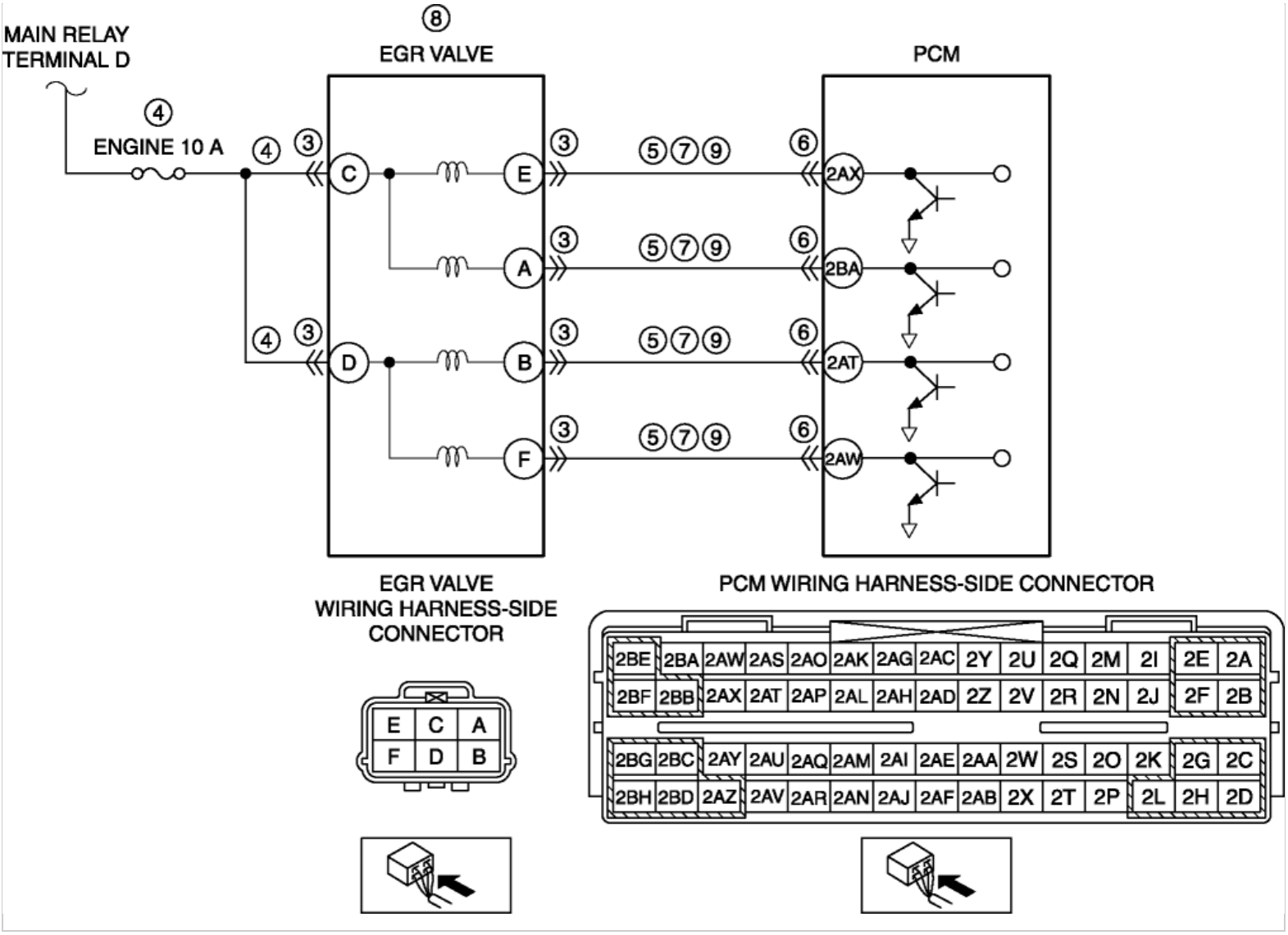
2012 - Mazda6 - Engine

DTC P0403:00 [MZR 2.5]

DTC P0403:00	EGR control circuit problem
DETECTION CONDITION	• The PCM monitors the input voltage from the EGR valve. If the voltage remain low or high, the PCM determines that the EGR valve circuit has a malfunction. **Diagnostic support note** • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction conditions 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 first drive cycle. • FREEZE FRAME DATA (Mode 2)/Snapshot data is available. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• EGR valve connector or terminal malfunction • Short to ground or open circuit in EGR valve power supply circuit ▪ Short to ground in wiring harness between main relay terminal D and EGR valve terminal C ▪ Short to ground in wiring harness between main relay terminal D and EGR valve terminal D ▪ ENGINE 10 A fuse malfunction ▪ Open circuit in wiring harness between main relay terminal D and EGR valve terminal C ▪ Open circuit in wiring harness between main relay terminal D and EGR valve terminal D • Short to ground in wiring harness between EGR valve terminal E and PCM terminal 2AX • Short to ground in wiring harness between EGR valve terminal A and PCM terminal 2BA • Short to ground in wiring harness between EGR valve terminal B and PCM terminal 2AT • Short to ground in wiring harness between EGR valve terminal F and PCM terminal 2AW • PCM connector or terminal malfunction • Short to power supply in wiring harness between EGR valve terminal E and PCM terminal 2AX • Short to power supply in wiring harness between EGR valve terminal A and PCM terminal 2BA • Short to power supply in wiring harness between EGR valve terminal B and PCM terminal 2AT • Short to power supply in wiring harness between EGR valve terminal F and PCM terminal 2AW • EGR valve malfunction • Open circuit in wiring harness between EGR valve terminal E and PCM terminal 2AX • Open circuit in wiring harness between EGR valve terminal A and PCM terminal 2BA • Open circuit in wiring harness between EGR valve terminal B and PCM terminal 2AT • Open circuit in wiring harness between EGR valve terminal F and PCM terminal 2AW • 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 EGR VALVE CONNECTOR CONDITION** • Switch the ignition to off. • Disconnect the EGR 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 10.
		No	Go to the next step.

4	**INSPECT EGR POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT** • EGR valve connector is disconnected. • Switch the ignition to ON (engine off). • Measure the voltage between the following terminals and body ground: ▪ EGR valve terminal C (wiring harness-side) ▪ EGR valve terminal D (wiring harness-side) • 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 10.
5	**INSPECT EGR CONTROL CIRCUIT FOR SHORT TO GROUND** • EGR valve connector is disconnected. • Switch the ignition to off. • Inspect for continuity between the following terminals and body ground: ▪ EGR valve terminal E (wiring harness-side) ▪ EGR valve terminal A (wiring harness-side) ▪ EGR valve terminal B (wiring harness-side) ▪ EGR valve terminal F (wiring harness-side) • 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 10.
		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 10.
		No	Go to the next step.
7	**INSPECT EGR CONTROL CIRCUIT FOR SHORT TO POWER SUPPLY** • EGR valve and PCM connectors are disconnected. • Switch the ignition to ON (engine off). • Measure the voltage between the following terminals and body ground: ▪ EGR valve terminal E (wiring harness-side) ▪ EGR valve terminal A (wiring harness-side) ▪ EGR valve terminal B (wiring harness-side) ▪ EGR valve terminal F (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 10.
		No	Go to the next step.

8	**INSPECT EGR VALVE** • Inspect the EGR valve. (See **EGR VALVE INSPECTION [MZR 2.5]**.) • Is there any malfunction?	Yes	Replace the EGR valve, then go to Step 10. (See **EGR VALVE REMOVAL/ INSTALLATION [MZR 2.5]**.)
		No	Go to the next step.
9	**INSPECT EGR CONTROL CIRCUIT FOR OPEN CIRCUIT** • EGR valve and PCM connectors are disconnected. • Switch the ignition to off. • Inspect for continuity between the following terminals: ▪ EGR valve terminal E (wiring harness-side) and PCM terminal 2AX (wiring harness-side) ▪ EGR valve terminal A (wiring harness-side) and PCM terminal 2BA (wiring harness-side) ▪ EGR valve terminal B (wiring harness-side) and PCM terminal 2AT (wiring harness-side) ▪ EGR valve terminal F (wiring harness-side) and PCM terminal 2AW (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.
10	**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]**.) • Perform the KOEO or 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.
11	**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.

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DTC P0403:00	EGR control circuit problem
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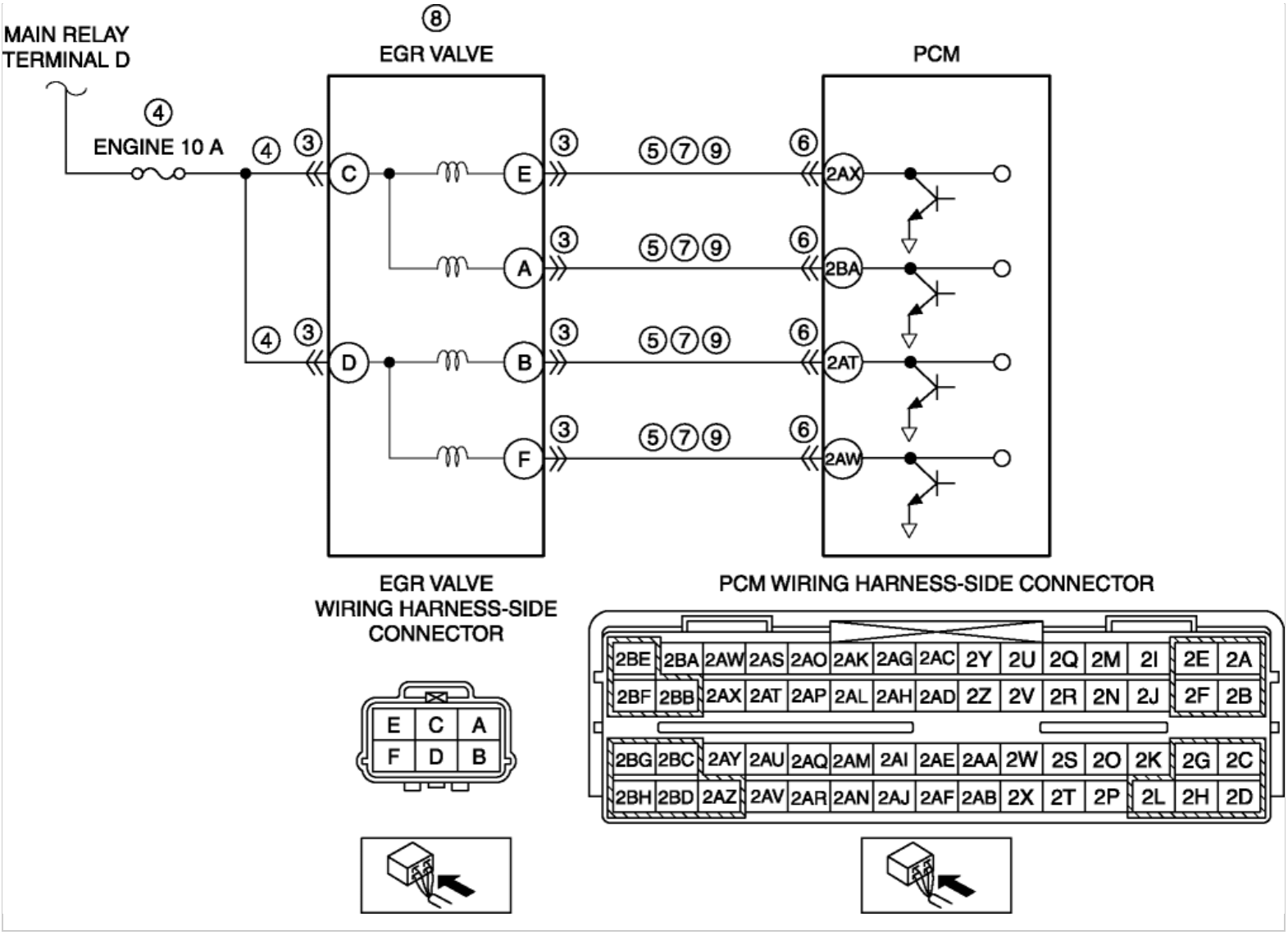
POSSIBLE CAUSE	• EGR valve connector or terminal malfunction • Short to ground or open circuit in EGR valve power supply circuit ▪ Short to ground in wiring harness between main relay terminal D and EGR valve terminal C ▪ Short to ground in wiring harness between main relay terminal D and EGR valve terminal D ▪ ENGINE 10 A fuse malfunction ▪ Open circuit in wiring harness between main relay terminal D and EGR valve terminal C ▪ Open circuit in wiring harness between main relay terminal D and EGR valve terminal D • Short to ground in wiring harness between EGR valve terminal E and PCM terminal 2AX • Short to ground in wiring harness between EGR valve terminal A and PCM terminal 2BA • Short to ground in wiring harness between EGR valve terminal B and PCM terminal 2AT • Short to ground in wiring harness between EGR valve terminal F and PCM terminal 2AW • PCM connector or terminal malfunction • Short to power supply in wiring harness between EGR valve terminal E and PCM terminal 2AX • Short to power supply in wiring harness between EGR valve terminal A and PCM terminal 2BA • Short to power supply in wiring harness between EGR valve terminal B and PCM terminal 2AT • Short to power supply in wiring harness between EGR valve terminal F and PCM terminal 2AW • EGR valve malfunction • Open circuit in wiring harness between EGR valve terminal E and PCM terminal 2AX • Open circuit in wiring harness between EGR valve terminal A and PCM terminal 2BA • Open circuit in wiring harness between EGR valve terminal B and PCM terminal 2AT • Open circuit in wiring harness between EGR valve terminal F and PCM terminal 2AW • 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 EGR VALVE CONNECTOR CONDITION** • Switch the ignition to off. • Disconnect the EGR 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 10.
		No	Go to the next step.

4	**INSPECT EGR POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT** • EGR valve connector is disconnected. • Switch the ignition to ON (engine off). • Measure the voltage between the following terminals and body ground: ▪ EGR valve terminal C (wiring harness-side) ▪ EGR valve terminal D (wiring harness-side) • 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 10.
5	**INSPECT EGR CONTROL CIRCUIT FOR SHORT TO GROUND** • EGR valve connector is disconnected. • Switch the ignition to off. • Inspect for continuity between the following terminals and body ground: ▪ EGR valve terminal E (wiring harness-side) ▪ EGR valve terminal A (wiring harness-side) ▪ EGR valve terminal B (wiring harness-side) ▪ EGR valve terminal F (wiring harness-side) • 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 10.
		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 10.
		No	Go to the next step.
7	**INSPECT EGR CONTROL CIRCUIT FOR SHORT TO POWER SUPPLY** • EGR valve and PCM connectors are disconnected. • Switch the ignition to ON (engine off). • Measure the voltage between the following terminals and body ground: ▪ EGR valve terminal E (wiring harness-side) ▪ EGR valve terminal A (wiring harness-side) ▪ EGR valve terminal B (wiring harness-side) ▪ EGR valve terminal F (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 10.
		No	Go to the next step.

8	**INSPECT EGR VALVE** • Inspect the EGR valve. (See **EGR VALVE INSPECTION [MZR 2.5]**.) • Is there any malfunction?	Yes	Replace the EGR valve, then go to Step 10. (See **EGR VALVE REMOVAL/ INSTALLATION [MZR 2.5]**.)
		No	Go to the next step.
9	**INSPECT EGR CONTROL CIRCUIT FOR OPEN CIRCUIT** • EGR valve and PCM connectors are disconnected. • Switch the ignition to off. • Inspect for continuity between the following terminals: ▪ EGR valve terminal E (wiring harness-side) and PCM terminal 2AX (wiring harness-side) ▪ EGR valve terminal A (wiring harness-side) and PCM terminal 2BA (wiring harness-side) ▪ EGR valve terminal B (wiring harness-side) and PCM terminal 2AT (wiring harness-side) ▪ EGR valve terminal F (wiring harness-side) and PCM terminal 2AW (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.
10	**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]**.) • Perform the KOEO or 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.
11	**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.

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