CEBM026200

Shop Manual

730E Trolley

DUMP TRUCK

SERIAL NUMBERS **A30489 & A30490**

KOMATSU®

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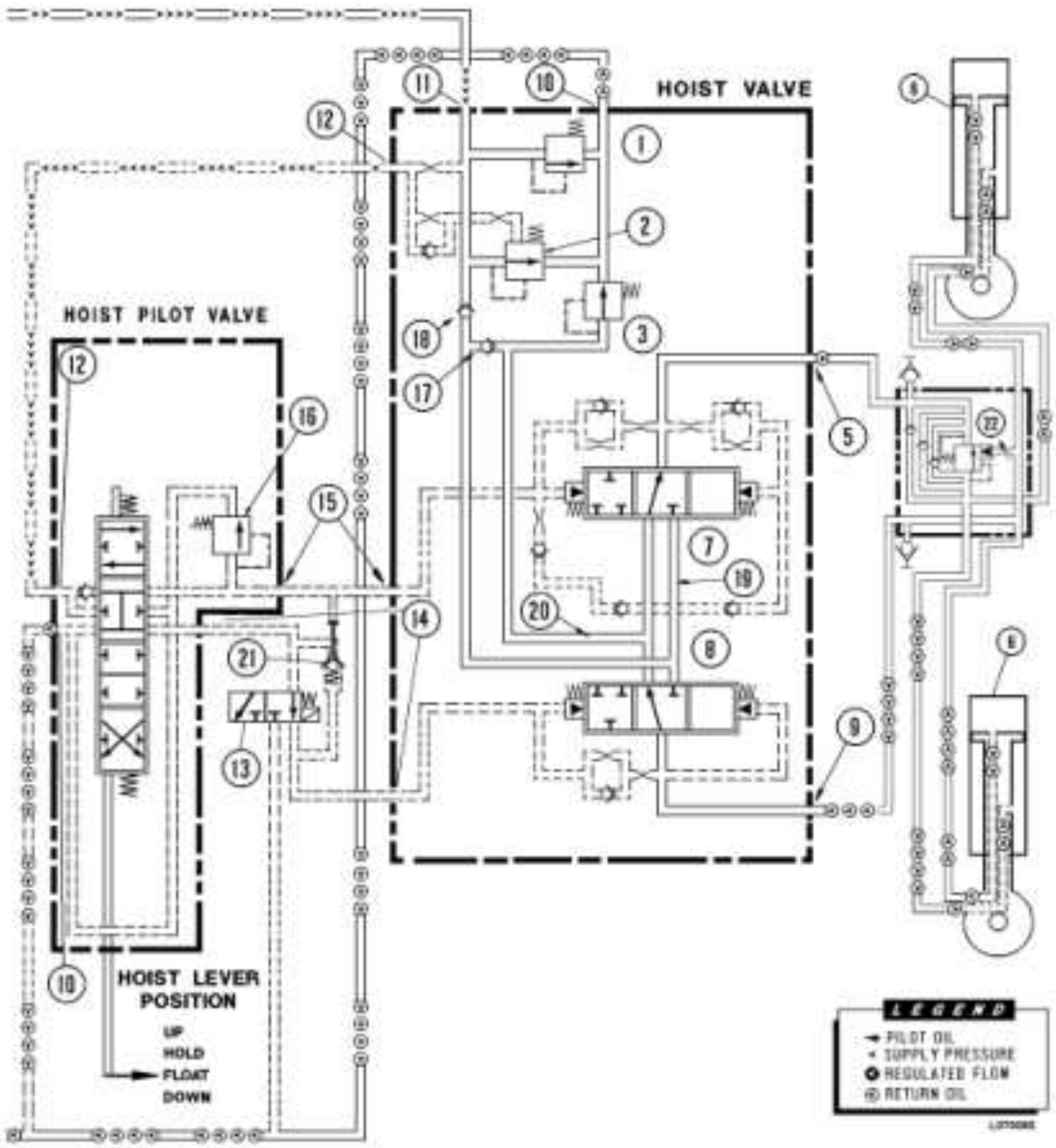


FIGURE 7-9. FLOAT POSITION

1. Hoist Relief Valve 17 238 (2,500 psi)
2. Flow Control Valve
3. Low Pressure Relief Valve 517 kPa (75 psi)
4. Not Used
5. Rod End Work Port
6. Hoist Cylinders
7. Rod End Spool
8. Head End Spool
9. Head End Work Port
10. Return Port
11. Supply Port
12. Pilot Supply Port
13. Hoist Limit Solenoid
14. Raise Pilot Port
15. Down Pilot Port
16. Power Down Relief Valve 10 341 kPa (1,500 psi
17. Anti-Void Check Valve
18. Load Check Valve
19. High Pressure Passage
20. Low Pressure Passage
21. Pilot Operated Check Valve
22. Overcenter Manifold

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TROUBLESHOOTING CHART
(Steering Circuit)

Trouble	Possible Cause	Suggested Corrective Action
Slow steering, hard steering or loss of power assist	Overloaded steering axle.	Reduce axle loading.
	Malfunctioning relief valve. System pressure lower than specified.	Replace relief valve.
	Worn or malfunctioning pump.	Replace pump. See brake/steering pump troubleshooting chart.
Drift - Truck veers slowly in one direction	Rod end of cylinder slowly extends without turning the steering wheel.	A small rate of extension may be normal on a closed center system.
	Worn or damaged steering linkage.	Replace linkage and check alignment or toe-in of the front wheels.
Wander - Truck will not stay in straight line	Air in system due to low oil level, pump cavitation, leaking fittings, pinched hoses, etc.	Correct oil supply problem and/or oil leakage.
	Loose cylinder piston.	Repair or replace defective components.
	Broken neutral position springs in steering control unit.	Replace neutral position springs.
	Improper toe-in setting.	Adjust.
	Bent linkage or cylinder rod.	Repair or replace defective components.
	Severe wear in steering control valve.	Repair steering control valve.
Slip - A Slow movement of steering wheel fails to cause any movement of the steered wheels	Leakage of cylinder piston seals.	Replace seals.
	Worn steering control valve.	Replace steering control valve.
Spongy or soft steering	Low oil level.	Service hydraulic tank and check for leakage.
	Air in hydraulic system. Most likely air trapped in cylinders or lines.	Bleed air from system. Positioning ports on top of cylinder will help avoid trapping air.
Erratic steering	Air in system due to low oil level, cavitating pump, leaky fittings, pinched hose, etc.	Correct condition and add oil as necessary.
	Loose cylinder piston.	Repair or replace cylinder.
Free Wheeling - Steering wheel turns freely with no back pressure or no action of the front wheels	Lower splines of column may be disengaged or damaged.	Repair or replace steering column.
	No flow to steering valve can be caused by: 1. Low oil level 2. Ruptured hose 3. Broken cardan shaft pin (steering unit)	 1. Add oil and check for leakage 2. Replace hose 3. Replace pin

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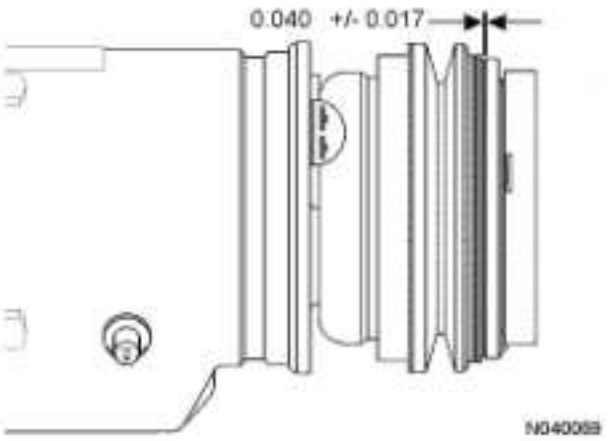


FIGURE 4-22. CLUTCH GAP

5. Install locknut (4, Figure 4-13) and tighten the nut until it seats. The gap will now measure 1.02 ± 0.043 mm (0.040 ± 0.017 in.). If the gap is not within the specification, check for proper installation of the square key.
6. Install the drive belt onto the compressor. Ensure that the proper tension on the belt is attained. Refer to the belt tension chart in the appropriate engine manual for the proper specifications.
7. After assembly is complete, burnish the mating parts of the clutch by operating the air conditioning system at maximum load conditions with the engine at high idle. Turn the air conditioning control ON and OFF at least 15 times for one second intervals.
8. Install the belt guard if no further servicing is required.

EVACUATING THE SYSTEM

Evacuating the complete air conditioning system is required in all new system installations, and when repairs are made on systems requiring a component replacement (system opened), or a major loss of refrigerant has occurred. All these conditions will require that a vacuum be pulled using a vacuum pump that completely removes any moisture from the system. Once properly evacuated, the system can be recharged again.

Using a pump to create a vacuum in the air conditioning system effectively vaporizes any moisture, allowing the water vapor to be easily drawn out by the pump. The pump does this by reducing the point at which water boils 100°C (212°F) at sea level with 101 kPa (14.7 psi). In a vacuum, water will boil at a lower temperature depending upon how much of a vacuum is created.

As an example, if the ambient air outside the truck is 24°C (75°F) at sea level, by creating a vacuum in the system so that the pressure is below that of the outside air (in this case, at least 75.0 cm Hg (29.5 in. of vacuum is needed), the boiling point of water will be lowered to 22°C (72°F). Thus, any moisture in the system will vaporize and be drawn out by the pump if the pump is run for approximately an hour. The following steps indicate the proper procedure for evacuating all moisture from the heavy-duty air conditioning systems.

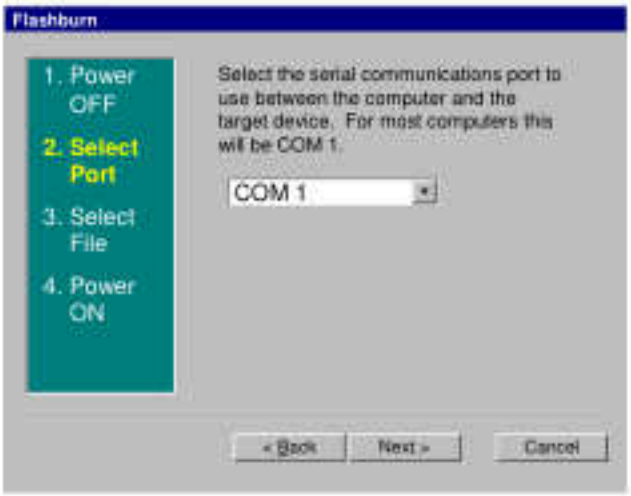
⚠CAUTION

DO NOT attempt to use the air conditioning compressor as a vacuum pump or the compressor will be damaged.

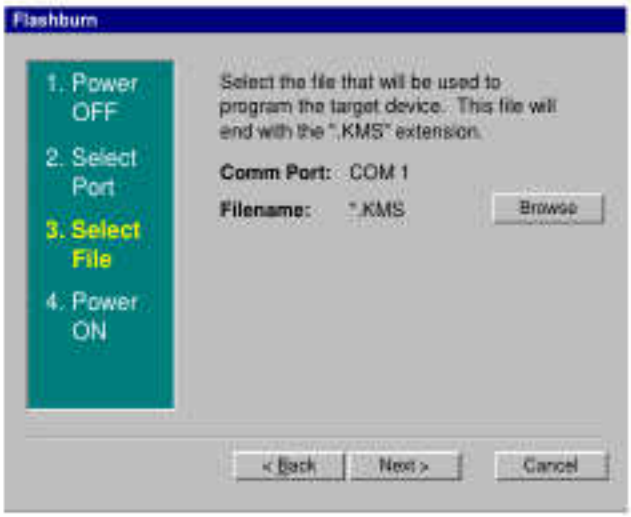
NOTE: Refer to Table 2 for optimal vacuum specifications at various altitudes.

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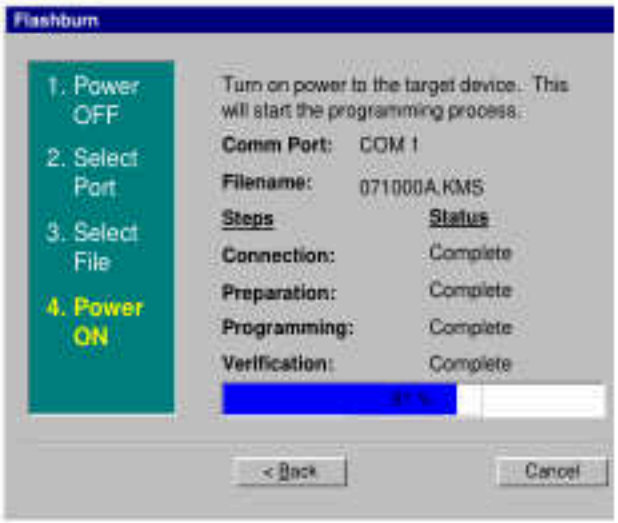
4. Confirm the proper communications port for the programming laptop. This is usually COM 1. Press "NEXT".



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

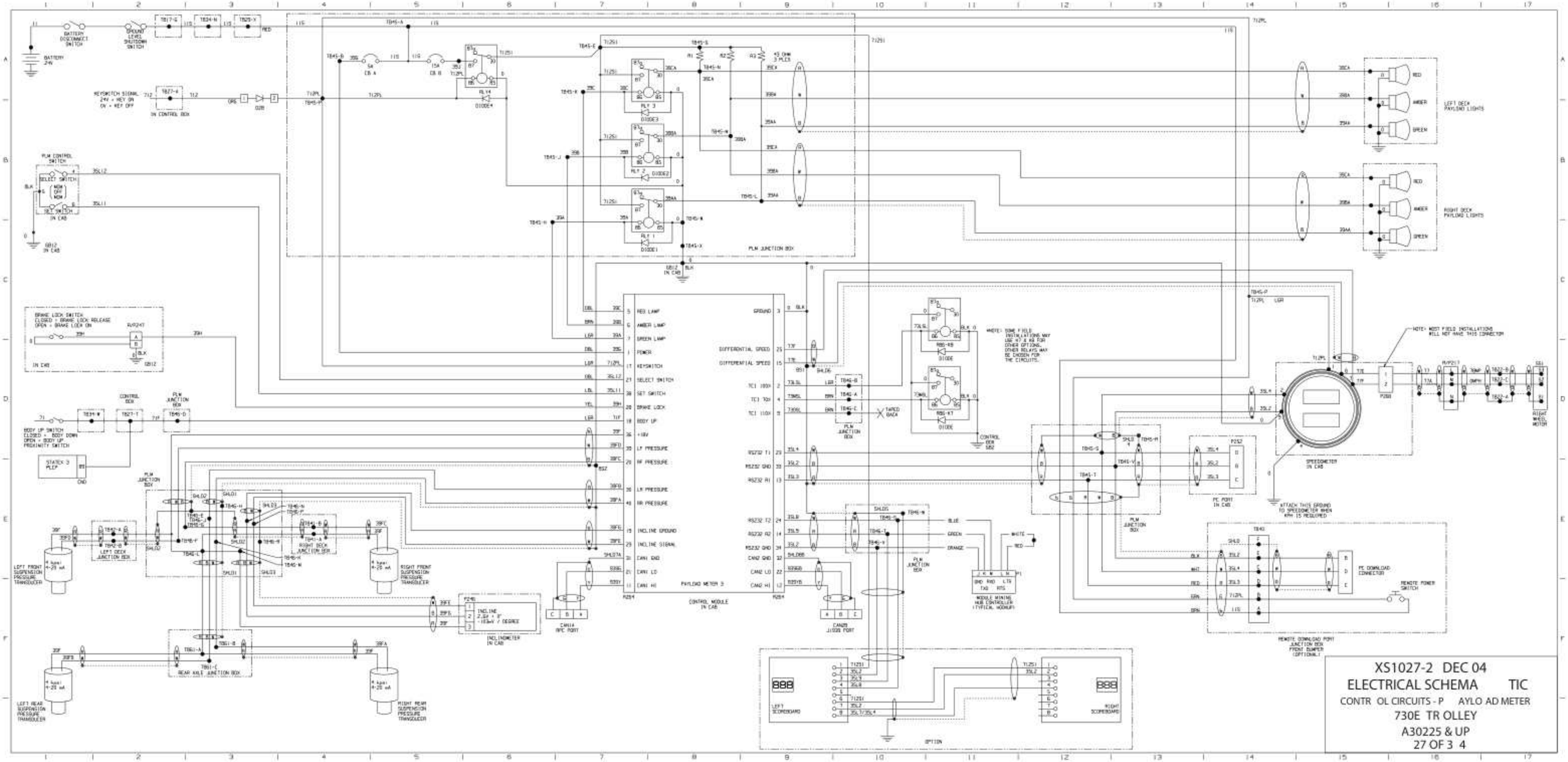
If the system indicates insufficient cooling, or no cooling, the following points will be checked before proceeding with the system diagnosis procedures.

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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