



# Technical Service Bulletin

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Cylinder Block Porosity - Lubricating Oil in Coolant or Coolant in Lubricating Oil

## Cylinder Block Porosity - Lubricating Oil in Coolant or Coolant in Lubricating Oil

### Warranty Statement

The information in this document authorizes specific changes to the repair practice for failures covered under product warranty coverages.

### Contents

#### Product Affected

- B4.5 CM2350 B146C
- B4.5 CM2350 B159C
- B4.5 CM2350 B160M
- B4.5 CM2350 B161M
- B6.7 CM2350 B121B
- B6.7 CM2350 B135B
- B6.7 CM2350 B136C
- B6.7 CM2350 B148B
- B6.7 CM2350 B157C
- B6.7 CM2450 B155B
- B6.7N CM2380 B150B
- ISB4.5 CM2350 B104
- L9 CM2350 L116B
- L9 CM2350 L119B
- L9 CM2350 L120C
- L9 CM2350 L123B
- L9 CM2350 L129C
- L9 CM2350 L133C
- L9 CM2350 L148C
- L9 CM2350 L151C
- L9 CM2450 L126B
- L9 CM2450 L143C
- L9 CM2450 L149M

- L9 CM2450 L150M
- L9 CM2450 L169B
- L9N CM2380 L124B
- L9N CM2380 L130B
- L9N CM2380 L142B
- L9N CM2380 L147B
- QSB4.5 CM2350 B106
- QSB6.7 CM2350 B105
- QSB6.7 CM850(CM2850)
- QSB6.7 M CM2250

### **Issue**

Coolant found in lubricating oil pan, or lubricating oil found in radiator or top tank.

### **Root Cause**

Cross Channel coolant leaks caused by cylinder block porosity.

### **Verification**

Coolant found in lubricating oil pan, or lubricating oil found in radiator or top tank.

### **Resolution**

Cylinder block porosity location is internal to the cylinder block and is **not** able to be seen from the outside.

1. Follow normal coolant in lubricating oil / lubricating oil in coolant / trouble shooting trees, but do **not** remove the cylinder head to check for cylinder head gasket leaks.
2. If no leaks are identified through the normal troubleshooting process, confirm the following checks have been completed and verified:
  - Has the turbocharger been pressure checked for a leaking internal bearing housing?
  - Has the hydraulic / transmission cooler been pressure / leak checked?
  - Has the engine lubricating oil cooler been pressure / leak checked? Was the cooler at or close to engine operating temperature when the check was performed?
  - Has the EGR cooler been pressure / leak checked? Was the EGR cooler at or close to engine operating temperature when check was performed?
3. If none of the checks in step 2 confirm a coolant leak, then perform the following steps:
  - Verify the engine is filled with coolant and properly de-aerated. Do **not** use water only as this may affect pressure test results.
  - Use a non-flammable cleaner to clean the cylinder block. Allow the cylinder block to fully dry before proceeding.
  - Add three times the standard amount of tracer dye to the coolant system. Reference Procedure 008-020 in Section 8.
  - Utilize cylinder block heater to heat coolant, or run the engine up to operating temperature.

- Collect a lubricating oil sample and drain the lubricating oil.
- Remove the lubricating oil pan. See corresponding Service Manual. Reference Procedure 007-025 in Section 7.
- Pressurize the coolant system. See corresponding Service Manual. Reference Procedure 008-020 in Section 8.
- Leave the system pressurized for up to 12 hours.
- Periodically use a black light to check for coolant leaks around the main bearing caps, cylinder bores, and cylinder block. Recommendation is to check at 1 hour, 2 hours, 5 hours, 12 hours.
- If leaks are detected in the 12-hour period, remove the cylinder head, measure and document the cylinder head bolt breakaway torque, and check the head gasket for evidence of leakage. See corresponding Service Manual. Reference Procedure 002-004 in Section 2.
  - If there is evidence of a cylinder head gasket leakage:
    - Take photos of the cylinder head gasket leak location and upload to Expert Diagnostic System or Guidanz™.
    - Type notes into Expert Diagnostic System or Guidanz™ describing the specific location on the cylinder head gasket where the leak occurred. Include the closest cylinder number and the block passages involved.
    - Replace the cylinder head gasket, See corresponding Service Manual. Reference Procedure 002-004 in Section 2.
    - Re-assemble the engine and complete and verify the repair.
  - If there is evidence of leakage other than the cylinder head gasket:
    - Take photos of the identified leak location and upload to EDS or Guidanz™.
    - Type notes into Expert Diagnostic System or Guidanz™ describing the location of the leak as closely as possible. Example: Coolant leaking through pin hole above main bearing cap 2.
    - Call Cummins Care (1-800-Cummins) for instruction. Do **not** send the cylinder head to a third party to be inspected / machined unless directed to do so by Cummins Care.
- If no leaks are detected in the 12-hour period and all the above steps have been completed and verified, call Cummins Care (1-800-Cummins) for instruction.

## Document History

Date	Details
2020-7-21	Module Created
2021-2-22	Edited resolution Step 3.
2021-5-3	Updated Product Affected.

Date	Details
2024-2-19	Updated Product Affected.

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**Last Modified: 20-Feb-2024**

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