

2012 - Mazda6 - Engine

DTC P0111:00 [MZR 2.5]

DTC P0111:00	IAT sensor circuit range/performance problem
DETECTION CONDITION	• If the intake air temperature is higher than the engine coolant temperature by 24 °C { 43 °F} for 20 s with the ignition switch is ON*, the PCM determines that there is a IAT sensor circuit range/performance problem. (TYPE A) • If the intake air temperature is higher than the engine coolant temperature by 24 °C { 43 °F} for 20 s or the intake air temperature is lower than the engine coolant temperature by -48 °C {-86 °F} for 20 s with the ignition switch is ON*, the PCM determines that there is a IAT sensor circuit range/performance problem. (TYPE B) *: Ignition switch is ON when 6 h or more have passed since the ignition was switched off. Diagnostic support note • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. • PENDING CODE is available if the PCM detects the above malfunction condition during first drive cycle. • FREEZE FRAME DATA (Mode 2)/Snapshot data is available. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• MAF/IAT sensor connector or terminal malfunction • IAT sensor malfunction • PCM connector or terminal malfunction • PCM malfunction

Diagnostic procedure

STEP	INSPECTION	ACTION
	VERI FY FREEZE FRAME DATA (MODE	

1	2) / SNAPSHOT DATA HAS BEEN RECORDED Has the FREEZE FRAME DATA (Mode 2)/snapshot data been recorded?	Yes	Go to the next step.
		No	Record the FREEZE FRAME DATA (Mode 2)/snapshot data on the repair order, then go to the next step.
2	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.
3	INSPECT MAF/ IAT SENSOR CONNECTOR CONDITION - Switch the ignition to off. - Disconnect the MAF/IAT sensor connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is there any malfunction?	Yes	Repair or replace the terminal and/or connector, then go to Step 6.
		No	Go to the next step.
4	INSPECT IAT SENSOR - Inspect the IAT sensor. (See INTAKE AIR TEMPERATURE (IAT) SENSOR INSPECTION [MZR 2.5].) - Is there any malfunction?	Yes	Replace the MAF/IAT sensor, then go to Step 6. (See INTAKE-AIR SYSTEM REMOVAL/ INSTALLATION [MZR 2.5] .)
		No	Go to the next step.
5	INSPECT PCM CONNECTOR CONDITION - Disconnect the PCM connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is there any malfunction?	Yes	Repair or replace the terminal and/or connector, then go to the next step.
		No	Go to the next step.
6	VERIFY DTC TROUBLESHOOTING COMPLETED - Make sure to reconnect all disconnected connectors. - Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR	Yes	Repeat the inspection from Step 1. - If the malfunction recurs, replace the PCM. (See PCM REMOVAL/ INSTALLATION [MZR 2.5].) Go to the next step.

	PROCEDURE [MZR 2.5] .) • Drive the vehicle under the FREEZE FRAME DATA (Mode 2) condition. • Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5] .) • Is the PENDING CODE for this DTC present?		No	Go to the next step.
7	VERIFY AFTER REPAIR PROCEDURE • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [MZR 2.5] .) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [MZR 2.5] .)	
		No	DTC troubleshooting completed.	

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POSSIBLE CAUSE	• MAF/IAT sensor connector or terminal malfunction • IAT sensor malfunction • PCM connector or terminal malfunction • PCM malfunction

Diagnostic procedure

STEP	INSPECTION	ACTION
	VERIFY FREEZE FRAME DATA (MODE	

1	2) / SNAPSHOT DATA HAS BEEN RECORDED Has the FREEZE FRAME DATA (Mode 2)/snapshot data been recorded?	Yes	Go to the next step.
		No	Record the FREEZE FRAME DATA (Mode 2)/snapshot data on the repair order, then go to the next step.
2	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.
3	INSPECT MAF/ IAT SENSOR CONNECTOR CONDITION - Switch the ignition to off. - Disconnect the MAF/IAT sensor connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is there any malfunction?	Yes	Repair or replace the terminal and/or connector, then go to Step 6.
		No	Go to the next step.
4	INSPECT IAT SENSOR - Inspect the IAT sensor. (See INTAKE AIR TEMPERATURE (IAT) SENSOR INSPECTION [MZR 2.5].) - Is there any malfunction?	Yes	Replace the MAF/IAT sensor, then go to Step 6. (See INTAKE-AIR SYSTEM REMOVAL/ INSTALLATION [MZR 2.5] .)
		No	Go to the next step.
5	INSPECT PCM CONNECTOR CONDITION - Disconnect the PCM connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is there any malfunction?	Yes	Repair or replace the terminal and/or connector, then go to the next step.
		No	Go to the next step.
6	VERIFY DTC TROUBLESHOOTING COMPLETED - Make sure to reconnect all disconnected connectors. - Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR	Yes	Repeat the inspection from Step 1. - If the malfunction recurs, replace the PCM. (See PCM REMOVAL/ INSTALLATION [MZR 2.5].) Go to the next step.

	PROCEDURE [MZR 2.5] .) • Drive the vehicle under the FREEZE FRAME DATA (Mode 2) condition. • Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5] .) • Is the PENDING CODE for this DTC present?		No	Go to the next step.
7	VERIFY AFTER REPAIR PROCEDURE • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [MZR 2.5] .) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [MZR 2.5] .)	
		No	DTC troubleshooting completed.	