REPORT NUMBER: 208-MGA-2009-007

VEHICLE SAFETY COMPLIANCE TESTING
FOR
FMVSS 208, OCCUPANT CRASH PROTECTION
FMVSS 212, WINDSHIELD MOUNTING
FMVSS 219, WINDSHIELD INTRUSION (PARTIAL)
FMVSS 301, FUEL SYSTEM INTEGRITY

TOYOTA MOTOR MANUFACTURING, CANADA, INC.
2009 TOYOTA MATRIX PASSENGER CAR
NHTSA NO.: C95109

PREPARED BY:
MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105

TEST DATES: FEBRUARY 5, 2009 – MARCH 10, 2009

FINAL REPORT DATE: OCTOBER 4, 2010

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
1200 NEW JERSEY AVENUE, S.E., NVS-220
WASHINGTON, D.C. 20590
This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number DTNH22-08-D-00086.

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Prepared by: Jeff Lewandowski, Project Engineer Date: October 4, 2010

Reviewed by: David Winkelbauer, Facility Director Date: October 4, 2010

FINAL REPORT ACCEPTED BY OVSC:

Accepted By: _____________________________

Acceptance Date: October 4, 2010
Technical Report Documentation Page

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<td>October 4, 2010</td>
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16. Abstract
Compliance tests were conducted on the subject 2009 Toyota Matrix in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP208-14 for the determination of FMVSS 208 compliance. Test failures identified were as follows:

TEST FAILURES:
None

17. Key Words

Frontal Impact  
40 kmph Vehicle Safety Compliance Testing  
FMVSS 208, “Occupant Crash Protection”  
FMVSS 212, “Windshield Mounting”  
FMVSS 219, (partial), “Windshield Zone Intrusion”  
FMVSS 301, “Fuel System Integrity”

18. Distribution Statement
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National Highway Traffic Safety Administration  
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Washington, DC 20590

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SECTION 1
PURPOSE OF COMPLIANCE TESTS

This Federal Motor Vehicle Safety Standard 208 compliance test is part of a program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No. DTNH22-08-D-00086. The purpose of this test was to determine whether the subject vehicle, a 2009 Toyota Matrix, NHTSA No. C95109, meets certain performance requirements of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Mounting"; FMVSS 219, "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity". The compliance test was conducted in accordance with OVSC Laboratory Test Procedure No. TP208-14 dated April 16, 2008.
SECTION 2
TESTS PERFORMED

Test Vehicle: 2009 Toyota Matrix  
Test Program: FMVSS 208 Compliance  
NHTSA No.: C95109  
Test Dates: 2/5/09 - 3/10/09

The following checked items indicate the tests that were performed:

1. Rear seating position seat belts
2. Air bag labels (S4.5.1)
3. Readiness indicator (S4.5.2)
4. Passenger air bag manual cut-off device (S4.5.4)
5. Lap belt lockability (S7.1.1.5)
6. Seat belt warning system (S7.3)
7. Seat belt contact force (S7.4.3)
8. Seat belt latch plate access (S7.4.4)
9. Seat belt retraction (S7.4.5)
10. Seat belt guides and hardware (S7.4.6)
11. Air bag suppression telltale (S19.2.2)
12. Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R)
13. Suppression tests with Newborn infant (Part 572, Subpart K)
14. Suppression tests with 3-year-old dummy (Part 572, Subpart P)
15. Suppression tests with 6-year-old dummy (Part 572, Subpart N)
16. Test of Reactivation of the passenger air bag system with an unbelted 5th percentile female dummy
17. Low risk deployment test with 12-month-old dummy (Part 572, Subpart R)
18. Low risk deployment test with 3-year-old dummy (Part 572, Subpart P)
19. Low risk deployment test with 6-year-old dummy (Part 572, Subpart N)
20. Low risk deployment test with 5th female dummy (Part 572, Subpart O)
21. Impact Tests

**Frontal Oblique**
- Belted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.1(a))
- Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))
- Unbelted 50th male dummy driver and passenger (32 to 40 kmph) (S5.1.2(a)(1) or S5.1.2(b))

**Frontal 0°**
- Belted 50th male dummy driver (0 to 48 kmph) (S5.1.1(b)(1) or S5.1.1(a))
- Belted 50th male dummy passenger (0 to 48 kmph) (S5.1.1(b)(1) or S5.1.1(a))
- Belted 5th female dummy driver (0 to 48 kmph) (S16.1(a))
- Belted 5th female dummy passenger (0 to 48 kmph) (S16.1(a))
- Belted 50th male dummy driver and passenger (0 to 56 kmph) (S5.1.1(b)(2))
- Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))
- Unbelted 50th male dummy driver (32 to 40 kmph) (S5.1.2(a)(2) or S5.1.2(b))
- Unbelted 50th male dummy passenger (32 to 40 kmph) (S5.1.2(a)(2) or S5.1.2(b))
- Unbelted 5th female dummy driver (32 to 40 kmph) (S16.1(b))
- Unbelted 5th female dummy passenger (32 to 40 kmph) (S16.1(b))
For the crash tests, the vehicle was instrumented with 8 accelerometers. The accelerometer data from the vehicle and dummies were sampled at 10,000 samples per second and processed as specified in SAE J211/1 MAR95 and FMVSS 208, S4.13.

The dynamic tests were recorded using high-speed digital video.

The vehicle appears to meet the performance requirements to which it was tested.
### SECTION 3
INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

Test Vehicle: 2009 Toyota Matrix  
Test Program: FMVSS 208 Compliance  
NHTSA No.: C95109  
Test Date: 2/18/09

5th Percentile Female Low Risk Deployments

#### 5th Percentile Female SN 511 Position 1 (Chin On Module) 2/18/09

<table>
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<tr>
<th>Injury Criteria</th>
<th>Max. Allowable Injury Assessment Values</th>
<th>Measured Value</th>
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<tr>
<td>HIC15</td>
<td>700</td>
<td>22</td>
</tr>
<tr>
<td>Peak Nij (Nte)</td>
<td>1.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>70.2</td>
</tr>
<tr>
<td>Peak Nij (Ntf)</td>
<td>1.0</td>
<td>0.3</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>37.9</td>
</tr>
<tr>
<td>Peak Nij (Nce)</td>
<td>1.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>153.1</td>
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<td>Peak Nij (Ncf)</td>
<td>1.0</td>
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<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>68.4</td>
</tr>
<tr>
<td>Neck Tension</td>
<td>2070 N</td>
<td>888</td>
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<td>Neck Compression</td>
<td>2520 N</td>
<td>281</td>
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<td>Chest g</td>
<td>60 g</td>
<td>8</td>
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<td>Chest Displacement</td>
<td>52 mm</td>
<td>5</td>
</tr>
<tr>
<td>Left Femur</td>
<td>6805 N</td>
<td>77</td>
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<tr>
<td>Right Femur</td>
<td>6805 N</td>
<td>232</td>
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Second stage fire time of 150 ms; Injuries calculated on 0 ms to 275 ms

#### 5th Percentile Female SN 511 Position 2 (Chin On Rim) 2/18/09

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<td>HIC15</td>
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<td>Peak Nij (Nte)</td>
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<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>88.2</td>
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<tr>
<td>Peak Nij (Nce)</td>
<td>1.0</td>
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<td>Time (ms)</td>
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<td>Peak Nij (Ncf)</td>
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<tr>
<td>Chest Displacement</td>
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<td>Left Femur</td>
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<tr>
<td>Right Femur</td>
<td>6805 N</td>
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Second stage fire time of 150 ms; Injuries calculated on 0 ms to 275 ms
SECTION 3
INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

Test Vehicle: 2009 Toyota Matrix  NHTSA No.: C95109
Test Program: FMVSS 208 Compliance  Test Date: 3/10/09

40 kmph Frontal Crash

Impact Angle: Zero degrees

Belted Dummies: ___Yes  _X No
Speed Range: ___ 0 to 40 kmph  _X 32 to 40 kmph
___ 0 to 48 kmph  ___ 0 to 56 kmph

Test Speed: 39.8 kmph  Test Weight: 1464.2 kg

Test Vehicle: 2009 Toyota Matrix
Test Program: FMVSS 208 Compliance
NHTSA No.: C95109
Test Date: 3/10/09

50th Percentile Male Frontal Crash Test

Vehicles certified to S5.1.1(b)(1), S5.1.1(b)(2), S5.1.2(a)(2), or S5.1.2(b)

<table>
<thead>
<tr>
<th>Injury Criteria</th>
<th>Max. Allowable Injury Assessment Values</th>
<th>Driver</th>
<th>Passenger</th>
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<tr>
<td>HIC15</td>
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<tr>
<td>Nle</td>
<td>1.0</td>
<td>0.5</td>
<td>0.2</td>
</tr>
<tr>
<td>Nit</td>
<td>1.0</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Nle2</td>
<td>1.0</td>
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<td>0.3</td>
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<td>Nle5</td>
<td>1.0</td>
<td>0.1</td>
<td>0.3</td>
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<td>2001</td>
<td>507</td>
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<td>Neck Compression</td>
<td>4000 N</td>
<td>255</td>
<td>591</td>
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<tr>
<td>Chest g</td>
<td>60 g</td>
<td>34</td>
<td>45</td>
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<tr>
<td>Chest Displacement</td>
<td>63 mm</td>
<td>17</td>
<td>11</td>
</tr>
<tr>
<td>Left Femur</td>
<td>10,000 N</td>
<td>4389</td>
<td>5686</td>
</tr>
<tr>
<td>Right Femur</td>
<td>10,000 N</td>
<td>4413</td>
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A blanket and visor were not used in the suppression testing because they did not affect the sensing system used on the vehicle.
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<tr>
<td>Test Dates:</td>
<td>2/5/09 - 3/10/09</td>
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DATA SHEET 1
COTR VEHICLE WORK ORDER

Test Vehicle: 2009 Toyota Matrix  
NHTSA No.: C95109
Test Program: FMVSS 208 Compliance  
Test Dates: 2/5/09 - 3/10/09

COTR Signature: Brian Smith

Test to be performed for this vehicle are checked below:

1. Rear Seating Position Seat Belts
2. Air Bag Labels (S4.5.1)
3. Readiness Indicator (S4.5.2)
4. Passenger Air Bag Manual Cut-off Device (S4.5.4)
5. Lap Belt Lockability (S7.1.1.5)
6. Seat Belt Warning System (S7.3)
7. Seat Belt Contact Force (S7.4.3)
8. Seat Belt Latch Plate Access (S7.4.4)
9. Seat Belt Retraction (S7.4.5)
10. Seat Belt Guides and Hardware (S7.4.6)
11. Air bag suppression telltale (S19.2.2)
12. Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R) using the following indicated child restraints (mid-height seat position):

   Section B – Rear Facing (unbelted and belted rear facing, unbelted forward facing)
   - Britax Handle with Care 191: Full Rearward, Mid Position, Full Forward
   - Century Assura 4553: Full Rearward, Mid Position, Full Forward
   - Century Smart Fit 4543: Full Rearward, Mid Position, Full Forward
   - Cosco Arriva 02727: Full Rearward, Mid Position, Full Forward
   - Cosco Opus 35 02603: Full Rearward, Mid Position, Full Forward
   - Evenflo Discovery Adjust Right 212: Full Rearward, Mid Position, Full Forward
   - Evenflo First Choice 204: Full Rearward, Mid Position, Full Forward
   - Graco Infant 8457: Full Rearward, Mid Position, Full Forward

   Section C – Convertible (unbelted and belted rear facing, unbelted and belted forward facing)
   - Britax Roundabout 161: Full Rearward, Mid Position, Full Forward
   - Century Encore 4612: Full Rearward, Mid Position, Full Forward
   - Century STE 1000 4416: Full Rearward, Mid Position, Full Forward
   - Cosco Olympian 02803: Full Rearward, Mid Position, Full Forward
   - Cosco Touriva 02519: Full Rearward, Mid Position, Full Forward
   - Evenflo Horizon V 425: Full Rearward, Mid Position, Full Forward
   - Evenflo Medallion 254: Full Rearward, Mid Position, Full Forward

   13. Suppression tests with newborn infant (Part 572, Subpart K) using the following indicated child restraints (mid-height seat position).

   Section A – Car Bed (Belted)
   - Cosco Dream Ride 02-719: Full Rearward, Mid Position, Full Forward

   14. Suppression tests with 3-year-old dummy (Part 572, Subpart P) using the following indicated child restraints where a child restraint is required (mid-height seat position):
### Section C – Convertible (Belted forward-facing)

<table>
<thead>
<tr>
<th>Child Restraint</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Britax Roundabout 161</td>
<td>Full Rearward</td>
</tr>
<tr>
<td>Century Encore 4612</td>
<td>Full Rearward</td>
</tr>
<tr>
<td>Century STE 1000 4416</td>
<td>Full Rearward</td>
</tr>
<tr>
<td>Cosco Olympian 02803</td>
<td>Full Rearward</td>
</tr>
<tr>
<td>Cosco Touriva 02519</td>
<td>Full Rearward</td>
</tr>
<tr>
<td>Evenflo Horizon V 425</td>
<td>Full Rearward</td>
</tr>
<tr>
<td>Evenflo Medallion 254</td>
<td>Full Rearward</td>
</tr>
</tbody>
</table>

### Section D – Toddler/Belt Positioning Booster (Belted)

<table>
<thead>
<tr>
<th>Child Restraint</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Britax Roadster 9004</td>
<td>Full Rearward</td>
</tr>
<tr>
<td>Century Next Step 4920</td>
<td>Full Rearward</td>
</tr>
<tr>
<td>Cosco High Back Booster 02-442</td>
<td>Full Rearward</td>
</tr>
<tr>
<td>Evenflo Right Fit 245</td>
<td>Full Rearward</td>
</tr>
</tbody>
</table>

### Suppression tests with representative 3-year-old child using the following indicated child restraints where a child restraint is required (mid-height position).

15. Suppression tests with representative 3-year-old child using the following indicated child restraints where a child restraint is required (mid-height position). (Appendix H, Data Sheet 19H and 20H)

### Section C – Convertible (Belted forward-facing)

<table>
<thead>
<tr>
<th>Child Restraint</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Britax Roundabout 161</td>
<td>Full Rearward</td>
</tr>
<tr>
<td>Century Encore 4612</td>
<td>Full Rearward</td>
</tr>
<tr>
<td>Century STE 1000 4416</td>
<td>Full Rearward</td>
</tr>
<tr>
<td>Cosco Olympian 02803</td>
<td>Full Rearward</td>
</tr>
<tr>
<td>Cosco Touriva 02519</td>
<td>Full Rearward</td>
</tr>
<tr>
<td>Evenflo Horizon V 425</td>
<td>Full Rearward</td>
</tr>
<tr>
<td>Evenflo Medallion 254</td>
<td>Full Rearward</td>
</tr>
</tbody>
</table>

### Section D – Toddler/Belt Positioning Booster (Belted)

<table>
<thead>
<tr>
<th>Child Restraint</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Britax Roadster 9004</td>
<td>Full Rearward</td>
</tr>
<tr>
<td>Century Next Step 4920</td>
<td>Full Rearward</td>
</tr>
<tr>
<td>Cosco High Back Booster 02-442</td>
<td>Full Rearward</td>
</tr>
<tr>
<td>Evenflo Right Fit 245</td>
<td>Full Rearward</td>
</tr>
</tbody>
</table>

16. Suppression tests with 3-year-old dummy (Part 572, Subpart P) in the following positions (mid-height seat position):

- Sitting on seat with back against seat back (S22.2.2.1)
- Sitting on seat with back against reclined seat back (S22.2.2.2)
- Sitting on seat with back not against seat back (S22.2.2.3)
- Sitting on seat edge, spine vertical, hands by the child’s side (S22.2.2.4)
- Standing on seat, facing forward (S22.2.2.5)
- Kneeling on seat facing forward (S22.2.2.6)
- Kneeling on seat facing rearward (S22.2.2.7)
- Lying on seat (S22.2.2.8)
17. Suppression tests with representative 3-year-old child in the following positions (mid-height seat position):

- Sitting on seat with back against seat back (S22.2.2.1)
  - Full Rearward
  - Mid Position
  - Full Forward
- Sitting on seat with back against reclined seat back (S22.2.2.2)
  - Full Rearward
  - Mid Position
  - Full Forward
- Sitting on seat with back not against seat back (S22.2.2.3)
  - Full Rearward
  - Mid Position
  - Full Forward
- Sitting on seat edge, spine vertical, hands by the child’s side (S22.2.2.4)
  - Full Rearward
  - Mid Position
  - Full Forward
- Standing on seat, facing forward (S22.2.2.5)
  - Full Rearward
  - Mid Position
  - Full Forward
- Kneeling on seat facing forward (S22.2.2.6)
  - Full Rearward
  - Mid Position
  - Full Forward
- Kneeling on seat facing rearward (S22.2.2.7)
  - Full Rearward
  - Mid Position
  - Full Forward
- Lying on seat (S22.2.2.8)
  - Full Rearward
  - Mid Position
  - Full Forward

18. Suppression tests with 6-year-old dummy (Part 572, Subpart N) using the following indicated child restraints where a child restraint is required (mid-height seat position):

- **Section D**
  - Britax Roadster 9004
    - Full Rearward
    - Mid Position
    - Full Forward
  - Century Next Step 4920
    - Full Rearward
    - Mid Position
    - Full Forward
  - Cosco High Back Booster 02-442
    - Full Rearward
    - Mid Position
    - Full Forward
  - Evenflo Right Fit 245
    - Full Rearward
    - Mid Position
    - Full Forward

19. Suppression tests with representative 6-year-old child using the following indicated child restraints where a child restraint is required (mid-height seat position):

- **Section D**
  - Britax Roadster 9004
    - Full Rearward
    - Mid Position
    - Full Forward
  - Century Next Step 4920
    - Full Rearward
    - Mid Position
    - Full Forward
  - Cosco High Back Booster 02-442
    - Full Rearward
    - Mid Position
    - Full Forward
  - Evenflo Right Fit 245
    - Full Rearward
    - Mid Position
    - Full Forward

20. Suppression tests with 6-year-old dummy (Part 572, Subpart N) in the following positions (mid-height seat position):

- Sitting on seat with back against seat back (S22.2.2.1)
  - Full Rearward
  - Mid Position
  - Full Forward
- Sitting on seat with back against reclined seat back (S22.2.2.2)
  - Full Rearward
  - Mid Position
  - Full Forward
- Sitting on seat edge, spine vertical, hands by the child’s side (S22.2.2.4)
  - Full Rearward
  - Mid Position
  - Full Forward
- Sitting back in the seat and leaning on the right front passenger door (S24.2.3)
  - Full Rearward
  - Mid Position
  - Full Forward

21. Suppression tests with representative 6-year-old child in the following positions (mid-height seat position):

- Sitting on seat with back against seat back (S22.2.2.1)
  - Full Rearward
  - Mid Position
  - Full Forward
- Sitting on seat with back against reclined seat back (S22.2.2.2)
  - Full Rearward
  - Mid Position
  - Full Forward
- Sitting on seat edge, spine vertical, hands by the child’s side (S22.2.2.4)
  - Full Rearward
  - Mid Position
  - Full Forward
- Sitting back in the seat and leaning on the right front passenger door (S24.2.3)
22. Test of Reactivation of the Passenger Air Bag System with an Unbelted 5\textsuperscript{th} percentile female dummy (S20.3, 22.3, S24.3) (mid-height seat position). Perform this test after the following suppression tests: After each restraint.

23. Test of Reactivation of the Passenger Air Bag System with a representative 5\textsuperscript{th} percentile female (S20.3, 22.3, S24.3) (mid-height seat position). Perform this test after the following suppression tests:

24. Low risk deployment test with 12-month-old dummy (Part 572, Subpart R) using the following indicated child restraints (full forward, mid-height seat position)(S20.4):

<table>
<thead>
<tr>
<th>Section B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Britax Handle with Care 191</td>
</tr>
<tr>
<td>Century Assura 4553</td>
</tr>
<tr>
<td>Century Smart Fit 4543</td>
</tr>
<tr>
<td>Cosco Arriva 02727</td>
</tr>
<tr>
<td>Evenflo Discovery Adjust Right 212</td>
</tr>
<tr>
<td>Evenflo First Choice 204</td>
</tr>
<tr>
<td>Graco Infant 8457</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Britax Roundabout 161</td>
</tr>
<tr>
<td>Century Encore 4612</td>
</tr>
<tr>
<td>Century STE 1000 4416</td>
</tr>
<tr>
<td>Cosco Olympian 02803</td>
</tr>
<tr>
<td>Cosco Touriva 02519</td>
</tr>
<tr>
<td>Evenflo Horizon V 425</td>
</tr>
<tr>
<td>Evenflo Medallion 254</td>
</tr>
</tbody>
</table>

25. Low risk deployment test with 3-year-old dummy (Part 572, Subpart P) in the following positions:

| Position 1 (rearmost, lowest seat position) |
| Position 2 (mid-height seat position) |

26. Low risk deployment test with 6-year-old dummy (Part 572, Subpart N) in the following positions:

| Position 1 (rearmost, lowest seat position) |
| Position 2 (mid-height seat position) |

27. Low risk deployment test with 5\textsuperscript{th} female dummy (Part 572, Subpart O) in the following positions:

| X Position 1 (mid-height seat position) |
| X Position 2 (mid-height seat position) |

28. Impact Tests

<table>
<thead>
<tr>
<th>Frontal Oblique</th>
<th>Impact Angle:</th>
<th>Test Speed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted 50\textsuperscript{th} male dummy driver and passenger (0 to 48 kmph) (S5.1.1(a))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unbelted 50\textsuperscript{th} male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unbelted 50\textsuperscript{th} male dummy driver and passenger (32 to 40 kmph) (S5.1.2(a)(2) or S5.1.2(b))</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Frontal 0° - Test Speed: 39.8 kmph

- Belted 50th male dummy driver (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
- Belted 50th male dummy passenger (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
- Belted 5th female dummy driver (0 to 48 kmph) (S16.1(a)(1))
- Belted 5th female dummy passenger (0 to 48 kmph) (S16.1(a)(1))
- Belted 5th female dummy driver and passenger (0 to 56 kmph) (S16.1(a)(2))
- Belted 50th male dummy driver and passenger (0 to 56 kmph) (S5.1.1.(b)(2))
- Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))
- Unbelted 50th male dummy driver (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
- Unbelted 50th male dummy passenger (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
- Unbelted 5th female dummy driver (32 to 40 kmph) (S16.1(b))
- Unbelted 5th female dummy passenger (32 to 40 kmph) (S16.1(b))

40% Offset 0° Belted 5th female dummy driver and passenger (0 to 40 kmph) (S18.1) Test

- 29. FMVSS 204 Indicant Test
- 30. FMVSS 212 Test
- 31. FMVSS 219 Indicant Test
- 32. FMVSS 301 Frontal Test
DATA SHEET 2
REPORT OF VEHICLE CONDITION

Test Vehicle: 2009 Toyota Matrix  
NHTSA No.: C95109
Test Program: FMVSS 208 Compliance  
Test Dates: 2/5/09-3/10/09

CONTRACT NO.: DTNH22-08-D-00086  
Date: 3/17/09
FROM (Lab and rep name): MGA Research Corporation
TO: NHTSA, OVSC, NVS-220

PURPOSE: (X) Initial Receipt   (   ) Received via Transfer   (X) Present vehicle condition

MODEL YEAR/MAKE/MODEL/BODY STYLE: 2009 Toyota Matrix 4 Door
MANUFACTURE DATE: 10/08
NHTSA NO. C95109  
GVWR: 1751 kg (3860 lbs)
BODY COLOR: Gray  
GAWR (Fr): 930 kg (2050 lbs)
VIN: 2T1KU40E69C135888  
GAWR (Rr): 839 kg (1850 lbs)

ODOMETER READINGS:  
ARIVAL (miles): 200  
DATE: 2/2/08
COMPLETION (miles): 210  
DATE: 3/10/09

PURCHASE PRICE: ($) 15,219
DEALER’S NAME: Jack Safro Toyota, 20445 W Capitol Dr., Brookfield, WI 53008

A. All options listed on window sticker are present on the test vehicle:
   _X_ Yes   ___No
B. Tires and wheel rims are new and the same as listed:  _X_ Yes   ___No
C. There are no dents or other interior or exterior flaws:  _X_ Yes   ___No
D. The vehicle has been properly prepared and is in running condition:
   _X_ Yes   ___No
E. Keyless remote is available and working:  _X_ Yes   ___No
F. The glove box contains an owner’s manual, warranty document, consumer information, and extra set of keys:
   _X_ Yes   ___No
G. Proper fuel filler cap is supplied on the test vehicle:  _X_ Yes   ___No
H. Using permanent marker, identify vehicle with NHTSA number and FMVSS test type(s) on roof line above driver door or for school buses, place a placard with NHTSA number inside the windshield and to the exterior front and rear side of bus:
   _X_ Yes   ___No
I. Place vehicle in storage area:  _X_ Yes   ___No
J. Inspect the vehicle’s interior and exterior, including all windows, seats, doors, etc. to confirm that each system is complete and functional per the manufacturer’s specifications. Any damage, misadjustment, or other unusual condition that could influence the test program or test results shall be recorded. Report any abnormal condition to the NHTSA COTR before beginning any test:
   _X_ Vehicle OK   ___Conditions reported below in comment section

Identify the letter above to which any of the following comments apply.

Comments:___________________________________________________________________
____________________________________________________________________________

Test Vehicle: 2009 Toyota Matrix  
Test Program: FMVSS 208 Compliance  
NHTSA No. C95109  
Test Dates: 2/5/09-3/10/09
REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

LIST OF FMVSS TESTS PERFORMED BY THIS LAB:  FMVSS 208, 212, 219, 301
VEHICLE: 2009 Toyota Matrix  NHTSA NO.: C95109
REMARKS:

Equipment that is no longer on the test vehicle as noted on previous page:
Spare tire, jack and tools, and trunk interior

Explanation for equipment removal:
Components removed for instrumentation installation and to meet target weight.

Test Vehicle Condition:
25 mph frontal impact damage- front suspension & structure damaged, hood & front quarter panels damaged, radiator damaged, air bags & pretensioners deployed, Stoddard in fuel system

RECORDED BY: Jeff Lewandowski  DATE: 3/17/2009
APPROVED BY: David Winkelbauer  DATE: 3/17/2009

RELEASE OF TEST VEHICLE
The vehicle described above is released from MGA to be delivered to:

Date:  Time:  Odometer:
Lab Rep’s Signature:
Title:
Carrier/Customer Rep:
Date:
## DATA SHEET 3
### CERTIFICATION LABEL AND TIRE PLACARD INFORMATION

**Test Vehicle:** 2009 Toyota Matrix  
**NHTSA No.:** C95109  
**Test Program:** FMVSS 208 Compliance  
**Test Date:** 3/10/09  
**Test Technician:** Jamie Aide

<table>
<thead>
<tr>
<th>Certification Label (Part 567)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Manufacturer:</strong></td>
<td>TOYOTA MOTOR MANUFACTURING, CANADA, INC.</td>
</tr>
<tr>
<td><strong>Date of Manufacture:</strong></td>
<td>10/08</td>
</tr>
<tr>
<td><strong>VIN:</strong></td>
<td>2T1KU40E69C135888</td>
</tr>
<tr>
<td><strong>Vehicle Certified As (Pass. Car/MPV/Truck/Bus):</strong></td>
<td>Passenger Car</td>
</tr>
<tr>
<td><strong>Front Axle GVWR:</strong></td>
<td>930 kg (2050 lbs)</td>
</tr>
<tr>
<td><strong>Rear Axle GVWR:</strong></td>
<td>839 kg (1850 lbs)</td>
</tr>
<tr>
<td><strong>Total GVWR:</strong></td>
<td>1751 kg (3860 lbs)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tire Placard for Motor Vehicles with GVWR of 10,000 lb or Less and Passenger Cars (571.110)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vehicle Capacity Weight:</strong></td>
<td>385 kg (850 lbs)</td>
</tr>
<tr>
<td><strong>Designated Seating Capacity Front:</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Designated Seating Capacity Rear:</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Designated Seating Capacity:</strong></td>
<td>5</td>
</tr>
<tr>
<td><strong>Recommended Cold Tire Inflation Pressure Front:</strong></td>
<td>220 kpa (32 psi)</td>
</tr>
<tr>
<td><strong>Recommended Cold Tire Inflation Pressure Rear:</strong></td>
<td>220 kpa (32 psi)</td>
</tr>
<tr>
<td><strong>Recommended Tire Size:</strong></td>
<td>P205/55R16</td>
</tr>
<tr>
<td><strong>Tire Size on Vehicle:</strong></td>
<td>P205/55R16</td>
</tr>
</tbody>
</table>

**Signature:**  
**Date:** 3/10/09
DATA SHEET 4
REAR SEATING POSITION SEAT BELTS

| Test Vehicle:          | 2009 Toyota Matrix              | NHTSA No.:     | C95109 |
| Test Program:         | FMVSS 208 Compliance            | Test Date:     | 2/5/09 |
| Test Technician:      | Jamie Aide                      |               |       |

<table>
<thead>
<tr>
<th>Do all rear seating positions have Type 2 seat belts?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If NO, describe the seat belt installed, the seat location, and any other information about the seat that would explain why a Type 2 seat belt was not installed.

REMARKS:

Signature: [Signature]

Date: 2/5/09
DATA SHEET 5
AIR BAG LABELS (S4.5.1)

Test Vehicle: 2009 Toyota Matrix  
Test Program: FMVSS 208 Compliance  
Test Technician: Jaime Aide  
NHTSA No.: C95109  
Test Date: 2/5/09

<table>
<thead>
<tr>
<th>1.</th>
<th>Air Bag Maintenance Label and Owner’s Manual Instructions: (S4.5.1(a))</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>Does the manufacturer recommend periodic maintenance or replacement of the air bag?</td>
</tr>
<tr>
<td></td>
<td>Yes (Go to 1.2)</td>
</tr>
<tr>
<td>X</td>
<td>No (Go to 2)</td>
</tr>
<tr>
<td></td>
<td>1.2 Does the vehicle have a label specifying air bag maintenance or replacement?</td>
</tr>
<tr>
<td></td>
<td>Yes – Pass</td>
</tr>
<tr>
<td></td>
<td>No – Fail</td>
</tr>
<tr>
<td></td>
<td>1.3 Does the label contain one of the following?</td>
</tr>
<tr>
<td></td>
<td>Yes – Pass</td>
</tr>
<tr>
<td></td>
<td>No – Fail</td>
</tr>
<tr>
<td></td>
<td>Check applicable schedule:</td>
</tr>
<tr>
<td></td>
<td>__ Schedule on label specifies month and year (Record date______)</td>
</tr>
<tr>
<td></td>
<td>__ Schedule on label specifies vehicle mileage (Record mileage______)</td>
</tr>
<tr>
<td></td>
<td>__ Schedule on label specifies interval measured from date on certification label (Record interval______)</td>
</tr>
<tr>
<td></td>
<td>1.4 Is the label permanently affixed within the passenger compartment such that it cannot be removed without destroying or defacing the label or vehicle part? (3/19/01 legal interpretation to Todd Mitchell)</td>
</tr>
<tr>
<td></td>
<td>Yes – Pass</td>
</tr>
<tr>
<td></td>
<td>No – Fail</td>
</tr>
<tr>
<td></td>
<td>1.5 Is the label lettered in English?</td>
</tr>
<tr>
<td></td>
<td>Yes – Pass</td>
</tr>
<tr>
<td></td>
<td>No – Fail</td>
</tr>
<tr>
<td></td>
<td>1.6 Is the label in block capitals and numerals?</td>
</tr>
<tr>
<td></td>
<td>Yes – Pass</td>
</tr>
<tr>
<td></td>
<td>No – Fail</td>
</tr>
<tr>
<td></td>
<td>1.7 Are the letters and numerals at least 3/32 inches high?</td>
</tr>
<tr>
<td></td>
<td>Yes – Pass</td>
</tr>
<tr>
<td></td>
<td>No – Fail</td>
</tr>
<tr>
<td></td>
<td>1.8 Does the owner’s manual set forth the recommended schedule for maintenance or replacement?</td>
</tr>
<tr>
<td></td>
<td>X Yes – Pass</td>
</tr>
<tr>
<td></td>
<td>No – Fail</td>
</tr>
<tr>
<td></td>
<td>2. Does the owner’s manual: (S4.5.1(f))</td>
</tr>
<tr>
<td></td>
<td>X 2.1 Include a description of the vehicle’s air bag system in an easily understandable format?</td>
</tr>
<tr>
<td></td>
<td>X Yes – Pass</td>
</tr>
<tr>
<td></td>
<td>No – Fail</td>
</tr>
<tr>
<td></td>
<td>X 2.2 Include a statement that the vehicle is equipped with an air bag and a lap/shoulder belt at the front outboard seating position?</td>
</tr>
<tr>
<td></td>
<td>X Yes – Pass</td>
</tr>
<tr>
<td></td>
<td>No – Fail</td>
</tr>
<tr>
<td></td>
<td>X 2.3 Include a statement that the air bag is a supplemental restraint at the front outboard seating position?</td>
</tr>
<tr>
<td></td>
<td>X Yes – Pass</td>
</tr>
<tr>
<td></td>
<td>No – Fail</td>
</tr>
</tbody>
</table>
2.4 Emphasize that all occupants, including the driver, should always wear their seat belts whether or not an air bag is also provided at their seating positions to minimize the risk of severe injury or death in the event of a crash?

- Yes – Pass
- No – Fail

2.5 Provide any necessary precautions regarding the proper positioning of occupants, including children, at seating positions equipped with air bags to ensure maximum safety protection for those occupants?

- Yes – Pass
- No – Fail

2.6 Explain that no objects should be placed over or near the air bag on the steering wheel or on the instrument panel, because any such objects could cause harm if the vehicle is in a crash severe enough to cause the air bag to inflate?

- Yes – Pass
- No – Fail

2.7 Is the vehicle certified to meet the requirements of S14.5, S15, S17, S19, S21, S23, and S25? (Obtain answer to this question from the COTR) (S4.5.1(f)(2))

- Yes – (Go to 2.7.1)
- No – (Go to 3.)

2.7.1 Explain the proper functioning of the advanced air bag system? (S4.5.1(f)(2))

- Yes – Pass
- No – Fail

2.7.2 Provide a summary of the actions that may affect the proper functioning of the system? (S4.5.1(f)(2))

- Yes – Pass
- No – Fail

2.7.3 Present and explain the main components of the advanced passenger air bag system? (S4.5.1(f)(2)(i))

- Yes – Pass
- No – Fail

2.7.4 Explain how the components function together as part of the advanced passenger air bag system? (S4.5.1(f)(2)(ii))

- Yes – Pass
- No – Fail

2.7.5 Contain the basic requirements for proper operation, including an explanation of the actions that may affect the proper functioning of the system? (S4.5.1(f)(2)(iii))

- Yes – Pass
- No – Fail

2.7.6 Is the vehicle certified to the requirements of S19.2, S21.2, or 23.2 (automatic suppression)?

- Yes, continue with 2.7.6
- No, go to 2.7.7

2.7.6.1 Contain a complete description of the passenger air bag suppression system installed in the vehicle, including a discussion of any suppression zone? (S4.5.1(f)(2)(iv))

- Yes – Pass
- No – Fail

2.7.6.2 Discuss the telltale light, specifying its location in the vehicle and explaining when the light is illuminated?

- Yes – Pass
- No – Fail
2.7.7 Explain the interaction of the advanced passenger air bag system with other vehicle components, such as seat belts, seats or other components? (S4.5.1(f)(2)(v))

X Yes – Pass

2.7.8 Summarize the expected outcomes when child restraint systems, children and small teenagers or adults are both properly and improperly positioned in the passenger seat, including cautionary advice against improper placement of child restraint systems? (S4.5.1(f)(2)(vi))

X Yes – Pass

2.7.9 Provide information on how to contact the vehicle manufacturer concerning modifications for persons with disabilities that may affect the advanced air bag system? (S4.5.1(f)(2)(vii))

X Yes – Pass

3. Sun Visor Air Bag Warning Label (S4.5.1(b)): Vehicles certified to meet the requirements of S19, S21 and S23. (S4.5.1(b)(3))

3.1 Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(b)(3)) (3/19/01 legal interpretation to Todd Mitchell)

X Driver Side, Yes – Pass

X Passenger Side, Yes – Pass
3.2 Does the label conform in content to the label shown in Figure 11 at each front outboard seating position? (S4.5.1(b)(2)) (Vehicles without back seats or the back seat is too small to accommodate a rear-facing child restraint may omit the statement: “Never put a rear-facing child seat in the front.”) (S4.5.1(b)(3)(v)))

3.3 Is the label heading area yellow with the word “WARNING” and the alert symbol in black? (S4.5.1(b)(3)(i))

3.4 Is the message area white with black text? (S4.5.1(b)(3)(ii))
3.5 Is the message area at least 30 cm²? (S4.5.1(b)(3)(ii))

The message area consists of the total label area minus the yellow heading area and the pictogram. The pictogram is enclosed on the left side and bottom by the edge of the label. The top edge of the pictogram area is defined by a horizontal line midway between the uppermost edge of the pictogram and the lowermost edge of the text. The right side of the pictogram is defined by a vertical line midway between the rightmost edge of the pictogram and the leftmost edge of the text, including any bullets. (See 5/6/03 interpretation to Gerald Plante on behalf of Subaru)

Driver Side: Length 162 mm, Width 84 mm
Passenger Side: Length 162 mm, Width 84 mm

Driver actual message area 136.1 cm²
Passenger actual message area 136.1 cm²

X Driver Side, Yes – Pass
X Driver Side, No – Fail
X Passenger Side, Yes – Pass
X Passenger Side, No – Fail

3.6 Is the pictogram black on a white background? (S4.5.1(b)(3)(iii))

X Driver Side, Yes – Pass
X Driver Side, No – Fail
X Passenger Side, Yes – Pass
X Passenger Side, No – Fail

3.7 Is the pictogram at least 30 mm in length? (S4.5.1(b)(3)(iii))

Driver side: Length: 33 mm
Passenger side: Length: 33 mm

X Driver Side, Yes – Pass
X Driver Side, No – Fail
X Passenger Side, Yes – Pass
X Passenger Side, No – Fail

3.8 Is the same side of the sun visor that contains the air bag warning label free of other information with the exception of the air bag maintenance label and/or the rollover-warning label? (S4.5.1(b)(5)(i))

X Driver Side, Yes – Pass
X Driver Side, No – Fail
X Passenger Side, Yes – Pass
X Passenger Side, No – Fail

3.9 Is the sun visor free of other information about air bags or the need to wear seat belts with the exception of the air bag alert label and/or the rollover-warning label? (S4.5.1(b)(5)(ii))

X Driver Side, Yes – Pass
X Driver Side, No – Fail
X Passenger Side, Yes – Pass
X Passenger Side, No – Fail

3.10 Does the driver side visor contain a rollover-warning label on the same side of the visor as the air bag warning label?

__ Yes (go to 3.10.1)
X No (go to 4., skipping 3.10.1 through 3.10.3)
3.10.1 Are both the rollover-warning label and the air bag warning label surrounded by a continuous solid-lined border?

___ Yes (go to 3.10.2 and skip 3.10.3)
___ No (go to 3.10.3 and skip 3.10.2)

3.10.2 Is the shortest distance from the border of the rollover label to the border of the air bag warning label at least 1 cm? (575.105 (d)(1)(iv)(B))

________ actual distance

___ Yes-Pass ___ No-FAIL

3.10.3 Is the shortest distance from any of the lettering or graphics on the rollover-warning label to any of the lettering or graphics of the air bag warning label at least 3 cm? (575.105 (d)(1)(iv)(A))

________ actual distance

___ Yes-Pass ___ No-FAIL

4. Air Bag Alert Label (S4.5.1(c) (A “Rollover Warning Label” or “Rollover Alert Label” may be on the same side of the driver’s sun visor as the “Air Bag Alert Label.” 575.105(d))

4.1 Is the Sun Visor Warning Label visible when the sun visor is in the stowed position?

X  If yes for driver and passenger, go to 5.
X  Driver Side, Yes
X  Driver Side, No
X  Passenger Side, Yes
X  Passenger Side, No

4.2 Is the air bag alert label permanently affixed (including permanent marking on the visor material or molding into the visor material) to the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(c)) (3/19/01 legal interpretation to Todd Mitchell)

___ Driver Side, Yes – Pass
___ Driver Side, No – Fail
___ Passenger Side, Yes – Pass
___ Passenger Side, No – Fail

4.3 Is the air bag alert label visible when the visor is in the stowed position? (S4.5.1(c))

___ Driver Side, Yes – Pass
___ Driver Side, No – Fail
___ Passenger Side, Yes – Pass
___ Passenger Side, No – Fail
4.4 Does the label conform in content to the label shown in Figure 6C? (S4.5.1(c))

<table>
<thead>
<tr>
<th>Side</th>
<th>Yes – Pass</th>
<th>No – Fail</th>
<th>Yes – Pass</th>
<th>No – Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver Side</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger Side</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.5 Is the message area black with yellow text? (S4.5.1(c)(1))

<table>
<thead>
<tr>
<th>Side</th>
<th>Yes – Pass</th>
<th>No – Fail</th>
<th>Yes – Pass</th>
<th>No – Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver Side</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger Side</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.6 Is the message area at least 20 cm²? (S4.5.1(c)(1)) The message area consists of the black part of the label.

<table>
<thead>
<tr>
<th>Side</th>
<th>Length</th>
<th>Width</th>
<th>Actual message area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver Side</td>
<td>Length</td>
<td>Width</td>
<td>cm²</td>
</tr>
<tr>
<td>Passenger Side</td>
<td>Length</td>
<td>Width</td>
<td>cm²</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Side</th>
<th>Yes – Pass</th>
<th>No – Fail</th>
<th>Yes – Pass</th>
<th>No – Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver Side</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger Side</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.7 Is the pictogram black with a red circle and slash on a white background? (S4.5.1(c)(2))

<table>
<thead>
<tr>
<th>Side</th>
<th>Yes – Pass</th>
<th>No – Fail</th>
<th>Yes – Pass</th>
<th>No – Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver Side</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger Side</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.8 Is the pictogram at least 20 mm in diameter? (S4.5.1(c)(2))

<table>
<thead>
<tr>
<th>Side</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver Side</td>
<td></td>
</tr>
<tr>
<td>Passenger Side</td>
<td></td>
</tr>
</tbody>
</table>
5. Label on the Dashboard: Vehicles certified to meet the requirements of S19, S21 and S23?

5.1 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e)(3))

- Yes – Pass
- No – Fail

5.2 Is the label clearly visible from all front seating positions? (S4.5.1(e)(3))

- Yes – Pass
- No – Fail

5.3 Does the label conform in content to the label shown in Figure 12? (S4.5.1(e)(3))

- Yes – Pass
- No – Fail

Vehicles without back seats may omit the statement: “The back seat is the safest place for children.” Vehicles without back seats or too small to accommodate a rear-facing child restraint consistent with S4.5.4.1 as determined in DATA SHEET 7 may omit the statement “Never put a rear-facing child seat in the front.” (S4.5.1(e)(3)(iii))

5.4 Is the heading area yellow with black text? (S4.5.1(e)(3)(i))

- Yes – Pass
- No – Fail

5.5 Is the message white with black text? (S4.5.1(e)(3)(ii))

- Yes – Pass
- No – Fail

5.6 Is the message area at least 30 cm²? (S4.5.1(e)(3)(ii)) The message area consists of the total label area minus the yellow heading area. (See 5/6/03 interpretation to Gerald Plante on behalf of Subaru)

- Length 101 mm, Width 31 mm
- Actual message area 31.3 cm²

- Yes – Pass
- No – Fail

I certify that I have read and performed each instruction.

Signature: [Signature]

Date: 2/5/09
DATA SHEET 6
FMVSS 208 READINESS INDICATOR (S4.5.2)

Test Vehicle: 2009 Toyota Matrix  
Test Program: FMVSS 208 Compliance  
Test Technician: Jaime Aide  
NHTSA No.: C95109  
Test Date: 2/5/09

An occupant restraint system that deploys in the event of a crash shall have a monitoring system with a readiness indicator. A totally mechanical system is exempt from this requirement. (11/8/94 legal interpretation to Lawrence F. Hennegerger on behalf of Breed)

1. Is the system totally mechanical? (If Yes, this Data Sheet is complete).
   - Yes  
   - No

2. Describe the location of the readiness indicator: Center of instrument cluster

3. Is the readiness indicator clearly visible to the driver?
   - Yes – Pass  
   - No - Fail

4. Is a list of the elements in the occupant restraint system, being monitored by the readiness indicator, provided on a label or in the owner’s manual?
   - Yes – Pass  
   - No - Fail

5. Does the vehicle have an on-off switch for the passenger air bag?
   - If Yes (go to 6)  
   - If No (this form is complete)

6. Is the air bag readiness indicator off when the passenger air bag switch is in the off position?
   - Yes – Pass  
   - No - Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: [Signature]

Date: 2/5/09
1. Is the vehicle equipped with an on-off switch that deactivates the air bag installed at the right front outboard seating position?
   - Yes, go to 2
   - No, this sheet is complete

2. Does the vehicle have any forward-facing rear designated seating positions? (S4.5.4.1(a))
   - Yes, go to 3
   - No, go to 4

3. Verification there is room for a child restraint in the rear seat behind the driver’s seat. (S4.5.4.1(b))
   - 3.1 Using all the controls that affect the fore-aft movement of the seat, move the seat to the rearmost position. Mark this position.
     - N/A – the seat does not have fore-aft adjustment
   - 3.2 Using all the controls that affect the fore-aft movement of the seat, move the seat to the foremost position. Mark this position.
     - N/A – the seat does not have fore-aft adjustment
   - 3.3 Move the seat to the middle of the foremost and rearmost positions. (S8.1.2)
     - N/A – the seat does not have a fore-aft adjustment
   - 3.4 If the driver’s seat height is adjustable, use all the controls that affect height to put it in the lowest position while maintaining the middle fore-aft position. (S8.1.2)
     - N/A – No seat height adjustment
   - 3.5 Position the driver’s seat adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
     - N/A – No lumbar adjustment
   - 3.6 The driver’s seat back angle, if adjustable, is set at the manufacturer’s nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1(b) and S8.1.3)
     - N/A – No seat back angle adjustment
     - Manufacturer’s design driver’s seat back angle ____________
     - Tested driver’s seat back angle ____________

3.7 Is the driver seat a bucket seat?
   - Yes, go to 3.7.1 and skip 3.7.2.
   - No, go to 3.7.2 and skip 3.7.1.

3.7.1 Bucket seats:
   - 3.7.1.1 Locate and mark a vertical Plane B through the longitudinal centerline of the driver’s seat cushion. The longitudinal centerline of a bucket seat cushion is determined at SgRP. (S16.3.1.10) (S4.5.4.1(b)(1))
   - 3.7.1.2 Locate the longitudinal horizontal line in plane B that is tangent to the highest point of the rear seat cushion behind the driver’s seat. Measure along this line from the front of the seat back of the rear seat to the rear of the seat back of the driver’s seat.
     - mm distance
     - less than 720 mm – Pass
     - more than 720 mm – FAIL
     - Go to 4

Test Vehicle: 2009 Toyota Matrix
Test Program: FMVSS 208 Compliance
Test Technician: Jaime Aide
NHTSA No.: C95109
Test Date: 2/5/09
3.7.2 Bench seats (including split bench seats):

3.7.2.1 Locate and mark a vertical Plane B through the center of the steering wheel parallel to the vehicle longitudinal centerline. (S4.5.4.1(b)(2))

3.7.2.2 Locate the longitudinal horizontal line in plane B that is tangent to the highest point of the rear seat cushion. Measure along this line from the front of the seat back of the rear seat to the rear of the seat back of the front seat.

\[ \text{mm distance} \]
\[ \text{less than 720 mm – Pass} \]
\[ \text{more than 720 mm – FAIL} \]

Go to 4

4. Does the device turn the air bag on and off using the vehicle’s ignition key? (S4.5.4.2)

- Yes – Pass
- No – Fail

5. Is the on-off device separate from the ignition switch? (S4.5.4.2)

- Yes – Pass
- No – Fail

6. Is there a telltale light that comes on when the passenger air bag is turned off? (S4.5.4.2)

- Yes – Pass
- No – Fail

7. Telltale light (S4.5.4.3)
   7.1 Is the light yellow? S4.5.4.3(a))
     - Yes – Pass
     - No – Fail
   7.2 Are the words “PASSENGER AIR BAG OFF” or “PASS AIR BAG OFF” (S4.5.4.3(b)) on the telltale?
     - Yes – Pass, go to 7.3
     - No – go to 7.2.2
   7.2.2 within 25 mm of the telltale?
     - Measurement from the edge of the telltale light (mm):
       - Yes – Pass
       - No – Fail
   7.3 Does the telltale remain illuminated while the air bag is turned off? (S4.5.4.3(c)) (Leave the air bag off for 5 minutes.)
     - Yes – Pass
     - No – Fail
   7.4 Is the telltale illuminated while the air bag is turned on? (S4.5.4.3(d))
     - Yes – Fail
     - No – Pass
   7.5 Is the telltale combined with the air bag readiness indicator? (S4.5.4.3(e))
     - Yes – Fail
     - No – Pass

8. Owner’s Manual
   8.1 Does the owner’s manual contain complete instructions on the operation of the on-off switch? (S4.5.4.4(a))
     - Yes – Pass
     - No – Fail
8.2 Does the owner’s manual contain a statement that the on-off switch should only be used when a member of one of the following risk groups is occupying the right front passenger seating position? (S4.5.4.4(b))

Infants: there is no back seat
the rear seat is too small to accommodate a child restraint
there is a medical condition that must be monitored constantly

Children aged 1 to 12: there is no back seat
space is not always available in the rear seat
there is a medical condition that must be monitored constantly

Medical condition: medical risk causes special risk for passenger
greater risk for harm than with the air bag on

Yes – Pass
No – Fail

8.3 Does the owner’s manual contain a warning about the safety consequences of using the on-off switch at other times?

Yes – Pass
No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: [Signature]

Date: 2/5/09
DATA SHEET 8
LAP BELT LOCKABILITY

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

<table>
<thead>
<tr>
<th>Test Vehicle:</th>
<th>2009 Toyota Matrix</th>
<th>NHTSA No.:</th>
<th>C95109</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Program:</td>
<td>FMVSS 208 Compliance</td>
<td>Test Date:</td>
<td>2/5/09</td>
</tr>
<tr>
<td>Test Technician:</td>
<td>Jaime Aide</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Complete one of these forms for each designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver’s seat (S7.1.1.5(a), and that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

**DESIGNATED SEATING POSITION:** Front Passenger

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A – No retractor is at this position</td>
<td>N/A – The retractor is an automatic locking retractor ONLY</td>
</tr>
<tr>
<td>1. Record test fore-aft seat position:</td>
<td><strong>Mid-track – 120mm rearward of most forward</strong> (S7.1.1.5(c)(1)) (Any position is acceptable)</td>
</tr>
<tr>
<td></td>
<td>X</td>
</tr>
<tr>
<td>2. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does <strong>NOT</strong> have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5(a))</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>Yes – Pass</td>
</tr>
<tr>
<td></td>
<td>No – Fail</td>
</tr>
<tr>
<td>3. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does <strong>NOT</strong> require inverting, twisting or deforming of the belt webbing. (S7.1.1.5(a))</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>Yes – Pass</td>
</tr>
<tr>
<td></td>
<td>No – Fail</td>
</tr>
<tr>
<td>4. Place any adjustable seat belt anchorage in the lowest adjustment position.</td>
<td></td>
</tr>
<tr>
<td>N/A The anchorage is not adjustable.</td>
<td></td>
</tr>
<tr>
<td>5. Buckle the seat belt. (S7.1.1.5(c)(1))</td>
<td></td>
</tr>
<tr>
<td>6. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))</td>
<td></td>
</tr>
<tr>
<td>7. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))</td>
<td></td>
</tr>
<tr>
<td>8. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>Yes (go to 8.1)</td>
</tr>
<tr>
<td></td>
<td>No (go to 9)</td>
</tr>
<tr>
<td>8.1 Does the vehicle owner’s manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>Yes – Pass</td>
</tr>
<tr>
<td></td>
<td>No – Fail</td>
</tr>
<tr>
<td>9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner’s manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) &amp; S7.1.1.5(c)(1))</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td></td>
</tr>
<tr>
<td>10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>Measured distance between A and B (inches): 75</td>
</tr>
</tbody>
</table>
11. Readjust the belt system so that the webbing between points A and B is at 1/2 the maximum length of the webbing. (S7.1.1.5(c)(3))

12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

Measured force application angle: 7 (spec. 5 - 15 degrees)

13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

Measured distance between A and B: 38 1/2 inches

14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate: 20 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B: 39 1/2 inches (S7.1.1.5(c)(6))

15. Let the seat belt webbing retract to its minimum length with the seat belt still buckled

16. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

Measured force application angle: 7 (spec. 5 - 15 degrees)

17. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

Measured distance between A and B: 29 1/2 inches

18. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate: 20 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B: 30 inches (S7.1.1.5(c)(6))

19. Subtract the measurement in 13 from the measurement in 14 and the measurement in 17 from the measurement in 18. Is the difference 2 inches or less for both? (S7.1.1.5(c)(7))

14 – 13 = 39 1/2 - 38 1/2 = 1 inch;
18 – 17 = 30 – 29 1/2 = 1/2 inch

Yes – Pass
No – Fail
20. Subtract the measurement in 14 from the measurement in 10 and the measurement in 18 from the measurement in 10. Is the difference 3 inches or more for both? (S7.1.1.5(c)(8))

10-14 = \( 75 - 39 \frac{1}{2} = 35 \frac{1}{2} \) inches;
10-18 = \( 75 - 30 = 45 \) inches

Yes – Pass
No – Fail

REMARKS:
Signature: __________________________ Date: 2/5/09
I certify that I have read and performed each instruction.
DATA SHEET 8
LAP BELT LOCKABILITY

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Test Vehicle: 2009 Toyota Matrix  NHTSA No.: C95109
Test Program: FMVSS 208 Compliance  Test Date: 2/5/09
Test Technician: Jaime Aide

Complete one of these forms for each designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver’s seat (S7.1.1.5(a), and that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION: Left Rear Passenger

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N/A – No retractor is at this position</td>
</tr>
<tr>
<td></td>
<td>N/A – The retractor is an automatic locking retractor ONLY</td>
</tr>
<tr>
<td>X</td>
<td>1. Record test fore-aft seat position: <strong>FIXED</strong>  (S7.1.1.5(c)(1)) (Any position is acceptable)</td>
</tr>
<tr>
<td>X</td>
<td>2. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does <strong>NOT</strong> have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))</td>
</tr>
<tr>
<td></td>
<td>Yes – Pass</td>
</tr>
<tr>
<td></td>
<td>No – Fail</td>
</tr>
<tr>
<td>X</td>
<td>3. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does <strong>NOT</strong> require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))</td>
</tr>
<tr>
<td></td>
<td>Yes – Pass</td>
</tr>
<tr>
<td></td>
<td>No – Fail</td>
</tr>
<tr>
<td>X</td>
<td>4. Place any adjustable seat belt anchorage in the lowest adjustment position.</td>
</tr>
<tr>
<td></td>
<td>N/A The anchorage is not adjustable.</td>
</tr>
<tr>
<td>X</td>
<td>5. Buckle the seat belt. (S7.1.1.5(c)(1))</td>
</tr>
<tr>
<td>X</td>
<td>6. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))</td>
</tr>
<tr>
<td>X</td>
<td>7. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))</td>
</tr>
<tr>
<td>X</td>
<td>8. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?</td>
</tr>
<tr>
<td></td>
<td>Yes (go to 8.1)</td>
</tr>
<tr>
<td></td>
<td>No (go to 9)</td>
</tr>
<tr>
<td>X</td>
<td>8.1 Does the vehicle owner’s manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))</td>
</tr>
<tr>
<td></td>
<td>Yes – Pass</td>
</tr>
<tr>
<td></td>
<td>No – Fail</td>
</tr>
<tr>
<td>X</td>
<td>9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner’s manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) &amp; S7.1.1.5(c)(1))</td>
</tr>
<tr>
<td>X</td>
<td>10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))</td>
</tr>
<tr>
<td>X</td>
<td>Measured distance between A and B (inches): 55</td>
</tr>
</tbody>
</table>
11. Readjust the belt system so that the webbing between points A and B is at $\frac{1}{2}$ the maximum length of the webbing. (S7.1.1.5(c)(3))

12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

15. Let the seat belt webbing retract to its minimum length with the seat belt still buckled

16. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

17. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

18. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

19. Subtract the measurement in 13 from the measurement in 14 and the measurement in 17 from the measurement in 18. Is the difference 2 inches or less for both? (S7.1.1.5(c)(7))

Yes – Pass
No – Fail
20. Subtract the measurement in 14 from the measurement in 10 and the measurement in 18 from the measurement in 10. Is the difference 3 inches or more for both? (S7.1.1.5(c)(8))

- 10-14 = 55 – 29 5/8 = 25 3/8 inches;  
- 10-18 = 55 – 16 5/8 = 38 3/8 inches

Yes – Pass
No – Fail

REMARKS:

Signature: __________________________ Date: 2/5/09

I certify that I have read and performed each instruction.
DATA SHEET 8
LAP BELT LOCKABILITY

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Test Vehicle: 2009 Toyota Matrix  
Test Program: FMVSS 208 Compliance  
Test Technician: Jaime Aide

NHTSA No.: C95109  
Test Date: 2/5/09

Complete one of these forms for each designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), and that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:  Center Rear Passenger

1. Record test fore-aft seat position:  FIXED  
   (S7.1.1.5(c)(1)) (Any position is acceptable)

2. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))
   X Yes – Pass  
   No – Fail

3. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))
   X Yes – Pass  
   No – Fail

4. Place any adjustable seat belt anchorage in the lowest adjustment position.  
   N/A The anchorage is not adjustable.

5. Buckle the seat belt. (S7.1.1.5(c)(1))

6. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

7. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

8. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
   X Yes (go to 8.1)  
   No (go to 9)

8.1 Does the vehicle owner’s manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))
   X Yes – Pass  
   No – Fail

9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner’s manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))

10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
   X Measured distance between A and B (inches): 61 ½
11. Readjust the belt system so that the webbing between points A and B is at ½ the maximum length of the webbing. (S7.1.1.5(c)(3))

12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

   Measured force application angle: 7 (spec. 5 - 15 degrees)

13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

   Measured distance between A and B: 31 ½ inches

14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

   Record onset rate: 20 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))
   Measured distance between A and B: 32 ½ inches (S7.1.1.5(c)(6))

15. Let the seat belt webbing retract to its minimum length with the seat belt still buckled

16. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

   Measured force application angle: 10 (spec. 5 - 15 degrees)

17. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

   Measured distance between A and B: 8 inches

18. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

   Record onset rate: 25 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))
   Measured distance between A and B: 9 ¼ inches (S7.1.1.5(c)(6))

19. Subtract the measurement in 13 from the measurement in 14 and the measurement in 17 from the measurement in 18. Is the difference 2 inches or less for both? (S7.1.1.5(c)(7))

   14 – 13 = 32 ½ - 31 ½ = 1 inch;
   18 – 17 = 9 ¼ - 8 ½ = ½ inch

   Yes – Pass
   No – Fail
20. Subtract the measurement in 14 from the measurement in 10 and the measurement in 18 from the measurement in 10. Is the difference 3 inches or more for both? (S7.1.1.5(c)(8))

\[
\begin{align*}
10-14 & = 61 \frac{1}{2} - 32 \frac{1}{2} = 29 \text{ inches; } \\
10-18 & = 61 \frac{1}{2} - 9 \frac{1}{4} = 52 \frac{1}{4} \text{ inches}
\end{align*}
\]

- Yes – Pass
- No – Fail

REMARKS:

Signature: [Signature]
Date: 2/5/09

I certify that I have read and performed each instruction.
DATA SHEET 8
LAP BELT LOCKABILITY

Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Test Vehicle: 2009 Toyota Matrix  NHTSA No.: C95109
Test Program: FMVSS 208 Compliance  Test Date: 2/5/09
Test Technician: Jaime Aide

Complete one of these forms for each designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver’s seat (S7.1.1.5(a), and that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION: Right Rear Passenger

- N/A – No retractor is at this position
- N/A – The retractor is an automatic locking retractor ONLY
- Record test fore-aft seat position:  
  1. Fixed (S7.1.1.5(c)(1)) (Any position is acceptable)
- 2. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))
  - Yes – Pass
  - No – Fail
- 3. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))
  - Yes – Pass
  - No – Fail
- 4. Place any adjustable seat belt anchorage in the lowest adjustment position.
  - N/A The anchorage is not adjustable.
- 5. Buckle the seat belt. (S7.1.1.5(c)(1))
- 6. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
- 7. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- 8. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
  - Yes (go to 8.1)
  - No (go to 9)
- 8.1 Does the vehicle owner’s manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))
  - Yes – Pass
  - No – Fail
- 9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner’s manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))
- 10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
  - Measured distance between A and B (inches): 55
11. Readjust the belt system so that the webbing between points A and B is at ½ the maximum length of the webbing. (S7.1.1.5(c)(3))

12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

   Measured force application angle: 8° (spec. 5 - 15 degrees)

13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

   Measured distance between A and B: 28 inches

14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

   Record onset rate: 25 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))
   Measured distance between A and B: 29 inches (S7.1.1.5(c)(6))

15. Let the seat belt webbing retract to its minimum length with the seat belt still buckled

16. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

   Measured force application angle: 8° (spec. 5 - 15 degrees)

17. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

   Measured distance between A and B: 14 7/8 inches

18. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

   Record onset rate: _20 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))
   Measured distance between A and B: 15 5/8 inches (S7.1.1.5(c)(6))

19. Subtract the measurement in 13 from the measurement in 14 and the measurement in 17 from the measurement in 18. Is the difference 2 inches or less for both? (S7.1.1.5(c)(7))

   14 – 13 = 29 – 28 = 1 inch;
   18 – 17 = 15 5/8 – 14 7/8 = ¾ inch

   Yes – Pass
   No – Fail
20. Subtract the measurement in 14 from the measurement in 10 and the measurement in 18 from the measurement in 10. Is the difference 3 inches or more for both? (S7.1.1.5(c)(8))

- 10-14 = 55 – 29 = 26 inches;
- 10-18 = 55 – 15 5/8 = 39 3/8 inches

Yes – Pass
No – Fail

REMARKS:

Signature: [Signature] Date: 2/5/09

I certify that I have read and performed each instruction.
DATA SHEET 9
FMVSS 208 SEAT BELT WARNING SYSTEM CHECK (S7.3)

Test Vehicle: 2009 Toyota Matrix  NHTSA No.: C95109
Test Program: FMVSS 208 Compliance  Test Date: 2/5/09
Test Technician: Jaime Aide

1. The occupant is in the driver’s seat.
2. The seat belt is in the stowed position.
3. The key is in the “on” or “start” position.
4. The time duration of the audible signal beginning with key “on” or “start” is 7 seconds.
5. The occupant is in the driver’s seat.
6. The seat belt is in the stowed position.
7. The key is in the “on” or “start” position.
8. The time duration of the warning light beginning with key “on” or “start” is Stays On seconds.
9. The occupant is in the driver’s seat.
10. The seat belt is in the latched position and with at least 4 inches of belt webbing extended.
11. The key is in the “on” or “start” position.
12. The time duration of the warning light beginning with key “on” or “start” is 0 seconds.
13. Complete the following table with the data from 4, 8, and 12 to determine which option is used.

<table>
<thead>
<tr>
<th>Warning light</th>
<th>Warning light specification</th>
<th>Audible signal</th>
<th>Audible signal specification*</th>
</tr>
</thead>
<tbody>
<tr>
<td>S7.3 (a)(1)</td>
<td>Belt stowed &amp; key on or start</td>
<td>Item 8: Stays On</td>
<td>60 seconds minimum</td>
</tr>
<tr>
<td>S7.3 (a)(2)</td>
<td>Belt latched &amp; key on or start</td>
<td>Item 12</td>
<td>4 to 8 seconds</td>
</tr>
<tr>
<td></td>
<td>Belt stowed &amp; key on or start</td>
<td>Item 8: Stays On</td>
<td>4 to 8 seconds</td>
</tr>
</tbody>
</table>

* 49 USCS @ 30124 does NOT allow an audible signal to operate for more than 8 seconds.
A voluntary audible signal after the 4 to 8 second required signal may be provided. It must be differentiated from the required signal (5/25/2001 legal interpretation to Longacre and Associates).

14. The seat belt warning system meets the requirements of (manufacturers may comply with either section)
   - S7.3 (a)(1)
   - S7.3 (a)(2)
   - FAIL – Does NOT meet the requirements of either option

15. Note wording of visual warning: (S7.3(a)(1) and S7.3(a)(2))
   - Fasten Seat Belts
   - Fasten Belts
   - Symbol 101 -
   - FAIL – Does not use any of the above wording or symbol

I certify that I have read and performed each instruction.

Signature: ___________________________________  Date: 2/5/09
DATA SHEET 10
BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2009 Toyota Matrix  
NHTSA No.: C95109
Test Program: FMVSS 208 Compliance  
Test Date: 2/5/09
Test Technician: Matt Jacobson

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

**DESIGNATED SEATING POSITION:** Left Rear Passenger

1. Does the vehicle incorporate a webbing tension-relieving device?
   - [X] Yes (this form is complete)
   - [ ] No (continue with this check sheet)

2. Position the seat’s adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
   - [X] N/A – No lumbar adjustment

3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
   - [X] N/A – No additional support adjustment

4. Is the fore-aft position of the seat adjustable?
   - [X] No – go to 5
   - [ ] Yes – go to 4.1

   4.1 Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the rearmost position. **Mark** this position. (8/31/95 legal interp to Hogan and Hartson)

   4.2 Use all the seat controls that have any affects on the fore-aft movement of the seat to move the seat cushion to the foremost position. **Mark** this position. (8/31/95 legal interp to Hogan and Hartson)

   4.3 **Mark** each fore-aft position so that there is a visual indication when the seat is at a particular position. For manual seats, **mark** each detent. For power seats, mark only the rearmost, middle and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost. Determine the mid fore-aft seat position based on the foremost and rearmost positions determined in items 4.1 and 4.2. (8/31/95 legal interp to Hogan and Hartson)

4.4 Move the seat to the mid position.

4.5 While maintaining the mid position, move the seat to its lowest position. For seats with adjustable seat cushions, use the manufacturer’s recommended seat cushion angle for determining the lowest height position.

5. Is the seat back angle adjustable?
   - [X] No- go to 6
   - [ ] Yes- go to 5.1

5.1 Set and mark seat back angle, if adjustable, at the manufacturer’s nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer.
   - [ ] N/A – No seat back angle adjustment
   - [ ] Manufacturer’s design seat back angle: ____________
   - [ ] Tested seat back angle: ____________
6. Is the seat a bucket seat?
   Yes, go to 6.1 and skip 6.2
   No, go to 6.2 and skip 6.1

6.1 Bucket seats:
   Locate and mark the longitudinal centerline of the seat cushion. The intersection of
   the vertical longitudinal plane that passes through the SgRP and the seat cushion
   upper surface determines the longitudinal centerline of a bucket seat cushion.
   (S10.4.1.2 and S16.3.1.10)

6.2 Bench seats (complete ONLY the one that is applicable to the seat being tested):

6.2.1 Driver Seat
   Locate and mark the longitudinal line on the seat cushion that marks the intersection
   of the vertical longitudinal plane through the centerline of the steering wheel and the
   seat cushion upper surface. (S10.4.1.1)

6.2.2 Front Outboard Passenger Seat
   Locate and mark the longitudinal centerline of the passenger seat cushion. The
   longitudinal centerline is the same distance from the longitudinal centerline of the vehicle
   as the center of the steering wheel. (S10.4.1.1)

   Record the distance from the longitudinal centerline of the vehicle to the center of the
   steering wheel.

6.2.3 Rear designated seating positions
   Locate and mark the longitudinal centerline of the seat cushion. The intersection of the
   vertical longitudinal plane that passes through the SgRP and the seat cushion upper
   surface determines the longitudinal centerline.

7. Position the test dummies according to dummy position placement instructions in
   Appendix F. Complete the Appendix F check sheets, but include them in the test
   report ONLY if there is a test failure.

8. Fasten the seat belt latch.

9. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing,
   whichever is less, from the retractor and then release it, allowing the belt webbing to
   return to the dummy's chest.

10. Locate the point where the centerline of the upper torso belt webbing crosses the
     midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches
     from the dummy's chest and release until it is within one inch from the dummy's chest.
     (S10.8) Using a force measuring gage with a full scale range of no more than 1.5
     pounds, measure the contact force perpendicular to the dummy's chest exerted by the
     belt webbing.

   Contact Force (lb): 0.4
   0.0 to 0.7 pounds – Pass
   Greater than 0.7 pounds - FAIL

REMARKS:

I certify that I have read and performed each instruction.

Signature: _______________________________ Date: 2/5/09
DATA SHEET 10
BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2009 Toyota Matrix  
Test Program: FMVSS 208 Compliance  
Test Technician: Matt Jacobson  
NHTSA No.: C95109  
Test Date: 2/5/09

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

**DESIGNATED SEATING POSITION:** Center Rear Passenger

<table>
<thead>
<tr>
<th>1.</th>
<th>Does the vehicle incorporate a webbing tension-relieving device?</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (this form is complete)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No (continue with this check sheet)</td>
<td>X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2.</th>
<th>Position the seat’s adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N/A – No lumbar adjustment</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.</th>
<th>Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N/A – No additional support adjustment</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4.</th>
<th>Is the fore-aft position of the seat adjustable?</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No – go to 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes – go to 4.1</td>
<td></td>
</tr>
</tbody>
</table>

| 4.1 | Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the rearmost position. **Mark** this position. (8/31/95 legal interp to Hogan and Hartson) | X |

| 4.2 | Use all the seat controls that have any affects on the fore-aft movement of the seat to move the seat cushion to the foremost position. **Mark** this position. (8/31/95 legal interp to Hogan and Hartson) | X |

| 4.3 | **Mark** each fore-aft position so that there is a visual indication when the seat is at a particular position. For manual seats, **mark** each detent. For power seats, mark only the rearmost, middle and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost. Determine the mid fore-aft seat position based on the foremost and rearmost positions determined in items 4.1 and 4.2. (8/31/95 legal interp to Hogan and Hartson) | X |

| 4.4 | Move the seat to the mid position. | X |

| 4.5 | While maintaining the mid position, move the seat to its lowest position. For seats with adjustable seat cushions, use the manufacturer’s recommended seat cushion angle for determining the lowest height position. | X |

<table>
<thead>
<tr>
<th>5.</th>
<th>Is the seat back angle adjustable?</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No- go to 6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes- go to 5.1</td>
<td></td>
</tr>
</tbody>
</table>

| 5.1 | Set and mark seat back angle, if adjustable, at the manufacturer’s nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. | X |
|     | N/A – No seat back angle adjustment | |
|     | Manufacturer’s design seat back angle: ___________ |   |
|     | Tested seat back angle: ___________ |   |
6. Is the seat a bucket seat?
   □ Yes, go to 6.1 and skip 6.2
   X No, go to 6.2 and skip 6.1

6.1 Bucket seats:
   Locate and mark the longitudinal centerline of the seat cushion. The intersection of
   the vertical longitudinal plane that passes through the SgRP and the seat cushion
   upper surface determines the longitudinal centerline of a bucket seat cushion.
   (S10.4.1.2 and S16.3.1.10)

6.2 Bench seats (complete ONLY the one that is applicable to the seat being tested):
   6.2.1 Driver Seat
   Locate and mark the longitudinal line on the seat cushion that marks the intersection
   of the vertical longitudinal plane through the centerline of the steering wheel and the
   seat cushion upper surface. (S10.4.1.1)

   6.2.2 Front Outboard Passenger Seat
   Locate and mark the longitudinal centerline of the passenger seat cushion. The
   longitudinal centerline is the same distance from the longitudinal centerline of the vehicle
   as the center of the steering wheel. (S10.4.1.1)
   □ Record the distance from the longitudinal centerline of the vehicle to the center of the
     steering wheel. __________
   □ Record the distance from the longitudinal centerline of the vehicle to the longitudinal
     centerline of the seat cushion. __________

   6.2.3 Rear designated seating positions
   Locate and mark the longitudinal centerline of the seat cushion. The intersection of
   the vertical longitudinal plane that passes through the SgRP and the seat cushion upper
   surface determines the longitudinal centerline.

7. Position the test dummies according to dummy position placement instructions in
   Appendix F. Complete the Appendix F check sheets, but include them in the test
   report ONLY if there is a test failure.

8. Fasten the seat belt latch.

9. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing,
   whichever is less, from the retractor and then release it, allowing the belt webbing to
   return to the dummy's chest.

10. Locate the point where the centerline of the upper torso belt webbing crosses the
    midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches
    from the dummy's chest and release until it is within one inch from the dummy's chest.
    (S10.8) Using a force measuring gage with a full scale range of no more than 1.5
    pounds, measure the contact force perpendicular to the dummy's chest exerted by the
    belt webbing.

    Contact Force (lb): 0.3
    □ 0.0 to 0.7 pounds – Pass
    X Greater than 0.7 pounds - FAIL

REMARKS:

I certify that I have read and performed each instruction.

Signature: ___________________________ Date: 2/5/09
Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

**DESIGNATED SEATING POSITION:**  Right Rear Passenger

1. Does the vehicle incorporate a webbing tension-relieving device?
   - Yes (this form is complete)
   - No (continue with this check sheet)

2. Position the seat’s adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
   - N/A – No lumbar adjustment

3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
   - N/A – No additional support adjustment

4. Is the fore-aft position of the seat adjustable?
   - No – go to 5
   - Yes – go to 4.1

   4.1 Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the rearmost position. **Mark** this position. (8/31/95 legal interp to Hogan and Hartson)

   4.2 Use all the seat controls that have any affects on the fore-aft movement of the seat to move the seat cushion to the foremost position. **Mark** this position. (8/31/95 legal interp to Hogan and Hartson)

   4.3 **Mark** each fore-aft position so that there is a visual indication when the seat is at a particular position. For manual seats, **mark** each detent. For power seats, mark only the rearmost, middle and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost. Determine the mid fore-aft seat position based on the foremost and rearmost positions determined in items 4.1 and 4.2. (8/31/95 legal interp to Hogan and Hartson)

4.4 Move the seat to the mid position.

4.5 While maintaining the mid position, move the seat to its lowest position. For seats with adjustable seat cushions, use the manufacturer’s recommended seat cushion angle for determining the lowest height position.

5. Is the seat back angle adjustable?
   - No- go to 6
   - Yes- go to 5.1

   5.1 Set and mark seat back angle, if adjustable, at the manufacturer’s nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer.
   - N/A – No seat back angle adjustment
   - Manufacturer’s design seat back angle: ____________
   - Tested seat back angle: ____________
6. Is the seat a bucket seat?
   - Yes, go to 6.1 and skip 6.2
   - No, go to 6.2 and skip 6.1

6.1 Bucket seats:
   Locate and mark the longitudinal centerline of the seat cushion. The intersection of
   the vertical longitudinal plane that passes through the SgRP and the seat cushion
   upper surface determines the longitudinal centerline of a bucket seat cushion.
   (S10.4.1.2 and S16.3.1.10)

6.2 Bench seats (complete ONLY the one that is applicable to the seat being tested):

6.2.1 Driver Seat
   Locate and mark the longitudinal line on the seat cushion that marks the intersection
   of the vertical longitudinal plane through the centerline of the steering wheel and the
   seat cushion upper surface. (S10.4.1.1)

6.2.2 Front Outboard Passenger Seat
   Locate and mark the longitudinal centerline of the passenger seat cushion. The
   longitudinal centerline is the same distance from the longitudinal centerline of the vehicle
   as the center of the steering wheel. (S10.4.1.1)
   - Record the distance from the longitudinal centerline of the vehicle to the center of the
     steering wheel. 
   - Record the distance from the longitudinal centerline of the vehicle to the longitudinal
     centerline of the seat cushion.

6.2.3 Rear designated seating positions
   Locate and mark the longitudinal centerline of the seat cushion. The intersection of the
   vertical longitudinal plane that passes through the SgRP and the seat cushion upper
   surface determines the longitudinal centerline.
   - Record the distance from the longitudinal centerline of the seat cushion.

7. Position the test dummies according to dummy position placement instructions in
   Appendix F. Complete the Appendix F check sheets, but include them in the test
   report ONLY if there is a test failure.

8. Fasten the seat belt latch.

9. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing,
   whichever is less, from the retractor and then release it, allowing the belt webbing to
   return to the dummy's chest.

10. Locate the point where the centerline of the upper torso belt webbing crosses the
    midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches
    from the dummy's chest and release until it is within one inch from the dummy's chest.
    (S10.8) Using a force measuring gage with a full scale range of no more than 1.5
    pounds, measure the contact force perpendicular to the dummy's chest exerted by the
    belt webbing.

    Contact Force (lb): 0.4
    - 0.0 to 0.7 pounds – Pass
    - Greater than 0.7 pounds - FAIL

REMARKS:
I certify that I have read and performed each instruction.

Signature: [Signature] Date: 2/5/09
Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

<table>
<thead>
<tr>
<th>DESIGNATED SEATING POSITION:</th>
<th>Not Applicable For Any Position - Passenger Car</th>
</tr>
</thead>
</table>

1. Position the seat’s adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
   - N/A – No lumbar adjustment

2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
   - N/A – No additional support adjustment

3. Is the fore-aft position of the seat adjustable?
   - No – go to 4
   - Yes – go to 3.1

3.1 Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the rearmost position. Mark this position. (8/31/95 legal interp to Hogan and Hartson)

3.2 While maintaining the forward most position, move the seat to its lowest position. For seats with adjustable seat cushions, use the manufacturer’s recommended seat cushion angle for determining the lowest height position.

4. Is the seat back angle adjustable?
   - No- go to 5
   - Yes- go to 4.1

4.1 Set and mark seat back angle, if adjustable, at the manufacturer’s nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer.
   - N/A – No seat back angle adjustment
   - Manufacturer’s design seat back angle: ___________
   - Tested seat back angle: _____________

5. Is the seat a bucket seat?
   - Yes, go to 5.1 and skip 5.2
   - No, go to 5.2 and skip 5.1

5.1 Bucket seats:
   Locate and mark the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S10.4.1.2 and S16.3.1.10)

5.2 Bench seats (complete ONLY the one that is applicable to the seat being tested):

5.2.1 Driver Seat
   Locate and mark the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface. (S10.4.1.1)
5.2.2 Front Outboard Passenger Seat

Locate and mark the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S10.4.1.1)

- Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. _______
- Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. _______

6. Position the test dummy using the procedures in Appendix F. (Some modifications to the positioning procedure may need to be made because the seat is in the forward most position. Note on the Appendix F positioning check sheet any deviations necessary to position the Part 572, Subpart E dummy). Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.

7. Position the adjustable seat belt anchorage in the manufacturer’s nominal design position for a 50th percentile adult male occupant.

8. Attach the inboard reach string to the base of the head following the instructions on Figure 3.

9. Attach the outboard reach string to the torso sheath following the instructions on Figure 3.

10. Place the latch plate in the stowed position.

11. Extend the inboard reach string in front of the dummy and then backward and outboard to the latch plate to generate arcs of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?
   - Yes – Pass
   - No

12. Extend the outboard reach string in front of the dummy and then backward and outboard to the latch plate to generate arcs of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?
   - Yes – Pass
   - No

13. Is the latch plate within the inboard (item 11) or outboard (item 12) reach envelope?
   - Yes – Pass
   - No – Fail

14. Using the clearance test block, specified in Figure 4, is there sufficient clearance between the vehicle seat and the side of vehicle interior to allow the test block to move unhindered to the latch plate or buckle?
   - Yes – Pass
   - No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: _________________________________ Date: 2/5/09
Figure 3. Location of Anchoring Points for Latchplate Reach Limiting Chains or Strings to Test for Latchplate Accessibility Using Subpart E Test Device

Seal Plane is 90° to the Torso Line

Attach the Inboard Reach String (19\(\frac{3}{4}\)" long) at the base of the head on centerline.

Attach the Outboard Reach String (28" long) at this point on the torso sheath.

A—Using flexible tape measure 8" from back centerline 10-\(\frac{1}{2}\)" from front centerline to find anchor point below arm pit on torso sheath.

Figure 4—USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND/ARM ACCESS

Clearance Test Block

\(\frac{3}{4}\)" R
TYP

(Note corners are rounded off
 to reduce snagging)

Typical arm rest
DATA SHEET 12
SEAT BELT RETRACTION (S7.4.5)

Test all front outboard seat belts, except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION: Not Applicable For Any Position – Passenger Car

1. Is the vehicle a passenger car or walk-in van-type vehicle?
   X Yes, this form is complete
   No

2. Position the seat’s adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
   N/A – No lumbar adjustment

3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
   N/A – No additional support adjustment

4. Is the fore-aft position of the seat adjustable?
   No – go to 5
   Yes – go to 4.1

4.1 Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the rearmost position. Mark this position. (8/31/95 legal interp to Hogan and Hartson)

4.2 Use all the seat controls that have any affects on the fore-aft movement of the seat to move the seat cushion to the foremost position. Mark this position. (8/31/95 legal interp to Hogan and Hartson)

4.3 Mark each fore-aft position so that there is a visual indication when the seat is at a particular position. For manual seats, mark each detent. For power seats, mark only the rearmost, middle and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost. Determine the mid fore-aft seat position based on the foremost and rearmost positions determined in items 4.1 and 4.2. (8/31/95 legal interp to Hogan and Hartson)

4.4 Move the seat to the mid position.

4.5 While maintaining the mid position, move the seat to its lowest position. For seats with adjustable seat cushions, use the manufacturer’s recommended seat cushion angle for determining the lowest height position.

5. Is the seat back angle adjustable?
   No- go to 6
   Yes- go to 5.1

5.1 Set and mark seat back angle, if adjustable, at the manufacturer’s nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer.
   N/A – No seat back angle adjustment
   Manufacturer’s design seat back angle: __________
   Tested seat back angle: __________

6. Is the seat a bucket seat?
   Yes, go to 6.1 and skip 6.2
   No, go to 6.2 and skip 6.1
6.1 Bucket Seats:
Locate and mark the longitudinal centerline of the seat cushion. The intersection of the vertical
longitudinal plane that passes through the SgRP and the seat cushion upper surface determines
the longitudinal centerline of a bucket seat cushion. (S10.4.1.2 and S16.3.1.10)

6.2 Bench seats (complete ONLY the one that is applicable to the seat being tested):
6.2.1 Driver Seat
Locate and mark the longitudinal line on the seat cushion that marks the intersection of the
vertical longitudinal plane through the centerline of the steering wheel and the seat cushion
upper surface. (S10.4.1.1)

6.2.2 Front Outboard Passenger Seat
Locate and mark the longitudinal centerline of the passenger seat cushion. The longitudinal
centerline is the same distance from the longitudinal centerline of the vehicle as the center of
the steering wheel. (S10.4.1.1)

Record the distance from the longitudinal centerline of the vehicle to the center of the steering
wheel. __________
Record the distance from the longitudinal centerline of the vehicle to the longitudinal
centerline of the seat cushion. __________

7. Position the Part 572 Subpart E test dummy according to dummy position placement instructions in
Appendix F. Complete the Appendix F check sheets, but include them in the test report
ONLY if there is a test failure.

8. Fasten the seat belt around the dummy.

9. Remove all slack from the lap belt portion. (S10.9)
N/A, the seat does not have a fore-aft adjustment

10. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times.
(S10.9)

11. Apply a 2 to 4 pound tension load to the lap belt. (S10.9)

Pound load applied:

12. Is the belt system equipped with a tension relieving device?

__Yes, continue
__No, go to 14

13. Introduce the maximum amount of slack into the upper torso belt that is recommended by the
vehicle manufacturer in the vehicle owner’s manual. (S10.9).

14. Check the statement that applies to this test vehicle:

14.1 The torso and lap belt webbing of the seat belt system automatically retracts to a stowed position
when the adjacent vehicle door is in an open position and the seat belt latch plate is released.

Yes – Pass go to 16
No – go to 14.2

14.2 The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt
latch plate is released.

Yes – Pass go to 15
No – go to 14.3

14.3 Neither 14.1 nor 14.2 apply.

Fail

15. With the webbing and hardware in the stowed position are the webbing and hardware prevented
from being pinched when the door is closed?

Yes – Pass
No – Fail
16. If this test vehicle has an open body (without doors) and has a belt system with a tension relieving device, does the belt system fully retract when the tension-relieving device is deactivated?

- N/A – Not an open body vehicle
- Yes – Pass
- No – Fail

REMARKS:

Signature: ______________________________ Date: 2/5/09

I certify that I have read and performed each instruction.
Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

**DESIGNATED SEATING POSITION:** Left Rear Passenger

1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b))
   - Yes, this form is complete
   - No, go to 2
2. Is the seat removable? (S7.4.6.1(b))
   - Yes, this form is complete
   - No, go to 3
3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))
   - Yes, this form is complete
   - No, go to 4
4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))
   - Yes, go to 5
   - No, this form is complete
5. Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a))
   - Yes – Pass
   - No – Fail
   - Identify the part(s) on top or above the seat.
   - Seat belt latch plate
   - Buckle
   - Seat belt webbing
6. Are the remaining two seat belt parts accessible under normal conditions?
   - Yes – Pass
   - No – Fail
7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)
   - Yes – Pass
   - No – Fail
8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)
   - Yes – Pass
   - No – Fail
9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)
   - Yes – Pass
   - No – Fail
10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)
    - Yes – Pass
    - No – Fail
    - N/A – Rear seat

**REMARKS:**

Signature: Matt Jacobson
Date: 2/5/09

I certify that I have read and performed each instruction.
**DATA SHEET 13**

**SEAT BELT GUIDES AND HARDWARE (S7.4.6)**

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

**DESIGNATED SEATING POSITION:** Center Rear Passenger

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b))</td>
</tr>
<tr>
<td></td>
<td>Yes, this form is complete X No, go to 2</td>
</tr>
<tr>
<td>X</td>
<td>2. Is the seat removable? (S7.4.6.1(b))</td>
</tr>
<tr>
<td></td>
<td>Yes, this form is complete X No, go to 3</td>
</tr>
<tr>
<td>X</td>
<td>3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))</td>
</tr>
<tr>
<td></td>
<td>Yes, this form is complete X No, go to 4</td>
</tr>
<tr>
<td>X</td>
<td>4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))</td>
</tr>
<tr>
<td></td>
<td>Yes, go to 5 X No, this form is complete</td>
</tr>
<tr>
<td>X</td>
<td>5. Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a))</td>
</tr>
<tr>
<td>X</td>
<td>Yes – Pass X No – Fail</td>
</tr>
<tr>
<td></td>
<td>Identify the part(s) on top or above the seat. Seat belt latch plate X Buckle X Seat belt webbing</td>
</tr>
<tr>
<td>X</td>
<td>6. Are the remaining two seat belt parts accessible under normal conditions?</td>
</tr>
<tr>
<td>X</td>
<td>Yes – Pass X No – Fail</td>
</tr>
<tr>
<td>X</td>
<td>7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)</td>
</tr>
<tr>
<td>X</td>
<td>Yes – Pass X No – Fail</td>
</tr>
<tr>
<td>X</td>
<td>8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)</td>
</tr>
<tr>
<td>X</td>
<td>Yes – Pass X No – Fail</td>
</tr>
<tr>
<td>X</td>
<td>9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)</td>
</tr>
<tr>
<td>X</td>
<td>Yes – Pass X No – Fail</td>
</tr>
<tr>
<td>X</td>
<td>10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)</td>
</tr>
<tr>
<td></td>
<td>Yes – Pass X No – Fail X N/A – Rear seat</td>
</tr>
</tbody>
</table>

**REMARKS:**

Signature: _______________________________ Date: 2/5/09

I certify that I have read and performed each instruction.
DATA SHEET 13
SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2009 Toyota Matrix  
Test Program: FMVSS 208 Compliance  
Test Technician: Wayne Dahlke

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

### DESIGNATED SEATING POSITION: Right Rear Passenger

1. Is the seat cushion movable so that the seat back serves a function other than seating?  
   (S7.4.6.1 (b))
   - Yes, this form is complete  
   - No, go to 2

2. Is the seat removable?  
   (S7.4.6.1(b))
   - Yes, this form is complete  
   - No, go to 3

3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function?  
   (S7.4.6.1(b))
   - Yes, this form is complete  
   - No, go to 4

4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back?  
   (S7.4.6.1(a))
   - Yes, go to 5
   - No, this form is complete

5. Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)?  
   (S7.4.6.1(a))
   - Yes – Pass
   - No – Fail
   - Identify the part(s) on top or above the seat.
   - Seat belt latch plate
   - Buckle
   - Seat belt webbing

6. Are the remaining two seat belt parts accessible under normal conditions?
   - Yes – Pass
   - No – Fail

7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched.  
   (S7.4.6.2)
   - Yes – Pass
   - No – Fail

8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted.  
   (S7.4.6.2)
   - Yes – Pass
   - No – Fail

9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position.  
   (S7.4.6.2)
   - Yes – Pass
   - No – Fail

10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)?  
    (S7.4.6.2)
    - Yes – Pass
    - No – Fail
    - N/A – Rear seat

REMARKS:

Signature: _______________________________ Date: 2/5/09

I certify that I have read and performed each instruction.
DATA SHEET 15
H-POINT DETERMINATION FOR 50TH PERCENTILE MALE DUMMY

Test Vehicle: 2009 Toyota Matrix  
NHTSA No.: C95109  
Test Program: FMVSS 208 Compliance  
Test Date: 3/10/09  
Test Technician: Joe Fleck

X Driver Designated Seating Position  
__ Passenger Designated Seating Position

1. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position.  
   N/A – No lumbar adjustment

2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position.  
   N/A – No additional support adjustment

3. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the rearmost position. **Mark** this position.  
   (8/31/95 legal interp to Hogan and Hartson)

4. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the foremost position. **Mark** this position.  
   (8/31/95 legal interp to Hogan and Hartson)

5. **Mark** each fore-aft position so that there is a visual indication when the seat is at a particular position. For manual seats, **mark** each detent. For power seats, **mark** only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost. Determine the mid fore-aft seat position based on the foremost and rearmost positions determined in items 3 and 4.  
   (8/31/95 legal interp to Hogan and Hartson)

6. Move the seat to the mid position.

7. While maintaining the mid position, move the seat to its lowest position. **Mark** the height position. For seats with adjustable seat cushions, use the manufacturer's recommended seat cushion angle for determining the lowest height position.

8. Visually **mark** the seat back angle, if adjustable, at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer.  
   N/A – No seat back angle adjustment  
   Manufacturer's design seat back angle 88.7° on Headrest Post

9. Is the seat a bucket seat?  
   X Yes, go to 10 and skip 11  
   __ No, go to 11 and skip 10

10. Bucket seats:  
    Locate and **mark** for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion.  
    (S10.4.1.2 and S16.3.1.10)
__11.  Bench seats (complete ONLY the one that is applicable to the seat being marked):__

11.1  Driver Seat
Locate and mark for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface. (S10.4.1.1)

11.2  Passenger Seat
Locate and mark for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S10.4.1.1)
Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. _______
Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. _______

X 12.  Place a 910 mm² piece of muslin cotton cloth over the seat area. (The muslin cloth shall be comparable to 48 threads/in² and density of 2.85 lb/yd.) Tuck the muslin cloth in a sufficient amount to prevent hammocking of the material.

X 13.  Place the seat and back assembly of the H-Point machine at the centerline of the seat as determined in item 10 or 11.

X 14.  Install the lower leg, and foot segments.

X 15.  Set the length of the lower leg segment at 16.3 inches and the length of the thigh bar at 15.8 inches.

X 16.  Leg and foot placement

X 16.1  Driver Designated Seating Position

X 16.1.1 Insert the pin so that the foot angle is never less than 87 degrees.

X 16.1.2 Place the right foot on the undepressed accelerator pedal with the sole of the foot on the pedal and the heel as far forward as allowable. Do not place the heel on the toe board.

X 16.1.3 Adjust the left leg to be the same distance from H-point machine centerline as the right leg.

X 16.1.4 With the T-bar level, place the left foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheel well projection. If the foot cannot be positioned on the toe board, set it on the floor pan.

X Foot on toe board
__ Foot on floor pan

__16.2 Passenger Designated Seating Position

__16.2.1 Insert the pin so that the foot angle is never less than 87 degrees.

__16.2.2 Space the lower legs 10.6 inches apart, equally spaced about the centerline of the H-point machine.
16.2.3 With the T-bar level, place the left foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheel well projection. If the foot cannot be positioned on the toe board, set it on the floor pan.

- Foot on toe board
- Foot on floor pan.

16.2.4 With the T-bar level, place the right foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheel well projection. If the foot cannot be positioned on the toe board, set it on the floor pan.

- Foot on toe board
- Foot on floor pan

X 17. Apply the lower leg weights.

X 18. Apply the thigh weights.

X 19. Tilt the back pan forward against the forward stop and draw the H-point machine away from the seatback using the T-bar.

X 20. Repositioning the back pan

X 20.1 Allow the H-point machine to slide rearward until a forward horizontal restraining load on the T-bar is no longer required due to the seat pan contacting the seat back. The seat pan does not slide rearward. Go to 20.2

X 20.2 Slide the H-point machine rearward by a horizontal rearward load applied at the T-bar until the seat pan contacts the seat back.

X 21. Apply a 10 kg load at the intersection of the hip angle quadrant and the T-bar housing along a line from the above intersection to a point just above the thigh bar housing.

X 22. Again apply a 10 kg load at the intersection of the hip angle quadrant and the T-bar housing along a line from the above intersection to a point just above the thigh bar housing.

X 23. Carefully return the back pan to the seat back.

X 24. Install the right and left buttock weights.

X 25. Install the eight torso weights alternately the installation between right and left.

X 26. Tilt the back pan forward until the stop is contacted.

X 27. Rock the H-point from side to side over a 10 degree arc (5 degrees to each side of the vertical centerline) for three complete cycles. Restrain the T-bar during rocking so that the seat pan does not change position. Minimize any inadvertent exterior loads applied in a vertical or fore-aft direction. The feet are free to move during this rocking motion.

X 28. Without applying a forward or lateral load lift the right foot off the floor the minimum amount necessary until no additional forward foot movement is obtained.

X 29. Lower the right foot until the heel is in contact with the floor pan and the ball of the foot is in contact with the floor, toe board, or undepressed accelerator pedal.
30. Without applying a forward or lateral load lift the left foot off the floor the minimum amount necessary until no additional forward foot movement is obtained.

31. Lower the left foot until the heel is in contact with the floor pan and the ball of the foot is in contact with the floor or toe board.

32. Is the seat pan level?
   - Yes. Go to 34
   - No. Go to 33

33. Apply a sufficient lateral load to the top of the seatback pan to level the H-point machine seat pan on the seat.

34. Holding the T-bar to prevent the H-point from sliding forward on the seat cushion, return the seatback pan to the seatback.

35. Holding the T-bar to prevent the H-point from sliding forward on the seat cushion, apply sufficient rearward force perpendicular to the back angle bar just above the torso weights to increase the hip angle 3 degrees. Minimize the exterior downward or side forces applied to the H-point machine. Release the force. Repeat this step until the hip angle readout is identical. Complete as many force applications as necessary and record the results in the following table:

<table>
<thead>
<tr>
<th>Force Application</th>
<th>Hip Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>91</td>
</tr>
<tr>
<td>2</td>
<td>93</td>
</tr>
<tr>
<td>3</td>
<td>93</td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

36. Is the H-point machine level?
   - Yes, go to 37.
   - No, releve. Go back to item 26 and repeat using a new data sheet.
X 37. Record the H-point location.
Describe and mark the measuring reference point.

<table>
<thead>
<tr>
<th>Driver H-Point</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HP to Floor Z</td>
<td>300</td>
</tr>
<tr>
<td>HP to Hinge X</td>
<td>728</td>
</tr>
<tr>
<td>HP to Sill Y</td>
<td>284</td>
</tr>
<tr>
<td>HP to Striker X</td>
<td>197</td>
</tr>
<tr>
<td>HP to Dash X</td>
<td>688</td>
</tr>
<tr>
<td>HP to Header Z</td>
<td>781</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>H-Point Machine</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Knee</td>
<td>116</td>
</tr>
<tr>
<td>Right Knee</td>
<td>115</td>
</tr>
<tr>
<td>Left Foot Angle</td>
<td>115°</td>
</tr>
<tr>
<td>Right Foot Angle</td>
<td>87°</td>
</tr>
<tr>
<td>Left Leg</td>
<td>130</td>
</tr>
<tr>
<td>Right Leg</td>
<td>130</td>
</tr>
<tr>
<td>Hip Angle</td>
<td>93°</td>
</tr>
<tr>
<td>Back Angle</td>
<td>20°</td>
</tr>
</tbody>
</table>

I certify that I have read and performed each instruction.  Date

3/10/09
DATA SHEET 15
H-POINT DETERMINATION FOR 50TH PERCENTILE MALE DUMMY

Test Vehicle: 2009 Toyota Matrix  NHTSA No.: C95109
Test Program: FMVSS 208 Compliance  Test Date: 3/10/09
Test Technician: Chris Novak

1. Position the seat’s adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
   X N/A – No lumbar adjustment

2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
   X N/A – No additional support adjustment

3. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the rearmost position. Mark this position. (8/31/95 legal interp to Hogan and Hartson)

4. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the foremost position. Mark this position. (8/31/95 legal interp to Hogan and Hartson)

5. Mark each fore-aft position so that there is a visual indication when the seat is at a particular position. For manual seats, mark each detent. For power seats, mark only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost. Determine the mid fore-aft seat position based on the foremost and rearmost positions determined in items 3 and 4. (8/31/95 legal interpretation to Hogan and Hartson)

6. Move the seat to the mid position.

7. While maintaining the mid position, move the seat to its lowest position. Mark the height position. For seats with adjustable seat cushions, use the manufacturer’s recommended seat cushion angle for determining the lowest height position.

8. Visually mark the seat back angle, if adjustable, at the manufacturer’s nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer.
   X N/A – No seat back angle adjustment
   Manufacturer’s design seat back angle 88.4° on Headrest Post

9. Is the seat a bucket seat?
   X Yes, go to 10 and skip 11
   __ No, go to 11 and skip 10

10. Bucket seats:
    Locate and mark for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S10.4.1.2 and S16.3.1.10)
11. Bench seats (complete ONLY the one that is applicable to the seat being marked):

11.1 Driver Seat
Locate and mark for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface. (S10.4.1.1)

11.2 Passenger Seat
Locate and mark for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S10.4.1.1)

- Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. _______
- Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. _______

12. Place a 910 mm² piece of muslin cotton cloth over the seat area. (The muslin cloth shall be comparable to 48 threads/in² and density of 2.85 lb/yd.) Tuck the muslin cloth in a sufficient amount to prevent hammocking of the material.

13. Place the seat and back assembly of the H-Point machine at the centerline of the seat as determined in item 10 or 11.

14. Install the lower leg, and foot segments.

15. Set the length of the lower leg segment at 16.3 inches and the length of the thigh bar at 15.8 inches.

16. Leg and foot placement

16.1 Driver Designated Seating Position

16.1.1 Insert the pin so that the foot angle is never less than 87 degrees.

16.1.2 Place the right foot on the undepressed accelerator pedal with the sole of the foot on the pedal and the heel as far forward as allowable. Do not place the heel on the toe board.

16.1.3 Adjust the left leg to be the same distance from H-point machine centerline as the right leg.

16.1.4 With the T-bar level, place the left foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheel well projection. If the foot cannot be positioned on the toe board, set it on the floor pan.

16.2 Passenger Designated Seating Position

16.2.1 Insert the pin so that the foot angle is never less than 87 degrees.

16.2.2 Space the lower legs 10.6 inches apart, equally spaced about the centerline of the H-point machine.
16.2.3 With the T-bar level, place the left foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheel well projection. If the foot cannot be positioned on the toe board, set it on the floor pan.

Foot on toe board
Foot on floor pan.

16.2.4 With the T-bar level, place the right foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheel well projection. If the foot cannot be positioned on the toe board, set it on the floor pan.

Foot on toe board
Foot on floor pan.

17. Apply the lower leg weights.

18. Apply the thigh weights.

19. Tilt the back pan forward against the forward stop and draw the H-point machine away from the seatback using the T-bar.

20. Repositioning the back pan

20.1 Allow the H-point machine to slide rearward until a forward horizontal restraining load on the T-bar is no longer required due to the seat pan contacting the seat back.

The seat pan does not slide rearward. Go to 20.2

20.2 Slide the H-point machine rearward by a horizontal rearward load applied at the T-bar until the seat pan contacts the seat back.

21. Apply a 10 kg load at the intersection of the hip angle quadrant and the T-bar housing along a line from the above intersection to a point just above the thigh bar housing.

22. Again apply a 10 kg load at the intersection of the hip angle quadrant and the T-bar housing along a line from the above intersection to a point just above the thigh bar housing.

23. Carefully return the back pan to the seat back.

24. Install the right and left buttock weights.

25. Install the eight torso weights alternately the installation between right and left.

26. Tilt the back pan forward until the stop is contacted.

27. Rock the H-point from side to side over a 10 degree arc (5 degrees to each side of the vertical centerline) for three complete cycles. Restrain the T-bar during rocking so that the seat pan does not change position. Minimize any inadvertent exterior loads applied in a vertical or fore-aft direction. The feet are free to move during this rocking motion.

28. Without applying a forward or lateral load lift the right foot off the floor the minimum amount necessary until no additional forward foot movement is obtained.

29. Lower the right foot until the heel is in contact with the floor pan and the ball of the foot is in contact with the floor, toe board, or undepressed accelerator pedal.
X 30. Without applying a forward or lateral load lift the left foot off the floor the minimum Amount necessary until no additional forward foot movement is obtained.

X 31. Lower the left foot until the heel is in contact with the floor pan and the ball of the foot is In contact with the floor or toe board.

X 32. Is the seat pan level?
   X Yes. Go to 34
   __ No. Go to 33

__ 33. Apply a sufficient lateral load to the top of the seatback pan to level the H-point machine seat pan on the seat.

X 34. Holding the T-bar to prevent the H-point from sliding forward on the seat cushion, return the seatback pan to the seatback.

X 35. Holding the T-bar to prevent the H-point from sliding forward on the seat cushion, apply sufficient rearward force perpendicular to the back angle bar just above the torso weights to increase the hip angle 3 degrees. Minimize the exterior downward or side forces applied to the H-point machine. Release the force. Repeat this step until the hip angle readout is identical. Complete as many force applications as necessary and record the results in the following table:

<table>
<thead>
<tr>
<th>Force Application</th>
<th>Hip Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>95</td>
</tr>
<tr>
<td>2</td>
<td>98</td>
</tr>
<tr>
<td>3</td>
<td>98</td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

X 36. Is the H-point machine level?
   X Yes, go to 37.
   __ No, relevel. Go back to item 26 and repeat using a new data sheet.
X.37. Record the H-point location.
Describe and mark the measuring reference point.

<table>
<thead>
<tr>
<th>Passenger H-Point</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HP to Floor Z</td>
<td>267</td>
</tr>
<tr>
<td>HP to Hinge X</td>
<td>716</td>
</tr>
<tr>
<td>HP to Sill Y</td>
<td>210</td>
</tr>
<tr>
<td>HP to Striker X</td>
<td>211</td>
</tr>
<tr>
<td>HP to Dash X</td>
<td>618</td>
</tr>
<tr>
<td>HP to Header Z</td>
<td>753</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>H-Point Machine</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Knee</td>
<td>124</td>
</tr>
<tr>
<td>Right Knee</td>
<td>124</td>
</tr>
<tr>
<td>Left Foot Angle</td>
<td>105°</td>
</tr>
<tr>
<td>Right Foot Angle</td>
<td>105°</td>
</tr>
<tr>
<td>Left Leg</td>
<td>125</td>
</tr>
<tr>
<td>Right Leg</td>
<td>85</td>
</tr>
<tr>
<td>Hip Angle</td>
<td>98°</td>
</tr>
<tr>
<td>Back Angle</td>
<td>20°</td>
</tr>
</tbody>
</table>

I certify that I have read and performed each instruction.  3/10/09
DATA SHEET 16
AIR BAG SUPPRESSION TELTTALE (S19.2.2)

Test Vehicle: 2009 Toyota Matrix  NHTSA No.: C95109
Test Program: FMVSS 208 Compliance  Test Date: 2/9/09
Test Technician: Jeff Lewandowski

1. Is the vehicle certified to any suppression performance standards of FMVSS 208?
   X Yes - go to 2
   No - this form is complete

2. Does telltale emit yellow light when the air bag is suppressed? (S19.2.2(a))
   X Yes - Pass  NO - FAIL

3. Are the words “PASSENGER AIR BAG OFF” or “PASS AIR BAG OFF” (S19.2.2(b))
   on the telltale? (S19.2.2(b))
   X Yes - Pass, go to 4
   No - go to 3.2
   3.2 Within 25 mm of the telltale? (S19.2.2(b))  mm from the edge of the telltale light
      X Yes - Pass  NO - FAIL

4. Is the telltale separate from the air bag readiness indicator? (S19.2.2(c))
   X Yes - Pass  NO - FAIL

5. Is the telltale within the interior of the vehicle? (S19.2.2(d))
   X Yes - Pass  NO - FAIL

6. Is the telltale forward of and above the design H-point of both the driver’s and the front
   outboard passenger’s seat when the seats are in their forwardmost seating positions?
   (S19.2.2(d))
   X Yes - Pass  NO - FAIL

7. Is the telltale away from surfaces that can be used for temporary or permanent storage
   of objects that could obscure the telltale from either the driver’s or front outboard
   passenger’s view? (S19.2.2(d))
   X Yes - Pass  NO - FAIL

8. Is the telltale located so that it is not obscured from the driver or front outboard
   passenger by a rear-facing child restraint in Appendix A installed in the front outboard
   passenger seat? (S19.2.2(d))
   X Yes - Pass  NO - FAIL

9. Is the telltale visible or recognizable during the night? (S19.2.2(e))
   X Yes - Pass  NO - FAIL

10. Is the telltale visible or recognizable during the day? (S19.2.2(e))
    X Yes - Pass  NO - FAIL

11. If there is a visibility adjustment, do all the adjustment levels make the telltale visible and
    recognizable? (S19.2.2(g))
    X N/A-No visibility adjustment
    Yes - Pass  NO - FAIL

12. Does the telltale remain illuminated while the air bag is suppressed? (S19.2.2(h)) (Leave
    the air bag suppressed for 5 minutes.)
    X Yes - Pass  NO - FAIL

13. Is the telltale off while the air bag is activated? (S19.2.2(h)) (Leave the air bag activated
    for 5 minutes.)
    X Yes - Pass  NO – FAIL

I certify that I have read and performed each instruction.  Date

2/9/09
DATA SHEET 17 SUMMARY
Suppression Test Using 12-Month-Old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

[Table]

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C95109</th>
<th>TEST DATE:</th>
<th>2/9/09</th>
</tr>
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<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>JL</td>
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<tr>
<td>DUMMY TYPE:</td>
<td>12 Month Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>062</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>CHILD RESTRAINT NAME:</th>
<th>Britax</th>
</tr>
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<tbody>
<tr>
<td>CHILD RERAINT MODEL:</td>
<td>Handle With Care 191</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>5-26-2000</td>
</tr>
</tbody>
</table>

Base: __On __Off  _X_ N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 88.4° on Headrest Post
Tested seat back angle: 88.8° on Headrest Post
Manufacturer's specified anchorage position: Top
Tested anchorage position: Top

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td>Forward 6 *</td>
<td>131</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Rear</td>
<td>Middle</td>
<td>130</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Facing</td>
<td>Rearward</td>
<td>127</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward 7 *</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Rear</td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Facing</td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward 7 *</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Forward</td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Facing</td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 17 = Full Rearward; 17 total Seat Slide detents)

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN506)
DATA SHEET 17 SUMMARY
Suppression Test Using 12-Month-Old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C95109</th>
<th>TEST DATE:</th>
<th>2/9/09</th>
</tr>
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<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>JL</td>
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<tr>
<td>DUMMY TYPE:</td>
<td>12 Month Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>062</td>
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<table>
<thead>
<tr>
<th>CHILD RESTRAINT NAME:</th>
<th>Evenflo</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHILD RESTRAINT MODEL:</td>
<td>First Choice 204</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>6-20-2000</td>
</tr>
</tbody>
</table>

Base: __On __Off  __X N/A-Restraint does not have a removable base

Manufacturer's design seat back angle:  88.4° on Headrest Post
Tested seat back angle:  88.8° on Headrest Post
Manufacturer's specified anchorage position:  Top
Tested anchorage position:  Top

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

## Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td>Forward</td>
<td>N/A</td>
<td>Won't Fit</td>
</tr>
<tr>
<td>Rear Facing</td>
<td>Middle</td>
<td>127</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>129</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward</td>
<td>N/A</td>
<td>Won't Fit</td>
</tr>
<tr>
<td>Rear Facing</td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
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<tr>
<td></td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward</td>
<td>N/A</td>
<td>Won't Fit</td>
</tr>
<tr>
<td>Forward</td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)
DATA SHEET 17 SUMMARY
Suppression Test Using 12-Month-Old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA NO.: C95109
TEST DATE: 2/9/09

LABORATORY: MGA
TECHNICIANS: JL

DUMMY TYPE: 12 Month Old
DUMMY SERIAL NO.: 062

CHILD RESTRAINT NAME: Graco
CHILD RESTRAINT MODEL: Infant 8457
DATE OF MANUFACTURE: 8-31-2000

Base: _X_ On ___ Off ___N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 88.4° on Headrest Post
Tested seat back angle: 88.8° on Headrest Post
Manufacturer's specified anchorage position: Top
Tested anchorage position: Top

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td>Forward 6 *</td>
<td>131</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Rear</td>
<td>Middle</td>
<td>130</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Facing</td>
<td>Rearward</td>
<td>127</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward 7 *</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Rear</td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Facing</td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
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<tr>
<td>Unbelted</td>
<td>Forward</td>
<td>N/A</td>
<td>Won't Fit</td>
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<td>Forward</td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Facing</td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
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</table>

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 17 = Full Rearward; 17 total Seat Slide detents)
DATA SHEET 17 SUMMARY
Suppression Test Using 12-Month-Old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C95109</th>
<th>TEST DATE:</th>
<th>2/9/09</th>
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<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>JL</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>12 Month Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>062</td>
</tr>
</tbody>
</table>

| CHILD RESTRAINT NAME: | Graco |
| CHILD RESTRAINT MODEL: | Infant 8457 |
| DATE OF MANUFACTURE: | 8-31-2000 |

Base: __On__ __X_Off__ __N/A-Restraint does not have a removable base

Manufacturer’s design seat back angle: 88.4° on Headrest Post
Tested seat back angle: 88.8° on Headrest Post
Manufacturer’s specified anchorage position: Top
Tested anchorage position: Top

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

### Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td>Forward</td>
<td>N/A</td>
<td>Won’t Fit</td>
</tr>
<tr>
<td>Rear</td>
<td>Middle</td>
<td>133</td>
<td>Suppressed</td>
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<tr>
<td>Facing</td>
<td>Rearward</td>
<td>128</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward</td>
<td>N/A</td>
<td>Won’t Fit</td>
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<tr>
<td>Rear</td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Facing</td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward 7 *</td>
<td>N/A</td>
<td>Suppressed</td>
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<tr>
<td>Forward</td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Facing</td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 17 = Full Rearward; 17 total Seat Slide detents)

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)
DATA SHEET 17 SUMMARY
Suppression Test Using 12-Month-Old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C95109</th>
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<th>2/9/09</th>
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<td>MGA</td>
<td>TECHNICIANS:</td>
<td>JL</td>
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<tr>
<td>DUMMY TYPE:</td>
<td>12 Month Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>062</td>
</tr>
</tbody>
</table>

CHILD RESTRAINT NAME: Britax
CHILD RESTRAINT MODEL: Roundabout 161
DATE OF MANUFACTURE: 7-21-2000

Base: _On _Off _X N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 88.4° on Headrest Post
Tested seat back angle: 88.8° on Headrest Post
Manufacturer's specified anchorage position: Top
Tested anchorage position: Top

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td>Forward</td>
<td>127</td>
<td>Suppressed</td>
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<tr>
<td>Forward</td>
<td>Middle</td>
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<tr>
<td>Facing</td>
<td>Rearward</td>
<td>128</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward 3 *</td>
<td>N/A</td>
<td>Suppressed</td>
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<tr>
<td>Forward</td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
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<tr>
<td>Facing</td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Belted</td>
<td>Forward 3 *</td>
<td>130</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Rear</td>
<td>Middle</td>
<td>128</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Facing</td>
<td>Rearward</td>
<td>132</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward 5 *</td>
<td>N/A</td>
<td>Suppressed</td>
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<tr>
<td>Rear</td>
<td>Middle</td>
<td>N/A</td>
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<tr>
<td>Facing</td>
<td>Rearward</td>
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<td>Suppressed</td>
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* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 17 = Full Rearward; 17 total Seat Slide detents)

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN506)
DATA SHEET 17 SUMMARY
Suppression Test Using 12-Month-Old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

<table>
<thead>
<tr>
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<td>TECHNICIANS:</td>
<td>JL</td>
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<tr>
<td>DUMMY TYPE:</td>
<td>12 Month Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>062</td>
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</table>

<table>
<thead>
<tr>
<th>CHILD RESTRAINT NAME:</th>
<th>Century</th>
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</thead>
<tbody>
<tr>
<td>CHILD RESTRAINT MODEL:</td>
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<tr>
<td>DATE OF MANUFACTURE:</td>
<td>8-16-2000</td>
</tr>
</tbody>
</table>

Base: ___On ___Off ___X N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 88.4° on Headrest Post
Tested seat back angle: 88.8° on Headrest Post
Manufacturer's specified anchorage position: Top
Tested anchorage position: Top

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

### Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td>Forward 4 *</td>
<td>129</td>
<td>Suppressed</td>
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<tr>
<td>Forward</td>
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<tr>
<td>Facing</td>
<td>Rearward</td>
<td>129</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward 5 *</td>
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<td>Suppressed</td>
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<tr>
<td>Forward</td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
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<tr>
<td>Facing</td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Belted</td>
<td>Forward 6 *</td>
<td>128</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Rear</td>
<td>Middle</td>
<td>133</td>
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<tr>
<td>Facing</td>
<td>Rearward</td>
<td>131</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward 7 *</td>
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<td>Suppressed</td>
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<tr>
<td>Rear</td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Facing</td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 17 = Full Rearward; 17 total Seat Slide detents)

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)
DATA SHEET 17 SUMMARY
Suppression Test Using 12-Month-Old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA NO.: C95109 TEST DATE: 2/9/09
LABORATORY: MGA TECHNICIANS: JL
DUMMY TYPE: 12 Month Old DUMMY SERIAL NO.: 062

CHILD RESTRAINT NAME: Evenflo
CHILD RESTRAINT MODEL: Medallion 254
DATE OF MANUFACTURE: 6-1-2000

Base: _On ___Off  _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 88.4° on Headrest Post
Tested seat back angle: 88.8° on Headrest Post
Manufacturer's specified anchorage position: Top
Tested anchorage position: Top

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted Forward</td>
<td>3 *</td>
<td>129</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Forward Middle</td>
<td>133</td>
<td>Suppressed</td>
<td></td>
</tr>
<tr>
<td>Forward Rearward</td>
<td>128</td>
<td>Suppressed</td>
<td></td>
</tr>
<tr>
<td>Unbelted Forward</td>
<td>4 *</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Forward Middle</td>
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</tr>
<tr>
<td>Belted Rear</td>
<td>5 *</td>
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<td>Suppressed</td>
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<tr>
<td>Forward Middle</td>
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<td>Suppressed</td>
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</tr>
<tr>
<td>Rearward</td>
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<tr>
<td>Unbelted Rear</td>
<td>7 *</td>
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<tr>
<td>Rear Middle</td>
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</tr>
<tr>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
<td></td>
</tr>
</tbody>
</table>

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 17 = Full Rearward; 17 total Seat Slide detents)

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN506)
DATA SHEET 18 SUMMARY
Suppression Test Using Newborn Infant Dummy (Part 572, Subpart K)
Section A Car Bed

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C95109</th>
<th>TEST DATE:</th>
<th>2/9/09</th>
</tr>
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<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>JL</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>Newborn Infant</td>
<td>DUMMY SERIAL NO.:</td>
<td>003</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>CAR BED NAME:</th>
<th>Cosco</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAR BED MODEL:</td>
<td>Dream Ride 02-719</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>6-16-2000</td>
</tr>
</tbody>
</table>

Base: __On __Off _X_ N/A-Restraint does not have a removable base
(A car bed with a removable base shall be treated as two separate models, i.e. this form and test procedure will be completed with the base on and then repeated on a new form with the base off.

Manufacturer’s design seat back angle: 88.4° on Headrest Post
Tested seat back angle: 88.8° on Headrest Post
Manufacturer’s specified anchorage position: Top
Tested anchorage position: Top

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forward</td>
<td></td>
<td>Won’t Fit</td>
</tr>
<tr>
<td>Middle</td>
<td></td>
<td>Won’t Fit</td>
</tr>
<tr>
<td>Rearward</td>
<td></td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN506)
DATA SHEET 19 SUMMARY
Suppression Test Using 3 Year Old Dummy And Booster Seats (Part 572, Subpart P)
Section D Forward Facing Belt Positioning Booster

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C95109</th>
<th>TEST DATE:</th>
<th>2/10/09</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>JL</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>3 Year Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>032</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BOOSTER SEAT NAME:</th>
<th>Century</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOOSTER SEAT MODEL:</td>
<td>Next Step 4920</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>8-16-2000</td>
</tr>
</tbody>
</table>

Manufacturer’s design seat back angle: 88.4° on Headrest Post
Tested seat back angle: 88.8° on Headrest Post
Manufacturer’s specified anchorage position: Top
Tested anchorage position: Top

<table>
<thead>
<tr>
<th>Test Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Seat Belt</strong></td>
</tr>
<tr>
<td>Belted</td>
</tr>
<tr>
<td>Forward Facing Without Harness</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Belted</td>
</tr>
<tr>
<td>Forward Facing Cinched With Harness</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 17 = Full Rearward; 17 total Seat Slide detents)

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the 3rd Forward position. (SN506)
DATA SHEET 19 SUMMARY
Suppression Test Using 3 Year Old Dummy And Booster Seats (Part 572, Subpart P)
Section D Forward Facing Toddler Belt Positioning Booster Seat

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C95109</th>
<th>TEST DATE:</th>
<th>2/10/09</th>
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</thead>
<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>JL</td>
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<tr>
<td>DUMMY TYPE:</td>
<td>3 Year Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>032</td>
</tr>
</tbody>
</table>

**BOOSTER SEAT NAME:** Cosco  
**BOOSTER SEAT MODEL:** High Back Booster 02-442  
**DATE OF MANUFACTURE:** 4-28-2000

- Manufacturer's design seat back angle: **88.4° on Headrest Post**
- Tested seat back angle: **88.8° on Headrest Post**
- Manufacturer's specified anchorage position: **Top**
- Tested anchorage position: **Top**

### Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Belted</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forward Facing</td>
<td>Forward</td>
<td>8 *</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Without Harness</td>
<td>Middle</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td><strong>Belted</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forward Facing</td>
<td>Forward</td>
<td>7 *</td>
<td>Suppressed</td>
</tr>
<tr>
<td>With Harness</td>
<td>Middle</td>
<td>130</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>131</td>
<td></td>
</tr>
<tr>
<td><strong>Cinched With Harness</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forward Facing</td>
<td>Rearward</td>
<td>129</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 17 = Full Rearward; 17 total Seat Slide detents)

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)
DATA SHEET 20 SUMMARY

Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C95109</th>
<th>TEST DATE:</th>
<th>2/9/09</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>JL</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>3 Year Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>032</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHILD RESTRAINT NAME:</th>
<th>Britax</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHILD RESTRAINT MODEL:</td>
<td>Roundabout 161</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>7-21-2000</td>
</tr>
</tbody>
</table>

Manufacturer's design seat back angle: 88.4° on Headrest Post
Tested seat back angle: 88.8° on Headrest Post
Manufacturer's specified anchorage position: Top
Tested anchorage position: Top

### Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Forward</td>
<td>N/A</td>
<td>Won't Fit</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>130</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>131</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)
DATA SHEET 20 SUMMARY
Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C95109</th>
<th>TEST DATE:</th>
<th>2/9/09</th>
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</thead>
<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
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<td>JL</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>3 Year Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>032</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHILD RESTRAINT NAME:</th>
<th>Century</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHILD RESTRAINT MODEL:</td>
<td>Encore 4612</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>8-16-2000</td>
</tr>
</tbody>
</table>

Manufacturer’s design seat back angle: 88.4° on Headrest Post
Tested seat back angle: 88.8° on Headrest Post
Manufacturer’s specified anchorage position: Top
Tested anchorage position: Top

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td>Forward 6 *</td>
<td>130</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>129</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>133</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 17 = Full Rearward; 17 total Seat Slide detents)

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)
DATA SHEET 20 SUMMARY

Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C95109</th>
<th>TEST DATE:</th>
<th>2/9/09</th>
</tr>
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<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>JL</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>3 Year Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>032</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHILD RESTRAINT NAME:</th>
<th>Evenflo</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHILD RESTRAINT MODEL:</td>
<td>Medallion 254</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>6-1-2000</td>
</tr>
</tbody>
</table>

Manufacturer's design seat back angle: 88.4° on Headrest Post
Tested seat back angle: 88.8° on Headrest Post
Manufacturer's specified anchorage position: Top
Tested anchorage position: Top

Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td>Forward 4 *</td>
<td>133</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>131</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>127</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 17 = Full Rearward; 17 total Seat Slide detents)

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN506)
## Test Summary

<table>
<thead>
<tr>
<th>Position</th>
<th>Seat Slide</th>
<th>Seat Back Angle</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position 1</td>
<td>Forward</td>
<td>88.8° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Sitting on seat with back against seat back</td>
<td>Middle</td>
<td>88.8° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Rearward</td>
<td>88.8° on HRP</td>
<td>Suppressed</td>
<td></td>
</tr>
<tr>
<td>Position 2</td>
<td>Forward</td>
<td>64.2° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Sitting on seat with back against reclined seat back</td>
<td>Middle</td>
<td>64.2° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Rearward</td>
<td>64.2° on HRP</td>
<td>Suppressed</td>
<td></td>
</tr>
<tr>
<td>Position 3</td>
<td>Forward 4 *</td>
<td>88.8° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Sitting on seat with back not against seat back</td>
<td>Middle</td>
<td>88.8° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Rearward</td>
<td>88.8° on HRP</td>
<td>Suppressed</td>
<td></td>
</tr>
<tr>
<td>Position 4</td>
<td>Forward</td>
<td>88.8° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Sitting on seat edge, spine vertical, hands at dummy’s sides</td>
<td>Middle</td>
<td>88.8° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Rearward</td>
<td>88.8° on HRP</td>
<td>Suppressed</td>
<td></td>
</tr>
<tr>
<td>Position 5</td>
<td>Forward **</td>
<td>86.4° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Standing on seat, facing forward</td>
<td>Middle</td>
<td>88.8° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Rearward</td>
<td>88.8° on HRP</td>
<td>Suppressed</td>
<td></td>
</tr>
<tr>
<td>Position 6</td>
<td>Forward</td>
<td>88.8° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Kneeling on seat, facing forward</td>
<td>Middle</td>
<td>88.8° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Rearward</td>
<td>88.8° on HRP</td>
<td>Suppressed</td>
<td></td>
</tr>
<tr>
<td>Position 7</td>
<td>Forward</td>
<td>88.8° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Kneeling on seat, facing rearward</td>
<td>Middle</td>
<td>88.8° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Rearward</td>
<td>88.8° on HRP</td>
<td>Suppressed</td>
<td></td>
</tr>
<tr>
<td>Position 8</td>
<td>Forward</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Lying on seat. (Three designated seating positions only)</td>
<td>Middle</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Rearward</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

* The ATD would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 17 = Full Rearward; 17 total Seat Slide detents)

** The seatback was moved the minimum number of detents (one notch rearward) to eliminate contact with the roof.

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN506)
DATA SHEET 22 SUMMARY
Suppression Test Using 6 Year Old Dummy And Booster Seats (Part 572, Subpart N)
Section D Forward Facing Toddler Belt Positioning Booster Seat

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C95109</th>
<th>TEST DATE:</th>
<th>2/10/09</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>JL</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>6 Year Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>153</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHILD RESTRAINT NAME:</th>
<th>Century</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHILD RESTRAINT MODEL:</td>
<td>Next Step 4920</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>8-16-2000</td>
</tr>
</tbody>
</table>

Manufacturer’s design seat back angle: 88.4° on Headrest Post
Tested seat back angle: 88.8° on Headrest Post
Manufacturer’s specified anchorage position: Top
Tested anchorage position: Top

Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td>Forward</td>
<td>13</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>14</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>17</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN506)
DATA SHEET 22 SUMMARY
Suppression Test Using 6 Year Old Dummy And Booster Seats (Part 572, Subpart N)
Section D Forward Facing Toddler Belt Positioning Booster Seat

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
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<th>TEST DATE:</th>
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<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>JL</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>6 Year Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>153</td>
</tr>
<tr>
<td>CHILD RESTRAINT NAME:</td>
<td>Cosco</td>
<td>CHILD RESTRAINT MODEL:</td>
<td>High Back Booster 02-442</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>4-28-2000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Manufacturer’s design seat back angle: 88.4° on Headrest Post
Tested seat back angle: 88.8° on Headrest Post
Manufacturer’s specified anchorage position: Top
Tested anchorage position: Top

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td>Forward</td>
<td>9</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>17</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>10</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)
## DATA SHEET 22 SUMMARY

Suppression Test Using 6 Year Old Dummy And Booster Seats (Part 572, Subpart N)
Section D Forward Facing Toddler Belt Positioning Booster Seat

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C95109</th>
<th>TEST DATE:</th>
<th>2/10/09</th>
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<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>JL</td>
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<tr>
<td>DUMMY TYPE:</td>
<td>6 Year Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>153</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHILD RESTRAINT NAME:</th>
<th>Evenflo</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHILD RESTRAINT MODEL:</td>
<td>Right Fit 245</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>6-26-2000</td>
</tr>
</tbody>
</table>

Manufacturer's design seat back angle: 88.4° on Headrest Post
Tested seat back angle: 88.8° on Headrest Post
Manufacturer's specified anchorage position: Top
Tested anchorage position: Top

### Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td>Forward</td>
<td>13</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>14</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>11</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN506)
### DATA SHEET 23 SUMMARY
Suppression Tests Using an Unbelted 6 Year Old Dummy (Part 572, Subpart N) (S24.2.1)  
No CRS

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C95109</th>
<th>TEST DATE:</th>
<th>2/10/09</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>JL</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>6 Year Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>153</td>
</tr>
</tbody>
</table>

#### Test Summary

<table>
<thead>
<tr>
<th>Position</th>
<th>Seat Slide</th>
<th>Seat Back Angle **</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position 1</td>
<td>Sitting on seat with back against seat back</td>
<td>Forward 88.8° on HRP</td>
<td>Won't Fit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle 88.8° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rearward 88.8° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Position 2</td>
<td>Sitting on seat with back against reclined seat back</td>
<td>Forward 64.2° on HRP</td>
<td>Won't Fit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle 64.2° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rearward 64.2° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Position 3</td>
<td>Sitting on seat edge, spine vertical, hands at dummy's sides</td>
<td>Forward 88.8° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle 88.8° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rearward 88.8° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Position 4</td>
<td>Sitting on seat with back against seat back then leaning on the door</td>
<td>Forward 88.8° on HRP</td>
<td>Won't Fit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle 88.8° on HRP</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rearward 88.8° on HRP</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)
DATA SHEET 29 SUMMARY

Low Risk Deployment Tests Using an Unbelted 5th Percentile Female Dummy (Part 572, Subpart O) (S26) Position 1 - Chin On Module (S26.2)

NHTSA NO.: C95109 TEST DATE: 2/18/09
LABORATORY: MGA TECHNICIANS: JL/AP
DUMMY TYPE: 5th Percentile Female DUMMY SERIAL NO.: 511

Manufacturer's design seat back angle: 88.7°
Tested seat back angle: 88.7°
Tested seat position: Full Aft

Tested steering wheel angle: 27.3°
Thorax cavity angle: 33.3°
Bottom of chin height: 3 mm - Below Plane F Module Height

Air Bag Deployment Timing

<table>
<thead>
<tr>
<th>Stage No.</th>
<th>Firing time (ms)</th>
<th>Recorded firing time (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2</td>
<td>150.0</td>
<td>150.3</td>
</tr>
</tbody>
</table>

5th Percentile Female SN 511 Position 1 (Chin On Module) 2/18/09

<table>
<thead>
<tr>
<th>Injury Criteria</th>
<th>Max. Allowable Injury Assessment Values</th>
<th>Measured Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIC15</td>
<td>700</td>
<td>22</td>
</tr>
<tr>
<td>Peak Nij (Nte)</td>
<td>1.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>70.2</td>
</tr>
<tr>
<td>Peak Nij (Ntf)</td>
<td>1.0</td>
<td>0.3</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>37.9</td>
</tr>
<tr>
<td>Peak Nij (Nce)</td>
<td>1.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>153.1</td>
</tr>
<tr>
<td>Peak Nij (Ncf)</td>
<td>1.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>211.4</td>
</tr>
<tr>
<td>Neck Tension</td>
<td>2070 N</td>
<td>888</td>
</tr>
<tr>
<td>Neck Compression</td>
<td>2520 N</td>
<td>281</td>
</tr>
<tr>
<td>Chest g</td>
<td>60 g</td>
<td>8</td>
</tr>
<tr>
<td>Chest Displacement</td>
<td>52 mm</td>
<td>5</td>
</tr>
<tr>
<td>Left Femur</td>
<td>6805 N</td>
<td>77</td>
</tr>
<tr>
<td>Right Femur</td>
<td>6805 N</td>
<td>232</td>
</tr>
</tbody>
</table>

Calculated on data recorded for 125 ms after the initiation of the final stage of air bag deployment designed to deploy in any full frontal rigid barrier crash up to 26 km/h. (S4.11(d))
Second stage fire time of 150 ms; Injuries calculated on 0 ms to 275 ms

The original equipment parts were used for this deployment.
DATA SHEET 30 SUMMARY
Low Risk Deployment Tests Using an Unbelted 5th Percentile Female Dummy (Part 572, Subpart O) (S26) Position 2 - Chin On Rim (S26.3)

<table>
<thead>
<tr>
<th>NHTSA NO.</th>
<th>C95109</th>
<th>TEST DATE:</th>
<th>2/18/09</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>JL/AP</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>5th Percentile Female</td>
<td>DUMMY SERIAL NO.:</td>
<td>511</td>
</tr>
</tbody>
</table>

Manufacturer’s design seat back angle: 88.7°
Tested seat back angle: 88.7°
Tested seat position: Full Aft

Tested steering wheel angle: 27.3°
Thorax cavity angle: 33.1°
Chin Point height: 0 mm - At Steering Wheel Target
Note: The chin on rim steering wheel target is 10 mm below the highest point on the steering wheel.

<table>
<thead>
<tr>
<th>Stage No.</th>
<th>Firing time (ms)</th>
<th>Recorded firing time (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2</td>
<td>150.0</td>
<td>150.2</td>
</tr>
</tbody>
</table>

5th Percentile Female SN 511 Position 2 (Chin On Rim) 2/18/09

<table>
<thead>
<tr>
<th>Injury Criteria</th>
<th>Max. Allowable Injury Assessment Values</th>
<th>Measured Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIC15</td>
<td>700</td>
<td>5</td>
</tr>
<tr>
<td>Peak Nij (Nte)</td>
<td>1.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>12.6</td>
</tr>
<tr>
<td>Peak Nij (Ntf)</td>
<td>1.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>88.2</td>
</tr>
<tr>
<td>Peak Nij (Nce)</td>
<td>1.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>15.2</td>
</tr>
<tr>
<td>Peak Nij (Ncf)</td>
<td>1.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>68.4</td>
</tr>
<tr>
<td>Neck Tension</td>
<td>2070 N</td>
<td>653</td>
</tr>
<tr>
<td>Neck Compression</td>
<td>2520 N</td>
<td>110</td>
</tr>
<tr>
<td>Chest g</td>
<td>60 g</td>
<td>20</td>
</tr>
<tr>
<td>Chest Displacement</td>
<td>52 mm</td>
<td>18</td>
</tr>
<tr>
<td>Left Femur</td>
<td>6805 N</td>
<td>19</td>
</tr>
<tr>
<td>Right Femur</td>
<td>6805 N</td>
<td>42</td>
</tr>
</tbody>
</table>

Calculated on data recorded for 125 ms after the initiation of the final stage of air bag deployment designed to deploy in any full frontal rigid barrier crash up to 26 km/h. (S4.11(d))
Second stage fire time of 150 ms; Injuries calculated on 0 ms to 275 ms

A new air bag and original equipment steering wheel and steering column were used for this deployment.
**DATA SHEET 32**

**VEHICLE WEIGHT, FUEL TANK, AND ATTITUDE DATA**

**Test Vehicle:** 2009 Toyota Matrix  
**NHTSA No.:** C95109  
**Test Program:** FMVSS 208 Compliance  
**Test Technician:** Jamie Aide  
**Test Date:** 3/10/09

<table>
<thead>
<tr>
<th>IMPACT ANGLE:</th>
<th>Zero Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>BELTED DUMMIES (YES/NO):</td>
<td>No</td>
</tr>
<tr>
<td>TEST SPEED:</td>
<td>X 32 to 40 kmph</td>
</tr>
<tr>
<td>DRIVER DUMMY:</td>
<td>5th female</td>
</tr>
<tr>
<td>PASSENGER DUMMY:</td>
<td>5th female</td>
</tr>
</tbody>
</table>

1. Fill the transmission with transmission fluid to the satisfactory range.
2. Drain fuel from vehicle.
3. Run the engine until fuel remaining in the fuel delivery system is used and the engine stops.
4. Record the useable fuel tank capacity supplied by the COTR.
   - Useable Fuel Tank Capacity supplied by COTR: 50.0 liters (13.2 gallons)
5. Record the fuel tank capacity supplied in the owner’s manual.
   - Useable Fuel Tank Capacity in owner’s manual: 50.0 liters (13.2 gallons)
6. Using purple dyed Stoddard solvent having the physical and chemical properties of Type 1 solvent or cleaning fluid, Table 1, ASTM Standard D484-71, “Standard Specifications for Hydrocarbon Dry-cleaning Solvents,” or gasoline, fill the fuel tank.
   - Amount Added: 50.0 liters (13.2 gallons)
7. Fill the coolant system to capacity.
8. Fill the engine with motor oil to the Max. mark on the dip stick.
9. Fill the brake reservoir with brake fluid to its normal level.
10. Fill the windshield washer reservoir to capacity.
11. Inflate the tires to the tire pressure on the tire placard. If no tire placard is available, inflate the tires to the recommended pressure in the owner’s manual.
   - Tire placard pressure: RF: 32 psi LF: 32 psi RR: 32 psi LR: 32 psi
   - Owner’s manual pressure: RF: 32 psi LF: 32 psi RR: 32 psi LR: 32 psi
   - Actual inflated pressure: RF: 32 psi LF: 32 psi RR: 32 psi LR: 32 psi
12. Record the vehicle weight at each wheel to determine the unloaded vehicle weight (UVW), i.e. "as delivered" weight.
   - Right Front (kg): 374.7 Right Rear (kg): 258.6
   - Left Front (kg): 380.1 Left Rear (kg): 258.1
   - Total Front (kg): 754.8 Total Rear (kg): 516.7
   - % Total Weight: 59.4 % Total Weight: 40.6
   - UVW = TOTAL FRONT PLUS TOTAL REAR (KG): 1271.5
13. UVW Test Vehicle Attitude: (All dimensions in millimeters)
   - Mark a point on the vehicle above the center of each wheel.
   - Place the vehicle on a level surface.
   - Measure perpendicular to the level surface to the 4 points marked on the body and record the measurements
   - RF: 694 LF: 691 RR: 706 LR: 710
14. Calculate the Rated Cargo and Luggage Weight (RCLW): 45 kg
   14.1 Does the vehicle have the vehicle capacity weight (VCW) on the certification label or tire placard?
   Yes, go to 14.3
   No, go to 14.2
   14.2 VCW = Gross Vehicle Weight - UVW
           VCW = __________   -   __________   =   __________
   14.3 VCW =  385 kg (850 lbs)
   14.4 Does the certification or tire placard contain the Designated Seating Capacity (DSC)?
   Yes, go to 14.6
   No, go to 14.5 and skip 14.6
   14.5 DSC = Total number of seat belt assemblies = __________
   14.6 DSC = __________
   14.7 RCLW = VCW - (68 kg x DSC) = 385 kg - (68 kg x 5) = 45 kg
   14.8 Is the vehicle certified as a truck, MPV or bus (see the certification label on the door jamb)?
   Yes, if the calculated RCLW is greater than 136 kg, use 136 kg as the RCLW. (S8.1.1)
   No, use the RCLW calculated in 14.7
   14.9 Fully Loaded Weight (100% fuel fill): 1472.9 kg
   15.1 Place the appropriate test dummy in both front outboard seating positions.
   Driver: ____________ 5th female X 50th male
   Passenger: ____________ 5th female X 50th male
   15.2 Load the vehicle with the RCLW from 14.7 or 14.8 whichever is applicable.
   15.3 Place the RCLW in the cargo area. Center the load over the longitudinal centerline of the vehicle. (S8.1.1 (d))
   15.4 Record the vehicle weight at each wheel to determine the Fully Loaded Weight.

| Right Front (kg): | 415.5 | Right Rear (kg): | 317.1 |
| Left Front (kg):  | 425.5 | Left Rear (kg):  | 314.8 |
| Total Front (kg): | 841.0 | Total Rear (kg): | 631.9 |
| % Total Weight:   | 57.1  | % Total Weight:  | 42.9  |
| % GVW:            | 53.1  | % GVW:           | 47.9  |
| (% GVW = Axle GVW divided by Vehicle GVW) |
| Fully Loaded Weight = Total Front Plus Total Rear (kg): | 1472.9 |

16. Fully Loaded Test Vehicle Attitude: (All dimensions in millimeters)
   16.1 Place the vehicle on a level surface.
   16.2 Measure perpendicular to the level surface to the 4 points marked on the body (see 13.1 above) and record the measurements

| RF: 677 | LF: 676 | RR: 687 | LR: 685 |

17. Drain the fuel system
18. Using purple dyed Stoddard solvent having the physical and chemical properties of Type 1 solvent or cleaning fluid, Table 1, ASTM Standard D484-71, “Standard Specifications for Hydrocarbon Dry-cleaning Solvents,” fill the fuel tank to 92 - 94 percent of useable capacity.

   Fuel tank capacity x .94 = 50.0 liters (13.2 gallons) x .94 = 47.0 liters (12.4 gallons)

Amount added: 46.2 liters (12.2 gallons) 92.4%
19. Crank the engine to fill the fuel delivery system with Stoddard solvent

20. Calculate the test weight range.

20.1 Calculated Weight = UVW (see 12 above) + RCLW (see 14 above) + 2x(dummy weight)

\[ 1472.5 \text{ kg} = 1271.5 \text{ kg} + 45.0 \text{ kg} + 156.0 \text{ kg} \]

20.2 Test Weight Range = Calculated Weight (- 4.5 kg, - 9 kg.)

Max. Test Weight = Calculated Test Weight - 4.5 kg = 1468.0 kg

Min. Test Weight = Calculated Test Weight - 9 kg = 1463.5 kg

21. Remove the RCLW from the cargo area.

22. Drain transmission fluid, engine coolant, motor oil, and windshield washer fluid from the test vehicle so that Stoddard solvent leakage from the fuel system will be evident.

23. Vehicle Components Removed For Weight Reduction:

Spare tire, jack and tools, and trunk interior

24. Secure the equipment and ballast in the load carrying area and distribute it, as nearly as possible, to obtain the proportion of axle weight indicated by the gross axle weight ratings and center it over the longitudinal centerline of the vehicle.

25. If necessary, add ballast to achieve the actual test weight.

Weight of Ballast: 22.7 kg

26. Ballast, including test equipment, must be contained so that it will not shift during the impact event or interfere with data collection or interfere with high-speed film recordings or affect the structural integrity of the vehicle or do anything else to affect test results. Care must be taken to assure that any attachment hardware added to the vehicle is not in the vicinity of the fuel tank or lines.

27. Record the vehicle weight at each wheel to determine the actual test weight.

<table>
<thead>
<tr>
<th>Right Front (kg): 413.2</th>
<th>Right Rear (kg): 314.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Front (kg): 420.9</td>
<td>Left Rear (kg): 315.7</td>
</tr>
<tr>
<td>Total Front (kg): 834.1</td>
<td>Total Rear (kg): 630.1</td>
</tr>
<tr>
<td>% Total Weight: 57.0</td>
<td>% Total Weight: 43.0</td>
</tr>
<tr>
<td>% GVW: 53.1</td>
<td>% GVW: 47.2</td>
</tr>
</tbody>
</table>

TOTAL FRONT PLUS TOTAL REAR (kg): 1464.2

28. Is the test weight between the Max. Weight and the Min. Weight (See 20.2)?

Yes

29. Test Weight Vehicle Attitude: (all dimensions in millimeters)

29.1 Place the vehicle on a level surface

29.2 Measure perpendicular to the level surface to the 4 points marked on the body (see 13 above) and record the measurements

| RF: 682 | LF: 684 | RR: 688 | LR: 686 |

30. Summary of test attitude
X 30.1  AS DELIVERED:
RF: 694 LF: 691 RR: 706 LR: 710

AS TESTED:
RF: 682 LF: 684 RR: 688 LR: 686

FULLY LOADED:
RF: 677 LF: 676 RR: 687 LR: 685

X 30.2  Is the “as tested” test attitude equal to or between the “fully loaded” and “as delivered” attitude?
X Yes

REMARKS:
Signature: __________________ Date: 3/10/09

I certify that I have read and performed each instruction.
DATA SHEET 33

VEHICLE ACCELEROMETER LOCATION AND MEASUREMENT

Test Vehicle: 2009 Toyota Matrix  
NHTSA No.: C95109  
Test Program: FMVSS 208 Compliance  
Test Date: 3/10/09  
Test Technician: Jamie Aide

<table>
<thead>
<tr>
<th>IMPACT ANGLE:</th>
<th>Zero Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>BELTED DUMMIES (YES/NO):</td>
<td>No</td>
</tr>
<tr>
<td>TEST SPEED:</td>
<td>X 32 to 40 kmph</td>
</tr>
<tr>
<td>DRIVER DUMMY:</td>
<td>5th female</td>
</tr>
<tr>
<td>PASSENGER DUMMY:</td>
<td>5th female</td>
</tr>
</tbody>
</table>

1. Find the location where the vertical plane parallel to the longitudinal centerline of the vehicle and through the center of the left front outboard seating position intersects the left rear seat cross member. Install an accelerometer at this intersection on the rear seat cross member to record x-direction accelerations. Record the location on the following chart.

2. Find the location where the vertical plane parallel to the longitudinal centerline of the vehicle and through the center of the right front outboard seating position intersects the right rear seat cross member. Install an accelerometer at this intersection on the rear seat cross member to record x-direction accelerations. Record the location on the following chart.

3. Find the location where a vertical plane through the longitudinal centerline of the vehicle and a vertical transverse plane through the center of the two wheels on opposite sides of the engine intersect at the top of the engine. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.

4. Find the location where a vertical plane through the longitudinal centerline of the vehicle and a vertical transverse plane through the center of the two wheels on opposite sides of the engine intersect the bottom of the engine. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.

5. Install an accelerometer on the right front brake caliper to record x-direction accelerations. Record the location on the following chart.

6. Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the top of the instrument panel. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.

7. Install an accelerometer on the left front brake caliper to record x-direction accelerations. Record the location on the following chart.

8. Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the floor of the trunk. Install an accelerometer on the trunk floor at this intersection to record z-direction accelerations. Record the location on the following chart.

REMARKS:

I certify that I have read and performed each instruction.

Signature:  
Date: 3/10/09
Dimensions Corresponding To The Letters “A” Through “K” (Excluding “I”) Are Recorded In The Table On The Following Page. Accelerometers Corresponding To The Numbers 1 Through 8 Are Specified On The Preceding Page.
### DATA SHEET 33

#### VEHICLE ACCELEROMETER LOCATION AND MEASUREMENTS

<table>
<thead>
<tr>
<th>DIMENSION</th>
<th>LENGTH (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRETEST VALUES</strong></td>
<td></td>
</tr>
<tr>
<td>A (LH Rear Seat Xmbr)</td>
<td>318</td>
</tr>
<tr>
<td>B (RH Rear Seat Xmbr)</td>
<td>318</td>
</tr>
<tr>
<td>C (Engine Top)</td>
<td>3591</td>
</tr>
<tr>
<td>D (Engine Bottom)</td>
<td>3625</td>
</tr>
<tr>
<td>E (Caliper) Right Side: 3548</td>
<td>Left Side: 3548</td>
</tr>
<tr>
<td>F (Left Caliper)</td>
<td>655</td>
</tr>
<tr>
<td>G (IP)</td>
<td>2812</td>
</tr>
<tr>
<td>H (Seat)</td>
<td>1667</td>
</tr>
<tr>
<td>J (Right Caliper)</td>
<td>655</td>
</tr>
<tr>
<td>K (Trunk)</td>
<td>825</td>
</tr>
<tr>
<td><strong>POST TEST VALUES</strong></td>
<td></td>
</tr>
<tr>
<td>A (LH Rear Seat Xmbr)</td>
<td>318</td>
</tr>
<tr>
<td>B (RH Rear Seat Xmbr)</td>
<td>318</td>
</tr>
<tr>
<td>C (Engine Top)</td>
<td>3596</td>
</tr>
<tr>
<td>D (Engine Bottom)</td>
<td>3560</td>
</tr>
<tr>
<td>E (Caliper) Right Side: 3345</td>
<td>Left Side: 3525</td>
</tr>
<tr>
<td>F (Left Caliper)</td>
<td>652</td>
</tr>
<tr>
<td>G (IP)</td>
<td>2805</td>
</tr>
<tr>
<td>H (Seat)</td>
<td>1667</td>
</tr>
<tr>
<td>J (Right Caliper)</td>
<td>649</td>
</tr>
<tr>
<td>K (Trunk)</td>
<td>825</td>
</tr>
</tbody>
</table>
**DATA SHEET 34**

**PHOTOGRAPHIC TARGETS**

<table>
<thead>
<tr>
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<tr>
<td>BELTED DUMMIES (YES/NO):</td>
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<tr>
<td>TEST SPEED:</td>
<td>X 32 to 40 kmph</td>
</tr>
<tr>
<td>DRIVER DUMMY:</td>
<td>5th female</td>
</tr>
<tr>
<td>PASSENGER DUMMY:</td>
<td>5th female</td>
</tr>
</tbody>
</table>

1. **FMVSS 208 vehicle targeting requirements** (See Figures 28A and 28B)
   1.1 Targets A1 and A2 are on flat rectangular panels.
   1.2 Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted at the front on the outboard sides of A1 and A2. The center of each circular target is 100 mm from the one next to it.
       Distance between targets (mm): 100 mm
   1.3 Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted at the back on the outboard sides of on A1 and A2. The center of each circular target is 100 mm from the one next to it.
       Distance between targets (mm): 100 mm
   1.4 The distance between the first circular target at the front of A1 and A2 and the last circular target at the back of A1 and A2 is at least 915 mm.
       Distance between the first and last circular targets (mm): 915 mm
   1.5 Firmly fix target A1 on the vehicle roof in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy.
   1.6 Firmly fix target A2 on the vehicle roof in the vertical longitudinal plane that is coincident with the midsagittal plane of the passenger dummy.
   1.7 Two circular targets (C1 and C2) at least 90 mm in diameter and with black and yellow quadrants are mounted on the outside of the driver door. The centers of each circular target are at least 610 mm apart.
       Distance between targets (mm): 612 mm
   1.8 Two circular targets (C1 and C2) at least 90 mm in diameter and with black and yellow quadrants are mounted on the outside of the passenger door. The centers of each circular target are at least 610 mm apart.
       Distance between targets (mm): 616 mm
   1.9 Place tape with squares having alternating colors on the top portion of the steering wheel.
   1.10 Chalk the bottom portion of the steering wheel
   1.11 Is this an offset test?
       Yes, continue with this section
       No, go to 2.
   1.12 Measure the width of the vehicle.
       Vehicle width (mm):
   1.13 Find the centerline of the vehicle. (½ of the vehicle width)
   1.14 Find the line parallel to the centerline of the vehicle and 0.1 x vehicle width from the centerline of the vehicle.
1.15 Apply 25 mm wide tape with alternating black and yellow squares parallel to and on each side of the line found in 1.14. The edge of each tape shall be 50 mm from the line found in 1.14. The tape shall extend from the bottom of the bumper to the front edge of the windshield. (Figure 28D)

2. **Barrier Targeting**

2.1 Fix two stationary targets D1 and D2 to the barrier as shown in the Figure 28A. One target is in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy. The other is in the vertical longitudinal plane that is coincident with the midsagittal plane of the passenger dummy.

2.2 Targets D1 and D2 are on a rectangular panel.

2.3 Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted on the sides of the rectangular panel away from the longitudinal centerline of the vehicle. The center of each circular target is 100 mm from the one next to it.

- Distance between circular targets on D1 (mm): **100 mm**
- Distance between circular targets on D2 (mm): **100 mm**

3. **FMVSS 208 Dummy Targeting Requirements**

3.1 Place a circular target with black and yellow quadrants on both sides of the driver dummy head as close as possible to the center of gravity of the head in the x and z direction (relative to the measuring directions of the accelerometers).

3.2 Place a circular target with black and yellow quadrants on both sides of the passenger dummy head as close as possible to the center of gravity of the head in the x and z direction (relative to the measuring directions of the accelerometers).

3.3 Place a circular target with black and yellow quadrants on the outboard shoulder of the driver dummy. Place the target as high up on the arm as possible at the intersection of the arm and shoulder. The sleeve of the shirt on the dummy may be cut to make the target visible, but do not remove any material.

3.4 Place a circular target with black and yellow quadrants on the outboard shoulder of the passenger dummy. Place the target as high up on the arm as possible at the intersection of the arm and shoulder. The sleeve of the shirt on the dummy may be cut to make the target visible, but do not remove any material.

4. **FMVSS 204 Targeting Requirements**

4.1 Is an FMVSS 204 indicant test ordered on the “COTR Vehicle Work Order?”

- Yes, continue with this form.
- No, this form is complete.

4.2 Resection panel (Figure 28C)

4.2.1 The panel deviates no more than 6 mm from perfect flatness when suspended vertically.

4.2.2 The 8 targets on the panel are circular targets at least 90 mm in diameter and with black and yellow quadrants.

4.2.3 The center of each of the 4 outer targets are placed within 1 mm of the corners of a square measuring 914 mm on each side.

4.2.4 Locate another square with 228 mm sides and with the center of this square coincident with the center of the 914 mm square.

4.2.5 The center of the 4 inner targets are placed at the midpoints of each of the 228 mm sides.

4.3 Place a circular target at least 90 mm in diameter and with black and yellow quadrants on a material (cardboard, metal, etc.) that can be taped to the top of the steering column.

4.4 Tape the target from 4.3 to the top of the steering column in a manner that does not interfere with the movement of the steering column in a crash.

**REMARKS:**

Signature: ______________________  Date: 3/10/09

I certify that I have read and performed each instruction.
REFERENCE PHOTO TARGETS

CONCRETE BARRIER

915 mm

100 mm 100 mm

100 mm

610 mm

C1

C2

B

A1

MONORAIL

COVERED PHOTO PIT

LEFT SIDE VIEW
RESECTION PANEL TARGETING ALIGNMENT

RESECTION CONTROL POINTS PANEL

STEERING COLUMN TARGET B

TEST RUN STEERING COLUMN CAMERA VIEW OF TYPICAL TIME ZERO VEHICLE POSITION

C1 C2

A1 A2

STEERING WHEEL

CAR TOP TARGETS A1 & A2

REAR VIEW

LEFT SIDE VIEW
PRE-RUN STEERING COLUMN HIGH SPEED CAMERA VIEW

LEFT SIDE VIEW

914 mm
### DATA SHEET 35
#### CAMERA LOCATIONS

**Test Vehicle:** 2009 Toyota Matrix  
**NHTSA No.:** C95109  
**Test Program:** FMVSS 208 Compliance  
**Test Date:** 3/10/09  
**Time:** 10:45 am

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<td><strong>Z</strong></td>
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<td>Pit Camera Fuel Tank View</td>
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<td>-3150</td>
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</table>

*COORDINATES:  
+X - forward of impact plane  
+Y - right of monorail centerline  
+Z - above ground level
<table>
<thead>
<tr>
<th><strong>IMPACT ANGLE:</strong></th>
<th>Zero Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BELTED DUMMIES (YES/NO):</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>TEST SPEED:</strong></td>
<td>X 32 to 40 kmph</td>
</tr>
<tr>
<td><strong>DRIVER DUMMY:</strong></td>
<td>5th female</td>
</tr>
<tr>
<td><strong>PASSENGER DUMMY:</strong></td>
<td>5th female</td>
</tr>
</tbody>
</table>

_X_ 1. Position the seat’s adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)  
X N/A – No lumbar adjustment  

_X_ 2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)  
X N/A – No additional support adjustment  

_X_ 3. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the rearmost position. **Mark** this position. (8/31/95 legal interp to Hogan and Hartson)  

_X_ 4. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the foremost position. **Mark** this position. (8/31/95 legal interp to Hogan and Hartson)  

_X_ 5. **Mark** each fore-aft position so that there is a visual indication when the seat is at a particular position. For manual seats, **mark** each detent. For power seats, **mark** only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the midpoint), and R for rearmost. Determine the mid fore-aft seat position based on the foremost and rearmost positions determined in items 3 and 4. (8/31/95 legal interp to Hogan and Hartson)  

_X_ 6. Move the seat to the mid position.  

_X_ 7. While maintaining the mid position, move the seat to its lowest position. **Mark** the height position. For seats with adjustable seat cushions, use the manufacturer’s recommended seat cushion angle for determining the lowest height position.  
X N/A- No cushion angle adjustment  
Manufacturers seat cushion angle ____________  
Tested seat cushion angle ____________  

_X_ 8. Visually **mark** the seat back angle, if adjustable, at the manufacturer’s nominal design riding position for a **50th percentile adult male** in the manner specified by the manufacturer.  
X N/A – No seat back angle adjustment  
Manufacturer’s design seat back angle 88.7°; 4<sup>th</sup> locking position from 1st locking position  
Tested seat back angle 87.1°; 4<sup>th</sup> locking position from 1st locking position  

_X_ 9. Is the seat a bucket seat?  
X Yes, go to 10 and skip 11  
__ No, go to 11 and skip 10  

_X_ 10. Bucket seats:  
Locate and **mark** the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S10.4.1.2 and S16.3.1.10)  

__ 11. Bench seats:  
Locate and **mark** the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface. (S10.4.1.1)
12. If adjustable, set the head restraint at the full up position. (S8.1.3) If there are adjustments other than vertical, adjust them as recommended by the manufacturer.

N/A – No head restraint adjustment

13. Place any adjustable seat belt anchorages at the vehicle manufacturer’s nominal design position for a 50th percentile adult male occupant (S8.1.3)

N/A – No adjustable upper seat belt anchorage

Manufacturer’s specified anchorage position: TOP/1 Full Up (4 total positions, top as 1)

Tested anchorage position: TOP/1 Full Up (4 total positions, top as 1)

14. Place adjustable pedals in the full forward position.

N/A – The pedals are not adjustable.

15. Is the steering wheel adjustable up and down and/or in and out?

Yes – go to 16

No – go to 19

16. Find and mark each up and down position. Label three of the positions with the following: H for highest, M for mid-position (if there is no mid-position, label the next lowest adjustment position), and L for lowest.

N/A – Steering wheel is not adjustable up and down

17. Find and mark each in and out position. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the next rearmost adjustment position), and R for rearmost.

N/A – Steering wheel is not adjustable in and out.

18. Set the steering wheel hub at the geometric center of the full range of driving positions including any telescoping positions.

19. Place the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion markings as determined in item 10 or 11 and the upper torso rests against the seat back. (S10.4.1.1 & S10.4.1.2)

20. Rest the thighs on the seat cushion. (S10.5)

21. Position the H-point of the dummy within 0.5 inch of the vertical dimension and 0.5 inch of the horizontal dimension of a point 0.25 inch below the H-point determined in Data Sheet 15. (S10.4.2.1) Then measure the pelvic angle with respect to the horizontal using the pelvic angle gage. Adjust the dummy position until these three measurements are within the specifications. (S10.4.2.1 and S10.4.2.2)

- 0.118" horizontal inches from the point 0.25 below the determined H-point (0.5" max.)

(S10.4.2.1)

- 0.025" vertical inches from the point 0.25 below the determined H-point (0.5" max.)

(S10.4.2.1)

- 24.4° pelvic angle (20° to 25°)

22. Is the head level within ± 0.5”? (S10.1)

Yes, go to 23

No, go to 22.1

22.1 Adjust the position of the H-point. (S10.1)

22.2 Is the head level within ± 0.5”? (S10.1)

Yes, record the following, then go to 23.

- horizontal inches from the point 0.25 below the determined H-point (0.5” max.)

(S10.4.2.1)

- vertical inches from the point 0.25 below the determined H-point (0.5” max.)

(S10.4.2.1)

- pelvic angle (20° to 25°) (S10.4.2.2)

22.3 Adjust the pelvic angle. (S10.1)

22.4 Is the head level within ± 0.5”? (S10.1)

Yes, record the following, then go to 23.

- horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.)

(S10.4.2.1)

- vertical inches from the point 0.25 below the determined H-point (0.5 inch max.)

(S10.4.2.1)

- pelvic angle (20° to 25°) (S10.4.2.2)
22.5 Adjust the neck bracket of the dummy the minimum amount necessary from the nonadjusted "0" setting until the head is level within ± 0.5°. (S10.1) Record the following, then go to 23:

- horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.)
- vertical inches from the point 0.25 below the determined H-point (0.5 inch max.)
- pelvic angle (20° to 25°) (S10.4.2.2)

23. Set the distance between the outboard knee clevis flange surfaces at 10.6 inches. 10.6 " measured distance (10.6 inches) (S10.5)

24. Can the right foot be placed on the accelerator?
   - Yes, go to 24.1 and skip 24.2
   - No, go to 24.2
   24.1. To the extent practicable keep the right thigh and the leg in a vertical plane (S10.5) while resting the foot on the depressed accelerator pedal with the rearmost point of the heel on the floor pan in the plane of the pedal. (S10.6.1.1)
   24.2 Initially set the foot perpendicular to the leg and then place it as far forward as possible in the direction of the pedal centerline with the rearmost point of the heel resting on the floor pan. (S10.6.1.1)
   24.2.1 Move the adjustable pedal to its most rearward position or until the right foot is flat on the pedal, whichever occurs first. (S10.6.1.1)

25. Does the vehicle have a foot rest?
   - Yes, go to 25.1
   - No, go to 25.2
   25.1 With the left thigh and leg in a vertical plane, place the left foot on the foot rest with the heel resting on the floor pan. (S10.6.1.2)
   25.1.1 Is the left foot elevated above the right foot?
      - Yes, go to 25.2 and position the foot off the foot rest
      - No, go to 26
   25.2 Check the ONLY one of the following that applies:
      - The left foot reaches the toeboard without adjusting the foot or leg. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5) and place the foot on the toeboard, skip 25.3 (S10.6.1.2)
      - The left foot reaches the toeboard but contacts the brake or clutch pedal and must be rotated to avoid pedal contact. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5) and place the foot on the toeboard. The foot was rotated about the leg to avoid pedal contact, skip 25.3 (S10.6.1.2)
      - The left foot reaches the toeboard but contacts the brake or clutch pedal and the foot and leg must be rotated to avoid pedal contact. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5) and place the foot on the toeboard. The foot was rotated about the leg and the leg was rotated outboard about the hip the minimum distance necessary to avoid pedal contact, skip 12.3 (S10.6.1.2)
      - N/A – the foot does not reach the toeboard, go to 25.3
   25.3 Check the ONLY one of the following that applies:
      - The left foot did not contact the brake or clutch pedal. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5). Set the foot perpendicular to the leg and place it as far forward as possible with the heel resting on the floor pan. (S10.6.1.2)
      - The left foot did contact the brake or clutch pedal and the foot was rotated to avoid contact. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5). Set the foot perpendicular to the leg and place it as far forward as possible with the heel resting on the floor pan and rotate the foot the minimum amount to avoid pedal contact. (S10.6.1.2)
      - The left foot did contact the brake or clutch pedal and the foot was rotated about the leg and the leg was rotated outboard about the hip the minimum distance necessary to avoid pedal contact. Set the foot perpendicular to the leg and place it as far forward as possible with the heel resting on the floor pan and rotate the foot about the leg and the thigh and leg outboard about the hip the minimum distance necessary to avoid pedal contact. (S10.6.1.2)

26. Place the right upper arm adjacent to the torso with the centerline as close to a vertical plane as possible. (S10.2.1)
X.27. Is the driver seat belt used for this test?
   Yes, continue
   X No, go to 28

27.1 Fasten the seat belt around the dummy.
27.2 Remove all slack from the lap belt portion. (S10.9)
27.3 Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)
27.4 Apply a 2 to 4 pound tension load to the lap belt. (S10.9)
   _____ pound load applied
27.5 Is the belt system equipped with a tension-relieving device?
   Yes, continue
   No, go to 28

27.6 Introduce the maximum amount of slack into the upper torso belt that is recommended by the vehicle manufacturer in the vehicle owner’s manual. (S10.9)

X.28. Place the left upper arm adjacent to the torso with the centerline as close to a vertical plane as possible. (S10.2.1)

X.29. Place the right hand with the palm in contact with the steering wheel at the rim’s horizontal centerline and with the thumb over the steering wheel. (S10.3.1)

X.30. Place the left hand with the palm in contact with the steering wheel at the rim’s horizontal centerline and with the thumb over the steering wheel. (S10.3.1)

X.31. Tape the thumb of each hand to the steering wheel by using masking tape with a width of 0.25 inch. The length of the tape shall only be enough to go around the thumb and steering wheel one time.

I certify that I have read and performed each instruction. 3/10/09 Date
APPENDIX F
DUMMY POSITIONING PROCEDURES FOR PASSENGER TEST DUMMY
CONFORMING TO SUBPART E OF PART 572

<table>
<thead>
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</tr>
<tr>
<td>TEST SPEED:</td>
<td>X 32 to 40 kmph</td>
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<tr>
<td>DRIVER DUMMY:</td>
<td>__ 5th female</td>
</tr>
<tr>
<td>PASSENGER DUMMY:</td>
<td>X 5th female</td>
</tr>
</tbody>
</table>

1. The seat is a bench seat for which the adjustments have already been made for the driver and there are no independent adjustments that can be made for the passenger. Go to 12.
2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3) N/A - No lumbar adjustment
3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2) N/A - No additional support adjustment
4. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the rearmost position. Mark this position. (8/31/95 legal interp to Hogan and Hartson) N/A - No cushion angle adjustment
5. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the foremost position. Mark this position. (8/31/95 legal interp to Hogan and Hartson) N/A - No cushion angle adjustment
6. Mark each fore-aft position so that there is a visual indication when the seat is at a particular position. For manual seats, mark each detent. For power seats, mark only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost. Determine the mid fore-aft seat position based on the foremost and rearmost positions determined in items 3 and 4. (8/31/95 legal interp to Hogan and Hartson) N/A - No seat back angle adjustment
7. Move the seat to the mid position.
8. While maintaining the mid position, move the seat to its lowest position. Mark the height position. For seats with adjustable seat cushions, use the manufacturer’s recommended seat cushion angle for determining the lowest height position. N/A - No cushion angle adjustment
9. Visually mark the seat back angle, if adjustable, at the manufacturer’s nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. N/A - No seat back angle adjustment
10. Is the seat a bucket seat? Yes, go to 11 and skip 12
11. Bucket seats: Locate and mark for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S10.4.1.2 and S16.3.1.10)
12. Bench seats:
   Locate and mark for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S10.4.1.1)
   Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. _______
   Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. _______

13. If adjustable, set the head restraint at the full up position. (S8.1.3) If there are adjustments other than vertical, adjust them as recommended by the manufacturer.
   X N/A – No head restraint adjustment

14. Place any adjustable seat belt anchorages at the vehicle manufacturer's nominal design position for a 50th percentile adult male occupant (S8.1.3)
   ___ N/A – No adjustable upper seat belt anchorage
   Manufacturer’s specified anchorage position. TOP/1 Full Up (4 total positions, top as 1)
   Tested anchorage position TOP/1 Full Up (4 total positions, top as 1)

15. Place the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion markings as determined in item 11 or 12 and the upper torso rests against the seat back. (S10.4.1.1 & S10.4.1.2)

16. Rest the thighs on the seat cushion. (S10.5)

17. Position the H-point of the dummy within 0.5 inch of the vertical dimension and 0.5 inch of the horizontal dimension of a point 0.25 inch below the H-point determined by using the equipment and procedures specified in SAE J826 (APR 1980). (S10.4.2.1) Then measure the pelvic angle with respect to the horizontal using the pelvic angle gage. Adjust the dummy position until these three measurements are within the specifications. (S10.4.2.1 and S10.4.2.2)
   0.157” horizontal inches from the point 0.25 below the determined H-point (0.5” max.)
   (S10.4.2.1)
   0.210” vertical inches from the point 0.25 below the determined H-point (0.5” max.)
   (S10.4.2.1)
   20.8° pelvic angle (20° to 25°)

18. Is the head level within ± 0.5°? (S10.1)
   X Yes, go to 19
   _ No, go to 18.1

18.1 Adjust the position of the H-point. (S10.1 and S10.4.2.1)
   _ Yes, record the following, then go to 19. _ No, go to 18.3
   ___ horizontal inches from the point 0.25 below the determined H-point (0.5” max.)
   (S10.4.2.1)
   ___ vertical inches from the point 0.25 below the determined H-point (0.5” max.)
   (S10.4.2.1)
   ___ pelvic angle (20° to 25°) (S10.4.2.2)

18.2 Is the head level within ± 0.5°? (S10.1)
   _ Yes, record the following, then go to 19. _ No, go to 18.3
   ___ horizontal inches from the point 0.25 below the determined H-point (0.5” max.)
   (S10.4.2.1)
   ___ vertical inches from the point 0.25 below the determined H-point (0.5” max.)
   (S10.4.2.1)
   ___ pelvic angle (20° to 25°) (S10.4.2.2)

18.3 Adjust the pelvic angle. (S10.1)

18.4 Is the head level within ± 0.5°? (S10.1)
   _ Yes, record the following, then go to 19. _ No, go to 18.5
   ___ horizontal inches from the point 0.25 below the determined H-point (0.5” max.)
   (S10.4.2.1)
   ___ vertical inches from the point 0.25 below the determined H-point (0.5” max.)
   (S10.4.2.1)
   ___ pelvic angle (20° to 25°) (S10.4.2.2)

18.5 Adjust the neck bracket of the dummy the minimum amount necessary from the nonadjusted "0" setting until the head is level within ± 0.5°. (S10.1) Record the following, then go to 19
   ___ horizontal inches from the point 0.25 below the determined H-point (0.5” max.)
   (S10.4.2.1)
   ___ vertical inches from the point 0.25 below the determined H-point (0.5” max.)
   (S10.4.2.1)
   ___ pelvic angle (20° to 25°) (S10.4.2.2)

19. Set the distance between the outboard knee clevis flange surfaces at 10.6 inches. 10.6” measured distance (10.6 inches) (S10.5)
X_20. Check the only one of the following that applies:

_X_ To the extent practicable keep the left thigh and leg in a vertical plane and the right thigh and leg in a vertical plane, place the feet on the toeboard with the heels resting on the floor pan as close as possible to the intersection of the floor pan and toeboard.

__ The feet cannot be placed flat on the toeboard. To the extent practicable keep the left thigh and leg in a vertical plane and the right thigh and leg in a vertical plane, set the feet perpendicular to the legs and place them as far forward as possible with the heels resting on the floor pan.

__ The vehicle has a wheelhouse projection. To the extent practicable keep the left thigh and leg in a vertical plane and the right thigh and leg in a vertical plane, set the feet perpendicular to the legs and place them as far forward as possible with the heels resting on the floor pan. Do not set the feet on the wheelhouse projection.

__ The vehicle has a wheelhouse projection and the feet cannot be placed on the toeboard. To the extent practicable keep the left thigh and leg in a vertical plane and the right thigh and leg in a vertical plane, set the feet perpendicular to the legs and place them as far forward as possible with the heel resting on the floor pan. Do not set the feet on the wheelhouse projection.

X_21. Place the left upper arm in contact with the seat back and side of the torso. (S10.2.2)

X_22. Is the passenger seat belt used for this test?

__ Yes, continue

_X_ No, go to 23

__22.1 Fasten the seat belt around the dummy.

__22.2 Remove all slack from the lap belt portion. (S10.9)

__22.3 Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)

__22.4 Apply a 2 to 4 pound tension load to the lap belt. (S10.9)

__22.5 Is the belt system equipped with a tension relieving device?

__ Yes, continue

_X_ No, go to 23

__22.6 Introduce the maximum amount of slack into the upper torso belt that is recommended by the vehicle manufacturer in the vehicle owner’s manual. (S10.9). Go to 23.

X_23. Place the right upper arm in contact with the seat back and side of the torso. (S10.2.2)

X_24. Place the left hand palm in contact with the outside of the left thigh and the little finger in contact with the seat cushion. (S10.3.2)

X_25. Place the right hand palm in contact with the outside of the right thigh and the little finger in contact with the seat cushion. (S10.3.2)

I certify that I have read and performed each instruction. 3/10/09

Date
DATA SHEET 37
DUMMY MEASUREMENTS

Test Vehicle: 2009 Toyota Matrix
Test Program: FMVSS 208 Compliance
Test Technician: Jordan Haynes
NHTSA No.: C95109
Test Date: 3/10/09

DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD</td>
<td>Chest to Dash</td>
</tr>
<tr>
<td>CS</td>
<td>Chest to Steering Wheel Hub</td>
</tr>
<tr>
<td>HH</td>
<td>Head to Header</td>
</tr>
<tr>
<td>HW</td>
<td>Head to Windshield</td>
</tr>
<tr>
<td>HZ</td>
<td>Head to Roof</td>
</tr>
<tr>
<td>KDA</td>
<td>Knee to Dash Angle</td>
</tr>
<tr>
<td>KDL</td>
<td>Left Knee to Dash</td>
</tr>
<tr>
<td>KDR</td>
<td>Right Knee to Dash</td>
</tr>
<tr>
<td>NA</td>
<td>Nose to Rim Angle</td>
</tr>
<tr>
<td>NR</td>
<td>Nose to Rim</td>
</tr>
<tr>
<td>PA</td>
<td>Pelvic Angle</td>
</tr>
<tr>
<td>RA</td>
<td>Rim to Abdomen</td>
</tr>
<tr>
<td>SA</td>
<td>Seat Back Angle</td>
</tr>
<tr>
<td>SCA</td>
<td>Steering Column Angle</td>
</tr>
<tr>
<td>SH</td>
<td>Striker to H-Point</td>
</tr>
<tr>
<td>SK</td>
<td>Striker to Knee</td>
</tr>
<tr>
<td>ST</td>
<td>Striker to Head</td>
</tr>
<tr>
<td>SWA</td>
<td>Steering Wheel Angle</td>
</tr>
<tr>
<td>TA</td>
<td>Tibial Angle</td>
</tr>
<tr>
<td>WA</td>
<td>Windshield Angle</td>
</tr>
</tbody>
</table>

AD  Arm to Door
HD  H-Point to Door
HR  Head to Side Header
HS  Head to Side Window
KK  Knee to Knee
SHY Striker to H-Point (Y Axis)

Vertical Transverse Plane
Vertical Longitudinal Planes
### Test Dummy Position Measurements

<table>
<thead>
<tr>
<th>Code</th>
<th>Measurement Description</th>
<th>Driver SN 403</th>
<th>Passenger SN 401</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Length (mm)</td>
<td>Angle (°)</td>
</tr>
<tr>
<td>WA</td>
<td>Windshield Angle</td>
<td>24.1</td>
<td></td>
</tr>
<tr>
<td>SWA</td>
<td>Steering Wheel Angle</td>
<td>63.0</td>
<td></td>
</tr>
<tr>
<td>SCA</td>
<td>Steering Column Angle</td>
<td>27.0</td>
<td></td>
</tr>
<tr>
<td>SA</td>
<td>Seat Back Angle (On Headrest Post)</td>
<td>2.9</td>
<td>1.6</td>
</tr>
<tr>
<td>HZ</td>
<td>Head to Roof (Z)</td>
<td>211</td>
<td>169</td>
</tr>
<tr>
<td>HH</td>
<td>Head to Header</td>
<td>351</td>
<td>325</td>
</tr>
<tr>
<td>HW</td>
<td>Head to Windshield</td>
<td>658</td>
<td>546</td>
</tr>
<tr>
<td>HR</td>
<td>Head to Side Header (Y)</td>
<td>226</td>
<td>210</td>
</tr>
<tr>
<td>NR</td>
<td>Nose to Rim</td>
<td>427</td>
<td>10.3</td>
</tr>
<tr>
<td>CD</td>
<td>Chest to Dash</td>
<td>534</td>
<td>506</td>
</tr>
<tr>
<td>CS</td>
<td>Chest to Steering Hub</td>
<td>326</td>
<td>2.2</td>
</tr>
<tr>
<td>RA</td>
<td>Rim to Abdomen</td>
<td>164</td>
<td>0.0</td>
</tr>
<tr>
<td>KDL</td>
<td>Left Knee to Dash</td>
<td>137</td>
<td>84</td>
</tr>
<tr>
<td>KDR</td>
<td>Right Knee to Dash</td>
<td>85</td>
<td>115</td>
</tr>
<tr>
<td>PA</td>
<td>Pelvic Angle</td>
<td>164</td>
<td>24.4</td>
</tr>
<tr>
<td>TA</td>
<td>Tibia Angle</td>
<td>164</td>
<td>53.4</td>
</tr>
<tr>
<td>KK</td>
<td>Knee to Knee (Y)</td>
<td>315</td>
<td>270</td>
</tr>
<tr>
<td>SK</td>
<td>Striker to Knee</td>
<td>581</td>
<td>100.8</td>
</tr>
<tr>
<td>ST</td>
<td>Striker to Head</td>
<td>432</td>
<td>10.5</td>
</tr>
<tr>
<td>SH</td>
<td>Striker to H-Point</td>
<td>291</td>
<td>137.2</td>
</tr>
<tr>
<td>SHY</td>
<td>Striker to H-Point (Y)</td>
<td>291</td>
<td>137.2</td>
</tr>
<tr>
<td>HS</td>
<td>Head to Side Window</td>
<td>321</td>
<td>318</td>
</tr>
<tr>
<td>HD</td>
<td>H-Point to Door (Y)</td>
<td>154</td>
<td>141</td>
</tr>
<tr>
<td>AD</td>
<td>Arm to Door (Y)</td>
<td>111</td>
<td>103</td>
</tr>
<tr>
<td>AA</td>
<td>Ankle to Ankle</td>
<td>340</td>
<td>226</td>
</tr>
</tbody>
</table>
# SEAT BELT POSITIONING DATA

**DUMMY’S CENTERLINE**

- **TBI**
- **'D' RING**

**SHOULDER BELT PORTION**

- **LAP BELT PORTION**
- **1/8" THICK ALUMINUM PLATE**
- **EMERGENCY LOCKING RETRACTOR**
- **OUTBOARD ANCHORAGE**
- **INBOARD ANCHORAGE**
- **FLOORPAN**
- **BUCKLE ASSEMBLY**
- **MALE BLADE**
- **REEL**

## FRONT VIEW OF DUMMY

### SEAT BELT POSITIONING MEASUREMENTS

<table>
<thead>
<tr>
<th>Measurement Description</th>
<th>Units</th>
<th>Driver</th>
<th>Passenger</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBU - Top surface of reference to belt upper edge</td>
<td>mm</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>PBL - Top surface of reference to belt lower edge</td>
<td>mm</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
DATA SHEET 38
CRASH TEST

Test Vehicle: 2009 Toyota Matrix  NHTSA No.: C95109
Test Program: FMVSS 208 Compliance  Test Date: 3/10/09
Test Technician: Jordan Haynes

IMPACT ANGLE: Zero Degrees
BELTED DUMMIES (YES/NO): No
TEST SPEED: X 32 to 40 kmph  _ 0 to 48 kmph  _ 0 to 56 kmph
DRIVER DUMMY: _ 50th female  X 50th male
PASSENGER DUMMY: _ 50th female  X 50th male

1. Vehicle underbody painted
2. The speed measuring devices are in place and functioning.
3. The speed measuring devices are 1.0 m from the barrier (spec. 1.5m) and 30 cm from the barrier (spec. is 30 cm)
4. Convertible top is in the closed position.
5. Instrumentation and wires are placed so motion of dummies during impact is not affected.
6. Tires inflated to pressure on tire placard or if it does not have a tire placard because it is not a passenger car, then inflated to the tire pressure specified in the owner information.
   - Front left tire: 220 kpa
   - Front right tire: 220 kpa
   - Rear left tire: 220 kpa
   - Rear right tire: 220 kpa

7. Time zero contacts on barrier in place.
8. Pre test zero and shunt calibration adjustments performed and recorded
9. Dummy temperature meets requirements of section 12.2 of the test procedure.
10. Vehicle hood closed and latched
11. Transmission placed in neutral
12. Parking brake off
13. Are the heads still level?
   - Yes, go to 14
   - No, Adjust dummy so that head is at the angle recorded in the Appendix F or G data sheets and then continue
14. Ignition in the ON position
15. Doors closed and latched but not locked
16. Posttest zero and shunt calibration checks performed and recorded
17. Actual test speed 39.8 kmph
18. Vehicle rebound from the barrier 207 cm
19. Describe whether the doors open after the test and what method is used to open the doors.
   - Left Front Door: Door remained closed and latched; Door opened without tools
   - Right Front Door: Door remained closed and latched; Door opened without tools
   - Left Rear Door: Door remained closed and latched; Door opened without tools
   - Right Rear Door: Door remained closed and latched; Door opened without tools
20. Describe the contact points of the dummy with the interior of the vehicle.
   - Driver Dummy: Head to Air Bag, Windshield, and Visor; Chest to Air Bag; Knees to Knee Bolster
   - Passenger Dummy: Head to Air Bag, Windshield, and Visor; Chest to Air Bag; Knees to Glove Box

REMARKS:

Signature: ______________________  Date: 3/10/09

I certify that I have read and performed each instruction.
# DATA SHEET 40

## ACCIDENT INVESTIGATION MEASUREMENTS

<table>
<thead>
<tr>
<th>Test Vehicle:</th>
<th>2009 Toyota Matrix</th>
<th>NHTSA No.:</th>
<th>C95109</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Program:</td>
<td>FMVSS 208 Compliance</td>
<td>Test Date:</td>
<td>3/10/09</td>
</tr>
<tr>
<td>Test Technician:</td>
<td>Jamie Aide</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### IMPACT ANGLE:

- Zero Degrees

### BELTED DUMMIES (YES/NO):

- No

### TEST SPEED:

- X 32 to 40 kmph
- 0 to 48 kmph
- 0 to 56 kmph

### DRIVER DUMMY:

- 5th female
- 50th male

### PASSENGER DUMMY:

- 5th female
- X 50th male

---

### Vehicle Year/Make/Model/Body Style:

- 2009 Toyota Matrix Passenger Car

### VIN:

- 2T1KU40E69C135888

### Wheelbase:

- 2606 mm

### Build Date:

- 10/08

### Vehicle Size Category:

- 3

### Test Weight:

- 1464.2 kg

### Front Overhang:

- 925 mm

### Overall Width:

- 1724 mm

### Overall Length Center:

- 4338 mm

---

### Accelerometer Data

<table>
<thead>
<tr>
<th>Location:</th>
<th>As per measurements on Data Sheet 33</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linearity:</td>
<td>&gt;99.9%</td>
</tr>
</tbody>
</table>

### Integration Algorithm:

- Trapezoidal

### Vehicle Impact Speed:

- 39.8 kmph

### Time of Separation:

- 101.5 ms

### Velocity Change:

- 44.7 kmph
CRUSH PROFILE

Collision Deformation Classification: 12FDEW6
Midpoint of Damage: Vehicle Longitudinal Centerline
Damage Region Length (mm): 1186
Impact Mode: Frontal Barrier

<table>
<thead>
<tr>
<th>No.</th>
<th>Measurement Description</th>
<th>Units</th>
<th>Pre-Test</th>
<th>Post-Test</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>Crush zone 1 at left side</td>
<td>mm</td>
<td>4235</td>
<td>3910</td>
<td>325</td>
</tr>
<tr>
<td>C2</td>
<td>Crush zone 2 at left side</td>
<td>mm</td>
<td>4304</td>
<td>3951</td>
<td>353</td>
</tr>
<tr>
<td>C3</td>
<td>Crush zone 3 at left side</td>
<td>mm</td>
<td>4328</td>
<td>3961</td>
<td>367</td>
</tr>
<tr>
<td>C4</td>
<td>Crush zone 4 at right side</td>
<td>mm</td>
<td>4328</td>
<td>3961</td>
<td>367</td>
</tr>
<tr>
<td>C5</td>
<td>Crush zone 5 at right side</td>
<td>mm</td>
<td>4302</td>
<td>3950</td>
<td>352</td>
</tr>
<tr>
<td>C6</td>
<td>Crush zone 6 at right side</td>
<td>mm</td>
<td>4233</td>
<td>3914</td>
<td>319</td>
</tr>
</tbody>
</table>

REMARKS:

Signature: [Signature]
Date: 3/10/09

I certify that I have read and performed each instruction.
## DATA SHEET 41
### WINDSHIELD MOUNTING (FMVSS 212)

<table>
<thead>
<tr>
<th>Test Vehicle:</th>
<th>2009 Toyota Matrix</th>
<th>NHTSA No.:</th>
<th>C95109</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Program:</td>
<td>FMVSS 208 Compliance</td>
<td>Test Date:</td>
<td>3/10/09</td>
</tr>
<tr>
<td>Test Technician:</td>
<td>Jamie Aide</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IMPACT ANGLE:</th>
<th>Zero Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>BELTED DUMMIES (YES/NO):</td>
<td>No</td>
</tr>
<tr>
<td>TEST SPEED:</td>
<td>X 32 to 40 kmph</td>
</tr>
<tr>
<td>DRIVER DUMMY:</td>
<td>5th female</td>
</tr>
<tr>
<td>PASSENGER DUMMY:</td>
<td>5th female</td>
</tr>
</tbody>
</table>

1. **Pre-Crash**
   - 1.1 Describe from visual inspection how the windshield is mounted and describe any trim material.
     - Retained with glue
     - Rubber and plastic trim

2. **Post Crash**
   - 2.1 Can a single thickness of copier type paper (as small a piece as necessary) slide between the windshield and the vehicle body?
     - X No - Pass. Skip to the table of measurements, complete it by repeating the pre-crash measurements in the post crash column, and calculate the retention percentage, which will be 100%.
     - Yes, go to 2.2
   - 2.2 Visibly mark the beginning and end of the portions of the periphery where the paper slides between the windshield and the vehicle body.
   - 2.3 Measure and record post-crash A, B, C, D, E, and F such that the measurements do not include any of the parts of the windshield where the paper slides between the windshield and the vehicle body.
   - 2.4 Calculate and record the percent retention for the right and left side of the windshield.
   - 2.5 Is total right side percent retention less than 75%?
     - Yes, Fail
     - No, Pass
   - 2.6 Is total left side percent retention less than 75%?
     - Yes, Fail
     - No, Pass
## WINDSHIELD RETENTION MEASUREMENTS

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Pre-Crash (mm)</th>
<th>Post-Crash (mm)</th>
<th>Percent Retention (Post-Test ÷ Pre-Crash)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Left Side</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>575</td>
<td>575</td>
<td>100%</td>
</tr>
<tr>
<td>B</td>
<td>767</td>
<td>767</td>
<td>100%</td>
</tr>
<tr>
<td>C</td>
<td>740</td>
<td>740</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>2082</td>
<td>2082</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Right Side</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>575</td>
<td>575</td>
<td>100%</td>
</tr>
<tr>
<td>E</td>
<td>767</td>
<td>767</td>
<td>100%</td>
</tr>
<tr>
<td>F</td>
<td>726</td>
<td>726</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>2068</td>
<td>2068</td>
<td>100%</td>
</tr>
</tbody>
</table>

Indicate area of mounting failure: NONE

---

### FRONT VIEW OF WINDSHIELD

INDICATE WIDTH OF MOLDING

ZERO POINT (0,0)

REMARKS:

Signature:  
Date: 3/10/09

I certify that I have read and performed each instruction.
**DATA SHEET 42**  
**WINDSHIELD ZONE INTRUSION (FMVSS 219)**

<table>
<thead>
<tr>
<th>Test Vehicle:</th>
<th>2009 Toyota Matrix</th>
<th>NHTSA No.:</th>
<th>C95109</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Program:</td>
<td>FMVSS 208 Compliance</td>
<td>Test Date:</td>
<td>3/10/09</td>
</tr>
<tr>
<td>Test Technician:</td>
<td>Jamie Aide</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IMPACT ANGLE:</th>
<th>Zero Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>BELTED DUMMIES (YES/NO):</td>
<td>No</td>
</tr>
<tr>
<td>TEST SPEED:</td>
<td>X 32 to 40 kmph</td>
</tr>
<tr>
<td>DRIVER DUMMY:</td>
<td>5th female</td>
</tr>
<tr>
<td>PASSENGER DUMMY:</td>
<td>5th female</td>
</tr>
</tbody>
</table>

This standard specifies limits for the displacement of vehicle components into the windshield area during a frontal barrier impact test at any speed up to and including 48 kmph.

- **1.** Place a 165 mm diameter rigid sphere, with a mass of 6.8 kg on the instrument panel so that it is simultaneously touching the instrument panel and the windshield. (571.219 S6.1(a))

- **2.** Roll the sphere from one side of the windshield to the other while marking on the windshield where the sphere contacts the windshield. (571.219 S6.1(b))

- **3.** From the outermost contactable points on the windshield draw a horizontal line to the edges of the windshield. (571.219 S6.1(b))

- **4.** Draw a line on the inner surface of the windshield that is 13 mm below the line determined in items 2 and 3

- **5.** After the crash test, record any points where a part of the exterior of the vehicle has marked, penetrated, or broken the windshield.

Provide all dimensions necessary to reproduce the protected area.

---

![Diagram of Windshield Protection](image-url)

**FRONT VIEW OF WINDSHIELD**
WINDSHIELD DIMENSIONS

<table>
<thead>
<tr>
<th>Item</th>
<th>Units</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Mm</td>
<td>1150</td>
</tr>
<tr>
<td>B</td>
<td>mm</td>
<td>443</td>
</tr>
<tr>
<td>C</td>
<td>mm</td>
<td>1466</td>
</tr>
<tr>
<td>D</td>
<td>mm</td>
<td>767</td>
</tr>
<tr>
<td>E</td>
<td>mm</td>
<td>517</td>
</tr>
<tr>
<td>F</td>
<td>mm</td>
<td>445</td>
</tr>
</tbody>
</table>

AREA OF PROTECTED ZONE FAILURES:

B. Provide coordinates of the area that the protected zone was penetrated more than 0.25 inches by a vehicle component other than one which is normally in contact with the windshield.

<table>
<thead>
<tr>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
</tr>
</tbody>
</table>

C. Provide coordinates of the area beneath the protected zone template that the inner surface of the windshield was penetrated by a vehicle component.

<table>
<thead>
<tr>
<th>X</th>
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</thead>
<tbody>
<tr>
<td>NONE</td>
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</tbody>
</table>

REMARKS:

I certify that I have read and performed each instruction.

Signature:  
Date: 3/10/09
Stoddard Solvent Spillage Measurements

A. From impact until vehicle motion ceases: 0.0 grams
   (Maximum Allowable = 28 grams)
B. For the 5 minute period after motion ceases: 0.0 grams
   (Maximum Allowable = 142 grams)
C. For the following 25 minutes: 0.0 grams
   (Maximum Allowable = 28 grams/minute)
D. Spillage: NONE

REMARKS: NO SPILLAGE
DATA SHEET 43
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2009 Toyota Matrix
Test Program: FMVSS 208 Compliance
NHTSA No.: C95109
Test Date: 3/10/09

1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent spillage locations: None

<table>
<thead>
<tr>
<th>Test Phase</th>
<th>Rotation Time (sec.)</th>
<th>Hold Time (sec.)</th>
<th>Spillage (grams)</th>
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</thead>
<tbody>
<tr>
<td>0° to 90°</td>
<td>121</td>
<td>300</td>
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<tr>
<td>90° to 180°</td>
<td>117</td>
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<tr>
<td>180° to 270°</td>
<td>118</td>
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</tr>
<tr>
<td>270° to 360°</td>
<td>118</td>
<td>300</td>
<td>0.0</td>
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</tbody>
</table>
## APPENDIX A

### CRASH TEST DATA

#### TABLE OF DATA PLOTS

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<th>Figure No.</th>
<th>Description</th>
<th>Page No.</th>
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</thead>
<tbody>
<tr>
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<td>Driver Head X Acceleration vs. Time</td>
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</tr>
<tr>
<td>2</td>
<td>Driver Head Y Acceleration vs. Time</td>
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<tr>
<td>3</td>
<td>Driver Head Z Acceleration vs. Time</td>
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<td>Driver Head Resultant Acceleration vs. Time</td>
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<td>11</td>
<td>Driver Neck Force Resultant vs. Time</td>
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<td>Driver Neck Moment X vs. Time</td>
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<td>Driver Neck Moment Resultant vs. Time</td>
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<td>Driver Left Femur Force vs. Time</td>
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<td>Passenger Head X Acceleration vs. Time</td>
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<td>Figure No.</td>
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<td>Passenger Neck Moment X vs. Time</td>
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<td>Passenger Nij (N_{CF}) vs. Time</td>
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Figure No. 60. Passenger Occipital Condyle Moment vs. Time A-17
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Figure No. 75. Trunk Z Acceleration vs. Time A-21
Figure No. 76. Trunk Z Velocity vs. Time A-21
25 MPH FRONTAL 50THS UNBELTED
2009 TOYOTA MATRIX C95109

Test Date: 03/10/2009
Speed: 24.7 mph (39.8 km/h)

Driver Neck MX (Nm) vs Time (ms)
Max: 12.9 Nm
Tmax: 137.9 ms
Min: -4.6 Nm
Tmin: 205.2 ms
CFC 600

Driver Neck MY (Nm) vs Time (ms)
Max: 30.7 Nm
Tmax: 194.5 ms
Min: -35.1 Nm
Tmin: 91.7 ms
CFC 600

Driver Neck MZ (Nm) vs Time (ms)
Max: 10.1 Nm
Tmax: 180.3 ms
Min: -14.9 Nm
Tmin: 125.3 ms
CFC 600

Driver Neck MResultant (Nm) vs Time (ms)
Max: 36.5 Nm
Tmax: 91.7 ms
Min: 0.0 Nm
Tmin: 0.0 ms
CFC 600
25 MPH FRONTAL 50THS UNBELTED
2009 TOYOTA MATRIX C95109
Test Date: 03/10/2009
Speed: 24.7 mph (39.8 km/h)

DRIVER LEFT FEMUR (N) vs TIME (ms)
Max: 258.2 N
Tmax: 213.6 ms
Min: -4389.1 N
Tmin: 66.3 ms
CFC 600

DRIVER RIGHT FEMUR (N) vs TIME (ms)
Max: 266.8 N
Tmax: 282.7 ms
Min: -4412.7 N
Tmin: 77.0 ms
CFC 600
25 MPH FRONTAL 50THS UNBELTED
2009 TOYOTA MATRIX C95109
Test Date: 03/10/2009
Speed: 24.7 mph (39.8 km/h)

PASSENGER HEAD X Velocity (kph) vs TIME (ms)
Max: 41.7 kph
Tmax: 58.8 ms
Min: -11.1 kph
Tmin: 276.5 ms
CFC 180

PASSENGER HEAD Y Velocity (kph) vs TIME (ms)
Max: 2.1 kph
Tmax: 175.5 ms
Min: -1.8 kph
Tmin: 300.0 ms
CFC 180

PASSENGER HEAD Z Velocity (kph) vs TIME (ms)
Max: 7.9 kph
Tmax: 300.0 ms
Min: -9.5 kph
Tmin: 123.8 ms
CFC 180
25 MPH FRONTAL 50THS UNBELTED
2009 TOYOTA MATRIX C95109

Test Date: 03/10/2009
Speed: 24.7 mph (39.8 km/h)

Max: 1991.0 N
Tmax: 92.9 ms
Min: -288.3 N
Tmin: 218.2 ms

Max: 57.2 N
Tmax: 147.1 ms
Min: -129.2 N
Tmin: 93.8 ms

Max: 506.8 N
Tmax: 64.4 ms
Min: -590.9 N
Tmin: 94.3 ms

Max: 2078.8 N
Tmax: 92.9 ms
Min: 0.8 N
Tmin: 0.0 ms

CFC 1000
25 MPH FRONTAL 50THS UNBELTED
2009 TOYOTA MATRIX C95109

Test Date: 03/10/2009
Speed: 24.7 mph (39.8 km/h)

PASSENGER NECK MX (Nm) vs TIME (ms)
Max: 6.9 Nm
Tmax: 151.6 ms
Min: -8.9 Nm
Tmin: 210.2 ms
CFC 600

PASSENGER NECK MY (Nm) vs TIME (ms)
Max: 126.7 Nm
Tmax: 80.8 ms
Min: -25.7 Nm
Tmin: 120.1 ms
CFC 600

PASSENGER NECK MZ (Nm) vs TIME (ms)
Max: 6.3 Nm
Tmax: 194.7 ms
Min: -16.9 Nm
Tmin: 113.3 ms
CFC 600

PASSENGER NECK MResultant (Nm) vs TIME (ms)
Max: 126.7 Nm
Tmax: 80.8 ms
Min: 0.0 Nm
Tmin: 0.0 ms
CFC 600
25 MPH FRONTAL 50THS UNBELTED
2009 TOYOTA MATRIX C95109
Test Date: 03/10/2009
Speed: 24.7 mph (39.8 km/h)

PASSENGER CHEST X (G's) vs TIME (ms)

Max: 2.4 G's
Tmax: 211.8 ms
Min: -42.0 G's
Tmin: 87.1 ms
CFC 180

PASSENGER CHEST Y (G's) vs TIME (ms)

Max: 0.9 G's
Tmax: 59.3 ms
Min: -4.7 G's
Tmin: 86.7 ms
CFC 180

PASSENGER CHEST Z (G's) vs TIME (ms)

Max: 17.2 G's
Tmax: 83.6 ms
Min: -4.6 G's
Tmin: 55.2 ms
CFC 180

PASSENGER CHEST Resultant (G's) vs TIME (ms)

Max: 45.1 G's
Tmax: 86.8 ms
Min: 0.0 G's
Tmin: 0.0 ms
CFC 180
25 MPH FRONTAL 50THS UNBELTED
2009 TOYOTA MATRIX C95109
Test Date: 03/10/2009
Speed: 24.7 mph (39.8 km/h)

2009 TOYOTA MATRIX C95109

Max: 239.8 N
Tmax: 208.5 ms
Min: -5686.0 N
Tmin: 85.3 ms
CFC 600

Max: 239.5 N
Tmax: 202.6 ms
Min: -3850.1 N
Tmin: 72.3 ms
CFC 600
25 MPH FRONTAL 50THS UNBELTED  
2009 TOYOTA MATRIX C95109  
Test Date: 03/10/2009  
Speed: 24.7 mph (39.8 km/h)
25 MPH FRONTAL 50THS UNBELTED
2009 TOYOTA MATRIX C95109

Speed: 24.7 mph (39.8 km/h)

Max: 34.4 Nm
Tmax: 194.6 ms
Min: -32.8 Nm
Tmin: 91.7 ms

Max: 93.1 Nm
Tmax: 80.0 ms
Min: -34.3 Nm
Tmin: 117.7 ms

CFC 600
25 MPH FRONTAL 50THS UNBELTED
2009 TOYOTA MATRIX C95109

Speed: 24.7 mph (39.8 km/h)

Max: 2.8 G's
Tmax: 97.2 ms
Min: -25.2 G's
Tmin: 71.6 ms
CFC 60

Max: 39.8 kph
Tmax: 0.0 ms
Min: -4.0 kph
Tmin: 93.3 ms
CFC 180

Max: 2.0 G's
Tmax: 161.4 ms
Min: -26.5 G's
Tmin: 72.2 ms
CFC 60

Max: 39.8 kph
Tmax: 3.0 ms
Min: -5.7 kph
Tmin: 109.7 ms
CFC 180
25 MPH FRONTAL 50THS UNBELTED
2009 TOYOTA MATRIX C95109

Test Date: 03/10/2009
Speed: 24.7 mph (39.8 km/h)

TOP OF ENGINE X (G's) vs TIME (ms)
Max: 7.6 G's
Tmax: 67.3 ms
Min: -43.7 G's
Tmin: 51.4 ms
CFC 60

TOP OF ENGINE X Velocity (kph) vs TIME (ms)
Max: 39.8 kph
Tmax: 0.0 ms
Min: -7.6 kph
Tmin: 300.0 ms
CFC 180

BOTTOM OF ENGINE X (G's) vs TIME (ms)
Max: 16.8 G's
Tmax: 52.7 ms
Min: -63.6 G's
Tmin: 41.9 ms
CFC 60

BOTTOM OF ENGINE X Velocity (kph) vs TIME (ms)
Max: 39.8 kph
Tmax: 0.0 ms
Min: -4.4 kph
Tmin: 162.1 ms
CFC 180
### APPENDIX B

#### LOW RISK TEST DATA

#### TABLE OF DATA PLOTS

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<tr>
<th>Figure No.</th>
<th>Description</th>
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<tbody>
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<td>5th Fem. P1 Driver Head X Acceleration vs. Time</td>
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<tr>
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<td>5th Fem. P1 Driver Head Y Acceleration vs. Time</td>
<td>B-1</td>
</tr>
<tr>
<td>No. 3</td>
<td>5th Fem. P1 Driver Head Z Acceleration vs. Time</td>
<td>B-1</td>
</tr>
<tr>
<td>No. 4</td>
<td>5th Fem. P1 Driver Head Resultant Acceleration vs. Time</td>
<td>B-1</td>
</tr>
<tr>
<td>No. 5</td>
<td>5th Fem. P1 Driver Head X Velocity vs. Time</td>
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<td>No. 6</td>
<td>5th Fem. P1 Driver Head Y Velocity vs. Time</td>
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<td>5th Fem. P1 Driver Head Z Velocity vs. Time</td>
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</tr>
<tr>
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<td>5th Fem. P1 Driver Neck Force X vs. Time</td>
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<td>5th Fem. P1 Driver Neck Force Y vs. Time</td>
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<td>5th Fem. P1 Driver Neck Force Resultant vs. Time</td>
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<td>No. 12</td>
<td>5th Fem. P1 Driver Neck Moment X vs. Time</td>
<td>B-4</td>
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<td>5th Fem. P1 Driver Neck Moment Y vs. Time</td>
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<td>5th Fem. P1 Driver Occipital Condyle Moment vs. Time</td>
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<td>5th Fem. P1 Driver Chest X Acceleration vs. Time</td>
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<td>5th Fem. P1 Driver Chest Y Acceleration vs. Time</td>
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<td>5th Fem. P1 Driver Chest Z Acceleration vs. Time</td>
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<td>5th Fem. P1 Driver Chest Resultant Acceleration vs. Time</td>
<td>B-5</td>
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<td>5th Fem. P1 Driver Chest X Velocity vs. Time</td>
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<td>5th Fem. P1 Driver Chest Z Velocity vs. Time</td>
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<tr>
<td>No. 23</td>
<td>5th Fem. P1 Driver Chest Displacement vs. Time</td>
<td>B-6</td>
</tr>
<tr>
<td>No. 24</td>
<td>5th Fem. P1 Driver Left Femur Force vs. Time</td>
<td>B-7</td>
</tr>
<tr>
<td>No. 25</td>
<td>5th Fem. P1 Driver Right Femur Force vs. Time</td>
<td>B-7</td>
</tr>
<tr>
<td>No. 26</td>
<td>Fire Voltage #1 vs. Time</td>
<td>B-8</td>
</tr>
<tr>
<td>No. 27</td>
<td>Fire Current #1 vs. Time</td>
<td>B-8</td>
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Figure No. 28. Fire Voltage #2 vs. Time  
Figure No. 29. Fire Current #2 vs. Time  
Figure No. 30. 5th Fem. P1 Driver Nij (N_{TF}) vs. Time  
Figure No. 31. 5th Fem. P1 Driver Nij (N_{TE}) vs. Time  
Figure No. 32. 5th Fem. P1 Driver Nij (N_{CF}) vs. Time  
Figure No. 33. 5th Fem. P1 Driver Nij (N_{CE}) vs. Time  
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LOW RISK DEPLOYMENT
2009 Toyota Matrix (C95109) (5th P1)

Test Date: 2/18/09
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 275ms

5TH FEM. DRIVER HEAD X (G's) vs TIME (ms)

Max: 22.4 G's
Tmax: 130.2 ms
Min: -21.7 G's
Tmin: 32.2 ms
CFC 1000

5TH FEM. DRIVER HEAD Y (G's) vs TIME (ms)

Max: 3.4 G's
Tmax: 23.6 ms
Min: -3.4 G's
Tmin: 27.3 ms
CFC 1000

5TH FEM. DRIVER HEAD Z (G's) vs TIME (ms)

Max: 15.1 G's
Tmax: 7.2 ms
Min: -16.4 G's
Tmin: 5.7 ms
CFC 1000

5TH FEM. DRIVER HEAD Resultant (G's) vs TIME (ms)

Max: 24.7 G's
Tmax: 130.0 ms
Min: 0.0 G's
Tmin: 1.8 ms
CFC 1000
LOW RISK DEPLOYMENT
2009 Toyota Matrix (C95109) (5th P1)
Test Date: 2/18/09
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 275ms

5TH FEM. DRIVER HEAD X Velocity (kph) vs TIME (ms)
Max: 2.0 kph
Tmax: 209.4 ms
Min: -23.6 kph
Tmin: 72.0 ms
CFC 180

5TH FEM. DRIVER HEAD Y Velocity (kph) vs TIME (ms)
Max: 0.1 kph
Tmax: 24.7 ms
Min: -0.8 kph
Tmin: 66.9 ms
CFC 180

5TH FEM. DRIVER HEAD Z Velocity (kph) vs TIME (ms)
Max: 41.1 kph
Tmax: 203.9 ms
Min: -0.5 kph
Tmin: 6.5 ms
CFC 180
LOW RISK DEPLOYMENT
2009 Toyota Matrix (C95109) (5th P1)

Test Date: 2/18/09
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 275ms

5TH FEM. DRIVER NECK FX (N) vs TIME (ms)
Max: 326.0 N
Tmax: 35.7 ms
Min: -129.8 N
Tmin: 189.2 ms
CFC 1000

5TH FEM. DRIVER NECK FY (N) vs TIME (ms)
Max: 58.5 N
Tmax: 34.4 ms
Min: -23.2 N
Tmin: 140.8 ms
CFC 1000

5TH FEM. DRIVER NECK FZ (N) vs TIME (ms)
Max: 888.3 N
Tmax: 7.0 ms
Min: -281.2 N
Tmin: 153.0 ms
CFC 1000

5TH FEM. DRIVER NECK FResultant (N) vs TIME (ms)
Max: 890.1 N
Tmax: 7.0 ms
Min: 1.5 N
Tmin: 3.1 ms
CFC 1000
LOW RISK DEPLOYMENT
2009 Toyota Matrix (C95109) (5th P1)
Test Date: 2/18/09
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 275ms

5TH FEM. DRIVER NECK MX (Nm) vs TIME (ms)
- Max: 1.5 Nm
- Tmax: 230.9 ms
- Min: -6.2 Nm
- Tmin: 37.7 ms
- CFC 600

5TH FEM. DRIVER NECK MY (Nm) vs TIME (ms)
- Max: 23.1 Nm
- Tmax: 36.9 ms
- Min: -21.1 Nm
- Tmin: 156.0 ms
- CFC 600

5TH FEM. DRIVER NECK MZ (Nm) vs TIME (ms)
- Max: 3.5 Nm
- Tmax: 54.7 ms
- Min: -1.4 Nm
- Tmin: 132.1 ms
- CFC 600

Drv. Occipital Condyle Moment (Nm) vs TIME (ms)
- Max: 17.7 Nm
- Tmax: 37.3 ms
- Min: -19.6 Nm
- Tmin: 155.9 ms
- CFC 600
LOW RISK DEPLOYMENT
2009 Toyota Matrix (C95109) (5th P1)

Test Date: 2/18/09
Speed: 0.0 mph (0.0 km/h)

5TH FEM. DRIVER CHEST X (G's) vs TIME (ms)
Max: 4.1 G's
Tmax: 151.9 ms
Min: -8.7 G's
Tmin: 35.5 ms
CFC 180

5TH FEM. DRIVER CHEST Y (G's) vs TIME (ms)
Max: 0.6 G's
Tmax: 157.3 ms
Min: -1.1 G's
Tmin: 36.1 ms
CFC 180

5TH FEM. DRIVER CHEST Z (G's) vs TIME (ms)
Max: 4.9 G's
Tmax: 9.1 ms
Min: -4.8 G's
Tmin: 6.7 ms
CFC 180

5TH FEM. DRIVER CHEST Resultant (G's) vs TIME (ms)
Max: 9.8 G's
Tmax: 35.4 ms
Min: 0.0 G's
Tmin: 0.9 ms
CFC 180
LOW RISK DEPLOYMENT
2009 Toyota Matrix (C95109) (5th P1)

Test Date: 2/18/09
Speed: 0.0 mph (0.0 km/h)

5TH FEM. DRIVER CHEST X Velocity (kph) vs TIME (ms)

- Max: 7.7 kph
- Tmax: 275.0 ms
- Min: -6.6 kph
- Tmin: 72.2 ms
- CFC 180

5TH FEM. DRIVER CHEST Y Velocity (kph) vs TIME (ms)

- Max: 0.1 kph
- Tmax: 233.2 ms
- Min: -0.8 kph
- Tmin: 79.0 ms
- CFC 180

5TH FEM. DRIVER CHEST Z Velocity (kph) vs TIME (ms)

- Max: 7.4 kph
- Tmax: 183.7 ms
- Min: -0.3 kph
- Tmin: 8.0 ms
- CFC 180

5TH FEM. DRIVER CHEST DISPLACEMENT (mm) vs TIME (ms)

- Max: 0.0 mm
- Tmax: 2.3 ms
- Min: -5.1 mm
- Tmin: 38.0 ms
- CFC 600

Injury Values Calculated between 0ms and 275ms
Injury Values Calculated between 0ms and 275ms

**5TH FEM. DRIVER LEFT FEMUR (N) vs TIME (ms)**
- Max: 138.8 N
- Tmax: 39.7 ms
- Min: -77.3 N
- Tmin: 222.7 ms
- CFC 600

**5TH FEM. DRIVER RIGHT FEMUR (N) vs TIME (ms)**
- Max: 180.9 N
- Tmax: 37.6 ms
- Min: -231.8 N
- Tmin: 274.5 ms
- CFC 600
LOW RISK DEPLOYMENT
2009 Toyota Matrix (C95109) (5th P1)
Test Date: 2/18/09
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 275ms

FIRE VOLTAGE #1 (Volts) vs TIME (ms)
Max: 16.6 Volts
Tmax: 0.3 ms
Min: -1.5 Volts
Tmin: 150.7 ms
CFC 1000

FIRE CURRENT #1 (Amps) vs TIME (ms)
Max: 3.5 Amps
Tmax: 0.2 ms
Min: -0.3 Amps
Tmin: 150.5 ms
CFC 1000

FIRE VOLTAGE #2 (Volts) vs TIME (ms)
Max: 15.5 Volts
Tmax: 150.3 ms
Min: -0.5 Volts
Tmin: 149.8 ms
CFC 1000

FIRE CURRENT #2 (Amps) vs TIME (ms)
Max: 15.0 Amps
Tmax: 150.5 ms
Min: -0.1 Amps
Tmin: 149.8 ms
CFC 1000
LOW RISK DEPLOYMENT
2009 Toyota Matrix (C95109) (5th P2)

Test Date: 2/18/09
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 275ms

5TH FEM. DRIVER HEAD X (G's) vs TIME (ms)
Max: 16.6 G's
Tmax: 87.3 ms
Min: -9.0 G's
Tmin: 15.3 ms
CFC 1000

5TH FEM. DRIVER HEAD Y (G's) vs TIME (ms)
Max: 3.2 G's
Tmax: 90.0 ms
Min: -1.0 G's
Tmin: 272.8 ms
CFC 1000

5TH FEM. DRIVER HEAD Z (G's) vs TIME (ms)
Max: 22.3 G's
Tmax: 9.0 ms
Min: -4.5 G's
Tmin: 16.6 ms
CFC 1000

5TH FEM. DRIVER HEAD Resultant (G's) vs TIME (ms)
Max: 22.5 G's
Tmax: 9.0 ms
Min: 0.0 G's
Tmin: 1.8 ms
CFC 1000
LOW RISK DEPLOYMENT
2009 Toyota Matrix (C95109) (5th P2)
Test Date: 2/18/09
Speed: 0.0 mph (0.0 km/h)

5TH FEM. DRIVER HEAD X Velocity (kph) vs TIME (ms)
Max: 0.1 kph
Tmax: 7.8 ms
Min: -11.6 kph
Tmin: 84.9 ms
CFC 180

5TH FEM. DRIVER HEAD Y Velocity (kph) vs TIME (ms)
Max: 1.0 kph
Tmax: 103.0 ms
Min: -0.3 kph
Tmin: 173.6 ms
CFC 180

5TH FEM. DRIVER HEAD Z Velocity (kph) vs TIME (ms)
Max: 8.6 kph
Tmax: 173.2 ms
Min: -0.0 kph
Tmin: 6.4 ms
CFC 180

Injury Values Calculated between 0ms and 275ms
LOW RISK DEPLOYMENT
2009 Toyota Matrix (C95109) (5th P2)

Test Date: 2/18/09
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 275ms

5TH FEM. DRIVER NECK FX (N) vs TIME (ms)
Max: 27.6 N
Tmax: 92.0 ms
Min: -319.0 N
Tmin: 14.7 ms
CFC 1000

5TH FEM. DRIVER NECK FY (N) vs TIME (ms)
Max: 32.3 N
Tmax: 203.5 ms
Min: -40.3 N
Tmin: 275.0 ms
CFC 1000

5TH FEM. DRIVER NECK FZ (N) vs TIME (ms)
Max: 653.3 N
Tmax: 9.5 ms
Min: -110.4 N
Tmin: 16.3 ms
CFC 1000

5TH FEM. DRIVER NECK FResultant (N) vs TIME (ms)
Max: 664.0 N
Tmax: 9.6 ms
Min: 1.0 N
Tmin: 2.6 ms
CFC 1000
LOW RISK DEPLOYMENT
2009 Toyota Matrix (C95109) (5th P2)

Test Date: 2/18/09
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 275ms

5TH FEM. DRIVER NECK MX (Nm) vs TIME (ms)
Max: 3.0 Nm
Tmax: 190.7 ms
Min: -3.6 Nm
Tmin: 176.1 ms
CFC 600

5TH FEM. DRIVER NECK MY (Nm) vs TIME (ms)
Max: 13.0 Nm
Tmax: 92.0 ms
Min: -28.3 Nm
Tmin: 14.8 ms
CFC 600

5TH FEM. DRIVER NECK MZ (Nm) vs TIME (ms)
Max: 3.4 Nm
Tmax: 196.9 ms
Min: -3.3 Nm
Tmin: 134.2 ms
CFC 600

Drv. Occipital Condyle Moment (Nm) vs TIME (ms)
Max: 15.7 Nm
Tmax: 67.6 ms
Min: -22.6 Nm
Tmin: 14.8 ms
CFC 600
Injury Values Calculated between 0ms and 275ms

5TH FEM. DRIVER CHEST X (G's) vs TIME (ms)
- Max: 21.4 G's
- Tmax: 10.7 ms
- Min: -62.6 G's
- Tmin: 8.4 ms
- CFC 180

5TH FEM. DRIVER CHEST Y (G's) vs TIME (ms)
- Max: 6.0 G's
- Tmax: 10.6 ms
- Min: -2.8 G's
- Tmin: 177.5 ms
- CFC 180

5TH FEM. DRIVER CHEST Z (G's) vs TIME (ms)
- Max: 5.5 G's
- Tmax: 9.3 ms
- Min: -2.3 G's
- Tmin: 21.1 ms
- CFC 180

5TH FEM. DRIVER CHEST Resultant (G's) vs TIME (ms)
- Max: 62.7 G's
- Tmax: 8.4 ms
- Min: 0.0 G's
- Tmin: 0.5 ms
- CFC 180
LOW RISK DEPLOYMENT
2009 Toyota Matrix (C95109) (5th P2)

Test Date: 2/18/09
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 275ms

5TH FEM. DRIVER CHEST X Velocity (kph) vs TIME (ms)
Max: 1.3 kph
Tmax: 275.0 ms
Min: -8.8 kph
Tmin: 66.8 ms
CFC 180

5TH FEM. DRIVER CHEST Y Velocity (kph) vs TIME (ms)
Max: 0.7 kph
Tmax: 175.1 ms
Min: -0.3 kph
Tmin: 242.1 ms
CFC 180

5TH FEM. DRIVER CHEST Z Velocity (kph) vs TIME (ms)
Max: 4.5 kph
Tmax: 147.2 ms
Min: 0.0 kph
Tmin: 0.4 ms
CFC 180

5TH FEM. DRIVER CHEST DISPLACEMENT (mm) vs TIME (ms)
Max: 0.0 mm
Tmax: 0.1 ms
Min: -17.9 mm
Tmin: 10.4 ms
CFC 600
LOW RISK DEPLOYMENT
2009 Toyota Matrix (C95109) (5th P2)

Test Date: 2/18/09
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 275ms

5TH FEM. DRIVER LEFT FEMUR (N) vs TIME (ms)
Max: 386.6 N
Tmax: 14.8 ms
Min: -18.8 N
Tmin: 253.2 ms
CFC 600

5TH FEM. DRIVER RIGHT FEMUR (N) vs TIME (ms)
Max: 365.0 N
Tmax: 14.6 ms
Min: -42.3 N
Tmin: 190.9 ms
CFC 600
LOW RISK DEPLOYMENT
2009 Toyota Matrix (C95109) (5th P2)

Test Date: 2/18/09
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 275ms

FIRE VOLTAGE #1 (Volts) vs TIME (ms)
Max: 16.2 Volts
Tmax: 0.3 ms
Min: -1.1 Volts
Tmin: 10.3 ms
CFC 1000

FIRE CURRENT #1 (Amps) vs TIME (ms)
Max: 4.2 Amps
Tmax: 0.2 ms
Min: -0.0 Amps
Tmin: 222.9 ms
CFC 1000

FIRE VOLTAGE #2 (Volts) vs TIME (ms)
Max: 15.3 Volts
Tmax: 150.2 ms
Min: -0.5 Volts
Tmin: 160.3 ms
CFC 1000

FIRE CURRENT #2 (Amps) vs TIME (ms)
Max: 16.8 Amps
Tmax: 150.5 ms
Min: -0.3 Amps
Tmin: 152.8 ms
CFC 1000
LOW RISK DEPLOYMENT
2009 Toyota Matrix (C95109) (5th P2)

Test Date: 2/18/09
Speed: 0.0 mph (0.0 km/h)

Drv. nij (NTF) () vs TIME SPECIAL CHS (ms)
Max: 0.1
Tmax: 88.2 ms
Min: 0.0
Tmin: 0.1 ms
CFC 600

Drv. nij (NTE) () vs TIME SPECIAL CHS (ms)
Max: 0.4
Tmax: 12.6 ms
Min: 0.0
Tmin: 0.5 ms
CFC 600

Drv. nij (NCF) () vs TIME SPECIAL CHS (ms)
Max: 0.1
Tmax: 68.4 ms
Min: 0.0
Tmin: 0.1 ms
CFC 600

Drv. nij (NCE) () vs TIME SPECIAL CHS (ms)
Max: 0.4
Tmax: 15.2 ms
Min: 0.0
Tmin: 0.1 ms
CFC 600
### APPENDIX C

CRASH TEST PHOTOGRAPHS

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Vehicle Certification Label

MFD. BY: TOYOTA MOTOR MANUFACTURING, CANADA, INC. 10/08
GVWR 3860 LB GAWR FR 2050LB RR 1850LB
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY, BUMPER AND THEFT PREVENTION STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.
2T1KU40E69C135888 PASS. CAR
C/TR: 1G3/FA12 ZRE142L-DHMDKA
A/TM: -05A/C59 MADE IN CANADA 568

AD
# Tire and Loading Information

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See Owner's Manual for Additional Information

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Pour de plus amples informations, voir le manuel du propriétaire.
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Post-Test Left Side View of Test Vehicle
Pre-Test Right Side View of Test Vehicle
Pre-Test Left Front Three-Quarter View of Test Vehicle
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C95109
25 MPH FRONTAL
09031001
2009 TOYOTA MATRIX
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<td>Unbelted 5&lt;sup&gt;th&lt;/sup&gt; Percentile Female Reactivation, Forward Seat Track</td>
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<td>6-Year-Old Unbelted, Forward Seat Track, Position 3</td>
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DOT/NHTSA 208 Suppression Test – 2009 Toyota Matrix (C95109)

12 Month Section B

Britax Handle With Care 191 Belted, Middle Seat Track
Britax Handle With Care 191 Belted, Front Seat Track
Britax Handle With Care 191 Belted, Rearward Seat Track
Britax Handle With Care 191 Unbelted, Forward Seat Track
Britax Handle With Care 191 Unbelted, Rearward Seat Track
Britax Handle With Care 191 Unbelted, Middle Seat Track

Britax Handle With Care 191 Unbelted, Rearward Seat Track

Britax Handle With Care 191 Forward Facing Unbelted, Forward Seat Track

Britax Handle With Care 191 Forward Facing Unbelted, Middle Seat Track
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12 Month  Section B  Rear Facing CRS

Graco Infant W/O Base Belted, Rearward Seat Track

Graco Infant W/O Base Unbelted, Rearward Seat Track

Graco Infant W/O Base Belted, Middle Seat Track

Graco Infant W/O Base Unbelted, Middle Seat Track
Britax Roundabout 161 Forward Facing Unbelted, Middle Seat Track

Britax Roundabout 161 Forward Facing Unbelted, Rearward Seat Track

Britax Roundabout 161 Rear Facing Belted, Forward Seat Track

Britax Roundabout 161 Rear Facing Belted, Middle Seat Track
Unbelted 5th Percentile Female Reactivation, Forward Seat Track
DOT/NHTSA 208 Suppression Test – 2009 Toyota Matrix (C95109)
12 Month
Section C
Forward Facing Convertible CRS

Century Encore Rear Facing Unbelted, Forward Seat Track
Century Encore Rear Facing Unbelted, Middle Seat Track
Century Encore Rear Facing Unbelted, Rearward Seat Track

Century Encore Rear Facing Belted, Forward Seat Track
Century Encore Rear Facing Belted, Middle Seat Track
Century Encore Rear Facing Belted, Rearward Seat Track
Unbelted 5th Percentile Female Reactivation, Middle Seat Track
12 Month  Section C  Forward Facing Convertible CRS

- Evenflo Medallion 254 Forward Facing Unbelted, Middle Seat Track
- Evenflo Medallion 254 Forward Facing Unbelted, Rearward Seat Track
- Evenflo Medallion 254 Rear Facing Belted, Forward Seat Track
- Evenflo Medallion 254 Rear Facing Belted, Middle Seat Track
Unbelted 5th Percentile Female Reactivation, Rearward Seat Track
3-Year-Old Forward Facing Britax Roundabout Belted, Middle Seat Track

Unbelted 5th Percentile Female Reactivation, Middle Seat Track

3-Year-Old Forward Facing Britax Roundabout Belted, Rearward Seat Track
DOT/NHTSA 208 Suppression Test – 2009 Toyota Matrix (C95109)
3 Year Old  Section D  Forward Facing Toddler  Belt Positioning Booster Seat

3-Year-Old Century Next Step Cinched With Harness, Middle Seat Track

3-Year-Old Century Next Step Cinched With Harness, Rearward Seat Track

Unbelted 5th Percentile Female Reactivation, Forward Seat Track
DOT/NHTSA 208 Suppression Test – 2009 Toyota Matrix (C95109)
6 Year Old Section D Forward Facing Toddler Belt Positioning Booster Seat

6-Year-Old Century Next Step Belted, Forward Seat Track
6-Year-Old Century Next Step Belted, Middle Seat Track
6-Year-Old Century Next Step Belted, Rearward Seat Track
Unbelted 5th Percentile Female Reactivation, Forward Seat Track
DOT/NHTSA 208 Suppression Test – 2009 Toyota Matrix (C95109)

6 Year Old  Section D  Forward Facing Toddler  Belt Positioning Booster Seat

6-Year-Old Evenflo Right Fit Belted, Forward Seat Track

6-Year-Old Evenflo Right Fit Belted, Middle Seat Track

6-Year-Old Evenflo Right Fit Belted, Rearward Seat Track

Unbelted 5th Percentile Female Reactivation, Rearward Seat Track
3-Year-Old Unbelted, Forward Seat Track, Position 6

3-Year-Old Unbelted, Forward Seat Track, Position 7

3-Year-Old Unbelted, Middle Seat Track, Position 1

3-Year-Old Unbelted, Forward Seat Track, Position 5

DOT/NHTSA 208 Suppression Test – 2009 Toyota Matrix (C95109)

3 Year Old

No CRS
DOT/NHTSA 208 Suppression Test – 2009 Toyota Matrix (C95109)
3 Year Old  No CRS

3-Year-Old Unbelted, Rearward Seat Track, Position 7

Unbelted 5th Percentile Female Reactivation, Forward Seat Track
DOT/NHTSA 208 Suppression Test – 2009 Toyota Matrix (C95109)

6 Year Old
No CRS

6-Year-Old Unbelted, Forward Seat Track, Position 1

6-Year-Old Unbelted, Middle Seat Track, Position 1

6-Year-Old Unbelted, Middle Seat Track, Position 2

6-Year-Old Unbelted, Middle Seat Track, Position 3

6-Year-Old Unbelted, Forward Seat Track, Position 3

6-Year-Old Unbelted, Middle Seat Track, Position 2
6-Year-Old Unbelted, Rearward Seat Track, Position 1
6-Year-Old Unbelted, Rearward Seat Track, Position 2
6-Year-Old Unbelted, Rearward Seat Track, Position 3
6-Year-Old Unbelted, Middle Seat Track, Position 4
Unbelted 5th Percentile Female Reactivation, Middle Seat Track

Unbelted 6-Year-Old Female, Rearward Seat Track, Position 4
## APPENDIX F
### INSTRUMENTATION CALIBRATION

#### INSTRUMENTS FOR DRIVER DUMMY NO.: 403

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#### INSTRUMENTS FOR PASSENGER DUMMY NO.: 401

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