REPORT NUMBER TR-P26001-06-NC

NEW CAR ASSESSMENT PROGRAM
FRONTAL BARRIER IMPACT TEST

TOYOTA MOTOR CORPORATION
2006 TOYOTA PRIUS
5-DOOR HATCHBACK

NHTSA NUMBER: M65100

PREPARED BY:
KARCO ENGINEERING, LLC
9270 HOLLY ROAD
ADELANTO, CALIFORNIA 92301

JANUARY 19, 2006

FINAL REPORT

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16. Abstract

A 35 mph (56.3 km/h) frontal barrier impact was conducted on a 2006 Toyota Prius 5-Door Hatchback at Karco Engineering, LLC on 1/19/06. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, 305 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 11.0 degrees Celcius. The vehicle's maximum post-test static crush is 551 mm to 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	511.2	430.9
Max. Chest Accel. (3 msec Clip)	G's	60	45.8	45.7
Left Femur Force	Newtons	10008	-1591.7	-2944.7
Right Femur Force	Newtons	10008	-3805.5	-399.4

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SECTION 1
PURPOSE AND SUMMARY OF TEST M65100

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 2006 Toyota Prius 5-Door Hatchback at a velocity of 56.18 km/h. The test was performed at Karco Engineering, LLC on January 19, 2006.

Three (3) real-time and fourteen (14) 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 two tests prior to this test.

One hundred and thirty two (132) channels of data were recorded using an on-board 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 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.

A FMVSS 305 “Electric Powered Vehicles: electrolyte spillage and electrical shock protection” was conducted. There was no electrolyte spillage from propulsion batteries and no intrusion of propulsion battery system components into the occupant compartment.

The maximum static crush of the vehicle was 551 mm to the right 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 bolster.

The passenger’s visible contact points were as follows: The passenger ATD’s head, chest contacted the airbag and the abdomen had no contact. 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	511.2	45.8	-24.7	-1591.7	-3805.5
Passenger	430.9	45.7	-24.7	-2944.7	-399.4

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: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

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	^oF	^oC	=(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: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

PRIMARY IMPACT DATA

Measured Parameter	Units	Value
Velocity at Impact	km/h	56.18
Test Weight	kg	1515
Impact Angle	degrees	0
Average Rebound	mm	893
Maximum Static Crush	mm	551

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	None
Left Knee Contact	Knee Bolster	Glove Box
Right Knee Contact	Knee Bolster	Glove Box

MOVIE COVERAGE

Cameras	Standard	Additional
High Speed	14	
Real Time	1	2
Total	15	2

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: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100

Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M65100	Anti-Lock Brakes	Yes
Make	Toyota	All Wheel Drive	No
Model	Prius	Power Steering	Yes
Body Style	5-Door Hatchback	Driver Front Airbag	Yes
Vin No.	JTDKB20U367062476	Driver Side Airbag	Yes
Color	Silver	Driver Head Airbag	No
Delivery Date	12/29/2005	Driver Curtain Airbag	Yes
Odometer (Miles)	76.1	Pass. Airbag	Yes
Dealer	Sierra	Pass. Side Airbag	Yes
Transmission	4-Speed Automatic	Pass. Head Airbag	No
Final Drive	Front	Pass. Curtain Airbag	Yes
Type/No. Cyl.	Inline 4	Pre-Tensioners	Yes
Engine Disp. (L)	1.5	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	Yes	Tilt Steering	Yes
Traction Control	Yes	Automatic Door Locks	No
Power Brakes	Yes	Power Windows	Yes
Front Disc	Yes	Power Seats	No
Rear Disc	No	Other	None

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Toyota Motor Corporation	GVWR (kg)	1021
		GAWR Front (kg)	1059
Date of Manufacture	Sep-05	GAWR Rear (kg)	1721

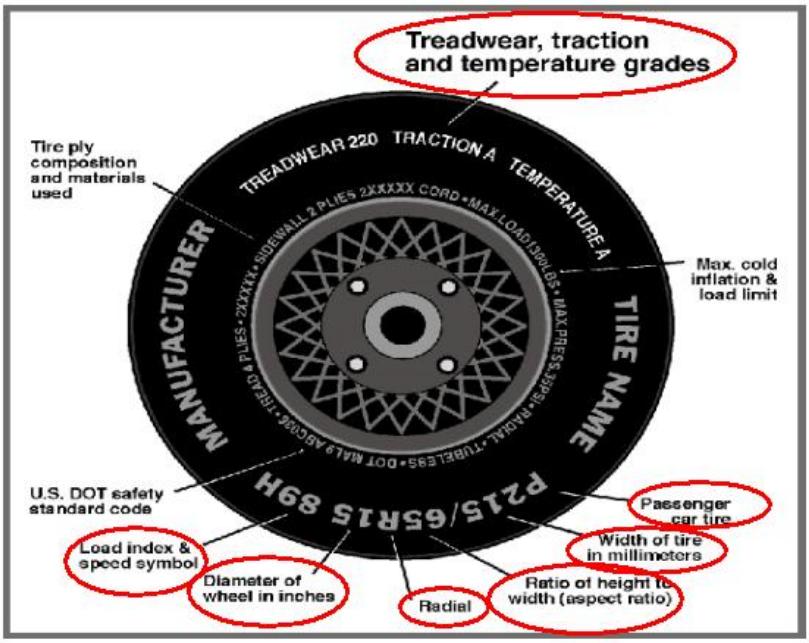
VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bucket		
Number of Occupants	2	3		5
Capacity Weight (VCW) (kg)				365
Cargo Weight (RCLW) (kg)				27

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

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

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	P185/65R15	P185/65R15
Tire Size on Vehicle	P185/65R15	P185/65R15
Tire Manufacturer	Good Year	Good Year
Treadwear	460	460
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	86S	86S
Tire Material	Polyester + Steel	Polyester + Steel
DOT Safety Code Right	VWLX-2KAR-4505	VWLX-2KAR-4505
DOT Safety Code Left	VWLX-2KAR-4505	VWLX-2KAR-4505

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

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100

Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	410	277	687	447	331	778
Right	kg	386	267	653	419	318	737
Ratio	%	59.4	40.6	100	57.2	42.8	100
Totals	kg	797	543	1340	866	649	1515

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1340
Weight of 2 P572 ATD's	kg	152
Rated Cargo/Luggage Wt. (RCLW)	kg	27
Calculated Vehicle Target Wt. (TVTW)	kg	1519

TEST VEHICLE ATTITUDE AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	663	664	655	658	1096
As Tested	mm	643	652	626	635	1156

Vehicle Wheel Base (mm): 2700

Weight of Ballast Secured in cargo area (kg): 40

Weight of Items Removed (kg): 45

Vehicle Components Removed: Trim panel on deck lid, tail lights, rear window wiper and motor, rear seat head rest

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

FUEL SYSTEM DATA

Fuel System Capacity From Owners Manual (L): 45.04

Actual Test Volume with entire fuel System Filled (L): 41.86

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: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

SPEED TRAP DATA

Measured Parameter	Units	Requirement	Value
Trap No.1 Velocity (Primary)	km/h	55.51 to 57.12	56.17
Trap No.2 Velocity (Redun.)	km/h	55.51 to 57.12	56.19

VEHICLE STATIC CRUSH

Measured Parameter	Units	Pre-Test	Post-Test	Difference
Left Side	mm	4207	3715	-492
Center	mm	4434	3926	-508
Right Side	mm	4207	3656	-551

VEHICLE REBOUND FROM BARRIER

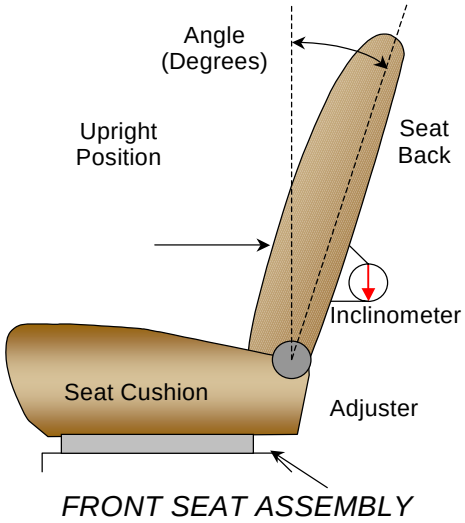
Measured Parameter	Units	Value
Left Side	mm	890
Center	mm	865
Right Side	mm	925
Average	mm	893

DATA SHEET NO. 4
TEST VEHICLE INFORMATION

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

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.



FRONT SEAT ASSEMBLY

SEAT BACK ANGLES

	Deg.
Driver w/seated Dummy	8.0 @ headrest
Passenger w/seated Dummy	8.0 @ headrest

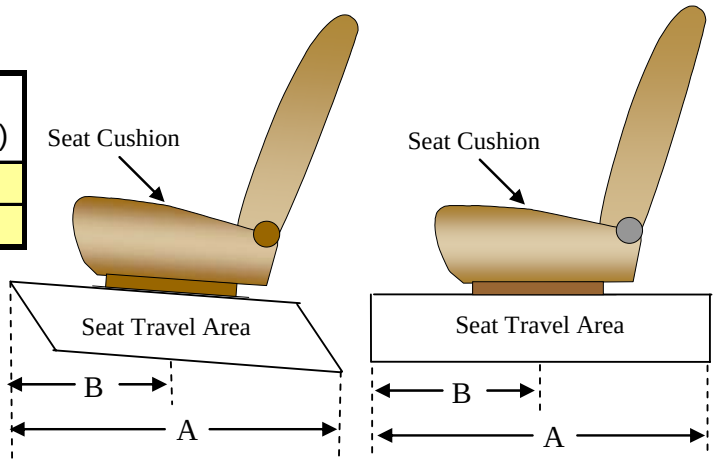
SEAT FORE/AFT POSITIONS

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	17	8
Passenger Seat	17	8

.



SEAT BELT UPPER ANCHORAGE

Position number one (1) is the uppermost position.

SEAT BELT UPPER ANCHORAGE

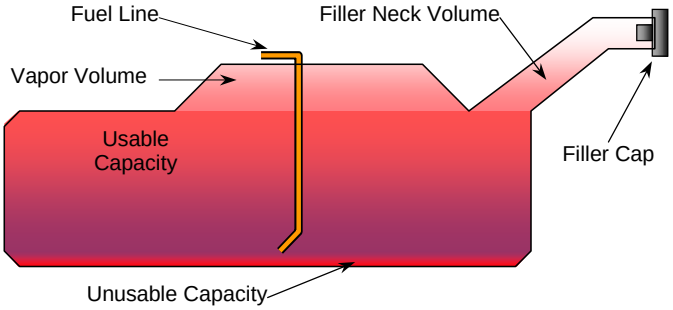
	Total # of Positions	Placed in Position #
Driver Seat	5	1
Passenger Seat	5	1

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	45.04
Usable Capacity of "Optional" Tank	N/A
Usable Capacity used for FMVSS 301	41.41 to 42.32
Actual Amount of Solvent used	41.86

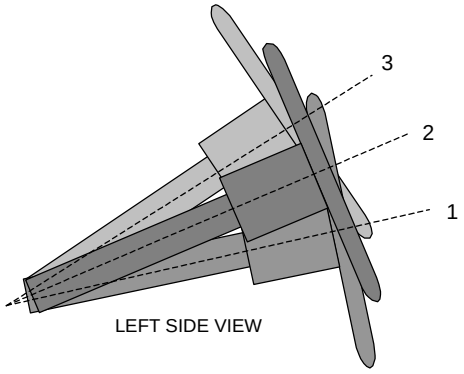
The test vehicle is equipped with an electric fuel pump. The fuel pump operates for approximately two seconds after the ignition is placed in the “ON” position, after which the fuel pump automatically shuts off. The fuel filler door is located on the left rear fender. The standard fuel tank occupies 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 positon No. 1	24.3	
Geometric center position No. 2	25.8	
Uppermost position No. 3	27.8	

DATA SHEET NO. 5
DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

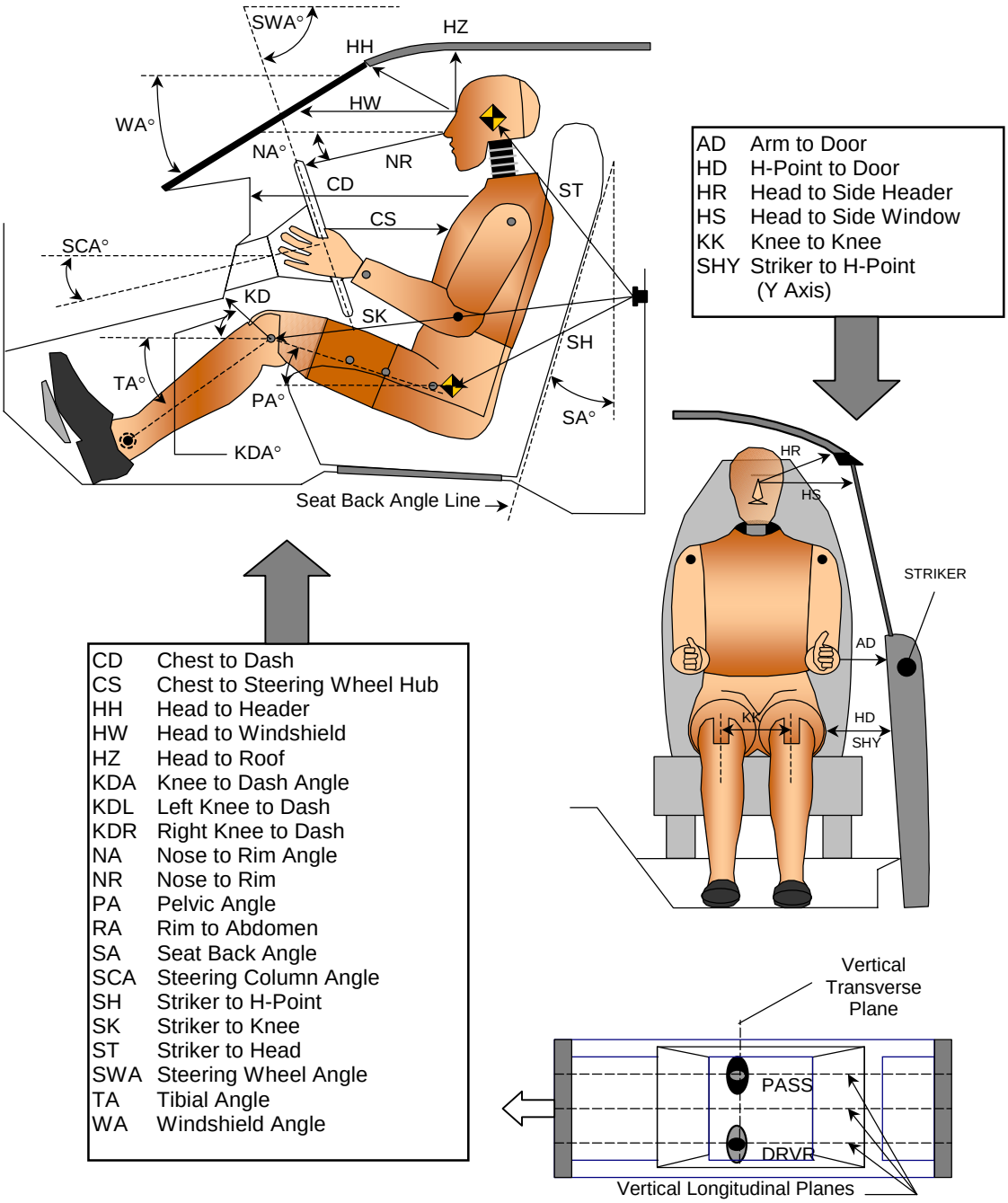
TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (deg)	Length (mm)	Angle (deg)
WA	Windshield Angle		23.0		
SWA	Steering Wheel Angle		64.2		
SCA	Steering Column Angle		25.8		
SA	Seat Back Angle		8.0 @ headrest		8.0 @ headrest
HZ	Head to Roof (Z)	205	90.0	186	90.0
HH	Head to Header	362		330	
HW	Head to Windshield	710		680	
HR	Head to Side Header (Y)	252		260	
NR	Nose to Rim	420	17.2		
CD	Chest to Dash	550		545	
CS	Chest to Steering Hub	297			
RA	Rim to Abdomen	200			
KDL	Left Knee to Dash	145	18.1	130	
KDR	Right Knee to Dash	100		205	3.5
PA	Pelvic Angle		22.5		24.5
TA	Tibia Angle		49.5		42.2
KK	Knee to Knee (Y)	300		290	
SK	Striker to Knee	615	6.7	642	8.6
ST	Striker to Head	500	81.6	511	74.0
SH	Striker to H-Point	282	40.0	250	39.0
SHY	Striker to H-Point (Y)	255		238	
HS	Head to Side Window	330		285	
HD	H-Point to Door (Y)	130		130	
AD	Arm to Door (Y)	100		110	

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

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100

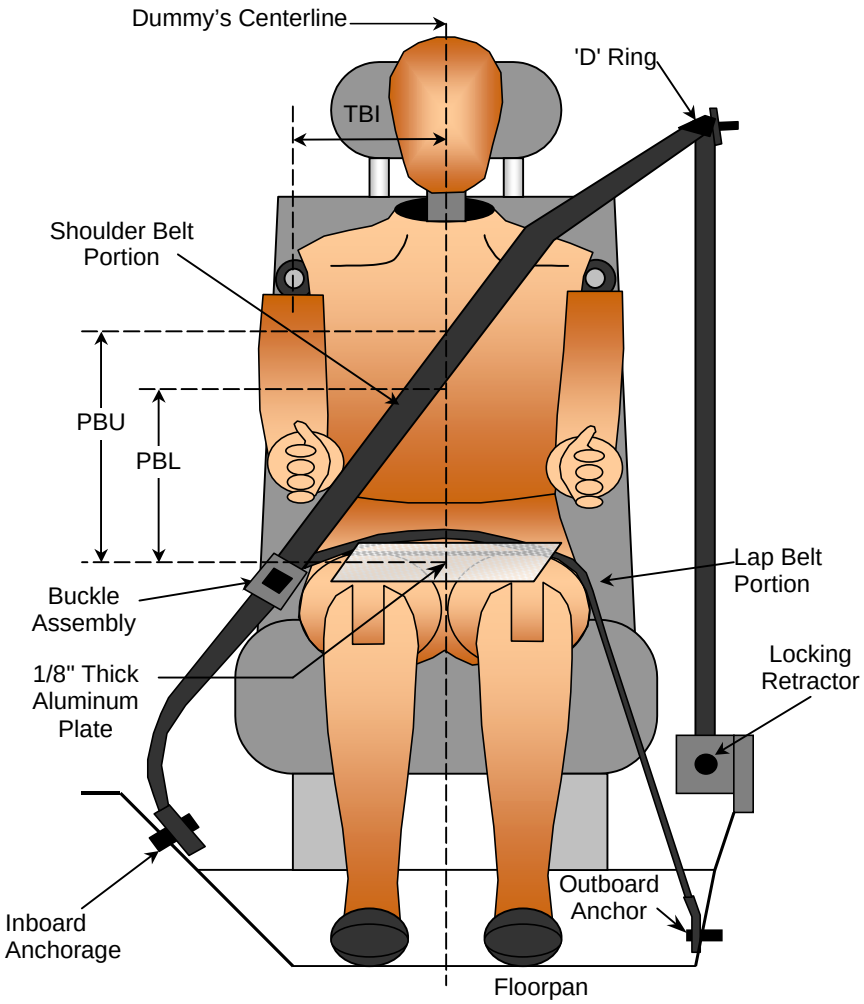
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06



DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS

DATA SHEET NO. 6
SEAT BELT POSITIONING DATA

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06



SEAT BELT POSITIONING MEASUREMENTS

Measured Parameter	Units	Driver	Passenger
TBI - Dummy C/L to Lap/Shoulder Belt Intersect	mm	240	220
PBU - Top Surface of reference to belt upper edge	mm	360	319
PBL - Top Surface of reference to belt lower edge	mm	300	245
Lap Belt Tension	Newtons	10	10
Shoulder Belt Tension	N/A	Retractor	Retractor

DATA SHEET NO. 7
VEHICLE ACCELEROMETER LOCATION

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100

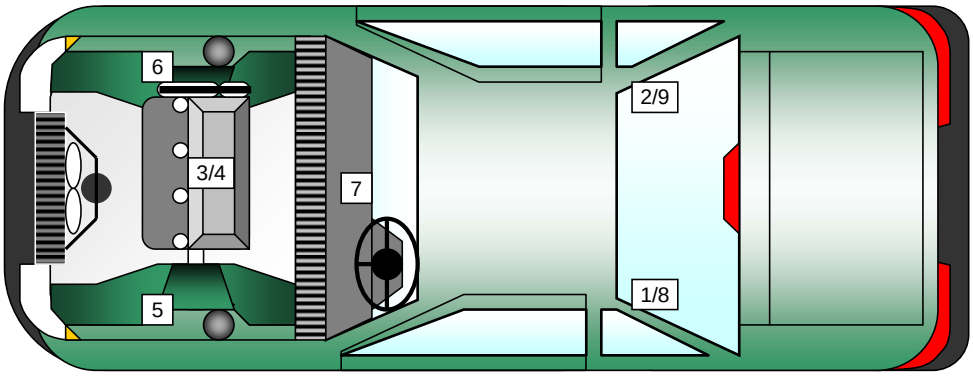
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

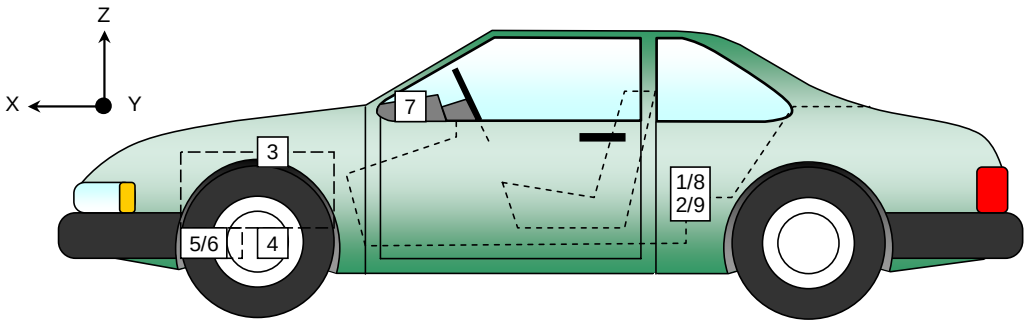
VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Left Rear X-Member	1841	-684	343
2	Right Rear X-Member	1841	684	343
3	Engine Top			[1]
4	Engine Bottom	3802	200	158
5	Left Brake Caliper	3691	-678	253
6	Right Brake Caliper	3691	678	253
7	Instrument Panel			[1]
8	Left Rear X-Member (Z-Axis)	1841	-684	343
9	Right Rear X-Member (Z-Axis)	1841	684	343

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

1.) Not installed





DATA SHEET NO. 8
SEAT BELT ASSESSMENT TEST DATA

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
Retractor Reel to "D" ring	mm	800	800
Shoulder Belt length as measured on ATD	mm	900	820
Lap Belt length as measured on ATD	mm	930	800
Remainder of belt on reel	mm	840	870
Total belt length for continuous webbing systems	mm	3470	3290

SHOULDER BELT SPOOL-OFF DATA

Measurement Description	Units	Driver	Passenger
As determined mechanically	mm	100	175
As determined electronically	mm	278.0	*

* Channel failed at 63.0 msec

BELT STRETCH DATA

Measuerment 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: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

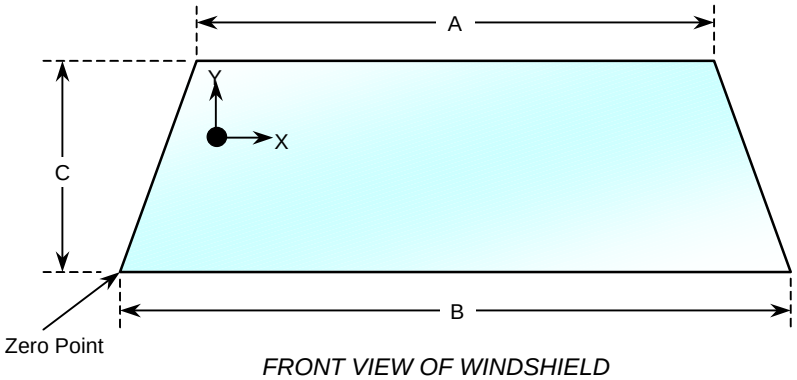
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with a rubber type adhesive. No molding covers the windshield periphery at any point.

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	2161	2161	100
Right Side	2161	2161	100
Total	4322	4322	100



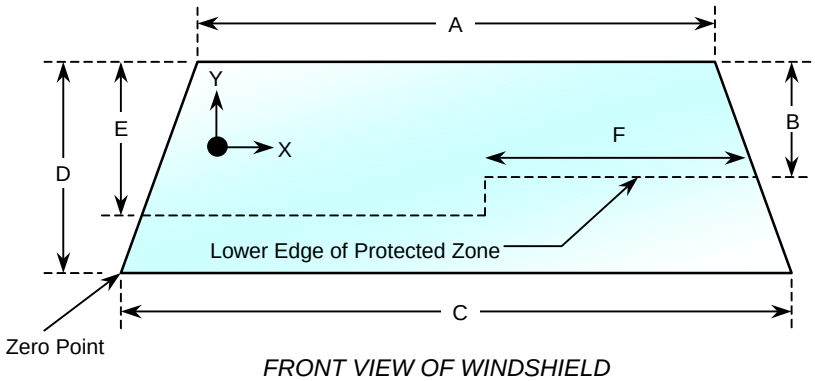
FRONT VIEW OF WINDSHIELD

WINDSHIELD DIMENSIONS

Item	Units	Segment Length	Molding Width
A	mm	1187	10
B	mm	1405	9
C-Left	mm	866	10
C-Right	mm	866	10

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

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06



FRONT VIEW OF WINDSHIELD

WINDSHIELD AND PROTECTED ZONE

Item	Units	Value
A	mm	1187
B	mm	610
C	mm	405
D	mm	866
E	mm	610
F	mm	585

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: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

Test Time: 1:02 PM Temperature: 11.0 Deg. C.

STODDARD SOLVENT SPILLAGE MEASUREMENTS

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

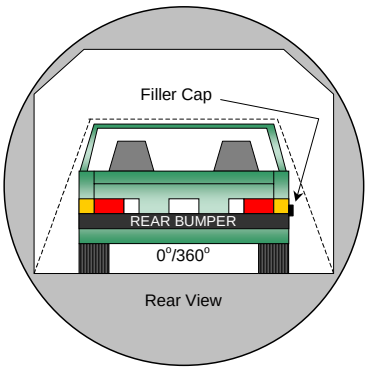
B. For the 5 minute period after motion ceases: 0.0 oz.
(Maximum Allowable = 5 ounces)

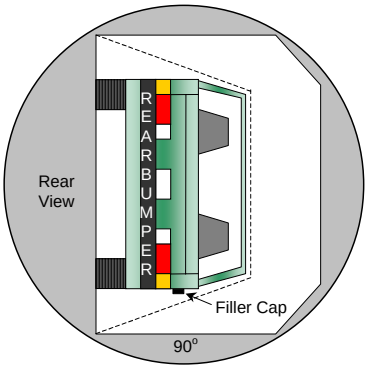
C. For the following 25 minutes: 0.0 oz.
(Maximum Allowable = 1 oz./minute)

D. Spillage Location Details: No leakage occurred

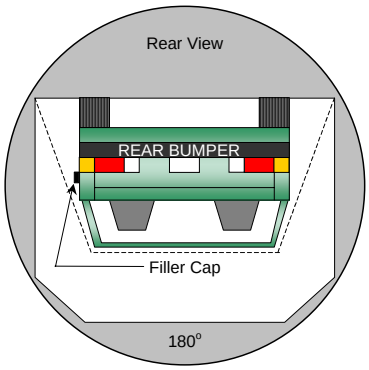
DATA SHEET NO. 12
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

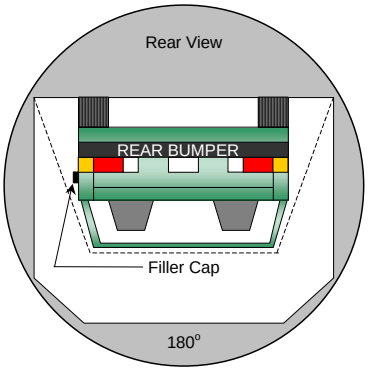




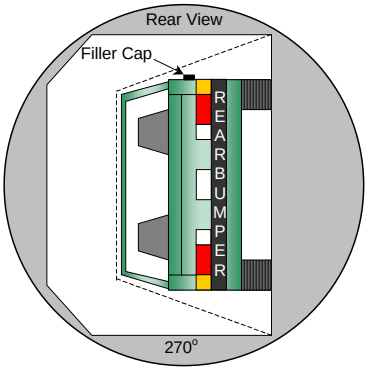
0° to 90°

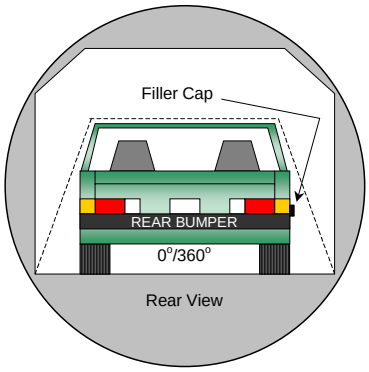


90° to 180°



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: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100

Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	86	300	386
90° to 180°	78	300	378
180° to 270°	80	300	380
270° to 360°	75	300	375

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: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

VEHICLE MEASUREMENT TABLE

No.	Measurement Description	Units	Pre-Test	Post-Test	Diff.
1	Total length of vehicle at centerline	mm	4434	3926	-508
2	RSOV to front of engine	mm	3989	3690	-299
3	RSOV to firewall centerline	mm	3666	3561	-105
4	RSOV to leading edge of right door	mm	3079	3078	-1
5	RSOV to leading edge of left door	mm	3092	3090	-2
6	RSOV to lower leading edge of right door	mm	3062	3061	-1
7	RSOV to lower leading edge of left door	mm	3083	3065	-23
8	RSOV to upper trailing edge of right door	mm	2042	2041	-1
9	RSOV to upper trailing edge of left door	mm	2056	2056	0
10	RSOV to lower trailing edge of right door	mm	2032	2031	-1
11	RSOV to lower trailing edge of left door	mm	2055	2036	-19
12	RSOV to bottom of right 'A' pillar	mm	3057	3057	0
13	RSOV to bottom of left 'A' pillar	mm	3077	3069	-8
14	RSOV to firewall on right side	mm	3624	3553	-71
15	RSOV to firewall on left side	mm	3624	3563	-61
16	RSOV to steering column	mm	2715	2715	0
17	Center of steering column to left 'A' pillar	mm	382	385	3
18	Center of steering column to headlining	mm	450	490	40
19	RSOV to right side of front bumper	mm	4207	3656	-551
20	RSOV to left side of front bumper	mm	4207	3715	-492
21	Length of engine block	mm	905	892	-13
RD	RSOV to right side of dash panel	mm	2859	2853	-6
CD	RSOV to center of dash panel	mm	2795	2715	-80
LD	RSOV to left side of dash panel	mm	2868	2863	-5

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

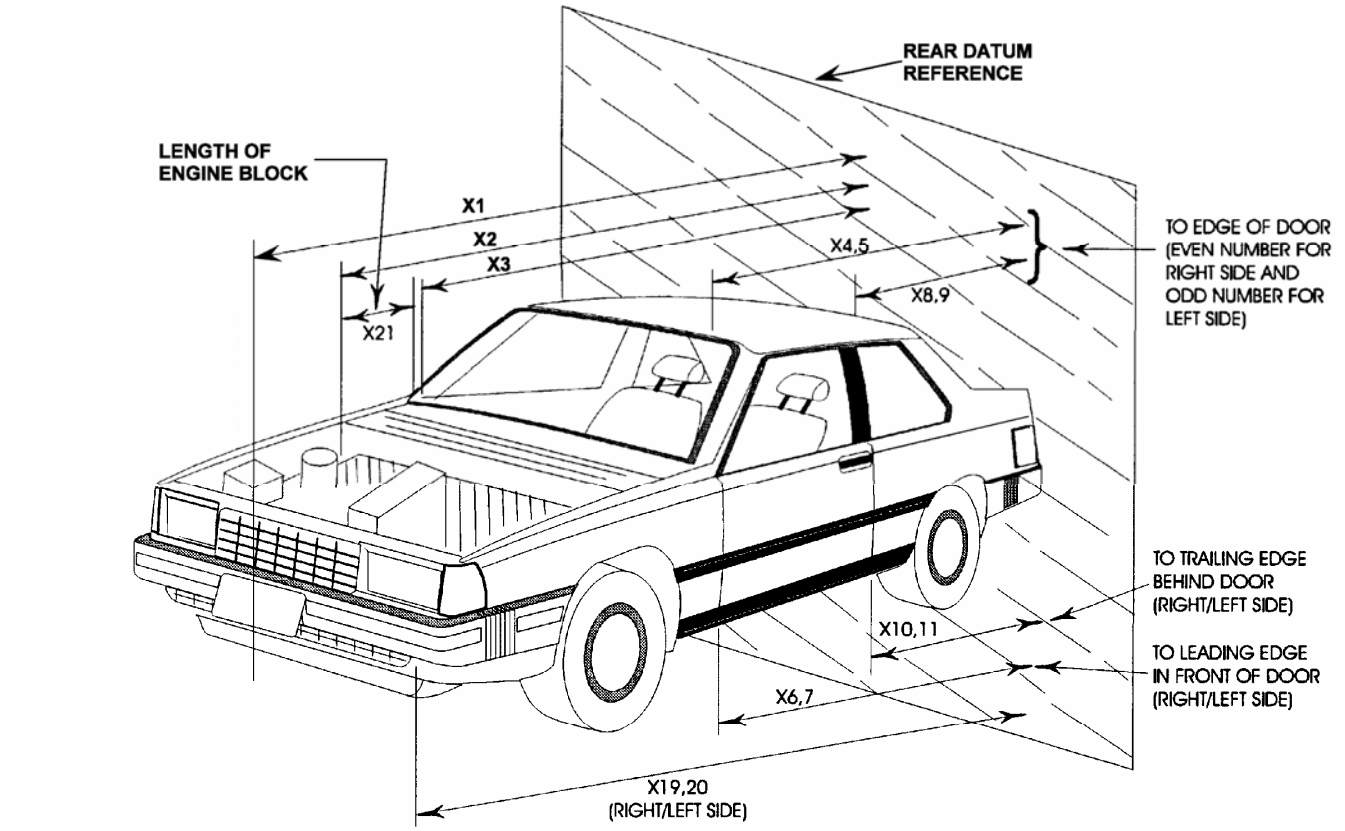
Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

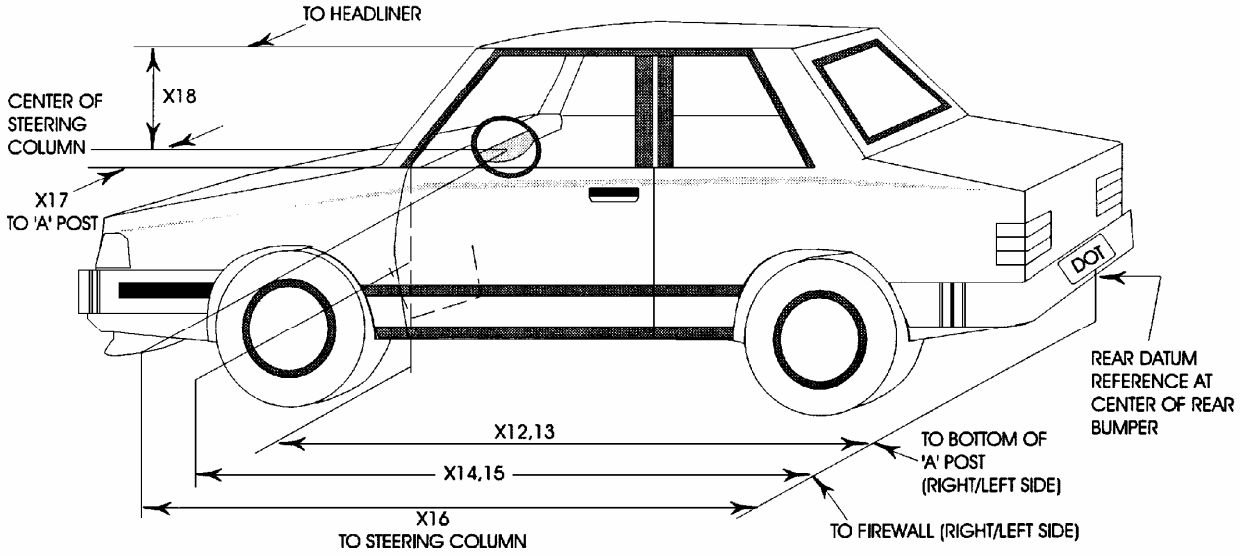
VEHICLE STRUCTURAL MEASUREMENT TABLE

No.	Measurement Description	Units	Pre-Test	Post-Test	Diff.
1	Total length	mm	4434	3926	-508
2	Total width	mm	1730	1726	-4
3	Bumper top height	mm	620	651	31
4	Bumper bottom height	mm	109	225	116
5	Longitudinal member top height	mm	553	556	3
6	Longitudinal member bottom height	mm	445	449	4
7	Distance between longitudinal members	mm	940	937	-3
8	Longitudunal member width	mm	55	51	-4
9	Engine top height	mm	850	870	20
10	Engine bottom height	mm	191	201	10
11	Engine and gear box width	mm	360	358	-2
12	Front bumper to engine distance	mm	463	233	-230
13	Front shock absorber fixing width	mm	836	841	5
14	Bonnet leading edge height	mm	730	895	165
15	Front shock absorber fixing width	mm	1132	1127	-5
16	Front bumper to front axle distance	mm	893	500	-393
17	Front axle to 'A' pillar distance	mm	484	360	-124
18	'A' pillar to 'B' pillar distance	mm	1046	1046	0
19	'B' pillar to rear axle distance	mm	1185	1185	0
20	'B' pillar to 'C' pillar distance	mm	1013	1012	-1
21	Roof sill bottom height	mm	1330	1327	-3
22	Roof sill top height	mm	1440	1450	10
23	Floor sill bottom height	mm	185	190	5
24	Floor sill top height	mm	320	315	-5

DATA SHEET NO. 13…(CONTINUED)
VEHICLE MEASUREMENTS

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06





DATA SHEET NO. 14
CAMERA LOCATIONS

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

VEHICLE CAMERA MEASUREMENT TABLE

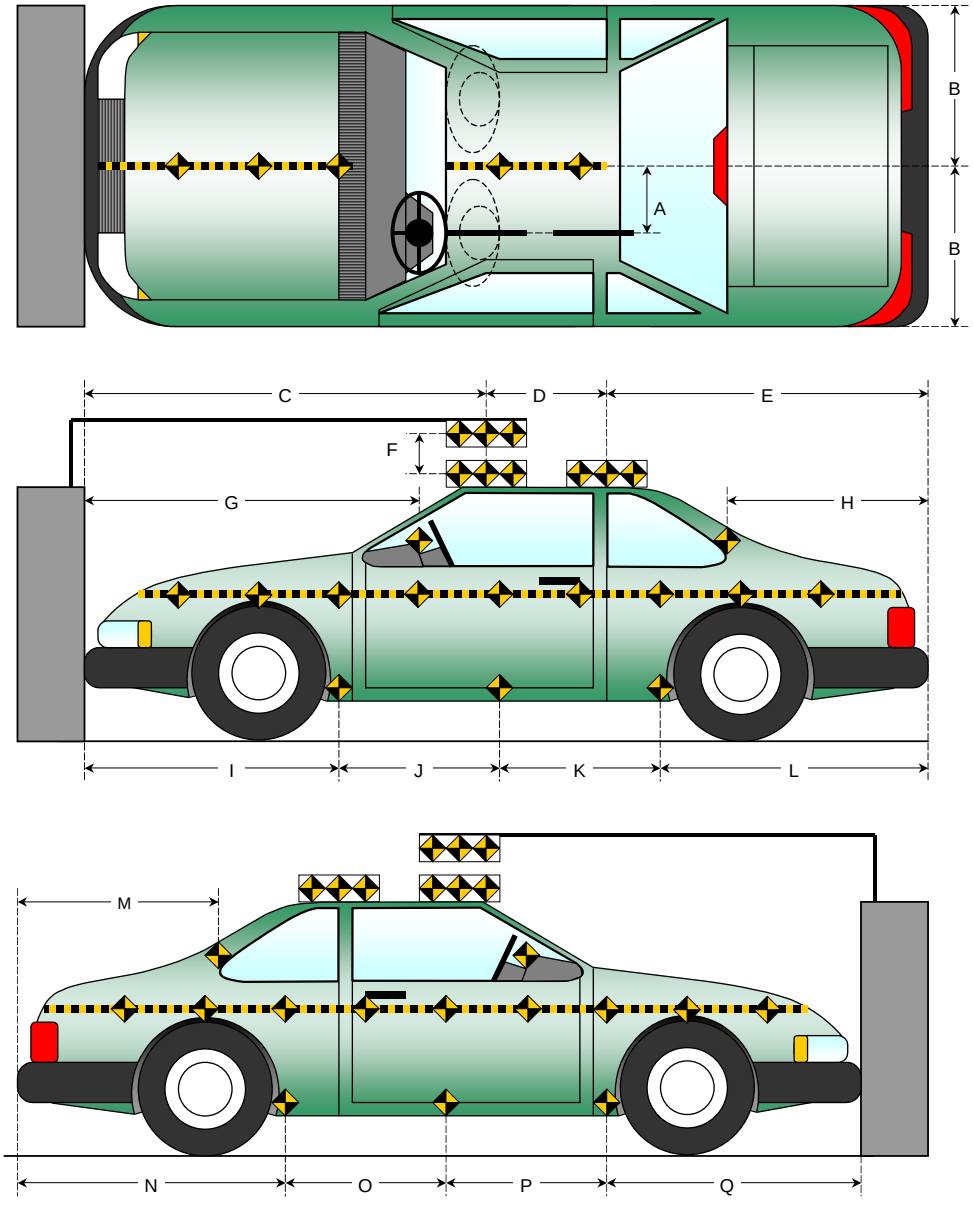
No.	Camera View	Location (mm)			Angle (deg.)	Film Plane to Head	Lens (mm)	Speed (fps)
		X	Y	Z				
1	Real Time Camera (Panning)	-15316	-7910	-1584	0			30
2	Overall Left Side	-1795	-7137	-1128	0	7171	20mm	1000
3	Left Side View	-1533	-7126	-1188	-3	7196	50mm	1000
4	Driver and Interior View	-8696	-12562	-4511	-13	15000	ZOOM	1000
5	Steering Column (Bottom)	-1631	-8234	-2682	-13	8793	35mm	1000
6	Steering Column (Top)	-1663	-8153	-3078	-17	8903	35mm	1000
7	Overall Right Side	-2536	6556	-1066	-2	6611	20mm	1000
8	Right Side View	-2005	6510	-1249	-4	6620	50mm	1000
9	Passenger and Interior View	-5330	9365	-2407	-10	10223	ZOOM	1000
10	Right Side View	-2006	6967	-1463	-6	7124	25mm	1000
11	Windshield View	-601	0	-5556	-75		25mm	1000
12	Driver Front View	378	-286	-2438	-35		25mm	1000
13	Passenger Front View	375	413	-2439	-35		25mm	1000
14	Pit View of Engine	-832	0	1495	90		12mm	1000
15	Pit View of Fuel Tank	-2901	0	1495	90		10mm	1000
16	Real Time Camera	-1585	-8255	-1767	-1	9140		30
17	Real Time Camera	-2167	6988	-1463	-1	7143		30

All measurements are in relativity to point of impact.

DATA SHEET NO. 15
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

All Dimensions in (mm)	
Item	Value
A	*
B	865
C	*
D	*
E	*
F	*
G	1635
H	1143
I	1306
J	940
K	940
L	1268
M	1120
N	1256
O	940
P	940
Q	1305



* Targets are not installed due to curtain airbags.

DATA SHEET NO. 16
VEHICLE INTRUSION MEASUREMENTS

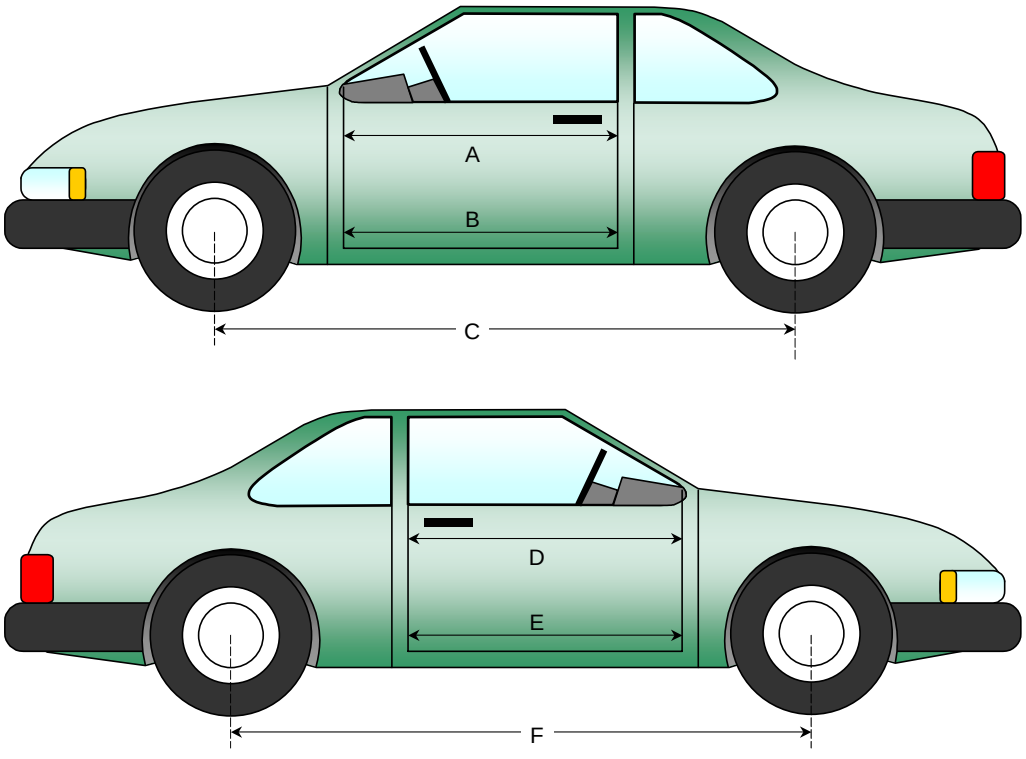
Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

DOOR OPENING WIDTH TABLE

Item	Description	Units	Pre-Test	Post-Test	Diff.
A	Left Side Upper	mm	948	946	-2
B	Left Side Lower	mm	848	841	-7
D	Right Side Upper	mm	944	945	1
E	Right Side Lower	mm	844	846	2

WHEELBASE MEASUREMENT TABLE

Item	Description	Units	Pre-Test	Post-Test	Diff.
C	Left Side Wheel Base	mm	2700	2600	-100
F	Right Side Wheel Base	mm	2700	2620	-80

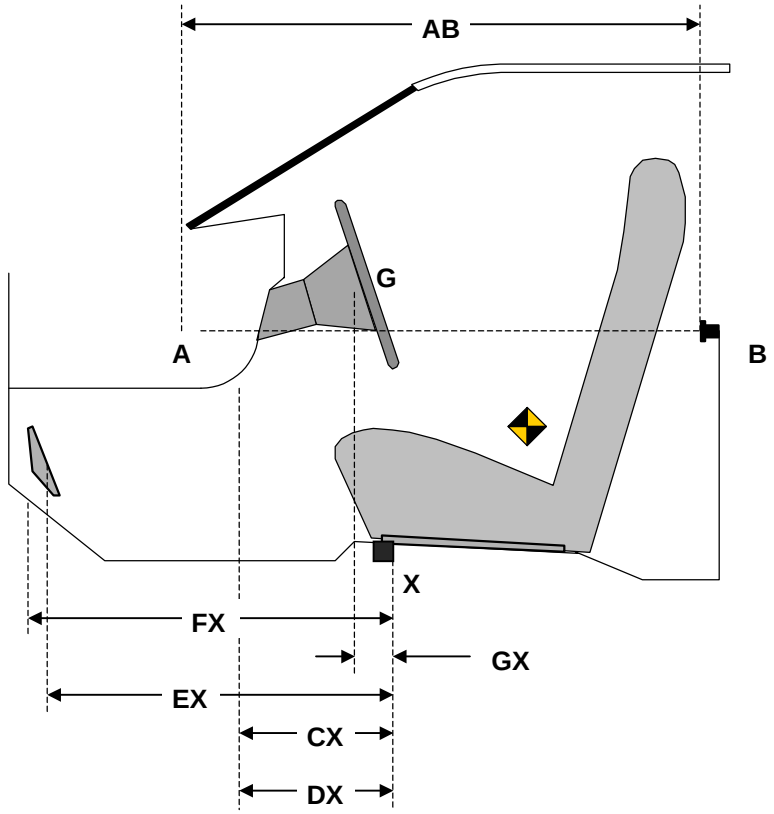


DATA SHEET NO. 16…(CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

DRIVER COMPARTMENT INTRUSION TABLE

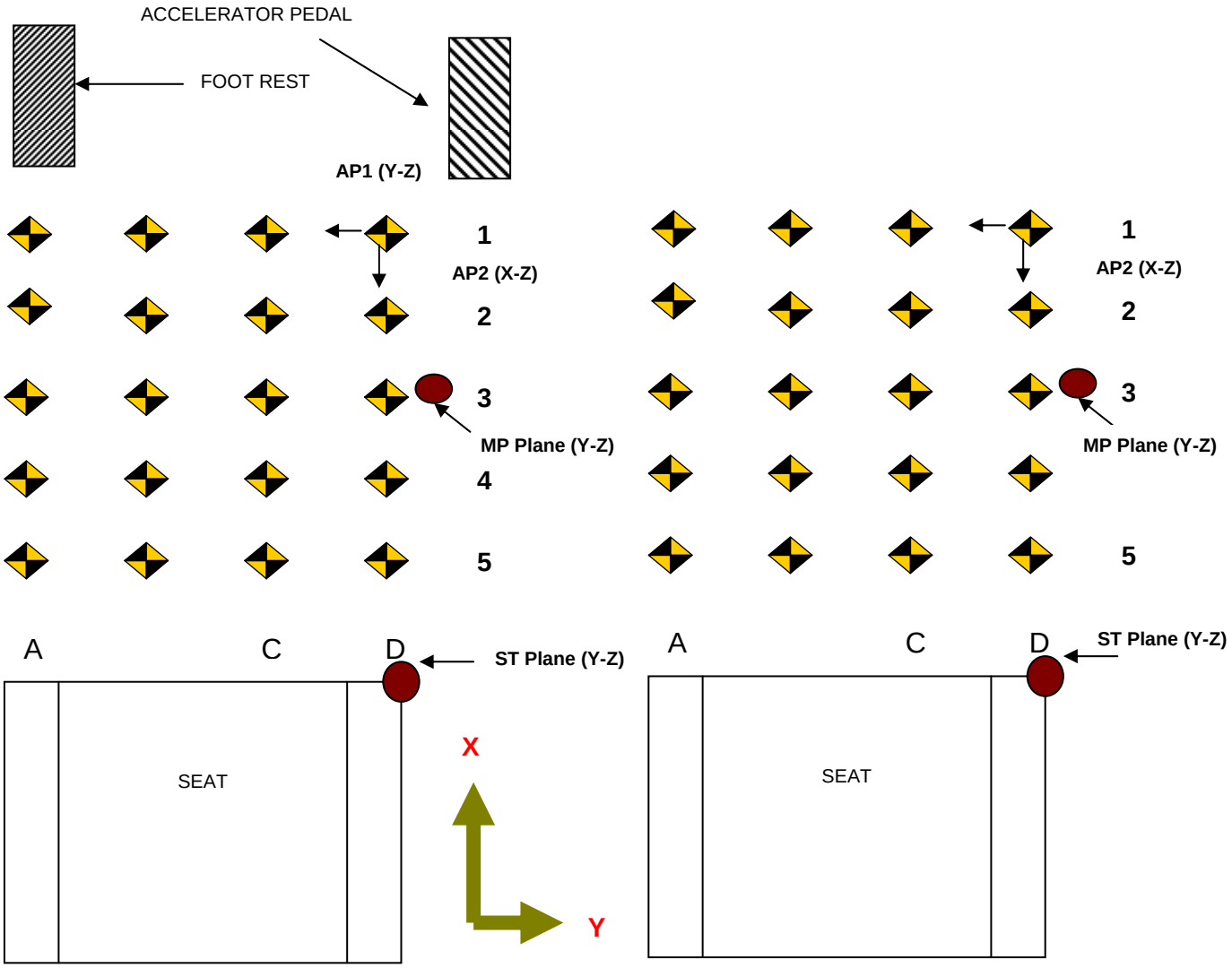
Item	Description	Units	Pre-Test	Post-Test	Diff.
AB	Door Opening (Inside window jam)	mm	948	946	-2
CX	Left Knee Bolster to X	mm	265	276	11
DX	Right Knee Bolster to X	mm	260	265	5
EX	Brake Pedal to X	mm	562	527	-35
FX	Foot Rest to X	mm	567	544	-23
GX	Center of Steering Wheel Hub to X	mm	105	134	29



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

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100

Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06



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: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

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	-660	-713	-719	-721	-616	-635	-605	-609	44	78	113	112
2	-602	-660	-661	-664	-577	-624	-590	-587	25	36	70	77
3	-534	-538	-529	-538	-528	-517	-485	-500	6	21	44	39
4	-449	-450	-454	-457	-443	-435	-432	-426	6	15	22	31
5	-358	-357	-361	-365	-353	-343	-337	-334	5	14	24	30

DRIVER FLOOR PAN Y-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	4	-116	-244	-363	-24	-155	-281	-387	-28	-39	-37	-24
2	10	-116	-245	-362	-13	-157	-291	-394	-23	-41	-45	-32
3	1	-116	-242	-354	-30	-148	-265	-378	-31	-32	-22	-24
4	1	-113	-245	-352	-31	-144	-265	-361	-32	-31	-20	-9
5	-2	-117	-245	-345	-24	-139	-263	-363	-22	-22	-18	-18

DRIVER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	131	61	52	54	129	82	65	75	-2	22	13	21
2	70	11	-1	-6	69	20	11	4	-1	8	12	10
3	-82	-79	-87	-94	-83	-83	-75	-97	-1	-4	12	-3
4	-87	-88	-90	-92	-95	-94	-123	-108	-8	-7	-33	-16
5	-98	-86	-96	-90	-88	-93	-124	-103	10	-7	-28	-13

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

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

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	-702	-713	-705	-671	-700	-708	-689	-641	2	5	16	30
2	-664	-656	-650	-658	-656	-646	-640	-634	8	10	10	24
3	-516	-522	-524	-526	-522	-521	-520	-522	-6	1	4	4
4	-440	-434	-437	-435	-452	-439	-433	-433	-12	-5	3	2
5	-340	-344	-348	-346	-355	-347	-346	-342	-15	-3	2	4

PASSENGER FLOOR PAN Y-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	372	266	137	54	310	231	100	17	-62	-35	-37	-37
2	373	273	140	36	326	234	103	6	-47	-40	-36	-30
3	388	270	147	32	342	240	116	8	-46	-30	-31	-25
4	384	270	144	28	356	242	119	6	-28	-29	-25	-22
5	378	274	140	26	357	250	124	9	-21	-24	-16	-17

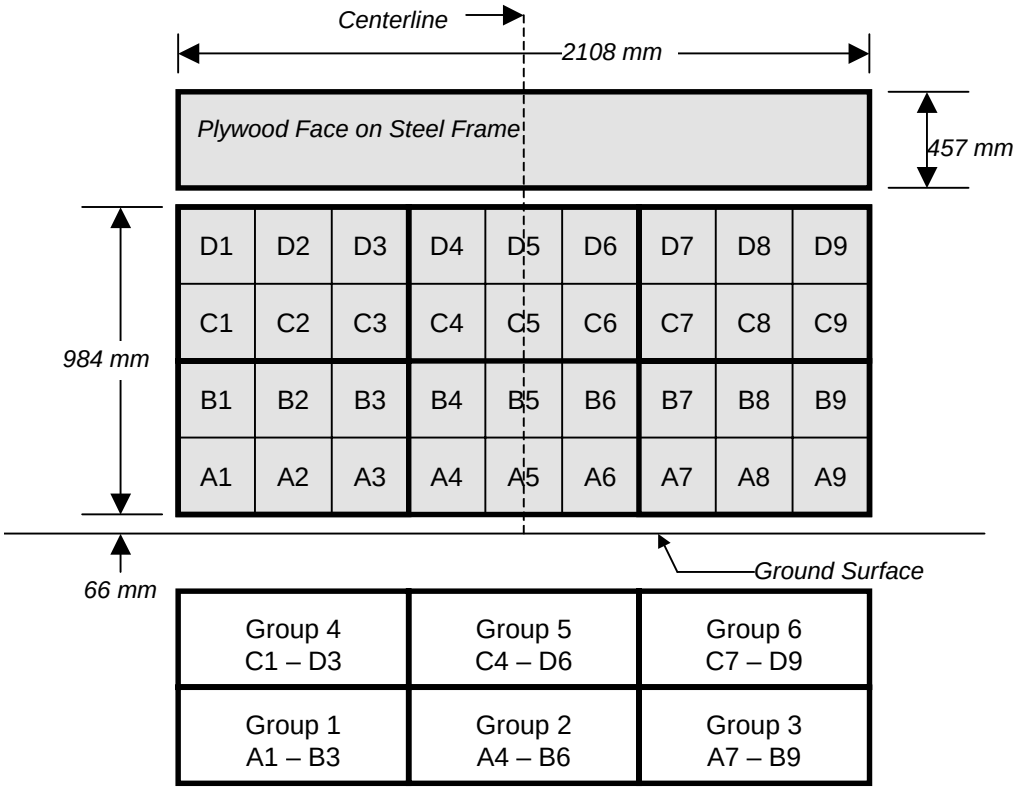
PASSENGER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	53	44	60	85	109	50	71	90	56	6	11	5
2	5	-9	4	1	13	7	12	18	8	16	8	17
3	-94	-92	-86	-91	-96	-84	-87	-90	-2	8	-1	2
4	-91	-98	-90	-91	-105	-104	-93	-92	-14	-5	-2	-1
5	-92	-108	-90	-101	-103	-116	-91	-88	-11	-9	-1	14

DATA SHEET NO. 17
FIXED BARRIER LOAD CELL LOCATIONS

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

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



Group 4 C1 – D3	Group 5 C4 – D6	Group 6 C7 – D9
Group 1 A1 – B3	Group 2 A4 – B6	Group 3 A7 – B9

6 Groups of 6 Load Cells Each

DATA SHEET NO. 18
ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06

VEHICLE INFORMATION

VIN: JTDKB20U367062476 Wheel base (mm): 2700
Vehicle Size Category: 5-Door Test Weight (kg): 1515

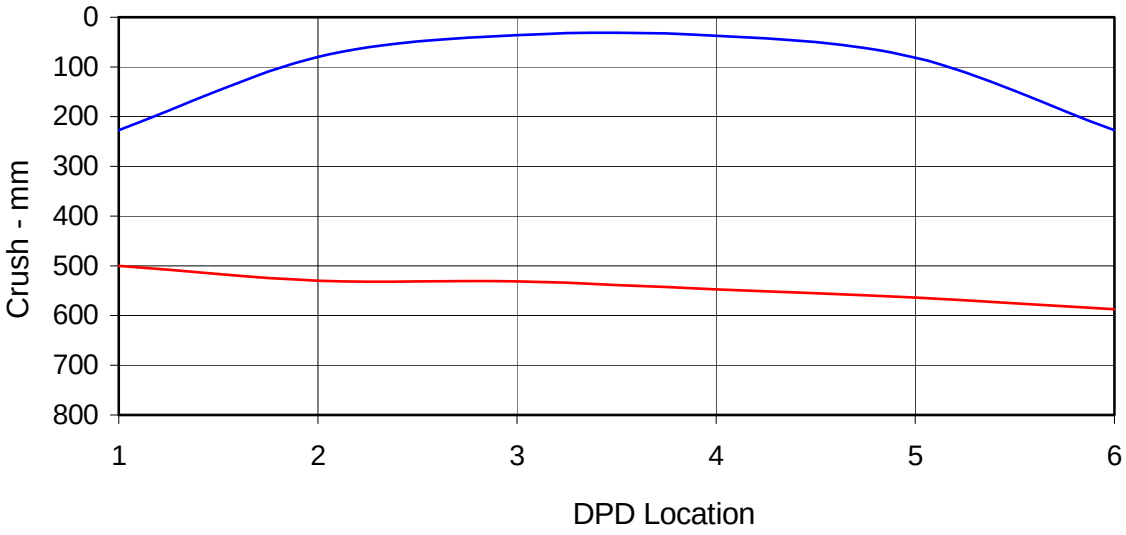
ACCELEROMETER DATA

Accelerometer Location: Left rear cross member
Cal. Procedure/Interval: 6 months / drop test
Integration Algorithm: NHTSA Standard Linearity: Good
Impact Velocity (km/h): 56.17
Velocity Change (km/h): 66.8 Time of Separation (msec): 65.1

CRUSH PROFILE

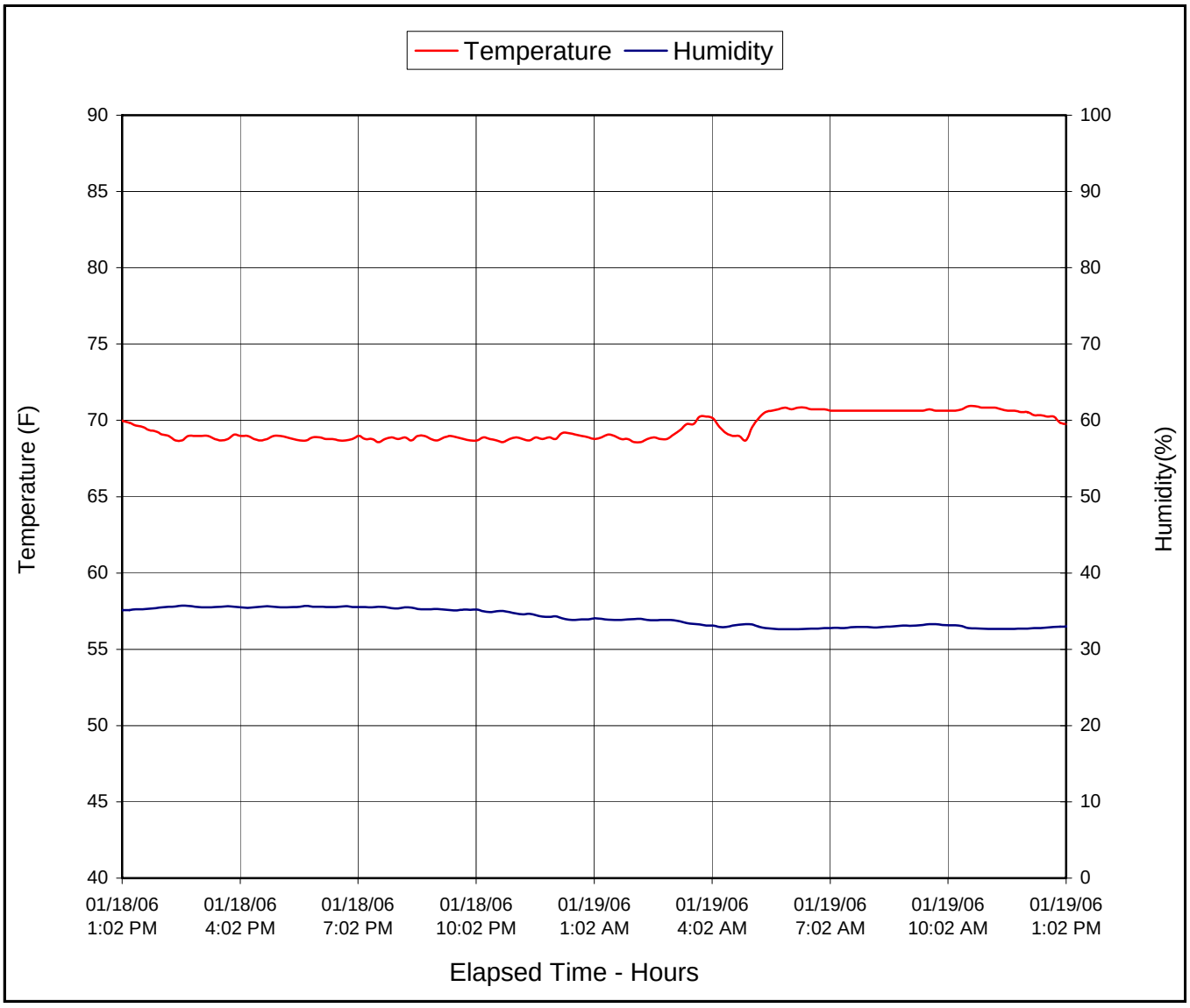
Collision Deformation Classification: 12FDEW6 Midpoint of Damage: Vehicle Centerline
Damage Region Length (mm): 1471 Impact Mode: Full Frontal

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	227	500	-273
C2	Crush zone 2 on left side	mm	80	530	-450
C3	Crush zone 3 on left side	mm	36	531	-495
C4	Crush zone 4 on right side	mm	37	547	-510
C5	Crush zone 5 on right side	mm	81	564	-483
C6	Crush zone 6 at right side	mm	227	587	-360



DATA SHEET NO. 19
DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2006 Toyota Prius 5-Door Hatchback NHTSA No.: M65100
Test Program: 2006 NHTSA 35mph NCAP Test Date: 1/19/06



APPENDIX A

PHOTOGRAPHS

LIST OF PHOTOGRAPHS

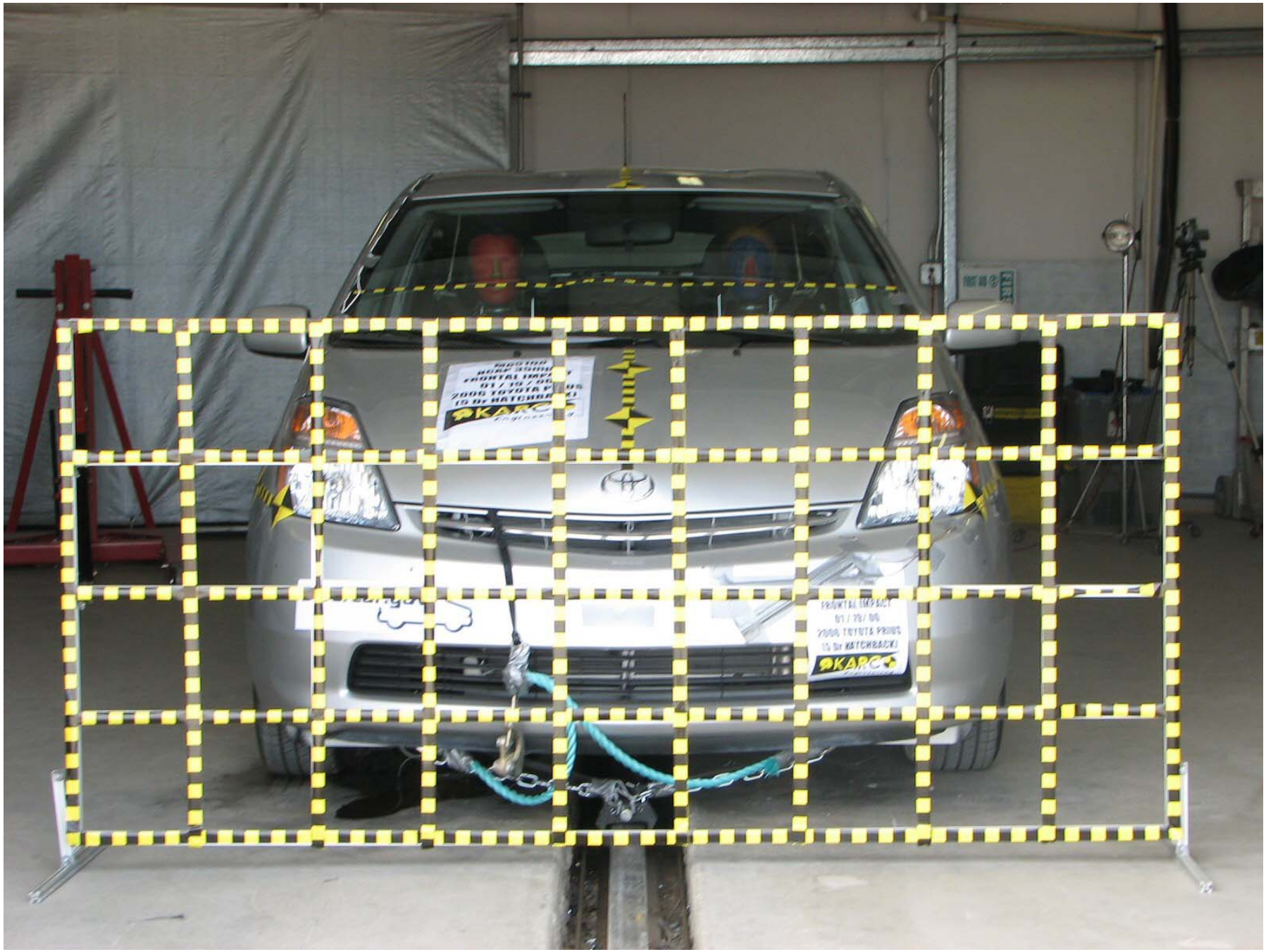


Figure A-1: Load Cell Location

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Figure A-2: Manufacturer's Label

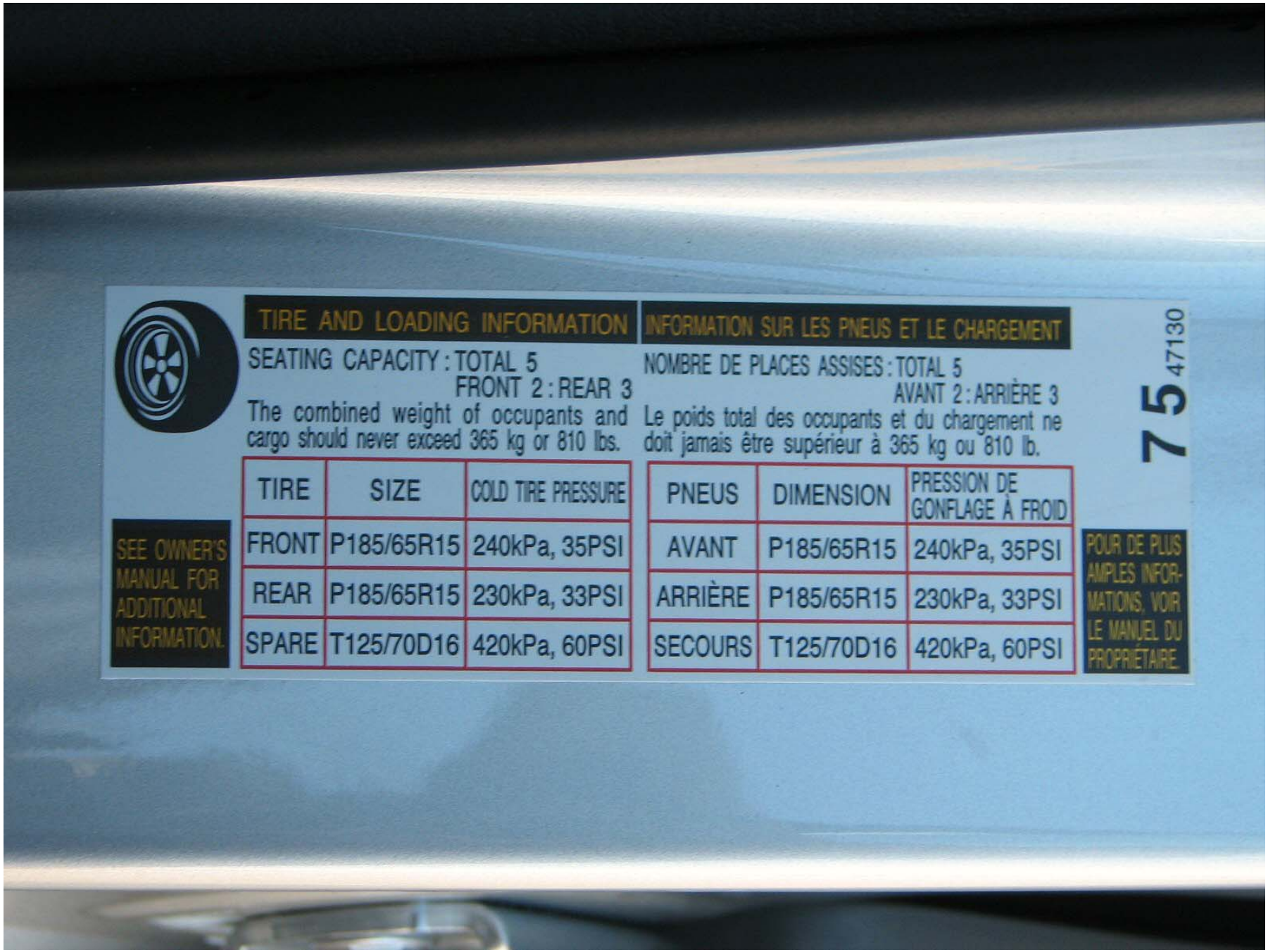


Figure A-3: Tire Placard

Figure A-4: Right Front ¾ View, As Received

Figure A-5: Left Rear ¾ View, as Received

Figure A-6: Pre-Test Front View

Figure A-7: Post-Test Front View (Vehicle Moved)

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 ¾ View

Figure A-13: Post-Test Right Front ¾ View (Vehicle Moved)

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

Figure A-15: Post-Test Left Rear ¾ View

Figure A-16: Post-Test Left Side ¾ View of Doors After Impact

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

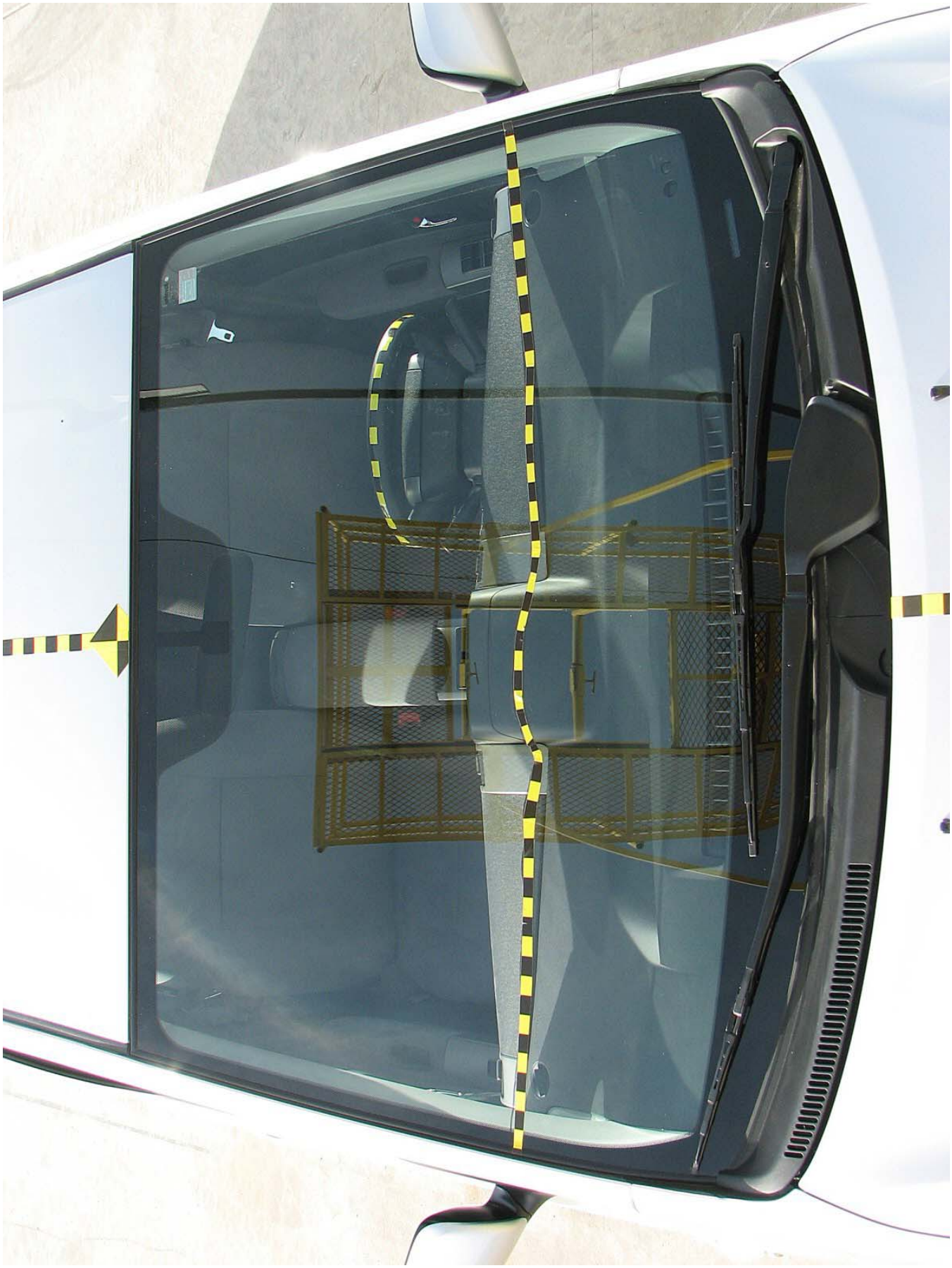


Figure A-18: Pre-Test Windshield

Figure A-19: Post-Test Windshield

Figure A-20: Pre-Test Engine Compartment

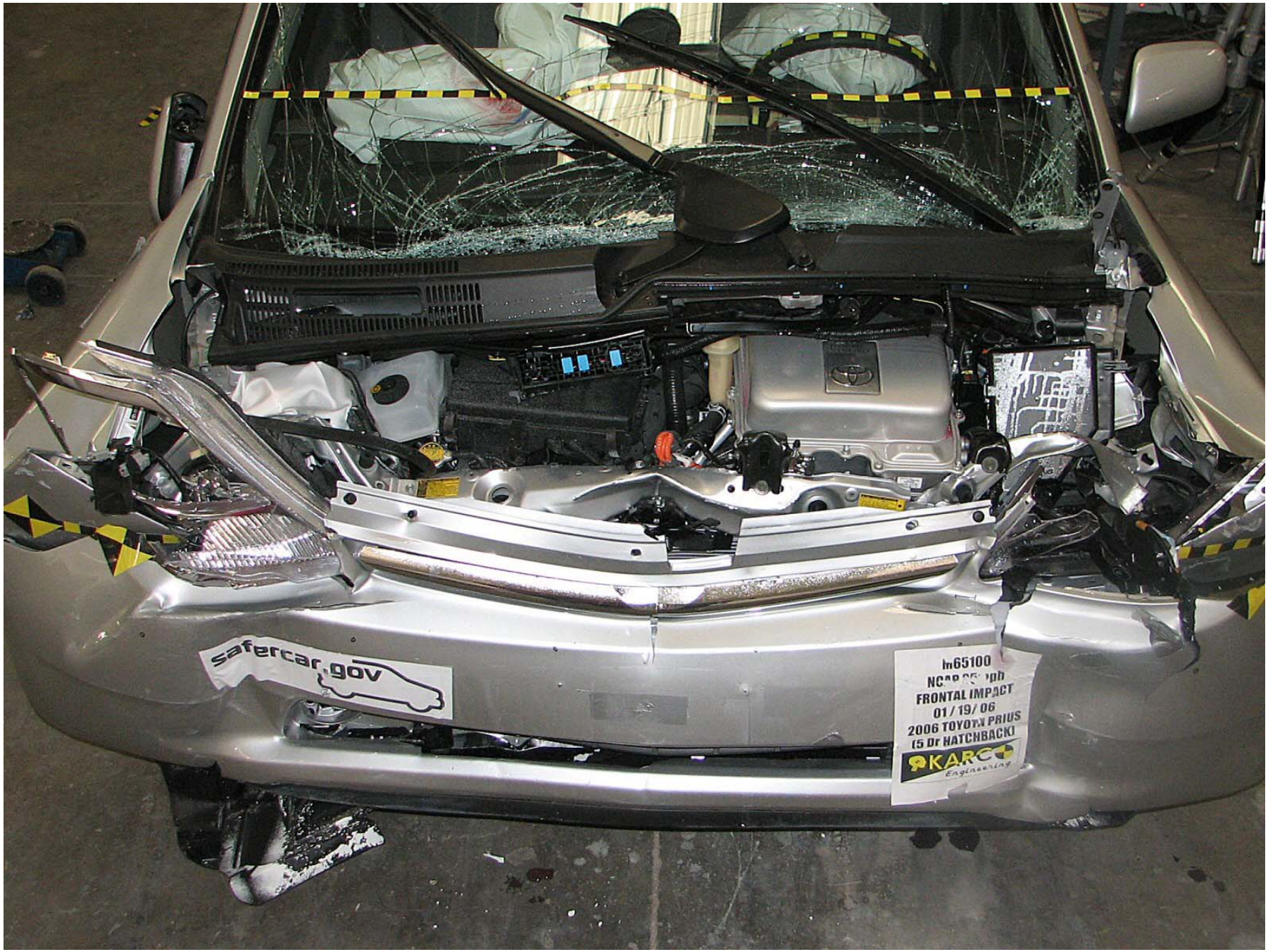


Figure A-21: Post-Test Engine Compartment (Vehicle Moved)

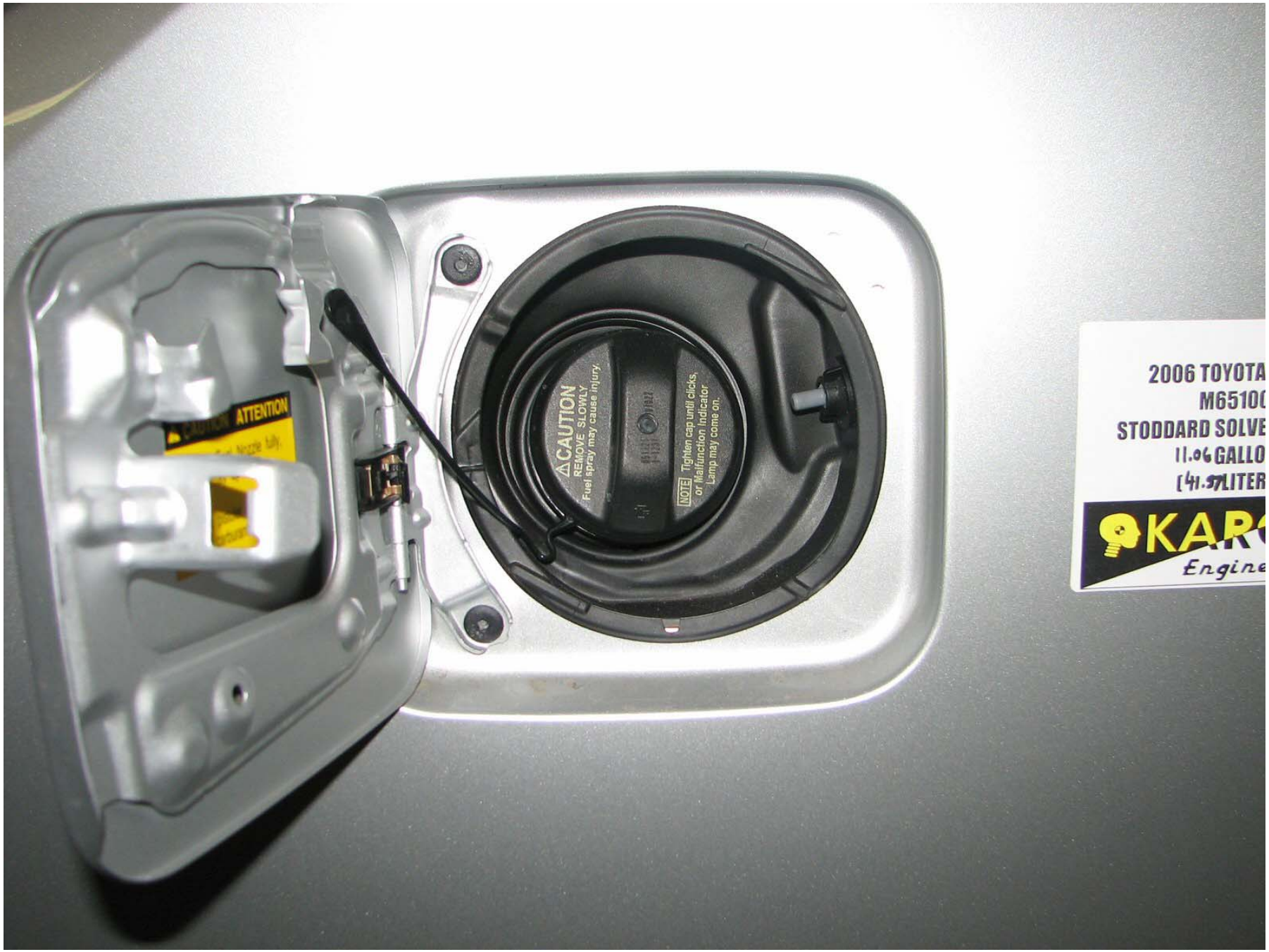


Figure A-22: Pre-Test Fuel Cap

Figure A-23: Post-Test Fuel Cap

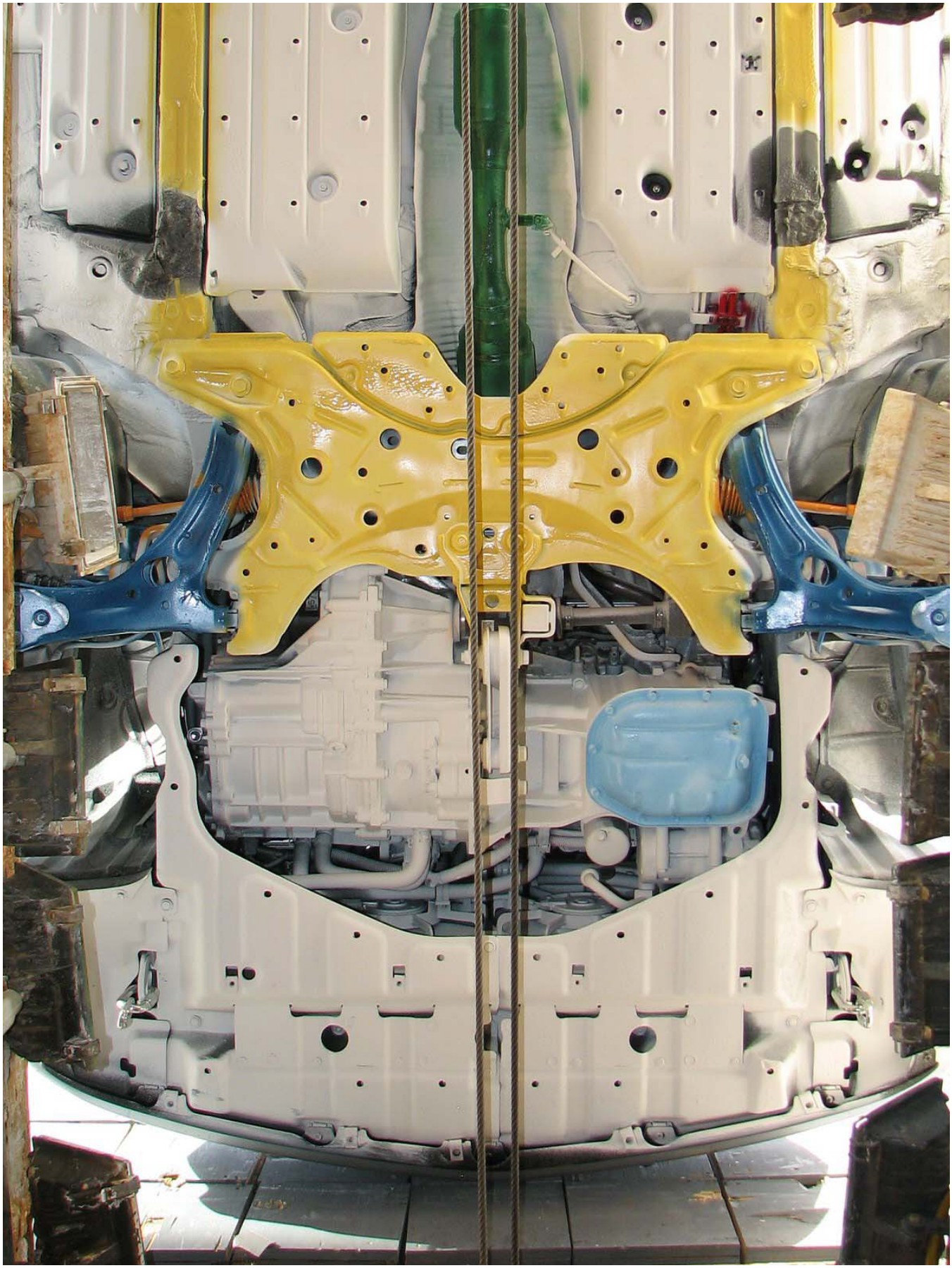


Figure A-24: Pre-Test Front Underbody

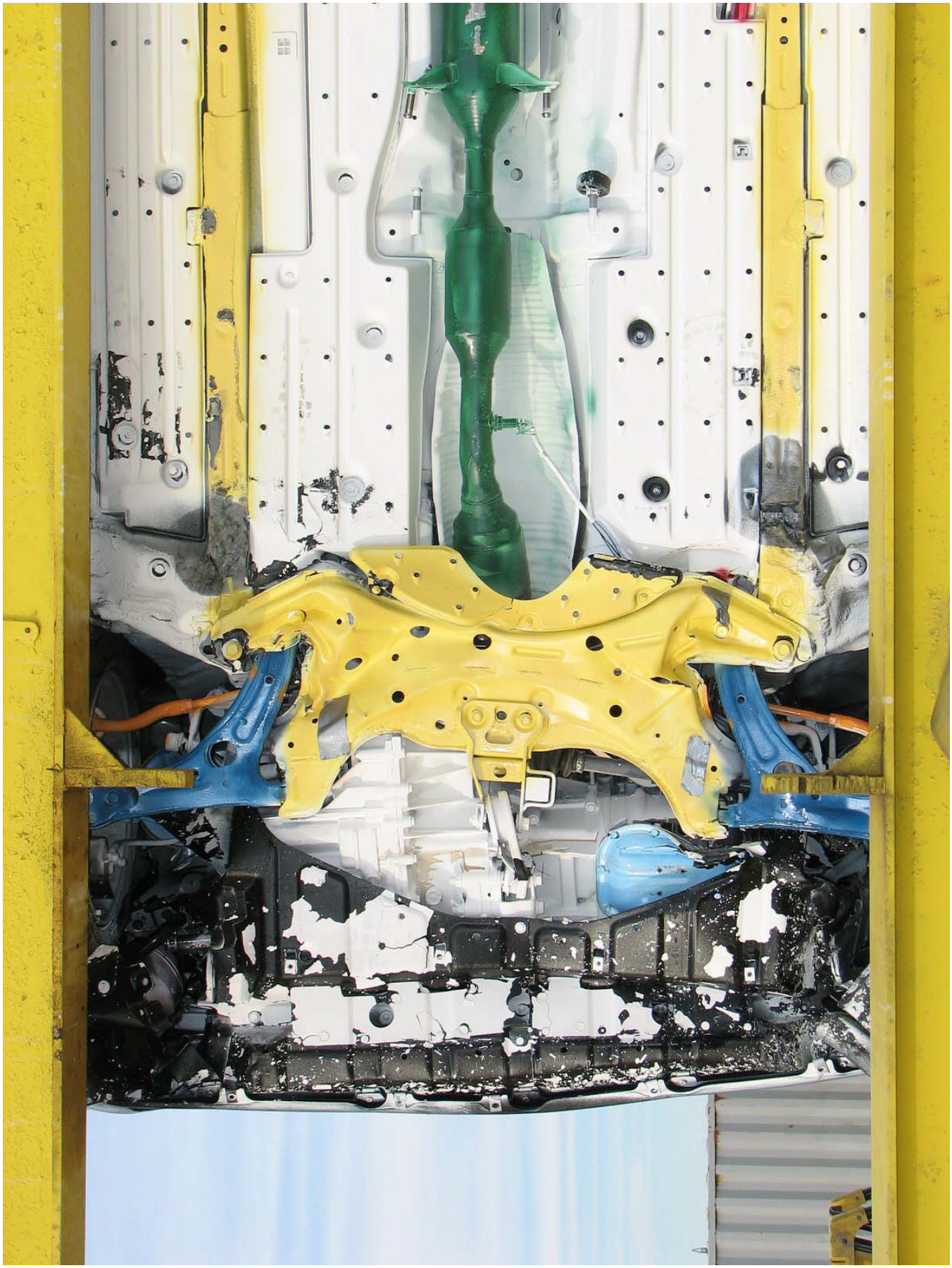


Figure A-25: Post-Test Front Underbody

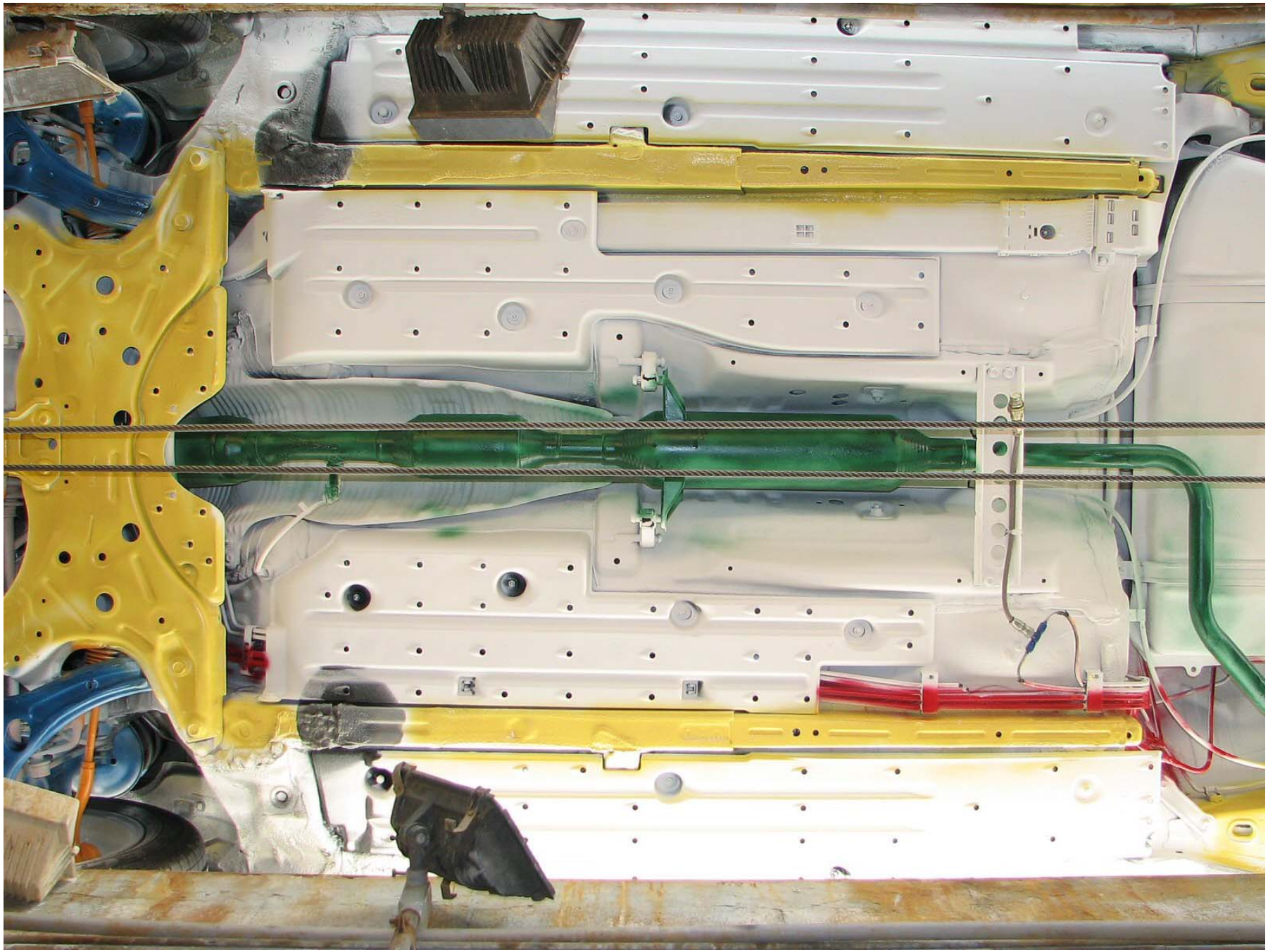


Figure A-26: Pre-Test Mid Underbody

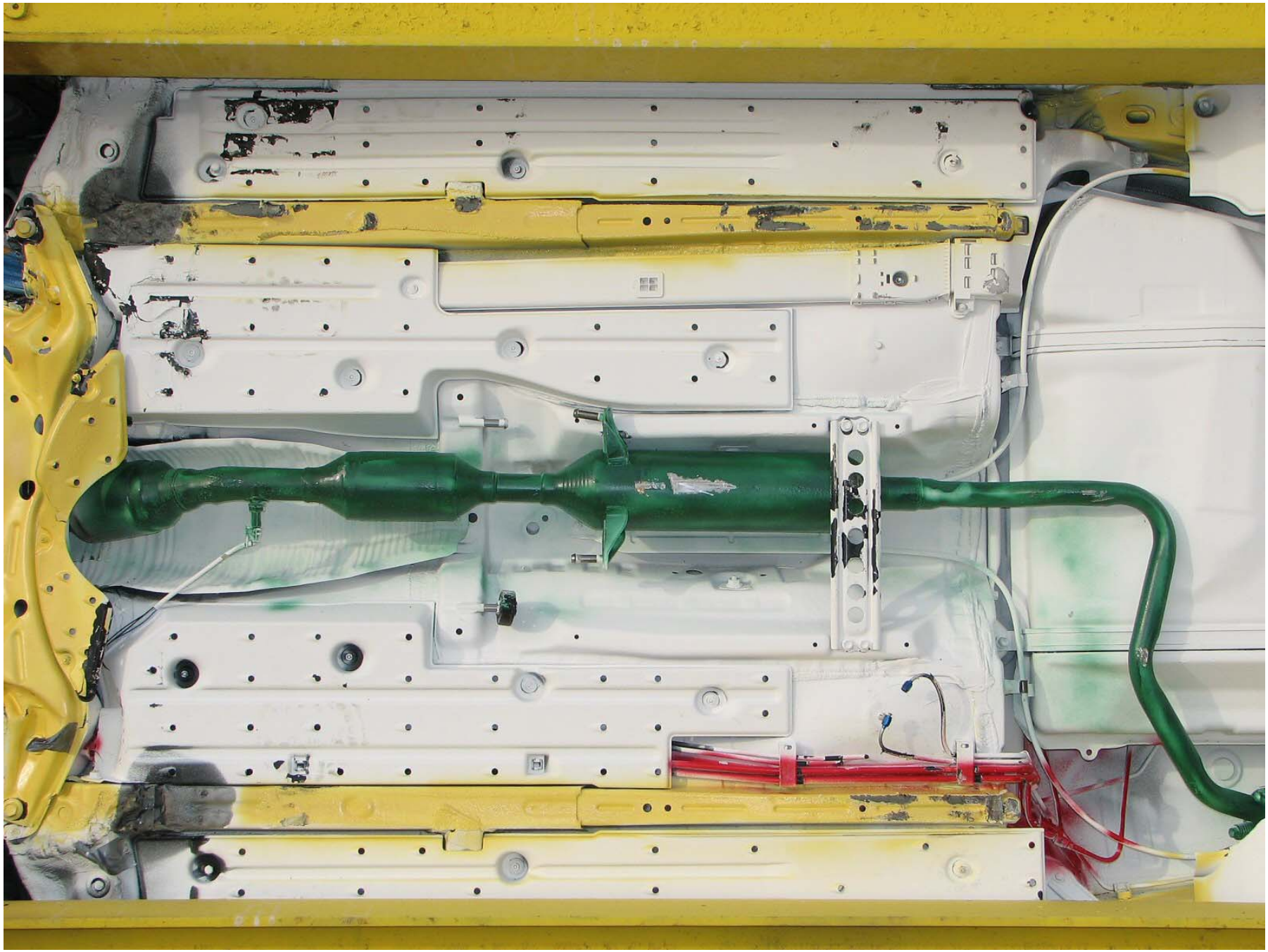


Figure A-27: Post-Test Mid Underbody

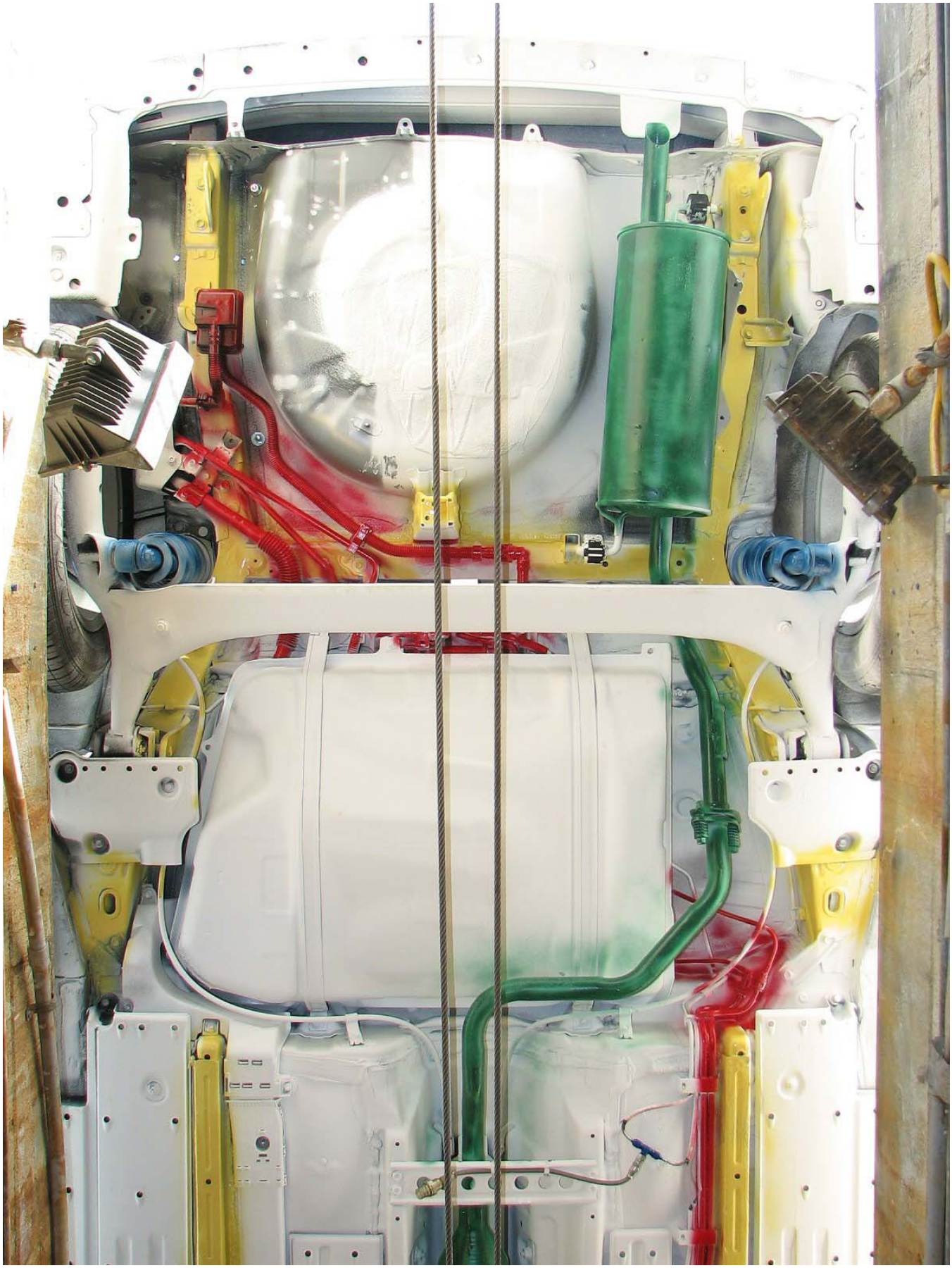


Figure A-28: Pre-Test Rear Underbody

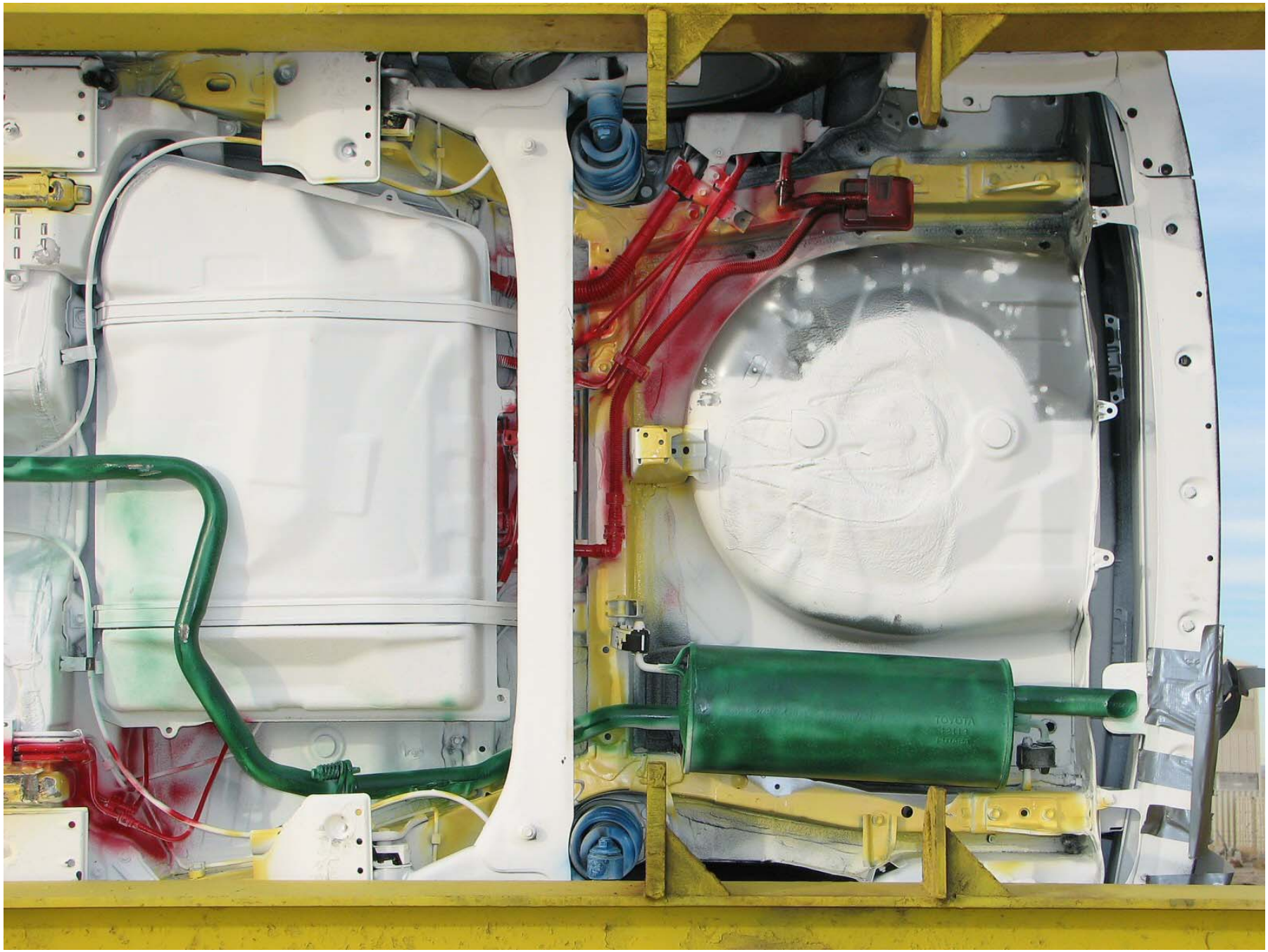


Figure A-29: Post-Test Rear Underbody

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)

Figure A-36: Pre-Test Driver Dummy Feet

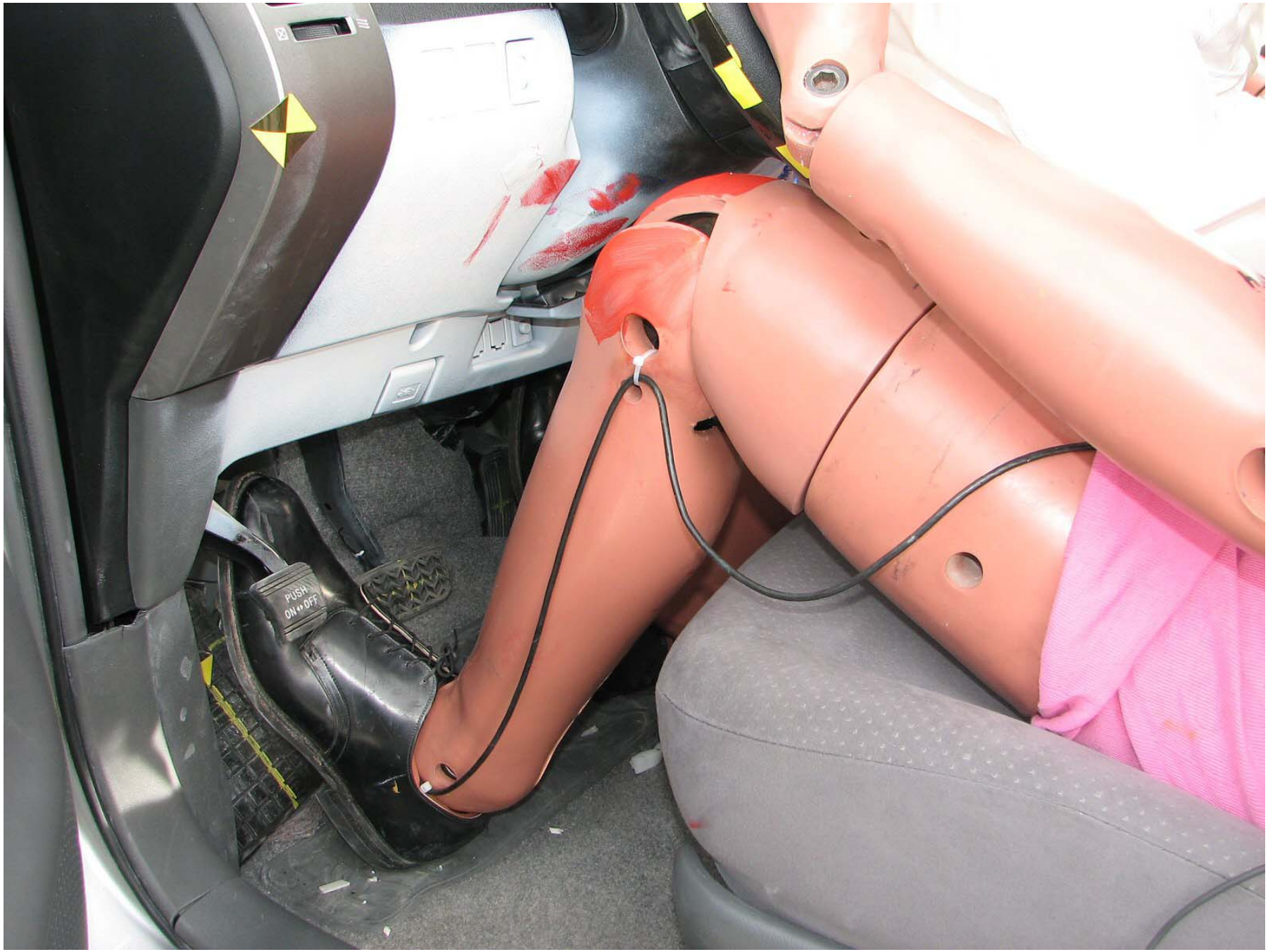


Figure A-37: Post-Test Driver Dummy Feet

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

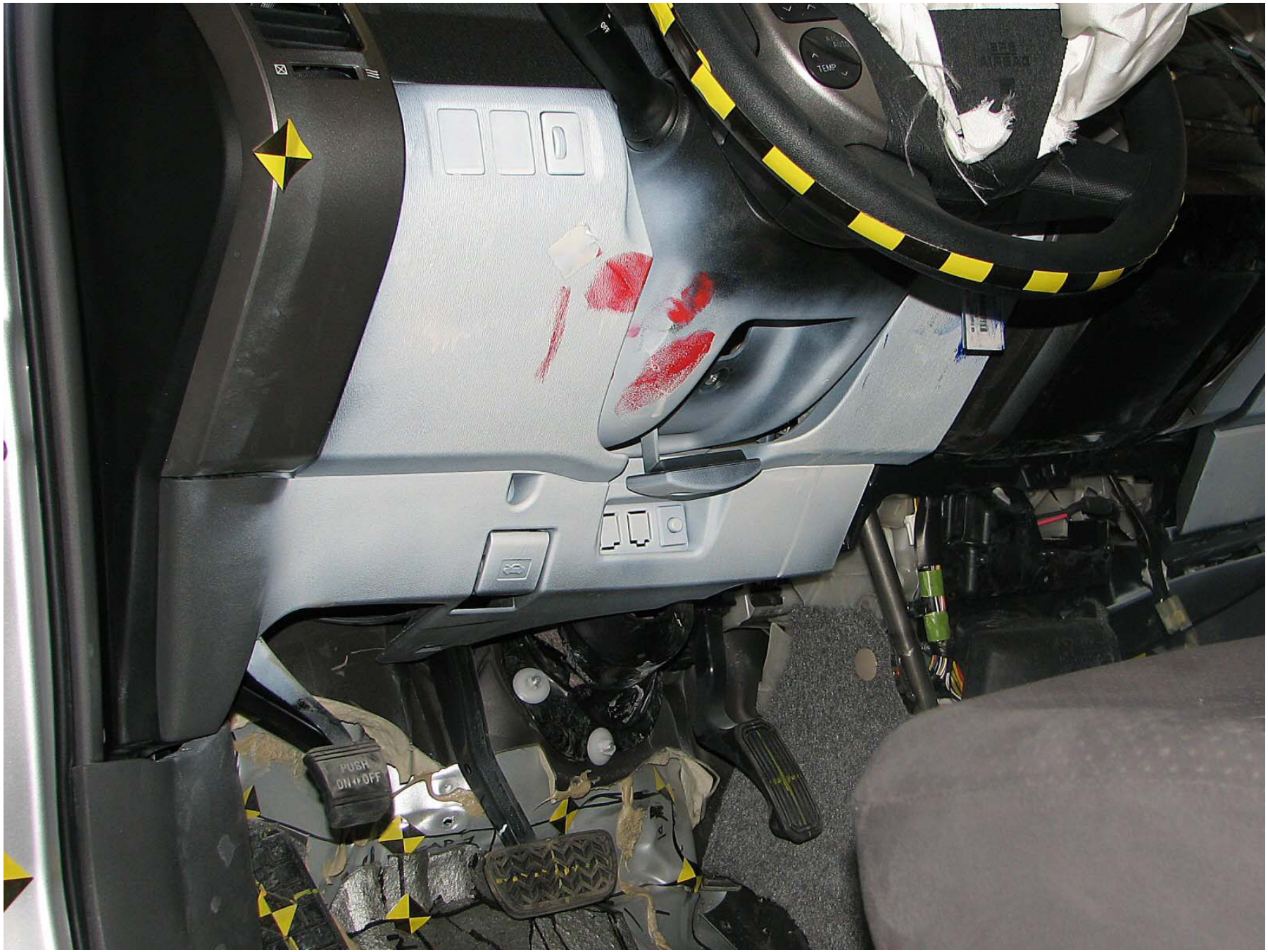


Figure A-39: Post-Test Driver Side Knee Bolster

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

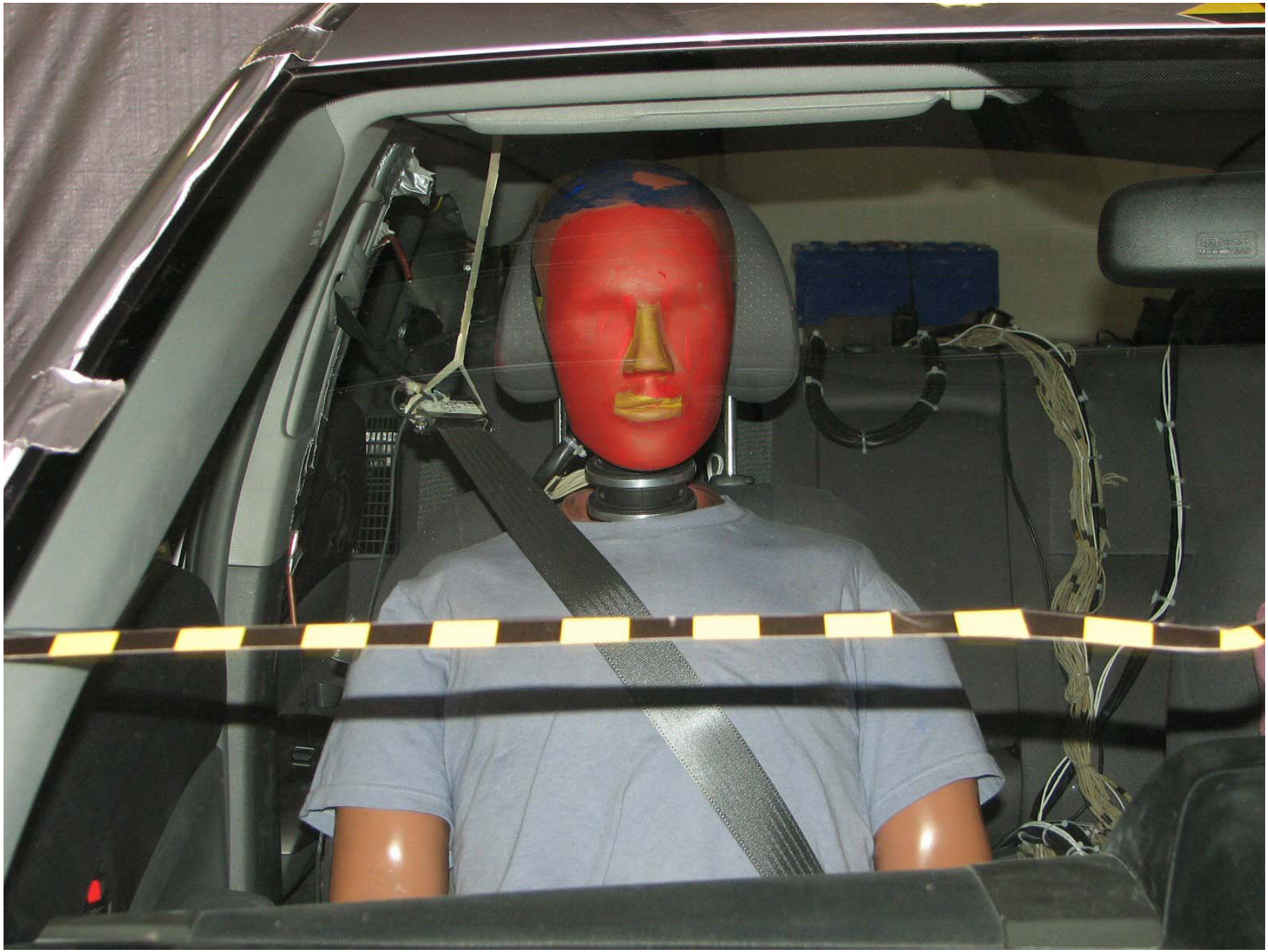


Figure A-44: Pre-Test Passenger Dummy Front View (Head Position)

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)

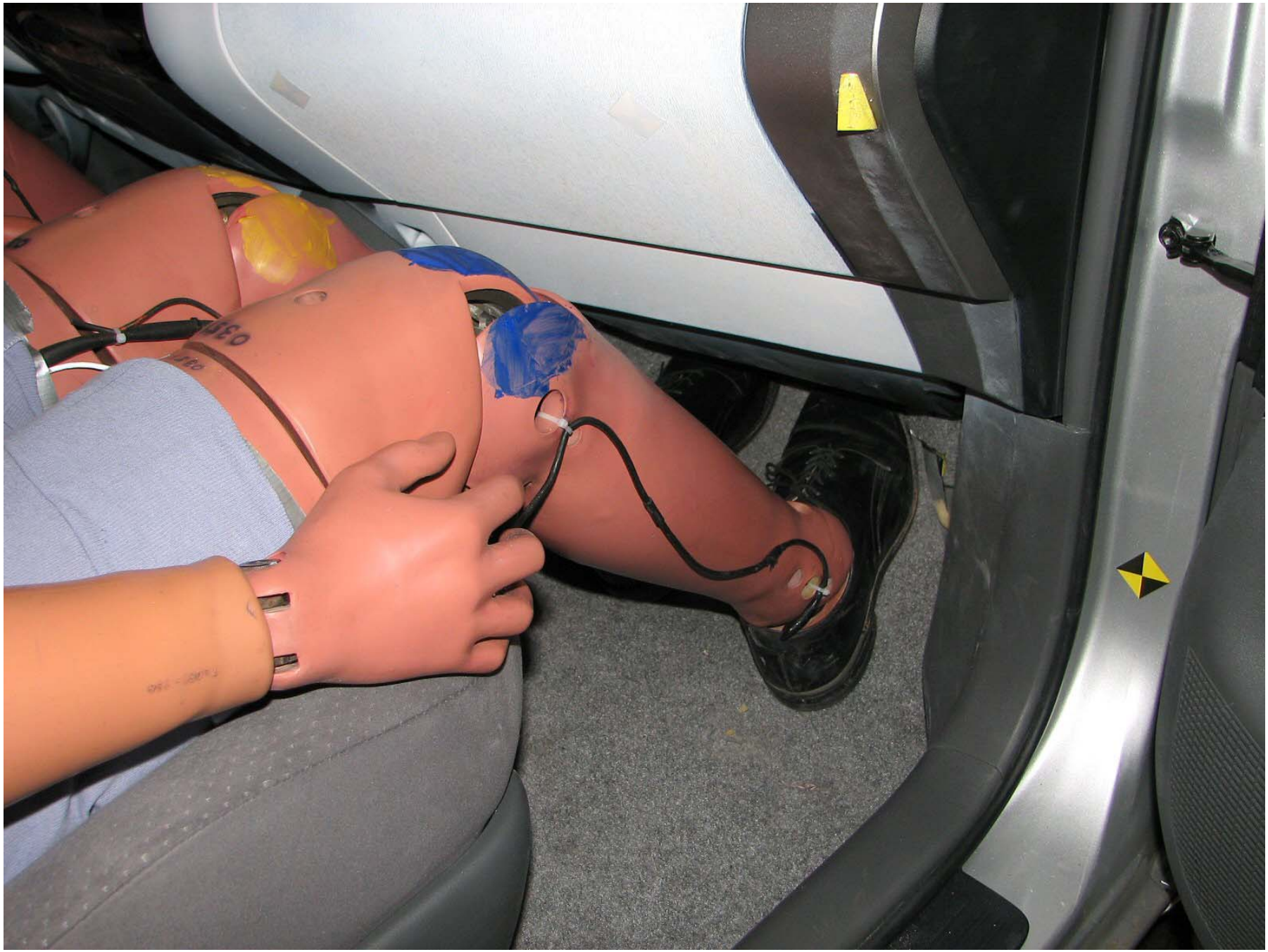


Figure A-50: Pre-Test Passenger Dummy Feet

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

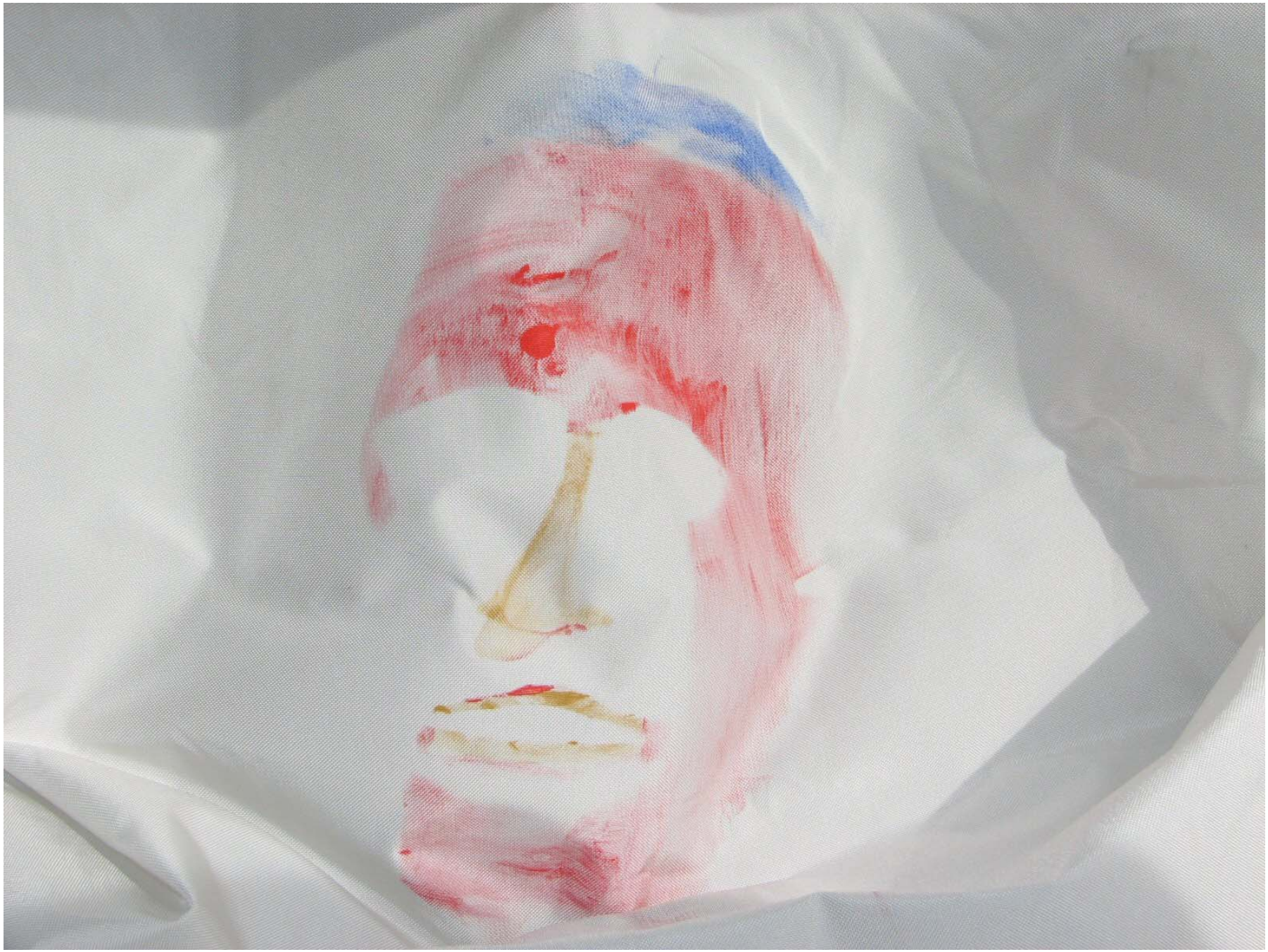


Figure A-57: Post-Test Passenger Dummy Airbag Contact

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

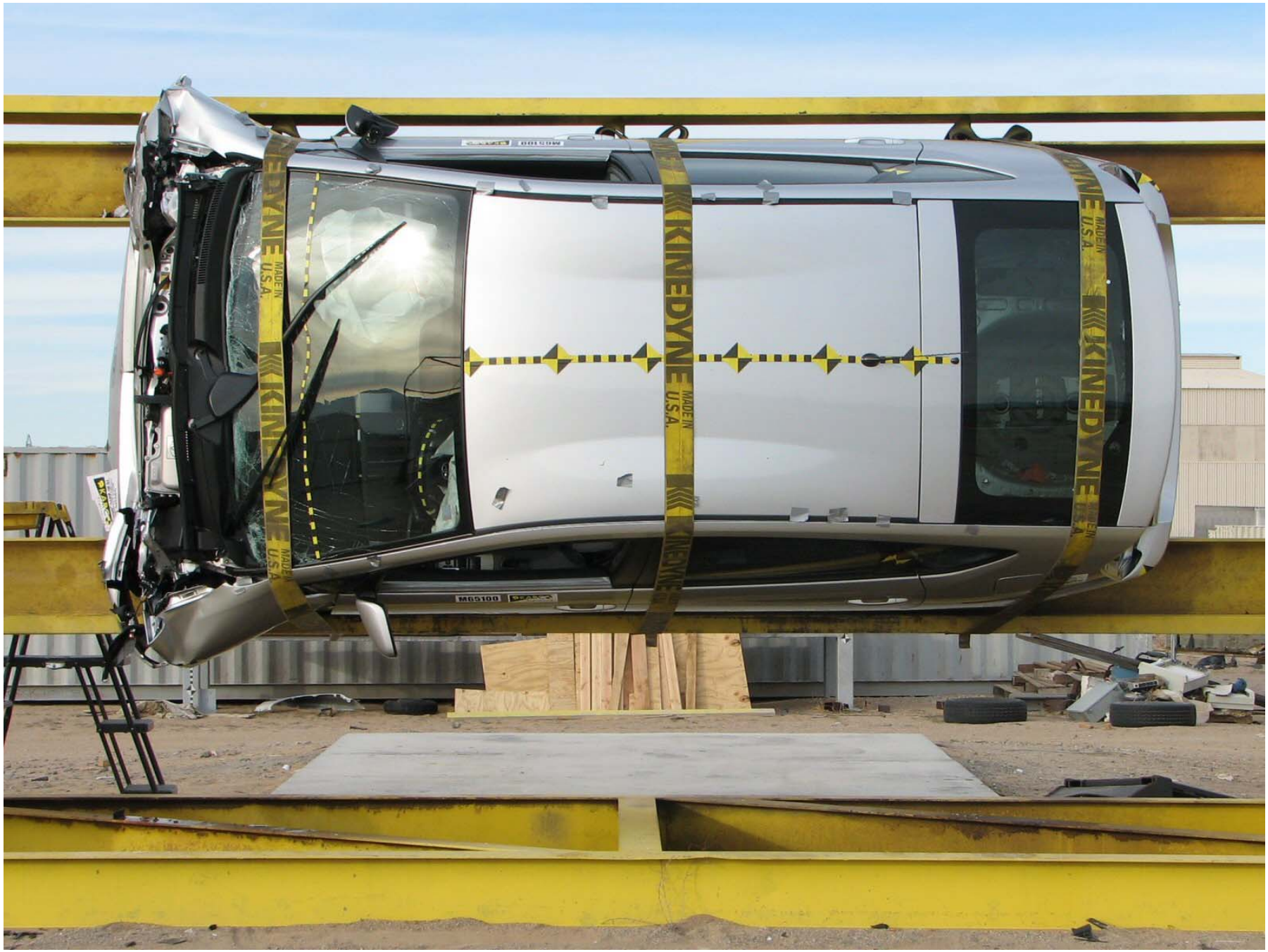


Figure A-59: Vehicle on Rollover Device (90°)

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

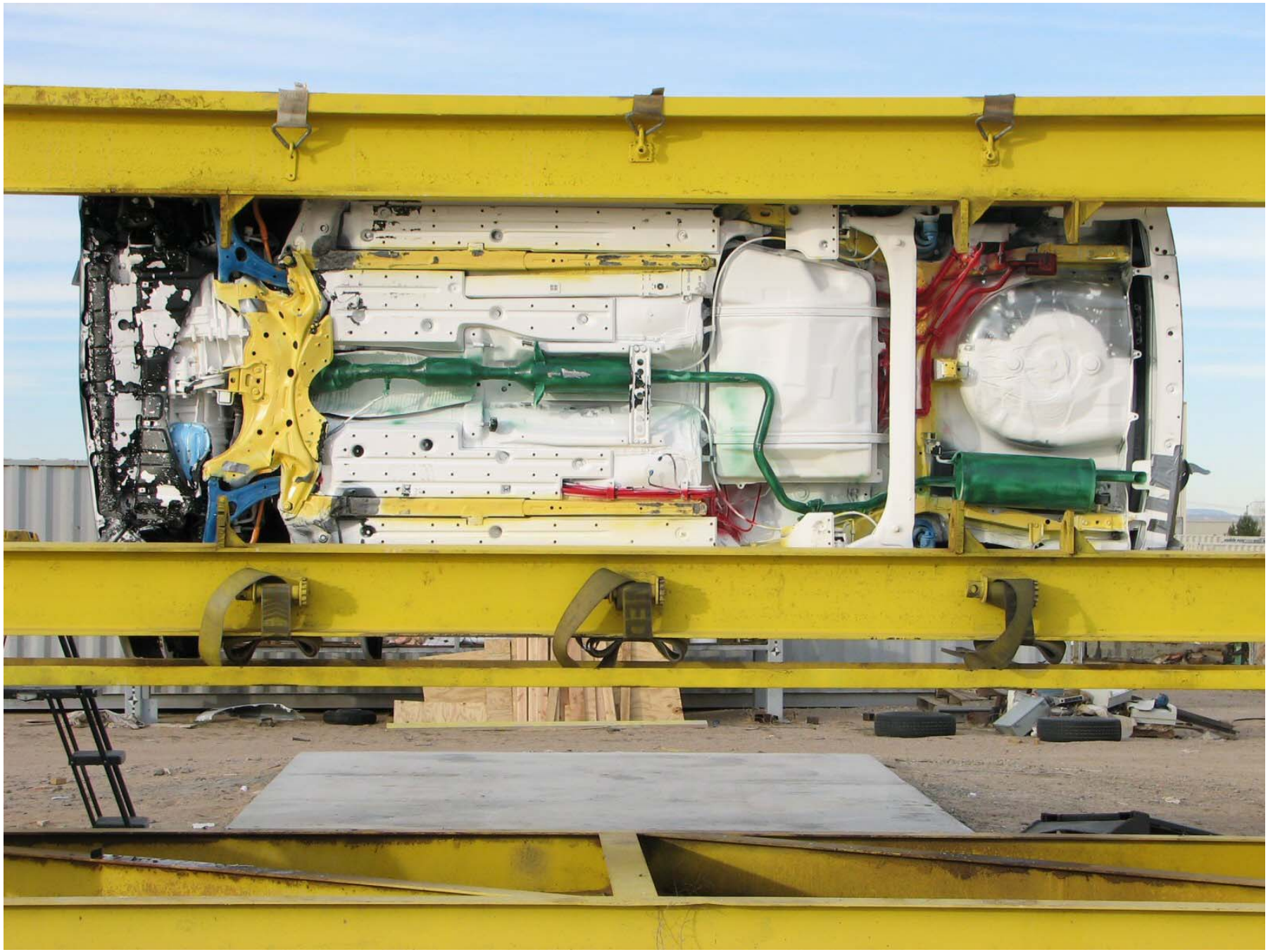


Figure A-61: Vehicle on Rollover Device (270°)

Figure A-62: Vehicle Impact

APPENDIX B

DATA PLOTS

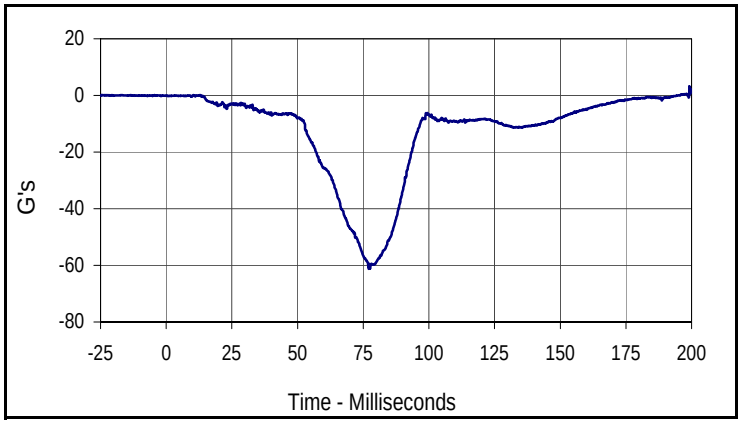
LIST OF DATA PLOTS

LIST OF DATA PLOTS…(CONTINUED)

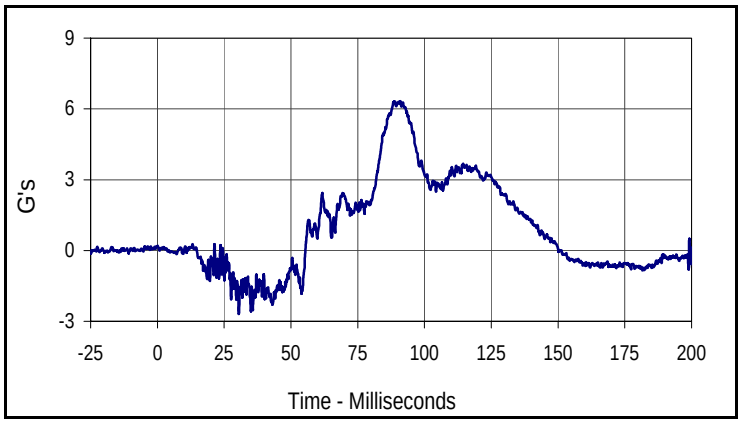
The following additional data plots for this test can be obtained from the research and development section of the NHTSA website. The website can be found at www.NHTSA.dot.gov.

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

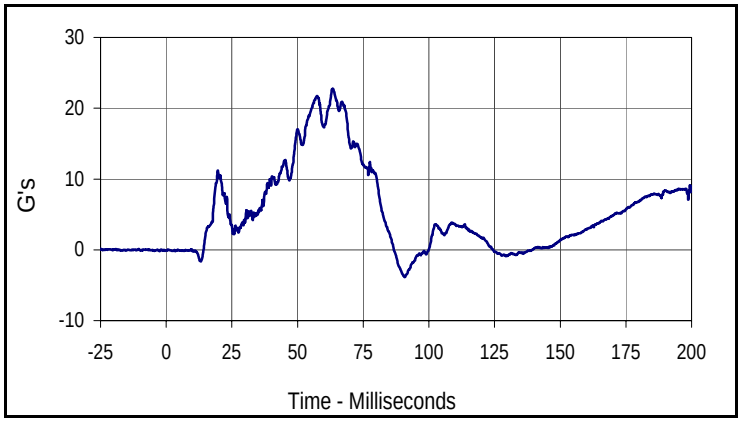
Test Vehicle:	2006 Toyota Prius 5-Door Hatchback	Test Date:	1/19/06
Test Program:	2006 NHTSA 35mph NCAP	NHTSA No.:	M65100



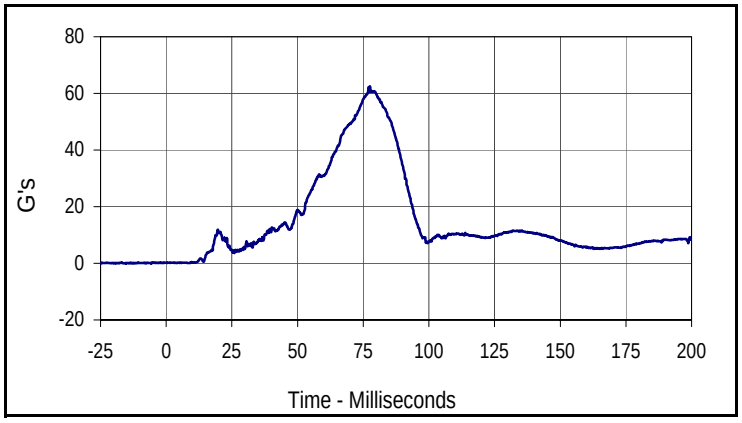
Curve Description			
Driver Head Primary X			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
3.2	199.2	-61.3	77.1



Curve Description			
Driver Head Primary Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
6.3	91.0	-2.7	30.5

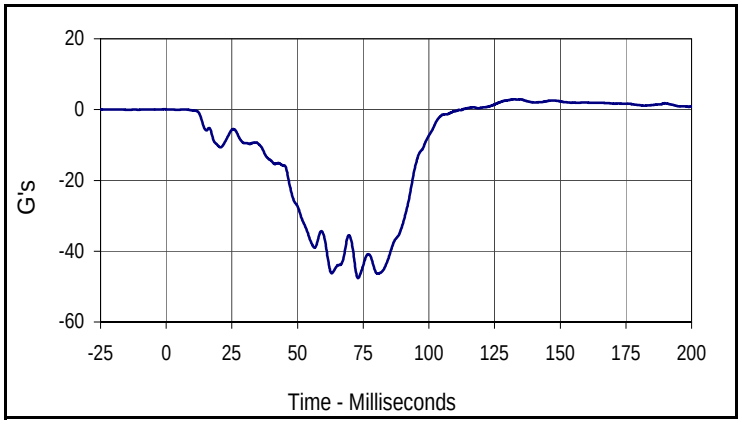


Curve Description			
Driver Head Primary Z			
CURNO	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
22.8	63.5	-3.8	90.7

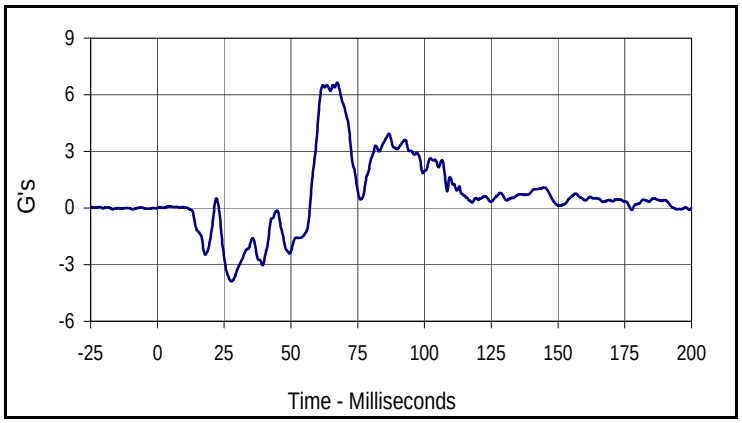


Curve Description			
Driver Head Resultant Primary			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
62.4	77.6	0.1	9.1

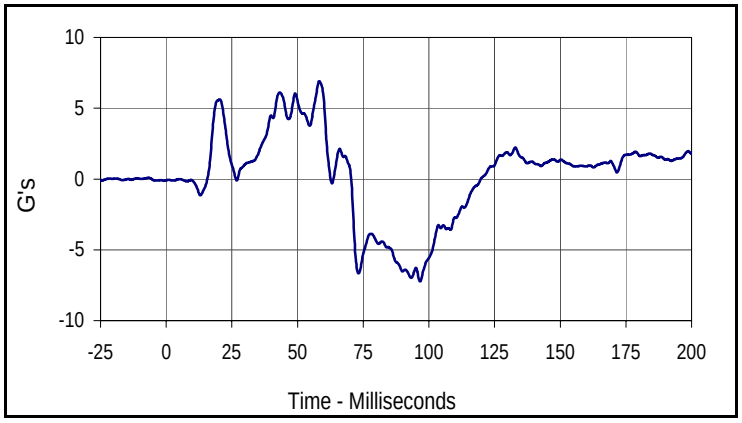
Test Vehicle:	2006 Toyota Prius 5-Door Hatchback	Test Date:	1/19/06
Test Program:	2006 NHTSA 35mph NCAP	NHTSA No.:	M65100



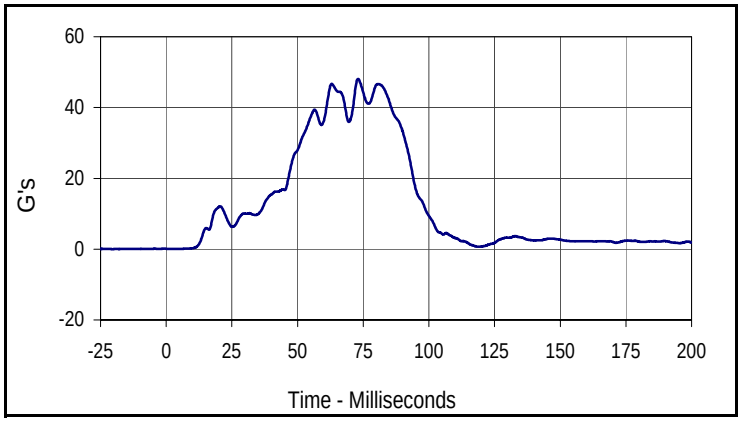
Curve Description			
Driver Chest Primary X			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
2.9	132.4	-47.6	73.0



Curve Description			
Driver Chest Primary Y			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
6.6	67.3	-3.9	27.6

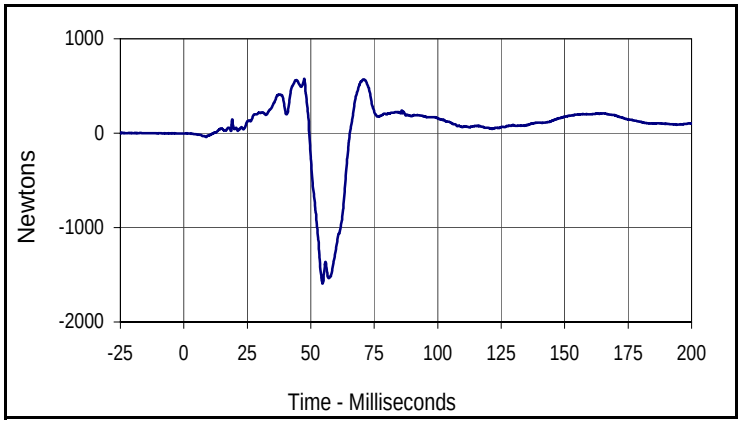


Curve Description			
Driver Chest Primary Z			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
6.9	58.3	-7.2	96.7

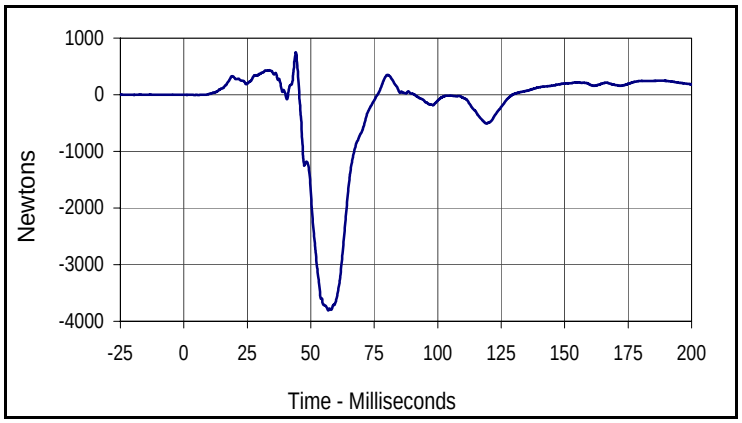


Curve Description			
Driver Chest Resultant Primary			
CURNO	Type	SAE Class	Units
004	RES	180	G's
Max	Time	Min	Time
48.1	73.0	0.1	5.8

Test Vehicle:	2006 Toyota Prius 5-Door Hatchback	Test Date:	1/19/06
Test Program:	2006 NHTSA 35mph NCAP	NHTSA No.:	M65100

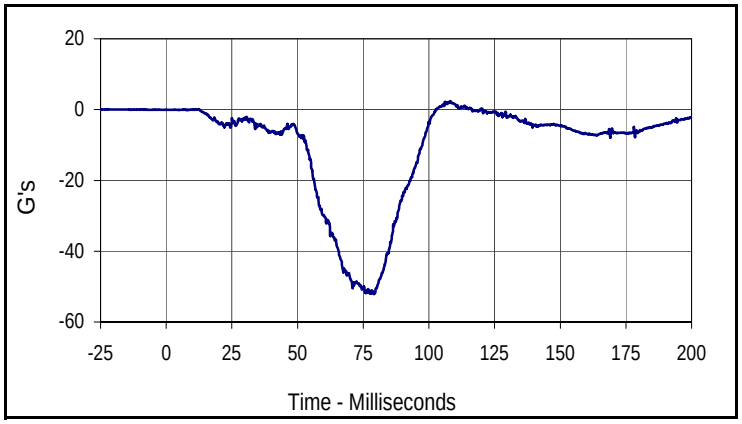


Curve Description			
Driver Left Femur Force Z			
CURNO	Type	SAE Class	Units
007	FIL	600	Newtons
Max	Time	Min	Time
577.8	47.4	-1591.7	54.7

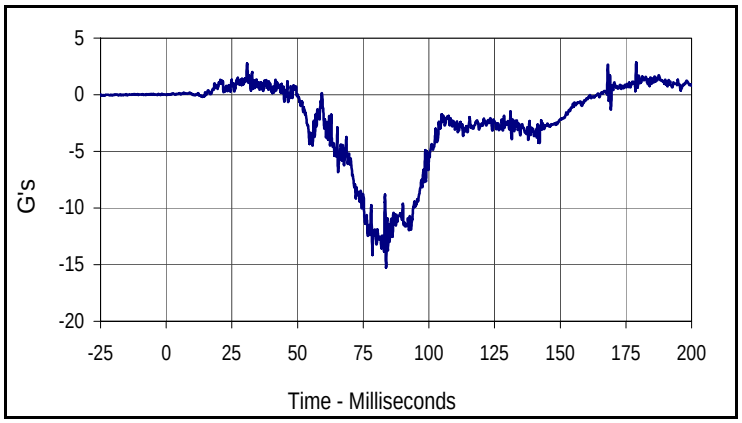


Curve Description			
Driver Right Femur Force Z			
CURNO	Type	SAE Class	Units
008	FIL	600	Newtons
Max	Time	Min	Time
749.3	44.1	-3805.5	56.9

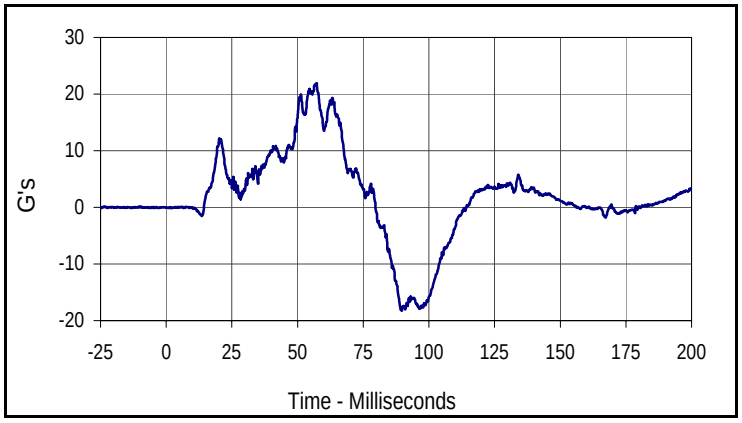
Test Vehicle:	2006 Toyota Prius 5-Door Hatchback	Test Date:	1/19/06
Test Program:	2006 NHTSA 35mph NCAP	NHTSA No.:	M65100



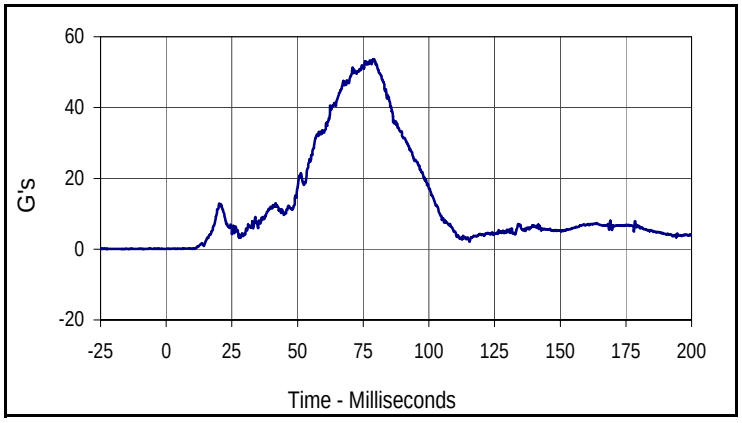
Curve Description			
Passenger Head Primary X			
CURNO	Type	SAE Class	Units
009	FIL	1000	G's
Max	Time	Min	Time
2.4	108.1	-52.1	79.0



Curve Description			
Passenger Head Primary Y			
CURNO	Type	SAE Class	Units
010	FIL	1000	G's
Max	Time	Min	Time
2.9	178.9	-15.2	83.7

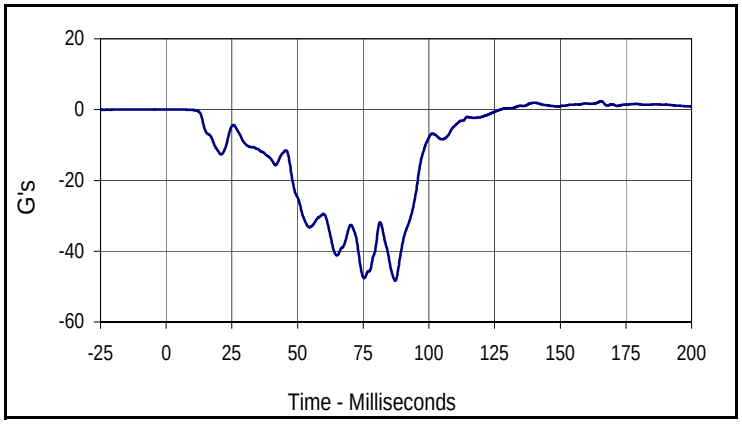


Curve Description			
Passenger Head Primary Z			
CURNO	Type	SAE Class	Units
011	FIL	1000	G's
Max	Time	Min	Time
21.9	57.2	-18.3	89.7

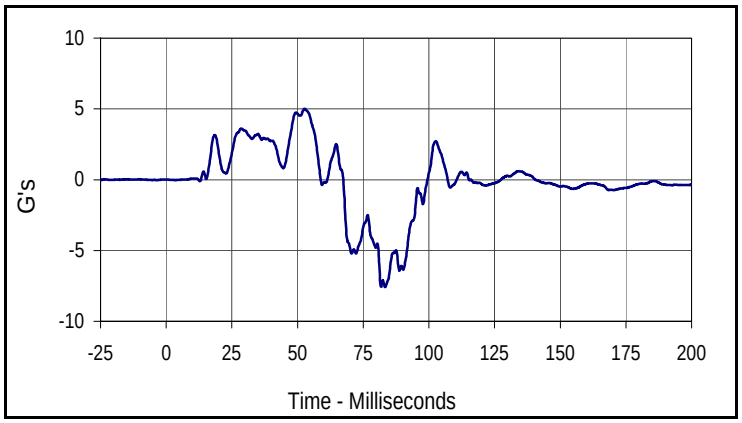


Curve Description			
Passenger Head Resultant Primary			
CURNO	Type	SAE Class	Units
009	RES	1000	G's
Max	Time	Min	Time
53.7	79.0	0.0	3.4

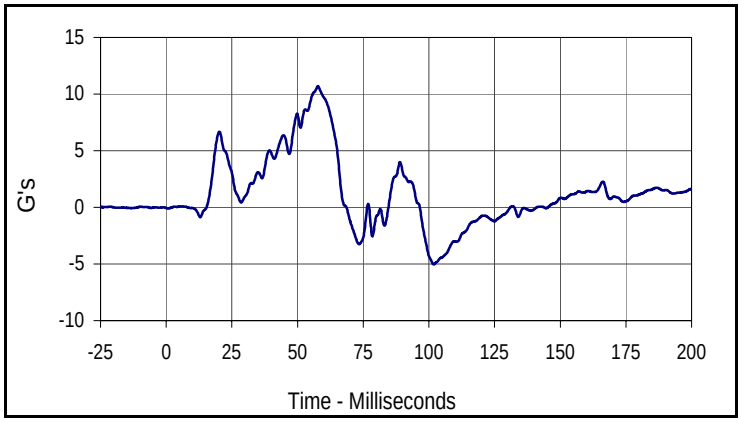
Test Vehicle:	2006 Toyota Prius 5-Door Hatchback	Test Date:	1/19/06
Test Program:	2006 NHTSA 35mph NCAP	NHTSA No.:	M65100



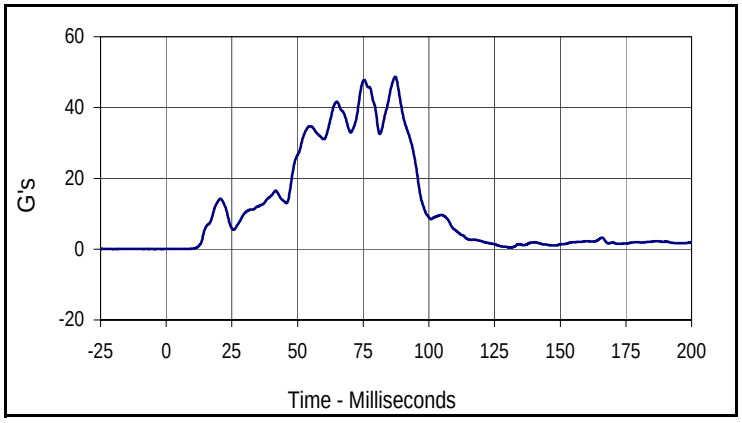
Curve Description			
Passenger Chest Primary X			
CURNO	Type	SAE Class	Units
012	FIL	180	G's
Max	Time	Min	Time
2.4	165.6	-48.4	87.2



Curve Description			
Passenger Chest Primary Y			
CURNO	Type	SAE Class	Units
013	FIL	180	G's
Max	Time	Min	Time
5.0	52.7	-7.6	83.4

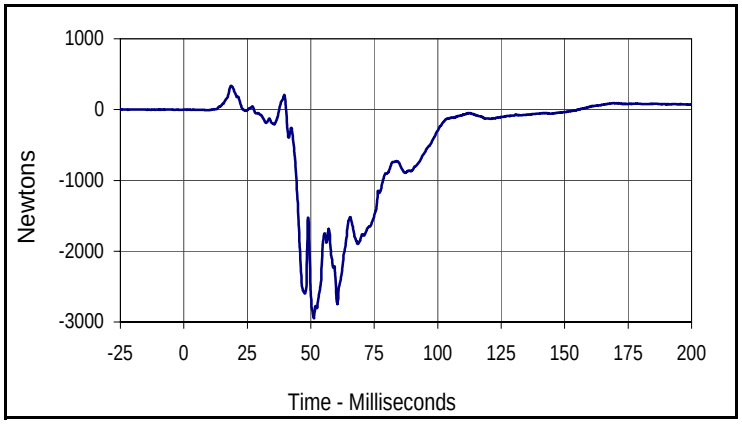


Curve Description			
Passenger Chest Primary Z			
CURNO	Type	SAE Class	Units
014	FIL	180	G's
Max	Time	Min	Time
10.7	57.8	-5.0	101.8

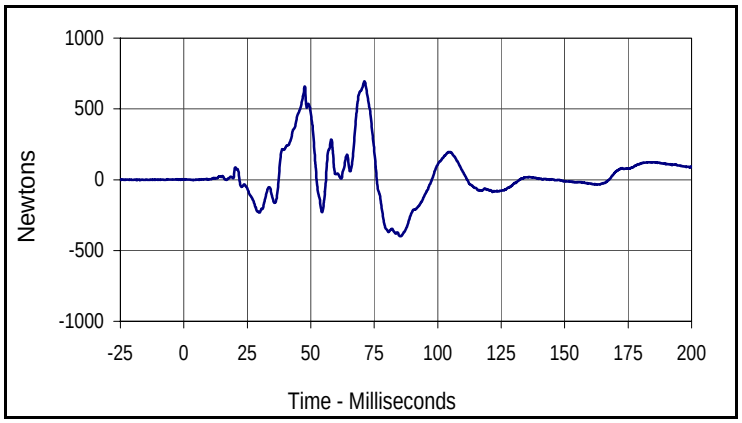


Curve Description			
Passenger Chest Resultant Primary			
CURNO	Type	SAE Class	Units
012	RES	180	G's
Max	Time	Min	Time
48.7	87.1	0.0	2.3

Test Vehicle:	2006 Toyota Prius 5-Door Hatchback	Test Date:	1/19/06
Test Program:	2006 NHTSA 35mph NCAP	NHTSA No.:	M65100



Curve Description			
Passenger Left Femur Force Z			
CURNO	Type	SAE Class	Units
015	FIL	600	Newtons
Max	Time	Min	Time
335.9	18.6	-2944.7	51.2



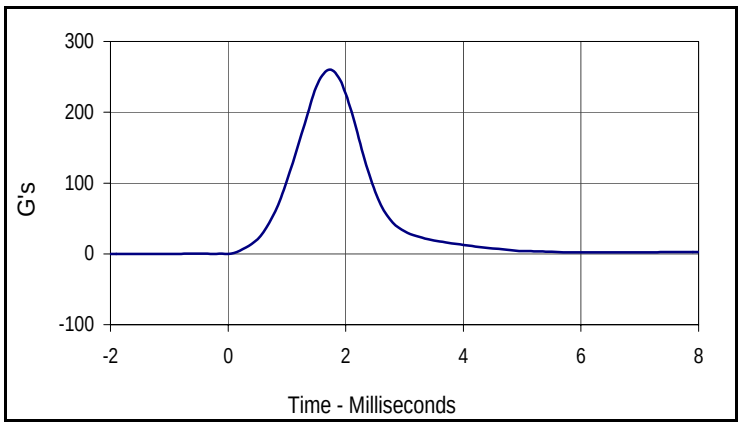
Curve Description			
Passenger Right Femur Force Z			
CURNO	Type	SAE Class	Units
016	FIL	600	Newtons
Max	Time	Min	Time
695.3	71.1	-399.4	85.2

APPENDIX C

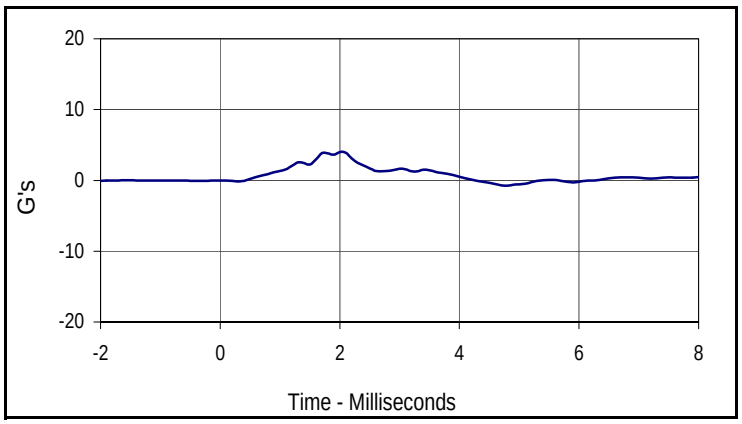
DUMMY CALIBRATION DATA

Test Program:	Hybrid III 50th Percentile Male Head Drop Test	Test Date:	12/3/05
ATD Serial No.:	034	Test I.D.:	HD12A

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	259.9	Pass
Peak Lateral Acceleration	G's	≤15.0	4.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
		Overall Test Results		Pass



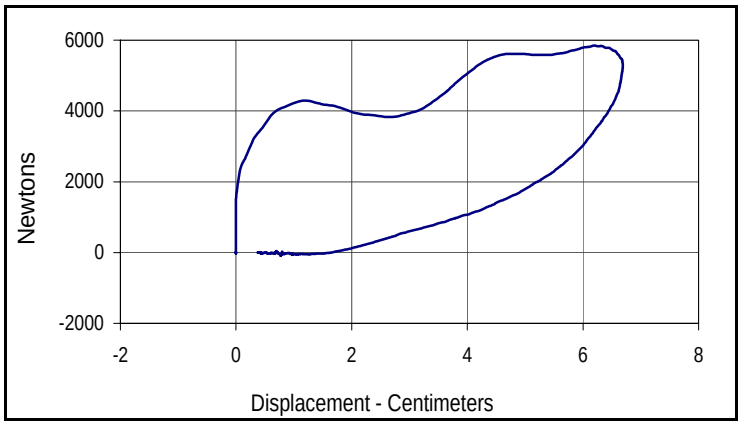
Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
259.9	1.7	0.0	-1.4



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
4.0	2.0	-0.7	4.8

Test Program:	Hybrid III 50th Percentile Male Thorax Impact Test	Test Date:	124/05
ATD Serial No.:	034	Test I.D.:	CH12A

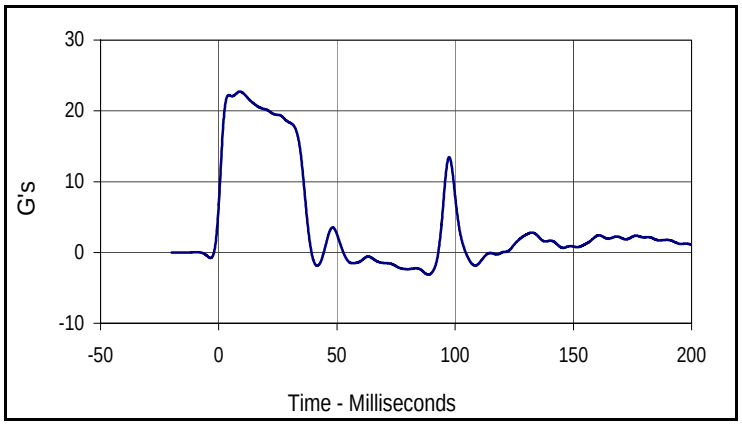
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.58 to 6.82	6.70	Pass
Peak Probe Force	Newtons	5159 to 5893	5846	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	6.69	Pass
Internal Hysterysis	%	69 to 85	75.5	Pass
		Overall Test Results		Pass



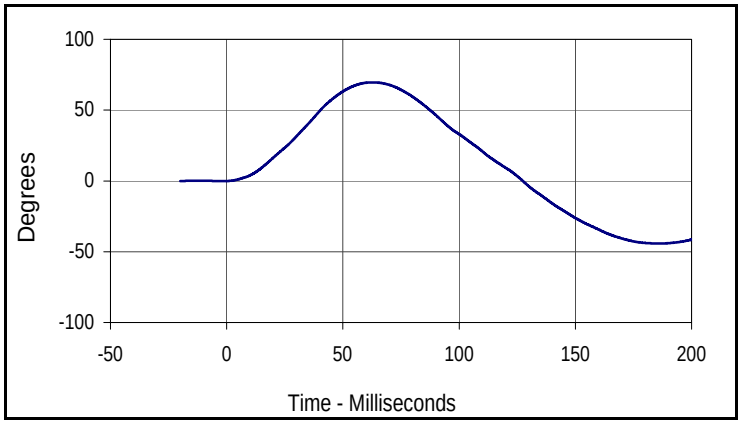
Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysterysis
001	FIL	180	75.5
Peak Probe Force		Peak Chest Deflection	
5846		6.69	

Test Program:	Hybrid III 50th Percentile Male Neck Flexion Test	Test Date:	12/3/05
ATD Serial No.:	034	Test I.D.:	NF12A

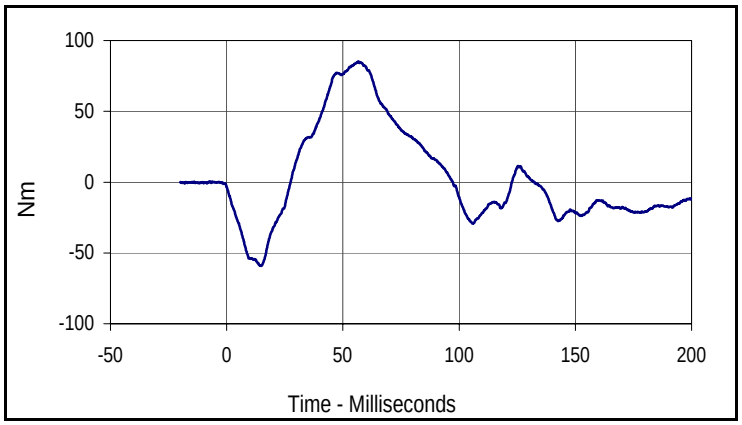
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.06	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	22.6	Pass
	20 Msec.	G's	17.6 to 22.6	20.2	Pass
	30 Msec.	G's	12.5 to 18.5	18.3	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	18.3	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	37.3	Pass
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	69.6	Pass
	Time	Msec.	57.0 to 64.0	62.7	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	127.4	Pass
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	85.3	Pass
	Time	Msec.	47.0 to 58.0	56.7	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	97.3	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
22.7	8.9	-3.1	88.7



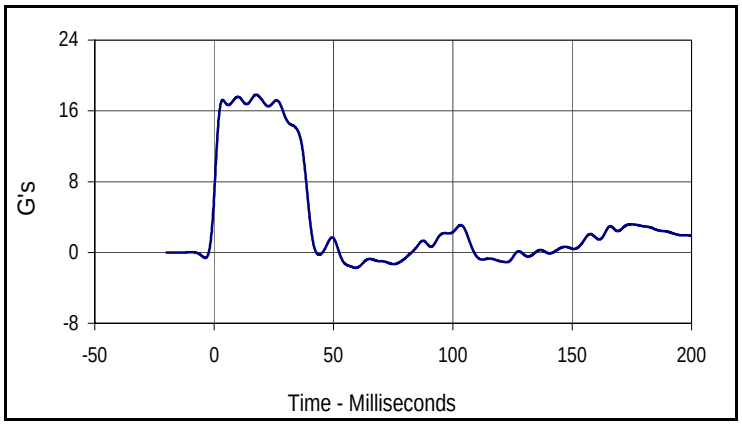
Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
69.6	62.7	-44.2	186.5



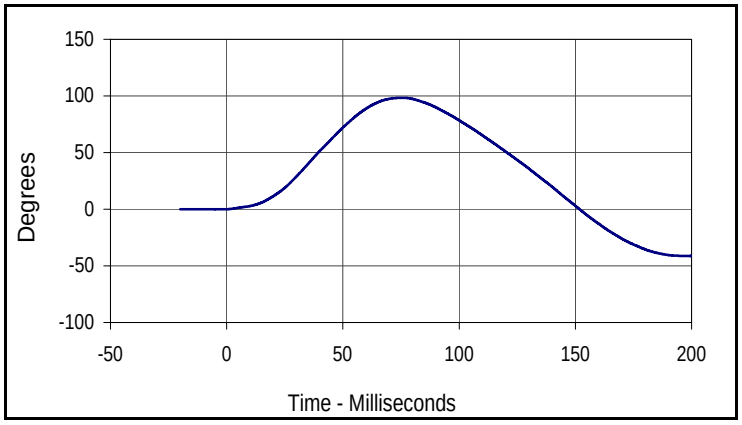
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
85.3	56.7	-59.1	14.9

Test Program:	Hybrid III 50th Percentile Male Neck Extension Test	Test Date:	12/3/05
ATD Serial No.:	034	Test I.D.:	NE12A

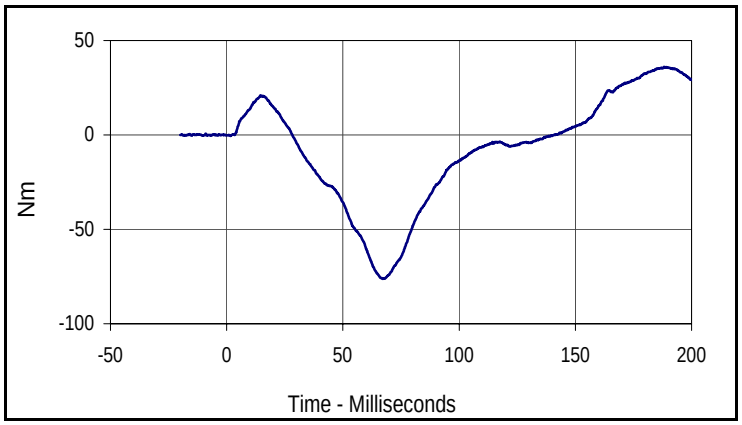
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.94 to 6.19	6.00	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	17.6	Pass
	20 Msec.	G's	14.0 to 19.0	17.3	Pass
	30 Msec.	G's	11.0 to 16.0	15.2	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	15.2	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	39.7	Pass
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	98.3	Pass
	Time	Msec.	72.0 to 82.0	75.6	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	151.8	Pass
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-76.2	Pass
	Time	Msec.	65.0 to 79.0	67.2	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	141.1	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
17.8	17.5	-1.7	59.2



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
98.3	75.6	-41.1	198.5



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
36.0	188.2	-76.2	67.2

Test Program:	Hybrid III 50th Percentile Male Knee Impact Test	Test Date:	12/3/05
ATD Serial No.:	034	Test I.D.:	LK12A , RK12A

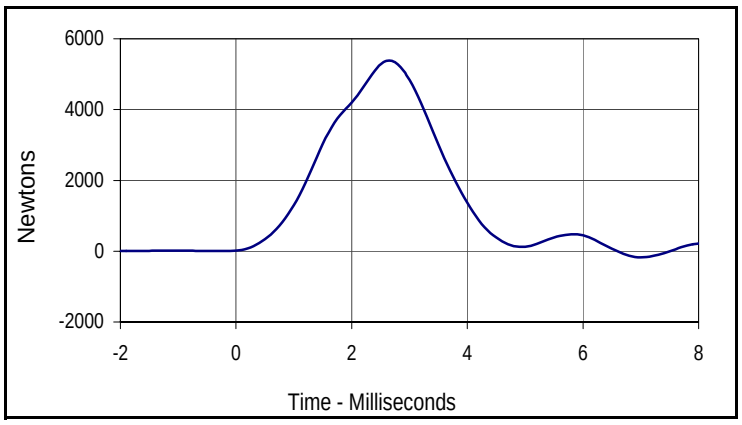
Left Knee

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	5415	Pass
		Overall Test Results		Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	5376	Pass
		Overall Test Results		Pass

Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5415.3	2.7	-235.5	9.2



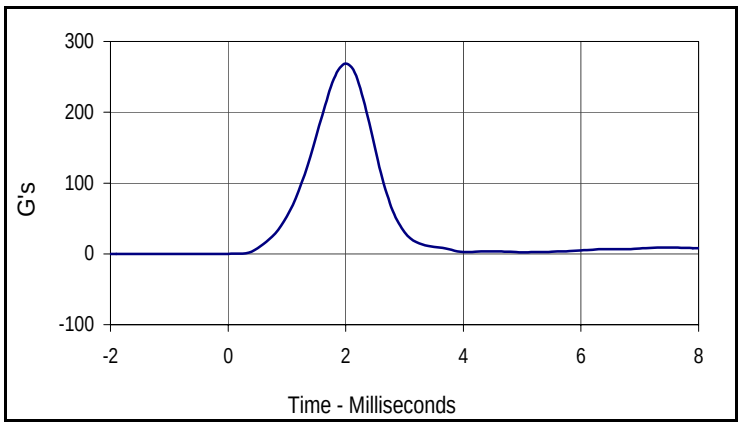
Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
5376.3	2.7	-217.3	9.2

Test Program:	Hybrid III 50th Percentile Male External Measurements	Test Date:	12/4/05
ATD Serial No.:	034	Test I.D.:	N/A

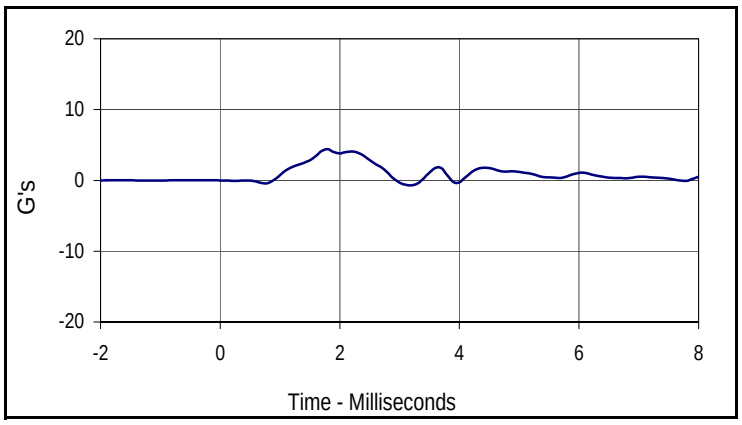
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	879 to 889	885	Pass
B - Shoulder pivot height	mm	505 to 521	515	Pass
C - "H" point height	mm	84 to 89	86	Pass
D - "H" point from seat back	mm	135 to 140	137	Pass
E - Shoulder pivot from back	mm	84 to 94	93	Pass
F - Thigh clearance	mm	140 to 155	145	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	340	Pass
J - Elbow rest height	mm	190 to 211	198	Pass
K - Buttock to knee length	mm	579 to 604	585	Pass
L - Poplipteal length	mm	429 to 455	445	Pass
M - Knee pivot height	mm	485 to 500	490	Pass
N - Buttock poplipteal length	mm	452 to 477	470	Pass
O - Chest depth	mm	213 to 229	223	Pass
P - Foot length	mm	251 to 267	264	Pass
V - Shoulder breadth	mm	422 to 437	431	Pass
W - Foot breadth	mm	91 to 107	102	Pass
Y - Chest circumference	mm	970 to 1001	985	Pass
Z - Waist circumference	mm	836 to 866	845	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

Test Program:	Hybrid III 50th Percentile Male Head Drop Test	Test Date:	12/3/05
ATD Serial No.:	035	Test I.D.:	HD12B

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	268.9	Pass
Peak Lateral Acceleration	G's	≤15.0	4.4	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
		Overall Test Results		Pass



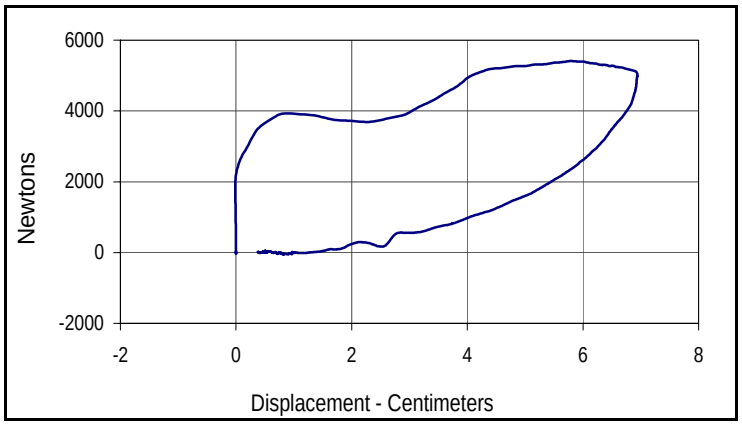
Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
268.9	2.0	0.0	-0.1



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
4.4	1.8	-0.7	3.2

Test Program:	Hybrid III 50th Percentile Male Thorax Impact Test	Test Date:	12/4/05
ATD Serial No.:	035	Test I.D.:	CH01B

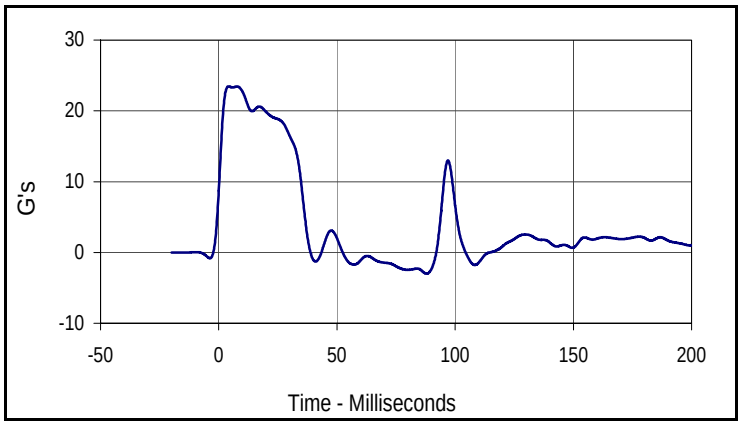
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.58 to 6.82	6.74	Pass
Peak Probe Force	Newtons	5159 to 5893	5408	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	6.94	Pass
Internal Hysterysis	%	69 to 85	75.0	Pass
		Overall Test Results		Pass



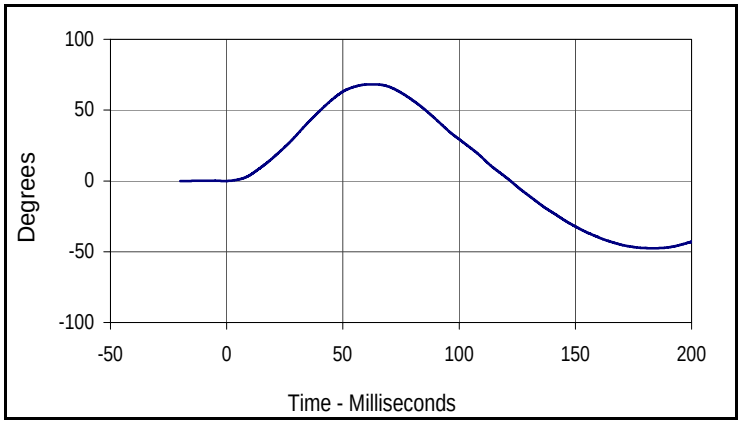
Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysterysis
001	FIL	180	75.0
Peak Probe Force		Peak Chest Deflection	
5408		6.94	

Test Program:	Hybrid III 50th Percentile Male Neck Flexion Test	Test Date:	12/3/05
ATD Serial No.:	035	Test I.D.:	NF12B

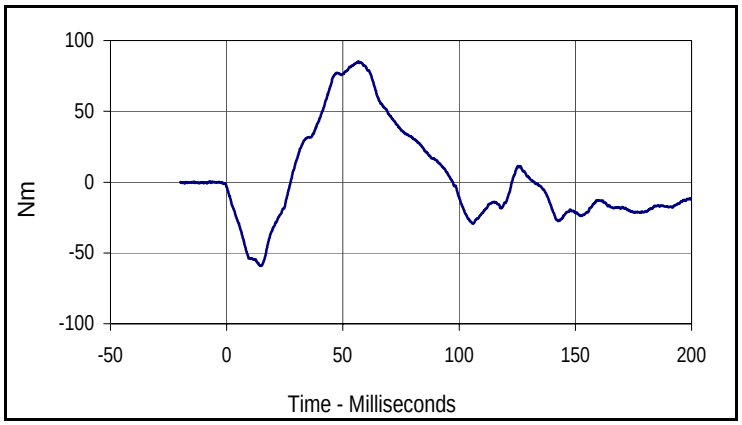
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.98	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	22.7	Pass
	20 Msec.	G's	17.6 to 22.6	19.9	Pass
	30 Msec.	G's	12.5 to 18.5	16.5	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	16.5	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	68.2	Pass
	Time	Msec.	57.0 to 64.0	62.6	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	122.1	Pass
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	85.3	Pass
	Time	Msec.	47.0 to 58.0	56.7	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	97.3	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
23.5	7.7	-3.0	87.9



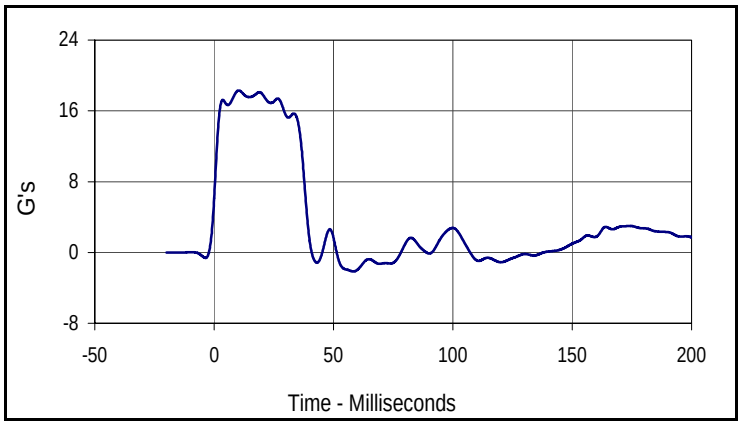
Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
68.2	62.6	-47.5	183.5



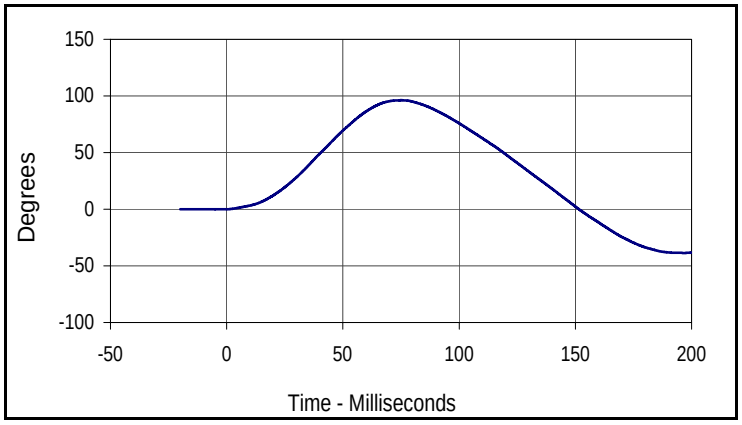
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
85.3	56.7	-59.1	14.9

Test Program:	Hybrid III 50th Percentile Male Neck Extension Test	Test Date:	12/3/05
ATD Serial No.:	035	Test I.D.:	NE12B

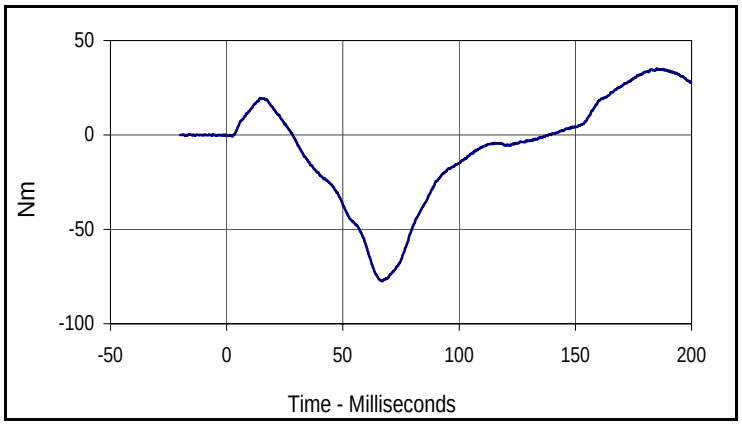
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.94 to 6.19	6.11	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	18.3	Pass
	20 Msec.	G's	14.0 to 19.0	18.0	Pass
	30 Msec.	G's	11.0 to 16.0	15.5	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	38.7	Pass
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	96.2	Pass
	Time	Msec.	72.0 to 82.0	75.1	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	151.6	Pass
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-77.4	Pass
	Time	Msec.	65.0 to 79.0	66.9	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	138.4	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
18.3	10.3	-2.1	58.4



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
96.2	75.1	-38.6	196.8



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
35.2	184.9	-77.4	66.9

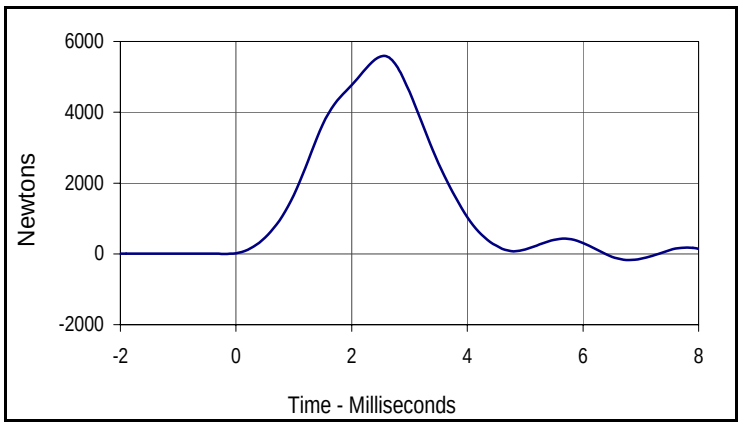
Test Program:	Hybrid III 50th Percentile Male Knee Impact Test	Test Date:	12/3/05
ATD Serial No.:	035	Test I.D.:	LK12B , RK12B

Left Knee

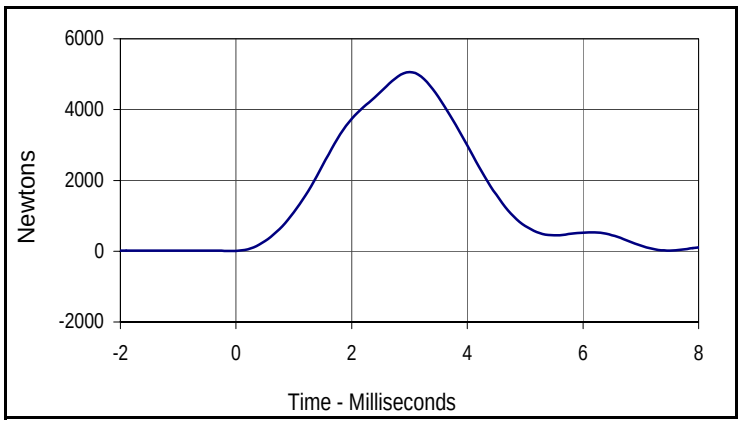
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	Newtons	4715 to 5782	5583	Pass
		Overall Test Results		Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	5062	Pass
		Overall Test Results		Pass



Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5583.2	2.6	-214.5	8.9



Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
5061.5	3.0	-153.0	9.5

Test Program:	Hybrid III 50th Percentile Male External Measurements	Test Date:	12/4/05
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	885	Pass
B - Shoulder pivot height	mm	505 to 521	512	Pass
C - "H" point height	mm	84 to 89	86	Pass
D - "H" point from seat back	mm	135 to 140	137	Pass
E - Shoulder pivot from back	mm	84 to 94	93	Pass
F - Thigh clearance	mm	140 to 155	150	Pass
G - Elbow back to wrist pivot	mm	290 to 305	295	Pass
H - Skull cap to back line	mm	41 to 46	45	Pass
I - Shoulder to elbow length	mm	330 to 345	335	Pass
J - Elbow rest height	mm	190 to 211	210	Pass
K - Buttock to knee length	mm	579 to 604	600	Pass
L - Poplipteal length	mm	429 to 455	435	Pass
M - Knee pivot height	mm	485 to 500	490	Pass
N - Buttock poplipteal length	mm	452 to 477	465	Pass
O - Chest depth	mm	213 to 229	225	Pass
P - Foot length	mm	251 to 267	255	Pass
V - Shoulder breadth	mm	422 to 437	425	Pass
W - Foot breadth	mm	91 to 107	100	Pass
Y - Chest circumference	mm	970 to 1001	985	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