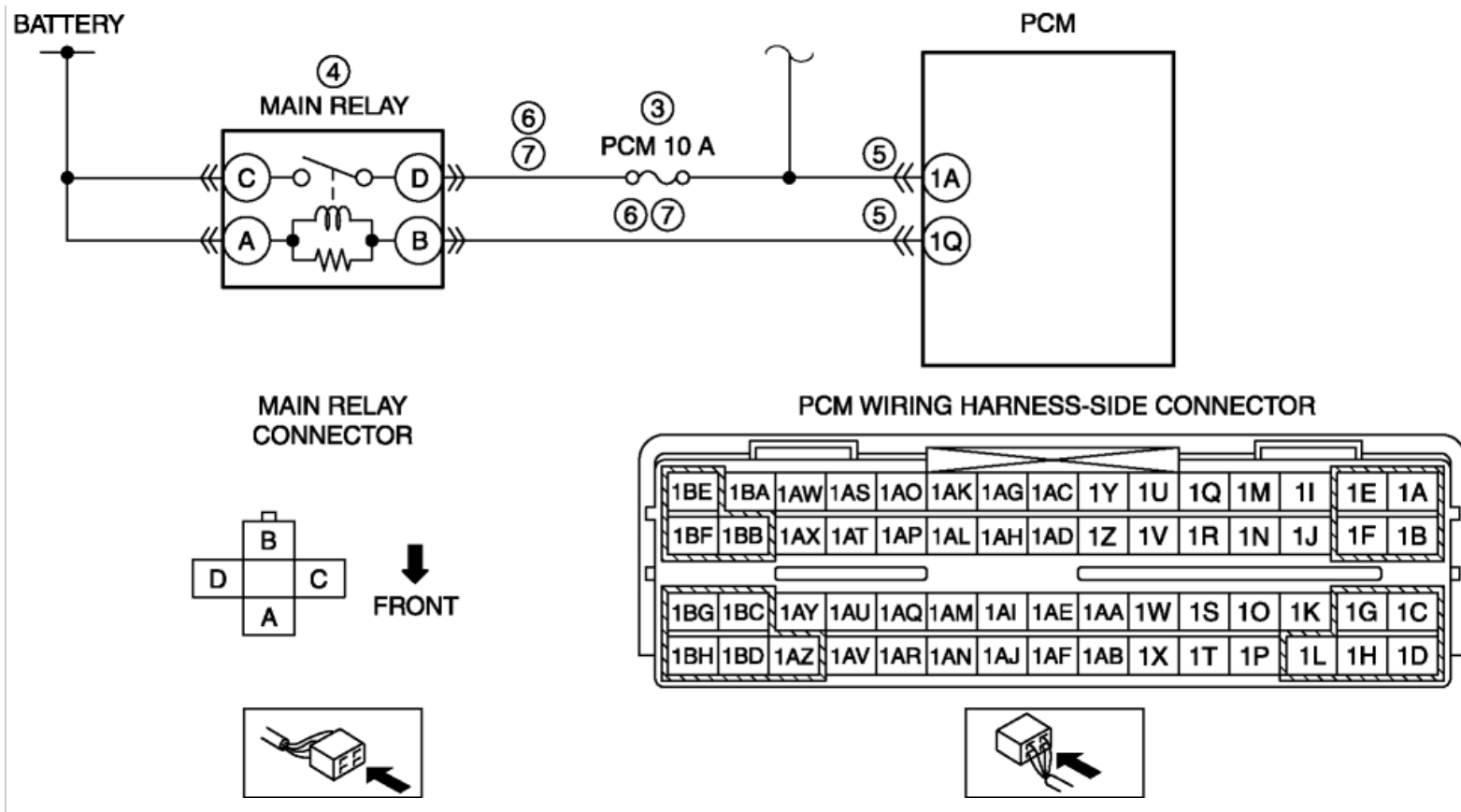


2012 - Mazda6 - Engine

DTC P2101:00 [MZR 2.5]

DTC P2101:00	Throttle valve actuator circuit range/performance problem
DETECTION CONDITION	• The PCM turns the main relay on but the input voltage is 4 V or less, the PCM determines that the main relay control circuit voltage is low. Diagnostic support note • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction condition in the first drive cycle. • FREEZE FRAME DATA (Mode 2)/Snapshot data is available. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• PCM 10 A fuse malfunction • Main relay malfunction • PCM connector or terminal malfunction • Short to power supply in wiring harness between main relay terminal D and PCM terminal 1A • Short to power supply in wiring harness between main relay terminal B and PCM terminal 1Q • Short to ground in wiring harness between main relay terminal D and PCM terminal 1A • Open circuit in wiring harness between main relay terminal D and PCM terminal 1A • Short to ground in wiring harness between main relay terminal B and PCM terminal 1Q • Open circuit in wiring harness between main relay terminal B and PCM terminal 1Q • 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	INSPECT FUSE - Switch the ignition to off. - Disconnect the negative battery cable. - Remove the PCM 10 A fuse. - Inspect the PCM 10 A fuse. - Is there any malfunction?	Yes Replace the PCM 10 A fuse, then go to Step 8.
		No Go to the next step.
4	INSPECT MAIN RELAY - Remove the main relay. - Inspect the main relay. (See RELAY INSPECTION.) - Is there any malfunction?	Yes Replace the main relay, then go to Step 8.
		No Go to the next step.

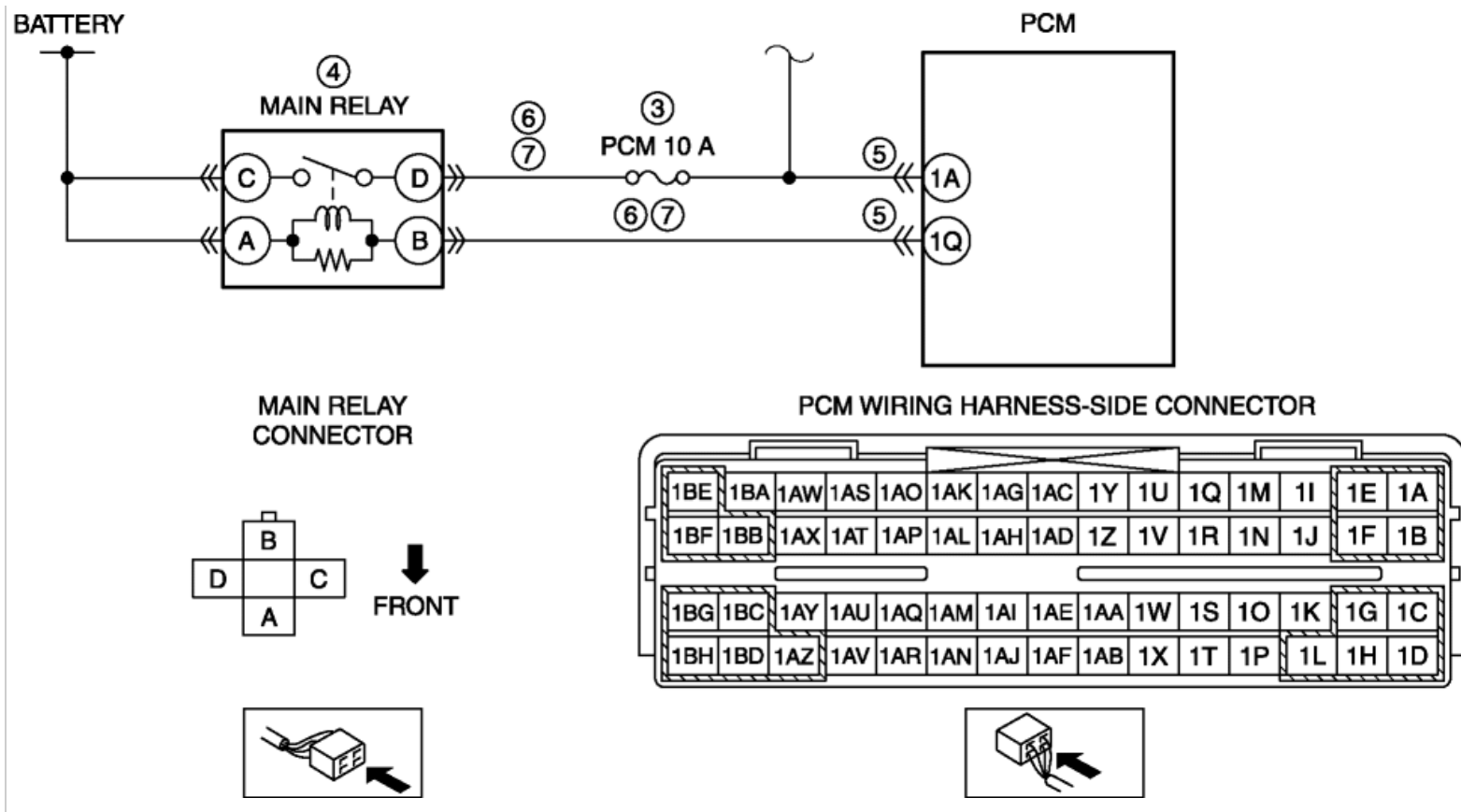
5	INSPECT PCM CONNECTOR CONDITION • Disconnect the PCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	YesRepair or replace the terminal and/or connector, then go to Step 8. NoGo to the next step.
6	INSPECT MAIN RELAY CIRCUIT FOR SHORT TO POWER SUPPLY • Main relay is removed. • PCM connector is disconnected. • Install the PCM 10 A fuse. • Reconnect the negative battery cable. • Switch the ignition to ON (engine off). • Measure the voltage between the following terminals and body ground: ▪ Main relay terminal D (wiring harness-side) ▪ Main relay terminal B (wiring harness-side) • Is there any voltage?	YesRepair or replace the wiring harness for a possible short to power supply, then go to Step 8. NoGo to the next step.
7	INSPECT MAIN RELAY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT • Main relay is removed. • PCM connector is disconnected. • Switch the ignition to off. • Install the main relay. • Switch the ignition to ON (engine off). • Measure the voltage between the following terminals and body ground: ▪ PCM terminal 1A (wiring harness-side) ▪ PCM terminal 1Q (wiring harness-side) • Is the voltage B+ ?	YesGo to the next step. NoRepair or replace the wiring harness for a possible short to ground or open circuit, then go to the next step.
8	VERIFY DTC TROUBLESHOOTING COMPLETED • Make sure to reconnect all disconnected connectors. • Install the PCM 10 A fuse. • Reconnect the negative battery cable. • Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [MZR 2.5].) • Perform the KOER self test. (See KOE0/ KOER SELF TEST [MZR 2.5].) • Is the same DTC present?	YesRepeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/ INSTALLATION [MZR 2.5].) Go to the next step. NoGo to the next step.

9	VERI FY AFTER REPAI R PROCEDURE • Perform the “AFTER REPAIR PROCEDURE”. (See AFTER REPAI R 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 P2101:00 [MZR 2.5]

DTC P2101:00	Throttle valve actuator circuit range/performance problem
DETECTION CONDITION	• The PCM turns the main relay on but the input voltage is 4 V or less, the PCM determines that the main relay control circuit voltage is low. Diagnostic support note • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction condition in the first drive cycle. • FREEZE FRAME DATA (Mode 2)/Snapshot data is available. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• PCM 10 A fuse malfunction • Main relay malfunction • PCM connector or terminal malfunction • Short to power supply in wiring harness between main relay terminal D and PCM terminal 1A • Short to power supply in wiring harness between main relay terminal B and PCM terminal 1Q • Short to ground in wiring harness between main relay terminal D and PCM terminal 1A • Open circuit in wiring harness between main relay terminal D and PCM terminal 1A • Short to ground in wiring harness between main relay terminal B and PCM terminal 1Q • Open circuit in wiring harness between main relay terminal B and PCM terminal 1Q • 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	INSPECT FUSE - Switch the ignition to off. - Disconnect the negative battery cable. - Remove the PCM 10 A fuse. - Inspect the PCM 10 A fuse. - Is there any malfunction?	Yes Replace the PCM 10 A fuse, then go to Step 8.
		No Go to the next step.
4	INSPECT MAIN RELAY - Remove the main relay. - Inspect the main relay. (See RELAY INSPECTION.) - Is there any malfunction?	Yes Replace the main relay, then go to Step 8.
		No Go to the next step.

5	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.
6	INSPECT MAIN RELAY CIRCUIT FOR SHORT TO POWER SUPPLY • Main relay is removed. • PCM connector is disconnected. • Install the PCM 10 A fuse. • Reconnect the negative battery cable. • Switch the ignition to ON (engine off). • Measure the voltage between the following terminals and body ground: ▪ Main relay terminal D (wiring harness-side) ▪ Main relay terminal B (wiring harness-side) • Is there any voltage?	Yes	Repair or replace the wiring harness for a possible short to power supply, then go to Step 8.
		No	Go to the next step.
7	INSPECT MAIN RELAY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT • Main relay is removed. • PCM connector is disconnected. • Switch the ignition to off. • Install the main relay. • Switch the ignition to ON (engine off). • Measure the voltage between the following terminals and body ground: ▪ PCM terminal 1A (wiring harness-side) ▪ PCM terminal 1Q (wiring harness-side) • Is the voltage B+ ?	Yes	Go to the next step.
		No	Repair or replace the wiring harness for a possible short to ground or open circuit, then go to the next step.
8	VERIFY DTC TROUBLESHOOTING COMPLETED • Make sure to reconnect all disconnected connectors. • Install the PCM 10 A fuse. • Reconnect the negative battery cable. • Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [MZR 2.5].) • Perform the KOER self test. (See KOE0/ KOER SELF TEST [MZR 2.5].) • Is the same 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	VERI FY AFTER REPAI R PROCEDURE • Perform the “AFTER REPAIR PROCEDURE”. (See AFTER REPAI R 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.