



Drive Cycles

Description of OBD II Drive Cycle

The purpose of the OBD II drive cycle is to execute the OBD II monitors and identify any concerns with the OBD II system. The DTC P1000 code will be erased if all OBD II monitors have completed during the OBD II drive cycle.

WARNING:

STRICT OBSERVANCE OF POSTED SPEED LIMITS AND ATTENTION TO DRIVING CONDITIONS ARE MANDATORY WHEN PROCEEDING THROUGH THE FOLLOWING DRIVE CYCLES.

The scan tool will be used to observe the status of each OBD II monitor at the completion of the OBD II drive cycle. The completion status of the exhaust gas recirculation (EGR), heated oxygen sensor (HO2S), evaporative emission (EVAP), secondary air injection (AIR) (if applicable) and catalyst efficiency monitors can be monitored during the OBD II drive cycle by viewing the On-Board Readiness Menu on the scan tool.

For the description and operation of each OBD II monitor, refer to «[Section 1A](#)».

Vehicle Preparation for OBD II or Monitor Repair Verification Drive Cycle

NOTE:

Vehicles equipped with power take off (PTO) must have this system disengaged before proceeding. Verify by viewing the PTO PID for OFF status.

1. Attach a scan tool and access the ECT, FLI, IAT PIDs.

Verify the IAT PID is between 10-38°C (50-100°F).

Verify the FLI PID is between 15% and 85% (only available on EVAP Running Loss systems).

2. Warm the vehicle until the ECT PID reaches a minimum of 54°C (130°F).
3. Clear all DTC's with the scan tool by pressing clear with the key on engine off. P1000 will remain. Leave the key in the ON position, and start the vehicle.
4. Access the On-Board System Readiness Menu on the scan tool to view the status of the OBD II monitors.
5. Proceed with the OBD II Drive Cycle or selected monitor repair verification drive cycle. Once started, the engine must not be turned off.

OBD II Drive Cycle

NOTE:

The IAT PID must be between 10-38°C (50-100°F) during the OBD II drive cycle to enter into all the OBD II monitors. The FLI PID must be between 15% and 85% at all times.

1. Drive in stop-and-go traffic with at least 4 idle periods (30 seconds each) while observing the status of the OBD II monitor on the scan tool. If the exhaust gas recirculation (EGR), heated oxygen sensor (HO2S), evaporative emission (EVAP), secondary air (AIR) (if applicable) or catalyst efficiency monitor have not completed, drive on the highway at a constant speed over 64 km/hr (40 mph) not to exceed 104 km/hr (65 mph) for up to 15 minutes. Heavy accelerations, sudden decelerations and wide open throttles are not recommended. If the scan tool sends out a three pulse beep at any time, the OBD II drive cycle has completed.

NOTE:

Vehicles equipped with the EVAP purge flow system or EVAP vapor management flow system monitor do not require EVAP monitor completion to clear the DTC P1000 (refer to «Section 1A» for each monitor description).

If the exhaust gas recirculation (EGR), heated oxygen sensor (HO2S), evaporative emission (EVAP), secondary air injection (AIR) (if applicable) or catalyst efficiency monitor has not completed, perform the corresponding monitor verification drive cycle in this section.

2. Bring the vehicle to a stop and retrieve Continuous Memory DTCs to verify the DTC P1000 has been erased. Refer to Section 4A, Diagnostic Subroutine «DSR6».

Monitor Repair Verification Drive Cycles

Comprehensive Component Monitor Repair Verification Drive Cycle:

1. Refer to and complete the Vehicle Preparation For OBD II Drive Cycle before initiating the following repair verification steps.
2. Start the engine and go through the entire OBD II Drive Cycle until the Comprehensive Component Monitor shows the completion status by clearing the code P1000 on the scan tool.
3. If the entire OBD II Drive Cycle has been performed and the Comprehensive Component Monitor check has not completed, rerun «Quick Test». Refer to Section 4A, Diagnostic Subroutines, «DSR 1»

EGR Monitor Repair Verification Drive Cycle:

1. **NOTE:**
The ambient air temperature or IAT PID must read a minimum of 0°C (32°F) to initiate the EGR monitor.

Refer to and complete the Vehicle Preparation for OBD II Drive Cycle in this section before initiating the following repair verification steps.
2. Start the engine and drive the vehicle for 6 minutes.
 - a. Drive in stop-and-go traffic for 5 minutes with at least two idle periods.
 - b. Accelerate to 72 km/h (45 mph) (56 km/h on Escort/Tracer at more than one half WOT). Maintain speed for 1 minute.
3. Rerun «Quick Test». Refer to Section 4A, Diagnostic Subroutine, «DSR 1».

EVAP Running Loss System Repair Verification Drive Cycle:

1. Perform the Preparation for OBD II Drive Cycle section.

2. With the scan tool, verify the FTP (FTP V) PID reads between -0.5 and +0.5 in-H₂O (2.4 and 2.8 volts) with the gas cap removed. Reinstall gas cap.
3. With the scan tool, view the OBD II monitors through the On-Board System Readiness Menu.
4. Drive the vehicle at a constant speed between 56 km/hr (35 mph) and 104 km/hr (65 mph) with throttle as steady as possible. Observe the HO₂S monitor on the scan tool until it completes (or refer to the Fuel Monitor or HO₂S Monitor repair Verification Drive Cycle in this section).
5. Bring the vehicle to a stop and access the following PIDs with the scan tool: IAT, FLI, FTP, FTP V, EVAPPDC, EVAPCV. Measure the duty cycle of the EVAPCV circuit with a multimeter and breakout box if the EVAPCV PID is not available.
6. Verify the following EVAP monitor entry condition: IAT between 10-38° (50-100°F).
7. Drive the vehicle on the highway with a constant speed over 64 km/hr (40 mph) with throttle as steady as possible. During this time, verify the following additional EVAP monitor entry conditions using the FLI and FTPV PIDs.

FLI stable \pm 5% between the limits of 15% and 85% tank fill.

FTP (FTP V) stable within \pm 0.5 in-H₂O (\pm 0.175 volts).

8. Prior to running the EVAP monitor, when the EVAPPDC PID is less than 75%, the canister vent solenoid is open and the system is unsealed. To initiate the EVAP monitor, the EVAPPDC PID must increase to at least 75%. At this time, the EVAPCV PID will then display 100% (canister vent solenoid closed to seal the system and the monitor will begin to run. Continue to drive at steady throttle with light steering until the EVAPCV PID displays 0% (canister vent solenoid open, system unsealed). If this step does not occur as described, proceed to the following note, otherwise proceed to Step 9.

NOTE:

During the drive cycle or hot ambient temperatures, fuel vapor (from the canister and/or tank) may keep the test from starting. This can be observed on the scan tool when either:

- (1) The EVAPPDC PID never reaches 75% with stable FLI and FTP PID readings.
 - (2) The EVAPCV PID never goes to 100% (canister vent never closes) when the EVAPPDC PID is above the 75% minimum to start the test.
9. Bring the vehicle to a stop.
 10. With the scan tool, view the EVAP monitor for completion through the On-Board System Readiness Menu. Repeat Step 7 if the EVAP monitor is not complete.

Catalyst Monitor Repair Verification Drive Cycle:

1. Make sure that the inlet air temperature (or ambient air temperature) is above -18°C (0°F), then refer to Step 3 of the Vehicle Preparation for OBD II Drive Cycle in this section.
2. Start the engine and drive the vehicle for 25 minutes.
 - a. Drive in stop-and-go traffic for 20 minutes, include six different constant speeds between 40 and 72 km/h (25 and 45 mph).
 - b. Drive on expressway or highway for an additional 5 minutes.
3. Rerun «Quick Test». Refer to Section 4A, Diagnostic Subroutine «DSR 1».

Fuel Monitor or HO2S Monitor Repair Verification Drive Cycle:

1. Refer to and complete the Vehicle Preparation For OBD II Drive Cycle in this section before initiating the following repair verification steps.
2. Start the engine and drive the vehicle for 7 minutes.
 - a. Drive in stop-and-go traffic for 6 minutes, include one idle.
 - b. Accelerate to 72 km/h (45 mph) [56 km/h (35 mph) on Escort/Tracer at more than 1/2 throttle]. Maintain speed for 1 minute.
3. Rerun «Quick Test». Refer to Section 4A, Diagnostic Subroutine, «DSR 1».

Misfire Monitor Repair Verification Drive Cycle:

1. For applications with the Fuel Level Input (FLI) circuit to the PCM (Pin 12), check the fuel gauge and the FLI PID on the scan tool (if available). The Misfire Monitor can only be tested if the fuel gauge reads above one quarter full or the FLI PID is above 15% (percentage fuel tank fill).
2. Start the engine and drive the vehicle to a location where speeds can reach 88 to 97 km/h (55 to 60 mph) and coast down to 64 km/h (40 mph) without traffic interference.
3. Accelerate at wide-open throttle to allow vehicle to shift at red-line (if equipped with a tachometer). Immediately return to normal speed limits.
4. Perform the following drive procedure three consecutive times.
 - a. Accelerate on highway to 97 km/h (60 mph). Maintain speed for 30 seconds.
 - b. Coast down with foot off the accelerator pedal from 97 km/h to 64 km/h (60 mph to 40 mph).
5. Rerun «Quick Test». Refer to Section 4A, Diagnostic Subroutine, «DSR 1».

Secondary Air Monitor Repair Verification Drive Cycle:

1. Refer to and complete the Vehicle Preparation For OBD II Drive Cycle in this section before initiating the following repair verification steps.
 2. Start the engine and proceed through the entire OBD II Drive Cycle until the Secondary Air Monitor shows the On-Board Readiness Menu completion status on the scan tool.
 3. If the entire OBD II Drive Cycle has been performed and the Secondary Air Monitor check has not completed, rerun «Quick Test». Refer to Section 4A, Diagnostic Subroutine, «DSR 1».
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