

2012 - Mazda6 - Body and Accessories

NO.5 PUSH BUTTON START SYSTEM DOES NOT TURN OFF (IG OFF) [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM]

5	Push button start system does not turn off (IG OFF)
DESCRIPTION	• Engine does not turn off even if engine shut off operation is performed • Electrical devices continue to operate after engine is turned off • Dead battery • Engine does not turn off even if the emergency engine stop (continuously pressing the push button start or quickly pressing it any number of items) is performed
Possible Causes	• Communication error between keyless control module and DSC CM • Relay block (ACC relay) malfunction • Short to power supply in wiring harness between relay block (ACC relay) and keyless control module • Block relay (IG1 relay) malfunction • Short to power supply in wiring harness between relay block (IG1 relay) and keyless control module • Block relay (IG2 relay) malfunction • Short to power supply in wiring harness between relay block (IG2 relay) and keyless control module • Keyless control module malfunction • DSC CM malfunction • CAN system malfunction • Open circuit in wiring harness between push button start and keyless control module

Diagnostic Procedure

Step	Inspection	Action
1	• Verify the keyless control module	YesGo to the applicable DTC inspection.

	DTCs using the M-MDS. Can DTCs be verified?	(See DTC TABLE [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM].)	
		No	Go to the next step.
2	- Perform engine stop operation. - Does the engine stop normally?	Yes	Go to Step 8.
		No	Go to the next step.
3	- Connect the M-MDS to the DLC-2 connector. - Monitor the keyless control module PID PUSH_ST1, and PUSH_ST2. - Operate the push button start. - Does the PID display change according to the push button start status? - While push button start is pressed: ON - While push button start is not pressed: OFF	Yes	Go to Step 6.
		No	Go to the next step.
4	- Switch the ignition to off. - Disconnect the push button start connector. - Verify the continuity between connector terminal I on the push start switch vehicle wiring harness side and ground. - Can continuity be verified?	Yes	Go to the next step.
		No	- Inspect the following and repair or replace the malfunctioning location. - Wiring harness between push button start and ground (open circuit). - Ground point (looseness, bad contact) - If there is no malfunction, replace the push button start. After repair procedure, go to Step 13.
5	Switch the ignition to off.	Yes	Repair for a short to ground

	• Leave the push button start connector disconnected. • Disconnect the keyless control module connector (12-pin). • Verify the continuity between the following connector terminals on the push button start vehicle wiring harness side and ground. ▪ Terminal A ▪ Terminal B • Can continuity be verified?		in the wiring harness between the push button start and the keyless control module. • After repair procedure, go to Step 13.
		No	• Replace the push button start. (See PUSH BUTTON START REMOVAL/ INSTALLATION [WITH ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) • After replacement, go to Step 13.
6	• Monitor the instrument cluster PID SPD_MTR using the M-MDS data monitor function. • Is the monitor value when the vehicle is stopped 0 km/h?	Yes	Go to Step 8.
		No	Go to the next step.
7	• Monitor the following PIDs concerning the DSC CM using the M-MDS data monitor function. ▪ WSPD_LF ▪ WSPD_LR ▪ WSPD_RF ▪ WSPD_RR • Does the monitor value agree with the vehicle driving conditions?	Yes	Go to the instrument cluster symptom troubleshooting "Speedometer indication malfunction".
		No	Inspect the ABS wheel-speed sensor. (See FRONT ABS WHEEL-SPEED SENSOR INSPECTION .) (See REAR ABS WHEEL-SPEED SENSOR INSPECTION .) After inspection and repair, go to Step 13.
8	• Disconnect the keyless control module connector. • Connect battery positive voltage to the following connector terminals on the keyless control module vehicle wiring harness side. ▪ Terminal 4F (ACC) ▪ Terminal 4E (IG1) ▪ Terminal 4H (IG2) • Measure the voltage of the following connector terminals on	Yes	Replace the keyless control module. (See KEYLESS CONTROL MODULE REMOVAL/ INSTALLATION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) After replacement, go to Step 13.
		No	Go to the next step.

	the keyless control module vehicle wiring harness side. ▪ Terminal 2A (ACC) ▪ Terminal 2C (IG1) ▪ Terminal 4X (IG2) • Is the voltage B+?		
9	• Leave the keyless control module connector disconnected. • Disconnect the relay block connector. • Verify the continuity between the following connector terminals on the vehicle wiring harness side: ▪ Between keyless control module terminal 4F and relay block terminal 2E (8-pin) (ACC relay primary power supply). ▪ Between keyless control module terminal 4E and relay block terminal 2G (8-pin) (IG1 relay primary power supply). ▪ Between keyless control module terminal 4H and relay block terminal 2A (8-pin) (IG2 relay primary power supply). • Can continuity be verified?	Yes	Go to the next step.
		No	After repairing for an open circuit in the wiring harness, go to Step 13.
10	• Leave the relay block connector disconnected. • Verify the continuity between connector terminal 2C on the relay block vehicle wiring harness side and ground.	Yes	Go to the next step.
		No	Repair the open circuit in the wiring harness. Inspect and repair the ground point. After repair procedure, go to Step 13.

	Can continuity be verified?		
11	• Leave the relay block connector disconnected. • Measure the voltage of connector terminal 1A (6-pin) and terminal 1E (6-pin) on the relay block vehicle wiring harness side. • Is the voltage B+?	Yes	Go to the next step.
		No	After repairing for an open circuit in the wiring harness, go to Step 13.
12	• Inspect the relay block. (See RELAY BLOCK INSPECTION [WITH ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) • Is the relay block normal?	Yes	• Replace the keyless control module. (See KEYLESS CONTROL MODULE REMOVAL/ INSTALLATION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) • After replacement, go to the next step.
		No	Replace the relay block, then go to the next step.
13	• Is the electronic steering lock operating normally?	Yes	Troubleshooting completed. Explain the contents of the servicing to the customer.
		No	If the malfunction has not been resolved, repeat the inspection from Step 1.

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Diagnostic Procedure

Step	Inspection	Action
1	• Verify the keyless control module	YesGo to the applicable DTC inspection.

	DTCs using the M-MDS. Can DTCs be verified?	(See DTC TABLE [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM].)	
		No	Go to the next step.
2	- Perform engine stop operation. - Does the engine stop normally?	Yes	Go to Step 8.
		No	Go to the next step.
3	- Connect the M-MDS to the DLC-2 connector. - Monitor the keyless control module PID PUSH_ST1, and PUSH_ST2. - Operate the push button start. - Does the PID display change according to the push button start status? - While push button start is pressed: ON - While push button start is not pressed: OFF	Yes	Go to Step 6.
		No	Go to the next step.
4	- Switch the ignition to off. - Disconnect the push button start connector. - Verify the continuity between connector terminal I on the push start switch vehicle wiring harness side and ground. - Can continuity be verified?	Yes	Go to the next step.
		No	- Inspect the following and repair or replace the malfunctioning location. - Wiring harness between push button start and ground (open circuit). - Ground point (looseness, bad contact) - If there is no malfunction, replace the push button start. After repair procedure, go to Step 13.
5	Switch the ignition to off.	Yes	Repair for a short to ground

	• Leave the push button start connector disconnected. • Disconnect the keyless control module connector (12-pin). • Verify the continuity between the following connector terminals on the push button start vehicle wiring harness side and ground. ▪ Terminal A ▪ Terminal B • Can continuity be verified?		in the wiring harness between the push button start and the keyless control module. • After repair procedure, go to Step 13.
		No	• Replace the push button start. (See PUSH BUTTON START REMOVAL/ INSTALLATION [WITH ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) • After replacement, go to Step 13.
6	• Monitor the instrument cluster PID SPDMTR using the M-MDS data monitor function. • Is the monitor value when the vehicle is stopped 0 km/h?	Yes	Go to Step 8.
		No	Go to the next step.
7	• Monitor the following PIDs concerning the DSC CM using the M-MDS data monitor function. ▪ WSPD_LF ▪ WSPD_LR ▪ WSPD_RF ▪ WSPD_RR • Does the monitor value agree with the vehicle driving conditions?	Yes	Go to the instrument cluster symptom troubleshooting "Speedometer indication malfunction".
		No	Inspect the ABS wheel-speed sensor. (See FRONT ABS WHEEL-SPEED SENSOR INSPECTION .) (See REAR ABS WHEEL-SPEED SENSOR INSPECTION .) After inspection and repair, go to Step 13.
8	• Disconnect the keyless control module connector. • Connect battery positive voltage to the following connector terminals on the keyless control module vehicle wiring harness side. ▪ Terminal 4F (ACC) ▪ Terminal 4E (IG1) ▪ Terminal 4H (IG2) • Measure the voltage of the following connector terminals on	Yes	Replace the keyless control module. (See KEYLESS CONTROL MODULE REMOVAL/ INSTALLATION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) After replacement, go to Step 13.
		No	Go to the next step.

	the keyless control module vehicle wiring harness side. ▪ Terminal 2A (ACC) ▪ Terminal 2C (IG1) ▪ Terminal 4X (IG2) • Is the voltage B+?		
9	• Leave the keyless control module connector disconnected. • Disconnect the relay block connector. • Verify the continuity between the following connector terminals on the vehicle wiring harness side: ▪ Between keyless control module terminal 4F and relay block terminal 2E (8-pin) (ACC relay primary power supply). ▪ Between keyless control module terminal 4E and relay block terminal 2G (8-pin) (IG1 relay primary power supply). ▪ Between keyless control module terminal 4H and relay block terminal 2A (8-pin) (IG2 relay primary power supply). • Can continuity be verified?	Yes	Go to the next step.
		No	After repairing for an open circuit in the wiring harness, go to Step 13.
10	• Leave the relay block connector disconnected. • Verify the continuity between connector terminal 2C on the relay block vehicle wiring harness side and ground.	Yes	Go to the next step.
		No	Repair the open circuit in the wiring harness. Inspect and repair the ground point. After repair procedure, go to Step 13.

	Can continuity be verified?		
11	• Leave the relay block connector disconnected. • Measure the voltage of connector terminal 1A (6-pin) and terminal 1E (6-pin) on the relay block vehicle wiring harness side. • Is the voltage B+?	Yes	Go to the next step.
		No	After repairing for an open circuit in the wiring harness, go to Step 13.
12	• Inspect the relay block. (See RELAY BLOCK INSPECTION [WITH ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) • Is the relay block normal?	Yes	• Replace the keyless control module. (See KEYLESS CONTROL MODULE REMOVAL/ INSTALLATION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) • After replacement, go to the next step.
		No	Replace the relay block, then go to the next step.
13	• Is the electronic steering lock operating normally?	Yes	Troubleshooting completed. Explain the contents of the servicing to the customer.
		No	If the malfunction has not been resolved, repeat the inspection from Step 1.