SAFETY COMPLIANCE TESTING FOR
FMVSS NO. 114
THEFT PROTECTION

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

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

June 8, 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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DN: cn=Grant Farrand, c=US, o=GTL, email=gf@general-testing.com

Approval Date: 06/08/10

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: [Signature]
Acceptance Date: 06/18/10
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-114-03-DRAFT-GTL-REVC for the determination of FMVSS 114 compliance.

Test failures identified were as follows:
None

| 17. Key Words | Compliance Testing  
|               | Safety Engineering  
|               | FMVSS 114          |
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|               | Telephone No. (202) 366-4947 |
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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. 114 testing to determine if the vehicle was in compliance with the requirements of the standard. FMVSS 114 specifies requirements to decrease the likelihood that a vehicle is stolen, or accidentally set in motion.

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. 114 testing on March 25, 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-114-03-DRAFT-GTL-REVC and General Testing Laboratories, Inc. (GTL) Test Procedure, TP-114-03-Draft, “Theft Protection and Rollaway Prevention”.

2.1 SUMMARY OF RESULTS

Test data indicate the FMVSS 114 requirements appear to have been satisfied. All test data resulting from the tests were recorded on test data sheets in Section 3.
SECTION 3

TEST DATA

3.0 TEST RESULTS

The following data sheets document the results of FMVSS 114 testing on the 2010 Mazda 6.
FMVSS 114, THEFT PROTECTION
DATA SHEET 1 – VEHICLE IDENTIFICATION

TEST DATE: 03/25/10 LAB.: General Testing Laboratories
CONTRACT: DTNH22-06-C-00032 VEH. NHTSA NO.: CA5403
VIN: 1YVHZ8CH1A5M27369 BUILD DATE: 12/09

MY/MAKE/MODEL/BODY STYLE: 2010 Mazda 6

TRANSMISSION TYPE:
Automatic X; Manual ; Other (describe: )

DRIVE TRAIN TYPE:
Front Wheel X; Rear Wheel ; 4-Wheel

FUEL TANK LEVEL: 100 (% OF max.) MILEAGE: 86

VEHICLE STARTING SYSTEM:

Location of the starting system:
(1) Key Cylinder located on the right side of the steering column, (2) Ignition Start/Stop button located on the center console on left side of gear selector.

Selectable settings:
Off(lock), Accessory, On(run), Start

Explain how the system is activated:
For the Automatic Transmission, the shift lever should be in “P” or “N”. Insert the Physical Device into the starting system and turn it to the ‘start” position. For the Electronic Code, place the advanced keyless transmitter unit in the passenger Compartment and then push the push button start while simultaneously pressing the brake pedal. The shift lever must be in “P” or “N”.

KEY

Description of the key:
Electronic Key FOB with embedded code/physical key device

STARTING SYSTEM ACTIVATION

Describe how the key is inserted into the starting system:
Physical Device: Insert the key into the key cylinder;
Electronic Code: Place the advanced keyless transmitter unit in passenger compartment.
Describe how the key is used to activate the starting system:
For the **Automatic Transmission**, the shift lever should be in “P” or “N”. Insert the
Physical Device into the starting system and turn it to the ‘start’ position. For the
**Electronic Code**, place the advanced keyless transmitter unit in the passenger
Compartment and then push the push button start while simultaneously pressing the brake
pedal. The shift lever must be in “P” or “N”.

Describe how the key is removed from the starting system:
Physical Device: Remove the key from the key cylinder.
Electronic Code: The following procedure must be followed: 1) Shift shift lever to the “P”
position, 2) Stop the engine, 3) Open the driver’s side door, 4) Remove the advanced
Keyless transmitter from the passenger compartment.

**GEAR SELECTION CONTROL**

Describe the gear selection control:
**Traditional center console mounted gear shift selector.**

Describe how the gear selection control is activated:
Depress the brake pedal then move gear selector to desired position.

Describe all of the selectable settings:
_________ Park, Reverse, Neutral, Drive with ±

**IMMOBILIZER**

Is the vehicle equipped with an immobilizer  YES  X  NO

Describe the immobilizer device and how it prevents vehicle theft (if equipped):
The immobilizer is designed to prevent the engine from being started unless a coded
key programmed to the vehicle is used.

**OPTIONAL RELEASE DEVICES**

Describe if the vehicle is equipped with optional release devices:
Yes

OPTIONAL RELEASE DEVICES:
Key Removal____  Gear Selection Control____ X  None____  Other____

**VEHICLE FLUIDS**

Check all vehicle fluids and adjust to the proper levels for operation:____ Full____
Vehicle Mfg. Recommended Tire Inflation Pressure (kPa): Front 220  Rear 220

TIRE INFLATION Pressures:

Measured (kPa): LF 220  LR 220  RF 220  RR 220

Weight

Vehicle Curb Weight (kg): 1516.5  Weight of Driver (kg): 91 (target = 91kg)
FMVSS 114, THEFT PROTECTION
DATA SHEET 2

### REQUIREMENT S5.1.1

<table>
<thead>
<tr>
<th>Engine cannot be started without using the key</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes: ___ No: X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

With key removed, steering wheel locks:
Yes: X No: ___

Note: After opening driver door

Identify locking position(s) on wheel using arrow(s)

Clockwise: 10° (degrees)
Counterclockwise: 0° (degrees)

Key removal prevents forward self-mobility:
Yes: X No: ___

If yes describe: Vehicle will not start without the coded advanced keyless transmitter unit in the passenger compartment.

When key is removed from the starting system, starting of the engine or motor and either steering or self mobility is prevented. YES X

REMARKS:
### REQUIREMENT S5.1.3

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

An audible warning is activated whenever the key is in any starting system position with the exception of “on” and “start” and the door closest to the driver’s designated seating position is opened.

Yes ___ No ___

Identify ALL key/starting system position setting:

OFF, ACCESSORY, ON, START

---

### REQUIREMENT S5.1.4

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

With the vehicle engine or motor shut down and the transmission gear selection control in any position other than “park”;

The steering wheel can rotate without locking? Yes ___ No ___

NOTE: Engine cannot be turned off by push button if gear selector is not in the park position.

The vehicle is free to roll forward?

Yes ___ No ___

---

REMARKS:

RECORDED BY: G. Farrand

DATE: 03/25/10

APPROVED BY: D. Messick
FMVSS 114, ROLLAWAY PREVENTION
DATA SHEET 3
(for vehicles equipped with transmission with a “park” position)

VEH. NHTSA NO.: CA5403  TEST DATE: 03/25/10

### REQUIREMENT S5.2.1

<table>
<thead>
<tr>
<th>Description</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>The starting system prevents key removal in ALL gear selection control positions except “park”.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes X No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can the gear selection control be placed between each gear selection position and will it remain there without assistance?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Yes No X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If yes, can the key be removed from the starting system?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If the key can be removed from the vehicle starting system when the gear selection control is not locked in “park”, a mechanism shall exist which, upon key removal, the vehicle transmission or gear selection control shall become locked in “park” as the direct result of removing the key. If such a mechanism exists, describe the mechanism and its function:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### REQUIREMENT S5.2.2

<table>
<thead>
<tr>
<th>Description</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>The gear selection control is locked in the “park” position when the key is removed from the starting system.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Yes X No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS:
### REQUIREMENT S5.2.3

<table>
<thead>
<tr>
<th>ELECTRICAL FAILURE (Battery Discharge)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the event of an electrical failure, key removal from the starting system when the transmission or gear selection control is not locked in “park” is permitted.</td>
</tr>
<tr>
<td>Yes X</td>
</tr>
</tbody>
</table>

The vehicle is equipped with an override device that permits key removal from the starting system when the transmission or gear selection control is not locked in “park”.

| Yes | No X |

If yes, select the type of override device equipped:

- Opaque Cover
- No Cover

Describe the override device design and mode of activation (if equipped):

#### FILL IN THE SECTION BELOW THAT APPLIES:

**OVERRIDE WITH AN OPAQUE COVER:**

| The opaque surface cover prevents sight of and use of override device. |
| Yes | No |

| The opaque surface cover can only be removed by using a screwdriver or other tool. |
| Yes | No |

As a direct result of removing the key from starting system, the following is prevented:

- Steering
- Self-Mobility

**OVERRIDE WITH NO COVER**

| The override device requires the use of a tool to activate. |
| Yes | No |

| Simultaneous activation of the override device and removal of key from starting system is required. |
| Yes | No |

As a direct result of removing the key from the starting system, the following is prevented:

- Steering
- Self-Mobility

| Remarks: |
**DATA SHEET 3 continued**

<table>
<thead>
<tr>
<th>REQUIREMENT S5.2.4</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GEAR SELECTION CONTROL OVERRIDE DEVICE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The vehicle is equipped with an override device that allows the user to move the gear selection control from “park” after the key has been removed from the starting system.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>If yes, select the type of override device that is equipped: Override operated with a:</td>
<td>Key</td>
<td>Opaque Cover</td>
</tr>
<tr>
<td>Describe the override device design and mode of activation (if equipped):</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FILL IN THE SECTION BELOW THAT APPLIES:**

**OVERRIDE OPERATED WITH KEY:**

The key is required to operate the override device that allows the user to move the gear selection control from “park” after the key has been removed from the starting system. | N/A |

**OVERRIDE WITH AN OPAQUE COVER**

The opaque surface cover prevents sight of and use of override device. | Yes | No |

The opaque surface cover can only be removed by using a screwdriver or other tool. | Yes | No |

As a direct result of removing the key from the starting system, the following is prevented: | Steering | Self-Mobility |

**OVERRIDE WITH NO COVER**

The override device requires the use of a tool to operate. | Yes | No |

Simultaneous activation of the override device and removal of key from starting system is required. | Yes | No |

As a direct result of removing the key from the starting system, the following is prevented: | Steering | Self-Mobility |

**REMARKS:**
### DATA SHEET 3 continued

<table>
<thead>
<tr>
<th>REQUIREMENTS S5.2.5</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VEHICLE FACING UPHILL ON 10% GRADE</strong></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>With the gear selection control in “park” measure movement of the vehicle down the slope upon releasing the service brake.</td>
<td></td>
<td>see note</td>
</tr>
<tr>
<td>Test grade: 15 % (9% to 15%)</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Measured movement: 54 mm (150mm maximum)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Repeat procedure if vehicle fails on grade in excess of 10%.

Test grade: ______ % (9% to 10%)

Measured movement: ______ mm (150 mm maximum)

<table>
<thead>
<tr>
<th><strong>VEHICLE FACING DOWNHILL ON 10% GRADE</strong></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>With the gear selection control in “park” measure movement of the vehicle down the slope upon releasing the service brake.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test grade: 15 % (9% to 15%)</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Measured movement: 24 mm (150mm maximum)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Repeat procedure if vehicle fails on grade in excess of 10%.

Test grade: ______ % (9% to 10%)

Measured movement: ______ mm (150 mm maximum)

**REMARKS:**
### REQUIREMENTS S5.3

<table>
<thead>
<tr>
<th>VEHICLE FACING UPHILL ON 10% GRADE</th>
<th>PASS</th>
<th>FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>With the key in the “off” position, the transmission will shift out of “park” without the service brake being applied. Yes______ No X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>With the key in the “acc” position, the transmission will shift out of “park” without the service brake being applied. Yes______ No X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>With the key in the “on” position (engine off), the transmission will shift out of “park” without the service brake being applied. Yes______ No X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>With the key in the “start” position, the transmission will shift out of “park” without the service brake being applied. Yes______ No X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>With the key in the “other” position (please specify), the transmission will shift out of “park” without the service brake being applied.</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Does the key stay between starting system positions without being held by operator?</td>
<td>Yes______ No X</td>
<td>X</td>
</tr>
<tr>
<td>If so, please describe.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Brake force readings (force required to allow the transmission to shift out of “park”):

The vehicle is equipped with adjustable pedals: Yes_____ No X

<table>
<thead>
<tr>
<th>Fore Position:</th>
<th>Aft Position (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading 1 5.4 N</td>
<td>Reading 1______</td>
</tr>
<tr>
<td>Reading 2 4.3 N</td>
<td>Reading 2______</td>
</tr>
<tr>
<td>Reading 3 4.5 N</td>
<td>Reading 3______</td>
</tr>
<tr>
<td>Reading 4 4.4 N</td>
<td>Reading 4______</td>
</tr>
<tr>
<td>Reading 5 4.4 N</td>
<td>Reading 5______</td>
</tr>
<tr>
<td>Avg. 4.6 N</td>
<td>Avg. ______</td>
</tr>
</tbody>
</table>

REMINDS:

RECORDED BY: G. Farrand DATE: 03/25/10
APPROVED BY: D. Messick
<table>
<thead>
<tr>
<th>ITEM</th>
<th>MFR</th>
<th>MODEL</th>
<th>S/N</th>
<th>CAL. PERIOD</th>
<th>DATE OF NEXT CALIB.</th>
<th>REMARKS</th>
</tr>
</thead>
<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>
<td></td>
</tr>
<tr>
<td>TIRE PRESSURE GAUGE</td>
<td>WESKLER</td>
<td>45-0/100</td>
<td>107</td>
<td>12 MO.</td>
<td>04/03/10</td>
<td></td>
</tr>
<tr>
<td>INCLINOMETER</td>
<td>MITUTOYO</td>
<td>PRO 360</td>
<td>950-315</td>
<td>N/A</td>
<td>BEFORE USE</td>
<td></td>
</tr>
<tr>
<td>STEEL TAPE</td>
<td>STANLEY</td>
<td>FAT MAX</td>
<td>33-890</td>
<td>12 MO.</td>
<td>03/29/10</td>
<td></td>
</tr>
<tr>
<td>WHEEL SCALES</td>
<td>INTERCOMP</td>
<td>SERIES 94</td>
<td>199744</td>
<td>12 MO.</td>
<td>03/02/11</td>
<td></td>
</tr>
<tr>
<td>WHEEL SCALES</td>
<td>INTERCOMP</td>
<td>SERIES 94</td>
<td>199744</td>
<td>12 MO.</td>
<td>03/02/11</td>
<td></td>
</tr>
<tr>
<td>WHEEL SCALES</td>
<td>INTERCOMP</td>
<td>SERIES 94</td>
<td>199744</td>
<td>12 MO.</td>
<td>03/02/11</td>
<td></td>
</tr>
<tr>
<td>WHEEL SCALES</td>
<td>INTERCOMP</td>
<td>SERIES 94</td>
<td>199744</td>
<td>12 MO.</td>
<td>03/02/11</td>
<td></td>
</tr>
<tr>
<td>SPRING SCALE</td>
<td>CHATILLON</td>
<td>DPP-10</td>
<td>4729</td>
<td>12 MO.</td>
<td>BEFORE USE</td>
<td></td>
</tr>
</tbody>
</table>
SECTION 5

PHOTOGRAPHS
FIGURE 5.1
¾ FRONTAL VIEW FROM LEFT SIDE OF VEHICLE
2010 MAZDA 6
NHTSA NO. CA5403
FMVSS NO. 114

FIGURE 5.2
VEHICLE CERTIFICATION LABEL
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>PRESSION DES PNEUS À FROID</th>
<th>SEE OWNER’S MANUAL FOR ADDITIONAL INFORMATION</th>
<th>VOIR LE MANUEL DE L’USAGER POUR PLUS DE RENSEIGNEMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRONT AVANT</td>
<td>P215/55R17</td>
<td>220 kPa, 32 psi</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REAR ARRIÈRE</td>
<td>P215/55R17</td>
<td>220 kPa, 32 psi</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPARE DE SECOURS</td>
<td>T115/70D16</td>
<td>420 kPa, 60 psi</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FIGURE 5.5
PUSH BUTTON START/STOP SWITCH
FIGURE 5.6
EMERGENCY KEY INSERTED IN AUXILIARY SWITCH
2010 MAZDA 6
NHTSA NO. CA5403
FMVSS NO. 114

FIGURE 5.8
AUXILIARY SWITCH WITH COVER REMOVED
FIGURE 5.9
TRANSMISSION GEAR SELECTION CONTROL
FIGURE 5.10
GEAR SELECTOR RELEASE COVER
FIGURE 5.11
GEAR SELECTOR RELEASE WITH KEY
FIGURE 5.12
KEY LOADED IN SYSTEM SYMBOL
2010 MAZDA 6
NHTSA NO. CA5403
FMVSS NO. 114

FIGURE 5.13
KEY NOT LOADED IN SYSTEM SYMBOL