



No.: 08 TS-9
April 15, 2008

TO: Service Locations

FROM: Technical Support Development

SUBJECT: **EPA98 and EPA04 MBE 4000 Cylinder Block Heater Element and Cord Inspection**

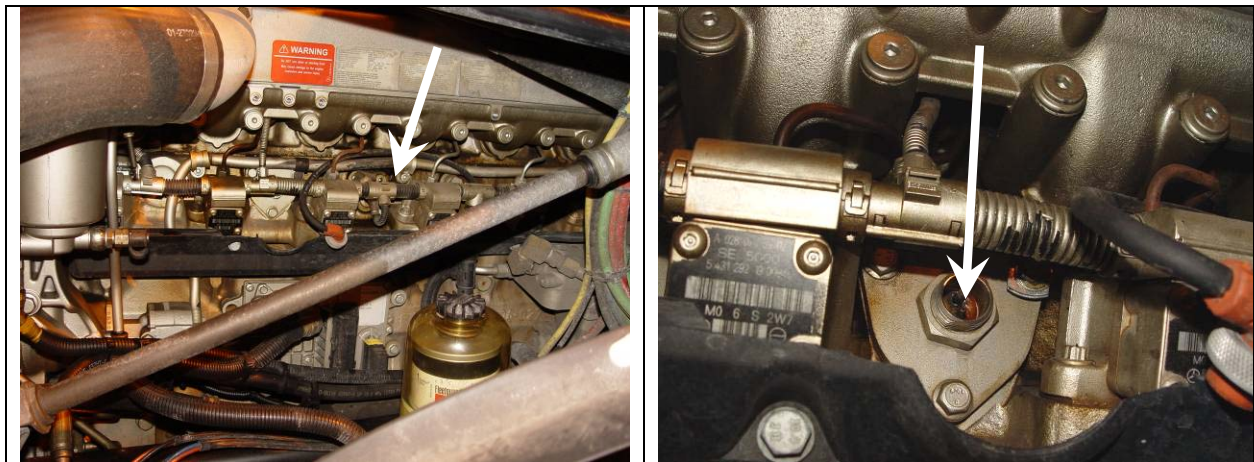
ISSUE

Worn or damaged engine block coolant heater power cord

Electrical current is carried to the block heater element by a 120 volt AC power cord installed in the vehicle. The vehicle power cord is secured to the block heater element by a two-pin connector with a threaded locking connector and should be checked and serviced if damage or corrosion is present.

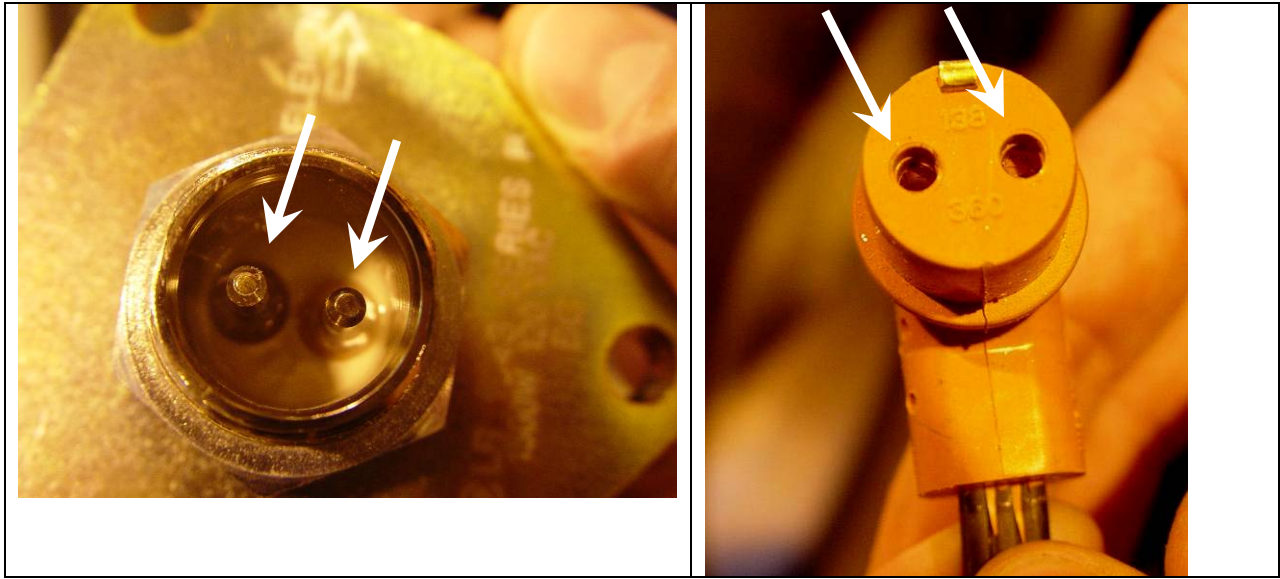
REQUIRED ACTION

- All EPA98 MBE 4000 engines have engine block coolant heater elements installed on the left side of the engine. See Figures 1 and 2.
- Move engine block coolant heater elements installed on all EPA98 MBE 4000 engines from the left side of the engine to the right side and replace as necessary. See Figures 1 and 2 for left side (current) location.
- All EPA04 MBE 4000 engines have engine block coolant heater elements installed on the right side of the engine. Inspect and replace as required.



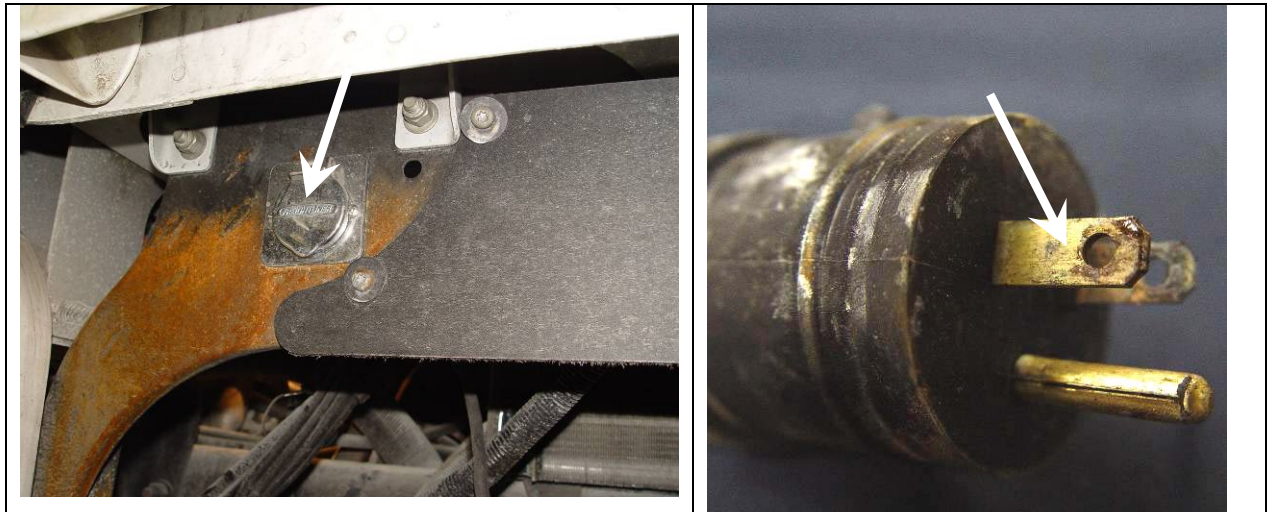
Figures 1 and 2 – EPA 98 MBE 4000 Engine Block Coolant Heater Element Location

1. On all EPA98 and EPA04 MBE 4000 engines, disconnect the vehicle power cord from the block heater element and inspect BOTH the block heater element male contact pins and vehicle power cord female contact pins for signs of damage, poor electrical contact, corrosion, etc. See Figures 3 and 4 for the areas to inspect. Replace the block heater element and vehicle power cord if they show any signs of damage.



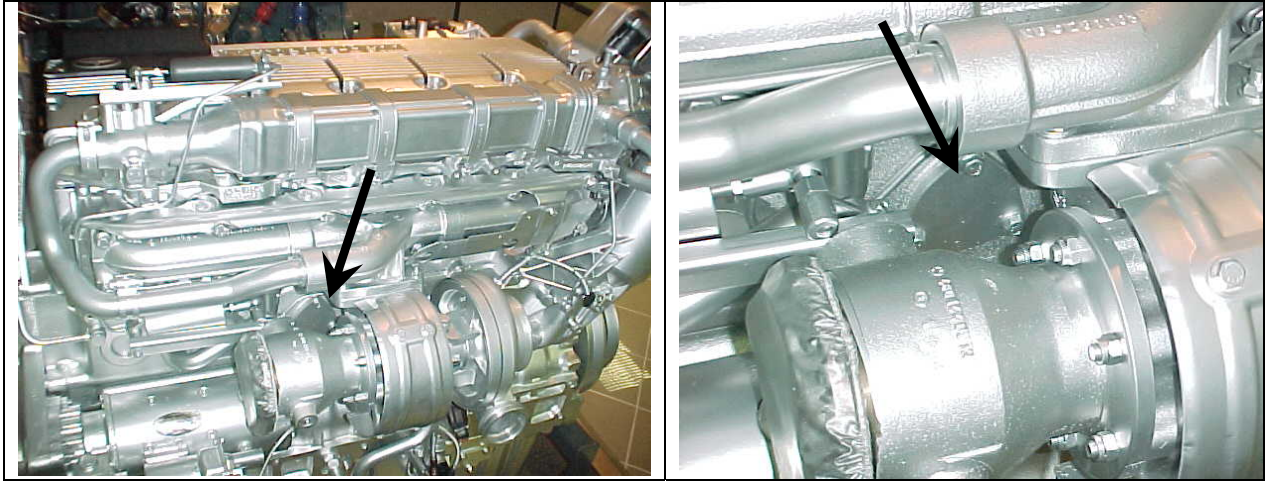
Figures 3 and 4 – Block Heater Element and Vehicle Power Cord Connection

2. Inspect the vehicle power cord receptacle on the outside of the vehicle for signs of damage, poor electrical contact, corrosion, etc. See Figures 5 and 6 for the areas to inspect. Replace the vehicle power cord if it shows any signs of damage and use the correct new cord sourced from the vehicle manufacturer. Refer to the vehicle service manual for installation procedures. The cord must be properly secured within the vehicle to allow slack for engine movement and ensure the cord does not touch the engine, hot components, or any moving parts.

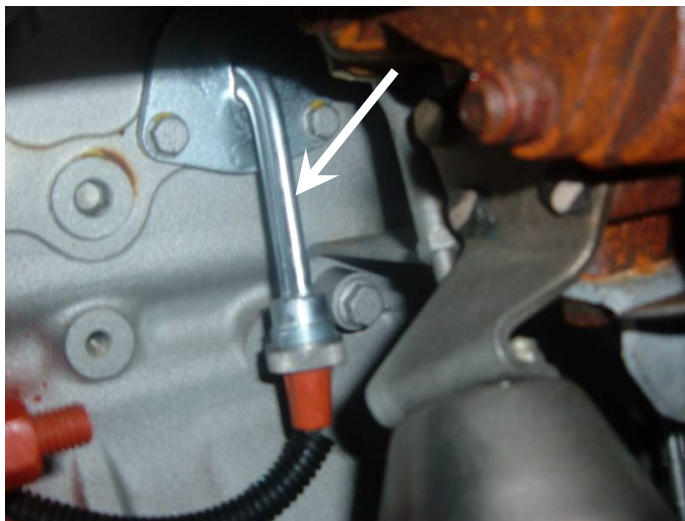


Figures 5 and 6 – Vehicle Power Cord Outside Receptacle

3. On EPA98 engines, install the existing block heater element (if undamaged) or new block heater element on the RIGHT side of the engine if the suitable mounting pad is present on the cylinder block. See Figures 7 and 8.

**Figures 7 and 8 – New EPA98 Engine Block Coolant Heater Element Location on RIGHT Side of Engine Block**

- a. Drain cooling system.
- b. Remove the cover plate from the right side of the block and discard the gasket. Save the cover plate for relocation to the left side of the block.
- c. Install the block heater element with a new gasket on the RIGHT side of the block. If you are using a new block heater element, it will come with a new gasket. The coiled wire of the block heater element will point to the front of the engine when inserted into the block, with the electrical connection pointing to the ground. See Figure 9. Torque the three M8 x 20 mounting bolts to 30-38 N·m (22-28 lb·ft).

**Figure 9 - Block Coolant Heater Orientation**

- d. Insert the power cord connector firmly into the block heater element socket, taking care to align the pins with the sockets. Tighten the strain relief nut securely by hand.
- e. Route electrical cable over the top of the turbo oil drain tube. See Figure 10.

NOTICE

When installing the MBE 4000 cylinder block heater, care needs to be taken to prevent the electrical cord from coming in contact with any hot surfaces or sharp objects that could cause a short or open wire. Failure of the electrical cord will cause the heater to become inoperable.

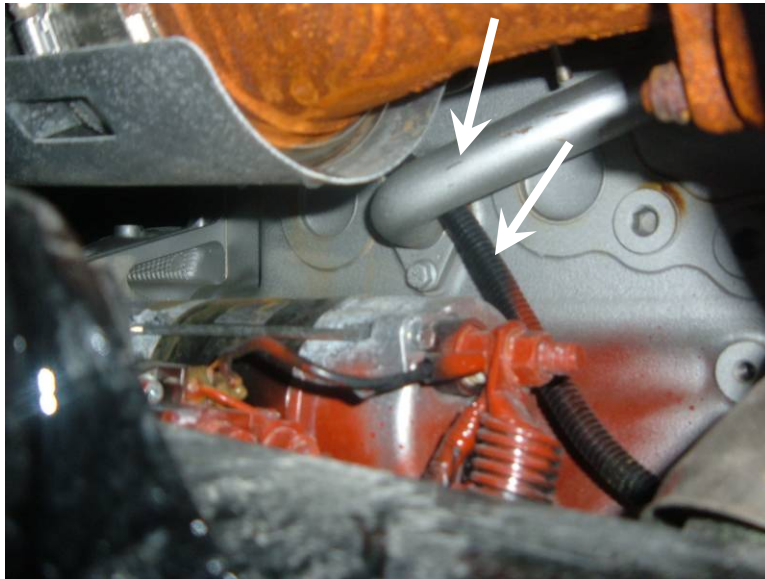


Figure 10 - Block Heater Cable Routing Around Turbo Oil Drain Tube

- f. Route block heater electrical cable around the back of the cylinder head. See Figure 11.

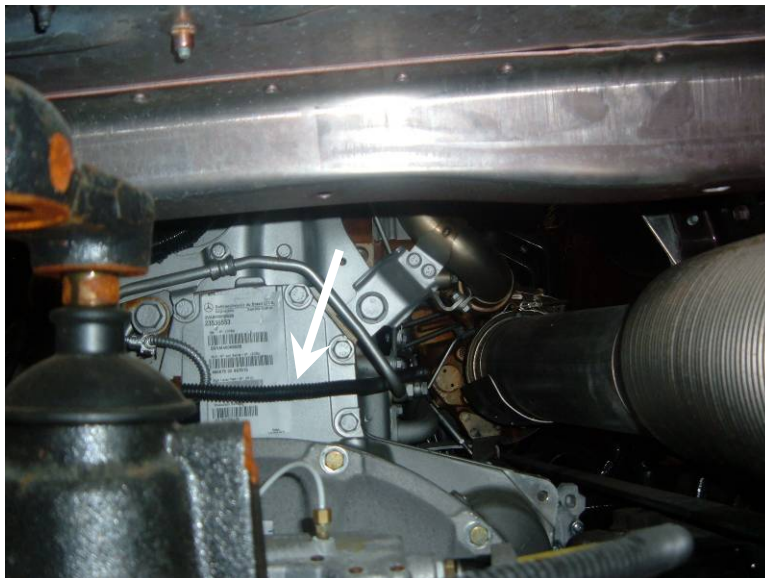


Figure 11 - Cable Routing Rear of Cylinder Head

- g. Verify that electrical cord is fastened to the left rear of the cylinder head. See Figure 12.



Figure 12 - Block Heater Cable Fastener on Left Side of Cylinder Head

- h. Route cable between the frame and cab, mounting the wire to the cab reinforcement rib. See Figure 13.
NOTE: Cab mounting may vary. Refer to vehicle service manual for proper mounting instruction.

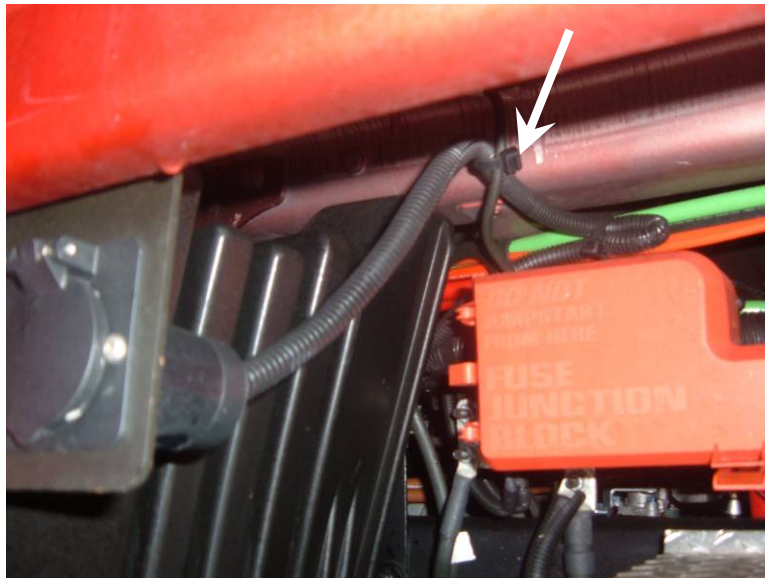


Figure 13 - Cable Routing and Cab Connection

- i. Install the cover plate on the LEFT side of the block where the block heater element used to be. Use a new gasket. Torque the three M8 x 20 mounting bolts to 30-38 N·m (22-28 lb·ft).
j. Fill cooling system to proper level.
k. Start engine and verify there are no coolant leaks.

4. On EPA98 engines, inspect the main fuel return line located just above the former block heater element location on the left side of the block. Replace the line if any damage is noted. See Figure 14.

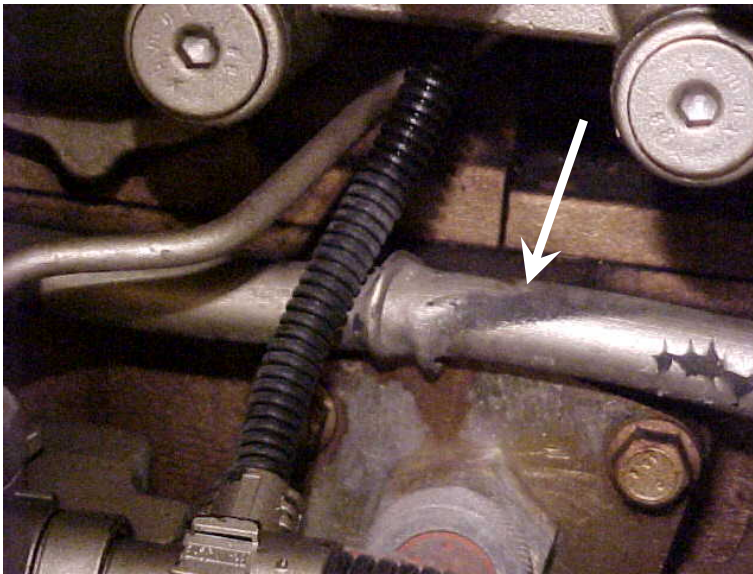


Figure 14 – EPA98 Main Fuel Return Line Inspection

NOTE: End users of the vehicle must follow all applicable local and national electrical codes when supplying power to the vehicle for the block heater element. The block heater consumes 1500 watts and should be connected only to a GFCI protected 120 volt AC outlet. Care should be taken to ensure the power supply is not over-fused.

REQUIRED MATERIAL

Table 1 provides a list of the correct service part numbers. The block heater cord is an OEM vehicle supplied part.

Part Number	Quantity	Description
A0002003296	1 (if needed)	Block Heater Element with Gasket
A4602010080	1 (if needed)	Gasket - Block Heater Element or Cover Plate
A4570901776	1 (if needed)	Main Fuel Return Line (EPA98)

Table 1 – MBE4000 EPA98 and EPA04 Block Heater Service Information

REPAIR PROCEDURE

Refer to the *EPA04 MBE 4000 Service Manual*, DDC-SVC-MAN-0023, for further repair information. This manual covers both EPA98 and EPA04 MBE 4000 engines.

CLAIM PROCESS

Detroit Diesel will cover warrantable failures and relocation of this component under the provisions of the applicable warranty coverage.

CONTACT INFORMATION

Please contact the Detroit Diesel Customer Support Center at 313-592-5800 or email csc@detroitdiesel.com if you have any questions.