

Computers and Control Systems: Monitors, Trips, Drive Cycles and Readiness Codes

Mercedes-Benz Drive Cycle

Drive Cycle Test Procedure

Note: The drive cycle test needs to be done two (2) consecutive times. Prior to driving the vehicle read the drive cycle test instructions carefully and completely to ensure test result success.

NOTE: Readiness/function codes cannot be displayed for tests performed on vehicles at altitudes above 8200 feet.

NOTE: Depending on engine temperature you may perform the testing starting with EVAP system (see step 7) or start with steps 1 through 4 or continue to step 6 (Air Injection Diagnostics). Remember, these tests are all based on engine temperature.

NOTE: When using an SDS (Star Diagnosis System) to check vehicle readiness codes, note the following:

1. Open vehicle hood.
2. Either remove the SDS (Star Diagnosis System) connector cover or the engine fuse box cover depending on the model.
3. Attach/connect SDS (Star Diagnosis System) connector.
4. Enter into the CARS function.
5. Select correct Chassis line
6. Select the gasoline engine for engine type.
7. On the screen labeled Main Function Groups, select Option 1 Gasoline Engine.
8. Select the ME system and press enter.
9. Start the vehicle to enable communication between the module and SDS (Star Diagnosis System).
10. In the Functions screen, go to option 3: Actual Values and press enter, you are now ready to begin the testing.
11. For steps 1 through 7: For ME2 under Actual Values select option 12 Completed Test and press enter, for ME1 under Actual Values Option 9 Performed Tests.
12. Scroll through the screens to find the applicable step information and identify whether a check mark or F has been highlighted

Drive Cycle Test Procedure Explained

1. **02 Sensor Heater Diagnostics** (do not interrupt this portion of the test). With the engine warm (greater than **80°C**), and the transmission gearshift lever in Park position, proceed as follows:
 - Start engine and increase engine speed to between 2,000 to 2,500 RPM for 2 minutes.
 - After the 2 minutes, run engine at idle speed, with no applied load for 6 minutes (Air conditioning OFF, no throttle movements etc).
 - After this time period has been obtained proceed to step 2 below.

NOTE: If using a Hand-Held Scan Tool verify Step 1 test completion. This will be indicated by a check mark in the display field or the word PASS.

2. **Lambda (02) Sensor Signal** (do not interrupt this portion of the test, to be conducted directly after step 1 above has been performed). With engine temp greater than **80°C**, and with transmission gearshift lever in position D:
 - Drive vehicle for 3 minutes at **43 mph (70km/h)**.
 - After the 3 minutes has been reached proceed to step 3 below.

NOTE: If using a Hand-Held Scan Tool verify Step 2 test completion. This will be indicated by a check mark in the display field or the word PASS.

3. **Catalytic Converter Efficiency Diagnostics** (do not interrupt this portion of the test and must be conducted directly after step 2 above has been performed). With engine temp greater than **80°C**:
 - Drive vehicle with transmission still in position D for 3 minutes at **48-54 mph (80-90 km/h)**.

NOTE: If using a Hand-Held Scan Tool verify Step 3 test completion. This will be indicated by a check mark in the display field or the word PASS

4. **Self-adjustment of the air/fuel mixture** (idle speed & self adaptation) (do not interrupt this portion of the test and must be conducted directly after step 3 has been performed). With engine temp greater than **80°C**, proceed as follows:
 - Place transmission gearshift lever into Park position and allow engine to idle (with no load applied to the vehicle, i.e. Air conditioning OFF) for 3 minutes.

NOTE: If using a Hand-Held Scan Tool verify Step 4 test completion. This will be indicated by a check mark in the display field or the word PASS

5. **EGR System (Emission Vacuum Diagnostics):** No DTC codes should be stored for the intake manifold pressure sensor and EGR pressure transducer during this portion of the test. With the engine temperature at **80°C**:

- Start and Drive vehicle (in D position) and then accelerate smoothly up to 2000 rpm, and then decelerate smoothly back down to 1100 rpm.

NOTE: If using a Hand Held Scan Tool to verify test completion. This will be indicated by a check mark in the display field or the word PASS

After this test step has been completed, turn ignition OFF, wait **10 seconds** and repeat this test step (5) again.

6. **Air Injection Diagnostics:** (do not interrupt this test when performing this test step 6).

NOTE: First: Place a suitable auxiliary fan in front of the vehicle to force engine cool down. (Engine cool down can also be simulated by using a decade box to simulate engine cool down).

Continue test step: With engine temperature less than **40°C**, the air conditioning OFF and the transmission gearshift lever in Park position; and auxiliary fan removed from front of vehicle,

- Start engine and accelerate engine speed to 1400 rpm.
- Allow engine to run at this increased rpm until coolant temperature reaches between **70°C to 106°C**.
- Allow engine to run with increased rpms for 7 minutes (or drive the vehicle for 7 minutes).
- After the 7 minute time period has been reached, stop the vehicle, place gearshift lever into Park position and allow engine to idle (with no load) for **6 seconds**. Do not use A/C.
- After this step turn the ignition OFF, wait ten seconds and repeat this test step.
- Note that when testing the air injection system, the engine coolant temperature must be at the same temperature (degrees) as when before the ignition key was switched off in the prior test step.

NOTE: If using a Hand-Held Scan Tool to verify Step 6 test completion. This will be indicated by a check mark in the display field or the word PASS

7. **Fuel System Leak test (EVAP):** No DTC codes should be present in memory for the EVAP canister purge valve, fuel tank pressure sensor, or the shut-off valve.

Note: Prior to performing this test (7) step:

- Ensure the fuel tank fuel level is between 1/4 and 3/4 full and
- The engine temperature less than **100°C** with air intake temperature less than **45°C**.
- With gearshift lever in Park position, start and idle engine for 20 minutes (with no load).
- Note that if after the **20 minutes** of idling time has elapsed and no readiness codes were set, consider driving the vehicle for an additional 20 minutes.
- After these 20 minutes has elapsed, turn ignition OFF, wait 10 seconds and repeat this test step again.

NOTE: If using a Hand Held Scan Tool to verify Step 7 test completion. This will be indicated by a check mark in the display field or the word PASS

NOTE: This procedure is not a warrantable repair.