

FUEL PUMP ELECTRICAL CIRCUIT

As explained earlier, the fuel pump circuit can consist of a relay, fuse, PCM, connectors, wiring and ground. On some applications, there is also a fuel pump control module or an inertia switch.

The correct current flow is essential to pump operation. A connector, switch, relay or wire with high resistance may cause enough of a problem to significantly reduce performance and adversely affect the service life of any electric motor (refer to Figure 3-14, left view).

If there is enough resistance in the fuel pump circuit from corrosion or loose connections, there will be a reduction in the motor rotational speed. The motor speed will reduce, but the torque required to turn the pumping elements remains the same, resulting in a higher electric current. The higher the amperage and load resistance, the more heat is generated until a component may overheat beyond the point of functioning and damage internal components.

A loose terminal increases resistance, due to limited surface of good electrical conductivity through the points of contact. A loose terminal can be diagnosed with an exact duplicate of the male terminal placed into the female fitting. A small amount of drag should be present or the terminal or connector pigtail must be replaced. Visible signs of loose terminal failures can be spotted when repairing electric fuel pumps. Look for any signs of overheating at the fuel pump connector and vehicle wiring harness connector (see Figure 3-14, right view).

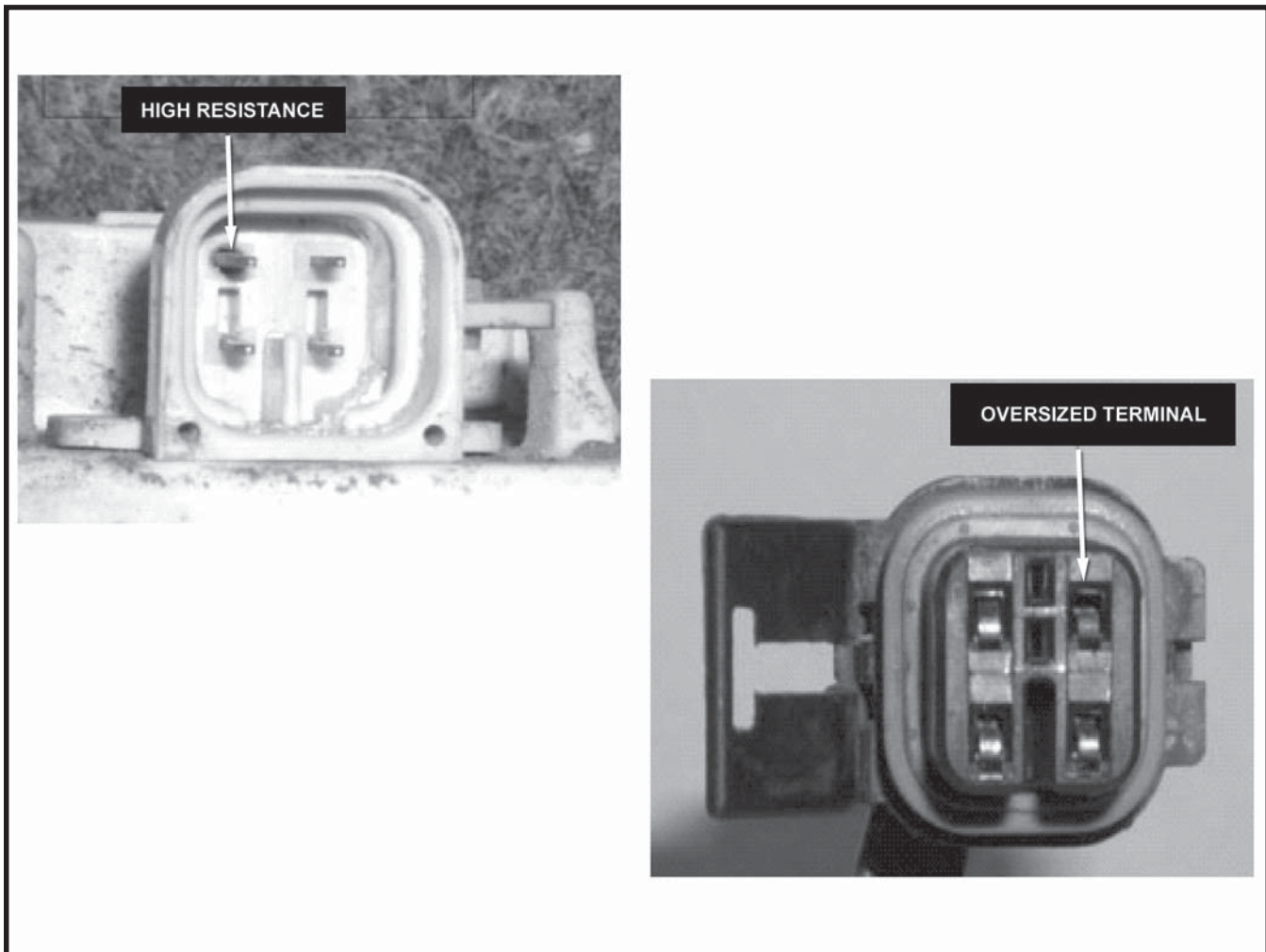


Figure 3-14, Fuel Pump and Connector Electrical Terminal Damage

FUEL PUMP ELECTRICAL CIRCUIT, CONTINUED

If any signs of overheating exist, a replacement of both terminals must be done or may lead to a repeat failure of the fuel pump. ACDelco offers pigtail connectors for different styles of pumps (see Figure 3-15).

A large amperage load through a circuit may damage a relay or increase internal resistance from arcing. Always inspect the entire electrical system before condemning any single component of the circuit.

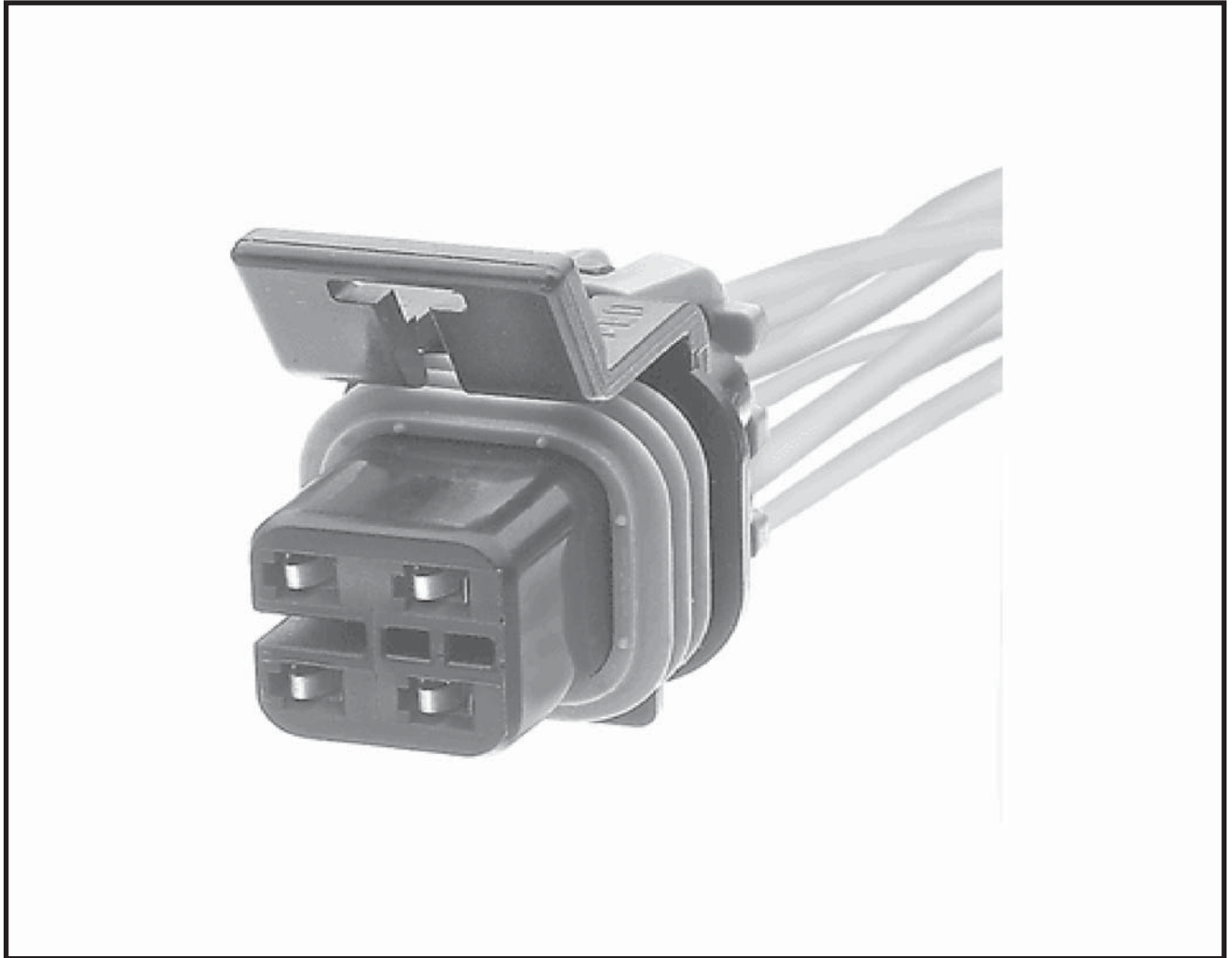


Figure 3-15, Fuel Pump Connector Pigtail