

READINESS MONITOR DRIVE PATTERN

1. PURPOSE OF THE READINESS TESTS

- The On-Board Diagnostic (OBDII) system is designed to monitor the performance of emission-related components and report any detected abnormalities in the form of Diagnostic Trouble Codes (DTCs). Since the various components need to be monitored during different driving conditions, the OBDII system is designed to run separate monitoring programs called Readiness Monitors. Many state Inspection and Maintenance (I/M) programs require that vehicles complete their Readiness Monitors prior to beginning an emissions test.
- The current status of the Readiness Monitors can be seen by using the Toyota hand-held tester with version 9.0 software (or newer), or a generic OBDII Scan tool.
- To view the Readiness Monitor status using the Toyota hand-held tester, select "Monitor Status" from the Enhanced OBDII Menu.
- A status of "complete" indicates that the necessary conditions have been met to run the performance tests for the related Readiness Monitor.
- The Readiness Monitor will be reset to "incomplete" if:
 - ECU has lost power (battery or fuse).
 - DTCs have been cleared.
 - The conditions for running the Readiness Monitor have not been met.
- In the event that any Readiness Monitor shows "incomplete," follow the appropriate Readiness Monitor Drive Pattern to change the readiness status to "complete."

CAUTION:

Strict observance of posted speed limits, traffic laws, and road conditions are required when performing these drive patterns.

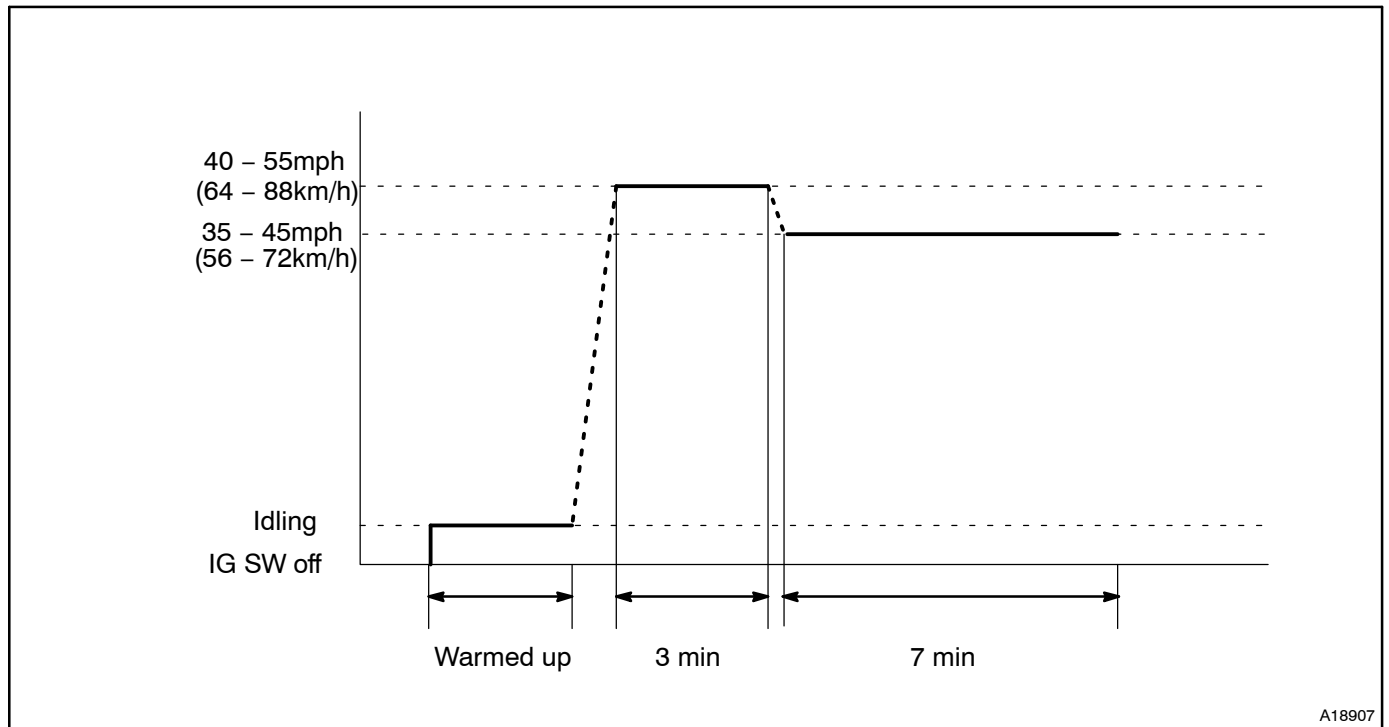
NOTICE:

These drive patterns represent the fastest method to satisfy all necessary conditions which allow the specific readiness monitor to complete.

In the event that the drive pattern must be interrupted (possibly due to traffic conditions or other factors) the drive pattern can be resumed and, in most cases, the readiness monitor will still set to complete.

To ensure rapid completion of readiness monitors, avoid sudden changes in vehicle load and speed (driving up and down hills and/or sudden acceleration).

2. CATALYST MONITOR (O2S TYPE)



A18907

(a) Preconditions

The monitor will not run unless:

- MIL is OFF.
- Engine Coolant Temperature (ECT) is 176°F (80°C) or greater.
- Intake Air Temperature (IAT) is 14°F (–10°C) or greater*

NOTICE:

The readiness test can be completed in cold ambient conditions (less than 14°F / –10°C), if the drive pattern is repeated a second time after cycling the ignition off.

(b) Drive Pattern

- (1) Connect the OBDII scan tool to DLC3 to check monitor status and preconditions.
- (2) Drive vehicle at 40 – 55mph (64 – 88km/h) for approximately of 3 minutes.

NOTICE:

Drive with smooth throttle operation and avoid sudden acceleration.

If IAT is less than 50°F (10°C) when starting engine, continue to drive vehicle at 40 – 55mph (64 – 88km/h) for approximately 4 minutes.

- (3) Drive vehicle at 35 – 45mph (56 – 72km/h) for approximately 7 minutes.

NOTICE:

Drive with smooth throttle operation and avoid sudden deceleration as much as possible with the throttle fully closed.

- (4) If readiness status does not switch to complete, ensure preconditions are met, turn ignition off, and then repeat steps (2) through (3).

3. EVAP MONITOR (INTERNAL PRESSURE MONITOR)

NOTICE:

A cold soak must be performed prior to conducting the drive pattern to complete the Internal Pressure Readiness Monitor.

(a) Cold Soak Preconditions

The monitor will not run unless:

- MIL is OFF.
- Fuel level is approximately 1/2 to 3/4.
- Altitude is 7800 feet (2400m) or less.

(b) Cold Soak Procedure

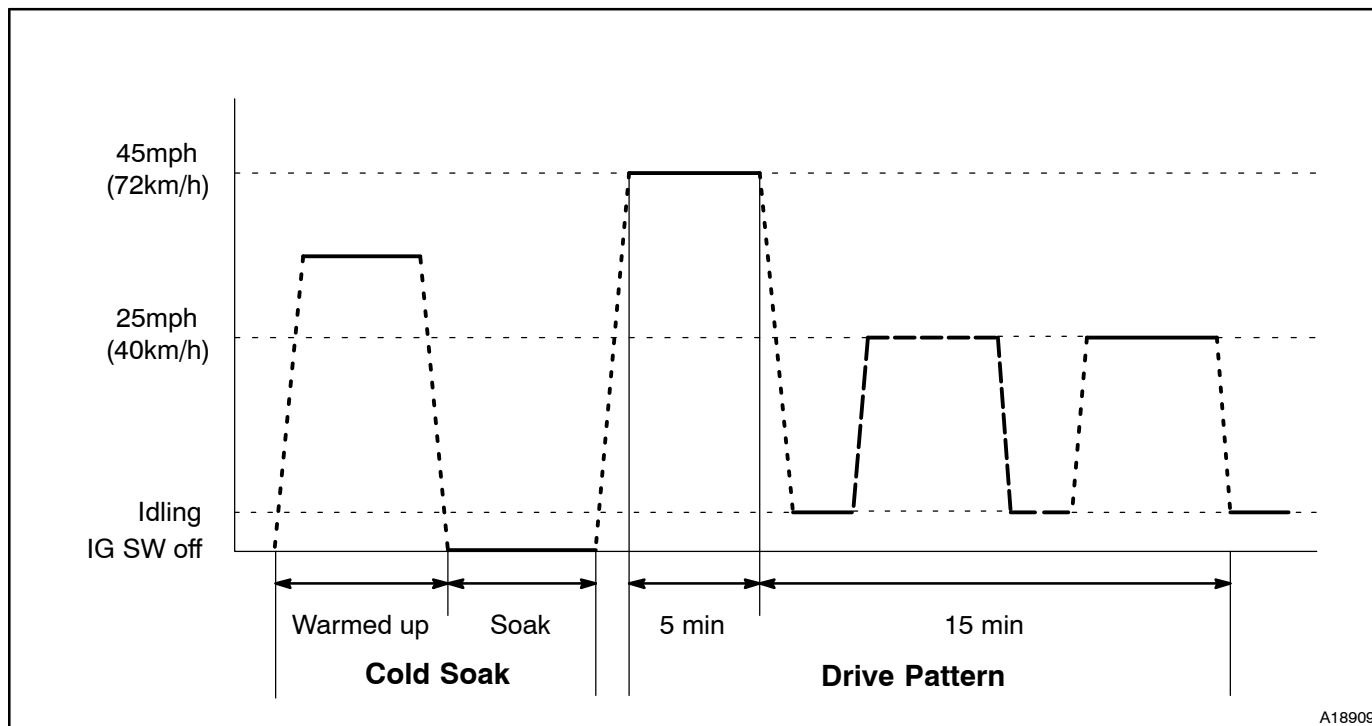
- (1) Start the engine and allow coolant temperature to reach 176°F (80°C) or greater.
- (2) Let vehicle cold soak for 8 hours or until the difference between IAT and ECT is less than 13°F (7°C).

HINT:

Examples:

- Scenario 1
ECT = 75°F (24°C)
IAT = 60°F (16°C)
Difference between ECT and IAT is 15°F (8°C)
→ The monitor will not run because difference between ECT and IAT is greater than 13°F (7°C)
- Scenario 2
ECT = 70°F (21°C)
IAT = 68°F (20°C)
Difference between ECT and IAT is 2°F (1°C)
→ The monitor will run because difference between ECT and IAT is less than 13°F (7°C)

4. EVAP MONITOR (INTERNAL PRESSURE MONITOR) (CONTINUED)



A18909

(a) Preconditions

The monitor will not run unless:

- MIL is OFF
- Fuel level is approximately 1/2 to 3/4
- Altitude is 7800 feet (2400m) or less
- Engine Coolant Temperature (ECT) is between 14°F and 95°F (–10°C and 35°C)
- Intake Air Temperature (IAT) is between 14°F and 95°F (–10°C and 35°C)
- Cold Soak Procedure has been completed
- Before starting the engine, the difference between ECT and IAT must be less than 13°F (7°C)

HINT:

Examples:

- Scenario 1
ECT = 75°F (24°C)
IAT = 60°F (16°C)
Difference between ECT and IAT is 15°F (8°C)
→ The monitor will not run because difference between ECT and IAT is greater than 13°F (7°C)
- Scenario 2
ECT = 70°F (21°C)
IAT = 68°F (20°C)
Difference between ECT and IAT is 2°F (1°C)
→ The monitor will run because difference between ECT and IAT is less than 13°F (7°C)

(b) Drive Pattern

- (1) Connect the OBDII scan tool to DLC3 to check monitor status and preconditions.

NOTICE:

Do not turn the ignition off until drive pattern is complete.

- (2) Release pressure in fuel tank by removing and then reinstalling the fuel tank cap.
- (3) Start the engine and immediately begin driving as directed.

NOTICE:

Drive on smooth roads to reduce excessive fuel sloshing.

- (4) Drive vehicle at approximately 45mph (72km/h) for about 5 minutes.
- (5) Drive vehicle at approximately 25mph (40km/h) for about 15 minutes and include a minimum of two stops for approximately 30 seconds..
- (6) The monitor should complete within approximately 20 minutes. If it does not, ensure preconditions are met, repeat step (5).

5. EVAP MONITOR (VACUUM PRESSURE MONITOR)**NOTICE:**

A cold soak must be performed prior to conducting the drive pattern to complete the Internal Pressure Readiness Monitor.

(a) Cold Soak Preconditions

The monitor will not run unless:

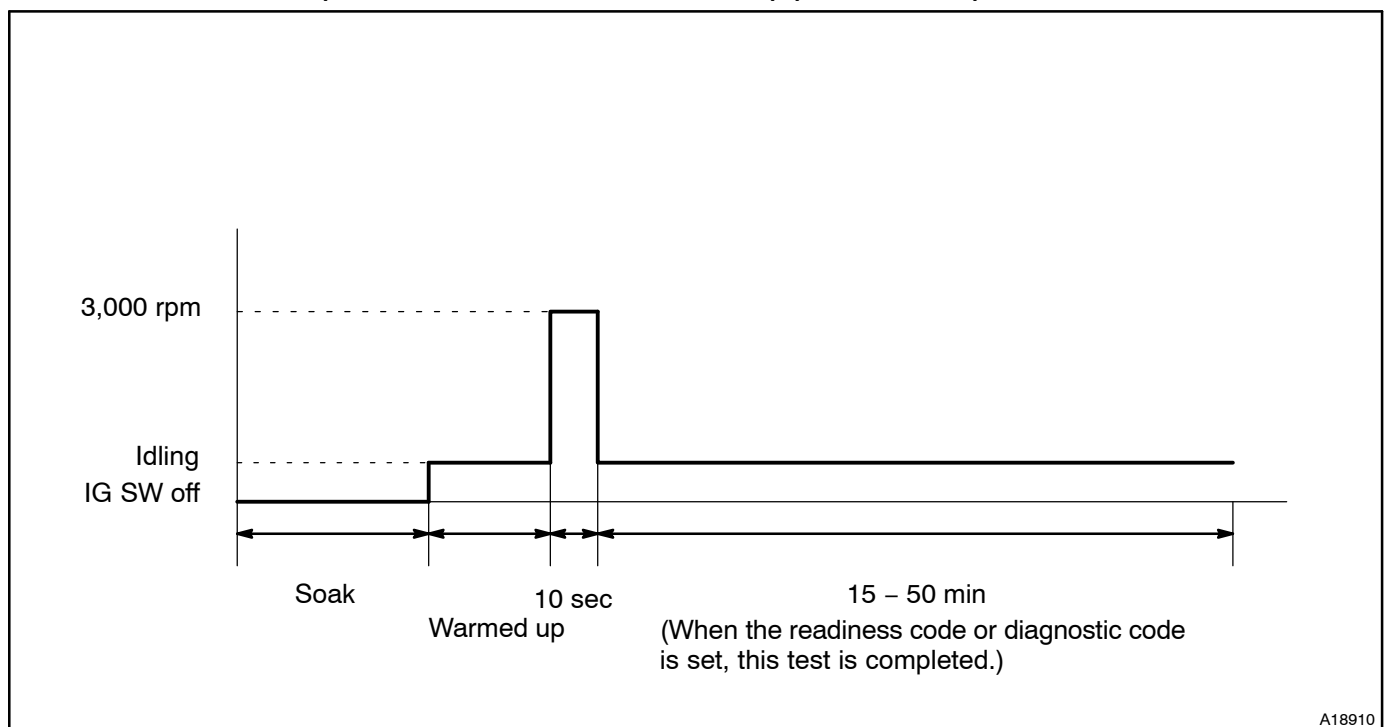
- MIL is OFF
- Fuel level is approximately 1/2 to 3/4
- Altitude is 7800 feet (2400m) or less

(b) Cold Soak Procedure

Let vehicle cold soak for 8 hours or until the difference between IAT and ECT is less than 13°F (7°C)

HINT:**Examples:**

- Scenario 1
ECT = 75°F (24°C)
IAT = 60°F (16°C)
Difference between ECT and IAT is 15°F (8°C)
→ The monitor will not run because difference between ECT and IAT is greater than 13°F (7°C)
- Scenario 2
ECT = 70°F (21°C)
IAT = 68°F (20°C)
Difference between ECT and IAT is 2°F (1°C)
→ The monitor will run because difference between ECT and IAT is less than 13°F (7°C)

6. EVAP MONITOR (VACUUM PRESSURE MONITOR) (CONTINUED)

(a) Preconditions

The monitor will not run unless:

- MIL is OFF
- Fuel level is approximately 1/2 to 3/4
- Altitude is 7800 feet (2400 m) or less*
- Engine Coolant Temperature (ECT) is between 40°F and 95°F (4.4°C and 35°C)
- Intake Air Temperature (IAT) is between 40°F and 95°F (4.4°C and 35°C)*
- Cold Soak Procedure has been completed
- Before starting the engine, the difference between ECT and IAT must be less than 13°F (7°C)

HINT:

Examples:

- Scenario 1
ECT = 75°F (24°C)
IAT = 60°F (16°C)
Difference between ECT and IAT is 15°F (8°C)
→ The monitor will not run because difference between ECT and IAT is greater than 13°F (7°C)
- Scenario 2
ECT = 70°F (21°C)
IAT = 68°F (20°C)
Difference between ECT and IAT is 2°F (1°C)
→ The monitor will run because difference between ECT and IAT is less than 13°F (7°C)

NOTICE:

The readiness test can be completed in cold ambient conditions (less than 40°F / 4.4°C) and/or at high altitudes (more than 7800 feet / 2400m) if the drive pattern is repeated a second time after cycling the ignition off.

(b) Drive Pattern

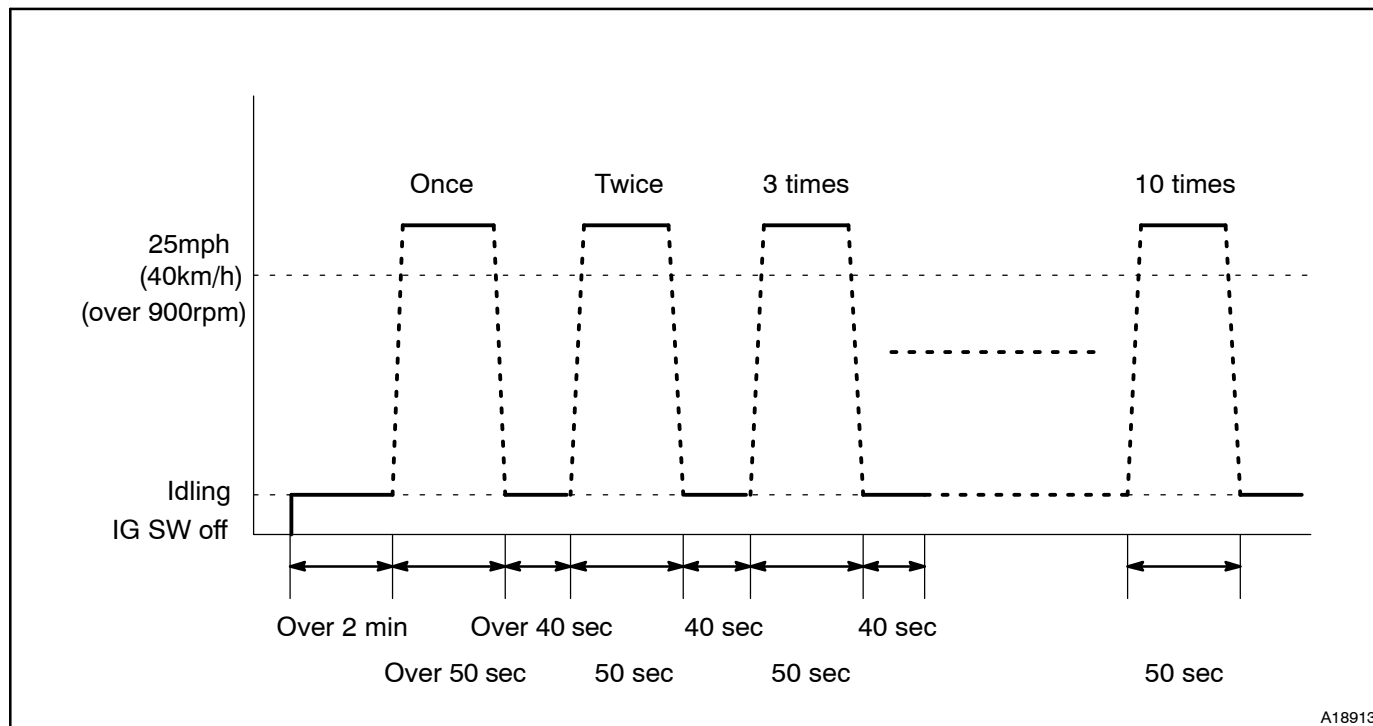
- (1) Connect the OBDII scan tool to DLC3 to check monitor status and preconditions.
- (2) Release pressure in fuel tank by removing and then reinstalling the fuel tank cap.
- (3) Start the engine and allow to idle until ECT is 167°F (75°C) or greater.
- (4) Race the engine at 3,000 rpm for about 10 seconds.
- (5) Allow engine to idle with the A/C ON (to create slight load) for 15 – 50 minutes.

NOTICE:

If the vehicle is not equipped with A/C put a slight load on the engine by doing the following :

- **Securely set the parking brake.**
- **Block the drive wheels with wheel chocks.**
- **Allow vehicle to idle in drive for 15 – 50 minutes.**

7. OXYGEN SENSOR MONITOR (FRONT AND REAR O2S SYSTEM)



(a) Preconditions

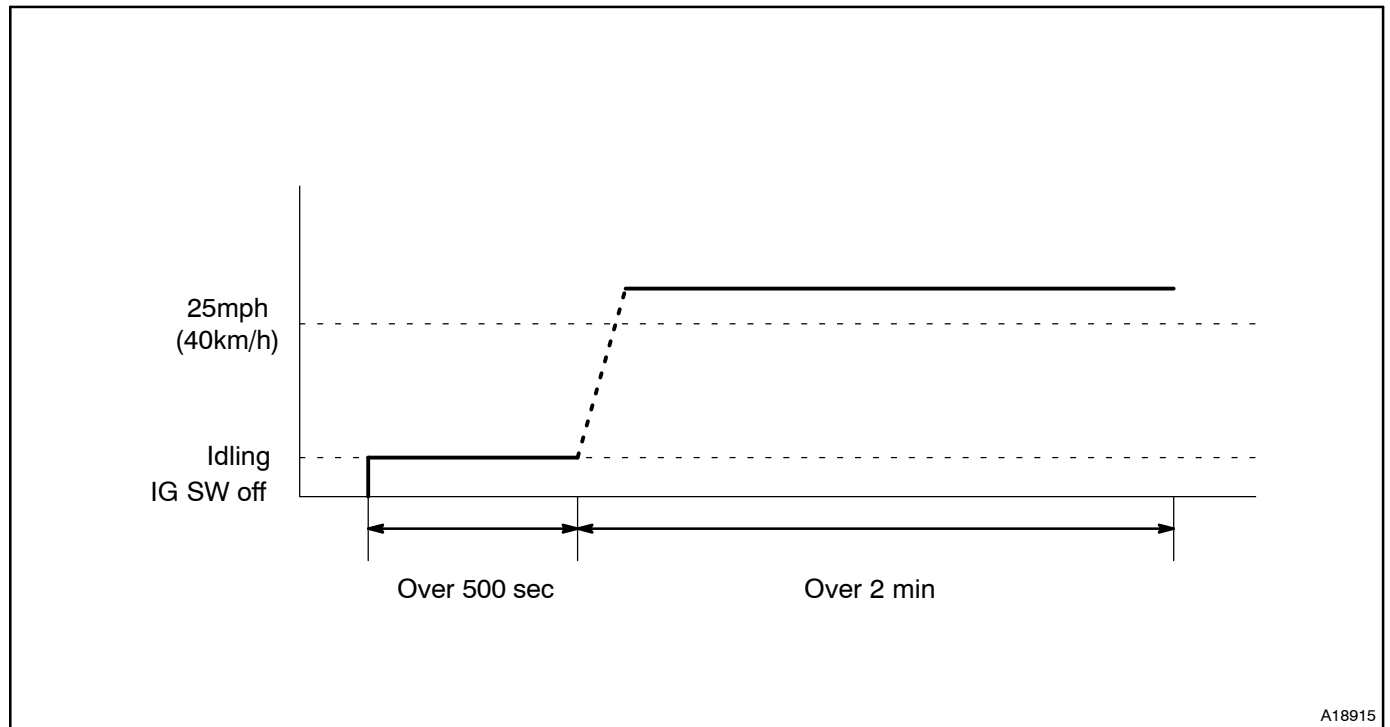
The monitor will not run unless:

- MIL is OFF

(b) Drive Pattern

- (1) Connect the OBDII scan tool to DLC3 to check monitor status and preconditions.
- (2) Start the engine and allow to idle for 2 minutes or more.
- (3) Drive vehicle at 25mph (40km/h) or more for at least 50 seconds.
- (4) Stop vehicle and allow engine to idle for 40 seconds or more.
- (5) Perform steps (3) and (4) ten times.
- (6) If readiness status does not switch to complete, ensure preconditions are met, turn ignition off and then repeat steps (1) through (5).

8. OXYGEN / AF SENSOR HEATER MONITOR



A18915

(a) Preconditions

The monitor will not run unless:

- MIL is OFF

(b) Drive Pattern

- (1) Connect the OBDII scan tool to DLC3 to check monitor status and preconditions.
- (2) Start the engine and allow to idle for 9 minutes.
- (3) Drive vehicle at 25mph (40km/h) or more for at least 2 minutes.
- (4) If readiness status does not switch to complete, ensure preconditions are met, turn ignition off and then repeat steps (2) and (3).