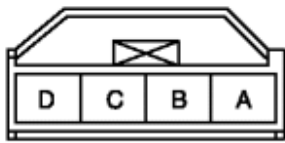


2012 - Mazda6 - Body and Accessories

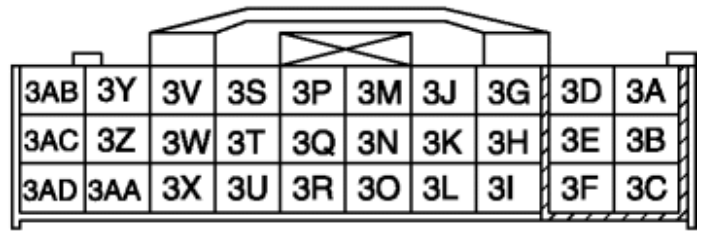
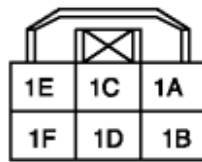
NO.1 DOOR CANNOT BE LOCKED/ UNLOCKED BY ADVANCED KEY [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM]

1	Door cannot be locked/ unlocked by transmitter (electrical key button)
DESCRIPTION	• Cannot door lock and/ or unlock with transmitter (electrical key button)
POSSIBLE CAUSE	• Malfunction in transmitter (electrical key button) battery or transmitter (electrical key button) • Malfunction in keyless control module • Malfunction in keyless receiver • Malfunction in BCM • Malfunction indoor switch or trunk lid switch • Open or short circuit in wiring between trunk lid latch switch and BCM • Open or short circuit in wiring harness door switch and BCM • Malfunction in door lock actuator • Open or short circuit in wiring between door lock actuator and BCM • Open or short circuit in wiring between keyless control module and BCM • Poor connection of connector, terminal damage • Wrong usage • The after-market electrical parts are interfering with the keyless entry system

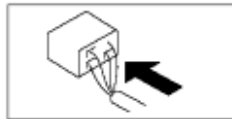
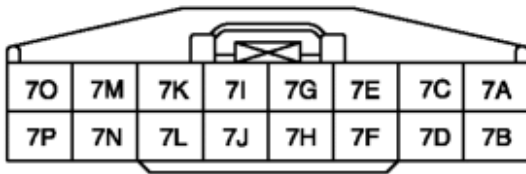
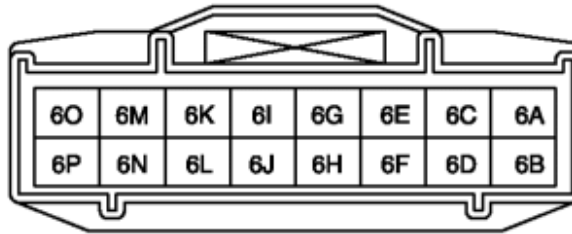
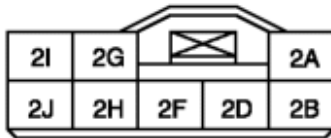
KEYLESS RECEIVER



KEYLESS CONTROL MODULE

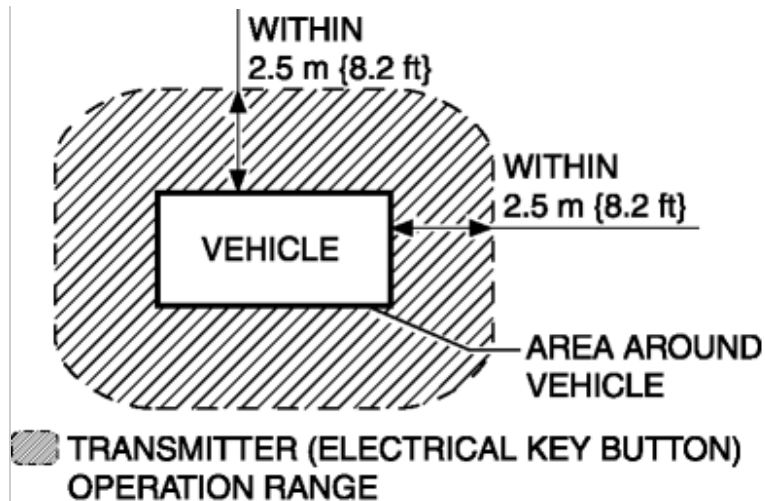


BCM



Diagnostic procedure

STEP	INSPECTION	ACTION
1	- Attempt to lock/unlock the door with the transmitter (electrical key button). - Does the operation indicator light (LED) illuminate?	Yes Go to the next step.
		No Go to Step 10.
2	Did the customer activate the transmitter (electrical key button) within operative area (Within 2.5 m { 8.2 ft } from area around vehicle)?	Yes Go to the next step.
		No The system is normal. Explain to the customer that the system does not work without the system operative area.



3	Did the customer use the keyless entry system in particular area, such as being near TV towers, power plants, power lines, or factories?	Yes The system is normal. Area of operation is subject. Explain effect of outside interference on the transmitter (electrical key) to the customer. No Go to the next step.
4	- Did the customer activate the advanced keyless entry system with all following conditions satisfied? - All doors and trunk lid closed - Switch the ignition to off. (without ACC and IG ON position)	Yes Go to the next step. No The system is normal. Explain to the customer that the system does not work without these conditions satisfied.
5	- Are any of the following after-market electrical parts on the vehicle? - Cellular phone - Parts with built-in microcomputer - Remote engine starter - TV - Other	Yes Go to the next step. No Go to Step 7.
6	- Disconnect the after-market electrical parts connectors and attempt to lock/unlock the doors with the transmitter (electrical key). - Does the keyless entry system work only near the receiver?	Yes The system is normal. The after-market electrical parts are interfering with the keyless entry system. No Go to the next step.

7	Is there repair record of the customer's keyless entry system?	Yes	Go to the next step.
		No	Go to Step 10.
8	Does the malfunction occur after the repair?	Yes	Go to the next step.
		No	Go to Step 10.
9	Is the malfunction corrected when the ID numbers for all the customer's transmitters are updated? (See ADVANCED KEY ID CODE REGISTRATION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)	Yes	System is normal. (Explain to the customer that the malfunction occurred because all the transmitter ID numbers were not updated even though the body control module or a transmitter was replaced in the previous servicing.)
		No	Go to the next step.
10	- Visually inspect the transmitter battery for the following: (See ADVANCED KEY BATTERY REPLACEMENT [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) - Battery insertion direction (correct polarity) - Battery type (CR2025) - Corrosion, soiling, deformation of battery terminals (plus/minus terminals) - Contact malfunction between the battery terminal and battery when battery is inserted - Is there any malfunction?	Yes	Battery insertion direction, battery type problem: - Properly install the battery or replace the battery with a specified one (CR2025), then go to the next step. Malfunction with the battery terminals: - Clean corrosion and soiling or repair the terminal, then go to the next step.
		No	Go to Step 12.
11	Does the keyless entry system operate properly?	Yes	Troubleshooting completed.
		No	Go to the next step.
12	NOTE: Use a new monitor battery (normal	Yes	Go to the next step.

	battery) or one from another vehicle which operates normally. • Replace the battery in all the transmitters with a monitor-use battery (normal battery). (See ADVANCED KEY BATTERY REPLACEMENT [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) • For each transmitter, verify that the transmitter operation indicator light (LED) illuminates when a button is operated. • Does operation indicator light (LED) for each transmitter operate?	No	If the operation indicator light (LED) does not illuminate, replace the transmitter, then go to the Step 23.
13	NOTE: • Inspect for all transmitters. • Inspect while the batteries for all of the transmitters are replaced with monitor-use batteries (normal battery). • Verify the operation of keyless entry system using all of the transmitters. • Does the keyless entry system operate properly?	Yes	Replace the transmitter battery, and then go to Step 23. (See ADVANCED KEY BATTERY REPLACEMENT [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)
		No	Go to the next step.
14	• Inspect for the keyless receiver installation. • Is the bracket securely installed on the keyless receiver?	Yes	Go to the next step.
		No	Install the bracket securely, and then go to the next step.
15	• Switch the ignition to off. • Measure the voltage at keyless receiver terminal D? • Is the voltage B+ ?	Yes	Go to the next step.
		No	• Inspect ROOM 15 A fuse. • Inspect and repair the wiring harness between the fuse block and the keyless receiver as necessary. • Then go to Step 23.
16	• Measure the voltage at keyless receiver terminal B? • Is the voltage below 1.0 ?	Yes	Go to the next step.
		No	• Inspect and repair the wiring harness between the ground wire and the keyless receiver

			as necessary. • Re-tighten the ground wire as necessary. • Then go to Step 23.
17	• Disconnect the keyless receiver connector (4-pin) and keyless control module connector (12-pin). • Is there continuity between the following terminals? ▪ Keyless receiver connector terminal C —keyless control module connector terminal 2H	Yes	Go to the next step.
		No	Inspect and repair the wiring harness between the keyless control module and the keyless receiver, then go to the next step.
18	• Measure the signal wave pattern of keyless control module terminal 2H using an oscilloscope while the transmitter advanced key is operated with the auxiliary key removed from the ignition key cylinder. • Does the wave pattern change when the advanced key is operated? NOTE: • Perform the oscilloscope setting using 0.5 V/DIV (Y), 100 ms/DIV (X), DC range.	Yes	Go to the next step.
		No	Replace the keyless receiver, and then go to Step 22.
19	• Measure the voltage at the keyless control module terminals 1D, 1B and 1E. ▪ Terminal 1D: B+ ▪ Terminal 1B: B+ ▪ Terminal 1E: B+ • Is the voltage as above?	Yes	Go to the next step.
		No	• Inspect for fuse. • Inspect and repair the wiring harness between the keyless control module and the fuse block as necessary. • Then go to the Step 23.
20	• Measure the voltage at keyless control module terminal 1F, 3N, 4L? • Is the voltage below 1.0?	Yes	Go to the next step.
		No	• Inspect and repair the wiring harness between the ground wire and the keyless control module as necessary. • Re-tighten the ground wire as necessary.

			Then go to the Step 23.
21	- Monitor the following PIDs for the BCM using the M-MDS: - DRSW_D (driver-side door switch) - DRSW_P (passenger-side door switch) - DRSW_LR (left rear door switch) - DRSW_RR (right rear door switch) - TR/LG_SW (trunk switch) - Does each monitor value agree with the door open/close condition?	Yes	- Inspect for open or short circuit in wiring harness between keyless control module terminal 2F terminal and BCM terminal 6J. - If the wiring harness is not normal, repair or replace malfunctioning part. Then go to Step 23. - If the wiring harness is normal, go to the next step. - Then go to Step 23.
		No	- Inspect suspect door switch or trunk lid. - Inspect for open or short circuit in wiring harness between suspect switch and BCM. - Then go to Step 23.
22	- Measure the voltage at the BCM terminals 7K, 7I and 7M while operating the transmitter. - Lock all doors with the transmitter (electrical key): 1.0 V or less → B+ → 1.0 V or less (terminal 7I) - Unlock all doors with the transmitter (electrical key): 1.0 V or less → B+ → 1.0 V or less (terminal 7M) - Unlock driver's side door with the transmitter (electrical key): 1.0 V or less → B+ → 1.0 V or less (terminal 7K) - Is the voltage as above?	Yes	- Inspect and repair the wiring harness between the BCM and the door lock actuator. - Inspect for door lock actuator. - Then go to the next step.
		No	Inspect the following and repair or replace the malfunctioning location. - Wiring harness between BCM and door lock actuator (short circuit) - If there is no malfunction with the door lock actuator harness (no short circuit in internal circuit) and the door lock actuator, replace the BCM. (See BODY CONTROL MODULE (BCM) REMOVAL/ INSTALLATION.) - Then go to the next step.

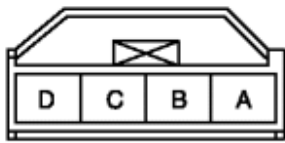
23	Does the keyless entry system operate properly?	Yes	Troubleshooting completed. Explain repairs to the customers.
		No	Re-inspect the malfunction symptoms, then repeat form Step 1 if malfunction recurs.

2012 - Mazda6 - Body and Accessories

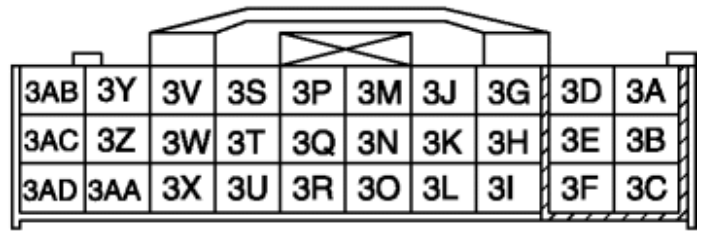
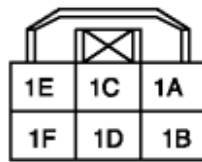
NO.1 DOOR CANNOT BE LOCKED/ UNLOCKED BY ADVANCED KEY [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM]

1	Door cannot be locked/ unlocked by transmitter (electrical key button)
DESCRIPTION	• Cannot door lock and/ or unlock with transmitter (electrical key button)
POSSIBLE CAUSE	• Malfunction in transmitter (electrical key button) battery or transmitter (electrical key button) • Malfunction in keyless control module • Malfunction in keyless receiver • Malfunction in BCM • Malfunction indoor switch or trunk lid switch • Open or short circuit in wiring between trunk lid latch switch and BCM • Open or short circuit in wiring harness door switch and BCM • Malfunction in door lock actuator • Open or short circuit in wiring between door lock actuator and BCM • Open or short circuit in wiring between keyless control module and BCM • Poor connection of connector, terminal damage • Wrong usage • The after-market electrical parts are interfering with the keyless entry system

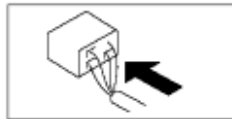
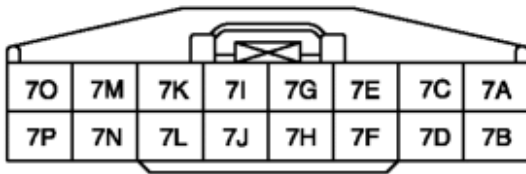
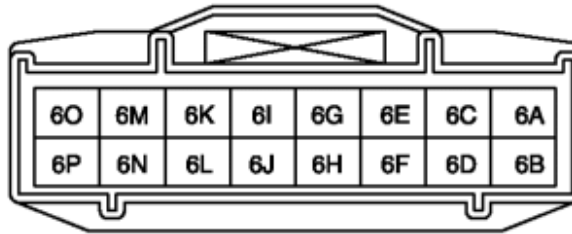
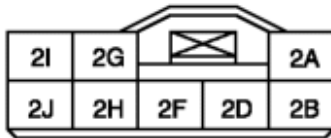
KEYLESS RECEIVER



KEYLESS CONTROL MODULE

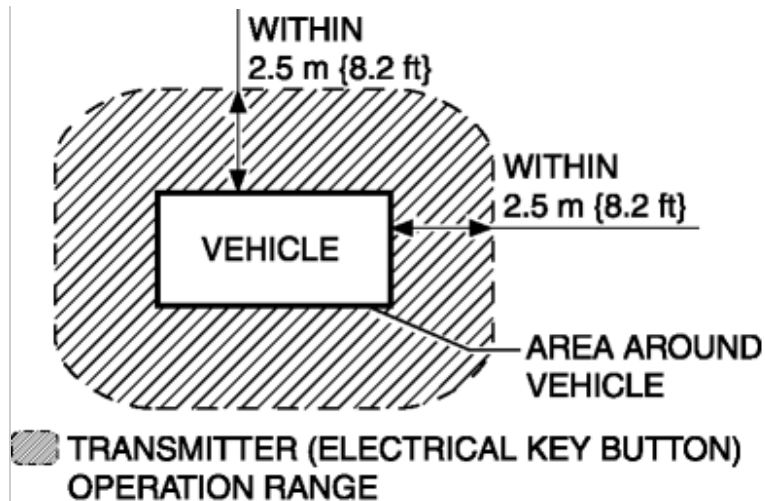


BCM



Diagnostic procedure

STEP	INSPECTION	ACTION
1	- Attempt to lock/unlock the door with the transmitter (electrical key button). - Does the operation indicator light (LED) illuminate?	Yes Go to the next step.
		No Go to Step 10.
2	Did the customer activate the transmitter (electrical key button) within operative area (Within 2.5 m { 8.2 ft } from area around vehicle)?	Yes Go to the next step.
		No The system is normal. Explain to the customer that the system does not work without the system operative area.



3	Did the customer use the keyless entry system in particular area, such as being near TV towers, power plants, power lines, or factories?	Yes The system is normal. Area of operation is subject. Explain effect of outside interference on the transmitter (electrical key) to the customer.	No Go to the next step.
4	- Did the customer activate the advanced keyless entry system with all following conditions satisfied? - All doors and trunk lid closed - Switch the ignition to off. (without ACC and IG ON position)	Yes Go to the next step.	No The system is normal. Explain to the customer that the system does not work without these conditions satisfied.
5	- Are any of the following after-market electrical parts on the vehicle? - Cellular phone - Parts with built-in microcomputer - Remote engine starter - TV - Other	Yes Go to the next step.	No Go to Step 7.
6	- Disconnect the after-market electrical parts connectors and attempt to lock/unlock the doors with the transmitter (electrical key). - Does the keyless entry system work only near the receiver?	Yes The system is normal. The after-market electrical parts are interfering with the keyless entry system.	No Go to the next step.

7	Is there repair record of the customer's keyless entry system?	Yes	Go to the next step.
		No	Go to Step 10.
8	Does the malfunction occur after the repair?	Yes	Go to the next step.
		No	Go to Step 10.
9	Is the malfunction corrected when the ID numbers for all the customer's transmitters are updated? (See ADVANCED KEY ID CODE REGISTRATION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)	Yes	System is normal. (Explain to the customer that the malfunction occurred because all the transmitter ID numbers were not updated even though the body control module or a transmitter was replaced in the previous servicing.)
		No	Go to the next step.
10	- Visually inspect the transmitter battery for the following: (See ADVANCED KEY BATTERY REPLACEMENT [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) - Battery insertion direction (correct polarity) - Battery type (CR2025) - Corrosion, soiling, deformation of battery terminals (plus/minus terminals) - Contact malfunction between the battery terminal and battery when battery is inserted - Is there any malfunction?	Yes	Battery insertion direction, battery type problem: - Properly install the battery or replace the battery with a specified one (CR2025), then go to the next step. Malfunction with the battery terminals: - Clean corrosion and soiling or repair the terminal, then go to the next step.
		No	Go to Step 12.
11	Does the keyless entry system operate properly?	Yes	Troubleshooting completed.
		No	Go to the next step.
12	NOTE: Use a new monitor battery (normal	Yes	Go to the next step.

	battery) or one from another vehicle which operates normally. - Replace the battery in all the transmitters with a monitor-use battery (normal battery). (See ADVANCED KEY BATTERY REPLACEMENT [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) - For each transmitter, verify that the transmitter operation indicator light (LED) illuminates when a button is operated. - Does operation indicator light (LED) for each transmitter operate?	No	If the operation indicator light (LED) does not illuminate, replace the transmitter, then go to the Step 23.
13	NOTE: - Inspect for all transmitters. - Inspect while the batteries for all of the transmitters are replaced with monitor-use batteries (normal battery). - Verify the operation of keyless entry system using all of the transmitters. - Does the keyless entry system operate properly?	Yes	Replace the transmitter battery, and then go to Step 23. (See ADVANCED KEY BATTERY REPLACEMENT [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)
		No	Go to the next step.
14	- Inspect for the keyless receiver installation. - Is the bracket securely installed on the keyless receiver?	Yes	Go to the next step.
		No	Install the bracket securely, and then go to the next step.
15	- Switch the ignition to off. - Measure the voltage at keyless receiver terminal D? - Is the voltage B+ ?	Yes	Go to the next step.
		No	- Inspect ROOM 15 A fuse. - Inspect and repair the wiring harness between the fuse block and the keyless receiver as necessary. - Then go to Step 23.
16	- Measure the voltage at keyless receiver terminal B? - Is the voltage below 1.0 ?	Yes	Go to the next step.
		No	Inspect and repair the wiring harness between the ground wire and the keyless receiver

			as necessary. • Re-tighten the ground wire as necessary. • Then go to Step 23.
17	• Disconnect the keyless receiver connector (4-pin) and keyless control module connector (12-pin). • Is there continuity between the following terminals? ▪ Keyless receiver connector terminal C —keyless control module connector terminal 2H	Yes	Go to the next step.
		No	Inspect and repair the wiring harness between the keyless control module and the keyless receiver, then go to the next step.
18	• Measure the signal wave pattern of keyless control module terminal 2H using an oscilloscope while the transmitter advanced key is operated with the auxiliary key removed from the ignition key cylinder. • Does the wave pattern change when the advanced key is operated? NOTE: • Perform the oscilloscope setting using 0.5 V/DIV (Y), 100 ms/DIV (X), DC range.	Yes	Go to the next step.
		No	Replace the keyless receiver, and then go to Step 22.
19	• Measure the voltage at the keyless control module terminals 1D, 1B and 1E. ▪ Terminal 1D: B+ ▪ Terminal 1B: B+ ▪ Terminal 1E: B+ • Is the voltage as above?	Yes	Go to the next step.
		No	• Inspect for fuse. • Inspect and repair the wiring harness between the keyless control module and the fuse block as necessary. • Then go to the Step 23.
20	• Measure the voltage at keyless control module terminal 1F, 3N, 4L? • Is the voltage below 1.0?	Yes	Go to the next step.
		No	• Inspect and repair the wiring harness between the ground wire and the keyless control module as necessary. • Re-tighten the ground wire as necessary.

			Then go to the Step 23.
21	- Monitor the following PIDs for the BCM using the M-MDS: - DRSW_D (driver-side door switch) - DRSW_P (passenger-side door switch) - DRSW_LR (left rear door switch) - DRSW_RR (right rear door switch) - TR/LG_SW (trunk switch) - Does each monitor value agree with the door open/close condition?	Yes	- Inspect for open or short circuit in wiring harness between keyless control module terminal 2F terminal and BCM terminal 6J. - If the wiring harness is not normal, repair or replace malfunctioning part. Then go to Step 23. - If the wiring harness is normal, go to the next step. - Then go to Step 23.
		No	- Inspect suspect door switch or trunk lid. - Inspect for open or short circuit in wiring harness between suspect switch and BCM. - Then go to Step 23.
22	- Measure the voltage at the BCM terminals 7K, 7I and 7M while operating the transmitter. - Lock all doors with the transmitter (electrical key): 1.0 V or less → B+ → 1.0 V or less (terminal 7I) - Unlock all doors with the transmitter (electrical key): 1.0 V or less → B+ → 1.0 V or less (terminal 7M) - Unlock driver's side door with the transmitter (electrical key): 1.0 V or less → B+ → 1.0 V or less (terminal 7K) - Is the voltage as above?	Yes	- Inspect and repair the wiring harness between the BCM and the door lock actuator. - Inspect for door lock actuator. - Then go to the next step.
		No	Inspect the following and repair or replace the malfunctioning location. - Wiring harness between BCM and door lock actuator (short circuit) - If there is no malfunction with the door lock actuator harness (no short circuit in internal circuit) and the door lock actuator, replace the BCM. (See BODY CONTROL MODULE (BCM) REMOVAL/ INSTALLATION.) - Then go to the next step.

23	Does the keyless entry system operate properly?	Yes	Troubleshooting completed. Explain repairs to the customers.
		No	Re-inspect the malfunction symptoms, then repeat form Step 1 if malfunction recurs.