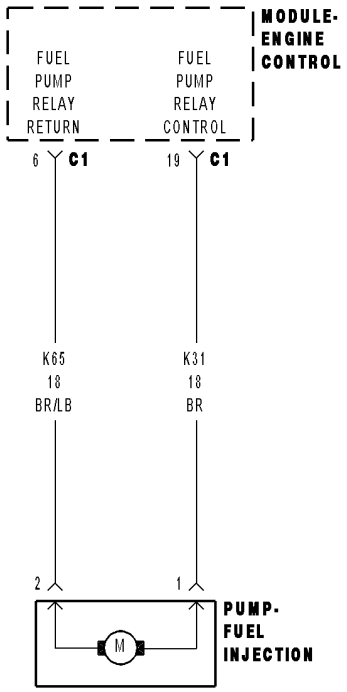
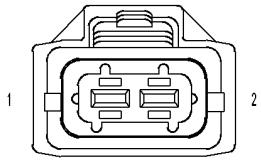
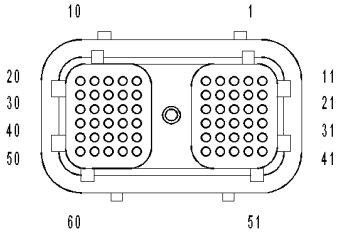
P0251-CP3 PUMP REGULATOR CONTROL





PUMP-
FUEL INJECTION
(DIESEL)



MODULE-ENGINE
CONTROL C1

8140929e

P0251-CP3 PUMP REGULATOR CONTROL (CONTINUED)

For the Engine circuit diagram (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ENGINE CONTROL MODULE - SCHEMATIC - ELECTRICAL)

For a complete wiring diagram **Refer to Section 8W**.

- **When Monitored:**
  When the ignition is on.
- **Set Condition:**
  The ECM detects a discrepancy between the PWM supplied to the Electronic Fuel Control Actuator and the PWM returned from the Electronic Fuel Control Actuator.

Possible Causes
FUEL PUMP
(K181) FUEL CONTROL ACTUATOR DRIVER OPEN
(K31) RETURN CIRCUIT OPEN FROM FCA TO ECM
(K181) FUEL CONTROL ACTUATOR DRIVER CIRCUIT SHORTED TO EXTERNAL VOLTAGE
(K31) FUEL CONTROL ACTUATOR RETURN CIRCUIT SHORTED TO EXTERNAL VOLTAGE
(K31) FCA RETURN CIRCUIT SHORTED TO (K181) FCA DRIVER CIRCUIT
(K181) FUEL CONTROL ACTUATOR DRIVER CIRCUIT SHORTED TO GROUND
(K181) FUEL CONTROL ACTUATOR DRIVER CIRCUIT SHORTED TO ANOTHER CIRCUIT
(K31) FUEL CONTROL ACTUATOR RETURN CIRCUIT SHORTED TO ANOTHER CIRCUIT
INTERMITTENT CONDITION
ECM

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. (Refer to 9 - ENGINE - DIAGNOSIS AND TESTING)

Diagnostic Test

1. FUEL PUMP

Ignition on, engine not running.

Disconnect the Fuel Control Actuator (FCA) harness connector.

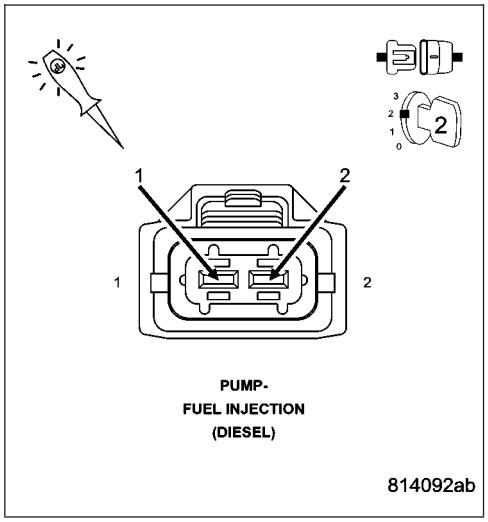
Connect an incandescent test light across the Fuel Control Actuator driver circuit and the Fuel Control Actuator return circuit at the fuel control actuator harness connector.

Observe the test light.

The ECM will perform a self test of the circuit which should momentarily flash the test light brightly, one time, approximately 20 seconds after being connected.

NOTE: Check connectors - Clean/repair as necessary.

NOTE: Compare test light brightness to that of a direct connection to the battery.



Did the light flash brightly?

Yes >> Replace the Fuel Pump.
Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ENGINE CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 2

P0251-CP3 PUMP REGULATOR CONTROL (CONTINUED)

2. (K181) FUEL CONTROL ACTUATOR DRIVER OPEN

Turn the ignition off.

Disconnect the ECM harness connectors.

NOTE: Check connectors - Clean/repair as necessary.

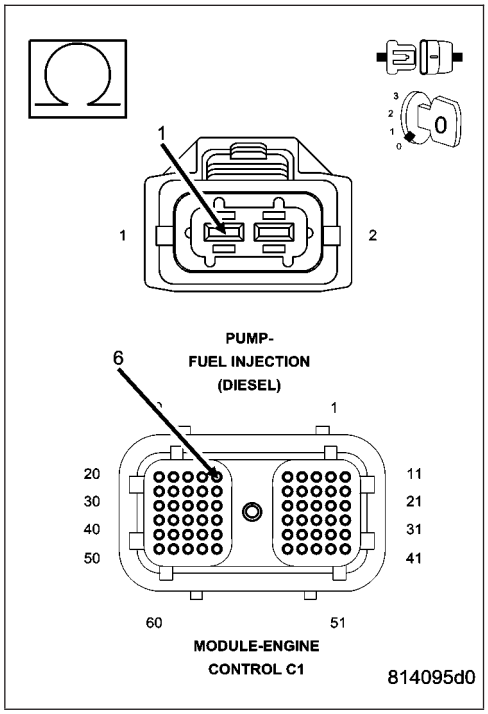
Measure the resistance of the FCA driver circuit between the electronic fuel control actuator harness connector and the ECM harness connector.

Is the resistance less than 10 Ohms?

Yes >> Go To 3

No >> Repair the (K181) Fuel Control Actuator Driver circuit OPEN.

Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ENGINE CONTROL MODULE - DIAGNOSIS AND TESTING)



3. (K31) RETURN CIRCUIT OPEN

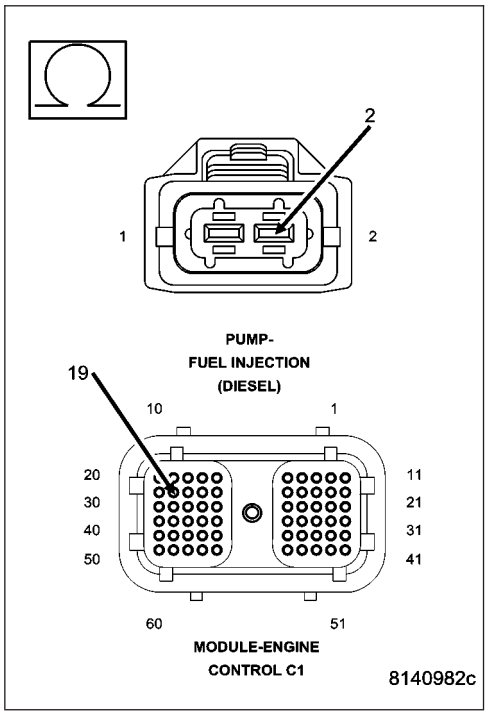
Measure the resistance of the (K31) return circuit between the FCA harness connector and the ECM harness connector.

Is the resistance less than 10 Ohms?

Yes >> Go To 4

No >> Repair or replace the engine wiring harness.

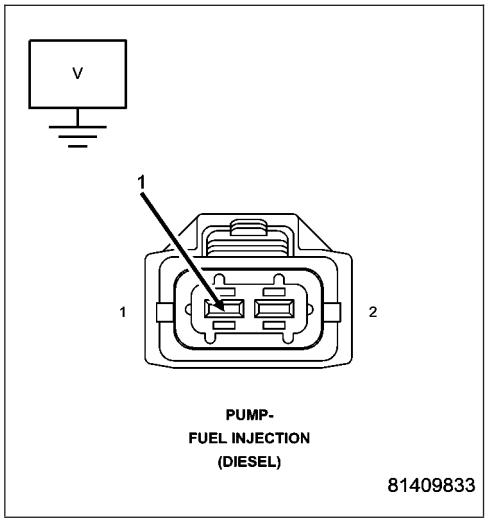
Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ENGINE CONTROL MODULE - DIAGNOSIS AND TESTING)



P0251-CP3 PUMP REGULATOR CONTROL (CONTINUED)

4. (K181) FUEL CONTROL ACTUATOR DRIVER CIRCUIT SHORTED TO EXTERNAL VOLTAGE

Measure the voltage between the (K181) FCA driver circuit in the FCA harness connector and battery negative.



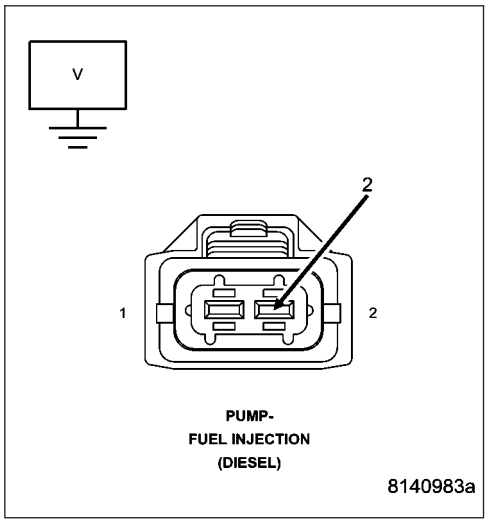
Is the voltage greater than 1 volts?

Yes >> Repair the (K181) FCA driver circuit shorted to external voltage.

No >> Go To 5

5. (K31) FUEL CONTROL ACTUATOR RETURN CIRCUIT SHORTED TO EXTERNAL VOLTAGE

Measure the voltage between the (K31) FCA return circuit in the FCA harness connector and battery negative.



Is the voltage greater than 1 volts?

Yes >> Repair the (K31) FCA return circuit shorted to external voltage.

Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ENGINE CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 6

P0251-CP3 PUMP REGULATOR CONTROL (CONTINUED)

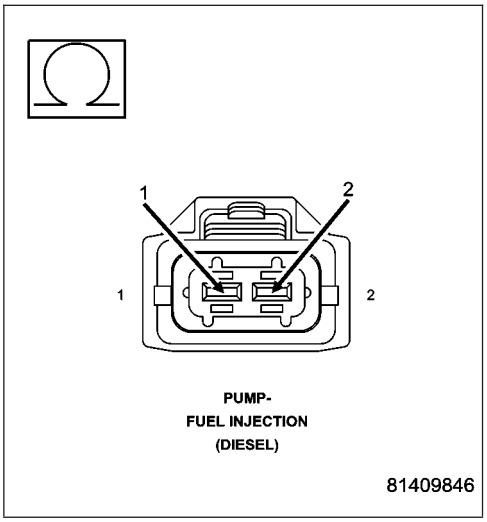
6. (K31) FCA RETURN CIRCUIT SHORTED TO (K181) FCA DRIVER CIRCUIT

Measure the Resistance between the return circuit in the FCA harness connector and Driver circuit.

Is the resistance less than 10 Ohms?

Yes >> Repair the (K31) FCA Return circuit shorted to (K181) FCA Driver circuit.
Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ENGINE CONTROL MODULE - DIAGNOSIS AND TESTING)

No >> Go To 7



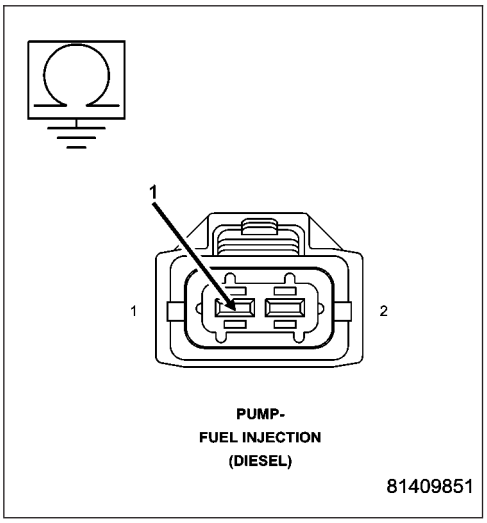
7. (K181) FUEL CONTROL ACTUATOR DRIVER CIRCUIT SHORTED TO GROUND

Measure the resistance between the (K181) FCA driver circuit in the FCA harness connector and battery negative.

Is the resistance less than 10 Ohms?

Yes >> Repair the (K181) FCA driver circuit shorted to ground.
Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ENGINE CONTROL MODULE - DIAGNOSIS AND TESTING)

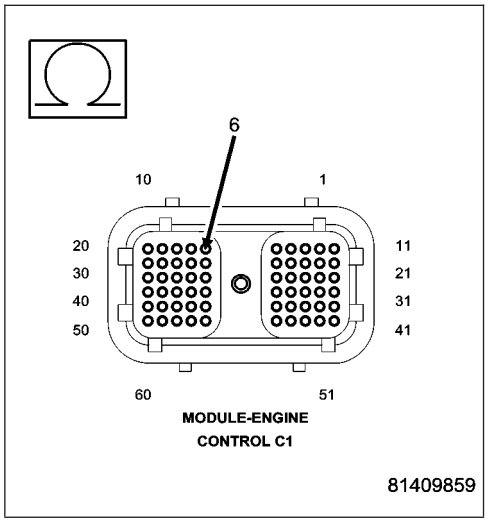
No >> Go To 8



P0251-CP3 PUMP REGULATOR CONTROL (CONTINUED)

8. (K181) FUEL CONTROL ACTUATOR DRIVER CIRCUIT SHORTED TO ANOTHER CIRCUIT

Measure the resistance between the (K181) FCA driver circuit in the ECM harness connector and all other circuits in the ECM connectors.



Is the resistance less than 10 Ohms?

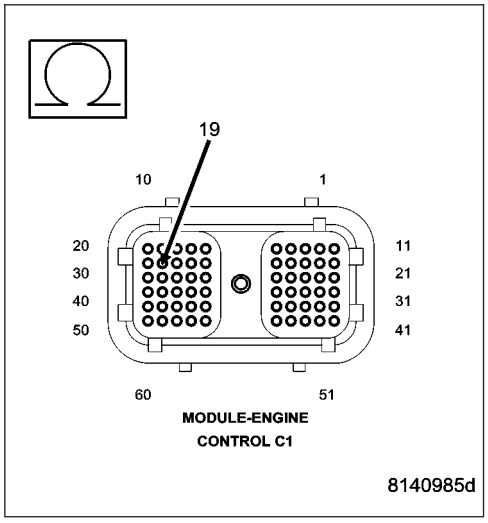
No >> Go To 9

Yes >> Repair the (K181) FCA driver circuit shorted to another circuit.

Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ENGINE CONTROL MODULE - DIAGNOSIS AND TESTING)

9. (K31) FUEL CONTROL ACTUATOR RETURN CIRCUIT SHORTED TO ANOTHER CIRCUIT

Measure the resistance between the (K31) FCA Return circuit in the ECM harness connector and all other circuits in the ECM connectors.′



Is the resistance less than 10 Ohms?

No >> Go To 10

Yes >> Repair the (K31) FCA Return circuit shorted to another circuit.

Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ENGINE CONTROL MODULE - DIAGNOSIS AND TESTING)

P0251-CP3 PUMP REGULATOR CONTROL (CONTINUED)

10. ECM

Reconnect the ECM harness connectors.

Ignition on, engine not running.

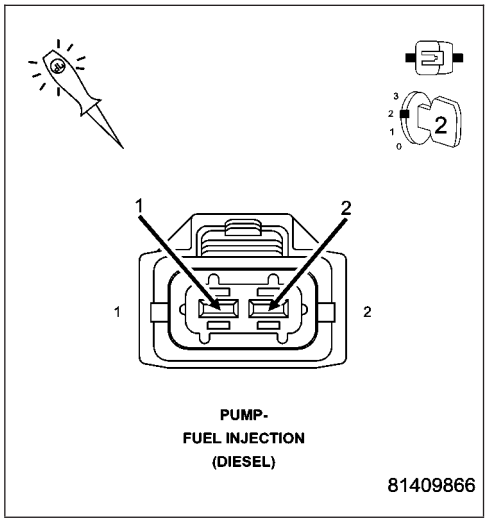
Disconnect the Electronic Fuel Control Actuator connector.

Connect an incandescent test light across the Fuel Control Actuator driver pin and the Fuel Control Actuator return wire at the fuel control actuator connector.

Observe the test light.

The ECM will perform a self test of the circuit which should momentarily flash the test light brightly, one time, approximately 20 seconds after being connected.

NOTE: Compare test light brightness to that of a direct connection to the battery.



Did the light flash brightly?

Yes >> Refer to the INTERMITTENT CONDITION Symptom (Diagnostic Procedure). (Refer to 9 - ENGINE - DIAGNOSIS AND TESTING)

No >> Replace the ECM.

Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ENGINE CONTROL MODULE - DIAGNOSIS AND TESTING)