

**REPORT NUMBER: SPNCAP-KAR-12-060**

**NEW CAR ASSESSMENT PROGRAM (NCAP)  
SIDE IMPACT POLE TEST**

**CHRYSLER GROUP LLC  
2012 RAM 2500 ST CREW CAB 4-DOOR TRUCK**

**NHTSA No: MC0315**

**PREPARED BY:  
KARCO ENGINEERING, LLC.  
9270 HOLLY ROAD  
ADELANTO, CA 92301**



**MARCH 21, 2012**

**FINAL REPORT**

**PREPARED FOR:  
U.S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
OFFICE OF CRASHWORTHINESS STANDARDS  
MAIL CODE: NVS-111  
1200 NEW JERSEY AVE, SE, ROOM W43-410  
WASHINGTON, D.C. 20590**



# **TECHNICAL REPORT DOCUMENTATION PAGE**

| <b>1. Report No.</b><br>SPNCAP-KAR-12-060                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>2. Government Accession No.</b>                              | <b>3. Recipient's Catalog No.</b>                                                                                                                                                                                            |                  |                         |                     |  |  |       |           |        |                                           |  |      |       |                                    |   |    |      |                                                         |   |      |      |                                 |    |    |    |                                  |    |    |    |
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| <b>4. Title and Subtitle</b><br>Final Report of New Car Assessment Program<br>Side Impact Pole Testing of a 2012 RAM 2500 ST Crew Cab 4-Door Truck<br>NHTSA No. MC0315                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                 | <b>5. Report Date</b><br>March 21, 2012                                                                                                                                                                                      |                  |                         |                     |  |  |       |           |        |                                           |  |      |       |                                    |   |    |      |                                                         |   |      |      |                                 |    |    |    |                                  |    |    |    |
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| <b>7. Authors</b><br>Mr. Denver Schaffarzick, Project Engineer, KARCO<br>Mr. Frank Richardson, Program Manager, KARCO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                 | <b>8. Performing Organization Report No.</b><br>TR-P32002-05-NC                                                                                                                                                              |                  |                         |                     |  |  |       |           |        |                                           |  |      |       |                                    |   |    |      |                                                         |   |      |      |                                 |    |    |    |                                  |    |    |    |
| <b>9. Performing Organization Name and Address</b><br>KARCO Engineering, LLC.<br>9270 Holly Rd.<br>Adelanto, CA 92301                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                 | <b>10. Work Unit No.</b>                                                                                                                                                                                                     |                  |                         |                     |  |  |       |           |        |                                           |  |      |       |                                    |   |    |      |                                                         |   |      |      |                                 |    |    |    |                                  |    |    |    |
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| <b>12. Sponsoring Agency Name and Address</b><br>U. S. Department of Transportation<br>National Highway Traffic Safety Administration<br>Office of Crashworthiness Standards (NVS-111)<br>1200 New Jersey Ave., SE, Room W43-410<br>Washington, D.C. 20590                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                 | <b>13. Type of Report and Period Covered</b><br>Final Test Report, Mar. 7 - 21, 2012                                                                                                                                         |                  |                         |                     |  |  |       |           |        |                                           |  |      |       |                                    |   |    |      |                                                         |   |      |      |                                 |    |    |    |                                  |    |    |    |
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| <b>15. Supplementary Notes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                 |                                                                                                                                                                                                                              |                  |                         |                     |  |  |       |           |        |                                           |  |      |       |                                    |   |    |      |                                                         |   |      |      |                                 |    |    |    |                                  |    |    |    |
| <b>16. Abstract</b><br><p>A 32.2 km/h (20 mph) 75 deg. oblique impact Side NCAP Test was conducted on the subject 2012 RAM 2500 ST Crew Cab 4-door truck in accordance with the specifications of the Office of Crash Worthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. The test was conducted at the KARCO Engineering, LLC. facility in Adelanto, California on March 7, 2012.</p> <p>The impact velocity was 32.5 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 9.9 deg. C. The target vehicle's maximum post-test static crush was 686 mm located at level 2. The test vehicle's occupant performance data is as follows:</p> <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th colspan="3">Driver ATD (ES-2re)</th> </tr> <tr> <th>Units</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC<sub>36</sub>)</td> <td></td> <td>1000</td> <td>505.4</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>g</td> <td>82</td> <td>94.6</td> </tr> <tr> <td>Total Pelvic Force (Sum of Acetabular and Iliac Forces)</td> <td>N</td> <td>5525</td> <td>5853</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38</td> <td>41</td> </tr> <tr> <td>Maximum Abdominal Rib Deflection</td> <td>mm</td> <td>45</td> <td>60</td> </tr> </tbody> </table> <p>The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches. The opposite doors did not open during the side impact event. The driver ATD's resultant lower spine acceleration, total pelvic force, and maximum thoracic and abdominal rib deflections exceeded their thresholds.</p> |                                                                 |                                                                                                                                                                                                                              |                  | Measurement Description | Driver ATD (ES-2re) |  |  | Units | Threshold | Result | Head Injury Criteria (HIC <sub>36</sub> ) |  | 1000 | 505.4 | Resultant Lower Spine Acceleration | g | 82 | 94.6 | Total Pelvic Force (Sum of Acetabular and Iliac Forces) | N | 5525 | 5853 | Maximum Thoracic Rib Deflection | mm | 38 | 41 | Maximum Abdominal Rib Deflection | mm | 45 | 60 |
| Measurement Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Driver ATD (ES-2re)                                             |                                                                                                                                                                                                                              |                  |                         |                     |  |  |       |           |        |                                           |  |      |       |                                    |   |    |      |                                                         |   |      |      |                                 |    |    |    |                                  |    |    |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Units                                                           | Threshold                                                                                                                                                                                                                    | Result           |                         |                     |  |  |       |           |        |                                           |  |      |       |                                    |   |    |      |                                                         |   |      |      |                                 |    |    |    |                                  |    |    |    |
| Head Injury Criteria (HIC <sub>36</sub> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                 | 1000                                                                                                                                                                                                                         | 505.4            |                         |                     |  |  |       |           |        |                                           |  |      |       |                                    |   |    |      |                                                         |   |      |      |                                 |    |    |    |                                  |    |    |    |
| Resultant Lower Spine Acceleration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | g                                                               | 82                                                                                                                                                                                                                           | 94.6             |                         |                     |  |  |       |           |        |                                           |  |      |       |                                    |   |    |      |                                                         |   |      |      |                                 |    |    |    |                                  |    |    |    |
| Total Pelvic Force (Sum of Acetabular and Iliac Forces)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N                                                               | 5525                                                                                                                                                                                                                         | 5853             |                         |                     |  |  |       |           |        |                                           |  |      |       |                                    |   |    |      |                                                         |   |      |      |                                 |    |    |    |                                  |    |    |    |
| Maximum Thoracic Rib Deflection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | mm                                                              | 38                                                                                                                                                                                                                           | 41               |                         |                     |  |  |       |           |        |                                           |  |      |       |                                    |   |    |      |                                                         |   |      |      |                                 |    |    |    |                                  |    |    |    |
| Maximum Abdominal Rib Deflection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | mm                                                              | 45                                                                                                                                                                                                                           | 60               |                         |                     |  |  |       |           |        |                                           |  |      |       |                                    |   |    |      |                                                         |   |      |      |                                 |    |    |    |                                  |    |    |    |
| <b>17. Key Words</b><br>New Car Assessment Program (NCAP)<br>Side Impact<br>Pole<br>Part 572V<br>SID-IIs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                 | <b>18. Distribution Statement</b><br>Copies of this report are available from:<br>National Highway Traffic Safety Admin.<br>Technical Reference Division<br>1200 New Jersey Ave., SE<br>Room W43-410<br>Washington, DC 20590 |                  |                         |                     |  |  |       |           |        |                                           |  |      |       |                                    |   |    |      |                                                         |   |      |      |                                 |    |    |    |                                  |    |    |    |
| <b>19. Security Classification of this report</b><br>UNCLASSIFIED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>20. Security Classification of this page</b><br>UNCLASSIFIED | <b>21. No. of Pages</b><br>101                                                                                                                                                                                               | <b>22. Price</b> |                         |                     |  |  |       |           |        |                                           |  |      |       |                                    |   |    |      |                                                         |   |      |      |                                 |    |    |    |                                  |    |    |    |

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## **SECTION 1**

### **TEST PURPOSE AND PROCEDURE**

This side impact test is part of the MY 2012 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract number DTNH22-09-D-00122. The purpose of this test is to generate comparative side impact performance of a 2012 RAM 2500 ST Crew Cab 4-door truck. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated August 2011.

## SECTION 2

### SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2012 RAM 2500 ST Crew Cab 4-door truck. The subject vehicle was towed into the rigid pole at an angle of 75.1° and a velocity of 32.5 km/h. The test was conducted by KARCO Engineering, LLC. in Adelanto, California on March 7, 2012. Pre- and post-test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report<sup>1</sup>.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure, dated August 2011. Camera locations and other pertinent camera information are included in this report.

The Part 572V (SID-IIs) was instrumented accordingly:

- Head CG tri-axial accelerometers
- Thorax upper, middle and lower rib displacement potentiometers
- Abdomen upper and lower rib displacement potentiometers
- Lower spine (12) tri-axial accelerometers
- Iliac load cell
- Acetabulum load cell

Appendix B contains the vehicle and dummy response data. Dummy configuration and performance verification data can be found in Appendix C of this report.

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<sup>1</sup> The date on all Pre-Test placards should be 3/7/12.

Injury readings for the SID-IIs dummy were recorded as follows:

| Measurement Description                                 | Units | Passenger ATD (SID-IIs) |        |
|---------------------------------------------------------|-------|-------------------------|--------|
|                                                         |       | IARV                    | Result |
| Head Injury Criteria (HIC <sub>36</sub> )               |       | 1000                    | 505.4  |
| Lower Spine (T12) Resultant Acceleration                | g     | 82                      | 94.6   |
| Total Pelvic Force (sum of acetabular and iliac forces) | N     | 5525                    | 5853   |
| Maximum Thoracic Rib Deflection                         | mm    | 38*                     | 41     |
| Maximum Abdominal Rib Deflection                        | mm    | 45*                     | 60     |

\*Proposed IARV

Supplemental restraint information is given below:

| Restraint Type               | Left Front (Driver)<br>Occupant Location 1 |          | Left Rear (Passenger)<br>Occupant Location 4 |          |
|------------------------------|--------------------------------------------|----------|----------------------------------------------|----------|
|                              | Mounted                                    | Deployed | Mounted                                      | Deployed |
| Frontal Airbag               | Yes                                        | No       | No                                           |          |
| Knee Airbag                  | No                                         |          | No                                           |          |
| Side Airbag 1 (Curtain)      | Yes                                        | Yes      | Yes                                          | Yes      |
| Side Airbag 2 (Torso/Pelvis) | No                                         |          | No                                           |          |
| Seat Belt Pretensioner       | Yes                                        | Yes      | No                                           |          |
| Seat Belt Load Limiter       | Yes                                        | Yes      | No                                           |          |
| Other                        | No                                         |          | No                                           |          |

## GENERAL COMMENTS

Both the front and rear doors on the struck side of the vehicle remained closed and latched. There was no separation at the hinges or latches. Both doors on the non-struck side remained closed and latched. The driver ATD's resultant lower spine acceleration, total pelvic force, and maximum thoracic and abdominal rib deflections exceeded their thresholds.

### SECTION 3

#### OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck NHTSA No. MC0315  
Test Program: NCAP Side Pole Impact Test Test Date: 3/7/12

#### CONVERSION FACTORS

| Quantity           | Typical Application | Std Units           | Metric Unit | Multiply By       |
|--------------------|---------------------|---------------------|-------------|-------------------|
| Mass               | Vehicle Weight      | lb                  | kg          | 0.4536            |
| Linear Velocity    | Impact Velocity     | miles/hr            | km/hr       | 1.609344          |
| Length or Distance | Measurements        | in                  | mm          | 25.4              |
| Volume             | Fuel Systems        | gal                 | liter       | 3.785             |
| Volume             | Small Fluids        | oz                  | mL          | 29.574            |
| Pressure           | Tire Pressures      | lbf/in <sup>2</sup> | kPa         | 6.895             |
| Temperature        | General Use         | °F                  | °C          | $=(T_f - 32)/1.8$ |
| Force              | Dynamic Forces      | lbf                 | N           | 4.448             |
| Moment             | Torque              | lbf-ft              | N•m         | 1.355             |

# DATA SHEET NO. 1

## GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck NHTSA No. MC0315  
 Test Program: NCAP Side Pole Impact Test Test Date: 3/7/12

## TEST VEHICLE INFORMATION AND OPTIONS

|                            |                        |
|----------------------------|------------------------|
| NHTSA Number               | MC0315                 |
| Model Year                 | 2012                   |
| Make                       | RAM                    |
| Model                      | 2500 ST Crew Cab       |
| Body Style                 | 4-Door Truck           |
| VIN                        | 3C6TD4CT5CG134444      |
| Body Color                 | Bright Silver Metallic |
| Odometer Reading (km / mi) | 27 / 17                |
| Engine Displacement (L)    | 5.7                    |
| Type / No. of Cylinders    | V-8                    |
| Engine Placement           | Longitudinal           |
| Transmission Type          | Automatic              |
| Transmission Speeds        | 6                      |
| Overdrive                  | Yes                    |
| Final Drive                | Rear                   |
| Roof Rack                  | No                     |
| Sunroof / T-Top            | No                     |
| Running Boards             | No                     |
| Tilt Steering Wheel        | Yes                    |
| Power Seats                | No                     |
| Anti-Lock Brakes (ABS)     | Yes                    |
| All Wheel Drive (AWD)      | No                     |

|                                   |      |
|-----------------------------------|------|
| Traction Control System (TCS)     | Yes  |
| Auto-Leveling System              | No   |
| Automatic Door Locks              | Yes  |
| Power Window Auto-Reverse         | Yes  |
| Other Optional Feature            | None |
| Driver Front Airbag               | Yes  |
| Driver Curtain Airbag             | Yes  |
| Driver Head/Torso Airbag          | No   |
| Driver Torso Airbag               | No   |
| Driver Torso/Pelvis Airbag        | No   |
| Driver Pelvis Airbag              | No   |
| Driver Knee Airbag                | No   |
| Rear Pass. Curtain Airbag         | Yes  |
| Rear Pass. Head/Torso Airbag      | No   |
| Rear Pass. Torso Airbag           | No   |
| Rear Pass. Torso/Pelvis Airbag    | No   |
| Rear Pass. Pelvis Airbag          | No   |
| Driver Seat Belt Pretensioner     | Yes  |
| Rear Pass. Seat Belt Pretensioner | No   |
| Driver Load Limiter               | Yes  |
| Rear Pass. Load Limiter           | No   |
| Other Safety Restraint            | None |

Does Owner's Manual provide instructions to turn off automatic door locks?

No

## DATA FROM CERTIFICATION LABEL

|                     |                    |
|---------------------|--------------------|
| Manufactured By     | Chrysler Group LLC |
| Date of Manufacture | Oct-11             |
| Vehicle Type        | Truck              |

|                 |      |
|-----------------|------|
| GVWR (kg)       | 3992 |
| GAWR Front (kg) | 2155 |
| GAWR Rear (kg)  | 2722 |

## VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

| Measured Parameter          | Front | Rear | Third | Total  |     |
|-----------------------------|-------|------|-------|--------|-----|
| Designated Seating Capacity | 3     | 3    |       | 6      |     |
| Capacity Weight (VCW) (kg)  |       |      |       | 1305.0 | A   |
| DSC x 68.04 (kg)            |       |      |       | 408.2  | B   |
| Cargo Weight (RCLW) (kg)    |       |      |       | 136.0  | A-B |

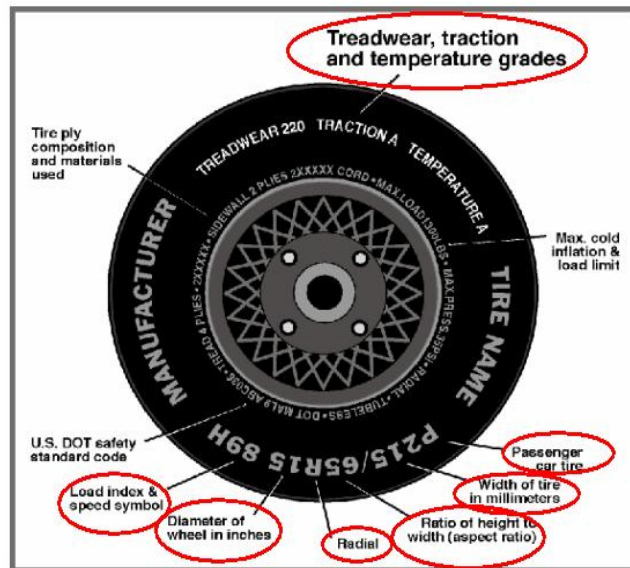
## VEHICLE SEAT TYPE

| Seating Location        | Type of Seat Pan |       |             |           | Type of Seat Back |            |         |
|-------------------------|------------------|-------|-------------|-----------|-------------------|------------|---------|
|                         | Bucket           | Bench | Split Bench | Contoured | Fixed             | Adjustable |         |
|                         |                  |       |             |           |                   | w/ Lever   | w/ Knob |
| Front Seat              | Yes              |       |             |           |                   | Yes        |         |
| Rear or Second Row Seat |                  | Yes   |             |           | Yes               |            |         |
| Third Row Seat          |                  |       |             |           |                   |            |         |

## DATA SHEET NO. 1 ... (CONTINUED)

### GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck NHTSA No. MC0315  
 Test Program: NCAP Side Pole Impact Test Test Date: 3/7/12



### TIRE PLACARD INFORMATION

| Measured Parameter                   | Front       | Rear        |
|--------------------------------------|-------------|-------------|
| Recommended Cold Tire Pressure (kPa) | 450         | 550         |
| Recommended Tire Size                | LT245/70R17 | LT245/70R17 |

### VEHICLE TIRE INFORMATION

| Measured Parameter       | Front            | Rear             |
|--------------------------|------------------|------------------|
| Max. Tire Pressure (kpa) | 550              | 550              |
| Tire Size on Vehicle     | LT245/70R17      | LT245/70R17      |
| Tire Manufacturer        | Michelin         | Michelin         |
| Tire Name                | LTX A/S          | LTX A/S          |
| Tire Type                | Light Truck      | Light Truck      |
| Tire Width               | 245              | 245              |
| Aspect Ratio             | 70               | 70               |
| Radial                   | Yes              | Yes              |
| Wheel Diameter           | 17               | 17               |
| Load Index/Speed Symbol  | E                | E                |
| Treadware                | N/A              | N/A              |
| Traction Grade           | N/A              | N/A              |
| Temperature Grade        | N/A              | N/A              |
| Tire Material            | Polyester, Steel | Polyester, Steel |

# DATA SHEET NO. 1 ... (CONTINUED)

## GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck NHTSA No. MC0315  
 Test Program: NCAP Side Pole Impact Test Test Date: 3/7/12

### TIRE PRESSURES

|                | Units | LF  | RF  | LR  | RR  |
|----------------|-------|-----|-----|-----|-----|
| As Delivered   | kPa   | 450 | 450 | 500 | 550 |
| Tire Placard   | kPa   | 450 | 450 | 550 | 550 |
| Owner's Manual | kPa   | 450 | 450 | 550 | 550 |
| As Tested      | kPa   | 450 | 450 | 550 | 550 |

### TEST VEHICLE AXLE WEIGHTS

|       | Units | As Delivered (UVW) |        |        | As Tested (ATW) |        |        | Fully Loaded |        |        |
|-------|-------|--------------------|--------|--------|-----------------|--------|--------|--------------|--------|--------|
|       |       | Front              | Rear   | Total  | Front           | Rear   | Total  | Front        | Rear   | Total  |
| Left  | kg    | 781.0              | 628.0  |        | 789.5           | 700.0  |        | 808.0        | 721.0  |        |
| Right | kg    | 706.0              | 599.0  |        | 724.0           | 678.0  |        | 698.0        | 673.0  |        |
| Ratio | %     | 54.8%              | 45.2%  | 100.0% | 52.3%           | 47.7%  | 100.0% | 51.9%        | 48.1%  | 100.0% |
| Total | kg    | 1487.0             | 1227.0 | 2714.0 | 1513.5          | 1378.0 | 2891.5 | 1506.0       | 1394.0 | 2900.0 |

### TARGET TEST WEIGHT CALCULATION

| Measured Parameter                  | Units | Value  |       |
|-------------------------------------|-------|--------|-------|
| Total Delivered Weight (UVW)        | kg    | 2714.0 | A     |
| Actual Weight of 1 P572 O ATD Used  | kg    | 49.0   | B     |
| Rated Cargo/Luggage Wt (RCLW)       | kg    | 136.0  | C     |
| Calculated Vehicle Target Wt (TVTW) | kg    | 2899.0 | A+B+C |

Does the measured As Tested Vehicle Weight lie within the required weight range (i.e.

Calculated Test Vehicle Target Weight -4.5 kg to -9.0 kg)? ☒ Yes ☐ No

### WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

| Component Description       | Weight (kg) |
|-----------------------------|-------------|
| Non-Struck Side Door Panels | 5.0         |
| Tire Jack                   | 6.0         |
|                             |             |
| Ballast / Equipment Added   | 143.8       |

**DATA SHEET NO. 1 ... (CONTINUED)****GENERAL TEST AND VEHICLE PARAMETER DATA**Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck NHTSA No. MC0315Test Program: NCAP Side Pole Impact Test Test Date: 3/7/12**TEST VEHICLE ATTITUDE AND CG**

| Measurement Description                                      | Units | As Delivered | As Tested | Fully Loaded | Meets Requirement*** |
|--------------------------------------------------------------|-------|--------------|-----------|--------------|----------------------|
| Driver Door Sill Angle (front-to-rear)*                      | °     | -1.3         | -1.2      | -1.1         | Yes                  |
| Front Passenger Sill Angle (front-to-rear)*                  | °     | -1.5         | -1.4      | -1.4         | Yes                  |
| Front Bumper-Line Angle (left-to-right)**                    | °     | 0.1          | 0.1       | 0.1          | Yes                  |
| Rear Bumper-Line Angle (left-to-right)**                     | °     | -0.3         | -0.3      | 0.0          | Yes                  |
| Vehicle CG (Aft of Front Axle)                               | mm    | 1719         | 1812      | 1828         |                      |
| Vehicle CG (Left (+)/Right (-) from Longitudinal Centerline) | mm    | 33           | 26        | 47           |                      |

\*ND=Nose Down (-), NU=Nose Up (+)

\*\*LD=Left Down (-), LU=Left Up (+)

\*\*\*The "As Tested" vehicle attitude angle measurements must be within "As Delivered" and the "Fully Loaded" vehicle attitude measurements at each location. Indicate "Yes" or "No" for "Meets Requirement"

**DATA SHEET NO. 2****SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA**Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck NHTSA No. MC0315Test Program: NCAP Side Pole Impact Test Test Date: 3/7/12**SEAT POSITIONING**

The driver's seat is set to the forward most position where the ATD will not contact any interior panels at the mid-height and mid-angle position. The front center seat (if applicable) and right front passenger's seat should be set in a similar manner as the driver's seat. The struck side rear passenger's seat, rear center seat, and non-struck side rear passenger's seats should be set to the rearmost, lowest, mid-angle position.

**SCRL ANGLE RANGE**

| Seat                      | SCRL (°) |       |       |
|---------------------------|----------|-------|-------|
|                           | Max      | Min   | Mid   |
| Driver Seat               | Fixed    | Fixed | Fixed |
| Front Passenger Seat      | Fixed    | Fixed | Fixed |
| Front Center Seat         | Fixed    | Fixed | Fixed |
| Struck Side Rear Seat     | Fixed    | Fixed | Fixed |
| Non-Struck Side Rear Seat | Fixed    | Fixed | Fixed |
| Rear Center Seat          | Fixed    | Fixed | Fixed |

**SEAT HEIGHT AND ANGLE**

| Seat                      | As Tested SCRL Angle | As Tested SCRP Height | SCRP Height Position | SCRP Height (mm) |              |             |
|---------------------------|----------------------|-----------------------|----------------------|------------------|--------------|-------------|
|                           |                      |                       |                      | Rearmost         | Mid Fore/Aft | Forwardmost |
| Driver Seat               | Fixed                | 888                   | Max                  | 872              | 880          | 888         |
|                           |                      |                       | Mid                  | 872              | 880          | 888         |
|                           |                      |                       | Min                  | 872              | 880          | 888         |
| Front Passenger Seat      | Fixed                | 890                   | Max                  | 874              | 882          | 890         |
|                           |                      |                       | Mid                  | 874              | 882          | 890         |
|                           |                      |                       | Min                  | 874              | 882          | 890         |
| Front Center Seat         | Fixed                | Fixed                 | Max                  | Fixed            | Fixed        | Fixed       |
|                           |                      |                       | Mid                  | Fixed            | Fixed        | Fixed       |
|                           |                      |                       | Min                  | Fixed            | Fixed        | Fixed       |
| Struck Side Rear Seat     | Fixed                | Fixed                 | Max                  | Fixed            | Fixed        | Fixed       |
|                           |                      |                       | Mid                  | Fixed            | Fixed        | Fixed       |
|                           |                      |                       | Min                  | Fixed            | Fixed        | Fixed       |
| Non-Struck Side Rear Seat | Fixed                | Fixed                 | Max                  | Fixed            | Fixed        | Fixed       |
|                           |                      |                       | Mid                  | Fixed            | Fixed        | Fixed       |
|                           |                      |                       | Min                  | Fixed            | Fixed        | Fixed       |
| Rear Center Seat          | Fixed                | Fixed                 | Max                  | Fixed            | Fixed        | Fixed       |
|                           |                      |                       | Mid                  | Fixed            | Fixed        | Fixed       |
|                           |                      |                       | Min                  | Fixed            | Fixed        | Fixed       |

## DATA SHEET NO. 2 ... (CONTINUED)

### SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA

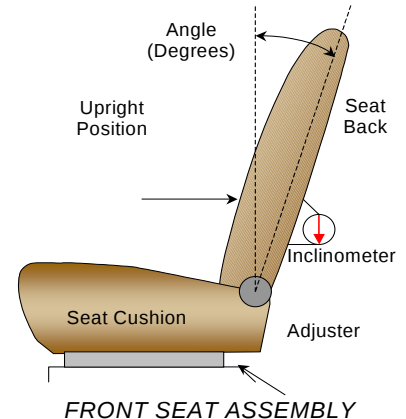
Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck      NHTSA No. MC0315  
 Test Program: NCAP Side Pole Impact Test      Test Date: 3/7/12

#### SEAT FORE/AFT POSITION

| Seat                      | Total Fore/Aft Travel |          | Test Position From Forwardmost Position |         |
|---------------------------|-----------------------|----------|-----------------------------------------|---------|
|                           | mm                    | Detents* | mm                                      | Detent* |
| Driver Seat               | 230                   | 24       | 0                                       | 0       |
| Front Passenger Seat      | 230                   | 24       | 0                                       | 0       |
| Front Center Seat         | Fixed                 | Fixed    | Fixed                                   | Fixed   |
| Struck Side Rear Seat     | Fixed                 | Fixed    | Fixed                                   | Fixed   |
| Non-Struck Side Rear Seat | Fixed                 | Fixed    | Fixed                                   | Fixed   |
| Rear Center Seat          | Fixed                 | Fixed    | Fixed                                   | Fixed   |

#### SEAT BACK ADJUSTMENT

The driver's seat back is positioned such that the dummy's head is level. The right front passenger seat back is set to the same angle as the driver's seat.



| Seat                                 | Total Seat Back Angle Range |          | Test Position from Most Upright |         |
|--------------------------------------|-----------------------------|----------|---------------------------------|---------|
|                                      | Degrees                     | Detents* | Degree                          | Detent* |
| Driver Seat w/Seated Dummy           | 55.7                        | 29       | 3.6                             | 5       |
| Front Passenger Seat                 | 56.0                        | 29       | 3.6                             | 5       |
| Front Center Seat                    | Fixed                       | Fixed    | Fixed                           | Fixed   |
| Struck Side Rear Seat w/Seated Dummy | Fixed                       | Fixed    | Fixed                           | Fixed   |
| Non-Struck Side Rear Seat            | Fixed                       | Fixed    | Fixed                           | Fixed   |
| Rear Center Seat                     | Fixed                       | Fixed    | Fixed                           | Fixed   |

#### SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1. The positions are marked H, M1, ... , L from top to bottom.

|             | Total No. of Positions | Placed in Position |
|-------------|------------------------|--------------------|
| Driver Seat | 5                      | H                  |

**DATA SHEET NO. 2 ... (CONTINUED)****SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA**Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck NHTSA No. MC0315Test Program: NCAP Side Pole Impact Test Test Date: 3/7/12**HEAD RESTRAINT ADJUSTMENT**

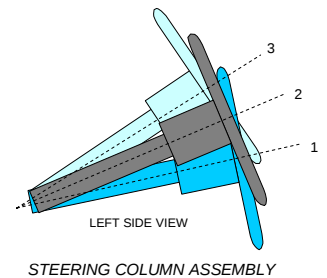
The driver's head restraint is adjusted to the lowest and most full forward in-use position.

|             | Total No. of Positions | Placed in Position |
|-------------|------------------------|--------------------|
| Driver Seat | 3                      | Full Down          |

**STEERING COLUMN ADJUSTMENT**

Steering wheel and column adjustments are made so that the steering wheel hub is at the center of the geometric locus it describes when it moves through its full range of motion.

|                                   | Degrees | Fore-Aft Position (mm) |
|-----------------------------------|---------|------------------------|
| Lowermost - Position 1            | 13.8    |                        |
| Geometric Center - Position 2     | 22.1    |                        |
| Uppermost - Position 3            | 30.4    |                        |
| Telescoping Steering Wheel Travel |         |                        |
| Test Position                     | 22.1    |                        |



**DATA SHEET NO. 2 ... (CONTINUED)****SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA**Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck NHTSA No. MC0315Test Program: NCAP Side Pole Impact Test Test Date: 3/7/12**FUEL TANK CAPACITY**

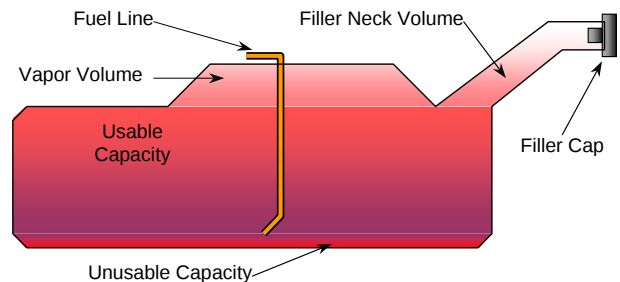
| Description                                             | Liters |
|---------------------------------------------------------|--------|
| Usable Capacity of "Standard Tank" (see Form No. 1)     | 128.69 |
| Usable Capacity of "Optional Tank" (see Form No. 1)     |        |
| Usable Capacity of "Standard Tank" (see Owner's Manual) |        |
| Usable Capacity of "Optional Tank" (see Owner's Manual) |        |
| 93% of Usable Capacity                                  | 119.68 |
| Actual amount of Solvent Used in Test                   | 119.68 |
| 1/3 of Usable Capacity                                  | 42.90  |

Is the Actual Amount of Solvent Used in the test equal to  $93\% \pm 1\%$  of the Usable Capacity stated in the Form No. 1? ☒ **Yes** ☐ **No**

**FUEL PUMP**

The vehicle is equipped with an electric fuel pump.

The fuel pump operates when the key is in and the ignition is in the "run" position.



VEHICLE FUEL TANK ASSEMBLY

### DATA SHEET NO. 3

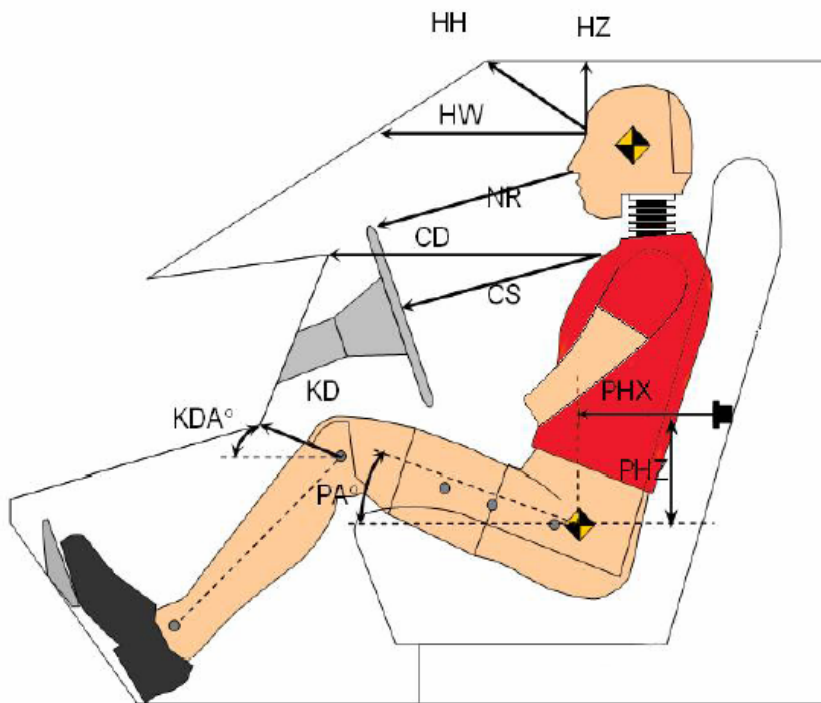
#### DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck

NHTSA No. MC0315

Test Program: NCAP Side Pole Impact Test

Test Date: 3/7/12



#### DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

| Driver Code   | Description                   | Driver      |           |
|---------------|-------------------------------|-------------|-----------|
|               |                               | Length (mm) | Angle (°) |
| HH            | Head to Header                | 357         |           |
| HW            | Head to Windshield            | 669         |           |
| HZ            | Head to Roof                  | 252         |           |
| NR            | Nose to Rim                   | 272         |           |
| CD            | Chest to Dash                 | 469         |           |
| CS            | Chest to Steering Wheel       | 210         |           |
| KD(L)/KDA(L)° | Left Knee to Dash             | 95          | 25.7      |
| KD(R)/KDA(R)° | Right Knee to Dash            | 83          | 23.5      |
| PAX°          | Pelvic Tilt Angle (x-axis)    |             | 21.5      |
| PAY°          | Pelvic Tilt Angle (y-axis)    |             | 0.4       |
| PHX           | Hip Point to Striker (x-axis) | 339         |           |
| PHZ           | Hip Point to Striker (z-axis) | 9           |           |

## DATA SHEET NO. 4

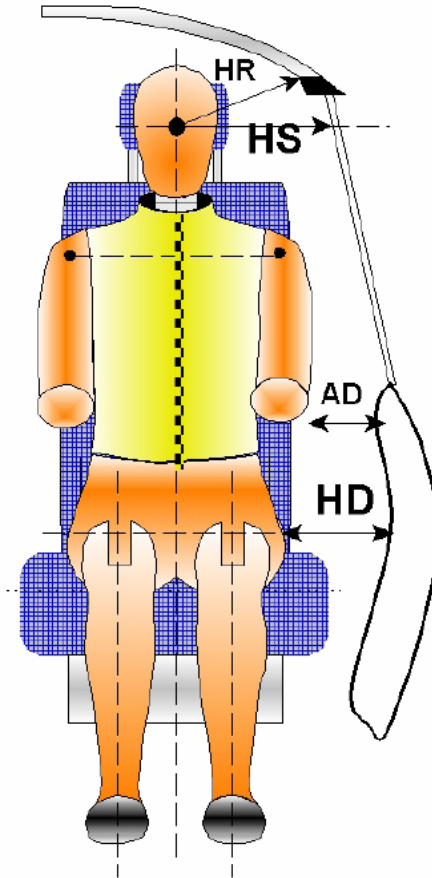
### DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck

NHTSA No. MC0315

Test Program: NCAP Side Pole Impact Test

Test Date: 3/7/12



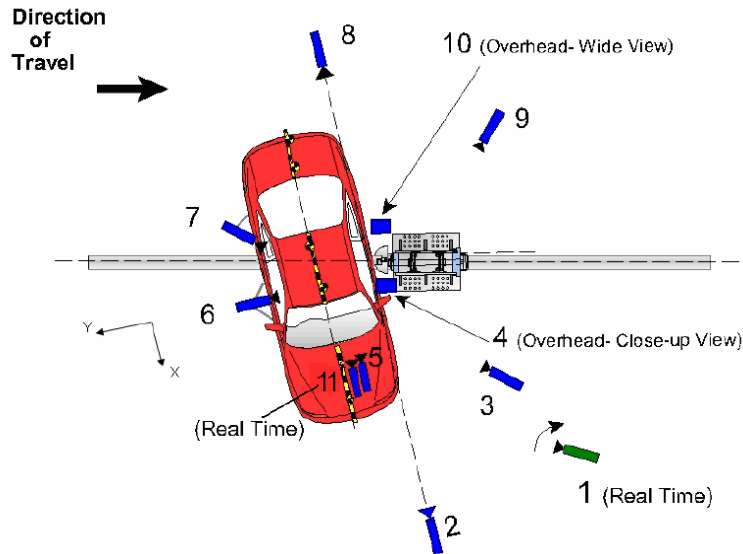
### DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

| Code | Measurement Description | Units | Driver |
|------|-------------------------|-------|--------|
| HR   | Head to Side Header     | mm    | 260    |
| HS   | Head to Side Window     | mm    | 344    |
| AD   | Arm to Door             | mm    | 164    |
| HD   | H-Point to Door         | mm    | 179    |

## DATA SHEET NO. 5

### CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck      NHTSA No. MC0315  
 Test Program: NCAP Side Pole Impact Test      Test Date: 3/7/12



### CAMERA LOCATIONS AND DATA

| Camera No. | View                                 | Coordinates (m) |       |       | Lens (mm) | Film Speed (fps) |
|------------|--------------------------------------|-----------------|-------|-------|-----------|------------------|
|            |                                      | X*              | Y*    | Z*    |           |                  |
| 1          | Real Time Pan View of Impact         | 8.89            | 46.57 | -3.04 |           | 30               |
| 2          | Front Ground Level - Impact View     | 8.34            | -0.05 | -0.93 | 24        | 1000             |
| 3          | Impact Side 45° - Forward Pole View  | 4.10            | -2.15 | -1.15 | 8.5       | 1000             |
| 4          | Overhead Close-Up View of Impact     | 0.00            | 0.00  | -5.79 | 12.5      | 1000             |
| 5          | On-Board - Dummy Front View          |                 |       |       | 24        | 1000             |
| 6          | On-Board - Dummy Side View           |                 |       |       | 14        | 1000             |
| 7          | On-Board - Dummy Rear Oblique View   |                 |       |       | 14        | 1000             |
| 8          | Rear Ground Level - Impact View      | -6.12           | -6.23 | -0.96 | 24        | 1000             |
| 9          | Impact Side 45° - Rearward Pole View | -8.02           | 0.04  | -1.01 | 35        | 1000             |
| 10         | Overhead Wide View of Impact         | -0.06           | 0.22  | -5.79 | 14        | 1000             |
| 11         | Real Time Dummy Front View           |                 |       |       |           | 30               |

Reference from Point of Impact for X and Y; from Ground for Z):

+X = Forward of Vehicle, +Y = Right of Vehicle, +Z = Down

\*All measurements accurate to  $\pm 6$  mm

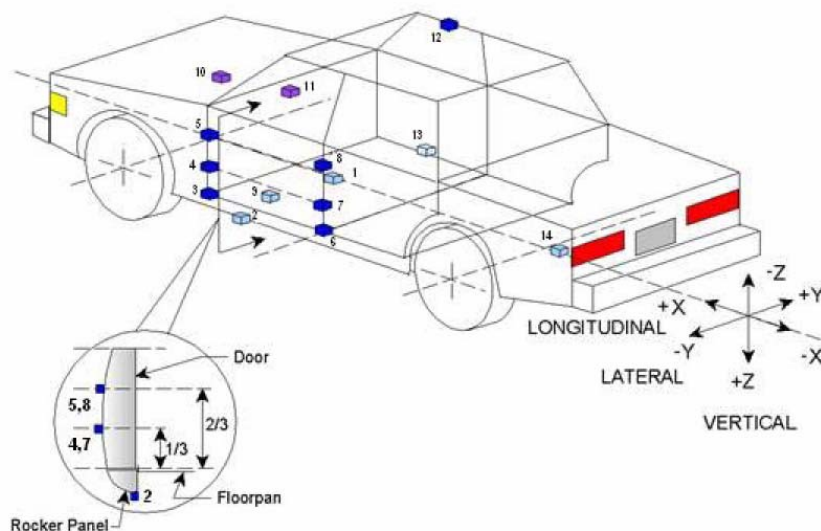
### INSTRUMENTATION

|                                  |    |
|----------------------------------|----|
| Driver Dummy Channels            | 16 |
| Vehicle Structure Accelerometers | 18 |
| Pole Load Cells                  | 8  |
| Total                            | 42 |

## DATA SHEET NO. 6

### TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck      NHTSA No. MC0315  
 Test Program: NCAP Side Pole Impact Test      Test Date: 3/7/12



### VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

| Loc. No. | Sensor Description | Coordinates (mm) |      |       |
|----------|--------------------|------------------|------|-------|
|          |                    | X                | Y    | Z     |
| 1        | Vehicle CG         | 3113             | 157  | -710  |
| 2        | Left Floor Sill    | 3290             | -415 | -260  |
| 3        | A-Pillar Sill      | 4275             | -885 | -566  |
| 4        | A-Pillar Low       | 4275             | -885 | -798  |
| 5        | A-Pillar Mid       | 4275             | -885 | -1019 |
| 6        | B-Pillar Sill      | 3160             | -849 | -620  |
| 7        | B-Pillar Low       | 3160             | -849 | -850  |
| 8        | B-Pillar Mid       | 3160             | -849 | -1080 |
| 9        | Driver Seat Track  | 3520             | -670 | -670  |
| 10       | Engine Top         | 5120             | 162  | -970  |
| 11       | Firewall           | 4520             | 313  | -1070 |
| 12       | Right Roof         | 3233             | 657  | -1840 |
| 13       | Right Floor Sill   | 3114             | 846  | -510  |
| 14       | Rear Floorpan      | 710              | 400  | -850  |

Reference:      X – Rear surface of vehicle (+ forward)  
                      Y – Vehicle centerline (+ to right)  
                      Z – Ground plane (+ down)

## DATA SHEET NO. 7

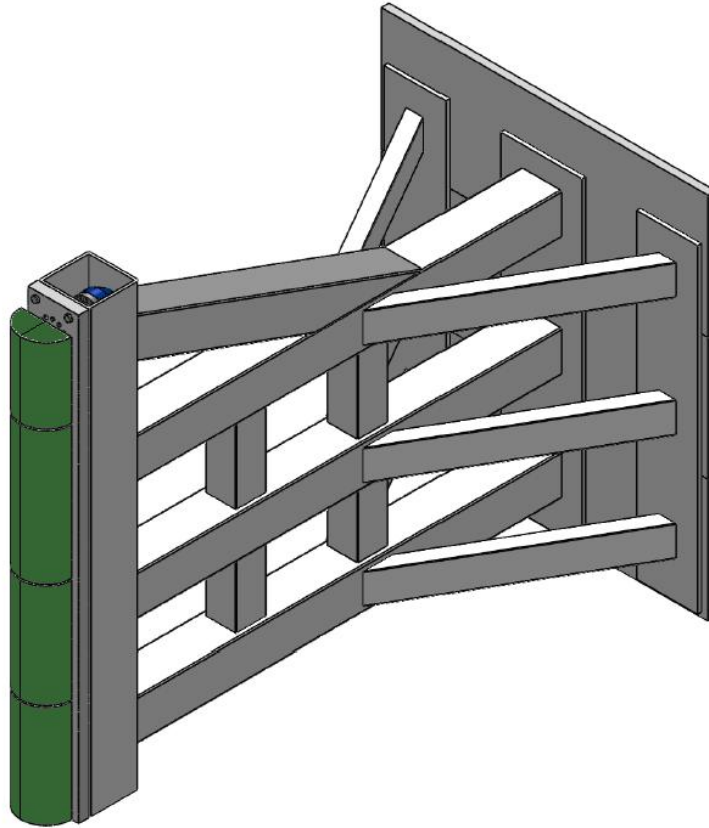
### RIGID POLE LOAD CELL DATA

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck

NHTSA No. MC0315

Test Program: NCAP Side Pole Impact Test

Test Date: 3/7/12



### RIGID POLE LOAD CELL LOCATIONS

| ID | Units | Height From Ground |
|----|-------|--------------------|
| 1  | mm    | 87                 |
| 2  | mm    | 468                |
| 3  | mm    | 648                |
| 4  | mm    | 978                |
| 5  | mm    | 1168               |
| 6  | mm    | 1651               |
| 7  | mm    | 1816               |
| 8  | mm    | 2057               |

## DATA SHEET NO. 8

### POST-TEST OBSERVATIONS

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck NHTSA No. MC0315  
 Test Program: NCAP Side Pole Impact Test Test Date: 3/7/12

#### TEST DUMMY INFORMATION AND CONTACT POINTS

| Dummy Body Part   | Driver SID-IIs Dummy                             |
|-------------------|--------------------------------------------------|
| Face              | Curtain Airbag                                   |
| Top of Head       | Curtain Airbag                                   |
| Left Side of Head | Curtain Airbag                                   |
| Back of Head      | Curtain Airbag, Head Restraint, Right Front Seat |
| Left Shoulder     | Door Panel                                       |
| Upper Torso       | Seat, Door Panel                                 |
| Lower Torso       | Seat, Door Panel                                 |
| Left Hip          | Seat, Door Panel                                 |
| Left Knee         | Door Panel, Steering Column, Right Knee          |

#### POST-TEST DOOR PERFORMANCE

| Description                                                        | Struck Side |      | Non-Struck Side |      | Rear Hatch/Other Door |
|--------------------------------------------------------------------|-------------|------|-----------------|------|-----------------------|
|                                                                    | Front       | Rear | Front           | Rear |                       |
| Remained Closed and Operational                                    | No          | No   | Yes             | Yes  | Yes                   |
| Total Separation from Vehicle at Hinges or Latches                 | No          | No   | No              | No   | No                    |
| Latch or Hinge System Pulled Out of Their Anchorages               | No          | No   | No              | No   | No                    |
| Disengaged from Latched Position                                   | No          | No   | No              | No   | No                    |
| Latch Separated from Striker                                       | No          | No   | No              | No   | No                    |
| Jammed Shut                                                        | Yes         | Yes  | No              | No   | No                    |
| If Door Opened at Striker, Record Width of Opening at Striker (mm) | n/a         | n/a  | n/a             | n/a  | n/a                   |

#### POST-TEST SEAT PERFORMANCE

| Description                              | Struck Side |      | Non-Struck Side |      |
|------------------------------------------|-------------|------|-----------------|------|
|                                          | Front       | Rear | Front           | Rear |
| Seat Movement Along Seat Track           | No          | No   | No              | No   |
| Seat Disengagement from Floor Pan        | No          | No   | No              | No   |
| Seat Back Movement from Initial Position | No          | No   | No              | No   |
| Seat Back Collapse                       | No          | No   | No              | No   |

#### POST-TEST STRUCTURAL OBSERVATIONS

| Critical Areas of Performance | Observations and Conclusions |
|-------------------------------|------------------------------|
| Pillar Performance            | No Separation                |
| Sill Separation               | No Separation                |
| Windshield Damage             | Broken                       |
| Side Window Damage            | Left Front Window Broken     |
| Other Notable Effects         | None                         |

**DATA SHEET NO. 8 ... (CONTINUED)****POST-TEST OBSERVATIONS**Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck NHTSA No. MC0315Test Program: NCAP Side Pole Impact Test Test Date: 3/7/12**SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION**

| Restraint Type               | Struck Side Driver |          | Struck Side Rear Passenger |          |
|------------------------------|--------------------|----------|----------------------------|----------|
|                              | Mounted            | Deployed | Mounted                    | Deployed |
| Frontal Airbag               | Yes                | No       | No                         |          |
| Knee Airbag                  | No                 |          | No                         |          |
| Side Airbag 1 (Curtain)      | Yes                | Yes      | Yes                        | Yes      |
| Side Airbag 2 (Torso/Pelvis) | No                 |          | No                         |          |
| Seat Belt Pretensioner       | Yes                | Yes      | No                         |          |
| Seat Belt Load Limiter       | Yes                | Yes      | No                         |          |
| Other                        | No                 |          | No                         |          |

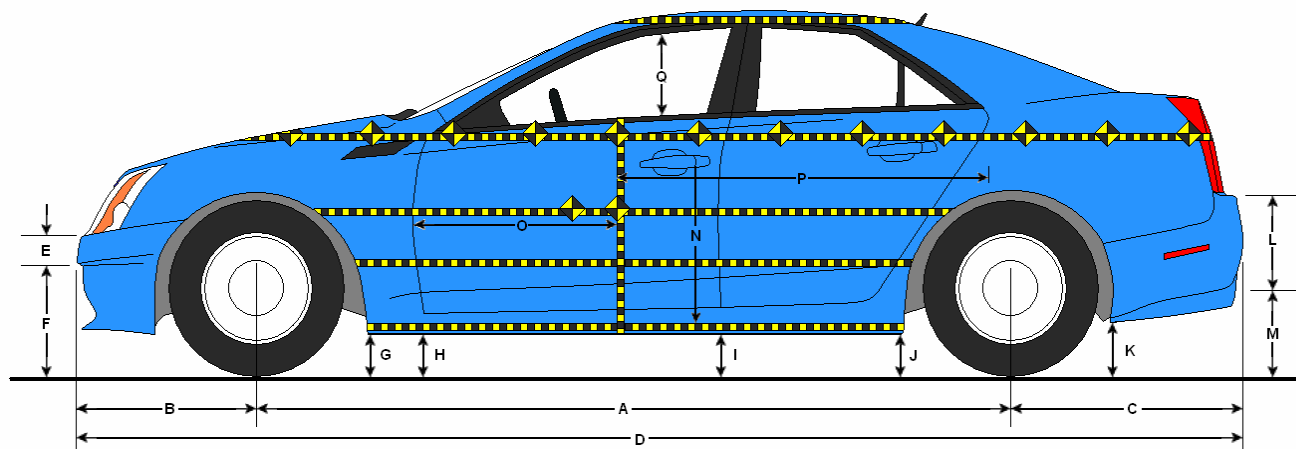
**IMPACT POINT LOCATION DATA**

| Measured Parameter                                                         | Units | Tolerance                     | Value |
|----------------------------------------------------------------------------|-------|-------------------------------|-------|
| Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)  | mm    |                               | 1235  |
| Actual Impact Point (Aft of Front Axle)                                    | mm    |                               | 1213  |
| Horizontal Offset (+ forward / - rearward)                                 | mm    | ± 38 of Intended Impact Point | 22    |
| Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion | °     | 75 ± 3                        | 75.1  |
| Trap No. 1 Velocity (Primary)                                              | km/h  | 31.4 to 33.0                  | 32.5  |
| Trap No. 2 Velocity (Redundant)                                            | km/h  | 31.4 to 33.0                  | 32.5  |

## DATA SHEET NO. 9

### TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck      NHTSA No. MC0315  
 Test Program: NCAP Side Pole Impact Test      Test Date: 3/7/12



**LEFT SIDE VIEW**

### VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

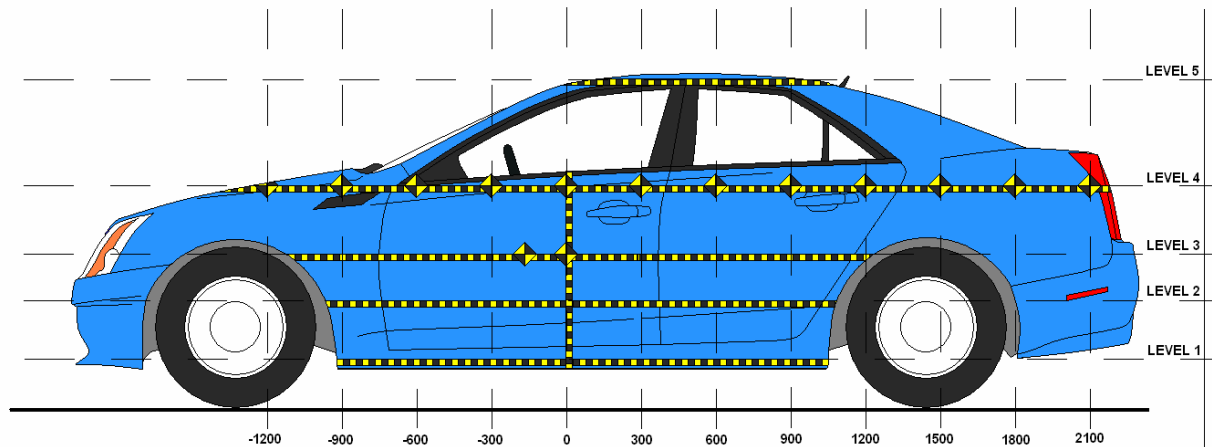
| Code | Description                                | Pre-Test | Post-Test | Difference |
|------|--------------------------------------------|----------|-----------|------------|
| A    | Wheelbase                                  | 3803     | 3682      | -121       |
| B    | Front Axle to FSOV                         | 1007     | 1042      | 35         |
| C    | Rear Axle to RSOV                          | 1232     | 1264      | 32         |
| D    | Total Length at Centerline                 | 6042     | 5990      | -52        |
| E    | Front Bumper Thickness                     | 380      | 380       | 0          |
| F    | Front Bumper Bottom to Ground              | 319      | 343       | 24         |
| G    | Sill Height at Front Wheel Well            | 320      | 344       | 24         |
| H    | Sill Height at Front Door Leading Edge     | 338      | 316       | -22        |
| I    | Sill Height at B-Pillar                    | 351      | 320       | -31        |
| J1   | Sill Height at Rear Wheel Well             | 368      | 359       | -9         |
| J2   | Pinch Weld Height at Rear Wheel Well       | 343      | 330       | -13        |
| K    | Sill Height Aft of Rear Wheel Well         | 451      | 474       | 23         |
| L    | Rear Bumper Thickness                      | 265      | 270       | 5          |
| M    | Rear Bumper Bottom to Ground               | 463      | 499       | 36         |
| N    | Sill Height to Bottom of Front Window Sill | 860      | 832       | -28        |
| O    | Front Door Leading Edge to Impact CL       | 715      | 670       | -45        |
| P    | Rear Door Trailing Edge to Impact CL       | 1428     | 1320      | -108       |
| Q    | Front Window Opening                       | 490      | 480       | -10        |
| R    | Right Side Length                          | 4990     | 5045      | 55         |
| S    | Left Side Length                           | 4990     | 4760      | -230       |
| T    | Vehicle Width at B-Pillar                  | 2005     | 1860      | -145       |

All measurements in mm with tolerance of  $\pm 3$ mm

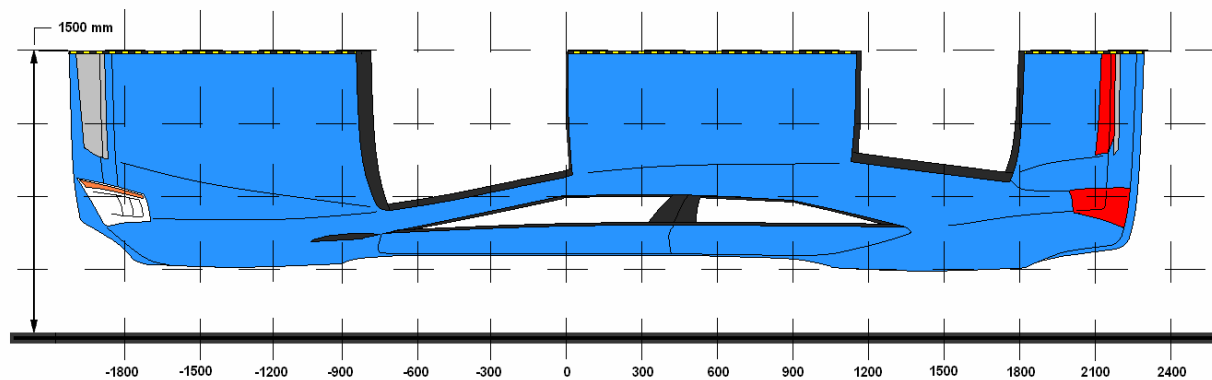
## DATA SHEET NO. 10

### TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck NHTSA No. MC0315  
 Test Program: NCAP Side Pole Impact Test Test Date: 3/7/12



**LEFT SIDE VIEW**



**OVERHEAD VIEW**

### MAXIMUM EXTERIOR CRUSH MEASUREMENTS

| Level | Description      | Height Above Ground (mm) | Maximum Exterior Static Crush | Distance from Impact |
|-------|------------------|--------------------------|-------------------------------|----------------------|
| 1     | Sill Top         | 440                      | 633                           | 0                    |
| 2     | Occupant H-Point | 860                      | 686                           | 0                    |
| 3     | Mid-Door         | 910                      | 683                           | 0                    |
| 4     | Window Sill      | 1220                     | 622                           | 0                    |
| 5     | Window Top       | 1810                     | 433                           | 0                    |

# DATA SHEET NO. 10 ... (CONTINUED)

## TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck NHTSA No. MC0315  
 Test Program: NCAP Side Pole Impact Test Test Date: 3/7/12

## EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

|      | Pre-Test (mm) |     |     |     |     | Post-Test (mm) |      |      |      |      | Difference (mm) |     |      |     |     |
|------|---------------|-----|-----|-----|-----|----------------|------|------|------|------|-----------------|-----|------|-----|-----|
|      | 1             | 2   | 3   | 4   | 5   | 1              | 2    | 3    | 4    | 5    | 1               | 2   | 3    | 4   | 5   |
| -900 |               | 395 | 398 | 500 |     |                | 552  | 553  | 642  |      |                 | 157 | 155  | 142 |     |
| -750 |               | 392 | 400 | 492 |     |                | 574  | 570  | 670  |      |                 | 182 | 170  | 178 |     |
| -600 | 480           | 395 | 400 | 482 |     | 757            | 668  | 656  | 704  |      | 277             | 273 | 256  | 222 |     |
| -450 | 480           | 395 | 400 | 475 |     | 853            | 770  | 767  | 770  |      | 373             | 375 | 367  | 295 |     |
| -300 | 480           | 405 | 406 | 467 |     | 940            | 886  | 877  | 870  |      | 460             | 481 | 471  | 403 |     |
| -150 | 481           | 407 | 407 | 465 |     | 1033           | 993  | 981  | 975  |      | 552             | 586 | 574  | 510 |     |
| 0    | 480           | 407 | 407 | 458 | 697 | 1113           | 1093 | 1090 | 1080 | 1130 | 633             | 686 | 683  | 622 | 433 |
| 150  | 478           | 408 | 408 | 457 | 697 | 1076           | 1068 | 1072 | 1060 | 1120 | 598             | 660 | 664  | 603 | 423 |
| 300  | 478           | 408 | 408 | 452 | 692 | 950            | 937  | 935  | 930  | 1040 | 472             | 529 | 527  | 478 | 348 |
| 450  | 477           | 408 | 408 | 452 | 692 | 875            | 758  | 758  | 787  | 970  | 398             | 350 | 350  | 335 | 278 |
| 600  | 477           | 408 | 408 | 450 | 700 | 914            | 720  | 718  | 750  | 915  | 437             | 312 | 310  | 300 | 215 |
| 750  | 478           | 410 | 410 | 450 | 700 | 771            | 685  | 685  | 710  | 895  | 293             | 275 | 275  | 260 | 195 |
| 900  | 478           | 412 | 412 | 450 | 697 | 728            | 650  | 648  | 673  | 885  | 250             | 238 | 236  | 223 | 188 |
| 1050 | 479           | 415 | 414 | 450 | 697 | 695            | 614  | 617  | 636  | 890  | 216             | 199 | 203  | 186 | 193 |
| 1200 | 480           | 418 | 416 | 450 | 700 | 666            | 580  | 583  | 606  | 880  | 186             | 162 | 167  | 156 | 180 |
| 1350 | 482           | 421 | 421 | 453 | 700 | 643            | 549  | 548  | 575  | 870  | 161             | 128 | 127  | 122 | 170 |
| 1500 | 510           | 425 | 426 | 458 |     | 638            | 558  | 558  | 601  |      | 128             | 133 | 132  | 143 |     |
| 1650 | 492           | 432 | 433 | 466 |     | 580            | 525  | 527  | 562  |      | 88              | 93  | 94   | 96  |     |
| 1800 | 495           | 429 | 430 | 458 |     | 580            | 518  | 516  | 550  |      | 85              | 89  | 86   | 92  |     |
| 1950 | 498           | 427 | 427 | 457 |     | 580            | 505  | 505  | 550  |      | 82              | 78  | 78   | 93  |     |
| 2100 |               | 427 | 427 | 457 |     |                | 505  | 50   | 550  |      |                 | 78  | -377 | 93  |     |
| 2250 |               | 427 | 430 | 457 |     |                | 505  | 500  | 550  |      |                 | 78  | 70   | 93  |     |
| 2400 |               |     |     | 465 |     |                |      |      | 550  |      |                 |     |      | 85  |     |
| 2550 |               |     |     | 485 |     |                |      |      | 555  |      |                 |     |      | 70  |     |
| 2700 |               |     |     | 490 |     |                |      |      | 560  |      |                 |     |      | 70  |     |
| 2850 |               |     |     | 473 |     |                |      |      | 530  |      |                 |     |      | 57  |     |

## DATA SHEET NO. 10 ... (CONTINUED)

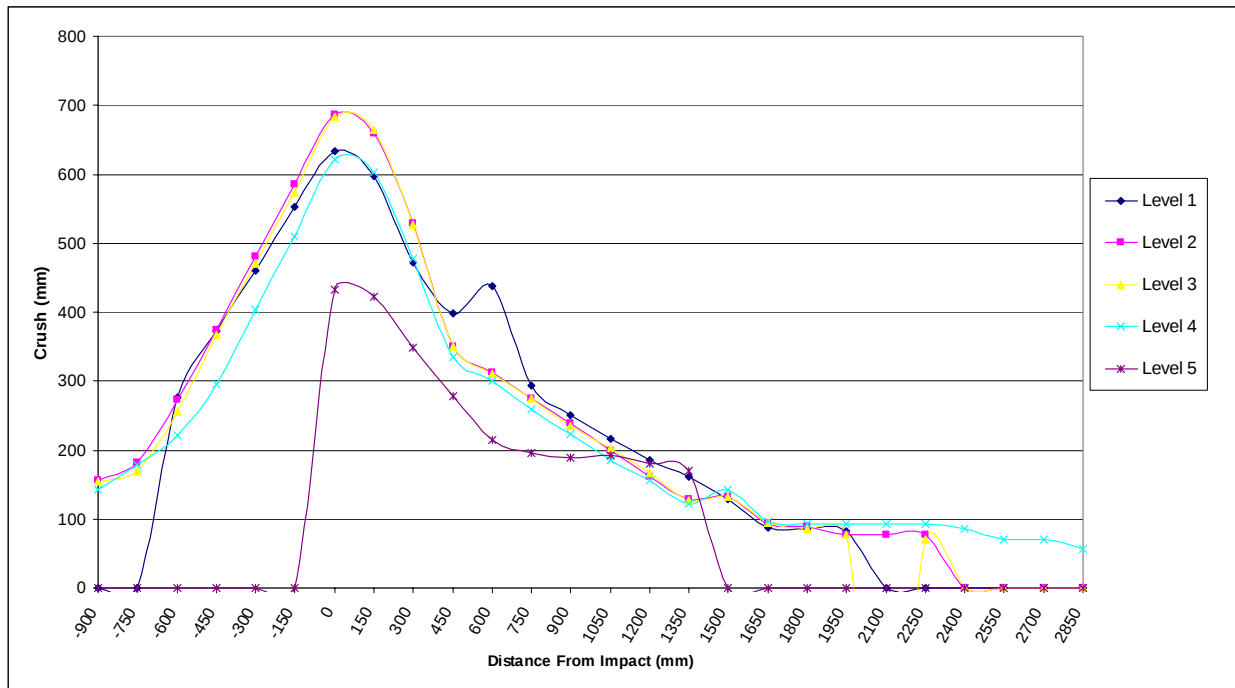
### TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck

NHTSA No. MC0315

Test Program: NCAP Side Pole Impact Test

Test Date: 3/7/12

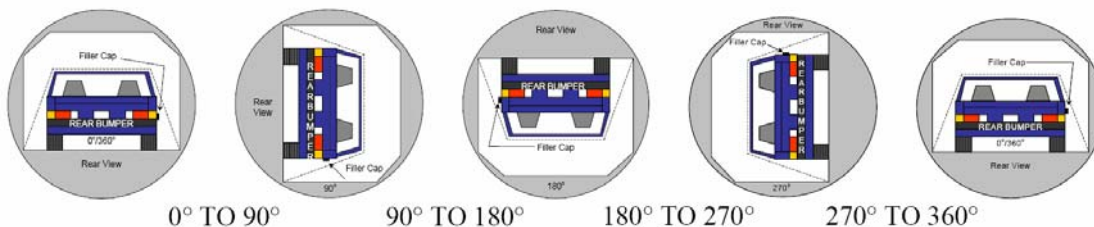


## DATA SHEET NO. 11

### FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck NHTSA No. MC0315  
 Test Program: NCAP Side Pole Impact Test Test Date: 3/7/12  
 Temperature at Time of Impact: 9.9° C Test Time: 1:21 PM

- A. From impact until vehicle motion ceases: 0 oz.  
 (Maximum allowable = 1 oz.)
- B. For the 5 minute period after motion ceases: 0 oz.  
 (Maximum allowable = 5 oz.)
- C. For the following 25 minutes: 0 oz.  
 (Maximum allowable = 1 oz./minute)
- D. Spillage Details: No spillage occurred



### SOLVENT COLLECTION TIME TABLE IN SECONDS

| Test Phase   | Rotation Time | Hold Time | Total Time |
|--------------|---------------|-----------|------------|
| 0° To 90°    | 83            | 300       | 383        |
| 90° To 180°  | 82            | 300       | 382        |
| 180° To 270° | 77            | 300       | 377        |
| 270° To 360° | 80            | 300       | 380        |

### FMVSS 301 SPILLAGE TABLE

| Test Phase   | First 5 Minutes | Sixth Minute | Seventh Minute | Eighth Minute |
|--------------|-----------------|--------------|----------------|---------------|
| 0° To 90°    | 0               |              |                |               |
| 90° To 180°  | 0               |              |                |               |
| 180° To 270° | 0               |              |                |               |
| 270° To 360° | 0               |              |                |               |

### SOLVENT SPILLAGE LOCATION TABLE

| Test Phase   | Spillage Location    |
|--------------|----------------------|
| 0° To 90°    | No Spillage Occurred |
| 90° To 180°  | No Spillage Occurred |
| 180° To 270° | No Spillage Occurred |
| 270° To 360° | No Spillage Occurred |

## DATA SHEET NO. 14

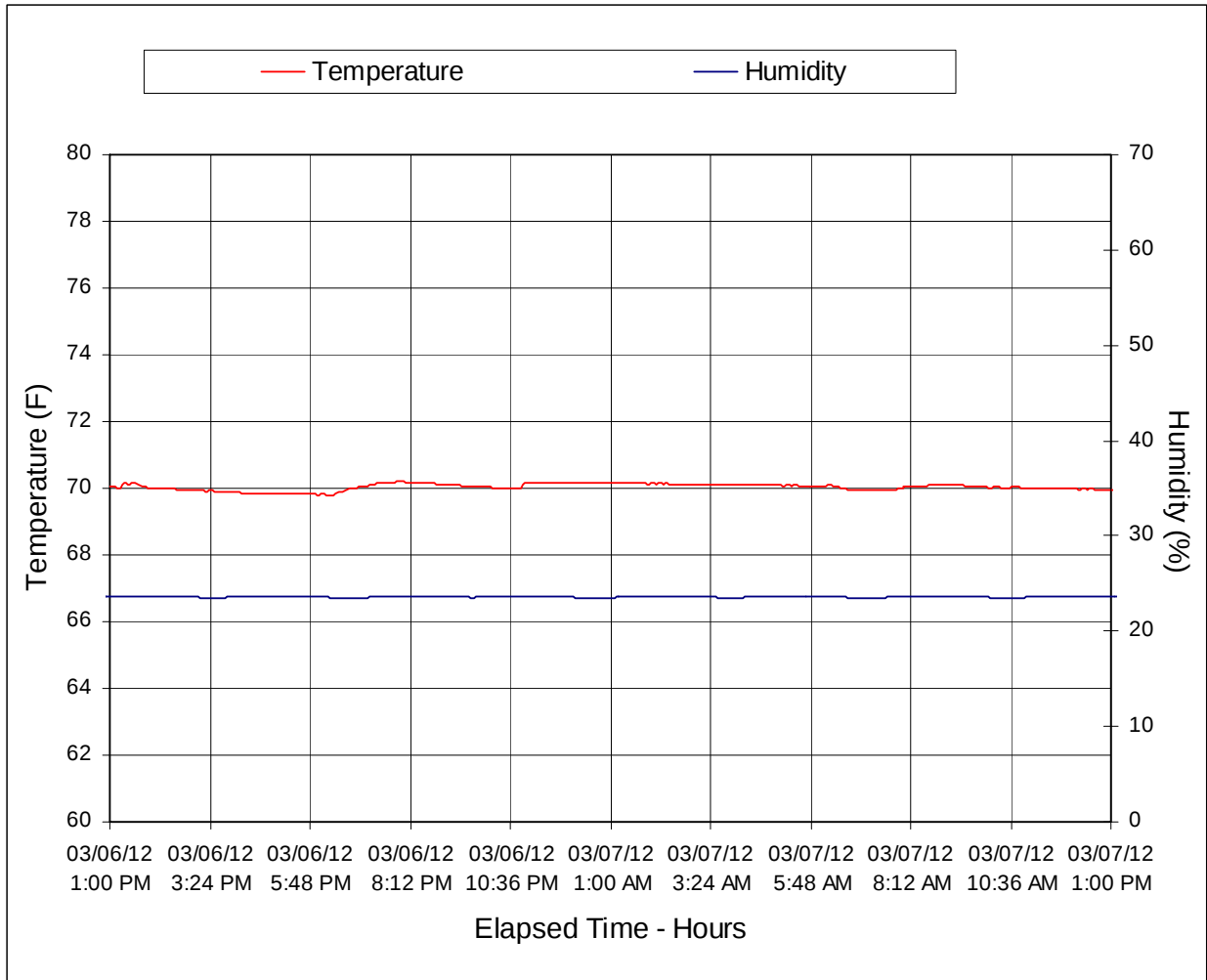
### DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck

NHTSA No. MC0315

Test Program: NCAP Side Pole Impact Test

Test Date: 3/7/12



**APPENDIX A**  
**PHOTOGRAPHS**

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FIGURE 1. As-Delivered Right Front  $\frac{3}{4}$  View of Test Vehicle



FIGURE 2. As-Delivered Left Rear  $\frac{3}{4}$  View of Test Vehicle



FIGURE 3. Pre-Test Frontal View of Test Vehicle



FIGURE 4. Post-Test Frontal View of Test Vehicle



FIGURE 5. Pre-Test Left Front  $\frac{3}{4}$  View of Test Vehicle



FIGURE 6. Post-Test Left Front  $\frac{3}{4}$  View of Test Vehicle



FIGURE 7. Pre-Test Left Side View of Test Vehicle



FIGURE 8. Post-Test Left Side View of Test Vehicle



FIGURE 9. Pre-Test Left Rear  $\frac{3}{4}$  View of Test Vehicle



FIGURE 10. Post-Test Left Rear  $\frac{3}{4}$  View of Test Vehicle



FIGURE 11. Pre-Test Rear View of Test Vehicle



FIGURE 12. Post-Test Rear View of Test Vehicle



FIGURE 13. Pre-Test Right Side View of Test Vehicle



FIGURE 14. Post-Test Right Side View of Test Vehicle



FIGURE 15. Pre-Test Overhead View of Test Vehicle and Pole



FIGURE 16. Post-Test Overhead View of Test Vehicle and Pole



FIGURE 17. Pre-Test Left Side View of Pole  
Positioned Against Side of Vehicle at Impact Point



FIGURE 18. Pre-Test Right Side View of Pole  
Positioned Against Side of Vehicle at Impact Point



FIGURE 19. Pre-Test Close-Up View of Impact Point Target



FIGURE 20. Post-Test Close-Up View of Impact Point Target Showing Impact Location



FIGURE 21. Pre-Test Front Close-Up View of Dummy



FIGURE 22. Post-Test Front Close-Up View of Dummy



FIGURE 23. Pre-Test Left Side View of Dummy Showing Belt, Chalking, and Contact Switches



FIGURE 24. Pre-Test Left Side View of Dummy Shoulder and Door Top View



FIGURE 25. Post-Test Left Side View of Dummy Shoulder and Door Top View



FIGURE 26. Pre-Test Frontal View of Seat Back Prior to Dummy Positioning



FIGURE 27. Pre-Test Frontal View of Dummy Head and Shoulders  
in Relation to Head Restraint



FIGURE 28. Pre-Test Frontal View of Seat Pan Prior to Dummy Positioning



FIGURE 29. Pre-Test Overhead View of Dummy Thighs on Seat Pan

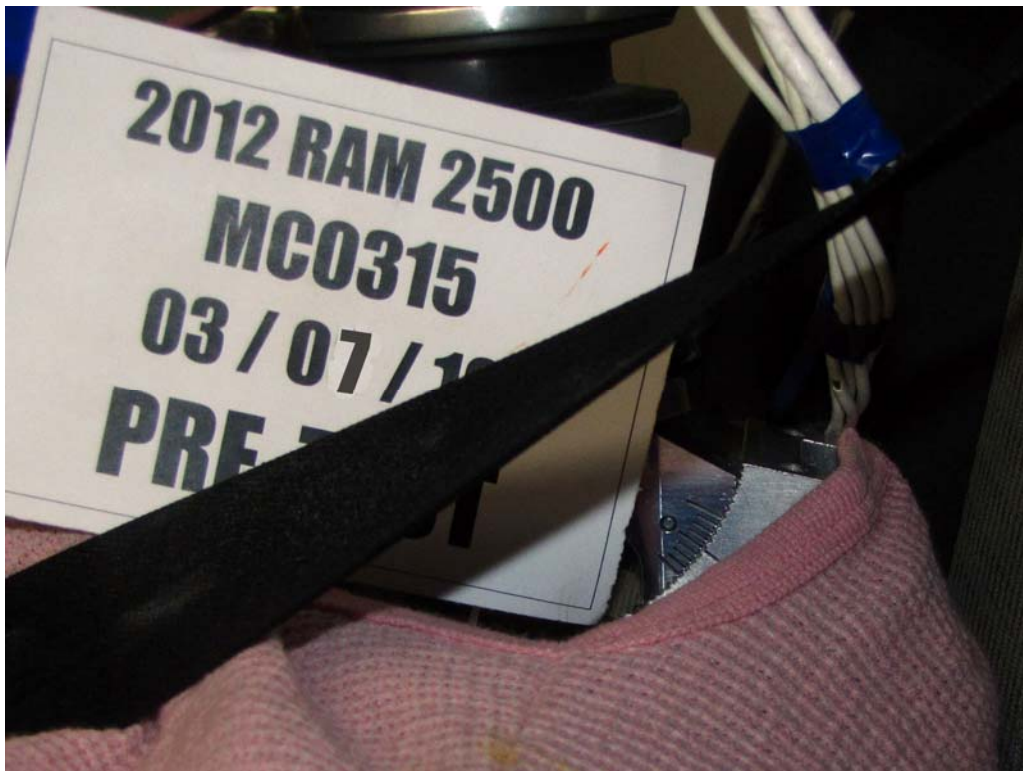


FIGURE 30. Pre-Test View of Dummy's Neck Showing Position of Adjustable Neck Bracket



FIGURE 31. Pre-Test View of Dummy's Head Showing Dummy's Head Is Level

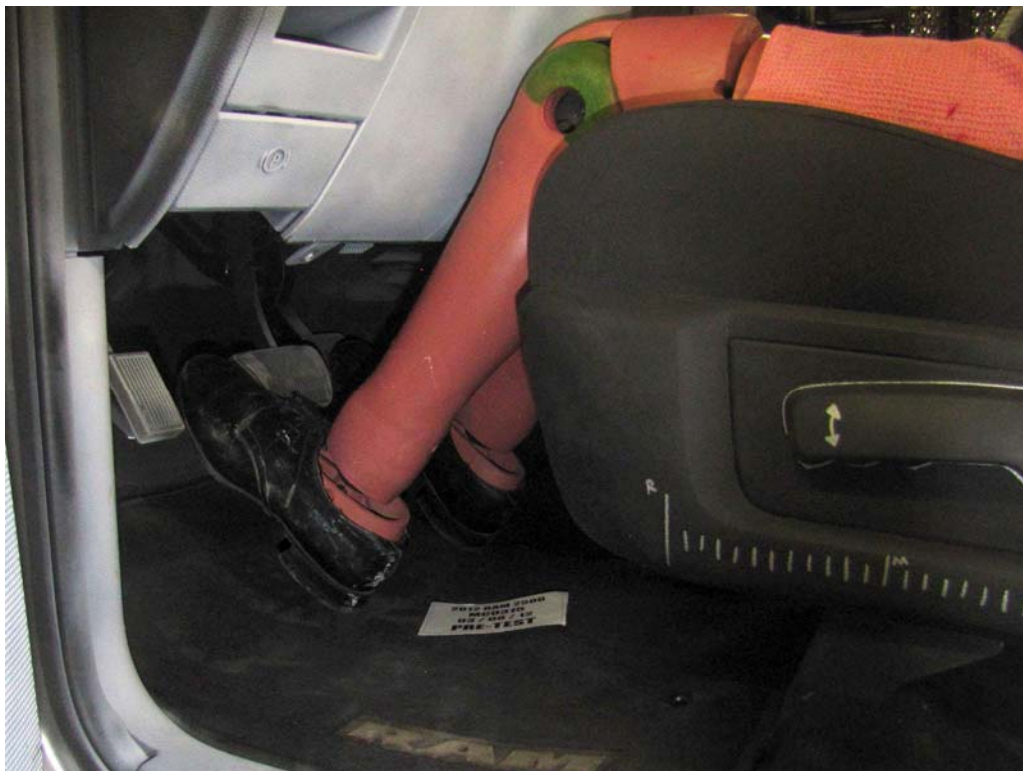


FIGURE 32. Pre-Test Placement of Dummy's Feet



FIGURE 33. Pre-Test View of Belt Anchorage for Dummy



FIGURE 34. Pre-Test Left Side View of Steering Wheel



FIGURE 35. View of Disengaged Parking Brake



FIGURE 36. Pre-Test View of Parking Brake



FIGURE 37. Pre-Test Close-Up Left Side View of Driver Seat Track



FIGURE 38. Pre-Test Close-Up Left Side View of Driver Seat Back



FIGURE 39. Pre-Test Close-Up View of Driver Seat Back or Head Restraint



FIGURE 40. Pre-Test Driver Dummy and Door Clearance



FIGURE 41. Post-Test Driver Dummy and Door Clearance



FIGURE 42. Pre-Test Right Side View of Dummy and Front Seat Occupant Compartment



FIGURE 43. Post-Test Right Side View of Dummy and Front Seat Occupant Compartment



FIGURE 44. Pre-Test Inner Driver Door Panel View

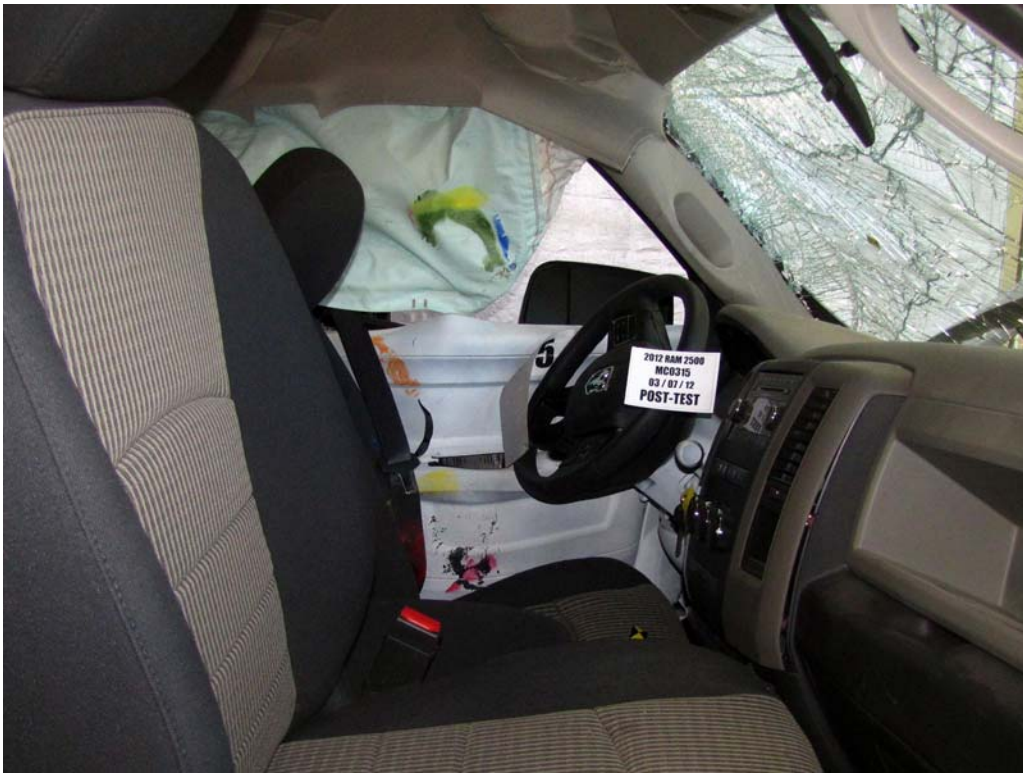


FIGURE 45. Post-Test Inner Driver Door Panel View  
Showing Dummy Contact Locations



FIGURE 46. Post-Test Dummy Close-Up Head Contact with Vehicle Interior View



FIGURE 47. Post-Test Dummy Close-Up Head Contact with Side Airbag View



FIGURE 48. Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View

Photograph Not Applicable

Vehicle Not Equipped With  
Driver Side Airbag

FIGURE 49. Post-Test Dummy Close-Up Torso Contact with Side Airbag View



FIGURE 50. Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View

# Photograph Not Applicable

## Vehicle Not Equipped With Driver Side Airbag

FIGURE 51. Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View



FIGURE 52. Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



FIGURE 53. Post-Test View of Fuel Filler Cap or Fuel Filler Neck



FIGURE 54. Close-Up View of Vehicle's Certification Label

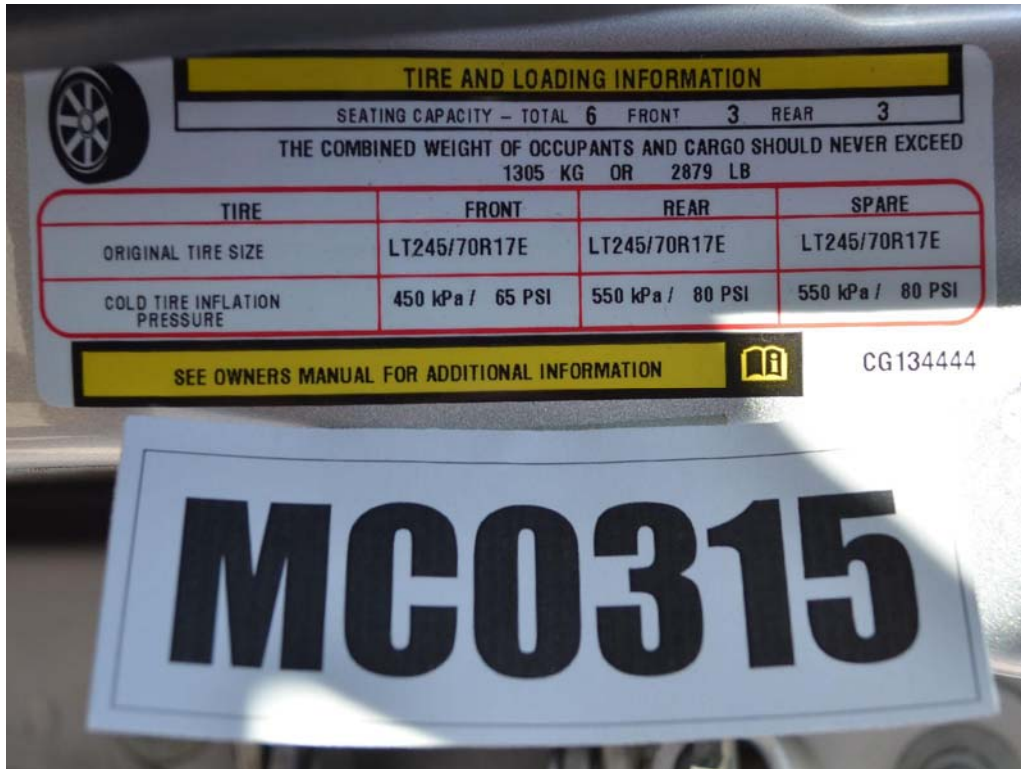


FIGURE 55. Close-Up View of Vehicle's Tire Information Placard



FIGURE 56. Pre-Test Pole Barrier Front View



FIGURE 57. Post-Test Pole Barrier Front View



FIGURE 58. Pre-Test Pole Barrier Side View



FIGURE 59. Post-Test Pole Barrier Side View



FIGURE 60. Pre-Test Ballast View



FIGURE 61. Post-Test Primary and Redundant Speed Trap Read-Out

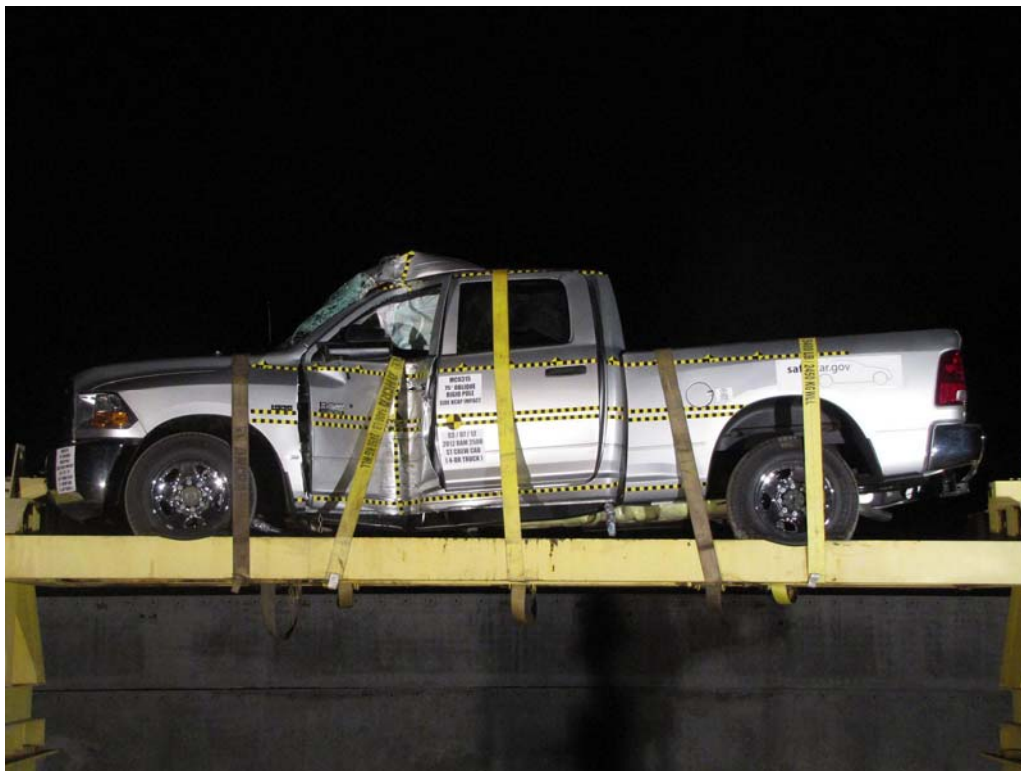


FIGURE 62. FMVSS No. 301-305 Rollover 0 Degrees



FIGURE 63. FMVSS No. 301-305 Rollover 90 Degrees



FIGURE 64. FMVSS No. 301-305 Rollover 180 Degrees



FIGURE 65. FMVSS No. 301-305 Rollover 270 Degrees

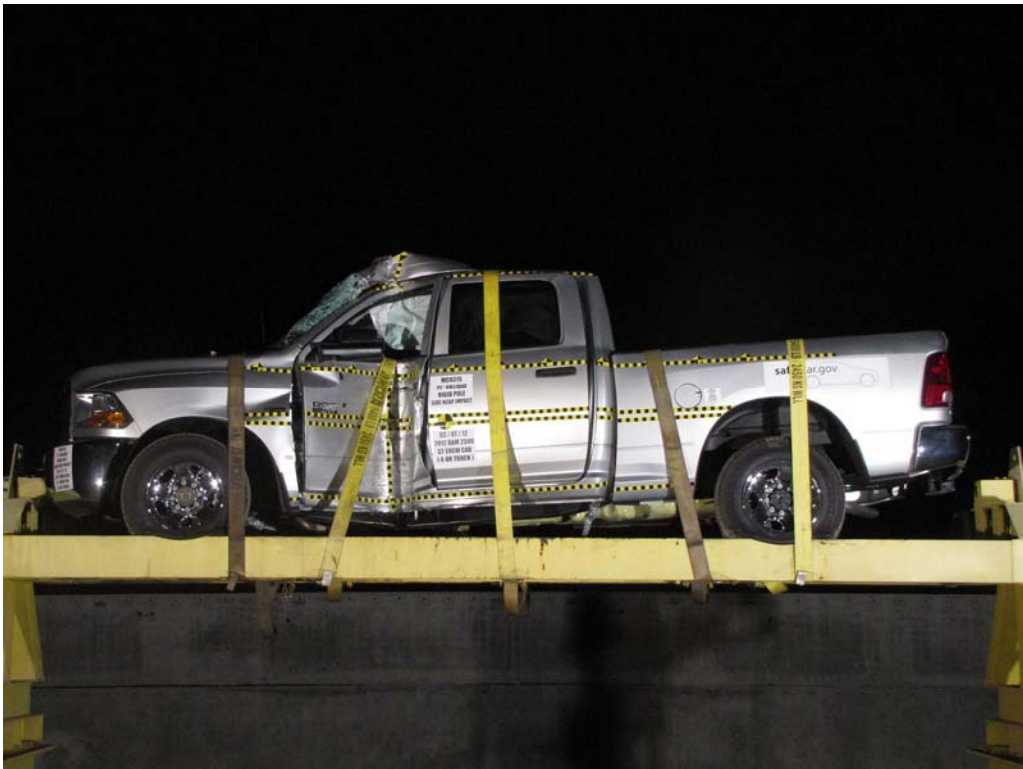


FIGURE 66. FMVSS No. 301-305 Rollover 360 Degrees



FIGURE 67. Impact Event

**2012 MODEL YEAR**  
**RAM 2500 ST CREW CAB 4X2**

For more information visit: [www.ramtrucks.com](http://www.ramtrucks.com)  
or call 1-866-RAMINFO

Chrysler Group LLC

THIS VEHICLE IS MANUFACTURED TO MEET SPECIFIC UNITED STATES REQUIREMENTS. THIS VEHICLE IS NOT MANUFACTURED FOR SALE OR REGISTRATION OUTSIDE OF THE UNITED STATES.

**MANUFACTURER'S SUGGESTED RETAIL PRICE OF THIS MODEL INCLUDING DEALER PREPARATION**

**Base Price: \$31,915**

**DODGE RAM 2500 ST CREW CAB 4X2**  
Exterior Color: Bright Silver Metallic; Clear Coat Exterior Paint  
Interior Color: Dark Slate / Medium Graystone Interior Colors  
Interior: Premium Cloth 40 / 20 / 40 Bench Seat  
Engine: 5.7L I-6 HEMI VVT Engine  
Transmission: 6-Speed Automatic NHTSE Transmission

**STANDARD EQUIPMENT (UNLESS REPLACED BY OPTIONAL EQUIPMENT)**

**FUNCTIONAL SAFETY FEATURES**  
Advanced Multi-stage Front Airbags  
Supplemental Side-Curtain Front and Rear Airbags  
Tire Pressure Monitor w/ 4-Wheel Pressure Display  
Electronic Stability Control  
24-Gallon Fuel Tank  
Heavy Duty Engine Cooling  
730-Amp Maintenance-Free Batteries  
Automatic 4-Wheel Disc Brakes  
Sentry Key Theft Deterrent System  
Speed Control  
Power Locks  
Power Windows w/ Front One-Touch Up & Down Feature  
Automatic Headlamps  
Power-Related Mirrors with Manual Fold-Away  
Front Stabilizer Bar

**EXTERIOR FEATURES**  
Air Conditioning  
Instrument Cluster with Vehicle Information Display  
Media Center 130 COMPS  
6 Speakers  
Second-Row In-Floor Storage Bins  
Height-Adjustable Front Shoulder Belts  
40 / 20 / 40 Split Bench Seat  
12-Volt Auxiliary Power Outlet  
Tilt Steering Column  
Variable Intermittent Windshield Wipers  
Day / Night Rearview Mirror

**EXTERIOR FEATURES**  
17-inch x 7.5-inch Steel Argent-Styled Wheels  
17x42/17x17 800R All Season Tires  
Locking Tensioner  
Trailer Tow Wiring with 7-Pin Connector  
Trailer Tow Wiring with 4-Pin Connector  
Tinted Glass Windows  
Crawl Lamp  
Park-Save Spare Tire  
165-Amp Alternator  
16-Start - Single Turn Starting  
Halogen Headlamps

**OPTIONAL EQUIPMENT**  
Conventional Differential Rear Axle  
Dual Side Electro-Hydraulic  
Black Vinyl Floor Covering (No Floor Mats)  
Class 10 Receiver Hitch  
Rear Under Seat Storage Compartment

**OPTIONAL EQUIPMENT**  
Customer Preferred Package 26A \$465  
Chrome Appearance Group  
Chrome Grille Surround  
Chrome Front Bumper  
Chrome Rear Bumper  
17-inch x 8.0-inch Steel Chrome-Clad Wheels \$550  
17" Popular Equipment Group  
SiriusXM Satellite Radio w/ 1-yr Radio Subscription  
See More Information Call 1-888-335-7474  
Premium Cloth 40 / 20 / 40 Bench Seat  
Remote Keyless Entry  
Carpeted Floor Covering  
Front and Rear Floor Mats  
Power Heated T-Tow Mirrors w/ Puddle & Signal Lamps \$180  
Exterior Mirrors with Turn Signals  
Exterior Mirrors with Puddle Lamps  
Roof-Mounted Clearance Lamps \$50  
Tow Hooks \$50

**DESTINATION CHARGE** \$995

**TOTAL PRICE: \*\$34,265**

**WARRANTY COVERAGE**  
3-year or 100,000-mile Powertrain Limited Warranty.  
3-year or 36,000-mile Basic Limited Warranty.  
24-hour towing assistance, certain restrictions apply.  
Ask Dealer for a copy of the limited warranties or see your owner's manual for details.

**5YEAR/100000-MILE POWERTRAIN WARRANTY**

Assembly Plant/Port of Entry: SALTLIO, MEXICO  
VIN: 3C63TACG1G104441  
1-800-252-5335

**EPA Fuel Economy Estimates**

These estimates reflect new EPA methods beginning with 2008 models.

| CITY MPG | Estimated Annual Fuel Cost           | HIGHWAY MPG |
|----------|--------------------------------------|-------------|
| N/A      | based on 15,000 miles all per gallon | N/A         |

**Combined Fuel Economy**

Heavy duty vehicle, no label required.

See the FREE Fuel Economy Guide at dealers or [www.fueleconomy.gov](http://www.fueleconomy.gov)

**GOVERNMENT SAFETY RATINGS**

| Frontal Crash | Driver Passenger | Not Rated |
|---------------|------------------|-----------|
| Not Rated     | Not Rated        | Not Rated |

Star ratings based on the risk of injury in a frontal impact.  
Frontal ratings should ONLY be compared to other vehicles of similar size and weight.

| Side Crash | Front seat Rear seat | Not Rated |
|------------|----------------------|-----------|
| Not Rated  | Not Rated            | Not Rated |

Star ratings based on the risk of injury in a side impact.

**Rollover** ★★★★★

Star ratings based on the risk of rollover in a single vehicle crash.

Star ratings range from 1 to 5 stars (★★★★★) with 5 being the highest.  
Source: National Highway Traffic Safety Administration (NHTSA).

[www.safercar.gov](http://www.safercar.gov) or 1-888-327-4236

The safety ratings shown are based on federal government tests of particular vehicles equipped with certain features and options. The performance of this vehicle may differ.

FIGURE 68. Monroney Label

## Head Restraints

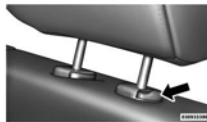
Head restraints are designed to reduce the risk of injury by restricting head movement in the event of a rear impact. Head restraints should be adjusted so that the top of the head restraint is located above the top of your ear.

### Warning!

The head restraints for all occupants must be properly adjusted prior to operating the vehicle or occupying a seat. Head restraints should never be adjusted while the vehicle is in motion. Driving a vehicle with the head restraints improperly adjusted or removed could cause serious injury or death in the event of a collision.

### Front Head Restraints

To raise the head restraint, pull upward on the head restraint. To lower the head restraint, press the adjustment button, located on the base of the head restraint, and push downward on the head restraint.



Adjustment Button

FIGURE 69. Head Restraint Use and Adjustment  
Information from Vehicle Manual

**APPENDIX B**  
**DUMMY RESPONSE DATA**

## LIST OF DATA PLOTS

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|------|--------------------------------------------------------|------|
| 1    | Driver Head Acceleration (X) Primary vs. Time          | B-1  |
| 2    | Driver Head Acceleration (Y) Primary vs. Time          | B-1  |
| 3    | Driver Head Acceleration (Z) Primary vs. Time          | B-1  |
| 4    | Driver Head Resultant Acceleration Primary vs. Time    | B-1  |
| 5    | Driver Lower Spine T12 Acceleration (X) vs. Time       | B-2  |
| 6    | Driver Lower Spine T12 Acceleration (Y) vs. Time       | B-2  |
| 7    | Driver Lower Spine T12 Acceleration (Z) vs. Time       | B-2  |
| 8    | Driver Lower Spine T12 Resultant Acceleration vs. Time | B-2  |
| 9    | Driver Iliac Wing Force on Impact Side (Y) vs. Time    | B-3  |
| 10   | Driver Acetabulum Force on Impact Side (Y) vs. Time    | B-3  |
| 11   | Driver Total Pelvis Force on Impact Side (Y) vs. Time  | B-3  |

The following additional data for this test can be obtained from the Research and Development section of the NHTSA website. The website can be found at

[www.NHTSA.dot.gov](http://www.NHTSA.dot.gov)

### Additional Driver Dummy Instrumentation Data

Driver Head Acceleration Redundant (X)  
Driver Head Acceleration Redundant (Y)  
Driver Head Acceleration Redundant (Z)  
Driver Upper Thorax Rib Deflection (Y)  
Driver Middle Thorax Rib Deflection (Y)  
Driver Lower Thorax Rib Deflection (Y)  
Driver Upper Abdomen Rib Deflection (Y)  
Driver Lower Abdomen Rib Deflection (Y)

### Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)  
Vehicle Center of Gravity Acceleration (Y)  
Vehicle Center of Gravity Acceleration (Z)  
Left Floor Sill Acceleration (Y)  
Left A-Pillar Sill Acceleration (Y)  
Left Lower A-Pillar Acceleration (Y)  
Left Mid A-Pillar Acceleration (Y)

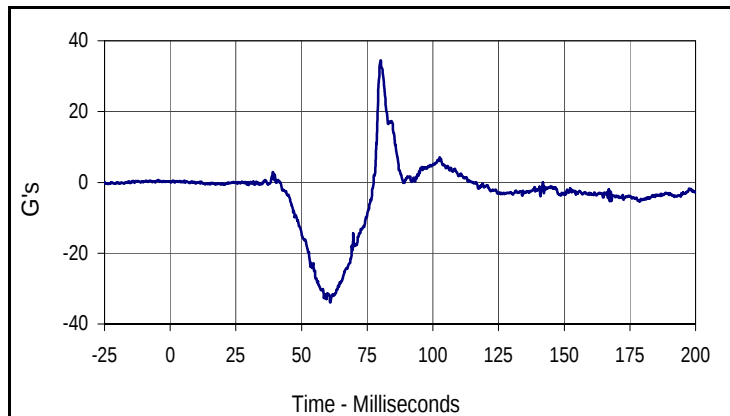
Left B-Pillar Sill Acceleration  
Left Lower B-Pillar Acceleration (Y)  
Left Mid B-Pillar Acceleration (Y)  
Driver Seat Track at Dummy Hip Point Acceleration (Y)  
Engine Top Acceleration (X)  
Engine Top Acceleration (Y)  
Firewall Center Acceleration (Y)  
Right Roof at Vertical Impact Reference Line Acceleration (Y)  
Right Sill at Vertical Impact Reference Line Acceleration (Y)  
Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)  
Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)

#### **Pole Instrumentation Data**

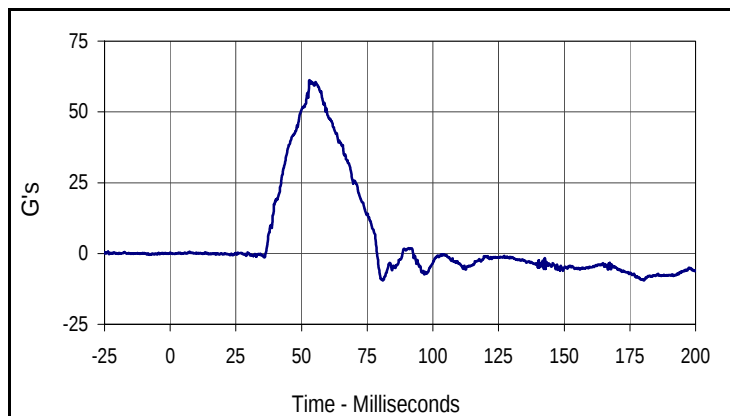
Load Cell Pole Barrier #1 Force (Y)  
Load Cell Pole Barrier #2 Force (Y)  
Load Cell Pole Barrier #3 Force (Y)  
Load Cell Pole Barrier #4 Force (Y)  
Load Cell Pole Barrier #5 Force (Y)  
Load Cell Pole Barrier #6 Force (Y)  
Load Cell Pole Barrier #7 Force (Y)  
Load Cell Pole Barrier #8 Force (Y)

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck  
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole Test

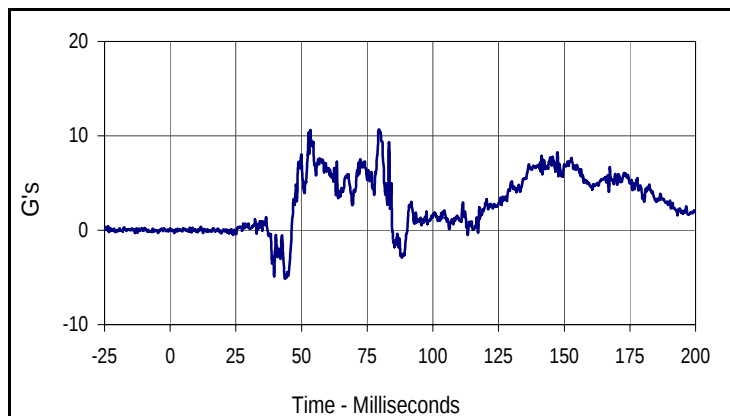
Test Date: 3/7/12  
 NHTSA No.: MC0315



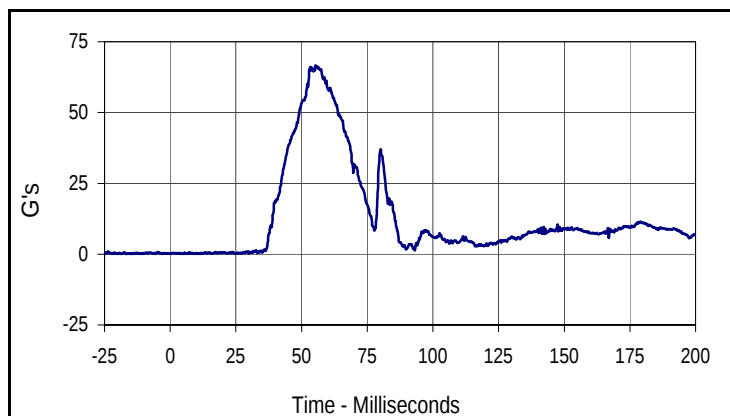
| Curve Description                  |      |           |       |
|------------------------------------|------|-----------|-------|
| Driver Head Acceleration X Primary |      |           |       |
| Plot No.                           | Type | SAE Class | Units |
| 001                                | FIL  | 1000      | G's   |
| Max                                | Time | Min       | Time  |
| 34.5                               | 80.1 | -33.9     | 60.9  |



| Curve Description                  |      |           |       |
|------------------------------------|------|-----------|-------|
| Driver Head Acceleration Y Primary |      |           |       |
| Plot No.                           | Type | SAE Class | Units |
| 002                                | FIL  | 1000      | G's   |
| Max                                | Time | Min       | Time  |
| 61.2                               | 53.0 | -9.5      | 80.9  |



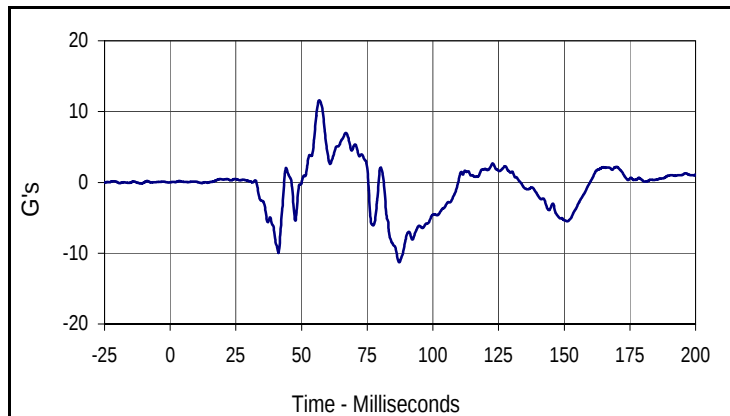
| Curve Description                  |      |           |       |
|------------------------------------|------|-----------|-------|
| Driver Head Acceleration Z Primary |      |           |       |
| Plot No.                           | Type | SAE Class | Units |
| 003                                | FIL  | 1000      | G's   |
| Max                                | Time | Min       | Time  |
| 10.7                               | 79.4 | -5.2      | 43.7  |



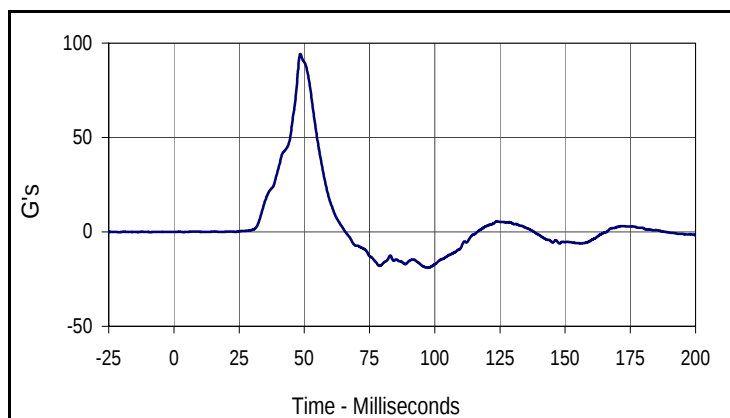
| Curve Description                     |      |           |       |
|---------------------------------------|------|-----------|-------|
| Driver Head Acceleration Primary Res. |      |           |       |
| Plot No.                              | Type | SAE Class | Units |
| 004                                   | RES  | 1000      | G's   |
| Max                                   | Time | Min       | Time  |
| 66.6                                  | 55.4 | 0.1       | 10.2  |

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck  
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole Test

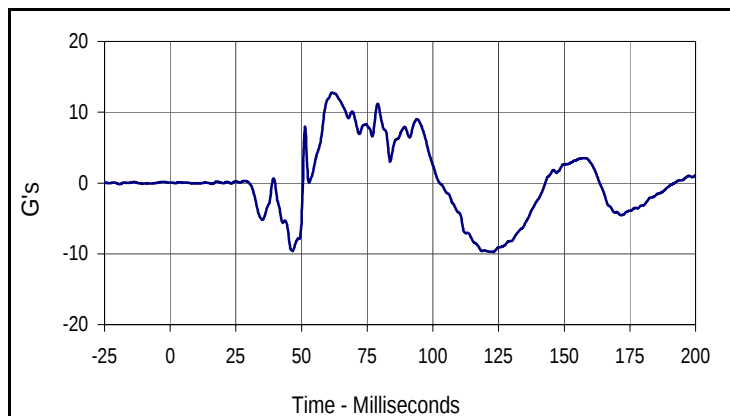
Test Date: 3/7/12  
 NHTSA No.: MC0315



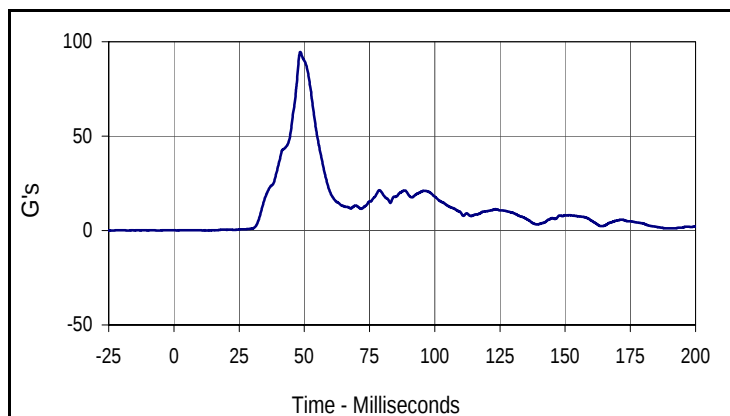
| Curve Description                     |      |           |       |
|---------------------------------------|------|-----------|-------|
| Driver Lower Spine T12 Acceleration X |      |           |       |
| Plot No.                              | Type | SAE Class | Units |
| 005                                   | FIL  | 180       | G's   |
| Max                                   | Time | Min       | Time  |
| 11.6                                  | 56.8 | -11.3     | 87.2  |



| Curve Description                     |      |           |       |
|---------------------------------------|------|-----------|-------|
| Driver Lower Spine T12 Acceleration Y |      |           |       |
| Plot No.                              | Type | SAE Class | Units |
| 006                                   | FIL  | 180       | G's   |
| Max                                   | Time | Min       | Time  |
| 94.2                                  | 48.5 | -18.9     | 97.5  |



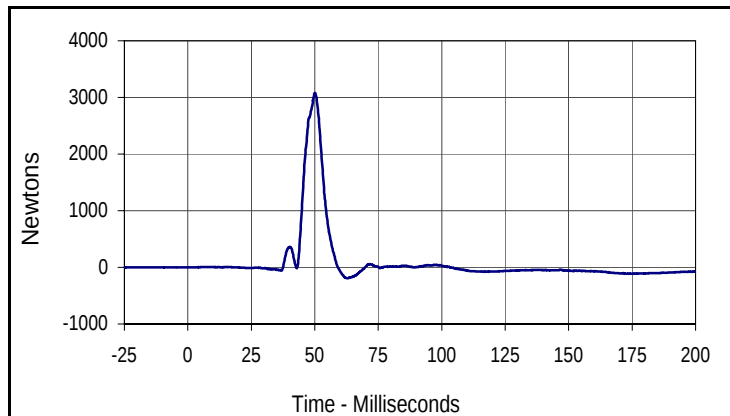
| Curve Description                     |      |           |       |
|---------------------------------------|------|-----------|-------|
| Driver Lower Spine T12 Acceleration Z |      |           |       |
| Plot No.                              | Type | SAE Class | Units |
| 007                                   | FIL  | 180       | G's   |
| Max                                   | Time | Min       | Time  |
| 12.8                                  | 61.6 | -9.7      | 122.9 |



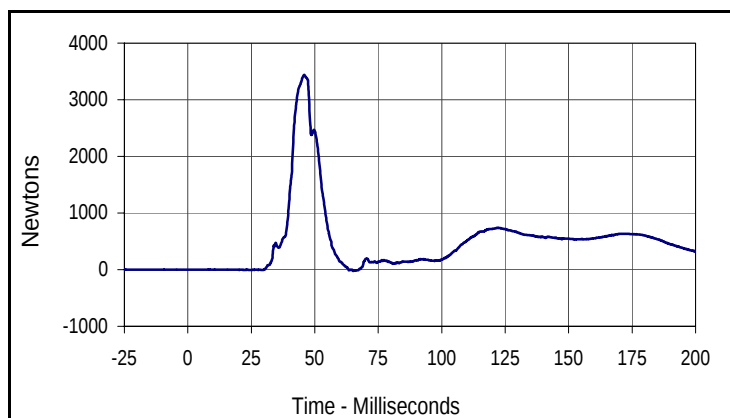
| Curve Description                        |      |           |       |
|------------------------------------------|------|-----------|-------|
| Driver Lower Spine T12 Acceleration Res. |      |           |       |
| Plot No.                                 | Type | SAE Class | Units |
| 008                                      | RES  | 180       | G's   |
| Max                                      | Time | Min       | Time  |
| 94.6                                     | 48.5 | 0.0       | 12.7  |

Test Vehicle: 2012 RAM 2500 ST Crew Cab 4-Door Truck  
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole Test

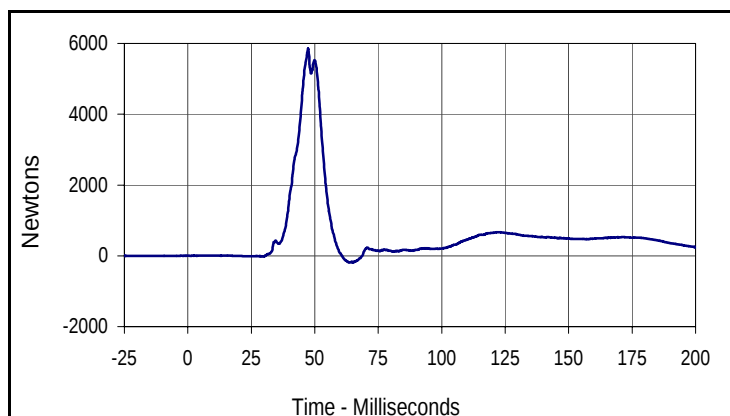
Test Date: 3/7/12  
 NHTSA No.: MC0315



| Curve Description                        |      |           |         |
|------------------------------------------|------|-----------|---------|
| Driver Iliac Wing Force on Impact Side Y |      |           |         |
| Plot No.                                 | Type | SAE Class | Units   |
| 009                                      | FIL  | 600       | Newtons |
| Max                                      | Time | Min       | Time    |
| 3079.1                                   | 50.1 | -193.4    | 62.9    |



| Curve Description                        |      |           |         |
|------------------------------------------|------|-----------|---------|
| Driver Acetabulum Force on Impact Side Y |      |           |         |
| Plot No.                                 | Type | SAE Class | Units   |
| 010                                      | FIL  | 600       | Newtons |
| Max                                      | Time | Min       | Time    |
| 3441.5                                   | 45.8 | -24.3     | 65.1    |



| Curve Description                          |      |           |         |
|--------------------------------------------|------|-----------|---------|
| Driver Total Pelvic Force on Impact Side Y |      |           |         |
| Plot No.                                   | Type | SAE Class | Units   |
| 011                                        | SUM  | 600       | Newtons |
| Max                                        | Time | Min       | Time    |
| 5852.7                                     | 47.4 | -193.3    | 63.4    |

**APPENDIX C**  
**DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA**

**APPENDIX C**  
**PRE-TEST / ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA**

Test Program: SID IIs External Measurements  
 ATD Serial No.: 307

Test Date: 3/2/12  
 Test I.D.: N/A



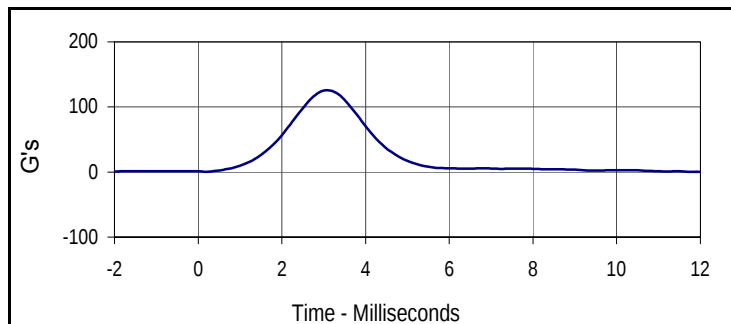
| Tested Parameter             |                                 | Units | Specification | Result | Pass/Fail |
|------------------------------|---------------------------------|-------|---------------|--------|-----------|
| Laboratory Temperature       |                                 | °C    | 20.6 to 22.2  | 21.2   | Pass      |
| Laboratory Relative Humidity |                                 | %     | 10 to 70      | 29     | Pass      |
| A                            | Sitting Height                  | mm    | 772 - 788     | 779    | Pass      |
| B                            | Shoulder Pivot Height           | mm    | 437 - 453     | 446    | Pass      |
| C                            | H-Point Height                  | mm    | 79 - 89       | 84     | Pass      |
| D                            | H-Point from Seatback           | mm    | 141 - 151     | 145    | Pass      |
| E                            | Shoulder Pivot from Backline    | mm    | 97 - 107      | 103    | Pass      |
| F                            | Thigh Clearance                 | mm    | 119 - 135     | 125    | Pass      |
| G                            | Head Breadth                    | mm    | 140 - 148     | 145    | Pass      |
| H                            | Head Back from Backline         | mm    | 40 - 46       | 43     | Pass      |
| I                            | Head Depth                      | mm    | 178 - 188     | 183    | Pass      |
| J                            | Head Circumference              | mm    | 541 - 551     | 546    | Pass      |
| K                            | Buttock to Knee Length          | mm    | 514 - 540     | 527    | Pass      |
| L                            | Popliteal Height                | mm    | 343 - 369     | 348    | Pass      |
| M                            | Knee Pivot to Floor Height      | mm    | 392 - 409     | 401    | Pass      |
| N                            | Buttock Popliteal Length        | mm    | 416 - 442     | 430    | Pass      |
| O                            | Chest Depth w/o Jacket          | mm    | 195 - 211     | 204    | Pass      |
| P                            | Foot Length                     | mm    | 216 - 232     | 221    | Pass      |
| Q                            | Hip Breadth with Pelvic Plug    | mm    | 313 - 323     | 318    | Pass      |
| R                            | Arm Length                      | mm    | 249 - 259     | 252    | Pass      |
| S                            | Knee Joint to Seatback          | mm    | 477 - 493     | 482    | Pass      |
| V                            | Shoulder Width                  | mm    | 341 - 357     | 351    | Pass      |
| W                            | Foot Width                      | mm    | 78 - 94       | 89     | Pass      |
| Y                            | Chest Circumference with Jacket | mm    | 851 - 881     | 874    | Pass      |
| Z                            | Waist Circumference             | mm    | 760 - 791     | 775    | Pass      |
| Overall Test Results         |                                 |       |               |        | Pass      |

Test Program: SID IIs Head Drop Test  
 ATD Serial No.: 307

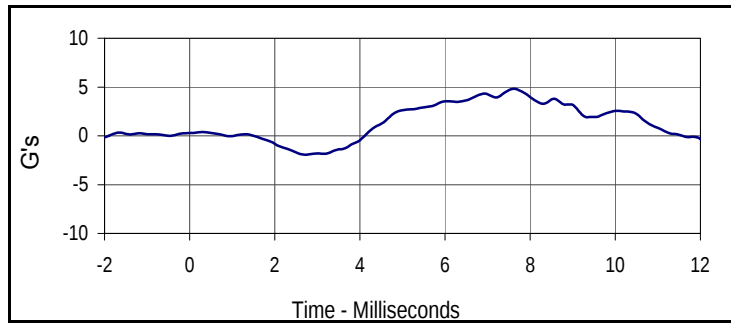
Test Date: 3/2/12  
 Test I.D.: 307HD033



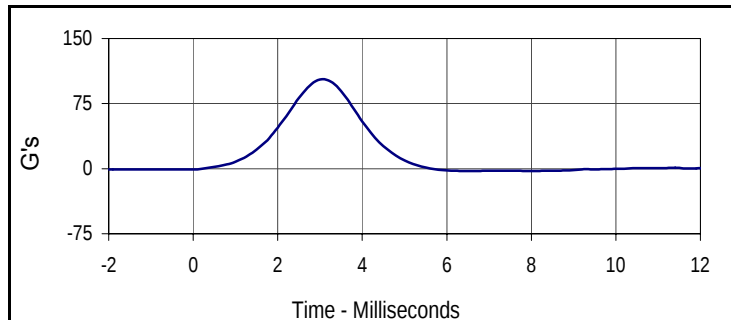
| Tested Parameter                   | Units   | Specification | Result | Pass/Fail |
|------------------------------------|---------|---------------|--------|-----------|
| Head Assembly Soak Time            | Minutes | ≥240          | 275    | Pass      |
| Temperature During Soak            | Max     | 18.9 to 25.6  | 21.7   | Pass      |
|                                    | Min     |               | 20.7   | Pass      |
| Humidity During Soak               | Max     | 10.0 to 70.0  | 32.5   | Pass      |
|                                    | Min     |               | 29.0   | Pass      |
| Laboratory Temperature During Test | °C      | 18.9 to 25.6  | 21.5   | Pass      |
| Laboratory Humidity During Test    | %       | 10.0 to 70.0  | 29.3   | Pass      |
| Peak Head Resultant Acceleration   | G's     | 115 to 137    | 125.9  | Pass      |
| Peak Head X Acceleration           | G's     | <15           | 3.6    | Pass      |
| Is Acceleration Unimodal?          | Yes/No  | Yes           | Yes    | Pass      |
| Oscillations After Main Pulse      | %       | <15           | 13.6   | Pass      |
| Overall Test Results               |         |               |        | Pass      |



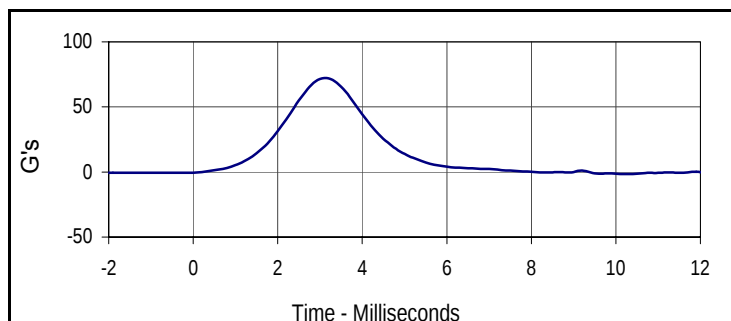
| Curve Description |      |           |       |
|-------------------|------|-----------|-------|
| Head Resultant    |      |           |       |
| Plot No.          | Type | SAE Class | Units |
| 001               | RES  | 1000      | G's   |
| Max               | Time | Min       | Time  |
| 125.9             | 3.1  | 0.4       | 0.2   |



| Curve Description |      |           |       |
|-------------------|------|-----------|-------|
| Head X            |      |           |       |
| Plot No.          | Type | SAE Class | Units |
| 002               | FIL  | 1000      | G's   |
| Max               | Time | Min       | Time  |
| 3.6               | 6.0  | -1.9      | 2.7   |



| Curve Description |      |           |       |
|-------------------|------|-----------|-------|
| Head Y            |      |           |       |
| Plot No.          | Type | SAE Class | Units |
| 003               | FIL  | 1000      | G's   |
| Max               | Time | Min       | Time  |
| 103.1             | 3.1  | -2.8      | 6.6   |



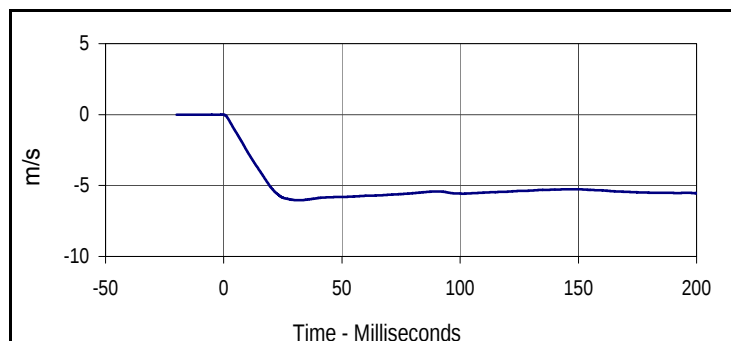
| Curve Description |      |           |       |
|-------------------|------|-----------|-------|
| Head Z            |      |           |       |
| Plot No.          | Type | SAE Class | Units |
| 004               | FIL  | 1000      | G's   |
| Max               | Time | Min       | Time  |
| 72.3              | 3.1  | -1.3      | 10.0  |

Test Program: SID IIs Neck Flexion Test  
 ATD Serial No.: 307

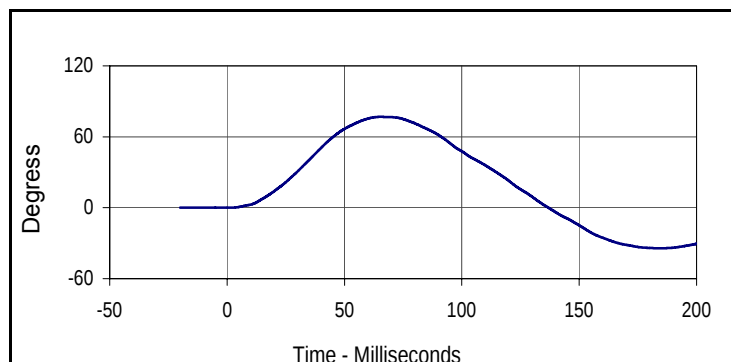
Test Date: 3/2/12  
 Test I.D.: 307NB033



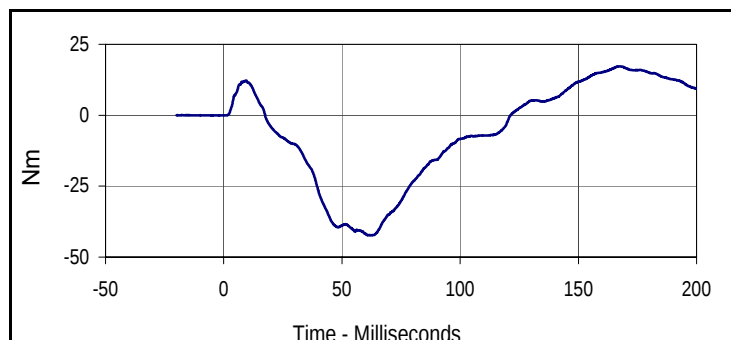
| Tested Parameter                   | Units       | Specification  | Result | Pass/Fail |
|------------------------------------|-------------|----------------|--------|-----------|
| Neck Assembly Soak Time            | Minutes     | ≥240           | 310    | Pass      |
| Temperature During Soak            | Max         | 20.6 to 22.2   | 21.7   | Pass      |
|                                    | Min         |                | 20.7   | Pass      |
| Humidity During Soak               | Max         | 10.0 to 70.0   | 32.5   | Pass      |
|                                    | Min         |                | 29.0   | Pass      |
| Laboratory Temperature During Test | °C          | 20.6 to 22.2   | 21.2   | Pass      |
| Laboratory Humidity During Test    | %           | 10.0 to 70.0   | 29.6   | Pass      |
| Pendulum Velocity                  | m/s         | 5.51 to 5.63   | 5.60   | Pass      |
| Pendulum Deceleration              | 10 msec     | -2.20 to -2.80 | -2.61  | Pass      |
|                                    | 15 msec     | -3.30 to -4.10 | -3.91  | Pass      |
|                                    | 20 msec     | -4.40 to -5.40 | -5.14  | Pass      |
|                                    | 25 msec     | -5.40 to -6.10 | -5.86  | Pass      |
|                                    | 25-100 msec | -5.50 to -6.20 | -6.04  | Pass      |
| D-Plane Rotation                   | Max         | 71 to 81       | 76.9   | Pass      |
|                                    | Time        | 50 to 70       | 65.3   | Pass      |
| Peak Occipital Condyle Moment      | Nm          | -36 to -44     | -42.4  | Pass      |
| Decaying Moment Time to Cross 0 Nm | msec        | 102 to 126     | 121.4  | Pass      |
| Overall Test Results               |             |                | Pass   |           |



| Curve Description |      |           |       |
|-------------------|------|-----------|-------|
| Pendulum Velocity |      |           |       |
| Plot No.          | Type | SAE Class | Units |
| 001               | FIL  | 180       | m/s   |
| Max               | Time | Min       | Time  |
| 0.0               | -0.6 | -6.0      | 31.4  |



| Curve Description            |      |           |         |
|------------------------------|------|-----------|---------|
| Maximum Translation Rotation |      |           |         |
| Plot No.                     | Type | SAE Class | Units   |
| 002                          | FIL  | 60        | Degress |
| Max                          | Time | Min       | Time    |
| 76.9                         | 65.3 | -34.2     | 184.3   |



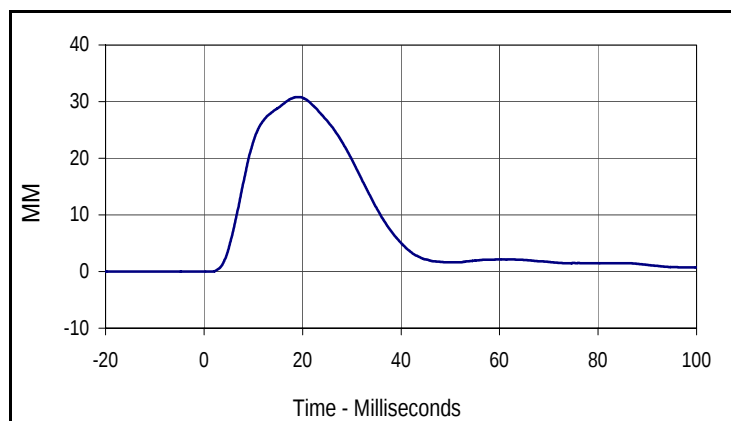
| Curve Description              |       |           |       |
|--------------------------------|-------|-----------|-------|
| Moment About Occipital Condyle |       |           |       |
| Plot No.                       | Type  | SAE Class | Units |
| 003                            | FIL   | 600       | Nm    |
| Max                            | Time  | Min       | Time  |
| 17.2                           | 167.2 | -42.4     | 62.5  |

Test Program: SID IIs Shoulder Impact Test  
 ATD Serial No.: 307

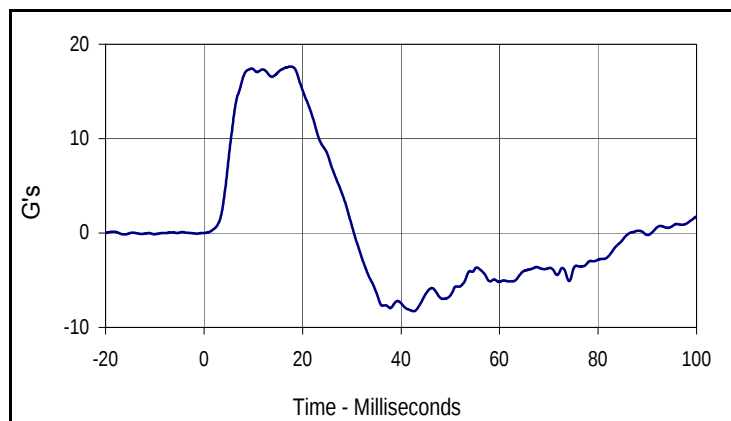
Test Date: 3/2/12  
 Test I.D.: 307SH033



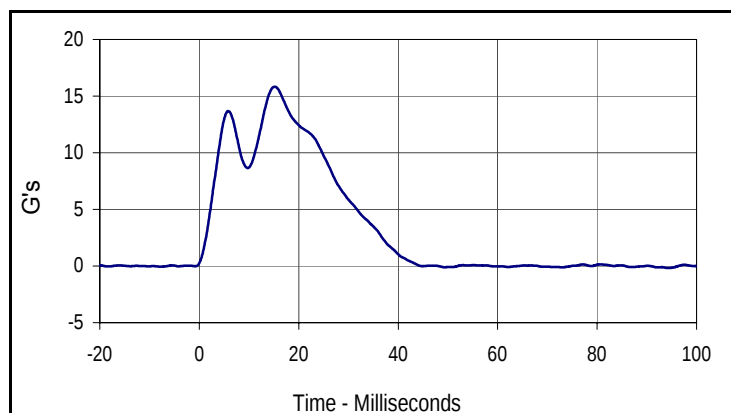
| Tested Parameter                   | Units   | Specification | Result | Pass/Fail |
|------------------------------------|---------|---------------|--------|-----------|
| Dummy Soak Time                    | Minutes | ≥180          | 350    | Pass      |
| Temperature During Soak            | Max     | 20.6 to 22.2  | 21.7   | Pass      |
|                                    | Min     |               | 20.7   | Pass      |
| Humidity During Soak               | Max     | 10.0 to 70.0  | 32.5   | Pass      |
|                                    | Min     |               | 29.0   | Pass      |
| Laboratory Temperature During Test | °C      | 20.6 to 22.2  | 21.2   | Pass      |
| Laboratory Humidity During Test    | %       | 10.0 to 70.0  | 30.3   | Pass      |
| Impactor Velocity                  | m/s     | 4.20 to 4.40  | 4.32   | Pass      |
| Peak Shoulder Deflection           | mm      | 28 to 37      | 30.8   | Pass      |
| Peak Lateral Spine Acceleration Y  | G's     | 17 to 22      | 17.6   | Pass      |
| Peak Impactor Acceleration         | G's     | 13 to 18      | 15.8   | Pass      |
| Overall Test Results               |         |               | Pass   |           |



| Curve Description   |      |           |       |
|---------------------|------|-----------|-------|
| Shoulder Deflection |      |           |       |
| Plot No.            | Type | SAE Class | Units |
| 001                 | FIL  | 600       | MM    |
| Max                 | Time | Min       | Time  |
| 30.8                | 19.1 | 0.0       | -18.1 |



| Curve Description          |      |           |       |
|----------------------------|------|-----------|-------|
| Upper Spine Y Acceleration |      |           |       |
| Plot No.                   | Type | SAE Class | Units |
| 002                        | FIL  | 180       | G's   |
| Max                        | Time | Min       | Time  |
| 17.6                       | 17.7 | -8.3      | 42.6  |



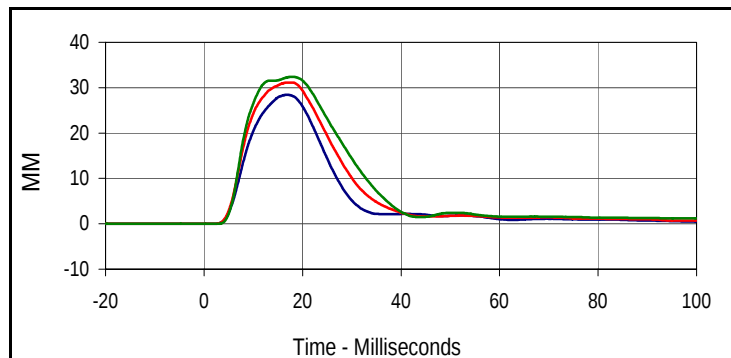
| Curve Description     |      |           |       |
|-----------------------|------|-----------|-------|
| Impactor Acceleration |      |           |       |
| Plot No.              | Type | SAE Class | Units |
| 003                   | FIL  | 180       | G's   |
| Max                   | Time | Min       | Time  |
| 15.8                  | 15.2 | -0.2      | 94.3  |

Test Program: SID IIs Thorax with Arm Impact Test  
 ATD Serial No.: 307

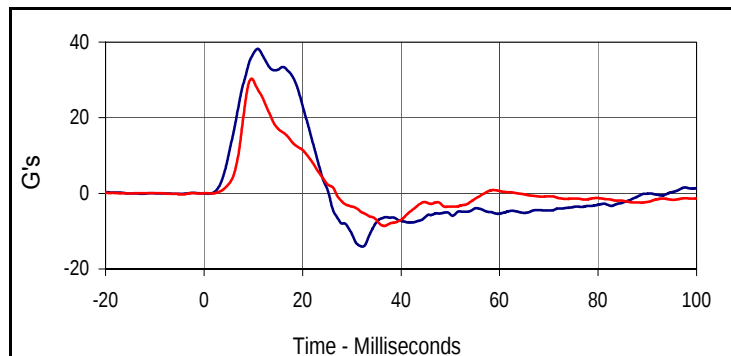
Test Date: 3/2/12  
 Test I.D.: 307TWA033



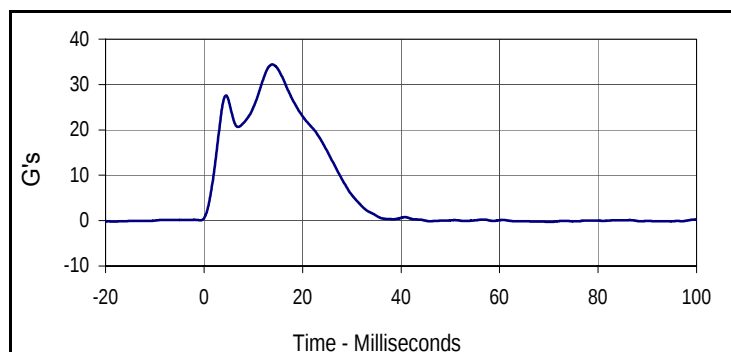
| Tested Parameter                   | Units   | Specification | Result | Pass/Fail |
|------------------------------------|---------|---------------|--------|-----------|
| Dummy Soak Time                    | Minutes | ≥180          | 370    | Pass      |
| Temperature During Soak            | Max     | 20.6 to 22.2  | 21.7   | Pass      |
|                                    | Min     |               | 20.7   | Pass      |
| Humidity During Soak               | Max     | 10.0 to 70.0  | 32.5   | Pass      |
|                                    | Min     |               | 29.0   | Pass      |
| Laboratory Temperature During Test | °C      | 18.9 to 25.6  | 21.3   | Pass      |
| Laboratory Humidity During Test    | %       | 10.0 to 70.0  | 31.8   | Pass      |
| Impactor Velocity                  | m/s     | 6.6 to 6.8    | 6.7    | Pass      |
| Peak Shoulder Deflection           | mm      | 31 to 40      | 36.5   | Pass      |
| Peak Upper Thorax Rib Deflection   | mm      | 25 to 32      | 28.4   | Pass      |
| Peak Middle Thorax Rib Deflection  | mm      | 30 to 36      | 31.1   | Pass      |
| Peak Lower Thorax Rib Deflection   | mm      | 32 to 38      | 32.4   | Pass      |
| Peak Upper Spine Y Acceleration    | G's     | 34 to 43      | 38.2   | Pass      |
| Peak Lower Spine Y Acceleration    | G's     | 29 to 37      | 30.3   | Pass      |
| Peak Impactor Acceleration         | G's     | 30 to 36      | 34.4   | Pass      |
| Overall Test Results               |         |               | Pass   |           |



| Curve Description        |      |           |       |
|--------------------------|------|-----------|-------|
| Upper Thorax Deflection  |      |           |       |
| Plot No.                 | Type | SAE Class | Units |
| 001                      | FIL  | 600       | MM    |
| Max                      | Time | Min       | Time  |
| 28.4                     | 16.9 | 0.0       | -18.3 |
| Middle Thorax Deflection |      |           |       |
| Max                      | Time | Min       | Time  |
| 31.1                     | 17.3 | 0.0       | -13.1 |
| Lower Thorax Deflection  |      |           |       |
| Max                      | Time | Min       | Time  |
| 32.4                     | 17.8 | 0.0       | -17.0 |



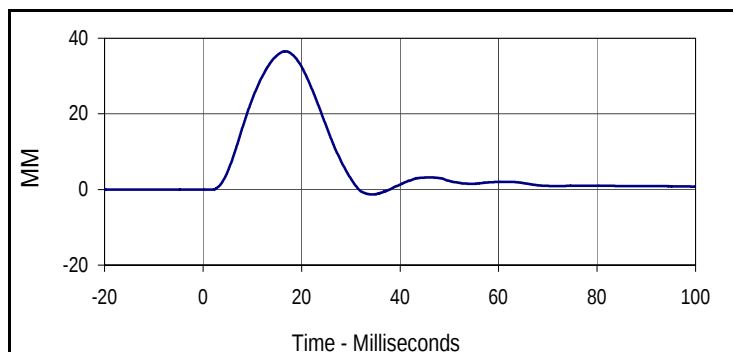
| Curve Description          |      |           |       |
|----------------------------|------|-----------|-------|
| Upper Spine Y Acceleration |      |           |       |
| Plot No.                   | Type | SAE Class | Units |
| 004                        | FIL  | 180       | G's   |
| Max                        | Time | Min       | Time  |
| 38.2                       | 10.9 | -14.1     | 32.2  |
| Lower Spine Y Acceleration |      |           |       |
| Plot No.                   | Type | SAE Class | Units |
| 005                        | FIL  | 180       | G's   |
| Max                        | Time | Min       | Time  |
| 30.3                       | 9.6  | -8.6      | 36.6  |



| Curve Description     |      |           |       |
|-----------------------|------|-----------|-------|
| Impactor Acceleration |      |           |       |
| Plot No.              | Type | SAE Class | Units |
| 006                   | FIL  | 180       | G's   |
| Max                   | Time | Min       | Time  |
| 34.4                  | 13.8 | -0.3      | 70.3  |

Test Program: SID IIs Thorax with Arm Impact Test  
 ATD Serial No.: 307

Test Date: 3/2/12  
 Test I.D.: 307TWA033



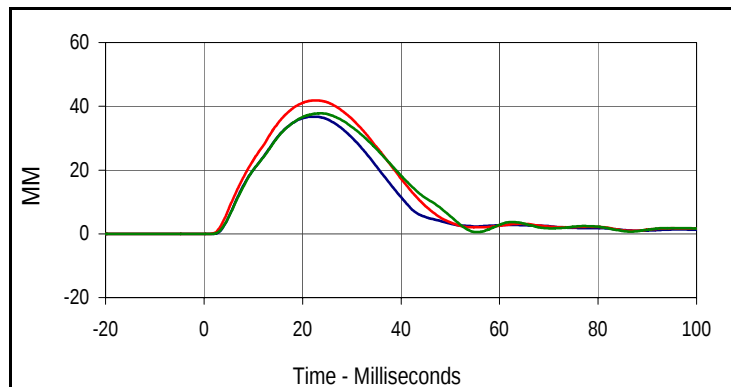
| Curve Description   |      |           |       |
|---------------------|------|-----------|-------|
| Shoulder Deflection |      |           |       |
| Plot No.            | Type | SAE Class | Units |
| 007                 | FIL  | 600       | MM    |
| Max                 | Time | Min       | Time  |
| 36.5                | 16.9 | -1.3      | 34.7  |

Test Program: SID IIs Thorax without Arm Impact Test  
 ATD Serial No.: 307

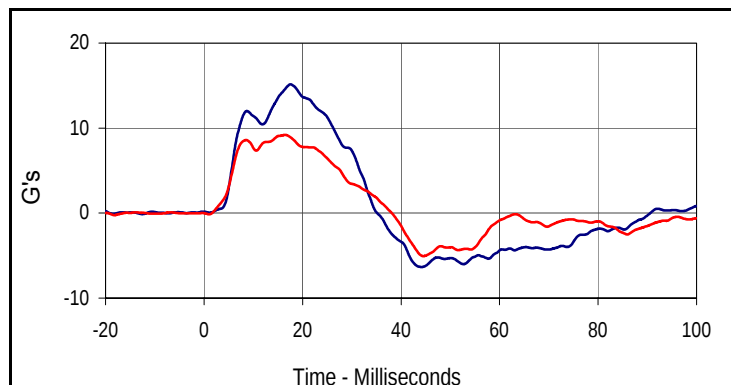
Test Date: 3/2/12  
 Test I.D.: 307TWOA033



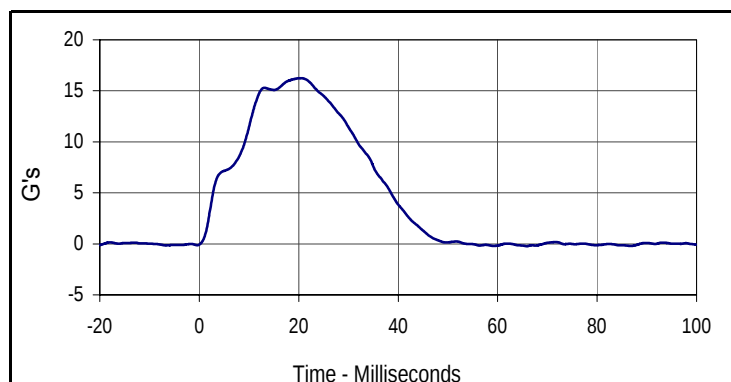
| Tested Parameter                   | Units   | Specification | Result | Pass/Fail |
|------------------------------------|---------|---------------|--------|-----------|
| Dummy Soak Time                    | Minutes | ≥180          | 395    | Pass      |
| Temperature During Soak            | Max °C  | 18.9 to 25.6  | 21.7   | Pass      |
|                                    | Min °C  |               | 20.7   | Pass      |
| Humidity During Soak               | Max %   | 10.0 to 70.0  | 32.5   | Pass      |
|                                    | Min %   |               | 29.0   | Pass      |
| Laboratory Temperature During Test | °C      | 18.9 to 25.6  | 21.5   | Pass      |
| Laboratory Humidity During Test    | %       | 10.0 to 70.0  | 29.1   | Pass      |
| Impactor Velocity                  | m/s     | 4.2 to 4.4    | 4.3    | Pass      |
| Peak Upper Thorax Rib Deflection   | mm      | 32 to 40      | 36.7   | Pass      |
| Peak Middle Thorax Rib Deflection  | mm      | 39 to 45      | 41.9   | Pass      |
| Peak Lower Thorax Rib Deflection   | mm      | 35 to 43      | 37.8   | Pass      |
| Peak Upper Spine Y Acceleration    | G's     | 13 to 17      | 15.1   | Pass      |
| Peak Lower Spine Y Acceleration    | G's     | 7 to 11       | 9.2    | Pass      |
| Peak Impactor Acceleration         | G's     | 14 to 18      | 16.2   | Pass      |
| Overall Test Results               |         |               | Pass   |           |



| Curve Description        |      |           |       |
|--------------------------|------|-----------|-------|
| Upper Thorax Deflection  |      |           |       |
| Plot No.                 | Type | SAE Class | Units |
| 001                      | FIL  | 600       | MM    |
| Max                      | Time | Min       | Time  |
| 36.7                     | 22.1 | 0.0       | 0.1   |
| Middle Thorax Deflection |      |           |       |
| Max                      | Time | Min       | Time  |
| 41.9                     | 22.7 | 0.0       | -5.0  |
| Lower Thorax Deflection  |      |           |       |
| Max                      | Time | Min       | Time  |
| 37.8                     | 23.8 | 0.0       | -5.2  |



| Curve Description          |      |           |       |
|----------------------------|------|-----------|-------|
| Upper Spine Y Acceleration |      |           |       |
| Plot No.                   | Type | SAE Class | Units |
| 004                        | FIL  | 180       | G's   |
| Max                        | Time | Min       | Time  |
| 15.1                       | 17.6 | -6.3      | 44.1  |
| Lower Spine Y Acceleration |      |           |       |
| Plot No.                   | Type | SAE Class | Units |
| 005                        | FIL  | 180       | G's   |
| Max                        | Time | Min       | Time  |
| 9.2                        | 16.5 | -5.1      | 44.5  |



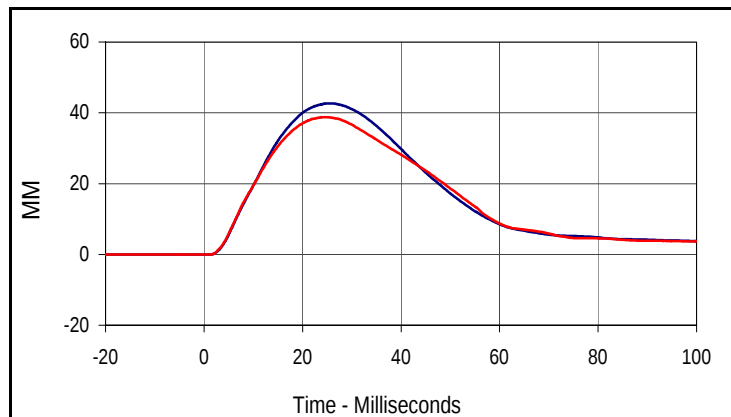
| Curve Description     |      |           |       |
|-----------------------|------|-----------|-------|
| Impactor Acceleration |      |           |       |
| Plot No.              | Type | SAE Class | Units |
| 006                   | FIL  | 180       | G's   |
| Max                   | Time | Min       | Time  |
| 16.2                  | 20.4 | -0.2      | 65.9  |

Test Program: SID IIs Abdomen Impact Test  
 ATD Serial No.: 307

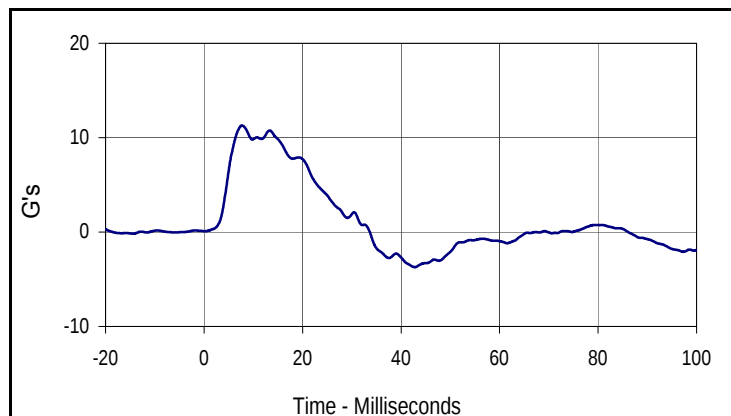
Test Date: 3/2/12  
 Test I.D.: 307ABD033



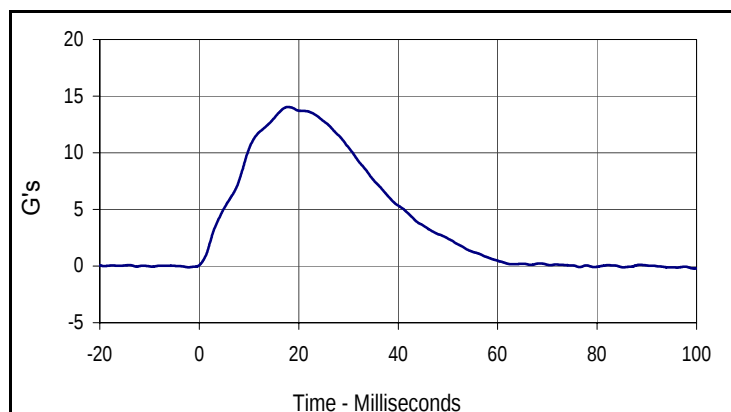
| Tested Parameter                    | Units   | Specification | Result | Pass/Fail |
|-------------------------------------|---------|---------------|--------|-----------|
| Dummy Soak Time                     | Minutes | ≥180          | 430    | Pass      |
| Temperature During Soak             | Max °C  | 20.6 to 22.2  | 21.7   | Pass      |
|                                     | Min °C  |               | 20.7   | Pass      |
| Humidity During Soak                | Max %   | 10.0 to 70.0  | 32.5   | Pass      |
|                                     | Min %   |               | 29.0   | Pass      |
| Laboratory Temperature During Test  | °C      | 18.9 to 25.6  | 21.3   | Pass      |
| Laboratory Humidity During Test     | %       | 10.0 to 70.0  | 30.0   | Pass      |
| Impactor Velocity                   | m/s     | 4.2 to 4.4    | 4.4    | Pass      |
| Peak Upper Abdominal Rib Deflection | mm      | 36 to 47      | 42.7   | Pass      |
| Peak Lower Abdominal Rib Deflection | mm      | 33 to 44      | 38.8   | Pass      |
| Peak Lower Spine Y Acceleration     | G's     | 9 to 14       | 11.3   | Pass      |
| Peak Impactor Acceleration          | G's     | 12 to 16      | 14.1   | Pass      |
| Overall Test Results                |         |               | Pass   |           |



| Curve Description              |      |           |       |
|--------------------------------|------|-----------|-------|
| Upper Abdominal Rib Deflection |      |           |       |
| Plot No.                       | Type | SAE Class | Units |
| 001                            | FIL  | 600       | MM    |
| Max                            | Time | Min       | Time  |
| 42.7                           | 25.8 | 0.0       | -0.8  |
| Curve Description              |      |           |       |
| Lower Abdominal Rib Deflection |      |           |       |
| Plot No.                       | Type | SAE Class | Units |
| 002                            | FIL  | 600       | MM    |
| Max                            | Time | Min       | Time  |
| 38.8                           | 24.5 | 0.0       | -20.0 |



| Curve Description          |      |           |       |
|----------------------------|------|-----------|-------|
| Lower Spine Y Acceleration |      |           |       |
| Plot No.                   | Type | SAE Class | Units |
| 003                        | FIL  | 180       | G's   |
| Max                        | Time | Min       | Time  |
| 11.3                       | 7.7  | -3.7      | 42.8  |



| Curve Description     |      |           |       |
|-----------------------|------|-----------|-------|
| Impactor Acceleration |      |           |       |
| Plot No.              | Type | SAE Class | Units |
| 004                   | FIL  | 180       | G's   |
| Max                   | Time | Min       | Time  |
| 14.1                  | 17.9 | -0.2      | 99.9  |

# MC0315 PRE TEST

## Resultant Data - SIDIIs Plug Compression



### ATD Calibration Lab

| Test ID | Part Serial Number | Test Date | Test Time |
|---------|--------------------|-----------|-----------|
| 46767   | 46767              | 10/4/2011 | 5:28 PM   |
| Cert ID | ATD Serial Number  | ATD Type  |           |
| N/A     | N/A                | SIDIIs    |           |

Current Date : 10/4/2011

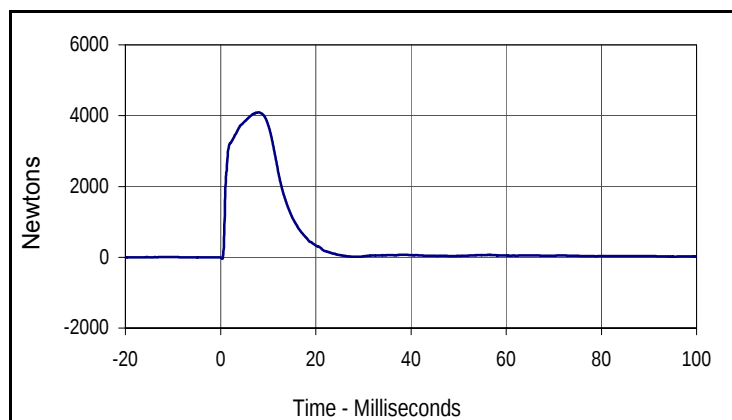
Current Time : 17:28:45

Test Program: SID IIs Pelvis Acetabulum Impact Test  
 ATD Serial No.: 307

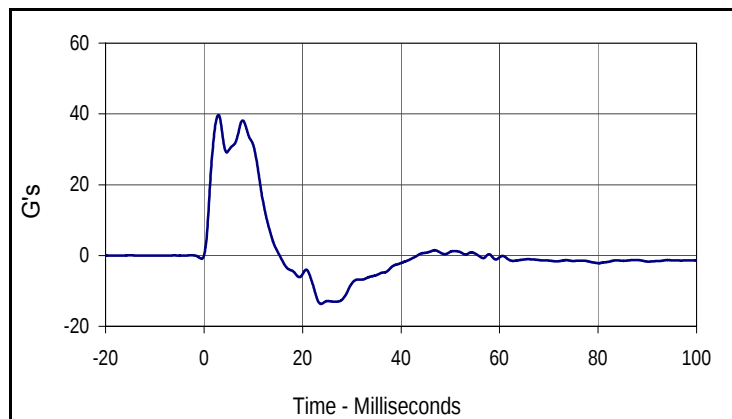
Test Date: 3/2/12  
 Test I.D.: 307ACET033



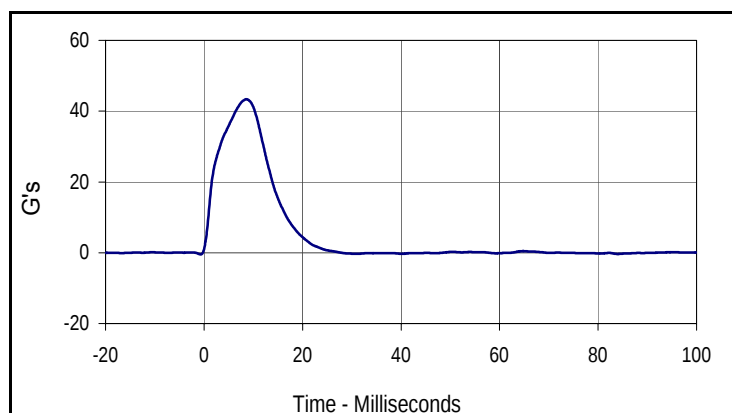
| Tested Parameter                         | Units   | Specification | Result | Pass/Fail |
|------------------------------------------|---------|---------------|--------|-----------|
| Dummy Soak Time                          | Minutes | ≥180          | 450    | Pass      |
| Temperature During Soak                  | Max     | 20.6 to 22.2  | 21.7   | Pass      |
|                                          | Min     |               | 20.7   | Pass      |
| Humidity During Soak                     | Max     | 10.0 to 70.0  | 32.5   | Pass      |
|                                          | Min     |               | 29.0   | Pass      |
| Laboratory Temperature During Test       | °C      | 18.9 to 25.6  | 21.4   | Pass      |
| Laboratory Humidity During Test          | %       | 10.0 to 70.0  | 31.6   | Pass      |
| Impactor Velocity                        | m/s     | 6.6 to 6.8    | 6.7    | Pass      |
| Peak Acetabulum Force Y                  | Newtons | 3600 to 4300  | 4093.7 | Pass      |
| Peak Pelvis Y Acceleration After 6 msec. | G's     | 34 to 42      | 38.1   | Pass      |
| Peak Impactor Acceleration               | G's     | 38 to 47      | 43.4   | Pass      |
| Overall Test Results                     |         |               | Pass   |           |



| Curve Description       |      |           |         |
|-------------------------|------|-----------|---------|
| Pelvis Acetabulum Force |      |           |         |
| Plot No.                | Type | SAE Class | Units   |
| 001                     | FIL  | 600       | Newtons |
| Max                     | Time | Min       | Time    |
| 4093.7                  | 8.0  | -34.4     | 0.4     |



| Curve Description     |      |           |       |
|-----------------------|------|-----------|-------|
| Pelvis Y Acceleration |      |           |       |
| Plot No.              | Type | SAE Class | Units |
| 002                   | FIL  | 180       | G's   |
| Max                   | Time | Min       | Time  |
| 39.7                  | 2.9  | -13.7     | 23.7  |



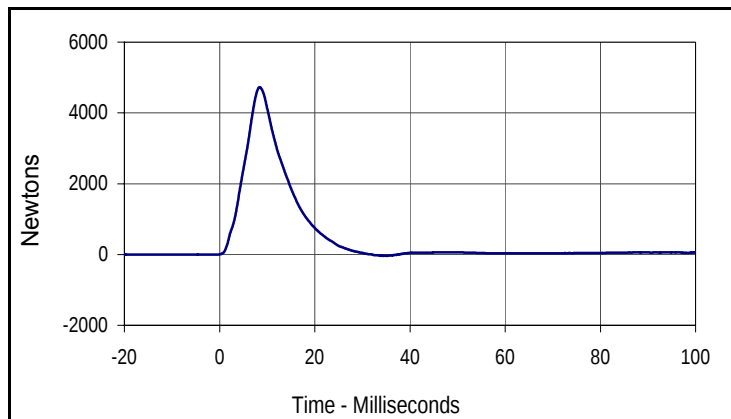
| Curve Description     |      |           |       |
|-----------------------|------|-----------|-------|
| Impactor Acceleration |      |           |       |
| Plot No.              | Type | SAE Class | Units |
| 003                   | FIL  | 180       | G's   |
| Max                   | Time | Min       | Time  |
| 43.4                  | 8.6  | -0.5      | -0.7  |

Test Program: SID IIs Pelvis Iliac Calibration  
 ATD Serial No.: 307

Test Date: 3/2/12  
 Test I.D.: 307PL033



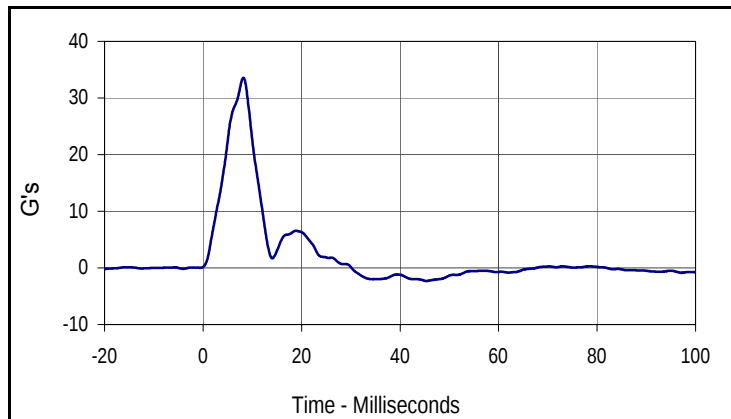
| Tested Parameter                   | Units   | Specification | Result | Pass/Fail |
|------------------------------------|---------|---------------|--------|-----------|
| Dummy Soak Time                    | Minutes | ≥180          | 485    | Pass      |
| Temperature During Soak            | Max     | 20.6 to 22.2  | 21.7   | Pass      |
|                                    | Min     |               | 20.7   | Pass      |
| Humidity During Soak               | Max     | 10.0 to 70.0  | 32.5   | Pass      |
|                                    | Min     |               | 29.0   | Pass      |
| Laboratory Temperature During Test | °C      | 18.9 to 25.6  | 21.2   | Pass      |
| Laboratory Humidity During Test    | %       | 10.0 to 70.0  | 29.2   | Pass      |
| Impactor Velocity                  | m/s     | 4.2 to 4.4    | 4.3    | Pass      |
| Peak Iliac Force                   | Newtons | 4100 to 5100  | 4727.7 | Pass      |
| Peak Pelvis Y Acceleration         | G's     | 28 to 39      | 33.6   | Pass      |
| Peak Impactor Acceleration         | G's     | 36 to 45      | 40.1   | Pass      |
| Overall Test Results               |         |               | Pass   |           |



#### Curve Description

##### Pelvis Iliac Force

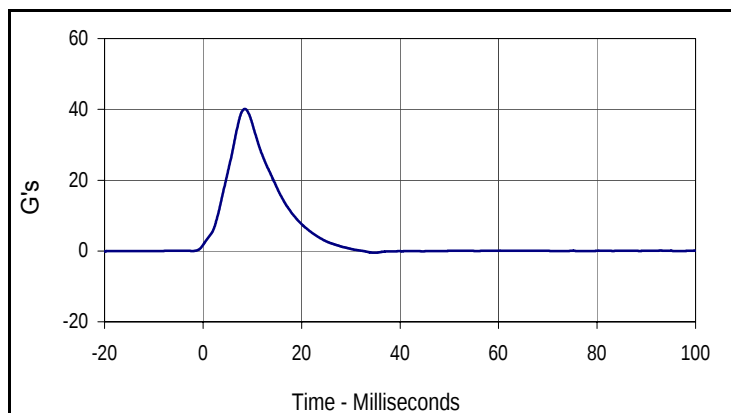
| Plot No. | Type | SAE Class | Units   |
|----------|------|-----------|---------|
| 001      | FIL  | 600       | Newtons |
| Max      | Time | Min       | Time    |
| 4727.7   | 8.4  | -35.9     | 35.1    |



#### Curve Description

##### Pelvis Y Acceleration

| Plot No. | Type | SAE Class | Units |
|----------|------|-----------|-------|
| 002      | FIL  | 180       | G's   |
| Max      | Time | Min       | Time  |
| 33.6     | 8.2  | -2.3      | 45.3  |



#### Curve Description

##### Impactor Acceleration

| Plot No. | Type | SAE Class | Units |
|----------|------|-----------|-------|
| 003      | FIL  | 180       | G's   |
| Max      | Time | Min       | Time  |
| 40.1     | 8.5  | -0.5      | 34.9  |

**APPENDIX C**  
**POST-TEST / ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA**

Test Program: SID IIs External Measurements  
 ATD Serial No.: 307

Test Date: 3/9/12  
 Test I.D.: N/A



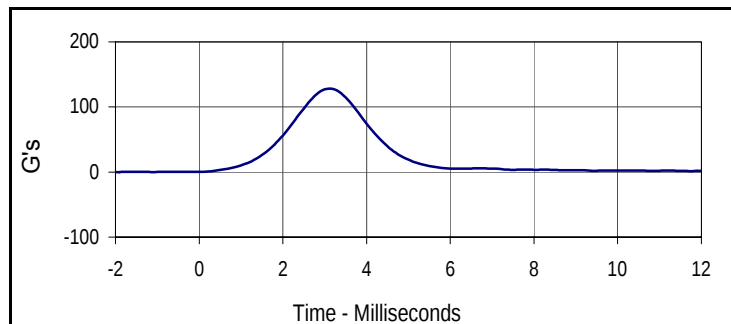
| Tested Parameter             |                                 | Units | Specification | Result | Pass/Fail |
|------------------------------|---------------------------------|-------|---------------|--------|-----------|
| Laboratory Temperature       |                                 | °C    | 20.6 to 22.2  | 21.2   | Pass      |
| Laboratory Relative Humidity |                                 | %     | 10 to 70      | 29     | Pass      |
| A                            | Sitting Height                  | mm    | 772 - 788     | 780    | Pass      |
| B                            | Shoulder Pivot Height           | mm    | 437 - 453     | 445    | Pass      |
| C                            | H-Point Height                  | mm    | 79 - 89       | 84     | Pass      |
| D                            | H-Point from Seatback           | mm    | 141 - 151     | 145    | Pass      |
| E                            | Shoulder Pivot from Backline    | mm    | 97 - 107      | 103    | Pass      |
| F                            | Thigh Clearance                 | mm    | 119 - 135     | 125    | Pass      |
| G                            | Head Breadth                    | mm    | 140 - 148     | 145    | Pass      |
| H                            | Head Back from Backline         | mm    | 40 - 46       | 43     | Pass      |
| I                            | Head Depth                      | mm    | 178 - 188     | 183    | Pass      |
| J                            | Head Circumference              | mm    | 541 - 551     | 546    | Pass      |
| K                            | Buttock to Knee Length          | mm    | 514 - 540     | 527    | Pass      |
| L                            | Popliteal Height                | mm    | 343 - 369     | 348    | Pass      |
| M                            | Knee Pivot to Floor Height      | mm    | 392 - 409     | 400    | Pass      |
| N                            | Buttock Popliteal Length        | mm    | 416 - 442     | 430    | Pass      |
| O                            | Chest Depth w/o Jacket          | mm    | 195 - 211     | 204    | Pass      |
| P                            | Foot Length                     | mm    | 216 - 232     | 221    | Pass      |
| Q                            | Hip Breadth with Pelvic Plug    | mm    | 313 - 323     | 318    | Pass      |
| R                            | Arm Length                      | mm    | 249 - 259     | 252    | Pass      |
| S                            | Knee Joint to Seatback          | mm    | 477 - 493     | 482    | Pass      |
| V                            | Shoulder Width                  | mm    | 341 - 357     | 351    | Pass      |
| W                            | Foot Width                      | mm    | 78 - 94       | 89     | Pass      |
| Y                            | Chest Circumference with Jacket | mm    | 851 - 881     | 873    | Pass      |
| Z                            | Waist Circumference             | mm    | 760 - 791     | 775    | Pass      |
| Overall Test Results         |                                 |       |               | Pass   |           |

Test Program: SID IIs Head Drop Test  
 ATD Serial No.: 307

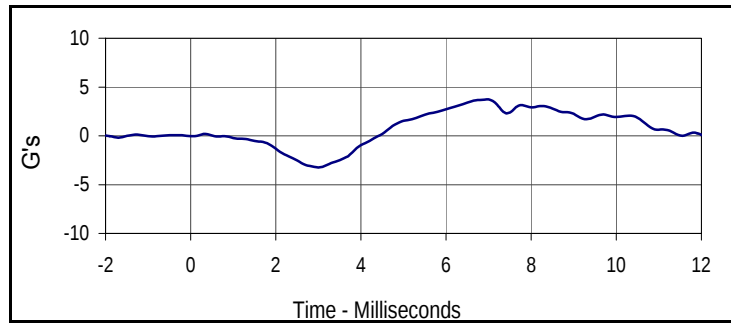
Test Date: 3/9/12  
 Test I.D.: 307HD034



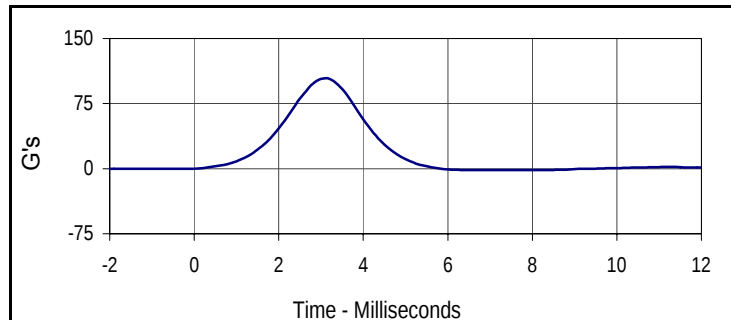
| Tested Parameter                   | Units   | Specification | Result | Pass/Fail |
|------------------------------------|---------|---------------|--------|-----------|
| Head Assembly Soak Time            | Minutes | ≥240          | 250    | Pass      |
| Temperature During Soak            | Max     | 18.9 to 25.6  | 21.7   | Pass      |
|                                    | Min     |               | 20.7   | Pass      |
| Humidity During Soak               | Max     | 10.0 to 70.0  | 32.0   | Pass      |
|                                    | Min     |               | 29.0   | Pass      |
| Laboratory Temperature During Test | °C      | 18.9 to 25.6  | 21.2   | Pass      |
| Laboratory Humidity During Test    | %       | 10.0 to 70.0  | 29.9   | Pass      |
| Peak Head Resultant Acceleration   | G's     | 115 to 137    | 128.3  | Pass      |
| Peak Head X Acceleration           | G's     | <15           | 3.3    | Pass      |
| Is Acceleration Unimodal?          | Yes/No  | Yes           | Yes    | Pass      |
| Oscillations After Main Pulse      | %       | <15           | 4.1    | Pass      |
| Overall Test Results               |         |               |        | Pass      |



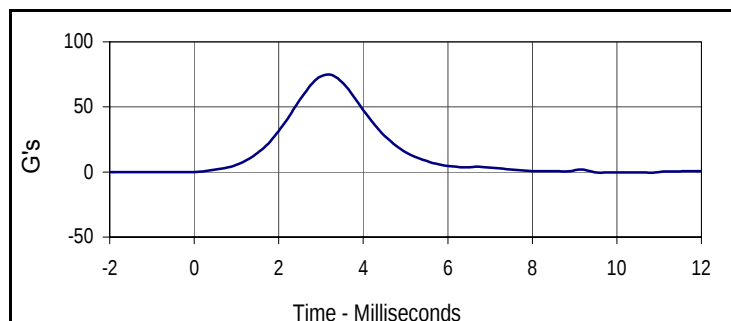
| Curve Description |      |           |       |
|-------------------|------|-----------|-------|
| Head Resultant    |      |           |       |
| Plot No.          | Type | SAE Class | Units |
| 001               | RES  | 1000      | G's   |
| Max               | Time | Min       | Time  |
| 128.3             | 3.1  | 0.0       | -2.0  |



| Curve Description |      |           |       |
|-------------------|------|-----------|-------|
| Head X            |      |           |       |
| Plot No.          | Type | SAE Class | Units |
| 002               | FIL  | 1000      | G's   |
| Max               | Time | Min       | Time  |
| 2.7               | 6.0  | -3.3      | 3.0   |



| Curve Description |      |           |       |
|-------------------|------|-----------|-------|
| Head Y            |      |           |       |
| Plot No.          | Type | SAE Class | Units |
| 003               | FIL  | 1000      | G's   |
| Max               | Time | Min       | Time  |
| 104.3             | 3.1  | -1.7      | 6.6   |



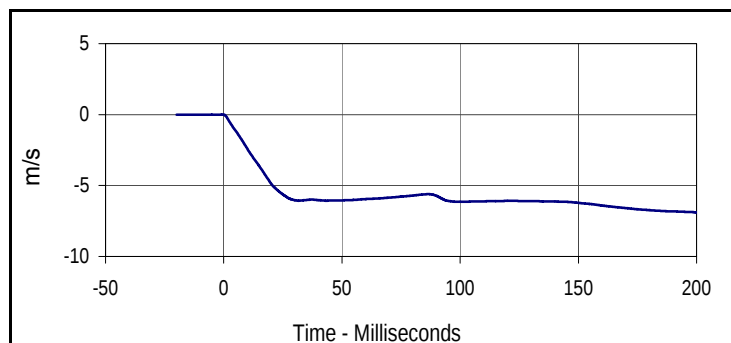
| Curve Description |      |           |       |
|-------------------|------|-----------|-------|
| Head Z            |      |           |       |
| Plot No.          | Type | SAE Class | Units |
| 004               | FIL  | 1000      | G's   |
| Max               | Time | Min       | Time  |
| 74.8              | 3.2  | -0.5      | 9.6   |

Test Program: SID IIs Neck Flexion Test  
 ATD Serial No.: 307

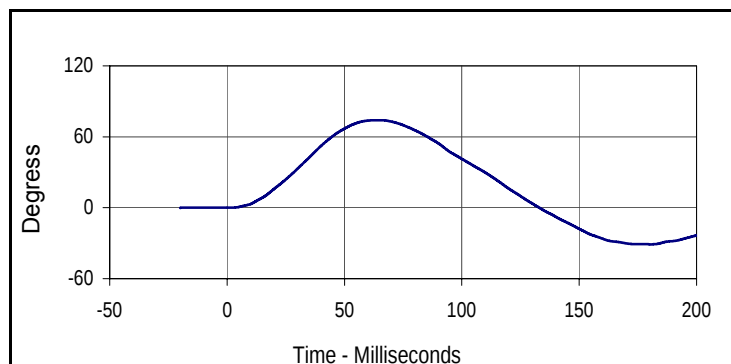
Test Date: 3/9/12  
 Test I.D.: 307NB034



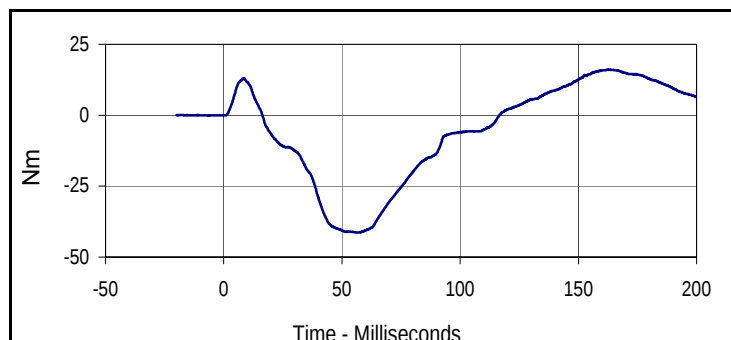
| Tested Parameter                   | Units       | Specification  | Result | Pass/Fail |
|------------------------------------|-------------|----------------|--------|-----------|
| Neck Assembly Soak Time            | Minutes     | ≥240           | 290    | Pass      |
| Temperature During Soak            | Max         | 20.6 to 22.2   | 21.7   | Pass      |
|                                    | Min         |                | 20.7   | Pass      |
| Humidity During Soak               | Max         | 10.0 to 70.0   | 32.0   | Pass      |
|                                    | Min         |                | 29.0   | Pass      |
| Laboratory Temperature During Test | °C          | 20.6 to 22.2   | 21.1   | Pass      |
| Laboratory Humidity During Test    | %           | 10.0 to 70.0   | 30.0   | Pass      |
| Pendulum Velocity                  | m/s         | 5.51 to 5.63   | 5.55   | Pass      |
| Pendulum Deceleration              | 10 msec     | -2.20 to -2.80 | -2.42  | Pass      |
|                                    | 15 msec     | -3.30 to -4.10 | -3.62  | Pass      |
|                                    | 20 msec     | -4.40 to -5.40 | -4.86  | Pass      |
|                                    | 25 msec     | -5.40 to -6.10 | -5.63  | Pass      |
|                                    | 25-100 msec | -5.50 to -6.20 | -6.15  | Pass      |
| D-Plane Rotation                   | Max         | 71 to 81       | 74.1   | Pass      |
|                                    | Time        | 50 to 70       | 64.8   | Pass      |
| Peak Occipital Condyle Moment      | Nm          | -36 to -44     | -41.4  | Pass      |
| Decaying Moment Time to Cross 0 Nm | msec        | 102 to 126     | 116.7  | Pass      |
| Overall Test Results               |             |                | Pass   |           |



| Curve Description |      |           |       |
|-------------------|------|-----------|-------|
| Pendulum Velocity |      |           |       |
| Plot No.          | Type | SAE Class | Units |
| 001               | FIL  | 180       | m/s   |
| Max               | Time | Min       | Time  |
| 0.0               | -0.6 | -6.9      | 200.0 |



| Curve Description            |      |           |         |
|------------------------------|------|-----------|---------|
| Maximum Translation Rotation |      |           |         |
| Plot No.                     | Type | SAE Class | Units   |
| 002                          | FIL  | 60        | Degress |
| Max                          | Time | Min       | Time    |
| 74.1                         | 64.8 | -30.9     | 180.8   |



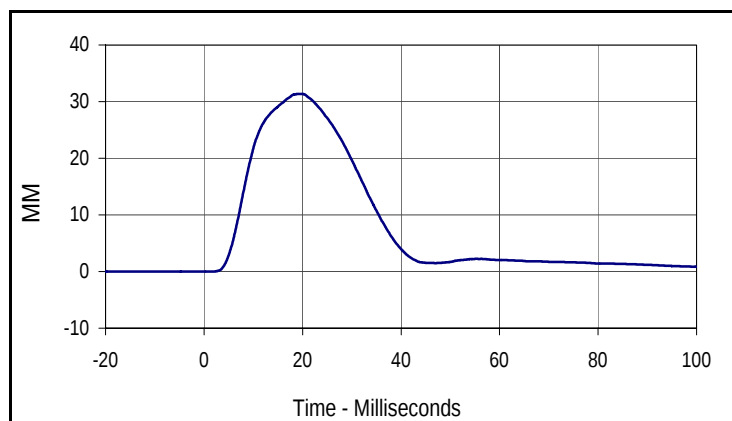
| Curve Description              |       |           |       |
|--------------------------------|-------|-----------|-------|
| Moment About Occipital Condyle |       |           |       |
| Plot No.                       | Type  | SAE Class | Units |
| 003                            | FIL   | 600       | Nm    |
| Max                            | Time  | Min       | Time  |
| 16.1                           | 162.4 | -41.4     | 56.8  |

Test Program: SID IIs Shoulder Impact Test  
 ATD Serial No.: 307

Test Date: 3/9/12  
 Test I.D.: 307SH034



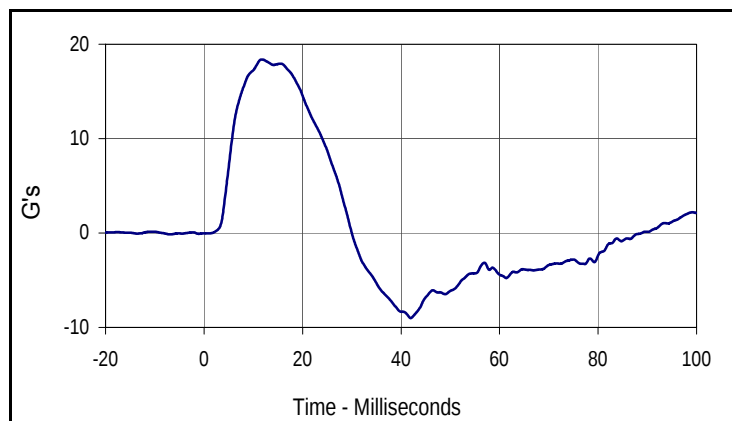
| Tested Parameter                   | Units   | Specification | Result | Pass/Fail |
|------------------------------------|---------|---------------|--------|-----------|
| Dummy Soak Time                    | Minutes | ≥180          | 330    | Pass      |
| Temperature During Soak            | Max °C  | 20.6 to 22.2  | 21.7   | Pass      |
|                                    | Min °C  |               | 20.7   | Pass      |
| Humidity During Soak               | Max %   | 10.0 to 70.0  | 32.0   | Pass      |
|                                    | Min %   |               | 29.0   | Pass      |
| Laboratory Temperature During Test | °C      | 20.6 to 22.2  | 21.3   | Pass      |
| Laboratory Humidity During Test    | %       | 10.0 to 70.0  | 29.2   | Pass      |
| Impactor Velocity                  | m/s     | 4.20 to 4.40  | 4.33   | Pass      |
| Peak Shoulder Deflection           | mm      | 28 to 37      | 31.4   | Pass      |
| Peak Lateral Spine Acceleration Y  | G's     | 17 to 22      | 18.4   | Pass      |
| Peak Impactor Acceleration         | G's     | 13 to 18      | 15.8   | Pass      |
| Overall Test Results               |         |               | Pass   |           |



#### Curve Description

##### Shoulder Deflection

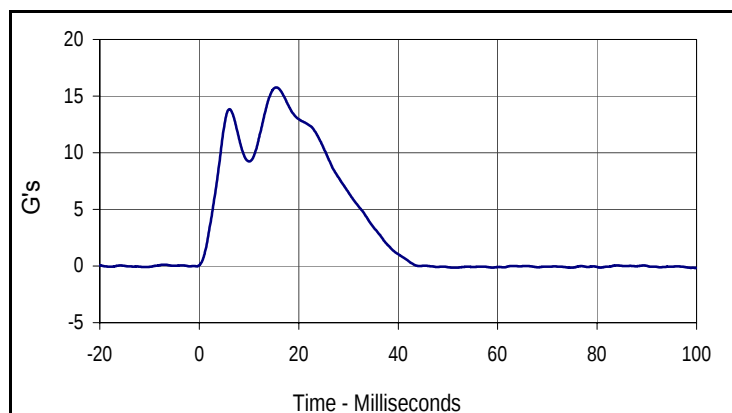
| Plot No. | Type | SAE Class | Units |
|----------|------|-----------|-------|
| 001      | FIL  | 600       | MM    |
| Max      | Time | Min       | Time  |
| 31.4     | 19.4 | 0.0       | -18.1 |



#### Curve Description

##### Upper Spine Y Acceleration

| Plot No. | Type | SAE Class | Units |
|----------|------|-----------|-------|
| 002      | FIL  | 180       | G's   |
| Max      | Time | Min       | Time  |
| 18.4     | 11.8 | -9.0      | 42.0  |



#### Curve Description

##### Impactor Acceleration

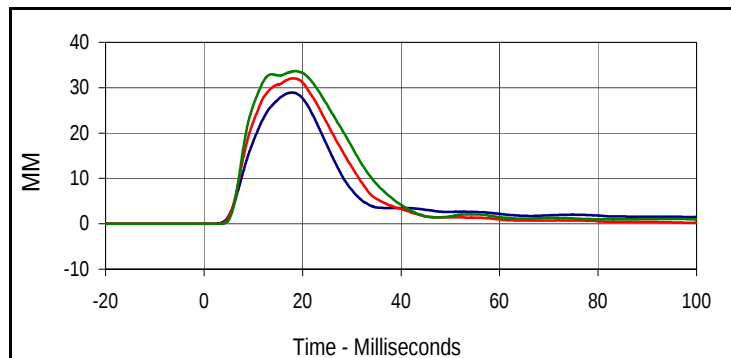
| Plot No. | Type | SAE Class | Units |
|----------|------|-----------|-------|
| 003      | FIL  | 180       | G's   |
| Max      | Time | Min       | Time  |
| 15.8     | 15.4 | -0.2      | 99.9  |

Test Program: SID IIs Thorax with Arm Impact Test  
 ATD Serial No.: 307

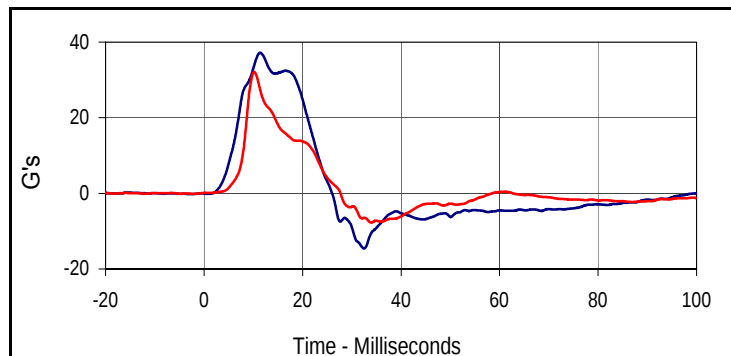
Test Date: 3/9/12  
 Test I.D.: 307TWA034



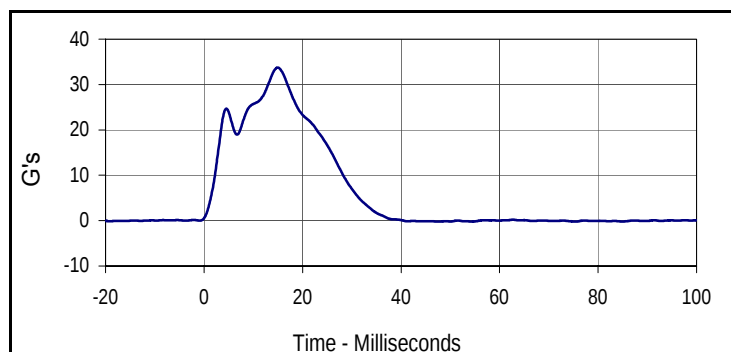
| Tested Parameter                   | Units   | Specification | Result | Pass/Fail |
|------------------------------------|---------|---------------|--------|-----------|
| Dummy Soak Time                    | Minutes | ≥180          | 350    | Pass      |
| Temperature During Soak            | Max     | 20.6 to 22.2  | 21.7   | Pass      |
|                                    | Min     |               | 20.7   | Pass      |
| Humidity During Soak               | Max     | 10.0 to 70.0  | 32.0   | Pass      |
|                                    | Min     |               | 29.0   | Pass      |
| Laboratory Temperature During Test | °C      | 18.9 to 25.6  | 20.9   | Pass      |
| Laboratory Humidity During Test    | %       | 10.0 to 70.0  | 29.8   | Pass      |
| Impactor Velocity                  | m/s     | 6.6 to 6.8    | 6.7    | Pass      |
| Peak Shoulder Deflection           | mm      | 31 to 40      | 35.3   | Pass      |
| Peak Upper Thorax Rib Deflection   | mm      | 25 to 32      | 28.9   | Pass      |
| Peak Middle Thorax Rib Deflection  | mm      | 30 to 36      | 32.0   | Pass      |
| Peak Lower Thorax Rib Deflection   | mm      | 32 to 38      | 33.7   | Pass      |
| Peak Upper Spine Y Acceleration    | G's     | 34 to 43      | 37.2   | Pass      |
| Peak Lower Spine Y Acceleration    | G's     | 29 to 37      | 32.1   | Pass      |
| Peak Impactor Acceleration         | G's     | 30 to 36      | 33.7   | Pass      |
| Overall Test Results               |         |               | Pass   |           |



| Curve Description        |      |           |       |
|--------------------------|------|-----------|-------|
| Upper Thorax Deflection  |      |           |       |
| Plot No.                 | Type | SAE Class | Units |
| 001                      | FIL  | 600       | MM    |
| Max                      | Time | Min       | Time  |
| 28.9                     | 17.8 | 0.0       | -15.6 |
| Middle Thorax Deflection |      |           |       |
| Max                      | Time | Min       | Time  |
| 32.0                     | 17.9 | 0.0       | -13.5 |
| Lower Thorax Deflection  |      |           |       |
| Max                      | Time | Min       | Time  |
| 33.7                     | 18.5 | 0.0       | -20.0 |



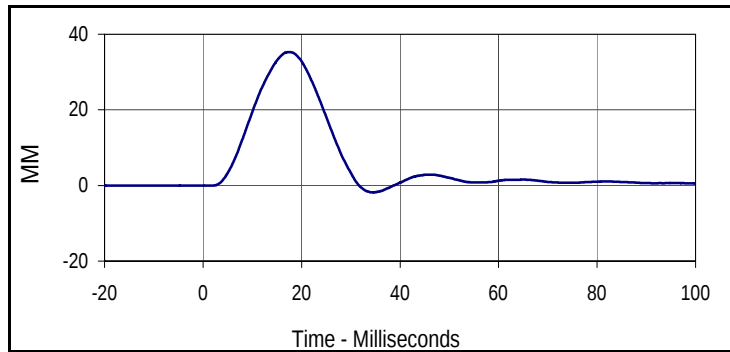
| Curve Description          |      |           |       |
|----------------------------|------|-----------|-------|
| Upper Spine Y Acceleration |      |           |       |
| Plot No.                   | Type | SAE Class | Units |
| 004                        | FIL  | 180       | G's   |
| Max                        | Time | Min       | Time  |
| 37.2                       | 11.4 | -14.6     | 32.5  |
| Lower Spine Y Acceleration |      |           |       |
| Plot No.                   | Type | SAE Class | Units |
| 005                        | FIL  | 180       | G's   |
| Max                        | Time | Min       | Time  |
| 32.1                       | 10.2 | -7.7      | 33.9  |



| Curve Description     |      |           |       |
|-----------------------|------|-----------|-------|
| Impactor Acceleration |      |           |       |
| Plot No.              | Type | SAE Class | Units |
| 006                   | FIL  | 180       | G's   |
| Max                   | Time | Min       | Time  |
| 33.7                  | 15.0 | -0.2      | 75.4  |

Test Program: SID IIs Thorax with Arm Impact Test  
 ATD Serial No.: 307

Test Date: 3/9/12  
 Test I.D.: 307TWA034



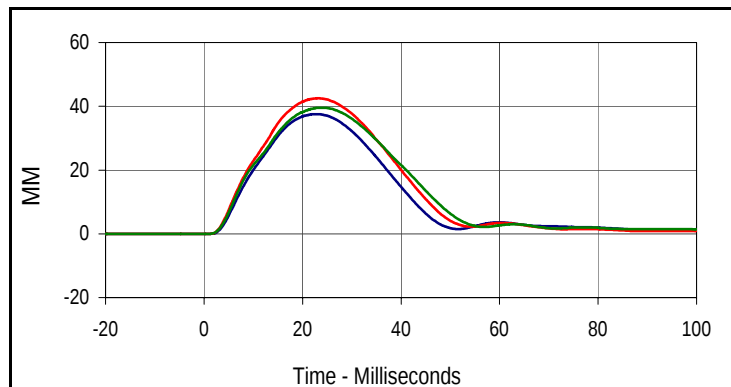
| Curve Description   |      |           |       |
|---------------------|------|-----------|-------|
| Shoulder Deflection |      |           |       |
| Plot No.            | Type | SAE Class | Units |
| 007                 | FIL  | 600       | MM    |
| Max                 | Time | Min       | Time  |
| 35.3                | 17.6 | -1.8      | 34.5  |

Test Program: SID IIs Thorax without Arm Impact Test  
 ATD Serial No.: 307

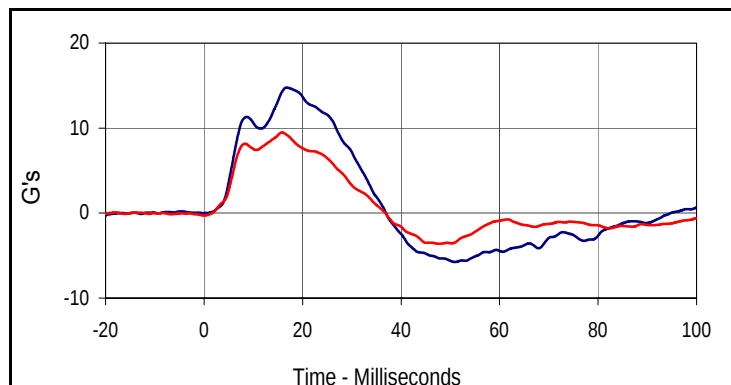
Test Date: 3/9/12  
 Test I.D.: 307TWOA034



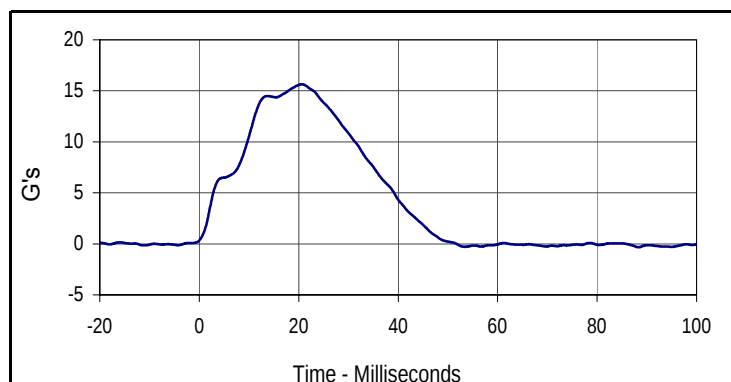
| Tested Parameter                   | Units   | Specification | Result | Pass/Fail |
|------------------------------------|---------|---------------|--------|-----------|
| Dummy Soak Time                    | Minutes | ≥180          | 385    | Pass      |
| Temperature During Soak            | Max °C  | 18.9 to 25.6  | 21.7   | Pass      |
|                                    | Min °C  |               | 20.7   | Pass      |
| Humidity During Soak               | Max %   | 10.0 to 70.0  | 32.0   | Pass      |
|                                    | Min %   |               | 29.0   | Pass      |
| Laboratory Temperature During Test | °C      | 18.9 to 25.6  | 20.8   | Pass      |
| Laboratory Humidity During Test    | %       | 10.0 to 70.0  | 29.4   | Pass      |
| Impactor Velocity                  | m/s     | 4.2 to 4.4    | 4.3    | Pass      |
| Peak Upper Thorax Rib Deflection   | mm      | 32 to 40      | 37.5   | Pass      |
| Peak Middle Thorax Rib Deflection  | mm      | 39 to 45      | 42.5   | Pass      |
| Peak Lower Thorax Rib Deflection   | mm      | 35 to 43      | 39.5   | Pass      |
| Peak Upper Spine Y Acceleration    | G's     | 13 to 17      | 14.8   | Pass      |
| Peak Lower Spine Y Acceleration    | G's     | 7 to 11       | 9.5    | Pass      |
| Peak Impactor Acceleration         | G's     | 14 to 18      | 15.6   | Pass      |
| Overall Test Results               |         |               | Pass   |           |



| Curve Description        |      |           |       |
|--------------------------|------|-----------|-------|
| Upper Thorax Deflection  |      |           |       |
| Plot No.                 | Type | SAE Class | Units |
| 001                      | FIL  | 600       | MM    |
| Max                      | Time | Min       | Time  |
| 37.5                     | 22.7 | 0.0       | -10.0 |
| Middle Thorax Deflection |      |           |       |
| Max                      | Time | Min       | Time  |
| 42.5                     | 23.2 | 0.0       | -2.2  |
| Lower Thorax Deflection  |      |           |       |
| Max                      | Time | Min       | Time  |
| 39.5                     | 24.1 | 0.0       | -5.1  |



| Curve Description          |      |           |       |
|----------------------------|------|-----------|-------|
| Upper Spine Y Acceleration |      |           |       |
| Plot No.                   | Type | SAE Class | Units |
| 004                        | FIL  | 180       | G's   |
| Max                        | Time | Min       | Time  |
| 14.8                       | 16.8 | -5.8      | 51.0  |
| Lower Spine Y Acceleration |      |           |       |
| Plot No.                   | Type | SAE Class | Units |
| 005                        | FIL  | 180       | G's   |
| Max                        | Time | Min       | Time  |
| 9.5                        | 15.8 | -3.6      | 47.7  |



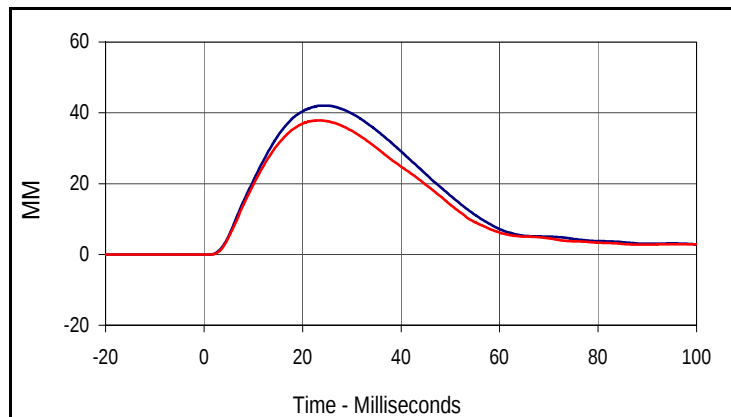
| Curve Description     |      |           |       |
|-----------------------|------|-----------|-------|
| Impactor Acceleration |      |           |       |
| Plot No.              | Type | SAE Class | Units |
| 006                   | FIL  | 180       | G's   |
| Max                   | Time | Min       | Time  |
| 15.6                  | 20.6 | -0.3      | 88.3  |

Test Program: SID IIs Abdomen Impact Test  
 ATD Serial No.: 307

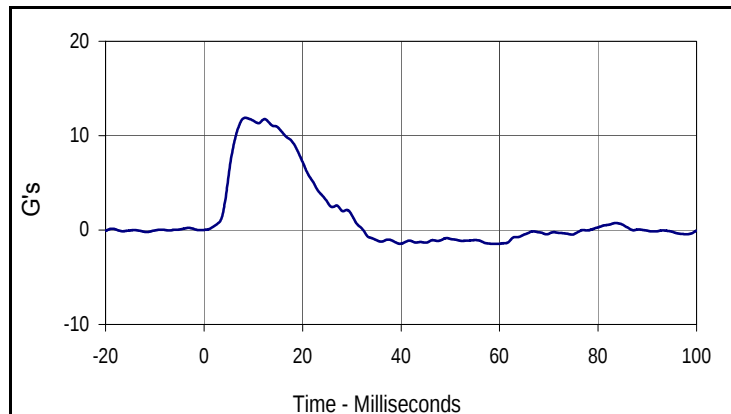
Test Date: 3/9/12  
 Test I.D.: 307ABD034



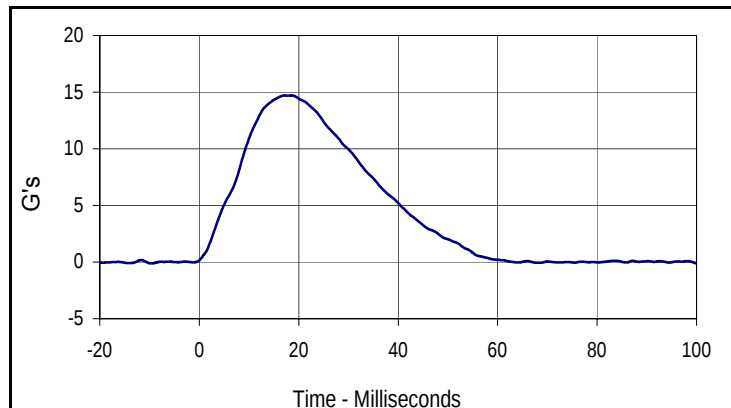
| Tested Parameter                    | Units   | Specification | Result | Pass/Fail |
|-------------------------------------|---------|---------------|--------|-----------|
| Dummy Soak Time                     | Minutes | ≥180          | 410    | Pass      |
| Temperature During Soak             | Max °C  | 20.6 to 22.2  | 21.7   | Pass      |
|                                     | Min °C  |               | 20.7   | Pass      |
| Humidity During Soak                | Max %   | 10.0 to 70.0  | 32.0   | Pass      |
|                                     | Min %   |               | 29.0   | Pass      |
| Laboratory Temperature During Test  | °C      | 18.9 to 25.6  | 21.3   | Pass      |
| Laboratory Humidity During Test     | %       | 10.0 to 70.0  | 29.5   | Pass      |
| Impactor Velocity                   | m/s     | 4.2 to 4.4    | 4.3    | Pass      |
| Peak Upper Abdominal Rib Deflection | mm      | 36 to 47      | 42.0   | Pass      |
| Peak Lower Abdominal Rib Deflection | mm      | 33 to 44      | 37.8   | Pass      |
| Peak Lower Spine Y Acceleration     | G's     | 9 to 14       | 11.9   | Pass      |
| Peak Impactor Acceleration          | G's     | 12 to 16      | 14.7   | Pass      |
| Overall Test Results                |         |               | Pass   |           |



| Curve Description              |      |           |       |
|--------------------------------|------|-----------|-------|
| Upper Abdominal Rib Deflection |      |           |       |
| Plot No.                       | Type | SAE Class | Units |
| 001                            | FIL  | 600       | MM    |
| Max                            | Time | Min       | Time  |
| 42.0                           | 24.2 | 0.0       | -0.3  |
| Curve Description              |      |           |       |
| Lower Abdominal Rib Deflection |      |           |       |
| Plot No.                       | Type | SAE Class | Units |
| 002                            | FIL  | 600       | MM    |
| Max                            | Time | Min       | Time  |
| 37.8                           | 23.4 | 0.0       | -17.8 |



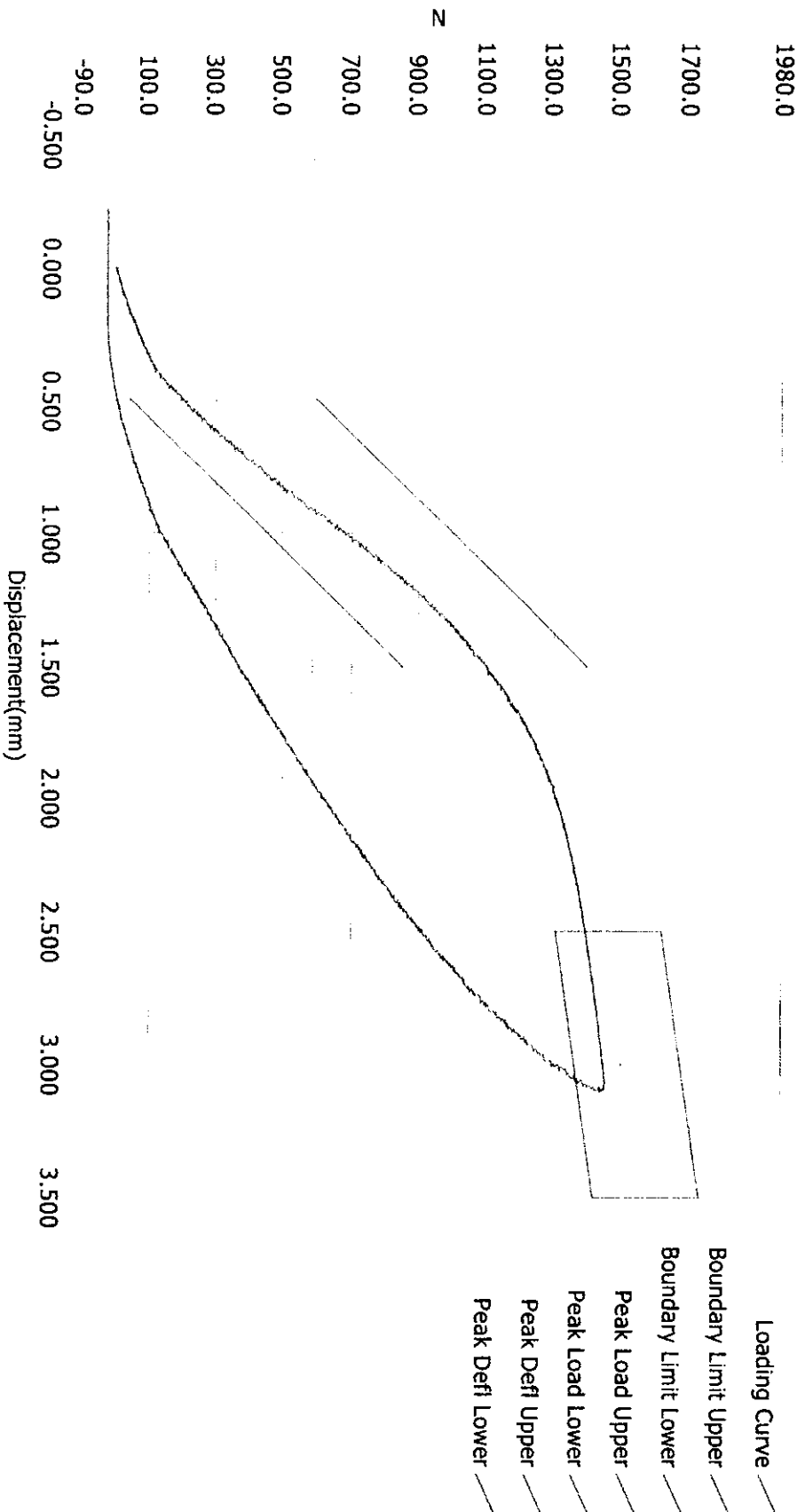
| Curve Description          |      |           |       |
|----------------------------|------|-----------|-------|
| Lower Spine Y Acceleration |      |           |       |
| Plot No.                   | Type | SAE Class | Units |
| 003                        | FIL  | 180       | G's   |
| Max                        | Time | Min       | Time  |
| 11.9                       | 8.3  | -1.5      | 59.5  |



| Curve Description     |      |           |       |
|-----------------------|------|-----------|-------|
| Impactor Acceleration |      |           |       |
| Plot No.              | Type | SAE Class | Units |
| 004                   | FIL  | 180       | G's   |
| Max                   | Time | Min       | Time  |
| 14.7                  | 17.2 | -0.1      | -9.6  |

# MC0315 POST TEST

## Resultant Data - SIDIIs Plug Compression



### ATD Calibration Lab

|                |                           |                  |                  |
|----------------|---------------------------|------------------|------------------|
| <u>Test ID</u> | <u>Part Serial Number</u> | <u>Test Date</u> | <u>Test Time</u> |
|                | 46879                     | 10/5/2011        | 11:50 PM         |
| <u>Cert ID</u> | <u>ATD Serial Number</u>  | <u>ATD Type</u>  |                  |
|                | N/A                       | SIDIIs           |                  |

Current Date : 10/5/2011

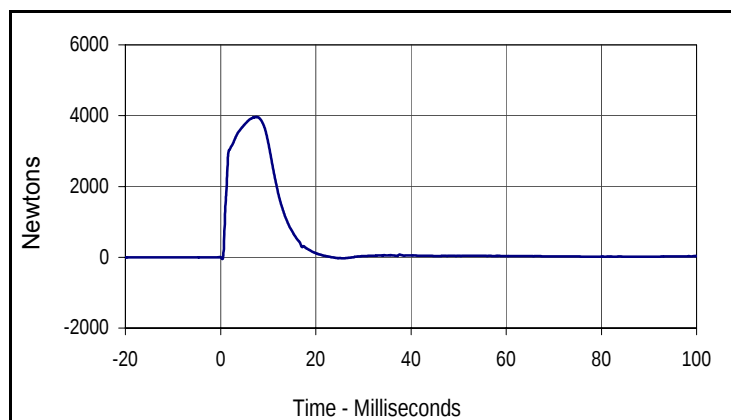
Current Time : 23:51:34

Test Program: SID IIs Pelvis Acetabulum Impact Test  
 ATD Serial No.: 307

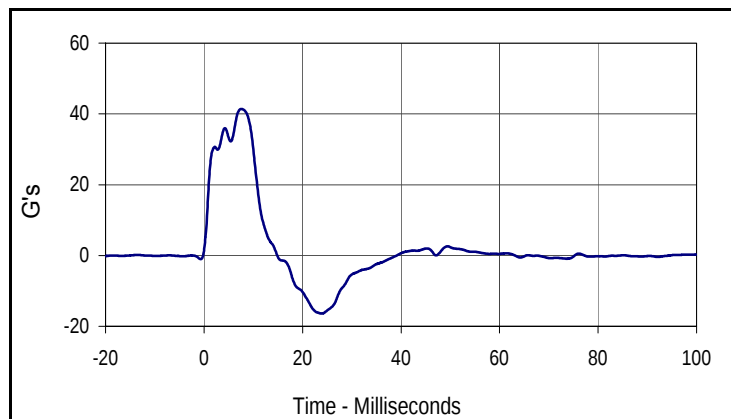
Test Date: 3/9/12  
 Test I.D.: 307ACET034



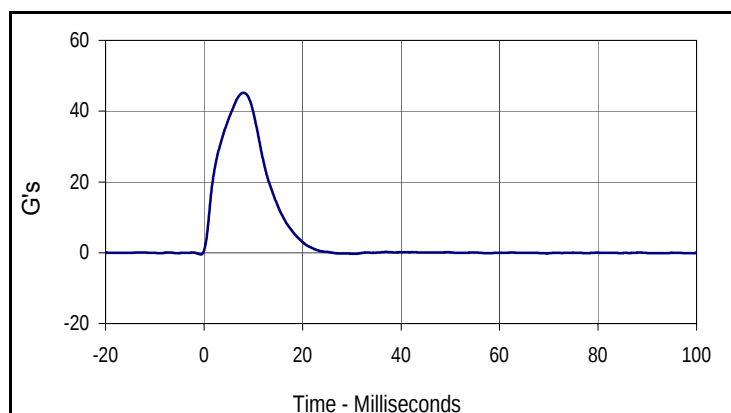
| Tested Parameter                         | Units   | Specification | Result | Pass/Fail |
|------------------------------------------|---------|---------------|--------|-----------|
| Dummy Soak Time                          | Minutes | ≥180          | 420    | Pass      |
| Temperature During Soak                  | Max     | 20.6 to 22.2  | 21.7   | Pass      |
|                                          | Min     |               | 20.7   | Pass      |
| Humidity During Soak                     | Max     | 10.0 to 70.0  | 32.0   | Pass      |
|                                          | Min     |               | 29.0   | Pass      |
| Laboratory Temperature During Test       | °C      | 18.9 to 25.6  | 21.6   | Pass      |
| Laboratory Humidity During Test          | %       | 10.0 to 70.0  | 31.2   | Pass      |
| Impactor Velocity                        | m/s     | 6.6 to 6.8    | 6.7    | Pass      |
| Peak Acetabulum Force Y                  | Newtons | 3600 to 4300  | 3962.7 | Pass      |
| Peak Pelvis Y Acceleration After 6 msec. | G's     | 34 to 42      | 41.4   | Pass      |
| Peak Impactor Acceleration               | G's     | 38 to 47      | 45.2   | Pass      |
| Overall Test Results                     |         |               | Pass   |           |



| Curve Description       |      |           |         |
|-------------------------|------|-----------|---------|
| Pelvis Acetabulum Force |      |           |         |
| Plot No.                | Type | SAE Class | Units   |
| 001                     | FIL  | 600       | Newtons |
| Max                     | Time | Min       | Time    |
| 3962.7                  | 7.5  | -47.8     | 0.4     |



| Curve Description     |      |           |       |
|-----------------------|------|-----------|-------|
| Pelvis Y Acceleration |      |           |       |
| Plot No.              | Type | SAE Class | Units |
| 002                   | FIL  | 180       | G's   |
| Max                   | Time | Min       | Time  |
| 41.4                  | 7.6  | -16.4     | 23.9  |



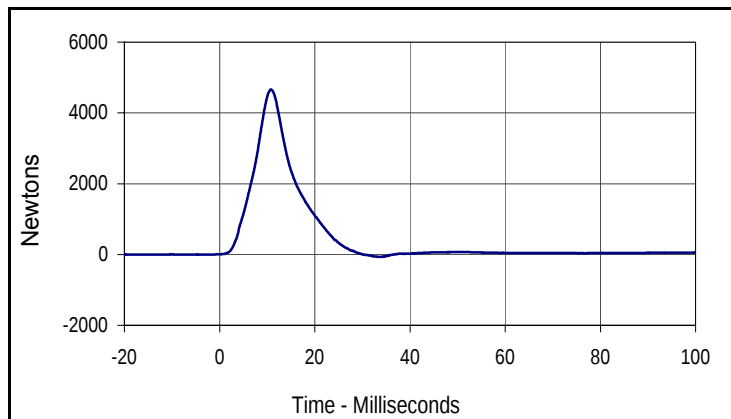
| Curve Description     |      |           |       |
|-----------------------|------|-----------|-------|
| Impactor Acceleration |      |           |       |
| Plot No.              | Type | SAE Class | Units |
| 003                   | FIL  | 180       | G's   |
| Max                   | Time | Min       | Time  |
| 45.2                  | 8.0  | -0.5      | -0.7  |

Test Program: SID IIs Pelvis Iliac Calibration  
 ATD Serial No.: 307

Test Date: 3/9/12  
 Test I.D.: 307PL034



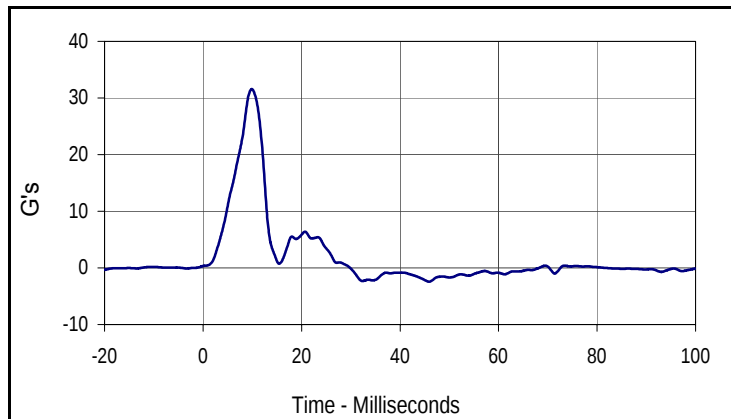
| Tested Parameter                   | Units   | Specification | Result | Pass/Fail |
|------------------------------------|---------|---------------|--------|-----------|
| Dummy Soak Time                    | Minutes | ≥180          | 455    | Pass      |
| Temperature During Soak            | Max     | 20.6 to 22.2  | 21.7   | Pass      |
|                                    | Min     |               | 20.7   | Pass      |
| Humidity During Soak               | Max     | 10.0 to 70.0  | 32.0   | Pass      |
|                                    | Min     |               | 29.0   | Pass      |
| Laboratory Temperature During Test | °C      | 18.9 to 25.6  | 21.3   | Pass      |
| Laboratory Humidity During Test    | %       | 10.0 to 70.0  | 29.1   | Pass      |
| Impactor Velocity                  | m/s     | 4.2 to 4.4    | 4.3    | Pass      |
| Peak Iliac Force                   | Newtons | 4100 to 5100  | 4658.1 | Pass      |
| Peak Pelvis Y Acceleration         | G's     | 28 to 39      | 31.6   | Pass      |
| Peak Impactor Acceleration         | G's     | 36 to 45      | 39.7   | Pass      |
| Overall Test Results               |         |               | Pass   |           |



#### Curve Description

##### Pelvis Iliac Force

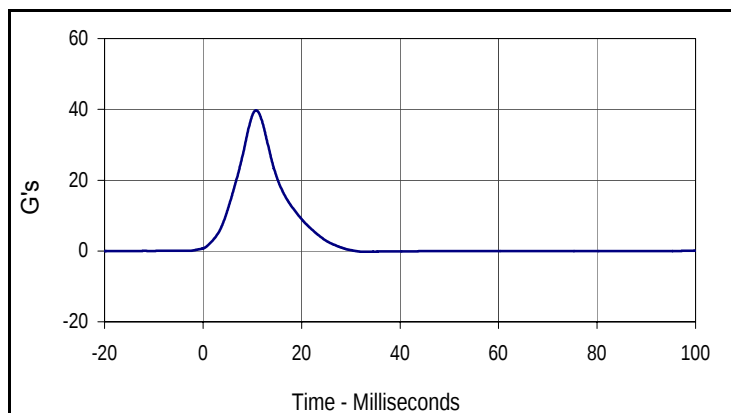
| Plot No. | Type | SAE Class | Units   |
|----------|------|-----------|---------|
| 001      | FIL  | 600       | Newtons |
| Max      | Time | Min       | Time    |
| 4658.1   | 10.8 | -65.3     | 34.1    |



#### Curve Description

##### Pelvis Y Acceleration

| Plot No. | Type | SAE Class | Units |
|----------|------|-----------|-------|
| 002      | FIL  | 180       | G's   |
| Max      | Time | Min       | Time  |
| 31.6     | 9.9  | -2.4      | 45.9  |



#### Curve Description

##### Impactor Acceleration

| Plot No. | Type | SAE Class | Units |
|----------|------|-----------|-------|
| 003      | FIL  | 180       | G's   |
| Max      | Time | Min       | Time  |
| 39.7     | 10.8 | -0.2      | 32.6  |

**APPENDIX D**  
**TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA**

**TABLE 1 – Dummy Instrumentation (SID-IIs)**

|                                  |               |        |   | SID-IIs S/N 307 |              |             |
|----------------------------------|---------------|--------|---|-----------------|--------------|-------------|
|                                  |               |        |   | Serial Number   | Manufacturer | Calibration |
| Head Accelerometers              |               |        | X | P58900          | Endevco      | 7/5/11      |
|                                  |               |        | Y | P58902          | Endevco      | 7/5/11      |
|                                  |               |        | Z | P58983          | Endevco      | 7/5/11      |
| Displacement Potentiometers      | Shoulder      |        | Y | 1244            | FTSS         | 7/1/11      |
|                                  | Thoracic Rib  | Upper  | Y | 1249            | FTSS         | 7/1/11      |
|                                  |               | Middle | Y | 1265            | FTSS         | 7/1/11      |
|                                  |               | Lower  | Y | 1277            | FTSS         | 7/1/11      |
|                                  | Abdominal Rib | Upper  | Y | 1286            | FTSS         | 7/1/11      |
|                                  |               | Lower  | Y | 1290            | FTSS         | 7/1/11      |
| Lower Spine Accelerometers (T12) |               |        | X | P59007          | Endevco      | 7/1/11      |
|                                  |               |        | Y | P59015          | Endevco      | 7/1/11      |
|                                  |               |        | Z | P59016          | Endevco      | 7/1/11      |
| Acetabulum Load Cell             |               |        | Y | 277             | Denton       | 6/10/11     |
| Iliac Wing Load Cell             |               |        | Y | 289             | Denton       | 6/10/11     |
| Pelvis Plug (Struck Side)        |               |        |   | 46805           | FTSS         | 10/4/11     |
| Pelvis Plug (Non-Struck Side)    |               |        |   | 36292           | FTSS         | 9/22/10     |

**TABLE 2 – Vehicle Instrumentation**

| Vehicle Instrumentation   |   | Serial Number | Manufacturer | Calibration Date |
|---------------------------|---|---------------|--------------|------------------|
| Vehicle Center of Gravity | X | Ketx5a        | ICSensor     | 6/20/11          |
| Vehicle Center of Gravity | Y | Ketx5b        | ICSensor     | 6/20/11          |
| Vehicle Center of Gravity | Z | Ketx5c        | ICSensor     | 6/20/11          |
| Left Floor Sill           | Y | Keva508       | ICSensor     | 8/2/11           |
| A-Pillar Sill             | Y | 12505         | Endevco      | 2/14/12          |
| A-Pillar Low              | Y | BF651         | Endevco      | 10/28/11         |
| A-Pillar Mid              | Y | J27513        | Endevco      | 4/29/11          |
| B-Pillar Sill             | Y | EJ62J         | Endevco      | 2/18/12          |
| B-Pillar Low              | Y | J19535        | Endevco      | 3/31/11          |
| B-Pillar Mid              | Y | J34378        | Endevco      | 1/31/12          |
| Driver Seat               | Y | J24533        | Endevco      | 2/14/12          |
| Engine Top                | X | BI60H         | Endevco      | 7/22/11          |
| Engine Top                | Y | BE50J         | Endevco      | 7/22/11          |
| Firewall                  | Y | AR17          | Endevco      | 7/22/11          |
| Right Roof                | Y | AJ7Y4         | Endevco      | 3/30/11          |
| Right Floor Sill          | Y | BJ15H         | Endevco      | 3/31/11          |
| Rear Floorpan             | X | Ketx12a       | ICSensor     | 7/20/11          |
| Rear Floorpan             | Y | Ketx12y       | ICSensor     | 7/21/11          |

**TABLE 3 – Pole Instrumentation**

|             | Serial<br>Number | Manufacturer | Calibration<br>Date |
|-------------|------------------|--------------|---------------------|
| Load Cell 1 | 131822A          | Interface    | 8/8/11              |
| Load Cell 2 | 132304A          | Interface    | 8/8/11              |
| Load Cell 3 | 19477            | Interface    | 8/8/11              |
| Load Cell 4 | 19325            | Interface    | 8/8/11              |
| Load Cell 5 | 131827A          | Interface    | 8/8/11              |
| Load Cell 6 | 132302A          | Interface    | 8/8/11              |
| Load Cell 7 | 19267            | Interface    | 8/8/11              |
| Load Cell 8 | 19321            | Interface    | 8/8/11              |