REPORT NUMBER: 208-MGA-2006-002-ODI

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

Diamler Chrysler Corporation
2005 Dodge Grand Caravan
NHTSA No.: C50311

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

Test Dates: September 13, 2006

Final Report Date: October 19, 2006

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
MAIL CODE: NVS-220
400 SEVENTH STREET, SW, ROOM 6115
WASHINGTON, D.C. 20590

This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number DTNH22-03-D-11002.

Prepared by: Jeff Lewandowski Date: October 19, 2006
Jeff Lewandowski, Project Engineer

Reviewed by: David Winkelbauer Date: October 19, 2006
David Winkelbauer, Facility Director

FINAL REPORT ACCEPTED BY OVSC:

Accepted By: Charla R. Case

Acceptance Date: October 19, 2006

Technical Report Documentation Page

1. Report No. 208-MGA-2006-002-ODI	*2. Government Accession No.*	*3. Recipient's Catalog No.*	
4. Title and Subtitle Final Report of FMVSS 208 Compliance Testing of a 2005 Dodge Grand Caravan NHTSA No.: C50311		*5. Report Date* October 19, 2006 *6. Performing Organization Code* MGA	
7. Author(s) Jeff Lewandowski, Project Engineer		*8. Performing Organization Report No.* 208-MGA-2006-002-ODI	
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105		*10. Work Unit No.* *11. Contract or Grant No.* DTNH22-03-D-11002	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Enforcement Office of Vehicle Safety Compliance 400 Seventh St., S.W., Room 6115 NVS-220 Washington, D.C. 20590		*13. Type of Report and Period Covered* 9/13/06 - 10/19/06 *14. Sponsoring Agency Code* NVS-220	
15. Supplementary Notes			
16. Abstract Compliance tests were conducted on the subject 2005 Dodge Grand Caravan in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP208-13 for the determination of FMVSS 208 compliance. Test failures identified were as follows: The left front crash sensor was disconnected for the crash test. FMVSS 208 S16.1 The 5th% female driver dummy had a neck tension (Fz) measure of 3349N at 111.0 ms after offset deformable barrier impact during the 40 kmph unbelted frontal test. The maximum allowed is 2620N.			
17. Key Words Frontal Impact 40 kmph Vehicle Safety Compliance Testing FMVSS 208, “Occupant Crash Protection” FMVSS 212, “Windshield Mounting” FMVSS 219, (partial), “Windshield Zone Intrusion” FMVSS 301, “Fuel System Integrity”		*18. Distribution Statement* Copies of this report are available from the following: NHTSA Technical Information Services (TIS), Mail Code: NPO-230 400 Seventh Street, S.W., Room 5108 Washington, D.C. 20590 Tel. No.: (202) 366-4946	
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Form DOT F1700.7 (8-72)

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SECTION 1

PURPOSE OF TEST

The test performed are part of a program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No. DTNH22-03-D-11002. The purpose of this test was to determine whether the subject vehicle, a 2005 Dodge Grand Caravan, NHTSA No. C50311, meets certain performance requirements of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Mounting"; FMVSS 219, "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity" with the left front crash sensor disconnected. The test was conducted in accordance with OVSC Laboratory Test Procedure No. TP208-13 dated July 27, 2005.

SECTION 2

TESTS PERFORMED

Test Vehicle: 2005 Dodge Grand Caravan NHTSA No.: C50311
Test Program: FMVSS 208 Test Dates: 9/13/06

The following checked items indicate the tests that were performed:

- [ ] 1. Rear outboard seating position seat belts (S4.1.1.2(b) & (S4.2.4)
- [ ] 2. Air bag labels (S4.5.1)
- [ ] 3. Readiness indicator (S4.5.2)
- [ ] 4. Passenger air bag manual cut-off device (S4.5.4)
- [ ] 5. Lap belt lockability (S7.1.1.5)
- [ ] 6. Seat belt warning system (S7.3)
- [ ] 7. Seat belt contact force (S7.4.4)
- [ ] 8. Seat belt latch plate access (S7.4.4)
- [ ] 9. Seat belt retraction (S7.4.5)
- [ ] 10. Seat belt guides and hardware (S7.4.6)
- [ ] 11. Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R)
- [ ] 12. Suppression tests with newborn infant (Part 572, Subpart K)
- [ ] 13. Suppression tests with 3-year-old dummy (Part 572, Subpart P)
- [ ] 14. Suppression tests with 6-year-old child
- [ ] 15. Test of reactivation of the passenger air bag system with an unbelted 5th percentile female human
- [ ] 16. Low risk deployment test with 12-month-old dummy (Part 572, Subpart R)
- [ ] 17. Low risk deployment test with 3-year-old dummy (Part 572, Subpart P)
- [ ] 18. Low risk deployment test with 6-year-old dummy (Part 572, Subpart N)
- [ ] 19. Low risk deployment test with 5th female dummy (Part 572, Subpart O)
- [X] 20. Impact Tests
  - [ ] Frontal Oblique
    - [ ] Belted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.1(a))
    - [ ] Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))
    - [ ] Unbelted 50th male dummy driver and passenger (32 to 40 kmph) (S5.1.2(a) (1) or S5.1.2(b))
  - [ ] Frontal 0°
    - [ ] Belted 50th male dummy driver (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
    - [ ] Belted 50th male dummy passenger (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
    - [ ] Belted 5th female dummy driver (0 to 48 kmph) (S16.1(a))
    - [ ] Belted 5th female dummy passenger (0 to 48 kmph) (S16.1(a))
    - [ ] Belted 50th male dummy driver and passenger (0 to 56 kmph) (S5.1.1.(b)(2))
    - [ ] Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a) (1))
    - [ ] Unbelted 50th male dummy driver (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
    - [ ] Unbelted 50th male dummy passenger (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))

	Unbelted 5th female dummy driver (32 to 40 kmph) (S16.1(b))
	Unbelted 5th female dummy passenger (32 to 40 kmph) (S16.1(b))
X	40% Offset 0° Belted 5th male dummy driver and passenger (0 to 40 kmph) (S18.1)
	21. Sled Test: unbelted 50th male dummy driver and passenger (S13)
	22. FMVSS 204 Indicant Test
X	23. FMVSS 212 Indicant Test
X	24. FMVSS 219 Indicant Test
X	25. FMVSS 301 Frontal Indicant Test

For the crash tests, the vehicle was instrumented with 8 accelerometers. The accelerometer data from the vehicle and dummies were sampled at 10,000 samples per second and processed as specified in SAE J211/1 MAR95 and FMVSS 208, S4.13.

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

The left front crash sensor was disconnected. In this condition, the vehicle does not appear to meet all of the performance requirements to which it was tested: FMVSS 208 S16.1 The 5th% female driver dummy had a neck tension (Fz) measure of 3349N at 111.0 ms after offset deformable barrier impact during the 40 kmph unbelted frontal test. The maximum allowed is 2620N.

SECTION 3

INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

Test Vehicle: 2005 Dodge Grand Caravan NHTSA No.: C50311
Test Program: FMVSS 208 Test Date: 9/13/06

40 kmph Frontal Crash

Impact Angle: Zero Degrees LH 40% ODB

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

Test Speed: 39.9 kmph Test Weight: 2112.9 kg

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

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

Injury Criteria	Max. Allowable Injury Assessment Values	Driver	Passenger
HIC15	700	225	142
N_{te}	1.0	1.0 (.959)	0.2
N_{tf}	1.0	0.5	0.6
N_{ce}	1.0	0.1	0.1
N_{cf}	1.0	0.0	0.6
Neck Tension	2620 N	3349	633
Neck Compression	2520 N	41	1025
Chest g	60 g	36	18
Chest Displacement	52 mm	25	13
Left Femur	6805 N	2112	218
Right Femur	6805 N	2354	233

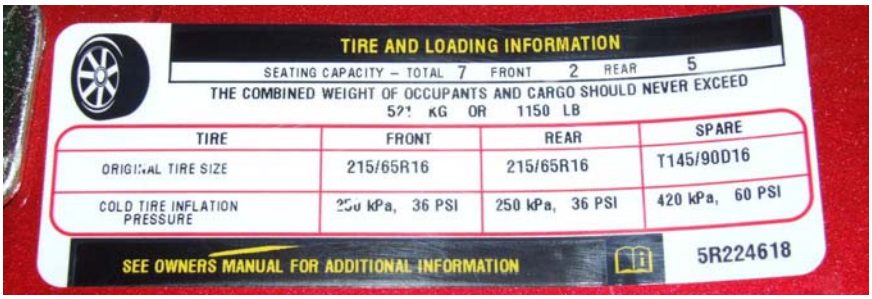
SECTION 4
DISCUSSION OF TESTS

Test Vehicle: 2005 Dodge Grand Caravan NHTSA No.: C50311
Test Program: FMVSS 208 Test Dates: 9/13/06

The vehicle did not meet all performance requirements of FMVSS 208 S16.1. The 5th% female driver dummy had a neck tension (Fz) measure of 3349N at 111.0 ms after the vehicle contacted the offset deformable barrier during the 40 kmph belted frontal test. The maximum neck tension allowed is 2620N.

The vehicle was confirmed to have no air bag faults prior to preparation for testing. Just prior to towing the vehicle down the test track, the air bag left front crash sensor was disconnected causing the readiness indicator light to illuminate.

The vehicle did not have a tire placard. Information from another 2005 Dodge Grand Caravan was used to calculate the vehicle loading information. The placard is shown below.



SECTION 5

TEST DATA SHEETS

Test Vehicle:	2005 Dodge Grand Caravan	NHTSA No.:	C50311
Test Program:	FMVSS 208	Test Dates:	9/13/06

DATA SHEET 1

COTR VEHICLE WORK ORDER

Test Vehicle: 2005 Dodge Grand Caravan NHTSA No.: C50311
Test Program: FMVSS 208 Test Dates: 9/13/06

COTR Signature: Charles R. Case

Test to be performed for this vehicle are checked below:

- [ ] 1. Rear Outboard Seating Position Seat Belts (S4.1.2(b)) & (S4.2.4)
- [ ] 2. Air Bag Labels (S4.5.1)
- [ ] 3. Readiness Indicator (S4.5.2)
- [ ] 4. Passenger Air Bag Manual Cut-off Device (S4.5.4)
- [ ] 5. Lap Belt Lockability (S7.1.1.5)
- [ ] 6. Seat Belt Warning System (S7.3)
- [ ] 7. Seat Belt Contact Force (S7.4.4)
- [ ] 8. Seat Belt Latch Plate Access (S7.4.4)
- [ ] 9. Seat Belt Retraction (S7.4.5)
- [ ] 10. Seat Belt Guides and Hardware (S7.4.6)
- [ ] 11. Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R) using the following indicated child restraints.

Section B

[ ]	Britax Handle with Care 191	[ ] Full Rearward	[ ] Mid Position	[ ] Full Forward
[ ]	Century Assura 4553	[ ] Full Rearward	[ ] Mid Position	[ ] Full Forward
[ ]	Century Avanta SE 41530	[ ] Full Rearward	[ ] Mid Position	[ ] Full Forward
[ ]	Century Smart Fit 4543	[ ] Full Rearward	[ ] Mid Position	[ ] Full Forward
[ ]	Cosco Arriva 02727	[ ] Full Rearward	[ ] Mid Position	[ ] Full Forward
[ ]	Cosco Opus 35 02603	[ ] Full Rearward	[ ] Mid Position	[ ] Full Forward
[ ]	Evenflo Discovery Adjust Right 212	[ ] Full Rearward	[ ] Mid Position	[ ] Full Forward
[ ]	Evenflo First Choice 204	[ ] Full Rearward	[ ] Mid Position	[ ] Full Forward
[ ]	Evenflo On My Way Position Right V 282	[ ] Full Rearward	[ ] Mid Position	[ ] Full Forward
[ ]	Graco Infant 8457	[ ] Full Rearward	[ ] Mid Position	[ ] Full Forward

Section C

[ ]	Britax Roundabout 161	[ ] Full Rearward	[ ] Mid Position	[ ] Full Forward
[ ]	Century Encore 4612	[ ] Full Rearward	[ ] Mid Position	[ ] Full Forward
[ ]	Century STE 1000 4416	[ ] Full Rearward	[ ] Mid Position	[ ] Full Forward
[ ]	Cosco Olympian 02803	[ ] Full Rearward	[ ] Mid Position	[ ] Full Forward
[ ]	Cosco Touriva 02519	[ ] Full Rearward	[ ] Mid Position	[ ] Full Forward
[ ]	Evenflo Horizon V 425	[ ] Full Rearward	[ ] Mid Position	[ ] Full Forward
[ ]	Evenflo Medallion 254	[ ] Full Rearward	[ ] Mid Position	[ ] Full Forward

- [ ] 12. Suppression tests with newborn infant (Part 572, Subpart K) using the following indicated child restraints.

Section A

[ ]	Cosco Dream Ride 02-719	[ ] Full Rearward	[ ] Mid Position	[ ] Full Forward

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

Section C

Britax Roundabout 161	Full Rearward	Mid Position	Full Forward
Century Encore 4612	Full Rearward	Mid Position	Full Forward
Century STE 1000 4416	Full Rearward	Mid Position	Full Forward
Cosco Olympian 02803	Full Rearward	Mid Position	Full Forward
Cosco Touriva 02519	Full Rearward	Mid Position	Full Forward
Evenflo Horizon V 425	Full Rearward	Mid Position	Full Forward
Evenflo Medallion 254	Full Rearward	Mid Position	Full Forward

Section D

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

14. Suppression tests with representative 3-year-old child using the following indicated child restraints where a child restraint is required. (Appendix H, Data Sheet 16H and 17H)

Section C

Britax Roundabout 161	Full Rearward	Mid Position	Full Forward
Century Encore 4612	Full Rearward	Mid Position	Full Forward
Century STE 1000 4416	Full Rearward	Mid Position	Full Forward
Cosco Olympian 02803	Full Rearward	Mid Position	Full Forward
Cosco Touriva 02519	Full Rearward	Mid Position	Full Forward
Evenflo Horizon V 425	Full Rearward	Mid Position	Full Forward
Evenflo Medallion 254	Full Rearward	Mid Position	Full Forward

Section D

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

15. Suppression tests with 3-year-old dummy (Part 572, Subpart P) in the following Forward, Middle, and Rearward seat track positions

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

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

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

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

Section D

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

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

Section D

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

☐ 19. Suppression tests with 6-year-old dummy (Part 572, Subpart N) in the following Forward, Middle, and Rearward seat track positions

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

☐ 20. Suppression tests with representative 6-year-old child in the following positions

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

☐ 21. Test of Reactivation of the Passenger Air Bag System with an Unbelted 5th percentile female dummy (S20.3, 22.3, S24.3). Perform this test after the following suppression tests: After each restraint.

☐ 22. Test of Reactivation of the passenger air bag system with a representative 5th percentile female (S20.3, 22.3, S24.3). Perform this test after the following suppression tests:

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

Section B

☐ Britax Handle with Care 191	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Century Assura 4553	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Century Avanta SE 41530	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Century Smart Fit 4543	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Cosco Arriva 02727	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Cosco Opus 35 02603	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Evenflo Discovery Adjust Right 212	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Evenflo First Choice 204	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Evenflo On My Way Position Right V 282	☐ Full Rearward	☐ Mid Position	☐ Full Forward
☐ Graco Infant 8457	☐ Full Rearward	☐ Mid Position	☐ Full Forward

Section C

	Britax Roundabout 161	Full Rearward	Mid Position	Full Forward
	Century Encore 4612	Full Rearward	Mid Position	Full Forward
	Century STE 1000 4416	Full Rearward	Mid Position	Full Forward
	Cosco Olympian 02803	Full Rearward	Mid Position	Full Forward
	Cosco Touriva 02519	Full Rearward	Mid Position	Full Forward
	Evenflo Horizon V 425	Full Rearward	Mid Position	Full Forward
	Evenflo Medallion 254	Full Rearward	Mid Position	Full Forward

24. Low risk deployment test with 3-year-old dummy (Part 572, Subpart P) in the following positions
    - Position 1
    - Position 2
25. Low risk deployment test with 6-year-old dummy (Part 572, Subpart N) in the following positions
    - Position 1
    - Position 2
26. Low risk deployment test with 5th percentile female dummy (Part 572, Subpart O) in the following positions
    - Position 1
    - Position 2
27. Impact Tests
    - Frontal Oblique – Test Speed:
      - Belted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.1(a))
      - Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))
      - Unbelted 50th male dummy driver and passenger (32 to 40 kmph) (S5.1.2(a) (1) or S5.1.2(b))
    - Frontal 0° - Test Speed: 39.9 kmph
      - Belted 50th male dummy driver (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
      - Belted 50th male dummy passenger (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
      - Belted 5th female dummy driver (0 to 48 kmph) (S16.1(a))
      - Belted 5th female dummy passenger (0 to 48 kmph) (S16.1(a))
      - Belted 50th male dummy driver and passenger (0 to 56 kmph) (S5.1.1.(b)(2))
      - Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a) (1))
      - Unbelted 50th male dummy driver (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
      - Unbelted 50th male dummy passenger (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
      - Unbelted 5th female dummy driver (32 to 40 kmph) (S16.1(b))
      - Unbelted 5th female dummy passenger (32 to 40 kmph) (S16.1(b))
    - X 40% Offset 0° Belted 5th male dummy driver and passenger (0 to 40 kmph) (S18.1) – Test Speed: 40 kmph
28. Sled Test: Unbelted 50th male dummy driver and passenger (S13)
29. FMVSS 204 Indicant Test
30. X FMVSS 212 Indicant Test
31. X FMVSS 219 Indicant Test
32. X FMVSS 301 Frontal Indicant Test

DATA SHEET 2

REPORT OF VEHICLE CONDITION

Test Vehicle: 2005 Dodge Grand Caravan NHTSA No.: C50311
Test Program: FMVSS 208 Test Dates: 9/13/06

CONTRACT NO. DTNH22-03-D-11002 Date: 9/20/06
FROM (Lab and rep name): MGA Research Corporation
TO: NHTSA, OVSC (NVS-220)

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

MODEL YEAR/MAKE/MODEL/BODY STYLE:	2005 Dodge Grand Caravan		
MANUFACTURE DATE:	02/04		
NHTSA NO.	C50311	GVWR:	2586 kg (5700 lbs)
BODY COLOR:	Silver	GAWR (Fr):	1293 kg (2850 lbs)
VIN:	2D4GP44L65R103557	GAWR (Rr):	1339kg (2950 lbs)

ODOMETER READINGS:	ARRIVAL (miles):	31453	DATE:	8/25/06
	COMPLETION (miles):	31454	DATE:	9/13/06
PURCHASE PRICE: ($)	16,350			
DEALER'S NAME:	Galeana's Van Dyke Dodge; 28400 Van Dyke Ave.; Warren, MI 48093			

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

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

LIST OF FMVSS TESTS PERFORMED BY THIS LAB: FMVSS 208, 212, 219, 301

VEHICLE: 2005 Dodge Grand Caravan NHTSA NO. C50311

REMARKS:

Equipment that is no longer on the test vehicle as noted on previous page:

Storage lid and carpet behind right front passenger seat, and carpet behind third row seats

Explanation for equipment removal:

Components removed for instrumentation installation and to meet target weight.

Test Vehicle Condition:

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

RECORDED BY: Jeff Lewandowski DATE: 9/20/2006

APPROVED BY: David Winkelbauer DATE: 9/20/2006

########## ##########

RELEASE OF TEST VEHICLE

The vehicle described above is released from MGA to be delivered to:

Date: Time: Odometer:

Lab Rep's Signature:

Title:

Carrier/Customer Rep:

Date:

DATA SHEET 3

CERTIFICATION LABEL AND TIRE PLACARD INFORMATION

Test Vehicle: 2005 Dodge Grand Caravan
Test Program: FMVSS 208
Test Technician: Nick Kosinski

NHTSA No.: C50311
Test Date: 9/13/06

Certification Label	
Manufacturer:	DaimlerChrysler Corporation
Date of Manufacture:	02/04
VIN:	2D4GP44L65R103557
Vehicle Certified As (Pass. Car/MPV/Truck/Bus):	MPV
Front Axle GVWR:	1293 kg (2850 lbs)
Rear Axle GVWR:	1339 kg (2950 lbs)
Total GVWR:	2586 kg (5700 lbs)

Tire Placard	
Not applicable, vehicle is not a passenger car and does not have a tire placard.	YES (MPV)
This is not a passenger car, but all or part of this information is still contained on a vehicle label and is reported here.	YES (MPV) - The information was taken from the tire placard of a similar vehicle.
Vehicle Capacity Weight:	521 kg (1150 lbs)
Designated Seating Capacity Front:	2
Designated Seating Capacity Rear:	5
Total Designated Seating Capacity:	7
Recommended Cold Tire Inflation Pressure Front:	215 kpa (36 psi)
Recommended Cold Tire Inflation Pressure Rear:	215 kpa (36 psi)
Recommended Tire Size:	P215/65R16

The vehicle did not have a tire placard. Information from another 2005 Dodge Grand Caravan was used.

Signature: Nick Kosinski

Date: 9/13/06

DATA SHEET 14

MARKING OF REFERENCE POINTS FOR VARIOUS TEST POSITIONS AND POINTS

Test Vehicle: 2005 Dodge Grand Caravan NHTSA No.: C50311
Test Program: FMVSS 208 Test Date: 9/13/06
Test Technician: Brian Roach

DATA SHEET 14.1

MARKING OF REFERENCE POINTS FOR 5th FEMALE

X Driver Seat __Passenger Seat

1. Seat Position

X 1.1 Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment positions. (S16.2.10.1, S20.1.9.1, S20.4.1, S22.1.7.1)
X N/A – No lumbar adjustment

X 1.2 Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2, S20.1.9.2, S20.4.1, S22.1.7.1, S22.4.2.1, S22.4.3.1, S24.4.2.1, S26.2.3, S26.3.1)
X N/A – No additional support adjustment

X 1.3 Position an adjustable leg support system in its rearmost position. (8/27/04 interpretation to Toyota)
X N/A – No adjustable leg support system

X 1.4 **Mark** a point (seat cushion reference point) on the side of the seat cushion that is between 150 mm and 250 mm from the front edge of the seat cushion. (S16.3.1.12)

X 1.5 Draw a line (seat cushion reference line) through the seat cushion reference point. (S16.3.1.13)

X 1.6 Use only the controls that primarily move the seat in the fore-aft direction to move the seat cushion reference point to the rearmost position. (S16.2.10.3.1, S22.1.7.3)

X 1.7 If the seat cushion adjusts fore-aft, independent of the seat back, use only the controls that primarily move the seat cushion in the fore-aft direction to move the seat cushion reference point to the rearmost position. (S16.2.10.3.1, S20..1.9.3)
X N/A – No independent fore-aft seat cushion adjustment

X 1.8 Use any part of any control, other than the parts just used for fore-aft positioning, to determine the range of angles of the seat cushion reference line and to set the seat cushion reference line at the mid-angle. (S16.2.10.3.1)
Maximum angle 15.9 Nose down
Minimum angle 3.8 Nose down
Mid-angle 9.9 Nose down

X 1.9 If the seat and/or seat cushion height is adjustable, use any part of any control other than the parts which primarily move the seat or seat cushion fore-aft, to put the seat cushion reference point in its lowest position with the seat cushion reference line angle at the mid-angle found in 1.8. (S16.2.10.3.1)
__N/A – No seat height adjustment

X 1.10 Use only the controls that primarily move the seat in the fore-aft direction to verify the seat is in the rearmost position.

X 1.11 Use only the controls that primarily move the seat in the fore-aft direction to **mark** for future reference the fore-aft seat positions. **Mark** each position so that there is a visual indication when the seat is at a particular position. For manual seats, move the seat forward one detent at a time and **mark** each detent. For power seats, **mark** only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost.

X 1.12 Use only the controls that primarily move the seat in the fore-aft direction to place the seat in the rearmost position.

X 1.13 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually **mark** for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S22.4.3.1, S24.1.2, S24.3.1, S24.4.3.1, S26.2.3, S26.3.1)

__ N/A – No seat height adjustment. Go to 1.18

X 1.14 Use only the controls that primarily move the seat and/or seat cushion in the fore-aft direction to place the seat in the mid-fore-aft position.

X 1.15 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually **mark** for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S24.1.2, S24.3.1)

X 1.16 Use only the control that change the seat in the fore-aft direction to place the seat in the foremost position. (S16.2.10.3.2)

X 1.17 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually **mark** for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S16.2.10.3.3, S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S24.1.2, S24.3.1)

X 1.18. Visually **mark** for future reference the seat back angle at the manufacturer's nominal design riding position for a **50th percentile adult male** in the manner specified by the manufacturer for the rearmost, mid, and foremost seat positions. (S20.1.9.5, S22.1.7.5, S22.4.2.1, S22.4.3.1, S24.1.2, S24.4.2.1, S26.2.3, S26.3.1)

__ N/A – No seat back angle adjustment

Manufacturer's design seat back angle 22° on seat back or 8° from upright position

X 1.19. Is the seat a bucket seat?

X Yes, go to 1.20 and skip 1.21

__No, go to 1.21 and skip 1.20

X 1.20 Bucket seats:

Locate and **mark** for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S16.3.1.10 & S20.1.10)

__1.21 Bench seats (complete ONLY the one that is applicable to the seat being marked):

__1.21.1 Driver Seat

Locate and **mark** for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface.

__1.21.2 Passenger Seat

Locate and **mark** for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S20.2.1.3, S22.2.1.3, S24.2.3, S20.4.4, S22.2.2.1(b), S22.2.2.3(b), S22.2.2.4(a), S22.2.2.5(a), S22.2.2.6(a), S22.2.2.7(a), S24.2.3(a))

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

Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. (The vertical plane through this longitudinal centerline is Plane B for suppression.) _____

2. Head Restraint Position

__N/A Vehicle contains automatic head restraints.

__N/A, there is no head restraint adjustment

X 2.1 Adjust the head restraint to its lowest position. (S16.2.10.2, S20.1.9.6 S20.4.1, S22.1.7.6, S22.4.2.1, S22.4.3.1, S24.4.3.1, S26.2.3, S26.3.1)

X 2.2 All adjustments of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible. **Mark** the foremost position. (S16.2.10.2 & S16.3.4.4 & S20.1.9.6, S20.4.1, S22.4.2.1, S22.4.3.1, S24.4.3.1, S26.2.3, S26.3.1)

X 2.3 Measure the vertical distance from the top most point of the head restraint to the bottom most point. Locate and **mark** a horizontal plane through the midpoint of this distance. (S16.3.4.3)

Vertical height of head restraint 200 mm

Mid-point height 100 mm

I certify that I have read and performed each instruction.

_____ 9/13/06

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

DATA SHEET 14.1

MARKING OF REFERENCE POINTS FOR 5th FEMALE

__Driver Seat X Passenger Seat

1. Seat Position

X 1.1 Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment positions. (S16.2.10.1, S20.1.9.1, S20.4.1, S22.1.7.1)
X N/A – No lumbar adjustment

X 1.2 Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2, S20.1.9.2, S20.4.1, S22.1.7.1, S22.4.2.1, S22.4.3.1, S24.4.2.1, S26.2.3, S26.3.1)
X N/A – No additional support adjustment

X 1.3 Position an adjustable leg support system in its rearmost position. (8/27/04 interpretation to Toyota)
X N/A – No adjustable leg support system

X 1.4 **Mark** a point (seat cushion reference point) on the side of the seat cushion that is between 150 mm and 250 mm from the front edge of the seat cushion. (S16.3.1.12)

X 1.5 Draw a line (seat cushion reference line) through the seat cushion reference point. (S16.3.1.13)

X 1.6 Use only the controls that primarily move the seat in the fore-aft direction to move the seat cushion reference point to the rearmost position. (S16.2.10.3.1, S22.1.7.3)

X 1.7 If the seat cushion adjusts fore-aft, independent of the seat back, use only the controls that primarily move the seat cushion in the fore-aft direction to move the seat cushion reference point to the rearmost position. (S16.2.10.3.1, S20..1.9.3)
X N/A – No independent fore-aft seat cushion adjustment

X 1.8 Use any part of any control, other than the parts just used for fore-aft positioning, to determine the range of angles of the seat cushion reference line and to set the seat cushion reference line at the mid-angle. (S16.2.10.3.1) NO ADJUSTMENT
Maximum angle Zero
Minimum angle Zero
Mid-angle Zero

X 1.9 If the seat and/or seat cushion height is adjustable, use any part of any control other than the parts which primarily move the seat or seat cushion fore-aft, to put the seat cushion reference point in its lowest position with the seat cushion reference line angle at the mid-angle found in 1.8. (S16.2.10.3.1)
X N/A – No seat height adjustment

X 1.10 Use only the controls that primarily move the seat in the fore-aft direction to verify the seat is in the rearmost position.

X 1.11 Use only the controls that primarily move the seat in the fore-aft direction to **mark** for future reference the fore-aft seat positions. **Mark** each position so that there is a visual indication when the seat is at a particular position. For manual seats, move the seat forward one detent at a time and **mark** each detent. For power seats, **mark** only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost.

X 1.12 Use only the controls that primarily move the seat in the fore-aft direction to place the seat in the rearmost position.

X 1.13 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually **mark** for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S22.4.3.1, S24.1.2, S24.3.1, S24.4.3.1, S26.2.3, S26.3.1)

X N/A – No seat height adjustment. Go to 1.18

__ 1.14 Use only the controls that primarily move the seat and/or seat cushion in the fore-aft direction to place the seat in the mid-fore-aft position.

__1.15 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually **mark** for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S24.1.2, S24.3.1)

__1.16 Use only the control that change the seat in the fore-aft direction to place the seat in the foremost position. (S16.2.10.3.2)

__1.17 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually **mark** for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S16.2.10.3.3, S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S24.1.2, S24.3.1)

X 1.18. Visually **mark** for future reference the seat back angle at the manufacturer's nominal design riding position for a **50th percentile adult male** in the manner specified by the manufacturer for the rearmost, mid, and foremost seat positions. (S20.1.9.5, S22.1.7.5, S22.4.2.1, S22.4.3.1, S24.1.2, S24.4.2.1, S26.2.3, S26.3.1)

__ N/A – No seat back angle adjustment

Manufacturer's design seat back angle 18° on seat back or 4° from upright position

X 1.19. Is the seat a bucket seat?

X Yes, go to 1.20 and skip 1.21

__No, go to 1.21 and skip 1.20

X 1.20 Bucket seats:

Locate and **mark** for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S16.3.1.10 & S20.1.10)

__1.21 Bench seats (complete ONLY the one that is applicable to the seat being marked):

__1.21.1 Driver Seat

Locate and **mark** for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface.

__1.21.2 Passenger Seat

Locate and **mark** for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S20.2.1.3, S22.2.1.3, S24.2.3, S20.4.4, S22.2.2.1(b), S22.2.2.3(b), S22.2.2.4(a), S22.2.2.5(a), S22.2.2.6(a), S22.2.2.7(a), S24.2.3(a))

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

Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. (The vertical plane through this longitudinal centerline is Plane B for suppression.) _____

2. Head Restraint Position

__N/A Vehicle contains automatic head restraints.

__N/A, there is no head restraint adjustment

X 2.1 Adjust the head restraint to its lowest position. (S16.2.10.2, S20.1.9.6 S20.4.1, S22.1.7.6, S22.4.2.1, S22.4.3.1, S24.4.3.1, S26.2.3, S26.3.1)

X 2.2 All adjustments of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible. **Mark** the foremost position. (S16.2.10.2 & S16.3.4.4 & S20.1.9.6, S20.4.1, S22.4.2.1, S22.4.3.1, S24.4.3.1, S26.2.3, S26.3.1)

X 2.3 Measure the vertical distance from the top most point of the head restraint to the bottom most point. Locate and **mark** a horizontal plane through the midpoint of this distance. (S16.3.4.3)

Vertical height of head restraint 200 mm

Mid-point height 100 mm

I certify that I have read and performed each instruction.

9/13/06

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

DATA SHEET 14.3

MARKING OF REFERENCE POINTS FOR STEERING WHEEL

X 1. Is the steering wheel adjustable up and down and/or in and out?
X Yes – go to 2
__No – this form is complete

X 2. Find and **mark** for future reference each up and down position. Label three of the positions with the following: H for highest, M for mid-position (if there is no mid-position, label the next lowest adjustment position), and L for lowest.
__N/A – steering wheel is not adjustable up and down

X 3. Find and **mark** for future references each in and out position. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the next rearmost adjustment position), and R for rearmost.
__N/A – steering wheel is not adjustable in and out.

I certify that I have read and performed each instruction.

9/13/06

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

DATA SHEET 32

VEHICLE WEIGHT, FUEL TANK, AND ATTITUDE DATA

Test Vehicle: 2005 Dodge Grand Caravan
Test Program: FMVSS 208
Test Technician: Nick Kosinski

NHTSA No.: C50311
Test Date: 9/13/06

IMPACT ANGLE:	Zero Degrees LH 40% ODB		
BELTED DUMMIES (YES/NO):	Yes		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th female	__ 50th male	
PASSENGER DUMMY:	_X_ 5th female	__ 50th male	

X 1. Fill the transmission with transmission fluid to the satisfactory range.

X 2. Drain fuel from vehicle

X 3. Run the engine until fuel remaining in the fuel delivery system is used and the engine stops.

X 4. Record the useable fuel tank capacity supplied by the COTR

X Useable Fuel Tank Capacity supplied by COTR: 75.7 liters (20.0 gallons)

X 5. Record the fuel tank capacity supplied in the owner's manual.

X Useable Fuel Tank Capacity in owner's manual: 75.7 liters (20.0 gallons)

X 6. Using purple dyed Stoddard solvent having the physical and chemical properties of Type 1 solvent or cleaning fluid, Table 1, ASTM Standard D484-71, "Standard Specifications for Hydrocarbon Dry-cleaning Solvents," or gasoline, fill the fuel tank.

X Amount Added: 75.7 liters (20.0 gallons)

X 7. Fill the coolant system to capacity.

X 8. Fill the engine with motor oil to the Max. mark on the dip stick.

X 9. Fill the brake reservoir with brake fluid to its normal level.

X 10. Fill the windshield washer reservoir to capacity.

X 11. Inflate the tires to the tire pressure on the tire placard. If no tire placard is available, inflate the tires to the recommended pressure in the owner's manual.

Tire placard pressure:	RF:	36 psi	LF:	36 psi	RR:	36 psi	LR:	36 psi
Owner's manual pressure:	RF:	36 psi	LF:	36 psi	RR:	36 psi	LR:	36 psi
Actual inflated pressure:	RF:	36 psi	LF:	36 psi	RR:	36 psi	LR:	36 psi

X 12. Record the vehicle weight at each wheel to determine the unloaded vehicle weight (UVW), i.e. "as delivered" weight).

Right Front (kg):	544.8	Right Rear (kg):	422.3
Left Front (kg):	549.3	Left Rear (kg):	460.4
Total Front (kg):	1094.1	Total Rear (kg):	882.7
% Total Weight:	55.4	% Total Weight:	44.6
UVW = TOTAL FRONT PLUS TOTAL REAR (KG):			1976.8

X 13. UVW Test Vehicle Attitude: (All dimensions in millimeters)

X 13.1 Mark a point on the vehicle above the center of each wheel.

X 13.2 Place the vehicle on a level surface.

X 13.3 Measure perpendicular to the level surface to the 4 points marked on the body and record the measurements

RF:	770	LF:	770	RR:	785	LR:	769

X 14. Calculate the Rated Cargo and Luggage Weight (RCLW): 45 kg

X 14.1 Does the vehicle have the vehicle capacity weight (VCW) on the certification label or tire placard?

X [X] Yes, go to 14.3 *The vehicle did not have a tire placard. Information from another 2005 Dodge Grand Caravan was used.*

[ ] No, go to 14.2

[ ] 14.2 VCW = Gross Vehicle Weight – UVW

VCW = _____ - _____ = _____

X 14.3 VCW = 521 kg (1150 lbs)

X 14.4 Does the certification or tire placard contain the Designated Seating Capacity (DSC)?

[X] Yes, go to 14.6

[ ] No, go to 14.5 and skip 14.6

[ ] 14.5 DSC = Total number of seat belt assemblies = _____

X 14.6 DSC = 7

X 14.7 RCLW = VCW – (68 kg x DSC) = 521 kg - (68 kg x 7) = 45 kg

X 14.8 Is the vehicle certified as a truck, MPV or bus (see the certification label on the door jamb)?

[X] Yes, if the calculated RCLW is greater than 136 kg, use 136 kg as the RCLW. (S8.1.1)

[ ] No, use the RCLW calculated in 14.7

X 15. Fully Loaded Weight (100% fuel fill): 2120.1 kg

X 15.1 Place the appropriate test dummy in both front outboard seating positions.

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

X 15.2 Load the vehicle with the RCLW from 14.7 or 14.8 whichever is applicable.

X 15.3 Place the RCLW in the cargo area. Center the load over the longitudinal centerline of the vehicle. (S8.1.1 (d))

X 15.4 Record the vehicle weight at each wheel to determine the Fully Loaded Weight.

Right Front (kg):	576.8	Right Rear (kg):	460.4
Left Front (kg):	584.9	Left Rear (kg):	498.0
Total Front (kg):	1161.7	Total Rear (kg):	958.4
% Total Weight:	54.7	% Total Weight:	45.3
% GVW	50.0	% GVW	51.7
(% GVW = Axle GVW divided by Vehicle GVW)			
Fully Loaded Weight = Total Front Plus Total Rear (kg):			2120.1

X 16. Fully Loaded Test Vehicle Attitude: (All dimensions in millimeters)

X 16.1 Place the vehicle on a level surface.

X 16.2 Measure perpendicular to the level surface to the 4 points marked on the body (see 13.1 above) and record the measurements

RF:	756	LF:	753	RR:	753	LR:	736

X 17. Drain the fuel system

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

X Fuel tank capacity x .94 = 75.7 liters (20.0 gallons) x .94 = 71.2 liters (18.8 gallons)

X Amount added 71.0 liters (18.77 gallons) 93.8%

X 19. Crank the engine to fill the fuel delivery system with Stoddard solvent

X 20. Calculate the test weight range.

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

2119.8 kg = 1976.8 kg + 45.0 kg + 98.0 kg

X 20.2 Test Weight Range = Calculated Weight (- 4.5 kg, - 9 kg.)
Max. Test Weight = Calculated Test Weight – 4.5 kg = 2115.3 kg
Min. Test Weight = Calculated Test Weight – 9 kg = 2110.8 kg

X 21. Remove the RCLW from the cargo area.

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

X 23. Vehicle Components Removed For Weight Reduction:
None

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

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

N/A

X Weight of Ballast: 11.3 kg

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

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

Right Front (kg):	579.7	Right Rear (kg):	455.4
Left Front (kg):	585.6	Left Rear (kg):	492.2
Total Front (kg):	1165.3	Total Rear (kg):	947.6
% Total Weight:	55.1	% Total Weight:	44.9
% GVW	50.0	% GVW	51.7
(% GVW = Axle GVW divided by Vehicle GVW)			
TOTAL FRONT PLUS TOTAL REAR (kg):			2112.9

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

X Yes

No, explain why not.

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

X 29.1 Place the vehicle on a level surface

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

RF:	757	LF:	755	RR:	758	LR:	737

X 30. Summary of test attitude

X 30.1 AS DELIVERED:

RF:	770	LF:	770	RR:	785	LR:	769

AS TESTED:

RF:	757	LF:	755	RR:	758	LR:	737

FULLY LOADED:

RF:	756	LF:	753	RR:	753	LR:	736

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

X Yes

No, explain why not.

REMARKS:

I certify that I have read and performed each instruction.

Signature: 

Date: 9/13/06

DATA SHEET 33

VEHICLE ACCELEROMETER LOCATION AND MEASUREMENT

Test Vehicle: 2005 Dodge Grand Caravan
Test Program: FMVSS 208
Test Technician: Nick Kosinski

NHTSA No.: C50311
Test Date: 9/13/06

IMPACT ANGLE:	Zero Degrees LH 40% ODB		
BELTED DUMMIES (YES/NO):	Yes		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th female	__ 50th male	
PASSENGER DUMMY:	_X_ 5th female	__ 50th male	

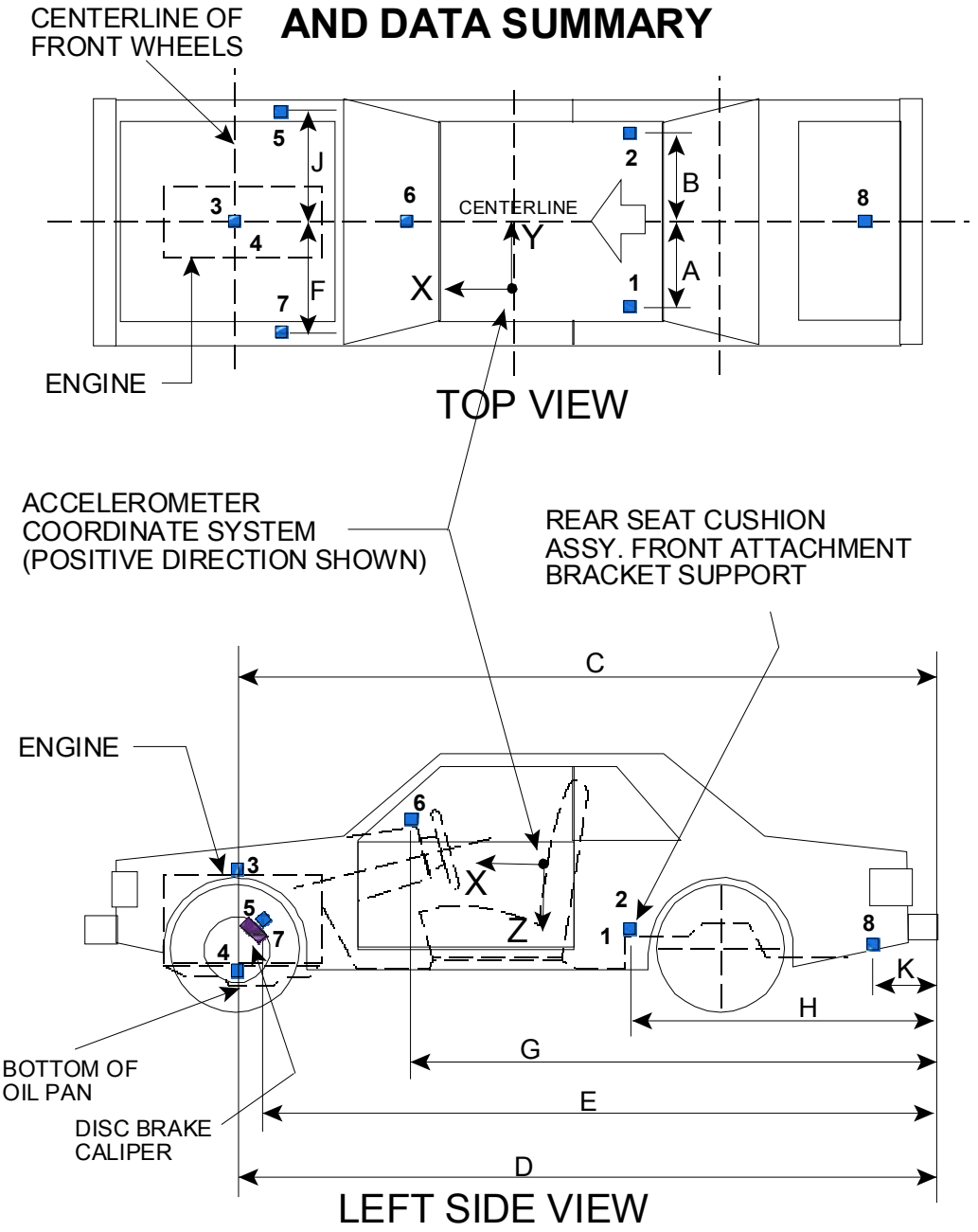
X	1.	Find the location where the vertical plane parallel to the longitudinal centerline of the vehicle and through the center of the left front outboard seating position intersects the left rear seat cross member. Install an accelerometer at this intersection on the rear seat cross member to record x-direction accelerations. Record the location on the following chart.
X	2.	Find the location where the vertical plane parallel to the longitudinal centerline of the vehicle and through the center of the right front outboard seating position intersects the right rear seat cross member. Install an accelerometer at this intersection on the rear seat cross member to record x-direction accelerations. Record the location on the following chart.
X	3.	Find the location where a vertical plane through the longitudinal centerline of the vehicle and a vertical transverse plane through the center of the two wheels on opposite sides of the engine intersect at the top of the engine. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.
X	4.	Find the location where a vertical plane through the longitudinal centerline of the vehicle and a vertical transverse plane through the center of the two wheels on opposite sides of the engine intersect the bottom of the engine. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart
X	5.	Install an accelerometer on the right front brake caliper to record x-direction accelerations. Record the location on the following chart
X	6.	Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the top of the instrument panel. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart
X	7.	Install an accelerometer on the left front brake caliper to record x-direction accelerations. Record the location on the following chart
X	8.	Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the floor of the trunk. Install an accelerometer on the trunk floor at this intersection to record z-direction accelerations. Record the location on the following chart

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski Date: 9/13/06

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



Dimensions Corresponding To The Letters “A” Through “K” (Excluding “I”) Are Recorded In The Table On The Following Page.
Accelerometers Corresponding To The Numbers 1 Through 8 Are Specified On The Preceding Page.

DATA SHEET 33

VEHICLE ACCELEROMETER LOCATION AND MEASUREMENTS

DIMENSION	LENGTH (mm)	
PRETEST VALUES		
A (LH Rear Seat Xmbr)	112	
B (RH Rear Seat Xmbr)	112	
C (Engine Top)	4446	
D (Engine Bottom)	4314	
E (Caliper)	Right Side 4241	Left Side 4240
F (Left Caliper)	686	
G (IP)	3527	
H (Seat)	1923	
J (Right Caliper)	686	
K (Trunk)	826	
POST TEST VALUES		
A (LH Rear Seat Xmbr)	112	
B (RH Rear Seat Xmbr)	112	
C (Engine Top)	4431	
D (Engine Bottom)	4236	
E (Caliper)	Right Side 4239	Left Side 4162
F (Left Caliper)	691	
G (IP)	3501	
H (Seat)	1923	
J (Right Caliper)	660	
K (Trunk)	826	

DATA SHEET 34

PHOTOGRAPHIC TARGETS

Test Vehicle: 2005 Dodge Grand Caravan NHTSA No.: C50311
Test Program: FMVSS 208 Test Date: 9/13/06
Test Technician: Nick Kosinski

IMPACT ANGLE:	Zero Degrees LH 40% ODB		
BELTED DUMMIES (YES/NO):	Yes		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th female	__ 50th male	
PASSENGER DUMMY:	_X_ 5th female	__ 50th male	

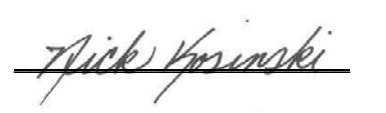
X	1.	FMVSS 208 vehicle targeting requirements (See Figures 28A and 28B)
X	1.1	Targets A1 and A2 are on flat rectangular panels.
X	1.2	Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted at the front on the outboard sides of A1 and A2. The center of each circular target is 100 mm from the one next to it.
X		Distance between targets (mm): 100 mm
X	1.3	Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted at the back on the outboard sides of on A1 and A2. The center of each circular target is 100 mm from the one next to it.
X		Distance between targets (mm): 100 mm
X	1.4	The distance between the first circular target at the front of A1 and A2 and the last circular target at the back of A1 and A2 is at least 915 mm.
X		Distance between the first and last circular targets (mm): 915 mm
X	1.5	Firmly fix target A1 on the vehicle roof in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy.
X	1.6	Firmly fix target A2 on the vehicle roof in the vertical longitudinal plane that is coincident with the midsagittal plane of the passenger dummy.
X	1.7	Two circular targets (C1 and C2) at least 90 mm in diameter and with black and yellow quadrants are mounted on the outside of the driver door. The centers of each circular target are at least 610 mm apart.
X		Distance between targets (mm): 611 mm
X	1.8	Two circular targets (C1 and C2) at least 90 mm in diameter and with black and yellow quadrants are mounted on the outside of the passenger door. The centers of each circular target are at least 610 mm apart.
X		Distance between targets (mm): 613 mm
X	1.9	Place tape with squares having alternating colors on the top portion of the steering wheel.
X	1.10	Chalk the bottom portion of the steering wheel
X	1.11	Is this an offset test?
		Yes, continue with this section
X		No, go to 2.
	1.12	Measure the width of the vehicle.
		Vehicle width (mm):

	1.13	Find the centerline of the vehicle. (½ of the vehicle width)
	1.14	Find the line parallel to the centerline of the vehicle and 0.1 x vehicle width from the centerline of the vehicle.
	1.15	Apply 25 mm wide tape with alternating black and yellow squares parallel to and on each side of the line found in 1.14. The edge of each tape shall be 50 mm from the line found in 1.14. The tape shall extend from the bottom of the bumper to the front edge of the windshield. (Figure 28D
X	2.	Barrier Targeting
X	2.1	Fix two stationary targets D1 and D2 to the barrier as shown in the Figure 28A. One target is in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy. The other is in the vertical longitudinal plane that is coincident with the midsagittal plane of the passenger dummy
X	2.2	Targets D1 and D2 are on a rectangular panel.
X	2.3	Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted on the sides of the rectangular panel away from the longitudinal centerline of the vehicle. The center of each circular target is 100 mm from the one next to it.
X		Distance between circular targets on D1 (mm): 100 mm
X		Distance between circular targets on D2 (mm): 100 mm
X	3.	FMVSS 208 Dummy Targeting Requirements
X	3.1	Place a circular target with black and yellow quadrants on both sides of the driver dummy head as close as possible to the center of gravity of the head in the x and z direction (relative to the measuring directions of the accelerometers).
X	3.2	Place a circular target with black and yellow quadrants on both sides of the passenger dummy head as close as possible to the center of gravity of the head in the x and z direction (relative to the measuring directions of the accelerometers).
X	3.3	Place a circular target with black and yellow quadrants on the outboard shoulder of the driver dummy. Place the target as high up on the arm as possible at the intersection of the arm and shoulder. The sleeve of the shirt on the dummy may be cut to make the target visible, but do not remove any material.
X	3.4	Place a circular target with black and yellow quadrants on the outboard shoulder of the passenger dummy. Place the target as high up on the arm as possible at the intersection of the arm and shoulder. The sleeve of the shirt on the dummy may be cut to make the target visible, but do not remove any material.
X	4.	FMVSS 204 Targeting Requirements
X	4.1	Is an FMVSS 204 indicant test ordered on the “COTR Vehicle Work Order?”
		Yes, continue with this form.
X		No, this form is complete.
	4.2	Resection panel (Figure 28C)
	4.2.1	The panel deviates no more than 6 mm from perfect flatness when suspended vertically
	4.2.2	The 8 targets on the panel are circular targets at least 90 mm in diameter and with black and yellow quadrants.
	4.2.3	The center of each of the 4 outer targets are placed within 1 mm of the corners of a square measuring 914 mm on each side.
	4.2.4	Locate another square with 228 mm sides and with the center of this square coincident with the center of the 914 mm square.
	4.2.5	The center of the 4 inner targets are placed at the midpoints of each of the 228 mm sides.

	4.3	Place a circular target at least 90 mm in diameter and with black and yellow quadrants on a material (cardboard, metal, etc.) that can be taped to the top of the steering column.
	4.4	Tape the target from 4.3 to the top of the steering column in a manner that does not interfere with the movement of the steering column in a crash

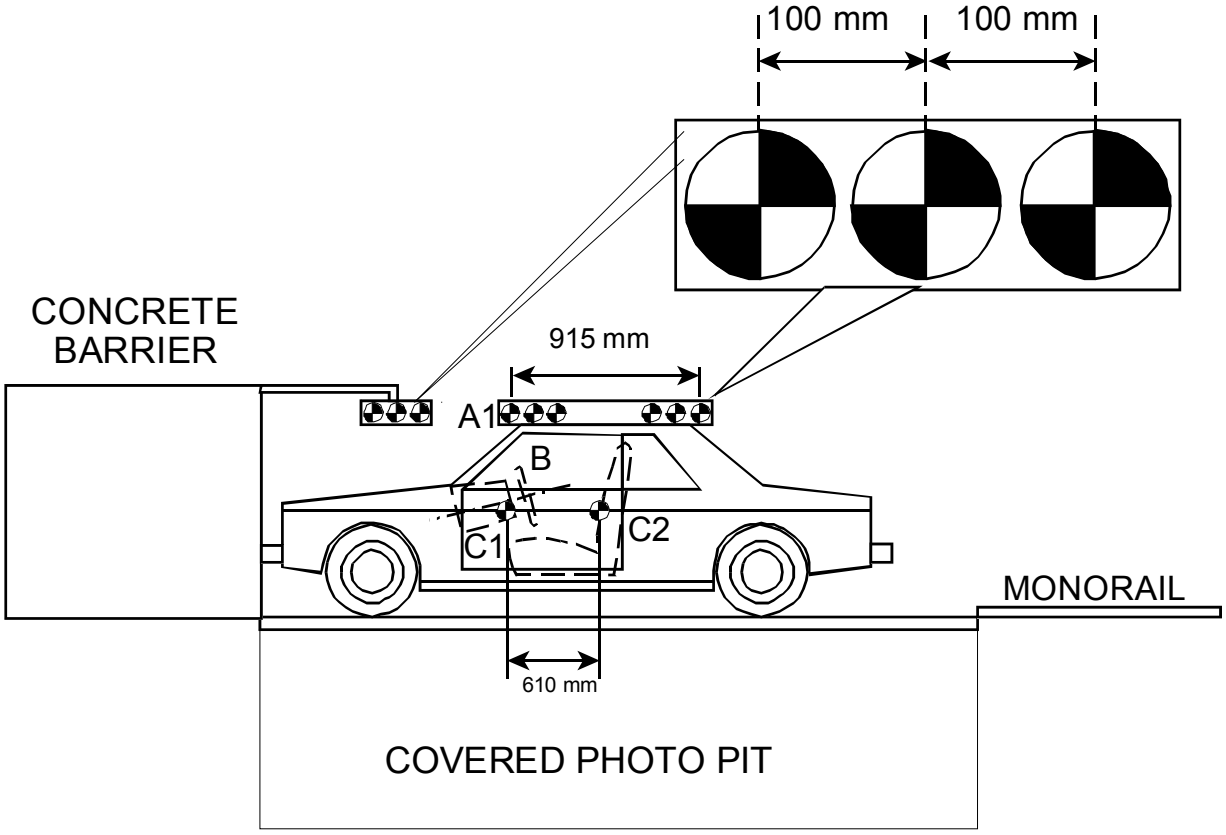
REMARKS:

I certify that I have read and performed each instruction.

Signature: 

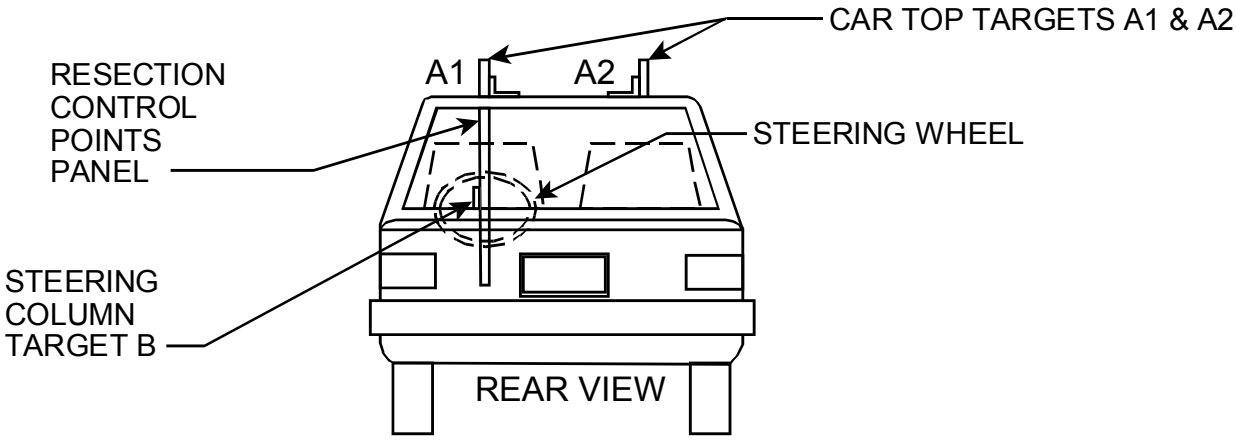
Date: 9/13/06

REFERENCE PHOTO TARGETS

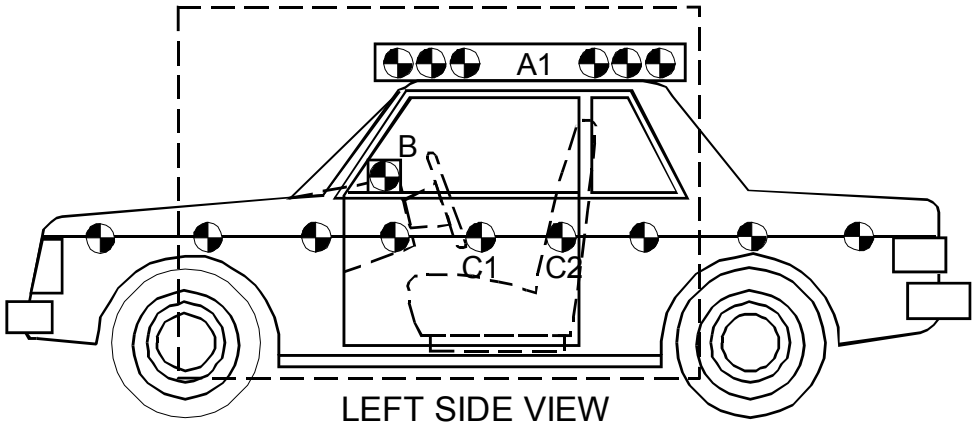


LEFT SIDE VIEW

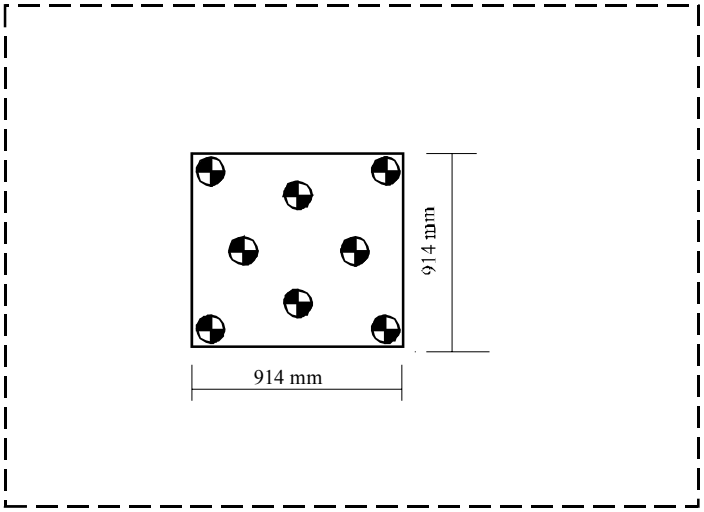
RESECTION PANEL TARGETING ALIGNMENT



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



PRE-RUN STEERING COLUMN HIGH SPEED CAMERA VIEW



LEFT SIDE VIEW

DATA SHEET 35

CAMERA LOCATIONS

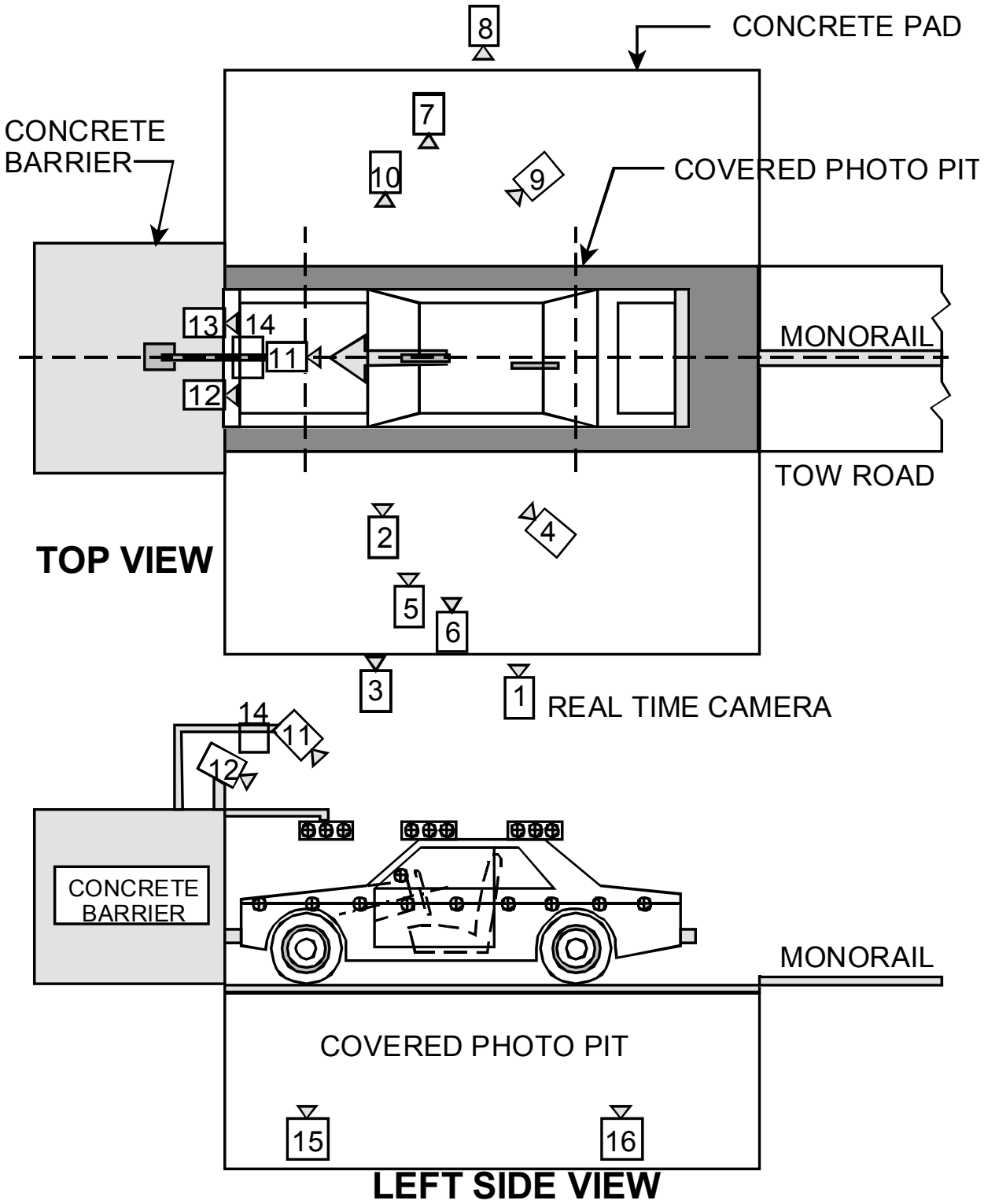
Test Vehicle: 2005 Dodge Grand Caravan
Test Program: FMVSS 208

NHTSA No.: C50311
Test Date: 9/13/06
Time: 11:00 am

CAMERA NO.	VIEW	CAMERA POSITIONS (mm) *			LENS (mm)	SPEED (fps)
		X	Y	Z		
1	Real Time Left Side View				13	24
2	Left Side View (Barrier face to front seat backs)	430	-5875	1080	24	1500
3	Left Side View (Driver)	950	-6895	1410	35	400
4	Left Side View (B-post aimed toward center of steering wheel)	5435	-5610	2055	50	400
5	Left Side View (Steering Column)	765	-5490	1350	25	400
6	Left Side View (Steering Column)	785	-5480	900	25	400
7	Right Side View (Overall)	1485	7005	1275	19	1500
8	Right Side View (Passenger)	975	6935	1500	35	400
9	Right Side View (Angle)	5015	5600	2705	50	400
10	Right Side View (Front door)	665	5730	1125	25	1500
11	Front View Windshield	-2035	200	2995	12.5	400
12	Front View Driver	-1775	-565	2250	19	1500
13	Front View Passenger	-1780	695	2240	19	1500
14	Overhead Barrier Impact View	470	200	5050	19	1500
15	Pit Camera Engine View	185	200	-3150	24	1500
16	Pit Camera Fuel Tank View	2105	200	-3150	24	1500

*COORDINATES:
+X - forward of impact plane
+Y - right of monorail centerline
+Z - above ground level

CAMERA POSITIONS FOR FMVSS 208



DATA SHEET 36

APPENDIX G
DUMMY POSITIONING PROCEDURES
FOR 5th% DRIVER TEST DUMMY CONFORMING TO SUBPART O OF PART 572

Test Vehicle: 2005 Dodge Grand Caravan NHTSA No.: C50311
Test Program: FMVSS 208 Test Date: 9/13/06
Test Technician: Eric Peschman

IMPACT ANGLE:	Zero Degrees LH 40% ODB		
BELTED DUMMIES (YES/NO):	Yes		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th female	__ 50th male	
PASSENGER DUMMY:	_X_ 5th female	__ 50th male	

X 1. Using the markings made from data sheet 14.3 (If not done previously or steering repairs have been made, complete data sheet 14.3 at this time.) to position the steering controls in the mid-position or if applicable next lowest detent position. (S16.2.9)

X 2. Place the SCRP in the full rearward, mid-height position, and mid-seat cushion angle, determined during the completion of Data Sheet 14.1. (S16.3.2.1.1)

X 3. If the vehicle has an adjustable accelerator pedal, place it in the full forward position. (S16.3.2.2.1)
X N/A accelerator pedal not adjustable

X 4. Fully recline the seat back. (S16.3.2.1.2)
__ N/A seat back not adjustable.

X 5. Place the dummy in the seat with the legs at an angle of 120 degrees to the thighs. The calves should not be touching the seat cushion. (S16.3.2.1.2)

X 6. Position the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion markings as determined in Data Sheet 14.1. (S16.3.2.1.3 and S16.3.2.1.4)

X 7. Hold down the dummy's thighs and push rearward on the upper torso to maximize the pelvic angle. (S16.3.2.1.5)

X 8. Set the angle between the legs and the thighs to 120 degrees. (S16.3.2.1.6)

X 9. Set the transverse distance between the centers of the front of the knees at 160 to 170 mm. (6.3 to 6.7 inches) Center the knee separation with respect to the longitudinal seat cushion marking as determined Data Sheet 14.1. (S16.3.2.1.6)
Record Knee Separation ___170___

X 10. Push rearward on the dummy's knees until the pelvis contacts the seat back, or the backs of the calves contact the seat cushion, whichever occurs first. (S16.3.2.1.6)
__Pelvis contacted seat back.
X Calves contacted seat cushion.

X 11. Gently rock the upper torso ± 5 degrees (approximately 51 mm (2 inches)) side-to-side three time. (S16.3.2.1.7)

X 12. If needed, extend the legs until the feet do not contact the floor pan. The thighs should be resting on the seat cushion. (S16.3.2.1.8)

X 13. Position the right foot until the foot is in line with a longitudinal vertical plane passing through the center of the accelerator pedal. Maintain the leg and thigh in a vertical plane. (S16.3.2.1.8)

X 14. Rotate the left leg and thigh laterally to equalize the distance between each knee and the longitudinal seat cushion marking as determined in Data Sheet 14.1. (S16.3.2.1.8)

X 15. Attempt to return the seat to the foremost fore-aft position, mid-height, and seat cushion mid-angle as determined in Data Sheet 14.2. The foot may contact and depress the accelerator and/or change the angle of the foot with respect to the leg. (S16.3.2.1.8)
X Foremost position achieved. Proceed to step 20.
__Foremost not achieved because of foot interference. Proceed to step 17.
__Foremost not achieved because of steering wheel contact.

__16. If either of the dummy's legs contact the steering wheel, move the steering wheel up the minimum amount required to avoid contact. If the steering wheel is not adjustable separate the knees the minimum required to avoid contact. (S16.3.2.1.8)
__N/A- there was no leg contact
__Steering wheel repositioned
__Knees separated

__17. If the left foot interferes with the clutch or brake pedals, rotate the left foot about the leg to provide clearance. If this is not sufficient, rotate the thigh outboard at the hip the minimum amount required for clearance. (S16.3.2.1.8)
__N/A, No foot interference with pedals.
__Foot adjusted to provide clearance.
__Foot and Thigh adjusted to provide clearance.

__18. Continue to move the seat. Use seat controls to line up the seat markings determined during the completion of Data Sheet 14.1 to set the foremost fore-aft position, mid-height position and the seat cushion mid-angle. If the dummy contacts the interior move the seat rearward until a maximum clearance of 5 mm (0.2 inches) is achieved or the seat is in the closest detent position that does not cause dummy contact. (S16.3.2.1.8)
__Foremost, mid-height position and the seat cushion mid-angle reached
__Dummy contact. Clearance set at maximum of 5mm
Measured Clearance_____
__Dummy Contact. Seat set at nearest detent position.
Seat position ___ detent positions rearward of foremost
(foremost is position zero)

__19. If the steering wheel was repositioned in step 16, return the steering wheel to the original position. If the steering wheel contacts the dummy before reaching the original position, position the wheel until a maximum clearance of 5mm (.2 inches) is achieved, or the steering wheel is in the closest detent position that does not cause dummy contact. (S16.3.2.1.8)

__N/A Steering wheel was not repositioned.
__Original position achieved.
__Dummy contact. Clearance set at maximum of 5mm
Measured Clearance_____
__Dummy Contact. Steering wheel set at nearest detent position.
Steering wheel position ___ detent positions upward of original position.
(Original position is position zero)

X 20. If the seat back is adjustable, rotate the seat back forward while holding the thighs in place. Continue rotating the seat back forward until the transverse instrument platform of the dummy head is level ± 0.5 degrees. If the head cannot be leveled using the seat back adjustment, or the seat back is not adjustable, use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, minimize the angle. (S16.3.2.1.9)

X Head Level Achieved. (Check all that apply)
__Head leveled using the adjustable seat back
__Head leveled using the neck bracket.
Head Angle _____0.2___ degrees
__Head Level NOT Achieved. (Check all that apply)
__Head adjusted using the adjustable seat back
__Head adjusted using the neck bracket.
Head Angle _____ degrees

X 21. Verify the pelvis is not interfering with the seat bight. (S16.3.2.1.9)

X No interference
__Pelvis moved forward the minimum amount so that it is not caught in the seat bight.

X 22. Verify the dummy abdomen is properly installed. (S16.3.2.1.9)

X Abdomen still seated properly into dummy
__Abdomen was adjusted because it was not seated properly into dummy

X 23. Head Angle

X N/A, neither the pelvis nor the abdomen were adjusted.

X 23.1 Head still level (Go to 24)

__23.2 Head level adjusted
__Head Level Achieved. (Check all that apply)
__Head leveled using the adjustable seat back
__Head leveled using the neck bracket.
Head Angle _____ degrees
__Head Level NOT Achieved. (Check all that apply)
__Head level adjusted using the adjustable seat back
__Head level adjusted using the neck bracket.
Head Angle _____ degrees

X 24. If the dummy torso contacts the steering wheel while performing step 20, reposition the steering wheel in the following order to eliminate contact. (S16.3.2.1.9)
X N/A, No dummy torso contact with the steering wheel.

__24.1 Adjust telescoping mechanism.
__N/A No telescoping adjustment.
__Adjustment performed (fill in appropriate change)
Steering wheel moved ____ detent positions in the forward direction.
Steering wheel moved ____ mm in the forward direction.

__24.2 Adjust tilt mechanism.
__N/A No tilt adjustment.
__No adjustment performed.
__Adjustment performed.
Steering wheel moved ____ detent positions Upward/Downward.
(circle one)
Steering wheel moved ____ degrees Upward/Downward

__24.3 Adjust Seat in the aft direction.
__No Adjustment performed.
__Seat moved aft ___ mm from original position.
__Seat moved aft ___ detent positions from the original position.

X 25. Measure and set the pelvic angle using the pelvic angle gage TE-2504. The pelvic angle should be 20.0 degrees ± 2.5 degrees. If the pelvic angle cannot be set to the specified range because the head will not be level or because the dummy will have need major repositioning, adjust the pelvis as closely as possible to the angle range, but keep the head level. (S16.3.2.1.11)
X Pelvic angle set to 20.0 degrees ± 2.5 degrees.
__Pelvic angle of 20.0 degrees not achieved, the angular difference was minimized.
__Record the pelvic angle. ____22.3___ degrees

X 26. Check the dummy for contact with the interior after completing adjustments. (S16.3.2.1.12)
X No contact.
__Dummy in contact with interior.
__Seat moved aft ___ mm from the previous position.
__Seat moved aft ___ detent positions from the previous position.

X 27. Check the dummy to see if additional interior clearance is obtained, allowing the seat to be moved forward. (S16.3.2.1.12)
X N/A, Seat already at foremost position.
__Clearance unchanged. No adjustments required.
__Additional clearance available
__Seat moved Forward ___ mm from the previous position.
__Seat moved Forward ___ detent positions from the previous position.

X 28. Driver's foot positioning, right foot. Place the foot perpendicular to the leg and determine if the heel contacts the floor pan at any leg position. If the heel contacts the floor pan proceed to step 29 otherwise, proceed to step 30. (S16.3.2.2.1)

___29. Perform the following steps until either all steps are completed, or the foot contacts the accelerator pedal. Step 29.6 shall be completed in all cases. (S16.3.2.2.1(a))

___29.1 With the rear of the heel contacting the floor pan, move the foot forward until pedal contact occurs or the foot is at the full forward position.

__29.2 If the vehicle has an adjustable accelerator pedal, move the pedals rearward until pedal contact occurs or the pedals reach the full rearward position.

__29.3 Extend the leg, allowing the heel to lose contact with the floor until the foot contacts the pedal. Do not raise the toe of the foot higher than the top of the accelerator pedal. If the foot does not contact the pedal, proceed to the next step. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.3)

__29.4 Angle the foot to achieve contact between the foot and the pedal. If the foot does not contact the pedal, return the foot to the perpendicular orientation. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.3)

__29.5 Align the centerline of the foot with the vertical-longitudinal plane passing through the center of the accelerator pedal. Place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.3)

__29.6 Record foot position

___Pedal Contact achieved. Contact occurred at step _____.

X Heel contacts floor pan

__Heel set _____ mm from floor pan.

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

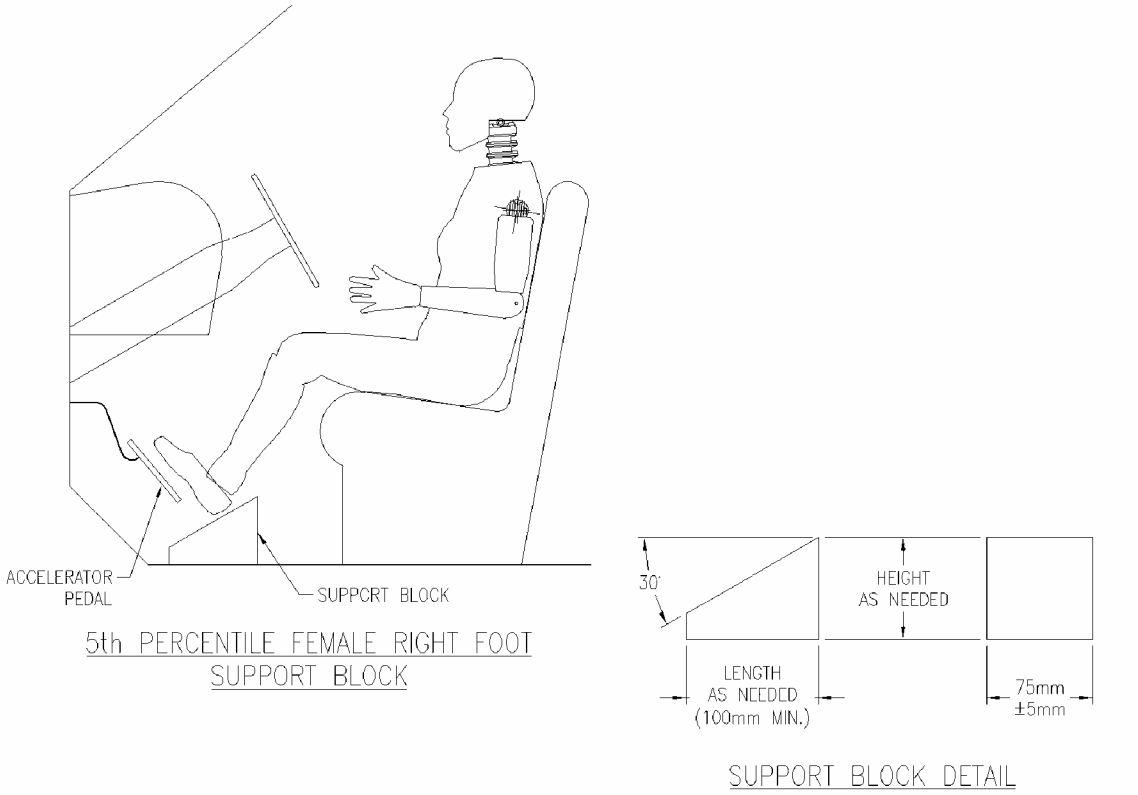


FIGURE G1

X 30. Perform the following steps until either all steps are completed, or the foot contacts the accelerator pedal. Step 30.5 shall be completed in all cases.

X 30.1 Extend the leg until the foot contacts the pedal. Do not raise the toe of the foot higher than the top of the accelerator pedal. If the foot does not contact the pedal, proceed to the next step. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.1(b) & S16.3.2.2.3)
A tapered foam block was used to position the dummy.

__30.2 If the vehicle has an adjustable accelerator pedal, move the pedals rearward until pedal contact occurs or the pedals reach the full rearward position. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.1(b) & S16.3.2.2.3)
_X_ N/A No pedal adjustment

__30.3 Angle the foot to achieve contact between the foot and the pedal. If the foot does not contact the pedal, return the foot to the perpendicular orientation. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.2 & S16.3.2.2.3)

___30.4 Align the centerline of the foot in the same horizontal plane as the centerline of the accelerator pedal. Place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward. (S16.3.2.2.3)

X 30.5 Record foot position

__Pedal Contact achieved. Contact occurred at step __30.1___.
__ Heel set _____ mm from floor pan.
__Pedal Contact not achieved. Heel set _____ mm from the floor pan.

X 31. Driver's foot positioning, left foot.

X 31.1 Place the foot perpendicular to the leg and determine if the heel contacts the floor pan at any leg position. If the heel contacts the floor pan proceed to step 31.2, otherwise position the leg as perpendicular to the thigh as possible with the foot parallel to the floor pan. (S16.2.2.6)

__31.2 Place the foot on the toe board with the heel resting on the floor pan as close to the intersection of the floor pan and the toe board as possible. Adjust the angle of the foot if necessary to contact the toe board. If the foot will not contact the toe board, set the foot perpendicular to the leg, and set the heel on the floor pan as far forward as possible. Avoid contact with the brake pedal, clutch pedal, wheel well projection, and footrest. To avoid this contact use the following three manipulations in the order listed, with each subsequent option incorporating the previous, until contact is avoided: rotate the foot about the lower leg (abduction/adduction), plantar flex the foot, rotate the leg outboard about the hip . Movement should be the minimum amount necessary. If it is not possible to avoid all foot contact, give priority to avoiding brake or clutch pedal contact. (S16.2.2.4 & S16.2.2.5 & S16.2.2.7)

X No contact
__Foot rotated about the leg (abduction/adduction)
__Foot rotated about the leg, and foot plantar flexed
__Foot rotated about the leg, foot plantar flexed, and the leg rotated about the hip.

X 31.3 Record foot position.

X Heel does not contact floor pan.
__Heel on floor pan and foot on toe board.
__Heel on floor pan and foot not on toe board.

X 32. Driver arm/hand positioning.

X 32.1 Place the dummy's upper arms adjacent to the torso with the arm centerlines as close to a vertical longitudinal plane as possible. (S16.3.2.3.1)

X 32.2 Place the palms of the dummy in contact with the outer part of the steering wheel rim at its horizontal centerline with the thumbs over the steering wheel rim. (S16.3.2.3.2)

X 32.3 If it is not possible to position the thumbs inside the steering wheel rim at its horizontal centerline, then position them above and as close to the horizontal centerline of the steering wheel rim as possible. (S16.3.2.3.3)

X 32.4 Lightly tape the hands to the steering wheel rim so that if the hand of the test dummy is pushed upward by a force of not less than 9 N (2 lb) and not more than 22 N (5 lb), the tape releases the hand from the steering wheel rim. S16.3.2.3.4

X 33. Adjustable head restraints
__N/A, there is no head restraint adjustment

__33.1 If the head restraint has an automatic adjustment, leave it where the system positions the restraint after the dummy is placed in the seat. (S16.3.4.1) Go to 34.

__33.2 Adjust each head restraint vertically so that the mid-horizontal plane determined in Data Sheet 14.1 is aligned with the center of gravity (CG) of the dummy head. (S16.3.4.3)

X 33.3 If the above position is not attainable, move the vertical center of the head restraint to the closest detent below the center of the head CG. (S16.3.4.3)
__N/A midpoint position attained in previous step
X Headrest set at nearest detent below the head CG

__33.4 If the head restraint has a fore and aft adjustment, place the restraint in the foremost position or until contact with the head is made, whichever occurs first. (S16.3.4.4)

X 34. Driver and passenger manual belt adjustment (for tests conducted with a belted dummy). (S16.3.5)

X 34.1 If an adjustable seat belt D-ring anchorage exists, place it in the manufacturer's design position for a 5th percentile adult female. (S16.3.5.1) **This information will be supplied by the COTR.**
Manufacturer's specified position ___Full Down_____
Actual Position_____Full Down 4 Of 4_____

X 34.2 Place the Type 2 manual belt around the test dummy and fasten the latch. (S16.3.5.2)

X 34.3 Ensure that the dummy's head remains as level as possible. (S16.3.5.3)

X 34.4 Remove all slack from the lap belt. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this operation four times. Apply a 9 N (2 lbf) to 18 N (4 lbf) tension load to the lap belt. If the belt system is equipped with a tension-relieving device, introduce the maximum amount of slack into the upper torso belt that is recommended by the manufacturer. If the belt system is not equipped with a tension-relieving device, allow the excess webbing in the shoulder belt to be retracted by the retractive force of the retractor. (S16.3.5.4)

REMARKS:

I certify that I have read and performed each instruction.

Signature:  Date: 9/13/06

APPENDIX G

DUMMY POSITIONING PROCEDURES

FOR 5th% PASSENGER TEST DUMMY CONFORMING TO SUBPART O OF PART 572

Test Vehicle: 2005 Dodge Grand Caravan NHTSA No.: C50311
Test Program: FMVSS 208 Test Date: 9/13/06
Test Technician: Joe Fleck

IMPACT ANGLE:	Zero Degrees LH 40% ODB		
BELTED DUMMIES (YES/NO):	Yes		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th female	__ 50th male	
PASSENGER DUMMY:	_X_ 5th female	__ 50th male	

(Check this item ONLY if it applies to this vehicle.)

__The passenger seat adjustments are controlled by the adjustments made to the driver's seat. Therefore, positioning of the passenger dummy is made simultaneously with the driver dummy. Adjustments made to the seat to position the driver will over ride any adjustments that would normally be made to position the passenger. (S16.2.10.3)

X 1. Place the SCRP in the full rearward, mid-height position, and mid-seat cushion angle, determined during the completion of Data Sheet 14.1. (S16.3.3.1.1)

X 2. Fully recline the seat back. (S16.3.3.1.2)
__ N/A seat back not adjustable.

X 3. Place the dummy in the seat with the legs at an angle of 120 degrees to the thighs. The calves should not be touching the seat cushion. (S16.3.3.1.2)

X 4. Position the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion marking that was determined in Data Sheet 14.1. (S16.3.3.1.3 and S16.3.3.1.4)

X 5. Hold down the dummy's thighs and push rearward on the upper torso to maximize the pelvic angle. (S16.3.3.1.5)

X 6. Set the angle between the legs and the thighs to 120 degrees. (S16.3.3.1.6)

X 7. Set the transverse distance between the centers of the front of the knees at 160 to 170 mm. (6.3 to 6.7 inches). Center the knee separation with respect to the longitudinal seat cushion marking that was determined Data Sheet 14.1. (S16.3.3.1.6)
Record Knee Separation ____165___

X 8. Push rearward on the dummy's knees until the pelvis contacts the seat back, or the backs of the calves contact the seat cushion, whichever occurs first. (S16.3.3.1.6)
X Pelvis contacted seat back.
__Calves contacted seat cushion.

X 9. Gently rock the upper torso ± 5 degrees (approximately 51 mm (2 inches)) side-to-side three times. (S16.3.3.1.7)

X 10. If needed, extend the legs until the feet do not contact the floor pan. The thighs should be resting on the seat cushion. (S16.3.3.1.8)

X 11. Use seat controls to line up the seat markings determined during the completion of Data Sheet 14.1 to set the foremost fore-aft position, mid-height position and the seat cushion mid-angle. If the dummy contacts the interior move the seat rearward until a maximum clearance of 5 mm (0.2 inches) is achieved or the seat is in the closest detent position that does not cause dummy contact. (S16.3.3.1.8)
X Foremost, mid-height position and the seat cushion mid-angle reached
__Dummy contact. Clearance set at maximum of 5mm
Measured Clearance_____
__Dummy Contact. Seat set at nearest detent position.
Seat position ___ detent positions rearward of foremost
(foremost is position zero)

X 12. If the seat back is adjustable, rotate the seat back forward while holding the thighs in place. Continue rotating the seat back forward until the transverse instrument platform of the dummy head is level ± 0.5 degrees. If head cannot be leveled using the seat back adjustment, or the seat back is not adjustable, use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, adjust the head as closely as possible to the ± 0.5 degree range. (S16.3.3.1.9 and S16.3.3.1.10)
(Check All That Apply)
__Seat back not adjustable
__Seat back not independent of driver side seat back
X Head Level Achieved. (Check all that apply)
X Head leveled using the adjustable seat back
__Head leveled using the neck bracket.
Head Angle ____0.2____ degrees
__Head Level NOT Achieved. (Check all that apply)
__ Head adjusted using the adjustable seat back
__ Head adjusted using the neck bracket.
Head Angle _____ degrees

X 13. Verify the pelvis is not interfering with the seat bight. (S16.3.3.1.9)
X No interference
__Pelvis moved forward the minimum amount so that it is not caught in the seat bight.

X 14. Verify the dummy abdomen is properly installed. (S16.3.3.1.9)
X Abdomen still seated properly into dummy
__Abdomen was adjusted because it was not seated properly into dummy

X 15. Head Angle
X N/A, neither the pelvis nor the abdomen were adjusted.

X 15.1 Head still level (Go to 16)

__15.2 Head level adjusted

__Head Level Achieved. (Check all that apply)

__Head leveled using the adjustable seat back

__Head leveled using the neck bracket.

Head Angle _____ degrees

__Head Level NOT Achieved. (Check all that apply)

__Head adjusted using the adjustable seat back

__Head adjusted using the neck bracket.

Head Angle _____ degrees

_X_ 16. Measure and set the pelvic angle using the pelvic angle gage TE-2504. The pelvic angle should be 20.0 degrees ± 2.5 degrees. If the pelvic angle cannot be set to the specified range because the head will not be level or because the dummy will have need major repositioning, adjust the pelvis as closely as possible to the angle range, but keep the head level.

X Pelvic angle set to 20.0 degrees ± 2.5 degrees.

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

X Record the pelvic angle. ____21.0____ degrees

_X_ 17. Check the dummy for contact with the interior after completing adjustments.

X No contact.

__Dummy in contact with interior.

__Seat moved aft ___ mm from the previous position.

__Seat moved aft ___ detent positions from the previous position.

_X_ 18. Verify the transverse instrument platform of the dummy head is level +/- 0.5 degrees. Use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, minimize the angle. (S16.3.3.1.9, S16.3.3.1.10, and S16.3.3.1.11)

X Head Level Achieved

Head Angle ____0.0_____ degrees

__Head Level NOT Achieved.

Head Angle _____ degrees

_X_ 19. Check the dummy to see if additional interior clearance is obtained, allowing the seat to be moved forward. (S16.3.3.1.12)

__N/A Bench Seat

X N/A Seat already at full forward position.

__Clearance unchanged. No adjustments required.

__Additional clearance available

__Seat moved Forward ___ mm from the previous position.

__Seat moved Forward ___ detent positions from the previous position.

__Seat moved Forward, Full Forward position reached.

_X_ 20. Passenger foot positioning. (Indicate final position achieved) (S16.3.3.2)

_ _20.1 Place feet flat on the toe board; OR (S16.3.3.2.1)

__20.2 If the feet cannot be placed flat on the toe board, set the feet perpendicular to the lower leg, and rest the heel as far forward on the floor pan as possible; OR (S16.3.3.2.2)

X 20.3 If the heels do not touch the floor pan, set the legs as perpendicular to the thighs as possible and set the feet parallel to the floor pan. (S16.3.3.2.2)

X 21. Passenger arm/hand positioning. (S16.3.3.3)

X 21.1 Place the dummy's upper arms adjacent to the torso with the arm centerlines as close to a vertical longitudinal plane as possible. (S16.3.3.3.1)

X 21.2 Place the palms of the dummy in contact with the outer part of the thighs (S16.3.3.3.2)

X 21.3 Place the little fingers in contact with the seat cushion. (S16.3.3.3.3)

X 22. Adjustable head restraints (S16.3.4)
__N/A, there is no head restraint adjustment

__22.1 If the head restraint has an automatic adjustment, leave it where the system positions the restraint after the dummy is placed in the seat. (S16.3.4.1) Go to 23.

__22.2 Adjust each head restraint vertically so that the horizontal plane determined in Data Sheet 14.1 is aligned with the center of gravity (CG) of the dummy head. (S16.3.4.3)

X 22.3 If the above position is not attainable, move the vertical center of the head restraint to the closest detent below the center of the head CG. (S16.3.4.3)
__N/A midpoint position attained in previous step
X Headrest set at nearest detent below the head CG

X 22.4 If the head restraint has a fore and aft adjustment, place the restraint in the foremost position or until contact with the head is made, whichever occurs first. (S16.3.4.4)

X 23. Manual belt adjustment (for tests conducted with a belted dummy) S16.3.5
__N/A, Unbelted test

X 23.1 If an adjustable seat belt D-ring anchorage exists, place it in the manufacturer's design position for a 5th percentile adult female. **This information will be supplied by the COTR.** (S16.3.5.1
Manufacturer's specified position Full Down
Actual Position Full Down 4 Of 4

X 23.2 Place the Type 2 manual belt around the test dummy and fasten the latch. (S16.3.5.2)

X 23.3 Ensure that the dummy's head remains as level as possible. (S16.3.5.3)

X 23.4 Remove all slack from the lap belt. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this operation four times. Apply a 9 N (2 lbf) to 18 N (4 lbf) tension load to the lap belt. If the belt system is equipped with a tension-relieving device, introduce the maximum amount of slack into the upper torso belt that is recommended by the manufacturer. If the belt system is not equipped with a tension-relieving device, allow the excess webbing in the shoulder belt to be retracted by the retractive force of the retractor. (S16.3.5.4)

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

Signature: Ian Fleck Date: 9/13/06

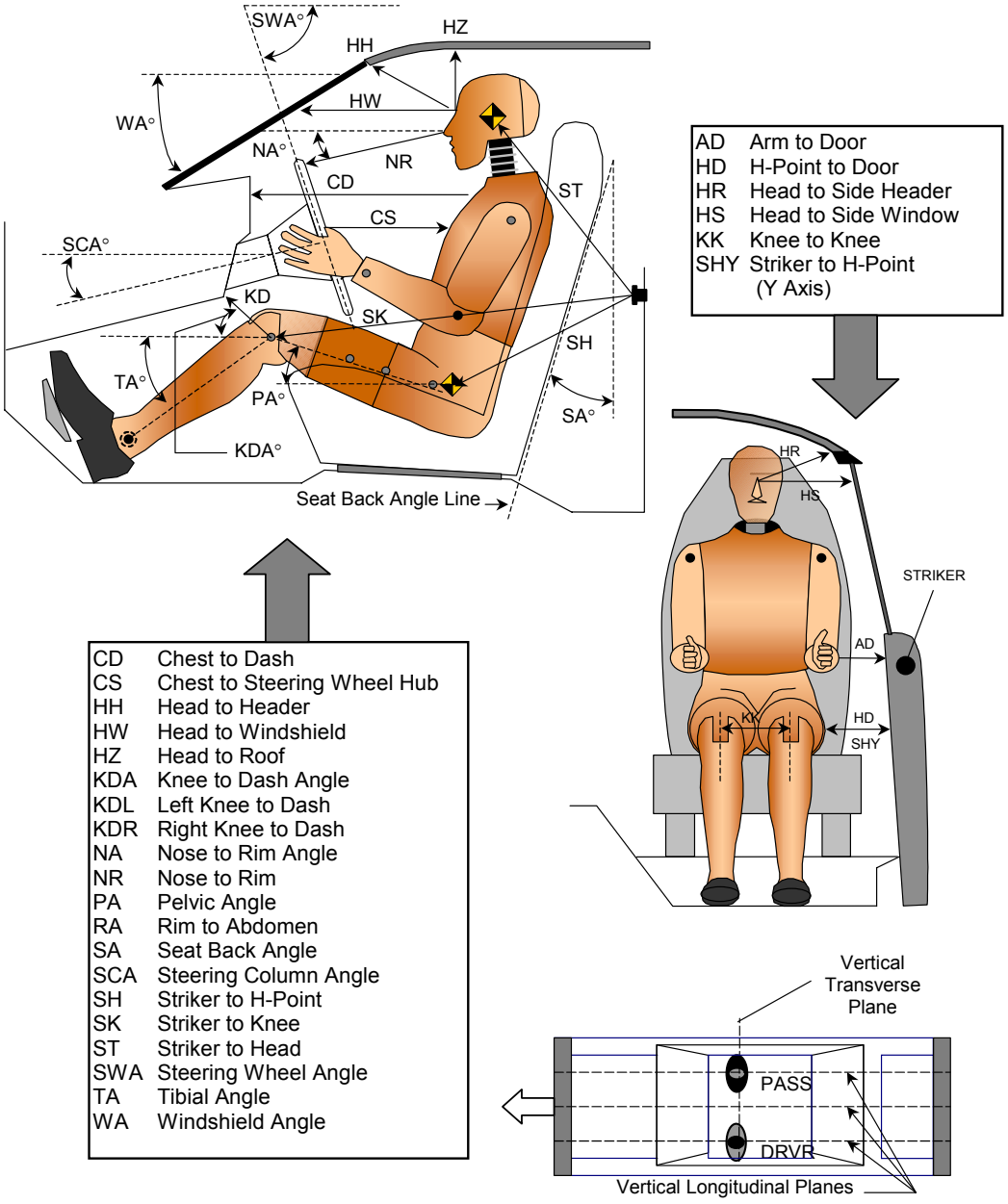
DATA SHEET 37

DUMMY MEASUREMENTS

Test Vehicle: 2005 Dodge Grand Caravan
Test Program: FMVSS 208
Test Technician: Eric Peschman

NHTSA No.: C50311
Test Date: 9/13/06

DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS



DATA SHEET 37

DUMMY MEASUREMENTS

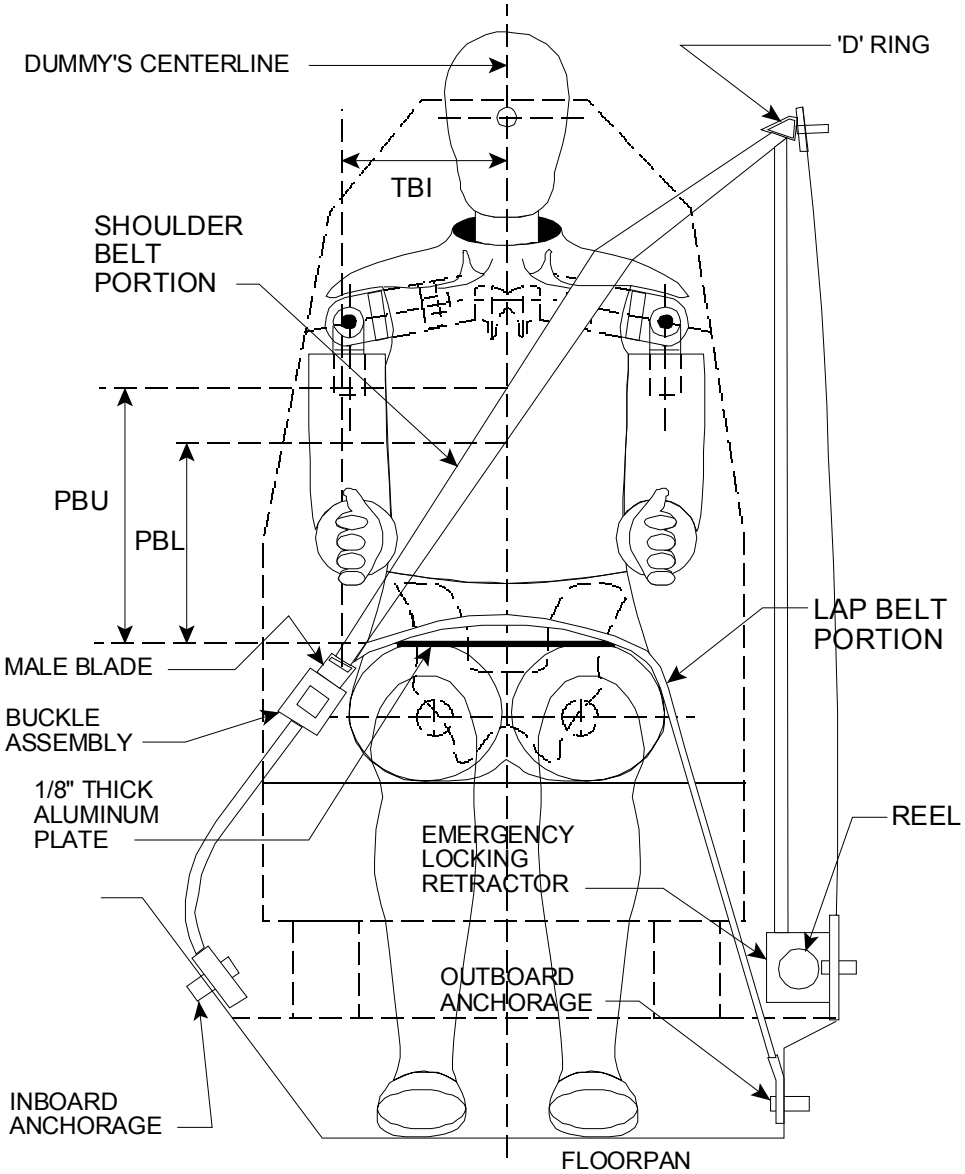
Test Vehicle: 2005 Dodge Grand Caravan
Test Program: FMVSS 208
Test Technician: Eric Peschman

NHTSA No.: C50311
Test Date: 9/13/06

TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver SN 510		Passenger SN 511	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		27.9		
SWA	Steering Wheel Angle		64.9		
SCA	Steering Column Angle		25.7		
SA	Seat Back Angle (On Headrest)		7.3		10.5
HZ	Head to Roof (Z)	223		206	
HH	Head to Header	319	44.4	322	42.2
HW	Head to Windshield	632	0.0	596	0.0
HR	Head to Side Header (Y)	248		217	
NR	Nose to Rim	276	5.4		
CD	Chest to Dash	483		474	
CS	Chest to Steering Hub	203	1.1		
RA	Rim to Abdomen	68	0.0		
KDL	Left Knee to Dash	102	43.0	135	
KDR	Right Knee to Dash	121		133	16.1
PA	Pelvic Angle		22.3		21.0
TA	Tibia Angle		67.6		58.9
KK	Knee to Knee (Y)	283		225	
SK	Striker to Knee	694	86.6	680	86.0
ST	Striker to Head	615	19.6	639	21.7
SH	Striker to H-Point	357	83.9	345	88.0
SHY	Striker to H-Point (Y)	303		297	
HS	Head to Side Window	396		334	
HD	H-Point to Door (Y)	198		179	
AD	Arm to Door (Y)	182		175	
AA	Ankle to Ankle	307		175	

SEAT BELT POSITIONING DATA



FRONT VIEW OF DUMMY

SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU - Top surface of reference to belt upper edge	mm	262	260
PBL - Top surface of reference to belt lower edge	mm	170	180

DATA SHEET 38

CRASH TEST

Test Vehicle: 2005 Dodge Grand Caravan
Test Program: FMVSS 208
Test Technician: Eric Peschman

NHTSA No.: C50311
Test Date: 9/13/06

IMPACT ANGLE:	Zero Degrees LH 40% ODB		
BELTED DUMMIES (YES/NO):	Yes		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th female	__ 50th male	
PASSENGER DUMMY:	_X_ 5th female	__ 50th male	

X 1. Vehicle underbody painted
X 2. The speed measuring devices are in place and functioning.
X 3. The speed measuring devices are 1.0 m from the barrier (spec. 1.5m) and 30 cm from the barrier (spec. is 30 cm)
X 4. Convertible top is in the closed position.
   X N/A, not a convertible
X 5. Instrumentation and wires are placed so the motion of the dummies during impact is not affected.
X 6. Tires inflated to pressure on tire placard or if it does not have a tire placard because it is not a passenger car, then inflated to the tire pressure specified in the owner information.

250 kpa front left tire	250 kpa specified on tire placard or in owner information
250 kpa front right tire	250 kpa specified on tire placard or in owner information
250 kpa rear left tire	250 kpa specified on tire placard or in owner information
250 kpa rear right tire	250 kpa specified on tire placard or in owner information

X 7. Time zero contacts on barrier in place.
X 8. Pre test zero and shunt calibration adjustments performed and recorded
X 9. Dummy temperature meets requirements of section 12.2 of the test procedure.
X 10. Vehicle hood closed and latched
X 11. Transmission placed in neutral
X 12. Parking brake off
X 13. Ignition in the ON position
X 14. Doors closed and latched but not locked
X 15. Posttest zero and shunt calibration checks performed and recorded
X 16. Actual test speed 39.9 kmph
X 17. Vehicle rebound from the barrier 302 cm
X 18. Describe whether the doors open after the test and what method is used to open the doors.
   X Left Front Door: Door remained closed and latched; Door opened without tools
   X Right Front Door: Door remained closed and latched; Door opened without tools
   X Left Rear Door: Door remained closed and latched; Door opened without tools
   X Right Rear Door: Door remained closed and latched; Door opened without tools

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

X Driver Dummy: Head to Steering Wheel, Air Bag, and Head Rest; Chest to Air Bag; Knees to Knee Bolster

X Passenger Dummy: Head to Air Bag; Chest to Air Bag; Knees to Glove Box

REMARKS:

I certify that I have read and performed each instruction.

Signature:  Date: 9/13/06

DATA SHEET NO. 39

OFFSET DEFORMABLE BARRIER TEST USING BELTED 5th PERCENTILE FEMALE DUMMIES
(Part 572, Subpart O) (S18)

Test Vehicle: 2005 Dodge Grand Caravan NHTSA No.: C50311
Test Program: FMVSS 208 Test Date: 9/13/06
Test Technician: Nick Kosinski

IMPACT ANGLE:	Zero Degrees LH 40% ODB		
BELTED DUMMIES (YES/NO):	Yes		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th female	__ 50th male	
PASSENGER DUMMY:	_X_ 5th female	__ 50th male	

Barrier Serial Number: FL002

Driver dummy Serial Number: 510 Passenger Dummy Serial Number: 511

Vehicle Speed (39.9) 40 km/hr Offset 40 Percent

1.0 Pre-Test Activities

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

X 1.2 Barrier Certification

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

CELLBOND

CERTIFICATE OF CONFORMITY

Certificate No. 25859
Serial No. FL002

Product Description	Frontal ODB painted grey
Cellbond Part No.	70EEVCFI US

	Test Results	GR No.	Blk No.
1	3658-8	CHC0303065FK	N/A
2	4141-8	CHC0511008FL	N/A

Declaration.

The above moving deformable barrier has been manufactured in accordance with the provisions of the European Parliament and Council No 96/79/EC Directive (Regulation ECE R94)

Additional Information...

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Cellbond Offices
United Kingdom
United States of America

FM 78320
FM 31401

Aluminium ist wiederverwertbar

CELLBOND

EEVC DEFORMABLE FRONTAL BARRIER
ALUMINIUM HONEYCOMB CERTIFICATION
STATIC TEST RESULTS

MAIN BLOCK
Core: 1.8 3/4 3003

Required Crush Strength
0.308 MPa to 0.342 MPa

Test No: 3658-8

GR No : CHC0303065FK
Block No: N/A

	Crush Strength (MPa)			
	6.4 to 9.7 mm	9.7 to 13.2 mm	13.2 to 16.5 mm	RESULT
Sample* 1	0.3287	0.3287	0.3249	PASS
Sample 2	0.3224	0.3054	0.3190	FAIL
Sample 3	0.3286	0.3266	0.3309	PASS
Sample 4	0.3389	0.3409	0.3256	PASS
Sample 5	0.3316	0.3400	0.3400	PASS
Sample 6	0.3295	0.3280	0.3245	PASS
Sample 7	0.3281	0.3321	0.3374	PASS
Sample 8	0.3337	0.3366	0.3299	PASS

Seven out of the eight samples must fulfil the crush strength requirement in order to pass the block certification

*Sample size and location as per R94.

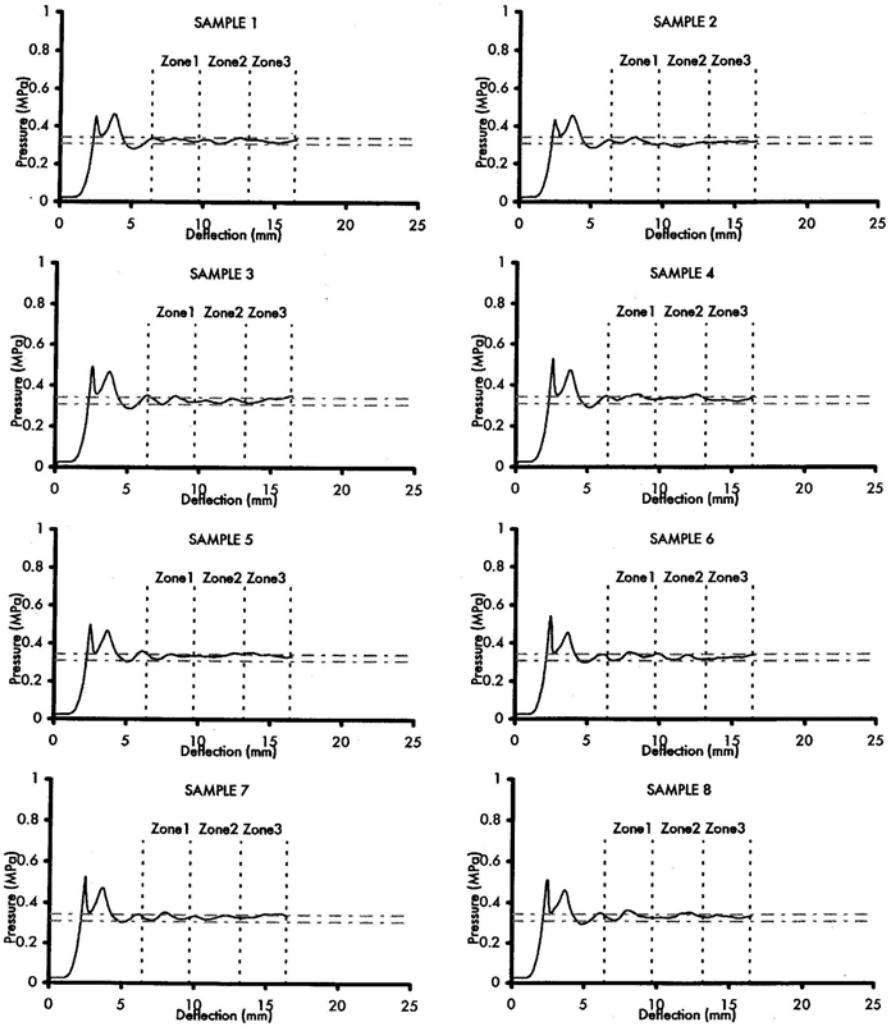
RESULT: PASSED

EEVC DEFORMABLE FRONTAL BARRIER
MAIN BLOCK

Honeycomb Type: 1.8 3/4 3003
Higher Acceptable Crush Strength Limit: 0.342 MPa
Lower Acceptable Crush Strength Limit: 0.308 MPa

Section 1:	6.4 - 9.7mm
Section 2:	9.7 - 13.2mm
Section 3:	13.2 - 16.5mm
Speed:	6.35 mm/min

Test No: 3658-8 GR No: CHC0303065FK Block No: N/A



CELLBOND

EEVC DEFORMABLE FRONTAL BARRIER
ALUMINIUM HONEYCOMB CERTIFICATION
STATIC TEST RESULTS

BUMPER
Core: 5.2 1/4 3003

Required Crush Strength
1.540 MPa to 1.711 MPa

Test No: 4141-8

GR No: CHC0511008FL
Block No: N/A

	Crush Strength (MPa)			
	6.4 to 9.7 mm	9.7 to 13.2 mm	13.2 to 16.5 mm	RESULT
Sample* 1	1.638	1.642	1.633	PASS
Sample 2	1.628	1.638	1.628	PASS
Sample 3	1.634	1.636	1.622	PASS
Sample 4	1.680	1.667	1.667	PASS
Sample 5	1.654	1.638	1.631	PASS
Sample 6	1.627	1.624	1.618	PASS
Sample 7	1.643	1.630	1.636	PASS
Sample 8	1.650	1.656	1.638	PASS

Seven out of the eight samples must fulfil the crush strength requirement in order to pass the block certification

*Sample size and location as per R94.

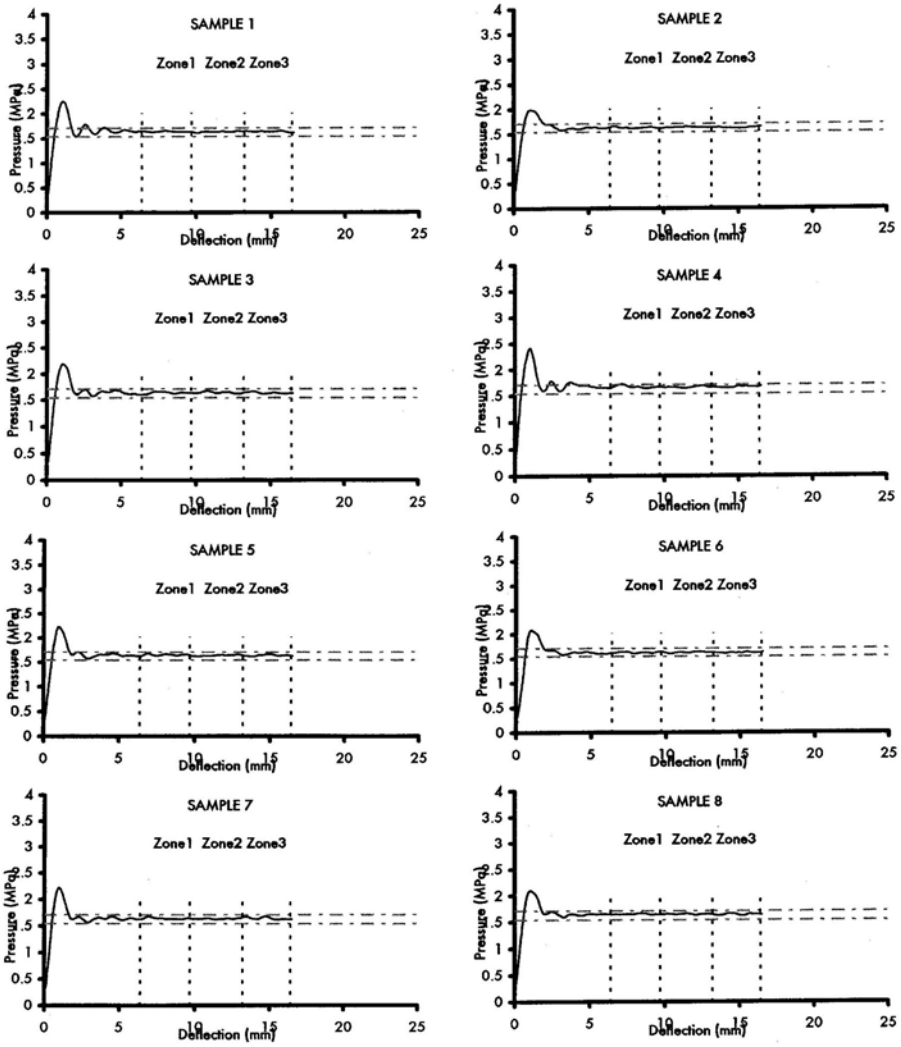
RESULT: PASSED

EEVC DEFORMABLE FRONTAL BARRIER
BUMPER

Honeycomb Type: 5.2 1/4 3003
Higher Acceptable Crush Strength Limit: 1.711 MPa
Lower Acceptable Crush Strength Limit: 1.540 MPa

Section 1:	6.4 - 9.7mm
Section 2:	9.7 - 13.2mm
Section 3:	13.2 - 16.5mm
Speed:	6.35 mm/min

Test No: 4141-8 GR No: CHC0511008FL Block No: N/A



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

	Specified Dimension in mm +/- 2.5 unless specified	Measured Dimension in mm
Main Body Height RH Side	650	650
Main Body Height LH Side	650	652
Floor to Lower Barrier LH	200 +/- 15	209
Floor to Lower Barrier RH	200 +/- 15	195
Main Body Width	1000	1000
Bumper Element Width	1000	1000
Bumper Element Height LH	330	330
Bumper Element Height RH	330	330
Main Body Depth LH	450	449
Main Body Depth RH	450	450
Bumper Element Depth LH	90	90
Bumper Element Depth RH	90	90
Upper Slot Location	220	220/218
Lower Slot Location	110	110/109
Upper Slot Width	4mm Max	3/3
Lower Slot width	4mm Max	3/3

X 1.3.1 All Dimensions within specified Tolerance

X Yes

X 1.4 Verify deformable barrier mounted using 10 bolts (8mm diameter minimum) and the steel strips specified.

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

X 1.6 Photograph pre-test condition. Include photograph shown below.

- X Pre-test frontal view of test vehicle
- X Pre-test left side view of test vehicle
- X Pre-test right side view of test vehicle
- X Pre-test left front three-quarter view of test vehicle
- X Pre-test right rear three-quarter view of test vehicle
- X Pre-test windshield view
- X Pre-test engine compartment view
- X Pre-test fuel filler cap view
- X Pre-test front underbody view
- X Pre-test rear underbody view
- X Pre-test driver dummy position with the door open and with the camera perpendicular to the longitudinal centerline of the vehicle and in line with the markings showing the fore-aft position of the seat.
- X Frontal Pre-test driver dummy position with the camera in the same plane as the longitudinal centerline of the dummy.
- X Pre-test passenger dummy position with the door open and with the camera perpendicular to the longitudinal centerline of the vehicle and in line with the markings showing the fore-aft position of the seat

X Frontal Pre-test passenger dummy position view with the camera in the same plane as the longitudinal centerline of the dummy.

X Dummy contact point(s) (vehicle and dummy)

X Pre-test view of the knee bolsters.

Pre-test view of the steering column shear capsule if any part of it is visible. Do NOT disassemble any parts to take these photographs.

Pre-test under hood view of the steering column intersecting the fire wall. Take the best photograph possible without removing any parts.

Pre-test view of the steering column intersecting the firewall from inside the vehicle. Take the best photograph possible without removing any parts.

2.0 Test Execution

X 2.1 Impact vehicle into offset deformable barrier at a speed of 25 km/hr +0/-2 km/hr

Record Impact speed Trap 1 39.9 km/hr

Trap 2 39.9 km/hr

Trap Location (from barrier) 1000 and 300 mm

X Speed at impact 25 km/hr +0 / -2 km/hr **Yes** / No

X 2.2 Strike barrier at offset of 10% of vehicle width +/- 50mm from the vehicle centerline.

Vehicle Width 2039 mm as measured (1996 mm per manufacturer)

Required Offset 799 mm

Actual Measured Offset 799 mm

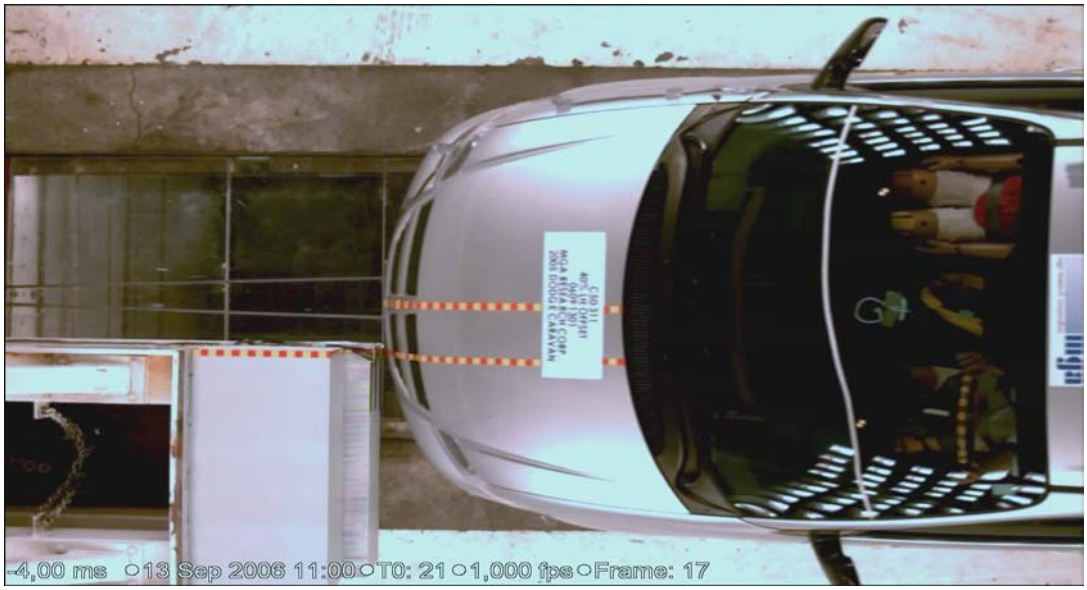
The offset is based on manufacturer data of 1996 mm.

X Offset within +/- 50mm **Yes** / No

X 2.3 Vehicle attitude at impact 0.0 degrees +/- 5 degrees

Impact angle 0.0 degrees

X Impact angle 0.0 +/- 5 degrees **Yes** / No



3.0 Post Test Activities

X 3.1 Photograph post-test condition. Include photograph shown below.

- X Post test frontal view of test vehicle
- X Post test left side view of test vehicle
- X Post test right side view of test vehicle
- X Post test left front three-quarter view of test vehicle
- X Post test right rear three-quarter view of test vehicle
- X Post test windshield view
- X Post test engine compartment view
- X Post test fuel filler cap view
- X Post test front underbody view[1]
- X Post test rear underbody view[1]
- X Post test driver dummy position with the door open and with the camera perpendicular to the longitudinal centerline of the vehicle and in line with the markings showing the fore-aft position of the seat.
- X Frontal post test driver dummy position with the camera in the same plane as the longitudinal centerline of the dummy.
- X Post test passenger dummy position with the door open and with the camera perpendicular to the longitudinal centerline of the vehicle and in line with the markings showing the fore-aft position of the seat
- X Frontal post test passenger dummy position view with the camera in the same plane as the longitudinal centerline of the dummy.
- X Dummy contact point(s)(vehicle and dummy)
- X Post test view of the knee bolsters.

  Post test view of the steering column shear capsule if any part of it is visible. Do NOT disassemble any parts to take these photographs.

  Post test under hood view of the steering column intersecting the fire wall. Take the best photograph possible without removing any parts.

  Post test view of the steering column intersecting the fire wall from inside the vehicle. Take the best photograph possible without removing any parts.
- X Post test Stoddard solvent spillage location view, if required.

  Post test electrolyte spillage location view, if required.

  Post test top view of test vehicle while vehicle is on static rollover machine. (If applicable)

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

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

Injury Criteria	Max. Allowable Injury Assessment Values	Driver	Passenger
HIC15	700	225	142
N_{te}	1.0	1.0 (.959)	0.2
N_{tf}	1.0	0.5	0.6
N_{ce}	1.0	0.1	0.1
N_{cf}	1.0	0.0	0.6
Neck Tension	2620 N	3349	633
Neck Compression	2520 N	41	1025
Chest g	60 g	36	18
Chest Displacement	52 mm	25	13
Left Femur	6805 N	2112	218
Right Femur	6805 N	2354	233

All injury Criteria within limits
__ Pass
X Fail

X 3.3 Perform post-test calibration check.

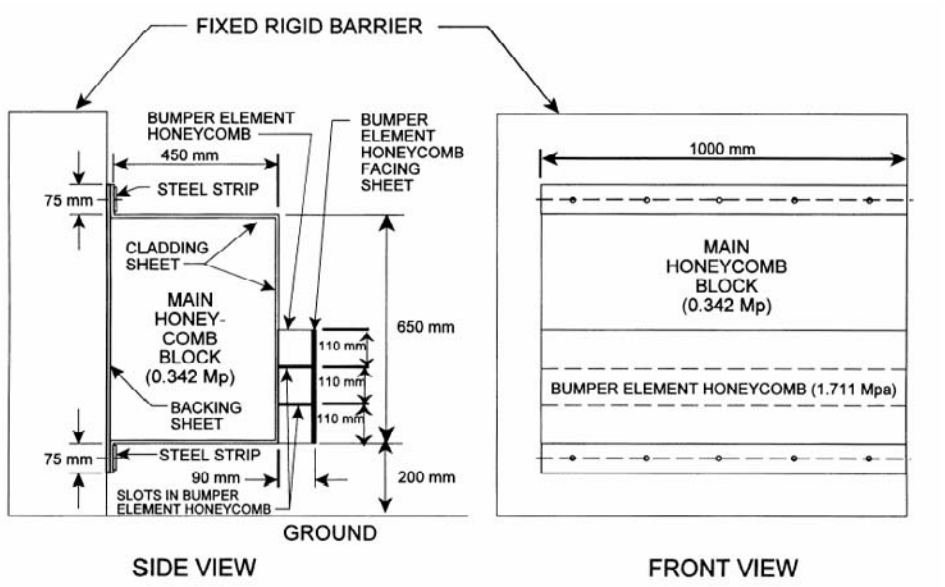


FIGURE 1
OFFSET BARRIER

I certify that I have read and performed each instruction.

Signature: _____ Date: 9/13/06

DATA SHEET NO. 40

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2005 Dodge Grand Caravan
Test Program: FMVSS 208
Test Technician: Nick Kosinski

NHTSA No.: C50311
Test Date: 9/13/06

IMPACT ANGLE:	Zero Degrees LH 40% ODB		
BELTED DUMMIES (YES/NO):	Yes		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th female	__ 50th male	
PASSENGER DUMMY:	_X_ 5th female	__ 50th male	

Vehicle Year/Make/Model/Body Style:	2005 Dodge Grand Caravan
VIN:	2D4GP44L65R103557
Wheelbase:	3034 mm
Build Date:	02/04
Vehicle Size Category:	5
Test Weight:	2203.1 kg
Front Overhang:	963 mm
Overall Width:	2039 mm
Overall Length Center:	5063 mm

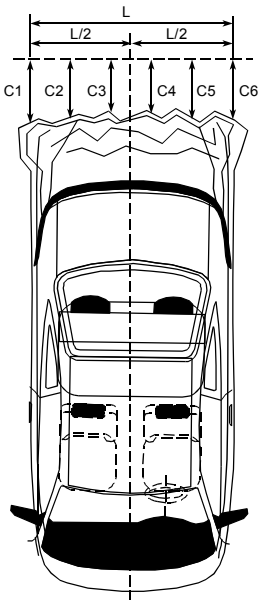
Accelerometer Data	
Location:	As per measurements on Data Sheet 33
Linearity:	>99.9%

Integration Algorithm:	Trapezoidal
Vehicle Impact Speed:	39.9 kmph
Time of Separation:	182.1 ms
Velocity Change:	47.1kmph

CRUSH PROFILE

Collision Deformation Classification: 12FDEW6
Midpoint of Damage: Vehicle Longitudinal Centerline
Damage Region Length (mm): 1367
Impact Mode: Frontal Barrier

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	4911	4637	274
C2	Crush zone 2 at left side	mm	4995	4624	371
C3	Crush zone 3 at left side	mm	5047	4782	265
C4	Crush zone 4 at right side	mm	5046	4968	78
C5	Crush zone 5 at right side	mm	4996	4992	4
C6	Crush zone 6 at right side	mm	4913	4934	-21



REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski

Date: 9/13/06

DATA SHEET 41

WINDSHIELD MOUNTING (FMVSS 212)

Test Vehicle: 2005 Dodge Grand Caravan NHTSA No.: C50311
Test Program: FMVSS 208 Test Date: 9/13/06
Test Technician: Nick Kosinski

IMPACT ANGLE:	Zero Degrees LH 40% ODB		
BELTED DUMMIES (YES/NO):	Yes		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th female	__ 50th male	
PASSENGER DUMMY:	_X_ 5th female	__ 50th male	

1. Pre-Crash

[X] 1.1 Describe from visual inspection how the windshield is mounted and describe any trim material.

Retained with glue
Rubber trim

[X] 1.2 Mark the longitudinal centerline of the windshield

[X] 1.3 Measure pre-crash A, B, and C for the left side and record in the chart below.

[X] 1.4 Measure pre-crash C, D, and E for the right side and record in the chart below.

[X] 1.5 Measure from the edge of the retainer or molding to the edge of the windshield.

[X] Dimension G (mm): 11 mm

2. Post Crash

[X] 2.1 Can a single thickness of copier type paper (as small a piece as necessary) slide between the windshield and the vehicle body?

[X] No – Pass. Skip to the table of measurements, complete it by repeating the pre-crash measurements in the post crash column, and calculate the retention percentage, which will be 100%.

[ ] Yes, go to 2.2

[ ] 2.2 Visibly mark the beginning and end of the portions of the periphery where the paper slides between the windshield and the vehicle body.

[ ] 2.3 Measure and record post-crash A, B, C, D, E, and F such that the measurements do not include any of the parts of the windshield where the paper slides between the windshield and the vehicle body.

[ ] 2.4 Calculate and record the percent retention for the right and left side of the windshield.

[ ] 2.5 Is total right side percent retention less than 75%?

[ ] Yes, Fail

[ ] No, Pass

[ ] 2.6 Is total left side percent retention less than 75%?

[ ] Yes, Fail

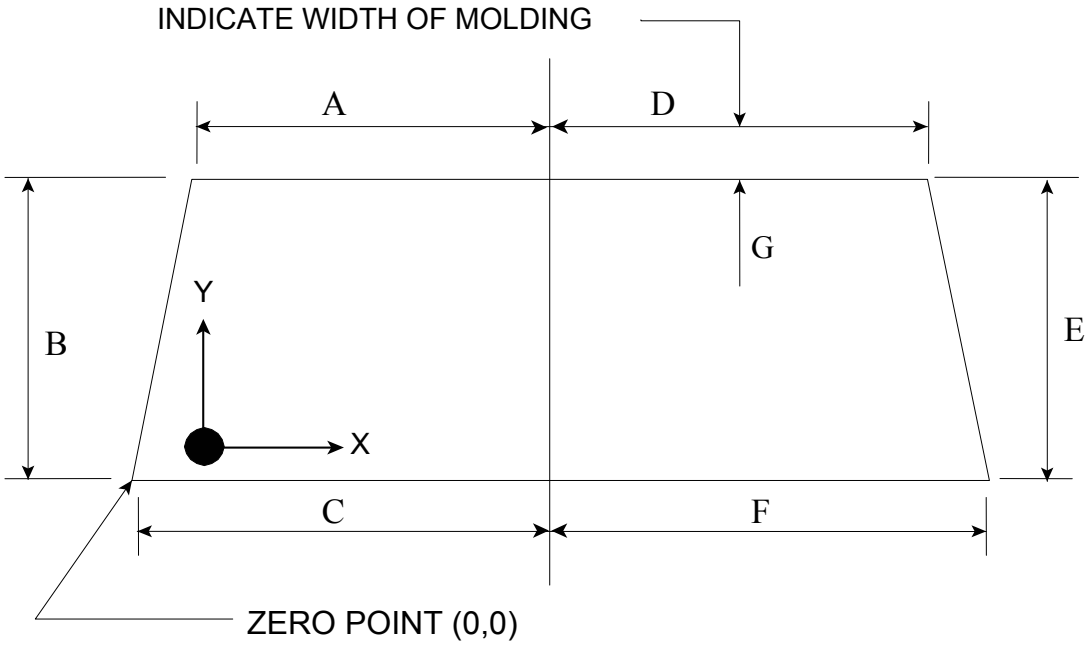
[ ] No, Pass

WINDSHIELD RETENTION MEASUREMENTS

	Dimension	Pre-Crash (mm)	Post-Crash (mm)	Percent Retention (Post-Test ÷ Pre-Crash)
Left Side	A	612	612	100%
	B	896	896	100%
	C	823	823	100%
	Total	2321	2321	100%
Right Side	D	612	612	100%
	E	896	896	100%
	F	823	823	100%
	Total	2321	2321	100%

Indicate area of mounting failure. NONE

FRONT VIEW OF WINDSHIELD



REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski

Date: 9/13/06

DATA SHEET 42

WINDSHIELD ZONE INTRUSION (FMVSS 219)

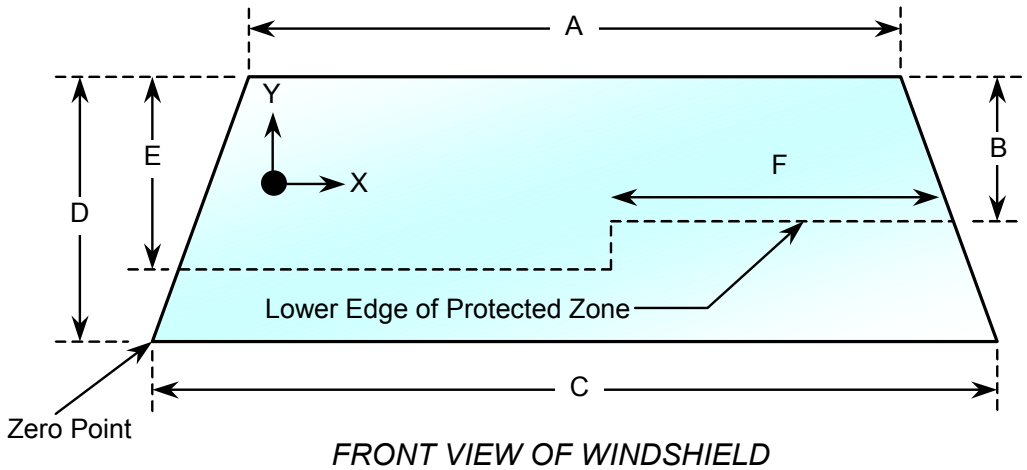
Test Vehicle: 2005 Dodge Grand Caravan
Test Program: FMVSS 208
Test Technician: Nick Kosinski

NHTSA No.: C50311
Test Date: 9/13/06

IMPACT ANGLE:	Zero Degrees LH 40% ODB		
BELTED DUMMIES (YES/NO):	Yes		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	_X_ 5th female	__ 50th male	
PASSENGER DUMMY:	_X_ 5th female	__ 50th male	

X	1.	Place a 165 mm diameter rigid sphere, with a mass of 6.8 kg on the instrument panel so that it is simultaneously touching the instrument panel and the windshield. (571.219 S6.1(a))
X	2.	Roll the sphere from one side of the windshield to the other while marking on the windshield where the sphere contacts the windshield. (571.219 S6.1(b))
X	3.	From the outermost contactable points on the windshield draw a horizontal line to the edges of the windshield. (571.219 S6.1(b))
X	4.	Draw a line on the inner surface of the windshield that is 13 mm below the line determined in items 2 and 3
X	5.	After the crash test, record any points where a part of the exterior of the vehicle has marked, penetrated, or broken the windshield.

Provide all dimensions necessary to reproduce the protected area.



FRONT VIEW OF WINDSHIELD

WINDSHIELD DIMENSIONS

Item	Units	Value
A	mm	1204
B	mm	530
C	mm	1644
D	mm	896
E	mm	615
F	mm	685

AREA OF PROTECTED ZONE FAILURES:

B. Provide coordinates of the area that the protected zone was penetrated more than 0.25 inches by a vehicle component other than one which is normally in contact with the windshield.

X	Y
NONE	

C. Provide coordinates of the area beneath the protected zone template that the inner surface of the windshield was penetrated by a vehicle component.

X	Y
NONE	

REMARKS:

I certify that I have read and performed each instruction.

Signature:  Date: 9/13/06

DATA SHEET 43

FUEL SYSTEM INTEGRITY (FMVSS 301)

Test Vehicle: 2005 Dodge Grand Caravan NHTSA No.: C50311
Test Program: FMVSS 208 Test Date: 9/13/06
Test Technician: Eric Peschman

TYPE OF IMPACT:	25 mph Belted ODB Frontal

Stoddard Solvent Spillage Measurements

A. From impact until vehicle motion ceases: 0.0 grams
(Maximum Allowable = 28 grams)

B. For the 5 minute period after motion ceases: 0.0 grams
(Maximum Allowable = 142 grams)

C. For the following 25 minutes: 0.0 grams
(Maximum Allowable = 28 grams/minute)

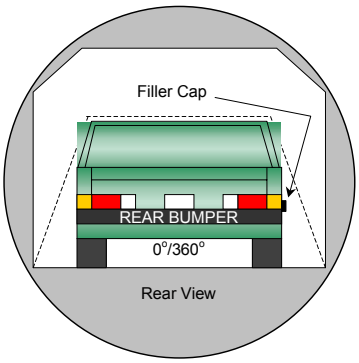
D. Spillage: NONE

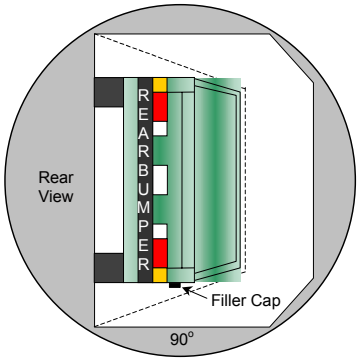
REMARKS: NO SPILLAGE

DATA SHEET NO. 43

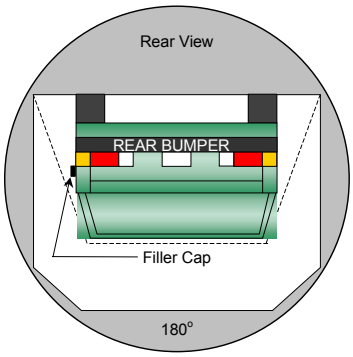
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2005 Dodge Grand Caravan NHTSA No.: C50311
Test Program: FMVSS 208 Test Date: 9/13/06

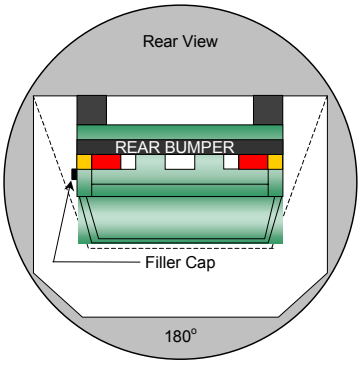




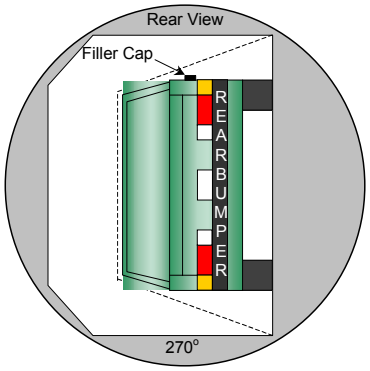
0° to 90°

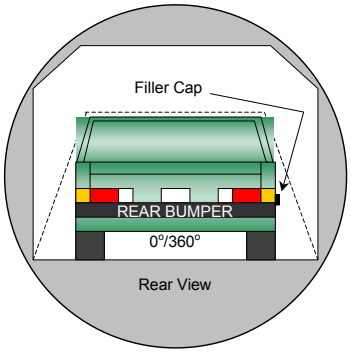


90° to 180°



180° to 270°





270° to 360°

1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent spillage locations: **The post test FMVSS 301 rollover was no conducted at the direction of the COTR.**

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (grams)
0° to 90°			
90° to 180°			
180° to 270°			
270° to 360°			

APPENDIX A

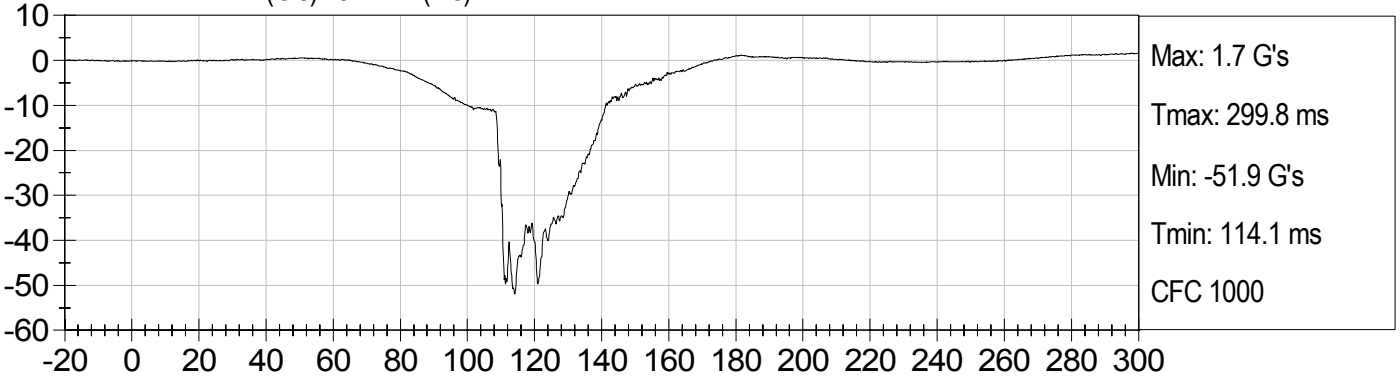
CRASH TEST DATA

TABLE OF DATA PLOTS

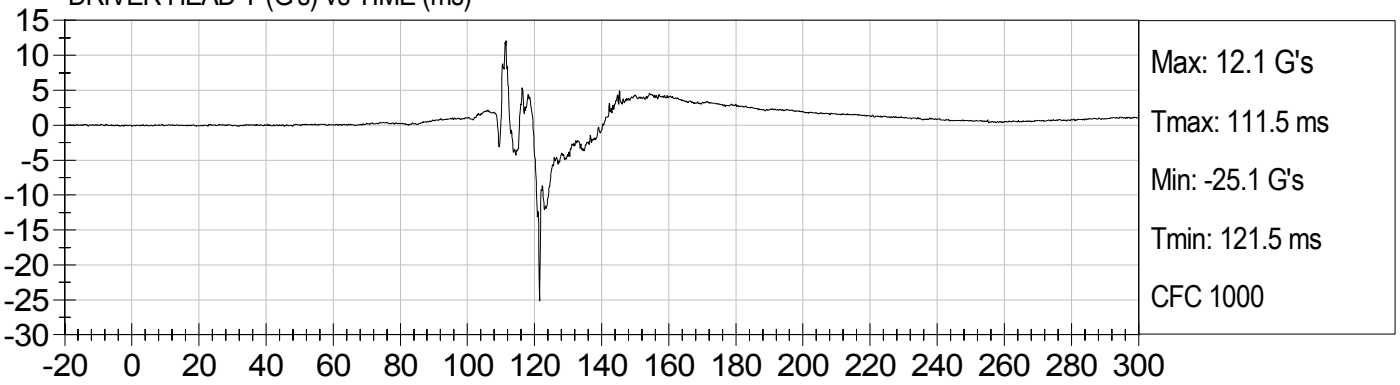
25 MPH LH 40% ODB BELTED
2005 DODGE CARAVAN (C50311)

Test Date: 09/13/2006
Speed: 24.8 mph (39.9 km/h)

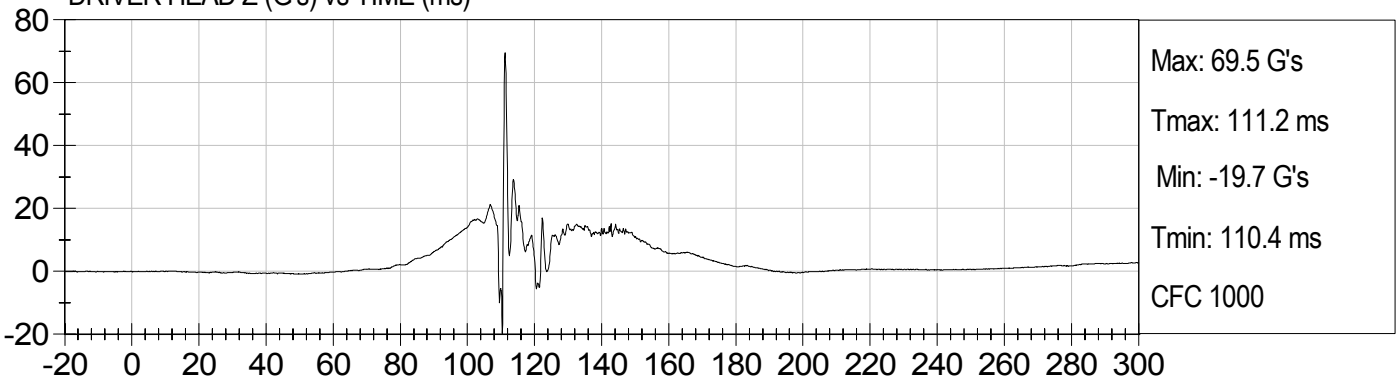
DRIVER HEAD X (G's) vs TIME (ms)



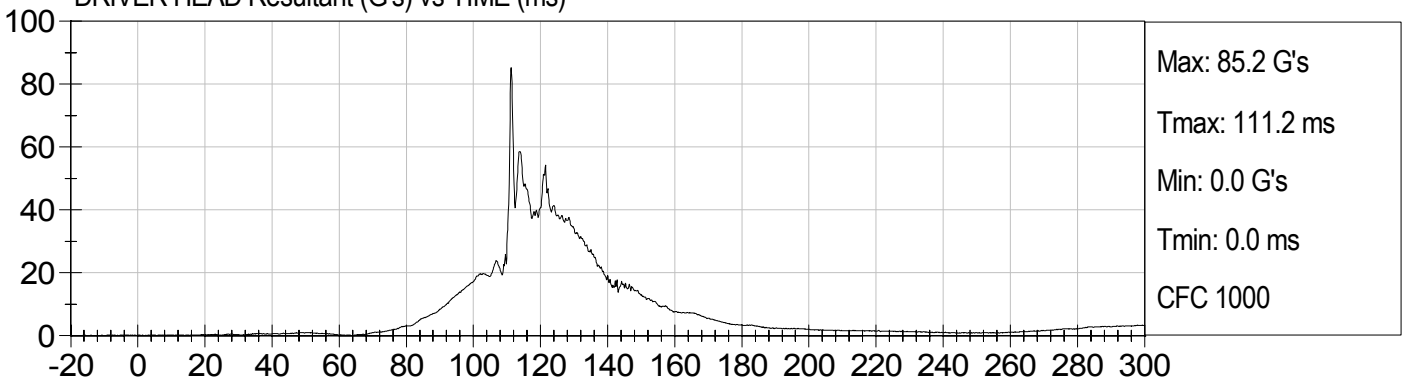
DRIVER HEAD Y (G's) vs TIME (ms)

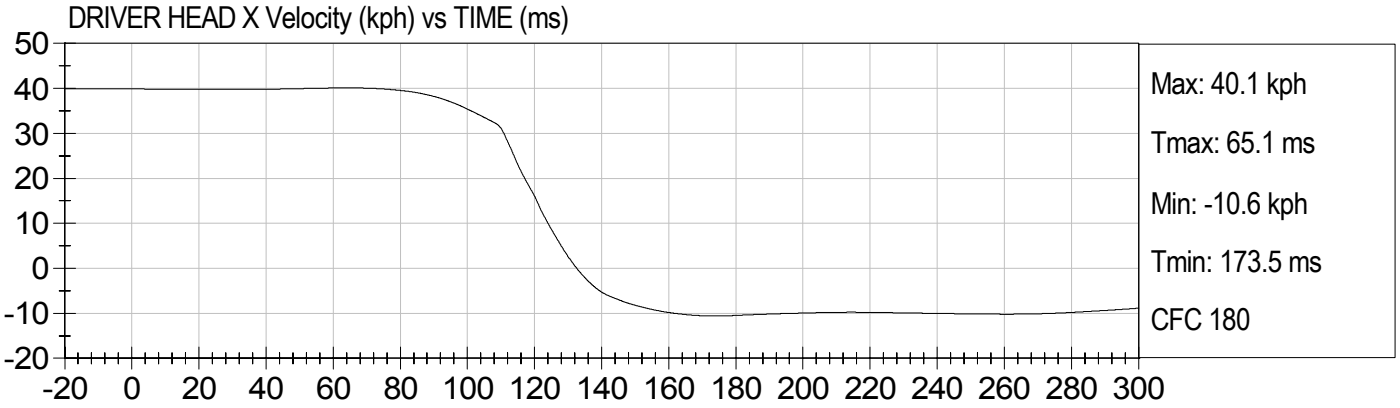


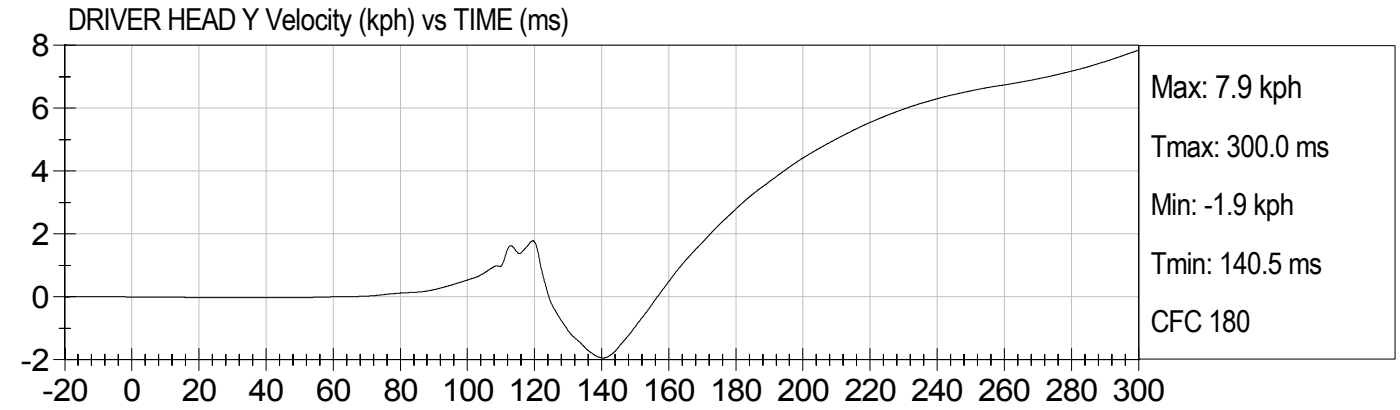
DRIVER HEAD Z (G's) vs TIME (ms)

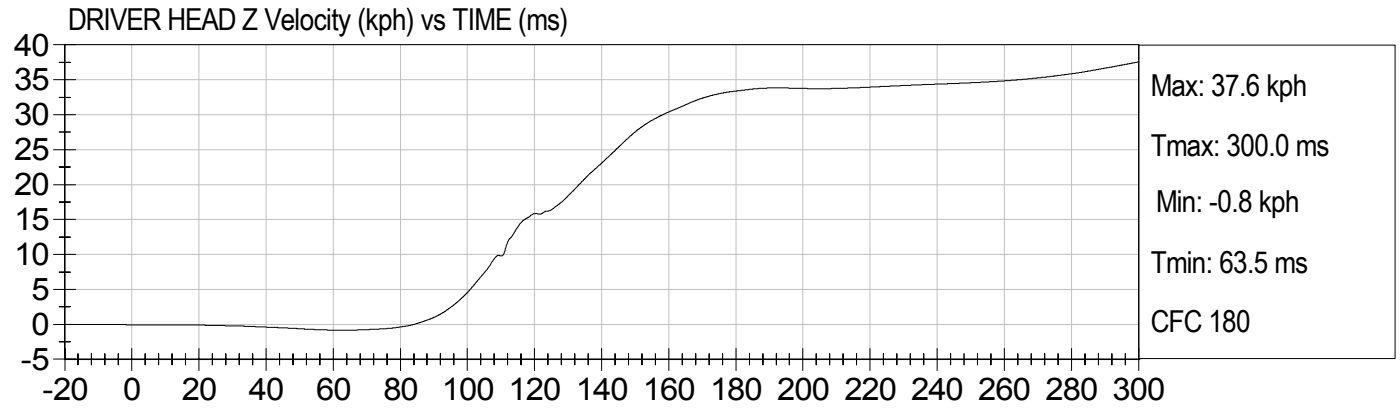


DRIVER HEAD Resultant (G's) vs TIME (ms)




DRIVER HEAD X Velocity (kph) vs TIME (ms)
50
40
30
20
10
0
-10
-20
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 40.1 kph
Tmax: 65.1 ms
Min: -10.6 kph
Tmin: 173.5 ms
CFC 180

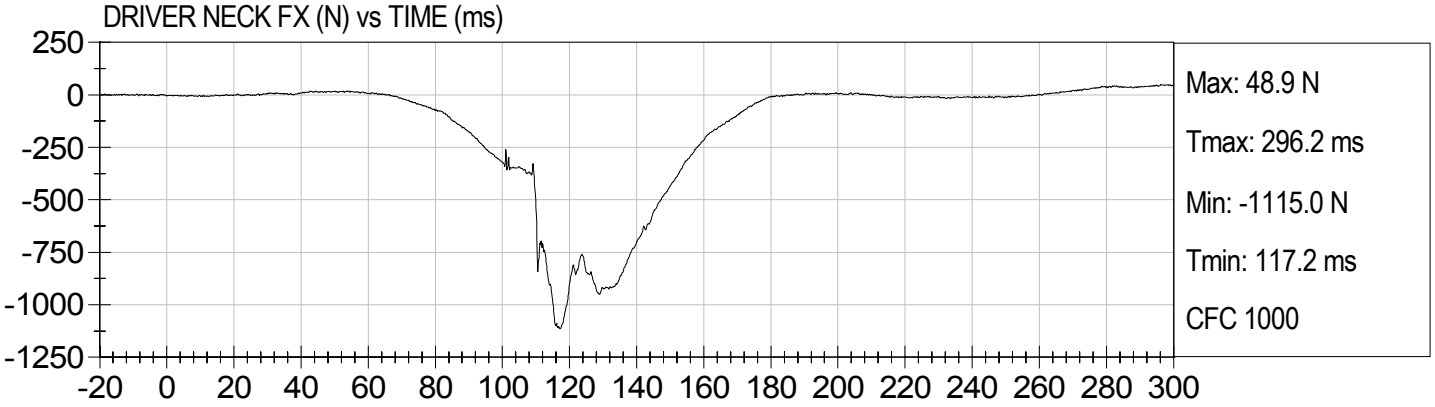

DRIVER HEAD Y Velocity (kph) vs TIME (ms)
8
6
4
2
0
-2
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 7.9 kph
Tmax: 300.0 ms
Min: -1.9 kph
Tmin: 140.5 ms
CFC 180


DRIVER HEAD Z Velocity (kph) vs TIME (ms)
40
35
30
25
20
15
10
5
0
-5
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 37.6 kph
Tmax: 300.0 ms
Min: -0.8 kph
Tmin: 63.5 ms
CFC 180

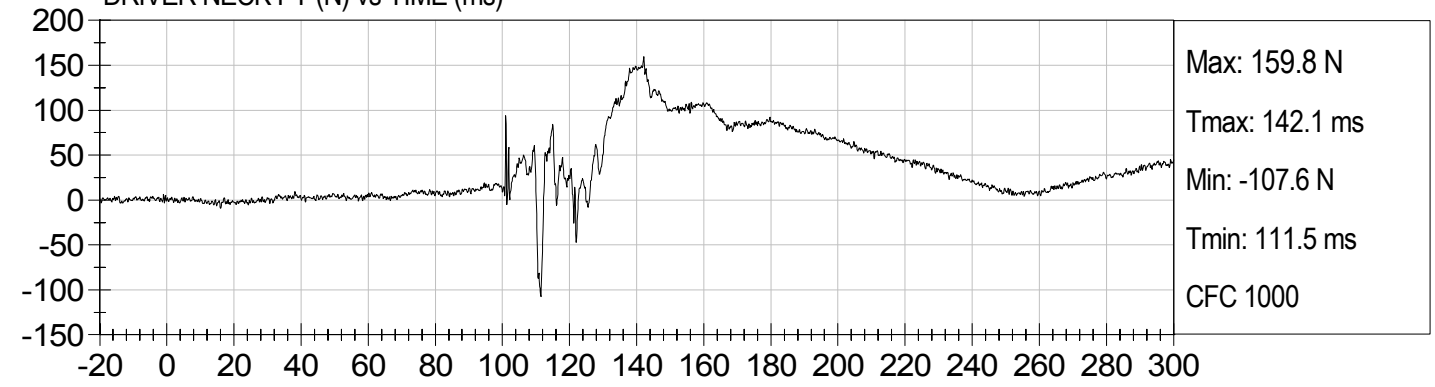
25 MPH LH 40% ODB BELTED
2005 DODGE CARAVAN (C50311)

Test Date: 09/13/2006
Speed: 24.8 mph (39.9 km/h)

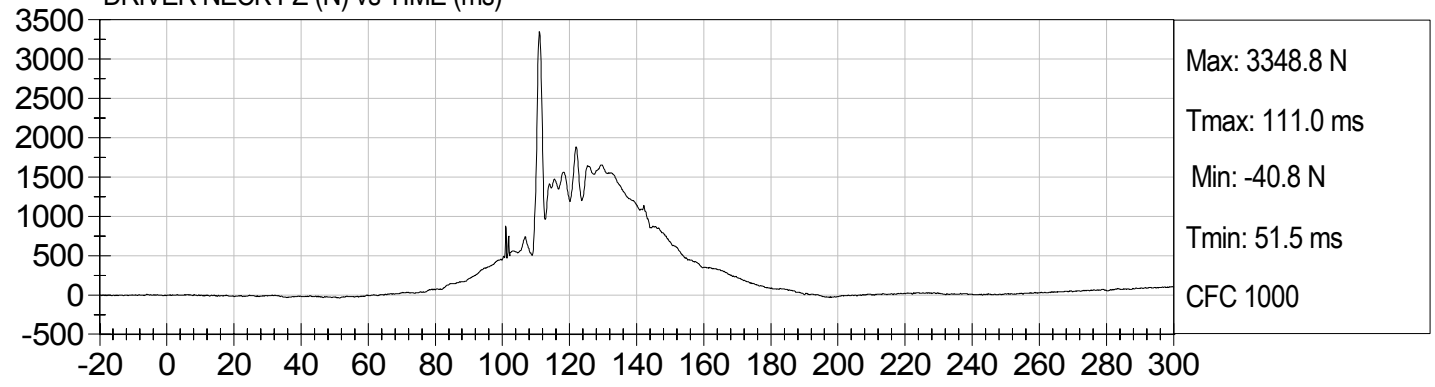
DRIVER NECK FX (N) vs TIME (ms)



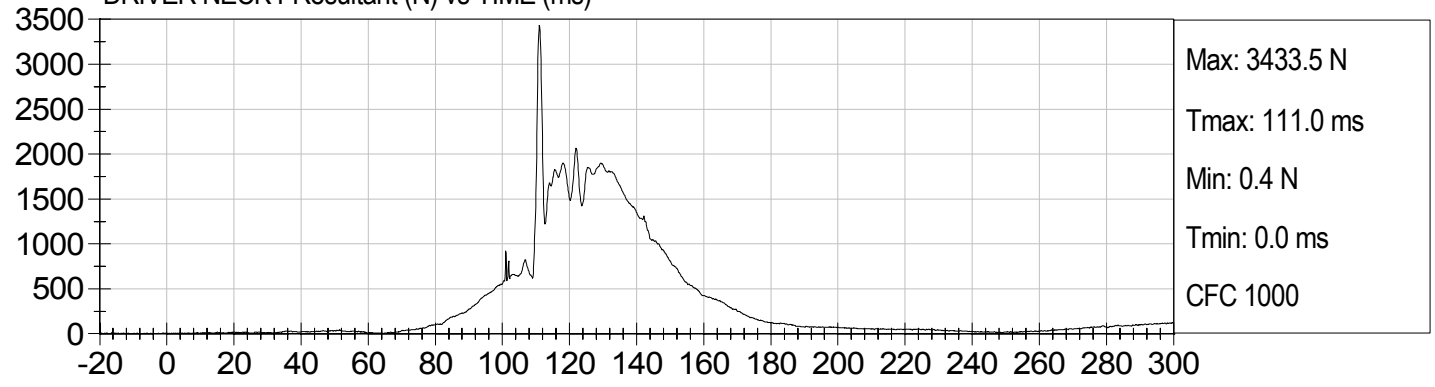
DRIVER NECK FY (N) vs TIME (ms)



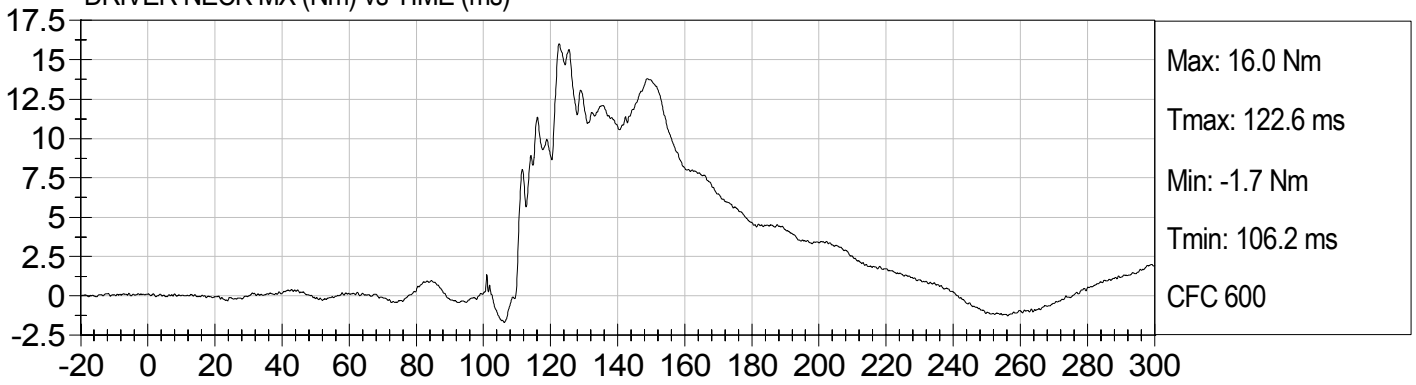
DRIVER NECK FZ (N) vs TIME (ms)



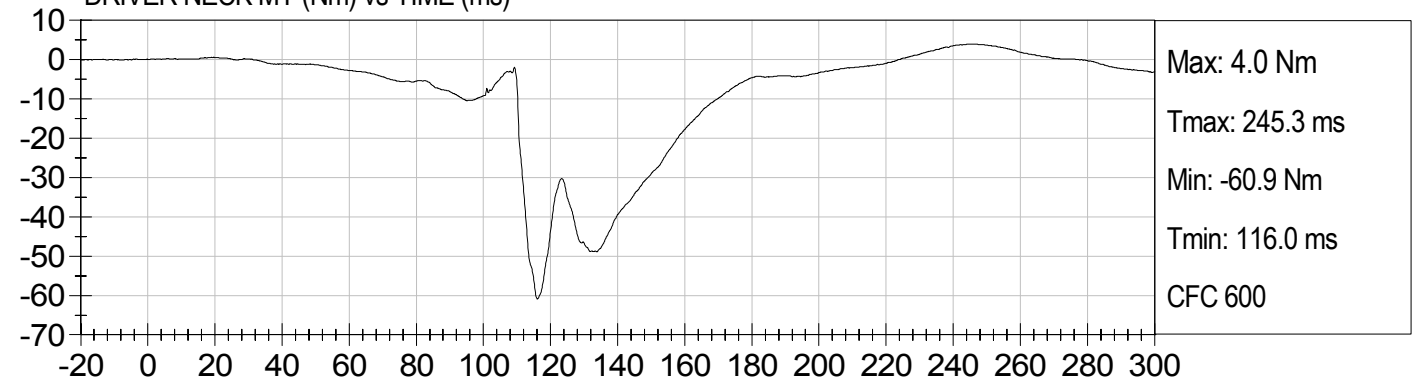
DRIVER NECK FResultant (N) vs TIME (ms)



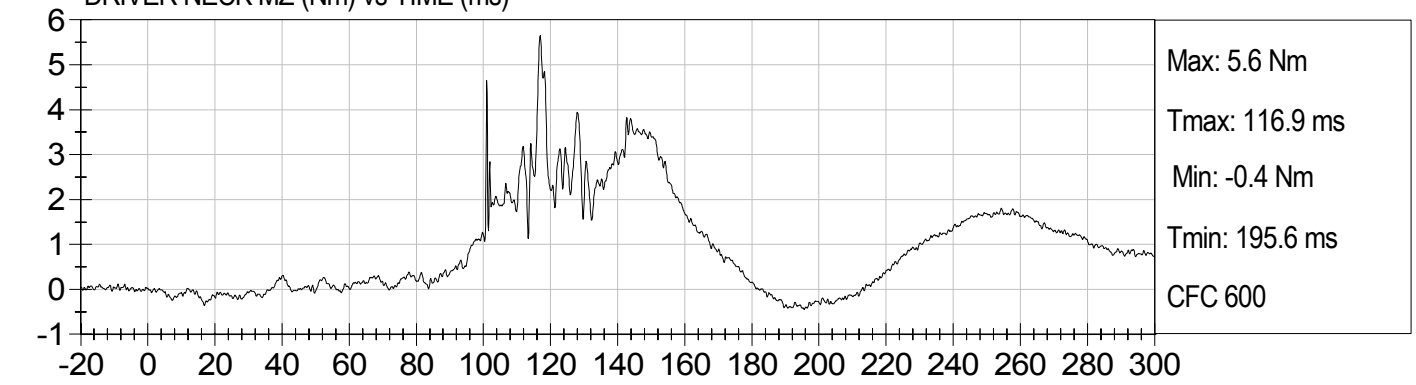
DRIVER NECK MX (Nm) vs TIME (ms)



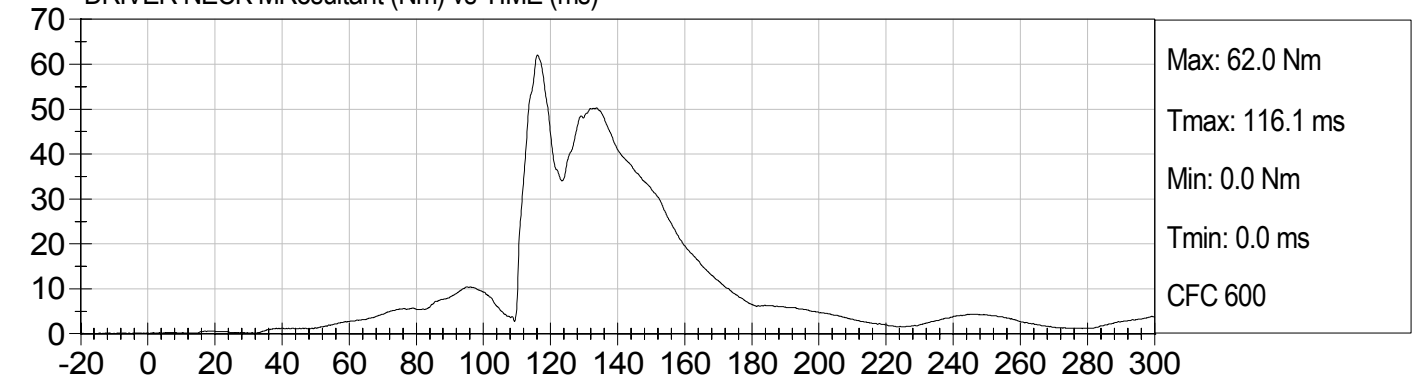
DRIVER NECK MY (Nm) vs TIME (ms)



DRIVER NECK MZ (Nm) vs TIME (ms)



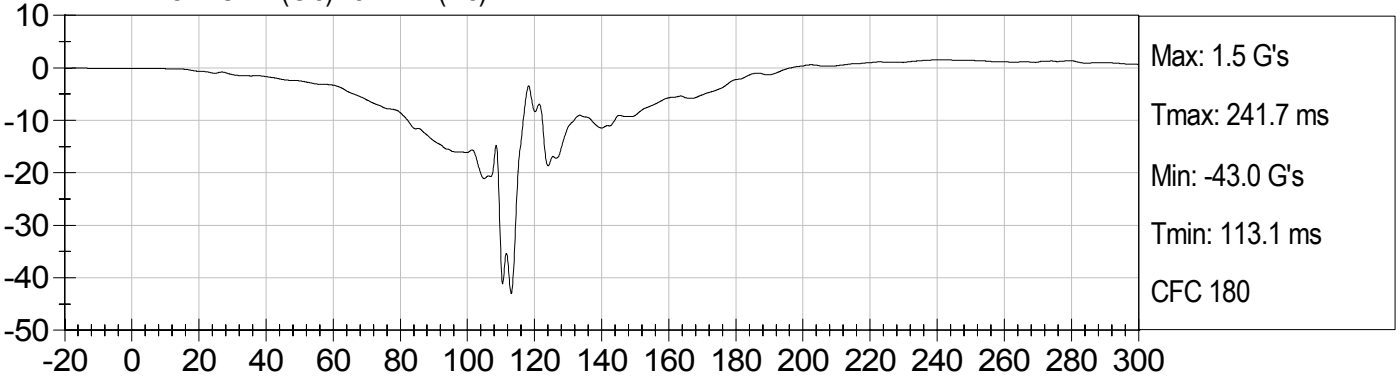
DRIVER NECK MResultant (Nm) vs TIME (ms)



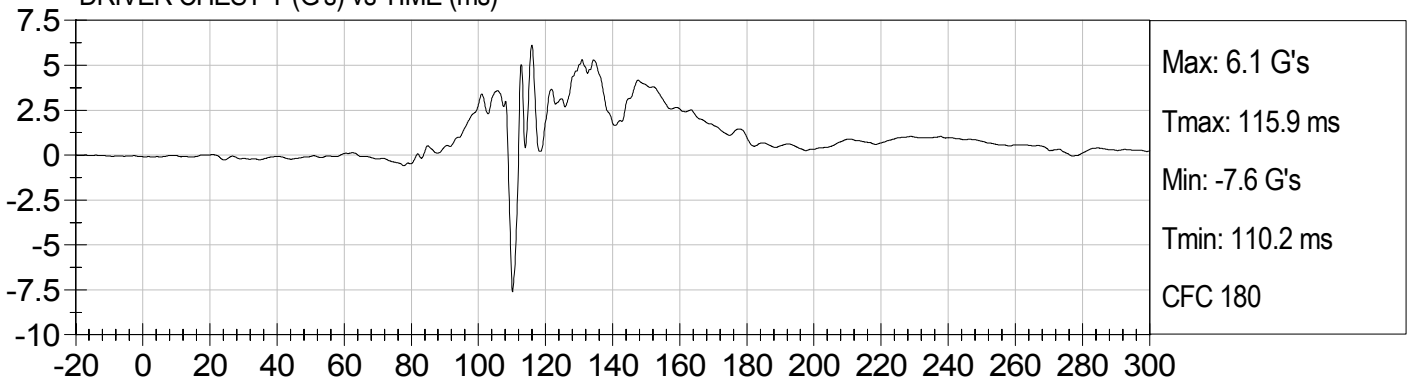
25 MPH LH 40% ODB BELTED
2005 DODGE CARAVAN (C50311)

Test Date: 09/13/2006
Speed: 24.8 mph (39.9 km/h)

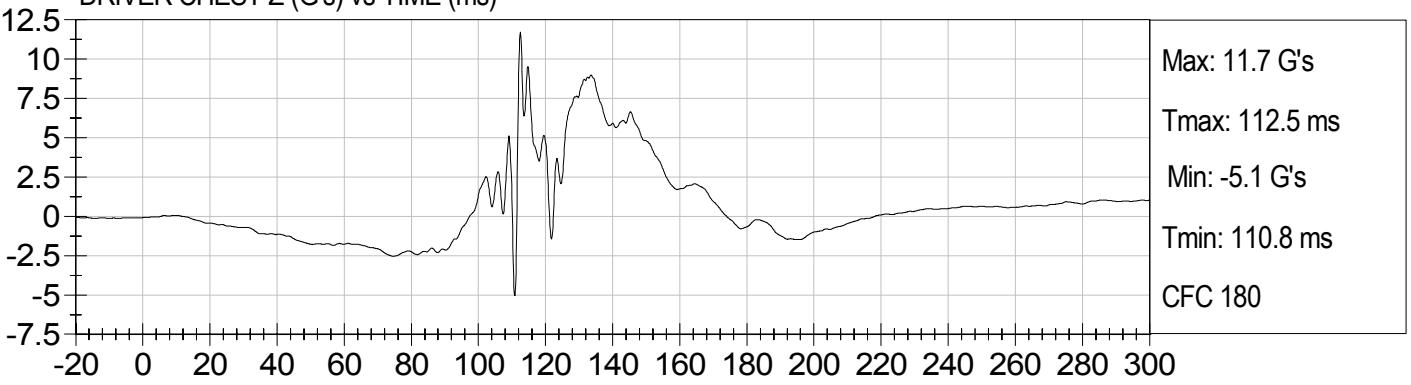
DRIVER CHEST X (G's) vs TIME (ms)



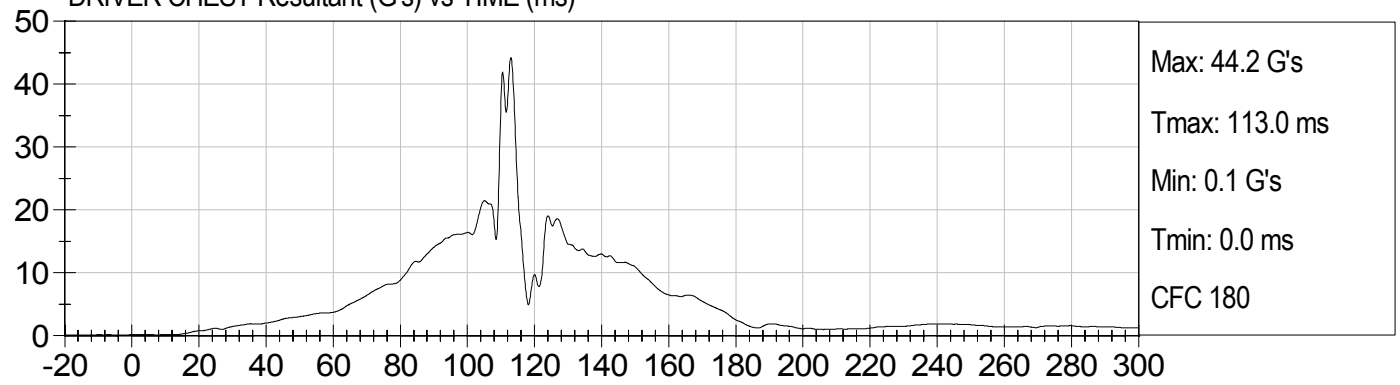
DRIVER CHEST Y (G's) vs TIME (ms)



DRIVER CHEST Z (G's) vs TIME (ms)



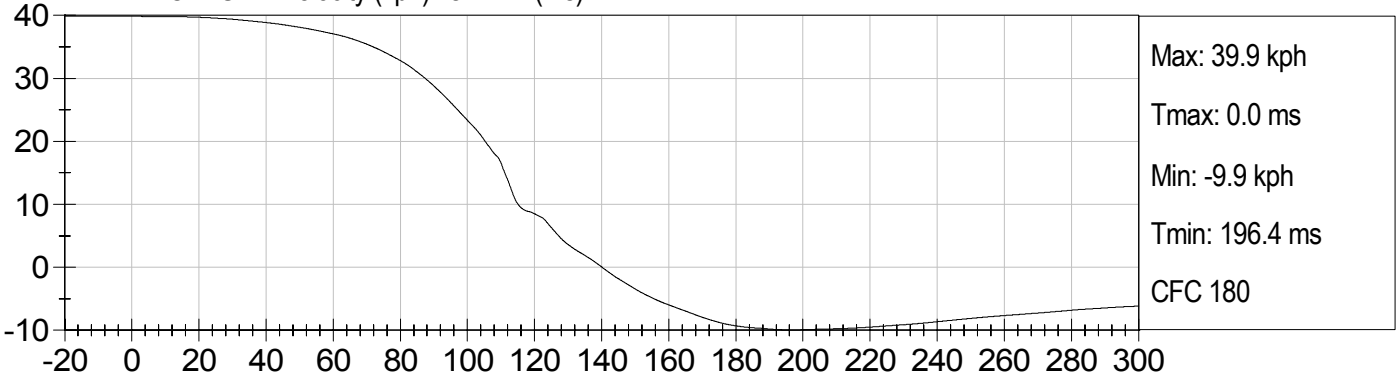
DRIVER CHEST Resultant (G's) vs TIME (ms)



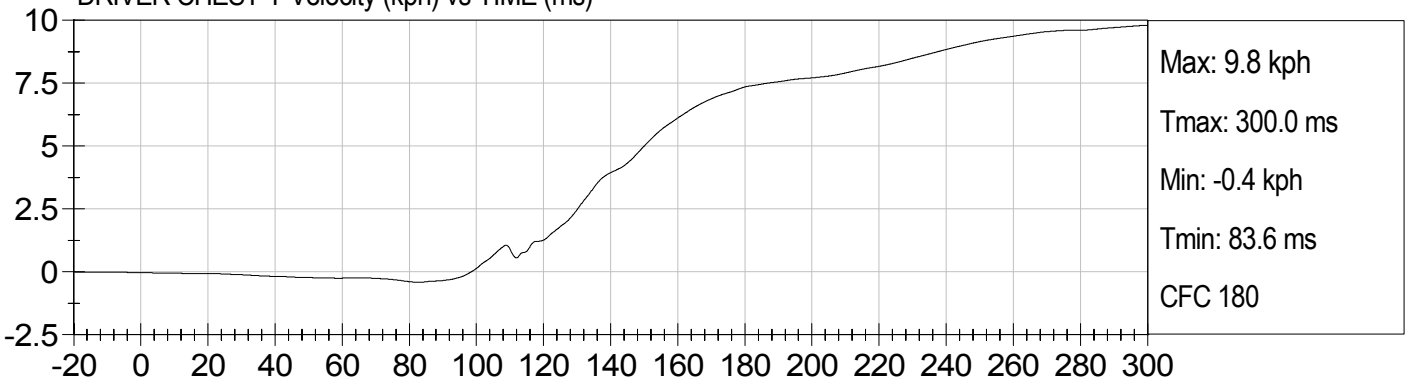
25 MPH LH 40% ODB BELTED
2005 DODGE CARAVAN (C50311)

Test Date: 09/13/2006
Speed: 24.8 mph (39.9 km/h)

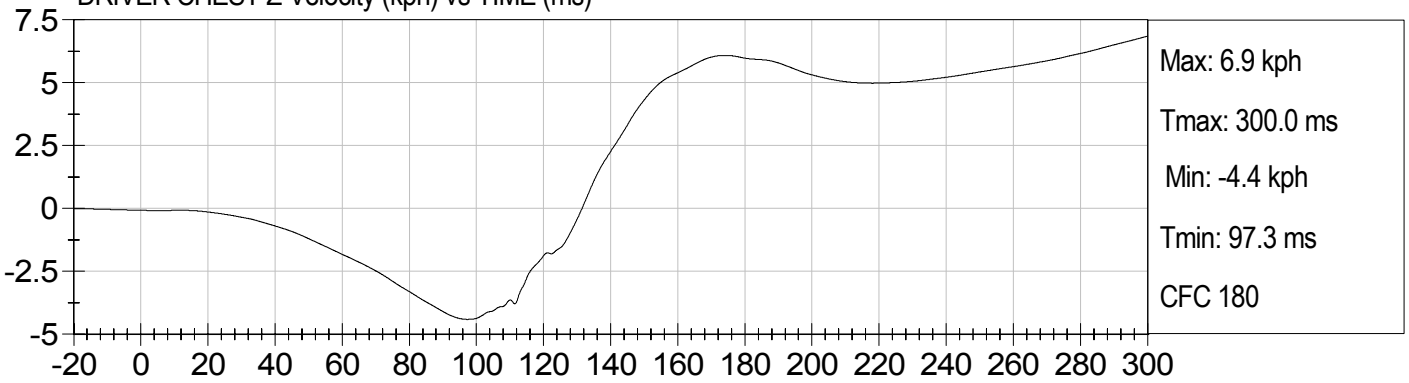
DRIVER CHEST X Velocity (kph) vs TIME (ms)



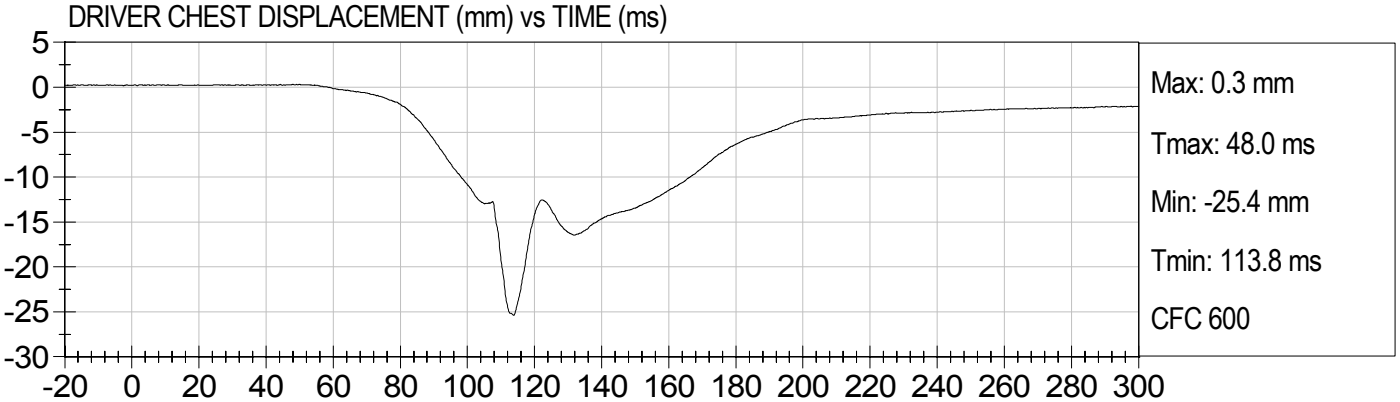
DRIVER CHEST Y Velocity (kph) vs TIME (ms)



DRIVER CHEST Z Velocity (kph) vs TIME (ms)

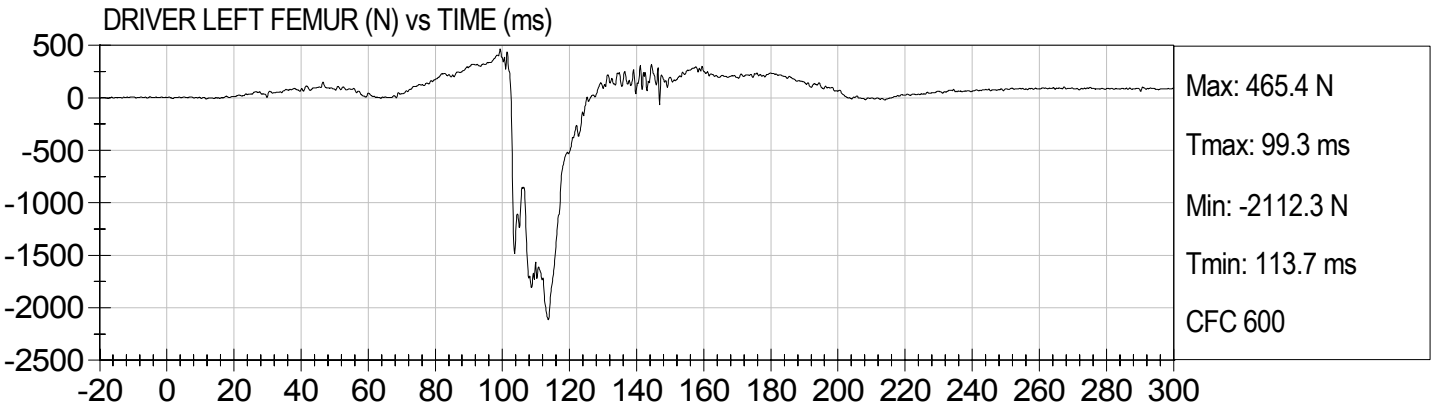


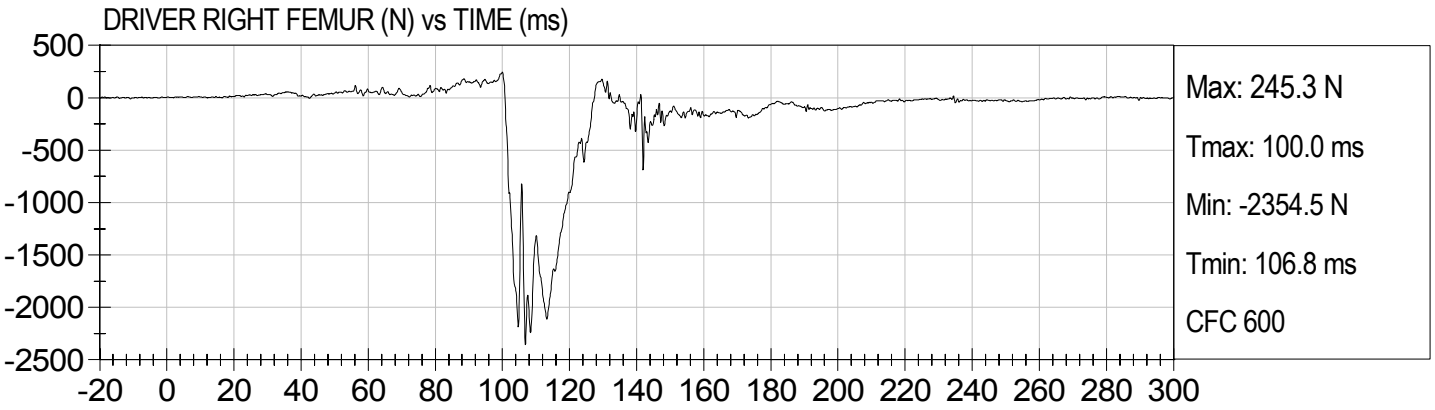
DRIVER CHEST DISPLACEMENT (mm) vs TIME (ms)



25 MPH LH 40% ODB BELTED
2005 DODGE CARAVAN (C50311)

Test Date: 09/13/2006
Speed: 24.8 mph (39.9 km/h)

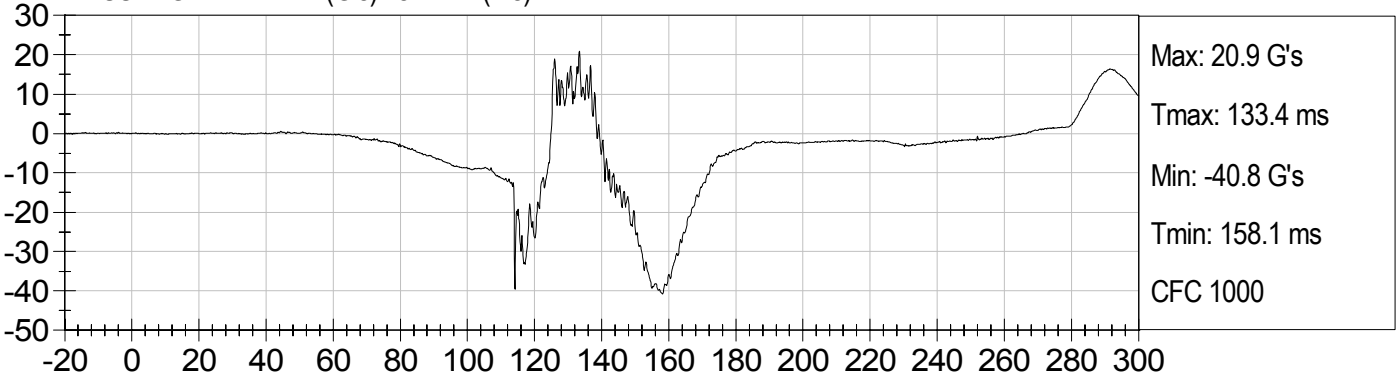




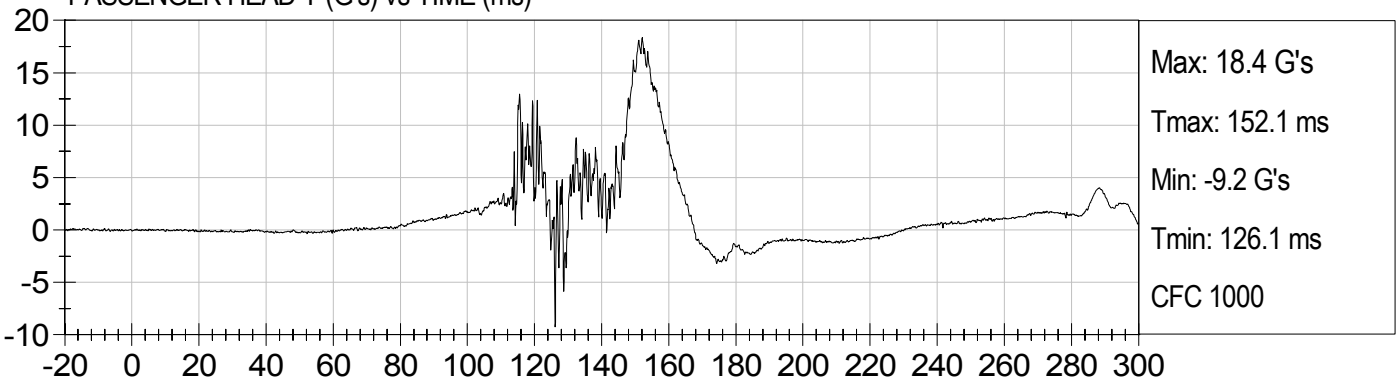
25 MPH LH 40% ODB BELTED
2005 DODGE CARAVAN (C50311)

Test Date: 09/13/2006
Speed: 24.8 mph (39.9 km/h)

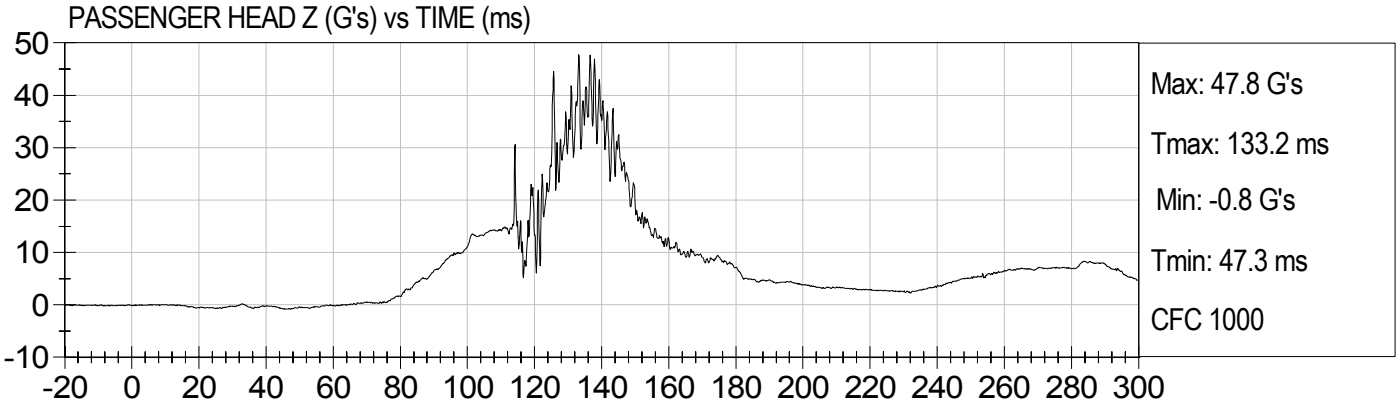
PASSENGER HEAD X (G's) vs TIME (ms)



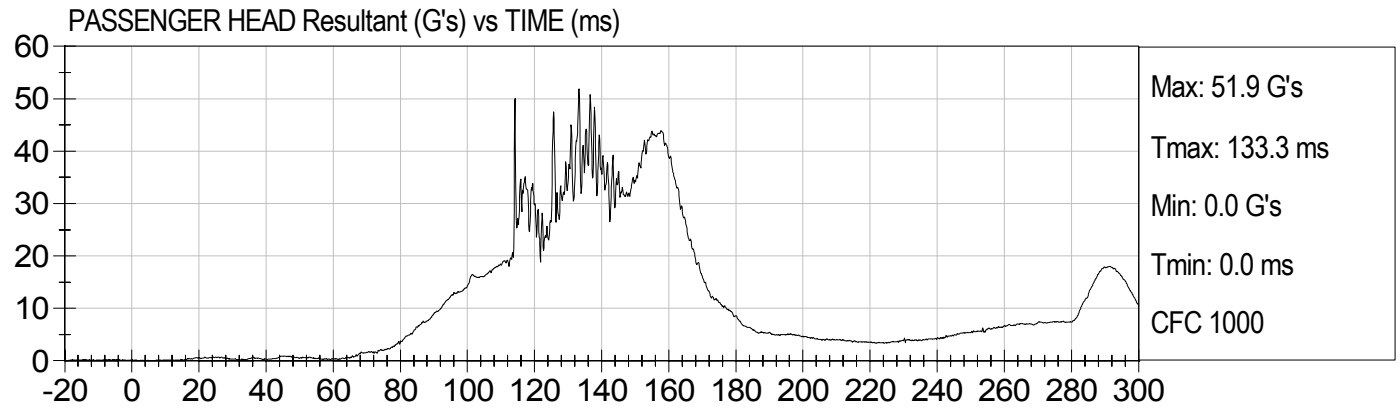
PASSENGER HEAD Y (G's) vs TIME (ms)

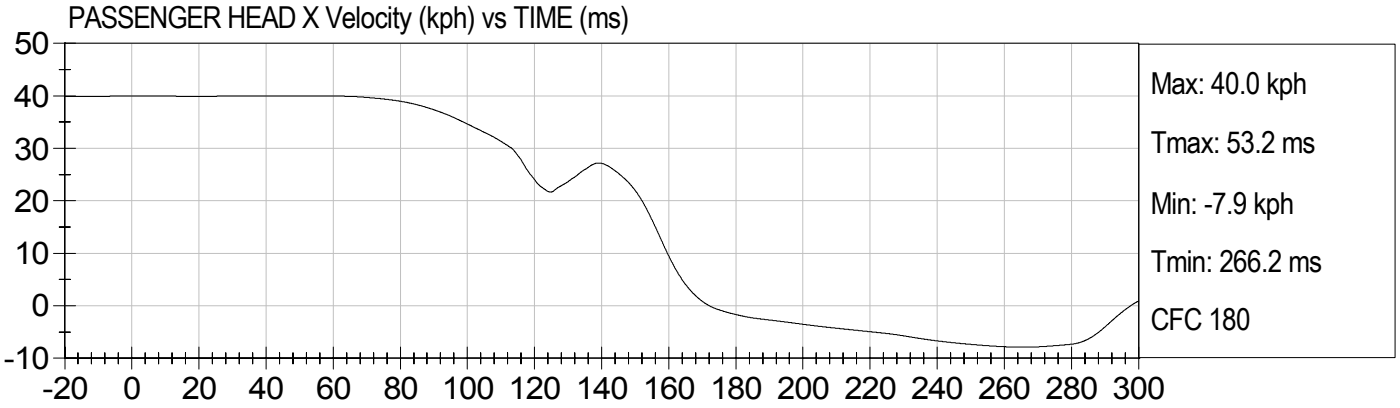


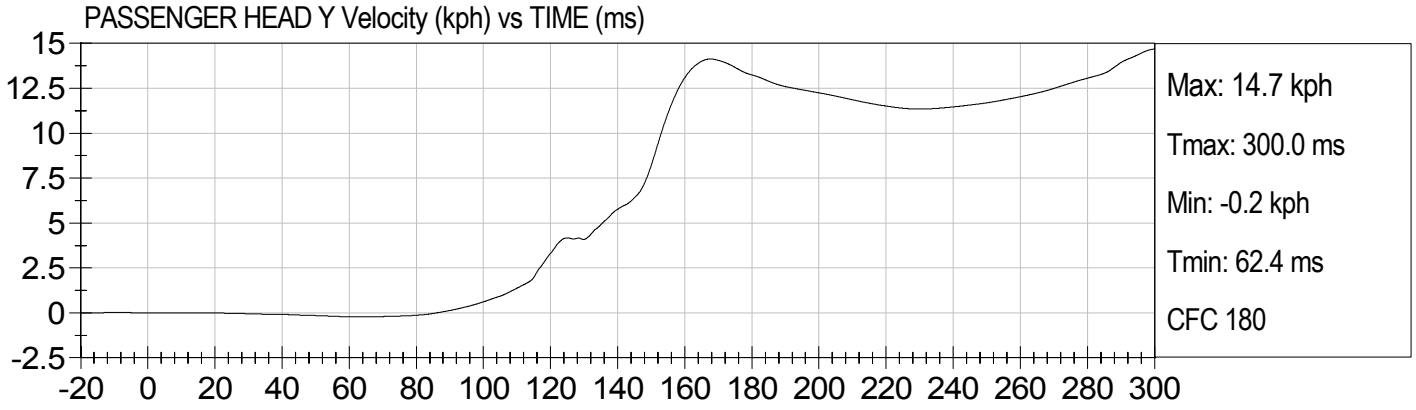
PASSENGER HEAD Z (G's) vs TIME (ms)

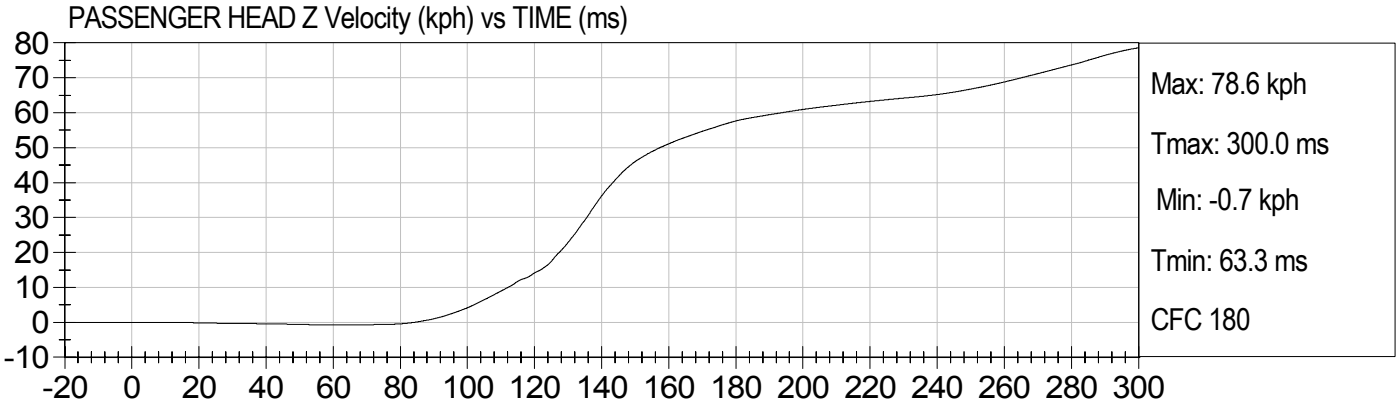


PASSENGER HEAD Resultant (G's) vs TIME (ms)




PASSENGER HEAD X Velocity (kph) vs TIME (ms)
50
40
30
20
10
0
-10
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 40.0 kph
Tmax: 53.2 ms
Min: -7.9 kph
Tmin: 266.2 ms
CFC 180

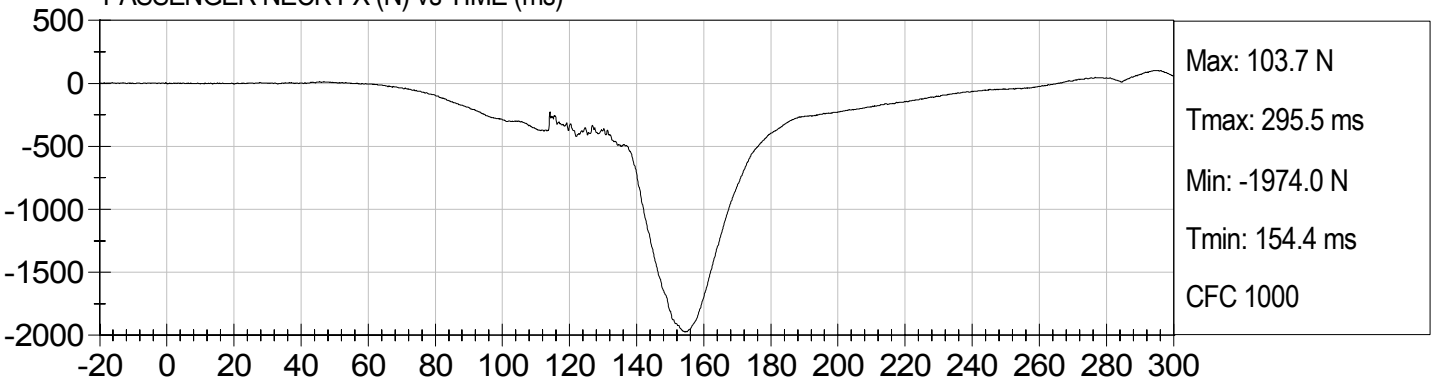

PASSENGER HEAD Y Velocity (kph) vs TIME (ms)
15
12.5
10
7.5
5
2.5
0
-2.5
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 14.7 kph
Tmax: 300.0 ms
Min: -0.2 kph
Tmin: 62.4 ms
CFC 180


PASSENGER HEAD Z Velocity (kph) vs TIME (ms)
80
70
60
50
40
30
20
10
0
-10
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 78.6 kph
Tmax: 300.0 ms
Min: -0.7 kph
Tmin: 63.3 ms
CFC 180

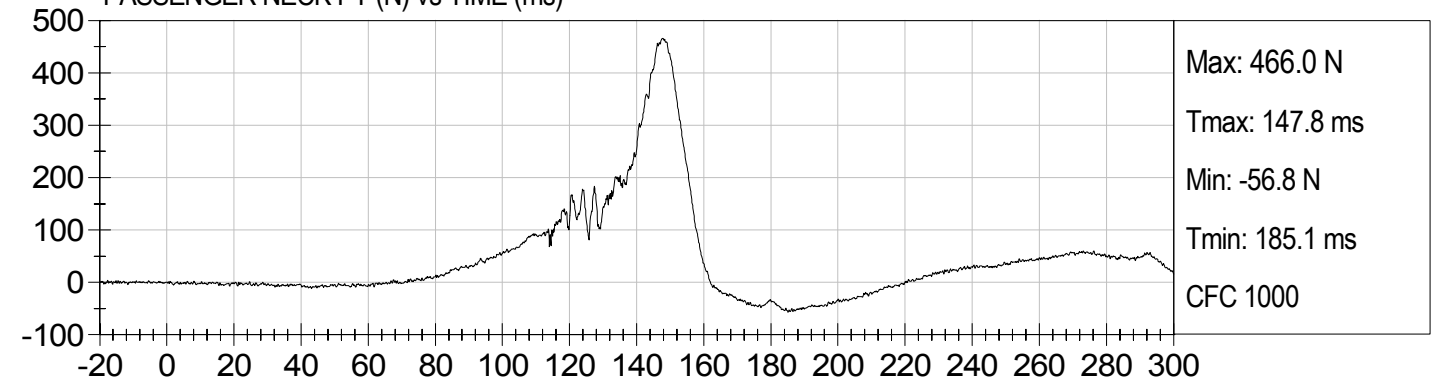
25 MPH LH 40% ODB BELTED
2005 DODGE CARAVAN (C50311)

Test Date: 09/13/2006
Speed: 24.8 mph (39.9 km/h)

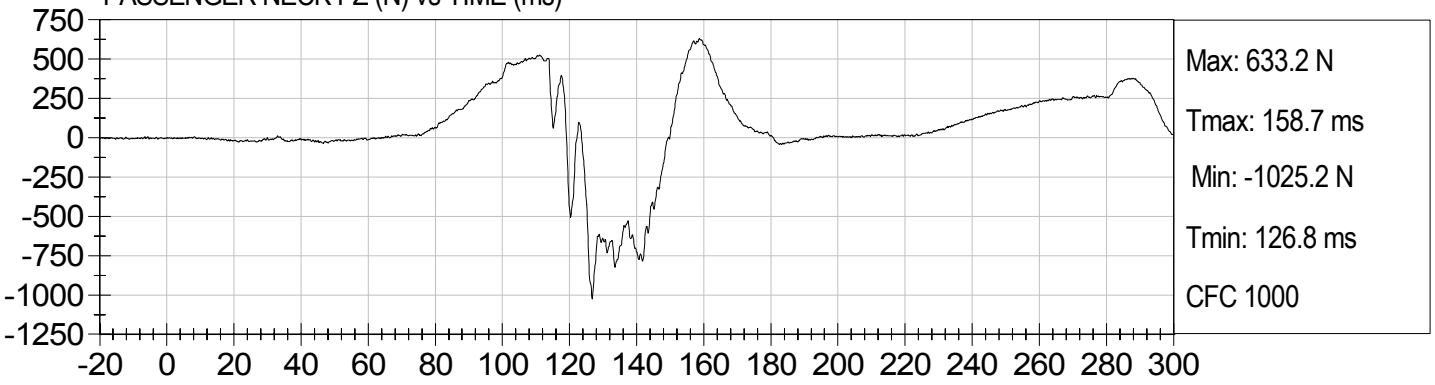
PASSENGER NECK FX (N) vs TIME (ms)



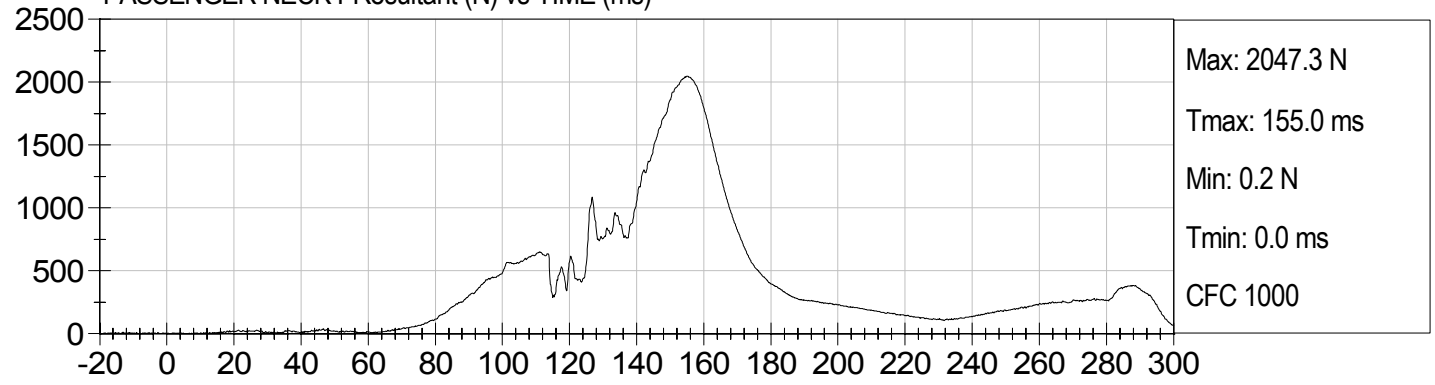
PASSENGER NECK FY (N) vs TIME (ms)



PASSENGER NECK FZ (N) vs TIME (ms)



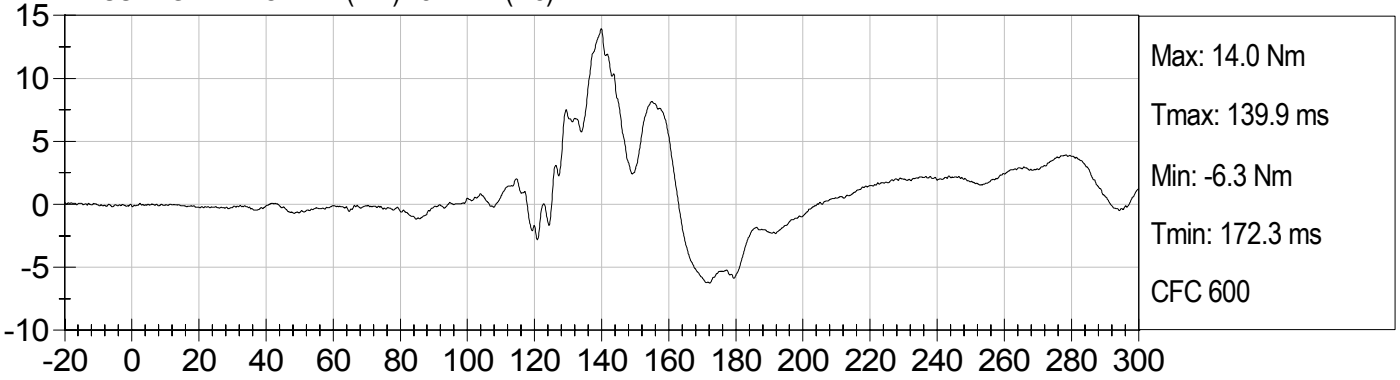
PASSENGER NECK FResultant (N) vs TIME (ms)



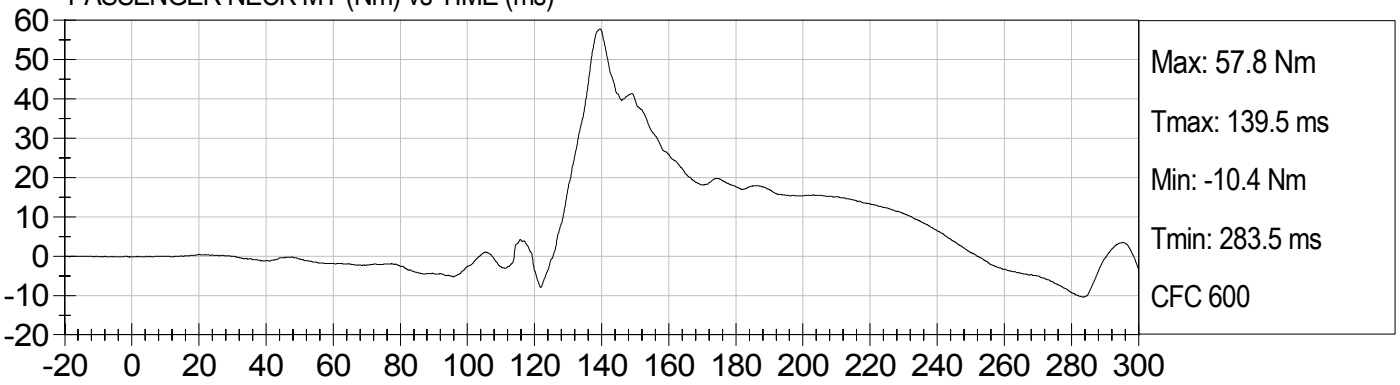
25 MPH LH 40% ODB BELTED
2005 DODGE CARAVAN (C50311)

Test Date: 09/13/2006
Speed: 24.8 mph (39.9 km/h)

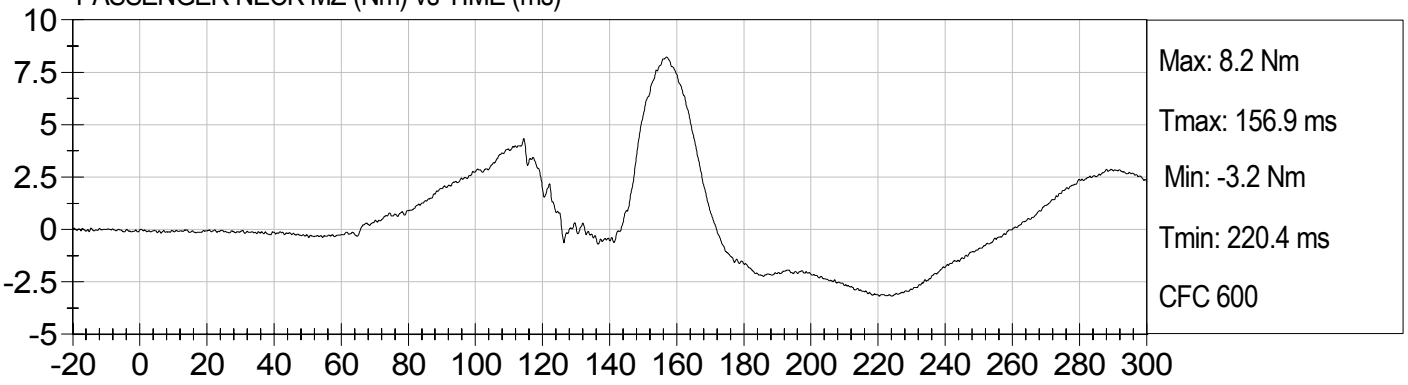
PASSENGER NECK MX (Nm) vs TIME (ms)



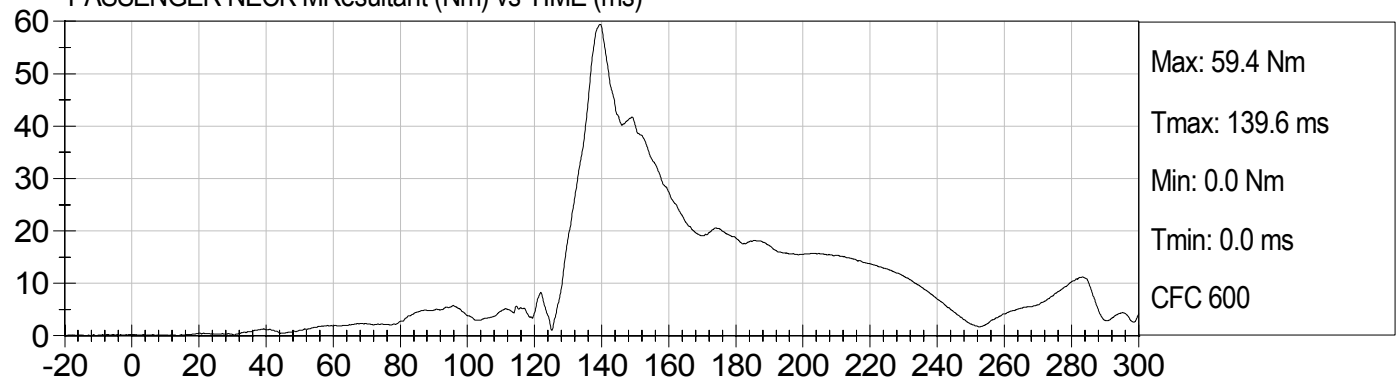
PASSENGER NECK MY (Nm) vs TIME (ms)



PASSENGER NECK MZ (Nm) vs TIME (ms)

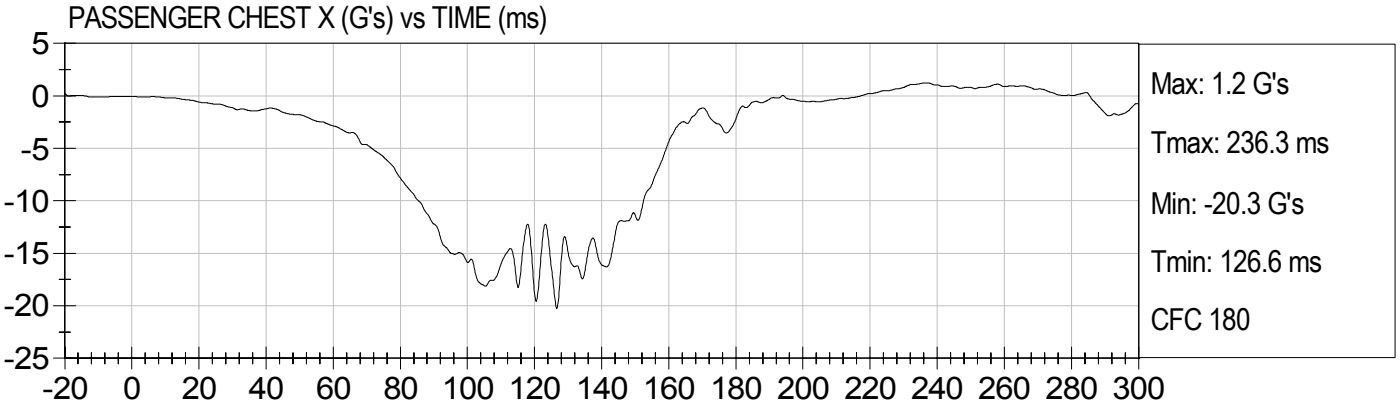


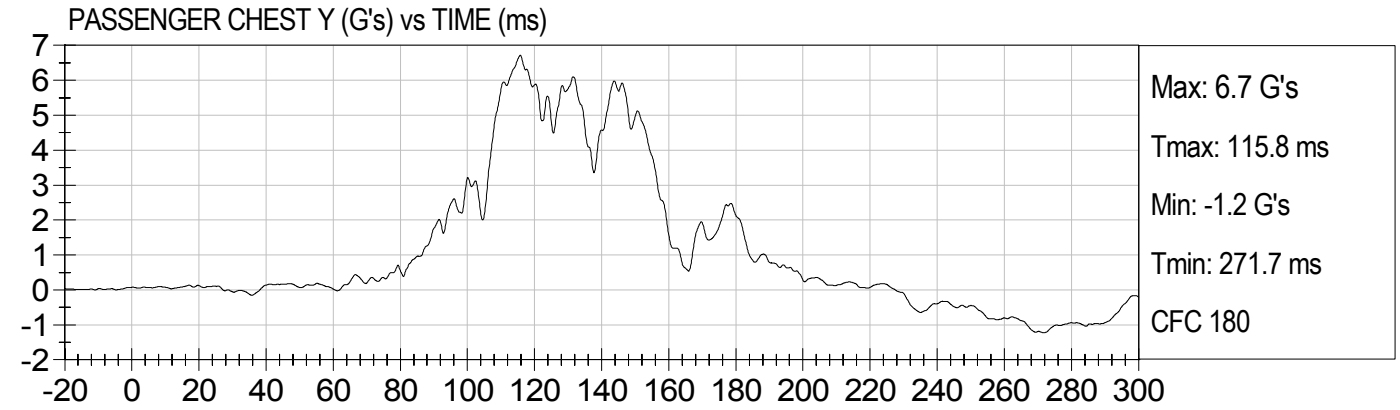
PASSENGER NECK MResultant (Nm) vs TIME (ms)

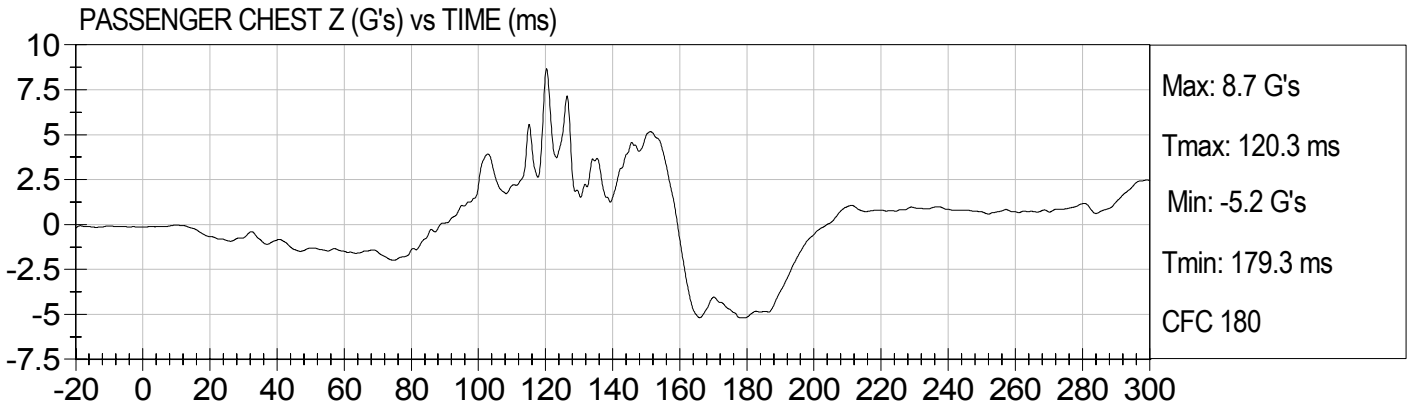


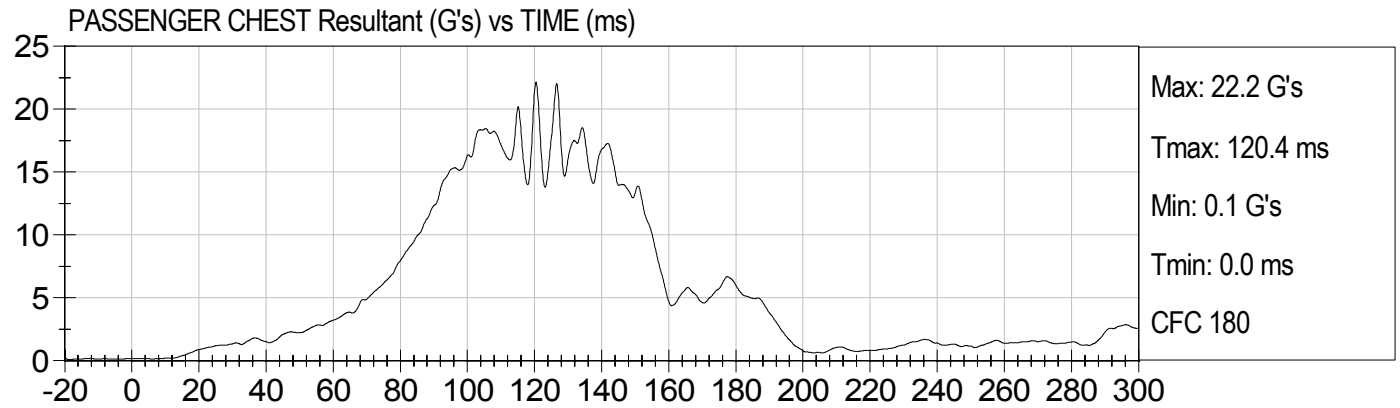
25 MPH LH 40% ODB BELTED
2005 DODGE CARAVAN (C50311)

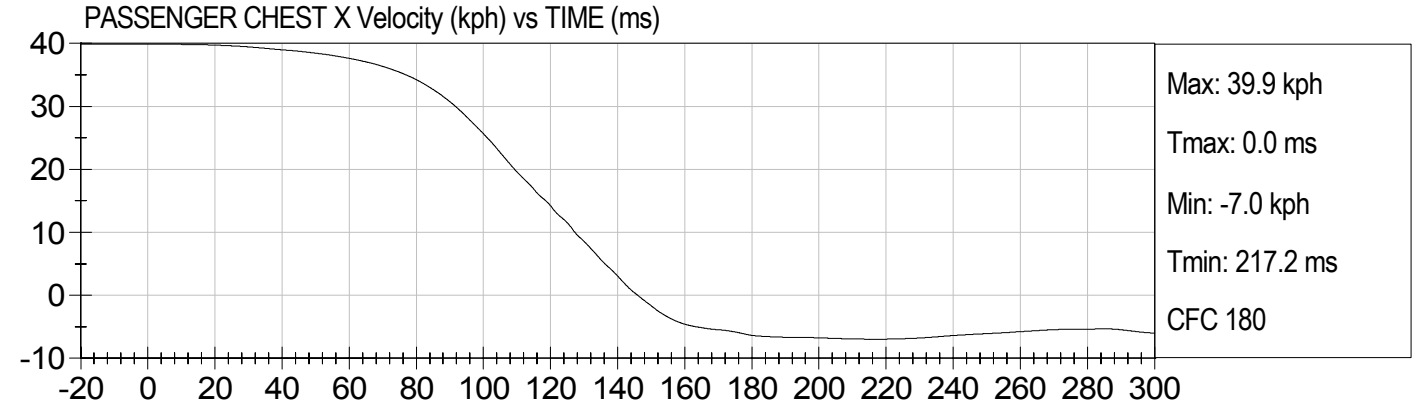
Test Date: 09/13/2006
Speed: 24.8 mph (39.9 km/h)

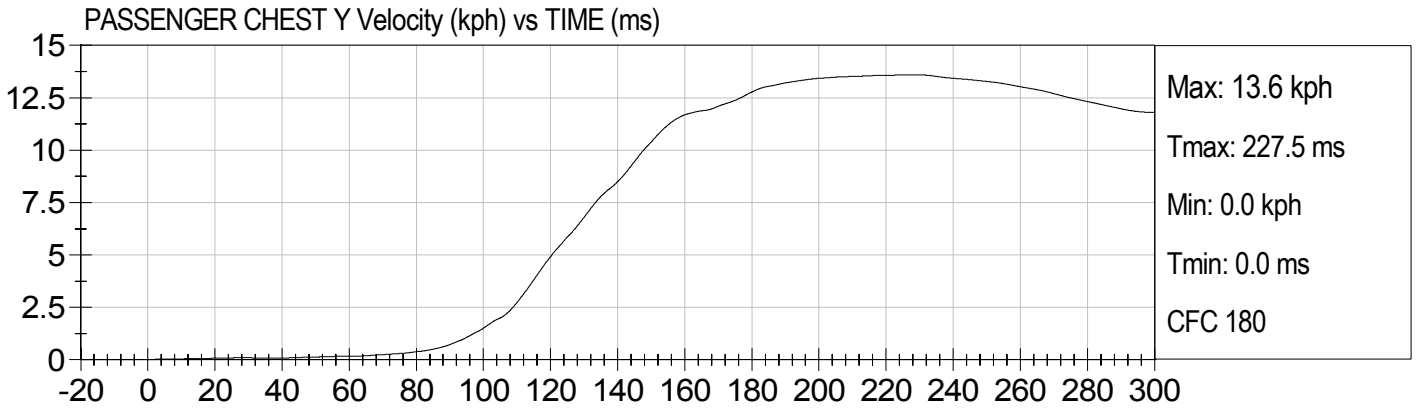


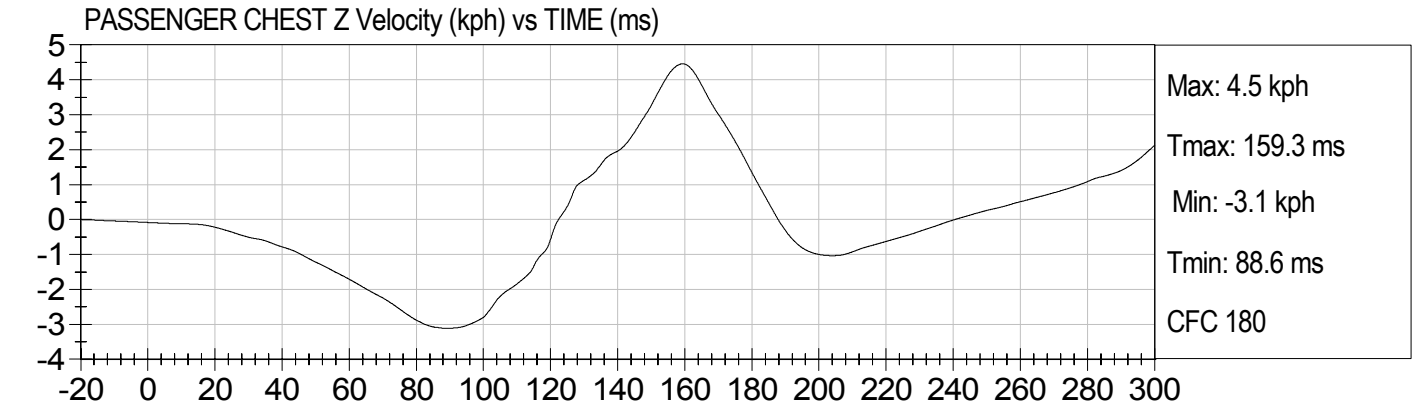


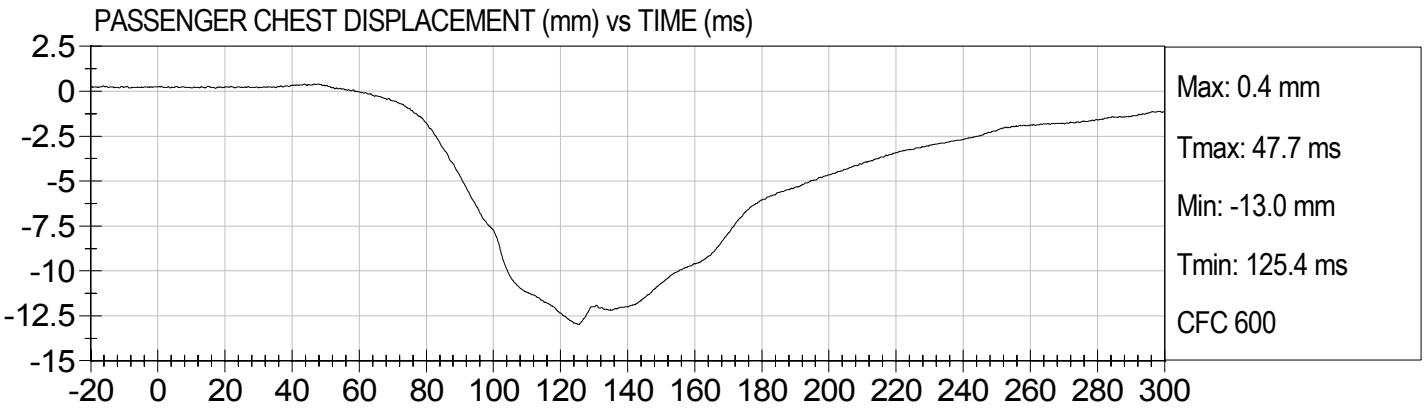


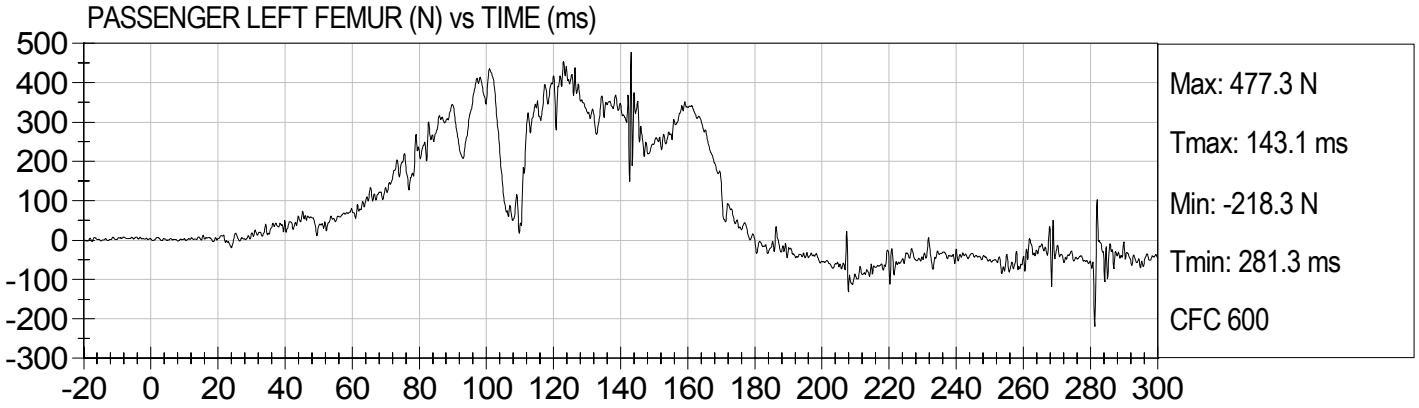


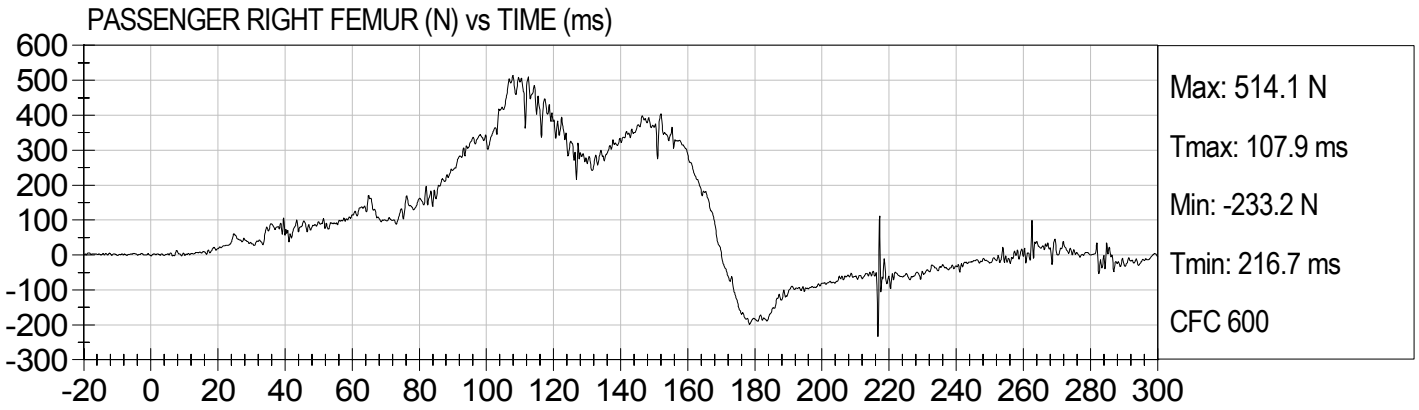

PASSENGER CHEST X Velocity (kph) vs TIME (ms)
40
30
20
10
0
-10
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 39.9 kph
Tmax: 0.0 ms
Min: -7.0 kph
Tmin: 217.2 ms
CFC 180

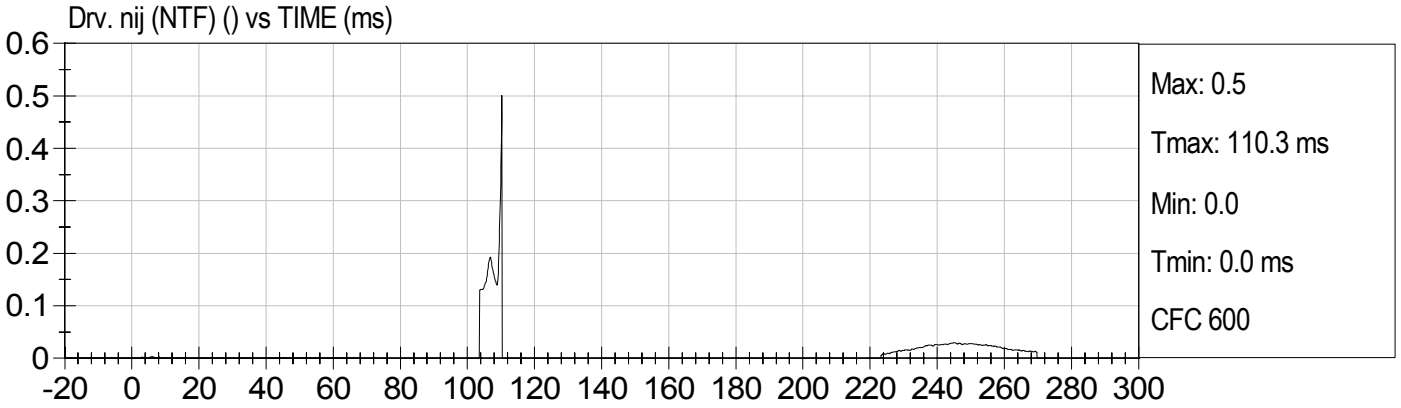

PASSENGER CHEST Y Velocity (kph) vs TIME (ms)
15
12.5
10
7.5
5
2.5
0
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 13.6 kph
Tmax: 227.5 ms
Min: 0.0 kph
Tmin: 0.0 ms
CFC 180

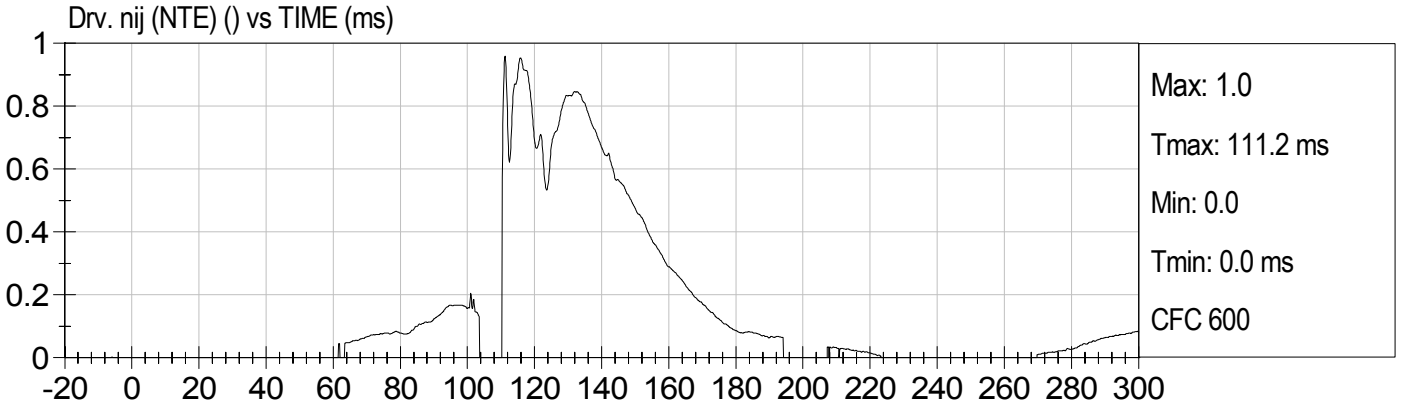

PASSENGER CHEST Z Velocity (kph) vs TIME (ms)
5
4
3
2
1
0
-1
-2
-3
-4
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 4.5 kph
Tmax: 159.3 ms
Min: -3.1 kph
Tmin: 88.6 ms
CFC 180

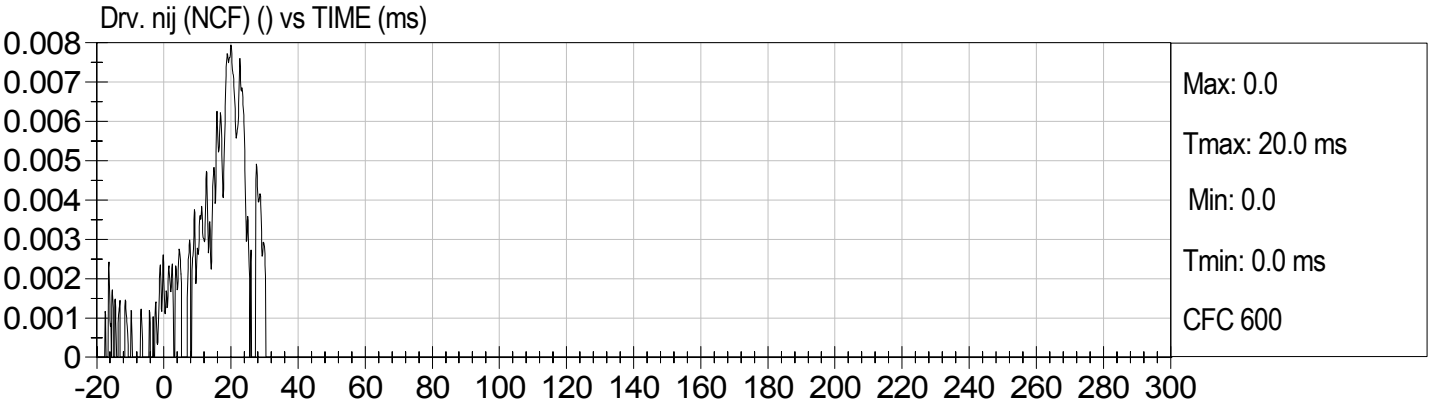

PASSENGER CHEST DISPLACEMENT (mm) vs TIME (ms)
2.5
0
-2.5
-5
-7.5
-10
-12.5
-15
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.4 mm
Tmax: 47.7 ms
Min: -13.0 mm
Tmin: 125.4 ms
CFC 600

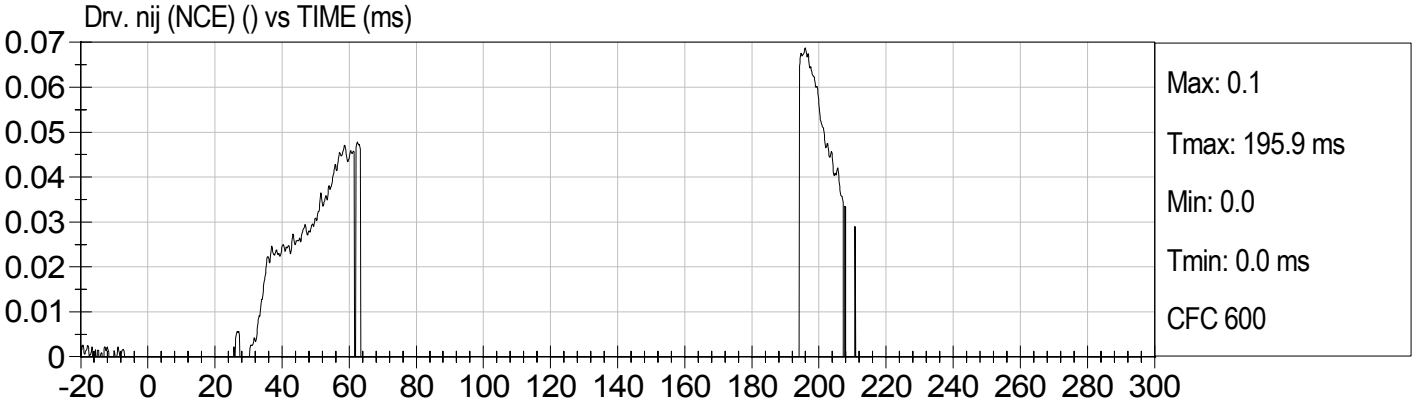

PASSENGER LEFT FEMUR (N) vs TIME (ms)
500
400
300
200
100
0
-100
-200
-300
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 477.3 N
Tmax: 143.1 ms
Min: -218.3 N
Tmin: 281.3 ms
CFC 600


PASSENGER RIGHT FEMUR (N) vs TIME (ms)
600
500
400
300
200
100
0
-100
-200
-300
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 514.1 N
Tmax: 107.9 ms
Min: -233.2 N
Tmin: 216.7 ms
CFC 600


Drv. nij (NTF) () vs TIME (ms)
0.6
0.5
0.4
0.3
0.2
0.1
0
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.5
Tmax: 110.3 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600

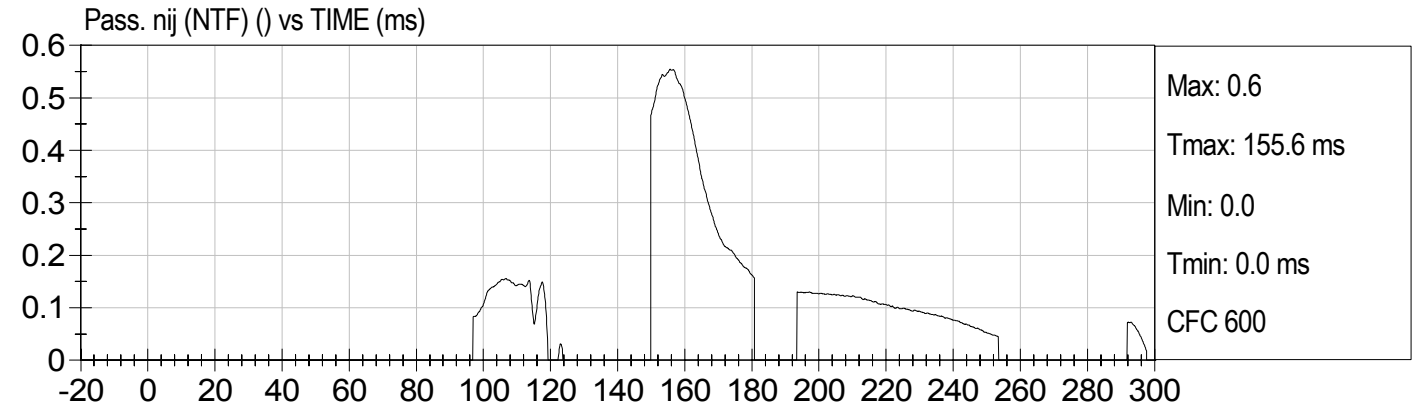

Drv. nij (NTE) () vs TIME (ms)
1
0.8
0.6
0.4
0.2
0
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 1.0
Tmax: 111.2 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600

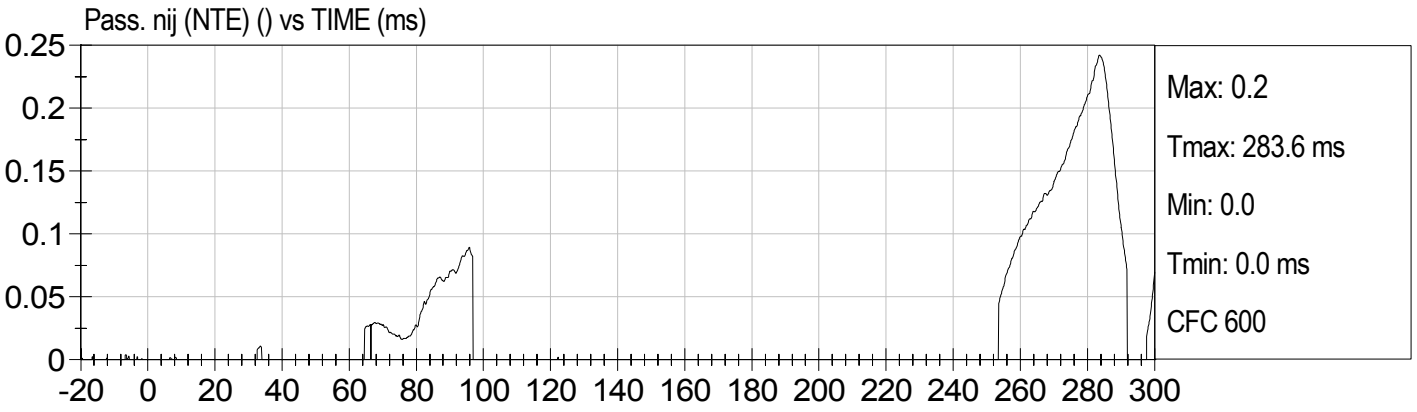

Drv. nij (NCF) () vs TIME (ms)
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.0
Tmax: 20.0 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600

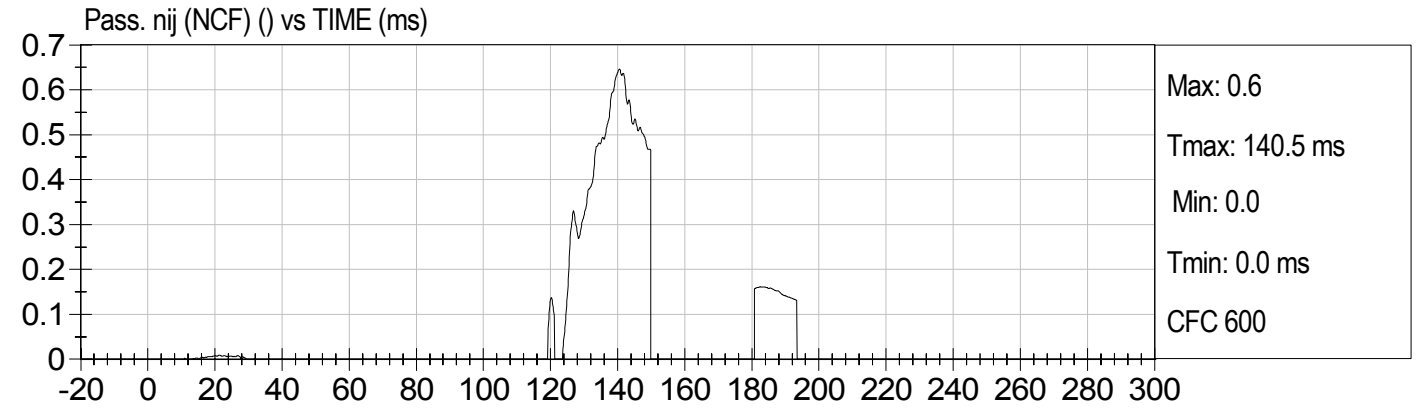

Drv. nij (NCE) () vs TIME (ms)
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.1
Tmax: 195.9 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600

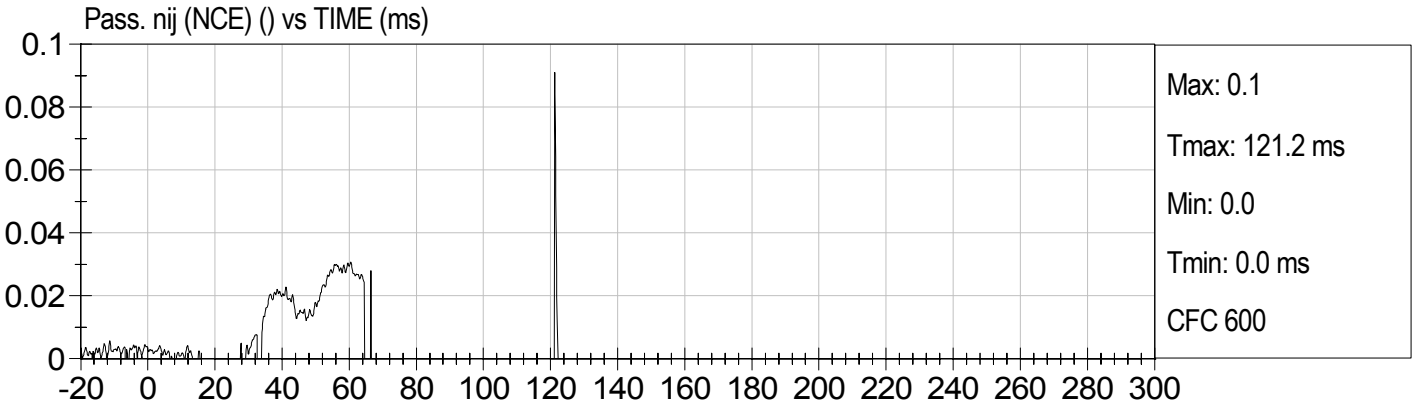
25 MPH LH 40% ODB BELTED
2005 DODGE CARAVAN (C50311)

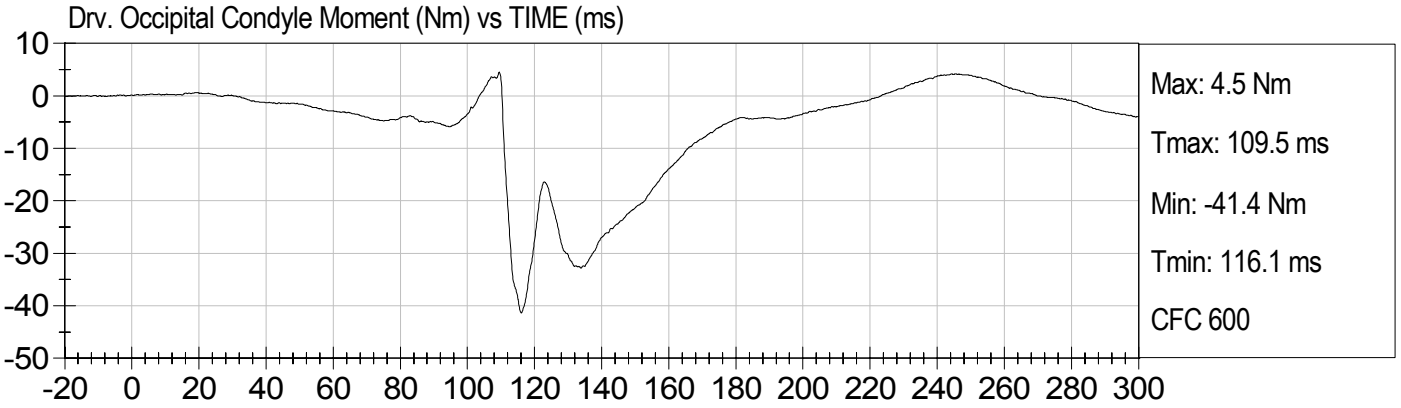
Test Date: 09/13/2006
Speed: 24.8 mph (39.9 km/h)

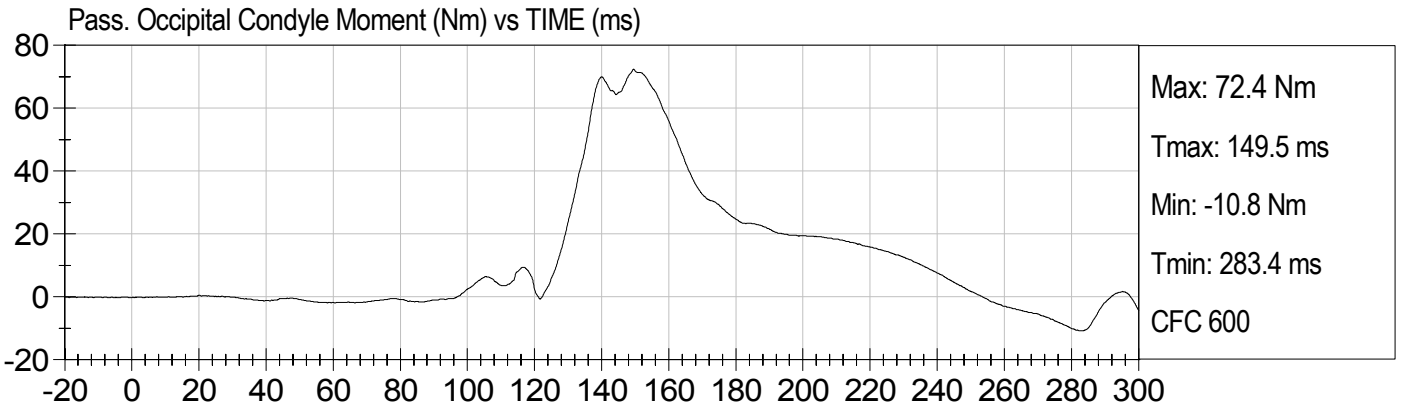








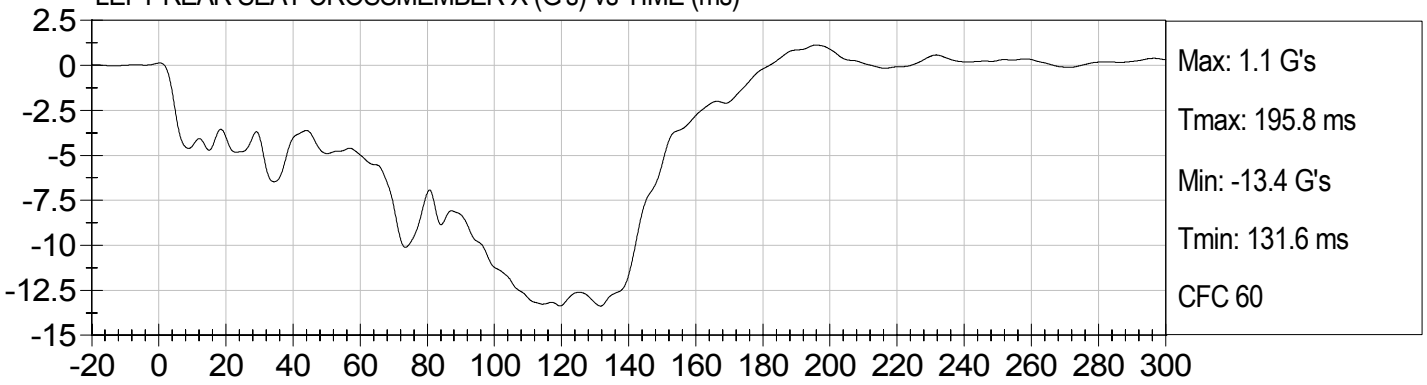

Drv. Occipital Condyle Moment (Nm) vs TIME (ms)
10
0
-10
-20
-30
-40
-50
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 4.5 Nm
Tmax: 109.5 ms
Min: -41.4 Nm
Tmin: 116.1 ms
CFC 600


Pass. Occipital Condyle Moment (Nm) vs TIME (ms)
80
60
40
20
0
-20
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 72.4 Nm
Tmax: 149.5 ms
Min: -10.8 Nm
Tmin: 283.4 ms
CFC 600

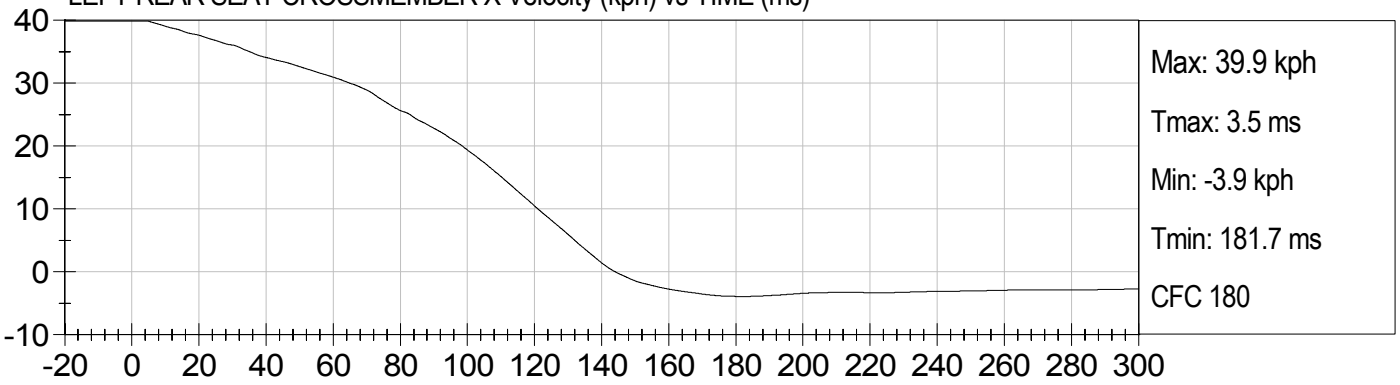
25 MPH LH 40% ODB BELTED
2005 DODGE CARAVAN (C50311)

Test Date: 09/13/2006
Speed: 24.8 mph (39.9 km/h)

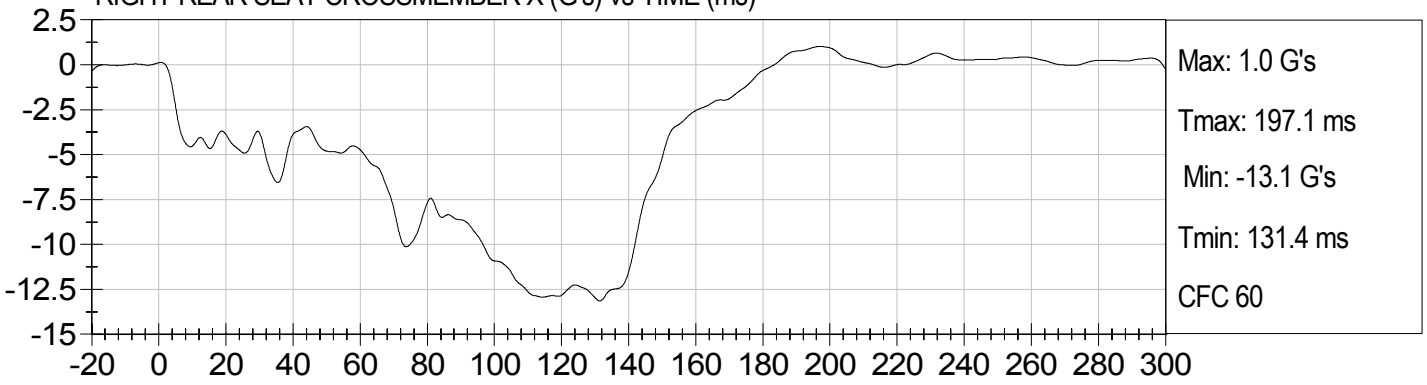
LEFT REAR SEAT CROSSMEMBER X (G's) vs TIME (ms)



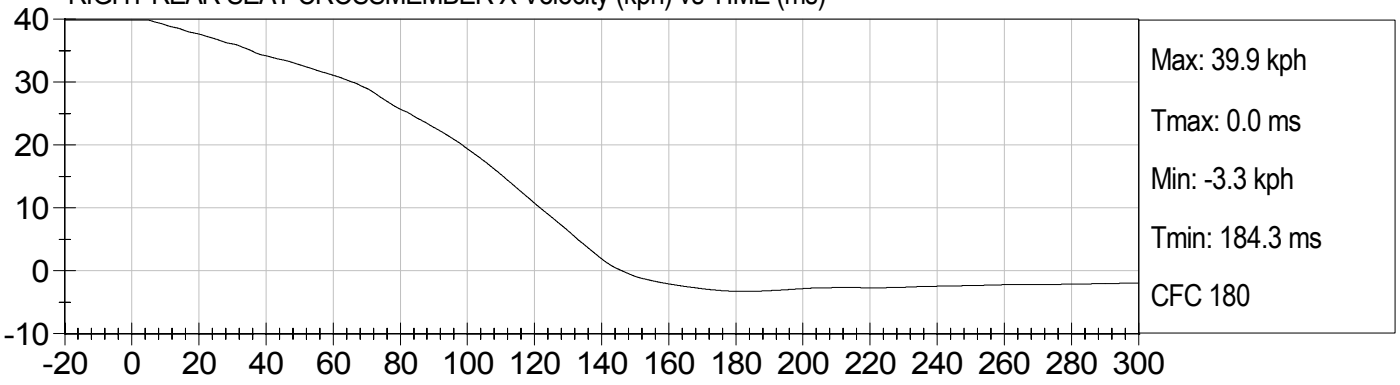
LEFT REAR SEAT CROSSMEMBER X Velocity (kph) vs TIME (ms)



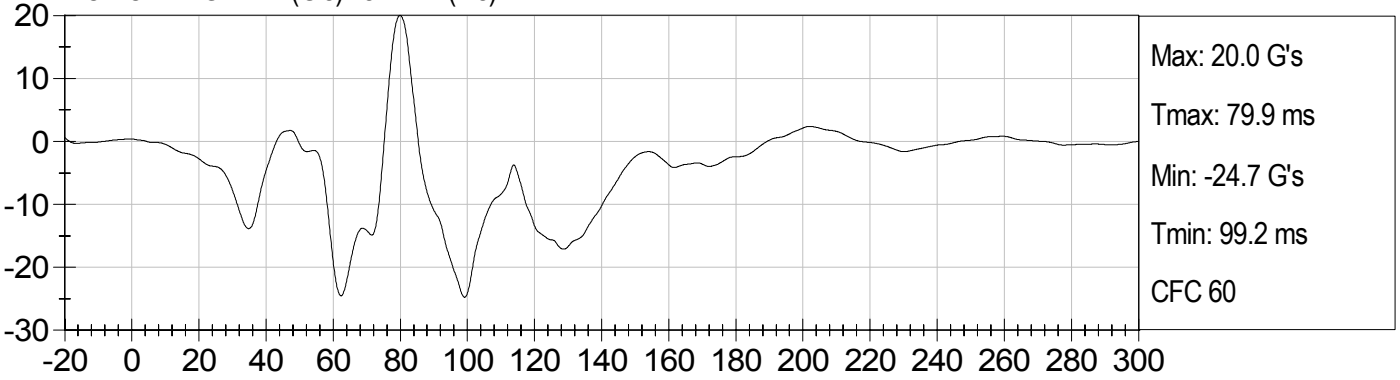
RIGHT REAR SEAT CROSSMEMBER X (G's) vs TIME (ms)



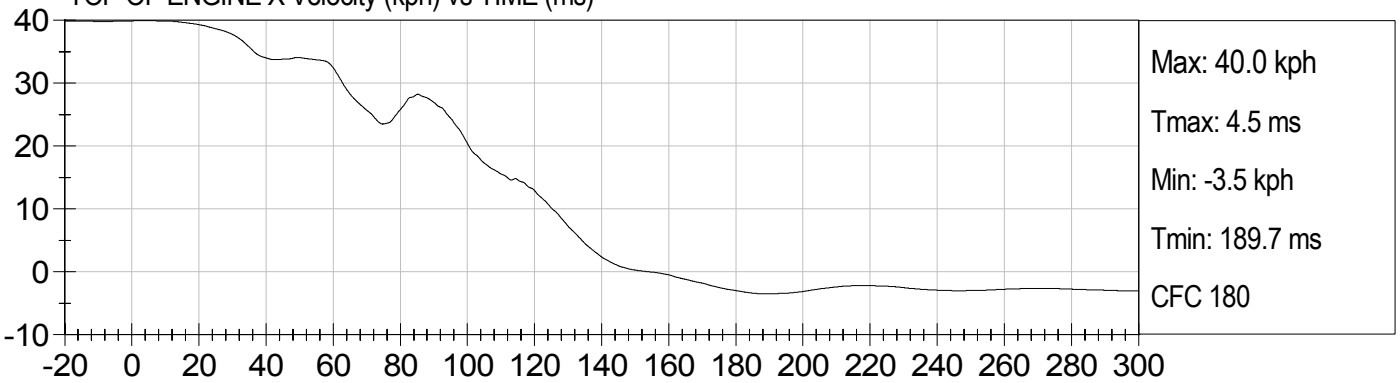
RIGHT REAR SEAT CROSSMEMBER X Velocity (kph) vs TIME (ms)



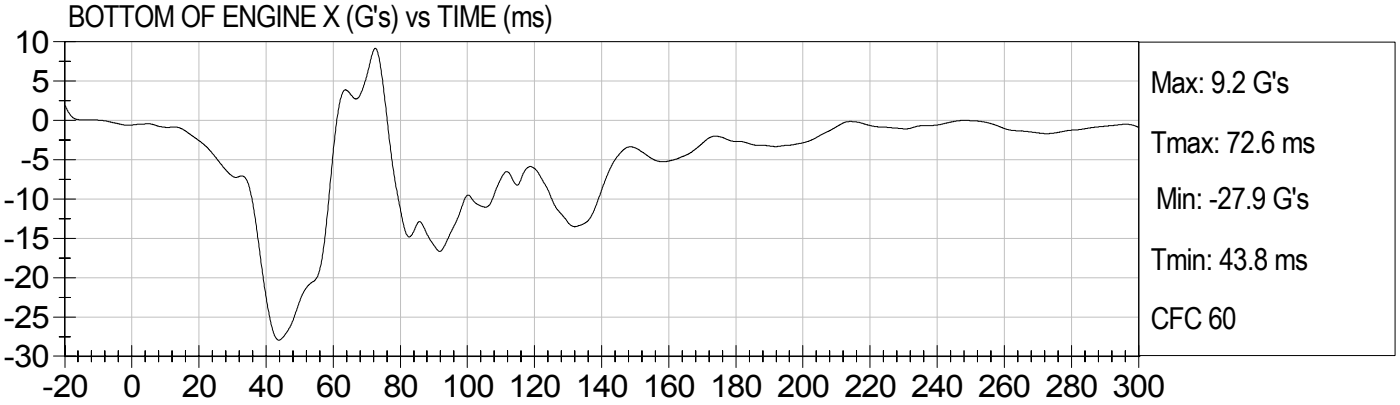
TOP OF ENGINE X (G's) vs TIME (ms)



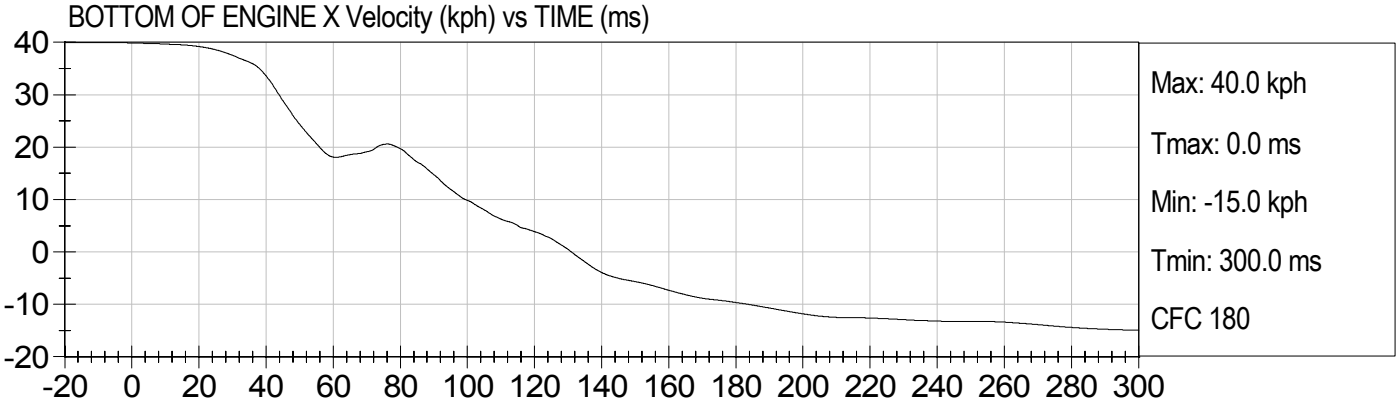
TOP OF ENGINE X Velocity (kph) vs TIME (ms)



BOTTOM OF ENGINE X (G's) vs TIME (ms)



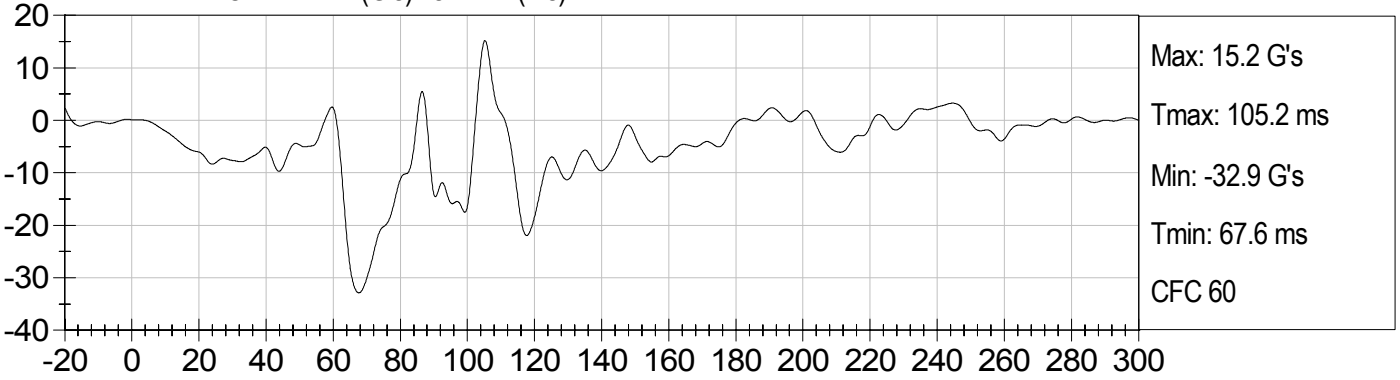
BOTTOM OF ENGINE X Velocity (kph) vs TIME (ms)



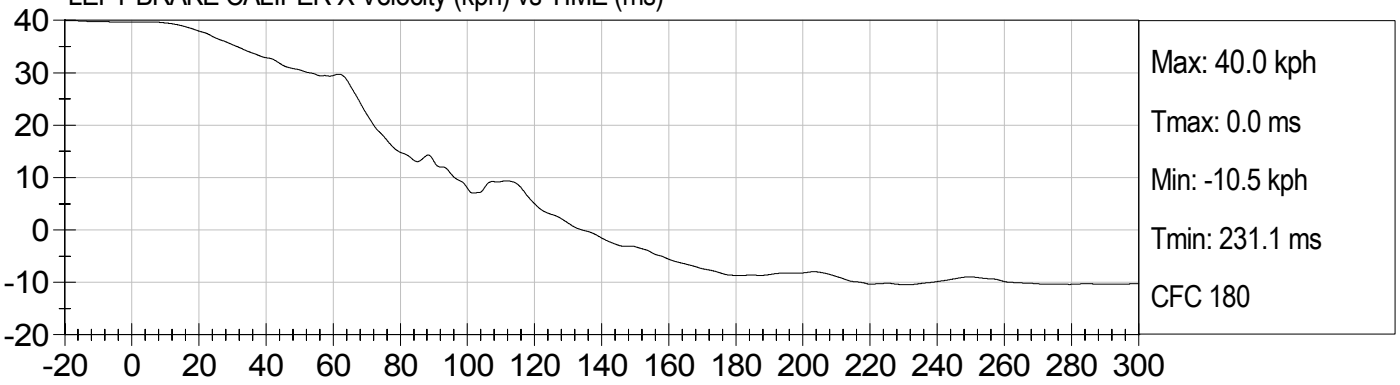
25 MPH LH 40% ODB BELTED
2005 DODGE CARAVAN (C50311)

Test Date: 09/13/2006
Speed: 24.8 mph (39.9 km/h)

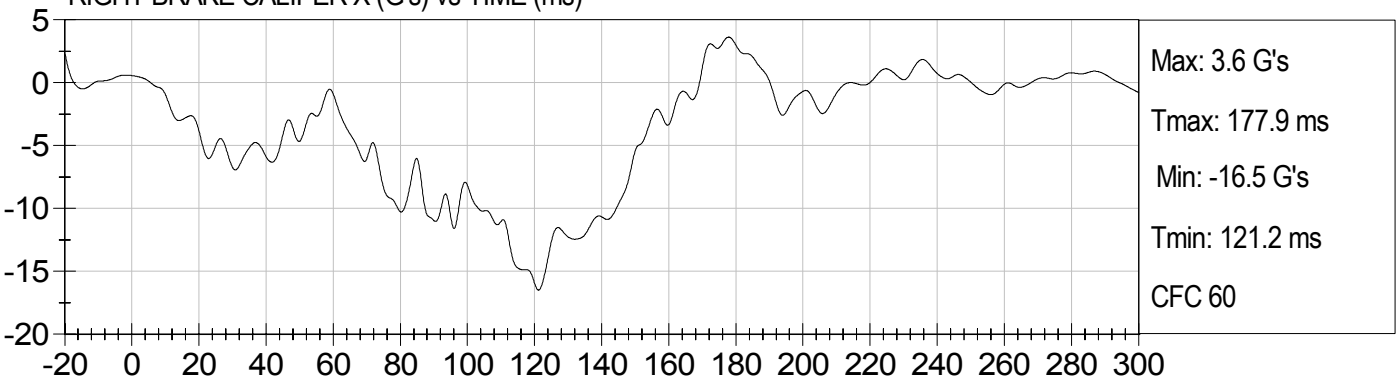
LEFT BRAKE CALIPER X (G's) vs TIME (ms)



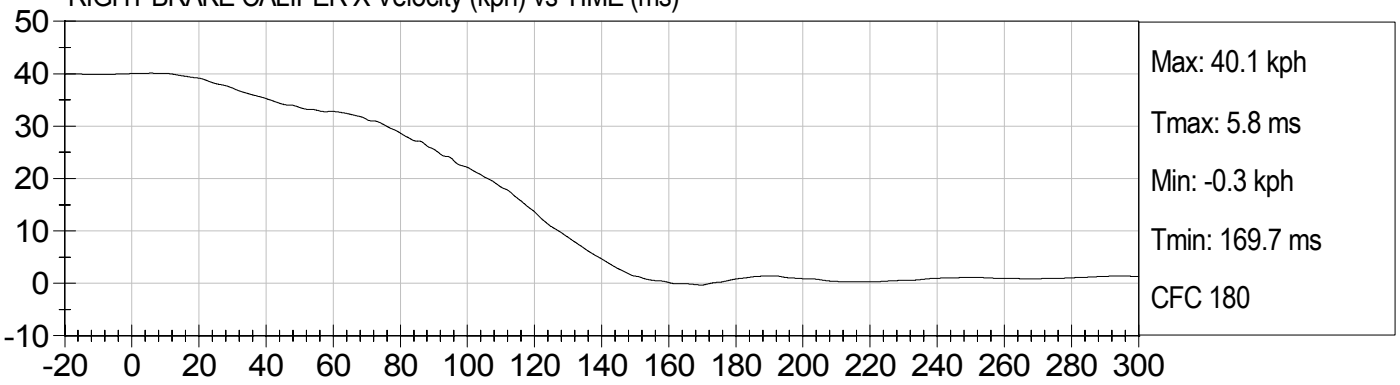
LEFT BRAKE CALIPER X Velocity (kph) vs TIME (ms)



RIGHT BRAKE CALIPER X (G's) vs TIME (ms)



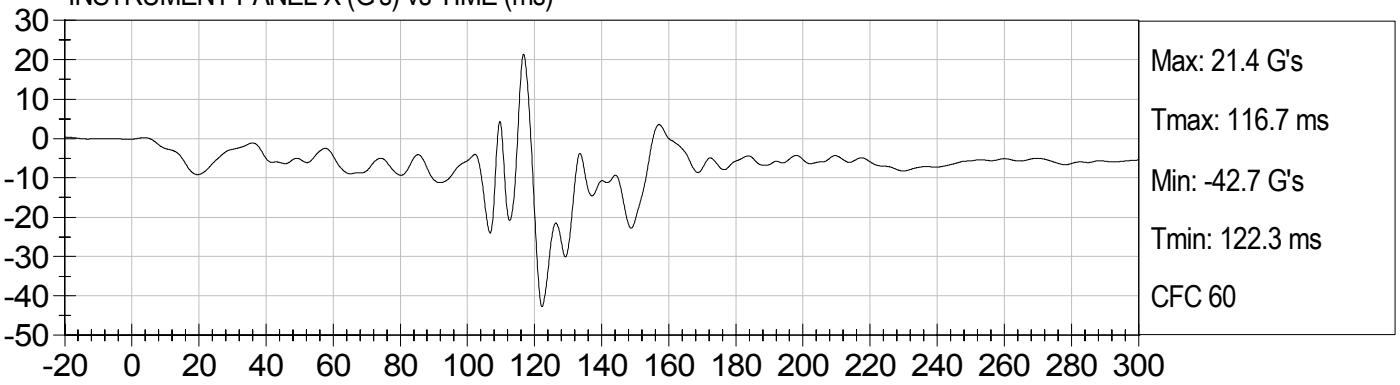
RIGHT BRAKE CALIPER X Velocity (kph) vs TIME (ms)



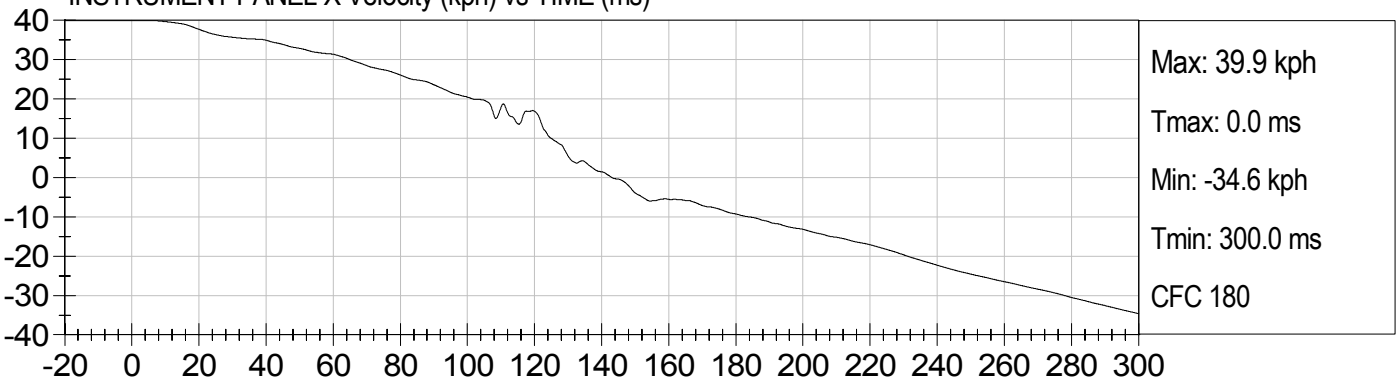
25 MPH LH 40% ODB BELTED
2005 DODGE CARAVAN (C50311)

Test Date: 09/13/2006
Speed: 24.8 mph (39.9 km/h)

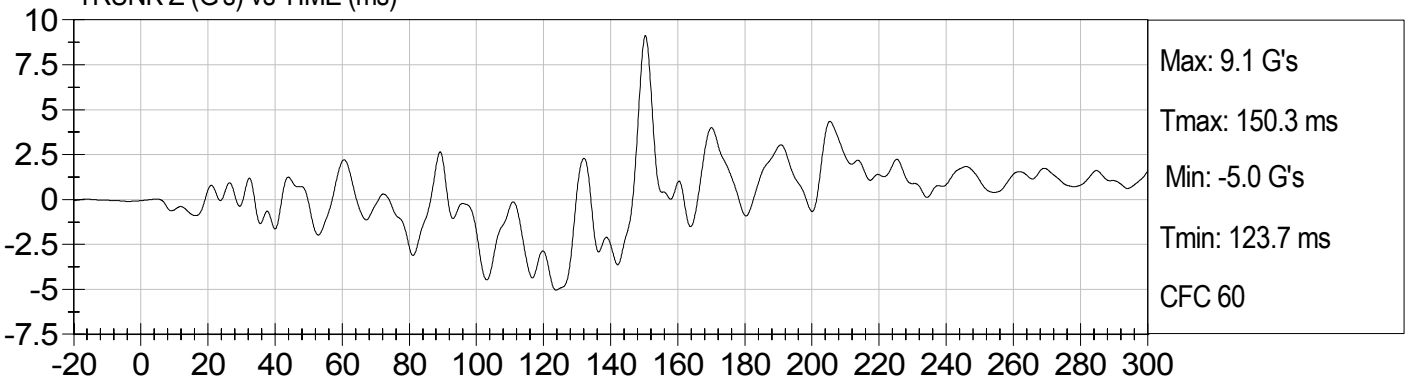
INSTRUMENT PANEL X (G's) vs TIME (ms)



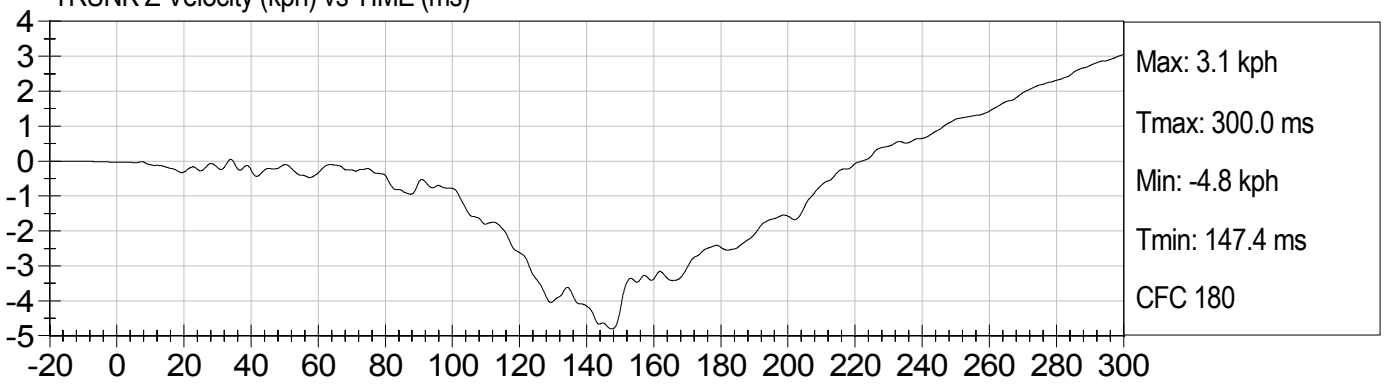
INSTRUMENT PANEL X Velocity (kph) vs TIME (ms)



TRUNK Z (G's) vs TIME (ms)



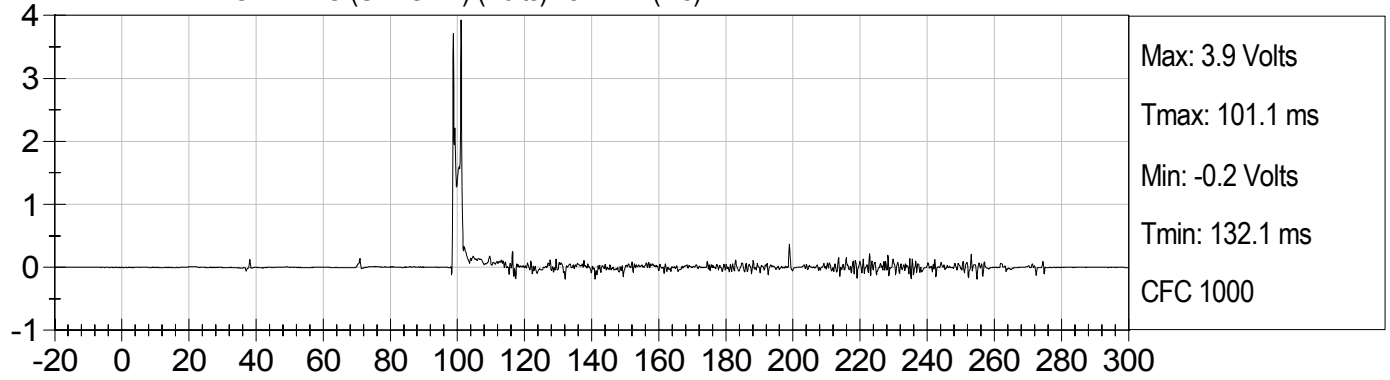
TRUNK Z Velocity (kph) vs TIME (ms)



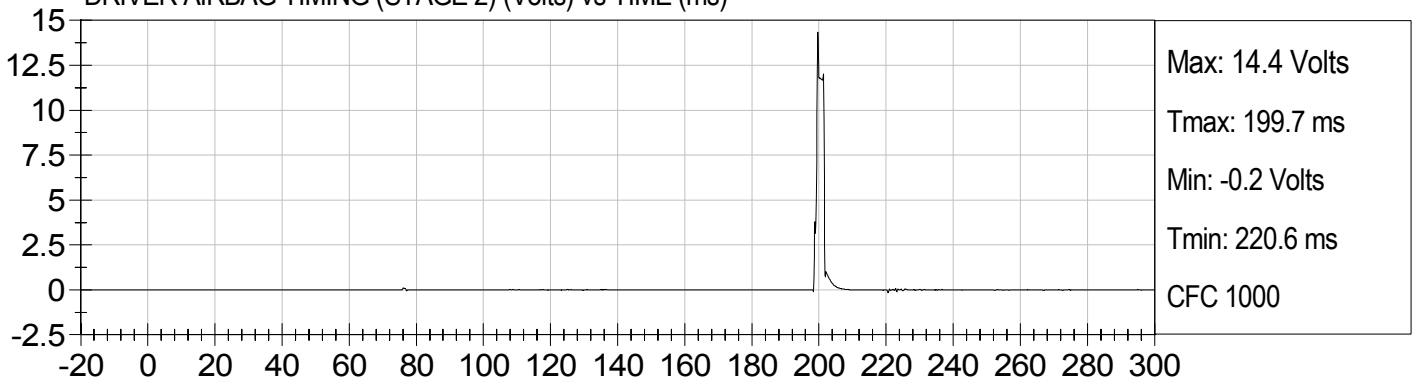
25 MPH LH 40% ODB BELTED
2005 DODGE CARAVAN (C50311)

Test Date: 09/13/2006
Speed: 24.8 mph (39.9 km/h)

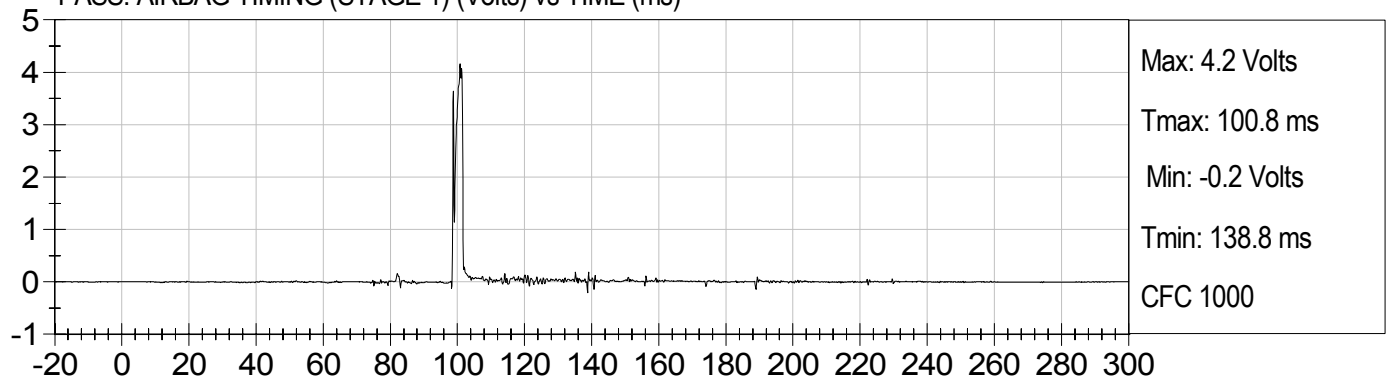
DRIVER AIRBAG TIMING (STAGE 1) (Volts) vs TIME (ms)



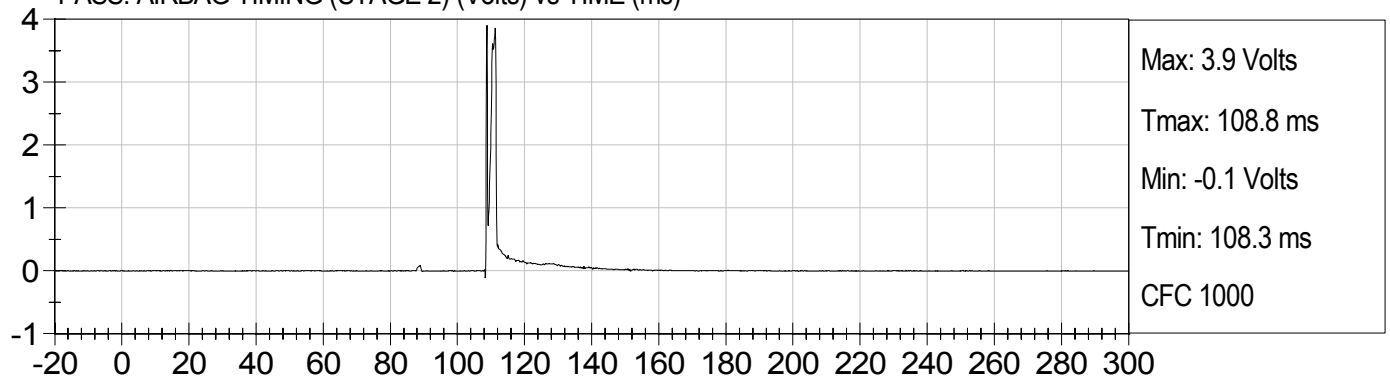
DRIVER AIRBAG TIMING (STAGE 2) (Volts) vs TIME (ms)



PASS. AIRBAG TIMING (STAGE 1) (Volts) vs TIME (ms)



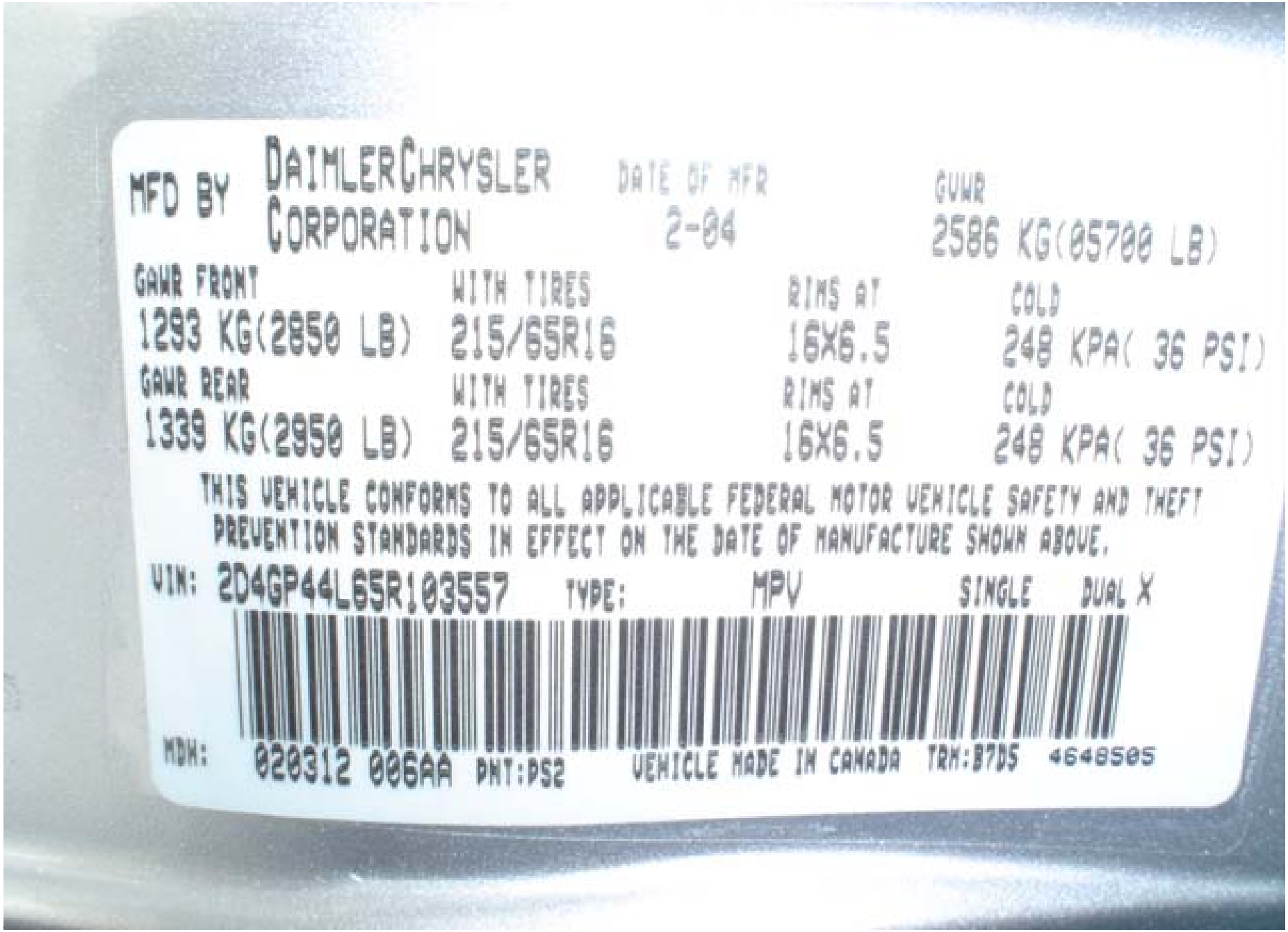
PASS. AIRBAG TIMING (STAGE 2) (Volts) vs TIME (ms)



APPENDIX B

CRASH TEST PHOTOGRAPHS

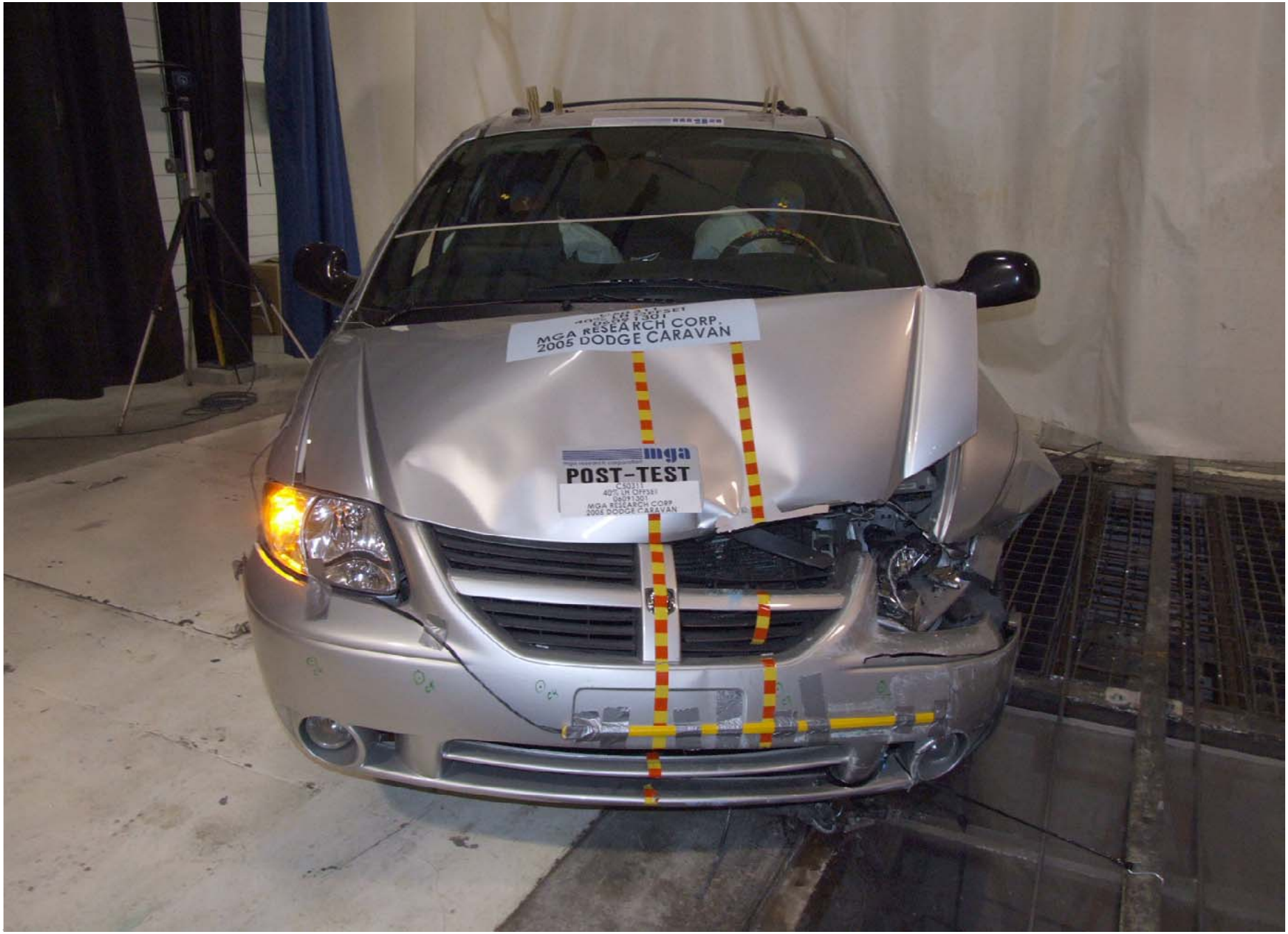
TABLE OF PHOTOGRAPHS



B-1

Vehicle Certification Label

Pre-Test Front View of Test Vehicle



Post-Test Front View of Test Vehicle

Pre-Test Left Side View of Test Vehicle

Post-Test Left Side View of Test Vehicle

Pre-Test Right Side View of Test Vehicle

Post-Test Right Side View of Test Vehicle

Pre-Test Right Front Three-Quarter View of Test Vehicle

Post-Test Right Front Three-Quarter View of Test Vehicle

Pre-Test Left Front Three-Quarter View of Test Vehicle

Post-Test Left Front Three-Quarter View of Test Vehicle

Pre-Test Right Rear Three-Quarter View of Test Vehicle

Post-Test Right Rear Three-Quarter View of Test Vehicle

Pre-Test Left Rear Three-Quarter View of Test Vehicle

Post-Test Left Rear Three-Quarter View of Test Vehicle

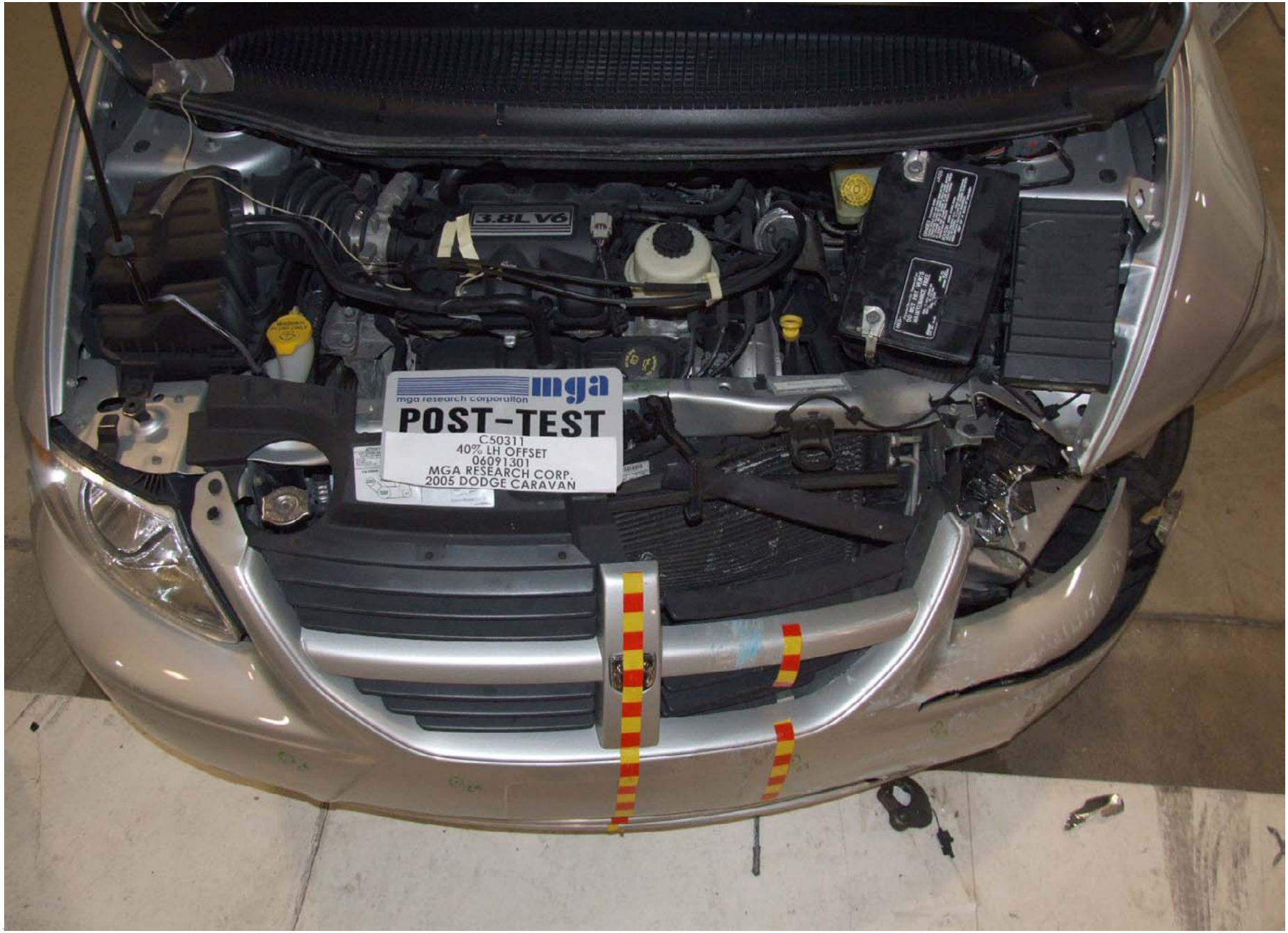
Pre-Test Rear View of Test Vehicle

Post-Test Rear View of Test Vehicle

Pre-Test Windshield View

Post-Test Windshield View

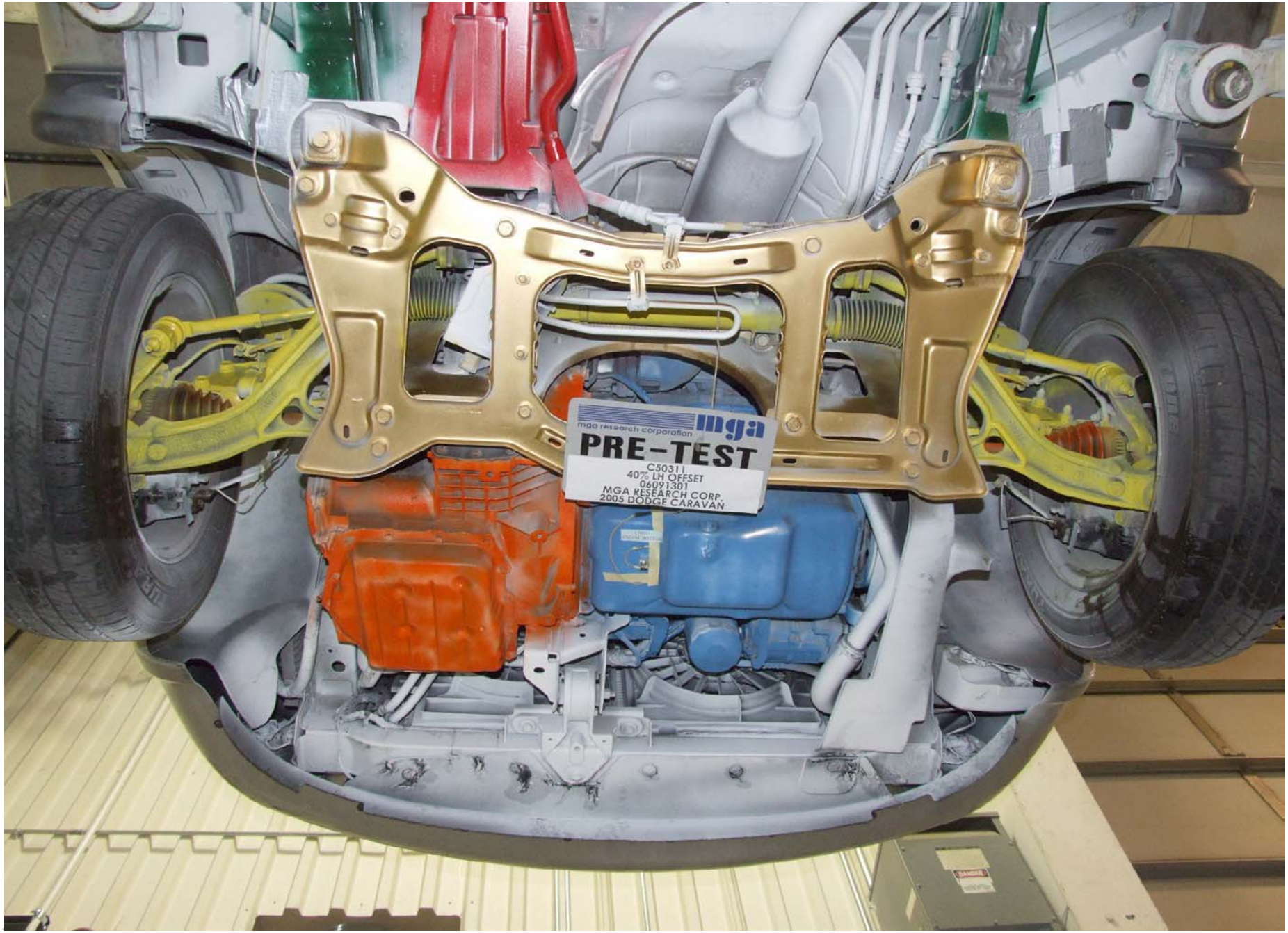
Pre-Test Engine Compartment View



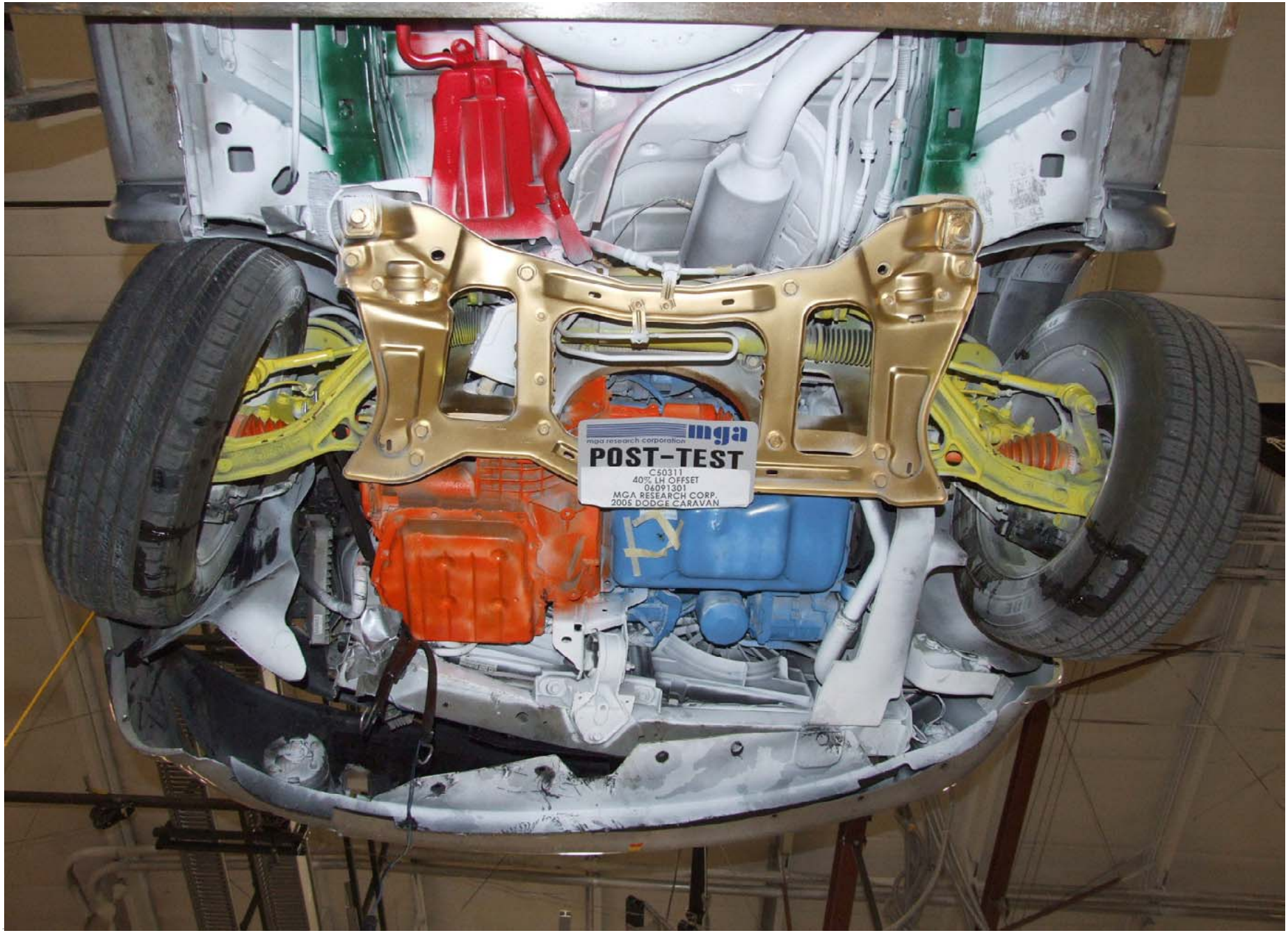
Post-Test Engine Compartment View

Pre-Test Fuel Filler Cap View

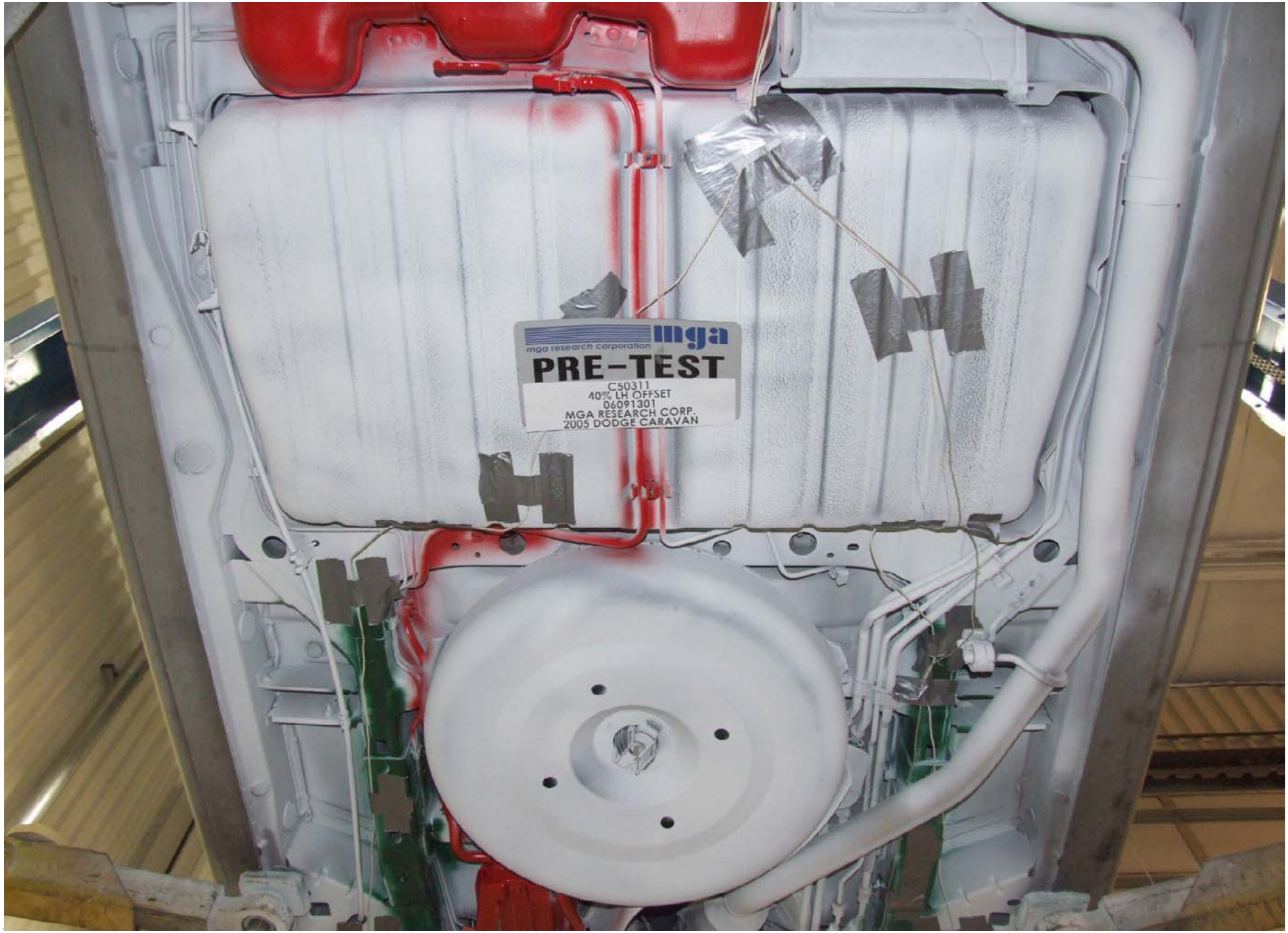
Post-Test Fuel Filler Cap View



Pre-Test Front Underbody View

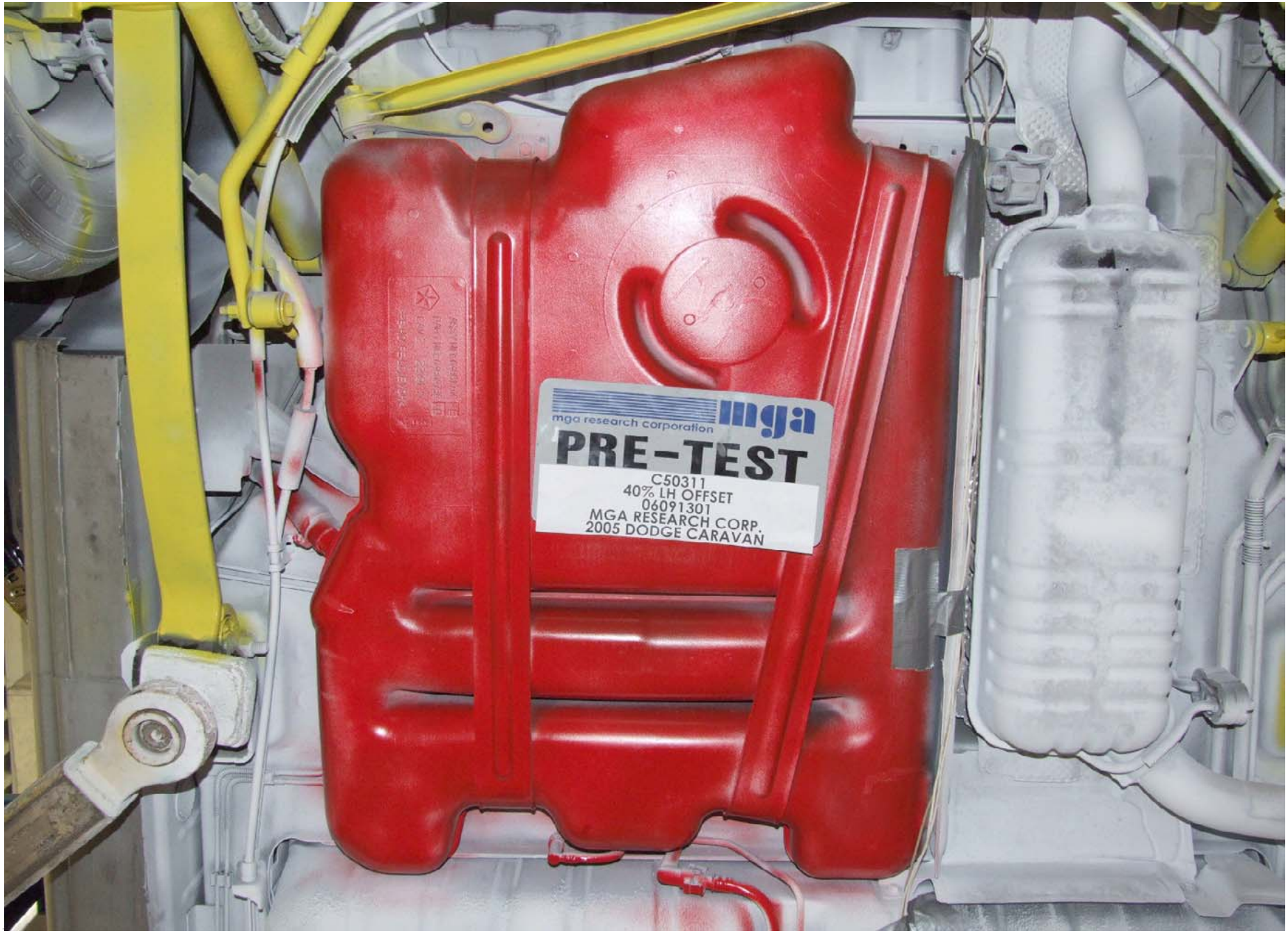


Post-Test Front Underbody View

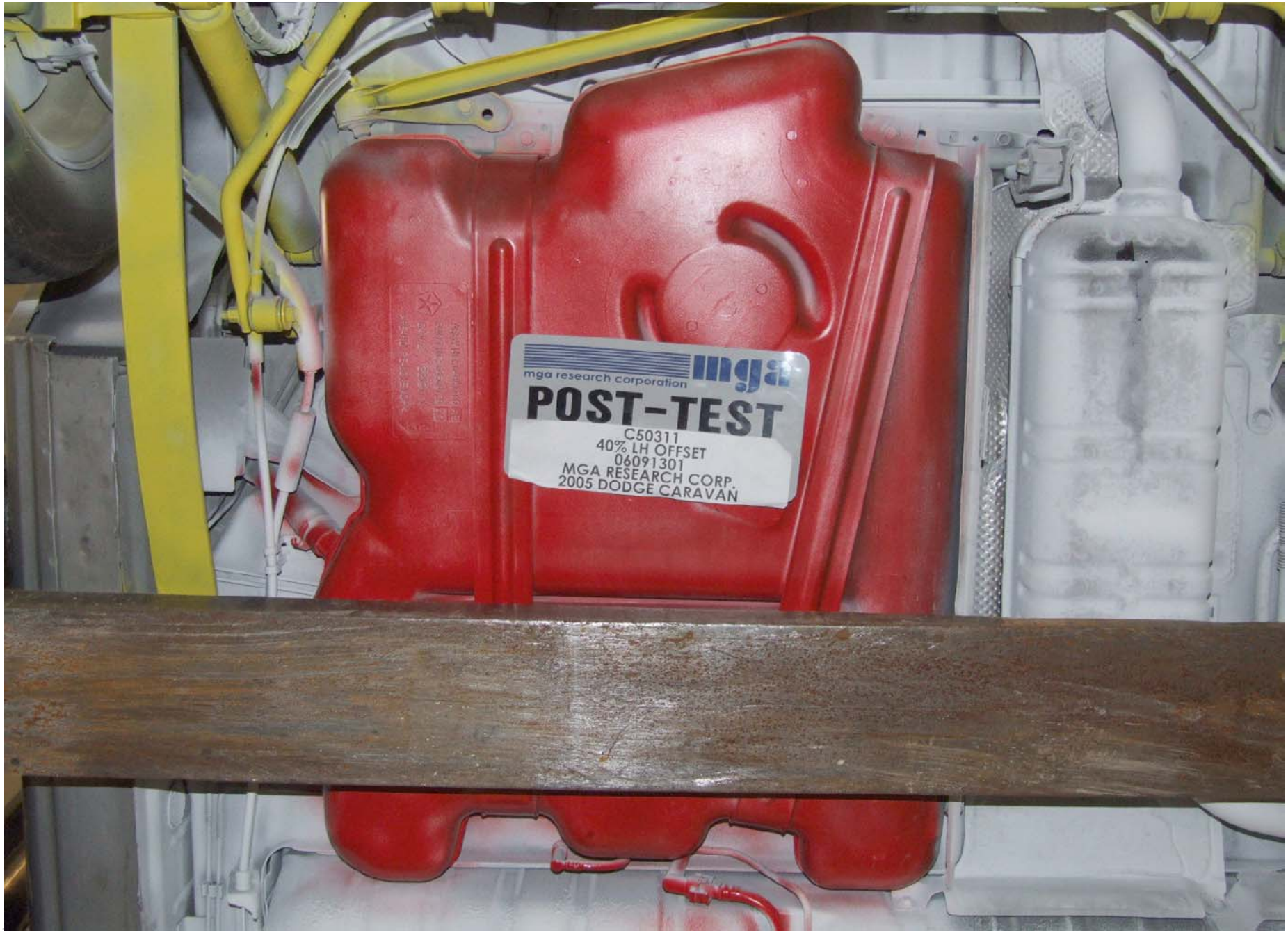


Pre-Test Mid Underbody View

Post-Test Mid Underbody View



Pre-Test Fuel Tank View



Post-Test Fuel Tank View

Pre-Test Rear Underbody View

Post-Test Rear Underbody View

Pre-Test Driver Dummy Front View (head position)

Post-Test Driver Dummy Front View (head position)

Pre-Test Driver Dummy Position Left Side View

Post-Test Driver Dummy Position Left Side View

Pre-Test Driver Dummy Position Left Side View (Door Open)

Post-Test Driver Dummy Position Left Side View (Door Open)

Pre-Test Driver Dummy Seat Position

Post-Test Driver Dummy Seat Position

Pre-Test Driver Dummy Feet Position

Post-Test Driver Dummy Feet Position

Pre-Test Driver Side Knee Bolster View

Post-Test Driver Side Knee Bolster View

Post-Test Driver Dummy Head Contact (headrest)

Post-Test Driver Dummy Head Contact (steering wheel)

Post-Test Driver Dummy Knee Contact (left side)

Post-Test Driver Dummy Knee Contact (right side)

Post-Test Driver Dummy Airbag Contact

Pre-Test Passenger Dummy Front View (head position)

Post-Test Passenger Dummy Front View (head position)

Pre-Test Passenger Dummy Position Right Side View

Post-Test Passenger Dummy Position Right Side View

Pre-Test Passenger Dummy Position Right Side View (Door Open)

Post-Test Passenger Dummy Position Right Side View (Door Open)

Pre-Test Passenger Dummy Seat Position

Post-Test Passenger Dummy Seat Position

Pre-Test Passenger Dummy Feet Position

Post-Test Passenger Dummy Feet Position

Pre-Test Passenger Side Knee Bolster View

Post-Test Passenger Side Knee Bolster View

Post-Test Passenger Dummy Head Contact View (headrest)

Post-Test Passenger Dummy Knee Contact

Post-Test Passenger Dummy Airbag Contact

Pre-Test Offset Deformable Barrier Left Side View

Post-Test Offset Deformable Barrier Left Side View

Pre-Test Offset Deformable Barrier Right Side View

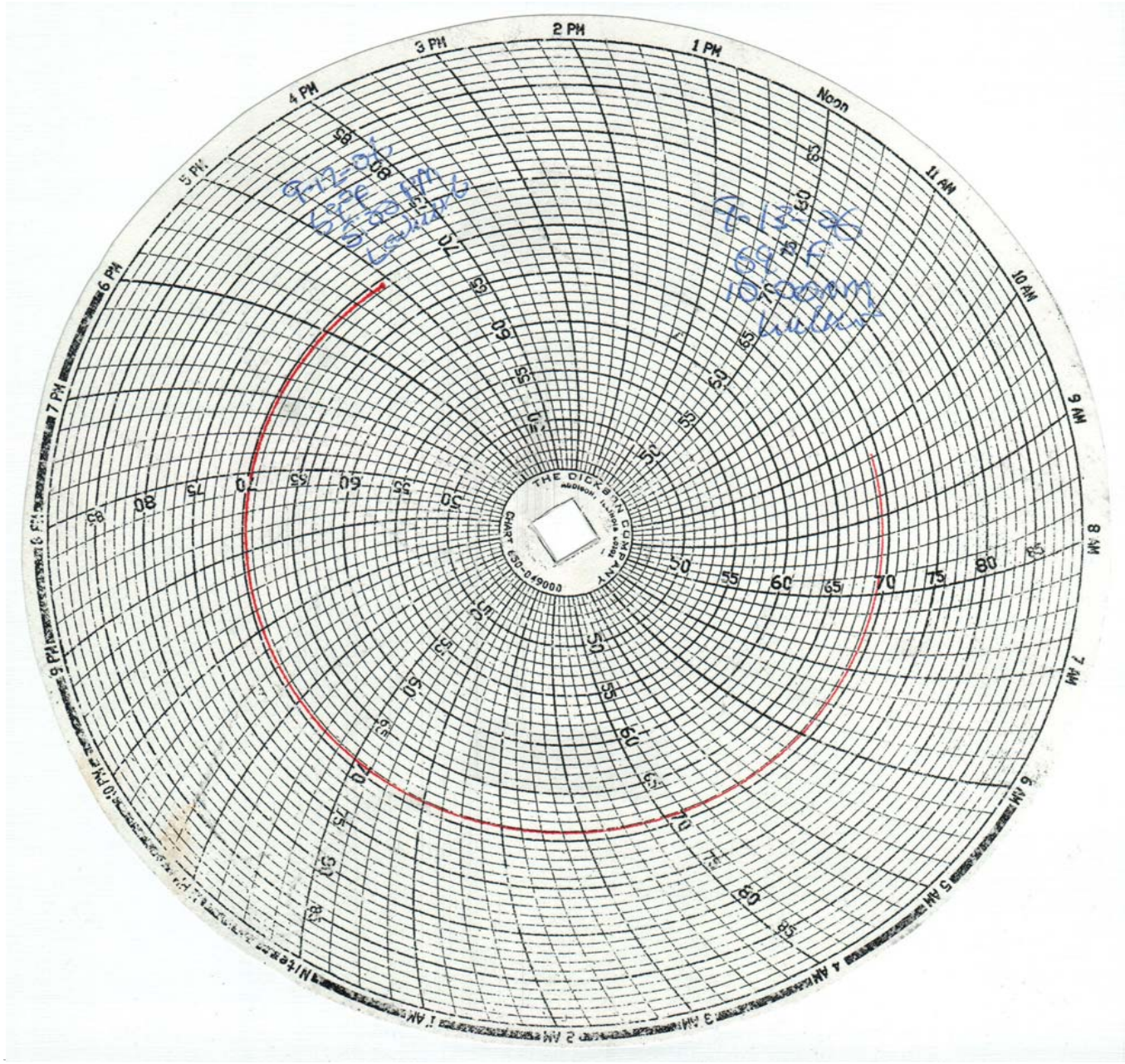
Post-Test Offset Deformable Barrier Right Side View

Pre-Test Offset Deformable Barrier Front View

Post-Test Offset Deformable Barrier Front View

Pre-Test Offset Deformable Barrier Top View

Post-Test Offset Deformable Barrier Top View



Temperature Plot

APPENDIX C

INSTRUMENTATION CALIBRATION

INSTRUMENTS FOR DRIVER DUMMY NO. 510

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	P49471	Endevco	04/04/06
Head Y	P49480	Endevco	04/04/06
Head Z	P49468	Endevco	04/04/06
Neck Load Cell	1562	Denton	05/10/06
Chest X	J23-M06	Entran	04/04/06
Chest Y	J23-M07	Entran	04/04/06
Chest Z	J23-M03	Entran	04/04/06
Chest Displacement	510	Servo	08/10/06
Left Femur Load Cell	9426	GSE	08/23/06
Right Femur Load Cell	9425	GSE	08/23/06

INSTRUMENTS FOR PASSENGER DUMMY NO. 511

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	P49475	Endevco	04/04/06
Head Y	P49477	Endevco	04/04/06
Head Z	P49476	Endevco	04/04/06
Neck Load Cell	1703	Endevco	06/05/06
Chest X	P49478	Endevco	04/04/06
Chest Y	P49470	Endevco	04/04/06
Chest Z	P49506	Endevco	04/04/06
Chest Displacement	511	Servo	04/11/06
Left Femur Load Cell	1362	Denton	04/10/06
Right Femur Load Cell	1361	Denton	04/10/06

VEHICLE INSTRUMENTS

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Rear Seat Crossmember X	E05-Z57	Entran	07/13/06
Right Rear Seat Crossmember X	H10-L03	Entran	06/21/06
Top of Engine X	J10420	Endevco	04/04/06
Bottom of Engine X	J20965	Endevco	04/24/06
Left Brake Caliper X	K03-J17	Entran	08/03/06
Right Brake Caliper X	G29-X10	Entran	06/21/06
Instrument Panel X	L02-Z44	Entran	08/03/06
Trunk Z	A07-R11	Entran	08/03/06

APPENDIX D

NOTICE OF TEST FAILURE

LABORATORY NOTICE OF APPARENT TEST FAILURE TO OVSC

FMVSS NO. 208 TEST DATE: September 13, 2006

LABORATORY: MGA Research Corporation

CONTRACT NO.: DTNH22-03-D-11002 DELV. ORDER NO.: #15

LABORATORY PROJECT ENGINEER'S NAME: Jeff Lewandowski

TEST SPECIMEN DESCRIPTION: 2005 Dodge Grand Caravan MPV

VEHICLE NHTSA NO.: C50311 VIN: 2D4GP44L65R103557

MFR: DaimlerChrysler Corporation

APPARENT TEST FAILURE DESCRIPTION: The 5th% Driver Dummy SN510 had a Neck Tension of 3349N at a 111.0 ms time during the 40 kph (25mph) belted frontal impact test with the left front crash sensor disconnected.

FMVSS REQUIREMENT, PARAGRAPH S :
S18.1 The maximum Neck Tension allowed is 2620N.

NOTIFICATION TO NHTSA (COTR): Charles Case

DATE: 9-13-2006 BY: Jeff Lewandowski

REMARKS: