ShopTalk

Tech Tips from a lifetime under the hood.....

DIESEL

Duramax with unexpected starting problems after driving normally

Vehicle: 2008 Chevy Duramax-Commercial truck with a utility bed
Mileage: 199,029

Complaint: Customer drove the truck home and the next morning the truck would not start.

After checking the fluids and verifying the customer complaint, we did a quick under the hood inspection. During the inspection, we noticed the engine had recently been repaired and the left inner fender was the tape holding the chassis/engine harness off of the left front tire.

The symptoms we were concerned about was the fact that there was no ECM communications with our scan tools and no engine crank. We did not attempt to communicate with any other module. Our initial thoughts were that maybe there was a defective module, bad fuses or possibly a damaged engine harness causing these problems. We started this repair late Friday evening. Before we went home we printed out the entire engine wiring schematic, the computer data lines circuit schematic and diagnostic no-communications chart.

The technician thought about this truck's problems over the weekend and realized we have seen these types of problems before with the late model Duramax. First thing Monday morning he checked the Glow Plug Control Module (GPCM) connector. He unplugged the connector and checked it for damage or debris. The connector looked normal and the technician could not tell if it was fully seated. After properly re-installing the connector the engine started and ran normal. In addition, the Tech 2 Scan Tool showed full communications with the ECM and all the diagnostic codes cleared. Due to past experiences and putting in many hours with Duramax repairs, this potentially challenging repair turned out to be very simple.

However before notifying the customer we always recheck the repair. With the key off we used a DVOM Data Link Connector. With the GPCM unplugged and the truck in a no crank mode, the resistance valve measured 120 OHMs. This is the normal resistance valve measurement. This test was done to check the integrity of the High Speed Controller Area Network (CAN) circuit. On the 2008 Duramax, the High Speed CAN is a loop configuration, these resistance valve measurements validate the loss of the High Speed CAN and the resistance change when the GPCM is unplugged.

The last test we performed was with the key on. This was to ground one lead of the DVOM and measured the DC Voltage at pin six in the Data Link Connector (DLC). It measured just above 2.5 volts. Both readings were normal so we concluded that the high speed CAN circuit was functioning properly. After our diagnostics the customer approved the additional repairs and service including a new left front inner fender.

I would like to point out that the Diesel Glow Plug Control System has evolved from a simple relay to a modern day Electronic Control Module. The GPCM of today is just as important as any Power Train and Chasis module that requires high-speed real time communications. On the late model diesel engines some manufacturers are using the GPCM to control several components in the new Selective Catalyst Reduction (SCR) Diesel Exhaust Systems. GM is also using the GPCM to control the Engine Intake Heater on certain year models.

Monty Seltz
North Shepherd Drive In Service Manager