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1994 MAZDA 323 (BG) Hatchback OEM Service and Repair Workshop Manual

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PID Item/Simulation Item Used In Diagnosis

PID/DATA monitor item table

Item	Definition	Unit	Condition/Specification
FTP	Fuel tank pressure	Pa {KPA}, mBar {BAR}, psi, in H20	• Displays fuel tank pressure
	Fuel tank pressure sensor voltage	V	• Fuel tank pressure is equal to barometric pressure: Approx. 2.6 V

Simulation item table

Item	Applicable component	Unit/Condition	Engine condition	Other condition
EVAPCP	Purge solenoid valve	%	• Under the following conditions: — Ignition is switched ON (engine off) — Idle — Racing (not idle)	• Under the following conditions: — Override drive parameter input range: 0–100%
EVAPCV	CV solenoid valve	Off/On	• Under the following conditions: — Ignition is switched ON (engine off) — Idle — Racing (not idle)	**Caution** **• Do not add fuel with the CV solenoid valve closed. Otherwise, it will result in air pollution because the evaporative gas in the fuel tank will escape directly into the atmosphere.** **Note** **• Override drive parameter: Off** **— CV solenoid valve: open** **• Override drive parameter: On** **— CV solenoid valve: close**

Function Inspection Using M-MDS

STEP	INSPECTION	RESULTS	ACTION
1	PURPOSE: VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and/or on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.

• Step 6–7

— Verify that the primary malfunction is resolved and there are no other malfunctions.

STEP	INSPECTION	RESULTS	ACTION
1	PURPOSE: DETERMINE INTEGRITY OF FUEL TANK PRESSURE SENSOR • Inspect the fuel tank pressure sensor. (See FUEL TANK PRESSURE SENSOR INSPECTION [SKYACTIV-G 2.5T].) • Is there any malfunction?	Yes	Replace the charcoal canister, then go to Step 6. (See CHARCOAL CANISTER REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
		No	Go to the next step.
2	PURPOSE: DETERMINE INTEGRITY OF PURGE SOLENOID VALVE • Inspect the purge solenoid valve. (See PURGE SOLENOID VALVE INSPECTION [SKYACTIV-G 2.5T].) • Is there any malfunction?	Yes	Replace the purge solenoid valve, then go to Step 6. (See PURGE SOLENOID VALVE REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
		No	Go to the next step.
3	PURPOSE: VERIFY IF THERE IS CLOGGING BETWEEN FUEL TANK PRESSURE SENSOR AND FUEL TANK • Verify the following passage hoses, pipe connection condition, and that there is no clogging. — Between fuel tank pressure sensor and fuel shut-off valve • Is there any poor connection or clogging?	Yes	Repair or replace the malfunctioning part according to the inspection results, then go to Step 6.
		No	Go to the next step.
4	PURPOSE: DETERMINE INTEGRITY OF FUEL SHUT-OFF VALVE • Inspect the fuel shut-off valve. (See FUEL TANK INSPECTION [SKYACTIV-G 2.5T].) • Is there any malfunction?	Yes	Replace the fuel tank, then go to Step 6. (See FUEL TANK REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
		No	Go to the next step.
5	PURPOSE: DETERMINE INTEGRITY OF ROLLOVER VALVE • Inspect the rollover valve. (See FUEL TANK INSPECTION [SKYACTIV-G 2.5T].) • Is there any malfunction?	Yes	Replace the fuel tank, then go to the next step. (See FUEL TANK REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
		No	Go to the next step.
6	PURPOSE: VERIFICATION OF VEHICLE REPAIR COMPLETION • Reconnect all the removed parts. • Clear the DTC from the PCM memory using the M-MDS. (See CLEARING DTC [PCM (SKYACTIV-G 2.5T)].) • Implement the repeatability verification procedure. (See Repeatability Verification Procedure.) • Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].) • Is the same Pending DTC present?	Yes	Repeat the inspection from Step 1 of the troubleshooting diagnostic procedure. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].) Go to the next step.
		No	Go to the next step.
7	PURPOSE: VERIFY IF THERE IS ANY OTHER MALFUNCTION • Is any other DTC or pending code stored?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5T)].)
		No	DTC troubleshooting completed.

KOEO/KOER SELF TEST [PCM (SKYACTIV-G 2.5T)]

SM2896603

id0102s880120

KOEO Self Test

1.Connect the M-MDS to the DLC-2.

2.After the vehicle is identified, select the following items from the initialization screen of the M-MDS.

(1)Select "Self Test".

(2)Select "Modules".

(3)Select "PCM".

3.Then, select the "KOEO On Demand Self Test" and perform procedures according to the directions on the M-MDS screen.

4.Verify the DTC according to the directions on the M-MDS screen.

• If any DTCs are displayed, perform troubleshooting according to the corresponding DTC inspection.

5.After completion of repairs, clear all DTCs stored in the PCM, while referring to "AFTER REPAIR PROCEDURE".

KOER Self Test

Note

• If a KOER self test is performed with the engine coolant temperature at less than 60 °C {140 °F}, a DTC for the variable valve timing may be detected even if the variable valve timing is normal.
• For vehicles with the variable valve timing control, execute a KOER self test after the variable valve timing learning is finished.

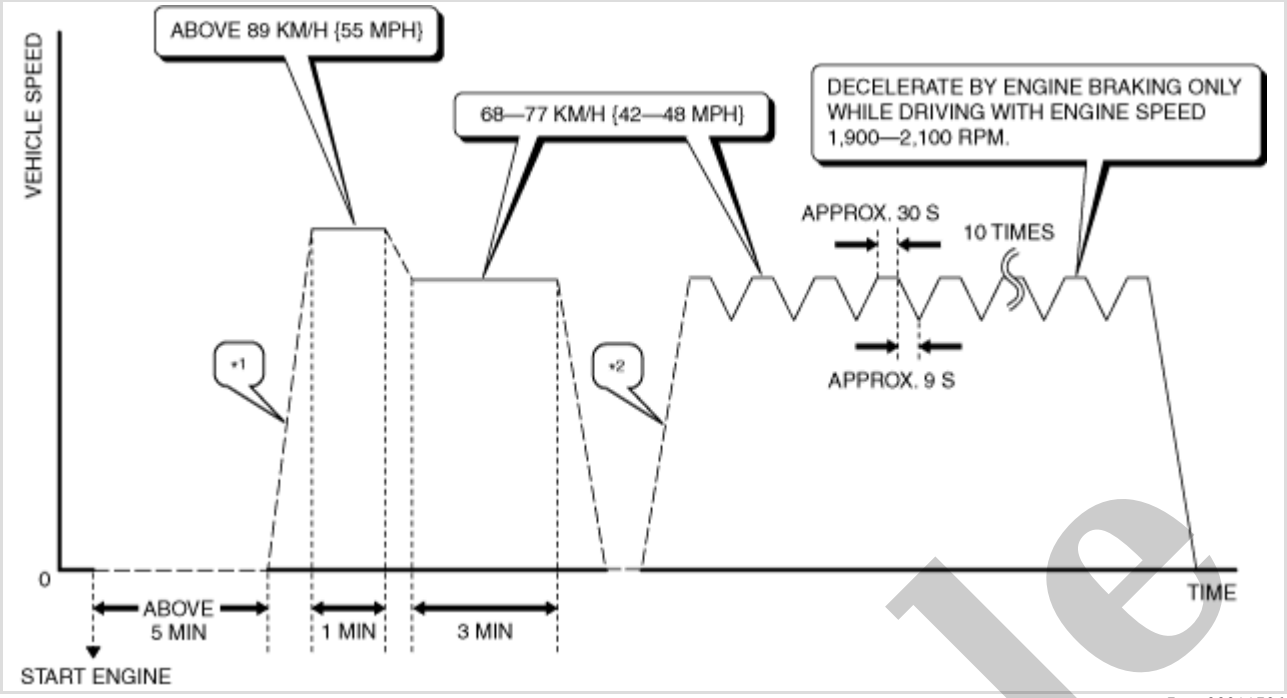
— A KOER self test cannot be executed if the variable timing valve learning in not finished.
— The variable valve timing learning is cleared if the PCM backup power supply is interrupted (including battery removal), or after reprogramming.
— To perform variable valve timing learning, the engine speed needs to be increased momentarily to approx. 2,000 rpm.

1.Connect the M-MDS to the DLC-2.

2.Start engine and run it at idle.

3.After the vehicle is identified, access the ECT PID using the M-MDS.

3.Drive the vehicle as shown in the graph.



ac5uuw00011506

*1:Accelerate to 89 km/h {55 mph} within 20 s in D position.

*2:Accelerate to 72 km/h {45 mph} within 15 s in D position.

4.To verify the completion of the drive mode, stop the vehicle and display the [Mode 1 Powertrain Data] of the ON-BOARD DIAGNOSTIC (OBD) TEST MODES using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].)

- If the drive mode has been completed, [***_EVAL] or [***RDY] (each system completed) of the PID [***SUP] (with/without support for each system monitor) item indicating Yes changes from No to Yes.
- If the drive mode has not been completed, switch the ignition off and repeat the procedure from Step 3 again.

5.Access the DIAGNOSTIC MONITORING TEST RESULTS menu of GENERIC OBD-II FUNCTIONS to verify the monitor results. (See DIAGNOSTIC MONITORING TEST RESULTS [PCM (SKYACTIV-G 2.5T)].)

- If detected values are not within specification, repair has not been completed.

6.Verify that no DTCs are displayed.

Mode 06 (EVAP System Repair Verification Drive Mode)

Note

- If "EVAP System Repair Verification Drive Mode" cannot be performed (it is impossible to drive the vehicle under this Drive Mode condition), perform the evaporative system test procedure as an alternative. (See ENGINE CONTROL SYSTEM OPERATION INSPECTION [SKYACTIV-G 2.5T].)

1.Verify that all of the following PIDs are within the following specifications. All PIDs must be within specifications before the engine is started to initiate the evaporative system test.

DTC TABLE [PCM (SKYACTIV-G 2.5T)]

SM2896606

id0102s880150

Note

• When each warning/indicator light turns on/flashes, a message may be displayed in the multi-information display (with multi-information display) or the center display.

×: Applicable−: Not applicable

DTC No.	Check engine light	Master warning indication/master warning light	Charging system warning indication/charging system warning light	Engine oil warning indication/engine oil warning light	Check fuel cap warning indication/check fuel cap warning light	Engine oil level warning indication/engine oil level warning light	Condition	Fail-safe function	Driv
B10A2:00	OFF	OFF	OFF	OFF	OFF	OFF	Vehicle collision	×	
P0010:00	ON	OFF	OFF	OFF	OFF	OFF	Electric variable valve timing control circuit range/performance problem	×	
P0011:00	ON	OFF	OFF	OFF	OFF	OFF	Electric variable valve timing control system: over-advanced	−	
P0012:00	ON	OFF	OFF	OFF	OFF	OFF	Electric variable valve timing control system: over-retarded	−	
P0014:00	ON *3	OFF	OFF	OFF	OFF	OFF	Hydraulic variable valve timing control system: over-advanced	−	

DTC No.	Check engine light	Master warning indication/master warning light	Charging system warning indication/charging system warning light	Engine oil warning indication/engine oil warning light	Check fuel cap warning indication/check fuel cap warning light	Engine oil level warning indication/engine oil level warning light	Condition	Fail-safe function	Driv
P0087:00	ON	OFF	OFF	OFF	OFF	OFF	High fuel pressure sensor circuit range/performance problem	×	
P0088:00	ON	OFF	OFF	OFF	OFF	OFF	High fuel pressure sensor circuit range/performance problem	×	
P0089:00	ON	OFF	OFF	OFF	OFF	OFF	Spill valve control solenoid valve control circuit range/performance problem	×	
P0091:00	ON	OFF	OFF	OFF	OFF	OFF	Fuel pressure regulator control circuit low input	×	
P0092:00	ON	OFF	OFF	OFF	OFF	OFF	Fuel pressure regulator control circuit high input	×	
P0096:00	ON	OFF	OFF	OFF	OFF	OFF	IAT sensor No.2 circuit range/performance problem	–	
P0097:00	ON	OFF	OFF	OFF	OFF	OFF	IAT sensor No.2 circuit low input	–	
P0098:00	ON	OFF	OFF	OFF	OFF	OFF	IAT sensor No.2 circuit high input	–	

DTC No.	Check engine light	Master warning indication/master warning light	Charging system warning indication/charging system warning light	Engine oil warning indication/engine oil warning light	Check fuel cap warning indication/check fuel cap warning light	Engine oil level warning indication/engine oil level warning light	Condition	Fail-safe function	Driv
P0133:00	ON	OFF	OFF	OFF	OFF	OFF	A/F sensor circuit slow response	×	
P0134:00	ON	OFF	OFF	OFF	OFF	OFF	A/F sensor circuit no activity detected	×	
P0137:00	ON	OFF	OFF	OFF	OFF	OFF	HO2S circuit low input	×	
P0138:00	ON	OFF	OFF	OFF	OFF	OFF	HO2S circuit high input	–	
P013A:00 *5	ON	OFF	OFF	OFF	OFF	OFF	Slow response (during transition from rich to lean)	–	
P013B:00 *5	ON	OFF	OFF	OFF	OFF	OFF	Slow response (during transition from lean to rich)	–	
P0140:00	ON	OFF	OFF	OFF	OFF	OFF	HO2S circuit no activity detected	–	
P0171:00	ON	OFF	OFF	OFF	OFF	OFF	Fuel trim system too lean	–	
P0172:00	ON	OFF	OFF	OFF	OFF	OFF	Fuel trim system too rich	–	
P0181:00	OFF	OFF	OFF	OFF	OFF	OFF	Fuel temperature sensor circuit range/performance problem	–	