

REPORT NUMBER: SPNCAP-MGA-2012-023

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

**GENERAL MOTORS LLC
2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV
NHTSA No.: MC0105**

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



Test Date: November 7, 2011

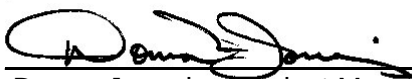
Final Report Date: November 10, 2011

FINAL REPORT

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

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Approved by: 
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Approval Date: November 10, 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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16. Abstract A 32.2 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP 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 November 7, 2011. The impact velocity was 31.9 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21.7°C. The test vehicle post-test maximum crush was 432 mm at level 3. 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>305</td> </tr> <tr> <td style="text-align: left;">Resultant Lower Spine Acceleration</td> <td>Gs</td> <td>82</td> <td>56</td> </tr> <tr> <td style="text-align: left;">Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>3661</td> </tr> <tr> <td style="text-align: left;">Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38*</td> <td>25</td> </tr> <tr> <td style="text-align: left;">Maximum Abdomen Rib Deflection</td> <td>mm</td> <td>45*</td> <td>21</td> </tr> </tbody> </table> * Proposed IARV The 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	305	Resultant Lower Spine Acceleration	Gs	82	56	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3661	Maximum Thoracic Rib Deflection	mm	38*	25	Maximum Abdomen Rib Deflection	mm	45*	21
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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 Administration Technical Information Services Division, NPO-411 1200 New Jersey Ave, SE, Room E12-100 Washington, DC 20590 Email: tis@nhtsa.dot.gov FAX: 202-493-2833																												
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SECTION 1

TEST PURPOSE AND PROCEDURE

This side impact test is part of the MY 2012 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 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated August 2011.

SECTION 2 SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 31.9 km/h. The test was conducted by MGA Research Corporation in Burlington, Wisconsin, on November 7, 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 Side NCAP Pole Laboratory Test Procedure dated August 2011. Camera locations and other pertinent camera information are included in this report.

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

Primary and Redundant Head CG Triaxial Accelerometers
Chest Upper Rib, Middle Rib, and Lower Rib Y-Axis Displacement Potentiometers
Abdomen Upper Rib and Lower Rib Y-Axis Displacement Potentiometers
Lower Spine (T12) Triaxial Accelerometers
Acetabulum and Iliac Wing Y-Axis Load Cells

Appendix B contains the dummy response data. Dummy configuration and performance verification data can be found in Appendix C of this report. Appendix D contains the test equipment and instrumentation calibration data.

Injury readings for the SID-IIs dummy were recorded as follows:

Measurement Description	Driver ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	305
Resultant Lower Spine Acceleration	Gs	82	56
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3661
Maximum Thoracic Rib Deflection	mm	38*	25
Maximum Abdomen Rib Deflection	mm	45*	21

*Proposed IARV

Supplemental restraint information is given below:

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	Yes		
Knee Airbag	No			
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Abdomen/Pelvis 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:

- Left Floor Sill Y after 40 msec.

- Left Mid A-Post Y is questionable between 23-27 msec.

- Left Lower B-Post Y is questionable between 10-28 msec.

- Left Mid B-Post Y is questionable between 17-29 msec.

- Driver Seat Track Y is questionable between 45-47 msec.

- Floorpan @ Rear Axle Y is questionable between 77-79 msec.

- Load Cell Pole #7 FY is questionable.

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: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV NHTSA No. MC0105
 Test Program: NCAP Side Pole Impact Test Test Date: 11/07/2011

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	MC0105	Traction Control System (TCS)	Yes
Model Year	2012	Auto-Leveling System	No
Make	Chevrolet	Automatic Door Locks (ADL)	Yes
Model	Suburban	Power Window Auto-Reverse	No
Body Style	MPV	Other Optional Feature	N/A
VIN	1GNSCHE08CR128257	Driver Front Airbag	Yes
Body Color	Gold Mist Metallic	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	42 / 26	Driver Head/Torso Airbag	No
Engine Displacement (L)	5.3	Driver Torso Airbag	No
Type/No. Cylinders	8	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Longitudinal	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	No
Transmission Speeds	6	Rear Pass. Curtain Airbag	Yes
Overdrive	Yes	Rear Pass. Head/Torso Airbag	No
Final Drive	Rear	Rear Pass. Torso Airbag	No
Roof Rack	Yes	Rear Pass. Torso/Pelvis Airbag	No
Sunroof/T-Top	No	Rear Pass. Pelvis Airbag	No
Running Boards	Yes	Driver Seat Belt Pretensioner	Yes
Tilt Steering Wheel	Yes	Rear Pass. Seat Belt Pretensioner	No
Power Seats	Yes	Driver Load Limiter	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Pass. Load Limiter	No
All Wheel Drive (AWD)	No	Other Safety Restraint	N/A
Does owner's manual provide instruction to turn off automatic door locks?			No

DATA FROM CERTIFICATION LABEL

Manufactured By	General Motors LLC	GVWR (kg)	3266
Date of Manufacture	09/11	GAWR Front (kg)	1588
Vehicle Type	MPV	GAWR Rear (kg)	1905

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	3	3	3	9	
Capacity Weight (VCW) (kg)				671	(A)
DSC x 68.04 kg				612	(B)
Rated Cargo and Luggage Weight (RCLW)				59	(A-B)

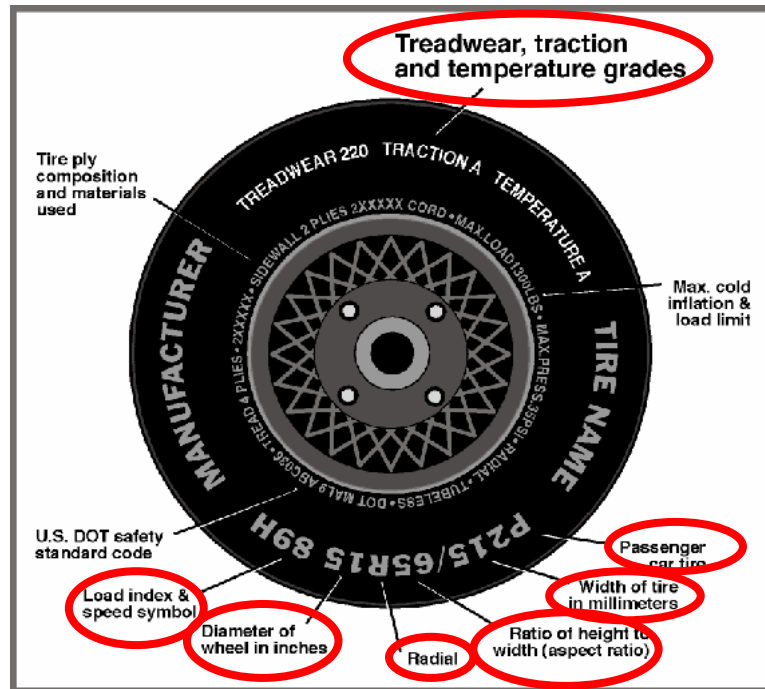
VEHICLE SEAT TYPE

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

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

Test Vehicle: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MC0105
 Test Date: 11/07/2011



TIRE PLACARD INFORMATION

Measured Parameter	Front	Rear
Recommended Cold Tire Pressure (kPa)	210	210
Recommended Tire Size	P265/70R17	P265/70R17

TIRE SIDEWALL INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	300	300
Tire Size on Vehicle	P265/70R17	P265/70R17
Tire Manufacturer	Goodyear	Goodyear
Tire Name	Wrangler HP	Wrangler HP
Tire Type	Passenger	Passenger
Tire Width	265	265
Aspect Ratio	70	70
Radial	Yes	Yes
Wheel Diameter	17	17
Load Index/Speed Symbol	113S	113S
Treadwear	340	340
Traction Grade	A	A
Temperature Grade	B	B
Tire Material	Rubber	Rubber

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

Test Vehicle: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV NHTSA No. MC0105
 Test Program: NCAP Side Pole Impact Test Test Date: 11/07/2011

TEST PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kpa	210	210	210	210
Tire Placard	kpa	210	210	210	210
Owner's Manual	kpa				
As Tested	kpa	210	210	210	210

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	649.6	654.5		668.6	698.1		670.0	703.5	
Right	kg	660.9	619.6		661.3	661.8		662.3	659.5	
Ratio	%	50.7	49.3		49.4	50.6		49.4	50.6	
Totals	kg	1310.5	1274.1	2584.6	1329.9	1359.9	2689.8	1332.3	1363.0	2695.3

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	2584.6	(A)
Actual Weight of 1 P572V ATD (SID-IIs) ATD Used	kg	52.2	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	59	(C)
Calculated Vehicle Target Weight (TVTW)	kg	2695.8	(A+B+C)

Does the measured As Tested Vehicle Weight lie within the required weight range (i.e. Calculated Test Vehicle Target Weight – 4.5 kg to 9 kg)? **YES**

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Weight of Ballast, if any	0.0
Rear carpet, right taillight, right side mirror, engine splash guard, right side floor mats, storage compartment door in trunk.	10.9

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	deg	-0.7	-0.6	-0.5	Yes
Front Pass. Sill Angle (front-to-rear)*	deg	-0.9	-0.8	-0.8	Yes
Front Bumper Angle (left-to-right)**	deg	-0.5	-0.2	-0.1	Yes
Rear Bumper Angle (left-to-right)**	deg	0.0	-0.1	-0.1	Yes
Vehicle CG (Aft of Front Axle)	mm	1632	1673	1674	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	8	14	16	

*ND=Nose Down (-), NU=Nose Up (+) ** LD=Left Down (-), LU=Left Up (+)

*** The "As Tested" vehicle attitude measurements must be equal to or between the "As Delivered" and "Fully Loaded" vehicle attitude measurements.

DATA SHEET NO. 2
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA

Test Vehicle: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MC0105
 Test Date: 11/07/2011

SEAT POSITIONING

The driver's seat, front center seat (if applicable), and right front passenger's seat should be set to the forward-most, mid-height, mid-angle position. The struck-side rear passenger's seat, rear center seat, and non-struck side rear passenger's seats should be set to the rear-most, lowest, mid-angle position.

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	16.5	4.7	10.6
Front Passenger Seat	Fixed	Fixed	Fixed
Front Center Seat	Fixed	Fixed	Fixed
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCR Height (mm)	SCR Height Position	SCR Height (mm)		
				Rear- most	Mid- Fore/Aft	Forward- Most
Driver Seat	10.6	20	Max	40	40	40
	10.6	20	Mid	20	20	20
	10.6	20	Min	0	0	0
Front Passenger Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Front Center Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed

DATA SHEET NO. 2 (CONTINUED)
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

Test Vehicle: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV
 Test Program: NCAP Side Pole Impact Test

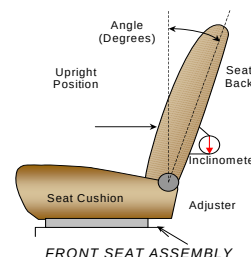
NHTSA No. MC0105
 Test Date: 11/07/2011

SEAT FORE/AFT POSITIONS

Seat	Total Fore/Aft Travel		Test Position from Forward-most Position	
	mm	Detents	mm	Detent
Driver Seat	240	NA	0	NA
Front Passenger Seat	210	22 (1 st as 1)	0	0 (1 st as 0)
Front Center Seat	Fixed	Fixed	Fixed	Fixed
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned such that the dummy's head is level. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back. The struck-side rear passenger seat back is positioned in accordance with the information provided by the manufacturer on Form No. 1 for the 5th percentile female dummy in a Side NCAP MDB test. The rear center and non-struck side rear passenger's seat back is set to match the struck-side rear seat back.



Seat	Total Seat Back Angle Range		Test Position from Vertical	
	Degrees	Detents	Degrees	Detent
Driver Seat w/Seated Dummy	49.8		1.2*	5 th (1 st as 0)
Front Passenger Seat	51.2		1.6*	
Front Center Seat	Fixed	Fixed	Fixed	Fixed
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

* zeroed on sill, measured at outboard headrest post guide.

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1.

	Total # of Positions	Placed in Position #
Driver Seat	5 (1 st as 1)	0 (uppermost as 0)

HEAD RESTRAINT ADJUSTMENT

Head restraints are adjusted to the lowest and most full forward in-use position.

	Total # of Positions	Placed in Position #
Driver Seat	4	Lowest

DATA SHEET NO. 2 (CONTINUED)
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

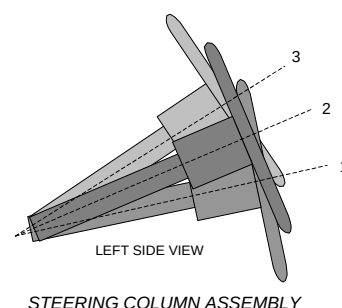
Test Vehicle: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV
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NHTSA No. MC0105
 Test Date: 11/07/2011

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel geometric locus is described when it moves through its full range of motion.

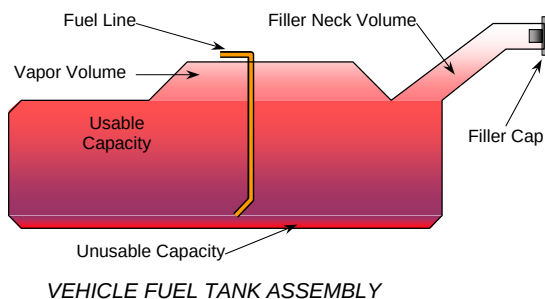
	Degrees	Fore/Aft Position (mm)
Lowermost, Position 1	79.1	
Geometric Center, Position 2	69.1	
Uppermost, Position 3	59.1	
Telescoping Steering Wheel Travel		
Test Position	69.1	



FUEL PUMP

Describe the fuel pump type, details about how it operates and the location of the fuel filler pipe.

The vehicle is equipped with an electric fuel pump. Pump will run when engine is running. Also, it will run briefly when ignition key is turned to the "on" position without starting the engine. The fuel pipe is on the left side.



FUEL TANK CAPACITY DATA

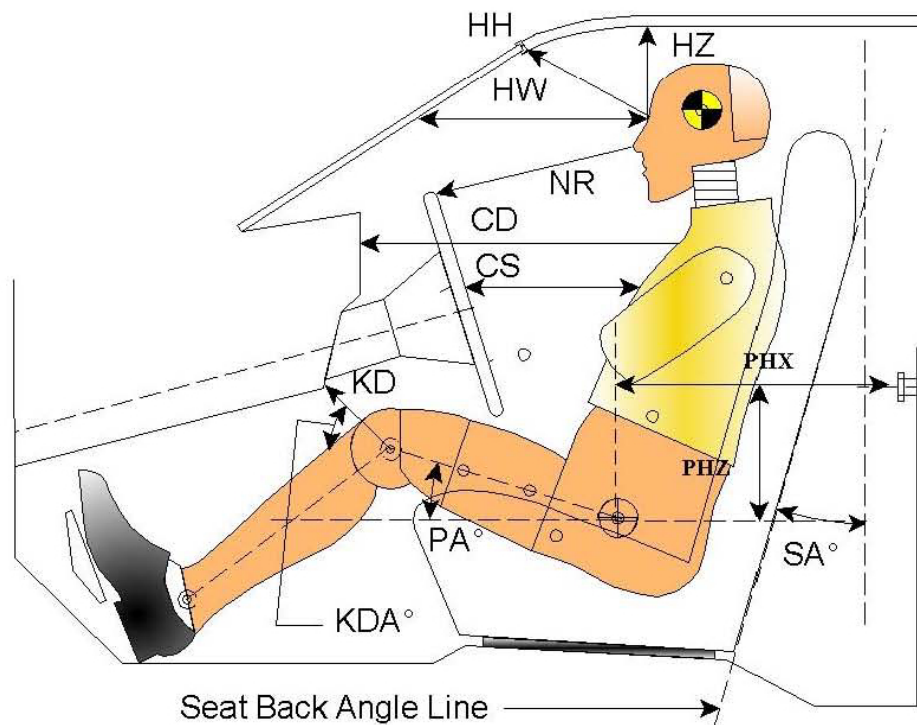
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	117.3
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	119.2
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	109.1
Actual Amount of Solvent Used	109.1
1/3 of Usable Capacity	39.1

Is the actual amount of solvent used in the test equal to 93% $\pm$ 1% of the Usable Capacity stated in Form No. 1? **YES**

.DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV
 Test Program: NCAP Side Pole Impact Test

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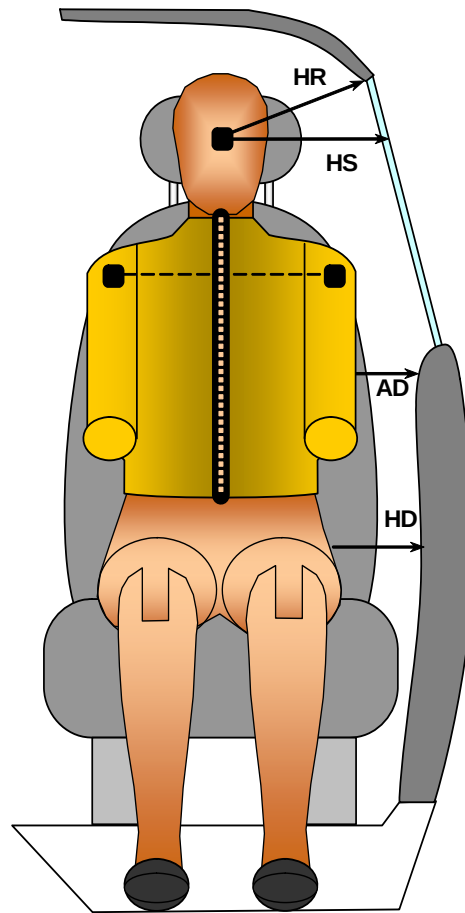


Code	Measurement Description	Driver S/N 296	
		Length (mm)	Angle (°)
HH	Head to Header	334	
HW	Head to Windshield	631	
HZ	Head to Roof Liner	259	
NR	Nose to Rim	222	
CD	Chest to Dashboard	396	
CS	Chest to Steering Wheel	174	
KDL/KDAL°	Left Knee to Dash	101	39.9
KDR/KDAR°	Right Knee to Dash	93	27.2
PAX°	Pelvic Tilt Angle (X-Axis)		21.3
PAY°	Pelvic Tilt Angle (Y-Axis)		-0.8
PHX	Hip Point to Striker (X-Axis)	460	
PHZ	Hip Point to Striker (Z-Axis)	0	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. MC0105
Test Date: 11/07/2011



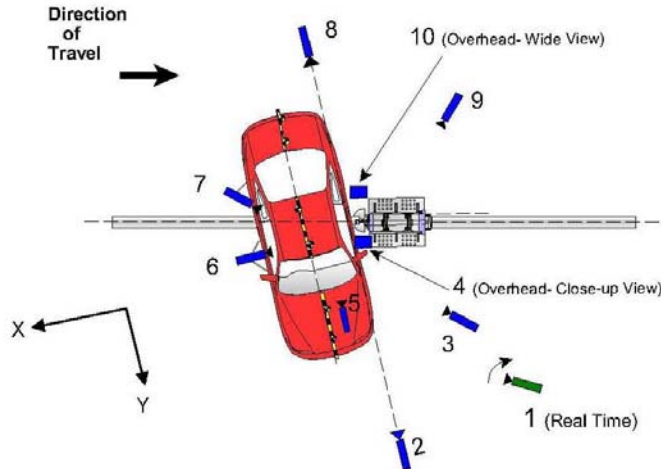
FRONT VIEW OF DUMMY

Code	Measurement Description	Driver S/N 296
		Length (mm)
HR	Head to Side Header	258
HS	Head to Side Window	381
AD	Arm to Door	180
HD	Hip Point to Door	169

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. MC0105
Test Date: 11/07/2011



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	-60	6120	-1810	24	1000
3	Impact Side 45° Forward	-2350	5140	-1970	20	1000
4	Overhead Closeup	90	0	-4420	50	1000
5	Onboard – Driver Front				16	*
6	Onboard – Driver Side				8	*
7	Onboard – Driver Rear				8	*
8	Rear Ground Level	-80	-7010	-1830	24	1000
9	Impact Side 45° Rearward	-4440	-3880	-1970	20	1000
10	Overhead Wide View	330	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.

Explain why camera(s) did not operate as intended: The on-board cameras lost power at impact. There is no high speed video coverage for camera nos. 5, 6, and 7.

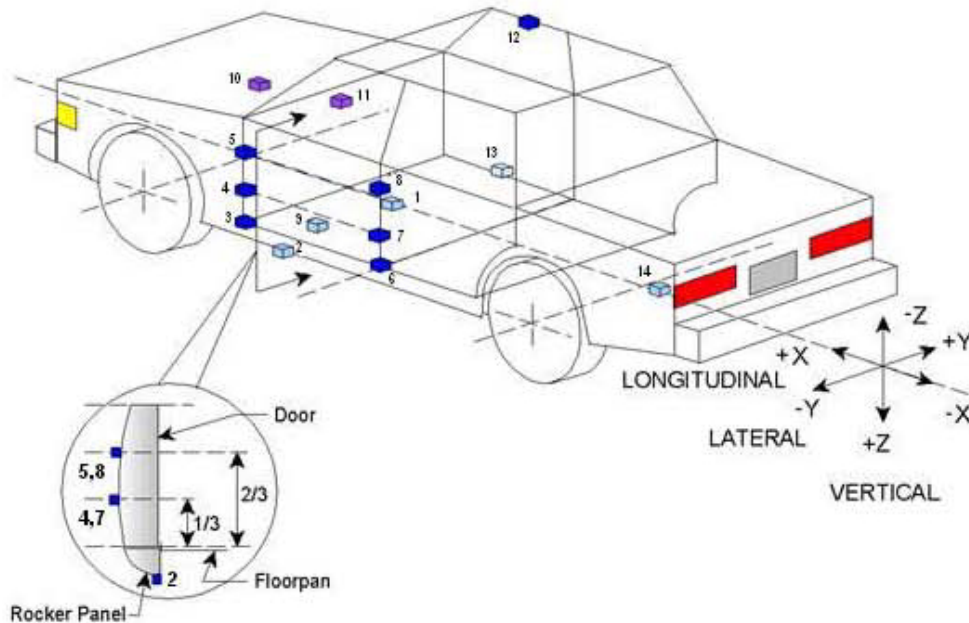
INSTRUMENTATION

INSTRUMENTATION	Number of Channels
Driver Dummy	16
Vehicle Structure	18
Pole Load Cells	8
TOTAL	42

DATA SHEET NO. 6
TEST VEHICLE ACCELEROMETER DATA

Test Vehicle: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MC0105
 Test Date: 11/07/2011



	Accelerometer Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2981	80	-574
2	Left Floor Sill	3442	-820	-399
3	A Pillar Sill	3974	-820	-400
4	A Pillar Low	4042	-830	-712
5	A Pillar Mid	4092	-918	-1006
6	B Pillar Sill	2869	-820	-406
7	B Pillar Low	2831	-812	-754
8	B Pillar Mid	2827	-829	-1044
9	Driver Seat Track	3266	-629	-653
10	Engine Top	4699	35	-1139
11	Firewall	4451	24	-1207
12	Right Roof	2866	549	-1836
13	Right Floor Sill	3509	820	-400
14	Rear Floorpan	1061	0	-812

Reference:

X – Test Vehicle Rear Bumper (+forward)
 Y – Test Vehicle Centerline (+ to right)
 Z – Ground Plane (+ down)

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. MC0105
Test Date: 11/07/2011



254 mm Diameter Rigid Pole

Load Cell Locations	
ID	Height From Impact Surface (mm)
1	182
2	470
3	698
4	986
5	1212
6	1641
7	1854
8	2053

**DATA SHEET NO. 8
POST-TEST OBSERVATIONS**

Test Vehicle: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV

NHTSA No. MC0105

Test Program: NCAP Side Pole Impact Test

Test Date: 11/07/2011

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Driver SID-IIs Dummy
Face	Front Airbag, Headrest, Curtain Airbag
Top of Head	Curtain Airbag, Front Airbag, Headrest
Left Side of Head	Curtain Airbag
Back of Head	Curtain Airbag, Headrest
Left Shoulder	Side Airbag
Upper Torso	Side Airbag, Seatback
Lower Torso	Side Airbag, Seatback
Left Hip	Side Airbag, Seat Cushion
Left Knee	Door Panel

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch/ Other Door
	Front	Rear	Front	Rear	
Remained Closed and Operational	No	No	Yes	Yes	Yes
Total Separation from Vehicle at Hinges or Latches	No	No	No	No	No
Latch or Hinge Systems Pulled Out of Their Anchorages	No	No	No	No	No
Disengaged from Latched Position	No	No	No	No	No
Latch Separated from Striker	No	No	No	No	No
Jammed Shut	Yes	Yes	No	No	No
If Door Opened at Striker, Record Width of Opening at Striker (mm)					

POST-TEST SEAT PERFORMANCE

Description	Struck Side		Non-Struck Side	
	Front	Rear	Front	Rear
Seat Movement Along Seat Track	No	No	No	No
Seat Disengagement from Floor Pan	No	No	No	No
Seat Back Movement from Initial Position	No	No	No	No
Seat Back Collapse	No	No	No	No

POST-TEST STRUCTURAL OBSERVATIONS

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

DATA SHEET NO. 8 (CONTINUED)
POST-TEST OBSERVATIONS

Test Vehicle: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV NHTSA No. MC0105
 Test Program: NCAP Side Pole Impact Test Test Date: 11/07/2011

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	Yes		
Knee Airbag	No			
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Abdomen/Pelvis Airbag	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes		No	

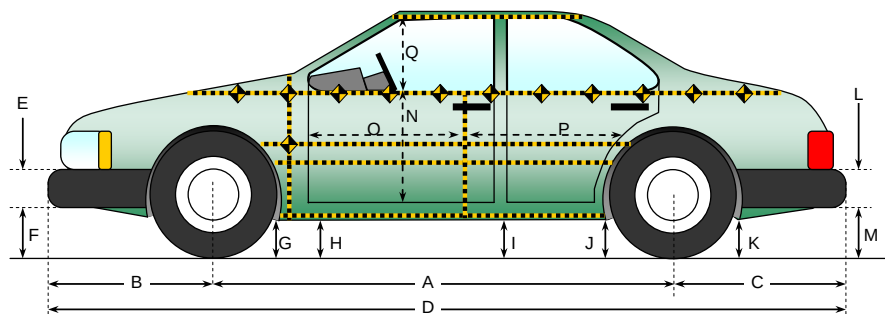
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT, AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1221
Actual Impact Point (Aft of Front Axle)	mm		1220
Horizontal Offset (+forward / -rearward)	mm	+/- 38 of Intended Impact Point	1
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	Deg	75 +/- 3	75
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	31.9
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.0

DATA SHEET NO. 9 **VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MC0105
 Test Date: 11/07/2011



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

LEFT SIDE VIEW

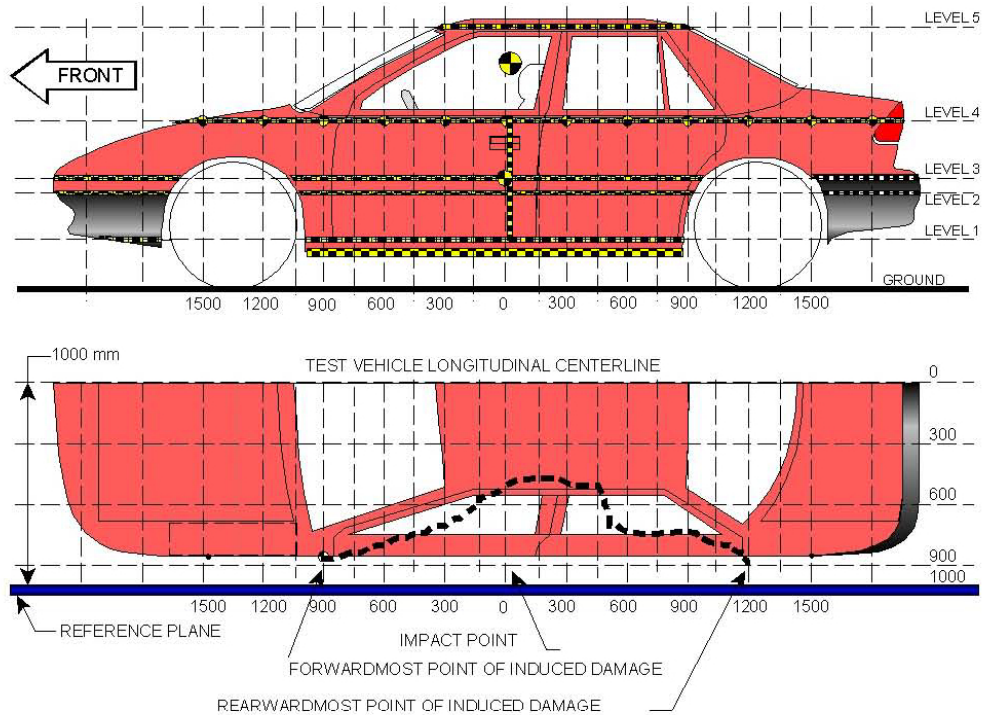
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	3310	3210	100
B	Front Axle to FSOV	1000	1001	-1
C	Rear Axle to RSOV	1345	1345	0
D	Total Vehicle Length at Centerline	5655	5556	99
E	Front Bumper Thickness	115	115	0
F	Front Bumper Bottom to Ground	208	242	-34
G	Sill Height at Front Wheel Well	272	268	4
H	Sill Height at Front Door Leading Edge	277	245	32
I	Sill Height at B Pillar	282	290	-8
J1	Sill Height at Rear Wheel Well	290	315	-25
J2	Pinch Weld Height at Rear Wheel Well	296	312	-16
K	Sill Height Aft of Rear Wheel Well	377	398	-21
L	Rear Bumper Thickness	165	165	0
M	Rear Bumper Bottom to Ground	418	445	-27
N	Sill Height to Bottom of Front Window Sill	868	830	38
O	Front Door Leading Edge to Impact CL	667	656	11
P	Rear Door Trailing Edge to Impact CL	1492	1560	-68
Q	Front Window Opening	525	504	21
R	Right Side Length	4804	4580	224
S	Left Side Length	4804	4830	-26
T	Vehicle Width at B-Pillars	1982	1891	91

DATA SHEET NO. 10 **VEHICLE EXTERIOR CRUSH MEASUREMENTS**

Test Vehicle: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MC0105
 Test Date: 11/07/2011



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

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground (mm)
1	Sill Top	450
2	Mid Door	808
3	Occupant Hip Point	885
4	Window Sill	1200
5	Window Top	1743

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

Test Vehicle: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV

NHTSA No. MC0105

Test Program: NCAP Side Pole Impact Test

Test Date: 11/07/2011

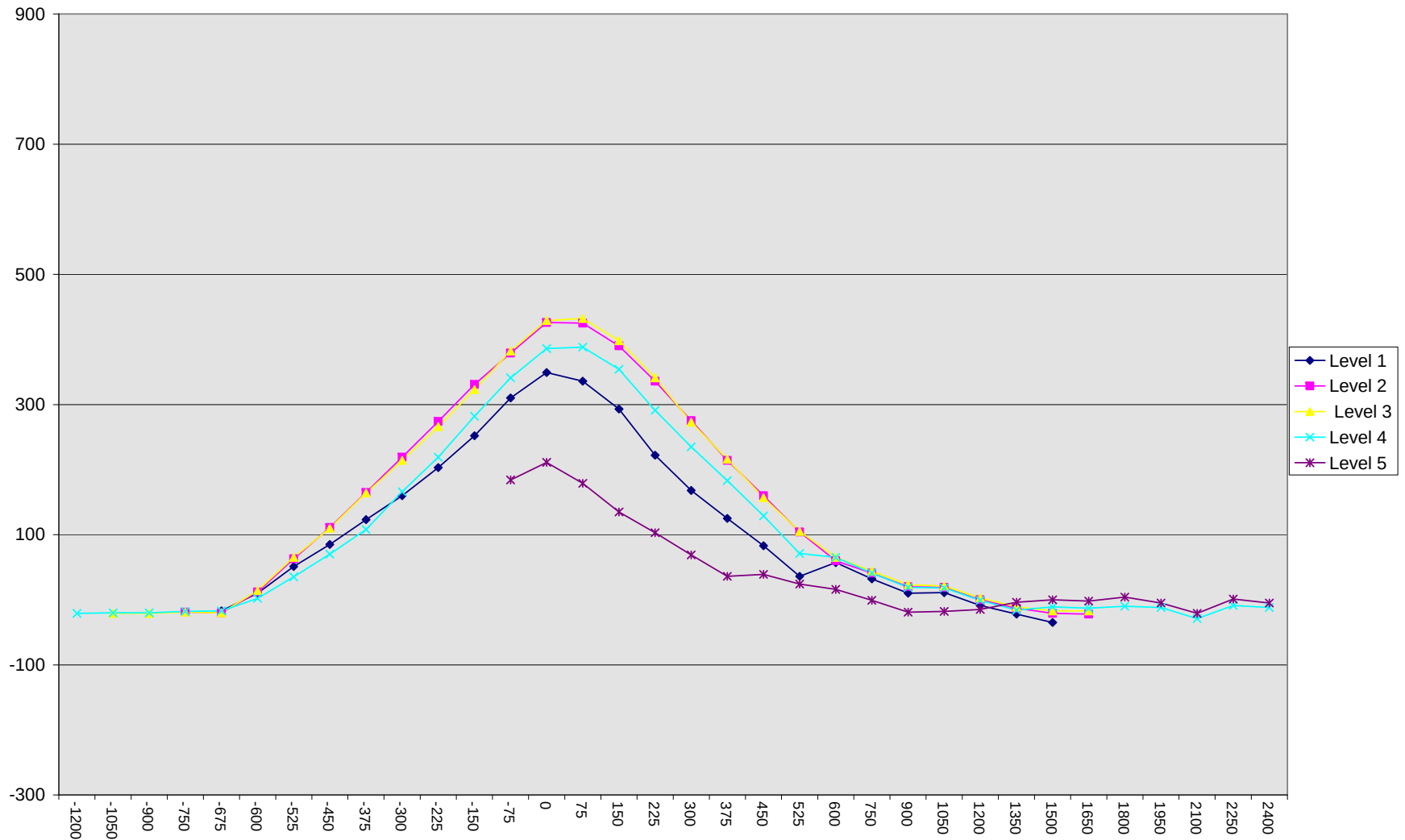
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1200				209					188					-21	
-1050			96	199				75	179				-21	-20	
-900			99	192				78	172				-21	-20	
-750		103	113	184			84	94	166			-19	-19	-18	
-675	163	116	122	181		146	96	102	164		-17	-20	-20	-17	
-600	177	120	123	178		187	132	137	180		10	12	14	2	
-525	178	119	122	177		229	182	187	212		51	63	65	35	
-450	177	118	122	175		262	229	232	245		85	111	110	70	
-375	177	117	119	174		300	282	283	282		123	165	164	108	
-300	176	115	118	181		336	334	332	347		160	219	214	166	
-225	175	114	117	180		378	388	383	399		203	274	266	219	
-150	175	114	116	178		427	445	439	460		252	331	323	282	
-75	175	113	115	176	410	485	492	497	517	594	310	379	382	341	184
0	176	113	114	174	404	525	539	543	560	615	349	426	429	386	211
75	176	112	114	172	402	512	537	546	560	581	336	425	432	388	179
150	176	112	113	168	402	469	502	511	522	537	293	390	398	354	135
225	177	112	112	165	398	399	448	453	456	501	222	336	341	291	103
300	177	111	112	163	396	345	386	385	398	465	168	275	273	235	69
375	178	111	112	161	396	303	325	328	344	432	125	214	216	183	36
450	177	111	112	160	395	260	271	269	289	434	83	160	157	129	39
525	177	111	112	159	394	213	215	217	230	418	36	104	105	71	24
600	176	111	112	157	392	233	171	177	222	408	57	60	65	65	16
750	175	110	111	157	390	207	151	155	198	389	32	41	44	41	-1
900	176	110	111	157	387	186	130	134	176	368	10	20	23	19	-19
1050	176	111	111	155	387	187	130	132	173	369	11	19	21	18	-18
1200	178	112	112	155	385	169	112	115	154	370	-9	0	3	-1	-15
1350	179	113	113	156	385	157	100	102	140	381	-22	-13	-11	-16	-4
1500	181	114	114	156	384	146	93	97	145	384	-35	-21	-17	-11	0
1650		98	99	156	383		76	82	143	381		-22	-17	-13	-2
1800				157	382				147	386				-10	4
1950				158	385				146	380				-12	-5
2100				159	387				130	366				-29	-21
2250				162	385				153	386				-9	1
2400				164	388				152	383				-12	-5

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 the test based on an estimated impact point. The final distance from 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: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. MC0105
Test Date: 11/07/2011



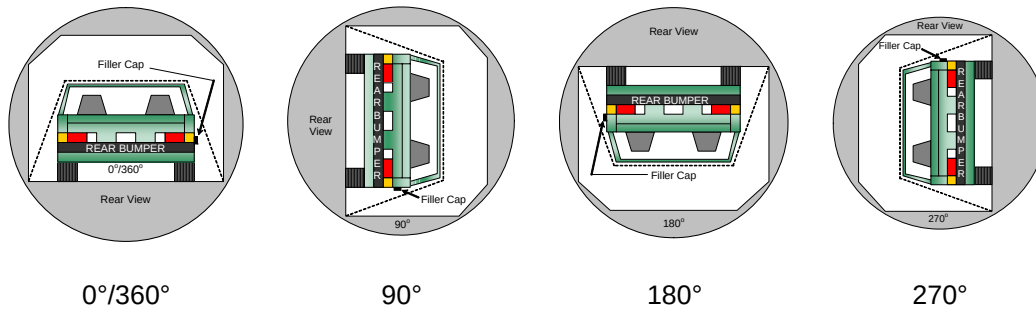
DATA SHEET NO. 11
FMVSS 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV NHTSA No. MC0105
 Test Program: NCAP Side Pole Impact Test Test Date: 11/07/2011

Test Time: 10:03 am Temperature: 21.7° 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°	162	300	462
90° to 180°	146	300	446
180° to 270°	132	300	432
270° to 360°	164	300	464

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

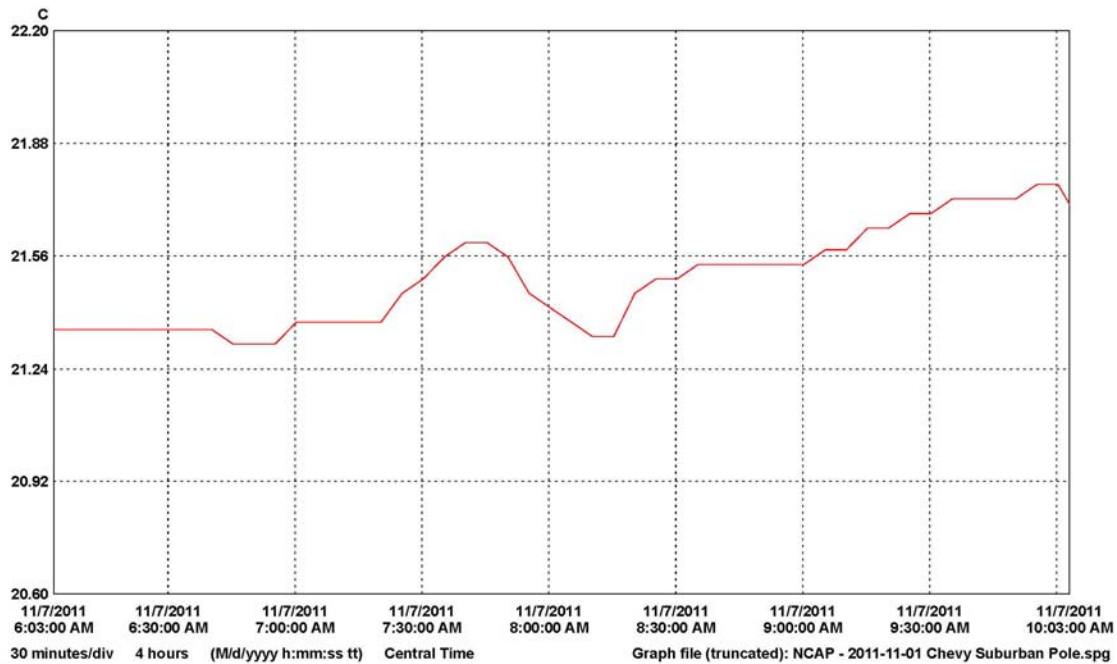
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 12 **DUMMY/VEHICLE TEMPERATURE STABILIZATION DATA**

Test Vehicle: 2012 Chevrolet Suburban 2WD 1/2 Ton LS SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MC0105
 Test Date: 11/07/2011



LN	Serial #	Description	CH	Value	Maximum	Average	Minimum	Units	CH description	Logger file
1	04042132	MGA logger	1		21.76	21.49	21.31	C	Temperature	04042132_MGA_logger.spl

APPENDIX A
PHOTOGRAPHS

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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 Area



Post-Test Overhead View of Test Area



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 Head and Chest



Post-Test Front Close-Up View of Dummy



Pre-Test Left Side View of Dummy Showing Belt and Chalking



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 Front View of Seat Back Prior to Dummy Positioning



Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint



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



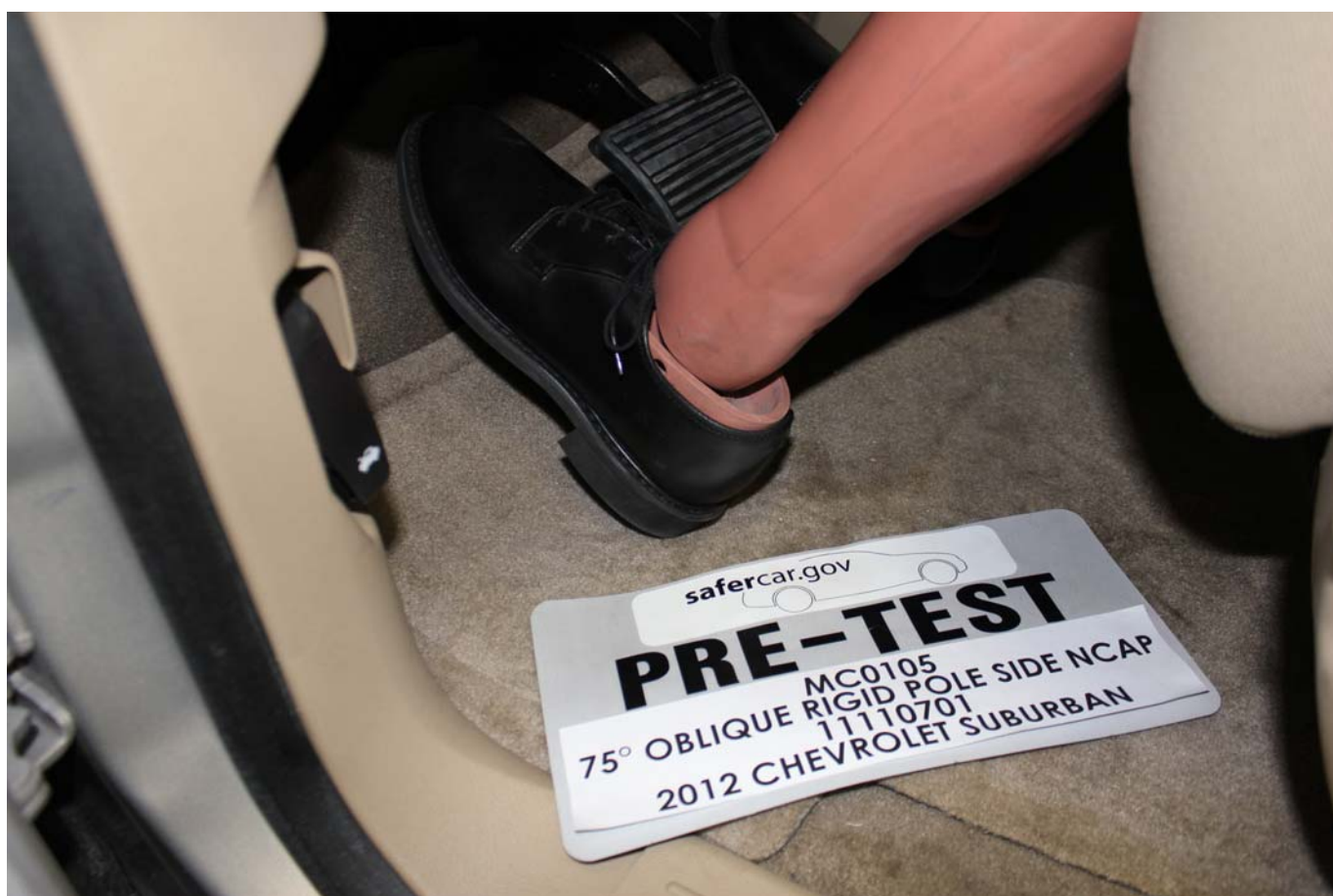
Pre-Test Overhead View of Dummy Thighs on Seat Pan



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



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



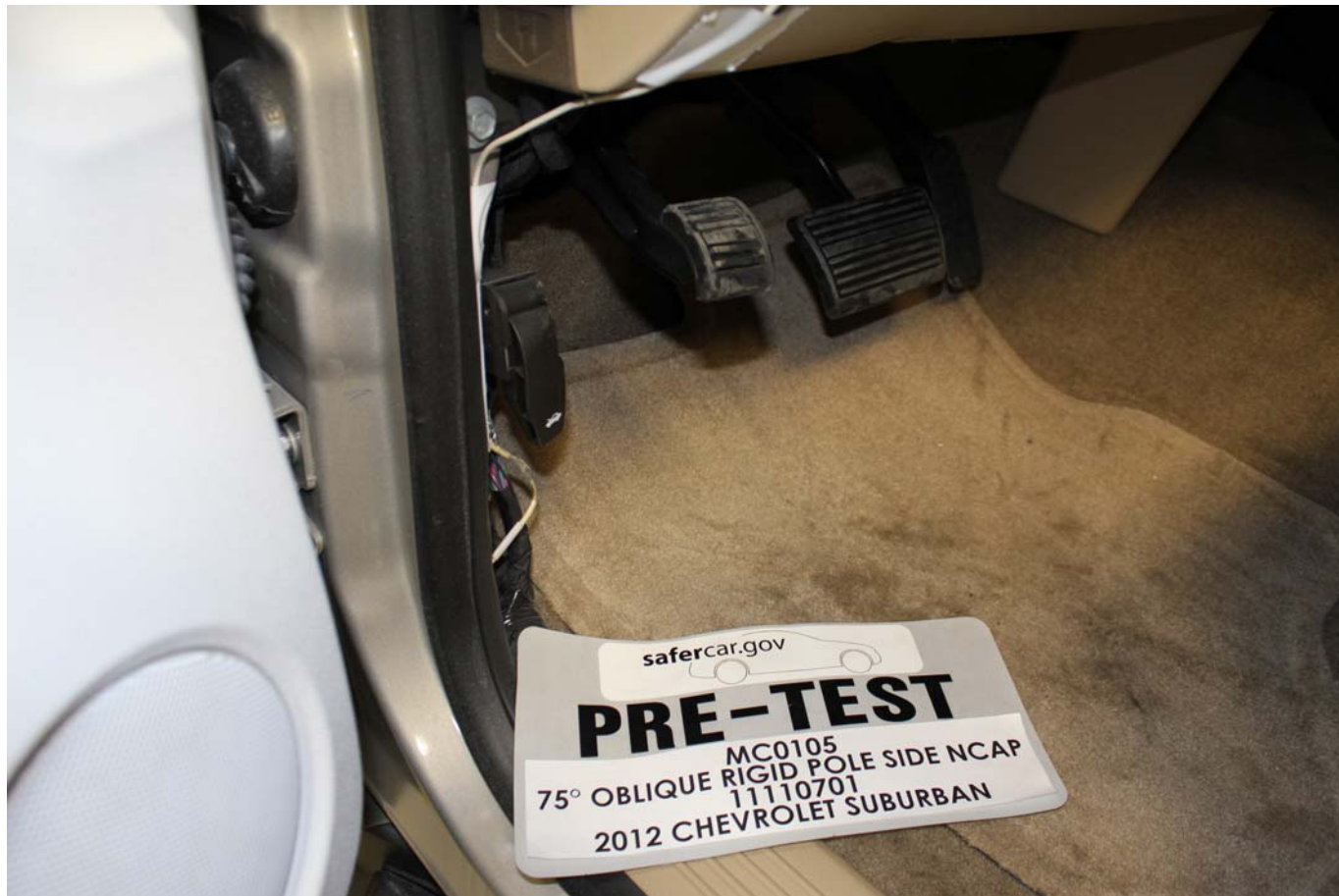
Pre-Test Placement of Dummy's Feet



Pre-Test View of Belt Anchorage for Dummy



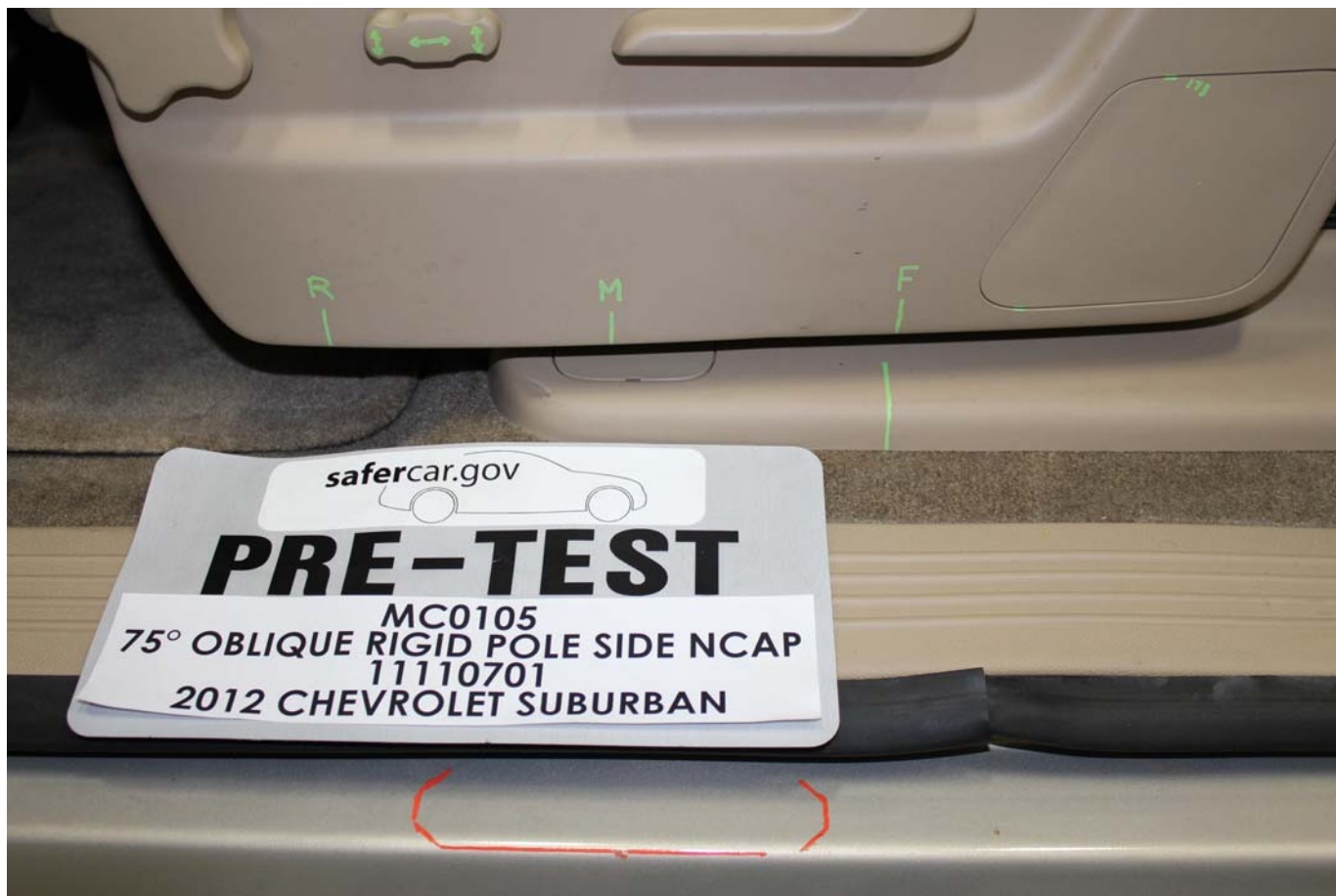
Pre-Test Left Side View of Steering Wheel



Pre-Test View of Disengaged Parking Brake



Pre-Test View of Parking Brake



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



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



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



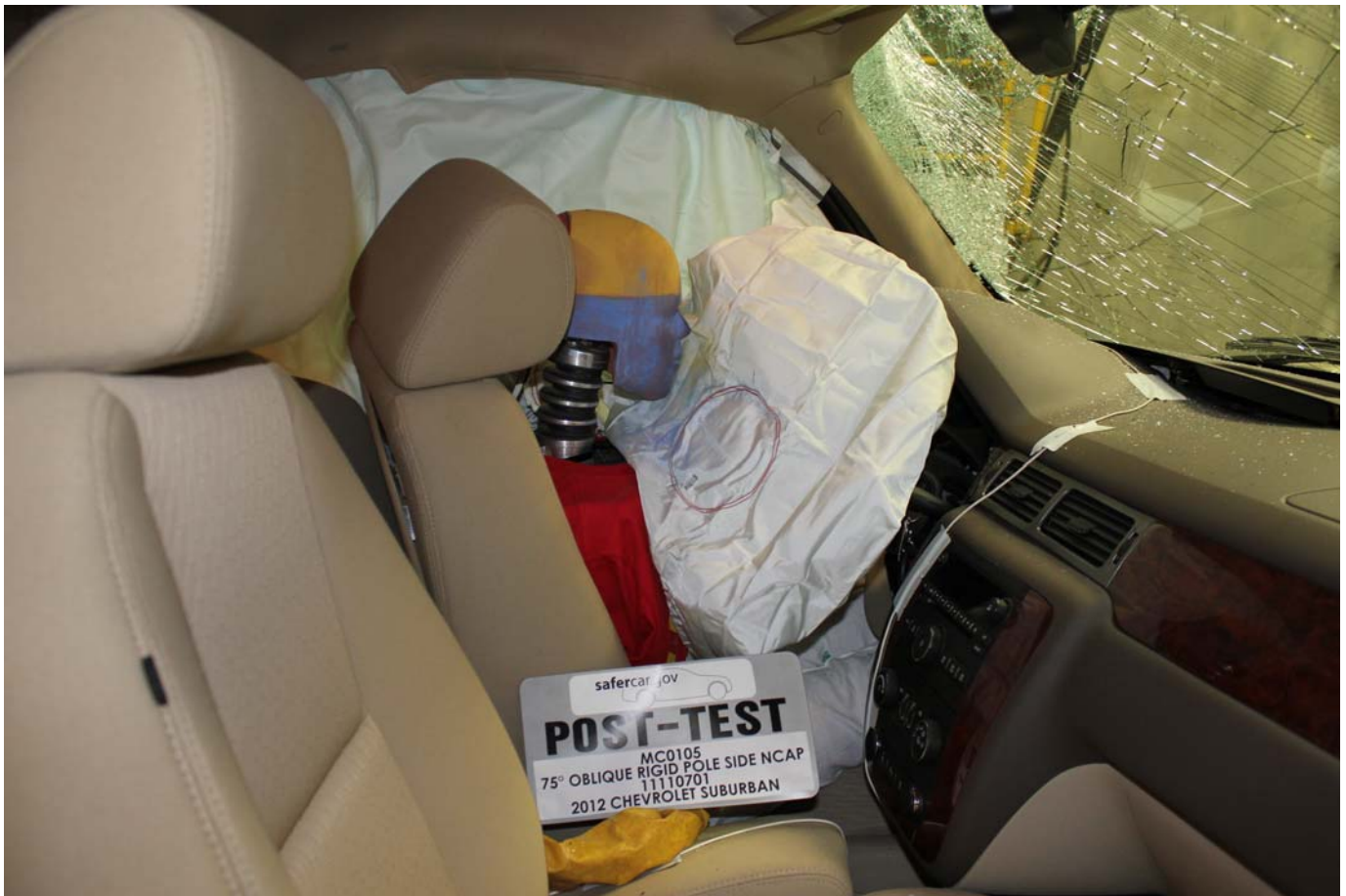
Pre-Test Dummy and Door Clearance View



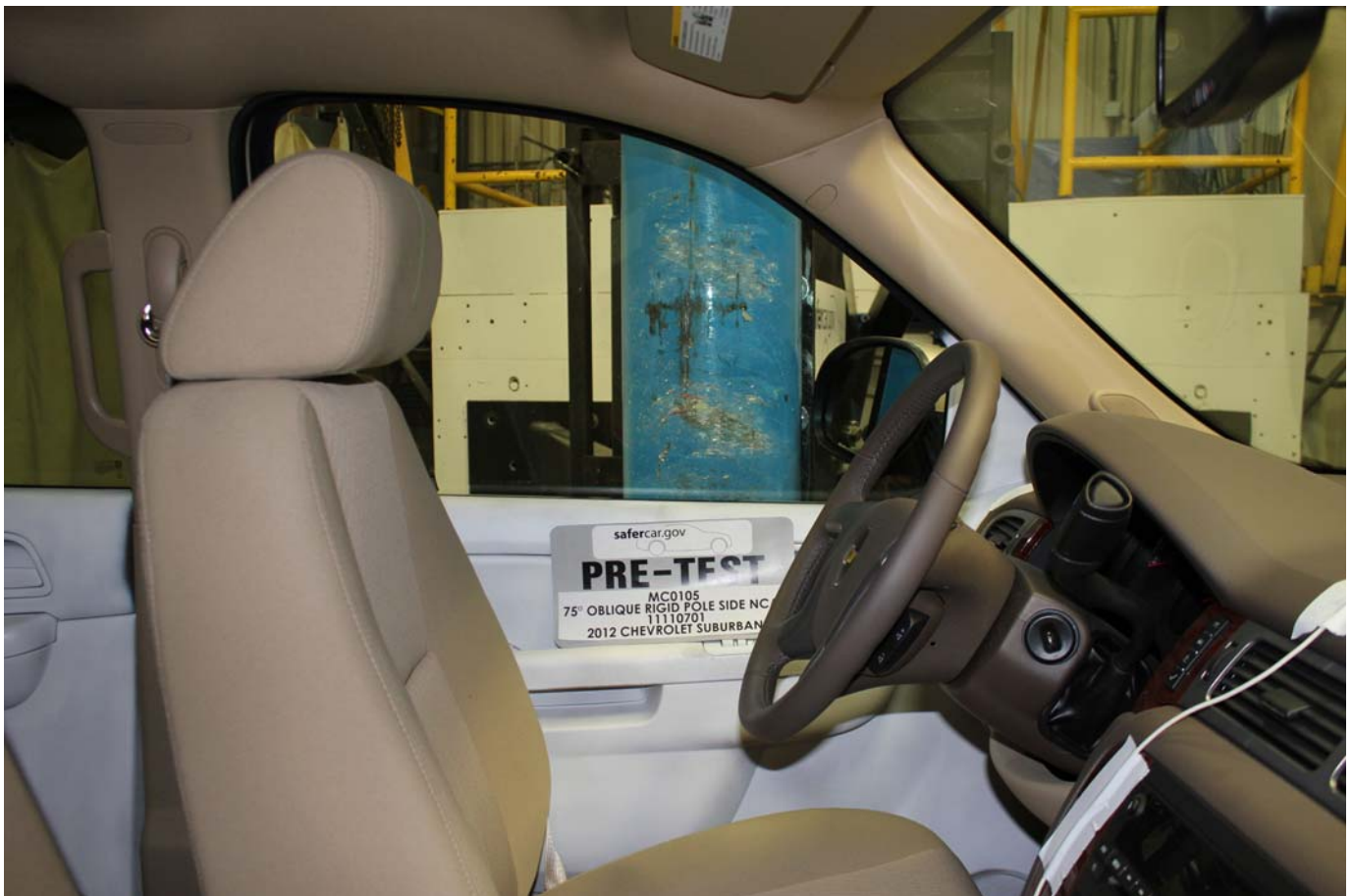
Post-Test Dummy and Door Clearance View



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



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



Pre-Test Inner Door Panel View



Post-Test Inner 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 Air Bag View



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



Post-Test Dummy Close-Up Torso Contact with Side Air Bag View



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



Post-Test Dummy Close-Up Pelvis Contact with Side Air Bag View



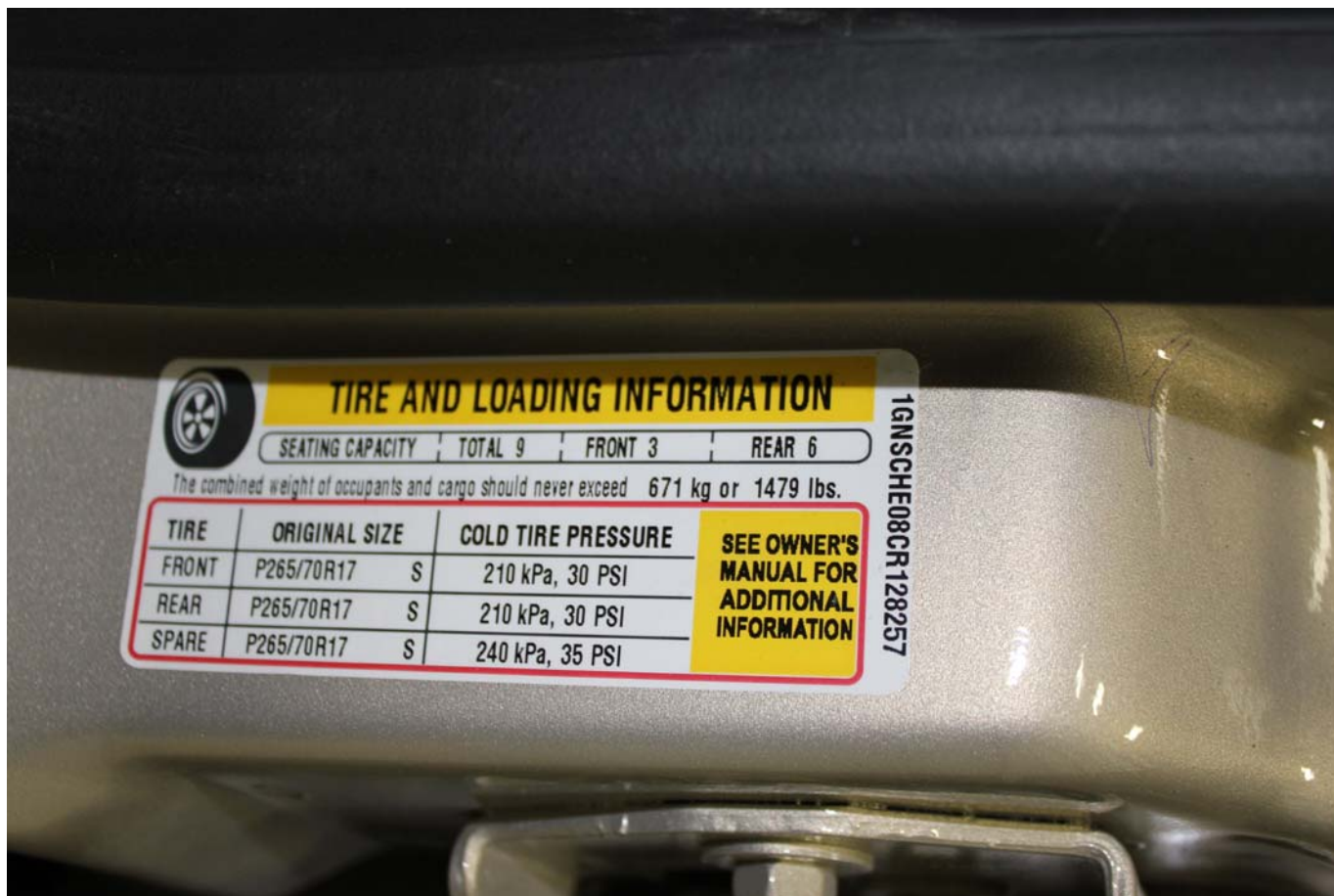
Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



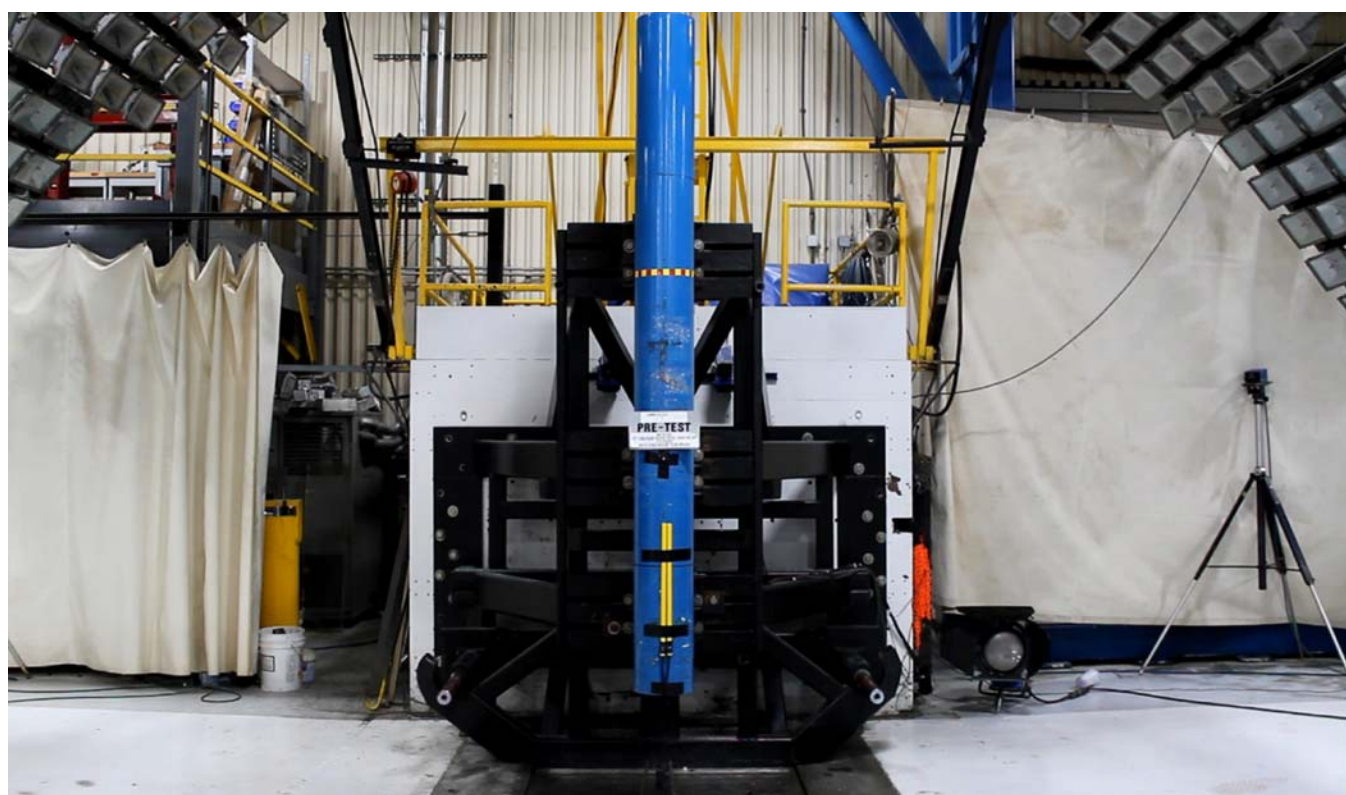
Post-Test View of Fuel Filler Cap or Fuel Filler Neck



Close-Up View of Vehicle's Certification Label



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



Pre-Test Pole Barrier Front View



Post-Test Pole Barrier Front View



Pre-Test Pole Barrier Side View



Post-Test Pole Barrier Side View

PHOTOGRAPH NOT APPLICABLE

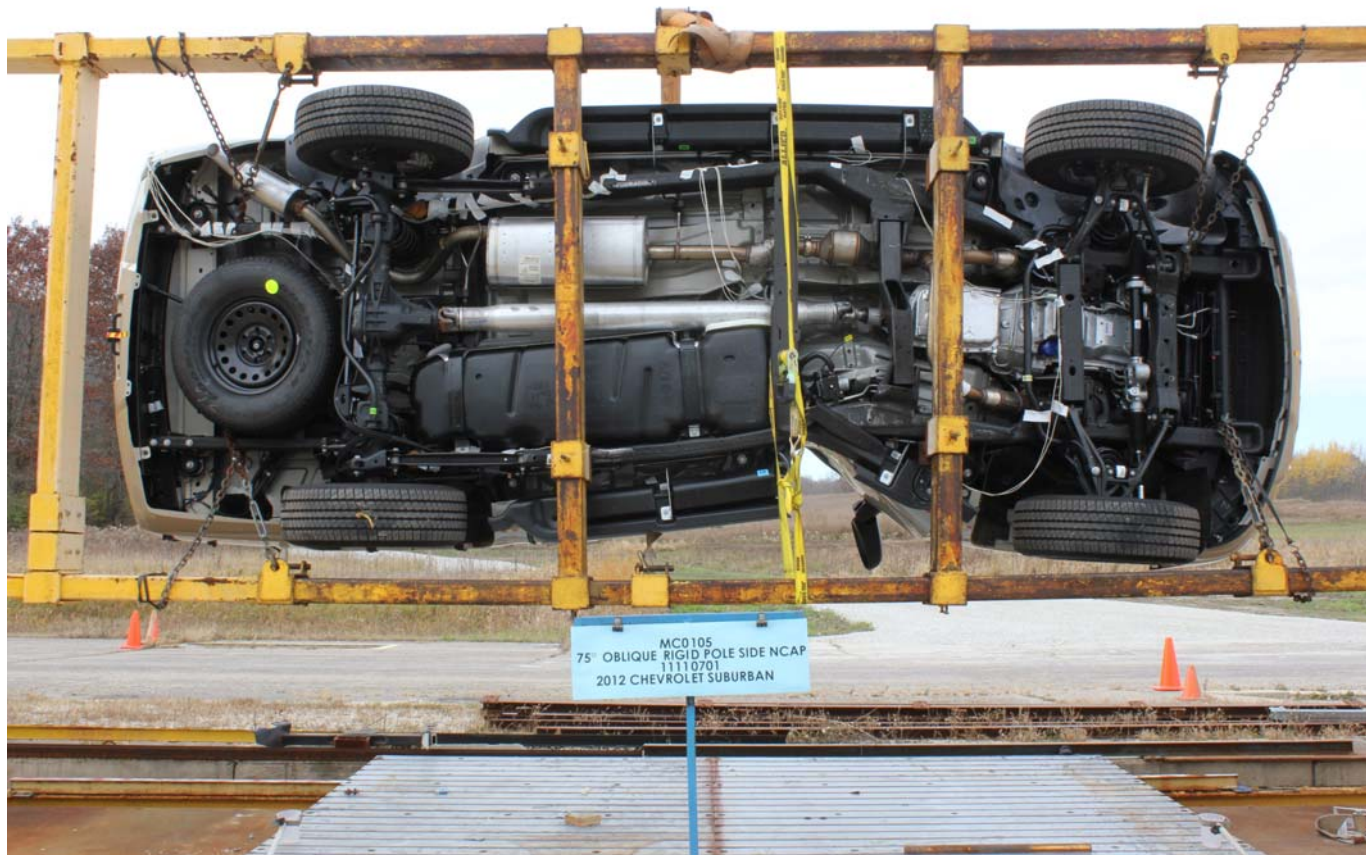
Pre-Test Ballast View



Post-Test Primary and Redundant Speed Trap Read-Out



FMVSS No. 301 Static Rollover 0 Degrees



FMVSS No. 301 Static Rollover 90 Degrees



FMVSS No. 301 Static Rollover 180 Degrees



FMVSS No. 301 Static Rollover 270 Degrees



FMVSS No. 301 Static Rollover 360 Degrees



Impact Event



CHEVROLET

2012 SUBURBAN 2WD 1/2 TON LS

**EXTERIOR: GOLD MIST METALLIC
INTERIOR: LIGHT CASHMERE/DARK CASHMERE**

**ENGINE: VORTEC 5.3L SFI V8
TRANSMISSION: 6 SPEED AUTOMATIC**

Visit us at www.chevy.com

STANDARD EQUIPMENT

THE FEATURES BELOW ARE INCLUDED AT NO EXTRA CHARGE IN THE STANDARD VEHICLE PRICE SHOWN.

- 5 YEAR / 100,000 MILE POWERTRAIN LIMITED WARRANTY SEE DEALER FOR DETAILS

MECHANICAL

- ENGINE, VORTEC 5.3L SFI V8 WITH ACTIVE FUEL MANAGEMENT & FLEX FUEL CAPABILITY
- TRANSMISSION, 6 SPD AUTOMATIC
- PREMIUM RIDE SUSPENSION
- TRAILER SWAY CONTROL
- BRAKE ASSIST, HILL START

SAFETY & SECURITY

- 6 MOD. ONSTAR DIRECTIONS & CONNECTIONS W/AUTOMATIC CRASH RESPONSE, TURN-BY-TURN NAVIGATION, AND ONSTAR REMOTE LINK (ASK DEALER ABOUT GEOGRAPHIC COVERAGE)
- ANTI-LOCK BRAKES, 4 WHEEL DISC

- STABILITRAK-STABILITY CONTROL SYSTEM W/ TRACTION CONTROL
- AIR BAGS, FRONTAL, DRIVER & FRONT PASSENGER
- SEAT MOUNTED SIDE IMPACT AIRBAGS, DRIVER AND RIGHT FRONT PASSENGER
- HEAD CURTAIN SIDE AIRBAGS W/ ROLL-OVER PROTECTION
- REMOTE KEYLESS ENTRY EXTENDED RANGE
- TIRE PRESSURE MONITOR (EXCL. SPARE TIRE)

INTERIOR

- SEATS, FRONT BUCKET, CLOTH
- PWR SEAT ADJUSTER, DRIVER
- PWR SEAT ADJUSTER, FRONT PASSENGER
- 2ND ROW BENCH SEAT
- 3-PASSENGER, 2ND ROW SEAT
- POWER DOOR LOCKS
- POWER WINDOWS

DRIVER EXPRESS DOWN

- CRUISE CONTROL
- LEATHER WRAP STEERING WHEEL
- STEERING WHEEL CONTROLS
- AIR CONDITIONING, MANUAL, TH ZONE CLIMATE CONTROL
- XM RADIO + SERVICE SUBSCRIPTION SOLD SEPARATELY BY XM/AT&T AFTER 3 MTHS
- AM/FM STEREO CD PLAYER WITH AUX INPUT JACK
- AUDIO CONTROLS, REAR SEAT
- BLUETOOTH FOR PHONE
- USB PORT

EXTERIOR

- POWER HEATED OUTSIDE MIRRORS
- WHEELS, 17" ALUMINUM
- LIFTGATE W/ LIFTGLASS
- TRAILERING EQUIPMENT
- BODY SIDE MOLDINGS, BODY COLOR
- RUNNING BOARDS, ASSIST STEPS
- LUGGAGE RACK SIDE RAILS

- LUGGAGE RACK CENTER RAILS
- SPARE TIRE, 17"

OPTIONS & PRICING

MANUFACTURER'S SUGGESTED RETAIL PRICE

STANDARD VEHICLE PRICE \$41,915.00

OPTIONS INSTALLED BY THE MANUFACTURER (MAY REPLACE STANDARD EQUIPMENT)

CONVENIENCE PACKAGE: 1,080.00

- INSIDE REARVIEW MIRROR W/ REAR CAMERA DISPLAY
- REAR PARKING ASSIST
- REMOTE VEHICLE START
- ADJUSTABLE PEDALS

HEAVY DUTY COOLING PACKAGE: 230.00

- ENGINE OIL COOLING SYSTEM
- TRANSMISSION OIL COOLER

LOCKING 20" DIFFERENTIAL: 265.00

SEATS, FRONT 40/20/40 BENCH: -250.00

CLOTH, DELETES:

- 6-WAY POWER FRONT PASS SEAT
- REAR AUDIO SOUND SYSTEM CYRILS
- 7,200 LB GVW RATING
- REAR AXLE 3.42 RATIO

TOTAL OPTIONS \$1,335.00

TOTAL VEHICLE & OPTIONS \$43,250.00

DESTINATION CHARGE 990.00

TOTAL VEHICLE PRICE* \$44,200.00

EPA Fuel Economy Estimates

GASOLINE CITY MPG

15

Expected range for most drivers
12 to 18 MPG

*Fuel economy when operating on E85 will yield different values than gasoline. See Fuel Economy Guide for more information.

**FLEXIBLE FUEL VEHICLE*
GASOLINE - ETHANOL (E85)**

Estimated Annual Fuel Cost \$3,263

based on 15,000 miles at \$3.70 per gallon of GASOLINE

Combined GASOLINE Fuel Economy

17

This Vehicle

GASOLINE HIGHWAY MPG

21

Expected range for most drivers
17 to 25 MPG

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

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 rating range 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

PARTS CONTENT INFORMATION

**FOR VEHICLES IN THIS CARLINE:
U.S./CANADIAN PARTS CONTENT: 60%
MAJOR SOURCES OF FOREIGN PARTS CONTENT: MEXICO 33%**

NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY, DISTRIBUTION, OR OTHER NON-PARTS COSTS.

**FOR THIS VEHICLE:
FINAL ASSEMBLY POINT:
ARLINGTON, TX U.S.A.
COUNTRY OF ORIGIN:
ENGINE: UNITED STATES
TRANSMISSION: UNITED STATES**

This label has been applied pursuant to Federal law. Do not remove prior to delivery to the consumer. *Includes Manufacturer's Recommended Tire Pressure. Dealer not include dealer installed options and accessories not listed above. Local taxes or license fees.

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ORDERING PARTS: SALES CODE E
SALES CODE: 0000 000000
ORDERING PARTS: SALES CODE E
SALES CODE: 0000 000000
VIN: 1GNSCCE00CR120257
DEALER TO WHOM DELIVERED
JIM GLOVER CHEVROLET
8130 E SKELLY DR
TULSA, OK 74119-3410



3A
1A29728456

Monroney Label

Head Restraints

WARNING

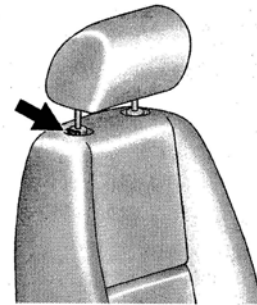
With head restraints that are not installed and adjusted properly, there is a greater chance that occupants will suffer a neck/spinal injury in a crash. Do not drive until the head restraints for all occupants are installed and adjusted properly.



Adjust the head restraint so that the top of the restraint is at the same height as the top of the occupant's head. This position reduces the chance of a neck injury in a crash.

Front Seats

The front seats have adjustable head restraints in the outboard seating positions.



The height of the head restraint can be adjusted. Pull the head restraint up to raise it. Try to move the head restraint to make sure that it is locked in place.

To lower the head restraint, press the button, located on the top of the seatback, and push the head restraint down. Try to move the head restraint after the button is released to make sure that it is locked in place.

The front seat outboard head restraints are not designed to be removed.

Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

APPENDIX B

VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS
Driver Dummy Instrumentation Plots

		<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 additional data for this test can be obtained from the Research and Development section of the NHTSA website. The website can be found at
www.NHTSA.dot.gov

Additional Driver Dummy Instrumentation Data

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)

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)

Vehicle Center of Gravity Acceleration (Y)

Vehicle Center of Gravity Acceleration (Z)

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 Hip 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)

Pole Instrumentation Data

Load Cell Pole Barrier #1 Force (Y)

Load Cell Pole Barrier #2 Force (Y)

Load Cell Pole Barrier #3 Force (Y)

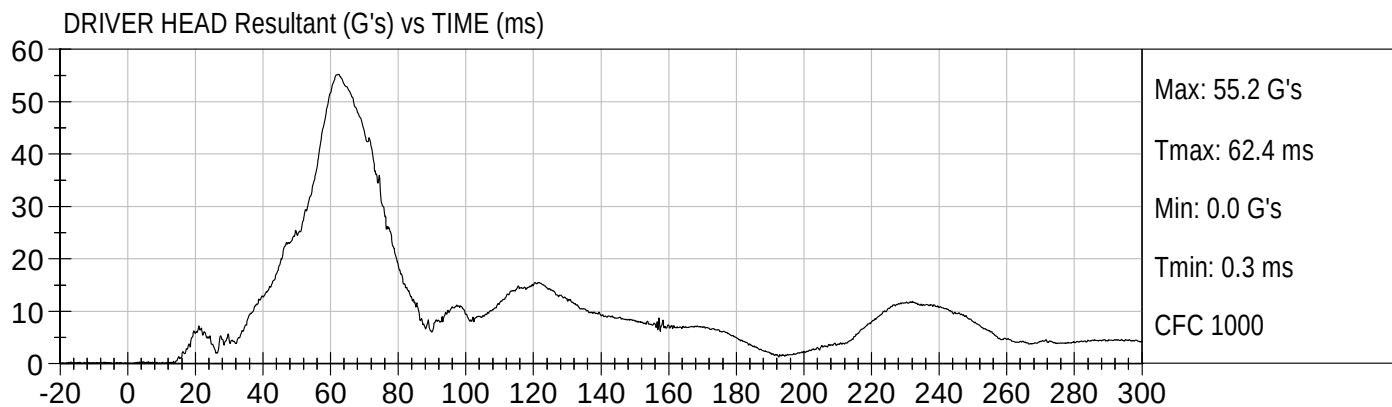
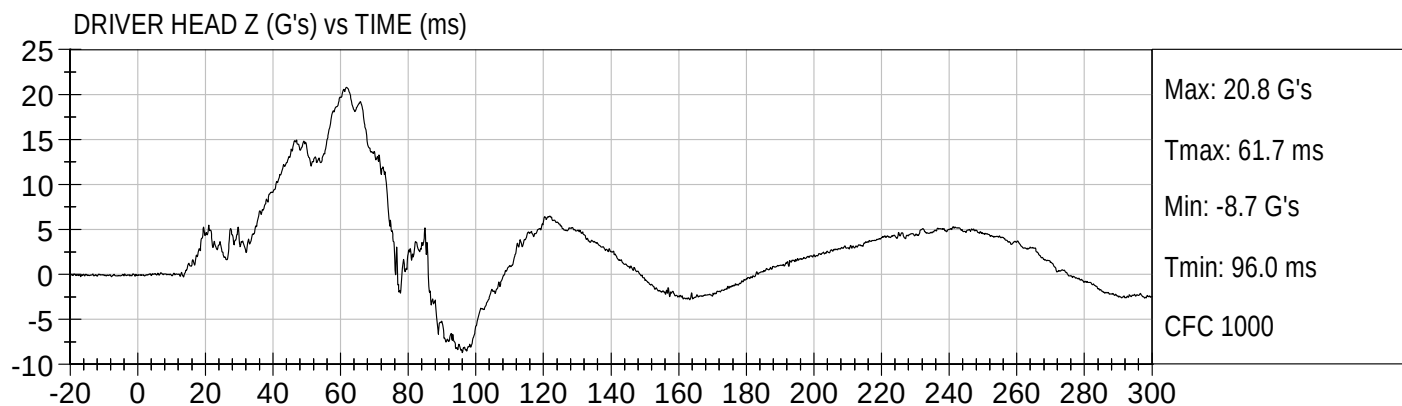
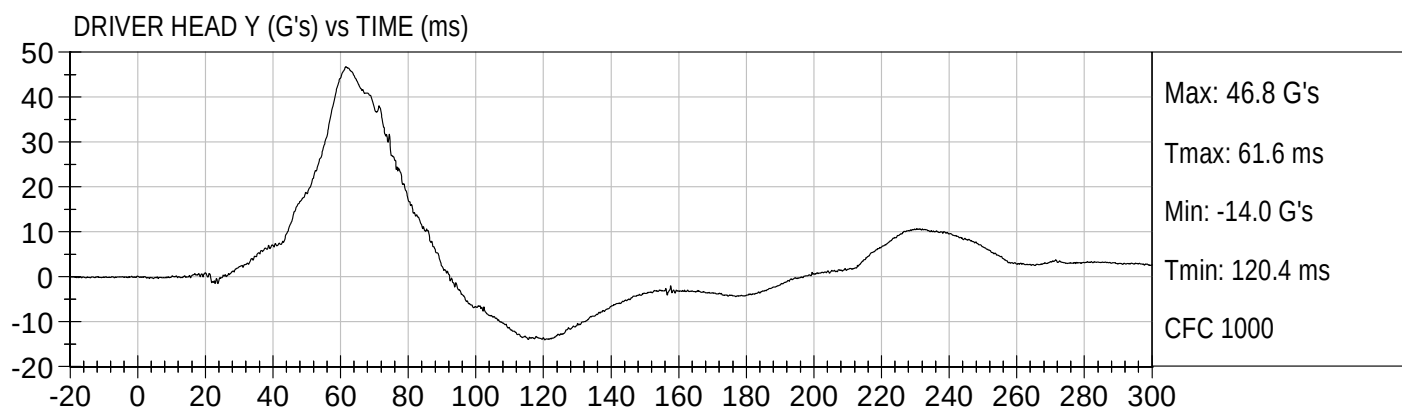
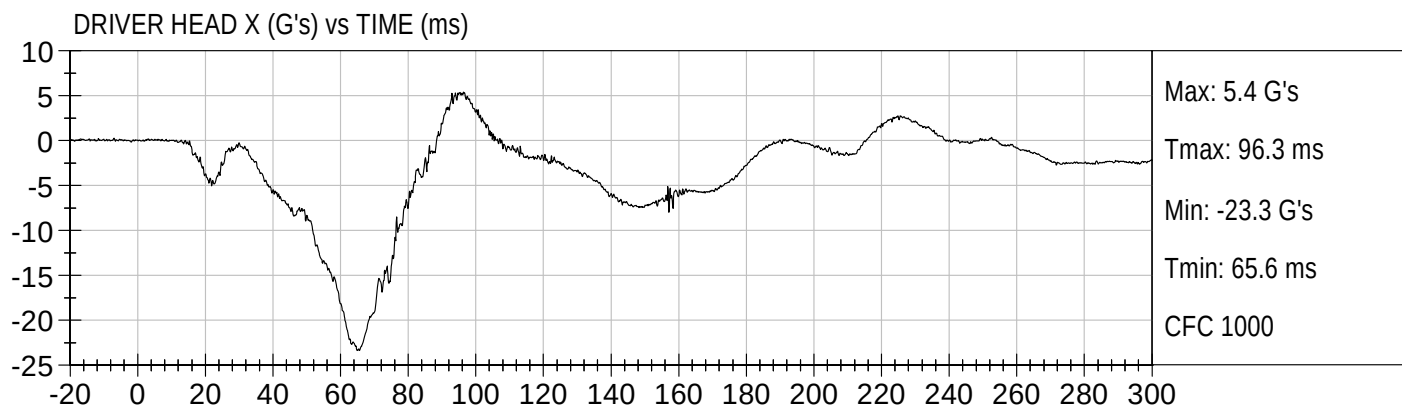
Load Cell Pole Barrier #4 Force (Y)

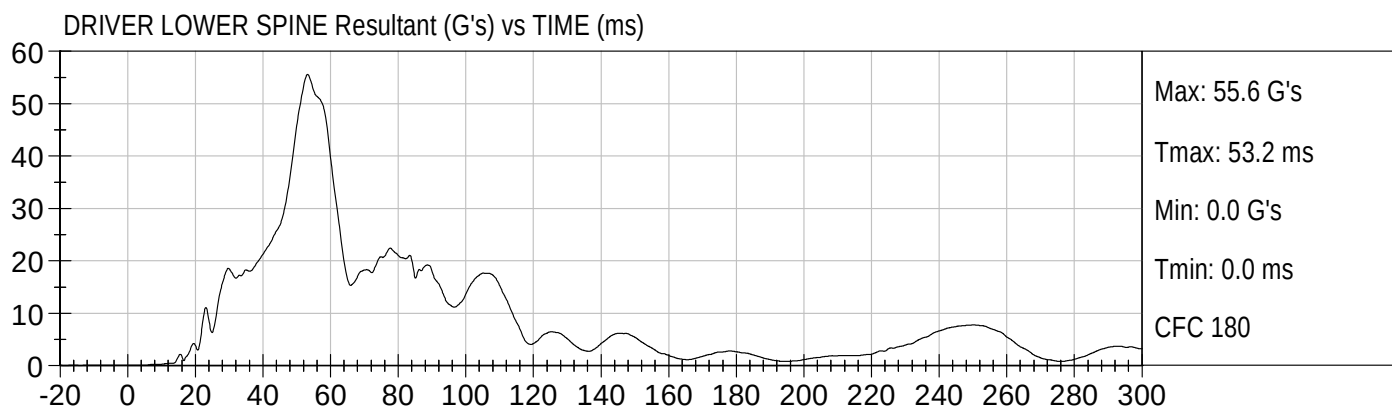
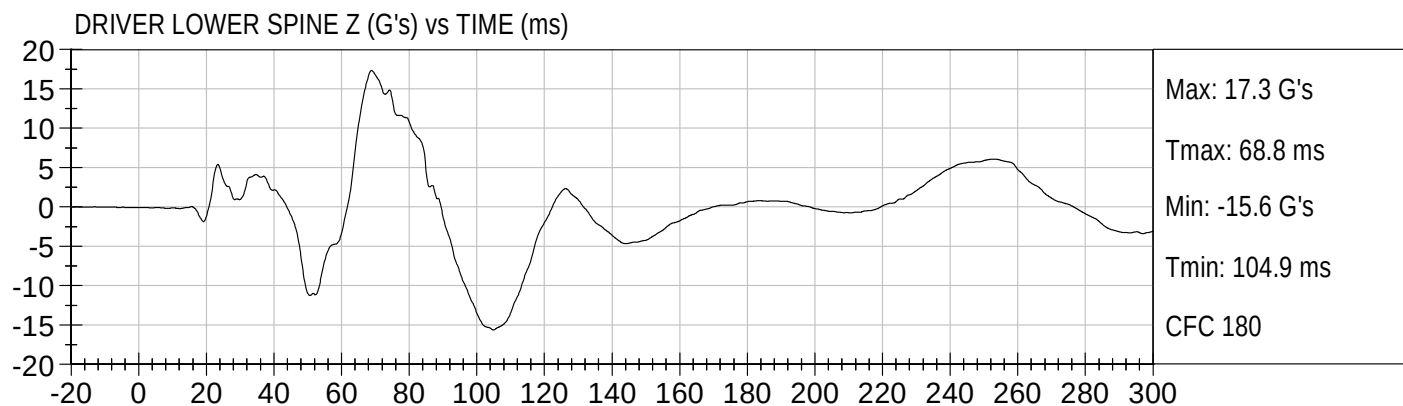
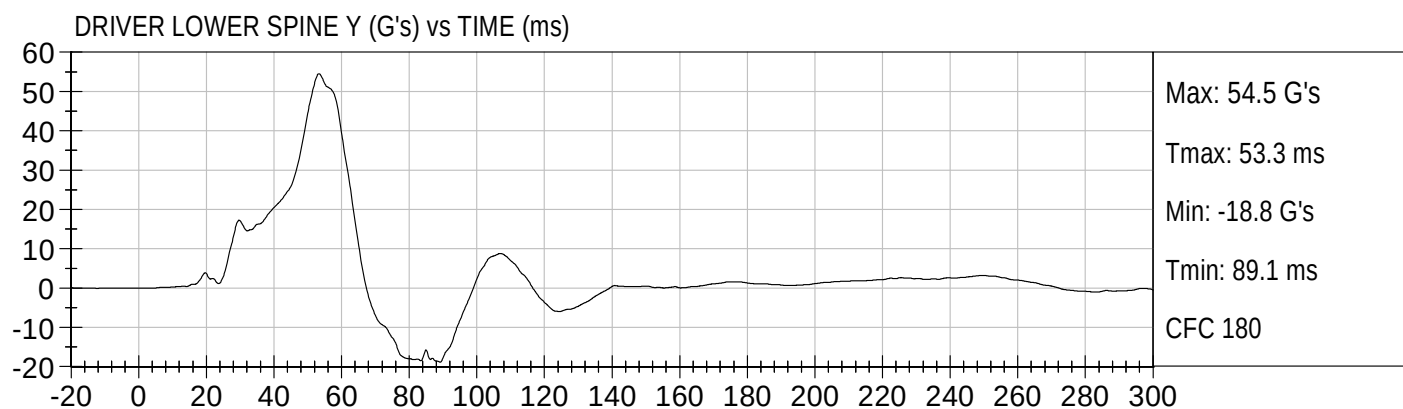
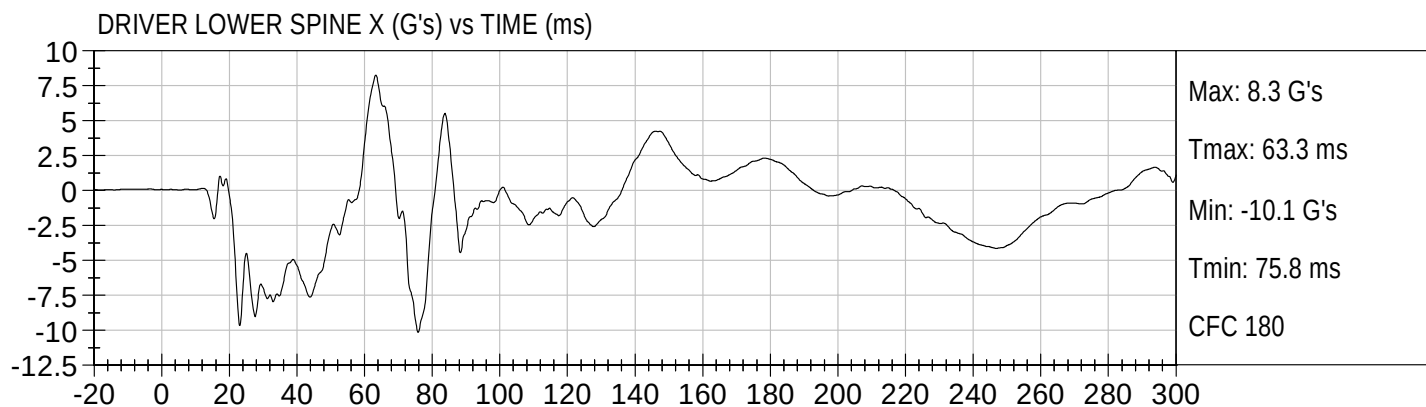
Load Cell Pole Barrier #5 Force (Y)

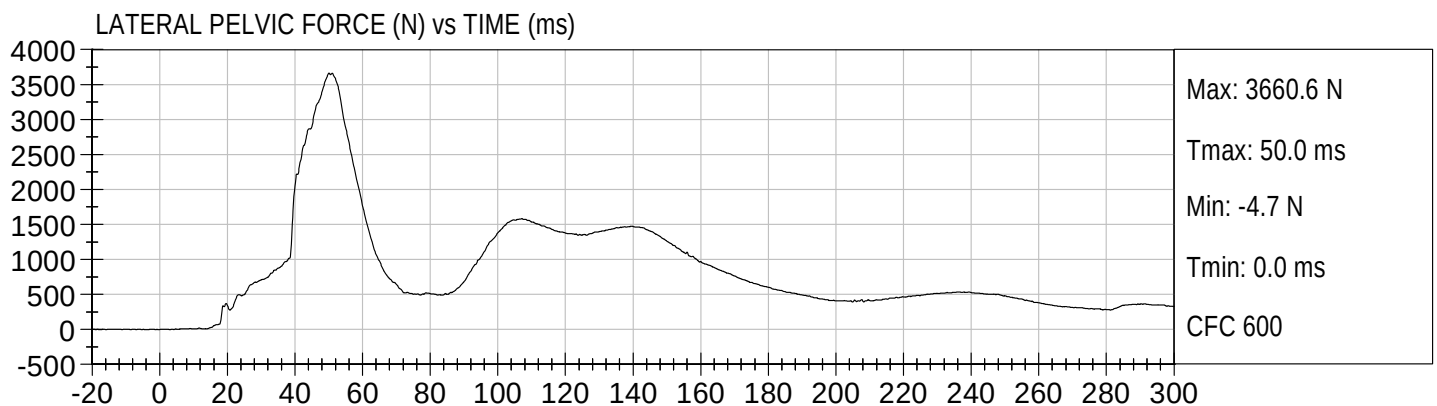
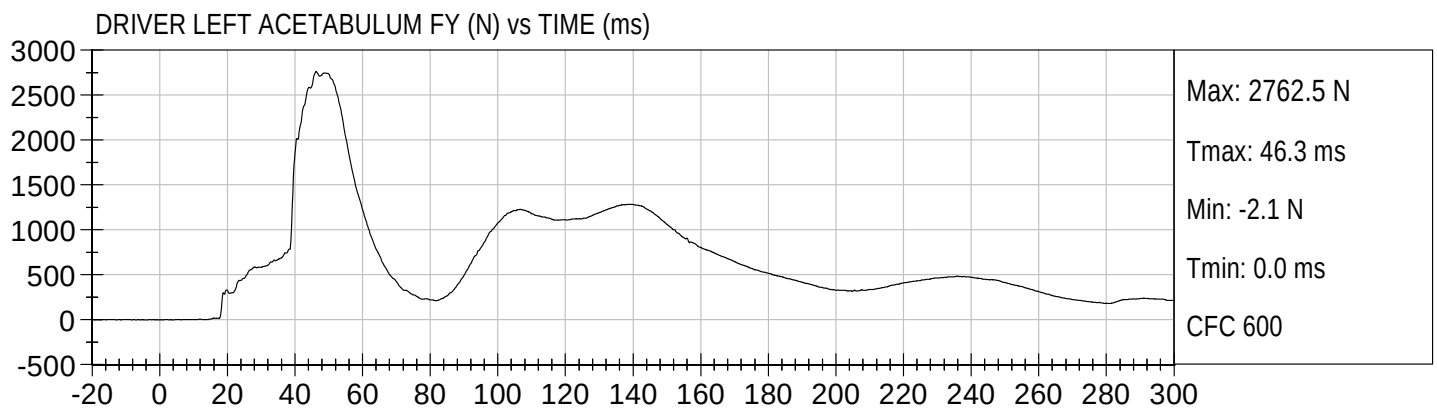
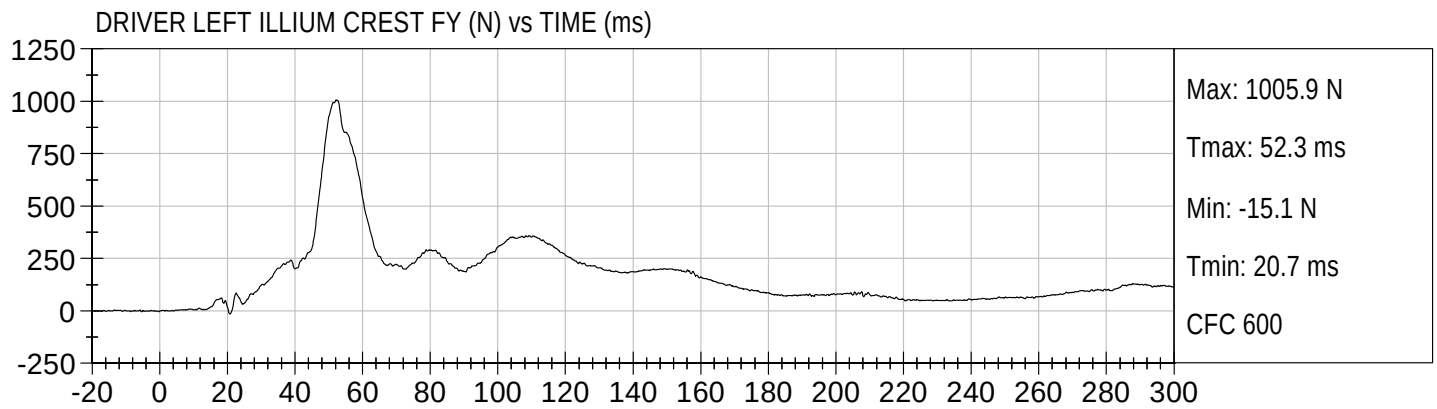
Load Cell Pole Barrier #6 Force (Y)

Load Cell Pole Barrier #7 Force (Y)

Load Cell Pole Barrier #8 Force (Y)







APPENDIX C

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SID-IIsD External Measurements
SN: 296

No.	Name	Spec. (mm)	Result	Pass/Fail
A	Sitting Height	772 - 788	784	Pass
B	Shoulder Pivot Height	437 - 453	442	Pass
C	H-point Height	79 - 89	83	Pass
D	H-point from Seatback	141 - 151	145	Pass
E	Shoulder Pivot from Backline	97 - 107	99	Pass
F	Thigh Clearance	119 -135	121	Pass
G	Head Breadth	140 - 148	142	Pass
H	Head Back from Backline	40 - 46	45	Pass
I	Head Depth	178 - 188	180	Pass
J	Head Circumference	541 - 551	548	Pass
K	Buttock to Knee Length	514 - 540	535	Pass
L	Popliteal Height	343 - 369	358	Pass
M	Knee Pivot to Floor Height	392 - 409	404	Pass
N	Buttock Popliteal Length	416 - 442	435	Pass
O	Chest Depth w/o Jacket	195 - 211	206	Pass
P	Foot Length	216 - 232	219	Pass
Q	Hip Breadth (w/ pelvic plugs)	313 - 323	316	Pass
R	Arm Length	249 - 259	250	Pass
S	Knee Joint to Seatback	477 - 493	481	Pass
V	Shoulder Width	341 - 357	346	Pass
W	Foot Width	78 - 94	85	Pass
Y	Chest Circumference w/ jacket	851 - 881	870	Pass
Z	Waist Circumference	761 - 791	772	Pass

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

ATD Serial No: 296

Test ID: D113641

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	31	Pass
Peak Resultant Acceleration	G's	115 to 137	122	Pass
Peak Lateral Acceleration	G's	+/- 15	-7	Pass
Unimodal	N/A	<15%	Yes	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

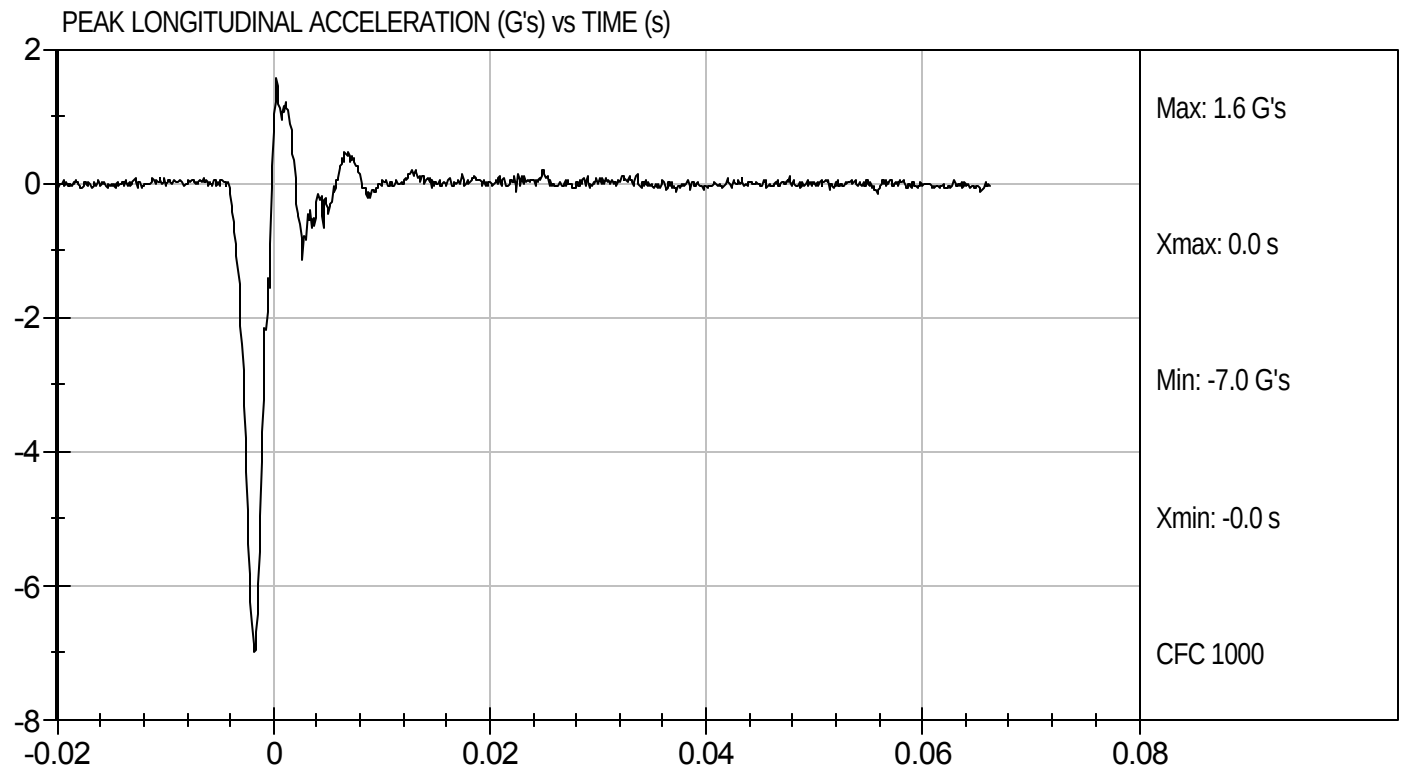
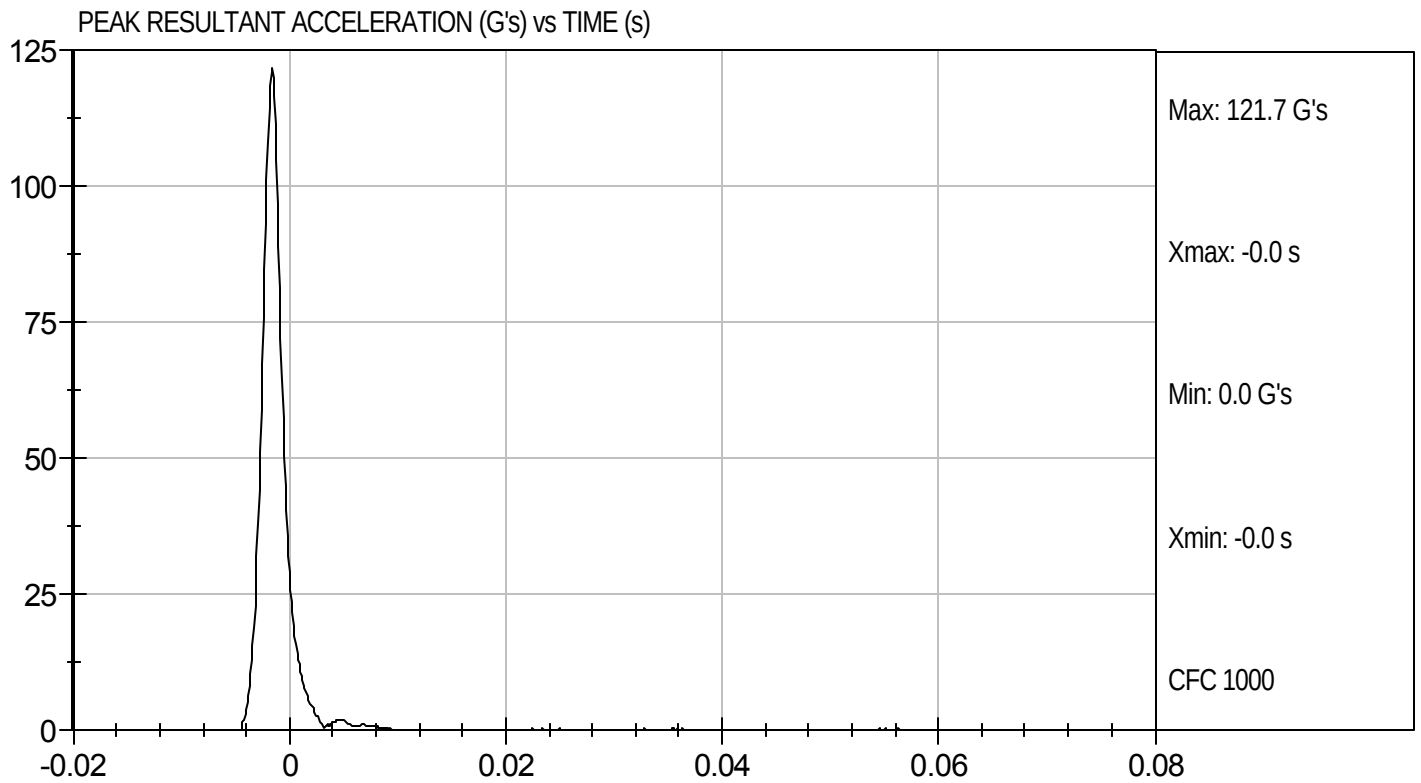
11/1/11
Test Date

David Winkelbauer
Approved By



Test Desc: Head Drop
Component ID: D113641

Test Date: 11/1/11
Velocity: 0 ft/s, 0 m/s

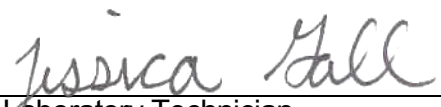


MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D113642

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.1	Pass
Humidity		%	10 to 70	31	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	3.50	Pass
	20 ms	m/s	4.40 to 5.40	4.64	Pass
	25 ms	m/s	5.40 to 6.10	5.47	Pass
	25-100 ms	m/s	5.50 to 6.20	5.59	Pass
Maximum D-Plane Rotation		deg	71 to 81	72	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	58	Pass
Maximum Occipital Condyle Moment during Rotation Interval Nm			-44 to -36	-41	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	115	Pass
Overall Test Results				Pass	


 Laboratory Technician

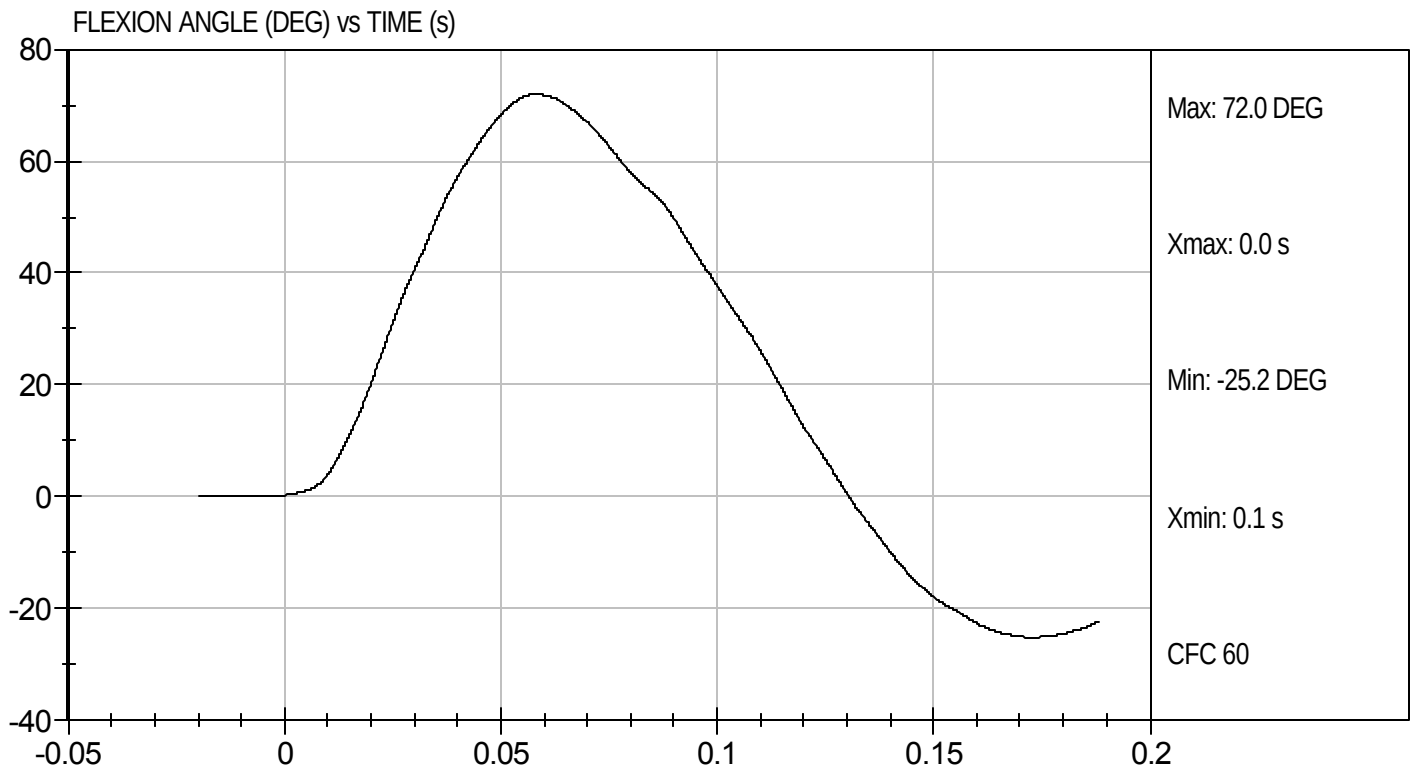
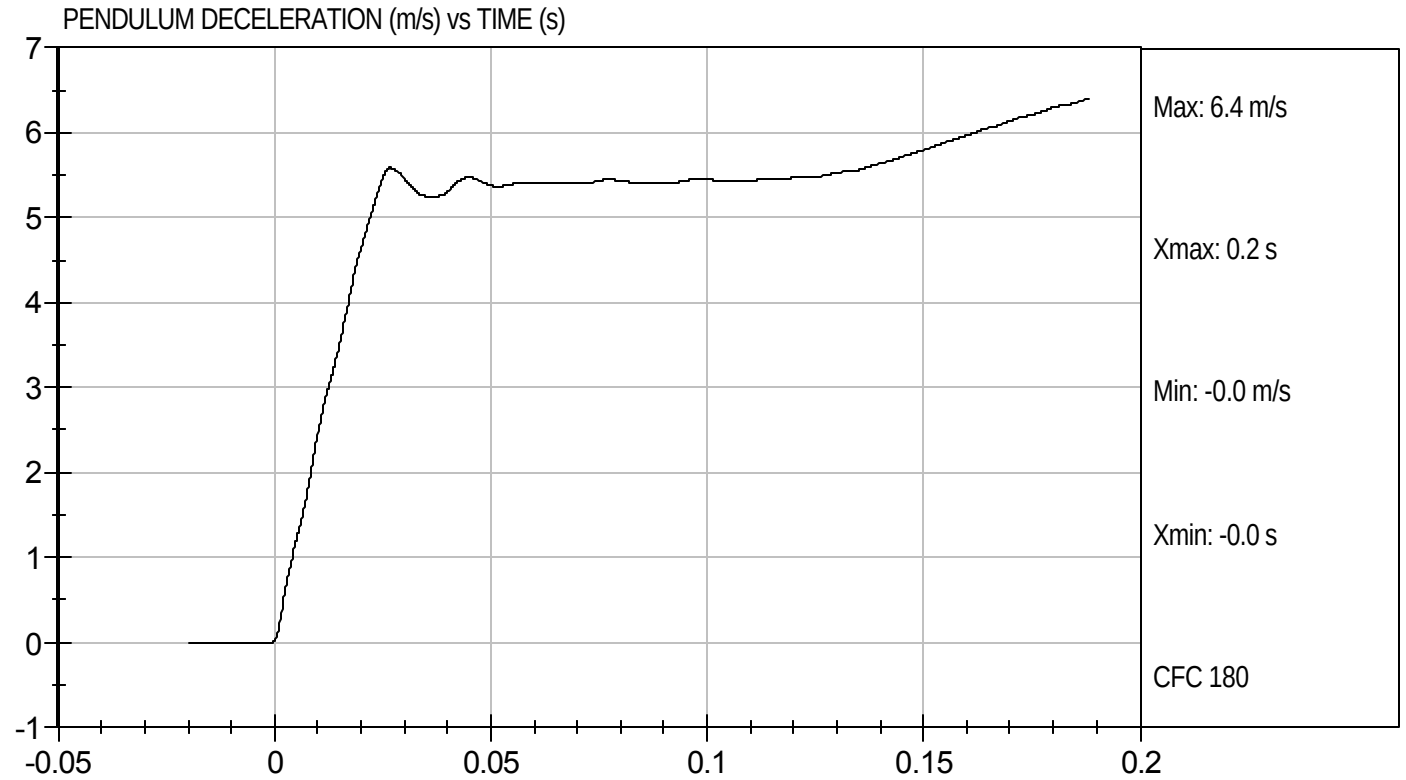
11/1/11
 Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D113642

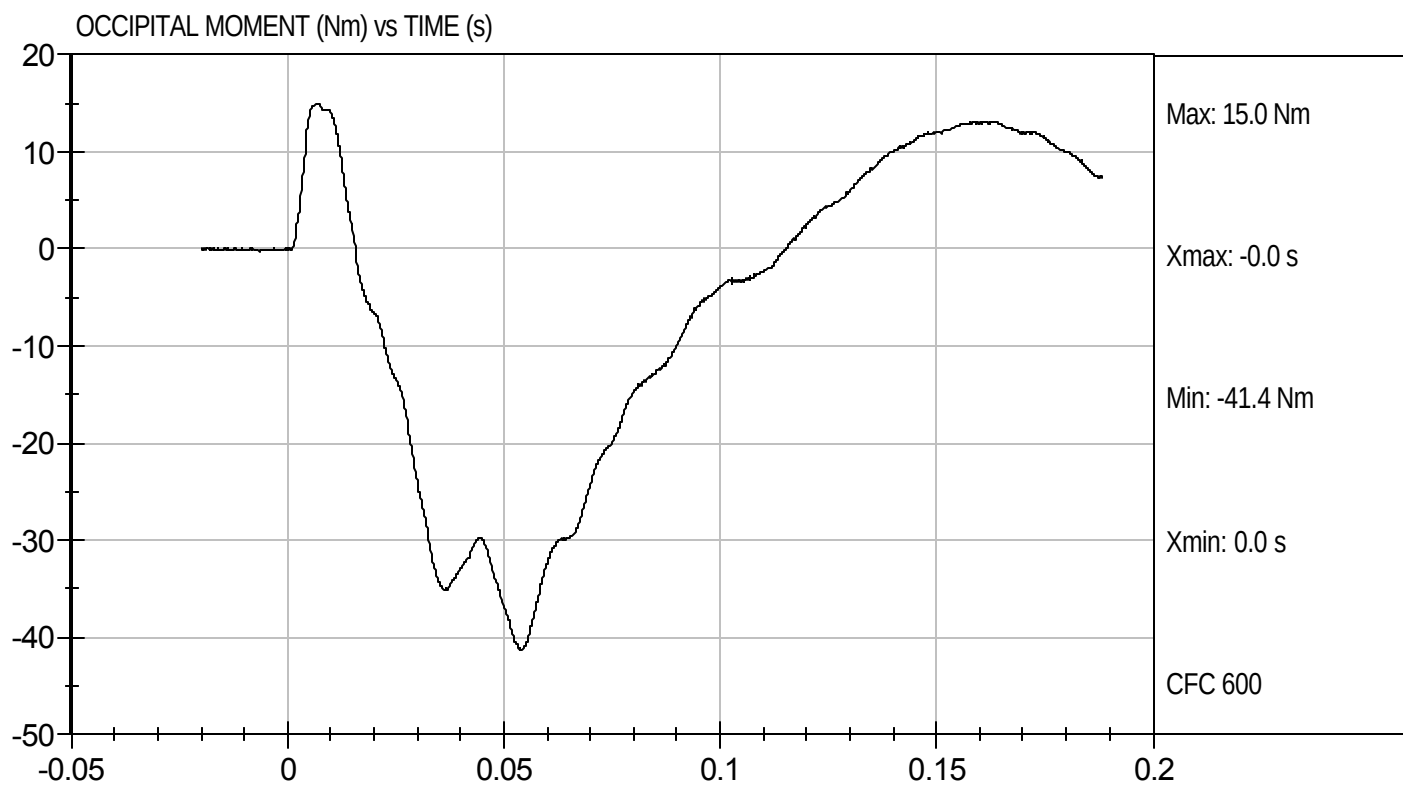
Test Date: 11/1/11
Velocity: 18.32 ft/s, 5.58 m/s





Test Desc: Neck Bending
Component ID: D113642

Test Date: 11/1/11
Velocity: 18.32 ft/s, 5.58 m/s



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

ATD Serial No: 296

Test ID: D113643

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.0	Pass
Laboratory Relative Humidity	%	10 to 70	35	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	31	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	19	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

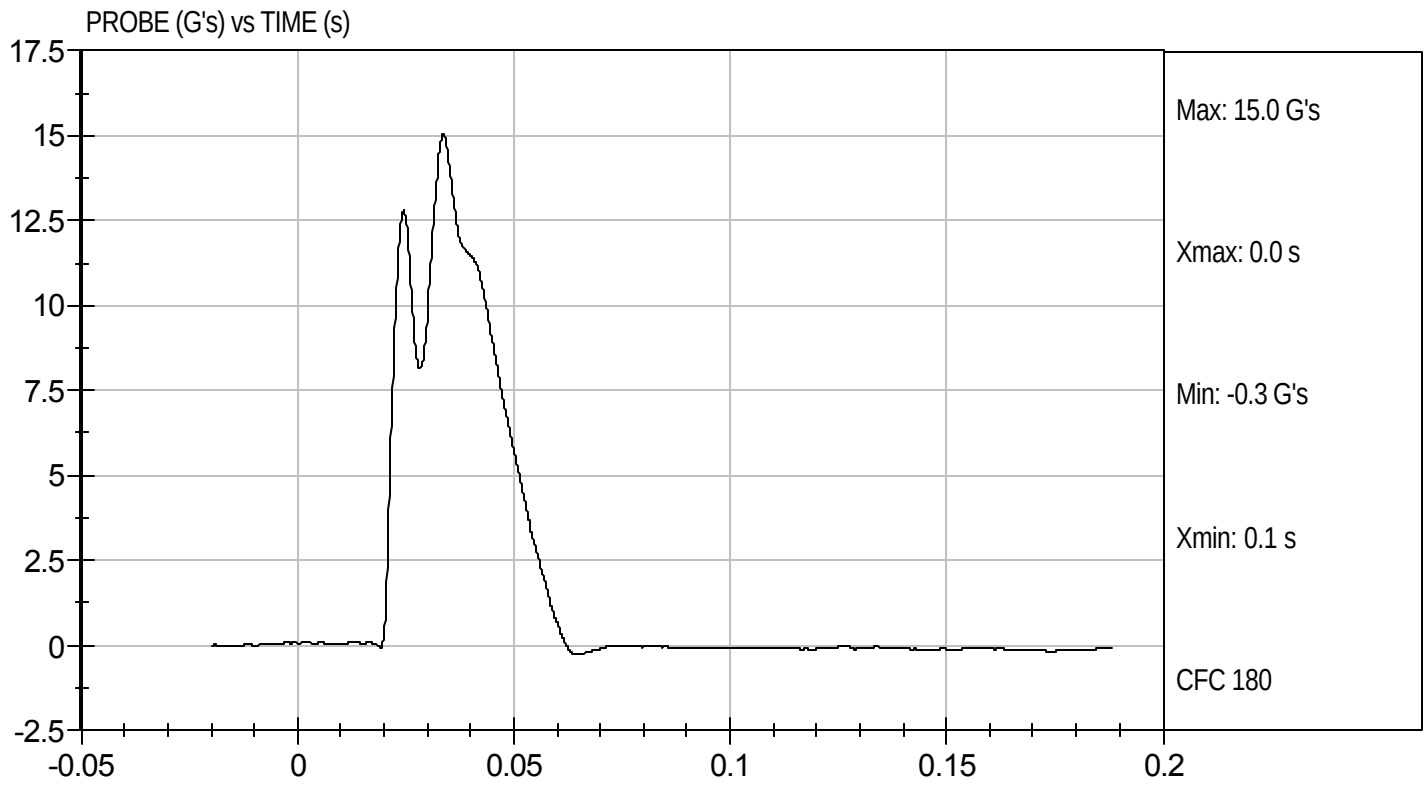
11/1/11
Test Date

David Winkelbauer
Approved By



Test Desc: Shoulder Impact
Component ID: D113643

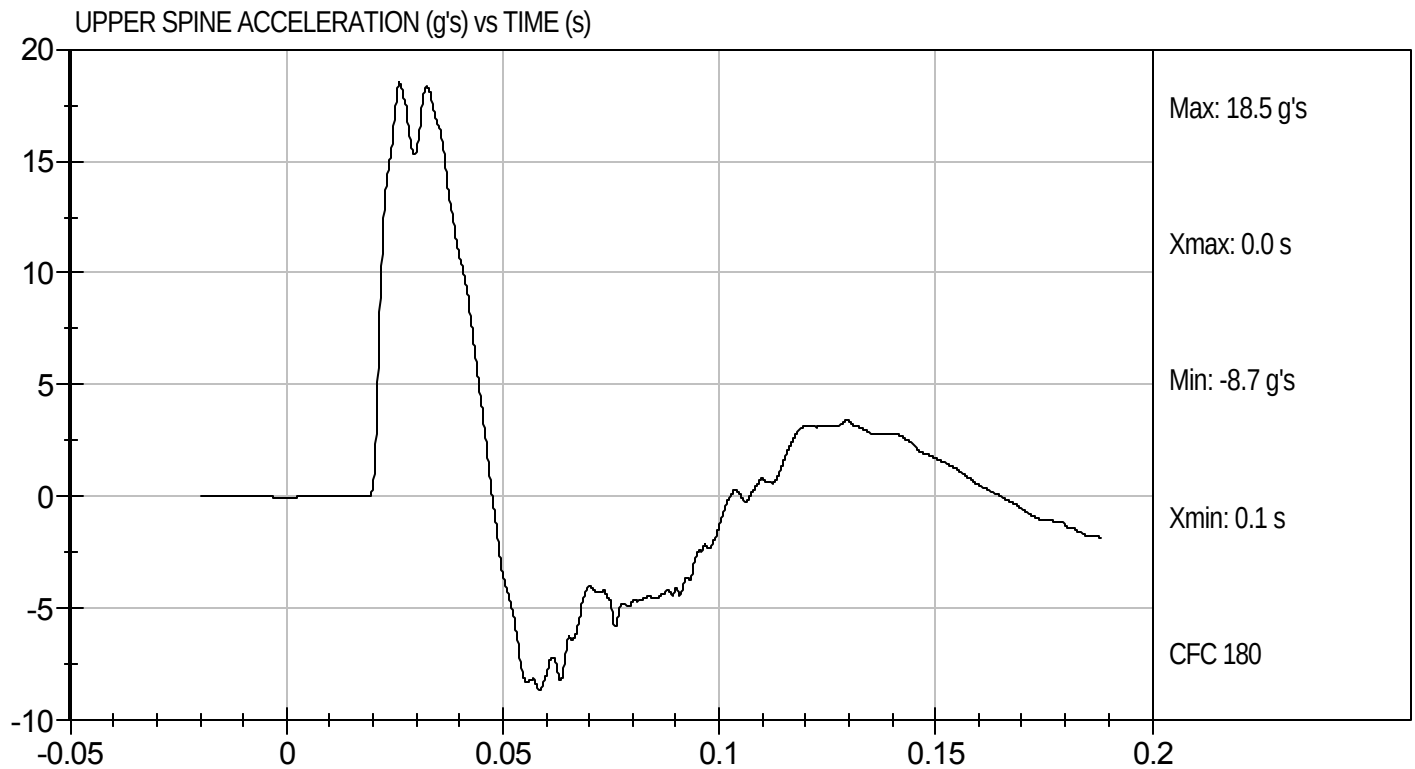
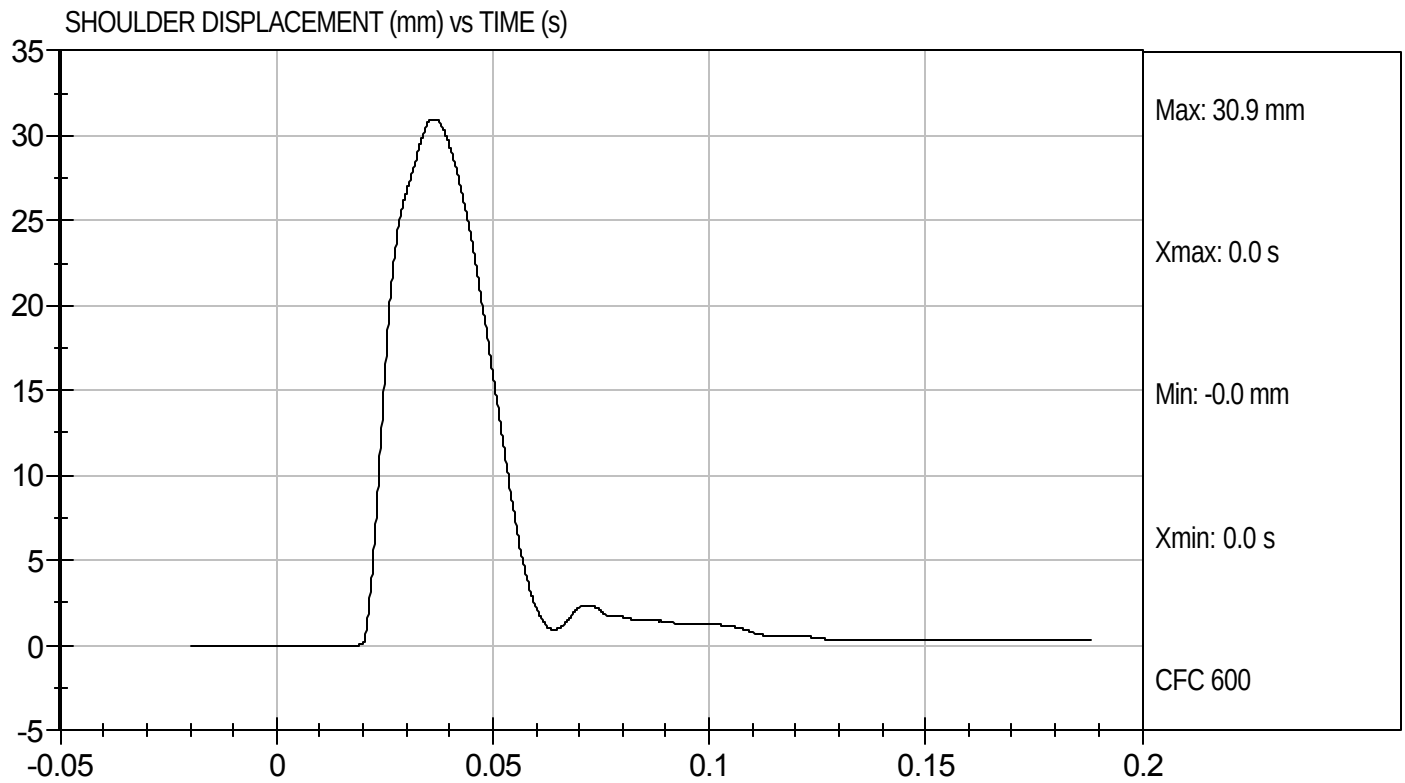
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Velocity: 14.36 ft/s, 4.38 m/s





Test Desc: Shoulder Impact
Component ID: D113643

Test Date: 11/1/11
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: D113644

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.1	Pass
Humidity	%	10 to 70	35	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	33	Pass
Upper Rib Displacement	mm	25 to 32	27	Pass
Middle Rib Displacement	mm	30 to 36	33	Pass
Lower Rib Displacement	mm	32 to 38	36	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	38	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	31	Pass
Overall Test Results			Pass	


Laboratory Technician

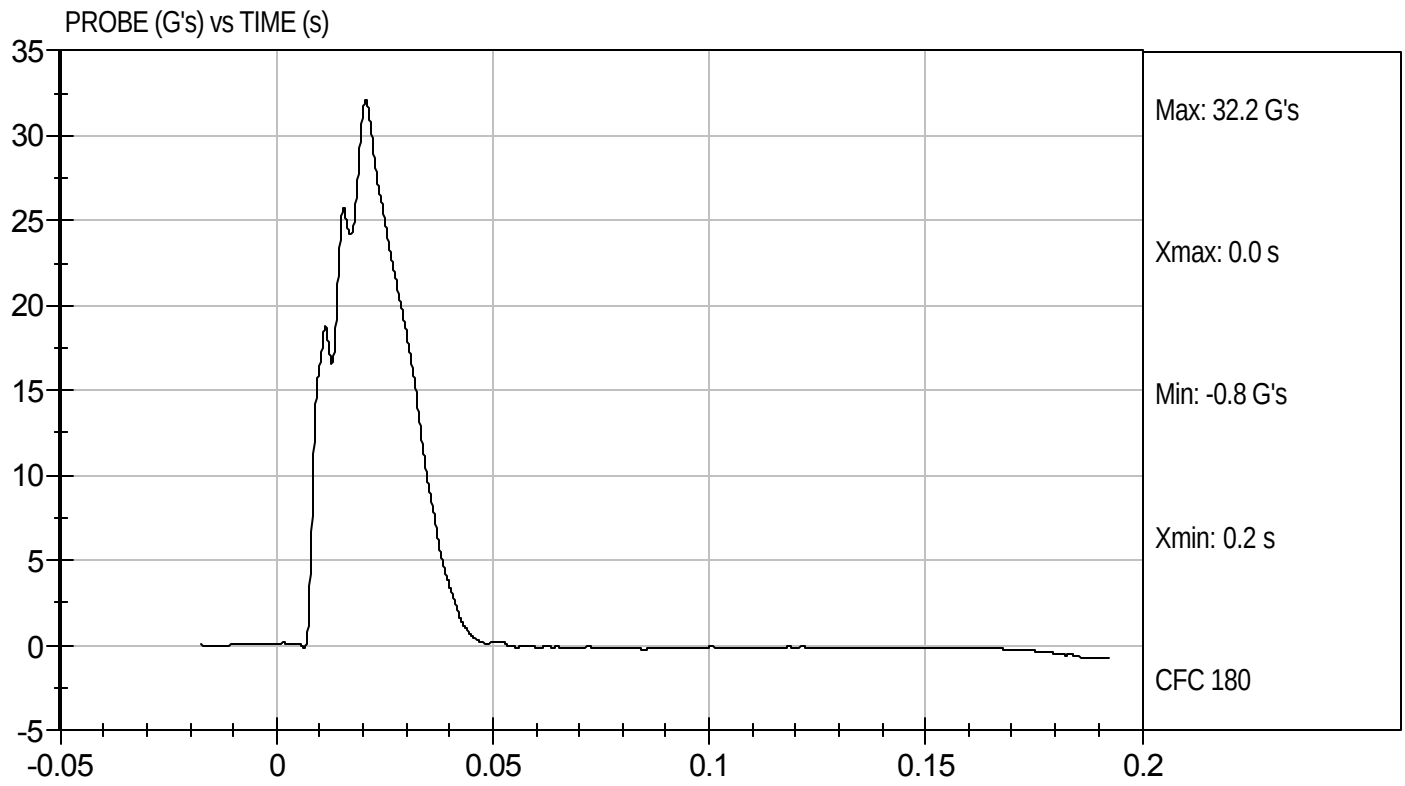
11/1/11
Test Date


Approved By



Test Desc: Thorax With Arm
Component ID: D113644

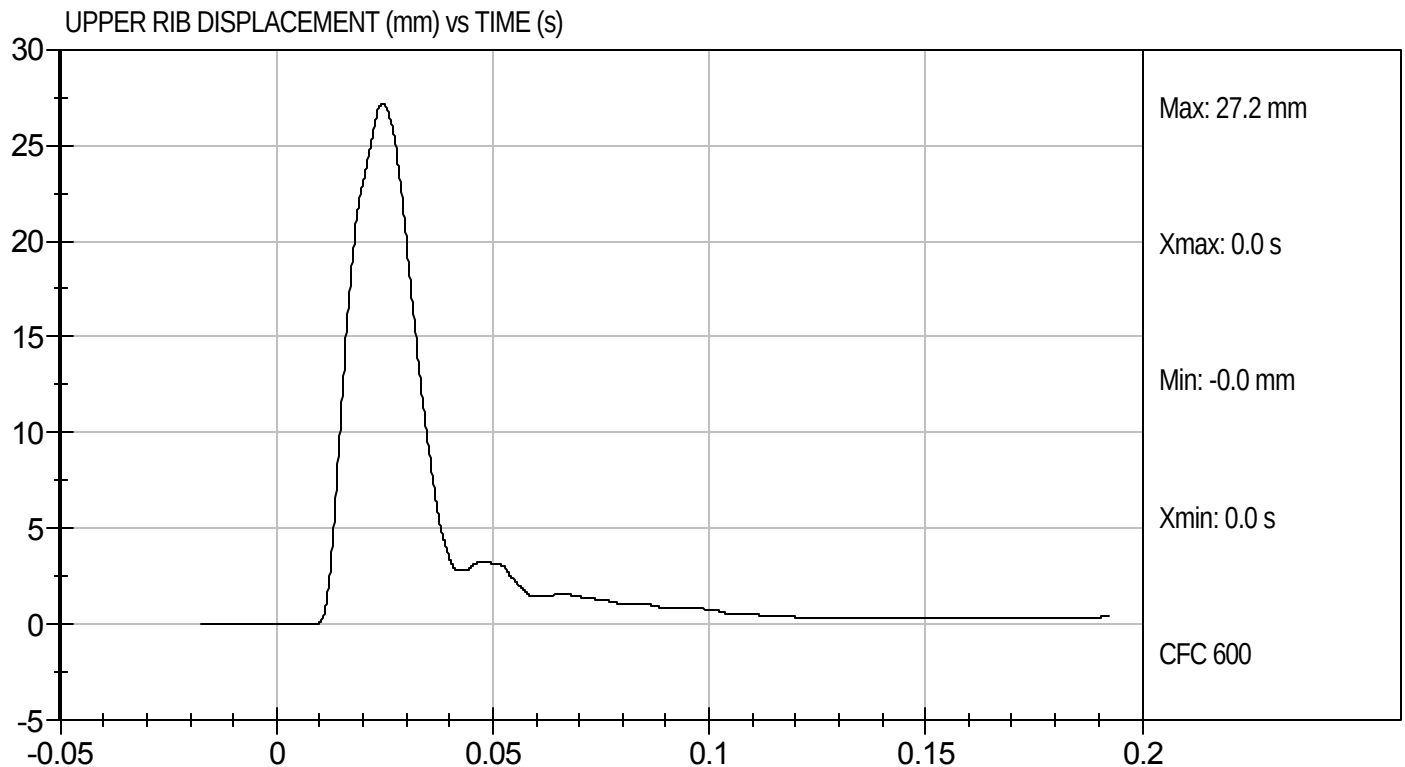
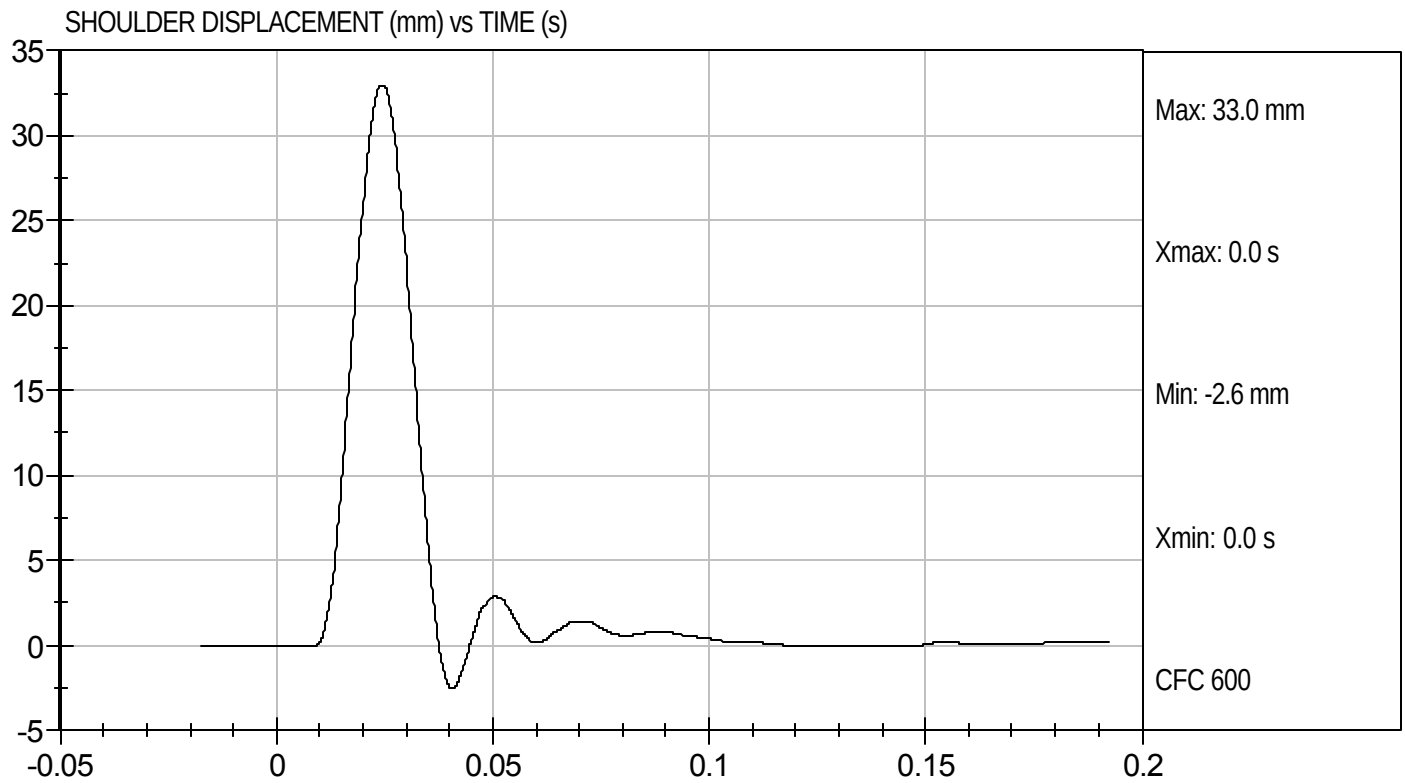
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Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D113644

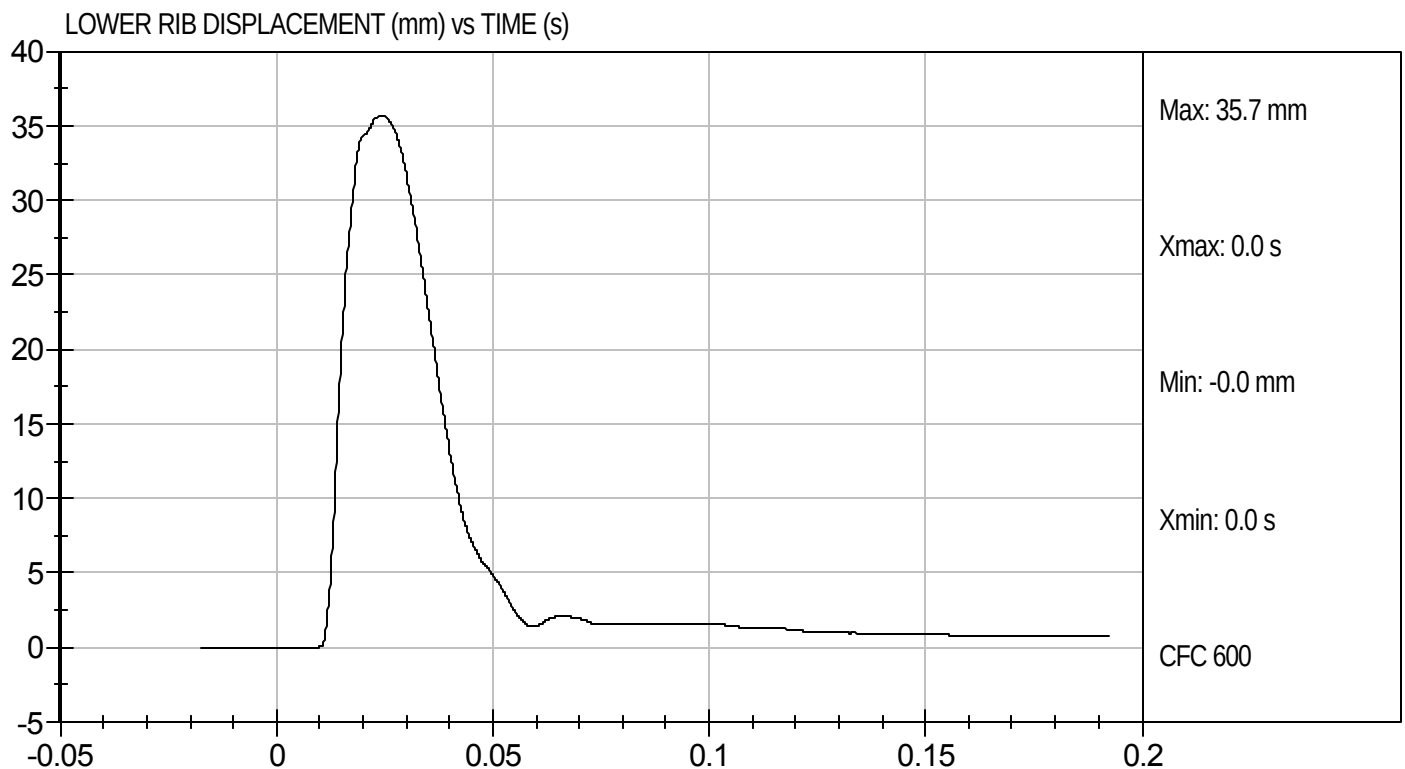
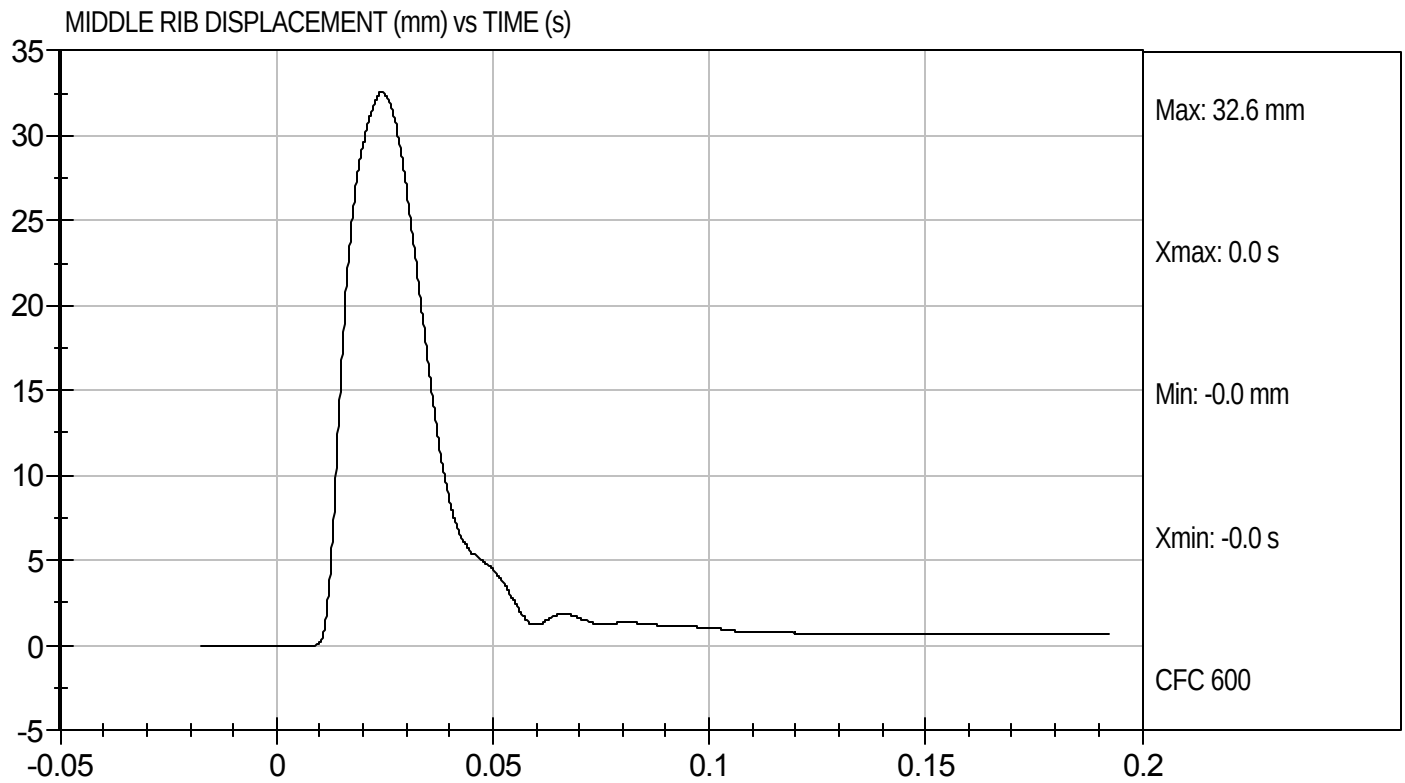
Test Date: 11/1/11
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D113644

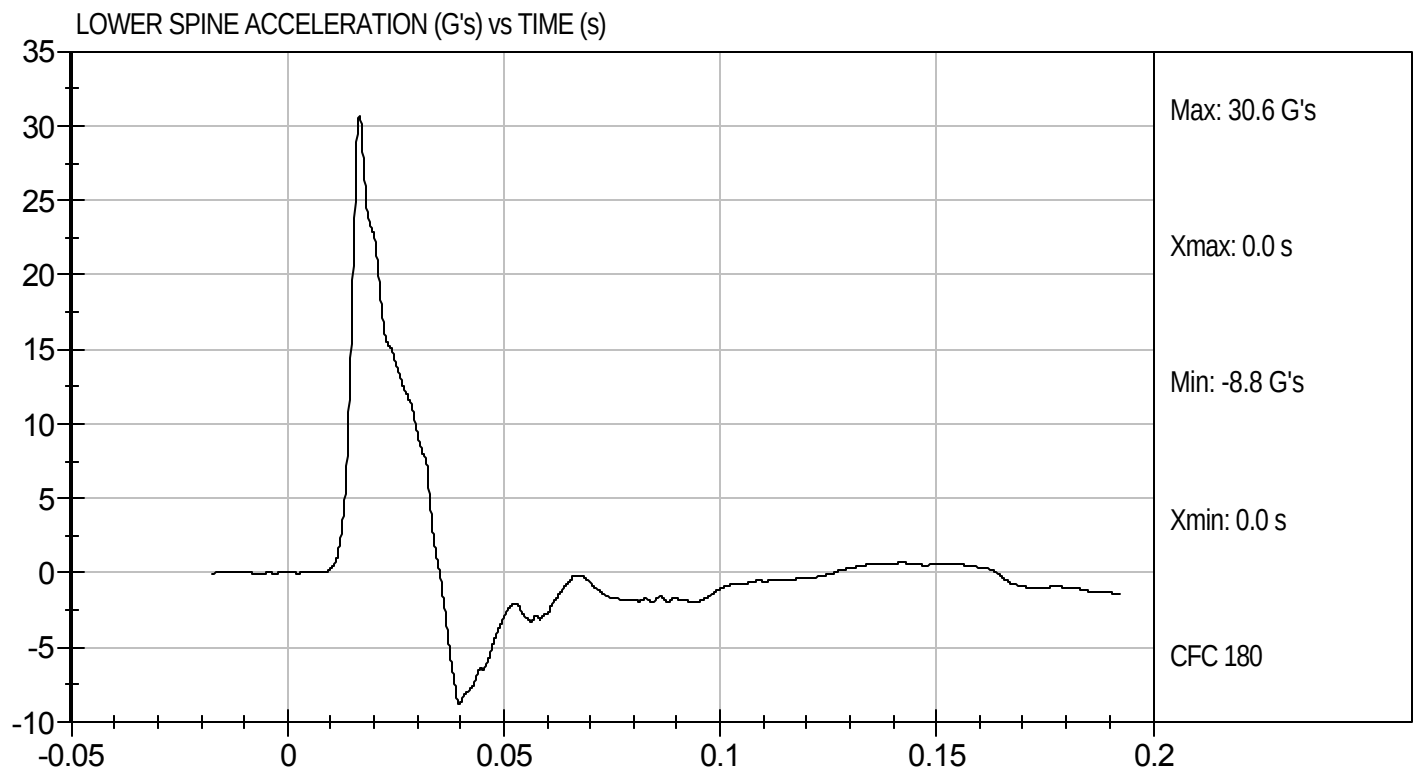
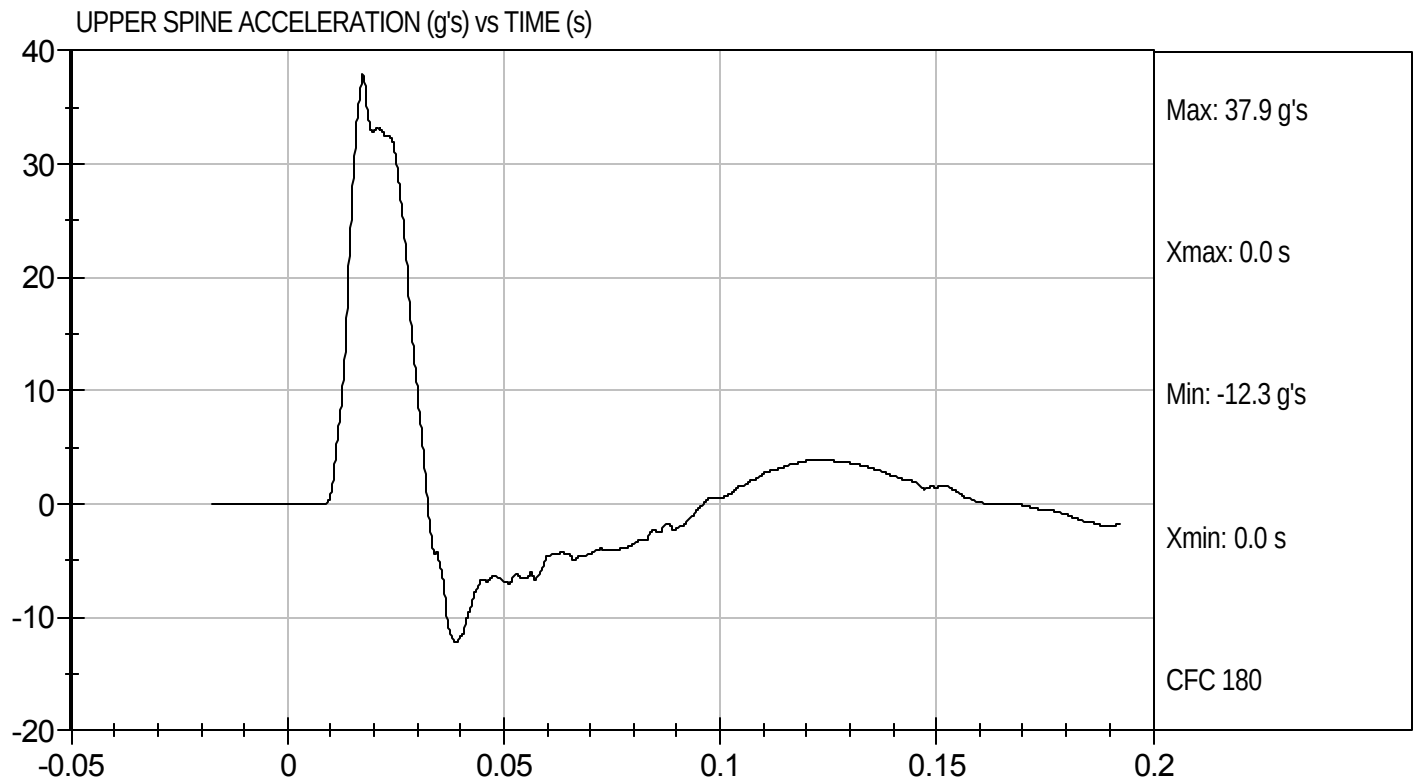
Test Date: 11/1/11
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D113644

Test Date: 11/1/11
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: D113645

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.1	Pass
Humidity	%	10 to 70	34	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	36	Pass
Middle Rib Displacement	mm	39 to 45	42	Pass
Lower Rib Displacement	mm	35 to 43	40	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

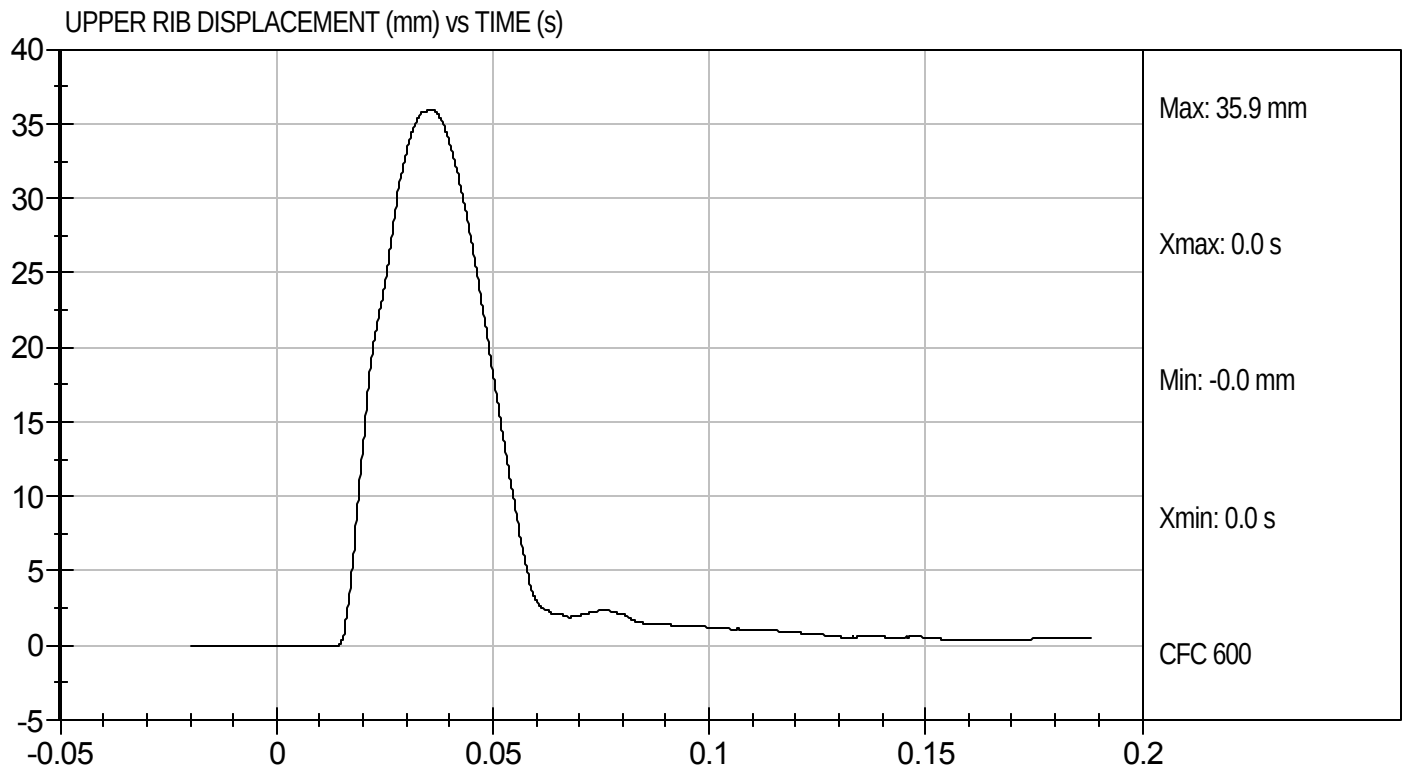
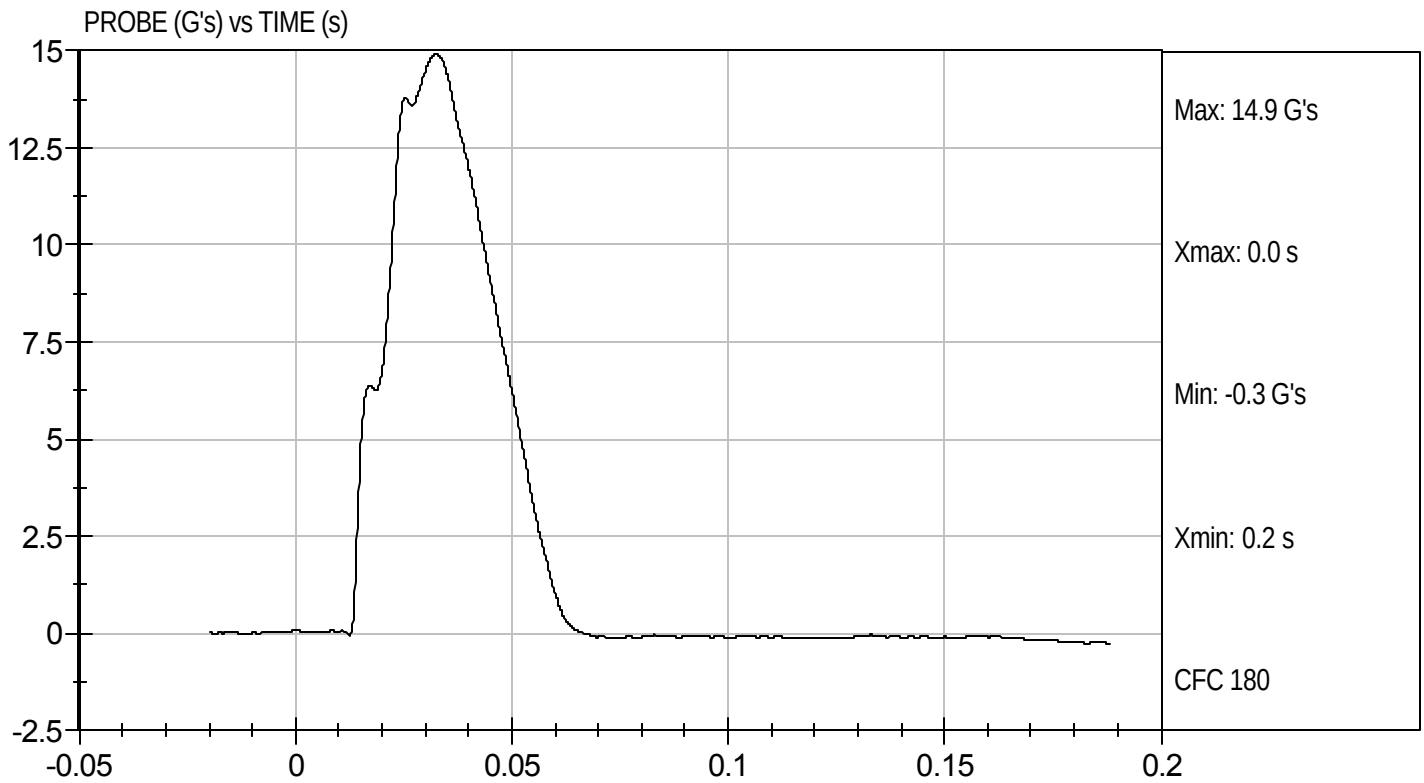
11/1/11
Test Date


Approved By



Test Desc: Thorax Without Arm
Component ID: D113645

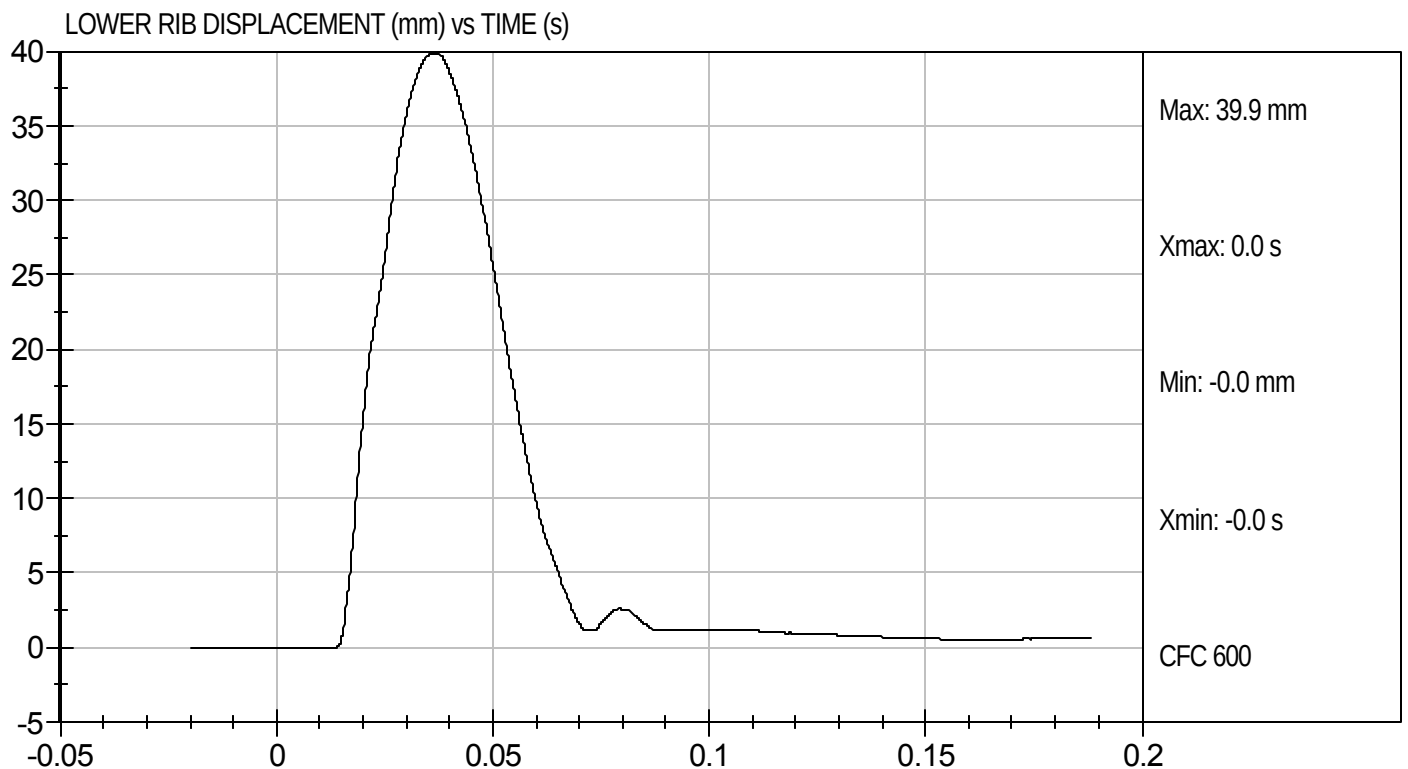
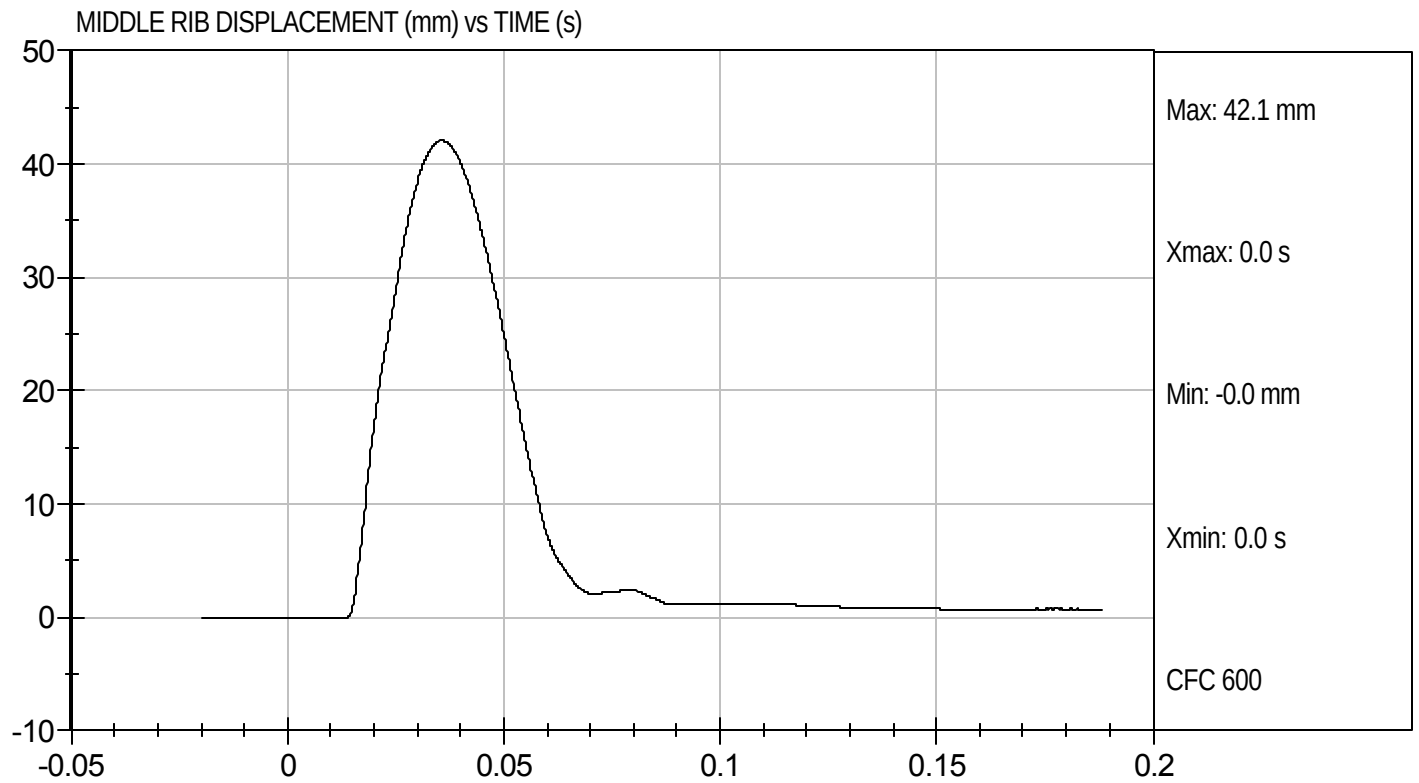
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Velocity: 14.24 ft/s, 4.34 m/s





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Component ID: D113645

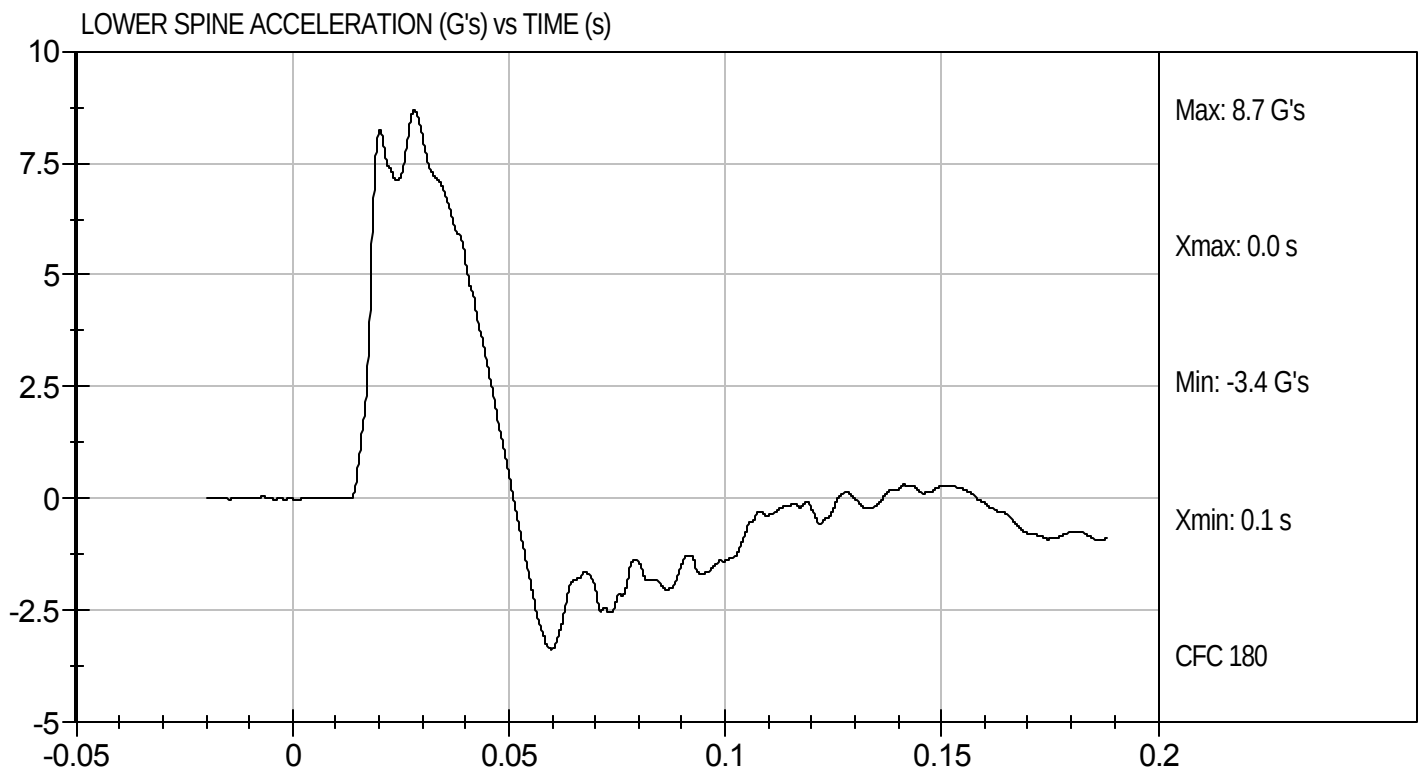
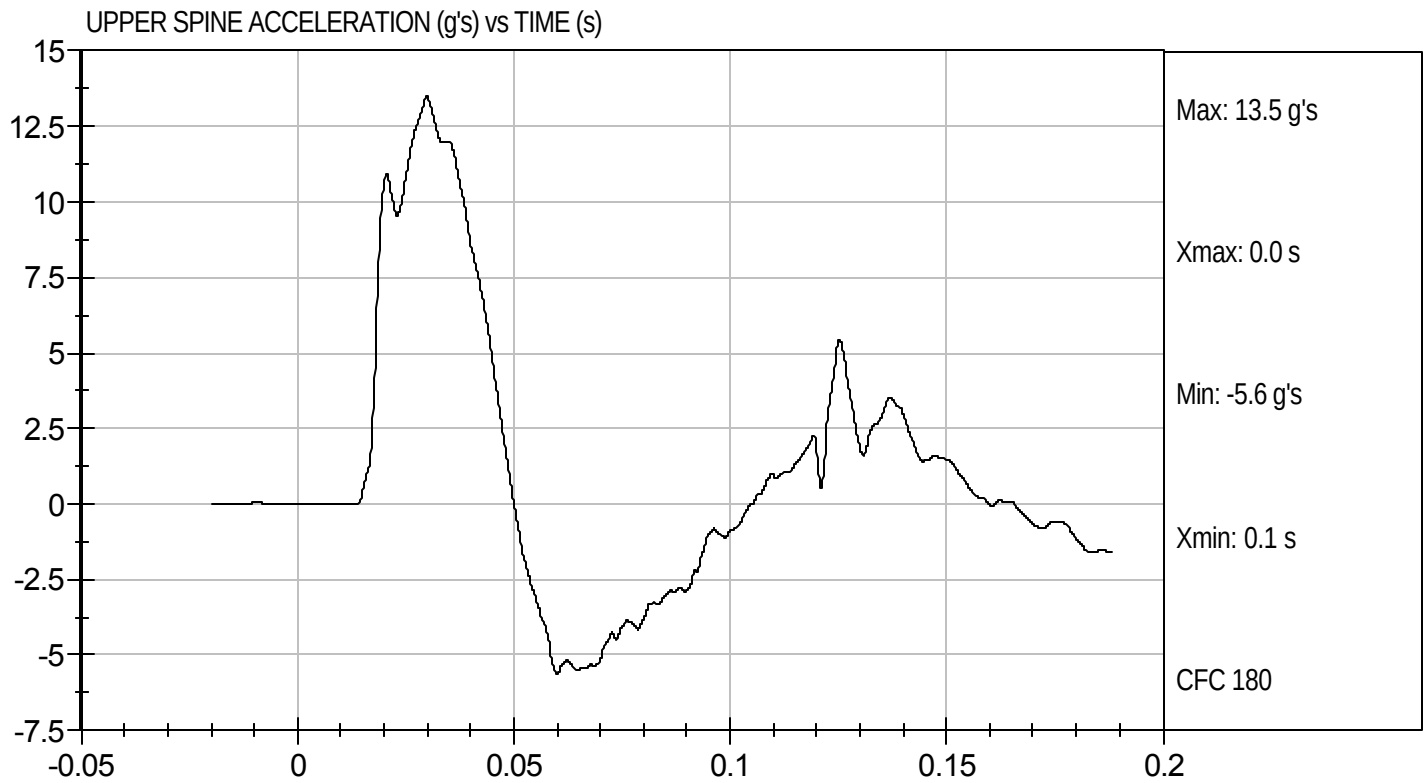
Test Date: 11/1/11
Velocity: 14.24 ft/s, 4.34 m/s





Test Desc: Thorax Without Arm
Component ID: D113645

Test Date: 11/1/11
Velocity: 14.24 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: D113646

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.0	Pass
Humidity	%	10 to 70	34	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Peak Impactor Acceleration	G's	12 to 16	13	Pass
Upper Rib Displacement	mm	36 to 47	43	Pass
Lower Rib Displacement	mm	33 to 44	38	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	10	Pass
			Overall Test Results	Pass


Laboratory Technician

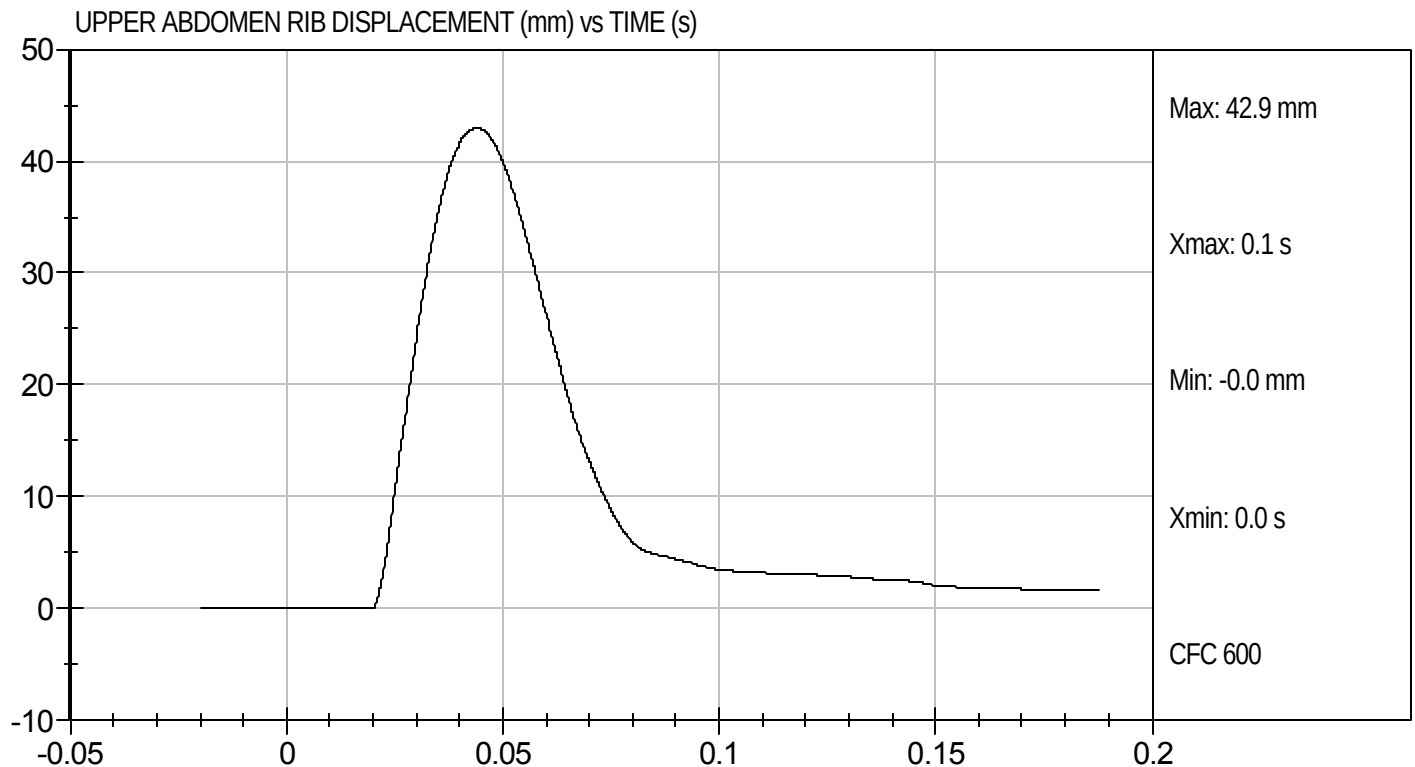
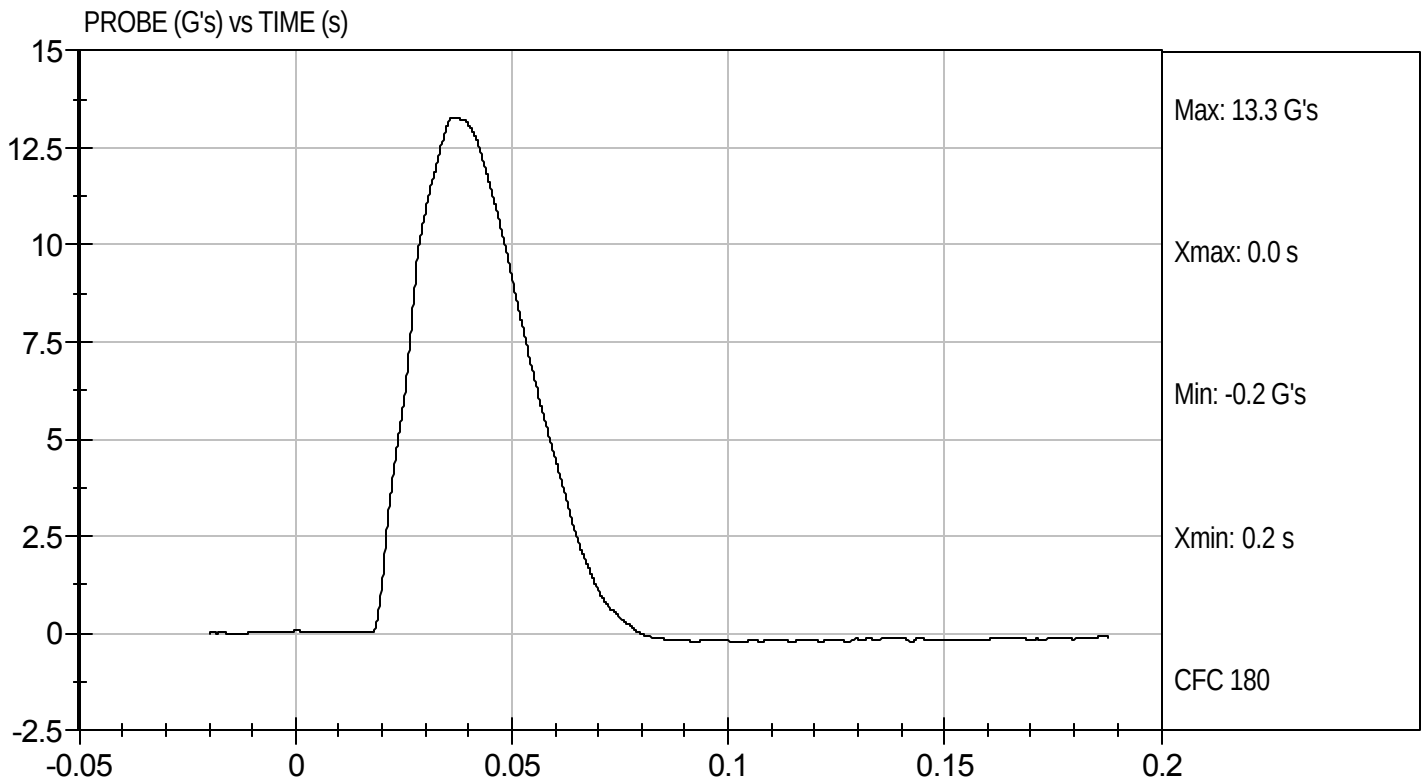
11/1/11
Test Date


Approved By



Test Desc: Abdomen Impact
Component ID: D113646

Test Date: 11/1/11
Velocity: 14.25 ft/s, 4.34 m/s

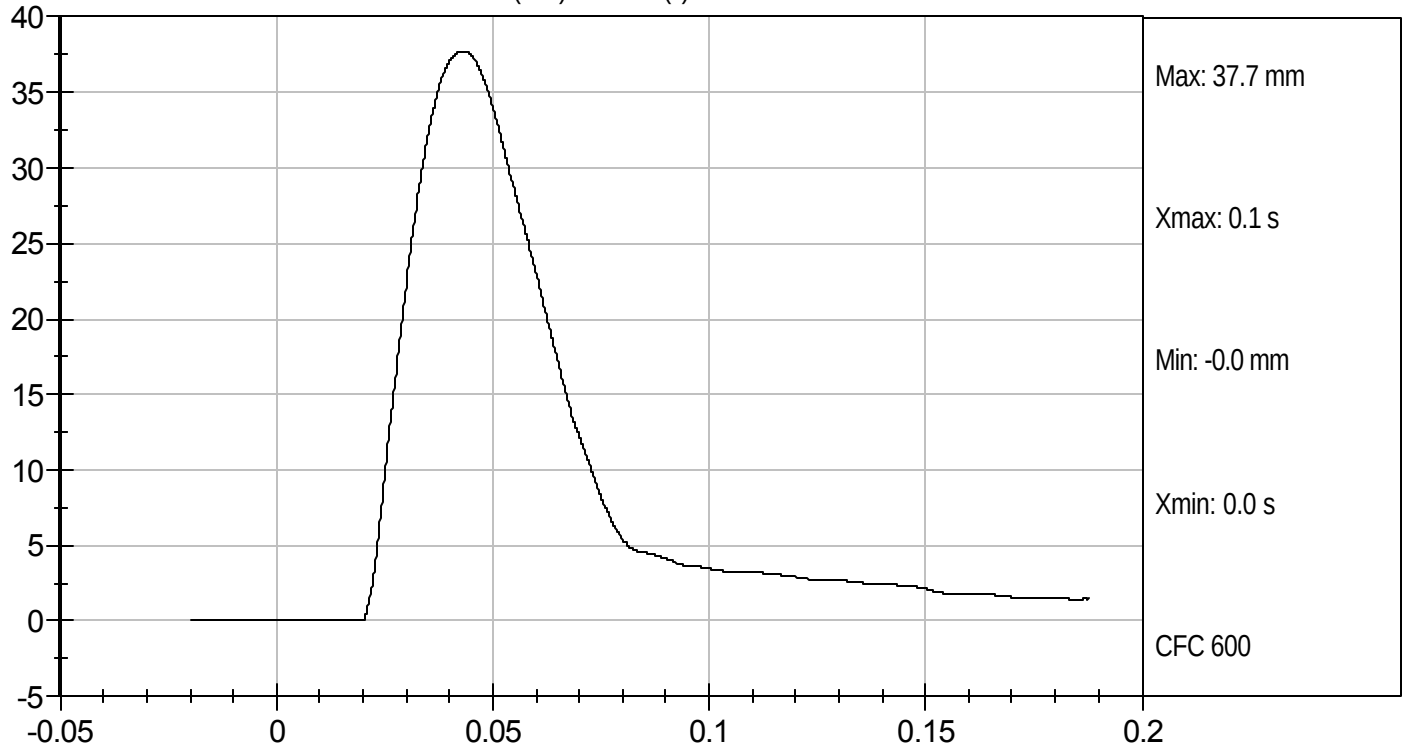




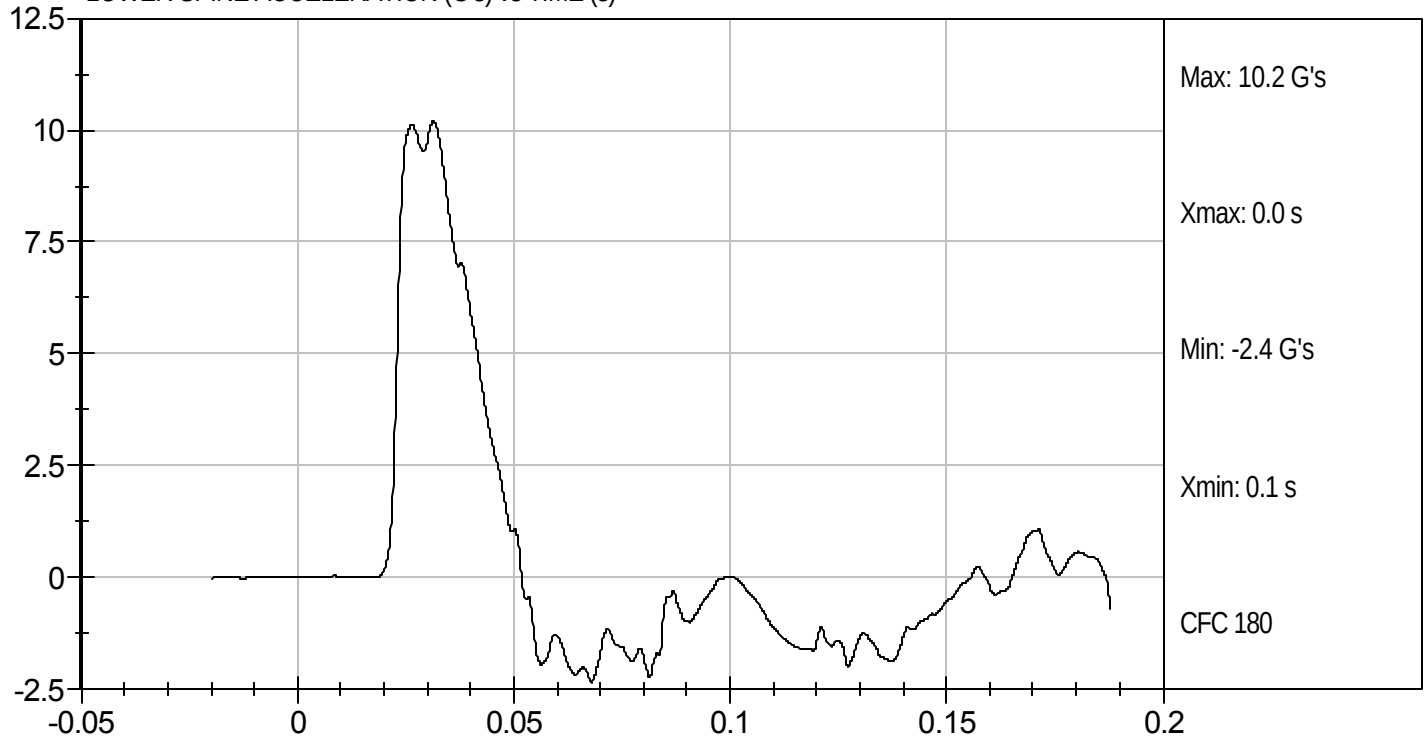
Test Desc: Abdomen Impact
Component ID: D113646

Test Date: 11/1/11
Velocity: 14.25 ft/s, 4.34 m/s

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



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



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

ATD Serial No: 296

Test I.D: D113647

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	33	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Peak Impactor Acceleration	G's	38 to 47	43	Pass
Pelvis Y Acceleration after 6 ms	G's	34 to 42	41	Pass
Peak Acetabulum Force	N	3600 to 4300	3906	Pass
Overall Test Results				Pass


Laboratory Technician

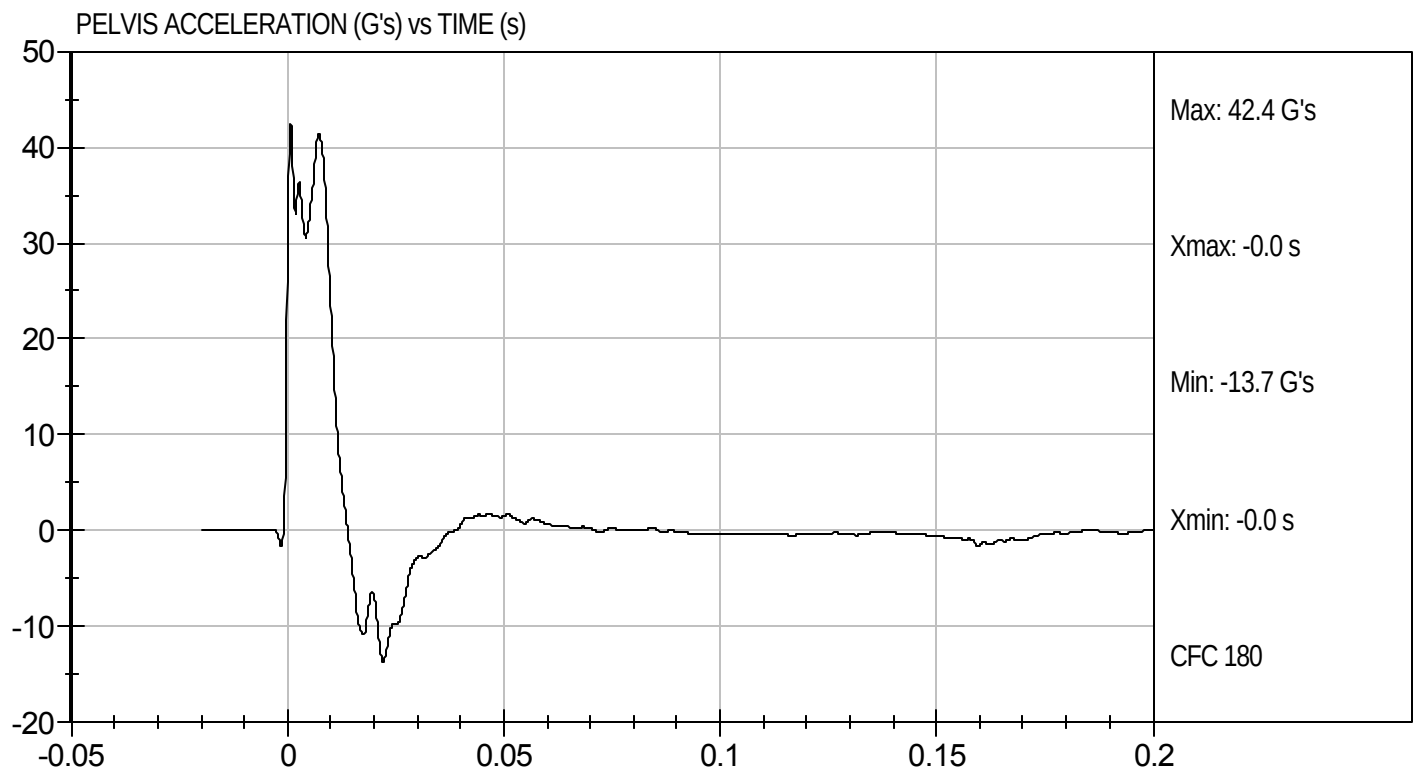
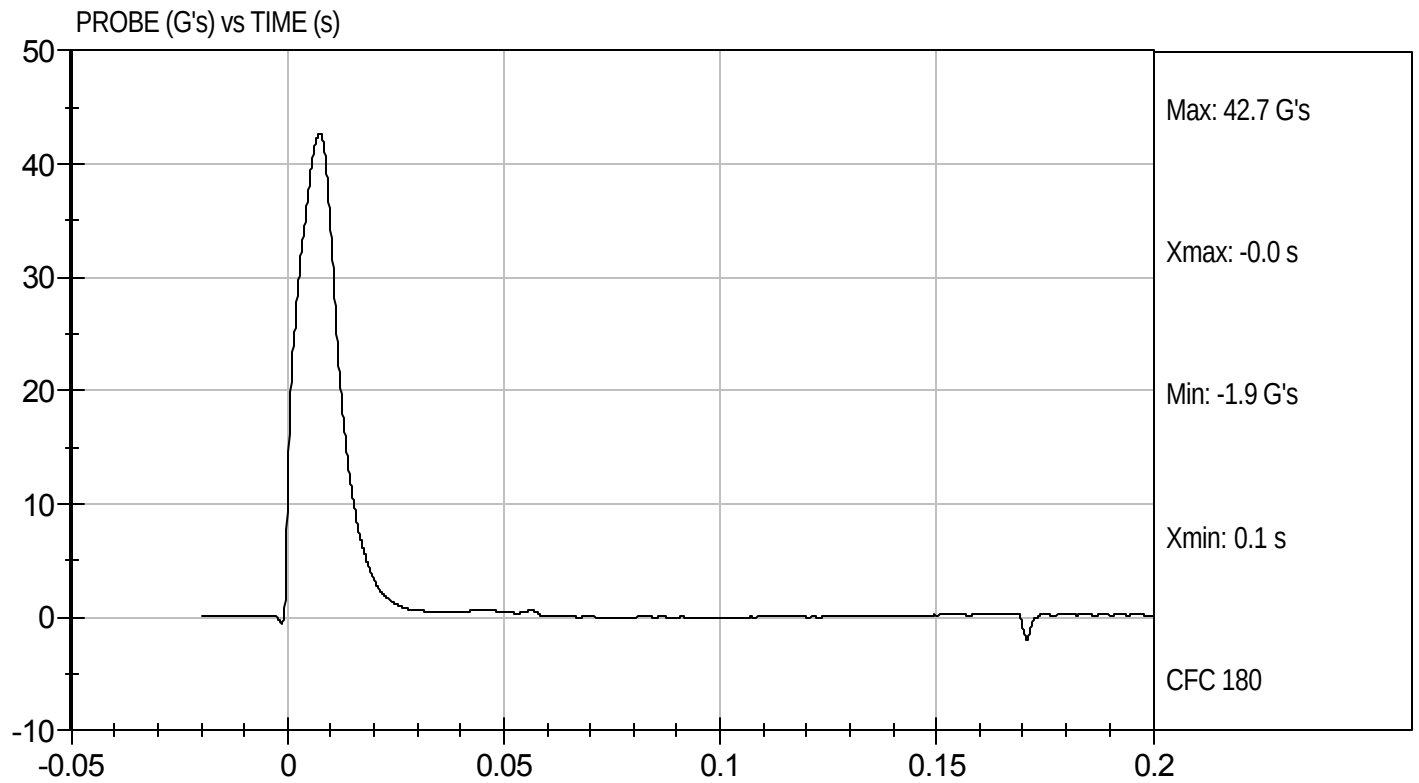
11/1/11
Test Date


Approved By



Test Desc: Pelvis Impact
Component ID: D113647

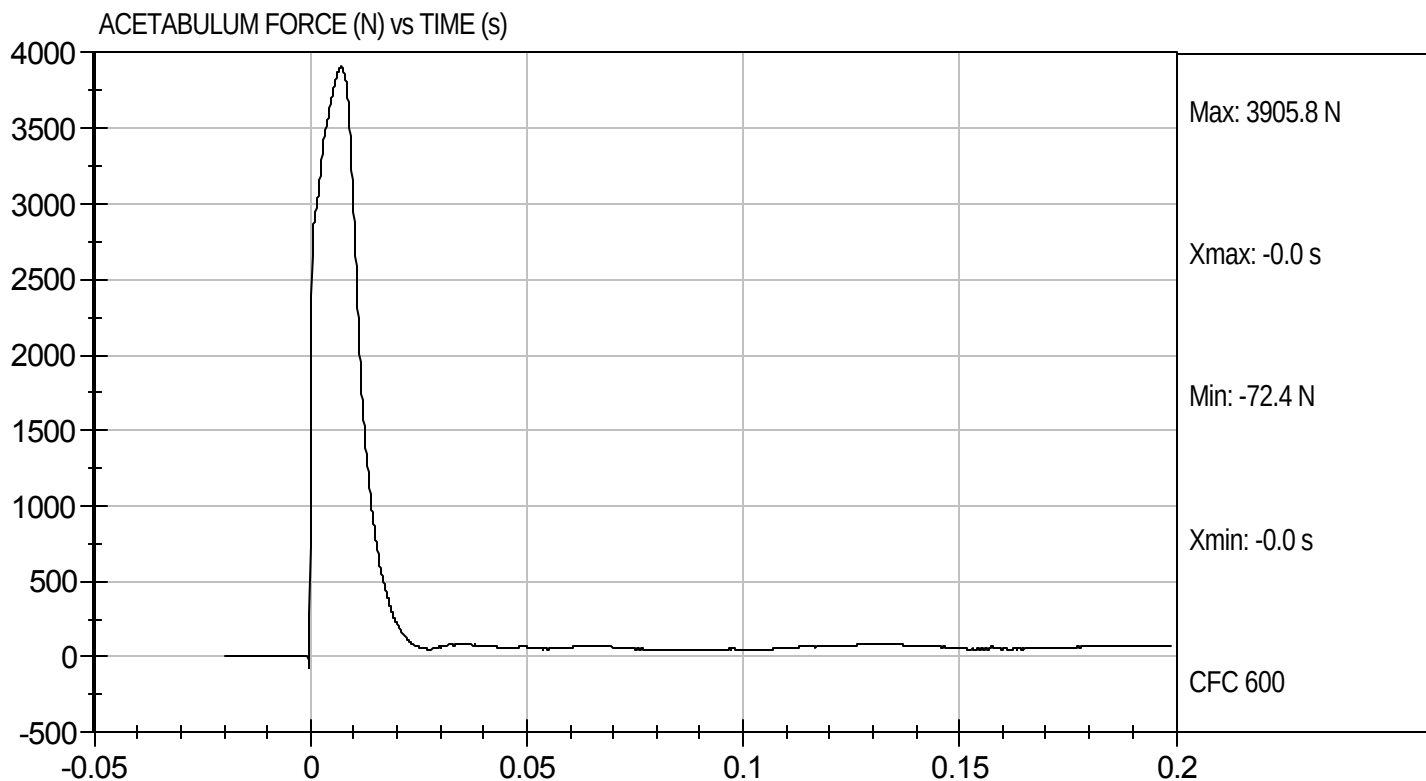
Test Date: 11/1/11
Velocity: 21.93 ft/s, 6.68 m/s





Test Desc: Pelvis Impact
Component ID: D113647

Test Date: 11/1/11
Velocity: 21.93 ft/s, 6.68 m/s



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

ATD Serial No: 296

Test I.D: D113648

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	33	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Peak Impactor Acceleration	G's	36 to 45	39	Pass
Pelvis Y Acceleration	G's	28 to 39	34	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4836	Pass
Overall Test Results			Pass	


Laboratory Technician

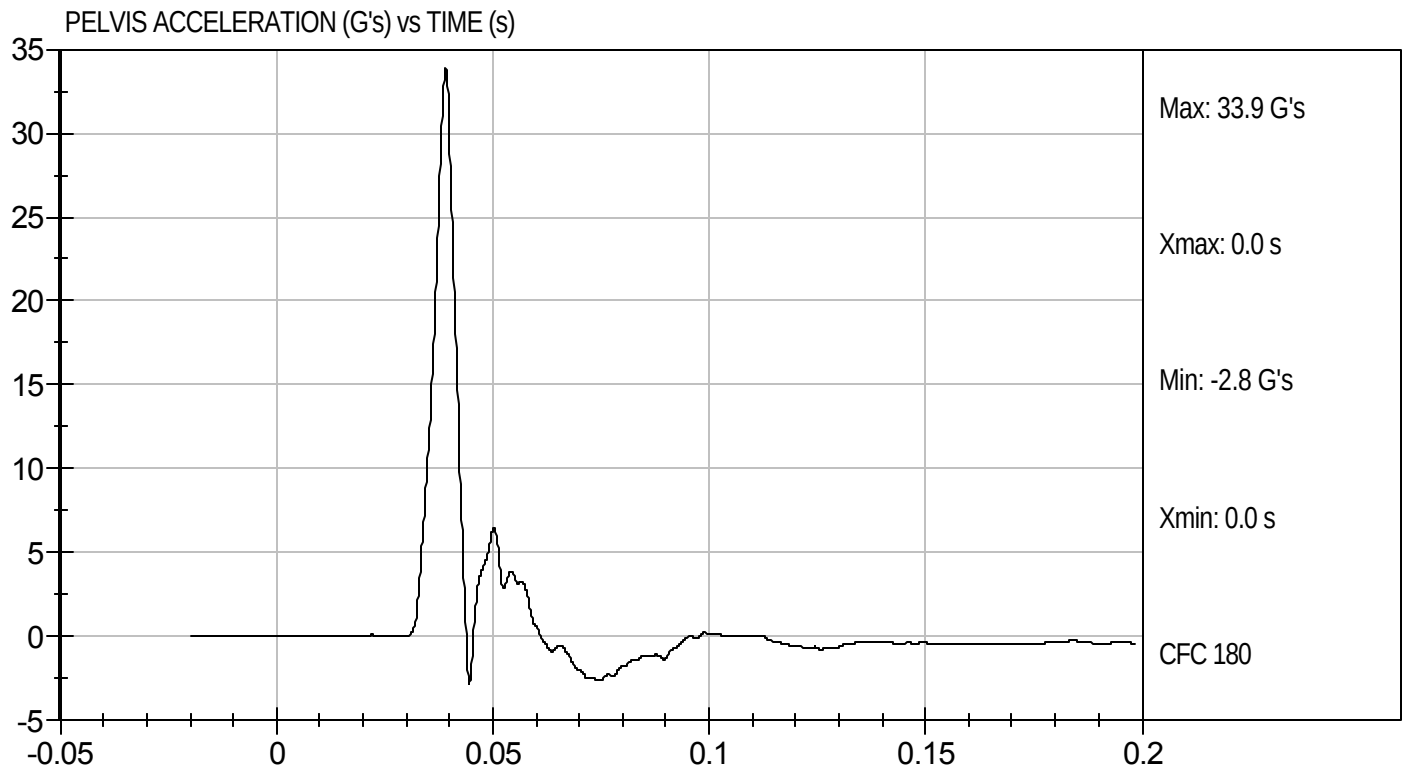
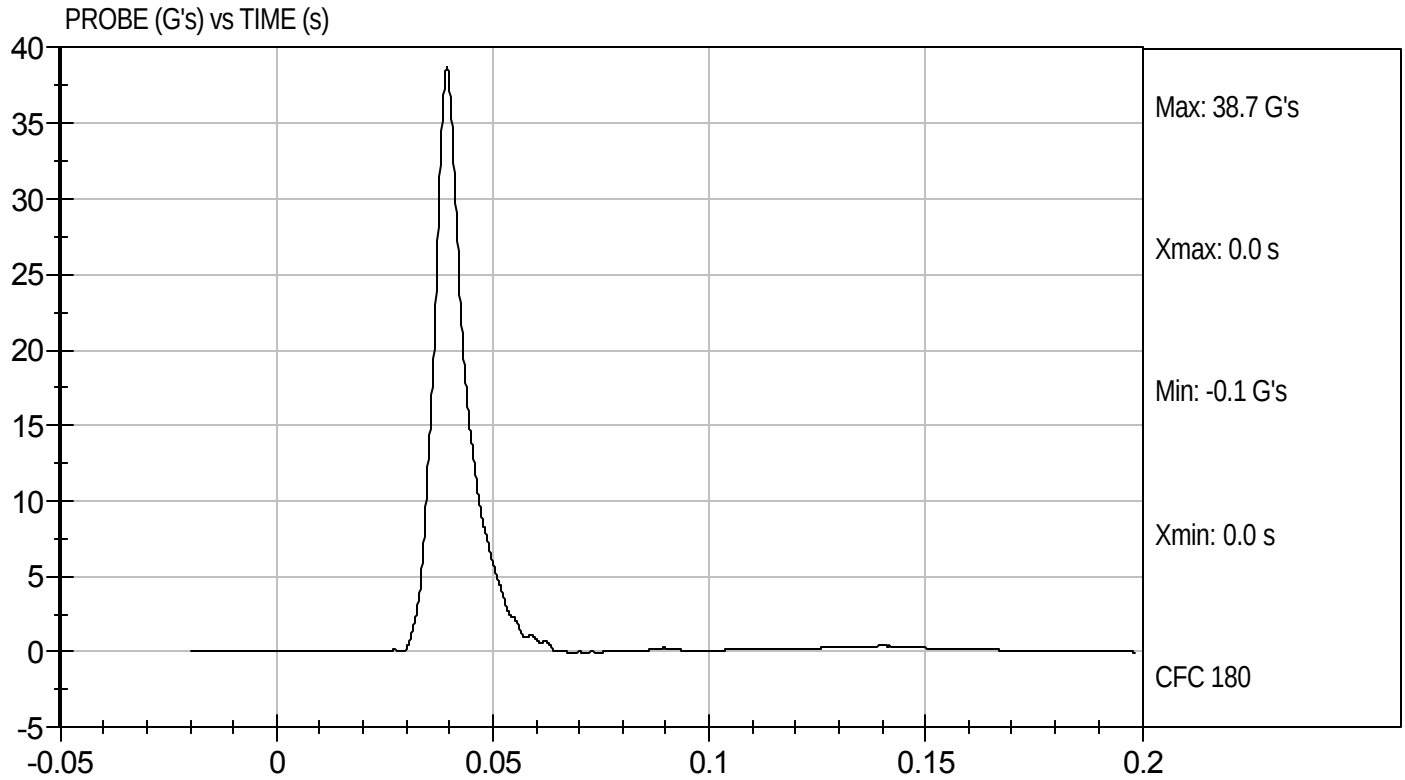
11/1/11
Test Date


Approved By



Test Desc: Iliac Impact
Component ID: D113648

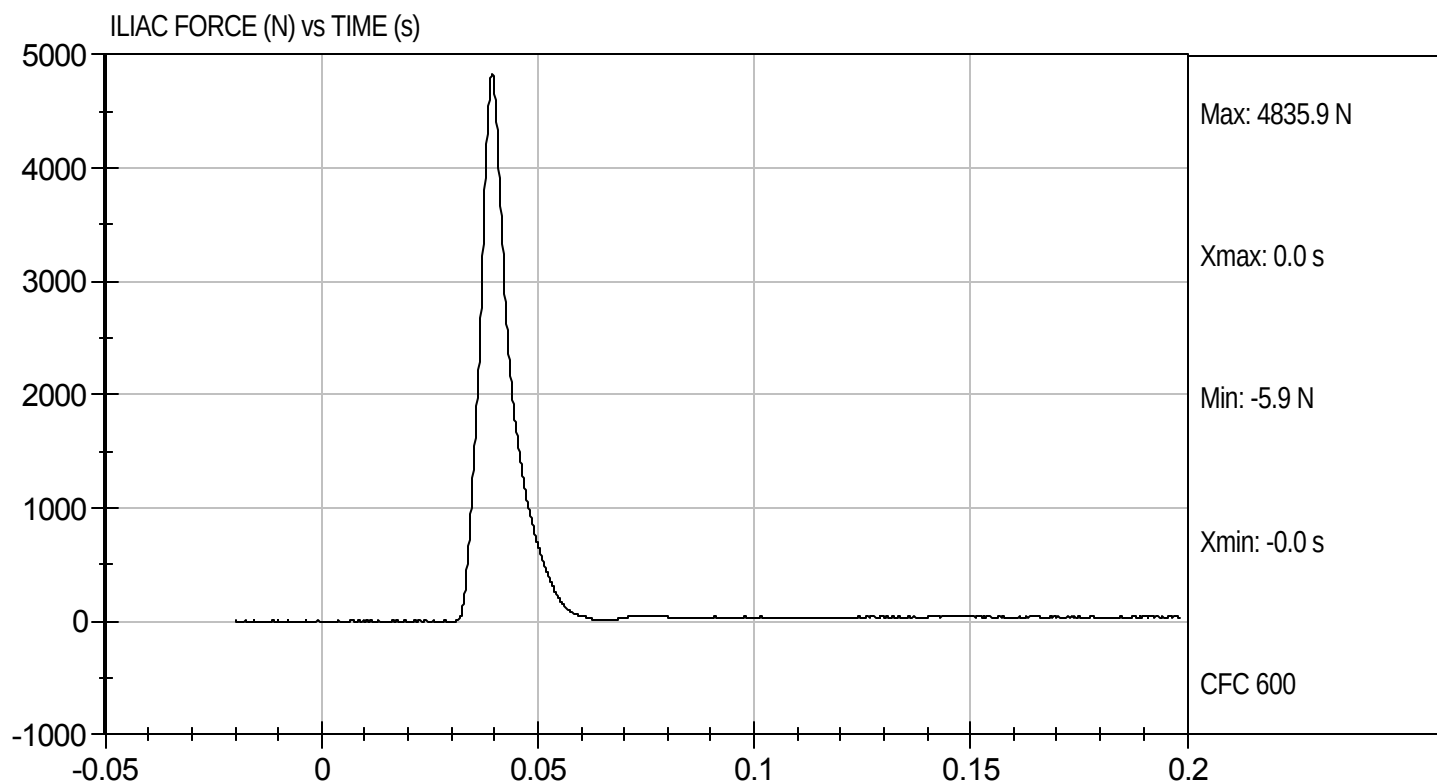
Test Date: 11/1/11
Velocity: 14.36 ft/s, 4.38 m/s





Test Desc: Iliac Impact
Component ID: D113648

Test Date: 11/1/11
Velocity: 14.36 ft/s, 4.38 m/s



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

ATD Serial No: 296

Test ID: D113711

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	20.9	Pass
Laboratory Relative Humidity	%	10 to 70	29	Pass
Peak Resultant Acceleration	G's	115 to 137	121	Pass
Peak Lateral Acceleration	G's	+/- 15	-6.7	Pass
Unimodal	N/A	<15%	Yes	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

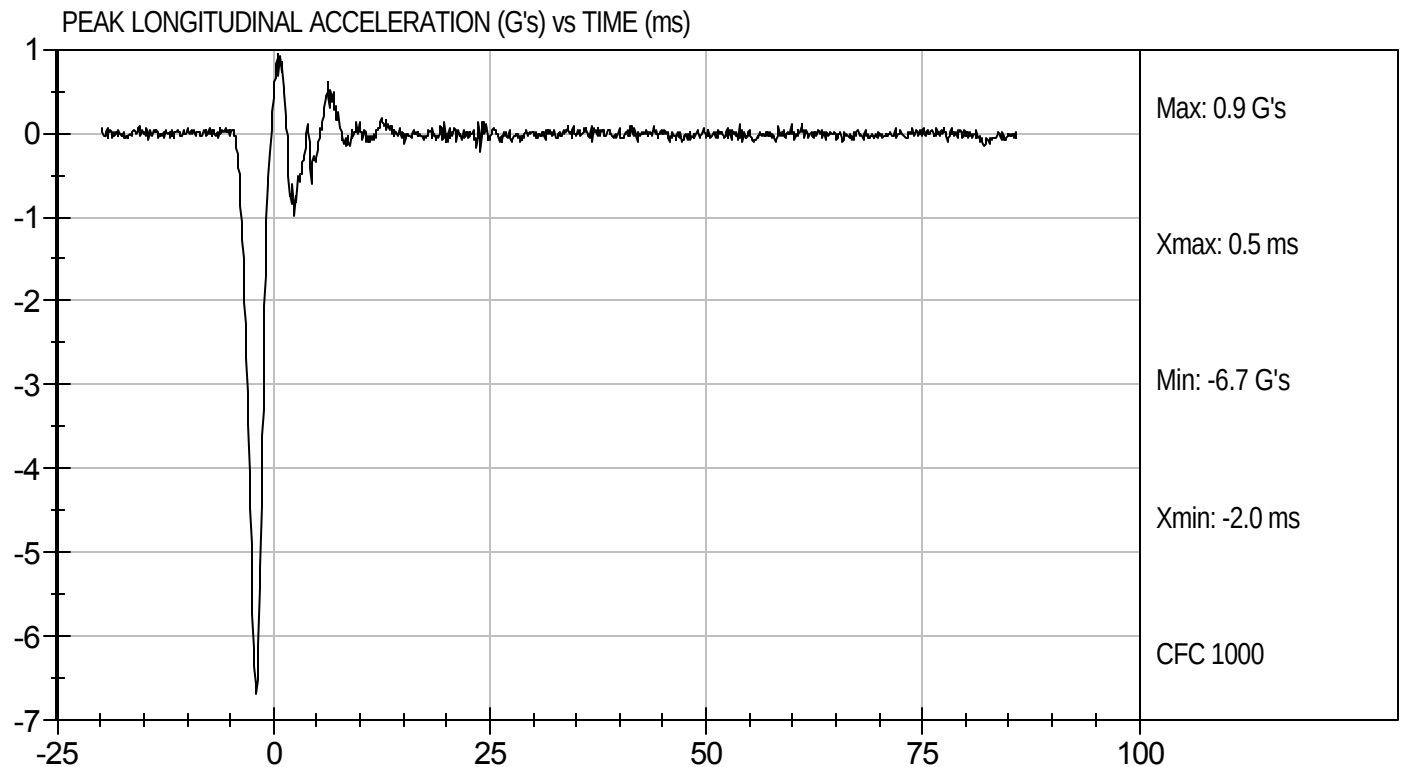
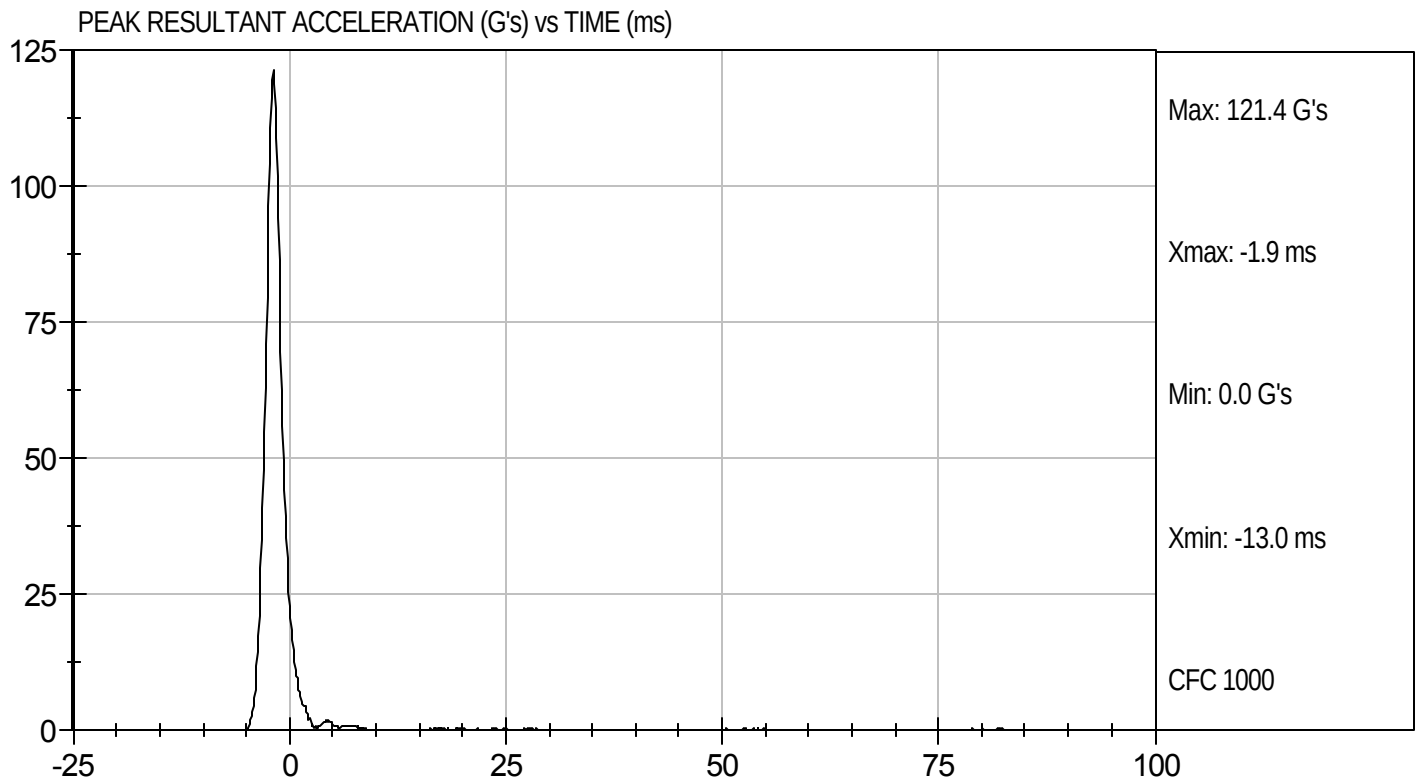
11/7/11
Test Date

David Winkelbauer
Approved By



Test Desc: Head Drop
Component ID: D113711

Test Date: 11/7/11
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: D113712

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	20.9	Pass
Humidity		%	10 to 70	35	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Delta Velocity	10 ms	m/s	2.20 to 2.80	2.35	Pass
	15 ms	m/s	3.30 to 4.10	3.33	Pass
	20 ms	m/s	4.40 to 5.40	4.46	Pass
	25 ms	m/s	5.40 to 6.10	5.44	Pass
	25-100 ms	m/s	5.50 to 6.20	5.80	Pass
Maximum D-Plane Rotation		deg	71 to 81	72	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	60	Pass
Maximum Occipital Condyle Moment during Rotation Interval Nm			-44 to -36	-40	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	115	Pass
Overall Test Results				Pass	


 Laboratory Technician

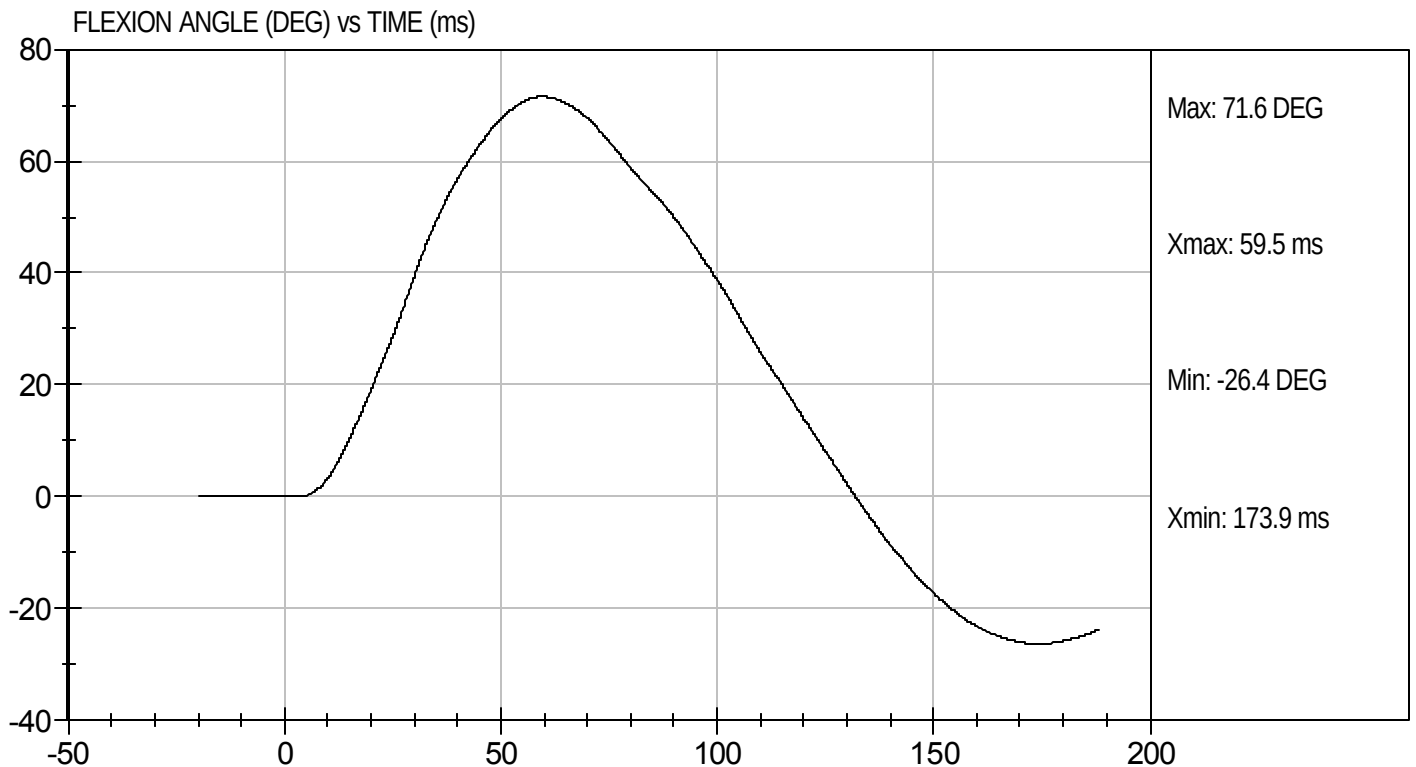
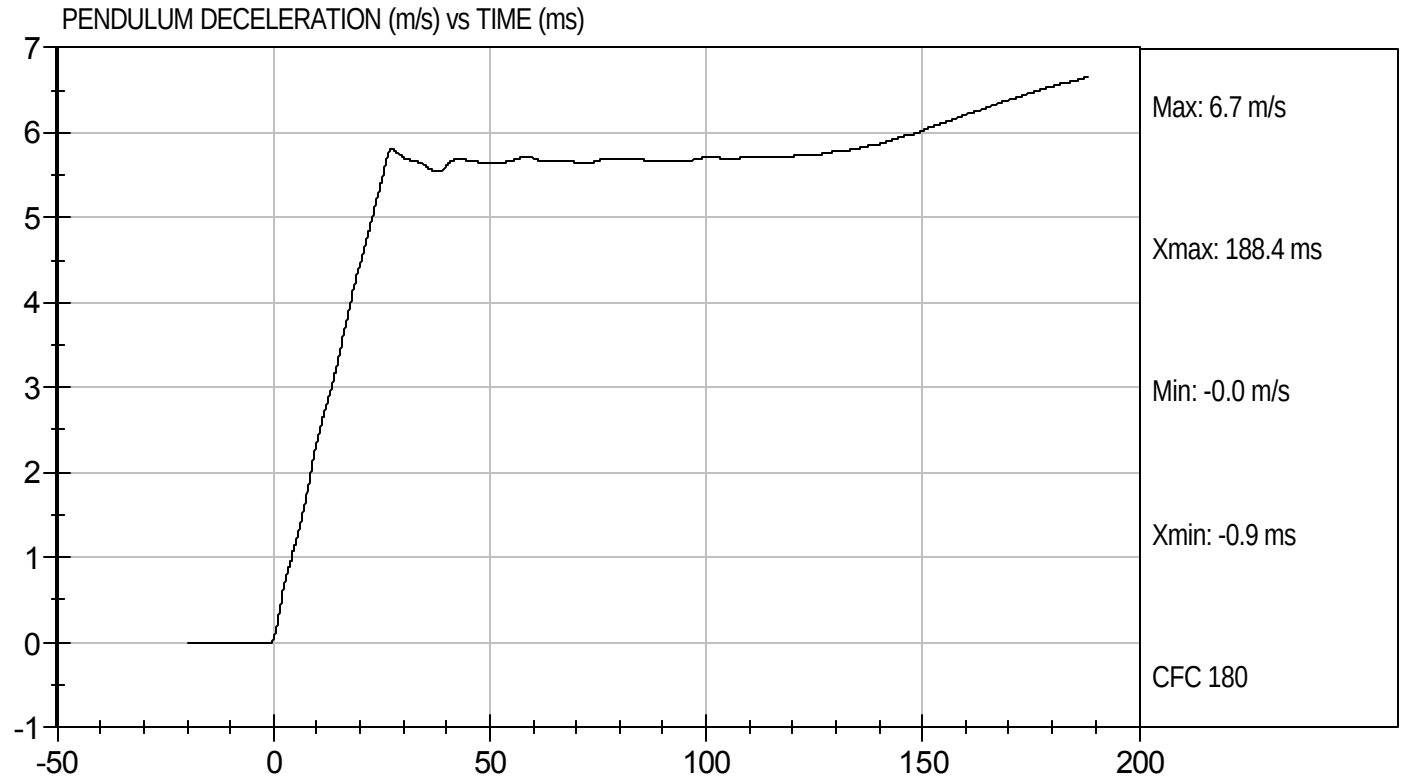
11/8/11
 Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D113712

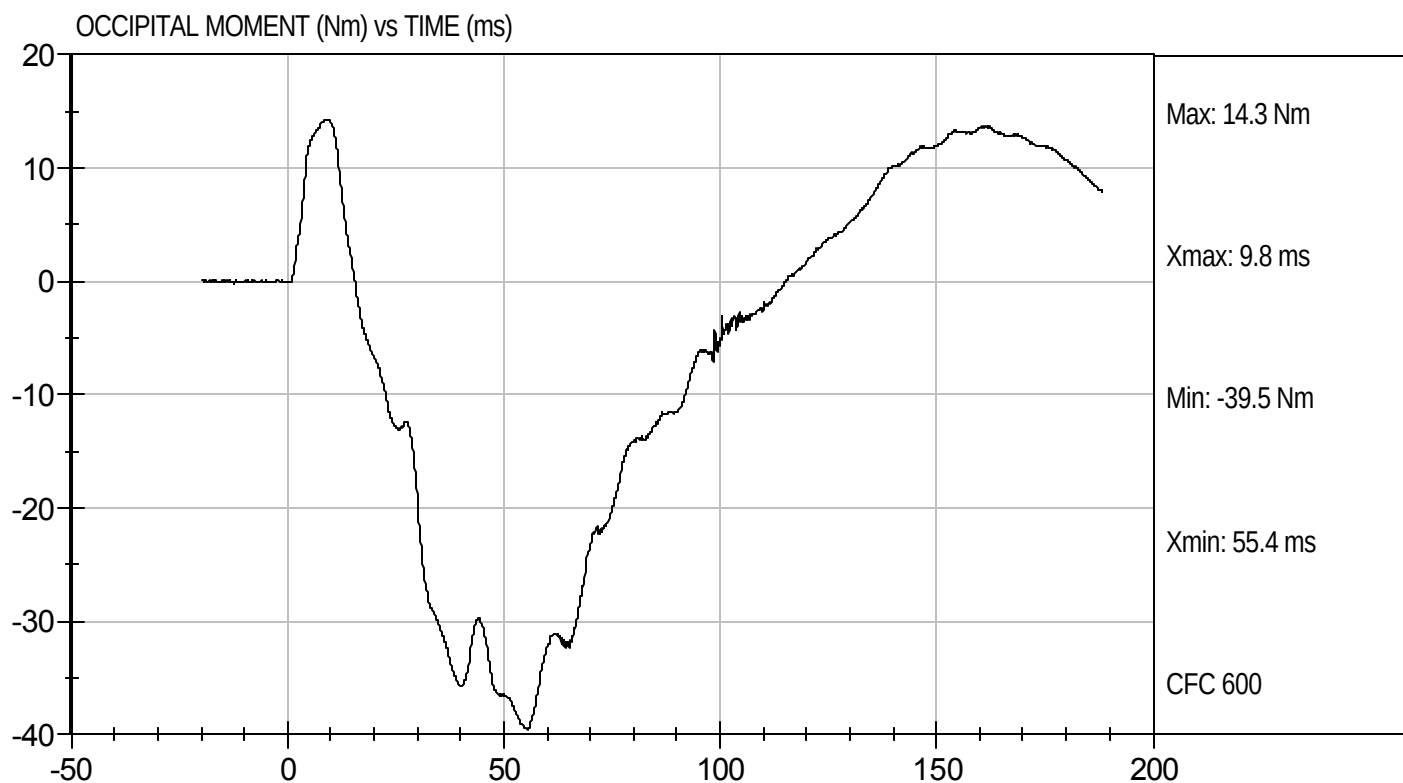
Test Date: 11/8/11
Velocity: 18.31 ft/s, 5.58 m/s





Test Desc: Neck Bending
Component ID: D113712

Test Date: 11/8/11
Velocity: 18.31 ft/s, 5.58 m/s



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

ATD Serial No: 296

Test ID: D113713

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	20.9	Pass
Laboratory Relative Humidity	%	10 to 70	36	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	30	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	18	Pass
Overall Test Results				Pass

Jessica Gall
Laboratory Technician

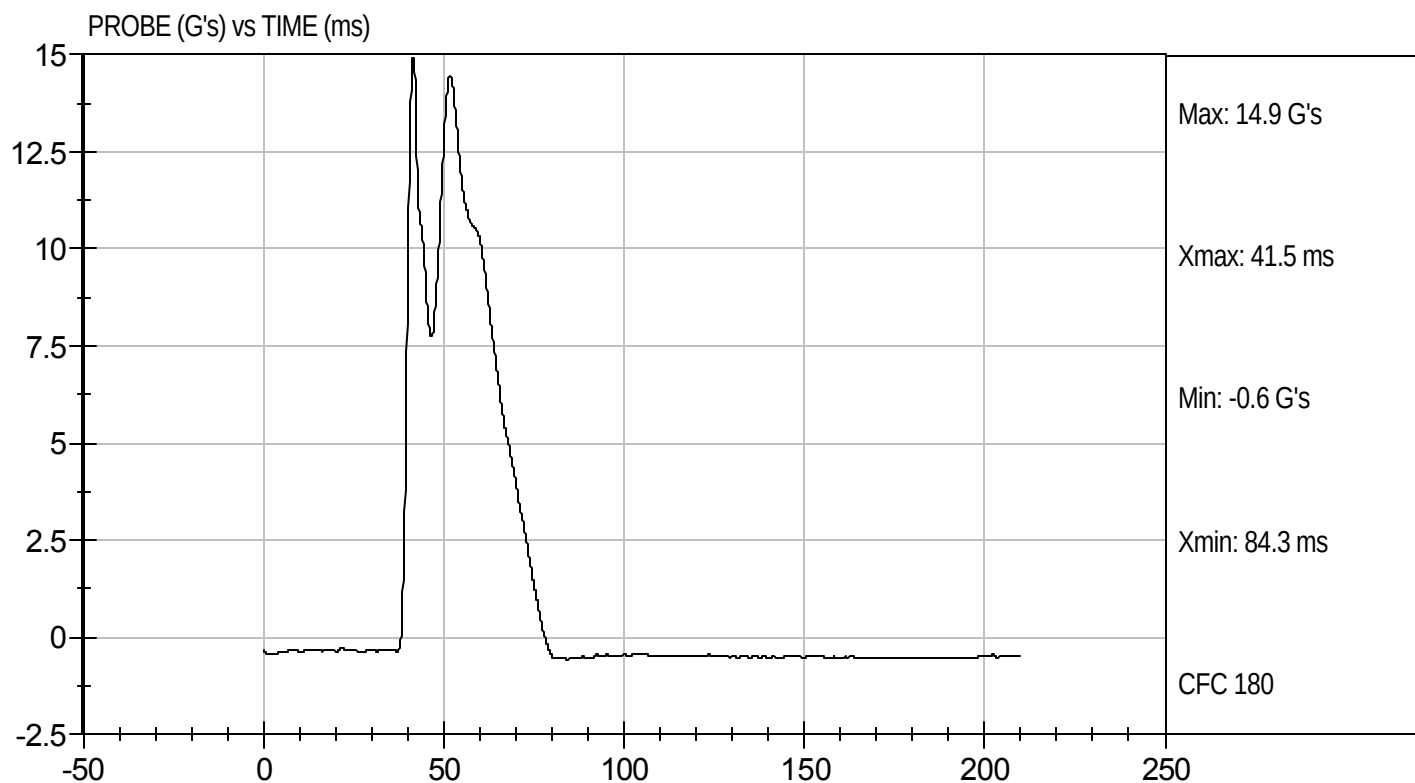
11/8/11
Test Date

David Winkelbauer
Approved By



Test Desc: Shoulder Impact
Component ID: D113713

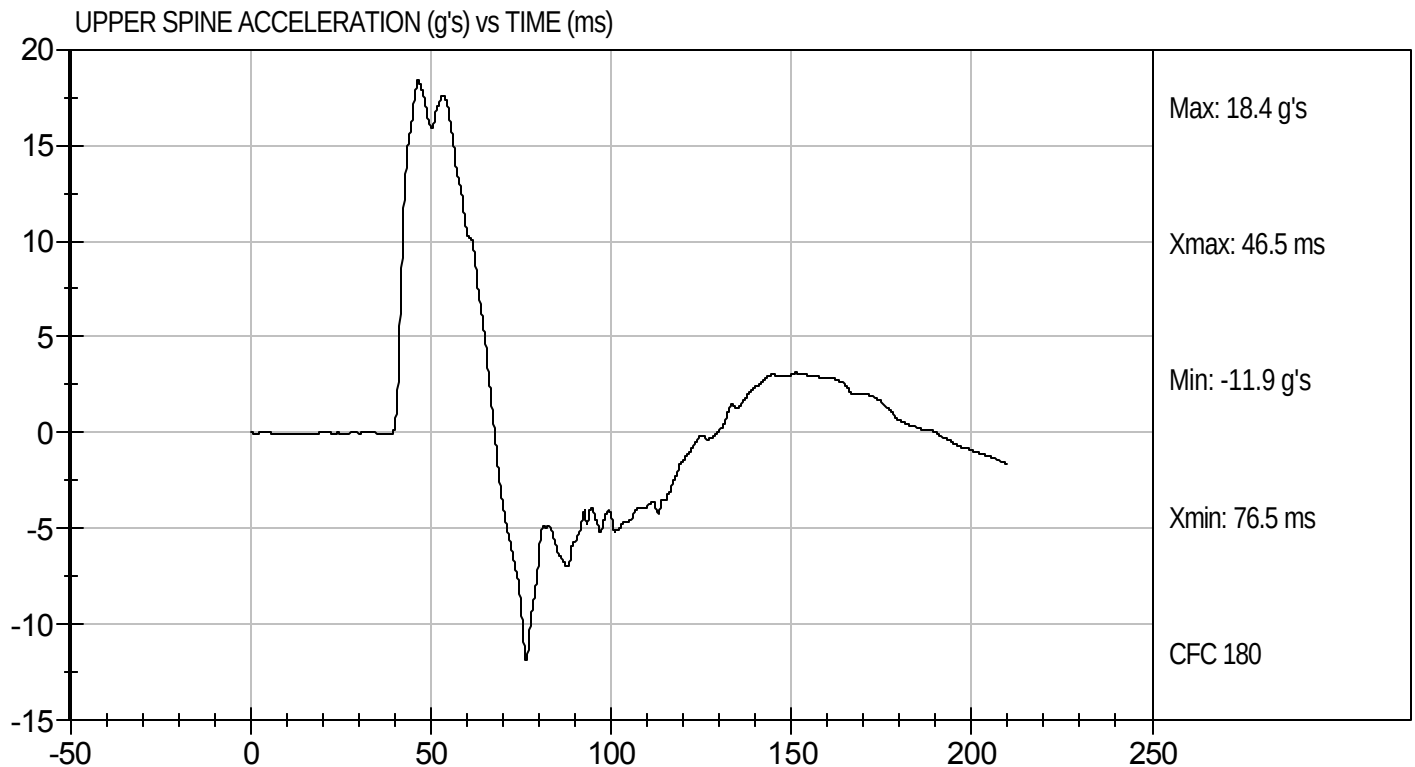
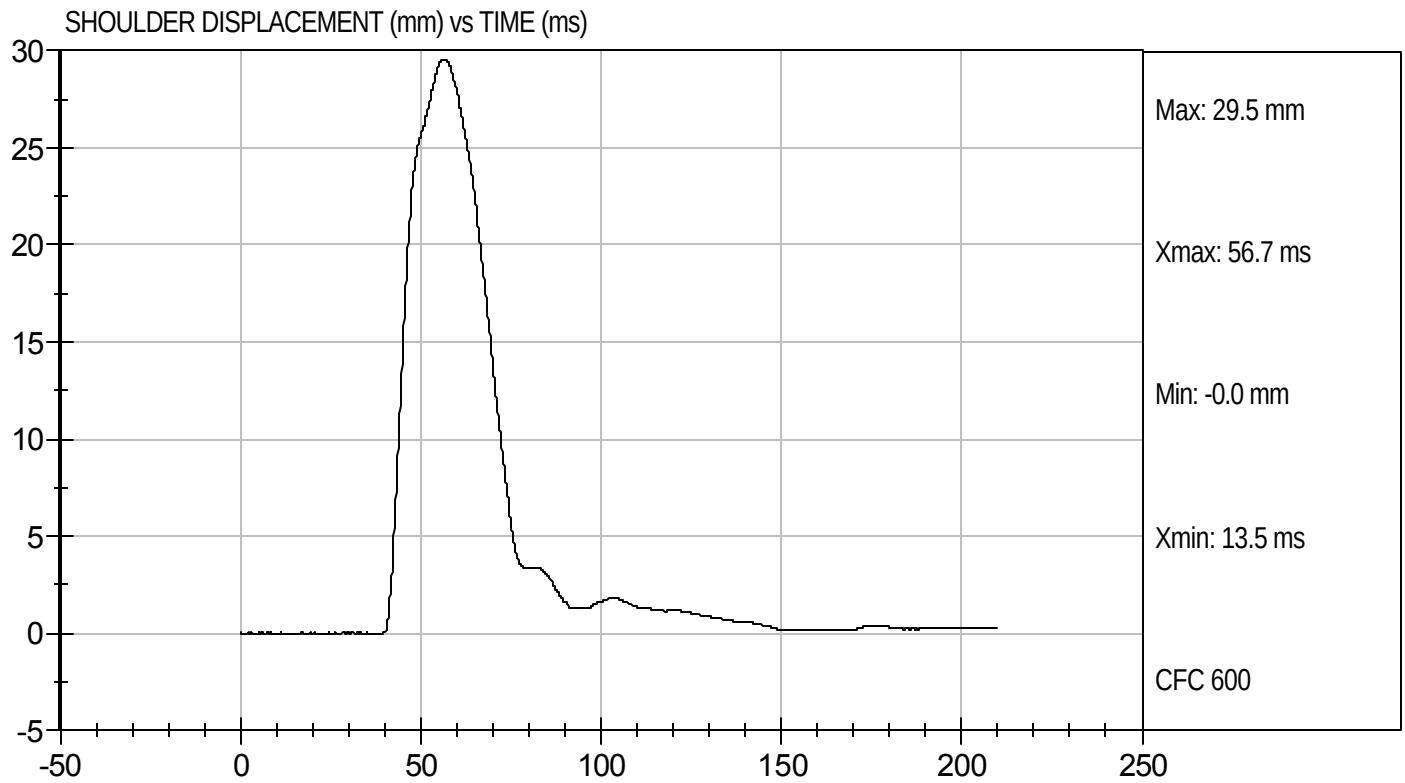
Test Date: 11/8/11
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Shoulder Impact
Component ID: D113713

Test Date: 11/8/11
Velocity: 14.25 ft/s, 4.34 m/s



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

ATD Serial No: 296

Test I.D: D113714

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.0	Pass
Humidity	%	10 to 70	36	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	36	Pass
Upper Rib Displacement	mm	25 to 32	27	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	33	Pass
Overall Test Results				Pass


Laboratory Technician

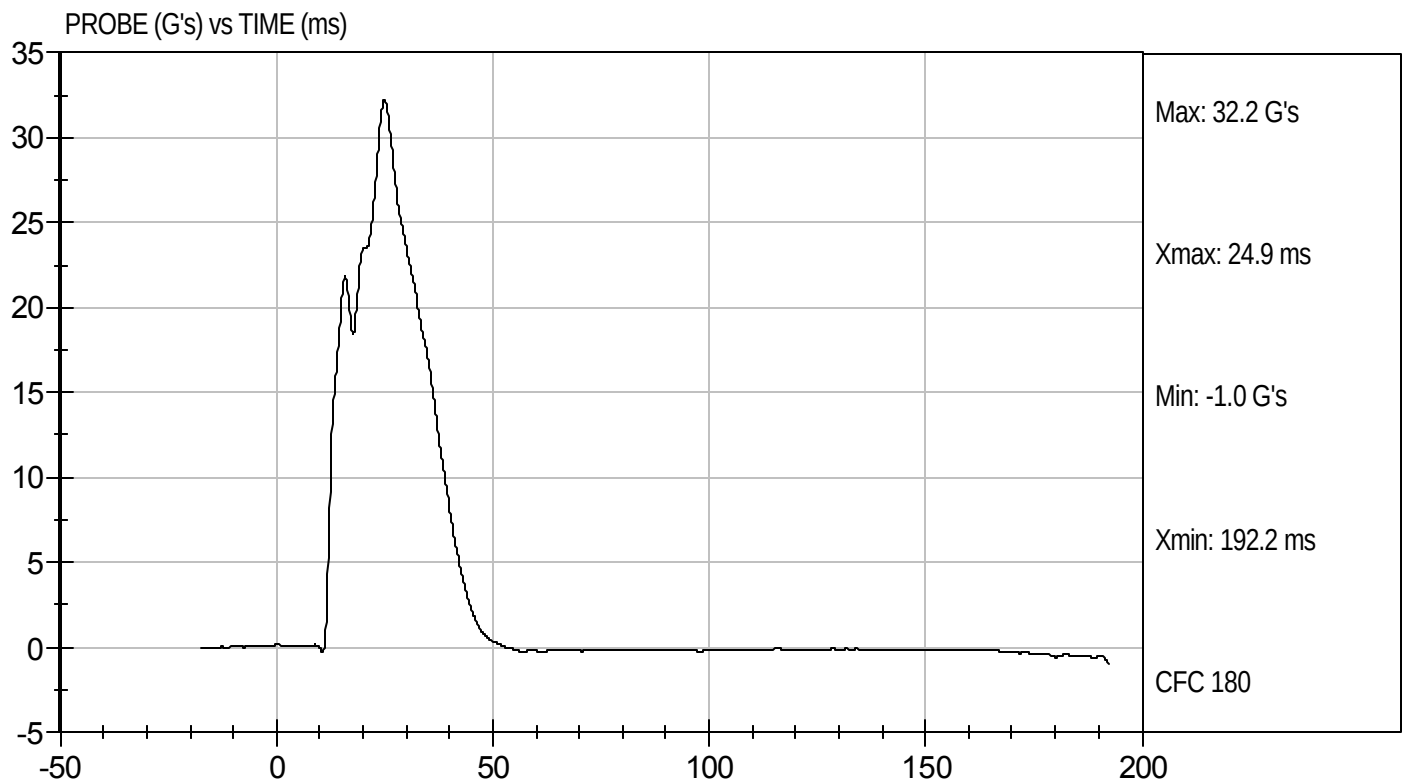
11/8/11
Test Date


Approved By



Test Desc: Thorax With Arm
Component ID: D113714

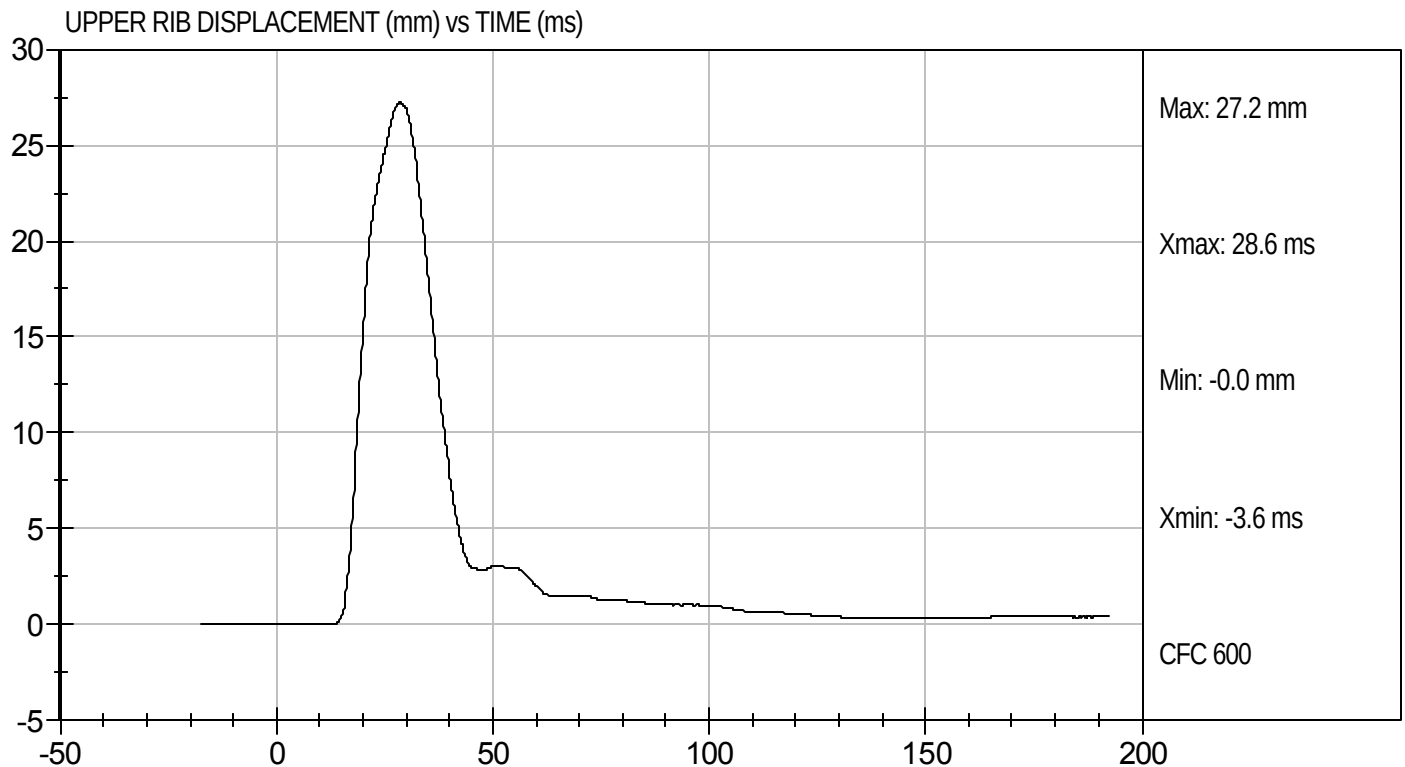
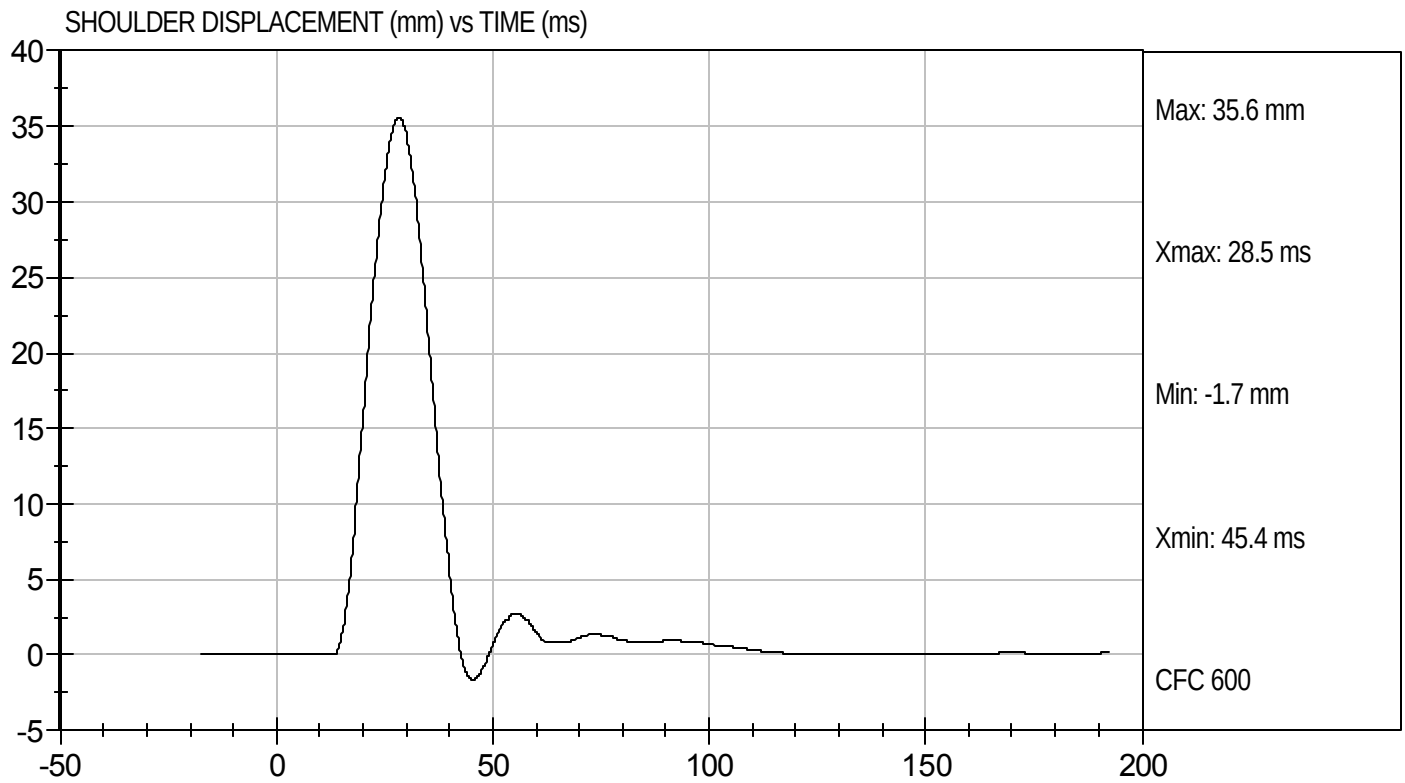
Test Date: 11/8/11
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D113714

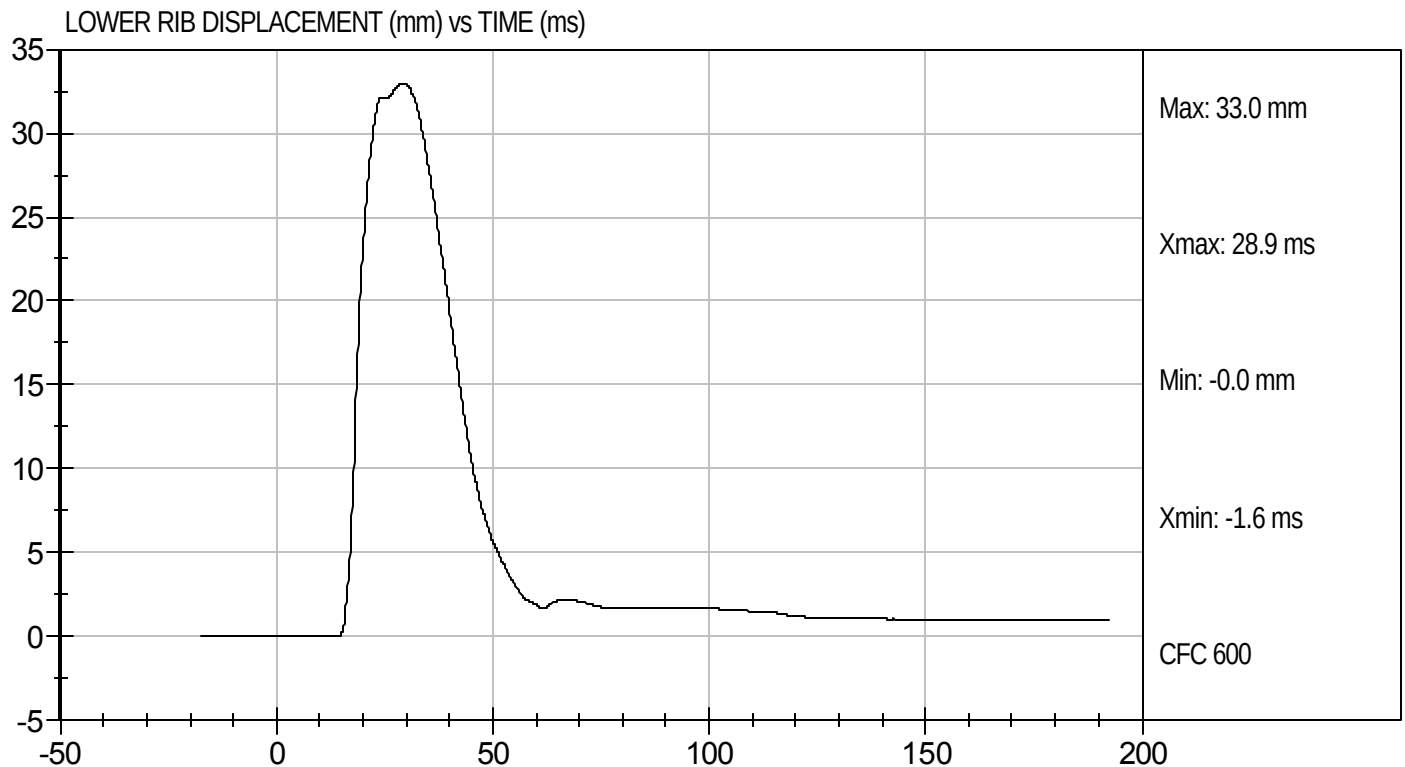
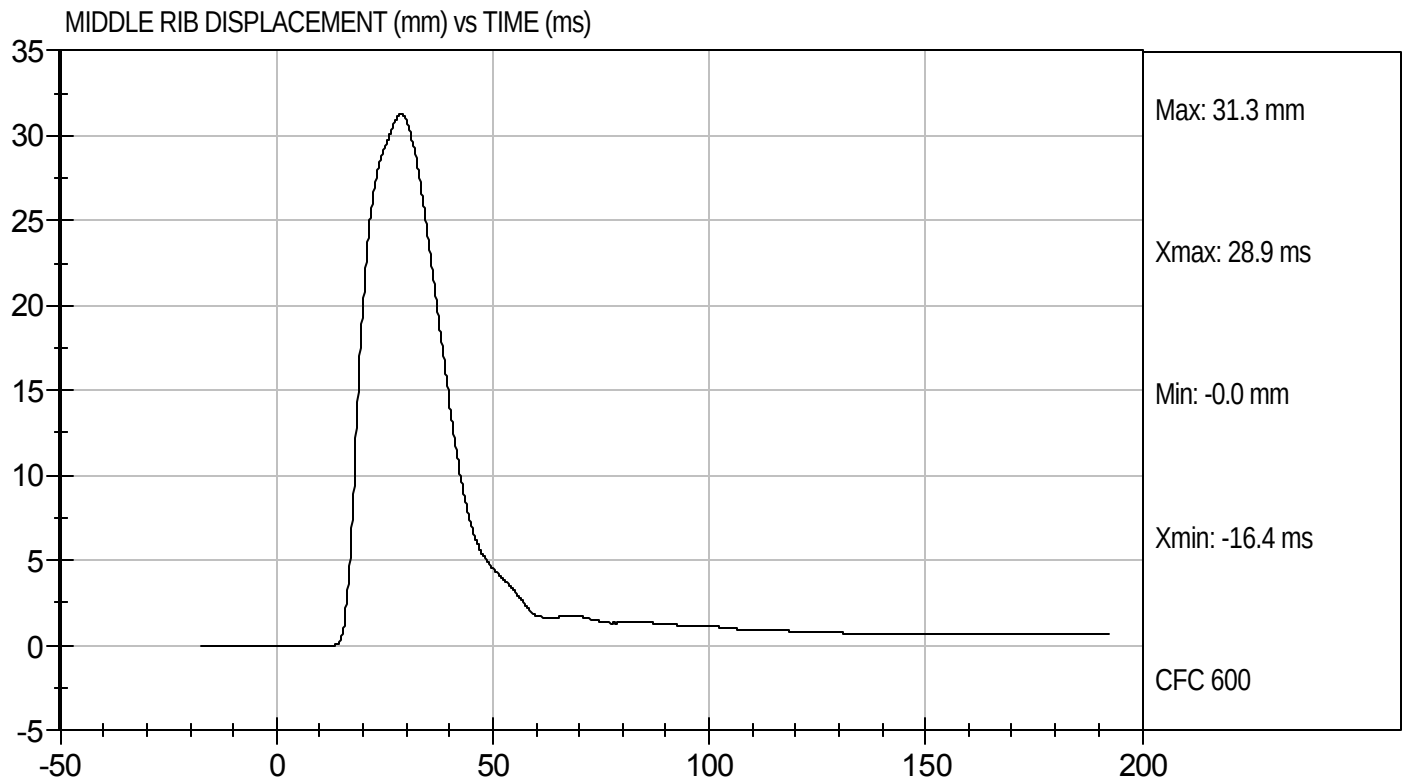
Test Date: 11/8/11
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D113714

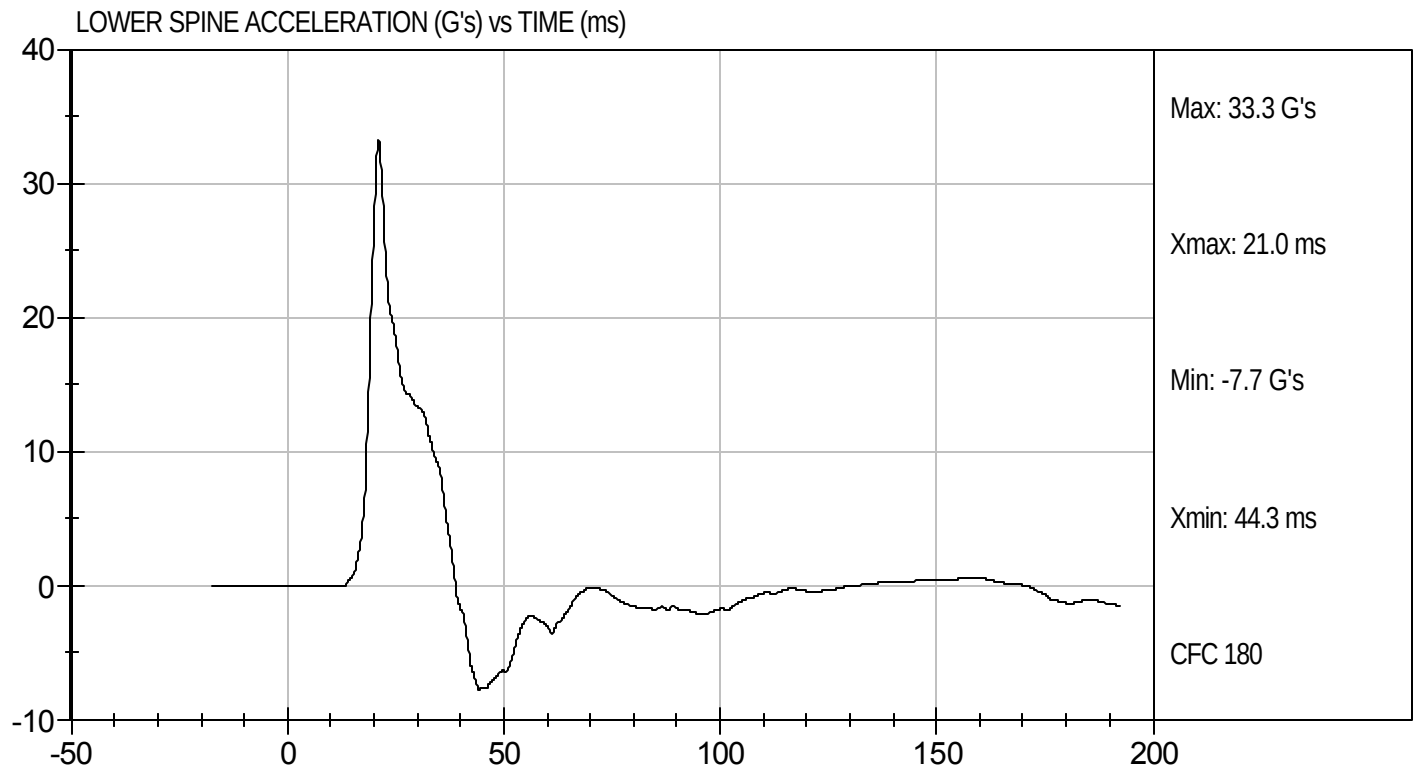
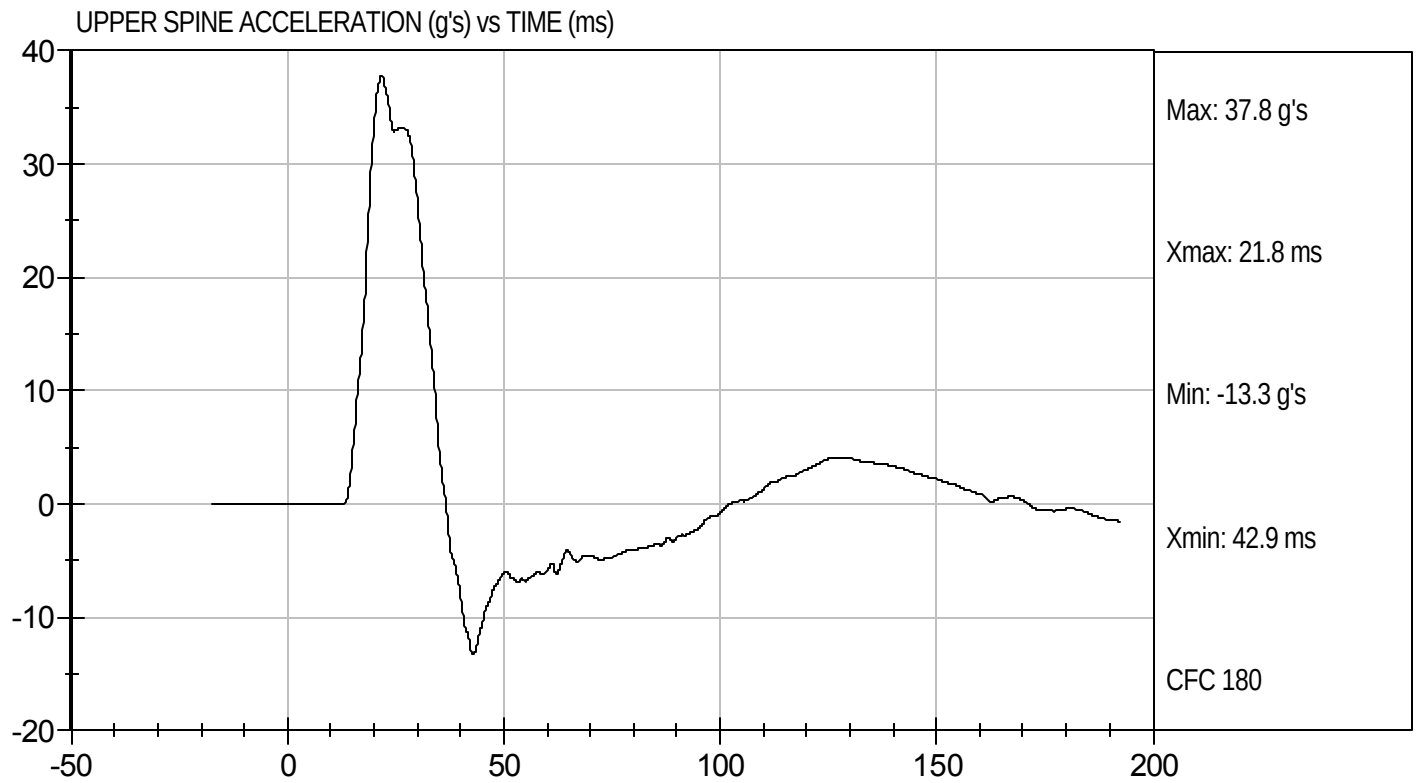
Test Date: 11/8/11
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D113714

Test Date: 11/8/11
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: D113715

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.0	Pass
Humidity	%	10 to 70	35	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	36	Pass
Middle Rib Displacement	mm	39 to 45	41	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

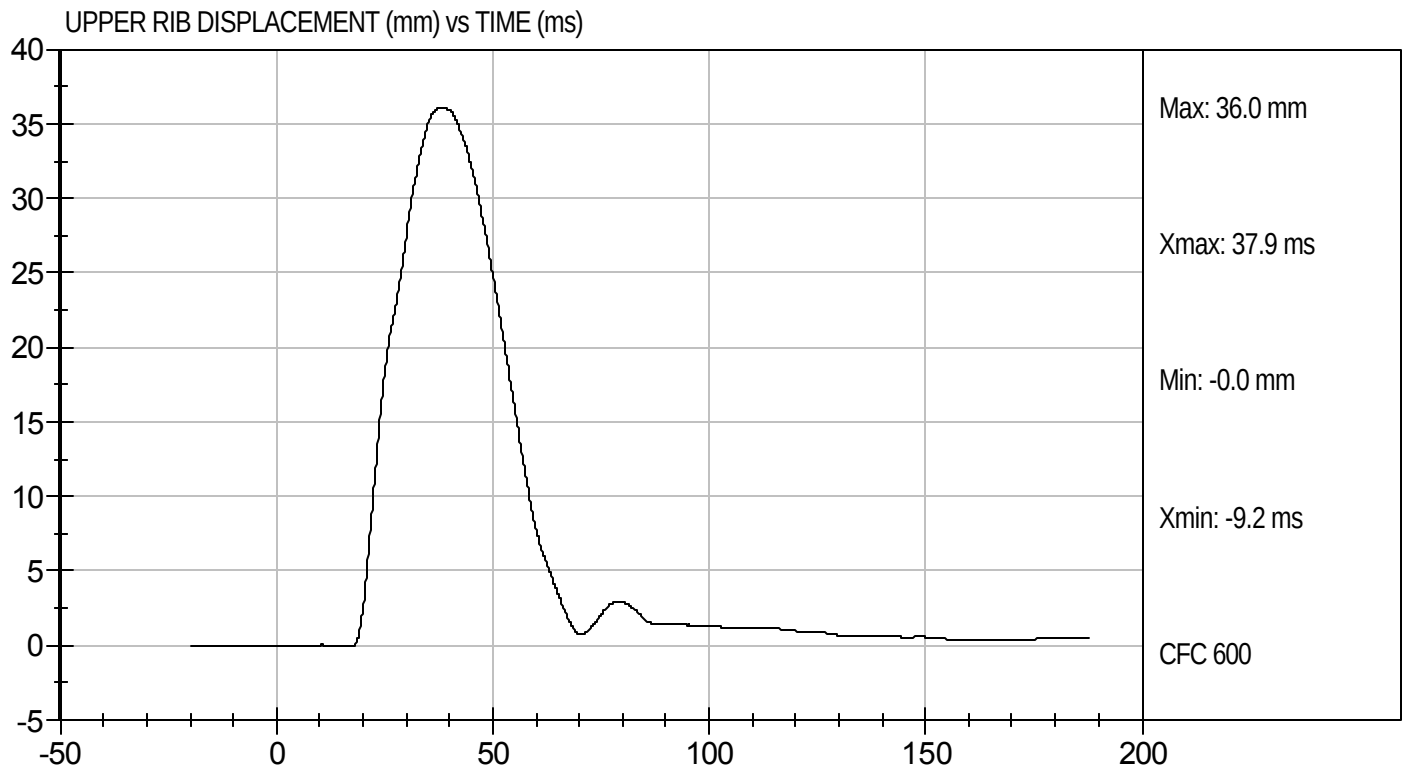
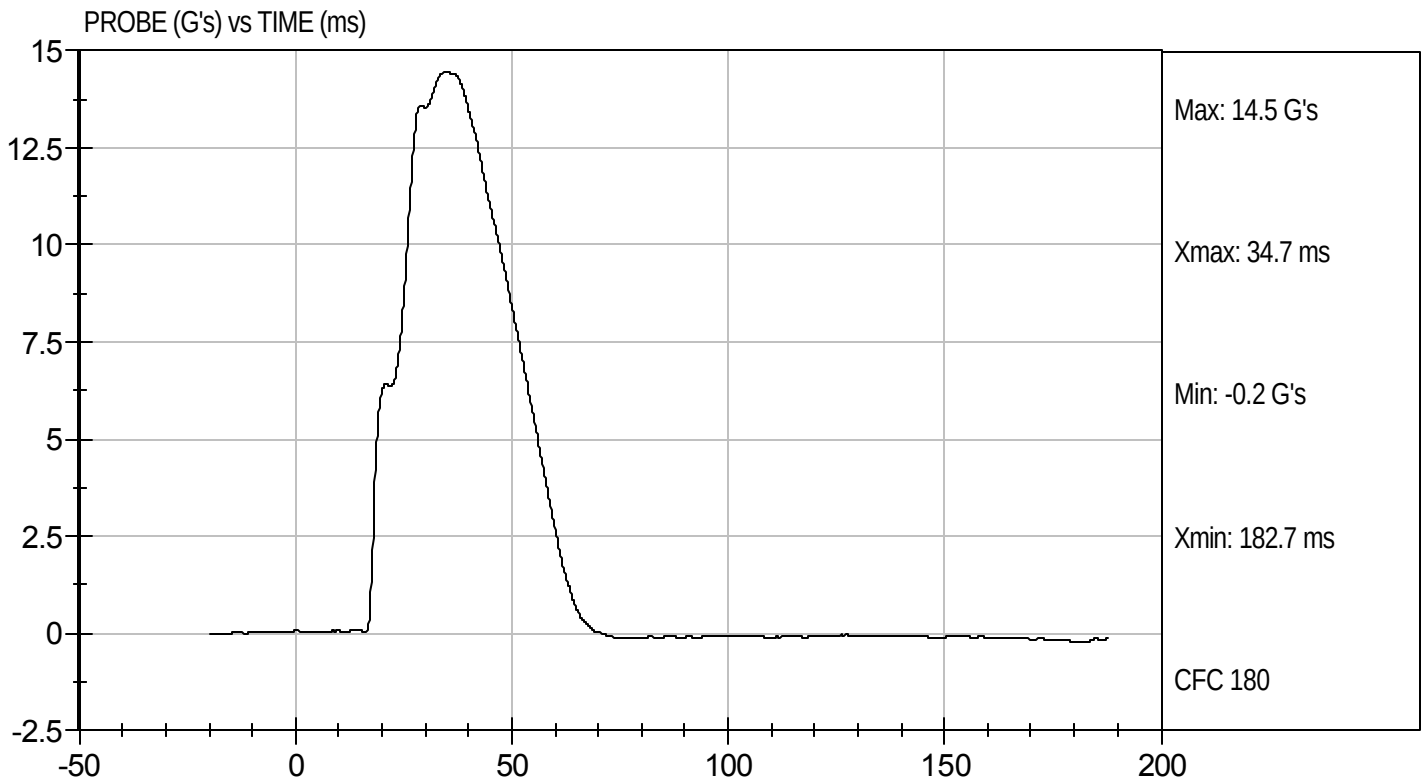
11/8/11
Test Date


Approved By



Test Desc: Thorax Without Arm
Component ID: D113715

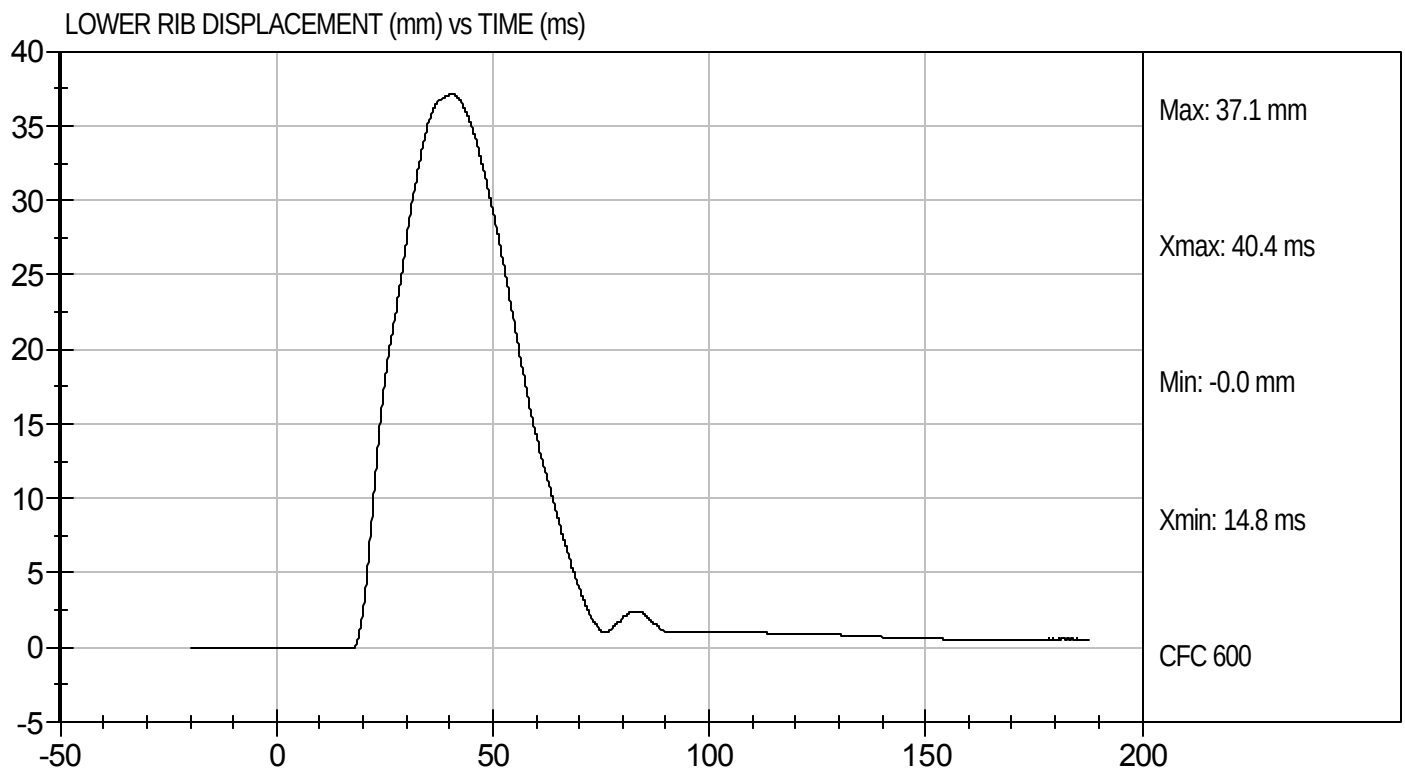
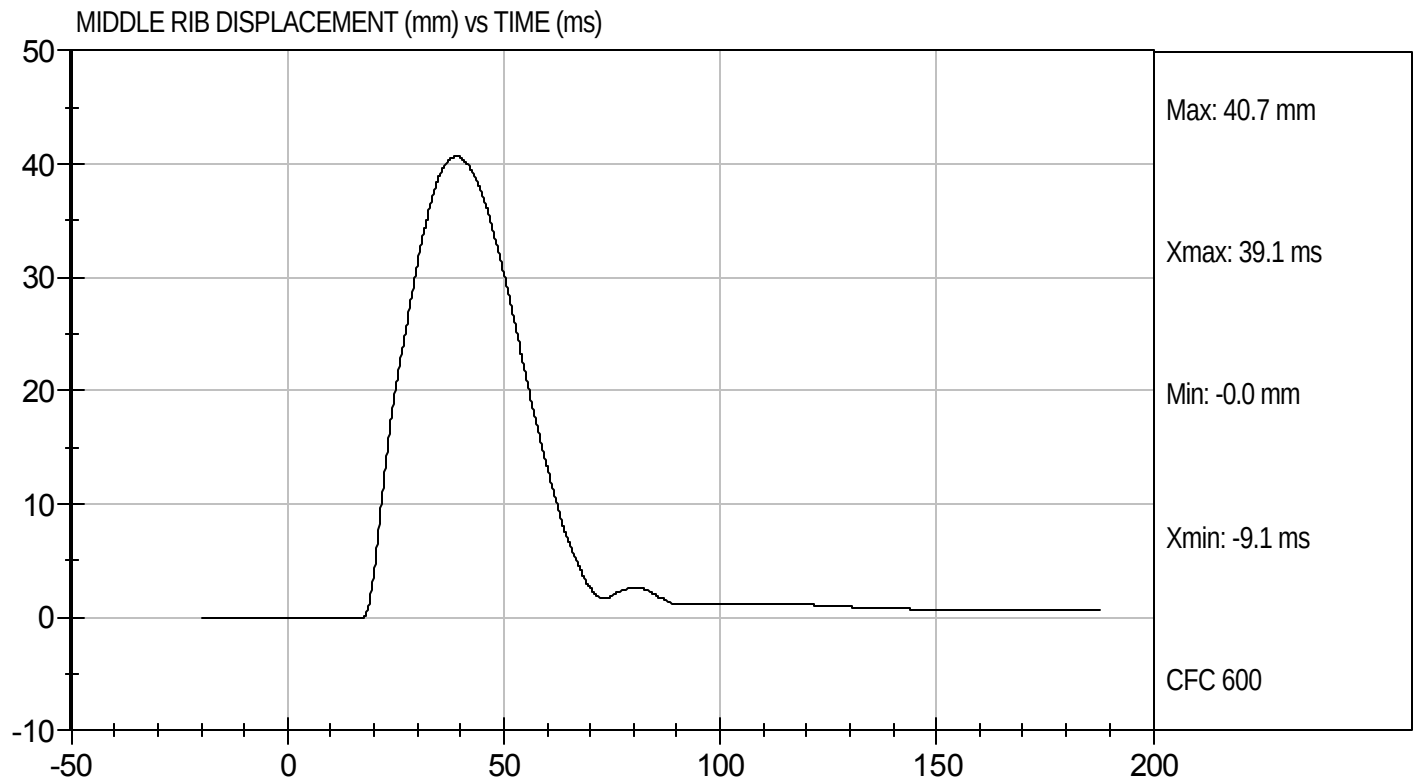
Test Date: 11/8/11
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Thorax Without Arm
Component ID: D113715

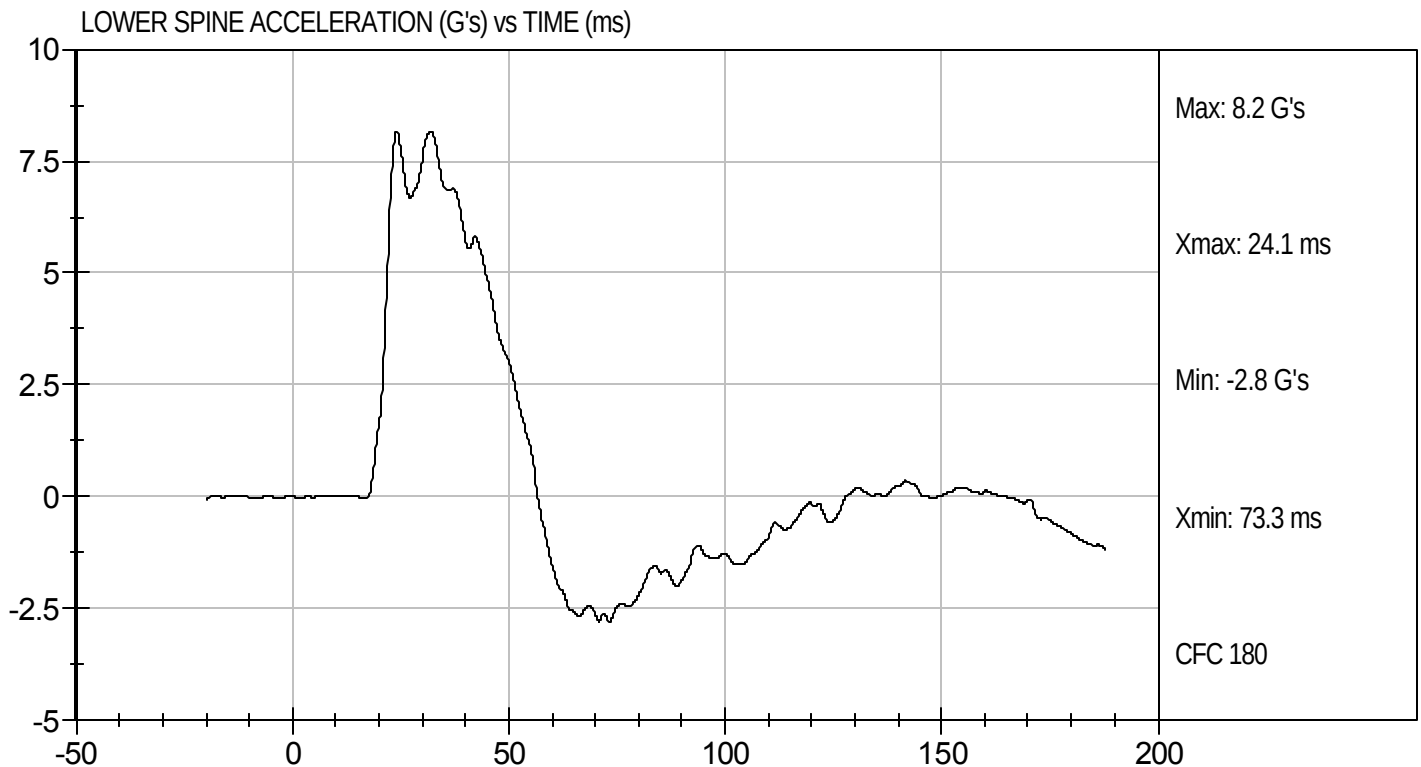
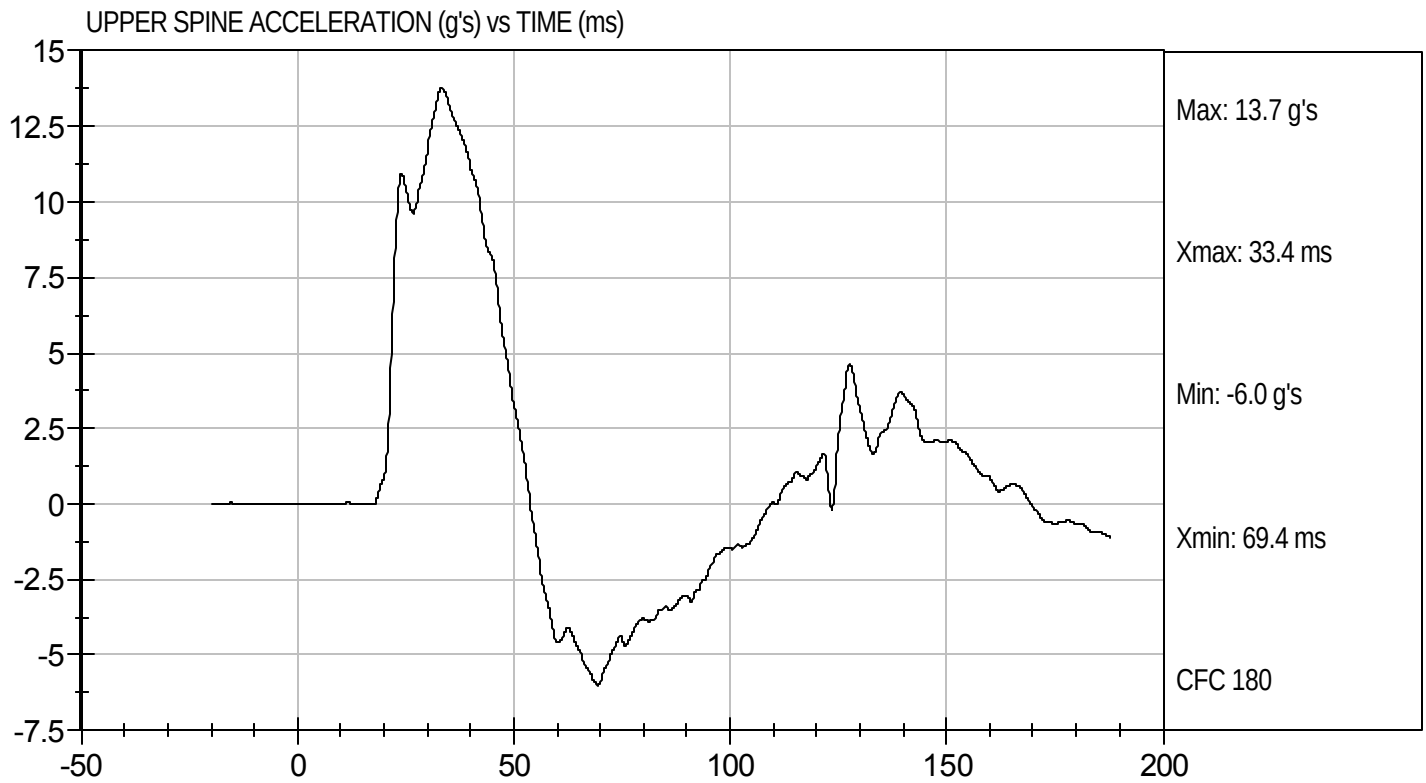
Test Date: 11/8/11
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Thorax Without Arm
Component ID: D113715

Test Date: 11/8/11
Velocity: 14.25 ft/s, 4.34 m/s

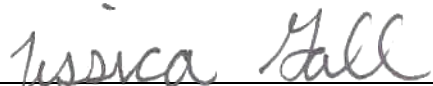


MGA RESEARCH CORPORATION
ABDOMINAL IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D113716

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.1	Pass
Humidity	%	10 to 70	35	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Peak Impactor Acceleration	G's	12 to 16	13	Pass
Upper Rib Displacement	mm	36 to 47	37	Pass
Lower Rib Displacement	mm	33 to 44	42	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	10	Pass
			Overall Test Results	Pass


Laboratory Technician

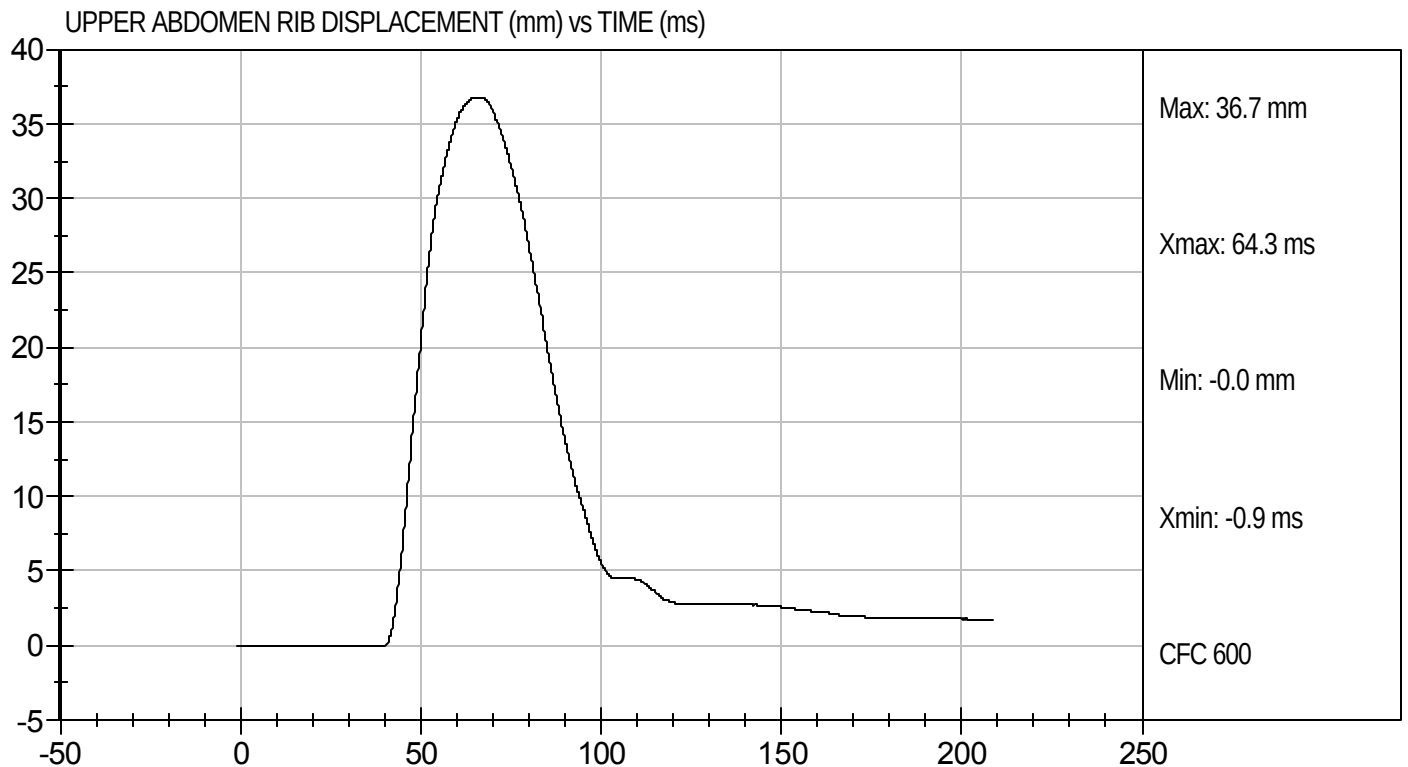
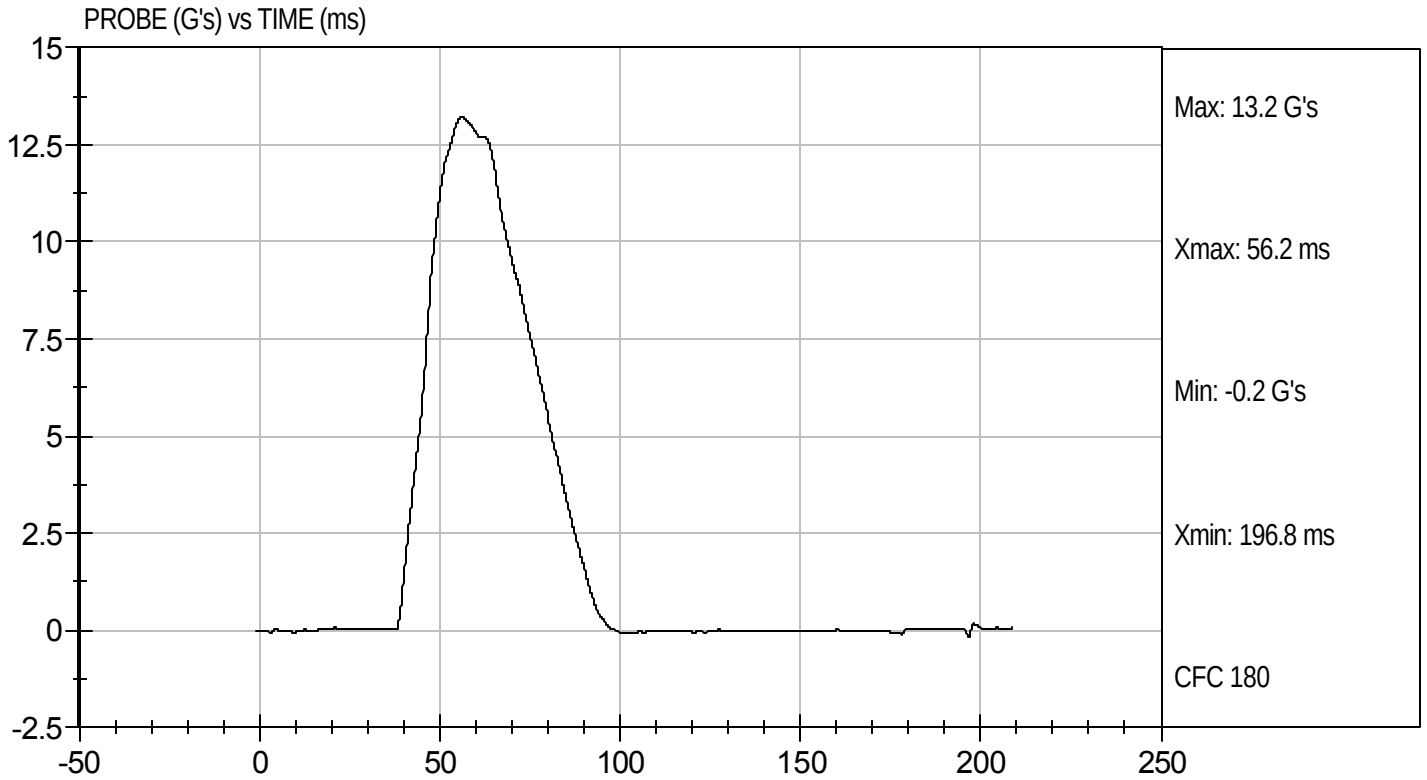
11/8/11
Test Date


Approved By



Test Desc: Abdomen Impact
Component ID: D113716

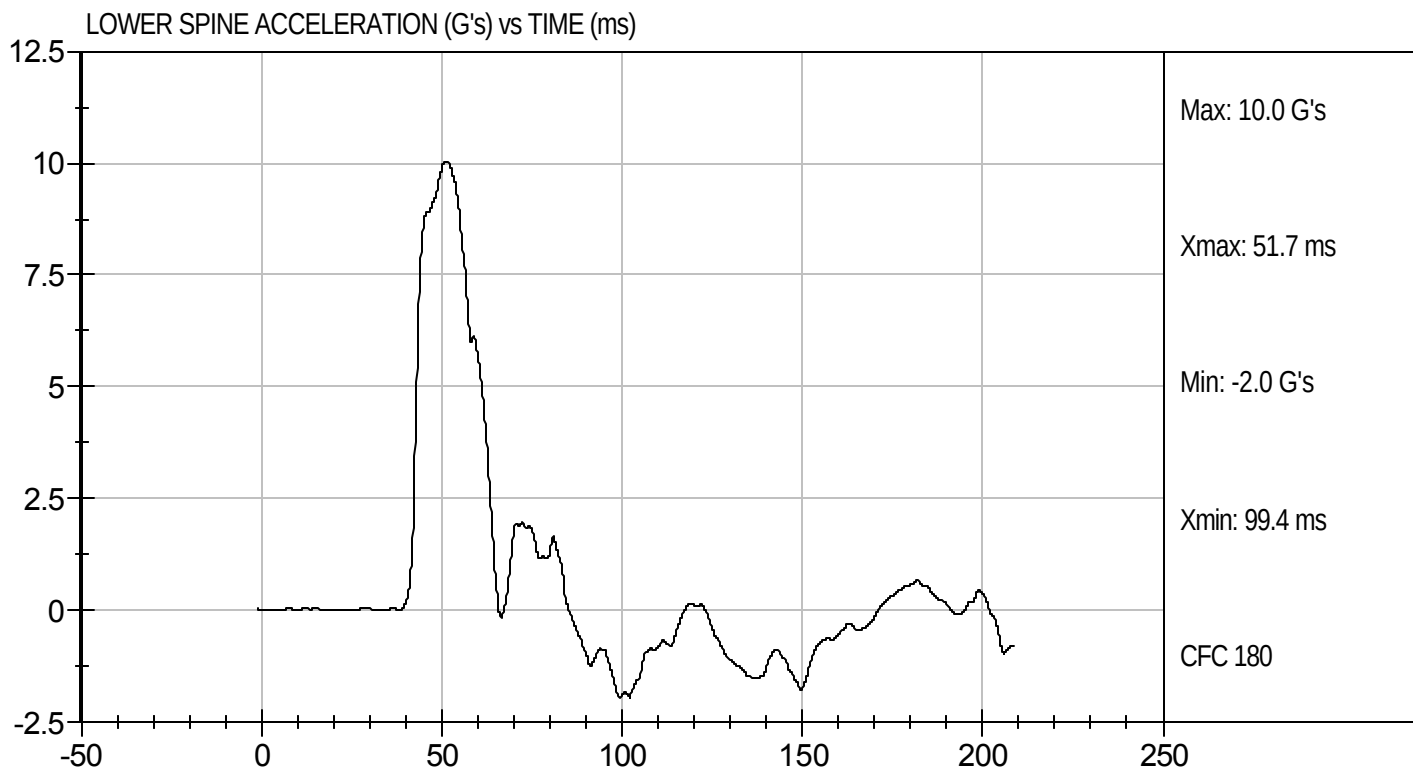
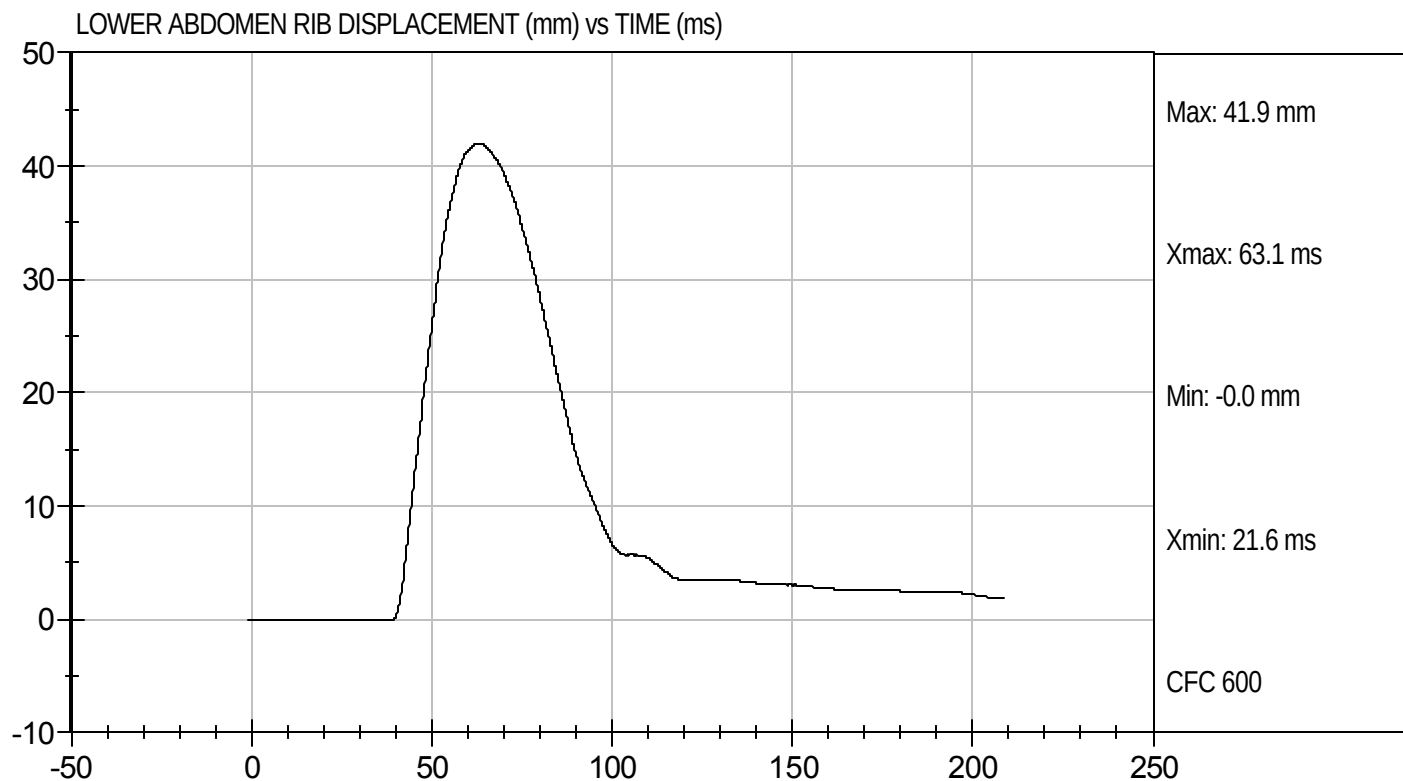
Test Date: 11/8/11
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Abdomen Impact
Component ID: D113716

Test Date: 11/8/11
Velocity: 14.25 ft/s, 4.34 m/s

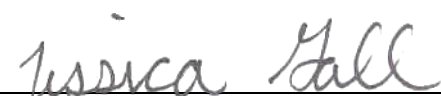


MGA RESEARCH CORPORATION
PELVIS IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D113717

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.0	Pass
Humidity	%	10 to 70	35	Pass
Impact Velocity	m/s	6.60 to 6.80	6.70	Pass
Peak Impactor Acceleration	G's	38 to 47	43	Pass
Pelvis Y Acceleration after 6 ms	G's	34 to 42	42	Pass
Peak Acetabulum Force	N	3600 to 4300	3874	Pass
Overall Test Results			Pass	


Laboratory Technician

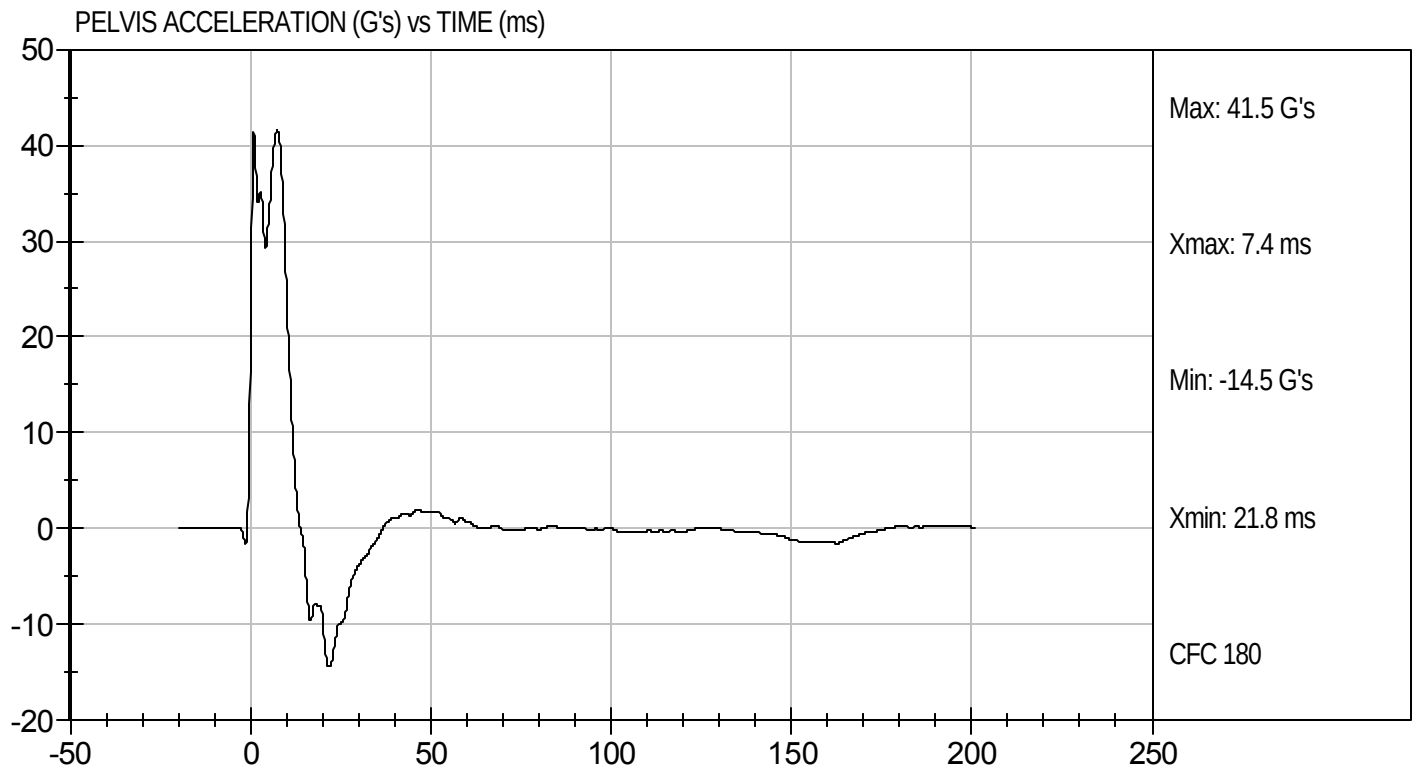
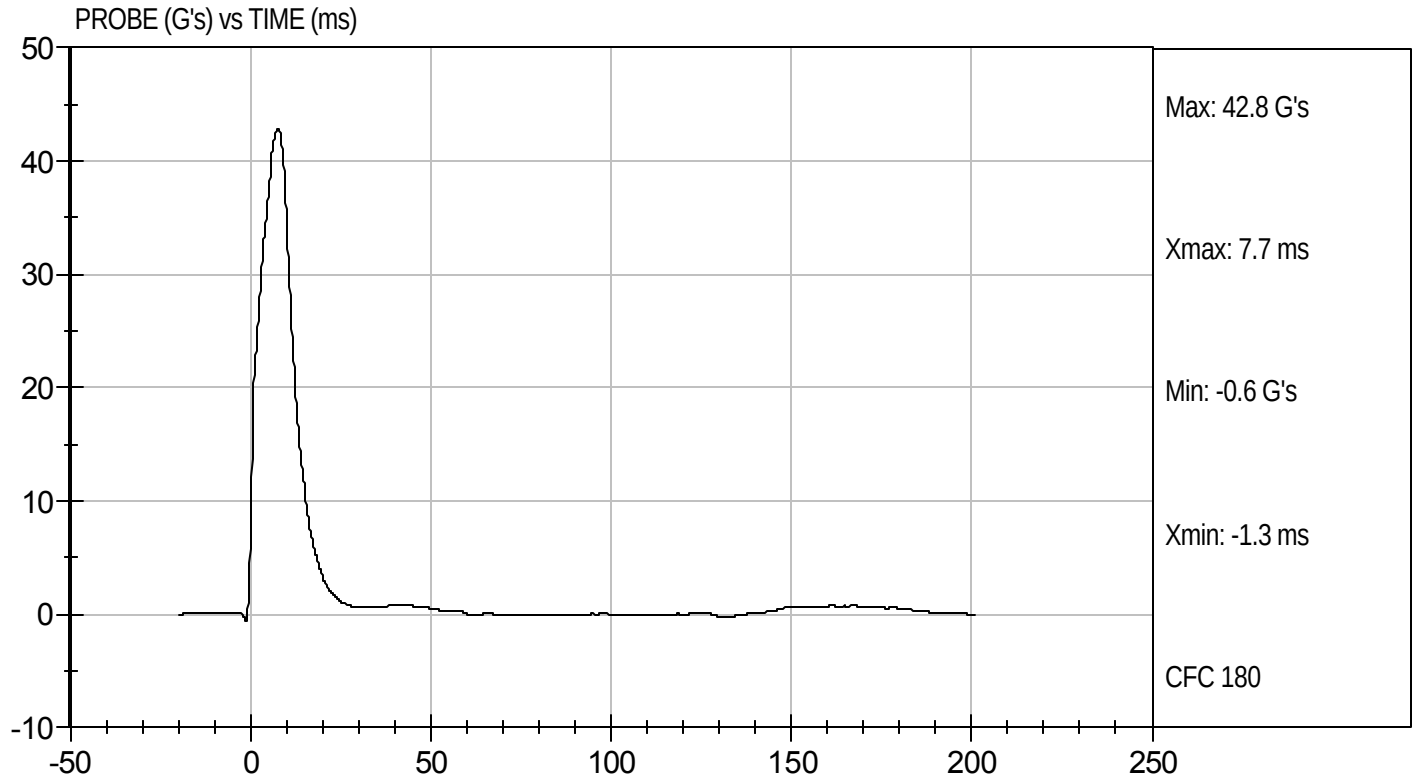
11/8/11
Test Date


Approved By



Test Desc: Pelvis Impact
Component ID: D113717

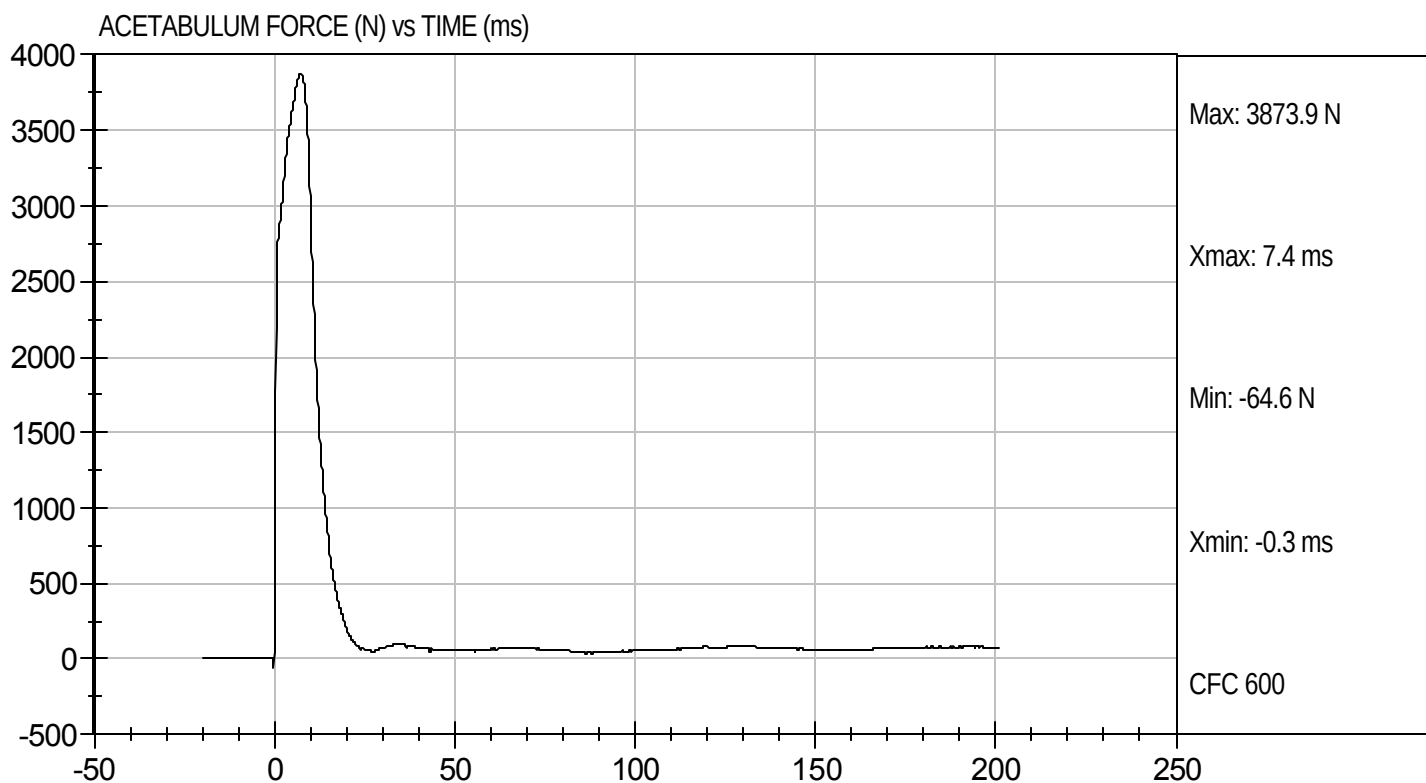
Test Date: 11/8/11
Velocity: 21.99 ft/s, 6.70 m/s





Test Desc: Pelvis Impact
Component ID: D113717

Test Date: 11/8/11
Velocity: 21.99 ft/s, 6.70 m/s



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

ATD Serial No: 296

Test I.D: D113718

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.1	Pass
Humidity	%	10 to 70	34	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Peak Impactor Acceleration	G's	36 to 45	37	Pass
Pelvis Y Acceleration	G's	28 to 39	30	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4521	Pass
Overall Test Results				Pass


Laboratory Technician

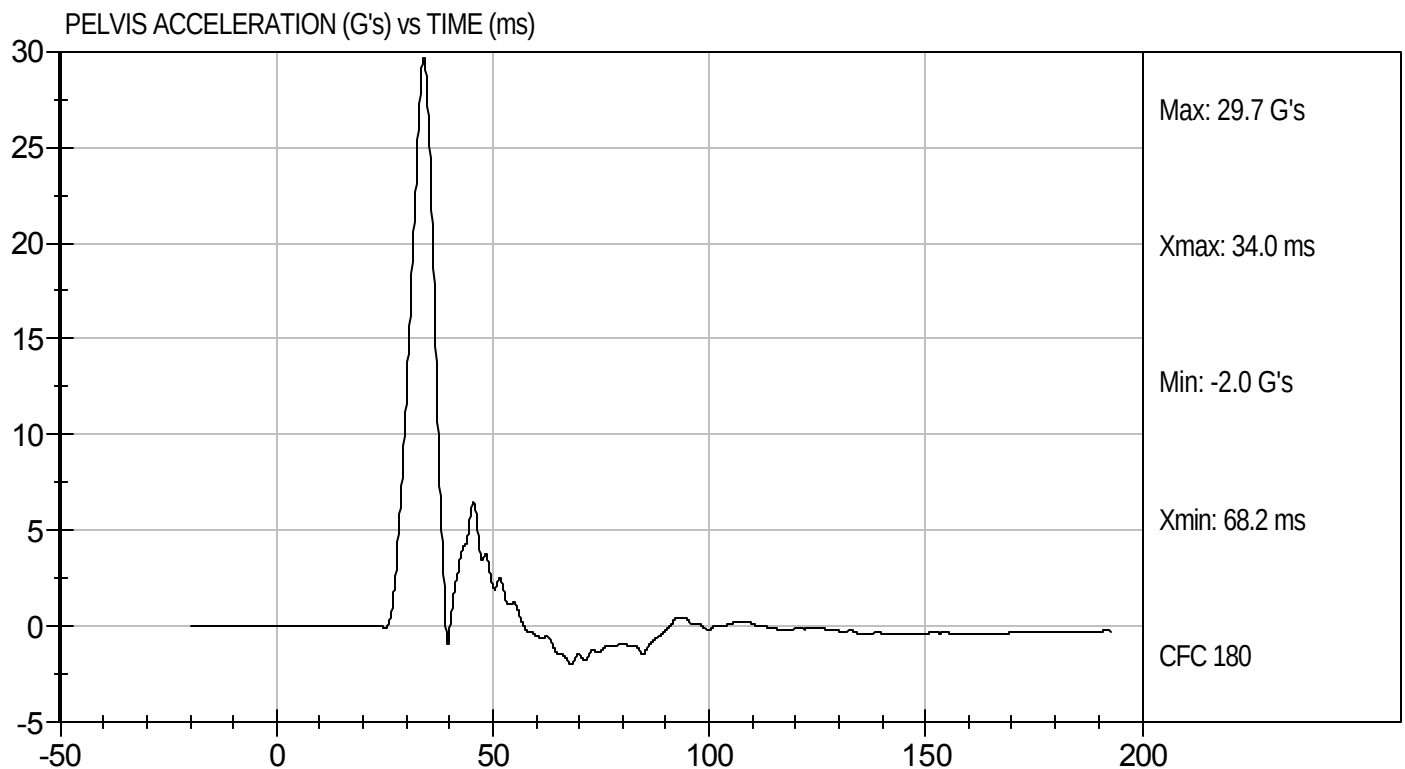
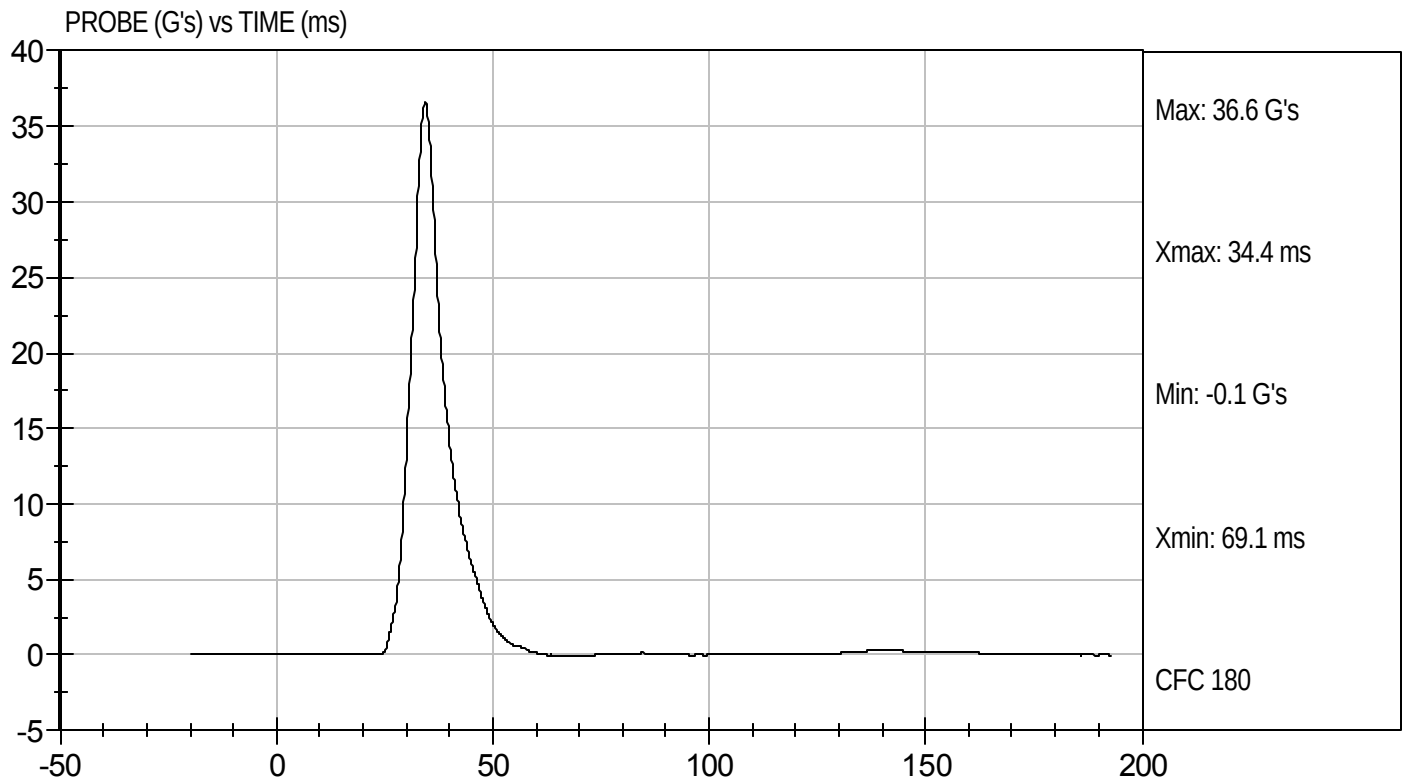
11/8/11
Test Date


Approved By



Test Desc: Iliac Impact
Component ID: D113718

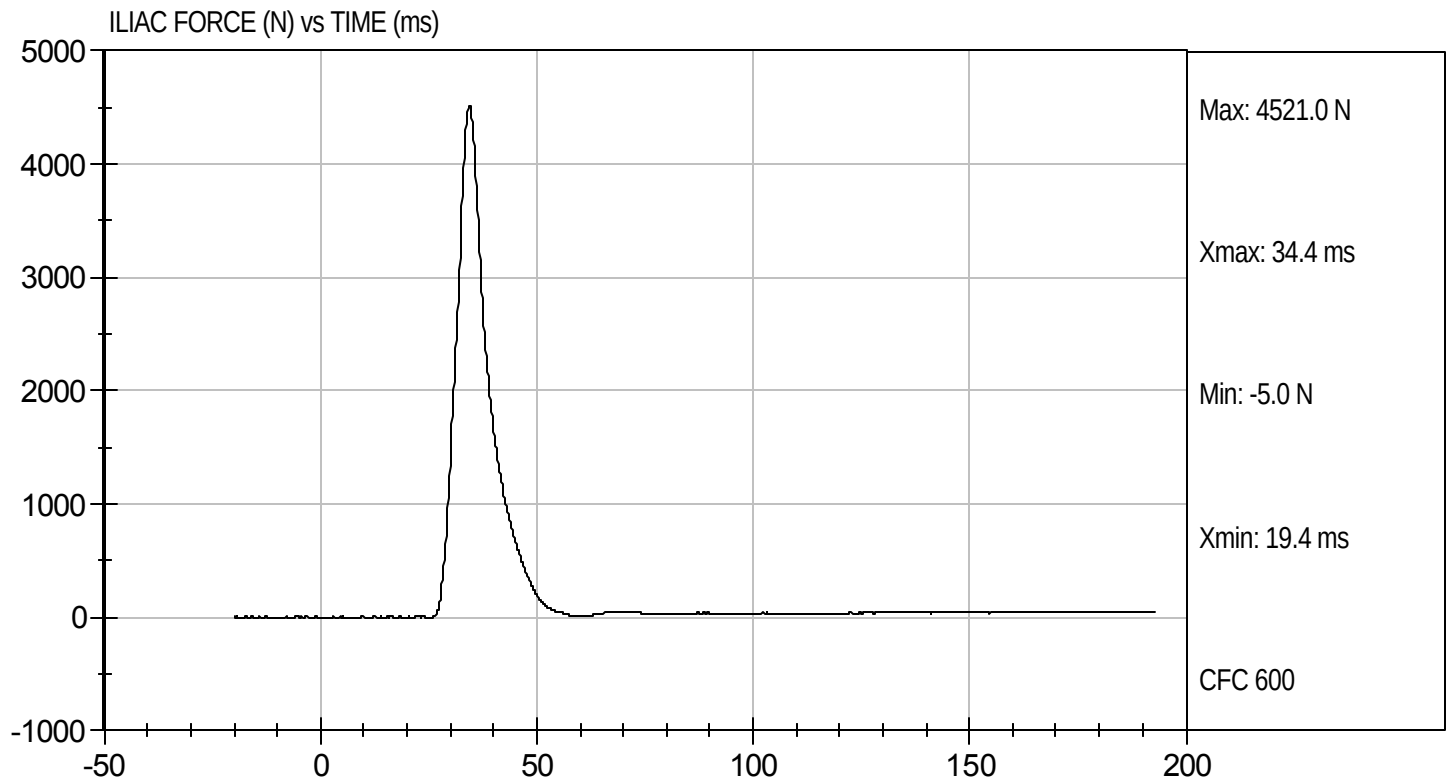
Test Date: 11/8/11
Velocity: 14.36 ft/s, 4.38 m/s





Test Desc: Iliac Impact
Component ID: D113718

Test Date: 11/8/11
Velocity: 14.36 ft/s, 4.38 m/s



APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation

				SID-IIs S/N 296			
				Serial Number	Manufacturer	Calibration Date	
Head Accelerometers				X	P67363	Endevco	10/13/11
				Y	P67364	Endevco	10/13/11
				Z	P67365	Endevco	10/13/11
Head Accelerometers				Xr	P64023	Endevco	10/13/11
				Yr	P66672	Endevco	10/13/11
				Zr	P66762	Endevco	10/13/11
Displacement Potentiometers	Thoracic Rib	Upper	Y	G1214	FTSS	10/18/11	
		Middle	Y	G1163	FTSS	10/18/11	
		Lower	Y	G1158	FTSS	10/18/11	
	Abdominal Rib	Upper	Y	G1146	FTSS	10/18/11	
		Lower	Y	G1126	FTSS	10/18/11	
Lower Spine Accelerometers (T12)				X	P67286	Endevco	09/22/11
				Y	P67289	Endevco	09/22/11
				Z	P67291	Endevco	09/22/11
Acetabulum Load Cell				Y	ACG269	Denton	01/06/11
Iliac Wing Load Cell				Y	IWG282	Denton	01/06/11
Pelvis Plug (struck side)					37159	FTSS	10/08/10
Pelvis Plug (non-struck side)					37141	FTSS	10/08/10

Table 2 – Vehicle Instrumentation

		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	P50056	Endevco	11/04/11
Vehicle Center of Gravity	Y	P50055	Endevco	11/04/11
Vehicle Center of Gravity	Z	P50057	Endevco	11/04/11
Left Floor Sill	Y	P47077	Endevco	10/20/11
A-Pillar Sill	Y	P59313	Endevco	10/20/11
A-Pillar Low	Y	P47087	Endevco	07/07/11
A-Pillar Mid	Y	P47837	Endevco	08/22/11
B-Pillar Sill	Y	P59311	Endevco	06/15/11
B-Pillar Low	Y	P63548	Endevco	07/14/11
B-Pillar Mid	V	P63550	Endevco	09/12/11
Driver Seat	Y	P47115	Endevco	09/12/11
Engine Top	X	P63392	Endevco	09/13/11
Engine Top	Y	P63391	Endevco	09/13/11
Firewall	Y	P52215	Endevco	06/10/11
Right Roof	Y	P59626	Endevco	08/22/11
Right Floor Sill	Y	P49475	Endevco	07/08/11
Rear Floorpan	X	P52191	Endevco	08/22/11
Rear Floorpan	Y	P52190	Endevco	08/22/11

Table 3 – Pole Instrumentation

	Serial Number	Manufacturer	Calibration Date
Load Cell 1	DG6277	FTSS	09/15/11
Load Cell 2	DG6278	FTSS	09/15/11
Load Cell 3	DG6279	FTSS	09/15/11
Load Cell 4	DG6280	FTSS	09/15/11
Load Cell 5	DG6281	FTSS	09/15/11
Load Cell 6	DG6283	FTSS	09/15/11
Load Cell 7	DG6284	FTSS	09/15/11
Load Cell 8	DG6582	FTSS	09/15/11