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TO: All Distributors/Dealers and Their Branches
U.S., Canada and Mexico

ATTN.: Service Managers

FROM: Evandro Silva

SUBJECT: **MBE4000 – EGR System – EGR Cooler Inspection**

In continuation to provide assist to distributors/dealers technicians servicing EPA04 certified MBE4000 equipped with EGR Technology, we are releasing an inspection/troubleshooting procedure for the EGR cooler.

This procedure is part of the troubleshooting for the EGR System applied to the MBE4000 engine. Additional information and tooling will be released in the coming fall.

If you have any questions, please free to contact the Technical Support Team

Evandro Silva
MBE4000 Technical Support

EGR Cooler Inspection

In the event there is a suspect EGR cooler leak, inspect the engine for the following symptoms:

- CEL for low coolant level. Excessive coolant consumption.
- Black traces of a liquid on the rear RH side of engine block, near the shutoff valve.
- Black soot on the inside surface of the heat shield and the mount bracket for the EGR shutoff valve.
- Water/coolant traces around EGR Valve, EGR outlet pipe and EGR shutoff valve - see figure1.

NOTE:

Water condensation can generate water/coolant traces around EGR components. Water condensation does not imply there is a component failure. In case of a leaking EGR cooler, the water/coolant traces in the EGR components is always associated with coolant consumption (CEL for low coolant level).

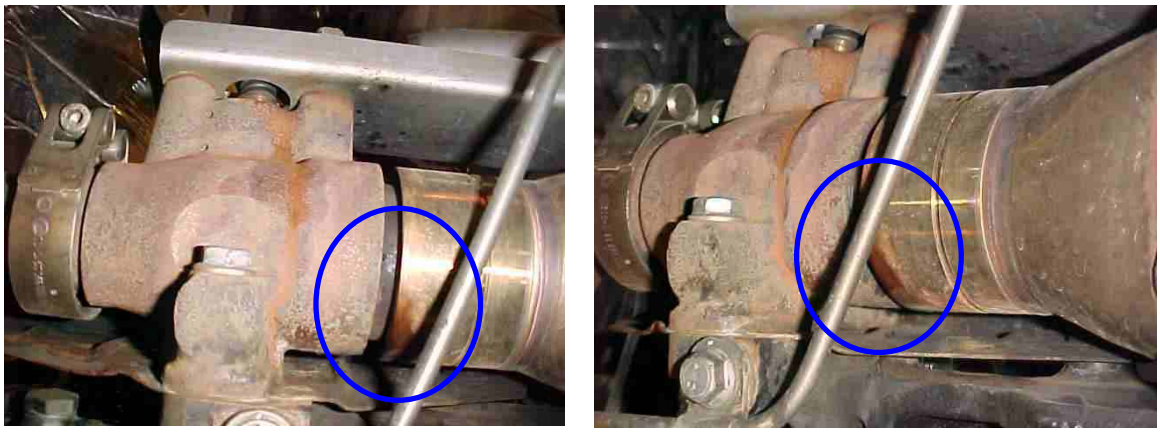


Figure 1 – traces of water/coolant around the shutoff valve

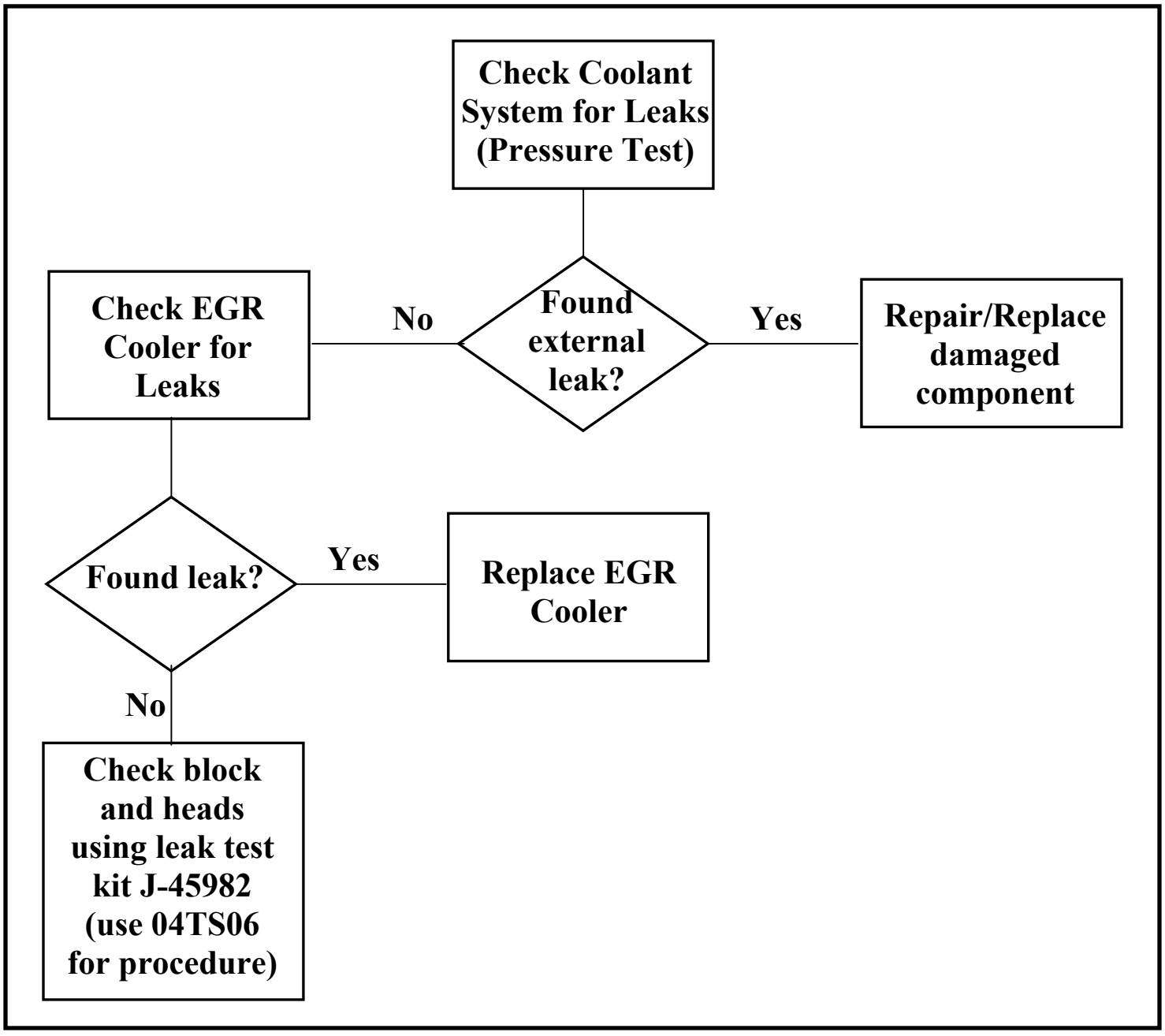
EGR Cooler - Troubleshooting

Refer to the flow chart in the next page for the EGR Cooler troubleshooting tree.

NOTE:

This troubleshooting tree must be applied in units with excessive lost of coolant or CEL for low coolant level complaint.

Troubleshooting Tree



NOTE:

New coolant pipes have been added to the coolant system (EGR cooler supply and return lines). Make sure that they are inspected for leaks during the coolant system pressure test.

EGR Cooler- Leak Test

NOTE:
For additional safety precautions, refer to the MBE4000 Service Manual (6SE412EGR) – General Information – page 20.

1. Short-circuit or plug the coolant ports at the EGR cooler. See figures 2 and 3 for details (a test kit is under development and will be available next fall).

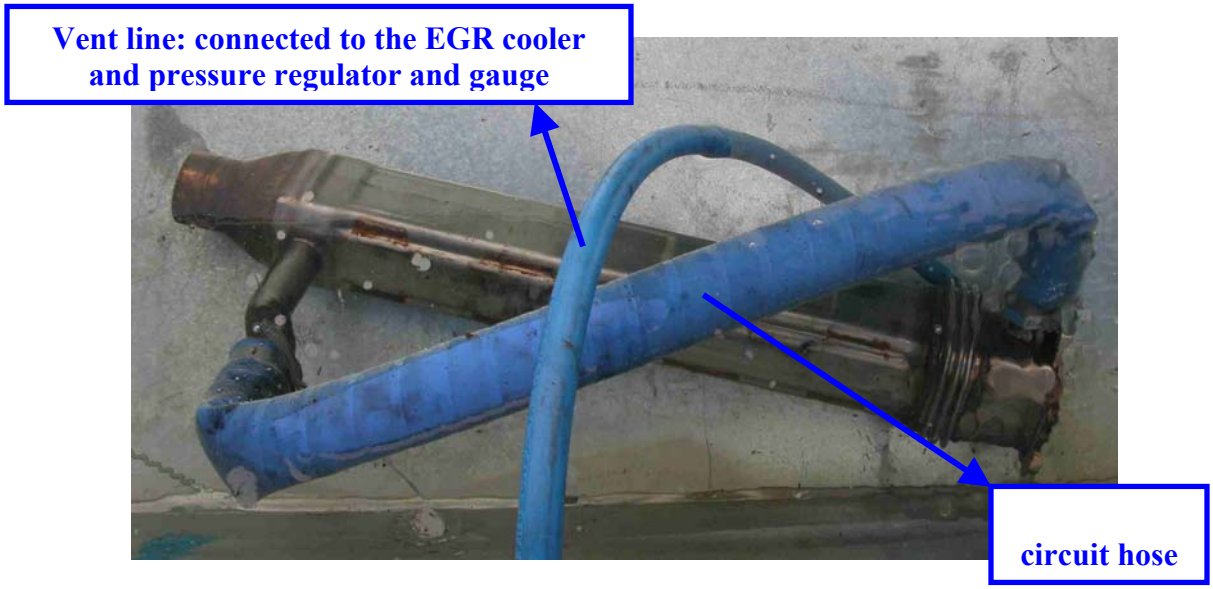


Figure 2 - EGR cooler ports: short-circuited

Figure 3 - EGR cooler ports: plugged

2. Connect a pressure regulator and a pressure gauge to the EGR cooler vent line.

CAUTION:
To avoid injury from flying debris when using compressed air, wear adequate eye protection (face shield or safety goggles) and do not exceed 40 PSI (2.7 bar) air pressure.

3. Pressurize the EGR cooler applying 13 PSI. When adjusting the pressure, do not exceed 15 PSI.
4. Submerge the EGR cooler completely in a hot water tank. Tip one end of the cooler up so the air bubbles will quickly escape.
5. Leave the EGR cooler under the water for 5 minutes.
6. In the event of a failed EGR cooler, a steady stream of small air bubbles will come out of the higher port of the EGR cooler. See figure 4.

Figure 4 – Stream of air bubbles coming out of the pressurized EGR Cooler

7. Replace the EGR cooler.