

## DIAGNOSIS AND TESTING - FUEL HEATER

The fuel heater is used to prevent diesel fuel from waxing during cold weather operation.

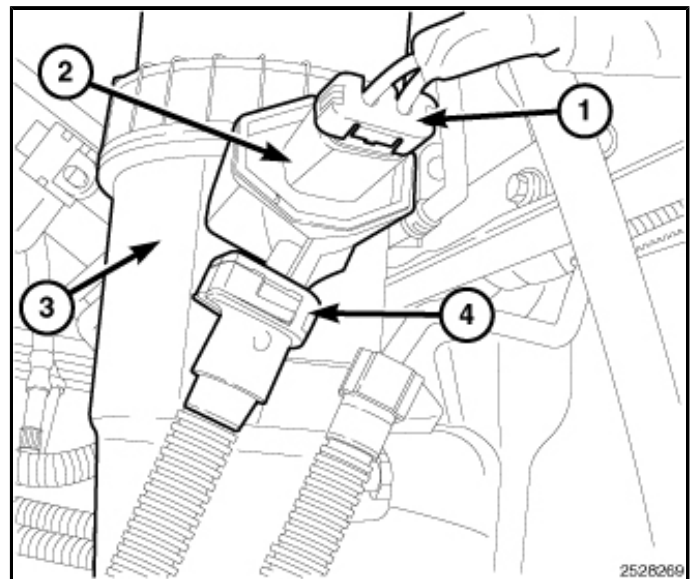
**NOTE:** The fuel heater element, "relay in the PDC" is not controlled by the Powertrain Control Module (PCM).

A malfunctioning fuel heater can cause a wax build-up in the fuel filter/water separator. Wax build-up in the filter/separator can cause engine starting problems and prevent the engine from revving up. It can also cause blue or white fog-like exhaust. If the heater is not operating in cold temperatures, the engine may not operate due to fuel waxing. The fuel heater assembly is located on the side of fuel filter housing and internal to the fuel filter housing. The heater assembly is equipped with a built-in fuel temperature sensor (thermostat) that senses fuel temperature. When fuel temperature drops below 32° F (0° C), the sensor allows current to flow to built-in heater element to warm fuel. When fuel temperature rises above 64° F (18° C), the sensor stops current flow to heater element (circuit is open). Voltage to operate fuel heater element is supplied from ignition switch, through "relay in the PDC", to fuel temperature sensor and on to fuel heater element. The heater element operates on 12 volts, 300 watts at 0 °F (-18° C). As temperature increases, power requirements decrease. A minimum of 7 volts is required to operate the fuel heater. The resistance value of the heater element is less than 1 ohm (cold) and up to 1000 ohms warm.

### TESTING

**NOTE:** The Fuel Heater is not a separately serviceable item. If diagnostics have led you to replace this sensor, then the whole fuel filter housing assembly (3) needs to be changed.

Disconnect harness connector (1) from heater element. Ambient temperature must be below the circuit close temperature. If necessary, induce this ambient temperature by placing ice packs on thermostat to produce an effective ambient temperature below circuit close temperature. Measure resistance across two pins. Operating range is 0.3 - 0.45 Ohms. If resistance is out of range, replace the fuel filter housing.



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