

Diagnostic Challenges That Can Elude an Experienced Technician

Vehicles today incorporate a maze of electronic components that must be considered when troubleshooting a performance related symptom. A vast arsenal of test equipment is necessary to communicate with the electronic systems and components.

Systems are so connected that it is difficult for the technician to distinguish between a mechanical, electrical, fuel or emission related condition without extensive testing. Having access to technical service bulletins and diagnostic procedures is a must-have. Factory service bulletins often reflect a corrective action for a performance related symptom, saving countless hours of diagnostic time. Often, when a successful diagnosis has been achieved, the ability to re-program a PCM/ECM may be necessary to complete the repair. Let's consider some challenges that can test the patience of the most experienced technician.

Electrical Interference

The challenge for the most experienced technician comes when electrical interference from another system, device or accessory affects the vehicle's electronics and related systems. Vehicles today incorporate a complex radio frequency system that controls many features such as Keyless Entry, Keyless Start/Stop, Remote Start and other electrical accessory components. Radio frequency interference (RFI) is a condition that occurs when multiple signals or frequencies start interfering with other electrical systems or components. Computers programmed to read signal parameters within a precise calibration range may behave strangely when subjected to RFI. The symptoms may include a no-start, erratic idle, hesitation, stalling, erratic transmission shifting, misfire condition, flashing lights, etc. This creates a challenge for the technician as they must create those same events to make an accurate diagnosis. Components that could create RFI symptoms include: cell phone chargers, radar detectors, GPS devices, communication devices such as 2-way radios, laptop computers, electronic accessories, fluorescent lighting, electronic advertising signs, high RFI traffic areas/gas station speed passes, interference from a nearby vehicle, immobilizer keys from other vehicles, access passes attached to the key ring, USB ports in use, etc.

The technician should be aware of any add-on devices or accessory lighting such as LED dome, tail, turn, strip, floor,

door, logo and headlights. In many cases, when the LED lighting is turned on it can interfere with an RF signal. Any add-on electrical accessories/devices have the potential to interfere with another RF signal. Eliminate those concerns before investing countless hours of diagnostic time to no avail.

Assembly Line Data Link

The Assembly Line Data Link (ALDL) connector is the test port that allows access to the computer system for diagnostics. The connector has been utilized for other interests such as fleet monitoring, fuel economy, maintenance intervals and performance enhancement. Insurance companies use the connector for special interest vehicles that are seldom driven for reduced rate adjustments. For the record, they also monitor speed and acceleration rates. Keep that in mind before you sign up, as you may wind up paying more for insurance.

Any devices or accessories that plug into the ALDL connector must be considered when diagnosing performance or driveability issues. Issues such as Service Engine Soon (SES) light illumination with trouble codes stored, TPMS light illumination, battery discharge due to the Bus or LAN traffic remaining active, etc. may be present. Often, these accessories are disconnected by the vehicle owner when the vehicle is taken in

for repairs. This can make the diagnosis a real challenge for the technician, as the problem may have been removed from the vehicle. The technician should question the vehicle owner concerning the use of such ALDL connected devices, as it can save a lot of diagnostic time searching for a condition that may have been removed from the vehicle.

Multiple Fobs on a Single Key Ring

Nothing can create RFI related symptoms like a key ring with multiple fobs/transmitters attached. Be certain to question the vehicle owner to determine if the fob currently with the vehicle is the unit that was being used when the symptoms occurred. Often a vehicle is brought in for service and the problem was removed when the fob was separated from multiple devices/transmitters attached to the same key ring.



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Technical Services



"YOU AIN'T GONNA BELIEVE THIS,
BUT AS SOON AS I TURN MY LIGHTS ON,
MY KEY FOB STARTS TO SMOKE!!!"