- **When Monitored:** With the engine running, battery voltage greater than 10.4 volts, and the Cooling Fan 1 control active.
- **Set Condition:** The Totally Integrated Power Module (TIPM) detects an open or shorted condition in the Cooling Fan 1 control circuit.

Possible Causes
FUSED B+ CIRCUITS OPEN OR HIGH RESISTANCE
RADIATOR FAN RELAY
TOTALLY INTEGRATED POWER MODULE (TIPM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. See: Powertrain Management\Computers and Control Systems\Testing and Inspection\Initial Inspection and Diagnostic Overview\Pre-Diagnostic Troubleshooting Procedure.

1. DTC IS ACTIVE

1. Turn the ignition on.
2. With the scan tool, actuate the Cooling Fan 1 control.
3. With the scan tool, select View DTCs.

Is the status Active for this DTC?

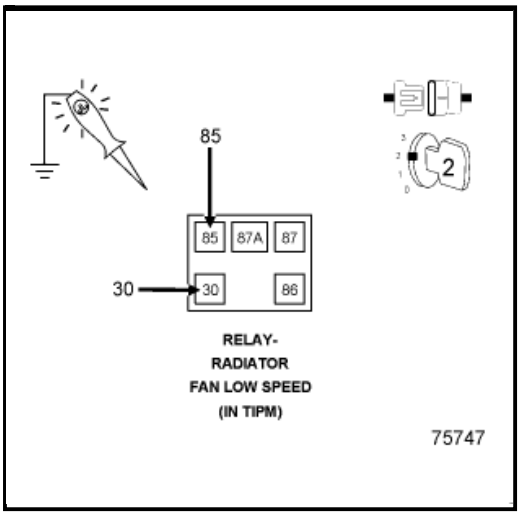
Yes

- Go To **2**

No

- Perform the CHECKING FOR AN INTERMITTENT DTC diagnostic procedure. See: Powertrain Management\Computers and Control Systems\Testing and Inspection\Initial Inspection and Diagnostic Overview\Intermittent Condition Test.

2. FUSED B+ CIRCUIT(S) OPEN OR HIGH RESISTANCE



1. Turn the ignition off.
2. Remove the Radiator Fan Low Speed Relay from the Totally Integrated Power Module (TIPM).
3. Turn the ignition on.
4. Using a 12-volt test light connected to ground, check the Fused B+ circuits in the Radiator Fan Low Speed Relay connector.

NOTE: The test light should be illuminated and bright. Compare the brightness to that of a direct connection to the battery.

Is the test light illuminated and bright?

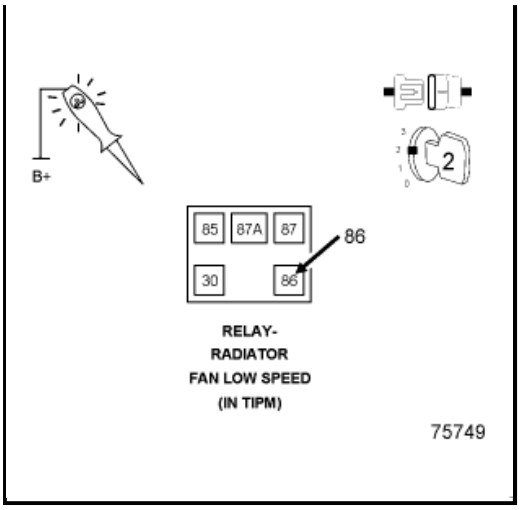
Yes

- Go To **3**

No

- Repair the Fused B+ circuit(s) for an open circuit or high resistance.
- Perform the BODY VERIFICATION TEST. See: Verification Tests\Body Verification Test.

3. COOLING FAN 1 CONTROL ACTUATION



1. Turn the ignition off.
2. Remove the Cooling Fan Low Speed Relay from the TIPM.
3. Turn the ignition on.
4. With the scan tool, actuate the Cooling Fan 1 control to ON.
5. Using a 12-volt test light connected to ground, check the (N23) Rad Fan Low Speed Control circuit in the Radiator Fan Resistor harness connector.

NOTE: The test light should be illuminated and bright proportional to the maximum duty cycle allowed by the scan tool. For example, if the scan tool allows 100% actuation, the brightness should be as bright as a direct connection to the battery. If the scan tool allows a maximum 25% actuation, the brightness should be 25% as bright as a direct connection to the battery.

6. With the scan tool, actuate the Radiator Fan Resistor control to OFF.
7. Using a 12-volt test light connected to ground, check the (N23) Rad Fan Low Speed Control circuit in the Radiator Fan Resistor harness connector.

NOTE: The test light should not be illuminated with the control actuated OFF (0%).

Is the test light illuminated when actuated ON and not illuminated when actuated OFF as described above?

Yes

- Go To **4**

No

- Go To **5**

4. RADIATOR FAN LOW SPEED RELAY

1. Turn the ignition off.
2. Inspect the connectors where the Radiator Fan Low Speed Relay connects to the TIPM.
3. Look for broken, bent, pushed out or corroded terminals. Verify that there is good pin to terminal contact in the related connectors.

Were any problems found?

Yes

- Repair as necessary.
- Perform the BODY VERIFICATION TEST. See: Verification Tests\Body Verification Test.

No

- Replace the Radiator Fan Low Speed Relay.
- Perform the BODY VERIFICATION TEST. See: Verification Tests\Body Verification Test.

5. TOTALLY INTEGRATED POWER MODULE

1. Inspect the connectors where the Radiator Fan Low Speed Relay connects to the Totally Integrated Power Module.
2. Look for broken, bent, pushed out or corroded terminals. Verify that there is good pin to terminal contact in the related connectors.
3. Search for any Technical Service Bulletins (TSBs) that may apply.

Were any problems found?

Yes

- Repair as necessary.
- Perform the BODY VERIFICATION TEST. See: Verification Tests\Body Verification Test.

No

- Replace and program the Totally Integrated Power Module.
- Perform the BODY VERIFICATION TEST. See: Verification Tests\Body Verification Test.