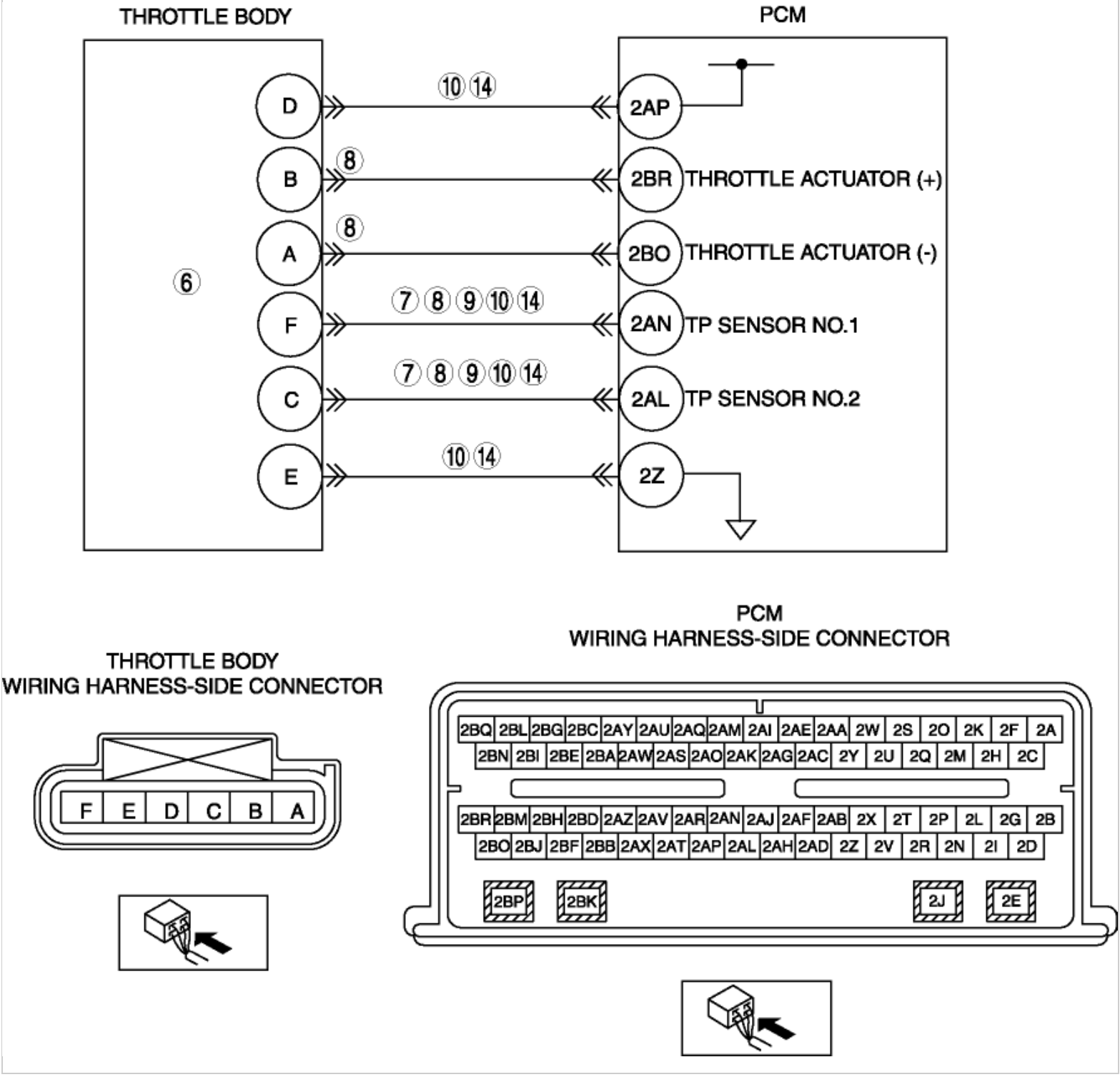
2012 - Mazda6 - Engine

DTC P1124:00 [MZI 3.7 V6]

DTC P1124:00	TP sensor No.1 out of self-test range
DETECTION CONDITION	• During the KOEO/KOER self-test, the PCM monitors the TP sensor output voltage to determine if the TP1 and TP2 signals are less than the expected value. If either TP1 or TP2 is greater than the expected value, the DTC is stored.
POSSIBLE CAUSE	• Accelerator pedal applied during KOEO/KOER self-test



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**	Yes	Perform repair or diagnosis according to the available Service Bulletins.

	• Verify related Service Bulletins and/or on-line repair information availability. • Is any related Service Bulletins available?		• If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	**VERIFY RELATED PENDING CODE OR STORED DTCs** **NOTE:** • Verify that the accelerator pedal is not applied during the KOEO/KOER self-test. • Perform the KOEO or KOER self-test. (See **KOEO/ KOER SELF TEST [MZI 3.7 V6]**.) • Are any DTCs present other than P1124:00?	Yes	Go to the appropriate DTC troubleshooting procedures. (See **DTC TABLE [MZI 3.7 V6]**.)
		No	Go to the next step.
4	**INSPECT THROTTLE POSITION OPEN CIRCUIT AND CLOSED VOLTAGES** • Switch the ignition to ON (Engine off). • Access the PCM and monitor the TP1 and TP2 PIDs. • Verify the following PID values while depressing the accelerator pedal to the floor and releasing. ▪ Pedal fully released: TP1 is 3.7—4.7 V ▪ Pedal fully released: TP2 is 0.3—1.9 V ▪ Pedal fully depressed: TP1 is 0.7—2.9 V ▪ Pedal fully depressed: TP2 is 4.1—4.7 V • Are both PIDs within the specification?	Yes	Go to Step 14.
		No	Go to the next step.
5	**INSPECT FOR OBSTRUCTION OF THROTTLE BODY** **WARNING:** • Substantial opening and closing torque is applied by this system. To prevent injury, be careful to keep fingers away from throttle mechanism when actuated. Failure to follow these instructions may result in personal injury. • Switch the ignition to off. • Remove the air hose from the throttle body. • Visually inspect for throttle plate obstructions or sludge. • Slowly, push the throttle plate to wide open and release. • Does the throttle plate move freely to wide open and back?	Yes	Go to the next step.
		No	Isolate and repair the obstruction. Then go to Step 17.

6	**INSPECT TP SENSOR RESISTANCE** • Switch the ignition to off. • Disconnect the throttle body connector. • Measure the resistance between the following terminals (throttle body component side). ▪ Throttle body terminal F and D: 700—1,800 ohms ▪ Throttle body terminal F and E: 1,300—2,800 ohms ▪ Throttle body terminal C and D: 1,000—2,400 ohms ▪ Throttle body terminal C and E: 500—1,500 ohms ▪ Throttle body terminal D and E: 700—2,100 ohms • Are all the resistances within specifications?	Yes	Go to the next step.
		No	Replace the throttle body, then go to Step 17. (See **INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [MZI 3.7 V6]**.)
7	**INSPECT TP SENSOR SIGNAL CIRCUIT FOR SHORT TO POWER SUPPLY** • Switch the ignition to ON (Engine off). • Measure the voltage between the following circuits: ▪ Throttle body terminal F (wiring harness-side) and body ground. ▪ Throttle body terminal C (wiring harness-side) and body ground. • Are there voltage **B+** ?	Yes	Repair or replace suspected part, then go to Step 17.
		No	Go to the next step.
8	**INSPECT TP SIGNAL CIRCUIT FOR OPEN CIRCUIT** • Switch the ignition to off. • Disconnect the throttle body and PCM connector. • Inspect for continuity between the following circuits (wiring harness-side): ▪ Throttle body terminal F and PCM terminal 2AN ▪ Throttle body terminal C and PCM terminal 2AL • Is there continuity?	Yes	Go to the next step.
		No	Repair or replace suspected part, then go to Step 17.
9	**INSPECT TP SENSOR CIRCUIT FOR SHORT TO GROUND** • Switch the ignition to off.	Yes	Repair or replace suspected part, then go to Step 17.
		No	Go to the next step.

	• Inspect for continuity between the following circuits: ▪ Throttle body terminal F (wiring harness-side) and body ground ▪ Throttle body terminal C (wiring harness-side) and body ground • Is there continuity?		
10	**INSPECT TP SENSOR CIRCUITS FOR SHORT EACH OTHER** • Switch the ignition to off. • Disconnect the throttle body and PCM connector. • Measure the resistance between the following circuits (wiring harness-side): ▪ Throttle body terminal F and C ▪ Throttle body terminal F and D ▪ Throttle body terminal F and E ▪ Throttle body terminal C and D ▪ Throttle body terminal C and E • Is the resistance **more than 10 kilohms**?	Yes	Go to the next step.
		No	Repair or replace suspected part, then go to Step 17.
11	**INSPECT FOR TP2 SIGNAL HIGH VERSUS LOAD WHILE DRIVING THE VEHICLE** • Switch the ignition to ON (Engine running). • Access the TP2 and LOAD PIDs using the M-MDS. • Is the TP2 PID more than 2.44 V and the LOAD PID less than 30%?	Yes	**INSPECT THE INTAKE AIR SYSTEM FOR LEAKS, OBSTRUCTIONS, AND DAMAGE** Inspect for broken/loose air outlet tube clamps (throttle body and air cleaner assembly ends), cracks/holes in the air outlet tube, and worn gaskets between the MAF sensor and the air cleaner component. Inspect for throttle body bore for sludge. Inspect the MAF sensor. • Repair or replace the suspected part, then go to Step 17.
		No	Go to the next step.
12	**INSPECT FOR TP2 SIGNAL LOW VERSUS LOAD WHILE DRIVING THE VEHICLE** • Switch the ignition to ON (Engine running). • Access the PCM and monitor the TP2 and LOAD PIDs • Is the TP2 PID less than 0.24 V and the LOAD	Yes	Go to the next step.
		No	Go to Step 14.

	PID more than 55%?		
13	**INSPECT FOR SELF-TEST DTCS** • Switch the ignition to ON (Engine running). • Clear the DTC from the PCM memory using the M-MDS. • Drive the vehicle while exercising the throttle. • Retrieve the continuous memory DTCs. • Is the PENDING CODE for this DTC present?	Yes	Go to the next step.
		No	Perform the "INTERMITTENT CONCERN TROUBLESHOOTING". Then go to Step 17.
14	**INSPECT TP SENSOR CIRCUIT FOR INTERMITTENT CONCERN** • Access the PCM and monitor the TP1 and TP2 PIDs. • Wiggle, shake, and bend the wiring harness from the throttle body to the PCM. • Are the voltages between 0.49—4.65 V?	Yes	Go to the next step.
		No	Repair or replace suspected part, then go to Step 17.
15	**INSPECT THE REPAIR THROUGH PROCEDURE** • Make sure to reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M–MDS. • Depress and release the accelerator pedal several time. • Perform the KOEO self-test. (See **KOEO/ KOER SELF TEST [MZI 3.7 V6]**.) • Is the PENDING CODE for this DTC present?	Yes	Go to the next step.
		No	Perform the "INTERMITTENT CONCERN TROUBLESHOOTING". Then go to the next step.
16	**INSPECT FOR CORRECT PCM OPERATION** • Disconnect all the PCM connectors. • Visually inspect for: ▪ Pushed out pins ▪ Corrosion • Connect all the PCM connectors and verify that they seat correctly. • Retrieve DTCs using the M-MDS. • Is the PENDING CODE for this DTC present?	Yes	Go to the next step.
		No	The system is correctly. Go to the next step.
17	**VERIFY TROUBLESHOOTING OF DTC P1124:00 HAS BEEN COMPLETED** • Verify that all disconnected connectors reconnected.	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See **PCM**

	• 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?		**REMOVAL/ INSTALLATION [MZI 3.7 V6]**.) Go to the next step.
		No	Go to the next step.
18	**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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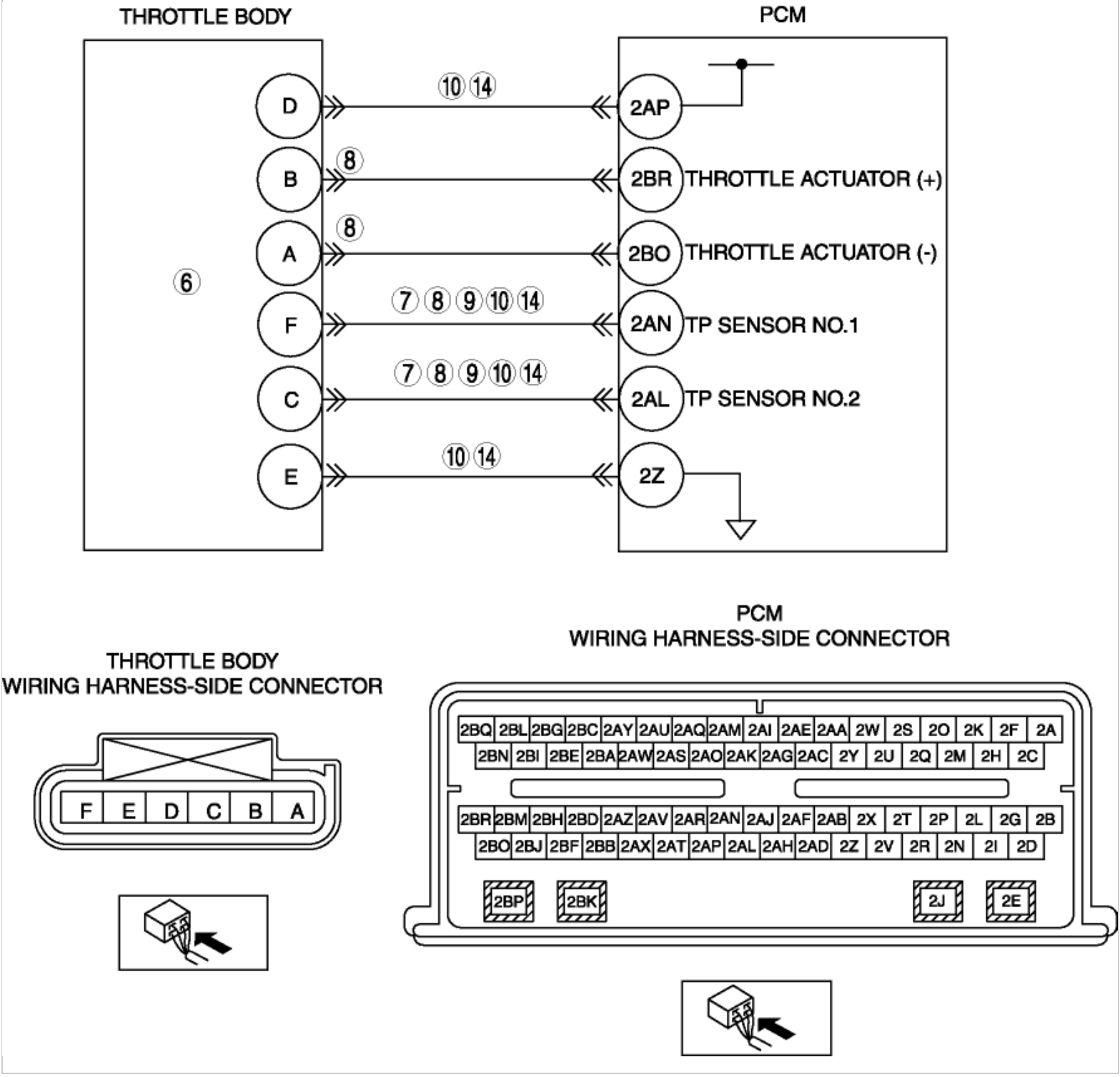
DTC P1124:00 [MZI 3.7 V6]

DTC P1124:00	TP sensor No.1 out of self-test range
DETECTION CONDITION	• During the KOEO/KOER self-test, the PCM monitors the TP sensor output voltage to determine if the TP1 and TP2 signals are less than the expected value. If either TP1 or TP2 is greater than the expected value, the DTC is stored.
POSSIBLE CAUSE	• Accelerator pedal applied during KOEO/KOER self-test



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**	Yes	Perform repair or diagnosis according to the available Service Bulletins.

	• Verify related Service Bulletins and/or on-line repair information availability. • Is any related Service Bulletins available?		• If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	**VERIFY RELATED PENDING CODE OR STORED DTCs** **NOTE:** • Verify that the accelerator pedal is not applied during the KOEO/KOER self-test. • Perform the KOEO or KOER self-test. (See **KOEO/ KOER SELF TEST [MZI 3.7 V6]**.) • Are any DTCs present other than P1124:00?	Yes	Go to the appropriate DTC troubleshooting procedures. (See **DTC TABLE [MZI 3.7 V6]**.)
		No	Go to the next step.
4	**INSPECT THROTTLE POSITION OPEN CIRCUIT AND CLOSED VOLTAGES** • Switch the ignition to ON (Engine off). • Access the PCM and monitor the TP1 and TP2 PIDs. • Verify the following PID values while depressing the accelerator pedal to the floor and releasing. ▪ Pedal fully released: TP1 is 3.7—4.7 V ▪ Pedal fully released: TP2 is 0.3—1.9 V ▪ Pedal fully depressed: TP1 is 0.7—2.9 V ▪ Pedal fully depressed: TP2 is 4.1—4.7 V • Are both PIDs within the specification?	Yes	Go to Step 14.
		No	Go to the next step.
5	**INSPECT FOR OBSTRUCTION OF THROTTLE BODY** **WARNING:** • Substantial opening and closing torque is applied by this system. To prevent injury, be careful to keep fingers away from throttle mechanism when actuated. Failure to follow these instructions may result in personal injury. • Switch the ignition to off. • Remove the air hose from the throttle body. • Visually inspect for throttle plate obstructions or sludge. • Slowly, push the throttle plate to wide open and release. • Does the throttle plate move freely to wide open and back?	Yes	Go to the next step.
		No	Isolate and repair the obstruction. Then go to Step 17.

6	**INSPECT TP SENSOR RESISTANCE** • Switch the ignition to off. • Disconnect the throttle body connector. • Measure the resistance between the following terminals (throttle body component side). ▪ Throttle body terminal F and D: 700—1,800 ohms ▪ Throttle body terminal F and E: 1,300—2,800 ohms ▪ Throttle body terminal C and D: 1,000—2,400 ohms ▪ Throttle body terminal C and E: 500—1,500 ohms ▪ Throttle body terminal D and E: 700—2,100 ohms • Are all the resistances within specifications?	Yes	Go to the next step.
		No	Replace the throttle body, then go to Step 17. (See **INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [MZI 3.7 V6]**.)
7	**INSPECT TP SENSOR SIGNAL CIRCUIT FOR SHORT TO POWER SUPPLY** • Switch the ignition to ON (Engine off). • Measure the voltage between the following circuits: ▪ Throttle body terminal F (wiring harness-side) and body ground. ▪ Throttle body terminal C (wiring harness-side) and body ground. • Are there voltage **B+** ?	Yes	Repair or replace suspected part, then go to Step 17.
		No	Go to the next step.
8	**INSPECT TP SIGNAL CIRCUIT FOR OPEN CIRCUIT** • Switch the ignition to off. • Disconnect the throttle body and PCM connector. • Inspect for continuity between the following circuits (wiring harness-side): ▪ Throttle body terminal F and PCM terminal 2AN ▪ Throttle body terminal C and PCM terminal 2AL • Is there continuity?	Yes	Go to the next step.
		No	Repair or replace suspected part, then go to Step 17.
9	**INSPECT TP SENSOR CIRCUIT FOR SHORT TO GROUND** • Switch the ignition to off.	Yes	Repair or replace suspected part, then go to Step 17.
		No	Go to the next step.

	• Inspect for continuity between the following circuits: ▪ Throttle body terminal F (wiring harness-side) and body ground ▪ Throttle body terminal C (wiring harness-side) and body ground • Is there continuity?		
10	**INSPECT TP SENSOR CIRCUITS FOR SHORT EACH OTHER** • Switch the ignition to off. • Disconnect the throttle body and PCM connector. • Measure the resistance between the following circuits (wiring harness-side): ▪ Throttle body terminal F and C ▪ Throttle body terminal F and D ▪ Throttle body terminal F and E ▪ Throttle body terminal C and D ▪ Throttle body terminal C and E • Is the resistance **more than 10 kilohms**?	Yes	Go to the next step.
		No	Repair or replace suspected part, then go to Step 17.
11	**INSPECT FOR TP2 SIGNAL HIGH VERSUS LOAD WHILE DRIVING THE VEHICLE** • Switch the ignition to ON (Engine running). • Access the TP2 and LOAD PIDs using the M-MDS. • Is the TP2 PID more than 2.44 V and the LOAD PID less than 30%?	Yes	**INSPECT THE INTAKE AIR SYSTEM FOR LEAKS, OBSTRUCTIONS, AND DAMAGE** Inspect for broken/loose air outlet tube clamps (throttle body and air cleaner assembly ends), cracks/holes in the air outlet tube, and worn gaskets between the MAF sensor and the air cleaner component. Inspect for throttle body bore for sludge. Inspect the MAF sensor. • Repair or replace the suspected part, then go to Step 17.
		No	Go to the next step.
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		No	Go to Step 14.

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		No	Perform the "INTERMITTENT CONCERN TROUBLESHOOTING". Then go to Step 17.
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		No	Perform the "INTERMITTENT CONCERN TROUBLESHOOTING". Then go to the next step.
16	**INSPECT FOR CORRECT PCM OPERATION** • Disconnect all the PCM connectors. • Visually inspect for: ▪ Pushed out pins ▪ Corrosion • Connect all the PCM connectors and verify that they seat correctly. • Retrieve DTCs using the M-MDS. • Is the PENDING CODE for this DTC present?	Yes	Go to the next step.
		No	The system is correctly. Go to the next step.
17	**VERIFY TROUBLESHOOTING OF DTC P1124:00 HAS BEEN COMPLETED** • Verify that all disconnected connectors reconnected.	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See **PCM**

	• 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?		**REMOVAL/ INSTALLATION [MZI 3.7 V6]**.) Go to the next step.
		No	Go to the next step.
18	**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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