

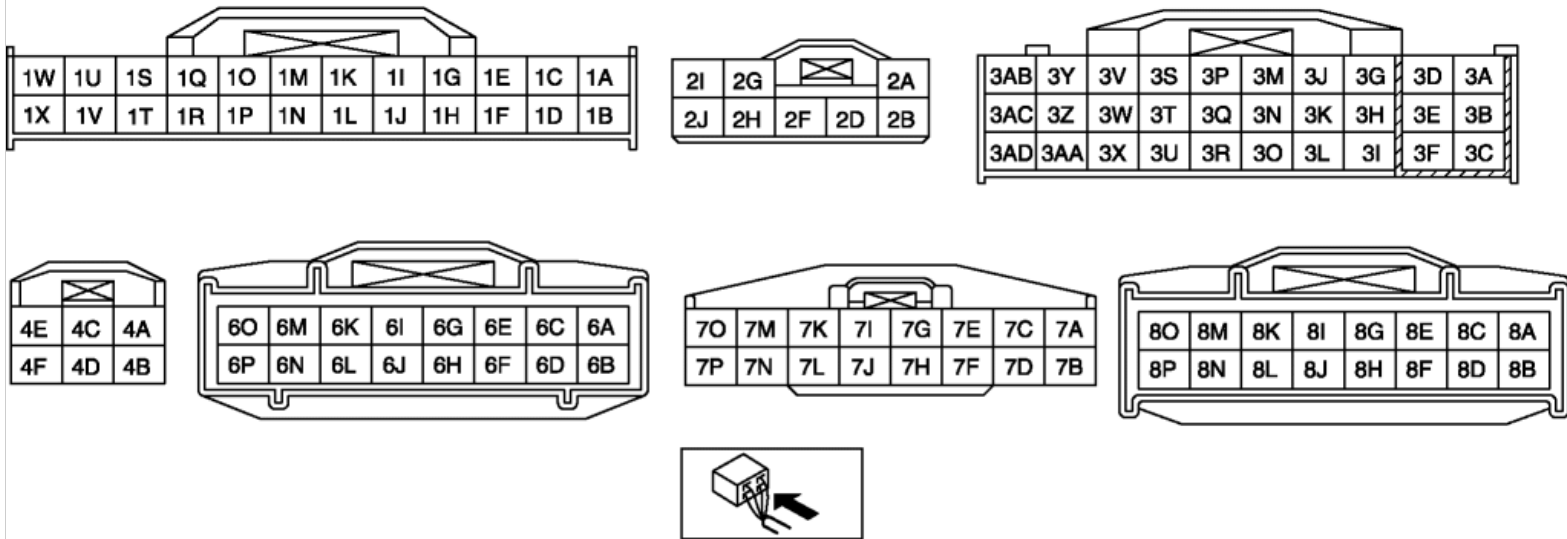
2012 - Mazda6 - Body and Accessories

NO.2 ALL KEYLESS ENTRY SYSTEM FUNCTIONS INOPERATIVE [KEYLESS ENTRY SYSTEM]

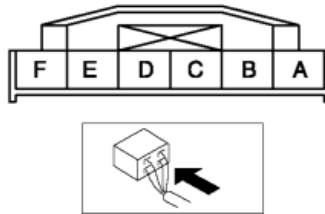
- When performing an asterisked (*) troubleshooting inspection, slightly shake the wiring harness and connectors while performing the inspection to discover whether poor contact points are the cause of any intermittent malfunctions. If there is a problem, verify that the connectors, terminals and wiring harnesses are connected correctly and undamaged.

2	All on-board diagnostic functions inoperative
DESCRIPTION	• Malfunction in BCM power supply circuit, door latch switch circuit, BCM ground circuit, or keyless receiver
POSSIBLE CAUSE	• Malfunction in IG1 or power supply signal circuit of BCM ▪ BCM power supply fuse malfunction ▪ Malfunction in wiring harness between BCM power supply fuses and BCM • Malfunction in door open/closed signal circuit of BCM ▪ Door latch switch system malfunction ▪ BCM malfunction ▪ Malfunction in wiring harness between BCM and door latch switch • Malfunction in BCM GND signal circuit ▪ Malfunction in wiring harness between BCM and ground • Malfunction in keyless receiver ▪ Keyless receiver malfunction ▪ Malfunction in wiring harness between keyless receiver and BCM

BODY CONTROL MODULE (BCM) WIRING HARNESS SIDE CONNECTOR



KEYLESS RECEIVER WIRING HARNESS-SIDE CONNECTOR



Diagnostic procedure

STEP	INSPECTION	ACTION
1	INSPECT BCM POWER SUPPLY FUSES Are the BCM power supply fuses normal?	Yes Go to the next step.
		No Install an appropriate amperage fuse.
2	INSPECT DOOR LATCH SWITCH INSTALLATION Are the door latch switches installed securely?	Yes Go to the next step.
		No Install the door latch switches securely, then go back to Step 5 of keyless entry system preliminary inspection.
*3	INSPECT IF MALFUNCTION IS IN WIRING HARNESS (NO CONTINUITY BETWEEN FUSE BLOCK AND BCM) OR ELSEWHERE - Switch the ignition to ON. - Measure the voltage at the following BCM terminals: - IG1 signal (terminal 3AB, 4A) - Power supply signal (terminal 2D, 2J, 4B, 4C) - Is the voltage B+ ?	Yes Go to the next step.
		No Repair the wiring harness between the fuse block and BCM, then go to Step 13.
*4	INSPECT IF MALFUNCTION IS IN WIRING HARNESS (SHORT TO POWER SUPPLY BETWEEN FUSE BLOCK AND BCM, OR BETWEEN BCM AND GROUND) OR ELSEWHERE	Yes Repair the malfunctioning wiring harness, then go to Step 13.
		No Go to the next step.

	- Switch the ignition to off. - Disconnect the BCM connector. - Measure the voltage at the following BCM terminal (wiring harness-side): - IG1 signal (terminal 3AB, 4A) - Is the voltage B+ ?		
*5	INSPECT IF MALFUNCTION IS IN WIRING HARNESS (NO CONTINUITY BETWEEN BCM AND GROUND) OR ELSEWHERE Is there continuity between BCM terminal 1V, 2A and ground?	Yes	Go to the next step.
		No	Repair the wiring harness between the BCM and ground, then go to Step 13.
6	INSPECT DOOR SWITCH SIGNAL - Monitor following BCM (door switch) PID using the M-MDS. - TR/LG_SW (Trunk lid latch switch) - DRSW_P (Passenger's door latch switch) - DRSW_D (Driver's door switch) - DRSW_LR (Rear door latch switch (LH)) - DRSW_RR (Rear door latch switch (RH)) - Are monitored PID values normal?	Yes	Go to the next step.
		No	- Inspect for open or short circuit in wiring harness between BCM and suspected door latch/trunk lid latch switch. - If wiring harness is normal, inspect suspect door latch/trunk lid latch switch. (See FRONT DOOR LATCH SWITCH INSPECTION.) (See REAR DOOR LATCH SWITCH INSPECTION.) (See TRUNK LID LATCH SWITCH INSPECTION.) - If wiring harness malfunction, repair or replace wiring harness, then go to Step 13.
7	INSPECT BCM OR WIRING HARNESS (BETWEEN BCM AND DOOR LATCH SWITCHES FOR CONTINUITY) - Open and close all doors. - Verify continuity between BCM terminals 8B, 8D, 8F, 8H and ground. - Are there continuities followings? - Open: Not continuity - Close: Continuity	Yes	Replace the BCM and reprogram the transmitter ID code, then go to the next step.
		No	Repair the wiring harness between the BCM and door latch switches, then go to the next step.
8	INSPECT POWER SUPPLY FUSE Is the keyless receiver power supply fuse normal?	Yes	Go to the next step.
		No	Inspect and repair short to GND in wiring harness at keyless receiver power supply circuit install an appropriate amperage fuse, then go to step 13.
9	INSPECT IF MALFUNCTION IS IN WIRING HARNESS (NO CONTINUITY BETWEEN FUSE BLOCK AND KEYLESS RECEIVER) OR ELSEWHERE Measure the voltage at the following keyless receiver B+	Yes	Go to the next step.
		No	Repair the wiring harness between the fuse block and keyless receiver, then go to Step 13.

	signal terminal: ▪ Power supply signal (terminal A) • Is the voltage B+ ?		
10	INSPECT IF MALFUNCTION IS IN WIRING HARNESS (NO CONTINUITY BETWEEN KEYLESS RECEIVER AND GROUND) OR ELSEWHERE • Is there continuity between keyless receiver terminal B(4-pin connector type)/E(6-pin connector type) and ground?	Yes	Go to the next step.
		No	Repair the wiring harness between the keyless receiver and ground, then go to Step 13.
11	INSPECT IF MALFUNCTION IS IN WIRING HARNESS (NO CONTINUITY BETWEEN KEYLESS RECEIVER AND BCM) OR ELSEWHERE • Disconnect the keyless receiver connector and BCM connector. • Is there continuity between the following terminals? ▪ 6J (BCM connector)—D (keyless receiver connector)	Yes	Go to the next step.
		No	Repair the wiring harness between the keyless receiver and BCM, then go to Step 13.
12	INSPECT MALFUNCTION IS IN KEYLESS RECEIVER OR BCM • Measure the signal wave pattern for keyless receiver terminal D using an oscilloscope when the transmitter is operated with the key not inserted into the ignition key cylinder. • Does the wave pattern change when the transmitter is operated? NOTE: • Perform the oscilloscope setting using 0.5V/DIV (Y), 100ms/DIV (X), DC range.	Yes	Replace the BCM, then go to the next step. (See BODY CONTROL MODULE (BCM) REMOVAL/ INSTALLATION.)
		No	Replace the keyless receiver, then go to the next step. (See KEYLESS RECEIVER REMOVAL/ INSTALLATION.)
13	REINSPECT MALFUNCTION SYMPTOM AFTER REPAIR • Does the keyless entry system operate properly?	Yes	Troubleshooting completed. Explain repairs to the customer.
		No	Reinspect the malfunction symptoms, then repeat from Step 1 if the malfunction recurs.

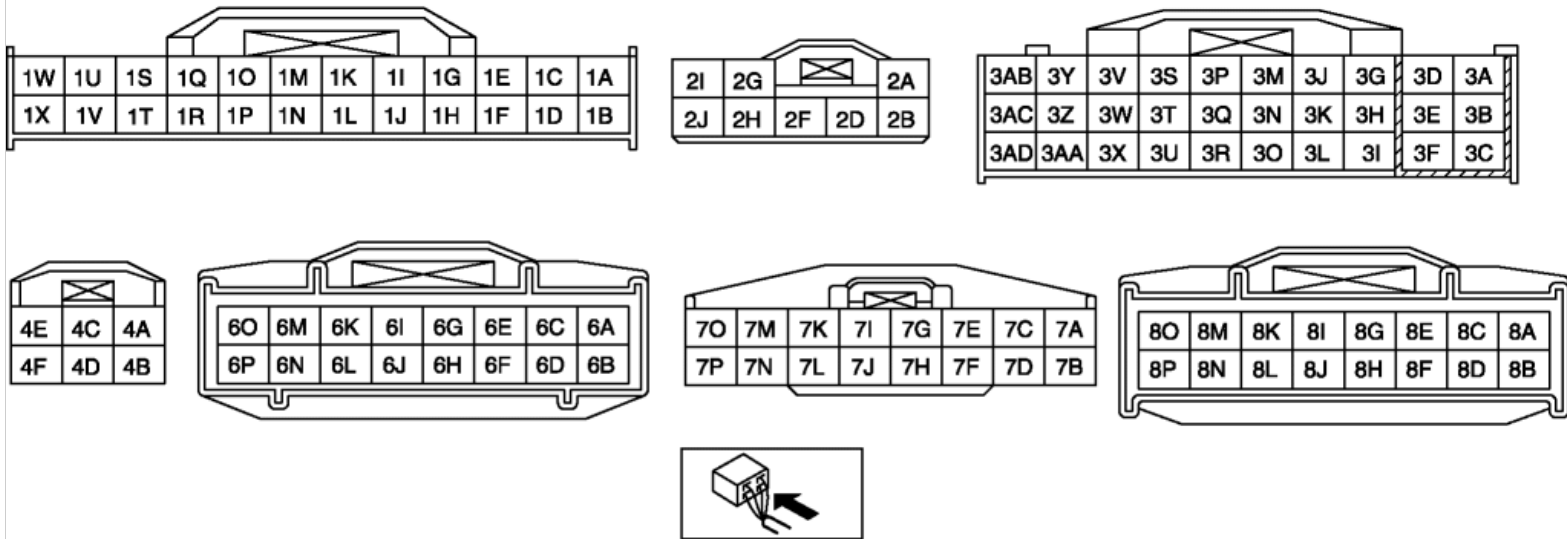
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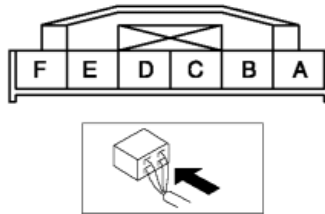
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KEYLESS RECEIVER WIRING HARNESS-SIDE CONNECTOR



Diagnostic procedure

STEP	INSPECTION	ACTION
1	INSPECT BCM POWER SUPPLY FUSES Are the BCM power supply fuses normal?	Yes Go to the next step.
		No Install an appropriate amperage fuse.
2	INSPECT DOOR LATCH SWITCH INSTALLATION Are the door latch switches installed securely?	Yes Go to the next step.
		No Install the door latch switches securely, then go back to Step 5 of keyless entry system preliminary inspection.
*3	INSPECT IF MALFUNCTION IS IN WIRING HARNESS (NO CONTINUITY BETWEEN FUSE BLOCK AND BCM) OR ELSEWHERE - Switch the ignition to ON. - Measure the voltage at the following BCM terminals: - IG1 signal (terminal 3AB, 4A) - Power supply signal (terminal 2D, 2J, 4B, 4C) - Is the voltage B+ ?	Yes Go to the next step.
		No Repair the wiring harness between the fuse block and BCM, then go to Step 13.
*4	INSPECT IF MALFUNCTION IS IN WIRING HARNESS (SHORT TO POWER SUPPLY BETWEEN FUSE BLOCK AND BCM, OR BETWEEN BCM AND GROUND) OR ELSEWHERE	Yes Repair the malfunctioning wiring harness, then go to Step 13.
		No Go to the next step.

	- Switch the ignition to off. - Disconnect the BCM connector. - Measure the voltage at the following BCM terminal (wiring harness-side): - IG1 signal (terminal 3AB, 4A) - Is the voltage B+ ?		
*5	INSPECT IF MALFUNCTION IS IN WIRING HARNESS (NO CONTINUITY BETWEEN BCM AND GROUND) OR ELSEWHERE Is there continuity between BCM terminal 1V, 2A and ground?	Yes	Go to the next step.
		No	Repair the wiring harness between the BCM and ground, then go to Step 13.
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		No	- Inspect for open or short circuit in wiring harness between BCM and suspected door latch/trunk lid latch switch. - If wiring harness is normal, inspect suspect door latch/trunk lid latch switch. (See FRONT DOOR LATCH SWITCH INSPECTION.) (See REAR DOOR LATCH SWITCH INSPECTION.) (See TRUNK LID LATCH SWITCH INSPECTION.) - If wiring harness malfunction, repair or replace wiring harness, then go to Step 13.
7	INSPECT BCM OR WIRING HARNESS (BETWEEN BCM AND DOOR LATCH SWITCHES FOR CONTINUITY) - Open and close all doors. - Verify continuity between BCM terminals 8B, 8D, 8F, 8H and ground. - Are there continuities followings? - Open: Not continuity - Close: Continuity	Yes	Replace the BCM and reprogram the transmitter ID code, then go to the next step.
		No	Repair the wiring harness between the BCM and door latch switches, then go to the next step.
8	INSPECT POWER SUPPLY FUSE Is the keyless receiver power supply fuse normal?	Yes	Go to the next step.
		No	Inspect and repair short to GND in wiring harness at keyless receiver power supply circuit install an appropriate amperage fuse, then go to step 13.
9	INSPECT IF MALFUNCTION IS IN WIRING HARNESS (NO CONTINUITY BETWEEN FUSE BLOCK AND KEYLESS RECEIVER) OR ELSEWHERE Measure the voltage at the following keyless receiver B+	Yes	Go to the next step.
		No	Repair the wiring harness between the fuse block and keyless receiver, then go to Step 13.

	signal terminal: ▪ Power supply signal (terminal A) • Is the voltage B+ ?		
10	INSPECT IF MALFUNCTION IS IN WIRING HARNESS (NO CONTINUITY BETWEEN KEYLESS RECEIVER AND GROUND) OR ELSEWHERE • Is there continuity between keyless receiver terminal B(4-pin connector type)/E(6-pin connector type) and ground?	Yes	Go to the next step.
		No	Repair the wiring harness between the keyless receiver and ground, then go to Step 13.
11	INSPECT IF MALFUNCTION IS IN WIRING HARNESS (NO CONTINUITY BETWEEN KEYLESS RECEIVER AND BCM) OR ELSEWHERE • Disconnect the keyless receiver connector and BCM connector. • Is there continuity between the following terminals? ▪ 6J (BCM connector)—D (keyless receiver connector)	Yes	Go to the next step.
		No	Repair the wiring harness between the keyless receiver and BCM, then go to Step 13.
12	INSPECT MALFUNCTION IS IN KEYLESS RECEIVER OR BCM • Measure the signal wave pattern for keyless receiver terminal D using an oscilloscope when the transmitter is operated with the key not inserted into the ignition key cylinder. • Does the wave pattern change when the transmitter is operated? NOTE: • Perform the oscilloscope setting using 0.5V/DIV (Y), 100ms/DIV (X), DC range.	Yes	Replace the BCM, then go to the next step. (See BODY CONTROL MODULE (BCM) REMOVAL/ INSTALLATION.)
		No	Replace the keyless receiver, then go to the next step. (See KEYLESS RECEIVER REMOVAL/ INSTALLATION.)
13	REINSPECT MALFUNCTION SYMPTOM AFTER REPAIR • Does the keyless entry system operate properly?	Yes	Troubleshooting completed. Explain repairs to the customer.
		No	Reinspect the malfunction symptoms, then repeat from Step 1 if the malfunction recurs.