

2-12 ENGINE ELECTRICAL

Electric Fan Switch

TESTING

3.8L Engines

Checking cooling fan operation with an integrated controller.

1. Make sure the ignition key is turned off. Disconnect the integrated controller.
2. Jump pin 3 to pin 2 at the integrated controller harness connector. Does fan run?
3. If yes—Key off, disconnect the PCM, reconnect the integrated controller, turn the key on/engine off.
4. Does the fan run at a slow speed? If no—replace the integrated controller. Reconnect the PCM and re-evaluate the symptoms.
5. If no—Key off, disconnect the cooling fan connector. Disconnect the integrated controller. Jump pin 3 to pin 6 at the integrated controller vehicle harness connector
6. Using a DVOM (digital volt/ohm meter), set to the 20 volt scale, and measure the voltage at the cooling fan vehicle harness. Is the voltage is greater than 8 volts?
7. If yes—replace the fan motor, reconnect the integrated controller and re-evaluate symptom.
8. If no—Key off. Disconnect the cooling fan and the integrated controller. Jump pin 3 to pin 6 at the integrated controller vehicle harness connector. With a DVOM on a 20 volt scale, measure the voltage at the cooling fan harness connector, positive side and the battery negative post. Is the voltage is greater than 8 volts?
9. If yes—Service the open in the ground cir-

cuit to the fan. Reconnect all the components, and re-evaluate the symptoms.

10. If no—Service the open in the power-to-fan circuit from Pin 6 and Pin 7 of the integrated controller harness connector the cooling fan harness connector. Reconnect all the components, and re-evaluate the symptoms.

4.6L Engines

The Variable Control Relay Module (VCRM) controls

- The cooling fan motor operation and speed.
 - The A/C clutch operation /.
 - Other non-A/C functions.
 - It also increases and decreases the cooling fan motor speed as necessary, depending on the refrigerant system high-side pressure.
 - Turns off the A/C clutch circuit OFF if the high-side pressure exceeds 425psi
1. To begin testing, perform the PCM Quick test.
 2. Service any codes.
 3. Check for a binding/seized-cooling fan.
 4. Connect Scan tool
 5. Turn the Key-on Engine off (KOEO)
 6. Access the output test mode on the Scan tool
 7. Command the cooling fan **ON** and check for fan operation —For two speed fan applications check both fan speeds (wait 30 seconds after commanding high speed fan on).
 8. Does the fan operate?
 9. If no?
 10. Command the cooling fan **OFF**; and disconnect the cooling fan.
 11. Command the cooling fan **ON**; and measure the voltage between the power-to- fan circuit at the cooling fan vehicle harness connector and chassis ground.

12. Is voltage greater than 10.00 volts?

13. Turn the key **OFF**.

14. If voltage supply is greater than 10.00 volts (source voltage) than power is being supplied to the fan.

15. Disconnect the scan tool from the Data Link Connector (DLC).

16. Measure the resistance between the ground circuit at the cooling fan vehicle harness connector and the chassis ground.

17. If resistance is less than 5 ohms, replace the fan motor.

18. If not, service the open ground circuit; reconnect all components, verify the systems operation.

REMOVAL & INSTALLATION

3.8L Engines

1. Remove the radiator upper sight shield.
2. Disconnect the engine control sensor wiring from the CCRM electrical connector
3. Remove the retaining bolts and constant control relay module (CCRM) from its mount on the radiator support.
4. Installation is the reversal of the removal procedure.

4.6L Engines

1. Remove the radiator upper sight shield.
2. Disconnect the electrical connector .
3. Remove the variable control relay module (VCRM) retainer bracket nuts, located on the radiator support and remove the VCRM
4. To install the VCRM, reverse the removal procedures. Tighten the VCRM bracket retainer nuts to 36 in. lbs. (4 Nm).