

Diagnostic Procedure for EFI Related Woe and Strife

The EFI circuit is initiated from the ECU (pin 3) which energizes the EFI relay coil. The load side of the EFI relay feeds +12 to the ECU (EFI on logic), all 3 VSV valves, both O2 sensors, the ISC valve, pin 8 on the Check Connector, and the load side of the circuit opening relay which feeds the fuel pump when the motor is running. All EFI related +12 comes from the EFI fuse in the under hood fuse box. This fuse also feeds B+ to the ECU.

The CEL (**CHECK ENGINE** light) is illuminated by the ECU with a logic low on pin 8 and should always function as described in step 1 below. In other words...**No CEL=No Start.**

NOTE 1: Recently, there have been reports that a short inside the AFM can cause the CEL not to illuminate. A short can be the result of foreign matter or the molestation of the AFM (AIR FLOW METER) connector when trying to change the ECU's reading of air flow by altering the tension on the internal spring. In a stock configuration, unplugging the AFM will not cause a change in the CEL, but will shut down the fuel pump.

NOTE 2: Proper operation of the AFM will shut down the fuel pump when the air flow flap closes. This ensures that in the event of an accident the fuel pump is not running even with the key in the ON position. There have been several reports of folks being able to unplug the AFM connector and the truck continuing to run. **THIS IS WRONG AND POTENTIALLY LETHAL.** Look at replacing the CIRCUIT OPENING RELAY in the left kick panel and associated logic.

Continued below...

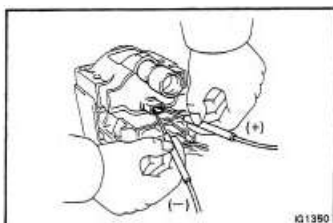
Motor not running; key in ON position; CEL should be on. If no CEL then,

1. Check for +12 VDC on brass terminal screw in under hood fuse box. This terminal is located directly to the left of the main fuse and is a [Phillips screw head](#).
2. If no +12 VDC in fuse box, then check fusible links off [positive battery terminal](#). While the one in the picture is not stock, the links are going to the stock locations. 2 to the black plastic junction box and one to the connector.
3. If +12 VDC in fuse box and no CEL, then suspect [EFI relay/fuse and associated wiring and contacts](#). Many have said that the wire from the EFI fuse to the EFI relay is undersized and is the root cause of all these problems. I'm not sure about this. At 2500 RPM I measured 6.25 amps across the load side of the EFI relay contacts. I believe the cause of the problem is related to the heat of the manifold combined with poor crimps on the connectors in the fuse box. Over time these connectors can become corroded and cause issues.
4. Check for +12 on pin 8 (B+) on the CHECK CONNECTOR mounted on the right side of the fire wall. If +12 on pin 8 and still no CEL, then EFI circuit OK and problem is with ECU or related wiring.

Coil/Igniter: The coil/igniter are mounted as a pair on the right front fender next to the cruise control actuator.

If CEL is ON from step 1 above and no spark from coil, then possible coil/igniter failure.

From the FSM...

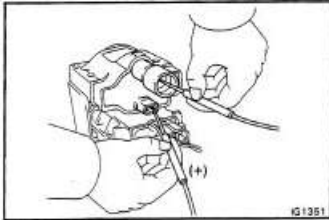


1. DISCONNECT HIGH-TENSION CORD
2. INSPECT PRIMARY COIL RESISTANCE

Using an ohmmeter, measure the resistance between the positive (right when looking at the coil) and negative (left when looking at the coil) terminals. (Small 2 pin connector below the output of the coil that feeds the distributor)

Primary coil resistance (cold): 0.41 – 0.50 ohms.

If the resistance is not as specified, replace the ignition coil.



INSPECT SECONDARY COIL RESISTANCE

Using an ohmmeter, measure the resistance between the positive (+) terminal and high-tension terminal.

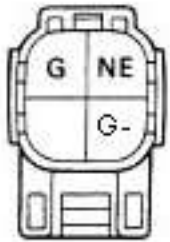
Secondary coil resistance (Cold): 10.2 – 13.8 k ohms.

If the resistance is not as specified, replace the ignition coil.

In the FSM there is no diagnostic procedure for the igniter. These can become intermittent and the only course of action is to swap it out with a known good one.

Distributor coils can open or short but are not a common failure.

Again from the FSM...



INSPECT PICKUP COIL RESISTANCE

Using an ohmmeter, measure the resistance between the terminals.

G pickup coil resistance (G – G (–)):

140–1800 ohms.

NE pickup coil resistance (NE – G (–)):

140–1800 ohms.

If the resistance is not as specified, replace the distributor.