



b n

Date: February 2004
Order No.: S-B-14.00/17
Supersedes:
Group: 14

SUBJECT: State I/M (emission inspection and maintenance) Facilities Incorporating an OBDII Check

- A. Description of State I/M OBDII Checks & Drive Cycle**
- B. Models, Model Years & OBDII Systems Included**
- C. Drive Cycle Test Procedure**

***i* Note:**

Refer to Service Information: P-SI-14.00/14 for historical information.

A. Description of State I/M OBDII Checks & Drive Cycle

Certain States around the country have or will begin to roll-out in the coming months, OBDII (On-Board Diagnostic II) quick checks for emission inspection and maintenance (I/M) testing. The emission I/M testing is required for customers to register their vehicles. These State I/M facilities will specifically look for whether or not the vehicle's OBDII system is "ready" to be tested. The OBDII system uses readiness codes built into the vehicles computer to indicate if the system is "ready" to be emission tested. These State I/M Facilities use hand held scan tools capable of reading OBDII codes and will indicate if these readiness codes are set or not.

These readiness codes are needed to be set (complete) within the OBDII computer system. Without these codes set, the vehicle will most likely fail the emissions portion of this inspection and the customer will not be able to register or re-register their vehicle. In an effort to prevent this situation from happening, a specific drive cycle must be performed prior to the vehicle being tested at any I/M facility checking the OBDII system.

This bulletin has been created and maintained in accordance with MBUSA-SLP S423QH001, Document and Data Control, and MBUSA-SLP S424HH001, Control of Quality Records.

If a model year 1996 through 1999 vehicle has “failed” a State I/M emission test and no faults have been found in the system (i.e. check engine light NOT on) then a drive cycle test must be performed on the vehicle.

i **Note:**

A battery disconnect to service the vehicle can impact whether the readiness codes will be set, if the vehicle is immediately taken from the service facility to an I/M testing facility for vehicle registration purposes. In such a case, the customer should be notified and instructed not to take the vehicle immediately to an I/M station for emission testing.

i **Note:**

Cycling the ignition key from on – to – off prior to performing the I/M test is not recommended.

B. Models, Model Years & OBDII Systems Included

1. A drive cycle has been developed for the following model years and models:

MY1996

S420 (w/ME1.0 OBDII system)
S500, S500C & SL500 (w/ME1.0 OBDII system)

MY1997

C230 & E320 (w/ME2.1 OBDII system)
C280 (w/ME2.1 OBDII system)
S320, SL320 & C36 AMG (w/ME2.1 OBDII system)
E420, S420, S500, SL500, S600, SL600 (w/ME1.0 OBDII system)

MY1998

C230 & SLK230 (w/ME2.1 OBDII system)
S320 (w/ME2.1 OBDII system)
S420, S500, CL500, SL500, S600, CL600 & SL600 (w/ME1.0 OBDII system)

MY1999

C230 & SLK230 (w/ME2.1 OBDII system)
S320 (w/ME2.1 OBDII system)
S420, S500, CL500, S600, CL600 & SL600 (w/ME1.0 OBDII system)

2. On-Board Diagnostic System (OBDII) used on the vehicle, are ME1.0, ME2.0 or ME2.1 systems.

3. Performing the drive cycle on the vehicle will take up to 1 1/2 hours.

4. Required tools are: SDS equipment and all required cables.

C. Drive Cycle Test Procedure

i **Note:**

It is important to note that the vehicle can have up to two (2) readiness codes NOT set and still pass the state OBDII emission test (based on U.S. EPA recommendations). If you have determined that only 2 readiness codes are NOT set, the customer should be instructed that the vehicle be driven to the I/M facility for testing. In this case, the vehicle will PASS as long as the check engine light is NOT illuminated.

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.**

i **Note:**

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

i **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.

i **Note:**

When using an SDS to check vehicle readiness codes, note the following:

1. Open vehicle hood.
2. Either remove the SDS connector cover or the engine fuse box cover depending on the model.
3. Attach/connect SDS 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 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 degrees 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.

i **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 degrees C, and with transmission gearshift lever in position D,

- Drive vehicle for 3 minutes at 70km/h (43 mph).
- After the 3 minutes has been reached proceed to step 3 below.

i **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 degrees C:

- Drive vehicle with transmission still in position D for 3 minutes at 80-90 km/h (48-54 mph).

i **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 degrees 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.

i **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 degrees 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.

i **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).

i **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 degrees 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 to 106 degrees 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.

i **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.

i **Note:**

Prior to performing this test (7) step:

- Ensure the fuel tank fuel level is between $\frac{1}{4}$ and $\frac{3}{4}$ full and
- The engine temperature less than 100 degrees C with air intake temperature less than 45 degrees 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.

i **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

i **Note:**

This procedure is not a warrantable repair.