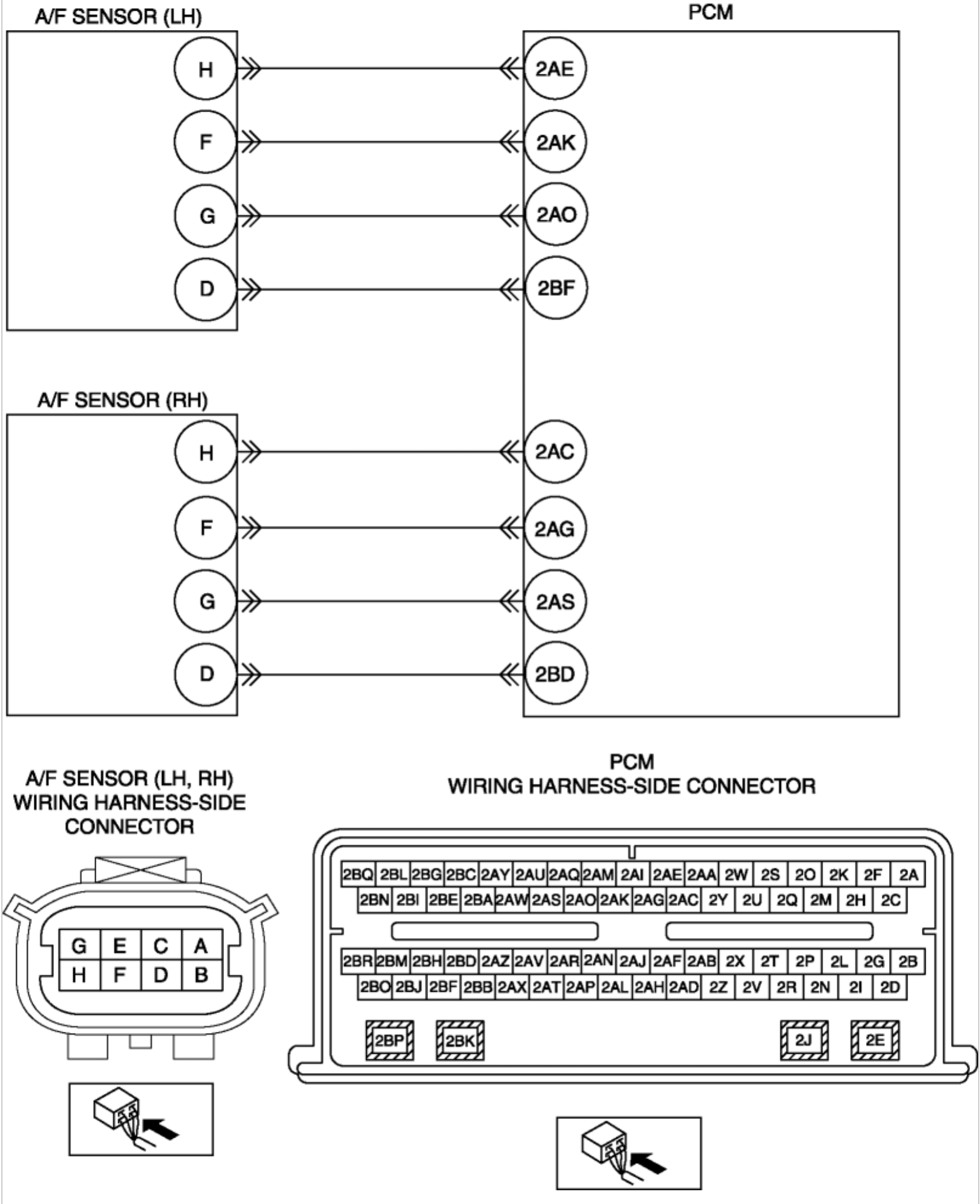
2012 - Mazda6 - Engine

DTC P0133:00, P0153:00 [MZI 3.7 V6]

DTC P0133:00 DTC P0153:00	P0133:00: A/F sensor (RH) circuit slow response P0153:00: A/F sensor (LH) circuit slow response
DETECTION CONDITION	• P0133:00 indicates slow response of A/F sensor (RH) circuit • P0153:00 indicates slow response of A/F sensor (LH) circuit • The PCM commands an air/fuel ratio that changes the waveform to a square shape. The PCM calculates the length of the resulting signal from the A/F sensor. The test fails when the length of the signal is less than a calibrated limit.
POSSIBLE CAUSE	• Contaminated A/F sensor • Incorrect fueling • MAF sensor malfunction • Exhaust leaks • Open or short circuit between PCM and A/F sensor • Inlet air leaks • Deteriorating A/F sensor • A/F sensor heater malfunction • PCM malfunction


A/F SENSOR (LH)
PCM
H
F
G
D
2AE
2AK
2AO
2BF
A/F SENSOR (RH)
H
F
G
D
2AC
2AG
2AS
2BD
A/F SENSOR (LH, RH)
WIRING HARNESS-SIDE
CONNECTOR
G E C A
H F D B
PCM
WIRING HARNESS-SIDE CONNECTOR
2BQ 2BL 2BG 2BC 2AY 2AU 2AQ 2AM 2AI 2AE 2AA 2W 2S 2O 2K 2F 2A
2BN 2BI 2BE 2BA 2AW 2AS 2AO 2AK 2AG 2AC 2Y 2U 2Q 2M 2H 2C
2BR 2BM 2BH 2BD 2AZ 2AV 2AR 2AN 2AJ 2AF 2AB 2X 2T 2P 2L 2G 2B
2BO 2BJ 2BF 2BB 2AX 2AT 2AP 2AL 2AH 2AD 2Z 2V 2R 2N 2I 2D
2BP
2BK
2J
2E

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 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.
3	**PERFORM KOER SELF-TEST** • Verify that the engine is at normal operating temperature. • Perform the KOER self-test. (See **KOEO/ KOER SELF TEST [MZI 3.7 V6]**.) • Are any DTCs present other than P0133:00 or P0153:00?	Yes	Go to the appropriate DTC troubleshooting. (See **DTC TABLE [MZI 3.7 V6]**.)
		No	Go to the next step.
4	**INSPECT FOR SOURCE OF POTENTIAL A/ F SENSOR CONTAMINATION** • Investigate the following items as potential sources of A/F sensor contamination: ▪ Use of unapproved silicon sealers ▪ Fuel contaminated by silicon additives ▪ Excessive oil consumption ▪ Glycol leaking internally in the engine ▪ Lead-contaminated fuel ▪ Short drive cycles in cold weather	Yes	Repair the source of the contamination. Change the engine oil and oil filter. Then go to Step 6.
		No	Go to the next step.

	▪ Use of unapproved cleaning agents • Is a concern present?		
5	**VERIFY A/F SENSOR RESPONSE TEST RESULTS** • Switch the ignition to ON (Engine off). • Access the DIAGNOSTIC MONITORING TEST RESULTS for the O2S11 and O2S21 • Is the indicated value greater than the minimum threshold?	Yes	Unable to duplicate or identify the concern at this time.
		No	Replace the suspect A/F sensor. (See **AIR FUEL RATIO (A/F) SENSOR REMOVAL/INSTALLATION [MZI 3.7 V6]**.) Then go to the next step.
6	**VERIFY TROUBLESHOOTING OF DTC P0133:00, P0153:00 HAS 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 OBD-II Drive Mode up to HO2S (Step 5). (See **OBD-II DRIVE MODE [MZI 3.7 V6]**.) • Retrieve DTCs using the M-MDS. • 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.
7	**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.

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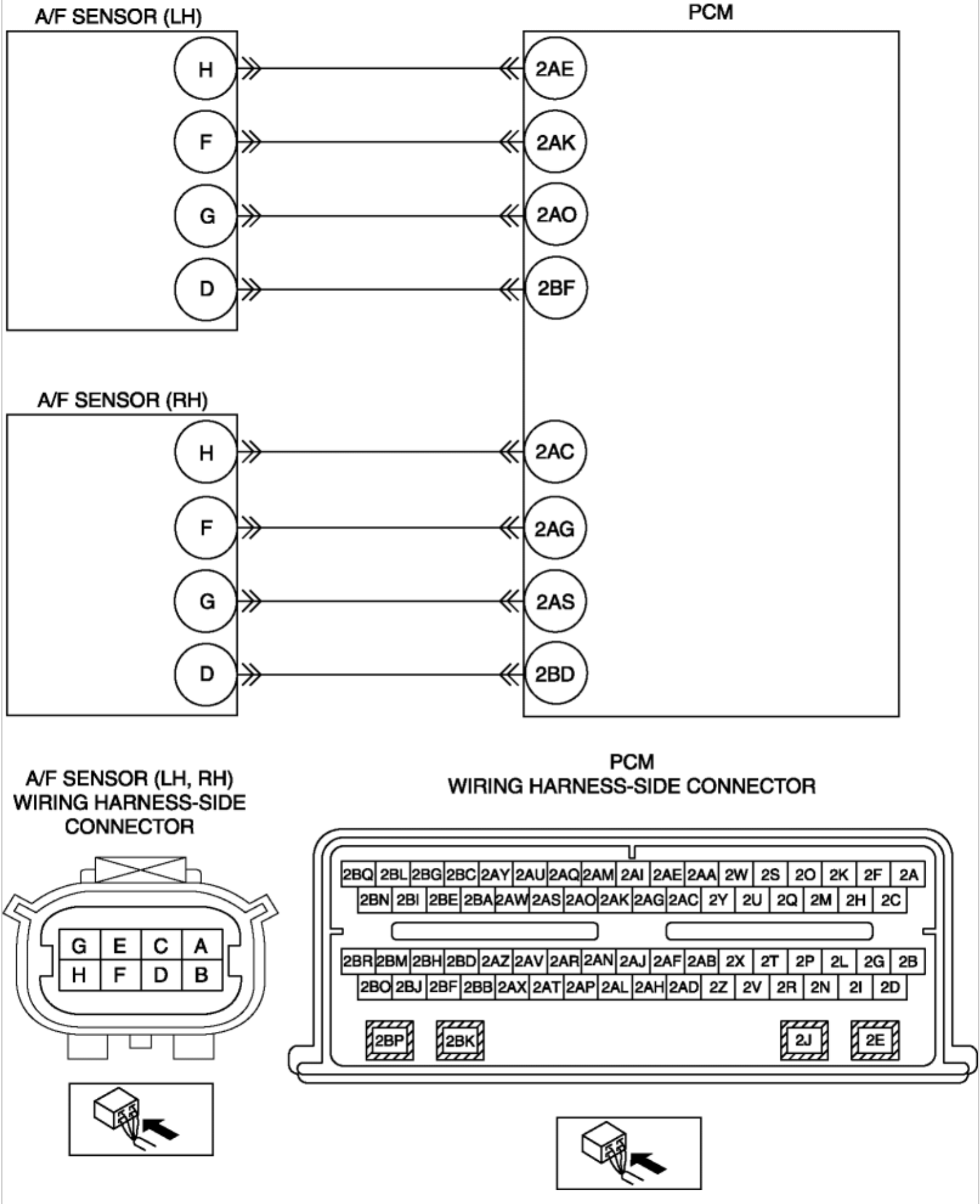
2012 - Mazda6 - Engine

DTC P0133:00, P0153:00 [MZI 3.7 V6]

DTC P0133:00 DTC P0153:00	P0133:00: A/F sensor (RH) circuit slow response P0153:00: A/F sensor (LH) circuit slow response
DETECTION CONDITION	• P0133:00 indicates slow response of A/F sensor (RH) circuit • P0153:00 indicates slow response of A/F sensor (LH) circuit • The PCM commands an air/fuel ratio that changes the waveform to a square shape. The PCM calculates the length of the resulting signal from the A/F sensor. The test fails when the length of the signal is less than a calibrated limit.
POSSIBLE CAUSE	• Contaminated A/F sensor • Incorrect fueling • MAF sensor malfunction • Exhaust leaks • Open or short circuit between PCM and A/F sensor • Inlet air leaks • Deteriorating A/F sensor • A/F sensor heater malfunction • PCM malfunction


A/F SENSOR (LH)
PCM
H
F
G
D
2AE
2AK
2AO
2BF
A/F SENSOR (RH)
H
F
G
D
2AC
2AG
2AS
2BD
A/F SENSOR (LH, RH)
WIRING HARNESS-SIDE
CONNECTOR
G E C A
H F D B
PCM
WIRING HARNESS-SIDE CONNECTOR
2BQ 2BL 2BG 2BC 2AY 2AU 2AQ 2AM 2AI 2AE 2AA 2W 2S 2O 2K 2F 2A
2BN 2BI 2BE 2BA 2AW 2AS 2AO 2AK 2AG 2AC 2Y 2U 2Q 2M 2H 2C
2BR 2BM 2BH 2BD 2AZ 2AV 2AR 2AN 2AJ 2AF 2AB 2X 2T 2P 2L 2G 2B
2BO 2BJ 2BF 2BB 2AX 2AT 2AP 2AL 2AH 2AD 2Z 2V 2R 2N 2I 2D
2BP
2BK
2J
2E

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 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.
3	**PERFORM KOER SELF-TEST** • Verify that the engine is at normal operating temperature. • Perform the KOER self-test. (See **KOEO/ KOER SELF TEST [MZI 3.7 V6]**.) • Are any DTCs present other than P0133:00 or P0153:00?	Yes	Go to the appropriate DTC troubleshooting. (See **DTC TABLE [MZI 3.7 V6]**.)
		No	Go to the next step.
4	**INSPECT FOR SOURCE OF POTENTIAL A/ F SENSOR CONTAMINATION** • Investigate the following items as potential sources of A/F sensor contamination: ▪ Use of unapproved silicon sealers ▪ Fuel contaminated by silicon additives ▪ Excessive oil consumption ▪ Glycol leaking internally in the engine ▪ Lead-contaminated fuel ▪ Short drive cycles in cold weather	Yes	Repair the source of the contamination. Change the engine oil and oil filter. Then go to Step 6.
		No	Go to the next step.

	▪ Use of unapproved cleaning agents • Is a concern present?		
5	**VERIFY A/F SENSOR RESPONSE TEST RESULTS** • Switch the ignition to ON (Engine off). • Access the DIAGNOSTIC MONITORING TEST RESULTS for the O2S11 and O2S21 • Is the indicated value greater than the minimum threshold?	Yes	Unable to duplicate or identify the concern at this time.
		No	Replace the suspect A/F sensor. (See **AIR FUEL RATIO (A/F) SENSOR REMOVAL/INSTALLATION [MZI 3.7 V6]**.) Then go to the next step.
6	**VERIFY TROUBLESHOOTING OF DTC P0133:00, P0153:00 HAS 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 OBD-II Drive Mode up to HO2S (Step 5). (See **OBD-II DRIVE MODE [MZI 3.7 V6]**.) • Retrieve DTCs using the M-MDS. • 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.
7	**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.

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