

2008 Mazda CX-9 Grand Touring

2008 BODY & ACCESSORIES Security and Locks - Mazda CX-9

2008 BODY & ACCESSORIES

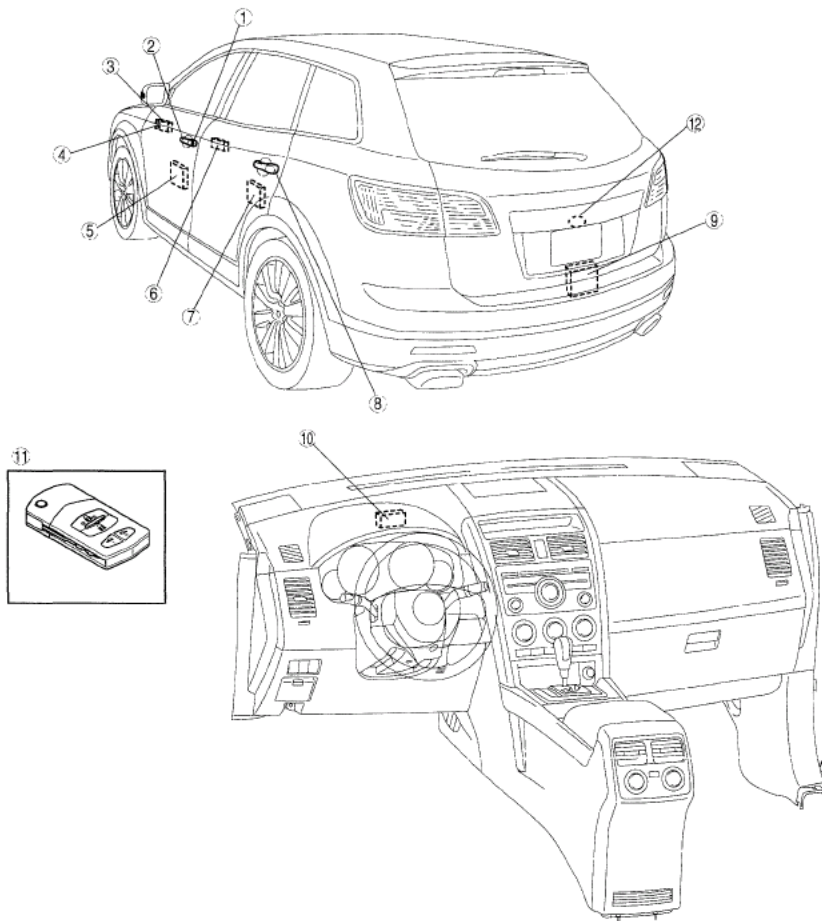
Security and Locks - Mazda CX-9

SECURITY & LOCKS LOCATION INDEX

KEYLESS ENTRY SYSTEM

2008 Mazda CX-9 Grand Touring

2008 BODY & ACCESSORIES Security and Locks - Mazda CX-9



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1	Front door key cylinder (See 09-14-10 FRONT DOOR KEY CYLINDER REMOVAL/INSTALLATION.) (See 09-14-11 FRONT DOOR KEY CYLINDER SWITCH INSPECTION.)
2	Front outer handle (See 09-14-7 FRONT OUTER HANDLE REMOVAL/INSTALLATION.)
3	Front inner handle (See 09-14-8 INNER HANDLE REMOVAL/INSTALLATION.)
4	Door lock switch (See 09-14-12 DOOR LOCK SWITCH REMOVAL/INSTALLATION.) (See 09-14-12 DOOR LOCK SWITCH INSPECTION.)
5	Front door latch and lock actuator (See 09-14-11 FRONT DOOR LATCH AND LOCK ACTUATOR REMOVAL/INSTALLATION.) (See 09-14-12 FRONT DOOR LATCH AND LOCK ACTUATOR INSPECTION.) (See 09-14-13 FRONT DOOR LOCK ACTUATOR INSPECTION.) (See 09-14-13 DOOR LOCK-LINK SWITCH INSPECTION.) (See 09-14-11 FRONT DOOR KEY CYLINDER SWITCH INSPECTION.)
6	Rear inner handle (See 09-14-8 INNER HANDLE REMOVAL/INSTALLATION.)

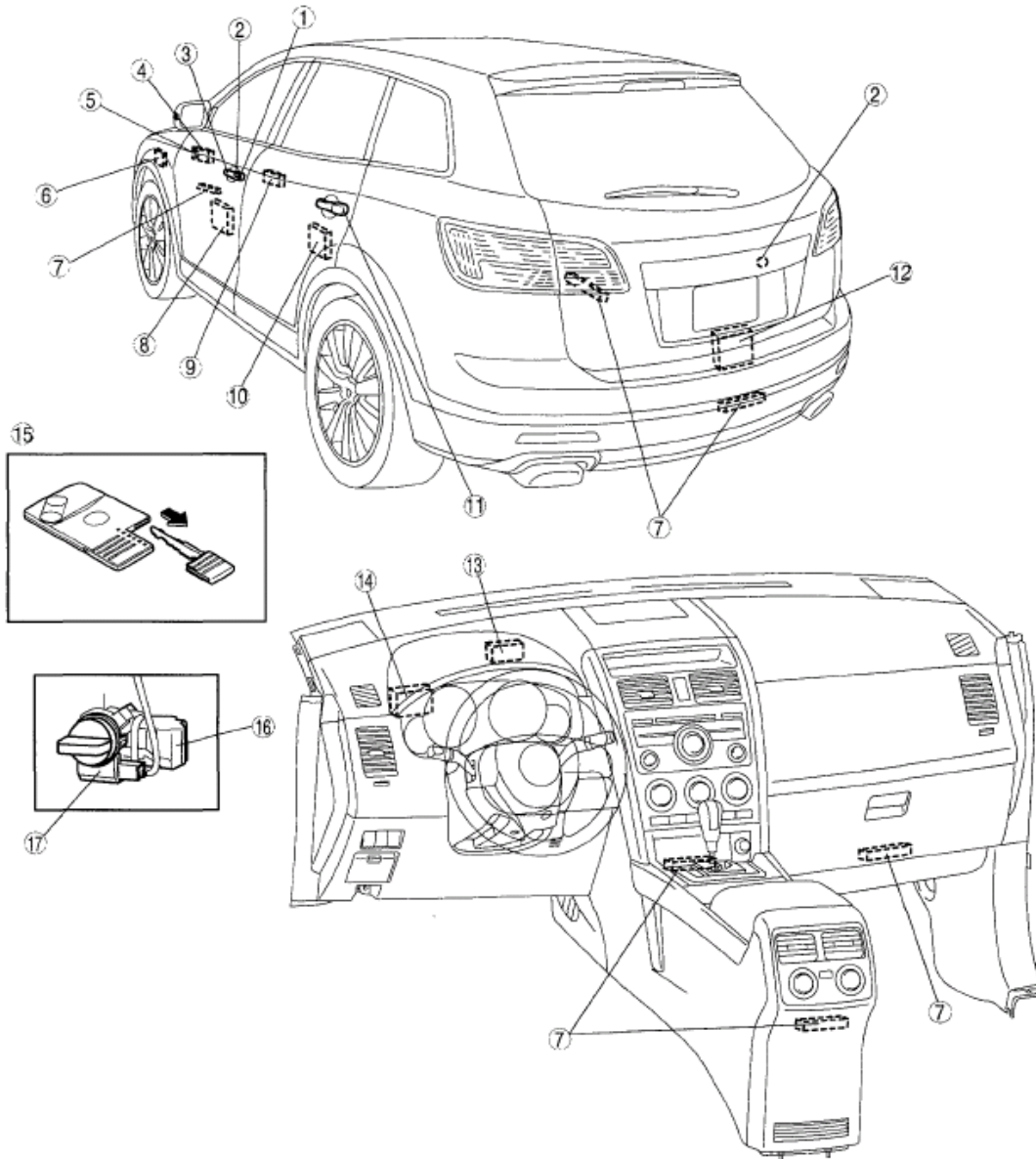
7	Rear door latch and lock actuator (See 09-14-14 REAR DOOR LATCH AND LOCK ACTUATOR REMOVAL/INSTALLATION.) (See 09-14-14 REAR DOOR LATCH AND LOCK ACTUATOR INSPECTION.) (See 09-14-15 REAR DOOR LOCK ACTUATOR INSPECTION.) (See 09-14-13 DOOR LOCK-LINK SWITCH INSPECTION.)
8	Rear outer handle (See 09-14-8 REAR OUTER HANDLE REMOVAL/INSTALLATION.)
9	Liftgate latch and lock actuator (See 09-14-15 LIFTGATE LATCH AND LOCK ACTUATOR REMOVAL/INSTALLATION.) (See 09-14-16 LIFTGATE LATCH AND LOCK ACTUATOR INSPECTION.)
10	Keyless receiver (See 09-14-30 KEYLESS RECEIVER REMOVAL/INSTALLATION.) (See 09-14-31 KEYLESS RECEIVER INSPECTION [KEYLESS ENTRY SYSTEM].)
11	Transmitter (See 09-14-25 TRANSMITTER BATTERY REPLACEMENT [KEYLESS ENTRY SYSTEM].) (See 09-14-26 TRANSMITTER ID CODE REGISTRATION [KEYLESS ENTRY SYSTEM].)
12	LIFTGATE OUTER HANDLE SWITCH (See 09-14-19 LIFTGATE OUTER HANDLE SWITCH INSPECTION.)

Fig. 1: Identifying Keyless Entry System Locks Location
Courtesy of MAZDA MOTORS CORP.

ADVANCED KEYLESS SYSTEM

2008 Mazda CX-9 Grand Touring

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Fig. 2: Identifying Advanced Keyless System Locks Location (1 Of 2)
Courtesy of MAZDA MOTORS CORP.

2008 Mazda CX-9 Grand Touring

2008 BODY & ACCESSORIES Security and Locks - Mazda CX-9

1	Front door key cylinder (See 09-14-10 FRONT DOOR KEY CYLINDER REMOVAL/INSTALLATION.) (See 09-14-11 FRONT DOOR KEY CYLINDER SWITCH INSPECTION.)	10	Rear door latch and lock actuator (See 09-14-14 REAR DOOR LATCH AND LOCK ACTUATOR REMOVAL/INSTALLATION.) (See 09-14-14 REAR DOOR LATCH AND LOCK ACTUATOR INSPECTION.) (See 09-14-15 REAR DOOR LOCK ACTUATOR INSPECTION.) (See 09-14-13 DOOR LOCK-LINK SWITCH INSPECTION.)
2	Request switch (See 09-14-34 REQUEST SWITCH REMOVAL/INSTALLATION [ADVANCED KEYLESS SYSTEM].) (See 09-14-34 REQUEST SWITCH INSPECTION [ADVANCED KEYLESS SYSTEM].)	11	Rear outer handle (See 09-14-8 REAR OUTER HANDLE REMOVAL/INSTALLATION.)
3	Front outer handle (See 09-14-7 FRONT OUTER HANDLE REMOVAL/INSTALLATION.)	12	Liftgate latch and lock actuator (See 09-14-15 LIFTGATE LATCH AND LOCK ACTUATOR REMOVAL/INSTALLATION.) (See 09-14-16 LIFTGATE LATCH AND LOCK ACTUATOR INSPECTION.)
4	Front inner handle (See 09-14-8 INNER HANDLE REMOVAL/INSTALLATION.)	13	Keyless control module (See 09-14-21 KEYLESS CONTROL MODULE REMOVAL/INSTALLATION [ADVANCED KEYLESS SYSTEM].) (See 09-14-22 KEYLESS CONTROL MODULE INSPECTION [ADVANCED KEYLESS SYSTEM].) (See 09-14-24 KEYLESS CONTROL MODULE CONFIGURATION [ADVANCED KEYLESS SYSTEM].) (See 09-14-29 CUSTOMIZED FUNCTION SETTING PROCEDURE [ADVANCED KEYLESS SYSTEM].)
5	Door lock switch (See 09-14-12 DOOR LOCK SWITCH REMOVAL/INSTALLATION.) (See 09-14-12 DOOR LOCK SWITCH INSPECTION.)	14	Keyless receiver (See 09-14-30 KEYLESS RECEIVER REMOVAL/INSTALLATION.) (See 09-14-30 KEYLESS RECEIVER INSPECTION [ADVANCED KEYLESS SYSTEM].)
6	Keyless beeper (See 09-14-33 KEYLESS BEEPER REMOVAL/INSTALLATION [ADVANCED KEYLESS SYSTEM].)	15	Card key (See 09-14-35 CARD KEY BATTERY REPLACEMENT [ADVANCED KEYLESS SYSTEM].) (See 09-14-27 CARD KEY ID CODE REGISTRATION [ADVANCED KEYLESS SYSTEM].) (See 09-14-28 CLEARING CARD KEY [ADVANCED KEYLESS SYSTEM].)
7	Keyless antenna (See 09-14-31 KEYLESS ANTENNA REMOVAL/INSTALLATION [ADVANCED KEYLESS SYSTEM].)	16	Steering lock unit (See 09-14-29 STEERING LOCK UNIT ID CODE REGISTRATION [ADVANCED KEYLESS SYSTEM].)
8	Front door latch and lock actuator (See 09-14-11 FRONT DOOR LATCH AND LOCK ACTUATOR REMOVAL/INSTALLATION.) (See 09-14-12 FRONT DOOR LATCH AND LOCK ACTUATOR INSPECTION.) (See 09-14-13 FRONT DOOR LOCK ACTUATOR INSPECTION.) (See 09-14-13 DOOR LOCK-LINK SWITCH INSPECTION.) (See 09-14-11 FRONT DOOR KEY CYLINDER SWITCH INSPECTION.)	17	Coil antenna (See 09-14-36 COIL ANTENNA REMOVAL/INSTALLATION [ADVANCED KEYLESS SYSTEM].)
9	Rear inner handle (See 09-14-8 INNER HANDLE REMOVAL/INSTALLATION.)		

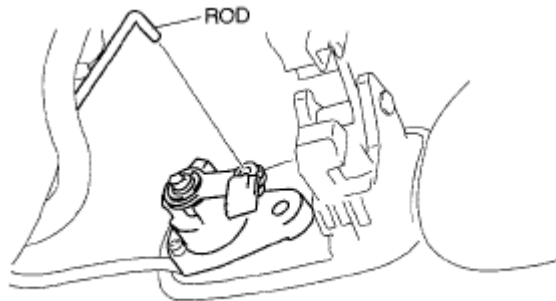
Fig. 3: Identifying Advanced Keyless System Locks Location (2 Of 2)

Courtesy of MAZDA MOTORS CORP.

FRONT OUTER HANDLE REMOVAL/INSTALLATION

1. Disconnect the negative battery cable.
2. Remove the following parts:
 1. Inner garnish (See [INNER GARNISH REMOVAL/INSTALLATION](#) .)
 2. Front door trim (See [FRONT DOOR TRIM REMOVAL/INSTALLATION](#) .)
 3. Front door speaker (See [FRONT DOOR SPEAKER REMOVAL/INSTALLATION](#) .)
 4. Front door glass (See [FRONT DOOR GLASS REMOVAL/INSTALLATION](#) .)
 5. Front door module (See [FRONT DOOR MODULE REMOVAL/INSTALLATION](#) .)

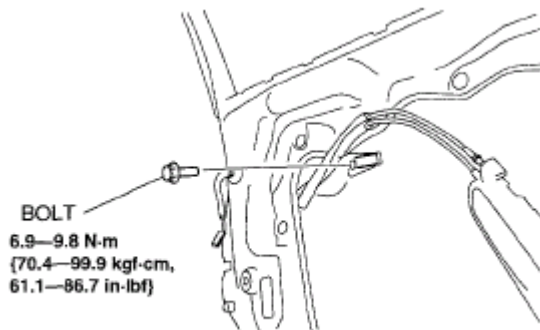
3. Disconnect the rod.



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Fig. 4: Identifying Rod
Courtesy of MAZDA MOTORS CORP.

4. Remove the bolt.
5. Remove the front door key cylinder. (Driver side) (See **FRONT DOOR KEY CYLINDER REMOVAL/INSTALLATION.**)



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Fig. 5: Identifying Front Door Key Cylinder Bolt & Torque Specifications
Courtesy of MAZDA MOTORS CORP.

6. Secure the rear part of the front outer handle and, with the front outer handle lever pulled outward (1), remove the rear part of the front outer handle from the front door.
7. Pull out the front side of the front outer handle from the front door.
8. Install in the reverse order of removal.

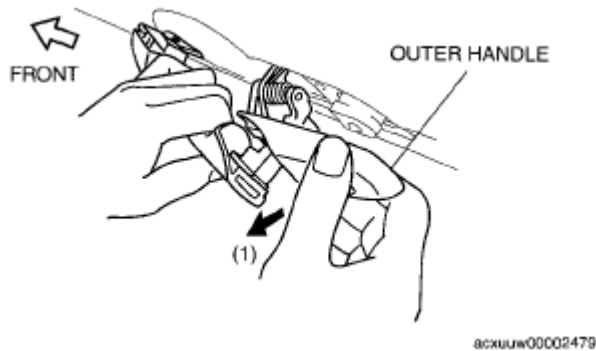


Fig. 6: Pulling Out Front Side Of Front Outer Handle
Courtesy of MAZDA MOTORS CORP.

REAR OUTER HANDLE REMOVAL/INSTALLATION

1. Disconnect the negative battery cable.
2. Remove the following parts:
 1. Inner sail garnish (See **INNER SAIL GARNISH REMOVAL/INSTALLATION** .)
 2. Rear door trim (See **REAR DOOR TRIM REMOVAL/INSTALLATION** .)
 3. Rear door speaker (See **REAR DOOR SPEAKER REMOVAL/INSTALLATION** .)
 4. Rear door glass (See **REAR DOOR GLASS REMOVAL/INSTALLATION** .)
 5. Rear door module (See **REAR DOOR MODULE REMOVAL/INSTALLATION** .)
3. Remove the service hole cover.
4. Remove the fastener.
5. Remove the shock-absorbing pad.
6. Disconnect the rod.
7. Remove the nuts.
8. Remove the handle base.
9. Remove the bolts.

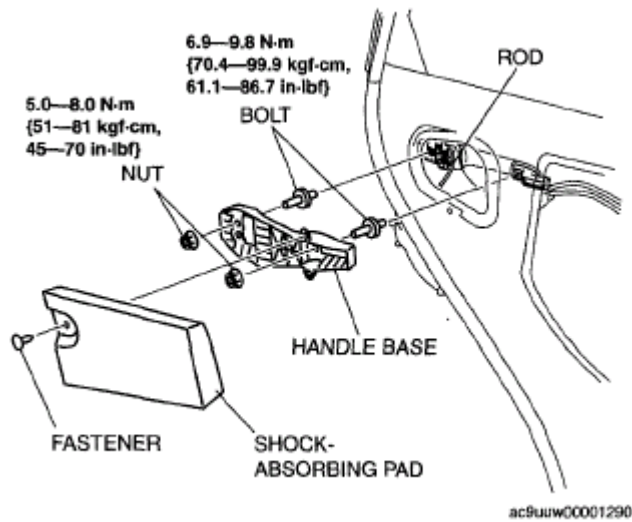


Fig. 7: Identifying Shock-Absorbing Pad, Handle Base, Rod & Torque Specifications
Courtesy of MAZDA MOTORS CORP.

10. Secure the rear part of the rear outer handle and, with the rear outer handle lever pulled outward (1), remove the rear part of the rear outer handle from the rear door.
11. Install in the reverse order of removal.

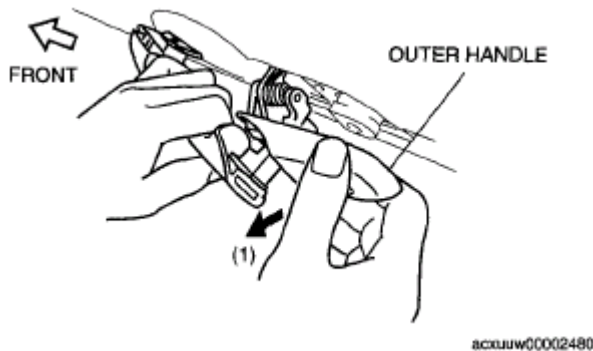


Fig. 8: Removing Rear Part Of Rear Outer Handle
Courtesy of MAZDA MOTORS CORP.

INNER HANDLE REMOVAL/INSTALLATION

FRONT

1. Disconnect the negative battery cable.
2. Remove the inner garnish. (See **INNER GARNISH REMOVAL/INSTALLATION** .)
3. Remove the front door trim. (See **FRONT DOOR TRIM REMOVAL/INSTALLATION** .)
4. Disconnect the door lock switch connector.
5. Detach the cables from the inner handle and door lock knob.

6. Install in the reverse order of removal.

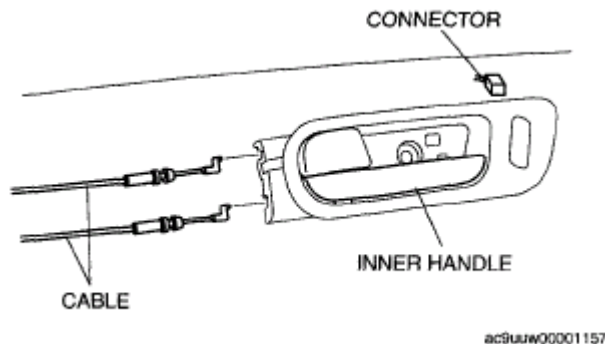


Fig. 9: Identifying Inner Handle & Door Lock Knob
Courtesy of MAZDA MOTORS CORP.

REAR

1. Disconnect the negative battery cable.
2. Remove the inner sail garnish. (See **INNER SAIL GARNISH REMOVAL/INSTALLATION** .)
3. Remove the rear door trim. (See **REAR DOOR TRIM REMOVAL/INSTALLATION** .)
4. Detach the cables from the inner handle and door lock knob.
5. Install in the reverse order of removal.

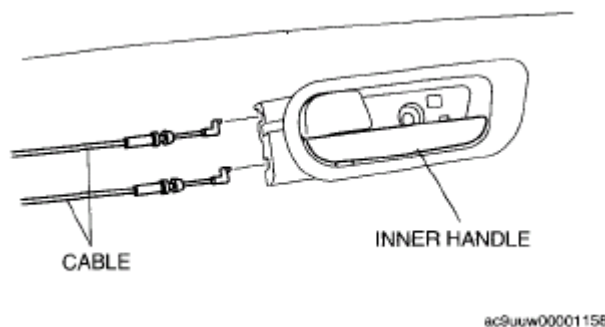


Fig. 10: Identifying Inner Handle & Door Lock Knob
Courtesy of MAZDA MOTORS CORP.

HOOD LATCH & RELEASE LEVER REMOVAL/INSTALLATION

1. Disconnect the negative battery cable.
2. Remove the following parts:
 1. Air cleaner (See **INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [MZI-3.7]** .)
 2. Splash shield (LH) (See **SPLASH SHIELD REMOVAL/INSTALLATION** .)
 3. Dashboard under cover (Driver side) (See **DASHBOARD UNDER COVER REMOVAL/INSTALLATION** .)

3. Remove in the order indicated in the table.
4. Install in the reverse order of removal.
5. Adjust the hood. (See **HOOD ADJUSTMENT** .)

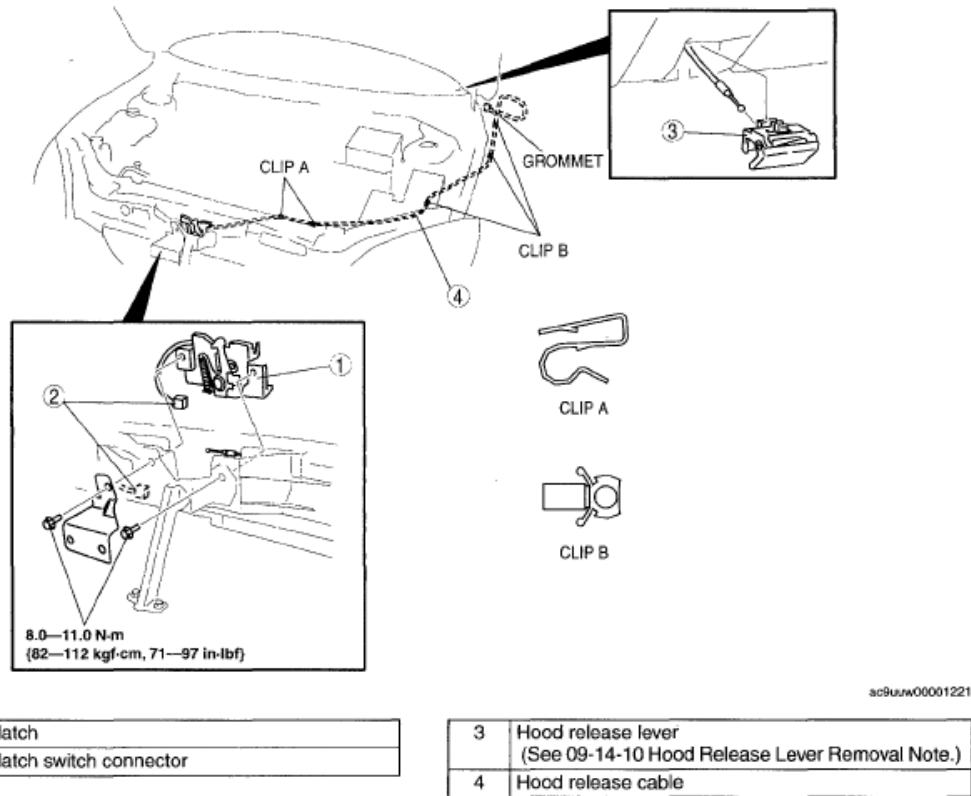


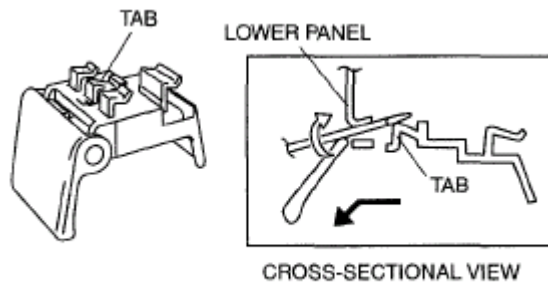
Fig. 11: Identifying Hood Latch, Release Lever Components & Torque Specifications
 Courtesy of MAZDA MOTORS CORP.

HOOD RELEASE LEVER REMOVAL NOTE

1. Pull the lever.
2. Insert a tape-wrapped flathead screwdriver into the position shown in the figure.

CAUTION: • Be careful not to damage the hood release cable when removing the hood release lever with the flathead screwdriver.

3. Pull the hood release lever outward and remove it.

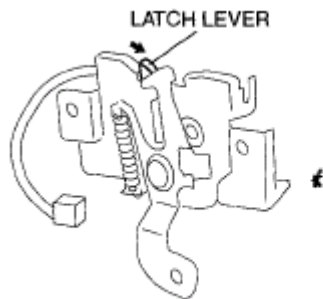


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Fig. 12: Identifying Hood Release Lever
Courtesy of MAZDA MOTORS CORP.

HOOD LATCH SWITCH INSPECTION

1. When inspecting the latch, press the latch lever using a flathead screwdriver or a similar tool.



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Fig. 13: Identifying Hood Latch Switch, Latch Lever
Courtesy of MAZDA MOTORS CORP.

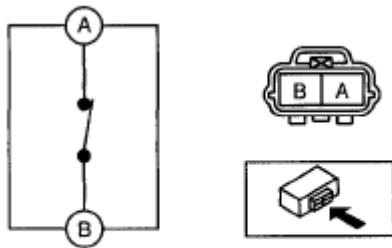
2. Inspect for continuity between the hood latch switch terminals.
 - If not as specified, replace the hood latch.

○—○ : Continuity

Latch condition	Terminal	
	A	B
Latch (hood is closed)	○—○	○—○
Unlatch (hood is open)	○	○

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Fig. 14: Terminals Continuity Chart
Courtesy of MAZDA MOTORS CORP.



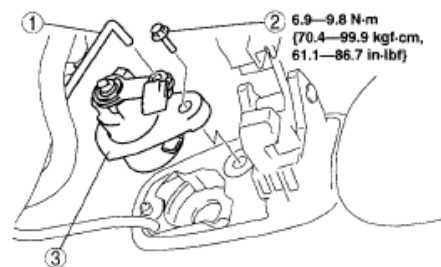
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Fig. 15: Checking Continuity Between Hood Latch Switch Terminals
 Courtesy of MAZDA MOTORS CORP.

FRONT DOOR KEY CYLINDER REMOVAL/INSTALLATION

1. Disconnect the negative battery cable.
2. Remove the following parts:
 1. Inner garnish (See **INNER GARNISH REMOVAL/INSTALLATION** .)
 2. Front door trim (See **FRONT DOOR TRIM REMOVAL/INSTALLATION** .)
 3. Front door speaker (See **FRONT DOOR SPEAKER REMOVAL/INSTALLATION** .)
 4. Front door glass (See **FRONT DOOR GLASS REMOVAL/INSTALLATION** .)
 5. Front door module (See **FRONT DOOR MODULE REMOVAL/INSTALLATION** .)
3. Remove in the order indicated in the table.

1	Rod
2	Bolt
3	Front door key cylinder (See 09-14-11 Front Door Key Cylinder Removal Note.)



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Fig. 16: Identifying Front Door Key Cylinder Bolt, Rod & Torque Specifications
 Courtesy of MAZDA MOTORS CORP.

4. Install in the reverse order of removal.

FRONT DOOR KEY CYLINDER REMOVAL NOTE

1. Remove the front door key cylinder by turning it in the direction shown by the arrow.

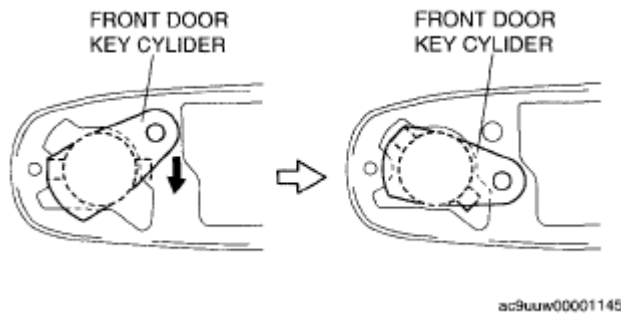


Fig. 17: Identifying Front Door Key Cylinder
Courtesy of MAZDA MOTORS CORP.

FRONT DOOR KEY CYLINDER SWITCH INSPECTION

1. Inspect for continuity between the front door key cylinder switch terminals.
 - If not as specified, replace the front door latch and lock actuator.

○—○: Continuity

Key cylinder position	Terminal	
	2A	2B
Unlock	○—○	○—○
Lock	○—R—○	

R: 1 kohm
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Fig. 18: Terminals Continuity Chart
Courtesy of MAZDA MOTORS CORP.

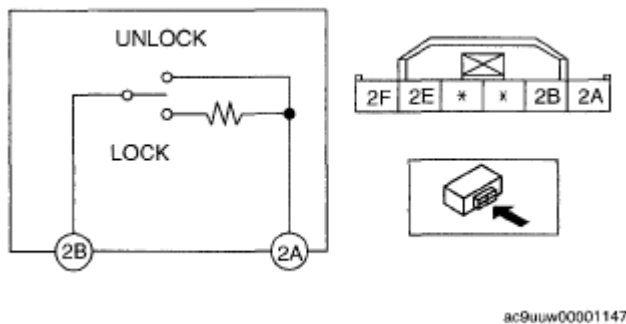


Fig. 19: Checking Continuity Between Front Door Key Cylinder Switch Terminals
Courtesy of MAZDA MOTORS CORP.

FRONT DOOR LATCH AND LOCK ACTUATOR REMOVAL/INSTALLATION

1. Disconnect the negative battery cable.
2. Remove the following parts:

1. Inner garnish (See **INNER GARNISH REMOVAL/INSTALLATION** .)
 2. Front door trim (See **FRONT DOOR TRIM REMOVAL/INSTALLATION** .)
 3. Front door speaker (See **FRONT DOOR SPEAKER REMOVAL/INSTALLATION** .)
 4. Front door glass (See **FRONT DOOR GLASS REMOVAL/INSTALLATION** .)
 5. Front door module (See **FRONT DOOR MODULE REMOVAL/INSTALLATION** .)
3. Remove in the order indicated in the table.

1	Connector
2	Screw A
3	Screw B
4	Front door latch and lock actuator

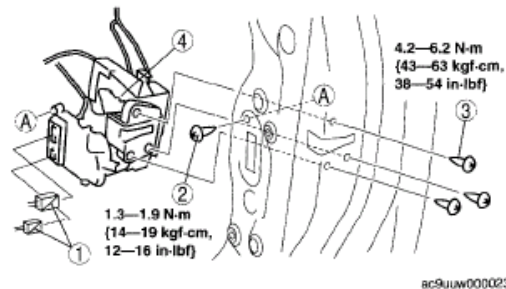
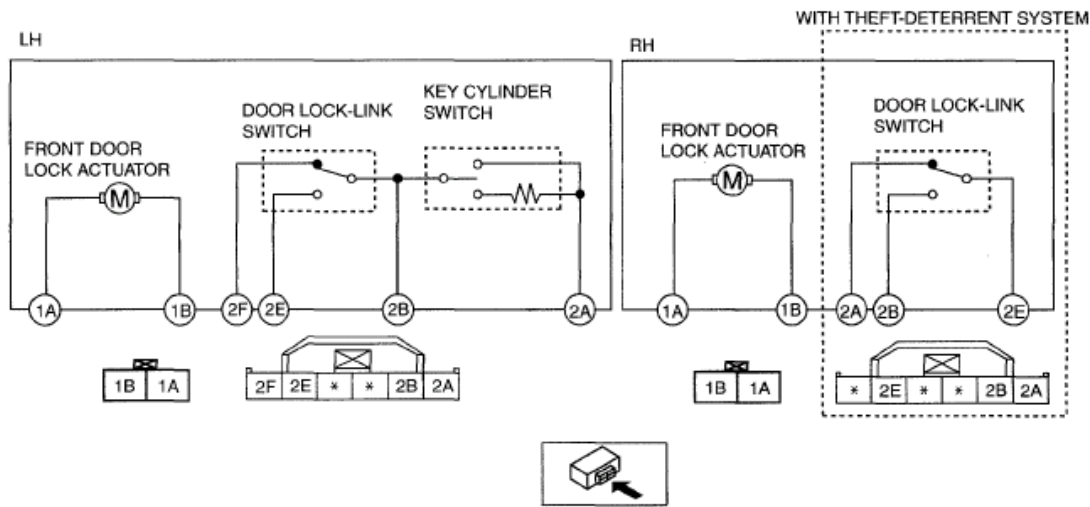


Fig. 20: Identifying Front Door Latch & Lock Actuator, Connector, Screws & Torque Specifications
 Courtesy of MAZDA MOTORS CORP.

4. Install in the reverse order of removal.

FRONT DOOR LATCH AND LOCK ACTUATOR INSPECTION

1. The following actuators and switches are integrated with the front door latch and lock actuator. Inspect the front door latch and lock actuator according to each inspection procedure for the following items.
 - Front door lock actuator (See **FRONT DOOR LOCK ACTUATOR INSPECTION**.)
 - Front door key cylinder switch (Driver side) (See **FRONT DOOR KEY CYLINDER SWITCH INSPECTION**.)
 - Door lock-link switch (See **DOOR LOCK-LINK SWITCH INSPECTION**.)

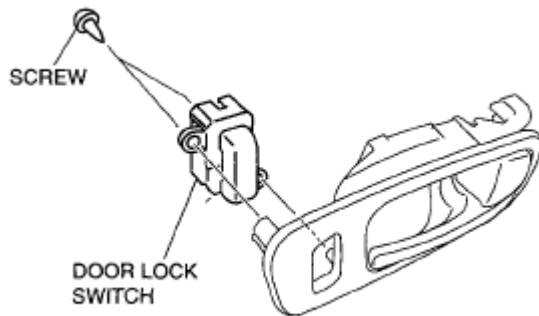


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Fig. 21: Checking Front Door Latch & Lock Actuator
 Courtesy of MAZDA MOTORS CORP.

DOOR LOCK SWITCH REMOVAL/INSTALLATION

1. Disconnect the negative battery cable.
2. Remove the inner garnish. (See **INNER GARNISH REMOVAL/INSTALLATION** .)
3. Remove the front door trim. (See **FRONT DOOR TRIM REMOVAL/INSTALLATION** .)
4. Remove the screws, then remove the door lock switch.
5. Install in the reverse order of removal.



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Fig. 22: Identifying Door Lock Switch & Screws
 Courtesy of MAZDA MOTORS CORP.

DOOR LOCK SWITCH INSPECTION

1. Inspect for continuity between the door lock switch terminals using an ohmmeter.
 - If not as specified, replace the door lock switch.

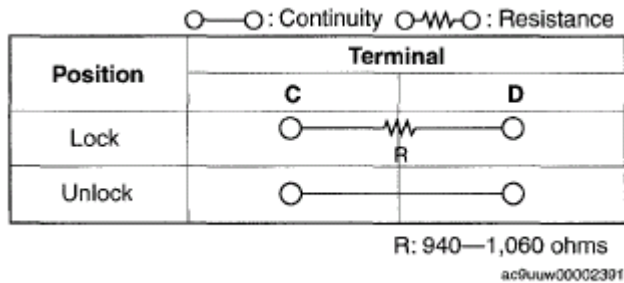


Fig. 23: Terminals Continuity Chart
Courtesy of MAZDA MOTORS CORP.

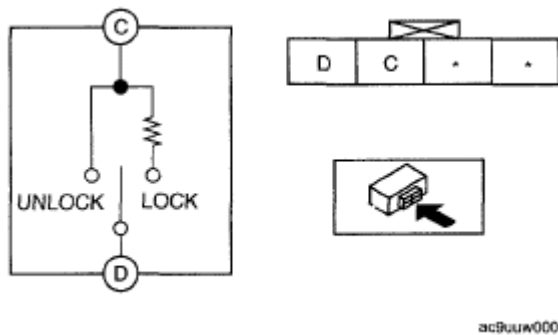


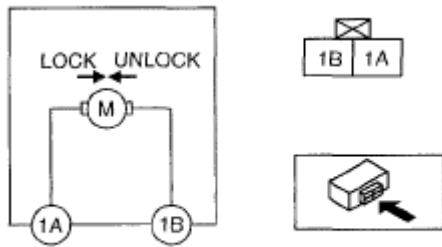
Fig. 24: Checking Continuity Between Door Lock Switch Terminals
Courtesy of MAZDA MOTORS CORP.

FRONT DOOR LOCK ACTUATOR INSPECTION

1. Apply battery positive voltage and connect ground to the corresponding front door lock actuator terminals, and inspect the front door lock actuator operation.
 - If not as specified, replace the front door latch and lock actuator.

FRONT DOOR LOCK ACTUATOR REFERENCE

Lock actuator operation	Connection	
	B+	GND
Lock	1A	1B
Unlock	1B	1A

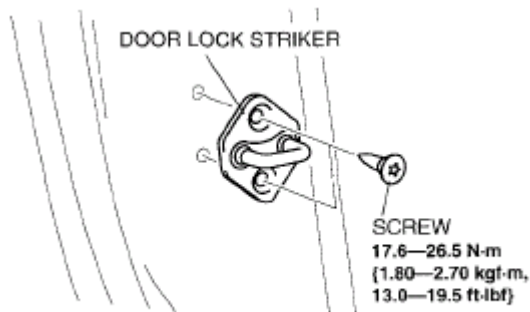


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Fig. 25: Identifying Front Door Lock Actuator Connector Terminals
 Courtesy of MAZDA MOTORS CORP.

DOOR LOCK STRIKER REMOVAL/INSTALLATION

1. Remove the screws, then remove the door lock striker.
2. Install in the reverse order of removal.
3. Adjust the door. (See **DOOR ADJUSTMENT** .)



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Fig. 26: Identifying Door Lock Striker With Screw & Torque Specifications
 Courtesy of MAZDA MOTORS CORP.

DOOR LOCK-LINK SWITCH INSPECTION

FRONT/REAR

1. Inspect for continuity between the door lock-link switch terminals.
 - If not as specified, replace the front door latch and lock actuator.

○—○ : Continuity

Lock knob position	Terminal		
	LH: 2F RH: 2A	LH: 2B RH: 2E	LH: 2E RH: 2B
Lock		○—○	○
Unlock	○—○		

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Fig. 27: Terminals Continuity Chart
Courtesy of MAZDA MOTORS CORP.

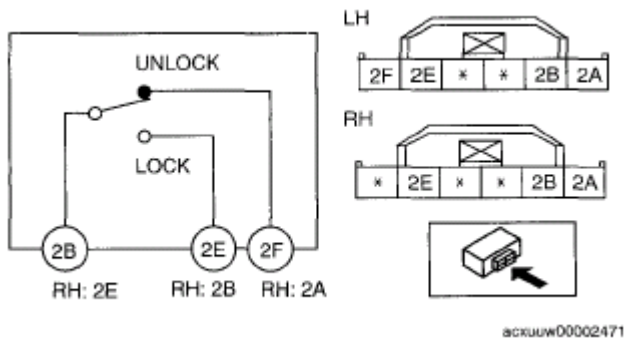


Fig. 28: Checking Continuity Between Door Lock-Link Switch Terminals
Courtesy of MAZDA MOTORS CORP.

REAR DOOR LATCH & LOCK ACTUATOR REMOVAL/INSTALLATION

1. Disconnect the negative battery cable.
2. Remove the following parts:
 1. Inner sail garnish. (See [INNER SAIL GARNISH REMOVAL/INSTALLATION](#) .)
 2. Rear door trim (See [REAR DOOR TRIM REMOVAL/INSTALLATION](#) .)
 3. Rear door speaker (See [REAR DOOR SPEAKER REMOVAL/INSTALLATION](#) .)
 4. Rear door glass (See [REAR DOOR GLASS REMOVAL/INSTALLATION](#) .)
 5. Rear door module (See [REAR DOOR MODULE REMOVAL/INSTALLATION](#) .)
3. Remove in the order indicated in the table.

1	Connector
2	Screw A
3	Screw B
4	Front door latch and lock actuator

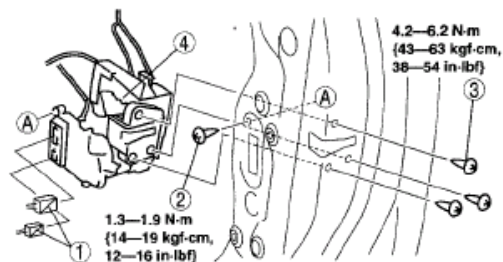
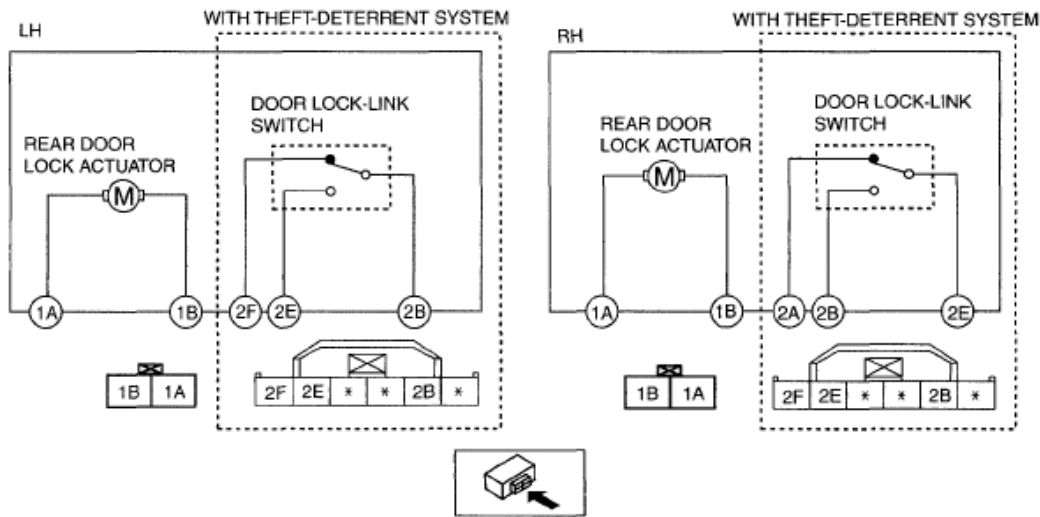


Fig. 29: Identifying Rear Door Latch & Lock Actuator, Connector, Screws & Torque Specifications
Courtesy of MAZDA MOTORS CORP.

4. Install in the reverse order of removal.

REAR DOOR LATCH AND LOCK ACTUATOR INSPECTION

- The following actuator and switch are integrated with the rear door latch and lock actuator. Inspect the rear door latch and lock actuator according to each inspection procedure for the following items.
 - Rear door lock actuator (See **REAR DOOR LOCK ACTUATOR INSPECTION**.)
 - Rear door latch switch (See **DOOR LOCK-LINK SWITCH INSPECTION**.)



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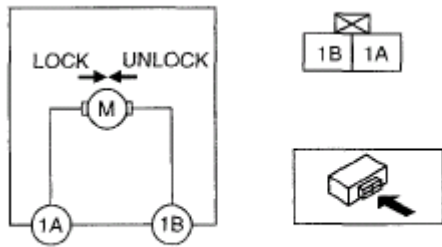
Fig. 30: Checking Rear Door Latch & Lock Actuator
 Courtesy of MAZDA MOTORS CORP.

REAR DOOR LOCK ACTUATOR INSPECTION

- Apply battery positive voltage and connect ground to the corresponding front door lock actuator terminals, and inspect the front door lock actuator operation.
 - If not as specified, replace the front door latch and lock actuator.

REAR DOOR LOCK ACTUATOR REFERENCE

Lock actuator operation	Connection	
	B+	GND
Lock	1A	1B
Unlock	1B	1A



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Fig. 31: Identifying Rear Door Lock Actuator Connector Terminals
 Courtesy of MAZDA MOTORS CORP.

LIFTGATE LATCH AND LOCK ACTUATOR REMOVAL/INSTALLATION

1. Disconnect the negative battery cable.
2. Remove the liftgate upper trim. (See LIFTGATE UPPER TRIM REMOVAL/INSTALLATION .)
3. Remove the liftgate side trim. (See LIFTGATE SIDE TRIM REMOVAL/INSTALLATION .)
4. Remove the liftgate lower trim. (See LIFTGATE LOWER TRIM REMOVAL/INSTALLATION .)
5. Remove in the order indicated in the table.

1	Bolt
2	Connector
3	Liftgate latch and lock actuator

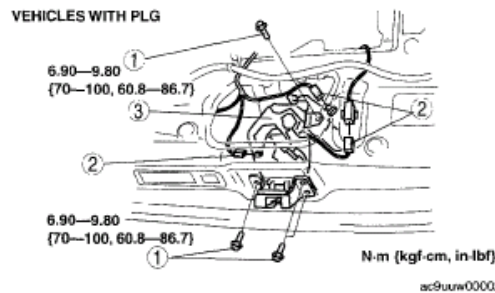


Fig. 32: Identifying Liftgate Latch & Lock Actuator, Connector, Bolt & Torque Specifications
 Courtesy of MAZDA MOTORS CORP.

1	Bolt
2	Connector
3	Cable
4	Liftgate latch and lock actuator

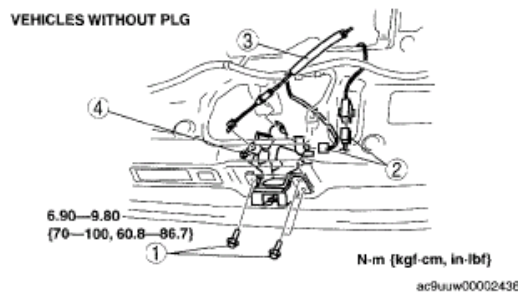
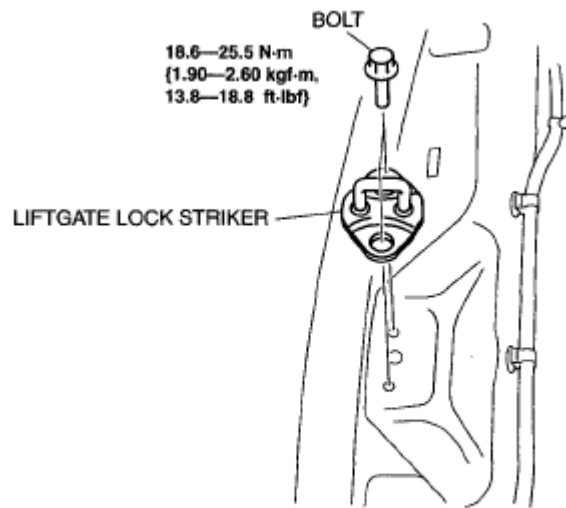


Fig. 33: Identifying Liftgate Latch & Lock Actuator, Connector, Bolt & Torque Specifications
 Courtesy of MAZDA MOTORS CORP.

6. Install in the reverse order of removal.

LIFTGATE LOCK STRIKER REMOVAL/INSTALLATION

1. Remove the trunk box. (See TRUNK BOX REMOVAL/INSTALLATION .)
2. Remove the seat side box. (See SEAT SIDE BOX REMOVAL/INSTALLATION .)
3. Remove the trunk end trim. (See TRUNK END TRIM REMOVAL/INSTALLATION .)
4. Remove the bolts, then remove the liftgate lock striker.
5. Install in the reverse order of removal.
6. Adjust the liftgate. (See LIFTGATE ADJUSTMENT .)



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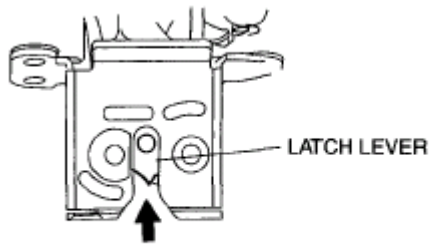
Fig. 34: Identifying Liftgate Lock Striker, Bolt & Torque Specifications
Courtesy of MAZDA MOTORS CORP.

LIFTGATE LATCH & LOCK ACTUATOR INSPECTION

VEHICLES WITH PLG

Liftgate latch switch

1. When inspecting the latch, press the latch lever using a flathead screwdriver or a similar tool.



am8mw00000485

Fig. 35: Pressing Latch Lever
Courtesy of MAZDA MOTORS CORP.

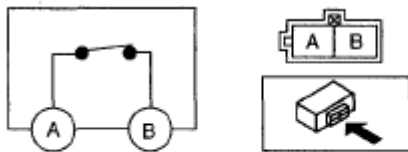
2. Verify that the continuity is as indicated in the table.
 - If not as indicated in the table, replace the liftgate latch and lock actuator.

○—○ : Continuity

Latch condition	Terminal	
	A	B
Latch (liftgate is closed)		
Unlatch (liftgate is open)	○—○	

ac9uuw00002402

Fig. 36: Terminals Continuity Chart
Courtesy of MAZDA MOTORS CORP.

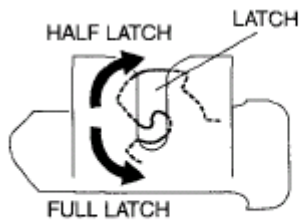


ac9uuw00002401

Fig. 37: Checking Continuity Between Liftgate Latch & Lock Actuator Terminals
Courtesy of MAZDA MOTORS CORP.

Full latch switch, Half latch switch, Return switch

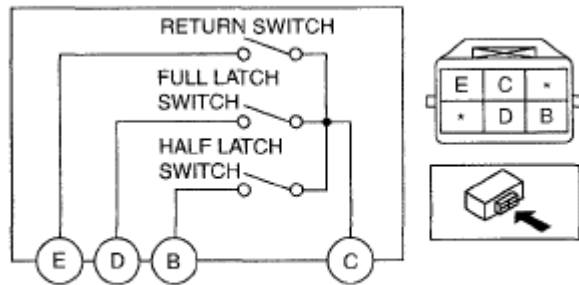
1. Press the latch in using a flathead screwdriver to inspect the latch condition.



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Fig. 38: Identifying Full Latch Switch, Half Latch Switch, Return Switch
 Courtesy of MAZDA MOTORS CORP.

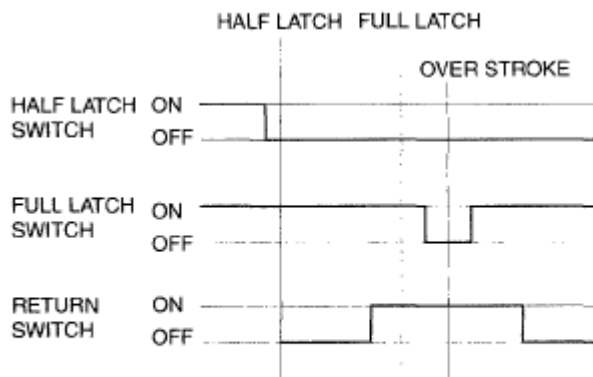
2. Verify that the continuity is as indicated in the table.



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Fig. 39: Checking Continuity Between Full Latch Switch, Half Latch Switch, Return Switch
 Terminals
 Courtesy of MAZDA MOTORS CORP.

- If not as indicated in the table, replace the liftgate latch and lock actuator.

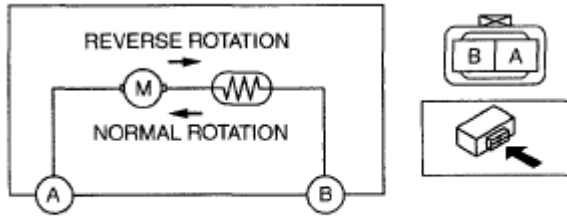


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Fig. 40: Identifying Blinking Pattern
 Courtesy of MAZDA MOTORS CORP.

Closer motor

1. Apply battery positive voltage and connect ground to the corresponding closer motor terminals, and inspect the closer motor operation.



ac9uuw00002403

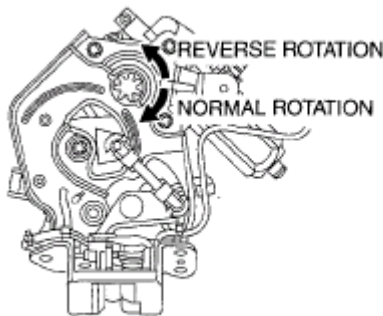
Fig. 41: Applying Battery Positive Voltage & Connect Ground To Corresponding Closer Motor Terminals

Courtesy of MAZDA MOTORS CORP.

- If not as indicated in the table, replace the liftgate latch and lock actuator.

LIFTGATE LATCH AND LOCK ACTUATOR REFERENCE

Operation	Terminal	
	A	B
Normal rotation	GND	B+
Reverse rotation	B+	GND



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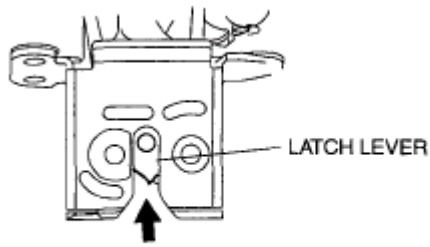
Fig. 42: Identifying Closer Motor Reverse & Normal Rotation

Courtesy of MAZDA MOTORS CORP.

VEHICLES WITHOUT PLG

Liftgate latch switch

1. When inspecting the latch, press the latch lever using a flathead screwdriver or a similar tool.



am8rw00000485

Fig. 43: Pressing Latch Lever
Courtesy of MAZDA MOTORS CORP.

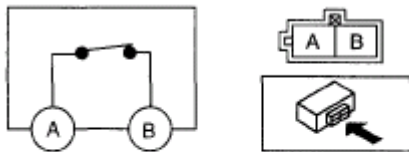
2. Verify that the continuity is as indicated in the table.
 - If not as indicated in the table, replace the liftgate latch and lock actuator.

○—○ : Continuity

Latch condition	Terminal	
	A	B
Latch (liftgate is closed)		
Unlatch (liftgate is open)	○—○	

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Fig. 44: Terminals Continuity Chart
Courtesy of MAZDA MOTORS CORP.



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Fig. 45: Checking Continuity Between Liftgate Latch Switch Terminals
Courtesy of MAZDA MOTORS CORP.

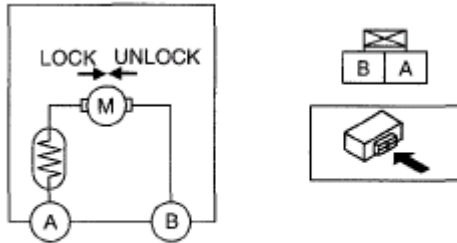
Liftgate lock actuator

1. Apply battery positive voltage and connect ground to the corresponding liftgate lock actuator terminals, and inspect the liftgate lock actuator operation.
 - If not as specified, replace the liftgate latch and lock actuator.

LIFTGATE LATCH AND LOCK ACTUATOR REFERENCE

Operation	Terminal	
	A	B

Lock	B+	GND
Unlock	GND	B+



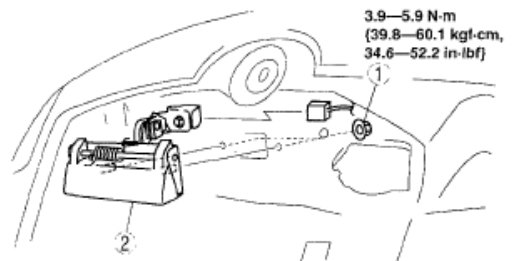
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Fig. 46: Identifying Liftgate Lock Actuator Terminals
 Courtesy of MAZDA MOTORS CORP.

LIFTGATE OUTER HANDLE REMOVAL/INSTALLATION

1. Disconnect the negative battery cable.
2. Remove the liftgate upper trim. (See **LIFTGATE UPPER TRIM REMOVAL/INSTALLATION** .)
3. Remove the liftgate side trim. (See **LIFTGATE SIDE TRIM REMOVAL/INSTALLATION** .)
4. Remove the liftgate lower trim. (See **LIFTGATE LOWER TRIM REMOVAL/INSTALLATION** .)
5. Remove the rear finisher. (See **REAR FINISHER REMOVAL/INSTALLATION** .)
6. Disconnect the liftgate outer handle switch connector. (Vehicles with power liftgate system)
7. Disconnect the cable. (Vehicles without power liftgate system)
8. Remove in the order indicated in the table.

1	Nut
2	Liftgate outer handle



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Fig. 47: Identifying Liftgate Outer Handle With Nut & Torque Specifications
 Courtesy of MAZDA MOTORS CORP.

9. Install in the reverse order of removal.

LIFTGATE OUTER HANDLE SWITCH INSPECTION

1. Verify that the continuity between the liftgate outer handle switch terminals is as indicated in the table.

- If not as indicated in the table, replace the liftgate outer handle. (See **LIFTGATE OUTER HANDLE REMOVAL/INSTALLATION.**)

○—○: Continuity

Switch position	Terminal	
	A	B
THE LIFTGATE OUTER HANDLE IS PULLED	○—○	
EXCEPT ABOVE		

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Fig. 48: Terminals Continuity Chart
Courtesy of MAZDA MOTORS CORP.

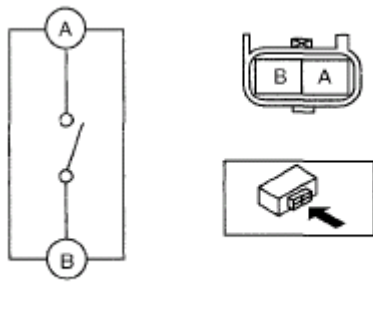


Fig. 49: Checking Continuity Between Liftgate Outer Handle Switch Terminals
Courtesy of MAZDA MOTORS CORP.

FUEL-FILLER LID OPENER REMOVAL/INSTALLATION

1. When removing the fuel-filler lid opener, perform the following procedure:
 1. Trunk box. (See **TRUNK BOX REMOVAL/INSTALLATION .**)
 2. Seat side box. (See **SEAT SIDE BOX REMOVAL/INSTALLATION .**)
 3. Trunk end trim. (See **TRUNK END TRIM REMOVAL/INSTALLATION .**)
 4. Third-row seat. (See **THIRD-ROW SEAT REMOVAL/INSTALLATION .**)
 5. Rear scuff plate inner. (LH) (See **REAR SCUFF PLATE REMOVAL/INSTALLATION .**)
 6. Third-row seat belt lower anchor installation bolt. (Driver side) (See **THIRD-ROW SEAT BELT REMOVAL/INSTALLATION .**)
 7. Trunk side trim. (Driver side) (See **TRUNK SIDE TRIM REMOVAL/INSTALLATION .**)
2. When removing the fuel-filler lid opener cable, perform the following procedure:
 1. Front scuff plate inner (LH) (See **FRONT SCUFF PLATE REMOVAL/INSTALLATION .**)
 2. Rear scuff plate inner (LH) (See **REAR SCUFF PLATE REMOVAL/INSTALLATION .**)
 3. Front seat belt lower anchor installation bolt (Driver side) (See **FRONT SEAT BELT REMOVAL/INSTALLATION .**)

4. B-pillar lower trim (LH) (See **B-PILLAR LOWER TRIM REMOVAL/INSTALLATION** .)
 5. Trunk box. (See **TRUNK BOX REMOVAL/INSTALLATION** .)
 6. Seat side box. (See **SEAT SIDE BOX REMOVAL/INSTALLATION** .)
 7. Trunk end trim. (See **TRUNK END TRIM REMOVAL/INSTALLATION** .)
 8. Third-row seat. (See **THIRD-ROW SEAT REMOVAL/INSTALLATION** .)
 9. Third-row seat belt lower anchor installation bolt. (Driver side) (See **THIRD-ROW SEAT BELT REMOVAL/INSTALLATION** .)
 10. Trunk side trim. (Driver side) (See **TRUNK SIDE TRIM REMOVAL/INSTALLATION** .)
3. Remove the fuel-filler lid release cover in the direction of the arrow.
 4. Slightly bend back the floor covering.
 5. Remove in the order indicated in the table.

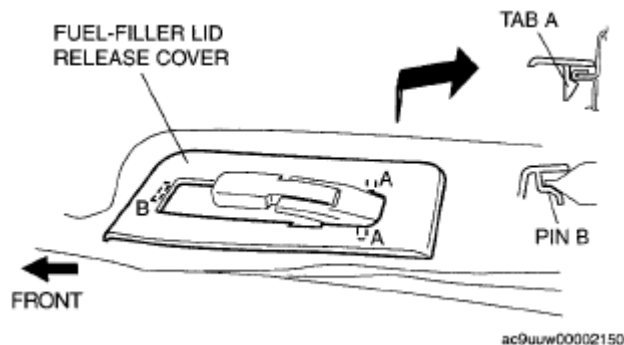


Fig. 50: Identifying Fuel-Filler Lid Release Cover With Tab
Courtesy of MAZDA MOTORS CORP.

6. Install in the reverse order of removal.

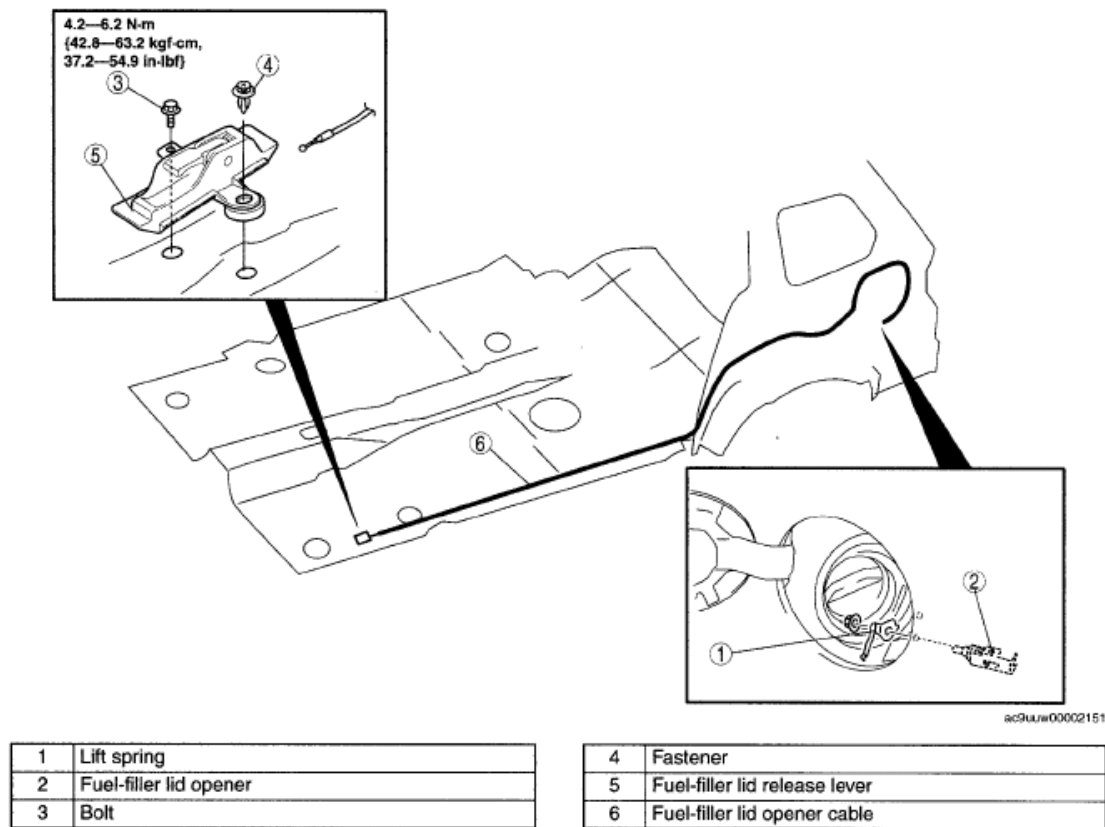


Fig. 51: View Of Fuel-Filler Lid Opener Components Installation Sequence & Torque Specifications

Courtesy of MAZDA MOTORS CORP.

KEYLESS CONTROL MODULE REMOVAL/INSTALLATION [ADVANCED KEYLESS SYSTEM]

NOTE:

- If the keyless control module is replaced, always perform the following procedure.

Without immobilizer system

- Card key programming (See CLEARING CARD KEY [ADVANCED KEYLESS SYSTEM].)
- Steering lock unit programming (See STEERING LOCK UNIT ID CODE REGISTRATION [ADVANCED KEYLESS SYSTEM].)

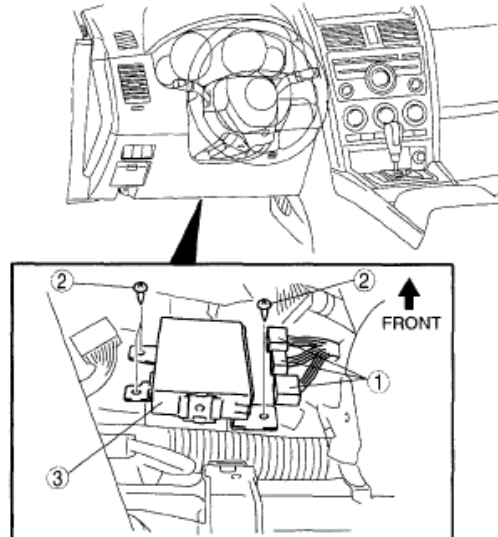
With immobilizer system

- Card key programming (See CLEARING CARD KEY [ADVANCED KEYLESS SYSTEM].)

- **Steering lock unit programming (See STEERING LOCK UNIT ID CODE REGISTRATION [ADVANCED KEYLESS SYSTEM].)**
- **Immobilizer system resetting (with immobilizer system) (See IMMOBILIZER SYSTEM COMPONENT REPLACEMENT/KEY ADDITION AND CLEARING [ADVANCED KEYLESS SYSTEM].) (See IMMOBILIZER SYSTEM COMPONENT REPLACEMENT/KEY ADDITION AND CLEARING [KEYLESS ENTRY SYSTEM].)**

1. Disconnect the negative battery cable.
2. Remove the dashboard under cover (Driver side). (See **DASHBOARD UNDER COVER REMOVAL/INSTALLATION** .)
3. Remove the auto light/wiper control module. (Vehicles with auto light/wiper system) (See **AUTO LIGHT/WIPER CONTROL MODULE REMOVAL/INSTALLATION** .)
4. Remove the auto light-off control module. (Vehicles without auto light/wiper system) (See **AUTO LIGHT-OFF CONTROL MODULE REMOVAL/INSTALLATION** .)
5. Remove in the order indicated in the table.
6. Install in the reverse order of removal.

1	Connector
2	Screw
3	Keyless control module



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Fig. 52: Identifying Keyless Control Module, Connector & Screw
 Courtesy of MAZDA MOTORS CORP.

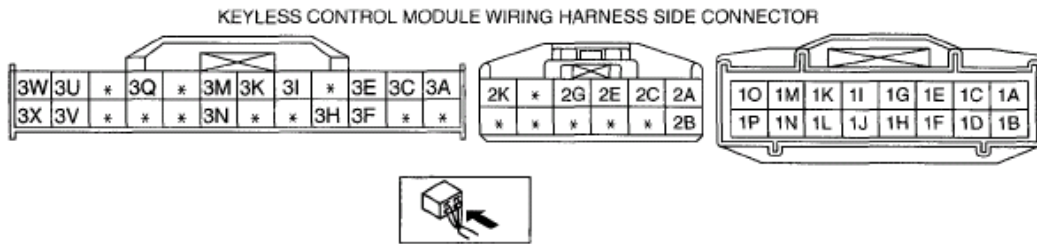
KEYLESS CONTROL MODULE INSPECTION [ADVANCED KEYLESS SYSTEM]

1. Measure the voltage or inspect for continuity according to the Terminal Voltage Table (Reference).
 - If the voltage is not as specified in the Terminal Voltage Table (Reference), inspect the parts under "Inspection item(s)" and related wiring harnesses.

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TERMINAL VOLTAGE TABLE (REFERENCE)



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Fig. 53: Identifying Keyless Control Module Connector Terminals
 Courtesy of MAZDA MOTORS CORP.

CONNECTOR TERMINALS REFERENCE

Terminal	Signal name	Connected to	Measured condition	Voltage (V)/Continuity	Inspection item (s)
1A	Keyless antenna (Exterior, LF)(+)	Keyless antenna (Exterior, LF)	Under any condition: Inspect for continuity to keyless antenna.	Continuity detected	Keyless antenna (Exterior, LF)
1B	Keyless antenna (Exterior, LF)(-)	Keyless antenna (Exterior, LF)	Under any condition: Inspect for continuity to Keyless antenna.	Continuity detected	Keyless antenna (Exterior, LF)
1C	Keyless antenna (Exterior, RF)(+)	Keyless antenna (Exterior, RF)	Under any condition: Inspect for continuity to keyless antenna.	Continuity detected	Keyless antenna (Exterior, RF)
1D	Keyless antenna (Exterior, RF)(-)	Keyless antenna (Exterior, RF)	Under any condition: Inspect for continuity to keyless antenna.	Continuity detected	Keyless antenna (Exterior, RF)
1E	Keyless antenna (Exterior, rear)(+)	Keyless antenna (Exterior, rear)	Under any condition: Inspect for continuity to keyless antenna.	Continuity detected	Keyless antenna (Exterior, rear)
1F	Keyless antenna (Exterior, rear)(-)	Keyless antenna (Exterior, rear)	Under any condition: Inspect for continuity to keyless antenna.	Continuity detected	Keyless antenna (Exterior, rear)
1G	GND	Body ground	Under any condition	1.0 or less	Related wiring harnesses
1H	GND	Body ground	Under any condition	1.0 or less	Related wiring harnesses
			Under any		

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11	keyless antenna (Interior, rear)(+)	Keyless antenna (Interior, rear)	condition: Inspect for continuity to keyless antenna.	Continuity detected	Keyless antenna (Interior, rear)
1J	Keyless antenna (Interior, rear)(-)	Keyless antenna (Interior, rear)	Under any condition: Inspect for continuity to keyless antenna.	Continuity detected	Keyless antenna (Interior, rear)
1K	Keyless antenna (Interior, middle) (+)	Keyless antenna (Interior, middle)	Under any condition: Inspect for continuity to keyless antenna.	Continuity detected	Keyless antenna (Interior, middle)
1L	Keyless antenna (Interior, middle)(-)	Keyless antenna (Interior, middle)	Under any condition: Inspect for continuity to keyless antenna.	Continuity detected	Keyless antenna (Interior, middle)
1M	Keyless antenna (Interior, front center)(+)	Keyless antenna (Interior, front center)	Under any condition: Inspect for continuity to keyless antenna.	Continuity detected	Keyless antenna (Interior, front center)
1N	Keyless antenna (Interior, front center)(-)	Keyless antenna (Interior, front center)	Under any condition: Inspect for continuity to keyless antenna.	Continuity detected	Keyless antenna (Interior, front center)
1O	Keyless antenna (Interior, front RH) (+)	Keyless antenna (Interior, front RH)	Under any condition: Inspect for continuity to keyless antenna.	Continuity detected	Keyless antenna (Interior, front RH)
1P	Keyless antenna (Interior, front RH) (-)	Keyless antenna (Interior, front RH)	Under any condition: Inspect for continuity to keyless antenna.	Continuity detected	Keyless antenna (Interior, front RH)
2A	Power supply	ROOM 15 A fuse	Under any condition	B+	ROOM 15 A FUSE
2B	GND	Body ground	Under any condition	1.0 or less	Related wiring harnesses
2C	IG1	ENG.IGA7.5 A fuse	Ignition switch is at ON position	B+	ENG.IGA7.5 A fuse
			Ignition switch is at LOCK or ACC position	1.0 or less	
2E	ACC	MIRROR 7.5 A fuse	Ignition switch is at ACC position	B+	MIRROR 7.5 A fuse
			Ignition switch is at LOCK or ON position	1.0 or less	

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2K	Beeper	Keyless beeper	Beeper operated	1.0 or less	Keyless beeper
			Other	5.0	
3A	Power supply (keyless receiver)	Keyless receiver	Under any condition	B+	Keyless receiver
3C	Communication (Keyless receiver)	Keyless receiver	Under any condition: Inspect for continuity to keyless receiver.	Continuity detected	Keyless receiver
3E	Start knob (Push switch)	Steering lock unit	Start knob is pushed	B+	Steering lock unit
			Other	1.0 or less	
3F	Key reminder switch	Steering lock unit	Key reminder switch is ON	B+	Steering lock unit
			Other	1.0 or less	
3H	Communication (Steering lock unit)	Steering lock unit	Under any condition: Inspect for continuity to steering lock unit.	Continuity detected	Steering lock unit
3I	Request switch input (Passenger side)	Request switch input (Passenger side)	Passenger-side request switch is ON: Inspect for continuity to ground.	Continuity detected	Request switch input (Passenger side)
			Passenger-side request switch is OFF: Inspect for continuity to ground.	No continuity	
3K	Request switch input (Driver side)	Request switch input (Driver side)	Driver-side request switch is ON: Inspect for continuity to ground.	Continuity detected	Request switch input (Driver side)
			Driver-side request switch is OFF: Inspect for continuity to ground.	No continuity	
3M	Request switch input (Liftgate)	Request switch input (Liftgate)	Liftgate request switch is ON: Inspect for continuity to ground.	Continuity detected	Request switch input (Liftgate)
			Liftgate request switch is OFF: Inspect for	No continuity	

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			continuity to ground.		
3N	Lock signal input	Door lock-link switch	Driver-side door is locked: Inspect for continuity to ground.	No continuity	Door lock-link switch
			Driver-side door is unlocked: Inspect for continuity to ground.	Continuity detected	
3Q	Communication (BCM)	BCM	Under any condition: Inspect for continuity to BCM.	Continuity detected	BCM
3U	Tx-SKE	Coil antenna	Ignition switch is at ON position	B+	Coil antenna
			Ignition switch is at LOCK or ACC position	1.0 or less	
3V	Rx-SKE	Coil antenna	Ignition switch is at ON position	B+	Coil antenna
			Ignition switch is at LOCK or ACC position	1.0 or less	
3W	HS-CAN-	PCM	Under any condition: Inspect for continuity to PCM.	Continuity detected	-
3X	HS-CAN+	PCM	Under any condition: Inspect for continuity to PCM.	Continuity detected	-

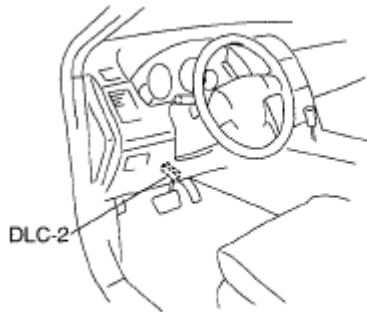
KEYLESS CONTROL MODULE CONFIGURATION [ADVANCED KEYLESS SYSTEM]

NOTE:

- Use the IDS (laptop PC) because the PDS (Pocket PC) does not support the KEYLESS CONTROL MODULE CONFIGURATION.

1. Connect the M-MDS to the DLC-2.
2. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 1. Select "Module Programming".

3. Then, select items from the screen menu in the following order.
 1. Select "Programmable Module Installation".
 2. Select "RKE".



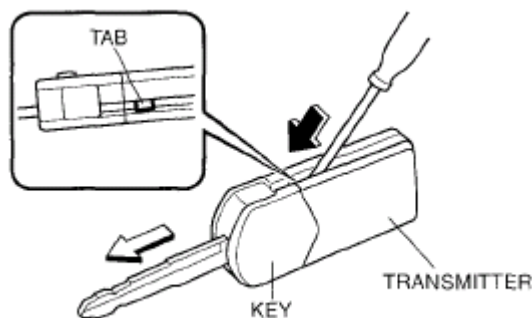
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Fig. 54: Identifying DLC-2 Location
Courtesy of MAZDA MOTORS CORP.

4. Perform the configuration according to the directions on the screen.
5. Retrieve DTCs by the M-MDS, then verify that there is no DTC present.
 - If a DTC (s) is detected, perform the applicable DTC inspection. (See **DTC TABLE [ADVANCED KEYLESS AND START SYSTEM]** .)

TRANSMITTER BATTERY REPLACEMENT [KEYLESS ENTRY SYSTEM]

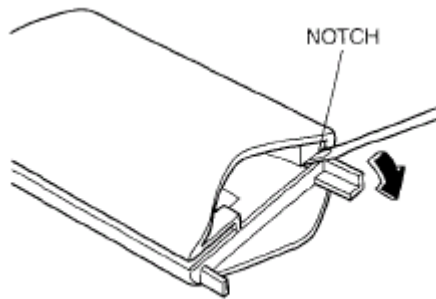
1. Insert a small flathead screwdriver into the transmitter notch and remove the key from the transmitter by pressing the tab.



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Fig. 55: Removing Key From Transmitter
Courtesy of MAZDA MOTORS CORP.

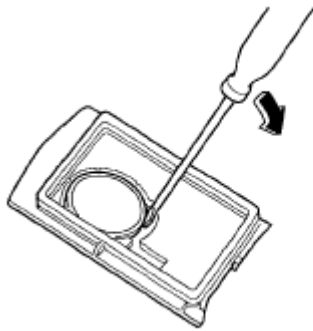
2. Insert a small flathead screwdriver into the transmitter notch and the transmitter.



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Fig. 56: Inserting Screwdriver Into Transmitter Notch & Transmitter
Courtesy of MAZDA MOTORS CORP.

3. Remove the battery.



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Fig. 57: Removing Battery
Courtesy of MAZDA MOTORS CORP.

4. Install the new battery (CR1620) with the positive pole facing down.
5. Align the upper and lower cover and close the transmitter.

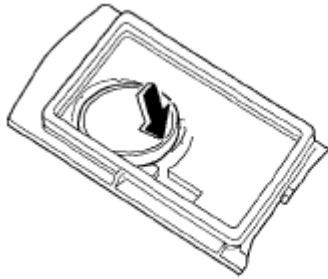
Used battery

Lithium battery CR1620

Battery life

Approx. 2 years (when used 10 times/day)

6. Install the key to the transmitter.



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Fig. 58: Installing Battery
Courtesy of MAZDA MOTORS CORP.

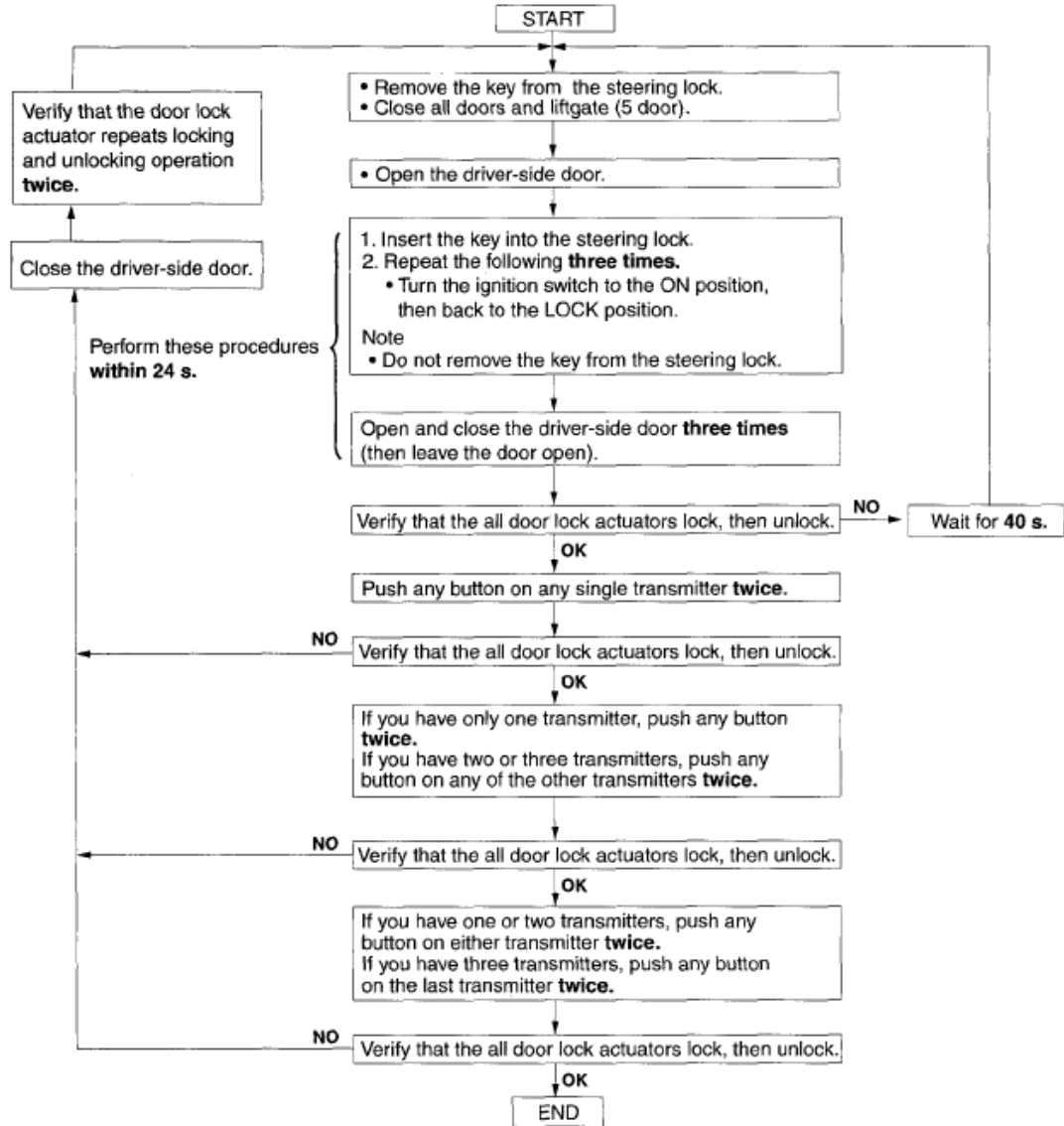
TRANSMITTER ID CODE REGISTRATION [KEYLESS ENTRY SYSTEM]

NOTE:

- When registering the ID code into a keyless control module, verify that other transmitters are not being operated in the vicinity.
- After ID code registering, remove the key from the steering lock and verify that all doors lock/unlock normally using the transmitter.

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Fig. 59: Transmitter ID Code Registration Flow Chart
Courtesy of MAZDA MOTORS CORP.

CARD KEY ID CODE REGISTRATION [ADVANCED KEYLESS SYSTEM]

CAUTION:

- Do not place the following devices in the vehicle while programming, otherwise programming cannot be performed.
 - M-MDS
 - Personal computer
 - Device that can send/receive radio waves
- Verify that the other transmitter is not being operated around the

servicing area during card key programming.

NOTE:

- Use the M-MDS and start programming if the condition corresponds to the following:
 - One or No Programmed Card Keys
 - Keyless control module is replaced
- If six card keys are already programmed, the programming mode does not activate. If programming is needed, use the M-MDS to erase the unnecessary card key programming.

WITH TWO PROGRAMMED CARD KEYS

1. Bring the programmed card keys (2) and a unprogrammed card key into the vehicle.
2. Close all doors.
3. Insert the supplementary key into the ignition key cylinder.

NOTE:

- Complete the procedures up to Step 7 within 30 s after the supplementary key is inserted.

4. Turn the ignition switch to the ON position.
5. Press the UNLOCK button on card key 1.
6. Press the UNLOCK button on card key 2.
7. From the ignition switch in the ON position, switch the ignition switch in the order indicated below.
 - ACC --> ON --> ACC --> ON --> ACC --> ON
8. Open the driver-side front door, press the door switch **twice** , and then close the door.

NOTE:

- After Step 3 is completed and the card key programming mode is activated, the door lock actuator operates to lock, and then operates to unlock.
- If the door lock actuator does not operate, repeat the procedure from Step 2.

9. Press the UNLOCK button on the unprogrammed card key **twice**.

NOTE:

- After Step 8 is completed and the card key is programmed, the door lock actuator operates to lock, and then operates to unlock.

10. If programming more card keys, remove the supplementary key once, and then repeat the procedure from Step 2.

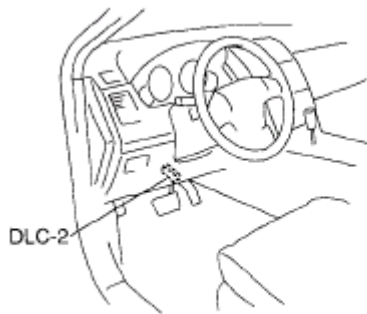
USING M-MDS

1. Fully lower the driver-side door glass.
2. Connect the M-MDS to the DLC-2.
3. Pull out the M-MDS cable from the door glass opening and set the M-MDS outside the vehicle.

CAUTION:

- **Protect the cable and body contact area with a clean rag, otherwise they could be damaged.**

4. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 1. Select "Body".
 2. Select "Security".
 - When using the PDS (Pocket PC)
 1. Select "Programming".



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Fig. 60: Identifying DLC-2 Location
Courtesy of MAZDA MOTORS CORP.

5. Then, select items from the screen menu in the following order.
 1. Select "PATS Functions".
 2. Select "Program Additional card key".
6. Security access begins and the M-MDS displays the "OUT-CODE".

NOTE:

- **When "OUT-CODE" is first displayed, turning the ignition switch from the LOCK to the ON position 5 times will change the "OUT-CODE".**

7. Input the "IN-CODE" that corresponds to the "OUT-CODE" displayed on the M-MDS screen.

NOTE:

- **After Step 7 is completed and the card key programming is activated, the door lock actuator operates to lock, and then operates to unlock.**

8. Press the unprogrammed card key UNLOCK button **twice**.

NOTE:

- After Step 8 is completed and the card key is programmed, the door lock actuator operates to lock, and then operates to unlock.

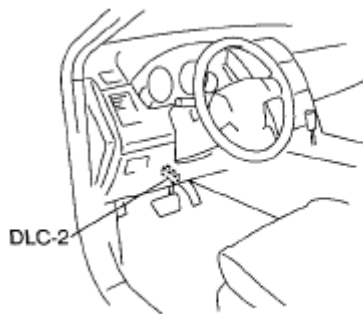
9. If programming more card keys, remove the supplementary key once, and then repeat the procedure by following the instructions on the M-MDS screen.

CLEARING CARD KEY [ADVANCED KEYLESS SYSTEM]

1. Fully lower the driver-side door glass.
2. Connect the M-MDS to the DLC-2.
3. Pull out the M-MDS cable from the door glass opening and set the M-MDS outside the vehicle.

CAUTION:

- Protect the cable and body contact area with a clean rag, otherwise they could be damaged.



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Fig. 61: Identifying DLC-2 Location
Courtesy of MAZDA MOTORS CORP.

4. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 1. Select "Body".
 2. Select "Security".
 - When using the PDS (Pocket PC)
 1. Select "Programming".
5. Then, select items from the screen menu in the following order.
 1. Select "PATS Functions".
 2. Select "Card Key Code Erase and Program".
6. Security access begins and the M-MDS displays the "OUT-CODE".

NOTE:

- When "OUT-CODE" is first displayed, turning the ignition switch from the LOCK to the ON position 5 times will change the "OUT-CODE".

7. Input the "IN-CODE" that corresponds to the "OUT-CODE" displayed in the M-MDS screen.
8. Select "CARD KEY CLEARING" from the M-MDS screen menu.

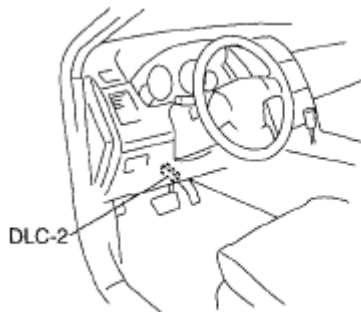
STEERING LOCK UNIT ID CODE REGISTRATION [ADVANCED KEYLESS SYSTEM]

- CAUTION:**
- Do not place the following devices in the vehicle while programming, otherwise programming cannot be performed.
 - M-MDS
 - Personal computer
 - Device that can send/receive radio waves

- NOTE:**
- The steering lock unit and steering lock component are a single unit. Therefore, replace the steering lock component when replacing steering lock unit. (See STEERING WHEEL AND COLUMN REMOVAL/INSTALLATION .)
 - For this procedure, a programmed card key is necessary. If there is no programmed card key, perform the steering lock unit programming after the card key programming.

1. Bring the programmed card key into the vehicle.
2. Fully lower the driver-side door glass.
3. Connect the M-MDS to the DLC-2.
4. Pull out the M-MDS cable from the door glass opening and set the M-MDS outside the vehicle.

- CAUTION:**
- Protect the cable and body contact area with a clean rag, otherwise they could be damaged.



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Fig. 62: Identifying DLC-2 Location
Courtesy of MAZDA MOTORS CORP.

5. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.

- When using the IDS (laptop PC)
 1. Select "Body".
 2. Select "Security".
 - When using the PDS (Pocket PC)
 1. Select "Programming".
6. Then, select items from the screen menu in the following order.
1. Select "PATS Functions".
 2. Select "Steering Lock Unit Programming".
7. The security access begins and the M-MDS displays "OUT-CODE".

NOTE:

- When "OUT-CODE" is first displayed, turning the ignition switch from the LOCK to the ON position *5 times will change the "OUT-CODE"*.

8. Input the "IN-CODE" that corresponds to the "OUT-CODE" displayed on the M-MDS screen.
9. Perform procedures according to the directions on the M-MDS screen.

CUSTOMIZED FUNCTION SETTING PROCEDURE [ADVANCED KEYLESS SYSTEM]

1. Connect the M-MDS to the DLC-2.
2. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 1. Select "Module programming".
 - When using the PDS (Pocket PC)
 1. Select "Programming".
 2. Select "Module programming".
3. Then, select items from the screen menu in the following order.
 1. Select "Programmable Parameters".
 2. Select "RKE".

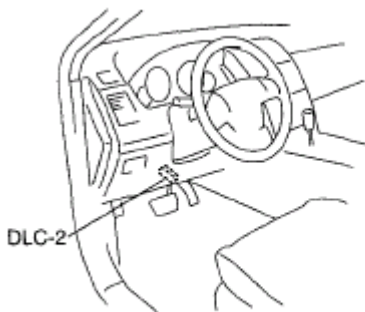


Fig. 63: Identifying DLC-2 Location
 Courtesy of MAZDA MOTORS CORP.

4. Select the item name, and then select either "OFF/ON".

Items

- Automatic Locks
- Answer Back Buzzer
- Card Key Battery Low Warning

KEYLESS RECEIVER REMOVAL/INSTALLATION

1. Disconnect the negative battery cable.
2. Remove the following parts:
 1. Decoration panel (See DECORATION PANEL REMOVAL/INSTALLATION .)
 2. Front console box mat (See FRONT CONSOLE BOX MAT REMOVAL/INSTALLATION .)
 3. Indicator panel (See INDICATOR PANEL REMOVAL/INSTALLATION .)
 4. Front console box (See FRONT CONSOLE BOX REMOVAL/INSTALLATION .)
 5. Center panel (See CENTER PANEL REMOVAL/INSTALLATION .)
 6. Upper column cover (See COLUMN COVER REMOVAL/INSTALLATION .)
 7. Meter hood (See METER HOOD REMOVAL/INSTALLATION .)
3. Remove in the order indicated in the table.

1	Screw
2	Keyless receiver
3	Connector

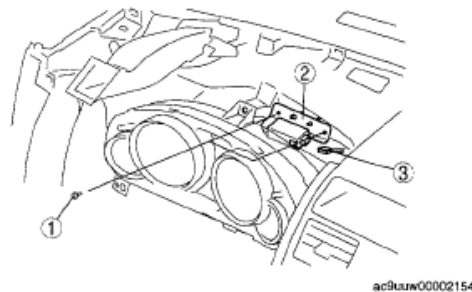


Fig. 64: Identifying Keyless Receiver, Connector & Screw
 Courtesy of MAZDA MOTORS CORP.

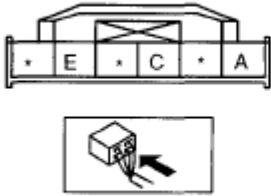
4. Install in the reverse order of removal.

KEYLESS RECEIVER INSPECTION [ADVANCED KEYLESS SYSTEM]

1. Measure the voltage at the auto light/wiper control module terminals as indicated below.

TERMINAL VOLTAGE TABLE (REFERENCE)

KEYLESS RECEIVER
WIRING HARNESS-SIDE CONNECTOR



sc9uuw00002509

Fig. 65: Identifying Keyless Receiver Connector Terminals
Courtesy of MAZDA MOTORS CORP.

CONNECTOR TERMINALS REFERENCE

Terminal	Signal name	Connected to	Measured condition	Voltage (V)	Inspection item (s)
A	Power supply	Keyless control module	Under any condition	B+	<ul style="list-style-type: none"> • Keyless control module • Related wiring harnesses
C	Serial communication	Keyless control module	Because this terminal is for communication, good/no good judgment by terminal voltage is not possible.	-	<ul style="list-style-type: none"> • Keyless control module • Related wiring harnesses
E	GND	Body ground	Under any condition.	1.0 or less	Related wiring harnesses

KEYLESS RECEIVER INSPECTION [KEYLESS ENTRY SYSTEM]

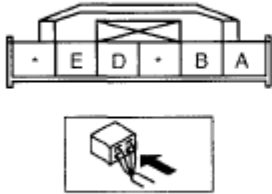
1. Measure the voltage at the auto light/wiper control module terminals as indicated below.

TERMINAL VOLTAGE TABLE (REFERENCE)

2008 Mazda CX-9 Grand Touring

2008 BODY & ACCESSORIES Security and Locks - Mazda CX-9

KEYLESS RECEIVER
WIRING HARNESS-SIDE CONNECTOR



ac9uuw00002508

Fig. 66: Identifying Keyless Receiver Connector Terminals
Courtesy of MAZDA MOTORS CORP.

CONNECTOR TERMINALS REFERENCE

Terminal	Signal name	Connected to	Measured condition	Voltage (V)	Inspection item(s)
A	Power supply	BCM	Under any condition	B+	<ul style="list-style-type: none"> • BCM • Related wiring harnesses
B	IG1	ENG.IGA7.5 A fuse	Ignition switch is at ON position	B+	<ul style="list-style-type: none"> • ENG.IGA7.5 A fuse • Related wiring harnesses
			Ignition switch is at LOCK or ACC position	1.0 or less	
D	Serial communication	BCM	Because this terminal is for communication, good/no good judgment by terminal voltage is not possible.	-	<ul style="list-style-type: none"> • BCM • Related wiring harnesses
E	GND	Body ground	Under any condition.	1.0 or less	Related wiring harnesses

KEYLESS ANTENNA REMOVAL/INSTALLATION [ADVANCED KEYLESS SYSTEM]

EXTERIOR, LF/RF

1. Disconnect the negative battery cable.
2. Remove the inner garnish. (See **INNER GARNISH REMOVAL/INSTALLATION** .)
3. Remove the front door trim. (See **FRONT DOOR TRIM REMOVAL/INSTALLATION** .)
4. Remove the screws.
5. Disconnect the connector, then remove the keyless antenna.
6. Install in the reverse order of removal.

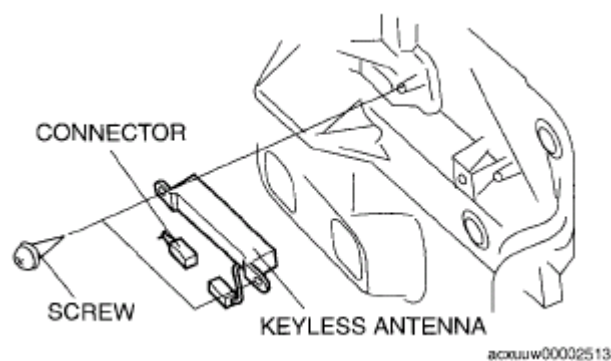


Fig. 67: Identifying Keyless Antenna & Connector With Screw (Exterior, LF/RF)
 Courtesy of MAZDA MOTORS CORP.

EXTERIOR, REAR

1. Disconnect the negative battery cable.
2. Remove the screws.
3. Disconnect the connector, then remove the keyless antenna.
4. Install in the reverse order of removal.

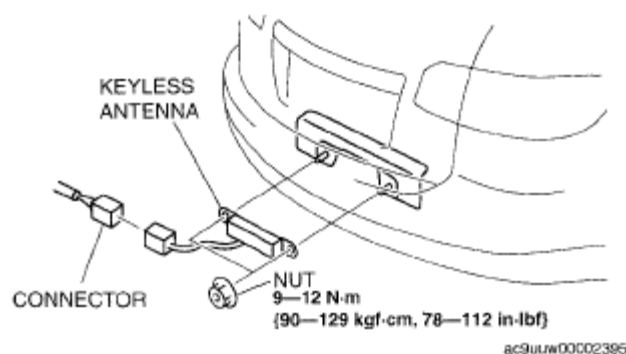


Fig. 68: Identifying Keyless Antenna, Connector With Screw & Torque Specifications (Exterior, Rear)
 Courtesy of MAZDA MOTORS CORP.

INTERIOR, FRONT

Center

1. Disconnect the negative battery cable.
2. Remove the decoration panel. (See **DECORATION PANEL REMOVAL/INSTALLATION** .)
3. Remove the front console box mat. (See **FRONT CONSOLE BOX MAT REMOVAL/INSTALLATION** .)
4. Remove the indicator panel. (See **INDICATOR PANEL REMOVAL/INSTALLATION** .)
5. Remove the front console box. (See **FRONT CONSOLE BOX REMOVAL/INSTALLATION** .)

6. Disconnect the connector, then remove the screws.
7. Remove the keyless antenna.
8. Install in the reverse order of removal.

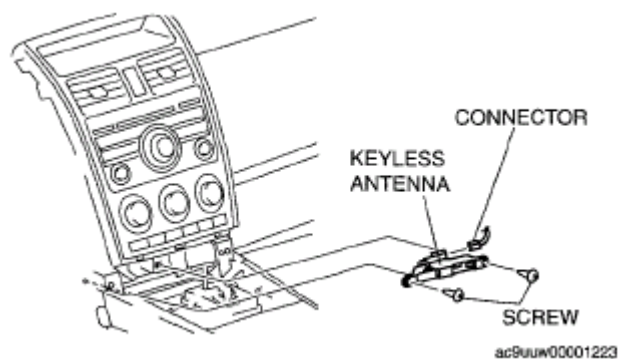


Fig. 69: Identifying Keyless Antenna & Connector With Screw (Interior, Front)
Courtesy of MAZDA MOTORS CORP.

RH

1. Disconnect the negative battery cable.
2. Remove the dashboard under cover (Passenger side). (See **DASHBOARD UNDER COVER REMOVAL/INSTALLATION** .)
3. Remove the glove compartment. (See **GLOVE COMPARTMENT REMOVAL/INSTALLATION** .)
4. Disconnect the connector, then remove the screws.
5. Remove the keyless antenna.
6. Install in the reverse order of removal.

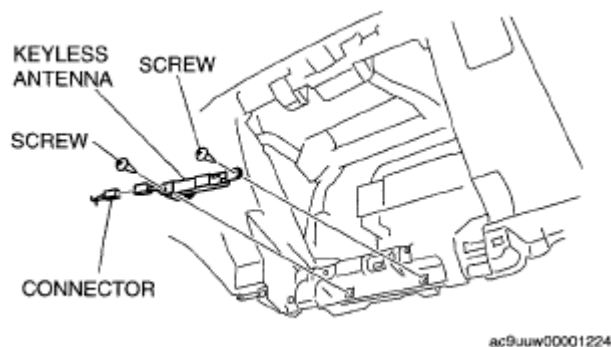
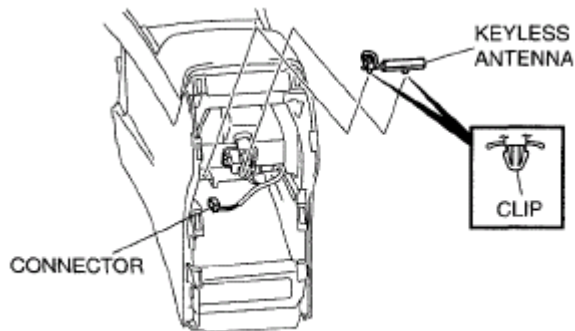


Fig. 70: Identifying Keyless Antenna & Connector With Screw - RH
Courtesy of MAZDA MOTORS CORP.

INTERIOR, MIDDLE

1. Disconnect the negative battery cable.

2. Remove the console cover. (See **CONSOLE COVER REMOVAL/INSTALLATION** .)
3. Remove the clips.
4. Disconnect the connector, then remove the keyless antenna.
5. Install in the reverse order of removal.

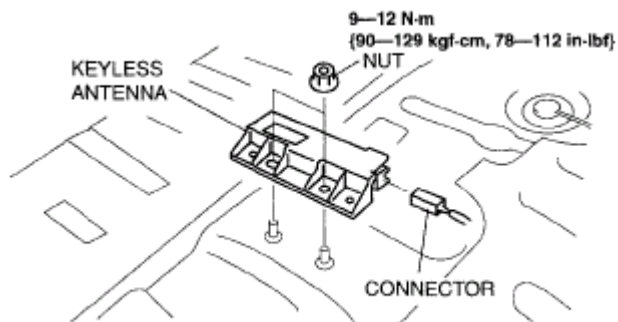


ac9uuw00001225

Fig. 71: Identifying Keyless Antenna & Connector With Screw (Interior, Middle)
 Courtesy of MAZDA MOTORS CORP.

INTERIOR, REAR

1. Disconnect the negative battery cable.
2. Remove the trunk box. (See **TRUNK BOX REMOVAL/INSTALLATION** .)
3. Remove the third-row seat. (See **THIRD-ROW SEAT REMOVAL/INSTALLATION** .)
4. Partially peel back the floor covering.
5. Remove the nuts.
6. Disconnect the connector, then remove the keyless antenna.
7. Install in the reverse order of removal.



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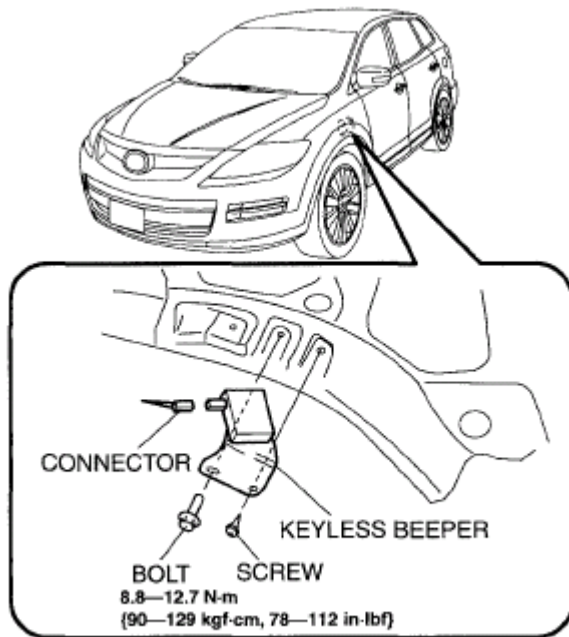
Fig. 72: Identifying Keyless Antenna, Connector With Screw & Torque Specifications (Interior, Rear)

Courtesy of MAZDA MOTORS CORP.

KEYLESS BEEPER REMOVAL/INSTALLATION (ADVANCED KEYLESS

SYSTEM]

1. Disconnect the negative battery cable.
2. Partially peel back the splash shield (LH).
3. Remove the bolt and screw.
4. Disconnect the connector, then remove the keyless beeper.
5. Install in the reverse order of removal.



ac9usrw00001185

Fig. 73: Identifying Keyless Beeper, Connector, Bolt & Torque Specifications
 Courtesy of MAZDA MOTORS CORP.

REQUEST SWITCH REMOVAL/INSTALLATION [ADVANCED KEYLESS SYSTEM]

DRIVER SIDE/PASSENGER SIDE

1. Disconnect the negative battery cable.
2. Remove the following parts:
 1. Inner garnish (See **INNER GARNISH REMOVAL/INSTALLATION** .)
 2. Front door trim (See **FRONT DOOR TRIM REMOVAL/INSTALLATION** .)
 3. Front door speaker (See **FRONT DOOR SPEAKER REMOVAL/INSTALLATION** .)
 4. Front door glass (See **FRONT DOOR GLASS REMOVAL/INSTALLATION** .)
 5. Front door module (See **FRONT DOOR MODULE REMOVAL/INSTALLATION** .)
3. Remove the screw A, then remove the handle seat.

4. Remove screw B, then remove the request switch.

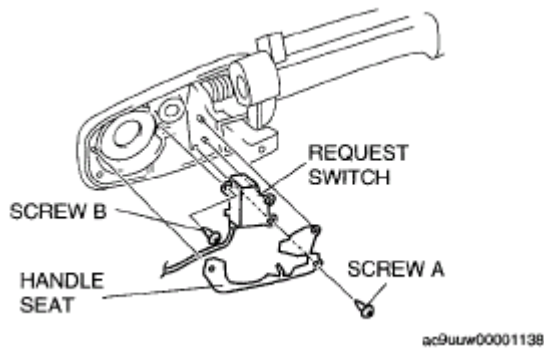


Fig. 74: Identifying Request Switch & Handle Seat With Screws
 Courtesy of MAZDA MOTORS CORP.

LIFTGATE

1. Disconnect the negative battery cable.
2. Remove the liftgate upper trim. (See **LIFTGATE UPPER TRIM REMOVAL/INSTALLATION** .)
3. Remove the liftgate side trim. (See **LIFTGATE SIDE TRIM REMOVAL/INSTALLATION** .)
4. Remove the liftgate lower trim. (See **LIFTGATE LOWER TRIM REMOVAL/INSTALLATION** .)
5. Remove the rear finisher. (See **LIFTGATE LOWER TRIM REMOVAL/INSTALLATION** .)
6. Press the tabs and remove the request switch.
7. Install in the reverse order of removal.

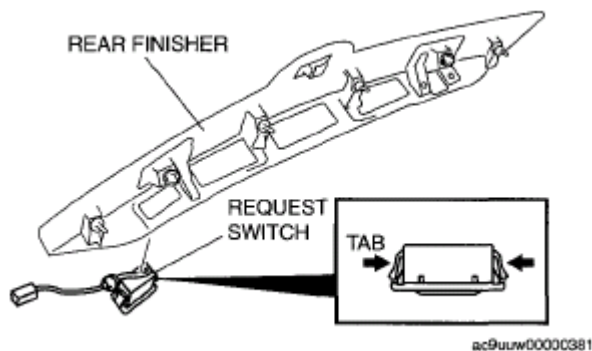


Fig. 75: Identifying Request Switch & Rear Finisher
 Courtesy of MAZDA MOTORS CORP.

REQUEST SWITCH INSPECTION [ADVANCED KEYLESS SYSTEM]

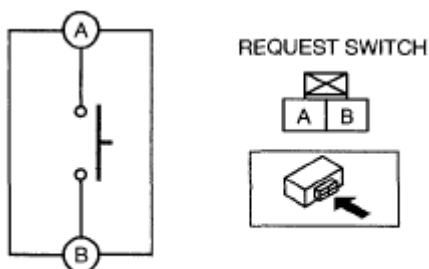
1. Inspect for continuity between request switch terminals A and B.
 - If not as specified, replace the request switch.

○—○ : Continuity

Switch position	Terminal	
	A	B
Push (ON)	○—○	
Not push (OFF)		

acxuuw00002522

Fig. 76: Terminals Continuity Chart
Courtesy of MAZDA MOTORS CORP.

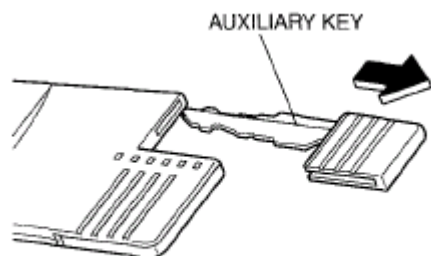


ac9uuw00002405

Fig. 77: Checking Continuity Between Request Switch Terminals A & B
Courtesy of MAZDA MOTORS CORP.

CARD KEY BATTERY REPLACEMENT [ADVANCED KEYLESS SYSTEM]

1. Pull out the auxiliary key.

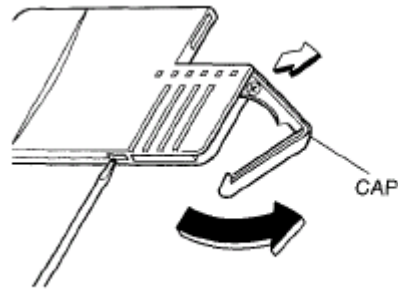


acxuuw00002500

Fig. 78: Identifying Auxiliary Key
Courtesy of MAZDA MOTORS CORP.

2. Replace the cap using a flathead screwdriver, then rotate and remove the cap.

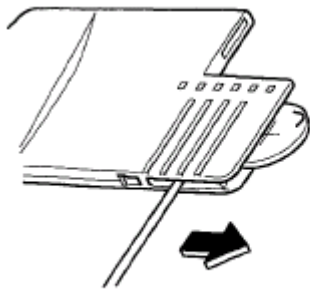
CAUTION: • Do not turn the cap excessively. The cap may be damaged.



acxuuw00002501

Fig. 79: Removing Cap
Courtesy of MAZDA MOTORS CORP.

3. Insert a flathead screwdriver into the crack and press the battery out.



acxuuw00002502

Fig. 80: Removing Battery
Courtesy of MAZDA MOTORS CORP.

4. Insert the new battery (CR2025) with the positive pole (+) facing the (+) mark on the cap.

Battery specification

Lithium CR2025 x 1

NOTE:

- The batteries will last about *1 years when used 10 times a day.*

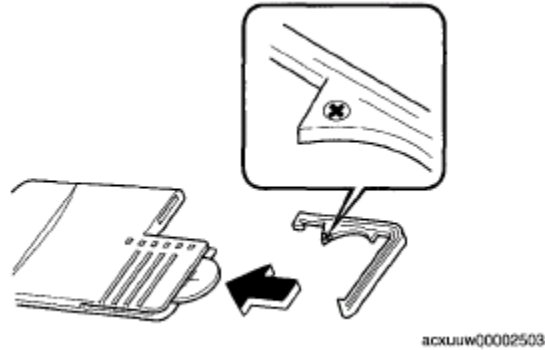


Fig. 81: Inserting Battery
Courtesy of MAZDA MOTORS CORP.

5. Rotate and close the cap.
6. Reinsert the auxiliary key.

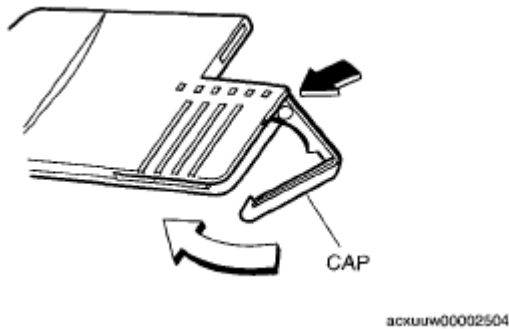


Fig. 82: Installing Auxiliary Key
Courtesy of MAZDA MOTORS CORP.

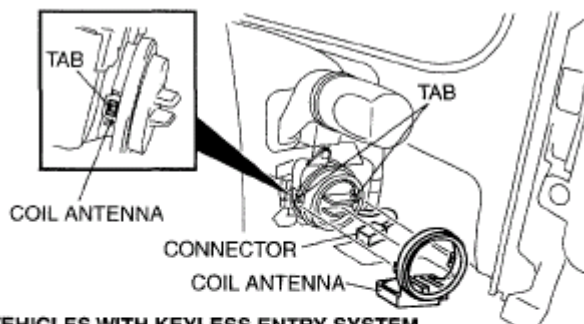
COIL ANTENNA REMOVAL/INSTALLATION [ADVANCED KEYLESS SYSTEM]

NOTE:

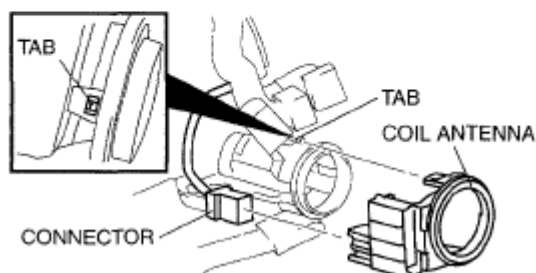
- Do not remove the coil antenna unless you are replacing it.

1. Disconnect the negative battery cable.
2. Remove the lower column cover. (See COLUMN COVER REMOVAL/INSTALLATION .)
3. Disconnect the coil antenna connector.
4. Detach the steering lock tabs from the holes on the coil antenna.
5. Install in the reverse order of removal.

VEHICLES WITH ADVANCED KEYLESS SYSTEM



VEHICLES WITH KEYLESS ENTRY SYSTEM

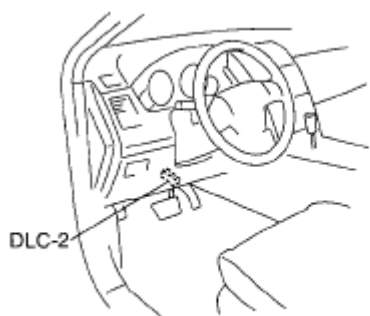


ac9uuw00001186

Fig. 83: Identifying Coil Antenna & Connector
Courtesy of MAZDA MOTORS CORP.

SECURITY ACCESS PROCEDURE

1. Connect the M-MDS to the DLC-2.
2. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 1. Select "Body"
 2. Select "Security"
 - When using the PDS (Pocket PC)
 1. Select "Programming".



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Fig. 84: Identifying DLC-2 Location
Courtesy of MAZDA MOTORS CORP.

3. Then, select items from the screen menu in the following order.
 1. Select "PATS Function"
4. Select the items to be performed from the following:
 - Program Additional card key
 - Card Key Code Erase and Program
 - Steering Lock Unit Programming
 - Program additional ignition key
 - Ignition Key Code Erase and Program
 - Customer Spare Key Programming Enable
 - Customer Spare Key Programming Disable
 - Parameter Reset
5. The security access begins and the M-MDS displays the "OUT-CODE".

NOTE:

- **When "OUT-CODE" is first displayed, turning the ignition switch from the LOCK to the ON position 5 times will change the "OUT-CODE".**

6. Input "IN-CODE" corresponding to "OUT-CODE" displayed on the M-MDS screen.
7. If the security access is successful, selected item can be performed.

IMMOBILIZER SYSTEM COMPONENT REPLACEMENT/KEY ADDITION & CLEARING [ADVANCED KEYLESS SYSTEM]

M-MDS EXECUTION MENU/SEQUENCE FOR THE IMMOBILIZER SYSTEM COMPONENT PARTS REPLACEMENT

NOTE:

- **When the component parts of the immobilizer system are replaced, the menu and execution sequence of the M-MDS vary depending on the type of the replaced unit and parts. Perform the procedures referring to the following table.**
- **When performing the procedure, follow each procedure. If the procedure is not followed, the procedure may not be completed correctly.**
 - **NO.1 ADDITIONAL KEY PROGRAMMING PROCEDURE (USING TWO VALID KEYS)**
 - **NO.2 KEY ADDITIONAL PROGRAMMING PROCEDURE (USING THE M-MDS)**
 - **NO.3 KEY REPLACEMENT PROCEDURE (CLEARING PREVIOUSLY PROGRAMMED KEY ID NUMBERS, KEY RE-PROGRAM)**
 - **NO.4 PCM REPLACEMENT PROCEDURE**
 - **NO.5 KEY ADDITIONAL PROGRAMMING PROCEDURE CHANGING**
 - **NO.6 STEERING LOCK UNIT REPLACEMENT PROCEDURE**

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- **NO.7 KEYLESS CONTROL MODULE REPLACEMENT PROCEDURE**
- **NO.8 THE PROCEDURE FOR WHEN SEVERAL PARTS (PCM, KEYLESS CONTROL MODULE, AND STEERING LOCK UNIT) ARE REPLACED AT THE SAME TIME**

M-MDS MENU

1. "Program Additional card key"
2. "Card Key Code Erase"
3. "Steering Lock Unit Programming"
4. "Program additional ignition key"
5. "Ignition Key Code Erase"
6. "Customer Spare Key Programming Enable"
7. "Customer Spare Key Programming Disable"
8. "Parameter Reset"

M-MDS EXECUTION MENU/SEQUENCE CHART

Replacement Part	M-MDS Execution Menu/Sequence
Keyless control module	8 --> 5 --> 1 --> 3
PCM	8
Steering lock unit	5 --> 3
Keyless control module and PCM	8 --> 5 --> 1 --> 3
Keyless control module and steering lock unit	8 --> 5 --> 1 --> 3
PCM and steering lock unit	8 --> 5 --> 3
Keyless control module, PCM and steering lock unit	8 --> 5 --> 1 --> 3

BEFORE SERVICE PREPARATION & PRECAUTIONS

- When performing the following procedures, the immobilizer resetting procedure using the M-MDS must also always be performed: "Keyless control module replacement", "PCM replacement", "Steering lock unit replacement", and "Key ID number clearing". The engine will not start unless all work is performed using the M-MDS.
- A card key that can start the engine is necessary for the key programming. If there is no card key that can start the engine, perform the key programming after the card key programming. (See **CARD KEY ID CODE REGISTRATION [ADVANCED KEYLESS SYSTEM].**)
- There are two ways to add supplemental key: Using the M-MDS or using two keys that can start the engine to program.
- When replacing any of the immobilizer system component parts, adding/clearing keys, or performing other functions, refer to the following table and perform the applicable procedure (No.1 to 8).
- Verify that the room fuse is equipped.

BEFORE SERVICE PREPARATION AND PRECAUTIONS CHART

2008 Mazda CX-9 Grand Touring

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Ref. No.	Condition	Items necessary for procedure (Prepare before starting procedure)	Cautionary notes
1	Since two or more keys that can start the engine are necessary, make a spare key. Or program an additional key. (See <u>NO.1 ADDITIONAL KEY PROGRAMMING PROCEDURE (USING TWO VALID KEYS).</u>)	<ul style="list-style-type: none"> • Programming key 	<ul style="list-style-type: none"> • The M-MDS is necessary for the additional key programming if "Customer spare key programming disable" is performed before the procedure using the M-MDS. In this case, perform No. 2.
2	Make a spare key when the customer has one key or card key that can start the engine. If there is no key, program an additional key. (See <u>NO. 2 KEY ADDITIONAL PROGRAMMING PROCEDURE (USING THE M-MDS).</u>)	<ul style="list-style-type: none"> • Programmed card key or programmed key • Programming key or programmed card key • M-MDS 	
3	Make a spare key when the customer has no key or card key that can start the engine. Or program an additional key. (See <u>NO.3 KEY REPLACEMENT PROCEDURE (CLEARING PREVIOUSLY PROGRAMMED KEY ID NUMBERS, KEY RE-PROGRAM).</u>)	<ul style="list-style-type: none"> • Programming keys (Two or more) • M-MDS 	<ul style="list-style-type: none"> • Unless keys are reprogrammed after the procedure, the engine cannot be started. Before beginning the procedure, verify that the customer has turned in all of the card keys and keys for the vehicle.
3	Clearing the programmed key ID number. (See <u>NO.3 KEY REPLACEMENT PROCEDURE (CLEARING PREVIOUSLY PROGRAMMED KEY ID NUMBERS, KEY RE-PROGRAM).</u>)	<ul style="list-style-type: none"> • M-MDS 	<ul style="list-style-type: none"> • The engine cannot be started unless a card key and two or more keys are programmed after the procedure.
3	Replacing all the keys. (Steering lock unit is not replaced) (See <u>NO.3 KEY REPLACEMENT PROCEDURE (CLEARING PREVIOUSLY PROGRAMMED KEY ID NUMBERS, KEY RE-PROGRAM).</u>)	<ul style="list-style-type: none"> • Programmed card key • Programming keys (Two or more) • M-MDS 	<ul style="list-style-type: none"> • The card key and keys (two or more) prepared before the procedure do not have to be new ones and there is no problem with using the keys that were used to start the engine before the procedure.
4	Replacing the PCM only. (See <u>NO.4 PCM REPLACEMENT PROCEDURE.</u>)	<ul style="list-style-type: none"> • New PCM • Programmed card key or programmed key 	

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		<ul style="list-style-type: none"> • M-MDS 	
5	<p>Changing the additional key programming procedure. (Method for programming other keys using two keys that can start the engine is disabled.) (See <u>NO. 5 KEY ADDITIONAL PROGRAMMING PROCEDURE CHANGING.</u>)</p>	<ul style="list-style-type: none"> • M-MDS 	<ul style="list-style-type: none"> • The additional key programming using No. 1 cannot be performed after the procedure. It is possible to restore the setting. For restoring the setting, the M-MDS is necessary.
5	<p>Changing the additional key programming procedure. Allows programming using two keys that can start the engine. (See <u>NO. 5 KEY ADDITIONAL PROGRAMMING PROCEDURE CHANGING.</u>)</p>	<ul style="list-style-type: none"> • M-MDS 	<ul style="list-style-type: none"> • New vehicles have this setting.
6	<p>Replacing the steering lock unit. (See <u>NO.6 STEERING LOCK UNIT REPLACEMENT PROCEDURE.</u>)</p>	<ul style="list-style-type: none"> • New steering lock unit • Programmed card key • New keys (Two or more) • M-MDS 	<ul style="list-style-type: none"> • Have two or more keys ready for programming before beginning the procedure, since the previous keys will be invalid. • The steering lock unit programming is necessary for the keyless control module before the key programming. • Two or more keys need to be programmed after the procedure to start the engine.
7	<p>Replacing the keyless control module. (See <u>NO.7 KEYLESS CONTROL MODULE REPLACEMENT PROCEDURE.</u>)</p>	<ul style="list-style-type: none"> • New keyless control module • Programming card key • Programming keys (Two or more) • M-MDS 	<ul style="list-style-type: none"> • Unless keys are reprogrammed after the procedure, the engine cannot be started. Before beginning the procedure, verify that the customer has turned in all of the card keys and keys for the vehicle. • Programming the card key. • Programming the steering lock unit. • The engine cannot be started unless a card key and two or more keys are programmed after the procedure. • The card key and keys (two

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			or more) prepared before the procedure do not have to be new ones and there is no problem with using the keys that were used to start the engine before the procedure.
8	Replacing several parts (PCM, keyless control module, and steering lock unit) at the same time. (See <u>NO.8 THE PROCEDURE FOR WHEN SEVERAL PARTS (PCM, KEYLESS CONTROL MODULE, AND STEERING LOCK UNIT)</u> are Replaced at The Same Time.)	<ul style="list-style-type: none"> • Parts to be replaced • Programming card key • Programming keys (Two or more) • M-MDS 	<ul style="list-style-type: none"> • Refer to No. 4, No. 6, and No. 7 above and prepare the required items according to the parts to be replaced.
-	Replacing the coil antenna.	<ul style="list-style-type: none"> • New coil antenna 	<ul style="list-style-type: none"> • Immobilizer system resetting is not necessary.

CAUTION:

- The following conditions may cause poor signal communication between the key and vehicle, resulting in the engine not starting or a key registration error. Do not perform any work under the following conditions:
 - Placing the following items close to the key grip or contacting it.
 - Spare keys
 - Keys for other vehicles equipped with an immobilizer system
 - Any metallic object
 - Any electronic device, or any credit or other card with magnetic strips
 - Do not place the following devices in the vehicle while programming, otherwise programming cannot be performed:
 - Card key
 - M-MDS
 - Personal computer
 - Devices that can send/receive the radio waves

NOTE:

- The "valid key" used in this manual indicates the key that can start the engine.
- If the key adding, programming, clearing, and immobilizer system construction parts replacement are performed, verify that the all keys can start the engine within 5 s after the procedure.
- When verifying that the engine starts, wait at least 5 s or more before

starting the engine using the next key.

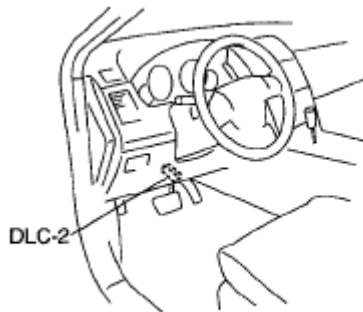
- If the engine cannot be started using a programmed key, repeat the procedure from the beginning.
- Do not start the engine unless indicated in the procedure. If the engine is started during the programming procedure, programming is stopped at that point. Repeat the procedure starting from the beginning if the engine is started before completion.
- Do not place the card key in the vehicle or bring it *within approx. 1 m* of the vehicle unless indicated in the procedure.
- Two or more key ID numbers must be programmed for the engine to start.
- A maximum of eight key ID numbers can be programmed for one vehicle. The M-MDS can be used to verify the number of key ID numbers programmed to a single vehicle.
- Do not select a M-MDS screen menu other than one indicated in the procedure.

M-MDS CONNECTING PROCEDURE

- CAUTION:**
- Do not place the M-MDS in the vehicle while programming, otherwise programming cannot be performed.

1. Fully lower the door glass.
2. Connect the M-MDS to the DLC-2.
3. Pull out the M-MDS cable from the door glass opening and set the M-MDS outside the vehicle.

- CAUTION:**
- Protect the cable and body contact area with a clean rag, otherwise they could be damaged.



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Fig. 85: Identifying DLC-2 Location
Courtesy of MAZDA MOTORS CORP.

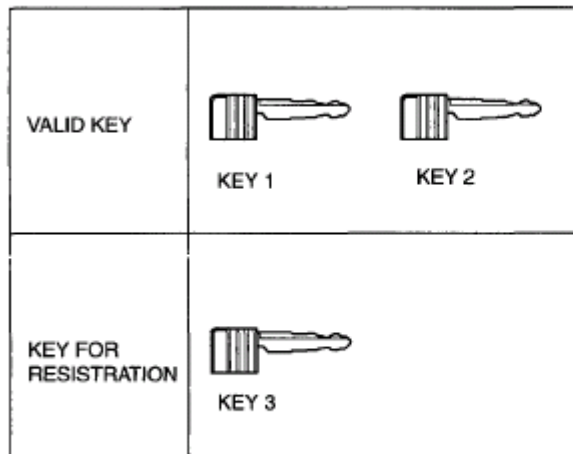
Condition

- Have two or more valid keys.

NOTE:

- A maximum of eight keys can be programmed for one vehicle. If key programming is not successful and DTC 15 appears even though the procedure was performed properly, use the PID/data monitor function of the M-MDS and verify the number of keys that have been programmed.
- If eight keys have already been programmed, and it is necessary to program other keys, the previously programmed key ID numbers must first be cleared. To clear the key, refer to "CLEARING CARD KEY [ADVANCED KEYLESS SYSTEM]".

Procedure



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Fig. 86: Additional Key Programming Procedure
 Courtesy of MAZDA MOTORS CORP.

1. Prepare key 3 for programming.
2. Start the engine using key 1.
3. Verify that the security light illuminates for **approx. 3 s**, and then goes out.
4. Turn the ignition switch to the LOCK position.
5. Using key 1, turn the ignition switch to the ON position.
6. Verify that the security light illuminates for **approx. 3 s**, and then goes out.
7. Using key 1, turn the ignition switch to the LOCK position **within approx. 4 s** after the security light goes out.
8. Remove key 1.
9. Repeat Steps 5-8 using key 2 instead of key 1.

10. Repeat Steps 5-8 using key 3 instead of key 1.
11. If an additional key is to be programmed, repeat Steps 2-10 with the additional key as key 4.
12. Verify that the all keys can start the engine for **5 s or more** after the procedure.

NO. 2 KEY ADDITIONAL PROGRAMMING PROCEDURE (USING THE M-MDS)

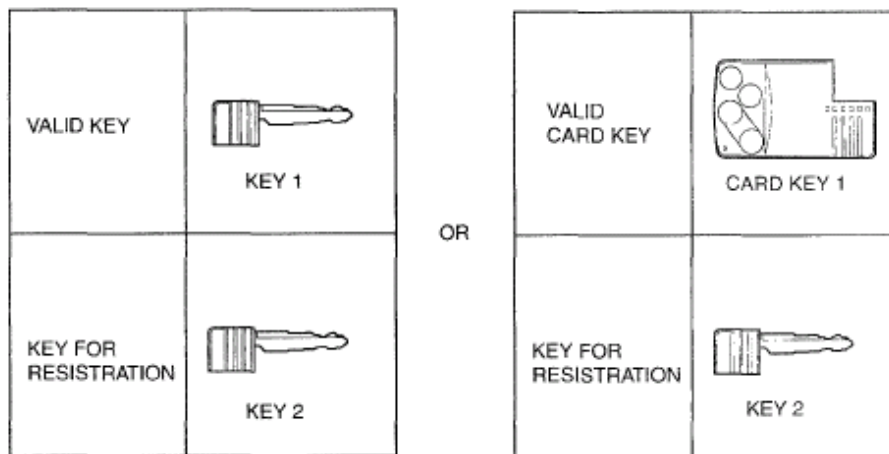
Condition

- There is only one valid key. Or, there is no valid key but there is a card key that can start the engine.

NOTE:

- **A maximum of eight keys can be programmed for one vehicle. If key registration is not successful and DTC 15 appears even though the procedure was performed properly, use the PID/data monitor function of the M-MDS and verify the number of keys that have been programmed.**
- **If eight keys have already been programmed, and it is necessary to program other keys, the previously programmed key ID numbers must first be cleared. To clear the key ID number, refer to "CLEARING CARD KEY [ADVANCED KEYLESS SYSTEM]".**

Procedure (If one key is to be programmed)



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Fig. 87: Key Additional Programming Procedure (If One Key Is To Be Programmed)
 Courtesy of MAZDA MOTORS CORP.

1. Prepare key 2 for programming.
2. Start the engine using a valid key 1 or card key 1.

CAUTION:

- **Do not place the card key in the vehicle when starting the engine with the valid key, otherwise programming cannot be**

performed. If the engine is started with the card key, remove the card key from the vehicle after the engine is started.

3. Verify that the security light illuminates for **approx. 3 s** , and then goes out.
4. Turn the ignition switch to the LOCK position.
5. Connect the M-MDS to the DLC-2. (See **M-MDS MENU**.)
6. Using key 2, turn the ignition switch to the ON position.

NOTE:

- **Although the security light starts flashing and DTC 15 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.**

7. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 - Select "Body".
 - Select "Security".
 - When using the PDS (Pocket PC)
 - Select "Programming".
8. Then, select items from the screen menu in the following order.
 - Select "PATS Functions".
9. Select "Program additional ignition key" from the M-MDS screen menu and perform the procedure according to the M-MDS screen
10. Perform the security access according to the directions on the M-MDS screen. (See **SECURITY ACCESS PROCEDURE**.)

NOTE:

- **After selecting the above menu, "This operation has been successful" is displayed. At this point, the key that turned the ignition switch to the ON position is completely programmed.**

11. After verifying that the PATS function menu is displayed again on the M-MDS screen, select the "Exit (From This Menu)" to finish the M-MDS procedure.
12. After Step 11, wait **5 s or more** , and then turn the ignition switch to the LOCK position.
13. Verify that the all keys can start the engine for **5 s or more** after the procedure.

Procedure (If two or more keys are to be programmed)

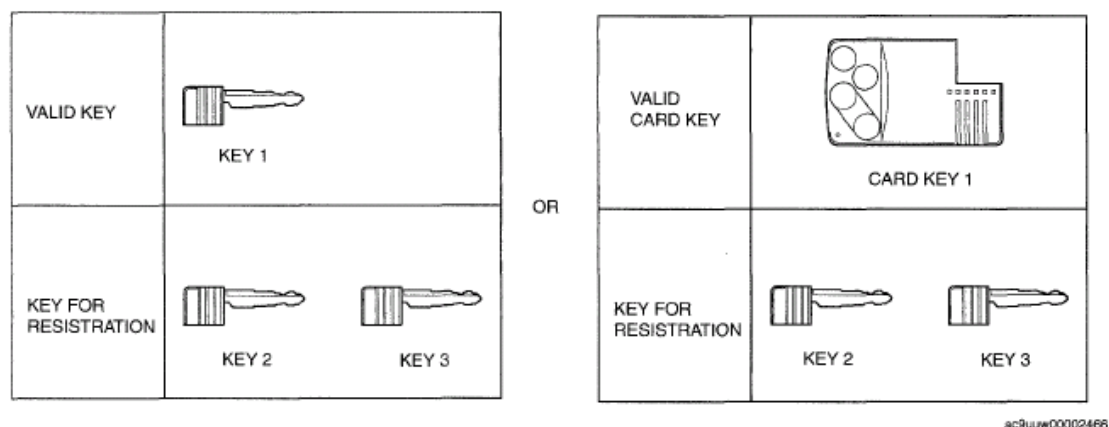


Fig. 88: Key Additional Programming Procedure (If Two Or More Keys Are To Be Programmed)
 Courtesy of MAZDA MOTORS CORP.

1. Prepare key 2 for programming.
2. Start the engine using a valid key 1 or card key 1.

CAUTION:

- Do not place the card key in the vehicle when starting the engine with the valid key, otherwise programming cannot be performed. If the engine is started with the card key, remove the card key from the vehicle after the engine is started.

3. Verify that the security light illuminates for **approx. 3 s**, and then goes out.
4. Turn the ignition switch to the LOCK position.
5. Connect the M-MDS to the DLC-2. (See M-MDS MENU.)
6. Using key 2, turn the ignition switch to the ON position.

NOTE:

- Although the security light starts flashing and DTC 15 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.

7. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 - Select "Body".
 - Select "Security".
 - When using the PDS (Pocket PC)
 - Select "Programming".
8. Then, select items from the screen menu in the following order.
 - Select "PATS Functions".
9. Select "Program additional ignition key" from the M-MDS screen menu and perform the procedure according to the M-MDS screen

10. Perform the security access according to the directions on the M-MDS screen. (See **SECURITY ACCESS PROCEDURE.**)

NOTE:

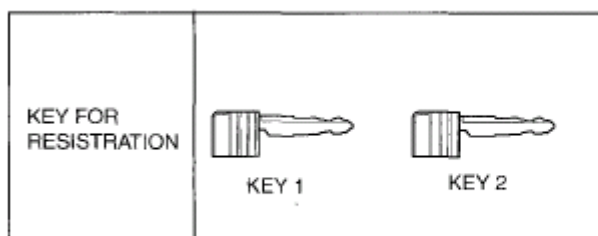
- After selecting the above menu, "This operation has been successful" is displayed. At this point, the key that turned the ignition switch to the ON position is completely programmed.

11. Turn the ignition switch to the LOCK position and remove key 2.
12. If additional keys need to be programmed, repeat Steps 6-10, and replace key 3 in Step 10 with the key to be programmed.
13. After verifying that the PATS function menu is displayed again on the M-MDS screen, select the "Exit (From This Menu)" to finish the M-MDS procedure.
14. After Step 10, wait **5 s or more** , and then turn the ignition switch to the LOCK position.
15. Verify that the all keys can start the engine for 5 s or more after the procedure.

NO.3 KEY REPLACEMENT PROCEDURE (CLEARING PREVIOUSLY PROGRAMMED KEY ID NUMBERS, KEY RE-PROGRAM)

Condition

- Prepare two or more keys to be programmed after the key ID number is cleared.

Procedure

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Fig. 89: Key Replacement Procedure
Courtesy of MAZDA MOTORS CORP.

1. Prepare two or more keys to be programmed after the key ID number is cleared.
2. Connect the M-MDS to the DLC-2. (See **M-MDS MENU.**)
3. Using key 1, turn the ignition switch to the ON position.

NOTE:

- Although the security light starts flashing and DTC 15 or DTC 23 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.

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4. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 - Select "Body".
 - Select "Security".
 - When using the PDS (Pocket PC)
 - Select "Programming".
5. Then, select items from the screen menu in the following order.
 - Select "PATS Functions".
6. Select "Ignition Key Code Erase" from the M-MDS screen menu and perform the procedure according to the M-MDS screen
7. Perform the security access according to the directions on the M-MDS screen. (See **SECURITY ACCESS PROCEDURE**.)

CAUTION:

- **The M-MDS displays "You must now program a minimum of two keys.", however, do not perform the key programming and proceed to Step 7. If the procedure is not followed, the engine may not be started. The key programming procedure is performed at Steps 12 to 17.**

8. After verifying that the PATS function menu is displayed again on the M-MDS screen, select "Exit (From This Menu)" to finish the M-MDS procedure.
9. After Step 8, wait **5 s or more** and then turn the ignition switch to the ON position.
10. Ignition switch to the LOCK position.
11. Disconnect the M-MDS from the DLC-2.
12. Using key 1, turn the ignition switch to the ON position.
13. After verifying that the security light and keyless warning light illuminate for **3 s or more**, turn the ignition switch to the LOCK position and remove key 1.

NOTE:

- **Although the security light remains illuminated and DTC 21 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.**

14. Using key 2, turn the ignition switch to the ON position.
15. Verify that the security light and keyless warning light illuminate **for approx. 3 s**, and then goes out.
16. After verifying that the security light goes out, turn the ignition switch to the LOCK position using key 2, and then remove key 2.
17. If programming one more keys, repeat Steps 14 to 16 with a key to be programmed as key 3. If the vehicle is left with the ignition switch in the ON position for 1 min or more, additional key programming according to Steps 14 to 16 is disabled. If this occurs, refer to the "**NO.1 ADDITIONAL KEY PROGRAMMING PROCEDURE (USING TWO VALID KEYS)**" to program any additional keys. (See **NO.1 ADDITIONAL KEY PROGRAMMING PROCEDURE (USING TWO VALID KEYS)**.)

18. Start the engine with key 1.
19. Verify that the security light and keyless warning light operate as follows:
 - From the point when the ignition switch is turned to the ON position, the security light illuminates **for approx. 3 s**, and goes out.
 - The keyless warning light illuminates when the ignition switch is turned to the ON position, and the light goes out after **approx. 1 s**, and then displays the number of the programmed keys.

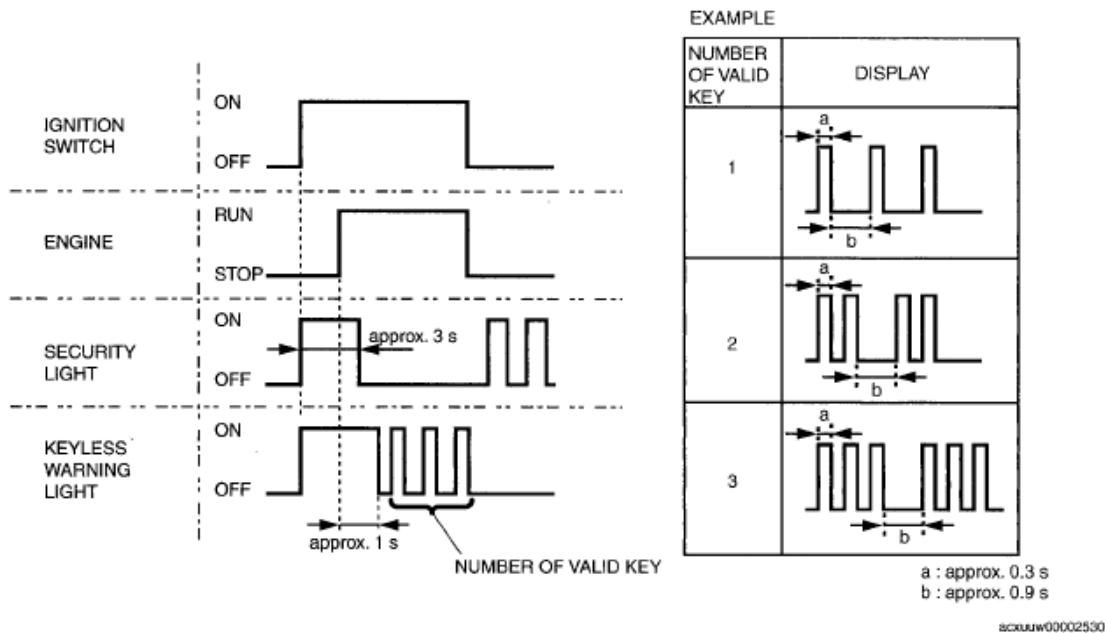


Fig. 90: Identifying Blinking Pattern - Keyless Warning Light
Courtesy of MAZDA MOTORS CORP.

20. After verifying that the keyless warning light goes out, turn the ignition switch to the LOCK position using key 1, and then remove the key.
21. Repeat Steps 18 to 20 using key 2 instead of key 1.

NOTE:

- If three or more keys have already been programmed, perform Steps 18 to 20.

22. Start the engine using the card key 1.

CAUTION:

- Remove any key from the key cylinder.
- Close all doors.
- Bring the card key into the vehicle.

23. Verify that the security light and keyless warning light operate as follows:
 - From the point that ignition switch is turned to the ON position, the security light illuminates for

approx. 3 s , and goes out.

- The keyless warning light illuminate when the ignition switch is turned to the ON position for **approx. 1 min** , and goes out.

24. After verifying that the keyless warning light goes out, turn the ignition switch to the LOCK position.
25. Verify that the all keys can start the engine for **5 s or more** after the procedure.

NO.4 PCM REPLACEMENT PROCEDURE

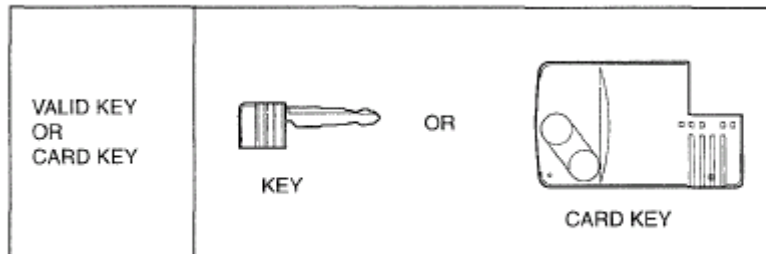
Condition

- Prepare a valid key or a card key that can start the engine.

CAUTION:

- **Before starting Step 1, complete the procedure for PCM replacement. (See PCM REMOVAL/INSTALLATION [MZI-3.7] .)**

Procedure



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Fig. 91: PCM Replacement Procedure
 Courtesy of MAZDA MOTORS CORP.

1. Turn the ignition switch to the LOCK position.
2. Connect the M-MDS to the DLC-2. (See M-MDS MENU.)
3. Using a valid key or card key, turn the ignition switch to the ON position.

NOTE:

- **Although the security light remains illuminated and DTC 23 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.**

4. Verify that the keyless warning light illuminates for **approx. 3 s** , and then goes out.
5. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 - Select "Body".
 - Select "Security".
 - When using the PDS (Pocket PC)

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- Select "Programming".
- 6. Then, select items from the screen menu in the following order.
 - Select "PATS Functions".
- 7. Select "Parameter Reset" from the M-MDS screen menu and perform the procedure according to the M-MDS screen
- 8. Perform the security access according to the directions on the M-MDS screen. (See **SECURITY ACCESS PROCEDURE**.)
- 9. Select the replaced parts according to the directions on the M-MDS.
 - If the PCM is replaced: Select "PCM".

NOTE:

- **At this time, do not select the other parts from the M-MDS menu.**

10. After verifying that the PATS function menu is displayed again on the M-MDS screen, select "Exit (From This Menu)" to finish the M-MDS procedure.
11. After Step 10, wait **5 s or more**, and then turn the ignition switch to the LOCK position.
12. Using key, turn the ignition switch to the ON position.
13. After verifying that the security light and keyless warning light illuminates **for 3 s or more** turn the ignition switch to the LOCK position and remove key 1.
14. Verify that the all keys can start the engine for **5 s or more** after the procedure.

NO. 5 KEY ADDITIONAL PROGRAMMING PROCEDURE CHANGING

NOTE:

- **This procedure is performed for enabling/disabling the "No.1 Additional Key Programming Procedure (Using Two Valid Keys)" setting.**
- **This procedure is possible when the vehicle is new, and when replacing the keyless unit with a new one.**
- **If "No.1 Additional Key Programming Procedure (Using Two Valid Keys)" is set to disable, the additional key programming can be only performed using the M-MDS preventing the forging of a spare key by using two keys that can start the engine. This function is for use by rental car agencies or other companies with vehicle fleets.**

Procedure

1. Using the key, turn the ignition switch to the ON position. (The key can be either the valid key or an unprogrammed key)

NOTE:

- **Although the security light starts flashing and DTC 15 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.**

2. Connect the M-MDS to the DLC-2. (See **M-MDS MENU**.)

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3. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 - Select "Body".
 - Select "Security".
 - When using the PDS (Pocket PC)
 - Select "Programming".
4. Then, select items from the screen menu in the following order.
 - Select "PATS Functions".
5. Select "Customer Spare Key Programming Enable" or "Customer Spare Key Programming Disable" from the M-MDS screen menu. The key additional programming procedure is as follows according to the selected menu:

ADDITIONAL KEY PROGRAMMING PROCEDURE

Setting	Additional key programming procedure	
	Method using two valid keys	Method using the M-MDS
Customer spare key programming enable	-	-
Customer spare key programming disable	X	-
- : Available		
x : Unavailable		

6. Perform the security access according to the directions on the M-MDS screen. (See **SECURITY ACCESS PROCEDURE.**)
7. After verifying that the PATS function menu is displayed again on the M-MDS screen, select "Exit (From This Menu)" to finish the M-MDS procedure.
8. After Step 7, wait **5 s or more** and then turn the ignition switch to the LOCK position.
9. Verify that the all keys can start the engine for **5 s or more** after the procedure.

NO.6 STEERING LOCK UNIT REPLACEMENT PROCEDURE

Condition

- Have two or more keys to be programmed after the replacement.

Procedure

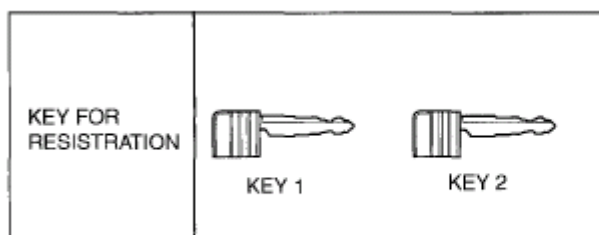


Fig. 92: Steering Lock Unit Replacement Procedure

Courtesy of MAZDA MOTORS CORP.

1. Prepare two or more keys to be programmed after the key ID number is cleared.
2. Connect the M-MDS to the DLC-2. (See M-MDS MENU.)
3. Using key 1, turn the ignition switch to the ON position.

NOTE:

- **Although the security light remains illuminated and DTC 23 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.**

4. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 - Select "Body".
 - Select "Security".
 - When using the PDS (Pocket PC)
 - Select "Programming".
5. Then, select items from the screen menu in the following order.
 - Select "PATS Functions".
6. Select "Ignition Key Code Erase" from the M-MDS screen menu and perform the procedure according to the M-MDS screen
7. Perform the security access according to the directions on the M-MDS screen. (See SECURITY ACCESS PROCEDURE.)

CAUTION:

- **The M-MDS displays "You must now program a minimum of two keys.", however, do not perform the key programming and proceed to Step 7. If the procedure is not followed, the engine may not be started. The key programming procedure is performed at Steps 13 to 18.**

8. Perform the steering lock unit programming. (See STEERING LOCK UNIT ID CODE REGISTRATION [ADVANCED KEYLESS SYSTEM].)
9. After verifying that the PATS function menu is displayed again on the M-MDS screen, select "Exit (From This Menu)" to finish the M-MDS procedure.
10. After Step 9, wait **5 s or more** and then turn the ignition switch to the ON position.
11. Ignition switch to the LOCK position.
12. Disconnect the M-MDS from the DLC-2.
13. Using key 1, turn the ignition switch to the ON position.
14. After verifying that the security light and keyless warning light illuminate **for 3 s or more**, turn the ignition switch to the LOCK position and remove key 1.

NOTE:

- Although the security light remains illuminated and DTC 21 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.

- Using key 2, turn the ignition switch to the ON position.
- Verify that the security light and keyless warning light illuminate for approx. 3 s , and then goes out.
- After verifying that the security light goes out, turn the ignition switch to the LOCK position using key 2, and then remove key 2.
- If programming one more keys, repeat Steps 15 to 17 with a key to be programmed as key 3. If the vehicle is left with the ignition switch in the ON position for 1 min or more, additional key programming according to Steps 15 to 17 is disabled. If this occurs, refer to the "**M-MDS CONNECTING PROCEDURE**" to program any additional keys. (See **M-MDS MENU**.)
- Start the engine with key 1.
- Verify that the security light and keyless warning light operate as follows:
 - From the point when the ignition switch is turned to the ON position, the security light illuminates for approx. 3 s , and goes out.
 - The keyless warning light illuminates when the ignition switch is turned to the ON position, and the light goes out after approx. 1 s , and then displays the number of the programmed keys.

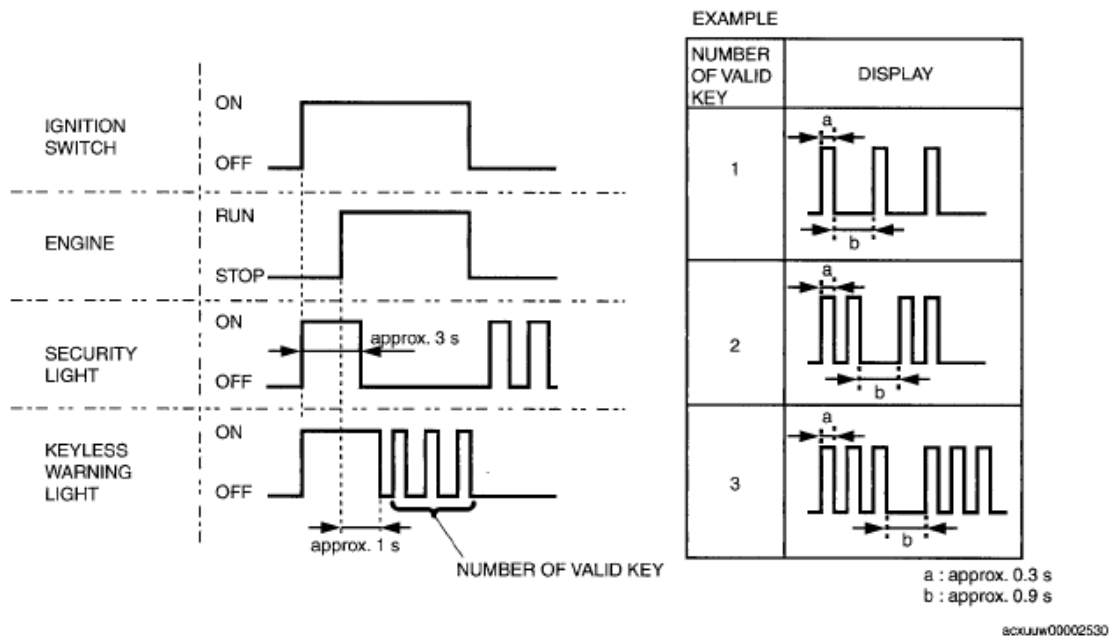


Fig. 93: Identifying Blinking Pattern - Keyless Warning Light
Courtesy of MAZDA MOTORS CORP.

- After verifying that the keyless warning light goes out, turn the ignition switch to the LOCK position using key 1, and then remove the key.
- Repeat Steps 19 to 21 using key 2 instead of key 1.

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NOTE:

- **If three or more keys have already been programmed, perform Steps 19 to 21.**

23. Start the engine using the card key.

CAUTION:

- **Remove any key from the key cylinder.**
- **Close all doors.**
- **Bring the card key into the vehicle.**

24. Verify that the security light and keyless warning light operate as follows:

- From the point that ignition switch is turned to the ON position, the security light illuminates **for approx. 3 s**, and goes out.
- The keyless warning light illuminate when the ignition switch is turned to the ON position for **approx. 1 min**, and goes out.

25. After verifying that the keyless warning light goes out, turn the ignition switch to the LOCK position.

26. Verify that the all keys can start the engine for **5 s or more** after the procedure.

NO.7 KEYLESS CONTROL MODULE REPLACEMENT PROCEDURE

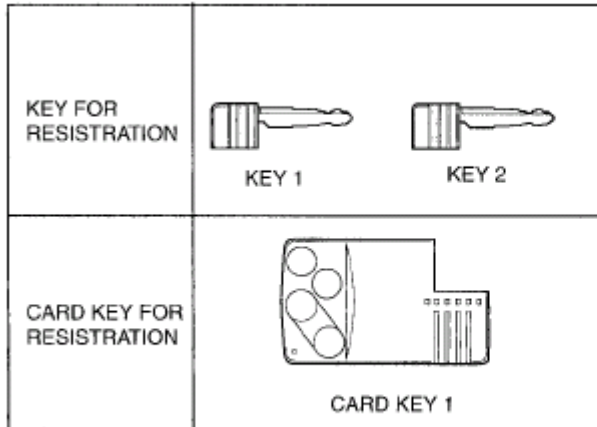
CAUTION:

- **Do not place the following devices in the vehicle while programming, otherwise programming cannot be performed:**
 - **Card key**
 - **M-MDS**
 - **Personal computer**
 - **Devices that can send/receive the radio waves**

Condition

- Have two or more keys to be programmed after the replacement.
- Have one or more card keys to be programmed after the replacement.

Procedure



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Fig. 94: Keyless Control Module Replacement Procedure
 Courtesy of MAZDA MOTORS CORP.

1. Prepare two or more keys to be programmed after the key ID number is cleared.
2. Connect the M-MDS to the DLC-2. (See **M-MDS MENU**.)
3. Using key 1, turn the ignition switch to the ON position.

NOTE:

- **Although the security light starts flashing and DTC 15 or DTC 23 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.**

4. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 - Select "Body".
 - Select "Security".
 - When using the PDS (Pocket PC)
 - Select "Programming".
5. Then, select items from the screen menu in the following order.
 - Select "PATS Functions".
6. Select "Parameter Reset" from the M-MDS screen menu and perform the procedure according to the M-MDS screen
7. Perform the security access according to the directions on the M-MDS screen. (See **SECURITY ACCESS PROCEDURE**.)
8. Select the replaced parts according to the directions on the M-MDS.
 - If the keyless control module is replaced: Select "SKE".

NOTE:

- **At this time, do not select the other parts from the M-MDS menu.**

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9. Select "Ignition Key Code Erase" from the M-MDS screen menu and perform the procedure according to the M-MDS screen.

CAUTION:

- **The M-MDS displays "You must now program a minimum of two keys.", however, do not perform the key programming and proceed to Step 9. If the procedure is not followed, the engine may not be started. The key programming procedure is performed at Steps 16 to 21.**

10. Perform the card key programming. (See CARD KEY ID CODE REGISTRATION [ADVANCED KEYLESS SYSTEM].)
11. Perform the steering lock unit programming. (See STEERING LOCK UNIT ID CODE REGISTRATION [ADVANCED KEYLESS SYSTEM].)
12. After verifying that the PATS function menu is displayed again on the M-MDS screen, select "Exit (From This Menu)" to finish the M-MDS procedure.
13. After Step 12, wait **5 s or more** and then turn the ignition switch to the ON position.
14. Ignition switch to the LOCK position.
15. Disconnect the M-MDS from the DLC-2.
16. Using key 1, turn the ignition switch to the ON position.
17. After verifying that the security light and keyless warning light illuminate **for 3 s or more**, turn the ignition switch to the LOCK position and remove key 1.

NOTE:

- **Although the security light remains illuminated and DTC 21 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.**

18. Using key 2, turn the ignition switch to the ON position.
19. Verify that the security light and keyless warning light illuminate **for approx. 3 s**, and then goes out.
20. After verifying that the security light goes out, turn the ignition switch to the LOCK position using key 2, and then remove key 2.
21. If programming one more keys, repeat Steps 18 to 20 with a key to be programmed as key 3. If the vehicle is left with the ignition switch in the ON position for 1 min or more, additional key programming according to Steps 18 to 20 is disabled. If this occurs, refer to the "M-MDS CONNECTING PROCEDURE" to program any additional keys. (See M-MDS MENU.)
22. Start the engine with key 1.
23. Verify that the security light and keyless warning light operate as follows:
 - From the point when the ignition switch is turned to the ON position, the security light illuminates **for approx. 3 s**, and goes out.
 - The keyless warning light illuminates when the ignition switch is turned to the ON position, and the light goes out after **approx. 1 s**, and then displays the number of the programmed keys.

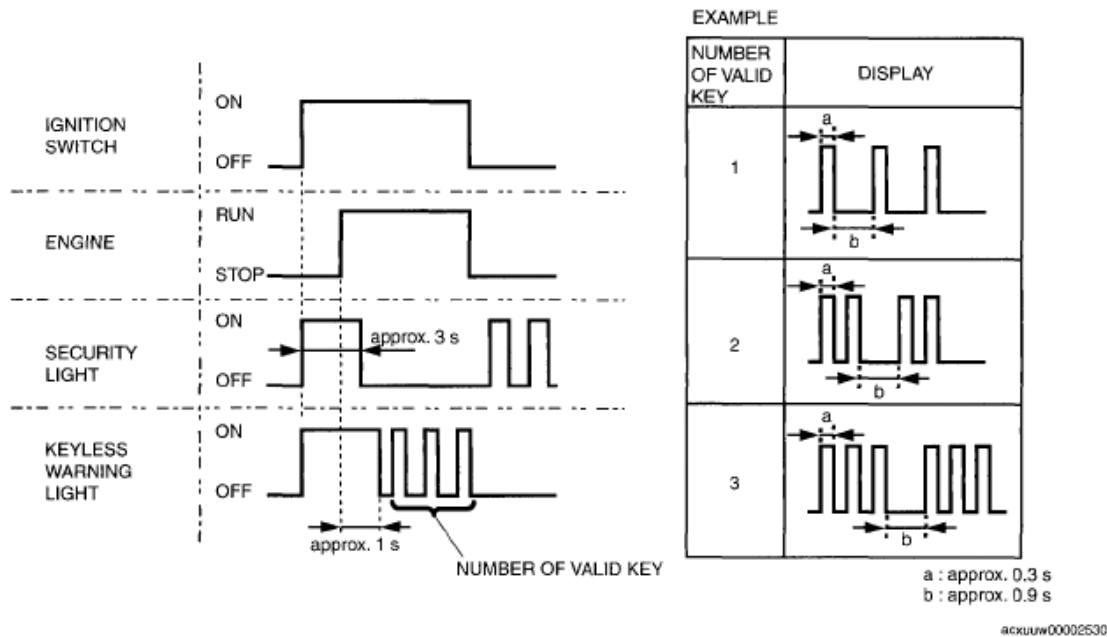


Fig. 95: Identifying Blinking Pattern - Keyless Warning Light
Courtesy of MAZDA MOTORS CORP.

24. After verifying that the keyless warning light goes out, turn the ignition switch to the LOCK position using key 1, and then remove the key.
25. Repeat Steps 22 to 24 using key 2 instead of key 1.

NOTE:

- If three or more keys have already been programmed, perform Steps 22 to 24.

26. Start the engine using the card key.

CAUTION:

- Remove any key from the key cylinder.
- Close all doors.
- Bring the card key into the vehicle.

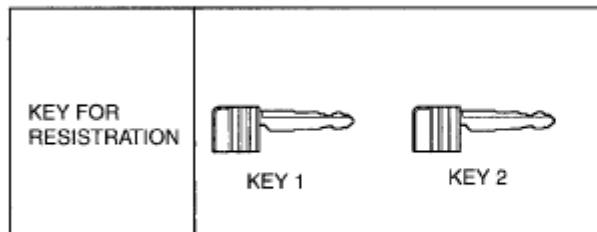
27. Verify that the security light and keyless warning light operate as follows:
 - From the point that ignition switch is turned to the ON position, the security light illuminates for **approx. 3 s**, and goes out.
 - The keyless warning light illuminate when the ignition switch is turned to the ON position for **approx. 1 min**, and goes out.
28. After verifying that the keyless warning light goes out, turn the ignition switch to the LOCK position.
29. Verify that the all keys can start the engine for **5 s or more** after the procedure.

AND STEERING LOCK UNIT) ARE REPLACED AT THE SAME TIME

- CAUTION:**
- **Do not place the following devices in the vehicle while programming, otherwise programming cannot be performed:**
 - Card key
 - M-MDS
 - Personal computer
 - Devices that can send/receive the radio waves

Condition

- The menu executed on the M-MDS varies depending on the replaced parts. Verify the M-MDS menu to be executed referring to the **M-MDS EXECUTION MENU/SEQUENCE FOR THE IMMOBILIZER SYSTEM COMPONENT PARTS REPLACEMENT**.

Procedure

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Fig. 96: Procedure For - PCM, Keyless Control Module & Steering Lock Unit
 Courtesy of MAZDA MOTORS CORP.

1. Prepare two or more keys to be programmed after the key ID number is cleared.
2. Connect the M-MDS to the DLC-2. (See **M-MDS MENU**.)
3. Using key 1, turn the ignition switch to the ON position.

- NOTE:**
- **Although the security light starts flashing and DTC 15 or DTC 23 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.**

4. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 - Select "Body".
 - Select "Security".
 - When using the PDS (Pocket PC)
 - Select "Programming".

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5. Then, select items from the screen menu in the following order.
 - Select "PATS Functions".
6. Select "Parameter Reset" from the M-MDS screen menu and perform the procedure according to the M-MDS screen
7. Perform the security access according to the directions on the M-MDS screen. (See **SECURITY ACCESS PROCEDURE**.)
8. Select the replaced parts according to the directions on the M-MDS.
 - If the PCM is replaced: Select "PCM".
 - If the keyless control module is replaced: Select "SKE".

NOTE:

- **At this time, do not select the other parts from the M-MDS menu.**

9. Select "Ignition Key Code Erase," from the M-MDS screen menu and perform the procedure according to the M-MDS screen.

CAUTION:

- **The M-MDS displays "You must now program a minimum of two keys.", however, do not perform the key programming and proceed to Step 9. If the procedure is not followed, the engine may not be started. The key programming procedure is performed at Steps 14 to 19.**

10. Perform the card key programming. (See **CARD KEY ID CODE REGISTRATION [ADVANCED KEYLESS SYSTEM]**.)
11. Perform the steering lock unit programming. (See **STEERING LOCK UNIT ID CODE REGISTRATION [ADVANCED KEYLESS SYSTEM]**.)
12. After verifying that the PATS function menu is displayed again on the M-MDS screen, select "Exit (From This Menu)" to finish the M-MDS procedure.
13. After Step 12, wait **5 s or more** and then turn the ignition switch to the ON position.
14. Ignition switch to the LOCK position.
15. Disconnect the M-MDS from the DLC-2.
16. Using key 1, turn the ignition switch to the ON position.
17. After verifying that the security light and keyless warning light illuminate **for 3 s or more**, turn the ignition switch to the LOCK position and remove key 1.

NOTE:

- **Although the security light remains illuminated and DTC 21 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.**

18. Using key 2, turn the ignition switch to the ON position.
19. Verify that the security light and keyless warning light illuminate **for approx. 3 s**, and then goes out.
20. After verifying that the security light goes out, turn the ignition switch to the LOCK position using key 2,

and then remove key 2.

21. If programming one more keys, repeat Steps 18 to 20 with a key to be programmed as key 3. If the vehicle is left with the ignition switch in the ON position for 1 min or more, additional key programming according to Steps 18 to 20 is disabled. If this occurs, refer to the "**M-MDS CONNECTING PROCEDURE**" to program any additional keys. (See **M-MDS MENU**.)
22. Start the engine with key 1.
23. Verify that the security light and keyless warning light operate as follows:
 - From the point when the ignition switch is turned to the ON position, the security light illuminates for **approx. 3 s**, and goes out.
 - The keyless warning light illuminates when the ignition switch is turned to the ON position, and the light goes out after **approx. 1 s**, and then displays the number of the programmed keys.

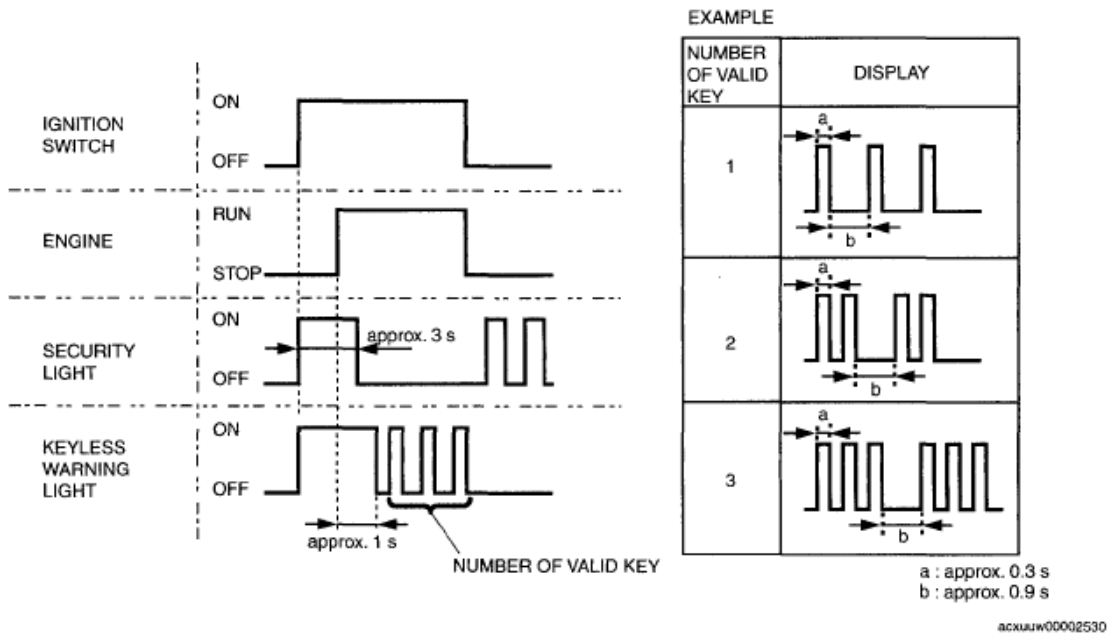


Fig. 97: Identifying Blinking Pattern - Keyless Warning Light
Courtesy of MAZDA MOTORS CORP.

24. After verifying that the keyless warning light goes out, turn the ignition switch to the LOCK position using key 1, and then remove the key.
25. Repeat Steps 22 to 24 using key 2 instead of key 1.

NOTE:

- If three or more keys have already been programmed, perform Steps 22 to 24.

26. Start the engine using the card key.

CAUTION:

- Remove any key from the key cylinder.
- Close all doors.

- **Bring the card key into the vehicle.**

27. Verify that the security light and keyless warning light operate as follows:
- From the point that ignition switch is turned to the ON position, the security light illuminates for **approx. 3 s** , and goes out.
 - The keyless warning light illuminate when the ignition switch is turned to the ON position for **approx. 1 min** , and goes out.
28. After verifying that the keyless warning light goes out, turn the ignition switch to the LOCK position.
29. Verify that the all keys can start the engine for **5 s or more** after the procedure.

IMMOBILIZER SYSTEM COMPONENT REPLACEMENT/KEY ADDITION AND CLEARING [KEYLESS ENTRY SYSTEM]

FOREWORD

- The immobilizer resetting procedure using the M-MDS must also always be performed when performing the following procedure: "instrument cluster replacement", "PCM replacement", "instrument cluster and PCM joint replacement", and "key ID number clearing". The engine will not start unless all work is performed using the M-MDS.
- For adding a key, there are two ways, either using the M-MDS or using two keys with which the engine can be started.
- When replacing any of the immobilizer system component parts, adding/clearing keys, or performing other functions, refer to the following table and perform the applicable procedure (No.1 to 7).

IMMOBILIZER SYSTEM COMPONENT REPLACEMENT REFERENCE

Reference number	Situation	Required items	Cautionary notes
1	Have two or more keys with which the engine can be started, and making a spare key, or programming an additional key. (See <u>NO.1 ADDITIONAL KEY REGISTRATION PROCEDURE (USING TWO VALID KEYS)</u> .)	<ul style="list-style-type: none"> • Registration key 	<ul style="list-style-type: none"> • The M-MDS is necessary for the additional key programming if "Customer Spare Key Programming Disable" is set before the procedure using the M-MDS. In this case, perform No. 2.
2	If there is only one key that can start the engine, make a spare key. If there is no key, program an additional key. (See <u>NO.2 ADDITIONAL KEY REGISTRATION PROCEDURE (USING THE M-MDS)</u> .)	<ul style="list-style-type: none"> • Registration key • M-MDS 	
			<ul style="list-style-type: none"> • All the key ID numbers programmed to the vehicle

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3	<p>Clearing the programmed key ID number. (See <u>NO.3 KEY REPLACEMENT PROCEDURE (CLEARING PREVIOUSLY PROGRAMMED KEY ID NUMBERS, KEY RE-PROGRAM.)</u>)</p>	<ul style="list-style-type: none"> • Registration keys (Two or more) • M-MDS 	<p>will be cleared.</p> <ul style="list-style-type: none"> • Unless keys are reprogrammed after the procedure, the engine cannot be started. Before beginning the procedure, verify that the customer has turned in all of the keys for the vehicle. • Two or more keys need to be programmed after the procedure to start the engine. • The keys (two or more) to prepare for the procedure do not have to be new ones; there is no problem with using the keys with which the engine can be started.
3	<p>Replace all the keys. (Steering lock replacement or similar procedure) (See <u>NO.3 KEY REPLACEMENT PROCEDURE (CLEARING PREVIOUSLY PROGRAMMED KEY ID NUMBERS, KEY RE-PROGRAM.)</u>)</p>	<ul style="list-style-type: none"> • New keys (two or more) • M-MDS 	<ul style="list-style-type: none"> • The previous keys will be invalid since the steering lock is replaced. Have two or more new keys ready for programming before beginning the procedure. • Unless keys are reprogrammed after the procedure, the engine cannot be started.
4	<p>Changing the additional key programming procedure. (Method for programming other keys using two keys that can start the engine is disabled.) (See <u>NO.4 ADDITIONAL KEY PROGRAMMING PROCEDURE CHANGING.)</u>)</p>	<ul style="list-style-type: none"> • M-MDS 	<ul style="list-style-type: none"> • The additional key programming using No. 1 cannot be performed after the procedure. It is possible to restore the setting. For restoring the setting, the M-MDS or equivalent is necessary.
4	<p>Changing the additional key programming procedure. (Allows programming using two keys that can start the engine.) (See <u>NO.4 ADDITIONAL KEY PROGRAMMING PROCEDURE CHANGING.)</u>)</p>	<ul style="list-style-type: none"> • M-MDS 	<ul style="list-style-type: none"> • New vehicles have this setting.
			<ul style="list-style-type: none"> • Unless keys are

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5	<p>Replacing the instrument cluster only. (See <u>NO.5 RESETTING PROCEDURE FOR THE IMMOBILIZER SYSTEM WHEN REPLACING THE INSTRUMENT CLUSTER REPLACEMENT.</u>)</p>	<ul style="list-style-type: none"> • New instrument cluster • Registration keys (two or more) • M-MDS 	<p>reprogrammed after the procedure, the engine cannot be started. Before beginning the procedure, verify that the customer has turned in all of the keys for the vehicle.</p> <ul style="list-style-type: none"> • Two or more keys need to be programmed after the procedure to start the engine. • The keys (two or more) to prepare for the procedure do not have to be new ones; there is no problem with using the keys with which the engine can be started.
6	<p>Replacing the PCM only. (See <u>NO.6 RESETTING PROCEDURE FOR THE IMMOBILIZER SYSTEM WHEN REPLACING THE PCM.</u>)</p>	<ul style="list-style-type: none"> • Replacement PCM • M-MDS 	-
7	<p>Replacing the PCM and instrument cluster at the same time. (See <u>PROCEDURE.</u>)</p>	<ul style="list-style-type: none"> • New PCM • New instrument cluster • Registration keys (two or more) • M-MDS 	<ul style="list-style-type: none"> • Unless keys are reprogrammed after the procedure, the engine cannot be started. Before beginning the procedure, verify that the customer has turned in all of the keys for the vehicle. • Two or more keys need to be programmed after the procedure to start the engine. • The keys (two or more) to prepare for the procedure do not have to be new ones; there is no problem with using the keys with which the engine can be started.
-	<p>Replacing the coil antenna.</p>	<ul style="list-style-type: none"> • New coil antenna 	<ul style="list-style-type: none"> • Immobilizer system resetting is not necessary.

CAUTION: • If any of the following items are touching or near the key head, signal communication between the key and vehicle is negatively affected,

resulting in the engine not starting or the key registration failure. Do not perform the procedure if any of the following items are touching or near the key head.

- Any metallic object
- Spare keys or keys for other vehicles equipped with an immobilizer system
- Any electronic device, or any credit or other cards with magnetic strips

NOTE:

- Within the following procedures, the term a "valid key" means a "key that can start the engine".
- After adding/registering keys, clearing ID numbers or replacing any component part of the immobilizer system, verify that all keys can start the engine *within 5 s*.
- When verifying that the keys can start the engine, wait at least *5 s or more* between inserting them.
- If the engine cannot be started using a registered key, repeat the procedure from the beginning.

EXAMPLES:



METAL RING LYING ON KEY HEAD



METAL PART OF ANOTHER KEY TOUCHING KEY HEAD



KEY IS NEAR OR TOUCHING ANOTHER IMMOBILIZER SYSTEM KEY

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Fig. 98: Precaution For - Immobilizer System Key
Courtesy of MAZDA MOTORS CORP.

- Do not start the engine until the key registration procedure for all the necessary keys is completed. If the engine is started during the registration procedure, registration is stopped at that point. Repeat the procedure starting from the beginning if the engine is started before completion.
- Two or more key ID numbers must be registered for the engine to start.
- A maximum of eight key ID numbers can be registered for one vehicle. The

M-MDS can be used to verify the number of key ID numbers registered to a single vehicle.

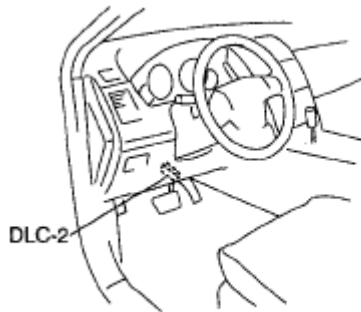
- Do not select screen menus of the M-MDS that are not indicated within the procedures.

M-MDS CONNECTING PROCEDURE

- CAUTION:**
- Do not place the M-MDS in the vehicle while programming, otherwise programming cannot be performed.

1. Fully lower the door glass.
2. Connect the M-MDS to the DLC-2.
3. Pull out the M-MDS cable from the door glass opening and set the M-MDS outside the vehicle.

- CAUTION:**
- Protect the cable and body contact area with a clean rag, otherwise they could be damaged.



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Fig. 99: Identifying DLC-2 Location
Courtesy of MAZDA MOTORS CORP.

NO.1 ADDITIONAL KEY REGISTRATION PROCEDURE (USING TWO VALID KEYS)

Conditions

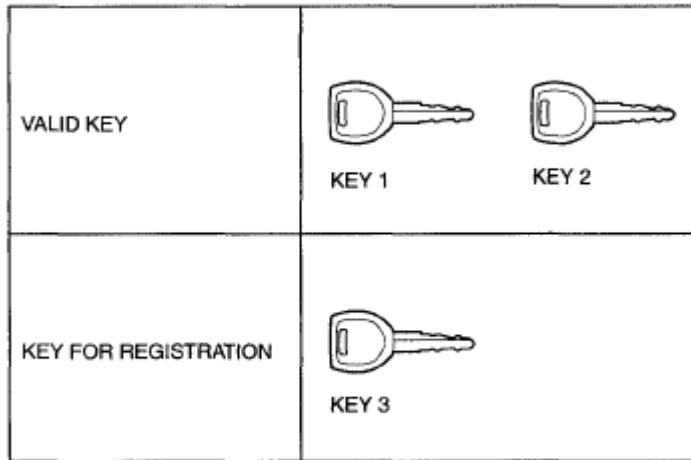
- Have two or more valid keys.

NOTE:

- A maximum of eight keys can be registered for any one vehicle. If key registration is not successful and DTC 15 appears even though the procedure was performed properly, use the PID/data monitor function of the M-MDS and verify the number of keys that have been registered.
- If eight keys have already been registered, and it is necessary to register other keys, the previously registered key ID numbers must

first be cleared. To clear the key ID numbers, refer to "NO.3 KEY REPLACEMENT PROCEDURE (CLEARING PREVIOUSLY PROGRAMMED KEY ID NUMBERS, KEY RE-PROGRAM)".

Procedure



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Fig. 100: Additional Key Registration Procedure
 Courtesy of MAZDA MOTORS CORP.

1. Have one key (key 3) ready for registration.
2. Using key 1, turn the ignition switch to the ON position.
3. Verify that the security light illuminates for **approx. 3 s** and then goes out.
4. Using key 1, turn the ignition switch to the LOCK position **within approx. 4 s** after the security light goes out.
5. Remove key 1
6. Repeat Steps 2-5 using key 2.
7. Repeat Steps 2-5 using key 3.
8. If additional keys need to be registered, repeat Steps 2-5 in the same manner as key 4.
9. Verify that the all keys can start the engine for **5 s or more** after the procedure.

NO.2 ADDITIONAL KEY REGISTRATION PROCEDURE (USING THE M-MDS)

Conditions

- Customer has only one valid key. Or customer has no valid keys. (Can also be performed even if there are two or more valid keys)

NOTE:

- A maximum of eight keys can be registered for any one vehicle. If key registration is not successful and DTC 15 appears even though the

procedure was performed properly, use the PID/data monitor function of the M-MDS and verify the number of keys that have been registered.

- If eight keys have already been registered, and it is necessary to register other keys, the previously registered key ID numbers must first be cleared. To clear the key ID numbers, refer to "**NO.3 KEY REPLACEMENT PROCEDURE (CLEARING PREVIOUSLY PROGRAMMED KEY ID NUMBERS, KEY RE-PROGRAM)**".

Procedure

1. Have one key (key 1) ready for registration.
2. Connect the M-MDS to the DLC-2. (See **M-MDS CONNECTING PROCEDURE.**)
3. Using key 1, turn the ignition switch to the ON position.

NOTE:

- Although the security light starts flashing and DTC 15 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.

4. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 - Select "Body".
 - Select "Security".
 - When using the PDS (Pocket PC)
 - Select "Programming".
5. Then, select items from the screen menu in the following order.
 1. Select "PATS Functions".
6. Select "Program additional ignition key" from the M-MDS screen menu and perform the procedure according to the M-MDS screen.
7. Perform the security access according to the directions on the M-MDS screen. (See **SECURITY ACCESS PROCEDURE.**)

NOTE:

- After selecting the above menu, "This operation has been successful" is displayed. At this point, the key that turned the ignition switch to the ON position is completely programmed.
- In this procedure, the necessary number of the keys are completely programmed. To finish the additional key programming, go to 11.
- If additional keys need to be programmed, go to the next step.

8. After verifying that the PATS function menu is displayed again on the M-MDS screen, turn the ignition switch to the LOCK position and remove key 1.
9. Using the additional key to be programmed, turn the ignition switch to the ON position.

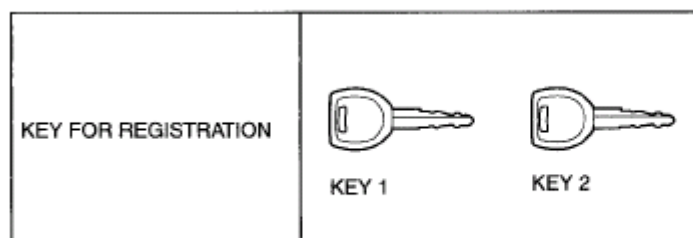
10. Return to the Step 3.
11. After verifying that the PATS function menu is displayed again on the M-MDS screen, select the "Exit (From This Menu)" to finish the M-MDS procedure.
12. After Step 11, wait **5 s or more** and then turn the ignition switch to the LOCK position.
13. Disconnect the M-MDS from the DLC-2.
14. Verify that the all keys can start the engine for **5 s or more** after the procedure.

NO.3 KEY REPLACEMENT PROCEDURE (CLEARING PREVIOUSLY PROGRAMMED KEY ID NUMBERS, KEY RE-PROGRAM)

Conditions

- Have two or more keys to be programmed after the key ID number clearing.

Procedure



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Fig. 101: Key Replacement Procedure
 Courtesy of MAZDA MOTORS CORP.

1. Prepare two or more keys to be programmed after the key ID number is cleared.
2. Connect the M-MDS to the DLC-2. (See **M-MDS CONNECTING PROCEDURE.**)
3. Using key 1, turn the ignition switch to the ON position.

NOTE:

- **Although the security light starts flashing and DTC 15 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.**

4. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 - Select "Body".
 - Select "Security".
 - When using the PDS (Pocket PC)
 - Select "Programming".
5. Then, select items from the screen menu in the following order.

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1. Select "PATS Functions".
6. Select "Ignition Key Code Erase" from the M-MDS screen menu and perform the procedure according to the M-MDS screen
7. Perform the security access according to the directions on the M-MDS screen. (See **SECURITY ACCESS PROCEDURE.**)
8. After verifying that the PATS function menu is displayed again on the M-MDS or equivalent screen, select "Exit (From This Menu)" to finish the M-MDS procedure.
9. After Step 8, wait 5 s or more and then turn the ignition switch to the LOCK position using key 1.
10. Using key 1, turn the ignition switch to the ON position.
11. After verifying that the security light illuminates for 3 s or more, turn the ignition switch to the LOCK position and remove key 1.

NOTE:

- **Although the security light remains illuminated and DTC 21 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.**

12. Using key 2, turn the ignition switch to the ON position.
13. Verify that the security light illuminates for approx. 3 s and then turns off.
14. After verifying that the security light turns off, turn the ignition switch to the LOCK position and remove key 2.
15. If programming one more keys, repeat Steps 12 to 14 with a key to be programmed as key 3. Steps 12 to 14 must be performed within 1 min for each key. If the vehicle is left with the ignition switch in the ON position for 1 min or more, additional key programming according to Steps 12 to 14 is disabled. If this occurs, refer to "**NO.1 ADDITIONAL KEY REGISTRATION PROCEDURE (USING TWO VALID KEYS)**" to register any additional keys.
16. Verify that the all keys can start the engine for **5 s or more** after the procedure.

NO.4 ADDITIONAL KEY PROGRAMMING PROCEDURE CHANGING

NOTE:

- **This procedure is performed for enabling/disabling the "No.1 Additional Key Programming Procedure (Using Two Valid Keys)" setting.**
- **The setting is "Enable" when the vehicle is new or the instrument cluster is replaced with a new one.**
- **If "No. 1 Additional Key Programming Procedure (Using Two Valid Keys)" is set to disable, the additional key programming can be only performed using the M-MDS preventing the forging of a spare key by using two valid keys. This function is for use by rental car agencies or other companies with vehicle fleets.**

Procedure

1. Using the key, turn the ignition switch to the ON position. (The key can be either the valid key or an unprogrammed key)

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NOTE:

- Although the security light starts flashing and DTC 15 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.

2. Connect the M-MDS to the DLC-2. (See **M-MDS CONNECTING PROCEDURE.**)
3. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 - Select "Body".
 - Select "Security".
 - When using the PDS (Pocket PC)
 - Select "Programming".
4. Then, select items from the screen menu in the following order.
 1. Select "PATS Functions".
5. Select "Customer Spare Key Programming Enable" or "Customer Spare Key Programming Disable" from the M-MDS screen menu. Additional key programming procedure is as follows according to the selected menu:

ADDITIONAL KEY REGISTRATION METHOD

Setting	Additional key registration method	
	Procedure using two valid keys	Procedure using the M-MDS
Customer spare key programming enable	X	X
Customer spare key programming disable	-	X
x. Procedure is possible		
-. Procedure is not possible		

6. Perform the security access according to the directions on the M-MDS screen. (See **SECURITY ACCESS PROCEDURE.**)
7. After verifying that the PATS function menu is displayed again on the M-MDS or equivalent screen, select "Exit (From This Menu)" to finish the M-MDS procedure.
8. After Step 7, wait 5 s or more and then turn the ignition switch to the LOCK position.
9. Verify that the all keys can start the engine for **5 s or more** after the procedure.

NO.5 RESETTING PROCEDURE FOR THE IMMOBILIZER SYSTEM WHEN REPLACING THE INSTRUMENT CLUSTER REPLACEMENT

Conditions

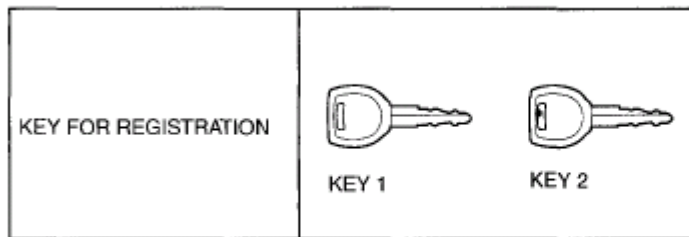
- Have two or more keys to be programmed after the key ID number clearing.

CAUTION:

- Before starting Step 1, complete the procedure for the

instrument cluster replacement. (See INSTRUMENT CLUSTER REMOVAL/INSTALLATION .)

Procedure



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Fig. 102: Resetting Procedure For - Immobilizer System When Replacing Instrument Cluster Replacement

Courtesy of MAZDA MOTORS CORP.

1. Prepare two or more keys to be programmed after the key ID number is cleared.
2. Connect the M-MDS to the DLC-2. (See M-MDS CONNECTING PROCEDURE.)
3. Using the key 1, turn the ignition switch to the ON position.

NOTE:

- **Although the security light starts flashing and DTC 15 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.**

4. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 - Select "Body".
 - Select "Security".
 - When using the PDS (Pocket PC)
 - Select "Programming".
5. Then, select items from the screen menu in the following order.
 1. Select "PATS Functions".
6. Select "Ignition Key Code Erase" from the M-MDS screen menu and perform the procedure according to the M-MDS screen
7. Perform the security access according to the directions on the M-MDS screen. (See SECURITY ACCESS PROCEDURE.)
8. Select "Parameter Reset" from the M-MDS screen menu.
9. Select the replaced parts according to the directions on the M-MDS.
 - If the instrument cluster is replaced: Select "IC".

NOTE:

- **At this time, do not select the other parts from the M-MDS menu.**

10. After verifying that the PATS function menu is displayed again on the M-MDS screen, select "Exit (From This Menu)" to finish the M-MDS procedure.
11. After Step 10, wait 5 s or more and then turn the ignition switch to the LOCK position.
12. Disconnect the M-MDS from the DLC-2.
13. Using key 1, turn the ignition switch to the ON position.

NOTE:

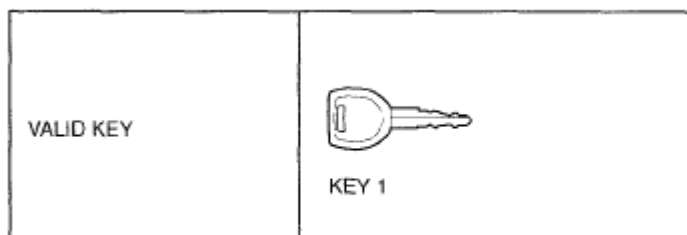
- **Although the security light remains illuminated and DTC 21 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.**

14. After verifying that the security light illuminates for 3 s or more, turn the ignition switch to the LOCK position, remove key 1, and go to the next step.
15. Using key 2, turn the ignition switch to the ON position.
16. Verify that the security light illuminates for approx. 3 s and then turns off.
17. After verifying that the security light turns off, turn the ignition switch to the LOCK position and remove key 2.
18. If programming one more keys, repeat Steps 15 to 17 with a key to be programmed as key 3. Steps 15 to 17 must be performed within 1 min for each key. If the vehicle is left with the ignition switch in the ON position for 1 min or more, additional key programming according to Steps 15 to 17 is disabled. If this occurs, refer to "**NO.1 ADDITIONAL KEY REGISTRATION PROCEDURE (USING TWO VALID KEYS)**" to register any additional keys.
19. Verify that the all keys can start the engine for **5 s or more** after the procedure.

NO.6 RESETTING PROCEDURE FOR THE IMMOBILIZER SYSTEM WHEN REPLACING THE PCM

CAUTION:

- **Before starting Step 1, complete the procedure for the PCM replacement. (See PCM REMOVAL/INSTALLATION [MZI-3.7] .)**

Procedure

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Fig. 103: Resetting Procedure For - Immobilizer System When Replacing PCM

Courtesy of MAZDA MOTORS CORP.

1. Connect the M-MDS to the DLC-2. (See **M-MDS CONNECTING PROCEDURE.**)
2. Using the key 1, turn the ignition switch to the ON position.

NOTE:

- **Although the security light remains illuminated and DTC 23 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.**

3. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 - Select "Body".
 - Select "Security".
 - When using the PDS (Pocket PC)
 - Select "Programming".
4. Then, select items from the screen menu in the following order.
 1. Select "PATS Functions".
5. Select "Parameter Reset" from the M-MDS screen menu and perform the procedure according to the M-MDS screen
6. Perform the security access according to the directions on the M-MDS screen. (See **SECURITY ACCESS PROCEDURE.**)
7. Select the replaced parts according to the directions on the M-MDS.
 - If the PCM is replaced: Select "PCM".

NOTE:

- **At this time, do not select the other parts from the M-MDS menu.**

8. After verifying that the PATS function menu is displayed again on the M-MDS screen, select "Exit (From This Menu)" to finish the M-MDS procedure.
9. After Step 8, wait 5 s or more and then turn the ignition switch to the LOCK position.
10. Disconnect the M-MDS from the DLC-2.
11. Using key 1, turn the ignition switch to the ON position.
12. Verify that the security light illuminates for approx. 3 s and then turns off.
13. After verifying that the security light turns off, turn the ignition switch to the LOCK position.
14. Verify that the all keys can start the engine for **5 s or more** after the procedure.

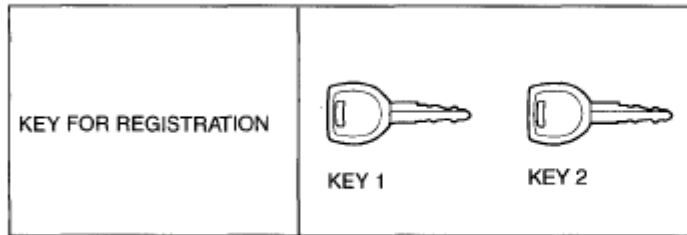
NO.7 RESETTING PROCEDURE FOR THE IMMOBILIZER SYSTEM WHEN REPLACING THE PCM AND INSTRUMENT CLUSTER AT THE SAME TIME

Conditions

- Have two or more keys to be programmed after the key ID number clearing.

- CAUTION:**
- Before starting Step 1, complete the procedure for the PCM and instrument cluster replacement. (See PCM REMOVAL/INSTALLATION [MZI-3.7] .) (See INSTRUMENT CLUSTER REMOVAL/INSTALLATION .)

Procedure



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Fig. 104: Resetting Procedure For - Immobilizer System When Replacing PCM & Instrument Cluster
 Courtesy of MAZDA MOTORS CORP.

1. Prepare two or more keys to be programmed after the key ID number is cleared.
2. Connect the M-MDS to the DLC-2. (See M-MDS CONNECTING PROCEDURE.)
3. Using the key 1, turn the ignition switch to the ON position.

- NOTE:**
- Although the security light flashes and DTC 15 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.

4. After the vehicle is identified, select the following items from the initialization screen of the M-MDS.
 - When using the IDS (laptop PC)
 - Select "Body".
 - Select "Security".
 - When using the PDS (Pocket PC)
 - Select "Programming".
5. Then, select items from the screen menu in the following order.
 1. Select "PATS Functions".
6. Select "Ignition Key Code Erase" from the M-MDS screen menu and perform the procedure according to the M-MDS screen
7. Perform the security access according to the directions on the M-MDS screen. (See SECURITY ACCESS PROCEDURE.)
8. Select "Parameter Reset" from the M-MDS screen menu.
9. Select the replaced parts according to the directions on the M-MDS.
 - If the PCM is replaced: Select "PCM".

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- If the instrument cluster is replaced: Select "IC".

NOTE:

- **At this time, do not select the other parts from the M-MDS menu.**

10. After verifying that the PATS function menu is displayed again on the M-MDS screen, select "Exit (From This Menu)" to finish the M-MDS procedure.
11. After Step 10, wait 5 s or more and then turn the ignition switch to the LOCK position.
12. Disconnect the M-MDS from the DLC-2.
13. Using key 1, turn the ignition switch to the ON position.

NOTE:

- **Although the security light remains illuminated and DTC 21 is displayed after approx. 1 min, this does not indicate an improper procedure. Continue to perform the procedure as indicated.**

14. After verifying that the security light illuminates for 3 s or more, turn the ignition switch to the LOCK position, remove key 1, and go to the next step.
15. Using key 2, turn the ignition switch to the ON position.
16. Verify that the security light illuminates for approx. 3 s and then turns off.
17. After verifying that the security light turns off, turn the ignition switch to the LOCK position and remove key 2.
18. If programming one more keys, repeat Steps 15 to 17 with a key to be programmed as key 3. Steps 15 to 17 must be performed within 1 min for each key. If the vehicle is left with the ignition switch in the ON position for 1 min or more, additional key programming according to Steps 15 to 17 is disabled. If this occurs, refer to "**NO.1 ADDITIONAL KEY REGISTRATION PROCEDURE (USING TWO VALID KEYS)**" to register any additional keys.
19. Verify that the all keys can start the engine for **5 s or more** after the procedure.