

1963 - 1982 Corvette: Service Bulletin: Cooling System Restrictions - Symptoms and Diagnosis

This service bulletin was issued in May 1979, but the concepts and techniques are applicable toward 1960's Corvette to early 1980's Corvettes.

Subject: Cooling System Restrictions - Symptoms and Diagnosis
Model and Year: All Passenger and LD Trucks with V-8 Engines
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TO: ALL CHEVROLET DEALERS

Engine overheat and/or cooling system noise may be caused by restrictions in the cooling system.

Components which may be prone to this condition are cylinder head, water pump, block, thermostat housing and inlet manifold.

Symptoms

1. Engine may make snapping/cracking noises.
2. Heater core may gurgle or surge.
3. Radiator hoses may vibrate and thump.
4. Heater hoses may vibrate and thump.
5. Overheat light may or may not come on.

Symptoms are the result of coolant boiling at some localized area and may be noticed after extended idling and/or while being driven. Determine which side of the engine is involved and whether it is more at the front or rear of engine.

Diagnosis & Inspection

1. Isolate area of engine the localized boiling is originating from. This can be done by probing engine with a sounding bar (large screw driver).
2. With radiator cap removed, observe water being circulated in radiator. Feel the front area of radiator for cold spots which indicate blockage. Blocked radiators generally occur on units that have accrued miles and not on new vehicles.

CAUTION: The radiator cap should be removed from a cool engine only.

3. Inspect thermostat to see if it opens completely.
4. Inspect thermostat housing to make sure it is completely free of obstructions.
5. Remove water pump from vehicle and remove the back cover on the pump. All internal passages can be inspected using a flash light.
6. Inspect cross over at the front of the inlet manifold. This entire passage can be seen with only the thermostat removed.
7. Remove heads, but lay them aside for now and check the block first because the heads are the most complex pieces as far as coolant passages are concerned.
8. With water pump and heads removed all coolant passages can be inspected by using a pen light flash light. All water jacket areas can be seen directly and a block should never be replaced as being suspect unless the restricted area can be directly seen .
9. If none of the above inspections reveal the problem area, the heads must be considered prime suspect. Heads with blocked coolant passages generally have more than one area that is blocked. Inspect the heads for signs of overheat discoloration (a dark blue or black area). If none are found look in the coolant passages for blockage and probe all passages that are accessible.

The head is very intricate and all passages cannot be reached. Use a probe that is fairly substantial as a tag wire may go through or around a partially blocked area. If nothing is found by visual inspection and probing, inspect the passages for a rough ragged appearance. The roughest internal passages are probably the ones that are blocked.

Replace a blocked or suspect head and inspect the replacement head in the same manner before installing it.

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