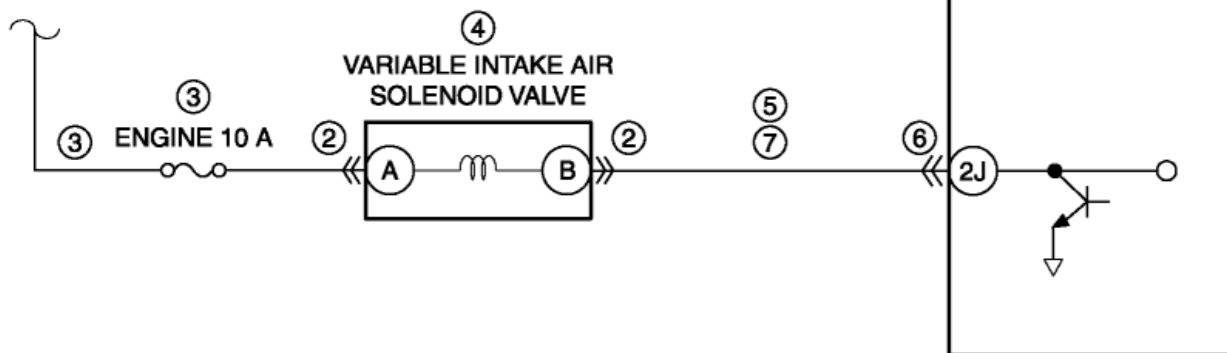


2012 - Mazda6 - Engine

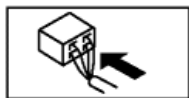
DTC P0661:00 [MZR 2.5]

DTC P0661:00	Variable intake air solenoid valve circuit low input
DETECTI ON CONDI TI ON	• The PCM monitors the variable intake air solenoid valve control signal. If the PCM turns the variable intake air solenoid valve off but the voltage still remains low, the PCM determines that the variable intake air solenoid valve circuit has malfunction. Diagnostic support note • This is a continuous monitor (other). • The MIL does not illuminate. • FREEZE FRAME DATA (Mode2)/Snapshot data is not available. • The DTC is stored in the PCM memory.
POSSI BLE CAUSE	• Variable intake air solenoid valve connector or terminal malfunction • Short to ground or open circuit in variable intake air solenoid valve power supply circuit ▪ Short to ground in wiring harness between variable intake air solenoid valve terminal A and main relay terminal D ▪ ENGINE 10 A fuse malfunction ▪ Open circuit in wiring harness between variable intake air solenoid valve terminal A and main relay terminal D • Variable intake air solenoid valve malfunction • Short to ground in wiring harness between variable intake air solenoid valve terminal B and PCM terminal 2J • PCM connector or terminal malfunction • Open circuit in wiring harness between variable intake air solenoid valve terminal B and PCM terminal 2J • PCM malfunction

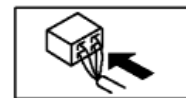
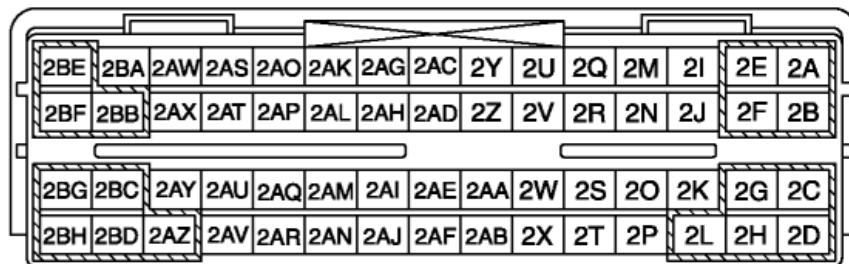
MAIN RELAY
TERMINAL D



VARIABLE INTAKE AIR SOLENOID VALVE
WIRING HARNESS-SIDE
CONNECTOR



PCM WIRING HARNESS-SIDE CONNECTOR



Diagnostic procedure

STEP	INSPECTION	ACTION
1	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.
2	INSPECT VARIABLE INTAKE AIR SOLENOID VALVE CONNECTOR CONDITION - Switch the ignition to off. - Disconnect the variable intake air solenoid valve 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 8. No Go to the next step.
3	INSPECT VARIABLE INTAKE AIR SOLENOID VALVE POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT - Variable intake air solenoid valve connector is disconnected. - Switch the ignition to ON (engine off). - Measure the voltage between variable intake air solenoid valve terminal A (wiring harness-side) and body ground. - Is the voltage B+ ?	Yes Go to the next step. No Inspect the ENGINE 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 8.
4	INSPECT VARIABLE INTAKE AIR SOLENOID VALVE • Inspect the variable intake air solenoid valve. (See VARIABLE INTAKE AIR SOLENOID VALVE INSPECTION [MZR 2.5].) • Is there any malfunction?	Yes Replace the variable intake air solenoid valve, then go to Step 8. (See INTAKE-AIR SYSTEM REMOVAL/ INSTALLATION [MZR 2.5].) No Go to the next step.
5	INSPECT VARIABLE INTAKE AIR SOLENOID VALVE CONTROL CIRCUIT FOR SHORT TO GROUND • Variable intake air solenoid valve connector is disconnected. • Switch the ignition to off. • Inspect for continuity between variable intake air 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 8. No Go to the next step.
6	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 8. No Go to the next step.
7	INSPECT VARIABLE INTAKE AIR SOLENOID VALVE CONTROL CIRCUIT FOR OPEN CIRCUIT • Variable intake air solenoid valve and PCM connectors are disconnected. • Inspect for continuity between variable intake air solenoid valve terminal B (wiring harness-side) and PCM terminal 2J (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.
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].) • Access the RPM PID using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5].) • Increase the engine speed more than 4,600 rpm for 10	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.

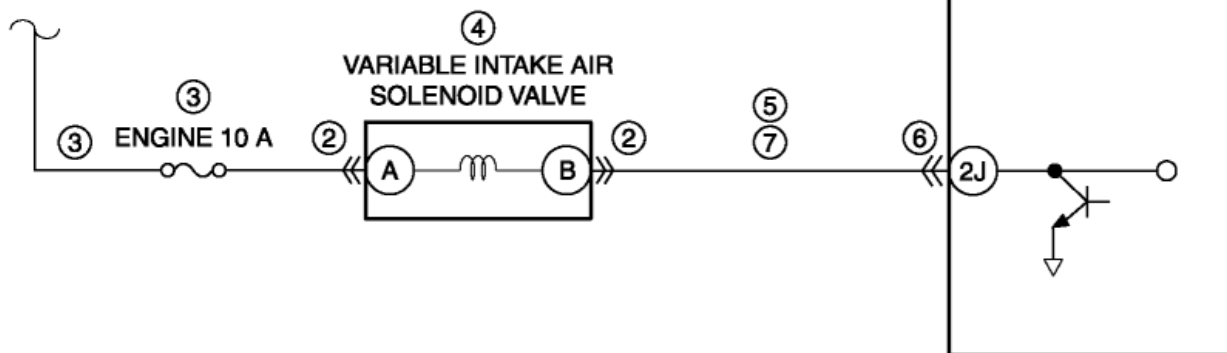
	times. • Perform the KOEO or KOER self test. (See KOEO/ KOER SELF TEST [MZR 2.5].) • Is the same DTC present?	No	Go to the next step.
9	VERIFY AFTER REPAIR PROCEDURE • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [MZR 2.5].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection.
		No	DTC troubleshooting completed.

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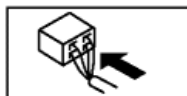
DTC P0661:00 [MZR 2.5]

DTC P0661:00	Variable intake air solenoid valve circuit low input
DETECTI ON CONDI TI ON	• The PCM monitors the variable intake air solenoid valve control signal. If the PCM turns the variable intake air solenoid valve off but the voltage still remains low, the PCM determines that the variable intake air solenoid valve circuit has malfunction. Diagnostic support note • This is a continuous monitor (other). • The MIL does not illuminate. • FREEZE FRAME DATA (Mode2)/Snapshot data is not available. • The DTC is stored in the PCM memory.
POSSI BLE CAUSE	• Variable intake air solenoid valve connector or terminal malfunction • Short to ground or open circuit in variable intake air solenoid valve power supply circuit ▪ Short to ground in wiring harness between variable intake air solenoid valve terminal A and main relay terminal D ▪ ENGINE 10 A fuse malfunction ▪ Open circuit in wiring harness between variable intake air solenoid valve terminal A and main relay terminal D • Variable intake air solenoid valve malfunction • Short to ground in wiring harness between variable intake air solenoid valve terminal B and PCM terminal 2J • PCM connector or terminal malfunction • Open circuit in wiring harness between variable intake air solenoid valve terminal B and PCM terminal 2J • PCM malfunction

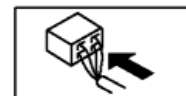
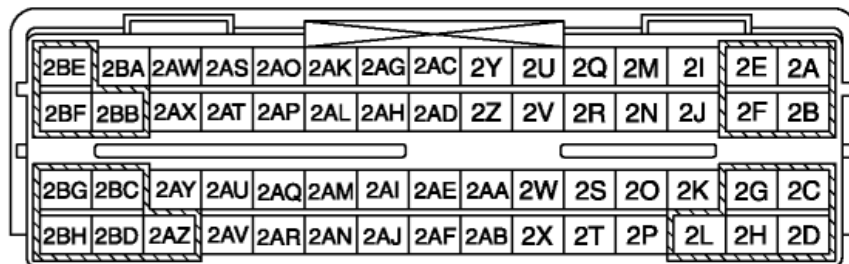
MAIN RELAY
TERMINAL D



VARIABLE INTAKE AIR SOLENOID VALVE
WIRING HARNESS-SIDE
CONNECTOR



PCM WIRING HARNESS-SIDE CONNECTOR



Diagnostic procedure

STEP	INSPECTION	ACTION
1	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.
2	INSPECT VARIABLE INTAKE AIR SOLENOID VALVE CONNECTOR CONDITION - Switch the ignition to off. - Disconnect the variable intake air solenoid valve 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 8. No Go to the next step.
3	INSPECT VARIABLE INTAKE AIR SOLENOID VALVE POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT - Variable intake air solenoid valve connector is disconnected. - Switch the ignition to ON (engine off). - Measure the voltage between variable intake air solenoid valve terminal A (wiring harness-side) and body ground. - Is the voltage B+ ?	Yes Go to the next step. No Inspect the ENGINE 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 8.
4	INSPECT VARIABLE INTAKE AIR SOLENOID VALVE • Inspect the variable intake air solenoid valve. (See VARIABLE INTAKE AIR SOLENOID VALVE INSPECTION [MZR 2.5].) • Is there any malfunction?	Yes Replace the variable intake air solenoid valve, then go to Step 8. (See INTAKE-AIR SYSTEM REMOVAL/ INSTALLATION [MZR 2.5].) No Go to the next step.
5	INSPECT VARIABLE INTAKE AIR SOLENOID VALVE CONTROL CIRCUIT FOR SHORT TO GROUND • Variable intake air solenoid valve connector is disconnected. • Switch the ignition to off. • Inspect for continuity between variable intake air 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 8. No Go to the next step.
6	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 8. No Go to the next step.
7	INSPECT VARIABLE INTAKE AIR SOLENOID VALVE CONTROL CIRCUIT FOR OPEN CIRCUIT • Variable intake air solenoid valve and PCM connectors are disconnected. • Inspect for continuity between variable intake air solenoid valve terminal B (wiring harness-side) and PCM terminal 2J (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.
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].) • Access the RPM PID using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5].) • Increase the engine speed more than 4,600 rpm for 10	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.

	times. • Perform the KOEO or KOER self test. (See KOEO/ KOER SELF TEST [MZR 2.5].) • Is the same DTC present?	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.