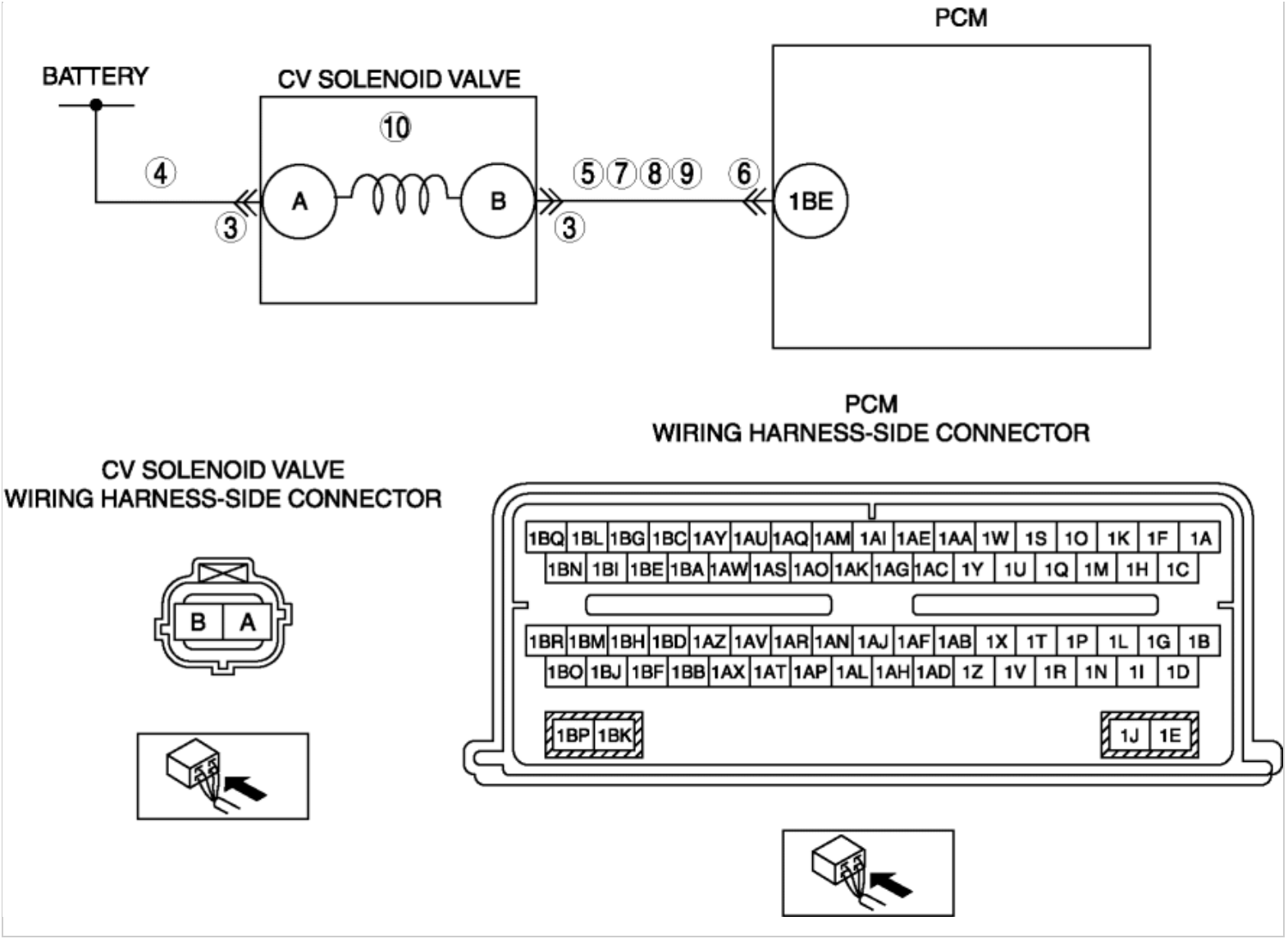
2012 - Mazda6 - Engine

DTC P0446:00 [MZI 3.7 V6]

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 PCM command.
POSSIBLE CAUSE	• CV solenoid valve connector or terminal malfunction • Open circuit between battery and CV solenoid valve terminal A • Short to PCM back-up power supply between CV solenoid valve terminal B and PCM terminal 1BE • Short to power supply between CV solenoid valve terminal B and PCM terminal 1BE • Short to ground between CV solenoid valve terminal B and PCM terminal 1BE • PCM connector or terminal malfunction • Open circuit between CV solenoid valve terminal B and PCM terminal 1BE • CV solenoid valve malfunction • PCM malfunction



Diagnostic procedure

STEP	INSPECTION		ACTION
1	**VERIFY FREEZE FRAME DATA HAS BEEN RECORDED** • Has FREEZE FRAME DATA been recorded?	Yes	Go to the next step.
		No	Record FREEZE FRAME 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 Service Bulletins available?	Yes	Perform repair or diagnosis according to the available Service Bulletins. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	**INSPECT CV SOLENOID VALVE CONNECTOR FOR POOR CONNECTION**	Yes	Repair or replace suspected part, then go to Step 11.

	• Switch the ignition to off. • Disconnect CV solenoid valve connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Are there any malfunction?	No	Go to the next step.
4	**INSPECT POWER SUPPLY CIRCUIT FOR OPEN CIRCUIT** • CV solenoid valve connector is disconnected. • Switch the ignition to ON (Engine off). • Measure voltage between CV solenoid valve terminal A and body ground. • Is voltage **B+** ?	Yes	Go to the next step.
		No	Repair for an open circuit, then go to Step 11.
5	**INSPECT KEEP ALIVE POWER SUPPLY (KAPWR)** • CV solenoid valve connector is disconnected. • Switch the ignition to off. • Measure the voltage between CV solenoid valve control terminal B and body ground. • Is voltage **B+** ?	Yes	Repair for a short to KAPWR (PCM terminal 1V), then go to Step 11.
		No	Go to the next step.
6	**INSPECT PCM CONNECTOR FOR POOR CONNECTION** • CV solenoid valve connector is disconnected. • Switch the ignition to off. • Disconnect PCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace suspected part, then go to Step 11.
		No	Go to the next step.
7	**INSPECT CV SOLENOID VALVE CONTROL CIRCUIT FOR SHORT TO POWER SUPPLY** • CV solenoid valve and PCM connectors are disconnected. • Switch the ignition to ON	Yes	Repair for a short to the power supply, then go to Step 11.
		No	Go to the next step.

	(Engine off). • Measure the voltage between CV solenoid valve control terminal B and body ground. • Is voltage B+?		
8	**INSPECT CV SOLENOID VALVE CONTROL CIRCUIT FOR SHORT TO GROUND** • CV solenoid valve and PCM connectors are disconnected. • Switch the ignition to off. • Inspect for continuity between CV solenoid valve control terminal B and body ground. • Is the continuity?	Yes	Repair or replace suspected part, then go to Step 11.
		No	Go to the next step.
9	**INSPECT CV SOLENOID VALVE CONTROL CIRCUIT FOR OPEN CIRCUIT** • CV solenoid valve and PCM connectors are disconnected. • Switch the ignition to off. • Inspect continuity between CV solenoid valve terminal B and PCM terminal 1BE. • Is there continuity?	Yes	Go to the next step.
		No	Repair or replace suspected part, then go to Step 11.
10	**INSPECT CV SOLENOID VALVE** • Inspect the CV solenoid valve. (See **CHARCOAL CANISTER, CANISTER VENT (CV) SOLENOID VALVE, AIR FILTER COMPONENT INSPECTION [MZI 3.7 V6]**.) • Is there any malfunction?	Yes	Replace CV solenoid valve (See **CHARCOAL CANISTER, CANISTER VENT (CV) SOLENOID VALVE, AIR FILTER COMPONENT REMOVAL/ INSTALLATION [MZI 3.7 V6]**.), then go to the next step.
		No	Go to the next step.
11	**VERIFY TROUBLESHOOTING OF DTC P0446:00 HAS BEEN COMPLETED** • Make sure to reconnect all disconnected connectors. • Clear DTC from PCM memory using M–MDS. • Perform the KOEO or KOER self-test. (See **KOEO/ KOER SELF TEST [MZI 3.7 V6]**.)	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See **PCM REMOVAL/ INSTALLATION [MZI 3.7 V6]**.) Go to the next step.
		No	Go to the next step.

	Is the PENDING CODE same DTC present?		
12	**VERIFY AFTER REPAIR PROCEDURE** • Perform the "AFTER REPAIR PROCEDURE". (See **AFTER REPAIR PROCEDURE [MZI 3.7 V6]**.) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See **DTC TABLE [MZI 3.7 V6]**.)
		No	Troubleshooting completed.

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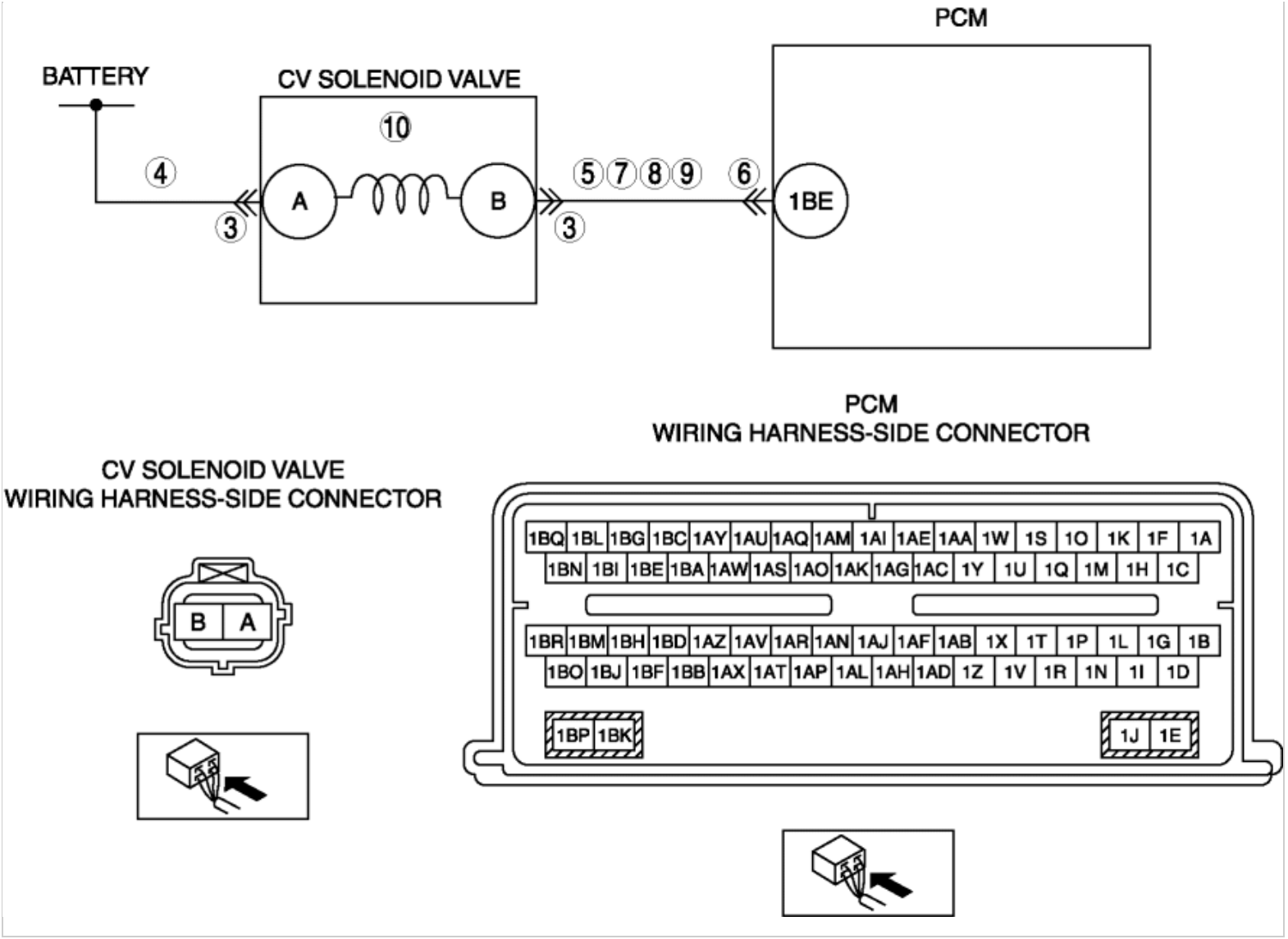
POSSIBLE CAUSE	• CV solenoid valve connector or terminal malfunction • Open circuit between battery and CV solenoid valve terminal A • Short to PCM back-up power supply between CV solenoid valve terminal B and PCM terminal 1BE • Short to power supply between CV solenoid valve terminal B and PCM terminal 1BE • Short to ground between CV solenoid valve terminal B and PCM terminal 1BE • PCM connector or terminal malfunction • Open circuit between CV solenoid valve terminal B and PCM terminal 1BE • CV solenoid valve malfunction • PCM malfunction



Diagnostic procedure

STEP	INSPECTION		ACTION
1	**VERIFY FREEZE FRAME DATA HAS BEEN RECORDED** • Has FREEZE FRAME DATA been recorded?	Yes	Go to the next step.
		No	Record FREEZE FRAME 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 Service Bulletins available?	Yes	Perform repair or diagnosis according to the available Service Bulletins. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	**INSPECT CV SOLENOID VALVE CONNECTOR FOR POOR CONNECTION**	Yes	Repair or replace suspected part, then go to Step 11.

	• Switch the ignition to off. • Disconnect CV solenoid valve connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Are there any malfunction?	No	Go to the next step.
4	**INSPECT POWER SUPPLY CIRCUIT FOR OPEN CIRCUIT** • CV solenoid valve connector is disconnected. • Switch the ignition to ON (Engine off). • Measure voltage between CV solenoid valve terminal A and body ground. • Is voltage **B+** ?	Yes	Go to the next step.
		No	Repair for an open circuit, then go to Step 11.
5	**INSPECT KEEP ALIVE POWER SUPPLY (KAPWR)** • CV solenoid valve connector is disconnected. • Switch the ignition to off. • Measure the voltage between CV solenoid valve control terminal B and body ground. • Is voltage **B+** ?	Yes	Repair for a short to KAPWR (PCM terminal 1V), then go to Step 11.
		No	Go to the next step.
6	**INSPECT PCM CONNECTOR FOR POOR CONNECTION** • CV solenoid valve connector is disconnected. • Switch the ignition to off. • Disconnect PCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace suspected part, then go to Step 11.
		No	Go to the next step.
7	**INSPECT CV SOLENOID VALVE CONTROL CIRCUIT FOR SHORT TO POWER SUPPLY** • CV solenoid valve and PCM connectors are disconnected. • Switch the ignition to ON	Yes	Repair for a short to the power supply, then go to Step 11.
		No	Go to the next step.

	(Engine off). • Measure the voltage between CV solenoid valve control terminal B and body ground. • Is voltage B+?		
8	**INSPECT CV SOLENOID VALVE CONTROL CIRCUIT FOR SHORT TO GROUND** • CV solenoid valve and PCM connectors are disconnected. • Switch the ignition to off. • Inspect for continuity between CV solenoid valve control terminal B and body ground. • Is the continuity?	Yes	Repair or replace suspected part, then go to Step 11.
		No	Go to the next step.
9	**INSPECT CV SOLENOID VALVE CONTROL CIRCUIT FOR OPEN CIRCUIT** • CV solenoid valve and PCM connectors are disconnected. • Switch the ignition to off. • Inspect continuity between CV solenoid valve terminal B and PCM terminal 1BE. • Is there continuity?	Yes	Go to the next step.
		No	Repair or replace suspected part, then go to Step 11.
10	**INSPECT CV SOLENOID VALVE** • Inspect the CV solenoid valve. (See **CHARCOAL CANISTER, CANISTER VENT (CV) SOLENOID VALVE, AIR FILTER COMPONENT INSPECTION [MZI 3.7 V6]**.) • Is there any malfunction?	Yes	Replace CV solenoid valve (See **CHARCOAL CANISTER, CANISTER VENT (CV) SOLENOID VALVE, AIR FILTER COMPONENT REMOVAL/ INSTALLATION [MZI 3.7 V6]**.), then go to the next step.
		No	Go to the next step.
11	**VERIFY TROUBLESHOOTING OF DTC P0446:00 HAS BEEN COMPLETED** • Make sure to reconnect all disconnected connectors. • Clear DTC from PCM memory using M–MDS. • Perform the KOEO or KOER self-test. (See **KOEO/ KOER SELF TEST [MZI 3.7 V6]**.)	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See **PCM REMOVAL/ INSTALLATION [MZI 3.7 V6]**.) Go to the next step.
		No	Go to the next step.

	Is the PENDING CODE same DTC present?		
12	**VERIFY AFTER REPAIR PROCEDURE** • Perform the "AFTER REPAIR PROCEDURE". (See **AFTER REPAIR PROCEDURE [MZI 3.7 V6]**.) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See **DTC TABLE [MZI 3.7 V6]**.)
		No	Troubleshooting completed.

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