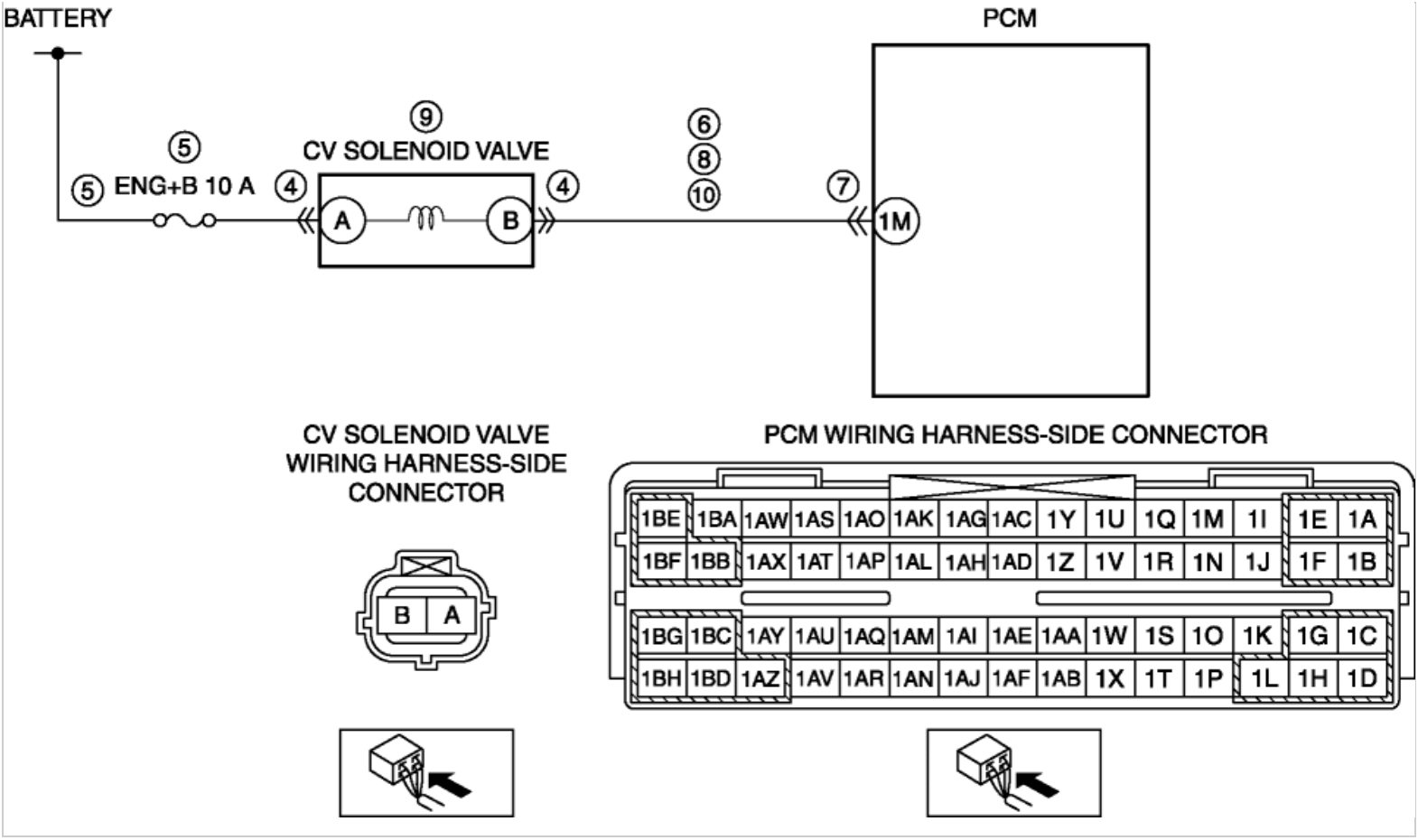
2012 - Mazda6 - Engine

DTC P0446:00 [MZR 2.5]

DTC P0446:00	CV solenoid valve control circuit
DETECTION CONDITION	• Monitors the CV solenoid valve circuit for an electrical failure. The test fails when the signal moves outside the minimum or maximum allowable calibrated parameters for a specified canister vent duty cycle by the PCM command. **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	• CV solenoid valve connector or terminal malfunction • Short to ground or open circuit in CV solenoid valve power supply circuit ▪ Short to ground in wiring harness between battery positive terminal and CV solenoid valve terminal A ▪ ENG+B 10 A fuse malfunction ▪ Open circuit in wiring harness between battery positive terminal and CV solenoid valve terminal A • Short to ground in wiring harness between CV solenoid valve terminal B and PCM terminal 1M • PCM connector or terminal malfunction • Short to power supply in wiring harness between CV solenoid valve terminal B and PCM terminal 1M • CV solenoid valve malfunction • Open circuit in wiring harness between CV solenoid valve terminal B and PCM terminal 1M • 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 CV SOLENOID VALVE CONNECTOR CONDITION** • Switch the ignition to off. • Disconnect the CV solenoid valve connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion).	Yes	Repair or replace the terminal and/or connector, then go to Step 11.
		No	Go to the next step.

	• Is there any malfunction?		
5	**INSPECT CV SOLENOID VALVE POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT** • CV solenoid valve connector is disconnected. • Measure the voltage between CV solenoid valve terminal A (wiring harness-side) and body ground. • Is the voltage **B+** ?	Yes	Go to the next step.
		No	Inspect the ENG+B 10 A fuse. • If the fuse is melt: ▪ Repair or replace the wiring harness for a possible short to ground. ▪ Replace the fuse. • If the fuse is deterioration: ▪ Replace the fuse. • If the fuse is normal: ▪ Repair or replace the wiring harness for a possible open circuit. Go to Step 11.
6	**INSPECT CV SOLENOID VALVE CIRCUIT FOR SHORT TO GROUND** • CV solenoid valve connector is disconnected. • Inspect for continuity between CV solenoid valve terminal B (wiring harness-side) and body ground. • Is there continuity?	Yes	If the short to ground circuit could be detected: • Repair or replace the wiring harness for a possible short to ground. If the short to ground circuit could not be detected: • Replace the PCM (short to ground in PCM internal circuit). (See **PCM REMOVAL/ INSTALLATION [MZR 2.5]**.) Go to Step 11.
		No	Go to the next step.
7	**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 Step 11.
		No	Go to the next step.
8	**INSPECT CV SOLENOID VALVE CIRCUIT FOR SHORT TO POWER SUPPLY** • CV solenoid valve and PCM connectors are disconnected. • Switch the ignition to ON (engine off). • Measure the voltage between CV solenoid valve terminal B (wiring harness-side) and body ground. • Is there any voltage?	Yes	Repair or replace the wiring harness for a possible short to power supply, then go to Step 11.
		No	Go to the next step.
9	**INSPECT CV SOLENOID VALVE** • Inspect the CV solenoid valve. (See **CHARCOAL CANISTER, CANISTER VENT (CV) SOLENOID VALVE, AIR FILTER COMPONENT**	Yes	Replace the CV solenoid valve, then go to Step 11. (See **CHARCOAL CANISTER, CANISTER VENT (CV) SOLENOID VALVE, AIR FILTER COMPONENT REMOVAL/ INSTALLATION [MZR 2.5]**.)

	INSPECTION [MZR 2.5].) • Is there any malfunction?		
		No	Go to the next step.
10	**INSPECT CV SOLENOID VALVE CIRCUIT FOR OPEN CIRCUIT** • CV solenoid valve and PCM connectors are disconnected. • Switch the ignition to off. • Inspect for continuity between CV solenoid valve terminal B (wiring harness-side) and PCM terminal 1M (wiring harness-side). • Is there continuity?	Yes	Go to the next step.
		No	Repair or replace the wiring harness for a possible open circuit, then go to the next step.
11	**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].) • Start the engine and warm it up completely. • Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC 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.
12	**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.

< Previous Next >

Back to Top

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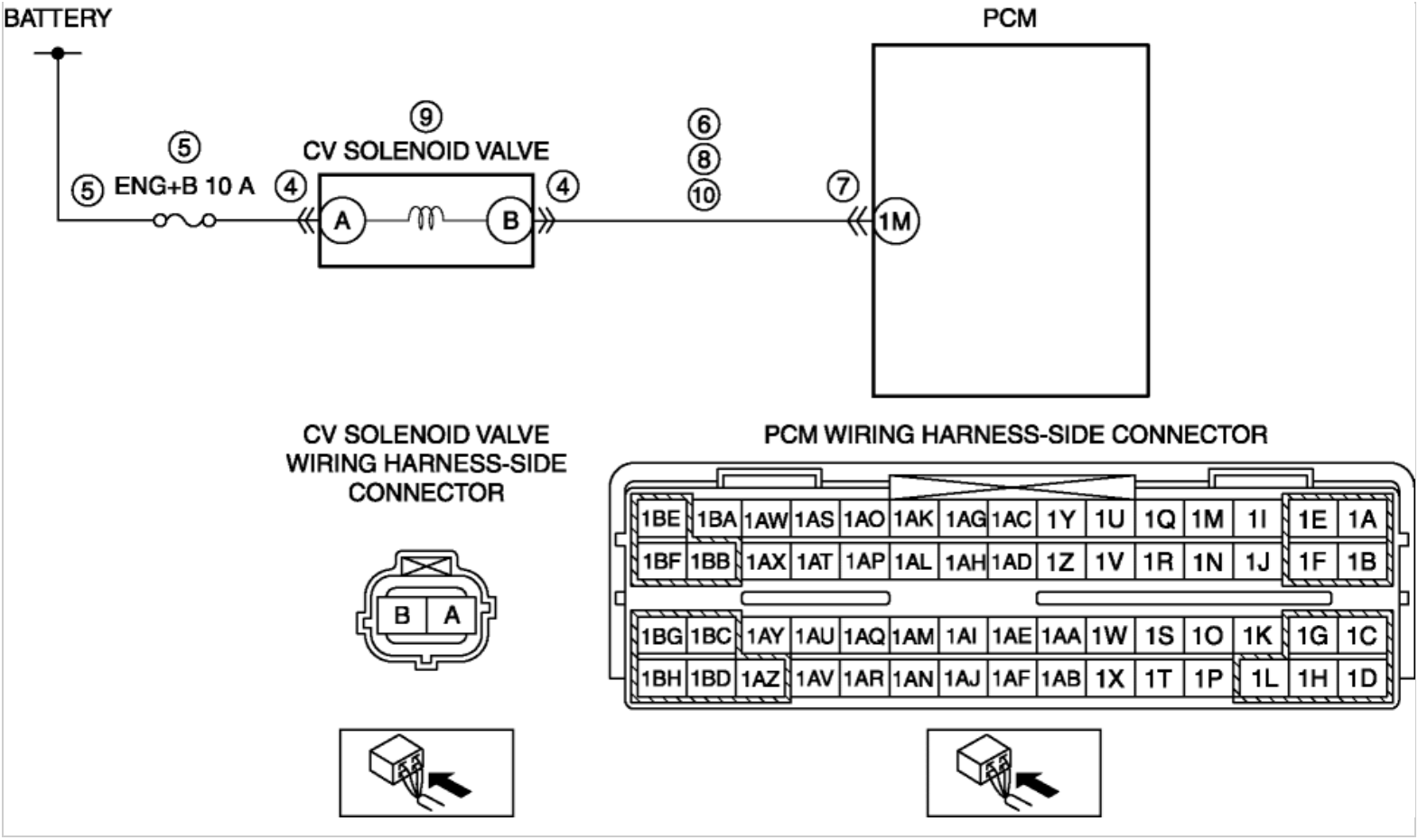
DTC P0446:00	CV solenoid valve control circuit
DETECTION CONDITION	• Monitors the CV solenoid valve circuit for an electrical failure. The test fails when the signal moves outside the minimum or maximum allowable calibrated parameters for a specified canister vent duty cycle by the PCM command. **Diagnostic 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	• CV solenoid valve connector or terminal malfunction • Short to ground or open circuit in CV solenoid valve power supply circuit ▪ Short to ground in wiring harness between battery positive terminal and CV solenoid valve terminal A ▪ ENG+B 10 A fuse malfunction ▪ Open circuit in wiring harness between battery positive terminal and CV solenoid valve terminal A • Short to ground in wiring harness between CV solenoid valve terminal B and PCM terminal 1M • PCM connector or terminal malfunction • Short to power supply in wiring harness between CV solenoid valve terminal B and PCM terminal 1M • CV solenoid valve malfunction • Open circuit in wiring harness between CV solenoid valve terminal B and PCM terminal 1M • 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 CV SOLENOID VALVE CONNECTOR CONDITION** • Switch the ignition to off. • Disconnect the CV solenoid valve connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion).	Yes	Repair or replace the terminal and/or connector, then go to Step 11.
		No	Go to the next step.

	• Is there any malfunction?		
5	**INSPECT CV SOLENOID VALVE POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT** • CV solenoid valve connector is disconnected. • Measure the voltage between CV solenoid valve terminal A (wiring harness-side) and body ground. • Is the voltage **B+** ?	Yes	Go to the next step.
		No	Inspect the ENG+B 10 A fuse. • If the fuse is melt: ▪ Repair or replace the wiring harness for a possible short to ground. ▪ Replace the fuse. • If the fuse is deterioration: ▪ Replace the fuse. • If the fuse is normal: ▪ Repair or replace the wiring harness for a possible open circuit. Go to Step 11.
6	**INSPECT CV SOLENOID VALVE CIRCUIT FOR SHORT TO GROUND** • CV solenoid valve connector is disconnected. • Inspect for continuity between CV solenoid valve terminal B (wiring harness-side) and body ground. • Is there continuity?	Yes	If the short to ground circuit could be detected: • Repair or replace the wiring harness for a possible short to ground. If the short to ground circuit could not be detected: • Replace the PCM (short to ground in PCM internal circuit). (See **PCM REMOVAL/ INSTALLATION [MZR 2.5]**.) Go to Step 11.
		No	Go to the next step.
7	**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 Step 11.
		No	Go to the next step.
8	**INSPECT CV SOLENOID VALVE CIRCUIT FOR SHORT TO POWER SUPPLY** • CV solenoid valve and PCM connectors are disconnected. • Switch the ignition to ON (engine off). • Measure the voltage between CV solenoid valve terminal B (wiring harness-side) and body ground. • Is there any voltage?	Yes	Repair or replace the wiring harness for a possible short to power supply, then go to Step 11.
		No	Go to the next step.
9	**INSPECT CV SOLENOID VALVE** • Inspect the CV solenoid valve. (See **CHARCOAL CANISTER, CANISTER VENT (CV) SOLENOID VALVE, AIR FILTER COMPONENT**	Yes	Replace the CV solenoid valve, then go to Step 11. (See **CHARCOAL CANISTER, CANISTER VENT (CV) SOLENOID VALVE, AIR FILTER COMPONENT REMOVAL/ INSTALLATION [MZR 2.5]**.)

	INSPECTION [MZR 2.5].) • Is there any malfunction?		
		No	Go to the next step.
10	**INSPECT CV SOLENOID VALVE CIRCUIT FOR OPEN CIRCUIT** • CV solenoid valve and PCM connectors are disconnected. • Switch the ignition to off. • Inspect for continuity between CV solenoid valve terminal B (wiring harness-side) and PCM terminal 1M (wiring harness-side). • Is there continuity?	Yes	Go to the next step.
		No	Repair or replace the wiring harness for a possible open circuit, then go to the next step.
11	**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].) • Start the engine and warm it up completely. • Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC 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.
12	**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.

< Previous Next >

Back to Top