ATTENTION:

GENERAL MANAGER ❑
PARTS MANAGER ❑
CLAIMS PERSONNEL ❑
SERVICE MANAGER ❑

IMPORTANT - All Service Personnel Should Read and Initial in the boxes provided, right.

SUBARU

QUALITY DRIVEN® SERVICE

STATE I/M PROGRAM ADVISORY BULLETIN

APPLICABILITY: 2005MY and Newer Vehicles
SUBJECT: Readiness Code Set Procedure; On-Board Diagnostic System I/M Check During State Emission Test

NUMBER: 11-120-12R
DATE: 09/20/12
REVISED: 02/02/16

This bulletin provides additional information to Subaru State I/M Program Advisory Bulletin # 11-98-10R.

About 30 states have implemented regulations for inspecting the vehicle's On-Board Diagnostic (OBD) system as part of their state emissions inspection program. EPA guidance recommends no more than one unset readiness code monitor for 2001 and newer model vehicles. A state emission inspection may not pass a vehicle if the number of OBD system readiness monitors "Not Ready" or "Incomplete" is greater than stated above. Under this condition, the vehicle operator should be instructed to drive his/her vehicle for a few days to set the monitors before returning for an emission test re-inspection.

Below is the recommended readiness code set procedure for 2005MY and newer Subaru vehicles (excluding the vehicles listed on page 2):

1) Ensure the fuel level in the fuel tank is between ¼ and ¾ level. The recommended fuel level for this procedure is ½ fuel tank level.

2) Start the engine from cold condition and idle for more than 20 seconds (2011MY Impreza Turbo (STI & WRX) and Forester Turbo only) and drive the vehicle for more than 15 minutes at a speed greater than 50 mph in order to ensure proper warm-up of the engine. Avoid sudden acceleration, hard braking, and sudden lane change during the warm up.

3) The vehicle should be driven at a steady-state speed of 55 mph with minimal throttle angle change for more than 3 minutes.

4) Verify the condition of readiness codes using a generic scan tool (GST).

Owners of rejected or failing vehicles may be instructed by the State I/M Program to contact their Subaru Dealer (and/or independent service provider) for service.

The generic scan tool (GST) used for OBD I/M Check inspection varies by State I/M Program. The proper scan tool communication protocols for all 2011MY model year and newer Subaru vehicle is "ISO 15765-4".

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Below is the recommended readiness code set procedure for the listed vehicles:

MODEL YEAR	SUBARU MODEL
2013-2015	BRZ
2011-2015	Forester 2.5X
2013-2015	Forester XT Turbo
2012-2015	Impreza 2.0L
2012-2015	WRX
2012-2015	STI
2013-2015	XV Crosstrek 2.0L
2013-2015	Legacy / Outback 2.5i
2013-2015	Legacy / Outback 3.6
2013-2014	Tribeca

IMPORTANT: For vehicles newer than those listed in the table above, please follow the readiness code set procedure supplied in the applicable vehicle / model year Service Manual.

Ensure the fuel level in the fuel tank is between the ¼ and ¾ level. The recommended fuel level for this procedure is ½ of the fuel tank level.

Note: The above listed Subaru model year vehicles will set the evaporative readiness to "complete" in a three step process:

1) Drive the vehicle (following Drive Cycle I, below) for more than 30 minutes.
2) Park the car for 10½ hours in an area or facility with an ambient temperature from 40° — 113°F.
3) The vehicle should be driven at a steady-state of speed of 55mph, with minimal throttle angle change for more than 5 minutes.

The Automatic or Forced test for the Evaporative Leak Control module (ELCM) must be completed with no DTCs before the Evaporative Readiness monitor driving pattern can be attempted. Please consult the applicable Subaru Service Manual for ELCM service diagnostics, which is available online at http://techinfo.subaru.com.

DRIVE CYCLE I

DTC	ITEM	CONDITION
*P0455	Evaporative Emission System Leak Detected (Large Leak)	Engine coolant temperature: 5 — 45°C (41 — 113°F) Intake air temperature: 5 — 50°C (41 — 122°F)
*P0456	Evaporative Emission Control System Leak Detected (Very Small Leak)	
*P1451	Evaporative Emission Cont. Sys.	
*P2402	Evaporative Emission System Leak Detection Pump Control Circuit High	
*P2404	Evaporative Emission System Leak Detection Pump Sense Circuit Range/ Performance	
*P2420	Evaporative Emission System Switching Valve Control Circuit High	

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CAUTION: Be careful of the state of the battery when performing the DRIVE CYCLE I consecutively. Performing the DRIVE CYCLE I consecutively without the engine running may cause a low battery voltage and battery discharge.

NOTE:

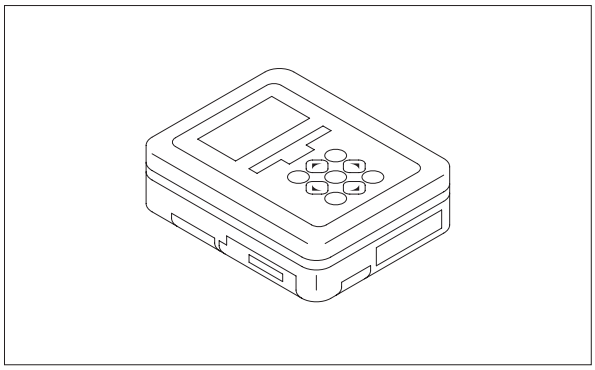
If it is necessary to perform DRIVE CYCLE I consecutively, drive the vehicle under the following conditions to release accumulated evaporating gas. Performing the DRIVE CYCLE I consecutively without starting the engine causes a large amount of evaporating gas to accumulate in the canister, which hinders an accurate diagnosis:

- After engine is warmed up
- Drive for 10 minutes or more at a speed of 48 km/h (30 MPH) or more (duration of drive can be an accumulation)

To obtain an accurate diagnostic result, perform the procedures according to the following points:

- Do not refuel gas immediately before performing DRIVE CYCLE I. There will be a large amount of evaporating gas immediately after refuel, which may cause a less accurate diagnostic performance.
- Do not shake the vehicle while performing DRIVE CYCLE I. Shaking the vehicle causes evaporating gas to increase inside the fuel tank, which may cause a less accurate diagnostic performance.
- Do not perform any service operation including installation or removal of parts or connectors while performing DRIVE CYCLE I. Performing service operation could affect on the functions of related parts, which may cause a less accurate diagnostic performance.

1) Prepare the Subaru Select Monitor kit. <Ref. to EN(H4DO)(diag)-8, PREPARATION TOOL, General Description.>



2) Prepare PC with Subaru Select Monitor installed.

3) Connect the USB cable to SDI (Subaru Diagnosis Interface) and USB port on the personal computer (dedicated port for the Subaru Select Monitor).

   NOTE: The dedicated port for the Subaru Select Monitor means the USB port which was

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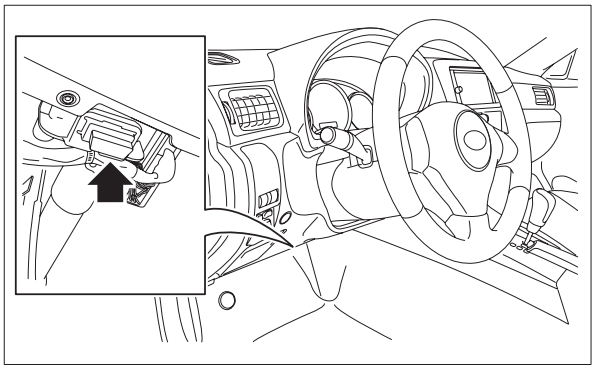
used to install the Subaru Select Monitor.

4) Connect the diagnosis cable to SDI.

5) Connect SDI to data link connector located in the lower portion of the instrument panel (on the driver's side).

   CAUTION: Do not connect the scan tools except for Subaru Select Monitor and general scan tool.



6) Start the PC.

7) Turn the ignition switch to ON (engine OFF) and run the "PC application for Subaru Select Monitor".

8) On «Main Menu» display, select {Each System Check}.

9) On «System Selection Menu» display, select {Engine Control System}.

10) Click the [OK] button after the information of engine type has been displayed.

11) On «Engine Diagnosis» display, select {OBD System}.

12) On «OBD Menu» display, select {Evaporative System Leak Test}.

13) On «Evaporative System Leak Test» display, select {Evaporative System Leak Test}.

14) On «Evaporative System Leak Test is running. Press Cancel to exit this function.» display, click the [OK] button to perform evaporative system leak test.

15) When «Conditions have been enabled to control this function. Turn the ignition switch off to terminate the test.» display appears, wait for 30 minutes without clicking the [OK] button.

    CAUTION: Do not leave the vehicle for an extended period of time after the test is complete. This may cause early deterioration of the battery or discharged battery.

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NOTE:

• Clicking the [OK] button brings the «Evaporative System Leak Test» display back, although the test is continuing.

• The Subaru Select Monitor screen does not change after the evaporative system leak test is complete or when the test is aborted by turning off the ignition switch.

• If «Test conditions are not correct» display appears, check that the engine coolant temperature and intake air temperature are within the specified range using Subaru Select Monitor. If the conditions are satisfied, make the necessary preparation for the drive cycle again. <Ref. to EN(H4DO)(diag)-47, PREPARATION FOR DRIVE CYCLE, PROCEDURE, Drive Cycle.>

16) After 30 minutes passed from the start of step 14), click the [OK] button to return to the «Evaporative System Leak Test» display.

17) Click buttons until the «OBD Menu» display appears, then select {Result of on-board monitor test}.

18) In the {Result of on-board monitor test}, check TID $C1 — $CA of MID $3C.

RESULT OF ON-BOARD MONITOR TEST

DISPLAY	DETAILS	REMARKS
$0000 is stored in all Val.	During the evaporative system leak test, the test conditions were not met and the test was cancelled.	Once the test conditions are met, perform the test again.
All Val. are stored with values and OK is set to all the results.	Evaporative system leak test is completed correctly.	While the ignition switch is ON, read temporary codes using the Subaru Select Monitor.
Some results were no good.	The evaporative system leak test completed successfully but the results were faulty.	While the ignition switch is ON, read temporary codes using the Subaru Select Monitor.

19) When the evaporative system leak test is completed correctly, read the temporary codes with the ignition switch turned to ON position. If the DTC is recorded, check the appropriate DTC. <Ref. to EN(H4DO)(diag)-41, OPERATION, Read Diagnostic Trouble Code (DTC).>

NOTE: The temporary code will be cleared by turning ignition switch to OFF.