

Posted 1/30/2011

Question:

Van is a 1996 T&C with 3.3L engine.

I believe that I have 2 unrelated problems:

1) The gauges stopped working. They came on about once a week for a few seconds. The overhead display works on Direction and Temperature but all other overhead displays have "dashes" instead of data when the gauges are off. When the gauges are on, the overhead console works fine. I have checked the solder joints on the instrument cluster and all of the connector pins are OK when tested with an ohmmeter. All of the plug wires to the instrument cluster are good for voltage and continuity except that I have not checked the 2 CCD bus wires. I have checked the connections on the plug to the instrument cluster and there is voltage on B+ (pin 2) and Ignition (pin 11). The ground (pin 7) is good. The panel lamp connections (voltage on pin 6 and ground on pin 13) are good and the panel lamps work. No other lights or the odometer light up. The overhead console diagnostics result in "PASS". Since there are no instrument cluster lamps, there is no "Check Engine" light and I cannot check the codes with the MIL. I have attached a OBDII Scanner to the Data Link Plug and the result is "PASS no codes returned". Until the last week, this problem did not affect starting and operating. I want to determine if the instrument cluster itself is bad or if there are issues with the CCD bus.

a) If the plug to the cluster is connected with the CCD bus connections removed (pins 9 & 10 on the instrument cluster) should the odometer or any other warning lights light up?

b) Does the overhead console get its information from the instrument cluster or does it come from other modules?

2) Now the van won't start. The engine turns over and "coughs" once but then just cranks. If I turn off the key and back on again, the engine "coughs" once again. I was told that the instrument cluster can affect starting, and was told to disconnect the instrument cluster plug. The engine does the same thing with the instrument cluster plug disconnected.

I have checked that there is 12 volts constantly on the B+ at the coil pack during cranking. The other three leads at the coil pack do have pulses on the grounds when disconnected from the coil pack but no pulses if I read the wires when connected to the coil pack. Both the primary and secondary resistance at the coil pack are correct. I have replaced the coil pack. I have verified that there is 8 volts on the orange wire to the crank and cam position sensors. The other 2 leads on both the crank and cam position sensors change from about .3 to 5 volts, depending on the position of the engine crank and cam shafts. The fuel injectors are getting pulses, the fuel pump is working and the fuel pressure is just under 50 pounds at the Schrader valve.

Again, I have scanned for codes with a OBDII scanner and there are no codes.

Any suggestions?

Thanks.

Answer:

The warning lights on the cluster are all based on info from the CCD bus as are the odometer/speedometer/gauges. The overhead cluster is on the data bus which is a fully shared system on a single 'tree' of spliced-on components. It is 'centered' in the body control module so you might want to be sure that all the fuses to that are OK (1,2,3,6, in the box under the dash, and 19,22,28 in the box under the hood), The CCD bus wires should each show a DC voltage of either +2.5 or -2.5v.

Follow up Question:

The power and grounds to the data link connector test out correctly. However, the CCD + and - (pins 3 and 11) do not have the +2.5 or -2.5v that was in your answer. The CCD+ (pin 3) has 11.1 volts and the CCD- (pin 11) has 0.5 volts. I assume that the CCD bus is not working correctly and could also result in the no start condition. I see my next step to be to disconnect each module connected to the CCD bus and see if I can locate the module causing the incorrect voltage readings. The modules that I see connected to the CCD bus are PCM, BCM, TCM, Overhead Console, Controller-Anti-Lock Brakes, Radio, Airbag Control Module, Instrument Cluster, and Data Link Connector. I do not believe that there is a Sentry Key Immobilizer Module on this model. The instrument cluster is already disconnected. Does this seem to be the right track? Where does the + or - 2.5 volts originate? Is it in one module (the PCM?) or is it a combination of several modules (PCM, BCM, TCM)?

Thanks.