
Drive Cycle Routine

The drive cycle may be run on a rolling road. Running the drive cycle during a road test may take significantly longer.

The maximum speeds during the rolling road cycle may be significantly greater than the legal limit in some areas. The monitor tests will complete at a maximum speed of 55 m.p.h. providing that the PCM has not been disconnected and KAM memory lost. If the KAM memory has been lost, the misfire monitor will require decelerations from at least 55 m.p.h. to complete. If your maximum speed limit is below 55 m.p.h., run the drive cycle on a rolling road.

WARNING: Do not exceed local speed limits.

If run during a road test, the cycle may not complete in the order listed although the Comprehensive Component Monitor is a prerequisite for all other tests, and the HO2S monitor is a prerequisite for the purge tests.

The vehicle must be fully warmed up and have run for a minimum of 200 seconds before this cycle will start.

A P1000 code will only be cleared when all the monitor tests have been satisfactorily completed.

Comprehensive Component Monitor

This test is run continuously but for the purposes of clearing down a P1000 code, this monitor will clear if all sensors and actuators have no out of range values. The engine needs to have warmed up from an ambient start, idled for a short time and then the car must be driven for a short time. If the engine has been warmed up using an extended idle period and the cycle is driven as shown in the diagram, the component monitor tests will complete during stage 1.

Heated Oxygen Sensor (HO2S) Monitor

The HO2S sensors and their heater circuits will be tested and cleared down during stages 1 and 2 of the drive cycle. Periods 1 and 2 from the diagram are each of 60 seconds duration where the engine speed is 1130 and then 1310 rpm (approximately 27 and then 37 m.p.h.). Constant throttle opening must be maintained during these periods.

Catalyst Monitor

Stages 1, 2, 3 and 4 of the cycle provide the optimum conditions to ensure completion of the Catalyst Monitor. The sequence is not important but the vehicle must spend at least 60 seconds at each speed. Stage 1 at 1130 rpm (27-31 m.p.h.), Stage 2 at 1310 rpm (37-42 m.p.h.), Stage 3 at 1700 rpm (48-54 m.p.h.) and Stage 4 at 1860 rpm (53-59 m.p.h.). If constant speed cannot be maintained, then accelerating and decelerating gently between each speed will have the same effect but may take longer to complete the catalyst monitor test.

Misfire Monitor

Powertrain Control Module Memory Intact

The Misfire Monitor is a continuous test and will clear quickly if the PCM keep alive memory power has not been interrupted.

Powertrain Control Module Memory Interrupted (e.g. PCM or battery disconnected)

If the power source to the keep alive memory has been interrupted, the system needs to re-learn ignition and other correction factors before it can complete the misfire monitor tests. These correction factors are learned during long deceleration periods. A closed throttle deceleration from 55+ m.p.h. down to 30 m.p.h. is appropriate. It may require two or three deceleration cycles for the system to acquire the necessary corrections, after which the misfire monitor tests will clear quickly.

Purge Monitor

The Purge Monitor tests the vapour flow from the fuel tank and carbon canisters through into the engine. This monitor has two methods of completion.

The first and most common method occurs during an acceleration cycle from 30 to 50 m.p.h. over a 20 second period. The system looks for a minimum fuelling correction for a minimum purge valve duty cycle. This method will usually be successful since there is nearly always sufficient fuel vapour available to cause a recognisable fuelling correction.

The second method is used in cold ambient conditions when the quantity of fuel vapour available will be at a minimum. The engine is run for a period of several minutes at idle during which the effect of purge vapour flow on engine idle speed control is assessed.

If the purge monitor does not clear during the first method, leave the engine idling for 5-10 minutes. During this time, the purge control monitor will then complete using the second method.

Fuel System Monitor

The capability of the engine management system to control fuelling under closed loop conditions is assessed continuously but will be tested during phases 1 - 4 of the test sequence as the HO2S and catalyst tests are completed.