

REPORT NUMBER TR-P26001-14-NC

**NEW CAR ASSESSMENT PROGRAM
FRONTAL BARRIER IMPACT TEST**

**DAIMLERCHRYSLER CORPORATION
2007 DODGE CALIBER
5-DOOR SEDAN**

NHTSA NUMBER: M70301

**PREPARED BY:
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MAY 2, 2006

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
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16. Abstract A 35 mph (56.3 km/h) frontal barrier impact was conducted on a 2007 Dodge Caliber 5-Door Sedan at Karco Engineering, LLC on 5/2/06. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and footwell intrusion performance. The impact velocity is 56.18 km/h. The ambient temperature at the barrier face at the time of impact is 32.0 degrees Celcius. The vehicle's maximum post-test static crush is 440 mm at the right of the vehicle's centerline. The test vehicle is equipped with a 3-point continuous belt system and second generation supplemental airbags in both front outboard seating positions. With respect to FMVSS 208 "Occupant Crash Protection", the occupant injury criteria summary is as follows:					
Measurement Description		Units	Threshold	Driver ATD	Passenger ATD
Head Injury Criteria (HIC)		N/A	1000	370.6	462.8
Max. Chest Accel. (3 msec Clip)		G's	60	40.6	41.1
Left Femur Force		Newtons	10008	-2373.1	-2884.0
Right Femur Force		Newtons	10008	-2295.8	-3863.9
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SECTION 1
PURPOSE AND SUMMARY OF TEST M70301

1.1 PURPOSE

This 35 mph (56.3 km/h) frontal barrier impact test is part of the New Car Assessment Program (NCAP) sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-01-D-02005. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 30 mph (48.3 km/h) requirements.

The 35 mph (56.3 km/h) frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards (OCS) New Car Assessment Program (NCAP) Laboratory Indicant Test Procedure, dated July 2005. Data was obtained indicant of FMVSS 208 "Occupant Crash Protection", FMVSS 212, "Windshield Retention", FMVSS 219, "Windshield Zone Intrusion (Partial)", and FMVSS 301 "Fuel System Integrity", performance. Procedures for receiving, inspection, testing and reporting of test results are described in the test procedures and are not repeated in this report.

1.2 SUMMARY

A load cell barrier consisting of 36 load cells was impacted by a 2007 Dodge Caliber 5-Door Sedan at a velocity of 56.18 km/h. The test was performed at Karco Engineering, LLC on May 2, 2006.

Three (3) real-time and fifteen (15) high-speed cameras were used to document the frontal barrier impact event. Camera locations and other pertinent camera information can be found in Data Sheet number 14 (page number 24) of this report.

Two Part 572E, 50th percentile male anthropomorphic test devices (ATDs), were placed in the driver and right-front passenger seating positions according to dummy placement instructions specified in the Laboratory Indicant Test Procedure.

Both ATDs were fully instrumented with head (primary and redundant), chest (primary and redundant) and pelvis triaxial accelerometers, chest displacement potentiometers, six-axis upper neck transducers, right/left femur load cells, and lower leg instrumentation. Seat belt load cells were also placed on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. Also, shoulder belt spool-off was measured for the driver and passenger dummy. The driver (position 1) ATD (Serial No. 34) and the right-front passenger (position 2) ATD (Serial No. 35) were calibrated prior to this test.

One hundred and thirty two (132) channels of data were recorded using a TDAS data acquisition system. Appendix A contains Pre and Post-Test Photographs, Appendix B contains the Dummy Response data traces and Appendix C contains the Dummy Calibration data.

There was 100 percent windshield retention and there was no intrusion into the protected zone of the windshield during the impact event. There was no stoddard solvent leakage after the event or during any phase of the static rollover.

The maximum static crush of the vehicle was 440 mm left of the vehicle's centerline and both the driver and the passenger side doors remained closed and latched during the impact event and were operable after the impact.

The driver's visible contact points were as follows: The driver ATD's head and chest contacted the airbag and the abdomen had no contact. Both knees contacted the knee airbag.

The passenger's visible contact points were as follows: The passenger ATD's head, chest and abdomen contacted the airbag. Both knees contacted the glove box.

Occupant injury data is contained in table below.

OCCUPANT DATA SUMMARY

ATD Position	HIC 36	Clip (g)	Chest Defl. (mm)	Left Femur (N)	Right Femur (N)
Driver	370.6	40.6	-31.2	-2373.1	-2295.8
Passenger	462.8	41.1	-33.7	-2884.0	-3863.9

Additional data plots for this test are available in the research and development section of the NHTSA website. The website can be found at: www.NHTSA.Dot.Gov

SECTION 2
OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan

NHTSA No.: M70301

Test Program: 2006 NHTSA 35mph NCAP

Test Date: 5/2/06

CONVERSION FACTORS USED IN THIS REPORT*

Quantity	Typical Application	Std Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	miles/hr	km/hr	1.609
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.573
Pressure	Tire Pressures	lbf/in ²	kPa	7.0
Volume	Liquid	gal	liter	3.785
Temperature	General Use	°F	°C	=(tf -32)/1.8
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf/ft	Nm	1.355

* Based on the Recommended Practice in SAE J916, May 85

**DATA SHEET NO. 1
CRASH TEST SUMMARY**

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan

NHTSA No.: M70301

Test Program: 2006 NHTSA 35mph NCAP

Test Date: 5/2/06

PRIMARY IMPACT DATA

Measured Parameter	Units	Value
Velocity at Impact	km/h	56.18
Test Weight	kg	1582
Impact Angle	degrees	0
Average Rebound	mm	5055
Maximum Static Crush	mm	440

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Front Door opening	Remained closed and latched, opened w/o tools	Remained closed and latched, opened w/o tools
Rear Door Opening	Remained closed and latched, opened w/o tools	Remained closed and latched, opened w/o tools
Seat Track Shift (mm)	None	None
Seat Back Failure	No	No

TEST DUMMY INFORMATION

Description	Driver	Passenger
Dummy Type/ Serial No.	50% Male Hybrid III No. 34	50% Male Hybrid III No. 35
Head Contact	Airbag	Airbag
Chest Contact	Airbag	Airbag
Abdomen Contact	None	Airbag
Left Knee Contact	Knee Airbag	Glove Box
Right Knee Contact	Knee Airbag	Glove Box

MOVIE COVERAGE

Cameras	Standard	Additional
High Speed	13	2
Real Time	1	2
Total	14	4

DATA CHANNELS

Driver ATD Sensors	40
Passenger ATD Sensors	40
Belt Assessment Sensors	8
Vehicle Structure Accelerometers	8
Rigid Barrier Load Cells	36
Total	132

**DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan

NHTSA No.: M70301

Test Program: 2006 NHTSA 35mph NCAP

Test Date: 5/2/06

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M70301	Anti-Lock Brakes	Yes
Make	Dodge	All Wheel Drive	No
Model	Caliber	Power Steering	Yes
Body Style	5-Door Sedan	Driver Front Airbag	Yes
Vin No.	1B3HB28B87D505206	Driver Side Airbag	No
Color	Silver	Driver Head Airbag	No
Delivery Date	4/27/2006	Driver Curtain Airbag	Yes
Odometer (Miles)	69.0	Pass. Airbag	Yes
Dealer	Victorville Motors	Pass. Side Airbag	No
Transmission	5-Speed Automatic	Pass. Head Airbag	No
Final Drive	Front	Pass. Curtain Airbag	Yes
Type/No. Cyl.	Inline 4	Pre-Tensioners	Yes
Engine Disp. (L)	2.0	Load Limiters	Yes
Engine Placement	Transverse	Bucket Seats	Yes
Roof Rack	No	Air. Cond.	Yes
Sunroof/T-Top	No	AM/FM Cassette	Yes
Tinted Glass	No	Tilt Steering	Yes
Traction Control	No	Automatic Door Locks	No
Power Brakes	Yes	Power Windows	No
Front Disc	Yes	Power Seats	No
Rear Disc	No	Other	Driver Knee Airbag

Does Owners Manual provide instructions to turn off automatic door locks.

No

DATA FROM MANUFACTURER

Manufactured By	DaimlerChrysler Corporation	GVWR (kg)	2012
Date of Manufacture	Feb-06	GAWR Front (kg)	1080
		GAWR Rear (kg)	998

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

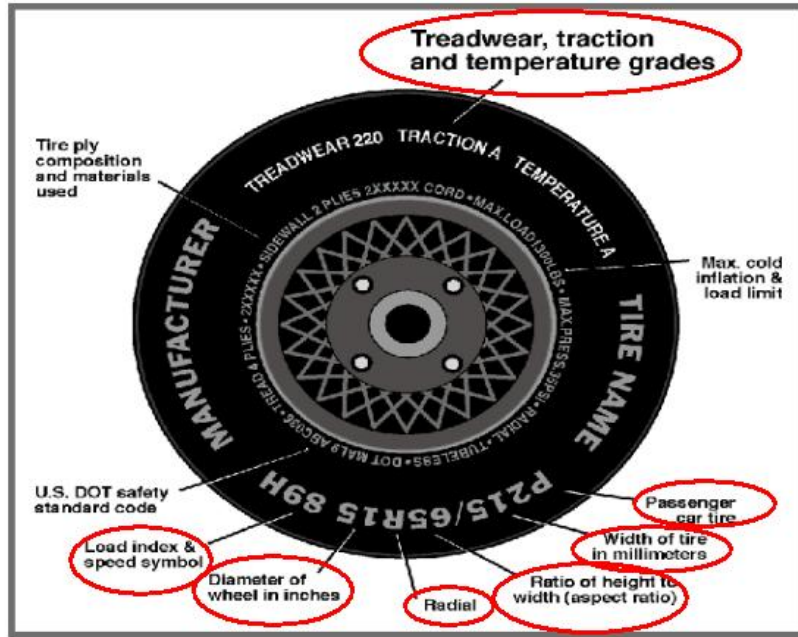
Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bucket		
Number of Occupants	2	3		5
Capacity Weight (VCW) (kg)				392
Cargo Weight (RCLW) (kg)				52

DATA SHEET NO. 2...(CONTINUED)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

NHTSA No.: M70301
 Test Date: 5/2/06

Collect year, make, model, VIN, items circled in red, and tire manufacturer and tire name.



TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	300	300
Cold Pressure (kpa)	240	240
Recommended Tire Size	P205/70R15	P205/70R15
Tire Size on Vehicle	P205/70R15	P205/70R15
Tire Manufacturer	Dunlop	Dunlop
Treadwear	680	680
Traction	A	A
Temperature Grades	B	B
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester + 2 Steel	1 Polyester + 2 Steel
Load Index/Speed Symbol	95T	95T
Tire Material	Polyester + Steel	Polyester + Steel
DOT Safety Code Right	MDMO LTER 5005	MDMO LTER 5005
DOT Safety Code Left	MDMO LTER 5005	MDMO LTER 5005

DATA SHEET NO. 2...(CONTINUED)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan

NHTSA No.: M70301

Test Program: 2006 NHTSA 35mph NCAP

Test Date: 5/2/06

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	416	280	696	451	345	796
Right	kg	407	280	687	440	346	786
Ratio	%	59.5	40.5	100	56.3	43.7	100
Totals	kg	823	560	1383	891	691	1582

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1383
Weight of 2 P572 ATD's	kg	152
Rated Cargo/Luggage Wt. (RCLW)	kg	52
Calculated Vehicle Target Wt. (TVTW)	kg	1587

TEST VEHICLE ATTITUDE AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	750	754	755	761	1072
As Tested	mm	730	730	715	720	1154

Vehicle Wheel Base (mm) 2640

Weight of Ballast Secured in cargo area (kg) 5

Weight of Items Removed (kg) 97

Vehicle Components Removed Spare tire, jack, rear bumper, rear hatch, top of rear seat, floor mats, and rear bumper support.

* Ballast weight does not include cameras, instrumentation and brake abort system.

FUEL SYSTEM DATA

Fuel System Capacity From Owners Manual (L) 51.10

Actual Test Volume with entire fuel System Filled (L) 47.50

Test Fluid Type: Stoddard Solvent

Kinematic Viscosity: as per ASTM Standard D484-71 Red

Is Vehicle Fuel Pump Electric or Mechanical? Electric

If electric, does pump operate with ignition switch "On" & engine "OFF" Yes

Fuel System Particulars: Electric fuel pump. Activated when electrical system is activated
Fuel pump will run for 3 seconds when ignition is in "on" position.

**DATA SHEET NO. 3
POST-TEST IMPACT DATA**

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

NHTSA No.: M70301
 Test Date: 5/2/06

SPEED TRAP DATA

Measured Parameter	Units	Requirement	Value
Trap No.1 Velocity (Primary)	km/h	55.51 to 57.12	56.18
Trap No.2 Velocity (Redun.)	km/h	55.51 to 57.12	56.13

VEHICLE STATIC CRUSH

Measured Parameter	Units	Pre-Test	Post-Test	Difference
Left Side	mm	4155	3985	-170
Center	mm	4415	4003	-412
Right Side	mm	4155	3925	-230

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	5131
Center	mm	5055
Right Side	mm	4978
Average	mm	5055

**DATA SHEET NO. 4
TEST VEHICLE INFORMATION**

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

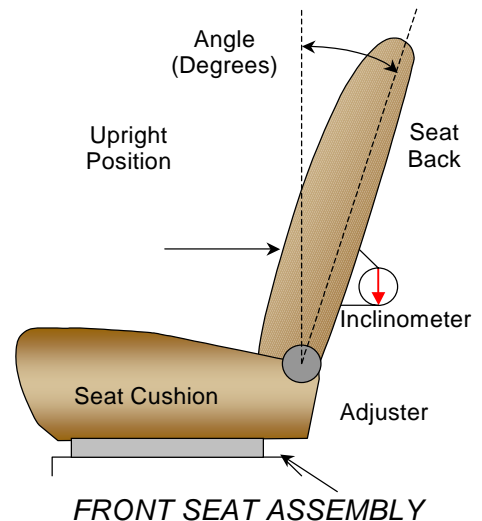
NHTSA No.: M70301
 Test Date: 5/2/06

NOMINAL DESIGN RIDING POSITION

The driver and passenger seat backs are positioned to the manufacturer's designated angle. The procedure is as follows: Seat back angle was measured at the headrest of the seat back using a digital inclinometer.

SEAT BACK ANGLES

	Deg.
Driver w/seated Dummy	14.0@headrest
Passenger w/seated Dummy	14.0@headrest

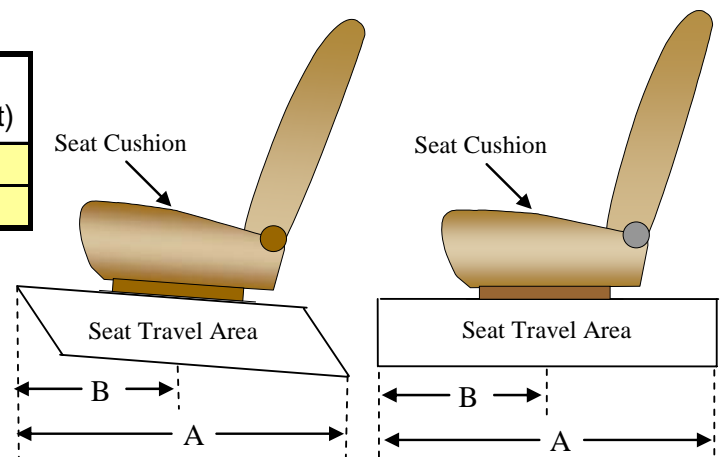


SEAT FORE/AFT POSITIONS

The total seat travel was measured from forward most position to rearmost position, irrespective of vertical seat height in those positions. The seat was set at the longitudinal mid position with the vertical adjustment at the lowest position obtainable for the driver and passenger.

SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel (Detent)	Placed in Position (Detent)
Driver Seat	39	20
Passenger Seat	39	20



SEAT BELT UPPER ANCHORAGE

Position number one (1) is the uppermost position.

SEAT BELT UPPER ANCHORAGE

	Total # of Positions	Placed in Position #
Driver Seat	3	2
Passenger Seat	3	2

DATA SHEET NO. 4...(CONTINUED)
TEST VEHICLE INFORMATION

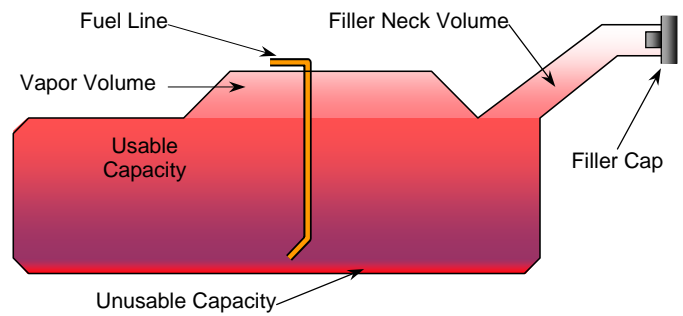
Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

NHTSA No.: M70301
 Test Date: 5/2/06

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	51.10
Usable Capacity of "Optional" Tank	
Usable Capacity used for FMVSS 301	47.01 to 48.03
Actual Amount of Solvent used	47.50

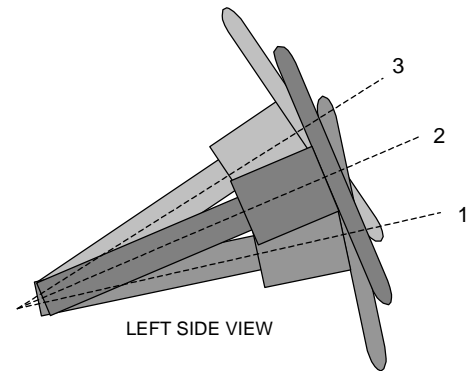
The test vehicle is equipped with an electric fuel pump. The fuel pump operates for approximately two seconds after the ignition is placed in the "ON" position, after which the fuel pump automatically shuts off. The fuel filler door is located on the left rear fender. The standard fuel tank occupies the area under the rear seat.



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. An aluminum plate is placed across the rim of the steering wheel, an inclinometer is placed on the plate and the angle is measured.



STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONS

	Degrees	Fore/Aft Position (mm)
Lowermost position No. 1	19.5	
Geometric center position No. 2	22.1	
Uppermost position No. 3	25.4	

DATA SHEET NO. 5
DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan

NHTSA No.: M70301

Test Program: 2006 NHTSA 35mph NCAP

Test Date: 5/2/06

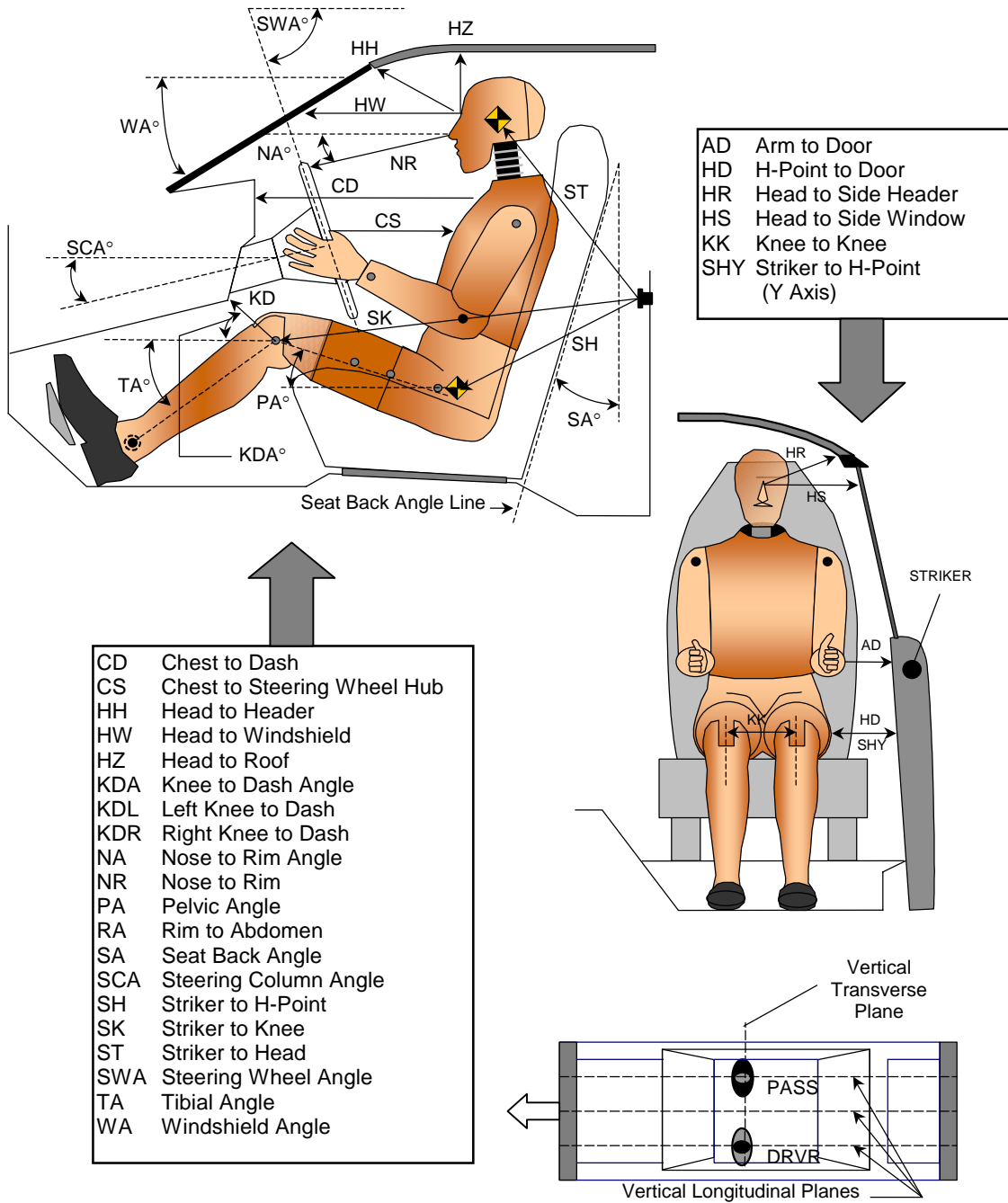
TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (deg)	Length (mm)	Angle (deg)
WA	Windshield Angle		28.8		
SWA	Steering Wheel Angle		67.9		
SCA	Steering Column Angle		22.1		
SA	Seat Back Angle		14.0@headrest		14.0@headrest
HZ	Head to Roof (Z)	225	90.0	215	90.0
HH	Head to Header	460		460	
HW	Head to Windshield	720		750	
HR	Head to Side Header (Y)	280		280	
NR	Nose to Rim	370	10.0		
CD	Chest to Dash	550		485	
CS	Chest to Steering Hub	300			
RA	Rim to Abdomen	190			
KDL	Left Knee to Dash	150	3.1	180	
KDR	Right Knee to Dash	130		175	2.2
PA	Pelvic Angle		23.8		22.6
TA	Tibia Angle		57.2		50.8
KK	Knee to Knee (Y)	280		280	
SK	Striker to Knee	600	5.5	600	7.8
ST	Striker to Head	470	79.2	470	82.6
SH	Striker to H-Point	250	47.0	230	50.7
SHY	Striker to H-Point (Y)	240		225	
HS	Head to Side Window	355		395	
HD	H-Point to Door (Y)	130		120	
AD	Arm to Door (Y)	100		100	

DATA SHEET NO. 5...(CONTINUED)
DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

NHTSA No.: M70301
 Test Date: 5/2/06



DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS

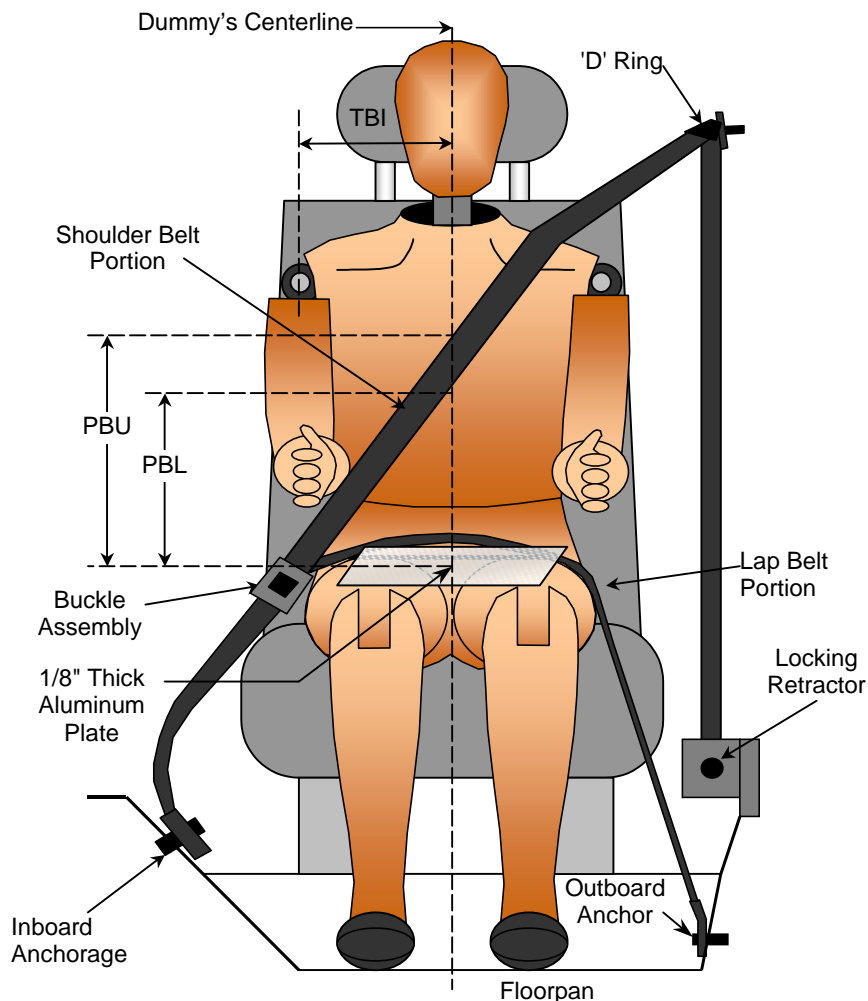
DATA SHEET NO. 6
SEAT BELT POSITIONING DATA

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan

NHTSA No.: M70301

Test Program: 2006 NHTSA 35mph NCAP

Test Date: 5/2/06



SEAT BELT POSITIONING MEASUREMENTS

Measured Parameter	Units	Driver	Passenger
TBI - Dummy C/L to Lap/Shoulder Belt Intersect	mm	200	200
PBU - Top Surface of reference to belt upper edge	mm	329	280
PBL - Top Surface of reference to belt lower edge	mm	251	210
Lap Belt Tension	Newtons	10	10
Shoulder Belt Tension	N/A	Retractor	Retractor

**DATA SHEET NO. 7
VEHICLE ACCELEROMETER LOCATION**

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan

NHTSA No.: M70301

Test Program: 2006 NHTSA 35mph NCAP

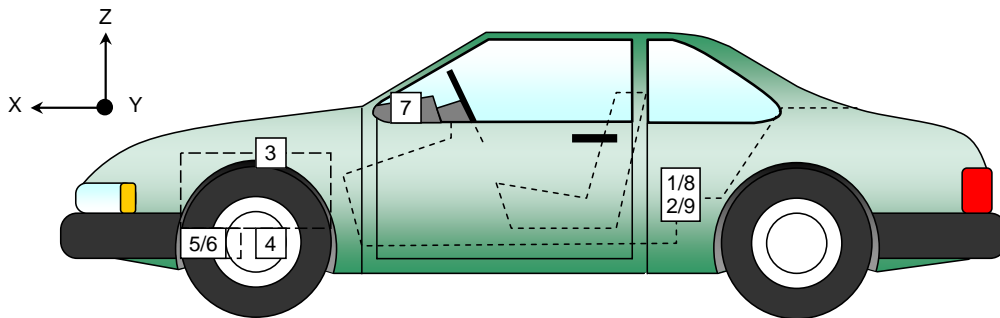
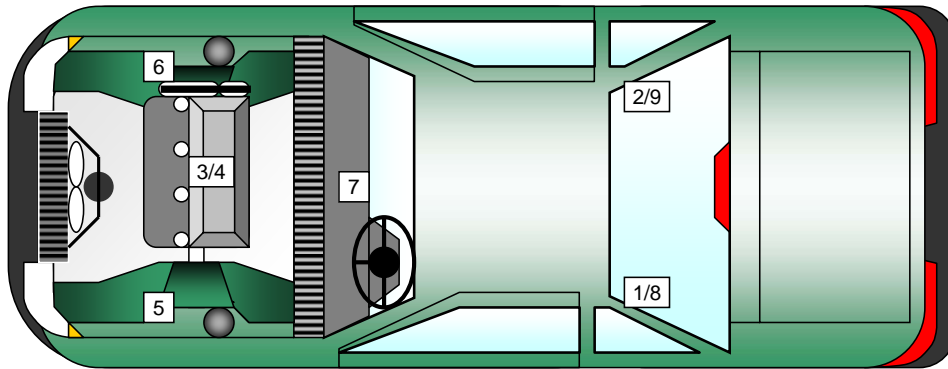
Test Date: 5/2/06

VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Left Rear X-Member	1705	-690	410
2	Right Rear X-Member	1705	690	410
3	Engine Top	3812	105	955
4	Engine Bottom	3795	140	135
5	Left Brake Caliper	3685	-699	336
6	Right Brake Caliper	3685	699	336
7	Instrument Panel			
8	Left Rear X-Member (Z-Axis)	1705	-690	410
9	Right Rear X-Member (Z-Axis)	1705	690	410

Reference Planes: X=From Rear Surface of Vehicle, Y=Vehicle Centerline, Z=Ground Plane

1.) Instrument Panel no longer used by NHTSA



DATA SHEET NO. 8
SEAT BELT ASSESSMENT TEST DATA

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

NHTSA No.: M70301
 Test Date: 5/2/06

SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
Retractor Reel to "D" ring	mm	700	700
Shoulder Belt length as measured on ATD	mm	850	800
Lap Belt length as measured on ATD	mm	580	580
Remainder of belt on reel	mm	700	700
Total belt length for continuous webbing systems	mm	2830	2780

SHOULDER BELT SPOOL-OFF DATA

Measurement Description	Units	Driver	Passenger
As determined mechanically	mm	90	120
As determined electronically	mm	154	243

BELT STRETCH DATA

Measurement Description	Units	Driver	Passenger
Electronically between belt load cell and "D" ring	mm/cm	*	*
Mechanically	mm/cm		

* Not used with shoulder belt pre-tensioner systems

DATA SHEET NO. 9
SUMMARY OF FMVSS 212 DATA

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

NHTSA No.: M70301
 Test Date: 5/2/06

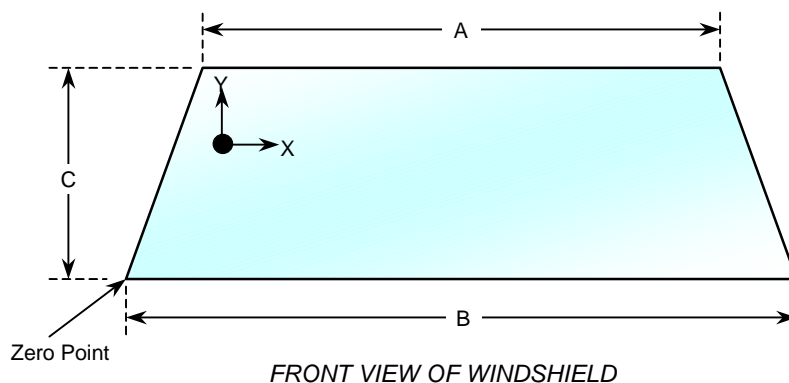
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with a rubber type adhesive. No molding covers the windshield periphery at any point.

The standard requires that the post-test retention measurement be a minimum of 75 percent of the pretest total periphery measurement for vehicles not equipped with occupant passive restraints and 50 percent for each side of the windshield for vehicles that are equipped with occupant passive restraints.

Temperature of windshield molding during test: 21.1 °C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test(mm)	Post-Test(mm)	% of Retention
Left Side	2053	2053	100
Right Side	2053	2053	100
Total	4106	4106	100



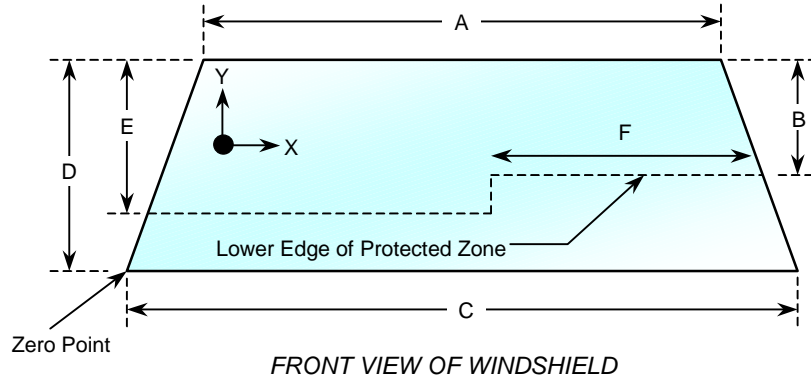
WINDSHIELD DIMENSIONS

Item	Units	Segment Length	Molding Width
A	mm	1215	0
B	mm	1410	0
C-Left	mm	740	5
C-Right	mm	740	5

DATA SHEET NO. 10
WINDSHIELD ZONE INTRUSION FMVSS 219 DATA (PARTIAL)

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

NHTSA No.: M70301
 Test Date: 5/2/06



**WINDSHIELD AND
 PROTECTED ZONE**

Item	Units	Value
A	mm	1215
B	mm	460
C	mm	1410
D	mm	740
E	mm	471
F	mm	400

AREA OF PROTECTED ZONE FAILURES

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

X	Y

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

X	Y

DATA SHEET NO. 11
FMVSS 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan

NHTSA No.: M70301

Test Program: 2006 NHTSA 35mph NCAP

Test Date: 5/2/06

Test Time: 11:51 AM

Temperature: 32.0 Deg. C.

STODDARD SOLVENT SPILLAGE MEASUREMENTS

A. From impact until vehicle motion ceases: 0.0 oz.
(Maximum Allowable = 1 ounce)

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

C. For the following 25 minutes: 0.0 oz.
(Maximum Allowable = 1 oz./minute)

D. Spillage Location Details: No leakage occurred

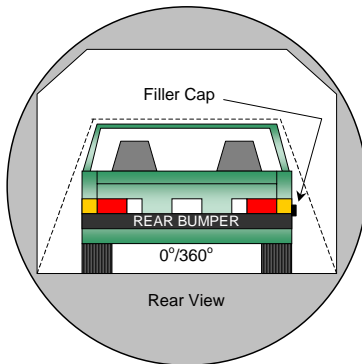
DATA SHEET NO. 12
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan

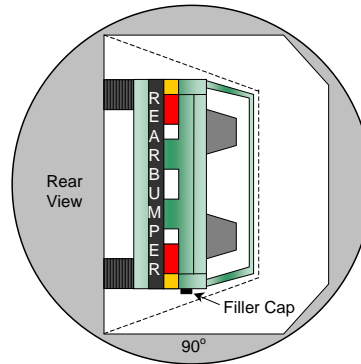
NHTSA No.: M70301

Test Program: 2006 NHTSA 35mph NCAP

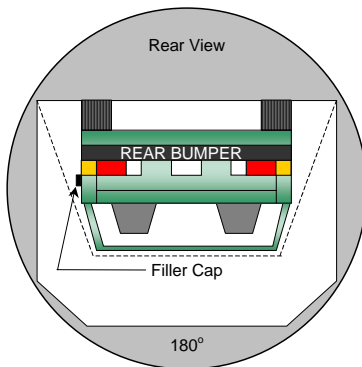
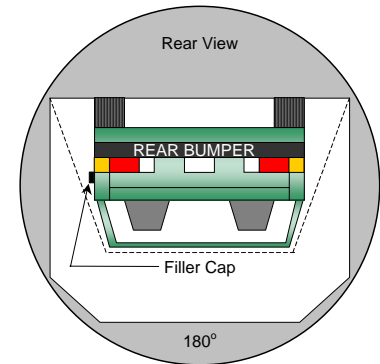
Test Date: 5/2/06



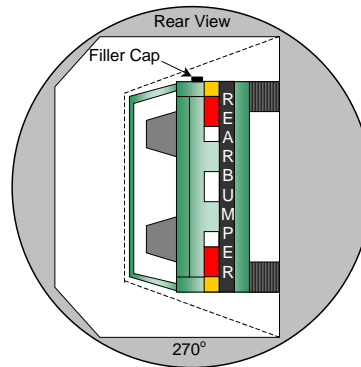
0° to 90°



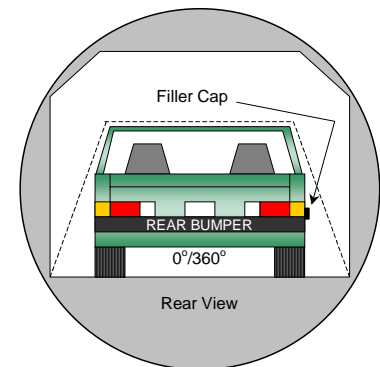
90° to 180°



180° to 270°



270° to 360°



1. The specified fixture rollover rate for each 90° of rotation is 60 to 120 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. No solvent leakage occurred during rollover.

**DATA SHEET NO. 12...(CONTINUED)
FMVSS 301 STATIC ROLLOVER DATA**

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

NHTSA No.: M70301
 Test Date: 5/2/06

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	85	300	385
90° to 180°	0	300	300
180° to 270°	77	300	377
270° to 360°	76	300	376

FMVSS 301 SPILLAGE TABLE REQUIREMENT (oz.)

First 5 Minutes	5.0
Sixth Minute	1.0
Seventh Minute	1.0
Eighth Minute	1.0

ACTUAL TEST VEHICLE SOLVENT SPILLAGE TABLE (oz.)

Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0° to 90°	0	0	0	0
90° to 180°	0	0	0	0
180° to 270°	0	0	0	0
270° to 360°	0	0	0	0

SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0° to 90°	None
90° to 180°	None
180° to 270°	None
270° to 360°	None

DATA SHEET NO. 13
VEHICLE MEASUREMENTS

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan

NHTSA No.: M70301

Test Program: 2006 NHTSA 35mph NCAP

Test Date: 5/2/06

VEHICLE MEASUREMENT TABLE

No.	Measurement Description	Units	Pre-Test	Post-Test	Diff.
1	Total length of vehicle at centerline	mm	4415	4003	-412
2	RSOV to front of engine	mm	3961	3735	-226
3	RSOV to firewall centerline	mm	3470	3430	-40
4	RSOV to leading edge of right door	mm	3014	3028	14
5	RSOV to leading edge of left door	mm	3019	3025	6
6	RSOV to lower leading edge of right door	mm	2976	2964	-12
7	RSOV to lower leading edge of left door	mm	2978	2975	-3
8	RSOV to upper trailing edge of right door	mm	1975	1985	10
9	RSOV to upper trailing edge of left door	mm	1980	1991	11
10	RSOV to lower trailing edge of right door	mm	2000	1986	-14
11	RSOV to lower trailing edge of left door	mm	2000	1995	-5
12	RSOV to bottom of right 'A' pillar	mm	2958	2945	-13
13	RSOV to bottom of left 'A' pillar	mm	2958	2951	-7
14	RSOV to firewall on right side	mm	3445	3395	-50
15	RSOV to firewall on left side	mm	3445	3395	-50
16	RSOV to steering column	mm	2550	2540	-10
17	Center of steering column to left 'A' pillar	mm	425	421	-4
18	Center of steering column to headlining	mm	435	440	5
19	RSOV to right side of front bumper	mm	4155	3925	-230
20	RSOV to left side of front bumper	mm	4155	3985	-170
21	Length of engine block	mm	560	560	0
RD	RSOV to right side of dash panel	mm	2721	2715	-6
CD	RSOV to center of dash panel	mm	2690	2705	15
LD	RSOV to left side of dash panel	mm	2715	2725	10

DATA SHEET NO. 13...(CONTINUED)
VEHICLE STRUCTURAL MEASUREMENTS

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

NHTSA No.: M70301
 Test Date: 5/2/06

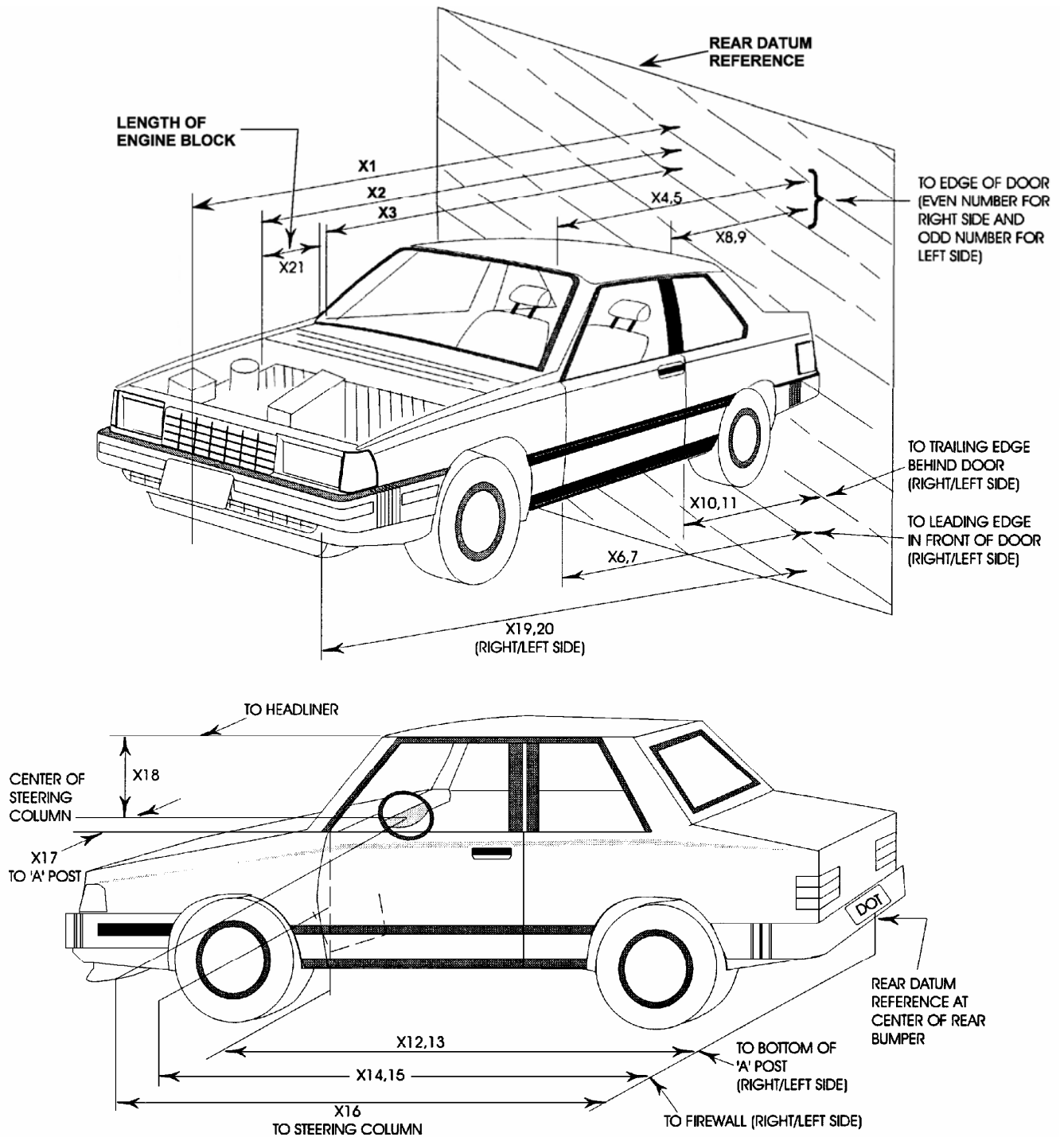
VEHICLE STRUCTURAL MEASUREMENT TABLE

No.	Measurement Description	Units	Pre-Test	Post-Test	Diff.
1	Total length	mm	4415	4003	-412
2	Total width	mm	1740	1740	0
3	Bumper top height	mm	630	720	90
4	Bumper bottom height	mm	270	343	73
5	Longitudinal member top height	mm	616	610	-6
6	Longitudinal member bottom height	mm	449	443	-6
7	Distance between longitudinal members	mm	834	834	0
8	Longitudinal member width	mm	155	155	0
9	Engine top height	mm	854	885	31
10	Engine bottom height	mm	203	234	31
11	Engine and gear box width	mm	725	725	0
12	Front bumper to engine distance	mm	642	255	-387
13	Front shock absorber fixing width	mm	910	910	0
14	Bonnet leading edge height	mm	849	910	61
15	Front shock absorber fixing width	mm	1105	1105	0
16	Front bumper to front axle distance	mm	885	580	-305
17	Front axle to 'A' pillar distance	mm	560	495	-65
18	'A' pillar to 'B' pillar distance	mm	1030	1033	3
19	'B' pillar to rear axle distance	mm	1110	1095	-15
20	'B' pillar to 'C' pillar distance	mm	930	925	-5
21	Roof sill bottom height	mm	1300	1275	-25
22	Roof sill top height	mm	1470	1445	-25
23	Floor sill bottom height	mm	185	150	-35
24	Floor sill top height	mm	420	385	-35

DATA SHEET NO. 13...(CONTINUED)
VEHICLE MEASUREMENTS

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

NHTSA No.: M70301
 Test Date: 5/2/06



**DATA SHEET NO. 14
CAMERA LOCATIONS**

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan

NHTSA No.: M70301

Test Program: 2006 NHTSA 35mph NCAP

Test Date: 5/2/06

VEHICLE CAMERA MEASUREMENT TABLE

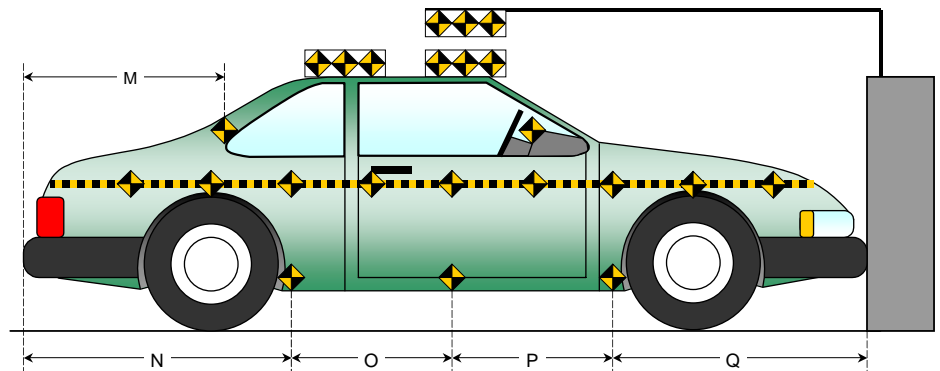
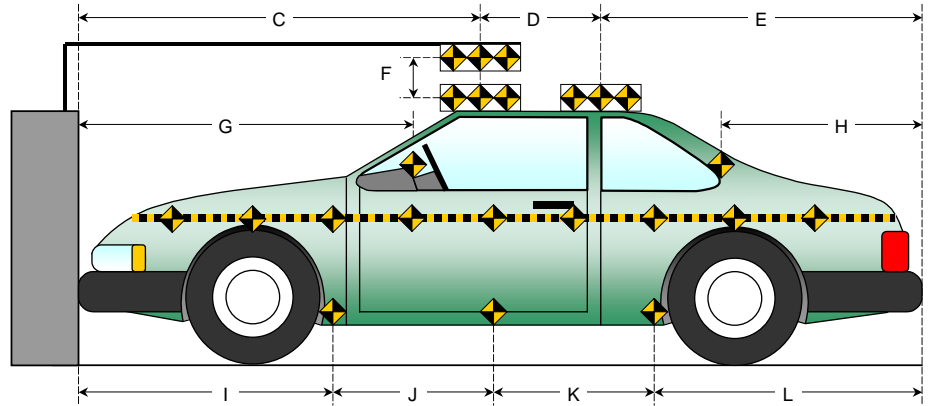
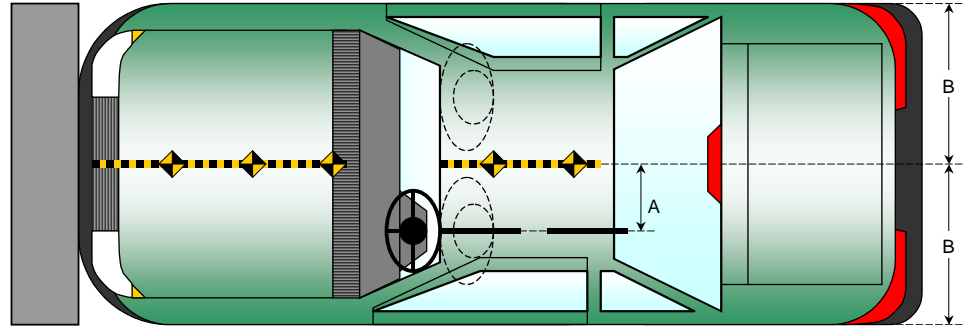
No.	Camera View	Location (mm)			Angle (deg.)	Film Plane to Head	Lens (mm)	Speed (fps)
		X	Y	Z				
1	Real Time Camera (Panning)	-15385	-7882	-1598	0			30
2	Overall Left Side	-1754	-7156	-1167	0	6700	20mm	1000
3	Left Side View	-1506	-7126	-1188	-3	6689	50mm	1000
4	Driver and Interior View	-8696	-12562	-4511	-13	14142	ZOOM	1000
5	Steering Column (Bottom)	-1631	-8234	-2682	-13	7914	35mm	1000
6	Overall Right Side	-2124	6887	-1184	0	6420	20mm	1000
7	Right Side View	-1784	6510	-1249	-4	6054	50mm	1000
8	Passenger and Interior View	-5330	9365	-2407	-10	9537	ZOOM	1000
9	Right Side View	-2006	6967	-1463	-6	6508	ZOOM	1000
10	Windshield View	-601	0	-5556	-75		25mm	1000
11	Driver Front View	378	-286	-2438	-35		24mm	1000
12	Passenger Front View	375	413	-2439	-35		25mm	1000
13	Pit View of Engine	-844	0	1495	90		12mm	1000
14	Pit View of Fuel Tank	-2978	0	1495	90		12mm	1000
15	Real Time Camera	-1754	-7184	-1202	0	7661		30
16	Real Time Camera	-2124	6894	-1224	0	6427		30
17	Driver On-Board	3321	152	-1371	-2	5467	12mm	1000
18	Passenger On-Board	3329	-178	-1386	-2	5505	12mm	1000

DATA SHEET NO. 15
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

NHTSA No.: M70301
 Test Date: 5/2/06

All Dimensions in (mm)	
Item	Value
A	380
B	870
C	2160
D	615
E	1640
F	155
G	1645
H	655
I	1385
J	840
K	840
L	1350
M	655
N	1350
O	840
P	840
Q	1385



DATA SHEET NO. 16
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
Test Program: 2006 NHTSA 35mph NCAP

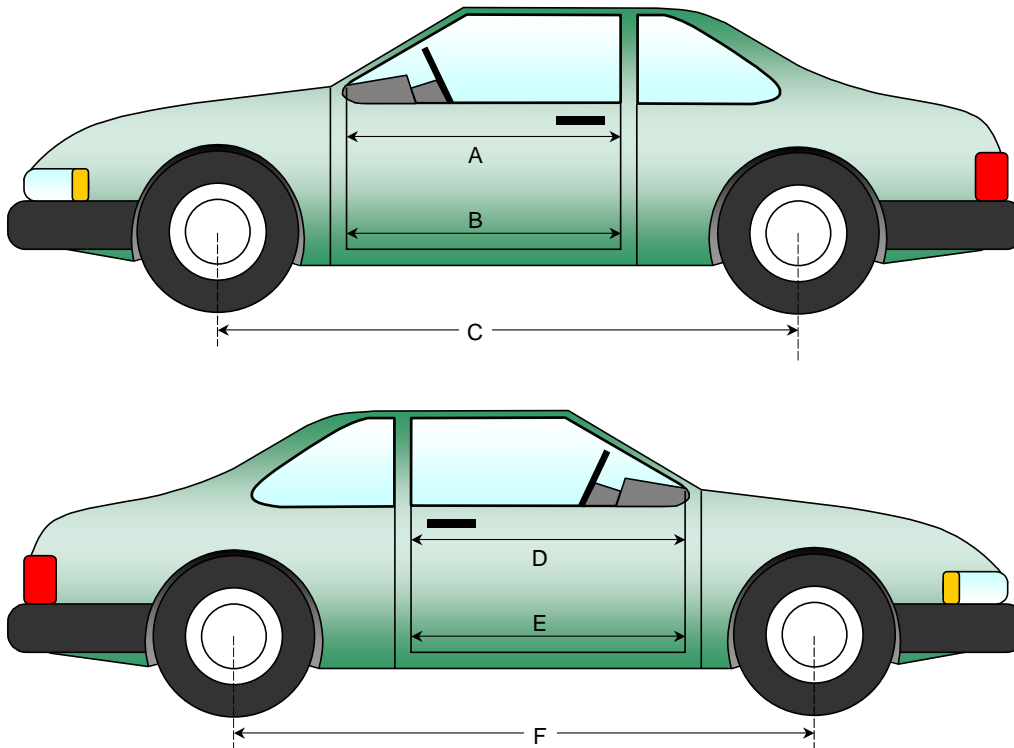
NHTSA No.: M70301
Test Date: 5/2/06

DOOR OPENING WIDTH TABLE

Item	Description	Units	Pre-Test	Post-Test	Diff.
A	Left Side Upper	mm	942	940	-2
B	Left Side Lower	mm	899	896	-3
D	Right Side Upper	mm	941	939	-2
E	Right Side Lower	mm	909	913	4

WHEELBASE MEASUREMENT TABLE

Item	Description	Units	Pre-Test	Post-Test	Diff.
C	Left Side Wheel Base	mm	2640	2580	-60
F	Right Side Wheel Base	mm	2640	2579	-61



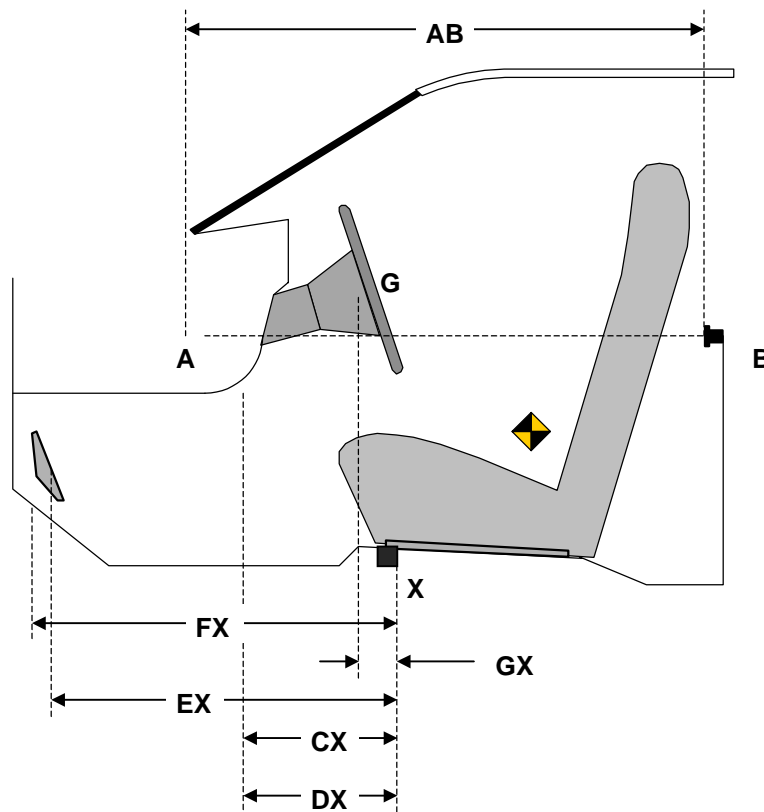
DATA SHEET NO. 16...(CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

NHTSA No.: M70301
 Test Date: 5/2/06

DRIVER COMPARTMENT INTRUSION TABLE

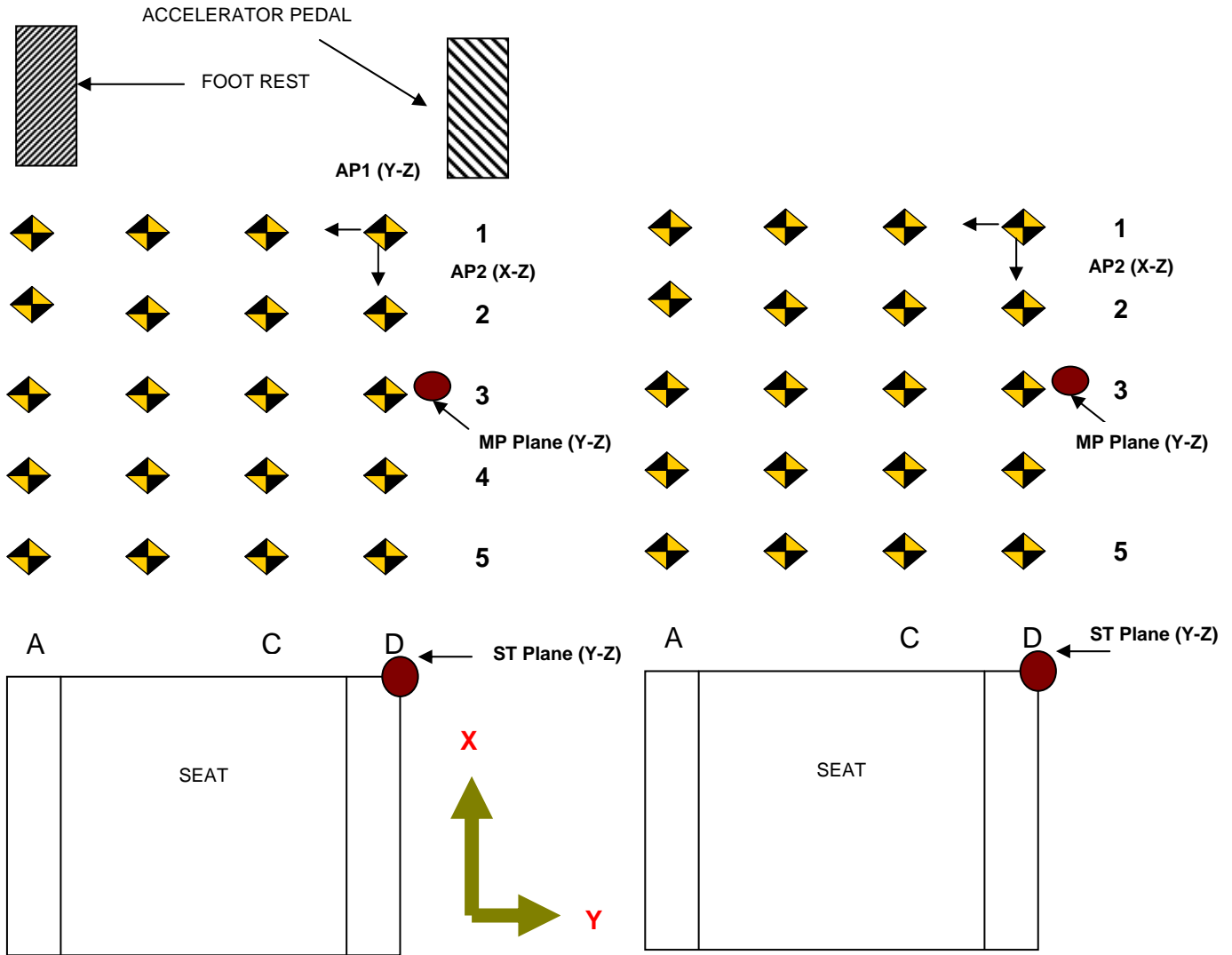
Item	Description	Units	Pre-Test	Post-Test	Diff.
AB	Door Opening (Inside window jam)	mm	942	940	-2
CX	Left Knee Bolster to X	mm	267	265	-2
DX	Right Knee Bolster to X	mm	274	272	-2
EX	Brake Pedal to X	mm	515	525	10
FX	Foot Rest to X	mm	520	530	10
GX	Center of Steering Wheel Hub to X	mm	24	28	4



**DATA SHEET NO. 16...(CONTINUED)
VEHICLE INTRUSION MEASUREMENTS**

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

NHTSA No.: M70301
 Test Date: 5/2/06



- AP1: Y-Z Plane passing through D1
- AP2: X-Z Plane passing through D1
- AP3: X-Y plane passing through D1
- MP: Y-Z plane, halfway between the ST plane and AP1 plane
- CF Plane: X-Z plane passes through center of footrest.
- BP Plane: X-Z plane passes through center of brake pedal
- TP Plane: Y-Z plane, intersection of BP Plane and the intersection of the toe pan and floorboard
- Column A: intersection of vehicle and CF plane
- Column D: Intersection of vehicle and AP2 plane
- Row 1: intersection of the vehicle and the AP3 Plane
- Row 3: intersection of the vehicle and TP plane
- Row 5: intersection of the vehicle and MP plane
- Row 2: evenly spaced between row 1 and 3
- Row 4: evenly spaced between row 3 and 5

DATA SHEET NO. 16...(CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

NHTSA No.: M70301
 Test Date: 5/2/06

All measurements in mm

DRIVER FLOOR PAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	597	645	638	612	495	550	537	498	-102	-95	-101	-114
2	527	564	548	536	436	479	471	469	-91	-85	-77	-67
3	470	480	475	458	391	407	416	417	-79	-73	-59	-41
4	403	389	379	365	338	327	323	324	-65	-62	-56	-41
5	330	303	285	273	253	238	229	231	-77	-65	-56	-42

DRIVER FLOOR PAN Y-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	-149	0	146	237	-179	-29	101	182	-30	-29	-45	-55
2	-159	-13	125	230	-180	-36	99	196	-21	-23	-26	-34
3	-167	-27	110	218	-188	-47	89	196	-21	-20	-21	-22
4	-178	-38	97	210	-196	-53	83	198	-18	-15	-14	-12
5	-184	-50	83	202	-200	-59	75	193	-16	-9	-8	-9

DRIVER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	540	591	595	595	499	548	557	450	-41	-43	-38	-145
2	574	644	650	648	547	613	623	581	-27	-31	-27	-67
3	640	692	693	688	625	675	679	687	-15	-17	-14	-1
4	709	712	710	713	691	695	697	703	-18	-17	-13	-10
5	721	706	706	710	686	693	693	699	-35	-13	-13	-11

DATA SHEET NO. 16...(CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

NHTSA No.: M70301
 Test Date: 5/2/06

All measurements in mm

PASSENGER FLOOR PAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	690	675	675	621	670	670	660	608	-20	-5	-15	-13
2	616	609	615	598	607	609	614	595	-9	0	-1	-3
3	530	529	535	542	527	531	534	549	-3	2	-1	7
4	453	445	445	449	451	449	448	450	-2	4	3	1
5	360	356	360	370	358	360	362	372	-2	4	2	2

PASSENGER FLOOR PAN Y-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	-284	-169	-56	66	-278	-162	-51	77	6	7	5	11
2	-290	-164	-50	78	-279	-159	-44	90	11	5	6	12
3	-293	-162	-45	91	-286	-153	-38	101	7	9	7	10
4	-296	-160	-41	90	-286	-154	-33	97	10	6	8	7
5	-295	-164	-37	96	-289	-157	-30	99	6	7	7	3

PASSENGER FLOOR PAN Z-AXIS

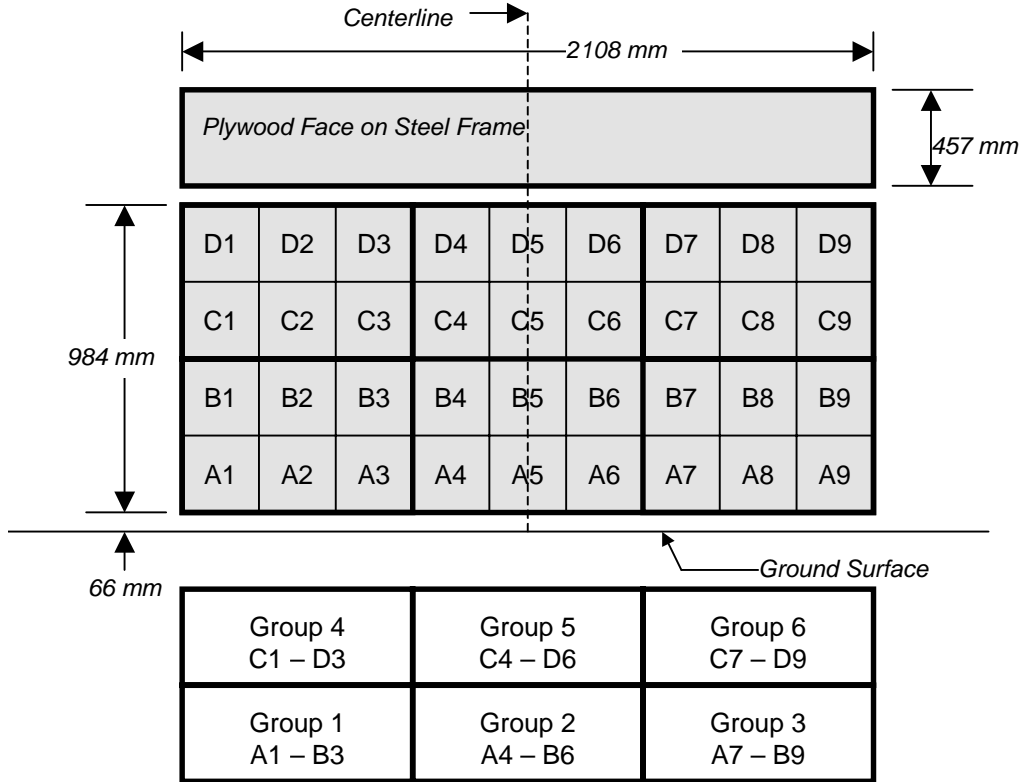
	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	-7	-11	-16	-75	-10	-12	-18	-74	-3	-1	-2	1
2	40	38	36	12	49	42	37	10	9	4	1	-2
3	85	82	77	80	96	92	81	83	11	10	4	3
4	111	110	111	111	124	117	115	113	13	7	4	2
5	113	107	105	116	125	112	109	117	12	5	4	1

DATA SHEET NO. 17
FIXED BARRIER LOAD CELL LOCATIONS

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

NHTSA No.: M70301
 Test Date: 5/2/06

36 Load Cell Rigid Barrier (NHTSA Standard)
Load Cell Locations on Fixed Barrier



6 Groups of 6 Load Cells Each

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

NHTSA No.: M70301
 Test Date: 5/2/06

VEHICLE INFORMATION

VIN: 1B3HB28B87D505206
 Vehicle Size Category: 5-Door

Wheel base (mm): 2640
 Test Weight (kg): 1582

ACCELEROMETER DATA

Accelerometer Location: Left rear cross member
 Cal. Procedure/Interval: 6 months / drop test
 Integration Algorithm: NHTSA Standard
 Impact Velocity (km/h): 56.18
 Velocity Change (km/h): 64.6

Linearity: Good

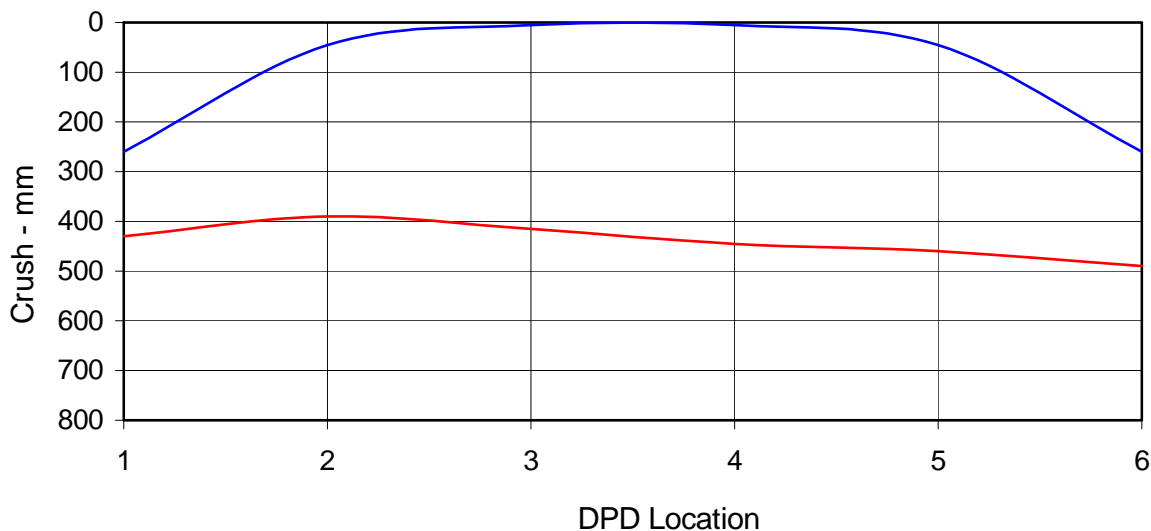
Time of Separation (msec): 64.7

CRUSH PROFILE

Collision Deformation Classification: 12FDEW6
 Damage Region Length (mm): 1540

Midpoint of Damage: Vehicle Centerline
 Impact Mode: Full Frontal

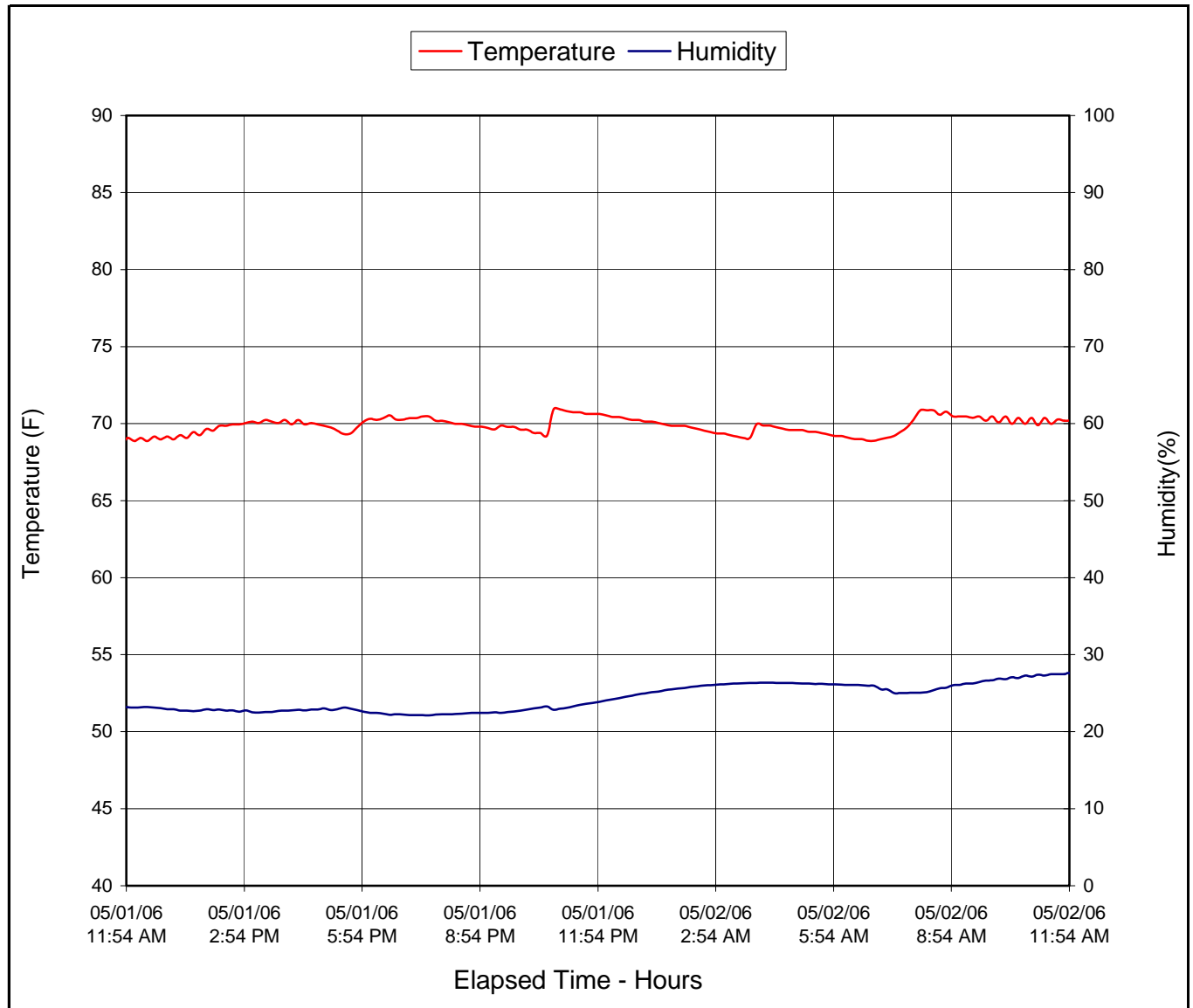
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	260	430	-170
C2	Crush zone 2 on left side	mm	45	390	-345
C3	Crush zone 3 on left side	mm	5	415	-410
C4	Crush zone 4 on right side	mm	5	445	-440
C5	Crush zone 5 on right side	mm	45	460	-415
C6	Crush zone 6 at right side	mm	260	490	-230



DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
Test Program: 2006 NHTSA 35mph NCAP

NHTSA No.: M70301
Test Date: 5/2/06



APPENDIX A
PHOTOGRAPHS

LIST OF PHOTOGRAPHS

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A-7	Post-Test Front View	A-7
A-8	Pre-Test Left Side View	A-8
A-9	Post-Test Left Side View	A-9
A-10	Pre-Test Right Side View	A-10
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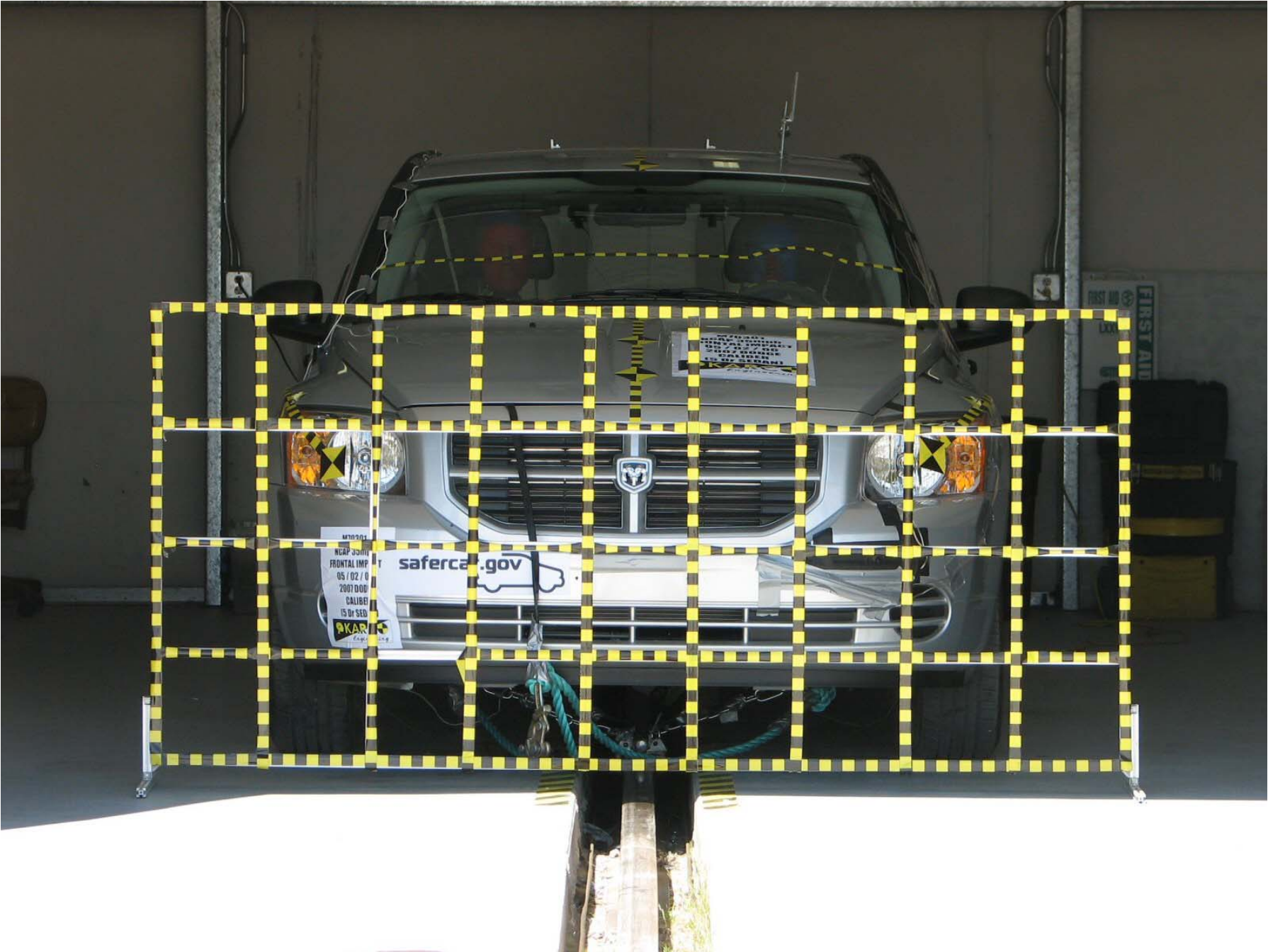
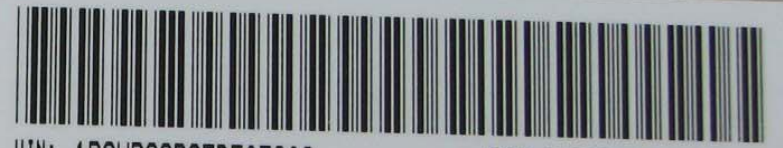


Figure A-1: Load Cell Location

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MFD BY DAIMLERCHRYSLER CORPORATION
GVWR: 2012 KG GAWR: 1080 KG DATE OF MFR: 2-06
04435 LB FRONT: 2380 LB GAWR: 0998 KG
REAR: 2200 LB



VIN: 1B3HB28B87D505206 TYPE: PASSENGER CAR
MDH: 021306 604AA PAINT: PS2 TRIM: H7DA
VEHICLE MADE IN U.S.A. 4658843

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY, BUMPER AND THEFT PREVENTION STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

Figure A-2: Manufacturer's Label



TIRE AND LOADING INFORMATION

SEATING CAPACITY – TOTAL **5** FRONT **2** REAR **3**

THE COMBINED WEIGHT OF OCCUPANTS AND CARGO SHOULD NEVER EXCEED
392 KG OR 865 LB

TIRE	FRONT	REAR	SPARE
ORIGINAL TIRE SIZE	P205/70R15	P205/70R15	T155/90D16
COLD TIRE INFLATION PRESSURE	240 kPa, 35 PSI	240 kPa, 35 PSI	420 kPa, 60 PSI

SEE OWNERS MANUAL FOR ADDITIONAL INFORMATION



7D505206

Figure A-3: Tire Placard



Figure A-4: Right Front $\frac{3}{4}$ View, As Received



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Figure A-5: Left Rear $\frac{3}{4}$ View, as Received



Figure A-6: Pre-Test Front View



Figure A-7: Post-Test Front View



Figure A-8: Pre-Test Left Side View



Figure A-9: Post-Test Left Side View



Figure A-10: Pre-Test Right Side View



Figure A-11: Post-Test Right Side View



Figure A-12: Pre-Test Right Front 3/4 View



Figure A-13: Post-Test Right Front $\frac{3}{4}$ View



Figure A-14: Pre-Test Left Rear ¾ View



Figure A-15: Post-Test Left Rear $\frac{3}{4}$ View



Figure A-16: Post-Test Left Side 3/4 View of Doors After Impact



Figure A-17: Post-Test Right Side ¾ View of Doors After Impact

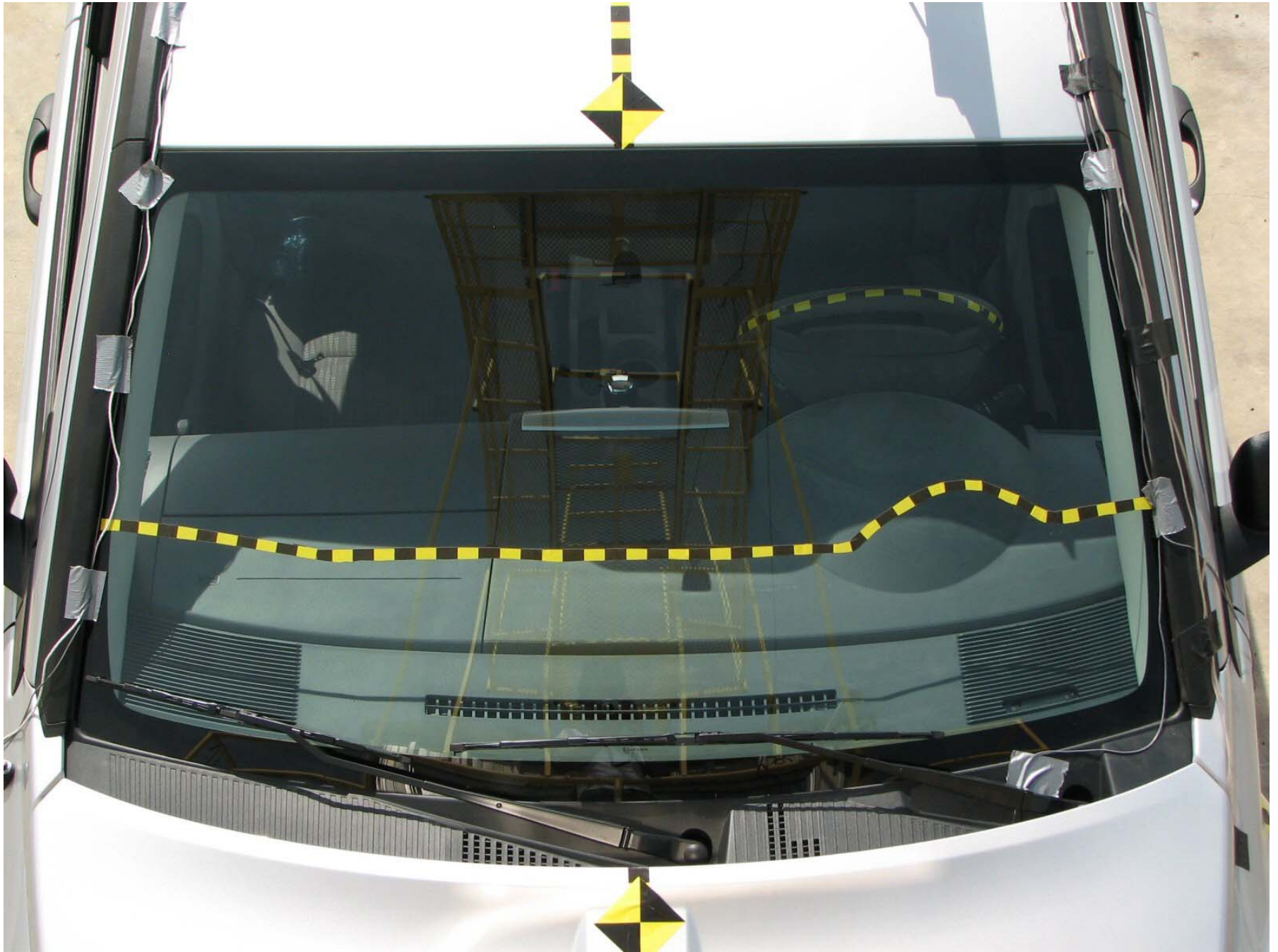


Figure A-18: Pre-Test Windshield



Figure A-19: Post-Test Windshield

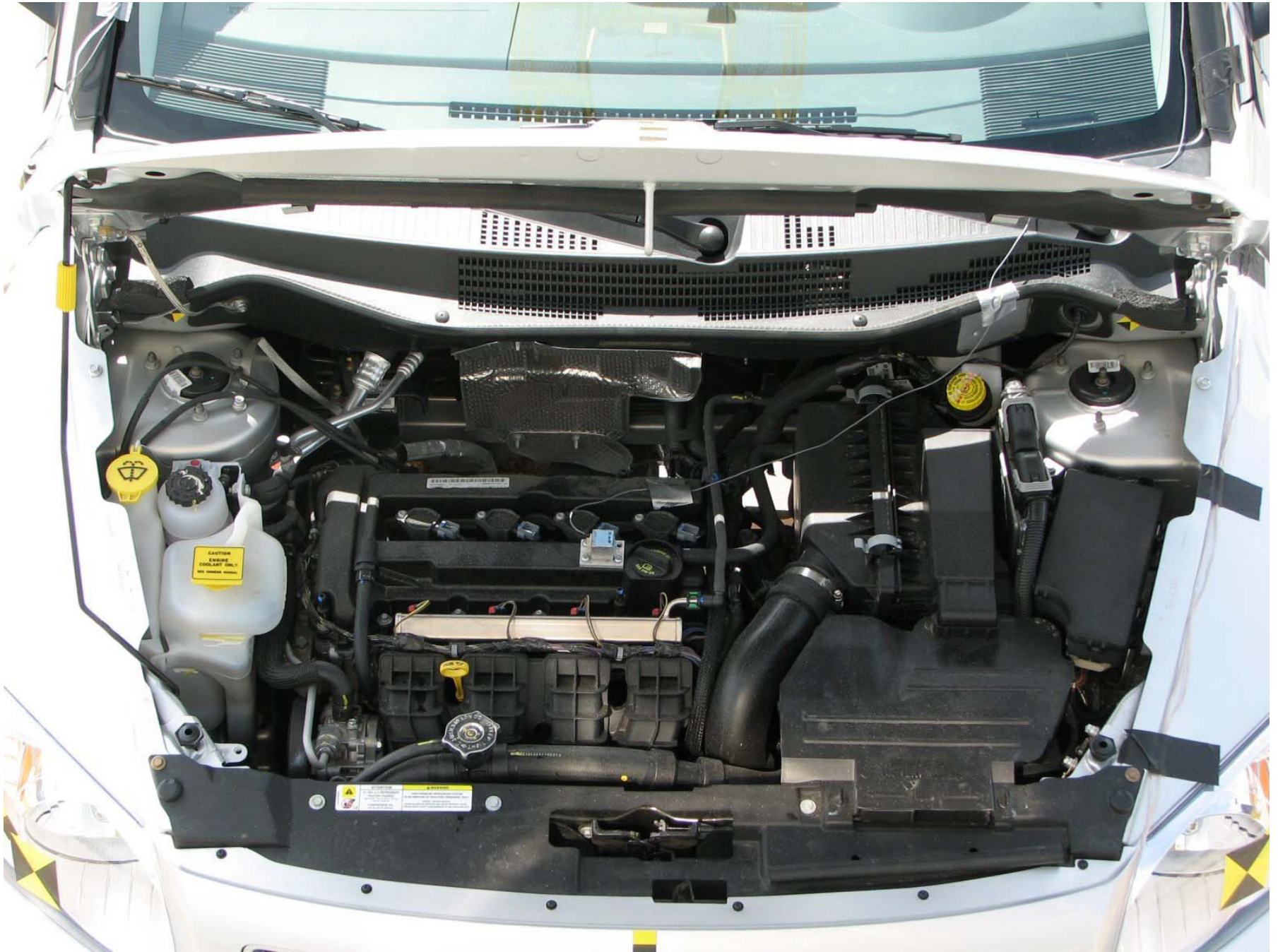


Figure A-20: Pre-Test Engine Compartment



Figure A-21: Post-Test Engine Compartment (Vehicle Moved)



Figure A-22: Pre-Test Fuel Cap



Figure A-23: Post-Test Fuel Cap

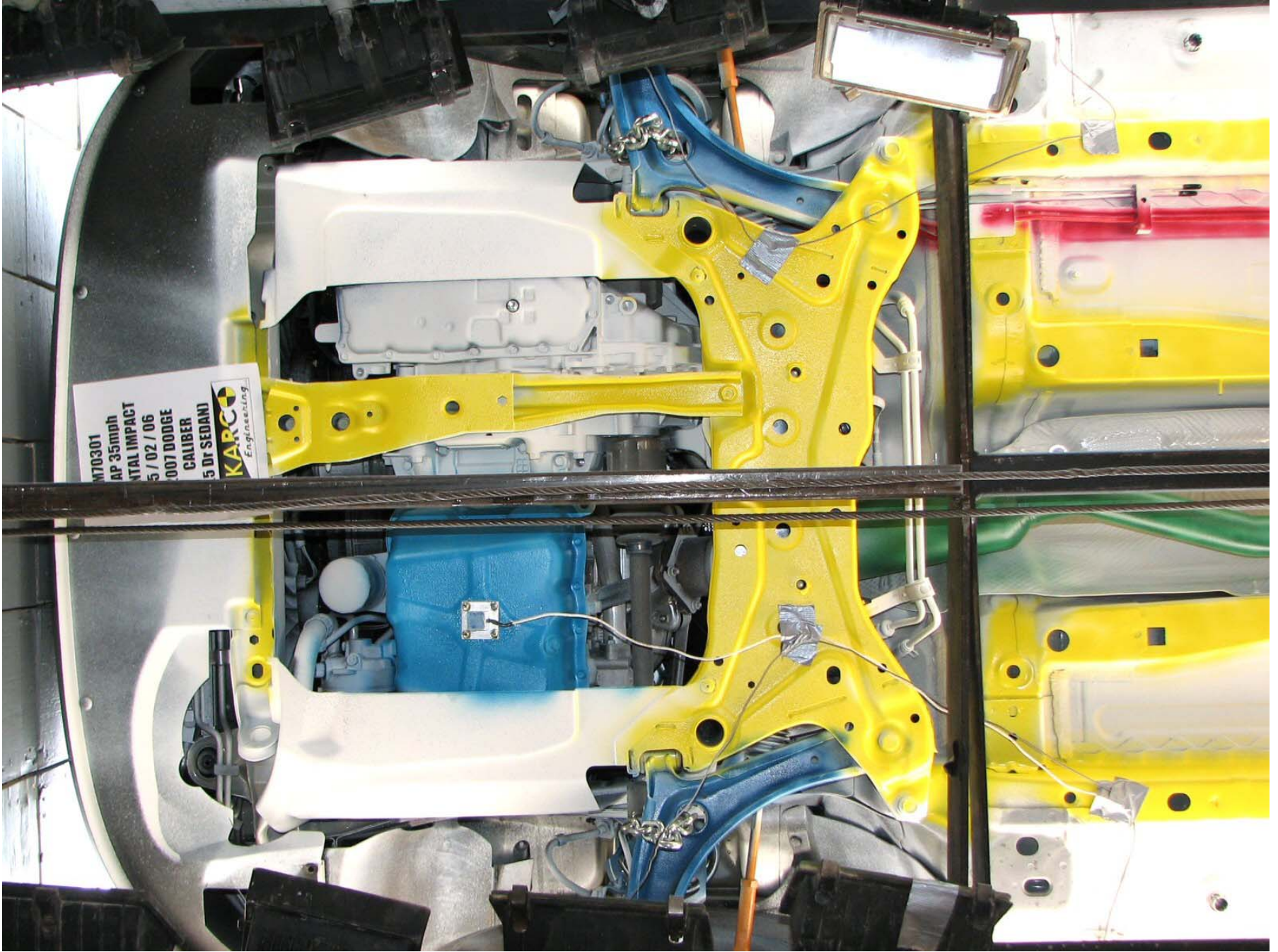


Figure A-24: Pre-Test Front Underbody

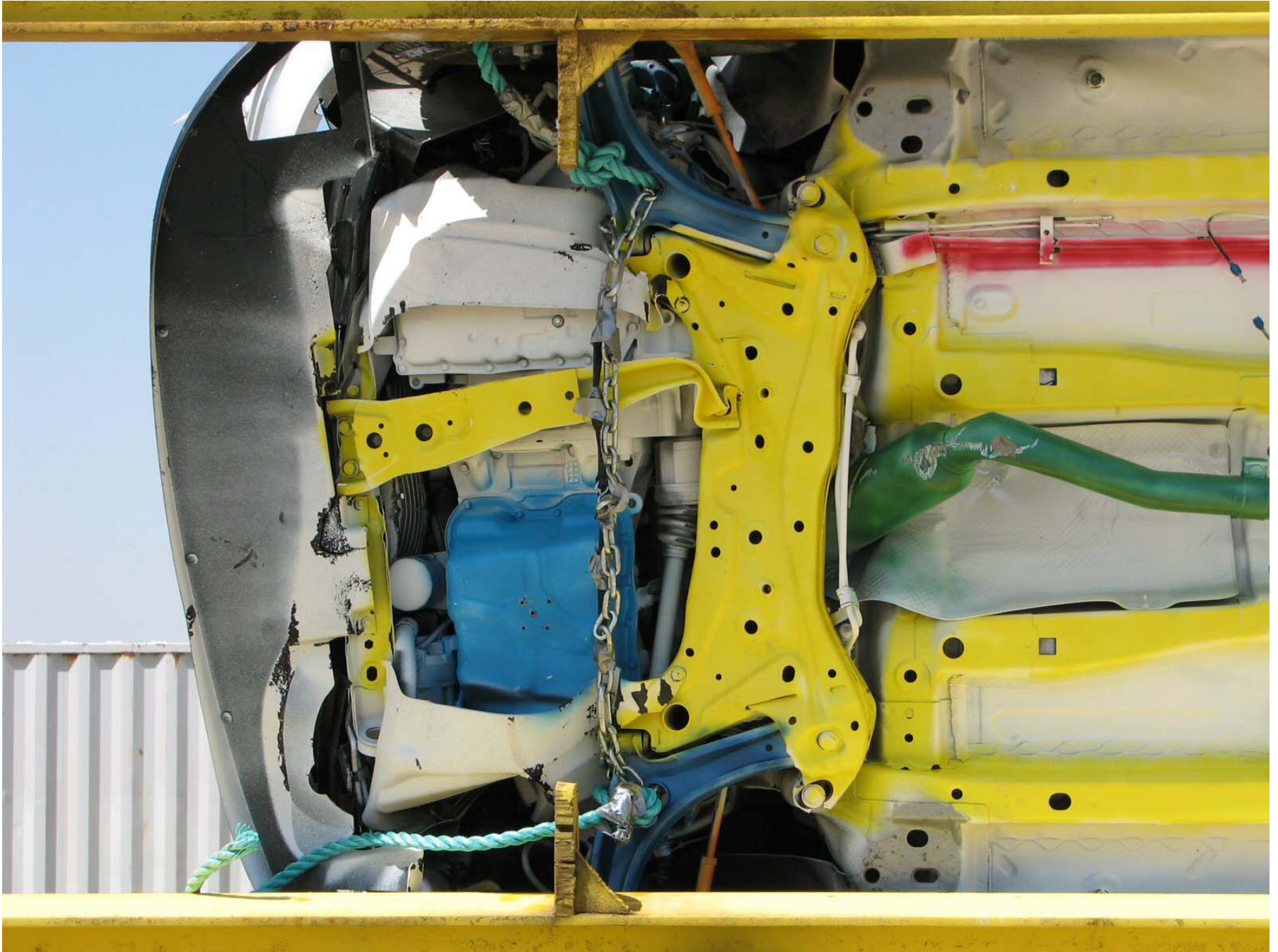


Figure A-25: Post-Test Front Underbody

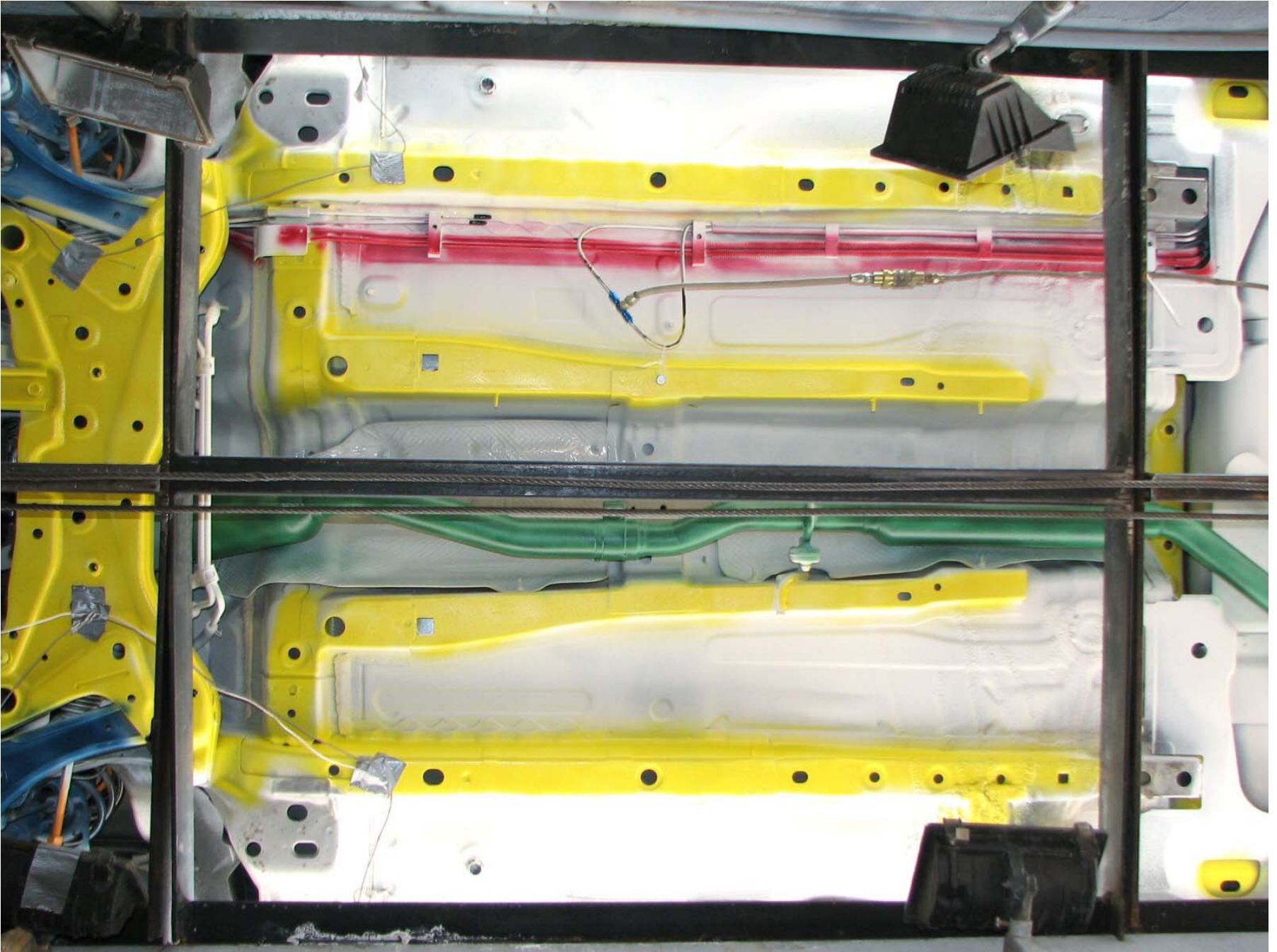


Figure A-26: Pre-Test Mid Underbody

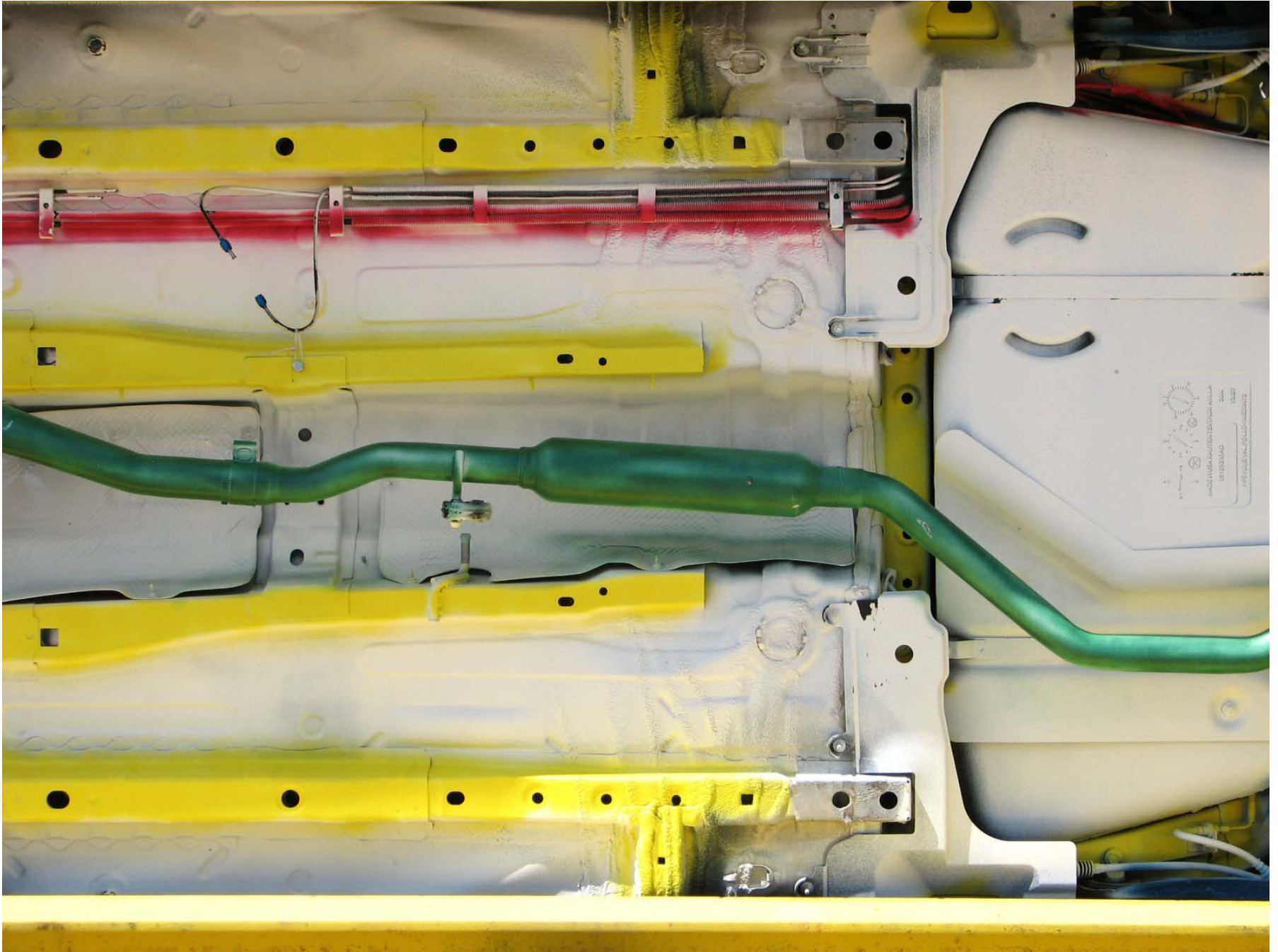


Figure A-27: Post-Test Mid Underbody

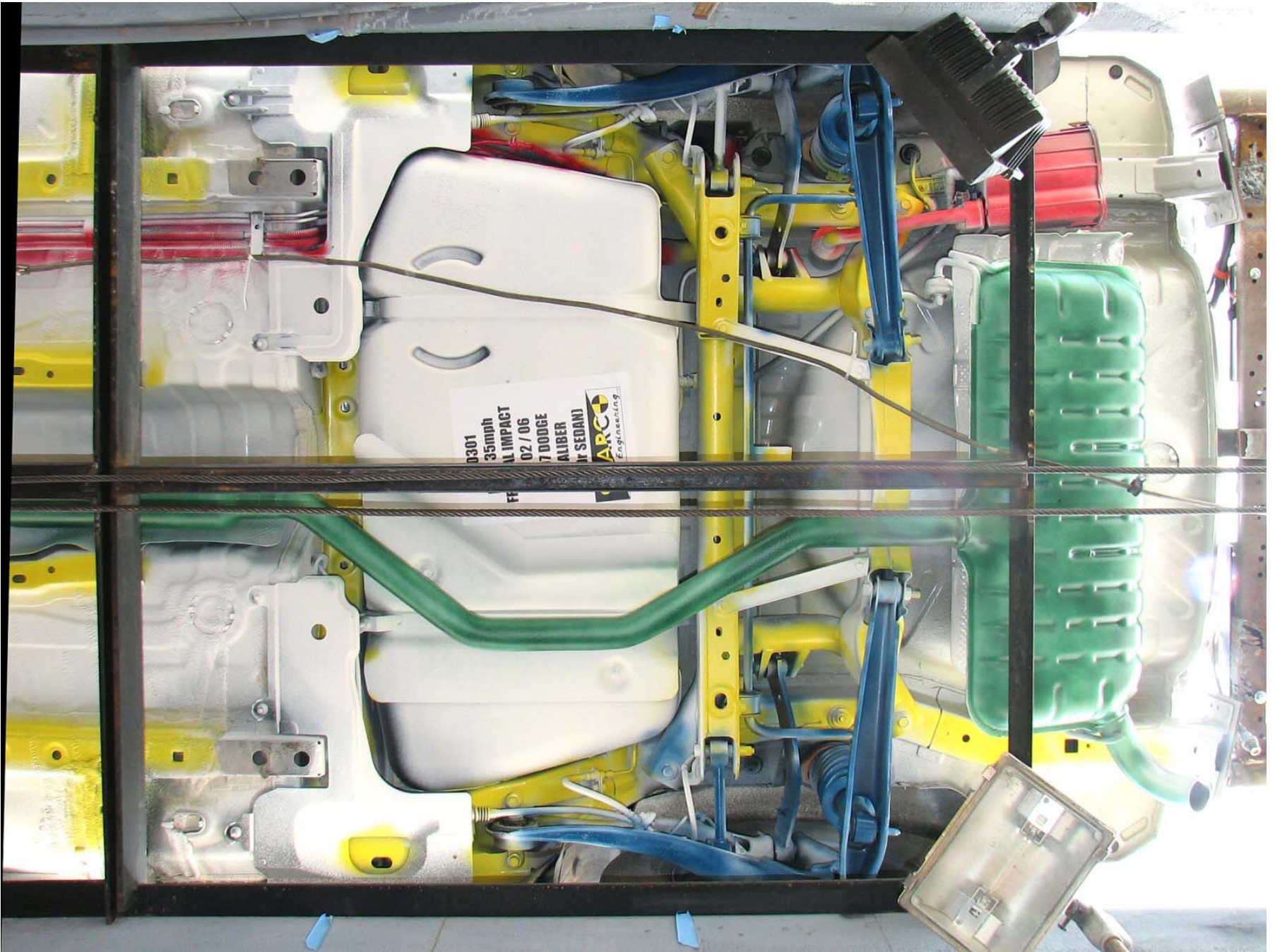


Figure A-28: Pre-Test Rear Underbody

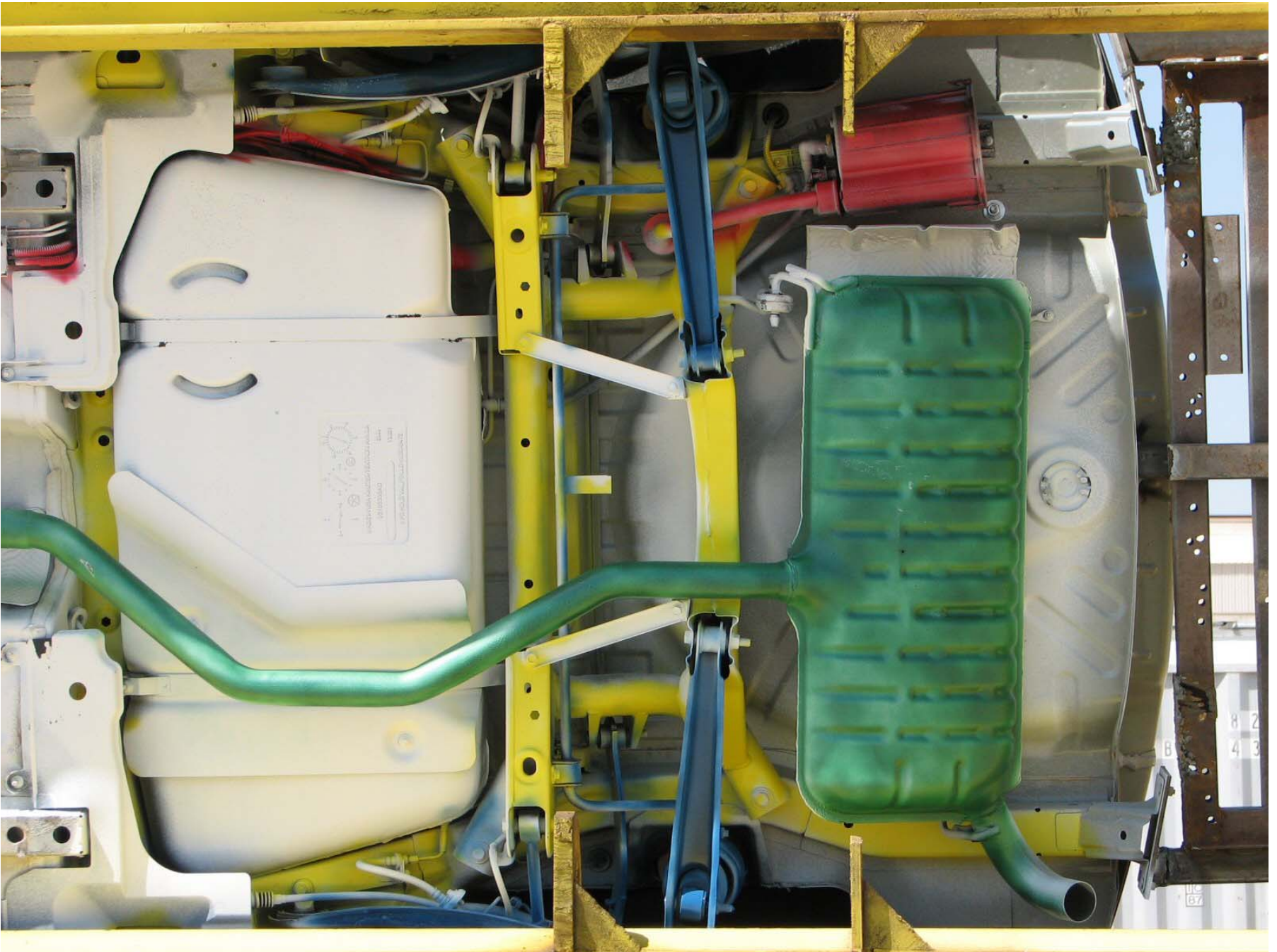


Figure A-29: Post-Test Rear Underbody



Figure A-30: Pre-Test Driver Dummy Front View (Head Position)



Figure A-31: Post-Test Driver Dummy Front View (Head Position)



Figure A-32: Pre-Test Driver Dummy (Through Window)



Figure A-33: Post-Test Driver Dummy (Through Window)



Figure A-34: Pre-Test Driver Dummy (Door Open)



Figure A-35: Post-Test Driver Dummy (Door Open)



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Figure A-36: Pre-Test Driver Dummy Feet



Figure A-37: Post-Test Driver Dummy Feet



Figure A-38: Pre-Test Driver Side Knee Bolster



Figure A-39: Post-Test Driver Side Knee Bolster



Figure A-40: Pre-Test Driver Side Floor Pan

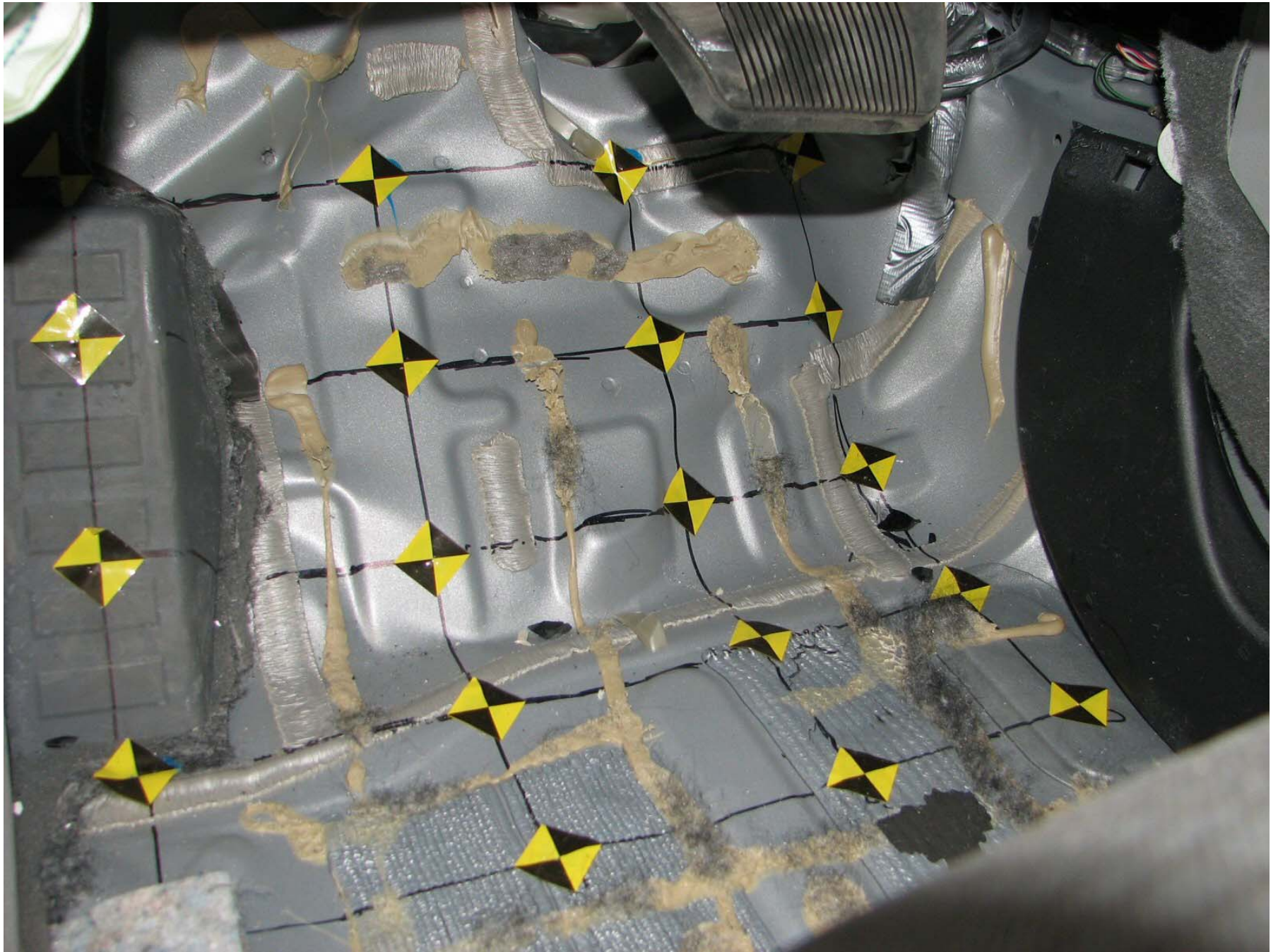


Figure A-41: Post-Test Driver Side Floor Pan



Figure A-42: Post-Test Driver Dummy Head



Figure A-43: Post-Test Driver Dummy Airbag Contact



Figure A-44: Pre-Test Passenger Dummy Front View (Head Position)

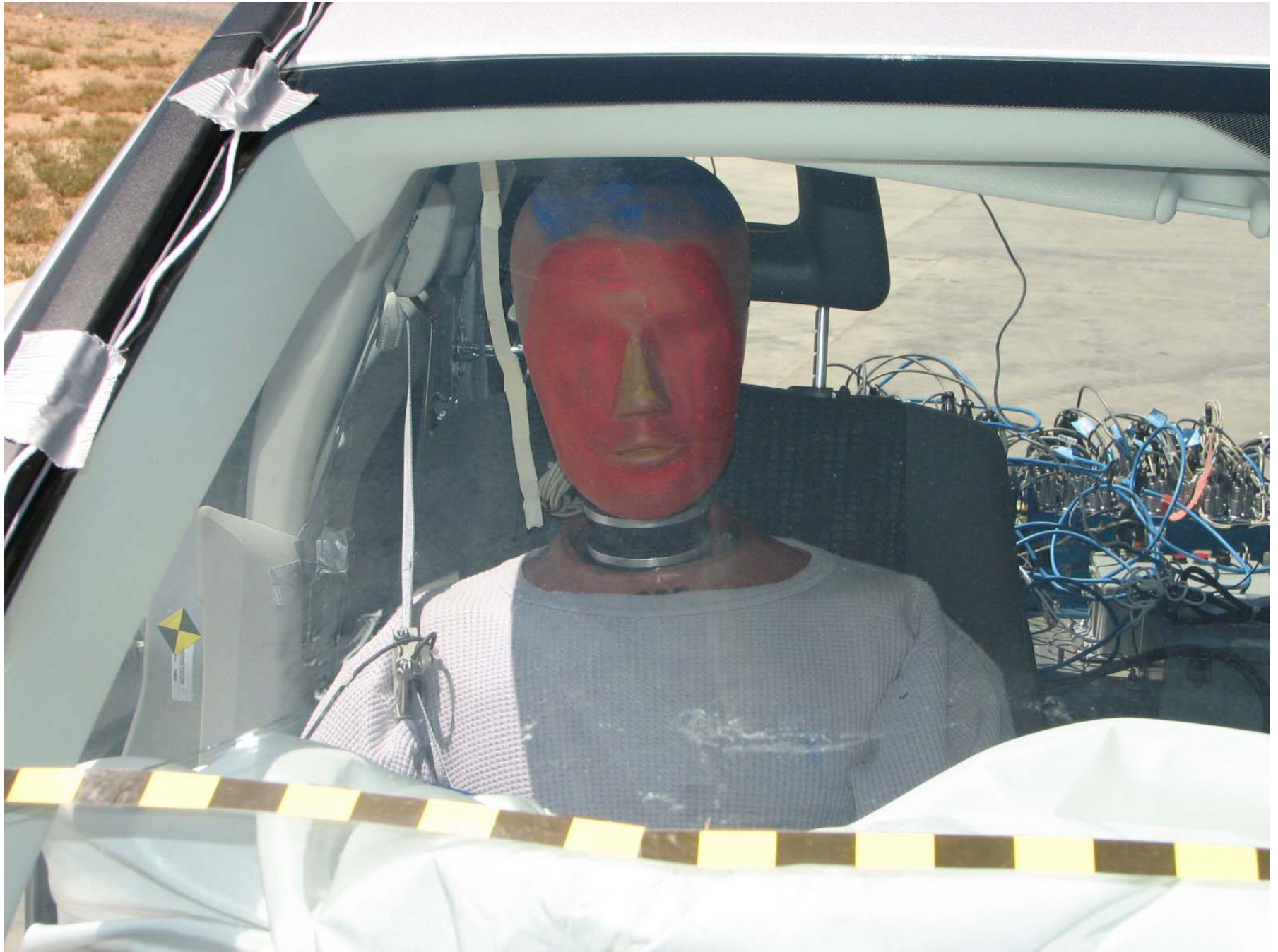


Figure A-45: Post-Test Passenger Dummy Front View (Head Position)



Figure A-46: Pre-Test Passenger Dummy (Through Window)



Figure A-47: Post-Test Passenger Dummy (Through Window)



Figure A-48: Pre-Test Passenger Dummy (Door Open)



Figure A-49: Post-Test Passenger Dummy (Door Open)

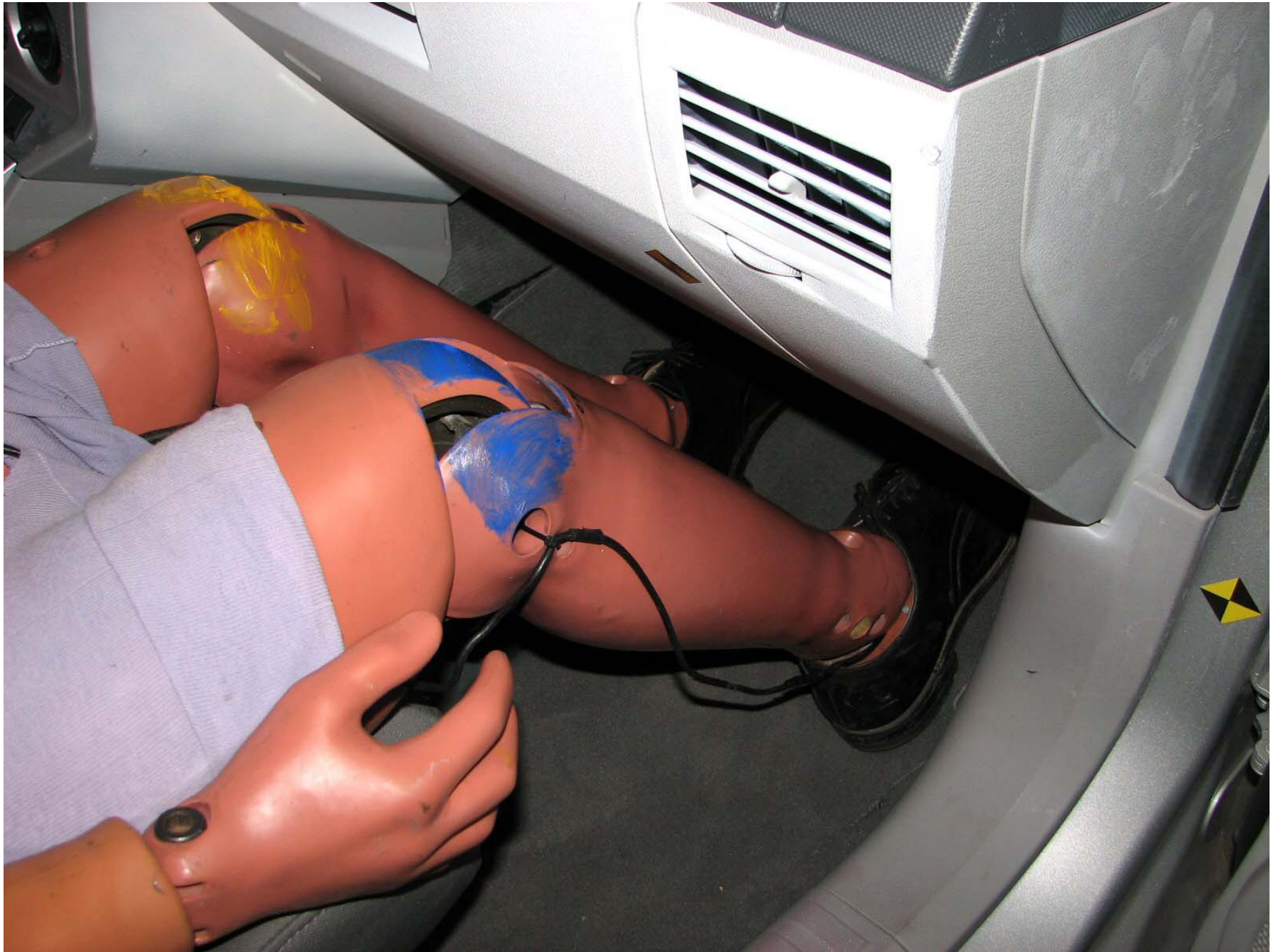


Figure A-50: Pre-Test Passenger Dummy Feet

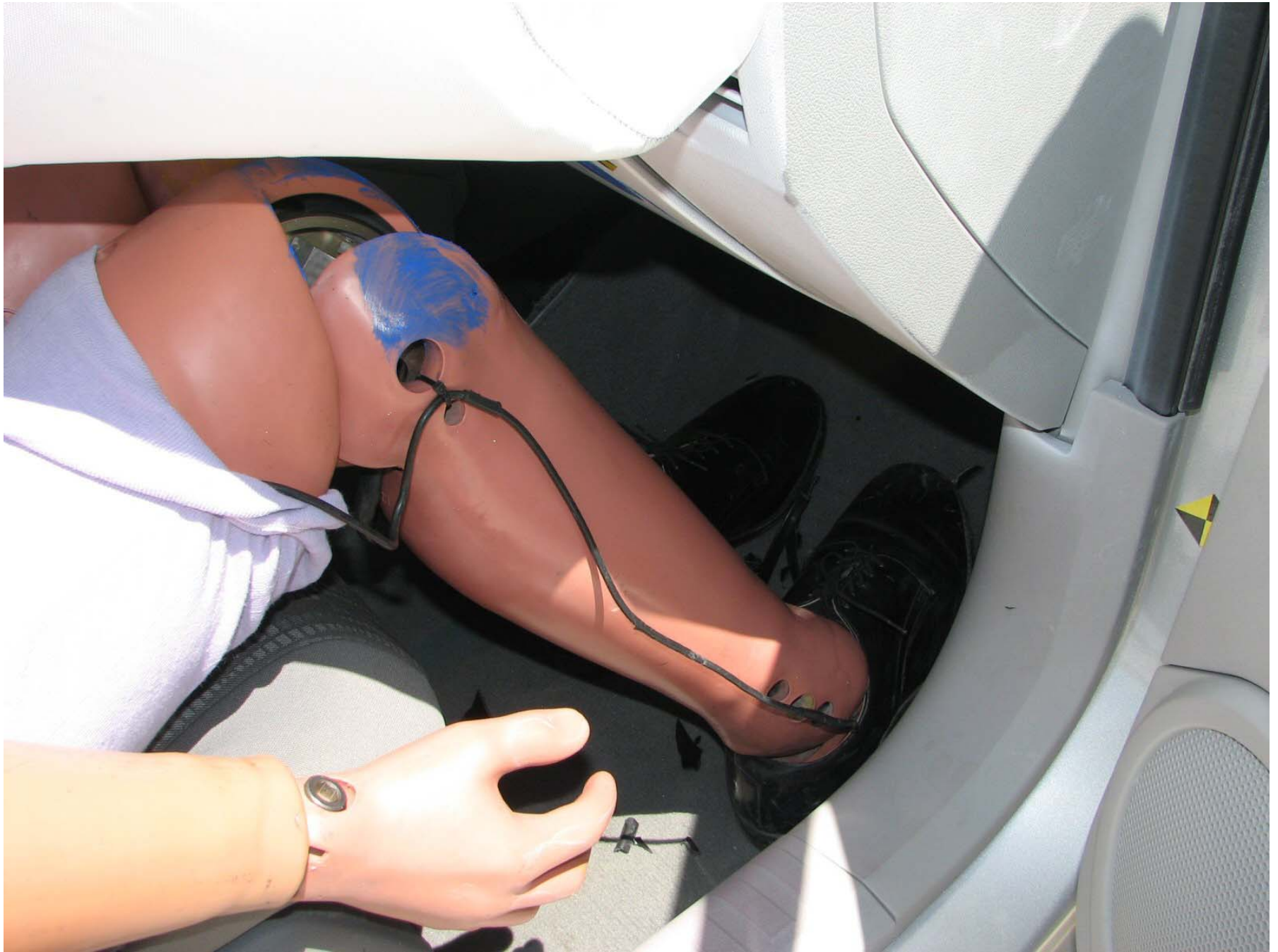


Figure A-51: Post-Test Passenger Dummy Feet



Figure A-52: Pre-Test Passenger Side Glove Box



Figure A-53: Post-Test Passenger Side Glove Box



Figure A-54: Pre-Test Passenger Side Floor Pan



Figure A-55: Post-Test Passenger Side Floor Pan



Figure A-56: Post-Test Passenger Dummy Head



Figure A-57: Post-Test Passenger Dummy Airbag Contact

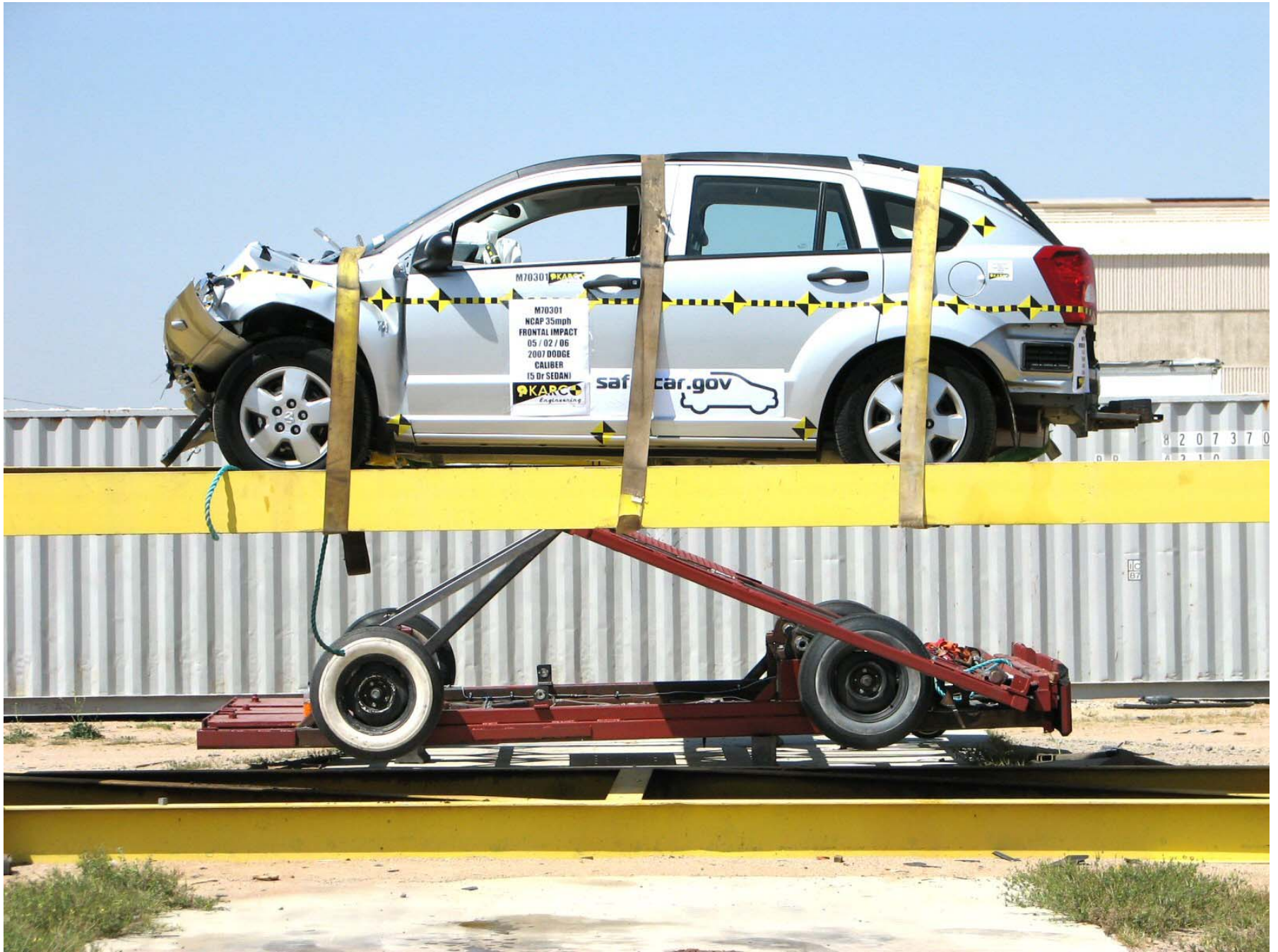


Figure A-58: Vehicle on Rollover Device (0°)



Figure A-59: Vehicle on Rollover Device (90°)



Figure A-60: Vehicle on Rollover Device (180°)

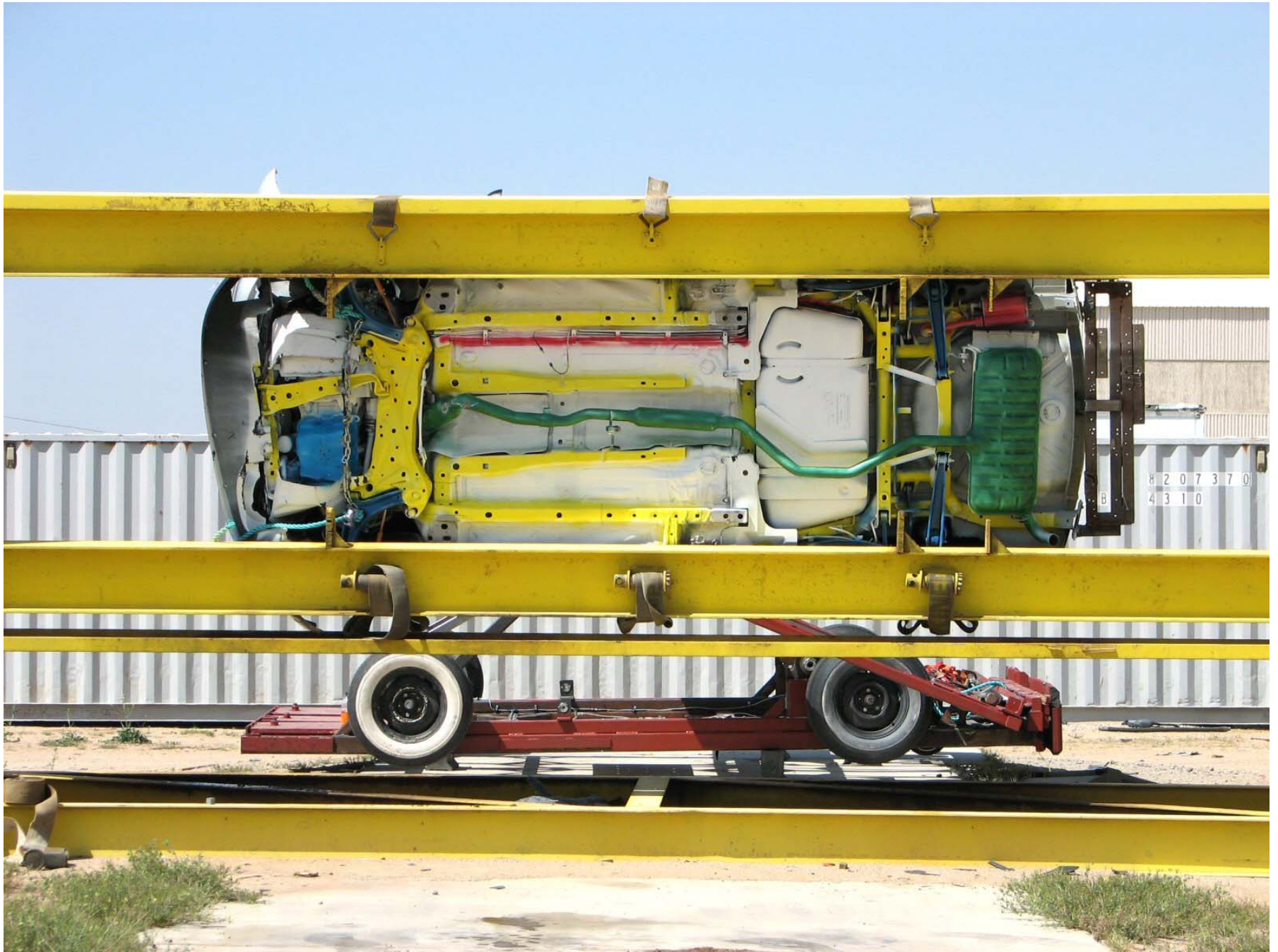


Figure A-61: Vehicle on Rollover Device (270°)

A-61

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Figure A-62: Vehicle Impact

APPENDIX B

DATA PLOTS

LIST OF DATA PLOTS

Data Plot	Page	
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	Driver Head Primary Y	B-1
	Driver Head Primary Z	B-1
	Driver Head Resultant Primary	B-1
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	Driver Chest Primary Z	B-2
	Driver Chest Resultant Primary	B-2
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	Driver Right Femur Force Z	B-3
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	Passenger Head Primary Z	B-4
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	Passenger Chest Primary Y	B-5
	Passenger Chest Primary Z	B-5
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	Passenger Right Femur Force Z	B-6

LIST OF DATA PLOTS...(CONTINUED)

The following additional data plots for this test can be obtained from the research and development section of the NHTSA website. The website can be found at www.NHTSA.dot.gov.

Driver Head Primary X Velocity
Driver Head Primary X Displacement
Driver Head Redundant X
Driver Head Redundant Y
Driver Head Redundant Z
Driver Head Resultant Redundant
Driver Head Redundant X Velocity
Driver Head Redundant X Displacement
Driver Upper Neck Force X
Driver Upper Neck Force Y
Driver Upper Neck Force Z
Driver Upper Neck Force Resultant
Driver Upper Neck Moment X
Driver Upper Neck Moment Y
Driver Upper Neck Moment Z
Driver Upper Neck Moment Resultant
Driver Chest Primary X Velocity
Driver Chest Primary X Displacement
Driver Chest Redundant X
Driver Chest Redundant Y
Driver Chest Redundant Z
Driver Chest Resultant Redundant
Driver Chest Redundant X Velocity
Driver Chest Redundant X Displacement
Driver Chest Displacement
Driver Pelvis X
Driver Pelvis Y
Driver Pelvis Z
Driver Pelvis Resultant
Driver Pelvis X Velocity
Driver Pelvis X Displacement
Driver Left Upper Tibia Moment X
Driver Left Upper Tibia Moment Y
Driver Right Upper Tibia Moment X

LIST OF DATA PLOTS...(CONTINUED)

Driver Right Upper Tibia Moment Y
Driver Left Lower Tibia Moment X
Driver Left Lower Tibia Moment Y
Driver Left Lower Tibia Force Z
Driver Right Lower Tibia Moment X
Driver Right Lower Tibia Moment Y
Driver Right Lower Tibia Force Z
Driver Left Foot Aft X
Driver Left Foot Aft Z
Driver Left Foot Fore Z
Driver Right Foot Aft X
Driver Right Foot Aft Z
Driver Right Foot Fore Z
Driver Lap Belt Force
Driver Shoulder Belt Force
Driver Shoulder Belt Pullout
Driver Shoulder Belt Elongation
Passenger Head Primary X Velocity
Passenger Head Primary X Displacement
Passenger Head Redundant X
Passenger Head Redundant Y
Passenger Head Redundant Z
Passenger Head Resultant Redundant
Passenger Head Redundant X Velocity
Passenger Head Redundant X Displacement
Passenger Upper Neck Force X
Passenger Upper Neck Force Y
Passenger Upper Neck Force Z
Passenger Upper Neck Force Resultant
Passenger Upper Neck Moment X
Passenger Upper Neck Moment Y
Passenger Upper Neck Moment Z
Passenger Upper Neck Moment Resultant
Passenger Chest Primary X Velocity
Passenger Chest Primary X Displacement
Passenger Chest Redundant X

LIST OF DATA PLOTS...(CONTINUED)

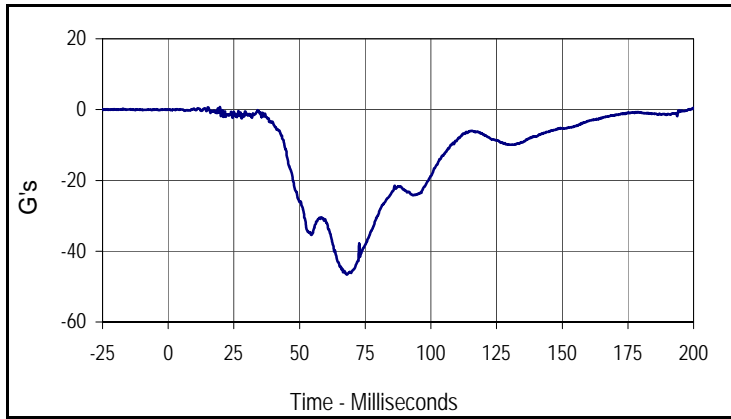
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Passenger Chest Resultant Redundant
Passenger Chest Redundant X Velocity
Passenger Chest Redundant X Displacement
Passenger Chest Displacement
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Passenger Pelvis Y
Passenger Pelvis Z
Passenger Pelvis Resultant
Passenger Pelvis X Velocity
Passenger Pelvis X Displacement
Passenger Left Femur Force
Passenger Right Femur Force
Passenger Left Upper Tibia Moment X
Passenger Left Upper Tibia Moment Y
Passenger Right Upper Tibia Moment X
Passenger Right Upper Tibia Moment Y
Passenger Left Lower Tibia Moment X
Passenger Left Lower Tibia Moment Y
Passenger Left Lower Tibia Force Z
Passenger Right Lower Tibia Moment X
Passenger Right Lower Tibia Moment Y
Passenger Right Lower Tibia Force Z
Passenger Left Foot Aft X
Passenger Left Foot Aft Z
Passenger Left Foot Fore Z
Passenger Right Foot Aft X
Passenger Right Foot Aft Z
Passenger Right Foot Fore Z
Passenger Lap Belt Force
Passenger Shoulder Belt Force
Passenger Shoulder Belt Pullout
Passenger Shoulder Belt Elongation
Vehicle Left Rear X
Vehicle Left Rear X Velocity

LIST OF DATA PLOTS...(CONTINUED)

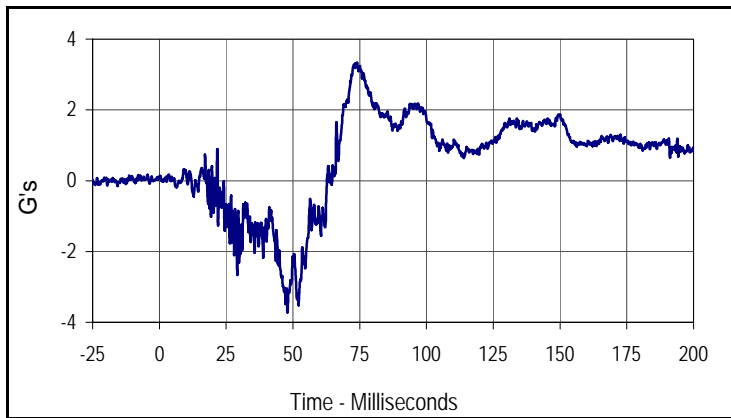
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Vehicle Right Rear X
Vehicle Right Rear X Velocity
Vehicle Right Rear X Displacement
Vehicle Engine Top
Vehicle Engine Top Velocity
Vehicle Engine Top Displacement
Vehicle Engine Bottom
Vehicle Engine Bottom Velocity
Vehicle Engine Bottom Displacement
Vehicle Left Brake Caliper
Vehicle Left Brake Caliper Velocity
Vehicle Left Brake Caliper Displacement
Vehicle Right Brake Caliper
Vehicle Right Brake Caliper Velocity
Vehicle Right Brake Caliper Displacement
Vehicle Instrument Panel
Vehicle Instrument Panel Velocity
Vehicle Instrument Panel Displacement
Vehicle Left Rear Z
Vehicle Left Rear Z Velocity
Vehicle Left Rear Z Displacement
Vehicle Right Rear Z
Vehicle Right Rear Z Velocity
Vehicle Right Rear Z Displacement

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

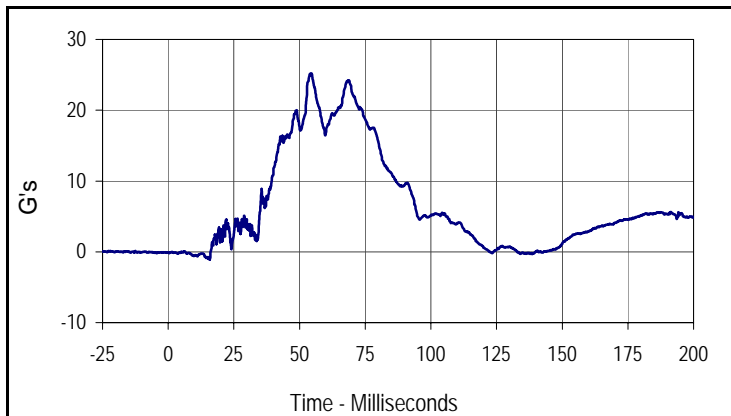
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 NHTSA No.: M70301



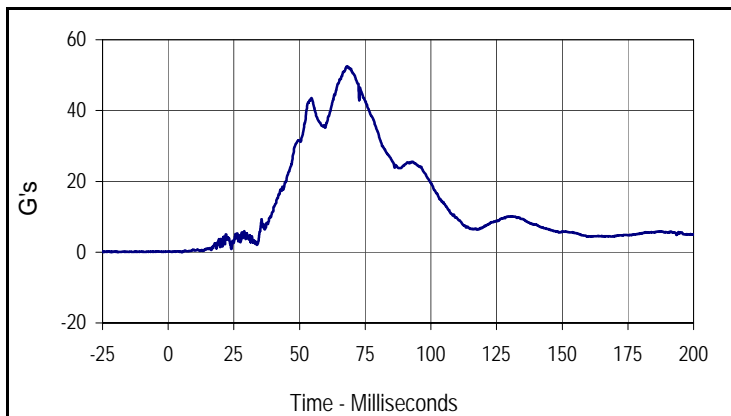
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Max	Time	Min	Time
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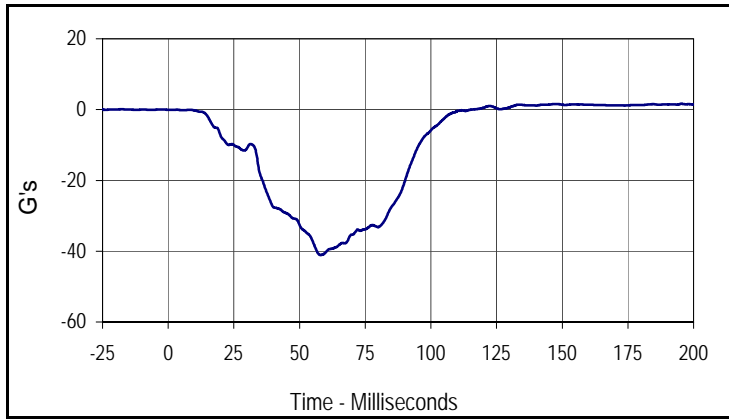
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Max	Time	Min	Time
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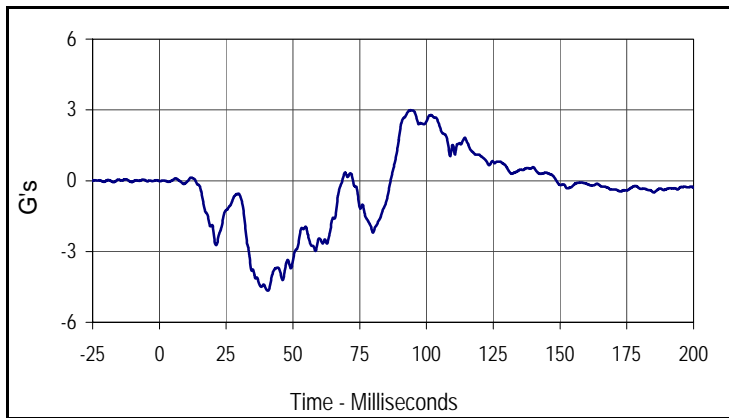
Curve Description			
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CURNO	Type	SAE Class	Units
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Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

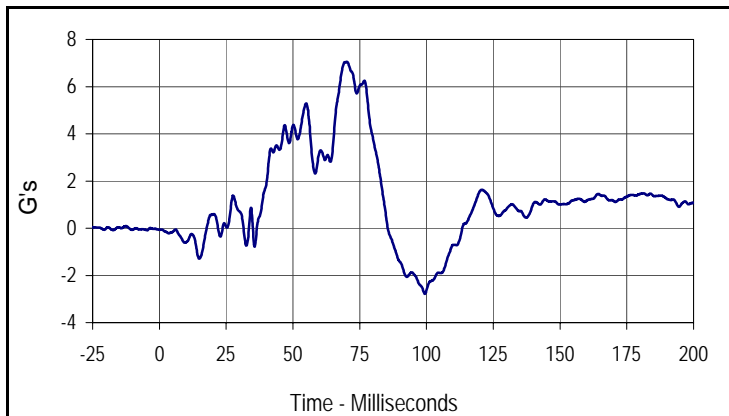
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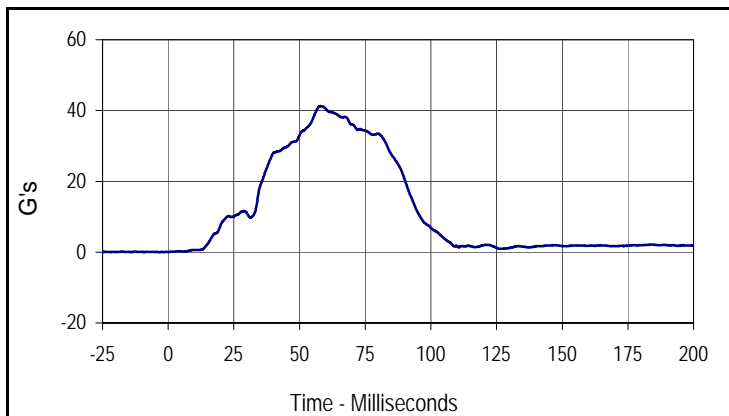
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Max	Time	Min	Time
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Curve Description			
Driver Chest Primary Y			
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005	FIL	180	G's
Max	Time	Min	Time
3.0	94.0	-4.7	40.6



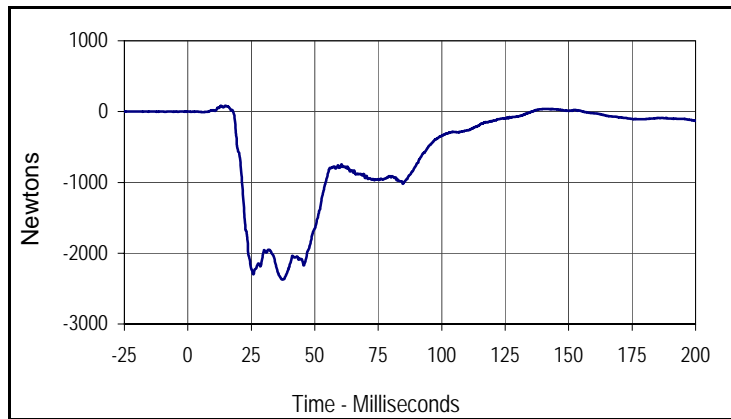
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Max	Time	Min	Time
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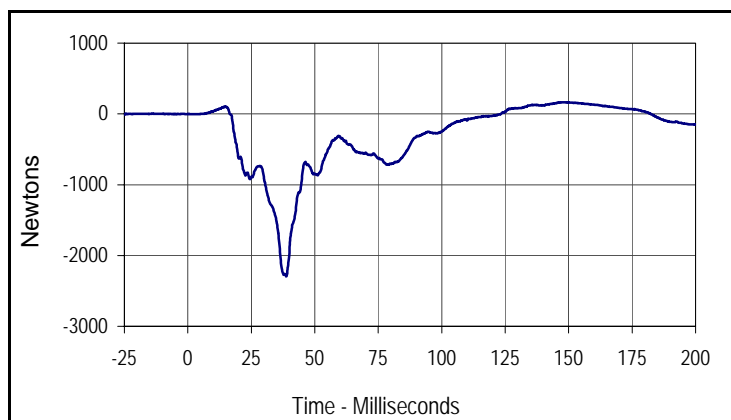
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CURNO	Type	SAE Class	Units
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Max	Time	Min	Time
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Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

Test Date: 5/2/06
 NHTSA No.: M70301



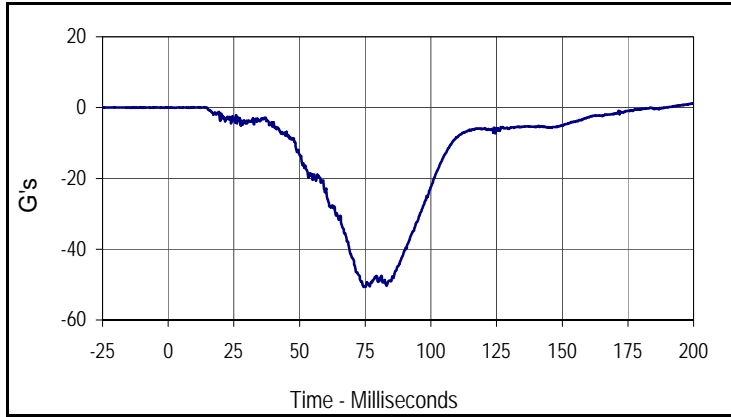
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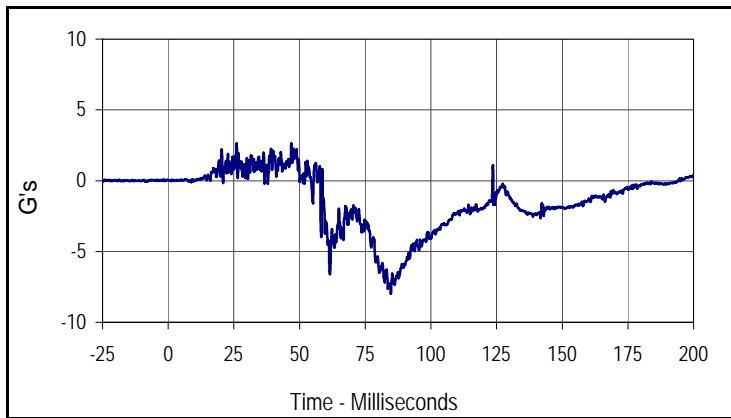
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Driver Right Femur Force Z			
CURNO	Type	SAE Class	Units
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Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

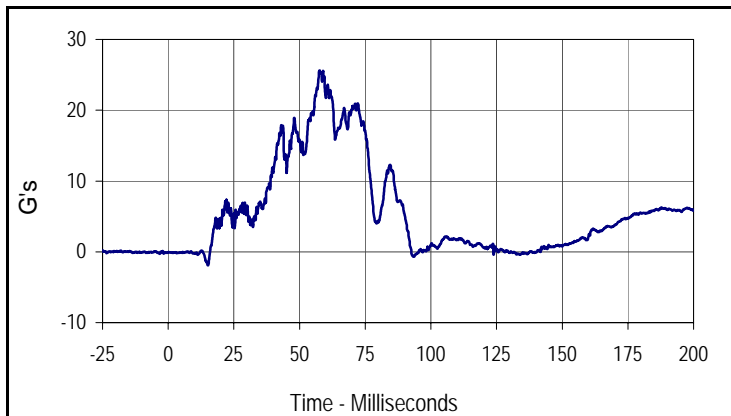
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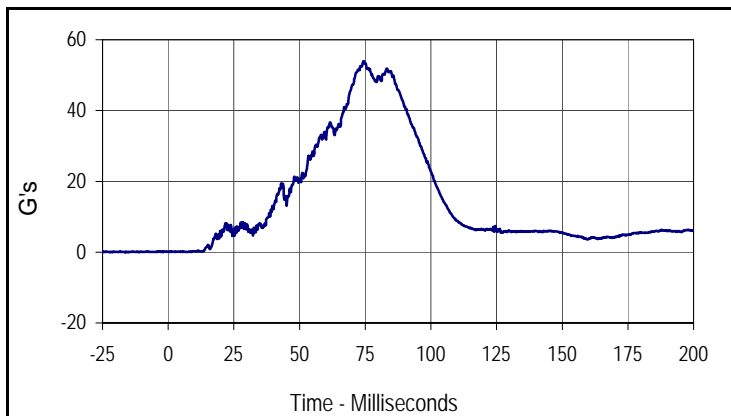
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Curve Description			
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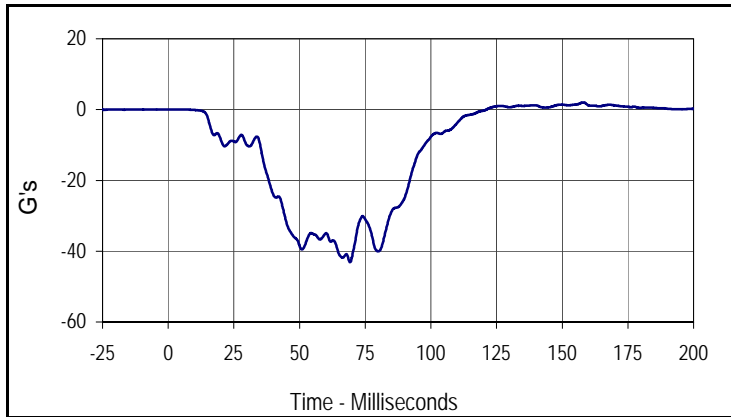
Curve Description			
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Max	Time	Min	Time
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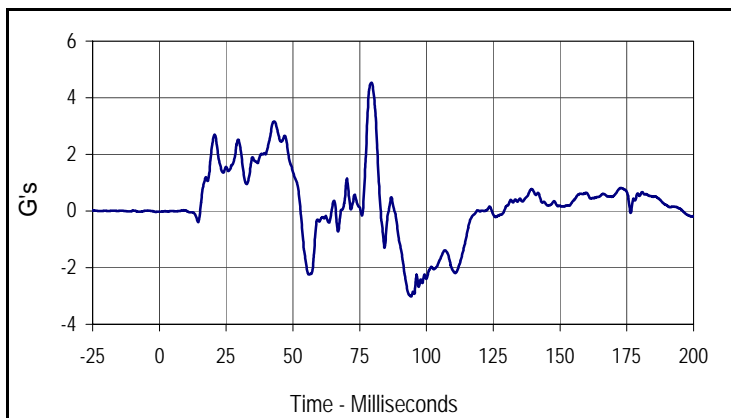
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Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

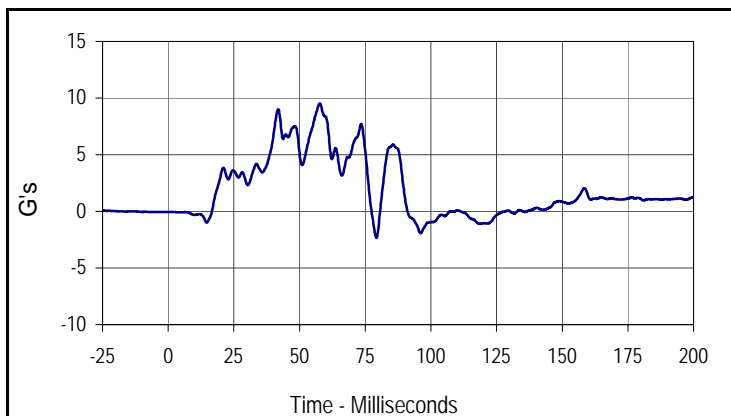
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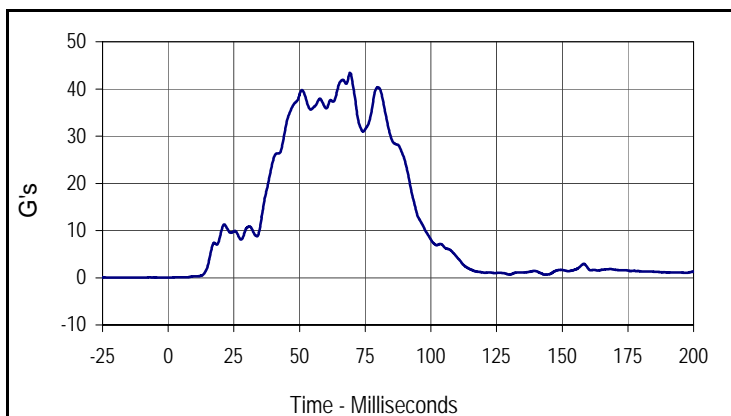
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Curve Description			
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Max	Time	Min	Time
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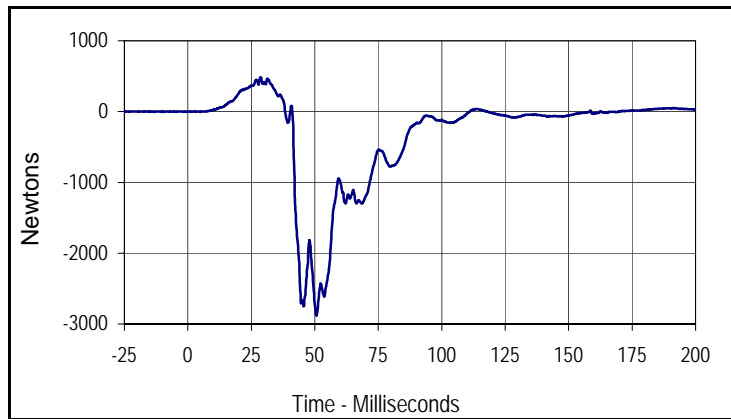
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Max	Time	Min	Time
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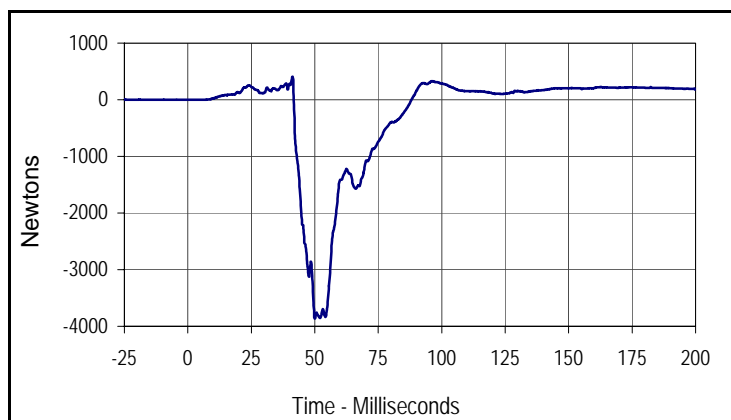
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Passenger Chest Resultant Primary			
CURNO	Type	SAE Class	Units
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Max	Time	Min	Time
43.4	69.2	0.1	1.5

Test Vehicle: 2007 Dodge Caliber 5-Door Sedan
 Test Program: 2006 NHTSA 35mph NCAP

Test Date: 5/2/06
 NHTSA No.: M70301



Curve Description			
Passenger Left Femur Force Z			
CURNO	Type	SAE Class	Units
015	FIL	600	Newtons
Max	Time	Min	Time
486.3	28.6	-2884.0	50.7



Curve Description			
Passenger Right Femur Force Z			
CURNO	Type	SAE Class	Units
016	FIL	600	Newtons
Max	Time	Min	Time
408.5	41.2	-3863.9	50.0

APPENDIX C
DUMMY CALIBRATION DATA

Test Program: Hybrid III 50th Percentile Male Head Drop Test

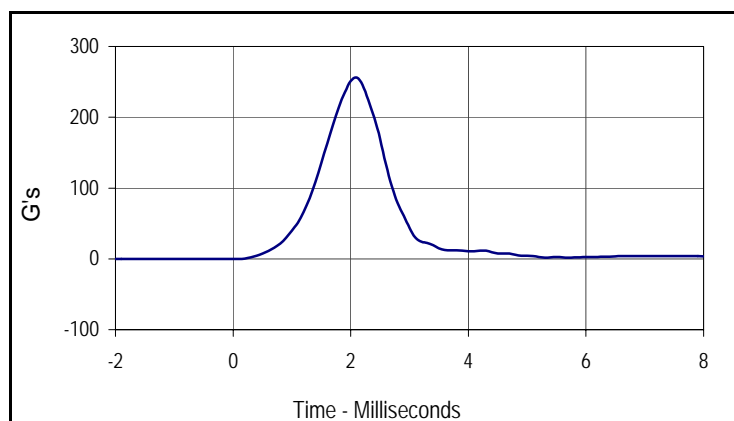
Test Date: 3/27/06

ATD Serial No.: 034

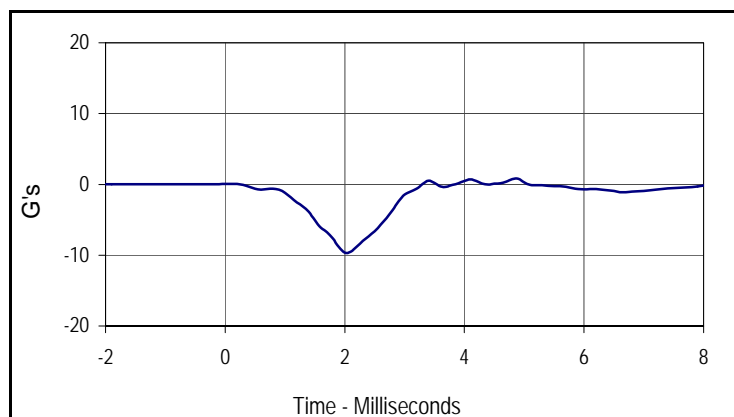
Test I.D.: HD04A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	256.1	Pass
Peak Lateral Acceleration	G's	≤15.0	9.6	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
256.1	2.1	0.0	-1.5



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.8	4.9	-9.6	2.0

Test Program: Hybrid III 50th Percentile Male Thorax Impact Test

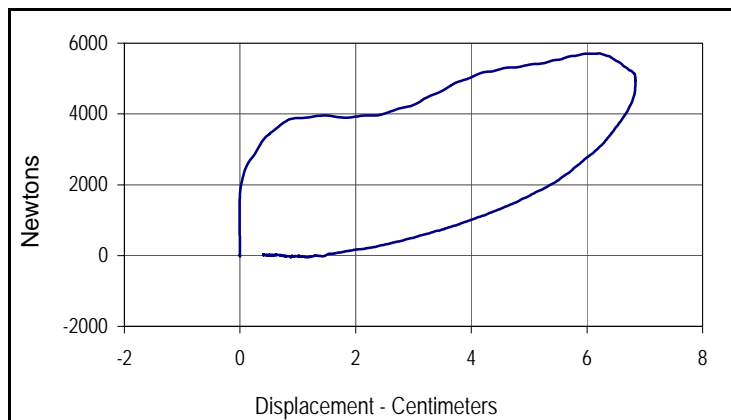
Test Date: 3/28/06

ATD Serial No.: 034

Test I.D.: CH04A



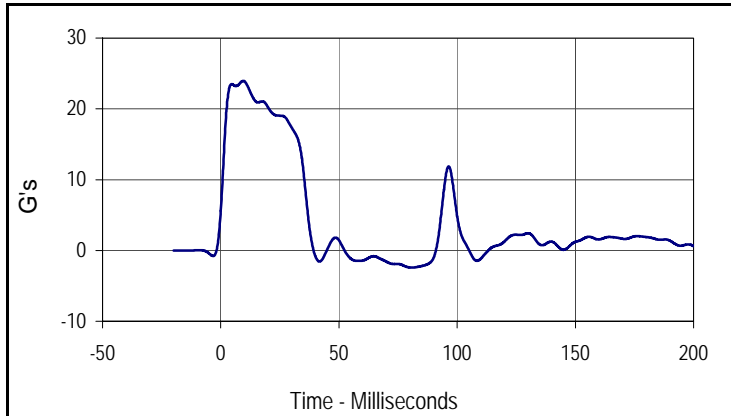
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.58 to 6.82	6.70	Pass
Peak Probe Force	Newtons	5159 to 5893	5708	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	6.84	Pass
Internal Hysteresis	%	69 to 85	75.9	Pass
Overall Test Results				Pass



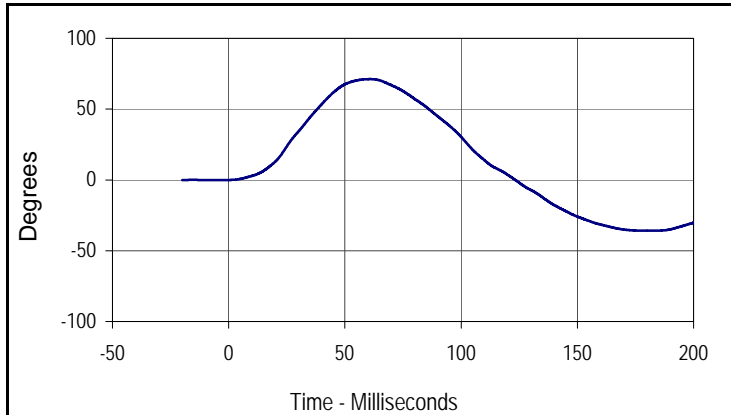
Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysteresis
001	FIL	180	75.9
Peak Probe Force		Peak Chest Deflection	
5708		6.84	



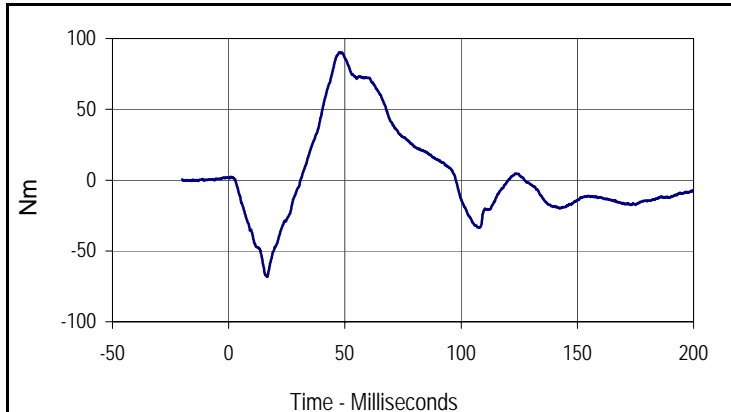
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	7.02	Pass	
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.9	Pass
	20 Msec.	G's	17.6 to 22.6	20.2	Pass
	30 Msec.	G's	12.5 to 18.5	17.4	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 29.0	17.4	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	34.0 to 42.0	36.9	Pass	
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	71.2	Pass
	Time	Msec.	57.0 to 64.0	60.9	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	113.0 to 128.0	123.3	Pass	
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	90.3	Pass
	Time	Msec.	47.0 to 58.0	47.7	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	97.0 to 107.0	97.8	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
23.9	9.5	-2.4	80.8



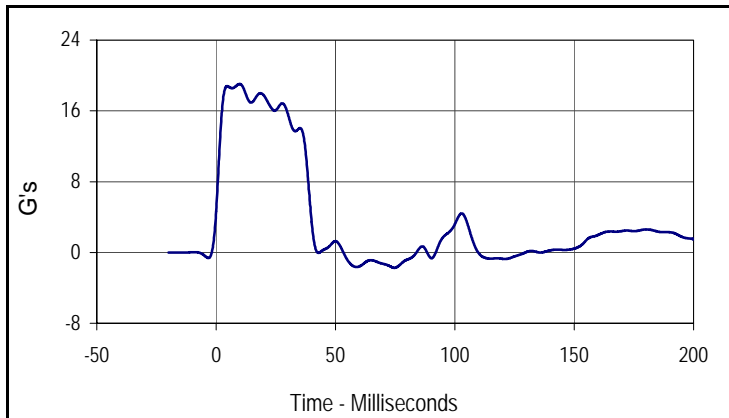
Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
71.2	60.9	-35.8	183.5



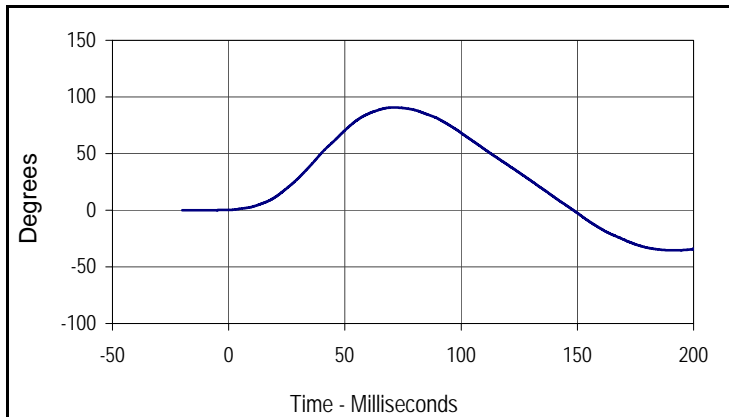
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
90.3	47.7	-68.5	16.5



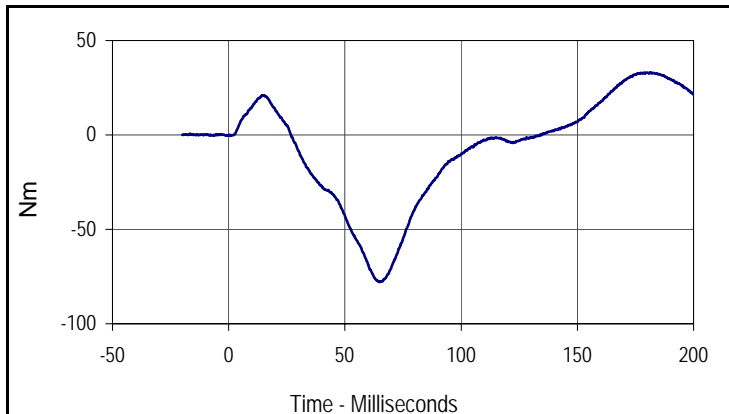
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	5.94 to 6.19	6.11	Pass	
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	19.0	Pass
	20 Msec.	G's	14.0 to 19.0	17.7	Pass
	30 Msec.	G's	11.0 to 16.0	15.7	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 22.0	15.7	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	38.0 to 46.0	39.5	Pass	
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	90.7	Pass
	Time	Msec.	72.0 to 82.0	72.3	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	147.0 to 174.0	148.3	Pass	
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-77.9	Pass
	Time	Msec.	65.0 to 79.0	65.2	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	120.0 to 148.0	134.0	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
19.0	9.9	-1.7	74.6



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
90.7	71.0	-35.4	191.3



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
33.2	181.4	-77.9	64.9

Test Program: Hybrid III 50th Percentile Male Knee Impact Test

Test Date: 3/28/06

ATD Serial No.: 034

Test I.D.: LK04A , RK04A

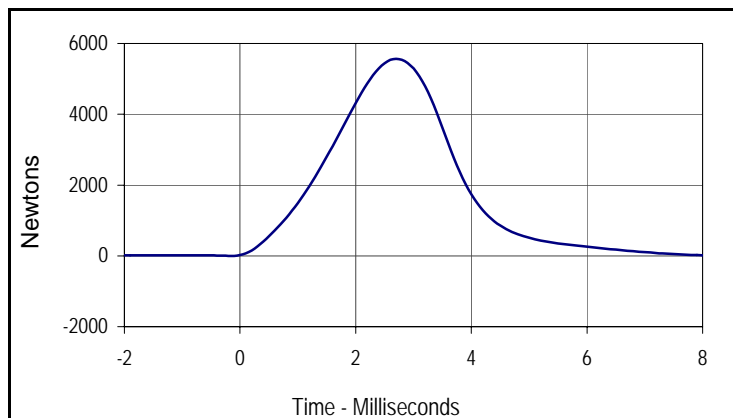


Left Knee

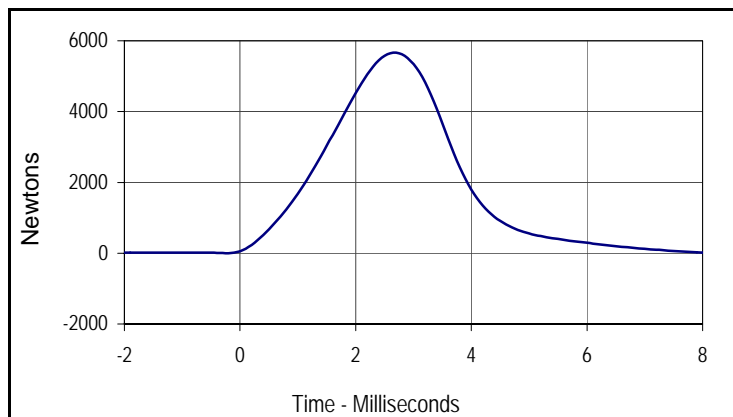
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	5570	Pass
Overall Test Results				Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	4715 to 5782	5666	Pass
Overall Test Results				Pass



Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5569.8	2.7	-8.8	8.7



Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
5665.5	2.7	-10.5	8.7

Test Program: Hybrid III 50th Percentile Male External Measurements Test Date: 3/28/06
 ATD Serial No.: 034 Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	879 to 889	883	Pass
B - Shoulder pivot height	mm	505 to 521	512	Pass
C - "H" point height	mm	84 to 89	85	Pass
D - "H" point from seat back	mm	135 to 140	139	Pass
E - Shoulder pivot from back	mm	84 to 94	90	Pass
F - Thigh clearance	mm	140 to 155	144	Pass
G - Elbow back to wrist pivot	mm	290 to 305	300	Pass
H - Skull cap to back line	mm	41 to 46	45	Pass
I - Shoulder to elbow length	mm	330 to 345	338	Pass
J - Elbow rest height	mm	190 to 211	195	Pass
K - Buttock to knee length	mm	579 to 604	585	Pass
L - Popliteal length	mm	429 to 455	450	Pass
M - Knee pivot height	mm	485 to 500	487	Pass
N - Buttock popliteal length	mm	452 to 477	465	Pass
O - Chest depth	mm	213 to 229	225	Pass
P - Foot length	mm	251 to 267	260	Pass
V - Shoulder breadth	mm	422 to 437	430	Pass
W - Foot breadth	mm	91 to 107	100	Pass
Y - Chest circumference	mm	970 to 1001	995	Pass
Z - Waist circumference	mm	836 to 866	850	Pass
AA - Location for chest circumference	mm	429 to 434	430	Pass
BB - Location for waist circumference	mm	226 to 231	229	Pass
Overall Test Results				Pass

Test Program: Hybrid III 50th Percentile Male Head Drop Test

Test Date: 3/27/06

ATD Serial No.: 035

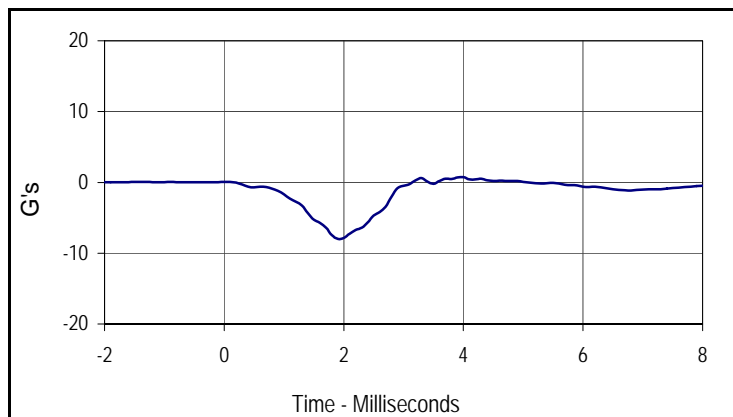
Test I.D.: HD04B



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	256.9	Pass
Peak Lateral Acceleration	G's	≤15.0	8.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
256.9	2.0	0.5	-0.7



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.7	4.0	-8.0	1.9

Test Program: Hybrid III 50th Percentile Male Thorax Impact Test

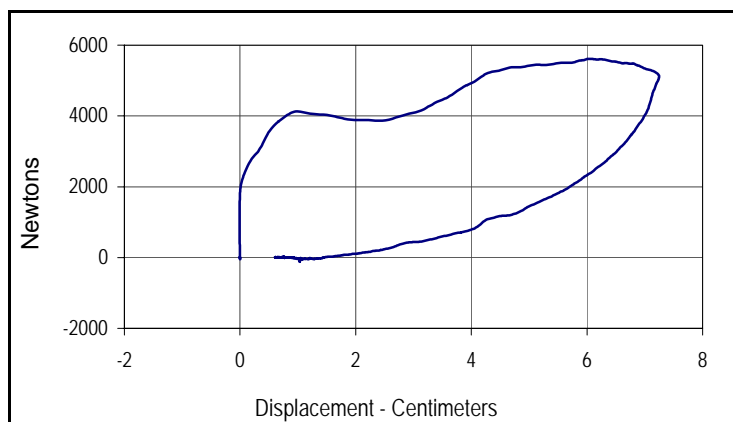
Test Date: 3/28/06

ATD Serial No.: 035

Test I.D.: CH04B



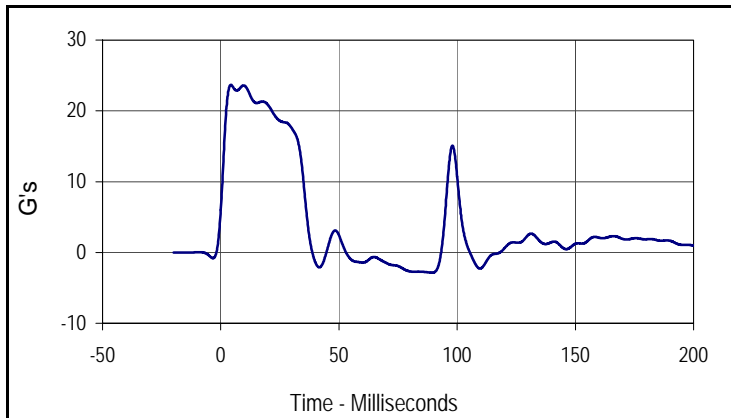
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.58 to 6.82	6.71	Pass
Peak Probe Force	Newtons	5159 to 5893	5615	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	7.25	Pass
Internal Hysteresis	%	69 to 85	75.9	Pass
Overall Test Results				Pass



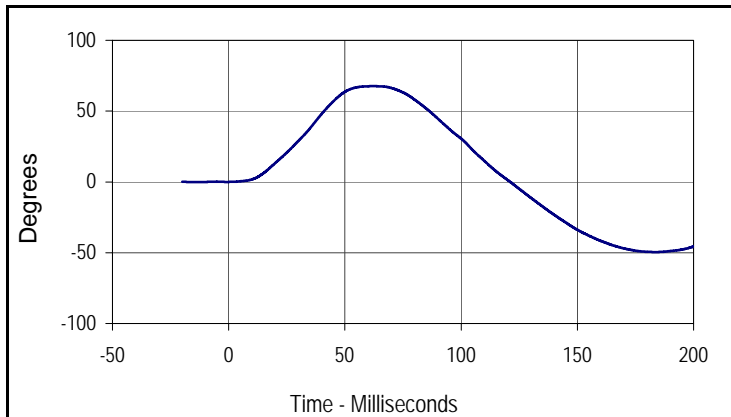
Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysteresis
001	FIL	180	75.9
Peak Probe Force		Peak Chest Deflection	
5615		7.25	



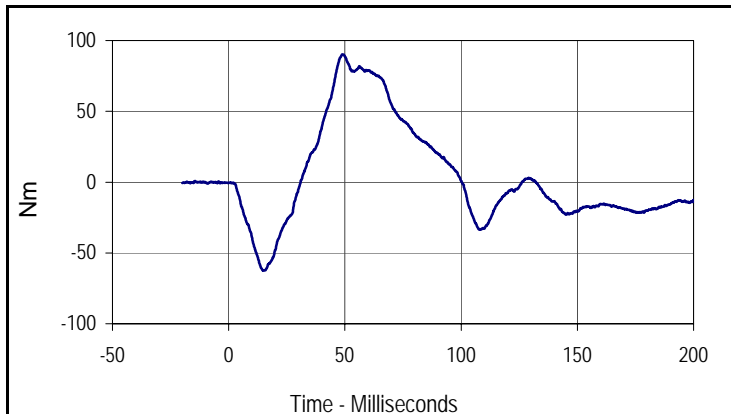
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	7.00	Pass	
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.6	Pass
	20 Msec.	G's	17.6 to 22.6	20.8	Pass
	30 Msec.	G's	12.5 to 18.5	17.6	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 29.0	17.6	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	34.0 to 42.0	36.5	Pass	
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	67.6	Pass
	Time	Msec.	57.0 to 64.0	62.1	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	113.0 to 128.0	121.1	Pass	
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	90.2	Pass
	Time	Msec.	47.0 to 58.0	48.9	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	97.0 to 107.0	100.3	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
23.7	4.2	-2.9	89.4



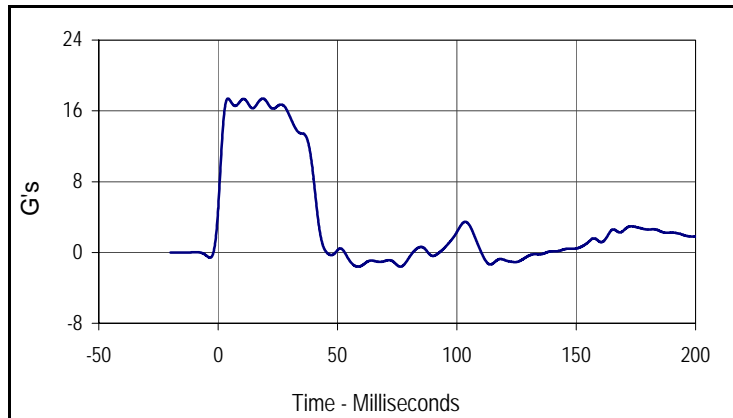
Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
67.6	62.1	-49.5	183.7



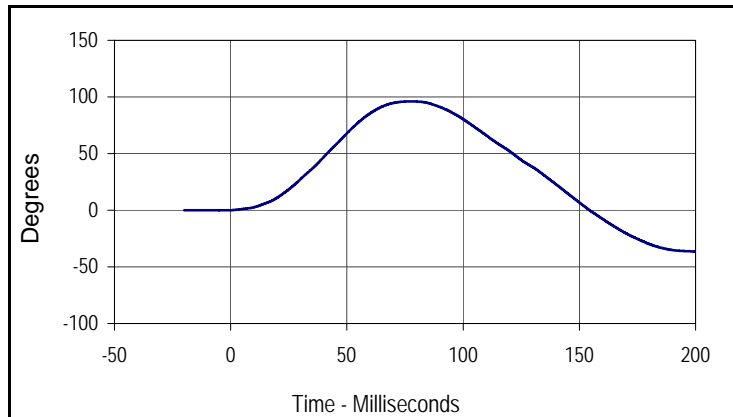
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
90.2	48.9	-62.4	15.0



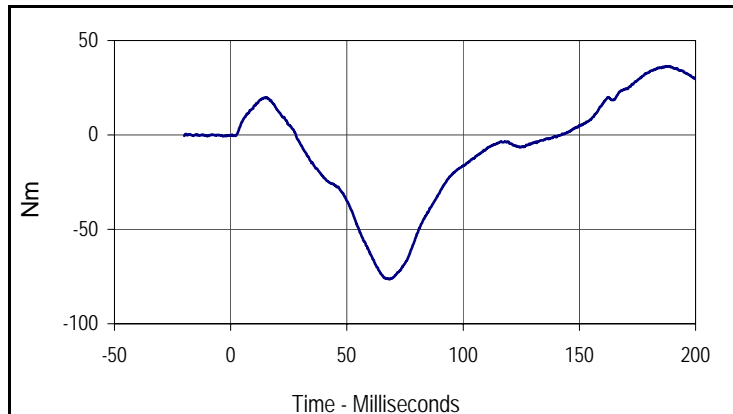
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	5.94 to 6.19	6.09	Pass	
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	17.3	Pass
	20 Msec.	G's	14.0 to 19.0	17.2	Pass
	30 Msec.	G's	11.0 to 16.0	15.4	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 22.0	15.4	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	38.0 to 46.0	41.4	Pass	
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	96.0	Pass
	Time	Msec.	72.0 to 82.0	77.6	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	147.0 to 174.0	154.4	Pass	
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-76.4	Pass
	Time	Msec.	65.0 to 79.0	68.3	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	120.0 to 148.0	142.3	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
17.4	4.1	-1.6	58.6



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
96.0	77.6	-36.4	200.0



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
36.4	187.5	-76.4	68.3

Test Program: Hybrid III 50th Percentile Male Knee Impact Test

Test Date: 3/28/06

ATD Serial No.: 035

Test I.D.: LK04B , RK04B



Left Knee

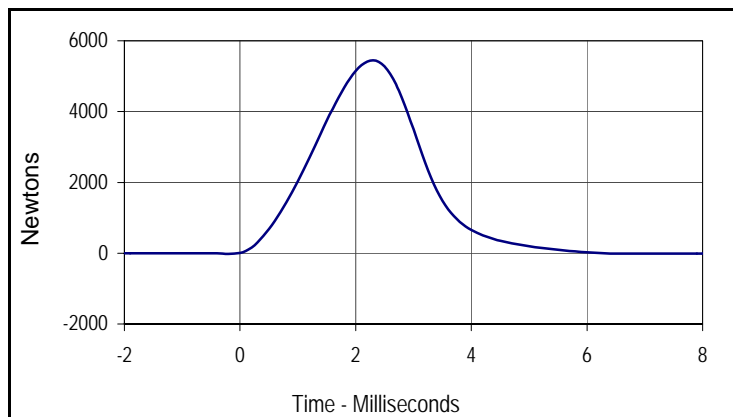
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.13	Pass
Peak Probe Force	Newtons	4715 to 5782	5450	Pass
Overall Test Results				Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	4715 to 5782	5450	Pass
Overall Test Results				Pass



Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5450.2	2.3	-17.7	9.8



Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
5450.2	2.3	-17.7	9.8

Test Program: Hybrid III 50th Percentile Male External Measurements Test Date: 3/28/06
 ATD Serial No.: 035 Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	879 to 889	886	Pass
B - Shoulder pivot height	mm	505 to 521	507	Pass
C - "H" point height	mm	84 to 89	85	Pass
D - "H" point from seat back	mm	135 to 140	138	Pass
E - Shoulder pivot from back	mm	84 to 94	90	Pass
F - Thigh clearance	mm	140 to 155	144	Pass
G - Elbow back to wrist pivot	mm	290 to 305	300	Pass
H - Skull cap to back line	mm	41 to 46	44	Pass
I - Shoulder to elbow length	mm	330 to 345	340	Pass
J - Elbow rest height	mm	190 to 211	195	Pass
K - Buttock to knee length	mm	579 to 604	585	Pass
L - Popliteal length	mm	429 to 455	450	Pass
M - Knee pivot height	mm	485 to 500	490	Pass
N - Buttock popliteal length	mm	452 to 477	470	Pass
O - Chest depth	mm	213 to 229	220	Pass
P - Foot length	mm	251 to 267	262	Pass
V - Shoulder breadth	mm	422 to 437	430	Pass
W - Foot breadth	mm	91 to 107	105	Pass
Y - Chest circumference	mm	970 to 1001	985	Pass
Z - Waist circumference	mm	836 to 866	860	Pass
AA - Location for chest circumference	mm	429 to 434	430	Pass
BB - Location for waist circumference	mm	226 to 231	228	Pass
Overall Test Results				Pass