

2012 - Mazda6 - Engine

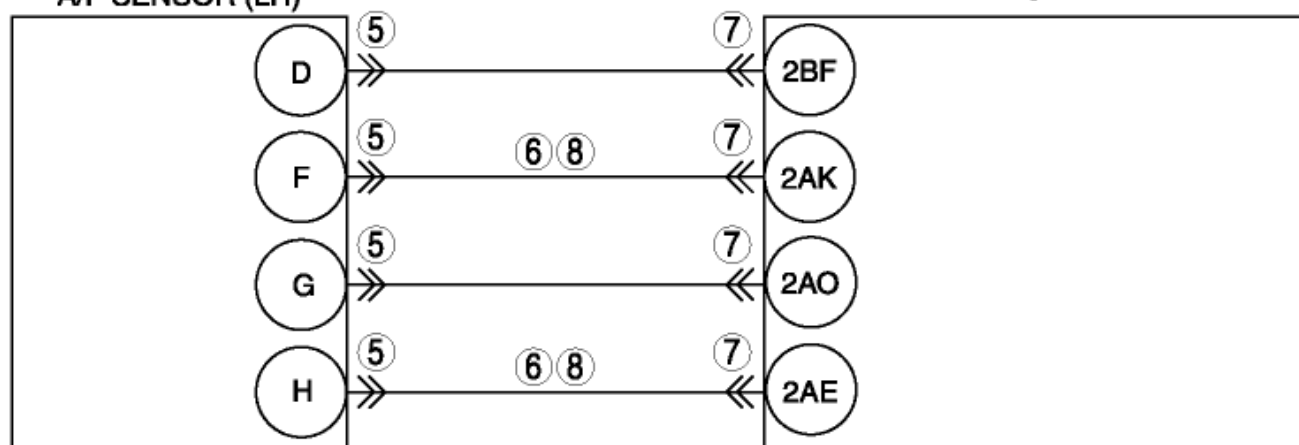
DTC P0131:00, P0151:00 [MZI 3.7 V6]

DTC P0131:00 DTC P0151:00	P0131:00: A/F sensor (RH) low voltage P0151:00: A/F sensor (LH) low voltage
DETECTION CONDITION	• P0131:00 indicates A/F sensor (RH) low voltage • P0151:00 indicates A/F sensor (LH) low voltage • The PCM monitors the A/F sensor for a circuit concern. This DTC sets when the PCM detects a concern with one of the circuits used to determine the oxygen content in the exhaust gas.
POSSIBLE CAUSE	• A/F sensor malfunction • Connector or terminal malfunction • P0131:00: ▪ Short to ground in wiring harness between the following terminals: • A/F sensor (RH) terminal F—PCM terminal 2AG • A/F sensor (RH) terminal H—PCM terminal 2AC ▪ Open circuit in wiring harness between the following terminals: • A/F sensor (RH) terminal F—PCM terminal 2AG • A/F sensor (RH) terminal H—PCM terminal 2AC • P0151:00: ▪ Short to ground in wiring harness between the following terminals: • A/F sensor (LH) terminal F—PCM terminal 2AK • A/F sensor (LH) terminal H—PCM terminal 2AE ▪ Open circuit in wiring harness between the following terminals: • A/F sensor (LH) terminal F—PCM terminal 2AK • A/F sensor (LH) terminal H—PCM terminal 2AE • PCM malfunction

⑨

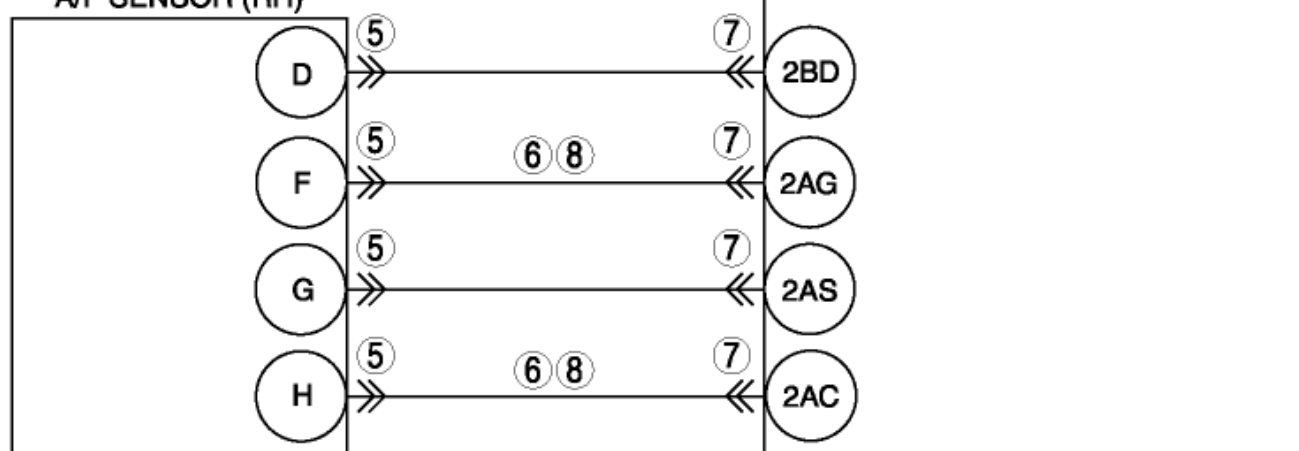
A/F SENSOR (LH)

PCM



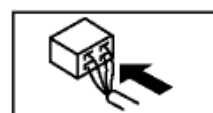
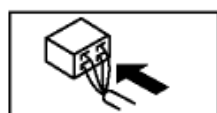
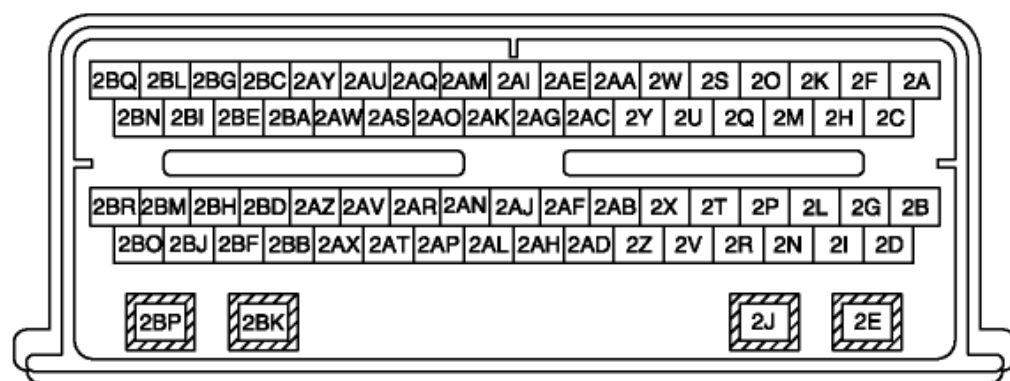
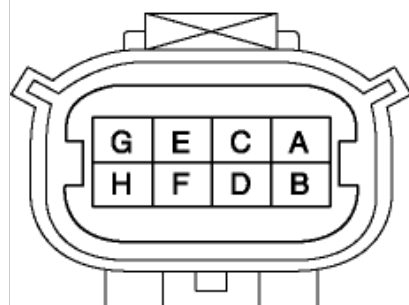
⑨

A/F SENSOR (RH)



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

PCM
WIRING HARNESS-SIDE CONNECTOR



Diagnostic procedure

STEP

INSPECTION

ACTION

1	IDENTIFY TRIGGER DTC FOR FREEZE FRAME DATA Is DTC P0131:00 or P0151:00 on FREEZE FRAME DATA?	Yes	Go to the next step.
		No	Go to troubleshooting procedures for DTC on FREEZE FRAME DATA. (See DTC TABLE [MZI 3.7 V6] .)
2	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.
3	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.
4	VERIFY RELATED PENDING OR STORED DTC - Switch the ignition to off, then to ON (engine off). - Verify the pending code or stored DTCs using the M-MDS. - Is other DTC present?	Yes	Go to the appropriate DTC troubleshooting procedures. (See DTC TABLE [MZI 3.7 V6] .)
		No	Go to the next step.
5	INSPECT A/ F SENSOR CONNECTOR FOR POOR CONNECTION - Switch the ignition to off. - Disconnect the suspect A/F sensor connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is there any malfunction?	Yes	Repair or replace the terminal, then go to Step 10.
		No	Go to the next step.
6	INSPECT A/ F SENSOR CIRCUIT FOR SHORT TO GROUND - Suspect A/F sensor connector is disconnected. - Switch the ignition to off. - Inspect for continuity between the following terminals (wiring harness-side) and body ground: - P0131:00: - A/F sensor (RH) terminal F - A/F sensor (RH) terminal H - P0151:00: - A/F sensor	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 the PCM internal circuit). (See PCM REMOVAL/ INSTALLATION [MZI 3.7 V6].) Go to Step 10.
		No	Go to the next step.

	(LH) terminal F - A/F sensor (LH) terminal H - Is there continuity?		
7	INSPECT PCM CONNECTOR FOR POOR CONNECTION - Suspect A/F sensor connector is disconnected. - Switch the ignition to off. - 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, then go to Step 10. No Go to the next step.	
8	INSPECT A/ F SENSOR CIRCUIT FOR OPEN CIRCUIT - Suspect A/F sensor and PCM connectors are disconnected. - Switch the ignition to off. - Inspect for continuity between the following terminals (wiring harness-side): - P0131:00: - A/F sensor (RH) terminal F—PCM terminal 2AG - A/F sensor (RH) terminal H—PCM terminal 2AC - P0151:00: - A/F sensor (LH) terminal F—PCM terminal 2AK - A/F sensor (LH) terminal H—PCM terminal 2AE - Is there continuity?	Yes Go to the next step. No Repair or replace the wiring harness for a possible open circuit, then go to Step 10.	
9	INSPECT A/ F SENSOR - Reconnect all disconnected connectors. - Inspect the A/F sensor. (See AIR FUEL RATIO (A/ F) SENSOR INSPECTION [MZI 3.7 V6].) - Is there any malfunction?	Yes Replace the A/F sensor, then go to the next step. (See AIR FUEL RATIO (A/ F) SENSOR REMOVAL/ INSTALLATION [MZI 3.7 V6].) No Go to the next step.	

10	VERIFY TROUBLESHOOTING OF DTC P0131:00, P0151:00 HAS BEEN COMPLETED • Make sure to reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. • Perform the 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

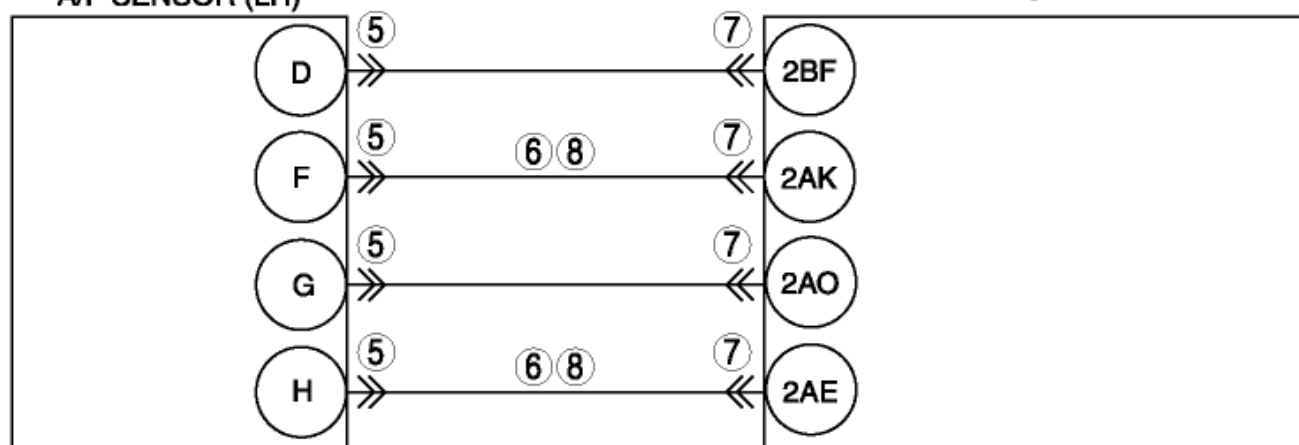
DTC P0131:00, P0151:00 [MZI 3.7 V6]

DTC P0131:00 DTC P0151:00	P0131:00: A/F sensor (RH) low voltage P0151:00: A/F sensor (LH) low voltage
DETECTION CONDITION	• P0131:00 indicates A/F sensor (RH) low voltage • P0151:00 indicates A/F sensor (LH) low voltage • The PCM monitors the A/F sensor for a circuit concern. This DTC sets when the PCM detects a concern with one of the circuits used to determine the oxygen content in the exhaust gas.
POSSIBLE CAUSE	• A/F sensor malfunction • Connector or terminal malfunction • P0131:00: ▪ Short to ground in wiring harness between the following terminals: • A/F sensor (RH) terminal F—PCM terminal 2AG • A/F sensor (RH) terminal H—PCM terminal 2AC ▪ Open circuit in wiring harness between the following terminals: • A/F sensor (RH) terminal F—PCM terminal 2AG • A/F sensor (RH) terminal H—PCM terminal 2AC • P0151:00: ▪ Short to ground in wiring harness between the following terminals: • A/F sensor (LH) terminal F—PCM terminal 2AK • A/F sensor (LH) terminal H—PCM terminal 2AE ▪ Open circuit in wiring harness between the following terminals: • A/F sensor (LH) terminal F—PCM terminal 2AK • A/F sensor (LH) terminal H—PCM terminal 2AE • PCM malfunction

⑨

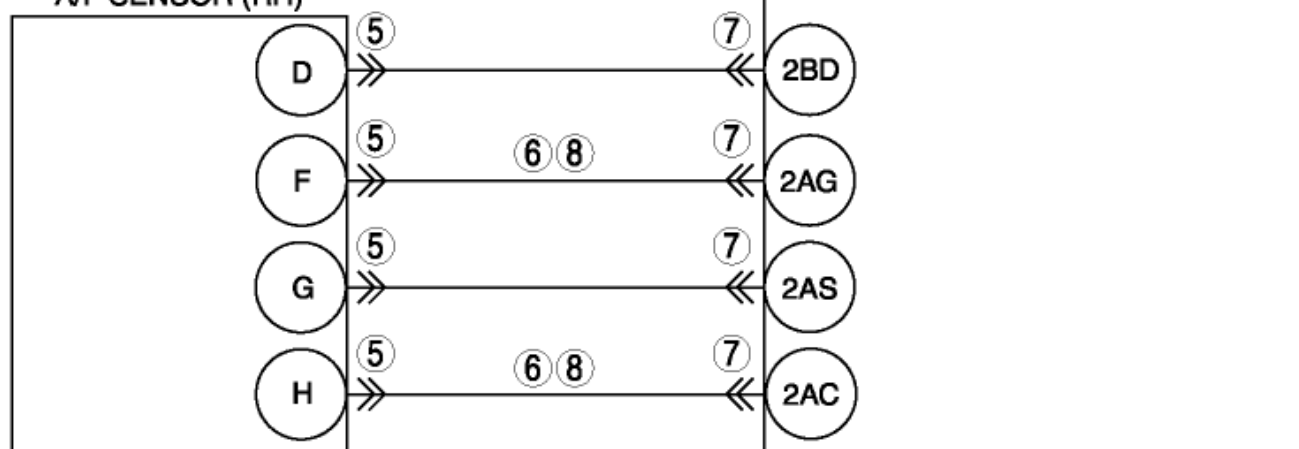
A/F SENSOR (LH)

PCM



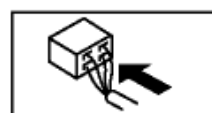
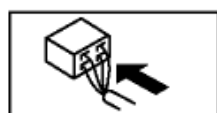
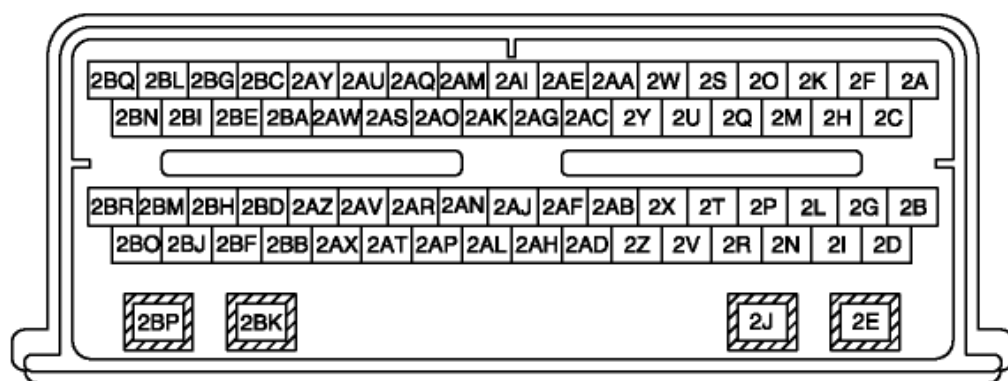
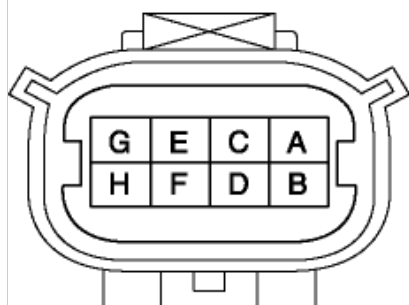
⑨

A/F SENSOR (RH)



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

PCM
WIRING HARNESS-SIDE CONNECTOR



Diagnostic procedure

STEP

INSPECTION

ACTION

1	IDENTIFY TRIGGER DTC FOR FREEZE FRAME DATA Is DTC P0131:00 or P0151:00 on FREEZE FRAME DATA?	Yes	Go to the next step.
		No	Go to troubleshooting procedures for DTC on FREEZE FRAME DATA. (See DTC TABLE [MZI 3.7 V6] .)
2	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.
3	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.
4	VERIFY RELATED PENDING OR STORED DTC - Switch the ignition to off, then to ON (engine off). - Verify the pending code or stored DTCs using the M-MDS. - Is other DTC present?	Yes	Go to the appropriate DTC troubleshooting procedures. (See DTC TABLE [MZI 3.7 V6] .)
		No	Go to the next step.
5	INSPECT A/ F SENSOR CONNECTOR FOR POOR CONNECTION - Switch the ignition to off. - Disconnect the suspect A/F sensor connector. - Inspect for poor connection (such as damaged/pulled-out pins, corrosion). - Is there any malfunction?	Yes	Repair or replace the terminal, then go to Step 10.
		No	Go to the next step.
6	INSPECT A/ F SENSOR CIRCUIT FOR SHORT TO GROUND - Suspect A/F sensor connector is disconnected. - Switch the ignition to off. - Inspect for continuity between the following terminals (wiring harness-side) and body ground: - P0131:00: - A/F sensor (RH) terminal F - A/F sensor (RH) terminal H - P0151:00: - A/F sensor	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 the PCM internal circuit). (See PCM REMOVAL/ INSTALLATION [MZI 3.7 V6].) Go to Step 10.
		No	Go to the next step.

	(LH) terminal F - A/F sensor (LH) terminal H - Is there continuity?		
7	INSPECT PCM CONNECTOR FOR POOR CONNECTION - Suspect A/F sensor connector is disconnected. - Switch the ignition to off. - 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, then go to Step 10. No Go to the next step.	
8	INSPECT A/ F SENSOR CIRCUIT FOR OPEN CIRCUIT - Suspect A/F sensor and PCM connectors are disconnected. - Switch the ignition to off. - Inspect for continuity between the following terminals (wiring harness-side): - P0131:00: - A/F sensor (RH) terminal F—PCM terminal 2AG - A/F sensor (RH) terminal H—PCM terminal 2AC - P0151:00: - A/F sensor (LH) terminal F—PCM terminal 2AK - A/F sensor (LH) terminal H—PCM terminal 2AE - Is there continuity?	Yes Go to the next step. No Repair or replace the wiring harness for a possible open circuit, then go to Step 10.	
9	INSPECT A/ F SENSOR - Reconnect all disconnected connectors. - Inspect the A/F sensor. (See AIR FUEL RATIO (A/ F) SENSOR INSPECTION [MZI 3.7 V6].) - Is there any malfunction?	Yes Replace the A/F sensor, then go to the next step. (See AIR FUEL RATIO (A/ F) SENSOR REMOVAL/ INSTALLATION [MZI 3.7 V6].) No Go to the next step.	

10	VERIFY TROUBLESHOOTING OF DTC P0131:00, P0151:00 HAS BEEN COMPLETED • Make sure to reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. • Perform the 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.