SAFETY COMPLIANCE TESTING FOR
FMVSS NO. 118
POWER-OPERATED WINDOW, PARTITION
AND ROOF PANEL SYSTEMS

MAZDA MOTOR CORPORATION
2010 MAZDA 6, PASSENGER CAR
NHTSA NO. CA5403

GENERAL TESTING LABORATORIES, INC.
1623 LEEDSTOWN ROAD
COLONIAL BEACH, VIRGINIA 22443

June 15, 2010
FINAL REPORT
PREPARED FOR
U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
1200 NEW JERSEY AVE., SE
WASHINGTON, D.C. 20590
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Approved By: __________________________________________________________________
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Accepted By: __________________________________________________________________
Acceptance Date: __________________________________________________________________
Compliance tests were conducted on the subject 2010 Mazda 6 4-door Passenger Car in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-118-06 for the determination of FMVSS 118 compliance.

Test failures identified were as follows:
None
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<td>5.15 Sphere Test on Right Rear Switch</td>
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<td>5.19 Force Test Instrument Set-Up on Right Front Window</td>
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<tr>
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<td>7. Plots</td>
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SECTION 1

PURPOSE OF COMPLIANCE TEST

1.0 PURPOSE OF TEST

A model year 2010 Mazda 6 Passenger Car was subjected to Federal Motor Vehicle Safety Standard (FMVSS) No. 118 testing to determine if the vehicle was in compliance with the requirements of the standard. FMVSS 118 specifies requirements for power-operated window, partition, and roof panel systems to minimize the likelihood of death or injury from their accidental operation.

1.1 The test vehicle was a 2010 Mazda 6 Passenger Car. The vehicle was identified as follows:

A. Vehicle Identification Number: 1YVHZ8CH1A5M27369

B. NHTSA No.: CA5403

C. Manufacturer: MAZDA MOTOR CORPORATION

D. Manufacture Date: 12/09

E. Color: Black

1.2 TEST DATE

The test vehicle was subjected to FMVSS No. 118 testing on May 6, 2010.
SECTION 2

TEST PROCEDURE AND SUMMARY OF RESULTS

2.0 TEST PROCEDURE

All tests were conducted in accordance with NHTSA, Office of Vehicle Safety Compliance (OVSC) Laboratory Procedure TP-118-06 dated 12 April 2006 and General Testing Laboratories, Inc. (GTL) Test Procedure, TP-118-03A, “Power Operated Window, Partition and Roof Panel Systems”.

FMVSS 118 Compliance Testing was performed in the following sequence:

A. Test Vehicle Identification/Documentation
B. Power Window, partition and roof panel identification/documentation
C. Interior, exterior and remote control switch identification/documentation
D. Pre-test operation of all power windows, partitions and roof panels
E. Photograph vehicle and interior, exterior and remote control devices
F. Perform Interior Locking System Off Test
G. Perform Interior Locking System with Key Removed Test
H. Perform Exterior Locking System Test
I. Perform Remote Actuation Device Test
J. Perform Occupant Compartment Actuation Device Test (Sphere Test/Pull up or Pull Out Test)
K. Perform Automatic Reversal System Test

2.1 SUMMARY OF RESULTS

The power window operational test resulted in no anomalies being noted. Test data indicate the FMVSS 118 requirements appear to have been satisfied. All test data resulting from the tests were recorded on test data sheets in Section 3.
3.0 TEST RESULTS

The following data sheets document the results of FMVSS 118 testing on the 2010 Mazda 6.
### FMVSS 118
### COMPLIANCE DATA SUMMARY SHEET

**VEHICLE MAKE/MODEL/BODY STYLE:** 2010 MAZDA 6  
**VEHICLE NHTSA NO:** CA5403  
**VIN:** 1YVHZ8CH1A5M27369  
**VEHICLE TYPE:** PASSENGER CAR  
**DATE OF MANUFACTURE:** 12/09  
**LABORATORY:** GENERAL TESTING LABORATORIES  
**TEST DATE:** 05/06/10

<table>
<thead>
<tr>
<th>REQUIREMENT</th>
<th>PASS</th>
<th>FAIL</th>
<th>N/A</th>
</tr>
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<tbody>
<tr>
<td>S4 Interior Locking system in Off Position(s)</td>
<td>X</td>
<td></td>
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<tr>
<td>S4 Interior Locking System with Key Removed</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S4 Exterior Locking System</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S4 Remote Actuation Device</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S6 Occupant Compartment Actuation Devices (Sphere Test/Pull Up or Pull Out Test)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S5 Automatic Reversal System</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**REMARKS:** This vehicle does not need to meet S5 requirements for automatic reversal. Vehicle utilizes a smart key push-button ignition system.

**RECORDED BY:** G. Farrand  
**DATE:** 05/06/10  
**APPROVED BY:** D. Messick
WPRP PRE-OPERATIONAL CHECK

VEHICLE MAKE/MODEL/BODY STYLE: 2010 MAZDA 6
VEHICLE NHTSA NO: CA5403 VIN: 1YVHZ8CH1A5M27369
VEHICLE TYPE: PASSENGER CAR DATE OF MANUFACTURE: 12/09
LABORATORY: GENERAL TESTING LABORATORIES TEST DATE: 05/06/10

Identify power-operated WPRP and WPRP actuation devices

<table>
<thead>
<tr>
<th></th>
<th>LEFT FRONT</th>
<th>LEFT REAR</th>
<th>RIGHT FRONT</th>
<th>RIGHT REAR</th>
<th>TAIL GATE</th>
<th>PARTITION</th>
<th>ROOF PANEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power WPRP Installed</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Individual Interior Actuation Devices</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Master Control Panel Actuation Devices</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>WPRP Operated by Exterior Locking System</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WPRP Operated by Remote Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WPRP with Auto-Reverse Capability</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WPRP with Express-Up Capability</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Master Control Panel Location: Driver’s Door Panel

Exterior Locking System Location: Driver’s Door Handle

Remote Control Type: ( ) Line of Sight (X) Non-line of Sight ( ) Both

WPRP Actuation Device Design (Toggle, Rocker, Push/Pull (Lever) or describe other):
- Master Control Panel Push/Pull
- Individual Window Push/Pull
- Roof Panel Rocker Switch
- Vents

Interior Locking System Key Positions (clockwise): Keyless-Go, Push Button Start with Off/Lock, Accessory, On, Start

All WPRP open/close cycles are satisfactory with key in “ON” position:
(X) YES ( ) NO If NO, compliance test shall not proceed

All WPRP open/close cycles are satisfactory with key in “ACCESSORY” position:
( ) YES (X) Not Applicable –No power to WPRP’s

REMARKS: *Open only. Remote will not close windows or roof panel.

RECORDED BY: G. Farrand DATE: 05/06/10
APPROVED BY: D. Messick
DATA SHEET 1
INTERIOR LOCKING SYSTEM TEST

VEHICLE MAKE/MODEL/BODY STYLE: 2010 MAZDA 6
VEHICLE NHTSA NO: CA5403
VIN: 1YVHZ8CH1A5M27369
VEHICLE TYPE: PASSENGER CAR
DATE OF MANUFACTURE: 12/09
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/06/10

Key lock position at start of test execution: (X) ON ( ) ACCESSORY. Then to:
Key lock off position during test execution: (X) LOCK (X) OFF ( ) ACCESSORY

<table>
<thead>
<tr>
<th>ACTUATION DEVICES</th>
<th>DOORS CLOSED</th>
<th>LEFT DOOR OPEN</th>
<th>RIGHT DOOR OPEN</th>
<th>PASS/FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>INOP.</td>
<td>OPER.</td>
<td>INOP.</td>
<td>OPER.</td>
</tr>
<tr>
<td>Left Front (LF)</td>
<td>*</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Right Front (RF)</td>
<td>*</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Left Rear (LR)</td>
<td>*</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Right Rear (RR)</td>
<td>*</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Vent Window(s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tail Gate (TG)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partition (P)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roof Panel (RP)</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MASTER CONTROL PANEL ACTUATION DEVICES</th>
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<th>LEFT DOOR OPEN</th>
<th>RIGHT DOOR OPEN</th>
<th>PASS/FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Front (LF)</td>
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<td>X</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Right Front (RF)</td>
<td>*</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Left Rear (LR)</td>
<td>*</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Right Rear (RR)</td>
<td>*</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Vent Window(s)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Tail Gate (TG)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partition (P)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roof Panel (RP)</td>
<td></td>
<td></td>
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<table>
<thead>
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<th>INDIVIDUAL ACTUATION DEVICES</th>
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<th>PASS/FAIL</th>
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<td>P</td>
</tr>
<tr>
<td>Right Front (RF)</td>
<td>*</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Left Rear (LR)</td>
<td>*</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Right Rear (RR)</td>
<td>*</td>
<td>X</td>
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<td>P</td>
</tr>
<tr>
<td>Vent Window(s)</td>
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</tr>
<tr>
<td>Tail Gate Window</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partition Window</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roof Panel Window</td>
<td>*</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
</tbody>
</table>

REMARKS:*WPRP’s operate until a door is opened or approximately 45 seconds, whichever occurs first.

RECORDED BY: G. Farrand
DATE: 05/06/10

APPROVED BY: D. Messick
**DATA SHEET 2**

**INTERIOR LOCKING SYSTEM WITH KEY REMOVED TEST**

VEHICLE MAKE/MODEL/BODY STYLE: 2010 MAZDA 6  
VEHICLE NHTSA NO: CA5403  
VIN: 1YVHZ8CH1A5M27369  
VEHICLE TYPE: PASSENGER CAR  
DATE OF MANUFACTURE: 12/09  
LABORATORY: GENERAL TESTING LABORATORIES  
TEST DATE: 05/06/10

Key lock position at start of test execution: (X) ON ( ) ACCESSORY, Then to: off, door(s) open and key out of range

<table>
<thead>
<tr>
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<th>RIGHT DOOR OPEN</th>
<th>PASS/FAIL</th>
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<tr>
<td></td>
<td>INOP.</td>
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<td>OPER.</td>
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<tr>
<td>Left Front (LF)</td>
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<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Right Front (RF)</td>
<td>*</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Left Rear (LR)</td>
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<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Right Rear (RR)</td>
<td>*</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Tail Gate (TG)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Vent Windows(s)</td>
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<td></td>
<td></td>
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<tr>
<td>Partition (P)</td>
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<td></td>
<td></td>
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<tr>
<td>Roof Panel (RP)</td>
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**INDIVIDUAL ACTUATION DEVICES**

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<th>ACTUATION DEVICES</th>
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<th>RIGHT DOOR OPEN</th>
<th>PASS/FAIL</th>
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<td></td>
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<td>OPER.</td>
<td>INOP.</td>
<td>OPER.</td>
</tr>
<tr>
<td>Left Front (LF)</td>
<td>*</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Right Front (RF)</td>
<td>*</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Left Rear (LR)</td>
<td>*</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Right Rear (RR)</td>
<td>*</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
<tr>
<td>Vent Window(s)</td>
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<td></td>
</tr>
<tr>
<td>Tail Gate Window</td>
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<td></td>
</tr>
<tr>
<td>Partition Window</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roof Panel Window</td>
<td>*</td>
<td>X</td>
<td>X</td>
<td>P</td>
</tr>
</tbody>
</table>

REMARKS: Vehicle has push button “keyless go” system and vehicle must be turned off, door opened and key moved out of range of vehicle to remove key code from vehicle.

RECORDED BY: G. Farrand  
DATE: 05/06/10  
APPROVED BY: D. Messick
Is vehicle equipped with an exterior locking system that can close any of the power windows, partitions, or roof panels?   (X) YES    ( ) NO

Location of exterior locking system: Driver Door Handle

Describe how the exterior locking system is activated: The system is activated by inserting the metal auxiliary/backup key into key slot on driver’s door handle and turning it counter clockwise and holding it to close windows.

Identify the windows, partitions or roof panels that can be closed by the exterior system. Also, in each case, identify whether continuous activation of the locking system is required.

<table>
<thead>
<tr>
<th>WINDOW, PARTITION AND ROOF PANEL IDENTIFICATION</th>
<th>EXTERIOR LOCKING SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OPERABLE (YES/NO)</td>
</tr>
<tr>
<td>LEFT FRONT (LF)</td>
<td>YES</td>
</tr>
<tr>
<td>RIGHT FRONT (RF)</td>
<td>YES</td>
</tr>
<tr>
<td>LEFT REAR (LR)</td>
<td>NO</td>
</tr>
<tr>
<td>RIGHT REAR (RR)</td>
<td>NO</td>
</tr>
<tr>
<td>VENT WINDOW(S)</td>
<td></td>
</tr>
<tr>
<td>PARTITION(P)</td>
<td></td>
</tr>
<tr>
<td>ROOF PANEL (RP)</td>
<td>YES</td>
</tr>
<tr>
<td>TAIL GATE (TG)</td>
<td></td>
</tr>
</tbody>
</table>

*NOTE: Continuous activation of the locking system is required for each WPRP to pass the exterior locking system safety standard requirement.

REMARKS:

RECORDED BY: G. Farrand  DATE: 05/06/10
APPROVED BY: D. Messick
VEHICLE MAKE/MODEL/BODY STYLE: 2010 MAZDA 6
VEHICLE NHTSA NO: CA5403
VIN: 1YVHZ8CH1A5M27369
VEHICLE TYPE: PASSENGER CAR
DATE OF MANUFACTURE: 12/09
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/06/10

Type of remote actuation device installed on vehicle (check one):
(X) Non Line-Of-Site  ( ) Line-of-Site

Measured range of Operation:
Record the maximum operating distance of the remote actuation device in the boxes below. The range of operation shall not exceed six meters for a Non Line-of-Site Device or eleven meters for a Line-of-Site Device in any measured direction and continuous activation of the remote actuation device is required until all operable windows, partitions, or roof panels are completely closed.

Pass/Fail N/A

REMARKS: Remote will only activate opening of windows. Remote will not close windows.

RECORDED BY:  G. Farrand                      DATE: 05/06/10
APPROVED BY:  D. Messick
DATA SHEET 5
OCCUPANT COMPARTMENT ACTUATION DEVICE TEST
SPHERE TEST

VEHICLE MAKE/MODEL/BODY STYLE: 2010 MAZDA 6
VEHICLE NHTSA NO: CA5403  VIN: 1YVHZ8CH1A5M27369
VEHICLE TYPE: PASSENGER CAR  DATE OF MANUFACTURE: 12/09
LABORATORY: GENERAL TESTING LABORATORIES  TEST DATE: 05/06/10

<table>
<thead>
<tr>
<th>ACTUATION DEVICES</th>
<th>APPLICABLE (YES/NO*)</th>
<th>SPHERE ACTIVATED ACTUATION DEVICE CLOSES WPRP (YES/NO)</th>
<th>TEST RESULT PASS/FAIL</th>
<th>COMPLIANCE REQUIRED (Y/N**)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MASTER CONTROL PANEL ACTUATION DEVICES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left Front (LF)</td>
<td>Yes</td>
<td>No</td>
<td>Pass</td>
<td>Yes</td>
</tr>
<tr>
<td>Right Front (RF)</td>
<td>Yes</td>
<td>No</td>
<td>Pass</td>
<td>Yes</td>
</tr>
<tr>
<td>Left Rear (LR)</td>
<td>Yes</td>
<td>No</td>
<td>Pass</td>
<td>Yes</td>
</tr>
<tr>
<td>Right Rear (RR)</td>
<td>Yes</td>
<td>No</td>
<td>Pass</td>
<td>Yes</td>
</tr>
<tr>
<td>Tail Gate (TG)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vent Window(s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partition (P)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roof Panel (RP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>INDIVIDUAL ACTUATION DEVICES</strong></td>
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<td></td>
</tr>
<tr>
<td>Left Front (LF)</td>
<td>Yes</td>
<td>No</td>
<td>Pass</td>
<td>Yes</td>
</tr>
<tr>
<td>Right Front (RF)</td>
<td>Yes</td>
<td>No</td>
<td>Pass</td>
<td>Yes</td>
</tr>
<tr>
<td>Left Rear (LR)</td>
<td>Yes</td>
<td>No</td>
<td>Pass</td>
<td>Yes</td>
</tr>
<tr>
<td>Right Rear (RR)</td>
<td>Yes</td>
<td>No</td>
<td>Pass</td>
<td>Yes</td>
</tr>
<tr>
<td>Vent Window(s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tail Gate(TG)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partition(P)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roof Panel (RP)</td>
<td>Yes</td>
<td>No</td>
<td>Pass</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*This requirement does not apply to actuation devices that are mounted in a vehicle’s roof, headliner, or overhead console and that can close a window, partition, or roof panel only by continuous rather than momentary switch actuation or actuation devices that comply with the reversing requirement of FMVSS 118, S5.

** Requirement is effective 1 October 2008. Early compliance is voluntary and test results are used for information only.

RECORDED BY: G. Farrand  DATE: 05/06/10
APPROVED BY: D. Messick
DATA SHEET 6
OCCUPANT COMPARTMENT ACTUATION DEVICE TEST
FOR POWER-OPERATED WINDOWS ONLY
PULL UP OR PULL OUT TEST

VEHICLE MAKE/MODEL/BODY STYLE: 2010 MAZDA 6
VEHICLE NHTSA NO: CA5403  VIN: 1YVHZ8CH1A5M27369
VEHICLE TYPE: PASSENGER CAR  DATE OF MANUFACTURE: 12/09
LABORATORY: GENERAL TESTING LABORATORIES  TEST DATE: 05/06/10

<table>
<thead>
<tr>
<th>ACTUATION DEVICES</th>
<th>SWITCH ORIENTATION</th>
<th>CLOSES POWER-OPERATED WINDOW ONLY IF:</th>
<th>TEST RESULT</th>
<th>COMPLIANCE REQUIRED (Y/N**)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A – horizontal</td>
<td>PULL UP OR PULL OUT</td>
<td>Pass</td>
<td>Yes</td>
</tr>
<tr>
<td>Left Front (LF)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right Front (RF)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left Rear (LR)</td>
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<tr>
<td>Right Rear (RR)</td>
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<tr>
<td>Vent Window(s)</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

** Requirement is effective 1 October 2008. Early compliance is voluntary and test results are used for information only.

RECORDED BY: G. Farrand  DATE: 05/06/10
APPROVED BY: D. Messick
VEHICLE MAKE/MODEL/BODY STYLE: 2010 MAZDA 6

VEHICLE NHTSA NO: CA5403
VIN: 1YVHZ8CH1A5M27369

VEHICLE TYPE: PASSENGER CAR
DATE OF MANUFACTURE: 12/09

LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/06/10

WPRP’s equipped with reversal capability: Yes
WPRP’s that must meet reversal requirement: No

Locking System Position: On

<table>
<thead>
<tr>
<th>GTL Test #</th>
<th>Window, Partition, Roof Panel</th>
<th>Test Rod Placement in Window, Partition or Roof Panel</th>
<th>Test Rod Size (mm)</th>
<th>Window, Partition or Roof Panel Opening Before/After Closing (mm)</th>
<th>Maximum Force Measured on Test Rod (Newtons)</th>
<th>Window, Partition, or Roof Panel Reversing Distance (mm)</th>
<th>Pass/Fail*</th>
</tr>
</thead>
<tbody>
<tr>
<td>6591</td>
<td>L.F. Window Top</td>
<td>6 mm</td>
<td>119/193</td>
<td>116</td>
<td>193</td>
<td>N/A*</td>
<td></td>
</tr>
<tr>
<td>6592</td>
<td>R.F. Window Top</td>
<td>6 mm</td>
<td>174/200</td>
<td>119</td>
<td>200</td>
<td>N/A*</td>
<td></td>
</tr>
<tr>
<td>6593</td>
<td>Roof Panel Center</td>
<td>6 mm</td>
<td>140/187</td>
<td>196</td>
<td>187</td>
<td>N/A*</td>
<td></td>
</tr>
</tbody>
</table>

*WPRP must reverse direction before contacting or exerting a squeezing force of 100 Newtons. Upon such reversal, the WPRP must open to one of the following positions.

A. A position that is at least as open as the position at the time closing was initiated

B. A position that is not less than 125 mm more open than the position at the time the window reversed direction, or

C. A position that permits a semi-rigid cylindrical rod that is 200 mm in diameter to be placed through the opening at the same contact point(s) used in 12.5.

REMARKS: *This vehicle does not need to meet the closing force requirements if it meets the operating requirements of S4.
### SECTION 4
**TEST EQUIPMENT LIST**

- **VEHICLE MAKE/MODEL/BODY STYLE:** 2010 MAZDA 6
- **VEHICLE NHTSA NO:** CA5403
- **VIN:** 1YVHZ8CH1A5M27369
- **VEHICLE TYPE:** PASSENGER CAR
- **DATE OF MANUFACTURE:** 12/09
- **LABORATORY:** GENERAL TESTING LABORATORIES
- **TEST DATE:** 05/06/10

<table>
<thead>
<tr>
<th>ITEM</th>
<th>MFR</th>
<th>MODEL</th>
<th>S/N</th>
<th>CAL. PERIOD</th>
<th>DATE OF LAST CALIB.</th>
<th>REMARKS</th>
</tr>
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<tbody>
<tr>
<td>SLR DIGITAL CAMERA</td>
<td>NIKON</td>
<td>D50</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>PINCH FORCE SENSOR</td>
<td>SENSOR DEVELOPMENTS, INC.</td>
<td>10293</td>
<td>179104</td>
<td>12 MO.</td>
<td>04/10</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS:**

**RECORDED BY:** G. FARRAND  
**DATE:** 05/06/10

**APPROVED BY:** D. MESSICK
SECTION 5

PHOTOGRAPHS
2010 MAZDA 6
NHTSA NO. CA5403
FMVSS NO. 118

FIGURE 5.2
¾ REAR VIEW FROM RIGHT SIDE OF VEHICLE
**TIRE AND LOADING INFORMATION**

**RENSEIGNEMENTS SUR LES PNEUS ET LE CHARGEMENT**

**SEATING CAPACITY**

- NOMBRE DE PLACES
- TOTAL 5
  - FRONT AVANT 2
  - REAR ARRIÈRE 3

The combined weight of occupants and cargo should never exceed 385 kg or 850 lbs.*

<table>
<thead>
<tr>
<th>TIRE PNEU</th>
<th>SIZE DIMENSIONS</th>
<th>COLD TIRE PRESSURE</th>
<th>SEE OWNER’S MANUAL FOR ADDITIONAL INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRONT AVANT</td>
<td>P215/55R17</td>
<td>220 kPa, 32 psi</td>
<td>VOIR LE MANUEL DE L’USAGER POUR PLUS DE RENSEIGNEMENTS</td>
</tr>
<tr>
<td>REAR ARRIÈRE</td>
<td>P215/55R17</td>
<td>220 kPa, 32 psi</td>
<td></td>
</tr>
<tr>
<td>SPARE DE SECOURS</td>
<td>T115/70D16</td>
<td>420 kPa, 60 psi</td>
<td></td>
</tr>
</tbody>
</table>
FIGURE 5.6
CLOSE-UP VIEW OF RIGHT FRONT POWER WINDOW SWITCH
FIGURE 5.8
CLOSE-UP VIEW OF RIGHT REAR POWER WINDOW SWITCH
CLOSE-UP VIEW OF ROOF PANEL POWER SWITCH
2010 MAZDA 6
NHTSA NO. CA5403
FMVSS NO. 118

FIGURE 5.10
KEY/REMOTE CONTROL
FIGURE 5.13
SPHERE TEST ON RIGHT FRONT SWITCH
FIGURE 5.14
SPHERE TEST ON LEFT REAR SWITCH
FIGURE 5.16
SPHERE TEST ON ROOF PANEL
FIGURE 5.17
INSTRUMENTATION TEST SET-UP
FIGURE 5.18
FORCE TEST INSTRUMENT SET-UP ON LEFT FRONT WINDOW
FIGURE 5.19
FORCE TEST INSTRUMENT SET-UP ON RIGHT FRONT WINDOW
FIGURE 5.20
FORCE TEST INSTRUMENT SET-UP ON ROOF PANEL
**Keyless Entry System**
This system remotely locks and unlocks the doors and opens the trunk lid, and opens the power windows and the sunroof.

It can also help you sign for attention. Operating the theft-deterrent system with the keyless entry system transmitter is also possible on theft-deterrent system-equipped vehicles.

Press the buttons slowly and carefully.

**CAUTION**
To avoid damage to the transmitter, do not:
- Drop the transmitter.
- Get the transmitter wet.
- Disassemble the transmitter.
- Expose the transmitter to any kind of magnetic field.
- Expose the transmitter to high temperatures on places such as the dashboard or hood, under direct sunlight.

**NOTE**
- The keyless entry system is designed to operate up to about 2.5 m (8 ft) from the center of the vehicle, but this may vary due to local conditions.
- The system does not operate when the key is in the ignition switch.
- Doors can be locked by pressing the lock button while any other door is open. However, the hazard warning lights will not flash and the horn will not sound.
- If the transmitter does not operate when pressing a button or the operation range becomes too small, the battery may be dead. To install a new battery, refer to Maintenance (page 3-30).
- Additional transmitters can be obtained at an Authorized Mazda Dealer. Up to 3 transmitters can be used with the keyless entry system per vehicle. Bring all transmitters to an Authorized Mazda Dealer when additional transmitters are required.

**Transmitter**
- **Lock button**
- **Unlock button**
- **Panic button**
- **Operation indicator light**
- **Trunk button**

**NOTE**
The unlock button can be used to open the power windows and the sunroof, but the lock button cannot be used to close the power windows and the sunroof.

Refer to Opening/Closing the Power Windows and the Sunroof from Outside (page 3-49).
The operation indicator light flashes when the buttons are pressed.

**Lock button**
To lock the doors, press the lock button.

To confirm that all doors have been locked, press the lock button again within 5 seconds. If the door is opened and locked, the horn will sound.
The system can be set not to sound the horn.
Refer to Personalization Features on page 10-8.
\textbf{WARNING}

Close the trunk lid, be sure the seat backs are latched and do not allow children to play inside the vehicle.

Leaving the trunk lid open or leaving children in the vehicle with the keys is dangerous. Children could open the trunk lid and climb inside resulting in possible injury or death from heat exposure.

Always keep the car from being a tempting place to play by latching the rear seats, doors and the trunk, and keeping the keys where children cannot play with them.

Leaving children or animals unattended in a parked vehicle is dangerous. Infants left sleeping and children who lock themselves in cars or trunks can die very quickly from heat prostration. Do not leave your children or pets alone in a car at any time. Do not leave the car, the rear folding seats or the trunk unlocked.

\textbf{Opening the Trunk Lid from the Inside}

Slide the inside trunk release lever in the direction of the arrow. The lever is made of material that will glow the hours in the darkness of the trunk, following a brief exposure to ambient light.

The inside trunk release lever is located on the inside of the trunk lid.

\textbf{Information Panel}

\textbf{WARNING}

The ignition must be ON for the power windows to operate.

\textbf{WARNING}

Make sure the opening is clear before closing a window.

Closing power windows are dangerous. A person's hands, head, or even neck could be caught by the window and result in serious injury or even death. This warning applies especially to children.

Always lock all passenger power windows with the power window lock switch on the driver's side while children are in the vehicle, and never allow children to play with power window switches, the advanced key or the keyless entry system.

Leaving the power window switches unlocked while children are in the vehicle is dangerous. Power window switches that are not locked with the power window lock switch would allow children to operate power windows unintentionally which could result in serious injury if a child's hands, head or neck becomes caught by the window.

Leaving children play with advanced keys or keyless entry systems are just as dangerous.

\textbf{CAUTION}

To prevent burns caused by the heat of the power window system, do not open or close more than three windows at a time.
Engine-off power window operation
The power window can be operated for about 30 seconds after the ignition switch is turned to the OFF position. If the driver starts the engine within 30 seconds, the power window will not operate. The power window will not operate if any door is opened. If any door is opened, the power window will not operate.

Electronic window operation
The power window can be operated for about 30 seconds after the ignition switch is turned to the OFF position. If the power window lock switch on the driver's door is in the unlocked position (open), the power window can be operated.

Jam-safe window
If a person's hands, head, or an object blocks the window during the auto-closing operation, the window will stop and open halfway.

WARNING
Make sure nothing blocks the window just before it reaches the fully closed position or while holding up the power window switch.

Blocking the power window just before it reaches the fully closed position or while holding up the power window switch is dangerous. In this case, the jam-safe function cannot prevent the window from closing all the way, if fingers are caught, serious injuries could occur.

NOTE
Depending on driving conditions, a closing power window could stop and start opening when the window feels a shock that is similar to something blocking it. In the event the jam-safe function activates and the power window cannot be closed automatically, pull and hold the switch and the window will close.

Operating the Front Power Windows
The power windows may be operated by pressing the power window lock switch on the driver's door or in the unlocked position.

The passenger windows may be opened or closed by the power window master control switches on the driver's door.

Left rear window
Front passenger's window
Right rear window

Operating the Passenger Power Windows
The power windows may be operated when the power window lock switch on the driver's door is in the unlocked position.

The passenger windows may be opened or closed by the power window master control switches on the driver's door.

Front/rear passenger switch

To open the window to the desired position: hold down the switch. To close the window to the desired position: pull up the switch.

Front/rear passenger switch

1. Turn the ignition switch to the ON position.
2. Press the switch and fully open the window.
3. Pull up the switch to fully close the window and continue holding the switch for about 2 seconds after the window fully closes.

Owner master control switch

Front passenger's window
Right rear window

Power window lock switch

- The following functions can be performed for the front passenger window using the power window master control switches on the driver's door or front passenger's door switch:
- Manual operation/locking
- Auto-opening/locking

- Each passenger power window can be operated with each door switch when the power window lock switch on the driver's door is in the unlocked position (open).

- Each passenger power window can be operated for the power window master control switches on the driver's door.
**Manual opening/closing**

To open a power window to the desired position, lightly hold down the switch.

To close the power window to the desired position, lightly pull up the switch.

**Driver's window**

- **Close**
- **Open**

**Front passenger's window**

- **Close**
- **Open**

**Owner master control switch**

**WARNING**

Make sure nothing blocks the window just before it reaches the fully closed position or while fully holding up the power window switch.

Blocking the power window just before it reaches the fully closed position or while fully holding up the power window switch is dangerous. In this case, the jam-safe function cannot prevent the window from closing all the way if fingers are caught, serious injuries could occur.

**NOTE**

- Depending on driving conditions, including power window closing and start opening when the window feels stuck that is similar to something blocking it in the event the jam-safe function activates, and the power window cannot be closed automatically, pull and hold the switch fully and let window fall down.

- The jam-safe function does not operate until the system is re-initialized.

**Engine-off power window operation**

The power window can be operated for about 40 seconds after the ignition is switched from ON to ACC or Off with all doors closed. If either front door is opened, the power window will be inoperable.

**NOTE**

For engine-off operation of the power window, the switch must be held up firmly throughout window closure because the auto-closing function will be inoperable.

---

**Auto-opening/closing**

To fully open a power window, automatically press the switch completely down.

To fully close the power window automatically, pull the switch completely up.

To stop the power window midway, pull or press the switch in the opposite direction and then release it.
**Doors and Locks**

**Engine-off power window operation**
The power windows can be operated for about 30 seconds after the ignition is turned to the off position. If any door is opened, the power windows will be inoperable.

**Power Window Lock Switch**
With the lock switch in the unlocked position (button depressed), all power windows on each door can be operated.

With the lock switch in the locked position (button depressed), only the driver's side power window can be operated.

- **Warning**
  Unless a passenger needs to operate a power window, keep the power window lock switch in the locked position.

- **Unintentional power window operation is dangerous. A person's hands, head, or neck could be caught by the window and result in serious injury.**

**Opening/Closing the Power Windows and the Moonroof from Outside**
The front power windows and the moonroof can be opened or closed from outside the vehicle after the doors and the trunk lid are closed.

**Warning**
Make sure the opening is clear before closing a window and the moonroof.

**Closing power windows and the moonroof are dangerous. A person's hands, head, or even neck could be caught by the window or the moonroof and result in serious injury or even death.**

**Opening**
Because nobody likes getting into a very hot car, Mazda has installed a way to open the two front windows and the moonroof as you approach the vehicle to get the air moving before you get in.

**Warning**
Use the remote auto-window and the auto-moonroof function only when you can see the vehicle and it is in a secure area.

Do not let children play with your keys. If they open the window and moonroof without your knowing, the open windows and moonroof are an even bigger invitation to a thief than leaving the doors unlocked.

Children playing with cars can get themselves jammed in windows and moonroof, and killed without making a sound.

The windows and moonroof can be opened for ventilating the cabin before getting in the vehicle.

**With unlock button**
Press the unlock button on the transmitter once, then press again within 1.5 seconds and hold.

**After** the doors are unlocked, both windows and the moonroof open while the unlock button is pressed.

To stop the windows and the moonroof while opening, release the button.

If the operation is performed from the beginning again, the windows and the moonroof open.
Knowing Your Morris
Doors and Locks

Advanced key

With key
1. Insert the key in the driver's door key cylinder.
2. Turn the key clockwise and hold until the windows and the moonroof are completely open. After the doors are unlocked, the windows and the moonroof fully open automatically.

NOTE
(With advanced key)
If the automatic lock function (page 3:34) has been activated, the doors and the trunk will automatically lock as you walk away from the vehicle. However, the power windows and the moonroof cannot be opened. When leaving the vehicle, close the windows and the moonroof using the power window switch or the 110 (slide switch) inside the vehicle. Close the key or request switch on the front door handle.

NOTE
(With advanced key)
After using the key to lock the doors, you can still open the front doors and remove the key. If the doors are locked, the windows and the moonroof can be opened manually in case they are left open after getting out of the vehicle.

Retractable type key

With key
1. Close the all opening are clear of heads, hands and pets.
2. Insert the key in the driver's door key cylinder.
3. Turn the key counterclockwise and hold until the windows and the moonroof are completely close. After the doors are locked, the windows and the moonroof close as long as the key is turned.

NOTE
(With advanced key)
When using the key to unlock the door and lock the doors again and put up the windows if you do not want to close them, the car to operate the windows.

To stop this operation, turn the key to the center position, then turn it clockwise again.

Close
The windows and the moonroof can be closed in case they are left open after getting out of the vehicle.

2. Press and hold the request switch on the driver's door. After the doors are locked, the windows and the moonroof close as long as the request switch is pressed.

3. The doors are locked, unlock them.
Knowing Your Vehicle

Doors and Locks

Fuel-Filler Lid and Cap

**WARNING**
When removing the fuel-filler cap, loosen the cap slightly and wait for any hissing to stop. Then remove it.
Fuel spray is dangerous. Fuel can burn skin and eyes and cause illness if ingested. Fuel spray is released when there is pressure in the fuel tank and the fuel-filler cap is removed too quickly.

Before refueling, stop the engine, and always keep sparks and flames away from the filler neck.
Fuel vapor is dangerous. It could be ignited by sparks or flames causing serious burns and injuries.
Additionally, use of the incorrect fuel-filler cap or not using a fuel-filler cap may result in fuel leaks, which could result in serious burns or death in an accident.

**CAUTION**
Always use only a genuine Mazda fuel-filler cap or an approved equivalent, available at an Authorized Mazda Dealer. The wrong cap can result in a serious malfunction of the fuel and emission control systems, it may also cause the check engine light in the instrument cluster to illuminate.

Fuel-Filler Lid

To open, pull the remote fuel-filler lid release.

Fuel-Filler Cap

To remove the fuel-filler cap, twist it counterclockwise.

To close the fuel-filler cap, turn it clockwise until two or more clicks are heard.

**CAUTION**
If the check fuel cap warning light illuminates, the fuel-filler cap may not be properly installed. If the warning light illuminates, park your vehicle safely off the road and remove the fuel-filler cap and reinstall it correctly. After the cap has been correctly installed, the fuel cap warning light may continue to illuminate until a number of driving cycles have been completed. A driving cycle consists of starting the engine (after four or more hours with the engine off) and driving the vehicle on city and highway roads.
Continuing to drive with the check fuel cap warning light illuminated could cause the check engine light to illuminate as well.

**NOTE**
The rear wiper can be activated the inner side of the lid allows eliminating some contact fuel on the cap from dripping onto the vehicle.

Opening the Hood

1. With the vehicle parked, pull the release handle to unlock the hood.

2. Insert your hand into the hood opening and slide the hood latch lever to the right and lift the hood.
Doors and Locks

**Closing the Hood**

**WARNING**

Do not leave items in the engine compartment.

After you have finished checking or doing servicing in the engine compartment, do not forget to leave items such as tools or bags in the engine compartment. Tools or other items left in the engine compartment could cause engine damage or a fire leading to an unexpected accident.

1. Check under the hood area to make certain all filler caps are in place and all loose items (e.g., tools, oil containers, etc.) have been removed.
2. Insert the support rod into its clip while holding up the hood. Verify that the support rod is secured in the clip before closing the hood.
3. Close the hood so that it locks securely.

**NOTE**

Do not let passengers stand up or extend part of their body through the open moonroof while the vehicle is moving. Extending the head, arms, or other parts of the body through the moonroof is dangerous. The head or arms could be something while the vehicle is moving. This could cause serious injury or death.

Make sure the opening is clear before closing the moonroof. A closing moonroof is dangerous. The hands, hair, or even neck of a person—especially a child—could be caught in it as it closes, causing serious injury or even death.

**Operating the Moonroof**

**Tilt Operation**

The rear of the moonroof can be tilted open to provide more ventilation.

To fully tilt automatically, momentarily press the tilt switch.

To fully close automatically, momentarily pull the tilt switch or press the front of the slide switch.

To stop tilting part way, press any part of the tilt or slide switch.

**Slide Operation**

To fully open automatically, momentarily press the rear of the slide switch.

To fully close automatically, momentarily pull the front of the slide switch or pull the tilt switch.

To stop sliding part way, press any part of the tilt or slide switch.

**Power moonroof re-set procedure**

If the battery has been disconnected during vehicle maintenance or for other reasons, the moonroof may not fully open or close. The moonroof's panic-safe function does not work while the moonroof is in-setting. Carry out the following procedure to resume operation:

1. Switch the ignition ON.
2. Press the tilt switch, to partially tilt open the rear of the moonroof.

**NOTE**

If the reset procedure is performed while the moonroof is at the slide position (fully open), it will be closed before the rear tilt opens.

3. Repeat the procedure in Step 2. The rear of the moonroof will open to the fully open position, then closes a little.
Doors and Locks

- Engine-off Moonroof Operation
   The moonroof can be operated for about 40 seconds after the ignition is switched from ON to the ACC or OFF (LOCK) with all doors closed. If any door is opened, the moonroof will be impervious.

   **NOTE**
   For engine-off operation of the moonroof, the switch must be pushed firmly throughout moonroof closure because the auto-holding function will be inoperative.

   **Opening/Closing the Moonroof from the Outside**
   The moonroof can be opened or closed from outside the vehicle after the doors are closed. Refer to Opening/Closing the Power Windows and the Moonroof from the Outside on page 3-46.

   **Jam-safe Moonroof**
   If a person's head, hand, or an object blocks the moonroof during closing operation, the moonroof will stop and open halfway.

   **WARNING**
   Make sure nothing blocks the moonroof just before it reaches the fully closed position.
   Blocking the moonroof just before it reaches the closed position is dangerous.
   In this case, the jam-safe function cannot prevent the moonroof from stopping, if fingers are caught, serious injuries could occur.

   **NOTE**
   - Depending on driving conditions, a closing moonroof could strike your head and stop opening when the moonroof feels a shock that is severe to controlling blocking it.
   - The moonroof's jam-safe function does not function while the moonroof is opening.

   **Sunshade**
   The sunshade can be opened and closed by hand.
   The sunshade opens automatically when the moonroof is opened, but must be closed by hand.

   **CAUTION**
   - The sunshade does not tilt. To avoid damaging the sunshade, do not push up on it.
   - Do not close the sunshade while the moonroof is opening. Trying to force the sunshade closed could damage it.

Immovolizer System

The immobilizer system allows the engine to start only with an advanced key, the system recognizes: If someone attempts to start the engine with an unauthorized advanced key, the engine will not start, thereby helping to prevent the theft of your vehicle. If you have a problem with the immobilizer system or the advanced key (including auxiliary keys) contact an Authorized Mazda Dealer.

**CAUTION**
- Radio equipment like this is governed by law in the United States. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- To avoid damage to the key, do not:
  - Drop the key.
  - Get the key wet.
  - Expose the key to any kind of magnetic field.
  - Expose the key to high temperatures or places such as the dashboard or hood, under direct sunlight.

- Devices for electronic purchases, or security passage which touch or come near the auxiliary key.
SECTION 7
PLOTS
GTL 6591, NHTSA CA5403.

FMVSS 118, Left Front W/6mm Rod.

Force in Newtons.
GTL 6592, NHTSA CA5403.

FMVSS 118, Right Front W/6mm Rod.

Force in Newtons.

Time in Seconds
GTL 6593, NHTSA CA5403.

FMVSS 118, Roof Panel, W/6mm Rod.