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Technical Service Bulletin

Subject

Importance of Proper Cooling Drain, Fill, and Deaeration Practices for Transit/Urban Buses

Issue

Proper cooling system drain, fill, and deaeration can prevent occurrences of EGR Cooler malfunctions or complaints of coolant loss due to trapped air in the cooling system. Low cooling system levels can cause EGR cooler malfunctions and customer complaints of low coolant and/or low coolant level fault codes.

Verification

N/A

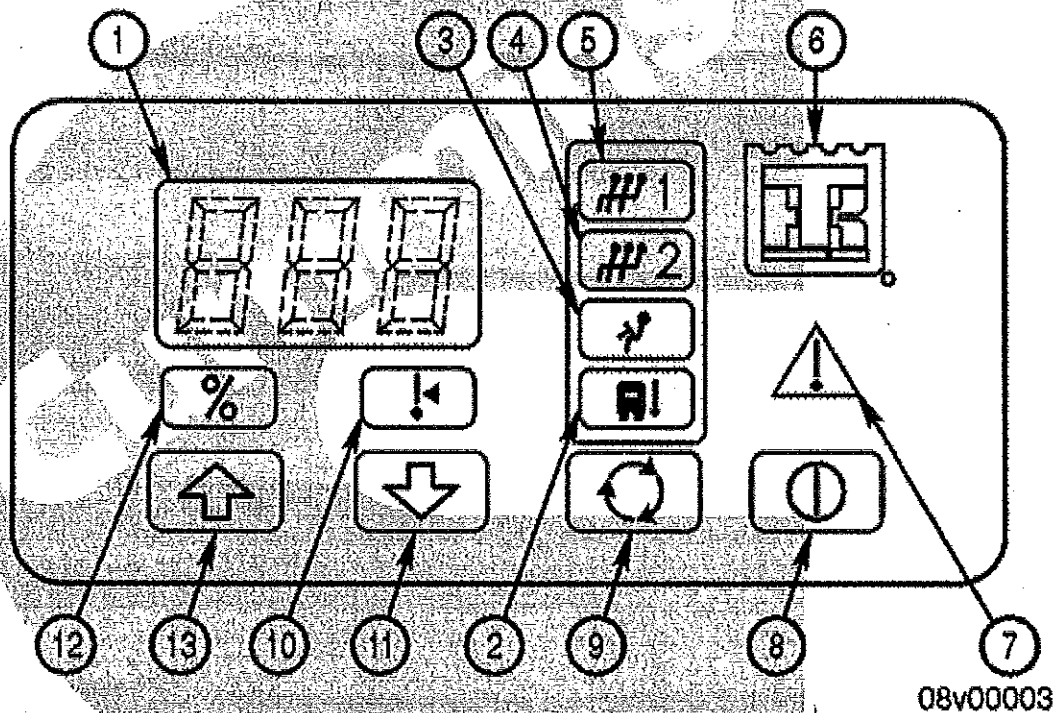
Resolution

Transit/Urban buses are typically equipped with OEM cabin loop isolation valves. It is important to close these valves when draining the cooling system for engine maintenance and repair.

These valves are often near OEM loop returns at the lower radiator hose or tube, and near the back of the engine where coolant is supplied to the OEM loop. Reference the OEM service literature for locations of these valves.

The OEM coolant loops are in many cases higher than the coolant fill level and it is difficult to purge air from them. OEM loops should remain closed until after the initial refill of the cooling system, at which time these valves should be reopened for deaeration. Even if the OEM loops have not been drained, it is important to deaerate the entire system because there can be air anywhere in the system, especially if coolant loss has been experienced.

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During the deaeration procedure, the bus heater systems need to be operated to use boost pumps and open any electronic valves, if the bus is so equipped to purge air from the OEM coolant loops. Some bus OEMs have coolant deaeration purge override modes. For buses equipped with these systems, operating the heater will **not** be necessary. For buses equipped with a Thermo King™ digital thermostat controls an override key sequence is used to operate the heating loop on the bus. The procedure is to hold down the Display Select Key (button 9) and the Down Arrow Key (button 11) simultaneously until "Pt" is displayed. Then push Display Select Key (button 9) repeatedly until "Ft" is displayed. Then push Down Arrow Key (button 11) until "HH" is displayed. "HH" stands for High Heat and is an override to turn on all the floor and forced air heaters controlled by this panel. This will open the electronic solenoid valves and turn on the pumps to help to deaerate the bus heating loops. Pressing the Thermo King Logo Key (button 6) will revert the control back to normal operation mode. Many buses are equipped with multiple heater controls which include a driver's heater control that is separate from the system for the rest of the cabin. Driver's heat will need to be operated simultaneously with the other heating systems to purge the entire system.

Reference the following procedure in the following manuals:

- Refer to Procedure 008-018 in Section 8 in Service Manual, ISB CM2100 and CM2150, Bulletin 4021578
- Refer to Procedure 008-018 in Section 8 in Service Manual, ISB6.7 CM2250, Bulletin 4022254
- Refer to Procedure 008-018 in Section 8 in Service Manual, ISC and ISL CM2150, Bulletin 4021569
- Refer to Procedure 008-018 in Section 8 in Service Manual, ISC8.3 and ISL9 CM2250, Bulletin 4022257

- Refer to Procedure 008-018 in Section 8 in Service Manual, ISL G CM2180, Bulletin 4021649.

Warranty Statement

The information in this document has no effect on present warranty coverage or repair practices, nor does it authorize TRP or Campaign actions.

Document History

Date	Details	Writer	OE
2010-12-20	Module Created	bl246	is515

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