

REPORT NUMBER: NCAP-KAR-13-040

**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

**TOYOTA MOTOR CORPORATION
2013 TOYOTA PRIUS V 5-DOOR STATION WAGON**

NHTSA NUMBER: MD5112

**PREPARED BY:
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9270 HOLLY ROAD
ADELANTO, CA 92301**



JANUARY 28, 2013

FINAL REPORT

**U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY PERFORMANCE STANDARDS
OFFICE OF CRASHWORTHINESS STANDARDS
1200 NEW JERSEY AVE, SE
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WASHINGTON, DC 20590**

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Date: 


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16. Abstract A 56.3 km/h NCAP Frontal Impact Test was conducted on a 2013 Toyota Prius V 5-door station wagon in accordance with the specifications of the Office of Crashworthiness Standards Frontal NCAP Laboratory Test Procedure. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and footwell intrusion performance. The test was conducted at the KARCO Engineering, LLC. facility in Adelanto, California on January 15, 2013. The impact velocity of the vehicle was 56.55 km/h and the ambient temperature at the barrier face at the time of impact was 10.2 deg. C. The target vehicle's post-test maximum crush was 405 mm at the vehicle's centerline. The test vehicle's performance is as follows: <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th colspan="2">Driver ATD</th> <th colspan="2">Passenger ATD</th> </tr> <tr> <th>Threshold</th> <th>Result</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₁₅)</td> <td>N/A</td> <td>700.0</td> <td>208.4</td> <td>700.0</td> <td>190.6</td> </tr> <tr> <td>Maximum Chest Compression</td> <td>mm</td> <td>63</td> <td>-21</td> <td>52</td> <td>-18</td> </tr> <tr> <td>Nij</td> <td>N/A</td> <td>1</td> <td>0.36</td> <td>1</td> <td>0.44</td> </tr> <tr> <td>Neck Tension</td> <td>N</td> <td>4170</td> <td>1810.9</td> <td>2620</td> <td>974.2</td> </tr> <tr> <td>Neck Compression</td> <td>N</td> <td>4000</td> <td>-113.9</td> <td>2520</td> <td>-254.7</td> </tr> <tr> <td>Left Femur Force</td> <td>N</td> <td>10008</td> <td>-2264.7</td> <td>6805</td> <td>-2499.0</td> </tr> <tr> <td>Right Femur Force</td> <td>N</td> <td>10008</td> <td>-2777.9</td> <td>6805</td> <td>-2440.2</td> </tr> </tbody> </table>				Measurement Description	Units	Driver ATD		Passenger ATD		Threshold	Result	Threshold	Result	Head Injury Criteria (HIC ₁₅)	N/A	700.0	208.4	700.0	190.6	Maximum Chest Compression	mm	63	-21	52	-18	Nij	N/A	1	0.36	1	0.44	Neck Tension	N	4170	1810.9	2620	974.2	Neck Compression	N	4000	-113.9	2520	-254.7	Left Femur Force	N	10008	-2264.7	6805	-2499.0	Right Femur Force	N	10008	-2777.9	6805	-2440.2
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SECTION 1

PURPOSE AND SUMMARY OF TEST

PURPOSE

This 56.3 km/h frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program, sponsored by the National Highway Traffic Safety Administration (NHTSA) under contract number DTNH22-12-D-00259. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for consumer information purposes.

The 56.3 km/h frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Frontal NCAP Laboratory Test Procedure, dated September 2012.

SUMMARY

A load cell barrier consisting of 36 load cells was impacted by a 2013 Toyota Prius V 5-door station wagon at a velocity of 56.55 km/h. The test was performed at KARCO Engineering, LLC, on January 15, 2013. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A of this report.

Three (3) real-time cameras and sixteen (16) 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 6 of this report.

One Part 572E 50th percentile male anthropomorphic test device (ATD) was placed in the driver seating position and one Part 572O 5th percentile female ATD was placed in the right-front passenger seating position according to dummy placement instructions specified in the Frontal NCAP Laboratory Test Procedure.

Both ATDs were fully instrumented with head, chest and pelvic tri-axial accelerometers, chest displacement potentiometers, upper neck force transducers, right / left femur load cells, and lower leg instrumentation. Seat belt load cells were placed on the driver and passenger's lap belts to measure the dummy pelvic section loading. The driver (position 1) ATD (Serial No. 035) and the right-front passenger (position 2) ATD (Serial No. 141) were calibrated prior to this test. Certification details, along with instrumentation calibration data, are found in Appendix C of this report.

The 146 channels of data were recorded on an on-board data acquisition system. Appendix B contains the dummy response data traces.

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

The maximum static crush of the test vehicle was 405 mm located at the vehicle's centerline. Both the driver and passenger side doors remained closed during the impact event and were operable after the impact.

The driver's visible contact points were as follows: The driver ATD's head contacted the airbag and the headrest. The upper torso contacted the airbag. Both the left and right knees contacted the knee airbag.

The passenger's visible contact points were as follows: The passenger ATD's head contacted the airbag and the headrest. The upper torso contacted the airbag. Both the left and right knees contacted the glovebox.

The occupant data is summarized below:

ATD Position	HIC ₁₅	T ¹	T ²	Chest Disp. (mm)	Nij	Neck Tension (N)	Neck Comp. (N)	Left Femur (N)	Right Femur (N)
Driver (50th)	208.4	62.1	77.1	-21	0.36	1810.9	-113.9	-2264.7	-2777.9
Passenger (5th)	190.6	61.7	76.7	-18	0.44	974.2	-254.7	-2499.0	-2440.2

SECTION 2
DATA SHEETS

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon NHTSA No.: MD5112
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/15/13

CONVERSION FACTORS

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

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon NHTSA No.: MD5112
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/15/13

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	MD5112
Model Year	2013
Make	Toyota
Model	Prius V
Body Style	5-Door Station Wagon
VIN	JTDZN3EUXD3194322
Body Color	Classic Silver Metallic
Odometer Reading (km / mi)	34 / 21
Engine Displacement (L)	1.8
Type / No. of Cylinders	Inline 4
Engine Placement	Transverse
Transmission Type	Automatic
Transmission Speeds	1
Overdrive	Yes
Final Drive	Front
Roof Rack	No
Sunroof / T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes
Automatic Door Locks (ADLs)	Yes

Traction Control System	Yes
Power Steering	Yes
Power Window Auto-Reverse	Yes
Driver Frontal Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	Yes
Front Pass. Frontal Airbag	Yes
Front Pass. Curtain Airbag	Yes
Front Pass. Head/Torso Airbag	No
Front Pass. Torso Airbag	No
Front Pass. Torso/Pelvis Airbag	Yes
Front Pass. Pelvis Airbag	No
Front Pass. Knee Airbag	No
Driver Seat Belt Pretensioner	Yes
Driver Load Limiter	Yes
Front Pass. Seat Belt Pretensioner	Yes
Front Pass. Load Limiter	Yes
Other	None

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

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Toyota Motor Corporation
Date of Manufacture	Oct-12

GVWR (kg)	1963.7
GAWR Front (kg)	1040.8
GAWR Rear (kg)	1040.8

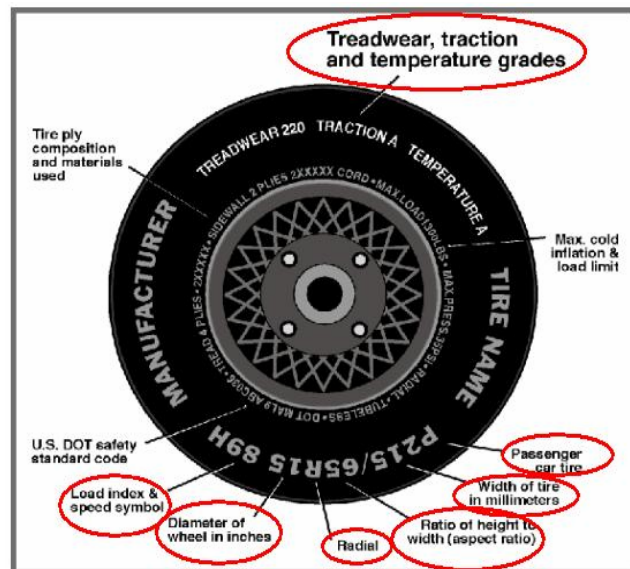
VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total	
Type of Seats	Bucket	Split Bench			
Designated Seating Capacity	2	3		5	
Capacity Weight (VCW) (kg)				410.0	A
DSC x 68.04 (kg)				340.2	B
Cargo Weight (RCLW) (kg)				69.8	A-B

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2013 Toyota Prius V 5-Door Station Wagon	NHTSA No.:	MD5112
Test Program:	56 km/h Frontal Impact NCAP Test	Test Date:	1/15/13



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	240	230
Recommended Tire Size	P205/60R16	P205/60R16
Tire Size on Vehicle	P205/60R16	P205/60R16
Tire Manufacturer	Bridgestone	Bridgestone
Tire Model	Turanza EL400	Turanza EL400
Treadwear	260	260
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Nylon	1 Polyester, 2 Steel, 1 Nylon
Load Index / Speed Symbol	91V	91V
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon
DOT Safety Code Left	EL 20 5DK 4112	EL 20 5DK 4112
DOT Safety Code Right	EL 20 5DK 4112	EL 20 5DK 4112

DATA SHEET NO. 1 ... (CONTINUED)**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon NHTSA No.: MD5112
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/15/13

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	456.0	320.5		490.0	409.0	
Right	kg	430.0	300.0		442.5	367.0	
Ratio	%	58.8%	41.2%	100.0%	54.6%	45.4%	100.0%
Total	kg	886.0	620.5	1506.5	932.5	776.0	1708.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1506.5	A
Weight of 1 P572E ATD & 1 P572O ATD	kg	141.0	B
Rated Cargo/Luggage Weight (RCLW)	kg	69.8	C
Calculated Vehicle Target Weight (TVTW)	kg	1717.3	A+B+C

TEST VEHICLE ATTITUDES

Condition	Units	LF	RF	LR	RR	CG Aft of Front Axle
As Delivered	mm	696	703	705	706	1147
As Tested	mm	688	695	671	683	1265
Post-Test	mm	660	673	675	684	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	2785
Total Vehicle Length at Left Side	mm	3897
Total Vehicle Length at Centerline	mm	4625
Total Vehicle Length at Right Side	mm	3907
Weight of Ballast in Cargo Area	kg	103.9
Weight of Vehicle Components Removed	kg	33.5
Amount of Stoddard Solvent in Fuel Tank	L	41.85

VEHICLE COMPONENTS REMOVED TO MEET TEST WEIGHT:

Trunk Trim and Plastic (17.0 kg), Spare Tire and Tools (14.5 kg), Hub Caps (2.0 kg)

DATA SHEET NO. 1 ... (CONTINUED)**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon NHTSA No.: MD5112
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/15/13

TARGET VEHICLE STRUCTURAL MEASUREMENTS

No.	Description	Pre-Test
1	Total Length	4625
2	Total Width	1770
3	Bumper Top Height	500
4	Bumper Bottom Height	235
5	Longitudinal Member Top Height	560
6	Distance Between Longitudinal Members	970
7	Longitudinal Member Width	75
8	Engine Top Height	880
9	Engine Bottom Height	183
10	Engine and Gearbox Width	540
11	Front Bumper to Engine Distance	455
12	Front Shock Absorber Fixing Height	865
13	Bonnet Leading Edge Height	815
14	Front Shock Absorber Fixing Width	1160
15	Front Bumper to Front Axle Distance	930
16	Front Axle to A-Pillar Distance	465
17	A-Pillar to B-Pillar Distance	950
18	B-Pillar to Rear Axle Distance	1260
19	B-Pillar to C-Pillar Distance	1050
20	Roof Sill Bottom Height	1427
21	Roof Sill Top Height	1542
22	Floor Sill Bottom Height	175
23	Floor Sill Top Height	315

All measurements in millimeters.

DATA SHEET NO. 2

SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon

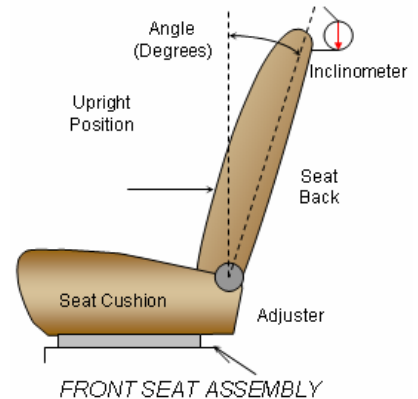
NHTSA No.: MD5112

Test Program: 56 km/h Frontal Impact NCAP Test

Test Date: 1/15/13

NOMINAL DESIGN RIDING POSITION

The procedure for the driver is as follows: the seat back is set to the manufacturer's designated angle. The procedure for the passenger is as follows: the seat back is set to position the transverse instrumentation platform of the dummy's head at $0^\circ \pm 0.5^\circ$. Seat back angle is measured at the headrest post using a digital inclinometer.

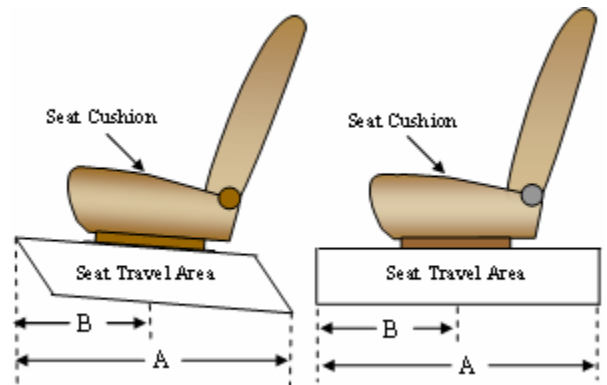


SEAT BACK ANGLE

Seating Position	Degrees
Driver Seat Back Angle	2.7
Passenger Seat Back Angle	4.6

SEAT FORE / AFT POSITIONING

The total seat travel is measured from the forward most possible position to the rear most possible position. The driver's seat is set to the middle of the fore-aft travel. The passenger's seat is set to the forward most position where the ATD will not contact any interior panels.



SEAT FORE/AFT POSITIONS

Seating Position	Total Fore-Aft Travel	Placed in Position
Driver Seat	314 mm	165 mm
Passenger Seat	260 mm	0 mm

SEAT BELT UPPER ANCHORAGE

The seat belt upper anchorage is positioned to the manufacturer's design position for a 50th percentile adult male ATD for the driver, and a 5th percentile adult female ATD for the passenger. Position "H" is the uppermost position, followed by position "M1". Position "L" is the lowermost position.

SEAT BELT UPPER ANCHORAGES

Seating Position	Total No. of Positions	Placed in Position
Driver Seat	4	H
Passenger Seat	4	H

DATA SHEET NO. 2 ... (CONTINUED)

SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon

NHTSA No.: MD5112

Test Program: 56 km/h Frontal Impact NCAP Test

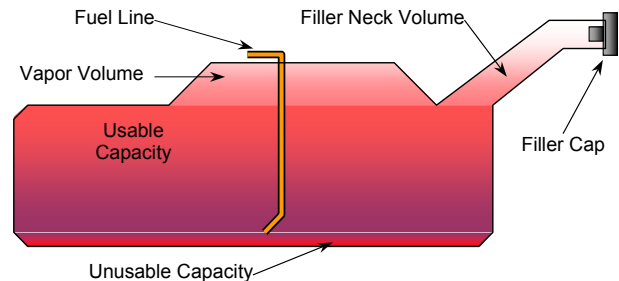
Test Date: 1/15/13

FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank"	45.00
Usable Capacity of "Optional Tank"	
92 - 94% of Usable Capacity	41.40 to 42.30
Actual Amount of Stoddard Solvent Used	41.85
1/3 of Usable Capacity	15.00

FUEL PUMP

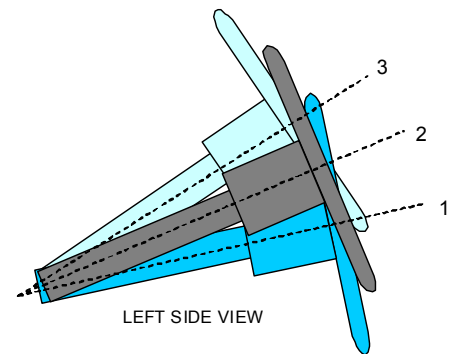
The vehicle is equipped with an electric fuel pump. The fuel pump is activated when the ignition is set to the "On" position.



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. A digital inclinometer is used to measure a plate which is placed across the rim of the steering wheel for angular measurements. A tape measure is used to measure telescoping steering wheel travel.



STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONING

	Degrees	Fore-Aft Position (mm)
Lowermost Position, No. 1	23.5	120
Geometric Center Position, No. 2	25.0	140
Uppermost Position, No. 3	26.5	159
Telescoping Steering Wheel Travel		39
Test Position	25.0	140

DATA SHEET NO. 3

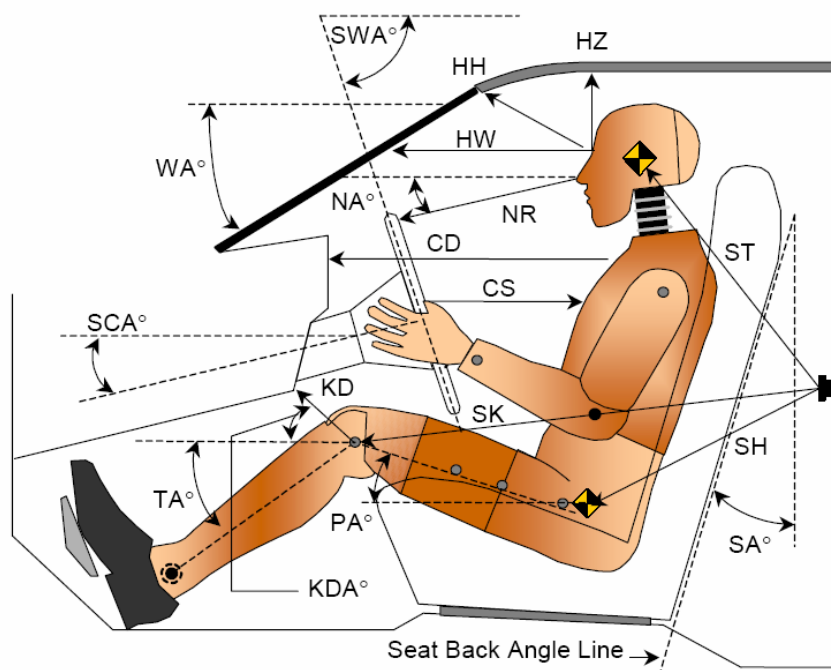
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon

NHTSA No.: MD5112

Test Program: 56 km/h Frontal Impact NCAP Test

Test Date: 1/15/13



LEFT SIDE VIEW

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA°	Windshield Angle		21.8		
SWA°	Steering Wheel Angle		65.0		
SCA°	Steering Column Angle		25.0		
SA°	Seat Back Angle (On Headrest Post)		2.7		2.7
HZ	Head to Roof	198	90.0	212	90.0
HH	Head to Header	349	25.0	302	42.4
HW	Head to Windshield	668	0.0	674	0.0
NR	Nose to Rim	388	16.0	374	13.0
CD	Chest to Dash	610	5.2	377	12.0
CS	Chest to Steering Hub	306	0.0		
RA	Rim to Abdomen	205	0.0		
KDL	Left Knee to Dash	172	24.5	72	44.1
KDR	Right Knee to Dash	143	39.4	73	47.3
PA°	Pelvic Angle		23.1		20.3
TA°	Tibia Angle		48.0		59.5
SK	Striker to Knee	590	6.4	685	5.5
ST	Striker to Head	485	77.3	457	59.0
SH	Striker to H-Point	296	41.7	355	25.0

DATA SHEET NO. 4

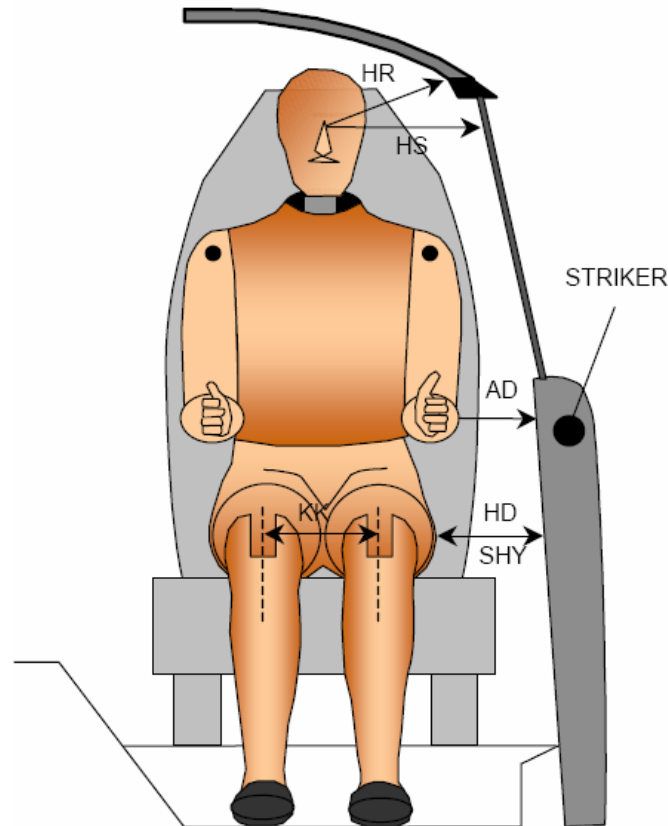
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon

NHTSA No.: MD5112

Test Program: 56 km/h Frontal Impact NCAP Test

Test Date: 1/15/13



Code	Description	Driver (mm)	Passenger (mm)
AD	Arm to Door	138	96
HD	H-Point to Door	135	180
HR	Head to Side Header	247	265
HS	Head to Side Window	330	351
KK	Knee to Knee	345	225
SHY	Striker to H-Point (Y-Direction)	241	262
AA	Ankle to Ankle	326	151

DATA SHEET NO. 5

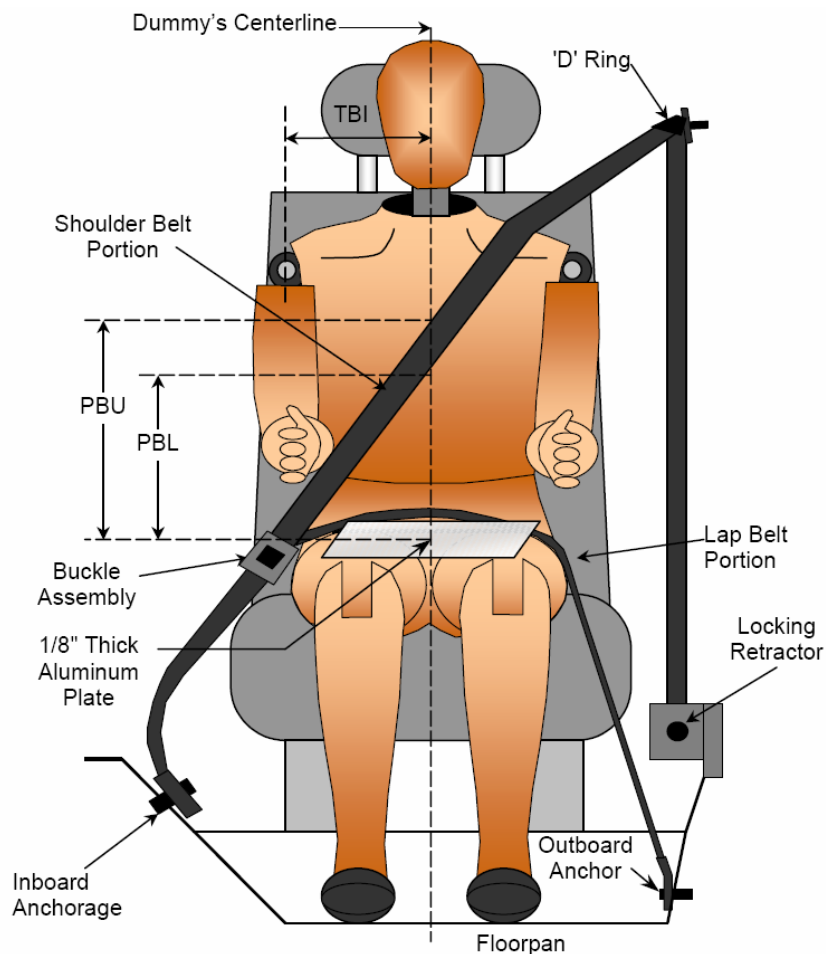
SEAT BELT POSITIONING DATA

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon

NHTSA No.: MD5112

Test Program: 56 km/h Frontal Impact NCAP Test

Test Date: 1/15/13



FRONT VIEW OF DUMMY

SEAT BELT POSITIONING MEASUREMENTS

Code	Measurement Description	Units	Driver	Passenger
PBU	Top Surface of Aluminum Plate to Belt Upper Edge	mm	395	355
PBL	Top Surface of Aluminum Plate to Belt Lower Edge	mm	314	265

BELT LENGTH DATA

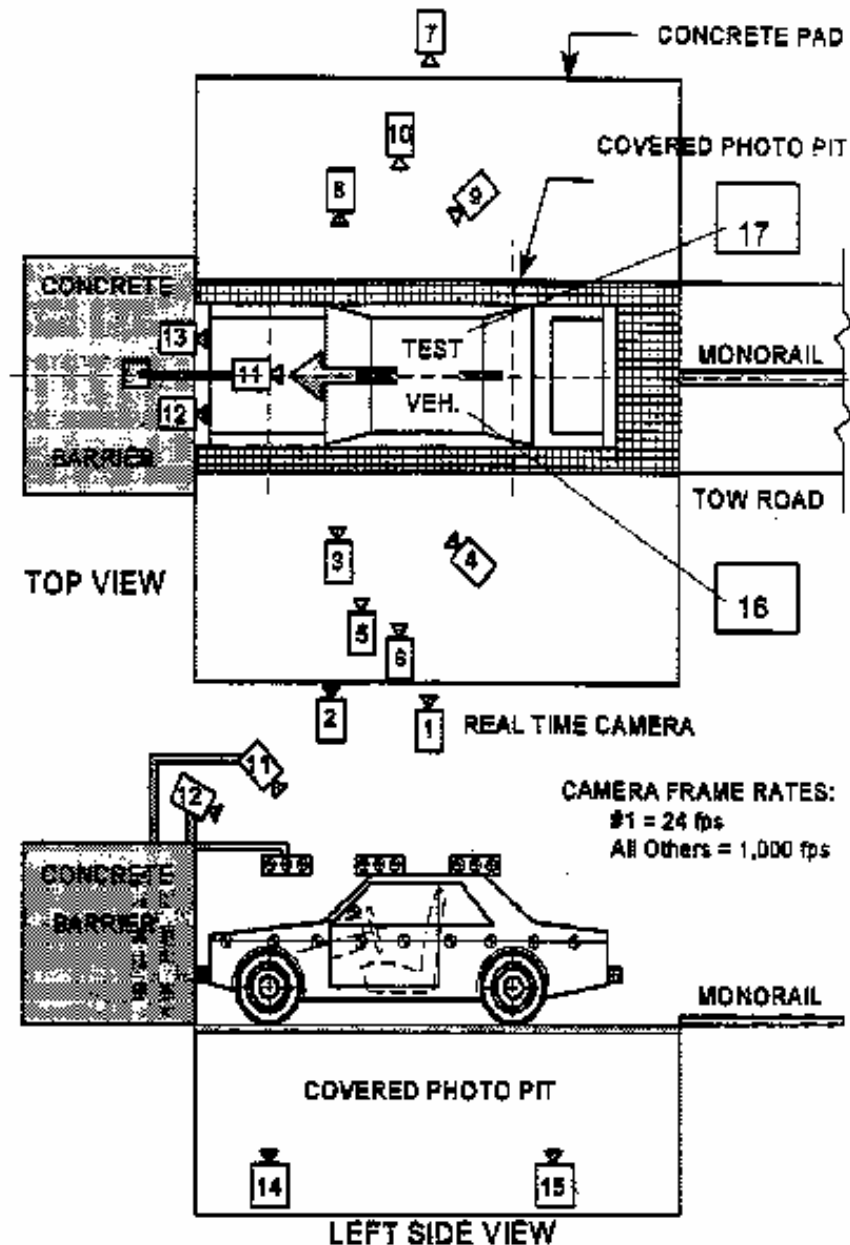
Measurement Description	Units	Driver	Passenger
Shoulder Belt Length as Measured on ATD	mm	922	969
Lap Belt Length as Measured on ATD	mm	890	987
Remainder of Belt on Reel	mm	779	629
Total Belt Length for Continuous Webbing Systems	mm	2591	2585

DATA SHEET NO. 6

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon NHTSA No.: MD5112
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/15/13

CAMERA POSITIONS FOR FRONTAL IMPACTS



DATA SHEET NO. 6 ... (CONTINUED)

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon NHTSA No.: MD5112
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/15/13

CAMERA LOCATIONS

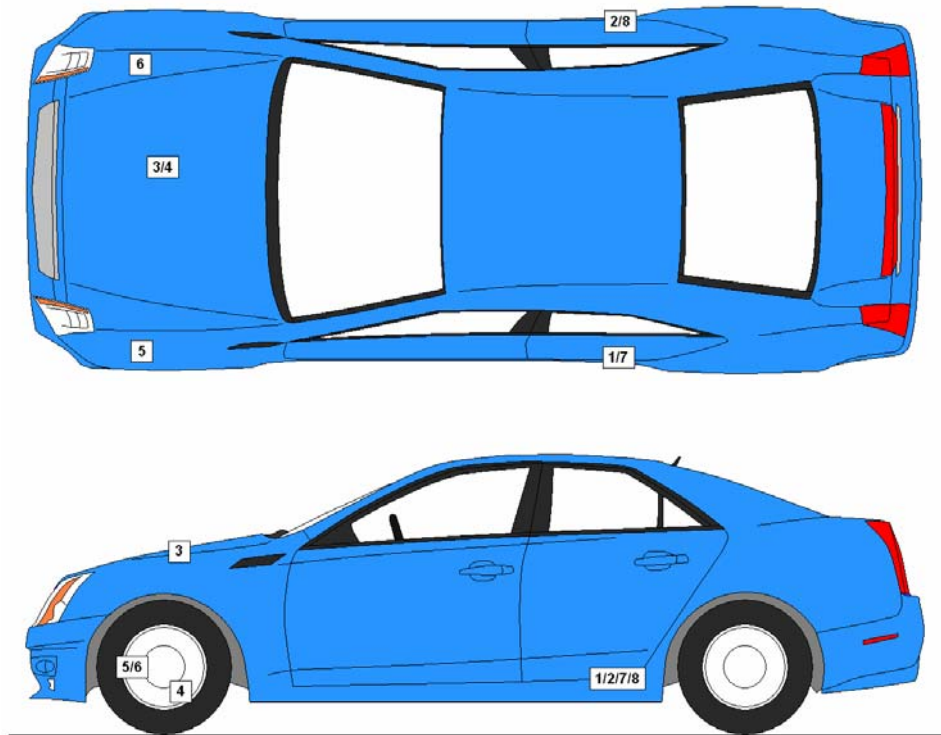
No.	Description	Location (mm)			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-Time Left Overall	-11412	-8150	-1484		30
2	Driver Close-Up	-2590	-7950	-1371	24	1000
3	Left Front Half	-1701	-6197	-1701	50	1000
4	Left Angle	-6696	-10308	-3211	ZOOM	1000
5	Steering Column - Top	-1966	-10412	-3688	50	1000
6	Steering Column - Bottom	-1972	-10412	-3379	50	1000
7	Right Overall	-2336	7569	-1012	24	1000
8	Passenger Close-Up	-1733	7581	-1408	50	1000
9	Right Front Half	-1600	8214	-1811	ZOOM	1000
10	Right Angle	-6217	9516	-4830	ZOOM	1000
11	Windshield	-354	0	-5749	12	1000
12	Driver Windshield	297	-366	-2460	12	1000
13	Passenger Windshield	297	366	-2460	24	1000
14	Pit Front	-756	0	1495	12	1000
15	Pit Rear	-3398	0	1495	8	1000
16	Onboard Driver Airbag (Optional)	-1545	850	-1495	12	1000
17	Onboard Passenger Airbag (Optional)	-1545	-850	-1495	12	1000
18	Real-Time Left View of Impact					
19	Real-Time Right View of Impact					

Coordinates: +X = forward impact plane
 +Y = right of monorail center
 +Z = into ground

DATA SHEET NO. 7

VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon NHTSA No.: MD5112
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/15/13



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Description	Location		
		X	Y	Z
1	Left Rear Accelerometer X-Direction	1667	-710	-359
2	Right Rear Accelerometer X-Direction	1667	710	-359
3	Engine Top X	3883	93	-815
4	Engine Bottom X	3931	248	-180
5	Left Rear Accelerometer Z-Direction	1667	-710	-359
6	Right Rear Accelerometer Z-Direction	1667	710	-359

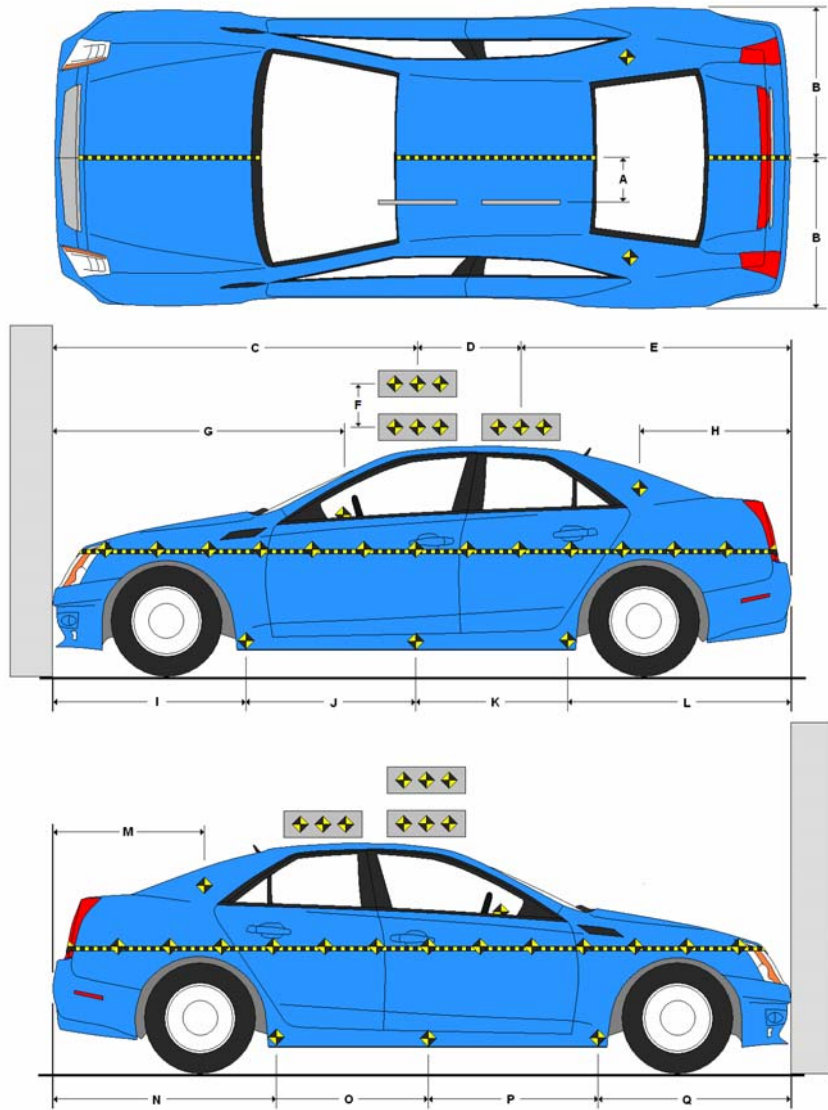
Reference Points: X – Rear Surface of Vehicle (+ forward)
Y – Vehicle Centerline (+ to right)
Z – Ground Plane (+ down)

DATA SHEET NO. 8

PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon NHTSA No.: MD5112
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/15/13

Item	Value
A	
B	885
C	2120
D	610
E	1905
F	305
G	1710
H	460
I	1385
J	955
K	955
L	1333
M	460
N	1333
O	957
P	957
Q	1370



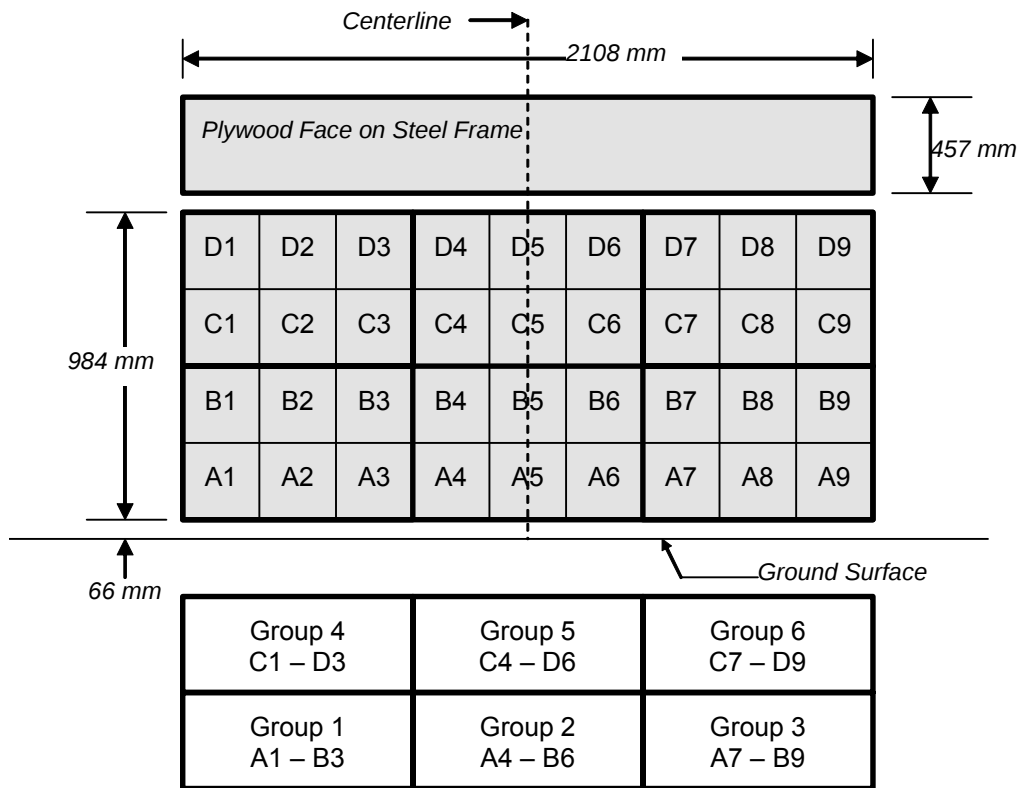
All measurements in millimeters.

DATA SHEET NO. 9

LOAD CELL LOCATIONS ON FIXED BARRIER

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon NHTSA No.: MD5112
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/15/13

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



6 Groups of 6 Load Cells Each

DATA SHEET NO. 10

TEST VEHICLE CAMERA AND INSTRUMENTATION SUMMARY

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon NHTSA No.: MD5112
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/15/13

INSTRUMENTATION

Driver Dummy Accelerometers	50
Passenger Dummy Accelerometers	50
Vehicle Structure Accelerometers	8
Seat Belt Load Cells	2
Load Cell Barrier	36
Total	146

CAMERA COVERAGE

High-Speed Vehicle On Board	2
High-Speed Off board	14
Real Time	3
Total	19

DATA SHEET NO. 11

POST-TEST OBSERVATIONS

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon NHTSA No.: MD5112
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/15/13

TEST DUMMY INFORMATION AND CONTACT

Description	Driver	Passenger
Dummy Type/Serial No.	P572E 50th Percentile Male ATD / 035	P572O 5th Percentile Female ATD / 141
Head Contact	Airbag, Headrest	Airbag, Headrest
Upper Torso Contact	Airbag	Airbag
Lower Torso Contact	None	None
Left Knee Contact	Knee Airbag	Glovebox
Right Knee Contact	Knee Airbag	Glovebox

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Locked / Unlocked Doors	Unlocked	Unlocked
Front Door Opening	Remained closed and latched, operational	Remained closed and latched, operational
Rear Door Opening	Remained closed and latched, operational	Remained closed and latched, operational
Seat Track Shift (mm)	6	-3
Seat Back Failure	None	None
Glazing Damage	None	None

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Windshield Damage	Broken
Window Damage	None
Other Notable Effects	None

VEHICLE REBOUND FROM BARRIER

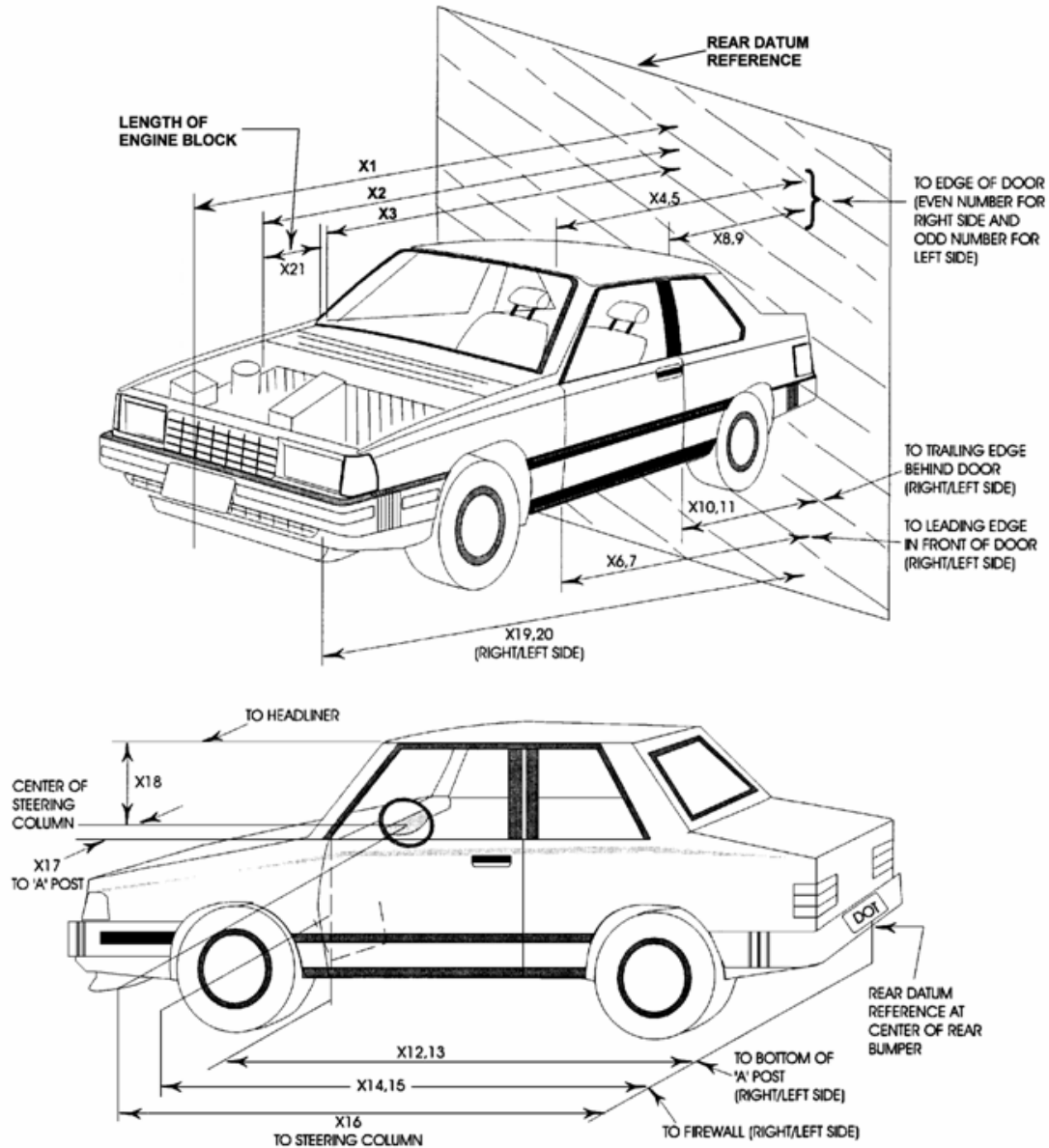
Measured Parameter	Units	Value
Left Side	mm	2402
Center	mm	2348
Right Side	mm	2456
Average	mm	2402

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Driver		Passenger	
	Installed	Operated	Installed	Operated
Front Airbag	Yes	Yes	Yes	Yes
Side Airbag 1 (Curtain)	Yes	No	Yes	No
Side Airbag 2 (Torso/Pelvis)	Yes	No	Yes	No
Knee Airbag	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes

DATA SHEET NO. 12
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon NHTSA No.: MD5112
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/15/13

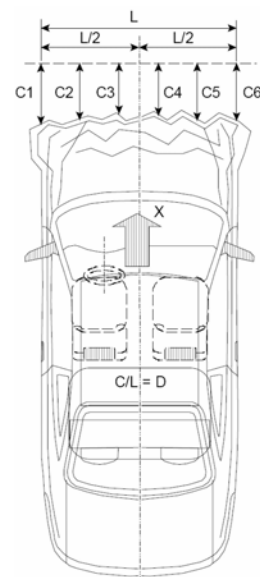


DATA SHEET NO. 12 ... (CONTINUED)**VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon NHTSA No.: MD5112
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/15/13

No.	Description	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	4625	4220	-405
2	Rear Surface of Vehicle to Front of Engine	4170	3935	-235
3	RSOV to Firewall	3475	3435	-40
4	RSOV to Upper Leading Edge of Right Door	3234	3254	20
5	RSOV to Upper Leading Edge of Left Door	3230	3240	10
6	RSOV to Lower Leading Edge of Right Door	3214	3217	3
7	RSOV to Lower Leading Edge of Left Door	3215	3220	5
8	RSOV to Upper Trailing Edge of Right Door	2155	2178	23
9	RSOV to Upper Trailing Edge of Left Door	2147	2161	14
10	RSOV to Lower Trailing Edge of Right Door	2171	2175	4
11	RSOV to Lower Trailing Edge of Left Door	2170	2175	5
12	RSOV to Bottom of A-Pillar, Right Side	3076	3086	10
13	RSOV to Bottom of A-Pillar, Left Side	3083	3096	13
14	RSOV to Firewall, Right Side	3585	3525	-60
15	RSOV to Firewall, Left Side	3460	3515	55
16	RSOV to Steering Column	2750	2835	85
17	Center of Steering Column to A-Pillar	420	430	10
18	Center of Steering Column to Headliner	415	420	5
19	RSOV to Right Side of Front Bumper	3907	3870	-37
20	RSOV to Left Side of Front Bumper	3897	3760	-137
21	Length of Engine Block	560	560	0
RD	RSOV to Right Side of Dash Panel	2930	2165	-765
CD	RSOV to Center of Dash Panel	2830	2821	-9
LD	RSOV to Left Side of Dash Panel	2930	2950	20

All measurements in millimeters.

DATA SHEET NO. 13**ACCIDENT INVESTIGATION DATA**Test Vehicle: 2013 Toyota Prius V 5-Door Station WagonNHTSA No.: MD5112Test Program: 56 km/h Frontal Impact NCAP TestTest Date: 1/15/13**VEHICLE INFORMATION**VIN: JTDZN3EUXD3194322Wheelbase (mm): 2785Vehicle Size Category: 5-Door Station WagonTest Weight (kg): 1708.5**ACCELEROMETER DATA**Accelerometer Locations: Left Rear CrossmemberCal. Procedure/Interval: Drop Test / 6 monthsIntegration Algorithm: NHTSA StandardImpact Velocity (km/h): 56.55Velocity Change (km/h): 66.5Time of Separation (msec): 63.0Linearity: Good**CRUSH PROFILE**Collision Deformation Classification: 12FDEW2Midpoint of Damage: Vehicle CenterlineDamage Region Length (mm): 1526Impact Mode: Full Frontal

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush Zone 1 at Left Side	mm	250	492	242
C2	Crush Zone 2 at Left Side	mm	67	418	351
C3	Crush Zone 3 at Left Side	mm	26	400	374
C4	Crush Zone 4 at Right Side	mm	26	415	389
C5	Crush Zone 5 at Right Side	mm	62	455	393
C6	Crush Zone 6 at Right Side	mm	241	480	239
L	C1 to C6	mm	1526		

DATA SHEET NO. 14

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon

NHTSA No.: MD5112

Test Program: 56 km/h Frontal Impact NCAP Test

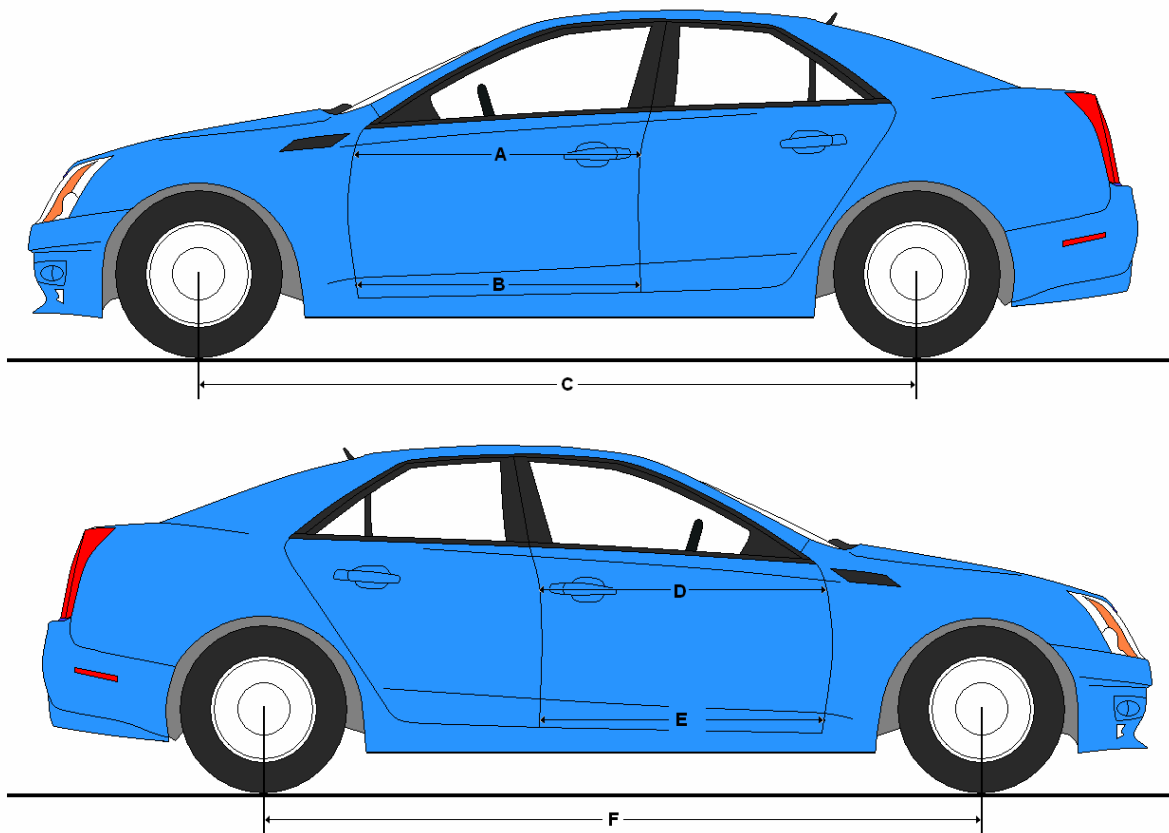
Test Date: 1/15/13

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	946	943	3
B	Left Side Lower	mm	882	878	4
D	Right Side Upper	mm	936	933	3
E	Right Side Lower	mm	868	871	-3

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2785	2695	90
F	Right Side Wheelbase	mm	2785	2785	0



DATA SHEET NO. 14 ... (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon

NHTSA No.: MD5112

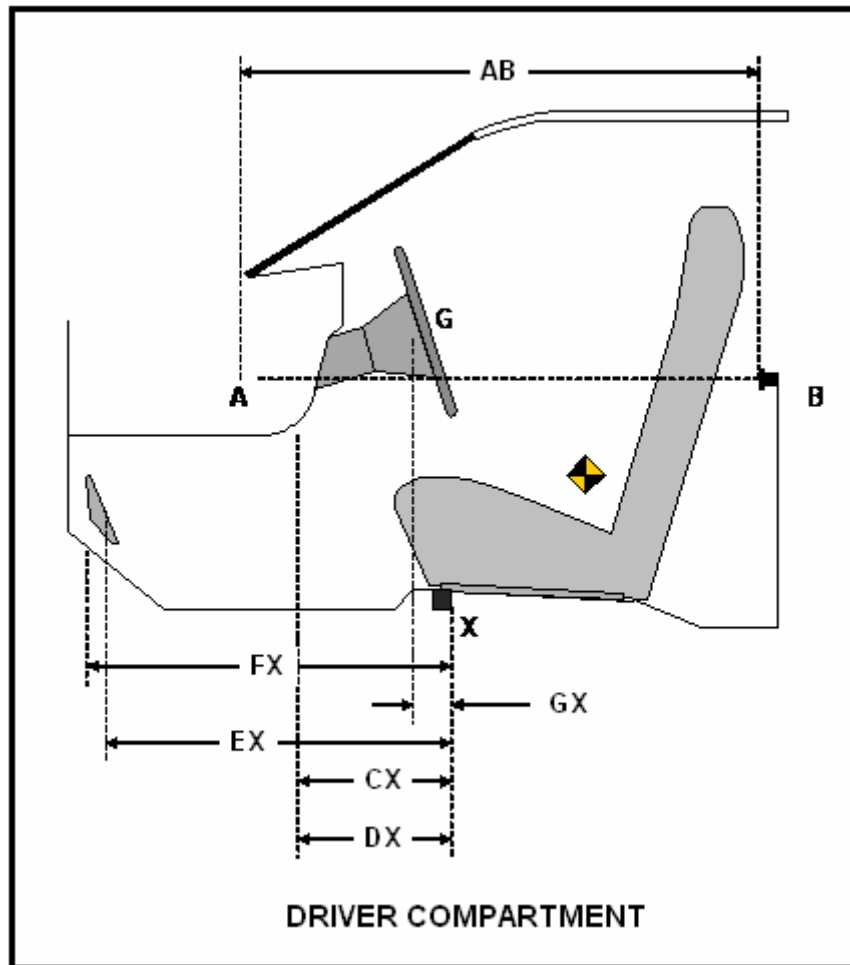
Test Program: 56 km/h Frontal Impact NCAP Test

Test Date: 1/15/13

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	816	814	2
CX	Left Knee Bolster to X	mm	325	380	-55
DX	Right Knee Bolster to X	mm	335	360	-25
EX	Brake Pedal to X	mm	525	520	5
FX	Foot Rest to X	mm	525	580	-55
GX	Center of Steering Wheel Hub to X	mm	60	145	-85

X = Front of Seat Track (Stationary)



DATA SHEET NO. 15

SUMMARY OF FMVSS 212 AND 219 (PARTIAL) DATA

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon NHTSA No.: MD5112

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/15/13

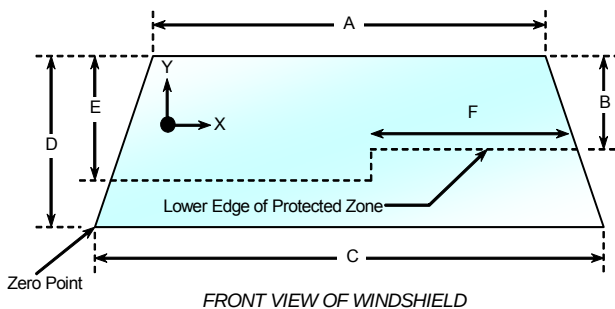
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with plastic molding and rubber cement.

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

Temperature of windshield molding during test: 21.2 °C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	2285	2285	100.0%
Right Side	2285	2285	100.0%
Total	4570	4570	100.0%



Item	Units	Value
A	mm	1214
B	mm	572
C	mm	1376
D	mm	990
E	mm	556
F	mm	375

AREAS OF PROTECTED ZONE FAILURES

- A. Provide Coordinates of the area that the protected zone was penetrated more than 0.25 inches 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. 15 ... (CONTINUED)

SUMMARY OF FMVSS 212 AND 219 (PARTIAL) DATA

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon NHTSA No.: MD5112
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/15/13

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 10.2° C Test Time: 1:40 PM

Stoddard Solvent Spillage Measurements

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

DATA SHEET NO. 16

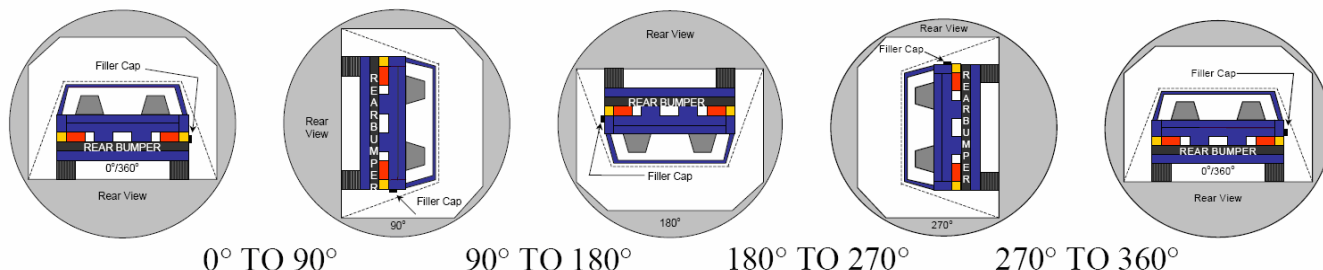
FMVSS 301 STATIC ROLLOVER

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon

NHTSA No.: MD5112

Test Program: 56 km/h Frontal Impact NCAP Test

Test Date: 1/15/13



1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard solvent spillage: There was no Stoddard solvent spillage.

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	85	300	385
90° To 180°	87	300	387
180° To 270°	86	300	386
270° To 360°	85	300	385

FMVSS 301 SPILLAGE TABLE

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

SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0° To 90°	
90° To 180°	
180° To 270°	
270° To 360°	

DATA SHEET NO. 17

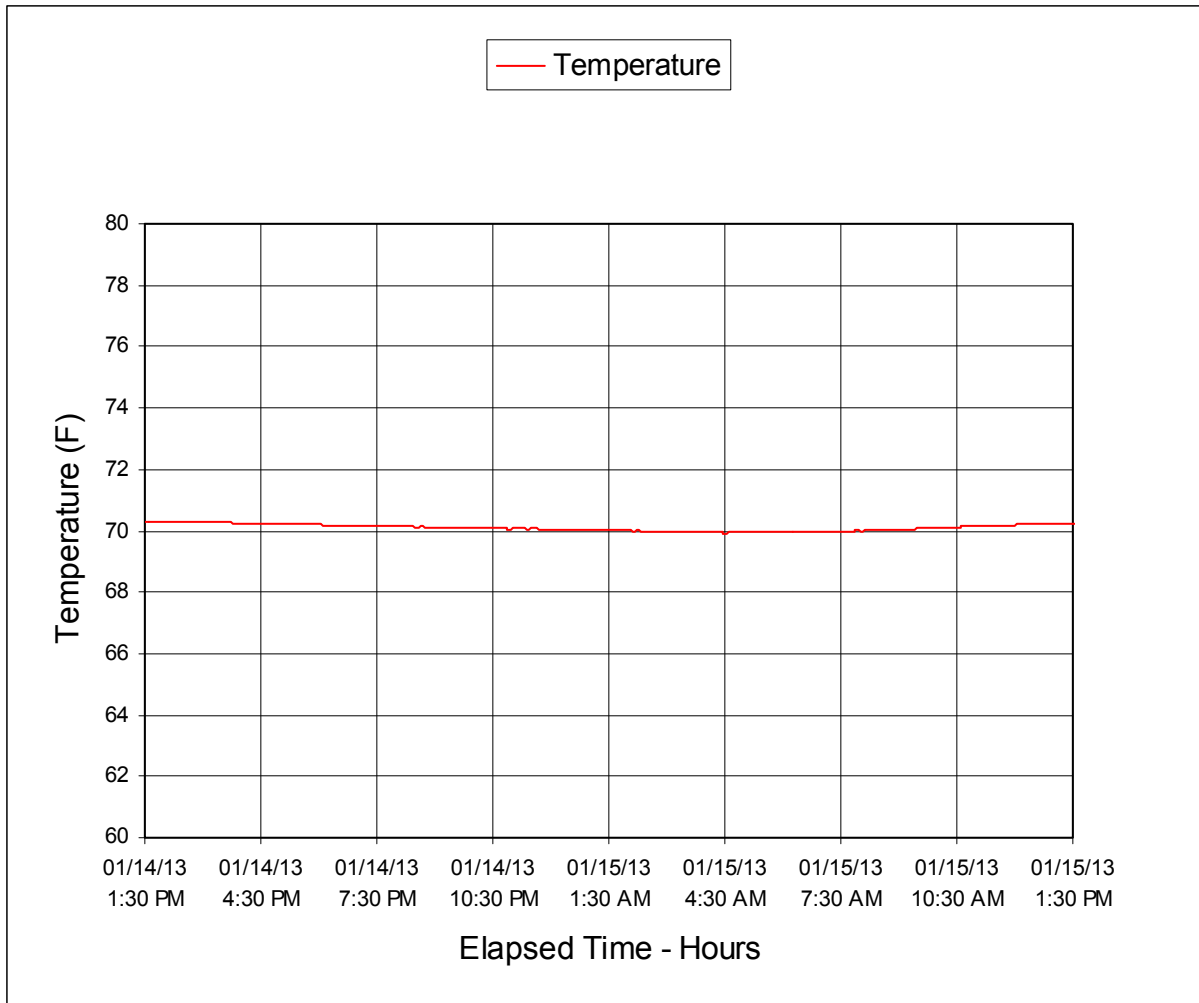
DUMMY / VEHICLE TEMPERATURE STABILIZATION CHART

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon

NHTSA No.: MD5112

Test Program: 56 km/h Frontal Impact NCAP Test

Test Date: 1/15/13



APPENDIX A
PHOTOGRAPHS

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FIGURE 1. Load Cell Location



FIGURE 2. Load Cell Wall



FIGURE 3. Manufacturer's Label



FIGURE 3a. Close-Up View of Vehicle's Reduced Load Carrying Capacity Label

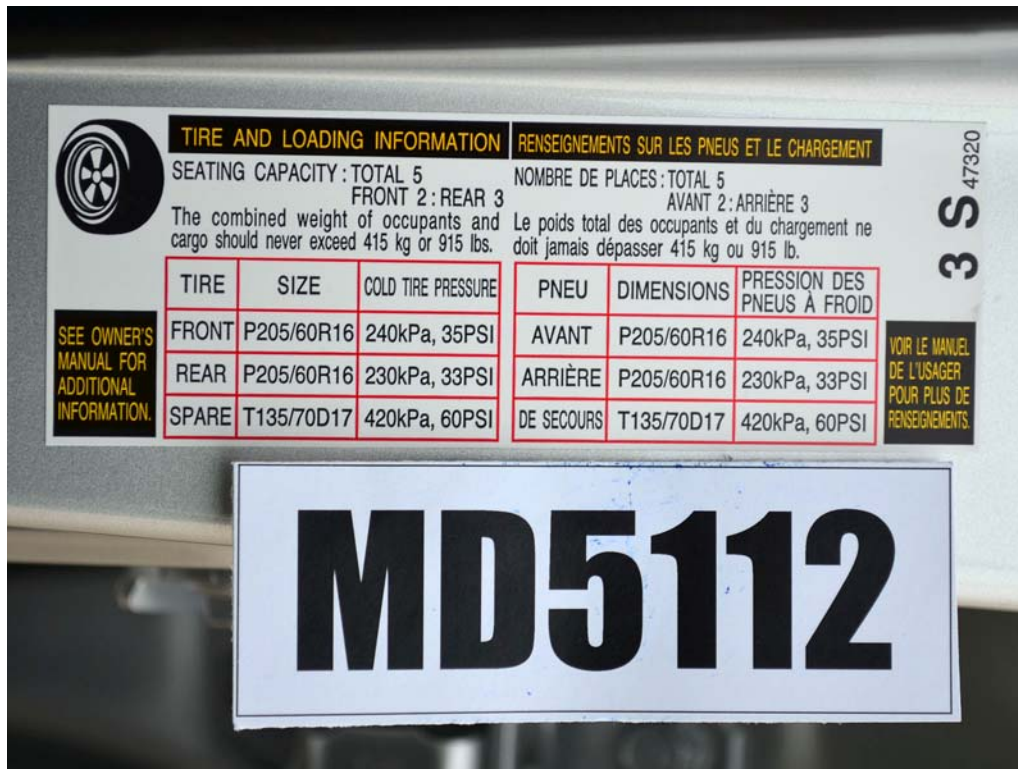


FIGURE 4. Tire Placard



FIGURE 5. 2013 Toyota Prius V Frontal As Delivered



FIGURE 6. Left Rear $\frac{3}{4}$ View, As Received

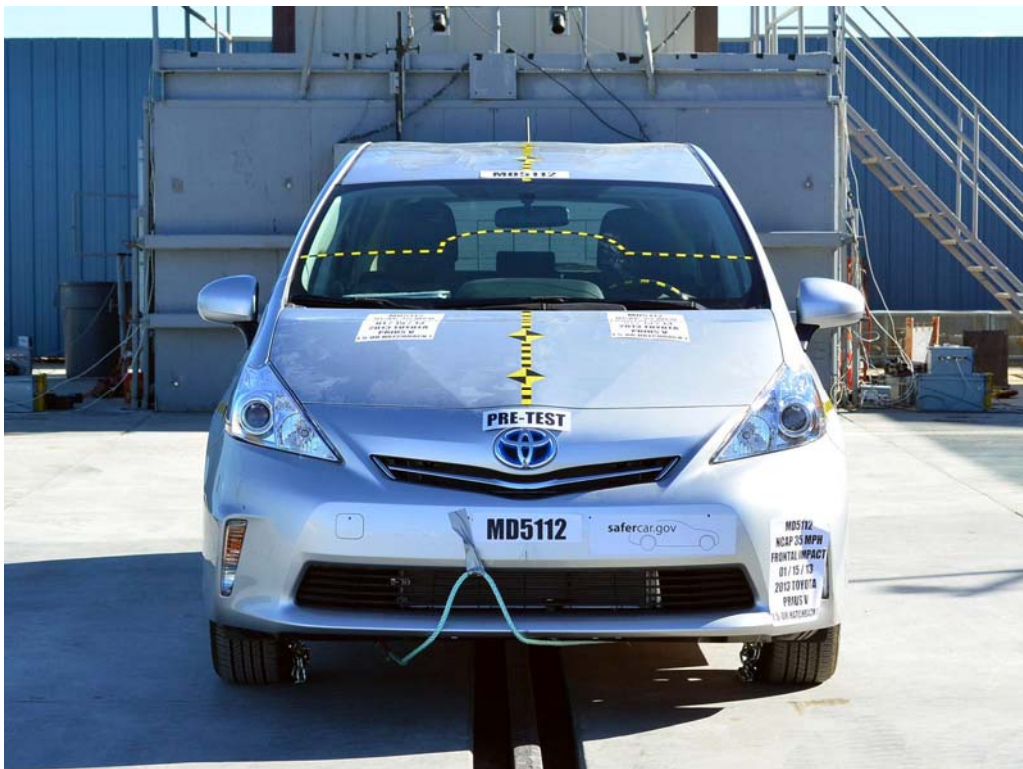


FIGURE 7. Pre-Test Front View of Test Vehicle

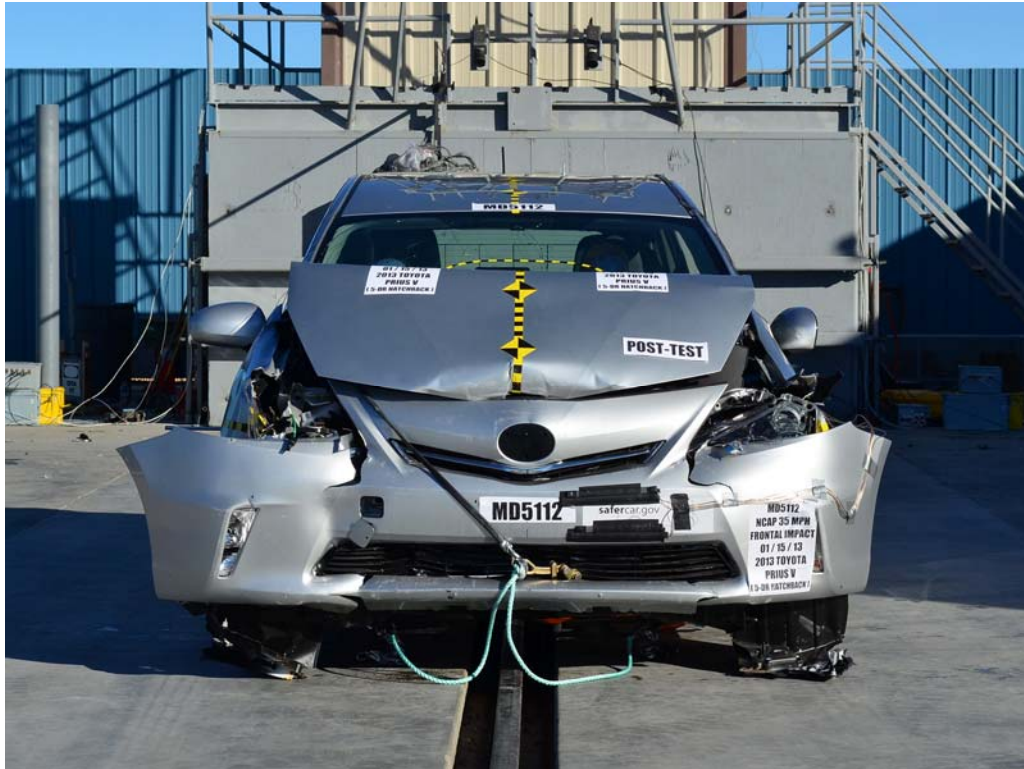


FIGURE 8. Post-Test Front View of Test Vehicle



FIGURE 9. Pre-Test Left View of Test Vehicle



FIGURE 10. Post-Test Left View of Test Vehicle



FIGURE 11. Pre-Test Right View of Test Vehicle



FIGURE 12. Post-Test Right View of Test Vehicle



FIGURE 13. Pre-Test Right Front ¾ View



FIGURE 14. Post-Test Right Front $\frac{3}{4}$ View



FIGURE 15. Pre-Test Left Rear $\frac{3}{4}$ View



FIGURE 16. Post-Test Left Rear $\frac{3}{4}$ View

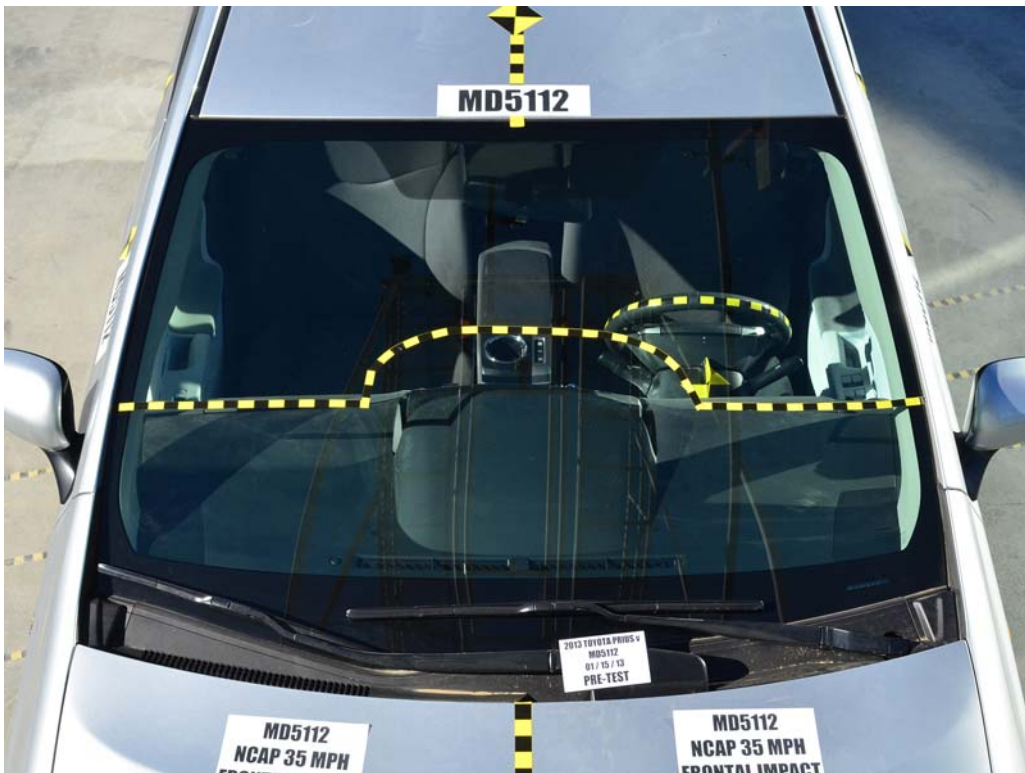


FIGURE 17. Pre-Test Windshield View



FIGURE 18. Post-Test Windshield View



FIGURE 19. Pre-Test Engine Compartment View



FIGURE 20. Post-Test Engine Compartment View

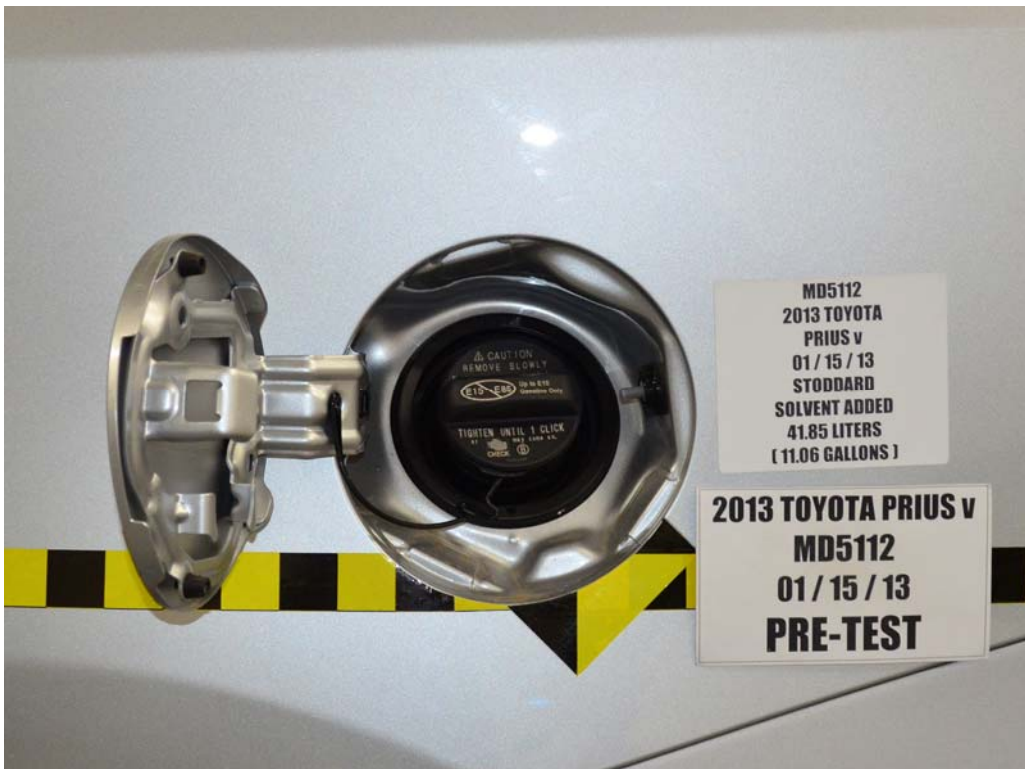


FIGURE 21. Pre-Test Fuel Filler Cap View



FIGURE 22. Post-Test Fuel Filler Cap View

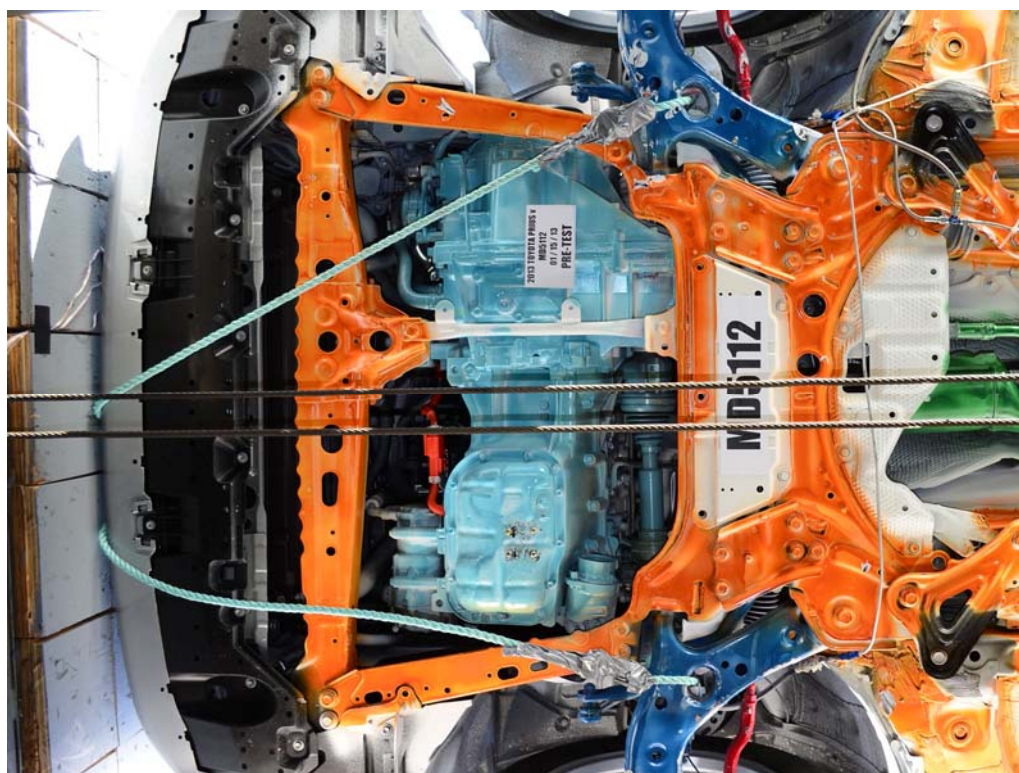


FIGURE 23. Pre-Test Front Underbody View



FIGURE 24. Post-Test Front Underbody View

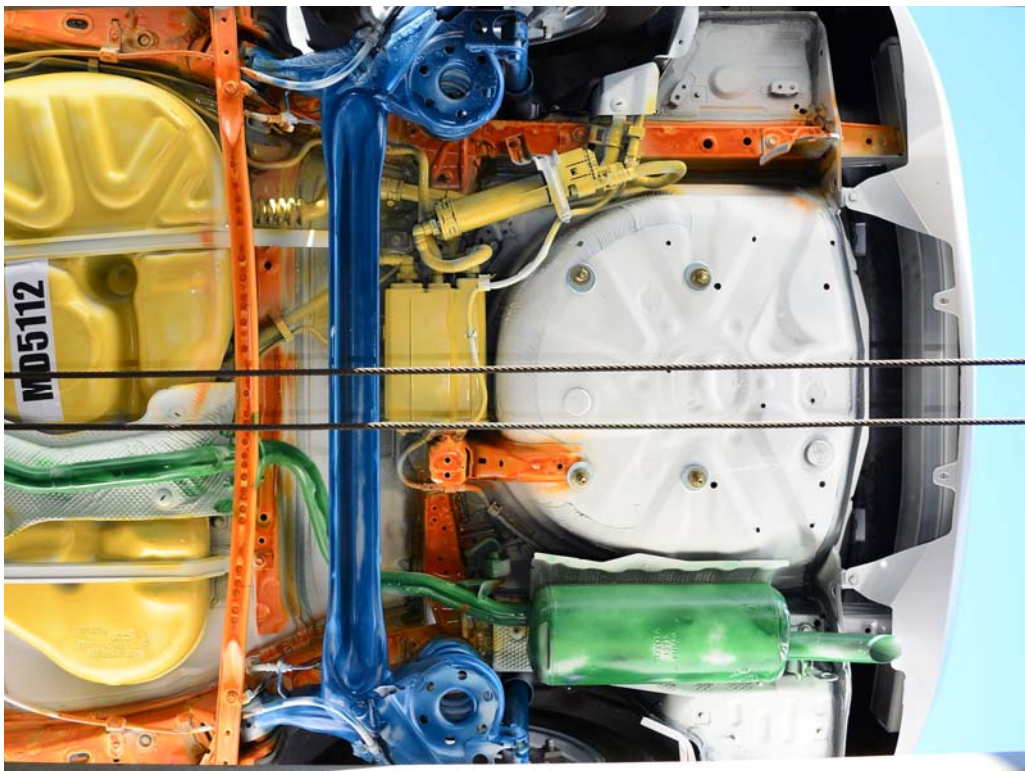


FIGURE 25. Pre-Test Rear Underbody View

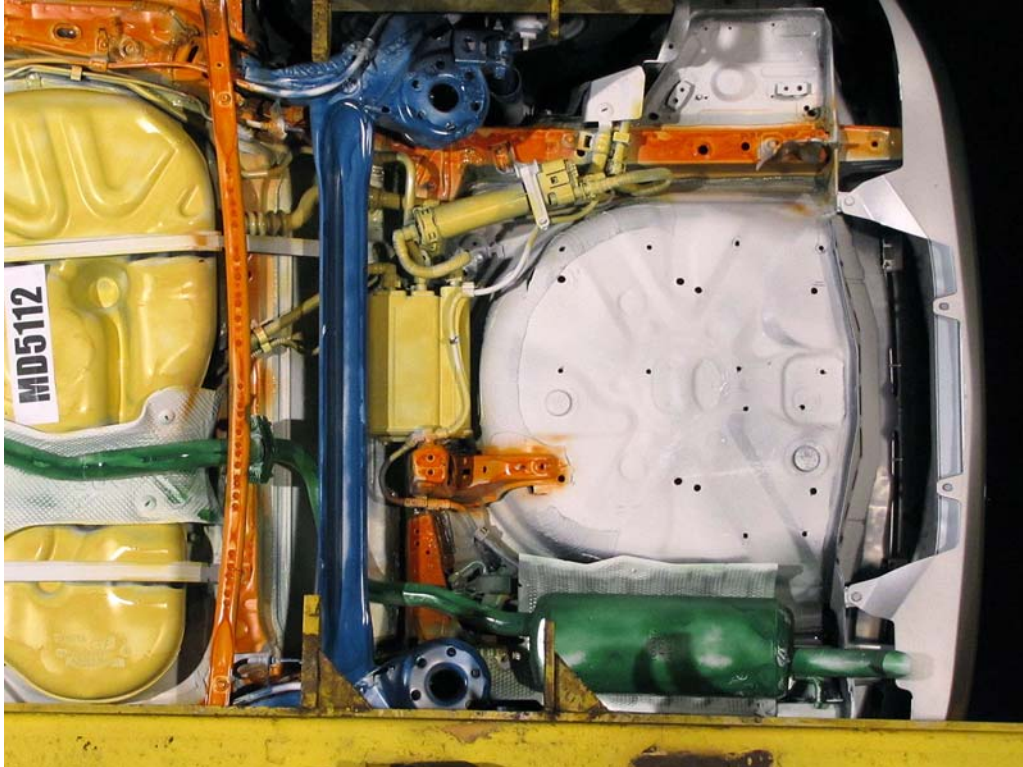


FIGURE 26. Post-Test Rear Underbody View

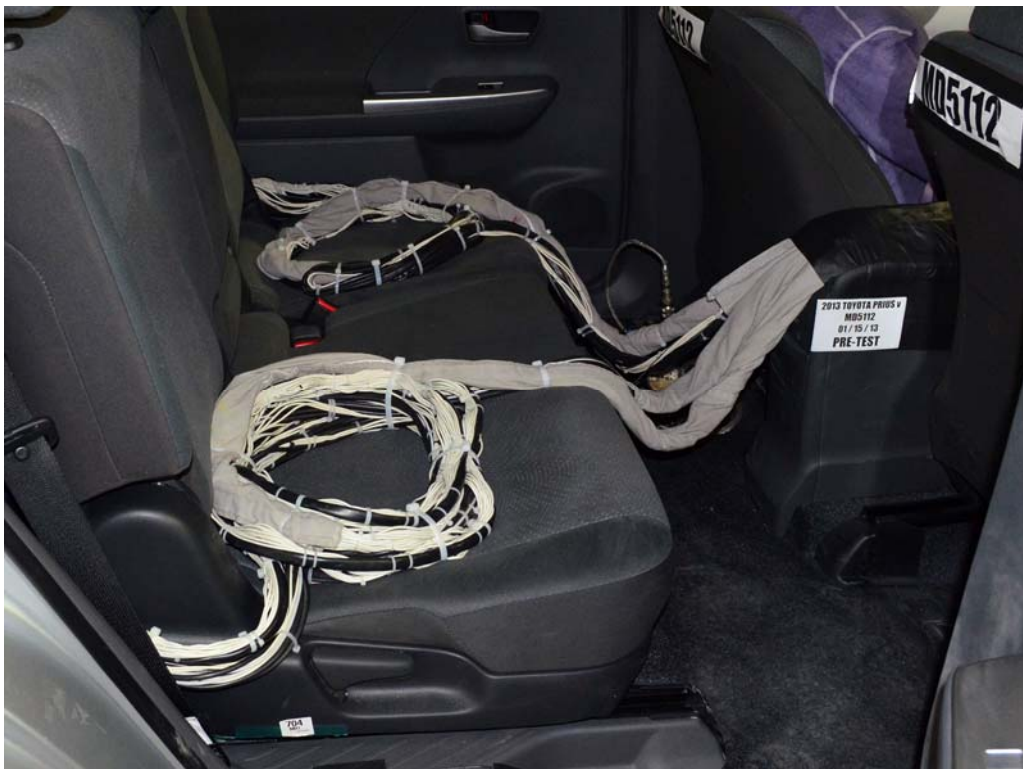


FIGURE 27. Pre-Test Dummy Cable Routing



FIGURE 28. Post-Test Dummy Cable Routing



FIGURE 29. Pre-Test Driver Dummy Front View



FIGURE 30. Post-Test Driver Dummy Front View



FIGURE 31. Pre-Test Driver Dummy Window View



FIGURE 32. Post-Test Driver Dummy Window View



FIGURE 33. Pre-Test Driver Dummy and Vehicle Interior View



FIGURE 34. Post-Test Driver Dummy and Vehicle Interior View



FIGURE 35. Pre-Test Driver's Seat Fore-Aft Markings



FIGURE 36. Post-Test Driver's Seat Fore-Aft Markings



FIGURE 37. Pre-Test View of Belt Anchorage for Driver Dummy



FIGURE 38. Post-Test View of Belt Anchorage for Driver Dummy



FIGURE 39. Pre-Test Driver Dummy Feet



FIGURE 40. Post-Test Driver Dummy Feet



FIGURE 41. Pre-Test Driver's Side Knee Bolster



FIGURE 42. Post-Test Driver's Side Knee Bolster



FIGURE 43. Pre-Test Driver's Side Floorpan



FIGURE 44. Post-Test Driver's Side Floorpan



FIGURE 45. Post-Test Driver Dummy Face

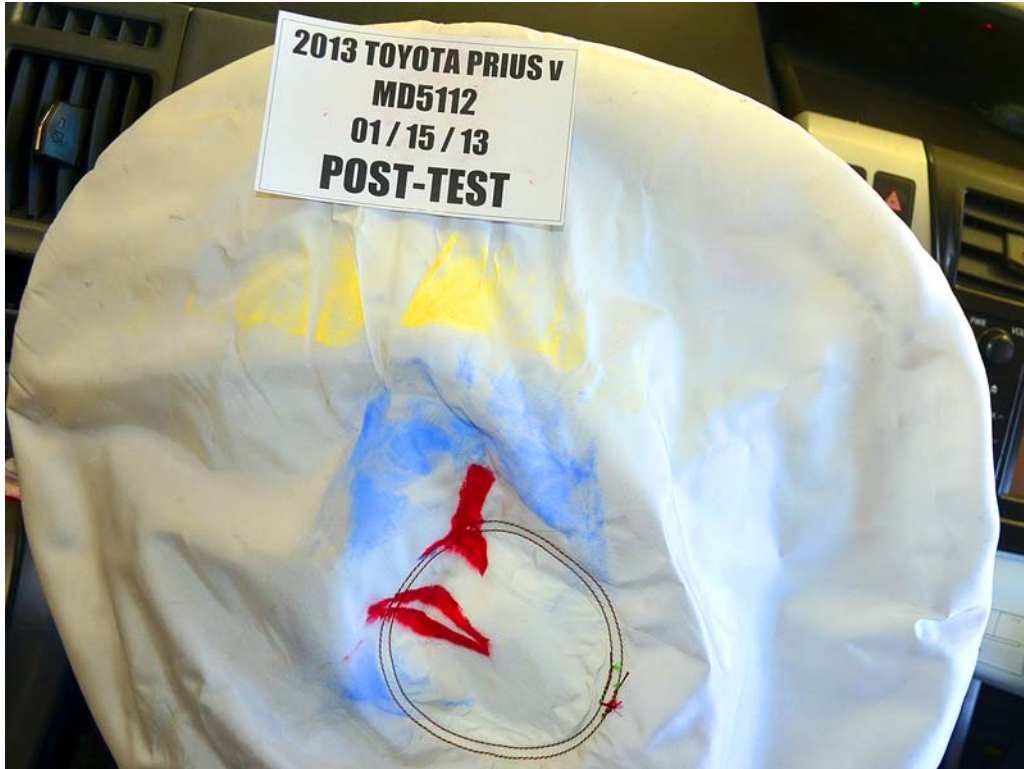


FIGURE 46. Post-Test Driver Dummy Contact With Airbag



FIGURE 47. Post-Test Driver Dummy Contact With Headrest



FIGURE 47a. Post-Test Driver Dummy Contact With Knee Airbag

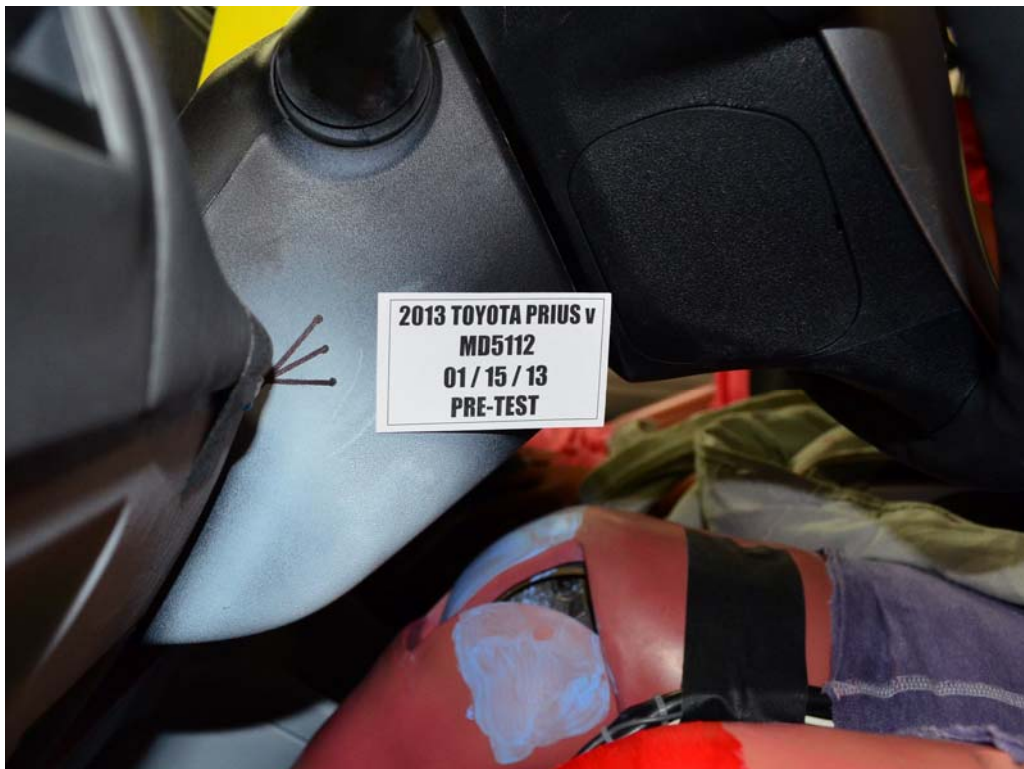


FIGURE 48. Pre-Test View of the Steering Wheel

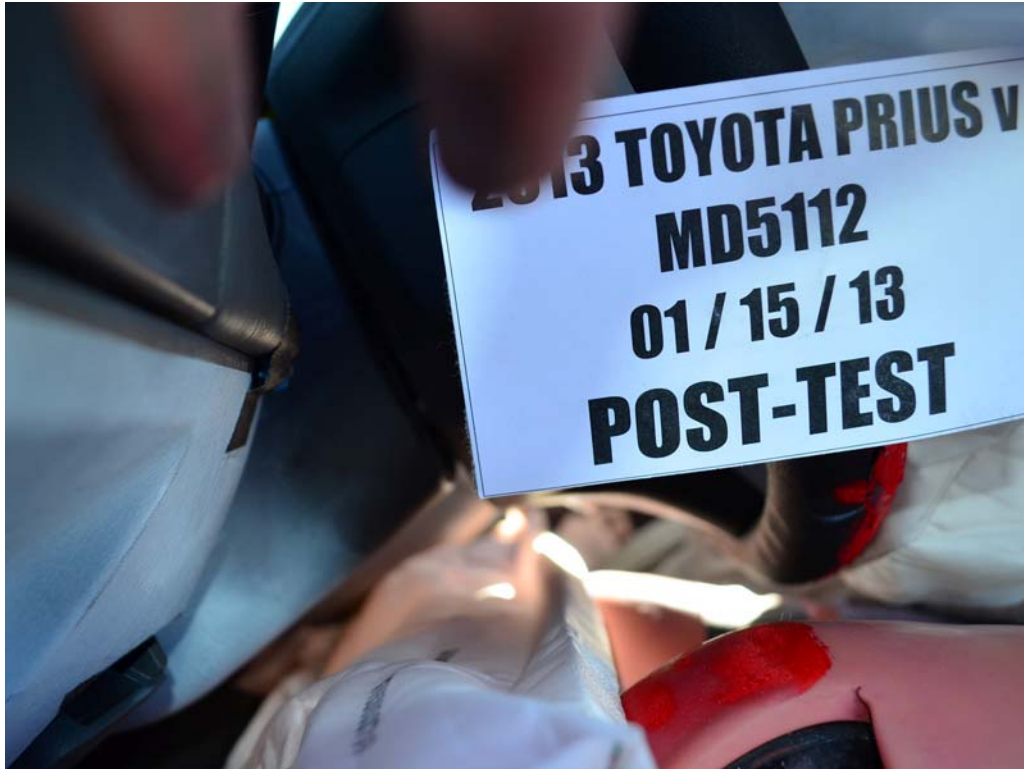


FIGURE 49. Post-Test View of the Steering Wheel



FIGURE 50. Pre-Test Passenger Dummy Front View



FIGURE 51. Post-Test Passenger Dummy Front View



FIGURE 52. Pre-Test Passenger Dummy Window View



FIGURE 53. Post-Test Passenger Dummy Window View



FIGURE 54. Pre-Test Passenger Dummy and Vehicle Interior View



FIGURE 55. Post-Test Passenger Dummy and Vehicle Interior View



FIGURE 56. Pre-Test Passenger's Seat Fore-Aft Markings



FIGURE 57. Post-Test Passenger's Seat Fore-Aft Markings



FIGURE 58. Pre-Test View of Belt Anchorage for Passenger Dummy



FIGURE 59. Post-Test View of Belt Anchorage for Passenger Dummy



FIGURE 60. Pre-Test Passenger Dummy Feet



FIGURE 61. Post-Test Passenger Dummy Feet

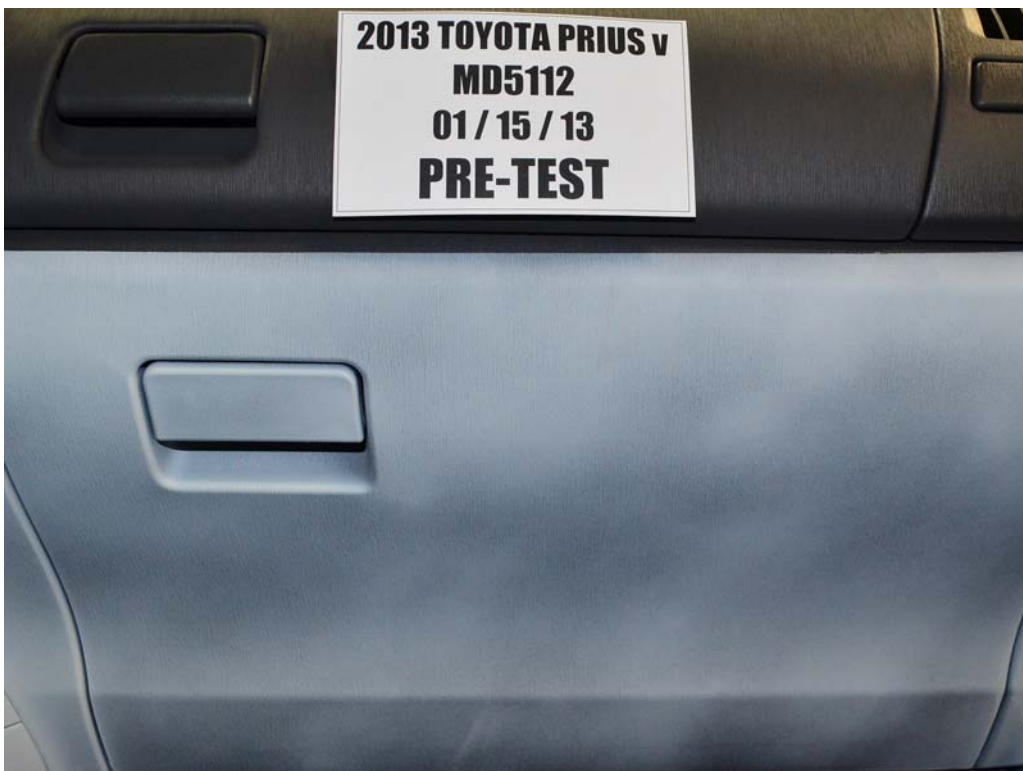


FIGURE 62. Pre-Test Passenger's Side Knee Bolster



FIGURE 63. Post-Test Passenger's Side Knee Bolster



FIGURE 64. Pre-Test Passenger's Side Floorpan



FIGURE 65. Post-Test Passenger's Side Floorpan



FIGURE 66. Post-Test Passenger Dummy Contact With Airbag



FIGURE 66a. Post-Test Passenger Dummy Contact With Headrest



FIGURE 66b. Post-Test Passenger Dummy Contact With Glovebox



FIGURE 67. Photograph of Ballast Installed In Vehicle

Photograph Not Applicable

No Stoddard
Solvent Leakage

FIGURE 68. Post-Test Stoddard Solvent Spillage Location View



FIGURE 69. Post-Test Speed Trap Read-Out

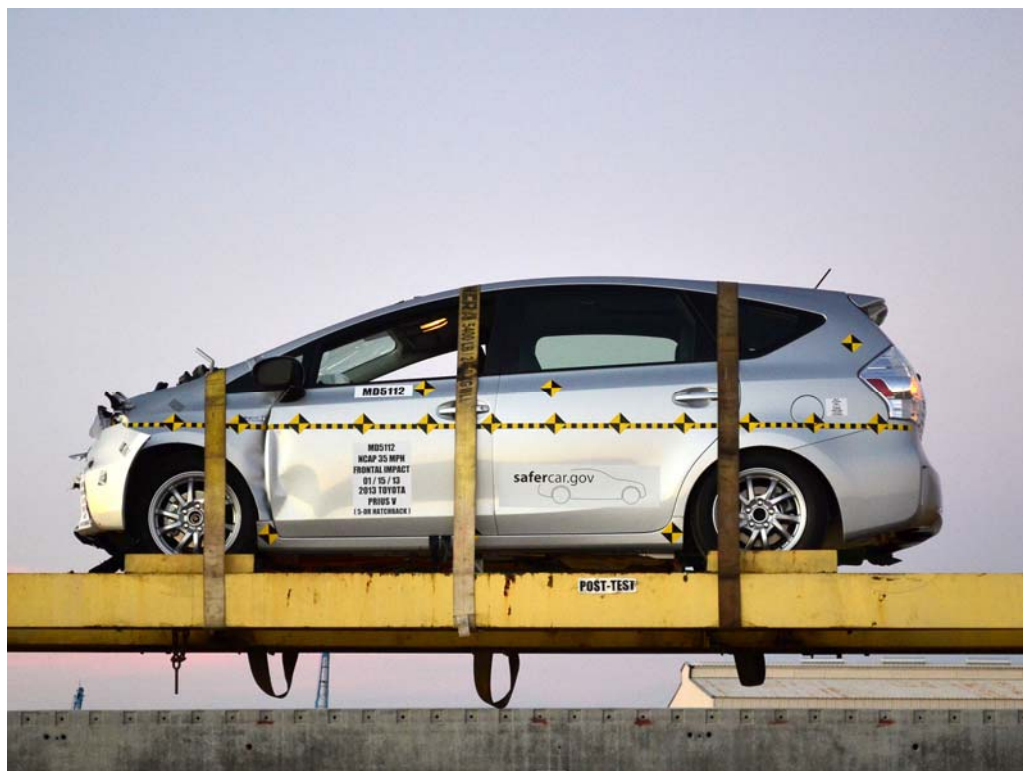


FIGURE 70. Vehicle at 0° on Static Rollover Device



FIGURE 71. Vehicle at 90° on Static Rollover Device



FIGURE 72. Vehicle at 180° on Static Rollover Device



FIGURE 73. 2013 Vehicle at 270° on Static Rollover Device

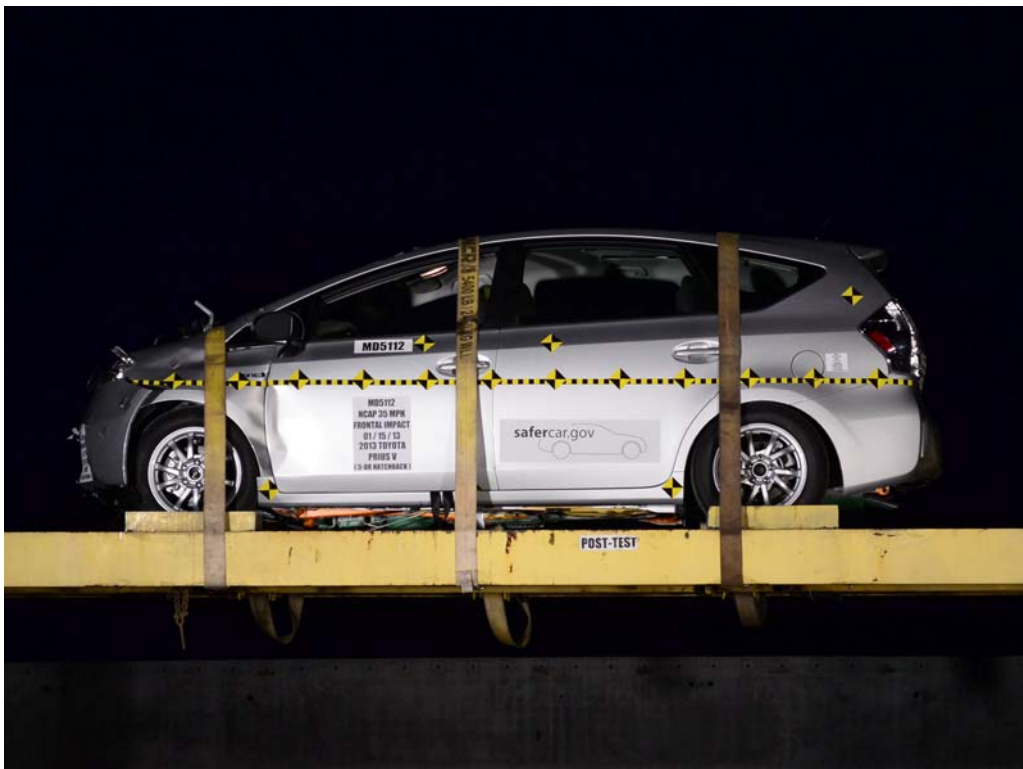


FIGURE 74. Vehicle at 360° on Static Rollover Device

APPENDIX B
DUMMY RESPONSE DATA TRACES

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3	Driver Head Z Acceleration vs. Time Primary	B-1
4	Driver Head Resultant Acceleration vs. Time Primary	B-1
5	Driver Chest X Deflection vs. Time	B-2
6	Driver Chest X Acceleration vs. Time Primary	B-3
7	Driver Chest Y Acceleration vs. Time Primary	B-3
8	Driver Chest Z Acceleration vs. Time Primary	B-3
9	Driver Chest Resultant Acceleration vs. Time Primary	B-3
10	Driver Upper Neck Force X vs. Time Primary	B-4
11	Driver Upper Neck Force Z vs. Time Primary	B-4
12	Driver Upper Neck Moment Y vs. Time Primary	B-4
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18	Passenger Head Z Acceleration vs. Time Primary	B-6
19	Passenger Head Resultant Acceleration vs. Time Primary	B-6
20	Passenger Chest X Deflection vs. Time	B-7
21	Passenger Chest X Acceleration vs. Time Primary	B-8
22	Passenger Chest Y Acceleration vs. Time Primary	B-8
23	Passenger Chest Z Acceleration vs. Time Primary	B-8
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30	Passenger Right Femur Force vs. Time	B-10

The following additional dummy and vehicle response data can be found in the R&D section of the NHTSA website at www.nhtsa.dot.gov

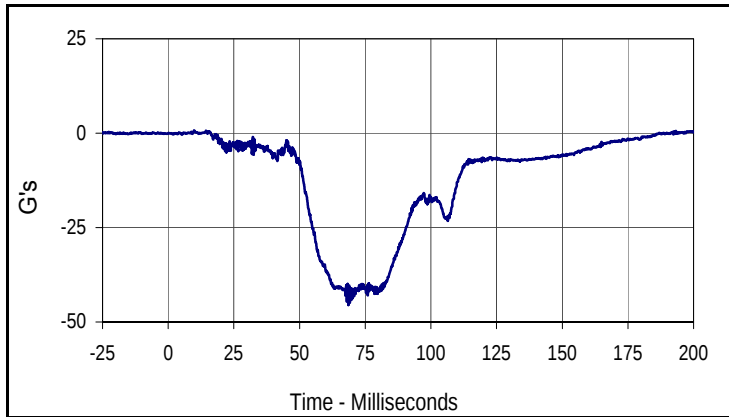
Driver Head X Acceleration Redundant
Driver Head Y Acceleration Redundant
Driver Head Z Acceleration Redundant
Driver Head Front Y Acceleration
Driver Head Front Z Acceleration
Driver Head Top X Acceleration
Driver Head Top Y Acceleration
Driver Head Left X Acceleration
Driver Head Left Z Acceleration
Driver Upper Neck Force Y
Driver Upper Neck Moment X
Driver Upper Neck Moment Z
Driver Chest X Acceleration Redundant
Driver Chest Y Acceleration Redundant
Driver Chest Z Acceleration Redundant
Driver Pelvis X
Driver Pelvis Y
Driver Pelvis Z
Driver Left Femur Force Z Redundant
Driver Right Femur Force Z Redundant
Driver Shoulder Belt Force
Driver Lap Belt Force
Driver Left Upper Tibia Moment X
Driver Left Upper Tibia Moment Y
Driver Left Upper Tibia Force Z
Driver Left Lower Tibia Moment X
Driver Left Lower Tibia Moment Y
Driver Left Lower Tibia Force Z
Driver Right Upper Tibia Moment X
Driver Right Upper Tibia Moment Y
Driver Right Upper Tibia Force Z
Driver Right Lower Tibia Moment X
Driver Right Lower Tibia Moment Y

Driver Right Lower Tibia Force Z
Driver Left Foot Fore Z
Driver Left Foot Aft X
Driver Left Foot Aft Z
Driver Right Foot Fore Z
Driver Right Foot Aft X
Driver Right Foot Aft Z
Passenger Head X Acceleration Redundant
Passenger Head Y Acceleration Redundant
Passenger Head Z Acceleration Redundant
Passenger Head Front Y Acceleration
Passenger Head Front Z Acceleration
Passenger Head Top X Acceleration
Passenger Head Top Y Acceleration
Passenger Head Left X Acceleration
Passenger Head Left Z Acceleration
Passenger Upper Neck Force X
Passenger Upper Neck Force Z
Passenger Upper Neck Moment Y
Passenger Chest X Acceleration Redundant
Passenger Chest Y Acceleration Redundant
Passenger Chest Z Acceleration Redundant
Passenger Pelvis X
Passenger Pelvis Y
Passenger Pelvis Z
Passenger Left Femur Force Z Redundant
Passenger Right Femur Force Z Redundant
Passenger Shoulder Belt Force
Passenger Lap Belt Force
Passenger Left Upper Tibia Moment X
Passenger Left Upper Tibia Moment Y
Passenger Left Upper Tibia Force Z
Passenger Left Lower Tibia Moment X
Passenger Left Lower Tibia Moment Y
Passenger Left Lower Tibia Force Z
Passenger Right Upper Tibia Moment X

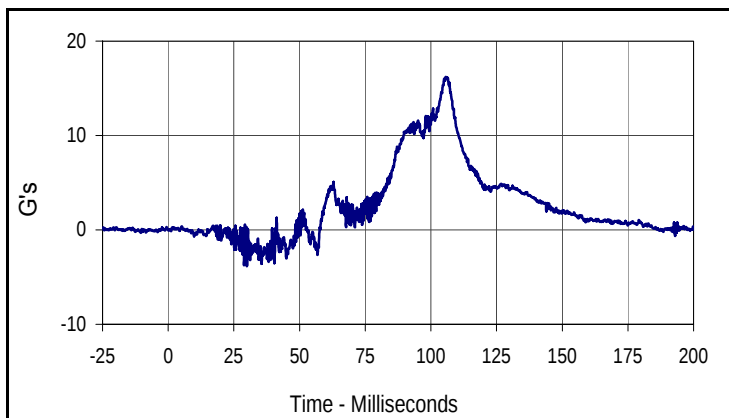
Passenger Right Upper Tibia Moment Y
Passenger Right Upper Tibia Force Z
Passenger Right Lower Tibia Moment X
Passenger Right Lower Tibia Moment Y
Passenger Right Lower Tibia Force Z
Passenger Left Foot Fore Z
Passenger Left Foot Aft X
Passenger Left Foot Aft Z
Passenger Right Foot Fore Z
Passenger Right Foot Aft X
Passenger Right Foot Aft Z
Left Rear Seat Crossmember X
Left Rear Seat Crossmember Z
Right Rear Seat Crossmember X
Right Rear Seat Crossmember Z
Vehicle Engine Top X
Vehicle Engine Bottom X
Vehicle Left Rear Z
Vehicle Right Rear Z
Load Cell Barrier A1-A9
Load Cell Barrier B1-B9
Load Cell Barrier C1-C9
Load Cell Barrier D1-D9

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon
 Test Program: 56 km/h Frontal Impact NCAP Test

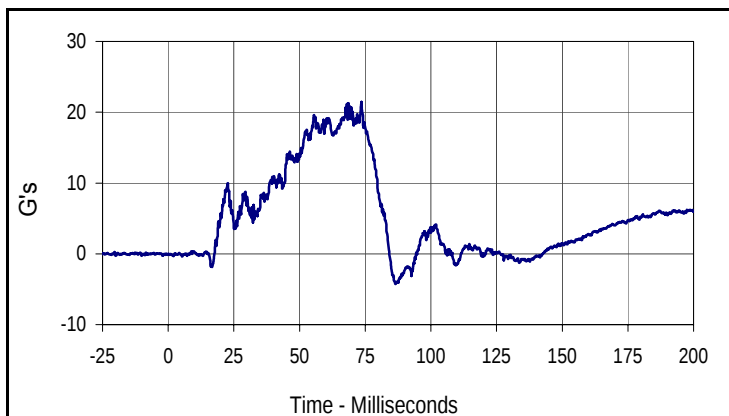
NHTSA No.: MD5112
 Test Date: 1/15/13



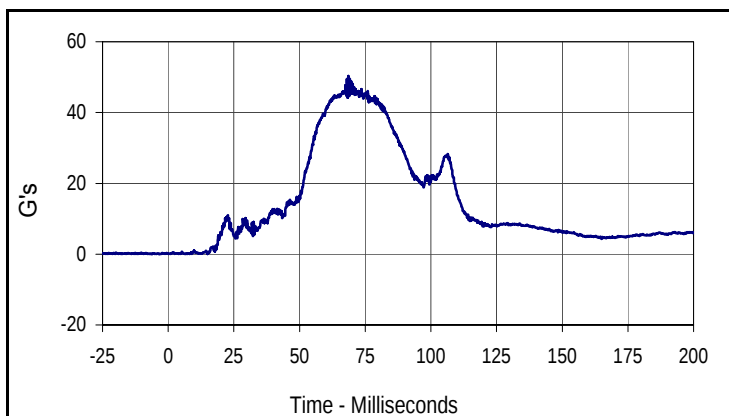
Curve Description			
Driver Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
0.8	9.9	-45.5	68.6



Curve Description			
Driver Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
16.2	105.7	-3.8	30.0



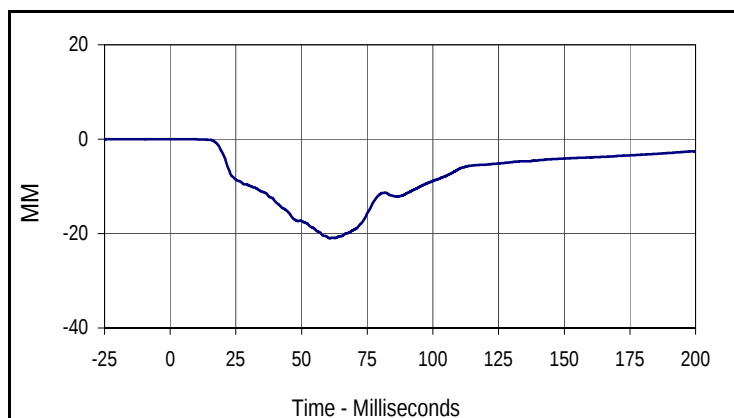
Curve Description			
Driver Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
21.4	73.5	-4.2	86.6



Curve Description			
Driver Head Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
004	RES	1000	G's
Max	Time	Min	Time
50.3	68.6	0.0	6.8

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon
 Test Program: 56 km/h Frontal Impact NCAP Test

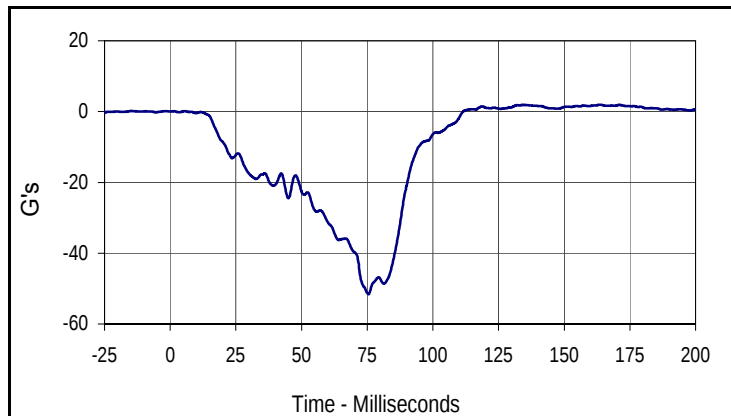
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 Test Date: 1/15/13



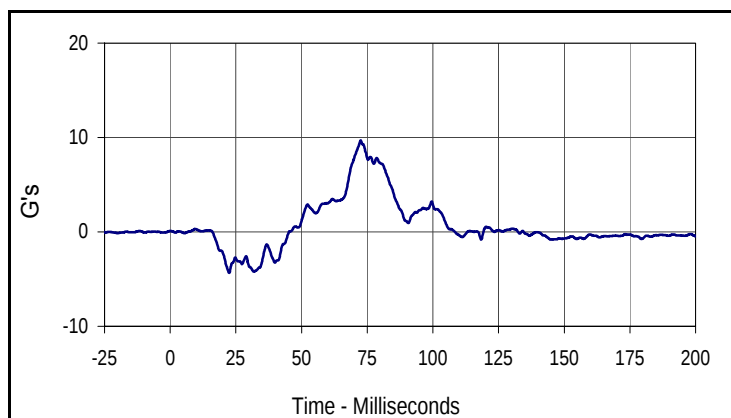
Curve Description			
Driver Chest Deflection			
Plot No.	Type	SAE Class	Units
005	FIL	600	MM
Max	Time	Min	Time
0.0	2.5	-21.0	60.8

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon
 Test Program: 56 km/h Frontal Impact NCAP Test

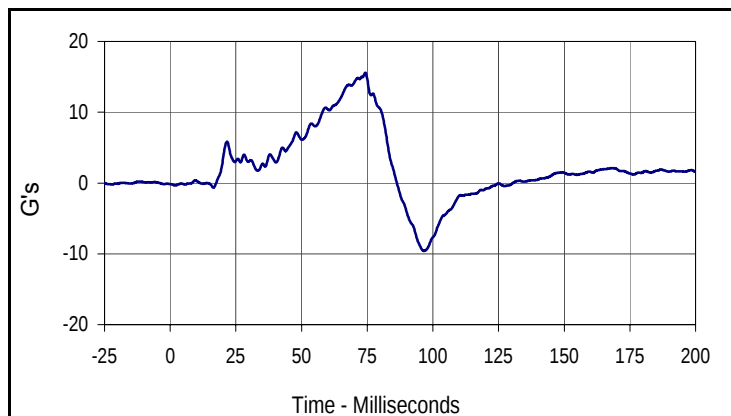
NHTSA No.: MD5112
 Test Date: 1/15/13



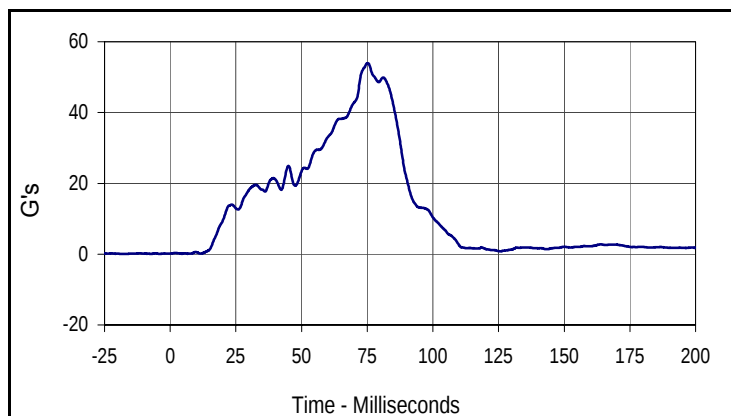
Curve Description			
Driver Chest Acceleration X Primary			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
2.0	163.7	-51.6	75.5



Curve Description			
Driver Chest Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
007	FIL	180	G's
Max	Time	Min	Time
9.7	72.5	-4.3	22.4



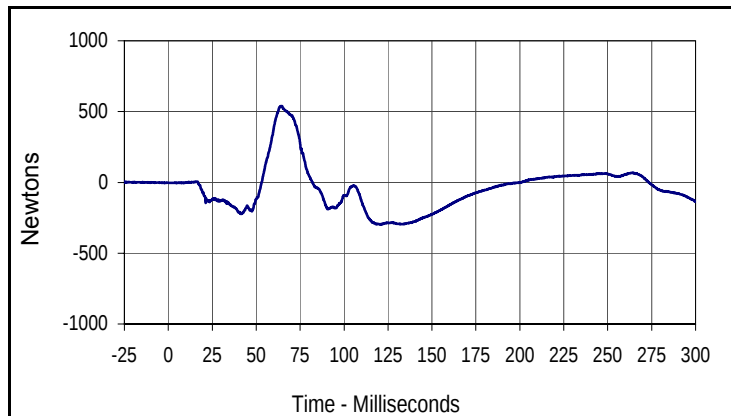
Curve Description			
Driver Chest Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
008	FIL	180	G's
Max	Time	Min	Time
15.6	74.3	-9.6	96.5



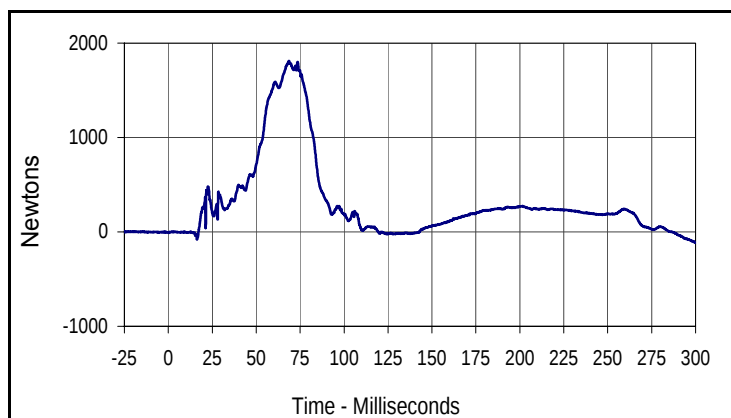
Curve Description			
Driver Chest Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
009	RES	180	G's
Max	Time	Min	Time
53.9	75.3	0.1	4.5

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon
 Test Program: 56 km/h Frontal Impact NCAP Test

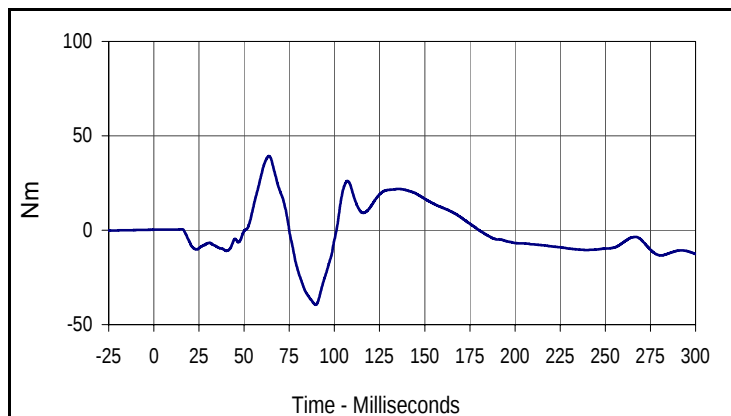
NHTSA No.: MD5112
 Test Date: 1/15/13



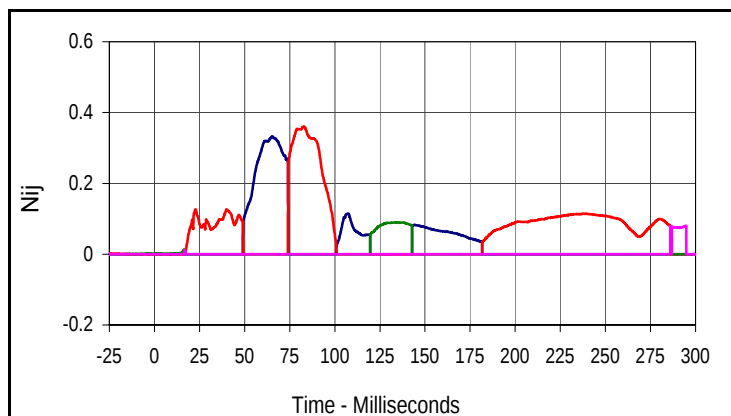
Curve Description			
Driver Upper Neck Force X			
Plot No.	Type	SAE Class	Units
010	FIL	1000	Newtons
Max	Time	Min	Time
539.6	64.5	-296.6	120.5



Curve Description			
Driver Upper Neck Force Z			
Plot No.	Type	SAE Class	Units
011	FIL	1000	Newtons
Max	Time	Min	Time
1810.9	68.7	-113.9	299.9



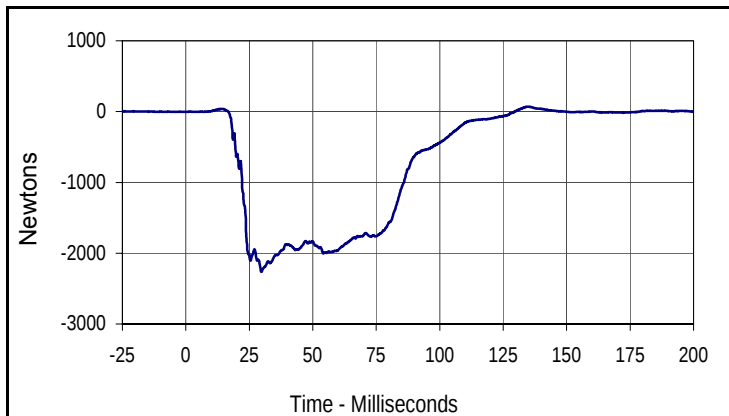
Curve Description			
Driver Upper Neck Moment Y			
Plot No.	Type	SAE Class	Units
012	FIL	600	Nm
Max	Time	Min	Time
39.3	63.6	-39.5	89.7



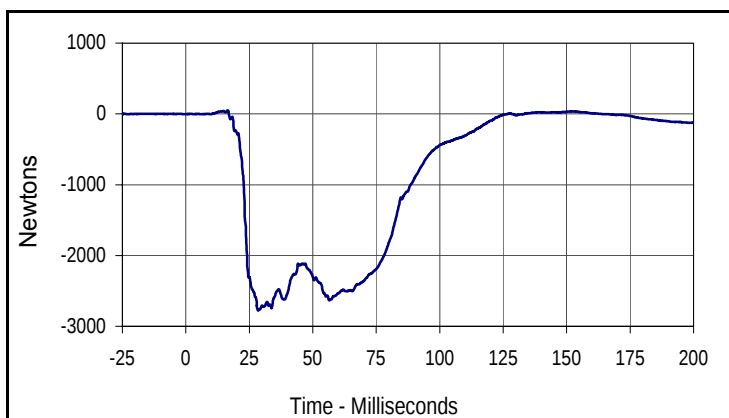
Curve Description			
Driver Nij			
Units	Type	Max	Time
Ntf	FIL	0.33	65.3
Units	Type	Max	Time
Nte	FIL	0.36	83.0
Units	Type	Max	Time
Ncf	FIL	0.09	133.9
Units	Type	Max	Time
Nce	FIL	0.09	294.8

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon
 Test Program: 56 km/h Frontal Impact NCAP Test

NHTSA No.: MD5112
 Test Date: 1/15/13



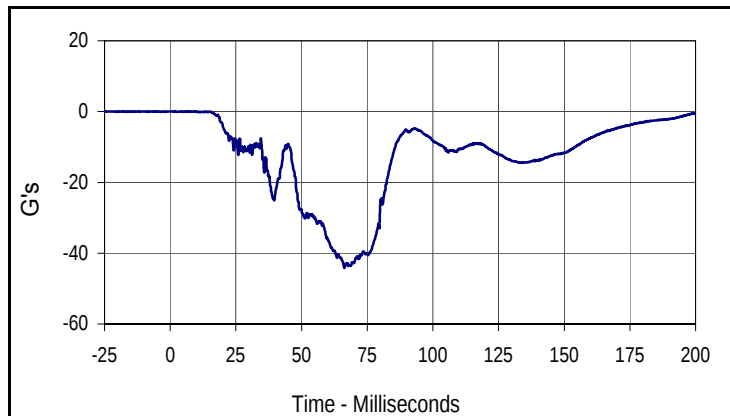
Curve Description			
Driver Left Femur Force Z			
Plot No.	Type	SAE Class	Units
013	FIL	600	Newtons
Max	Time	Min	Time
70.1	134.7	-2264.7	29.8



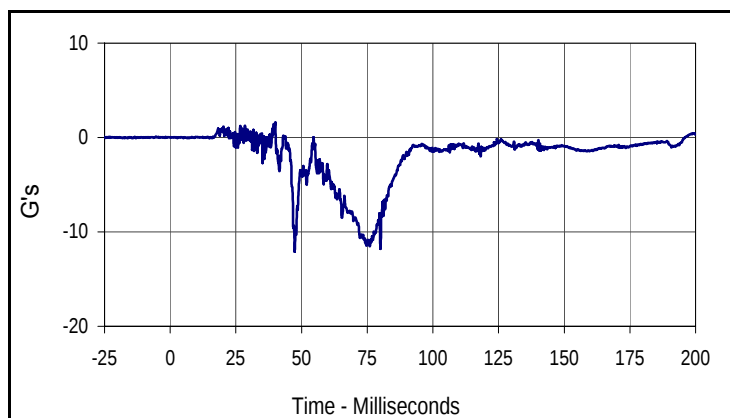
Curve Description			
Driver Right Femur Force Z			
Plot No.	Type	SAE Class	Units
014	FIL	600	Newtons
Max	Time	Min	Time
52.2	16.5	-2777.9	28.5

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon
 Test Program: 56 km/h Frontal Impact NCAP Test

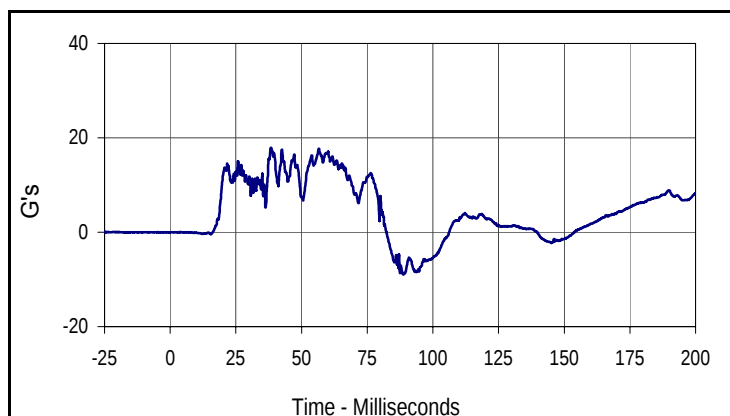
NHTSA No.: MD5112
 Test Date: 1/15/13



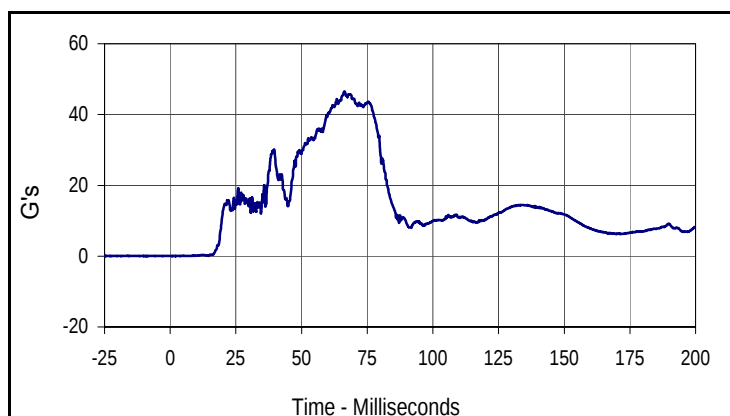
Curve Description			
Passenger Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
015	FIL	1000	G's
Max	Time	Min	Time
0.0	8.2	-44.2	66.3



Curve Description			
Passenger Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
016	FIL	1000	G's
Max	Time	Min	Time
1.6	40.0	-12.1	47.4



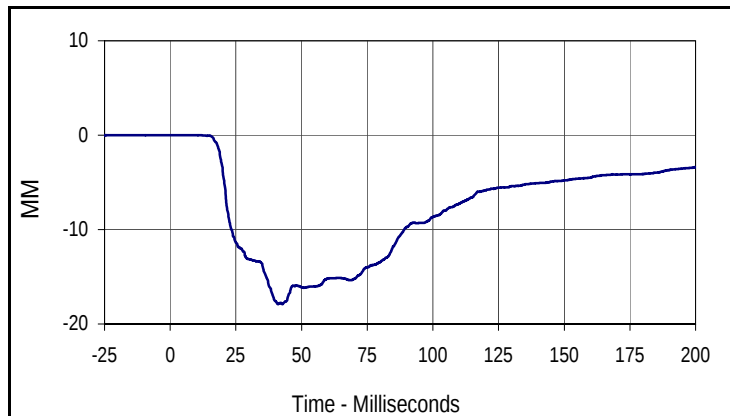
Curve Description			
Passenger Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
017	FIL	1000	G's
Max	Time	Min	Time
17.9	38.3	-9.0	88.6



Curve Description			
Passenger Head Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
018	RES	1000	G's
Max	Time	Min	Time
46.6	66.2	0.0	0.7

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon
Test Program: 56 km/h Frontal Impact NCAP Test

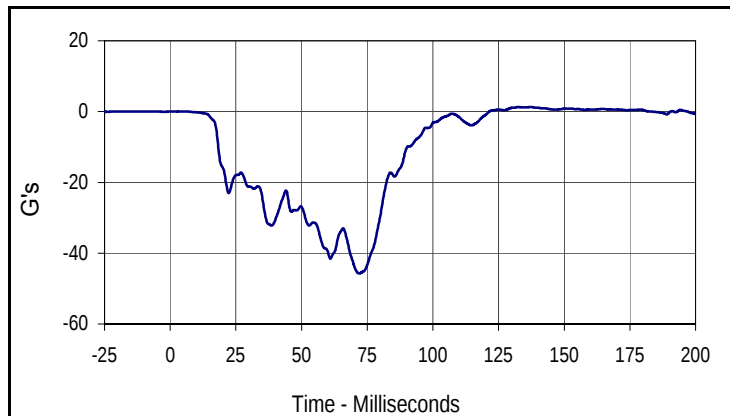
NHTSA No.: MD5112
Test Date: 1/15/13



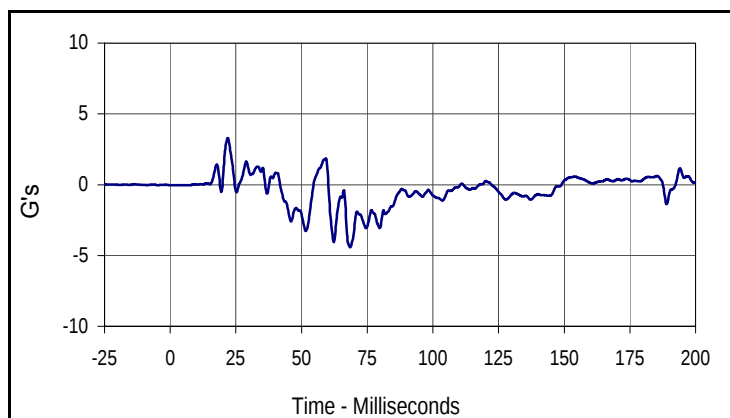
Curve Description			
Passenger Chest Deflection			
Plot No.	Type	SAE Class	Units
019	FIL	600	MM
Max	Time	Min	Time
0.0	11.8	-17.9	41.1

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon
 Test Program: 56 km/h Frontal Impact NCAP Test

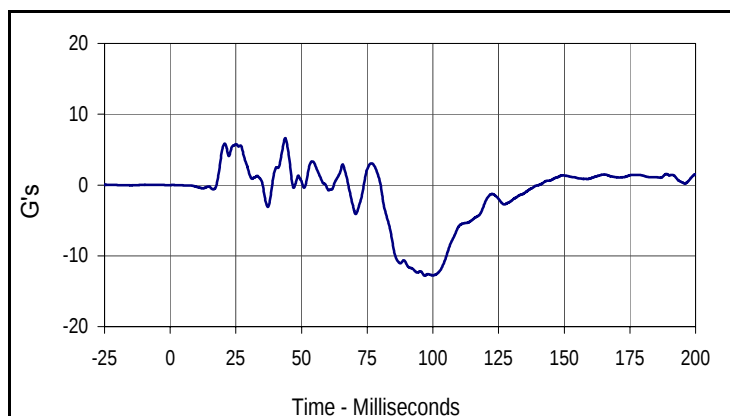
NHTSA No.: MD5112
 Test Date: 1/15/13



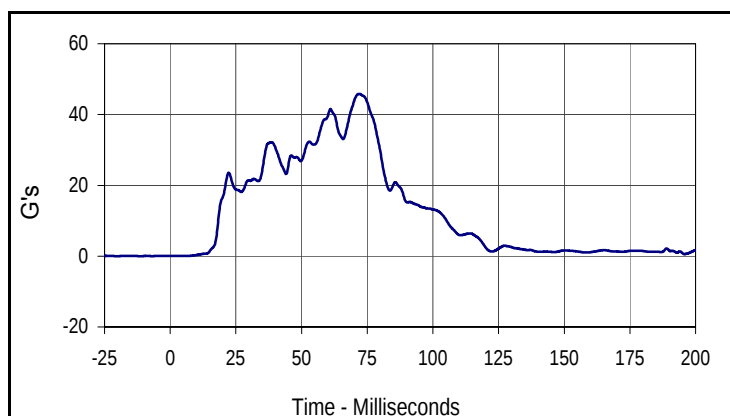
Curve Description			
Passenger Chest Acceleration X Primary			
Plot No.	Type	SAE Class	Units
020	FIL	180	G's
Max	Time	Min	Time
1.3	132.5	-45.7	71.9



Curve Description			
Passenger Chest Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
021	FIL	180	G's
Max	Time	Min	Time
3.3	21.9	-4.4	68.5



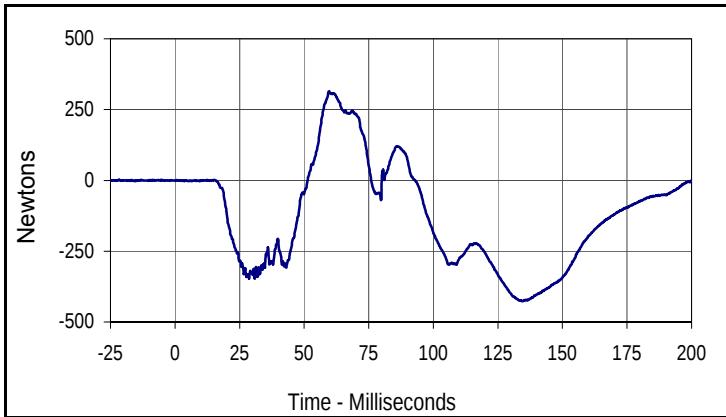
Curve Description			
Passenger Chest Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
022	FIL	180	G's
Max	Time	Min	Time
6.6	43.8	-12.8	97.0



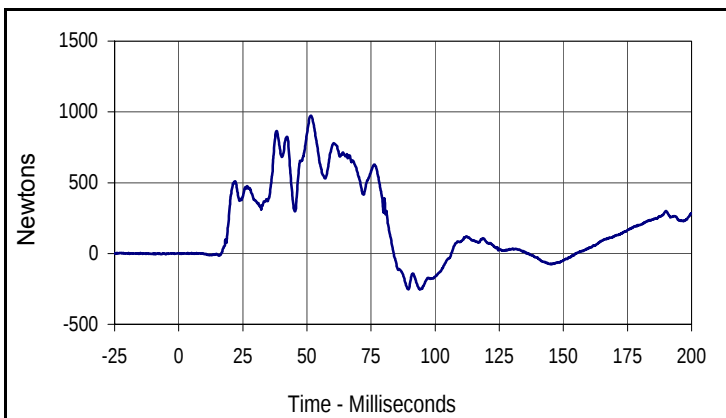
Curve Description			
Passenger Chest Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
023	RES	180	G's
Max	Time	Min	Time
45.8	71.8	0.0	2.2

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon
 Test Program: 56 km/h Frontal Impact NCAP Test

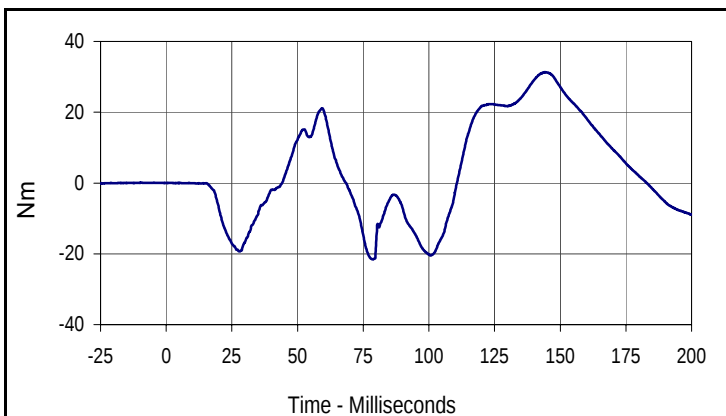
NHTSA No.: MD5112
 Test Date: 1/15/13



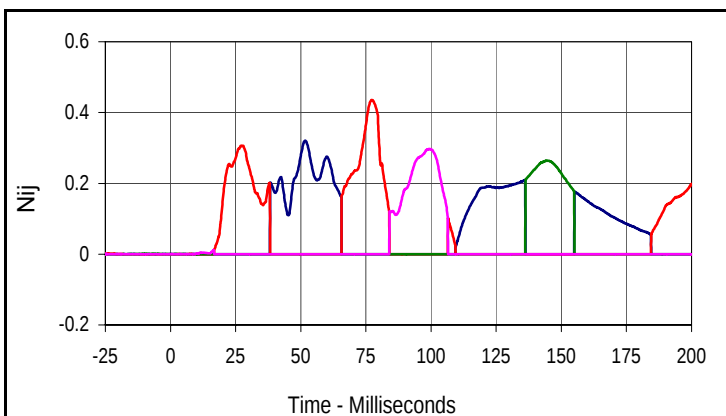
Curve Description			
Passenger Upper Neck Force X			
Plot No.	Type	SAE Class	Units
024	FIL	1000	Newtons
Max	Time	Min	Time
314.8	59.6	-427.1	134.3



Curve Description			
Passenger Upper Neck Force Z			
Plot No.	Type	SAE Class	Units
025	FIL	1000	Newtons
Max	Time	Min	Time
974.2	51.6	-254.7	89.6



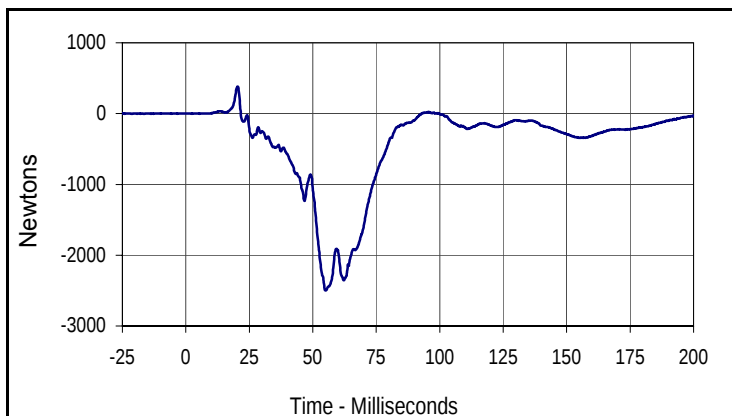
Curve Description			
Passenger Upper Neck Moment Y			
Plot No.	Type	SAE Class	Units
026	FIL	600	Nm
Max	Time	Min	Time
31.3	144.2	-21.6	78.6



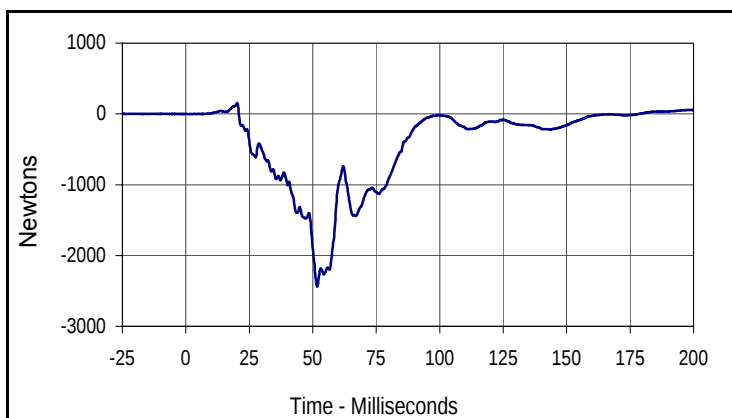
Curve Description			
Passenger Nij			
Units	Type	Max	Time
Ntf	FIL	0.32	51.7
Units	Type	Max	Time
Nte	FIL	0.44	77.3
Units	Type	Max	Time
Ncf	FIL	0.26	144.4
Units	Type	Max	Time
Nce	FIL	0.30	99.4

Test Vehicle: 2013 Toyota Prius V 5-Door Station Wagon
 Test Program: 56 km/h Frontal Impact NCAP Test

NHTSA No.: MD5112
 Test Date: 1/15/13



Curve Description			
Passenger Left Femur Force Z			
Plot No.	Type	SAE Class	Units
027	FIL	600	Newtons
Max	Time	Min	Time
380.6	20.4	-2499.0	55.1



Curve Description			
Passenger Right Femur Force Z			
Plot No.	Type	SAE Class	Units
028	FIL	600	Newtons
Max	Time	Min	Time
152.9	20.2	-2440.2	51.8

APPENDIX C
DUMMY CALIBRATION AND PERFORMANCE VERIFICATION DATA

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

Test Program: Hybrid III 50th Percentile Male Dummy Damage Checklist

Test Date: 1/11/13



ATD Serial No.: 035

Test I.D.: N/A

Dummy Item	Inspect for	Comments	Damaged	OK
Entire Dummy	Perform general cleaning			X
Outer Skin	Gashes, rips, cracks			X
Head	Ballast secure			X
	General appearance			X
Neck	Broken or cracked rubber			X
	Upper neck bracket firmly attached to the lower neck bracket			X
	Looseness at the condyle joint			X
	Nodding blocks cracked or out of position			X
Spine	Broken or cracks in rubber			X
Ribs	Broken or bent ribs			X
	Broken or bent rib supports			X
	Damping material separated or cracked			X
	Rubber bumpers in place			X
Chest Displacement Assembly	Bent shaft			X
	Slider arm riding in track			X
Transducer Leads	Torn cables			X
Accelerometer Mountings	Head mounting secure			X
	Chest mounting secure			X
Knees	Skin condition			X
	Insert (do not remove)			X
	Casting			X
Limbs	Normal movement and adjustment			X
Knee Sliders	Wires intact			X
	Rubber returned to "at rest" position			X
Pelvis	Broken			X
Other				X

Describe the repair on repair or replacement of parts:

Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 1/11/13

ATD Serial No.: 035

Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.18	Pass
Laboratory Relative Humidity	%	10 to 70	29.7	Pass
A - Total sitting height	mm	879 to 889	884	Pass
B - Shoulder pivot height	mm	505 to 521	512	Pass
C - H point height	mm	84 to 89	85	Pass
D - H point location from backline	mm	135 to 140	137	Pass
E - Shoulder pivot from backline	mm	84 to 94	89	Pass
F - Thigh clearance	mm	140 to 155	146	Pass
G - Back of elbow to wrist pivot	mm	290 to 305	297	Pass
H - Head back to backline	mm	41 to 46	43	Pass
I - Shoulder to elbow length	mm	330 to 345	336	Pass
J - Elbow rest height	mm	190 to 211	201	Pass
K - Buttock to knee length	mm	579 to 604	586	Pass
L - Popliteal length	mm	429 to 455	438	Pass
M - Knee pivot height	mm	485 to 500	493	Pass
N - Buttock popliteal length	mm	452 to 477	472	Pass
O - Chest depth without jacket	mm	213 to 229	225	Pass
P - Foot length	mm	251 to 267	260	Pass
V - Shoulder breadth	mm	422 to 437	433	Pass
W - Foot breadth	mm	91 to 107	99	Pass
Y - Chest circumference (with chest jacket)	mm	970 to 1001	981	Pass
Z - Waist circumference	mm	836 to 866	864	Pass
AA - Location for chest circumference	mm	429 to 434	429	Pass
BB - Location for waist circumference	mm	226 to 231	230	Pass
Overall Test Results				Pass

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

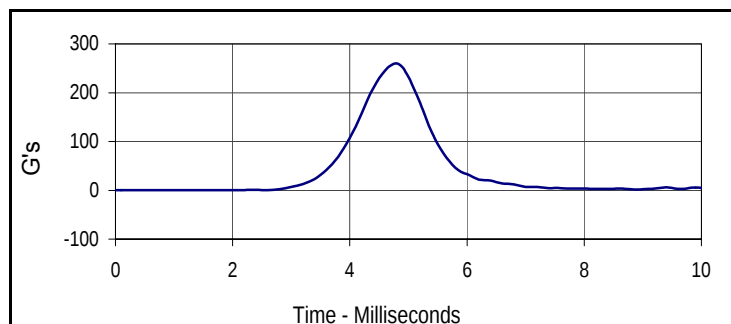
Test Date: 1/11/13



ATD Serial No.: 035

Test I.D.: M035HD050

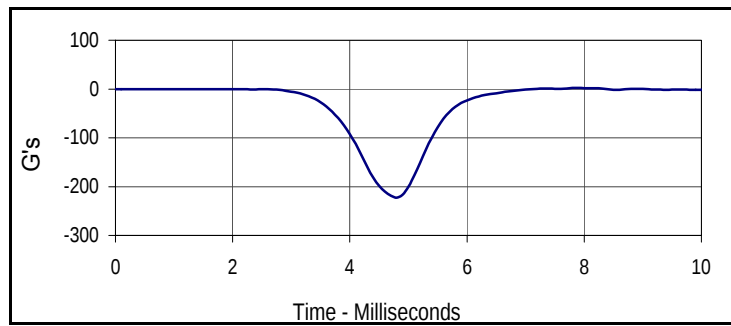
Tested Parameter		Units	Specification	Result	Pass/Fail
Head Assembly Soak Time		Minutes	≥240	365	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.9	Pass
	Min	°C		20.9	Pass
Humidity During Soak	Max	%	10.0 to 70.0	32.5	Pass
	Min	%		26.5	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	29.7	Pass
Peak Resultant Acceleration		G's	225.0 to 275.0	260.3	Pass
Peak Lateral Acceleration		G's	≤15.0	5.3	Pass
Oscillations After Main Pulse		%	<10% of peak Res. Acceleration	12.6	Pass
Is Acceleration Unimodal?		Yes/No	Yes	Yes	Pass
Overall Test Results				Pass	



Curve Description

Head Resultant

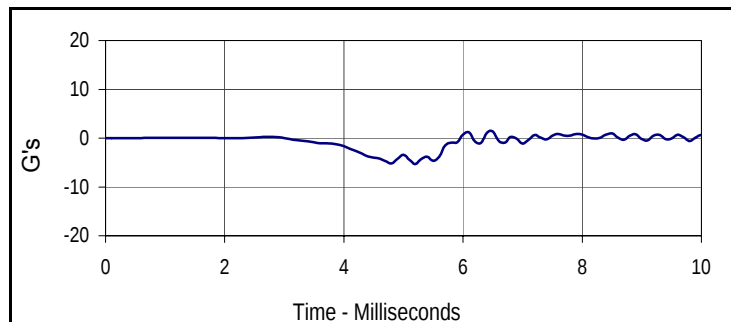
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
260.3	4.8	0.1	0.3



Curve Description

Head X

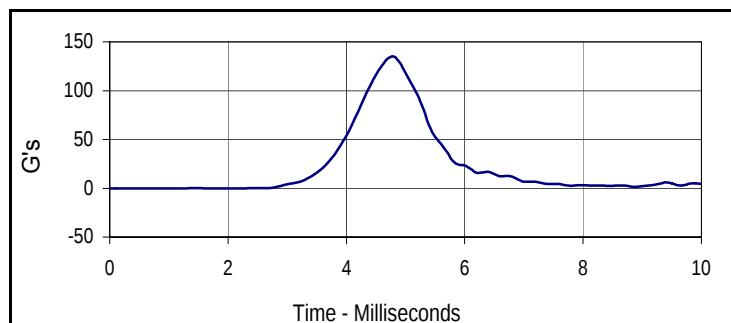
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.3	7.9	-222.6	4.8



Curve Description

Head Y

Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
1.4	6.5	-5.3	5.2



Curve Description

Head Z

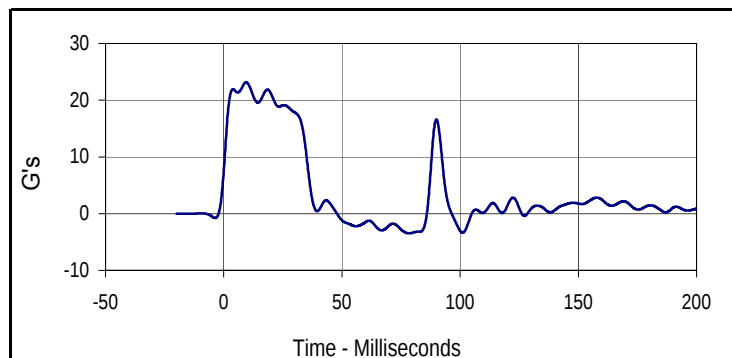
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
134.9	4.8	-0.3	2.1

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 ATD Serial No.: 035

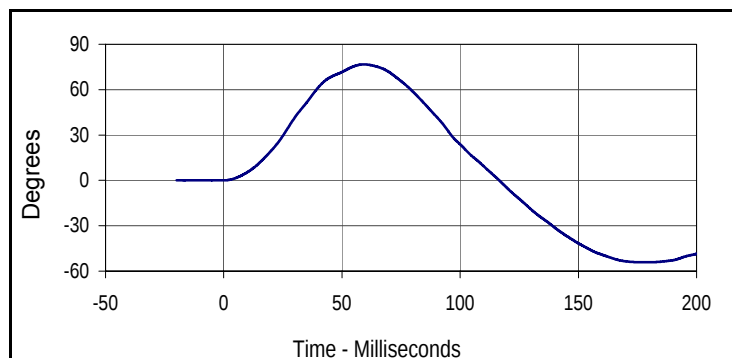
Test Date: 1/11/13
 Test I.D.: M035NF050



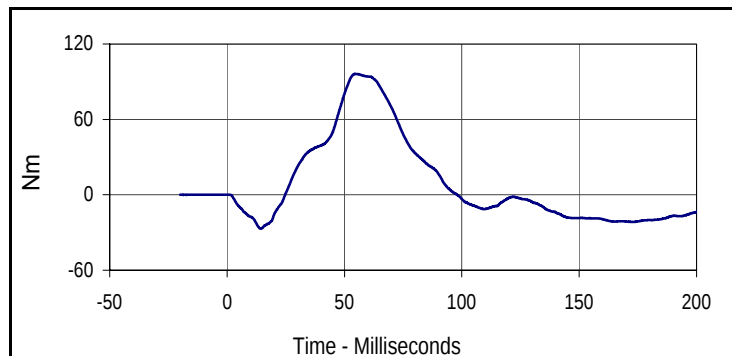
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	415	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.9	Pass
	Min	°C		20.9	Pass
Humidity During Soak	Max	%	10.0 to 70.0	32.5	Pass
	Min	%		26.5	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	29.7	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.94	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.1	Pass
	20 Msec.	G's	17.6 to 22.6	21.1	Pass
	30 Msec.	G's	12.5 to 18.5	17.8	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	17.8	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	76.7	Pass
	Time	Msec.	57.0 to 64.0	59.1	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	116.6	Pass
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	96.2	Pass
	Time	Msec.	47.0 to 58.0	54.5	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	98.0	Pass
Overall Test Results					Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
23.2	9.5	-3.5	78.5



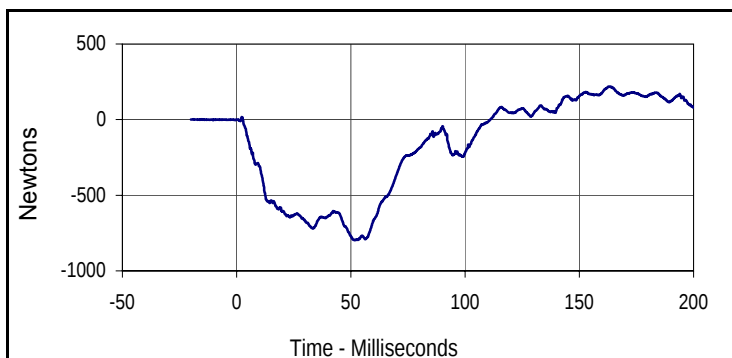
Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
76.7	59.1	-54.2	178.2



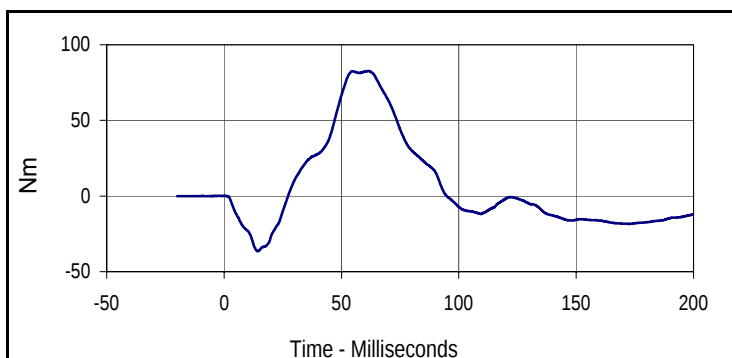
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
96.2	54.5	-26.9	14.1

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 ATD Serial No.: 035

Test Date: 1/11/13
 Test I.D.: M035NF050



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
219.5	163.0	-797.9	51.8



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
82.6	61.7	-36.5	14.2

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

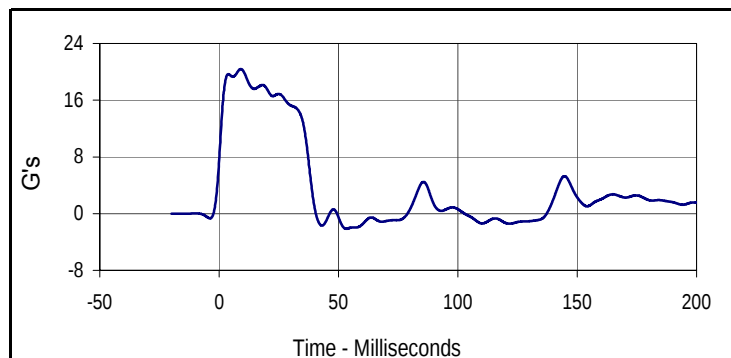
Test Date: 1/11/13

ATD Serial No.: 035

Test I.D.: M035NE050



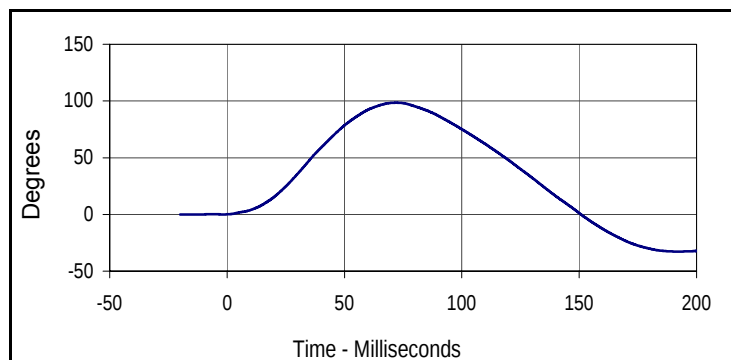
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	450	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.9	Pass
	Min	°C		20.9	Pass
Humidity During Soak	Max	%	10.0 to 70.0	32.5	Pass
	Min	%		26.5	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	29.6	Pass
Pendulum Velocity		m/s	5.94 to 6.19	5.97	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	20.2	Pass
	20 Msec.	G's	14.0 to 19.0	17.6	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	38.3	Pass
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	98.5	Pass
	Time	Msec.	72.0 to 82.0	72.1	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	150.8	Pass
Moment About Occ. Condyle	Max	Nm	-52.9 to -79.9	-70.9	Pass
	Time	Msec.	65.0 to 79.0	66.2	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	134.6	Pass
Overall Test Results					Pass



Curve Description

Pendulum Deceleration

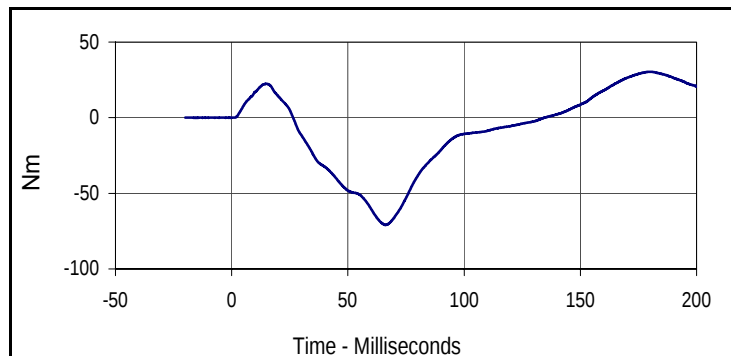
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
20.4	9.1	-2.1	53.3



Curve Description

"D" Plane Rotation

Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
98.5	72.1	-32.7	191.6



Curve Description

Moment About Occipital Condyle

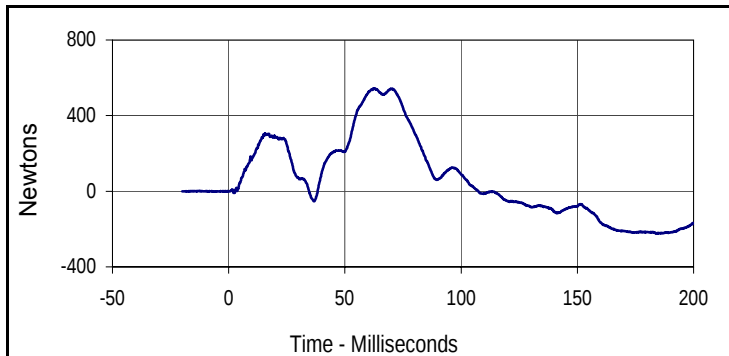
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
30.4	179.5	-70.9	66.2

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

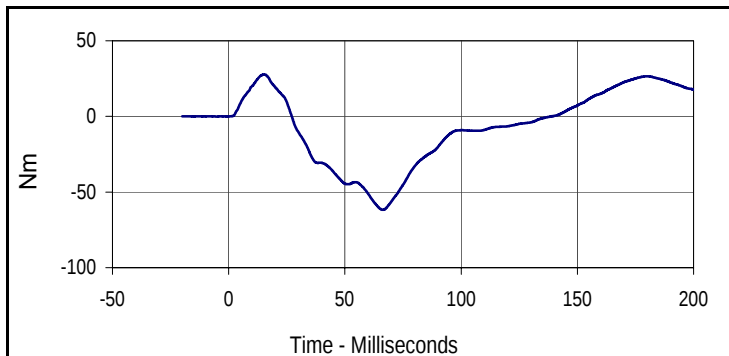
ATD Serial No.: 035

Test Date: 1/11/13

Test I.D.: M035NE050



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
543.9	62.2	-223.5	184.3



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
27.8	15.0	-61.8	66.2

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

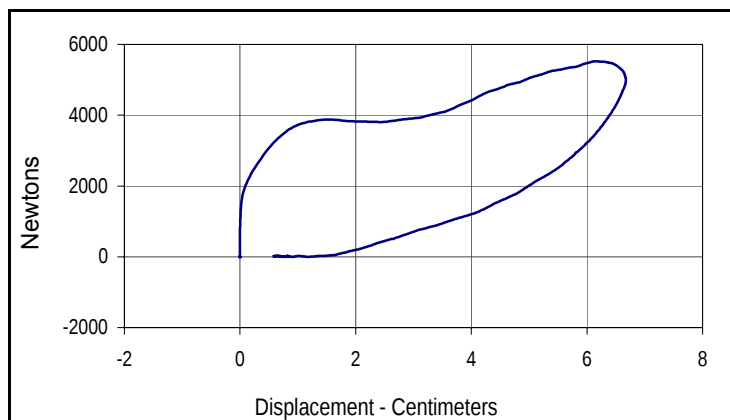
Test Date: 1/11/13



ATD Serial No.: 035

Test I.D.: M035CH050

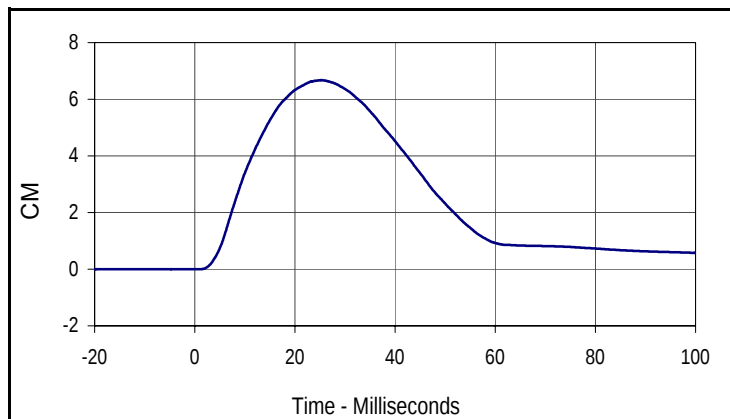
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	500	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.9	Pass
	Min	°C		20.9	Pass
Humidity During Soak	Max	%	10.0 to 70.0	32.5	Pass
	Min	%		26.5	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	29.6	Pass
Probe Velocity		m/s	6.58 to 6.82	6.69	Pass
Peak Probe Force		Newtons	5159 to 5893	5523	Pass
Peak Sternum Deflection		CM	6.35 to 7.26	6.67	Pass
Internal Hysteresis		%	69 to 85	71.0	Pass
Overall Test Results				Pass	



Curve Description

Probe Force vs. Chest Deflection

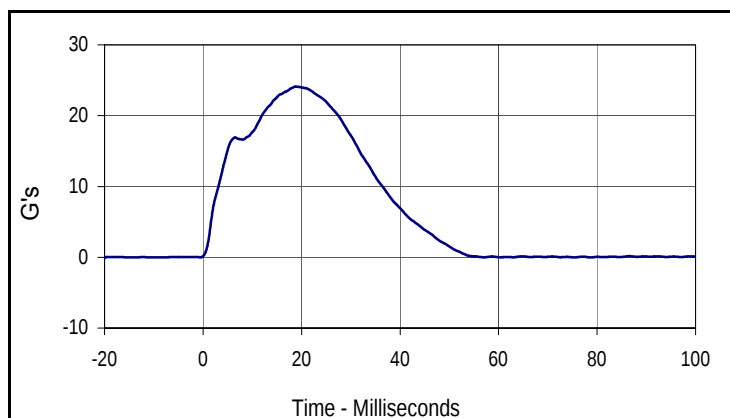
Plot No.	Type	SAE Class	Hysteresis
001	FIL	180	71.0
Peak Probe Force		Peak Chest Deflection	
5523		6.67	



Curve Description

Chest Deflection

Plot No.	Type	SAE Class	Units
002	FIL	180	CM
Max	Time	Min	Time
6.7	25.3	0.0	0.9



Curve Description

Impactor Acceleration

Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
24.1	18.8	0.0	-9.6

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

Test Date: 1/11/13

ATD Serial No.: 035

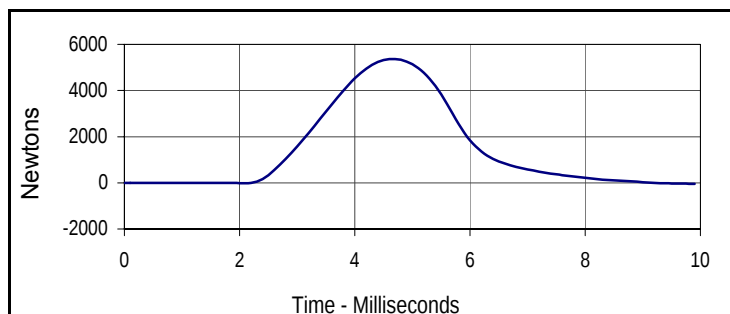
Test I.D.: M035LK050, M035RK050

**Left Knee**

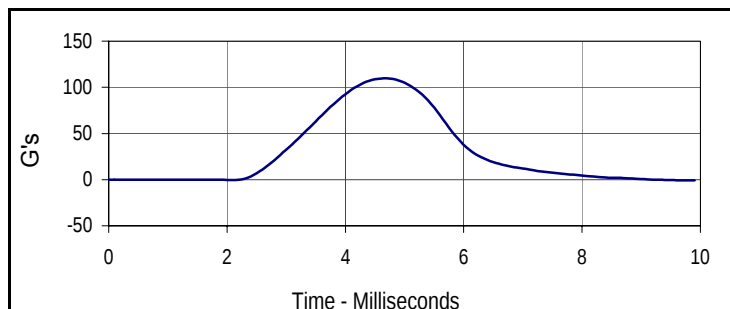
Tested Parameter		Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time		Minutes	≥240	535	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.9	Pass
	Min	°C		20.9	Pass
Humidity During Soak	Max	%	10.0 to 70.0	32.5	Pass
	Min	%		26.5	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	29.7	Pass
Pendulum Velocity at T=0		m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force		Newtons	4715 to 5782	5366	Pass
Overall Test Results				Pass	

Right Knee

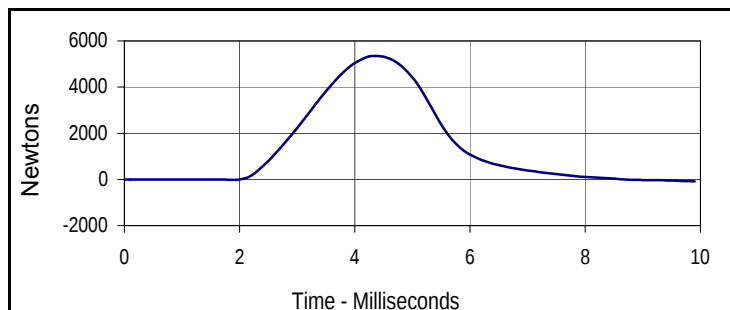
Pendulum Velocity at T=0		m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force		Newtons	4715 to 5782	5354	Pass
Overall Test Results				Pass	

**Curve Description****Left Knee Probe Force**

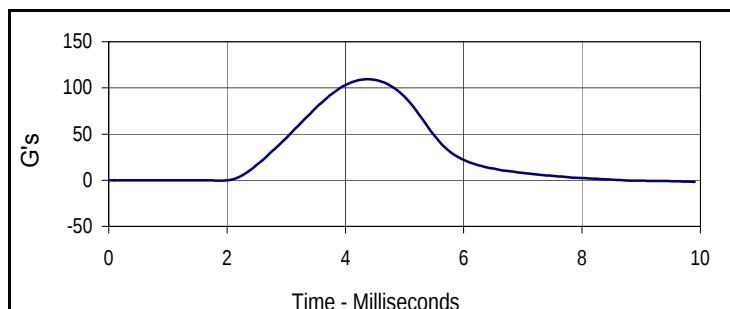
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5366.1	4.7	-41.5	9.9

**Curve Description****Left Knee Acceleration**

Plot No.	Type	SAE Class	Units
002	FIL	600	G's
Max	Time	Min	Time
109.7	4.7	-0.8	9.9

**Curve Description****Right Knee Probe Force**

Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
5353.9	4.4	-84.9	9.9

**Curve Description****Right Knee Acceleration**

Plot No.	Type	SAE Class	Units
004	FIL	600	G's
Max	Time	Min	Time
109.4	4.4	-1.7	9.9

Test Program: Hybrid III 50th Percentile Male Hip Joint-Femur Flexion Test

Test Date: 1/11/13

ATD Serial No.: 035

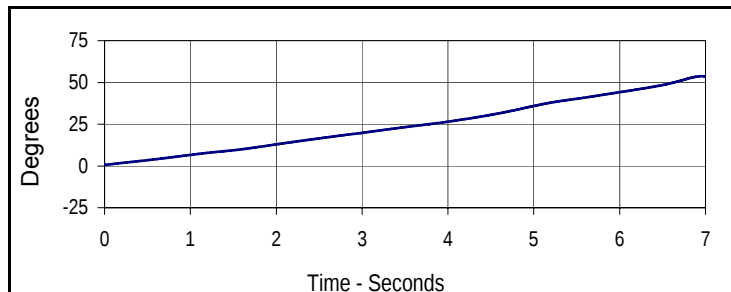
Test I.D.: M035LF050, M035RF050

**Left Hip Joint-Femur Results**

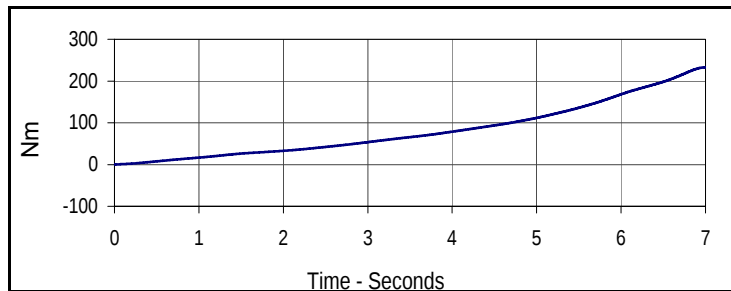
Tested Parameter	Units	Specification	Result	Pass/Fail
Hip Joint-Femur Assembly Soak Time	Minutes	≥240	585	Pass
Temperature During Soak	Max	18.9 to 25.6	21.9	Pass
	Min		20.9	Pass
Humidity During Soak	Max	10.0 to 70.0	32.5	Pass
	Min		26.5	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.7	Pass
Rotation Rate	deg/sec	5 to 10	7.7	Pass
Femur Torque at 30°	Nm	≤ 95	91.8	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	49.2	Pass
Overall Test Results				Pass

Right Hip Joint-Femur Results

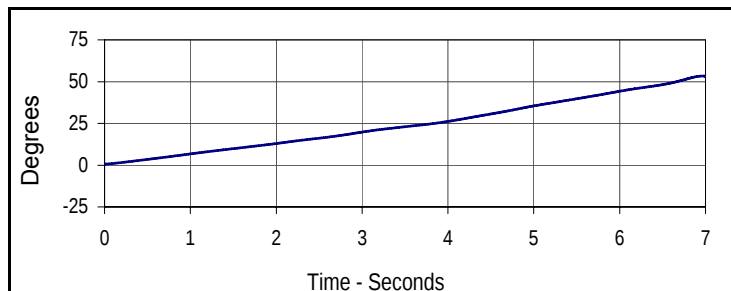
Rotation Rate	deg/sec	5 to 10	7.7	Pass
Femur Torque at 30°	Nm	≤ 95	94.3	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	48.7	Pass
Overall Test Results				Pass

**Curve Description****Left Hip-Femur Rotation**

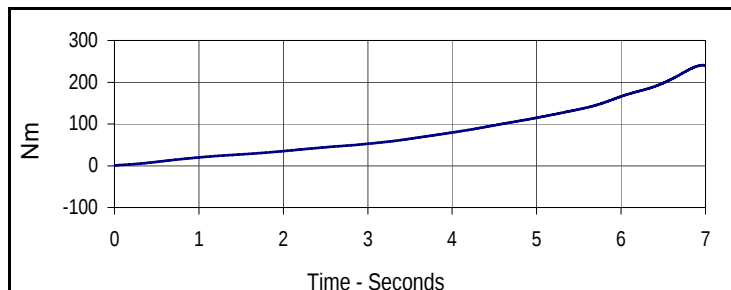
Plot No.	Type	SAE Class	Units
001	FIL	60	Degrees
Max	Time	Min	Time
53.7	7.0	0.6	0.0

**Curve Description****Left Femur Torque**

Plot No.	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
232.4	7.0	0.3	0.0

**Curve Description****Right Hip-Femur Rotation**

Plot No.	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
53.3	7.0	0.5	0.0

**Curve Description****Right Femur Torque**

Plot No.	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
240.7	7.0	1.1	0.0

Test Program: Hybrid III 5th Percentile Female Dummy Damage Checklist

Test Date: 12/20/12



ATD Serial No.: 141

Test I.D.: N/A

Dummy Item	Inspect for	Comments	Damaged	OK
Entire Dummy	Perform general cleaning			X
Outer Skin	Gashes, rips, cracks			X
Head	Ballast secure			X
	General appearance			X
Neck	Broken or cracked rubber			X
	Upper neck bracket firmly attached to the lower neck bracket			X
	Looseness at the condyle joint			X
	Nodding blocks cracked or out of position			X
Spine	Broken or cracks in rubber			X
Ribs	Broken or bent ribs			X
	Broken or bent rib supports			X
	Damping material separated or cracked			X
	Rubber bumpers in place			X
Chest Displacement Assembly	Bent shaft			X
	Slider arm riding in track			X
Transducer Leads	Torn cables			X
Accelerometer Mountings	Head mounting secure			X
	Chest mounting secure			X
Knees	Skin condition			X
	Insert (do not remove)			X
	Casting			X
Limbs	Normal movement and adjustment			X
Knee Sliders	Wires intact			X
	Rubber returned to "at rest" position			X
Pelvis	Broken			X
Other				X

Describe the repair on repair or replacement of parts:

Test Program: Hybrid III 5th Percentile Female External Measurements

Test Date: 12/20/12



ATD Serial No.: 141

Test I.D.: N/A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	30.1	Pass
A - Total sitting height	mm	774.7 to 800.1	784	Pass
B - Shoulder pivot height	mm	431.8 to 457.2	450	Pass
C - H point height	mm	81.3 to 86.3	85	Pass
D - H point location from backline	mm	144.8 to 149.8	146	Pass
E - Shoulder pivot from backline	mm	68.6 to 83.8	77	Pass
F - Thigh clearance	mm	119.4 to 134.6	126	Pass
G - Back of elbow to wrist pivot	mm	243.9 to 259.1	250	Pass
H - Head back to backline	mm	40.7 to 45.7	44	Pass
I - Shoulder to elbow length	mm	276.8 to 297.2	285	Pass
J - Elbow rest height	mm	182.8 to 203.2	197	Pass
K - Buttock to knee length	mm	520.7 to 546.1	531	Pass
L - Popliteal length	mm	355.6 to 376.0	371	Pass
M - Knee pivot height	mm	393.7 to 419.1	401	Pass
N - Buttock popliteal length	mm	414.0 to 439.4	420	Pass
O - Chest depth without jacket	mm	175.3 to 190.5	185	Pass
P - Foot length	mm	218.5 to 233.7	221	Pass
R - Buttock to Knee Pivot Length	mm	457.2 to 482.6	473	Pass
S - Head Breadth	mm	137.1 to 147.3	144	Pass
T - Head Depth	mm	177.8 to 188.0	180	Pass
U - Hip Breadth	mm	299.7 to 314.9	302	Pass
V - Shoulder breadth	mm	350.5 to 365.7	359	Pass
W - Foot breadth	mm	78.8 to 94.0	90	Pass
X - Head circumference	mm	528.3 to 548.7	541	Pass
Y - Chest circumference (with chest jacket)	mm	850.8 to 881.3	864	Pass
Z - Waist circumference	mm	759.5 to 789.9	768	Pass
AA - Location for chest circumference	mm	299.7 to 309.9	300	Pass
BB - Location for waist circumference	mm	160.1 to 170.2	165	Pass
Overall Test Results				Pass

Test Program: Hybrid III 5th Percentile Female Head Drop Test

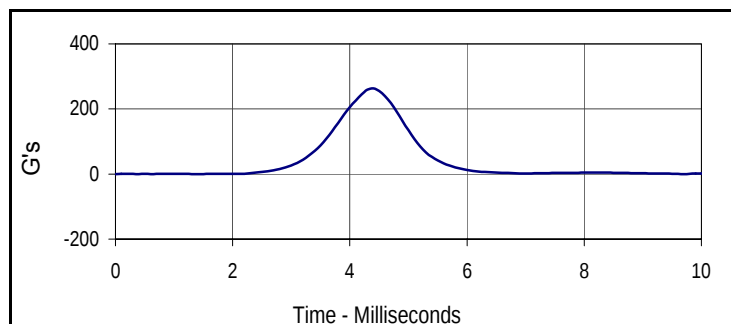
Test Date: 12/20/12



ATD Serial No.: 141

Test I.D.: F141HD052

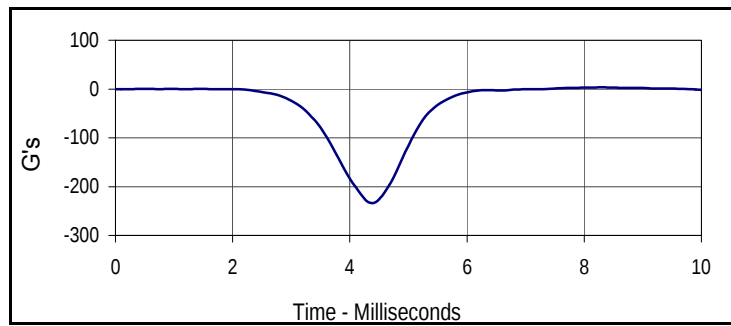
Tested Parameter		Units	Specification	Result	Pass/Fail
Head Assembly Soak Time		Minutes	≥240	375	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.8	Pass
	Min	°C		20.8	Pass
Humidity During Soak	Max	%	10.0 to 70.0	33.1	Pass
	Min	%		29.5	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	30.1	Pass
Peak Resultant Acceleration		G's	250.0 to 300.0	263.6	Pass
Peak Lateral Acceleration		G's	≤15.0	5.4	Pass
Oscillations After Main Pulse		%	<10% of peak Res. Acceleration	1.7	Pass
Is Acceleration Unimodal?		Yes/No	Yes	Yes	Pass
Overall Test Results				Pass	



Curve Description

Head Resultant

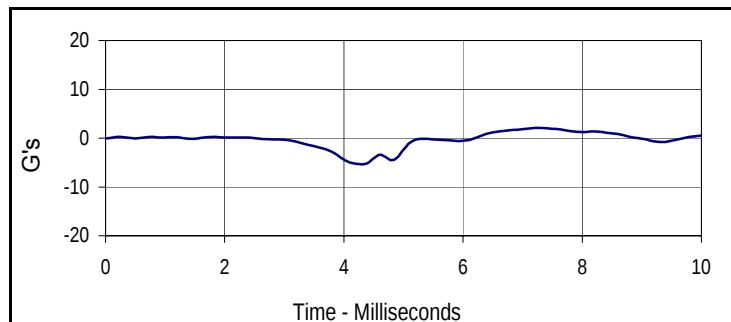
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
263.6	4.4	0.1	0.6



Curve Description

Head X

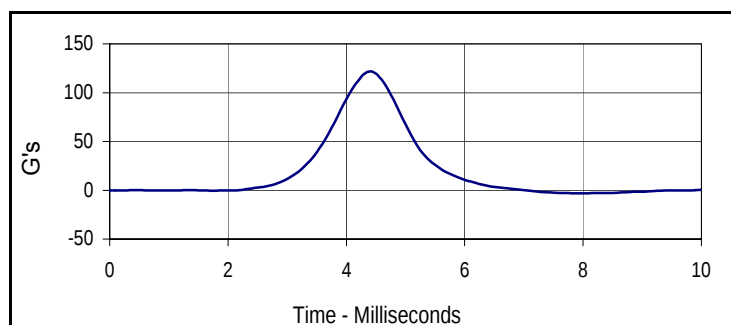
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.7	8.0	-233.7	4.4



Curve Description

Head Y

Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
2.1	7.3	-5.4	4.3



Curve Description

Head Z

Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
121.9	4.4	-3.0	7.9

Test Program: Hybrid III 5th Percentile Female Neck Flexion Test

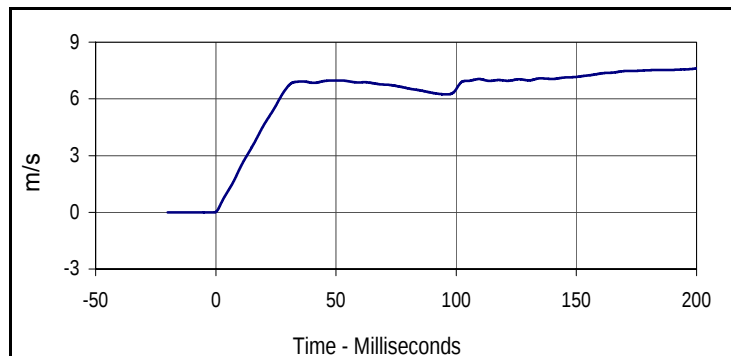
Test Date: 12/20/12



ATD Serial No.: 141

Test I.D.: F141NF052

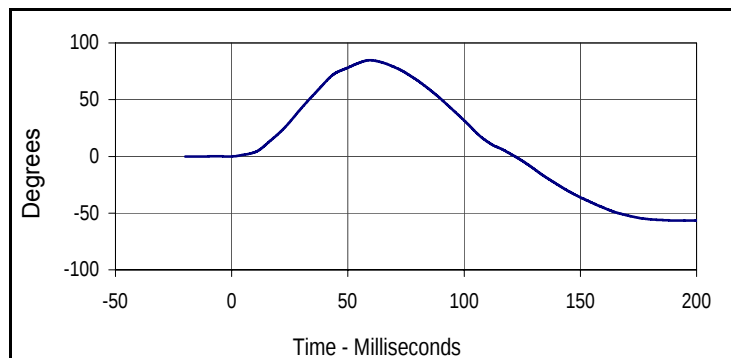
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	430	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.8	Pass
	Min	°C		20.8	Pass
Humidity During Soak	Max	%	10.0 to 70.0	33.1	Pass
	Min	%		29.5	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	30.1	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.02	Pass
Pendulum Deceleration	10 Msec.	m/s	2.1 to 2.5	2.3	Pass
	20 Msec.	m/s	4.0 to 5.0	4.6	Pass
	30 Msec.	m/s	5.8 to 7.0	6.7	Pass
"D" Plane Rotation	Max	Degrees	77.0 to 91.0	84.7	Pass
Peak Moment in Rotation	Max	Nm	69.0 to 83.0	73.4	Pass
Positive Moment Decay, Time To 10 Nm		Msec.	80.0 to 100.0	87.1	Pass
Overall Test Results				Pass	



Curve Description

Pendulum Velocity

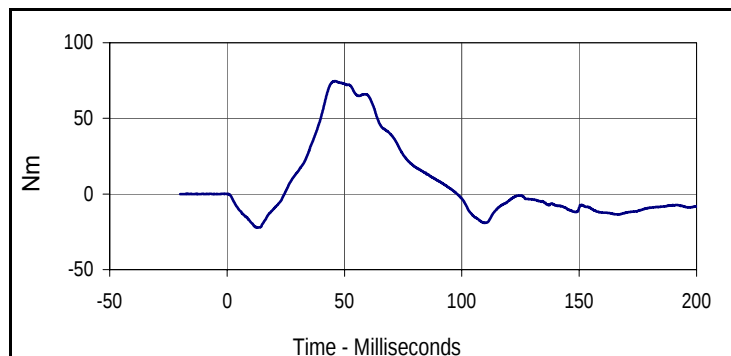
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
7.6	200.0	0.0	-0.9



Curve Description

"D" Plane Rotation

Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
84.7	59.5	-56.7	196.3



Curve Description

Moment About Occipital Condyle

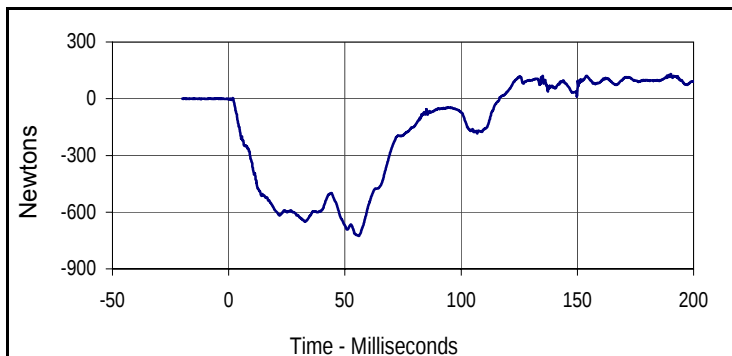
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
74.6	46.2	-22.3	12.9

Test Program: Hybrid III 5th Percentile Female Neck Flexion Test

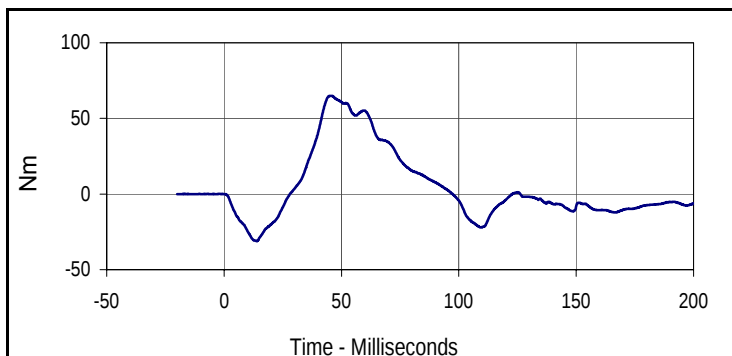
ATD Serial No.: 141

Test Date: 12/20/12

Test I.D.: F141NF052



Curve Description			
Upper Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
130.0	190.2	-725.7	56.0



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
65.0	45.6	-31.1	14.0

Test Program: Hybrid III 5th Percentile Female Neck Extension Test

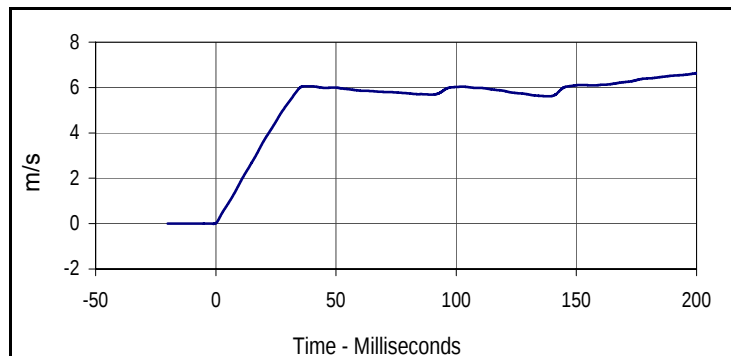
Test Date: 12/20/12



ATD Serial No.: 141

Test I.D.: F141NE052

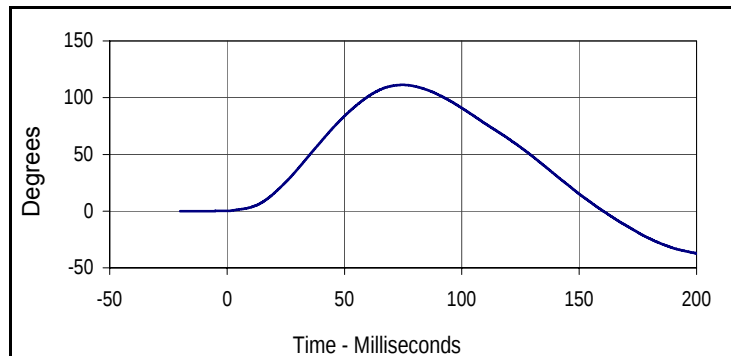
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	465	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.8	Pass
	Min	°C		20.8	Pass
Humidity During Soak	Max	%	10.0 to 70.0	33.1	Pass
	Min	%		29.5	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	30.1	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.00	Pass
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.8	Pass
	20 Msec.	m/s	3.1 to 3.9	3.7	Pass
	30 Msec.	m/s	4.6 to 5.6	5.3	Pass
"D" Plane Rotation	Max	Degrees	99.0 to 114.0	111.3	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	-60.5	Pass
Positive Moment Decay, Time To -10 Nm		Msec.	94.0 to 114.0	100.3	Pass
Overall Test Results				Pass	



Curve Description

Pendulum Velocity

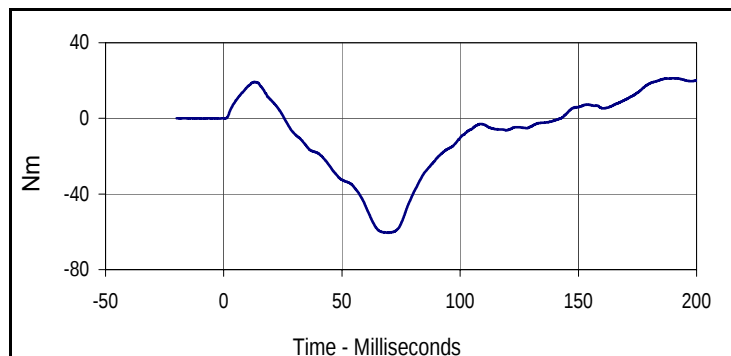
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
6.6	200.0	0.0	-0.9



Curve Description

"D" Plane Rotation

Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
111.3	74.8	-37.2	200.0



Curve Description

Moment About Occipital Condyle

Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
21.2	190.4	-60.5	70.1

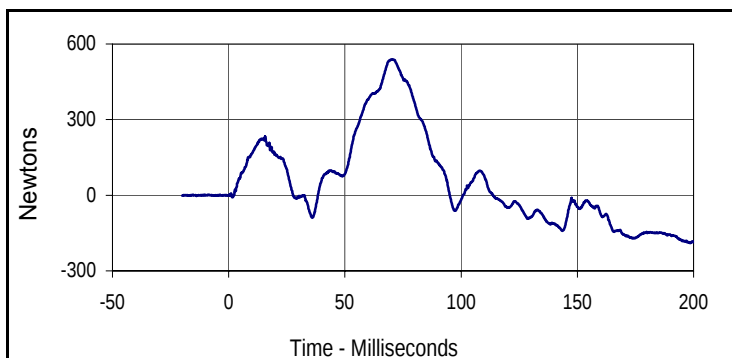
Test Program: Hybrid III 5th Percentile Female Neck Extension Test

Test Date: 12/20/12

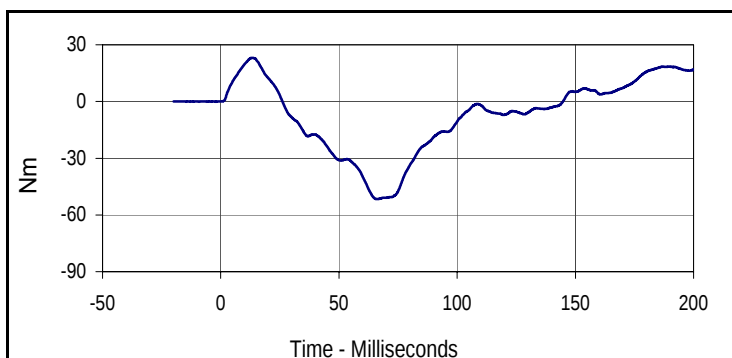


ATD Serial No.: 141

Test I.D.: F141NE052



Curve Description			
Upper Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
539.0	70.7	-189.4	198.5



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
23.1	13.3	-51.7	65.8

Test Program: Hybrid III 5th Percentile Female Thorax Impact Test

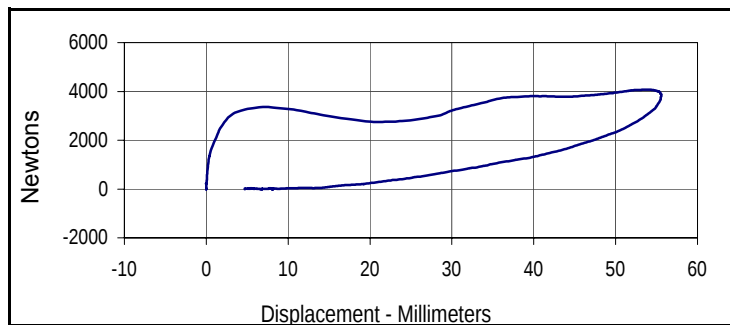
Test Date: 12/20/12



ATD Serial No.: 141

Test I.D.: F141CH052

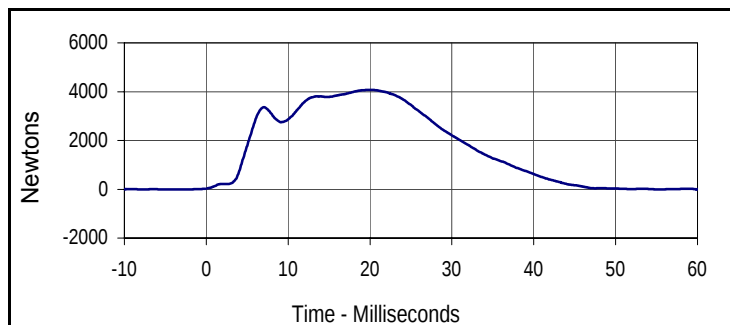
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	515	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.8	Pass
	Min	°C		20.8	Pass
Humidity During Soak	Max	%	10.0 to 70.0	33.1	Pass
	Min	%		29.5	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	30.1	Pass
Probe Velocity		m/s	6.59 to 6.83	6.65	Pass
Peak Chest Deflection		mm	50.0 to 58.0	55.6	Pass
Peak Force Between 50 and 58 MM		Newtons	3900 to 4400	3957	Pass
Peak Force Between 18 and 50 MM		Newtons	≤4600	4071	Pass
Internal Hysteresis		%	69 to 85	73.0	Pass
Overall Test Results					Pass



Curve Description

Probe Force vs. Chest Deflection

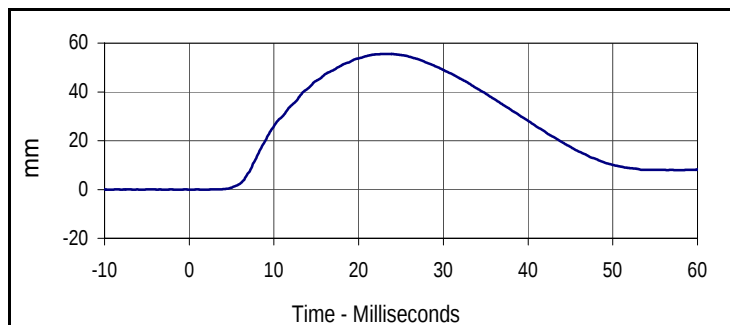
Plot No.	Type	SAE Class	Hysteresis
001	FIL	180	73.0
Peak Probe Force		Peak Chest Deflection	
4071.2		55.6	



Curve Description

Probe Force

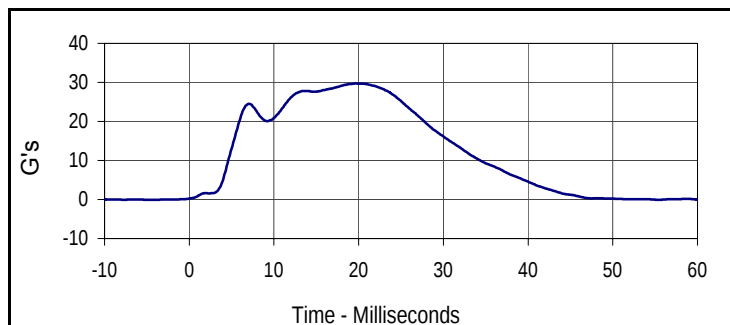
Plot No.	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4071.2	19.7	-13.2	72.8



Curve Description

Chest Deflection

Plot No.	Type	SAE Class	Units
003	FIL	600	mm
Max	Time	Min	Time
55.6	23.2	0.0	2.0



Curve Description

Impactor Acceleration

Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
29.7	19.7	-0.1	72.8

Test Program: Hybrid III 5th Percentile Female Knee Impact Test

Test Date: 12/20/12

ATD Serial No.: 141

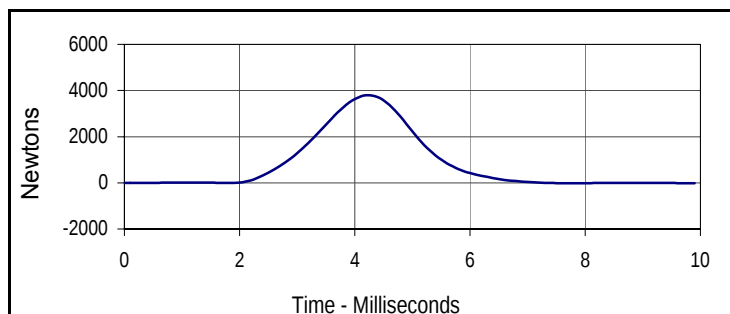
Test I.D.: F141LK052, F141RK052

**Left Knee**

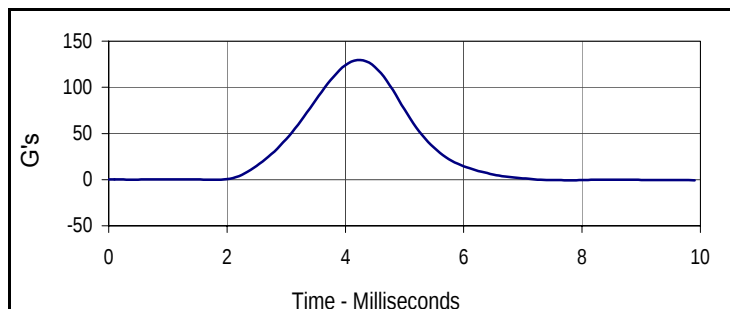
Tested Parameter		Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time		Minutes	≥240	545	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.8	Pass
	Min	°C		20.8	Pass
Humidity During Soak	Max	%	10.0 to 70.0	33.1	Pass
	Min	%		29.5	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	30.1	Pass
Pendulum Velocity at T=0		m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force		Newtons	3450 to 4060	3797	Pass
Overall Test Results					Pass

Right Knee

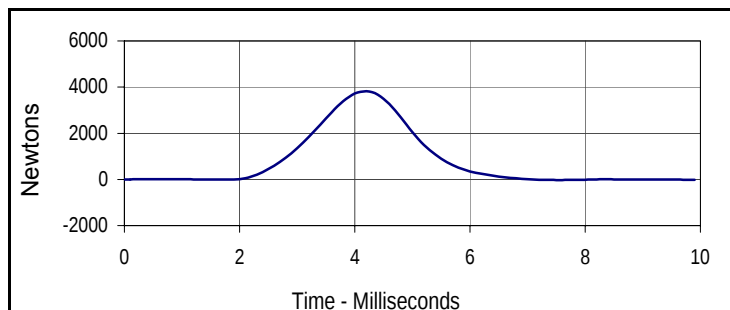
Pendulum Velocity at T=0		m/sec	2.07 to 2.13	2.11	Pass
Peak Probe Force		Newtons	3450 to 4060	3822	Pass
Overall Test Results					Pass

**Curve Description****Left Knee Probe Force**

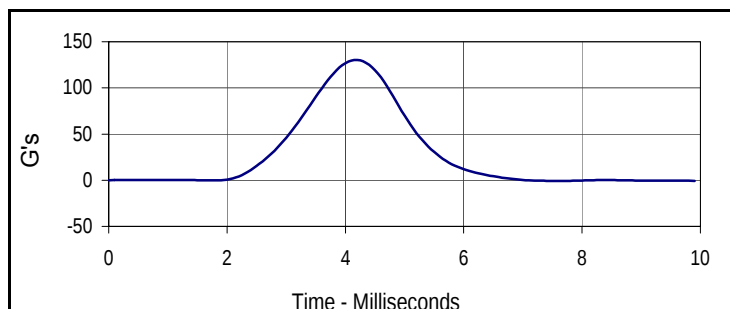
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3796.6	4.2	-19.6	9.9

**Curve Description****Left Knee Acceleration**

Plot No.	Type	SAE Class	Units
002	FIL	600	G's
Max	Time	Min	Time
129.5	4.2	-0.7	9.9

**Curve Description****Right Knee Probe Force**

Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
3821.9	4.2	-25.3	7.6

**Curve Description****Right Knee Acceleration**

Plot No.	Type	SAE Class	Units
004	FIL	600	G's
Max	Time	Min	Time
130.4	4.2	-0.9	7.6

Test Program: Hybrid III 5th Percentile Female Torso Flexion Test

Test Date: 12/20/12

ATD Serial No.: 141

Test I.D.: F141TF052

**Left Hip Joint-Femur Results**

Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	570	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.8	Pass
	Min	°C		20.8	Pass
Humidity During Soak	Max	%	10.0 to 70.0	33.1	Pass
	Min	%		29.5	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	30.1	Pass
Initial Reference Plane Angle		Degrees	≤ 20	3.5	Pass
Peak Force at 45° +/-0.5°		Newtons	320.0 to 390.0	349.1	Pass
Torso Rotation Rate		deg/sec	0.5 to 1.5	0.9	Pass
Final Reference Plane Angle		Degrees	+/-8	2.9	Pass
Overall Test Results					Pass

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

Test Program: Hybrid III 50th Percentile Male Dummy Damage Checklist

Test Date: 1/16/13



ATD Serial No.: 035

Test I.D.: N/A

Dummy Item	Inspect for	Comments	Damaged	OK
Entire Dummy	Perform general cleaning			X
Outer Skin	Gashes, rips, cracks			X
Head	Ballast secure			X
	General appearance			X
Neck	Broken or cracked rubber			X
	Upper neck bracket firmly attached to the lower neck bracket			X
	Looseness at the condyle joint			X
	Nodding blocks cracked or out of position			X
Spine	Broken or cracks in rubber			X
Ribs	Broken or bent ribs			X
	Broken or bent rib supports			X
	Damping material separated or cracked			X
	Rubber bumpers in place			X
Chest Displacement Assembly	Bent shaft			X
	Slider arm riding in track			X
Transducer Leads	Torn cables			X
Accelerometer Mountings	Head mounting secure			X
	Chest mounting secure			X
Knees	Skin condition			X
	Insert (do not remove)			X
	Casting			X
Limbs	Normal movement and adjustment			X
Knee Sliders	Wires intact			X
	Rubber returned to "at rest" position			X
Pelvis	Broken			X
Other				X

Describe the repair on repair or replacement of parts:

Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 1/16/13

ATD Serial No.: 035

Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.13	Pass
Laboratory Relative Humidity	%	10 to 70	29.6	Pass
A - Total sitting height	mm	879 to 889	884	Pass
B - Shoulder pivot height	mm	505 to 521	512	Pass
C - H point height	mm	84 to 89	85	Pass
D - H point location from backline	mm	135 to 140	137	Pass
E - Shoulder pivot from backline	mm	84 to 94	89	Pass
F - Thigh clearance	mm	140 to 155	146	Pass
G - Back of elbow to wrist pivot	mm	290 to 305	297	Pass
H - Head back to backline	mm	41 to 46	43	Pass
I - Shoulder to elbow length	mm	330 to 345	336	Pass
J - Elbow rest height	mm	190 to 211	201	Pass
K - Buttock to knee length	mm	579 to 604	586	Pass
L - Popliteal length	mm	429 to 455	438	Pass
M - Knee pivot height	mm	485 to 500	493	Pass
N - Buttock popliteal length	mm	452 to 477	472	Pass
O - Chest depth without jacket	mm	213 to 229	225	Pass
P - Foot length	mm	251 to 267	260	Pass
V - Shoulder breadth	mm	422 to 437	433	Pass
W - Foot breadth	mm	91 to 107	99	Pass
Y - Chest circumference (with chest jacket)	mm	970 to 1001	981	Pass
Z - Waist circumference	mm	836 to 866	864	Pass
AA - Location for chest circumference	mm	429 to 434	429	Pass
BB - Location for waist circumference	mm	226 to 231	230	Pass
Overall Test Results				Pass

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

Test Date: 1/16/13



ATD Serial No.: 035

Test I.D.: M035HD051

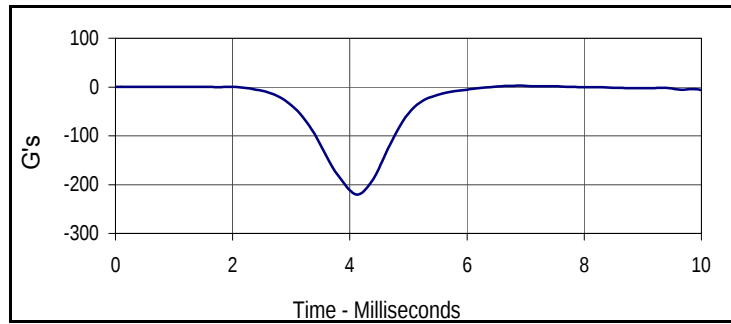
Tested Parameter		Units	Specification	Result	Pass/Fail
Head Assembly Soak Time		Minutes	≥240	340	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.9	Pass
	Min	°C		21.0	Pass
Humidity During Soak	Max	%	10.0 to 70.0	31.1	Pass
	Min	%		25.3	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	29.6	Pass
Peak Resultant Acceleration		G's	225.0 to 275.0	256.1	Pass
Peak Lateral Acceleration		G's	≤15.0	6.4	Pass
Oscillations After Main Pulse		%	<10% of peak Res. Acceleration	5.2	Pass
Is Acceleration Unimodal?		Yes/No	Yes	Yes	Pass
Overall Test Results				Pass	



Curve Description

Head Resultant

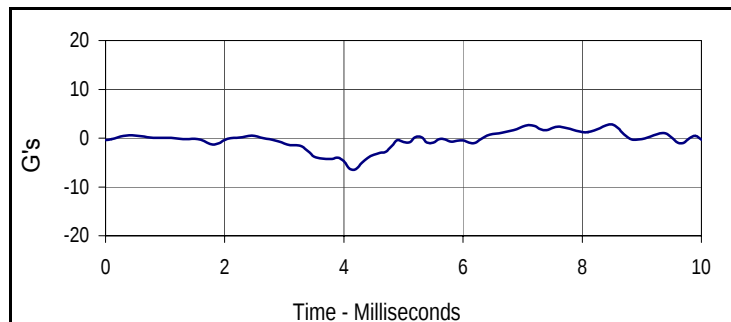
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
256.1	4.1	0.2	1.0



Curve Description

Head X

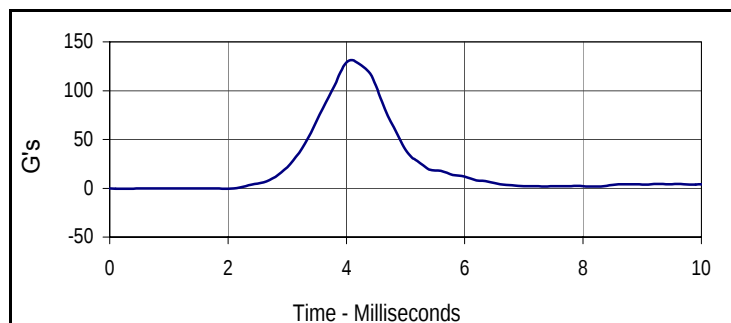
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.7	6.9	-219.7	4.1



Curve Description

Head Y

Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
2.7	7.1	-6.4	4.2



Curve Description

Head Z

Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
131.4	4.1	-0.5	0.3

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

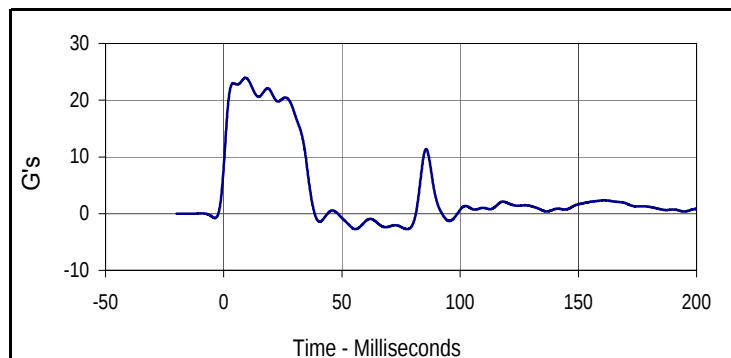
Test Date: 1/16/13

ATD Serial No.: 035

Test I.D.: M035NF051



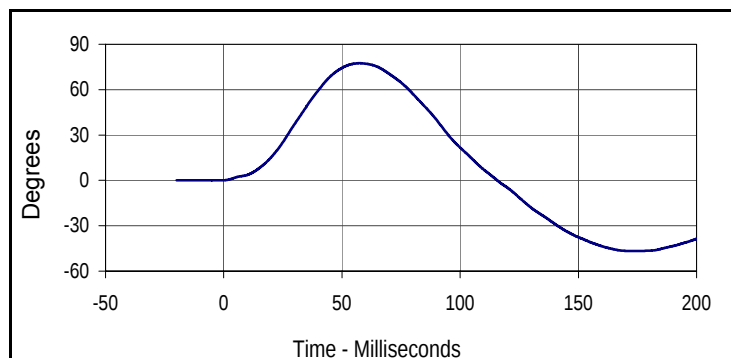
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	390	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.9	Pass
	Min	°C		21.0	Pass
Humidity During Soak	Max	%	10.0 to 70.0	31.1	Pass
	Min	%		25.3	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.1	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	29.6	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.94	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.8	Pass
	20 Msec.	G's	17.6 to 22.6	21.5	Pass
	30 Msec.	G's	12.5 to 18.5	17.6	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	17.6	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	36.3	Pass
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	77.4	Pass
	Time	Msec.	57.0 to 64.0	57.4	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	115.7	Pass
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	95.5	Pass
	Time	Msec.	47.0 to 58.0	51.4	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	98.0	Pass
Overall Test Results					Pass



Curve Description

Pendulum Deceleration

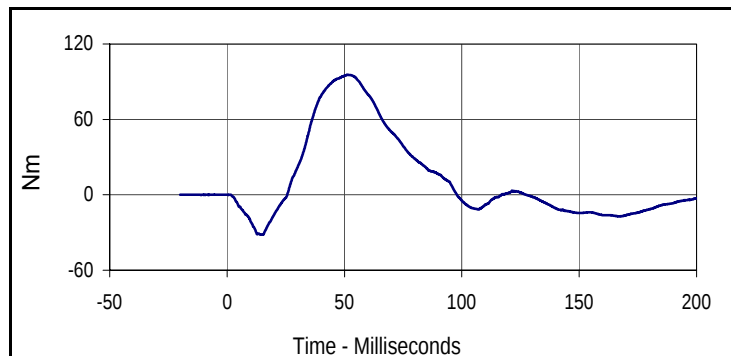
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
23.9	9.2	-2.7	77.6



Curve Description

"D" Plane Rotation

Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
77.4	57.4	-46.8	173.3



Curve Description

Moment About Occipital Condyle

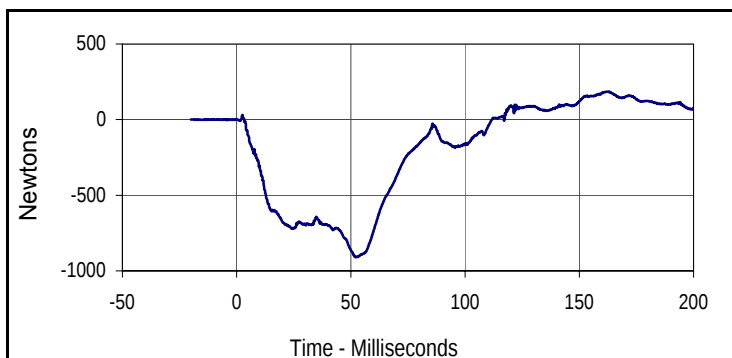
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
95.5	51.4	-31.8	14.1

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

ATD Serial No.: 035

Test Date: 1/16/13

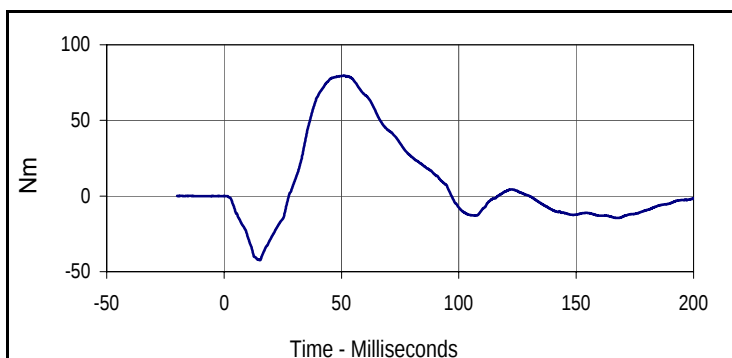
Test I.D.: M035NF051



Curve Description

Neck Force X

Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
185.5	161.8	-909.3	52.4



Curve Description

Neck Moment Y

Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
79.6	51.3	-42.5	15.2

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

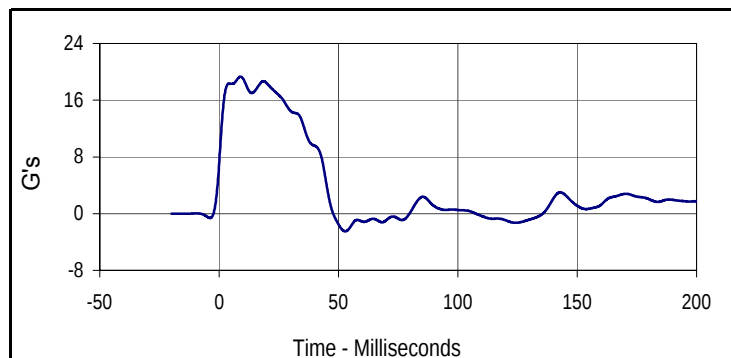
Test Date: 1/16/13



ATD Serial No.: 035

Test I.D.: M035NE051

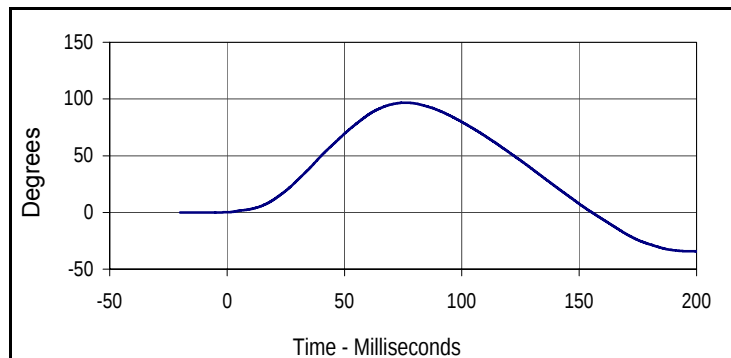
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	425	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.9	Pass
	Min	°C		21.0	Pass
Humidity During Soak	Max	%	10.0 to 70.0	31.1	Pass
	Min	%		25.3	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	29.5	Pass
Pendulum Velocity		m/s	5.94 to 6.19	5.95	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	19.1	Pass
	20 Msec.	G's	14.0 to 19.0	18.4	Pass
	30 Msec.	G's	11.0 to 16.0	14.5	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	14.5	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	44.6	Pass
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	96.7	Pass
	Time	Msec.	72.0 to 82.0	76.1	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	155.4	Pass
Moment About Occ. Condyle	Max	Nm	-52.9 to -79.9	-65.8	Pass
	Time	Msec.	65.0 to 79.0	67.8	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	138.5	Pass
Overall Test Results					Pass



Curve Description

Pendulum Deceleration

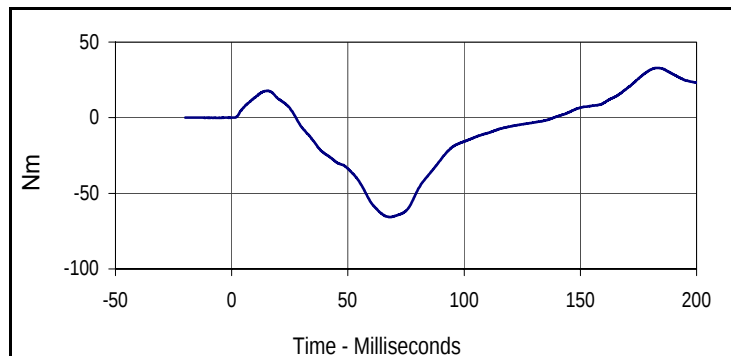
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
19.3	9.0	-2.5	52.8



Curve Description

"D" Plane Rotation

Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
96.7	76.1	-34.3	199.7



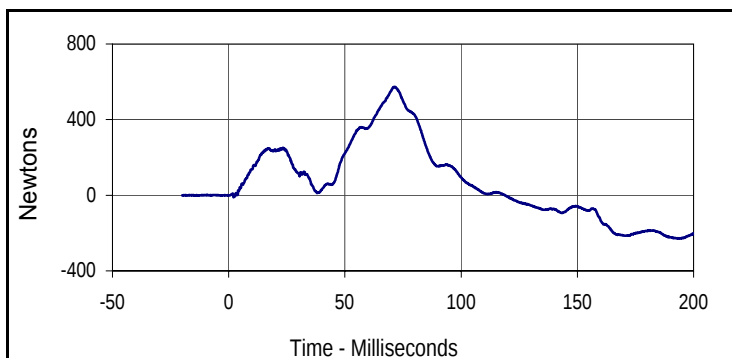
Curve Description

Moment About Occipital Condyle

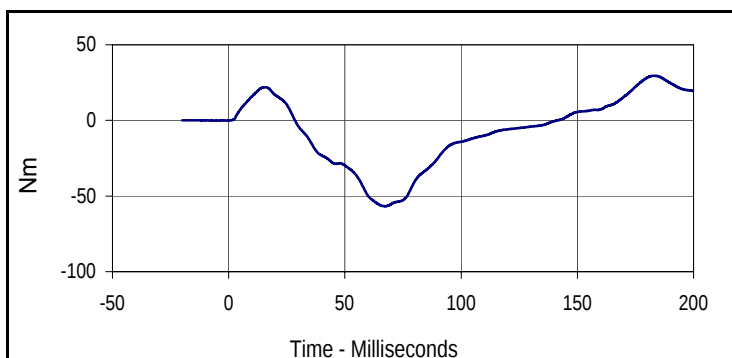
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
32.9	183.4	-65.8	67.8

Test Program: Hybrid III 50th Percentile Male Neck Extension Test
 ATD Serial No.: 035

Test Date: 1/16/13
 Test I.D.: M035NE051



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
572.5	71.3	-228.6	194.4



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
29.5	183.4	-56.8	67.3

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

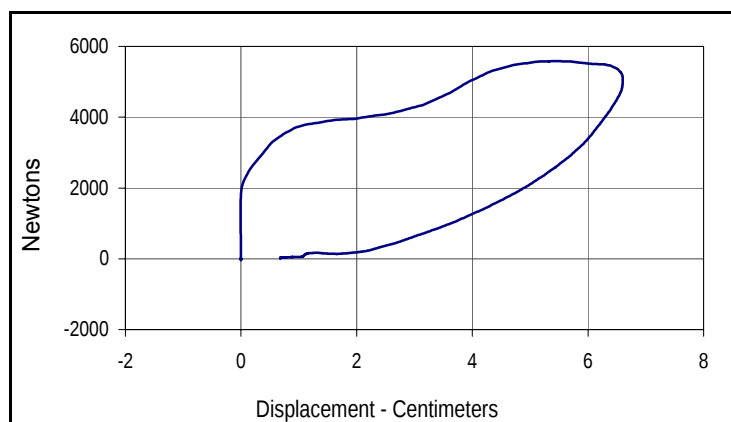
Test Date: 1/16/13



ATD Serial No.: 035

Test I.D.: M035CH051

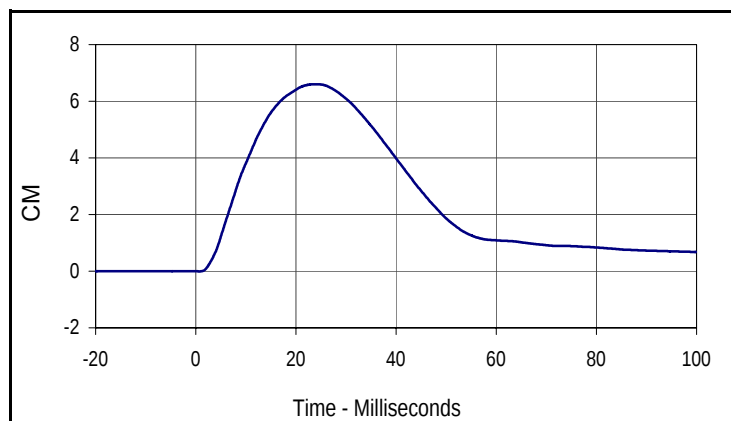
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	475	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.9	Pass
	Min	°C		21.0	Pass
Humidity During Soak	Max	%	10.0 to 70.0	31.1	Pass
	Min	%		25.3	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	29.6	Pass
Probe Velocity		m/s	6.58 to 6.82	6.71	Pass
Peak Probe Force		Newtons	5159 to 5893	5585	Pass
Peak Sternum Deflection		CM	6.35 to 7.26	6.60	Pass
Internal Hysteresis		%	69 to 85	72.4	Pass
Overall Test Results				Pass	



Curve Description

Probe Force vs. Chest Deflection

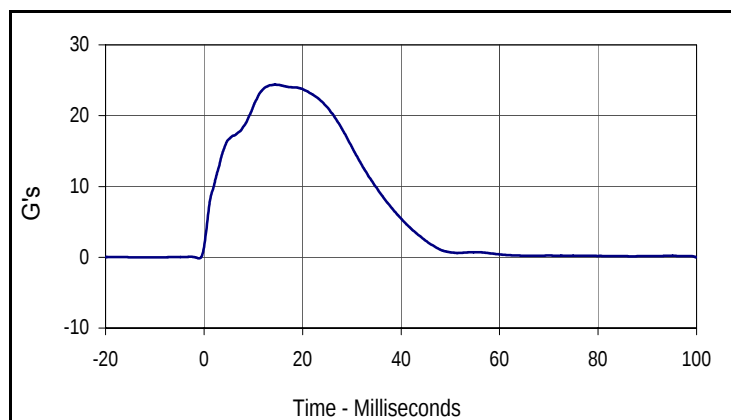
Plot No.	Type	SAE Class	Hysteresis
001	FIL	180	72.4
Peak Probe Force		Peak Chest Deflection	
5585		6.60	



Curve Description

Chest Deflection

Plot No.	Type	SAE Class	Units
002	FIL	180	CM
Max	Time	Min	Time
6.6	23.7	0.0	0.7



Curve Description

Impactor Acceleration

Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
24.4	14.4	-0.2	-1.0

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

Test Date: 1/16/13

ATD Serial No.: 035

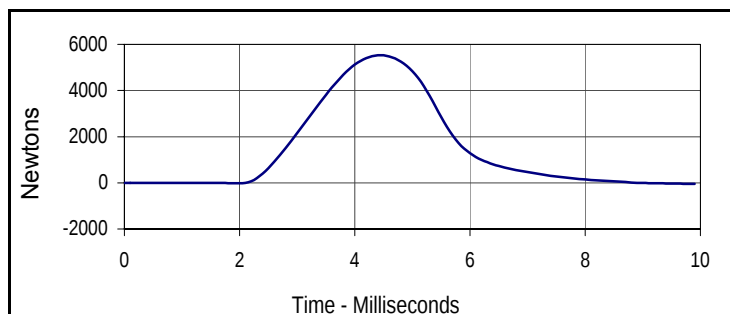
Test I.D.: M035LK051, M035RK051

**Left Knee**

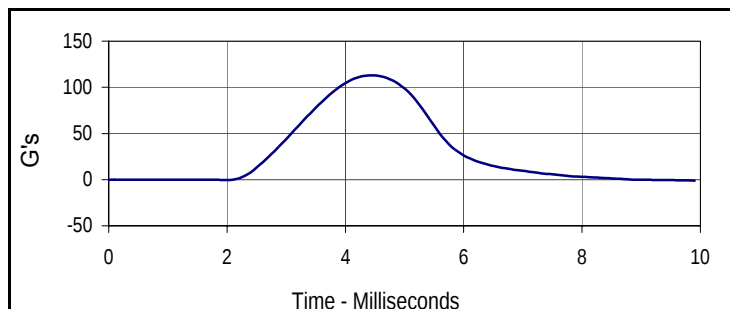
Tested Parameter		Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time		Minutes	≥240	510	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.9	Pass
	Min	°C		21.0	Pass
Humidity During Soak	Max	%	10.0 to 70.0	31.1	Pass
	Min	%		25.3	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	29.6	Pass
Pendulum Velocity at T=0		m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force		Newtons	4715 to 5782	5524	Pass
Overall Test Results				Pass	

Right Knee

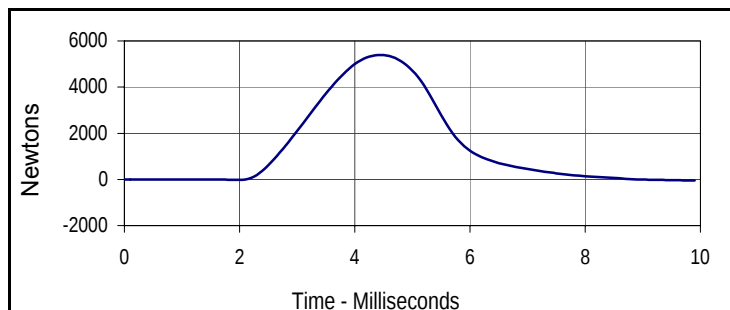
Pendulum Velocity at T=0		m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force		Newtons	4715 to 5782	5390	Pass
Overall Test Results				Pass	

**Curve Description****Left Knee Probe Force**

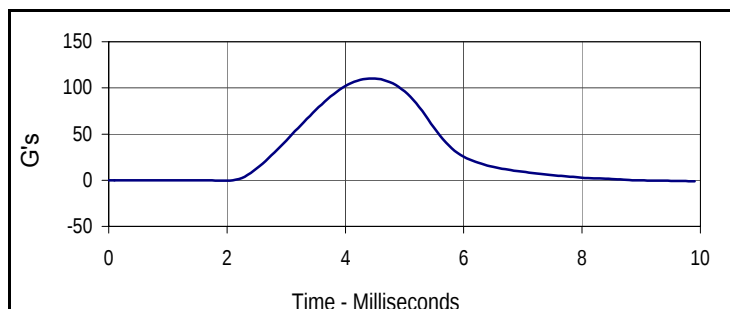
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5524.5	4.4	-49.9	9.9

**Curve Description****Left Knee Acceleration**

Plot No.	Type	SAE Class	Units
002	FIL	600	G's
Max	Time	Min	Time
112.9	4.4	-1.0	9.9

**Curve Description****Right Knee Probe Force**

Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
5390.0	4.4	-51.1	9.9

**Curve Description****Right Knee Acceleration**

Plot No.	Type	SAE Class	Units
004	FIL	600	G's
Max	Time	Min	Time
110.2	4.4	-1.0	9.9

Test Program: Hybrid III 50th Percentile Male Hip Joint-Femur Flexion Test
 ATD Serial No.: 035

Test Date: 1/16/13
 Test I.D.: M035LF051, M035RF051

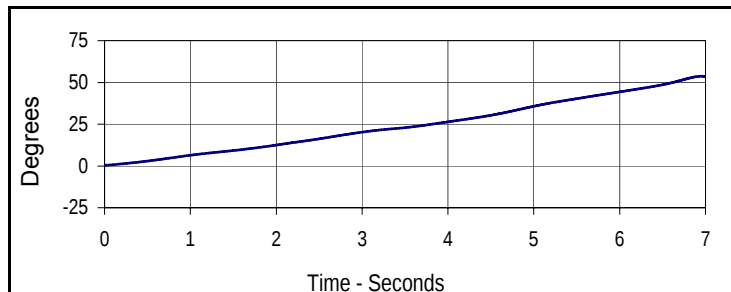


Left Hip Joint-Femur Results

Tested Parameter	Units	Specification	Result	Pass/Fail
Hip Joint-Femur Assembly Soak Time	Minutes	≥240	560	Pass
Temperature During Soak	Max	18.9 to 25.6	21.9	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	31.1	Pass
	Min		25.3	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.6	Pass
Rotation Rate	deg/sec	5 to 10	7.7	Pass
Femur Torque at 30°	Nm	≤ 95	93.1	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	49.4	Pass
Overall Test Results				Pass

Right Hip Joint-Femur Results

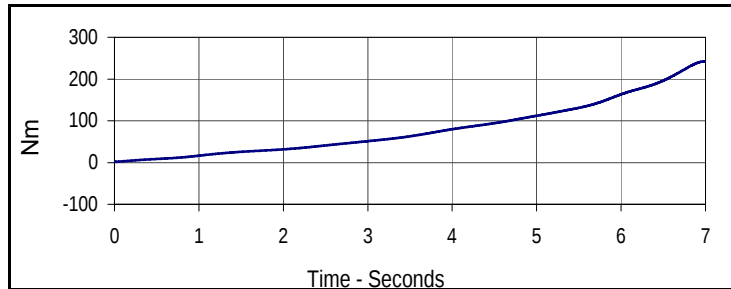
Rotation Rate	deg/sec	5 to 10	7.8	Pass
Femur Torque at 30°	Nm	≤ 95	93.4	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	49.5	Pass
Overall Test Results				Pass



Curve Description

Left Hip-Femur Rotation

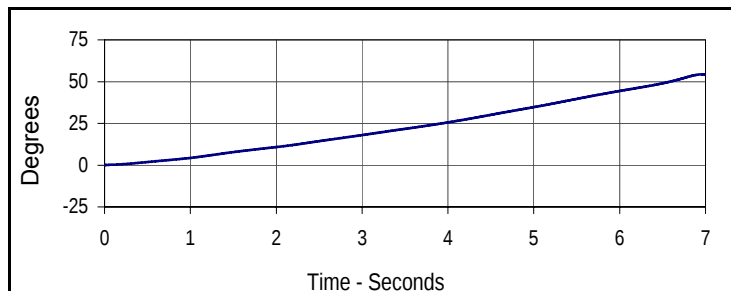
Plot No.	Type	SAE Class	Units
001	FIL	60	Degrees
Max	Time	Min	Time
53.7	6.9	0.4	0.0



Curve Description

Left Femur Torque

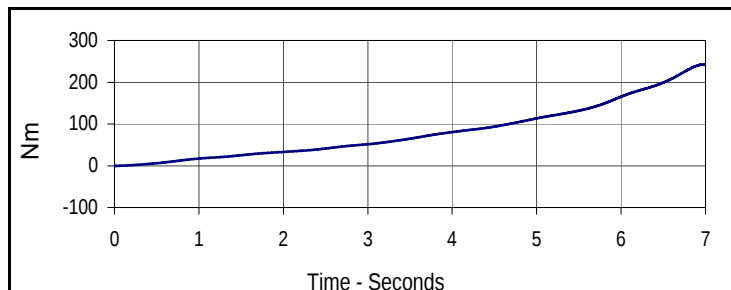
Plot No.	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
242.3	7.0	1.5	0.0



Curve Description

Right Hip-Femur Rotation

Plot No.	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
54.3	7.0	0.1	0.0



Curve Description

Right Femur Torque

Plot No.	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
242.4	7.0	-0.3	0.0

Test Program: Hybrid III 5th Percentile Female Dummy Damage Checklist

Test Date: 1/17/13



ATD Serial No.: 141

Test I.D.: N/A

Dummy Item	Inspect for	Comments	Damaged	OK
Entire Dummy	Perform general cleaning			X
Outer Skin	Gashes, rips, cracks			X
Head	Ballast secure			X
	General appearance			X
Neck	Broken or cracked rubber			X
	Upper neck bracket firmly attached to the lower neck bracket			X
	Looseness at the condyle joint			X
	Nodding blocks cracked or out of position			X
Spine	Broken or cracks in rubber			X
Ribs	Broken or bent ribs			X
	Broken or bent rib supports			X
	Damping material separated or cracked			X
	Rubber bumpers in place			X
Chest Displacement Assembly	Bent shaft			X
	Slider arm riding in track			X
Transducer Leads	Torn cables			X
Accelerometer Mountings	Head mounting secure			X
	Chest mounting secure			X
Knees	Skin condition			X
	Insert (do not remove)			X
	Casting			X
Limbs	Normal movement and adjustment			X
Knee Sliders	Wires intact			X
	Rubber returned to "at rest" position			X
Pelvis	Broken			X
Other				X

Describe the repair on repair or replacement of parts:

Test Program: Hybrid III 5th Percentile Female External Measurements

Test Date: 1/17/13

ATD Serial No.: 141

Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	29.7	Pass
A - Total sitting height	mm	774.7 to 800.1	784	Pass
B - Shoulder pivot height	mm	431.8 to 457.2	450	Pass
C - H point height	mm	81.3 to 86.3	85	Pass
D - H point location from backline	mm	144.8 to 149.8	146	Pass
E - Shoulder pivot from backline	mm	68.6 to 83.8	77	Pass
F - Thigh clearance	mm	119.4 to 134.6	126	Pass
G - Back of elbow to wrist pivot	mm	243.9 to 259.1	250	Pass
H - Head back to backline	mm	40.7 to 45.7	44	Pass
I - Shoulder to elbow length	mm	276.8 to 297.2	285	Pass
J - Elbow rest height	mm	182.8 to 203.2	197	Pass
K - Buttock to knee length	mm	520.7 to 546.1	531	Pass
L - Popliteal length	mm	355.6 to 376.0	371	Pass
M - Knee pivot height	mm	393.7 to 419.1	401	Pass
N - Buttock popliteal length	mm	414.0 to 439.4	420	Pass
O - Chest depth without jacket	mm	175.3 to 190.5	185	Pass
P - Foot length	mm	218.5 to 233.7	221	Pass
R - Buttock to Knee Pivot Length	mm	457.2 to 482.6	473	Pass
S - Head Breadth	mm	137.1 to 147.3	144	Pass
T - Head Depth	mm	177.8 to 188.0	180	Pass
U - Hip Breadth	mm	299.7 to 314.9	302	Pass
V - Shoulder breadth	mm	350.5 to 365.7	359	Pass
W - Foot breadth	mm	78.8 to 94.0	90	Pass
X - Head circumference	mm	528.3 to 548.7	541	Pass
Y - Chest circumference (with chest jacket)	mm	850.8 to 881.3	864	Pass
Z - Waist circumference	mm	759.5 to 789.9	768	Pass
AA - Location for chest circumference	mm	299.7 to 309.9	300	Pass
BB - Location for waist circumference	mm	160.1 to 170.2	165	Pass
Overall Test Results				Pass

Test Program: Hybrid III 5th Percentile Female Head Drop Test

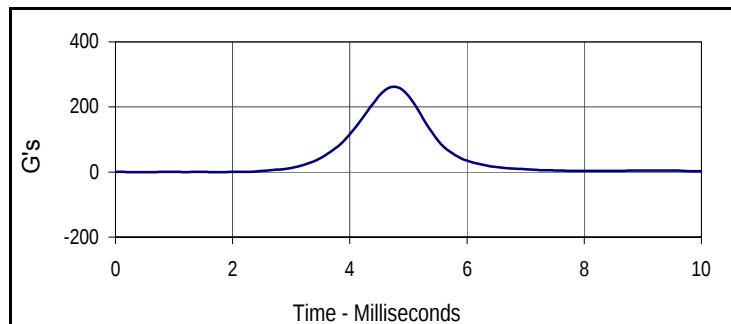
Test Date: 1/17/13

ATD Serial No.: 141

Test I.D.: F141HD053



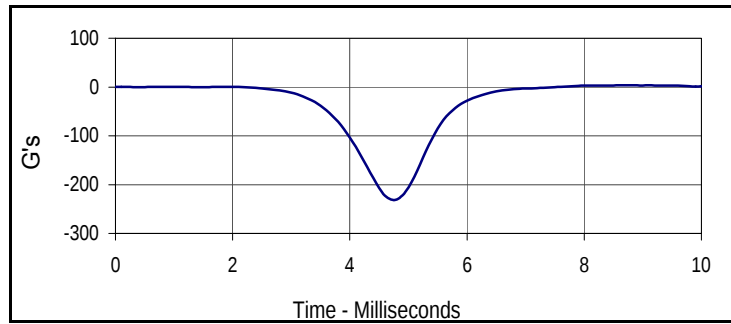
Tested Parameter		Units	Specification	Result	Pass/Fail
Head Assembly Soak Time		Minutes	≥240	320	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.8	Pass
	Min	°C		20.6	Pass
Humidity During Soak	Max	%	10.0 to 70.0	30.2	Pass
	Min	%		24.2	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	29.7	Pass
Peak Resultant Acceleration		G's	250.0 to 300.0	261.5	Pass
Peak Lateral Acceleration		G's	≤15.0	6.2	Pass
Oscillations After Main Pulse		%	<10% of peak Res. Acceleration	1.8	Pass
Is Acceleration Unimodal?		Yes/No	Yes	Yes	Pass
Overall Test Results				Pass	



Curve Description

Head Resultant

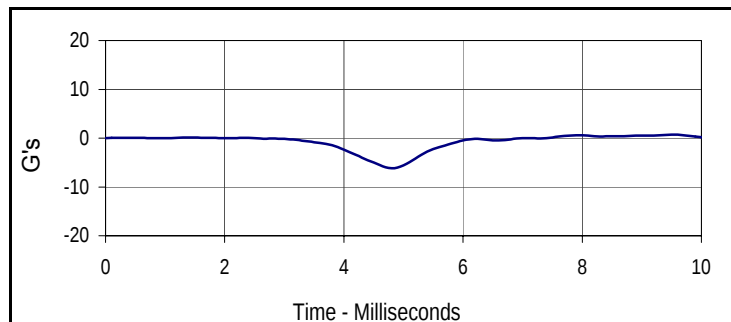
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
261.5	4.8	0.1	0.6



Curve Description

Head X

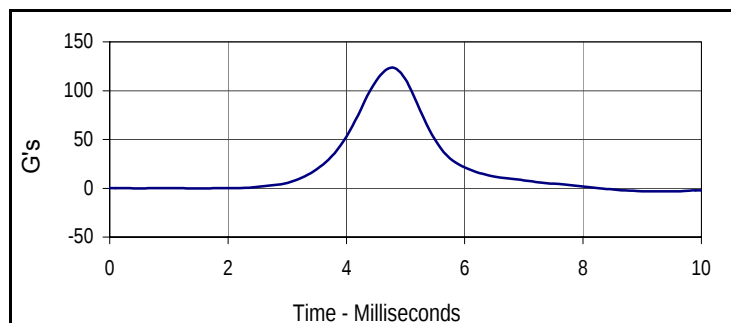
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.7	8.0	-230.4	4.7



Curve Description

Head Y

Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
0.6	8.0	-6.2	4.8



Curve Description

Head Z

Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
123.5	4.8	-0.2	1.4

Test Program: Hybrid III 5th Percentile Female Neck Flexion Test

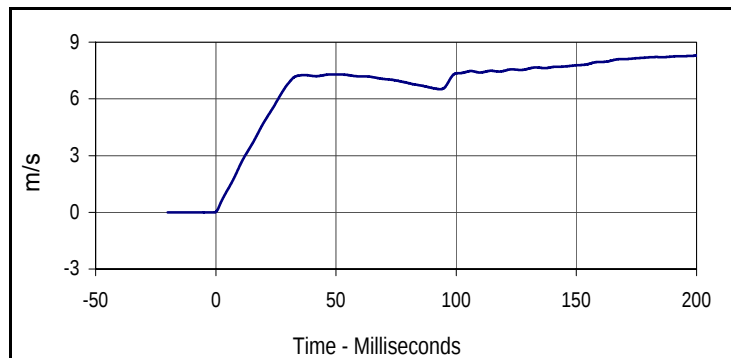
Test Date: 1/17/13



ATD Serial No.: 141

Test I.D.: F141NF053

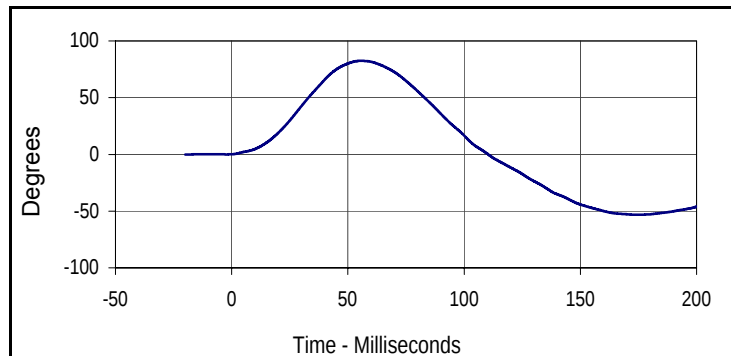
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	375	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.8	Pass
	Min	°C		20.6	Pass
Humidity During Soak	Max	%	10.0 to 70.0	30.2	Pass
	Min	%		24.2	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	29.7	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.98	Pass
Pendulum Deceleration	10 Msec.	m/s	2.1 to 2.5	2.5	Pass
	20 Msec.	m/s	4.0 to 5.0	4.8	Pass
	30 Msec.	m/s	5.8 to 7.0	6.8	Pass
"D" Plane Rotation	Max	Degrees	77.0 to 91.0	82.5	Pass
Peak Moment in Rotation	Max	Nm	69.0 to 83.0	82.1	Pass
Positive Moment Decay, Time To 10 Nm		Msec.	80.0 to 100.0	83.6	Pass
Overall Test Results				Pass	



Curve Description

Pendulum Velocity

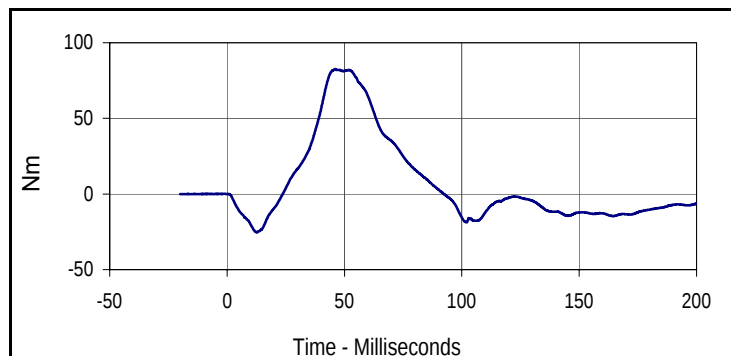
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
8.3	200.0	0.0	-0.8



Curve Description

"D" Plane Rotation

Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
82.5	55.7	-53.2	174.1



Curve Description

Moment About Occipital Condyle

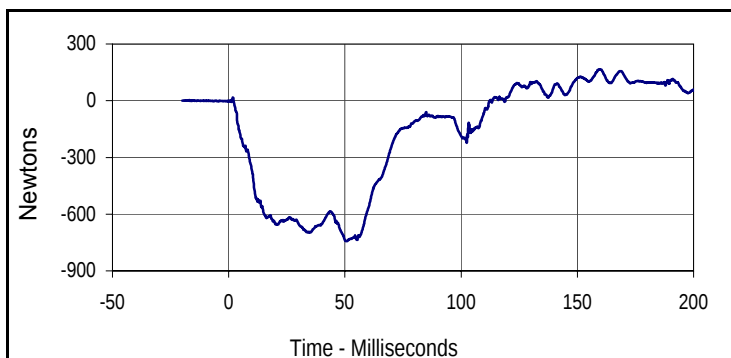
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
82.6	46.0	-25.6	12.7

Test Program: Hybrid III 5th Percentile Female Neck Flexion Test

ATD Serial No.: 141

Test Date: 1/17/13

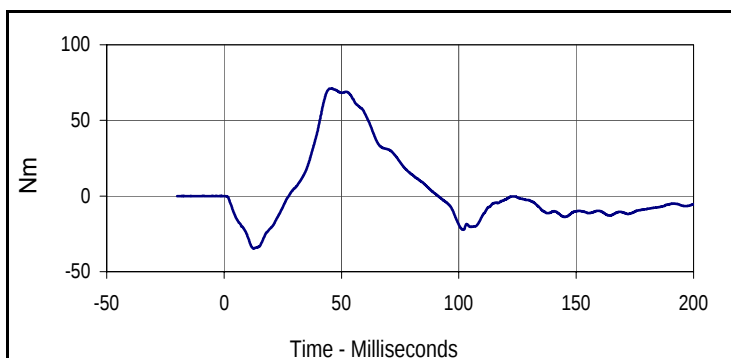
Test I.D.: F141NF053



Curve Description

Upper Neck Force X

Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
166.3	159.5	-742.4	50.7



Curve Description

Neck Moment Y

Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
71.2	46.0	-34.9	12.8

Test Program: Hybrid III 5th Percentile Female Neck Extension Test

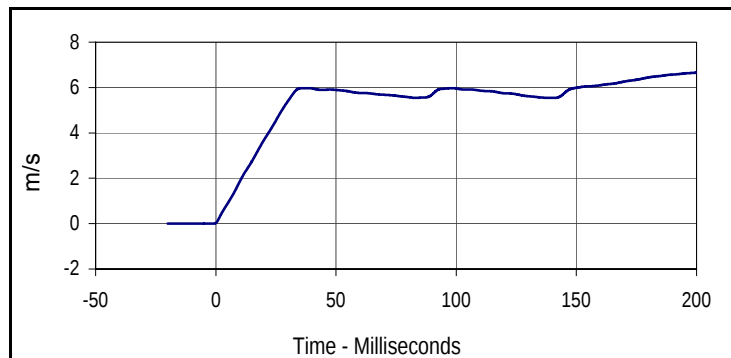
Test Date: 1/17/13



ATD Serial No.: 141

Test I.D.: F141NE053

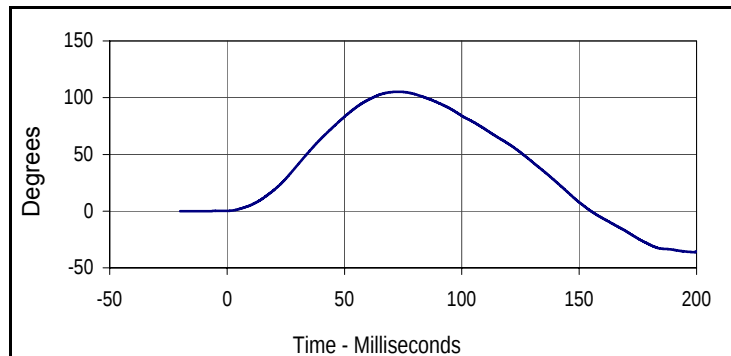
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	410	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.8	Pass
	Min	°C		20.6	Pass
Humidity During Soak	Max	%	10.0 to 70.0	30.2	Pass
	Min	%		24.2	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	29.6	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.09	Pass
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.9	Pass
	20 Msec.	m/s	3.1 to 3.9	3.7	Pass
	30 Msec.	m/s	4.6 to 5.6	5.4	Pass
"D" Plane Rotation	Max	Degrees	99.0 to 114.0	105.2	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	-54.7	Pass
Positive Moment Decay, Time To -10 Nm		Msec.	94.0 to 114.0	96.7	Pass
Overall Test Results				Pass	



Curve Description

Pendulum Velocity

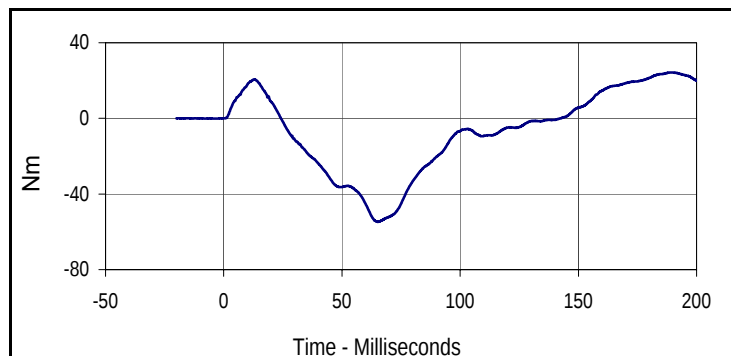
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
6.7	200.0	0.0	-1.0



Curve Description

"D" Plane Rotation

Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
105.2	73.0	-36.1	198.5



Curve Description

Moment About Occipital Condyle

Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
24.3	190.2	-54.7	65.2

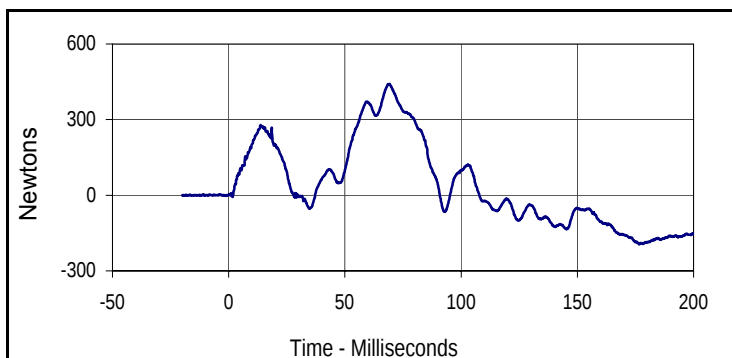
Test Program: Hybrid III 5th Percentile Female Neck Extension Test

Test Date: 1/17/13

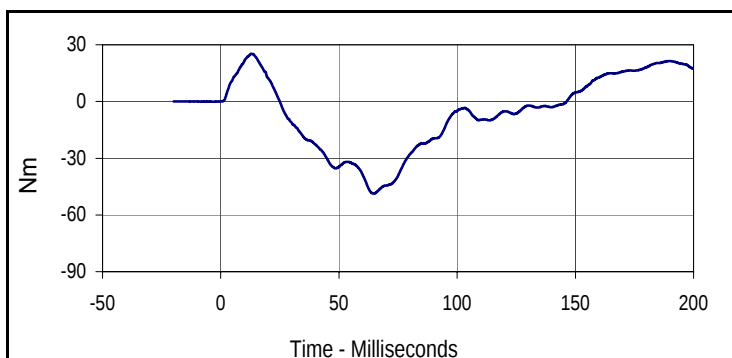


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Curve Description			
Upper Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
441.4	69.2	-194.9	176.6



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
25.3	12.9	-48.7	64.8

Test Program: Hybrid III 5th Percentile Female Thorax Impact Test

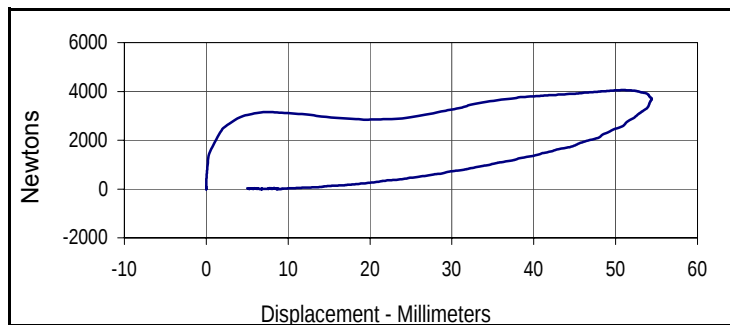
Test Date: 1/17/13



ATD Serial No.: 141

Test I.D.: F141CH053

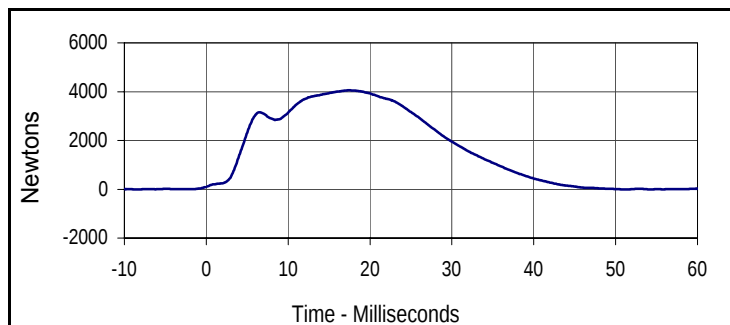
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	460	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.8	Pass
	Min	°C		20.6	Pass
Humidity During Soak	Max	%	10.0 to 70.0	30.2	Pass
	Min	%		24.2	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	29.7	Pass
Probe Velocity		m/s	6.59 to 6.83	6.68	Pass
Peak Chest Deflection		mm	50.0 to 58.0	54.4	Pass
Peak Force Between 50 and 58 MM		Newtons	3900 to 4400	4044	Pass
Peak Force Between 18 and 50 MM		Newtons	≤4600	4056	Pass
Internal Hysteresis		%	69 to 85	73.4	Pass
Overall Test Results					Pass



Curve Description

Probe Force vs. Chest Deflection

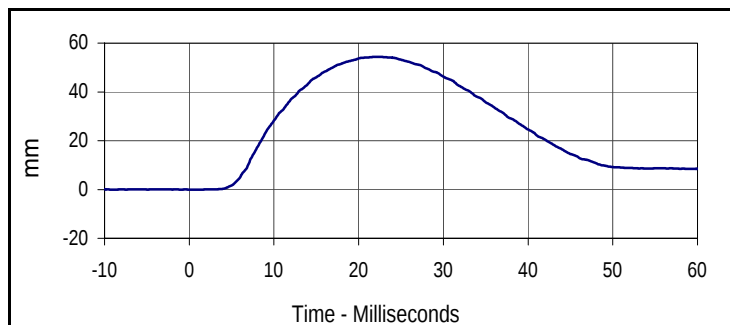
Plot No.	Type	SAE Class	Hysteresis
001	FIL	180	73.4
Peak Probe Force		Peak Chest Deflection	
4055.8		54.4	



Curve Description

Probe Force

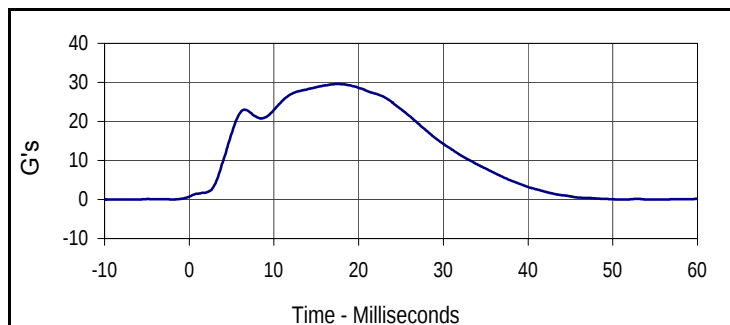
Plot No.	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4055.8	17.4	-5.1	51.3



Curve Description

Chest Deflection

Plot No.	Type	SAE Class	Units
003	FIL	600	mm
Max	Time	Min	Time
54.4	22.2	0.0	1.3



Curve Description

Impactor Acceleration

Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
29.6	17.4	0.0	51.3

Test Program: Hybrid III 5th Percentile Female Knee Impact Test

Test Date: 1/17/13

ATD Serial No.: 141

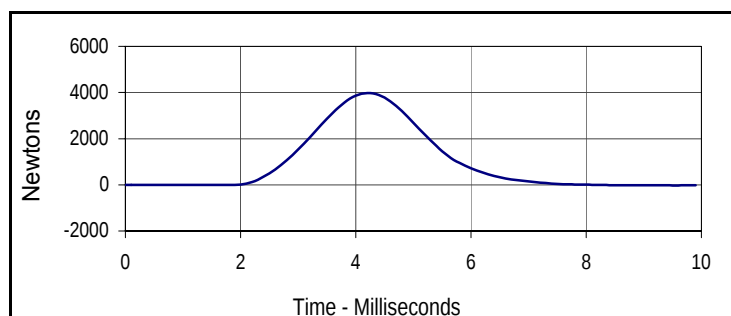
Test I.D.: F141LK053, F141RK053

**Left Knee**

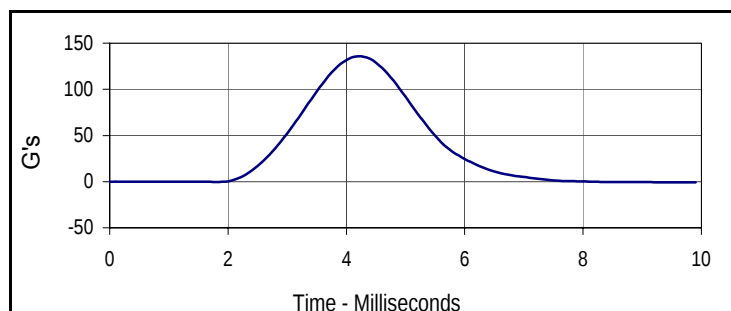
Tested Parameter		Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time		Minutes	≥240	490	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.8	Pass
	Min	°C		20.6	Pass
Humidity During Soak	Max	%	10.0 to 70.0	30.2	Pass
	Min	%		24.2	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	29.7	Pass
Pendulum Velocity at T=0		m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force		Newtons	3450 to 4060	3980	Pass
Overall Test Results				Pass	

Right Knee

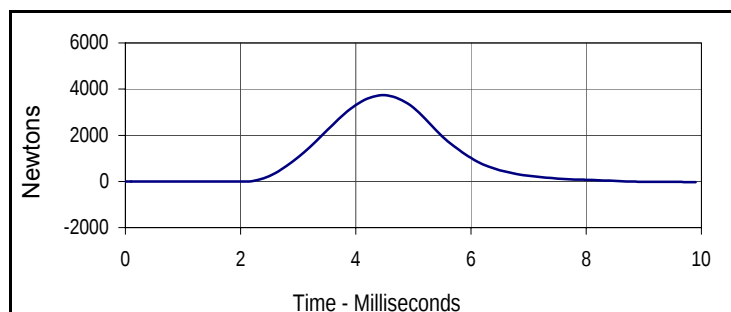
Pendulum Velocity at T=0		m/sec	2.07 to 2.13	2.11	Pass
Peak Probe Force		Newtons	3450 to 4060	3733	Pass
Overall Test Results				Pass	

**Curve Description****Left Knee Probe Force**

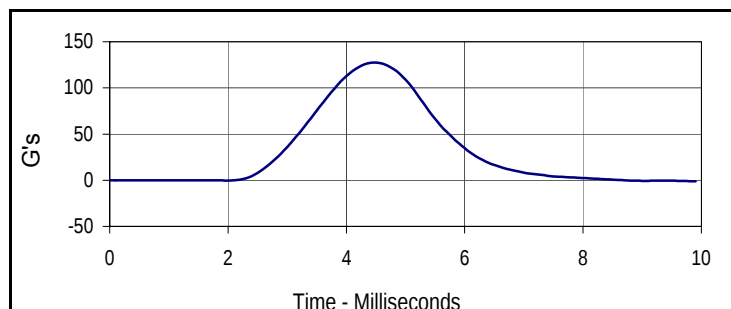
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3979.6	4.2	-24.7	9.6

**Curve Description****Left Knee Acceleration**

Plot No.	Type	SAE Class	Units
002	FIL	600	G's
Max	Time	Min	Time
135.8	4.2	-0.8	9.6

**Curve Description****Right Knee Probe Force**

Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
3733.3	4.5	-36.1	9.9

**Curve Description****Right Knee Acceleration**

Plot No.	Type	SAE Class	Units
004	FIL	600	G's
Max	Time	Min	Time
127.4	4.5	-1.2	9.9

Test Program: Hybrid III 5th Percentile Female Torso Flexion Test

Test Date: 1/17/13

ATD Serial No.: 141

Test I.D.: F141TF053

**Left Hip Joint-Femur Results**

Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	515	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.8	Pass
	Min	°C		20.6	Pass
Humidity During Soak	Max	%	10.0 to 70.0	30.2	Pass
	Min	%		24.2	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	29.7	Pass
Initial Reference Plane Angle		Degrees	≤ 20	4.1	Pass
Peak Force at 45° +/-0.5°		Newtons	320.0 to 390.0	345.1	Pass
Torso Rotation Rate		deg/sec	0.5 to 1.5	1.0	Pass
Final Reference Plane Angle		Degrees	+/-8	3.4	Pass
Overall Test Results					Pass