Vehicle: Customer Interest
Engine - Driveability Concerns/Cooling System DTC's Set

BULLETIN: 01-T-07

ISSUE DATE: February, 2001

CATEGORY TYPE: Engine-03

CATEGORY: Emission Controls

CORPORATION NO.: 01-06-04-005

SUBJECT:
Engine Coolant Temperature Sensor Related Diagnostic Trouble Code(s) and/or the Following Conditions: Hard Start, Erratic Idle, Rough Running. Engine Overheating, Low and/or Leaking Coolant, and/or Service Engine Soon Lamp Illuminated. (Replace Engine Coolant Temperature Sensor with New Design Sensor- P/N 21025106)

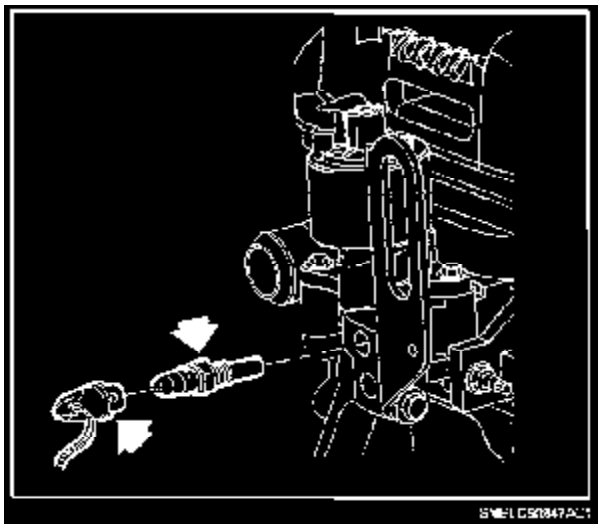
MODELS AFFECTED:
1991-2001 Saturn S-Series vehicles

CONDITION:
Customers may comment about various driveability and/or engine operating concerns including: hard start, erratic idle, rough running, engine overheating, low and/or leaking coolant, and/or Service Engine Soon lamp illuminated.

CAUSE:
This condition may be caused by a cracked engine coolant temperature sensor.

CORRECTION:
Replace engine coolant temperature sensor, inspect and if necessary replace sensor harness connector. Refer to procedure in this bulletin to replace engine coolant temperature sensor and Parts Requirements for specific parts information.

PROCEDURE



1. Disconnect engine coolant temperature sensor electrical connector and inspect sensor and connector terminals for corrosion and/or evidence of engine coolant.

   ^ If terminals are corroded or if there is evidence of engine coolant proceed to step 4.

   ^ If terminals are not corroded and there is no evidence of engine coolant, reconnect the electrical connector and continue to next step.

CAUTION:

TO AVOID THE DANGER OF BEING BURNED, DO NOT REMOVE THE CAP WHILE THE ENGINE, RADIATOR, AND SURGE TANK ARE STILL HOT. SCALDING FLUID AND STEAM CAN BE BLOWN OUT UNDER PRESSURE.

2. Perform one or both of the following checks to determine whether the engine coolant temperature sensor is providing the correct temperature indication.

   ^ If engine is at ambient temperature (vehicle has been sitting overnight or not started for several hours), use a Scan tool to compare the inlet air temperature (IAT) to the engine coolant temperature (ECT). These two readings should be within 2°C (4°F) of each other.

   ^ If engine is at operating temperature, install a thermometer in the coolant recovery reservoir. With the engine running and A/C off, use a Scan tool to compare the engine coolant temperature sensor reading to the thermometer reading. These two readings should be within 8°C (15°F) of each other.

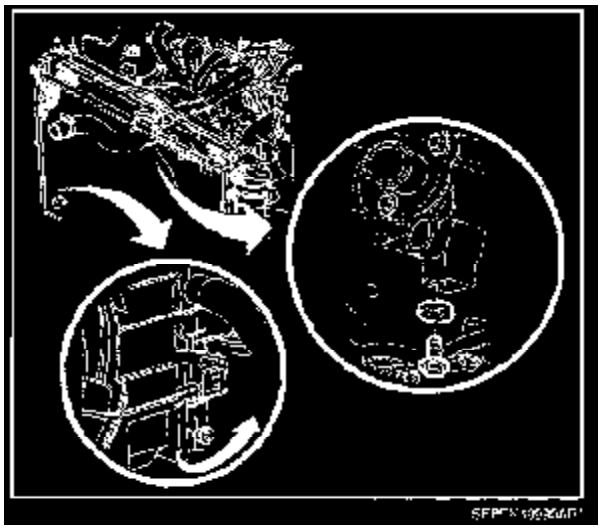
   If engine coolant temperature sensor reading does not pass either of the above tests, continue with next step.

   If engine coolant temperature sensor reading passes both of the tests above, refer to appropriate symptom diagnostic chart in the Engine/Emissions Controls Section of applicable Engine Service Manual.

3. Turn ignition off.

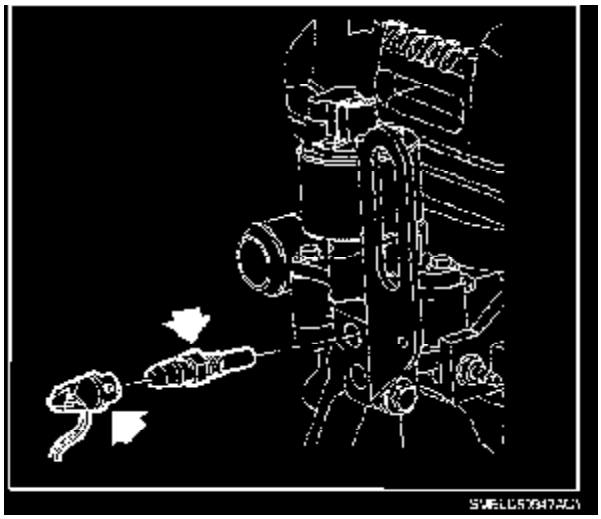
4 Remove coolant surge tank cap.

CAUTION:
DO NOT REMOVE CAP OR OPEN COOLING SYSTEM DRAINS FROM A HOT SYSTEM. ALLOW SYSTEM TO COOL FIRST.



5. Drain at least 1.9 L (2 Qt.) of engine coolant from the cooling system by opening radiator drain valve or removing engine drain plug. Collect engine coolant in a container.

6. Disconnect engine coolant temperature sensor electrical connector.



7. Remove engine coolant temperature sensor from cylinder head.
8. Obtain replacement engine coolant temperature sensor (P/N 21025106).
9. Use appropriate tap to clean sensor mounting hole of any thread sealant residue.
10. Install engine coolant temperature sensor in cylinder head.

    Torque:

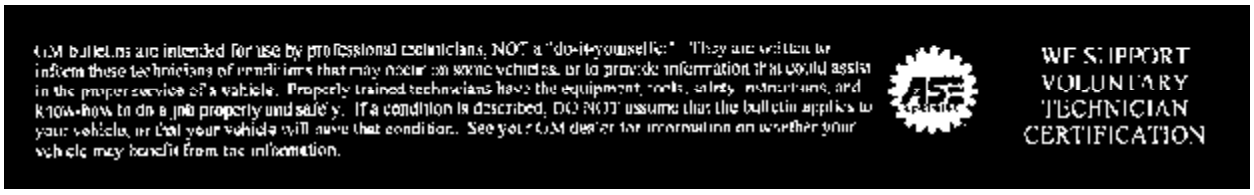
    Engine Coolant Temperature

    Sensor: 8 Nm (71 in-lbs)
11. Inspect harness connector terminals for corrosion and/or evidence of engine coolant. If harness connector terminals are corroded or there is evidence of engine coolant, the harness connector must be replaced with new connector (P/N 12117087-includes: connector, terminals, wires, and splice sleeves).
12. Connect engine coolant temperature sensor connector.
13. Transfer engine coolant drained in step 5 into coolant surge tank. If necessary fill coolant surge tank to the FULL COLD range with 50/50 solution of correct type of antifreeze and clean water.
14. Start engine and check for leaks.
15. Run engine until upper radiator hose is hot, then add additional coolant if needed to bring the level to the FULL COLD level (1991-early 1997) or within the Min./Max. cold range (late l997-2001).
16. Install coolant surge tank cap.

21025106	Sensor-Coolant Temperature
12117087	Connector-Engine Coolant Temperature Sensor

PARTS REQUIREMENTS

CLAIM INFORMATION:
To receive credit for this repair during the warranty coverage period submit claim through the Saturn Dealer System using the appropriate Electronic Labor Time Guide and Labor Operation Code J6368 (Sensor, PCM Engine Coolant Temperature-Replace), and/or N6268 (Wiring and/or Connector Repair-Engine Coolant Temperature Sensor).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