

**REPORT NUMBER TR-P28001-07-NC**

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

**SUZUKI MOTOR CORPORATION JAPAN  
2008 SUZUKI SX4  
4-DOOR**

**NHTSA NUMBER: M80512**

**PREPARED BY:  
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**OCTOBER 16, 2007**

**FINAL REPORT**

**PREPARED FOR:  
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NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
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<b>16. Abstract</b>  A 35 mph (56.3 km/h) frontal barrier impact was conducted on a 2008 Suzuki SX4 4-Door at Karco Engineering, LLC on October 16, 2007. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and footwell intrusion performance. The impact velocity was 56.18 km/h. The ambient temperature at the barrier face at the time of impact was 16.7 degrees Celcius. The vehicle's maximum post-test static crush is 498 mm to the left 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:					
<b>Measurement Description</b>		<b>Units</b>	<b>Threshold</b>	<b>Driver ATD</b>	<b>Passenger ATD</b>
Head Injury Criteria (HIC)		N/A	1000	580.2	484.8
Max. Chest Accel. (3 msec Clip)		G's	60	54.7	48.4
Left Femur Force		Newtons	10008	-2192.6	-4096.9
Right Femur Force		Newtons	10008	-1647.3	-1744.0
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## SECTION 1

### PURPOSE AND SUMMARY OF TEST M80512

#### 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. DTNH22-06-D-00027. 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 2008 Suzuki SX4 4-Door at a velocity of 56.18 km/h. The test was performed at Karco Engineering, LLC on October 16, 2007.

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, 50<sup>th</sup> 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 placed on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. Shoulder belt spool-off was measured for the driver and passenger dummies. The driver (position 1) ATD (Serial No. 035) and the right-front passenger (position 2) ATD (Serial No. 034) were calibrated one test 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 498 mm to the left of the vehicle's centerline. 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. The head also contacted the headrest. The abdomen had no contact. Both the left and right knees contacted the bolster.

The passenger's visible contact points were as follows: The passenger ATD's head and chest contacted the airbag. 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	3 msec Clip (g)	Chest Defl. (mm)	Left Femur (N)	Right Femur (N)
Driver	580.2	54.7	-33.9	-2192.6	-1647.3
Passenger	484.8	48.4	-23.1	-4096.9	-1744.0

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](http://www.NHTSA.Dot.Gov)

## SECTION 2

### OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

#### 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 <sup>2</sup>	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: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

**PRIMARY IMPACT DATA**

Measured Parameter	Units	Value
Velocity at Impact	km/h	56.18
Test Weight	kg	1536
Impact Angle	degrees	0
Average Rebound	mm	678
Maximum Static Crush	mm	498

**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. 035	50% Male Hybrid III No. 034
Head Contact	Airbag, Headrest	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	0
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: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

**TEST VEHICLE INFORMATION AND OPTIONS**

NHTSA No.	M80512
Make	Suzuki
Model	SX4
Body Style	4-Door
Vin No.	JS2YB413585100841
Color	White
Delivery Date	10/9/2007
Odometer (Miles)	31.0
Dealer	Victorville Suzuki
Transmission	4-Speed Automatic
Final Drive	AWD
Type/No. Cyl.	Inline 4
Engine Disp. (L)	2.0
Engine Placement	Transverse
Roof Rack	Yes
Sunroof/T-Top	No
Tinted Glass	No
Traction Control	No
Power Brakes	Yes
Front Disc	Yes
Rear Disc	Yes

Anti-Lock Brakes	Yes
All Wheel Drive	Yes
Power Steering	Yes
Driver Front Airbag	Yes
Driver Side Airbag	Yes
Driver Head Airbag	No
Driver Curtain Airbag	Yes
Pass. Airbag	Yes
Pass. Side Airbag	Yes
Pass. Head Airbag	No
Pass. Curtain Airbag	Yes
Pre-Tensioners	Yes
Load Limiters	Yes
Bucket Seats	Yes
Air. Cond.	Yes
AM/FM/CD	Yes
Tilt Steering	Yes
Automatic Door Locks	No
Power Windows	Yes
Power Seats	No
Other	n/a

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

n/a

**DATA FROM MANUFACTURER**

Manufactured By	Suzuki Motor Corporation Japan
Date of Manufacture	Jun-07

GVWR (kg)	1725
GAWR Front (kg)	940
GAWR Rear (kg)	840

**VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION**

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench		
Number of Occupants	2	3		5
Capacity Weight (VCW) (kg)				370
Cargo Weight (RCLW) (kg)				30

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

**GENERAL TEST AND VEHICLE PARAMETER DATA**

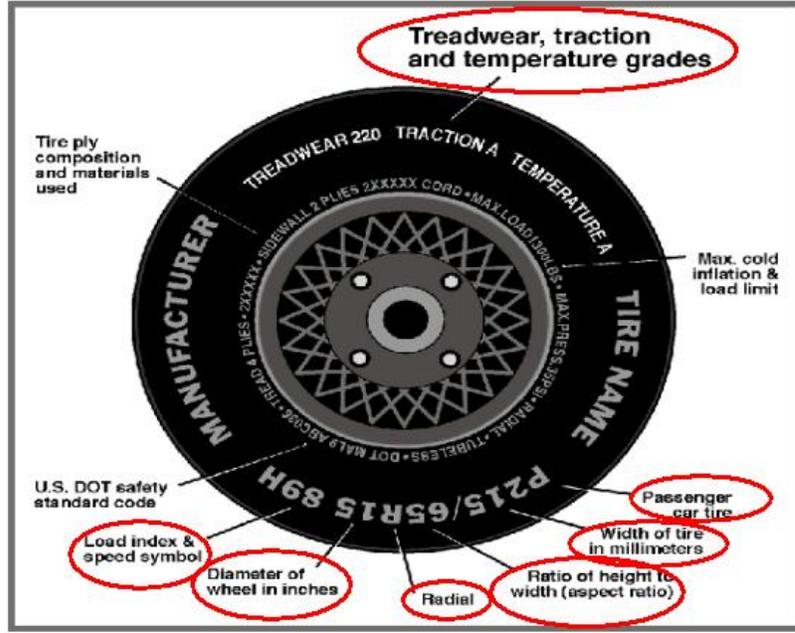
Test Vehicle: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

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)	308	308
Cold Pressure (kpa)	230	230
Recommended Tire Size	P205/60R16	P205/60R16
Tire Size on Vehicle	P205/60R16	P205/60R16
Tire Manufacturer	Bridgestone	Bridgestone
Treadwear	300	300
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	2 Steel, 1 Polyester, 1 Nylon	2 Steel, 1 Polyester, 1 Nylon
Load Index/Speed Symbol	91H	91H
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon
DOT Safety Code Right	EL20 JFL 2207	EL20 JFL 2207
DOT Safety Code Left	EL20 JFL 2207	EL20 JFL 2207

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

**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

**TEST VEHICLE WEIGHTS**

	Units	As Delivered Weights (UWV)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	417	277	694	453	334	787
Right	kg	407	260	667	435	314	749
Ratio	%	60.5%	39.5%	100.0%	57.8%	42.2%	100.0%
Totals	kg	824	537	1361	888	648	1536

**TARGET TEST WEIGHT CALCULATION**

Measured Parameter	Units	Value
Total Delivered Weight (UWV)	kg	1361
Weight of 2 P572 ATD's	kg	152
Rated Cargo/Luggage Wt. (RCLW)	kg	30
Calculated Vehicle Target Wt. (TVTW)	kg	1543

**TEST VEHICLE ATTITUDE AND CG**

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	707	705	719	723	988
As Tested	mm	691	697	692	700	1056

Vehicle Wheel Base (mm) 2504

Weight of Ballast Secured in cargo area (kg) 0

Weight of Items Removed (kg) 79

Vehicle Components Removed Spare tire, rear carpeting, rear side panels, rear door panels, rear windows, trunk lid, exhaust, taillights.

\* 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) 41.90

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 during the operation of the engine.

**DATA SHEET NO. 3**

**POST-TEST IMPACT DATA**

Test Vehicle: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

**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	56.14

**VEHICLE STATIC CRUSH**

Measured Parameter	Units	Pre-Test	Post-Test	Difference
Left Side	mm	3942	3558	384
Center	mm	4115	3671	444
Right Side	mm	3942	3616	326

**VEHICLE REBOUND FROM BARRIER**

Measured Parameter	Units	Value
Left Side	mm	680
Center	mm	655
Right Side	mm	700
Average	mm	678

**DATA SHEET NO. 4**

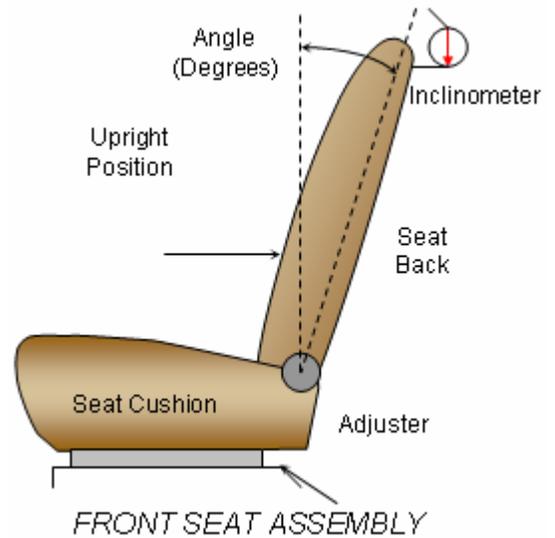
**TEST VEHICLE INFORMATION**

Test Vehicle: 2008 Suzuki SX4 4-Door  
 Test Program: NHTSA 35mph NCAP

NHTSA No.: M80512  
 Test Date: 10/16/07

**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 using a digital inclinometer.



**SEAT BACK ANGLES**

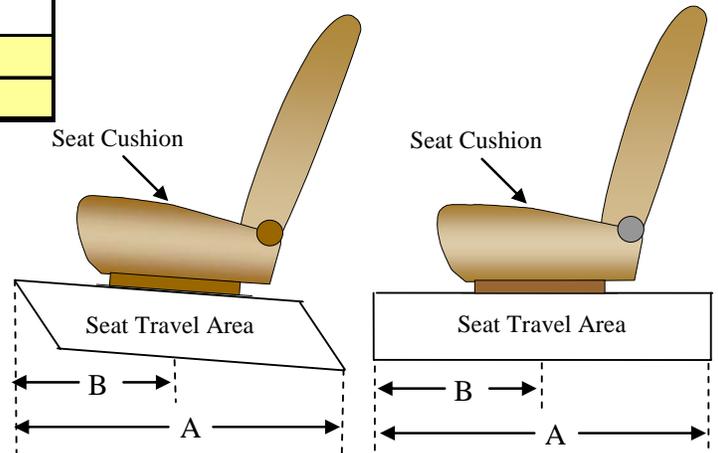
	Deg.
Driver w/seated Dummy	10.0 @ Headrest
Passenger w/seated Dummy	10.0 @ Headrest

**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. There were vertical adjustments on the seats that were equipped with the vehicle. They were placed at the lowermost position.

**SEAT FORE/AFT POSITIONING**

	Total Fore/Aft Travel	Placed in Position
Driver Seat	15 Detents	8th Detent
Passenger Seat	15 Detents	8th Detent



**SEAT BELT UPPER ANCHORAGE**

Position number one (1) is the uppermost position.

**SEAT BELT UPPER ANCHORAGE**

	Total # of Positions	Placed in Position #
Driver Seat	4	2
Passenger Seat	4	2

**DATA SHEET NO. 4...(CONTINUED)**

**TEST VEHICLE INFORMATION**

Test Vehicle: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

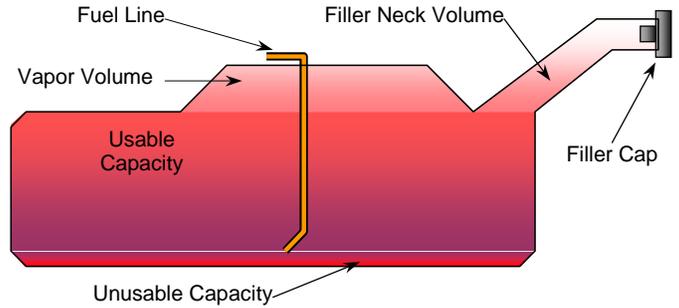
Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

**FUEL TANK CAPACITY**

	Liters
Usable Capacity of "Standard Tank"	45.04
Usable Capacity of "Optional" Tank	
Usable Capacity used for FMVSS 301	41.45 to 42.35
Actual Amount of Solvent used	41.90

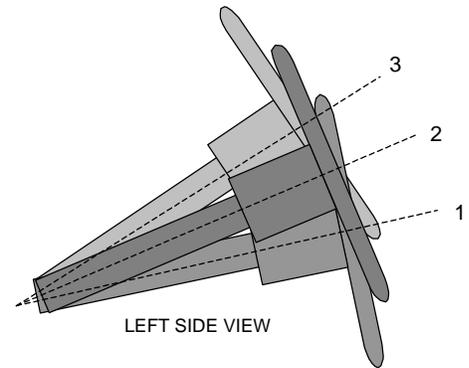
The test vehicle is equipped with an electric fuel pump. The fuel pump operates for approximately two seconds after the ignition is placed in the "ON" position, after which the fuel pump automatically shuts off. The fuel filler door is located on the left rear fender. The standard fuel tank occupies 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	24.0	
Geometric center position No. 2	27.0	
Uppermost position No. 3	30.0	

**DATA SHEET NO. 5**

**DUMMY POSITIONING IN VEHICLE**

Test Vehicle: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

**TEST DUMMY POSITION MEASUREMENTS**

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (deg)	Length (mm)	Angle (deg)
WA	Windshield Angle		25.0		
SWA	Steering Wheel Angle		65.0		
SCA	Steering Column Angle		25.0		
SA	Seat Back Angle		10.0 @ headrest		10.0 @ headrest
HZ	Head to Roof (Z)	254	90.0	235	90.0
HH	Head to Header	405		310	
HW	Head to Windshield	655		715	
HR	Head to Side Header (Y)	275		276	
NR	Nose to Rim	425	10.5		
CD	Chest to Dash	560		562	
CS	Chest to Steering Hub	336			
RA	Rim to Abdomen	205			
KDL	Left Knee to Dash	140	25.5	80	
KDR	Right Knee to Dash	150		135	27.1
PA	Pelvic Angle		23.2		21.9
TA	Tibia Angle		56.5		56.4
KK	Knee to Knee (Y)	275		275	
SK	Striker to Knee	575	7.2	575	82.0
ST	Striker to Head	463	85.0	470	82.0
SH	Striker to H-Point	173	0.0	173	0.0
SHY	Striker to H-Point (Y)	170		172	
HS	Head to Side Window	315		305	
HD	H-Point to Door (Y)	123		105	
AD	Arm to Door (Y)	105		111	

**DATA SHEET NO. 5...(CONTINUED)**

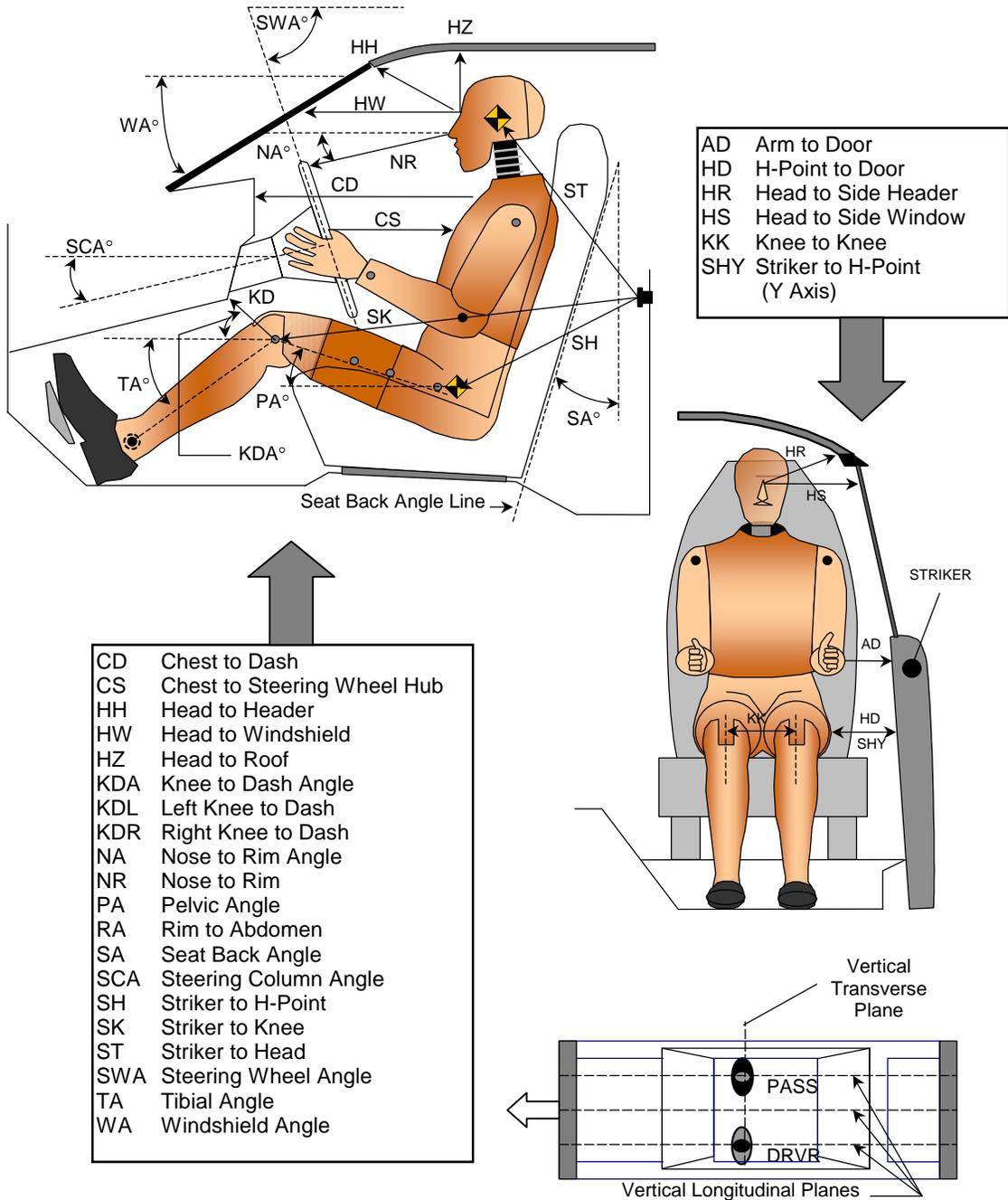
**DUMMY POSITIONING IN VEHICLE**

Test Vehicle: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

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

**DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS**

**DATA SHEET NO. 6**

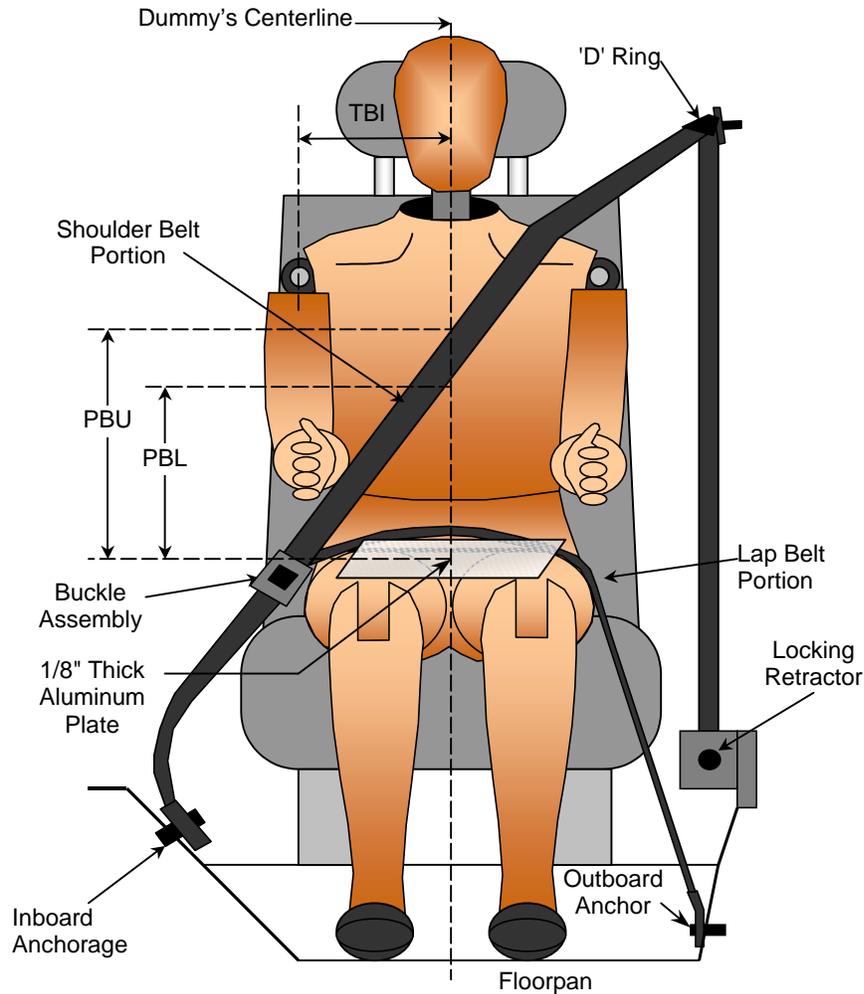
**SEAT BELT POSITIONING DATA**

Test Vehicle: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07



**SEAT BELT POSITIONING MEASUREMENTS**

Measured Parameter	Units	Driver	Passenger
TBI - Dummy C/L to Lap/Shoulder Belt Intersect	mm	200	190
PBU - Top Surface of reference to belt upper edge	mm	353	308
PBL - Top Surface of reference to belt lower edge	mm	270	232
Lap Belt Tension	Newtons	10	10
Shoulder Belt Tension	N/A	Retractor	Retractor

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

Test Vehicle: 2008 Suzuki SX4 AWD 4-Door

Test Date: 10/16/07

Test Program: NHTSA 35mph NCAP

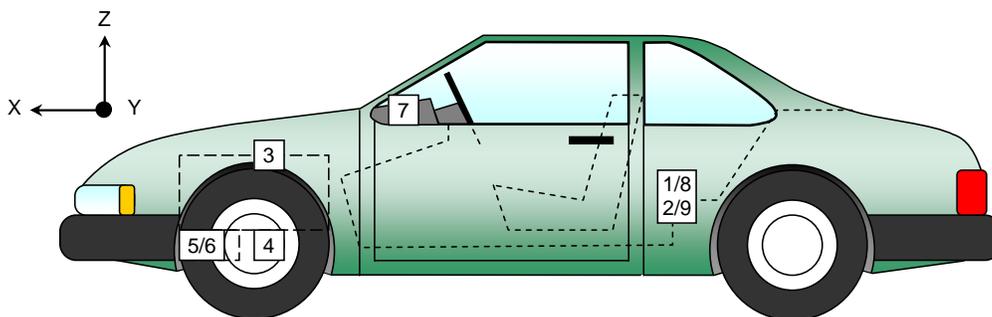
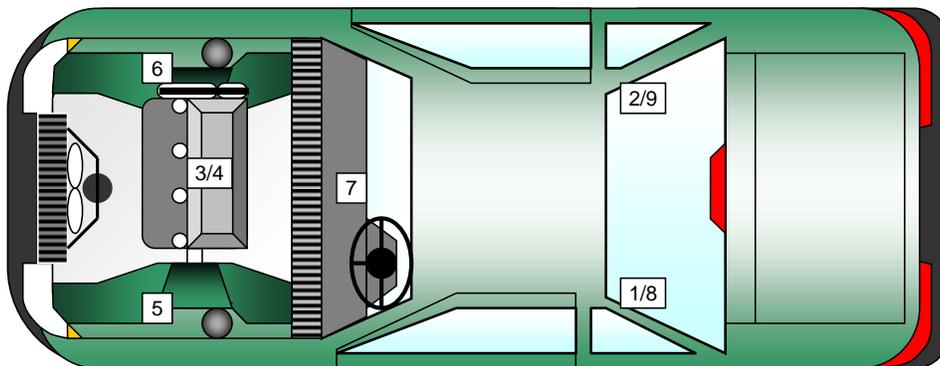
NHTSA No.: M80512

**VEHICLE ACCELEROMETER PRE-TEST LOCATIONS**

No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Left Rear X-Member	1490	-680	690
2	Right Rear X-Member	1470	685	395
3	Engine Top			2
4	Engine Bottom	3425	225	205
5	Left Brake Caliper	3370	-705	300
6	Right Brake Caliper	3370	705	300
7	Instrument Panel			1
8	Left Rear X-Member (Z-Axis)	1490	-680	390
9	Right Rear X-Member (Z-Axis)	1470	685	375

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

- 1.) Instrument Panel no longer used by NHTSA
- 2.) Insufficient room for installation



**DATA SHEET NO. 8**

**SEAT BELT ASSESSMENT TEST DATA**

Test Vehicle: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

**SEAT BELT POSITIONING MEASUREMENTS**

Measurement Description	Units	Driver	Passenger
Retractor Reel to "D" ring	mm	820	810
Shoulder Belt length as measured on ATD	mm	828	45
Lap Belt length as measured on ATD	mm	791	831
Remainder of belt on reel	mm	895	965
Total belt length for continuous webbing systems	mm	3334	2651

**SHOULDER BELT SPOOL-OFF DATA**

Measurement Description	Units	Driver	Passenger
As determined mechanically	mm	208	235
As determined electronically	mm	279	279

**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: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

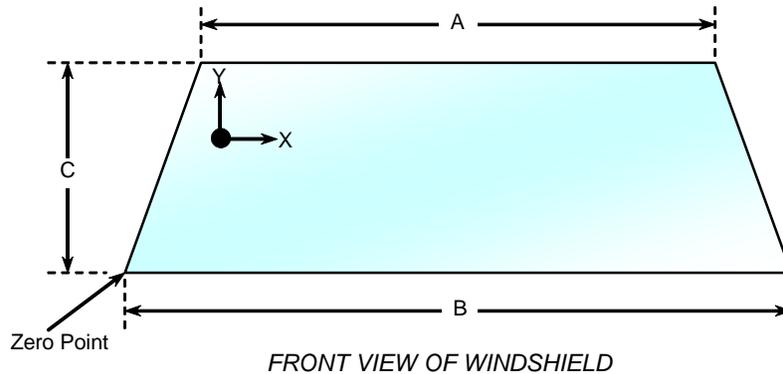
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with a rubber type adhesive, and rubber and plastic molding.

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: 16.7 °C

**WINDSHIELD PERIPHERY MEASUREMENTS**

Measurement	Pre-Test(mm)	Post-Test(mm)	% of Retention
Left Side	2180	2180	100
Right Side	2180	2180	100
Total	4360	4360	100



**WINDSHIELD DIMENSIONS**

Item	Units	Segment Length	Molding Width
A	mm	1095	5
B	mm	1405	10
C-Left	mm	930	5
C-Right	mm	930	5

DATA SHEET NO. 10

WINDSHIELD ZONE INTRUSION FMVSS 219 DATA (PARTIAL)

Test Vehicle: 2008 Suzuki SX4 4-Door

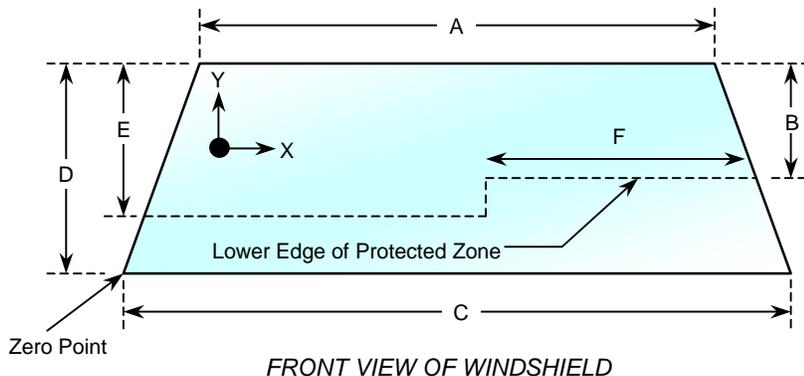
NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

WINDSHIELD AND PROTECTED ZONE

Item	Units	Value
A	mm	1095
B	mm	575
C	mm	1405
D	mm	930
E	mm	580
F	mm	880



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: 2008 Suzuki SX4 4-Door NHTSA No.: M80512  
Test Program: NHTSA 35mph NCAP Test Date: 10/16/07

Test Time: 11:50 AM Temperature: 16.7 ° 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

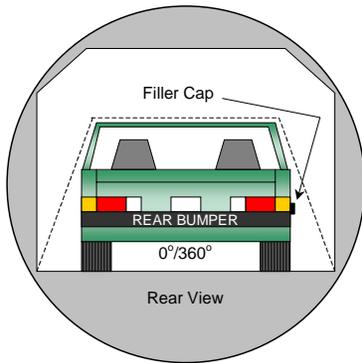
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2008 Suzuki SX4 4-Door

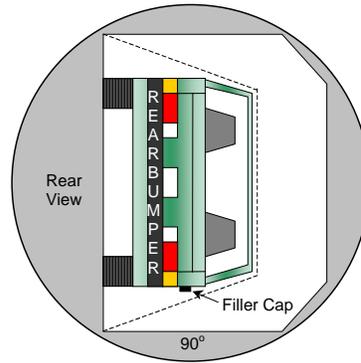
NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

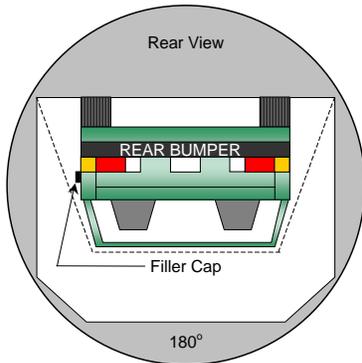
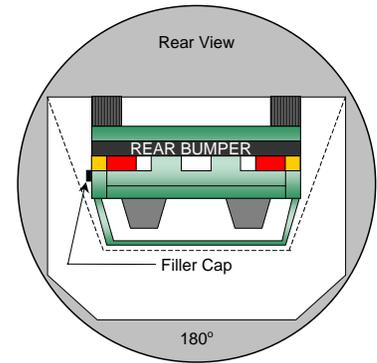
Test Date: 10/16/07



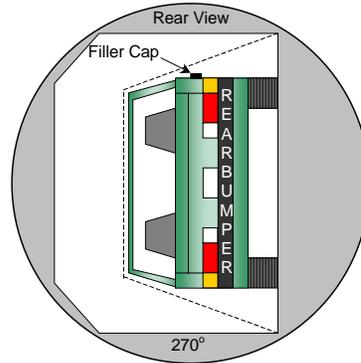
0° to 90°



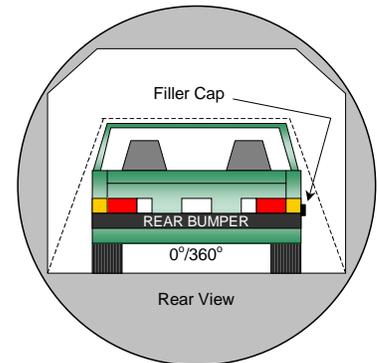
90° to 180°



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: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

**SOLVENT COLLECTION TIME TABLE IN SECONDS**

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	84	2	86
90° to 180°	79	302	381
180° to 270°	78	302	380
270° to 360°	80	302	382

**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: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

**VEHICLE MEASUREMENT TABLE**

No.	Measurement Description	Units	Pre-Test	Post-Test	Diff.
1	Total length of vehicle at centerline	mm	4115	3671	-444
2	RSOV to front of engine	mm	3605	3429	-176
3	RSOV to firewall centerline	mm	3135	3110	-25
4	RSOV to leading edge of right door	mm	2774	2777	3
5	RSOV to leading edge of left door	mm	2767	2771	4
6	RSOV to lower leading edge of right door	mm	2742	2735	-7
7	RSOV to lower leading edge of left door	mm	2735	2724	-11
8	RSOV to upper trailing edge of right door	mm	1747	1752	5
9	RSOV to upper trailing edge of left door	mm	1744	1747	3
10	RSOV to lower trailing edge of right door	mm	1771	1765	-6
11	RSOV to lower trailing edge of left door	mm	1769	1756	-13
12	RSOV to bottom of right 'A' pillar	mm	2642	2631	-11
13	RSOV to bottom of left 'A' pillar	mm	2620	2618	-2
14	RSOV to firewall on right side	mm	3205	3175	-30
15	RSOV to firewall on left side	mm	3205	3218	13
16	RSOV to steering column	mm	2364	2392	28
17	Center of steering column to left 'A' pillar	mm	425	430	5
18	Center of steering column to headlining	mm	452	445	-7
19	RSOV to right side of front bumper	mm	3942	3616	-326
20	RSOV to left side of front bumper	mm	3942	3558	-384
21	Length of engine block	mm	510	510	0
RD	RSOV to right side of dash panel	mm	2533	2536	3
CD	RSOV to center of dash panel	mm	2420	2433	13
LD	RSOV to left side of dash panel	mm	2585	2591	6

**DATA SHEET NO. 13...(CONTINUED)**

**VEHICLE STRUCTURAL MEASUREMENTS**

Test Vehicle: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

**VEHICLE STRUCTURAL MEASUREMENT TABLE**

No.	Measurement Description	Units	Pre-Test	Post-Test	Diff.
1	Total length	mm	4115	3671	-444
2	Total width	mm	1700	1700	0
3	Bumper top height	mm	608	611	3
4	Bumper bottom height	mm	335	370	35
5	Longitudinal member top height	mm	612	628	16
6	Longitudinal member bottom height	mm	492	508	16
7	Distance between longitudinal members	mm	895	898	3
8	Longitudinal member width	mm	70	70	0
9	Engine top height	mm	815	833	18
10	Engine bottom height	mm	184	200	16
11	Engine and gear box width	mm	800	800	0
12	Front bumper to engine distance	mm	510	235	-275
13	Front shock absorber fixing width	mm	942	921	-21
14	Bonnet leading edge height	mm	737	785	48
15	Front shock absorber fixing width	mm	1140	1151	11
16	Front bumper to front axle distance	mm	885	377	-508
17	Front axle to 'A' pillar distance	mm	466	421	-45
18	'A' pillar to 'B' pillar distance	mm	995	993	-2
19	'B' pillar to rear axle distance	mm	1040	1040	0
20	'B' pillar to 'C' pillar distance	mm	940	940	0
21	Roof sill bottom height	mm	1375	1359	-16
22	Roof sill top height	mm	1490	1473	-17
23	Floor sill bottom height	mm	325	317	-8
24	Floor sill top height	mm	400	394	-6

DATA SHEET NO. 13...(CONTINUED)

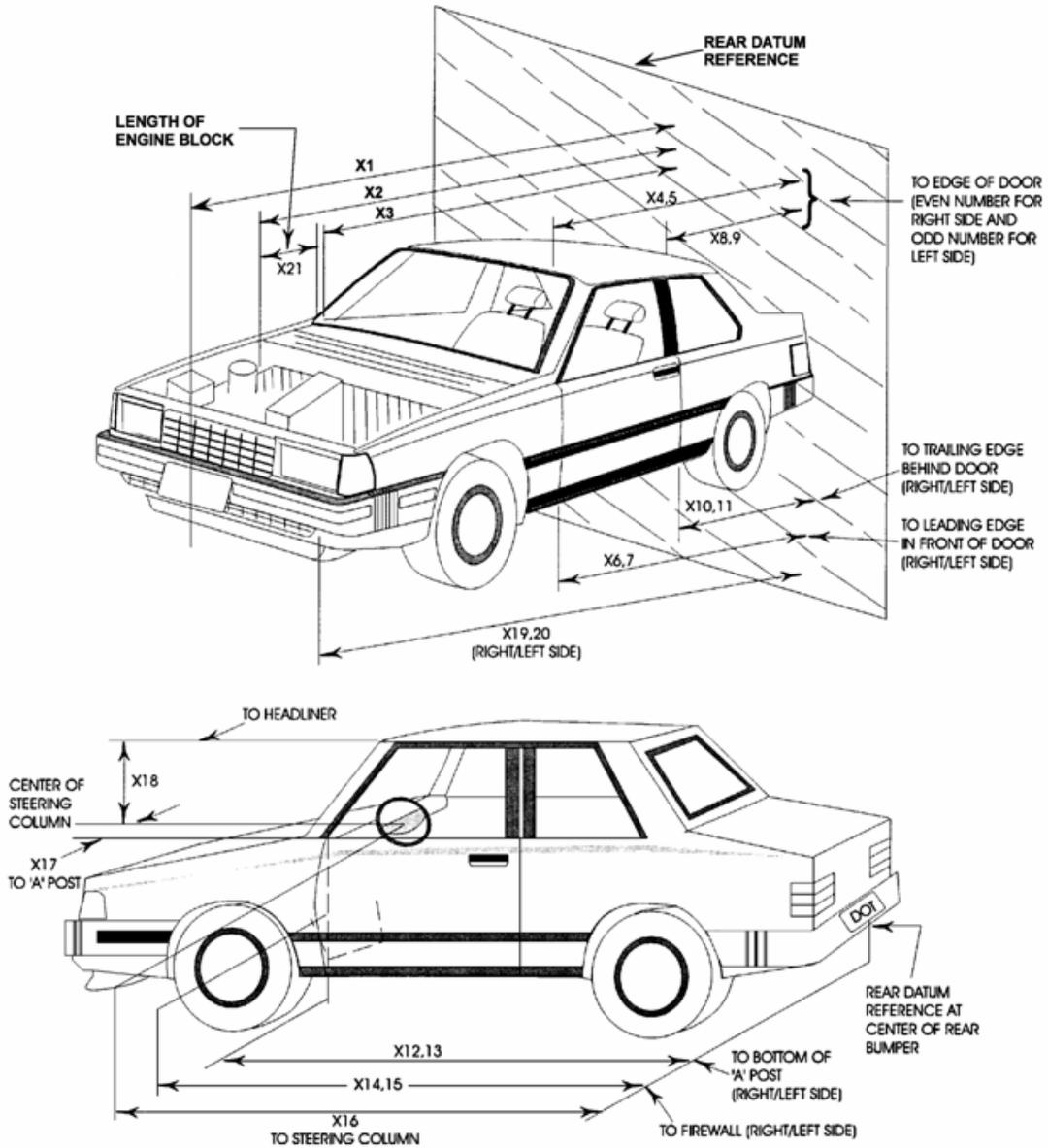
VEHICLE MEASUREMENTS

Test Vehicle: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07



**DATA SHEET NO. 14**

**CAMERA LOCATIONS**

Test Vehicle: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

**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)	-11412	-8150	-1484	0			30
2	Overall Left Side	-2013	-6409	-1007	0	7127	20mm	1000
3	Closeup Left Side	-1653	-5843	-1071	0	6632	50mm	1000
4	Driver and Interior View	-6696	-10949	-4730	-17	13557	ZOOM	1000
5	Steering Column (Bottom)	-1972	-8184	-2829	-13	9456	35mm	1000
6	Steering Column (Top)	-1966	-8141	-3258	-13	9610	35mm	1000
7	Overall Right Side	-2893	6453	-1467	0	6700	20mm	1000
8	Closeup Right Side	-1583	5941	-1012	0	6040	50mm	1000
9	Passenger and Interior View	-5136	9516	-2460	-10	10306	ZOOM	1000
10	Right Side View	-1582	7995	-1713	-6	8201	ZOOM	1000
11	Windshield View	-354	0	-5749	-90		24mm	1000
12	Driver Front View	363	-543	-2548	-34		12mm	1000
13	Passenger Front View	381	445	-2548	-34		12mm	1000
14	Pit View of Engine	-756	0	1495	90		12mm	1000
15	Pit View of Fuel Tank	-3398	0	1495	90		8mm	1000
16	Driver Side Cross View	-2364	215	-1443	-2		12mm	1000
17	Passenger Side Cross View	-2999	-215	-1443	2		12mm	1000
18	Real Time Driver	-1926	-8089	-1704	-1			30
19	Real Time Passenger	-1433	8047	-1704	-1			30

All measurements are made relative to the point of impact.

DATA SHEET NO. 15

PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

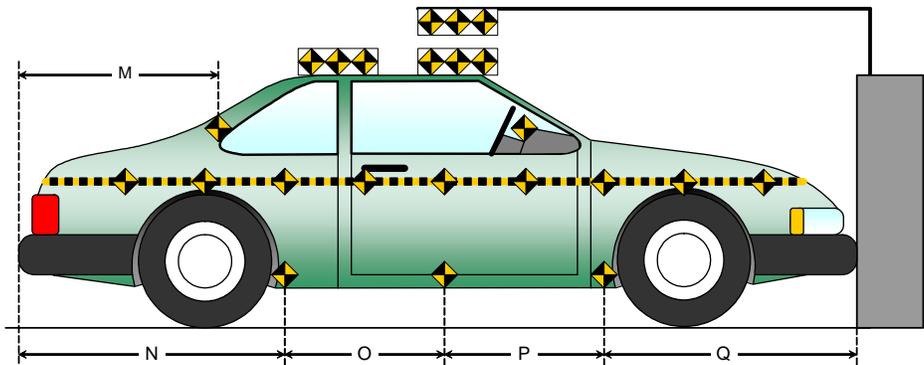
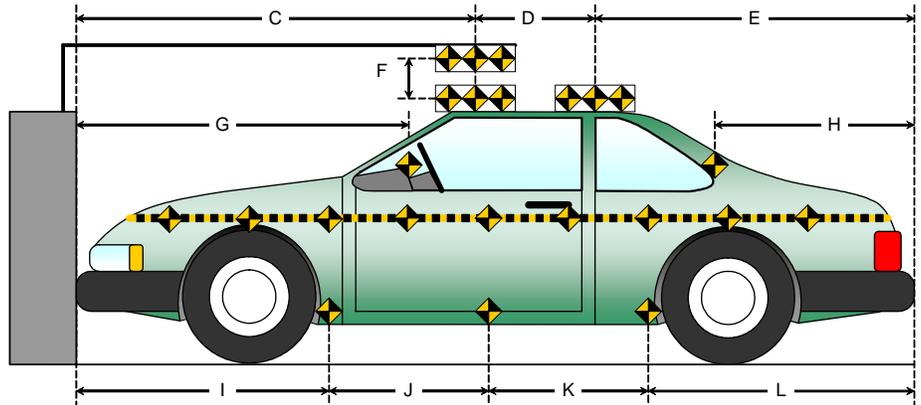
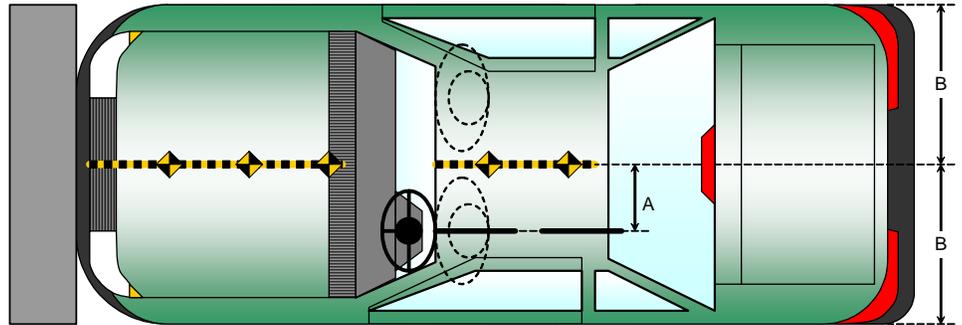
Test Vehicle: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

All Dimensions in (mm)	
Item	Value
A	310
B	850
C	2042
D	1015
E	1544
F	155
G	2510
H	855
I	1325
J	805
K	805
L	1180
M	859
N	1183
O	810
P	810
Q	1312



**DATA SHEET NO. 16**

**VEHICLE INTRUSION MEASUREMENTS**

Test Vehicle: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

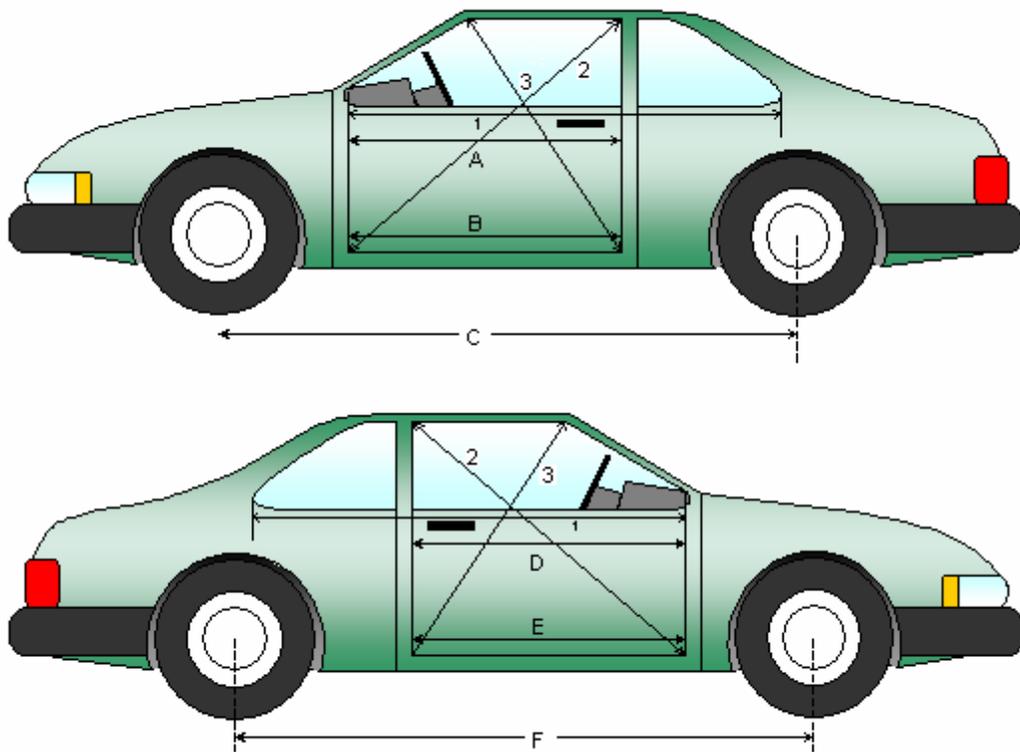
Test Date: 10/16/07

**DOOR OPENING WIDTH TABLE**

Item	Description	Units	Pre-Test	Post-Test	Diff.
1L	Left Side	mm	821	817	-4
2L	Left Side (Diagonally)	mm	1434	1436	2
3L	Left Side (Diagonally)	mm	981	982	1
1R	Right Side	mm	821	820	-1
2R	Right Side (Diagonally)	mm	1438	1437	-1
3R	Right Side (Diagonally)	mm	975	974	-1

**WHEELBASE MEASUREMENT TABLE**

Item	Description	Units	Pre-Test	Post-Test	Diff.
C	Left Side Wheel Base	mm	2504	2446	-58
F	Right Side Wheel Base	mm	2504	2460	-44



**DATA SHEET NO. 16...(CONTINUED)**

**VEHICLE INTRUSION MEASUREMENTS**

Test Vehicle: 2008 Suzuki SX4 4-Door

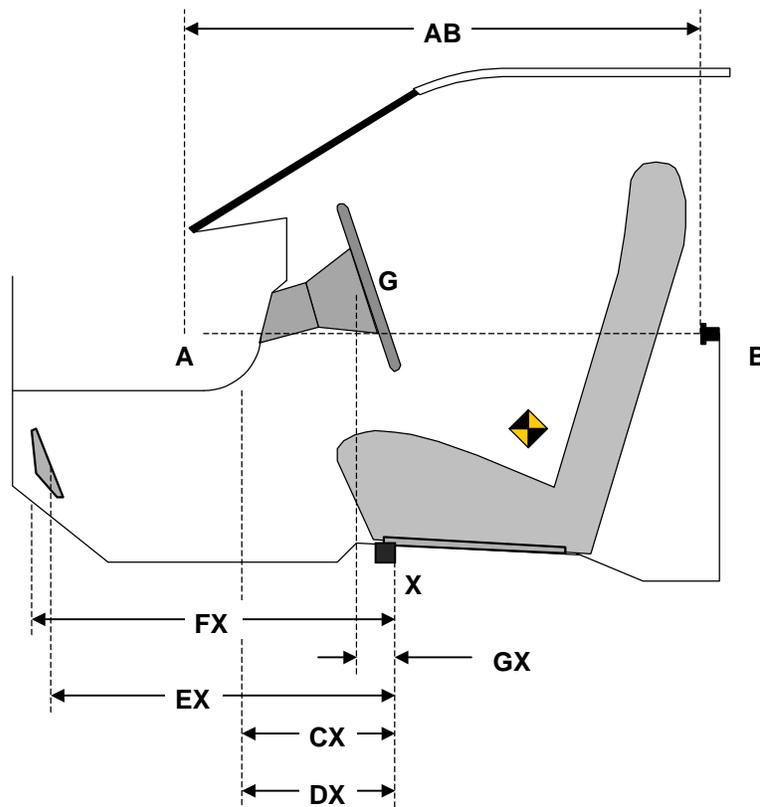
NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

**DRIVER COMPARTMENT INTRUSION TABLE**

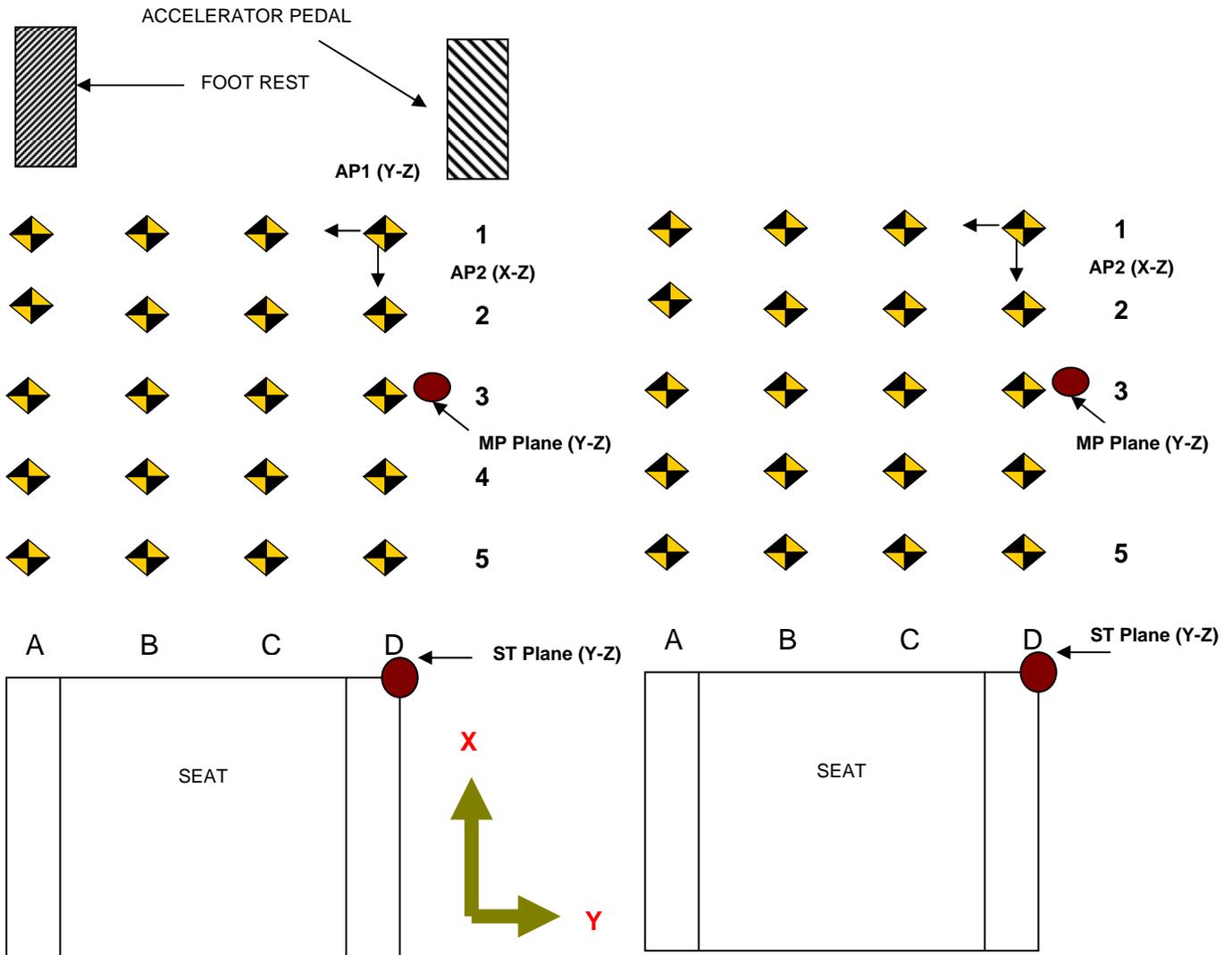
Item	Description	Units	Pre-Test	Post-Test	Diff.
AB	Door Opening (Inside window jam)	mm	821	817	-4
CX	Left Knee Bolster to X	mm	260	240	-20
DX	Right Knee Bolster to X	mm	250	237	-13
EX	Brake Pedal to X	mm	490	495	5
FX	Foot Rest to X	mm	510	627	117
GX	Center of Steering Wheel Hub to X	mm	40	97	57



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

Test Vehicle: 2008 Suzuki SX4 4-Door  
 Test Program: NHTSA 35mph NCAP

NHTSA No.: M80512  
 Test Date: 10/16/07



- 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: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

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	588	591	594	596	578	565	563	557	-10	-26	-31	-39
2	501	505	508	509	504	494	490	482	3	-11	-18	-27
3	389	393	397	399	391	387	380	372	2	-6	-17	-27
4	277	281	284	288	280	273	265	258	3	-8	-19	-30
5	166	172	171	173	168	164	153	146	2	-8	-18	-27

**DRIVER FLOOR PAN Y-AXIS**

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	-51	82	209	336	-9	124	251	377	42	42	42	41
2	-49	86	208	339	-12	121	248	375	37	35	40	36
3	-40	86	213	341	-13	115	239	366	27	29	26	25
4	-38	90	218	339	-19	108	238	359	19	18	20	20
5	-32	94	219	340	-21	101	230	351	11	7	11	11

**DRIVER FLOOR PAN Z-AXIS**

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	73	78	77	79	63	73	77	83	-10	-5	0	4
2	152	151	149	150	149	158	160	162	-3	7	11	12
3	158	155	153	155	155	155	161	166	-3	0	8	11
4	165	157	154	155	163	158	163	166	-2	1	9	11
5	166	158	155	156	163	160	163	165	-3	2	8	9

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

Test Vehicle: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

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	579	582	582	585	571	568	565	571	-8	-14	-17	-14
2	504	503	505	503	501	497	496	498	-3	-6	-9	-5
3	388	390	389	388	385	386	384	382	-3	-4	-5	-6
4	277	280	283	285	278	277	277	278	1	-3	-6	-7
5	164	166	167	166	162	163	161	160	-2	-3	-6	-6

**PASSENGER FLOOR PAN Y-AXIS**

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	-348	-232	-101	25	-341	-227	-96	32	7	5	5	7
2	-353	-233	-106	25	-342	-223	-97	33	11	10	9	8
3	-353	-232	-107	21	-345	-224	-97	30	8	8	10	9
4	-352	-231	-105	21	-345	-224	-96	29	7	7	9	8
5	-352	-232	-107	20	-344	-225	-99	26	8	7	8	6

**PASSENGER FLOOR PAN Z-AXIS**

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	78	75	77	77	102	88	82	76	24	13	5	-1
2	142	144	145	148	161	167	159	155	19	23	14	7
3	151	150	152	156	174	166	163	159	23	16	11	3
4	153	152	154	164	172	166	163	170	19	14	9	6
5	153	154	156	164	170	166	163	165	17	12	7	1

**DATA SHEET NO. 17**

**FIXED BARRIER LOAD CELL LOCATIONS**

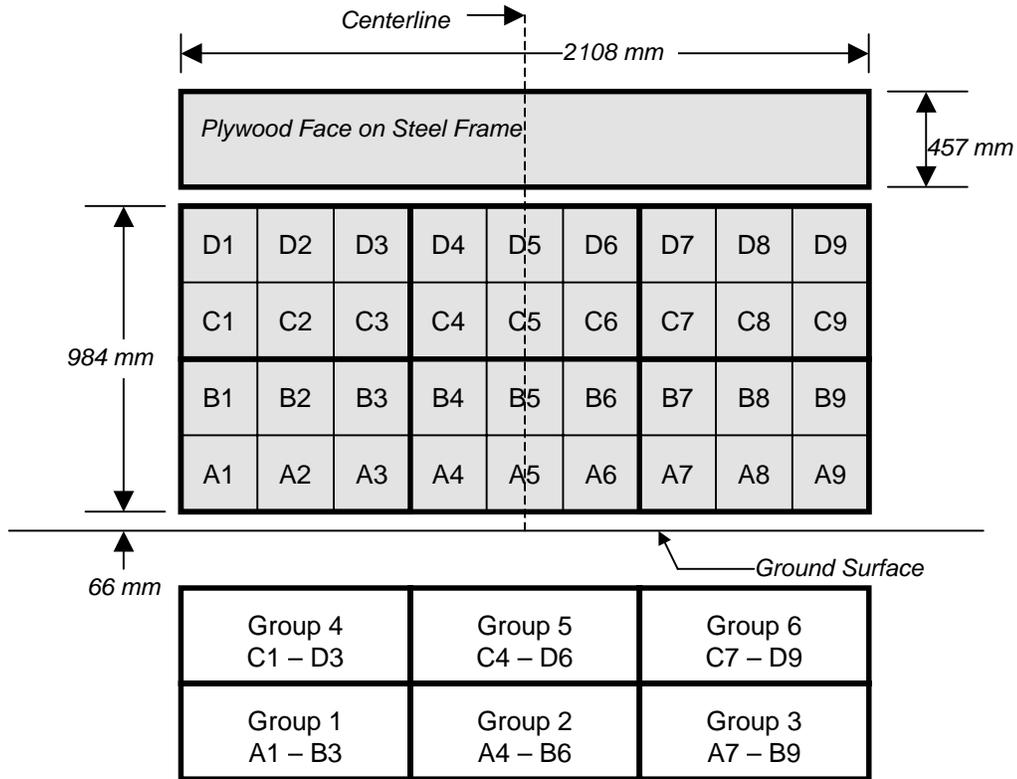
Test Vehicle: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

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



6 Groups of 6 Load Cells Each

**DATA SHEET NO. 18**

**ACCIDENT INVESTIGATION DIVISION DATA**

Test Vehicle: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

**VEHICLE INFORMATION**

VIN: JS2YB413585100841

Wheel base (mm): 2504

Vehicle Size Category: 4-Door

Test Weight (kg): 1536

**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): 56.18

Velocity Change (km/h): 65.6

Time of Separation (msec): 61.1

**CRUSH PROFILE**

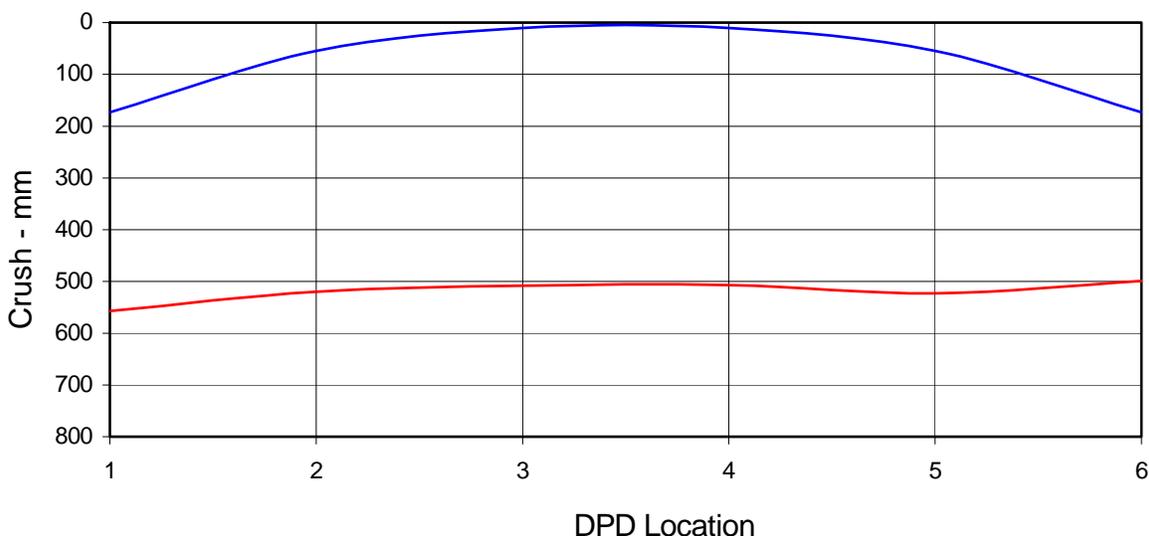
Collision Deformation Classification: 12FDEW6

Midpoint of Damage: Vehicle Centerline

Damage Region Length (mm): 1235

Impact Mode: Full Frontal

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	173	557	-384
C2	Crush zone 2 on left side	mm	55	520	-465
C3	Crush zone 3 on left side	mm	10	508	-498
C4	Crush zone 4 on right side	mm	10	507	-497
C5	Crush zone 5 on right side	mm	55	523	-468
C6	Crush zone 6 at right side	mm	173	499	-326



DATA SHEET NO. 19

DUMMY/VEHICLE TEMPERATURE STABILIZATION

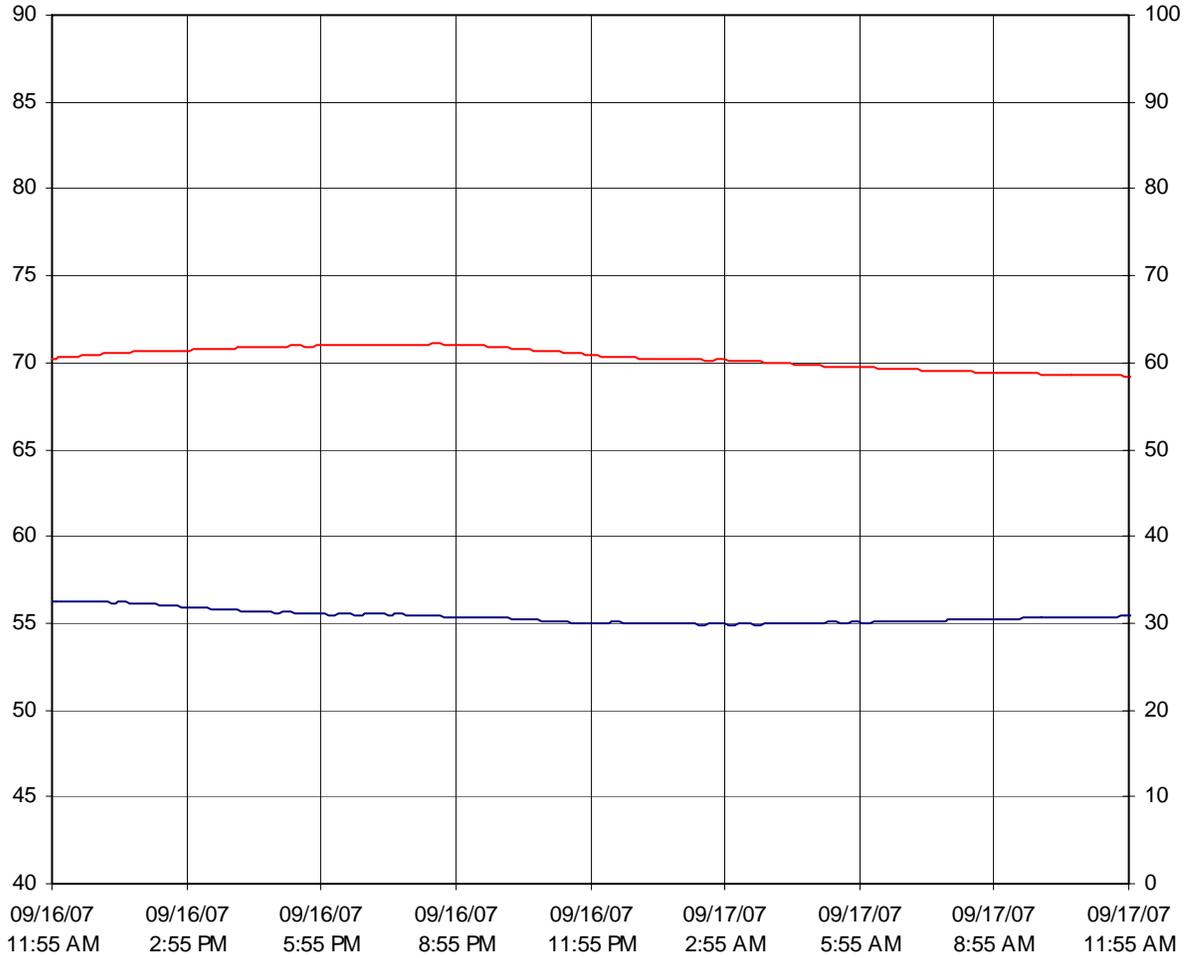
Test Vehicle: 2008 Suzuki SX4 4-Door

NHTSA No.: M80512

Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07

— Temperature — Humidity



APPENDIX A  
PHOTOGRAPHS

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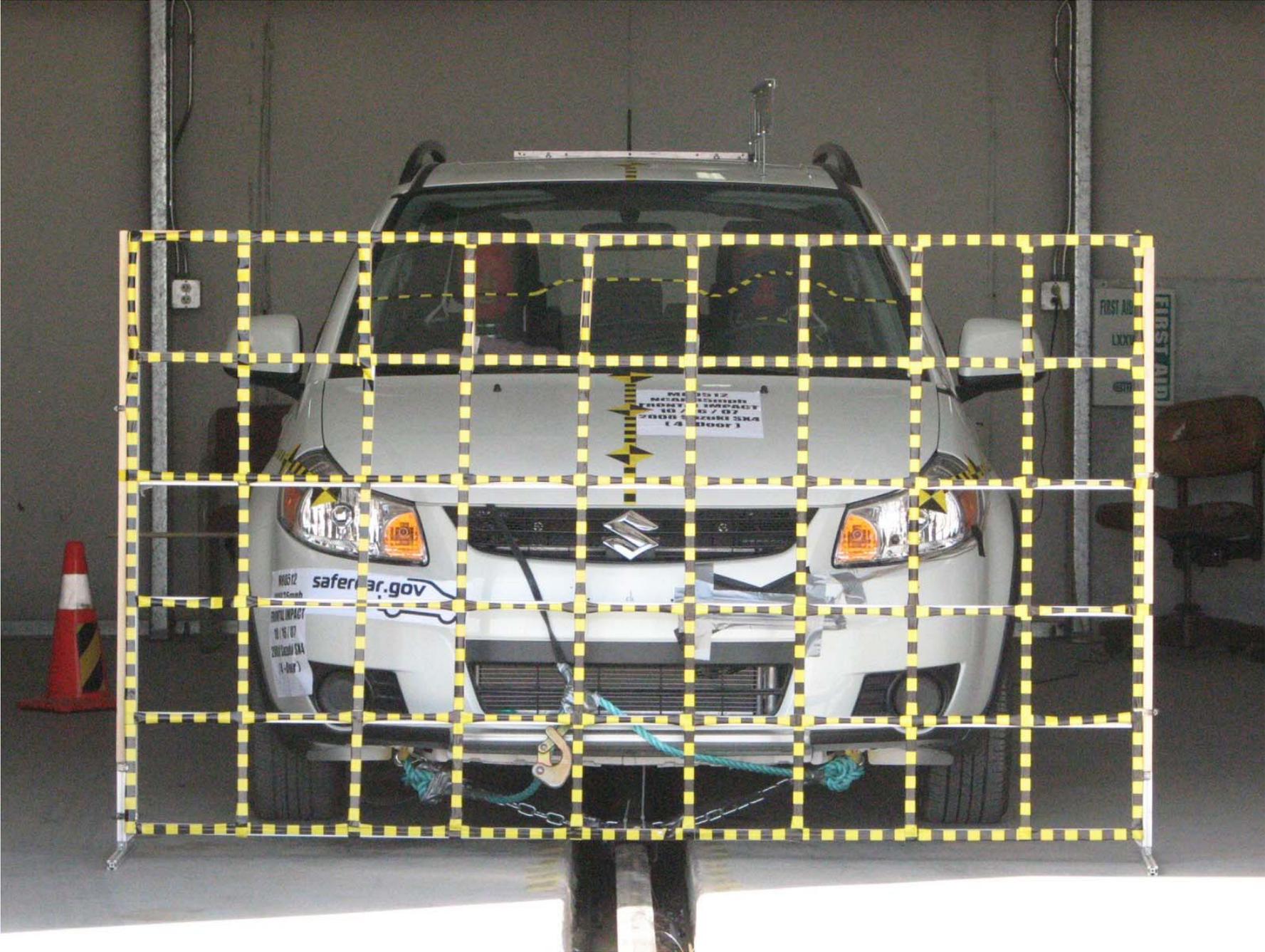


Figure A-1: Load Cell Location

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MFD BY SUZUKI MOTOR CORPORATION JAPAN

DATE	GVWR	GAWR FRT	GAWR RR
06 / 07	3803LB	2072LB	1852LB
	1725KG	940KG	840KG

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

JS2YB413585100841

PASS CAR  
2.0L 4WD US

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 370kg or 815lbs.

TIRE	ORIGINAL TIRE SIZE	COLD TIRE PRESSURE	<b>SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION</b>
FRONT	P205/60R16	230 kPa, 33 PSI	
REAR	P205/60R16	230 kPa, 33 PSI	
SPARE	T135/90D16	420 kPa, 60 PSI	

79161-80JU

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 (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 3/4 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 3/4 View



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



Figure A-17: Post-Test Right Side 3/4 View of Doors After Impact

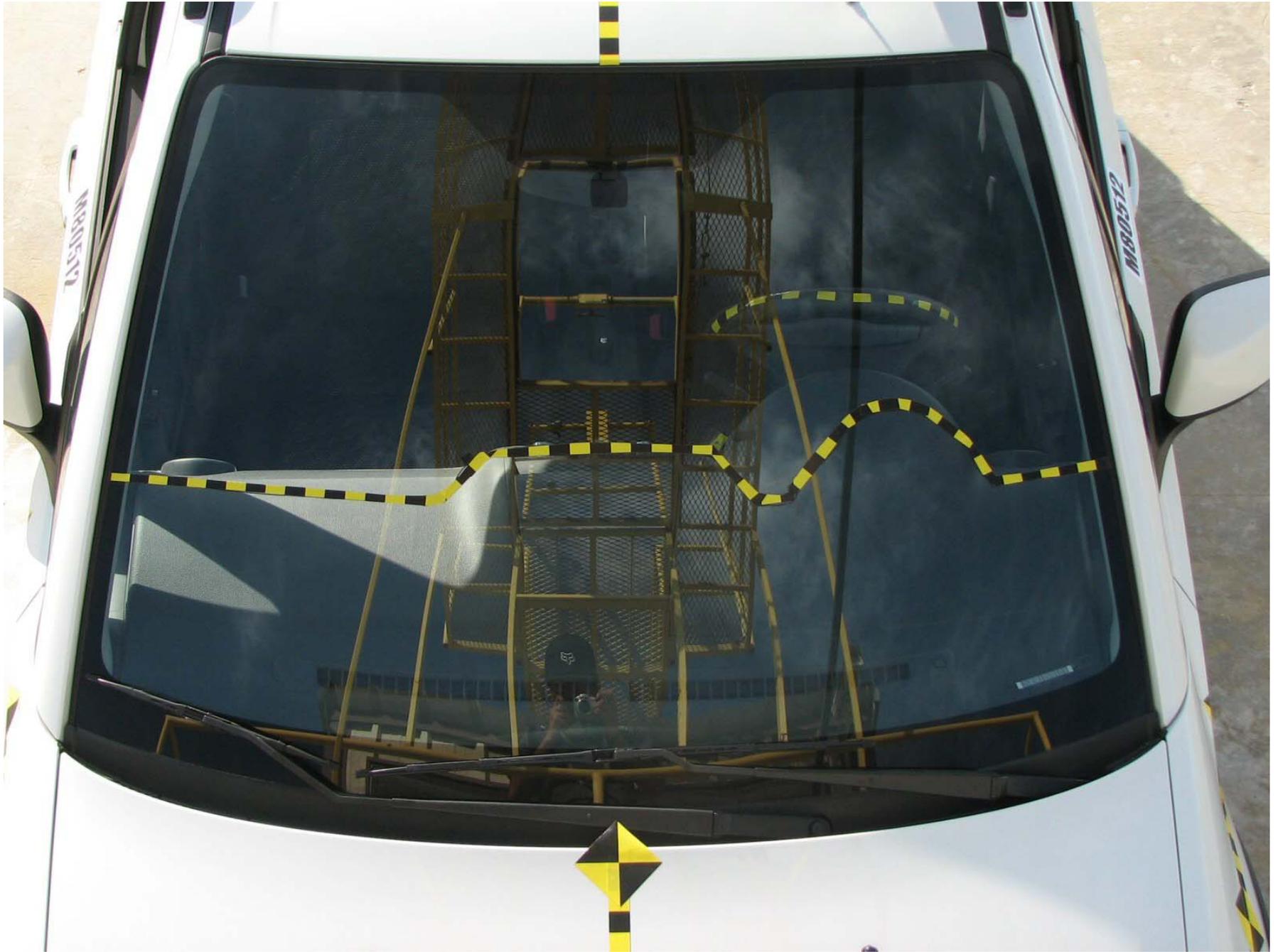


Figure A-18: Pre-Test Windshield

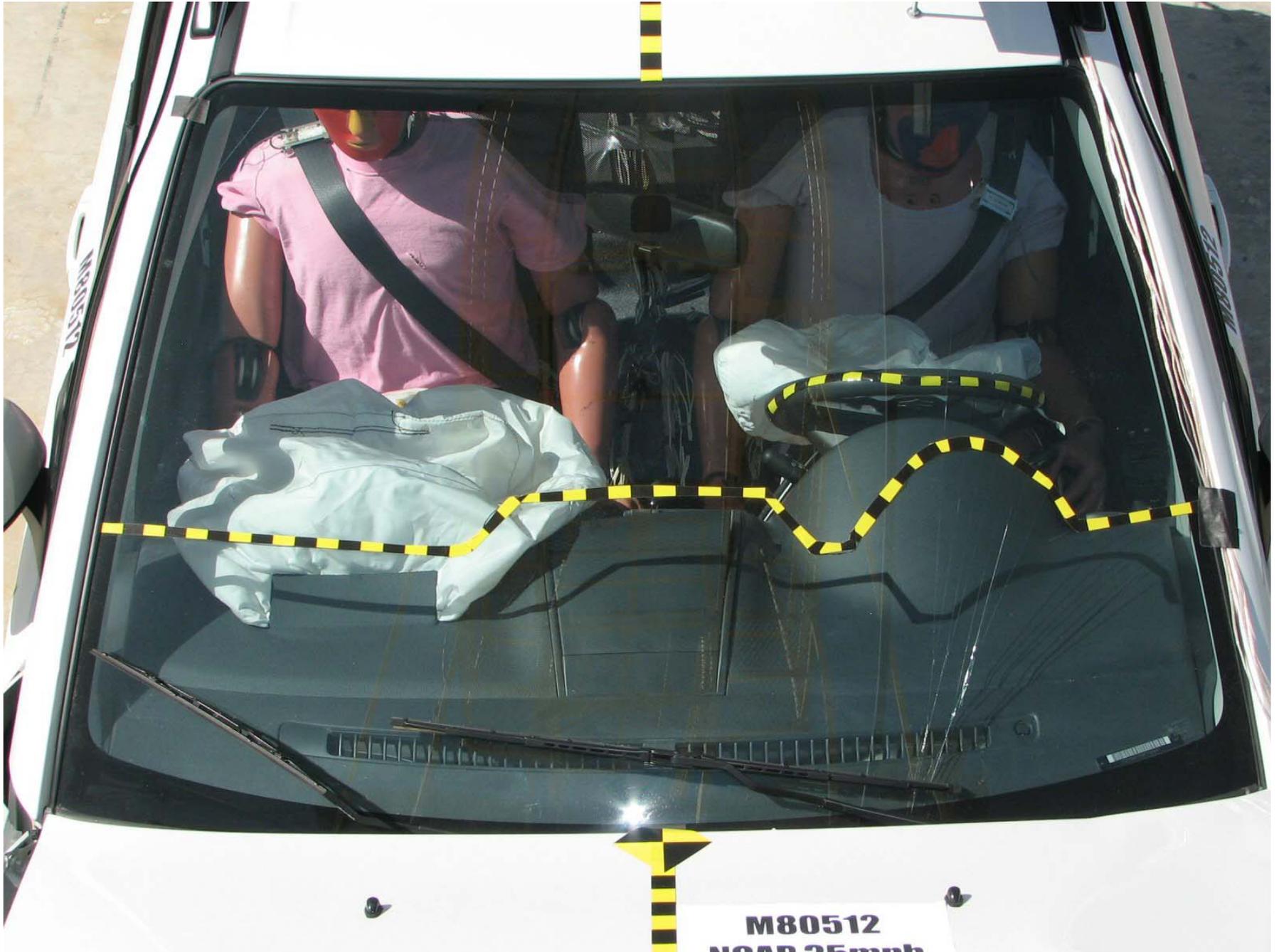


Figure A-19: Post-Test Windshield



Figure A-20: Pre-Test Engine Compartment



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



2008 Suzuki SX4  
M80512  
STODDARD SOLVENT ADDED  
11.07 GALLONS  
(41.90 LITERS)

Figure A-22: Pre-Test Fuel Cap



Figure A-23: Post-Test Fuel Cap



Figure A-24: Pre-Test Front Underbody

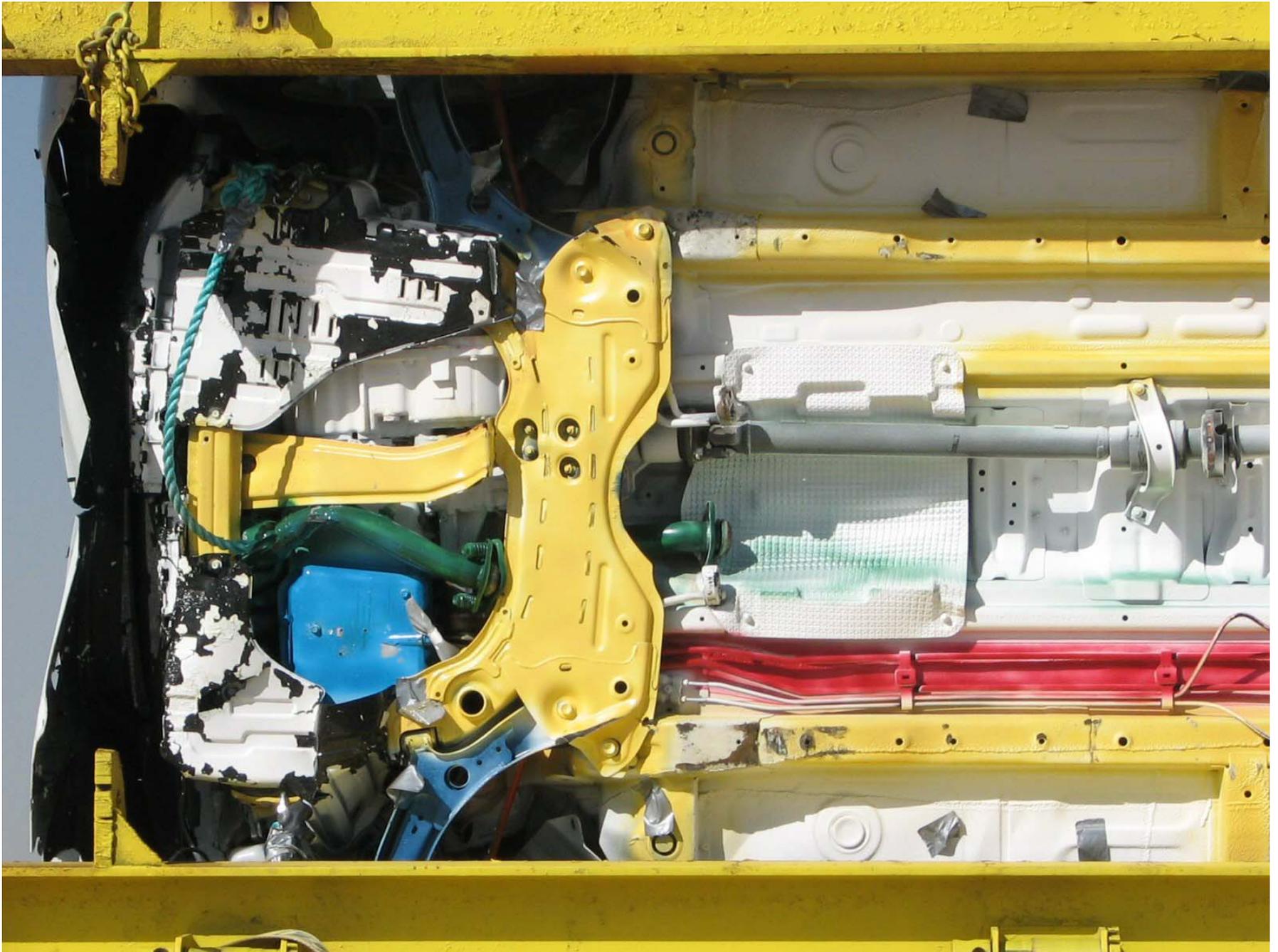


Figure A-25: Post-Test Front Underbody

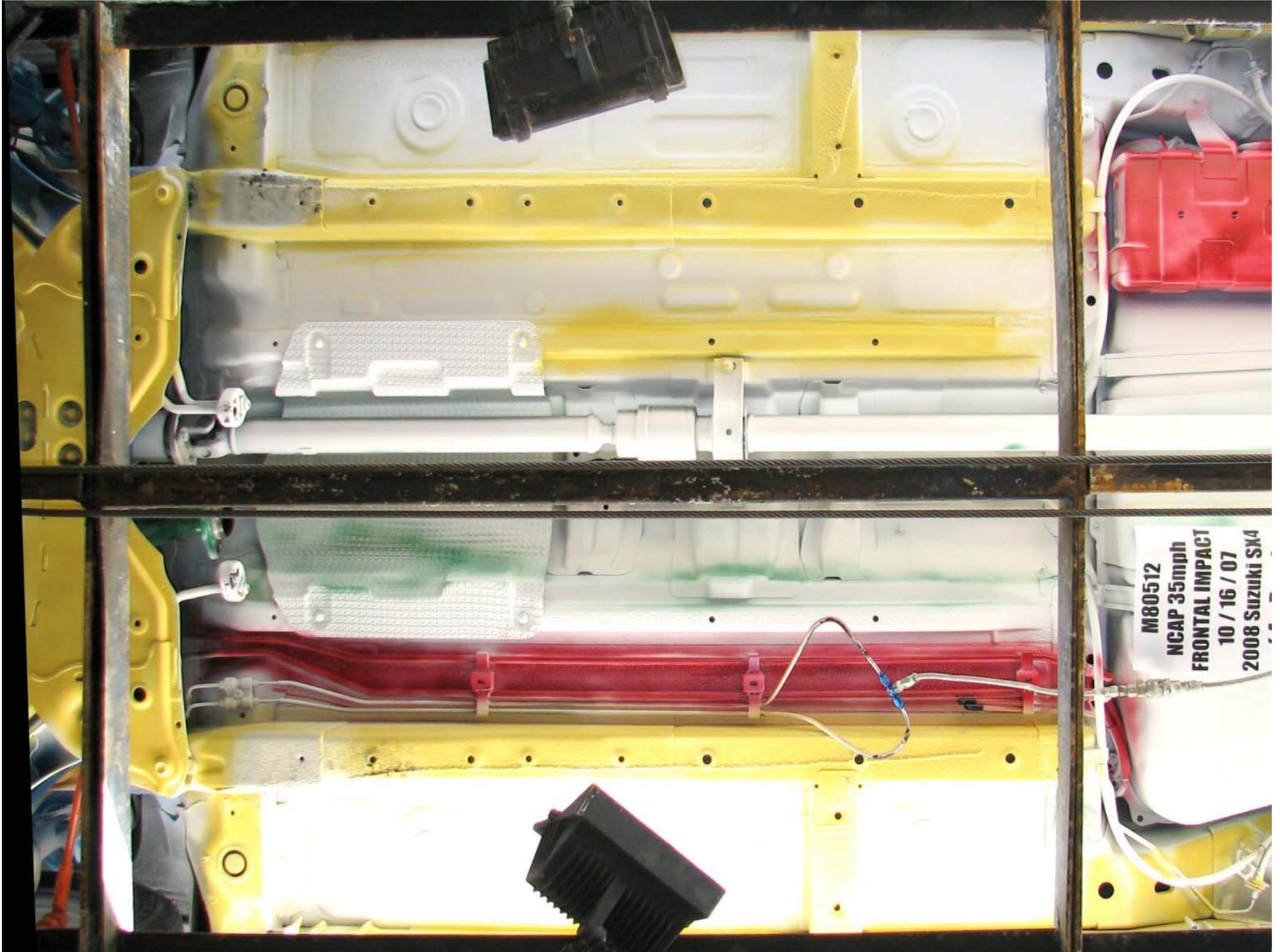


Figure A-26: Pre-Test Mid Underbody

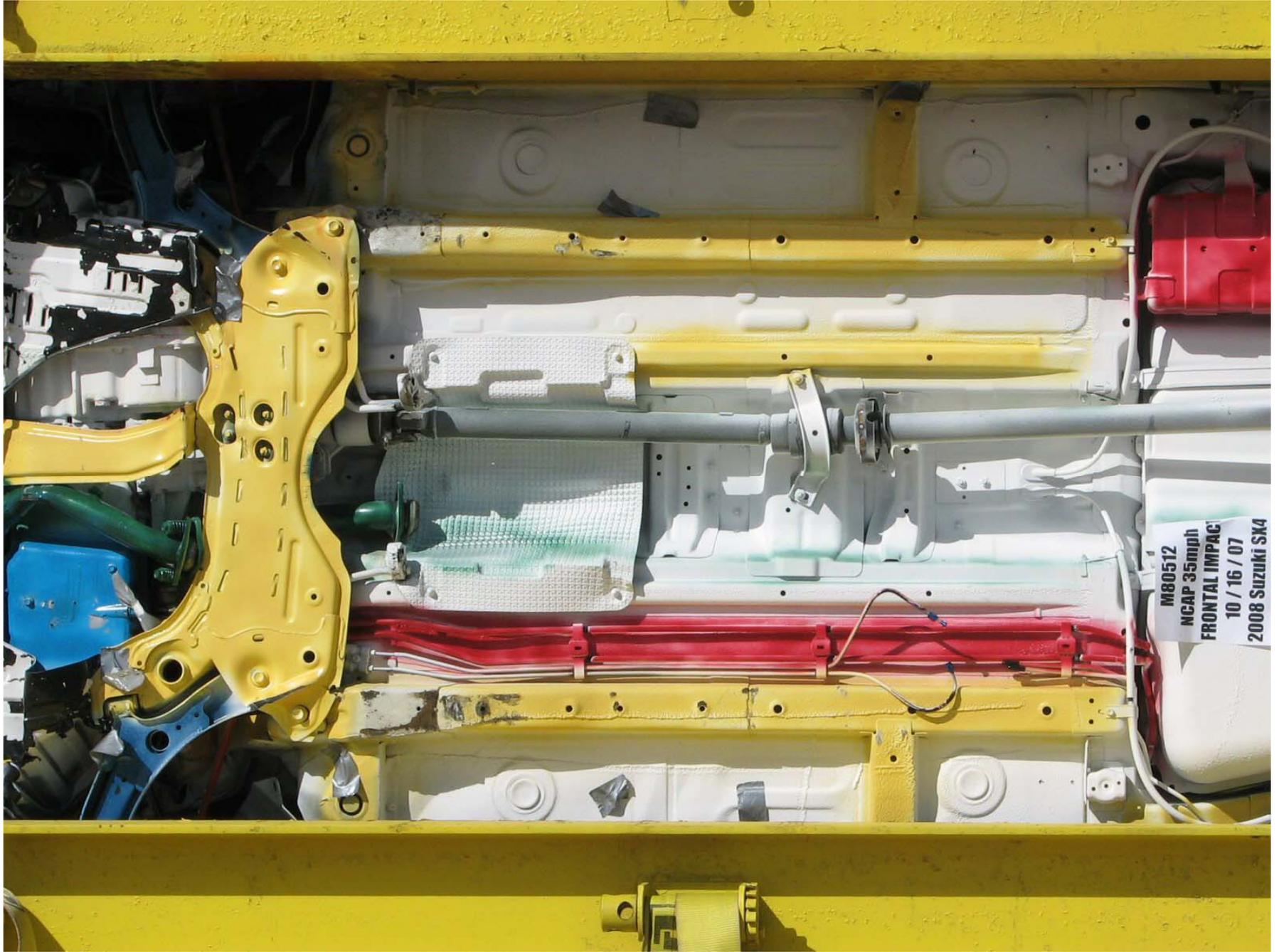


Figure A-27: Post-Test Mid Underbody

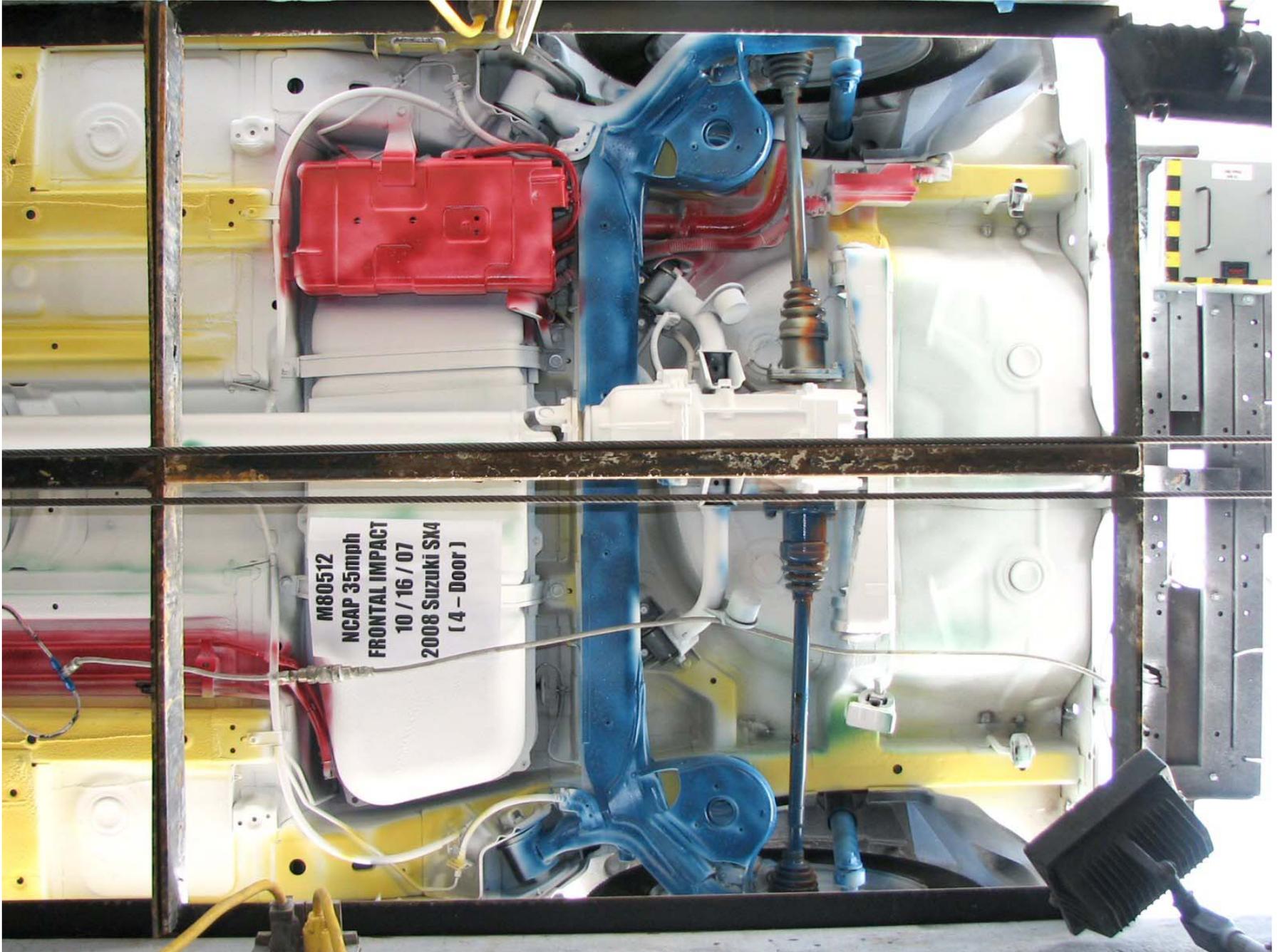


Figure A-28: Pre-Test Rear Underbody

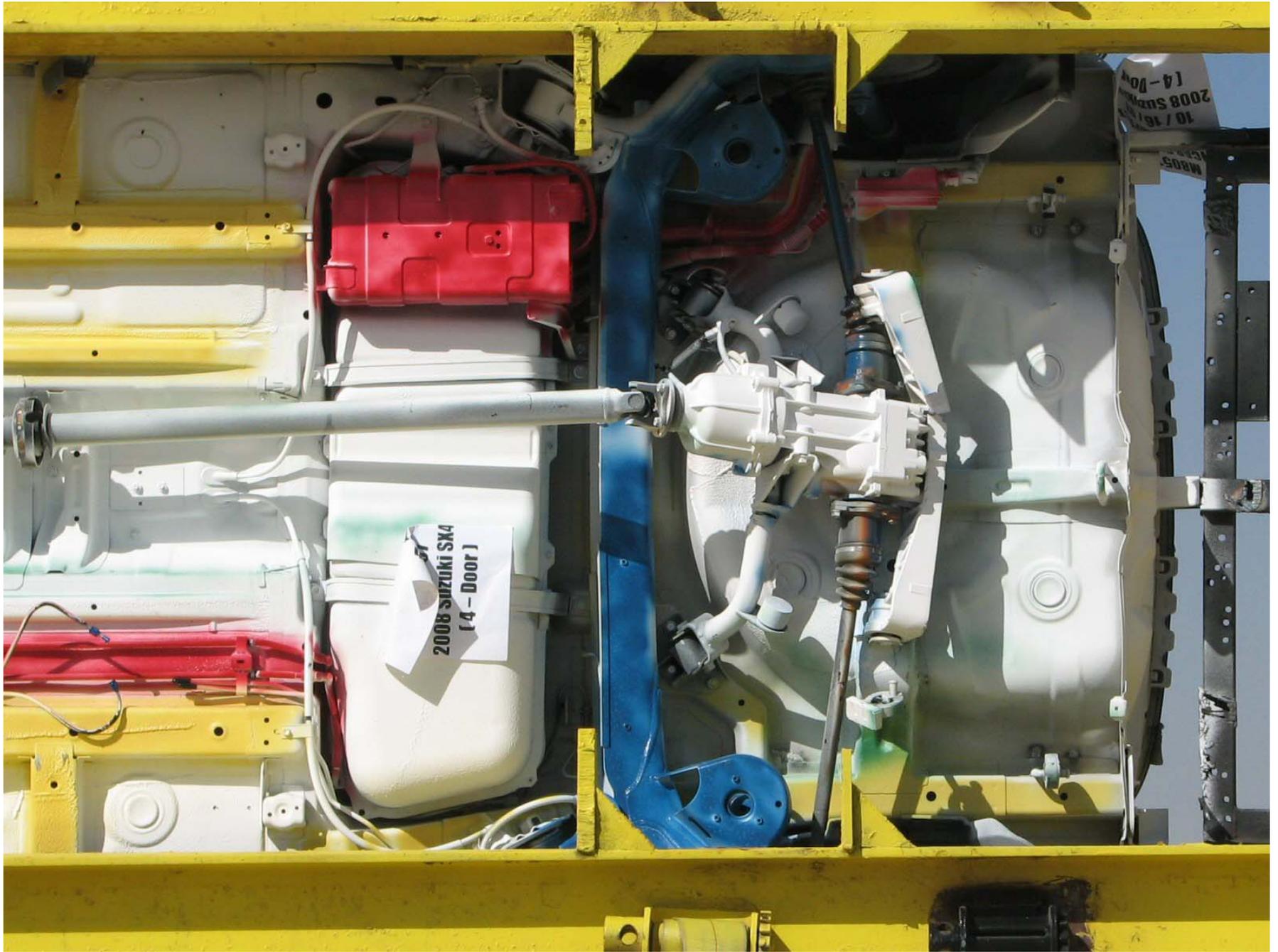


Figure A-29: Post-Test Rear Underbody



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

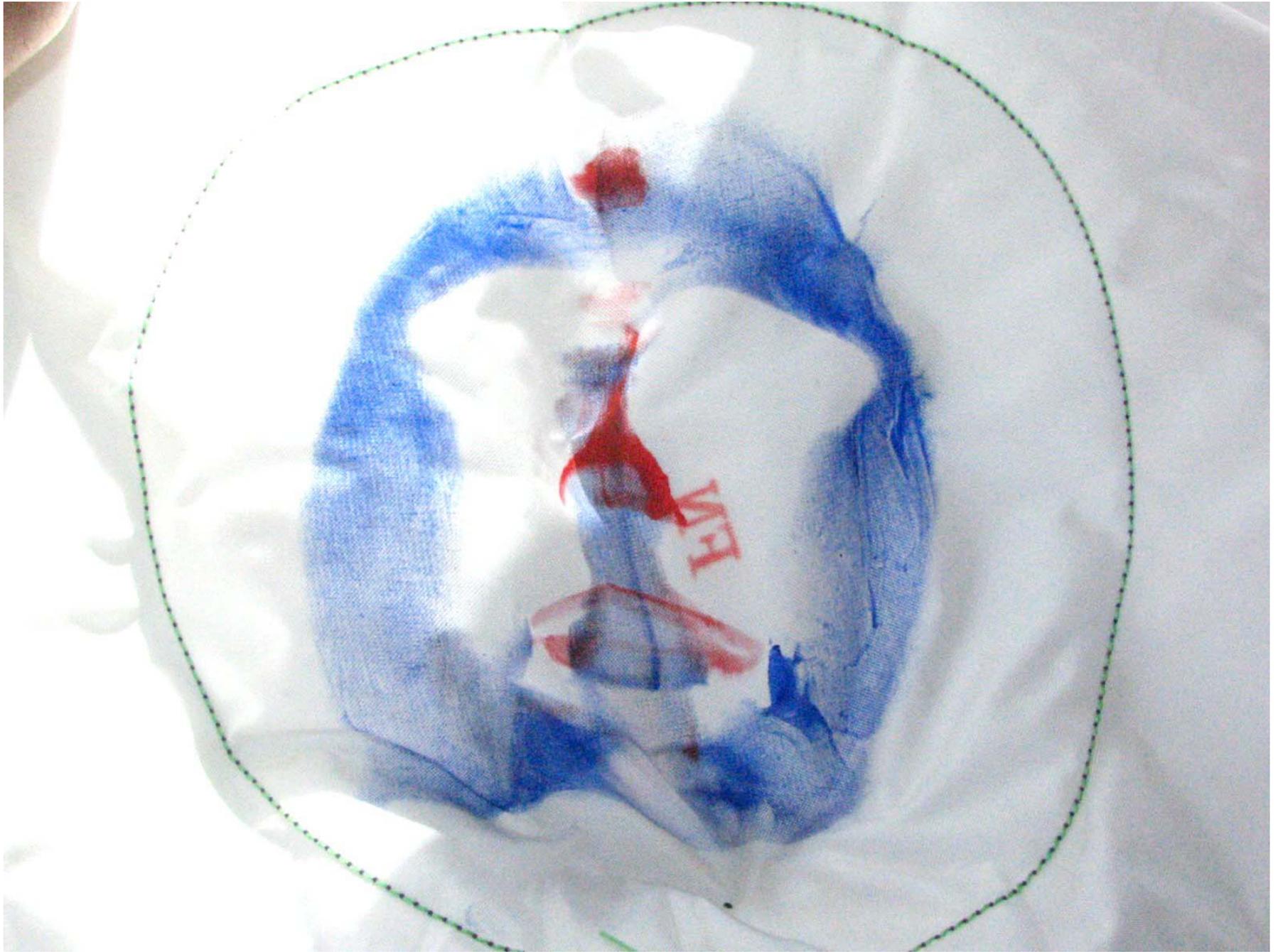


Figure A-43: Post-Test Driver Dummy Airbag Contact



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



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



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



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

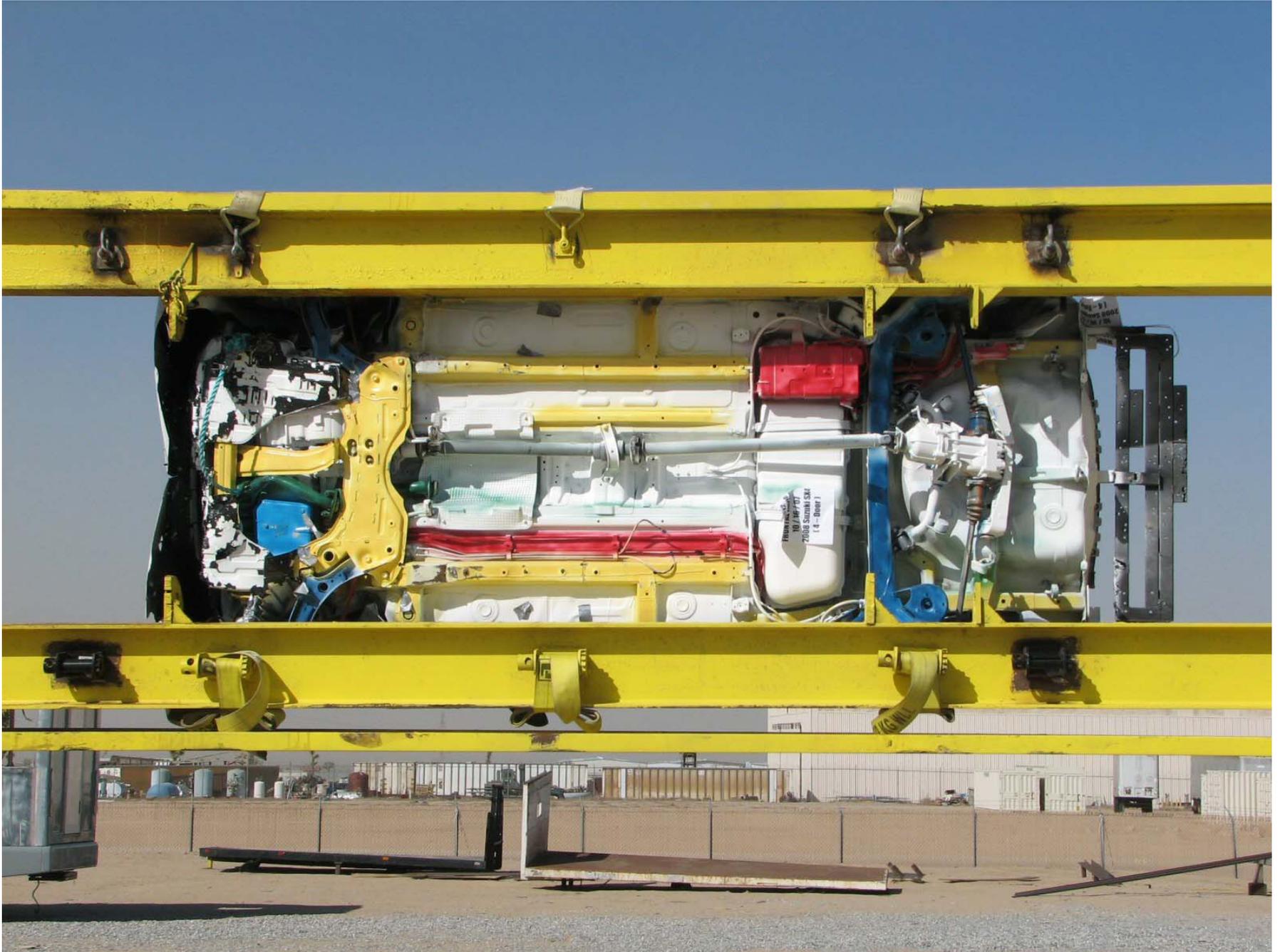


Figure A-61: Vehicle on Rollover Device (270°)

A-61

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Figure A-62: Vehicle Impact

APPENDIX B  
DATA PLOTS

## LIST OF DATA PLOTS

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	Driver Head Primary Y	B-1
	Driver Head Primary Z	B-1
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	Driver Right Femur Force Z	B-3
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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](http://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)

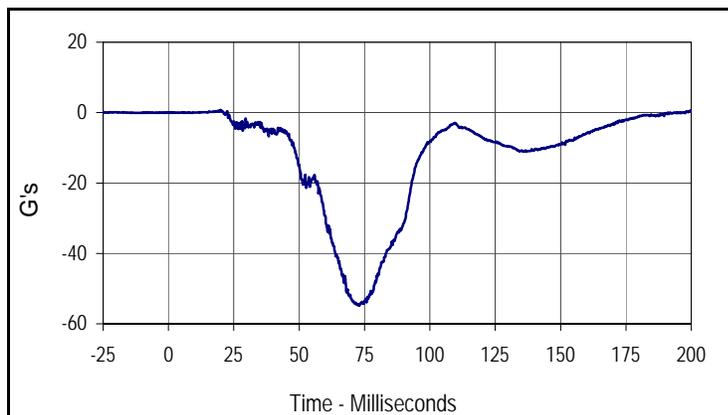
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Passenger Chest Redundant Z  
Passenger Chest Resultant Redundant  
Passenger Chest Redundant X Velocity  
Passenger Chest Redundant X Displacement  
Passenger Chest Displacement  
Passenger Pelvis X  
Passenger Pelvis Y  
Passenger Pelvis Z  
Passenger 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)

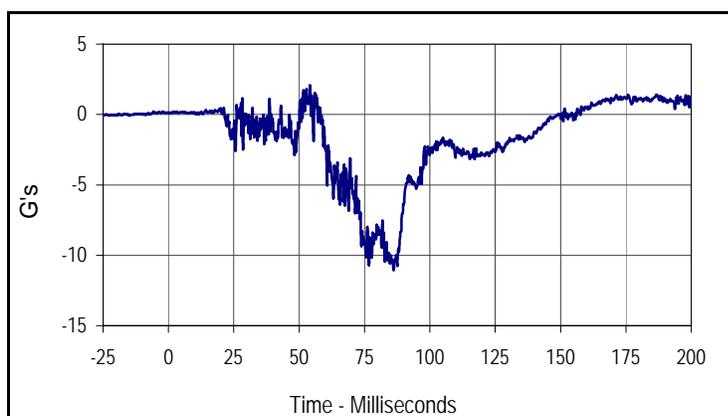
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Vehicle Right Rear X  
Vehicle Right Rear X Velocity  
Vehicle Right Rear X Displacement  
Vehicle Engine Top  
Vehicle Engine Top Velocity  
Vehicle Engine Top Displacement  
Vehicle Engine Bottom  
Vehicle Engine Bottom Velocity  
Vehicle Engine 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: 2008 Suzuki SX4 AWD 4-Door  
 Test Program: NHTSA 35mph NCAP

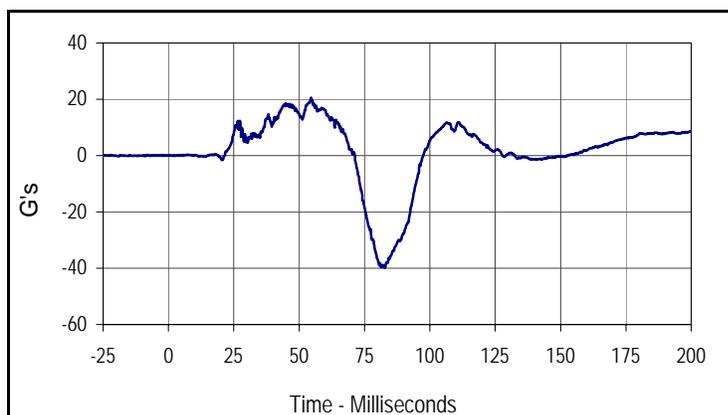
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 NHTSA No.: M80512



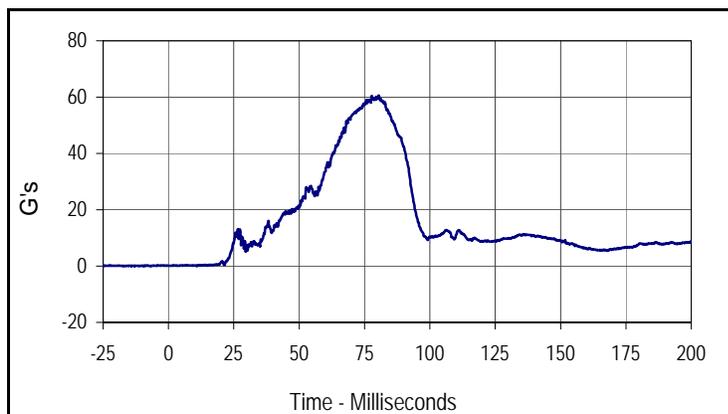
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Driver Head Primary X			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
0.7	19.9	-54.8	73.0



Curve Description			
Driver Head Primary Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.1	54.1	-11.1	86.1



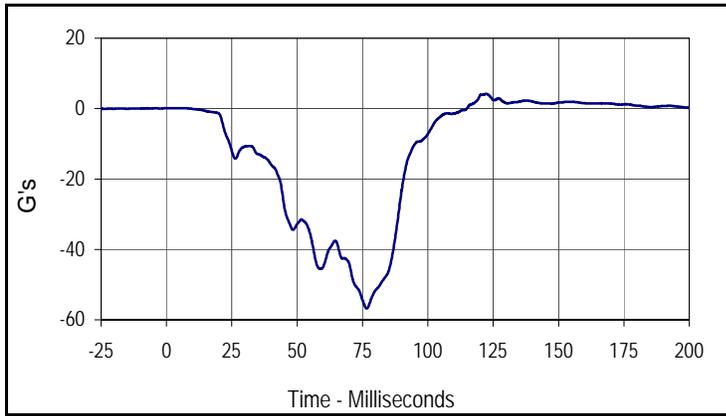
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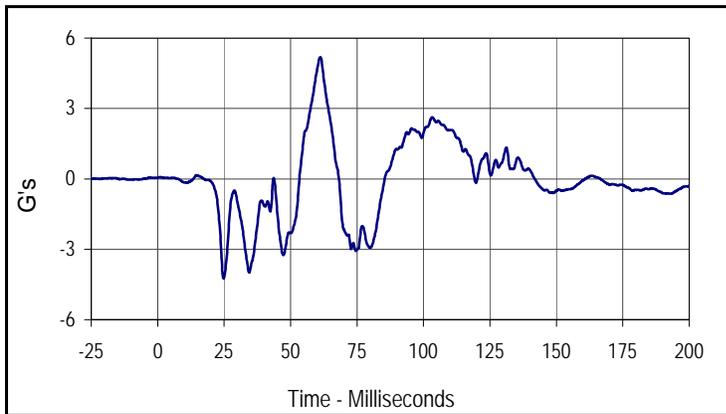
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Driver Head Resultant Primary			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
60.6	80.5	0.1	10.9

Test Vehicle: 2008 Suzuki SX4 AWD 4-Door  
 Test Program: NHTSA 35mph NCAP

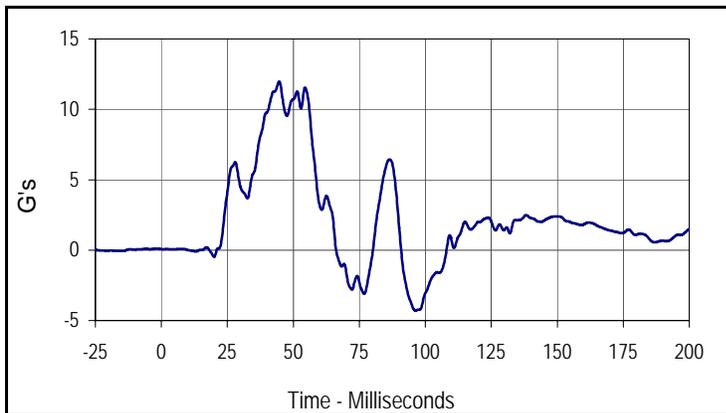
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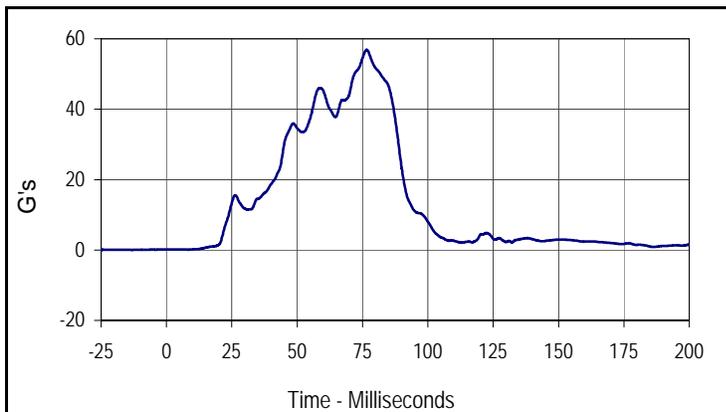
Curve Description			
Driver Chest Primary X			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
4.2	122.4	-56.8	76.6



Curve Description			
Driver Chest Primary Y			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
5.2	61.2	-4.3	24.8



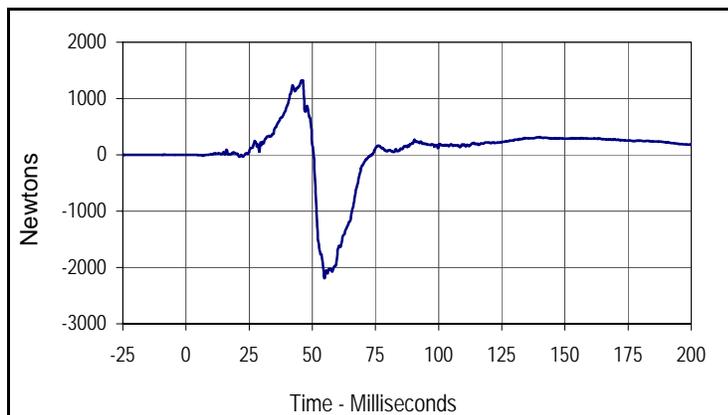
Curve Description			
Driver Chest Primary Z			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
12.0	44.6	-4.3	96.2



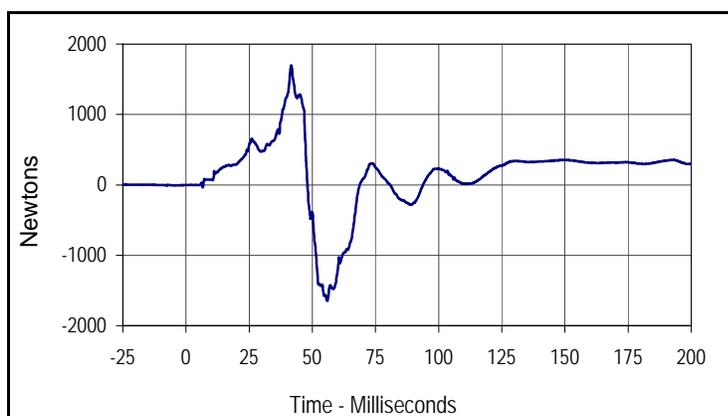
Curve Description			
Driver Chest Resultant Primary			
CURNO	Type	SAE Class	Units
004	RES	180	G's
Max	Time	Min	Time
56.9	76.6	0.1	8.4

Test Vehicle: 2008 Suzuki SX4 AWD 4-Door  
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 NHTSA No.: M80512



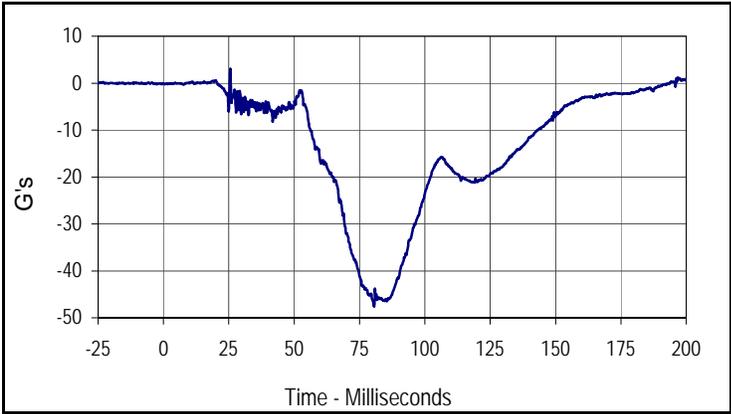
Curve Description			
Driver Left Femur Force Z			
CURNO	Type	SAE Class	Units
007	FIL	600	Newtons
Max	Time	Min	Time
1324.7	46.2	-2192.6	54.8



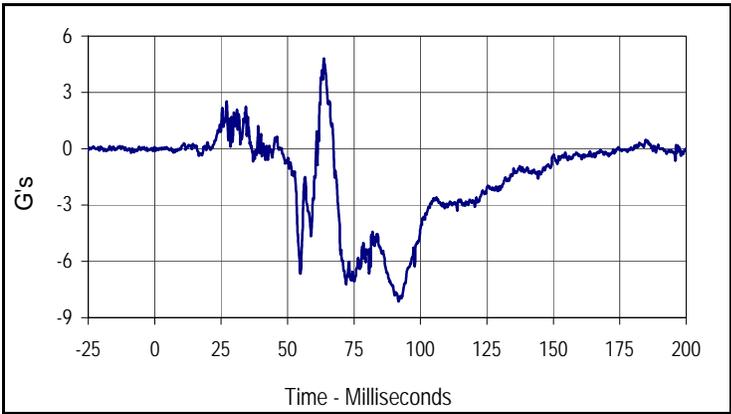
Curve Description			
Driver Right Femur Force Z			
CURNO	Type	SAE Class	Units
008	FIL	600	Newtons
Max	Time	Min	Time
1697.9	41.6	-1647.3	55.9

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Curve Description			
Passenger Head Primary X			
CURNO	Type	SAE Class	Units
009	FIL	1000	G's
Max	Time	Min	Time
3.0	25.5	-47.6	80.6



Curve Description			
Passenger Head Primary Y			
CURNO	Type	SAE Class	Units
010	FIL	1000	G's
Max	Time	Min	Time
4.8	63.6	-8.1	91.8



Curve Description			
Passenger Head Primary Z			
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011	FIL	1000	G's
Max	Time	Min	Time
30.1	98.0	-1.4	20.1



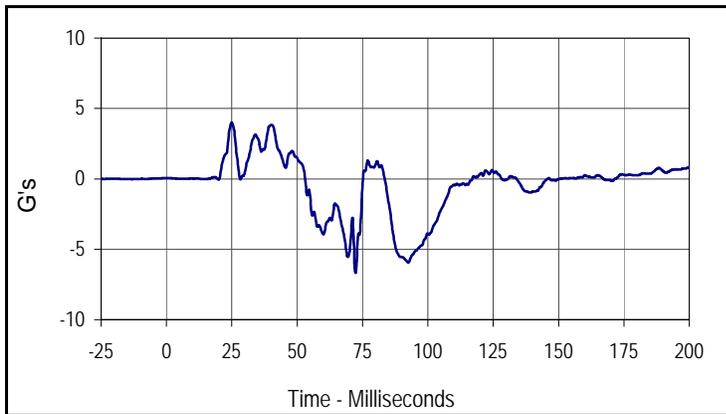
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Passenger Head Resultant Primary			
CURNO	Type	SAE Class	Units
009	RES	1000	G's
Max	Time	Min	Time
53.0	80.6	0.0	9.5

Test Vehicle: 2008 Suzuki SX4 AWD 4-Door  
 Test Program: NHTSA 35mph NCAP

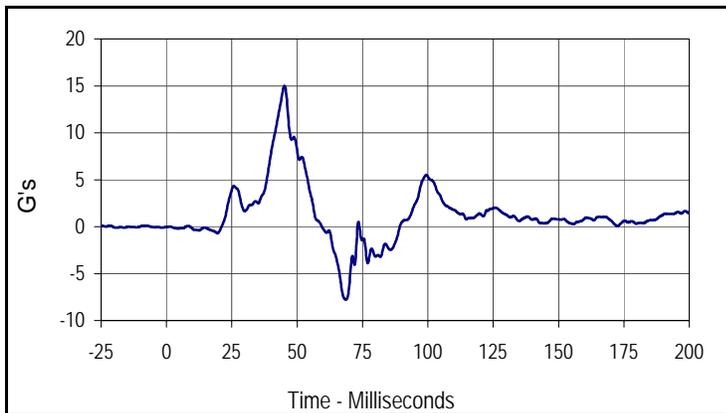
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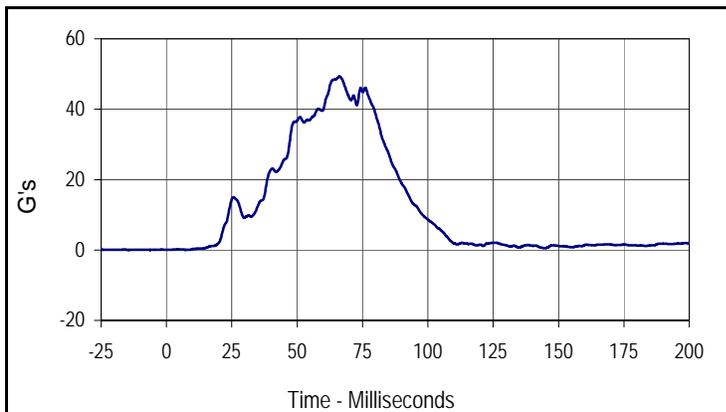
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Passenger Chest Primary X			
CURNO	Type	SAE Class	Units
012	FIL	180	G's
Max	Time	Min	Time
1.7	114.6	-49.0	66.1



Curve Description			
Passenger Chest Primary Y			
CURNO	Type	SAE Class	Units
013	FIL	180	G's
Max	Time	Min	Time
4.0	25.0	-6.7	72.3



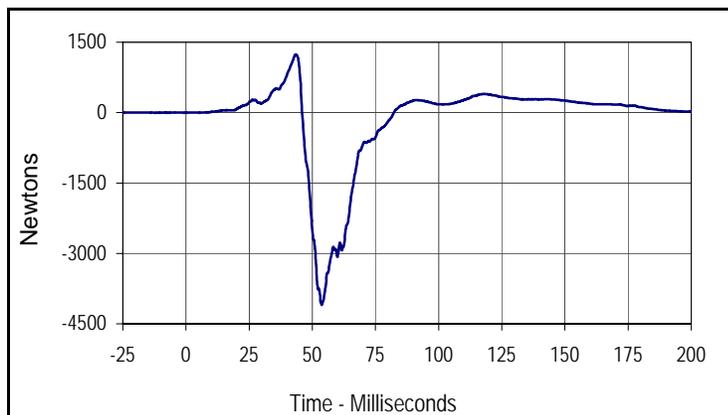
Curve Description			
Passenger Chest Primary Z			
CURNO	Type	SAE Class	Units
014	FIL	180	G's
Max	Time	Min	Time
15.0	45.1	-7.8	68.6



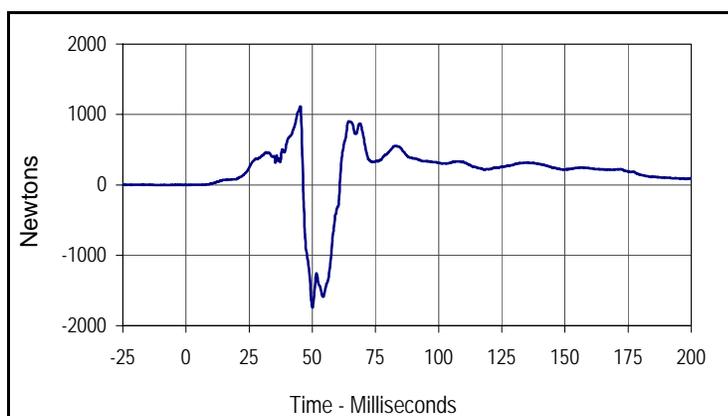
Curve Description			
Passenger Chest Resultant Primary			
CURNO	Type	SAE Class	Units
012	RES	180	G's
Max	Time	Min	Time
49.3	66.2	0.0	7.4

Test Vehicle: 2008 Suzuki SX4 AWD 4-Door  
 Test Program: NHTSA 35mph NCAP

Test Date: 10/16/07  
 NHTSA No.: M80512



Curve Description			
Passenger Left Femur Force Z			
CURNO	Type	SAE Class	Units
015	FIL	600	Newtons
Max	Time	Min	Time
1237.1	43.6	-4096.9	53.7



Curve Description			
Passenger Right Femur Force Z			
CURNO	Type	SAE Class	Units
016	FIL	600	Newtons
Max	Time	Min	Time
1116.3	45.3	-1744.0	50.1

APPENDIX C  
DUMMY CALIBRATION DATA

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

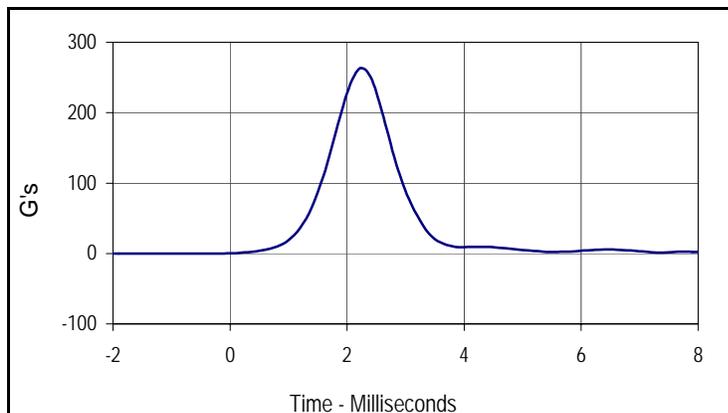
Test Date: 10/3/07

ATD Serial No.: 035

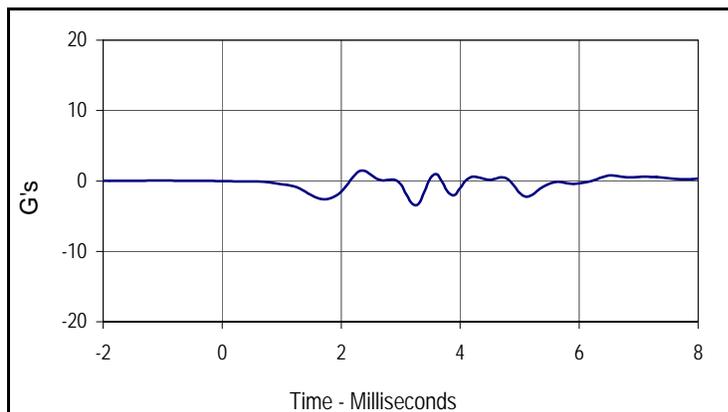
Test I.D.: HD10F



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	262.3	Pass
Peak Lateral Acceleration	G's	≤15.0	3.3	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
262.3	2.3	0.0	-0.1



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
1.4	2.4	-3.3	3.2

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

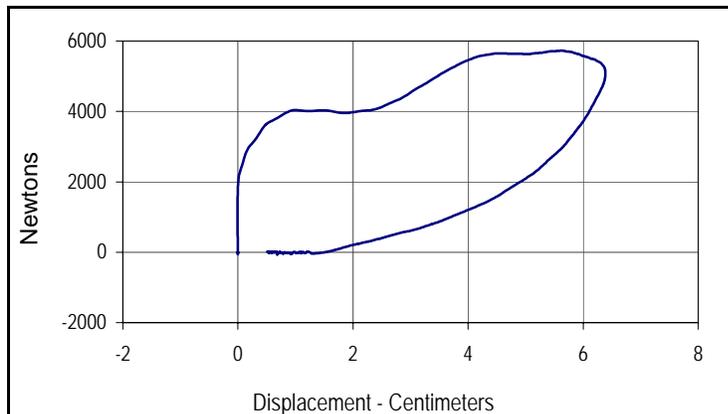
Test Date: 10/3/07

ATD Serial No.: 035

Test I.D.: CH10F



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	6.68	Pass
Peak Probe Force	Newtons	5159 to 5893	5725	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	6.39	Pass
Internal Hysteresis	%	69 to 85	75.4	Pass
Overall Test Results				Pass



Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysteresis
001	FIL	180	75.4
Peak Probe Force		Peak Chest Deflection	
5725		6.39	

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test

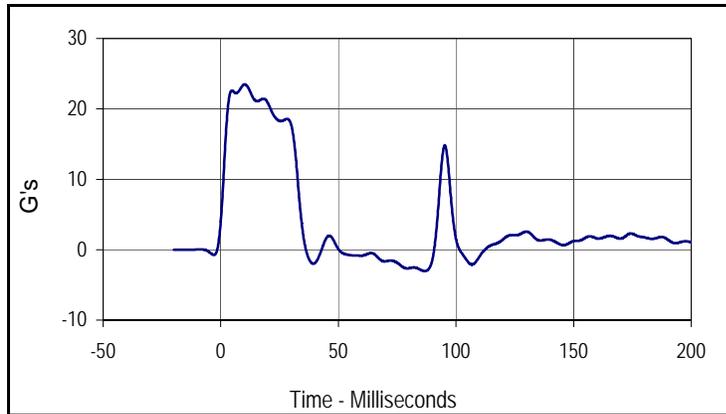
Test Date: 10/3/07

ATD Serial No.: 035

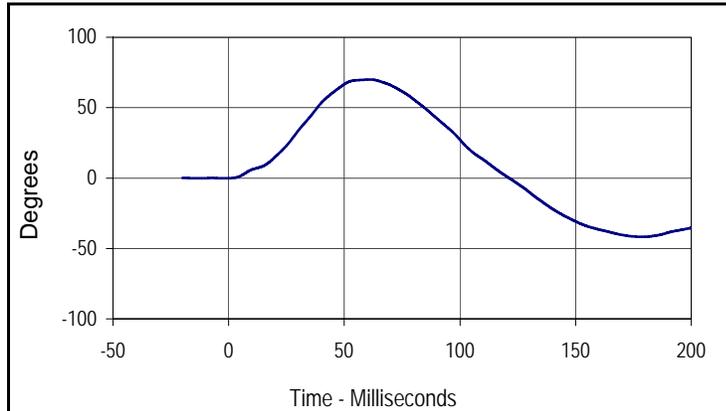
Test I.D.: NF10F



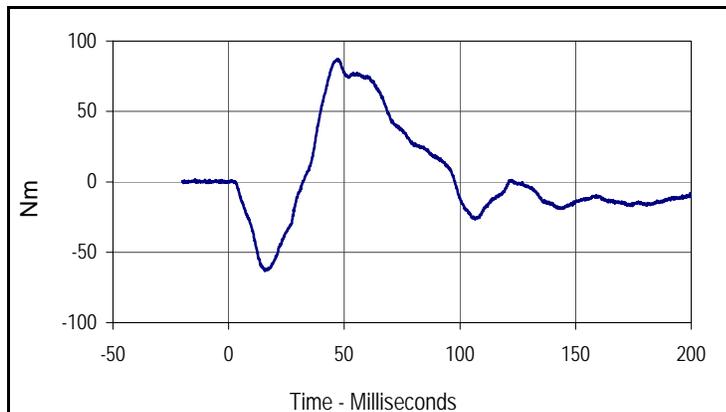
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	7.08	Pass	
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.5	Pass
	20 Msec.	G's	17.6 to 22.6	20.8	Pass
	30 Msec.	G's	12.5 to 18.5	17.7	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 29.0	17.7	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	34.0 to 42.0	34.1	Pass	
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	70.0	Pass
	Time	Msec.	57.0 to 64.0	61.0	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	113.0 to 128.0	121.3	Pass	
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	87.2	Pass
	Time	Msec.	47.0 to 58.0	47.4	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	97.0 to 107.0	97.9	Pass	
<b>Overall Test Results</b>				<b>Pass</b>	



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
23.5	10.1	-3.0	86.7



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
70.0	61.0	-41.8	179.2



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
87.2	47.4	-63.2	15.7

Test Program: Hybrid III 50th Percentile Male Neck Extension Test

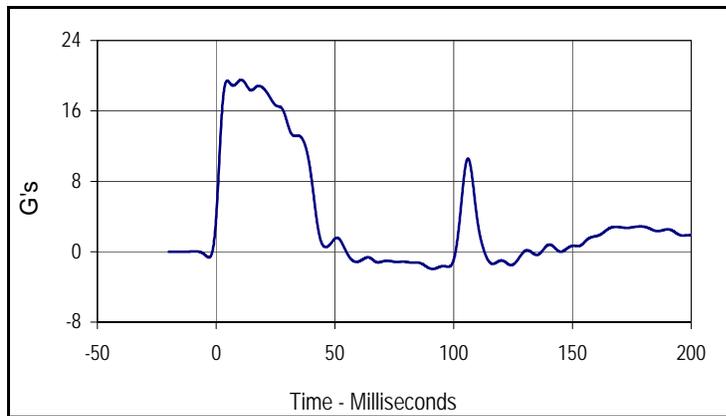
Test Date: 10/3/07

ATD Serial No.: 035

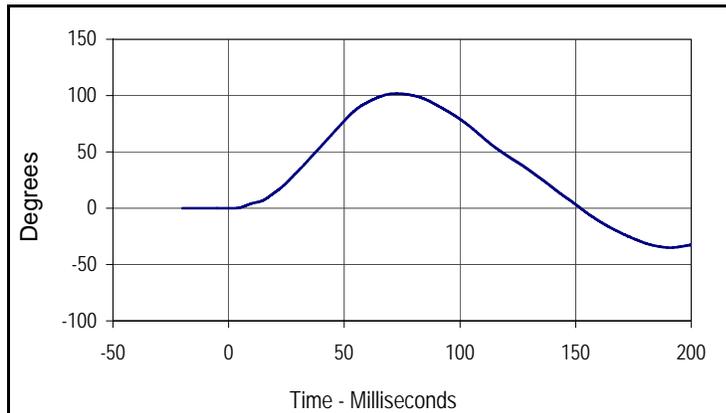
Test I.D.: NE10F



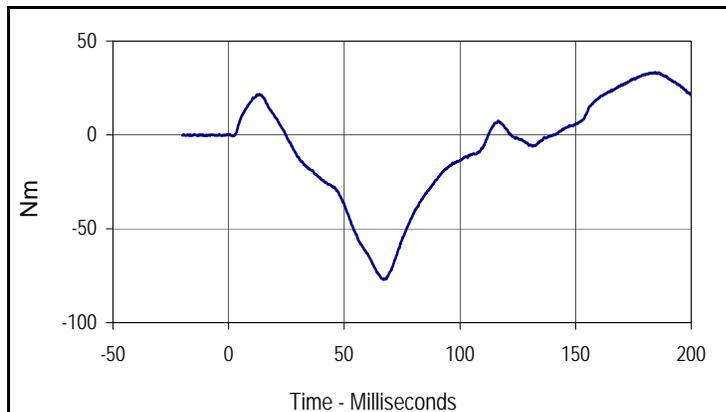
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	5.94 to 6.19	6.18	Pass	
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	19.5	Pass
	20 Msec.	G's	14.0 to 19.0	18.6	Pass
	30 Msec.	G's	11.0 to 16.0	14.6	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 22.0	14.6	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	38.0 to 46.0	41.7	Pass	
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	101.8	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	152.2	Pass	
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-77.0	Pass
	Time	Msec.	65.0 to 79.0	67.0	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	120.0 to 148.0	140.8	Pass	
<b>Overall Test Results</b>				<b>Pass</b>	



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
19.5	10.5	-2.0	91.2



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
101.8	72.3	-35.0	190.8



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
33.3	184.8	-77.0	67.0

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

Test Date: 10/3/07

ATD Serial No.: 035

Test I.D.: LK10F , RK10F

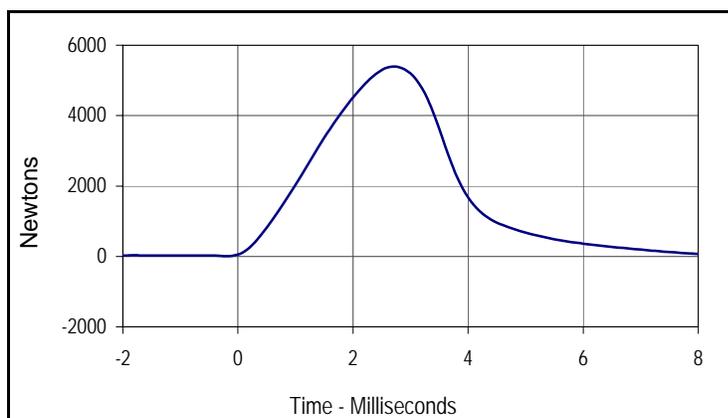


**Left Knee**

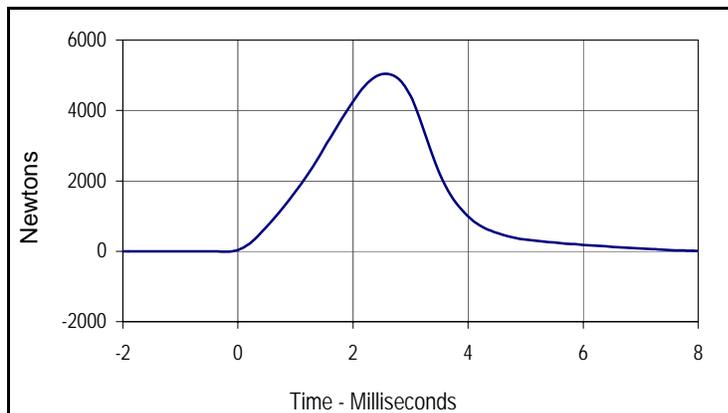
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.11	Pass
Peak Probe Force	Newtons	4715 to 5782	5393	Pass
Overall Test Results				Pass

**Right Knee**

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	4715 to 5782	5044	Pass
Overall Test Results				Pass



Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5393.0	2.7	3.7	9.7



Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
5043.6	2.6	-13.6	-0.2

Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 10/3/07

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	887	Pass
B - Shoulder pivot height	mm	505 to 521	511	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	89	Pass
F - Thigh clearance	mm	140 to 155	144	Pass
G - Elbow back to wrist pivot	mm	290 to 305	293	Pass
H - Skull cap to back line	mm	41 to 46	42	Pass
I - Shoulder to elbow length	mm	330 to 345	340	Pass
J - Elbow rest height	mm	190 to 211	200	Pass
K - Buttock to knee length	mm	579 to 604	582	Pass
L - Popliteal length	mm	429 to 455	440	Pass
M - Knee pivot height	mm	485 to 500	490	Pass
N - Buttock popliteal length	mm	452 to 477	460	Pass
O - Chest depth	mm	213 to 229	221	Pass
P - Foot length	mm	251 to 267	257	Pass
V - Shoulder breadth	mm	422 to 437	431	Pass
W - Foot breadth	mm	91 to 107	99	Pass
Y - Chest circumference	mm	970 to 1001	985	Pass
Z - Waist circumference	mm	836 to 866	855	Pass
AA - Location for chest circumference	mm	429 to 434	432	Pass
BB - Location for waist circumference	mm	226 to 231	227	Pass
Overall Test Results				Pass

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

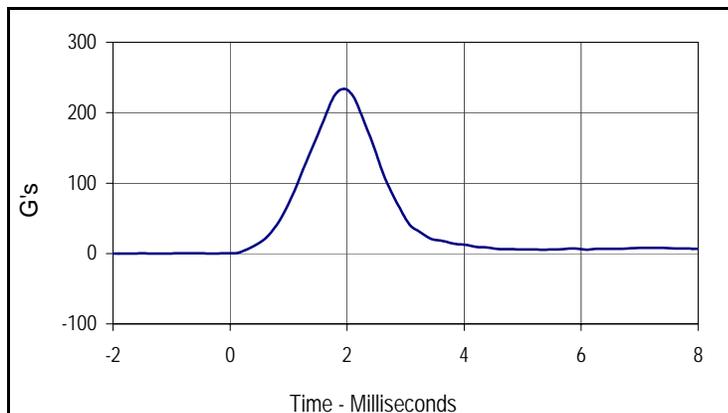
Test Date: 10/3/07

ATD Serial No.: 034

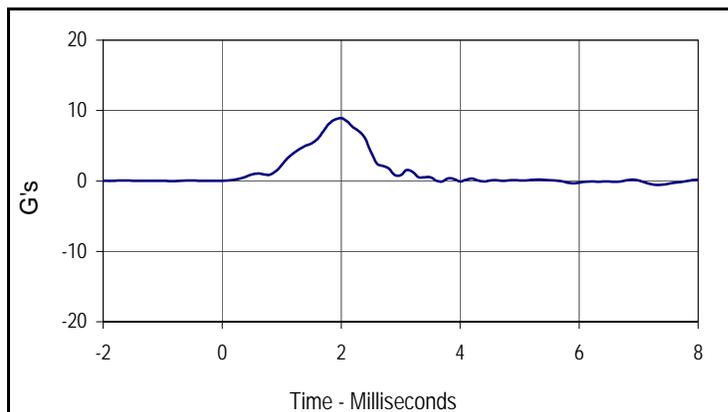
Test I.D.: HD10E



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	233.1	Pass
Peak Lateral Acceleration	G's	≤15.0	8.9	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
233.1	1.9	0.0	-1.3



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
8.9	2.0	-0.3	5.9

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

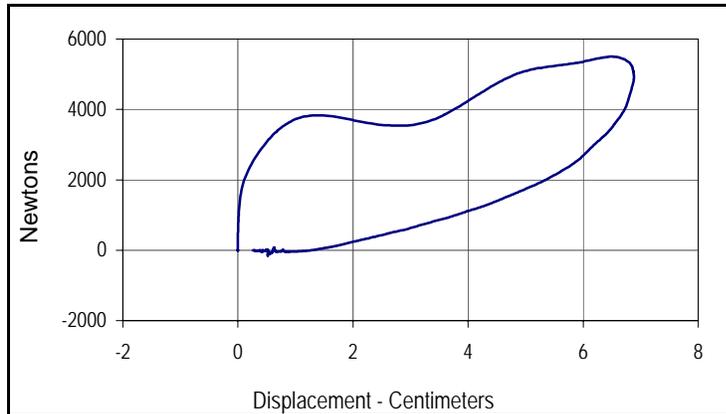
Test Date: 10/3/07

ATD Serial No.: 034

Test I.D.: CH10E



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	6.66	Pass
Peak Probe Force	Newtons	5159 to 5893	5500	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	6.88	Pass
Internal Hysteresis	%	69 to 85	72.2	Pass
Overall Test Results				Pass



Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysteresis
001	FIL	180	72.2
Peak Probe Force		Peak Chest Deflection	
5500		6.88	

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test

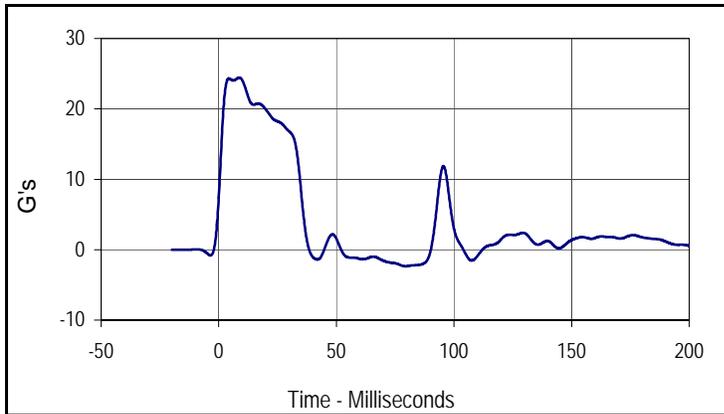
Test Date: 10/3/07

ATD Serial No.: 034

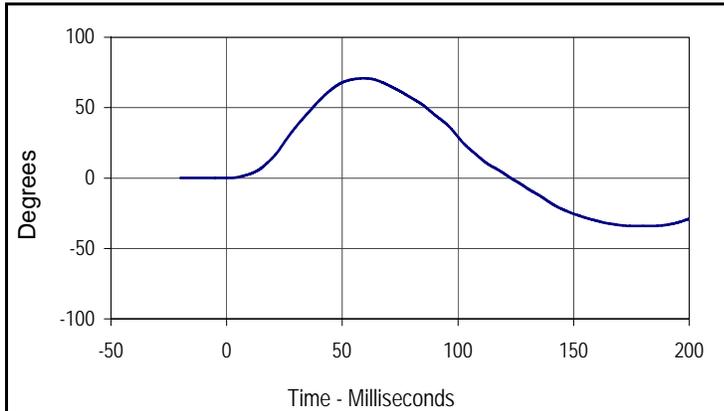
Test I.D.: NF10E



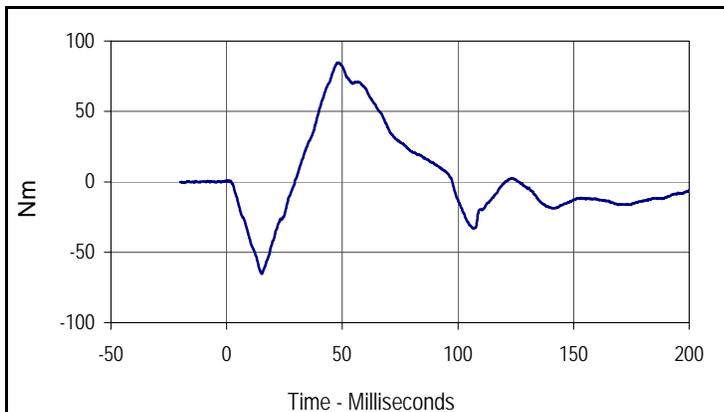
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	7.04	Pass	
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	24.1	Pass
	20 Msec.	G's	17.6 to 22.6	19.9	Pass
	30 Msec.	G's	12.5 to 18.5	16.8	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 29.0	16.8	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	34.0 to 42.0	36	Pass	
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	70.8	Pass
	Time	Msec.	57.0 to 64.0	59.4	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	113.0 to 128.0	122.9	Pass	
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	84.7	Pass
	Time	Msec.	47.0 to 58.0	48.0	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	97.0 to 107.0	97.6	Pass	
<b>Overall Test Results</b>				<b>Pass</b>	



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
24.4	8.7	-2.4	79.4



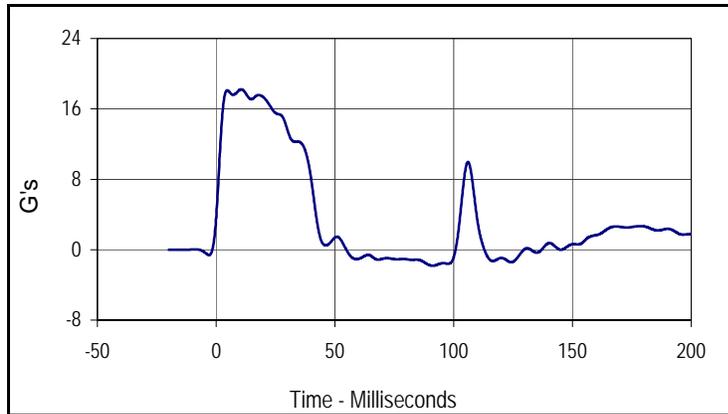
Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
70.8	59.4	-34.1	177.0



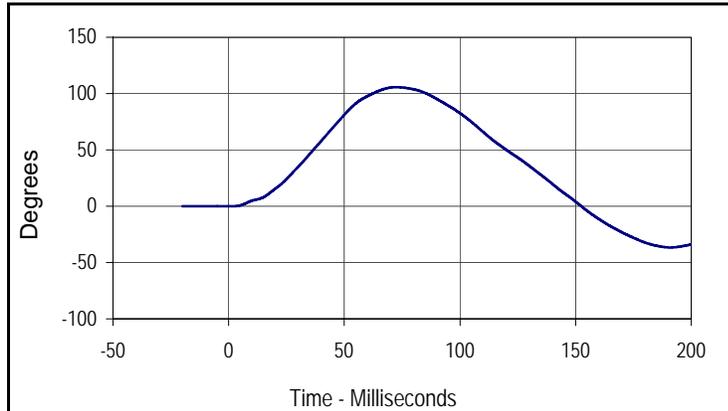
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
84.7	48.0	-65.3	15.2



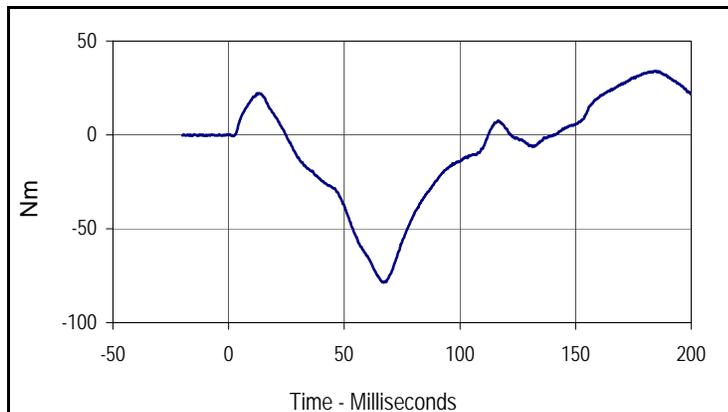
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	5.94 to 6.19	6.16	Pass	
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	18.2	Pass
	20 Msec.	G's	14.0 to 19.0	17.3	Pass
	30 Msec.	G's	11.0 to 16.0	13.6	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 22.0	13.6	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	38.0 to 46.0	41.5	Pass	
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	105.7	Pass
	Time	Msec.	72.0 to 82.0	72.4	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	147.0 to 174.0	152.5	Pass	
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-78.7	Pass
	Time	Msec.	65.0 to 79.0	67.0	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	120.0 to 148.0	140.9	Pass	
<b>Overall Test Results</b>				<b>Pass</b>	



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
18.2	10.5	-1.8	91.2



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
105.7	72.4	-36.6	190.9



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
34.0	184.8	-78.7	67.0

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

Test Date: 10/3/07

ATD Serial No.: 034

Test I.D.: LK10E , RK10E

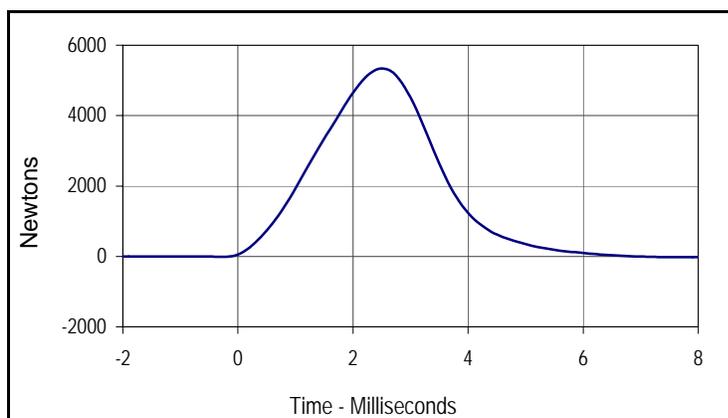


**Left Knee**

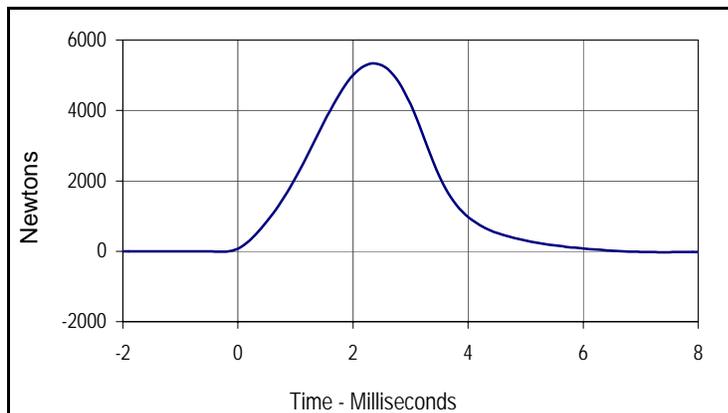
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	Newtons	4715 to 5782	5341	Pass
Overall Test Results				Pass

**Right Knee**

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	Newtons	4715 to 5782	5335	Pass
Overall Test Results				Pass



Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5341.5	2.5	-24.4	9.5



Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
5335.1	2.4	-26.7	7.4

Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 10/3/07

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	884	Pass
B - Shoulder pivot height	mm	505 to 521	510	Pass
C - "H" point height	mm	84 to 89	88	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	147	Pass
G - Elbow back to wrist pivot	mm	290 to 305	296	Pass
H - Skull cap to back line	mm	41 to 46	45	Pass
I - Shoulder to elbow length	mm	330 to 345	336	Pass
J - Elbow rest height	mm	190 to 211	197	Pass
K - Buttock to knee length	mm	579 to 604	581	Pass
L - Popliteal length	mm	429 to 455	439	Pass
M - Knee pivot height	mm	485 to 500	492	Pass
N - Buttock popliteal length	mm	452 to 477	470	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	424	Pass
W - Foot breadth	mm	91 to 107	100	Pass
Y - Chest circumference	mm	970 to 1001	982	Pass
Z - Waist circumference	mm	836 to 866	841	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: Dummy Damage Checklist  
 ATD Serial No.: 035

Test Date: 10/3/07  
 Test I.D.: N/A



<b>GENERAL</b>	DAMAGED	OK
Outer skin on entire dummy		X
Head ballast secure		X
Gashes, rips, general appearance, etc.		X
Neck-Broken or cracks in rubber		X
Check that upper neck bracket is firmly attached to lwr neck bracket		X
Three rubber bumpers in place		X
Spine- Broken or cracks in rubber		X
Check for looseness at the condyle joint		X
Nodding blocks- cracked or out of position		X
Ribs- Check all ribs and rib supports for damage (bent or broken)		X
Check damping material or separation or cracks		X
<b>OTHER</b>		
<b>CHEST DISPLACEMENT ASSEMBLY</b>		
Bent shaft		X
Slider arm riding correctly, in track		X
<b>TRANSDUCER LEADS</b>		
Torn cables		X
<b>ACCELEROMETER MOUNTINGS</b>		
Check for secure mounting		X
<b>KNEES</b>		
Check outer skin, insert and casting (without removing insert)		X
Knee sliders - Wires intact		X
Knee sliders- Rubber returned to "at rest position"		X
<b>LIMBS</b>		
Check for normal movement and adjustment		X
<b>PELVIS</b>		
Inspect for breakage, especially at iliac crest		X

Comments on repair or replacement parts:

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Test Program: Dummy Damage Checklist  
 ATD Serial No.: 034

Test Date: 10/3/07  
 Test I.D.: N/A



<b>GENERAL</b>	DAMAGED	OK
Outer skin on entire dummy		X
Head ballast secure		X
Gashes, rips, general appearance, etc.		X
Neck-Broken or cracks in rubber		X
Check that upper neck bracket is firmly attached to lwr neck bracket		X
Three rubber bumpers in place		X
Spine- Broken or cracks in rubber		X
Check for looseness at the condyle joint		X
Nodding blocks- cracked or out of position		X
Ribs- Check all ribs and rib supports for damage (bent or broken)		X
Check damping material or separation or cracks		X
<b>OTHER</b>		
<b>CHEST DISPLACEMENT ASSEMBLY</b>		
Bent shaft		X
Slider arm riding correctly, in track		X
<b>TRANSDUCER LEADS</b>		
Torn cables		X
<b>ACCELEROMETER MOUNTINGS</b>		
Check for secure mounting		X
<b>KNEES</b>		
Check outer skin, insert and casting (without removing insert)		X
Knee sliders - Wires intact		X
Knee sliders- Rubber returned to "at rest position"		X
<b>LIMBS</b>		
Check for normal movement and adjustment		X
<b>PELVIS</b>		
Inspect for breakage, especially at iliac crest		X

Comments on repair or replacement parts:

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