

2012 - Mazda6 - Engine

DTC P0506:00 [MZR 2.5]

DTC P0506:00	Idle air control system RPM lower than expected
DETECTION CONDITION	- The actual idle speed is lower than expected by 100 rpm for 14 s, when brake pedal is depressed (brake switch is ON) and steering wheel is held straight ahead (power steering pressure switch is off). NOTE: - If intake air temperature is below -10 °C {14 °F}, the PCM cancels diagnosis of P0506:00. Diagnostic support note - This is a continuous monitor (CCM). - The MIL illuminates if the PCM detects the above malfunction conditions 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	- A/C magnetic clutch malfunction - Electronic throttle control system malfunction - Purge solenoid valve malfunction - Air cleaner element clogged - Air intake passage clogged - Throttle body passage clogged - Generator malfunction - Engine malfunction - Insufficient engine compression (over capacity of blow-by gas) - Poor quality fuel

- PCM malfunction

Diagnostic procedure

STEP	INSPECTION	ACTION
1	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.
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	VERIFY RELATED PENDING AND STORED DTC • Switch the ignition to off, then to ON (engine off). • Verify pending and stored DTCs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5].) • Are any other DTCs present?	Yes Go to the applicable DTC inspection. (See DTC TABLE [MZR 2.5] .)
		No Go to the next step.
4	INSPECT A/ C MAGNETIC CLUTCH OPERATION • Turn the fan switch off. • Is the magnetic clutch still on?	Yes Perform the "NO.24 A/C IS ALWAYS ON OR A/C COMPRESSOR RUNS CONTINUOUSLY". (See NO.24 A/ C IS ALWAYS ON OR A/ C COMPRESSOR RUNS CONTINUOUSLY [MZR 2.5] .)
		No Go to the next step.
5	INSPECT ELECTRONIC THROTTLE CONTROL SYSTEM • Inspect the following parts: ▪ APP sensor (See ACCELERATOR PEDAL POSITION (APP) SENSOR INSPECTION [MZR	Yes Replace the malfunctioning parts, then go to Step 11. (See ACCELERATOR PEDAL REMOVAL/ INSTALLATION [MZR 2.5] .) (See INTAKE-AIR SYSTEM REMOVAL/ INSTALLATION [MZR 2.5] .)
		No Go to the next step.

	2.5]..) - TP sensor (See THROTTLE POSITION (TP) SENSOR INSPECTION [MZR 2.5].) - Is there any malfunction?		
6	INSPECT PURGE SOLENOID VALVE - Inspect the purge solenoid valve. (See PURGE SOLENOID VALVE INSPECTION [MZR 2.5].) - Is there any malfunction?	Yes Replace the purge solenoid valve, then go to Step 11. (See PURGE SOLENOID VALVE REMOVAL/ INSTALLATION [MZR 2.5].)	
		No Go to the next step.	
7	INSPECT AIR CLEANER ELEMENT - Remove the air cleaner element with the engine running. - Is the engine speed increased?	Yes Clean or replace the air cleaner element, then go to Step 11.	
		No Go to the next step.	
8	INSPECT THROTTLE BODY PASSAGE - Visually inspect the throttle body passage? - Is the throttle body passage clogged?	Yes Clean or replace the throttle body passage, then go to Step 11.	
		No Go to the next step.	
9	INSPECT GENERATOR - Inspect the generator. (See GENERATOR INSPECTION [MZR 2.5].) - Is there any malfunction?	Yes Replace the generator, then go to Step 11. (See GENERATOR REMOVAL/ INSTALLATION [MZR 2.5].)	
		No Go to the next step.	
10	INSPECT ENGINE COMPRESSION - Inspect the engine compression. (See COMPRESSION INSPECTION [MZR 2.5].) - Is there any malfunction?	Yes Overhaul the engine for repairs, then go to the next step.	
		No Go to the next step.	
11	VERIFY DTC TROUBLESHOOTING COMPLETED Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [MZR 2.5].)	Yes Repeat the inspection from Step 1. If the malfunction recurs, replace the PCM. (See PCM REMOVAL/ INSTALLATION [MZR	

	• Start the engine and warm it up completely. • Depress the brake pedal for more than 14 s. • Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5].) • Is the PENDING CODE for this DTC present?		2.5] .)
			Go to the next step.
12	VERIFY AFTER REPAIR PROCEDURE • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [MZR 2.5].) • Are any DTCs present?	No	Go to the next step.
		Yes	Go to the applicable DTC inspection. (See DTC TABLE [MZR 2.5] .)
		No	DTC troubleshooting completed.

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6	INSPECT PURGE SOLENOID VALVE - Inspect the purge solenoid valve. (See PURGE SOLENOID VALVE INSPECTION [MZR 2.5].) - Is there any malfunction?	Yes Replace the purge solenoid valve, then go to Step 11. (See PURGE SOLENOID VALVE REMOVAL/ INSTALLATION [MZR 2.5].)	
		No Go to the next step.	
7	INSPECT AIR CLEANER ELEMENT - Remove the air cleaner element with the engine running. - Is the engine speed increased?	Yes Clean or replace the air cleaner element, then go to Step 11.	
		No Go to the next step.	
8	INSPECT THROTTLE BODY PASSAGE - Visually inspect the throttle body passage? - Is the throttle body passage clogged?	Yes Clean or replace the throttle body passage, then go to Step 11.	
		No Go to the next step.	
9	INSPECT GENERATOR - Inspect the generator. (See GENERATOR INSPECTION [MZR 2.5].) - Is there any malfunction?	Yes Replace the generator, then go to Step 11. (See GENERATOR REMOVAL/ INSTALLATION [MZR 2.5].)	
		No Go to the next step.	
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		Yes	Go to the applicable DTC inspection. (See DTC TABLE [MZR 2.5] .)
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