be replaced and force inner conveyor chain (10) toward the center of the hopper. Have second person keep outer conveyor chain (11) straight and against outside of hopper.
- g. With chain spread apart, remove conveyor drag bar (4) from conveyor chains (10 and 11). Conveyor chain slack should allow the conveyor drag bar to disengage.



B. INSTALL.

1. INSTALL CONVEYOR DRAG BAR ONTO CONVEYOR CHAIN ASSEMBLY.

- a. Place one end of a crowbar next to the place that drag bar (4) is to be installed and force inner conveyor chain (10) toward center of the hopper. Have second person keep outer conveyor chain (11) straight and against outside of hopper.
- b. With conveyor chain spread apart, install conveyor drag bar (4) onto conveyor chains (10 and 11). Conveyor chain slack should allow the conveyor drag bar to engage.



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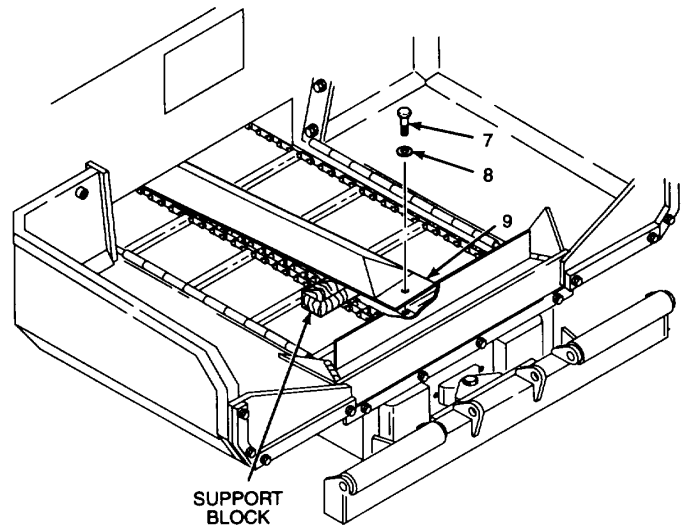
15.8. REPLACE CONVEYOR DRAG BAR - Continued.**B. INSTALL - Continued.**

- c. Remove the support block from below conveyor drag plate guard (9).

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- d. Clean threads of hex head cap screw (7) using thread locking compound solvent. Dry with a cleaning cloth.
- e. Install flat washer (8) onto hex head cap screw (7).

**WARNING**

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

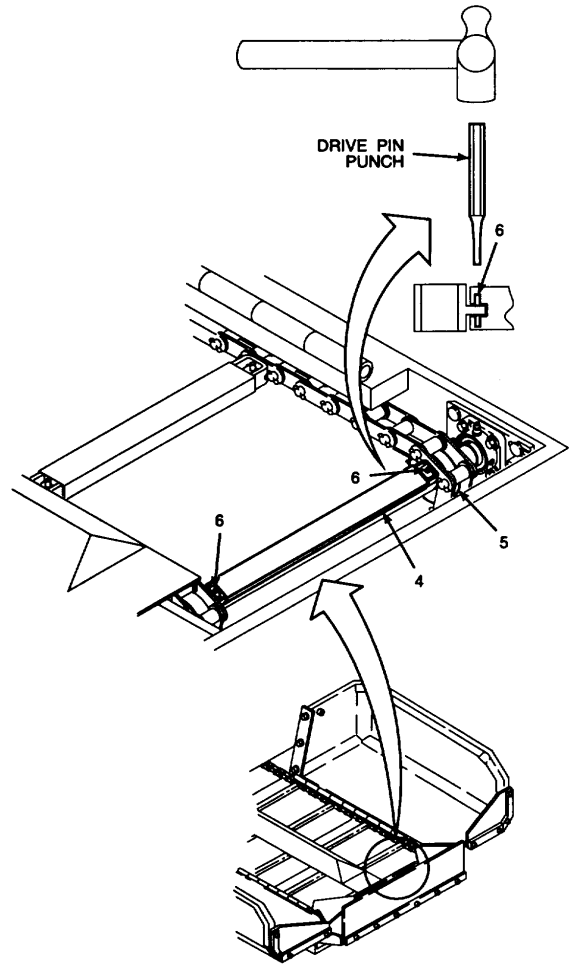
- f. Apply thread locking compound to threads of hex head cap screw (7).
- g. Install hex head cap screw (7) into conveyor drag plate guard (9). Tighten to 90 lb-ft (122 N•m).

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B. INSTALL - Continued.

2. INSTALL SPRING PINS INTO CONVEYOR DRAG BAR.

- a. Start the paving machine. Refer to TM 53895-373-10.
- b. Have second person activate conveyor in forward or reverse as needed. Refer to TM 53895-373-10. When drag bar (4) to be replaced is on top of conveyor idler roller (5), signal second person to stop conveyor.
- c. Shut off engine and remove key from ignition switch. Refer to TM 5-3895-373-10.
- d. Use a 0.25 in. (0,635 mm) drive pin punch to install spring pins (6) into conveyor drag bar (4).

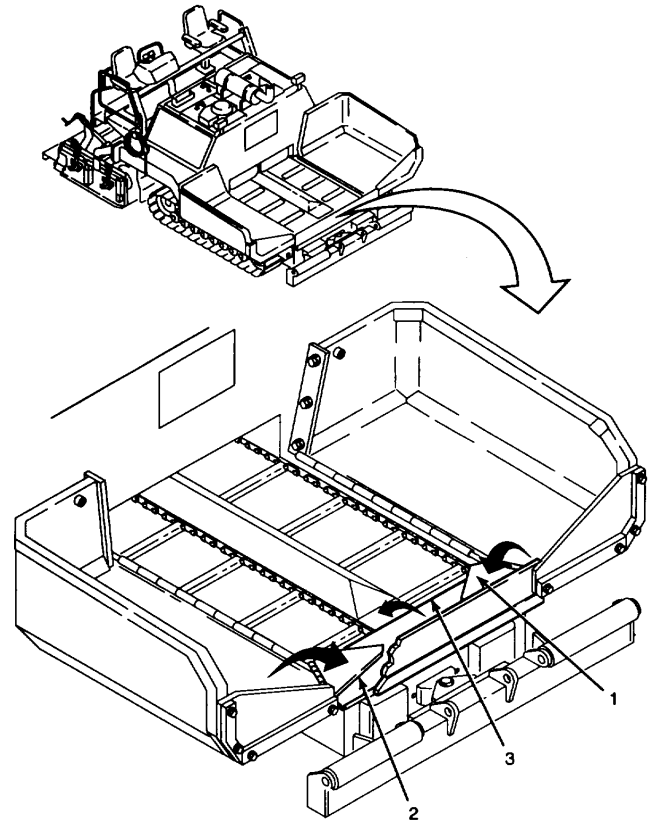


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15.8. REPLACE CONVEYOR DRAG BAR - Continued.

B. INSTALL- Continued.

3. LOWER CENTER (3), RIGHT (2), AND LEFT (1) ACCESS DOORS IN FRONT OF PAVING MACHINE.



END OF TASK

15.9. REPLACE AUGER FLIGHTS.

This task covers:

- a. Remove b. Clean c. Install
-

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Torque wrench (Item 68, Appendix E)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Hemi auger flights
Lockwashers
Quarter auger flights
Teflon flat washers

NOTE

This procedure applies to auger flights on both the left and right sides of the paving machine. For this procedure, only the auger flights on the right side are shown.

- A. REMOVE.
1. POSITION PAVING MACHINE FOR AUGER FLIGHTS REMOVAL.
- a. Start up paving machine, and fully raise and lock screed per TM 5-3895-373-10.
 - b. Place 3 in. (76 mm) high blocks of cribbing directly behind both tracks of paving machine.
 - c. Back up paving machine, driving both tracks squarely onto cribbing.
 - d. Fully extend extension screed on side requiring replacement of auger flight(s) per TM 5-3895-373-10.
 - e. Open screed travel lock valve per TM 5-3895-373-10. Lower screed to floor surface.

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15.9. REPLACE AUGER FLIGHTS - Continued.

A. REMOVE - Continued.

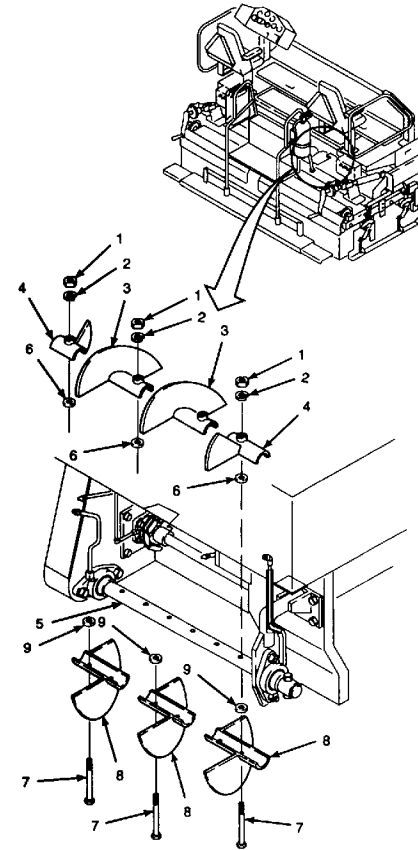
- f. Rotate augers until hex nuts (1) are horizontal. Shut off engine and remove key from ignition switch per TM 53895-373-10.

2. REMOVE AUGER FLIGHT.

CAUTION

If auger flights are loose on auger shaft, loose auger flights should be held or otherwise secured while removing hex nuts. Unsecured auger flight(s) may fall to floor and break.

- a. Remove hex nuts (1), lockwashers (2), and hemi auger flights (3) or quarter auger flight (4). Carefully slide freed flight from auger shaft (5). Discard lockwashers.
- b. Remove teflon flat washers (6). Discard teflon flat washers.
- c. Remove hex head cap screws (7), hemi auger flight (8), and teflon flat washers (9) from auger shaft (5). Discard teflon flat washers.



B. CLEAN.

1. CLEAN HEX HEAD CAP SCREWS.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean threads of hex head cap screws with thread locking compound solvent.
- b. Use cleaning cloths to wipe residue from hex head cap screw threads.

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- B. CLEAN - Continued.
- 2. CLEAN AUGER SHAFT AND REUSABLE AUGER FLIGHTS.

WARNING

Cleaning solvent, P-D-680, is **TOXIC** and flammable. Wear protective goggles 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 m cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

CAUTION

All exposed surfaces of auger shaft and all surfaces of reusable auger flights that will contact auger shaft must be thoroughly cleaned. Any asphalt buildup left on these surfaces will cause auger flight mounting hardware to become loose during auger operation.

- a. Use putty knife, cleaning solvent, and cleaning cloths to remove all asphalt buildup from exposed auger shaft.
- b. Clean all asphalt buildup from exposed butt ends of installed auger flights.
- c. Thoroughly clean all surfaces of reusable auger flights that will contact auger shaft and adjoining auger flights.

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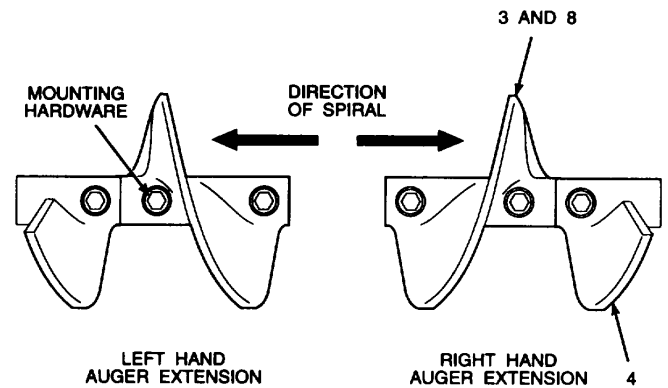
15.9. REPLACE AUGER FLIGHTS - Continued.

C. INSTALL.

NOTE

Ensure the auger flight spiral is in the correct direction when installing left and right auger flights. If spiral is not correct, paving material will not spread evenly along main and extension screeds.

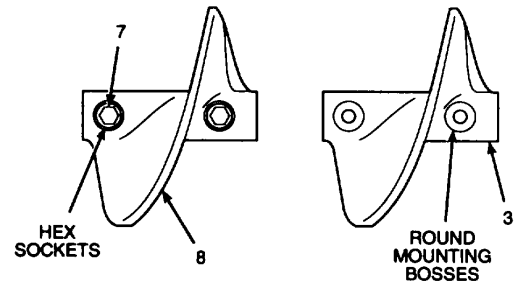
1. VISUALLY MATCH THE SPIRAL DIRECTION OF QUARTER AUGER FLIGHTS (4), AND HEMI AUGER FLIGHTS (3 AND 8) FOR LEFT OR RIGHT HAND IDES PRIOR TO INSTALLATION ONTO AUGER SHAFT.



NOTE

Hemi auger flights (8) have hex sockets to keep hex head cap screws (7) from turning. Hemi auger flights (3) are fitted with round mounting bosses to allow rotation of hex nuts (1).

2. SORT HEMI AUGER FLIGHTS (3 AND 8). FLIGHTS MUST INCLUDE HEX SOCKET SEATS TO KEEP HEX HEAD CAP SCREWS (7) FROM TURNING.



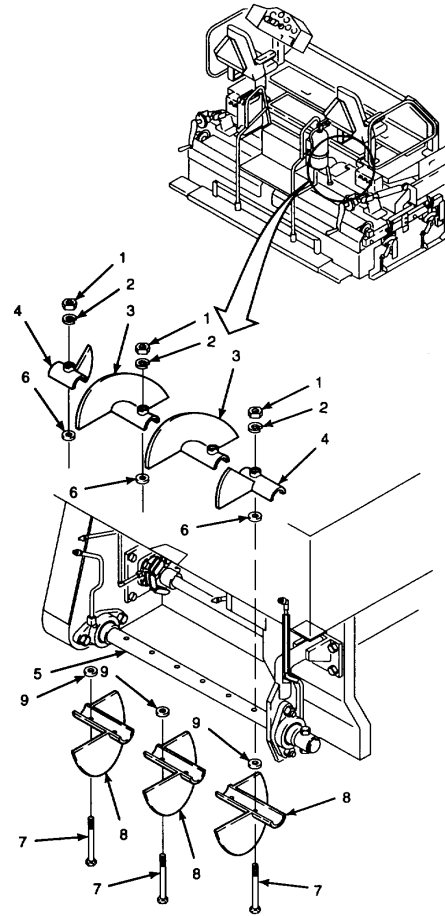
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C. INSTALL - Continued.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

3. APPLY THREAD LOCKING COMPOUND TO THREADS OF HEX HEAD CAP SCREWS (7).
4. INSTALL TEFLON FLAT WASHERS (9), HEMI AUGER FLIGHTS (8), AND HEX HEAD CAP SCREWS (7) ONTO AUGER SHAFT (5).
5. INSTALL TEFLON FLAT WASHERS (6), HEMI AUGER FLIGHTS (3), QUARTER AUGER FLIGHTS (4), LOCKWASHERS (2), AND HEX NUTS (1). TIGHTEN HEX NUTS TO 45 LB-FT (61 N.m).
6. START UP PAVING MACHINE, RAISE SCREED, RETRACT EXTENSION SCREED, AND DRIVE TRACTOR OFF OF CRIBBING BLOCKS PER TM 5-3895-373-10.



END OF TASK

15.10. REPLACE FLOW GATE COMPONENTS.

This task covers:

- a. Remove b. Install
-

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Torque wrench (Item 68, Appendix D)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Electrical insulating compound (Item 11, Appendix C)
Adhesive (Item 2, Appendix C)
Thread locking compound (Item 13, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Lockwashers
Self-locking hex nuts

Equipment Conditions:

Front top right access door open per TM 5-3895-373-10.
Front top left access door open per TM 5-3895-373-10.
Engine access cover removed per paragraph 2.22.

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NOTE

There is a left hand and a right hand flow gate on the paving machine. This procedure refers to replacement of right hand flow gate components. Procedure is identical for left hand flow gate components. Right hand flow gate components are shown in this procedure.

A. REMOVE.

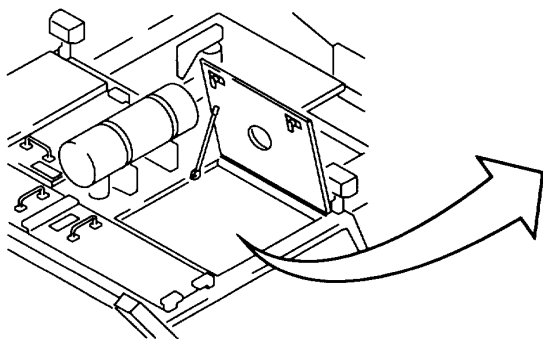
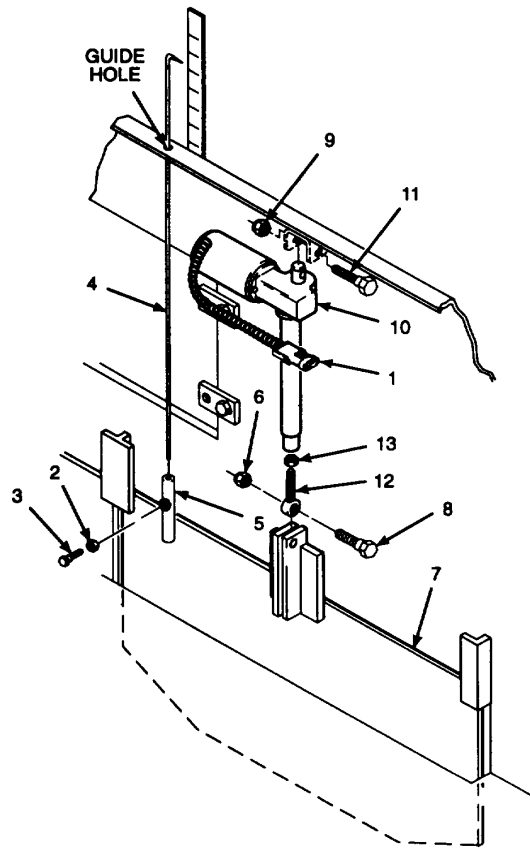
1. REMOVE LINEAR ACTUATOR.

- a. Unplug electrical connector (1) from the engine harness.

NOTE

Indicator rod, indicator plate, or flow gate, should be removed only as needed to replace damaged components.

- b. Remove hex nut (2) and hex head cap screw (3). Slide indicator rod (4) from clamping tube (5) and guide hole.
- c. Remove and discard self-locking hex nut (6). Support flow gate (7) and remove hex head cap screw (8). Lower flow gate to bottom of slide.
- d. Remove and discard self-locking hex nut (9). Support linear actuator (10) and remove hex head cap screw (11). Remove linear actuator.
- e. Hold rod end (12) and loosen jam nut (13). Unscrew rod end from linear actuator. Remove jam nut.



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15.10. REPLACE FLOW GATE COMPONENTS - Continued.

- A. REMOVE - Continued.
2. REMOVE FLOW GATE.

NOTE

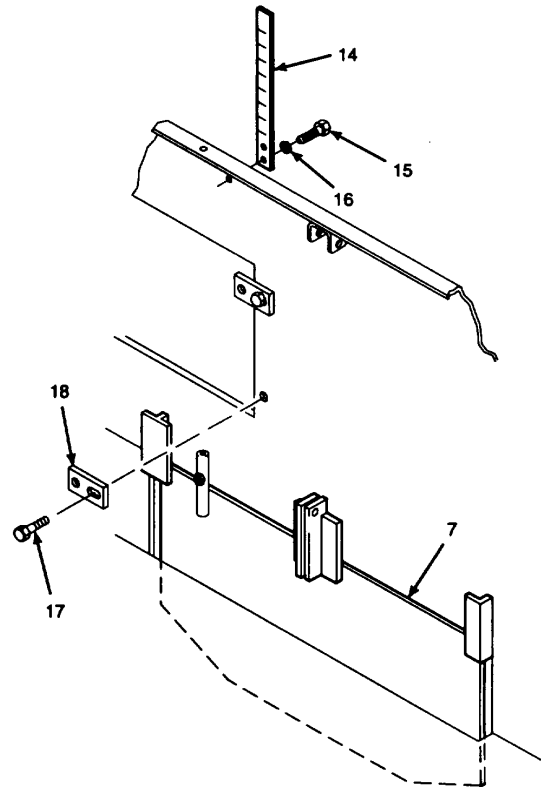
Indicator rod, indicator plate, or flow gate, should be removed only as needed to replace damaged components.

- a. If indicator plate (14) is damaged or illegible, remove hex head cap screws (15), lockwashers (16), and indicator plate. Discard lockwashers and damaged or illegible indicator plate.
- b. Remove hex head cap screws (17) and bottom engine access cover brackets (18).

NOTE

It may be necessary to loosen some of the sound foam to remove flow gate from the paving machine.

- c. Slide flow gate (7) up and out of slide brackets.



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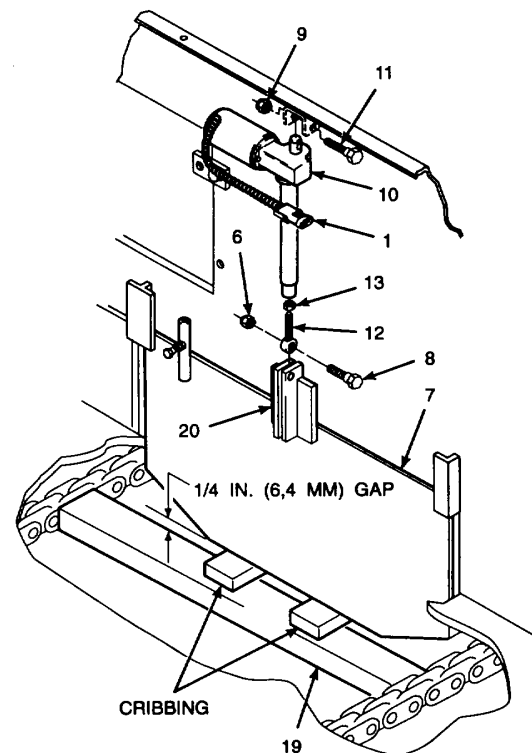
B. INSTALL.

1. INSTALL FLOW GATE AND LINEAR ACTUATOR.

- a. Position flow gate (7) in slide brackets and lower to bottom of slide, holding the lower edge of the flow gate as level as possible. If the flow gate does not touch the conveyor drag plate guard, ensure 1/4 in. (6,4 mm) gap is held between lower edge of flow gate and conveyor chain drag bars.
- b. Use cribbing to prop up flow gate (7) 1/4 in. (6,4 mm) above top edge of drag bars (19), if not resting on the conveyor drag plate guard.
- c. Install linear actuator (10) and secure with hex head cap screw (11) and self-locking hex nut (9).
- d. Apply electrical insulating compound to electrical connector (1) and reconnect to engine harness.
- e. Extend linear actuator to full length per TM 5-3595373-10.
- f. Install jam nut (13) on rod end (12). Screw rod end into bottom of linear actuator a minimum of four threads. If rod end is lower than mounting holes in flow gate left bracket (20), screw rod end into bottom of linear actuator until rod end and mounting holes in flow gate left bracket align. If rod end is higher than mounting holes in flow gate left bracket (20), raise flow gate to align mounting bracket with rod end. Install hex head cap screw (8) and tighten jam nut.
- g. Install and tighten self-locking hex nut (6).

and skin. Failure to do so may result in injury or death to personnel.

If personnel become dizzy while using adhesive, immediately get fresh air and medical attention. If personnel swallow adhesive, do not induce vomiting. Get immediate medical attention. If adhesive contacts eyes, flush eyes with water for 15 minutes and get immediate medical attention. If adhesive contacts skin, wash thoroughly with soap and water.



- h. Apply adhesive to the back of any sound foam that was loosened and place the sound foam back into position.

WARNING

Adhesive is TOXIC and extremely flammable. Keep away from heat, sparks, and open flames. Use only in well ventilated areas. Do not breathe vapors or swallow and avoid contact with eyes

GO TO NEXT PAGE

15.10. REPLACE FLOW GATE COMPONENTS - Continued.

- B. INSTALL - Continued.
- 2. INSTALL INDICATOR PLATE AND ROD.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

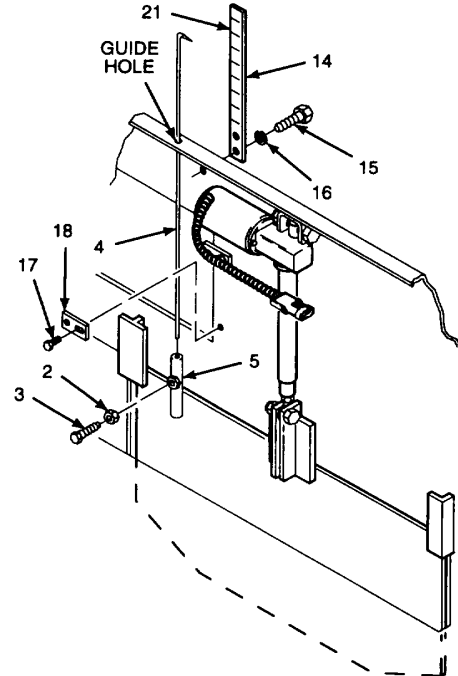
- a. Clean threads of hex head cap screws (15) with thread locking compound solvent.
- b. Dry hex head cap screws with a cleaning cloth.
- c. Install lockwashers (16) on hex head cap screws (15).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- d. Apply thread locking compound to threads of hex head cap screws (15).
- e. Install indicator plate (14), and hex head cap screws (15). Make sure decal (21) is facing to the rear of the paving machine. Tighten hex head cap screws to 9 lb-ft (12 N.m).
- f. Slide indicator rod (4) through guide hole in top of frame. Install straight end of indicator rod in clamping tube (5).
- g. Turn indicator rod until pointer is parallel with face of indicator plate (14).

- h. Clean threads of hex head cap screw (3) with thread locking compound solvent.
- i. Dry hex head cap screw with a cleaning cloth.



- j. Install hex nut (2) onto hex head cap screw (3). Screw hex nut on all the way up to head of hex head cap screw.
- k. Apply thread locking compound to threads of hex head cap screw (3).
- l. Adjust height of indicator rod to align pointer with "CLOSED" mark on decal (21).
- m. Install and tighten hex head cap screw (3) into clamping tube (5) against indicator rod (4). Tighten hex nut (2) against clamping tube.
- n. Install bottom engine access cover brackets (18) and hex head cap screws (17) and tighten cap screws.

NOTE

**FOLLOW-ON-TASKS: Install engine access cover per paragraph 2.22.
Close front top right access door per TM 5-3895-373-10.
Close front top left access door per TM 5-3895-373-10.**

END OF TASK

15.11. REPLACE SCREED EXTENSION CYLINDER.

This task covers: **a. Remove** **b. Install**

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Torque wrench (Item 68, Appendix E)

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Hydraulic fitting sealant (Item 21, Appendix C)
Hydraulic oil (Item 18, Appendix C)
Machinery wiping towels (Item 30, Appendix C)
Protective caps (Item 5, Appendix C)
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Screed extension cylinder
Lockwashers
Preformed packings
Self-locking machine screws

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

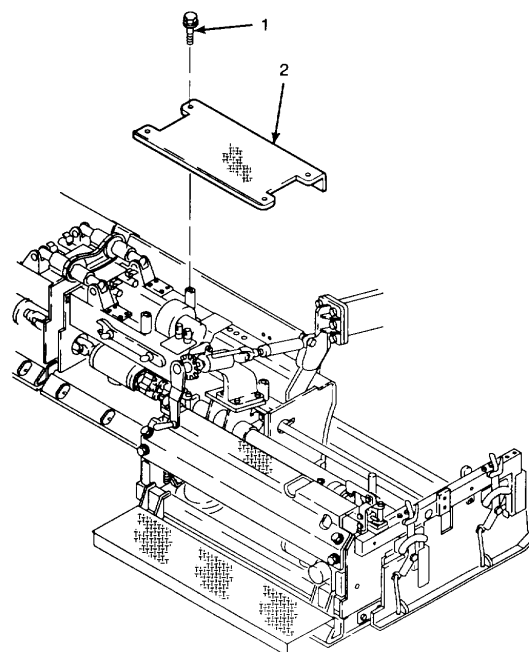
Extension screeds fully extended (if possible)
per TM 5-3895-373-10.

NOTE

This procedure applies to both the left and right screed extension cylinders. In this procedure the right screed extension cylinder is shown.

A. REMOVE.

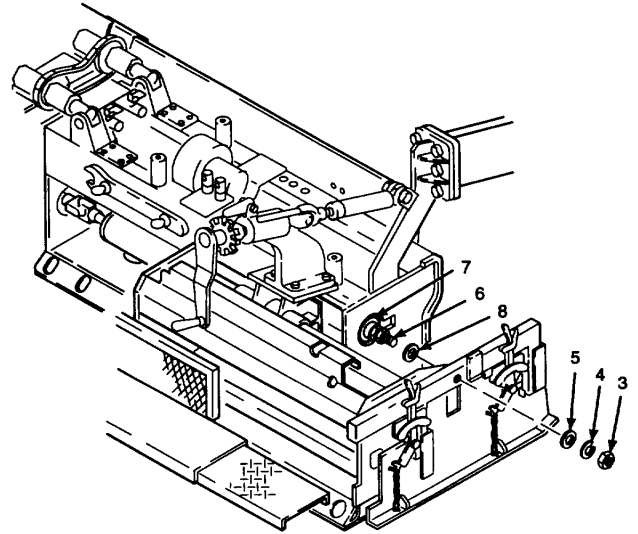
1. REMOVE SCREED COVER PLATE.
 - a. Remove self-locking machine screws (1) from screed cover plate (2). Discard self-locking machine screws.
 - b. Remove screed cover plate (2) from the paving machine.



GO TO NEXT PAGE

15.11. REPLACE SCREED EXTENSION CYLINDER - Continued.**A. REMOVE - Continued.****2. DISCONNECT HYDRAULIC TUBES.**

- a. Remove hex nut (3), lockwasher (4), and flat washer (5) from extension rod (6). Discard lockwasher.
- b. Start the paving machine and retract screed extension cylinder (7) per TM 5389537310 and remove flat washer (8).

**WARNING**

Turn off ignition and remove key prior to performing electrical and hydraulic system maintenance. Failure to do so may result in sudden equipment movement or electrical shock causing serious injury or death to personnel.

- c. Shut off engine and remove key from ignition switch per TM 5-3895-373-10.

GO TO NEXT PAGE

A. REMOVE - Continued.

CAUTION

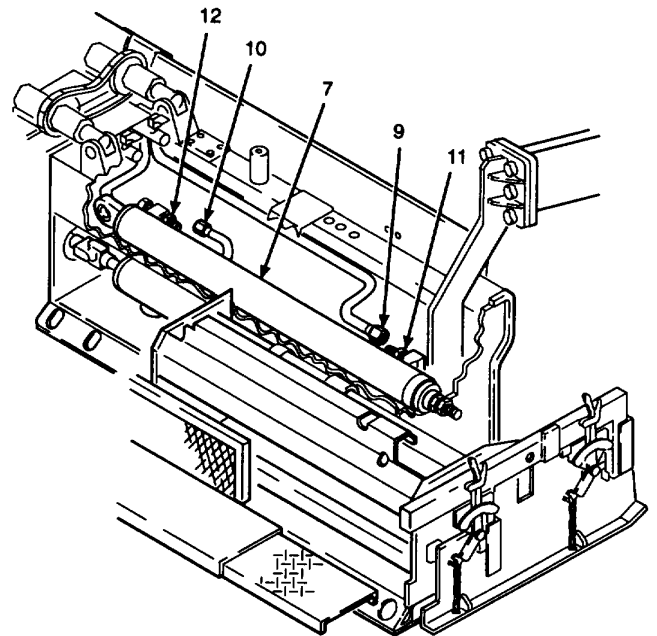
Thoroughly clean hydraulic hoses and fittings before disconnecting. Always plug or cap off disconnected fittings to prevent intrusion of contaminants. Failure to properly clean and cap off connectors may result in system contamination and equipment damage.

- d. Use a cleaning cloth and clean around the hydraulic fittings on screed extension cylinder (7).
- e. Place a machinery wiping towel below tube fittings of tubes (9 and 10).

WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

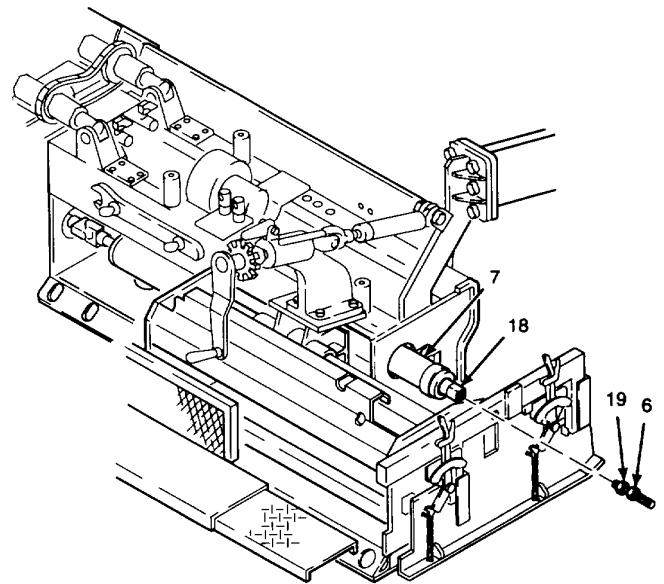
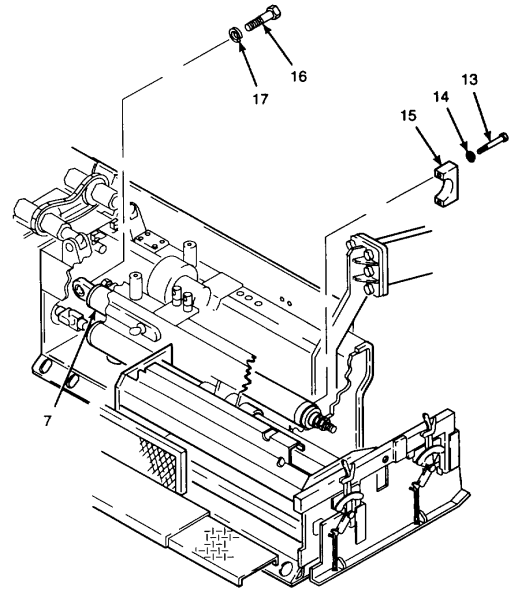
- f. Disconnect tubes (9 and 10) from straight adapters (11 and 12).
- g. Install plugs into tubes (9 and 10) and caps onto straight adapters (11 and 12) on screed extension cylinder (7).



GO TO NEXT PAGE

15.11. REPLACE SCREED EXTENSION CYLINDER - Continued.**A. REMOVE - Continued.**

3. REMOVE SCREED EXTENSION CYLINDER.
 - a. With the help of another person support screed extension cylinder (7).
 - b. Remove hex head cap screws (13), lockwashers (14), and clamp (15). Discard lockwashers.
 - c. Remove hex head cap screw (16) and lockwasher (17). Discard lockwasher.
 - d. Slide screed extension cylinder (7) part way through access hole in the main screed assembly frame.
 - e. Use a wrench and hold square end of piston rod (18), loosen jam nut (19), and remove extension rod (6).
 - f. Remove screed extension cylinder (7) through access hole in the main screed assembly frame.



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A. REMOVE - Continued.

4. REMOVE ADAPTERS AND PLUG.

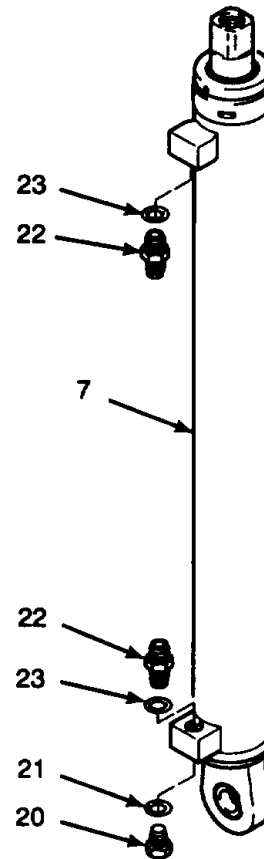
WARNING

Cleaning solvent, PD680, is TOXIC and flammable. Wear protective goggles 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 m cleaning solvent is 2000F (93,3°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, flush eyes with water and get immediate medical attention.

- a. Clean and remove any dirt or foreign matter from screed extension cylinder exterior with cleaning solvent. Scrub off hard deposits with a cleaning brush. Wipe dry with a clean, cleaning cloth.
- b. Remove plug (20) and preformed packing (21) from screed extension cylinder (7). Discard preformed packing.
- c. Remove straight adapters (22) and preformed packings (23). Discard preformed packings.



GO TO NEXT PAGE

15.11. REPLACE SCREED EXTENSION CYLINDER - Continued. _

B. INSTALL.

1. INSTALL ADAPTERS AND PLUG.



Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

- a. Lubricate preformed packings (21 and 23) with clean hydraulic oil.



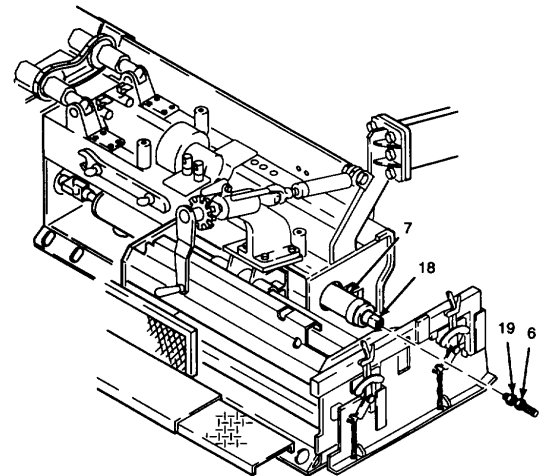
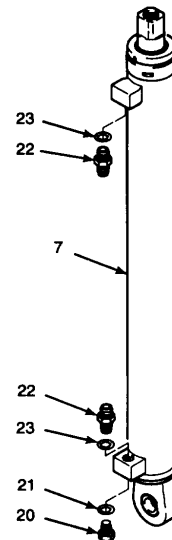
Be careful not to damage preformed packings when sliding over threads. Sharp edges of threads can cut or damage preformed packings. Damaged preformed packings will cause leakage and affect performance.

- b. Install preformed packings (23) and straight adapters (22) onto screed extension cylinder (7).
- c. Install preformed packings (21) and plug (20) onto screed extension cylinder (7).

2. INSTALL SCREED EXTENSION CYLINDER.

- a. Use a wrench and hold square end of piston rod (18). Install extension rod (6) into the piston rod. Do not tighten jam nut (19) at this time.

- b. Install screed extension cylinder (7) through access hole in the main screed assembly frame. Ensure cylinder ports are oriented in the proper direction to allow connection of hydraulic tubes.



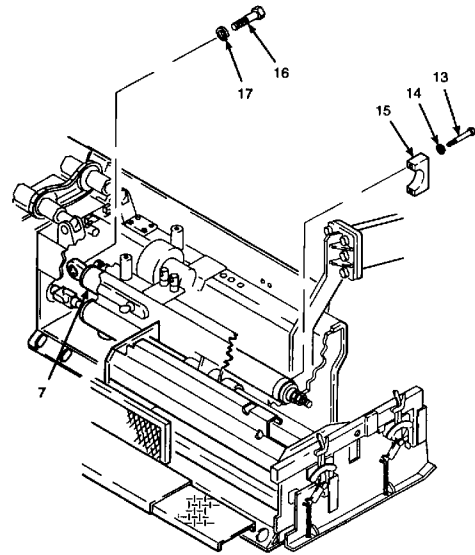
GO TO NEXT PAGE

B. INSTALL - Continued.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- c. Use thread locking compound solvent to clean the threads of hex head cap screws (16 and 13).
- d. Dry hex head cap screws (16 and 13) with a cleaning cloth.
- e. Install lockwashers (17 and 14) onto hex head cap screws (16 and 13).

**WARNING**

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- f. Apply thread locking compound to threads of hex head cap screws (16 and 13).
- g. Install hex head cap screw (16), clamp (15) and hex head cap screws (13) securing screed extension cylinder (7) in place.
- h. Tighten hex head cap screw (16).
- i. Tighten hex head cap screws (13) to 37 lb-ft (50 N•m).

GO TO NEXT PAGE

15.11. REPLACE SCREED EXTENSION CYLINDER - Continued.

B. INSTALL - Continued.

3. CONNECT HYDRAULIC TUBES.

WARNING

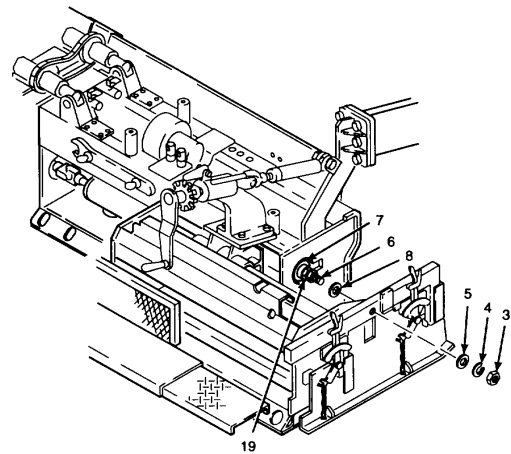
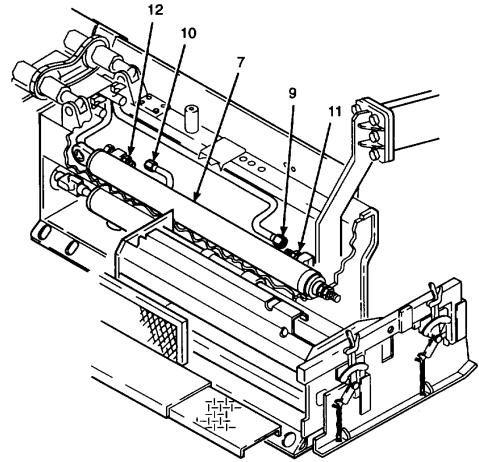
Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- a. Apply hydraulic fitting sealant to threads of straight adapters (11 and 12).
- b. Connect tubes (9 and 10) to straight adapters (11 and 12) on screed extension cylinder (7).
- c. Install flat washer (8) onto extension rod (6).

NOTE

Ensure that extension screed is fully extended.

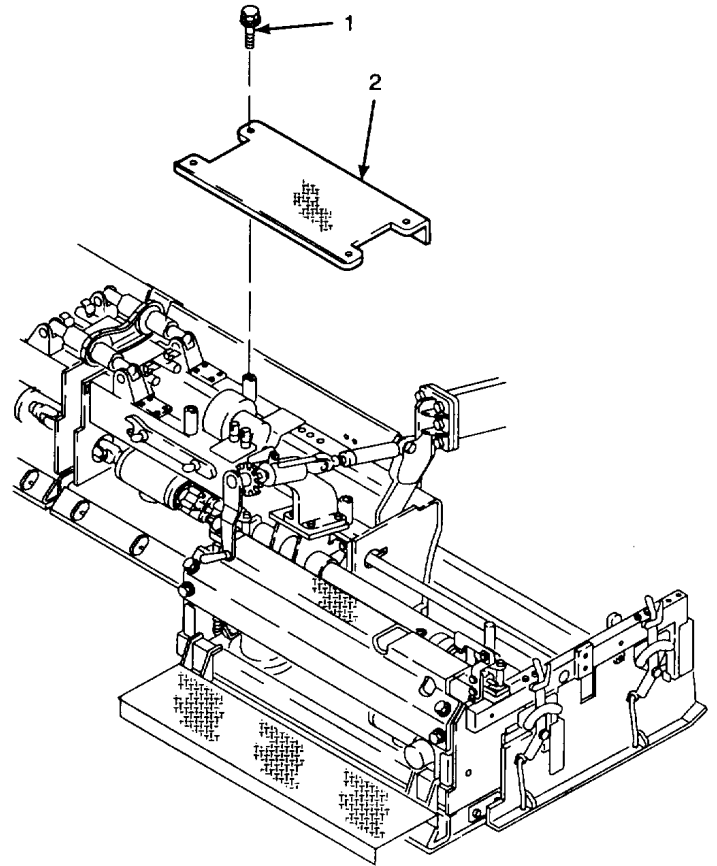
- d. Start the paving machine and extend screed extension cylinder (7) per TM 5389537310 into hole in endgate assembly frame.
- e. With extension screed and screed extension cylinder fully extended, adjust extension rod (6) until flat washer (8) is flush against endgate assembly frame.
- f. Install flat washer (5), lockwasher (4), and hex nut (3) onto extension rod (6) and tighten hex nut.
- g. Tighten jam nut (19) against screed extension cylinder (7).



GO TO NEXT PAGE

B. INSTALL - Continued.

4. INSTALL SCREED COVER PLATE.
 - a. Place screed cover plate (2) onto the paving machine.
 - b. Install self-locking machine screws (1) and tighten.

**NOTE**

FOLLOW-ON-TASK: Extension screeds fully retracted per TM 5-3895-373-10.

END OF TASK

15.12. REPLACE SCREED VIBRATION MOTORS.

This task covers:**a. Remove****b. Install**

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
 (Item 54, Appendix E)
 Crowfoot wrench (Item 61, Appendix E)
 Socket wrench adapter (Item 1, Appendix E)
 Torque wrench (Item 66, Appendix E)
 (if replacing main screed vibration motor).

Materials/Parts:

Hydraulic fitting sealant (Item 21, Appendix C)
 Machinery wiping towels (Item 30, Appendix C)
 Tape (Item 28, Appendix C)
 Protective caps (Item 5, Appendix C)
 Tags (Item 27, Appendix C)
 Thread locking compound (Item 12, Appendix C)
 Thread locking compound solvent (Item 25, Appendix C)
 Lockwashers

References:

TM 5-3895-373-10
 TM 5-3895-373-24P

Equipment Condition:

Extension screeds fully extended per TM 5-3895-373-10

Cover plates on extension screeds removed per paragraph 2.22

(if replacing extension screed vibration motors).

Extension screed blower and flexible pipe assemblies removed per paragraph 14.8 (if replacing extension screed vibration motors).

NOTE

During disassembly, note the position of motor tag for correct positioning during installation.

GO TO NEXT PAGE**15-86**

A. REMOVE.

1. DISCONNECT TUBES AT MAIN SCREED VIBRATION MOTOR.

WARNING

Cleaning solvent, PD680, is TOXIC and flammable. Wear protective goggles and gloves.

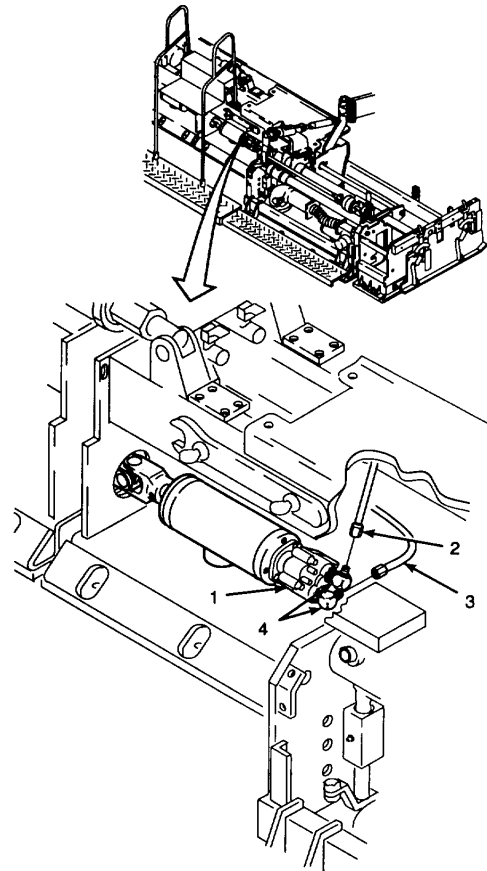
Use only in a well ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type m cleaning solvent is 200°F (93,30C). Failure to do so may result in injury or death to personnel.

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, flush eyes with water and get immediate medical attention.

CAUTION

Thoroughly clean hydraulic hoses and fittings before disconnecting. Always plug or cap off disconnected fittings to prevent intrusion of contaminants. Failure to properly clean and cap off connectors may result in hydraulic system contamination and equipment damage.

- a. Use cleaning solvent and cleaning cloth to clean around hydraulic fittings at main screed vibration WARNING motor (1).
- b. Place machinery wiping towel below hydraulic fittings vibration motor.



WARNING

Hydraulic oil can be moderately flammable and on main screed can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.

- c. Tag and disconnect tubes (2 and 3) from elbows (4). Plug tubes and elbows. Discard machinery wiping towel in accordance with local procedures.

GO TO NEXT PAGE

15.12. REPLACE SCREED VIBRATION MOTORS - Continued.

A. REMOVE - Continued.

2. DISCONNECT HOSES AT EXTENSION SCREED VIBRATION MOTOR.

WARNING

Cleaning solvent, PD680, is **TOXIC** and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

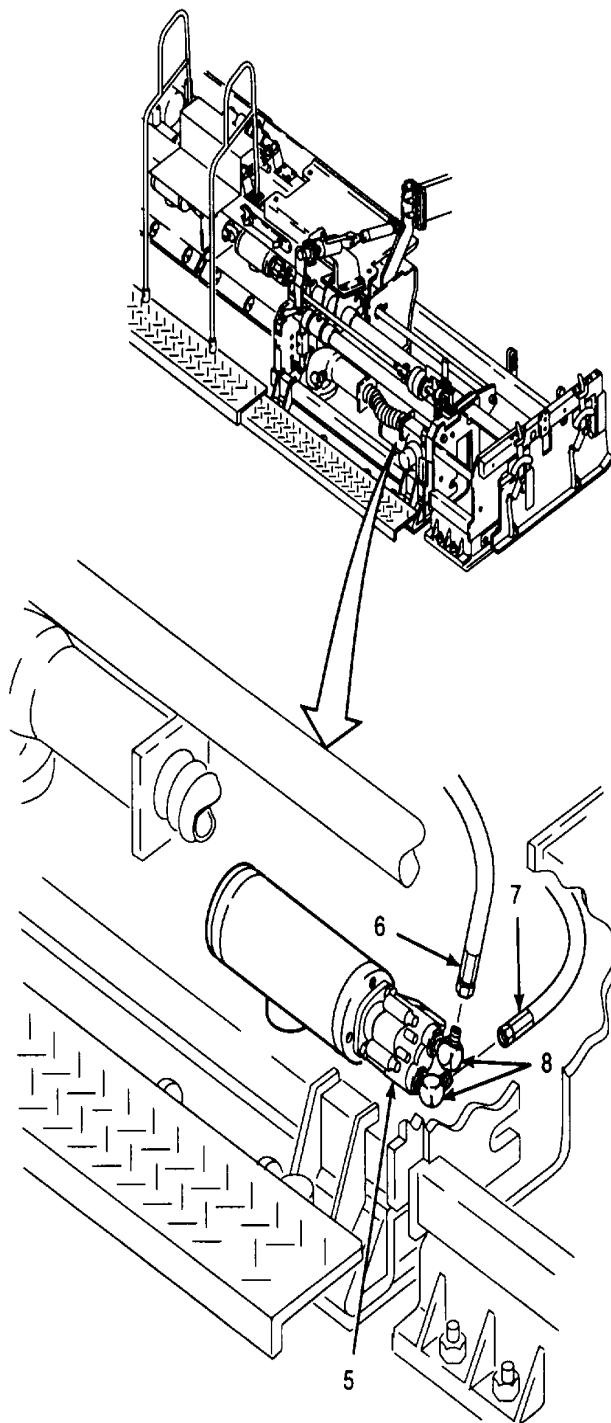
CAUTION

Thoroughly clean hydraulic hoses and fittings before disconnecting. Always plug or cap off disconnected fittings to prevent intrusion of contaminants. Failure to properly clean and cap off connectors may result in hydraulic system contamination and equipment damage.

- a. Use cleaning solvent and cleaning cloth to clean around hydraulic fittings at extension screed vibration motor (5).
- b. Place machinery wiping towel below hydraulic fittings on extension screed vibration motor.

WARNING

Hydraulic oil can be moderately flammable and can be an irritant to the skin, eyes, and respiratory system. Avoid prolonged exposure. Eye protection and rubber gloves must be worn when working with hydraulic oil.



- c. Tag and disconnect hoses (6 and 7) from elbows (8). Plug hoses and elbows. Discard machinery wiping towel in accordance with local procedures.

GO TO NEXT PAGE

A. REMOVE - Continued.

3. REMOVE VIBRATION MOTOR.

NOTE

The following removal procedure applies to the main screed vibration motor and the extension screed vibration motors.

NOTE

There is not enough clearance to remove hex head cap screws when vibration motor is flush against motor mount.

Loosen cap screws evenly while sliding vibration motor away from motor mount.

- a. Slide vibration motor (9) away from motor mount (10) while loosening hex head cap screws (11). Use a crowfoot wrench on cap screws if necessary.
- b. Remove hex head cap screws (11), lockwashers (12), and flat washers (13). Discard lockwashers.
- c. Remove vibration motor (9) and shaft key (14) from vibration motor drive shaft (15). Tape shaft key back onto vibration motor drive shaft.

B. INSTALL.

1. INSTALL VIBRATION MOTOR.

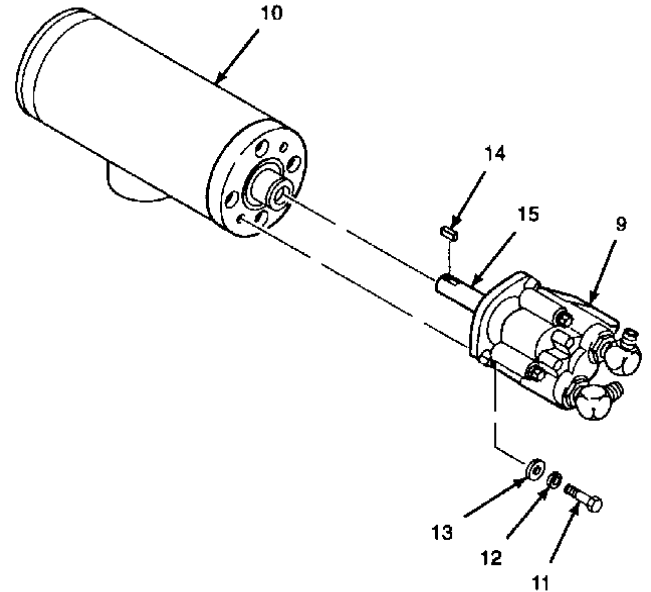


Elbows on the main and extension screed vibration motors are orientated differently. Ensure each motor is installed in the correct location and at the same orientation as removed or hydraulic tube connection for the vibration motors will not be possible.

NOTE

The following installation procedure applies to the main screed vibration motor and the extension screed vibration motor.

- a. Remove tape and shaft key (14) from vibration motor drive shaft (15).



GO TO NEXT PAGE

15.12. REPLACE SCREED VIBRATION MOTORS - Continued.**B. INSTALL - Continued.****WARNING**

Cleaning solvent, PD680, is **TOXIC and flammable**. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°C). Failure to do so may result in injury or death to personnel.

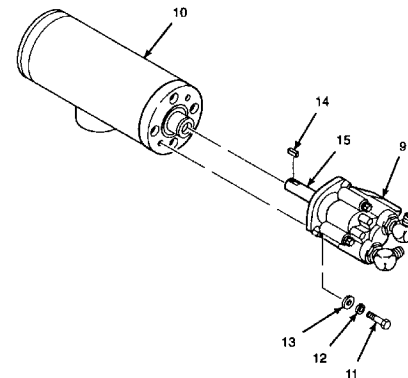
If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- b. Clean vibration motor drive shaft (15) using cleaning solvent and a clean, cleaning cloth.
- c. Install shaft key (14) onto vibration motor drive shaft (15).
- d. Align shaft key with mating shaft key slot in vibration assembly drive shaft (16). Install vibration motor (9).

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- e. Clean threads of hex head cap screws (11) with thread locking compound solvent.
- f. Install flat washers (13) and lockwashers (12) onto hex head cap screws (11).

**WARNING**

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- g. Apply thread locking compound to threads of hex head cap screws (11).

NOTE

There is not enough clearance to install hex head cap screws when vibration motor is flush against motor mount. Slide vibration motor away from motor mount just far enough to install cap screws. Tighten cap screws evenly while sliding vibration motor toward motor mount.

- h. Slide vibration motor (9) away from motor mount (10) to gain clearance for installing hex head cap screws (11) and install cap screws.
- i. Tighten hex head cap screws (11) evenly while sliding vibration motor (9) toward motor mount (10). When vibration motor is flush with motor mount, tighten cap screws to 37 lb-ft (50 N•m) using a crowfoot wrench and a socket wrench adapter. Install crowfoot wrench onto torque wrench at a 90° angle to torque wrench.

GO TO NEXT PAGE

B. INSTALL - Continued.

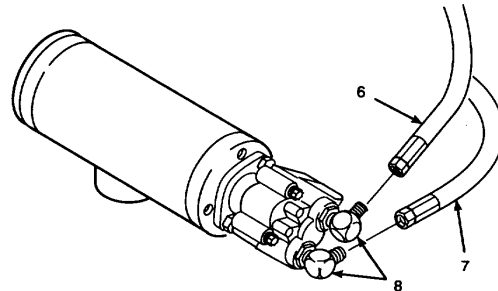
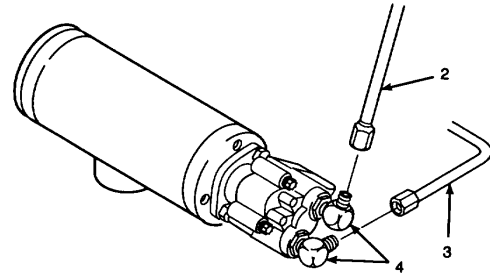
2. CONNECT TUBES AT MAIN SCREED VIBRATION MOTOR.

WARNING

Hydraulic fitting sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- a. Apply hydraulic fitting sealant to hose fitting threads of elbows (4).
 - b. Install and tighten tubes (2 and 3) to elbows (4).
3. CONNECT HOSES AT EXTENSION SCREED VIBRATION MOTOR.

- a. Apply hydraulic fitting sealant to hose fitting threads of elbows (8).
- b. Install and tighten hoses (6 and 7) to elbows (8).



NOTE

FOLLOW-ON-TASKS: Install extension screed blower assemblies and flexible pipe per paragraph 14.8. Install cover plates on extension screeds per paragraph 2.22. Extension screeds fully retracted per TM 5-3895-373-10.

END OF TASK

15.13. ADJUST AUGER/CONVEYOR DRIVE CHAINS.

This task covers: a. Check b. Adjust

INITIAL SETUP**Tools:**

General mechanic's automotive tool kit
(Item 54, Appendix E)
Combination wrench (Item 58, Appendix E)
Crowfoot wrench (Item 65, Appendix E)
Torque wrench (Item 68, Appendix E)

References:

TM 5-3895-373-12
TM 5-3895-373-24P

Equipment Condition:

Screed fully lowered per TM 5-3895-373-10.

Materials/Parts:

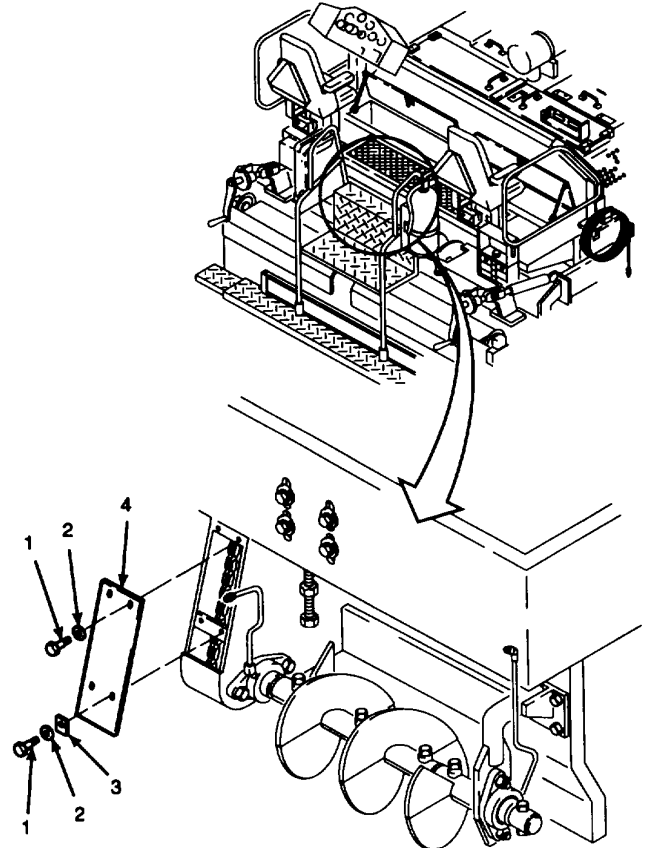
Cleaning cloth (Item 7, Appendix C)
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)

NOTE

There is a left hand and a right hand auger/conveyor drive chain on the paving machine. This procedure refers to adjustment of the right hand auger/conveyor drive chain. Procedure is identical for left hand auger/conveyor drive chain. Right hand auger/conveyor drive chain is shown in this procedure.

A. CHECK.

1. REMOVE COVER PLATE.
 - a. Remove hex head cap screws (1), flat washers (2), and square flat washers (3).
 - b. Remove cover plate (4).

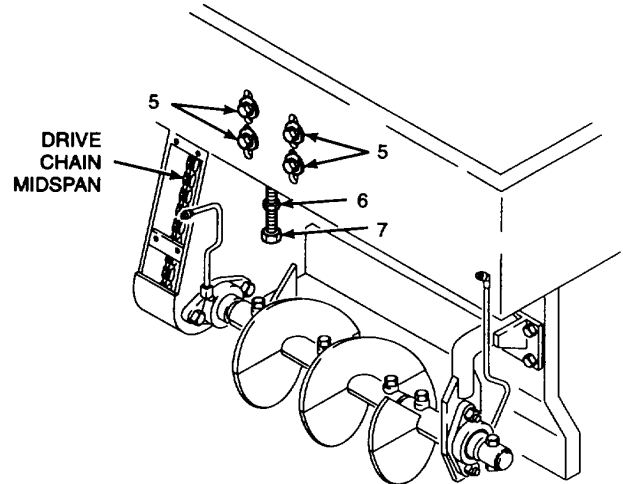


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A. CHECK - Continued.

2. CHECK DRIVE CHAIN TENSION.

- a. Check for drive chain slack at midspan of left and right drive chains.
- b. Measure slack with steel rule. Adjust chain tension if slack is greater than 3/4 in. (20 mm).



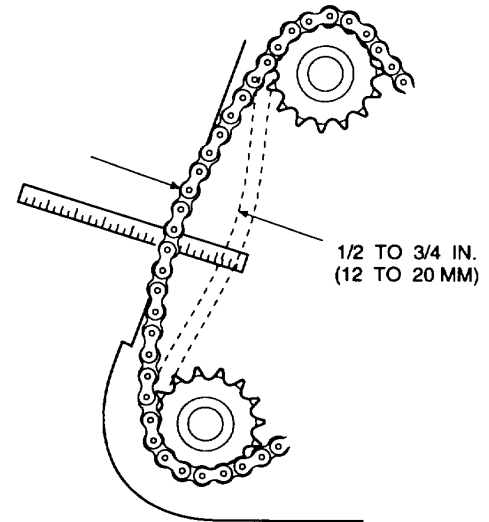
B. ADJUST.

1. ADJUST DRIVE CHAIN TENSION.

NOTE

Perform the following steps for the side to be adjusted. Both left hand and right hand auger/conveyor drive chains are adjusted in the same manner.

- a. Loosen hex head cap screws (5).
- b. Loosen hex nut (6).
- c. Using the 11/2 in. combination wrench, turn tension bolt (7) until drive chain has 1/2 to 3/4 in. (12 to 20 mm) deflection in middle. Hold a machinist's rule against inside of auger/conveyor drive chain housing. Move drive chain in and out to measure total drive chain deflection.
- d. Hold tension bolt (7) and tighten hex nut (6) to 80 lb-ft (100 N•m) using a crowfoot wrench. Position crowfoot wrench onto torque wrench at a 90° angle in relationship to the torque wrench handle.
- e. Retighten hex head cap screws (5) to 90 lb-ft (122 N•m).
- f. Lubricate the drive chain in accordance with TM 53895-373-12.



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15.13. ADJUST AUGER/CONVEYOR DRIVE CHAINS - Continued.

B. ADJUST - Continued.

2. INSTALL COVER PLATE.

WARNING

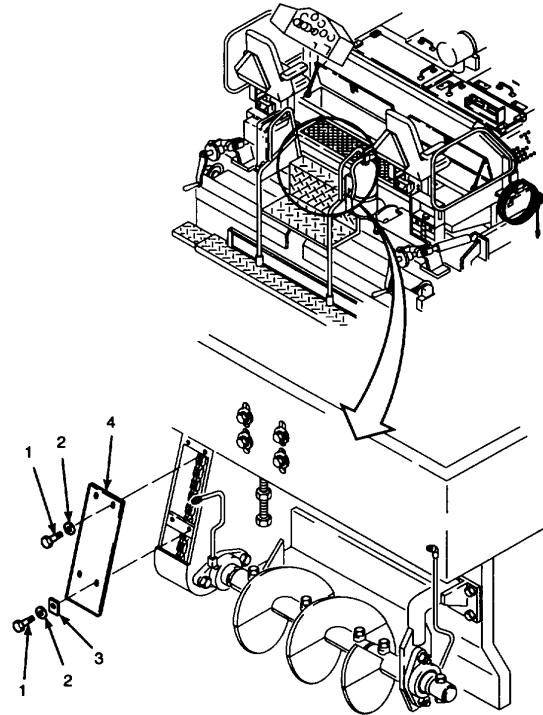
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean threads of hex head cap screws (1) with a cleaning cloth soaked in thread locking compound solvent.
- b. Dry hex head cap screws (1) with a cleaning cloth.
- c. Install flat washers (2) and square flat washers (3) onto hex head cap screws (1).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- d. Apply thread locking compound to threads of hex head cap screws (1).
- e. Install cover plate (4), using hex head cap screws (1). Tighten hex head cap screws to 37 lb-ft (50 N•m).



END OF TASK

15.14. REPLACE SCREED TOW ARM ASSEMBLY.

This task covers: **a. Remove** **b. Install**

INITIAL SETUP

Tools:

- General mechanic's automotive tool kit (Item 54, Appendix E)
- Hoist (Item 22, Appendix E)
- Hex head driver socket (Item 46, Appendix E)
- Screwdriver bit set (Item 37, Appendix E)
- Sling strap (Item 49, Appendix E)
- Socket wrench adapter (Item 2, Appendix E)
- Torque wrench, 0 to 600 lb-ft (Item 67, Appendix E)
- Torque wrench, 0 to 175 lb-ft (Item 68, Appendix E)

Personnel Required:

Two 62B construction equipment repairers. Second person to assist in aligning tow arm.

References:

- TM 5-3895-373-10
- TM 5-3895-373-24P

Equipment Condition:

Paving machine and screed on flat, level surface.

Materials/Parts:

- Lint-free cloth (Item 8, Appendix C)
- Thread locking compound (Item 12, Appendix C)
- Thread locking compound solvent (Item 25, Appendix C)

A. REMOVE.

NOTE

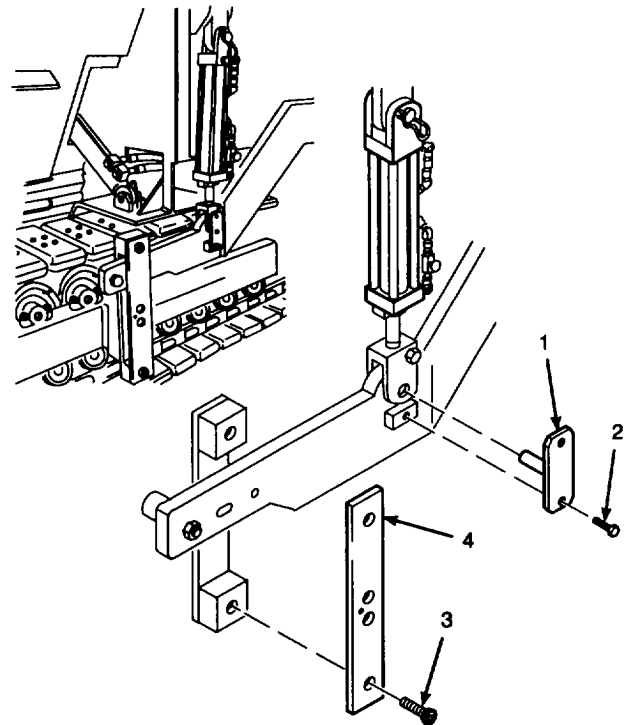
There is a left hand and a right hand screed tow arm assembly on the paving machine. This procedure refers to replacing the left hand screed tow arm assembly. Procedure is identical for right hand screed tow arm assembly. Left hand and right hand screed tow arm assemblies are shown as noted in this procedure.

1. REMOVE TOW ARM.
 - a. Start paving machine per TM 5-3895-373-10.
 - b. Using tow point control switches, raise or lower tow point cylinders to free tow point locking pin (1). Final adjustment may be made using screed thickness control while removing tow point locking pin. Refer to TM 53895-373-10.
 - c. Shut down paving machine per TM 5-3895-373-10.

NOTE

Mark tow arm support plate (4) to indicate top for reassembly.

- d. Remove hex head cap screw (2) and tow point locking pin (1).



- e. Remove socket head cap screws (3) and tow arm support plate (4).

GO TO NEXT PAGE

15.14. REPLACE SCREED TOW ARM ASSEMBLY- Continued.

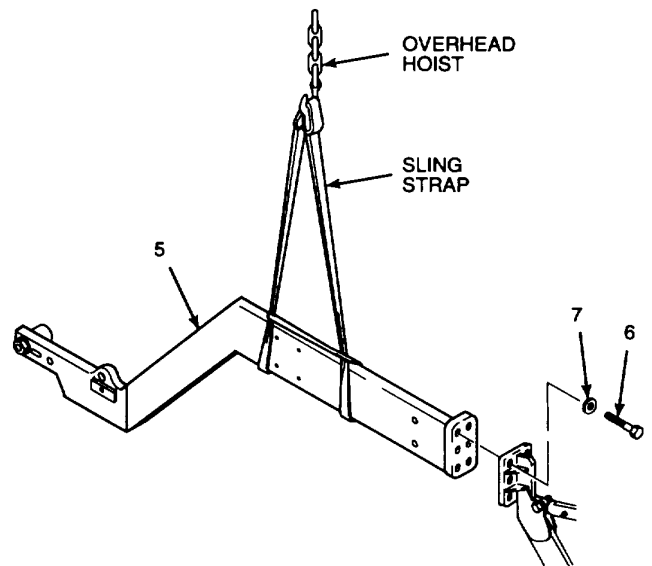
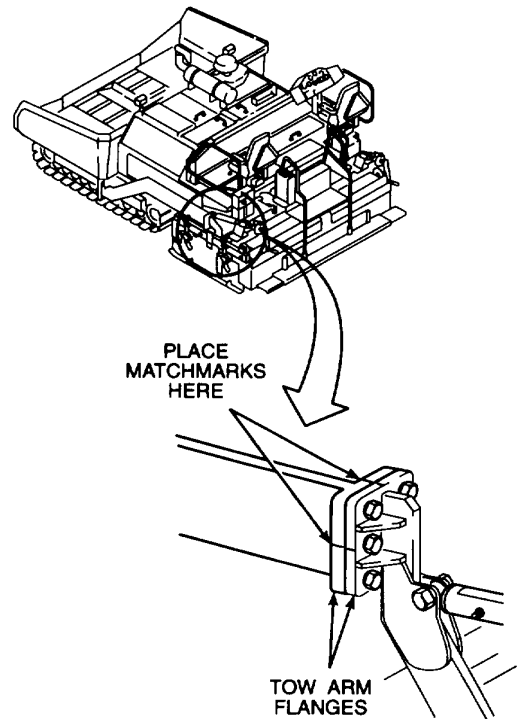
A. REMOVE - Continued.

- f. Make matchmarks on top and side of mating tow arm mounting flanges.

WARNING

Screed tow arm weighs approximately 200 lbs (91 kg). Safely secure tow arm with overhead hoist and sling strap to prevent slipping. Failure to use proper lifting equipment or secure tow arm against slipping could result in severe injury to personnel.

- g. Secure sling strap around tow arm (5). Secure sling strap at lifting points near center of tow arm. Make sure sling strap will lift at two places at least 18 in. (457 mm) apart.
- h. Secure sling strap to overhead hoist or lifting device. Remove slack from installed strap.
- i. Remove hex head cap screws (6) and flat washers (7).
- j. Swing front end of tow arm (5) away from guide bracket. Lift tow arm away from paving machine.
- k. Lower tow arm (5) to the ground, but leave lifting device installed to support tow arm during roller removal.



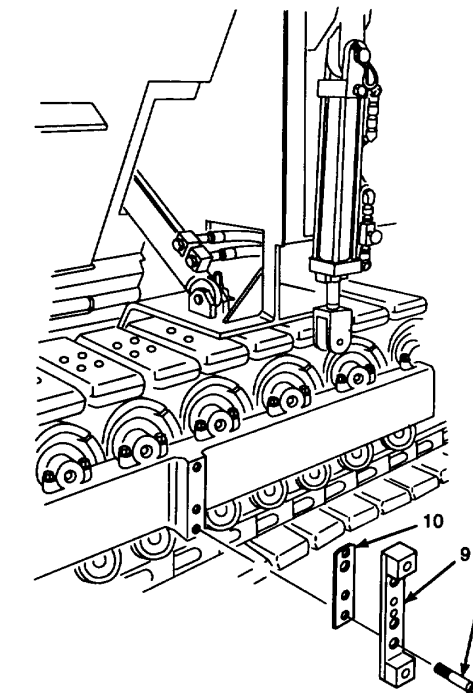
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- A. REMOVE - Continued.
- 2. REMOVE TOW ARM MOUNTING BRACKET.

NOTE

Mark tow arm mounting bracket (9) to indicate top for reassembly.

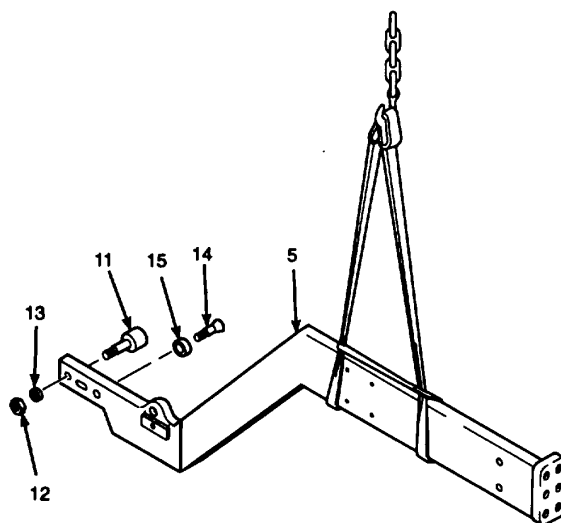
- a. Remove socket head cap screws (8).
- b. Remove tow arm mounting bracket (9) and shim (10).



- 3. REMOVE ROLLER AND MECHANICAL STOP.
 - a. Secure head of roller (11) with flat head screwdriver bit and socket wrench.
 - b. Remove hex nut (12), washer (13), and roller (11).
 - c. Remove socket head cap screw (14) and mechanical stop (15).

WARNING

Screed tow arm weighs approximately 200 lbs (91 kg). Safely secure tow arm with overhead hoist and sling strap to prevent slipping. Failure to use proper lifting equipment or secure tow arm against slipping could result in severe injury to personnel.



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15.14. REPLACE SCREED TOW ARM ASSEMBLY - Continued.

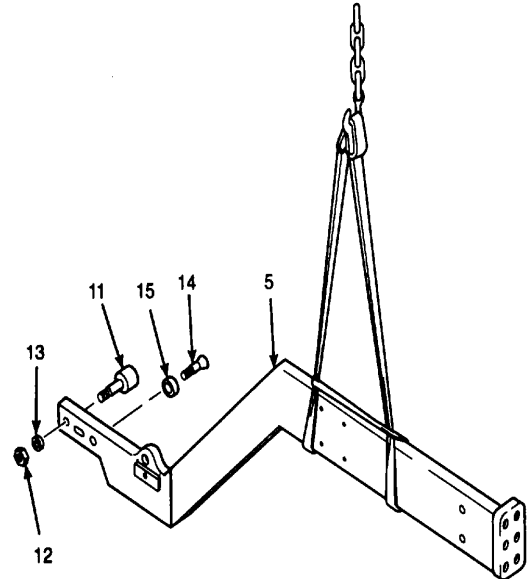
B. INSTALL.

1. INSTALL ROLLER AND MECHANICAL STOP.

WARNING

Screed tow arm weights approximately 200 lbs (91 kg). Safely secure tow arm with overhead hoist and sling strap to prevent slipping. Failure to use proper lifting equipment or secure tow arm against slipping could result in severe injury to personnel.

- a. Secure sling strap around tow arm (5). Secure strap at lifting points near center of tow arm. Make sure strap will lift at two places at least 18 in. (457 mm) apart.

**WARNING**

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- b. Clean roller (11) threads and socket head cap screw (14) threads with thread locking compound solvent. Dry with a lint-free cloth.
- c. Install roller (11), washer (13), and hex nut (12). Hold head of roller with flat head screwdriver bit and socket wrench. Tighten hex nut.
- e. Install mechanical stop (15) and socket head cap screw (14). Using socket wrench adapter and hex head driver socket, tighten socket head cap screw to 320 lb-ft (434 N•m).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- d. Apply thread locking compound to threads of socket head cap screw (14).

B. INSTALL - Continued.

2. INSTALL TOW ARM MOUNTING BRACKET.

WARNING

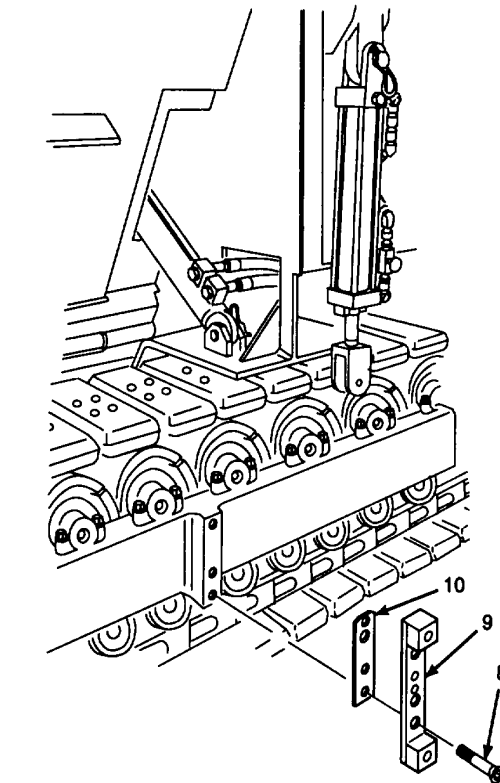
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean socket head cap screws (8) with thread locking compound solvent. Dry with a lint-free cloth.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- b. Apply thread locking compound to threads of socket head cap screws (8).
- c. Install shim (10) and tow arm mounting bracket (9) and secure with socket head cap screws (8). Ensure tow arm mounting bracket is installed as marked during disassembly.



GO TO NEXT PAGE

15.14. REPLACE SCREED TOW ARM ASSEMBLY - Continued.

- B. INSTALL - Continued.
- 3. INSTALL TOW ARM.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean hex head cap screws (6) with thread locking compound solvent. Dry with a lint-free cloth.

WARNING

Screed tow arm weighs approximately 200 lbs (91 kg). Safely secure tow arm with overhead hoist and sling strap to prevent slipping. Failure to use proper lifting equipment or secure tow arm against slipping could result in severe injury to personnel.

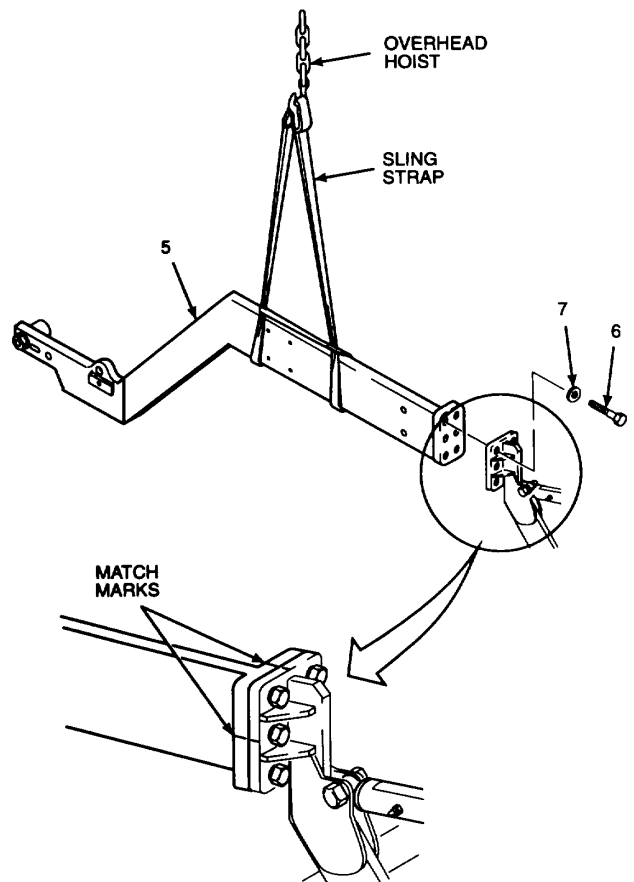
- b. With the help of a second person, raise and align tow arm (5) into position on paving machine.
- c. Install flat washers (7) onto hex head cap screws (6).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid

contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- d. Apply thread locking compound to threads of hex head cap screws (6).
- e. Install hex head cap screws (6). Make sure match marks are aligned. Tighten cap screws to 205 lb-ft (278 N•m) using socket wrench adapter.



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B. INSTALL - Continued.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

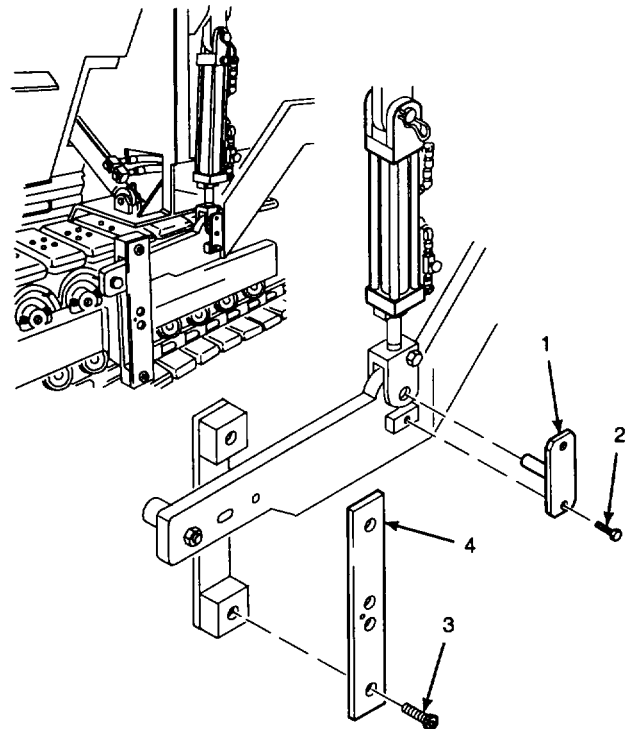
- f. Clean socket head cap screws (3) and hex head cap screw (2) with thread locking compound solvent. Dry with a lint-free cloth.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- g. Apply thread locking compound to threads of socket head cap screws (3).
- h. Install tow arm support plate (4) and socket head cap screws (3). Using socket wrench adapter and hex head driver socket, tighten cap screws to 320 lb-ft (434 N•m). Ensure support plate is installed as marked during disassembly.
- i. Start paving machine per TM 5-3895-373-10. Place throttle control switch in IDLE position.
- j. Jog left hand tow point movement switch up or down to line up hole in tow point cylinder clevis

with hole in tow arm. Install tow point locking pin (1). Shut down paving machine per TM 5-3895-373-10.



- k. Apply thread locking compound to threads of hex head cap screw.
- l. Install hex head cap screw (2). Tighten cap screw to 37 lb-ft (50 N•m).
- m. Remove sling strap from tow arm.

END OF TASK

15.15. REPLACE STRIKEOFF COMPONENTS.

This task covers: a. Remove b. Clean c. Install

INITIAL SETUPTools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Torque wrench (Item 68, Appendix E)
Wire scratch brush (Item 6, Appendix E)

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Prestrike plate
Self-locking nuts
Strikeoff plate

Personnel Required:

Two 62B construction equipment repairers. Second person needed to help support strikeoff components during removal and installation.

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Paving machine and screed on flat, level surface.
Extension screeds fully extended per TM 5-3895-373-10.
Endgates removed per TM 5-3895-373-10.
Main screed burner shield plates removed per paragraph 14.5.
Main screed cover plates removed per paragraph 2.22.

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NOTE

This procedure applies to strikeoff components on both the left and right sides of the paving machine. For this procedure, only the left side strikeoff components are shown.

- A. REMOVE.
1. REMOVE STRIKEOFF PLATE.

WARNING

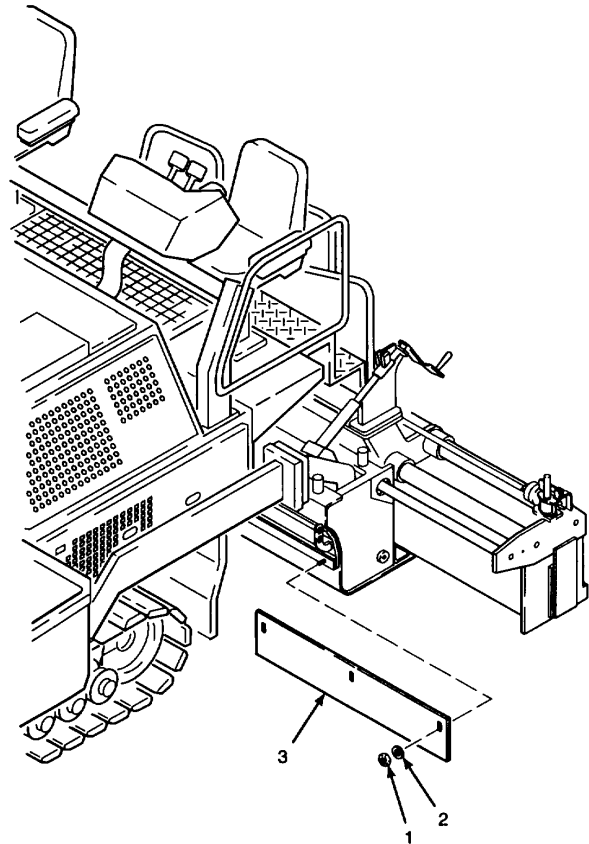
Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles and gloves. Use only in a well ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type m cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- a. Clean accumulated paving material from self-locking nuts (1) using cleaning solvent and a

cleaning cloth. If necessary use a wire scratch brush.

- b. Remove self-locking nuts (1) and flat washers (2). Discard self-locking nuts.
- c. Remove strikeoff plate (3).



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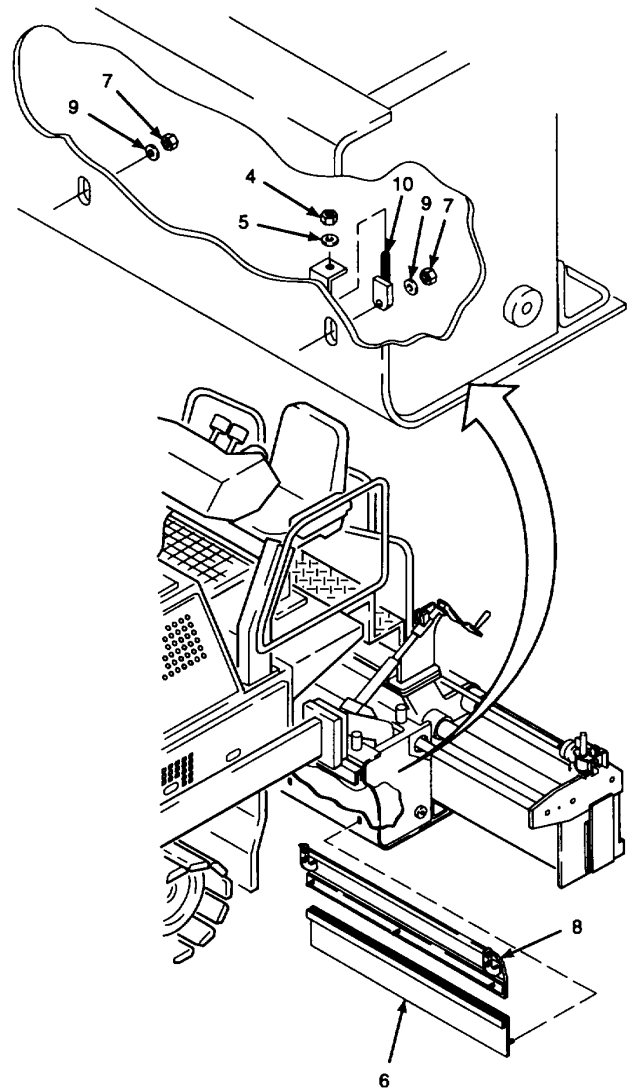
15.15. REPLACE STRIKEOFF COMPONENTS - Continued.

- A. REMOVE - Continued.
2. REMOVE PRESTRIKE PLATE.
- a. Remove self-locking nuts (4) and flat washers (5) from both ends of prestrike plate (6). Discard self-locking nuts.

CAUTION

When self-locking nuts (7) are removed, prestrike plate (6) and strikeoff (8) could fall. Use a second person to support components during removal. Failure to do so could result in damage to equipment.

- b. With the help of another person to support prestrike plate (6) and strikeoff (8), remove self-locking nuts (7) and flat washers (9).
- c. Remove strikeoff (8) by sliding to the outside of the paving machine.
- d. Remove prestrike plate (6) and lock pins (10).



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B. CLEAN.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,30C). 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, flush eyes with water and get immediate medical attention.

1. USE A CLEANING CLOTH SOAKED WITH CLEANING SOLVENT TO CLEAN COMPONENTS NOT BEING REPLACED. ALLOW SOLVENT TO REMAIN ON PAVING MATERIAL LONG ENOUGH TO SOFTEN UP PAVING MATERIAL RESIDUE.
2. USE A WIRE SCRATCH BRUSH TO REMOVE PAVING MATERIAL AS REQUIRED. MAKE SURE ALL OLD PAVING MATERIAL IS REMOVED FROM GUIDE BAR SLIDE AND PRESTRIKE PLATE SLIDE.
3. WIPE COMPONENTS DRY WITH A CLEAN CLEANING CLOTH.
4. DISPOSE OF CONTAMINATED CLEANING SOLVENT IN ACCORDANCE WITH LOCAL PROCEDURES.

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15.15. REPLACE STRIKEOFF COMPONENTS - Continued.

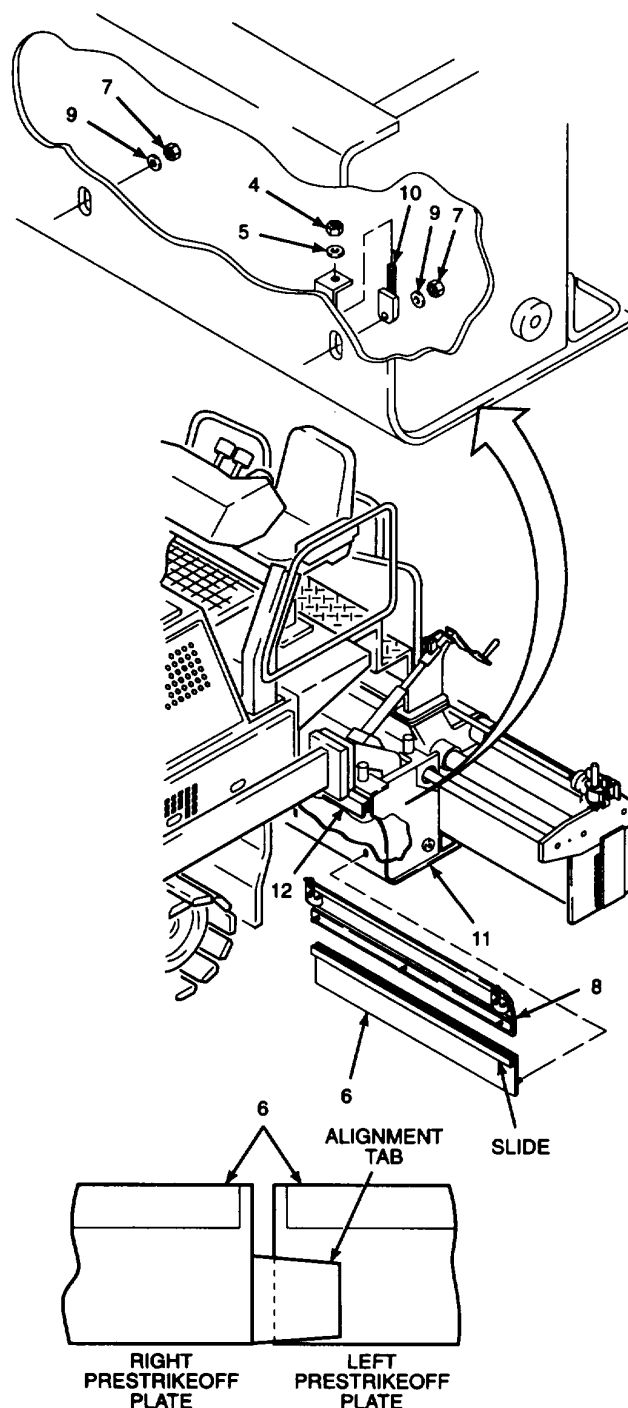
C. INSTALL.

1. INSTALL PRESTRIKE PLATE.

NOTE

The right prestrike plate is different from the left prestrike plate. The right plate has an alignment tab. This tab should always be toward the front of the paving machine when the prestrike plates are installed.

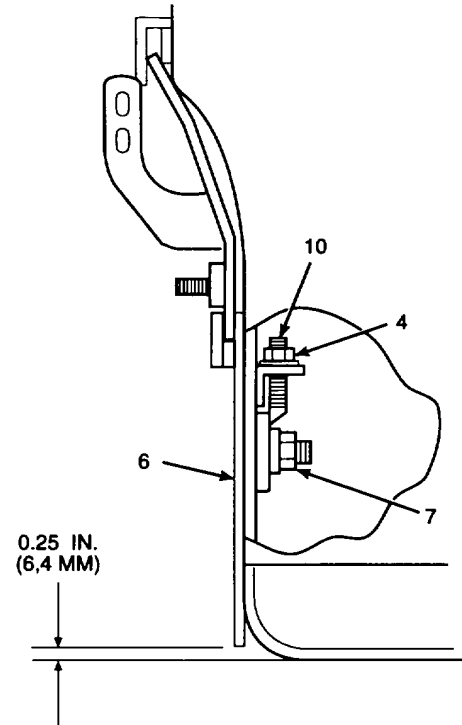
- a. With the help of another person, install prestrike plate (6) while holding lock pins (10) in place inside main screed (11). Ensure that the alignment tab on the right prestrike plate is toward the front of the paving machine.
- b. Install strikeoff (8) by sliding into place between prestrike plate (6) and guide bar (12). Ensure the strikeoff is seated into the prestrike plate slide when installed. If not seated correctly, a false reading may be obtained while adjusting the prestrike plate height in later steps.
- c. Install flat washers (9) and self-locking nuts (7). Do not tighten self-locking nuts.
- d. Install flat washers (5) and self-locking nuts (4). Do not tighten self-locking nuts.
- e. Ensure screed is on a flat, level surface. Adjust crown adjustment down or up to a point that the crown adjustment screw is free from resistance to movement (is at a null). Refer to TM 5-3895-373-10.



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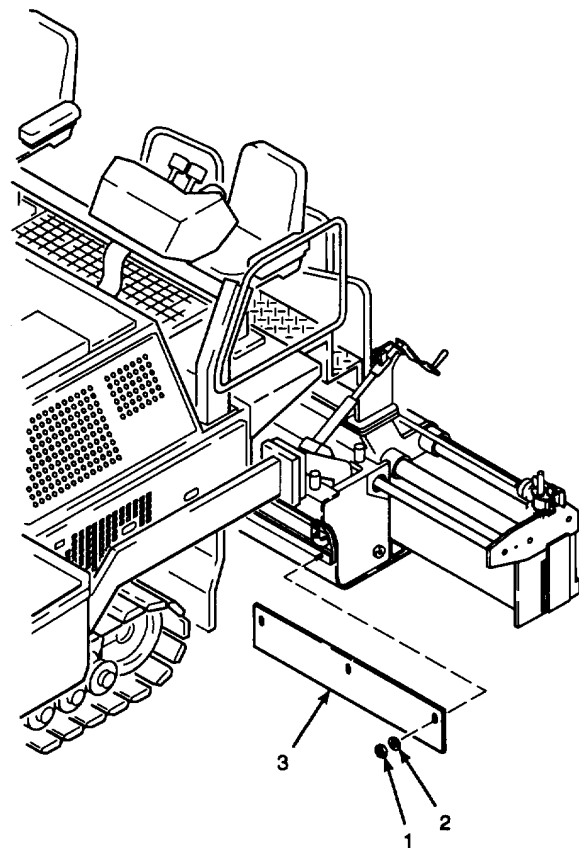
C. INSTALL - Continued.

- f. Adjust height of prestrike plate (6) by tightening or loosening self-locking nuts (4) on lock pins (10). Adjust until bottom edge of prestrike plate is 1/4 in. (6,4 mm) above the ground along entire length.
- g. Tighten self-locking nuts (7) to 40 lb-ft (54 N•m).



2. INSTALL STRIKEOFF PLATES.

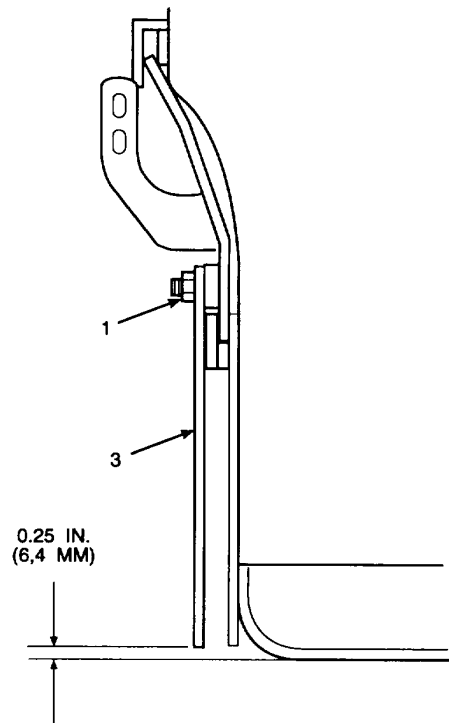
- a. Install strikeoff plate (3), flat washers (2), and self-locking nuts (1). Do not tighten self-locking nuts.



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15.15. REPLACE STRIKEOFF COMPONENTS - Continued.

- C. INSTALL - Continued.
- b. Crib strikeoff plate (3) so that bottom edge is 1/4 in. (6,4 mm) above the ground.
 - c. Tighten self-locking nuts (1) to 40 lb-ft (54 N•m).

**NOTE****FOLLOW-ON-TASKS:**

Install main screed burner shield plates per paragraph 14.5.
Install main screed cover plates per paragraph 2.22.
Install endgates per TM 5-3895-373-10.
Extension screeds fully retracted per TM 5-3895-373-10.

END OF TASK

15.16. REPLACE/REPAIR ENDGATE HAND LEVER ASSEMBLY.

This task covers: a. Remove b. Install

INITIAL SETUPTools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Snap ring pliers (Item 29, Appendix E)
Torque wrench (Item 68, Appendix E)
Wire scratch brush (Item 6, Appendix E)

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Thread locking compound (Item 12, Appendix C)
Thread locking compound solvent (Item 25, Appendix C)
Compression helical spring
Cotter pin
Lockwashers
Retaining ring

GO TO NEXT PAGE

15.16. REPLACE/REPAIR ENDGATE HAND LEVER ASSEMBLY - Continued.

NOTE

There are four endgate hand lever assemblies on the screed. This procedure refers to replacement and repair of one right hand endgate hand lever assembly. Procedure is identical for the remaining three hand lever assemblies. Right hand endgate is shown in this procedure.

A. REMOVE.

1. REMOVE ENDGATE HAND LEVER ASSEMBLY.

WARNING

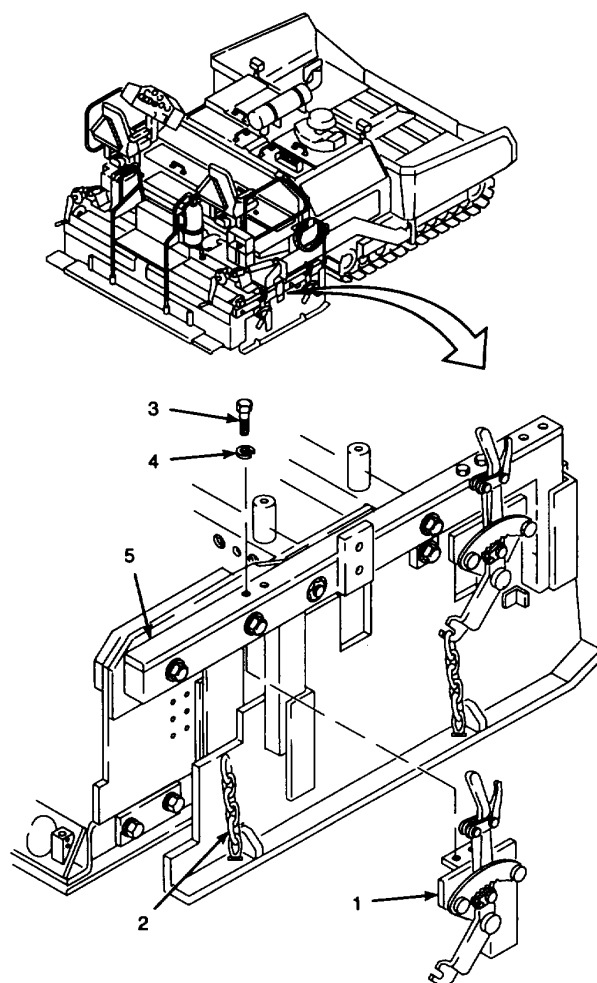
Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles and gloves. Use only in a well ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type m cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

a. Clean around all hardware at hand lever assembly (1) using cleaning cloth, cleaning

solvent, and wire scratch brush. Clean as required to allow removal of hardware.

- b. Unhook chain (2) from hand lever assembly (1).
- c. Remove hex head cap screws (3), lockwashers (4), and hand lever assembly (1) from endgate support arm (5). Discard lockwashers.



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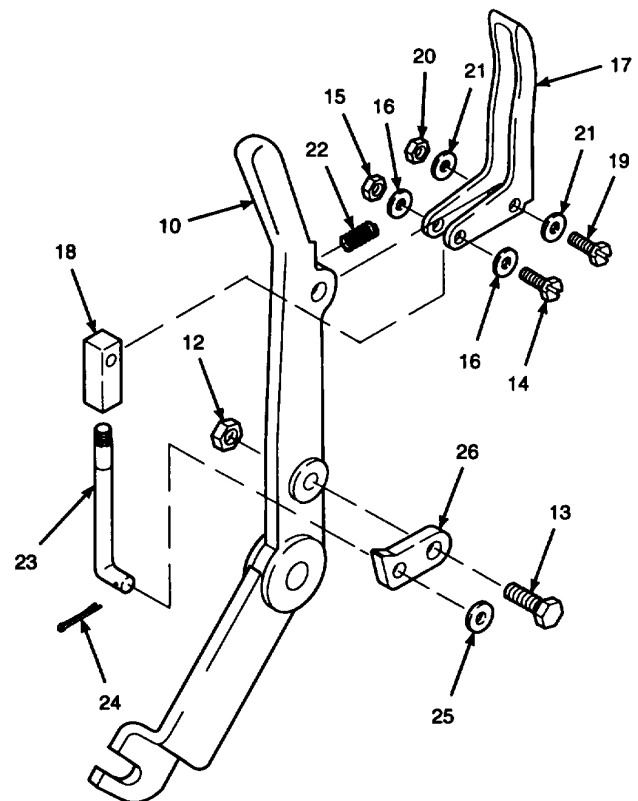
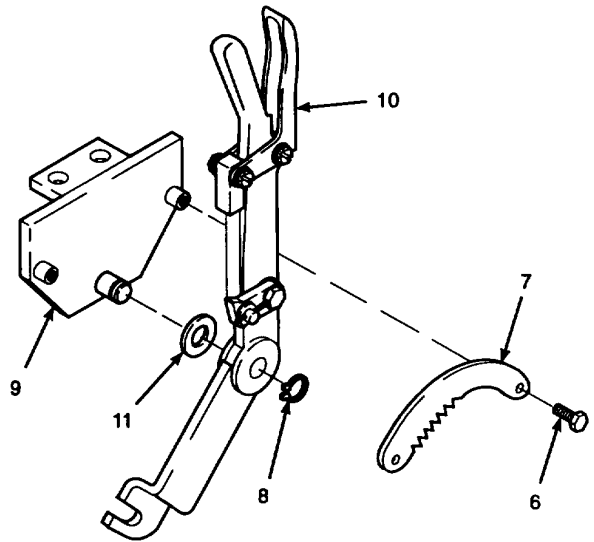
- A. REMOVE - Continued.
- 2. DISASSEMBLE ENDGATE HAND LEVER ASSEMBLY.

- a. Remove hex head cap screws (6) and ratchet (7).

WARNING

Use care when removing retaining rings. Retaining rings are under spring tension and can act as projectiles when released and could cause severe eye injury.

- b. Remove retaining ring (8) from pivot of mounting bracket (9) using snap ring pliers. Discard retaining ring.
- c. Remove lever (10) and flat washer (11).
- d. Remove hex nut (12) and bolt (13).
- e. Remove machine screw (14), hex nut (15), and flat washers (16).
- f. Separate latch grip (17) from rod end (18).
- g. Remove machine screw (19), hex nut (20), and flat washers (21). Remove latch grip (17).
- h. Remove and discard compression helical spring (22) from lever (10).
- i. Unscrew rod end (18) from pawl rod (23).
- j. Remove cotter pin (24), flat washer (25), and pawl (26) from pawl rod (23). Discard cotter pin.



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15.16. REPLACE/REPAIR ENDGATE HAND LEVER AS

B. INSTALL.

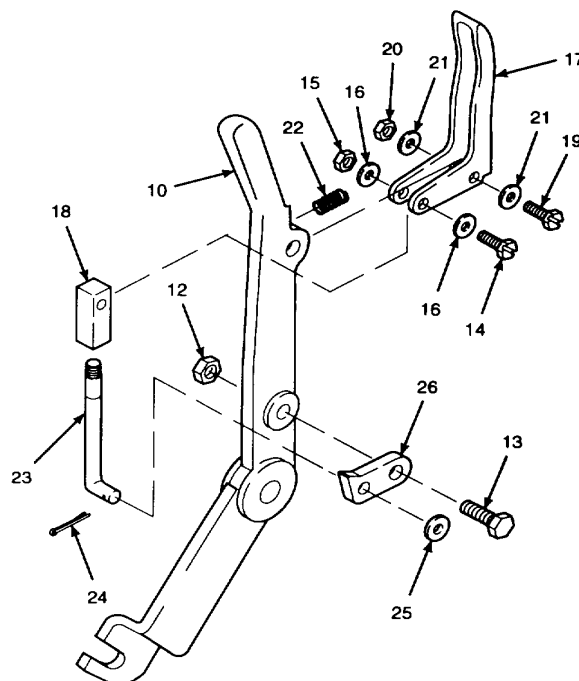
1. ASSEMBLE ENDGATE HAND LEVER ASSEMBLY.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

- a. Clean all components with cleaning cloth, cleaning solvent, and wire scratch brush. Wipe away all residue.
- b. Screw pawl rod (23) into rod end (18).
- c. Install pawl (26), flat washer (25), and cotter pin (24) onto pawl rod (23).
- d. Position spring (22) into mounting hole of lever (10).
- e. Secure latch grip (17) to lever (10) with flat washers (21), machine screw (19), and hex nut (20). Do not overtighten hex nut.

**NOTE**

Do not overtighten hex nut securing latch grip onto lever. The latch grip must be able to move freely when installed on lever.

- f. Secure rod end (18) to latch grip (17) with flat washers (16), machine screw (14), and hex nut (15). Do not overtighten hex nut.

NOTE

Do not overtighten hex nut securing rod end in latch grip. Rod end must be able to move freely within latch grip.

NOTE

Do not overtighten bolt securing pawl to lever. Pawl must be able to move freely when installed on lever.

- g. Secure pawl (26) to lever (10) with bolt (13) and hex nut (12). Do not overtighten bolt.

GO TO NEXT PAGE

- B. INSTALL - Continued.
- h. Install flat washer (11) and lever (10) on pivot of mounting bracket (9).

WARNING

Use care when removing retaining rings. Retaining rings are under spring tension and can act as projectiles when released and could cause severe eye injury.

- i. Install retaining ring (8) using snap ring pliers.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

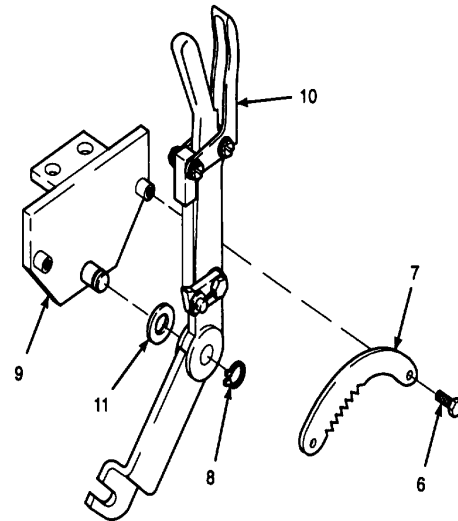
- j. Clean threads of hex head cap screws (6) with thread locking compound solvent.

WARNING

Thread locking compound can cause eye damage. Wear safety

goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- k. Apply thread locking compound to threads of hex head cap screws (6).
- l. Install ratchet (7) and secure with hex head cap screws (6). Tighten cap screws to 37 lb-ft (50 N•m).

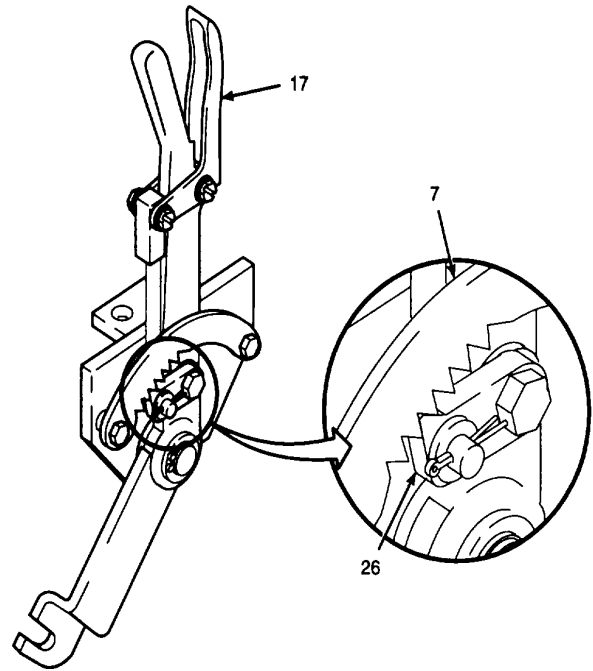


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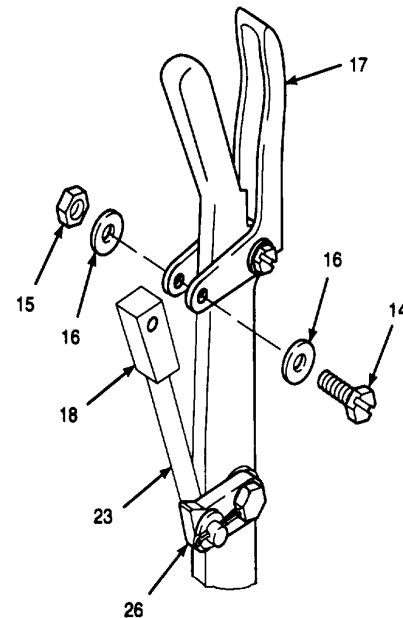
15.16. REPLACE/REPAIR ENDGATE HAND LEVER ASSEMBLY - Continued.

B. INSTALL - Continued.

- m. Ensure pawl (26) is fully engaged with teeth of ratchet (7) with latch grip (17) released. Squeeze latch grip and ensure pawl disengages from ratchet teeth.



- n. If pawl (26) does not engage and disengage properly, remove machine screw (14), hex nut (15), and flat washers (16). Screw rod end (18) in or out on pawl rod (23) as required.
- o. Secure rod end (18) to latch grip (17) with machine screw (14), flat washers (16), and hex nut (15).
- p. If necessary, repeat steps m, n, and o until pawl (26) and ratchet teeth engage and disengage properly.



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- B. INSTALL - Continued.
2. INSTALL ENDGATE HAND LEVER ASSEMBLY.

WARNING

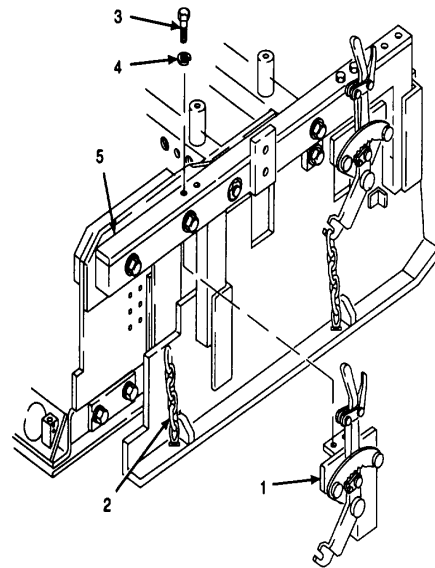
Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Clean threads of hex head cap screws (3) with thread locking compound solvent.
- b. Install lockwashers (4) onto hex head cap screws (3).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- c. Apply thread locking compound to threads of hex head cap screws (3).
- d. Install hand lever assembly (1) onto endgate support arm (5) using lockwashers (4) and hex head cap screws (3). Tighten cap screws to 37 lb-ft (50 N•m).
- e. Hook chain (2) to hand lever assembly (1).



END OF TASK

15.17. REPLACE/REPAIR FEED LIMIT SWITCH PADDLE ASSEMBLY.

This task covers: a. Remove b. Repair c. Install

INITIAL SETUPTools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Electrical connector repair kit (Item 53, Appendix E)
Heater gun (Item 21, Appendix E)
Solder (Item 47, Appendix E)
Soldering iron (Item 23, Appendix E)
Torque wrench (Item 69, Appendix E)

Personnel Required:

62B construction equipment repairer.

References:

TM 5-3895-373-24P
MIL-STD-2000

Equipment Condition:

Endgate hand lever assembly removed per paragraph 15.16.

Materials/Parts:

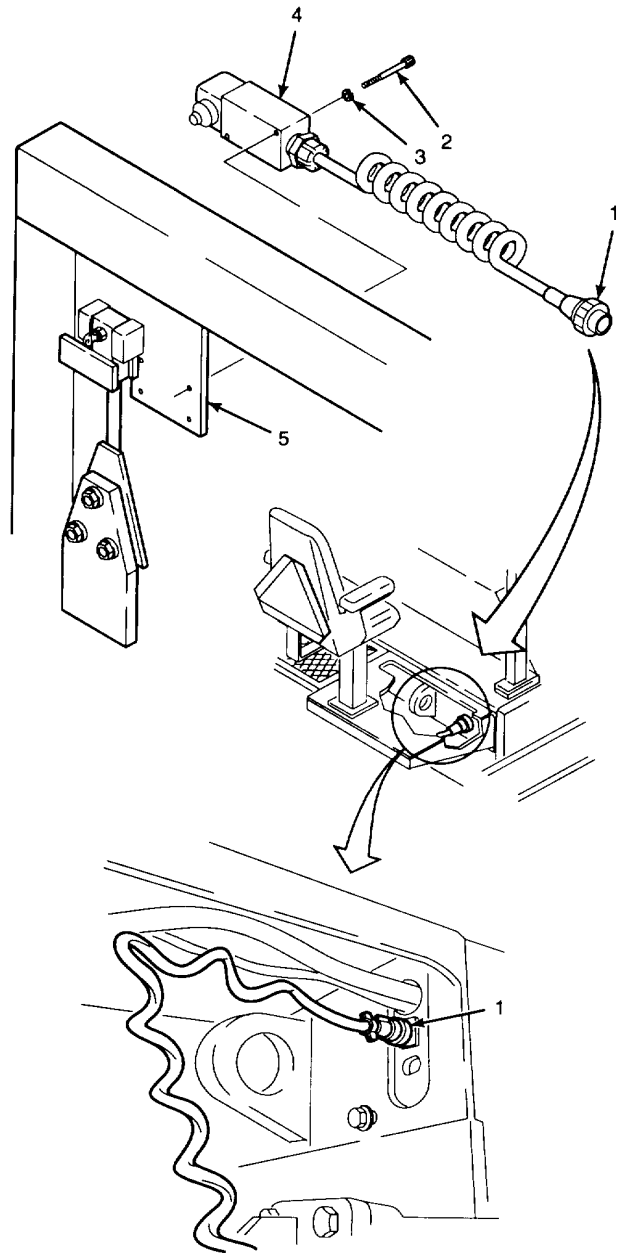
Electrical insulating compound (Item 11, Appendix C)
Spiral wrap (Item 31, Appendix C)
Tags (Item 27, Appendix C)
Coil cord
Compression helical spring
Connector
Control arm rubber extension
Cotter pin
Feed limit switch assembly
Lockwashers
Self-locking nuts
Spring pins

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NOTE

This procedure applies to both the left and right feed limit switch paddle assemblies. For this procedure the left paddle assembly is shown. The procedure for the right paddle assembly is identical.

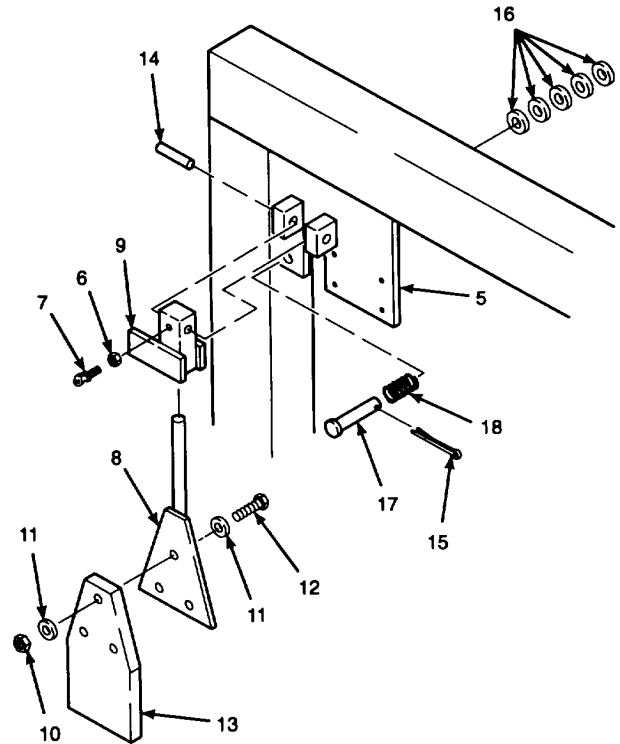
- A. REMOVE.
1. REMOVE FEED LIMIT SWITCH ASSEMBLY.
 - a. Disconnect limit switch electrical connector (1) from the connector on the paving machine bulkhead.
 - b. Remove socket head cap screws (2) and lockwashers (3). Discard lockwashers.
 - c. Remove feed limit switch assembly (4) from endgate support arm (5).



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15.17. REPLACE/REPAIR FEED LIMIT SWITCH PADDLE ASSEMBLY - Continued.

- A. REMOVE - Continued.
- 2. REMOVE FEED LIMIT SWITCH PADDLE CONTROL ARM.
 - a. Loosen hex nut (6) and remove thumbscrew (7).
 - b. Slide feed limit switch paddle (8) down and out of limit switch actuator mount (9).
 - c. Remove self-locking nuts (10), flat washers (11) and hex head cap screws (12). Discard self-locking nuts.
 - d. Remove control arm rubber extension (13) from feed limit switch paddle (8).
 - e. Drive out spring pins (14) and remove actuator mount (9) from endgate support arm (5). Discard spring pins.
 - f. Remove cotter pin (15) and flat washers (16). Discard cotter pin.
 - g. Remove straight headed pin (17) and spring (18). Discard compression helical spring.



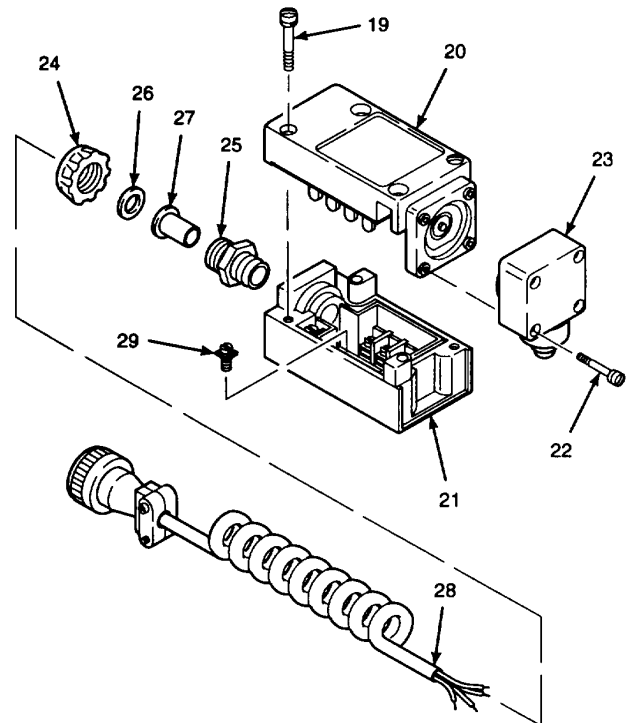
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B. REPAIR.

1. DISASSEMBLE FEED LIMIT SWITCH ASSEMBLY.

- a. Remove fillister head screws (19) and separate receptacle connector body (20) from front body (21).
- b. Remove machine screws (22) and separate head (23) from receptacle connector body (20).
- c. Unscrew connector cap (24) from connector body (25).
- d. Slide plastic washer (26) and rubber grommet (27) from connector body (25).
- e. Unscrew connector body (25) from front body (21).
- f. Tag coil cord (28) wire with the terminal position at each terminal screw (29).
- g. Loosen terminal screws (29) and pull coil cord (28) wires from front body (21) terminals.
- h. Slide connector body (25), rubber grommet (27), plastic washer (26), and connector cap (24) off of coil cord (28). If any one piece of the

connector is damaged, replace the entire connector.



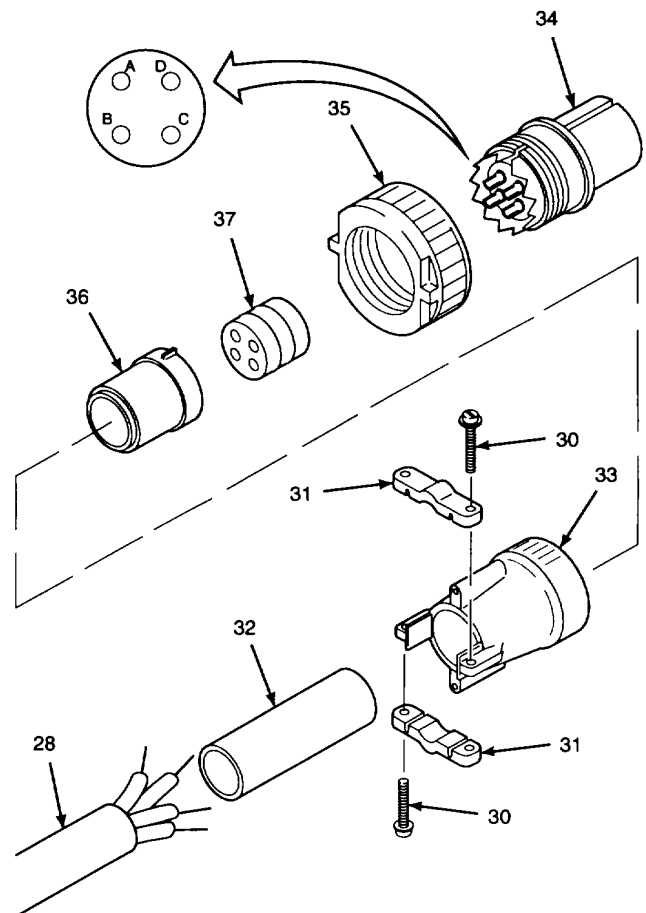
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15.17. REPLACE/REPAIR FEED LIMIT SWITCH PADDLE ASSEMBLY - Continued.

B. REPAIR - Continued.

2. DISASSEMBLE CONNECTOR.

- a. Remove machine screws (30) from clamp assembly (31). Remove clamp assembly.
- b. Cut spiral wrap (32) off of coil cord (28).
- c. Unscrew connector body (33) from pin coupling (34) and move threaded retainer ring (35) and connector body off of the pin coupling.
- d. Slide plastic seal (36) and rubber grommet (37) off of the wires on the back of pin coupling (34).
- e. Tag coil cord (28) wire positions with pin numbers at the back of pin coupling (34).
- f. Cut the wires at pin coupling (34).
- g. Slide rubber grommet (37), plastic seal (36), connector body (33) and threaded retaining ring (35) from coil cord (28).
- h. If any part of the connector is damaged, replace entire connector.

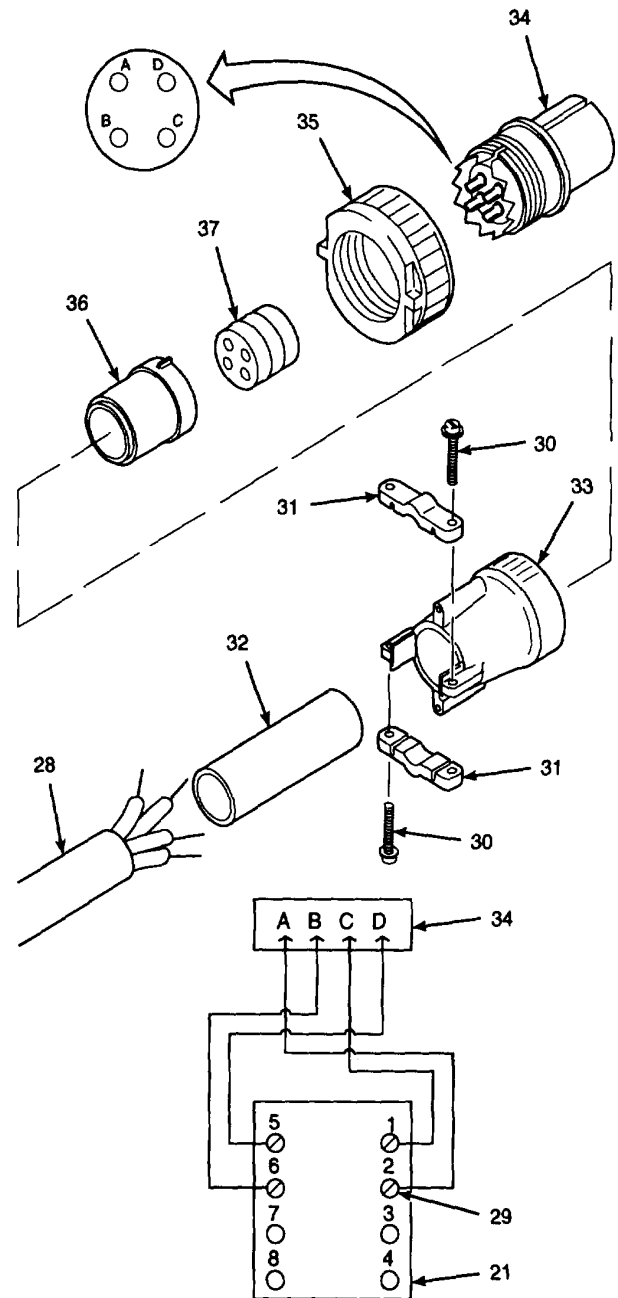


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B. REPAIR Continued.

3. ASSEMBLE CONNECTOR.

- a. Slide connector body (33) and threaded retainer ring (35) onto the end of coil cord (28).
- b. Slide a piece of spiral wrap (32) 2 in. (50,8 mm) long onto the end of coil cord (28).
- c. Insert wires through plastic seal (36) and rubber grommet (37).
- d. Solder one wire to each of the four terminals on the back of pin coupling (34) in accordance with MILSTD-2000. Ensure that the opposite end of each wire is tagged with terminal screw (29) position at front body (21) for use during installation.
- e. Press rubber grommet (37) down onto the solder connections on pin coupling (34).
- f. Align the guide tooth on plastic seal (36) with the groove on pin coupling (34) and secure rubber grommet (37) in place.
- g. Slide threaded retainer ring (35) onto pin coupling (34).
- h. Install connector body (33) onto pin coupling (34).
- i. Slide spiral wrap (32) inside of connector body (33) and heat with a heat gun until securely in place.
- j. Install clamp assembly (31) onto connector body (33) and secure wiring in place with machine screws (30).



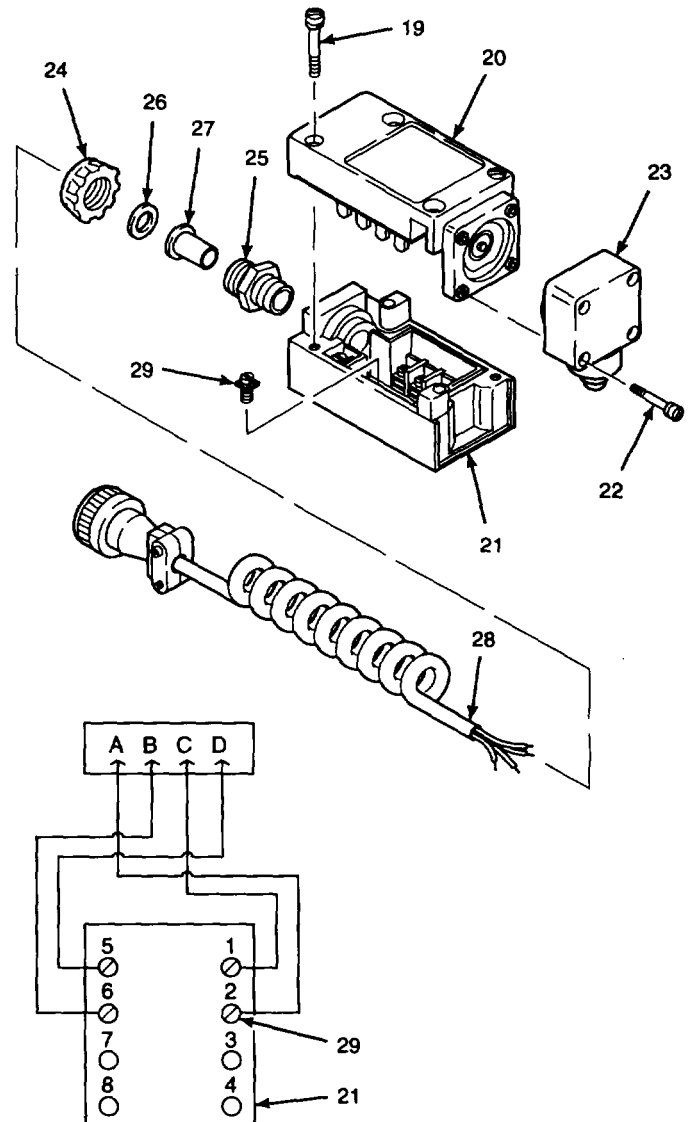
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15.17. REPLACE/REPAIR FEED LIMIT SWITCH PADDLE ASSEMBLY - Continued.

B. REPAIR Continued.

4. ASSEMBLE FEED LIMIT SWITCH ASSEMBLY.

- a. Slide connector cap (24), plastic washer (26), rubber grommet (27), and connector body (25) onto end of coil cord (28).
- b. Insert coil cord (28) through front body (21).
- c. Attach coil cord (28) wiring to front body (21) following the wiring diagram provided and secure with terminal screw (29).
- d. Screw connector body (25) into front body (21).
- e. Press rubber grommet (27) into connector body (25).
- f. Place plastic washer (26) onto rubber grommet (27) and screw connector cap (24) onto connector body (25).
- g. Secure head (23) to receptacle connector body (20) with machine screws (22).
- h. Secure receptacle connector body (20) to front body (21) with fillister head screws (19).

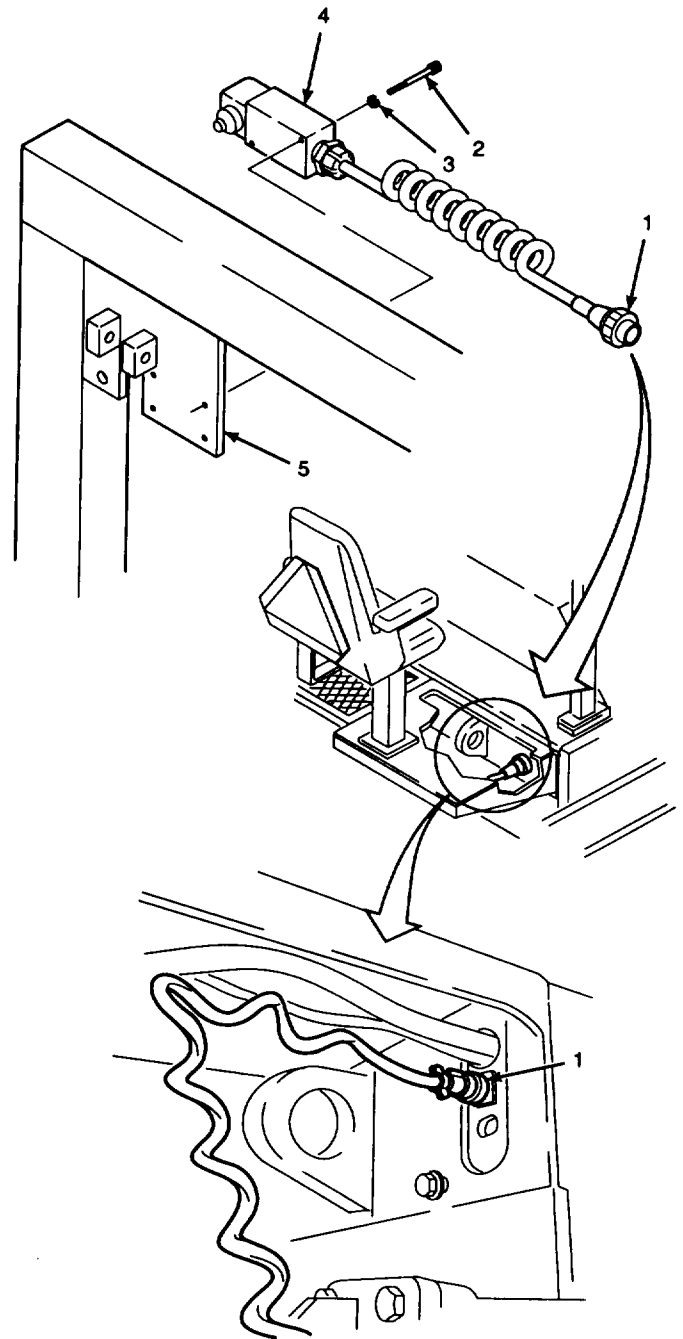


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C. INSTALL.

1. INSTALL FEED LIMIT SWITCH ASSEMBLY.

- a. Position feed limit switch assembly (4) on endgate support arm (5) and secure with lockwashers (3) and socket head cap screws (2).
- b. Apply electrical insulating compound to pins of electrical connector (1).
- c. Connect feed limit switch electrical connector (1) to connector on the paving machine bulkhead.



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15.17. REPLACE/REPAIR FEED LIMIT SWITCH PADDLE ASSEMBLY - Continued.

C. INSTALL Continued.

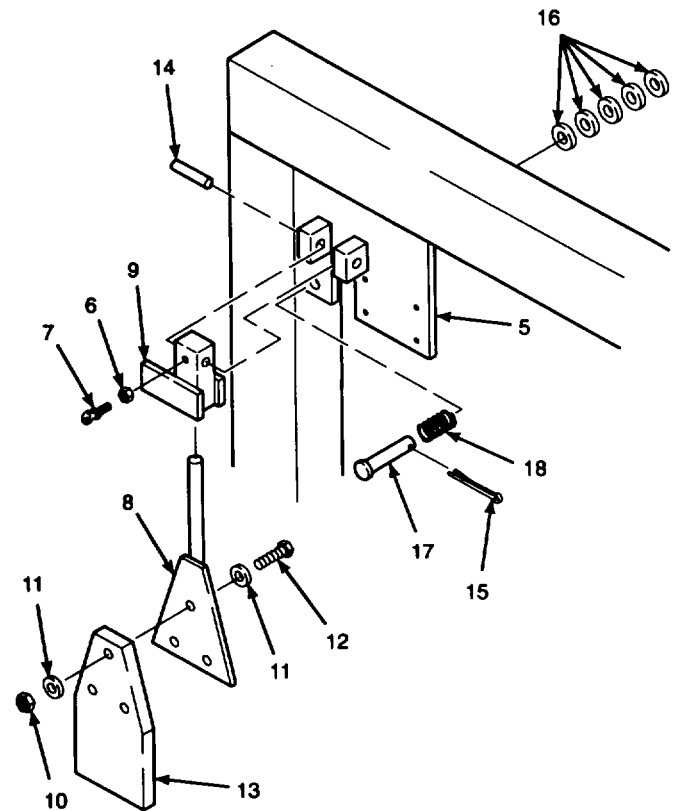
2. INSTALL FEED LIMIT SWITCH PADDLE CONTROL ARM.

- a. Position actuator mount (9) onto endgate support arm (5) and secure with spring pins (14).
- b. Place control arm rubber extension (13) on feed limit switch paddle (8) and secure with hex head cap screws (12), flat washers (11) and self-locking nuts (10). Tighten to 108 lb-in (12 N•m).
- c. Place hex nut (6) onto thumbscrew (7) and install into actuator mount (9).
- d. Install spring (18) onto straight headed pin (17) and install into endgate support arm (5).

NOTE

Flat washers are installed on straight headed pin (17) in front or back of endgate support arm (5). Washers are installed on pin to adjust pin length to prevent paddle assembly from actuating feed limit switch with no paving material present.

- e. Observe contact on arm of actuator mount (9). Add flat washers (16), as required, between spring (18) and endgate support arm (5), to allow arm of actuator mount to touch the head of straight headed pin (17) and actuate feed limit switch with no compression of spring.
- f. Install flat washers (16) as required on back of straight headed pin (17) behind endgate support arm (5) to fill space between support arm and cotter pin hole. Install cotter pin (15).
- g. Insert feed limit switch paddle (8) into actuator mount (9). Tighten thumbscrew (7) and snug hex nut (6).



NOTE

FOLLOW-ON-TASK: Install endgate hand lever assembly per paragraph 15.16.

END OF TASK

15.18. REPAIR TWO FOOT AUGER AND FENDER EXTENSION.

This task covers: a. Disassemble b. Clean c. Inspect
 d. Assemble

INITIAL SETUP:Tools:

General mechanic's automotive tool kit
 (Item 54, Appendix E)
 Socket wrench adapter (Item 2, Appendix E)
 Torque wrench, 0 to 600 lb-ft (Item 67, Appendix E)
 Torque wrench, 0 to 175 lb-ft (Item 68, Appendix E)
 Wire scratch brush (Item 6, Appendix E)

References:

LO 5-3895-373-12
 TM 5-3895-373-10
 TM 5-3895-373-24P

Equipment Condition:

2 ft auger and fender extension removed
 per TM 5-3895-373-10.

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
 Cleaning solvent (Item 24, Appendix C)
 Grease (Item 15, Appendix C)
 Pipe sealant (Item 22, Appendix C)
 Thread locking compound (Item 13, Appendix C)
 Thread locking compound (Item 12, Appendix C)
 Thread locking compound solvent (Item 25, Appendix C)
 1 ft extension shaft
 2 ft extension shaft
 Bearing unit
 Extension fenders
 Hemi auger flights
 Lockwashers
 Quarter auger flights
 Teflon flat washers

NOTE

There is a left hand and a right hand 2 ft auger and fender extension for the paving machine. This procedure refers to the right hand auger and fender extension. Procedure is identical for left hand auger and fender extension. Right hand auger and fender extension is shown in this procedure.

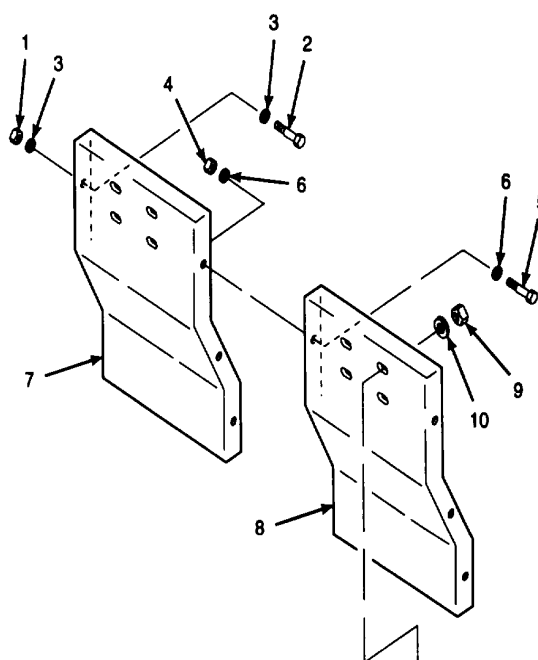
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15.18. REPAIR TWO FOOT AUGER AND FENDER EXTENSION - Continued.

A. DISASSEMBLE.

1. REMOVE EXTENSION FENDERS.

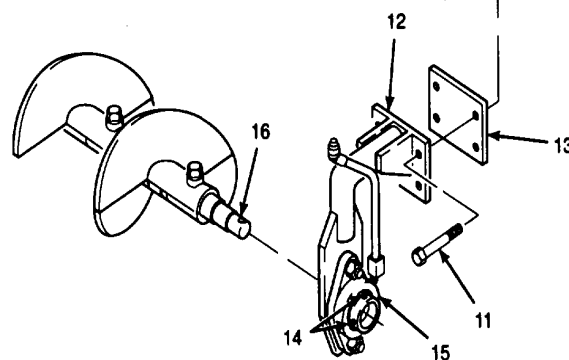
- a. Remove hex nuts (1), hex head cap screws (2), and flat washers (3).
- b. Remove hex nuts (4), hex head cap screws (5), and flat washers (6). Separate extension fender (7) from extension fender (8).
- c. Remove hex nuts (9), flat washers (10), and hex head cap screws (11).



NOTE

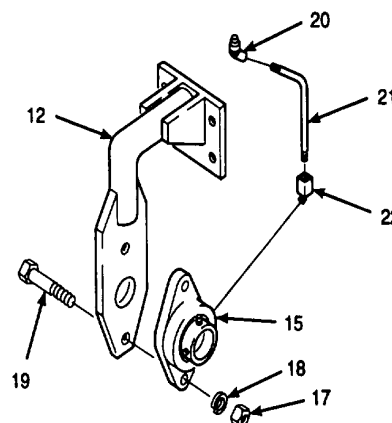
A shim may or may not be installed between bearing mount and extension fender. The use of the shim is determined when installing the 2 ft auger and fender extension on the paving machine to ensure the augers are in a straight line.

- d. Remove bearing mount (12) and shim (13) from extension fender (8). A shim may not be present.
- e. Loosen set screws (14) on bearing unit (15).
- f. Remove bearing mount (12) from 2 ft extension shaft (16).



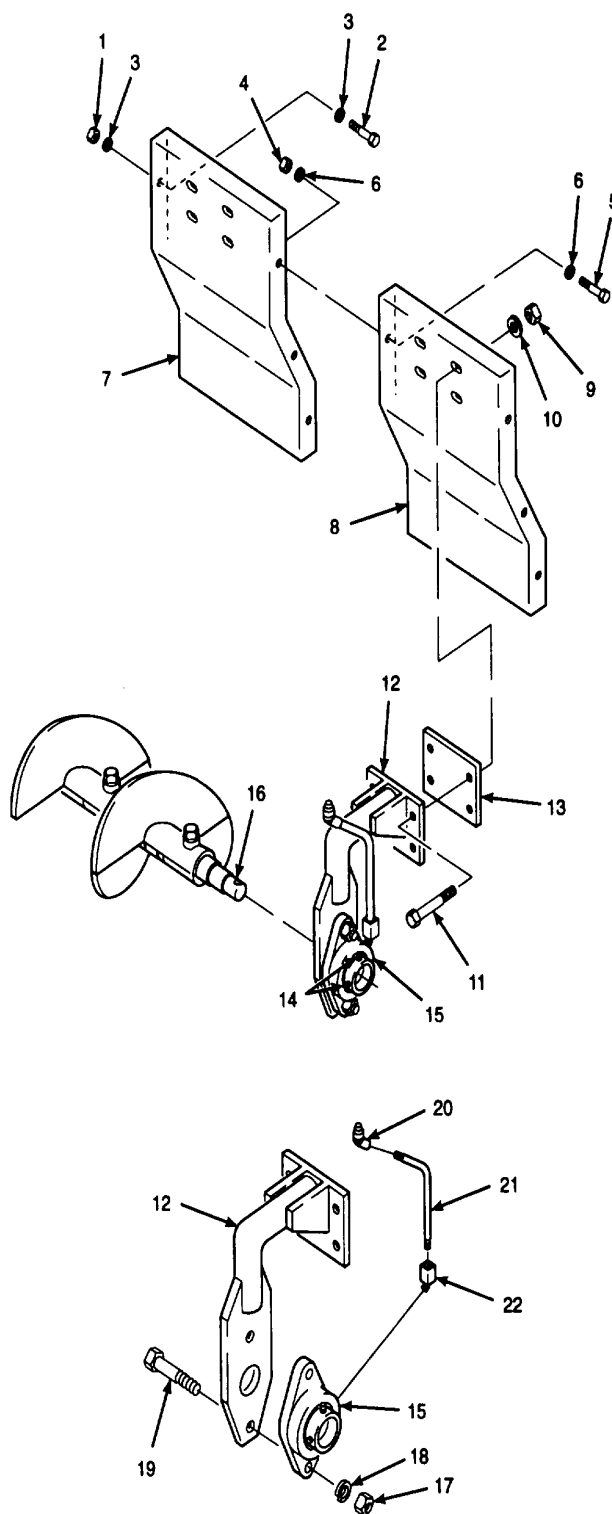
2. DISASSEMBLE BEARING MOUNT.

- a. Remove hex nuts (17), lockwashers (18), and hex head cap screws (19). Discard lockwashers.
- b. Remove bearing unit (15) from bearing mount (12).
- c. Remove lubrication fitting (20), lubrication pipe (21), and elbow (22) from bearing unit (15).



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- A. DISASSEMBLE Continued.
- 3. DISASSEMBLE AUGER FLIGHTS.
 - a. Remove hex nuts (23) and lockwashers (24). Discard lockwashers.
 - b. Remove quarter auger flights (25), shaft covers (26), and teflon flat washers (27). Discard teflon flat washers.
 - c. Remove hex head cap screws (28), hemi auger flights (29), and teflon flat washers (30). Discard teflon flat washers.
 - d. Separate 1 ft extension shaft (31) from 2 ft extension shaft (16).
- B. CLEAN.
- 1. CLEAN ALL METAL PARTS.



WARNING

Cleaning solvent, P-D-680, is **TOXIC and flammable**. Wear protective goggles 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 m cleaning solvent is 200°F (93,30C). 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, flush eyes with water and get immediate medical attention.

- a. Clean all metal parts with cleaning solvent. Scrub off hard deposits with wire scratch brush. Wipe dry with cleaning cloth.
- b. Clean lubrication components with cleaning cloth and cleaning solvent. Ensure pipe sealant is removed from threads of lubrication fitting, lubrication pipe, and elbow.

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15.18. REPAIR TWO FOOT AUGER AND FENDER EXTENSION- Continued.

- B. CLEAN Continued.
- 2. CLEAN THREADED FASTENERS.

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If solvent contacts eyes, flush eyes with water and get immediate medical attention.

- a. Remove set screws from bearing unit. Clean threads of set screws with thread locking compound solvent.
 - b. Wipe set screws dry with cleaning cloth and install into bearing unit.
 - c. Clean threads of all hex head cap screws with thread locking compound solvent.
- C. INSPECT.
- 1. INSPECT AUGER FLIGHTS.
 - a. Visually inspect auger flights for cracks and worn edges. Worn edges can be defined as flat spots on auger spiral or an out-of-round shape.
 - b. Replace auger flights if cracks or wear are detected.
 - 2. INSPECT BEARING UNITS.
 - a. Spin bearing unit by hand.
 - b. If bearing unit does not spin freely, or if radial free play is detected, replace bearing unit.

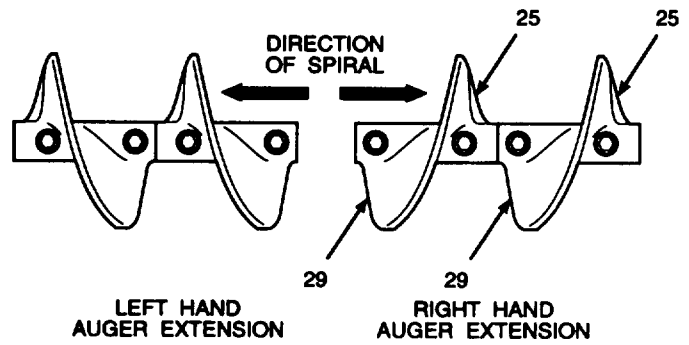
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D. ASSEMBLE.

1. ASSEMBLE AUGER FLIGHTS.

NOTE

Ensure the auger flight spiral is in the correct direction when installing left and right auger flights. If spiral is not correct, paving material will not spread evenly along main and extension screeds.

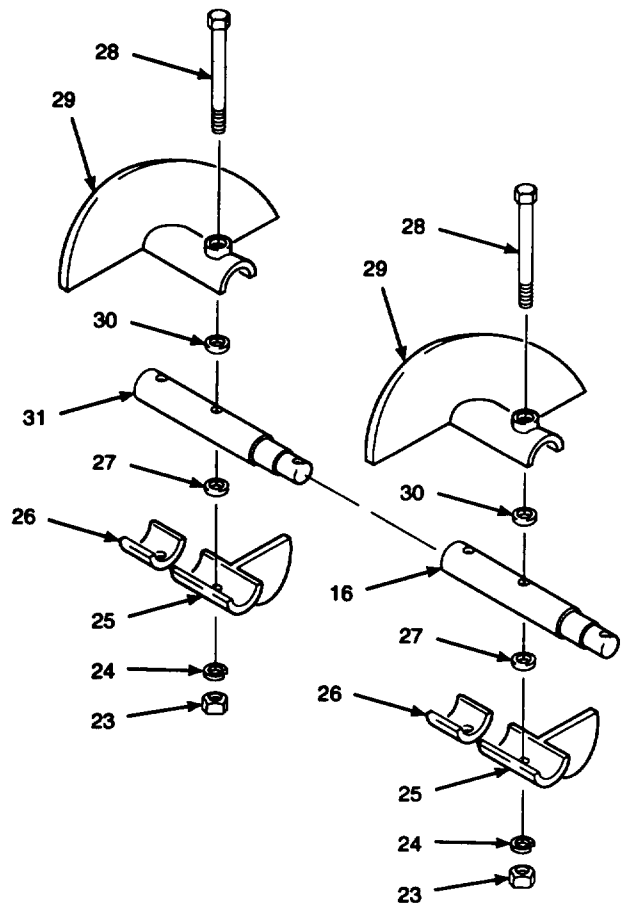


- a. Visually match the spiral direction of quarter auger flights (25) and hemi auger flights (29) for left or right hand sides prior to installation.
- b. Install 1 ft extension shaft (31) into 2 ft extension shaft (16).
- c. Install teflon flat washers (30), hemi auger flights (29), and hex head cap screws (28).
- d. Install teflon flat washers (27), shaft covers (26), quarter auger flights (25) and lockwashers (24).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- e. Apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screws (28).
- f. Install hex nuts (23) and tighten to 45 lb-ft (61 N-m).



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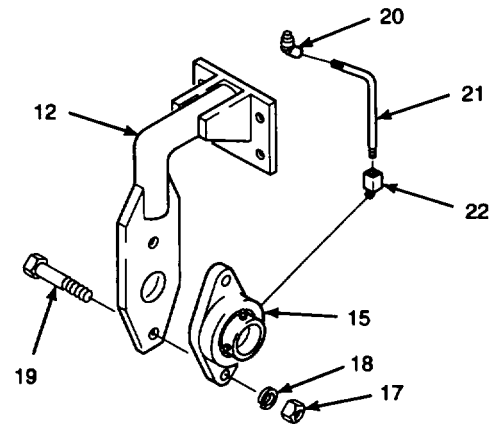
15.18. REPAIR TWO FOOT AUGER AND FENDER EXTENSION - Continued.

- D. ASSEMBLE - Continued.
2. ASSEMBLE BEARING MOUNT.

WARNING

Pipe sealant can cause eye damage or skin irritation. Wash after skin contact. Wear safety goggles/glasses when using. Avoid contact with eyes or skin. If sealant contacts eyes, flush eyes with water and get immediate medical attention.

- a. Apply pipe sealant to threads on lubrication pipe (21).
- b. Install and tighten lubrication fitting (20) and elbow (22) onto lubrication pipe (21).
- c. Apply pipe sealant to threads of elbow (22). Install and tighten elbow into bearing unit (15).
- d. Position bearing unit (15) on bearing mount (12). Install hex head cap screws (19) and lockwashers (18).



WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- e. Apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screws (19).
- f. Install hex nuts (17) and tighten to 180 lb-ft (244 N•m) using 1/2 to 3/4 in. socket wrench adapter.

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D. ASSEMBLE Continued.

3. INSTALL EXTENSION FENDERS.

NOTE

A shim may or may not be installed between bearing mount and extension fender. The use of the shim is determined when installing the 2 ft auger and fender extension on the paving machine to ensure the augers are in a straight line.

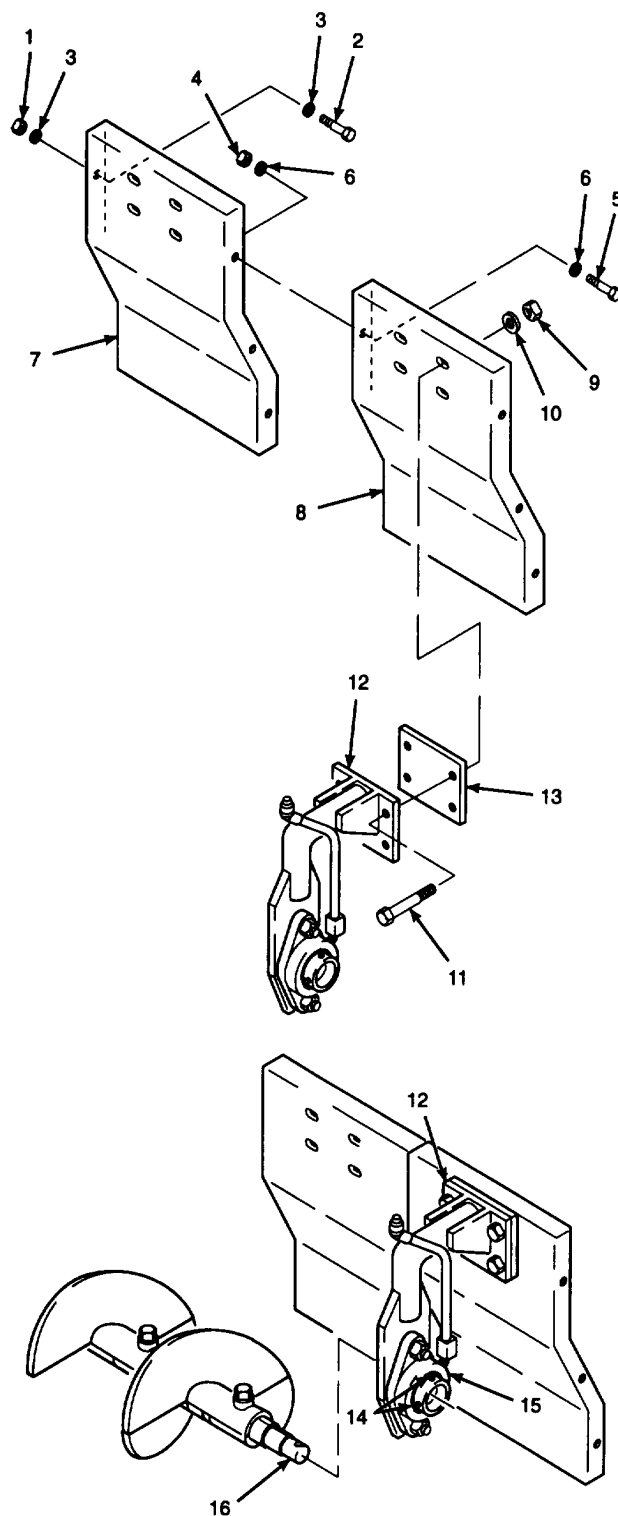
- a. Install shim (13), bearing mount (12), and hex head cap screws (11) onto extension fender (8). Install shim only if it was found in place during disassembly.
- b. Install flat washers (10) onto hex head cap screws (11).

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- c. Apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screws (11).
- d. Install hex nuts (9) and tighten to 90 lb-ft (122 N•m).
- e. Align extension fender (7) with extension fender (8) and install hex head cap screws (5) and flat washers (6).
- f. Apply thread locking compound (Item 12, Appendix C) to threads of hex head cap screws (5).
- g. Install hex nuts (4) and tighten to 37 lb-ft (50 N•m).
- h. Install hex head cap screws (2), flat washers (3), and hex nuts (1). Tighten hex nuts.
- i. Remove set screws (14) and install 2 ft extension shaft (16) into bearing mount (12).
- j. Apply thread locking compound (Item 13, Appendix C) to threads of set screws (14).

- k. Install set screws (14) into bearing unit (15) and tighten.
- l. Lubricate bearing unit (15) per LO 5-3895-373-12.



15.18. REPAIR TWO FOOT AUGER AND FENDER EXTENSION - Continued.

D. ASSEMBLE Continued.

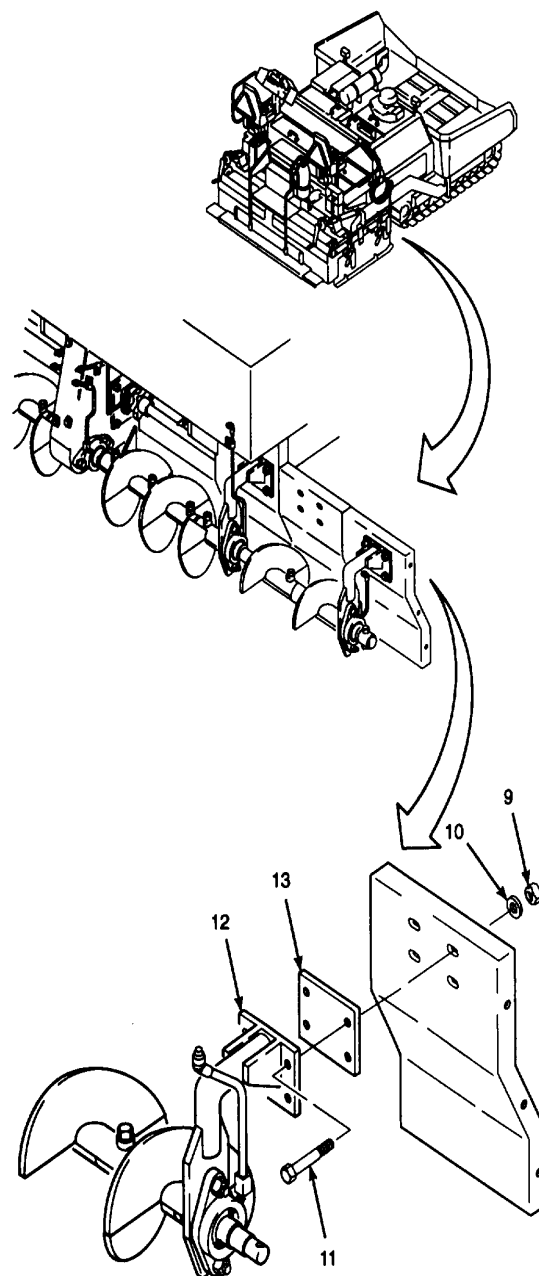
4. ADJUST 2 FT AUGER AND FENDER EXTENSION.

- a. Install 2 ft auger and fender extension onto paving machine per TM 5-3895-373-10.
- b. Operate auger system per TM 5-3895-373-10. Observe rotation of 2 ft auger and fender extensions and check for horizontal or vertical wobbling during operation.
- c. Stop augers. Shut off engine and remove key from ignition switch. Refer to TM 5-3895-373-10.
- d. If horizontal wobbling is detected, remove hex nuts (9) and slide bearing mount (12) until wobbling condition is corrected. Install hex nuts. Repeat steps b and c as required.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- e. Apply thread locking compound to the threads of hex head cap screws (11).
- f. Install and tighten hex nuts (9) to 90 lb-ft (122 N-m).
- g. If vertical wobbling is detected, remove hex nuts (9), flat washers (10), and hex head cap screws (11). Add or remove shims (13) until wobbling condition is corrected. Install hex head cap screws, flat washers, and hex nuts. Repeat steps b and c as required.
- h. Apply thread locking compound to threads of hex head cap screws (11).
- i. Install hex head cap screws (11), flat washers (10), and hex nuts (9).



- j. Tighten hex nuts (9) to 90 lb-ft (122 N•m).
- k. If required, remove auger and fender extension per TM 5-3895-373-10.

NOTE

**FOLLOW-ON-TASK: Two foot auger and fender extension installed per TM 5-3895-373-10.
END OF TASK**

15.19. REPAIR SCREED EXTENSION PLATE - Continued.

B. CLEAN.**WARNING**

Cleaning solvent, P-D-680, is **TOXIC** and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

1. CLEAN ALL METAL PARTS WITH CLEANING SOLVENT.
2. SCRUB OFF HARD DEPOSITS WITH WIRE SCRATCH BRUSH. WIPE DRY WITH CLEANING CLOTH.

C. INSPECT.

1. INSPECT SCREED EXTENSION PLATE STUDS FOR STRIPPED OR WORN THREADS. REPLACE EXTENSION PLATE IF STUDS ARE DAMAGED.
2. INSPECT SCREED EXTENSION PLATE FOR WEAR OR BENDING. EXTENSION PLATE MUST BE FLAT AND FREE OF CRACKS. REPLACE EXTENSION PLATE IF EXTENSION PLATE IS BENT OR CRACKED.

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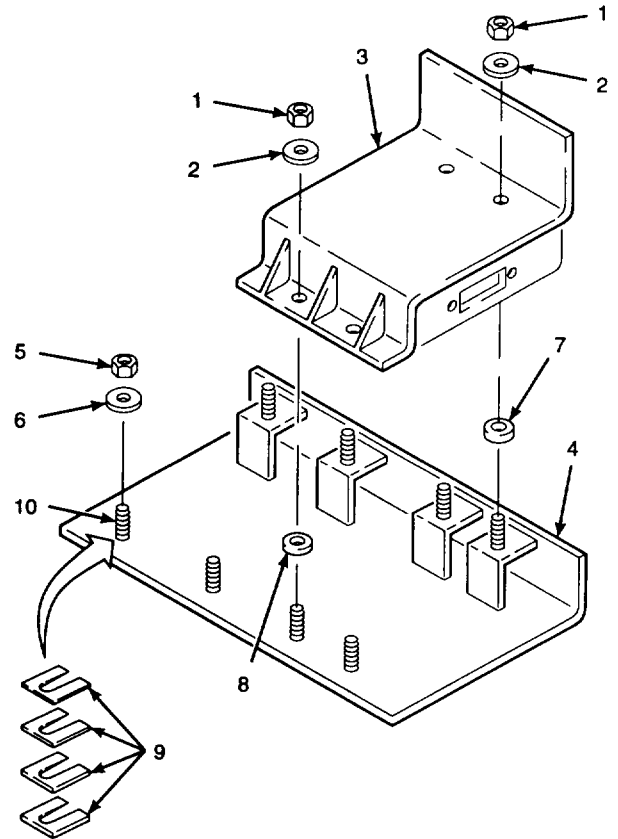
D. ASSEMBLE.

1. INSTALL PLATE SPACERS.

NOTE

Plate spacers are used to align screed extension plate with screed plate on extension screed. There may be no plate spacers or several plate spacers on the screed extension plate studs. If plate spacers are removed, they must be returned to the same locations from which they were removed to maintain screed plate alignment, or replaced with plate spacers of like thickness.

- a. Install plate spacers (9) onto screed extension plate studs (10) in the exact locations from which they were removed.
- b. Install spacers (7 and 8).
- c. Install flat washers (6) and self-locking nuts (5). Tighten self-locking nuts hand tight.



2. INSTALL SCREED EXTENSION BASE FRAME.

- a. Install screed extension base frame (3) onto screed extension plate (4).
- b. Install flat washers (2) and self-locking nuts (1). Tighten self-locking nuts to 37 lb-ft (50 N•m).

NOTE

FOLLOW-ON-TASK: Screed extension plate installed per TM 5-3895-373-10.

END OF TASK

15.20. ADJUST AND ALIGN MAIN AND EXTENSION

This task covers: a. Clean b. Adjust c. Align

INITIAL SETUP

Tools:

- General mechanic's automotive tool kit (Item 54, Appendix E)
- Crowfoot wrench (Item 65, Appendix D)
- Pry bar (Item 4, Appendix E)
- Sling strap, 2 ea. (Item 49, Appendix E)
- Socket wrench adapter (Item 2, Appendix E)
- Straightedge (Item 3, Appendix D)
- Torque wrench, 0 to 175 lb-ft (Item 68, Appendix E)
- Torque wrench, 0 to 600 lb-ft (Item 67, Appendix E)
- Wire scratch brush (Item 6, Appendix E)

Materials/Parts:

- Cleaning cloths (Item 7, Appendix C)
- Cleaning solvent (Item 24, Appendix C)
- Thread locking compound (Item 12, Appendix C)
- Thread locking compound solvent (Item 25, Appendix C)
- Gasket
- Shims

Personnel Required:

Three 62B construction equipment repairers. Second and third persons to assist with adjusting screed plate crowns, flatness, alignment, and angle.

References:

- TM 5-3895-373-10
- TM 5-3895-373-24P

Equipment Condition:

Paving machine positioned on flat, level paved surface. Endgates removed per TM 5-3895-373-10. Walkway and screed handrail removed per paragraph 11.3 (for align procedures, step C.2.e through C.2.n only). Extension screed cover plate removed per paragraph 2.22 (for align procedures, step C.2.e through C.2.n only). Extension screed blower motor removed per paragraph 14.8 (for align procedures, step C.2.e through C.2.n only). Extension screed burner chamber(s) removed per paragraph 14.5 (for align procedures, step C.2.e through C.2.n only).

A. CLEAN.

1. REMOVE PAVING MATERIAL FROM MAIN AND EXTENSION SCREEDS.

straightedge and to view measurement points.



Screed operations present a crushing hazard. Stay clear of screed during screed operations. Failure to do so may result in death or serious injury.

NOTE

Cribbing is used under the screed only as a safety precaution. Do not lower the screed onto the cribbing. Cribbing may have to be repositioned during alignment procedure to allow for placement of

2. START ENGINE ON PAVING MACHINE. RAISE SCREED TO FULL HEIGHT. FULLY EXTEND EXTENSION SCREEDS. CLOSE SCREED TRAVEL LOCK VALVE. SHUT OFF ENGINE AND REMOVE KEY FROM IGNITION SWITCH. REFER TO TM 5-3895-373-10.

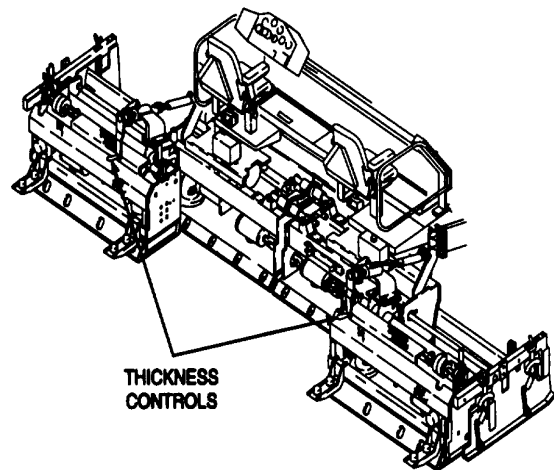
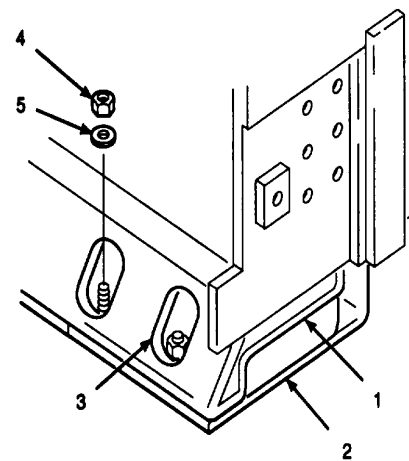
A. CLEAN Continued.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 III cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.

3. CLEAN AREA BETWEEN SCREED FRAME (1) AND SCREED PLATE (2) WITH A CLEANING CLOTH AND CLEANING SOLVENT. SCRUB OFF HARD DEPOSITS WITH A WIRE SCRATCH BRUSH. USE SPRAY WASHDOWN PER TM 53895-373-10 IN APPROVED AREA, IF NEEDED.
4. CLEAN AND REMOVE PAVING MATERIAL, DIRT, AND FOREIGN MATTER FROM SCREED PLATE MOUNTING STUD ACCESS AREAS (3).
5. CLEAN STUDS AND SELF-LOCKING NUTS IN ACCESS AREAS WITH CLEANING SOLVENT AND WIRE SCRATCH BRUSH TO ALLOW REMOVAL OF SELF-LOCKING NUTS (4) AND FLAT WASHERS (5).



B. ADJUST.

1. SET SCREED THICKNESS CONTROLS TO READ THE SAME ON THE INDICATORS FOR BOTH LEFT AND RIGHT SIDE. REFER TO TM 5-3895373-10.

GO TO NEXT PAGE

15.20. ADJUST AND ALIGN MAIN AND EXTENSION SCREED PLATES -Continued

- B. ADJUST Continued.
2. INSTALL CRIBBING BENEATH EXTENSION SCREEDS.

WARNING

Screed operations present a crushing hazard. Stay clear of screed during screed operations. Failure to do so may result in death or serious injury.

NOTE

Cribbing is used under the screed only as a safety precaution. Do not lower the screed onto the cribbing. Cribbing may have to be repositioned during alignment procedure to allow for placement of straightedge and to view measurement points.

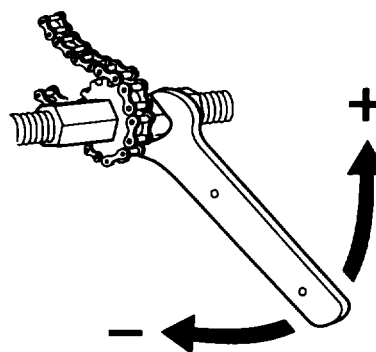
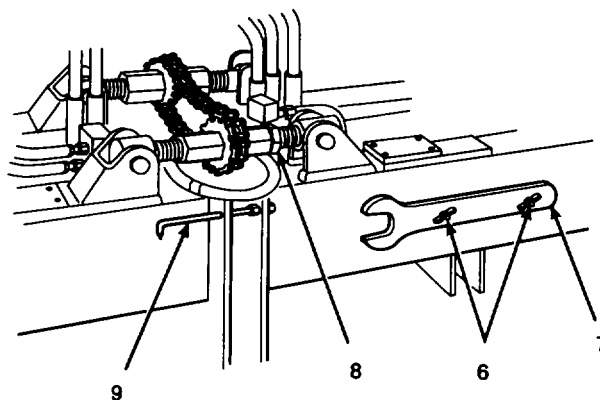
- a. Place cribbing beneath extension screeds. Leave leading edges and trailing edges of screed plates clear of cribbing to make measurements.
 - b. Ensure weight of screed is not supported by cribbing. Cribbing is being used as a safety precaution only.
3. SET MAIN SCREED CROWN ADJUSTMENT TO NULL POSITION WITH SCREED RAISED.
- a. Lower hinged steps on main screed per TM 5-3895373-10.
 - b. Remove thumbscrews (6) and crown adjustment wrench (7) from main screed.
 - c. Use crown adjustment wrench (7) to loosen hex nut (8).

NOTE

The main screed plate has a positive lead crown that cannot be nulled by crown adjustment. Sized spacers between main screed plate and main screed frame on leading edge of main screed hold the crown in position. Only main screed plate

trailing edge crown can be nulled by crown adjustment.

- d. Determine if a positive or negative crown is present by reading crown pointer (9) on main screed.



- e. To null a positive crown on main screed trailing edge, pull crown adjustment wrench (7) down toward screed trailing edge until crown pointer reads approximately zero and no resistance is felt on wrench.
- f. To null a negative crown on main screed trailing edge, push crown adjustment wrench (7) up toward screed leading edge until crown pointer reads approximately zero and no resistance is felt on wrench.
- g. Place straightedge along underside of main screed trailing edge. Have a second person turn crown adjustment until trailing edge of main screed plate is flush with straightedge.
- h. Tighten hex nut (8) on crown adjustment with crown adjustment wrench (7).
- i. Replace crown adjustment wrench (7) on main screed and secure with thumbscrews (6).

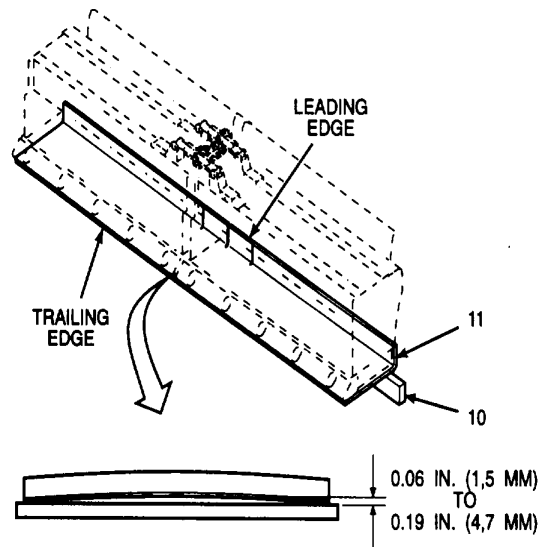
- B. ADJUST Continued.
- 4. ADJUST LEAD CROWN ON MAIN SCREED PLATE.

WARNING

Screed operations present a crushing hazard. Stay clear of screed during screed operations. Failure to do so may result in death or serious injury.

NOTE

Cribbing is used under the screed only as a safety precaution. Do not lower the screed onto the cribbing. Cribbing may have to be repositioned during alignment procedure to allow for placement of straightedge and to view measurement points.

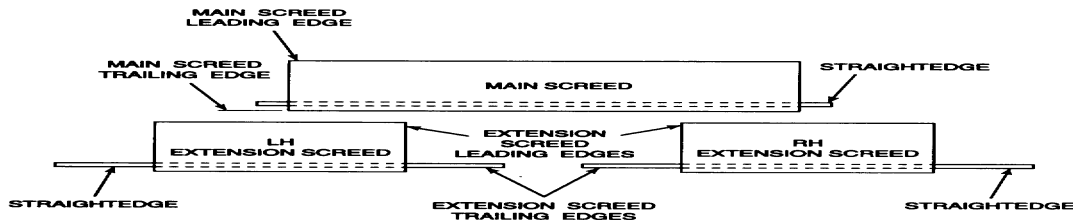


- 5. MAIN AND EXTENSION SCREED TRAILING EDGE FLATNESS WITH SCREED RAISED.

NOTE

The method of adjusting trailing edge flatness is the same for main and extension screed plates.

- a. Place straightedge (10) along leading edge of main screed plate (11). Have one person support straightedge at each end.
- b. Measure lead crown gap at center of screed between straightedge and screed plate using a ruler. If lead crown is between 0.06 in. (1,5 mm) and 0.19 in. (4,8 mm), no further crown adjustment is necessary.
- c. If lead crown on main screed plate is greater than 0.19 in. (4,8 mm) or less than 0.06 in. (1,5 mm) refer to paragraph 15.4 for alignment of crown adjustment assembly.



GO TO NEXT PAGE

15.20. ADJUST AND ALIGN MAIN AND EXTENSION

B. ADJUST-Continued.

WARNING

Screed operations present a crushing hazard. Stay clear of screed during screed operations. Failure to do so may result in death or serious injury.

NOTE

Cribbing is used under the screed only as a safety precaution. Do not lower the screed onto the cribbing. Cribbing may have to be repositioned during alignment procedure to allow for placement of straightedge and to view measurement points.

- a. Place straightedge (10) along trailing edge of screed plate (2) in line with screed plate studs (12). Have one person support each end of straightedge.
- b. Measure for gaps between screed plate (2) and straightedge (10) at each trailing edge stud (12).

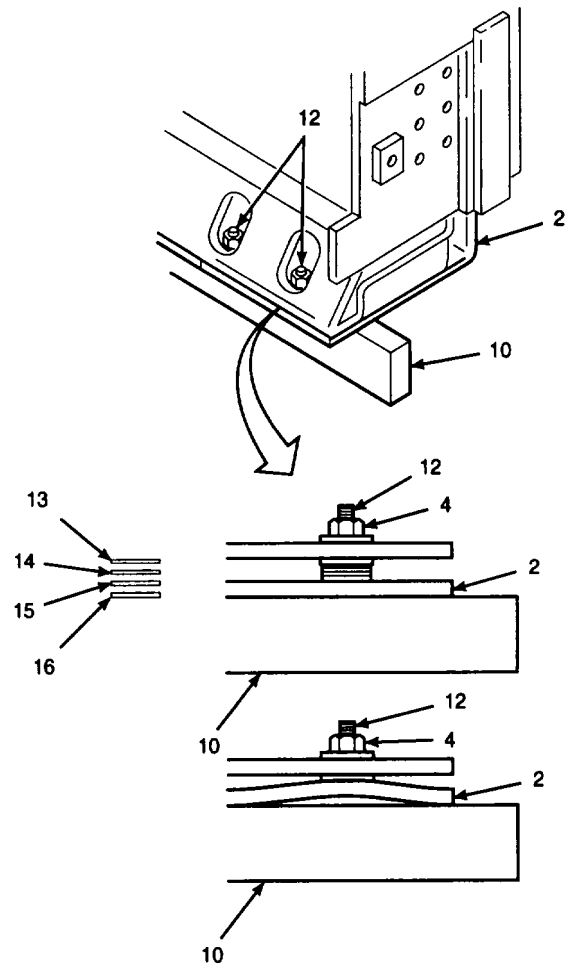
NOTE

Shims and plate spacers may be removed to lower a high point in the screed plate. Follow the same instructions except remove shim(s) and plate spacer(s) to get screed flat.

- c. If gaps exist, select minimum combination of shims (13) and plate spacers (14 through 16) to fill each gap.

Place shims and plate spacers in gaps between straightedge (10) and screed plate (2) to select shims and plate spacers.

- d. Loosen self-locking nuts (4) on each stud (12) that requires shimming and on the studs on each side of the stud to be shimmed.
- e. Use a hammer and tap a pry bar between screed plate (2) and screed near stud where plate spacers are to be added.
- f. Insert selected shim (13) or plate spacer (14, 15, or 16) between screed plate (2) and screed.



- g. Tap pry bar out of screed. Tighten self-locking nut (4) to 37 lb-ft (50 N•m).
- h. Place straightedge (10) along trailing edge of screed plate (2). Measure for gaps between screed plate and straightedge at each stud (12) shimmed.
- i. Repeat steps a through h as required to obtain trailing edge flatness within 0.0625 in. (1,588 mm) for main and extension screed plates.

C. ALIGN.

1. EXTENSION SCREED LEVEL ALIGNMENT.

- a. Start paving machine engine and fully retract extension screeds per TM 5-3895-373-10.

WARNING

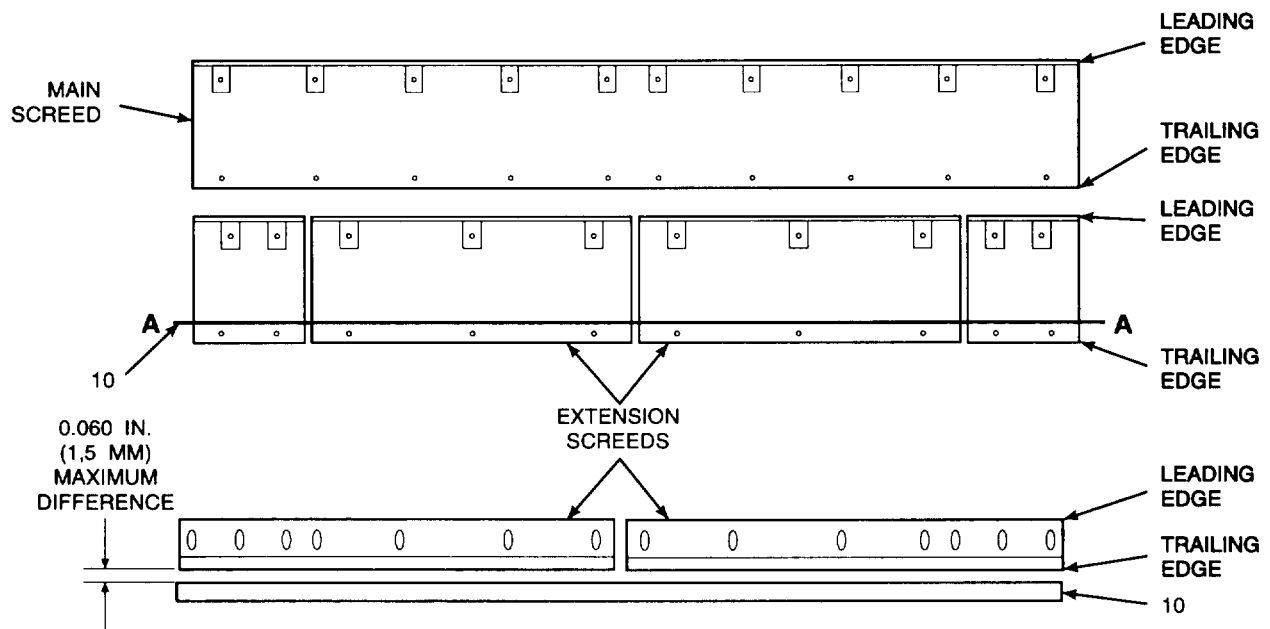
Screed operations present a crushing hazard. Stay clear of screed during screed operations. Failure to do so may result in death or serious injury.

NOTE

Cribbing is used under the screed only as a safety precaution. Do not lower the screed onto the cribbing. Cribbing may have to be repositioned during alignment procedure to allow for placement of straightedge and to view measurement points.

- c. Place straightedge (10) across trailing edge of both extension screeds at A-A. The maximum height difference allowed between the left and right extension screeds is 0.060 in. (1,5 mm).
- d. If measurement is less than 0.060 in. (1,5 mm) across A-A, go to step g.
- e. If measurement is greater than 0.060 in. (1,5 mm), separate inboard from outboard extension screed height adjustment knobs per TM 5-3895-373-10 on both left and right extension screeds.

- b. Shut down paving machine and remove key from ignition per TM 5-3895-373-10. Position cribbing under screed.



GO TO NEXT PAGE

15.20. ADJUST AND ALIGN MAIN AND EXTENSION SCREED PLATES - Continued.

C. ALIGN - Continued.

WARNING

Screed operations present a crushing hazard. Stay clear of screed during screed operations. Failure to do so may result in death or serious injury.

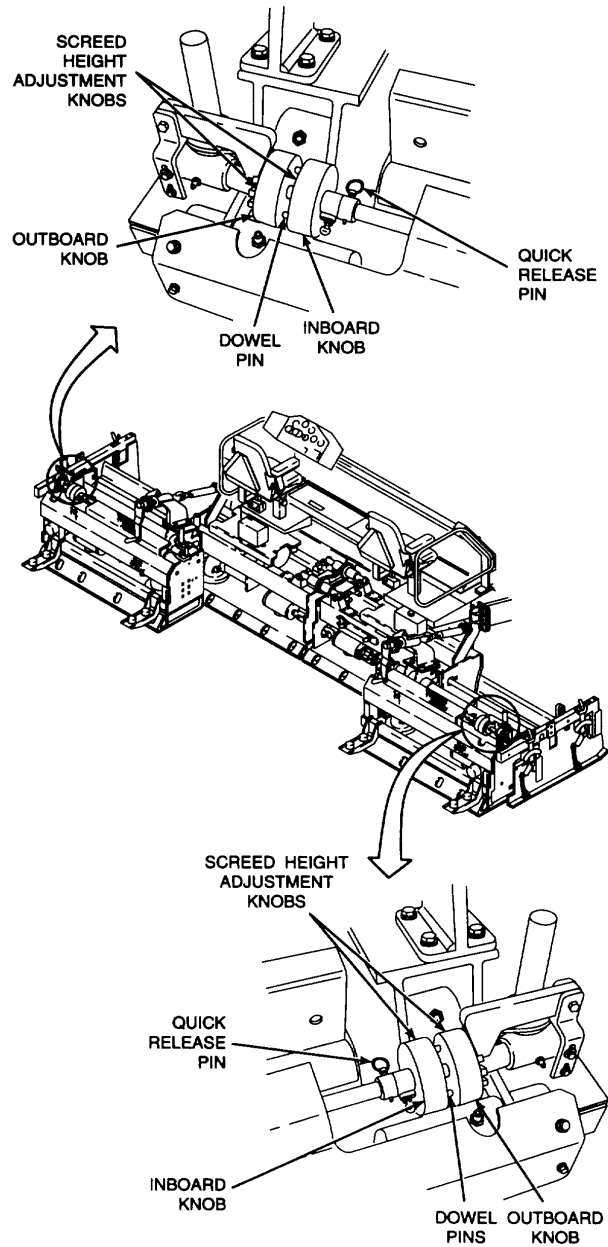
NOTE

Cribbing is used under the screed only as a safety precaution. Do not lower the screed onto the cribbing. Cribbing may have to be repositioned during alignment procedure to allow for placement of straightedge and to view measurement points.

NOTE

During this procedure, the screed height adjustment knobs should only be adjusted with the extension screeds fully retracted.

- f. Using all four screed height adjustment knobs adjust screed height adjustment knobs until extension screeds are flat at A-A to less than 0.060 in. (1,5 mm). (Do not readjust screed height adjustment knobs until entire alignment has been completed.)
- g. Start paving machine engine and fully extend extension screed per TM 5-3895-373-10.
- h. Shut down paving machine and remove key from ignition per TM 5-3895-373-10. Position cribbing under screed.



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C. ALIGN Continued.

WARNING

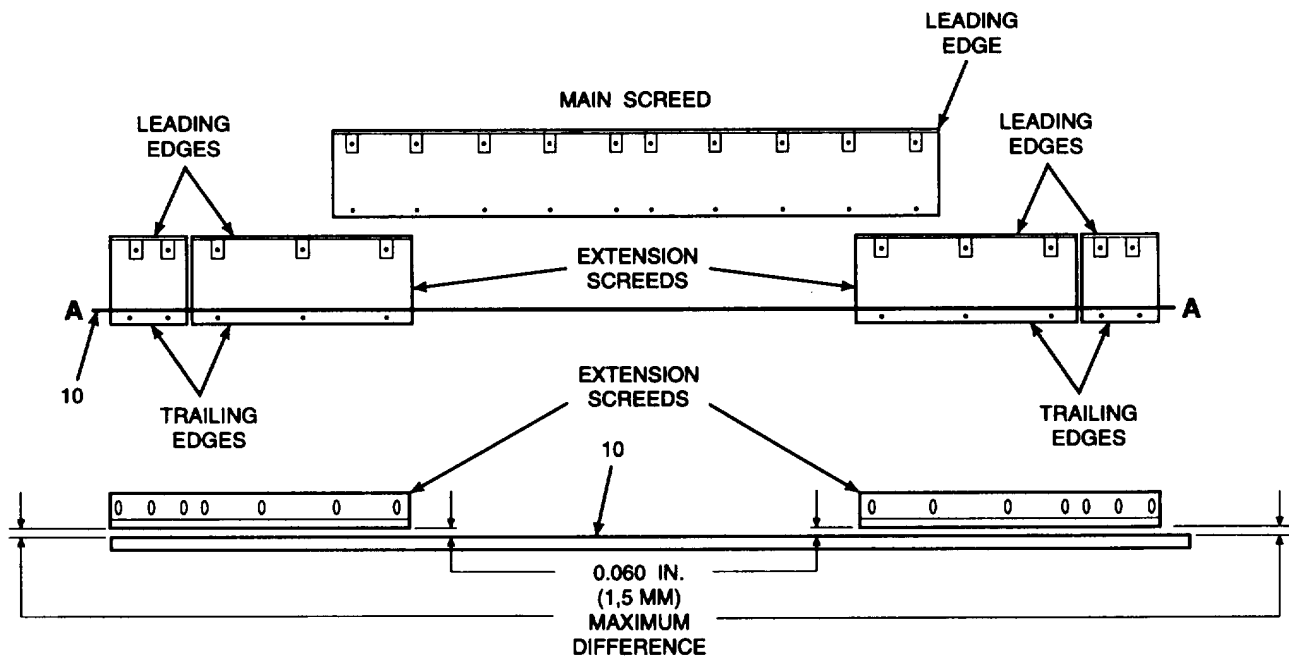
Screed operations present a crushing hazard. Stay clear of screed during screed operations. Failure to do so may result in death or serious injury.

NOTE

Cribbing is used under the screed only as a safety precaution. Do not lower the screed onto the cribbing. Cribbing may have to be repositioned during alignment procedure to allow for placement of straightedge and to view measurement points.

- l. Start paving machine engine and retract extension screed that is out of alignment halfway per TM 5-3895373-10.
- m. Shut down paving machine and remove key from ignition per TM 5-3895-373-10. Position cribbing under screed.

- i. Place straightedge (10) across trailing edge of both extension screeds at A-A. The maximum height difference allowed between the left and right extension screeds is 0.060 in. (1,5 mm).
- j. If measurement is less than 0.060 in. (1,5 mm) across A-A, go to step 2.
- k. If measurement is greater than 0.060 in. (1,5 mm), it will be necessary to align extension screed guide shaft supports.



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15.20. ADJUST AND ALIGN MAIN AND EXTENSION SCREED PLATES - Continued.

C. ALIGN Continued.

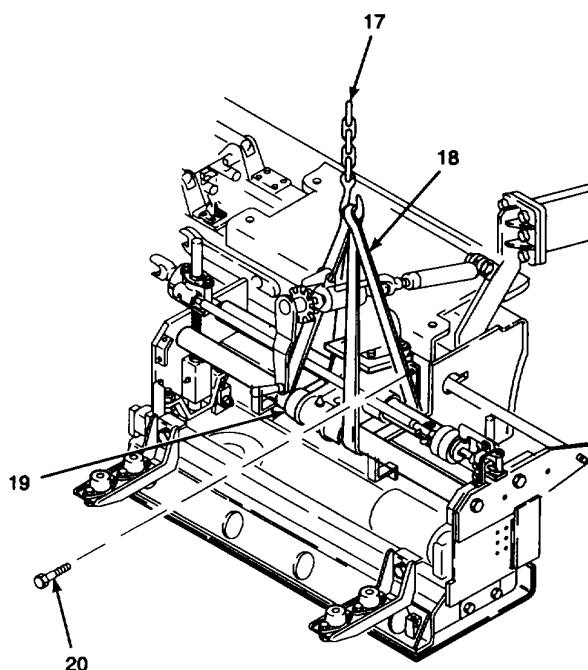
WARNING

Screed operations present a crushing hazard. Stay clear of screed during screed operations. Failure to do so may result in death or serious injury.

NOTE

Cribbing is used under the screed only as a safety precaution. Do not lower the screed onto the cribbing. Cribbing may have to be repositioned during alignment procedure to allow for placement of straightedge and to view measurement points.

- n. Attach overhead hoist (17) and sling straps (18) to guide shaft support (19).
- o. Take up slack in sling strap (18) and loosen hex head cap screws (20).
- p. Place straightedge (10) along trailing edge of extension screeds at A-A. Raise or lower end of extension screed to obtain a reading of less than 0.060 in. (1,5 mm). Tighten hex head cap screws (20).
- q. Lower overhead hoist (17) and remove sling straps (18).
- r. Repeat steps a through q until proper alignment is achieved.
- s. Connect inboard to outboard extension screed height adjustment knobs if separated in step d. (Refer to TM 5-3895-373-10.) t. Start paving machine engine and position extension screed halfway per TM 5-3895-373-10.
- u. Shut down paving machine and remove key from ignition per TM 5-3895-373-10. Position cribbing under screed.



NOTE: HEX HEAD CAP SCREW IS SHOWN REMOVED FOR CLARITY. DO NOT REMOVE DURING PROCEDURE.

GO TO NEXT PAGE

C. ALIGN - Continued.

WARNING

Screed operations present a crushing hazard. Stay clear of screed during screed operations. Failure to do so may result in death or serious injury.

NOTE

Cribbing is used under the screed only as a safety precaution. Do not lower the screed onto the cribbing. Cribbing may have to be repositioned during alignment procedure to allow for placement of straightedge and to view measurement points.

- v. Remove one hex head cap screw (20).

WARNING

Thread locking compound solvent can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

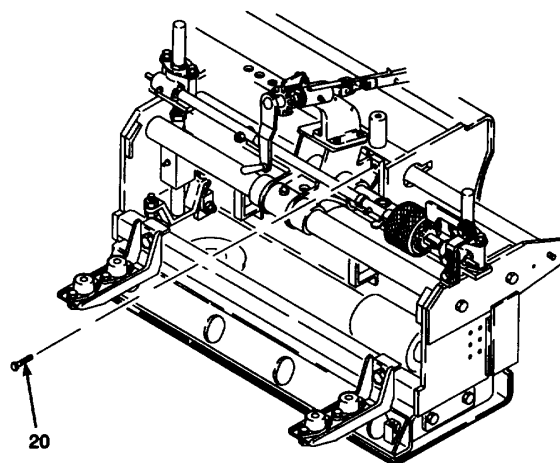
- w. Clean threads of hex head cap screw (20) using thread locking compound solvent and a clean cloth.

WARNING

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- x. Apply thread locking compound to threads of hex head cap screw (20).

- y. Install hex head cap screw (20) and tighten to 180 lb-ft (244 N.m) using socket wrench adapter.
- z. Repeat steps u through x until all hex head cap screws (20) are installed and tightened.



GO TO NEXT PAGE

15.20. ADJUST AND ALIGN MAIN AND EXTENSION SCREED PLATES - Continued.

- C. ALIGN - Continued.
- 2. ALIGN EXTENSION SCREED PLATES FLUSH WITH MAIN SCREED PLATES.

WARNING

Screed operations present a crushing hazard. Stay clear of screed during screed operations. Failure to do so may result in death or serious injury.

NOTE

Cribbing is used under the screed only as a safety precaution. Do not lower the screed onto the cribbing. Cribbing may have to be repositioned during alignment procedure to allow for placement of straightedge and to view measurement points.

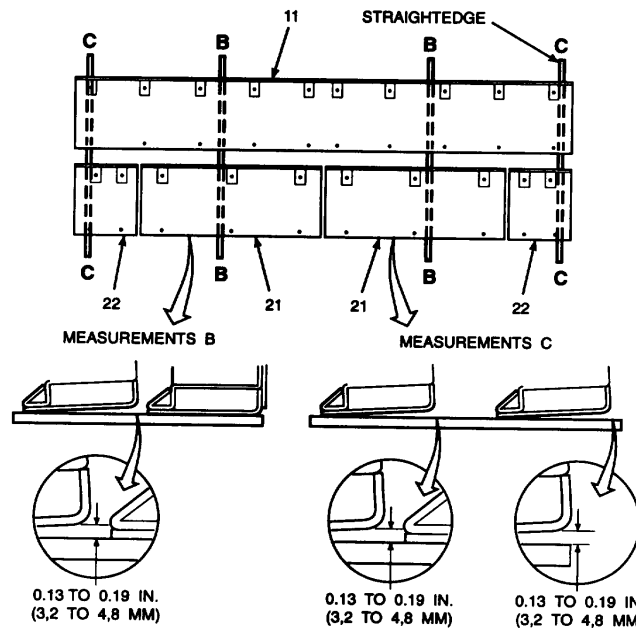
- a. Start paving machine engine and fully retract extension screed per TM 5-3895-373-10.

- b. Shut down paving machine and remove key from ignition per TM 5-3895-373-10. Position cribbing under screed.
- c. Place straightedge along bottom of main screed plate (11) and across inside of extension screed plate (21) at B-B and across outside of extension screed plate (22) at C-C.

NOTE

Ensure extension screed height adjustment knobs are not separated during this procedure.

- d. Adjust extension screed height adjustment knobs to align leading edges of extension screed plates (21 and 22) from 0.125 to 0.19 in. (3,2 to 4,8 mm) higher than trailing edge of main screed plate (11) at B-B and C-C. It may be necessary to adjust extension screed height adjustment knobs to obtain 0.125 in. (3,2 mm) at both points B-B and C-C. (Refer to TM 5-3895-373-10.) If measurements cannot be obtained at both B-B and C-C, repeat step 1.



GO TO NEXT PAGE

C. ALIGN - Continued.

WARNING

Screed operations present a crushing hazard. Stay clear of screed during screed operations. Failure to do so may result in death or serious injury.

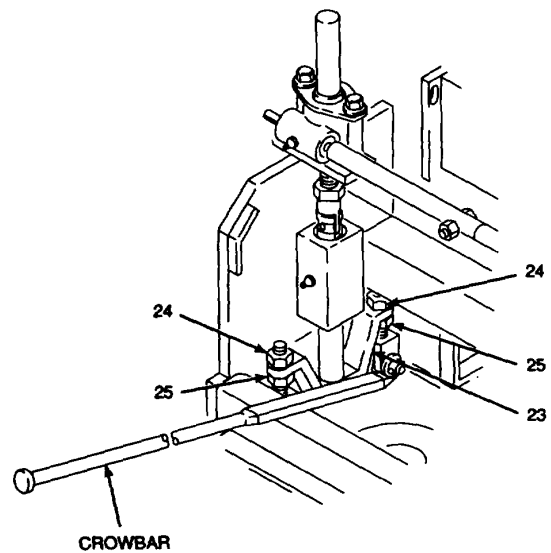
NOTE

Cribbing is used under the screed only as a safety precaution. Do not lower the screed onto the cribbing. Cribbing may have to be repositioned during alignment procedure to allow for placement of straightedge and to view measurement points.

NOTE

It may be necessary to use pry bar to raise lift bracket (23) to relieve pressure on hex nuts (24 or 25) to allow for ease in making adjustments.

- e. Using crowfoot wrench, loosen hex nuts (24) and adjust hex nuts (24 or 25) at front or rear of lift bracket (23) to align extension screed plate angle resulting in an equal reading at B-B and C-C. If required, adjust setting in step d. Continue adjusting hex nuts (24 and 25) and screed height adjustment knobs to obtain 0.125 to 0.19 in. (3,2 to 4,8 mm) height difference between leading edge and trailing edge of extension screed plate.
- f. Tighten hex nuts (24 and 25) without changing angle of extension screed plate.
- g. Adjust extension screed height adjustment to level trailing edge of extension screed plates with trailing edge of main screed plate at points B-B and C-C.
- h. Measure leading edge of extension screed measurements B-B and C-C for 0.13 to 0.19 (3,2 to 4,8 mm) height difference between leading edge of extension screed plates and trailing edge of screed plates. Repeat steps c through i as needed.

**WARNING**

Thread locking compound can cause eye damage. Wear safety goggles/glasses when using. Avoid contact with eyes. If compound contacts eyes, flush eyes with water and get immediate medical attention.

- i. Loosen hex nuts (24) enough to apply thread locking compound. Tighten hex nuts (24) to 37 lb-ft (50 N•m).

15.20. ADJUST AND ALIGN MAIN AND EXTENSION SCREED PLATES - Continued.

C. ALIGN - Continued.

- j. Start paving machine, fully extend screed extensions, and shut down paving machine per TM 5-3895-373-10.

WARNING

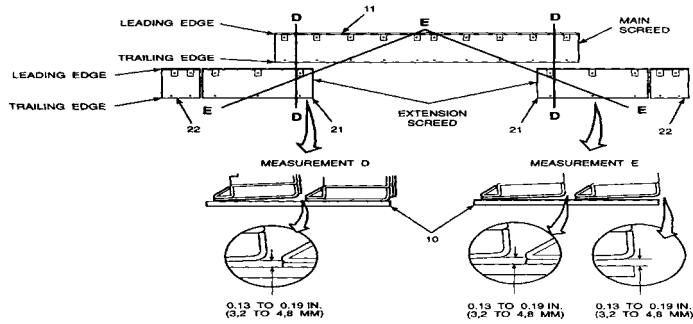
Screed operations present a crushing hazard. Stay clear of screed during screed operations. Failure to do so may result in death or serious injury.

NOTE

Cribbing is used under the screed only as a safety precaution. Do not lower the screed onto the cribbing. Cribbing may have to be repositioned during alignment procedure to allow for placement of straightedge and to view measurement points.

- k. Place straightedge (10) along bottom of main screed plate (11) and across inside of extension screed plate (21) at D-D. The straightedge should be touching leading and trailing edges of main screed plate and trailing edge of extension screed plate. The leading edge of the extension screed plate should be 0.13 to 0.19 in. (3,2 to 4,8 mm) above straightedge. Continue to next step.

- l. Place straightedge (10) along bottom of main screed plate (11) and across outside of extension screed plate (22) at E-E. The straightedge should be touching the trailing edge of main screed plate and trailing edge of extension screed plate. Leading edge of main screed plate and leading edge of extension screed plate should be 0.13 to 0.19 in. (3,2 to 4,8 mm) above straightedge. Continue to next step.
- m. If the correct measurements have not been obtained in steps l and m, the screed is not aligned correctly. Repeat alignment procedures of step a through m.
- n. Start paving machine, fully retract extension screeds, and shut down paving machine per TM 5-3895-373-10. Reposition cribbing under screed.



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TM 5-3895-373-20

C. ALIGN - Continued.

NOTE

FOLLOW-ON-TASKS:

- Install endgate assembly per TM 5-3895-373-10.
- Install walkway and screed handrail per paragraph 11.3.
- Install extension screed cover plate per paragraph 2.22.
- Install extension screed blower motor per paragraph 14.8.
- Install screed burner chamber(s) per paragraph 14.5.

END OF TASK

15-149

15.21. REPAIR STRIKEOFF EXTENSION ASSEMBLY.

This task covers:

- a. Disassemble. b. Clean c. Assemble

INITIAL SETUP

Tools:

General mechanic's automotive tool kit
(Item 54, Appendix E)
Torque wrench (Item 68, Appendix E)
Wire scratch brush (Item 6, Appendix E)

Materials/Parts:

Cleaning cloth (Item 7, Appendix C)
Cleaning solvent (Item 24, Appendix C)
Self-locking nuts

References:

TM 5-3895-373-10
TM 5-3895-373-24P

Equipment Condition:

Strikeoff extension assembly removed per TM 5-3895-373-10.

NOTE

There is a left hand and a right hand strikeoff extension assembly. Only remove strikeoff extension assembly being repaired. This procedure refers to repairing right hand strikeoff extension. Procedure is identical for left hand strikeoff extension assembly. Right hand strikeoff extension assembly is shown in this procedure.

A. DISASSEMBLE.

1. REMOVE STRIKEOFF SUPPORT.

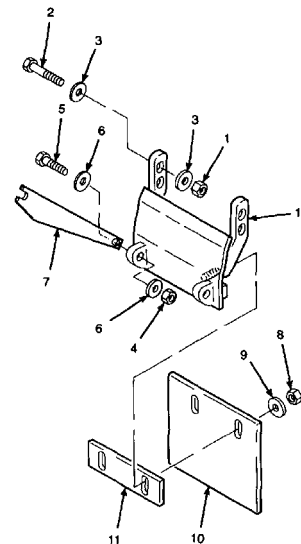
- a. Remove self-locking nuts (1), hex head cap screws (2), and flat washers (3). Discard self-locking nuts.
- b. Remove self-locking nut (4), hex head cap screw (5), and flat washers (6). Discard self-locking nut.
- c. Remove strikeoff support (7).

2. REMOVE STRIKEOFF PLATE.

NOTE

Note offset of slots in strikeoff plate before removing the self-locking nuts. The slots are not equal distance from each edge of the strikeoff plate.

- a. Remove self-locking nuts (8) and flat washers (9). Discard self-locking nuts.
- b. Remove strikeoff plate (10) and spacer bar (11) from screed extension strikeoff (12).

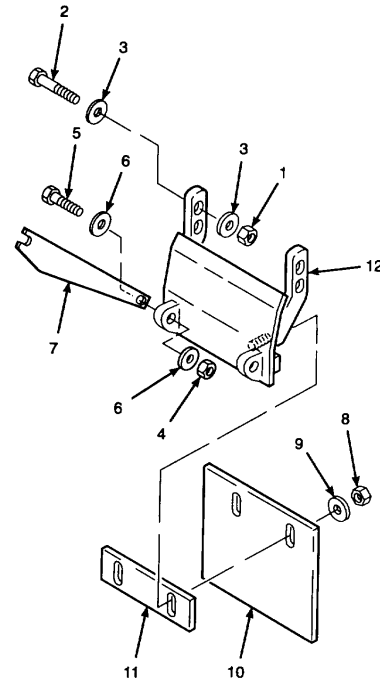


B. CLEAN.

WARNING

Cleaning solvent, P-D-680, is TOXIC and flammable. Wear protective goggles 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 m cleaning solvent is 200°F (93,3°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, flush eyes with water and get immediate medical attention.



1. CLEAN ALL METAL PARTS WITH CLEANING SOLVENT.
2. SCRUB OFF HARD DEPOSITS WITH WIRE SCRATCH BRUSH. WIPE DRY WITH CLEANING CLOTH.

C. ASSEMBLE.

1. INSTALL STRIKEOFF PLATE.

- a. Install strikeoff support (7) and secure with hex head cap screw (5), flat washers (6), and self-locking nut (4). Tighten self-locking nut.
- b. Install hex head cap screws (2), flat washers (3), and self-locking nuts (1). Tighten self-locking nuts.

NOTE

Install strikeoff plate with offset of slots as noted during removal.

- a. Install spacer bar (11) and strikeoff plate (10) onto screed extension strikeoff (12).
- b. Install flat washers (9) and self-locking nuts (8). Tighten self-locking nuts to 90 lb-ft (122 N•m).
2. INSTALL STRIKEOFF SUPPORT.

NOTE

FOLLOW-ON-TASK:

Strikeoff extension assembly installed per TM 5-3895-373-10.

END OF TASK

15-151/(15-152 blank)

APPENDIX A

REFERENCES

A.1 SCOPE.

This appendix lists all forms, field manuals, technical manuals, and other publications referenced in this manual. Also listed are publications that can be consulted for additional information regarding the repair of the 780T bituminous asphalt paving machine and component parts.

A.2 PUBLICATION INDEX.

The following index should be consulted frequently for late changes or revisions to documents listed herein. This index lists new publications relating to material covered in this manual.

Consolidated Index of Army Publications and Blank Forms (DA PAM 25-30).

A.3 FORMS.

The following forms are referenced within this manual. Refer to DA PAM 25-30 for index of blank forms.

Recommended Changes to DA Publications and Blank Forms (DA Form 2028, 2028-2).

Product Quality Deficiency Report (Form SF 368).

Refer to DA PAM 738-750, The Army Maintenance Management System (TAMMS), for instructions to the forms required during the use of this manual.

A.4 OTHER PUBLICATIONS.

a. SAFETY.

Safety and Hazard Warnings TB 43-0216

Safety Inspection and Testing of Lifting Devices TB 43-0124

First Aid for Soldiers..... FM 21-11

Hand Portable Fire Extinguishers Approved for Army Users TB 5-4200-200-

1

Paving Machine, Bituminous Material; Crawler Mounted, Diesel Engine Driven, Ingersoll-Rand Company Model 780T Warranty Information TB 5-3895-373-14

b. VEHICLE OPERATION.

Paving Machine, Bituminous Material; Crawler Mounted, Diesel Engine Driven, Ingersoll-Rand Company Model 780T Operator's Manual TM 5-3895-373-10

Paving and Surface Operations..... TM 5-337

Utilization of Engineer Construction Equipment:

Volume D-1; Asphalt and Concrete Equipment..... TM 5-331D

c. COLD WEATHER OPERATION AND MAINTENANCE.

Basic Cold Weather Manual..... FM 31-70

d. MAINTENANCE AND REPAIR.

Metal Body Repair and Related Operations TC 9-510

Description, Use, Bonding Techniques, and Properties of Adhesives TB ORD 1032

Purging, Cleaning, and Coating Ferrous and Terne Sheet Vehicle Fuel Tanks..... TB 43-0212

Use of Antifreeze Solutions, Antifreeze Extender, Cleaning Compounds, and Test Kit in Engine Cooling Systems TB 750-651

Cooling System: Tactical Vehicles . TM 750-254

Paving Machine, Bituminous Material
Crawler Mounted, Diesel Engine Driven,
Ingersoll-Rand Company Model 780T Unit,
Direct Support and General Support
Maintenance Repair Parts and
Special Tools List..... TM 5-3895-
373-24P

Inspection, Care, and Maintenance
of Antifriction Bearings TM 9-214

Welding Theory and Application.....
TM 9-237

Painting Instructions For
Field Use TM 43-0139

Welding Design, Procedures,
and Inspection..... TM 5-805-7

Care and Use of Hand Tools
and Measuring Tools..... TM 9-243

Simplified Test Equipment
for Internal Combustion
Engines - Reprogrammable
(STE/ICE-R) [Operator's
and Organizational
Maintenance] TM 9-4910-
571-12&P

Inspection, Use, and Tightening
of Metal Fasteners Used on
Tank Automotive Equipment TB 430218

Terminating and Soldering
Electrical Connections..... FM 11 887-14

Soldering Methods and Equipment MIL-
STD 2000A

Paving Machine, Bituminous Material;
Crawler Mounted, Diesel Engine Driven,
Ingersoll-Rand Company Model 780T
Lubrication Order LO 5-3895-
373-12

e. GENERAL.

Principles of Automotive Vehicles TM 9-
8000'

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

Logistic Assistance Program AR 700-4

f. DEPARTMENT OF ARMY SUPPLY
CATALOGS; SETS, KITS, AND OUTFITS
COMPONENT LISTS.

Tool Kit, General Mechanic's,
Automotive..... SC-5180-90-
N26

Shop Equipment,
Organizational Repair,
Light Truck Mounted SC-4940-95-
CL-B03

Shop Equipment,
Automotive Maintenance and
Repair: Organizational Maintenance,
Common No. 1, Less Power. SC-4940-95-
CL-A74

Shop Equipment,
Automotive Maintenance and
Repair: Organizational Maintenance,
Supplemental No. 1,
Less Power SC-4910-95-
CL-A73

Shop Equipment,
Contact Maintenance,
Truck Mounted SC4940-95-
CL-B04

APPENDIX B

MAINTENANCE ALLOCATION CHART (MAC)

SECTION I. INTRODUCTION

B.1. THE ARMY MAINTENANCE SYSTEM MAC.

a. This introduction (Section I) provides a general explanation of all maintenance and repair functions authorized at various maintenance levels under the standard Army Maintenance System concept.

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, which are shown on the MAC in column (4) as:

Unit includes two subcolumns, C (operator/crew) and O (unit) maintenance.

Direct Support includes an F subcolumn.

General Support includes an H subcolumn.

Depot includes a D subcolumn.

c. Section III lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from Section II.

d. Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B.2. MAINTENANCE FUNCTIONS.

Maintenance functions are 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.

b. Test. To verify serviceability and to detect incipient failure by measuring the mechanical 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), preserve, drain, paint, or to replenish fuel, lubricants, chemical fluids, or gases.

d. Adjust. Maintain or regulate, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

e. Calibrate. To determine the cause and corrections to be made or adjusted on instruments or test measuring and diagnostic equipment used in precision measurement. This 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.

f. 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 third position code of the SMR code.

g. Repair. The application of maintenance services¹, including fault location/troubleshooting², removal/installation, disassembly/assembly procedures³, and maintenance actions⁴ 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), and item or system.

¹ Services Inspect, test, service, adjust, align, calibrate, and/or replace.

² Fault Location/troubleshooting The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or unit under test (UUT).

³ Disassembly/assembly The step by step breakdown (taking apart) of a spare/functional group coded item to

the level of its least component, that is assigned an SMR code for the level of maintenance under consideration (i.e., identified as maintenance significant).

⁴ Actions Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

B.3. EXPLANATION OF COLUMNS IN THE MAC, 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.

b. Column 2, Component/Assembly. Column 2 contains the item names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance Functions. Column 3 lists the functions to be performed on the items listed in column 2. (For detailed explanation of these functions, see paragraph 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 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:

- C -- Operator/crew
- O -- Organizational maintenance
- F -- Direct support maintenance
- H -- General support maintenance
- L -- Specialized Repair Activity (SRA)⁵

⁵ This maintenance level is not included in Section II, column 4 of the Maintenance Allocation Chart. Functions to this level of maintenance are identified by a work-time figure in the "H" column of Section II, column 4, and an associated reference code is used in

D -- Depot maintenance

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. Codes are keyed to tools and test equipment in Section m.

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.

B.4. EXPLANATION OF COLUMNS IN THE TOOLS AND TEST EQUIPMENT REQUIREMENTS, SECTION III

a. Column 1, Reference Code. The tool and test equipment code correlates with a code used in the MAC, Section II, column 5.

b. Column 2, Maintenance Level. The lowest level 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, model number, or type number.

B.5. EXPLANATION OF COLUMNS IN REMARKS, SECTION IV

a. Column 1, Code. The code recorded in column 6, Section II.

b. Column 2, Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

the Remarks column 6. This code is keyed to Section IV, Remarks, and the SRA complete repair application is explained there.

SECTION II. MAINTENANCE ALLOCATION CHART (MAC)

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level				(5) Tools and Equipment	(6) Remarks	
			UNIT		DS	GS			DEPOT
			C	O	F	H			D
01	ENGINE								
0100	Engine Assembly: Engine, Turbo, Perkins, 4.236	Inspect Test Service Replace	0.1	0.6 0.5 1.5	19.7		7 1, 3 1, 2, 3, 8, 9	P S P	
		Repair				13.9	1, 2, 3, 6, 8, 9	A	
0101	Block and Cylinder Head:								
	Cylinder Head Assembly	Replace Repair			5.2	3.5	1, 6, 8 1, 8	B	
	Cylinder Block Assembly	Repair				1.5	1, 8	C	
0102	Crankshaft:								
	Crankshaft	Replace Repair				1.6 6.0	1, 8 1, 8	D	
	Oil Seals	Replace				3.5	1, 8		
	Thrust Washers	Replace				2.0	1, 8		
	Bearings	Replace				8.5	1, 8		
0103	Flywheel Assembly:								
	Flywheel	Replace			1.0		1, 6		

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment	(6) Remarks
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
01	ENGINE - cont								
0104	Piston, Connecting Rods:								
	Piston Assembly	Replace				6.0	1, 8	E	
	Piston Rod Components	Replace				6.0	1, 8	F	
	Piston Rings	Replace				6.0	1, 8		
0105	Valves, Camshaft, and Timing System:								
	Valves, Intake and Exhaust	Adjust Replace Repair		1.2	1.0 2.0		1, 2 1, 8 1, 8	G	
	Guides, Valve Intake and Exhaust	Replace			1.3		1, 8		
	Camshaft and Bearings	Replace				7.0	1, 8	H	
	Gear, Timing	Replace			2.0		1, 8	I	
	Rocker Shaft Assembly	Replace Repair			1.5 1.0		1, 8 1, 8		
0106	Engine Lubrication System:								
	Oil Filter	Service Replace		0.5 0.2			1 1, 3	P	
	Oil Sump	Replace Repair			1.0 1.0		1, 8 1, 8	W	
	Dipstick	Replace		0.2			1, 3		
	Relief Valve	Replace			3.5		1, 8		
	Balancer Unit	Replace Repair			2.5 2.0		1, 8 1, 8	J	

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment	(6) Remarks
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
01	ENGINE - cont								
0106	Engine Lubrication System: - cont								
	Oil Breather Hose	Inspect Replace		0.1 0.2				1, 8	P
	Oil Pump	Replace			2.5			1, 8	
	Oil Cooler	Replace Repair		0.6 1.1				1, 2, 3, 4	
	Lines, Fittings, and Hoses	Replace		0.3				1	
0108	Manifolds:								
	Manifolds	Replace		0.5				1, 2, 3	
03	FUEL SYSTEM								
0301	Fuel Injector:								
	Fuel Injector Assembly	Test Adjust Replace			1.0 1.0 0.9			1, 8 1, 8 1, 8	
0302	Fuel Pumps:								
	Fuel Injection Pumps	Test Replace Repair Adjust				0.5 1.0 1.2 0.8		1, 2, 6, 8 1, 2, 6, 8 1, 2, 6, 8 1, 8	
	Fuel Lift Pump	Replace Repair		0.6	1.0			1 1	
0304	Air Cleaner:								
	Air Cleaner Components	Inspect Replace Repair	0.1					1 1, 2	P K
	Air Cleaner Filter Element	Inspect Service Replace	0.1 0.2 0.2		0.2				P P

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment	(6) Remarks
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
03	FUEL SYSTEM- cont								
0304	Air Cleaner: - cont								
	Service Indicator Knob	Inspect	0.1					P	
0305	Turbosupercharger:								
	Turbosupercharger	Inspect		0.2				P	
		Replace		1.7			1, 2		
		Repair				2.0	1, 2, 6, 8	L	
0306	Tanks, Lines, Fittings, and Headers:								
	Fuel Tank	Service	0.2						
		Replace			1.8		1, 6, 8		
		Repair		0.3	0.8		1, 6	M	
	Fuel Shutoff Solenoid	Replace		0.2			1, 6		
	Lines, Fittings, and Hoses	Replace		0.3			1, 6		
		Repair		0.3			1		
0309	Fuel Filters:								
	Fuel/Water Separator	Inspect	0.1					P	
		Replace		0.5			1		
	Fuel Filter Element	Replace		0.8			1, 2	P	
	Fuel Filter Assembly	Replace		1.0			1, 2		
0311	Engine Starting Aids:								
	Engine Induction Heater	Replace		0.4			1, 2		
		Replace		0.4			1, 2		
	Induction Heater Relay								
0312	Throttle Controls:								
	Throttle Actuator and Cable	Replace		1.1			1, 2, 4	N	

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment	(6) Remarks
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
04	EXHAUST SYSTEM								
0401	Muffler and Pipes:								
	Muffler and Pipes	Replace		0.8				1, 2	
05	COOLING SYSTEM								
0501	Radiator:								
	Radiator Assembly	Inspect	0.1	0.2					
		Service		1.0				1, 2, 3, 6	
		Replace		1.2				1	
		Repair			4.0				
	Radiator Cap	Replace		0.1					
0502	Shrouds:								
	Radiator Fan Shroud	Replace		0.2				1	
0503	Thermostats, Housing Gasket:								
	Thermostat	Test		1.5					
		Replace		0.5				1, 2	
0504	Hoses Water Pump:	Replace		0.3				1	
	Water Pump Assembly	Replace		1.0				1, 2	
		Repair			0.6			1, 8	
0505	Fan Assembly:								
	Fan Assembly	Replace	0.1	0.3				1, 2	
	Drive Belts	Inspect	0.1						
		Adjust		0.4				1, 2, 3	
		Replace		0.3				1, 2, 3	

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment	(6) Remarks	
			UNIT		DS	GS	DEPOT			
			C	O	F	H	D			
06	ELECTRICAL SYSTEM									
0601	Alternator:									
	Alternator	Replace Repair		1.0		1.6			1, 3, 4 1, 2, 6, 8	T
	Field Relay	Replace		0.2					1	
0603	Starting Motor:									
	Starter Assembly	Replace Repair		0.6		2.4			1, 2 1, 6, 8	U
	Start Relay	Replace		0.4					1, 2	
0607	Instrument or Engine Control Panel:									
	Console Mounting Frame	Replace		1.4					1, 8	
	Operator Control Console Assembly	Replace Repair		2.2 3.5					1, 2, 6 1, 2, 6	18
	Control Handle Subassembly	Repair Adjust Calibration				1.0			1 1, 6, 8 1, 6, 8	19
	Gauge Panel	Inspect Repair	0.1							P V
	Switch Panel	Repair		1.0					1	V
	Relay and Circuit Breaker Assembly (on console)	Replace Repair		0.8 3.1					1 1, 6	23
	Voltage Transformer	Replace Repair		0.9 0.4					1, 2	24

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment	(6) Remarks
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
06	ELECTRICAL SYSTEM - cont								
0609	Lights:								
	Work Lights	Inspect Replace Repair	0.1	0.2 0.3			1 1	P	
0610	Sending Units, Transducers:								
	Coolant Temperature Sensor	Replace		0.4			1		
	Hydraulic Oil Temperature Sensor	Replace		0.3			1		
	High Temp Shutdown Sensor	Replace		0.3			1		
	Engine Oil Pressure Transmitter	Replace		0.5			1, 2		
	Fuel Level Transmitter	Replace			0.5		1		
	STE/ICE-R Transducers	Replace		1.0			1, 2		
0611	Horn	Replace		0.3			1		
0612	Battery, Storage:								
	Battery Assembly	Inspect Replace		0.6			1	P	
	Battery Cables	Replace Repair		0.6 1.3			1 1 thru 3		
0613	Hull or Chassis Wiring:								
	Engine Harness	Repair		0.8			1, 2, 6		
	Alternator Harness	Repair		0.8			1, 2, 6		
	Console Harness	Repair		0.9			1, 2, 6		

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment	(6) Remarks
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
06	ELECTRICAL SYSTEM - cont								
0613	Hull or Chassis Wiring: - cont								
	Diagnostic Connector Harness	Repair		0.5				1, 2, 6	
	Stack Valve Wiring Harness	Repair			0.5			1, 2, 6	
	Stack Valve Solenoid	Replace		0.3				1, 2	
	Stack Valve Solenoid	Replace		0.3				1, 2	
	Endgate Wiring Harness	Repair		0.5				1, 2, 6	
	Valve Panel Wiring Harness	Repair		0.5				1, 2, 6	
07	TRANSMISSION								
0705	Transmission Shifting Components:								
	High Speed Shift Valve with Sub-Plate	Replace			0.8			1	
	High Speed Shift Valve with Sub-Plate	Repair			1.2			1, 8	
0710	Transmission Assembly (Hydrostatic):								
	Pump Drive Gearbox	Inspect		0.2					
	Pump Drive Gearbox	Service		0.1				1, 6	
	Pump Drive Gearbox	Replace			2.6			1, 2, 6, 8	
	Pump Drive Gearbox	Repair			2.2			1, 2, 6, 8	
0721	Coolers, Pumps, Motors:								
	Hydraulic Oil Cooler	Inspect	0.1						
	Hydraulic Oil Cooler	Replace		1.0				1, 2, 3, 6	
	Propulsion Pumps	Inspect		0.2					
	Propulsion Pumps	Replace			2.9			1, 8	
	Propulsion Pumps	Repair				3.2		1, 8	

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment	(6) Remarks
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
07	TRANSMISSION - cont.								
0721	Coolers, Pumps, Motors: - cont								
	Pump Pilot Control Valve	Replace Repair			0.2 0.3			1 1, 8	
	Propulsion Motors	Replace Repair			2.4	6.6		1, 6, 8 1, 6, 8	25
	Hydraulic Charge Filter Assembly	Inspect Repair Replace	0.1	0.5 0.4				1, 2 1, 3	P
	Lines, Fittings, Hoses	Replace			0.8			1, 6, 9	
08	TRANSFER, FINAL DRIVE ASSEMBLIES								
0801	Final Drive Assemblies:								
	Speed Reduction Gearbox and Brakes	Inspect Service Replace Repair		0.2 1.0	1.2	4.6		3 1, 2, 6, 8 1, 2, 6, 8	P 26
0805	Brake Valve	Replace Repair			0.7 0.9				
13	TRACKS								
1301	Suspension Assembly:								
	Track Frame Weld	Inspect Replace		0.2	1.2			1, 6, 8	P 27
1302	Track Suspension Rollers and Brackets:								
	Track Rollers	Inspect Replace	0.2	0.2				1, 3, 6, 8	P

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment	(6) Remarks
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
13	TRACKS - cont								
1303	Track Idler Rollers and Brackets:								
	Idler Roller Assembly	Inspect Replace Repair		0.2	0.4 0.4		1, 2, 8 1, 2, 8	P	
	Track Tensioning Cylinder	Replace Repair			0.4 0.6		1, 8 1, 6, 8		
1304	Accumulator Track Drive Sprocket Gears:	Replace		0.6			1	2	
	Drive Hub Components	Replace Repair			1.0 1.5		1, 2, 6, 8 1, 2, 6, 8	X	
	Sprocket Gear	Inspect		0.1				P	
1305	Track Assembly:								
	Chain Assembly	Inspect Replace Repair	0.2	0.2	1.2 0.8		1, 8 1, 3	P 30	
	Track Pad	Replace		0.4			1		
15	FRAME, TOWING ATTACHMENTS, DRAWBARS								
1501	Frame Assembly:								
	Frame	Inspect Repair		0.1	1.5		8	P, 20 W	
	Vehicular Bumper Components	Inspect Repair Replace		0.1 0.5 0.3			1, 6	P 16	

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment	(6) Remarks
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
18	BODY AND HOOD								
1801	Body and Hood Assemblies:								
	Covers, Plates, Panels	Replace Repair		0.1 0.6			1 1, 2	17	
1805	Floors, Subfloors, Related Components:								
	Floor Plates	Replace		1.2			1, 2		
1806	Seats:								
	Seat Assembly	Replace Repair		0.3 0.4			1 1		
1808	Stowage Boxes:								
	Toolbox	Replace	0.1						
22	BODY, CHASSIS, AND ACCESSORY ITEMS								
2202	Accessory Items:								
	Fuel Spray Components	Replace Repair		0.1 0.4			1, 6 1		
2210	Data Plates:								
	Decals	Inspect Replace	0.2	0.3			1, 2	P	
24	HYDRAULIC AND FLUID SYSTEMS								
2401	Pump and Motor:								
	Hydraulic Pumps (Auxiliary)	Replace Repair			0.7 1.8		1 1, 2, 3, 6		
	Hydraulic Pumps (Vibration)	Replace Repair		1.0 1.2			1 1, 3, 8	31	

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment	(6) Remarks
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
24	HYDRAULIC AND FLUID SYSTEMS - cont								
2402	Manifold and/or Control Valves:								
	Valve Panel Valves	Replace Repair			1.2 3.0		1, 8 1, 2, 3, 8	Y	
	Flow Dividers	Replace Repair			1.0 1.6		1, 8 1, 3, 8		
	Flow Control Valve	Replace Repair			0.8 1.6		1, 8 1, 8		
	Vibration Relief Valve	Replace Repair		0.3 0.5			1, 2 1		
2404	Hydraulic Tilt Cylinders:								
	Tow Point Cylinders	Replace Repair		0.6	1.3		1, 2, 6 1, 3, 8		
	Screed Lift Cylinders	Replace Repair		0.3	0.4		1, 6 1, 2, 3, 8		
2406	Strainers, Filters, Lines, and Fittings, etc.:								
	Lines, Fittings, and Hoses	Inspect Replace	0.1		0.6		1, 2, 3, 6	P	
	Hoses and Brackets	Replace			2.0		1, 3		
	Return Filter Element	Inspect Replace	0.1					P	
	Return Filter Assembly	Replace		0.2 0.7			1, 2, 3 1, 3	P	

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment	(6) Remarks
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
24	HYDRAULIC AND FLUID SYSTEMS - cont								
2408	Liquid Tanks or Reservoirs:								
	Hydraulic Reservoir	Inspect	0.1					P	
		Replace			1.8		1, 2, 3		
		Repair		0.6	0.8		1, 2, 3, 8	10, W	
60	BURNERS								
6004	Fuel System:								
	Fuel Pump	Replace		0.7			1,2	6	
	Fuel Filter Element	Replace		0.2			1	P	
	Fuel Filter Assembly	Replace		0.6			1		
6005	Burner Components:								
	Chamber/Nozzles	Replace		0.8			1, 2		
				0.6					
	Solenoid Valves	Replace					1, 2		
				0.2					
	Glow Plug	Replace					1		
				0.4					
	Lines, Fittings, and Hoses	Replace					1, 2, 6		
6008	Blower Components:								
	Motor, Fan, Rotor, Hoses	Replace		1.4			1, 2		

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment	(6) Remarks
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
73	CONCRETE AND ASPHALT EQUIPMENT COMPONENTS (Paving Machine)								
7303	Controls (Machinery):								
	Screed Control Box	Replace		4.4				1, 2	
		Repair		0.6				1, 2	
	Thickness Control Components	Replace		1.6				1, 2, 6	
	Crown Adjustment Components	Replace		1.6				1, 3, 6	
		Repair		0.3				1, 2	
	Screed Height Adjustment Components	Replace			2.6			1, 2, 6, 8	
		Repair			0.8			1, 8	
7304	Hoppers and Gates:								
	Hopper Components	Inspect		0.3					
		Service	0.2					P	
		Repair		0.6				1, 2, 6	
		Replace			1.6			1, 2, 3, 8	
				1.0					
	Hydraulic Hopper Lift Cylinder	Replace						1, 2, 3	
		Repair			0.4			1, 3, 6, 8	
7309	Augers and Conveyors:								
	Conveyor Components	Service	0.2						
	Sprockets, Wheels, Shaft, Drag Plates, and Bearings	Inspect	0.1	0.3					
		Replace			1.2			1, 2, 3, 8	
		Repair			0.7			1	
	Drag Bars	Inspect	0.1						
		Replace		0.3				1, 2	
	Conveyor Chain	Inspect		0.4					
		Replace			3.8			1, 8	
		Adjust		0.7				1	

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment	(6) Remarks
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
73	CONCRETE AND ASPHALT EQUIPMENT COMPONENTS (Paving Machine) - cont								
7309	Augers and Conveyors: - cont Auger Assembly	Inspect Service Repair	0.1 0.1	0.2	1.8			1 1, 8	P 11
	Auger Flights	Inspect Replace		0.2 0.3				1, 2	P
	Hydraulic Motor	Replace Repair			4.6	2.8		1, 2, 6, 8 1, 2, 6, 8	28
	Drive Chain	Adjust Replace		0.4	1.4			1 1, 8	
7312	Auger or Conveyor Discharge:								
	Flow Gate Actuator and Components	Replace		1.2				1, 2	
7313	Screed, Vibrator Agitator:								
	Main Screed Frame	Replace			3.4			1, 8	W, 32
	Screed Extension Hydraulic Cylinder	Replace Repair		1.2	1.2			1, 2, 3 1, 2, 6, 8	
	Screed Plates	Replace Adjust/Align		1.2	3.2			1, 3, 6 1, 2	4, 33 35
	Extension Screed Frame	Replace			6.0			1, 8	W, 32
	Main Screed Vibrator Components	Replace			3.0			1, 6, 8	9

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment	(6) Remarks
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
73	CONCRETE AND ASPHALT EQUIPMENT COMPONENTS (Paving Machine) - cont								
7313	Screed, Vibrator Agitator: - cont								
	Extension Screed Vibrator Components	Replace			3.0			1, 3, 6, 8	9
	Vibration Motors	Replace Repair		1.0		1.0		1 1, 2, 6, 8	29
	Tow Arm Components	Replace		0.8				1, 2, 3	
	Strikeoff Components	Service Replace	0.1					1, 2, 6	11
	Endgate Assembly	Service Replace	0.1 0.2					1	11
	Lever Assemblies	Replace Repair		0.2 0.6				1 1, 2, 3, 6	
	Paddle and Feed Limit Switch	Adjust Replace Repair	0.1					1, 2 1, 2 1, 2, 6	
7318	Valves, Formed Hoses, Lines and Fittings:								
	Screed Extension Hosing and Fittings	Replace			1.0			1	
	Screed Vibrator Hoses, Brackets and	Replace			1.0			1	
	Flow Dividers	Fittings Replace Repair			0.3 0.4			1, 8 1	

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment	(6) Remarks
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
76	FIRE FIGHTING EQUIPMENT								
3 7638	Portable Fire Fighting Equipment: Fire Extinguisher	Replace	0.1					21	

SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	O, F, H	Tool Kit, General Mechanics, Automotive (SC 5180-90-N26)	5180-0 177-7033	W33004
2	O, F	Shop Equipment, Organizational, Repair, Light Truck Mounted (SC 4940-95-CL-B03)	4940-00-294-9516	T13152
3	O	Shop Equipment, Automotive Maintenance and Repair: OM Common No. 1, Less Power (SC 4910-95-CL-A74)	4910-00-754-0654	W32593
4	O	Shop Equipment, Automotive Maintenance and Repair: OM Supplemental No. 1, Less Power (SC 4910-95-CL-A73)	4910-00-754-0653	W32867
6	O, F	Shop Equipment, General Purpose Repair, Truck Mounted, (SC 4940-95-CL-B04)	4940-00-294-9518	T10138
7	O and H (only)	Simplified Test Equipment for Internal Combustion Engines - Reprogrammable (STE/ICE-R), TM 9-4910-571-12&P	4910-01-222-6589	A56243
8	F, H	Shop Equipment, General Purpose Repair, Semitrailer Mounted (SC 4940-95-CL-B02)	4940-00-2874894	T10549
9	F	Tool Outfit Hydraulic Systems Test and Repair (HSTRU) (SC 4940-95-CL-B07)	4940-01-036-5784	T30377
10	O, F	Hydraulic Pressure Gauges (Ref. Fig. 234, TM 5-3895-373-24&P)		

SECTION IV. REMARKS

CODE	REMARKS
A	Repair of engine assembly includes replacement/repair of any or all subassemblies. Items 7, 8, and 10 through 13 of Appendix C are required.
B	Repair includes skimming of cylinder head providing nozzle protrusion and valve depths are in tolerance.
C	Repair by replacement of cylinder sleeves, joints, rear filler block, etc.
D	Repair crankshaft by re-grinding operations only if crankshaft has not been hardened by Tufftriding process (identify shaft by part number located on front end or number 1 web). If the shaft was hardened by Tufftriding, it may be repaired and re-Tufftrided if facilities are available. If facilities are not available, crankshaft may not be repaired and should be replaced.
E	Check the fitted gap of piston rings. Replace piston if vertical gap with new rings exceeds tolerance.
F	Replacement of parts includes caps, connecting rod, etc.
G	Replacement of parts includes retaining ring, bushings, brackets, springs, valve seats, etc.
H	Replacement of parts includes thrust washers, keys, etc.
I	Replacement of timing gears includes camshaft gear, fuel injection pump gear, and idler gear.
J	Repair balancer unit by replacement of drive shaft, bearings, gear, oil pump, etc.
K	Repair air cleaner assembly by replacement of housing, clamps, hoses, caps, reducers, brackets, etc.
L	Repair turbosupercharger by replacement of seals, compressor, collars, bearings, etc.
M	Repair fuel tank at Unit Level Maintenance by replacement of filler neck, strainer, etc. Repair fuel tank at Direct Support Maintenance Level by replacement of fuel level transmitter.
N	Replacement of throttle actuator and cable includes replacement of throttle cable, actuator, brackets, fittings, pins, etc.
O	Repair radiator i.a.w. TM 750-254.
P	Preventive Maintenance Checks and Services (PMCS).
Q	Repair water pump assembly by replacement of impeller, key, shaft, bearings, etc.
S	Inspect or test using STE/ICE-R equipment.
T	Repair alternator by replacement of rotor, stator, bearings, pulley, etc.
U	Repair starting assembly by replacement of armature, bearings, brushes, gear, etc. Items 14 and 15 of Appendix C are required.
V	Repair gauge panel and switch panel by replacement of panel, gauges, meters, switches, lights, indicators, etc.
W	Repair by welding in accordance with AWS (American Welding Society) specifications.
X	Repair drive hub assembly by replacement of spacer, hub, bearing, seal, etc. Item 9 Appendix of C is required.
Y	Repair valves at Unit Level Maintenance by replacement of solenoids.
Z	Repair hopper assembly at Unit Level Maintenance by replacement of flashing, scraper plate, etc. Repair hopper assembly at Direct Support Level Maintenance by replacement of hopper wing, hinge pin, etc. and welding, cutting, etc. (see Remarks Code W).

CODE	REMARKS
2	Replace with fully charged accumulator.
4	Replacement of screed plate assembly includes replacing main and both extension screed plates.
6	Replace fuel pump, coupler, or motor as required for repair of burner fuel pump.
9	Repair of vibrator assembly includes repair or replacement of main screed vibrator motor and universal joint and repair or replacement of left and right extension screed vibrator motors.
10	Repair of hydraulic reservoir at Unit Level Maintenance includes replacement of filler assembly and sight liquid indicator only.
11	Spray washdown cleaning.
16	Replacement of push roller components includes replacing roller, roller shaft, brackets, bearings, bumper, pin, etc.
17	Repair of access doors includes replacement of door latch.
18	Repair control console assembly by replacement of gauge panel, switch panel, and circuit breakers. Use of Item 1 of Appendix D is required.
19	Repair control handle subassembly by replacement of potentiometer plate assembly, inner and outer bushings, cable assembly, and miscellaneous components.
20	Inspection points of frame include critical weld points of frame.
21	Replace and service fire fighting equipment i.a.w. local damage control/fire fighting equipment policies.
22	Repair sprocket wheel assembly by replacement of sprocket wheel and bolts.
23	Repair circuit breaker panel by replacement of individual circuit breakers and relays.
24	Repair of voltage transformer system by replacement of voltage transformer and cables.
25	Items 2, 21, and 26 of Appendix C are required.
26	Includes the repair and replacement of the brakes. Items 3, 4, 5, 6, and 23 of Appendix C are required.
27	Item 24 of Appendix C is required.
28	Items 1, 16, 17, and 20 of Appendix C are required.
29	Items 18 and 25 of Appendix C are required.
30	Repair chain assembly by replacing track pads.
31	Item 19 of Appendix C is required.
32	Item 27 of Appendix C is required.
33	Items 22 and 27 of Appendix C are required.
34	Item 3 of Appendix D is required.
35	Item 2 of Appendix D is required.

APPENDIX C

EXPENDABLE AND DURABLE ITEMS LIST

SECTION I. INTRODUCTION

C.1. SCOPE.

This appendix lists expendable and durable items you will need to maintain the paving machine. This listing is for information purposes only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable Items (except Medical, Class V, Repair Parts, and Heraldic Items).

C-2. EXPLANATION OF COLUMNS.

a. Column (1) Item Number. This number is assigned to the entry in the listing for referencing when required.

b. Column (2) Level. This column identifies the lowest level of maintenance that requires the listed item.

O Unit Maintenance

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.

e. Column (5) Unit of Measure (U/M)/Unit of Issue (U/I). This measure is expressed by a two-character alphabetical abbreviation (e.g., EA, IN, PR). If the unit of measure differs from the unit of issue as shown in the Army Master Data File (AMDF), requisition the lowest unit of issue that will satisfy your requirements.

SECTION II. EXPENDABLE AND DURABLE ITEMS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) (U/M) (U/I)
1	O	8040-01-331-7133	Adhesive, 3 oz tube	OZ
2	O	8040-00-995-7080	Adhesive, 24 oz aerosol can	OZ
3	O	8040-01-031-3170	Adhesive, 1 pt can	PT
4	O		Antifreeze, ethylene glycol inhibited, heavy duty, single package: MIL-A-46153	
		6850-01-181-7929	1-gal bottle	GL
		6850-01-181-7933	5-gal can	GL
5	O	5340-00-450-5718	Cap, protective, dust and moisture seal, bag of 156	EA
6	O	5350-00-221-0872	Cloth, abrasive, crocus, 50 sheet package	SH
7	O	8305-00-753-2967	Cloth, cleaning, non-woven fabric, 50-yd roll	YD
8	O	7920-00-044-9281	Cloth, lint-free, Type II, 10-lb box: MIL-C-85043	LB
9	O	8030-00-597-5367	Compound, anti-seize, high temperature, 2.5-lb can: MILA-907	LB
10	O	6850-00-965-2332	Compound, carbon removing, 5 gal can	GL
11	O	6850-00-880-7616	Compound, electrical insulating, 8-oz tube: MIL-S-8660C	OZ
12	O	8030-01-158-6070	Compound, thread locking, Type I, Grade K, 50 cc bottle: MIL-S-46163	CC
13	O	8030-01-014-5869	Compound, thread locking, Type II, Grade N, 50 cc bottle: MIL-S-46163	CC
14	O	9130-01-305-5597	Fuel, aviation turbine, JP-8, NATO F-34: GL MIL-L-83133	
15	O		Grease, automotive and artillery, MIL-G-10924	
		9150-01-197-7688	2.25-oz tube	OZ
		9150-01-197-7690	1.75-lb can	LB
		9150-01-197-7689	6.5-lb can	LB
		9150-01-197-7692	35-lb can	LB
16	O	4720-01-347-6065	Hose, nonmetallic, 1/4 in. diameter	FT
17	O	5970-00-419-4290	Insulation tape, electrical, 108 ft roll	FT
			C-2	

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) (U/M) (U/I)
18	O	9150-00-189-6727 9150-00-186-6668	Oil, lubricating, hydraulic, OE/HDO 10: MIL-L-2104 1-qt can 5-gal can	QT GL
19	O	9150-01-152-4117 9150-01-152-4118	Oil, lubricating, internal combustion engine, tactical service, OE/HDO 15/40: MIL-L-2104 1-qt can 5-gal drum	QT GL
20	O	6505-00-133-8025	Petrolatum, White Technical, 1.5 lb can: MIL-P-37649	LB
21	O	8030-00-081-2328	Sealant, hydraulic fitting, 50 cc bottle	CC
22	O	8030-01-054-0740	Sealant, pipe, w/Teflon, 250-ml tube	ML
23	O	8030-01-171-7628	Sealing compound, 50 cc bottle	CC
24	O	6850-01-331-3349	Solvent, cleaning P-D-680, Type m, 5-gal can	GL
25	O	8030-01-298-1346	Solvent, thread locking compound, 50 cc bottle	CC
26	O	6515-00-357-4855	Swab, culture, box of 100	BX
27	O	8135-00-178-9200	Tag, stock marking, box of 1,000	EA
28	O	7510-00-266-6712	Tape, pressure sensitive, 60 yd roll	YD
29	O		Tie wraps, package of 100	
		5975-00-074-2072	6.5 in. length	EA
		5975-00-570-9598	10.25 in. length	EA
		5975-00-156-3253	13.25 in. length	EA
30	O	7920-01-233-0483	Towel, machinery wiping, 12 x 17 in., six boxes of 50 sheets ea.	BX
31	O	9330-01-288-4347	Tubing, plastic, spiral wrap 1/8 in. diameter	FT
		9330-01-135-9820	3/16 in. diameter	FT
		9330-00-715-6412	1/4 in. diameter	Fr
		9330-01-038-3486	1/2 in. diameter	FT
32	O	5970-00-962-3335	Varnish, insulating, electrical coating, 15 oz can	OZ
C-3/(C-4 blank)				

APPENDIX D

ILLUSTRATED LIST OF MANUFACTURED ITEMS

SECTION I. INTRODUCTION

D.1. SCOPE.

a. This appendix includes complete instructions for making items authorized to be manufactured or fabricated at the unit maintenance level.

b. An item number index in alphanumeric order is provided for cross-referencing the item to be manufactured to the figure that covers the fabrication criteria.

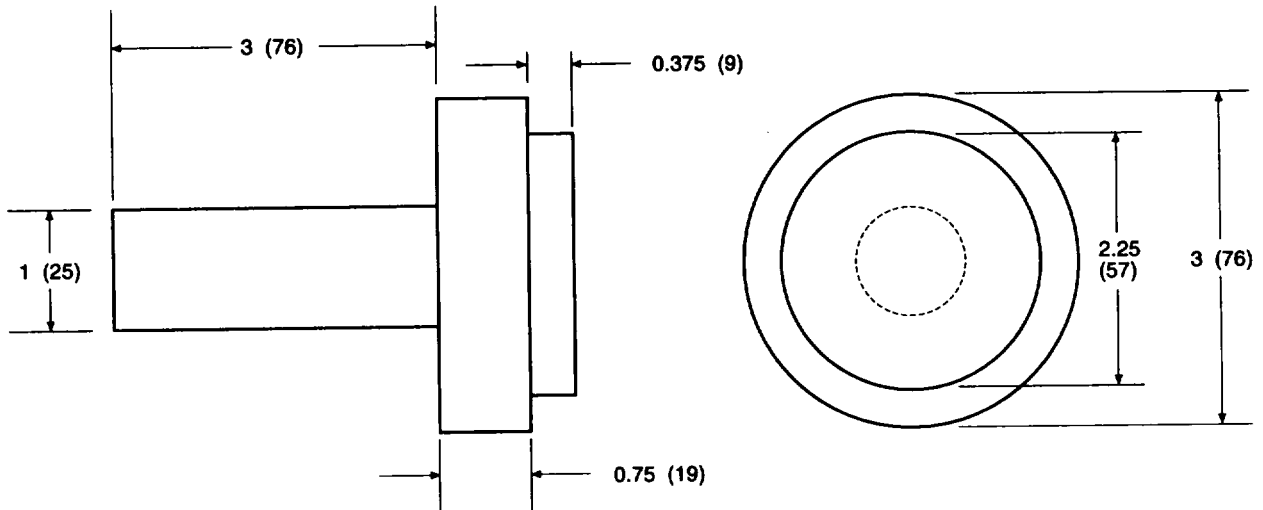
c. All bulk materials needed for manufacture of an item are listed by part number or specification number on the illustration.

SECTION II. LIST OF MANUFACTURED ITEMS

D.2 MANUFACTURED ITEMS INDEX.

Item Number	Nomenclature	Figure Number
1	Bushing press tool	1
2	Cribbing	2
3	Straightedge	3
4	Wedge block	4

D.3. MANUFACTURED ITEMS ILLUSTRATIONS.



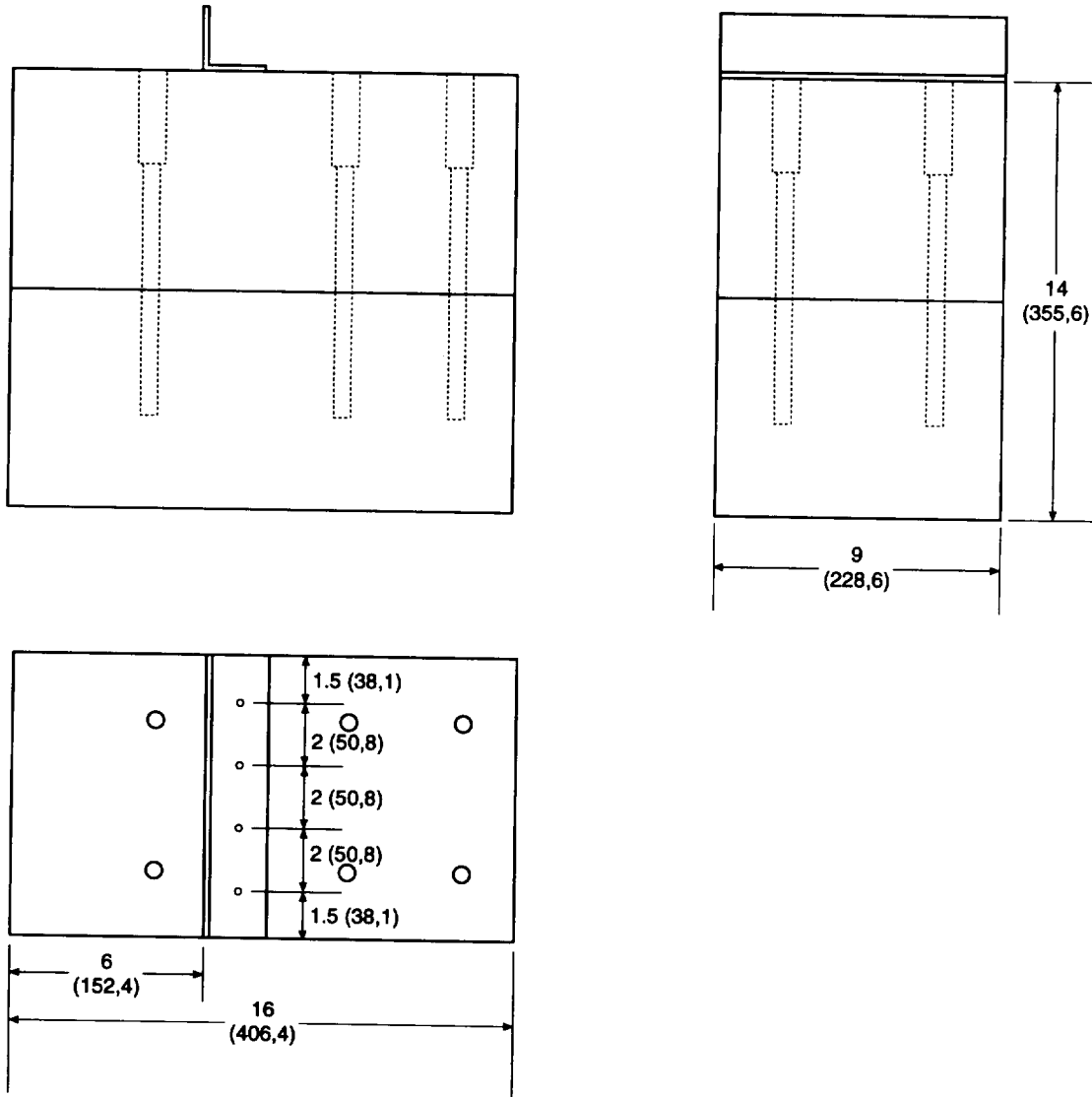
MATERIALS: 1 IN. BAR STOCK, 1020 MILD STEEL; 3 IN. BAR STOCK, 1020 MILD STEEL

NOTES:

1. ALL DIMENSIONS ARE IN INCHES WITH MILLIMETERS IN PARENTHESES.
2. TOLERANCES ARE ± 0.030 IN. (0,8 MM) UNLESS OTHERWISE INDICATED.
3. ALL MACHINED DIAMETERS TO BE CONCENTRIC ± 0.008 IN. (0,2 MM).
4. MACHINED SURFACES TO BE 125 MICRONS UNLESS OTHERWISE INDICATED.
5. BREAK SHARP EDGES.

Figure 1. Bushing Press Tool

D.3. **MANUFACTURED ITEMS ILLUSTRATIONS - Continued.**



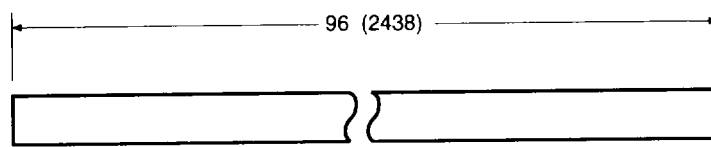
MATERIALS: WOOD RAILROAD TIES, 9 IN. (228,6 MM) W X 7 IN. (177,8 MM) T X 9.5 FT (2,90 M) L, NSN 5510-00-160-3790, CUT TO 9 IN. (228,6 MM) W X 7 IN. (177,8 MM) T X 16 IN. (406,4 MM) L, 4 REQUIRED; STRUCTURAL ANGLE, 2 IN. (50,8 MM) X 2 IN. (50,8 MM), NSN 5920-00-052-3367; LAG BOLT, 8 IN. (203,2 MM) LONG, 0.729 IN. (18,5 MM) DIA, NSN 5306-00-412-9793, 6 REQUIRED; LAG BOLT, 4 IN. (101,6 MM) LONG, 0.50 IN. (12,7 MM) DIA, NSN 5306-00-058-2971, 4 REQUIRED

NOTES:

1. ALL DIMENSIONS ARE IN INCHES WITH MILLIMETERS IN PARENTHESES.
2. CUT TO LENGTH.
3. BOLT TIES TOGETHER WITH 8 IN. (203,2 MM) LONG LAG BOLTS COUNTERSUNK APPROXIMATELY 3 IN. (76,2 MM)
4. ATTACH STRUCTURAL ANGLE WITH 4 IN. (101,6 MM) LONG LAG BOLTS.

Figure 2. Cribbing

D.3. **MANUFACTURED ITEMS ILLUSTRATIONS - Continued.**

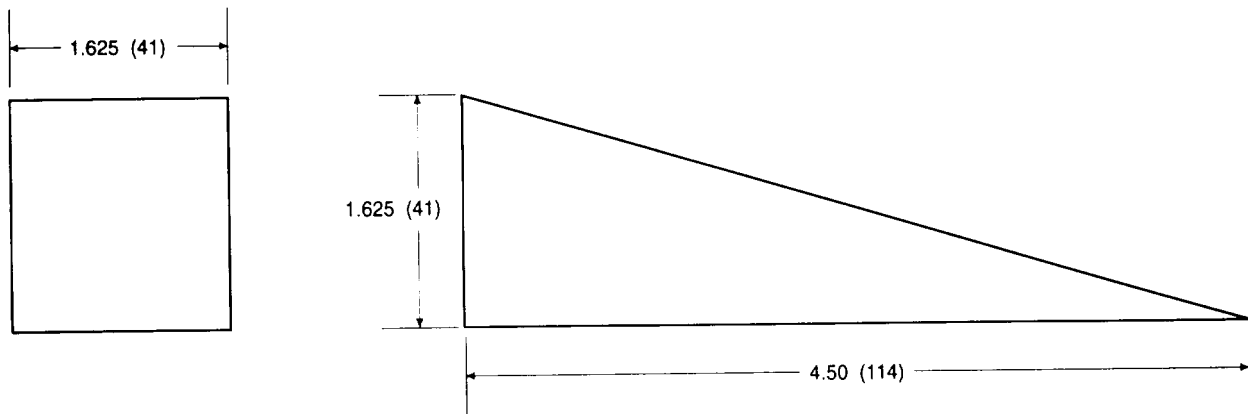


MATERIAL.: METAL STRIP, 0 125 IN. (3,17 MM) X 2.75 IN. (69,8 MM) X 18 FT (5,5 M), NSN 9515-00-045-7811
 OR
 METAL STRIP, 0 188 IN (4,78 MM) X 1 5 IN. (38 MM) X 18 FT (5,5 M), NSN 9515-00-045-7808

NOTES:

1. ALL DIMENSIONS ARE IN INCHES WITH MILLIMETERS IN PARENTHESES.
2. CUT TO LENGTH.

Figure 3. Straightedge



MATERIAL.: WOOD, COMMERCIAL 2 X 4

NOTES:

1. ALL DIMENSIONS ARE IN INCHES WITH MILLIMETERS IN PARENTHESES.
2. CUT TO SIZE.

Figure 4. Wedge Block

APPENDIX E**TOOL IDENTIFICATION LIST****SECTION I. INTRODUCTION****E.1. SCOPE.**

This appendix lists and identifies tools authorized for use by the automotive mechanic, but not included in the general automotive mechanic's tool kit. This listing is for reference only and does not authorize you to requisition the tools listed.

E.2. EXPLANATION OF COLUMNS.

a. Column (1) - Item Number. This number is assigned to the tool for quick reference from the maintenance manual.

b. Column (2) - Item Name. This is the name assigned to the tool per the referenced Army supply

catalog. A summary listing of the tool's main features and/or dimensions may also be provided for reference.

c. Column (3) - National Stock Number. This is the national stock number assigned to the tool. Use it to request or requisition the tool.

d. Column (4) - Part Number. This is the part number assigned to the tool per the referenced Army supply catalog. Not all tools are assigned a part number.

e. Column (5) - Reference. This is the publication number of the Army supply catalog that lists the tool.

SECTION II. TOOL IDENTIFICATION LIST

(1) ITEM NUMBER	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) REFERENCE
1	Adapter, socket wrench, 1/4 in. male to 3/8 in. female	5120-00-227-8095		CTA 50-970
2	Adapter, socket wrench, 1/2 in. male to 3/4 in. female	5120-00-227-8088		CTA 50-970
3	Adapter, socket wrench, 3/4 in. male to 1/2 in. female	5120-00-144-5207		CTA 50-970
4	Bar, pry, 17/32 in. diameter, 15 to 16 in. Long	5120-00-224-1389		SC-4940-95-CL-B03
5	Blowtorch, gasoline	5120-00-237-8107		SC-4940-95-CL-B03
6	Brush, scratch, wire	7920-00-291-5815		SC-4940-95-CL-B04
7	Can, radiator filling, 3 gal. capacity	7240-00-499-8028		SC-4940-95-CL-B04
8	Cap, high pressure, 9/16-18 UNF	4730-00-540-1525		
9	Chain assembly, single leg, 1/2 in. diameter, w/ring and hook, 13,200 lb breaking strength, 3 ft long	4010-00-176-7930	QQ-S-630	SC-4940-95-CL-B03
10	Clamp, C, 2-1/4 in. deep throat, 4 in. length	5120-00-222-1612	GGG-C-406	SC-4940-95-CL-B03
11	Crowbar, 1 in. diameter, 48 in. length	5120-00-240-6040	GGG-B-101	SC-4940-95-CL-B03
12	Crowbar, 1-1/4 in. diameter, 59-62 in. length	5120-00-224-1390		CTA 50-970
13	Drill, 3/8 in., portable electric, variable speed, reversible, 115 VAC	5130-00-177-7002		SC-4940-95-CL-B03
14	Elbow, pipe to tube	4730-01-233-4982		CTA 50-970
15	Extractor set, screw	5130-00-305-2275		SC-4910-95-CL-A74
16	Funnel, plastic, 2 qt capacity, rigid spout	7240-00-404-9795		SC-4940-95-CL-B04
17	Funnel, steel, 1 qt capacity, 8 in. flex spout	7240-00-559-7364		SC-4940-95-CL-B04
18	Gage, thickness	5210-00-517-8097		SC-4940-95-CL-B03
		E-2		

(1) ITEM NUMBER	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) REFERENCE
19	Hacksaw, 3 to 3-7/8 in. deep throat, with blades	5110-00-289-9657		SC-4910-95-CL-A74
20	Hammer, hand: plastic, soft head, 3 lb head	5120-01-065-9037		SC-4940-95-CL-B04
21	Heater gun	4940-00-314-9789		CTA 50-970
22	Hoist, chain, hand operated, 1500 lb capacity, 10 ft lift	3950-00-235-4235	MIL-H-904	SC-4940-95-CL-B03
23	Iron, soldering, electric	3439-00-223-2528		SC-4940-95-CL-B03
24	Jack, dolly type, hydraulic, 10 ton capacity	4910-00-289-7233		LIN L08724
25	Multimeter, digital	6625-01-139-2512		SC-4940-95-CL-B04
26	Pail, utility, galvanized, 14 qt capacity	7240-00-160-0455		SC-4940-95-CL-B04
27	Pan, drain, with handles, 4 gal. capacity	4910-00-387-9592		SC-4910-95-CL-A74
28	Pan, drip, 8-1/2 in. x 3-1/4 in. x 1-1/2 in. deep	4940-01-327-3003		CTA 50-970
29	Pliers, snap ring	5120-00-789-0492		SC4910-95-CL-A74
30	Plug, pipe, 1/4-18 NPFT, brass	4730-00-011-2578		SC-4910-95-CL-A74
31	Puller kit, universal	5180-00-701-8046	Y9000	SC-4940-95-CL-B03
32	Puller, mechanical slide hammer	5120-00-293-1429	GGG-P-781	SC-4940-95-CL-B03
33	Pump, dispensing, hand operated	4930-00-263-9886		SC-4910-95-CL-A72
34	Punch, prick, 3/8 in. point diameter, 5 in. length	5120-00-224-7446	GGG-P-831	SC-4940-95-CL-B03
35	Punch set, drive pin	5120-00-541-7704		CTA 50-970
36	Removal tool, oil filter, gripping style	5110-00-865-0933		SC-4910-95-CL-A74
37	Screwdriver bit set	5120-00-357-5363		SC-4910-95-CL-B03
38	Screwdriver set, jeweler's swivel	5120-00-288-8739	GGG-S-121	SC-4910-95-CL-B03
39	Screwdriver set, six-point tip	5120-01-167-1667		CTA 50-970
40	Set, twist drill	5133-00-449-6775	GGG-D-751	SC-4910-95-CL-B03
41	Socket, hex head driver, 1/8 in. hexagonal drive, 1/4 in. female drive	5120-00-596-0934		CTA 50-970

(1) ITEM NUMBER	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) REFERENCE
42	Socket, hex head driver, 3/8 in. hexagonal drive, 1/2 in. female drive	5120-00-585-6237		CTA 50-970
43	Socket, hex head driver, 5/32 in. hexagonal drive, 3/8 in. female drive	5120-00-555-2353		CTA 50-970
44	Socket, hex head driver, 3/16 in. hexagonal drive 3/8 in. female drive	5120-00.683-8597		CTA 50-970
45	Socket, hex head driver, 7/32 in. hexagonal drive, 3/8 in. female drive	5120-00-595-8511		CTA 50-970
46	Socket, hex head driver, 1/2 in. hexagonal drive, 1/2 in. female drive	5120-00.243-1676		CTA 50-970
47	Solder, lead alloy	3439-00-184-8960		SC-4910-95-CL-B03
48	Square, combination	5210-00.241-3599		SC-4940-95-CL-B03
49	Strap, sling	8465-00.269-0682		CTA 50-970
50	Stud remover and setter	5120-00-541-0502		SC-4910-95-CL-A73
51	Tension meter, dial indicator	6635-01-093-3710		SC-4910-95-CL-A74
52	Tool, o-ring	5120-01-406-7266	(96652) 98-40050	
53	Tool kit, electrical connector repair	5180-00-876-9336		SC4910-95-CL-B04
54	Tool kit, General Mechanic's Automotive	5180-00-177-7033		SC-5180-90-N26
55	Vise, bench and pipe	5120-40-243-9072	GGG-V410	SC4940-95-CL-B03
56	Wrench, adjustable, 1-3/8 in. to 2-7/8 in. jaw opening, 24 in. length	5120-00-277-6471	GGG-W-631	SC-4940-95-CL-B03
57	Wrench, combination, 1-3/8 in.	5120.00.277-8833		SC-4910-95-CL-A74
58	Wrench, combination, 1-1/2 in.	5120-00-277-8834		SC4910-95-CL-A74
59	Wrench, socket, deep, 1-1/16 in., 1/2 in. drive	5120-00-243-7341		SC4910-95-CL-A74
60	Wrench, socket, crowfoot, 1/2 in. opening, 5/16 in. deep head, 1/4 in. drive	5120-00-238-8266		CTA 50-970
61	Wrench, socket, crowfoot, 9/16 in. opening, 5/16 in. deep head, 1/4 in. drive	5120-00-541-4074		CTA 50-970
		E-4		

(1) ITEM NUMBER	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) REFERENCE
62	Wrench, socket, crowfoot, 11/16 in. opening, 11/16 in, deep head, 3/8 in. drive	5120-00-189-7896		CTA 50-970
63	Wrench, socket, crowfoot, 15/16 in. opening, 3/4 in. deep head, 3/8 in. drive	5120-00-541-4075		CTA 50-970
64	Wrench, socket, crowfoot, 1 in. opening, 25/32 in. deep head, 3/8 in. drive	5120-00-229-2772		CTA 50-970
65	Wrench, socket, crowfoot, 1-1/8 in. opening, 7/8 in. deep head, 1/2 in. drive	5120-00-229-2773		CTA 50-970
66	Wrench, torque, 3/8 in. drive, 0 to 300 lb-in. range	5120-00-958-6906		CTA 50-970
67	Wrench, torque, 3/4 in. drive, 0 to 600 lb-ft range	5120-00-221-7983		SC-4910-95-CL-A74
68	Wrench, torque, 1/2 in. drive, 0 to 175 lb-ft range	5120-00-640-6364	GGG-W-686	SC-4940-95-CL-B03
69	Wrench, torque, 1/4 in. drive, 5 to 150 lb-in range	5120-00-542-4489	GGG-W-686	SC-4940-95-CL-B03
70	Wrench set, socket, 3/8 in. drive	5120-00-322-6231		SC-4910-95-CL-A74
71	Wrench set, socket, 3/4 in. drive	5120-00-204-1999		SC-4910-95-CL-A74
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APPENDIX F

TORQUE LIMITS

SECTION I. INTRODUCTION

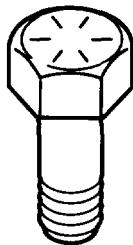
F.1. SCOPE.

This appendix provides general torque limits for hex head cap screws, bolts, and set screws for the 780T bituminous asphalt paving machine.

F.2. EXPLANATION OF TABLES FOR CAP SCREWS, BOLTS, AND SET SCREWS.

a. Torque values are based on plain, unplaced hardware that has been degreased and dried. The values are also based on clamping steel to steel. All torque values, including special cases, are identified in the applicable task. If a task torque value differs from a corresponding table value, the task value must be used.

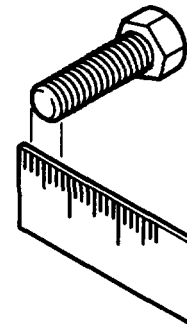
b. Section II. Torque Limits for Hex Head Cap Screws and Bolts. This table lists torque values for SAE Grade 8 fasteners. Grade 8 fasteners can be identified by 6 radial dashes on the head, each set 60° apart.



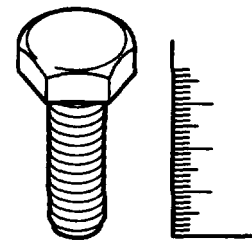
c. Section III. Torque Limits for Set Screws. This section consists of two tables that list torque values for U.S. standard and metric set screws. Torque values will be for SAE Grade 5 or ISO Class 8.8 unless otherwise stated.

F.3. HOW TO USE TORQUE TABLES FOR CAP SCREWS, BOLTS, AND SET SCREWS.

a. Measure the shaft diameter of the cap screw or bolt to be installed.



b. Determine the number of threads per inch.



c. Locate the fastener in the left-hand column by both diameter and threads per inch.

d. Look across the row to obtain the torque limit in lb-ft or N•m.

**SECTION II. TORQUE LIMITS FOR HEX HEAD
CAP SCREWS AND BOLTS.**

NOTE

These are modified torque values for use with Loctite #271 (except where noted). Loctite #242 is used on fasteners 5/16 (M8) or smaller.

Size			Torque (Modified SAE Grade 8)	
Bolt Size Diameter	Threads Per Inch	Millimeters	Pound-Feet (lb-ft)	Newton-Meters (N•m)
1/4	20	6.35	9	12
1/4	28	6.35	11	15
5/16	18	7.94	19	26
5/16	24	7.94	21	28
3/8	16	9.53	37	50
3/8	24	9.53	42	57
7/16	14	11.11	59	80
7/16	20	11.11	66	89
1/2	13	12.70	90	122
1/2	20	12.70	100	136
9/16	12	14.29	130	176
9/16	18	14.29	145	197
5/8	11	15.88	180	244
5/8	18	15.88	205	278
3/4	10	19.05	320	434
3/4	16	19.05	355	481
7/8	9	22.23	515	698
7/8	14	22.23	570	773
1	8	25.40	775	1051
1	12	25.40	845	1146
1-1/8	7	25.58	1100	1491
1-1/8	12	25.58	1230	1668
1-1/4	7	31.75	1540	2088
1-1/4	12	31.75	1710	2318
1-3/8	6	34.93	2020	2739
1/38	12	34.93	2300	3118
1-1/2	6	38.10	2690	3647
1-1/2	12	38.10	3020	4095

Tightening Torque - Metric Class 8.8

Bolt Size	Torque	
	Pound-Feet (lb-ft)	Newton-Meters (N•m)
M6 x 1.0	9	12
M8 x 1.25	21	28
M10 x 1.5	45	61
M12 x 1.75	79	105
M14 x 2.0	125	170
M16 x 2.0	195	265
M20 x 2.5	380	515
M24 x 3.0	660	895
M30 x 3.5	1310	1780
M36 x 4.0	2290	3100

SECTION III. TORQUE LIMITS FOR SET SCREWS

Size			Torque (Modified SAE Grade 5)	
Diameter	Threads Per Inch	Millimeters	Pound-Feet (lb-ft)	Newton-Meters (N•m)
1/4	20	6.35	8	11
1/4	28	6.35	10	14
5/16	18	7.94	17	23
5/16	24	7.94	19	26
3/8	16	9.53	30	41
3/8	24	9.53	35	47

Metric Designation	Torque Values (ISO Class 8.8)	
	U.S. Standard	Newton-Meters (N•m)
M6	93 lb-in	11
M8	225 lb-in	25
M10	40 lb-ft	54

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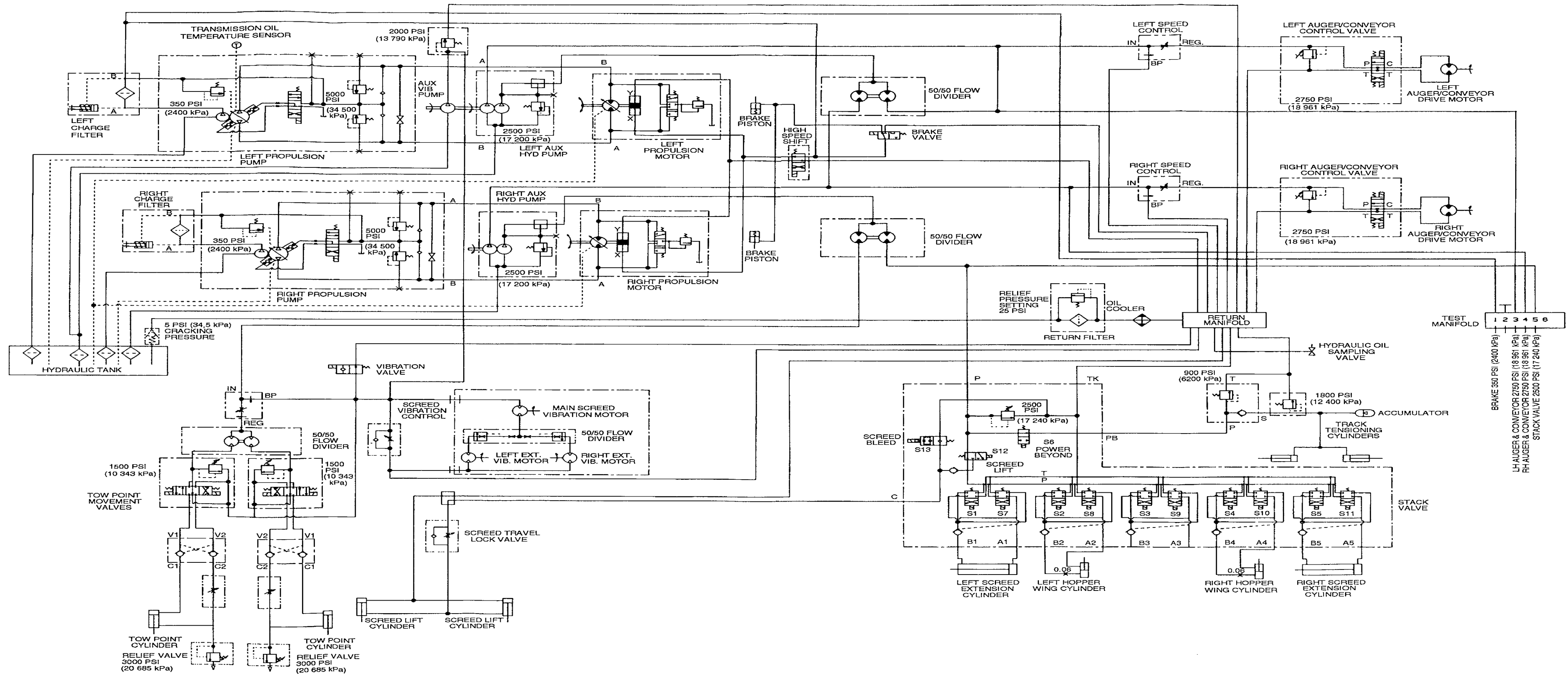
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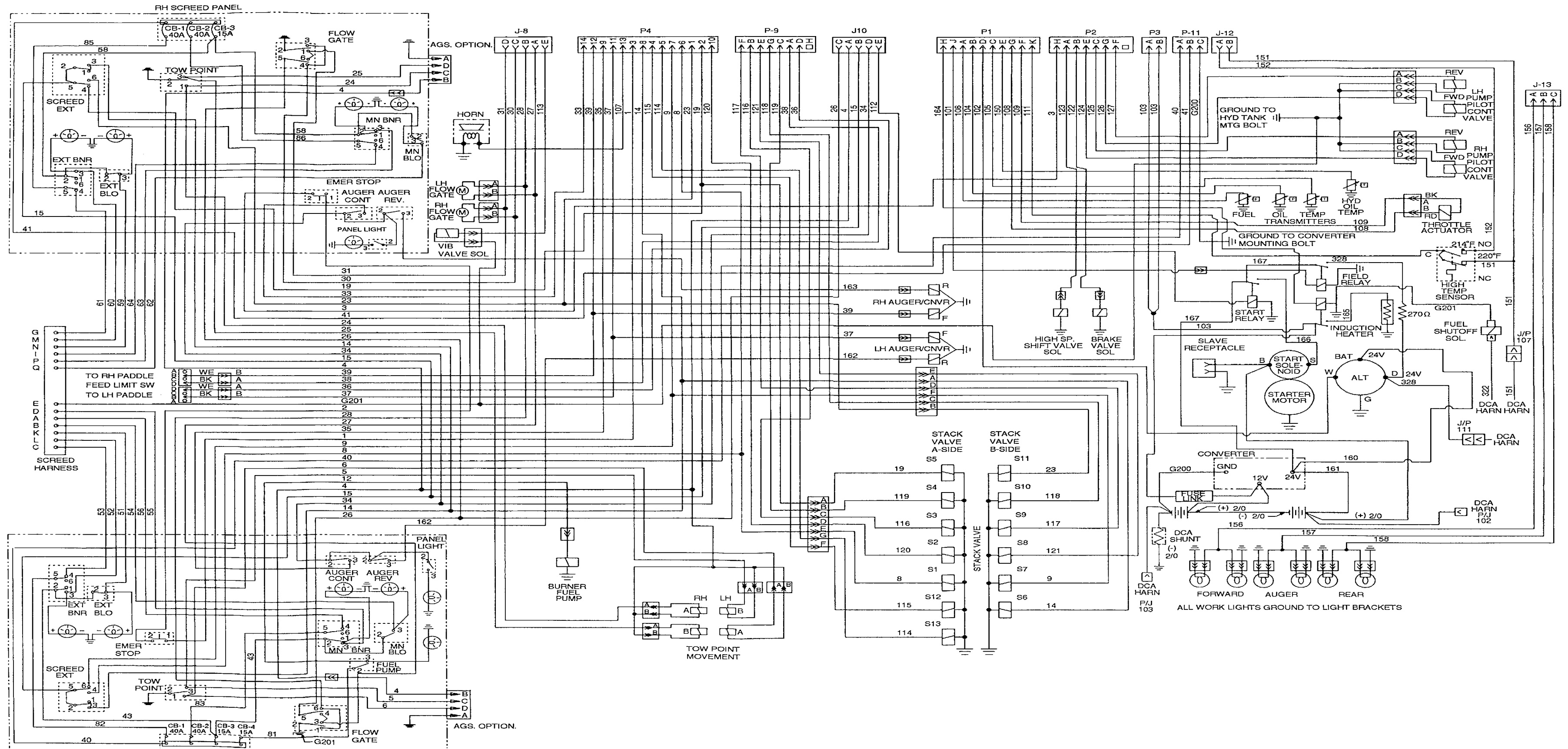
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Hydraulic Schematic
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Electrical Schematic (Sheet 2 of 2)
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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

- 1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
- 1 Meter = 100 Centimeters = 1,000 Millimeters = 39.37 Inches
- 1 Kilometer = 1,000 Meters = 0.621 Miles

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 = 1,000 Cu Millimeters = 0.06 Cu Inches
- 1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

LIQUID MEASURE

- 1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
- 1 Liter = 1,000 Milliliters = 33.82 Fluid Ounces

TEMPERATURE

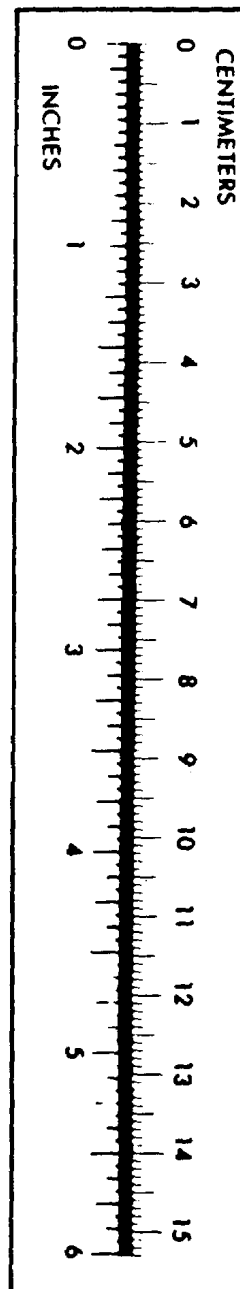
- $5/9 (^{\circ}\text{F} - 32) = ^{\circ}\text{C}$
- 212° Fahrenheit is equivalent to 100° Celsius
- 90° Fahrenheit is equivalent to 32.2° Celsius
- 32° Fahrenheit is equivalent to 0° Celsius
- $9/5 \text{ C}^{\circ} + 32 = \text{F}^{\circ}$

WEIGHTS

- 1 Gram = 0.001 Kilograms = 1,000 Milligrams = 0.035 Ounces
- 1 Kilogram = 1,000 Grams = 2.2 lb.
- 1 Metric Ton = 1,000 Kilograms = 1 Megagram = 1.1 Short Tons

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds Per Square Inch	Kilopascals	6.895
Miles Per Gallon	Kilometers Per Liter	0.425
Miles Per Hour	Kilometers Per Hour	1.609
TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds Per Square Inch	0.145
Kilometers Per Liter	Miles Per Gallon	2.354
Kilometers Per Hour	Miles Per Hour	0.621



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