SAFETY COMPLIANCE TESTING FOR
FMVSS NO. 214S
SIDE IMPACT PROTECTION (STATIC)

MAZDA MOTOR CORPORATION
2009 MAZDA 3, PASSENGER CAR
NHTSA NO. C95400

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

August 12, 2009

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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Prepared By:   Debbie Messick
Approved By:  Grant Farrand
Approval Date: 08/12/09

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By:   James A. Jones
Acceptance Date: ________________________
Compliance tests were conducted on the subject 2009 Mazda 3 Passenger Car in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-214S-05 for the determination of FMVSS 214 compliance. Test failures identified were as follows:

NONE
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</tr>
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</tr>
<tr>
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<td>5.18</td>
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<td>5.19</td>
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</tr>
<tr>
<td>5.20</td>
<td>Post Test Door Inside Test 1</td>
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<tr>
<td>5.21</td>
<td>Rear Vehicle Tie Down Test 2</td>
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<td>5.22</td>
<td>Front Vehicle Tie Down Test 2</td>
</tr>
<tr>
<td>5.23</td>
<td>Inclinometer Pre-Test 2</td>
</tr>
<tr>
<td>5.24</td>
<td>Dial Indicator Pre-Test 2</td>
</tr>
<tr>
<td>5.25</td>
<td>Load Device Against Door Pre-Test 2</td>
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<tr>
<td>5.26</td>
<td>Load Device Against Door at Max Load Test 2</td>
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<td>Right Side View of Vehicle Post Test</td>
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<td>5.34</td>
<td>Rear View of Vehicle Post Test</td>
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<td>5.35</td>
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<td>5.36</td>
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SECTION 1
INTRODUCTION

1.0  PURPOSE OF COMPLIANCE TEST

A 2009 Mazda 3 passenger car was subjected to Federal Motor Vehicle Safety Standard (FMVSS) No. 214 testing to determine if the vehicle was in compliance with the requirements of the standard. FMVSS No. 214 establishes requirements for the side doors of a Motor Vehicle to minimize the safety hazard caused by intrusion into the passenger compartment as a result of a side impact accident.

1.1  TEST VEHICLE

The test vehicle was a 2009 Mazda 3 Passenger Car. Nomenclature applicable to the test vehicle are:

A.  Vehicle Identification Number: JM1BK323691232072

B.  NHTSA No.: C95400

C.  Manufacturer: MAZDA MOTOR CORPORATION

D.  Manufacture Date: 09/08

The vehicle’s front and rear seating systems were removed for this test. All vehicle windows were closed and all doors were locked for this test.

1.2  TEST DATE

The test vehicle was subjected to FMVSS No. 214 testing on July 30, 2009.
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-214S-05 dated 14 September 1993 and General Testing Laboratories, Inc. (GTL) Test Procedure, TP-214S-05, "Static – Side Impact Protection".

Each vehicle shall be able to meet the requirements of either, at the manufacturer's option, 2.1 or 2.2 when any of its side doors that can be used for occupant egress are tested.

2.1 OPTION ONE

With any seats that may affect load upon or deflection of the side of the vehicle removed from the vehicle, each vehicle must be able to meet the requirements of 2.1.1 through 2.1.3.

2.1.1 INITIAL CRUSH RESISTANCE

The initial crush resistance shall not be less than 2,250 pounds.

2.1.2 INTERMEDIATE CRUSH RESISTANCE

The intermediate crush resistance shall not be less than 3,500 pounds.

2.1.3 PEAK CRUSH RESISTANCE

The peak crush resistance shall not be less than two times the curb weight of the vehicle or 7,000 pounds, whichever is less.

2.2 OPTION TWO

With seats installed in the vehicle, and located in any horizontal or vertical position to which they can be adjusted and at any seat back angle to which they can be adjusted, each vehicle must be able to meet the requirements of 2.2.1 through 2.2.3.

2.2.1 INITIAL CRUSH RESISTANCE

The initial crush resistance shall not be less than 2,250 pounds.

2.2.2 INTERMEDIATE CRUSH RESISTANCE

The intermediate crush resistance shall not be less than 4,375 pounds.
SECTION 2 CONTINUED

2.2.3 PEAK CRUSH RESISTANCE

The peak crush resistance shall not be less than three and one half times the curb weight of the vehicle or 12,000 pounds, whichever is less.
SECTION 3
COMPLIANCE TEST DATA
DATA SHEET 1
TEST VEHICLE RECEIVING-INSPECTION

VEH. MOD YR/MAKE/MODEL/BODY: 2009 MAZDA 3 PASSENGER CAR VEH. BUILD DATE: 09/08; TEST DATE: JULY 30, 2009
TEST LABORATORY: GENERAL TESTING LABS OBSERVERS: G. FARRAND, J. LATANE

A. First compliance test by laboratory for this vehicle is the static FMVSS 214 test.
   
   ___ Yes  ___ No (Go to item 2)
   
   X (1) Label test vehicle with NHTSA Number
   
   X (2) Verify all options on the "window sticker" are present on the vehicle
   
   X (3) Verify tires and wheel rims are new and the same as listed
   
   X (4) Verify there are no dents or other interior or exterior flaws
   
   X (5) Verify the glove box contains an owner's manual, warranty document, consumer information, and extra keys
   
   X (6) Verify the vehicle is equipped with the proper fuel filler cap
   
   X (7) If the vehicle has been delivered from the dealer, verify the vehicle has been properly prepared and is in running condition

B. Verify seat adjusters are working
   
   X Yes ___ No

C. Verify there is a seat belt at each seating position
   
   X Yes ___ No

D. Without disturbing the integrity of each seat belt and anchorage, verify that each seat belt is attached to the anchorage. For seat belts that are attached to the seat, also verify the seats are attached to the seat anchors and the seat anchors are attached to the vehicle.
   
   X Yes ___ No

E. Curb Weight of Vehicle: 2973 LBS. (1348.5 KG)

F. COMMENTS: (Explain any problems here)

RECORDED BY: G. FARRAND DATE: 07/30/09
APPROVED BY: D. MESSICK
DATA SHEET 2
PRETEST PREPARATION

VEH. MOD YR/MAKE/MODEL/BODY: 2009 MAZDA 3 PASSENGER CAR
VEH. NHTSA NO.: C95400; VIN: JM1BK323691232072
VEH. BUILD DATE: 09/08; TEST DATE: JULY 30, 2009
TEST LABORATORY: GENERAL TESTING LABS
OBSERVERS: G. FARRAND, J. LATANE

Prior to testing the following will be accomplished:

<table>
<thead>
<tr>
<th>TEST</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>B.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>C.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>D.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>E.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F.</td>
<td>42.0</td>
<td>26.5</td>
</tr>
<tr>
<td>G.</td>
<td>5&quot;</td>
<td>5&quot;</td>
</tr>
<tr>
<td>H.</td>
<td>21.0</td>
<td>13.3</td>
</tr>
<tr>
<td>I.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>J.</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

RECORDED BY: G. FARRAND DATE: 07/30/09
APPROVED BY: D. MESSICK
DATA SHEET 3
STATIC LOAD TEST - BACK-UP SYSTEM DATA

VEH. MOD YR/MAKE/MODEL/BODY: 2009 MAZDA 3 PASSENGER CAR
VEH. NHTSA NO.: C95400; VIN: JM1BK323691232072
VEH. BUILD DATE: 09/08; TEST DATE: JULY 30, 2009
TEST LABORATORY: GENERAL TESTING LABS
OBSERVERS: G. FARRAND, J. LATANE

RESULTS: Plots of load versus displacement and time versus displacement obtained from the back-up data (attach plots to data sheet) showed that:

**TEST #1** - GTL #6271 (LEFT FRONT DOOR)

A. The initial crush resistance was _______ 3321____ lbs.
B. The intermediate crush resistance was _______ 4751____ lbs.
C. The peak crush resistance was _______ 9503____ lbs at _______ 12.3____ inches
D. The rate of loading was _______ .2"/sec____

The dial indicator and the inclinometer showed the following deflections.

<table>
<thead>
<tr>
<th>LOADING DEVICE TRAVEL</th>
<th>DIAL INDICATOR</th>
<th>INCLINOMETER</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 inches</td>
<td>0.0000</td>
<td>0</td>
</tr>
<tr>
<td>2 inches</td>
<td>0.04</td>
<td>0</td>
</tr>
<tr>
<td>4 inches</td>
<td>0.14</td>
<td>0</td>
</tr>
<tr>
<td>6 inches</td>
<td>0.14</td>
<td>0</td>
</tr>
<tr>
<td>12 inches</td>
<td>0.25</td>
<td>0</td>
</tr>
<tr>
<td>12.3 inches (full travel)</td>
<td>0.25</td>
<td>0</td>
</tr>
<tr>
<td>0 inches (removal)</td>
<td>0.10</td>
<td>0</td>
</tr>
</tbody>
</table>

**TEST #2** - GTL #6272 (RIGHT REAR DOOR)

A. The initial crush resistance was _______ 3820____ lbs.
B. The intermediate crush resistance was _______ 7348____ lbs.
C. The peak crush resistance was _______ 15,943____ lbs at _______ 12.2____ inches
D. The rate of loading was _______ .2"/sec____
The dial indicator and the inclinometer showed the following deflections.

<table>
<thead>
<tr>
<th>LOADING DEVICE TRAVEL</th>
<th>DIAL INDICATOR</th>
<th>INCLINOMETER</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 inches</td>
<td>0.0000</td>
<td>0</td>
</tr>
<tr>
<td>2 inches</td>
<td>0.07</td>
<td>0</td>
</tr>
<tr>
<td>4 inches</td>
<td>0.09</td>
<td>0</td>
</tr>
<tr>
<td>6 inches</td>
<td>0.13</td>
<td>0</td>
</tr>
<tr>
<td>12 inches</td>
<td>0.48</td>
<td>1</td>
</tr>
<tr>
<td>12.2 inches (full travel)</td>
<td>0.48</td>
<td>1</td>
</tr>
<tr>
<td>0 inches (removal)</td>
<td>0.16</td>
<td>0</td>
</tr>
</tbody>
</table>

RECORDED BY: G. FARRAND
DATE: 07/30/09

APPROVED BY: D. MESSICK
DATA SHEET 4
DATA REDUCTION

VEH. MOD YR/MAKE/MODEL/BODY: 2009 MAZDA 3 PASSENGER CAR
VEH. NHTSA NO.: C95400; VIN: JM1BK323691232072
VEH. BUILD DATE: 09/08; TEST DATE: JULY 30, 2009
TEST LABORATORY: GENERAL TESTING LABS
OBSERVERS: G. FARRAND, J. LATANE

Data from the primary data systems will be analyzed and the plots attached to the data sheet.

RESULTS - The load versus displacement plot showed that - -

TEST #1 - GTL #6271 (LEFT FRONT DOOR)
A. The initial crush resistance was 3321 lbs.
B. The intermediate crush resistance was 4751 lbs.
C. The peak crush resistance was 9503 lbs at 12.3 inches

The time versus displacement plot showed that - -

The rate of loading was .2"/sec

TEST #2 - GTL #6272 (RIGHT REAR DOOR)
A. The initial crush resistance was 3820 lbs.
B. The intermediate crush resistance was 7348 lbs.
C. The peak crush resistance was 15,943 lbs at 12.2 inches

The time versus displacement plot showed that - -

The rate of loading was .2"/sec

Comparison of the ABOVE DATA with the BACKUP DATA indicates the following - -

Primary and Backup data agree.

RECORDED BY: G. FARRAND DATE: 07/30/09
APPROVED BY: D. MESSICK

SECTION 4
<table>
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<tr>
<th>EQUIPMENT</th>
<th>DESCRIPTION</th>
<th>MODEL/ SERIAL NO.</th>
<th>CAL. DATE</th>
<th>NEXT CAL. DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPUTER</td>
<td>AT&amp;T</td>
<td>486DX266</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>TEST FIXTURE</td>
<td>GTL 214</td>
<td>214</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>A/D INTERFACE</td>
<td>METRABYTE</td>
<td>DAS-16(F)</td>
<td>BEFORE USE</td>
<td>BEFORE USE</td>
</tr>
<tr>
<td>SCALES</td>
<td>INTERCOMP</td>
<td>199744</td>
<td>04/09</td>
<td>04/10</td>
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<td>SIGNAL CONDITIONER</td>
<td>METRABYTE</td>
<td>EXP-RES</td>
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<td>BEFORE USE</td>
</tr>
<tr>
<td>LOAD CELL</td>
<td>TRANSDUCER INC.</td>
<td>18550</td>
<td>11/08</td>
<td>11/09</td>
</tr>
<tr>
<td>LINEAR POT.</td>
<td>WALDALE</td>
<td>123456A</td>
<td>BEFORE USE</td>
<td>BEFORE USE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>123456B</td>
<td>BEFORE USE</td>
<td>BEFORE USE</td>
</tr>
<tr>
<td>INCLINOMETER</td>
<td>STARRETT</td>
<td>360/002</td>
<td>BEFORE USE</td>
<td>BEFORE USE</td>
</tr>
<tr>
<td>DIAL INDICATOR</td>
<td>MIOTO</td>
<td>0001-2</td>
<td>BEFORE USE</td>
<td>BEFORE USE</td>
</tr>
</tbody>
</table>
SECTION 5

PHOTOGRAPHS
2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214

FIGURE 5.2
LEFT SIDE VIEW OF VEHICLE PRE-TEST
2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214

FIGURE 5.3
RIGHT SIDE VIEW OF VEHICLE PRE-TEST
2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214

FIGURE 5.7
VEHICLE CERTIFICATION LABEL
The combined weight of occupants and cargo should never exceed 385kg or 850lbs.

<table>
<thead>
<tr>
<th>TIRE</th>
<th>SIZE</th>
<th>COLD TIRE PRESSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRONT</td>
<td>P205/50R17</td>
<td>220KPA, 32PSI</td>
</tr>
<tr>
<td>REAR</td>
<td>P205/50R17</td>
<td>220KPA, 32PSI</td>
</tr>
<tr>
<td>SPARE</td>
<td>T125/70D16</td>
<td>420KPA, 60PSI</td>
</tr>
</tbody>
</table>

2009 MAZDA 3
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FIGURE 5.8
VEHICLE TIRE INFORMATION LABEL
FIGURE 5.11
REAR VEHICLE TIE DOWN – TEST 1
2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214

FIGURE 5.12
FRONT VEHICLE TIE DOWN – TEST 1
2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214

FIGURE 5.14
DIAL INDICATOR PRE-TEST 1
FIGURE 5.15
LOAD DEVICE AGAINST DOOR – PRE-TEST 1
2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214

FIGURE 5.16
LOAD DEVICE AGAINST DOOR @ MAX LOAD – TEST 1
2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214

FIGURE 5.17
INCLINOMETER AT MAX LOAD – TEST 1
FIGURE 5.18
DIAL INDICATOR AT MAX LOAD – TEST 1
2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214

FIGURE 5.19
POST TEST DOOR OUTSIDE – TEST 1
2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214

FIGURE 5.24
DIAL INDICATOR – PRE-TEST 2
2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214

FIGURE 5.25
LOAD DEVICE AGAINST DOOR – PRE-TEST 2
FIGURE 5.26
LOAD DEVICE AGAINST DOOR @ MAX LOAD – TEST 2
2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214

FIGURE 5.28
DIAL INDICATOR AT MAX LOAD – TEST 2
2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214

FIGURE 5.29
POST TEST DOOR OUTSIDE – TEST 2
2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214

FIGURE 5.30
POST TEST DOOR INSIDE – TEST 2
2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214

FIGURE 5.31
FRONT VIEW OF VEHICLE POST TEST
2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214

FIGURE 5.32
LEFT SIDE VIEW OF VEHICLE POST TEST
FIGURE 5.33
RIGHT SIDE VIEW OF VEHICLE POST TEST

2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214
2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214

FIGURE 5.34
REAR VIEW OF VEHICLE POST TEST
2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214

FIGURE 5.35
¾ FRONTAL VIEW FROM LEFT SIDE OF VEHICLE
POST TEST
2009 MAZDA 3
NHTSA NO. C95400
FMVSS NO. 214

FIGURE 5.36
¾ REAR VIEW FROM RIGHT SIDE OF VEHICLE POST TEST
SECTION 6

TEST DATA PLOTS