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Monitors and Drive Cycles – OEM Information is Vital

What are you doing to push the preventive maintenance message to your customers? The automotive industry and your customers need your expertise. You have nothing to lose, and dividends to gain!

by Rich Diegle

Any automotive technician will tell you that diagnosing and repairing late-model vehicles these days is not as simple as reading a code and replacing a part.

All vehicles built from 1996 to present are equipped with an OBD II system. This complex system has remarkable self-diagnostic capabilities, but it is primarily designed to detect faults in particular circuits or systems that could cause a vehicle's emissions to exceed the federal limits. OBDII does not tell you exactly which component to replace. That can only be determined after doing additional diagnostic work to isolate the fault.

This is where monitors and drive cycles come into play. Whether a technician is diagnosing why a Malfunction Indicator Light (MIL) has been triggered or is performing an emissions certification test, system monitors and drive cycles play a key role in each instance.

Monitors

OBD II employs separate monitors to check everything from misfires and converter efficiency to fuel trim and even the air conditioning systems on many 2002 and newer vehicles. Each monitor has specific operating requirements that must take place before the self-check will run. These requirements for the different monitors can vary considerably from one manufacturer to another.

If OBD II detects a fault when running a monitor, the setting of a code may prevent the remaining monitors from running. A bad oxygen sensor, for example, will prevent the catalyst monitor from running. Getting all the monitors to run can be tricky on some vehicles.

Drive Cycles

An OBD II drive cycle is not as simple as turning the ignition key on and off or starting the engine. Drive cycles are important requirements for the OBD II system to set the monitors and perform self-diagnosis. A drive cycle may require starting a cold engine and driving the vehicle until the engine reaches normal operating temperature. The next drive cycle might not begin until the engine has been shut off, allowed to cool back down and restarted again.

Drive cycles are an essential part of setting trouble codes. If the OBD II system detects a problem, it records a code and often will not immediately turn on the Check Engine Light (CEL). Depending on if or how many times the problem occurs during the next few drive cycles, the OBD II system will decide to erase the code or trigger the CEL.

Each manufacturer has unique and specific drive cycles that their vehicles must complete. There is no way to bypass such provisions, so you have to do whatever the system requires. This is where having accurate OEM diagnostic information becomes invaluable.

Technicians must have the manufacturer's unique set of drive cycles, monitor readiness requirements and system operation information if they want to perform an accurate diagnosis or an emissions certification test. Only factory-correct drive cycle and monitor readiness information from the manufacturer should be used to ensure proper test data retrieval.

So far we've covered what monitors and drive cycles are and the importance of having the manufacturer's model-specific diagnostic information. But where can you get this kind of information?

The manufacturers have websites with this important diagnostic information, but it is fairly expensive. A much less expensive and reliable source of the manufacturer's drive cycle and monitor information could be obtained through aftermarket service information providers.

Where else can additional information about trouble codes, monitors and drive cycles be found? TSBs and Recalls! Checking TSBs and Recalls before performing a diagnostic or certification procedure can often circumvent an embarrassing misdiagnosis or a lot of wasted time due to improper testing, wrong drive cycle procedures or lack of updated information. Here are a few examples of why TSBs and Recall information is so important:

- TSB # 04-07-30-013 states that 2004 and prior General Motors® car and light duty truck and 2003-2004 HUMMER® H2® owners may experience poor acceleration from a stop, limited RPM range, slipping and damaged automatic transmission clutches or bands and the Service Engine Soon (SES) light may come on because someone installed an aftermarket reusable, oiled air filter.
- TSB # 98-019A states that on all Nissan® and Infiniti® models built after 1996, the Malfunction Indicator Lamp (MIL) may come on because a lubricant, other than the one formulated to use on Nissan vehicles, was applied to a vacuum hose to ease installation.
- TSB #TC002-03 states that on all 1998 - 2003 and 2004 RX 330® Lexus® vehicles, whenever an automatic transmission is replaced, overhauled or individual components are replaced, a special procedure is necessary to erase Engine Control Module (ECM) "Learned Values" and prevent subsequent driveability complaints.
- Recall #D278 relates to the 2002 Land Rover® Freelander®. It states that because a ground connection is not present at pin 5 in the J1962 diagnostic connector, some generic scan tools do not communicate with the vehicle as intended. This could cause the vehicle to fail a state or local program certification test.

As you can gather from these examples, when it comes to monitors, drive cycles and properly diagnosing or certifying OBD II emission systems, having the manufacturer's information is extremely important and must be available to the technician to get the job done right!

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