Safety Compliance Testing for FMVSS 208
Occupant Crash Protection

General Motors Corporation
2003 Chevrolet Suburban
NHTSA Number: C30104
TRC Inc. Test Number: 021114

Transportation Research Center Inc.
10820 State Route 347
East Liberty, OH 43319

Report Date: Dec. 19, 2002

Final Report

Prepared For:
U. S. Department of Transportation
National Highway Traffic Safety Administration
Safety Assurance
Office of Vehicle Safety Compliance (NVS-220)
400 Seventh Street, S.W., Room No. 6115
Washington, DC 20590
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Test Performed By: Mike Postle, Engineering Technician
Report Approved By:

__________________________ Date 12/16/02
Virginia L. Walters, Project Manager
Transportation Research Center Inc.

Final Report Acceptance By OVSC:

__________________________ Date
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NHTSA, Office of Vehicle Safety Compliance
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    Compliance tests were conducted on a 2003 Chevrolet Suburban, NHTSA No. 30104, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. 1P208-11 for the determination of FMVSS 208 compliance. Possible test failures identified were as follows:

    None

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Section 1

Purpose of Compliance Test
PURPOSE

This Federal Motor Vehicle Safety Standard 208 compliance test is part of a program conducted for the National Highway Traffic Safety Administration by Transportation research Center (TRC Inc.) under contract DJNH22-02-D-08062, Task Order VRTC-DCF2525. The purpose of the test was to determine whether the subject vehicle, a 2003 Chevrolet Suburban, NHTSA No. C30104, meets certain performance requirements of FMVSS 208, "Occupant Crash Protection"; indicant FMVSS 212, "Windshield Mounting"; indicant FMVSS 219, "Windshield Zone Intrusion"; and indicant FMVSS 301, "Fuel System Integrity". The compliance test was conducted in accordance with OVSC Laboratory Test Procedure No. TP-208-11 dated August 22, 2002.
Section 2

Tests Performed
TESTS PERFORMED

The following checked items indicate the tests that were performed:

- 1. Rear outboard seating position seat belts (S4.1.4.2(b) & (S4.2.4)
- 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. Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart N)
- 12. Suppression tests with Newborn infant Subpart K dummy (Part 572, Subpart N)
- 13. Suppression tests with 3-year-old dummy (Part 572, Subpart P)
- 14. Suppression tests with 6-year-old dummy (Part 572, Subpart R)
- 15. Test of Reactivation of the passenger Air Bag system with an Unbelted 5th Percentile female dummy
- 16. Low risk deployment test with 12-month-old dummy (Part 572, Subpart N)
- 17. Low risk deployment test with 3-year-old dummy (Part 572, Subpart P)
- 18. Low risk deployment test with 6-year-old dummy (Part 572, Subpart R)
- 19. Low risk deployment test with 5th female dummy (Part 572, Subpart O)
- 20. Impact tests
  - Frontal Oblique
    - Belted 50th male dummy driver and passenger (0 to 48 km/h) (S5.1.1.1(a))
    - Unbelted 50th male dummy driver and passenger (0 to 48 km/h) (S5.1.2(a)(1))
    - Unbelted 50th male dummy driver and passenger (32 to 40 km/h) (S5.1.2(a)(1) or S5.1.2(b))
  - Frontal 0th
    - Belted 50th male dummy driver (0 to 48 km/h) (S5.1.1(b)(1) or S5.1.1(a))
    - Belted 50th male dummy passenger (0 to 48 km/h) (S5.1.1(b)(1) or S5.1.1(a))
    - Belted 5th female dummy driver (0 to 48 km/h) (S16.1(a))
    - Belted 5th female dummy passenger (0 to 48 km/h) (S16.1(a))
    - Belted 50th male dummy driver and passenger (0 to 56 km/h) (S5.1.1(b)(2))
    - Unbelted 50th male dummy driver and passenger (0 to 48 km/h) (S5.1.2(a)(1))
    - Unbelted 50th male dummy driver (32 to 40 km/h) (S5.1.2(a)(2) or S5.1.2(b))
    - Unbelted 50th male dummy passenger (32 to 40 km/h) (S5.1.2(a)(2) or S5.1.2(b))
    - Unbelted 5th female dummy driver (32 to 40 km/h) (S16.1(b))
    - Unbelted 5th female dummy passenger (32 to 40 km/h) (S16.1(b))
- 21. Sled test:: Unbelted 50th male dummy driver and passenger (S13)
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
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<tbody>
<tr>
<td>22</td>
<td>FMVSS 204 indendent test</td>
</tr>
<tr>
<td>X</td>
<td>23. FMVSS 212 test (indicant)</td>
</tr>
<tr>
<td>X</td>
<td>24. FMVSS 219 indendent test</td>
</tr>
<tr>
<td>X</td>
<td>25. FMVSS 301 frontal test (indicant)</td>
</tr>
</tbody>
</table>

For the crash tests, the vehicle was instrumented with 8 accelerometers. The accelerometer data from the vehicle and dummies were sampled at 12,500 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 film and digital motion picture cameras.

The vehicle appears to meet the performance requirements to which it was tested.
Section 3

Injury Result Summary
INJURY RESULT SUMMARY FOR CRASH TESTS AND/OR LOW RISK DEPLOYMENT TESTS

NHTSA No.: C30104  Test Date: 11/14/02

VIN: 3GNEC16Z53G108730

Frontal Crash  Offset Crash  X  Low Risk Deployment  .

Impact Angle: 0

Belted Dummies: X Yes  No

Speed Range: 32 to 40 km/h  X  0 to 40 km/h  0 to 48 km/h  0 to 56 km/h

Test Speed: 40.0 km/h

Driver Dummy: X 5th female  50th male

Passenger Dummy: X 5th female  50th male

Test weight: 2684.3 kg

5th Percentile Female Offset Crash Test
Vehicles certified to S16.1(a), S16.1(b), or S18.1

<table>
<thead>
<tr>
<th>Injury Criteria</th>
<th>Max. Allowable Injury Assessment Values</th>
<th>Driver</th>
<th>Passenger</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIC 15</td>
<td>700</td>
<td>262</td>
<td>290</td>
</tr>
<tr>
<td>Nfe</td>
<td>1.0</td>
<td>0.40</td>
<td>0.35</td>
</tr>
<tr>
<td>Nef</td>
<td>1.0</td>
<td>0.08</td>
<td>0.28</td>
</tr>
<tr>
<td>Nce</td>
<td>1.0</td>
<td>0.02</td>
<td>0.03</td>
</tr>
<tr>
<td>Nef</td>
<td>1.0</td>
<td>0.10</td>
<td>0.28</td>
</tr>
<tr>
<td>Neck tension</td>
<td>2520 N</td>
<td>782</td>
<td>1059</td>
</tr>
<tr>
<td>Neck compression</td>
<td>2520 N</td>
<td>140</td>
<td>55</td>
</tr>
<tr>
<td>Chest g</td>
<td>60 g</td>
<td>20.2</td>
<td>22.8</td>
</tr>
<tr>
<td>Chest displacement</td>
<td>52 mm</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>Left femur</td>
<td>6805 N</td>
<td>3320</td>
<td>1398</td>
</tr>
<tr>
<td>Right femur</td>
<td>6805 N</td>
<td>1241</td>
<td>1244</td>
</tr>
</tbody>
</table>
Section 4

Discussion of Test
DISCUSSION OF TEST

The airbags did not deploy in this test. The dummies were restrained with seatbelts.

The useable fuel tank capacity provided by the manufacturer to the Office of Vehicle Safety Compliance (32.5 gallons) did not agree with the fuel tank capacity provided in the owner's manual (31.0 gallons or 117.3 liters). Following instructions from the COTR, the owner's manual stated capacity of 117.3 liters was used in test weight calculations and was used in determining the amount of Stoddard to put into the fuel tank to test at the 94% full level. [TRC Inc. used the method of topping off the fuel (gasoline) for determining the fully loaded weight and then drained all the fuel and filled the fuel tank to 94 percent capacity with Stoddard solvent.]

The vehicle test weight was 15.6 kg above the maximum of the test weight corridor as shown in this report. The test weight had been recalculated on test day, with COTR approval, using Rated Cargo and Luggage Weight (RCLW) of 136 kg instead of the calculated RCLW of 100.5 kg. Thus the test weight was thought to be within the corridor on test day.

The left front and right rear vehicle pre-test attitudes did not fall between the measured attitudes for the delivered and fully loaded conditions. Deviation was 10 mm or less.

The deformable barrier face was attached to an offset rigid load cell barrier designed and owned by NHSTA's Vehicle Research and Test Center. The barrier face was mounted with the specified steel strips and 10 bolts as specified, although the 5 bolts on top and bottom were not evenly spaced.

The rear pit camera (fuel tank view) had no LED's for determination of film speed.
Section 5

Test Data Sheets
DATA SHEET 1
COTR Vehicle Work Order

Vehicle model year, make, and model: 2003 Chevrolet Suburban

NHTSA No.: C39104                                      Test Date: 11/14/02

COTR signature: Charles R. Case

Tests to be performed for this vehicle are checked below.

X 1. Rear outboard seating position seat belts (§4.1.4.2(h) & (§4.2.4)
X 2. Air bag label (§4.5.1)
X 3. Readiness indicator (§4.5.2)
X 4. Passenger air bag manual cut-off device (§4.5.4)
X 5. Lap belt feelability (§7.1.1.5)
X 6. Seat belt warning system (§7.3)
X 7. Seat belt contact force (§7.4.3)
X 8. Seat belt latch plate access (§7.4.4)
X 9. Seat belt retraction (§7.4.5)
X 10. Seat belt guides and hardware (§7.4.6)
X 11. Suppression tests with 12-month-old CRABE dummy (Part 572, Subpart B) using the following indicated child restraints.

Section A

Cosco Dream Ride 02-719

Full rearward  Mid position  Full forward

Section B

Britax Handle with Care 191

Century Assura 4553

Full rearward  Mid position  Full forward

Century Avanta SE 41300

Full rearward  Mid position  Full forward

Century Smart Fit 4543

Full rearward  Mid position  Full forward

Cosco Arciva 02727

Full rearward  Mid position  Full forward

Cosco Opus 35 02603

Full rearward  Mid position  Full forward

Evenflo Discovery Adjust Right 213

Full rearward  Mid position  Full forward

Evenflo First Choice 204

Full rearward  Mid position  Full forward

Evenflo On My Way Position Right V 282

Full rearward  Mid position  Full forward

Graco Infant 8457

Full rearward  Mid position  Full forward

Section C

Britax Roundabout 161

Century Encore 4612

Full rearward  Mid position  Full forward

Century STI 1000 4416

Full rearward  Mid position  Full forward

Cosco Olympian 02803

Full rearward  Mid position  Full forward

Cosco Touriya 02519

Full rearward  Mid position  Full forward

Eventflo Horizon V 425

Full rearward  Mid position  Full forward

Eventflo Medallion 254

Full rearward  Mid position  Full forward

Eventflo On My Way Position Right V 282

Full rearward  Mid position  Full forward

Graco Infant 8457

Full rearward  Mid position  Full forward

Section D

Britax Roundabout 161

Century Encore 4612

Full rearward  Mid position  Full forward

Century STI 1000 4416

Full rearward  Mid position  Full forward

Cosco Olympian 02803

Full rearward  Mid position  Full forward

Cosco Touriya 02519

Full rearward  Mid position  Full forward

Eventflo Horizon V 425

Full rearward  Mid position  Full forward

Eventflo Medallion 254

Full rearward  Mid position  Full forward

Section E

Britax Roundabout 161

Century Encore 4612

Full rearward  Mid position  Full forward

Century STI 1000 4416

Full rearward  Mid position  Full forward

Cosco Olympian 02803

Full rearward  Mid position  Full forward

Cosco Touriya 02519

Full rearward  Mid position  Full forward

Eventflo Horizon V 425

Full rearward  Mid position  Full forward

Eventflo Medallion 254

Full rearward  Mid position  Full forward

12. Suppression tests with 3 year-old dummy (Part 572, Subpart B) using the following indicated child restraints where a child restraint is required.

Section C

Britax Roundabout 161

Century Encore 4612

Full rearward  Mid position  Full forward

Century STI 1000 4416

Full rearward  Mid position  Full forward

Cosco Olympian 02803

Full rearward  Mid position  Full forward

Cosco Touriya 02519

Full rearward  Mid position  Full forward

Eventflo Horizon V 425

Full rearward  Mid position  Full forward

Eventflo Medallion 254

Full rearward  Mid position  Full forward

Section D

Britax Roundabout 161

Century Encore 4612

Full rearward  Mid position  Full forward

Century STI 1000 4416

Full rearward  Mid position  Full forward

Cosco Olympian 02803

Full rearward  Mid position  Full forward

Cosco Touriya 02519

Full rearward  Mid position  Full forward

Eventflo Horizon V 425

Full rearward  Mid position  Full forward

Eventflo Medallion 254

Full rearward  Mid position  Full forward

5-2 02114
<table>
<thead>
<tr>
<th>Model</th>
<th>Position</th>
<th>Position</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cosco High Back Booster 02-442</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Evento Right Fit 245</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
</tbody>
</table>

13. Suppression tests with Representative 3-year-old child using the following indicated child restraints where a child restraint is required. (Laboratory Test Procedure Appendix F, Data Sheet 16H and 17H)

Section C

<table>
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<th>Model</th>
<th>Position</th>
<th>Position</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Britax Roundabout 161</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Century Enviro 4512</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Century STE 1000 4416</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Cosco Olympian 02603</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Cosco Pourvive 02519</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Evento Horizon V 425</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Evento Medallion 254</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
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</table>

Section D

<table>
<thead>
<tr>
<th>Model</th>
<th>Position</th>
<th>Position</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Britax Roadstar 9004</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Century Next Step 4920</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Cosco High Back Booster 02-442</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Evento Right Fit 245</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
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</tbody>
</table>

14. Suppression tests with 3-year-old dummy (Part 572, Subpart P) in the following positions

<table>
<thead>
<tr>
<th>Position</th>
<th>Position</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Sitting on seat with back against seat back ($22.2.2.1)</td>
<td>Full rearward</td>
<td>Mid position</td>
</tr>
<tr>
<td>Sitting on seat with back against reclined seat back ($22.2.2.2)</td>
<td>Full rearward</td>
<td>Mid position</td>
</tr>
<tr>
<td>Sitting on seat with back not against seat back ($22.2.2.3)</td>
<td>Full rearward</td>
<td>Mid position</td>
</tr>
<tr>
<td>Sitting on seat edge, spine vertical, hands by the child’s side ($22.2.2.4)</td>
<td>Full rearward</td>
<td>Mid position</td>
</tr>
<tr>
<td>Standing on seat, facing forward ($22.2.2.5)</td>
<td>Full rearward</td>
<td>Mid position</td>
</tr>
<tr>
<td>Kneeling on seat facing forward ($22.2.2.6)</td>
<td>Full rearward</td>
<td>Mid position</td>
</tr>
<tr>
<td>Kneeling on seat facing rearward ($22.2.2.7)</td>
<td>Full rearward</td>
<td>Mid position</td>
</tr>
<tr>
<td>Lying on seat ($22.2.2.8)</td>
<td>Full rearward</td>
<td>Mid position</td>
</tr>
</tbody>
</table>

15. Suppression tests with representative 3-year-old child in the following positions

| Position       | Position       | Position       |
|----------------|----------------|----------------|----------------|
| Sitting on seat with back against seat back ($22.2.2.1) | Full rearward | Mid position   | Full forward   |
| Sitting on seat with back against reclined seat back ($22.2.2.2) | Full rearward | Mid position   | Full forward   |
| Sitting on seat with back not against seat back ($22.2.2.3) | Full rearward | Mid position   | Full forward   |
| Sitting on seat edge, spine vertical, hands by the child’s side ($22.2.2.4) | Full rearward | Mid position   | Full forward   |
| Standing on seat, facing forward ($22.2.2.5) | Full rearward | Mid position   | Full forward   |
| Kneeling on seat facing forward ($22.2.2.6) | Full rearward | Mid position   | Full forward   |
| Kneeling on seat facing rearward ($22.2.2.7) | Full rearward | Mid position   | Full forward   |
| Lying on seat ($22.2.2.8) | Full rearward | Mid position   | Full forward   |

16. Suppression tests with 6-year-old dummy (Part 572, Subpart N) using the following indicated child restraints where a child restraint is required.

Section D

<table>
<thead>
<tr>
<th>Model</th>
<th>Position</th>
<th>Position</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Britax Roadstar 9004</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Century Next Step 4920</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Cosco High Back Booster 02-442</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Evento Right Fit 245</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
</tbody>
</table>

17. Suppression tests with representative 6-year-old child using the following indicated child restraints where a child restraint is required.

Section D

<table>
<thead>
<tr>
<th>Model</th>
<th>Position</th>
<th>Position</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Britax Roadstar 9004</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Century Next Step 4920</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Cosco High Back Booster 02-442</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Evento Right Fit 245</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
</tbody>
</table>

18. Suppression tests with 6-year-old dummy (Part 572, Subpart N) in the following positions

<table>
<thead>
<tr>
<th>Position</th>
<th>Position</th>
<th>Position</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sitting on seat with back against seat back ($22.2.2.1)</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Sitting on seat with back against reclined seat back ($22.2.2.2)</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Sitting on seat edge, spine vertical, hands by the dummy’s side ($22.2.2.4)</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td>Sitting back in the seat and leaning on the right front passenger door ($24.2.3)</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
</tbody>
</table>
19. Suppression tests with representative 6-year-old child in the following positions

- 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 edge, spine vertical, hands by the dummy's side (S22.2.2.4)
- Sitting back in the seat and leaning on the right front passenger door (S24.2.3)

20. Low risk deployment test with 12-month-old dummy (Part 572, Subpart K) using the following indicated child restraints.

<table>
<thead>
<tr>
<th>Section</th>
<th>Britax Handle with Care 191</th>
<th>Full rearward</th>
<th>Mid position</th>
<th>Full forward</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Century Assure 4553</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td></td>
<td>Century Avanza SC 41530</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td></td>
<td>Century Smart Fit 4543</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td></td>
<td>Cosco Ariva 02727</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td></td>
<td>Cosco Opus 5.5 02603</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td></td>
<td>Evenflo Discovery Adjust Right 212</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td></td>
<td>Evenflo First Choice 204</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td></td>
<td>Evenflo On My Way Position Right V 282</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
<tr>
<td></td>
<td>Graco Infant 8457</td>
<td>Full rearward</td>
<td>Mid position</td>
<td>Full forward</td>
</tr>
</tbody>
</table>

Section C

- 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 02403 | Full rearward | Mid position | Full forward |
- Cosco Tourina 0719 | Full rearward | Mid position | Full forward |
- Evenflo Horizon V 425 | Full rearward | Mid position | Full forward |
- Evenflo Medalion 254 | Full rearward | Mid position | Full forward |

21. Test of Reactivation of the Passenger Air Bag System with an Unbelted 5th Percentile Female Dummy (S20.3, 22.3, 24.3) Perform this test after the following suppression test(s):

22. Test of Reactivation of the Passenger Air Bag System with a representative 5th Percentile Female (S20.3, 22.3, 24.3) Perform this test after the following suppression test(s):

23. Low risk deployment test with 5-year-old dummy (Part 572, Subpart P) in the following positions

- Position 1
- Position 2

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

- Position 1
- Position 2

25. Low risk deployment test with 5th percentile dummy (Part 572, Subpart O) in the following positions

- Position 1
- Position 2

X. Impact tests

- Frontal Oblique | Test Speed |
- Belted 50th male dummy driver and passenger (0 to 48 km/h) (S5.1.1(a))
- Unbelted 50th male dummy driver and passenger (0 to 48 km/h) (S5.1.2(a)(1))
- Belted 50th male dummy driver and passenger (32 to 49 km/h) (S5.1.2(a)(1) or S5.1.2(b))
- Frontal 0°

- Belted 50th male dummy driver (0 to 48 km/h) (S5.1.1(b)(1) or S5.1.1(a))
- Belted 50th male dummy passenger (0 to 48 km/h) (S5.1.1(b)(1) or S5.1.1(a))
- Belted 5th female dummy driver (0 to 48 km/h) (S5.1.3(a))
- Belted 5th female dummy passenger (0 to 48 km/h) (S5.1.3(a))
- Belted 50th male dummy driver and passenger (0 to 48 km/h) (S5.1.2(a)(1))
.. Unbelted 50th male dummy driver (32 to 40 km/h) (S5.1.2(a)(2) or S5.1.2(b))
   ___ Unbelted 50th male dummy passenger (32 to 40 km/h) (S5.1.2(a)(2) or S5.1.2(b))
   ___ Unbelted 5th female dummy driver (32 to 40 km/h) (S16.1(b))
   ___ Unbelted 5th female dummy passenger (32 to 40 km/h) (S16.1(b))
   ___ 40% Offset 5th female dummy driver and passenger (0 to 40 km/h) (S18.1)

   Test Speed: 40 km/h see test procedure for speed tolerance

27. Sled test: Unbelted 50th male dummy driver and passenger (S15)
   ___ 28. FMVSS 204 indicator test
   ___ 29. FMVSS 212 test (indicant)
   ___ 30. FMVSS 219 indicator test
   ___ 31. FMVSS 501 frontal test (indicant)
DATA SHEET 2

REPORT OF VEHICLE CONDITION

CONTRACT NO.: DTNH22-D-08062 _______________ Date: 11/14/02
FROM: Transportation Research Center, Virginia L. Watters
TO: Charles R. Case _______________ OVSC, NSA-31

COTR Name

PURPOSE: ( ) Initial Receipt ( ) Present vehicle condition
MODEL YEAR/MAKE/MODEL/BODY STYLE: 2003/Chevrolet/Suburban/MPV
MANUFACTURE DATE: 08/02 __ NHTSA NO.: C30104 __ BODY COLOR: Tan
VIN: 3GNEC16Z53G108730 __ GVWR: 3175 __ GAWR (Fr) 1425 __ GAWR (Rr) 1814
ODOMETER READINGS: ARRIVAL 70 miles __ DATE 11/12/02 __
COMPLETION 70 miles __ DATE 11/14/02 __

PURCHASE PRICE: $ N/A __ DEALER'S NAME: N/A

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.
   __没 __ 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: __ Scratch on hood when received. No extra set of keys available. __________
DATA SHEET 2

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

LIST OF EMVSS TESTS PERFORMED BY THIS LAB: 208 plus indicent: 212, 219, 301

MODEL YEAR/MAKE/MODEL/BODY STYLE: 2003/Chevrolet/Suburban/MPV

NHTSA NO. C30104

REMARKS:

______________________________________________________________

______________________________________________________________

Equipment that is no longer on the test vehicle as noted on previous page: None

______________________________________________________________

Explanation for equipment removal: The owner's manual was removed to store with project file.

______________________________________________________________

Test Vehicle Condition: In a frontal impact, the vehicle sustained significant frontend and unknown structural damage.

______________________________________________________________

RECORDED BY: Don Ledley
DATE: 11/22/02

APPROVED BY: Virginia Watters
DATE: 12/09/02

RELEASE OF TEST VEHICLE

The vehicle described above is released from TRC Inc. to be delivered to Laboratory (Laboratory).

Date: ____________ Time: ____________ Odometer: ____________

Lab Representative: __________________________ Signature __________________________ Title

Carrier/Customer Representative: __________________________ Signature __________________________ Date

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DATA SHEET 3
Certification Label and Tire Placard Information

NHTSA No.: C30104 ____________________________  Test Date: 11/14/02 _________
Laboratory: TRC Inc. __________ Test Technician(s): Don Ledley ________________________

1. Certification Label
   Manufacturer: General Motors Corporation ____________________________
   Date of Manufacture: 08/02 ______
   VIN: 3GNEC16Z53G108703 __________________
   Vehicle certified as: ___ Passenger car ___ MPV ___ Truck ___ Bus
   Front axle GVWR: 1452 kg/3200 lbs.
   Rear axle GVWR: 1814 kg/4000 lbs.
   Total GVWR: 3275 kg/7000 lbs.

2. Tire Placard
   ___ N/A – Vehicle is not a passenger car and does not have a tire placard.
   ___ This is not a passenger car (see the item 1 above), but all or part of this
     information is still contained on a vehicle label and is reported here.

   Vehicle Capacity Weight: N/A
   Designated seating capacity front: N/A
   Designated seating capacity rear: N/A
   Total Designated seating capacity: N/A
   Recommended cold tire inflation pressure front: 240 kPa/35 psi
   Recommended cold tire inflation pressure rear: 240 kPa/35 psi
   Recommended tire size: P265/70R15

   1 Label did not contain this information.
DATA SHEET 4
REAR OUTBOARD SEATING POSITION SEAT BELTS

NHTSA No.: C30104

Test Date: 11/12/02

Laboratory: TRC Inc. Test Technician(s): Don Ledley

Do all rear outboard seating positions have type 2 seat belts? Yes X; No

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:

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DATA SHEET 5
AIR BAG LABELS (S4.5.1)

NHTSA No.: (30104)_________________________ Test Date: 11/12/02

Laboratory: TRC Inc. Test Technician(s): R. Benavides____________________

1. Air Bag Maintenance Label and Owner's Manual Instructions: (S4.5.1(a))
1.1 Does the manufacturer recommend periodic maintenance or replacement of the air bag?
   ___ Yes (Go to 1.2); X No (Go to 2)
1.2 Does the vehicle have a label specifying air bag maintenance or replacement?
   ___ Yes-Pass; ___ No-FAIL

1.3 Does the label contain one of the following?
   Yes-Pass; ___ No-FAIL
   Check applicable schedule
   ___ Schedule on label specifies month and year (Record date ________)
   ___ Schedule on label specifies vehicle mileage (Record mileage ________)
   ___ Schedule on label specifies interval measured from date on certification label
      (Record interval ________)

1.4 Is the label permanently affixed within the passenger compartment, such that it cannot be
   removed without destroying or defacing the label or the surrvisor?
   ___ Yes-Pass; ___ No-FAIL

1.5 Is the label lettered in English?
   ___ Yes-Pass; ___ No-FAIL

1.6 Is the label in block capitals and numerals?
   ___ Yes-Pass; ___ No-FAIL

1.7 Are the letters and numerals at least 3/32 inches high?
   Yes-Pass; ___ No-FAIL

1.8 Does the owner's manual set forth the recommended schedule for maintenance or
   replacement? ___ Yes-Pass; ___ No-FAIL.

2. Does the owner's manual: (S4.5.1(f))
2.1 Include a description of the vehicle's air bag system in an easily understandable format?
   X Yes-Pass; ___ No-FAIL

2.2 Include a statement that the vehicle is equipped with an air bag and a lap/shoulder belt at the
   front outboard seating positions?
   X Yes-Pass; ___ No-FAIL

2.3 Include a statement that the air bag is a supplemental restraint at the front outboard seating
   positions?
   X Yes-Pass; ___ No-FAIL

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?
   X 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?
   X 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?
   X Yes-Pass; ___ No-FAIL

5-10 021114
2.7 Is the vehicle certified to meet the requirements of S14.5, S15, S17, S19, S21, S23, and S25? (Obtain the answer to this question from the COTR.) (S4.5.1(f)(2))
   
   **X** 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)(i))
   
   **X** 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))
   
   **X** 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))
   
   **X** 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))
   
   **X** Yes-Pass;   **__** No-FAIL

2.7.6 Is the vehicle certified to the requirements of S19.2, S21.2 or S23.2?
   
   **X** 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))
   
   **X** 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?
   
   **X** 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;   **__** No-FAIL

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;   **__** No-FAIL

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;   **__** No-FAIL

3. Sun Visor Air Bag Warning Label (S4.5.1(b))

3.1 Is the vehicle certified to meet the requirements of S19, S21, and S23.? (Obtain the answer to this question from the COTR.) (S4.5.1(b)(2))

   **X** Yes (go to 3.1.1 and skip 3.2);   **_** No (go to 3.2, skipping 3.1.1 through 3.1.6)

3.1.1 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)(2))

   **Driver side**   
   **X** Yes-Pass   **__** No-FAIL

   **Passenger side**   
   **X** Yes-Pass   **__** No-FAIL

3.1.2 Does the label conform in content (vehicles without back seats may omit the statement: “The BACK SEAT IS the SAFEST place for children” (S4.5.1(b)(2)(vi))) to the label shown in Figure 8 at each front outboard seating position? (S4.5.1(b)(2))

   **Driver side**   
   **X** Yes-Pass   **__** No-FAIL

   **Passenger side**   
   **X** Yes-Pass   **__** No-FAIL

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3.1.3 Is the label heading area yellow with the word "WARNING" and the alert symbol in black? (§4.5.1 (b)(2)(i))

Driver side: X Yes-Pass __ No-FAIL
Passenger side: X Yes-Pass __ No-FAIL

3.1.4 Is the message area white with black text? (§4.5.1(b)(2)(ii))

Driver side: X Yes-Pass __ No-FAIL
Passenger side: X Yes-Pass __ No-FAIL

3.1.5 Is the message area at least 30 cm²? (§4.5.1(b)(2)(ii))

Driver side: Length 12.5 cm, Width 7.8 cm
Passenger side: Length 12.5 cm, Width 7.8 cm
Driver actual message area 97.5 cm²
Passenger actual message area 97.5 cm²

Driver side: X Yes-Pass __ No-FAIL
Passenger side: X Yes-Pass __ No-FAIL

3.1.6 Is the pictogram black on a white background? (§4.5.1(b)(2)(iii))

Driver side: X Yes-Pass __ No-FAIL
Passenger side: X Yes-Pass __ No-FAIL

3.1.7 Is the pictogram at least 30 mm (1/2 in) in length? (§4.5.1(b)(2)(iii))

Driver side: Length 32 mm
Passenger side: Length 32 mm
Driver side: X Yes-Pass __ No-FAIL
Passenger side: X Yes-Pass __ No-FAIL

3.2 Vehicles not certified to meet the requirements of §19, §21, and §23.

3.2.1 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 it? (§4.5.1 (b)(1))

Driver side: __ Yes-Pass __ No-FAIL
Passenger side: __ Yes-Pass __ No-FAIL

3.2.2 Does the label conform in content? Vehicles without back seats may omit the statement: "The BACK SEAT is the SAFEST place for children." (§4.5.1(b)(2)(v)) to the label shown in either Figure 6a or 6b as appropriate at each front outboard seating position? (§4.5.1 (b)(1))

Driver side: __ Yes-Pass __ No-FAIL
Passenger side: __ Yes-Pass __ No-FAIL

3.2.3 Is the label heading area yellow with the word “WARNING” and the alert symbol in black? (§4.5.1 (b)(1)(i))

Driver side: __ Yes-Pass __ No-FAIL
Passenger side: __ Yes-Pass __ No-FAIL

3.2.4 Is the message area white with black text? (§4.5.1 (b)(1)(ii))

Driver side: __ Yes-Pass __ No-FAIL
Passenger side: __ Yes-Pass __ No-FAIL

3.2.5 Is the message area at least 30 cm²? (§4.5.1 (b)(1)(ii))

Driver side: Length __ Width __
Passenger side: Length __ Width __
Actual message area __ cm²

Driver side: __ Yes-Pass __ No-FAIL
Passenger side: __ Yes-Pass __ No-FAIL

3.2.6 Is the pictogram black with a red circle and slash on a white background? (§4.5.1(b)(2)(iii))

Driver side: __ Yes-Pass __ No-FAIL
Passenger side: __ Yes-Pass __ No-FAIL
3.2.7 Is the pictogram at least 30 mm in diameter? (S4.5.1 (b)(3)(ii))
Actual diameter ________ mm
Driver side Yes-Pass No-FAIL
Passenger side Yes-Pass No-FAIL

3.3 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)(3))
Driver side X Yes-Pass No-FAIL
Passenger side X Yes-Pass No-FAIL

3.4 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)(3))
Driver side X Yes-Pass No-FAIL
Passenger side X Yes-Pass No-FAIL

3.5 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 3.5.1); X No (go to 4.1 , skipping 3.5.1 through 3.5.)

3.5.1 Are both the rollover-warning label and the air bag warning label surrounded by a continuous solid-lined border?
___ Yes (go to 3.5.2 and skip 3.5.3); No (go to 3.5.3 and skip 3.5.2.)

3.5.2 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

3.5.3 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 (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?
Driver side X Yes ___ No If yes, for driver and passenger go to 5.
Passenger side No air bag X Yes ___ 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))
Driver side Yes-Pass No-FAIL
Passenger side Yes-Pass 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 No-FAIL
Passenger side Yes-Pass No-FAIL

4.4 Does the label conform in content to the label shown in Figure 6a? (S4.5.1(c))
Driver side Yes-Pass No-FAIL
Passenger side Yes-Pass No-FAIL

4.5 Is the message area black with yellow text? (S4.5.1(c)(1))
Driver side Yes-Pass No-FAIL
Passenger side Yes-Pass No-FAIL
4.6 Is the message area at least 20 cm²? (S4.5.1(e)(1))
   Driver side: Length ________, Width ________
   Passenger side: Length ________, Width ________
   Actual message area ________ cm²
   Driver side: __ Yes-Pass __ No-FAIL
   Passenger side: __ Yes-Pass __ No-FAIL

4.7 Is the pictogram black with a red circle and slash on a white background? (S4.5.1(e)(2))
   Driver side: __ Yes-Pass __ No-FAIL
   Passenger side: __ Yes-Pass __ No-FAIL

4.8 Is the pictogram at least 20 mm in diameter? (S4.5.1(e)(2))
   Driver side: diameter ________ mm
   Passenger side: diameter ________ mm
   Driver side: __ Yes-Pass __ No-FAIL
   Passenger side: __ Yes-Pass __ No-FAIL

5. Label On the Dashboard
5.1 Is the vehicle certified to meet the requirements of S19, S21, and S23? (Obtain the answer to this question from the COIR.) (S4.5.1(e)(2))
   X Yes (go to 5.1.1 and skip 5.2 through 5.2.5)
   ___ No (go to 5.2, skipping 5.1.1 through 5.1.6)
   5.1.1 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e)(2))
   X Yes-Pass; ___ No-FAIL
   5.1.2 Is the label clearly visible from all front seating positions? (S4.5.1(e)(2))
   X Yes-Pass; ___ No-FAIL
   5.1.3 Does the label conform in content? (vehicles without back seats may omit the statement: “The back seat is the safest place for children.” (S4.5.1(e)(2)(iii))) to the label shown in Figure 7? (S4.5.1(e)(2))
   X Yes-Pass; ___ No-FAIL
   5.1.4 Is the heading area yellow with black text? (S4.5.1(e)(2)(i))
   X Yes-Pass; ___ No-FAIL
   5.1.5 Is the message white with black text? (S4.5.1(e)(2)(ii))
   X Yes-Pass; ___ No-FAIL
   5.1.6 Is the message area at least 30 cm²? (S4.5.1(e)(2)(ii))
   Length 105 mm, Width 50 mm __________ cm²
   Actual message area __________ cm²
   X Yes-Pass; ___ No-FAIL

5.2 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e)(1))
   ___ Yes-Pass; ___ No-FAIL

5.2.1 Is the label clearly visible from all front seating positions? (S4.5.1(e)(1))
   ___ Yes-Pass; ___ No-FAIL
   5.2.2 Does the label conform in content? (vehicles without back seats may omit the statement: “The back seat is the safest place for children 12 and under.”) to the label shown in Figure 7? (S4.5.1(e)(1)(iii))
   ___ Yes-Pass; ___ No-FAIL

5.2.3 Is the heading area yellow with the word “WARNING” and the alert symbol in black? (S4.5.1(e)(1)(i))
   ___ Yes-Pass; ___ No-FAIL

5.2.4 Is the message white with black text? (S4.5.1(e)(1)(ii))
   ___ Yes-Pass; ___ No-FAIL

5.2.5 Is the message area at least 30 cm²? (S4.5.1(e)(1)(ii))
   Length ________, Width ________
   Actual message area ________ cm²
   ___ Yes-Pass; ___ No-FAIL
Figure 6c. Sun Visor Label Visible When Visor Is in Up Position.

Figure 7. Removable Label on Dash.

⚠ WARNING

Children Can Be KILLED or INJURED by Passenger Air Bag

The back seat is the safest place for children 12 and under.
Make sure all children use seat belts or child seats.
WARNING

EVEN WITH ADVANCED AIR BAGS

- Children can be killed or seriously injured by the air bag
- The back seat is the safest place for children
- Always use seat belts and child restraints
- See owner's manual for more information about air bags

Figure 8. Sun Visor Label Visible when Visor is in Down Position.
This Vehicle is Equipped with Advanced Air Bags

Even with Advanced Air Bags
Children can be killed or seriously injured by the air bag.
The back seat is the safest place for children.
Always use seat belts and child restraints.
See owner's manual for more information about air bags.

Figure 9. Removable Label on Dash.
DATA SHEET 6
FMVSS 208 READINESS INDICATOR (S4.5.2)

NHTSA No.: C30104
Test Date: 11/12/02
Laboratory: TRC Inc. Test Technician(s): R. Benavides

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. Henneberger on behalf of Breck)

X 1. Is the system totally mechanical? Yes ___; No X
   (If YES this Data Sheet is complete.)
   X 2. Describe the location of the readiness indicator: Left side of instrument cluster

X 3. Is the readiness indicator clearly visible to the driver? Yes-Pass: ___ No-FAIL
X 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
X 5. Does the vehicle have an on-off switch for the passenger air bag? Yes (go to 6) ___ No (this form is complete)
X 6. Is the air bag readiness indicator off when the passenger air bag switch is in the off position? Yes-Pass: ___ No-FAIL

REMARKS:
DATA SHEET 7
Passenger Air Bag Manual Cut-Off Device (84.5.4)

NHTSA No.: C50104
Test Date: 11/12/02

Laboratory: TRC Inc. Test Technician(s): R. Benavides

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(a))
   - Yes, go to 3
   - No, go to 4

3. Verification of the lack of room for a child restraint in the rear seat behind the driver's seat. (S4.5.4(b))
   3.1 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
   3.2 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
   3.3 If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
      - N/A - No independent fore-aft seat cushion adjustment
   3.4 If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
      - N/A - No independent seat cushion height adjustment
   3.5 Put the seat in its full rearward position. (S16.2.10.3.1)
      - N/A - the seat does not have a fore-aft adjustment
   3.6 If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1)
      - N/A - No seat height adjustment

3.7 Draw a horizontal reference line on the side of the seat cushion.

3.8 Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, 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 full rearward.
      - N/A - The seat does not have a fore-aft adjustment

3.9 Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position. (S4.1.2)
      - N/A - The seat does not have fore-aft adjustment

3.10 If seat adjustments, other than fore-aft, are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal.
      - N/A - No adjustments
Angle of reference line as tested

3.11 The 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 seat back angle

Tested seat back angle

3.12 Is the driver seat a bucket seat?

Yes, go to 3.12.1 and skip 3.12.2.

No, go to 3.12.2 and skip 3.12.1.

3.12.1 Bucket seats:

3.12.1.1 Locate and mark a vertical Plane B through the longitudinal centerline of the seat driver’s seat cushion. (S22.2.1.3) The longitudinal centerline of a bucket seat cushion is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle.

Record the width of the seat.

Record the distance from the edge of the seat to Plane B.

3.12.1.2 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

3.12.2 Bench seats (including split bench seats):

3.12.2.1 Locate and mark a vertical Plane B through the center of the steering wheel parallel to the vehicle longitudinal centerline.

3.12.2.2 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.

mm distance

less than 720 mm – Pass

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” (S4.5.4.3(b))

7.2.1 on the telltale?

Yes – Pass, go to 7.3

No, go to 7.2.2

7.2.2 within 25 mm of the telltale? mm from the edge of the telltale light

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-Pass; __ No-FAIL

7.5 Is the telltale combined with the air bag readiness indicator? (S4.5.3(e))
   __ Yes-Pass; __ No-FAIL

8. Owner’s manual
   __ 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

   __ 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))

   For 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
   __ Yes-Pass; __ No-FAIL

   For 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
   __ Yes-Pass; __ No-FAIL

   For 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
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)

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))

NHTSA No.: C30104_________________________ Test Date: 11/12/02_____

Laboratory: TRC Inc. ______ Test Technician(s): R. Benavides ____________.....

DESIGNATED SEATING POSITION: Front Row Center: Third Row Center

X N/A – No retractor is at this position
   N/A – The retractor is an automatic locking retractor ONLY

1. Record test forward seat position. ________________________________ (S7.1.1.5(c)(1)) (Any position is acceptable.)
   Yes-Pass; No-FAIL

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

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

6. 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))

7. 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; No  (If yes, go to 7.1. If no, go to 8.)

7.1 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

8. 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))

9. 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

10. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
11. 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: ________ (spec. 5 - 15 degrees)

12. 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: ________ inches

13. 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 retractor 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: ________ lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

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

14. Subtract the measurement in 13 from the measurement in 12. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

   Yes-Pass; ________ No-FAIL

15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8))

   Yes-Pass; ________ No-FAIL

REMARKS:
Insert Webbing to Rest Against This Surface

1/4 Inch Diameter (Steel)

Dimension A

Dimension B

Direction of Pull

Dimension A - Width of Webbing Plus 1/2 Inch
Dimension B - 1/2 of Dimension A

Figure 5. - Webbing Tension Pull Device
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)

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))

NHTSA No.: C30104 ___________________________ Test Date: 11/12/02

Laboratory: TRC Inc. ____________________________ Test Technician(s): R. Benavides ____________________________

DESIGNATED SEATING POSITION: Front Row Right ____________________________

X. N/A – No retractor is at this position

X. N/A – The retractor is an automatic locking retractor ONLY

X. 1. Record test fore-aft seat position. Mid ____________________________ (S7.1.1.5 (c)(1))

(Any position is acceptable.)

X. 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

X. 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

X. 4. Buckle the seat belt. (S7.1.1.5(c)(1))

X. 5. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

X. 6. 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))

X. 7. 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; ____________________________ No (If yes, go to 7.1. If no, go to 8.)

X. 7.1 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

X. 8. 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))

X. 9. 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 48.5 inches

X. 10. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))

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X.11. 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: \[ 10^\circ \] (spec. 5 - 15 degrees)

X.12. 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: \[ 12.4 \text{ inches} \]

X.13. 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: \[ 50 \text{ lb/sec} \] (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B: \[ 12.9 \text{ inches} \] (S7.1.1.5(c)(6))

X.14. Subtract the measurement in 13 from the measurement in 12. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

13-12= \[ 0.5 \text{ inches} \], Yes-Pass; \[ \text{NO-FAIL} \]

X.15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8))

9-13= \[ 3.6 \text{ inches} \], Yes-Pass; \[ \text{NO-FAIL} \]

REMARKS:
Figure 5. - Webbing Tension Pull Device
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)

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))

NHTSA No.: C30104 Test Date: 11/12/02

Laboratory: TRC Inc. Test Technician(s): R. Benavides

DESIGNATED SEATING POSITION: Second Row Left

N/A – No retractor is at this position
N/A – The retractor is an automatic locking retractor ONLY

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

X 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 activated 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

X 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 seat webbing. (S7.1.1.5(a))
   X Yes-Pass; ___ No-FAIL

X 4. Buckle the seat belt. (S7.1.1.5(c)(1))

X 5. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

X 6. 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))

X 7. 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; ___ No (If yes, go to 7.1. If no, go to 8.)

X 7.1 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

X 8. 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))

X 9. 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: 49.8 inches

X 10. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))

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XI. 11. 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)

XII. 12. 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: 27.5 inches

XIII. 13. Increase the load to 50 pounds at a rate of not 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: 50 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B: 27.8 inches (S7.1.1.5(c)(6))

XIV. 14. Subtract the measurement in 13 from the measurement in 12. Is the difference 2 inches or less? (S7.1.1.5(c)(7))

13-12 = 0.3 inches; Yes-Pass; No-FAIL

XV. 15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8))

9-13 = 22.0 inches; Yes-Pass; No-FAIL

REMARCHS:
Figure 5. - Webbing Tension Pull Device
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)

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))

NHTSA No.: C30104 ________________________________________
Test Date: 11/12/02

Laboratory: TRC Inc. __ Test Technician(s): R. Benavides ____________________________

DESIGNATED SEATING POSITION: Second Row Center ________________________________

_ N/A – No retractor is at this position
_ N/A – The retractor is an automatic locking retractor ONLY

X 1. Record test fore-and-aft seat position. Fixed ____________________________ (S7.1.1.5 (c)(1))
(Any position is acceptable.)

X 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.(a))
X Yes-Pass; _______________________________ No-FAIL

X 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

X 4. Buckle the seat belt. (S7.1.1.5(c)(1))

X 5. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

X 6. 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))

X 7. 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; _______________________________ No (If yes, go to 7.1. If no, go to 8.)

X 7. 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

X 8. 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))

X 9. 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 45.4__________ inches

X 10. Readjust the belt system so that the webbing between points A and B is at any length that is 5
inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
X.11. 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 \[10^\circ\] \(\ldots\) (spec. 5 - 15 degrees)

X.12. 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 \[28.5\] \(\ldots\) inches

X.13. 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 retractor 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 \[50\] \(\ldots\) lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B \[28.6\] \(\ldots\) inches (S7.1.1.5(c)(6))

X.14. Subtract the measurement in 13 from the measurement in 12. Is the difference 2 inches or less? (S7.1.1.5(c)(7)) \(13-12=0.1\) inches,

\(\ldots\) Yes-Pass; \(\ldots\) No-FAIL

X.15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8)) \(9-13=16.8\) inches,

\(\ldots\) Yes-Pass; \(\ldots\) No-FAIL

REMARKS:
Figure 5. - Webbing Tension Pull Device

Dimension A - Width of Webbing Plus 1/2 Inch
Dimension B - 1/2 of Dimension A

Insert Webbing to Rest Against This Surface

1/4 Inch Diameter (Steel)

Direction of Pull
DATA SHEET 8

1. AP BELT LOCKABILITY

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

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))

NHTSA No.: C30104

Test Date: 11/12/02

Laboratory: TRC Inc.  Test Technician(s): R. Benavides

DESIGNATED SEATING POSITION: Second Row Right

N/A – No retractor is at this position

N/A – The retractor is an automatic locking retractor ONLY

1. Record test force-all seat position. Fixed (Any position is acceptable) (S7.1.1.5 (c)(1))

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

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

6. 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))

7. 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; No (If yes, go to 7.1. If no, go to 8.)

   7.1 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))

5-35

8. 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))

9. 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 50.0 ___ inches

10. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
X. 11. 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__ degrees (spec. 5 - 15 degrees)

X. 12. 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: 27.0 inches

X. 13. 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 retractor is 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: 50 Ib/sec (spec. 10 to 50 Ib/sec)  (S7.1.1.5(c)(5))

Measured distance between A and B: 27.2 inches  (S7.1.1.5(c)(6))

X. 14. Subtract the measurement in 13 from the measurement in 12.  Is the difference 2 inches or less?  (S7.1.1.5(c)(7))

13 - 12 = __0.2__ inches.

X.  Yes-Pass;   __No-FAIL

X. 15. Subtract the measurement in 9 from the measurement in 13.  Is the difference 3 inches or more?  (S7.1.1.5(c)(8))

9 - 13 = __2.8__ inches.

X.  Yes-Pass;   __No-FAIL

REMARKS:
Figure 5. - Webbing Tension Pull Device
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)

Complete one of these forms for each designated seating position that can be adjusted to forward-facing or 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))

NHTSA No.: C30104  Test Date: 11/12/02

Laboratory: TRC Inc.  Test Technician(s): R. Benavides

DESIGNATED SEATING POSITION: Third Row Left

___ N/A – No retractor is at this position
___ N/A – The retractor is an automatic locking retractor ONLY

X 1. Record test fore-aft seat position. Fixed (S7.1.1.5(e)(1))
   (Any position is acceptable.)

X 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

X 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

X 4. Buckle the seat belt. (S7.1.1.5(c)(1))

X 5. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

X 6. 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))

X 7. 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;
   ___ No (If yes, go to 7.1. If no, go to 8.)

X 7. 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

X 8. 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)(3))

X 9. 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: 44.0 inches

X 10. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
X_11. 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)

X_12. 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: 15.5 inches

X_13. 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 retractor is 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: 50 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B: 16.0 inches (S7.1.1.5(c)(6))

X_14. Subtract the measurement in 13 from the measurement in 12. Is the difference 2 inches or less? (S7.1.1.5(c)(7)) 13 - 12 = 0.5 inches; Yes-Pass; No-FAIL

X_15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8)) 9 - 13 = 28.0 inches; Yes-Pass; No-FAIL

REMARKS:
Figure 5. - Webbing Tension Pull Device

- Dimension A: Width of Webbing Plus 1/2 Inch
- Dimension B: 1/2 of Dimension A
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)

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))

NHTSA No.: C30104 ___________________________ Test Date: 11/12/02 __________
Laboratory: TRC Inc. __________________________ Test Technician(s): R. Benavides __________________________

DESIGNATED SEATING POSITION: Third Row Right __________________________

___ N/A – No retractor is at this position
___ N/A – The retractor is an automatic locking retractor ONLY

___ X 1. Record test fore-aft seat position. Fixed __________________________ (S7.1.1.5 (c)(1))
(Any position is acceptable.)

___ X 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

___ X 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 inserting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))
X Yes-Pass; ___ No-FAIL

___ X 4. Buckle the seat belt. (S7.1.1.5(c)(1))

___ X 5. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

___ X 6. 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))

___ X 7. 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; ___ No (If yes, go to 7.1. If no, go to 8.)

___ X 7.1 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

___ X 8. 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))

___ X 9. 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

___ X 10. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
**X.11.** 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)

**X.12.** 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: 15.0 inches

**X.13.** 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 restraints 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: 50 lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B: 15.5 inches (S7.1.1.5(c)(6))

**X.14.** Subtract the measurement in 13 from the measurement in 12. Is the difference 2 inches or less? (S7.1.1.5(c)(7)) 13-12 = 0.5 inches;

Yes Pass;

No FAIL

**X.15.** Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8)) 9-13 = 28.7 inches;

Yes Pass;

No FAIL

**REMARKS:**
Figure 5. - Webbing Tension Pull Device
DATA SHEET 9
FMVSS 208 SEAT BELT WARNING SYSTEM CHECK (S7.3)

NHTSA No.: C30104
Test Date: 11/12/02

Laboratory: TRC Inc.  Test Technician(s): R. Begayvides

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 5 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 7 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 audible signal beginning with key "on" or "start" is 0 seconds.
13. The occupant is in the driver’s seat.
14. The seat belt is in the latched position and with at least 4 inches of belt webbing extended.
15. The key is in the "on" or "start" position.
16. The time duration of the warning light beginning with key "on" or "start" is 7 seconds.
17. Complete the following table with the data from 4, 8, 12 and 16 to determine which option is used.

<table>
<thead>
<tr>
<th>S7.3 (a)(1)</th>
<th>Belt latched &amp; Key on or start</th>
<th>Item 16</th>
<th>7</th>
<th>0 seconds*</th>
<th>Item 12</th>
<th>0</th>
<th>0 seconds**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belt stowed &amp; Key on or start</td>
<td>Item 8</td>
<td>7</td>
<td>60 seconds minimum</td>
<td>Item 4</td>
<td>5</td>
<td>4 to 8 seconds</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S7.3 (a)(2)</th>
<th>Belt latched &amp; Key on or start</th>
<th>Item 16</th>
<th>7</th>
<th>4 to 8 seconds</th>
<th>Item 12</th>
<th>0</th>
<th>0 seconds**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belt stowed &amp; Key on or start</td>
<td>Item 8</td>
<td>7</td>
<td>4 to 8 seconds</td>
<td>Item 4</td>
<td>5</td>
<td>4 to 8 seconds</td>
<td></td>
</tr>
</tbody>
</table>

* 49 USCS § 30124 does NOT allow an audible signal to operate for more than 8 seconds.
** 0 seconds means the light or audible signal are NOT permitted to operate under these conditions.
X 18. The seat belt warning system meets the requirements of (manufacturers may comply with either section)

X  S7.3 (a)(1)

FAIL - Does NOT meet the requirements of either option

X  19. Note wording of visual warning: (S7.3(a)(1) and S7.3(a)(2))

_____ Fasten Seat Belts

_____ Fasten Belts

X  Symbol 10

FAIL - Does not use any of the above wording or symbol
DATA SHEET 10
BELT CONTACT FORCE (S7.4.3)

NHTSA No.: C30104  ___________________________ Test Date: 11/12/02

Laboratory: TRC Inc.  Test Technician(s): R. Benavides

DESIGNATED SEATING POSITION: Front Row Left

Test all Type II 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.

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

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

X 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

X 4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
   __________ N/A - No independent fore-aft seat cushion adjustment

X 5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
   __________ N/A - No independent seat cushion height adjustment.

X 6. Put the seat in its full rearward position. (S16.2.10.3.1)
   __________ N/A - the seat does not have a fore-aft adjustment

X 7. If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1)
   __________ N/A - No seat height adjustment

X 8. Draw a horizontal reference line on the side of the seat cushion.

X 9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid position (if there is no mid position, label the closest adjustment position to the rear of the midpoint), and R for full rearward.
   __________ N/A - The seat does not have a fore-aft adjustment.

X 10. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2)
   __________ Mid position. If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat: Center of 8½ inch travel ______

X 11. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)
   __________ N/A - No adjustments

   Reference line angle as tested: 0°

5-46  021114
12. The 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. (§4.5.4.1 (b) and §8.1.3)

___ N/A – No adjustments
Manufacturer’s design seat back angle
Tested seat back angle

13. Position the test dummies according to dummy position placement instructions in Appendix B and include the positioning check sheets.

14. Fasten the seat belt latch.

15. 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.

16. 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. (§10.8) 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

0.0 to 0.7 pounds - Pass

greater than 0.7 pounds - FAIL
1. Does the vehicle incorporate a webbing tension-relieving device?
   Yes (this form is complete)
   X  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. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
   X  N/A - No independent fore-aft seat cushion adjustment

5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
   X  N/A - No independent seat cushion height adjustment.

6. Put the seat in its full rearward position. (S16.2.10.3.1)
   N/A - the seat does not have a fore-aft adjustment.

7. If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1)
   X  N/A - No seat height adjustment

8. Draw a horizontal reference line on the side of the seat cushion.

9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below or on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid position (if there is no mid position, label the closest adjustment position to the rear of the midpoint), and R for full rearward.
   X  N/A - The seat does not have a fore-aft adjustment.

10. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2)
    X  Mid position. If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat: Middle notch (1/2" of 23 notches)

11. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)
    X  N/A - No adjustments

Reference line angle as tested 0°
12. The 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 adjustments

Manufacturer's design seat back angle: 15.5°

Tested seat back angle: 15.5°

13. Position the test dummies according to dummy position placement instructions in Appendix B and include the positioning check sheets.

14. Fasten the seat belt latch.

15. 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.

16. 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: 0.60 lbs.

0.0 to 0.7 pounds - Pass

Greater than 0.7 pounds - FAIL
DATA SHEET 10
BELT CONTACT FORCE (S7.4.3)

NHTSA No.: C30104  Test Date: 11/12/02

Laboratory: TRC Inc. Test Technician(s): R. Benavides

DESIGNATED SEATING POSITION: Front Row Center & Third Row Center are not Type 2

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.

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

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. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
   ___ N/A - No independent fore-aft seat cushion adjustment

5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
   ___ N/A - No independent seat cushion height adjustment.

6. Put the seat in its full rearward position. (S16.2.10.3.1)
   ___ N/A - The seat does not have a fore-aft adjustment

7. If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1)
   ___ N/A - No seat height adjustment

8. Draw a horizontal reference line on the side of the seat cushion.

9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid position (if there is no mid position, label the closest adjustment position to the rear of the midpoint), and R for full rearward.
   ___ N/A - The seat does not have a fore-aft adjustment.

10. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2)
   ___ MId position. If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat:

11. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)
   ___ N/A - No adjustments
   Reference line angle as tested ________

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021114
12. The 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. (§4.5.4.1 (b) and §8.1.3)
   
   N/A  No adjustments
   Manufacturer's design seat back angle ____________
   Tested seat back angle ____________

13. Position the test dummies according to dummy position placement instructions in Appendix B and include the positioning check sheets.

14. Fasten the seat belt latch.

15. 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.

16. 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. (§10.8) 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.
   0.0 to 0.7 pounds - Pass
   greater than 0.7 pounds - FAIL
DATA SHEET 10
BELT CONTACT FORCE (S7.4.3)

NHTSA No.: C30104 ____________________________ Test Date: 11/12/02

Laboratory: TRC Inc. Test Technician(s): R. Benavides

DESIGNATED SEATING POSITION: Second Row Left

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.

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

X. 2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.2)
    X. N/A - No lumbar adjustment

X. 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

X. 4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
    X. N/A - No independent fore-aft seat cushion adjustment

X. 5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
    X. N/A - No independent seat cushion height adjustment

X. 6. Put the seat in its full rearward position. (S16.2.10.3.1)
    X. N/A - The seat does not have a fore-aft adjustment

X. 7. If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1)
    X. N/A - No seat height adjustment

X. 8. Draw a horizontal reference line on the side of the seat cushion.

X. 9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid position (if there is no mid position, label the closest adjustment position to the rear of the midpoint), and R for full rearward.
    X. N/A - The seat does not have a fore-aft adjustment

X. 10. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2)

X. 11. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)
    X. N/A - No adjustments

Reference line angle as tested
12. The 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. (§4.5.4.1(b) and §8.13)

X N/A No adjustments

Manufacturer's design seat back angle

Tested seat back angle

13. Position the test dummies according to dummy position placement instructions in Appendix B and include the positioning check sheets.

14. Fasten the seat belt latch.

15. 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.

16. 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 cut 2 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (§10.8) 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 .60 lb.

X 0.0 to 0.7 pounds - Pass

___ greater than 0.7 pounds - FAIL
DATA SHEET 10
Belt Contact Force (§7.4.3)

NIHSA No.: C30104 Test Date: 11/12/02

Laboratory: TRC Inc. Test Technician(s): R. Benavides

Designated Seating Position: Second Row Center

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.

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

X 2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (§8.1.3)
   X N/A - No lumbar adjustment

X 3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (§6.2.10.2)
   X N/A - No additional support adjustment

X 4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (§16.2.10.3.1)
   X N/A - No independent fore-aft seat cushion adjustment

X 5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (§16.2.10.3.1)
   X N/A - No independent seat cushion height adjustment.

X 6. Put the seat in its full rearward position. (§16.2.10.3.1)
   X N/A - the seat does not have a fore-aft adjustment

X 7. If the seat height is adjustable, put it in the full down position. (§16.2.10.3.1)
   X N/A - No seat height adjustment

X 8. Draw a horizontal reference line on the side of the seat cushion.

X 9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, 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 full rearward.
   X N/A - The seat does not have a fore-aft adjustment.

X 10. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (§8.1.2)
   Mid position. If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat: Fixed.

X 11. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (§16.2.10.3.2.1)
   X N/A - No adjustments

Reference line angle as tested

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12. The 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. (§4.5.4.1 (b) and S8.1.3)

X N/A - No adjustments

Manufacturer's design seat back angle

Tested seat back angle

13. Position the test dummies according to dummy position placement instructions in Appendix B and include the positioning check sheets.

14. Fasten the seat belt latch.

15. 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.

16. 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. (§10.8) 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.

X 0.0 to 0.7 pounds - Pass

greater than 0.7 pounds - FAIL
DATA SHEET 10
BELT CONTACT FORCE (S7.4.3)

NHTSA No.: C30104  Test Date: 11/12/02
Laboratory: TRC Inc.  Test Technician(s): R. Benavides

DESIGNATED SEATING POSITION: Second Row Right

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.

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

X  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

X  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

X  4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
   X  --- N/A - No independent fore/aft seat cushion adjustment

X  5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
   X  --- N/A - No independent seat cushion height adjustment.

X  6. Put the seat in its full rearward position. (S16.2.10.3.1)
   X  --- N/A - the seat does not have a fore-aft adjustment.

X  7. If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1)
   X  --- N/A - No seat height adjustment

X  8. Draw a horizontal reference line on the side of the seat cushion.

X  9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, 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 full rearward.
   X  --- N/A - The seat does not have a fore-aft adjustment.

X  10. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2) --- Mid position. If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat:

X  11. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)
   X  --- N/A - No adjustments

Reference line angle as tested

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12. The 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 88.1.3)
   X N/A  No adjustments
   Manufacturer's design seat back angle ____________
   Tested seat back angle ____________

13. Position the test dummies according to dummy position placement instructions in Appendix B and include the positioning check sheets.

14. Fasten the seat belt latch.

15. 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.

16. 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 0.59 _______ lb.
   X 0.0 to 0.7 pounds - Pass
   ___ greater than 0.7 pounds - FAIL
DATA SHEET 10
BELT CONTACT FORCE (S7.4.3)

NHTSA No.: C30104 Test Date: 11/12/02

Laboratory: TRC Inc. Test Technician(s): Third Row Left

DESIGNATED SEATING POSITION: R. Benavides

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.

1. Does the vehicle incorporate a webbing tension-relieving device?
   X Yes (this form is complete)
   X 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. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
   X N/A - No independent fore-aft seat cushion adjustment

5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
   X N/A - No independent seat cushion height adjustment

6. Put the seat in its full rearward position. (S16.2.10.3.1)
   X N/A - the seat does not have a fore-aft adjustment

7. If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1)
   X N/A - No seat height adjustment

8. Draw a horizontal reference line on the side of the seat cushion.

9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, 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 full rearward.
   X N/A - the seat does not have a fore-aft adjustment.

10. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2)
    Mid position. If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat: Fixed

11. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)
   X N/A - No adjustments

Reference line angle as tested ____________________
12. The 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])

X N/A - No adjustments
Manufacturer's design seat back angle ____________
Tested seat back angle ____________

13. Position the test dummies according to dummy position placement instructions in Appendix B and include the positioning check sheets.

14. Fasten the seat belt latch.

15. 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.

16. 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 0.59 ____________ lb.

X 0.0 to 0.7 pounds - Pass
____ greater than 0.7 pounds - FAIL

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DATA SHEET 10
BELT CONTACT FORCE (S7.4.3)

NHTSA No.: 820104 __________________________ Test Date: 11/12/02

Laboratory: TRC Inc. Test Technician(s): R Benavides

DESIGNATED SEATING POSITION: Third Row Right

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.

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

X 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

X 3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S6.2.10.2)
   - X N/A - No additional support adjustment

X 4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S6.2.10.3.1)
   - X N/A - No independent fore-aft seat cushion adjustment

X 5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S6.2.10.3.1)
   - X N/A - No independent seat cushion height adjustment.

X 6. Put the seat in its full rearward position. (S6.2.10.3.1)
   - X N/A - the seat does not have a fore-aft adjustment.

X 7. If the seat height is adjustable, put it in the full down position. (S6.2.10.3.1)
   - X N/A - No seat height adjustment

X 8. Draw a horizontal reference line on the side of the seat cushion.

X 9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, 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 full rearward.
   - X N/A - The seat does not have a fore-aft adjustment.

X 10. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S6.1.2)

   __________ MID position. If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat: Fixed __________

X 11. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S6.2.10.3.2.1)
   - X N/A - No adjustments

Reference line angle as tested __________
12. The 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)

X  X/A - No adjustments
Manufacturer's design seat back angle
Tested seat back angle

13. Position the test dummies according to dummy position placement instructions in Appendix B and include the positioning check sheets.

14. Fasten the seat belt latch.

15. 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.

16. 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 its 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: 0.59 lb

X greater than 0.7 pounds - FAIL

0.0 to 0.7 pounds - Pass
DATA SHEET 11
LATCHPLATE ACCESS (§7.4.4)

NHTSA No.: C30104 Test Date: 11/12/02

Laboratory: TRC Inc. Test Technician(s): R. Benavides

DESIGNATED SEATING POSITION: Left Front

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.

1. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (§8.1.3)
   X None - 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. (§16.2.10.2)
   X None - No additional support adjustment

3. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (§16.2.10.3.1)
   X None - No independent fore-aft seat cushion adjustment

4. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (§16.2.10.3.1)
   X None - No independent seat cushion height adjustment

5. Put the seat in its full rearward position. (§16.2.10.3.1)
   X None - The seat does not have a fore-aft adjustment

6. If the seat height is adjustable, put it in the full down position. (§16.2.10.3.1)
   X None - No seat height adjustment

7. Draw a horizontal reference line on the side of the seat cushion

8. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on the part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the midpoint), and R for full rearward.
   X None - The seat does not have a fore-aft adjustment

9. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the forwardmost fore-aft position for this test. (§10.7)

10. If seat adjustments, other than fore-aft, are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal.
    X None - No adjustments
    Reference line angle as tested: 0°
X 11. The 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. (84.5.4.1 (b) and 88.1.3)

___ N/A – No seat back angle adjustment

Manufacturer's design seat back angle: 13.5°

Tested seat back angle: 15.5°

X 12. Position the test dummy using the procedures in Appendix A. (Some modifications to the positioning procedure may need to be made because the seat is in its forward most position. Note on the Appendix A positioning check sheet any deviations necessary to position the Part 572, Subpart E dummy.) Include the positioning check sheet with this form.

X 13. Position the adjustable seat belt anchorage in the manufacturer's nominal design position for a 50th percentile adult male occupant.

X 14. Attach the inboard reach string to the base of the head following the instructions on Figure 3.

X 15. Attach the outboard reach string to the torso sheath following the instructions on Figure 3.

X 16. Place the latch plate in the stowed position.

X 17. Extend inboard reach string in front of the dummy and then backward and outboard to the latch plate to generate an arc of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?

___ Yes-Pass; ___ No

X 18. Extend outboard reach string in front of the dummy and then backward and outboard to the latch plate to generate an arc of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?

___ Yes-Pass; ___ No

X 19. Is the latch plate within the inboard (item 17) or outboard (item 18) reach envelope?

___ Yes-Pass: ___ No-FAIL

X 20. 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
Figure 3. Location of Anchoring Points for Hatchplate Reach Limiting Chains or Strings to Test for Hatchplate Accessibility Using Support H Test Device
Figure 4—USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND ARM ACCESS
DATA SHEET 11
LATCHPLATE ACCESS (S7.4.4)

NHTSA No.: C30104 ___________________________ Test Date: 11/12/02

Laboratory: TRC Inc. Test Technician(s): R. Benavides

DESIGNATED SEATING POSITION: Right Front

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.

X 1. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S1.2.13)
   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. (S1.2.10.2)
   X N/A - No additional support adjustment

X 3. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S1.2.10.3.1)
   X N/A - No independent fore-aft seat cushion adjustment

X 4. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S1.2.10.3.1)
   X N/A - No independent seat cushion height adjustment

X 5. Put the seat in its full rearward position. (S1.2.10.3.1)
   X N/A - the seat does not have a fore-aft adjustment

X 6. If the seat height is adjustable, put it in the full down position. (S1.2.10.3.1)
   X N/A - No seat height adjustment

X 7. Draw a horizontal Reference line on the side of the seat cushion

X 8. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the midpoint), and R for full rearward.
   X N/A - The seat does not have a fore-aft adjustment

X 9. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the forwardmost fore-aft position for this test. (S1.0.7)

X 10. If seat adjustments, other than fore-aft, are present and the horizontal Reference line is no longer horizontal, use those adjustments to maintain the Reference line as closely as possible to the horizontal.
   X N/A - No adjustments

Reference line angle as tested: 0°
11. The 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. (§4.5.4.1 (b) and §8.1.3)
   ___ N/A – No seat back angle adjustment
   Manufacturer's design seat back angle ___15.5°___
   Tested seat back angle ___15.5°___

12. Position the test dummy using the procedures in Appendix A. (Some modifications to the positioning procedure may need to be made because the seat is in its forward most position. Note on the Appendix A positioning check sheet any deviations necessary to position the Part 572, Subpart H dummy.) Include the positioning check sheet with this form.

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

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

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

16. Place the latch plate in the stowed position.

17. Extend inboard reach string in front of the dummy and then backward and outboard to the latch plate to generate an arc of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?
   X Yes-Pass; ___ No

18. Extend outboard reach string in front of the dummy and then backward and outboard to the latch plate to generate an arc of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?
   X Yes-Pass; ___ No

19. Is the latch plate within the inboard (item 17) or outboard (item 18) reach envelope?
   X Yes-Pass; ___ No-FAIL

20. 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?
   X Yes-Pass; ___ No-FAIL
Figure 3. Location of Anchoring Points for Latchplate Reach Limiting Chains or Strings to Test for Latchplate Accessibility Using Subpart B Test Device
Figure 4 - USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND/ARM ACCESS
DATA SHEET 12
SEAT BELT RETRACTION (S7.4.5)

NHTSA No.: C30104 Test Date: 11/12/02

Laboratory: TRC Inc. Test Technician(s): R. Benavides

DESIGNATED SEATING POSITION: Left Front

GVWR: 3175 kg/7000 lbs.

Yes: 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.

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

X 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

X 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

X 4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
   X N/A - No independent fore-aft seat cushion adjustment

X 5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
   X N/A - No independent seat cushion height adjustment.

X 6. Put the seat in its full rearward position.
   X N/A - the seat does not have a fore-aft adjustment

X 7. If the seat height is adjustable, put it in the full down position. (S8.1.2)
   X N/A - No seat height adjustment

X 8. Draw a horizontal line on the side of the seat cushion.

X 9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid position (if there is no mid position, label the closest adjustment position to the rear of the midpoint), and R for full rearward.
   X N/A - The seat does not have a fore-aft adjustment.

X 10. If seat adjustments, other than fore-aft, are present and the reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2)
   X N/A - No seat adjustments
   Reference angle as tested \(0^\circ\)
X 11. The 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. (S8.1.3)
    N/A – No seat back angle adjustment
    Manufacturer's design seat back angle: 15.5°
    Tested seat back angle: 15.5°

X 12. If adjustable, set the head restraint at the full up and full forward position. (S8.1.3) Any adjustment of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible.
    N/A – No head restraint adjustment

X 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:
    Tested anchorage position:

X 14. Is the driver seat a bucket seat?
    X Yes, go to 14.1 and skip 14.2.
    X No, go to 14.2 and skip 14.1.

X 14.1 Bucket seats:
    Locate and mark a vertical Plane B through the longitudinal centerline of the seat. The longitudinal centerline of a bucket seat cushion is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle.
    Record the width of the seat: 360 mm
    Record the distance from the edge of the seat to Plane B: 280 mm

X 14.2 Bench seats (including split bench seats):
    Driver seat: Locate and mark a vertical Plane B through the center of the steering wheel parallel to the vehicle longitudinal centerline.
    Passenger seat: Locate and mark a vertical longitudinal Plane B on the seat that is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel.
    Distance from the vehicle centerline to the center of the steering wheel:
    Distance from the vehicle centerline to Plane B:

X 15. Stow outboard armrests that are capable of being stowed. (S7.4.5)

X 16. Remove the arms of a Subpart E dummy and place it in the seat such that the mid-sagittal plane is coincident with Plane B and the upper torso rests against the seat back. (§10.4.1.7 & §10.4.1.2)

X 17. Rest the thighs on the seat cushion.

X 18. 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). (§10.4.2.1) 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. (§10.4.2.1 and §10.4.2.2)
    X horizontal inches from the point 0.25 below the determined T1-point (0.5 inch max.) (§10.4.2.1)
    X vertical inches from the point 0.25 below the determined T1-point (0.5 inch max.) (§10.4.2.1)
    X pelvic angle (20° to 25°) (§10.4.2.1)
    X vertical inches from the point 0.25 below the determined H1-point (0.5 inch max.) (§10.4.2.1)
    X pelvic angle (20° to 25°) (§10.4.2.2)

X 19. Set the distance between the outboard knee clevis flange surfaces at 10.6 inches.
    X measured distance (10.6 inches) (§10.5)
20. To the extent practicable keep the thighs and the legs in a vertical plane (§10.5) and rest the thighs on the seat cushion while resting the feet on the floorpan or toe board.

X 21. Fasten the seat belt around the dummy.

X 22. Remove all slack from the lap belt portion. (§10.9)

X 23. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (§10.9)

X 24. Apply a 2 to 4 pound tension load to the lap belt. (§10.9)

X 25. Is the belt system equipped with a tension relieving device?

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Yes, continue

---

X No, go to 26

25.1 Introduce the maximum amount of slack into the upper torso belt that is recommended by the vehicle manufacturer in the vehicle owner's manual. (§10.9).

X 26. Check the statement that applies to this test vehicle:

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X 26.1 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. Pass

---

X 26.2 The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latch plate is released. Pass

---

26.3 Neither A or B apply. **FAIL**

X 27. With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed?

---

X Yes-Pass; **No-FAIL**

X 28. 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?

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X No/ N/A

X Yes-Pass; **No-FAIL**
DATA SHEET 12
SEAT BELT RETRACTION (S7.4.5)

NIHSA No.: C30104  Test Date: 11/12/02

Laboratory: TRC Inc.  Test Technician(s): R. Benavides

DESIGNATED SEATING POSITION: Right Front

GVWR: 3175 kg/7000 lbs.

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.

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

X 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

X 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

X 4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
   X  N/A - No independent fore-aft seat cushion adjustment

X 5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
   X  N/A - No independent seat cushion height adjustment

X 6. Put the seat in its full rearward position.
   X  N/A - The seat does not have a fore-aft adjustment

X 7. If the seat height is adjustable, put it in the full down position. (S8.1.2)
   X  N/A - No seat height adjustment

X 8. Draw a horizontal line on the side of the seat cushion.

X 9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, 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 full rearward.
   X  N/A - The seat does not have a fore-aft adjustment

X 10. Using only the controls that change the seat in the fore-aft direction, place the seat in the middle fore-aft position. (S8.1.2)
    If there is no mid position, put the seat in the closest adjustment position to the rear of the mid-point. Describe the location of the seat: Middle notch (29th of 23 positions)

X N/A - No seat adjustments

Reference angle as tested 0°
11. The 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. (S8.1.3)

- N/A — No seat back angle adjustment
- Manufacturer's design seat back angle: 15.5°
- Tested seat back angle: 15.5°

12. If adjustable, set the head restraint at the full up and full forward position. (S8.1.3) Any adjustment of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible.

- 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

14. Is the driver seat a bucket seat?

- Yes, go to 14.1 and skip 14.2.
- No, go to 14.2 and skip 14.1.

14.1 Bucket seats:

- Locate and mark a vertical Plane B through the longitudinal centerline of the seat. The longitudinal centerline of the seat is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle.
- Record the width of the seat: 560 mm
- Record the distance from the edge of the seat to Plane B: 280 mm

14.2 Bench seats (including split bench seats):

- Driver seat: Locate and mark a vertical Plane B through the center of the steering wheel parallel to the vehicle longitudinal centerline.
- Passenger seat: Locate and mark a vertical longitudinal Plane B on the seat that is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel.
- Distance from the vehicle centerline to the center of the steering wheel
- Distance from the vehicle centerline to Plane B

15. Slow outboard armrests that are capable of being stowed. (S7.4.5)

16. Remove the arms of the Subpart E dummy and place it in the seat such that the midsagittal plane is coincident with Plane B and the upper torso rests against the seat back. (S10.4.1.1 & S10.4.1.2)

17. Rest the thighs on the seat cushion.

18. 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)

- 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°)

19. Set the distance between the outboard face of all flanges to 10.6 inches. (S10.5)

- Measured distance (10.6 inches) (S10.5)
X. 20. To the extent practicable keep the thighs and the legs in a vertical plane (S10.5) and rest the thighs on the seat cushion while resting the feet on the floorpan or floor board.

X. 21. Fasten the seat belt around the dummy.

X. 22. Remove all slack from the lap belt portion. (S10.9)

X. 23. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)

X. 24. Apply a 2 to 4 pound tension load to the lap belt. (S10.9)

3 pound load applied

X. 25. Is the belt system equipped with a tension relieving device?

Yes, continue

X. No, go to 26

25.1 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 25.

X. 26. Check the statement that applies to this test vehicle:

X. 26.1 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. X Pass

X. 26.2 The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latch plate is released. X Pass

26.3 Neither A or B apply. FAIL

X. 27. With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed?

X. Yes-Pass; ___ No-FAIL

X. 28. 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

X. Yes-Pass; ___ No-FAIL
DATA SHEET 13
SEAT BELT GUIDES AND HARDWARE (§7.4.6)

NHTSA No.: C30104 ________________________ Test Date: 11/12/02

Laboratory: IRC Inc. __________ Test Technician(s): R. Benavides ______________

DESIGNATED SEATING POSITION: Left Front _____________________________________________________________________

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.

X 1. Is the seat cushion movable so that the seat back serves a function other than seating? (§7.4.6.1(b))
   Yes; this form is complete
   No; go to 2

X 2. Is the seat removable? (§7.4.6.1(b))
   Yes; this form is complete
   No; go to 3

X 3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (§7.4.6.1(b))
   Yes; this form is complete
   No; go to 4

X 4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (§7.4.6.1(a))
   Yes; go to 5.
   No; this form is complete.

X 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)? (§7.4.6.1(a))
   Yes-Pass; __________ No-FAIL
   Identify the part(s) on top or above the seat.
   seat belt latch plate; buckle; seat belt webbing

X 6. Are the remaining two seat belt parts accessible under normal conditions?
   Yes-Pass; __________ No-FAIL

X 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. (§7.4.6.2)
   Yes-Pass; __________ No-FAIL

X 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. (§7.4.6.2)
   Yes-Pass; __________ No-FAIL

X 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. (§7.4.6.2)
   Yes-Pass; __________ No-FAIL

X 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)? (§7.4.6.2)
   Yes-Pass; __________ No-FAIL

5-76 021114
DATA SHEET 13
SEAT BELT GUIDES AND HARDWARE (S7.4.6)

NHTSA No.: C30104 ___________ ___________ Test Date: 11/12/02 ___________
Laboratory: TRC Inc. ___________ Test Technician(s): R. Benavides ___________

DESIGNATED SEATING POSITION: Center Front ___________

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.

X 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

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

X 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

X 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.
   X  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

5-77 021114
DATA SHEET 13
SEAT BELT GUIDES AND HARDWARE (S7.4.6)

NHTSA No.: C30104
Test Date: 11/12/02

Laboratory: TRC Inc. Test Technician(s): R. Benavides

DESIGNATED SEATING POSITION: Right Front

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.

X 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
   X  No; go to 2

2. Is the seat removable? (S7.4.6.1(b))
   ___ Yes; this form is complete
   X  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
   X  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.
   X  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
   ___ 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;

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;

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

5-78 021114
DATA SHEET 13
SEAT BELT GUIDES AND HARDWARE (S7.4.6)

NHTSA No.: C30104  Test Date: 11/12/02

Laboratory: TRC Inc.  Test Technician(s): R. Benavides

DESIGNATED SEATING POSITION: Second Row Left

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.

☐ 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? (S7.1.6.1(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

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DATA SHEET 13
SEAT BELT GUIDES AND HARDWARE (S7.4.6)

NIHSA No.: C30104 Test Date: 1/12/02

Laboratory: TRC Inc. Test Technician(s): R. Benavides

DESIGNATED SEATING POSITION: Second Row Center

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.

X 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
   X No; go to 2

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

X 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(h))
   Yes; this form is complete
   X No; go to 4

X 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.
   X 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
DATA SHEET 13
SEAT BELT GUIDES AND HARDWARE (S7.4.6)

NHTSA No.: C30104 Test Date: 11/12/02

Laboratory: TRC Inc. Test Technician(s): R. Benavides

DESIGNATED SEATING POSITION: Second Row Right

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.

X 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
   X No: go to 2

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

X 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
   X No: go to 4

X 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.
   X 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
DATA SHEET 13
SEAT BELT GUIDES AND HARDWARE (S7.4.6)

NHTSA No.: C30104  Test Date: 11/12/02

Laboratory: TRC Inc.  Test Technician(s): R. Benavides

DESIGNATED SEATING POSITION: Third Row Left

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.

X  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
   X No; go to 2

X  2. Is the seat removable?  (S7.4.6.1(b))
   Yes; this form is complete
   X 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
   X 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.
   X 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 is 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
DATA SHEET 13
SEAT BELT GUIDES AND HARDWARE (S7.4.6)

NHTSA No.: C30104 .......................... Test Date: 11/12/02 ..........................

Laboratory: TRC Inc. .......................... Test Technician(s): R. Benavides ..........................

DESIGNATED SEATING POSITION: Third Row Center ..........................

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.

X 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
   X No; go to 2

X 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, 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

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DATA SHEET 13
SEAT BELT GUIDES AND HARDWARE (S7.4.6)

NIHTSA No.: C30104 Test Date: 11/12/02

Laboratory: IRC Inc. Test Technician(s): R. Benavides

DESIGNATED SEATING POSITION: Third Row Right

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.

X 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
   X  No; go to 2

X 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
DATA SHEET 26

VEHICLE WEIGHT, FUEL TANK, AND ATTITUDE DATA

NHTSA No.: C30104  Test Date: 11/11/14:02

Laboratory: IRC Inc.  Test Technician(s): D. Ledley, B. Miller, M. Postle

Impact Angle: 0°  Bellied Dummies: X Yes  No

Test Speed: 32 to 40 km/h  X . 0 to 40 km/h  0 to 48 km/h  0 to 56 km/h

Driver Dummy: X 5th female  50th male  Passenger Dummy: X 5th female  50th male

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 usable fuel tank capacity supplied by the COIR. 32.5 gal (123.0 l)
5. Record the fuel tank capacity supplied in the owner's manual. 31.0 gal (117.3 l)
6. Using purple dyed Stoddard solvent having the physical and chemical properties of Type I solvent or cleaning fluid, Table 1, ASTM Standard D484-71, "Standard Specifications for Hydrocarbon Dry-cleaning Solvents," fill the fuel tank with an amount equal to the usable capacity provided by the COIR. Amount added.
7. Crank the engine to fill the fuel delivery system with Stoddard solvent.
8. Fill the coolant system to capacity.
9. Fill the engine with motor oil to the max. mark on the dip stick.
10. Fill the brake reservoir with brake fluid to its normal level.
11. Fill the windshield washer reservoir to capacity.
12. 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  RR 35; LF 35; RR 35; LR 35
   Owner's manual pressure  RR N/A; LF N/A; RR N/A; LR N/A
   Actual inflated pressure  RR 35; LF 35; RR 35; LR 35
13. Record the vehicle weight at each wheel to determine the unloaded vehicle weight (UVW), i.e. "as delivered" weight.
   Right Front  = 581.0 kg  Right Rear  = 616.0 kg
   Left Front  = 638.5 kg  Left Rear  = 607.0 kg
   TOTAL FRONT  = 1239.5 kg  TOTAL REAR  = 1223.0 kg
   % Total Weight  = 50.3%  % Total Weight  = 49.7%

UVW - TOTAL FRONT PLUS TOTAL REAR = 2462.5 kg

14. UVW Test Vehicle Attitude: (all dimensions in millimeters)
   14.1 Mark a point on the vehicle above the center of each wheel.
   14.2 Place the vehicle on a level surface.
   14.3 Measure perpendicular to the level surface to the 4 points marked on the body and record the measurements.
   RF 943; LF 914; RR 933; LR 930

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15. Calculate the Rated Cargo and Luggage Weight (RCLW).
   15.1 Does the vehicle have the vehicle capacity weight (VCW) on the certification label or tire placard?
   - Yes, go to 15.3.
   X No, go to 15.2.
   15.2 VCW = Gross Vehicle Weight - UVW
         \[ VCW = \frac{3175}{2462.5} = 712.5 \]
   15.3 Does the certification or tire placard contain the Designated Seating Capacity (DSC)?
   - Yes, go to 15.6.
   X No, go to 15.5
   15.5 DSC = Total number of seat belt assemblies = 9
   15.6 Is the vehicle certified as a truck, MPV or bus (see the certification label on the door jambs)?
   - Yes, the maximum RCLW is 136 kg.
   X No, use the RCLW calculated in 15.7.

16. Fully Loaded Weight (100% fuel fill)
   16.1 Place the appropriate test dummy in both front outboard seating positions.
         Driver:  X 5th female 50th male
         Passenger:  X 5th female 50th male
   16.2 Load the vehicle with the RCLW from 15.7 or 15.8 whichever is applicable.
   16.3 Place the RCLW in the cargo area. Center the load over the longitudinal centerline of the vehicle. (S8.1.1 (3))
   16.4 Record the vehicle weight at each wheel to determine the Fully Loaded Weight.

\[
\begin{align*}
\text{Right Front} & = 605.6 \text{ kg} & \text{Right Rear} & = 699.4 \text{ kg} \\
\text{Left Front} & = 685.4 \text{ kg} & \text{Left Rear} & = 689.0 \text{ kg} \\
\text{TOTAL FRONT} & = 1291.0 \text{ kg} & \text{TOTAL REAR} & = 1388.4 \text{ kg} \\
\% \text{ Total Weight} & = 48.2 \% & \% \text{ Total Weight} & = 51.8 \% \\
\% \text{ GVW} & = 40.7 \% & \% \text{ GVW} & = 59.3 \%
\end{align*}
\]

\[ \text{FULLY LOADED WEIGHT = TOTAL FRONT + TOTAL REAR = 2679.4 kg} \]

17. Fully Loaded Test Vehicle Attitude: (all dimensions in millimeters
   17.1 Place the vehicle on a level surface.
   17.2 Measure perpendicular to the level surface to the 4 points marked on the body (see 14.1 above) and record the measurements
      RF 905; LF 905; RR 908; LR 910

18.3 Calculate the test weight range (94% fuel fill).
   18.1 Calculated Test Weight = Fully Loaded Condition (See 16.4 above) - (0.06 x useable fuel tank capacity) x 0.794 kg/liter)
      Calculated Test Weight = 2679.4 - (0.06 x 17.3 l x 0.79 kg/l) = 2673.8 kg
   18.2 Test Weight Range = Calculated Test Weight (-4.5 kg - 9 kg)
      Max. Weight = Calculated Test Weight - 4.5 kg = 2669.3
      Min. Weight = Calculated Test Weight - 9 kg = 2664.8

19. Remove the RCLW from the cargo area.
20. Remove Stoddard solvent from the gas tank in the amount of 6% of the usable capacity as supplied by the COTR. 

\[ 0.06 \times \text{(usable capacity)} \]

Amount removed 

21. 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.

22. Vehicle Components Removed For Weight Reduction:

None

23. 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.

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

N/A

Weight of ballast = 58.1 kg

25. 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.

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

Right Front = 636.4 kg
Left Front = 671.8 kg
Total Front = 1308.2 kg

Right Rear = 699.6 kg
Left Rear = 666.5 kg
Total Rear = 1366.1 kg

% Total Weight = 48.7%
% Total Weight = 51.3%

% GVW = 41.2%
% GVW = 58.8%

(%GVW = Axle GVW / Vehicle GVW)

27. Is the test weight between the Max. Weight and the Min. Weight (See 18.2)?

Yes

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

Place the vehicle on a level surface.

28.1 Measure perpendicular to the level surface at the 4 points marked on the body (see 3 above) and record the measurements:

RF 910; LF 900; RR 898; JR 915

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29. Summary of test attitude

AS DELIVERED: RF 913; LF 914; RR 933; LR 930

AS TESTED: RF 910; LF 900; RR 898; LR 911

FULLY LOADED: RF 905; LF 905; RR 908; LR 910

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

Yes

No, explain why not. COTR approved on day of test.

1 At this step the gasoline in the fuel tank was topped off (Stoddard was not introduced until after fully loaded weight and attitudes were obtained). The exact amount of fuel in the tank was unknown.

2 The Owner’s Manual said to see Certification/Tire Label for tire pressure.

3 The fuel tank capacity supplied in the Owner’s Manual was used per the COTR.

4 At this step Stoddard solvent was introduced into the drained fuel tank: 0.94 x 117.3 liter (from Owner’s Manual per COTR). A total of 110.3 liters was added.
DATA SHEET 27
Vehicle Accelerometer Location

NHTSA No.: C30104

Test Date: 11/12-13/02

Laboratory: TRC Inc. Test Technician(s): D. Ledley

Impact Angle: 0°

Belted Dummies: X Yes ___ No

Test Speed: ___ 32 to 40 km/h ___ 0 to 40 km/h ___ 0 to 48 km/h ___ 0 to 56 km/h

Driver Dummy: X 5th female ___ 50th male
Passenger Dummy: X 5th female ___ 50th male

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 at 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.
DATA SHEET 27
VEHICLE ACCELEROMETER LOCATION MEASUREMENTS

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<td>PRE-TEST VALUES</td>
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</tr>
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</tr>
<tr>
<td>C</td>
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<tr>
<td>D</td>
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</tr>
<tr>
<td>E</td>
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<tr>
<td>F</td>
<td>*</td>
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REMARKS:  * Several lateral measurements were inadvertently omitted.
DATA SHEET 28
Photographic Targets

NHTSA No.: C30104  
Test Date: 11/12-14/02

Laboratory: TRC Inc.  
Test Technician(s): R. Benavides, B. Miller, J. Carridge, M. Postle

Impact Angle: 0°  
Offset percentage: 40  
Belied Dummies: X Yes  
No

Test Speed: 32 to 40 km/h  
0 to 40 km/h  
0 to 48 km/h  
0 to 56 km/h

Driver Dummy: X 5th female  
50th male  
Passenger Dummy: X 5th female  
50th male

1. FMVSS 208 vehicle targeting requirements (See Figures 28A and 28B)
   X 1.1 Targets A1 and A2 are on flat rectangular panels.
   X 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 127 mm
   X 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 A1 and A2. The center of each circular
   target is 100 mm from the one next to it. Distance between targets 127 mm
   X 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 915 mm
   X 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.
   X 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.
   X 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 610 mm
   X 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 610 mm
   X 1.9 Place tape with squares having alternating colors on the top portion of the steering wheel.
   X 1.10 Chalk the bottom portion of the steering wheel.
   X 1.11 Is this an offset test?
      X Yes, continue with this section
      X No, go to 2.
   X 1.12 Measure the width of the vehicle. Vehicle width 1994 mm
   X 1.13 Find the centerline of the vehicle. (½ of the vehicle width)
   X 1.14 Find the line parallel to the centerline of the vehicle and 0.1 x vehicle width from the
   centerline of the vehicle.
   X 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. No D2 target.

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: 127 mm
   Distance between circular targets on D2: N/A 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 impact test ordered on the "GHTR 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.
REFERENCE PHOTO TARGETS

CONCRETE BARRIER

127 mm 127 mm

915 mm

810 mm

MONORAIL

COVERED PHOTO PIT

LEFT SIDE VIEW

FIGURE 28A
RESECTION PANEL TARGETING ALIGNMENT
CAR TOP TARGETS A1 & A2

RESECTION CONTROL POINTS PANEL

STEERING COLUMN TARGET B

REAR VIEW

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

LEFT SIDE VIEW

FIGURE 28B
PRE-RUN STEERING COLUMN HIGH SPEED CAMERA VIEW

LEFT SIDE VIEW

FIGURE 28C
OFFSET DEFORMABLE BARRIER
ADDITIONAL VEHICLE TARGETING

FIGURE 28D
**DATA SHEET 29**  
**CAMERA LOCATIONS**

**VEH. NHTSA No.: C30104**; **TEST DATE: 11/14/02**; **TIME: 1617**

**VEH. YEAR/MAKE/MODEL/BODY STYLE: 2003/Chevrolet/Suburban/MPV**

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<th>VIEW</th>
<th>CAMERA POSITIONS (mm)</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
<th>ANGLE (deg.)</th>
<th>FILM PLANE TO HEAD TARGET</th>
<th>LENS (mm)</th>
<th>SPEED (fps)</th>
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</tbody>
</table>

* +X - film plane forward (downstream) from barrier impact surface  
+Y - film plane to right of monorail centerline from driver's perspective  
+Z - film plane below ground level  
¹ Not applicable  
² Digital camera  
³ Unable to determine speed, no timing LED's.
CAMERA POSITIONS FOR FRONTAL IMPACTS

TOP VIEW

LEFT SIDE VIEW

CONCRETE BARRIER

COVER PHOTO PIT

CONCRETE PAD

TOP ROAD

MONORAIL

REAL TIME CAMERA

CAMERA FRAME RATES:

$\frac{1}{n} = 24 \text{ fps}$

All other frames = 1,000 fps
DATA SHEET 30 - DRIVER
DUMMY POSITIONING PROCEDURES FOR TEST DUMMY CONFORMING TO SUBPART O OF PART 572

Seating Procedure 5th Percentile Female Driver Dummy (Part 572, Subpart O) (S16.2- S16.3)

NHTSA No.: C30104 Test Date: 11/14/02

Laboratory: TRC Inc. Test Technician(s): M. Postle

Test Number: 021114

Seat Type: ___ Bench ___ Bucket ___ Split Bench
(Check One)

1.0 Seat Positioning (S16.2.10)

___ 1.1 Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment position. (S16.2.10.1)
___ N/A No lumbar adjustment

___ 1.2 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 adjustments

___ 1.3 If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
___ N/A No independent fore-aft seat cushion adjustment

___ 1.4 If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)
___ N/A No independent seat cushion height adjustment.

___ 1.5 Put the seat in its full rearward position. (S16.2.10.3.)
___ N/A - the seat does not have a fore-aft adjustment

___ 1.6 If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1)
___ N/A - No seat height adjustment

___ 1.7 Draw a horizontal line on the side of the seat cushion.

___ 1.8 Using only the controls which change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position, (if there is no mid position, label the closest adjustment position rearward of the mid-point), and R for full rearward.
___ N/A - The seat does not have a fore-aft adjustment.

___ 1.9 Using only the controls which change the seat in the fore-aft direction, place the seat in the full forward position. (S16.2.10.3.2)
___ N/A - The seat does not have a fore-aft adjustment.

___ 1.10 If seat adjustments other than fore-aft are present and the line on the side of the seat cushion changes from the horizontal, use those adjustment to maintain the line as close as possible to the horizontal. (S16.2.10.3.2)
___ N/A No adjustments

Angle of the line on side of the seat cushion in the full forward position. 0.3 degrees
1.11 If the seat height is adjustable, determine the maximum and minimum heights. Identify a reference point on the vehicle that does not move with respect to the seat. Identify this point as “S1”. Mark a reference point on the seat. Identify this point as “S2”. Locate the maximum height, the minimum height and the mid height with respect to the S1 reference point. If seat adjustments other than fore/aft are present and the line on the side of the seat cushion changes from the horizontal, use those adjustments to maintain the line as close as possible to the horizontal at all height positions. (§16.2.10.3.3)

1.12 Record the mid height position. (§16.2.10.3.3)

<table>
<thead>
<tr>
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<th>N/A - No seat height adjustment</th>
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<td>Max. height from S1</td>
<td>117 mm</td>
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<tr>
<td>Min. height from S1</td>
<td>88 mm</td>
</tr>
<tr>
<td>Leg length from S1</td>
<td>102 mm</td>
</tr>
</tbody>
</table>

Angle of line on seat cushion at test height: 0.3 degrees

1.13 Record the horizontal longitudinal distance between Point S1 and Point S2.

S1, S2 separation: 5 mm

2.0 Dummy Positioning

2.1. Is the seat a bucket seat? Yes No

If yes, go to 2.1.1 and skip 2.1.2. If no, go to 2.1.2 and skip 2.1.1.

2.1.1 Bucket seats:

Locate and mark a vertical plane through the longitudinal centerline of the car. (§16.3.1.10) The longitudinal centerline of a bucket seat cushion is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle.

Record the width of the seat cushion: 555 mm

Record the distance from the edge of the seat cushion to the vertical plane: 277.5 mm

2.1.2 Bench seats and split bench seats:

Mark a longitudinal vertical plane that coincides with the center of the steering wheel. (§16.3.2.1.4)

2.2 If the vehicle has an adjustable accelerator pedal, place it in the full forward position. (§16.3.2.2.1)

N/A: Accelerator pedal not adjustable

2.3 With the seat in the position from step 1.11, move the seat to the full rearward position using controls that affect the toe and all position. Do not use height or angle controls. (§16.3.2.1.1)

2.4 Fully recline the seat back (§16.3.2.1.2)

N/A: Seat back not adjustable

2.5 Place the dummy in the seat with the legs at an angle of 120 degrees to the thighs. The calves should not be touching the seat cushion. (§16.3.2.1.2)

2.6 Position the dummy mid-sagittal plane vertical and coincident with the seating position centerline. (§16.3.2.1.2)

2.7 Hold down the dummy’s thighs and push rearward on the upper torso to maximize the pelvic angle. (§16.3.2.1.6)

2.8 Set the angle between the legs and the thighs to 120 degrees.

2.9 Set the transverse distance between the centers of the front of the knees at 160 to 170 mm. (6.3 to 6.7 inches) Center the knee separation with respect to the seat centering. (§16.3.2.1.6)

Record Knee Separation: 165 mm

2.10 Push rearward on the dummy’s knees until the pelvis contacts the seat back, or the backs of the calves contact the seat cushion, whichever occurs first. (§16.3.2.1.6)

Calves contacted seat cushion.

2.11 Gently rock the upper torso 5 degrees (approximately 51 mm (2 inches)) side to side three times to reduce the friction between the dummy and the seat. (§16.3.2.1.7)

2.12 If needed, extend the legs until the feet do not contact the floor pan. The thighs should be resting on the seat cushion. (§16.3.2.1.8)

2.13 Position the right foot until the foot is in line with a longitudinal vertical plane passing through the center of the accelerator pedal. Maintain the leg and thigh in a vertical plane. (§16.3.2.1.8)
2.14 Rotate the left leg and thigh laterally to equalize the distance between each knee and the seating position centerline. (S16.3.2.1.8)

2.15 Using only the controls that move the seat fore and aft, attempt to return the seat to the full forward position. The right foot may contact and depress the accelerator and/or change the angle of the foot with respect to the leg. (S16.3.2.1.8)

- Full forward position achieved. Proceed to step 2.20.
- Full forward not achieved because of foot interference. Proceed to step 2.17
- Full forward not achieved because of steering wheel contact.

2.16 If the dummy's legs contact the steering wheel, move the steering wheel up the minimum amount required to avoid contact. If the steering wheel is not adjustable separate the knees the minimum required to avoid contact. (S16.3.2.1.8)

- N/A- there was no leg contact
- Steering wheel repositioned
- Knees separated

2.17 If the foot interferes with the clutch or brake pedals, rotate the left foot about the leg to provide clearance. If this is not sufficient, rotate the left thigh outboard at the hip the minimum amount required for clearance. (S16.3.2.1.8)

- N/A No foot interference with pedals.
- Foot adjusted to provide clearance.
- Foot and Thigh adjusted to provide clearance.

2.18 Continue to move the seat forward until the full forward position is reached, or until the dummy contacts the interior. If the dummy contacts the interior move the seat rearward until a maximum clearance of 5 mm (0.2 inches) is achieved or the seat is in the closest detent position which does not cause dummy contact. (S16.3.2.1.8)

- Full Forward reached
  - Dummy contact. Clearance set at maximum of 5mm
    - Measured Clearance

- Dummy Contact. Seat set at nearest detent position.
  - Seat position detent positions rearward of full forward

2.19 If the steering wheel was repositioned in step 2.16, return the steering wheel to the original position. If the steering wheel contacts the dummy before reaching the original position, position the wheel until a maximum clearance of 5 mm (0.2 inches) is achieved, or the steering wheel is in the closest detent position that does not cause dummy contact.

- N/A Steering wheel was not repositioned.
- Original position achieved.
- Dummy contact. Clearance set at maximum of 5mm
  - Measured Clearance

- Dummy Contact. Steering wheel set at nearest detent position.
  - Steering wheel position detent positions upward of original position.

2.20 If the seat back is adjustable, rotate the seat back forward while holding the thighs in place. Continue rotating the seat back forward until the transverse instrument platform of the dummy head is level +/- 0.5 degrees. If head cannot be leveled using the seat back adjustment, or the seat back is not adjustable, use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, minimize the angle.

- Head Level Achieved. (Check all that apply)
  - Head leveled using the adjustable seat back
  - Head leveled using the neck bracket.

- Head Angle __________ degrees

- Head Level NOT Achieved. (Check all that apply)
  - Head leveled using the adjustable seat back
  - Head leveled using the neck bracket.

- Head Angle __________ degrees

2.21 Verify the pelvis is not interfering with the seat bight.
2.22 Verify the dummy abdomen is properly installed.

2.23 If the dummy torso contacts the steering wheel while performing step 2.20, reposition the steering wheel in the following order to eliminate contact.

X N/A No dummy torso contact with the steering wheel.

2.23.1 Adjust telescoping mechanism.

X  N/A No telescoping adjustment.

--- Adjustment performed (fill in appropriate change)
Steering wheel moved _____ detent positions in the forward direction.
Steering wheel moved _____ mm in the forward direction.

2.23.2 Adjust tilt mechanism.

X  N/A No tilt adjustment.

--- No adjustment performed.

--- Adjustment performed.
Steering wheel moved _____ detent positions Upward/Downward.

(circle one)
Steering wheel moved _____ degrees Upward/Downward.

2.23.3 Adjust Seat in the aft direction.

--- No Adjustment performed.

--- Seat moved aft _____ mm from original position.

--- Seat moved aft _____ detent positions from the original position.

2.24 Measure and set the pelvic angle using the pelvic angle gauge TR-2504. The pelvic angle should be 20.0 degrees +/- 2.5 degrees. If the pelvic angle cannot be set to 20 degrees, minimize the angular difference.

X  Pelvic angle set to 20.0 degrees +/- 2.5 degrees.

--- Pelvic angle of 20.0 degrees not achieved, the angular difference was minimized.

X  Record the pelvic angle. 21.4 ________ degrees

2.25 Check the dummy for contact with interior after completing adjustments.

X  No contact.

--- Dummy in contact with interior.

--- Seat moved Aft _____ mm from the previous position.

--- Seat moved Aft _____ detent positions from the previous position.

2.26 Check the dummy to see if additional interior clearance is obtained, allowing the seat to be moved forward.

X  N/A Seat already at full forward position.

--- Clearance unchanged. No adjustments required.

--- Additional clearance available
Steering wheel moved forward _____ mm from the previous position.
Steering wheel moved forward _____ detent positions from the previous position.

2.27 Driver's foot positioning, right foot

X  2.27.1 Place the foot perpendicular to the leg and determine if the right heel contacts the floor pan at any leg position. If the heel contacts the floor pan proceed to step 2.28 otherwise, proceed to step 2.29.

2.28 Perform the following steps until either all steps are completed, or the foot contacts the accelerator pedal. Step 2.28.6 shall be completed in all cases.

X  2.28.1 With the rear of the heel contacting the floor pan, move the foot forward until pedal contact occurs or the foot is at the full forward position.

X  2.28.2 If the vehicle has an adjustable accelerator pedal, move the pedals rearward until pedal contact occurs or the pedals reach the full rearward position.

--- 2.28.3 Extend the leg, allowing the heel to lose contact with the floor until the foot contacts the pedal. Do not raise the toe of the foot higher than the top of the accelerator pedal. If the foot does not contact the pedal, proceed to the next step. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.
2.28.4 Angle the foot to achieve contact between the foot and the pedal. If the foot does not contact the pedal, return the foot to the perpendicular orientation. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.

2.28.5 Align the center line of the foot in the same horizontal plane as the center line of the accelerator pedal. Place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.

2.28.6 Record foot position
   - Pedal Contact achieved. Contact occurred at step 2.28.2
     - Heel contacts floor pan
     - Heel set mm from floor pan
   - Pedal Contact not achieved. Heel set mm from the floor pan.

---

**FIGURE G1**

2.29 Perform the following steps until either all steps are completed, or the foot contacts the accelerator pedal. Step 2.29.5 shall be completed in all cases.

2.29.1 Extend the leg until the foot contacts the pedal. Do not raise the top of the foot higher than the top of the accelerator pedal. If the foot does not contact the pedal, proceed to the next step. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.

2.29.2 If the vehicle has an adjustable accelerator pedal, move the pedals rearward until pedal contact occurs or the pedals reach the full rearward position. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.
2.29.3 Angle the foot to achieve contact between the foot and the pedal. If the foot does not contact the pedal, return the foot to the perpendicular orientation. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.

2.29.4 Align the centerline of the foot in the same horizontal plane as the centerline of the accelerator pedal. Place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.

2.29.5 Record foot position

  Pedal Contact achieved. Contact occurred at step 

  Heel set _____ mm from floor pan.

  Pedal Contact not achieved. Heel set _____ mm from the floor pan.

2.30 Driver’s foot positioning, left foot.

2.30.1 Place the foot perpendicular to the leg and determine if the left heel contacts the floor pan at any leg position. If the heel contacts the floor pan proceed to step 2.30.2 otherwise, position the leg as perpendicular to the thigh as possible with the foot parallel to the floor pan.

2.30.2 Place the left foot on the toe board with the heel resting on the floor pan as close to the intersection of the floor pan and the toe board as possible. Adjust the angle of the foot if necessary to contact the toe board. If the foot will not contact the toe board, set the foot perpendicular to the leg, and set the heel on the floor pan as far forward as possible. Do not place the foot on the wheel well projection or footrest. If the pedals interfere with the placement of the foot, reposition the foot by rotating the foot about the leg, or rotate the leg outboard about the hip if necessary.

  Foot rotated about the leg

  Foot rotated about the leg, and the leg rotated about the hip.

X 2.30.3 Record foot position.

  Heel does not contact floor pan.

  Foot placed on toe board.

X 2.30.4 Foot placed on floor pan.

2.31 Driver arm/hand positioning.

2.31.1 Place the dummy's upper arms adjacent to the torso with the arm centerlines as close to a vertical longitudinal plane as possible. (S16.3.2.3.1)

2.31.2 Place the palms of the dummy in contact with the outer part of the steering wheel rim at its horizontal centerline with the thumbs over the steering wheel rim. (S16.3.2.3.2)

2.31.3 If it is not possible to position the thumbs inside the steering wheel rim at its horizontal centerline, then position them above and as close to the horizontal centerline of the steering wheel rim as possible. (S16.3.2.3.3)

2.31.4 Lightly tape the hands to the steering wheel rim so that if the hand of the test dummy is pushed upward by a force of not less than 9 N (2 lb) and not more than 22 N (5 lb), the tape releases the hand from the steering wheel rim. (S16.3.2.3.4)

2.32 Adjustable head restraints

2.32.1 If the head restraint has an automatic adjustment, leave it where the system positions the restraint after the dummy is placed in the seat. (S16.3.4.1)

X 2.32.2 Adjust each head restraint to its lowest position. (S16.3.4.2)

2.32.3 Measure the vertical distance from the top most point of the head restraint to the bottom most point. Locate a horizontal plane through the midpoint of this distance. Adjust each head restraint vertically so that this horizontal plane is aligned with the center of gravity (CG) of the dummy head. (S16.3.4.3)

  Vertical height of head restraint _____ mm

  Mid-point height _____ mm

2.32.4 If the above position is not attainable, move the vertical center of the head restraint to the closest detent below the center of the head CG. (S16.3.4.3)

  N/A midpoint position attained in previous step

X 2.32.5 Hatterest set at nearest detent below the head CG
2.32.5 If the head restraint has a fore and aft adjustment, place the restraint in the forwardmost position or until contact with the head is made, whichever occurs first. (S16.3.4.4) **No adjustment**

2.33 Driver and passenger manual belt adjustment (for tests conducted with a belted dummy). S16.3.5

- 2.33.1 If an adjustable seat belt D-ring anchorage exists, place it in the manufacturer’s design position for a 5th percentile adult female. This information will be supplied by the COTR.

<table>
<thead>
<tr>
<th>Manufacturer’s specified position</th>
<th>Fixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Position</td>
<td>Fixed</td>
</tr>
</tbody>
</table>

2.33.2 Place the Type 2 manual belt around the test dummy and fasten the latch. (S16.3.5.2)

2.33.3 Ensure that the dummy’s head remains as level as possible. (S16.3.5.3)

2.33.4 Remove all slack from the lap belt. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this operation four times. Apply a 9 N (2 lb) to 18 N (4 lb) tension load to the lap belt. If the belt system is equipped with a tension-relieving device, introduce the maximum amount of slack into the upper torso belt that is recommended by the manufacturer. If the belt system is not equipped with a tension-relieving device, allow the excess webbing in the shoulder belt to be retracted by the retractive force of the retractor. (S16.3.5.4)
DATA SHEET 30 - PASSENGER
Seating Procedure 5th Percentile Female Passenger Dummy
(Part 572, Subpart O) (S16.2-S16.3)

NIITSA No.: C39104 ____________ Test Date: 11/14/02 ______

Laboratory: TRC Inc. Test Technician(s): M. Postle, B. Miller

Test Number: 021114 ____________

Seat Type: Bench X Bucket ___ Split Bench

1.0 Seat Positioning (S16.2.10)

X 1.1. Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment position. (S16.2.10.1)
   X N/A - No lumbar adjustment

X 1.2. 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 1.3. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
   X N/A - No independent fore-aft seat cushion adjustment

X 1.4. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.3)
   X N/A - No independent seat cushion height adjustment

X 1.5. If the seat is a bench seat, use the position determined for the driver's side and proceed to Section 2.0.
   X N/A - Seat is not a bench seat.

X 1.6. Put the seat in its full rearward position. (S16.2.10.3.1)
   X N/A - the seat does not have a fore-aft adjustment

X 1.7. If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1)
   X N/A - No seat height adjustment

X 1.8. Draw a horizontal line on the side of the seat cushion.

X 1.9. Using only the controls which change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference point directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position rearward of the mid-point), and R for full rearward.
   X N/A - The seat does not have a fore-aft adjustment.

X 1.10. Using only the controls which change the seat in the fore-aft direction, place the seat in the full forward position. (S16.2.10.3.2)
   X N/A - The seat does not have a fore-aft adjustment.

X 1.11. If seat adjustments other than fore-aft are present and the line on the side of the seat cushion changes from the horizontal, use those adjustment to maintain the line as close as possible to the horizontal. (S16.2.10.3.2)
   X N/A - No adjustments

Angle of the line on side of the seat cushion in the full forward position: 0.8 degrees

X 1.12. If the seat height is adjustable, determine the maximum and minimum heights. Identify a reference point on the vehicle that does not move with respect to the seat. Identify this point as "S1". Mark a reference point on the seat. Identify this point as "S2". Locate the maximum height, the minimum height and the mid height with respect to the S1 reference point. If seat adjustments other than fore-aft are present and the line on the side of the seat cushion changes from the horizontal, use those adjustments to maintain the line as close as possible to the horizontal at all height positions. (S16.2.10.3.3)
1.13 Record the mid height position of S2. (S16.2.10.3.3)

   X__ N/A – No seat height adjustment

   Max. height from S1
   Min. height from S1
   Test height from S1
   Angle of line on seat cushion at test height, ________ degrees

   ___ 1.14 Record the horizontal longitudinal distance between Point S1 and Point S2.

   S1, S2 separation, ____________

2.0 Dummy Positioning

   NOTE: Certain steps may need to be performed simultaneously with the positioning of the
   driver side dummy.

   ___ 2.1. Is the seat a bucket seat?

   X__ Yes   X__ No

   If yes, go to 2.1.1 and skip 2.1.2. If no, go to 2.1.2 and skip 2.1.1.

   2.1.1 Bucket seat:

   Locate and mark a vertical plane through the longitudinal centerline of the seat. (S.6.3.1.10)
   The longitudinal centerline of a bucket seat cushion is determined at the widest part of the
   seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle.

   Record the width of the seat cushion, 560 ________ mm

   Record the distance from the edge of the seat cushion to the vertical plane, 280 ________ mm

   2.1.2 Bench seat and split bench seat:

   Mark a longitudinal vertical plane that is the same distance from the longitudinal centerline of
   the vehicle as the center of the steering wheel. (S16.3.3.1.4)

   ___ 2.3 With the seat in the position from step 1.5 or 1.13, move the seat to the full rearward position using
   controls that affect the fore and all position. Do not use height or angle controls. (S16.3.3.1.1)

   ___ 2.4 Fully recline the seat back. (S16.3.3.1.2)

   ___ N/A seat back not adjustable.

   ___ 2.5 Place the dummy in the seat with the legs at an angle of 120 degrees to the thighs. The calves
   should not be touching the seat cushion. (S16.3.3.1.2)

   ___ 2.6 Position the dummy mid sagittal plane vertical and coincident with the seating position centerline.
   (S16.3.3.1.3 or S16.3.3.1.4)

   ___ 2.7 Hold down the dummy's thighs and push rearward on the upper torso to maximize the pelvic angle.
   (S16.3.3.1.5)

   ___ 2.8 Set the angle between the legs and the thighs to 120 degrees. (S16.3.3.1.6)

   ___ 2.9 Set the transverse distance between the centers of the front of the knees at 160 to 170 mm (6.3 to
   6.7 inches). Center the knee separation with respect to the seat centerline. (S16.3.3.1.6)

   Record Knee Separation 165 ________ mm

   ___ 2.10 Push rearward on the dummy's knees until the pelvis contacts the seat back, or the backs of the
   calves contact the seat cushion, whichever occurs first. (S16.3.3.1.6)

   Pelvis contacted seat back.

   ___ X__ Calves contacted seat cushion.

   ___ 2.11 Gently rock the upper torso 5 degrees (approximately 51 mm (2 inches)) side to side three times
   to reduce the friction between the dummy and the seat. (S.6.3.3.1.7)

   ___ 2.12 If needed, extend the legs until the feet do not contact the floor pan. The thighs should be resting
   on the seat cushion. (S16.3.3.1.8)

   ___ 2.13 If the seat is a bench seat perform the driver dummy setup first and perform only the steps that do
   not affect the seat position or seat back angle of the driver as indicated. (S16.2.10.3)

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2.14 Using only the controls that move the seat fore and aft, move the seat forward until the full forward position is reached, or until the dummy contacts the interior. If the dummy contacts the interior move the seat rearward until a maximum clearance of 5 mm (0.2 inches) is achieved or the seat is in the closest detent position which does not cause dummy contact. (S16.3.3.1.8)

___ N/A Bench Seat

___ Full Forward reached

___ Dummy contact. Clearance set at maximum of 5 mm

  Measured Clearance ______ mm

___ Dummy Contact. Seat set at nearest detent position.

  Seat position ______ detent positions rearward of full forward
  (full forward is position zero)

2.15 If the seat back is adjustable, rotate the seat back forward while holding the thighs in place. Continue rotating the seat back forward until the transverse instrument platform of the dummy head is level +/- 0.5 degrees. If head cannot be leveled using the seat back adjustment, or the seat back is not adjustable, use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, minimize the angle. (S16.3.3.1.9 and S16.3.3.1.10) (Check All That Apply)

___ Seat back not adjustable

___ Seat back not independent of driver side seat back

___ Head Level Achieved. (Check all that apply)

  ___ Head leveled using the adjustable seat back

  ___ Head leveled using the neck bracket.

  Head Angle ______ degrees

___ Head Level NOT Achieved. (Check all that apply)

  ___ Head leveled using the adjustable seat back

  ___ Head leveled using the neck bracket.

  Head Angle ______ degrees

2.16 Verify the pelvis is not interfering with the seat bight. (S16.3.3.1.9)

2.17 Verify the dummy abdomen is properly installed. (S16.3.3.1.9)

2.18 Measure and set the pelvic angle using the pelvic angle gauge TE-2504. The pelvic angle should be 20.0 degrees +/- 2.5 degrees. If the pelvic angle cannot be set to 20 degrees, minimize the angular difference. (S16.3.3.1.11)

___ Pelvic angle set to 20.0 degrees +/- 2.5 degrees.

___ Pelvic angle of 20.0 degrees not achieved, the angular difference was minimized.

___ Record the pelvic angle ______ degrees

2.19 Verify the transverse instrument platform of the dummy head is level +/- 0.5 degrees. Use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, minimize the angle. (S16.3.3.1.9, S16.3.3.1.10, and S16.3.3.1.11)

___ Head Level Achieved

  Head Angle ______ degrees

___ Head Level NOT Achieved

  Head Angle ______ degrees

2.20 Check the dummy for contact with interior after completing adjustments. (S16.3.3.1.2)

___ N/A Bench Seat

___ No contact.

___ Dummy in contact with interior:

  ___ Seat moved not ______ mm from previous position.

  ___ Seat moved at ______ detent positions from the previous position.

2.21 Check the dummy to see if additional interior clearance is obtained, allowing the seat to be moved forward. (S16.3.3.1.12)

___ N/A Bench Seat

___ N/A Seat already at full forward position.

___ Clearance unchanged. No adjustments required.

___ Additional clearance available

  ___ Seat moved Forward ______ mm from the previous position.

  ___ Seat moved Forward ______ detent positions from the previous position.

  ___ Seat moved Forward. Full Forward position reached.
2.22 Passenger foot positioning. (Indicate final position achieved) (S16.3.3.2)

2.22.1 Place feet flat on the toe board. OR

2.22.2 If the feet cannot be placed flat on the toe board, set the feet perpendicular to the lower leg and rest the heel as far forward on the floor pan as possible. OR

2.22.3 If the heels do not touch the floor pan, set the legs to vertical and set the feet parallel to the floor pan.

2.23 Passenger arm/hand positioning. (S16.3.3.3)

2.23.1 Place the dummy's upper arms adjacent to the torso with the arm centerlines as close to a vertical longitudinal plane as possible. (S16.3.2.3.1)

2.23.2 Place the palms of the dummy in contact with the outer part of the thighs (S16.3.3.3.2)

2.23.3 Place the little fingers in contact with the seat cushion. (S16.3.3.3.3)

2.24 Adjustable head restraints

2.24.1 If the head restraint has an automatic adjustment, leave it where the system positions the restraint after the dummy is placed in the seat. (S16.3.4.1)

2.24.2 Adjust the head restraint to its lowest position. (S16.3.4.2)

2.24.3 Measure the vertical distance from the top most point of the head restraint to the bottom most point. Locate a horizontal plane through the midpoint of this distance. Adjust the head restraint vertically so that this horizontal plane is aligned with the center of gravity (CG) of the dummy head. (S16.3.4.3)

Vertical height of head restraint: mm
Midpoint height: mm

2.24.4 If the above position is not attainable, move the vertical center of the head restraint to the closest decal below the center of the head CG. (S16.3.4.3)

Midpoint position attained in previous step

2.24.5 If the head restraint has a fore and aft adjustment, place the restraint in the forwardmost position or until contact with the head is made, whichever occurs first. (S16.3.4.4) No adjustment

2.25 Driver and passenger manual belt adjustment (for tests conducted with a belted dummy) S16.3.5

2.25.1 If an adjustable seat belt D-ring anchorage exists, place it in the manufacturer's design position for a 5th percentile adult female. This information will be supplied by the COTR.

Manufacturer's specified position: Fixed

Actual Position: Fixed

2.25.2 Place the Type 2 manual belt around the test dummy and fasten the latch. (S16.3.5.2)

2.25.3 Ensure that the dummy's head remains as level as possible. (S16.3.5.3)

2.25.4 Remove all slack from the lap belt. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this operation four times. Apply a 9 N (2 lb) to 18 N (4 lb) tension load to the lap belt. If the belt system is equipped with a tension-relieving device, introduce the maximum amount of slack into the upper torso belt that is recommended by the manufacturer. If the belt system is not equipped with a tension-relieving device, allow the excess webbing in the shoulder belt to be retracted by the retractive force of the retractor. (S16.3.5.4)
### DATA SHEET 31

**DUMMY POSITIONING MEASUREMENTS**

<table>
<thead>
<tr>
<th>DRIVER (Serial No. 421)</th>
<th>PASSENGER (Serial No. 426)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WA°</td>
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</tr>
<tr>
<td>SWA°</td>
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<td>SA°</td>
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<tr>
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<td>671</td>
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<tr>
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<tr>
<td>NR</td>
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<tr>
<td>CD</td>
<td>475</td>
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<td>CS</td>
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</tr>
<tr>
<td>RA</td>
<td>99</td>
</tr>
<tr>
<td>KDL</td>
<td>95 Angle 61.9°</td>
</tr>
<tr>
<td>KDR</td>
<td>98</td>
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<td>TA°</td>
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</tr>
<tr>
<td>KK</td>
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<td>637 ANGLE -55.3°</td>
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<tr>
<td>SK</td>
<td>800 ANGLE 1.2°</td>
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<tr>
<td>SIU</td>
<td>470 ANGLE 8.5°</td>
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<tr>
<td>SHY</td>
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<td>HS</td>
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<td>HD</td>
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</tr>
<tr>
<td>AD</td>
<td>175</td>
</tr>
</tbody>
</table>

¹ Measured on head restraint post.

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DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS

CD - Chest to Dash
CS - Steering Wheel to Chest
HH - Head to Header
HW - Head to Windshield
HZ - Head to Hood
KDA - Knee to Dash Angle
KDL - Left Knee to Dash
KDR - Right Knee to Dash
NA - Nose to Rim Angle
NR - Nose to Rim
PA - Pelvic Angle
RA - Rim to Abdomen
SA - Seat Back Angle
SCA - Steering Column Angle
SH - Striker to H-Point
SK - Striker to Knee
ST - Striker to Head
SWA - Steering Wheel Angle
TA - Tibial Angle
WA - Windshield Angle

AJ - 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 Direction)

Seat Back Angle Line

VERTICAL TRANSVERSE PLANE

VERTICAL LONGITUDINAL PLANES

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021114
DESCRIPTIONS OF DUMMY MEASUREMENTS

When a level is to be used, it is to ensure that the line containing the two points described is either parallel or perpendicular to the ground. If a measurement to be made is less than 10 inches ignore the directions to use a level and approximate a level measurement. Also, when a measurement is to be taken to or from the center of a bolt on the dummy, take the measurement from the center of the bolt hole if the bolt is recessed.

The following measurements are to be made within a vertical longitudinal plane.

* **HH** Head to Header, taken from the point where the dummy's nose meets his forehead (between his eyes) to the furthest point forward on the header.

* **HW** Head to Windshield, taken from the point where the dummy's nose meets his forehead (between his eyes) to a point on the windshield. Use a level.

* **HZ** Head to Roof, taken from the point where the dummy's nose meets his forehead (between his eyes) to the point on the roof directly above it. Use a level.

* **CS** Steering Wheel to Chest, taken from the center of the steering wheel hub to the dummy's chest. Use a level.

* **CD** Chest to Dash, place a tape measure on the tip of the dummy's chin and rotate five inches of it downward toward the dummy to the point of contact on the transverse center of the dummy's chest. Measure from this point to the closest point on the dashboard either between the upper part of the steering wheel between the hub and the rim, or measure to the dashboard placing the tape measure above the rim, whichever is a shorter measurement. See photograph.

* **RA** Steering Wheel Rim to Abdomen, taken from the bottommost point of the steering wheel rim horizontally rearward to the dummy. Use a level.

* **NR** Nose to Rim, taken from the tip of the dummy's nose to the closest point on the top of the steering wheel rim. Also indicate the angle this line makes with respect to the horizontal (NA).

*1 **KDL, KDR** Left and Right Knees to Dashboard, taken from the center of the knee pivot bolt's outer surface to the closest point forward acquired by swinging the tape measure in continually larger arcs until it contacts the dashboard. Also reference the angle of this measurement with respect to the horizontal for the outboard knee (KDA). See photograph.

**SIH, SK, ST** Striker to Hip, Knee, and Head, these measurements are to be taken in the X-Z plane measured from the forward most center point on the striker to the center of the H-point, outer knee bolt, and head target. When taking this measurement, a firm device that can be rigidly connected to the striker should be used. Use a level. The angles of these measurements with respect to the

* Measurement used in Data Tape Reference Guide

1 Only outboard measurement is referenced in Data Tape Reference Guide
horizontal should also be recorded. The measurement in the Y (transverse) direction from the striker to the H-point should also be taken (SHY). See photograph.

The following measurements are to be made within a vertical transverse plane.

**HS**  Head to Side Window, taken from the point where the dummy's nose meets his forehead (between his eyes) to the outside of the side window. In order to make this measurement, roll the window down to the exact height that allows a level measurement. Use a level. See photograph.

**AD**  Arm to Door, taken from the outer surface of the elbow pivot bolt on a Hybrid II dummy to the first point it hits on the door. In the case of a Hybrid III dummy, measure from the bolt on the outer biceps. When a SID is used make the measurement from the center of the bottom of the arm segment where it meets the dummy's torso.

**HD**  H-point to Door, taken from the H-point on the dummy to the closest point on the door. Use a level.

**1IR**  Head to Side Header, measure the shortest distance from the point where the dummy's nose meets his forehead (between his eyes) to the side edge of the header just above the window frame, directly adjacent to the dummy.

**SHY**  Striker to H-point, taken from a rod rigidly connected to the forward most center point on the striker to the H-point. Use a level. See photograph.

**KK**  Knee to Knee, for Hybrid II dummies measure the distance between knee pivot bolt head outer surfaces. For Hybrid III dummies measure the distance between the outboard knee clevis flange surfaces. (This measurement may not be exactly transverse)

**ANGLES**

**SA**  Seat Back Angle, find this angle using the instructions provided by the manufacturer. If the manufacturer doesn't provide clear instructions contact the CO1R.²

**PA**  Pelvic or Femur Angle, taken by inserting the pelvic angle gauge into the H-point gauging hole on the SID or the Hybrid III dummies and taking this angle with respect to the horizontal. Measure the angle of the line connecting the H-point hole and the outer knee pivot bolt hole on a Hybrid II dummy with respect to the horizontal, to find the femur angle.

**SWA**  Steering Wheel Angle, find this by placing a straight edge against the steering wheel rim along the longitudinal plane. Then measure the acute angle of the straight edge with respect to the horizontal.

*Measurement used in Data Tape Reference Guide
²Only outboard measurement is referenced in Data Tape Reference Guide
²For this test, the measurement was taken on head restraint post per CO1R.
SCA  Steering Column Angle, measured with respect to the horizontal by placing an inclinometer on the center of the underside of the steering column.

NA  Measure the angle made when taking the measurement NR with respect to the horizontal.

KDA  Knee to Dash Angle, the angle that the measurement KD is taken at with respect to the horizontal. Only get this angle for the outboard knee. See photograph.

WA  Windshield Angle, place an inclinometer along the transverse center of the windshield exterior (measurement is made with respect to horizontal).

TA  Tibia Angle, use a straight edge to connect the dummy’s knee and ankle bolts. Then place an inclinometer on the straight edge and measure the angle with respect to the horizontal.
**DATA SHEET 32**

**CRASH TEST**

NHTSA No.: C30104  
Test Date: 11/14/02

Laboratory: TRC Inc.  
Test Technician(s): M. Postle, B. Miller

Impact Angle: 0°  
Belled Dummies: X Yes  
No

Test Speed:  
X 32 to 40 km/h  
X 0 to 48 km/h  
0 to 56 km/h

Driver Dummy: X 5th female  
50th male  
Passenger Dummy: X 5th female  
50th male

1. Vehicle underbody painted

2. The speed measuring devices are in place and functioning.

3. The speed measuring devices are 1.5 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.  
X N/A - Not a convertible

5. Instrumentation and wires are placed so the motion of the 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.

   241 kPa front left tire  
   240 kPa front right tire  
   241 kPa rear left tire  
   241 kPa rear right tire

7. Time zero markers and switches 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. Ignition in the ON position

14. Doors closed and latched but not locked.

15. Posttest zero and shunt calibration checks performed and recorded

16. Actual test speed 40.0 km/h

17. Vehicle rebound from the barrier NA cm

18. Describe whether the doors open after the test and what method is used to open the doors.

   Left front door Easy
   Right front door Easy
   Left rear door Easy
   Right rear door Easy

19. Describe the contact points of the dummy with the interior of the vehicle.

   Driver dummy  Head contacted steering wheel and head restraint. Abdomen contacted steering wheel. Both knees contacted knee bolster.

   Passenger dummy  Head contacted grab handle on instrument panel and head restraint. Both knees contacted the glove box.
DATA SHEET 33
Offset Deformable Barrier Test Using Belted 5th Percentile Female Dummies
(Part 572, Subpart O) (S18)

NHTSA No.: C30104 Test Date: 11/14/02

Laboratory: TRC Inc. Test Technician(s): M. Postle

Test Number: 021114 Barrier Serial Number: 053A04020980502

Driver Dummy Serial Number: 421 Passenger Dummy Serial Number: 426

Vehicle Speed X 40 km/h Offset 40 Percent

1.0 Pre-Test Activities

X 1.1 Complete the following data sheets
  X 1.1.1 Vehicle Receiving and Inspection
  X 1.1.2 Vehicle Weight, Fuel Tank, and Attitude
  X 1.1.3 Vehicle Accelerometer Location
  X 1.1.4 General Test Vehicle Data
  X 1.1.5 Photographic Targets
  X 1.1.6 Camera Locations
  X 1.1.7 5th Percentile Female Dummy Calibration
  X 1.1.8 Appendix G 5th Percentile Female Dummy Seating and Positioning Procedure

X 1.2 Barrier Certification
  X 1.2.1 Verify the offset deformable barrier materials and construction are certified to Subpart C of 49 CFR 587. (Attach vendor certification sheets to this data sheet.)

X 1.3 Verify barrier measurements and complete the table below. (See Figure 1)

<table>
<thead>
<tr>
<th>Specified Dimension in mm +/- 2.5 unless specified</th>
<th>Measured Dimension in mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Body Height RH Side</td>
<td>650</td>
</tr>
<tr>
<td>Main Body Height L1 Side</td>
<td>650</td>
</tr>
<tr>
<td>Floor to Lower Barrier L1H</td>
<td>200 +/- 15</td>
</tr>
<tr>
<td>Floor to Lower Barrier R1L</td>
<td>200 +/- 15</td>
</tr>
<tr>
<td>Main Body Width</td>
<td>1000</td>
</tr>
<tr>
<td>Bumper Element Width</td>
<td>1000</td>
</tr>
<tr>
<td>Bumper Element Height L1H</td>
<td>330</td>
</tr>
<tr>
<td>Bumper Element Height RH</td>
<td>330</td>
</tr>
<tr>
<td>Main Body Depth L1</td>
<td>450</td>
</tr>
<tr>
<td>Main Body Depth R1</td>
<td>450</td>
</tr>
<tr>
<td>Bumper Element Depth L1H</td>
<td>90</td>
</tr>
<tr>
<td>Bumper Element Depth RH</td>
<td>90</td>
</tr>
<tr>
<td>Upper Slot Location</td>
<td>220</td>
</tr>
<tr>
<td>Lower Slot Location</td>
<td>110</td>
</tr>
<tr>
<td>Upper Slot Width</td>
<td>4mm Max</td>
</tr>
<tr>
<td>Lower Slot Width</td>
<td>4mm Max</td>
</tr>
</tbody>
</table>

X 1.3.1 All Dimensions within specified tolerance
  X Yes
1.4 Verify deformable barrier mounted using 10 bolts (8mm diameter minimum) and the steel strips specified. See Section 4.0, Discussion of Test Results. 

1.5 Verify height of Fixed Rigid Barrier relative to vehicle being tested. 

1.6 Photograph pre-test condition. Include photograph shown below.
- X Pre-test frontal view of test vehicle
- X Pre-test left side view of test vehicle
- X Pre-test right side view of test vehicle
- X Pre-test front three-quarter view of test vehicle
- X Pre-test right three-quarter view of test vehicle
- X Pre-test windshield view
- X Pre-test engine compartment view
- X Pre-test fuel filler cap view
- X Pre-test front underbody view
- X Pre-test rear underbody view
- X Pre-test driver dummy position with the door open and with the camera perpendicular to the longitudinal centerline of the vehicle and in line with the markings showing the fore-aft position of the seat.
- X Pre-test driver dummy position with the camera in the same plane as the longitudinal centerline of the dummy.
- X Pre-test passenger dummy position with the door open and with the camera perpendicular to the longitudinal centerline of the vehicle and in line with the markings showing the fore-aft position of the seat.
- X Pre-test passenger dummy position view with the camera in the same plane as the longitudinal centerline of the dummy.
- X Dummy contact point(s) (vehicle and dummy)
- X Pre-test view of the knee bolster.
- X Pre-test view of the steering column shear capsule if any part of it is visible. Do NOT disassemble any parts to take these photographs.
- X Pre-test under hood view of the steering column intersecting the firewall. Take the best photograph possible without removing any parts.
- X Pre-test view of the steering column intersecting the firewall from inside the vehicle. Take the best photograph possible without removing any parts.

2.0 Test Execution

2.1 Impact vehicle into offset deformable barrier at a speed of 25 km/hr ±0.2 km/hr
- Record impact speed
- Trap 1 40.0 km/hr
- Trap 2 40.0 km/hr
- Trap Location (prior to impact) 11.0 km
- Speed at impact 40 km/hr ±0.2 km/hr
- X Yes __ __ No

2.2 Strike barrier at offset of 10% of vehicle width ± 30 mm from the vehicle centerline.
- Vehicle Width 1994 mm
- Required Offset 199.4 mm
- Actual Measured Offset 197.4 mm
- X Offset within -9:±30 mm
- X Yes __ __ No

2.3 Vehicle attitude at impact 0.0 degrees ± 5 degrees
- Impact angle 0 degrees
- X Impact angle 0.0 ± 5 degrees
- X Yes __ __ No

3.0 Post Test Activities

3.1 Photograph post-test condition. Include photograph shown below.
- X Post test frontal view of test vehicle
- X Post test left side view of test vehicle
- X Post test right side view of test vehicle
- X Post test front three-quarter view of test vehicle
- X Post test right three-quarter view of test vehicle
- X Post test windshield view
- X Post test engine compartment view
Post test fuel filler cap view
Post test front underbody view
Post test rear underbody view
Post test driver dummy position with the door open and with the camera perpendicular to the longitudinal centerline of the vehicle and in line with the markings showing the fore-aft position of the seat.
Frontal post test driver dummy position with the camera in the same plane as the longitudinal centerline of the dummy.
Post test passenger dummy position with the door open and with the camera perpendicular to the longitudinal centerline of the vehicle and in line with the markings showing the fore-aft position of the seat.
Frontal post test passenger dummy position view with the camera in the same plane as the longitudinal centerline of the dummy.
Dummy contact point(s) (vehicle and dummy)
Post test view of the knee bolster.
Post test view of the steering column shear capsule if any part of it is visible. Do NOT disassemble any parts to take these photographs.
Post test underhood view of the steering column intersecting the fire wall. Take the best photograph possible without removing any parts.
Post test view of the steering column intersecting the fire wall from inside the vehicle. Take the best photograph possible without removing any parts.
Post test electrolyte spillage location view, if required.
Post test electrolyte spillage location view, if required.
Post test top view of test vehicle while vehicle is on static rollover machine. (If applicable)

3.2 Process data channels per section 11.14 and record injury values in the Table.

<table>
<thead>
<tr>
<th>FMVSS 208</th>
<th>Measured Value Driver</th>
<th>Measured Value Passenger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum</td>
<td>Allowable Injury Assessment Value</td>
<td>Dummy Serial No. 421</td>
</tr>
<tr>
<td>HIC</td>
<td>700</td>
<td>262</td>
</tr>
<tr>
<td>Chest Acceleration</td>
<td>60 g</td>
<td>20.2 g</td>
</tr>
<tr>
<td>Chest Displacement</td>
<td>32 mm</td>
<td>20 mm</td>
</tr>
<tr>
<td>Peak Nij (Ntc)</td>
<td>1.0</td>
<td>0.40</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>125.76 ms</td>
</tr>
<tr>
<td>Peak Nij (Ntc)</td>
<td>1.0</td>
<td>0.08</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>147.20 ms</td>
</tr>
<tr>
<td>Peak Nij (Ntc)</td>
<td>1.0</td>
<td>0.02</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>43.36 ms</td>
</tr>
<tr>
<td>Peak Nij (Ntc)</td>
<td>1.0</td>
<td>0.16</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>200.16 ms</td>
</tr>
<tr>
<td>Neck Tension (Fz)</td>
<td>2620 N</td>
<td>782 N</td>
</tr>
<tr>
<td>Neck Compression (Fz)</td>
<td>2520 N</td>
<td>140 N</td>
</tr>
<tr>
<td>Left Femur Compression</td>
<td>6805 N</td>
<td>3320 N</td>
</tr>
<tr>
<td>Right Femur Compression</td>
<td>6805 N</td>
<td>1241 N</td>
</tr>
</tbody>
</table>

All injury Criteria within limits
Pass
Fail

3.3 Perform post-test calibration check.
FIGURE 1
OFFSET BARRIER
OFFSET FRONTAL BARRIER CERTIFICATION

Date: October 31, 2002

To: Transportation Research
Ship & Rec Bldg 50
10820 St. Route 347
East Liberty, OH 43319-0367

PURCHASE ORDER INFORMATION

Customer P.O. Number: VERBAL
Work Order Number: 14853
Quantity: 01 piece

CORE INFORMATION

Core Type: PCGA-1.8-3/4-P-3003-I
Cell Size: 0.750 inches
Density: 1.8 pcf

Unit Number: 098B0502

This is to certify that the aluminum honeycomb core supplied, under the unit number provided, meets the crush requirements of 49.59 psi ± 6, ± 10% per DWG #WG11.

[Signature]
Quality Control Representative
Karl D. Zwaanstra
**Crush Data**
49.59 psi +0, -10% psi per DWG #WG11

**Block Number:** 098B0502

<table>
<thead>
<tr>
<th>Specimen Number</th>
<th>Zone 1</th>
<th>Zone 2</th>
<th>Zone 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>45.28</td>
<td>45.24</td>
<td>45.69</td>
</tr>
<tr>
<td>2</td>
<td>45.08</td>
<td>47.31</td>
<td>47.26</td>
</tr>
<tr>
<td>3</td>
<td>45.00</td>
<td>45.16</td>
<td>47.63</td>
</tr>
<tr>
<td>4</td>
<td>45.03</td>
<td>45.79</td>
<td>46.73</td>
</tr>
<tr>
<td>5</td>
<td>47.14</td>
<td>46.94</td>
<td>45.42</td>
</tr>
<tr>
<td>6</td>
<td>46.56</td>
<td>45.58</td>
<td>45.50</td>
</tr>
<tr>
<td>7</td>
<td>46.04</td>
<td>46.08</td>
<td>46.10</td>
</tr>
</tbody>
</table>
OFFSET FRONTAL BARRIER CERTIFICATION

Date: October 31, 2002

To: Transportation Research
Ship & Rec Bldg 50
10820 St. Route 347
East Liberty, OH 43319-0367

PURCHASE ORDER INFORMATION

Customer P.O. Number: VERBAL
Work Order Number: 14853
Quantity: 01 piece

CORE INFORMATION

Core Type: PCGA-1/4-5.2-P-3003-T
Measured Cell Size: 0.250 inches
Measured Density: 5.2 pcf

Unit Number: 053A0402

This is to certify that the aluminum honeycomb core supplied, under the unit number provided, meets the crush requirements of 248.1 psi -10, -10% psi per DWG #WG11.

[Signature]
Quality Control Representative
Karl D. Zwaanstra
Crush Data
248.1 psi +0, -10% psi per DWG #WG11

Block Number: 053A0402

<table>
<thead>
<tr>
<th>Specimen Number</th>
<th>Zone 1</th>
<th>Zone 2</th>
<th>Zone 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>234.32</td>
<td>234.34</td>
<td>233.15</td>
</tr>
<tr>
<td>2</td>
<td>240.03</td>
<td>241.88</td>
<td>241.78</td>
</tr>
<tr>
<td>3</td>
<td>241.42</td>
<td>241.30</td>
<td>239.35</td>
</tr>
<tr>
<td>4</td>
<td>232.07</td>
<td>233.20</td>
<td>233.82</td>
</tr>
<tr>
<td>5</td>
<td>238.06</td>
<td>236.19</td>
<td>233.80</td>
</tr>
<tr>
<td>6</td>
<td>235.70</td>
<td>233.91</td>
<td>233.08</td>
</tr>
<tr>
<td>7</td>
<td>244.58</td>
<td>245.55</td>
<td>241.24</td>
</tr>
</tbody>
</table>
DATA SHEET 34
ACCIDENT INVESTIGATION MEASUREMENTS

NHTSA No.: C30104------------------ Test Date: 11/11-14/02

Laboratory: TRC Inc. Test Technician(s): R. Benavides, K. Watkins, S. Sterling

Impact Angle: 0° Belted Dummies: x Yes , _ No

Test Speed: _ 0 to 40 km/h x 0 to 40 km/h _ 0 to 48 km/h _ 0 to 56 km/h

Driver Dummy: x 5th Female _ 50th Male Passenger Dummy: x 5th Female _ 50th Male

Vehicle Year/Make/Model/Body Style: 2003/Chevrolet/Suburban/MPV

VIN: 3GNEC16Z53G108730

Wheelbase: 3300 Build Date: 08/02

Veh. Size Category: MPV Test Weight: 2684.3

Front Overhang: 926 Overall Width: 1994

Veh. Impact Speed: 40.0 Vel. Change:* 49.8

Collision Deformation Classification (CDC) Code: 12FY EW2

* From integration of Left Rear Seat Crossmember X-axis acceleration.
Impact Mode: 40% Offset

Crash Depth Dimensions:

$C1 = 450\text{ mm}$

$C2 = 374\text{ mm}$

$C3 = 419\text{ mm}$

$C4 = 189\text{ mm}$

$C5 = 29\text{ mm}$

$C6 = 191\text{ mm}$

Midpoint of Damage: $D = -599$

(Left from Vehicle Longitudinal Centerline)

Length of Damage Region:

$L = 1830\text{ mm}$

REMARKS:
DATA SHEET 35
WINDSHIELD MOUNTING (FMVSS 212)

NHTSA No.: C30104 ___________________________ Test Date: 11/12/14/02

Laboratory: TRC Inc. ___________________________ Test Technician(s): R. Benavides, M. Postle

Impact Angle: 0° ___________________________ Belted Dummies: X Yes ____ No

Test Speed: ____ 32 to 40 km/h __ X 0 to 40 km/h ____ 0 to 48 km/h ____ 0 to 56 km/h

Driver Dummy: X 5th female ____ 50th male Passenger Dummy: X 5th female ____ 50th male

Most vehicle windshields are either bonded in place and covered with chrome or plastic strips or they are held to the body by a rubber retainer. It is difficult to determine the exact periphery of the windshield because the glazing edge is hidden from view. The test engineer will measure the perimeter inside the retainer or molding at several locations. After the impact test the covering over the glazing edge may be removed for exact measurement of the windshield periphery. Do not disturb the molding or retainer in the event of a noncompliance.

X 1. Describe from visual inspection how the windshield is mounted and describe any trim material.
   Plastic trim all around the windshield, held by adhesive

X 2. Mark the longitudinal centerline of the windshield.

X 3. Measure pre-crash A, B, and C for the left side and record in the chart below.

X 4. Measure pre-crash D, E, and F for the right side and record in the chart below.

X 5. Measure from the edge of the retainer or molding to the edge of the windshield.
   Dimension G: 0.18 mm

X 6. 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, 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 7.

7. Visibly mark the beginning and end of the portions of the periphery where the paper slides between the windshield and the vehicle body.

8. 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.

9. Calculate and record the percent retention for the right and left side of the windshield.

10. Is total right side percent retention less than 75%?
    Yes, FAIL
    No, Pass

11. Is total left side percent retention less than 75%?
    Yes, FAIL
    No, Pass
## Windshield Periphery Measurement

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Pre-crash mm</th>
<th>Post-crash mm</th>
<th>Percent Retention (Post-crash + Pre-crash)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left side</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>698</td>
<td>698</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>670</td>
<td>670</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>876</td>
<td>876</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2244</td>
<td>2244</td>
<td>100</td>
</tr>
<tr>
<td>Right side</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>698</td>
<td>698</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>670</td>
<td>670</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>876</td>
<td>876</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2244</td>
<td>2244</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)
DATA SHEET 36
WINDSHIELD ZONE INTRUSION (FMVSS 219)

NHTSA No.: C30104  Test Date: 11/11-14/02

Laboratory: TRC Inc.  Test Technician(s): B. Miller, D. Summers, M. Postle

Impact Angle: 0°  Beaked Dummies: X Yes  No

Test Speed: 32 to 40 km/h  X 0 to 40 km/h  0 to 48 km/h  0 to 56 km/h

Driver Dummy: X 5th female  50th male  Passenger Dummy: X 5th female  50th male

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.

SKETCH OF FRONT VIEW OF WINDSHIELD:

Provide all dimensions necessary to reproduce the protected area.

FRONT VIEW OF WINDSHIELD

A. Windshield Dimensions

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1397</td>
<td>360</td>
<td>1753</td>
<td>670</td>
<td>485</td>
<td>935</td>
</tr>
</tbody>
</table>

ZERO POINT (0,0)

LOWER EDGE OF PROTECTED ZONE
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>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<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>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: No penetration in or beneath the protected zone.
DATA SHEET 37
FUEL SYSTEM INTEGRITY (FMVSS 301)

TEST VEHICLE NHTSA NO.: C30104 ; TEST DATE: 11/14/02 

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: M. Postle 

TYPE OF IMPACT: 40% Offset 

STODDARD SOLVENT SPILLAGE MEASUREMENT:

A. From impact until vehicle motion ceases —
   Actual = 0 grams. (Maximum Allowable = 28 grams)

B. For 5 minute period after vehicle motion ceases —
   Actual = 0 grams. (Maximum Allowable = 142 grams)

C. For next 25 minutes —
   Actual = 0 grams. (Maximum Allowable = 28 grams/minute)

D. Provide Spillage Details: None

REMARKS: Test time to start of rollover was 57 minutes; no spillage occurred during the interval.
A. TEST PHASE = 0° TO 90°

Determination of Stoddard Solvent Collection Time Period:

1. Rollover Fixture 90° Rotation Time = __ minutes, __ seconds
   (Specified Range is 1 to 5 minutes)

2. FMVSS 301 Position Hold Time = 5 minutes, 0 seconds

3. TOTAL = __ minutes, __ seconds

4. NEXT WHOLE MINUTE INTERVAL = __ minutes

Actual Test Vehicle Stoddard Solvent Spillage:

1. First 5 minutes from onset of rotation = 0 grams
   (142 grams allowed)

2. 6th minute = 0 grams
   (28 grams allowed)

3. 7th minute = 0 grams
   (28 grams allowed)

4. 8th minute (if required) = NA grams
   (28 grams allowed)

Provide Details of Stoddard Solvent Spillage Locations - None
B. TEST PHASE - 90° TO 180°

Determination of Stoddard Solvent Collection Time Period:

1. Rollover Fixture 90° Rotation Time = 1 minute, 30 seconds
   (Specified Range is 1 to 3 minutes)

2. FMVSS 301 Position Hold
   Time = 5 minutes, 0 seconds

3. TOTAL = 6 minutes, 30 seconds

4. NEXT WHOLE MINUTE INTERVAL = 7 minutes

Actual Test Vehicle Stoddard Solvent Spillage:

1. First 5 minutes from onset of rotation = 0 grams
   (142 grams allowed)

2. 6th minute = 0 grams
   (28 grams allowed)

3. 7th minute = 0 grams
   (28 grams allowed)

4. 8th minute (if required) = NA grams
   (28 grams allowed)

Provide Details of Stoddard Solvent Spillage Locations - None
C. **TEST PHASE = 180° TO 270°**

   Determination of Stoddard Solvent Collection Time Period:

   1. Rollover Fixture 90° Rotation Time = ___ minutes, ___ seconds
      (Specified Range is 1 to 3 minutes)

   2. PMVSS 301 Position Hold Time = 5 minutes, 0 seconds

   3. TOTAL = ___ minutes, ___ seconds

   4. NEXT WHOLE MINUTE INTERVAL: ___ minutes

      Actual Test Vehicle Stoddard Solvent Spillage:

      1. First 5 minutes from onset of rotation = ___ grams (142 grams allowed)

      2. 6th minute = ___ grams (28 grams allowed)

      3. 7th minute = ___ grams (28 grams allowed)

      4. 8th minute (if required) = NA grams (28 grams allowed)

   Provide Details of Stoddard Solvent Spillage Locations - None
D. **TEST PHASE = 270° TO 360°**

Determination of Stoddard Solvent Collection Time Period:

1. Rollover Fixture 90° Rotation Time = 1 minute, 30 seconds
   (Specified Range is 1 to 3 minutes)

2. **FMVSS 301 Position Hold**
   Time = 5 minutes, 0 seconds

3. **TOTAL = 6 minutes, 30 seconds**

4. **NEXT WHOLE MINUTE INTERVAL = 7 minutes**

   Actual Test Vehicle Stoddard Solvent Spillage:

   1. First 5 minutes from onset of rotation = 0 grams
      (142 grams allowed)

   2. 6th minute = 0 grams
      (28 grams allowed)

   3. 7th minute = 0 grams
      (28 grams allowed)

   4. 8th minute (if required) = NA grams
      (28 grams allowed)

   **Provide Details of Stoddard Solvent Spillage Locations - None**
Section 6

Test Data
2004 - 2008 CHEVROLET SUBURBAN 1500 2WD
RIGHT FRONT PASSENGER SEAT INFLATION FORCE
TEST DECLARED MS-127 OFFSET TEST

FORCE N x 10^6

CHANNEL NUMBER FILTERED CLASS THREE

PEAK FORCE: 1069.2N at 131.4ms, 64.76N at 152.8ms
Section 7

Photographs
# List of Photographs

<table>
<thead>
<tr>
<th>Image</th>
<th>Image Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pre-Test Front View</td>
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# Shunt Measurement after Test

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