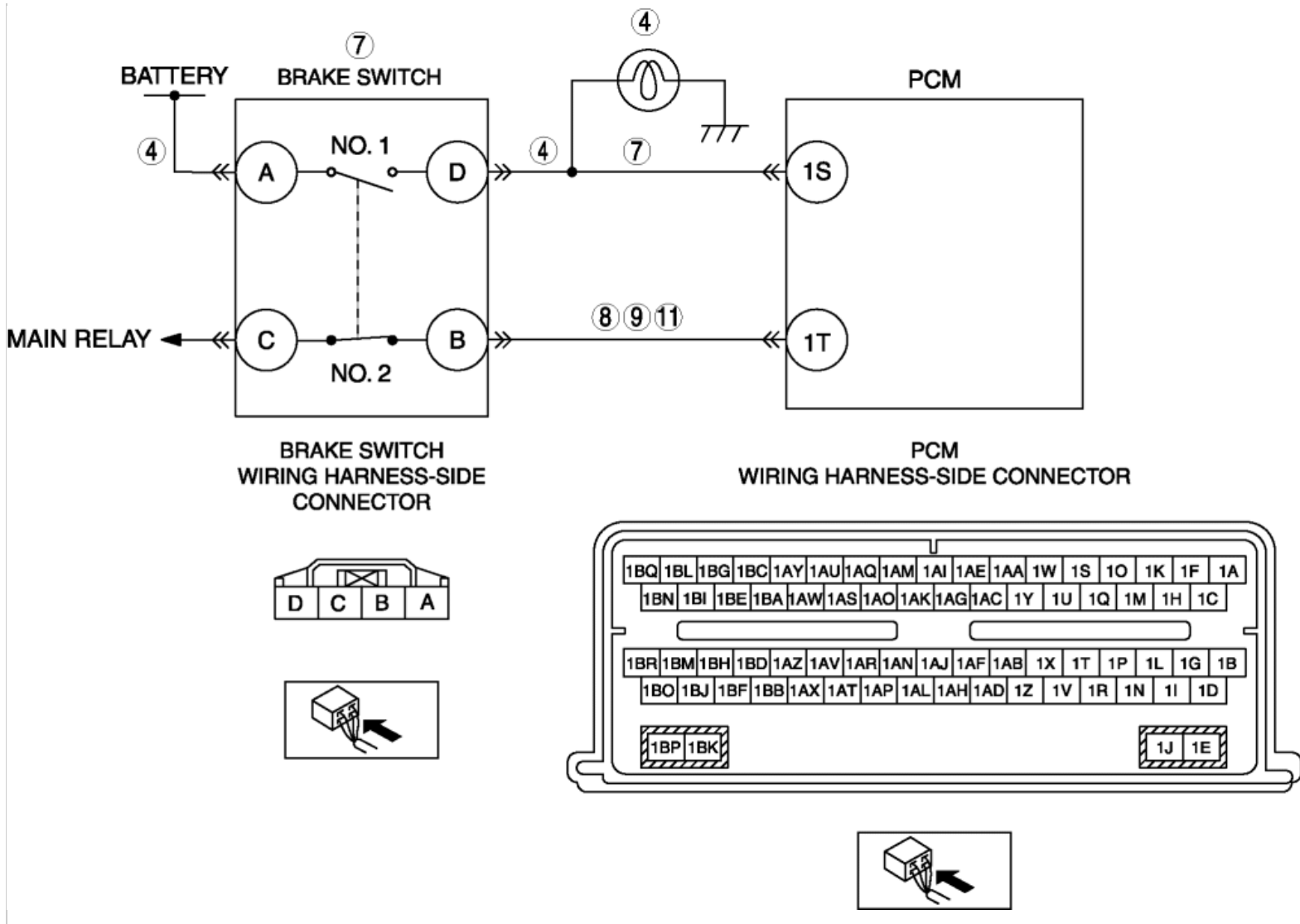


2012 - Mazda6 - Engine

DTC P0504:00 [MZI 3.7 V6]

DTC P0504:00	Brake switch No.1/No.2 correlation
DETECTION CONDITION	• The PCM does a comparison test between the brake pedal switch (BPS) and the brake pedal position (BPP) switch.
POSSIBLE CAUSE	• Open or short in stop light related circuit • Short to ground in wiring harness between the following terminals: ▪ Brake switch terminal D—PCM terminal 1S ▪ Brake switch terminal B—PCM terminal 1T • Short to power supply in wiring harness between the following terminals: ▪ Brake switch terminal D—PCM terminal 1S ▪ Brake switch terminal B—PCM terminal 1T • Open circuit in wiring harness between the following terminals: ▪ Brake switch terminal D—PCM terminal 1S ▪ Brake switch terminal B—PCM terminal 1T • Brake switch malfunction • PCM malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	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.
2	VERIFY RELATED PENDING CODE AND/ OR DTC - Switch the ignition to off, then to ON (engine off). - Perform the Pending Trouble Code Access Procedure and DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [MZI 3.7 V6].) - Is the PENDING CODE/DTC P0572:00, P0573:00 or P1703:00 also present?	Yes Go to the applicable PENDING CODE or DTC inspection. (See DTC P0572:00 [MZI 3.7 V6] .) (See DTC P0573:00 [MZI 3.7 V6] .) (See DTC P1703:00 [MZI 3.7 V6] .) No Go to the next step.
3	CHECK OPERATION OF STOP LIGHT Switch the ignition to ON (engine off).	Yes Go to the next step.

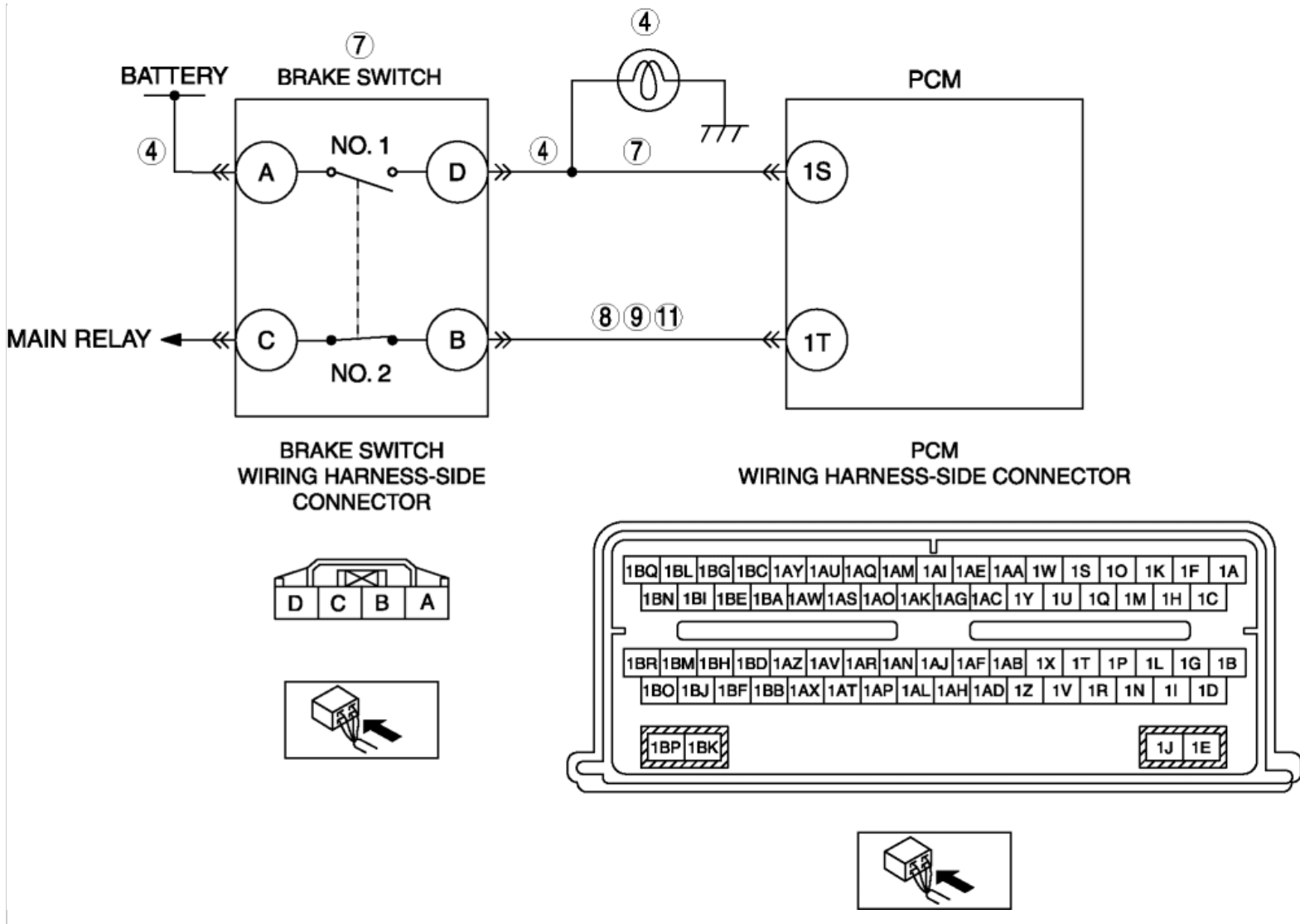
	Apply and release the brake pedal and check the stop light operation. Do the stop light operate correctly?	No	Inspect the stop light. - If the stop light is normal, go to the next step. - If the stop light is not normal, repair or replace malfunctioning part, then go to Step 11.
4	CHECK BRAKE SWITCH NO.1 OPERATION - Switch the ignition to ON (engine off). - Access the PCM and monitor the BOO PID. (See ON-BOARD DIAGNOSTIC TEST [MZI 3.7 V6].) - Apply and release the brake pedal while monitoring the BOO PID. - Does the PID cycle ON and OFF?	Yes	Go to Step 7.
		No	Go to the next step.
5	CHECK FOR BRAKE SWITCH NO.1 CIRCUIT CYCLING - Switch the ignition to off. - Disconnect the PCM connector. - Switch the ignition to ON (engine off). - Apply and release the brake pedal while monitoring the voltage. - Measure the voltage between PCM terminal 1S (wiring harness-side) and body ground. - Is voltage less than 1 V with the brake pedal released and greater than 10 V with the brake pedal fully applied?	Yes	Unable to duplicate or identify the cause of concern at this time. Perform the "INTERMITTENT CONCERN TROUBLESHOOTING" procedure. (See INTERMITTENT CONCERN TROUBLESHOOTING [MZI 3.7 V6].)
		No	Go to the next step.
6	CHECK BRAKE SWITCH NO.1 CIRCUIT FOR OPEN CAUTION: - Inspect the brake switch with it installed to the brake pedal, otherwise the brake switch may not operate normally. If the brake switch is removed from the brake pedal, replace the brake switch with a new one. - PCM connector is disconnected. - Switch the ignition to off. - Disconnect the brake switch connector. - Measure the resistance between brake switch terminal D (wiring harness-side) and PCM terminal 1S (wiring harness-side). - Is the resistance less than 5 ohm?	Yes	Replace the brake switch, then go to Step 11. (See BRAKE PEDAL REMOVAL/ INSTALLATION.)
		No	Repair for open circuit, then go to Step 11.
7	CHECK FOR BRAKE SWITCH NO.2 CIRCUIT CYCLING - Switch the ignition to off. - Disconnect the PCM connector. - Switch the ignition to ON (engine off). - Apply and release the brake pedal while monitoring the voltage. - Measure the voltage between PCM terminal 1T and body ground. - Is voltage greater than 10 volts with the brake pedal released and less than 1 volt with the brake pedal fully applied?	Yes	Unable to duplicate or identify the cause of concern at this time. Perform the "INTERMITTENT CONCERN TROUBLESHOOTING" procedure. (See INTERMITTENT CONCERN TROUBLESHOOTING [MZI 3.7 V6].)
		No	Go to the next step.
8	CHECK BRAKE SWITCH NO.2 CIRCUIT FOR SHORT TO POWER CAUTION: Inspect the brake switch with it installed to the brake pedal, otherwise	Yes	Repair for short circuit, then go to Step 11.

	the brake switch may not operate normally. If the brake switch is removed from the brake pedal, replace the brake switch with a new one. • PCM connector is disconnected. • Switch the ignition to off. • Disconnect the brake switch connector. • Measure the resistance between PCM terminal 1T (wiring harness-side) and body ground. • Is there any voltage?	No	Go to the next step.
9	CHECK BRAKE SWITCH NO.2 CIRCUIT FOR SHORT TO GROUND • Brake switch and PCM connectors are disconnected. • Measure the resistance between PCM terminal 1T (wiring harness-side) and body ground. • Is the resistance less than 5 ohm?	Yes	Repair for short circuit, then go to Step 11.
		No	Go to the next step.
10	CHECK BRAKE SWITCH NO.2 CIRCUIT FOR OPEN • Brake switch and PCM connectors are disconnected. • Measure the resistance between brake switch terminal B (wiring harness-side) and PCM terminal 1T (wiring harness-side). • Is the resistance less than 5 ohm?	Yes	Replace the brake switch, then go to the next step. (See BRAKE PEDAL REMOVAL/ INSTALLATION.)
		No	Repair for open circuit, then go to the next step.
11	VERIFY TROUBLESHOOTING OF DTC P0504:00 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. • Depress and release the brake pedal more than 5 times. • Retrieve the DTC using the M-MDS. • Is the same 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.
12	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 P0504:00 [MZI 3.7 V6]

DTC P0504:00	Brake switch No.1/No.2 correlation
DETECTION CONDITION	• The PCM does a comparison test between the brake pedal switch (BPS) and the brake pedal position (BPP) switch.
POSSIBLE CAUSE	• Open or short in stop light related circuit • Short to ground in wiring harness between the following terminals: ▪ Brake switch terminal D—PCM terminal 1S ▪ Brake switch terminal B—PCM terminal 1T • Short to power supply in wiring harness between the following terminals: ▪ Brake switch terminal D—PCM terminal 1S ▪ Brake switch terminal B—PCM terminal 1T • Open circuit in wiring harness between the following terminals: ▪ Brake switch terminal D—PCM terminal 1S ▪ Brake switch terminal B—PCM terminal 1T • Brake switch malfunction • PCM malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	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.
2	VERIFY RELATED PENDING CODE AND/ OR DTC - Switch the ignition to off, then to ON (engine off). - Perform the Pending Trouble Code Access Procedure and DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [MZI 3.7 V6].) - Is the PENDING CODE/DTC P0572:00, P0573:00 or P1703:00 also present?	Yes Go to the applicable PENDING CODE or DTC inspection. (See DTC P0572:00 [MZI 3.7 V6] .) (See DTC P0573:00 [MZI 3.7 V6] .) (See DTC P1703:00 [MZI 3.7 V6] .) No Go to the next step.
3	CHECK OPERATION OF STOP LIGHT Switch the ignition to ON (engine off).	Yes Go to the next step.

	Apply and release the brake pedal and check the stop light operation. Do the stop light operate correctly?	No	Inspect the stop light. - If the stop light is normal, go to the next step. - If the stop light is not normal, repair or replace malfunctioning part, then go to Step 11.
4	CHECK BRAKE SWITCH NO.1 OPERATION - Switch the ignition to ON (engine off). - Access the PCM and monitor the BOO PID. (See ON-BOARD DIAGNOSTIC TEST [MZI 3.7 V6].) - Apply and release the brake pedal while monitoring the BOO PID. - Does the PID cycle ON and OFF?	Yes	Go to Step 7.
		No	Go to the next step.
5	CHECK FOR BRAKE SWITCH NO.1 CIRCUIT CYCLING - Switch the ignition to off. - Disconnect the PCM connector. - Switch the ignition to ON (engine off). - Apply and release the brake pedal while monitoring the voltage. - Measure the voltage between PCM terminal 1S (wiring harness-side) and body ground. - Is voltage less than 1 V with the brake pedal released and greater than 10 V with the brake pedal fully applied?	Yes	Unable to duplicate or identify the cause of concern at this time. Perform the "INTERMITTENT CONCERN TROUBLESHOOTING" procedure. (See INTERMITTENT CONCERN TROUBLESHOOTING [MZI 3.7 V6].)
		No	Go to the next step.
6	CHECK BRAKE SWITCH NO.1 CIRCUIT FOR OPEN CAUTION: - Inspect the brake switch with it installed to the brake pedal, otherwise the brake switch may not operate normally. If the brake switch is removed from the brake pedal, replace the brake switch with a new one. - PCM connector is disconnected. - Switch the ignition to off. - Disconnect the brake switch connector. - Measure the resistance between brake switch terminal D (wiring harness-side) and PCM terminal 1S (wiring harness-side). - Is the resistance less than 5 ohm?	Yes	Replace the brake switch, then go to Step 11. (See BRAKE PEDAL REMOVAL/ INSTALLATION.)
		No	Repair for open circuit, then go to Step 11.
7	CHECK FOR BRAKE SWITCH NO.2 CIRCUIT CYCLING - Switch the ignition to off. - Disconnect the PCM connector. - Switch the ignition to ON (engine off). - Apply and release the brake pedal while monitoring the voltage. - Measure the voltage between PCM terminal 1T and body ground. - Is voltage greater than 10 volts with the brake pedal released and less than 1 volt with the brake pedal fully applied?	Yes	Unable to duplicate or identify the cause of concern at this time. Perform the "INTERMITTENT CONCERN TROUBLESHOOTING" procedure. (See INTERMITTENT CONCERN TROUBLESHOOTING [MZI 3.7 V6].)
		No	Go to the next step.
8	CHECK BRAKE SWITCH NO.2 CIRCUIT FOR SHORT TO POWER CAUTION: Inspect the brake switch with it installed to the brake pedal, otherwise	Yes	Repair for short circuit, then go to Step 11.

	the brake switch may not operate normally. If the brake switch is removed from the brake pedal, replace the brake switch with a new one. • PCM connector is disconnected. • Switch the ignition to off. • Disconnect the brake switch connector. • Measure the resistance between PCM terminal 1T (wiring harness-side) and body ground. • Is there any voltage?	No	Go to the next step.
9	CHECK BRAKE SWITCH NO.2 CIRCUIT FOR SHORT TO GROUND • Brake switch and PCM connectors are disconnected. • Measure the resistance between PCM terminal 1T (wiring harness-side) and body ground. • Is the resistance less than 5 ohm?	Yes	Repair for short circuit, then go to Step 11.
		No	Go to the next step.
10	CHECK BRAKE SWITCH NO.2 CIRCUIT FOR OPEN • Brake switch and PCM connectors are disconnected. • Measure the resistance between brake switch terminal B (wiring harness-side) and PCM terminal 1T (wiring harness-side). • Is the resistance less than 5 ohm?	Yes	Replace the brake switch, then go to the next step. (See BRAKE PEDAL REMOVAL/ INSTALLATION.)
		No	Repair for open circuit, then go to the next step.
11	VERIFY TROUBLESHOOTING OF DTC P0504:00 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. • Depress and release the brake pedal more than 5 times. • Retrieve the DTC using the M-MDS. • Is the same 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.
12	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.