

2012 - Mazda6 - Engine

DTC P050B:00 [MZR 2.5]

DTC P050B:00	Cold start ignition timing performance problem
DETECTION CONDITION	- The PCM monitors actual ignition timing using the CKP sensor while electronic spark advance control fast idle correction operating. If the ignition timing is out of specified range, the PCM determines that the ignition timing at cold condition has performance problem. Diagnostic support note - This is a continuous monitor (cold start emission reduction strategy monitoring). - 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 the first drive cycle. - FREEZE FRAME DATA (Mode2)/Snapshot data is not available. - The DTC is stored in the PCM memory.
POSSIBLE CAUSE	- Damaged or chipped CKP sensor pulse wheel - CKP sensor malfunction - Damaged or chipped CMP sensor pulse wheel - CMP sensor malfunction - PCM malfunction

Diagnostic procedure

STEP	INSPECTION	ACTION
1	IDENTIFY TRIGGER DTC FOR FREEZE FRAME DATA (MODE 2) Is the P050B:00 on FREEZE FRAME DATA (Mode 2)?	Yes Go to the next step. No Go to troubleshooting procedures for DTC on FREEZE FRAME DATA (Mode 2).

		(See DTC TABLE [MZR 2.5] .)	
2	VERIFY FREEZE FRAME DATA (MODE 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.	
3	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.	
4	INSPECT CKP SENSOR AND PULSE WHEEL - Visually inspect the CKP sensor and pulse wheel. - Is there any damage or chip on the CKP sensor and pulse wheel?	Yes Repair or replace the malfunctioning part according to the inspection results, then go to Step 8. No Go to the next step.	
5	INSPECT CKP SENSOR - Inspect the CKP sensor. (See CRANKSHAFT POSITION (CKP) SENSOR INSPECTION [MZR 2.5].) - Is there any malfunction?	Yes Replace the CKP sensor, then go to Step 8. (See CRANKSHAFT POSITION (CKP) SENSOR REMOVAL/ INSTALLATION [MZR 2.5] .) No Go to the next step.	
6	INSPECT CMP SENSOR AND PULSE WHEEL - Visually inspect the CMP sensor and pulse wheel. - Is there any damage or chip on the CMP sensor and pulse wheel?	Yes Repair or replace the malfunctioning part according to the inspection results, then go to Step 8. No Go to the next step.	
7	INSPECT CMP SENSOR - Inspect the CMP sensor. (See CAMSHAFT POSITION (CMP) SENSOR INSPECTION [MZR 2.5].) - Is there any malfunction?	Yes Replace the CMP sensor, then go to the next step. (See CAMSHAFT POSITION (CMP) SENSOR REMOVAL/ INSTALLATION [MZR 2.5] .) No Go to the next step.	
8	VERIFY DTC TROUBLESHOOTING COMPLETED Clear the DTC from the PCM	Yes Repeat the inspection from Step 1. If the malfunction recurs, replace	

	memory using the M-MDS. (See AFTER REPAIR PROCEDURE [MZR 2.5].) • Start the engine and warm it up completely. • Perform the KOER self test. (See KOEO/ KOER SELF TEST [MZR 2.5].) • Is the PENDING CODE for this DTC present?		the PCM. (See PCM REMOVAL/ INSTALLATION [MZR 2.5].) Go to the next step.
		No	Go to the next step.
9	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.
		No	DTC troubleshooting completed.

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POSSIBLE CAUSE	- Damaged or chipped CKP sensor pulse wheel - CKP sensor malfunction - Damaged or chipped CMP sensor pulse wheel - CMP sensor malfunction - PCM malfunction

Diagnostic procedure

STEP	INSPECTION	ACTION
1	IDENTIFY TRIGGER DTC FOR FREEZE FRAME DATA (MODE 2)	Yes Go to the next step.
	Is the P050B:00 on FREEZE FRAME DATA (Mode 2)?	No Go to troubleshooting procedures for DTC on FREEZE FRAME DATA (Mode 2).

		(See DTC TABLE [MZR 2.5] .)	
2	VERIFY FREEZE FRAME DATA (MODE 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.	
3	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.	
4	INSPECT CKP SENSOR AND PULSE WHEEL - Visually inspect the CKP sensor and pulse wheel. - Is there any damage or chip on the CKP sensor and pulse wheel?	Yes Repair or replace the malfunctioning part according to the inspection results, then go to Step 8. No Go to the next step.	
5	INSPECT CKP SENSOR - Inspect the CKP sensor. (See CRANKSHAFT POSITION (CKP) SENSOR INSPECTION [MZR 2.5].) - Is there any malfunction?	Yes Replace the CKP sensor, then go to Step 8. (See CRANKSHAFT POSITION (CKP) SENSOR REMOVAL/ INSTALLATION [MZR 2.5] .) No Go to the next step.	
6	INSPECT CMP SENSOR AND PULSE WHEEL - Visually inspect the CMP sensor and pulse wheel. - Is there any damage or chip on the CMP sensor and pulse wheel?	Yes Repair or replace the malfunctioning part according to the inspection results, then go to Step 8. No Go to the next step.	
7	INSPECT CMP SENSOR - Inspect the CMP sensor. (See CAMSHAFT POSITION (CMP) SENSOR INSPECTION [MZR 2.5].) - Is there any malfunction?	Yes Replace the CMP sensor, then go to the next step. (See CAMSHAFT POSITION (CMP) SENSOR REMOVAL/ INSTALLATION [MZR 2.5] .) No Go to the next step.	
8	VERIFY DTC TROUBLESHOOTING COMPLETED Clear the DTC from the PCM	Yes Repeat the inspection from Step 1. If the malfunction recurs, replace	

	memory using the M-MDS. (See AFTER REPAIR PROCEDURE [MZR 2.5].) • Start the engine and warm it up completely. • Perform the KOER self test. (See KOEO/ KOER SELF TEST [MZR 2.5].) • Is the PENDING CODE for this DTC present?		the PCM. (See PCM REMOVAL/ INSTALLATION [MZR 2.5].) Go to the next step.
		No	Go to the next step.
9	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.
		No	DTC troubleshooting completed.