

2012 - Mazda6 - Engine

DTC P0012:00 [MZR 2.5]

DTC P0012:00	CMP timing over-retarded
DETECTION CONDITION	- The actual valve timing is over-retarded by 10 ° from the target valve timing for specified period when the OCV system control is within the feedback range. MONITORING CONDITIONS - Engine speed: below 4,000 rpm - Engine coolant temperature: 60—110 °C { 140—230 °F } 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 the first drive cycle. - FREEZE FRAME DATA (Mode 2)/Snapshot data is available. - The DTC is stored in the PCM memory.
POSSIBLE CAUSE	- Low engine oil pressure - OCV malfunction - Spool valve in the OCV is stuck in retard position - Timing chain misinstallation - The following engine oil runners are clogged or have leakage: - Between the oil pressure switch and the OCV - Between the OCV and the variable valve timing actuator - In the variable valve timing actuator - 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 CODE OR STORED DTCs - Switch the ignition to off, then to the ON (engine off). - Verify the related PENDING CODE or stored DTCs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5].) - Is the DTC P2088:00 or P2089:00 present?	Yes	Go to the applicable DTC inspection. (See DTC P2088:00 [MZR 2.5] .) (See DTC P2089:00 [MZR 2.5] .)
		No	Go to the next step.
4	VERIFY ENGINE OIL PRESSURE - Start the engine. - Does the oil pressure warning light illuminate?	Yes	Inspect the engine oil pressure. (See OIL PRESSURE INSPECTION [MZR 2.5] .) Repair or replace the malfunctioning part according to the inspection results, then go to Step 8.
		No	Go to the next step.
5	INSPECT OCV - Stop the engine. - Remove the OCV. (See OIL CONTROL VALVE	Yes	Reinstall or replace the OCV, then go to Step 8. (See OIL CONTROL VALVE (OCV) REMOVAL/ INSTALLATION [MZR 2.5] .)

	(OCV) REMOVAL/ INSTALLATION [MZR 2.5].) - Inspect the position of the spool valve in the OCV. (See OIL CONTROL VALVE (OCV) INSPECTION [MZR 2.5].) - Is the spool valve located at the valve retard position?	No	Go to the next step.
6	VERIFY TIMING CHAIN INSTALLATION - Remove the engine front cover. (See TIMING CHAIN REMOVAL/ INSTALLATION [MZR 2.5].) - Is the camshaft timing mark at the correct point?	Yes	Go to the next step.
		No	Reinstall the timing chain, then go to Step 8. (See TIMING CHAIN REMOVAL/ INSTALLATION [MZR 2.5].)
7	INSPECT ENGINE OIL RUNNER - Inspect the following engine oil runners for clogging or leakage: - Between oil pressure switch and OCV - Between OCV and variable valve timing actuator - In variable valve timing actuator - Is there any clogging or leakage?	Yes	Repair or replace the suspected runner, then go to the next step.
		No	VARIABLE VALVE TIMING MECHANISM IS NORMAL NOTE: - This DTC is detected by intermittent concern. - An intermittent concern might be removed using the cleaning mode of the variable valve timing control function. Go to the next step.

8	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 PROCEDURE [MZR 2.5].) • Switch the ignition to off. • 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?	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.
		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. (See DTC TABLE [MZR 2.5].)
		No	DTC troubleshooting completed.

2012 - Mazda6 - Engine

DTC P0012:00 [MZR 2.5]

DTC P0012:00	CMP timing over-retarded
DETECTION CONDITION	- The actual valve timing is over-retarded by 10 ° from the target valve timing for specified period when the OCV system control is within the feedback range. MONITORING CONDITIONS - Engine speed: below 4,000 rpm - Engine coolant temperature: 60—110 °C { 140—230 °F } 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 the first drive cycle. - FREEZE FRAME DATA (Mode 2)/Snapshot data is available. - The DTC is stored in the PCM memory.
POSSIBLE CAUSE	- Low engine oil pressure - OCV malfunction - Spool valve in the OCV is stuck in retard position - Timing chain misinstallation - The following engine oil runners are clogged or have leakage: - Between the oil pressure switch and the OCV - Between the OCV and the variable valve timing actuator - In the variable valve timing actuator - 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 CODE OR STORED DTCs - Switch the ignition to off, then to the ON (engine off). - Verify the related PENDING CODE or stored DTCs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5].) - Is the DTC P2088:00 or P2089:00 present?	Yes	Go to the applicable DTC inspection. (See DTC P2088:00 [MZR 2.5] .) (See DTC P2089:00 [MZR 2.5] .)
		No	Go to the next step.
4	VERIFY ENGINE OIL PRESSURE - Start the engine. - Does the oil pressure warning light illuminate?	Yes	Inspect the engine oil pressure. (See OIL PRESSURE INSPECTION [MZR 2.5] .) Repair or replace the malfunctioning part according to the inspection results, then go to Step 8.
		No	Go to the next step.
5	INSPECT OCV - Stop the engine. - Remove the OCV. (See OIL CONTROL VALVE	Yes	Reinstall or replace the OCV, then go to Step 8. (See OIL CONTROL VALVE (OCV) REMOVAL/ INSTALLATION [MZR 2.5] .)

	(OCV) REMOVAL/ INSTALLATION [MZR 2.5].) - Inspect the position of the spool valve in the OCV. (See OIL CONTROL VALVE (OCV) INSPECTION [MZR 2.5].) - Is the spool valve located at the valve retard position?	No	Go to the next step.
6	VERIFY TIMING CHAIN INSTALLATION - Remove the engine front cover. (See TIMING CHAIN REMOVAL/ INSTALLATION [MZR 2.5].) - Is the camshaft timing mark at the correct point?	Yes	Go to the next step.
		No	Reinstall the timing chain, then go to Step 8. (See TIMING CHAIN REMOVAL/ INSTALLATION [MZR 2.5].)
7	INSPECT ENGINE OIL RUNNER - Inspect the following engine oil runners for clogging or leakage: - Between oil pressure switch and OCV - Between OCV and variable valve timing actuator - In variable valve timing actuator - Is there any clogging or leakage?	Yes	Repair or replace the suspected runner, then go to the next step.
		No	VARIABLE VALVE TIMING MECHANISM IS NORMAL NOTE: - This DTC is detected by intermittent concern. - An intermittent concern might be removed using the cleaning mode of the variable valve timing control function. Go to the next step.

8	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 PROCEDURE [MZR 2.5].) • Switch the ignition to off. • 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?	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.
		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. (See DTC TABLE [MZR 2.5].)
		No	DTC troubleshooting completed.