CEBM020301

Shop Manual

730E

DUMP TRUCK

SERIAL NUMBERS **A30539 - A30551**

KOMATSU®

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BRAKE CIRCUIT AND BRAKE VALVE TROUBLESHOOTING

POSSIBLE CAUSES	SUGGESTED CORRECTIVE ACTION
The Brakes are Locked, Service, and/or Parking	
Parking brake solenoid is de-energized.	Check power to solenoid.
Connections to tank and pressure ports reversed.	Correct plumbing.
Parking brake solenoid coil defective.	Replace coil.
Parking brake solenoid valve defective.	Replace solenoid valve.
Tank line is plugged or restricted.	Remove restriction.
Both Brake Circuits are Dragging	
Tank line has back pressure.	Inspect line for damage.
Pedal set screw out of adjustment; residual pressure.	Adjust pedal deadband with set screw.
One Brake Circuit is Dragging	
Obstruction in the brake valve subassembly.	Disassemble valve and repair.
Brake valve is out of balance.	Adjust balance according to instructions.
Actuator piston defective.	Replace piston.
Brake valve defective.	Rebuild or replace brake valve assembly.
Brakes are Not Going to Full Pressure	
Internal malfunction of modulating section of brake valve.	Remove, disassemble, clean, and inspect brake valve.
Supply pressure is low.	Check steering/brake pump system, accumulators.
Improper collar adjustment inside brake valve.	Adjust collars according to instructions.
A Brake Accumulator Bleeds Off Quickly When Supply Pressure is Cut Off	
Accumulator bleed-down valve is open.	Close valve, check precharge.
Accumulator precharge is low.	Recharge accumulator.
Leak in one circuit.	Check plumbing.
Malfunction in brake valve.	Remove, disassemble, clean, reassemble, or replace.

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17. Steer lock-to-lock 10 times to purge the steering system of air. Stop the truck. Depressurize the steering accumulators completely. Ensure the oil is visible in the upper sight glass on the hydraulic tank. Add oil, if necessary.

COMPONENT CHECKOUT AND ADJUSTMENT

18. Before checking the shock valves in the steering system, increase the steering pressure to the steering cylinders by removing the external seal on the flow amplifier with an 8 mm allen wrench. Turn the adjustment screw completely inward using a 5 mm allen wrench.

19. Raise the unloader valve cut-out pressure to 21 374 kPa (3,100 psi) measured at the bleed-down manifold test port.

20. To check the shock valve pressure, steer away from the cylinder stops. Then steer into the stop and continue to rotate the steering wheel. One gauge on the steering cylinder manifold will read approximately 19 995 kPa (2,900 psi). Steer into the opposite stop. The other gauge on the steering cylinder manifold will read approximately 19 995 kPa (2,900 psi).

21. After checking the steering shock valve pressures, lower the steering supply pressure to 17 237 kPa (2,500 psi). To do this, rotate the steering wheel fully left or right into the stop and adjust the steering pressure with a 5 mm allen wrench at the flow amplifier while slowly turning the steering wheel. When adjusted properly, the steering cylinder pressure will be 17 237 kPa (2,500 psi) at the steering cylinder manifold when steering against the stops. Replace the external seal on the flow amplifier using a 8 mm allen wrench.

22. The unloader valve must be adjusted to unload the steering pump when the accumulator pressure, measured at the bleed-down manifold test port, reaches 20 512 kPa (2,975 psi). After adjustment, tighten the lock nut and verify the unload pressure remains at 20 512 kPa (2,975 psi) by steering to cause the unloader valve to cycle. Replace the cover.

23. Verify the low steering accumulator pressure switch activates at 14 479 ± 317 kPa (2,100 ± 46 psi) falling, measured at the test port on the bleed-down manifold.

    Start the truck and allow the pump to pressurize the steering accumulators before stopping the engine. DO NOT depressurize the steering accumulators with the bleed-down solenoid valve on the bleed-down manifold. Open the needle valves in the brake cabinet to depressurize the steering accumulators. Observe the pressure value which activates the warning light and warning buzzer. The activation range must be within 14 479 ± 317 kPa (2,100 ± 46 psi) falling. If outside this pressure range, locate and correct the problem.

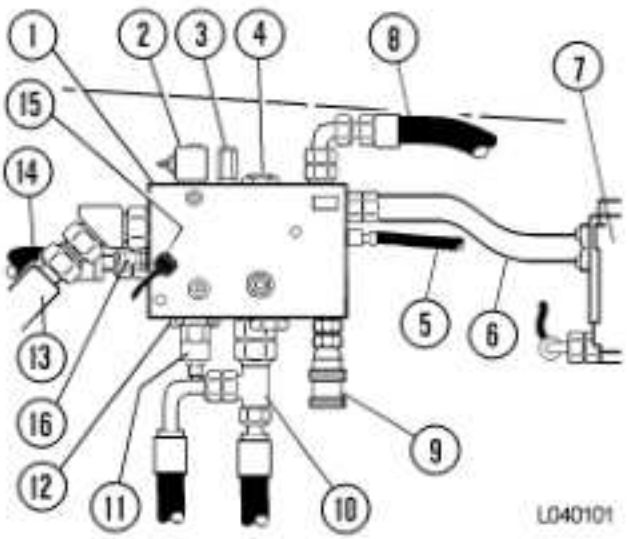


FIGURE 10-2. BLEED-DOWN MANIFOLD VALVE

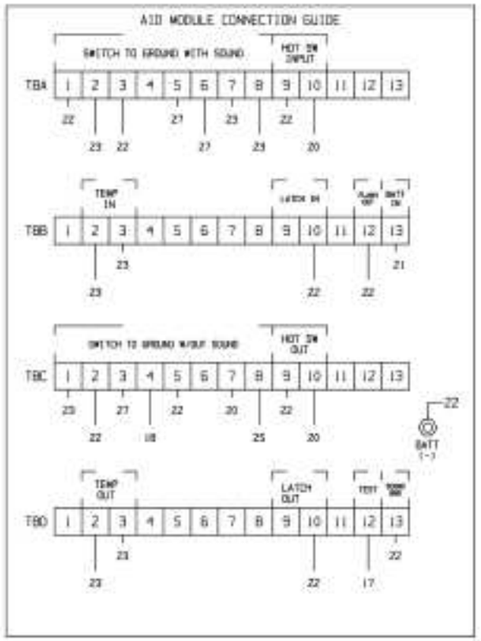
1. Valve Body
2. Bleed-Down Solenoid
3. Relief Valve, 500 psi
4. Check Valve
5. Brake Circuit Supply
6. Return from Flow Amplifier
7. Flow Amplifier
8. Supply to Flow Amplifier
9. Good/Bad Truck Disconnect
10. To Accumulators
11. Relief Valve, 4000 psi
12. Not Used
13. Return to Tank
14. Inlet from Filter
15. Low Steering Pressure Switch
16. Test Port

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SYMBOLS USED IN SCHEMATICS

- TERMINAL POINT IN CONTROL CABINET
- TERMINAL POINT IN CONTROL CABINET JUNCTION BOX
- TERMINAL IN INSTRUMENT PANEL AREA
- TERMINAL POINT IN LADDER JUNCTION BOX
- TERMINAL POINT IN AUX. RETARDING COMPARTMENT
- TERMINAL POINT IN HOT START JUNCTION BOX
- TERMINAL POINT IN REAR AXLE HOUSING
- KNIFE DISCONNECT
- GROUND WITHIN G.E. COMPONENT PACKAGE
- FACTORY WIRING
- VENDOR SUPPLIED WIRING
- CONNECTOR - R FOR RECEPTICAL SIDE, P FOR PLUG SIDE
- SHIELDED WIRE
- SHIELDED TWISTED WIRE
- SWITCH
- PUSHBUTTON SWITCH - NORMALLY CLOSED
- CIRCUIT BREAKER
- VARISTER
- DIODE
- SOLENOID
- CONNECTION POINT
- OPERATING COIL (Z,Y-X) — CONTACT LOCATION INFORMATION; ZONE LOCATION; SHEET NUMBER
- CONTACT - NORMALLY OPEN (Z,Y-X) — OPERATIN COIL LOCATION INFORMATION --TYPICAL FOR BOTH NORMALLY OPEN AND NORMALLY CLOSED CONTACTS--; ZONE LOCATION; SHEET NUMBER
- CONTACT - NORMALLY CLOSED
- C FORM CONTACT - 1 NORMALLY OPEN CONTACT & 1 NORMALLY CLOSED CONTACT COMMON ON ONE SIDE
- PRESSURE SWITCH - PRESSURE TO OPEN
- PRESSURE SWITCH - PRESSURE TO CLOSE
- FLUID LEVEL SWITCH - LOW FLUID LEVEL TO CLOSE
- FLUID LEVEL SWITCH - LOW FLUID LEVEL TO OPEN
- PRESSURE OPERATED VARIABLE RESISTOR
- FLUID OPERATED VARIABLE RESISTOR
- TEMPERATURE SWITCH - INCREASE TEMPERATURE TO OPEN
- TEMPERATURE SWITCH - DECREASE TEMPERATURE TO OPEN
- TEMPERATURE OPERATED VARIABLE RESISTOR
- LIMIT SWITCH - CAM TO CLOSE
- LIMIT SWITCH - CAM TO OPEN
- RESISTOR
- ADJUSTABLE RESISTOR
- SOLID STATE AMPLIFER (INPUT - FOR NON INVERTED OUTPUT) (INPUT - FOR INVERTED OUTPUT)
- MOTOR

A10 MODULE CONNECTION GUIDE



SELECTOR SWITCH CHART				
CONTACT NO.	FWRD	NEUT	REV	SHEET NUMBER
1			X	
2			X	
3		X		27,A-2
4	X	X		
5	X			20, A-2
6		X		
7	X			
8			X	20, A-2

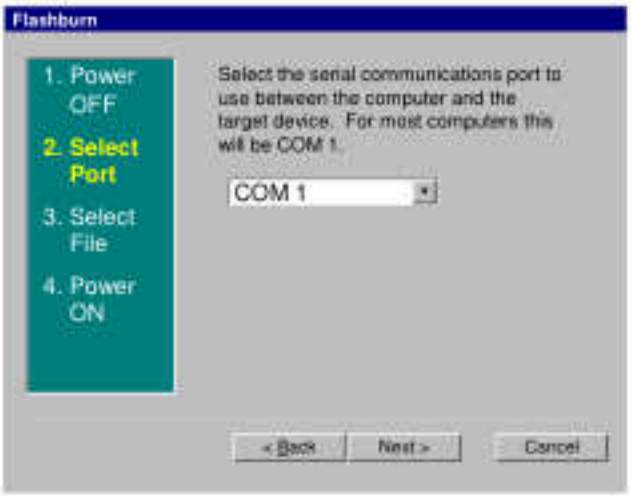
PART NO. INDEX — GENERAL TOPIC

XS0101	SHEET 1	- INDEX AND SYMBOLS
XS0102	SHEET 2	- CIRCUIT NUMBER LOCATOR
XS0103	SHEET 3	- COMPONENT LOCATOR
XS0104	SHEET 4	- COMPONENT LOCATOR
XS0105	SHEET 5	- G.E. FAULT CODES
XS0106	SHEET 6	- G.E. FAULT CODES
XS0107	SHEET 7	- POWER DISTRIBUTION
XS0108	SHEET 8	- POWER 18 ELEMENT 3 STEP RETARDING
XS0109	SHEET 9	- POWER 18 ELEMENT 7 STEP RETARD GRID
XS0110	SHEET 10	- POWER 20 ELEMENT 7 STEP RETARD GRID
XS0111	SHEET 11	- DRIVE SYSTEM CONTROL CIRCUITS
XS0112	SHEET 12	- TWO DIGIT DISPLAY
XS0113	SHEET 13	- G.E. ANALOG INPUTS
XS0114	SHEET 14	- G.E. DIGITAL INPUTS, AUTO LUBE CONTROL/TEST
XS0115	SHEET 15	- REAR TAIL LIGHTS, DIMMER CONTROL
XS0116	SHEET 16	- 5 MINUTE TIMER AND SPARES
XS0117	SHEET 17	- WINDOWS, RADIO, GAUGES
XS0118	SHEET 18	- CONTACTOR FEEDBACK
XS0119	SHEET 19	- CONTACTOR COIL
XS0120	SHEET 20	- MACHINE CONTROL CIRCUITS
XS0121	SHEET 21	- ACCELERATOR, RETARD PEDALS
XS0122	SHEET 22	- HYDRAULIC CONTROLS, ALARMS
XS0123	SHEET 23	- WINSHIELD WIPER CONTROLS (APPLICABLE UNITS: 001 TO 289)
XS0124	SHEET 24	- LIGHT CONTROL CIRCUITS
XS0125	SHEET 25	- INSTRUMENT LIGHTS, DIAGNOSTIC PORTS
XS0126	SHEET 26	- MODULAR MINING DISPATCH
XS0127	SHEET 27	- CUMMINS K2000 ENGINE WITH TIME DELAY PRELUBE
XS0128	SHEET 28	- PAYLOAD METER
XS0129	SHEET 29	- CUMMINS QSK ENGINE WITH A HVP PRELUBE SYSTEM
XS0130	SHEET 30	- WIPER TURN SIGNAL/ALT. (APPLICABLE UNITS: 299 AND UP)
XS0131	SHEET 31	- WIPER WASHER TURN SIGNAL/ALT. (APPLICABLE UNITS: TO BE DETERMINED)
XS0132	SHEET 32	- HEATER / AC CONTROLS
XS0133	SHEET 33	- POWER 14 ELEMENT - 7 STEP RETARDING

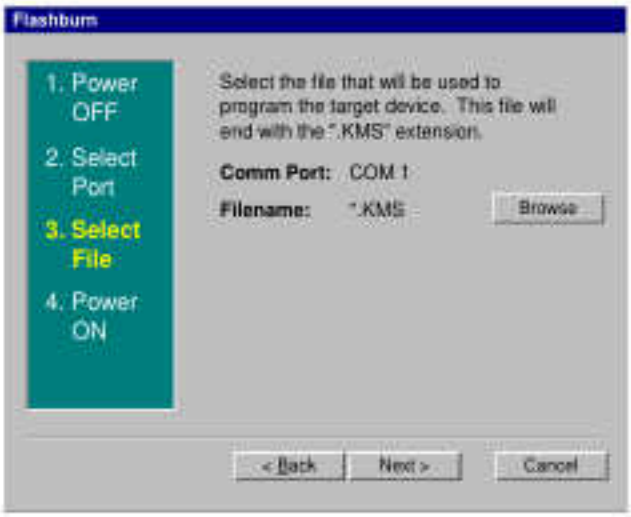
XS0101-6 OCT 05
ELECTRIC SCHEMATIC
INDEX AND SYMBOLS
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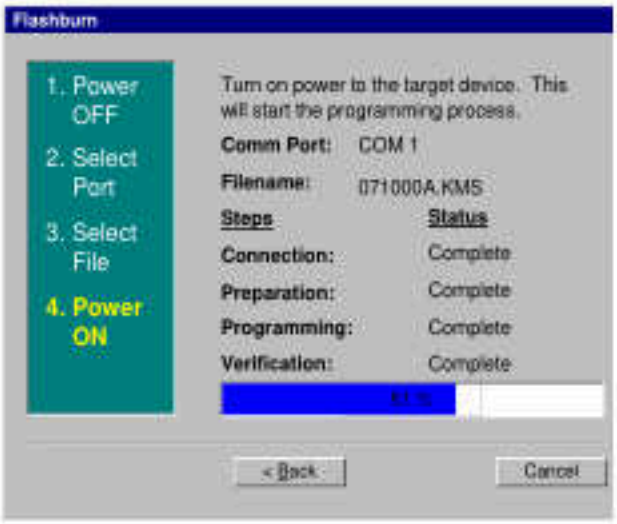
4. Confirm the proper communications port for the programming laptop. This is usually COM 1. Press "NEXT".



5. Press "BROWSE" and select the ".kms" file to program into the payload meter. Press "NEXT".



6. When instructed, turn the key switch ON in order to power-up the payload meter. The PC will begin to reprogram the payload meter. This process takes approximately 5 minutes.



7. After successful programming, turn the key witch OFF.
8. Wait 20 seconds and turn the key switch ON.
9. The payload meter will need to be configured as instructed in the manual using the Payload Data Manager software on the laptop computer.

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FIGURE 4-26. CHECKING BELT TENSION

8. Release the pressure on the tool.
9. Force O-ring (4) on the force scale rod will indicate the force used to deflect the belt. The correct force is 3.0 ± 0.1 kg f (6.5 ± 0.21 lb f).

   If the reading is incorrect, adjust the belt tension to obtain the correct reading. If the reading is correct, proceed to the next step.
10. Start the engine and allow it to operate for approximately ten minutes. Shut the engine off and recheck the tension.

TROUBLESHOOTING

Preliminary Checks

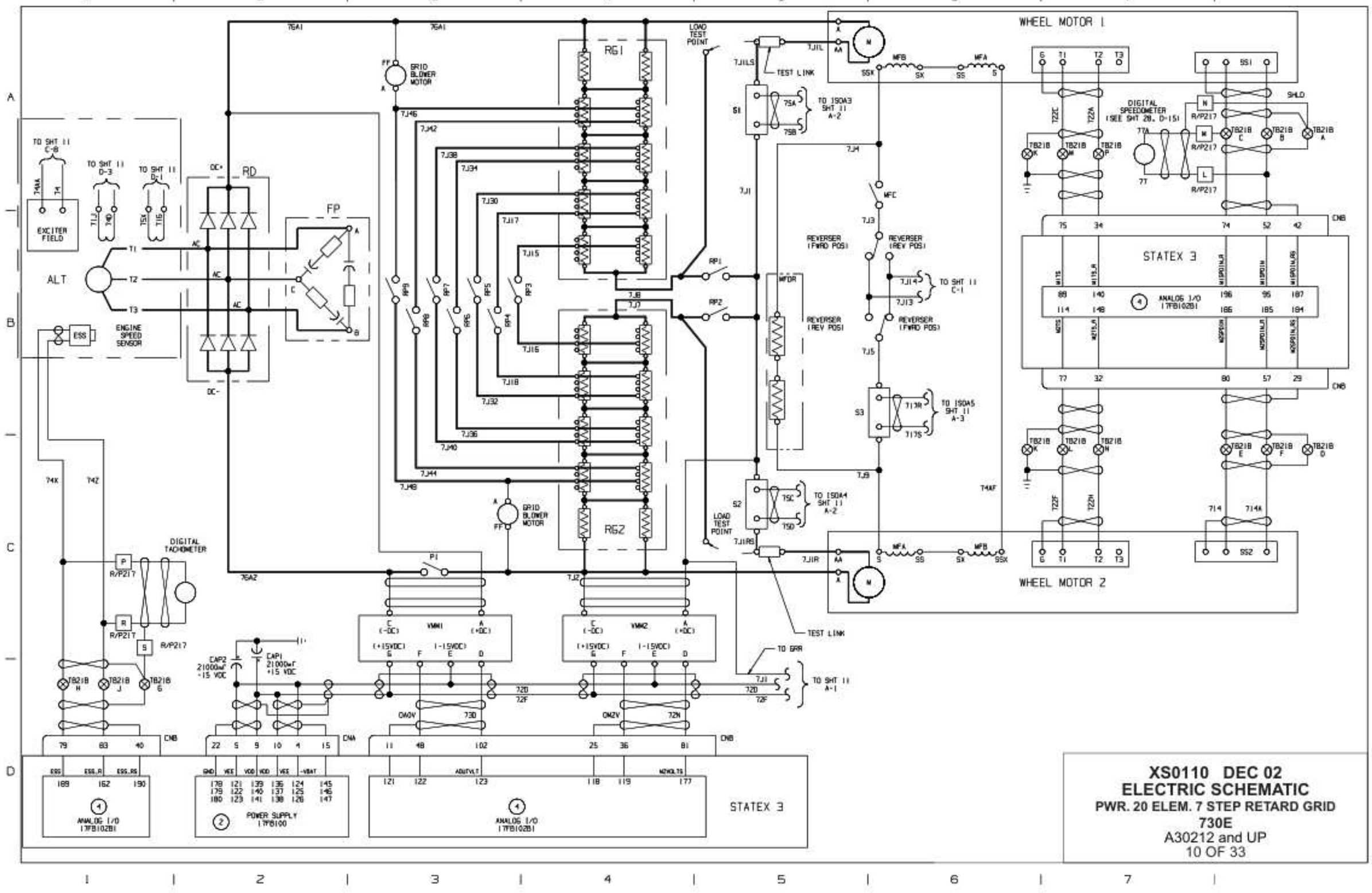
If the system indicates insufficient cooling, or no cooling, the following points will be checked before proceeding with the system diagnosis procedures.

NOTE: If the truck being serviced is a model 930E, ensure the rest switch in the cab is ON. Place the GF cutout switch in the CUTOUT position.

Some simple, but effective checks can be performed to help determine the cause of poor system performance. Check the following to ensure proper system operation.

- Compressor belt - Must be tight, and aligned.
- Compressor clutch - The clutch must engage. If it does not, check fuses, wiring, and switches.
- Oil leaks - Inspect all connection or components for refrigeration oil leaks, especially in the area of the compressor shaft. A leak indicates a refrigerant leak.
- Electrical check - Check all wires and connections for possible open circuits or shorts. Check all system fuses.
- Cooling system - Check for correct cooling system operation. Inspect the radiator hoses, heater hoses, clamps, belts, water pump, thermostat, and radiator for the condition or proper operation.
- Radiator shutters - Inspect for the correct operation and controls, if equipped.
- Fan and shroud - Check for proper operation of the fan clutch. Check installation of the fan and shroud.
- Heater/water valve - Check for malfunction or leaking.
- System ducts and doors - Check the ducts and doors for proper function.
- Refrigerant charge - Ensure the system is properly charged with the correct amount of refrigerant.
- Cab filters - Ensure the air filters are clean and free of restriction.
- Condenser - Check the condenser for debris and clogging. Air must be able to flow freely through the condenser.
- Evaporator - Check the evaporator for debris and clogging. Air must be able to flow freely through the condenser.

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