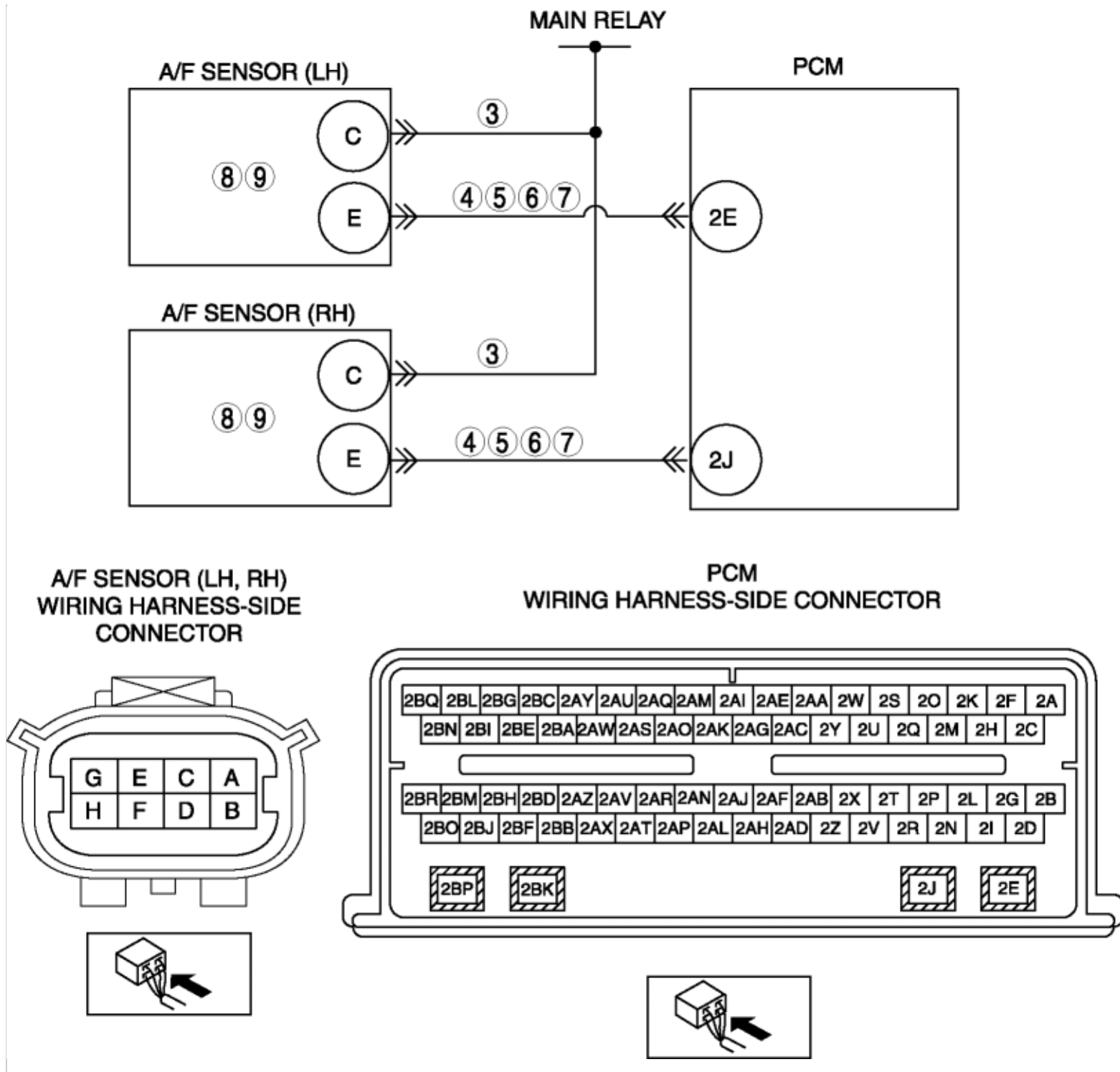


2012 - Mazda6 - Engine

DTC P0135:00, P0155:00 [MZI 3.7 V6]

DTC P0135:00 DTC P0155:00	P0135:00: A/F sensor (RH) heater circuit P0155:00: A/F sensor (LH) heater circuit
DETECTION CONDITION	• P0135:00 indicates A/F sensor (RH) heater circuit. • P0155:00 indicates A/F sensor (LH) heater circuit. • During testing the A/F sensor heaters are checked for open and short circuits and excessive current draw. The test fails when the current draw exceeds the calibrated limit or an open or short circuit is detected.
POSSIBLE CAUSE	• Open circuit between main relay terminal A and A/F sensor (RH/LH) terminal C • Damaged ENGINE fuse • Short to ground between A/F sensor (RH/LH) terminal C and ENGINE fuse • P0135:00: Open circuit between PCM terminal 2J and A/F sensor (RH) terminal E • P0155:00: Open circuit between PCM terminal 2E and A/F sensor (LH) terminal E • P0135:00: Short to ground between PCM terminal 2J and A/F sensor (RH) terminal E • P0155:00: Short to ground between PCM terminal 2E and A/F sensor (LH) terminal E • P0135:00: Short to power supply between PCM terminal 2J and A/F sensor (RH) terminal E • P0155:00: Short to power supply between PCM terminal 2E and A/F sensor (LH) terminal E • A/F sensor heater control signal circuit short to each other • A/F sensor heater malfunction • Water in the wiring harness connector • Low battery voltage • Corrosion or incorrect wiring harness connections • 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	Yes Perform repair or diagnosis according to

	INFORMATION AVAILABILITY • Verify related Service Bulletins and/or on-line repair information availability. • Is any related Service Bulletins available?	the available Service Bulletins. • If the vehicle is not repaired, go to the next step.
		No Go to the next step.
3	INSPECT FOR POWER SUPPLY IN WIRING HARNESS • Switch the ignition to off. • Disconnect the A/F sensor connector. • Switch the ignition to ON (Engine off). • Measure the voltage between suspect A/F sensor wiring harness-side connector terminal C and ground. • Is the voltage greater than 10 V?	Yes Switch the ignition to off. Go to the next step.
		No Inspect the ENGINE fuse. • If there is fuse deterioration, replace the fuse. • If the fuse has melted, repair for a short to ground and replace the fuse. • If the fuse is normal, repair an open circuit. Go to Step 10.
4	INSPECT A/ F SENSOR HEATER CIRCUIT FOR OPEN CIRCUIT IN WIRING HARNESS • Disconnect the A/F sensor connector. • Disconnect the PCM connector. • For DTC P0135:00: Measure the resistance between A/F sensor (RH) wiring harness-side connector terminal E and PCM wiring harness-side connector terminal 2J • For DTC P0155:00: Measure the resistance between A/F sensor (LH) wiring harness-side connector terminal E and PCM wiring harness-side connector terminal 2E • Is the resistance less than 5 ohm?	Yes Go to the next step.
		No Repair an open circuit, then go to Step 10.
5	INSPECT A/ F SENSOR HEATER CIRCUIT FOR SHORT CIRCUIT TO GROUND • A/F sensor and PCM connectors are disconnected. • Measure the resistance between A/F sensor wiring harness-side connector terminal E and ground • Is the resistance greater than 10 kilohms?	Yes Go to the next step.
		No Repair for a short to ground circuit, then go to Step 10.

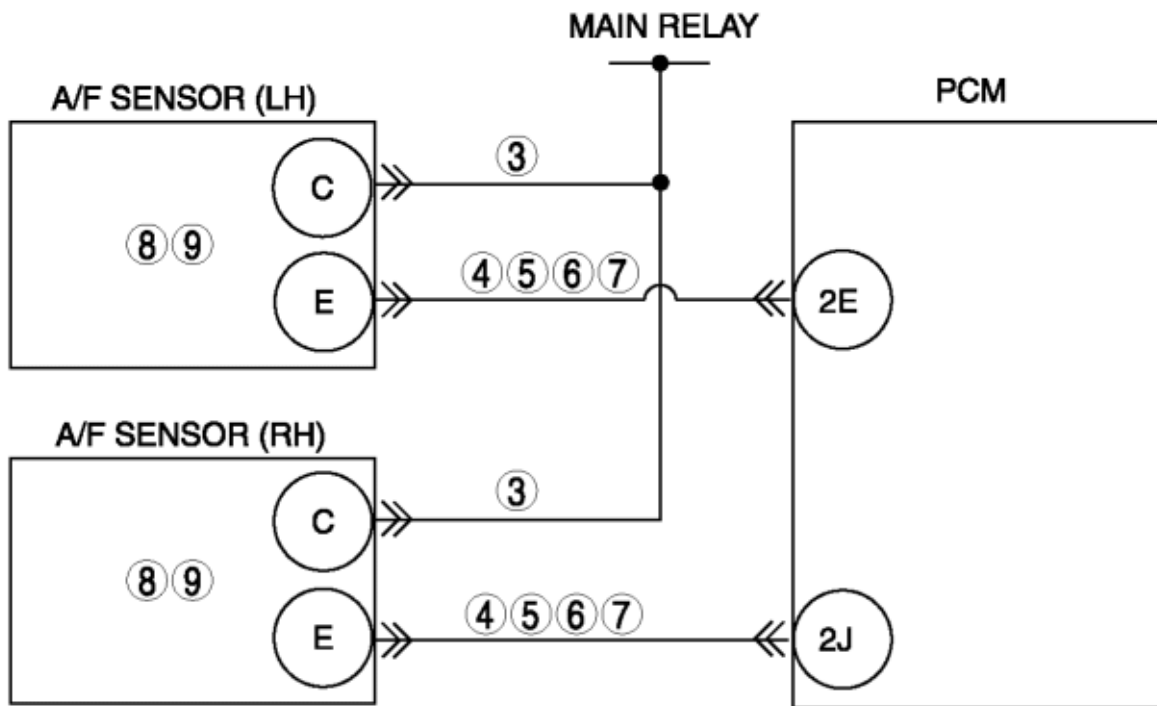
6	INSPECT A/ F SENSOR HEATER CIRCUIT FOR SHORT TO POWER SUPPLY • A/F sensor and PCM connectors are disconnected. • Switch the ignition to ON (Engine off). • Measure the voltage between the following terminals (wiring harness-side) and body ground: ▪ P0135:00: • A/F sensor (RH) terminal E ▪ P0155:00: • A/F sensor (LH) terminal E • Is the voltage B+?	No	Repair for a short circuit, then go to Step 10.
		Yes	Go to the next step.
7	INSPECT A/ F SENSOR HEATER CIRCUIT FOR SHORT CIRCUIT IN WIRING HARNESS • A/F sensor and PCM connectors are disconnected. • Switch the ignition to off. • Measure the resistance between A/F sensor wiring harness-side connector terminal E and the following terminals: ▪ A/F sensor wiring harness-side connector terminal D ▪ A/F sensor wiring harness-side connector terminal C ▪ A/F sensor wiring harness-side connector terminal F ▪ A/F sensor wiring harness-side connector terminal H ▪ A/F sensor wiring harness-side connector terminal G • Is the resistance greater than 10 kilohms?	Yes	Go to the next step.
		No	Repair for a short circuit, then go to Step 10.
8	INSPECT A/ F SENSOR INTERNAL RESISTANCE OF A/ F SENSOR HEATER • A/F sensor and PCM connectors are disconnected.	Yes	Go to the next step.
		No	Replace the suspect A/F sensor. (See AIR FUEL RATIO (A/ F) SENSOR

	- Measure the resistance between A/F sensor connector terminal C and E on the component side. - Is the resistance between 1—10 ohms?		REMOVAL/ INSTALLATION [MZI 3.7 V6] .) Go to Step 10.
9	INSPECT A/ F SENSOR HEATER CIRCUIT FOR INTERNAL SHORT CIRCUIT TO GROUND - A/F sensor and PCM connectors are disconnected. - Measure the resistance between A/F sensor component side connector terminal E and ground. - Is the resistance greater than 10 kilohms?	Yes	Go to the next step. (The system is operating normally at this time. The concern may have been caused by a loose or corroded connector.)
		No	Replace the suspect A/F sensor. (See AIR FUEL RATIO (A/ F) SENSOR REMOVAL/ INSTALLATION [MZI 3.7 V6] .) Go to the next step.
10	VERIFY TROUBLESHOOTING OF DTCs P0135:00, P0155:00 HAVE BEEN COMPLETED - Verify that all disconnected connectors are reconnected. - Switch the ignition to ON (Engine off). - Clear the DTC from the PCM memory using the M-MDS. - Perform the KOEO or KOER self-test. (See KOEO/ KOER SELF TEST [MZI 3.7 V6] .) - 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 [MZI 3.7 V6] .) 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 [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.

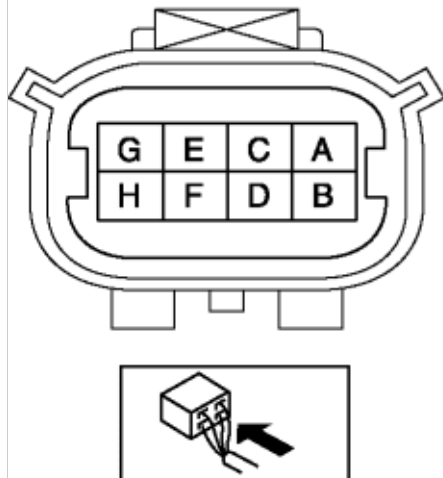
2012 - Mazda6 - Engine

DTC P0135:00, P0155:00 [MZI 3.7 V6]

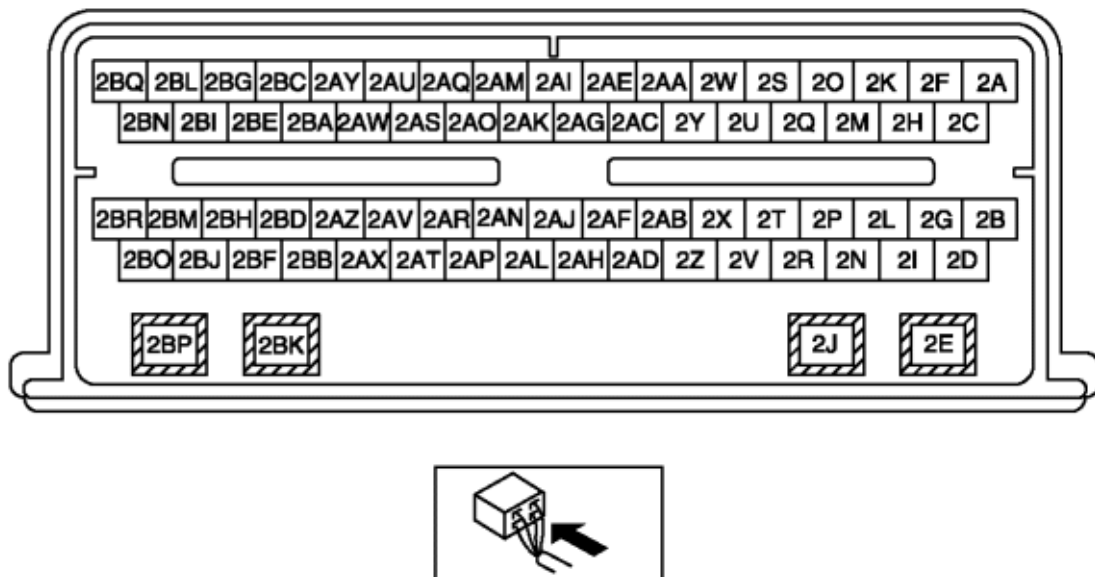
DTC P0135:00	P0135:00: A/F sensor (RH) heater circuit
DTC P0155:00	P0155:00: A/F sensor (LH) heater circuit
DETECTION CONDITION	• P0135:00 indicates A/F sensor (RH) heater circuit. • P0155:00 indicates A/F sensor (LH) heater circuit. • During testing the A/F sensor heaters are checked for open and short circuits and excessive current draw. The test fails when the current draw exceeds the calibrated limit or an open or short circuit is detected.
POSSIBLE CAUSE	• Open circuit between main relay terminal A and A/F sensor (RH/LH) terminal C • Damaged ENGINE fuse • Short to ground between A/F sensor (RH/LH) terminal C and ENGINE fuse • P0135:00: Open circuit between PCM terminal 2J and A/F sensor (RH) terminal E • P0155:00: Open circuit between PCM terminal 2E and A/F sensor (LH) terminal E • P0135:00: Short to ground between PCM terminal 2J and A/F sensor (RH) terminal E • P0155:00: Short to ground between PCM terminal 2E and A/F sensor (LH) terminal E • P0135:00: Short to power supply between PCM terminal 2J and A/F sensor (RH) terminal E • P0155:00: Short to power supply between PCM terminal 2E and A/F sensor (LH) terminal E • A/F sensor heater control signal circuit short to each other • A/F sensor heater malfunction • Water in the wiring harness connector • Low battery voltage • Corrosion or incorrect wiring harness connections • PCM malfunction



A/F SENSOR (LH, RH)
WIRING HARNESS-SIDE
CONNECTOR



PCM
WIRING HARNESS-SIDE CONNECTOR



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	Yes Perform repair or diagnosis according to

	INFORMATION AVAILABILITY • Verify related Service Bulletins and/or on-line repair information availability. • Is any related Service Bulletins available?	the available Service Bulletins. • If the vehicle is not repaired, go to the next step.
		No Go to the next step.
3	INSPECT FOR POWER SUPPLY IN WIRING HARNESS • Switch the ignition to off. • Disconnect the A/F sensor connector. • Switch the ignition to ON (Engine off). • Measure the voltage between suspect A/F sensor wiring harness-side connector terminal C and ground. • Is the voltage greater than 10 V?	Yes Switch the ignition to off. Go to the next step.
		No Inspect the ENGINE fuse. • If there is fuse deterioration, replace the fuse. • If the fuse has melted, repair for a short to ground and replace the fuse. • If the fuse is normal, repair an open circuit. Go to Step 10.
4	INSPECT A/ F SENSOR HEATER CIRCUIT FOR OPEN CIRCUIT IN WIRING HARNESS • Disconnect the A/F sensor connector. • Disconnect the PCM connector. • For DTC P0135:00: Measure the resistance between A/F sensor (RH) wiring harness-side connector terminal E and PCM wiring harness-side connector terminal 2J • For DTC P0155:00: Measure the resistance between A/F sensor (LH) wiring harness-side connector terminal E and PCM wiring harness-side connector terminal 2E • Is the resistance less than 5 ohm?	Yes Go to the next step.
		No Repair an open circuit, then go to Step 10.
5	INSPECT A/ F SENSOR HEATER CIRCUIT FOR SHORT CIRCUIT TO GROUND • A/F sensor and PCM connectors are disconnected. • Measure the resistance between A/F sensor wiring harness-side connector terminal E and ground • Is the resistance greater than 10 kilohms?	Yes Go to the next step.
		No Repair for a short to ground circuit, then go to Step 10.

6	INSPECT A/ F SENSOR HEATER CIRCUIT FOR SHORT TO POWER SUPPLY • A/F sensor and PCM connectors are disconnected. • Switch the ignition to ON (Engine off). • Measure the voltage between the following terminals (wiring harness-side) and body ground: ▪ P0135:00: • A/F sensor (RH) terminal E ▪ P0155:00: • A/F sensor (LH) terminal E • Is the voltage B+?	No	Repair for a short circuit, then go to Step 10.
		Yes	Go to the next step.
7	INSPECT A/ F SENSOR HEATER CIRCUIT FOR SHORT CIRCUIT IN WIRING HARNESS • A/F sensor and PCM connectors are disconnected. • Switch the ignition to off. • Measure the resistance between A/F sensor wiring harness-side connector terminal E and the following terminals: ▪ A/F sensor wiring harness-side connector terminal D ▪ A/F sensor wiring harness-side connector terminal C ▪ A/F sensor wiring harness-side connector terminal F ▪ A/F sensor wiring harness-side connector terminal H ▪ A/F sensor wiring harness-side connector terminal G • Is the resistance greater than 10 kilohms?	Yes	Go to the next step.
		No	Repair for a short circuit, then go to Step 10.
8	INSPECT A/ F SENSOR INTERNAL RESISTANCE OF A/ F SENSOR HEATER • A/F sensor and PCM connectors are disconnected.	Yes	Go to the next step.
		No	Replace the suspect A/F sensor. (See AIR FUEL RATIO (A/ F) SENSOR

	• Measure the resistance between A/F sensor connector terminal C and E on the component side. • Is the resistance between 1—10 ohms?		REMOVAL/ INSTALLATION [MZI 3.7 V6] .) Go to Step 10.
9	INSPECT A/ F SENSOR HEATER CIRCUIT FOR INTERNAL SHORT CIRCUIT TO GROUND • A/F sensor and PCM connectors are disconnected. • Measure the resistance between A/F sensor component side connector terminal E and ground. • Is the resistance greater than 10 kilohms?	Yes	Go to the next step. (The system is operating normally at this time. The concern may have been caused by a loose or corroded connector.)
		No	Replace the suspect A/F sensor. (See AIR FUEL RATIO (A/ F) SENSOR REMOVAL/ INSTALLATION [MZI 3.7 V6] .) Go to the next step.
10	VERIFY TROUBLESHOOTING OF DTCs P0135:00, P0155:00 HAVE BEEN COMPLETED • Verify that all disconnected connectors are reconnected. • Switch the ignition to ON (Engine off). • Clear the DTC from the PCM memory using the M-MDS. • Perform the KOEO or KOER self-test. (See KOEO/ KOER SELF TEST [MZI 3.7 V6] .) • 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 [MZI 3.7 V6] .) 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 [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.