

REPORT NUMBER: SPNCAP-MGA-2011-067

**NEW CAR ASSESSMENT PROGRAM (NCAP)
Side Impact Pole Test**

**TOYOTA MOTOR CORPORATION
2011 Toyota Prius 5-Dr Liftback
NHTSA No.: MB5112**

**MGA RESEARCH CORPORATION
5000 Warren Road
Burlington, WI 53105**



Test Date: February 14, 2011

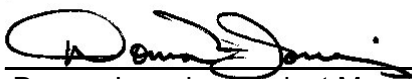
Final Report Date: March 18, 2011

FINAL REPORT

**U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Office of Crashworthiness Standards
1200 New Jersey Ave, SE
Mail Code: NVS 111, Room W43-410
Washington, DC 20590**

This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number DTNH22-09-D-00124.

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Approved by: 
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Approval Date: March 18, 2011

FINAL REPORT ACCEPTANCE BY OCWS:

Division Chief, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards

Date: _____

COTR, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards

Date: _____

Technical Report Documentation Page

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15. Supplementary Notes																						
16. Abstract A 32.2 km/h (20 mph), 75° oblique impact NCAP Side Pole Test was conducted on the subject 2011 Toyota Prius 5-Dr Liftback in accordance with the specifications of the Office of Crashworthiness Standards NCAP Side Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. The test was conducted at MGA Research Corporation, in Burlington, Wisconsin, on February 14, 2011. The impact velocity was 32.5 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21°C. The test vehicle post-test maximum crush was 334 mm at level 2. The test vehicle's performance was as follows: <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2" style="text-align: left;">Measurement Description</th> <th colspan="3">Driver ATD (SID-IIs)</th> </tr> <tr> <th>Units</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">Head Injury Criteria (HIC₃₆)</td> <td>N/A</td> <td>1000</td> <td style="background-color: yellow;">343</td> </tr> <tr> <td style="text-align: left;">Resultant Lower Spine Acceleration</td> <td>Gs</td> <td>82</td> <td style="background-color: yellow;">56</td> </tr> <tr> <td style="text-align: left;">Combined Acetabular and Iliac Pelvic Force</td> <td>N</td> <td>5525</td> <td style="background-color: yellow;">3745</td> </tr> </tbody> </table> The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.				Measurement Description	Driver ATD (SID-IIs)			Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	343	Resultant Lower Spine Acceleration	Gs	82	56	Combined Acetabular and Iliac Pelvic Force	N	5525	3745
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17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Adm. Technical Reference Division 1200 New Jersey Ave, SE Washington, D.C. 20590																				
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 136	22. Price																			

TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	Test Purpose and Procedure	1
2	Summary of Test Results	2
3	Occupant and Vehicle Information	4

<u>Data Sheet No.</u>		<u>Page No.</u>
1	General Test and Vehicle Parameter Data	5
1A	Electric Vehicle Parameter Data	6
2	Seat, Seat Belt, Steering Wheel Adjustment, and Fuel System Data	9
3	Dummy Longitudinal Clearance Dimensions	11
4	Dummy Lateral Clearance Dimensions	12
5	Camera and Instrumentation Data	13
6	Vehicle Accelerometer Data	14
7	Rigid Pole Load Cell Data	15
8	Post Test Observations	16
9	Vehicle Profile Measurements	17
10	Vehicle Exterior Crush Measurements	18
11A	FMVSS 301 Fuel System Integrity Post-Impact Data	22
11B	FMVSS 305 Propulsion Battery Integrity Post-Impact Data	23
12	Dummy/Vehicle Temperature Stabilization Data	26
13	Pre-Impact Electric Isolation Measurements and Calculations	27
14	Post-Impact Electric Isolation Measurements and Calculations	29

Appendix

A	Photographs	A
B	Dummy Response Data	B
C	Dummy Calibration and Performance Verification Data	C

SECTION 1
TEST PURPOSE AND PROCEDURE

This side impact test is part of the MY 2011 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-09-D-00124. The purpose of this test is to generate comparative side impact performance in a 2011 Toyota Prius 5-Dr Liftback. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated January 2010.

SECTION 2

SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2011 Toyota Prius 5-Dr Liftback. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.5 km/h. The test was conducted by MGA Research Corporation in Burlington, Wisconsin, on February 14, 2011. Pre-test and post-test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS NCAP Side Pole Laboratory Test Procedure dated January 2010. Camera locations and other pertinent camera information are included in this report.

The Part 572V (SID-IIs) dummy was instrumented accordingly:

Head CG Triaxial Accelerometers
 Thorax Upper, Middle, and Lower Rib Displacement Potentiometers
 Abdomen Upper and Lower Rib Displacement Potentiometers
 Lower Spine Triaxial Accelerometers
 Iliac Load Cell
 Acetabulum Load Cell

Appendix B contains the vehicle and dummy response data. Dummy configuration and performance verification data can be found in Appendix C of this report.

The following table summarizes the results of the test:

DUMMY INJURY VALUES				
Dummy	HIC (36ms)	Resultant Lower Spine Acceleration	Pelvic Force (N)	
SID-IIs 5 th Percentile Female	343	56	Iliac Wing	1024
			Acetabular	3093
			Sum	3745

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Left Front (Driver) P1		Left Rear (Passenger) P4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No	No	
Knee Airbag	Yes	No	No	
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso Airbag	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes		No	

The test data can be found on the NHTSA website at www.nhtsa.dot.gov

GENERAL COMMENTS

There was no valid data collected for:

- Vehicle CG X after 10 msec.

- Vehicle CG Y after 48 msec.

- Vehicle CG Z after 55 msec. - noise spike between 19-23 msec.

- Left Lower A-Post Y after 10 msec.

- Left B-Post @ Sill Y after 75 msec.

- Left Mid B-Post Y after 10 msec.

- Driver Seat Track Y after 25 msec.

- Firewall Y – noise spike between 35-40 msec.

MGA does not endorse or certify products. The manufacturer's name appears solely for identification purposes.

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
 Test Date: 2/14/2011

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	MB5112	Anti-Lock Brakes	Yes
Model Year	2011	All Wheel Drive	No
Make	Toyota	Power Steering	Yes
Model	Prius	Driver Front Airbag	Yes
Body Style	Liftback	Driver Curtain Airbag	Yes
VIN	JTDKN3DU2B0255857	Driver Head/Torso Airbag	No
Body Color	Blue Ribbon Met.	Driver Torso Airbag	Yes
Delivery Date	1/27/2011	Driver Torso/Pelvis Airbag	No
Odometer (mi)	110	Driver Pelvis Airbag	No
Odometer (km)	177	Driver Knee Airbag	Yes
Dealer	Wilde Toyota	Rear Pass. Front Airbag	No
Transmission	Automatic	Rear Pass. Curtain Airbag	Yes
Final Drive	Front	Rear Pass. Head/Torso Airbag	No
Type/No. Cylinders	4	Rear Pass. Torso Airbag	No
Engine Displacement (L)	1.8	Rear Pass. Torso/Pelvis Airbag	No
Engine Placement	Lateral	Rear Pass. Pelvis Airbag	No
Roof Rack	No	Rear Pass. Knee Airbag	No
Sunroof/T-Top	No	Pretensioners	Yes
Tinted Glass	No	Load Limiters	Yes
Traction Control	Yes	Automatic Door Locks	Yes
Power Brakes	Yes	Bucket Seats	Yes
Front Disc	Yes	Tilt Steering	Yes
Rear Disc	Yes	Power Seats	No
Does owner's manual provide instruction to turn off automatic door locks?			Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Toyota Motor Corporation	GVWR (kg)	1805
Date of Manufacture	11/10	GAWR Front (kg)	1030
		GAWR Rear (kg)	987

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	
Capacity Weight (VCW) (kg)				365	(A)
DSC x 68.04 kg				340	(B)
Cargo Weight (RCLW) (kg)				25	(A-B)

VEHICLE SEAT TYPE

Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
Front Seat	X					w/Lever	
Rear or Second Row			X		X		
Third Row Seat							

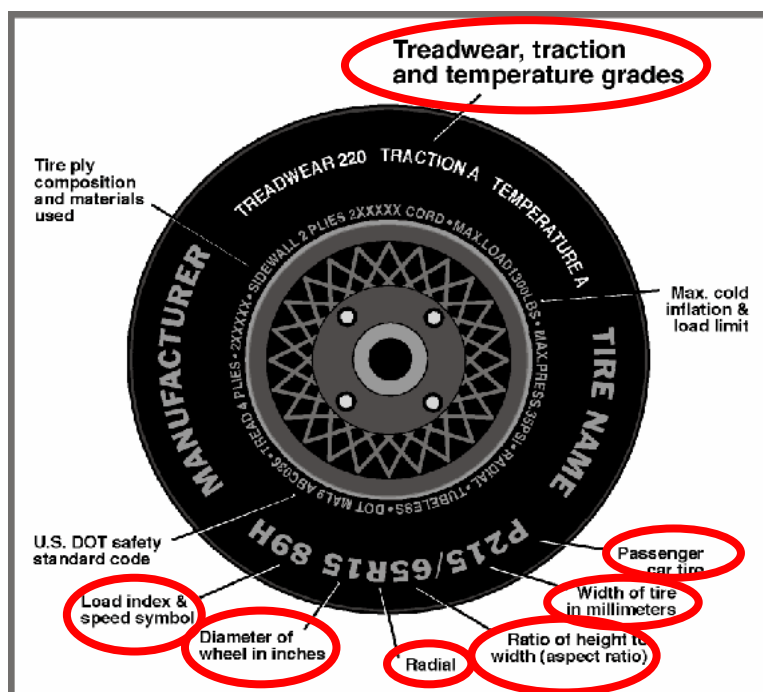
DATA SHEET NO. 1 (continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
 Test Date: 2/14/2011

VEHICLE TIRE INFORMATION



Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	240	230
Recommended Tire Size	P195/65R15	P195/65R15
Tire Size on Vehicle	P195/65R15	P195/65R15
Tire Manufacturer	Goodyear	Goodyear
Tire Model	Assurance	Assurance
Treadwear	540	540
Traction	A	A
Temperature Grades	B	B
Tire Plies Sidewall	1	1
Tire Plies Body	3	3
Load Index & Speed Symbol	89S	89S
Tire Material	Rubber	Rubber
DOT Safety Code Right	VW9N	VW9N
DOT Safety Code Left	VW9N	VW9N

DATA SHEET NO. 1 (continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
 Test Date: 2/14/2011

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	427.7	288.5		442.7	317.1		452.1	321.5	
Right	kg	407.3	275.8		416.9	294.8		408.6	294.3	
Ratio	%	59.7	40.3		58.4	41.6		58.3	41.7	
Totals	kg	835.0	564.3	1399.3	859.6	611.9	1471.5	860.7	615.8	1476.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1399.3	(A)
Actual Weight of 1 P572V ATD (SID-IIs) ATD Used	kg	52.2	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	25	(C)
Calculated Target Vehicle Test Weight (TVTW)	kg	1476.5	(A+B+C)

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded
Driver Door Sill Angle (front-to-rear)*	deg	0.0	0.0	0.3
Front Passenger Sill Angle (front-to-rear)*	deg	0.1	0.1	0.3
Front Bumper Angle (left-to-right)**	deg	0.3	-0.2	-0.4
Rear Bumper Angle (left-to-right)**	deg	-0.3	-0.3	-0.3
Vehicle CG (Aft of Front Axle)	mm	1089	1123	1126
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	18	25	36

*Front up is positive ** Left up is positive

GENERAL VEHICLE TEST DATA

Measurement Description	Units	Value
Weight of Ballast in Cargo Area	kg	0.0
Weight of Vehicle Components Removed	kg	36.7

Vehicle components removed to meet target vehicle test weight: Tail lights, spare tire, jack & tools, hub caps, front and rear bumpers.

TEST VEHICLE IMPACT POINT DATA

Measurement Parameter	Units	Value
Vertical Impact Reference Line (Aft of Front Axle)	mm	1039
Actual Impact Point (Aft of Front Axle)	mm	1048
Impact Point Difference (- forward / + rearward)	mm	9

DATA SHEET 1A
ELECTRIC VEHICLE PARAMETER DATA

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
 Test Date: 2/14/2011

Type of Electric Vehicle (Electric/Hybrid):	Gas-Electric Hybrid
Propulsion Battery Type:	NiMH
Nominal Voltage (V):	201.6 V
Physical Location of Automatic Propulsion Battery Disconnect:	Not physically contained within the propulsion battery system
Auxiliary Battery Type:	Lead-Acid

PROPULSION BATTERY SYSTEM DATA (COTR SUPPLIED DATA)

Electrolyte Fluid Type:	KOH
Electrolyte Fluid Specific Gravity:	1.269 g/cm ³
Electrolyte Kinematic Viscosity (centistokes):	1.906 mPa·s
Electrolyte Fluid Color:	Clear
Propulsion Battery Coolant Type, Color, Specific Gravity (if applicable):	Air
Location of Battery Modules:	☐ Inside Passenger Compartment
	☒ Outside Passenger Compartment

MEASURE AND RECORD BATTERY STATE OF CHARGE

☐	Maximum State of Charge recommended by manufacturer:	
☐	Test Voltage (>95% of Maximum State of Charge):	
☒	Test Voltage (Within Normal Operating Voltage Range):	168-280 V

VEHICLE CHASSIS GROUND POINT(S) LOCATION(S)

Details of Vehicle Chassis Ground Point(s) & Locations(s)	Screw mounted on vehicle chassis, unpainted metal
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PROPULSION BATTERY SYSTEM

Details of Propulsion Battery Components	1. Service Disconnect 2. Forced Air Cooling System
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DATA SHEET NO. 2

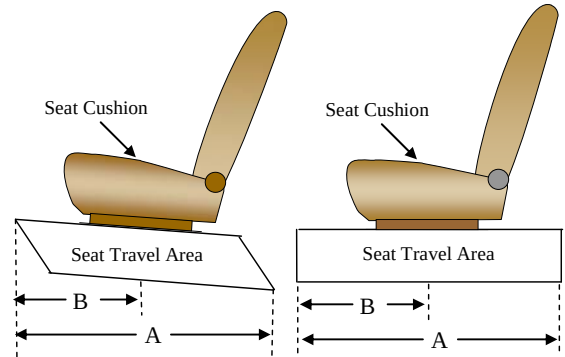
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
 Test Date: 2/14/2011

SEAT FORE/AFT POSITIONS

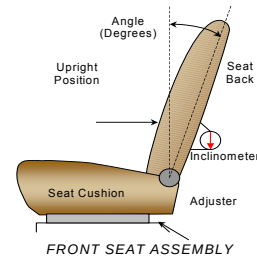
The driver seat was a manual fore/aft adjustable seat with manual height/angle adjustment. The seat travel was set as specified in Appendix B of the TP dated January 2010. The right front passenger seat was set to match the driver seat. The rear passenger seats were fixed.



SEAT FORE/AFT POSITIONING	Total Fore/Aft Travel	Placed in Detent # or Position
Driver Seat	26 detents (1 st as 0)	0 (forward-most as 0)
Front Passenger Seat	26 detents (1 st as 0)	0 (forward-most as 0)
Rear Seat – Struck Side		Fixed
Rear Seat – Non-Struck Side		Fixed

SEAT BACK ANGLE POSITION

The seat back was set as specified in Appendix B of the TP dated January 2010. The seat back angle measurement was made relative to the rocker sill on the headrest post.



SEAT BACK ANGLE	Degrees	Detents
Driver Seat Back Angle with Seated Dummy	-6.7	0 detent (first locking as 0)
Front Passenger Seat Back Angle	-6.8	0 detent (first locking as 0)
Struck Side Rear Seat Back Angle		Fixed
Non-Struck Side Rear Passenger Seat Back Angle		Fixed

SEAT BELT UPPER ANCHORAGE

The driver seat belt upper anchorage was set at the manufacturer's specified placement in Form 1.

SEAT BELT UPPER ANCHORAGES	Total # of Positions	Placed in Position #
Driver Seat	4 detents (1 st as 1)	0 (uppermost as 0)

DATA SHEET NO. 2 (CONTINUED)

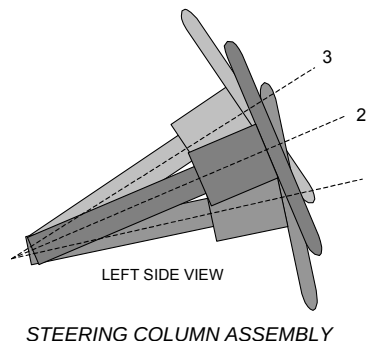
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
 Test Date: 2/14/2011

STEERING COLUMN ADJUSTMENT

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

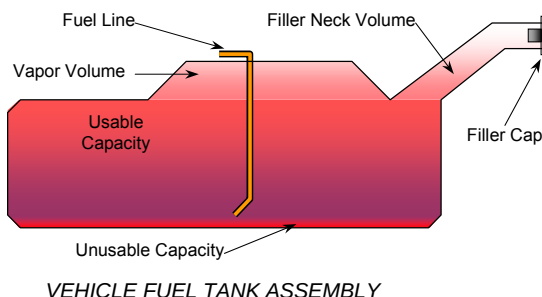


STEERING COLUMN POSITIONING

	Degrees	Fore/Aft Position (mm)
Lowermost - Position 1	68.1	136
Geometric Center – Position 2	66.8	117
Uppermost – Position 3	65.4	99
Telescoping Steering Wheel Travel		37
Test Position	66.8	117

FUEL PUMP

Describe the fuel pump type, its behavior, and the location of the fuel filler pipe. The vehicle is equipped with an electric fuel pump. The fuel pump is activated when the ignition is turned on. The fuel pipe is on the left side.



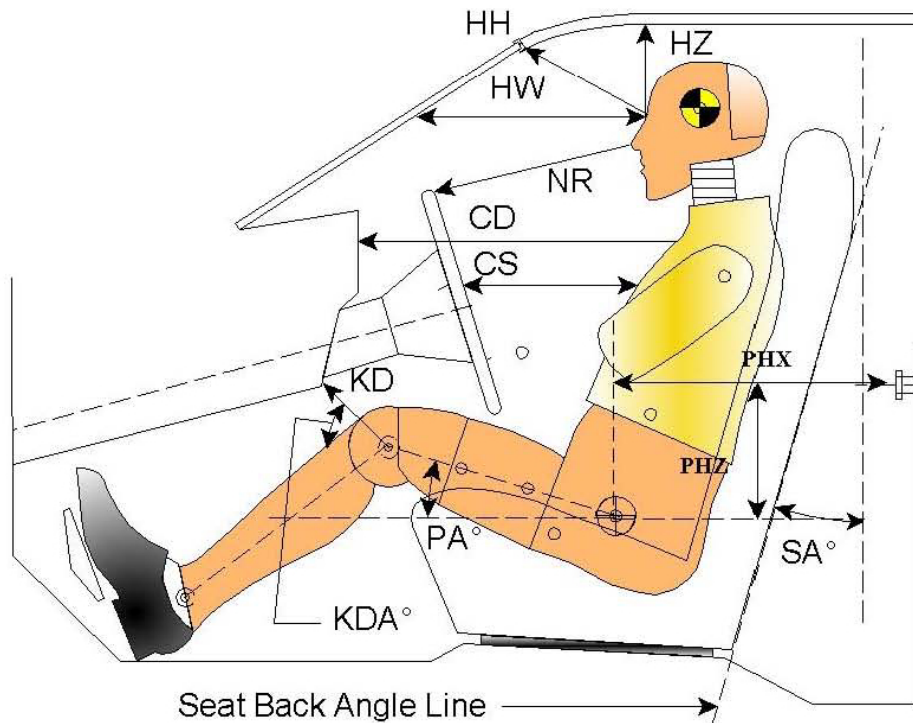
FUEL TANK CAPACITY DATA

	Liters
Usable Capacity of "Standard" Tank	45.0
Usable Capacity of "Optional" Tank	
Usable Capacity of Standard Tank as Specified in Owner's Manual	45.0
Usable Capacity of Optional Tank as Specified in Owner's Manual	
92-94% of Usable Capacity	41.4 to 42.3
Actual Amount of Solvent Used	41.8
1/3 of Usable Capacity	15.0

.DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
 Test Date: 2/14/2011

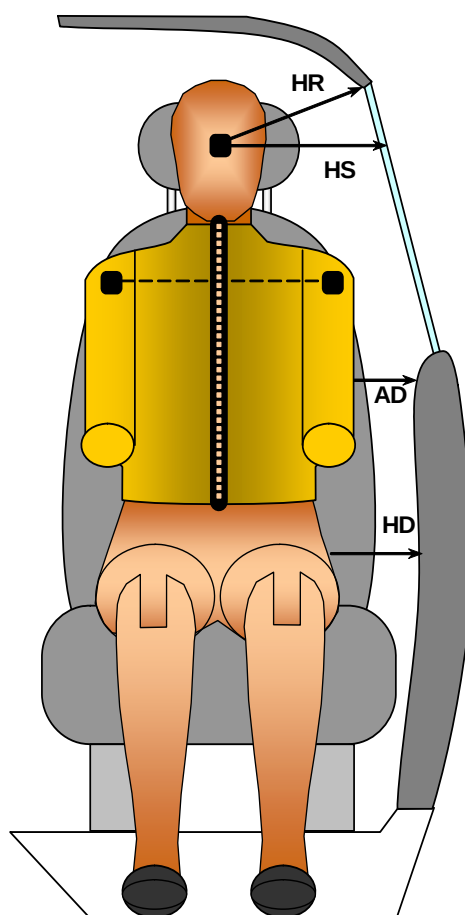


Code	Measurement Description	Driver S/N 296	
		Length (mm)	Angle (°)
HH	Head to Header	223	
HW	Head to Windshield	649	
HZ	Head to Roof	159	
NR	Nose to Rim	221	
CD	Chest to Dash	342	
CS	Chest to Steering Wheel	174	
KDL/KDAL	Left Knee to Dash	106	43.4
KDR/KDAR	Right Knee to Dash	95	41.8
PA	Pelvic Angle		19.8
PHX	H-Point to Striker (X-Axis)	368	
PHZ	H-Point to Striker (Z-Axis)	158	
SA	Seat Back Angle		-6.7

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
 Test Date: 2/14/2011



FRONT VIEW OF DUMMY

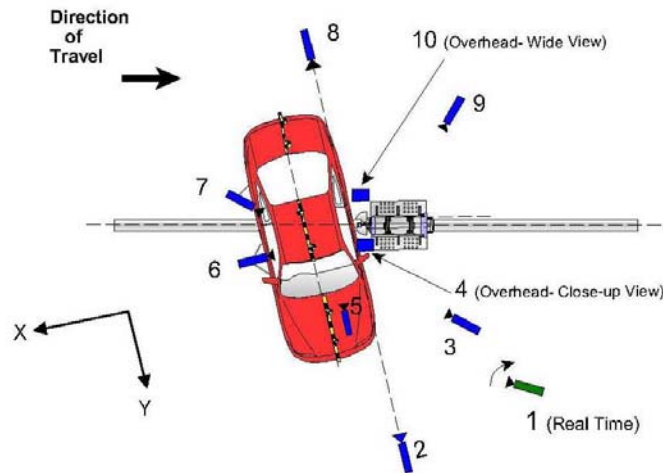
Code	Measurement Description	Driver S/N 296
		Length (mm)
HR	Head to Side Header	233
HS	Head to Side Window	348
AD	Arm to Door	159
HD	H-Point to Door	150

DATA SHEET NO. 5

CAMERA LOCATIONS AND DATA

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
 Test Date: 2/14/2011



Reference: (from Point of Impact for X and Y; from Ground for Z):
 +X = Forward of Impact, + Y = Right of Impact, +Z = Down

Camera No.	View	Coordinates (mm)			Lens (mm)	Film Speed (fps)
		X*	Y*	Z*		
1	Real-Time Pan View					30
2	Front Ground Level	30	5390	-1500	24	1000
3	Impact Side 45° Forward	-2170	4120	-1560	20	1000
4	Overhead Closeup	60	0	-4520	50	1000
5	Onboard – Driver Front				16	1000
6	Onboard – Driver Side				8	1000
7	Onboard – Driver Rear				8	1000
8	Rear Ground Level	40	-5480	-1530	24	1000
9	Impact Side 45° Rearward	-3680	-3100	-1610	20	1000
10	Overhead Wide View	260	0	-4610	14	1000
11	Real-Time Dummy Front View					30

* All measurements accurate to ± 6 mm

Note: Vehicle was at a 15° angle to the rigid pole.

INSTRUMENTATION

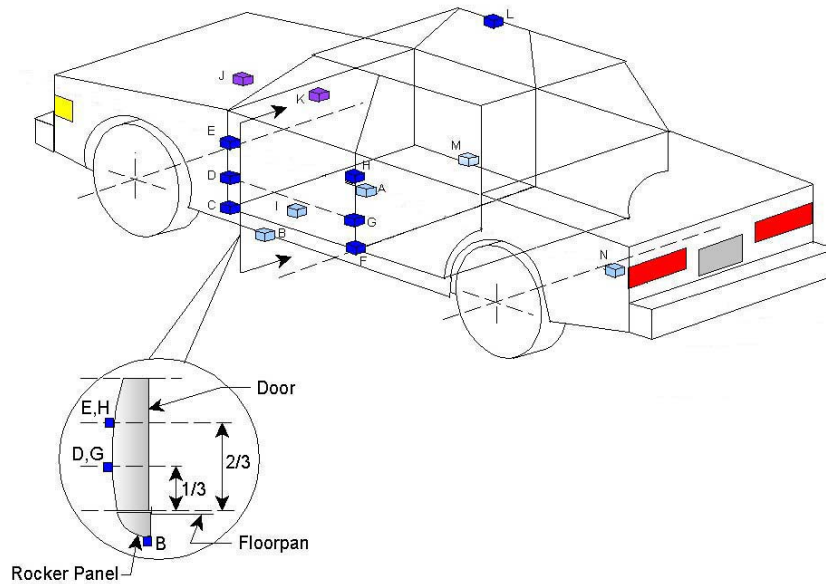
	Number of Channels
Driver Dummy	16
Vehicle Structure	21
Pole Load Cells – Not used	8
Contact Switches	3
Airbag Timing	2
Total No. of Data Channels	50

DATA SHEET NO. 6

VEHICLE ACCELEROMETER DATA

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
 Test Date: 2/14/2011



	Accelerometer Location			
	ID	Coordinates (mm)		
		X	Y	Z
A	Vehicle CG	2400	-228	-184
	Vehicle CG Sensor	2400	-228	-184
B	Left Floor Sill	2700	-708	-190
C	A Pillar Sill	3030	-708	-186
D	A Pillar Low	2990	-720	-550
E	A Pillar Mid	3062	-738	-890
F	B Pillar Sill	1651	-708	-205
G	B Pillar Low	1985	-720	-680
H	B Pillar Mid	1985	-715	-920
I	Driver Seat	1905	-694	-511
L	Engine Top	3705	40	-853
J	Firewall	3640	0	-920
K	Right Roof	2060	578	-1510
M	Right Floor Sill	2145	708	-192
N	Rear Floorpan	720	0	-306

Reference: From Point of Impact for X and Y; from Ground for Z):
 +X = Forward of Vehicle, + Y = Right of Vehicle, +Z = Down

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
Test Date: 2/14/2011



254 mm Diameter Rigid Pole

The pole was not instrumented.

Load Cell Locations	
ID	Height From Ground (m)
1	
2	
3	
4	
5	
6	
7	
8	

DATA SHEET NO. 8**POST-TEST OBSERVATIONS**Test Vehicle: 2011 Toyota Prius 5-Dr LiftbackNHTSA No. MB5112Test Program: NCAP Side Pole Impact TestTest Date: 2/14/2011**TEST DUMMY INFORMATION AND CONTACT**

Description	Driver
Dummy Type / Serial No.	SID-IIs / 296
Head Contact	Curtain Airbag, Headrest
Upper Torso Contact	Side Airbag
Lower Torso Contact	Door Panel
Left Knee Contact	Door Panel
Right Knee Contact	Left Knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Left Side Doors	Remained closed and jammed shut	Remained closed and jammed shut
Right Side Doors	Remained closed and operational	Remained closed and operational
Hatch and Other Doors	Remained closed and operational	Remained closed and operational
Seat Movement	0	0
Seat Back Failure	None	None

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No Separation
Sill Separation	None
Windshield Damage	Cracked
Window Damage	Left Front Window Broke
Other Notable Effects	None

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Left Front (Driver) P1		Left Rear (Passenger) P4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No	No	
Knee Airbag	Yes	No	No	
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso Airbag	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes		No	

VEHICLE SPEED AND IMPACT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset from Vertical Impact Reference Line	mm	+/- 38	9
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.5
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.7

DATA SHEET NO. 9

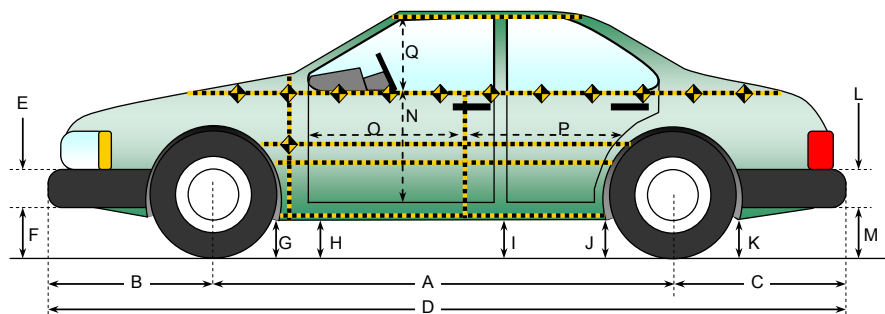
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback

NHTSA No. MB5112

Test Program: NCAP Side Pole Impact Test

Test Date: 2/14/2011



All measurements in (mm) with tolerance of ± 3 mm

LEFT SIDE VIEW

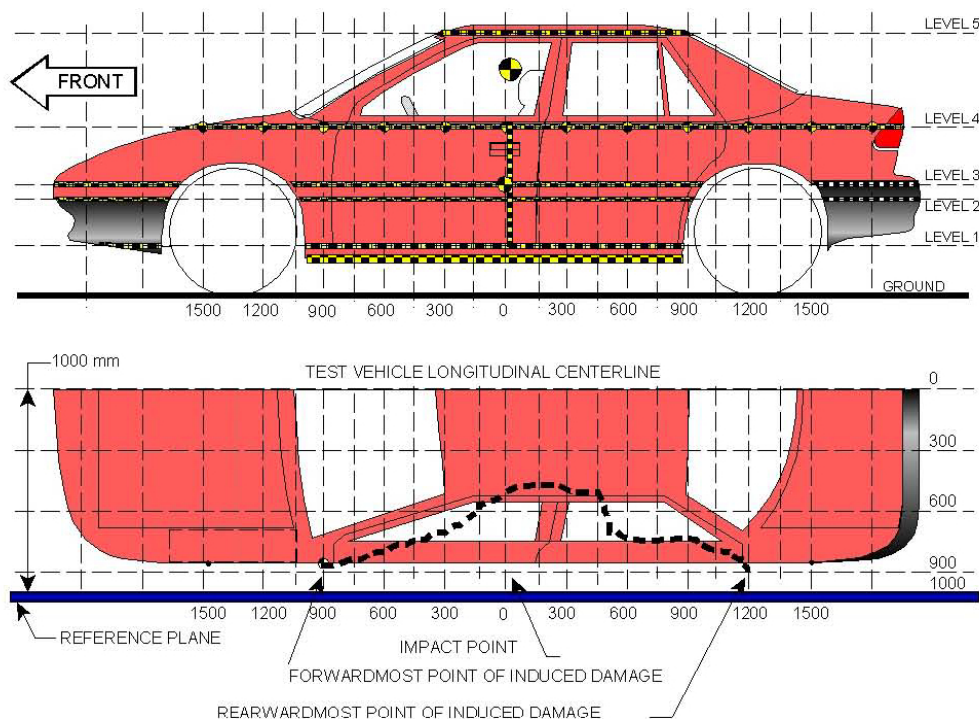
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2700	2615	85
B	Front Axle to FSOV	905	863	42
C	Rear Axle to RSOV	855	871	-16
D1	Total Vehicle Length at Left Side	3325	3213	112
D2	Total Vehicle Length at Centerline	4460	4349	111
D3	Total Vehicle Length at Right Side	3325	3334	-9
E	Front Bumper Thickness	133	133	0
F	Front Bumper Bottom to Ground	217	251	-34
G	Sill Height at Front Wheel Well	167	178	-11
H	Sill Height at Front Door Leading Edge	169	175	-6
I	Sill Height at B Pillar	168	194	-26
J1	Sill Height at Rear Wheel Well	151	174	-23
J2	Pinch Weld Height at Rear Wheel Well	177	200	-23
K	Sill Height Aft of Rear Wheel Well	223	238	-15
L	Rear Bumper Thickness	122	122	0
M	Rear Bumper Bottom to Ground	328	315	13
N	Sill Height to Window Bottom Sill	750	742	8
O	Front Door Leading Edge to Impact CL	554	550	4
P	Rear Door Trailing Edge to Impact CL	1432	1452	-20
Q	Front Window Opening	412	375	37
R	Right Side Length	3325	3334	-9
S	Left Side Length	3325	3213	112
T	Vehicle Width at B Post	1748	1632	116

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
 Test Date: 2/14/2011



NOTE: The measurements are taken along the vertical impact reference line.
 Vehicle measurements forward of the vertical impact reference line are negative.

Level	Measurement Description	Height Above Ground (mm)
1	Sill Top	255
2	Mid Door	590
3	Occupant H-Point	632
4	Window Sill	1005
5	Window Top	1470

DATA SHEET NO. 10 (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
 Test Date: 2/14/2011

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1350				375					379					4	
-1200				345					353					8	
-1050				328					347					19	
-900				315					339					24	
-750			223	309				241	322				18	13	
-600	254	224	226	300		260	241	244	325		6	17	18	25	
-525	254	227	229	302		273	249	249	322		19	22	20	20	
-450	254	227	229	301		293	281	282	325		39	54	53	24	
-375	256	227	229	301		320	313	314	357		64	86	85	56	
-300	257	227	228	298		377	346	345	391		120	119	117	93	
-225	259	227	228	296		406	377	379	422		147	150	151	126	
-150	259	227	227	295		447	419	419	461		188	192	192	166	
-75	259	227	227	292		494	465	465	501		235	238	238	209	
0	259	227	226	290	494	538	514	517	548	650	279	287	291	258	156
75	260	226	227	290	486	590	557	558	577	652	330	331	331	287	166
150	256	225	226	289	486	588	559	560	571	621	332	334	332	282	135
225	256	225	226	287	487	426	530	532	535	598	170	305	306	248	111
300	256	225	226	287	489	385	475	478	492	578	129	250	252	205	89
375	256	225	226	286	490	358	439	441	450	564	102	214	215	164	74
450	256	225	226	284	493	334	387	383	404	546	78	162	157	120	53
525	256	225	226	285	494	311	325	322	364	536	55	100	96	79	42
600	255	226	227	284	496	313	299	298	345	525	58	73	71	61	29
750	256	229	230	286	499	279	280	285	339	517	23	51	55	53	18
900	256	230	230	287	501	262	276	280	337	527	6	46	50	50	26
1050	254	231	232	291	508	230	253	256	320	522	-24	22	24	29	14
1200	246	233	234	296	514	209	237	240	310	526	-37	4	6	14	12
1350			231	300	529			221	300	534			-10	0	5
1500				307					303					-4	
1650				314					303					-11	

NOTE: The measurements are taken along the vertical impact reference line.
 Vehicle measurements forward of the vertical impact reference line are negative.

DATA SHEET NO. 10 (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
Test Date: 2/14/2011

MAXIMUM CRUSH DATA

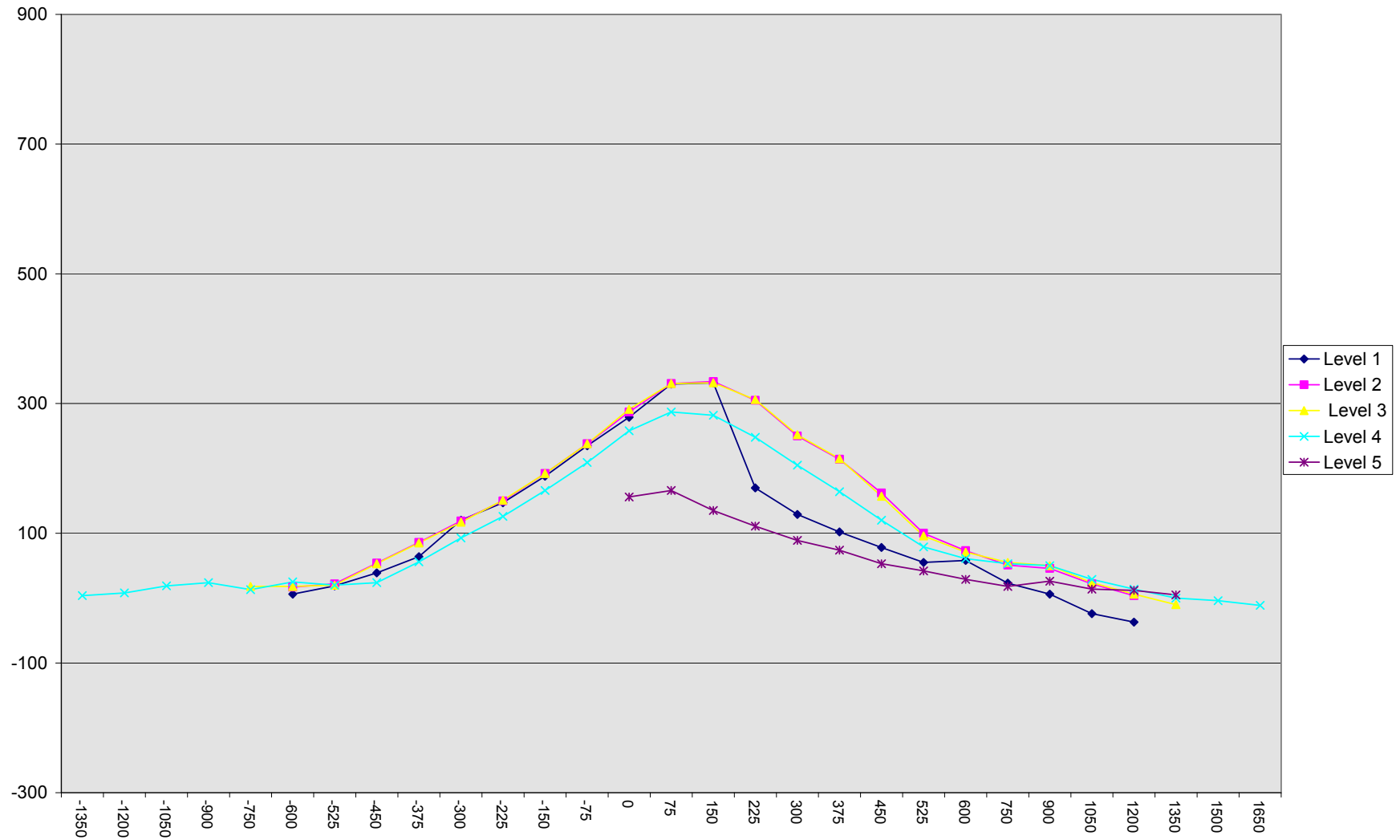
	Level 1	Level 2	Level 3	Level 4	Level 5
Maximum Crush (mm)	332	334	332	287	166
Distance From Impact (mm)	150	150	150	75	75

Note: Pre-test measurements are taken when the vehicle is in the "As Tested" weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to test based on an estimated impact point. The final distance to impact is determined after the final dummy positioning and the pole is aligned with the center of gravity of the dummy's head.

DATA SHEET NO. 10 (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
Test Date: 2/14/2011



DATA SHEET NO. 11A

FMVSS 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

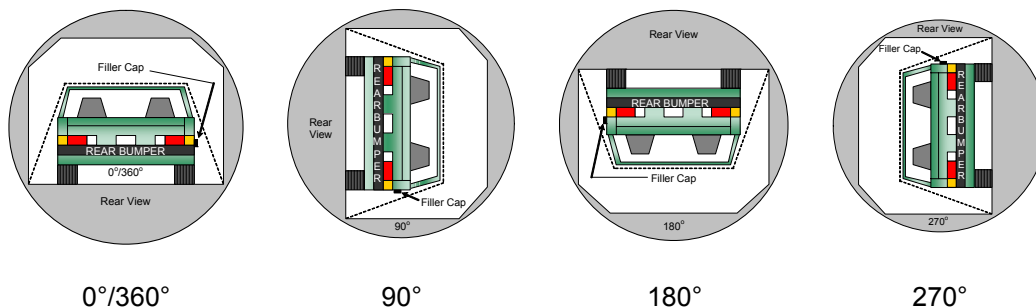
Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
 Test Date: 2/14/2011

Test Time: 11:13 am Temperature: 21° C

- A. From impact until vehicle motion ceases: 0 oz.
 (Maximum Allowable = 1 ounce)
 B. For the 5 minute period after motion ceases: None
 (Maximum allowable = 5 ounces)
 C. For the following 25 minutes: None
 (Maximum allowable = 1 oz./minute)
 D. Spillage Details: None

FMVSS 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	119	300	419
90° to 180°	111	300	411
180° to 270°	109	300	409
270° to 360°	115	300	415

FMVSS 301 ROLLOVER SPILLAGE TABLE (units in ounces)

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

ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

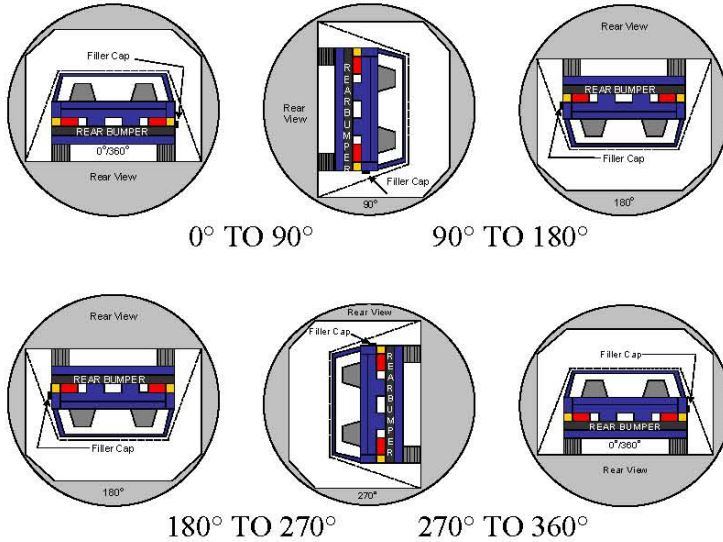
Test Phase	Spillage Location
0° to 90°	
90° to 180°	
180° to 270°	
270° to 360°	

DATA SHEET 11B

FMVSS 305 STATIC ROLLOVER RESULTS FOR ELECTRIC-POWERED VEHICLES

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
 Test Date: 2/14/2011



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 electrolyte spillage: **None**

ELECTROLYTE COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	119	300	419
90° to 180°	111	300	411
180° to 270°	109	300	409
270° to 360°	115	300	415

FMVSS 305 ELECTROLYTE SPILLAGE LOCATION TABLE (units in liters)

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

Total Spillage: 0 L

	Yes	No
Is the total spillage of propulsion battery electrolyte greater than 5.0 Liters?		X
Is propulsion battery electrolyte spillage visible in the passenger compartment?		X

DATA SHEET 11B (CONTINUED)

FMVSS 305 STATIC ROLLOVER RESULTS FOR ELECTRIC-POWERED VEHICLES

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
 Test Date: 2/14/2011

VOLTMETER INFORMATION

Make:	Fluke
Model:	11
Serial Number:	68541895
Internal Impedance Value (MΩ):	>10 MΩ < 100 pF
Nominal Propulsion Battery Voltage (Vb) (V):	201.6

ELECTRICAL ISOLATION MEASUREMENT

V1 =	111.1	V	90°	Time:	2	Minutes	11	s
V1 =	104.4	V	180°	Time:	2	Minutes	4	s
V1 =	90.5	V	270°	Time:	2	Minutes	3	s
V1 =	100.0	V	360°	Time:	2	Minutes	5	s
V2 =	163.4	V	90°	Time:	2	Minutes	30	s
V2 =	155.1	V	180°	Time:	2	Minutes	28	s
V2 =	168.4	V	270°	Time:	2	Minutes	23	s
V2 =	168.4	V	360°	Time:	2	Minutes	24	s
V1' =	0.7	V	90°	Time:	2	Minutes	18	s
V1' =	0.7	V	180°	Time:	2	Minutes	11	s
V1' =	0.7	V	270°	Time:	2	Minutes	11	s
V1' =	0.8	V	360°	Time:	2	Minutes	14	s
V2' =	1.0	V	90°	Time:	2	Minutes	42	s
V2' =	1.0	V	180°	Time:	2	Minutes	39	s
V2' =	1.0	V	270°	Time:	2	Minutes	31	s
V2' =	0.7	V	360°	Time:	2	Minutes	33	s

DATA SHEET 11B (CONTINUED)

FMVSS 305 STATIC ROLLOVER RESULTS FOR ELECTRIC-POWERED VEHICLES

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
 Test Date: 2/14/2011

ELECTRICAL ISOLATION CALCULATION

Note: If measured voltage is zero and results in a division by zero, record "Zero Volts".
 This "zero voltage" condition is considered as being compliant.

$R_{i1} = R_o (1 + V_2/V_1) [(V_1 - V_1')/V_1']$								
R _{i1} =	61529226	Ω	90°	Time:	2	Minutes	42	s
R _{i1} =	58143304	Ω	180°	Time:	2	Minutes	39	s
R _{i1} =	57948727	Ω	270°	Time:	2	Minutes	31	s
R _{i1} =	52551646	Ω	360°	Time:	2	Minutes	33	s
$R_{i2} = R_o (1 + V_1/V_2) [(V_2 - V_2')/V_2']$								
R _{i2} =	43078290	Ω	90°	Time:	2	Minutes	42	s
R _{i2} =	40710865	Ω	180°	Time:	2	Minutes	39	s
R _{i2} =	40637553	Ω	270°	Time:	2	Minutes	31	s
R _{i2} =	60291707	Ω	360°	Time:	2	Minutes	33	s
R _i = The lesser of R _{i1} and R _{i2}								
R _i =	43078290	Ω	90°	Time:	2	Minutes	42	s
R _i =	40710865	Ω	180°	Time:	2	Minutes	39	s
R _i =	40637553	Ω	270°	Time:	2	Minutes	31	s
R _i =	52551646	Ω	360°	Time:	2	Minutes	33	s
R _i /V _b = Electrical Isolation Value/Nominal Battery Voltage Minimum Electrical Isolation Value is 500 Ω /V								
R _i /V _b =	198884	Ω/V	90°	Time:	2	Minutes	42	s
R _i /V _b =	187954	Ω/V	180°	Time:	2	Minutes	39	s
R _i /V _b =	187615	Ω/V	270°	Time:	2	Minutes	31	s
R _i /V _b =	242620	Ω/V	360°	Time:	2	Minutes	33	s

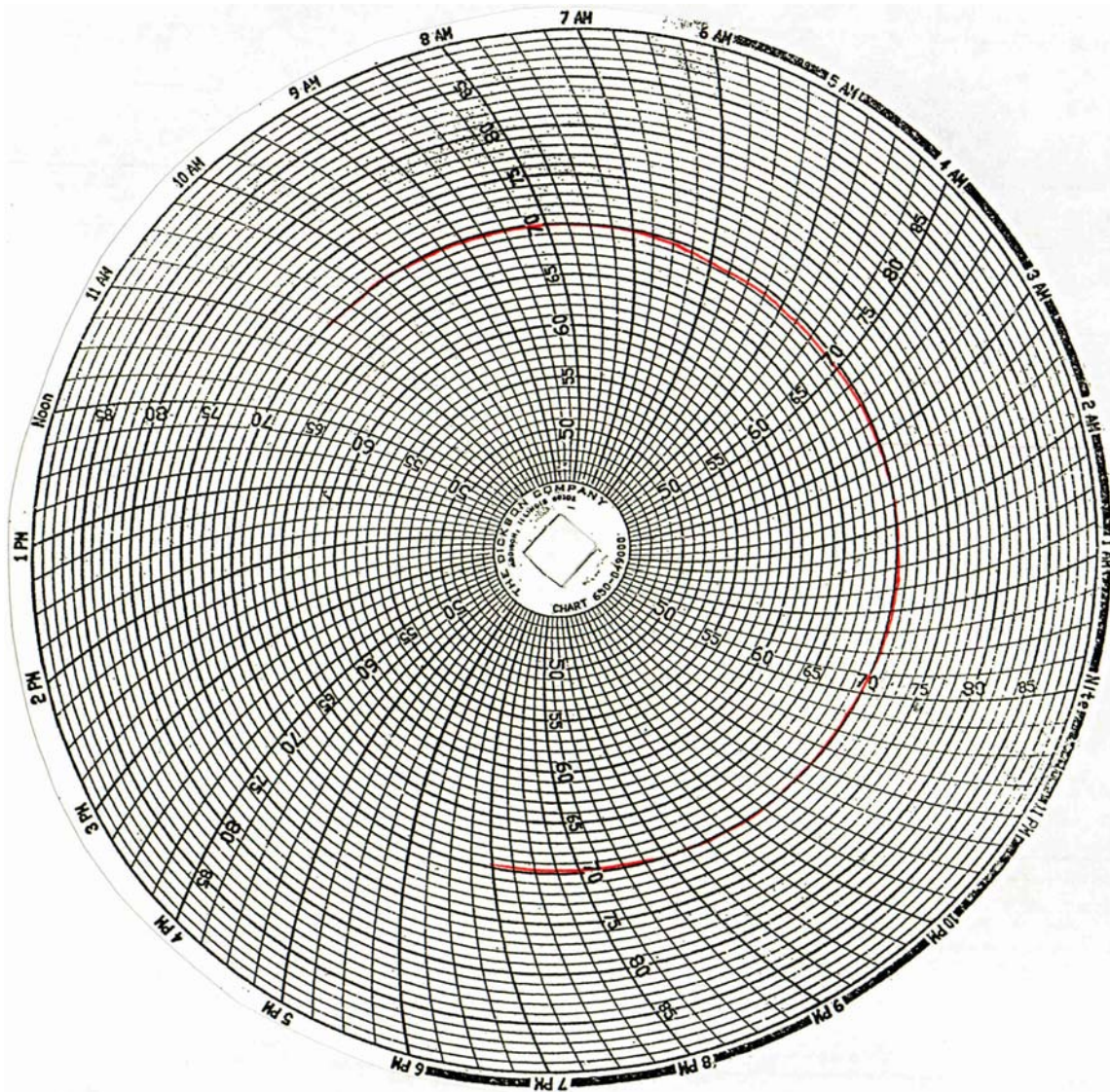
	Yes	No, Fail
Is the measured Electrical Isolation Value $\geq$ 500 Ω/V?	X	

DATA SHEET NO. 12

DUMMY/VEHICLE TEMPERATURE STABILIZATION DATA

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
Test Date: 2/14/2011



DATA SHEET 13

PRE-IMPACT ELECTRIC ISOLATION MEASUREMENTS AND CALCULATIONS

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
Test Date: 2/14/2011

VOLTMETER INFORMATION

Make:	Fluke
Model:	11
Serial Number:	68541895
Internal Impedance Value (M Ω):	>10 M Ω < 100 pF
Resolution (V):	0.001
Last Calibration Date:	1/24/2011

PROPULSION BATTERY VOLTAGE

Measurement shall be made with propulsion battery connected to the vehicle propulsion system, and the vehicle in the "ready-to-drive" (Propulsion motor(s) activated) position.

If voltage measurement is not at the voltage or within the normal operating voltage range specified by the manufacturer, the battery must be charged.

Vb (V):	216.6
---------	-------

PROPULSION BATTERY TO VEHICLE CHASSIS

Vehicle chassis point(s) determined and supplied to contractor by COTR.

V1 (V):	26.2
V2 (V):	20.1

PROPULSION BATTERY TO VEHICLE CHASSIS ACROSS RESISTOR

The known resistance Ro (in ohms) should be approximately 500 times the normal operating voltage of the vehicle (in volts) per SAE J1766.

Ro (Ω):	157.9 K Ω
------------------	------------------

DATA SHEET 13 (CONTINUED)

PRE-IMPACT ELECTRIC ISOLATION MEASUREMENTS AND CALCULATIONS

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
 Test Date: 2/14/2011

ELECTRICAL ISOLATION MEASUREMENT

Note: If measured voltage is zero and results in a division by zero, record "Zero Volts".
 This "zero voltage" condition is considered as being compliant.

V1' (V):	1.2 V
$R_{i1} = R_o (1 + V_2/V_1) [(V_1 - V_1')/V_1']$	
Ri1 (Ω):	5813 K Ω
V2' (V):	1.49 V
$R_{i2} = R_o (1 + V_1/V_2) [(V_2 - V_2')/V_2']$	
Ri2 (Ω):	4543 K Ω
Ri = The lesser of Ri1 and Ri2	
Ri Pre-Test ((Ω):	4543 K Ω
Ri/Vb (Ω/V):	20973 Ω/V (Electrical Isolation Value)
Minimum Electrical Isolation Value is 500 Ω/V	

Note: Measured 5 minutes 45 seconds before impact.

	Yes	No, Fail
Is the measured Electrical Isolation Value $\geq$ 500 Ω/V?	X	

DATA SHEET 14

POST-IMPACT ELECTRIC ISOLATION MEASUREMENTS AND CALCULATIONS

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
 Test Date: 2/14/2011

VOLTMETER INFORMATION

Make:	Fluke
Model:	11
Serial Number:	68541895
Internal Impedance Value (MΩ):	> 10 MΩ < 100 pF
Nominal Propulsion Battery Voltage (Vb) (V):	216.6

PROPULSION BATTERY VOLTAGE

NOTE: Record V1, V2, V1', V2' voltage measurements immediately after the impacted vehicle **comes to rest**.

V1 =	78.6	V	Impact Time:	1	Minutes	41	s
V2 =	160.1	V	Impact Time:	1	Minutes	41	s
V1' =	2.5	V	Impact Time:	1	Minutes	41	s
V2' =	1.3	V	Impact Time:	1	Minutes	41	s

ELECTRICAL ISOLATION MEASUREMENT

Note: If measured voltage is zero and results in a division by zero, record "Zero Volts". This "zero voltage" condition is considered as being compliant.

$R_{i1} = R_o (1 + V_2/V_1) [(V_1 - V_1')/V_1']$							
Ri1 =	14597 K	Ω	Impact Time:	1	Minutes	41	s
$R_{i2} = R_o (1 + V_1/V_2) [(V_2 - V_2')/V_2']$							
Ri2 =	28757 K	Ω	Impact Time:	1	Minutes	41	s
Ri = The lesser of Ri1 and Ri2							
Ri =	14597 K	Ω	Impact Time:	1	Minutes	41	s
Ri/Vb = electrical Isolation Value/Nominal Battery Voltage							
Minimum Electrical Value is 500 Ω/V							
Ri/Vb =	67390	Ω/V	Impact Time:	1	Minutes	41	s

	Yes	No, Fail
Is the measured Electrical Isolation Value $\geq$ 500 Ω/V?	X	

DATA SHEET 14 (CONTINUED)

POST-IMPACT ELECTRIC ISOLATION MEASUREMENTS AND CALCULATIONS

Test Vehicle: 2011 Toyota Prius 5-Dr Liftback
Test Program: NCAP Side Pole Impact Test

NHTSA No. MB5112
Test Date: 2/14/2011

PROPULSION BATTERY SYSTEM COMPONENTS

Describe Propulsion Battery Module movement within the passenger compartment [Supply photographs as appropriate]:
No Movement

	Yes	No
Has the Propulsion Battery Module moved within the passenger compartment?		X

Describe intrusion of an outside Propulsion Battery Component into the passenger compartment [Supply photographs as appropriate]:
Not Applicable

	Yes	No
Has an outside Propulsion Battery Component intruded into the passenger compartment?		X

	Yes	No
Is propulsion battery electrolyte spillage visible in the passenger compartment?		X

APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

	<u>Page No.</u>
Photo No. 1. As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle	A-1
Photo No. 2. As Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle	A-1
Photo No. 3. Pre-Test Frontal View of Test Vehicle	A-2
Photo No. 4. Post-Test Frontal View of Test Vehicle	A-2
Photo No. 5. Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-3
Photo No. 6. Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-3
Photo No. 7. Pre-Test Left Side View of Test Vehicle	A-4
Photo No. 8. Post-Test Left Side View of Test Vehicle	A-4
Photo No. 9. Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-5
Photo No. 10. Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-5
Photo No. 11. Pre-Test Rear View of Test Vehicle	A-6
Photo No. 12. Post-Test Rear View of Test Vehicle	A-6
Photo No. 13. Pre-Test Right Side View of Test Vehicle	A-7
Photo No. 14. Post-Test Right Side View of Test Vehicle	A-7
Photo No. 15. Pre-Test Overhead View of Test Vehicle and Pole	A-8
Photo No. 16. Post-Test Overhead View of Test Vehicle and Pole	A-8
Photo No. 17. Pre-Test Left Side View of Pole Positioned Against Side of Vehicle	A-9
Photo No. 18. Pre-Test Right Side View of Pole Positioned Against Side of Vehicle	A-9
Photo No. 19. Pre-Test Close-Up View of Impact Point Target	A-10
Photo No. 20. Post-Test Close-Up View of Impact Point Target Showing Impact Location	A-10

		<u>Page No.</u>
Photo No. 21.	Pre-Test Front Close-Up View of Dummy (through front window)	A-11
Photo No. 22.	Post-Test Front Close-Up View of Dummy (through front window)	A-11
Photo No. 23.	Pre-Test Left Side View of Dummy Showing Belts, Chalking, and Contact Switches (Door Open)	A-12
Photo No. 24.	Pre-Test Left Side View of Dummy Shoulder and Door Top View	A-12
Photo No. 25.	Post-Test Left Side View of Dummy Shoulder and Door Top View	A-13
Photo No. 26.	Pre-Test Frontal View of Seat Back Prior to Dummy Positioning	A-13
Photo No. 27.	Pre-Test Frontal View of Dummy Head and Shoulders in Relation to Head Restraint	A-14
Photo No. 28.	Pre-Test Frontal View of Seat Pan Prior to Dummy Positioning	A-14
Photo No. 29.	Pre-Test Overhead View of Dummy Thighs on Seat Pan	A-15
Photo No. 30.	Pre-Test View of Dummy's Neck Showing Position of Adjustable Neck Bracket	A-15
Photo No. 31.	Pre-Test View of Dummy's Head Showing Dummy's Head is Level	A-16
Photo No. 32.	Pre-Test Placement of Dummy's Feet	A-16
Photo No. 33.	Pre-Test View of Belt Anchorage for Dummy to Show Position	A-17
Photo No. 34.	Pre-Test Left Side View of Steering Wheel to Show Position	A-17
Photo No. 35.	Pre-Test View of Parking Brake	A-18
Photo No. 36.	Pre-Test Close-Up Left Side View of Driver Seat Track Showing Test Position	A-18
Photo No. 37.	Pre-Test Close-Up Left Side View of Driver Seat Back Showing Test Position	A-19
Photo No. 38.	Pre-Test Close-Up View of Driver Seat Back or Head Restraint Showing Seat Back Test Position	A-19
Photo No. 39.	Pre-Test Dummy and Door Clearance View	A-20
Photo No. 40.	Post-Test Dummy and Door Clearance View	A-20

		<u>Page No.</u>
Photo No. 41.	Pre-Test Right Side View of Dummy and Front Seat Occupant Compartment	A-21
Photo No. 42.	Post-Test Right Side View of Dummy and Front Seat Occupant Compartment	A-21
Photo No. 43.	Pre-Test Inner Driver Door Panel View	A-22
Photo No. 44.	Post-Test Inner Driver Door Panel View Showing Dummy Contact Location	A-22
Photo No. 45.	Post-Test Dummy Close-Up Head Contact with Vehicle Interior View	A-23
Photo No. 46.	Post-Test Dummy Close-Up Head Contact with Side Airbag View	A-23
Photo No. 47.	Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View	A-24
Photo No. 48.	Post-Test Dummy Close-Up Torso Contact with Side Airbag View	A-24
Photo No. 49.	Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-25
Photo No. 50.	Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View	A-25
Photo No. 51.	Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-26
Photo No. 52.	Post-Test View of Fuel Filler Cap or Fuel Filler Neck	A-26
Photo No. 53.	Close-Up View of Vehicle's Certification Label	A-27
Photo No. 54.	Close-Up View of Vehicle's Tire Information Placard or Label	A-28
Photo No. 55.	Close-Up View of Vehicle's Load Carrying Capacity Reduced	A-28
Photo No. 56.	Pre-Test Pole Barrier Front View	A-29
Photo No. 57.	Post-Test Pole Barrier Front View	A-29
Photo No. 58.	Pre-Test Pole Barrier Side View	A-30
Photo No. 59.	Post-Test Pole Barrier Side View	A-30
Photo No. 60.	Pre-Test Ballast View	A-31
Photo No. 61.	Post-Test Primary and Redundant Speed Trap Read-Out	A-31

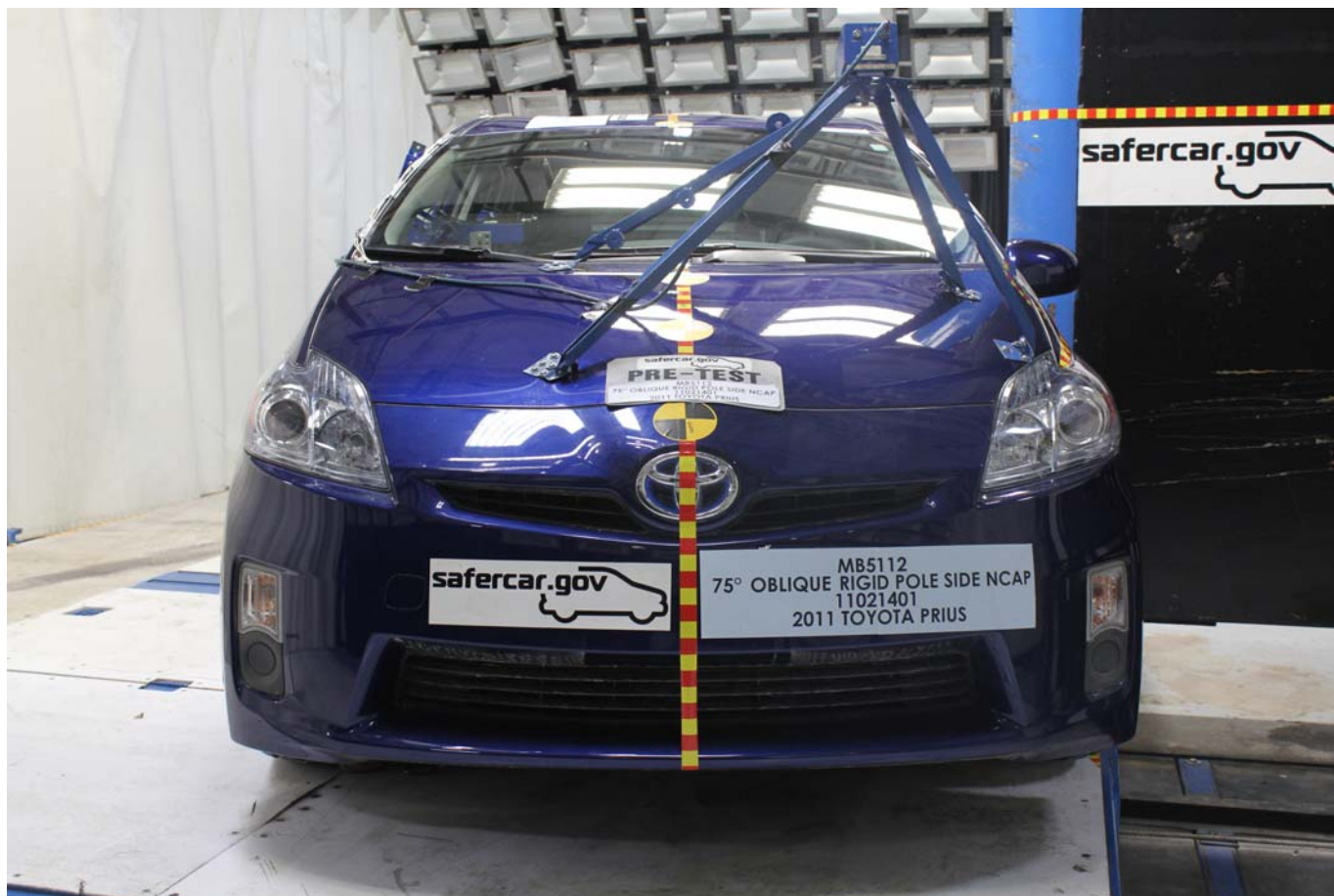
	<u>Page No.</u>
Photo No. 62. FMVSS No. 301/305 Rollover 0 Degrees	A-32
Photo No. 63. FMVSS No. 301/305 Rollover 90 Degrees	A-32
Photo No. 64. FMVSS No. 301/305 Rollover 180 Degrees	A-33
Photo No. 65. FMVSS No. 301/305 Rollover 270 Degrees	A-33
Photo No. 66. FMVSS No. 301/305 Rollover 360 Degrees	A-34
Photo No. 67. Impact Event	A-34
Photo No. 68. Monroney Label	A-35
Photo No. 69. Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-36
Photo No. 70. Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-37
Photo No. 71. Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-38



As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



As Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle



Pre-Test Frontal View of Test Vehicle



Post-Test Frontal View of Test Vehicle



Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle



Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle



Pre-Test Left Side View of Test Vehicle



Post-Test Left Side View of Test Vehicle



Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



Pre-Test Rear View of Test Vehicle



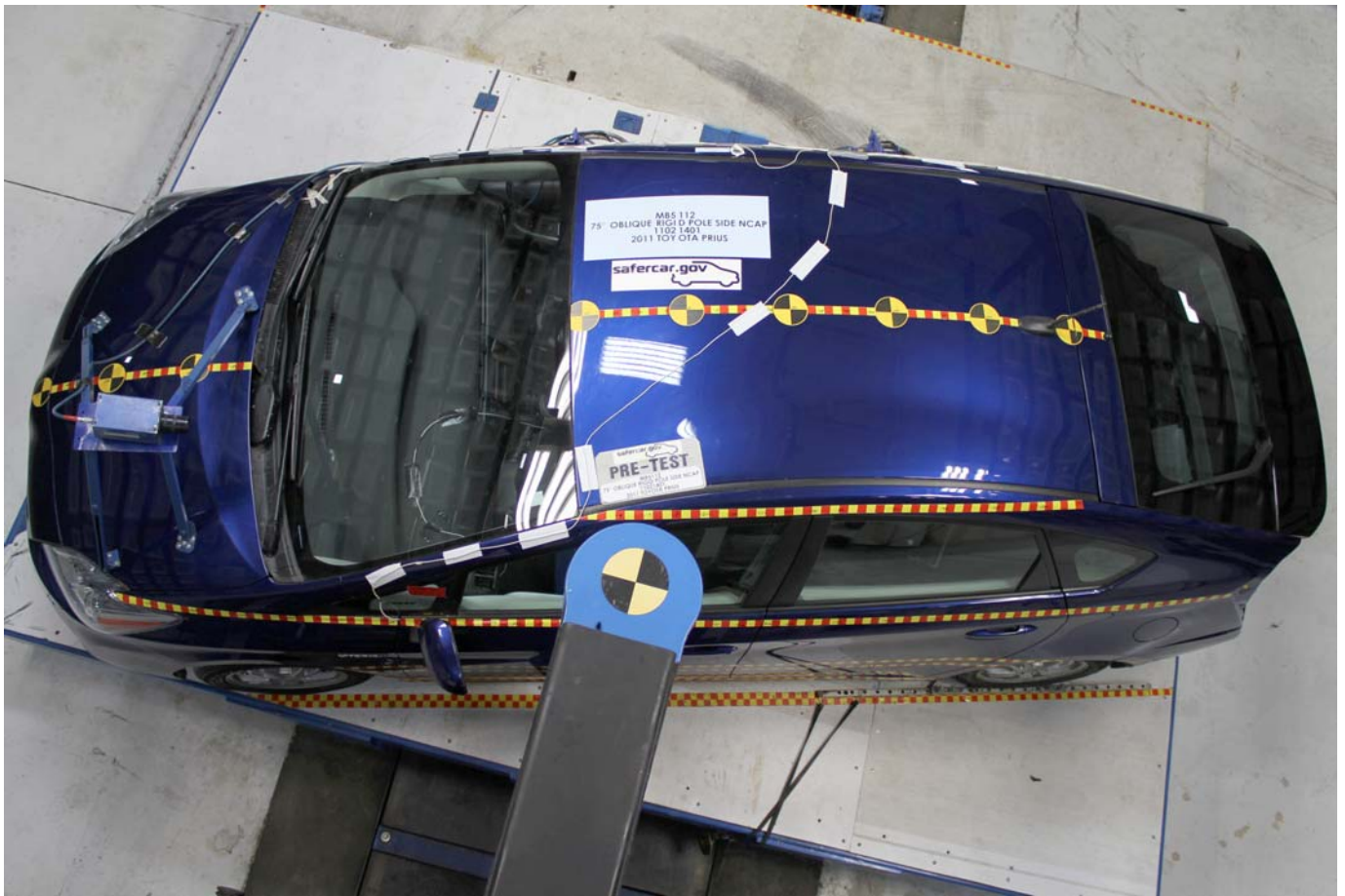
Post-Test Rear View of Test Vehicle



Pre-Test Right Side View of Test Vehicle



Post-Test Right Side View of Test Vehicle



Pre-Test Overhead View of Test Vehicle and Pole



Post-Test Overhead View of Test Vehicle and Pole



Pre-Test Left Side View of Pole Positioned Against Side of Vehicle



Pre-Test Right Side View of Pole Positioned Against Side of Vehicle



Pre-Test Close-Up View of Impact Point Target



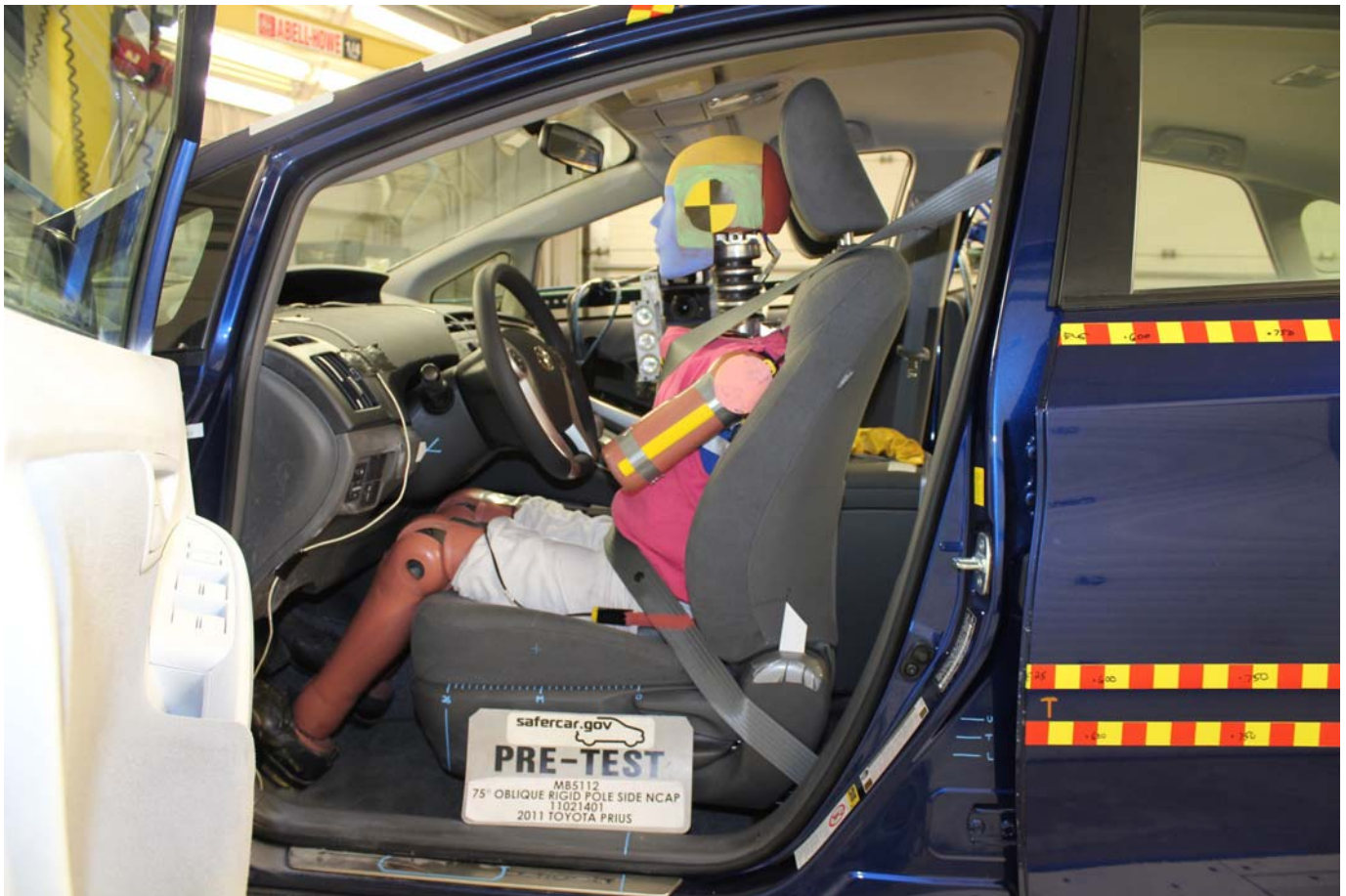
Post-Test Close-Up View of Impact Point Target Showing Impact Location



Pre-Test Front Close-Up View of Dummy (through front window)



Post-Test Front Close-Up View of Dummy (through front window)



Pre-Test Left Side View of Dummy Showing Belts, Chalking, and Contact Switches (Door Open)



Pre-Test Left Side View of Dummy Shoulder and Door Top View



Post-Test Left Side View of Dummy Shoulder and Door Top View



Pre-Test Frontal View of Seat Back Prior to Dummy Positioning



Pre-Test Frontal View of Dummy Head and Shoulders in Relation to Head Restraint



Pre-Test Frontal View of Seat Pan Prior to Dummy Positioning



Pre-Test Overhead View of Dummy Thighs on Seat Pan



Pre-Test View of Dummy's Neck Showing Position of Adjustable Neck Bracket



Pre-Test View of Dummy's Head Showing Dummy's Head is Level



Pre-Test Placement of Dummy's Feet



Pre-Test View of Belt Anchorage for Dummy to Show Position



Pre-Test Left Side View of Steering Wheel to Show Position



Pre-Test View of Parking Brake



Pre-Test Close-Up Left Side View of Driver Seat Track Showing Test Position



Pre-Test Close-Up Left Side View of Driver Seat Back Showing Test Position



Pre-Test Close-Up View of Driver Seat Back or Head Restraint Showing Seat Back Test Position



Pre-Test Dummy and Door Clearance View



Post-Test Dummy and Door Clearance View



Pre-Test Right Side View of Dummy and Front Seat Occupant Compartment



Post-Test Right Side View of Dummy and Front Seat Occupant Compartment



Pre-Test Inner Driver Door Panel View

PHOTOGRAPH NOT AVAILABLE

Post-Test Inner Driver Door Panel View Showing Dummy Contact Location



Post-Test Dummy Close-Up Head Contact with Vehicle Interior View



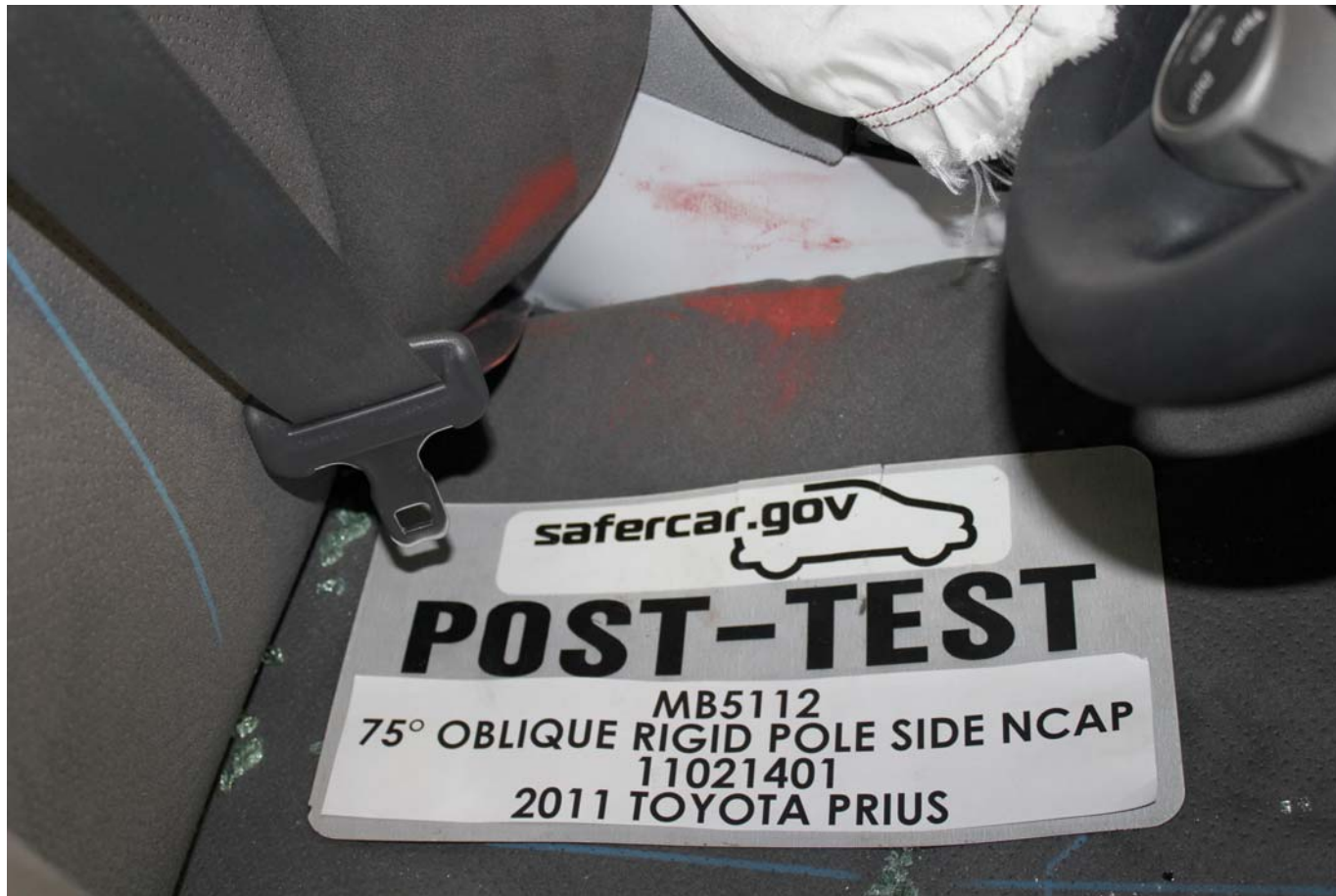
Post-Test Dummy Close-Up Head Contact with Side Airbag View



Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View



Post-Test Dummy Close-Up Torso Contact with Side Airbag View



Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View

PHOTOGRAPH NOT APPLICABLE

Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View



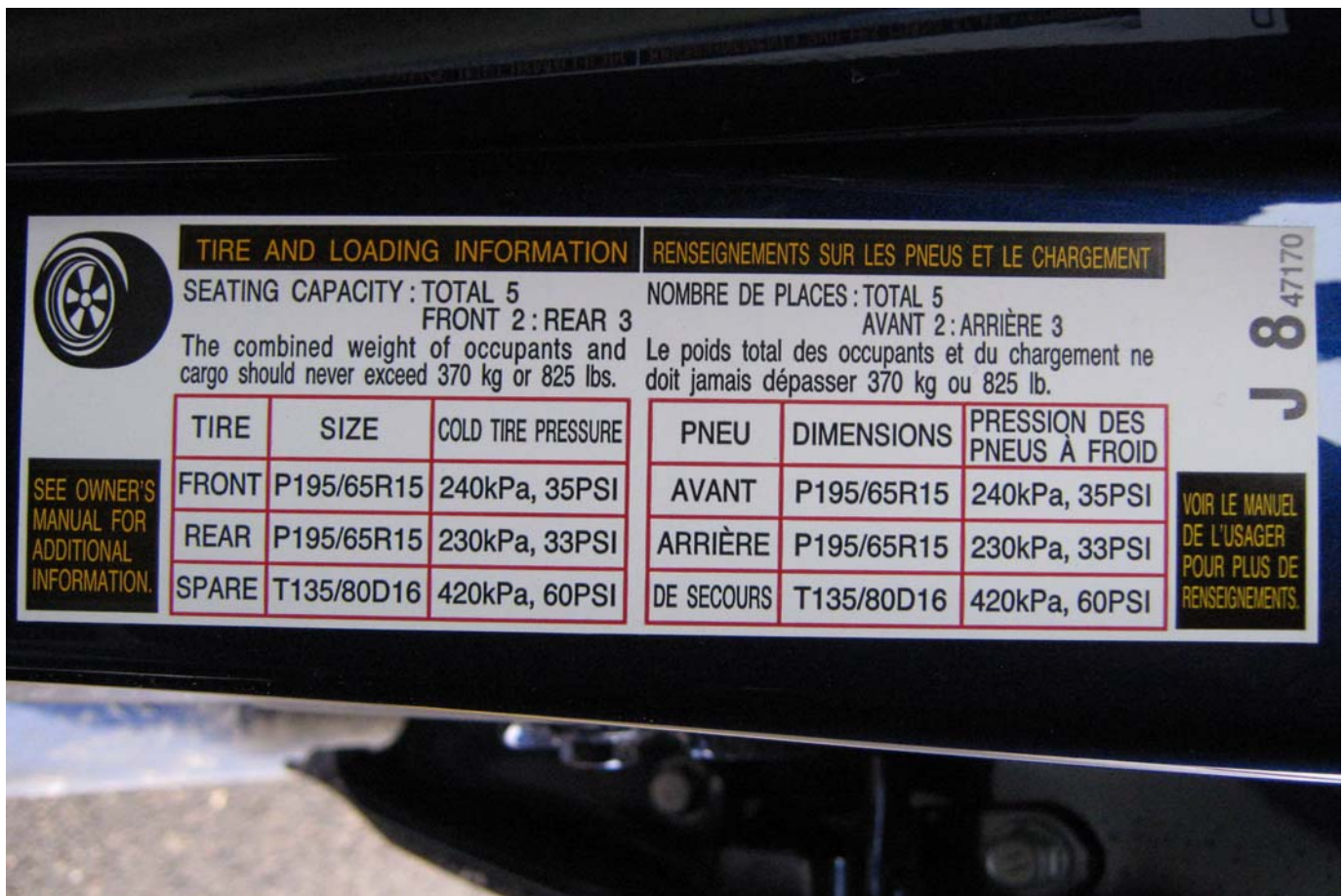
Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



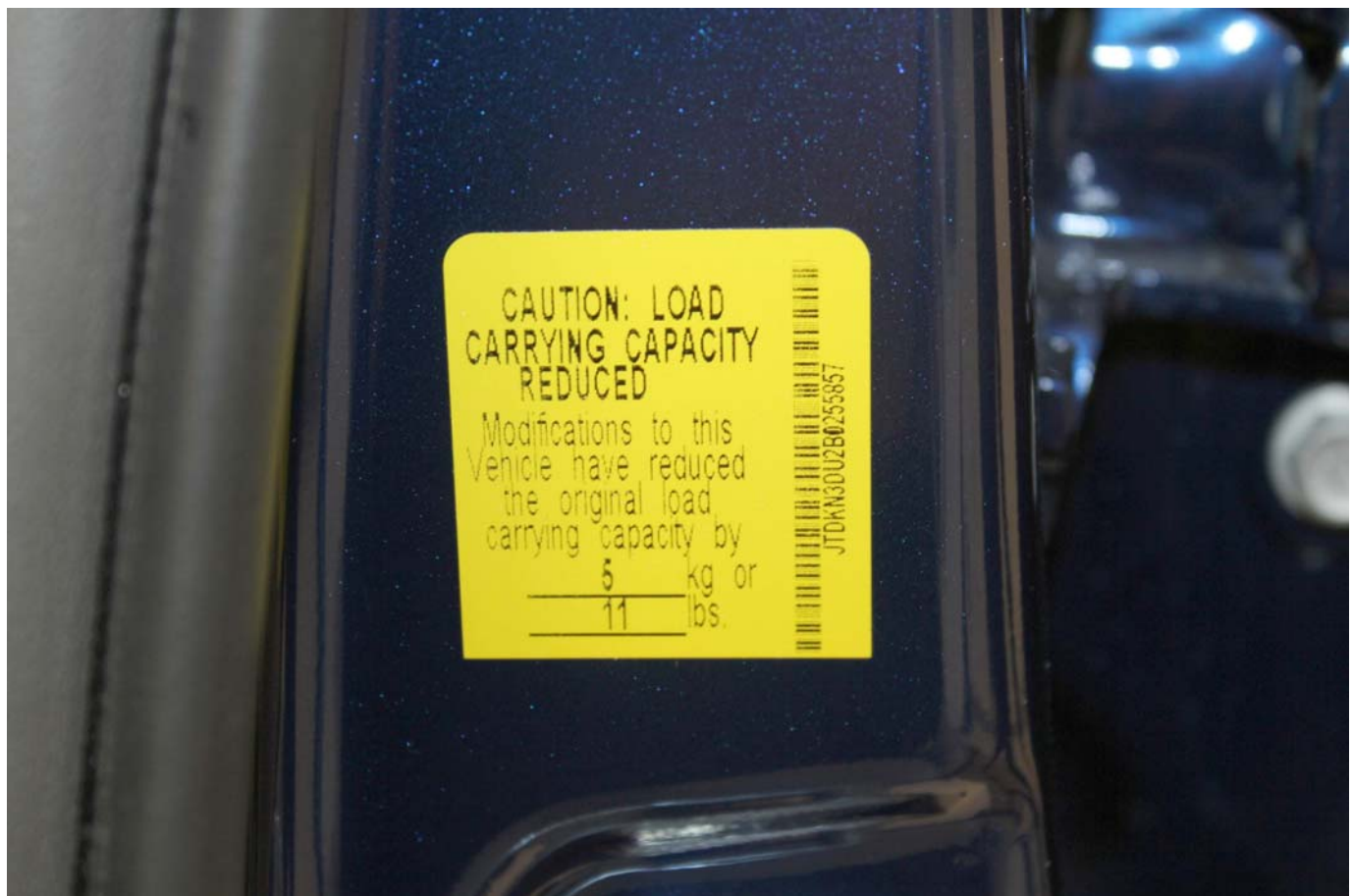
Post-Test View of Fuel Filler Cap or Fuel Filler Neck



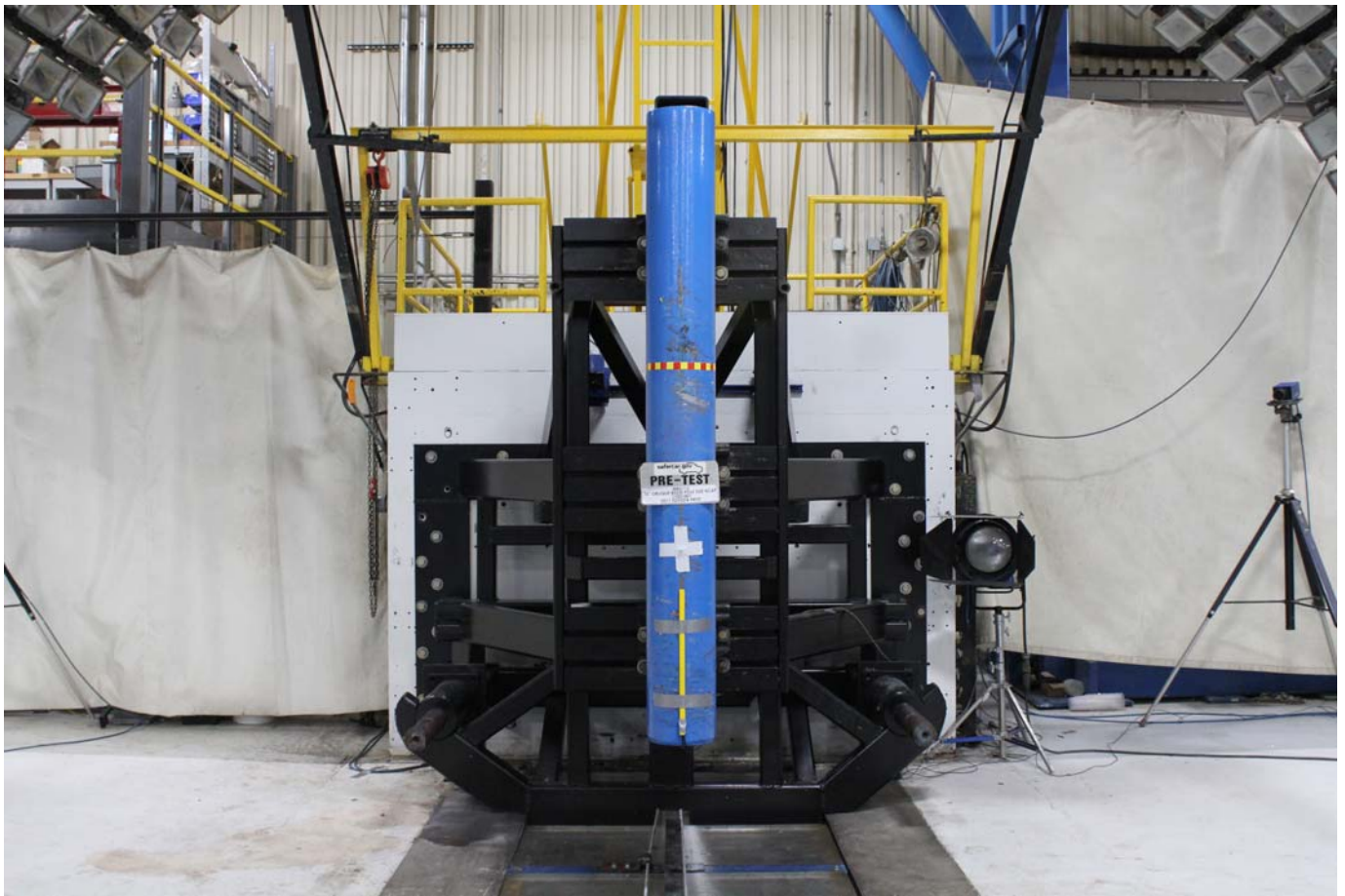
Close-Up View of Vehicle's Certification Label



Close-Up View of Vehicle's Tire Information Placard or Label



Close-Up View of Vehicle's Load Carrying Capacity Reduced



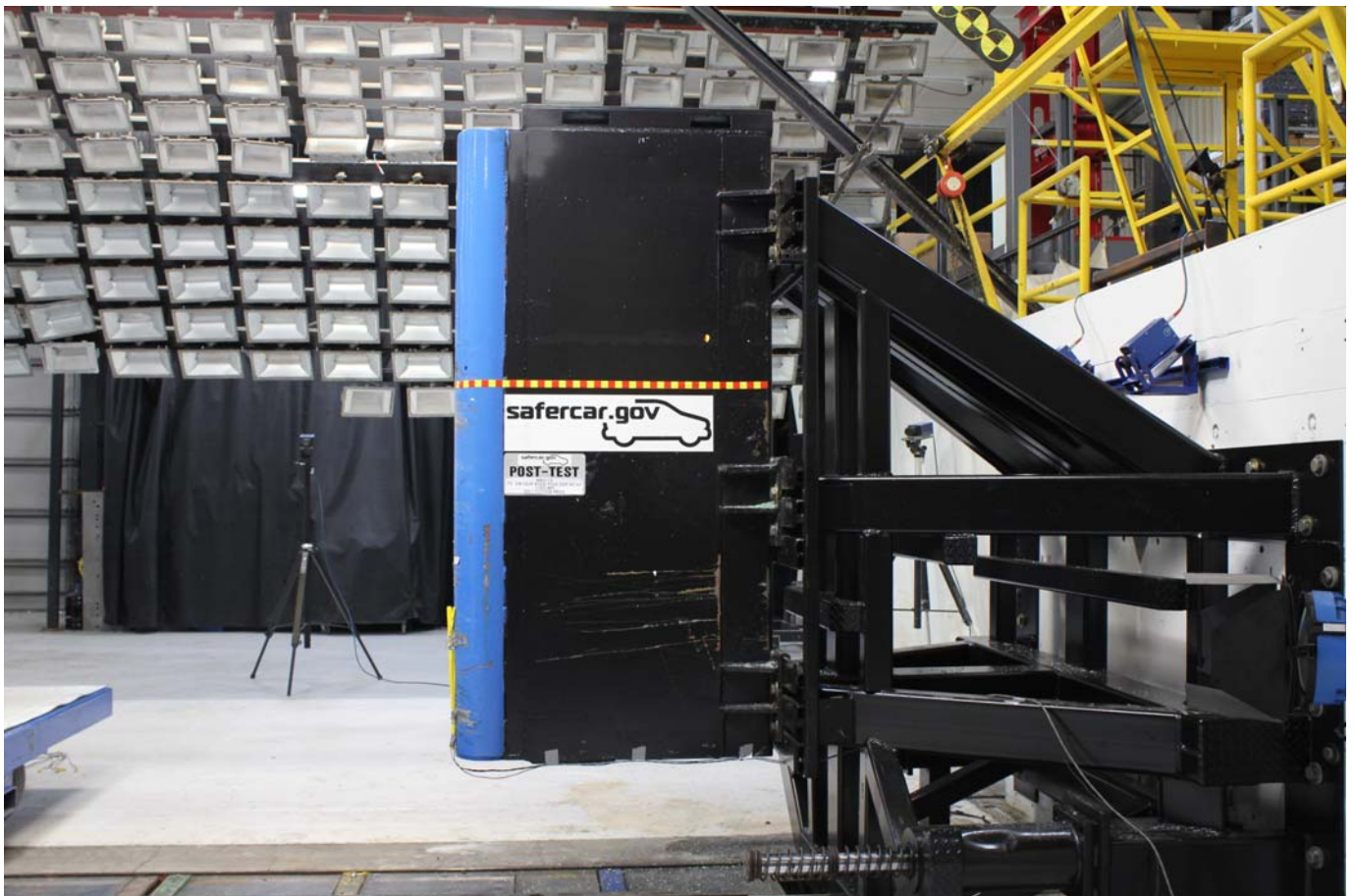
Pre-Test Pole Barrier Front View



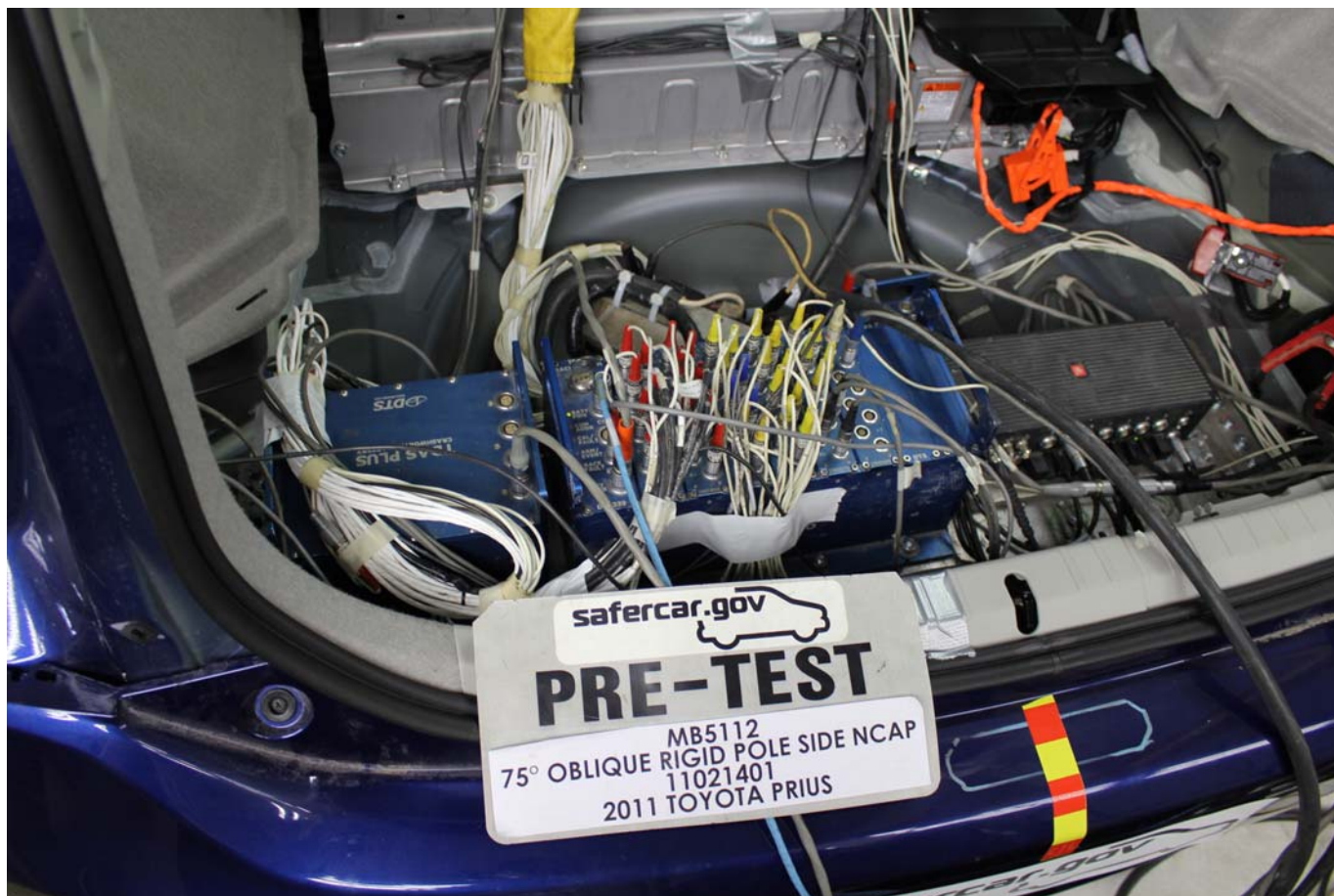
Post-Test Pole Barrier Front View



Pre-Test Pole Barrier Side View



Post-Test Pole Barrier Side View



Pre-Test Ballast View



Post-Test Primary and Redundant Speed Trap Read-Out



FMVSS No. 301/305 Rollover 0 Degrees



FMVSS No. 301/305 Rollover 90 Degrees



FMVSS No. 301/305 Rollover 180 Degrees



FMVSS No. 301/305 Rollover 270 Degrees



FMVSS No. 301/305 Rollover 360 Degrees



Impact Event

moving forward

DESC.: **PRUIS**
VIN: **JTDKN3DU2B0255857**
YR/MDL: 2011/1223A
CLR: **BLUE RIBBON MET/FB10**
PORT/PLANT: **Portland, OR**
(08T5/10)
RAILHEAD:

GOVERNMENT SAFETY RATINGS

Frontal	Crash	Driver	Passenger	Not Rated	Not Rated
Star ratings based on the risk of injury in a frontal impact. Frontal ratings should ONLY be compared to other vehicles of similar size and weight.					
Side	Crash	Front seat	Rear seat	Not Rated	Not Rated
Star ratings based on the risk of injury in a side impact.					
Rollover	Star ratings based on the risk of rollover in a single vehicle crash. ★★★★				

Star ratings from 1 to 5 stars (*****) with 5 being the highest.
Source: National Highway Traffic Safety Administration (NHTSA).

www.safercar.gov or 1-888-327-4236

EPA Fuel Economy Estimates

CITY MPG

Expected range
for most drivers
42 to 60 MPG

HIGHWAY MPG



Expected range
for most drivers
39 to 57 MPG

Your actual mileage will vary depending on how you drive and maintain your vehicle.



See the FREE Fuel Economy Guide at dealers or www.fueleconomy.gov

STANDARD EQUIPMENT

MECHANICAL & PERFORMANCE

- [illegible]

MANUFACTURER'S SUGGESTED RE

OPTIONAL EQUIPMENT

- | | | |
|----|-------------------------------|--------|
| FE | 50 State Emissions | 200.00 |
| CF | Carpet Floor Mats & Cargo Mat | 279.00 |
| G4 | Illuminated Door Sill | |

DELIVERY**PROCESSING AND HANDLING FEE	760.00
---------------------------------------	--------

TOTAL \$24,289.00

The New Vehicle Limited Warranty provides 2 years/25,000 mile basic coverage, 5-year/100,000 mile powertrain coverage, plus 5-year/unlimited mile corrosion protection. See Owner's Warranty Information book for details. An extended service contract may be available for the vehicle.

Ask dealer for details.

Manufacturer's suggested retail price includes manufacturer's recommended pre-delivery service, Gasoline, license and title fees, applicable federal, state and local taxes and dealer and distributor installed options and accessories are not included in the manufacturer's suggested retail price.

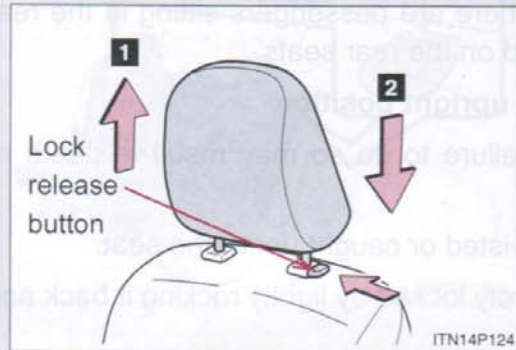
Dealer Name / Address: 48030 Ship to
WILDE TOYOTA
3225 SOUTH 108TH STREET
WEST ALLIS WI53227

1-4. Adjustable components (seats, mirrors, steering wheel)

Head restraints

Head restraints are provided for all seats.

► Front seats



Vertical adjustment

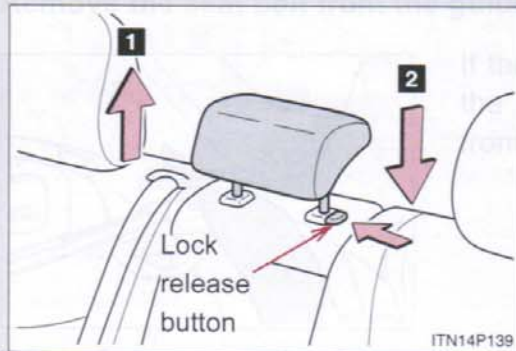
1 Up

Pull the head restraints up.

2 Down

Push and hold the lock release button when lowering the head restraint.

► Rear center seat



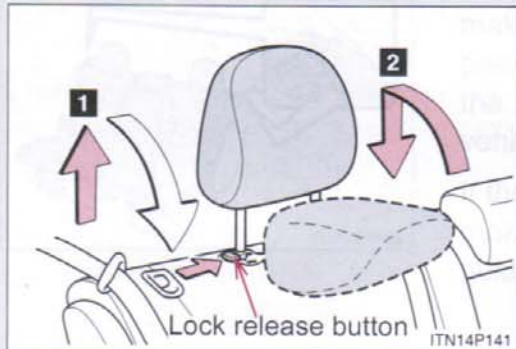
Vertical adjustment

1 Up

2 Down

Pull up or push down the head restraint while pressing the lock release button.

► Rear outboard seats (foldable type only)



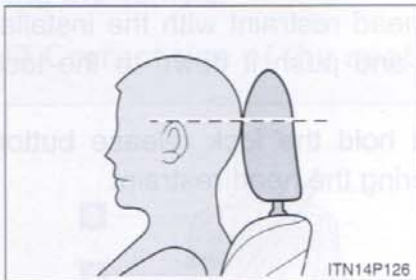
1 To fold

Pull up the head restraint while pressing the lock release button.

2 To use

Lift up and push down the head restraint to the lowest lock position.

■ Adjusting the height of the head restraints



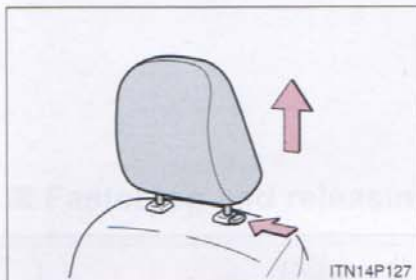
Make sure that the head restraints are adjusted so that the center of the head restraint is closest to the top of your ears.

■ Adjusting the rear center seat head restraint

Always raise the head restraint one level from the stowed position when using.

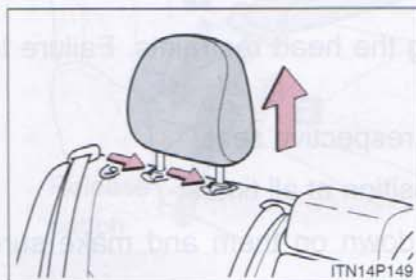
■ Removing the head restraints

► Front and rear center seats



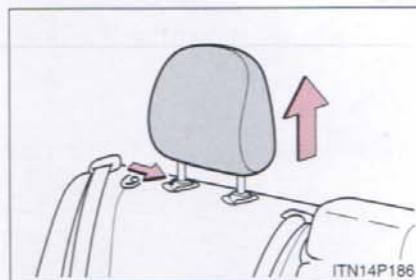
Pull the head restraint up while pressing the lock release button.

► Rear outboard seats (foldable type)



Pull the head restraint up while pressing the lock release buttons.

► Rear outboard seats (non-foldable type)



Pull the head restraint up while pressing the lock release button.

■ Installing the head restraints

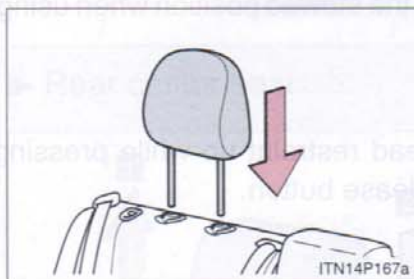
► Front and rear center seats



Align the head restraint with the installation holes and push it down to the lock position.

Press and hold the lock release button when lowering the head restraint.

► Rear outboard seats



Align the head restraint with the installation holes and push it down to the lowest lock position.

⚠ CAUTION

■ Head restraint precautions

Observe the following precautions regarding the head restraints. Failure to do so may result in death or serious injury.

- Use the head restraints designed for each respective seat.
- Adjust the head restraints to the correct position at all times.
- After adjusting the head restraints, push down on them and make sure they are locked in position.
- Do not drive with the head restraints removed.

APPENDIX B
DUMMY RESPONSE DATA

TABLE OF DATA PLOTS

List of Data Plots Provided in the Test Report		<u>Page No.</u>
Figure No. 1.	Driver Head Acceleration (X) Primary vs. Time	B-1
Figure No. 2.	Driver Head Acceleration (Y) Primary vs. Time	B-1
Figure No. 3.	Driver Head Acceleration (Z) Primary vs. Time	B-1
Figure No. 4.	Driver Head Resultant Primary Acceleration vs. Time	B-1
Figure No. 5.	Driver Lower Spine T12 Acceleration (X) vs. Time	B-2
Figure No. 6.	Driver Lower Spine T12 Acceleration (Y) vs. Time	B-2
Figure No. 7.	Driver Lower Spine T12 Acceleration (Z) vs. Time	B-2
Figure No. 8.	Driver Lower Spine T12 Resultant Acceleration vs. Time	B-2
Figure No. 9.	Driver Iliac Wing Force on Impact Side (Y) vs. Time	B-3
Figure No. 10.	Driver Acetabulum Force on Impact Side (Y) vs. Time	B-3
Figure No. 11.	Driver Total Pelvis Force on Impact Side (Y) vs. Time	B-3

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

Driver Head Acceleration (X) Redundant

Driver Head Acceleration (Y) Redundant

Driver Head Acceleration (Z) Redundant

Driver Upper Thorax Rib Deflection (Y)

Driver Middle Thorax Rib Deflection (Y)

Driver Lower Thorax Rib Deflection (Y)

Driver Upper Abdomen Rib Deflection (Y)

Driver Lower Abdomen Rib Deflection (Y)

Driver Shoulder Contact Switch

Driver Torso Contact Switch

Driver Pelvis Contact Switch

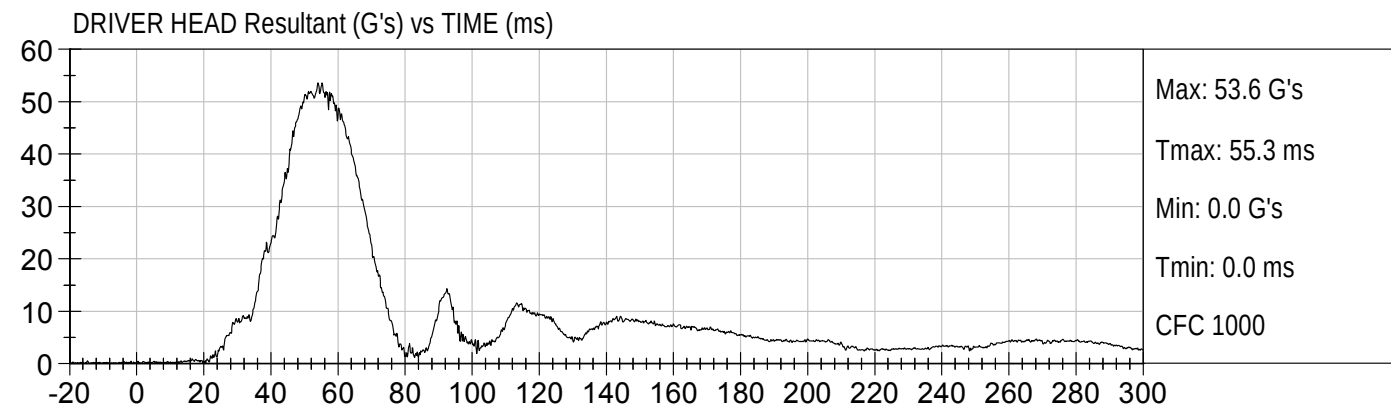
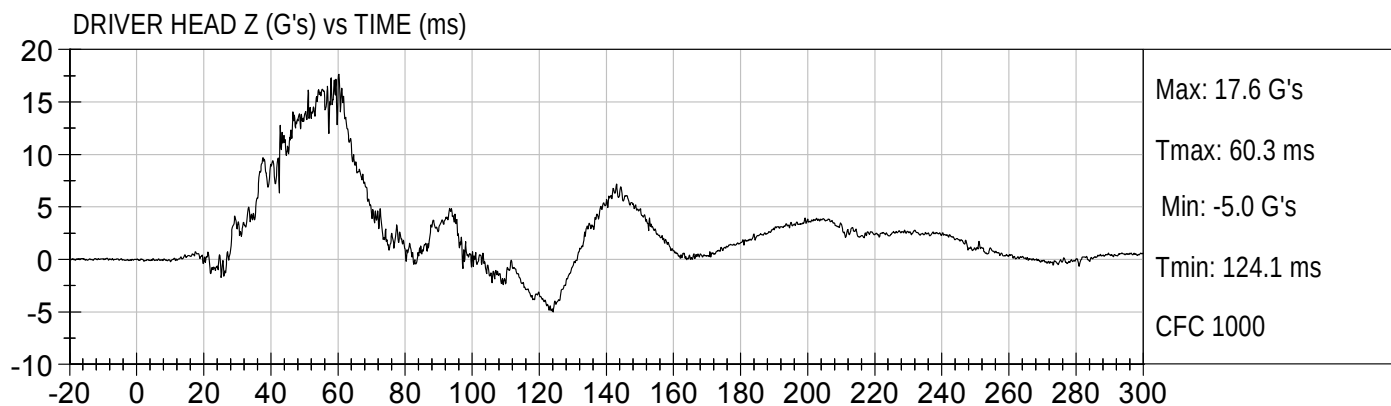
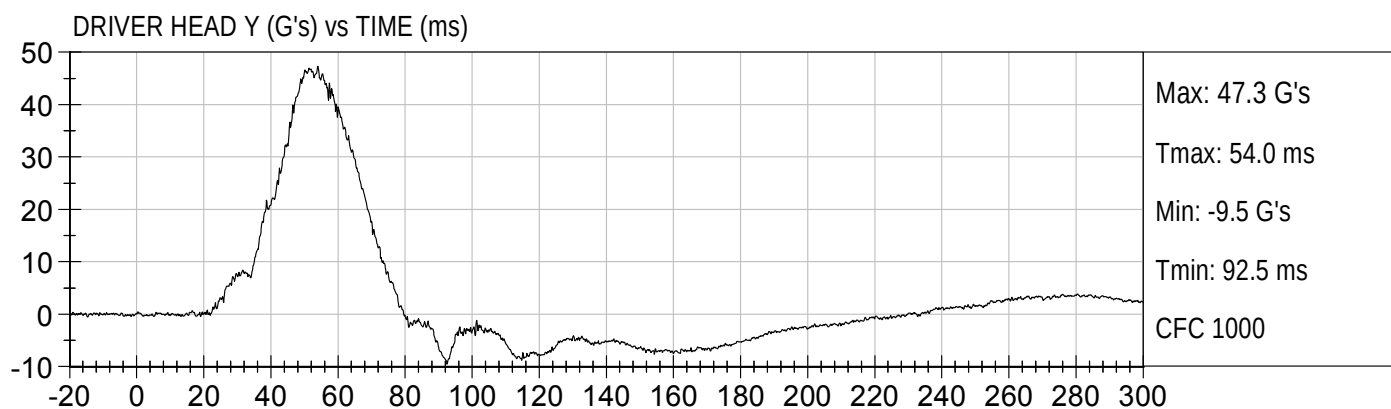
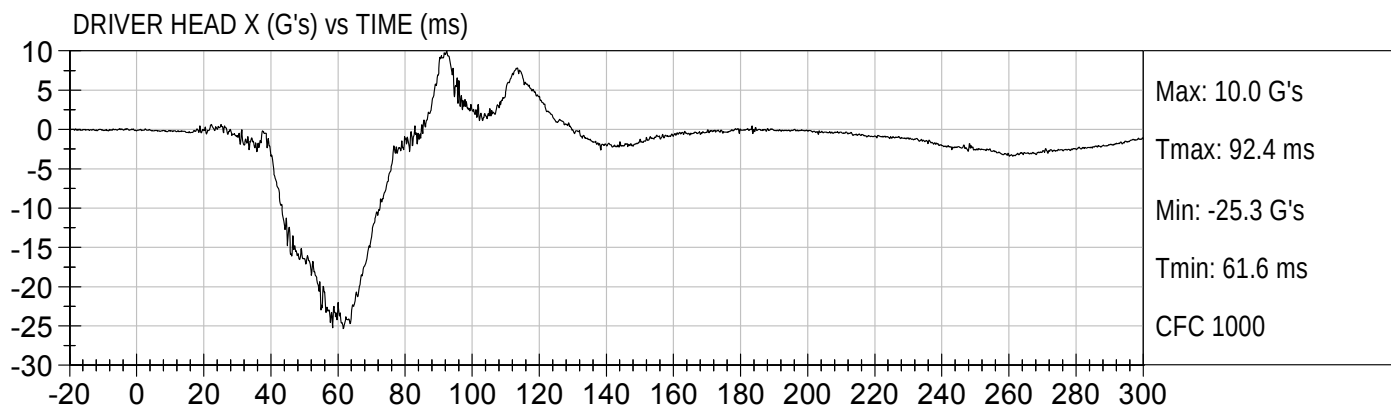
Vehicle CG Acceleration (X)

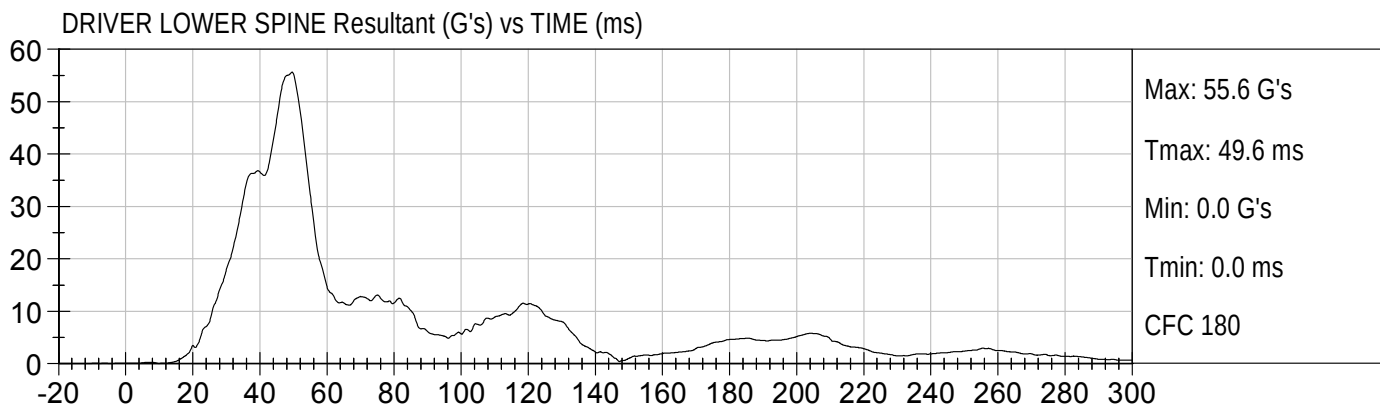
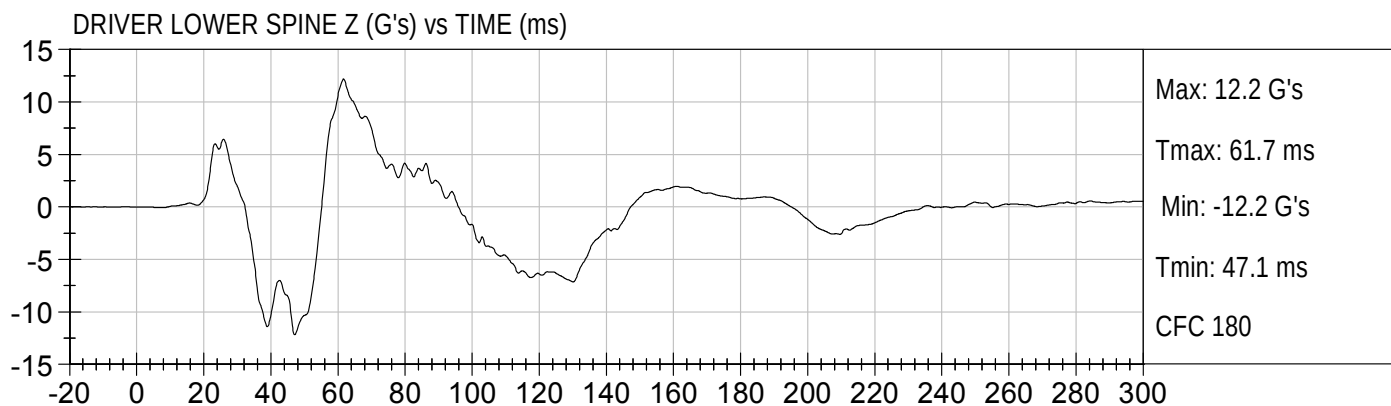
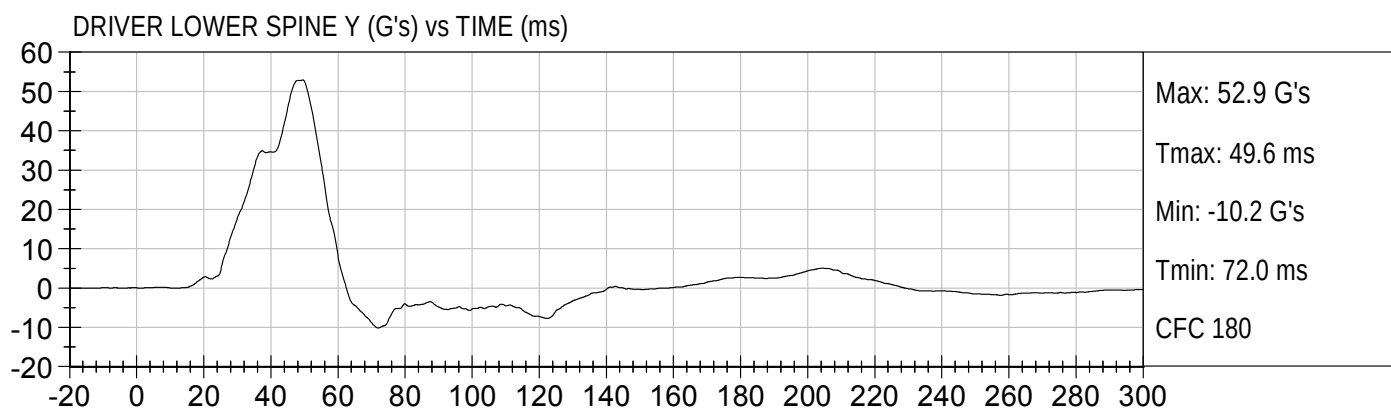
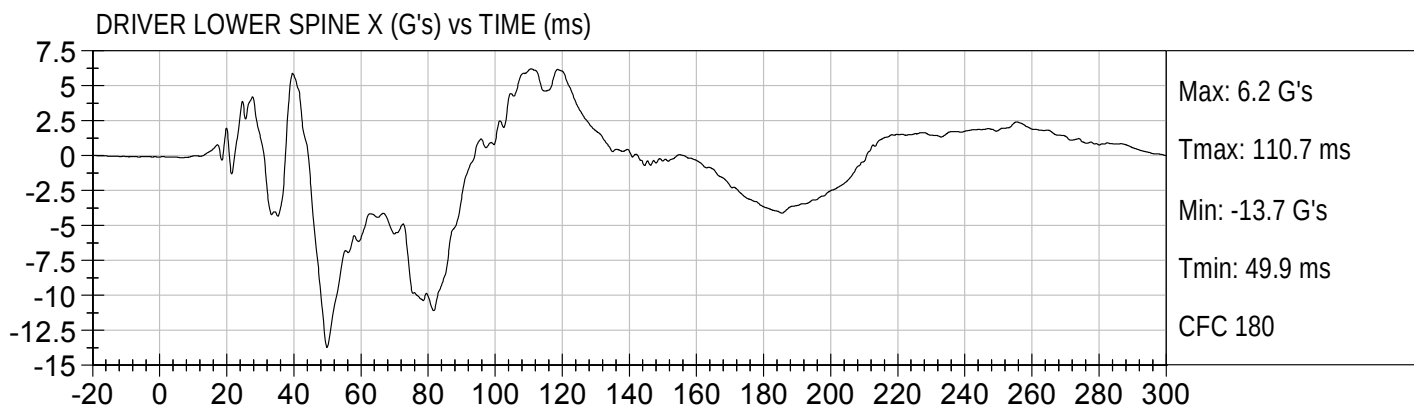
Vehicle CG Acceleration (Y)

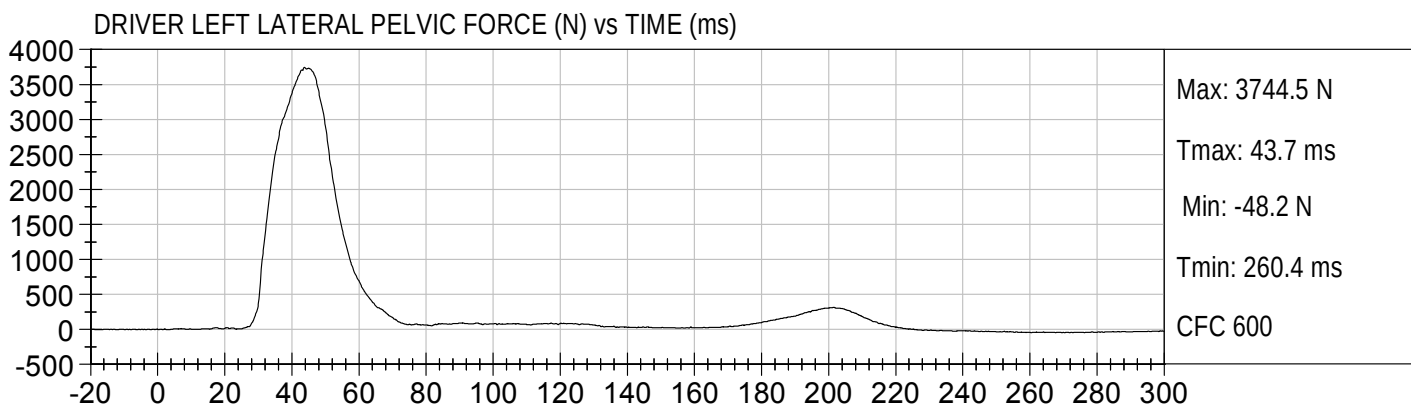
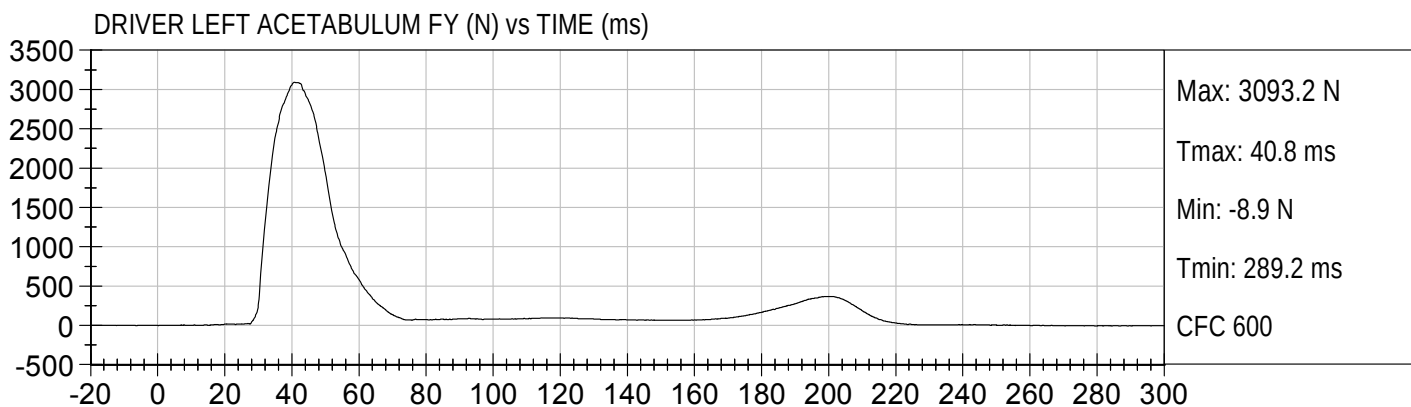
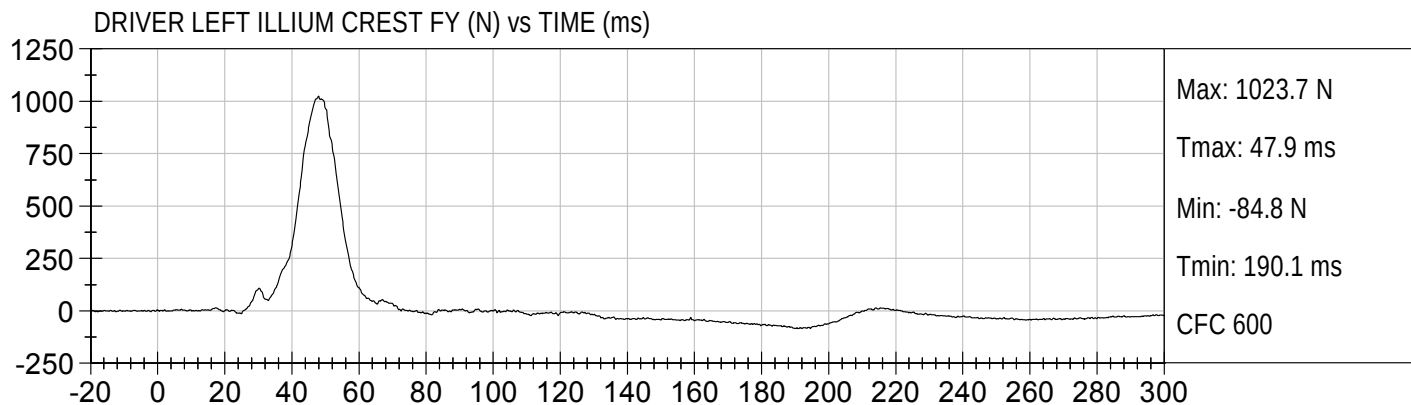
Vehicle CG Acceleration (Z)

Vehicle CG Angular Rate About X (Roll)

Vehicle CG Angular Rate About Y (Pitch)
Vehicle CG Angular Rate About Z (Yaw)
Left Floor Sill Acceleration (Y)
Left A-Pillar Sill Acceleration (Y)
Left Lower A-Pillar Acceleration (Y)
Left Mid A-Pillar Acceleration (Y)
Left B-Pillar Sill Acceleration (Y)
Left Lower B-Pillar Acceleration (Y)
Left Mid B-Pillar Acceleration (Y)
Driver Seat Track at Dummy H-Point Acceleration (Y)
Engine Top Acceleration (X)
Engine Top Acceleration (Y)
Firewall Center Acceleration (Y)
Right Roof at Vertical Impact Reference Line Acceleration (Y)
Right Sill at Vertical Impact Reference Line Acceleration (Y)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)
Driver Side Airbag Timing
Driver Side Curtain Airbag Timing – Not Installed
Load Cell Pole Barrier #1 Force (Y) – Not used
Load Cell Pole Barrier #2 Force (Y) – Not used
Load Cell Pole Barrier #3 Force (Y) – Not used
Load Cell Pole Barrier #4 Force (Y) – Not used
Load Cell Pole Barrier #5 Force (Y) – Not used
Load Cell Pole Barrier #6 Force (Y) – Not used
Load Cell Pole Barrier #7 Force (Y) – Not used
Load Cell Pole Barrier #8 Force (Y) – Not used







APPENDIX C

DUMMY CALIBRATION AND PERFORMANCE VERIFICATION DATA

MGA RESEARCH CORPORATION
HEAD DROP TEST
SID-Its BUILD LEVEL D DUMMY

ATD Serial No: 296

Test ID: D11411

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	17	Pass
Peak Resultant Acceleration	G's	115 to 137	126	Pass
Peak Lateral Acceleration	G's	+/- 15	2.5	Pass
Unimodal	N/A	<15%	Yes	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

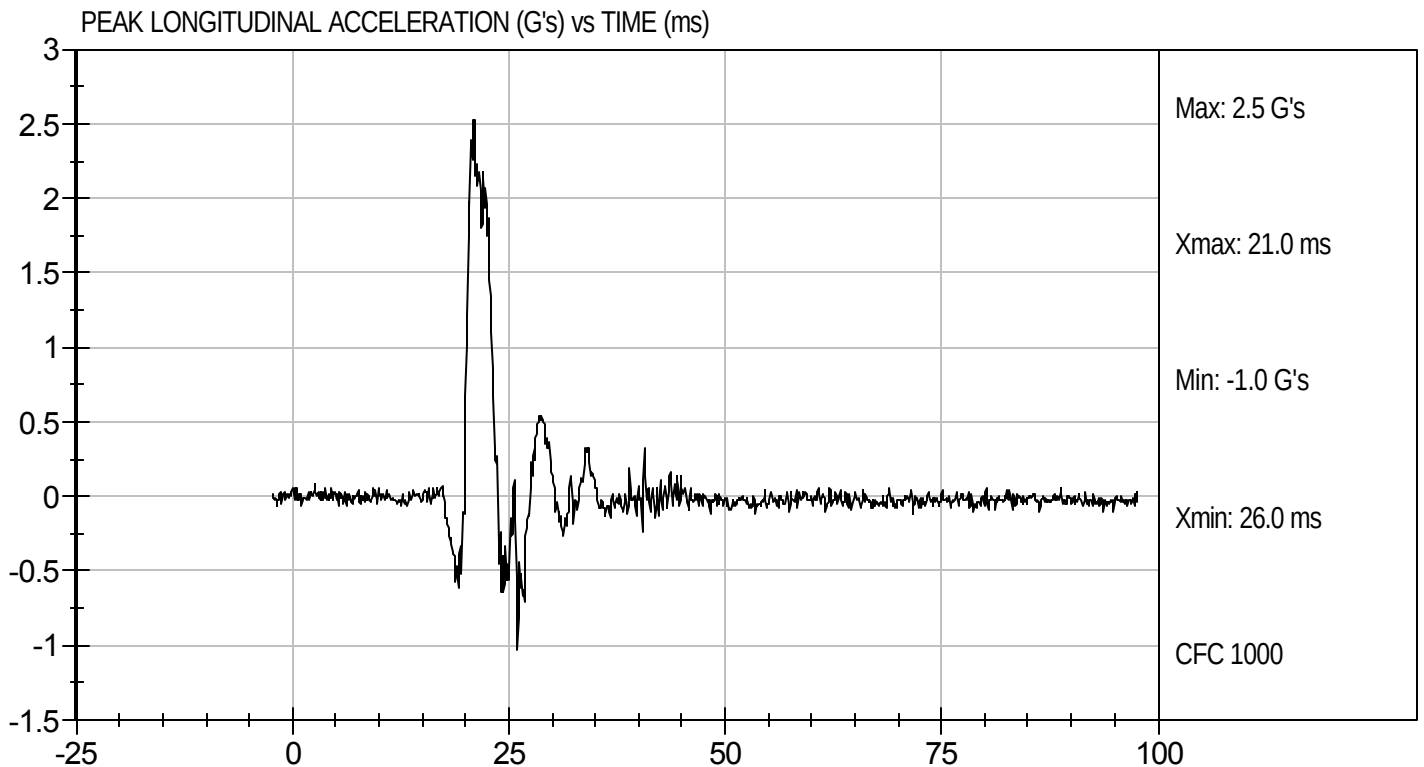
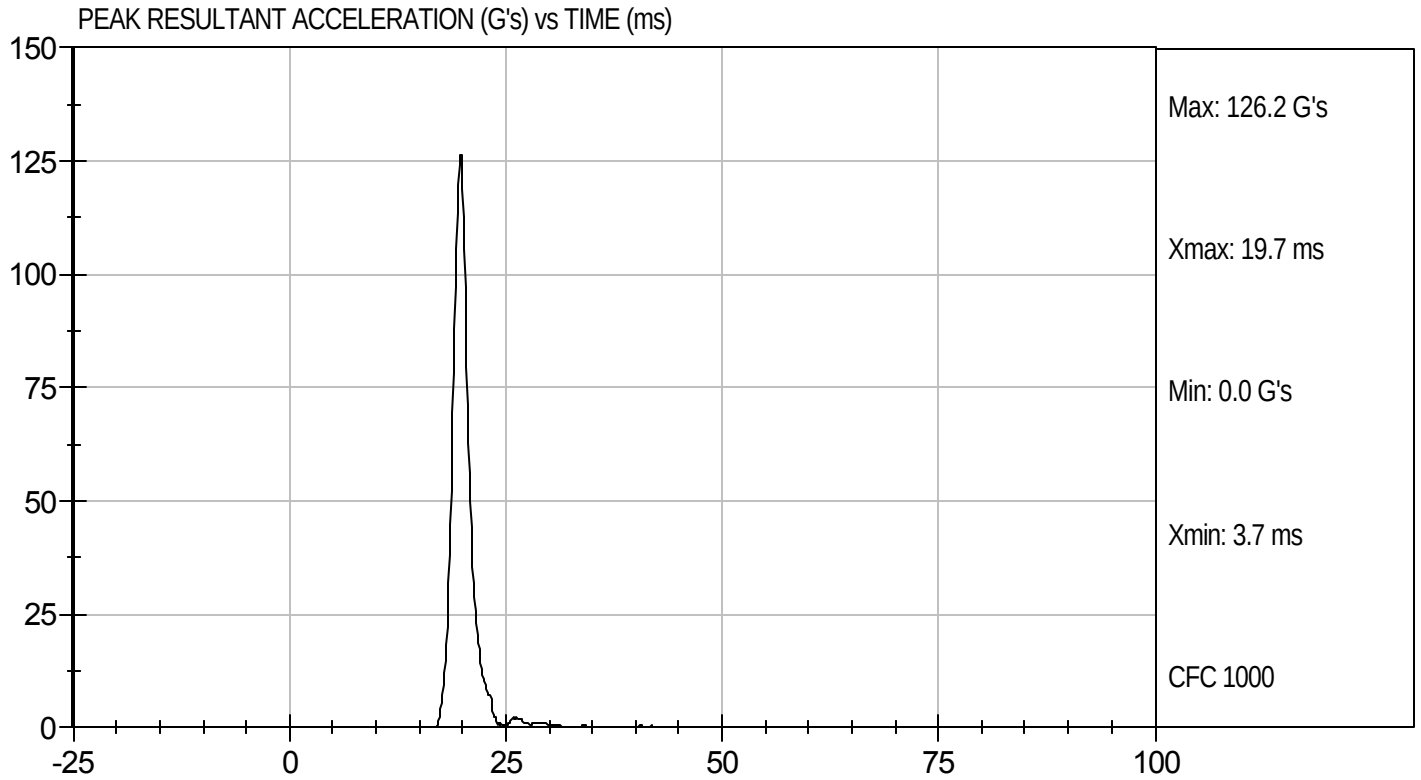
2/8/11
Test Date

David Winkelbauer
Approved By



Test Desc: Head Drop
Component ID: D11411

Test Date: 2/8/11
Velocity: 0 ft/s, 0.00 m/s



MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D11412

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.7	Pass
Humidity		%	10 to 70	17	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Delta Velocity	10 ms	m/s	2.20 to 2.80	2.45	Pass
	15 ms	m/s	3.30 to 4.10	3.43	Pass
	20 ms	m/s	4.40 to 5.40	4.60	Pass
	25 ms	m/s	5.40 to 6.10	5.49	Pass
	25-100 ms	m/s	5.50 to 6.20	5.53	Pass
Maximum D-Plane Rotation		deg	71 to 81	75	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	62	Pass
Maximum Occipital Condyle Moment during Rotation Interval Nm			-44 to -36	-43	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	120	Pass
Overall Test Results				Pass	

Jessica Gall
Laboratory Technician

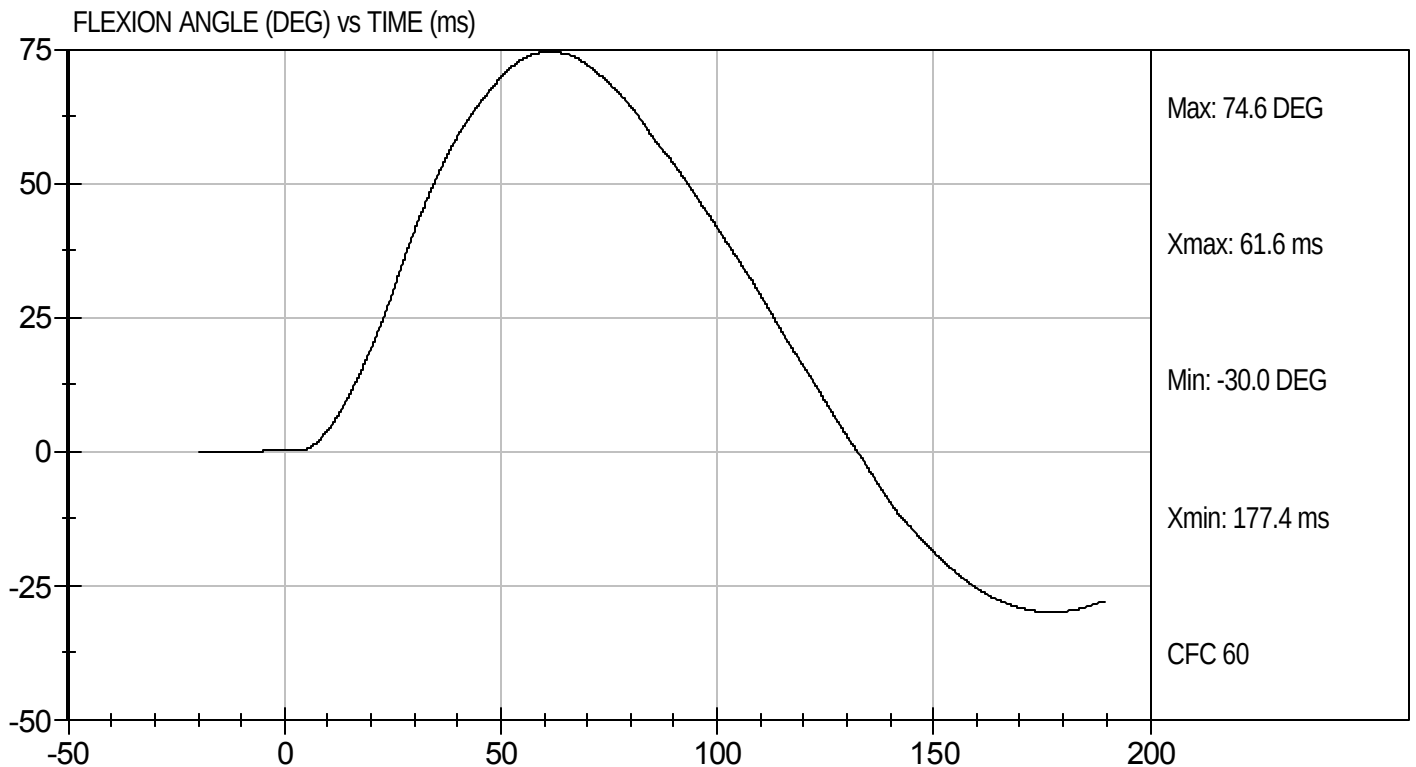
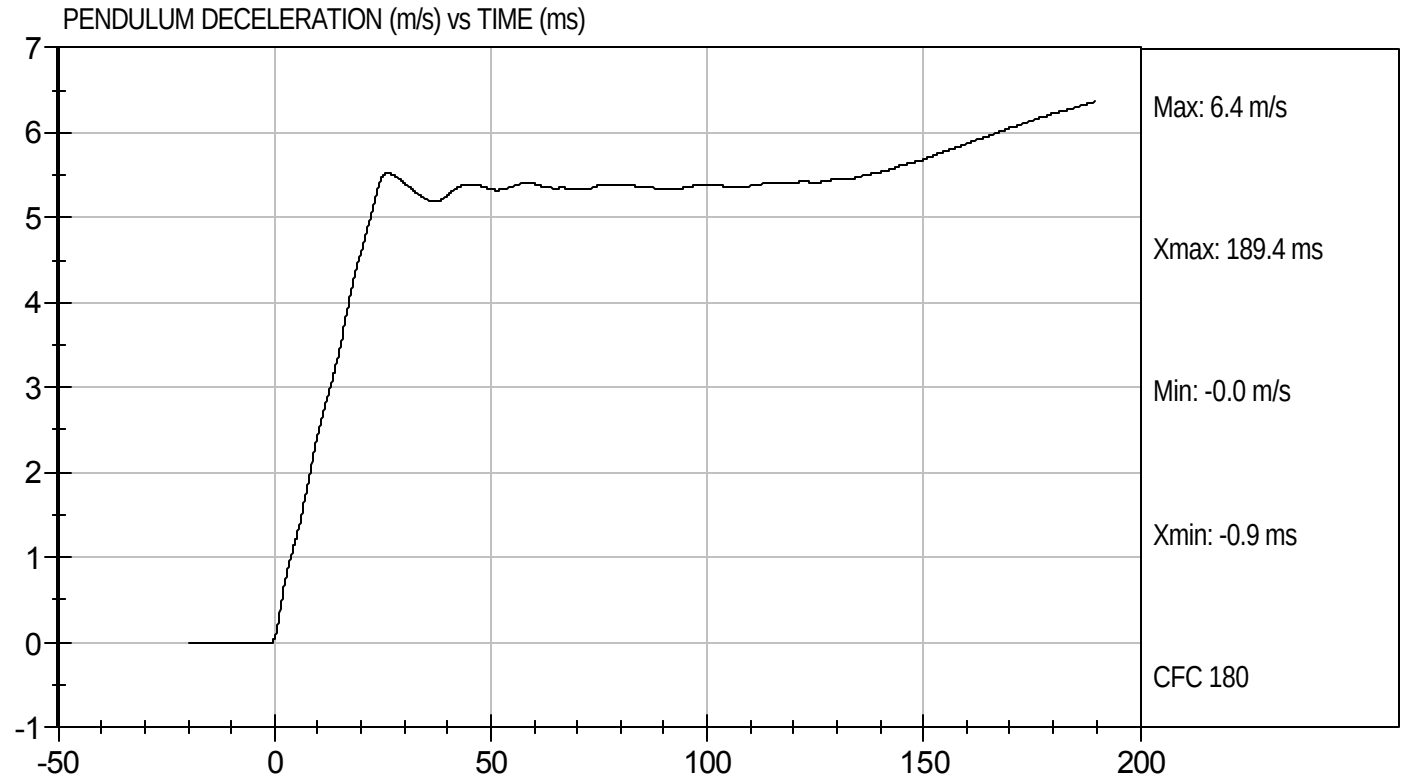
2/8/11
Test Date

David Winkelbauer
Approved By



Test Desc: Neck Bending
Component ID: D11412

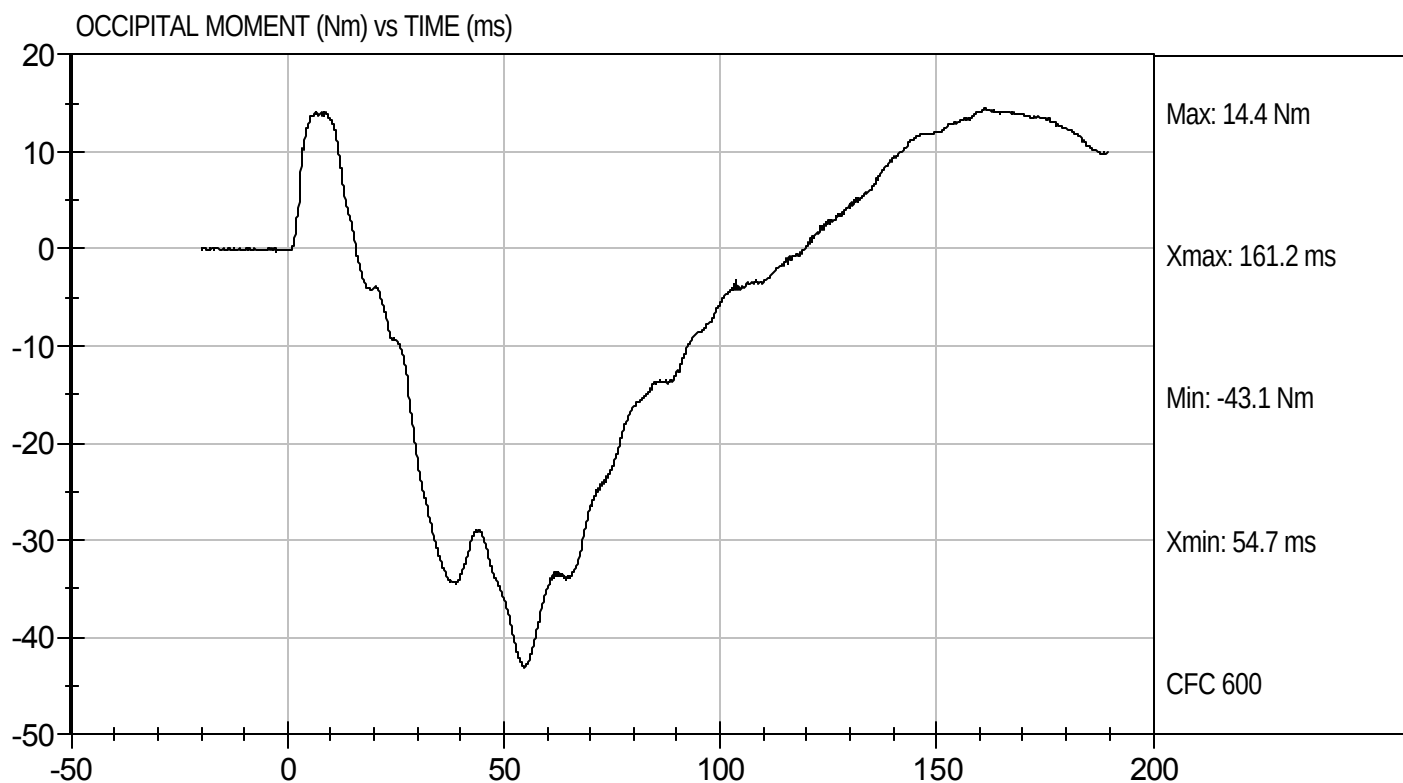
Test Date: 2/8/11
Velocity: 18.32 ft/s, 5.58 m/s





Test Desc: Neck Bending
Component ID: D11412

Test Date: 2/8/11
Velocity: 18.32 ft/s, 5.58 m/s



MGA RESEARCH CORPORATION
SHOULDER IMPACT TEST
SID-11s BUILD LEVEL D DUMMY

ATD Serial No: 296

Test ID: D11413

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	24	Pass
Impact Velocity	m/s	4.20 to 4.40	4.39	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	31	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	18	Pass
Overall Test Results				Pass


Laboratory Technician

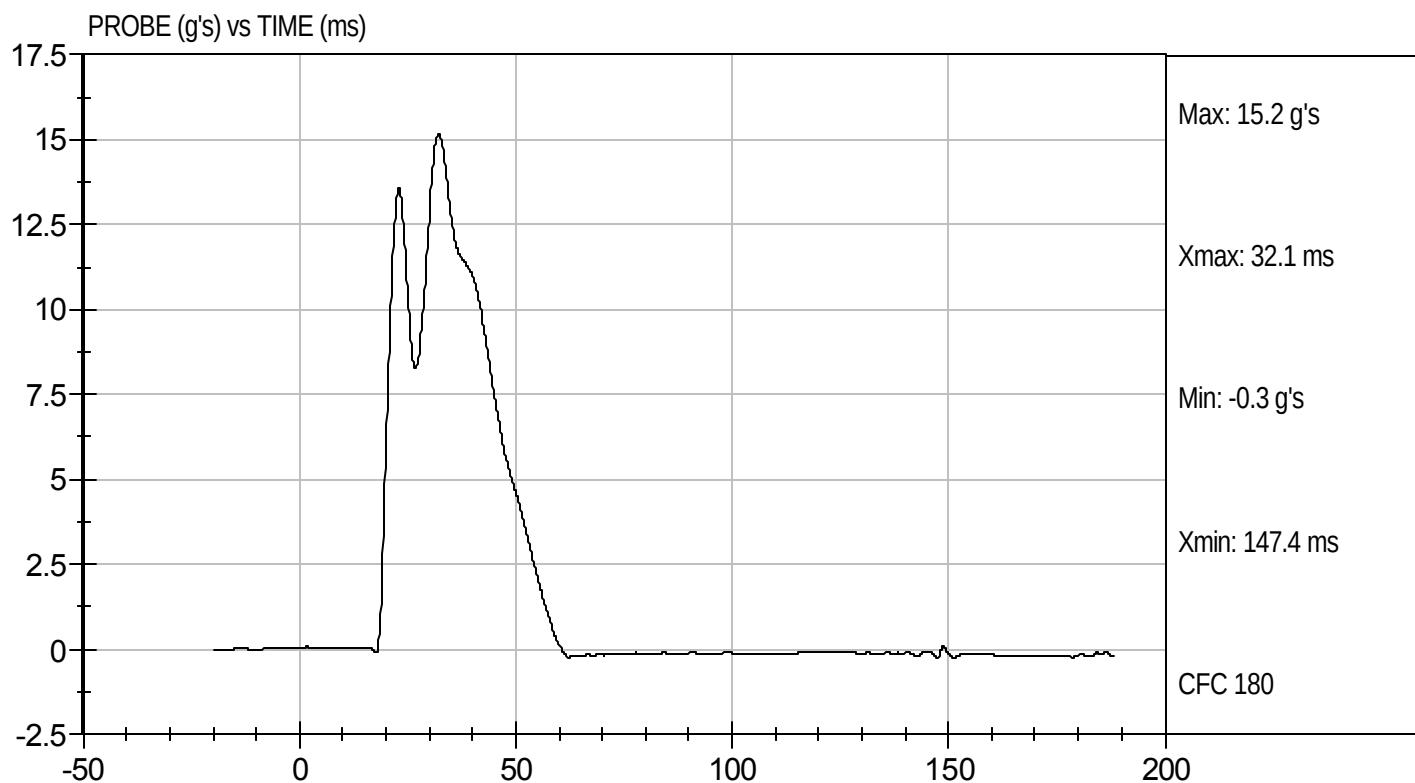
2/7/11
Test Date


Approved By



Test Desc: Shoulder Impact
Component ID: D11413

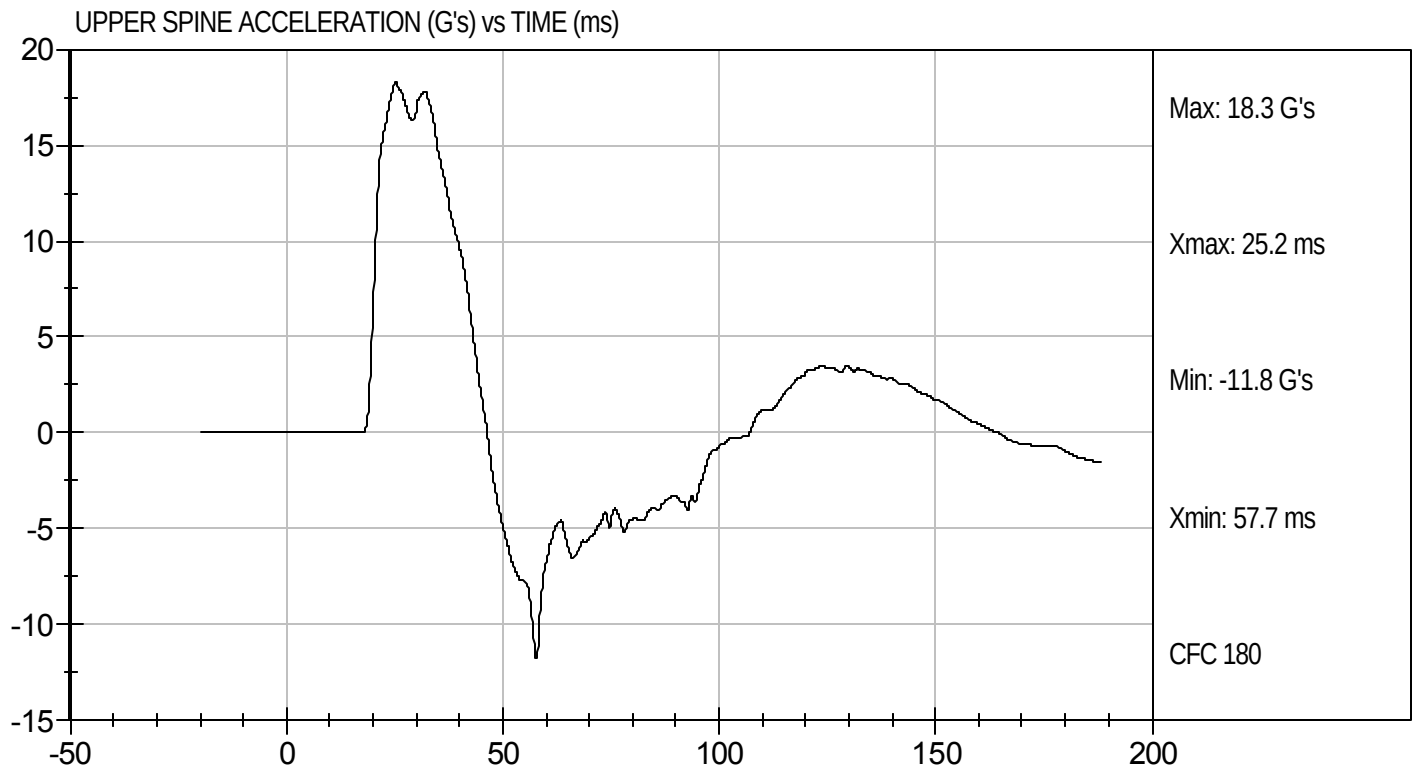
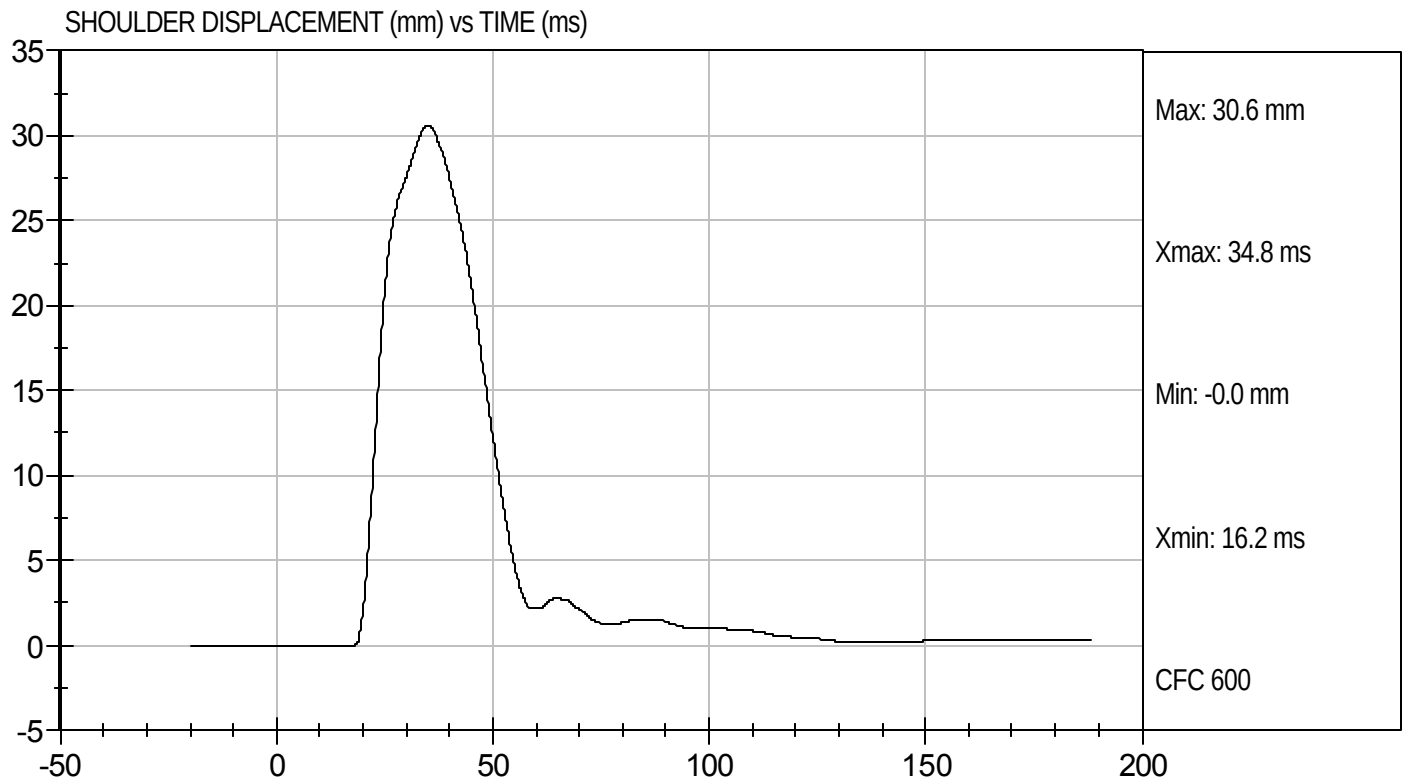
Test Date: 2/7/11
Velocity: 14.41 ft/s, 4.39 m/s





Test Desc: Shoulder Impact
Component ID: D11413

Test Date: 2/7/11
Velocity: 14.41 ft/s, 4.39 m/s

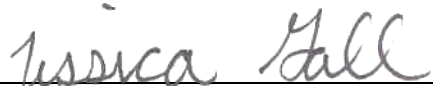


MGA RESEARCH CORPORATION
THORAX (WITH ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D11414

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	24	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Peak Impactor Acceleration	G's	30 to 36	32	Pass
Shoulder Displacement	mm	31 to 40	35	Pass
Upper Rib Displacement	mm	25 to 32	30	Pass
Middle Rib Displacement	mm	30 to 36	31	Pass
Lower Rib Displacement	mm	32 to 38	33	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	38	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	34	Pass
Overall Test Results			Pass	


Laboratory Technician

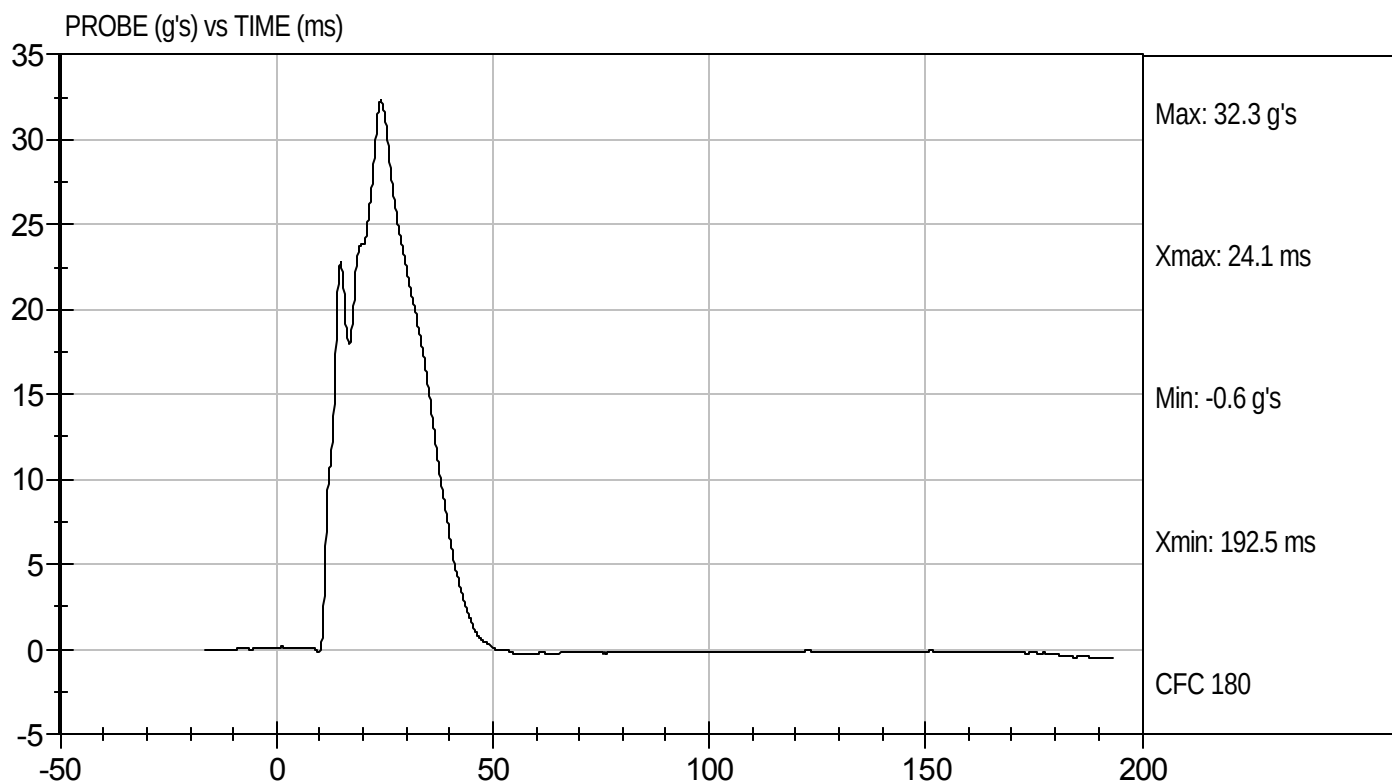
2/7/11
Test Date


Approved By



Test Desc: Thorax With Arm
Component ID: D11414

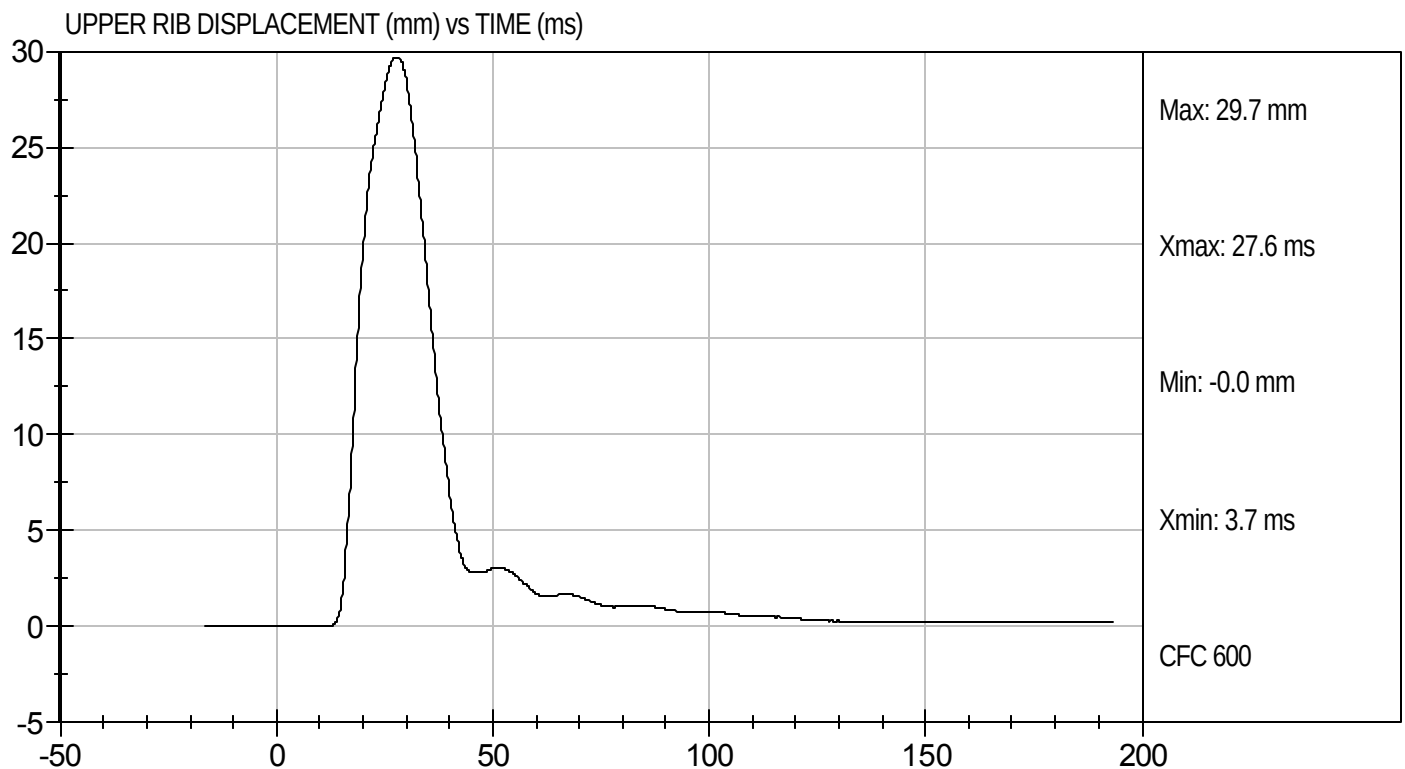
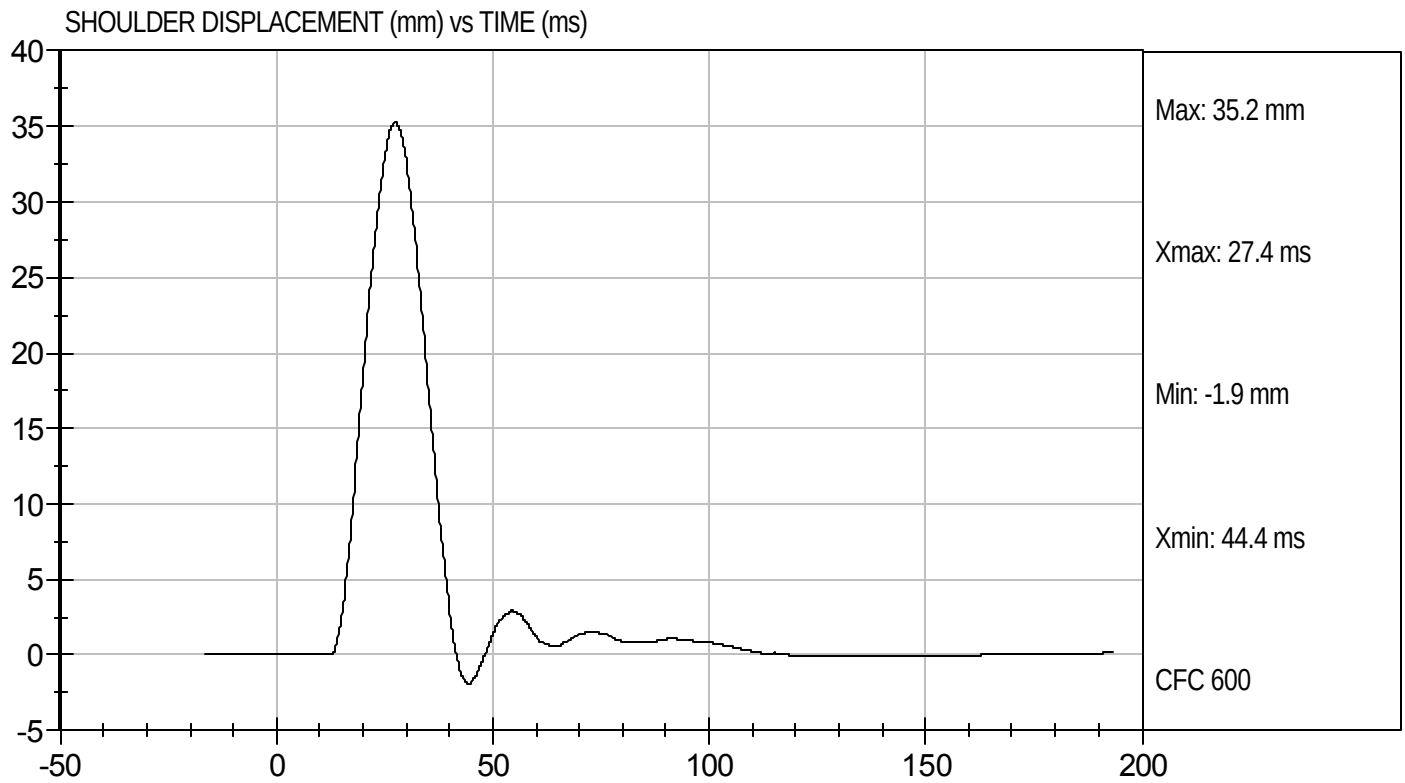
Test Date: 2/7/11
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D11414

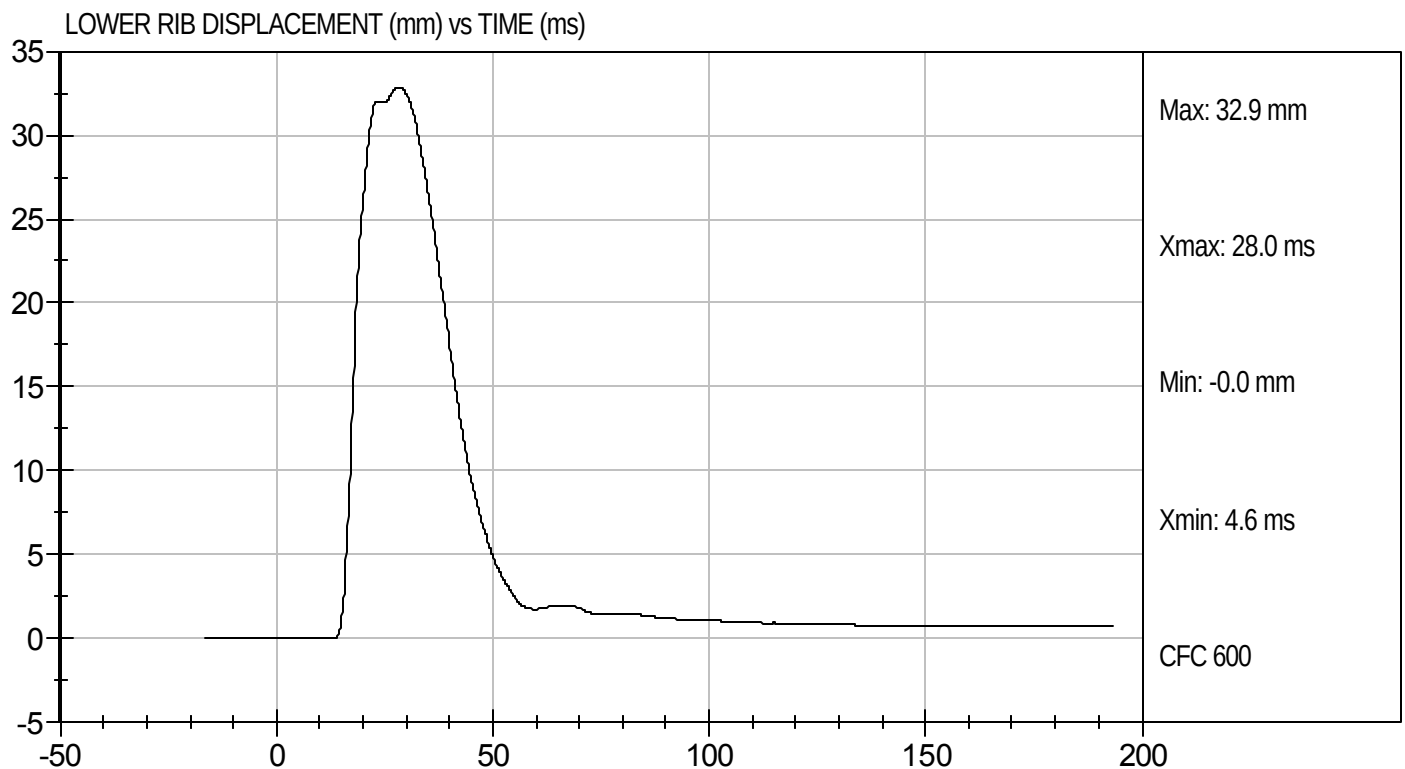
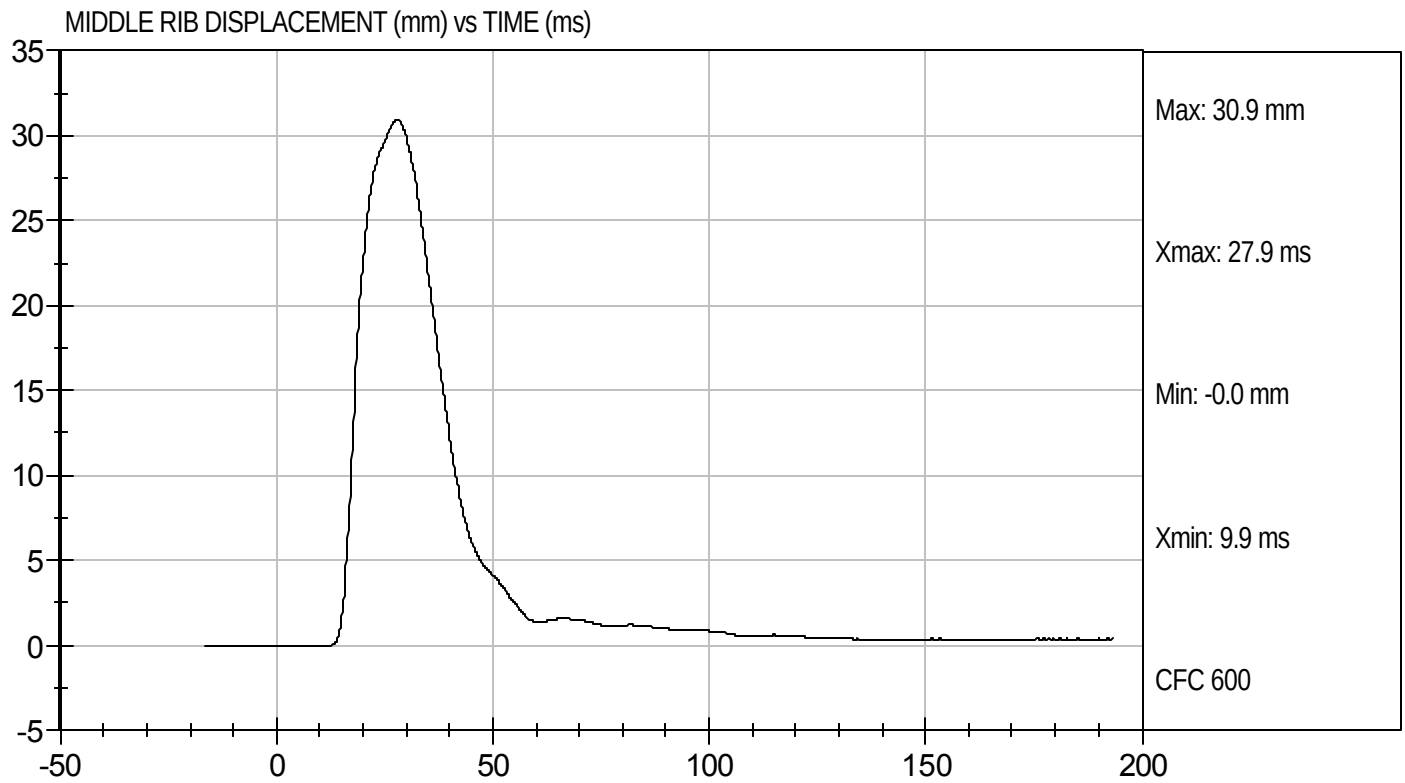
Test Date: 2/7/11
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D11414

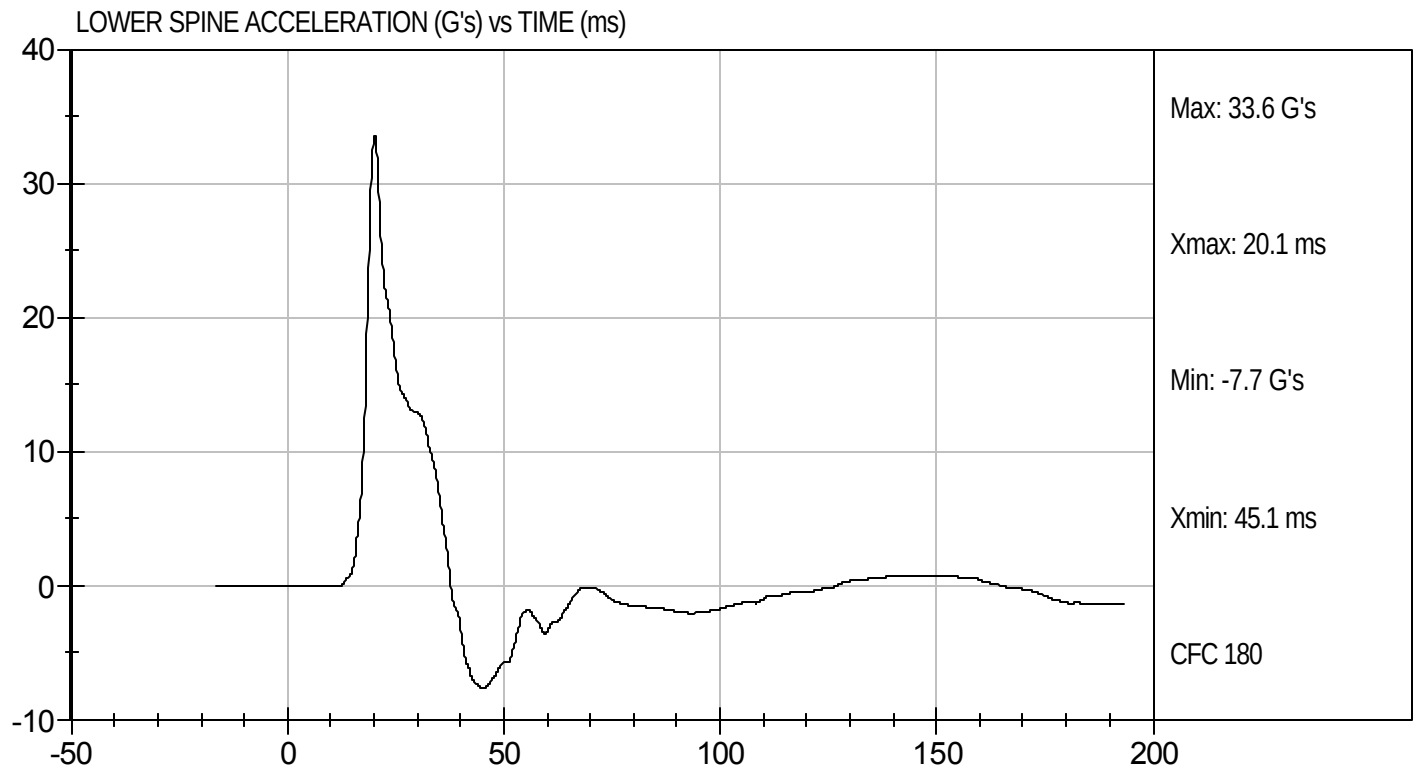
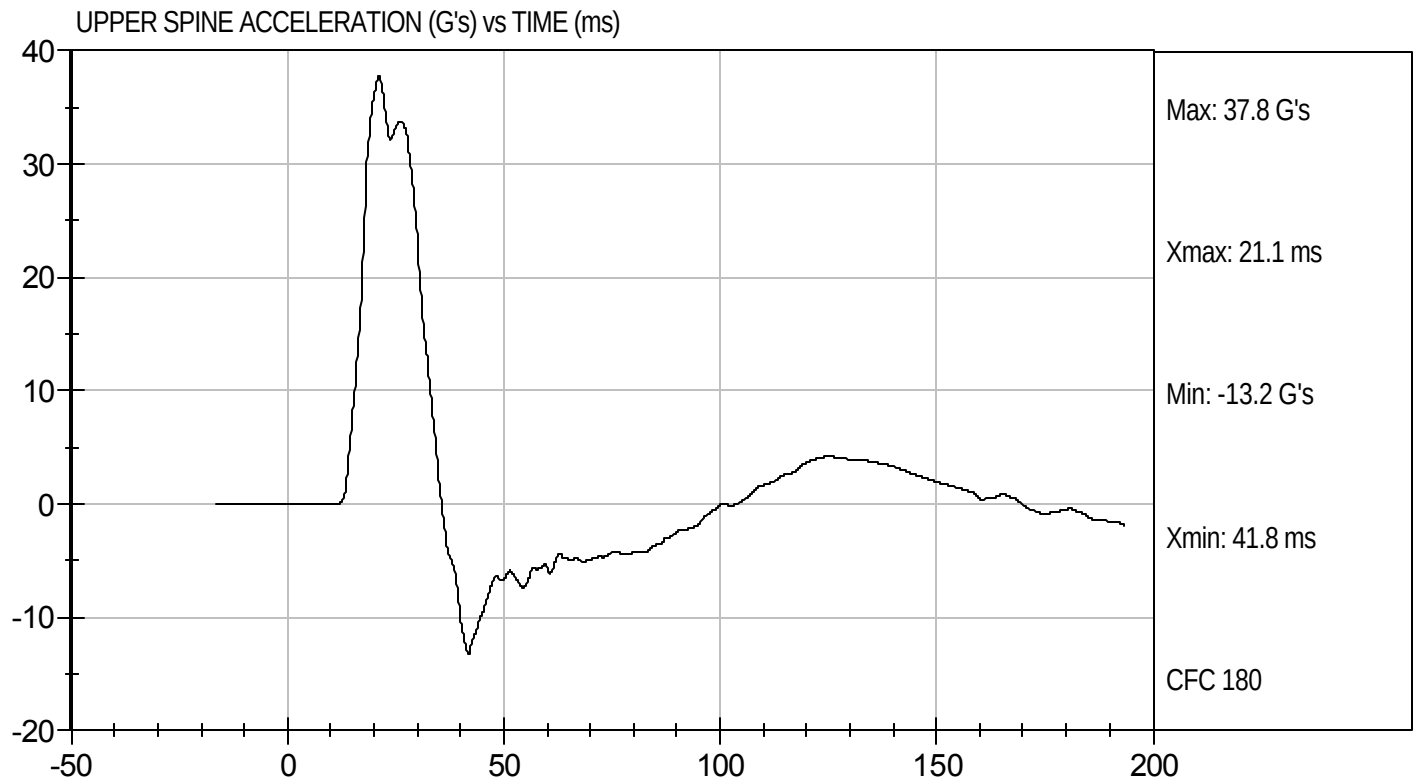
Test Date: 2/7/11
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D11414

Test Date: 2/7/11
Velocity: 22.22 ft/s, 6.77 m/s



MGA RESEARCH CORPORATION
THORAX (WITHOUT ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D11415

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	23	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Peak Impactor Force	G's	14 to 18	15	Pass
Upper Rib Displacement	mm	32 to 40	37	Pass
Middle Rib Displacement	mm	39 to 45	41	Pass
Lower Rib Displacement	mm	35 to 43	39	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	14	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	9	Pass
Overall Test Results			Pass	


Laboratory Technician

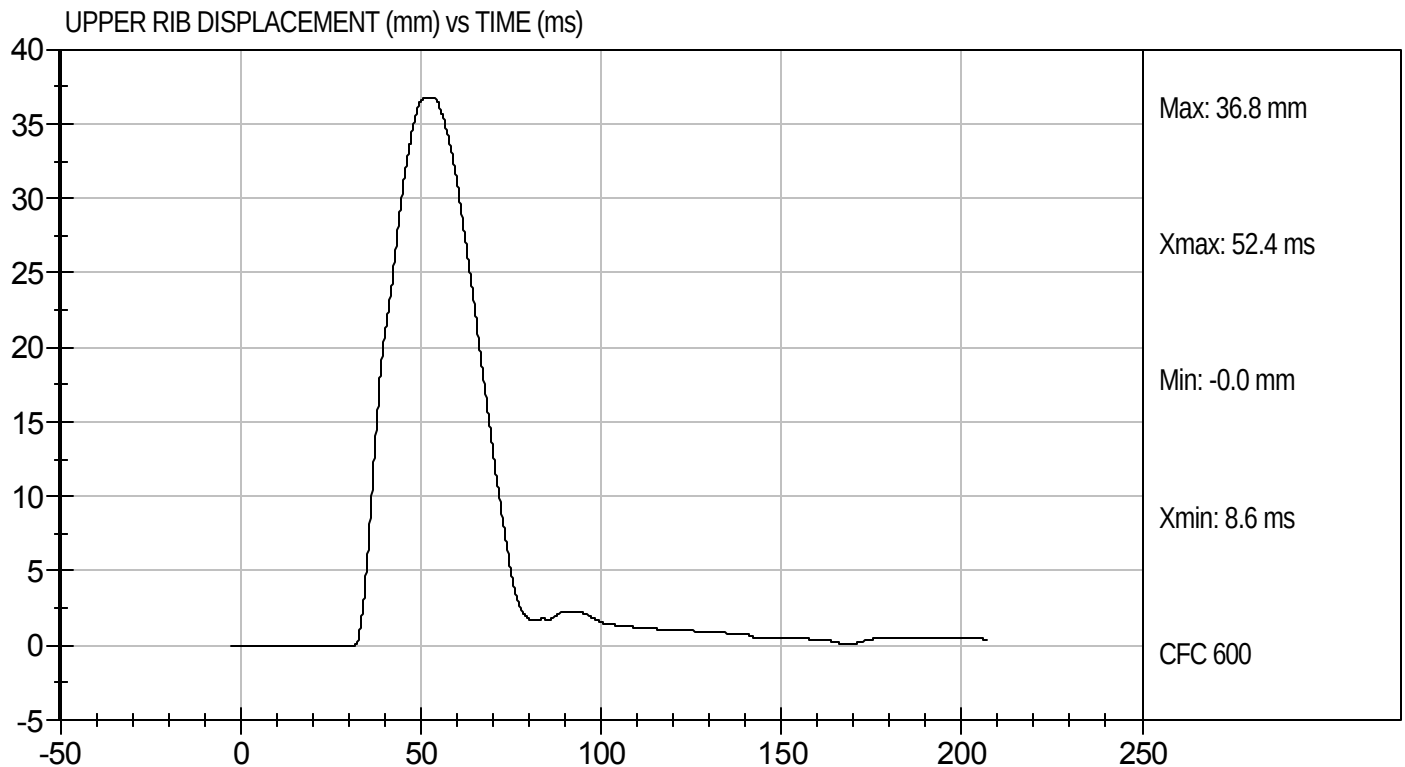
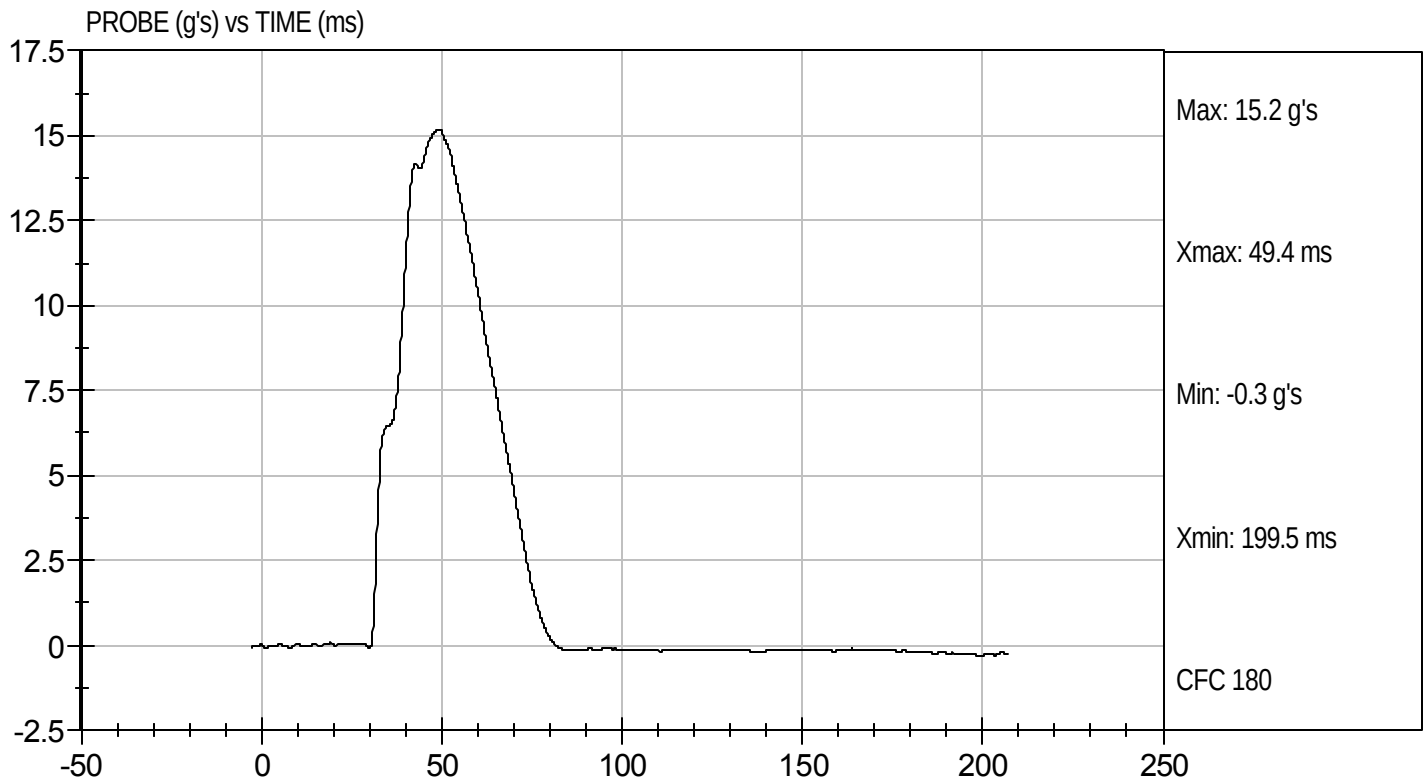
2/7/11
Test Date


Approved By



Test Desc: Thorax Without Arm
Component ID: D11415

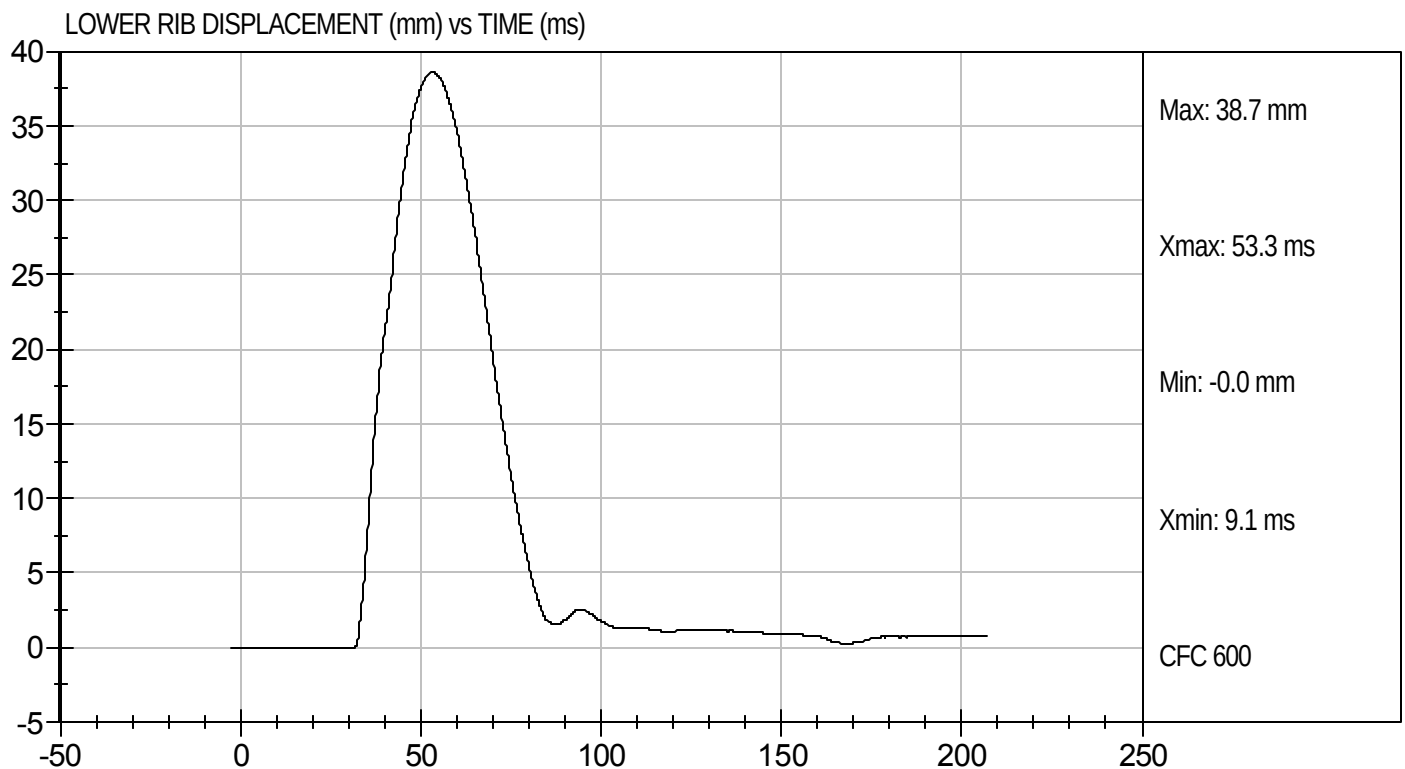
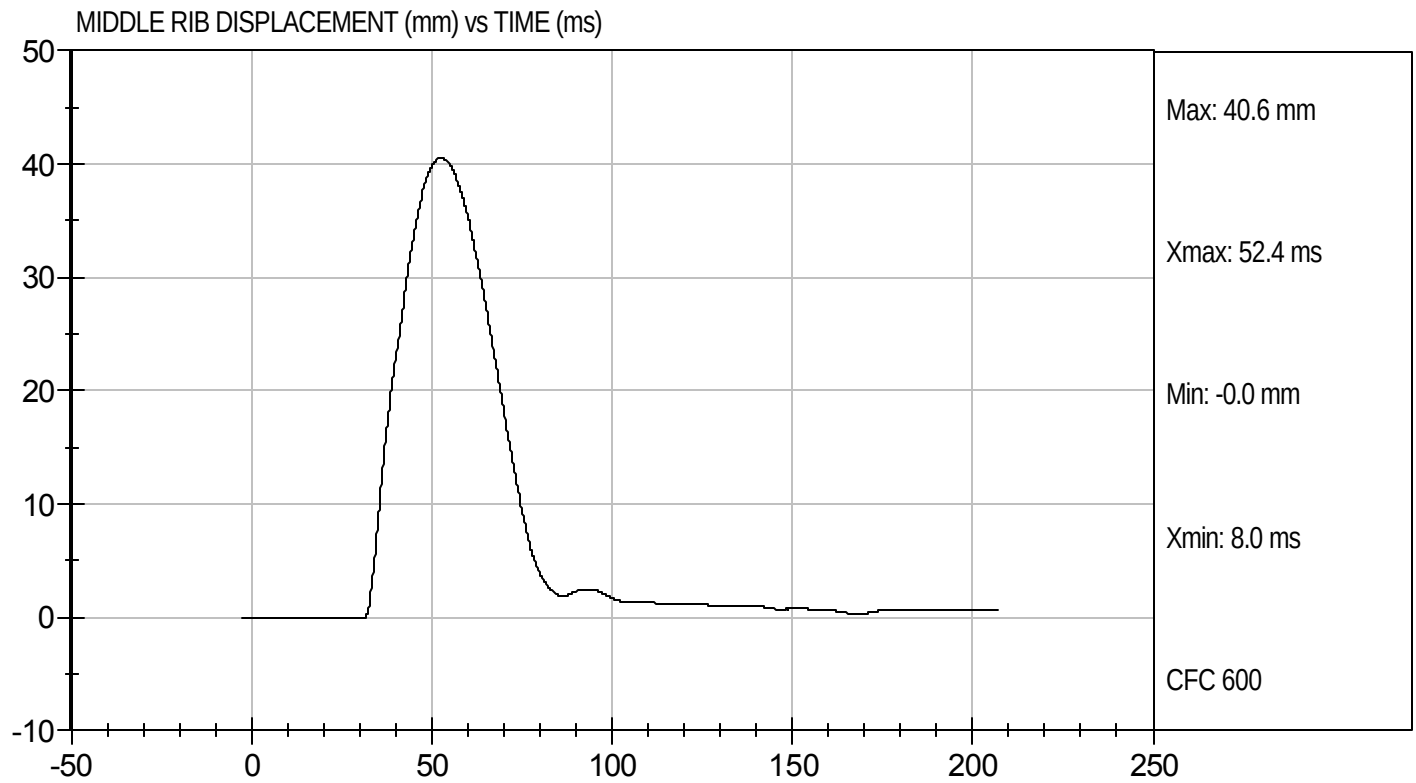
Test Date: 2/7/11
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Thorax Without Arm
Component ID: D11415

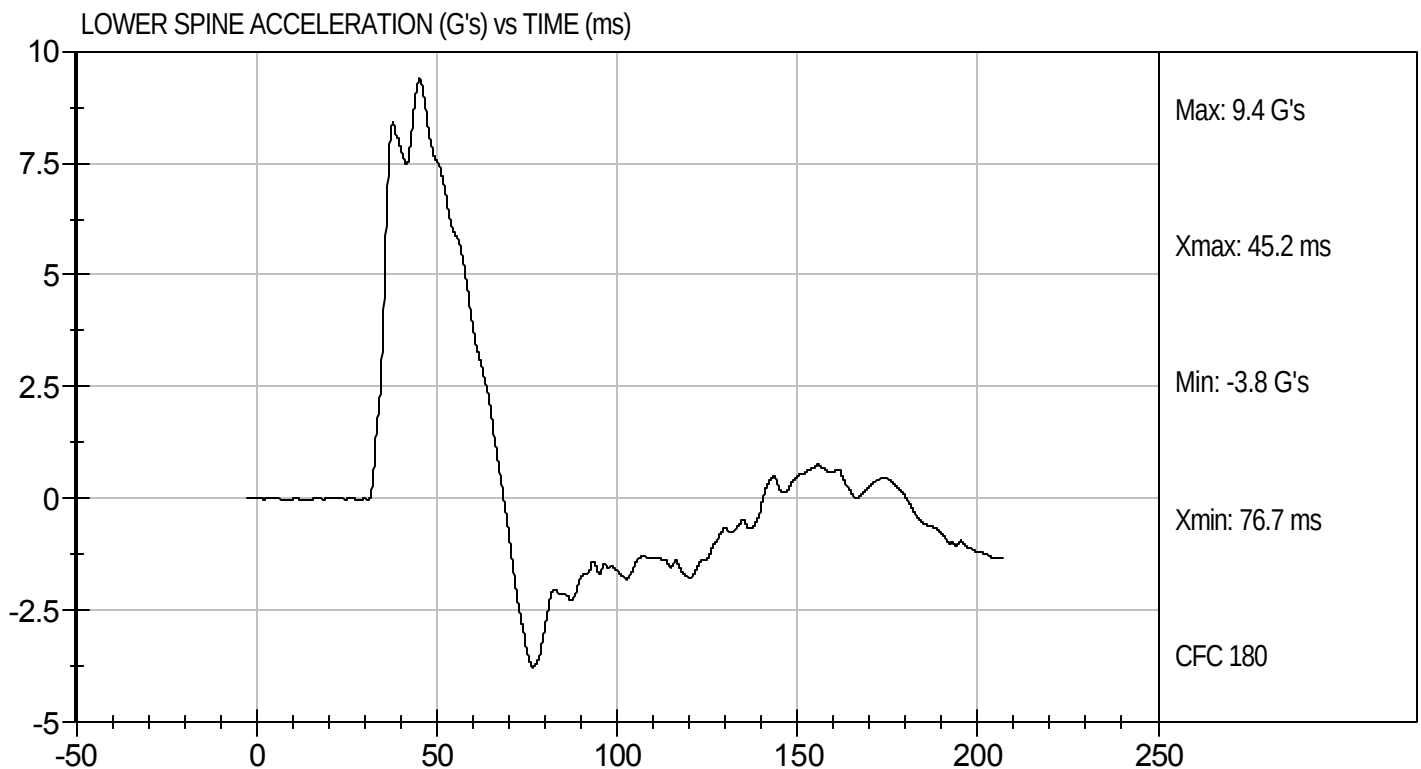
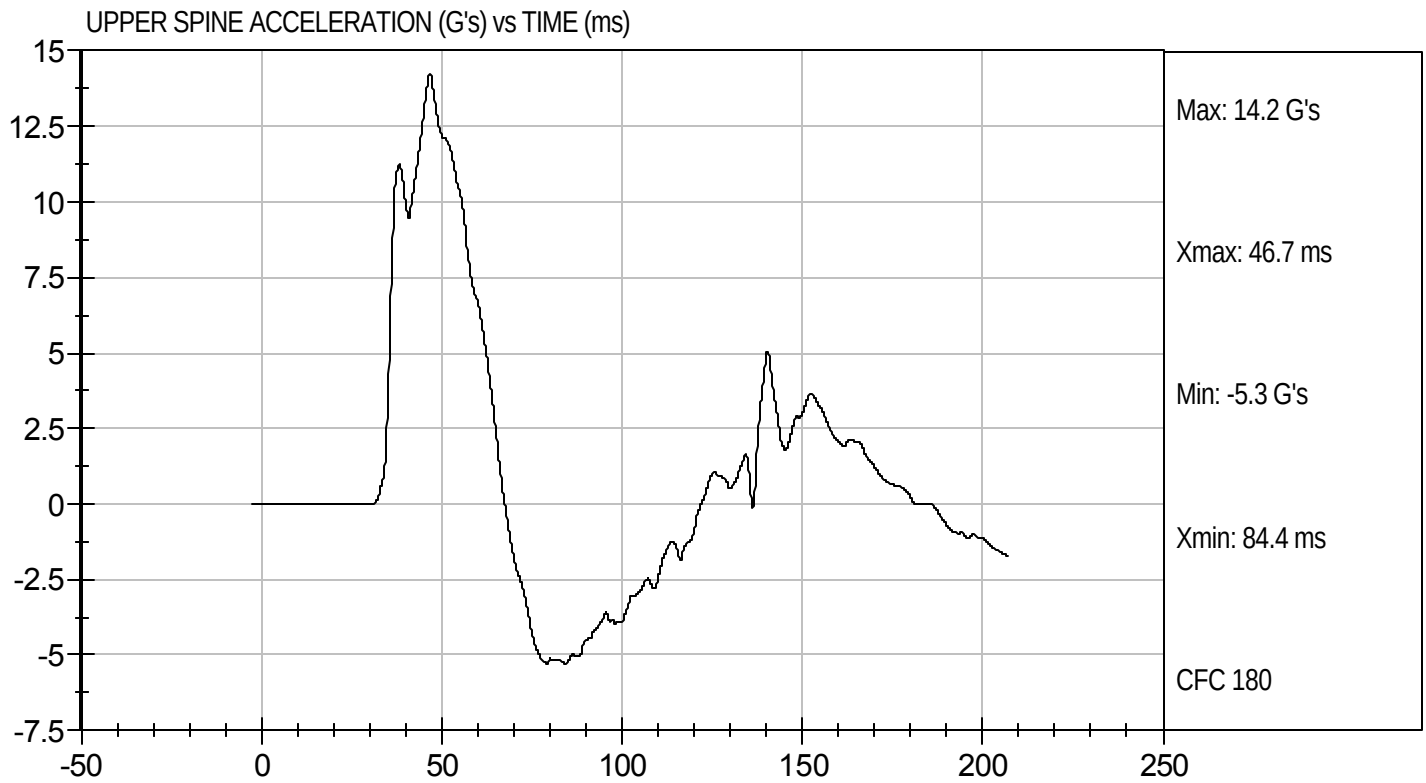
Test Date: 2/7/11
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Thorax Without Arm
Component ID: D11415

Test Date: 2/7/11
Velocity: 14.25 ft/s, 4.34 m/s



MGA RESEARCH CORPORATION
ABDOMINAL IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D11416

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	23	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Peak Impactor Acceleration	G's	12 to 16	14	Pass
Upper Rib Displacement	mm	36 to 47	41	Pass
Lower Rib Displacement	mm	33 to 44	35	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
Overall Test Results				Pass


Laboratory Technician

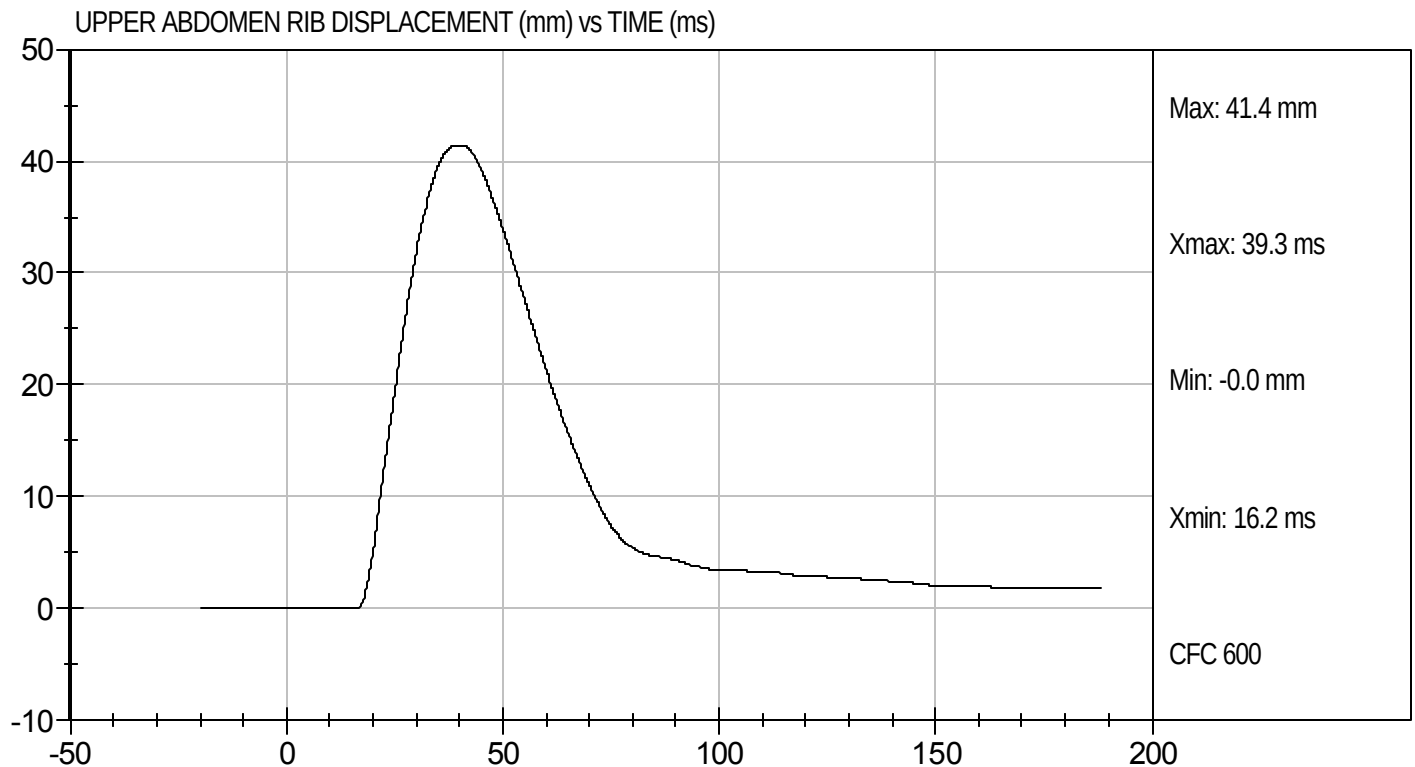
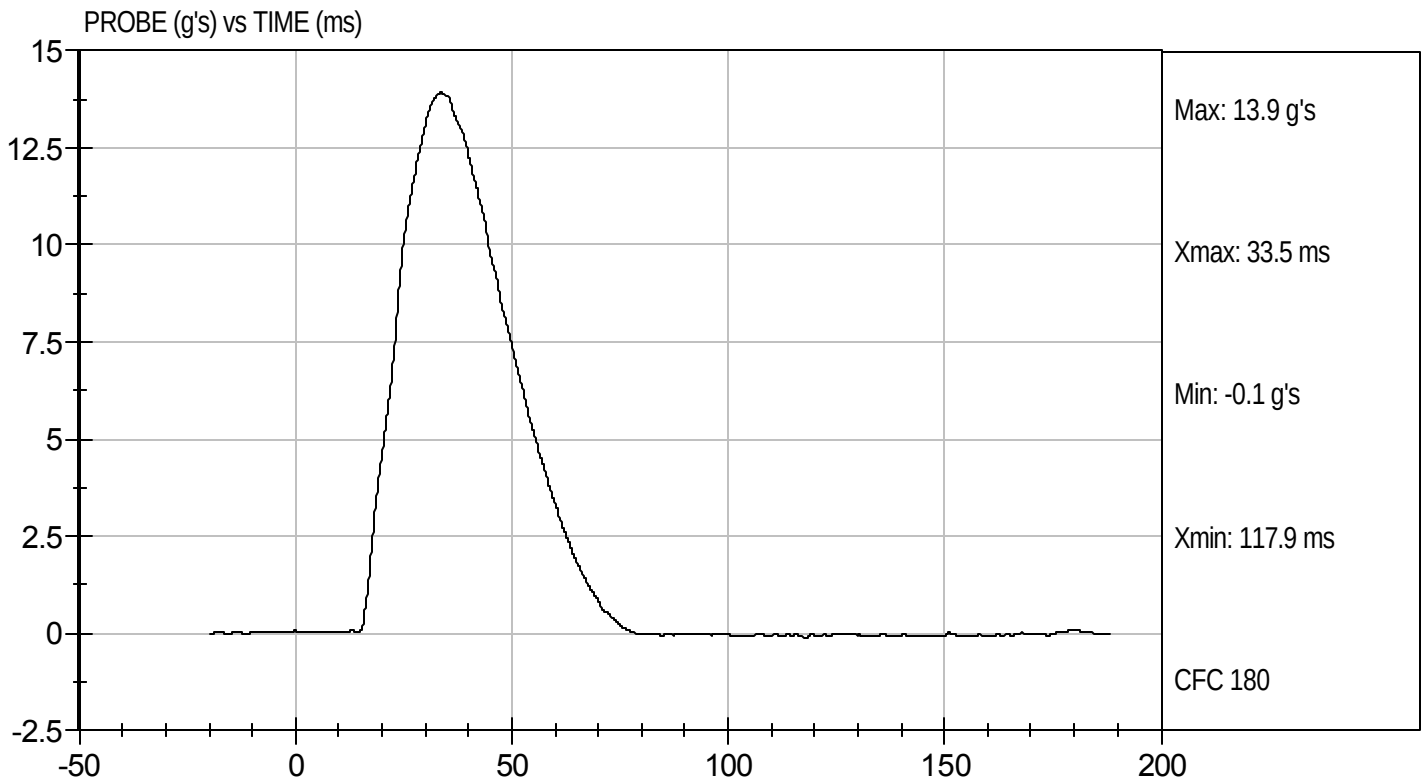
2/7/11
Test Date


Approved By



Test Desc: Abdomen Impact
Component ID: D11416

Test Date: 2/7/11
Velocity: 14.37 ft/s, 4.38 m/s

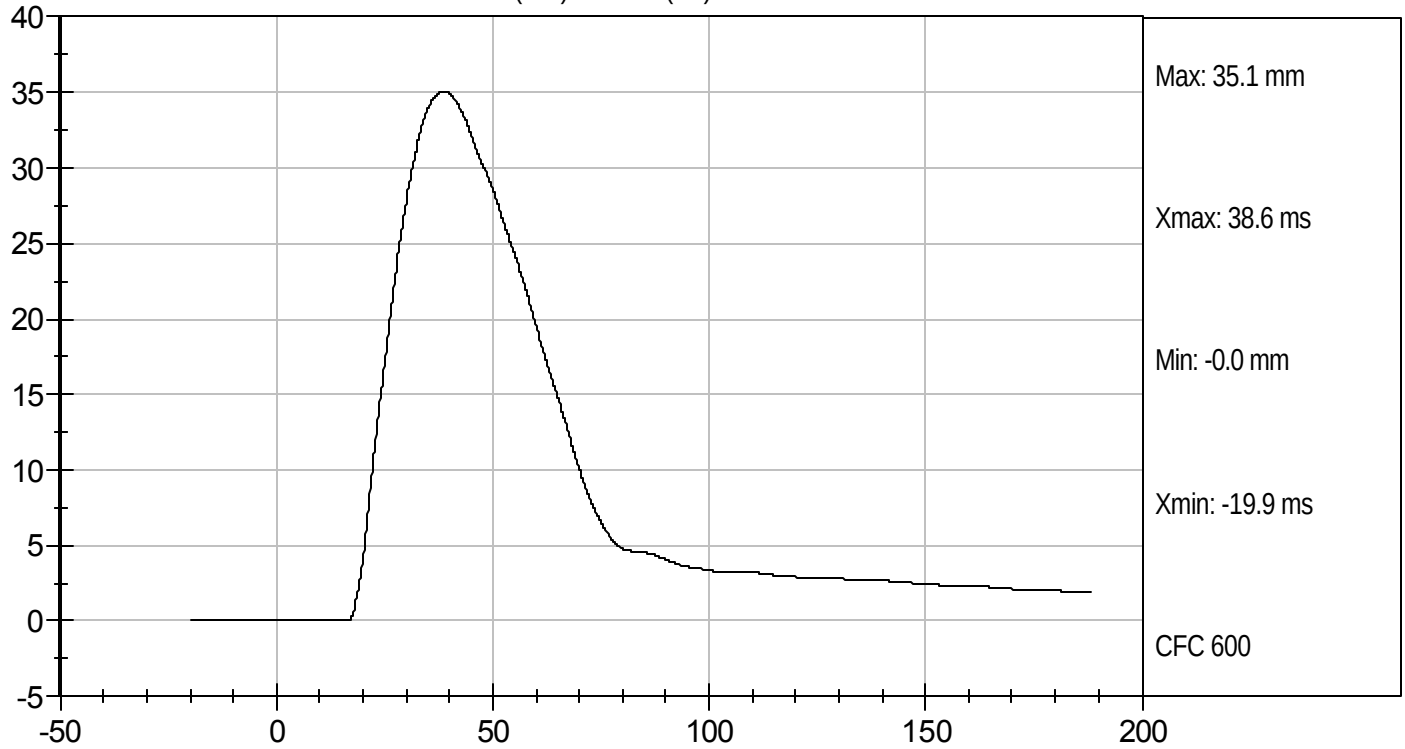




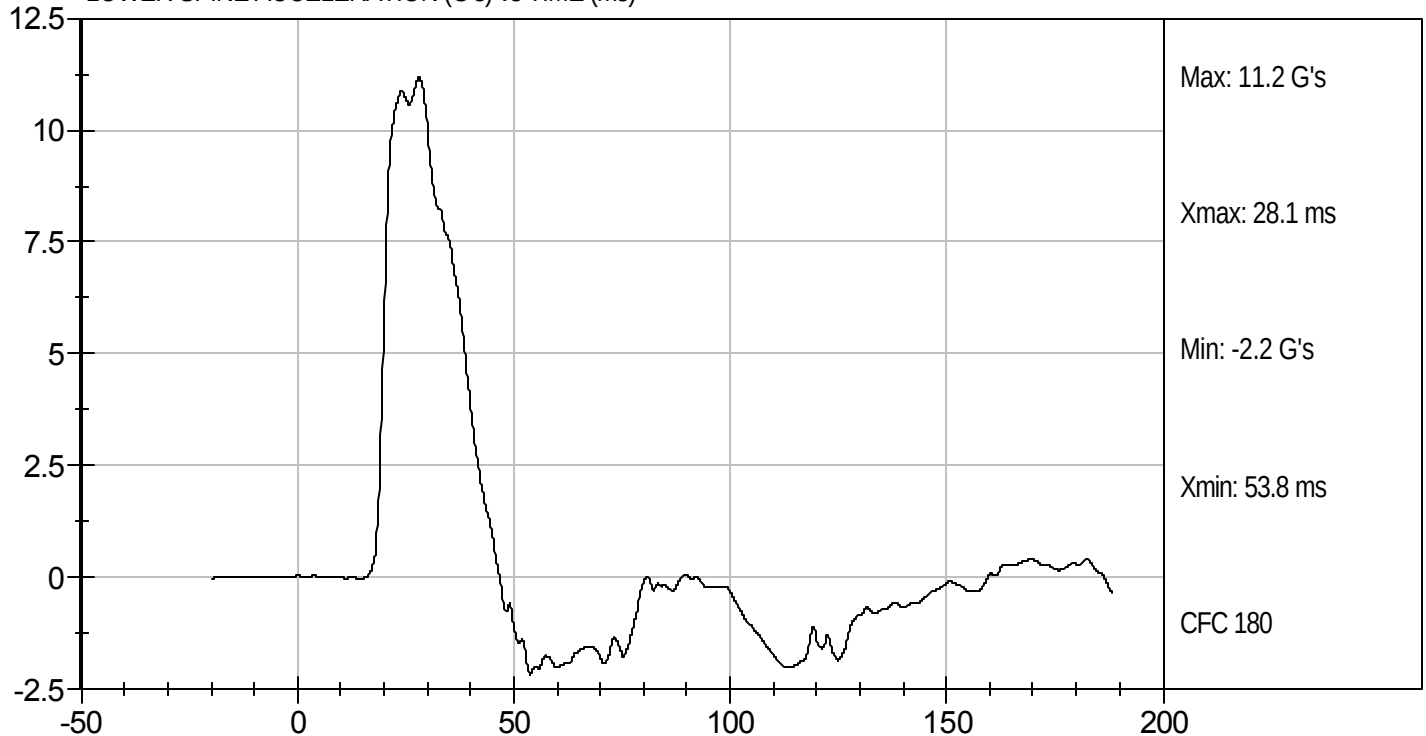
Test Desc: Abdomen Impact
Component ID: D11416

Test Date: 2/7/11
Velocity: 14.37 ft/s, 4.38 m/s

LOWER ABDOMEN RIB DISPLACEMENT (mm) vs TIME (ms)



LOWER SPINE ACCELERATION (G's) vs TIME (ms)



MGA RESEARCH CORPORATION
PELVIS IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D11417

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	24	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Peak Impactor Acceleration	G's	38 to 47	44	Pass
Pelvis Y Acceleration after 6 ms	G's	34 to 42	41	Pass
Peak Acetabulum Force	N	3600 to 4300	4262	Pass
Overall Test Results			Pass	

Jessica Hall
Laboratory Technician

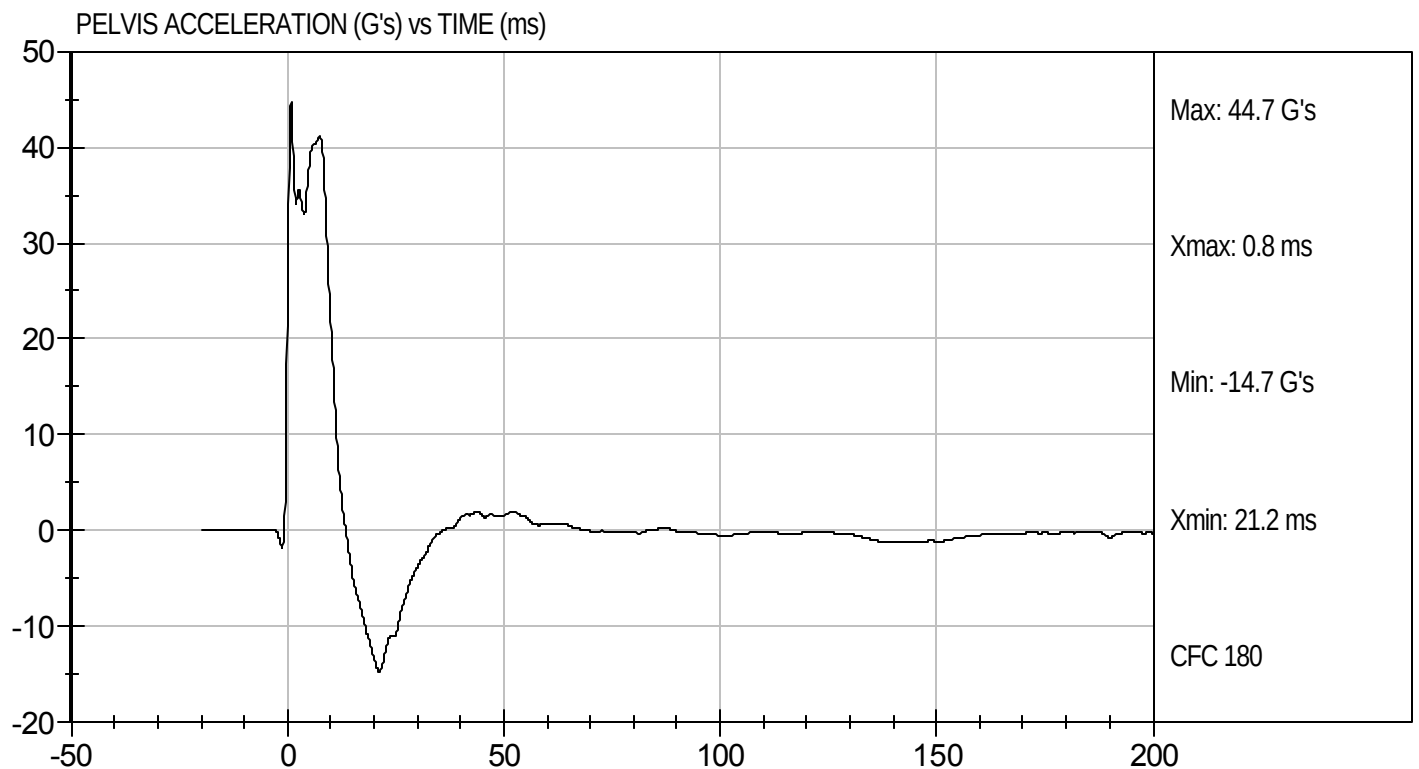
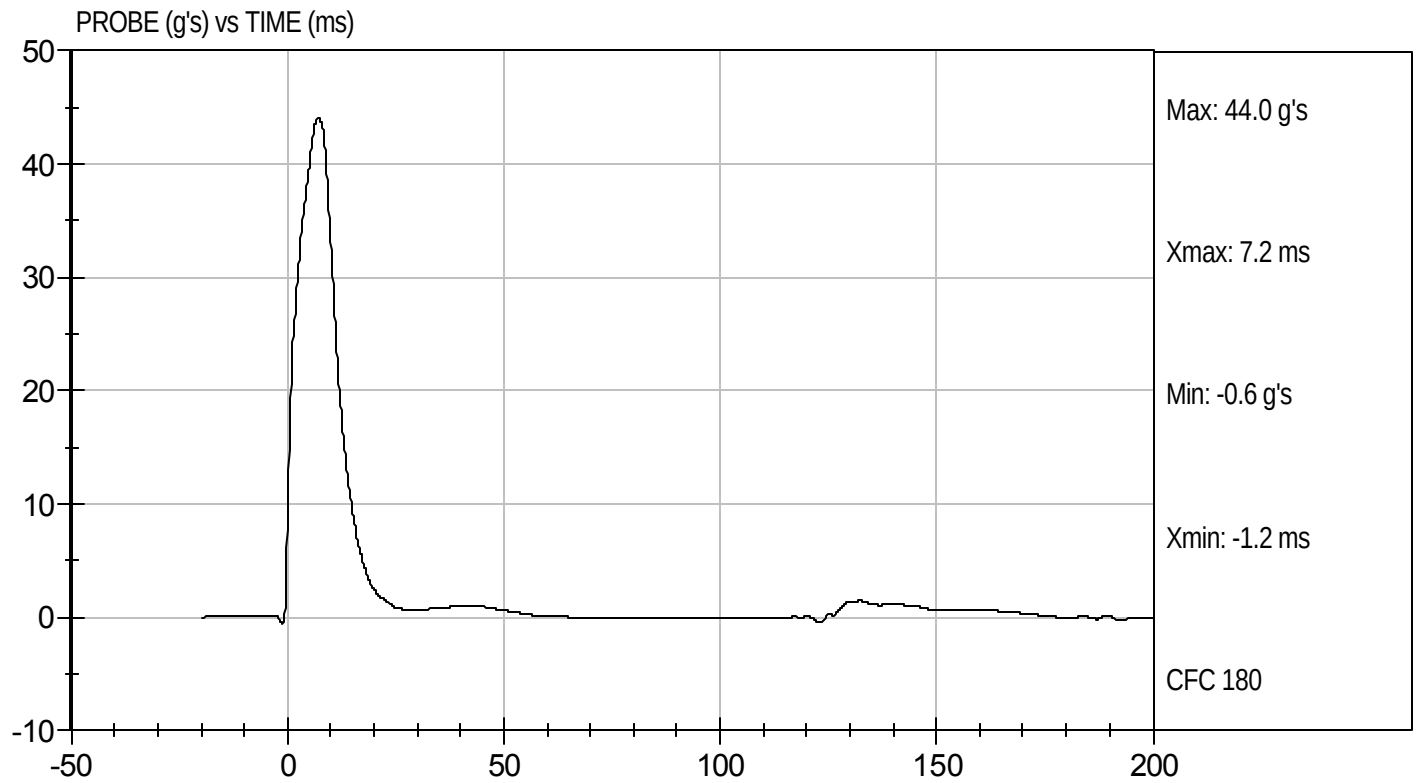
2/7/11
Test Date

David Winkelbauer
Approved By



Test Desc: Pelvis Impact
Component ID: D11417

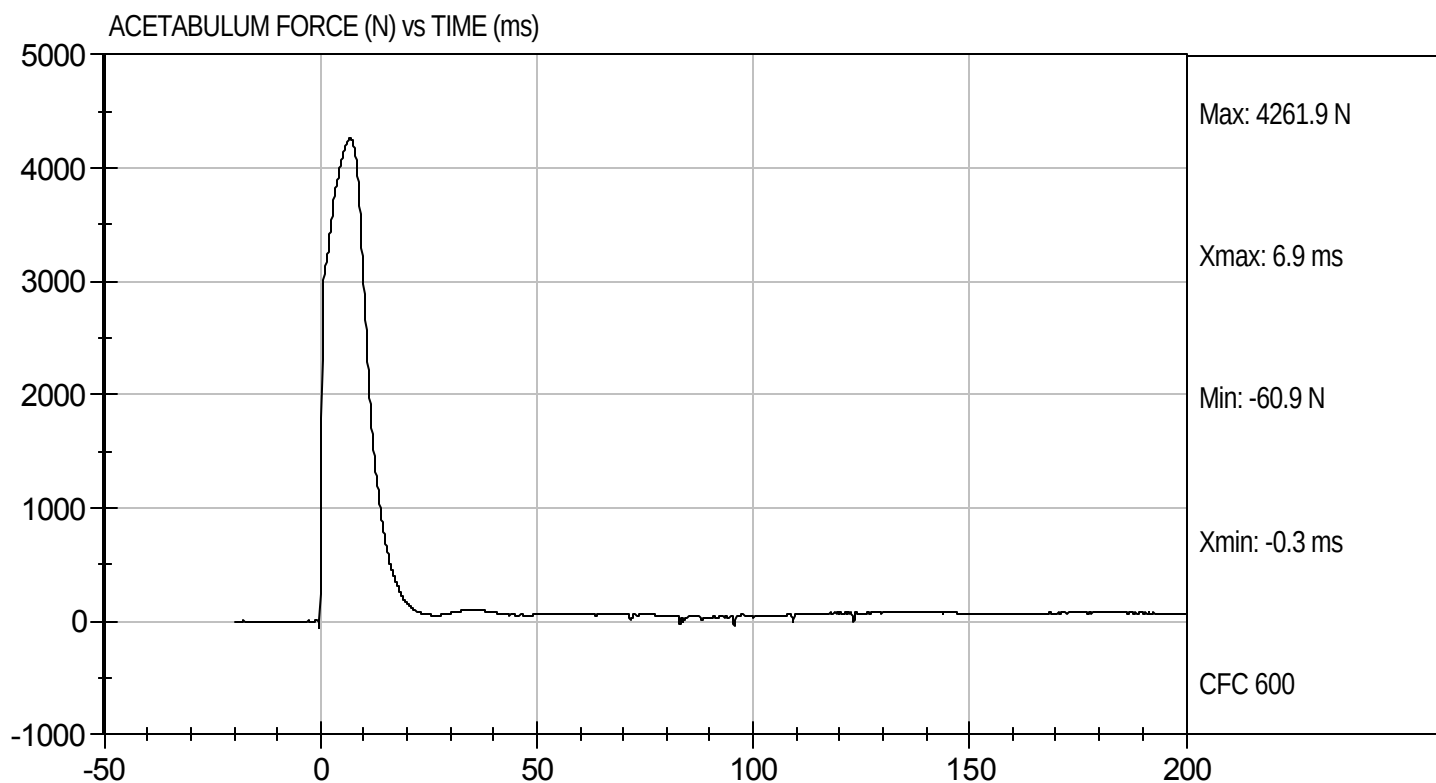
Test Date: 2/7/11
Velocity: 22.20 ft/s, 6.77 m/s





Test Desc: Pelvis Impact
Component ID: D11417

Test Date: 2/7/11
Velocity: 22.20 ft/s, 6.77 m/s



MGA RESEARCH CORPORATION
ILIAC IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D11418

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	24	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Peak Impactor Acceleration	G's	36 to 45	38	Pass
Pelvis Y Acceleration	G's	28 to 39	29	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4701	Pass
Overall Test Results			Pass	


Laboratory Technician

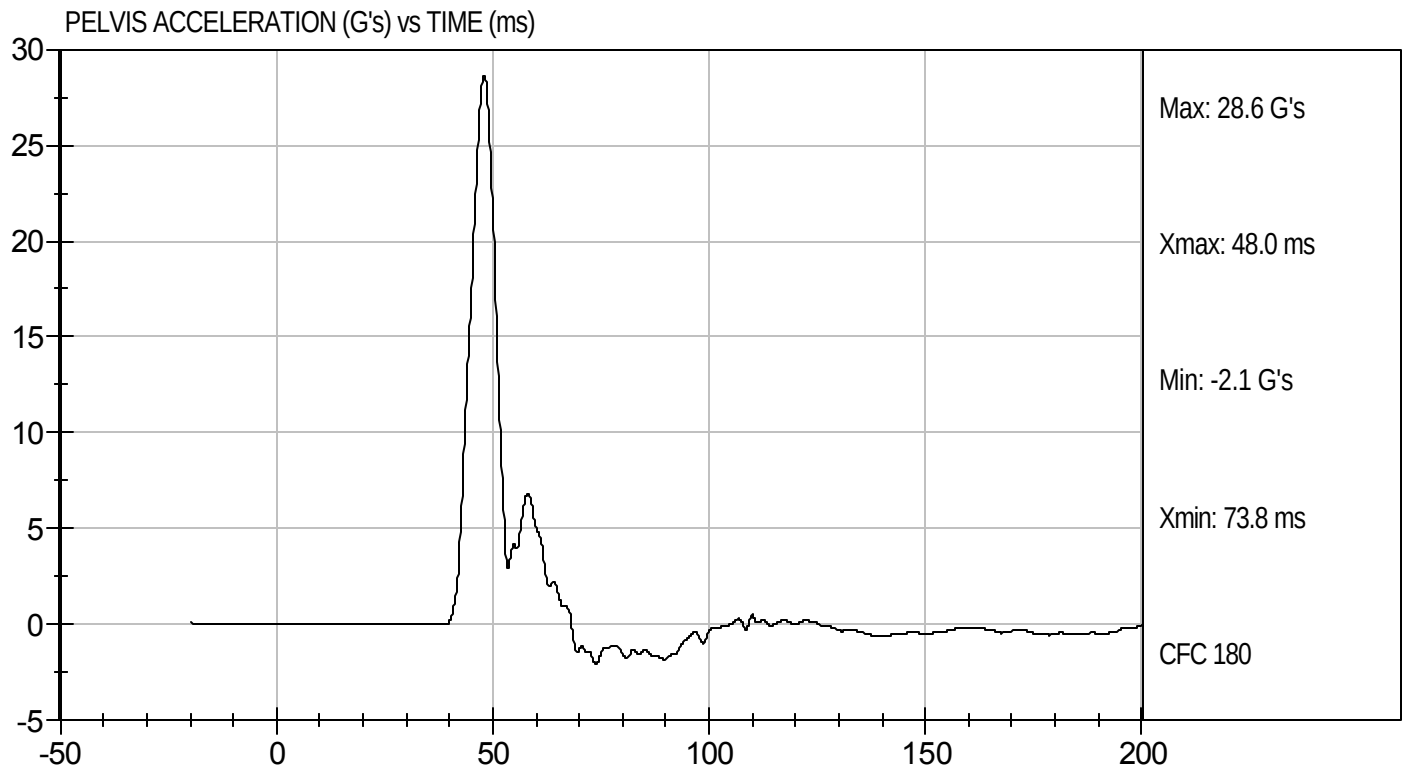
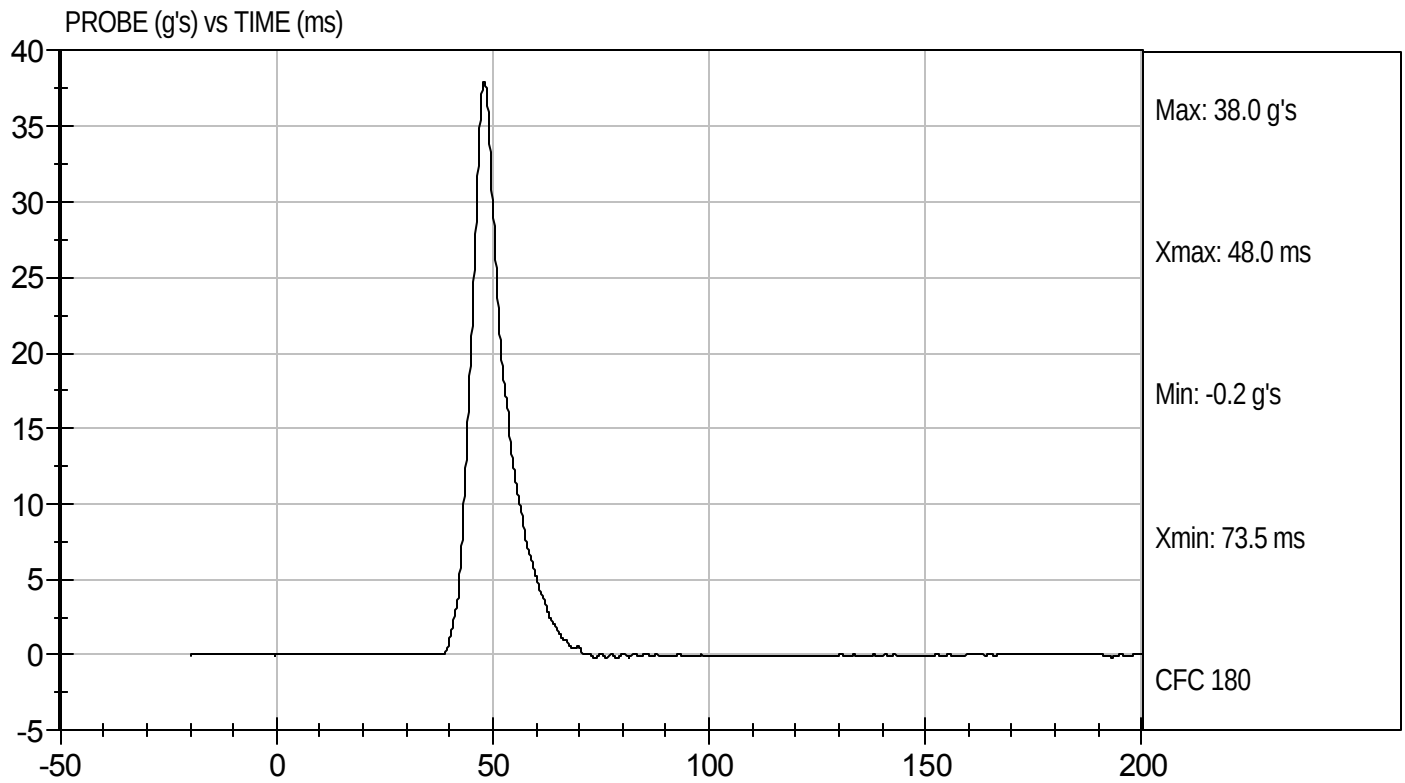
2/7/11
Test Date


Approved By



Test Desc: Iliac Impact
Component ID: D11418

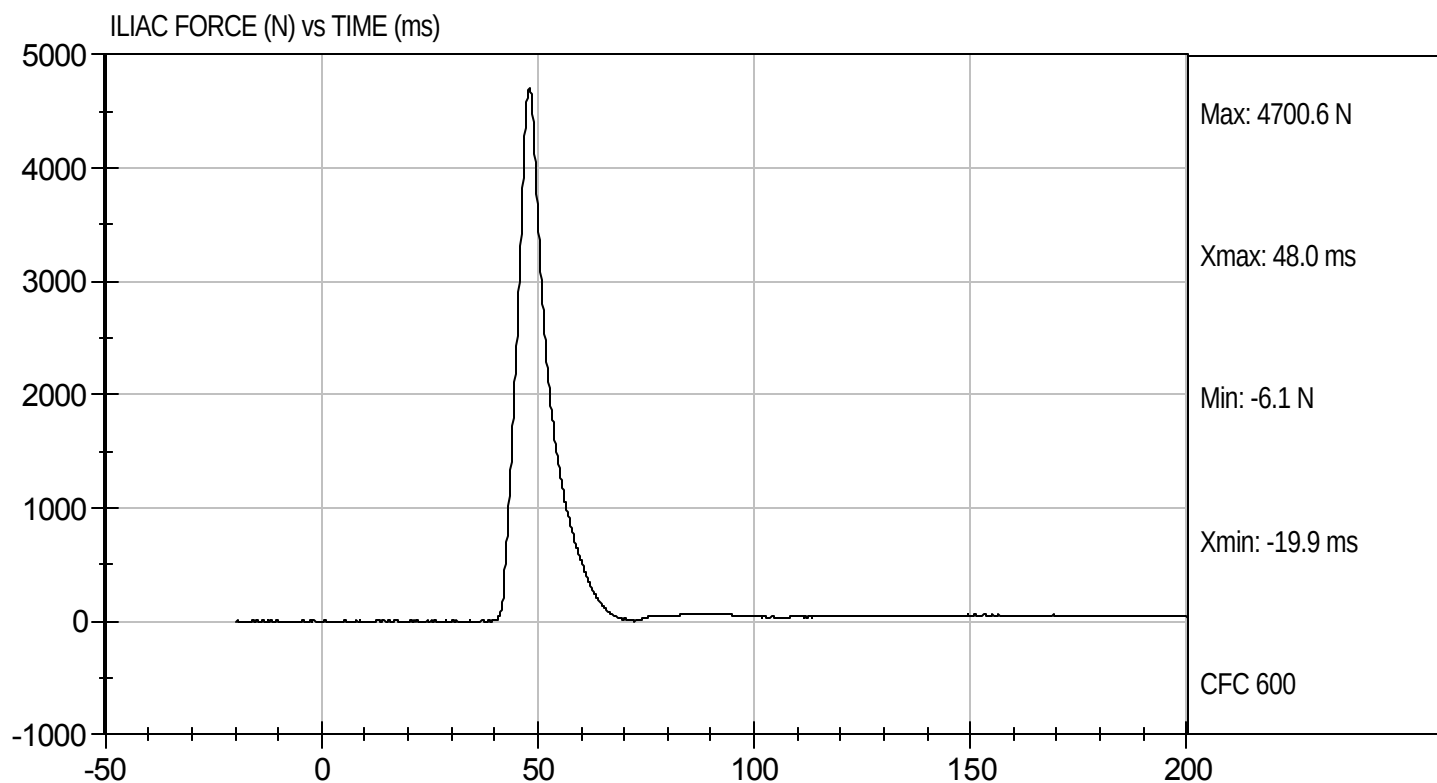
Test Date: 2/7/11
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Iliac Impact
Component ID: D11418

Test Date: 2/7/11
Velocity: 14.25 ft/s, 4.34 m/s



MGA RESEARCH CORPORATION
HEAD DROP TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test ID: D11521

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	23	Pass
Peak Resultant Acceleration	G's	115 to 137	125	Pass
Peak Lateral Acceleration	G's	+/- 15	-3.4	Pass
Unimodal	N/A	<15%	Yes	Pass
Overall Test Results				Pass



Laboratory Technician

2/14/11
Test Date

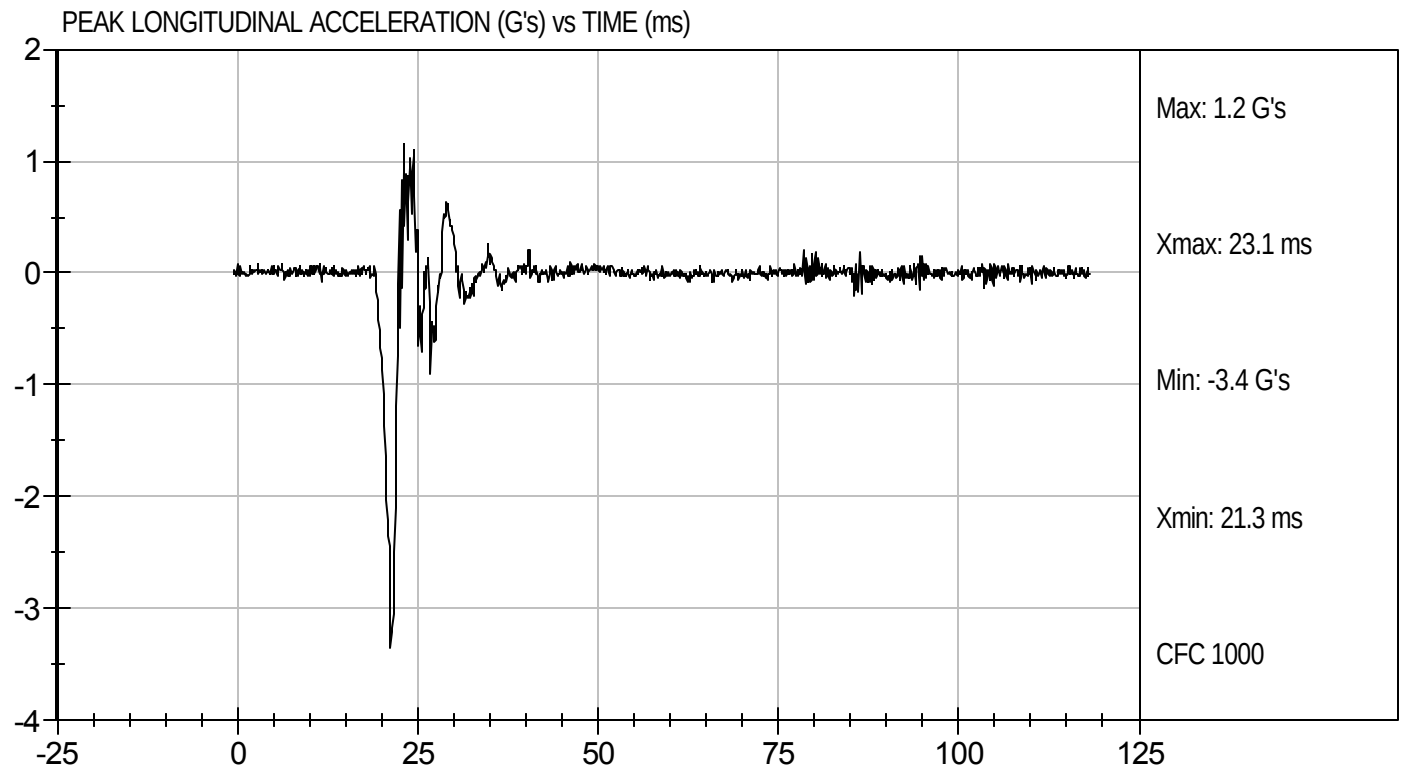
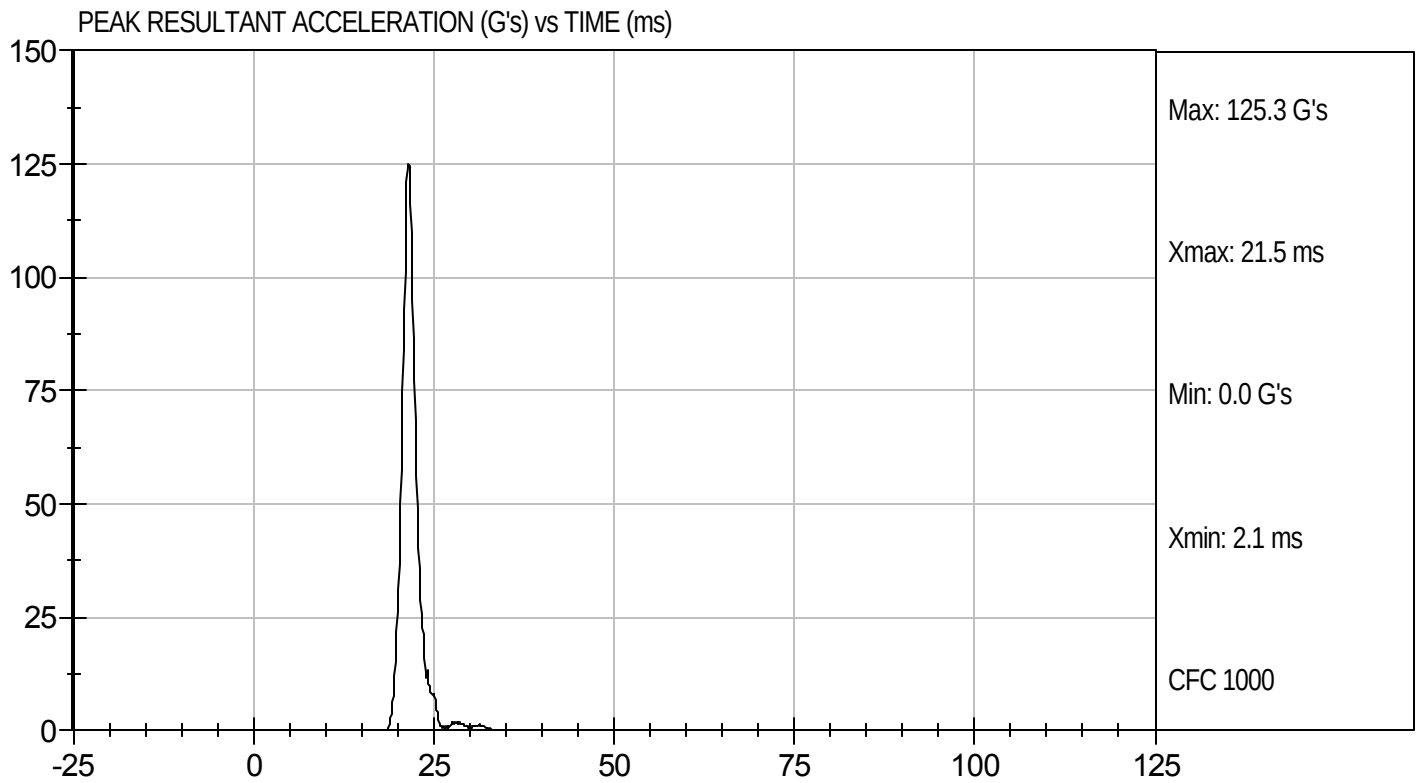


Approved By



Test Desc: Head Drop
Component ID: D11521

Test Date: 2/14/11
Velocity: 0 ft/s, 0 m/s

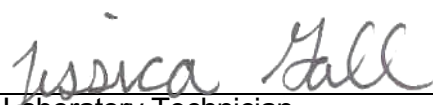


MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D11522

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	22.1	Pass
Humidity		%	10 to 70	23	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Delta Velocity	10 ms	m/s	2.20 to 2.80	2.70	Pass
	15 ms	m/s	3.30 to 4.10	3.80	Pass
	20 ms	m/s	4.40 to 5.40	5.00	Pass
	25 ms	m/s	5.40 to 6.10	5.49	Pass
	25-100 ms	m/s	5.50 to 6.20	5.54	Pass
Maximum D-Plane Rotation		deg	71 to 81	72	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	61	Pass
Maximum Occipital Condyle Moment during Rotation Interval Nm			-44 to -36	-42	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	116	Pass
Overall Test Results				Pass	


 Laboratory Technician

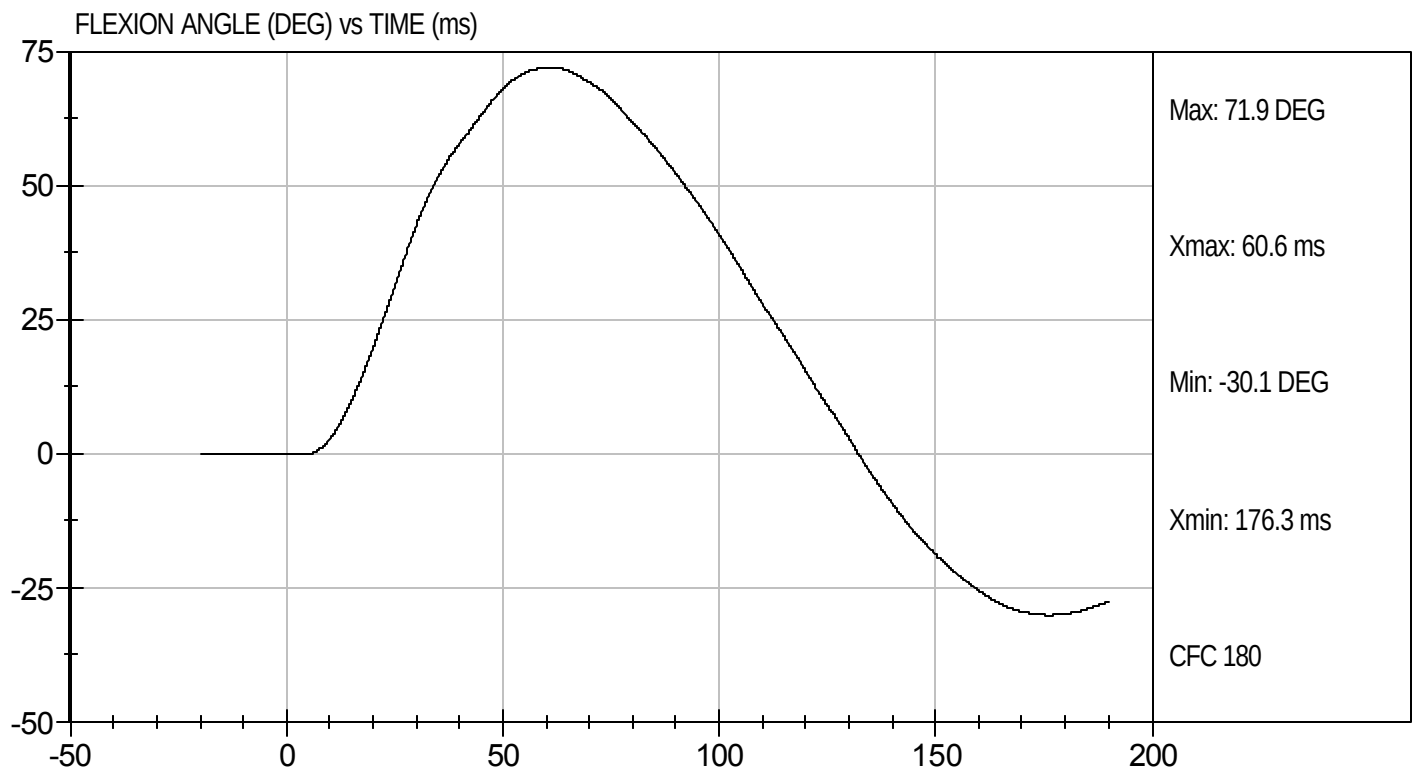
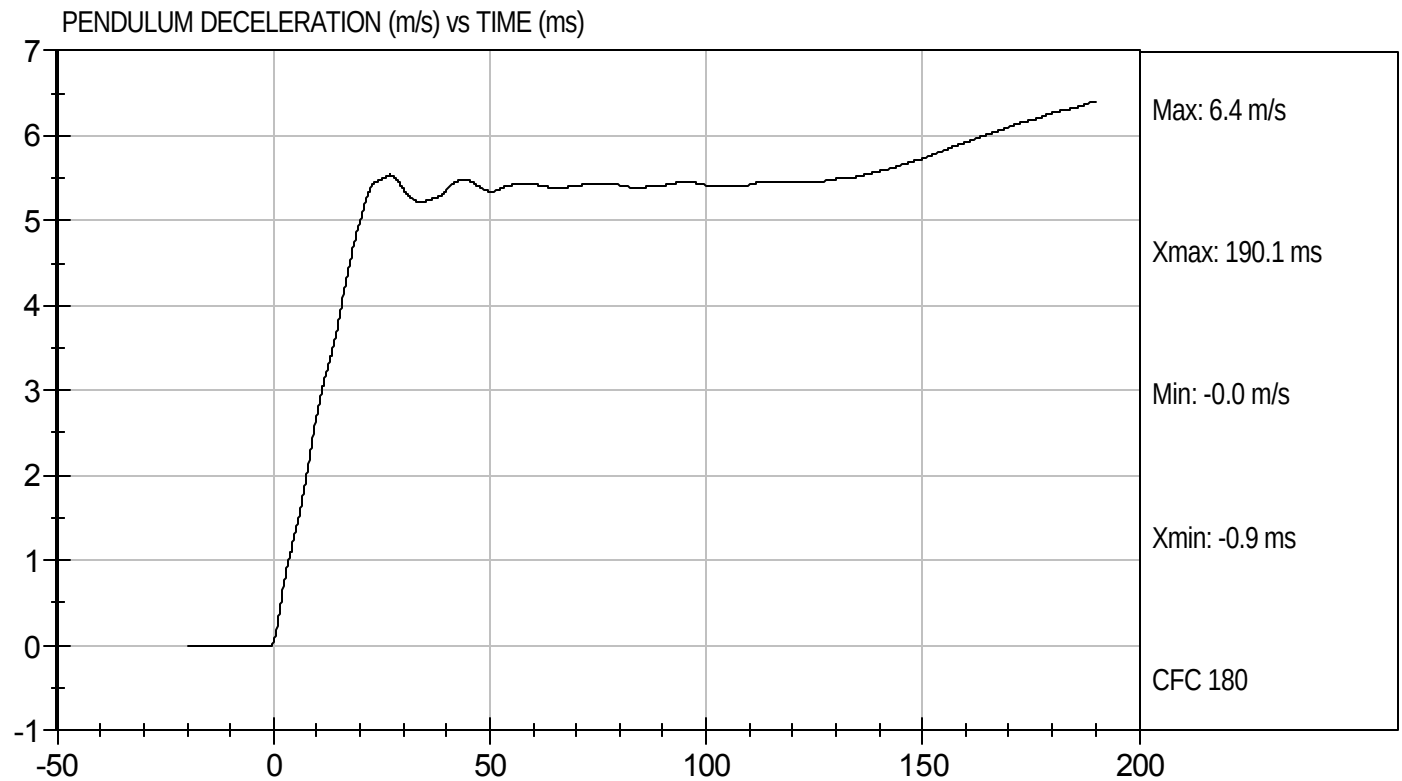
2/14/11
 Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D11522

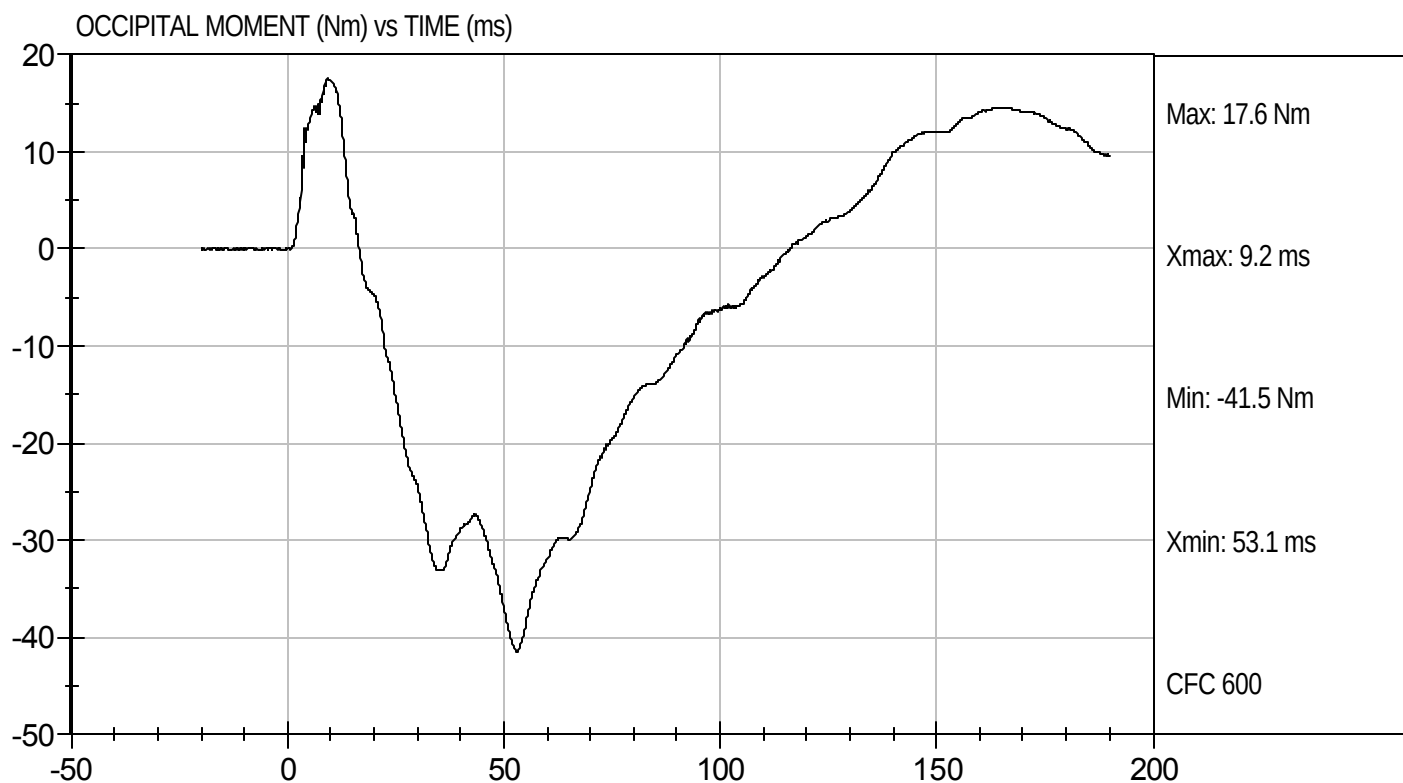
Test Date: 2/14/11
Velocity: 18.32 ft/s, 5.58 m/s





Test Desc: Neck Bending
Component ID: D11522

Test Date: 2/14/11
Velocity: 18.32 ft/s, 5.58 m/s



MGA RESEARCH CORPORATION
SHOULDER IMPACT TEST
SID-11s BUILD LEVEL D DUMMY

ATD Serial No: 296

Test ID: D11523

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	28	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	18	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

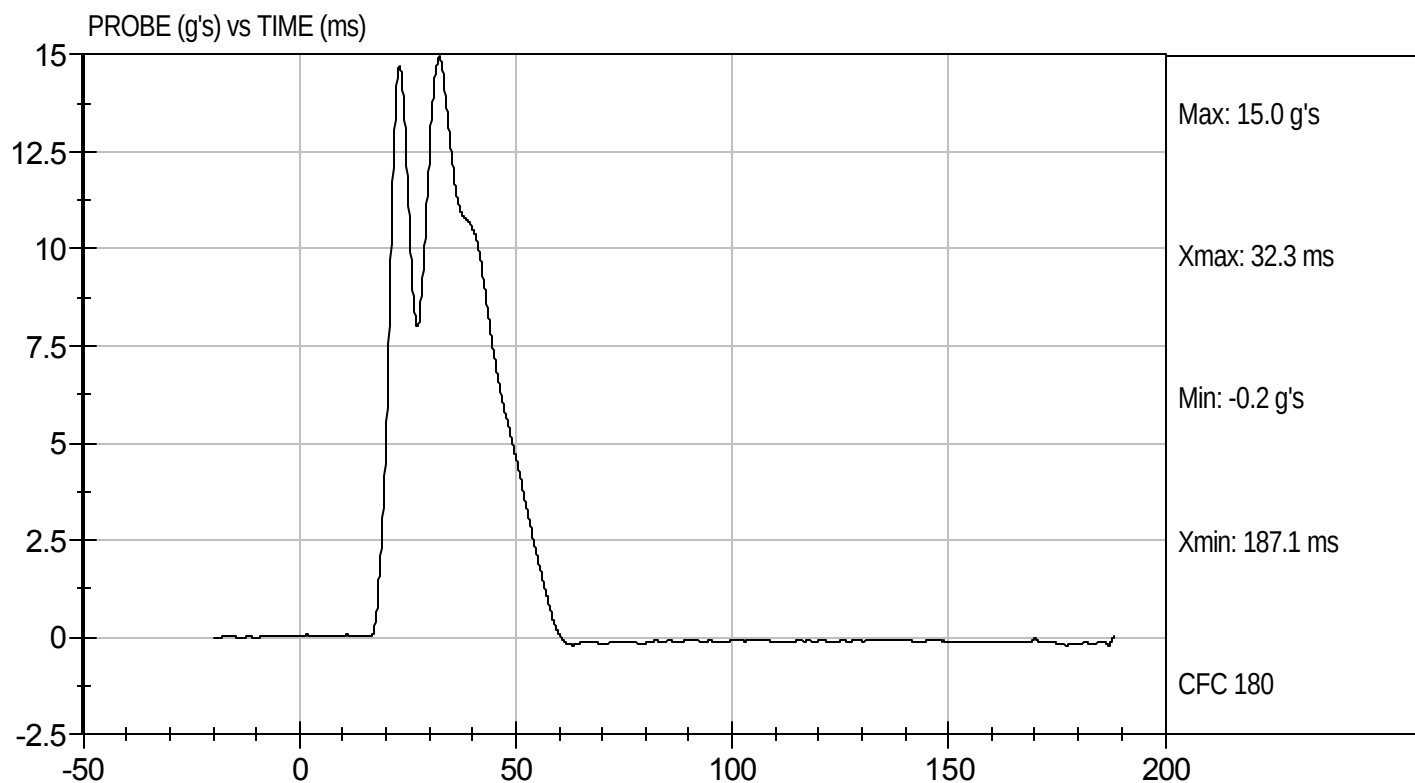
2/15/11
Test Date

David Winkelbauer
Approved By



Test Desc: Shoulder Impact
Component ID: D11523

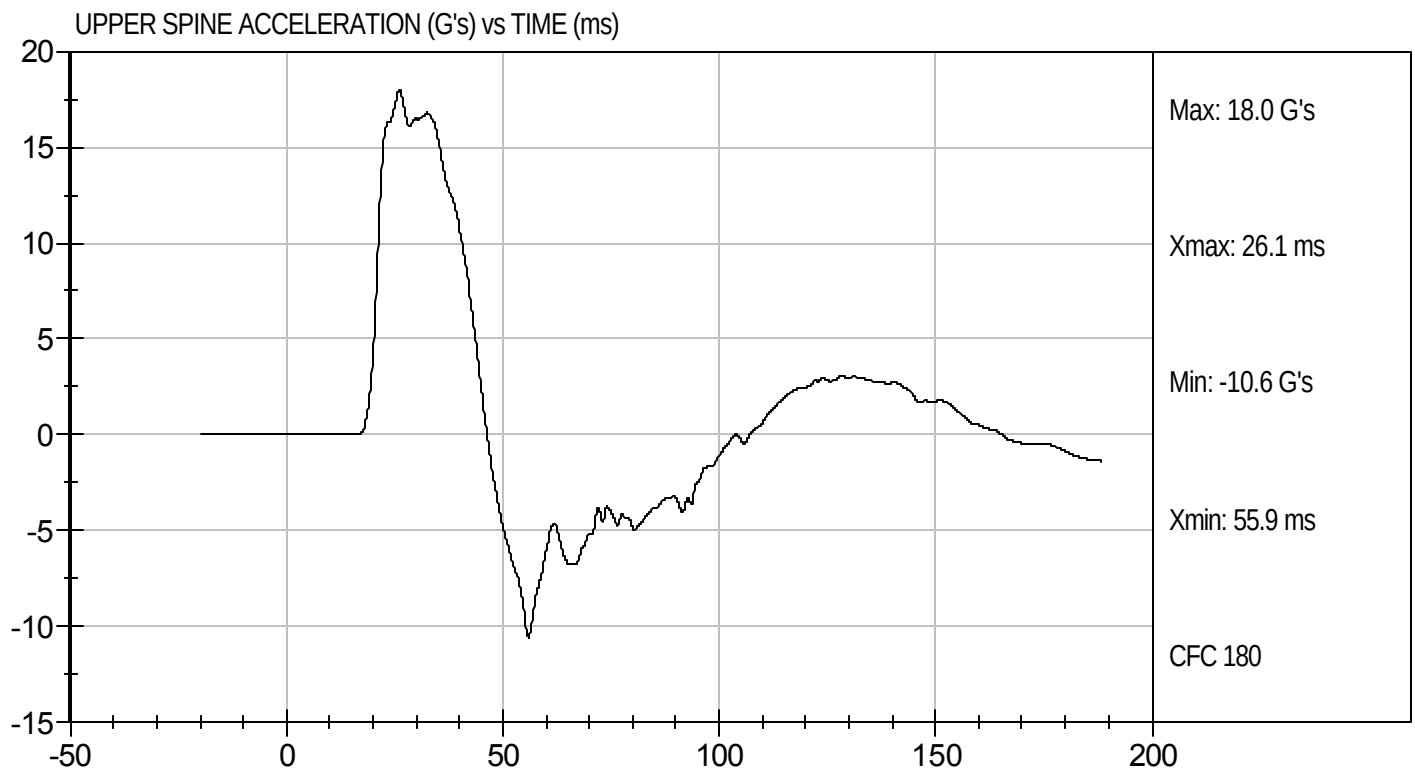
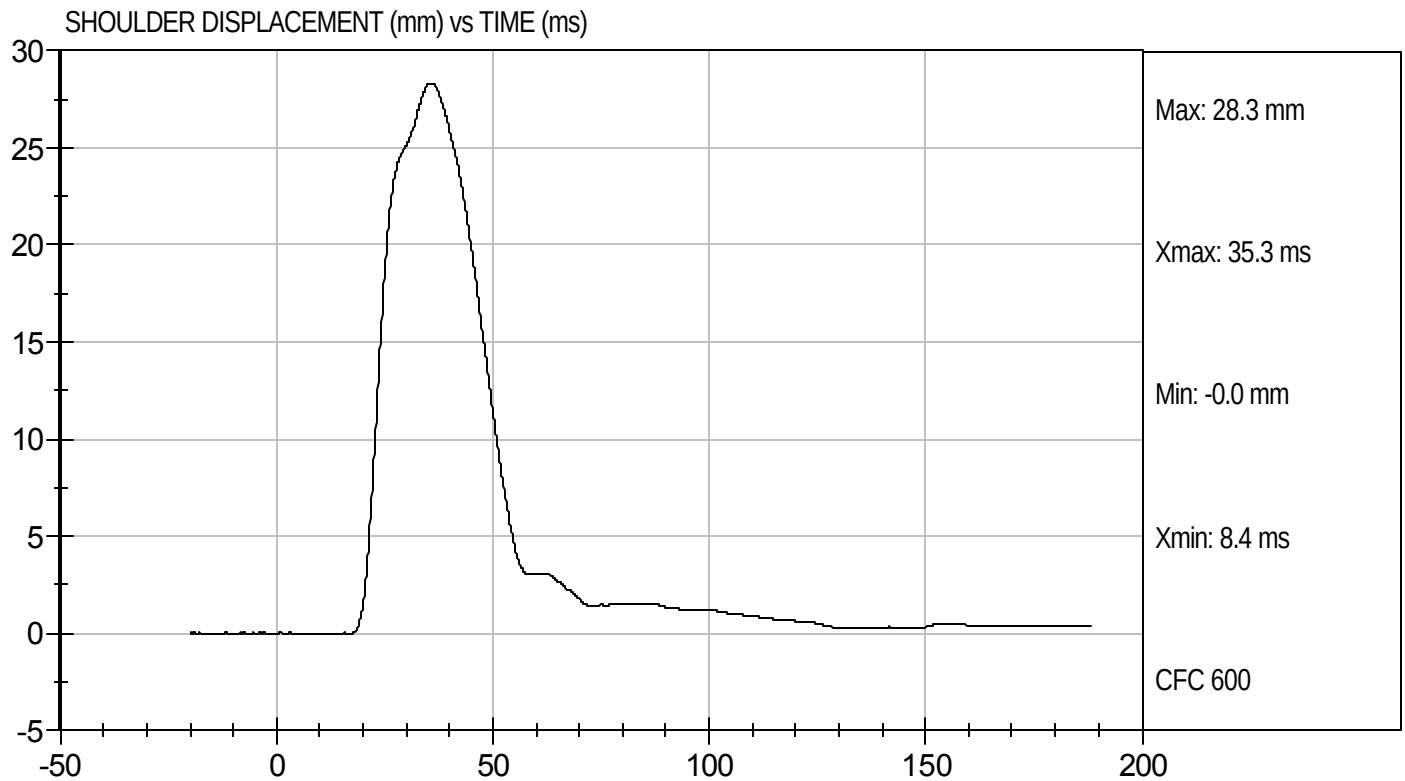
Test Date: 2/15/11
Velocity: 14.36 ft/s, 4.38 m/s





Test Desc: Shoulder Impact
Component ID: D11523

Test Date: 2/15/11
Velocity: 14.36 ft/s, 4.38 m/s

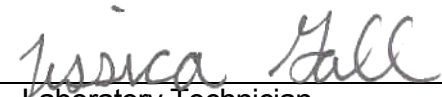


MGA RESEARCH CORPORATION
THORAX (WITH ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D11524

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.7	Pass
Humidity	%	10 to 70	19	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Peak Impactor Acceleration	G's	30 to 36	33	Pass
Shoulder Displacement	mm	31 to 40	35	Pass
Upper Rib Displacement	mm	25 to 32	30	Pass
Middle Rib Displacement	mm	30 to 36	31	Pass
Lower Rib Displacement	mm	32 to 38	33	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	39	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	34	Pass
Overall Test Results				Pass


Laboratory Technician

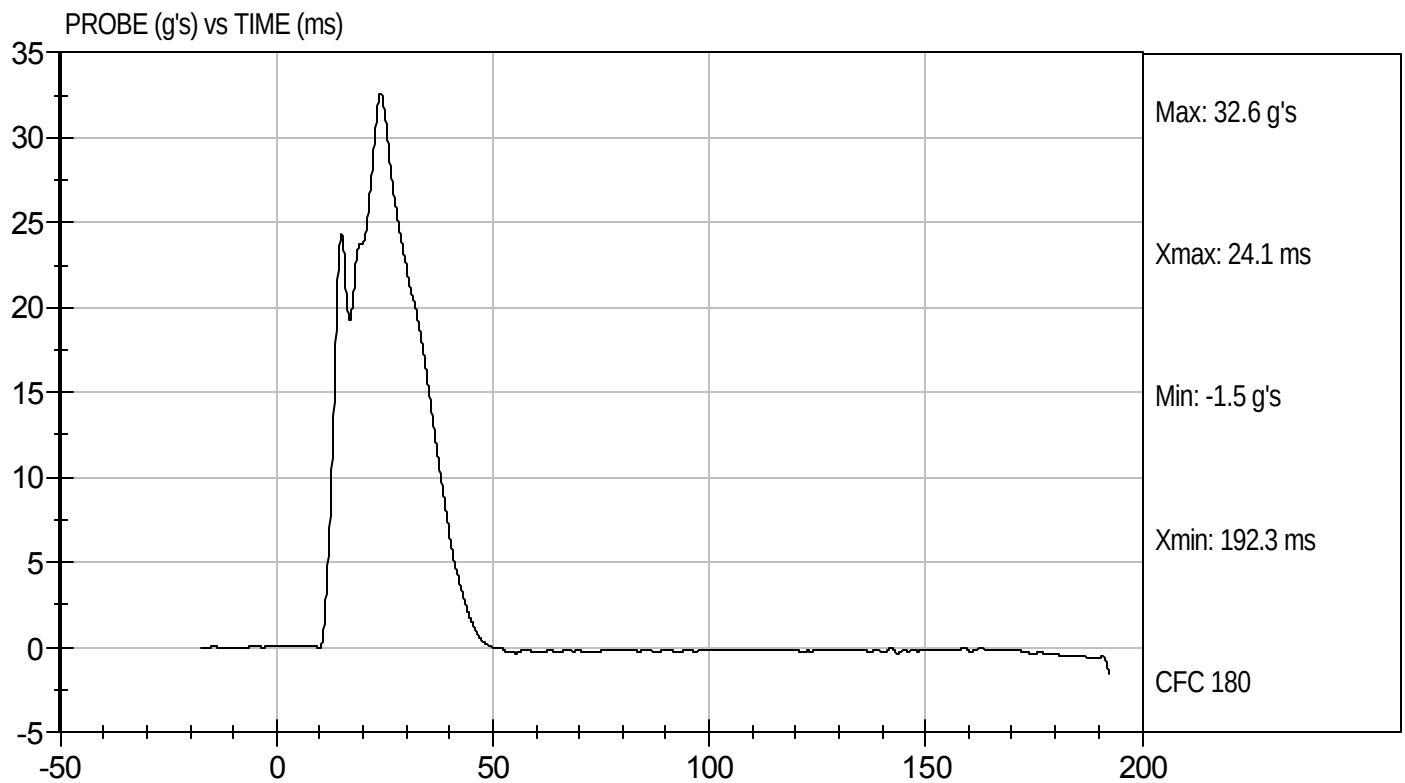
2/15/11
Test Date


Approved By



Test Desc: Thorax With Arm
Component ID: D11524

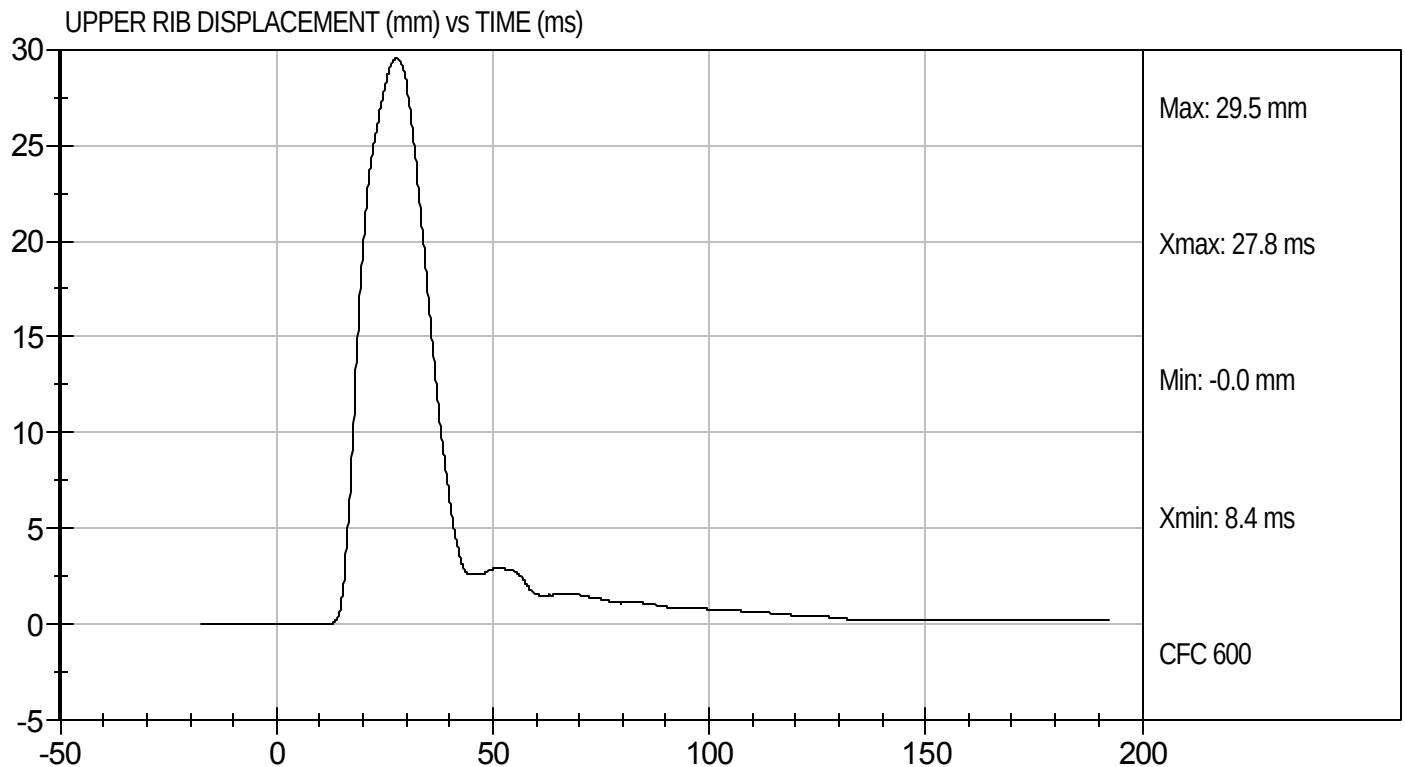
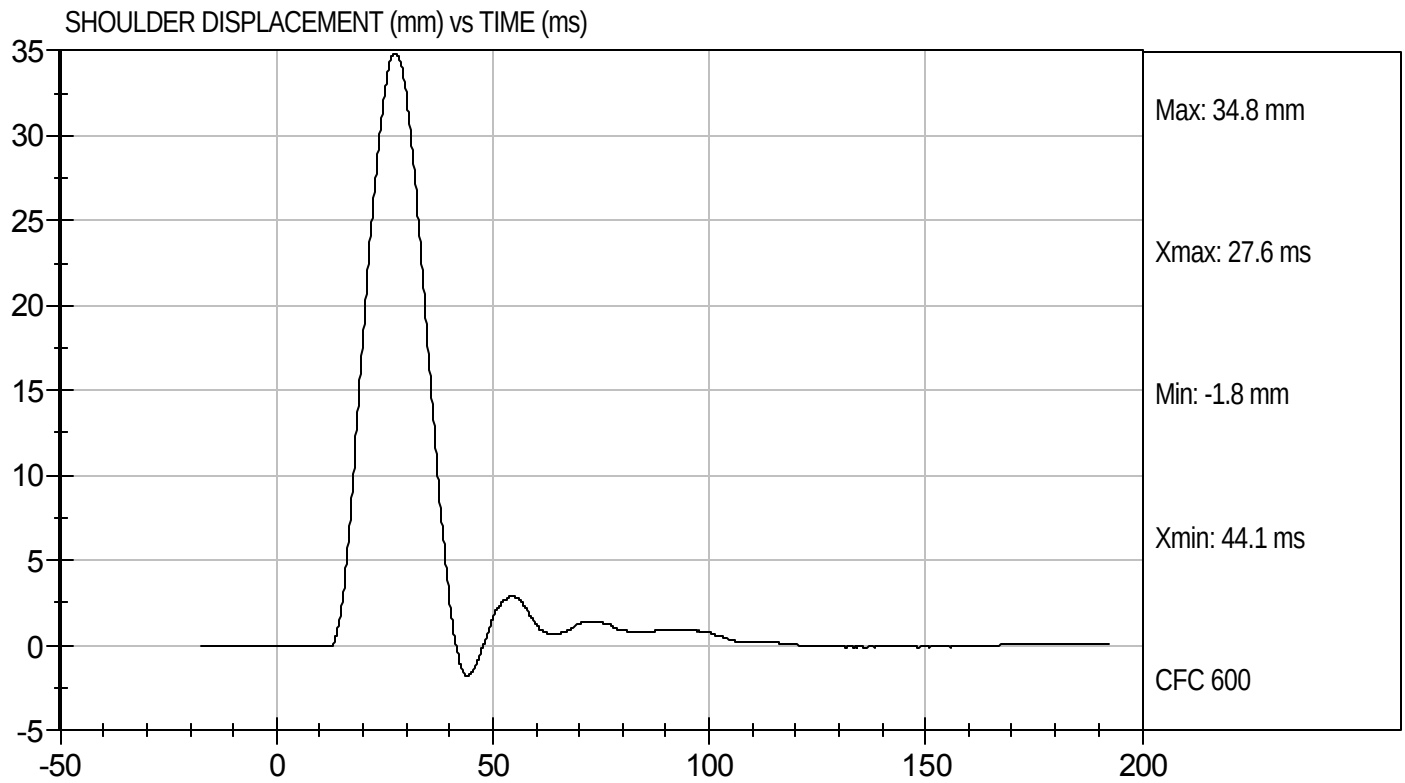
Test Date: 2/15/11
Velocity: 22.2 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D11524

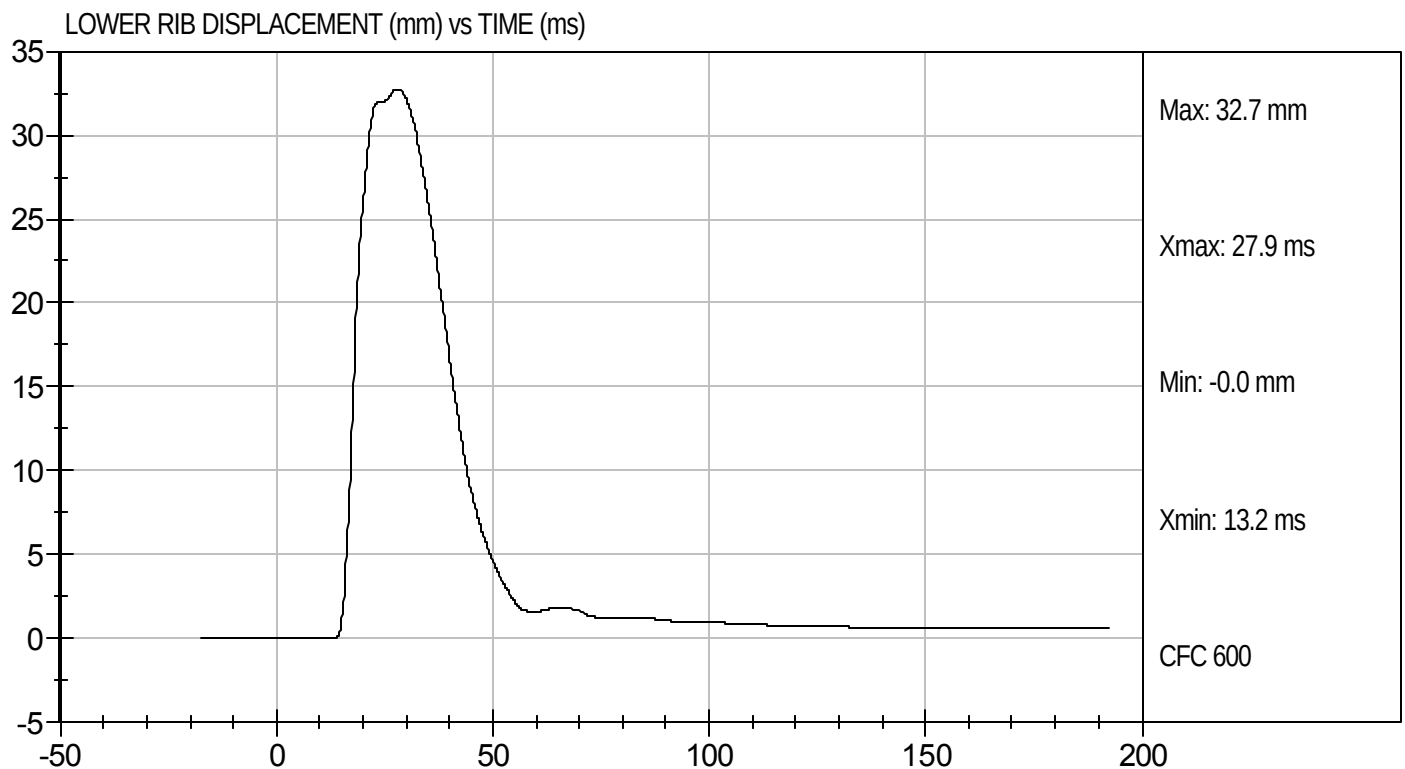
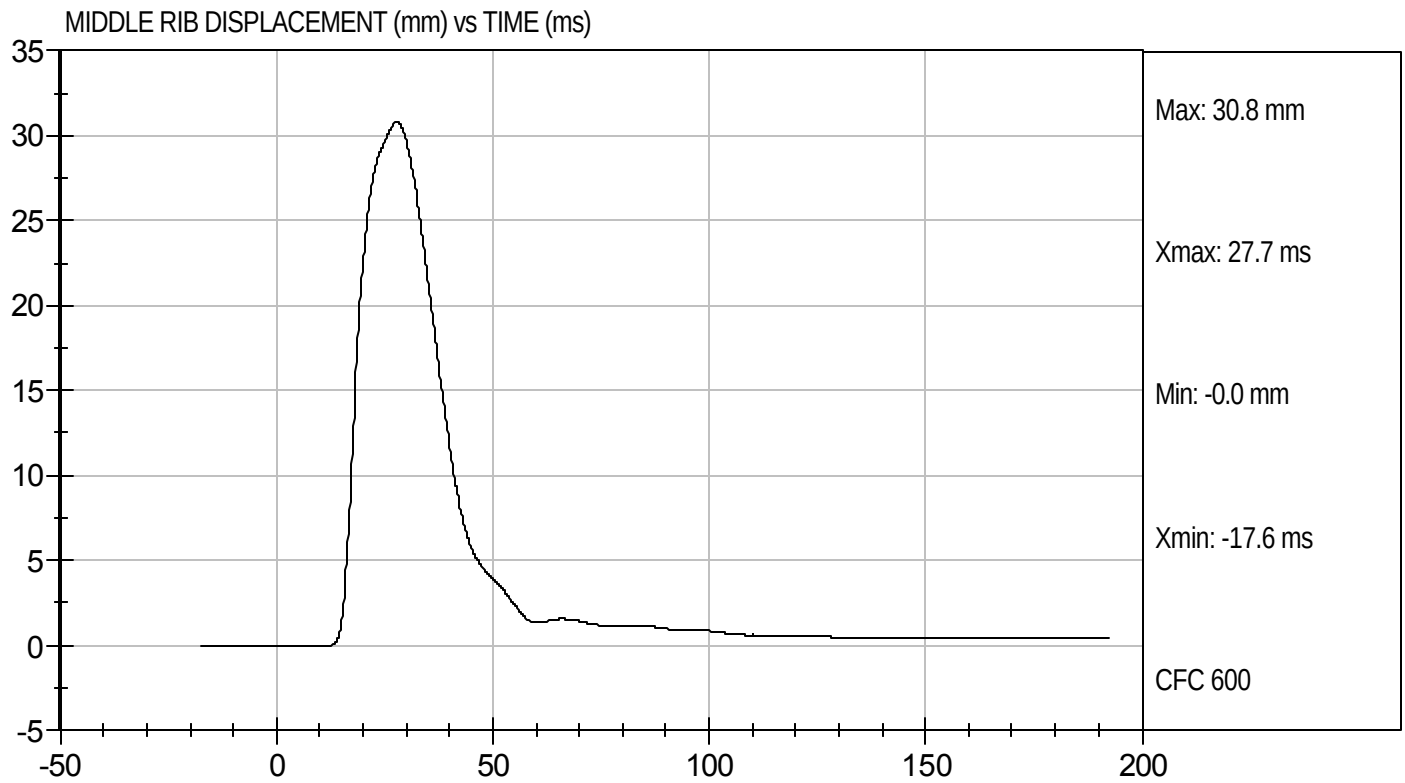
Test Date: 2/15/11
Velocity: 22.2 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D11524

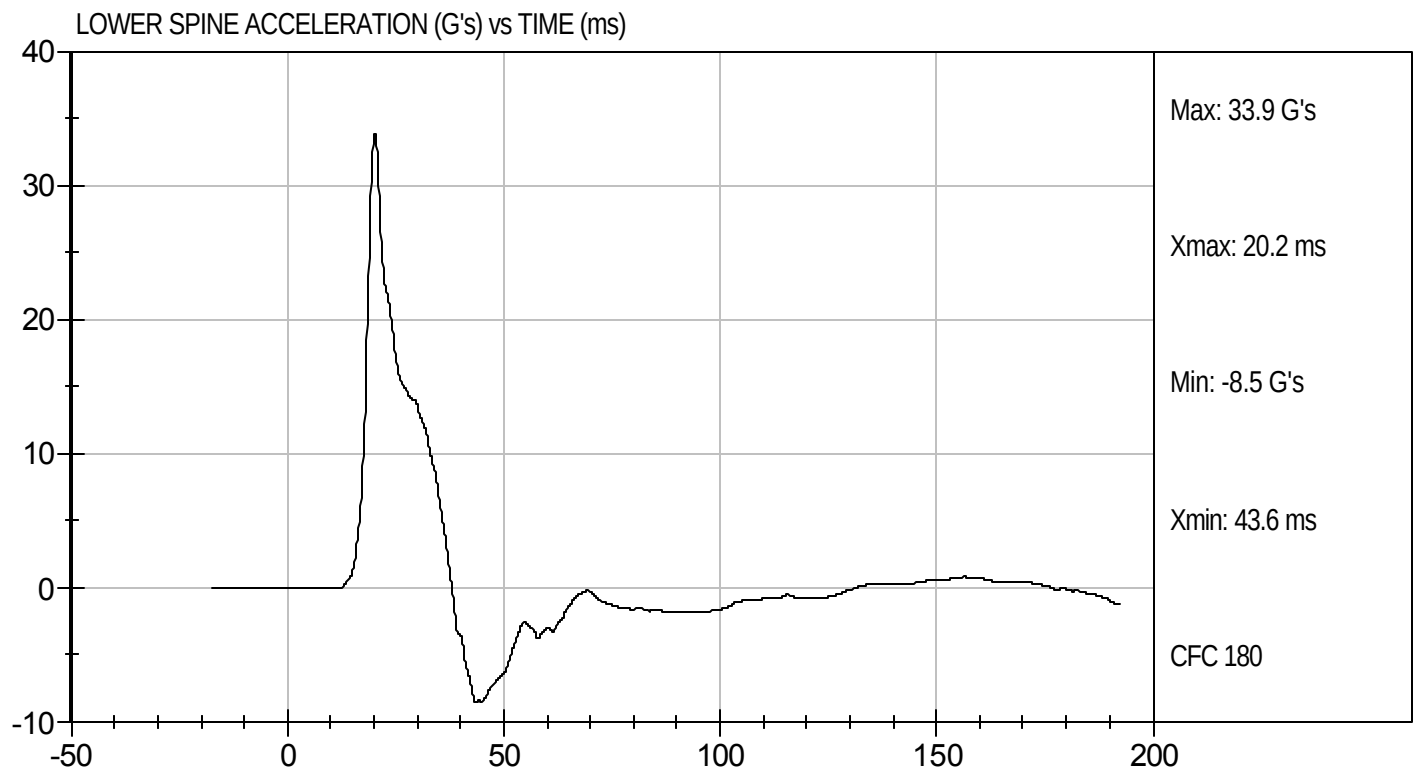
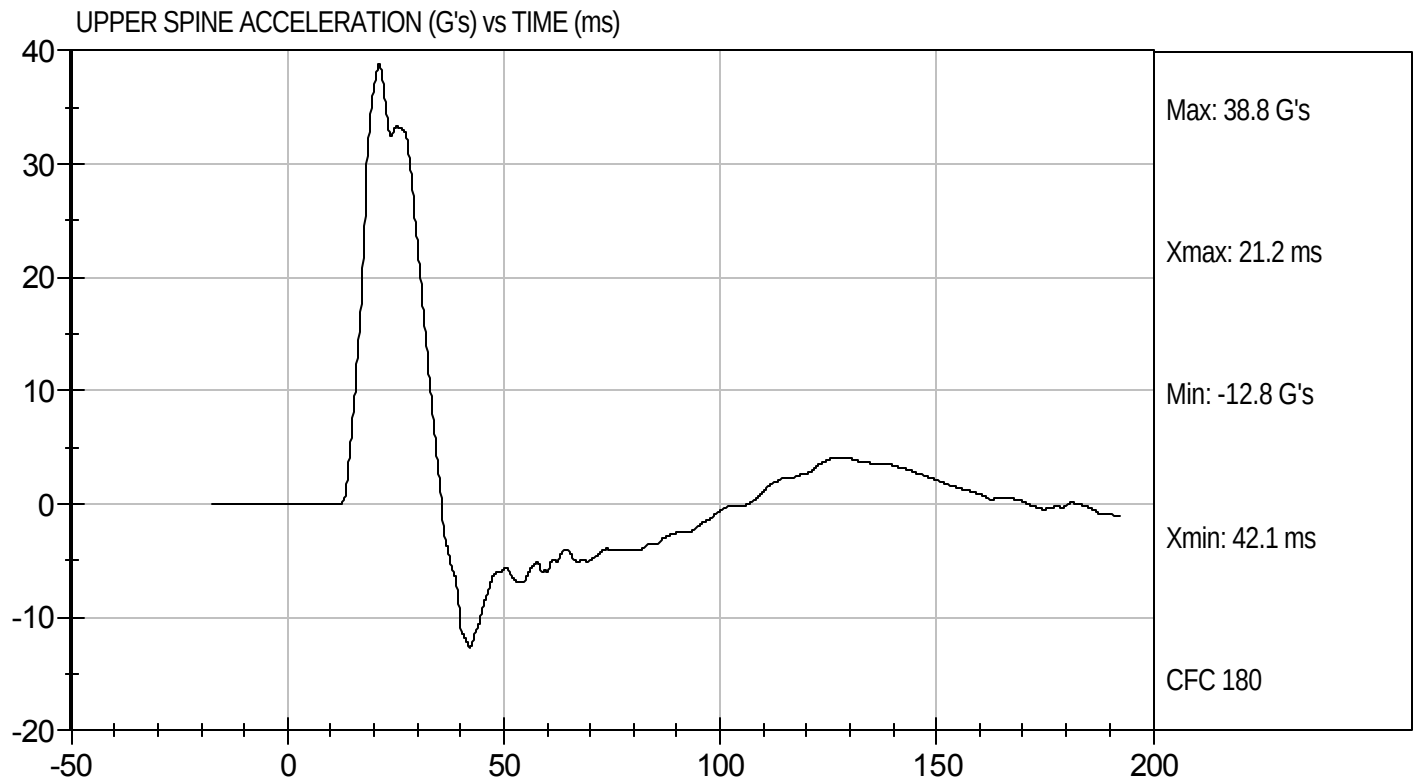
Test Date: 2/15/11
Velocity: 22.2 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D11524

Test Date: 2/15/11
Velocity: 22.2 ft/s, 6.77 m/s



MGA RESEARCH CORPORATION
THORAX (WITHOUT ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D11525

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.7	Pass
Humidity	%	10 to 70	19	Pass
Impact Velocity	m/s	4.20 to 4.40	4.27	Pass
Peak Impactor Force	G's	14 to 18	15	Pass
Upper Rib Displacement	mm	32 to 40	38	Pass
Middle Rib Displacement	mm	39 to 45	40	Pass
Lower Rib Displacement	mm	35 to 43	37	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	14	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	8	Pass
Overall Test Results				Pass


Laboratory Technician

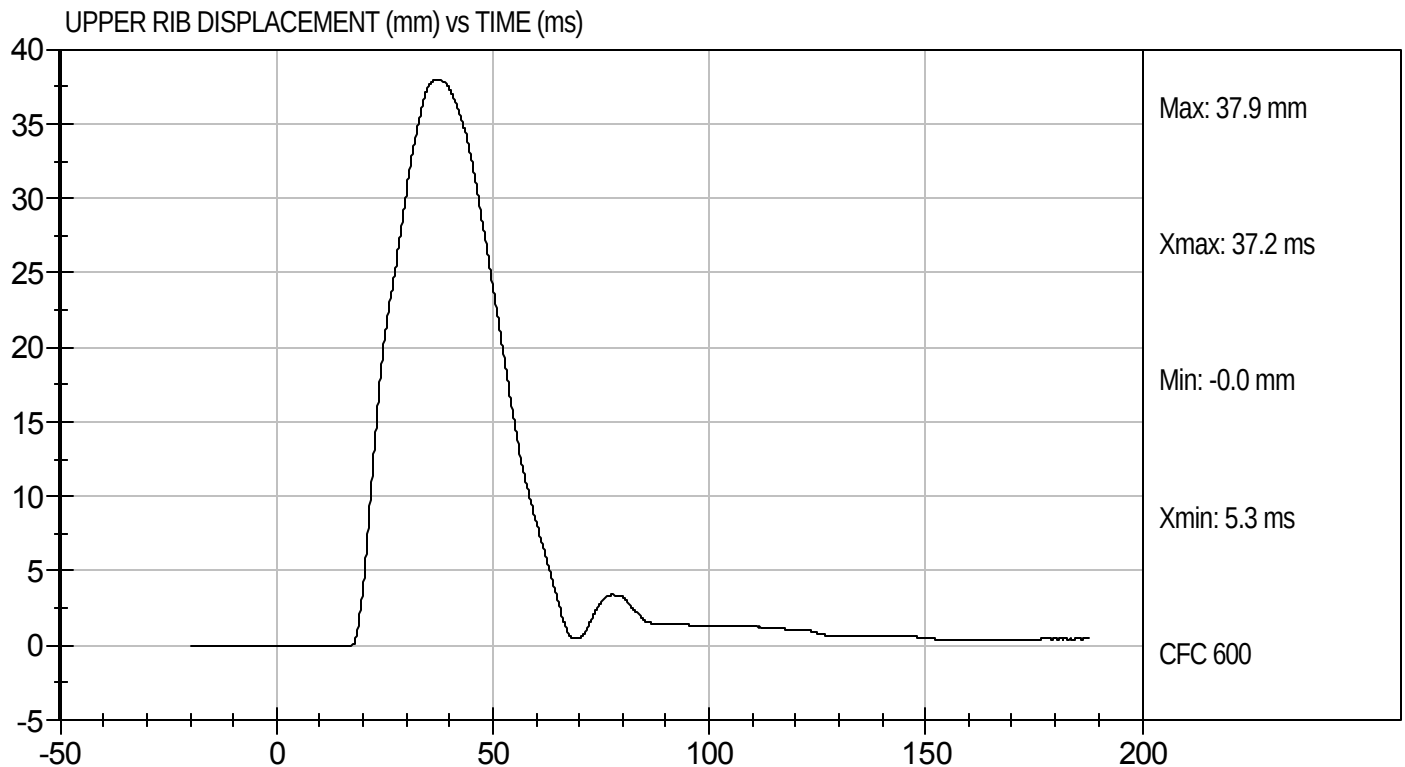
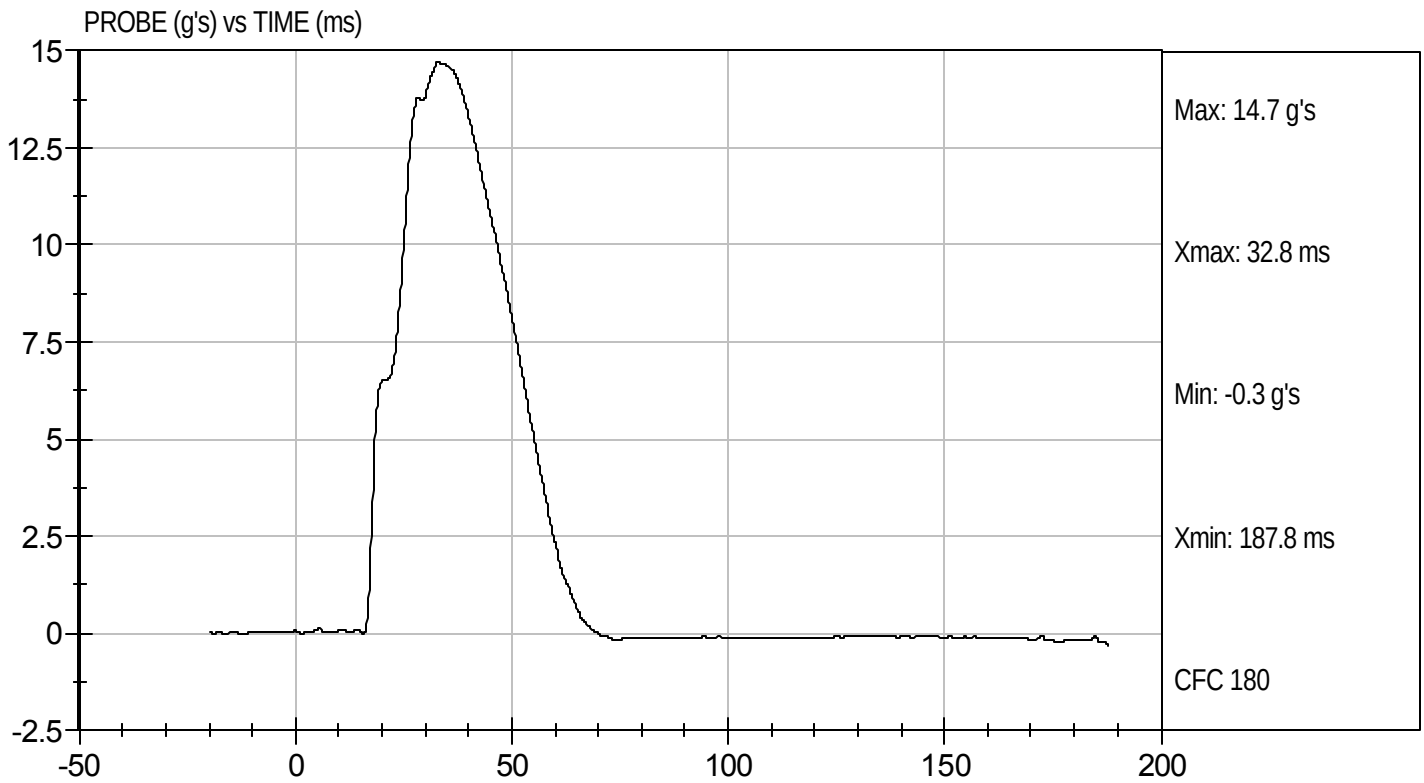
2/15/11
Test Date


Approved By



Test Desc: Thorax Without Arm
Component ID: D11525

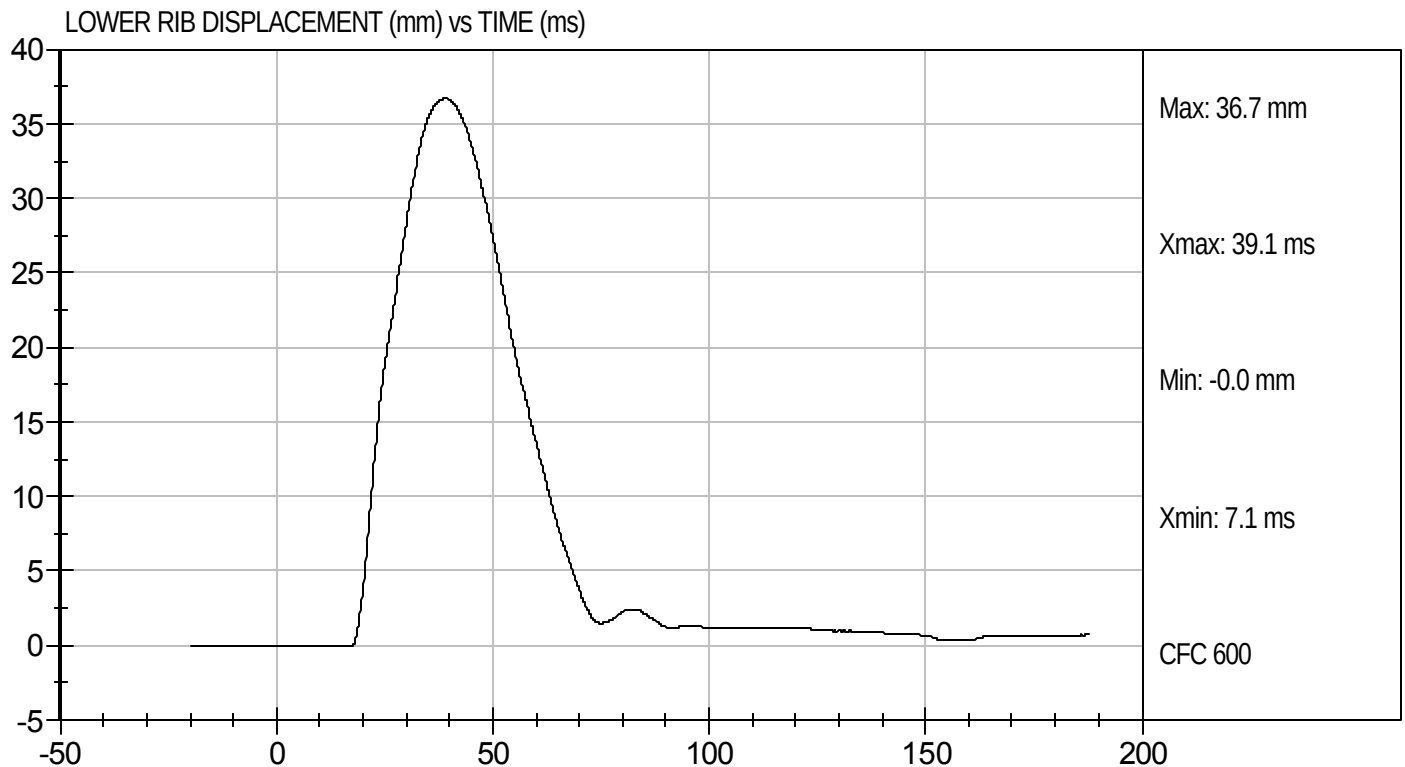
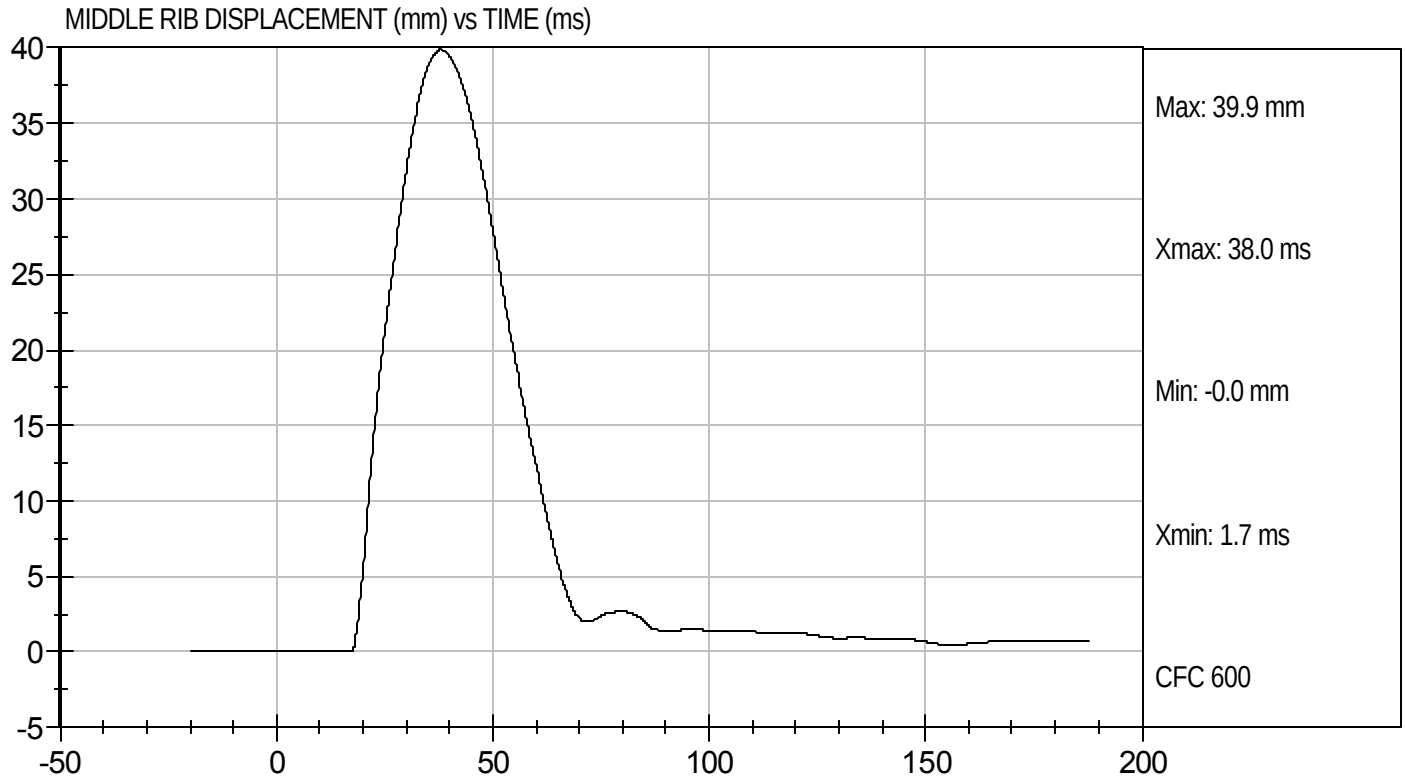
Test Date: 2/15/11
Velocity: 14.0 ft/s, 4.27 m/s





Test Desc: Thorax Without Arm
Component ID: D11525

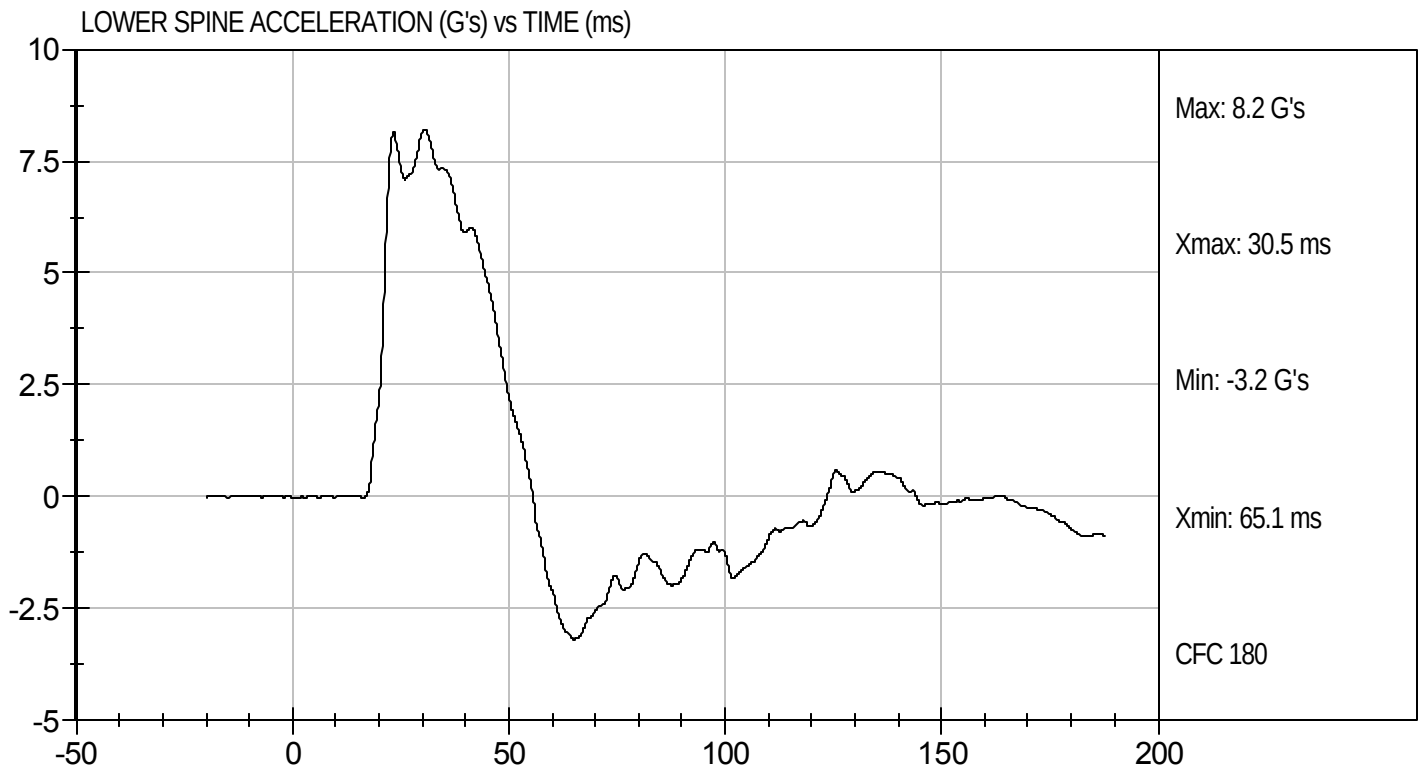
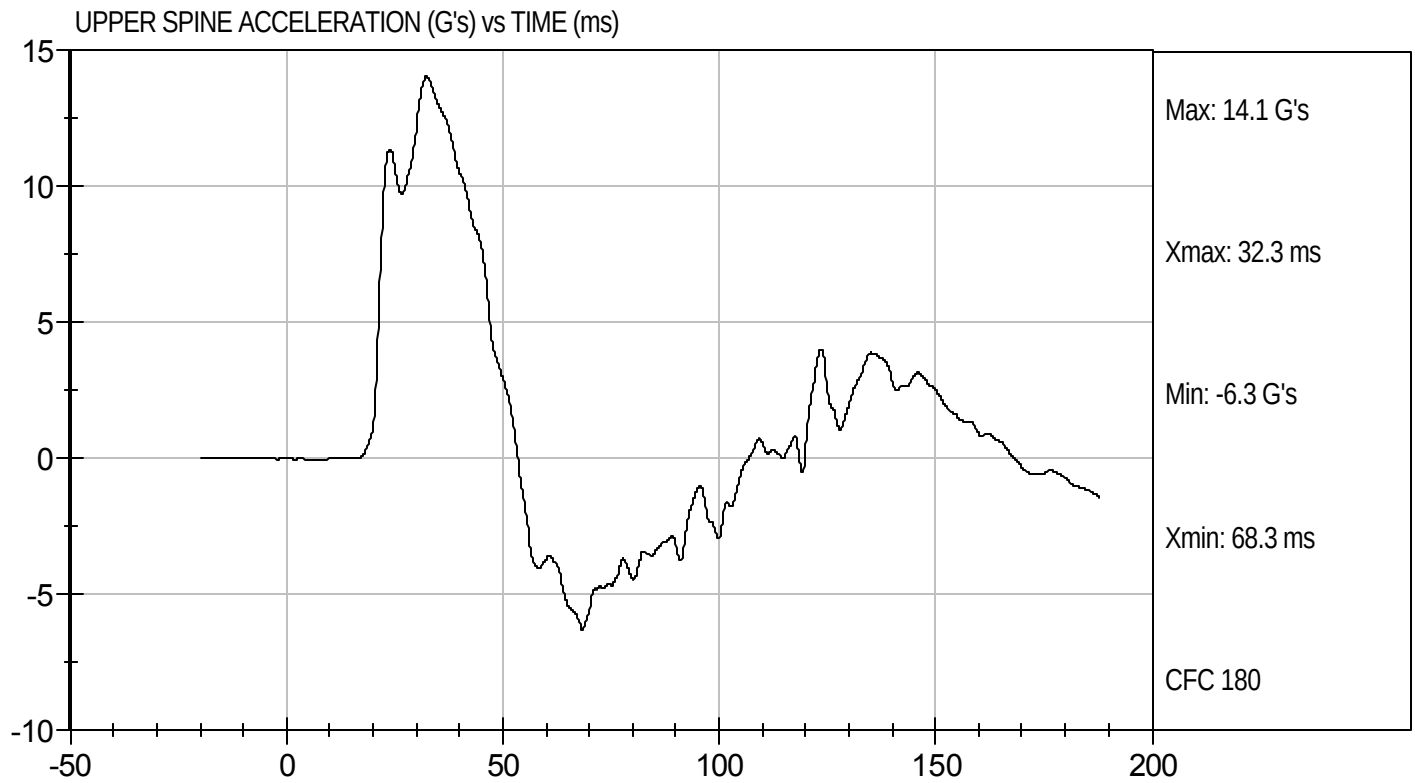
Test Date: 2/15/11
Velocity: 14.0 ft/s, 4.27 m/s





Test Desc: Thorax Without Arm
Component ID: D11525

Test Date: 2/15/11
Velocity: 14.0 ft/s, 4.27 m/s



MGA RESEARCH CORPORATION
ABDOMINAL IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D11526

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.7	Pass
Humidity	%	10 to 70	19	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Peak Impactor Acceleration	G's	12 to 16	14	Pass
Upper Rib Displacement	mm	36 to 47	38	Pass
Lower Rib Displacement	mm	33 to 44	36	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
			Overall Test Results	Pass


Laboratory Technician

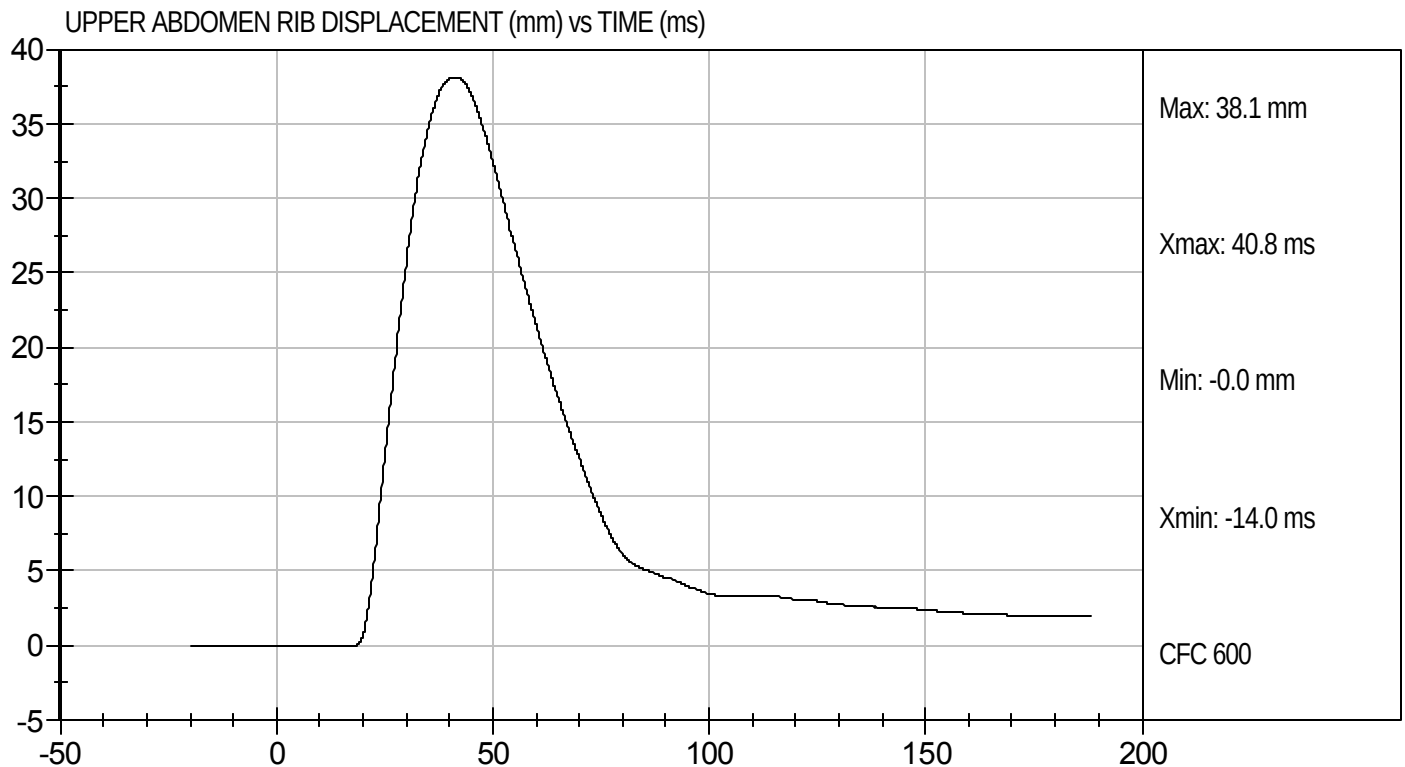
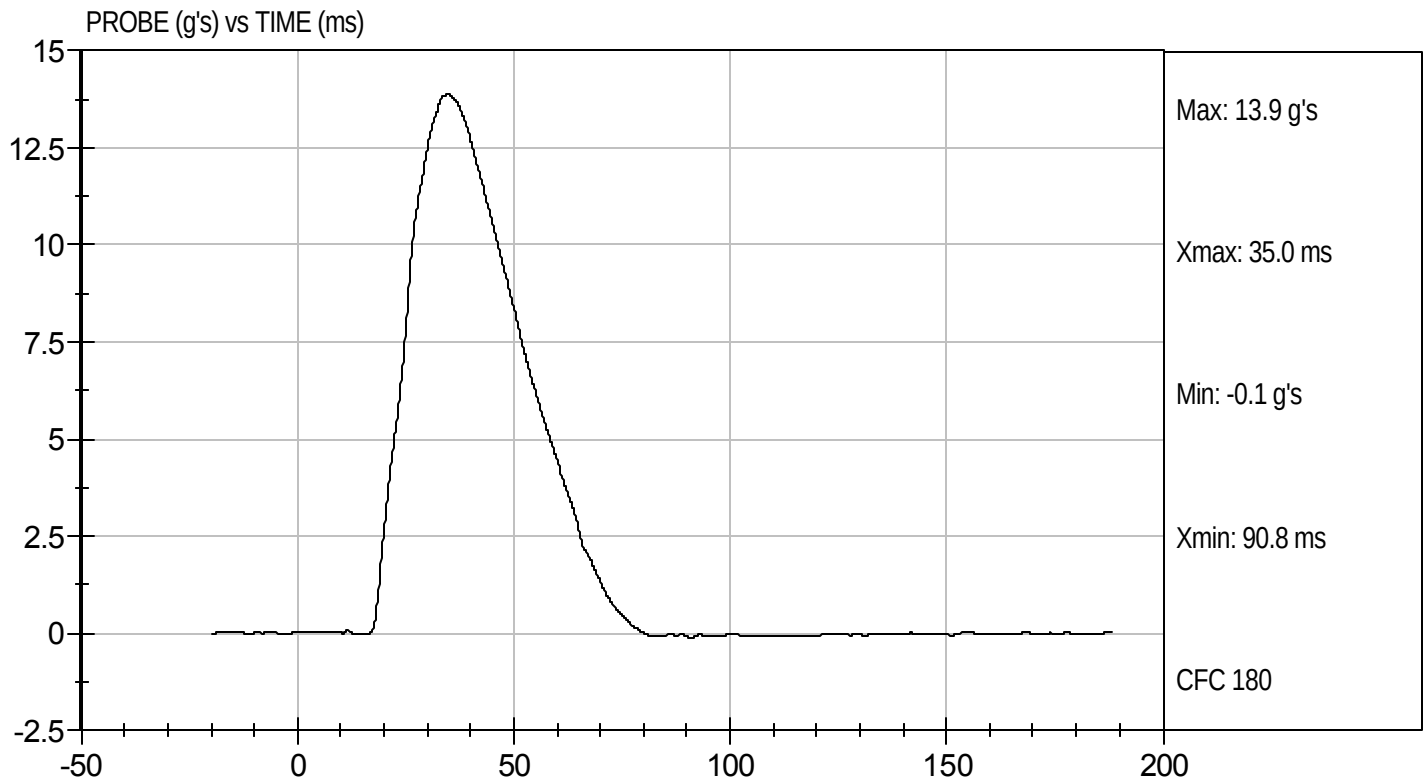
2/15/11
Test Date


Approved By



Test Desc: Abdomen Impact
Component ID: D11526

Test Date: 2/15/11
Velocity: 14.36 ft/s, 4.38 m/s

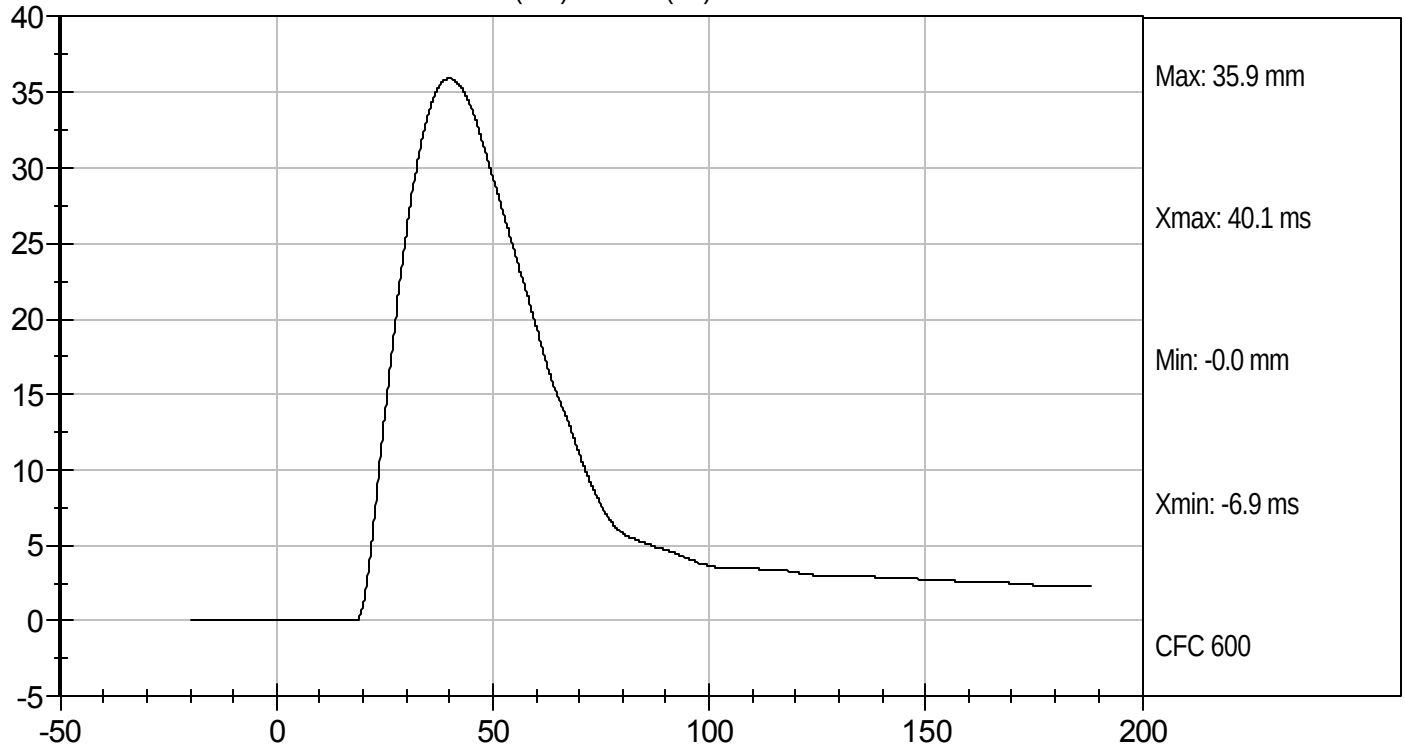




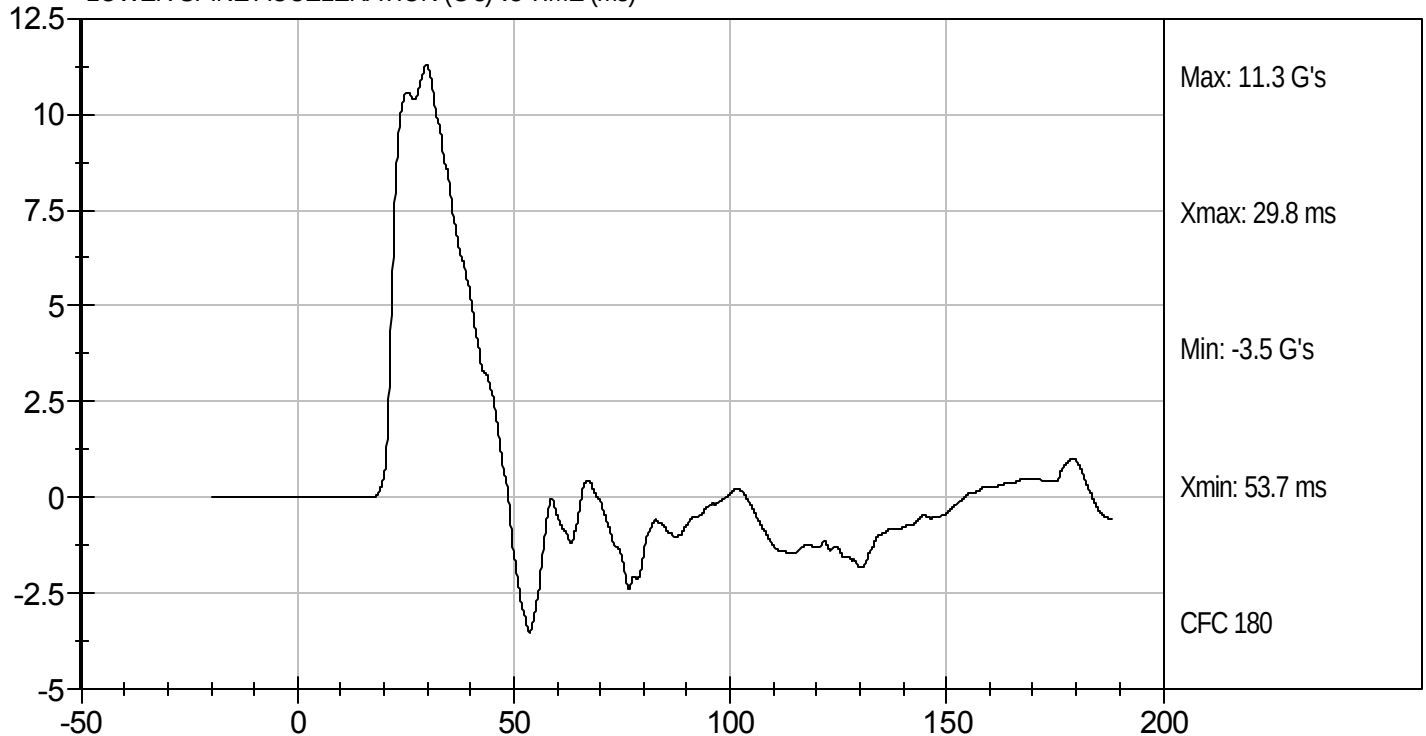
Test Desc: Abdomen Impact
Component ID: D11526

Test Date: 2/15/11
Velocity: 14.36 ft/s, 4.38 m/s

LOWER ABDOMEN RIB DISPLACEMENT (mm) vs TIME (ms)



LOWER SPINE ACCELERATION (G's) vs TIME (ms)



MGA RESEARCH CORPORATION
PELVIS IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D11527

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	20	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Peak Impactor Acceleration	G's	38 to 47	44	Pass
Pelvis Y Acceleration after 6 ms	G's	34 to 42	42	Pass
Peak Acetabulum Force	N	3600 to 4300	4239	Pass
Overall Test Results				Pass


Laboratory Technician

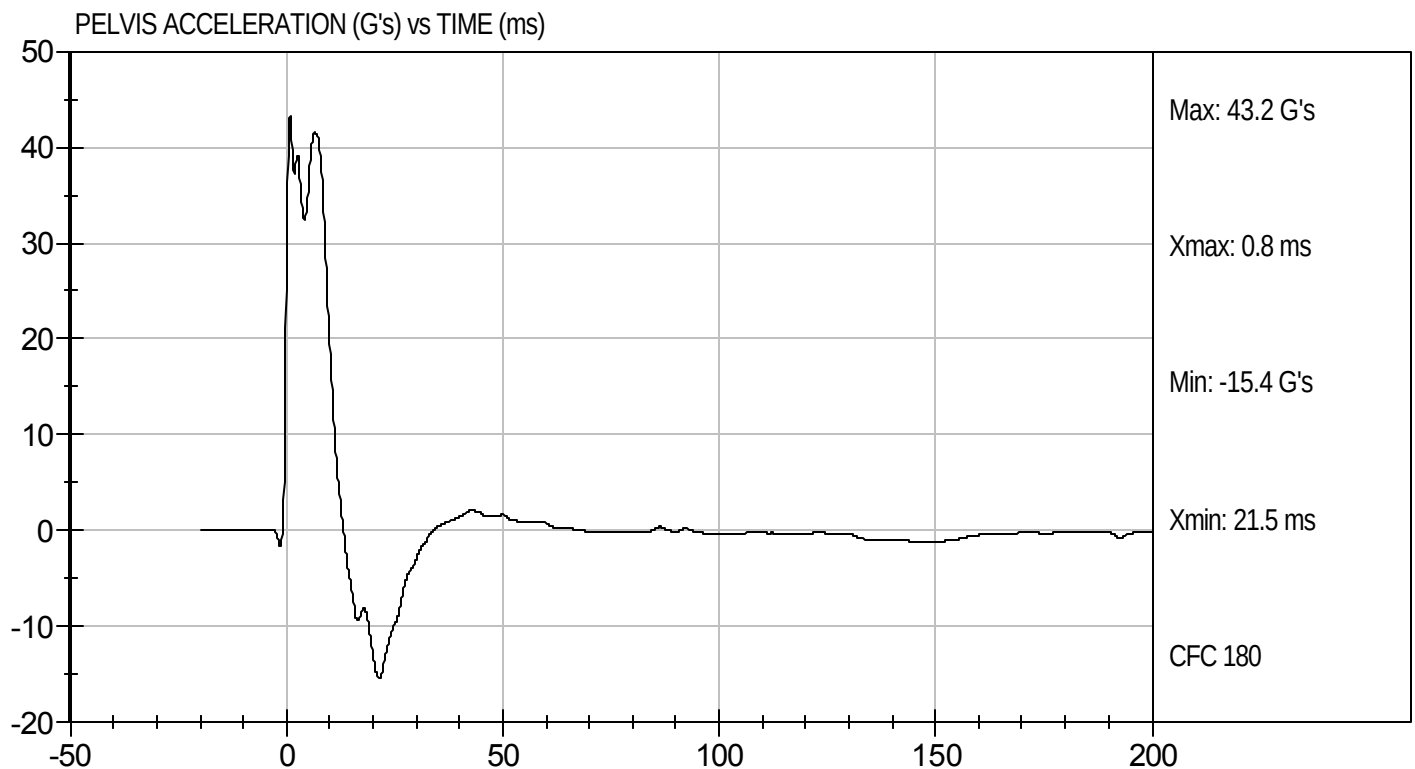
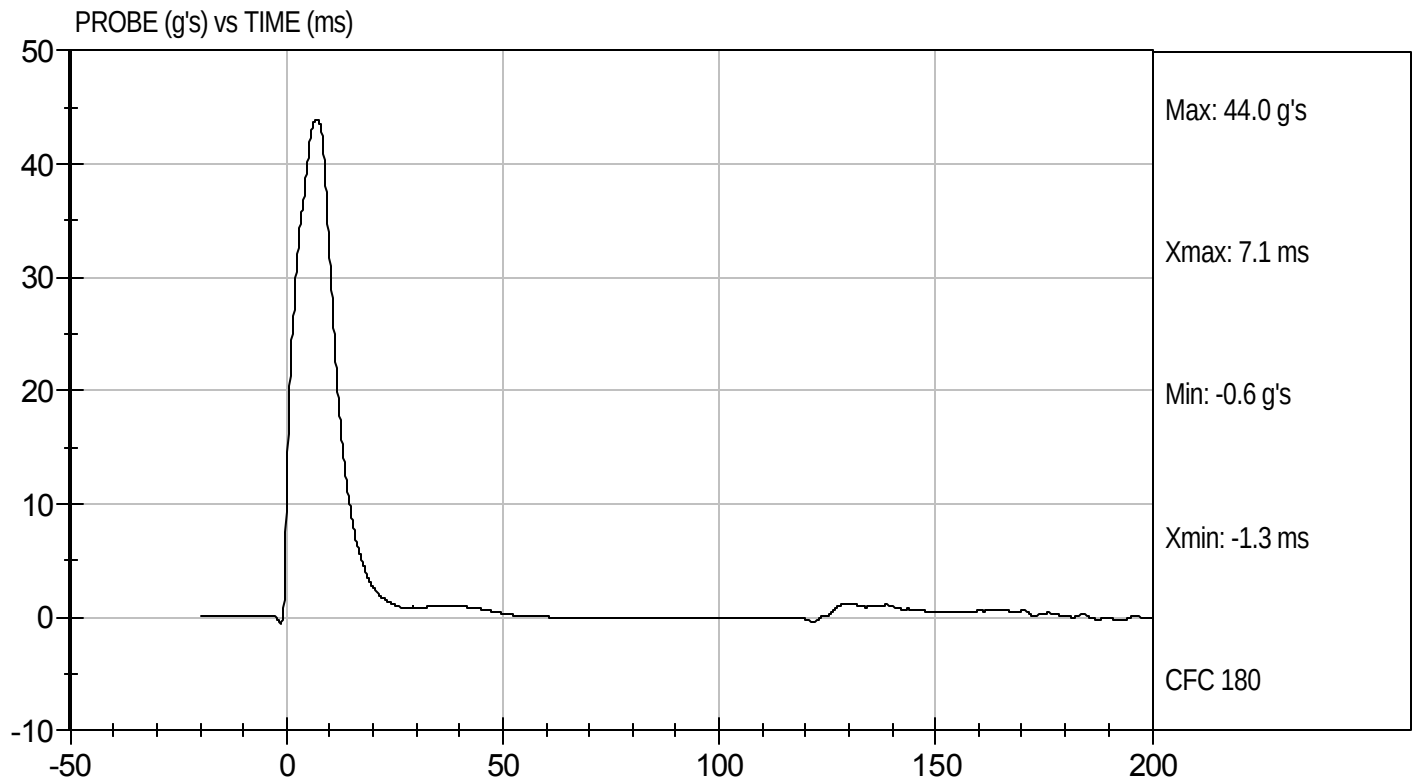
2/15/11
Test Date


Approved By



Test Desc: Pelvis Impact
Component ID: D11527

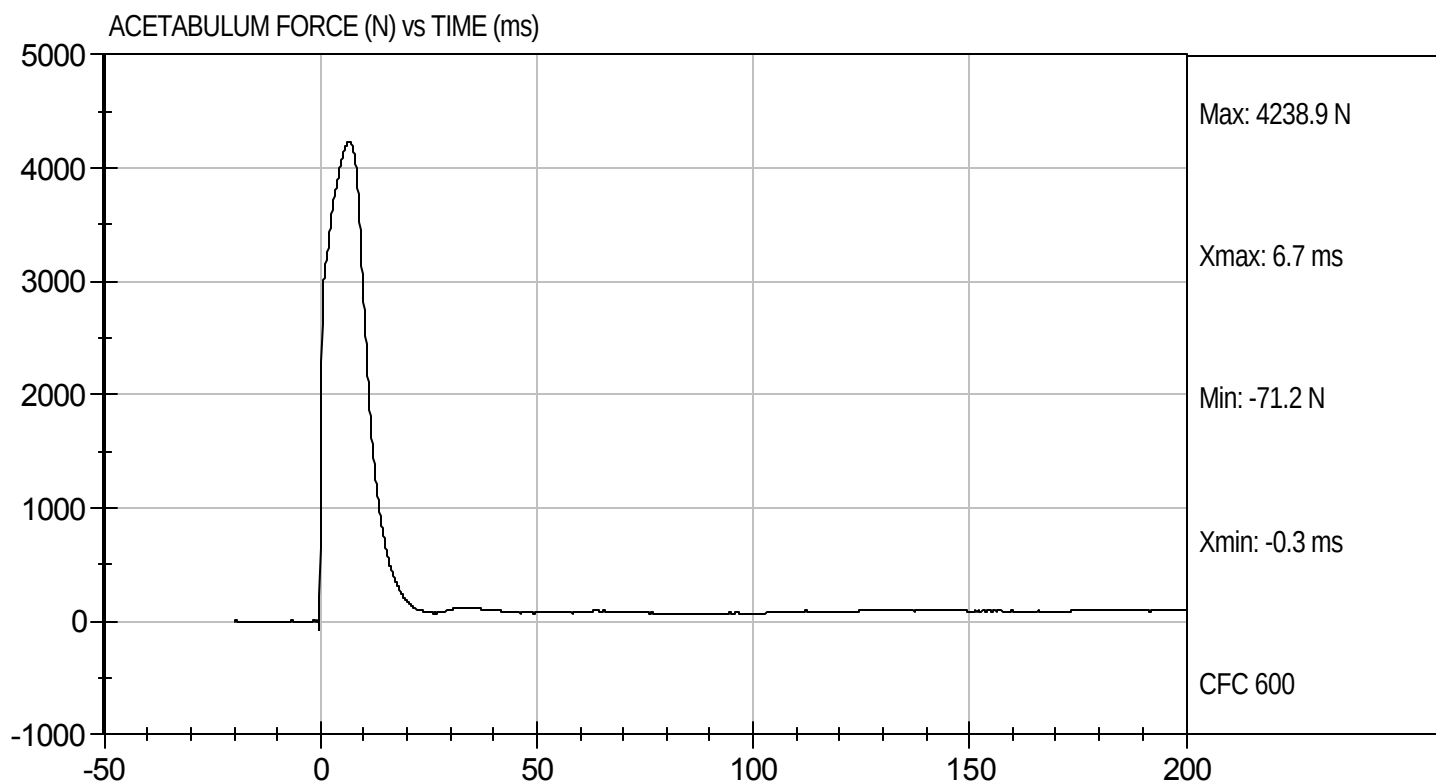
Test Date: 2/15/11
Velocity: 22.2 ft/s, 6.77 m/s





Test Desc: Pelvis Impact
Component ID: D11527

Test Date: 2/15/11
Velocity: 22.2 ft/s, 6.77 m/s



MGA RESEARCH CORPORATION
ILIAC IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D11528

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	20	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Peak Impactor Acceleration	G's	36 to 45	38	Pass
Pelvis Y Acceleration	G's	28 to 39	32	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4738	Pass
Overall Test Results				Pass


Laboratory Technician

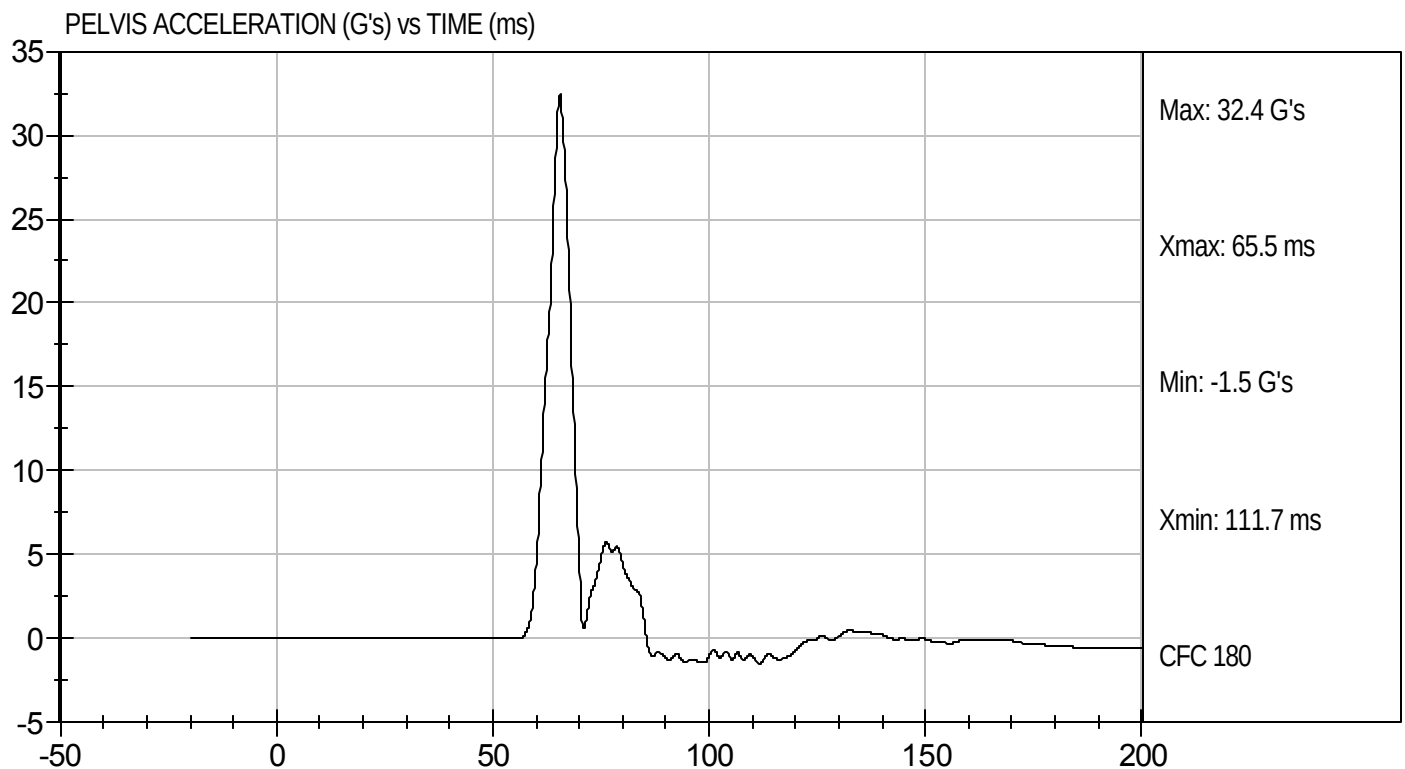
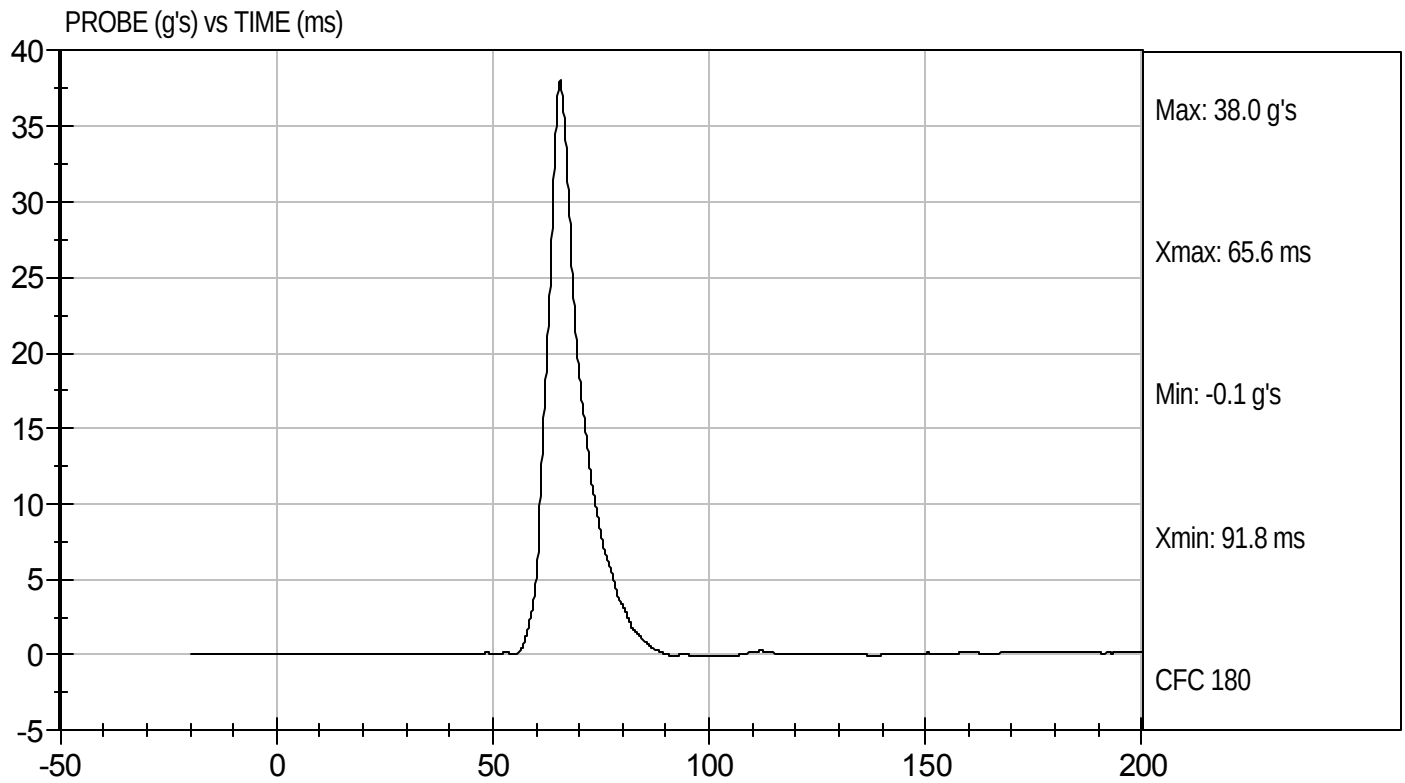
2/15/11
Test Date


Approved By



Test Desc: Iliac Impact
Component ID: D11528

Test Date: 2/15/11
Velocity: 14.36 ft/s, 4.38 m/s





Test Desc: Iliac Impact
Component ID: D11528

Test Date: 2/15/11
Velocity: 14.36 ft/s, 4.38 m/s

