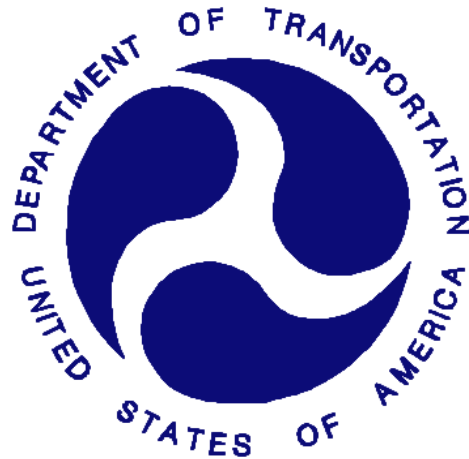


REPORT NUMBER: SPNCAP-MGA-2012-062

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

**FUJI HEAVY INDUSTRIES LTD.
2012 Subaru Impreza 4-Dr Sedan
NHTSA No.: MC5505**

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



Test Date: February 15, 2012

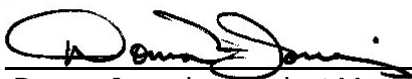
Final Report Date: April 27, 2012

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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Prepared by: 
Donna Janovicz, Project Manager

Approved by: 
Ben Fischer, Project Engineer

Approval Date: April 27, 2012

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

1. Report No. SPNCAP-MGA-2012-062	2. Government Accession No.	3. Recipient's Catalog No.																												
4. Title and Subtitle Final Report of New Car Assessment Program Side Impact Pole Testing of a 2012 Subaru Impreza 4-Dr Sedan, NHTSA No.: MC5505		5. Report Date April 27, 2012																												
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7. Author(s) Donna Janovicz, Project Manager Ben Fischer, Project Engineer		8. Performing Organization Report No. SPNCAP-MGA-2012-062																												
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105		10. Work Unit No.																												
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		14. Sponsoring Agency Code NVS-111																												
15. Supplementary Notes																														
16. Abstract A 32.2 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject 2012 Subaru Impreza 4-Dr Sedan 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 February 15, 2012. The impact velocity was 32.0 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21.5°C. The test vehicle post-test maximum crush was 388 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>156</td> </tr> <tr> <td style="text-align: left;">Resultant Lower Spine Acceleration</td> <td>Gs</td> <td>82</td> <td>47</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>4661</td> </tr> <tr> <td style="text-align: left;">Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38*</td> <td>21</td> </tr> <tr> <td style="text-align: left;">Maximum Abdomen Rib Deflection</td> <td>mm</td> <td>45*</td> <td>24</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	156	Resultant Lower Spine Acceleration	Gs	82	47	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	4661	Maximum Thoracic Rib Deflection	mm	38*	21	Maximum Abdomen Rib Deflection	mm	45*	24
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19. Security Classification of Report Unclassified	20. Security Classification of Page Unclassified	21. No. of Pages 130	22. Price																											

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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 Subaru Impreza 4-Dr Sedan. 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 Subaru Impreza 4-Dr Sedan. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.0 km/h. The test was conducted by MGA Research Corporation in Burlington, Wisconsin, on February 15, 2012. 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	156
Resultant Lower Spine Acceleration	Gs	82	47
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	4661
Maximum Thoracic Rib Deflection	mm	38*	21
Maximum Abdomen Rib Deflection	mm	45*	24

*Proposed IARV

Supplemental restraint information is given below:

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side Driver		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	Yes	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	
Other				

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 28ms
- Left Mid A-Post Y after 49ms
- Left Mid B-Post Y after 10ms
- Right Roof Y after 36ms

Driver Mid Thorax Rib DY is questionable between 46-50 and 56-60ms

Left Lower A-Post Y is questionable between 19-23, 29-31, 34-36, and 49-53ms

Driver Seat Track Y is questionable between 31-36, 41-46, and 60-64ms

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 Subaru Impreza 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. MC5505
Test Date: 2/15/2012

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	MC5505	Traction Control System (TCS)	No
Model Year	2012	Auto-Leveling System	No
Make	Subaru	Automatic Door Locks (ADL)	No
Model	Impreza	Power Window Auto-Reverse	No
Body Style	Sedan	Other Optional Feature	N/A
VIN	JF1GJAA69CH006394	Driver Front Airbag	Yes
Body Color	Camellia Red Pearl	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	145 / 90	Driver Head/Torso Airbag	No
Engine Displacement (L)	2.0	Driver Torso Airbag	No
Type/No. Cylinders	4	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Longitudinal	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	Yes
Transmission Speeds	Continuous	Rear Pass. Curtain Airbag	Yes
Overdrive	No	Rear Pass. Head/Torso Airbag	No
Final Drive	AWD	Rear Pass. Torso Airbag	No
Roof Rack	No	Rear Pass. Torso/Pelvis Airbag	No
Sunroof/T-Top	No	Rear Pass. Pelvis Airbag	No
Running Boards	No	Driver Seat Belt Pretensioner	Yes
Tilt Steering Wheel	Yes	Rear Pass. Seat Belt Pretensioner	No
Power Seats	No	Driver Load Limiter	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Pass. Load Limiter	No
All Wheel Drive (AWD)	Yes	Other Safety Restraint	N/A
Does owner's manual provide instruction to turn off automatic door locks?			N/A

DATA FROM CERTIFICATION LABEL

Manufactured By	Fuji Heavy Industries Ltd.	GVWR (kg)	1950
Date of Manufacture	10/11	GAWR Front (kg)	990
Vehicle Type	Passenger Car	GAWR Rear (kg)	1000

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	(A)
Capacity Weight (VCW) (kg)				385	(B)
DSC x 68.04 kg				340	(A-B)
Rated Cargo and Luggage Weight (RCLW)				45	

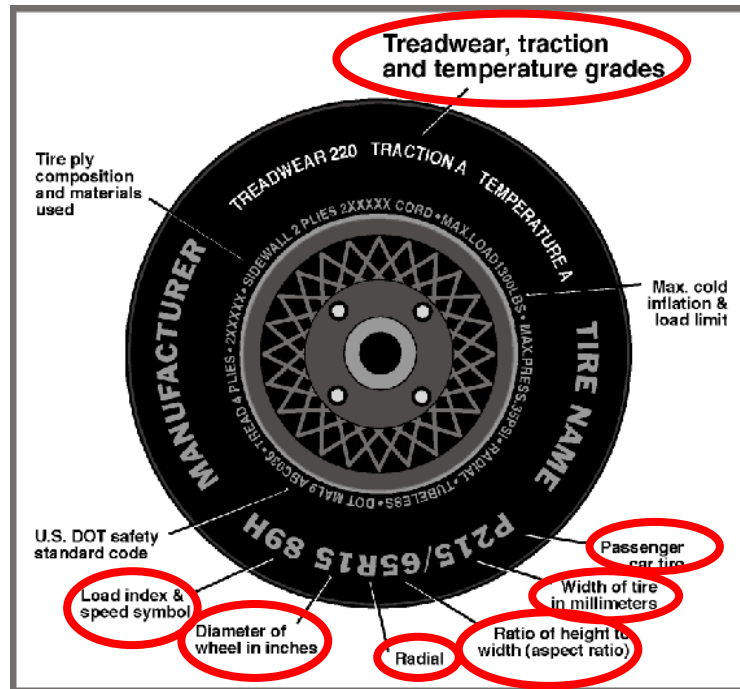
VEHICLE SEAT TYPE

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							

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

Test Vehicle: 2012 Subaru Impreza 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MC5505
 Test Date: 2/15/2012



TIRE PLACARD INFORMATION

Measured Parameter	Front	Rear
Recommended Cold Tire Pressure (kPa)	230	220
Recommended Tire Size	P195/65R15	P195/65R15

TIRE SIDEWALL INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	275	275
Tire Size on Vehicle	P195/65R15	P195/65R15
Tire Manufacturer	Yokohama	Yokohama
Tire Name	AVID S33	AVID S33
Tire Type	Passenger	Passenger
Tire Width	195	195
Aspect Ratio	65	65
Radial	Yes	Yes
Wheel Diameter	15	15
Load Index/Speed Symbol	89H	89H
Treadwear	200	200
Traction Grade	B	B
Temperature Grade	A	A
Tire Material	Rubber	Rubber

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

Test Vehicle: 2012 Subaru Impreza 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MC5505
 Test Date: 2/15/2012

TEST PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kpa	230	230	220	220
Tire Placard	kpa	230	230	220	220
Owner's Manual	kpa				
As Tested	kpa	230	230	220	220

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	418.7	273.1		431.8	303.9		439.0	313.9	
Right	kg	402.3	265.3		411.9	302.1		404.2	299.4	
Ratio	%	60.4	39.6		58.2	41.8		57.9	42.1	
Totals	kg	821.0	538.4	1359.4	843.7	606.0	1449.7	843.2	613.3	1456.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1359.4	(A)
Actual Weight of 1 P572V ATD (SID-IIs) ATD Used	kg	52.2	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	45	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1456.6	(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
Spare tire, jack & tools, left and right taillight, trunk carpet, right front and all rear headrests, right rear floor mat.	24.9

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	deg	-0.4	-0.2	-0.2	Yes
Front Pass. Sill Angle (front-to-rear)*	deg	-0.4	-0.3	-0.2	Yes
Front Bumper Angle (left-to-right)**	deg	-0.2	-0.2	-0.3	Yes
Rear Bumper Angle (left-to-right)**	deg	-0.1	-0.2	-0.3	Yes
Vehicle CG (Aft of Front Axle)	mm	1051	1109	1118	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	13	11	25	

*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 Subaru Impreza 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MC5505
 Test Date: 2/15/2012

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	17.5	13.7	15.6
Front Passenger Seat	Fixed	Fixed	Fixed
Front Center Seat			
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	15.6	Fixed	Max	Fixed	Fixed	Fixed
	15.6	Fixed	Mid	Fixed	Fixed	Fixed
	15.6	Fixed	Min	Fixed	Fixed	Fixed
Front Passenger Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Front Center Seat			Max			
			Mid			
			Min			
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 Subaru Impreza 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

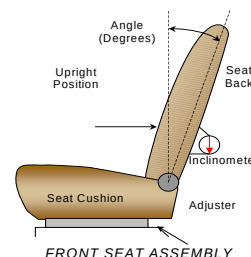
NHTSA No. MC5505
 Test Date: 2/15/2012

SEAT FORE/AFT POSITIONS

Seat	Total Fore/Aft Travel		Test Position from Forward-most Position	
	mm	Detents	mm	Detent
Driver Seat	240	25 (1 st as 1)	0	0 (1 st as 0)
Front Passenger Seat	240	25 (1 st as 1)	0	0 (1 st as 0)
Front Center Seat				
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	67.9		-10.3	1 st (1 st as 0)
Front Passenger Seat	65.9		-9.4	1 st (1 st as 0)
Front Center Seat				
Struck Side Rear Seat	Fixed		Fixed	Fixed
Non-Struck Side Rear Seat	Fixed		Fixed	Fixed
Rear Center Seat	Fixed		Fixed	Fixed

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	4 (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	3	Lowest and Full Forward

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

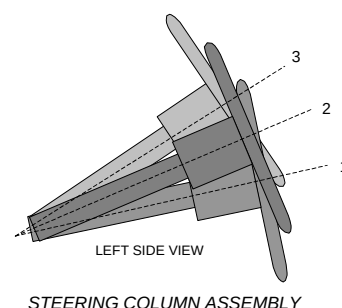
Test Vehicle: 2012 Subaru Impreza 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MC5505
 Test Date: 2/15/2012

STEERING COLUMN ADJUSTMENT

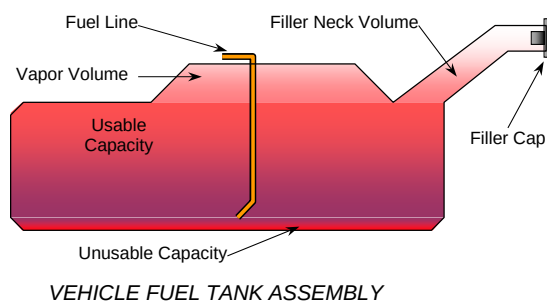
Steering wheel and column adjustments are made so that the steering wheel geometric locus is described when it moves through its full range of motion.

	Degrees	Fore/Aft Position (mm)
Lowermost, Position 1	68.0	220
Geometric Center, Position 2	66.5	200
Uppermost, Position 3	65.0	180
Telescoping Steering Wheel Travel		40
Test Position	66.5	200



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 operates a few seconds after an ignition switch is turned ON. After that, pump operates only while engine is running. The fuel pipe is on the right side.



FUEL TANK CAPACITY DATA

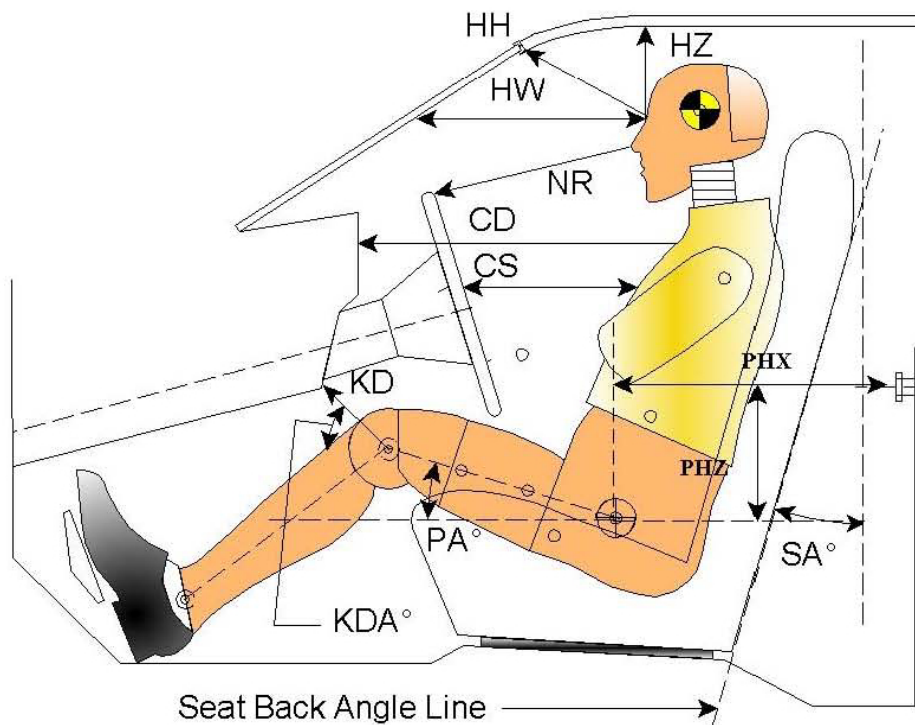
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	54.9
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	55.0
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	51.1
Actual Amount of Solvent Used	51.1
1/3 of Usable Capacity	18.3

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 Subaru Impreza 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MC5505
 Test Date: 2/15/2012



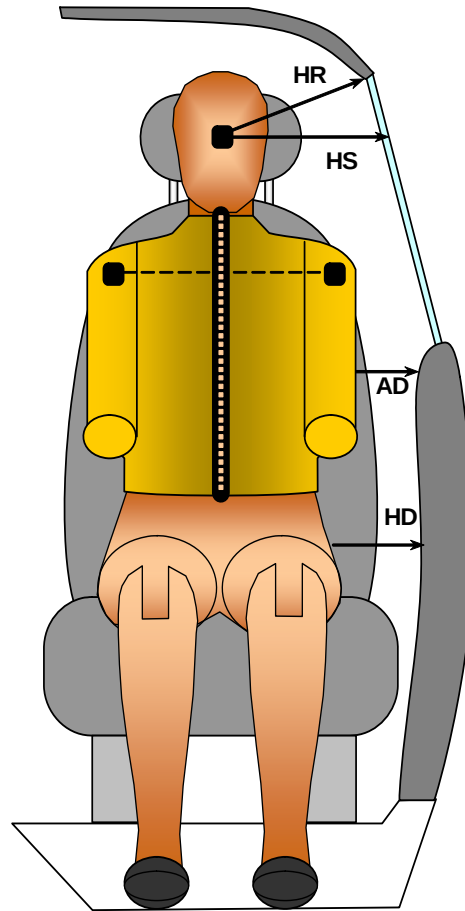
LEFT SIDE VIEW

Code	Measurement Description	Driver S/N 306	
		Length (mm)	Angle (°)
HH	Head to Header	221	
HW	Head to Windshield	561	
HZ	Head to Roof Liner	190	
NR	Nose to Rim	194	
CD	Chest to Dashboard	380	
CS	Chest to Steering Wheel	139	
KDL/KDAL°	Left Knee to Dash	96	28.5
KDR/KDAR°	Right Knee to Dash	97	29.7
PAX°	Pelvic Tilt Angle (X-Axis)		19.1
PAY°	Pelvic Tilt Angle (Y-Axis)		-0.1
PHX	Hip Point to Striker (X-Axis)	367	
PHZ	Hip Point to Striker (Z-Axis)	187	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2012 Subaru Impreza 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MC5505
 Test Date: 2/15/2012



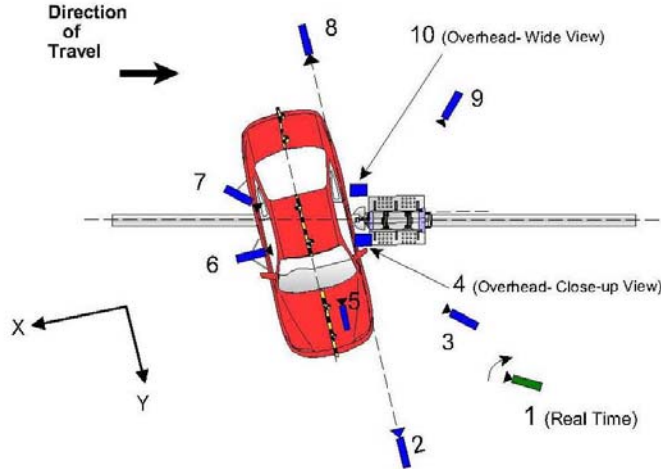
FRONT VIEW OF DUMMY

Code	Measurement Description	Driver S/N 306
		Length (mm)
HR	Head to Side Header	248
HS	Head to Side Window	364
AD	Arm to Door	166
HD	Hip Point to Door	170

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2012 Subaru Impreza 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. MC5505
Test Date: 2/15/2012



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	-90	5590	-1800	24	1000
3	Impact Side 45° Forward	-2630	4980	-1910	20	1000
4	Overhead Closeup	180	0	-4420	50	1000
5	Onboard – Driver Front				16	1000
6	Onboard – Driver Side				8	1000
7	Onboard – Driver Rear				8	1000
8	Rear Ground Level	-80	-5950	-1820	24	1000
9	Impact Side 45° Rearward	-4120	-4280	-1930	20	1000
10	Overhead Wide View	420	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: Not Applicable

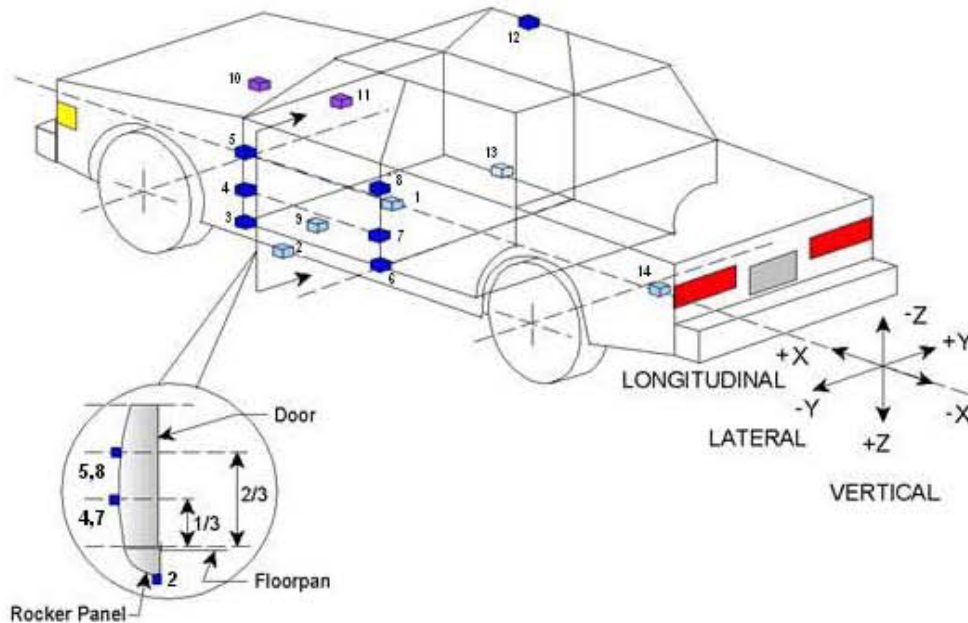
INSTRUMENTATION

	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 Subaru Impreza 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. MC5505
Test Date: 2/15/2012



	Accelerometer Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2572	210	-189
2	Left Floor Sill	2602	-722	-140
3	A Pillar Sill	3091	-723	-140
4	A Pillar Low	3067	-684	-469
5	A Pillar Mid	3142	-876	-705
6	B Pillar Sill	2001	-722	-146
7	B Pillar Low	2016	-694	-400
8	B Pillar Mid	2017	-694	-738
9	Driver Seat Track	2440	-520	-290
10	Engine Top	3822	-65	-887
11	Firewall	3503	-18	-831
12	Right Roof	1944	520	-1436
13	Right Floor Sill	2658	722	-150
14	Rear Floorpan	202	0	-268

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 Subaru Impreza 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. MC5505
Test Date: 2/15/2012



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 Subaru Impreza 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. MC5505
Test Date: 2/15/2012

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Driver SID-IIs Dummy
Face	Curtain Airbag
Top of Head	Curtain Airbag, Headrest
Left Side of Head	Curtain Airbag
Back of Head	Curtain Airbag, Headrest
Left Shoulder	Side Airbag, Seatback
Upper Torso	Side Airbag, Seatback
Lower Torso	Side Airbag, Seatback
Left Hip	Side Airbag, Door Panel, 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)	N/A	N/A	N/A	N/A	N/A

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 Subaru Impreza 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. MC5505
Test Date: 2/15/2012

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side Driver		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	Yes	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	
Other				

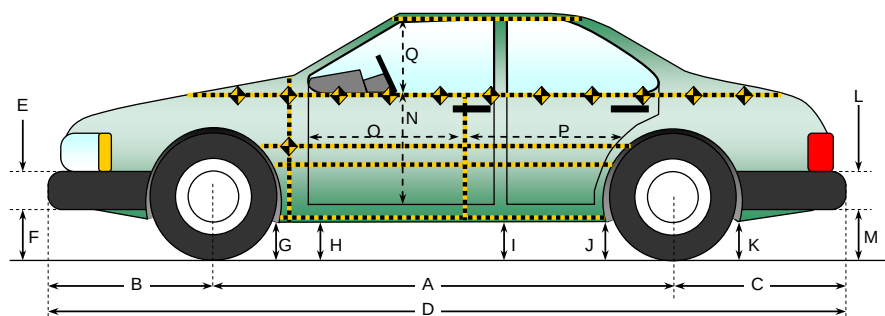
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT, AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1084
Actual Impact Point (Aft of Front Axle)	mm		1086
Horizontal Offset (+forward / -rearward)	mm	+/- 38 of Intended Impact Point	-2
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	32.0
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.1

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

Test Vehicle: 2012 Subaru Impreza 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. MC5505
Test Date: 2/15/2012



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

LEFT SIDE VIEW

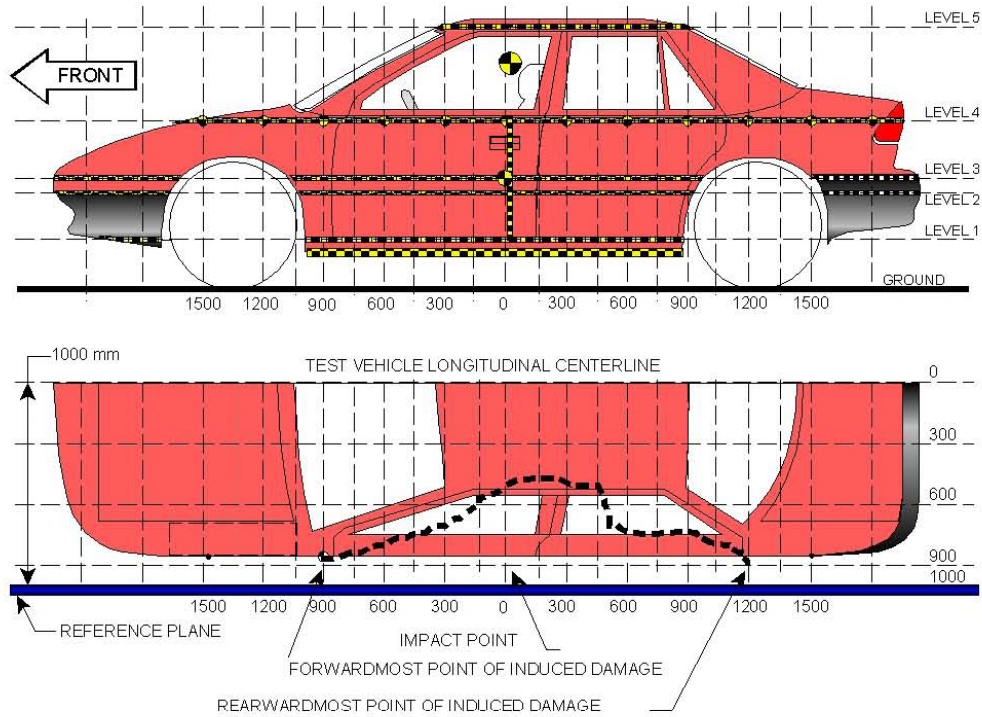
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2654	2548	106
B	Front Axle to FSOV	938	903	35
C	Rear Axle to RSOV	988	994	-6
D	Total Vehicle Length at Centerline	4580	4445	135
E	Front Bumper Thickness	120	120	0
F	Front Bumper Bottom to Ground	209	230	-21
G	Sill Height at Front Wheel Well	144	139	5
H	Sill Height at Front Door Leading Edge	143	137	6
I	Sill Height at B Pillar	143	157	-14
J1	Sill Height at Rear Wheel Well	141	155	-14
J2	Pinch Weld Height at Rear Wheel Well	140	159	-19
K	Sill Height Aft of Rear Wheel Well	216	217	-1
L	Rear Bumper Thickness	80	80	0
M	Rear Bumper Bottom to Ground	320	305	15
N	Sill Height to Bottom of Front Window Sill	715	703	12
O	Front Door Leading Edge to Impact CL	676	671	5
P	Rear Door Trailing Edge to Impact CL	1226	1264	-38
Q	Front Window Opening	416	374	42
R	Right Side Length	3495	3505	-10
S	Left Side Length	3495	3346	149
T	Vehicle Width at B-Pillars	1741	1672	69

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

Test Vehicle: 2012 Subaru Impreza 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MC5505
 Test Date: 2/15/2012



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	234
2	Occupant Hip Point	507
3	Mid Door	600
4	Window Sill	883
5	Window Top	1384

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

Test Vehicle: 2012 Subaru Impreza 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MC5505
 Test Date: 2/15/2012

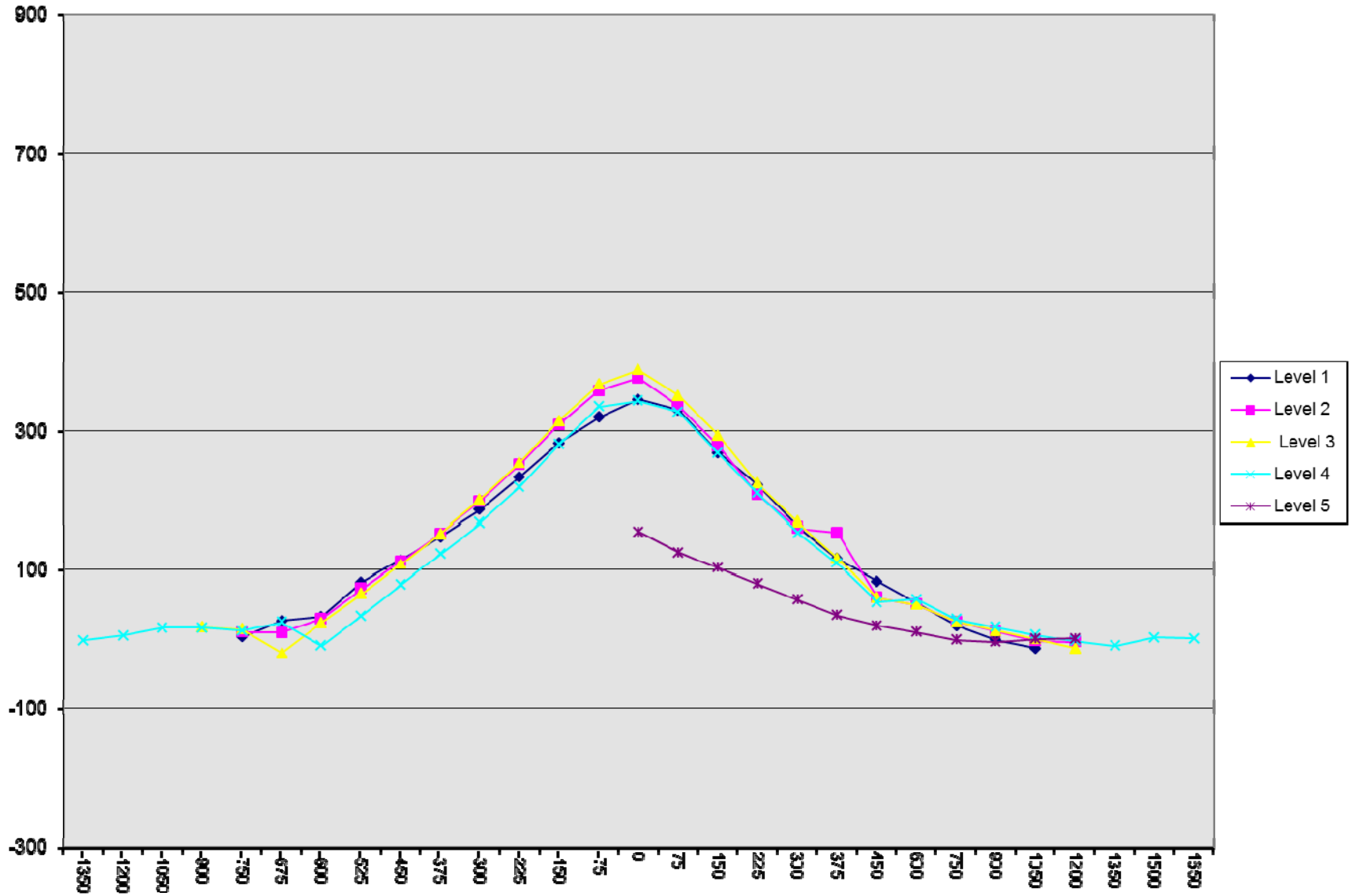
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1350				353					353					0	
-1200				328					335					7	
-1050				310					328					18	
-900			230	303				249	321				19	18	
-750	267	233	232	303		272	245	248	317		5	12	16	14	
-675	271	235	235	298		299	246	217	324		28	11	-18	26	
-600	276	237	235	296		310	268	260	288		34	31	25	-8	
-525	278	237	235	295		361	311	302	330		83	74	67	35	
-450	279	237	235	292		394	350	344	371		115	113	109	79	
-375	279	237	234	288		428	390	387	412		149	153	153	124	
-300	279	237	233	285		465	435	434	453		186	198	201	168	
-225	278	236	231	281		511	487	485	500		233	251	254	219	
-150	278	236	231	279		560	545	545	559		282	309	314	280	
-75	278	235	230	275		597	593	597	610		319	358	367	335	
0	278	235	230	274	502	623	611	618	617	658	345	376	388	343	156
75	278	236	230	271	499	608	572	581	598	625	330	336	351	327	126
150	279	237	230	270	493	547	515	523	537	596	268	278	293	267	103
225	279	238	230	265	490	501	446	454	475	571	222	208	224	210	81
300	279	238	230	265	489	442	399	399	419	547	163	161	169	154	58
375	279	239	230	262	488	396	393	348	372	524	117	154	118	110	36
450	279	241	231	263	487	363	302	292	318	508	84	61	61	55	21
600	280	241	232	263	486	334	292	283	322	498	54	51	51	59	12
750	281	242	235	264	489	302	269	262	294	490	21	27	27	30	1
900	281	242	236	266	496	282	255	250	285	494	1	13	14	19	-2
1050	280	239	236	270	505	269	238	238	278	507	-11	-1	2	8	2
1200		235	233	292	527		233	222	291	530		-2	-11	-1	3
1350				265					257					-8	
1500				281					285					4	
1650				285					288					3	

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 Subaru Impreza 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. MC5505
Test Date: 2/15/2012



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

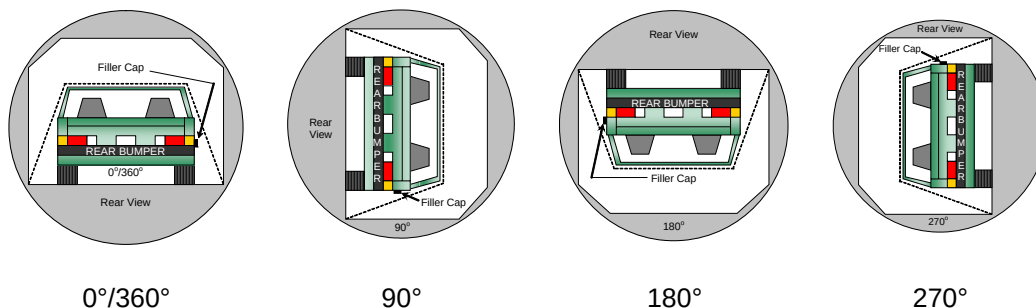
Test Vehicle: 2012 Subaru Impreza 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MC5505
 Test Date: 2/15/2012

Test Time: 11:23 am Temperature: 21.5° 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°	118	300	418
90° to 180°	115	300	415
180° to 270°	106	300	406
270° to 360°	112	300	412

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

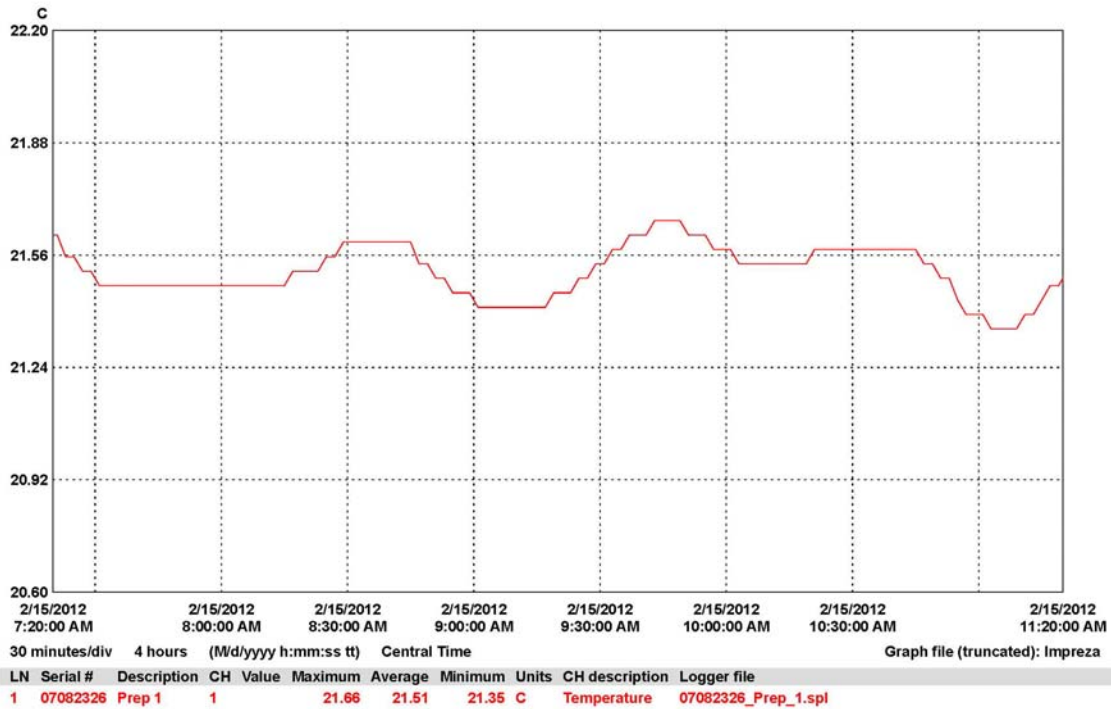
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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 Subaru Impreza 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MC5505
 Test Date: 2/15/2012



APPENDIX A
PHOTOGRAPHS

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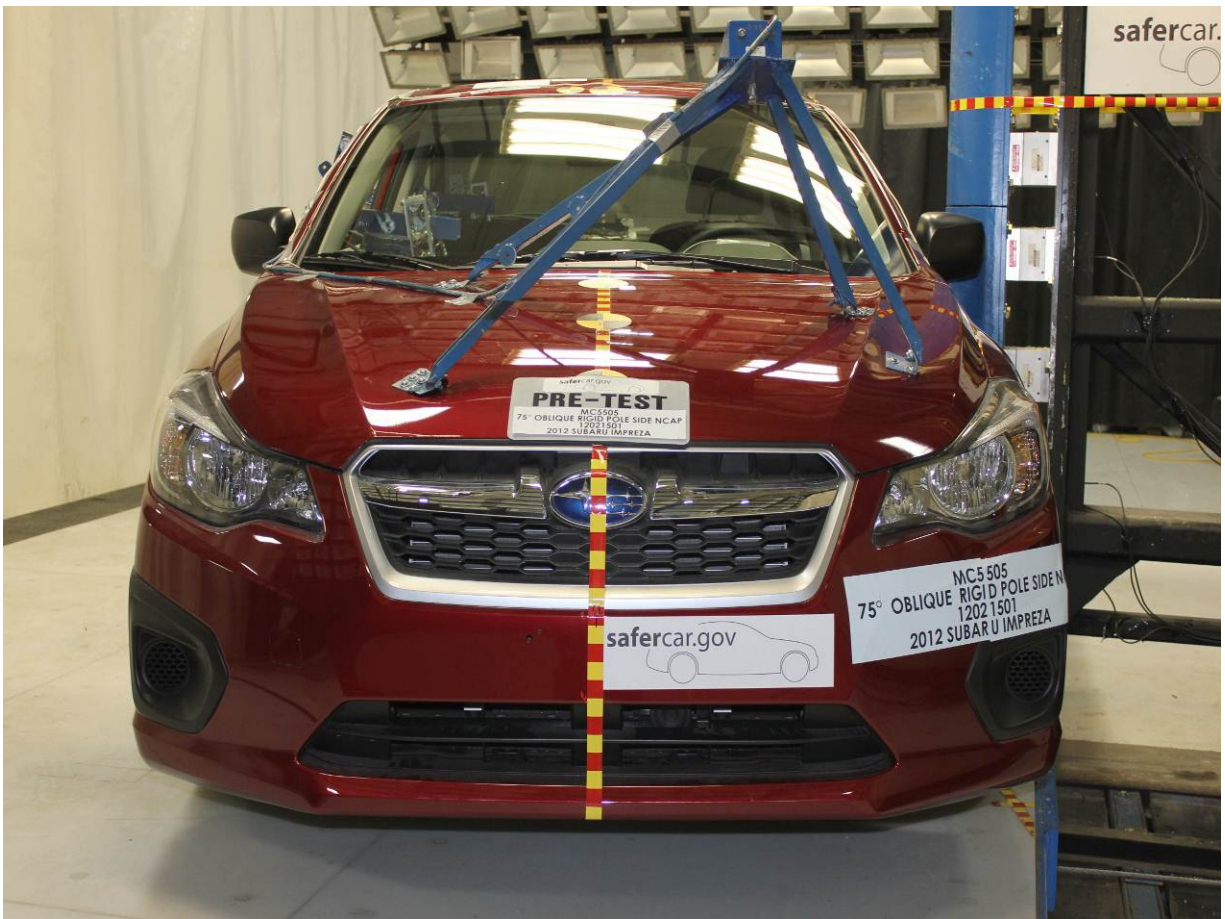
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As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



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



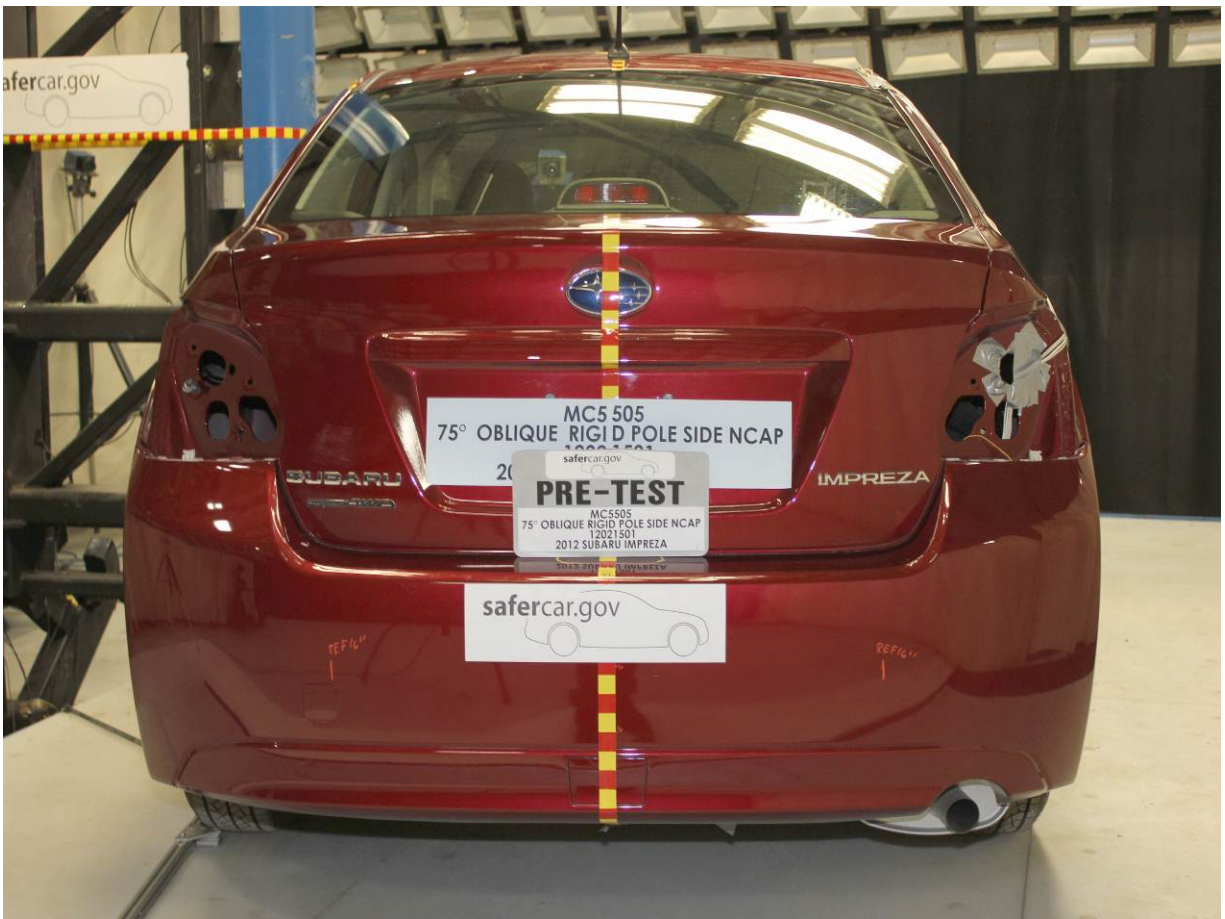
Post-Test Left Side View of Test Vehicle



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



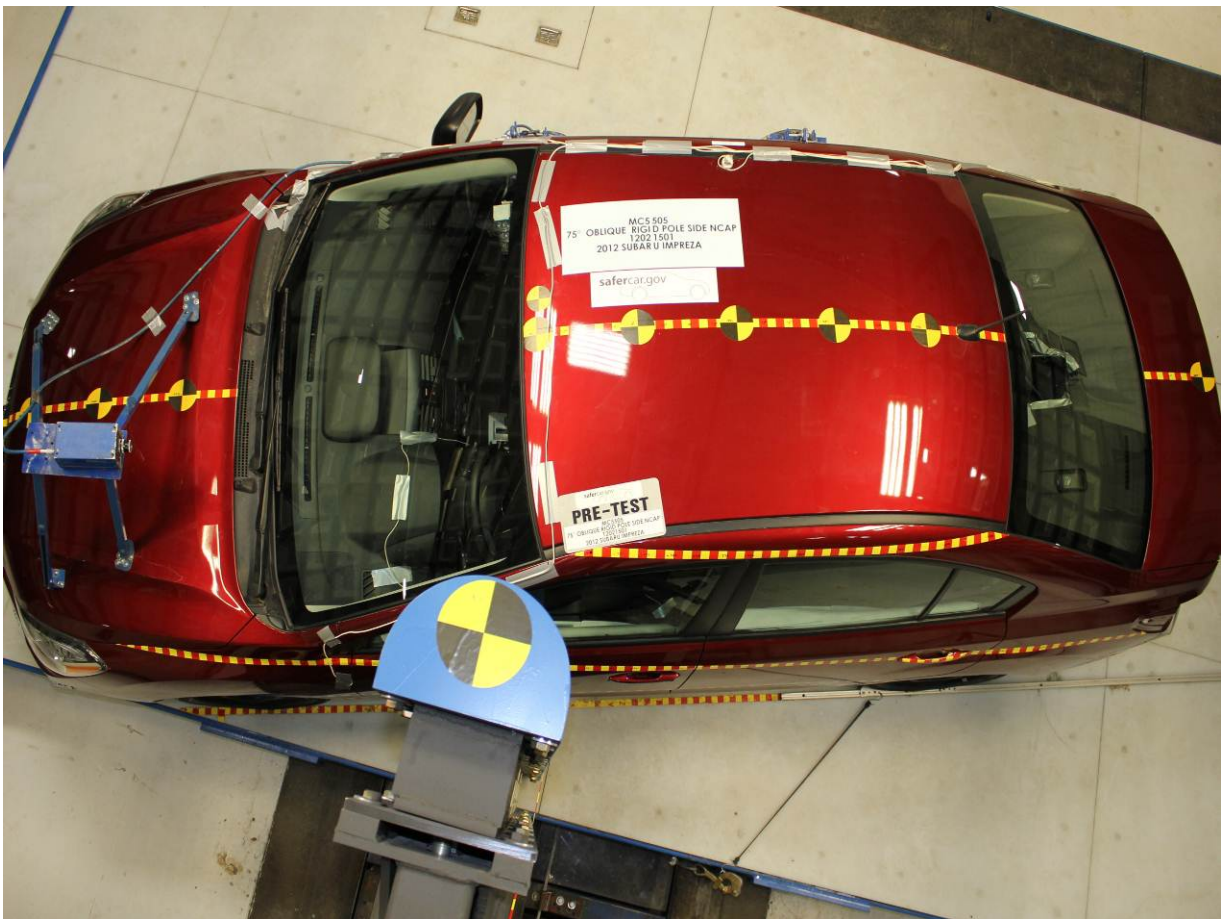
Post-Test Rear View of Test Vehicle



Pre-Test Right Side View of Test Vehicle



Post-Test Right Side View of Test Vehicle



Pre-Test Overhead View of Test Area



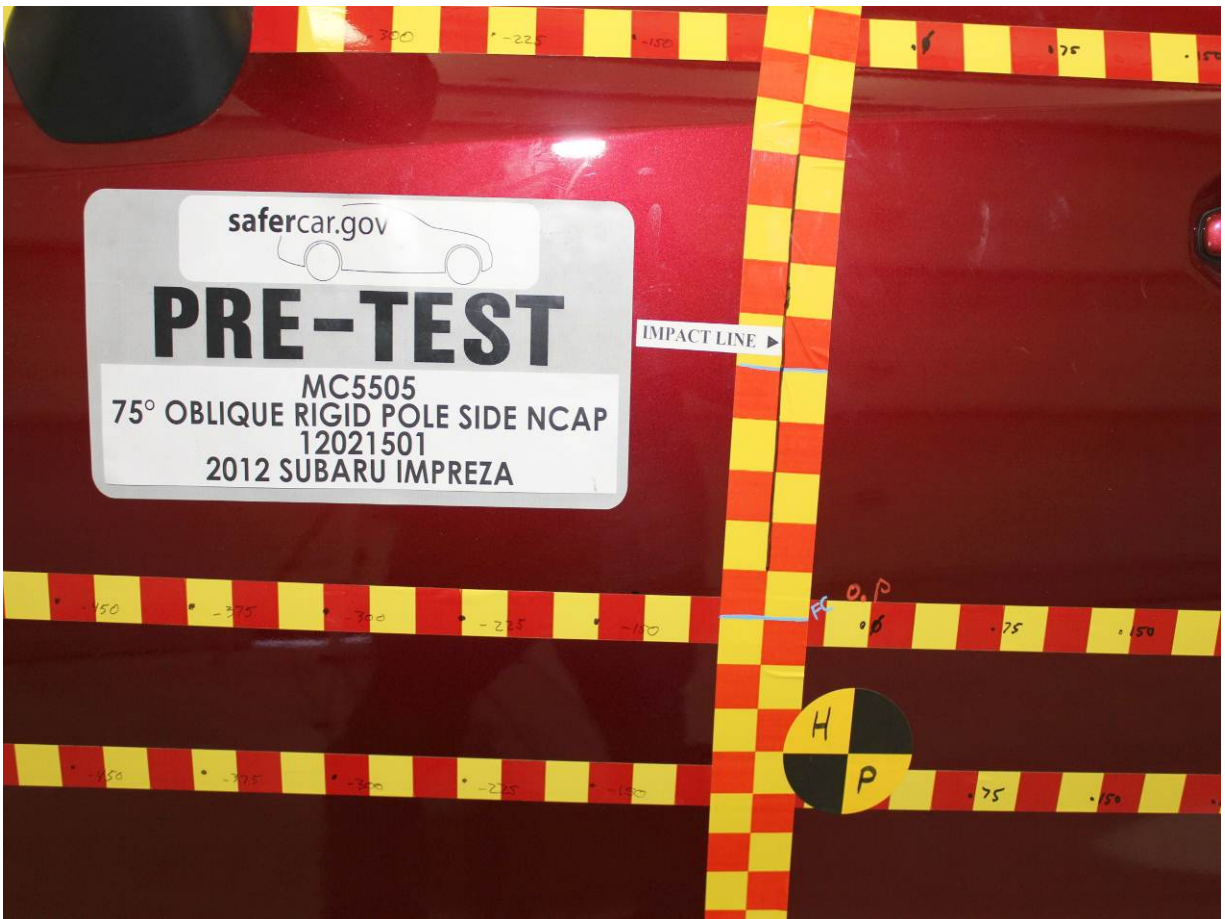
Post-Test Overhead View of Test Area



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



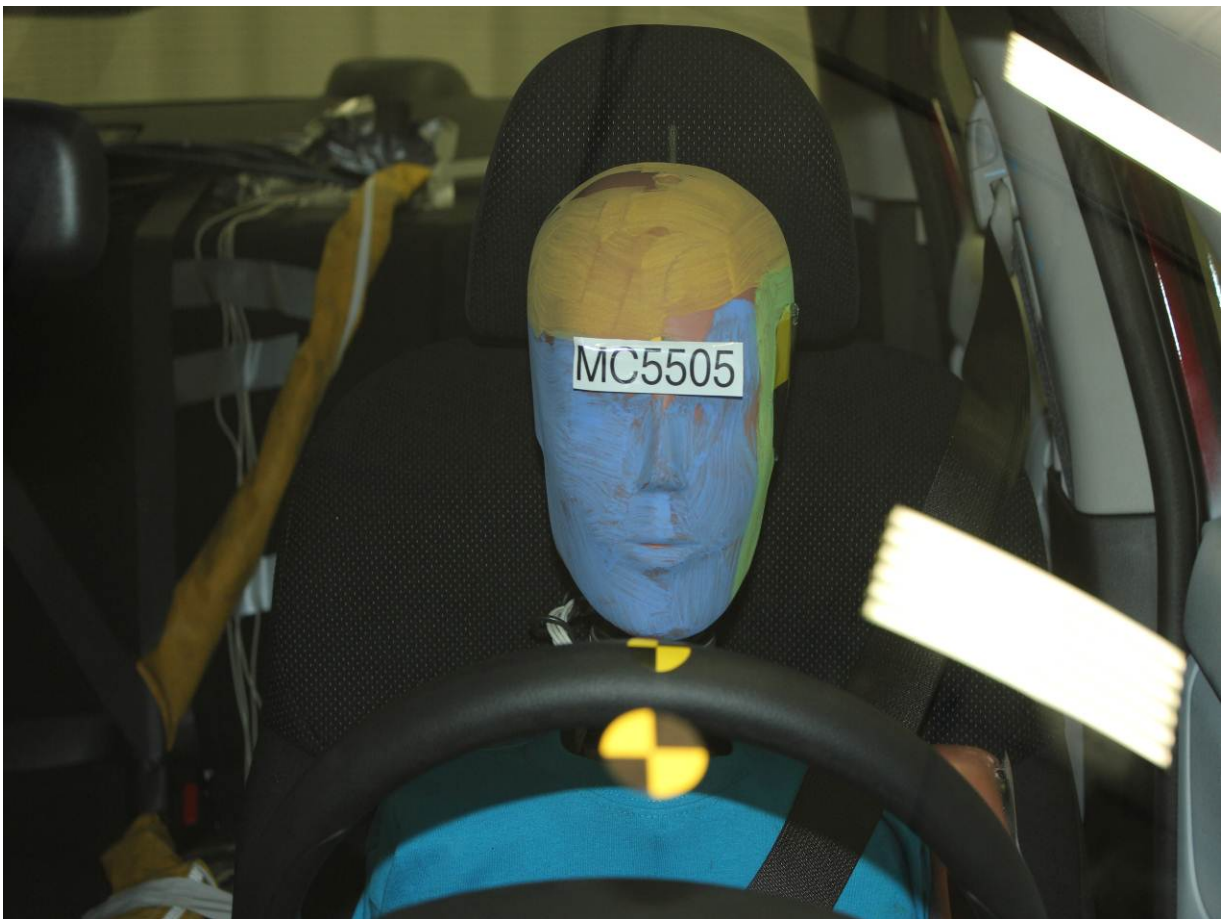
Pre-Test Right Side View of Pole Positioned Against Side of Vehicle



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



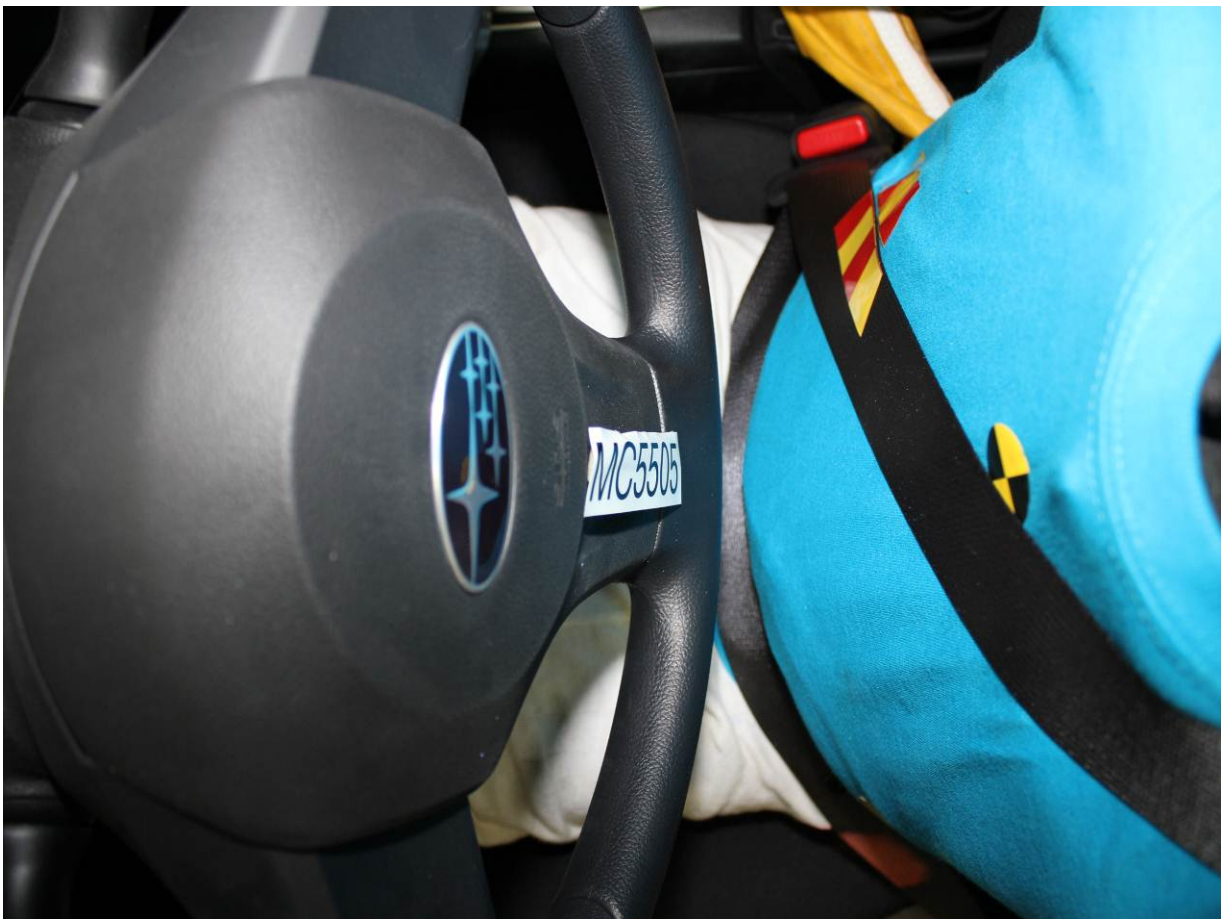
Pre-Test Front View of Seat Back Prior to Dummy Positioning



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



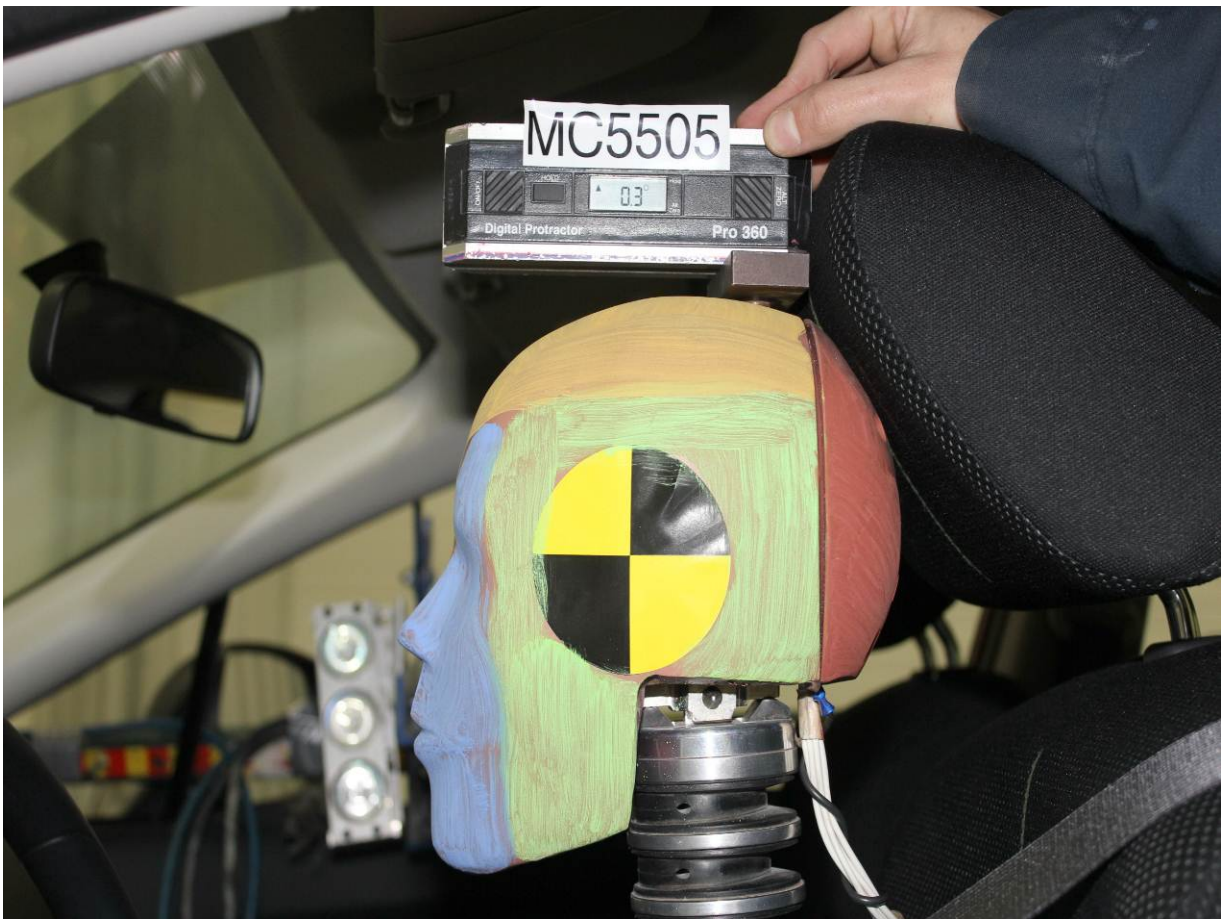
Pre-Test Front View of Seat Pan Prior to Dummy Positioning



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



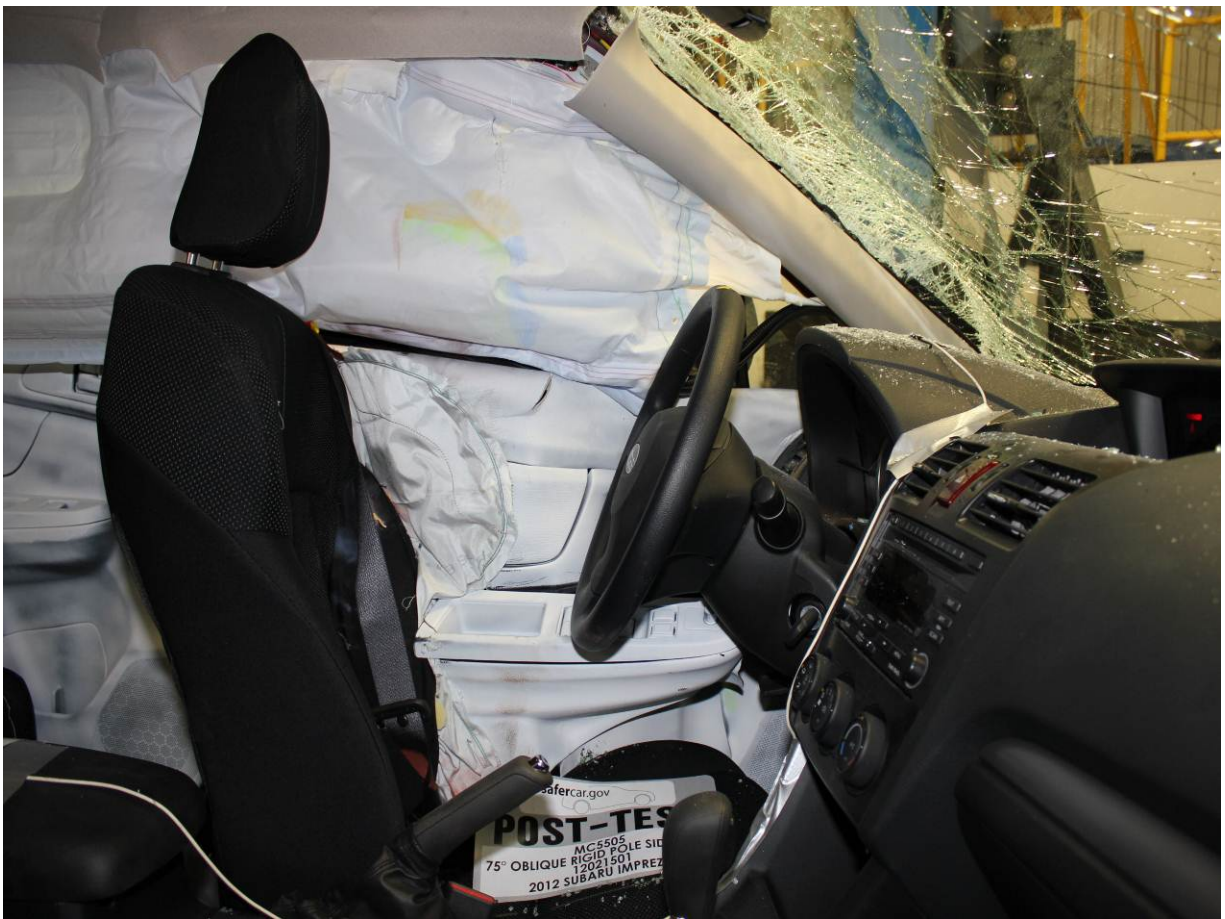
Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment



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



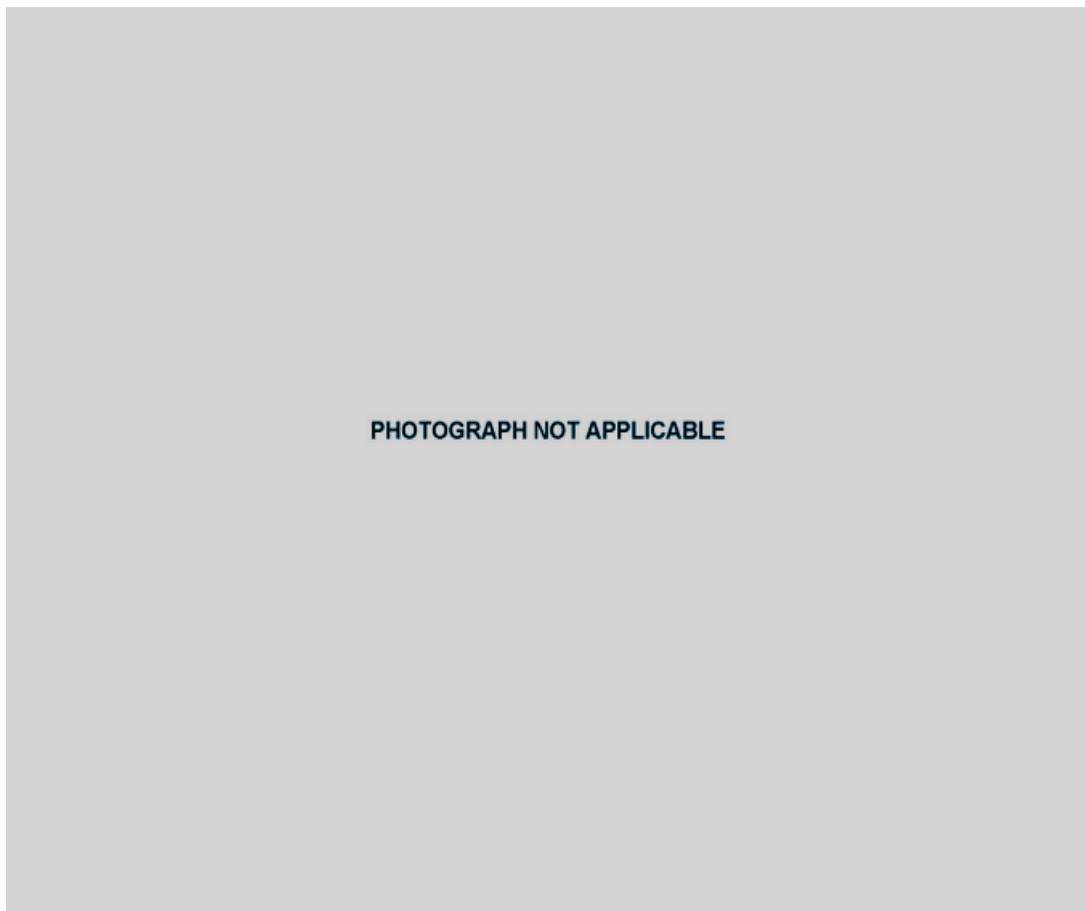
Post-Test Pole Barrier Front View



Pre-Test Pole Barrier Side View



Post-Test Pole Barrier Side View



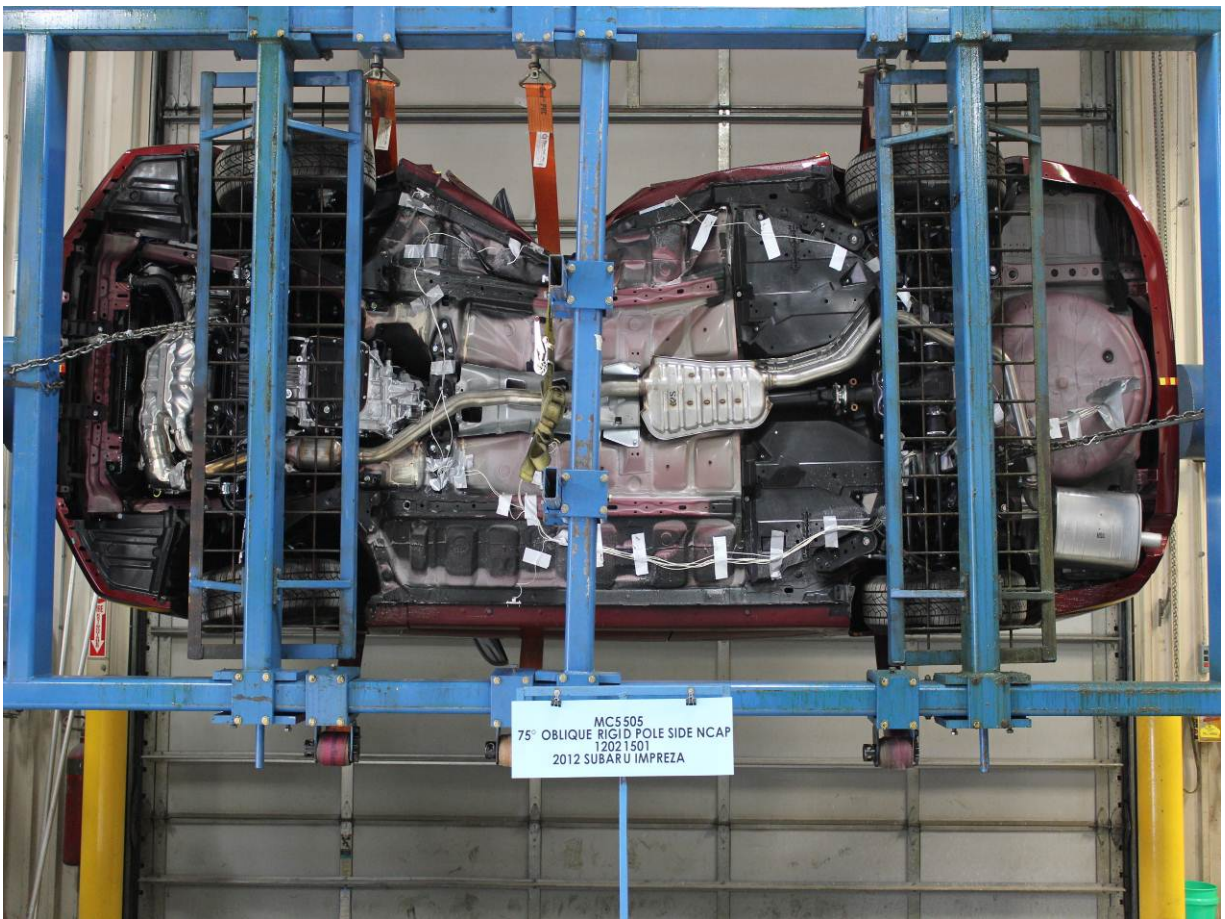
Pre-Test Ballast View



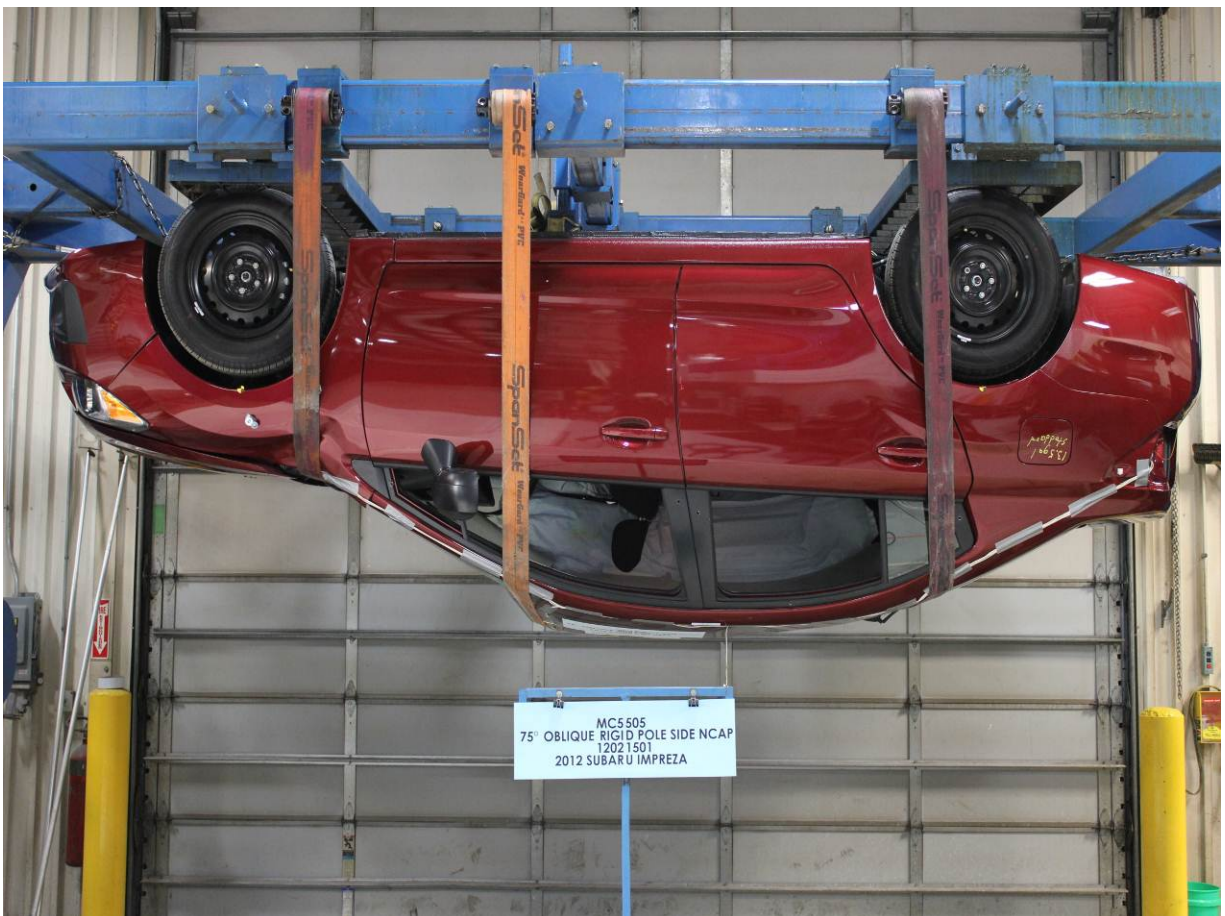
Post-Test Primary and Redundant Speed Trap Read-Out



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

IMPREZA

VIN: JF1GJAA69CH006394
Model/Code: 2012 Subaru Impreza 2.0i / CJ5
Exterior Color: Camellia Red Pearl
Port / Assembly: Vancouver, WA
Delivery by / Carrier: Truck / 601-601061

SHIP TO: 070590
WILDE SUBARU
1710 HWY 164
WAUKESHA, WI 53186

SOLD TO 070590
WILDE SUBARU
1710 HWY 164
WAUKESHA, WI 53186



STANDARD EQUIPMENT SAFETY

Symmetrical All-Wheel Drive (AWD)
Vehicle Dynamics Control (VDC)
Subaru Advanced Frontal Air Bag System
Front Seat Side-Impact Air Bags
Side-Curtain Airbags
Driver's Knee Airbag
Safety Pedal System
4-Wheel Disc Brakes w/Brake Assist
Anti-Lock Braking System (ABS)
Electronic Brake-Force Distribution
Tire Pressure Monitoring System (TPMS)
Ring-Shape Reinforcement Frame Design
Anti-Theft Alarm & Immobilizer System

PERFORMANCE AND EXTERIOR

Daytime Running Lights (DRL)
2.0L Horizontally-Opposed DOHC Engine
Four Wheel Independent Suspension
Variable Intermitent Windshield Wipers
195/65 R15 All-Season Tires
COMFORT, CONVENIENCE AND INTERIOR
Air Conditioning w/Air Filtration System
AM/FM/CD Audio System
Carpets Floor Mats
Tilt / Telescopic Steering Column
Power Door Locks & Dual Power Mirrors

Remote Keyless Entry System
Power Windows With Driver's Auto Down
Dual Cup Holders & Four Bottle Holders
Tilt-Adjustable Front Seat Headrests
Height Adjustable Driver's Seat
60/40 Split Fold-Down Rear Seatback
Multi-Function Trip Computer
Dual Map Lights
12V Power Outlet
LIMITED WARRANTY/ROADSIDE ASSISTANCE
3 Years / 36,000 Miles Basic
5 Years / 60,000 Miles Powertrain
5 Yrs/Unlimited Mileage Rust Perforation

3 Yrs / 36,000 24/7 Roadside Assistance
See Owner Info Kit&Warranty For Details

OPTIONAL EQUIPMENT

Manufacturer's Suggested Retail Price	\$17,495.00
Lineartronic Continuously Variable Transmission w/ 6-Speed Manual Mode	\$1,000.00
Full Tank of Gas	INCLD
Auxiliary Jack	\$98.00
Upgraded Tweeters	\$138.00

GOVERNMENT SAFETY RATINGS

Frontal	Driver	Not Rated
	Passenger	Not Rated
Star ratings based on the risk of injury in a frontal impact.		
Side	Front Seat	Not Rated
	Rear Seat	Not Rated
Star ratings based on the risk of injury in a side impact.		
Rollover		Not Rated
Star ratings based on the risk of rollover in a single vehicle crash.		
Star ratings range from 1 to 5 stars (★★★★★), with 5 being the highest.		
Source: National Highway Traffic Safety Administration (NHTSA)		

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

Environmental Performance

Protect the environment, choose vehicles with higher scores:



Vehicle emissions are a primary contributor to global warming and smog. Scores are determined by the California Air Resources Board based on this vehicle's measured emissions. Please visit www.DriveClean.ca.gov for more information. AIR RESOURCES BOARD

EPA Fuel Economy Estimates

CITY MPG

27

Expected range for most drivers
22 to 32 MPG

Estimated Annual Fuel Cost
\$1,848

based on 15,000 miles at 3.70 per gallon

Combined Fuel Economy This Vehicle

30

10 All Compact 60

HIGHWAY MPG

36

Expected range for most drivers
29 to 43 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



PART CONTENT INFORMATION FOR VEHICLES IN THIS COUNTRY:

U.S./CANADIAN PARTS CONTENT: 0%
MAJOR SOURCES OF FOREIGN PARTS CONTENT: JAPAN: 100%

Note: Parts content does not include final assembly, distribution, or other non-parts costs.

FOR THIS VEHICLE:

FINAL ASSEMBLY POINT: Ota Guma, JAPAN
COUNTRY OF ORIGIN: ENGINE: JAPAN
TRANSMISSION: JAPAN

Destination and Delivery	\$750.00
Total Suggested Retail Price	\$19,481.00

THE ONLY EXTENDED SERVICE CONTRACT BACKED BY SUBARU.

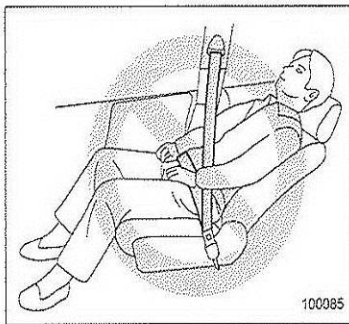
It could be the most important option you choose. After-warranty mechanical repair protection up to 100,000 miles. Nobody protects your Subaru like Subaru!



JF1GJAA69CH006394

*Fuel is a registered trademark of Apple Inc. Toyota is a registered trademark of Toyota Motor Sales, U.S.A., Inc. Subaru is a registered trademark of Subaru Corporation. These labels have been applied pursuant to Federal Law. We do not remove or alter prior to the delivery to the ultimate purchaser.

Monroney Label



WARNING

To prevent the passenger from sliding under the seatbelt in the event of a collision, always put the seatback in the upright position while the vehicle is in motion. Also, do not place objects such as cushions between the passenger and the seatback. If you do so, the risk of sliding under the lap belt and of the lap belt sliding up over the abdomen will increase, and both can result in serious internal injury or death.

Seat cushion height adjustment (driver's seat)



- 1) When the lever is pushed down, the seat is lowered.
- 2) When the lever is pulled up, the seat rises.

The height of the seat can be adjusted by moving the seat cushion adjustment lever up and down.

Head restraint adjustment (if equipped)

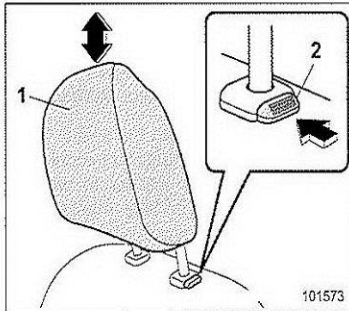
WARNING

- Never drive the vehicle with the head restraints removed because they are designed to reduce the risk of serious neck injury in the event that the vehicle is struck from the rear. Also, never install the head restraints the opposite way round. Doing so will prevent the head restraints from functioning as intended. Therefore, when you remove the head restraints, you must reinstall all head restraints correctly to protect vehicle occupants.
- All occupants, including the driver, should not operate a vehicle or sit in a vehicle's seat until the head restraints are placed in their proper positions in order to minimize the risk of neck injury in the event of a crash.

The head restraints for the driver's seat and front passenger's seat are adjustable in the following ways.

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

▼ Head restraint height adjustment



- 1) Head restraint
- 2) Release button

Each head restraint should be adjusted so that the center of the head restraint is closest to the top of the occupant's ears.

To raise:

Pull the head restraint up.

To lower:

Push the head restraint down while pressing the release button on the top of the seatback.

To remove:

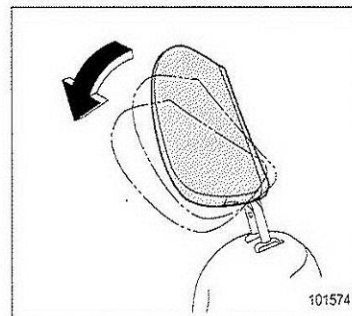
While pressing the release button, pull out the head restraint.

To install:

Install the head restraint into the holes that

are located on the top of the seatback until the head restraint locks.

▼ Head restraint angle adjustment



The angle of the head restraint can be adjusted in several steps. While maintaining a suitable driving posture, adjust the head restraint to a position where the back of your head is as close to the head restraint as possible.

To tilt:

Tilt the head restraint by hand to the preferred position. A click will be audible when the head restraint is locked.

To return:

Tilt the head restraint once as far forward as it can go. The head restraint will automatically return to the fully upright position. Then, adjust the head restraint

again to the preferred angle.

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



Post-Test Dummy Knee Contact with Vehicle Interior View

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)

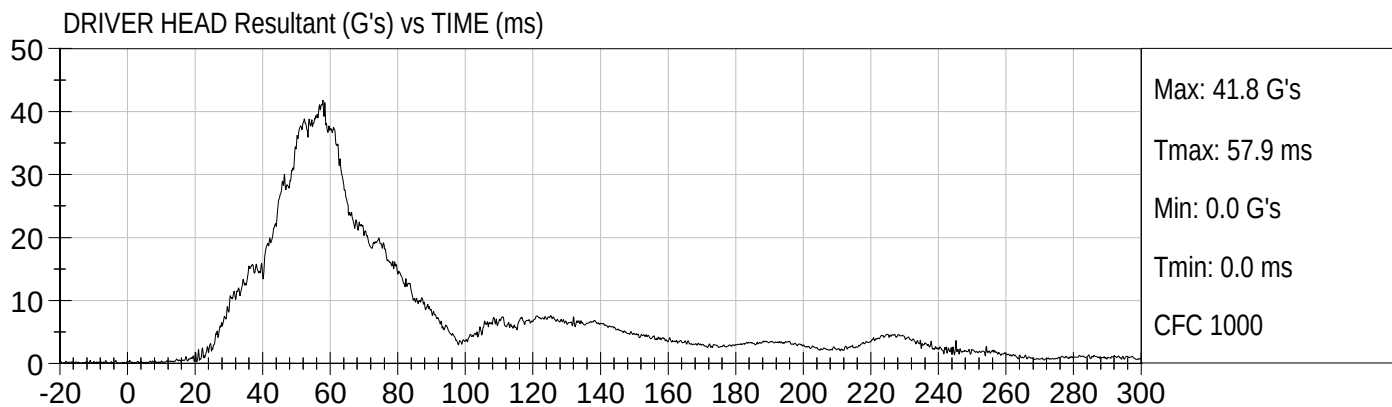
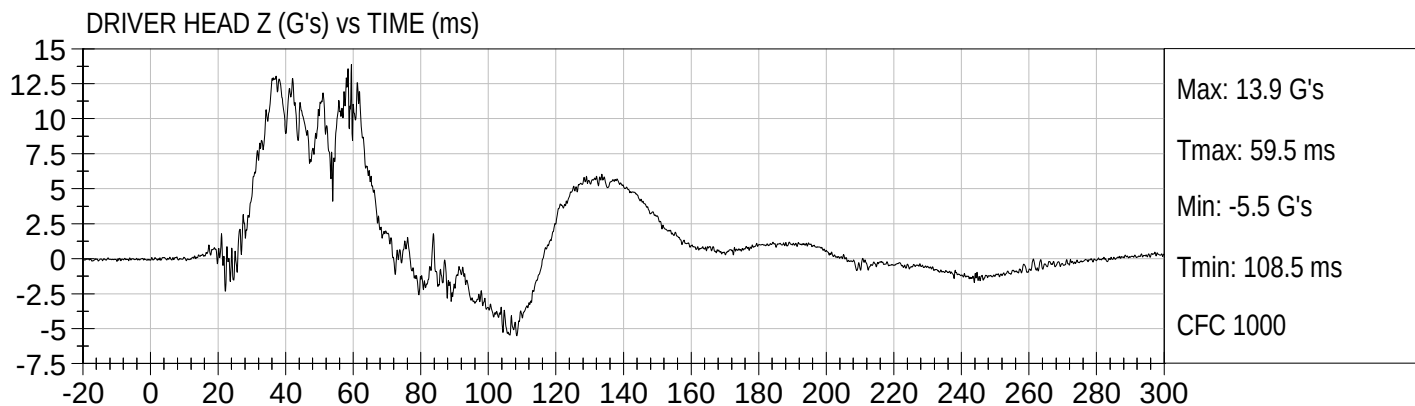
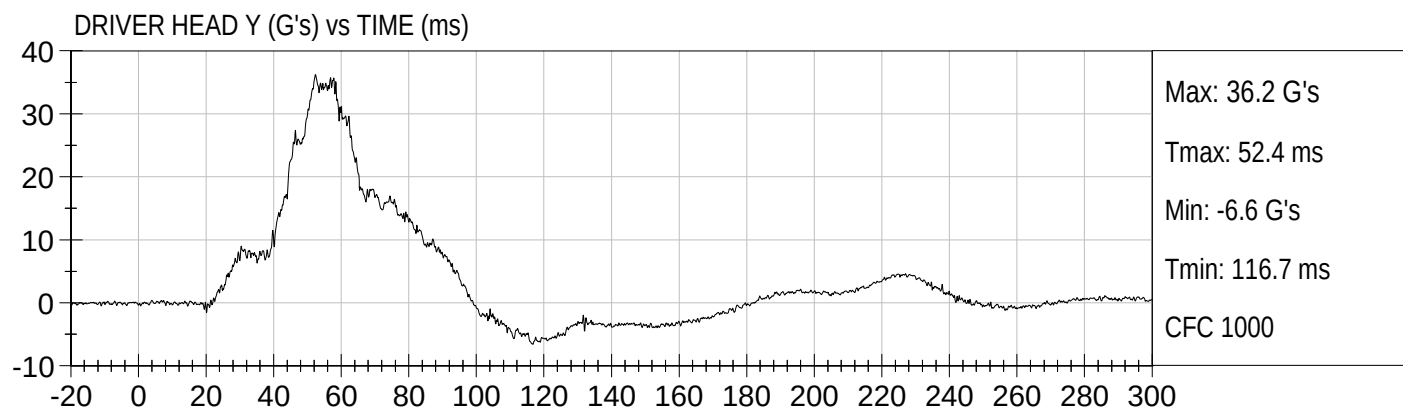
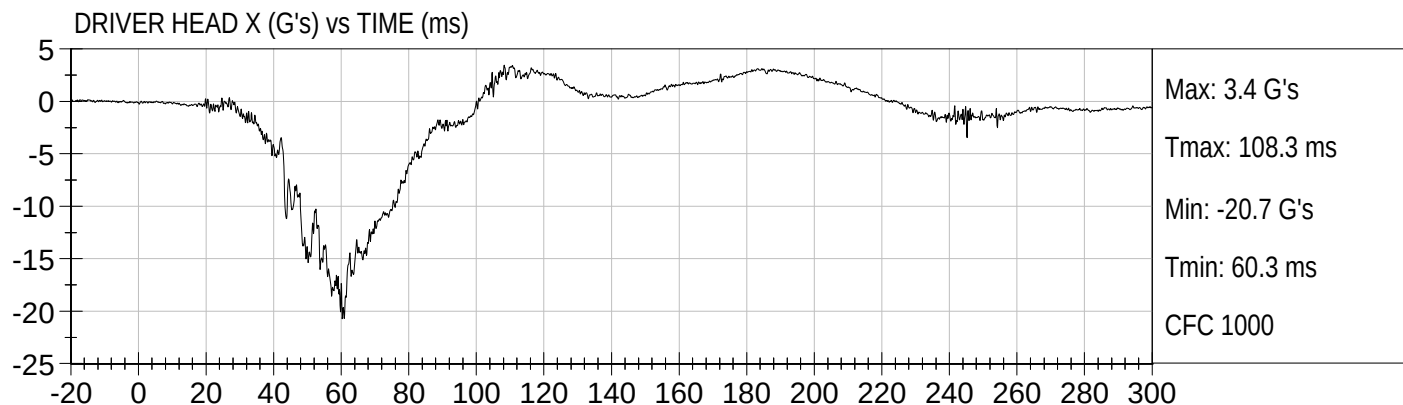
Load Cell Pole Barrier #4 Force (Y)

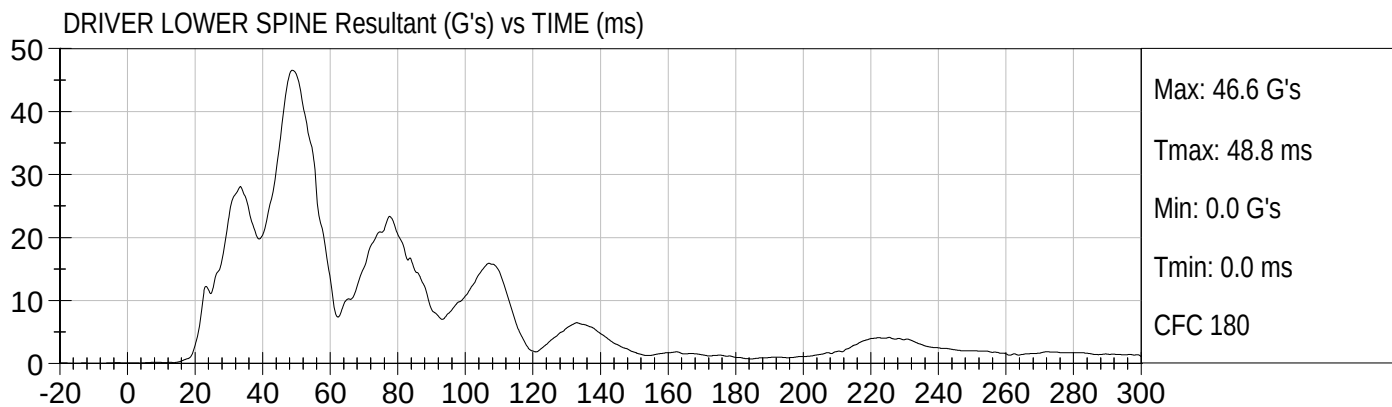
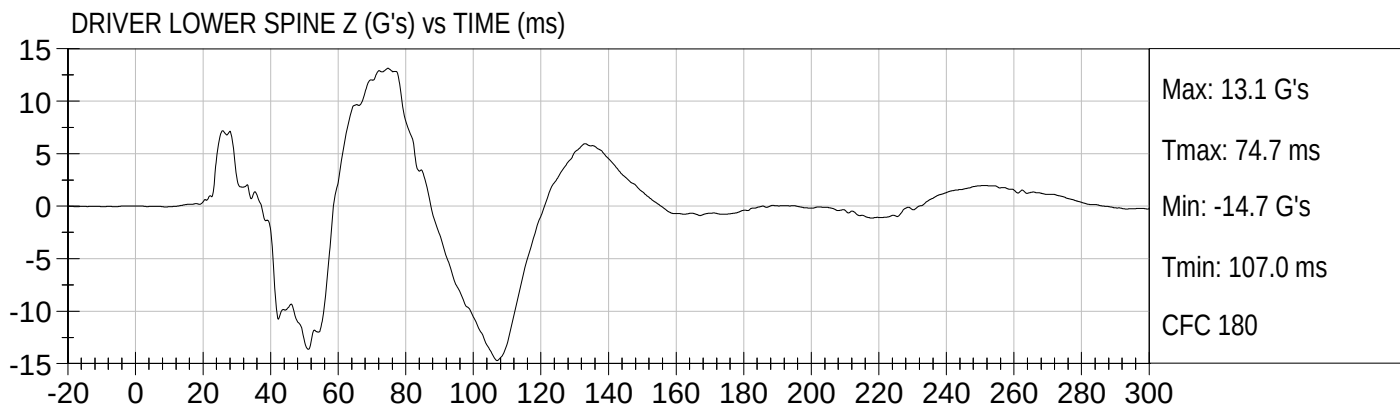
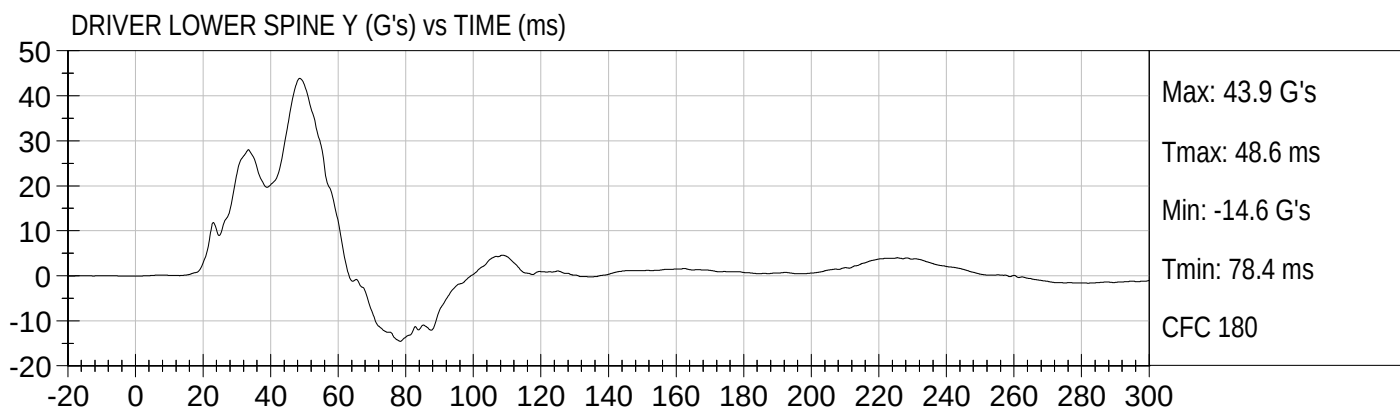
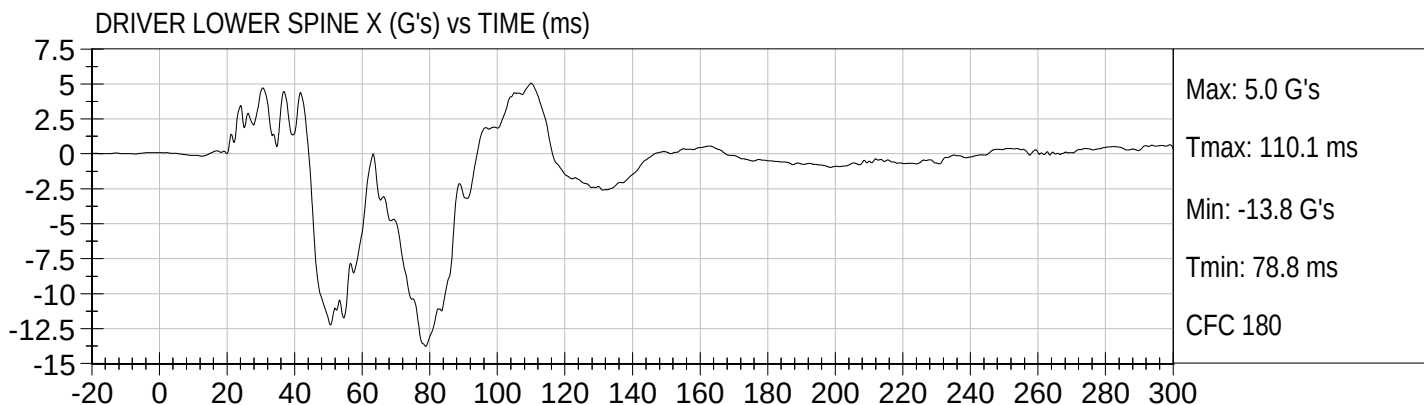
Load Cell Pole Barrier #5 Force (Y)

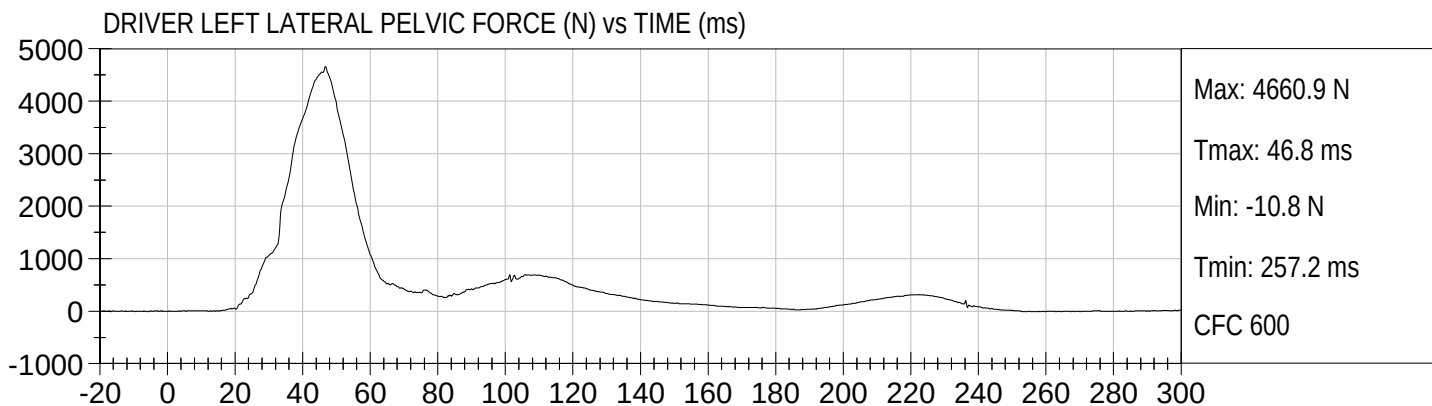
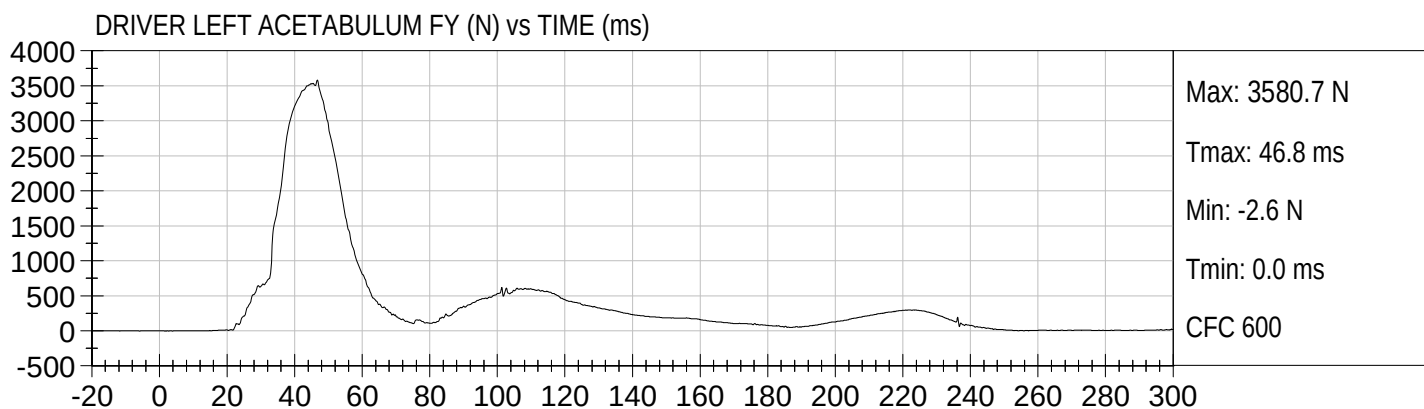
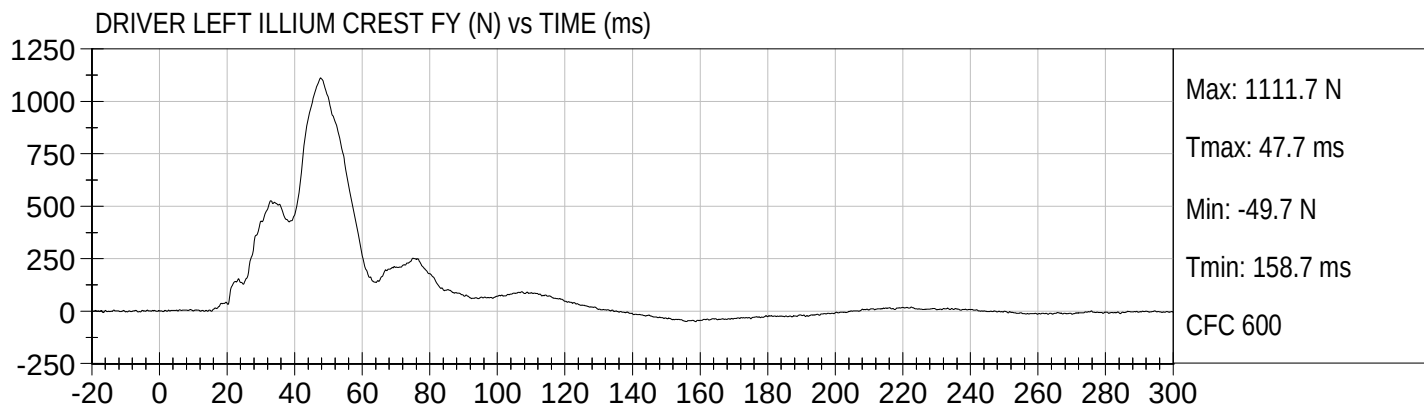
Load Cell Pole Barrier #6 Force (Y)

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: 306

No.	Name	Spec. (mm)	Result	Pass/Fail
A	Sitting Height	772 - 788	785	Pass
B	Shoulder Pivot Height	437 - 453	449	Pass
C	H-point Height	79 - 89	86	Pass
D	H-point from Seatback	141 - 151	147	Pass
E	Shoulder Pivot from Backline	97 - 107	99	Pass
F	Thigh Clearance	119 -135	120	Pass
G	Head Breadth	140 - 148	141	Pass
H	Head Back from Backline	40 - 46	45	Pass
I	Head Depth	178 - 188	182	Pass
J	Head Circumference	541 - 551	550	Pass
K	Buttock to Knee Length	514 - 540	538	Pass
L	Popliteal Height	343 - 369	349	Pass
M	Knee Pivot to Floor Height	392 - 409	394	Pass
N	Buttock Popliteal Length	416 - 442	435	Pass
O	Chest Depth w/o Jacket	195 - 211	198	Pass
P	Foot Length	216 - 232	222	Pass
Q	Hip Breadth (w/ pelvic plugs)	313 - 323	317	Pass
R	Arm Length	249 - 259	250	Pass
S	Knee Joint to Seatback	477 - 493	483	Pass
V	Shoulder Width	341 - 357	351	Pass
W	Foot Width	78 - 94	82	Pass
Y	Chest Circumference w/ jacket	851 - 881	863	Pass
Z	Waist Circumference	761 - 791	782	Pass

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

ATD Serial No: 306

Test ID: D12471

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	22	Pass
Peak Resultant Acceleration	G's	115 to 137	124	Pass
Peak Longitudinal Acceleration	G's	+/- 15	2.2	Pass
Unimodal	N/A	<15%	Yes	Pass
Overall Test Results				Pass



Laboratory Technician

2/14/12

Test Date

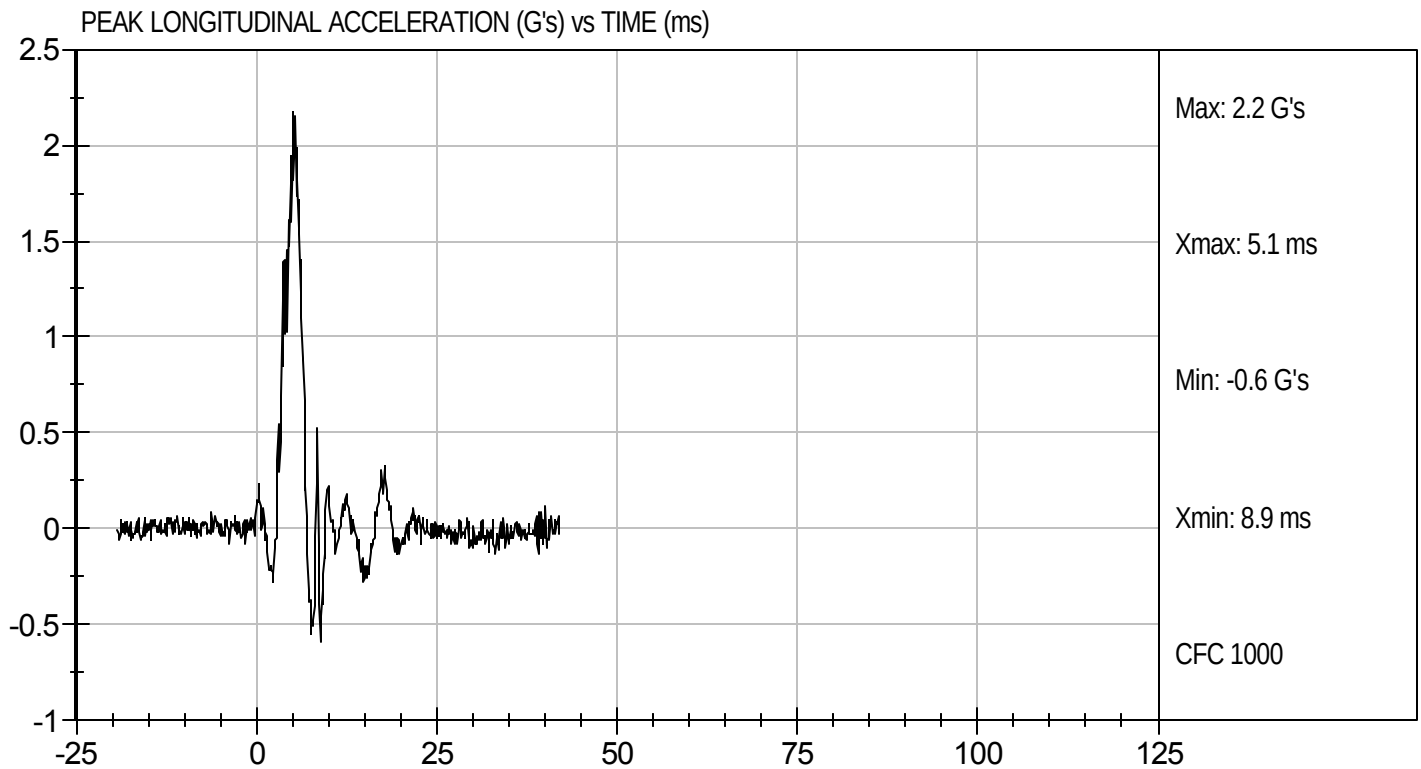
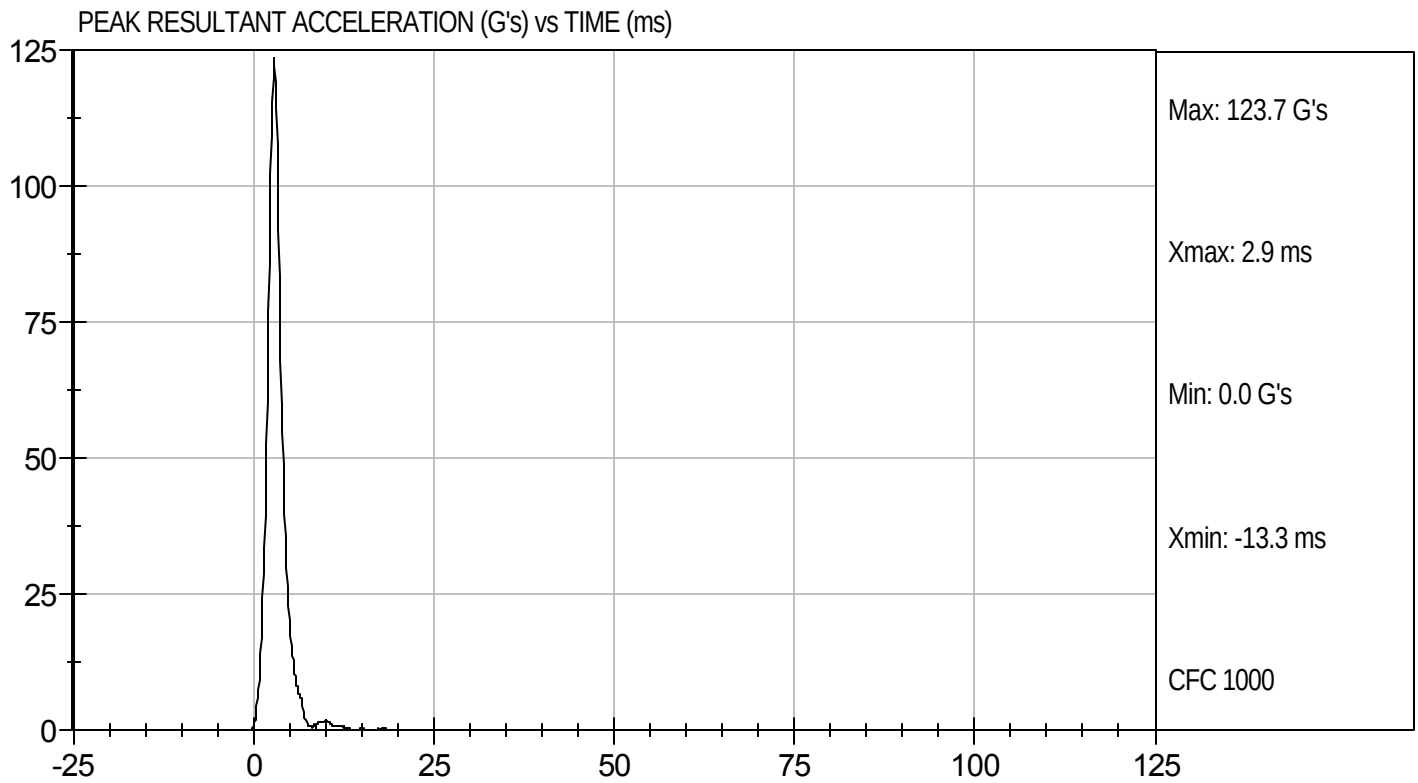


Approved By



Test Desc: Head Drop
Component ID: D12471

Test Date: 2/14/12
Velocity: 0 ft/s, 0 m/s

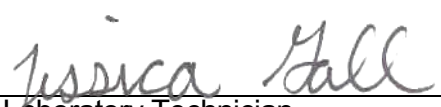


MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D.: D12472

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.9	Pass
Humidity		%	10 to 70	22	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	3.83	Pass
	20 ms	m/s	4.40 to 5.40	5.09	Pass
	25 ms	m/s	5.40 to 6.10	5.50	Pass
	25-100 ms	m/s	5.50 to 6.20	5.5	Pass
Maximum D-Plane Rotation		deg	71 to 81	72	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	59	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	115	Pass
Overall Test Results				Pass	


 Laboratory Technician

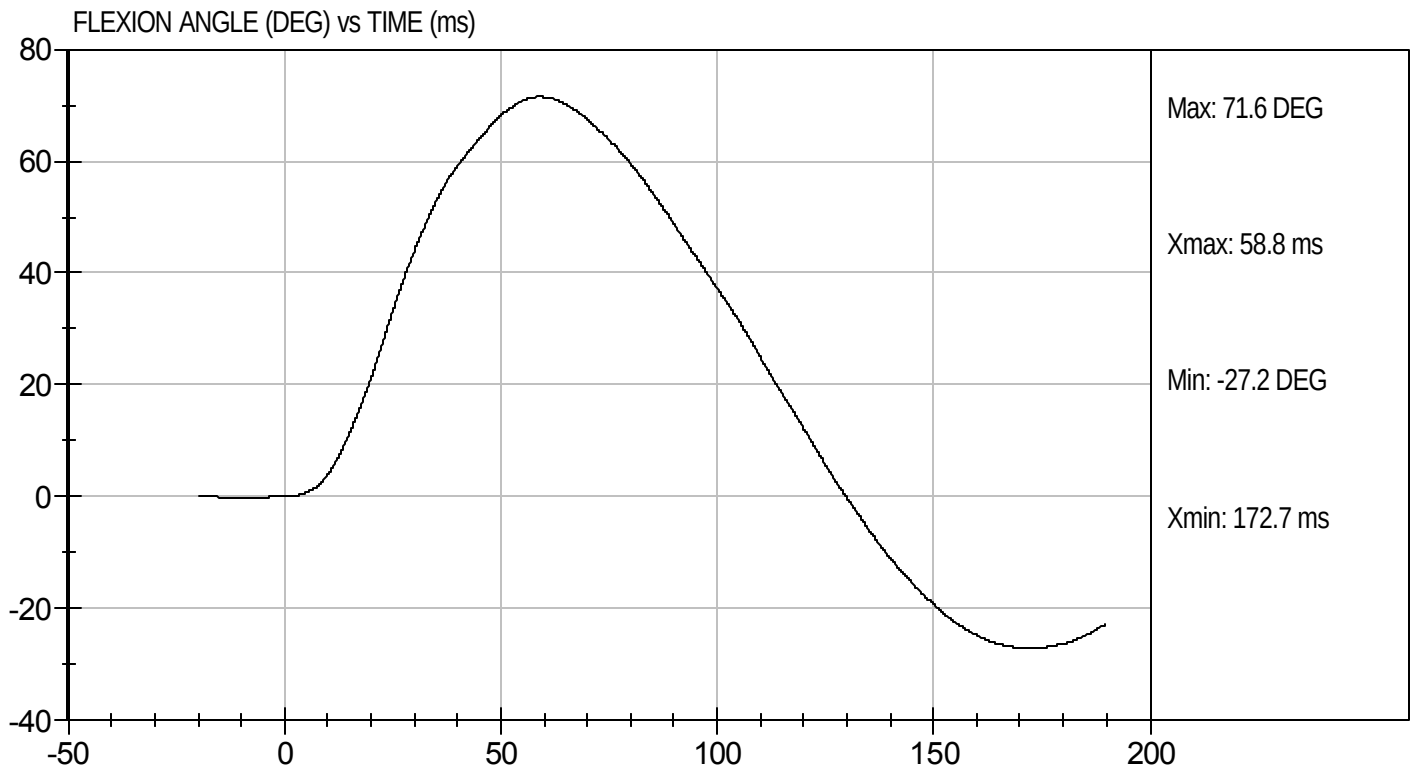
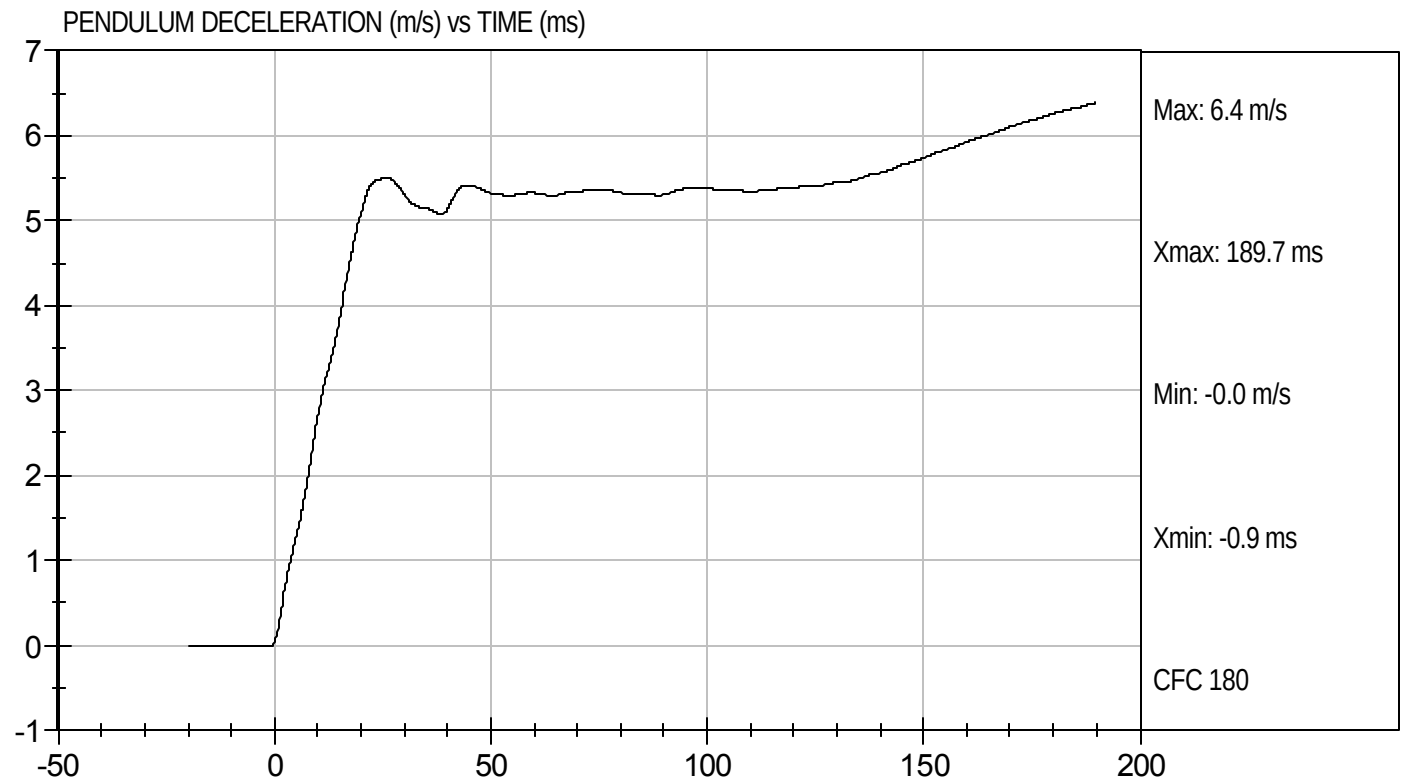
2/14/12
 Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D12472

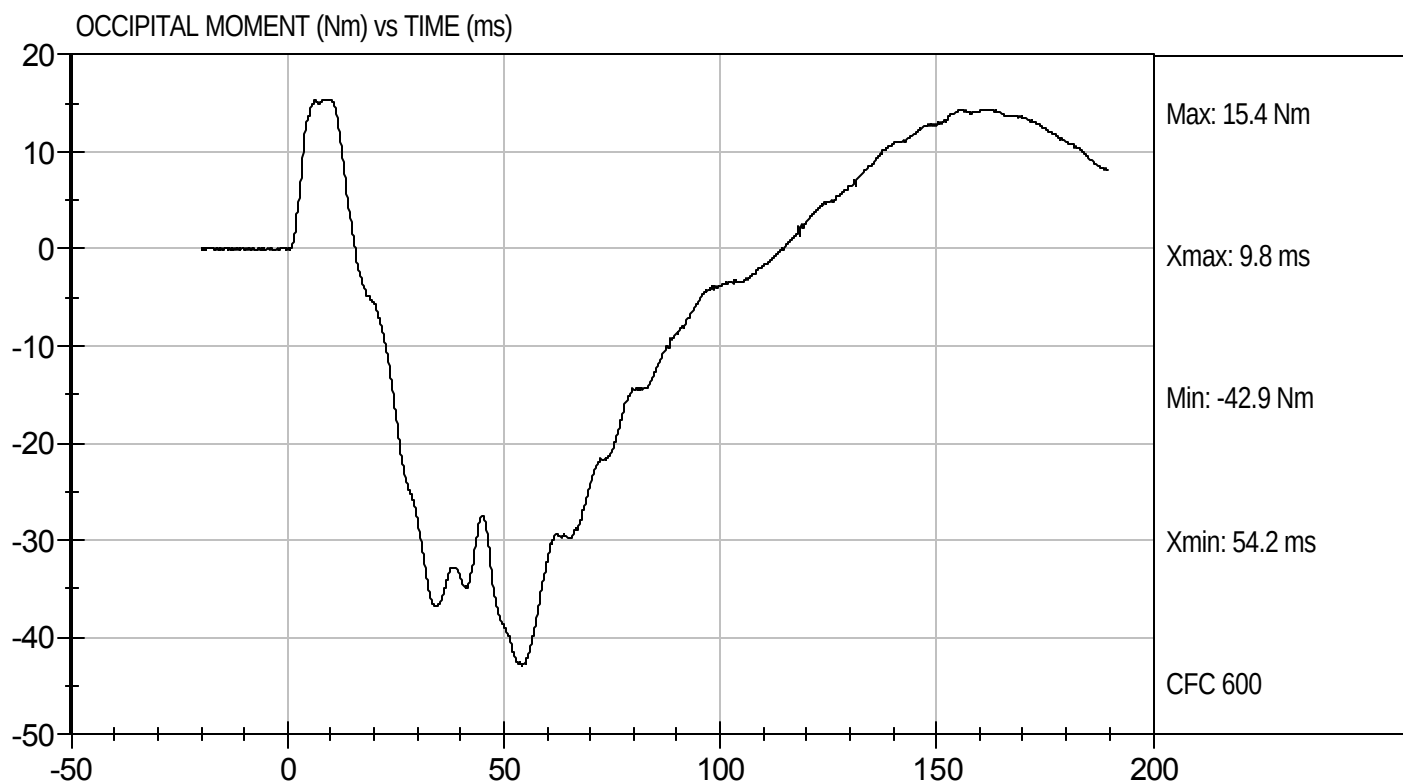
Test Date: 2/14/12
Velocity: 18.32 ft/s, 5.58 m/s





Test Desc: Neck Bending
Component ID: D12472

Test Date: 2/14/12
Velocity: 18.32 ft/s, 5.58 m/s



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

ATD Serial No: 306

Test ID: D12473

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	22.1	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Maximum Probe Acceleration	G's	13 to 18	16	Pass
Shoulder Displacement	mm	28 to 37	29	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	19	Pass
Overall Test Results				Pass

Jessica Galt
Laboratory Technician

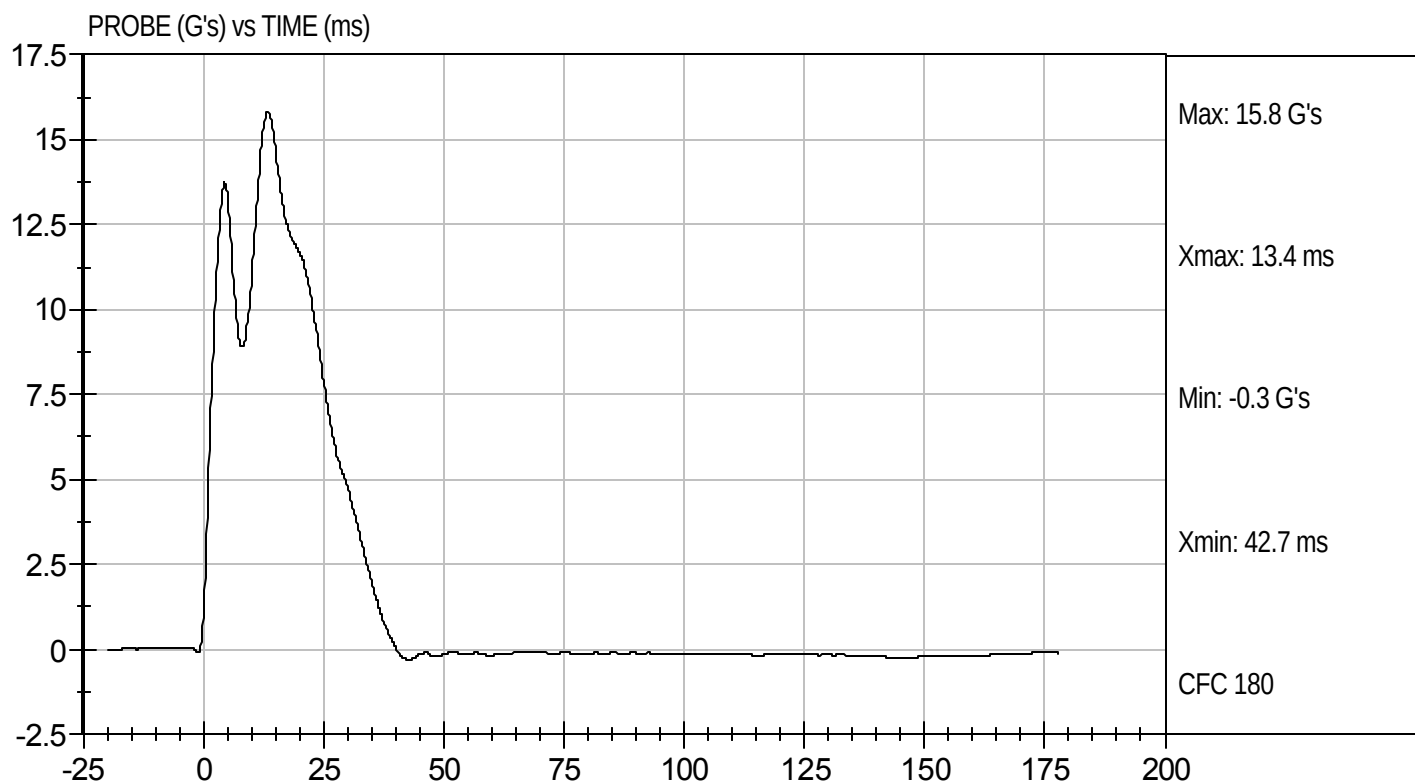
2/14/12
Test Date

David Winkelbauer
Approved By



Test Desc: Shoulder Impact
Component ID: D12473

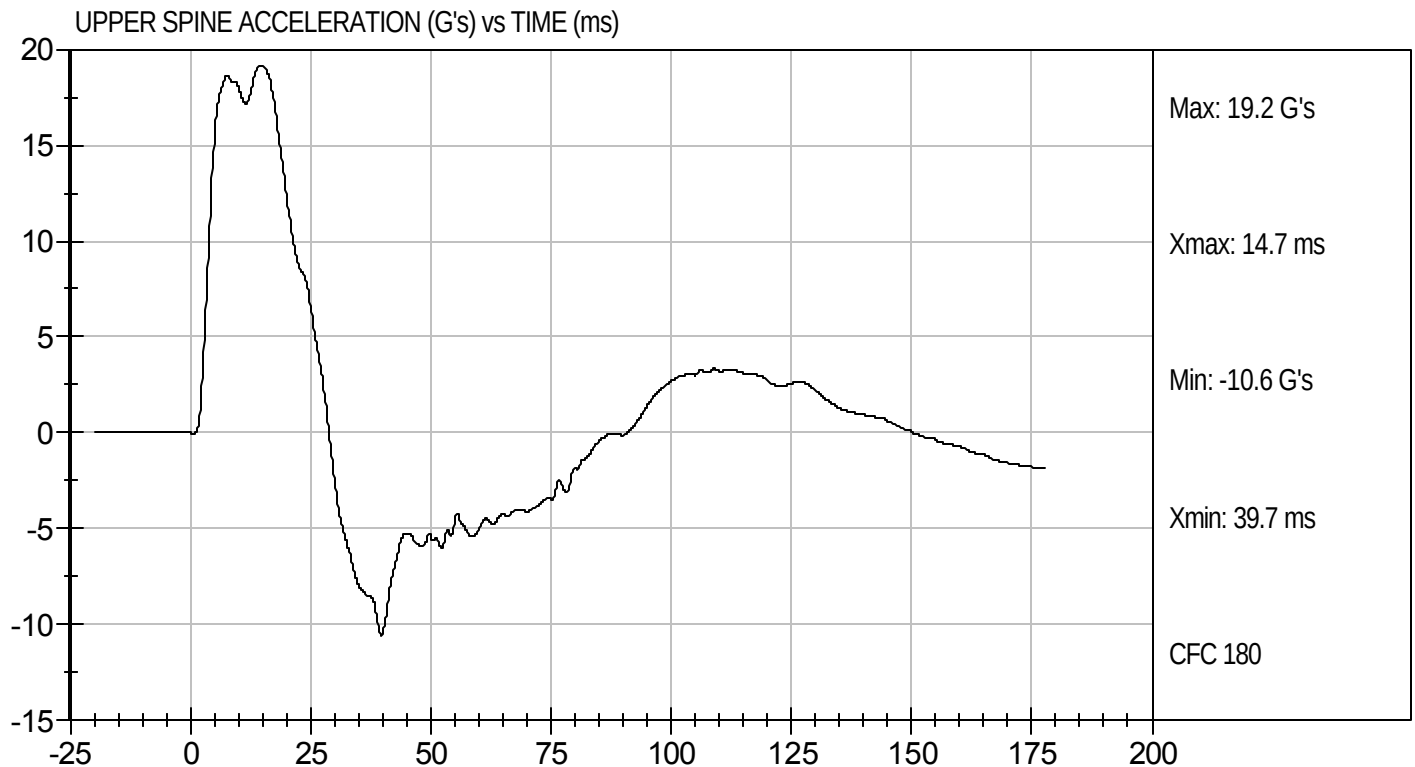
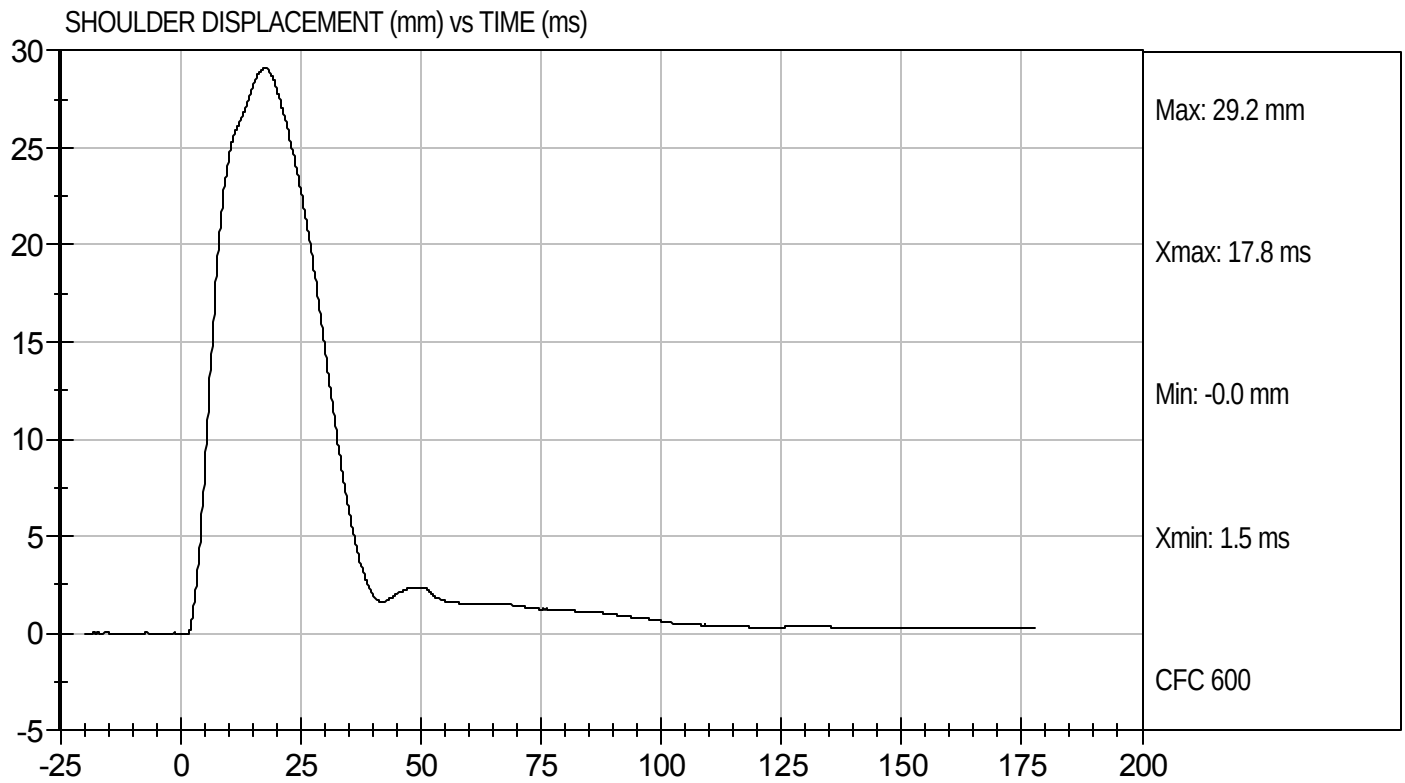
Test Date: 2/14/12
Velocity: 14.37 ft/s, 4.38 m/s





Test Desc: Shoulder Impact
Component ID: D12473

Test Date: 2/14/12
Velocity: 14.37 ft/s, 4.38 m/s



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

ATD Serial No: 306

Test I.D: D12474

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.0	Pass
Humidity	%	10 to 70	22	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Peak Impactor Acceleration	G's	30 to 36	34	Pass
Shoulder Displacement	mm	31 to 40	33	Pass
Upper Rib Displacement	mm	25 to 32	26	Pass
Middle Rib Displacement	mm	30 to 36	31	Pass
Lower Rib Displacement	mm	32 to 38	34	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	41	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	33	Pass
Overall Test Results			Pass	


Laboratory Technician

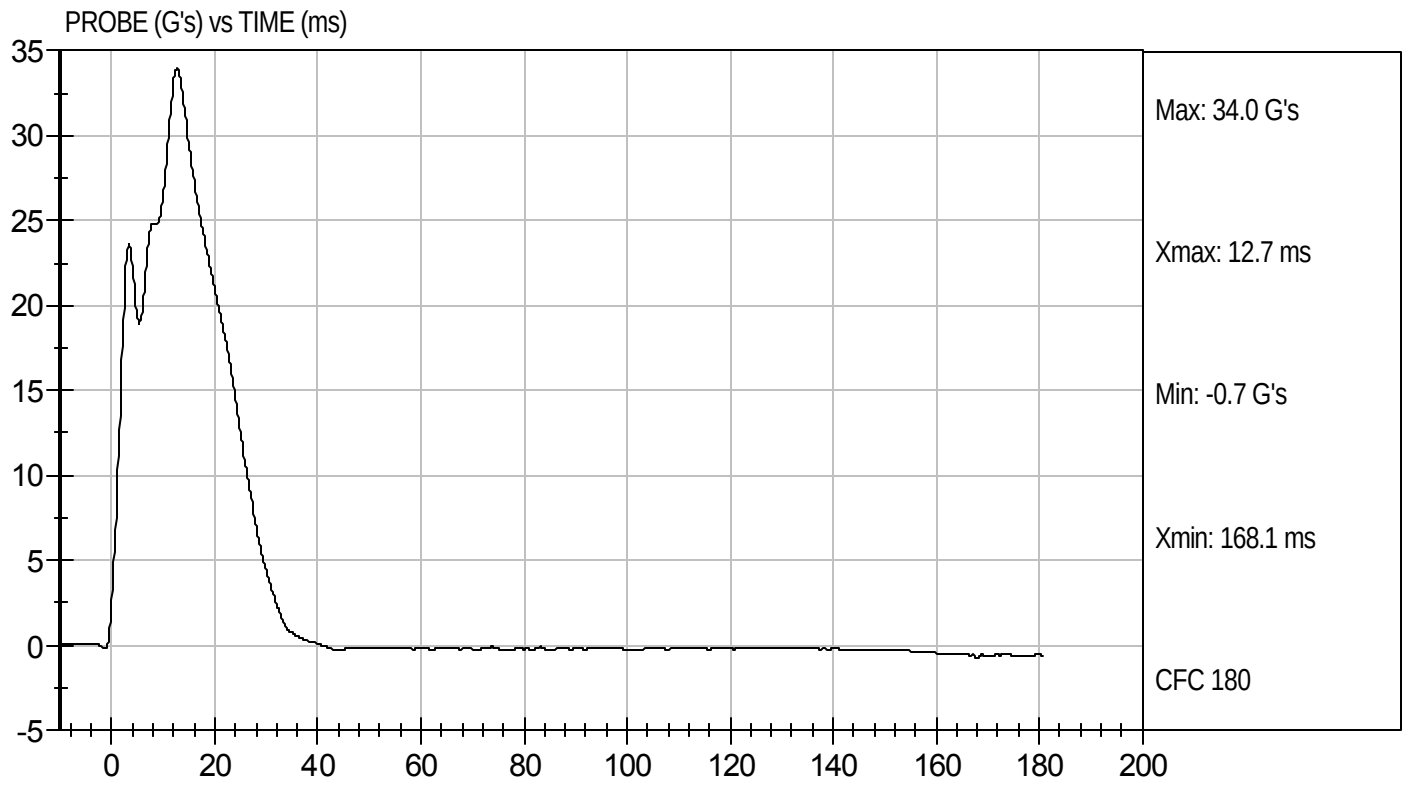
2/14/12
Test Date


Approved By



Test Desc: Thorax With Arm
Component ID: D12474

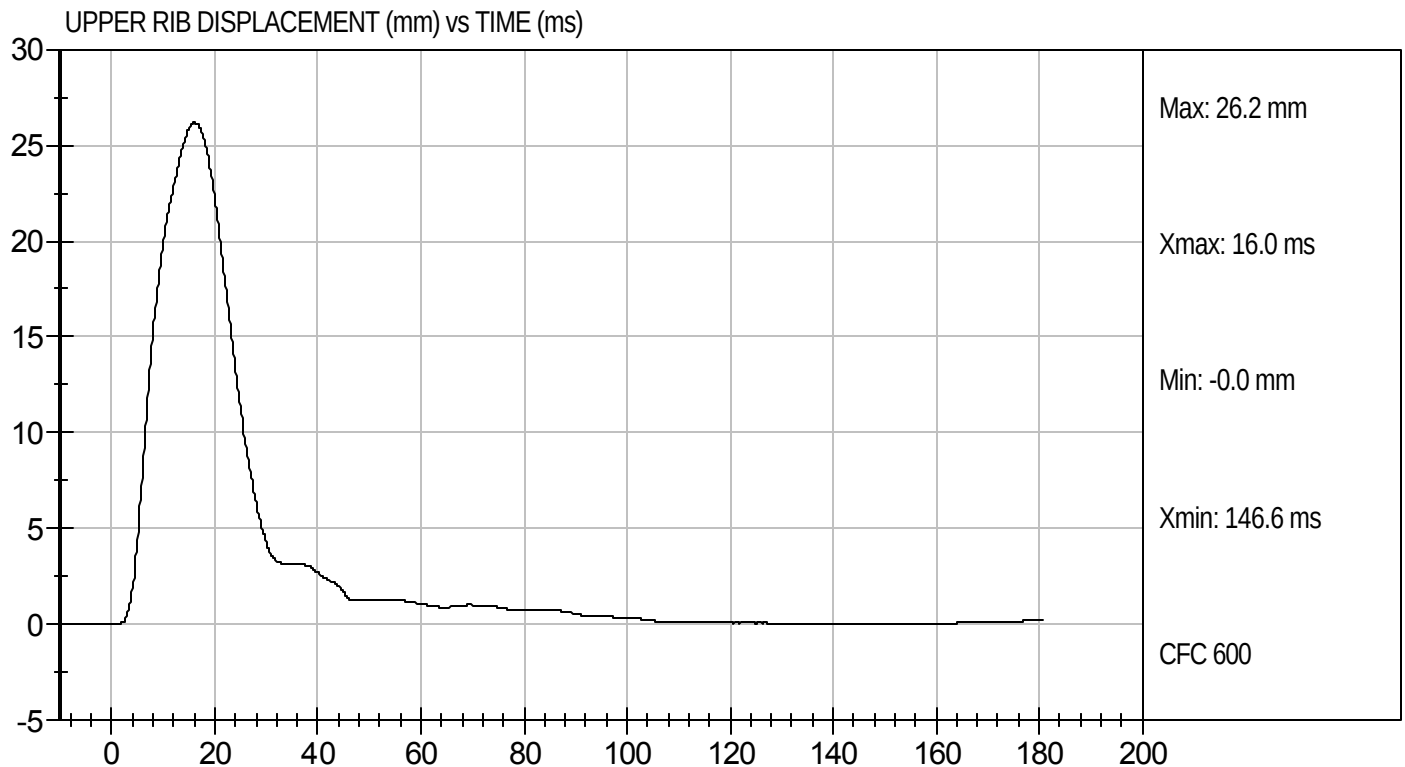
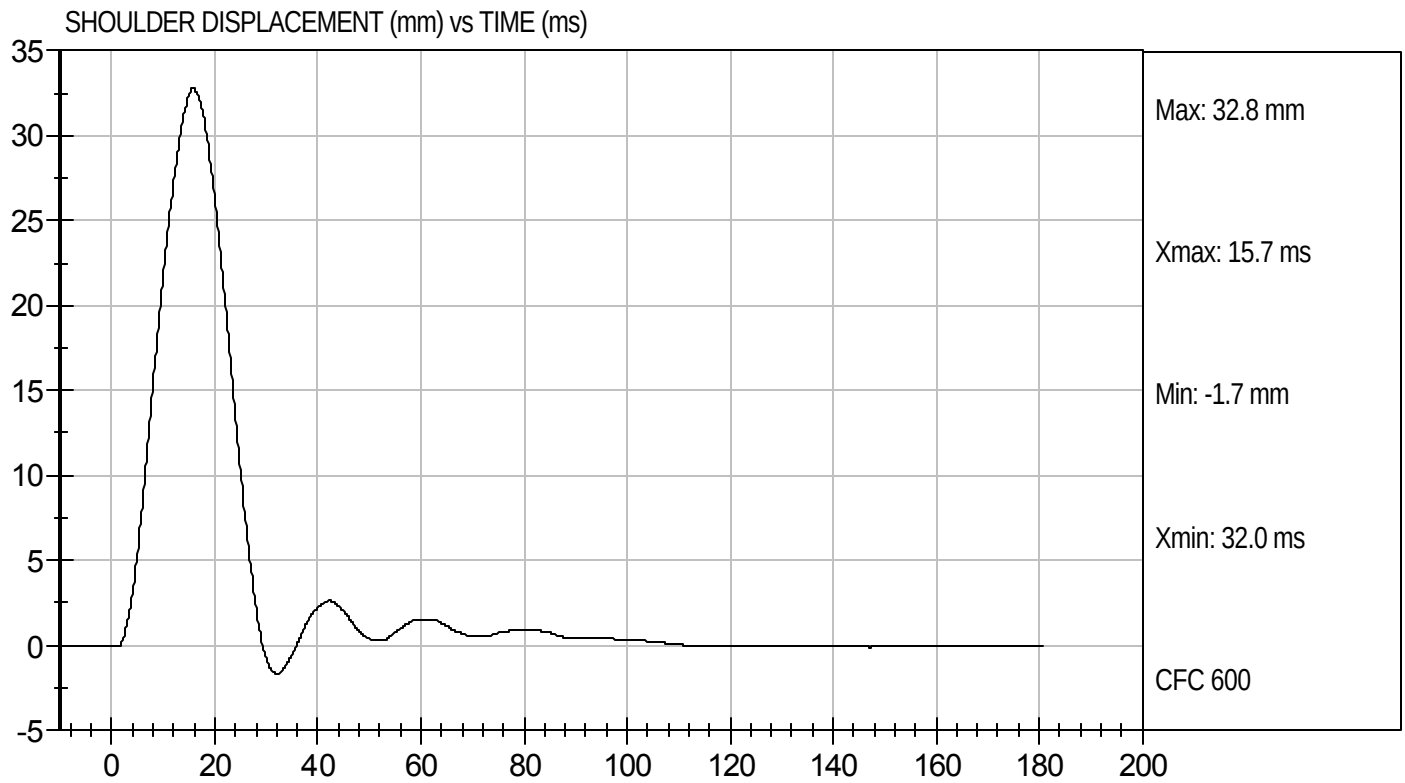
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Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D12474

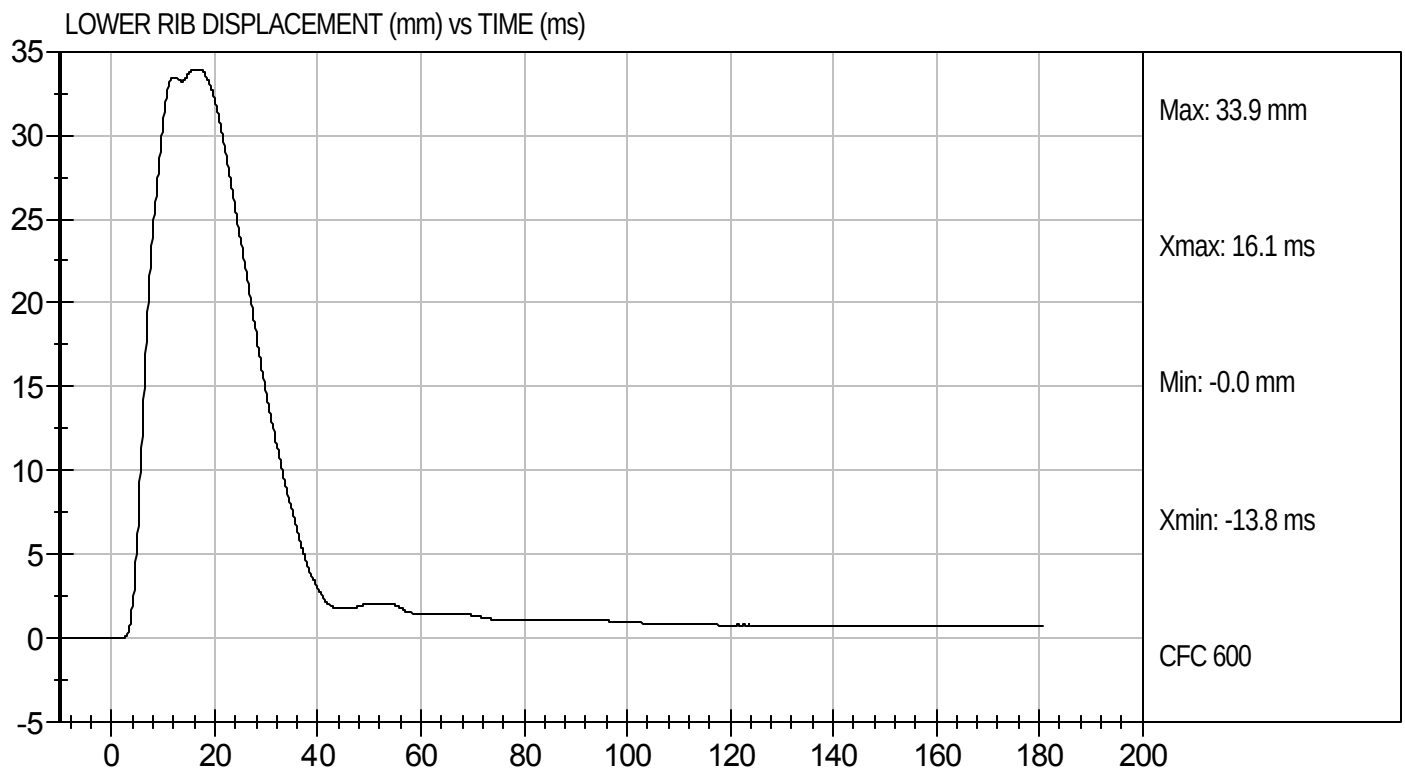
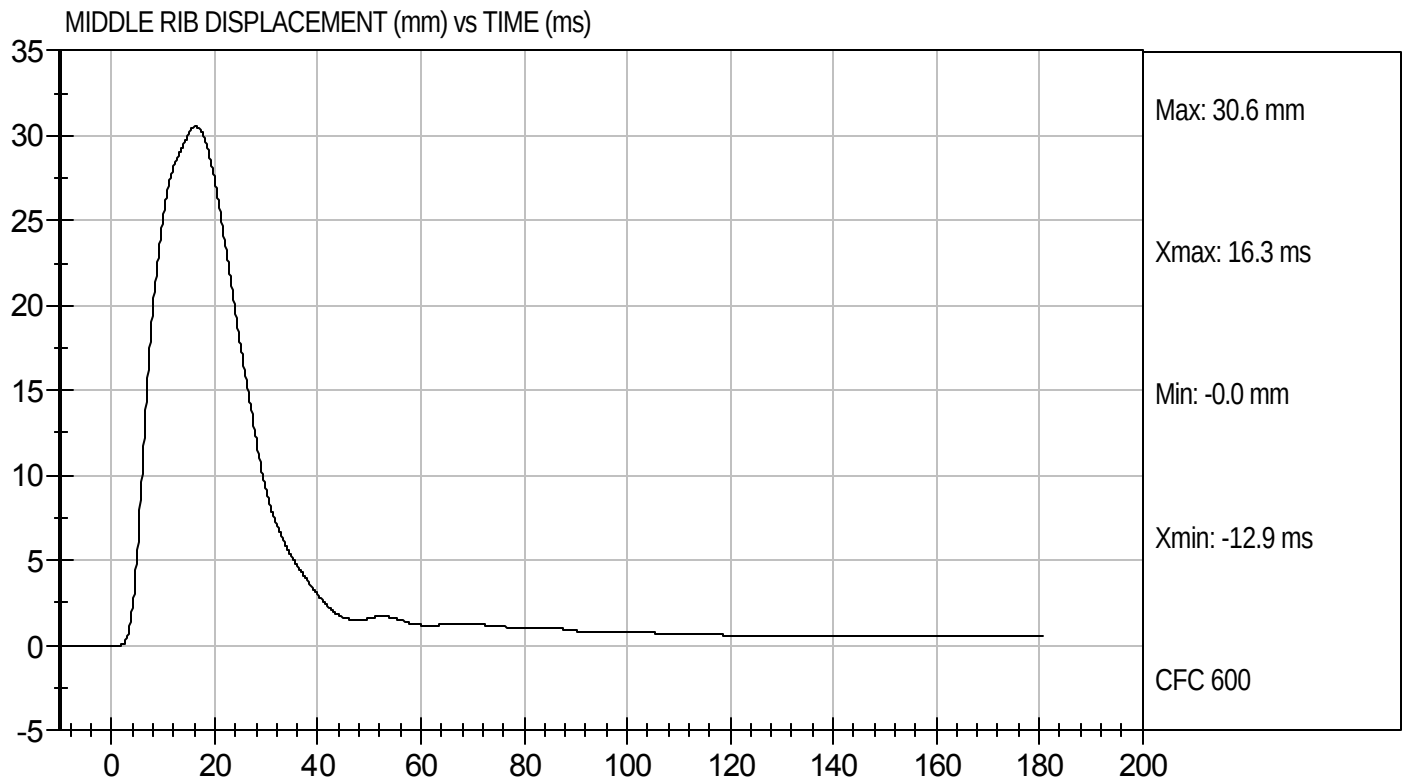
Test Date: 2/14/12
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D12474

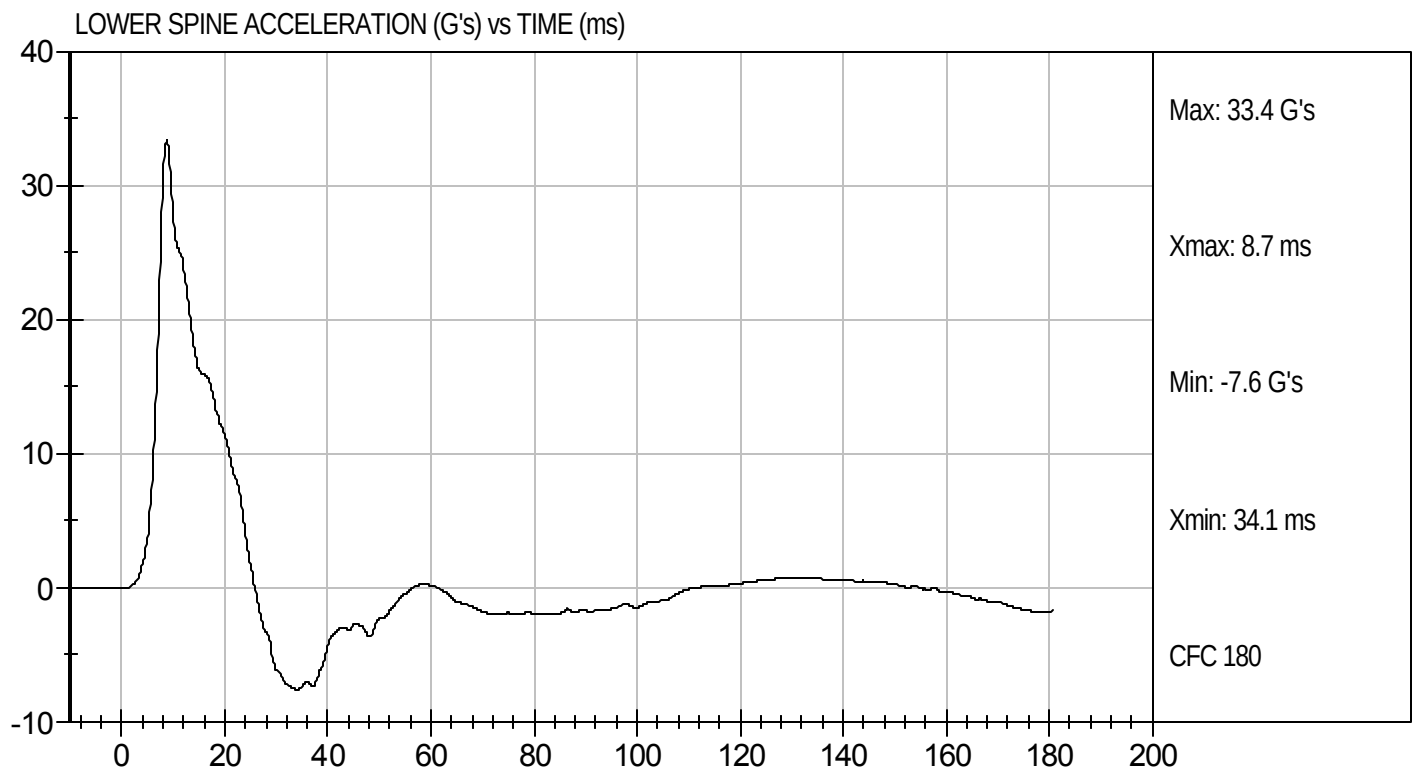
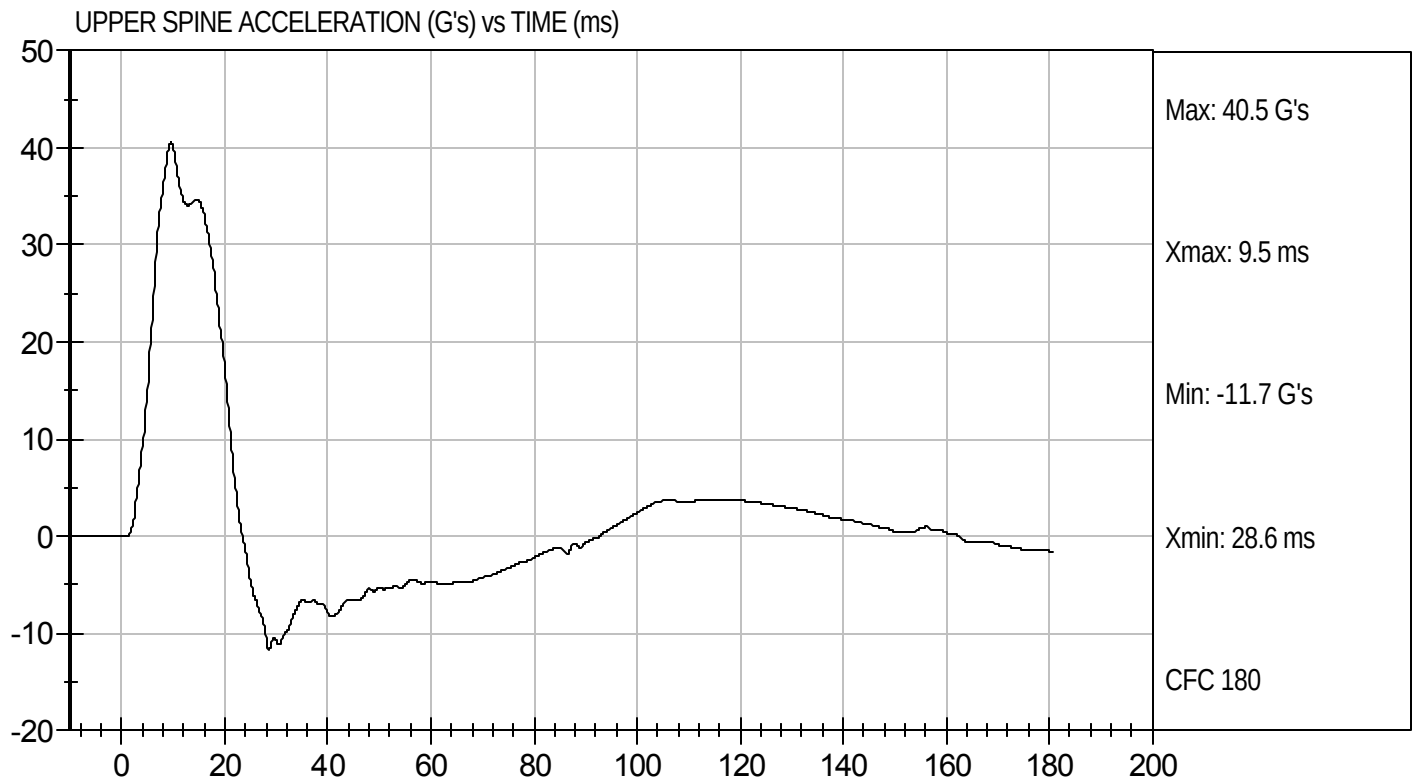
Test Date: 2/14/12
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D12474

Test Date: 2/14/12
Velocity: 22.22 ft/s, 6.77 m/s

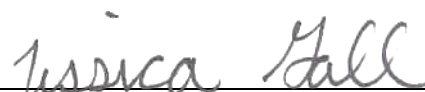


MGA RESEARCH CORPORATION
THORAX (WITHOUT ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D12475

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.0	Pass
Humidity	%	10 to 70	22	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Peak Impactor Force	G's	14 to 18	16	Pass
Upper Rib Displacement	mm	32 to 40	35	Pass
Middle Rib Displacement	mm	39 to 45	41	Pass
Lower Rib Displacement	mm	35 to 43	40	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	15	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	10	Pass
Overall Test Results			Pass	


Laboratory Technician

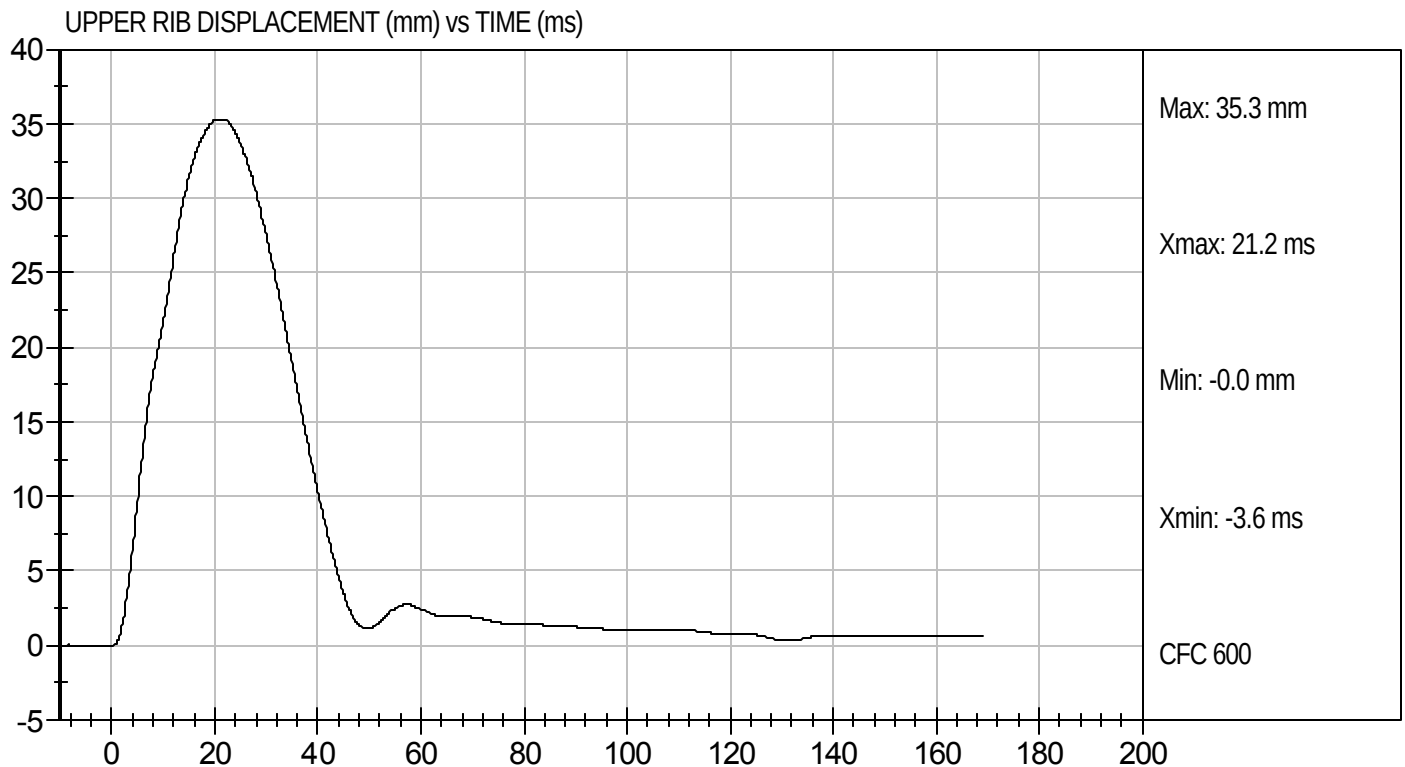
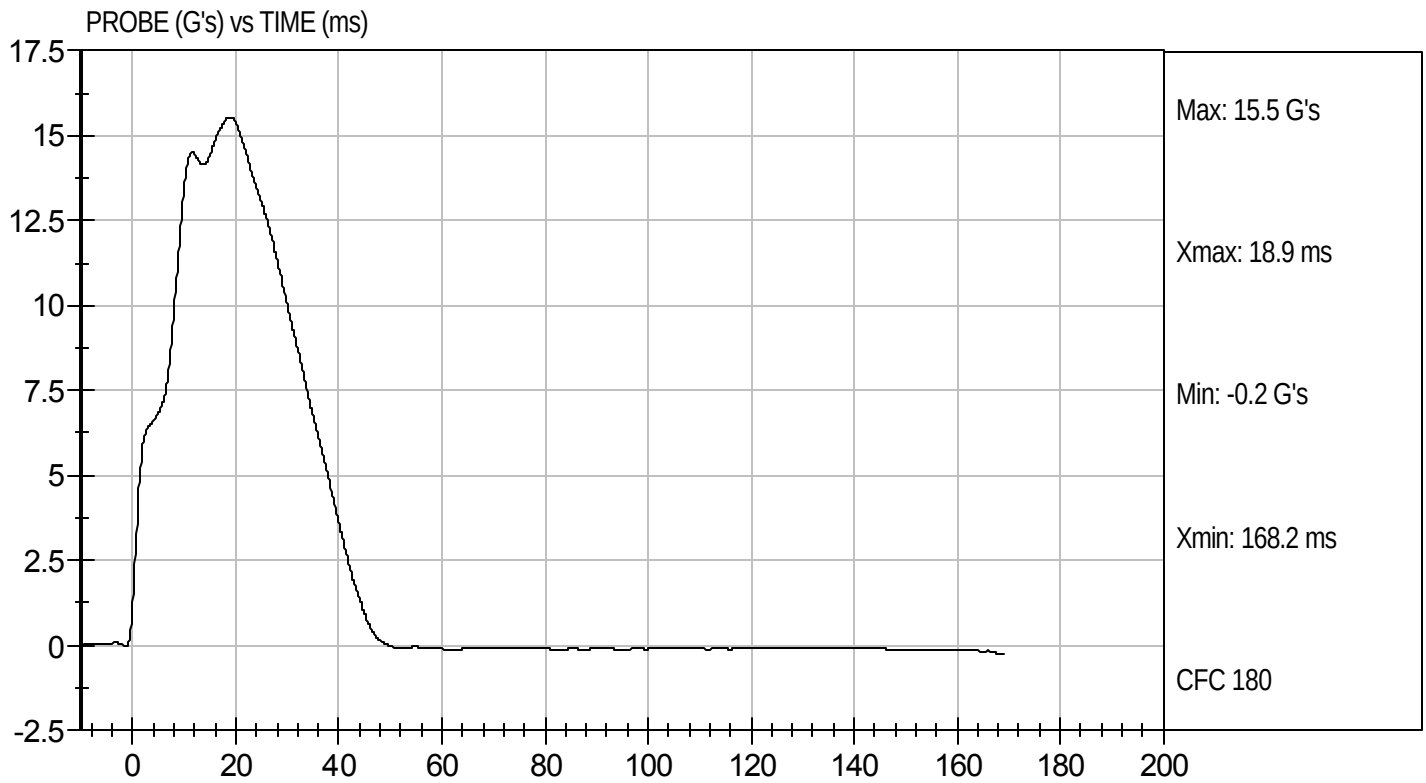
2/14/12
Test Date


Approved By



Test Desc: Thorax Without Arm
Component ID: D12475

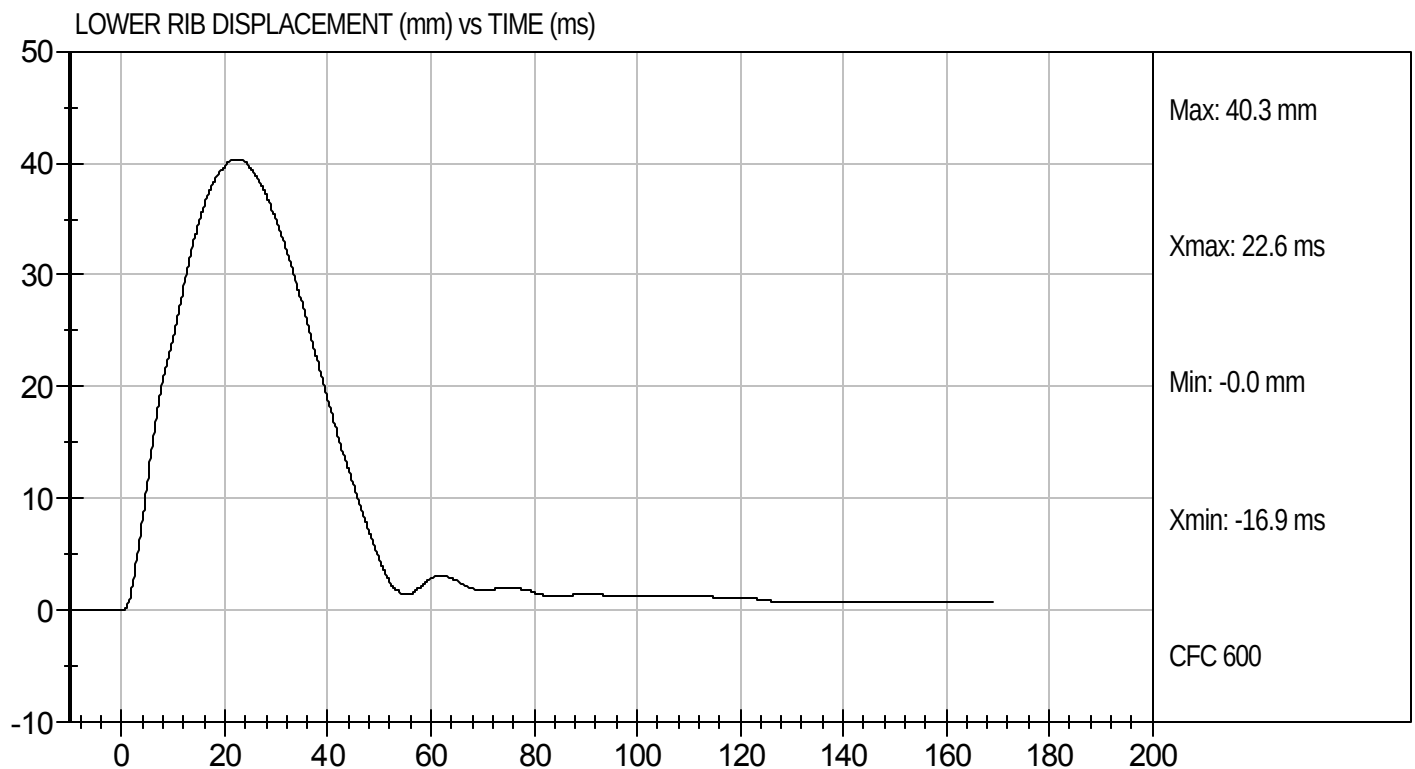
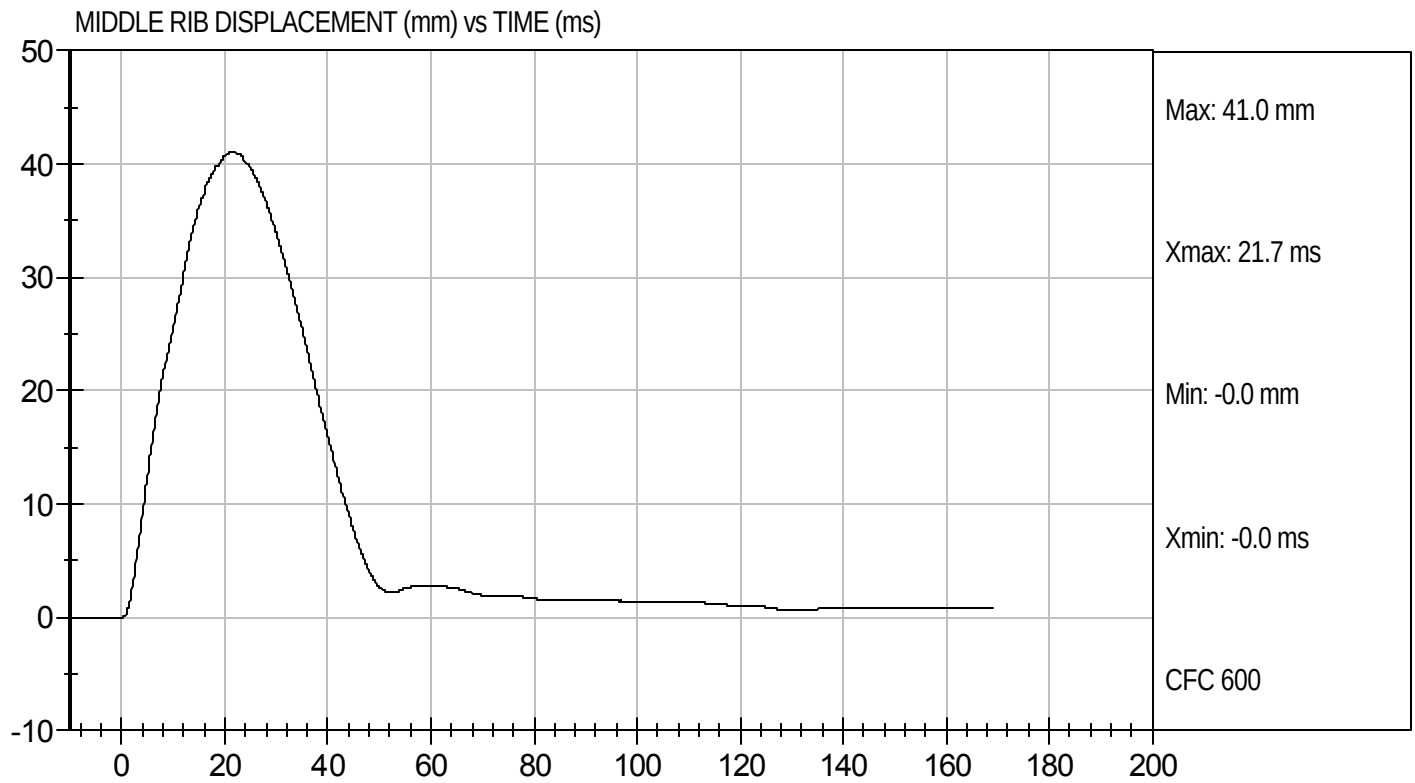
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Velocity: 14.37 ft/s, 4.38 m/s





Test Desc: Thorax Without Arm
Component ID: D12475

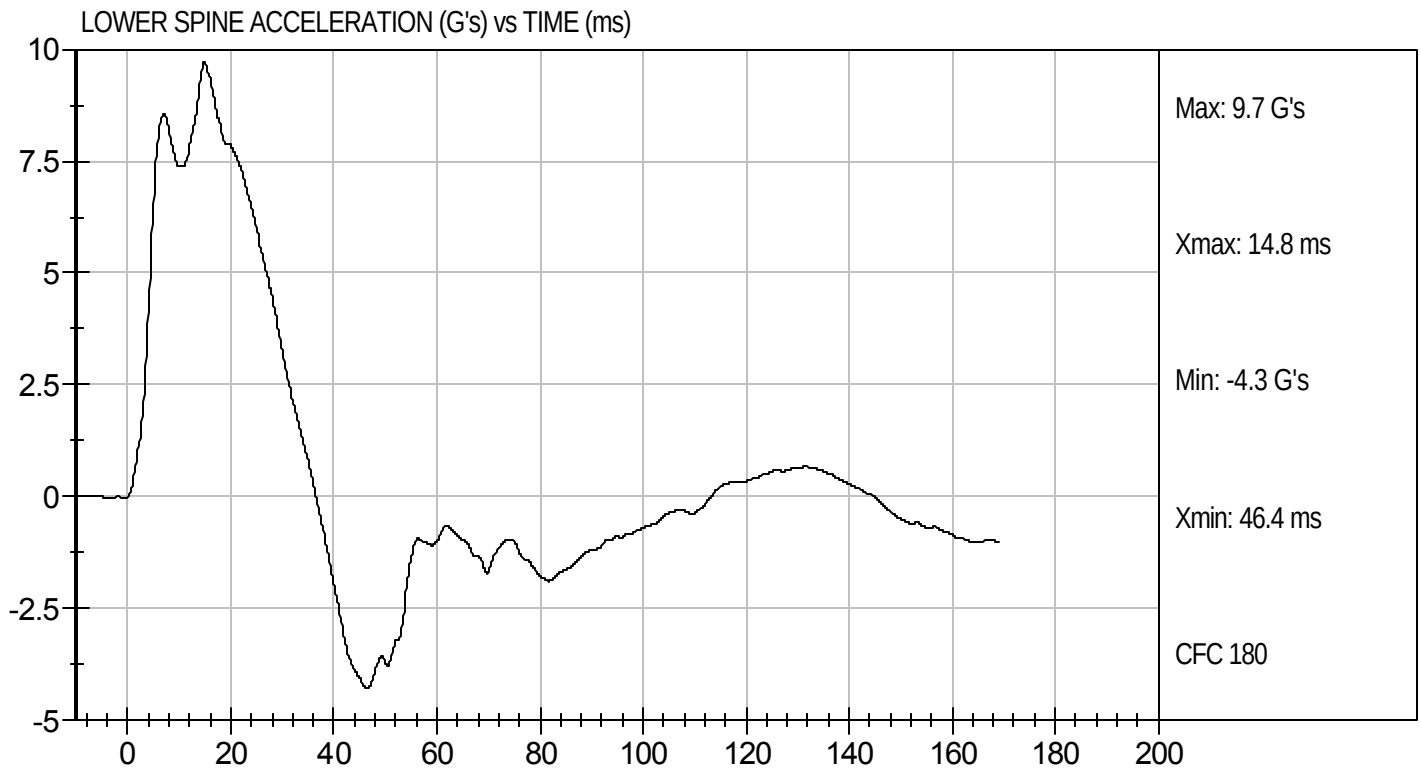
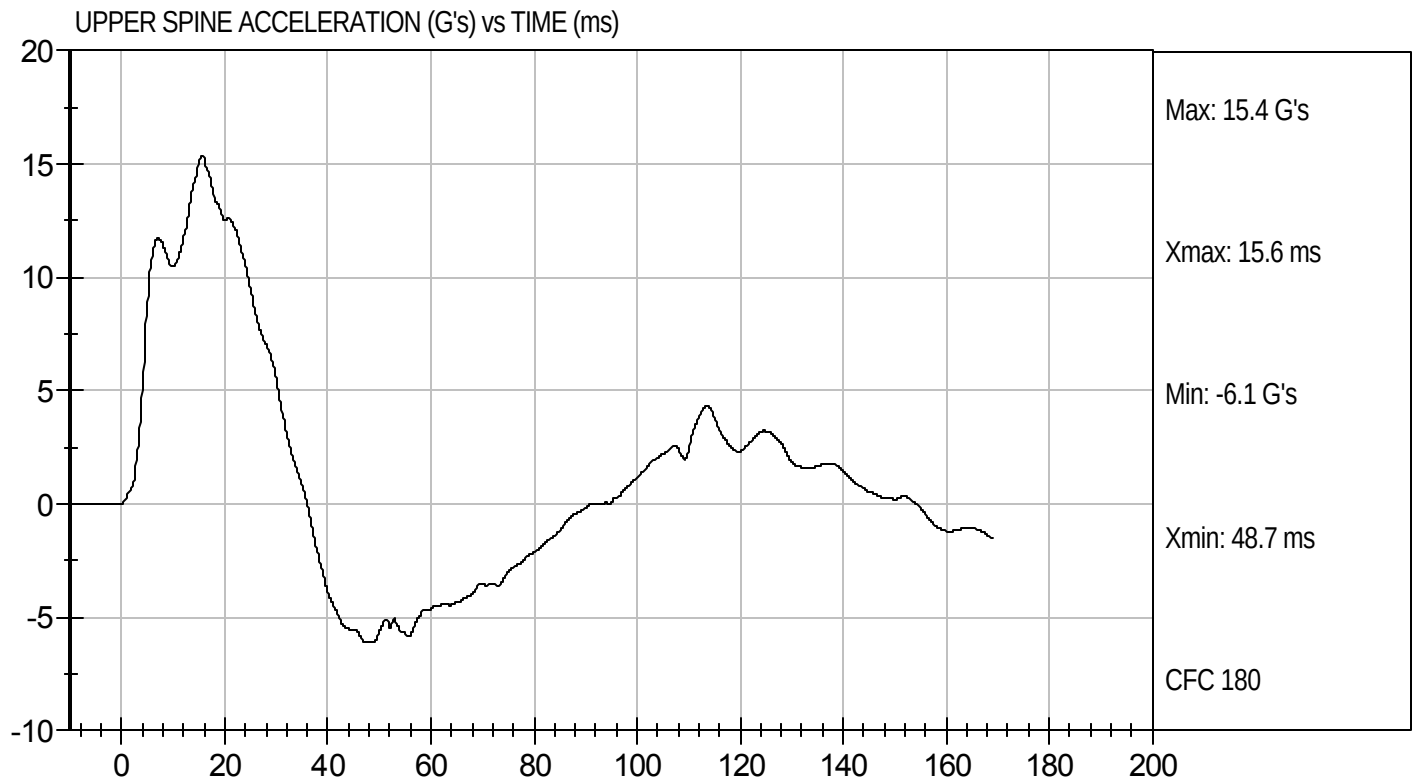
Test Date: 2/14/12
Velocity: 14.37 ft/s, 4.38 m/s





Test Desc: Thorax Without Arm
Component ID: D12475

Test Date: 2/14/12
Velocity: 14.37 ft/s, 4.38 m/s



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

ATD Serial No: 306

Test I.D: D12476

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.1	Pass
Humidity	%	10 to 70	21	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	40	Pass
Lower Rib Displacement	mm	33 to 44	41	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	10	Pass
			Overall Test Results	Pass


Laboratory Technician

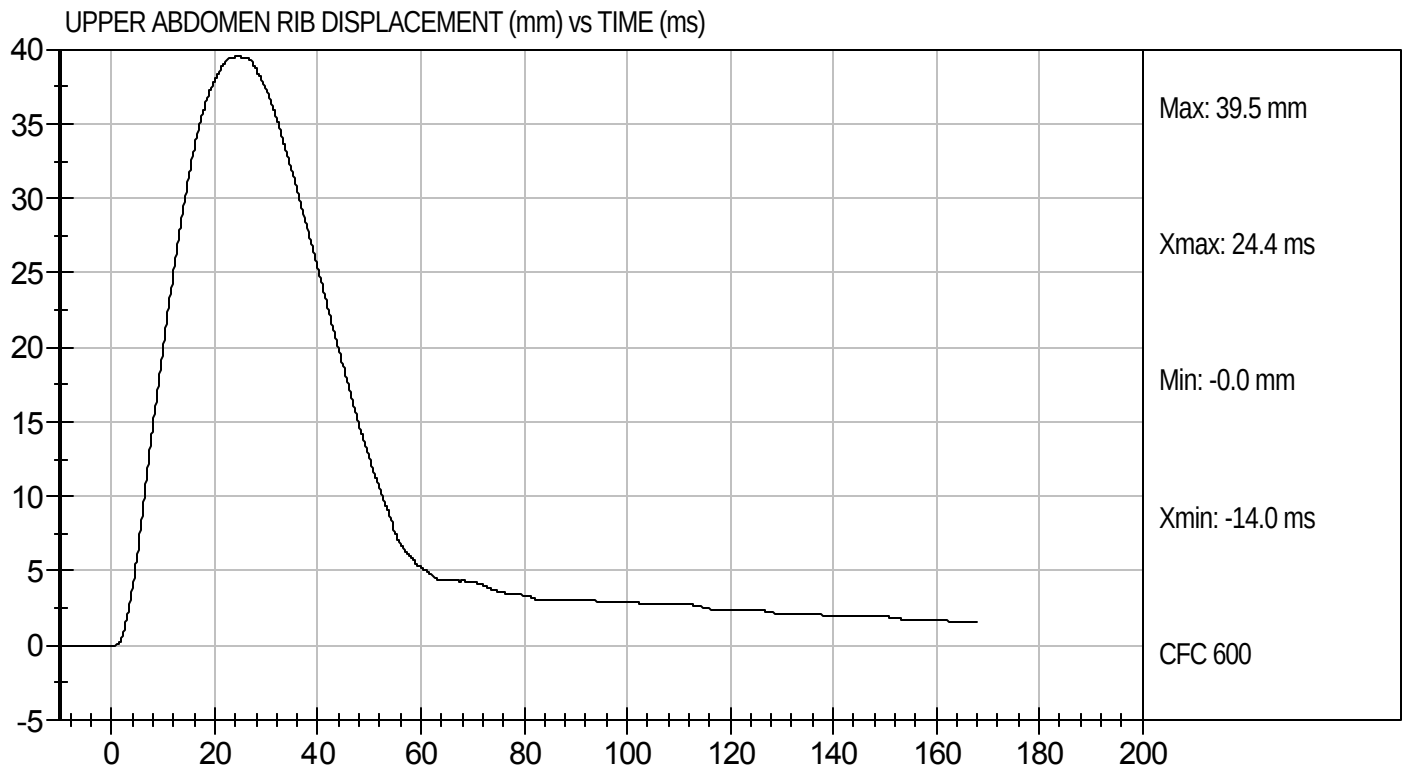
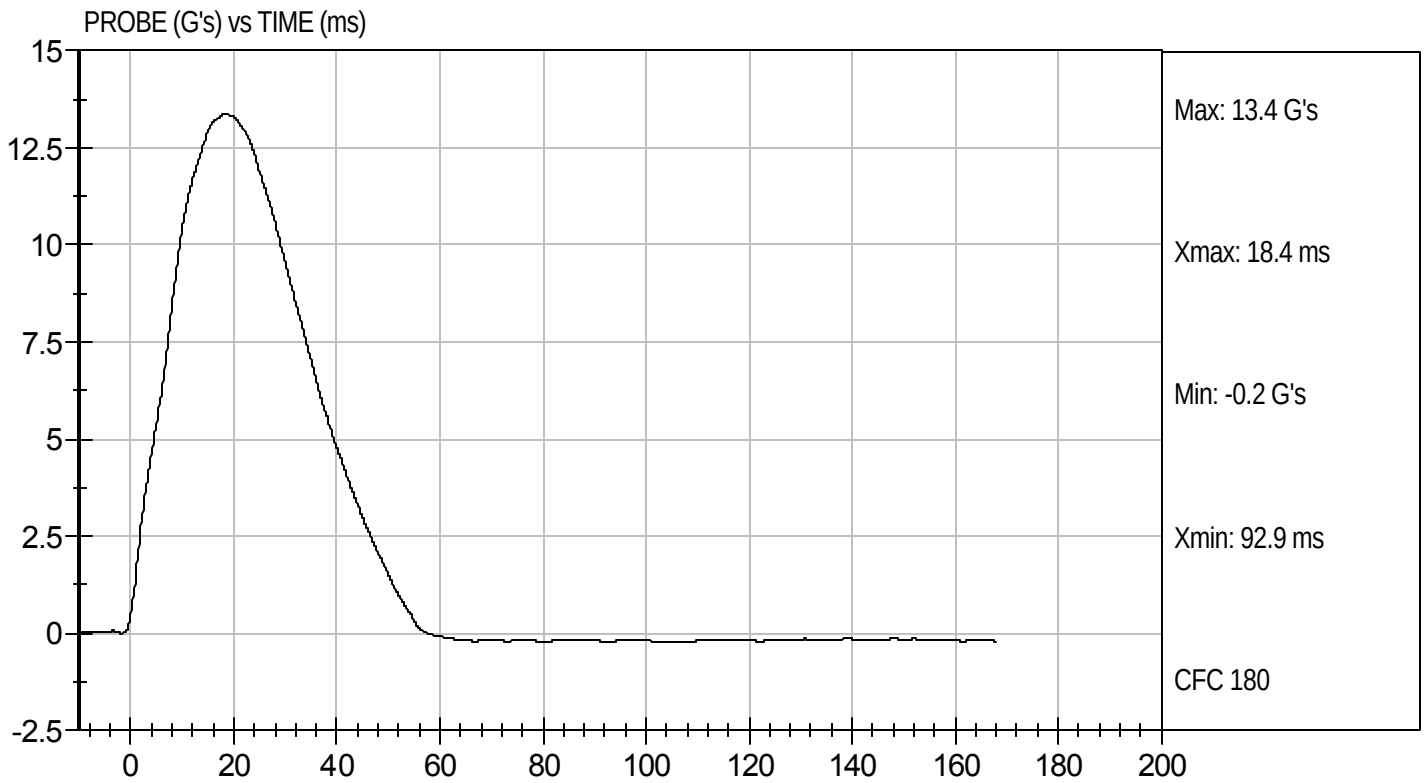
2/14/12
Test Date


Approved By



Test Desc: Abdomen Impact
Component ID: D12476

Test Date: 2/14/12
Velocity: 14.25 ft/s, 4.34 m/s

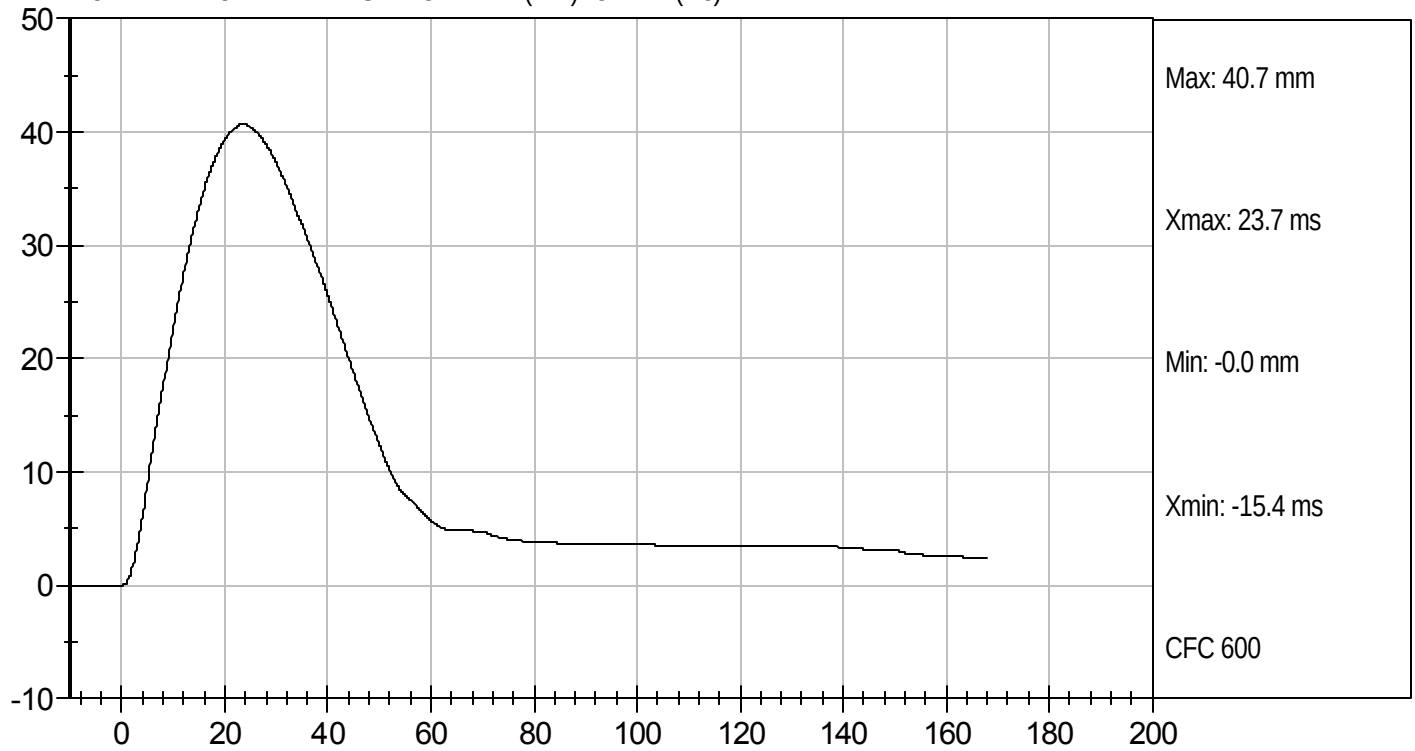




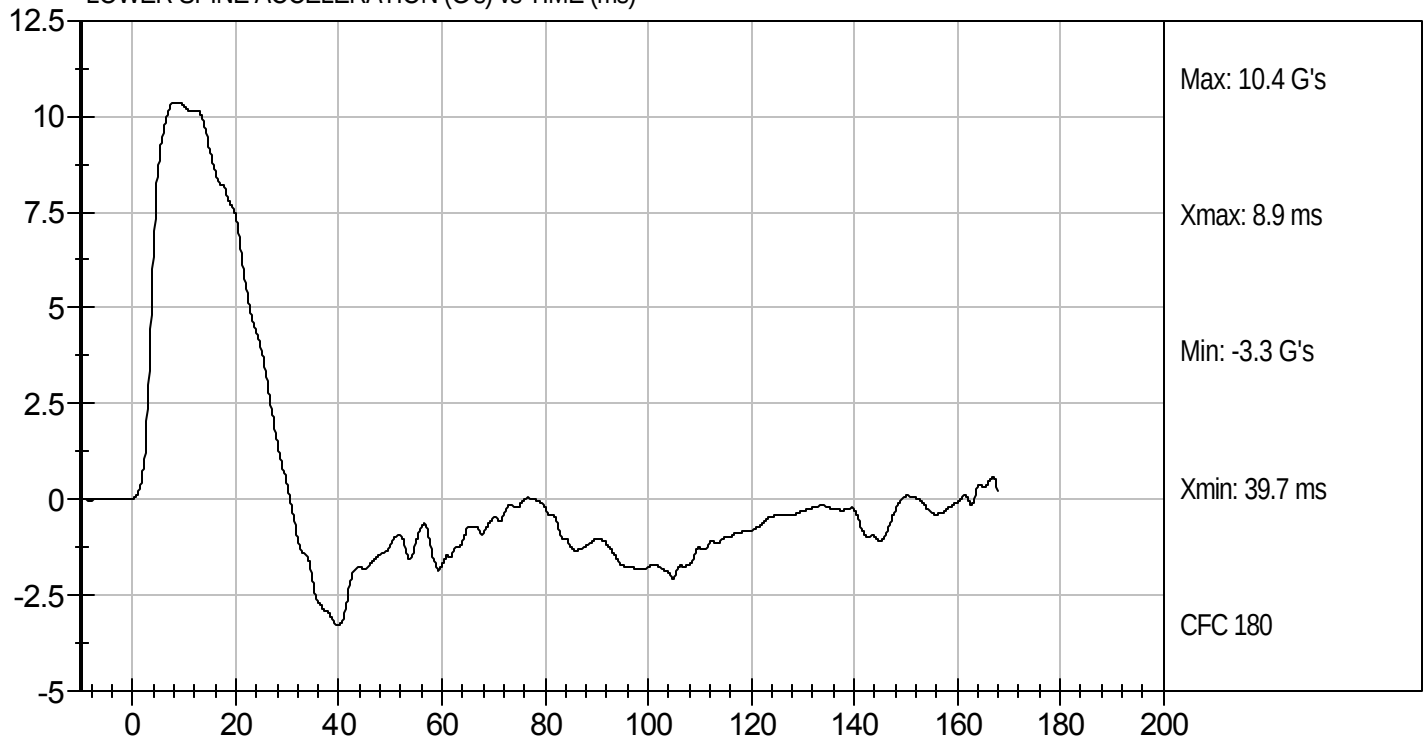
Test Desc: Abdomen Impact
Component ID: D12476

Test Date: 2/14/12
Velocity: 14.25 ft/s, 4.34 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: 306

Test I.D: D12477

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.0	Pass
Humidity	%	10 to 70	21	Pass
Impact Velocity	m/s	6.60 to 6.80	6.71	Pass
Peak Impactor Acceleration	G's	38 to 47	41	Pass
Pelvis Y Acceleration after 6 ms	G's	34 to 42	40	Pass
Peak Acetabulum Force	N	3600 to 4300	3887	Pass
Overall Test Results				Pass


Laboratory Technician

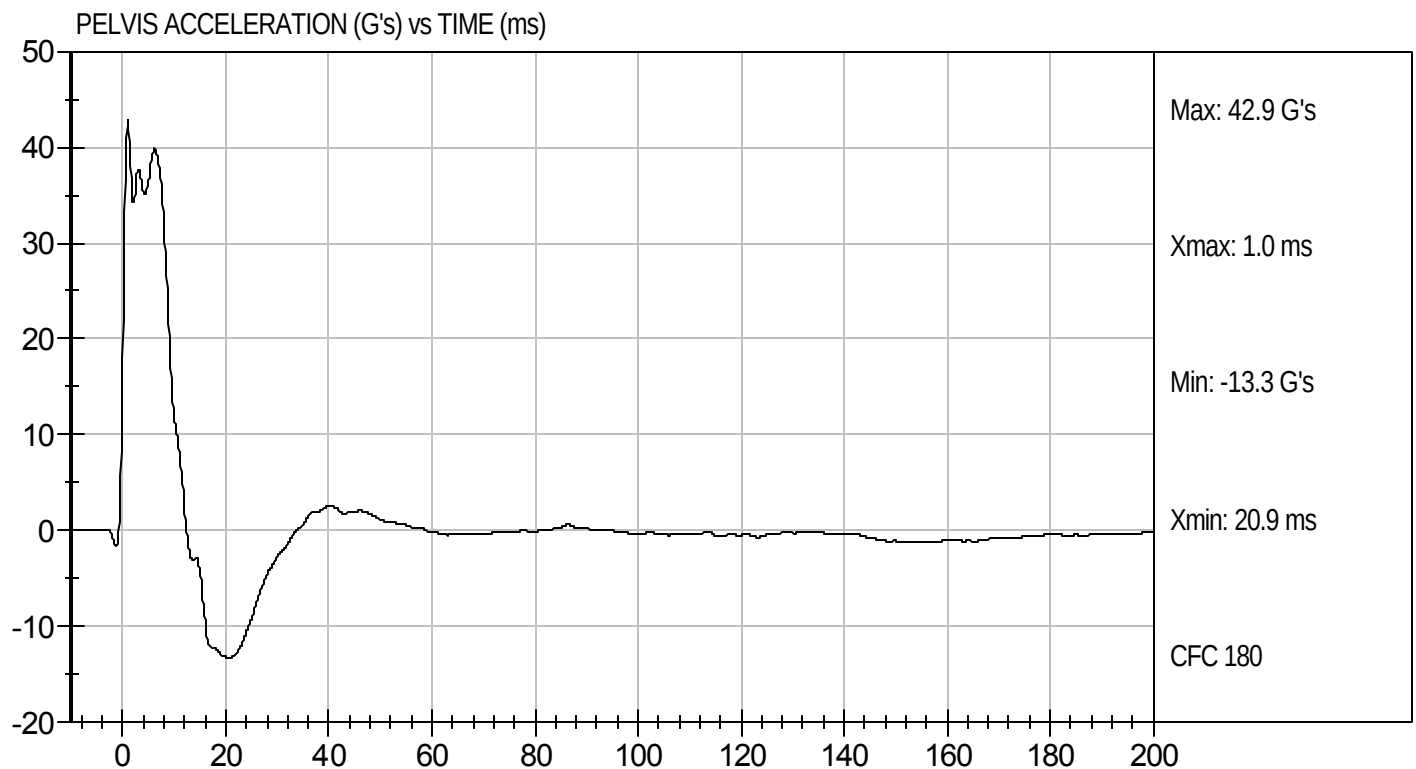
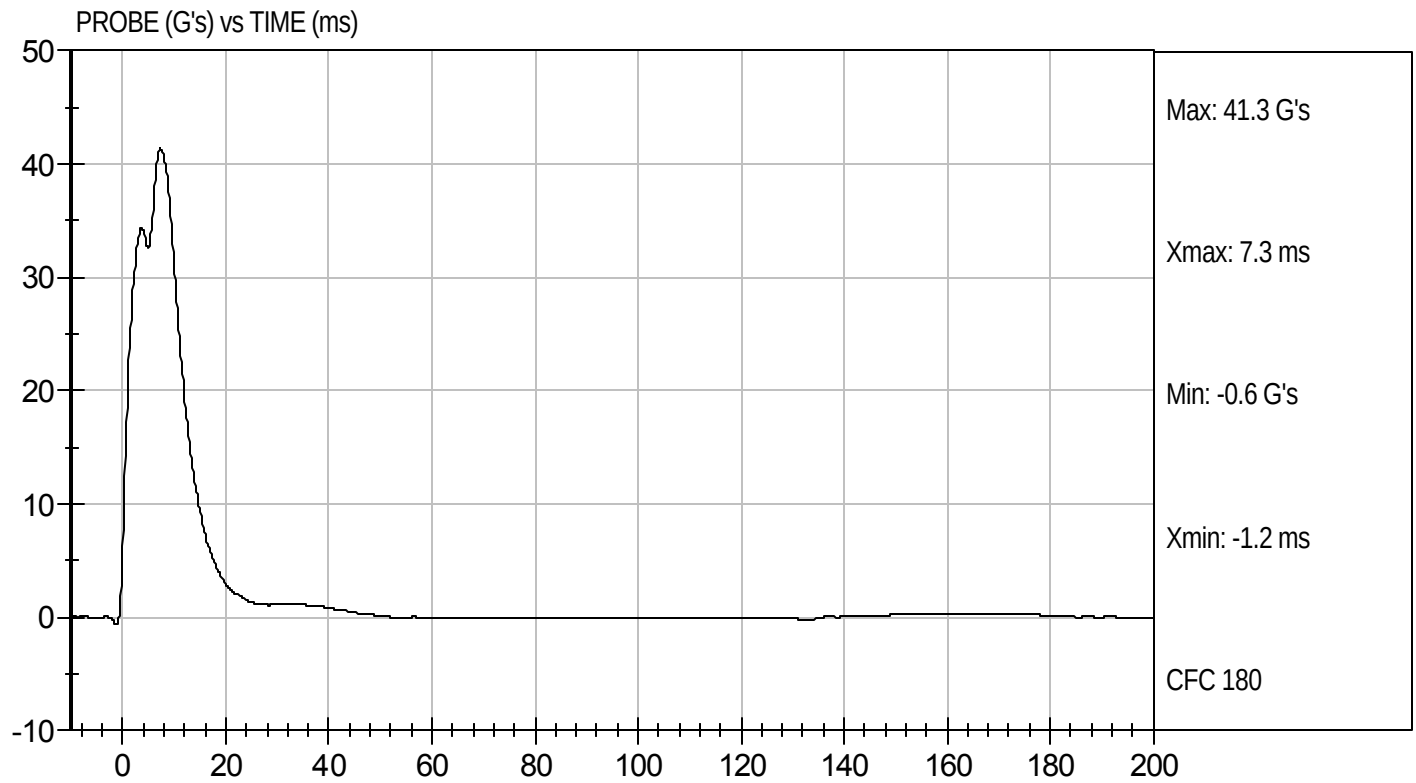
2/14/12
Test Date


Approved By



Test Desc: Pelvis Impact
Component ID: D12477

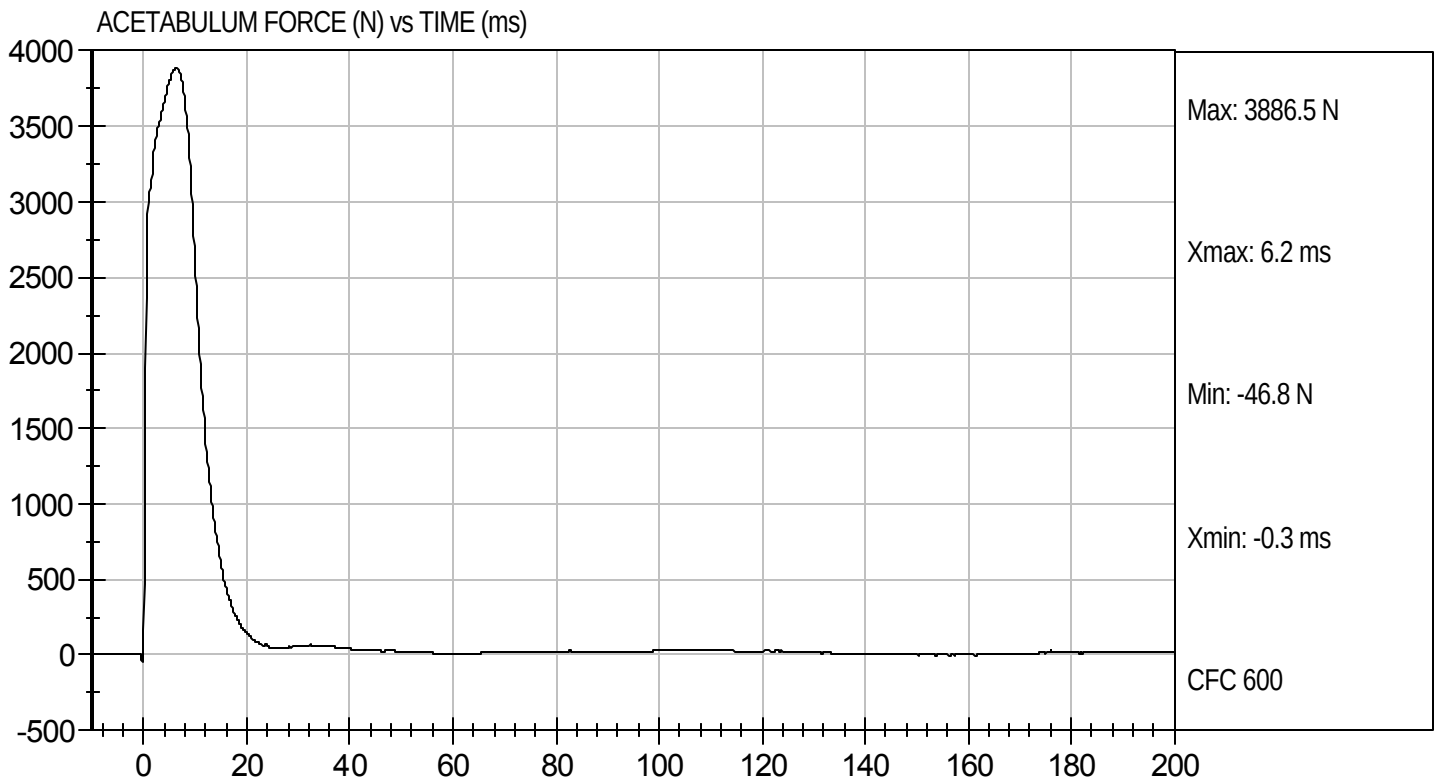
Test Date: 2/14/12
Velocity: 22.0 ft/s, 6.71 m/s





Test Desc: Pelvis Impact
Component ID: D12477

Test Date: 2/14/12
Velocity: 22.0 ft/s, 6.71 m/s



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

ATD Serial No: 306

Test I.D: D12478

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.9	Pass
Humidity	%	10 to 70	21	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Peak Impactor Acceleration	G's	36 to 45	39	Pass
Pelvis Y Acceleration	G's	28 to 39	32	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4604	Pass
Overall Test Results			Pass	


Laboratory Technician

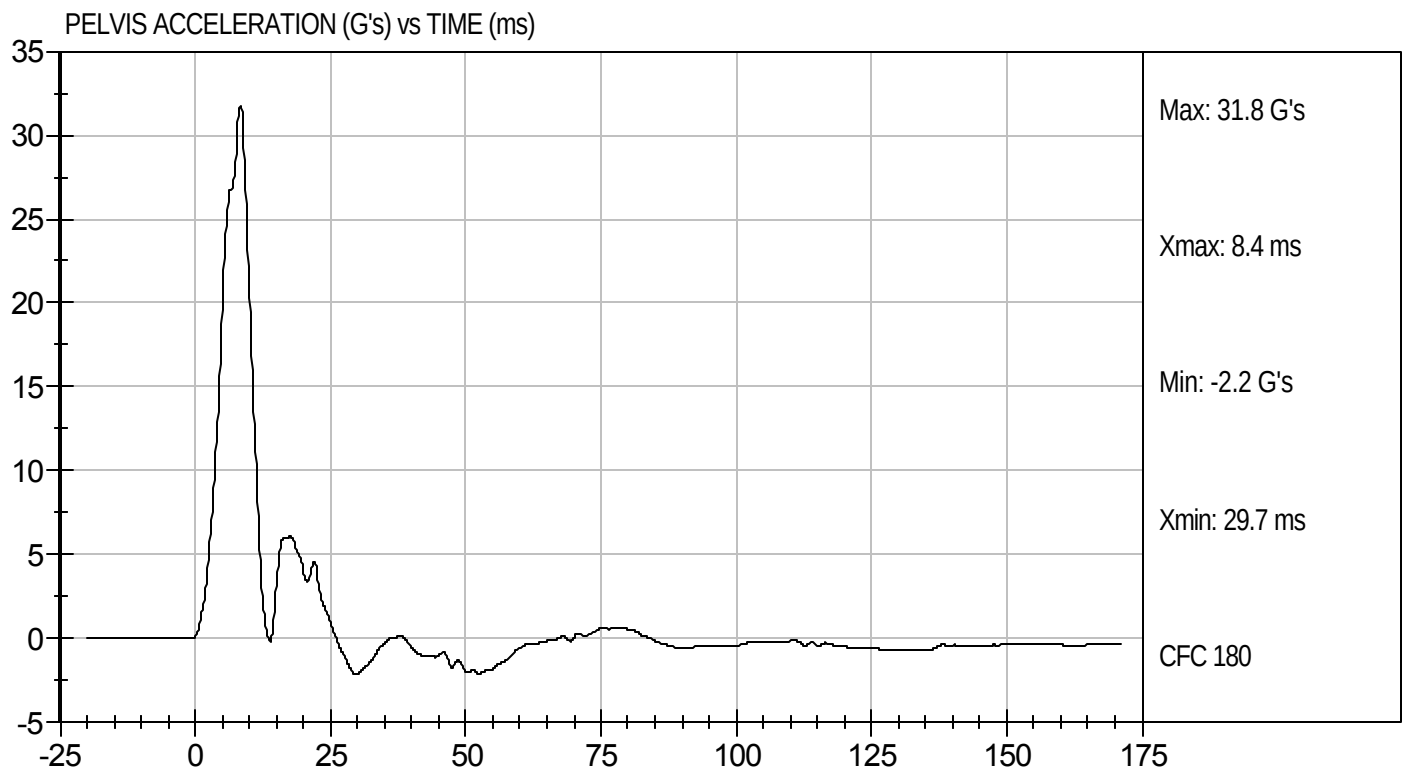
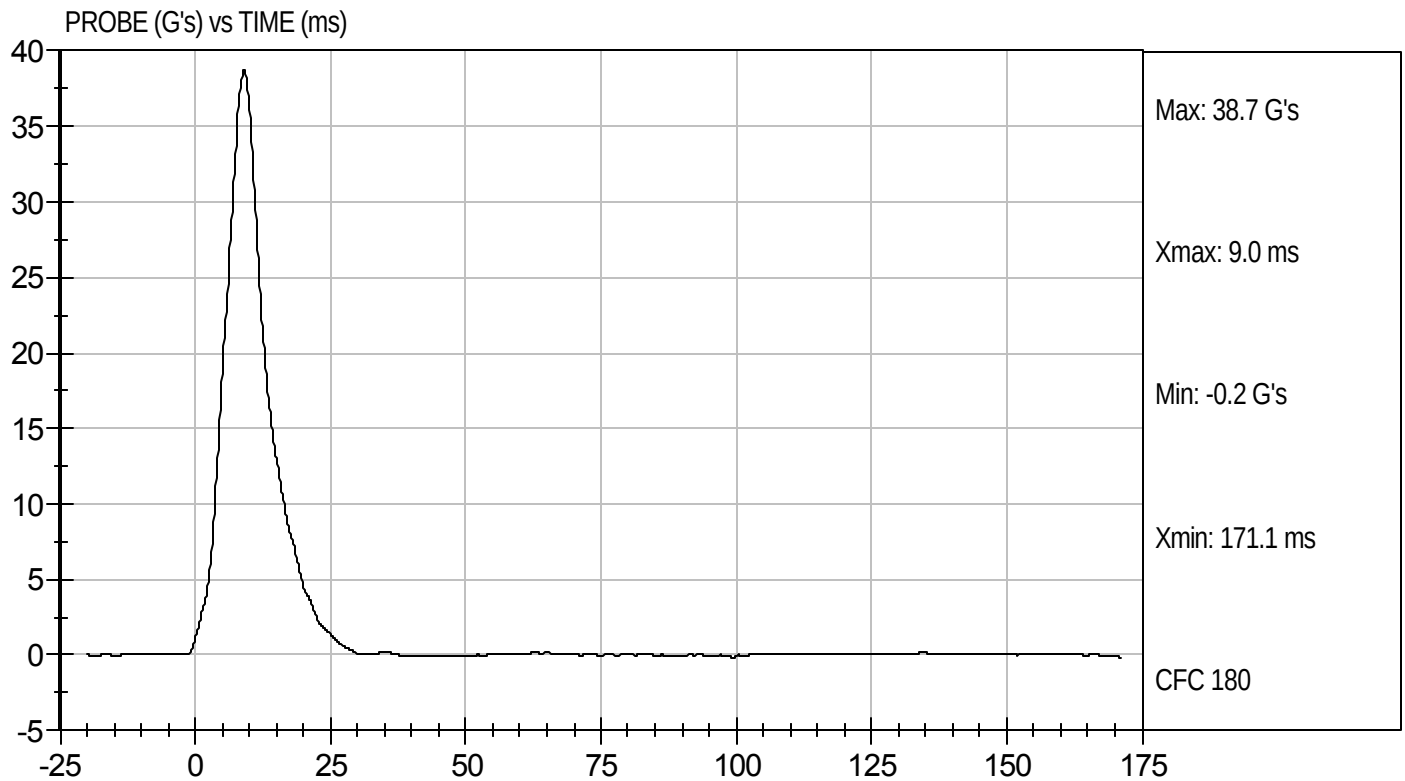
2/14/12
Test Date


Approved By



Test Desc: Iliac Impact
Component ID: D12478

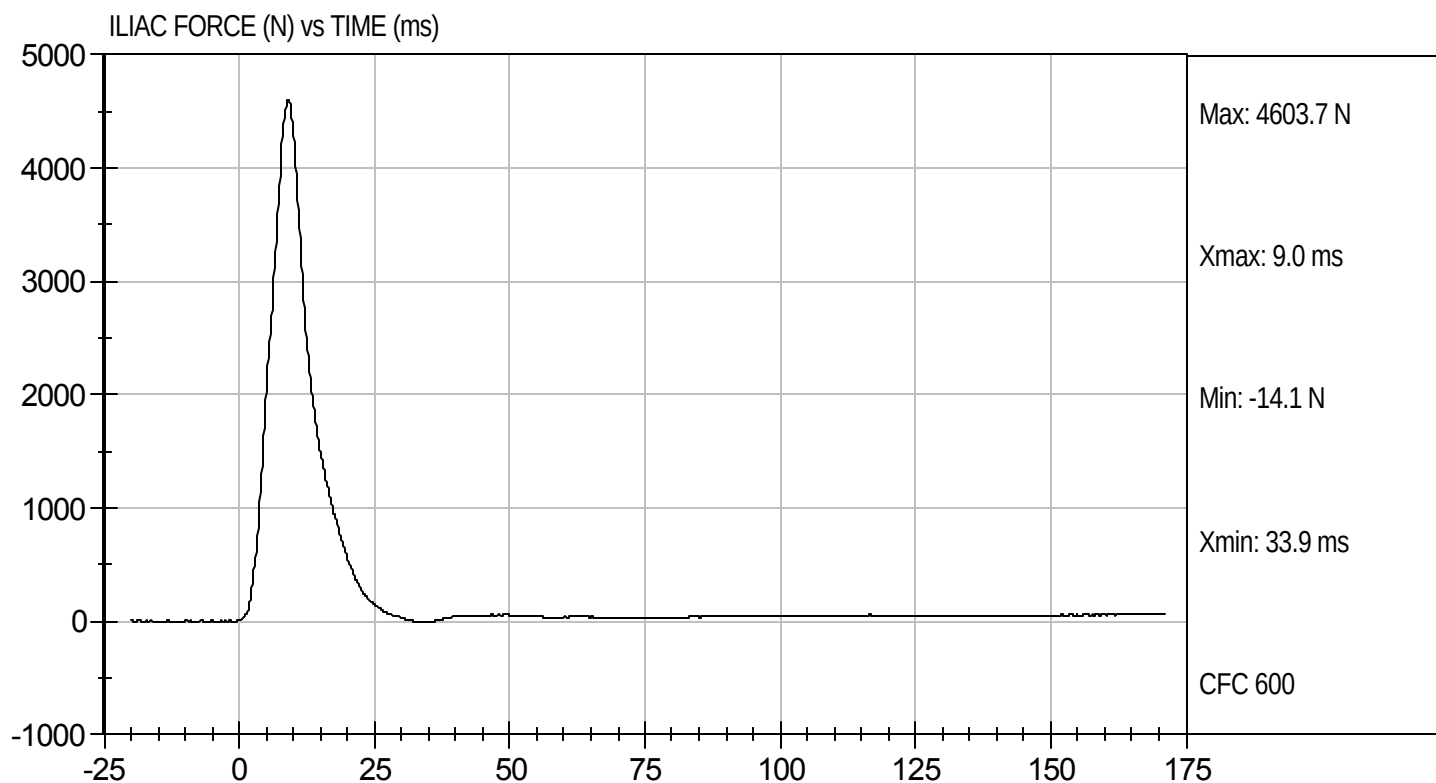
Test Date: 2/14/12
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Iliac Impact
Component ID: D12478

Test Date: 2/14/12
Velocity: 14.25 ft/s, 4.34 m/s



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

ATD Serial No: 306

Test ID: D12501

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	26	Pass
Peak Resultant Acceleration	G's	115 to 137	125	Pass
Peak Longitudinal Acceleration	G's	+/- 15	2.8	Pass
Unimodal	N/A	<15%	Yes	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

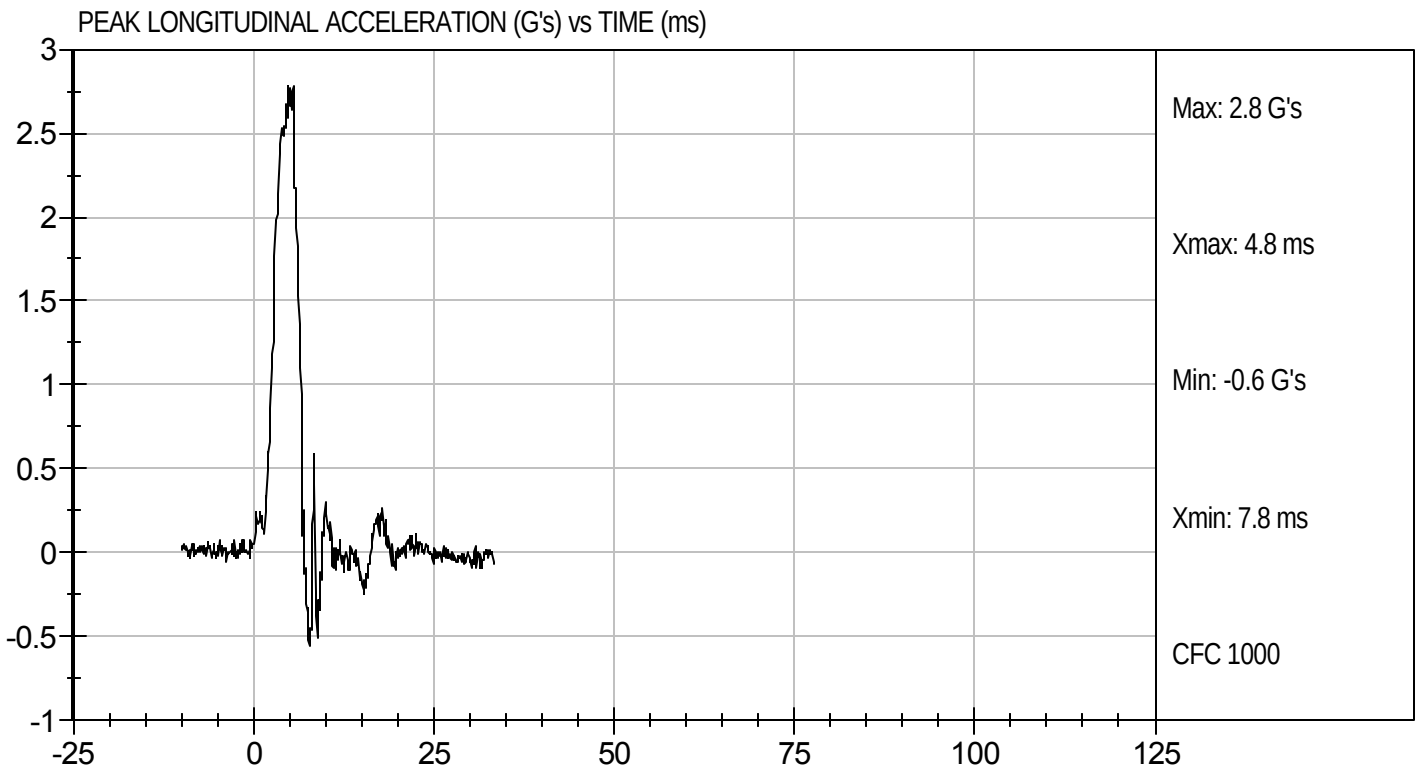
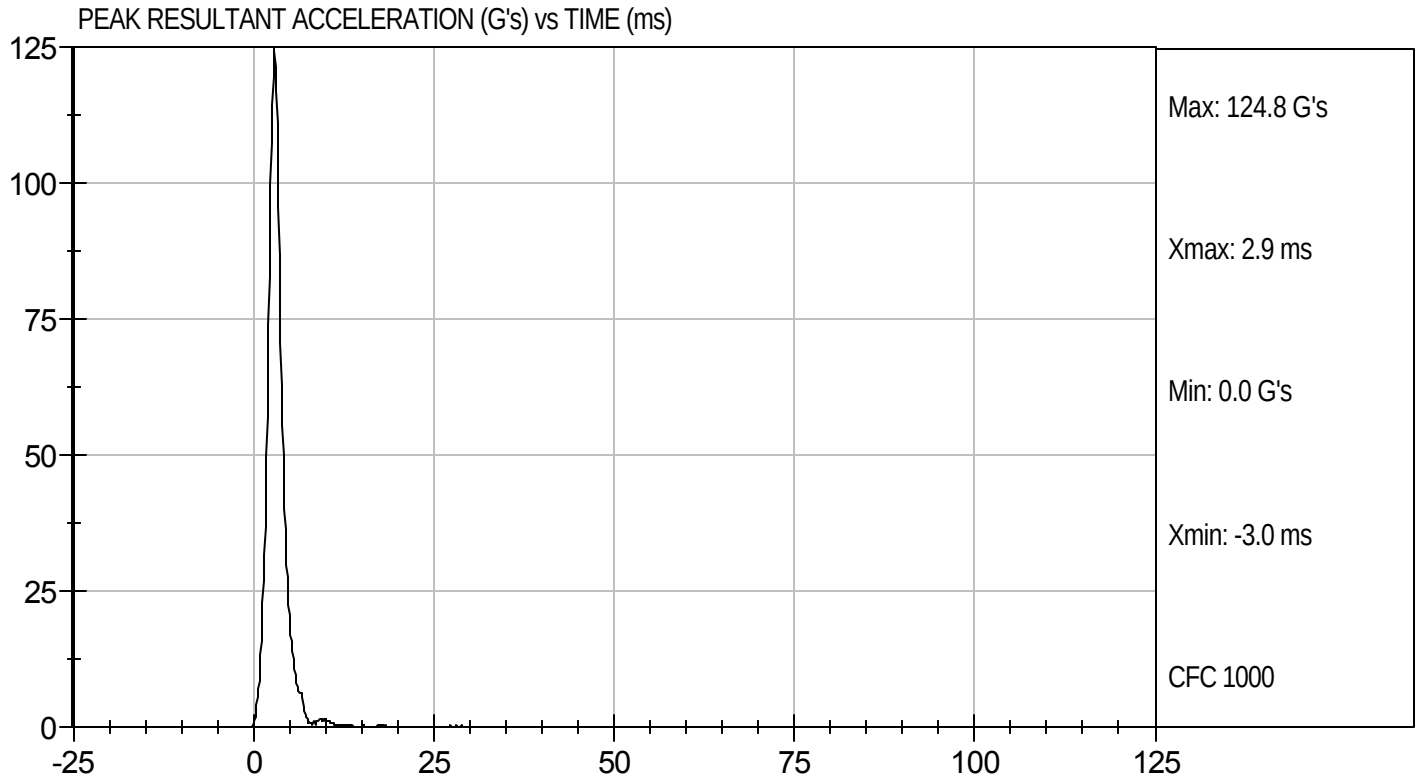
2/15/12
Test Date

David Winkelbauer
Approved By



Test Desc: Head Drop
Component ID: D12501

Test Date: 2/15/12
Velocity: 0 ft/s, 0 m/s

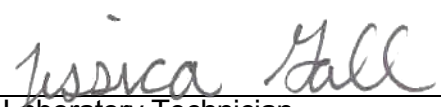


MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D.: D12502

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	22.0	Pass
Humidity		%	10 to 70	26	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Delta Velocity	10 ms	m/s	2.20 to 2.80	2.66	Pass
	15 ms	m/s	3.30 to 4.10	3.70	Pass
	20 ms	m/s	4.40 to 5.40	5.07	Pass
	25 ms	m/s	5.40 to 6.10	5.50	Pass
	25-100 ms	m/s	5.50 to 6.20	5.52	Pass
Maximum D-Plane Rotation		deg	71 to 81	73	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	60	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	117	Pass
Overall Test Results				Pass	


 Laboratory Technician

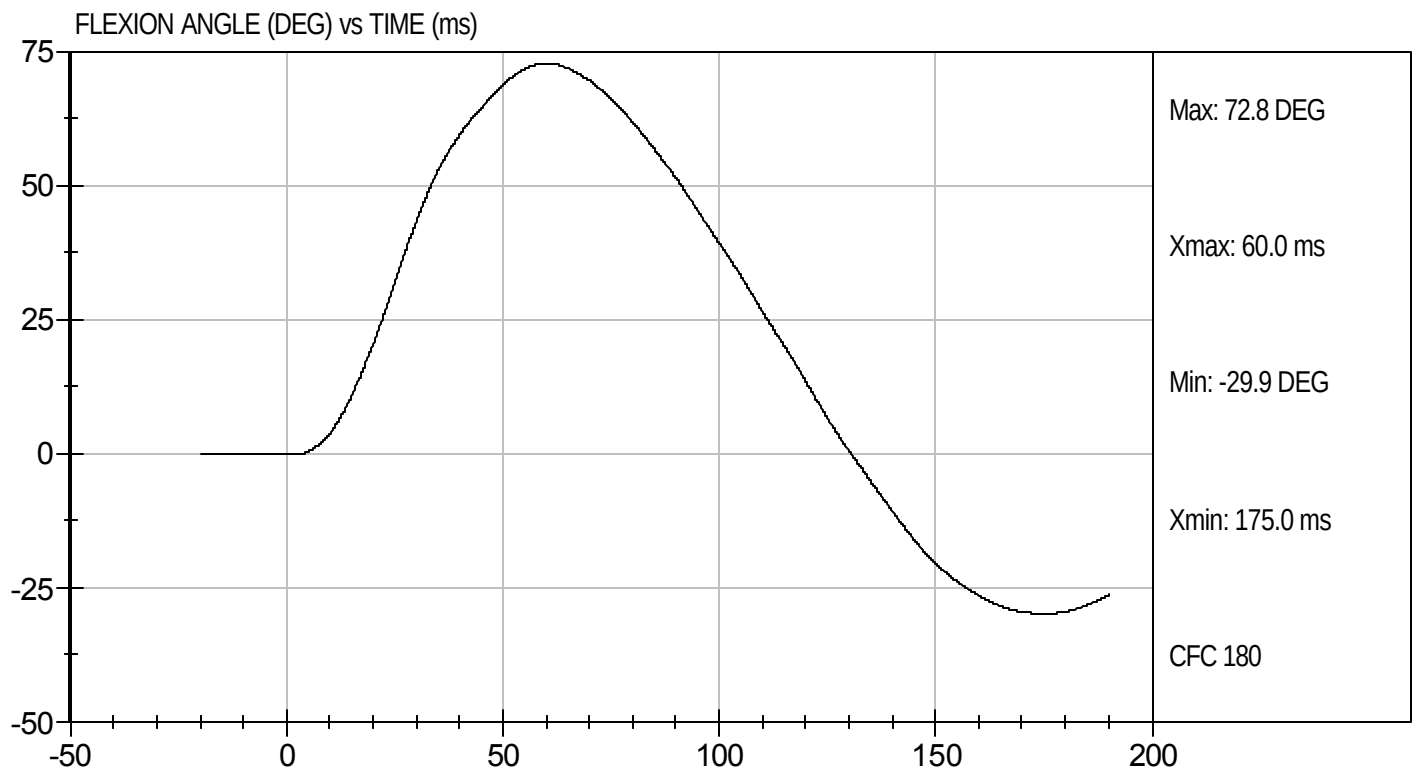
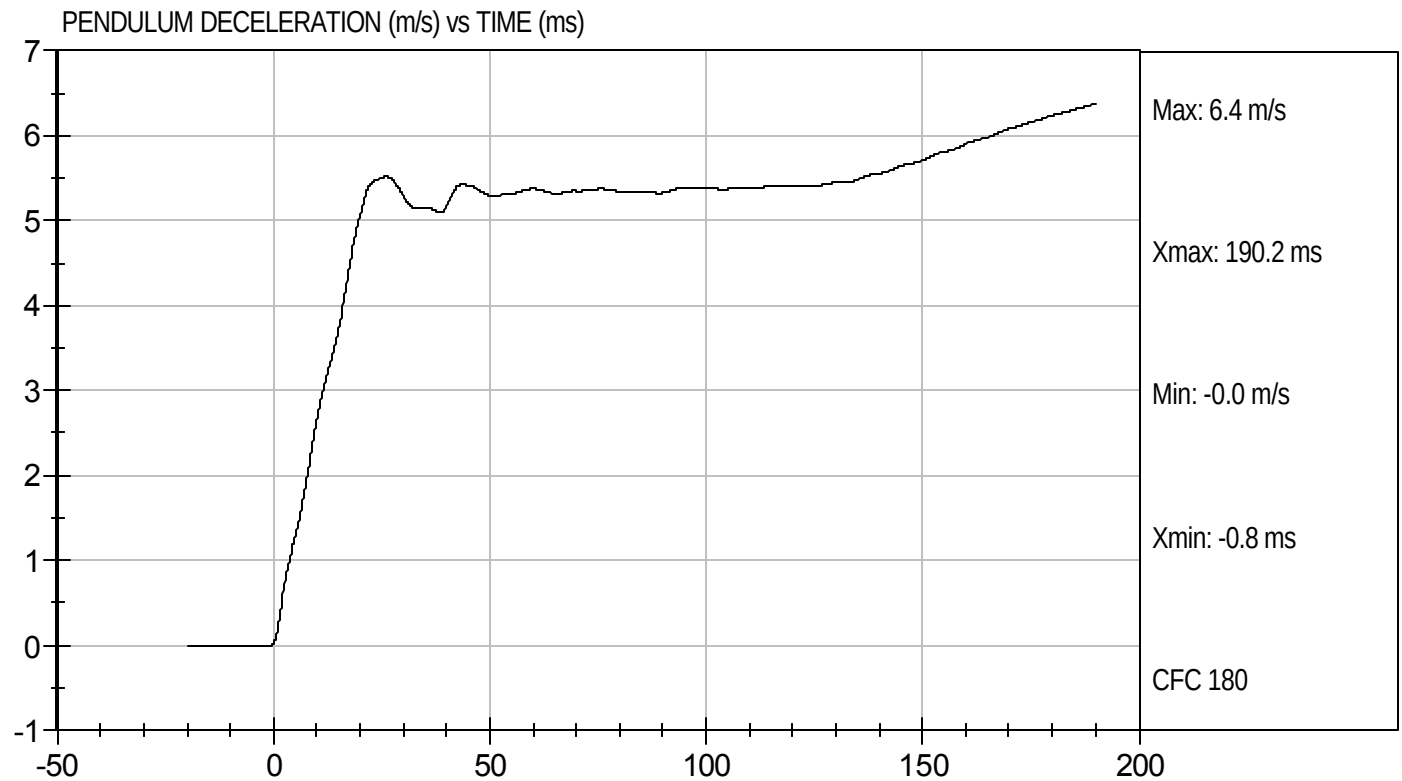
2/15/12
 Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D12502

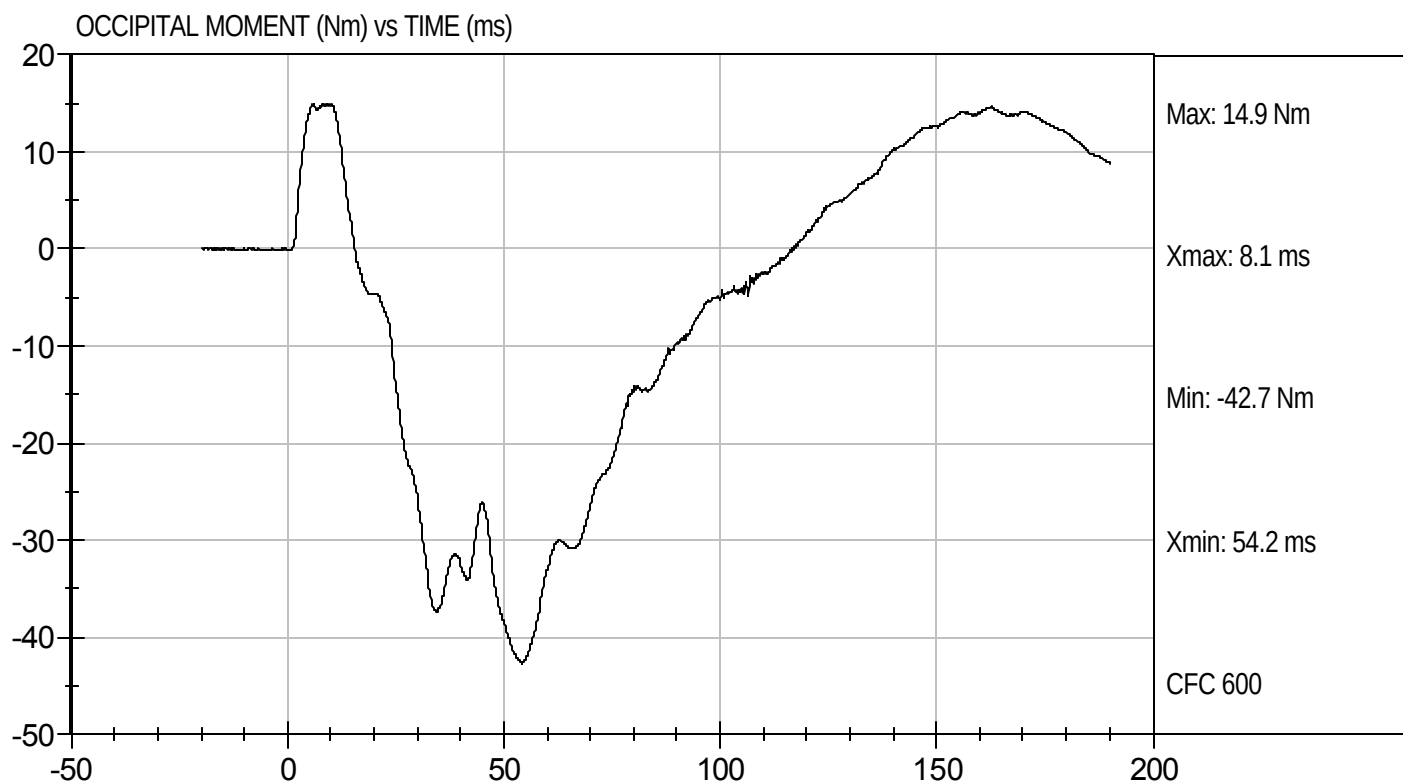
Test Date: 2/15/12
Velocity: 18.32 ft/s, 5.58 m/s





Test Desc: Neck Bending
Component ID: D12502

Test Date: 2/15/12
Velocity: 18.32 ft/s, 5.58 m/s



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

ATD Serial No: 306

Test ID: D12503

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.9	Pass
Laboratory Relative Humidity	%	10 to 70	26	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	29	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	19	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

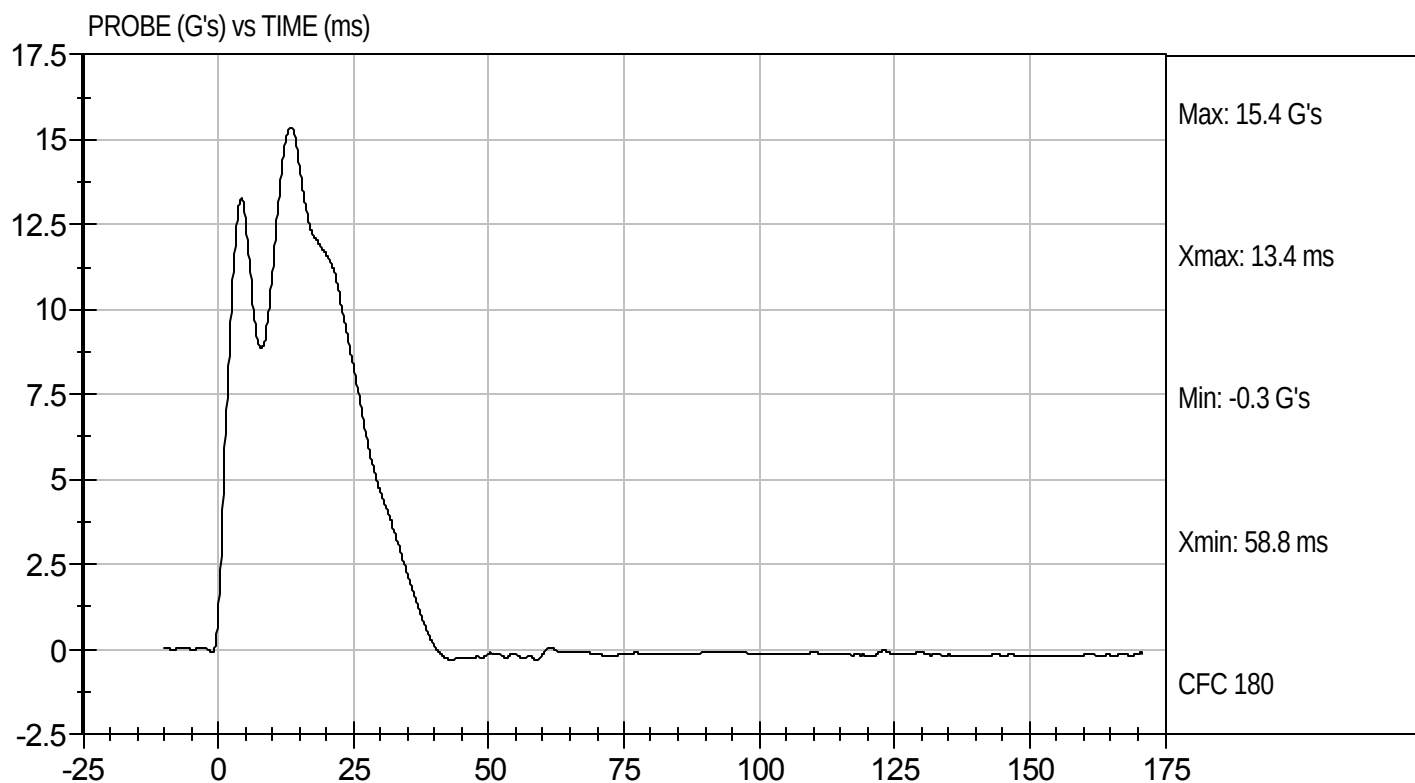
2/15/12
Test Date

David Winkelbauer
Approved By



Test Desc: Shoulder Impact
Component ID: D12503

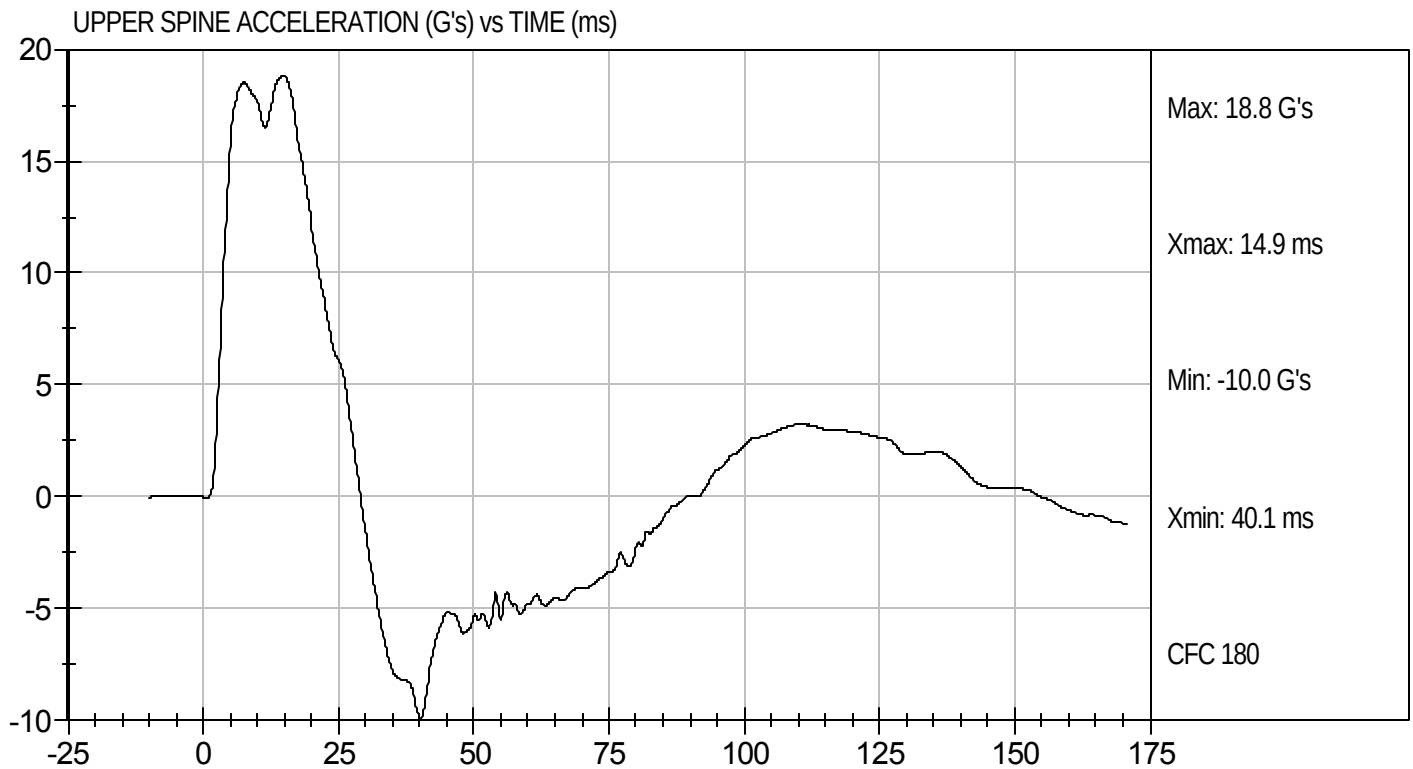
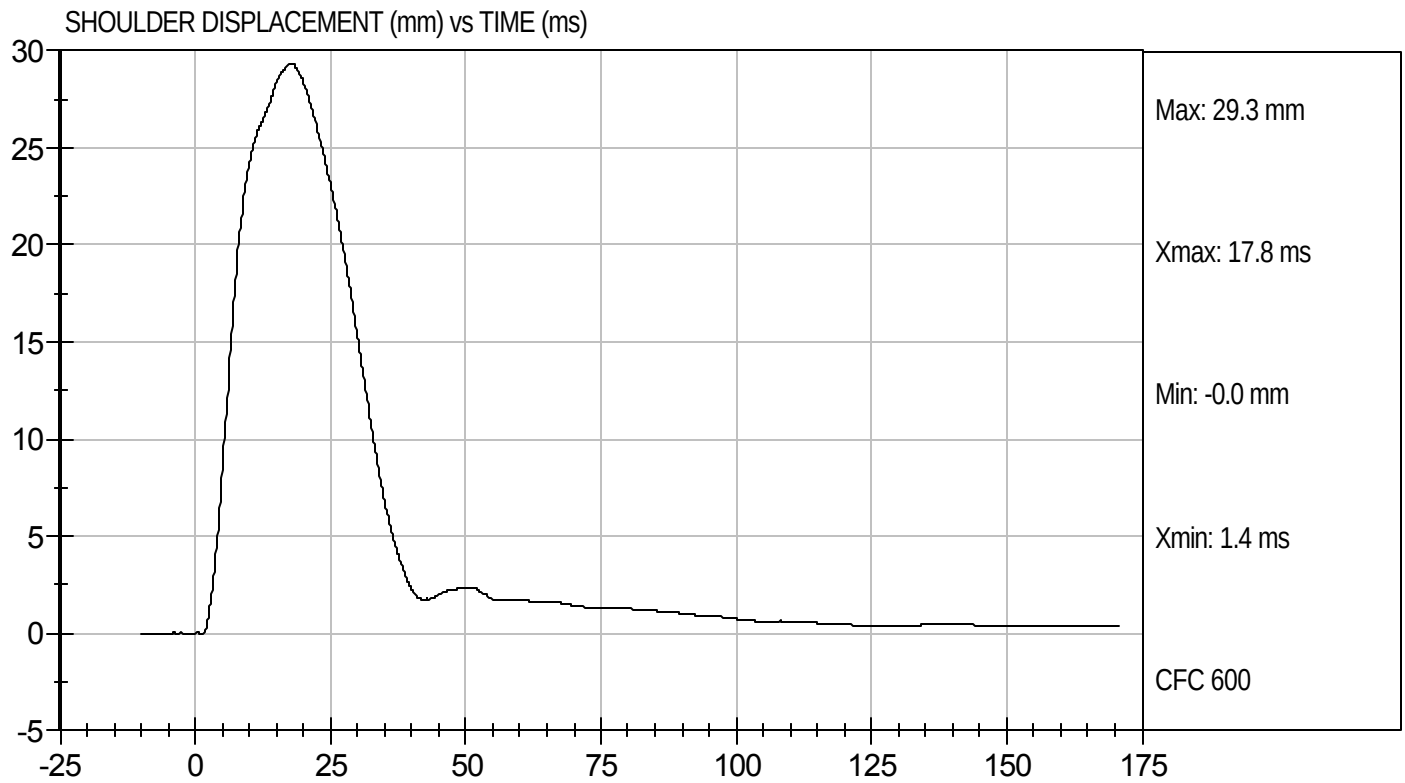
Test Date: 2/15/12
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Shoulder Impact
Component ID: D12503

Test Date: 2/15/12
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: 306

Test I.D: D12504

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	26	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	31	Pass
Upper Rib Displacement	mm	25 to 32	26	Pass
Middle Rib Displacement	mm	30 to 36	31	Pass
Lower Rib Displacement	mm	32 to 38	35	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	39	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	31	Pass
Overall Test Results				Pass


Laboratory Technician

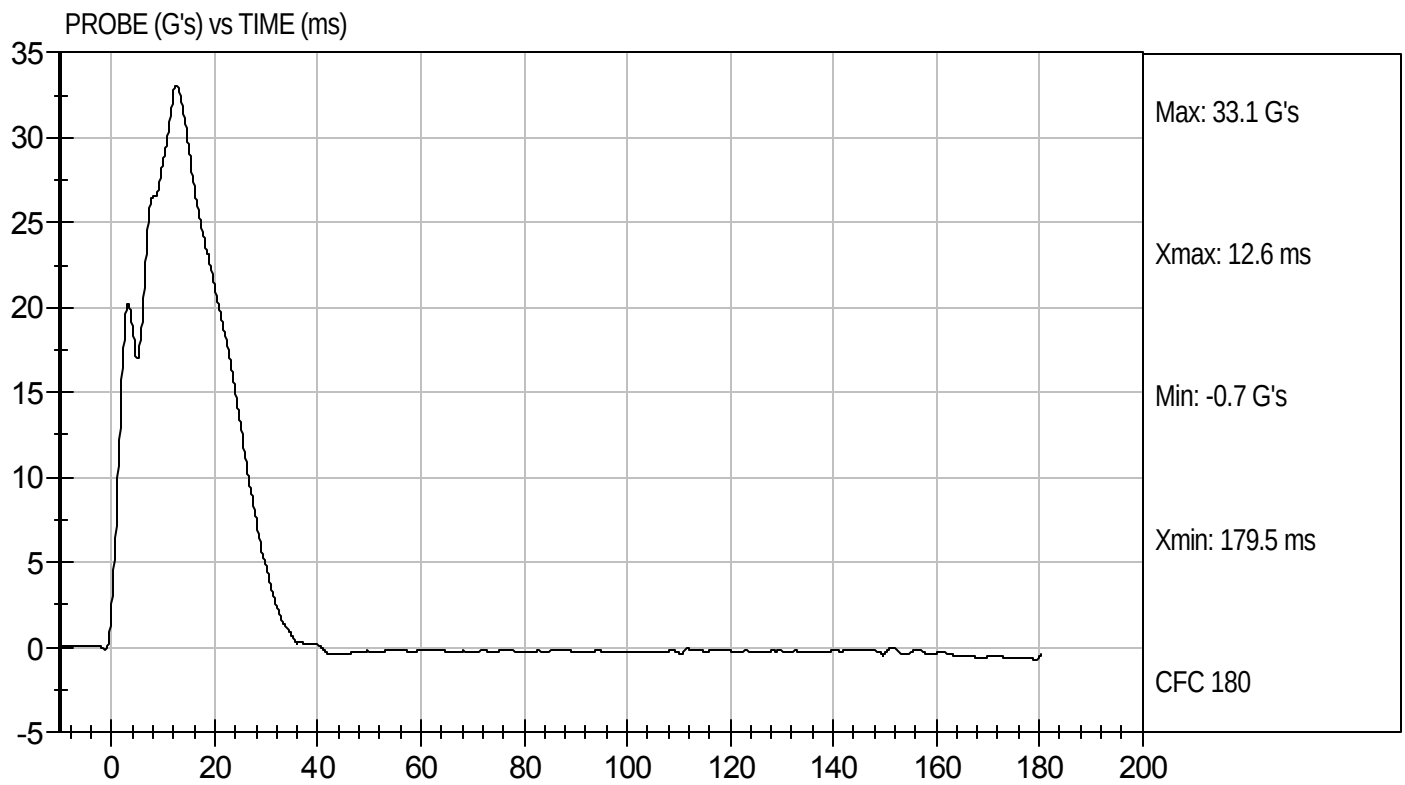
2/15/12
Test Date


Approved By



Test Desc: Thorax With Arm
Component ID: D12504

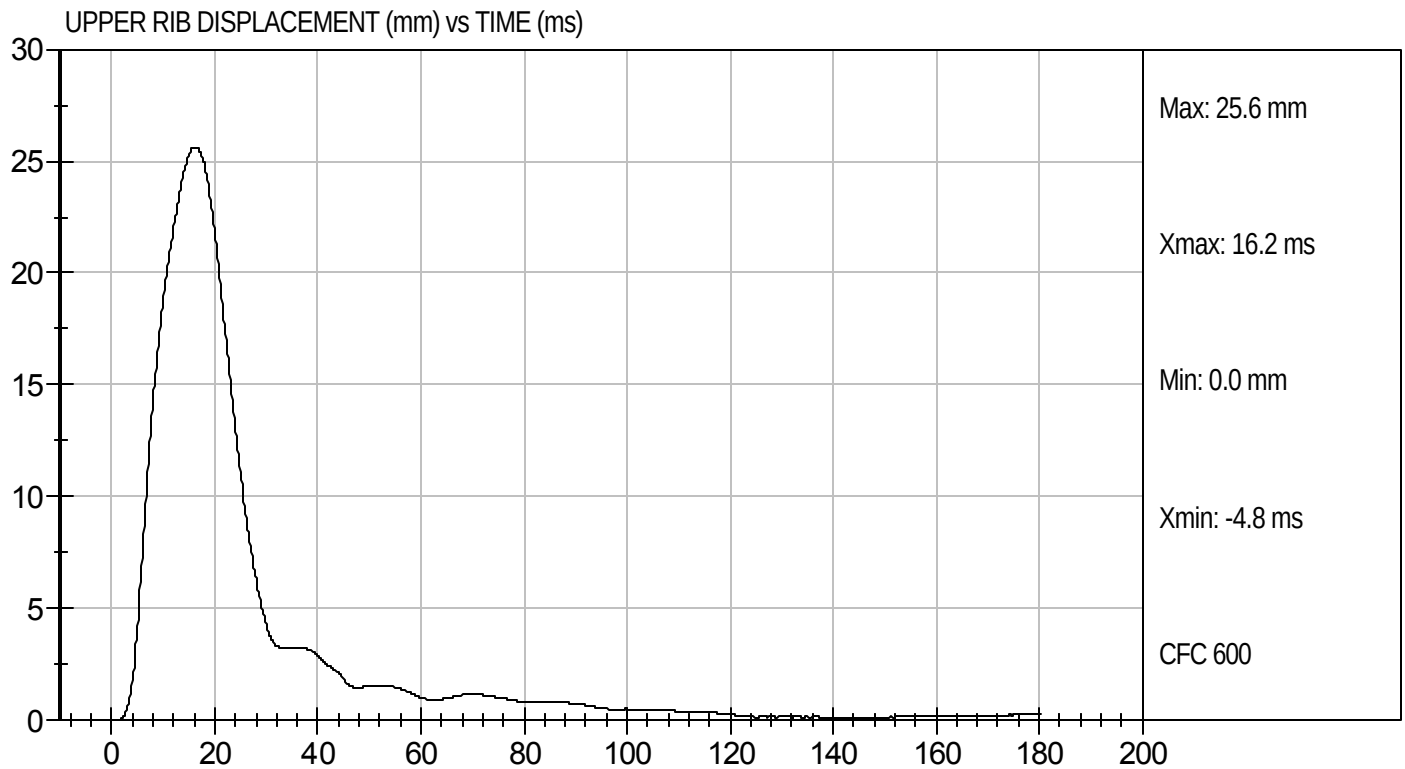
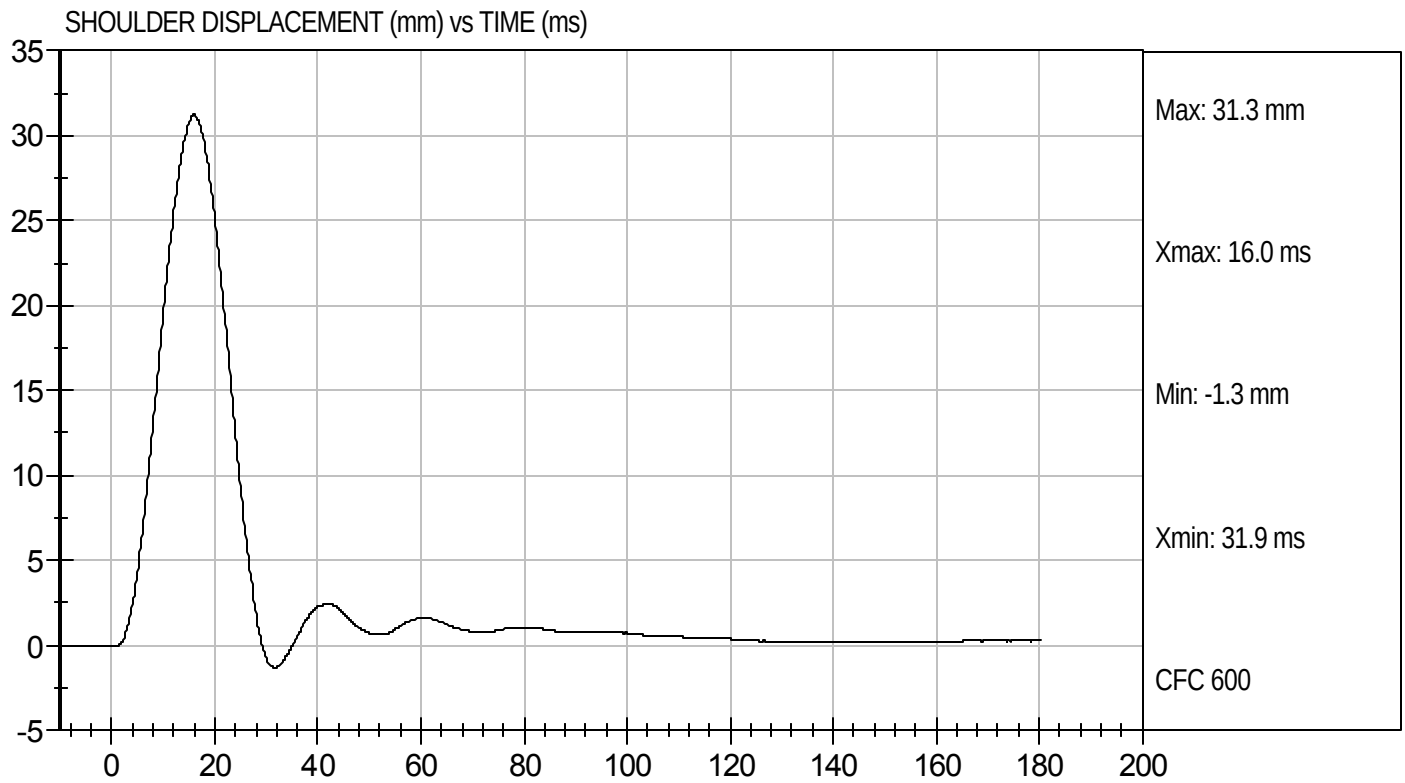
Test Date: 2/15/12
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D12504

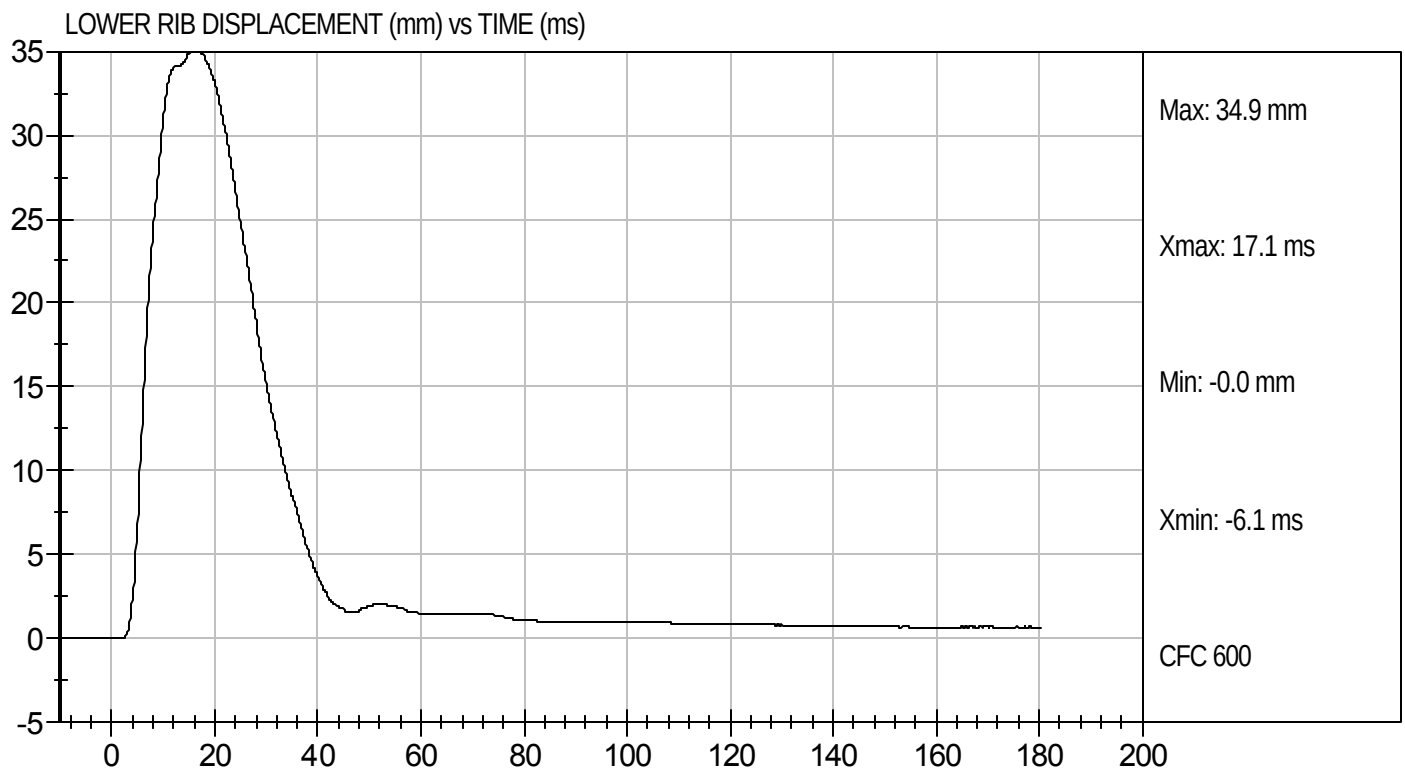
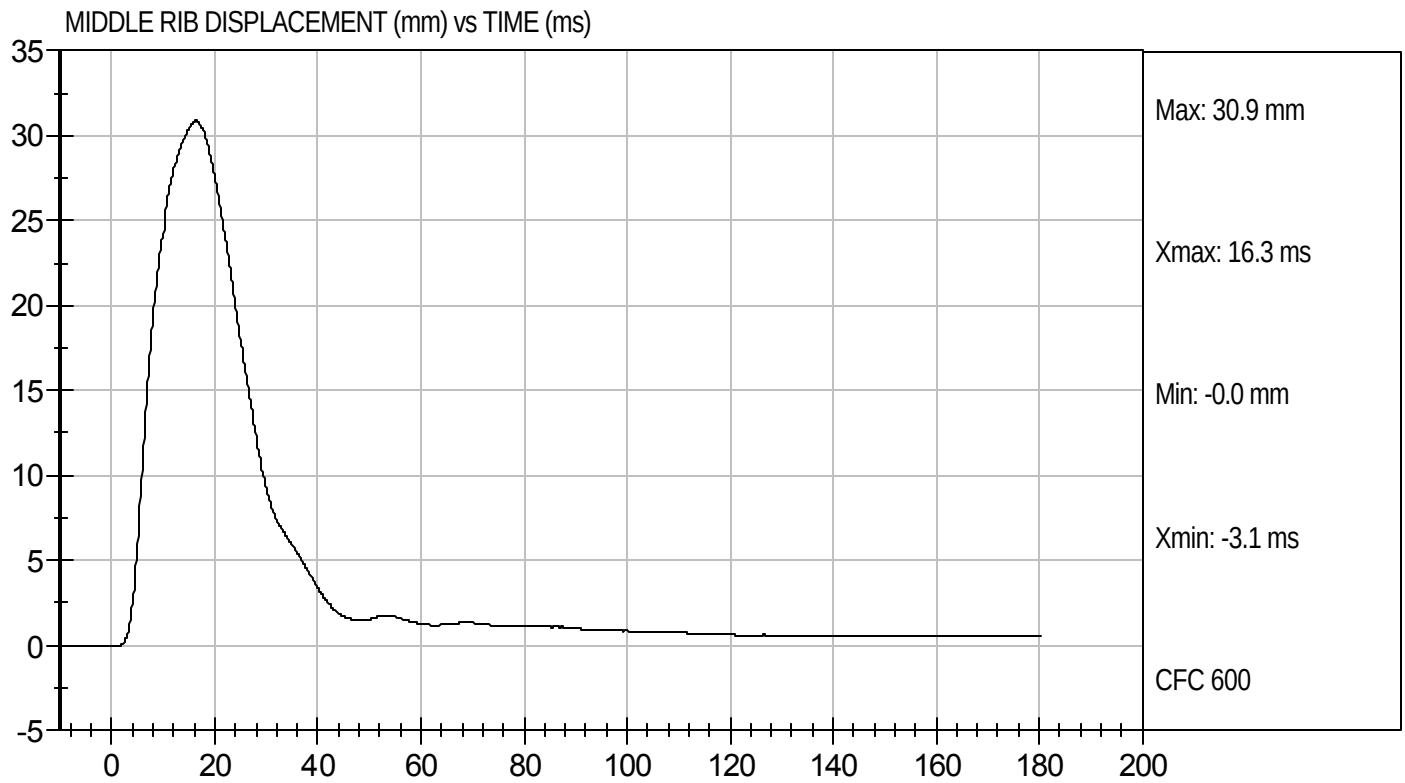
Test Date: 2/15/12
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D12504

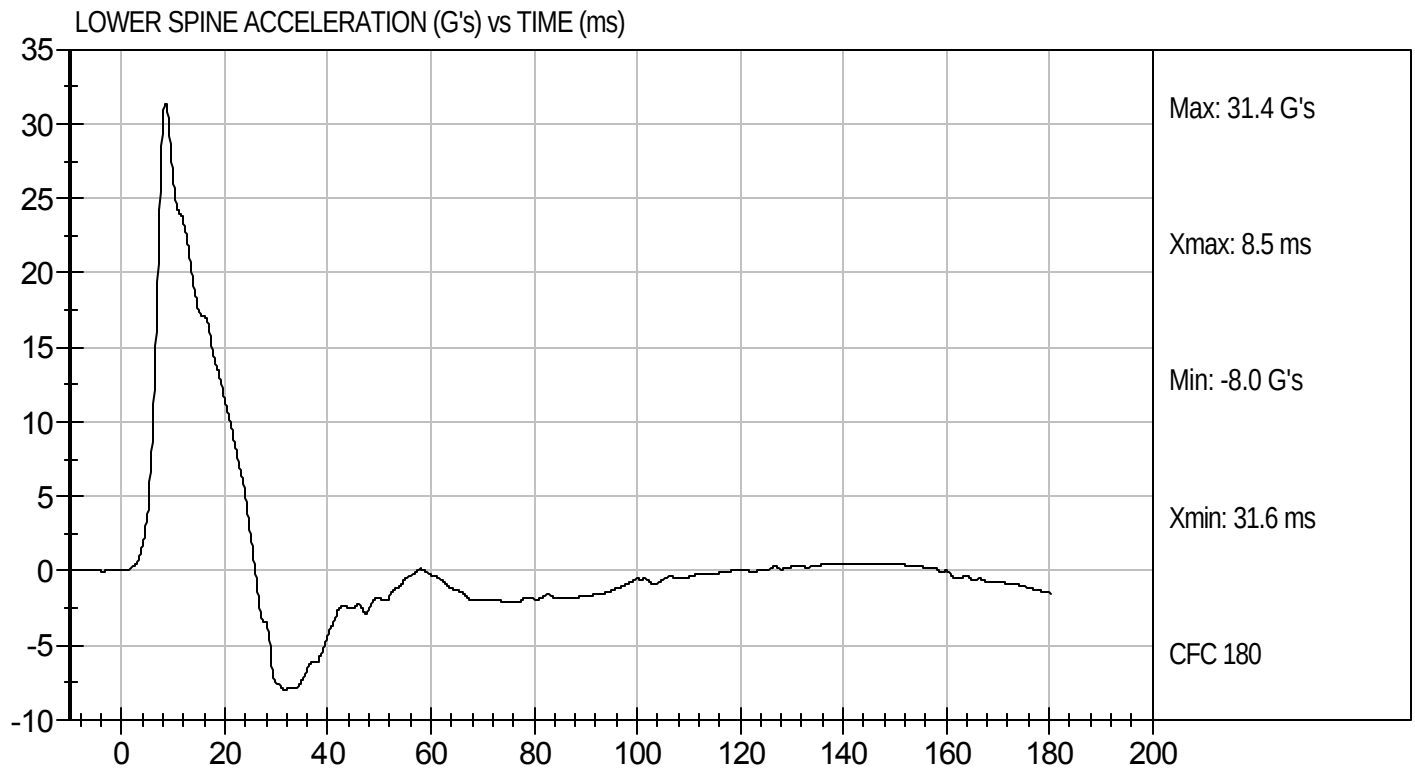
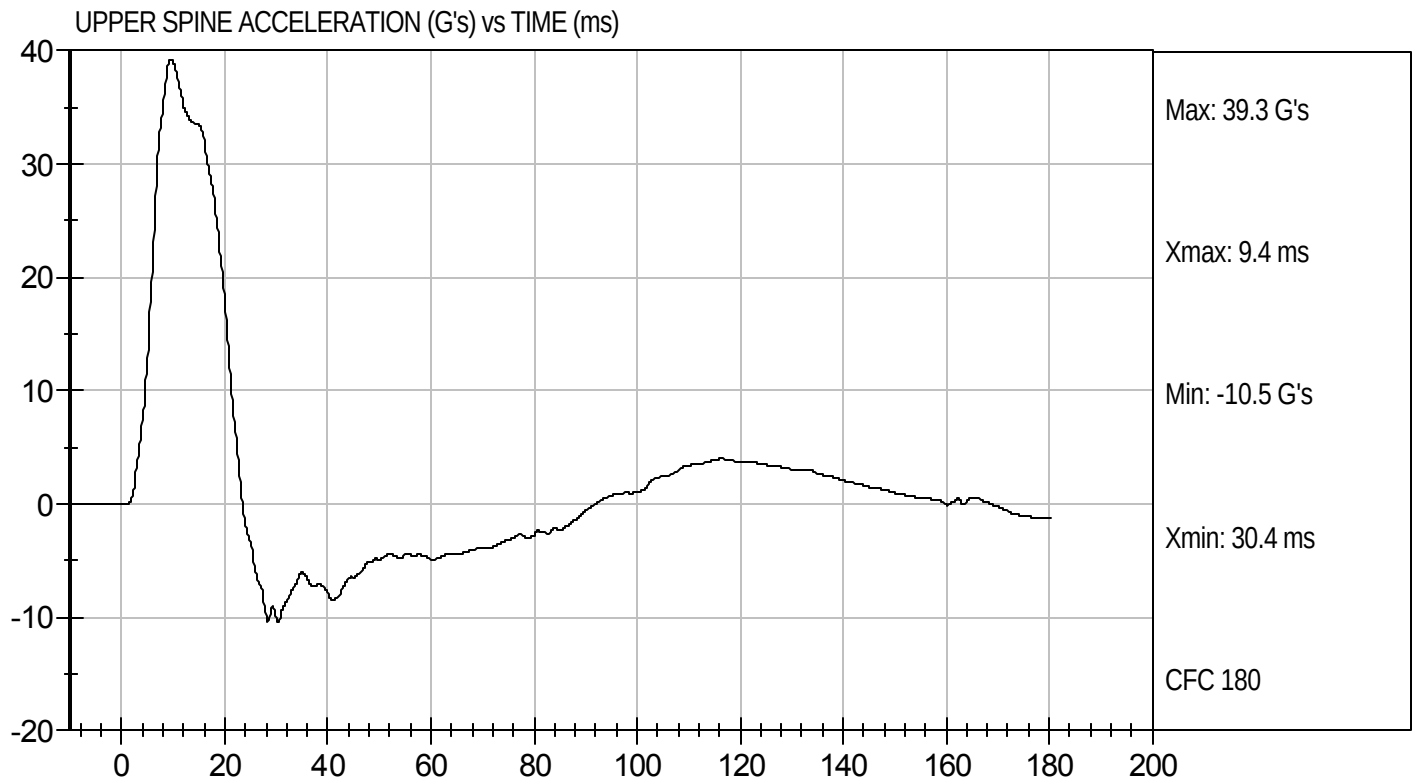
Test Date: 2/15/12
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D12504

Test Date: 2/15/12
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: 306

Test I.D: D12505

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.9	Pass
Humidity	%	10 to 70	25	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Peak Impactor Force	G's	14 to 18	16	Pass
Upper Rib Displacement	mm	32 to 40	33	Pass
Middle Rib Displacement	mm	39 to 45	39	Pass
Lower Rib Displacement	mm	35 to 43	39	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	15	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	10	Pass
Overall Test Results			Pass	

Jessica Hall
Laboratory Technician

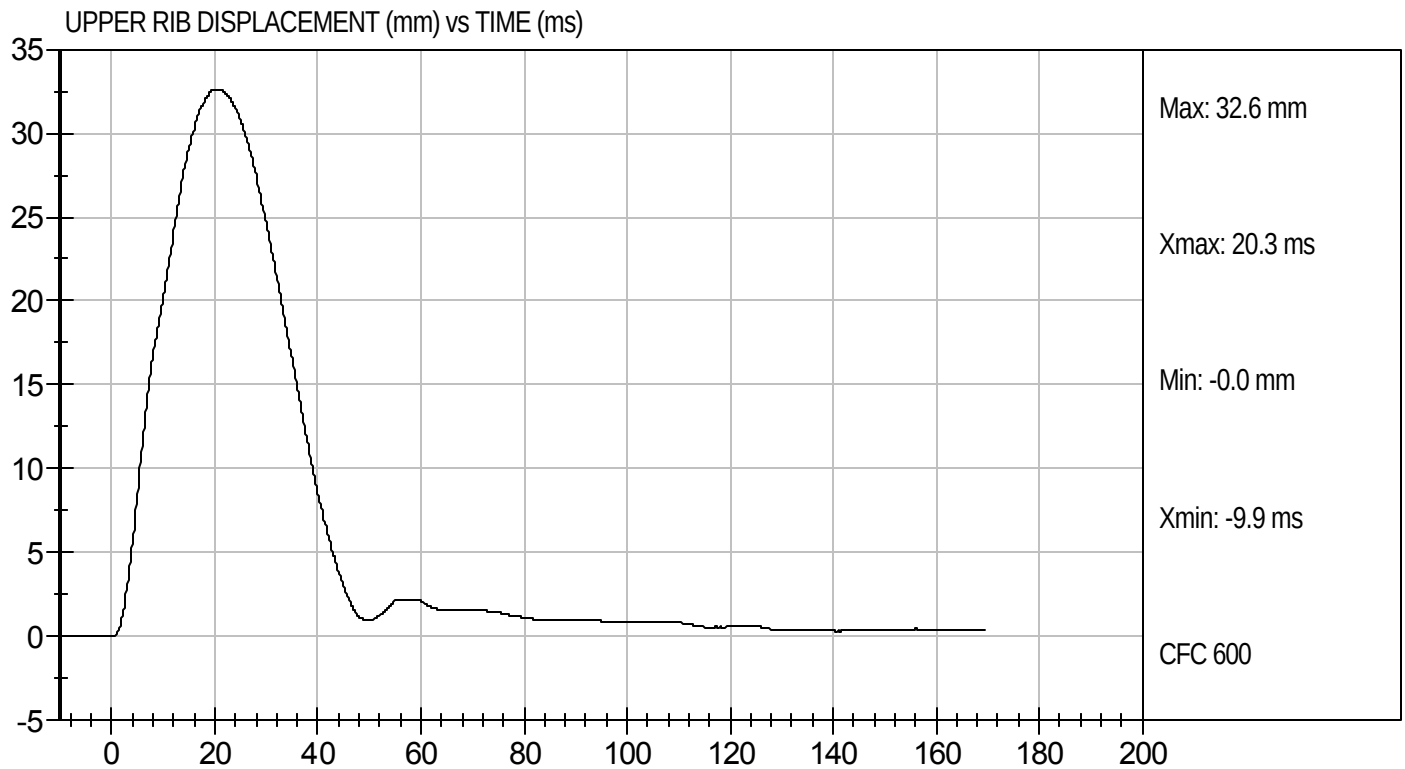
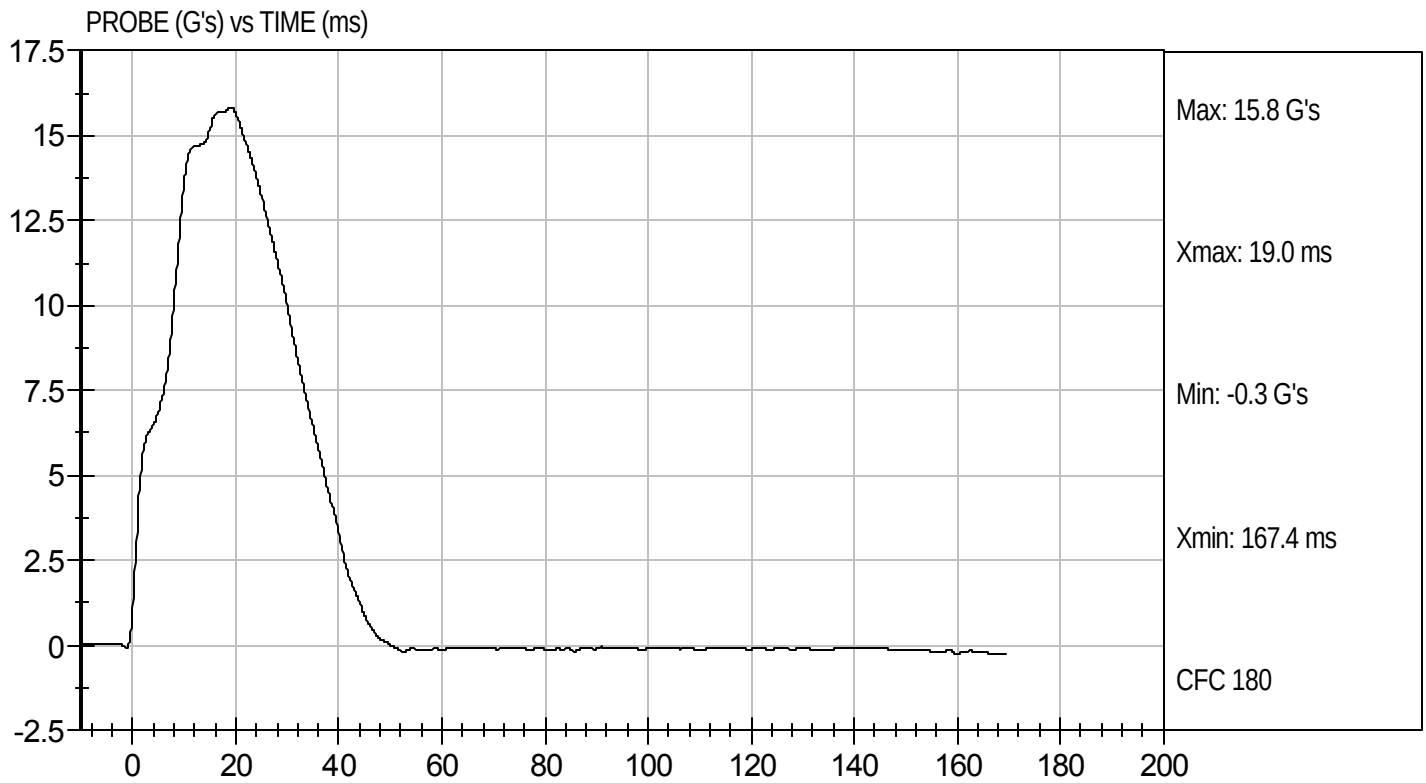
2/15/12
Test Date

David Winkelbauer
Approved By



Test Desc: Thorax Without Arm
Component ID: D12505

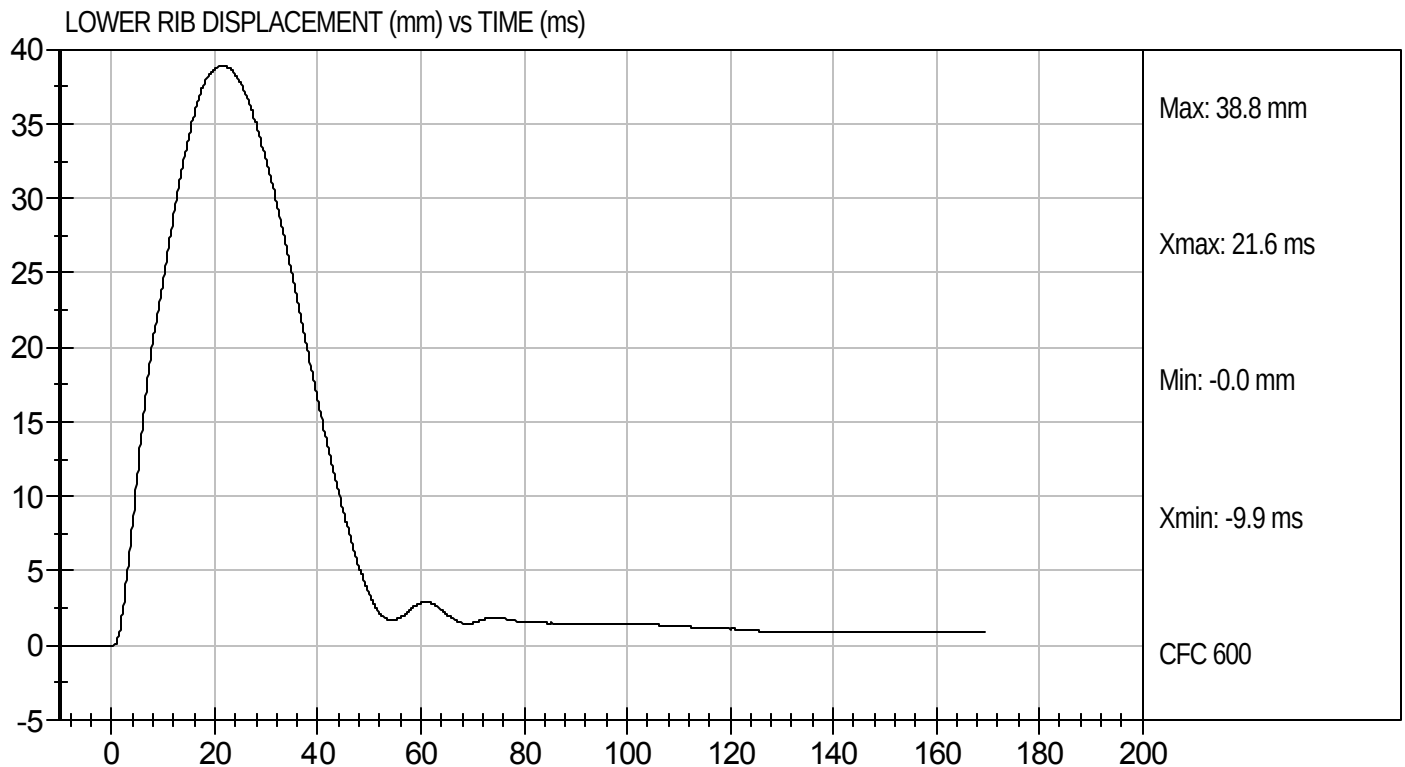
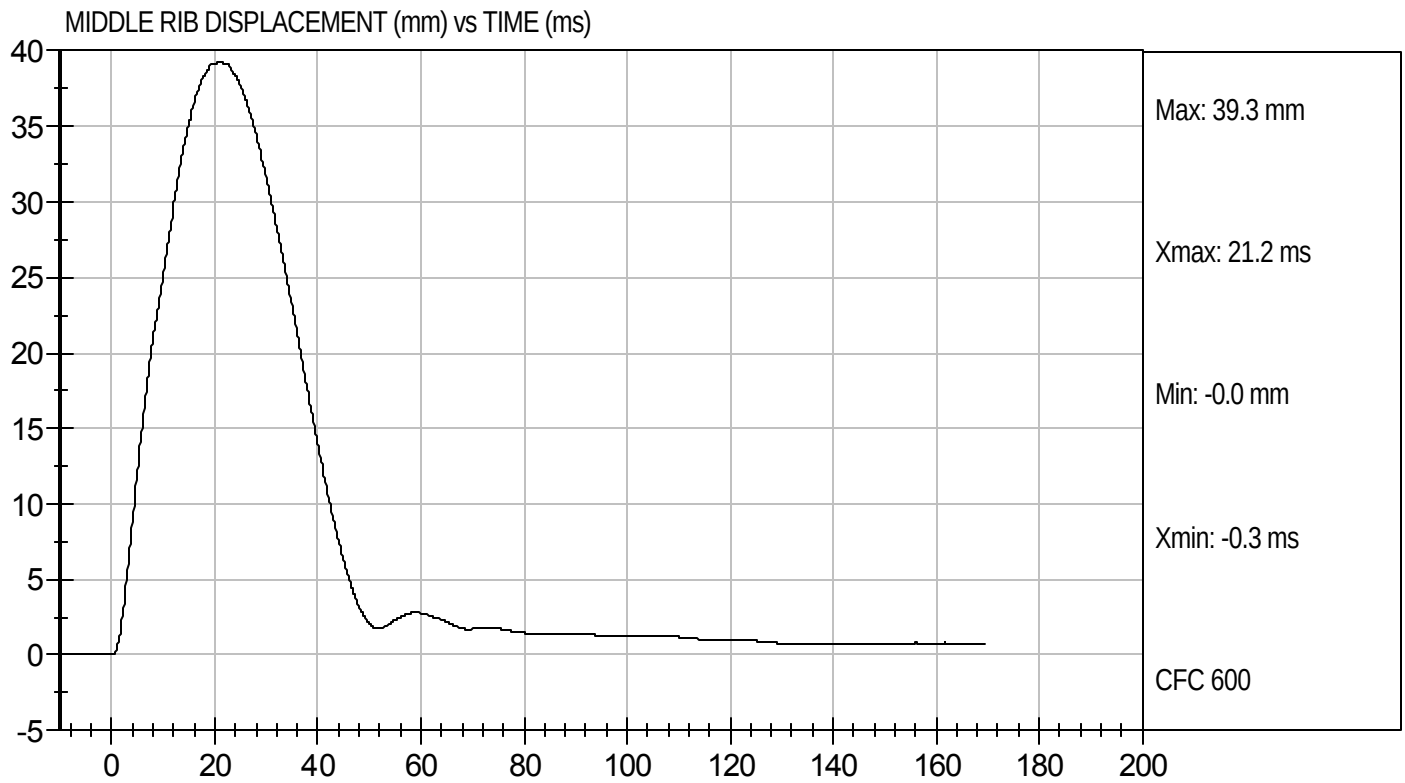
Test Date: 2/15/12
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Thorax Without Arm
Component ID: D12505

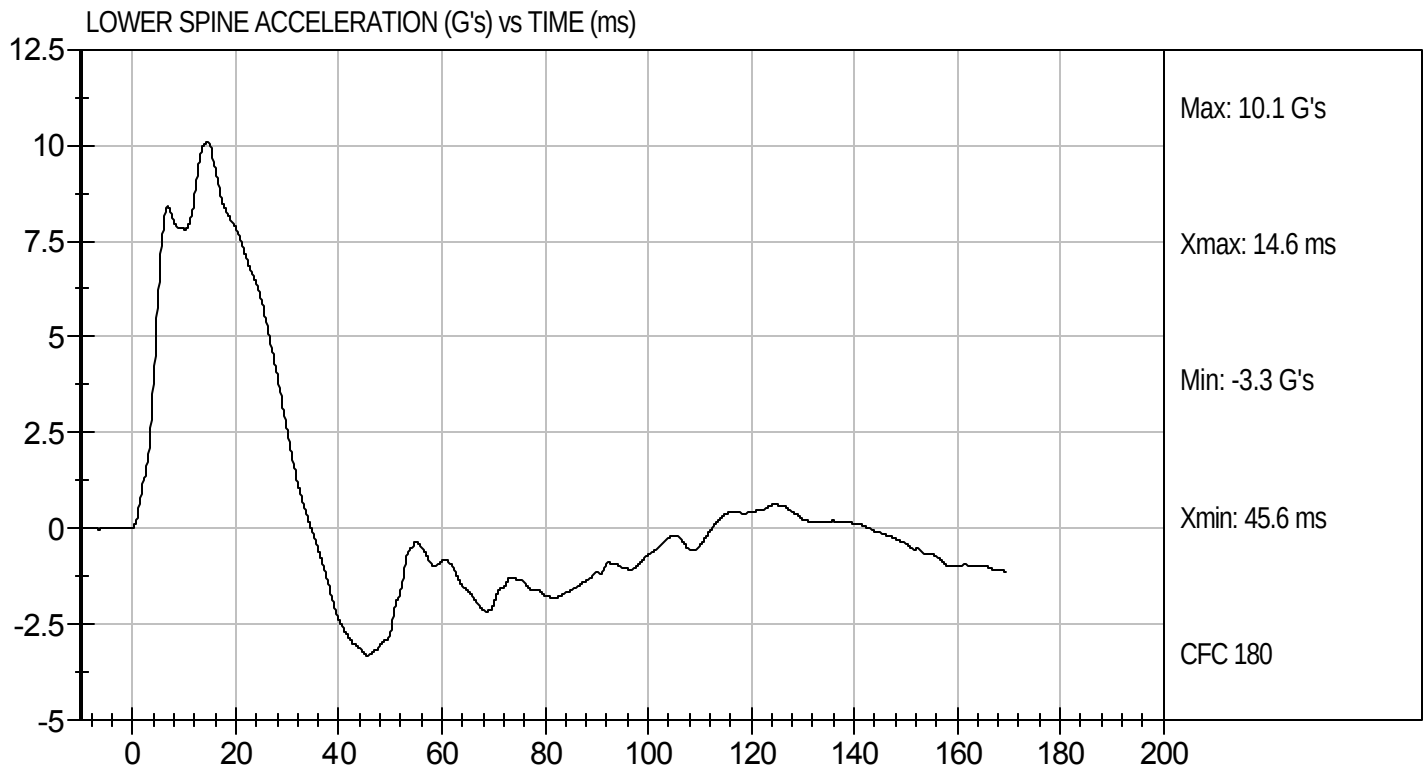
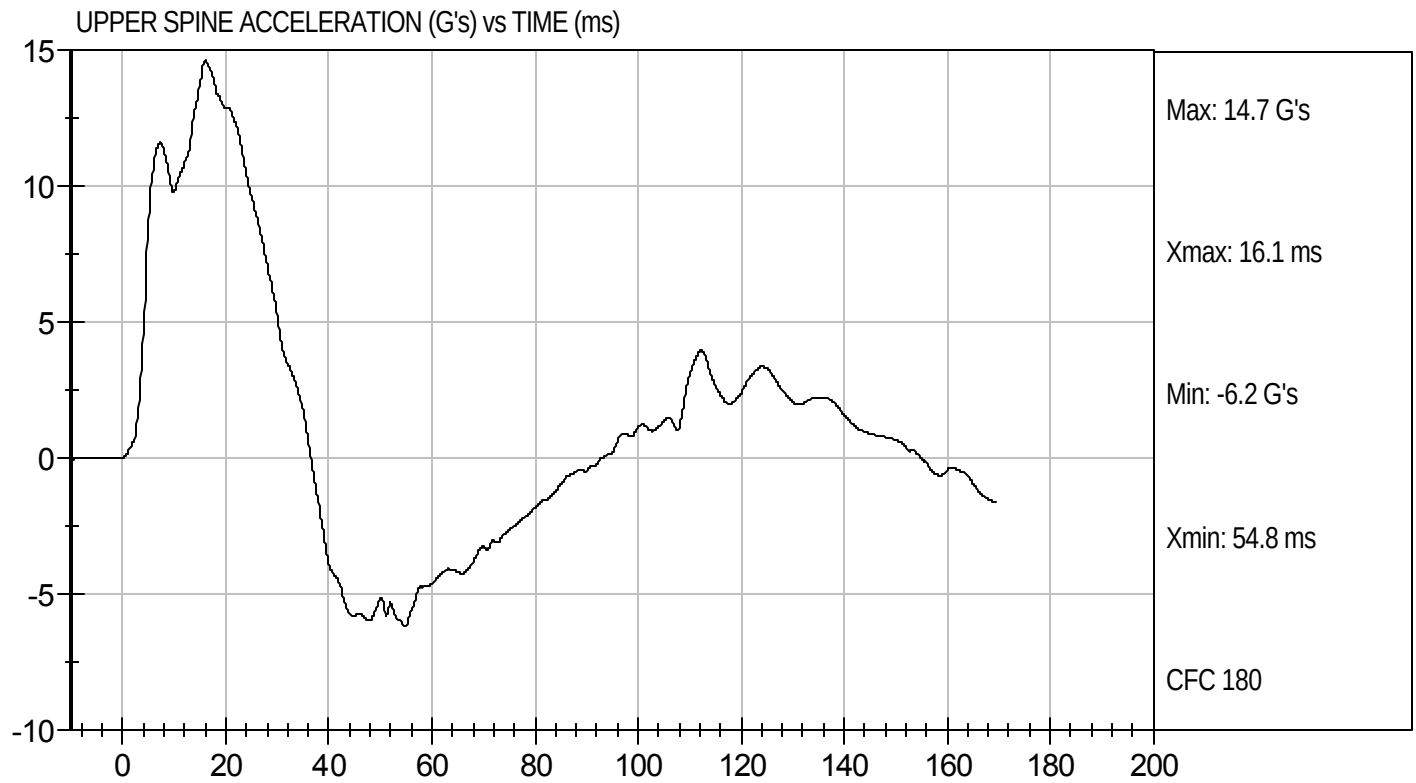
Test Date: 2/15/12
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Thorax Without Arm
Component ID: D12505

Test Date: 2/15/12
Velocity: 14.25 ft/s, 4.34 m/s



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

ATD Serial No: 306

Test I.D: D12506

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.9	Pass
Humidity	%	10 to 70	25	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	39	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

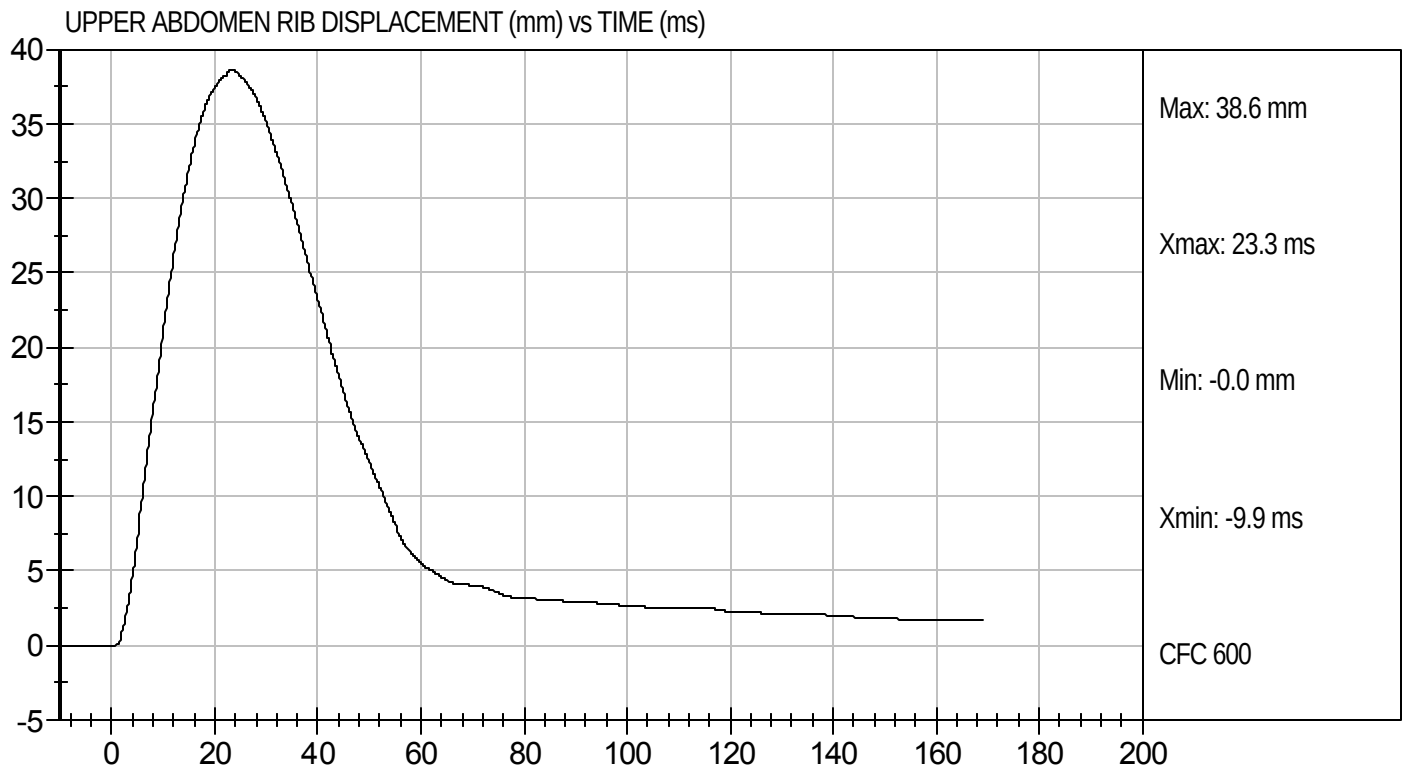
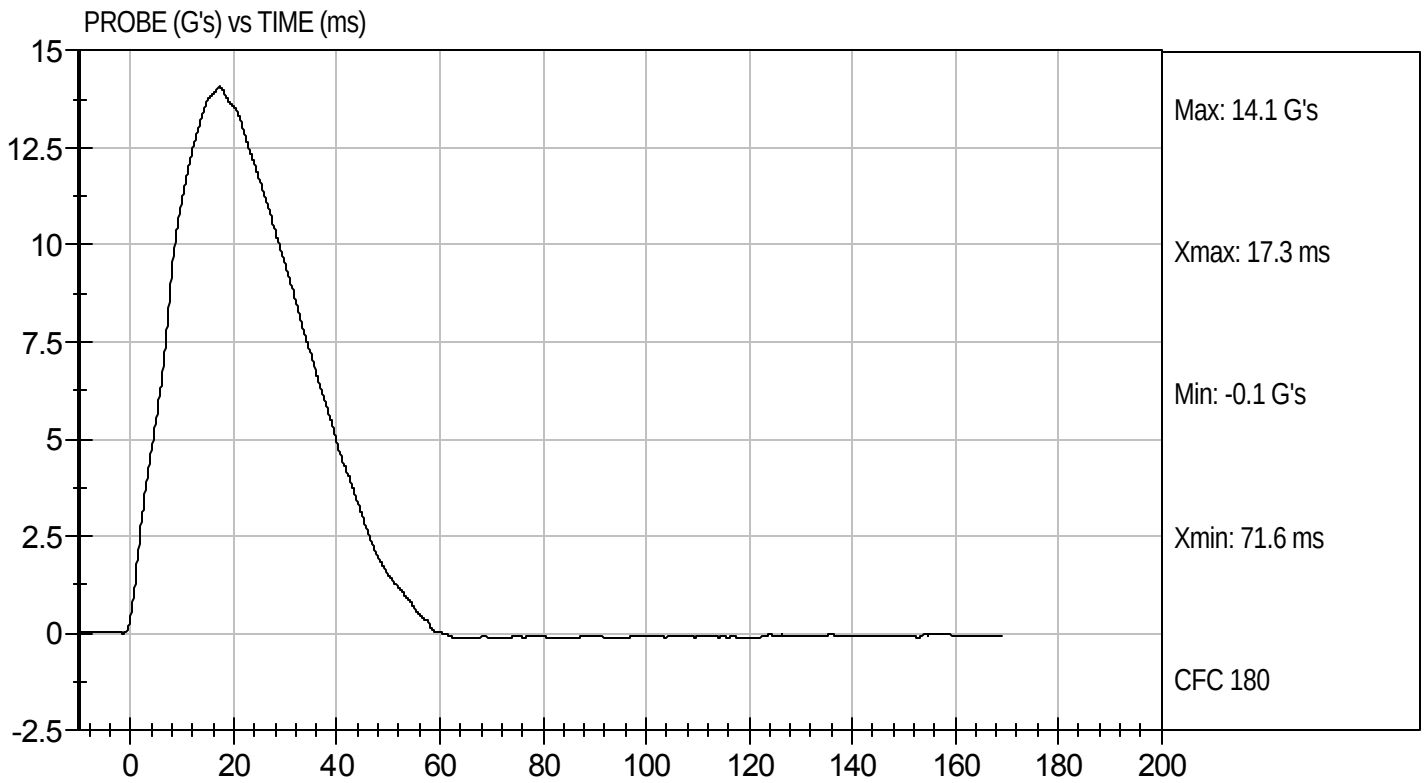
2/15/12
Test Date


Approved By



Test Desc: Abdomen Impact
Component ID: D12506

Test Date: 2/15/12
Velocity: 14.37 ft/s, 4.38 m/s

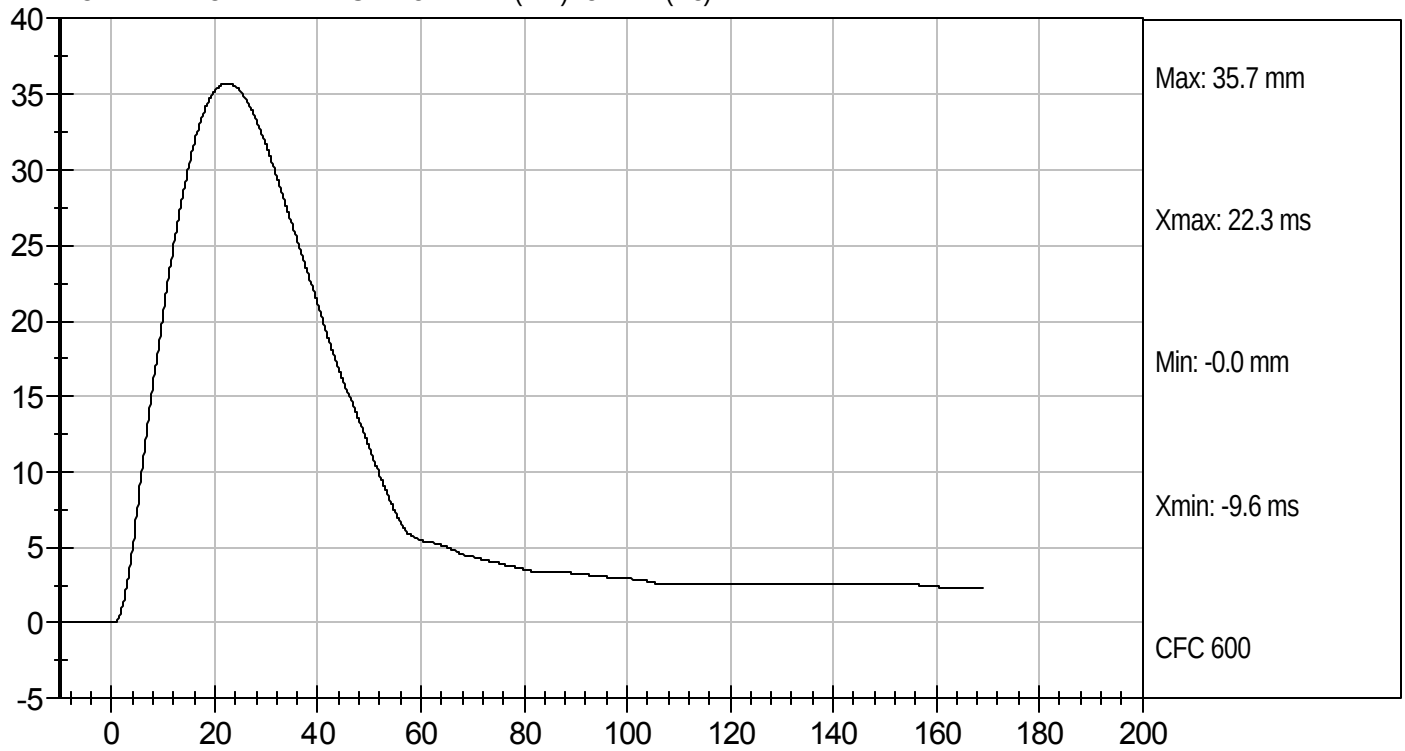




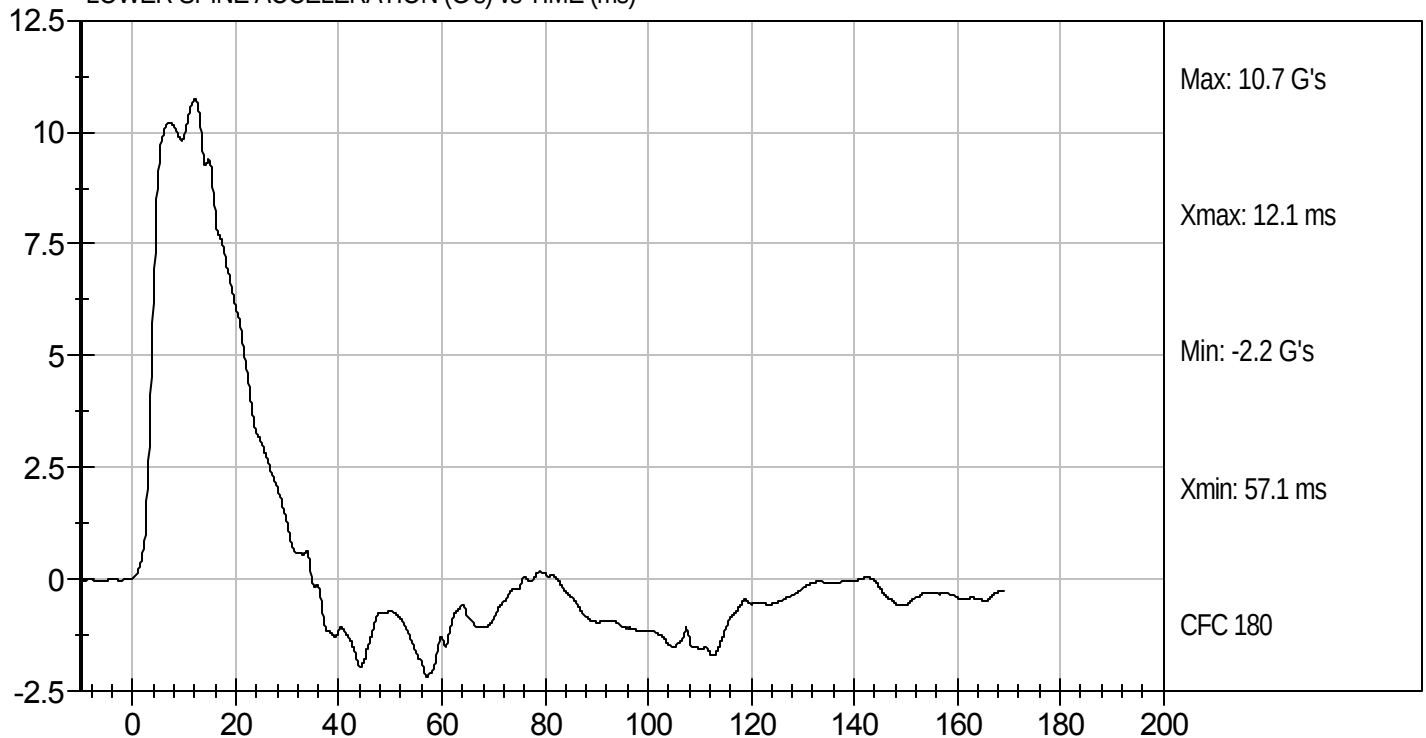
Test Desc: Abdomen Impact
Component ID: D12506

Test Date: 2/15/12
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: 306

Test I.D: D12507

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.9	Pass
Humidity	%	10 to 70	25	Pass
Impact Velocity	m/s	6.60 to 6.80	6.74	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	3800	Pass
Overall Test Results			Pass	

Jessica Galt
Laboratory Technician

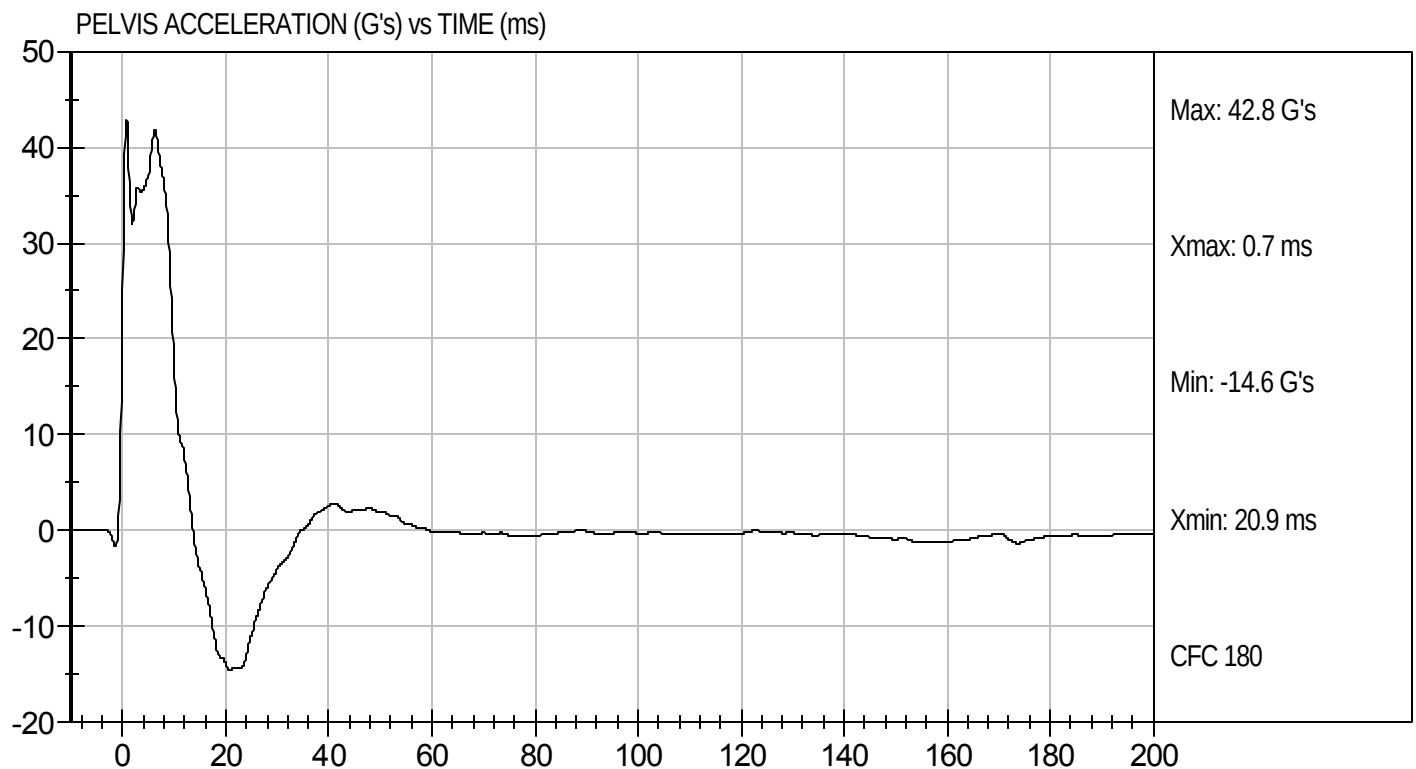
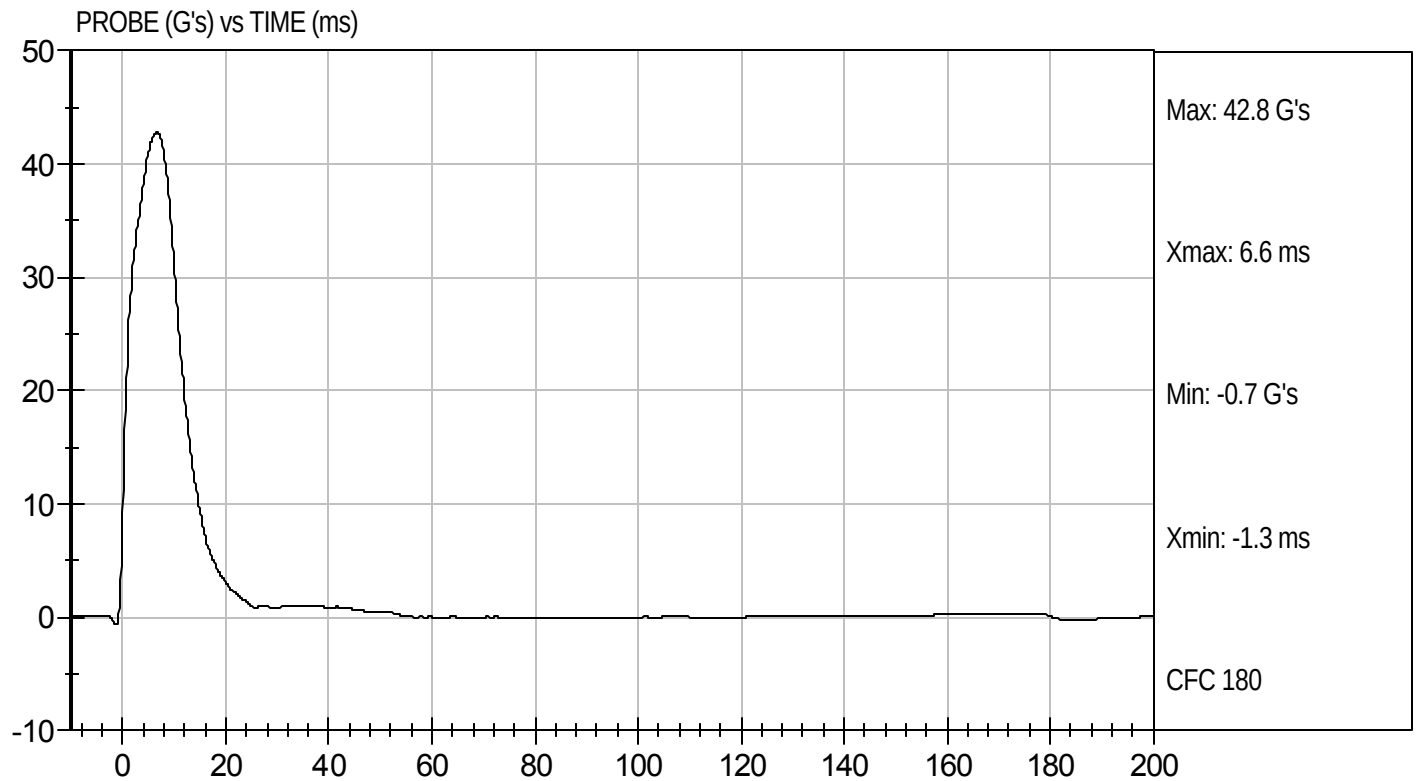
2/15/12
Test Date

David Winkelbauer
Approved By



Test Desc: Pelvis Impact
Component ID: D12507

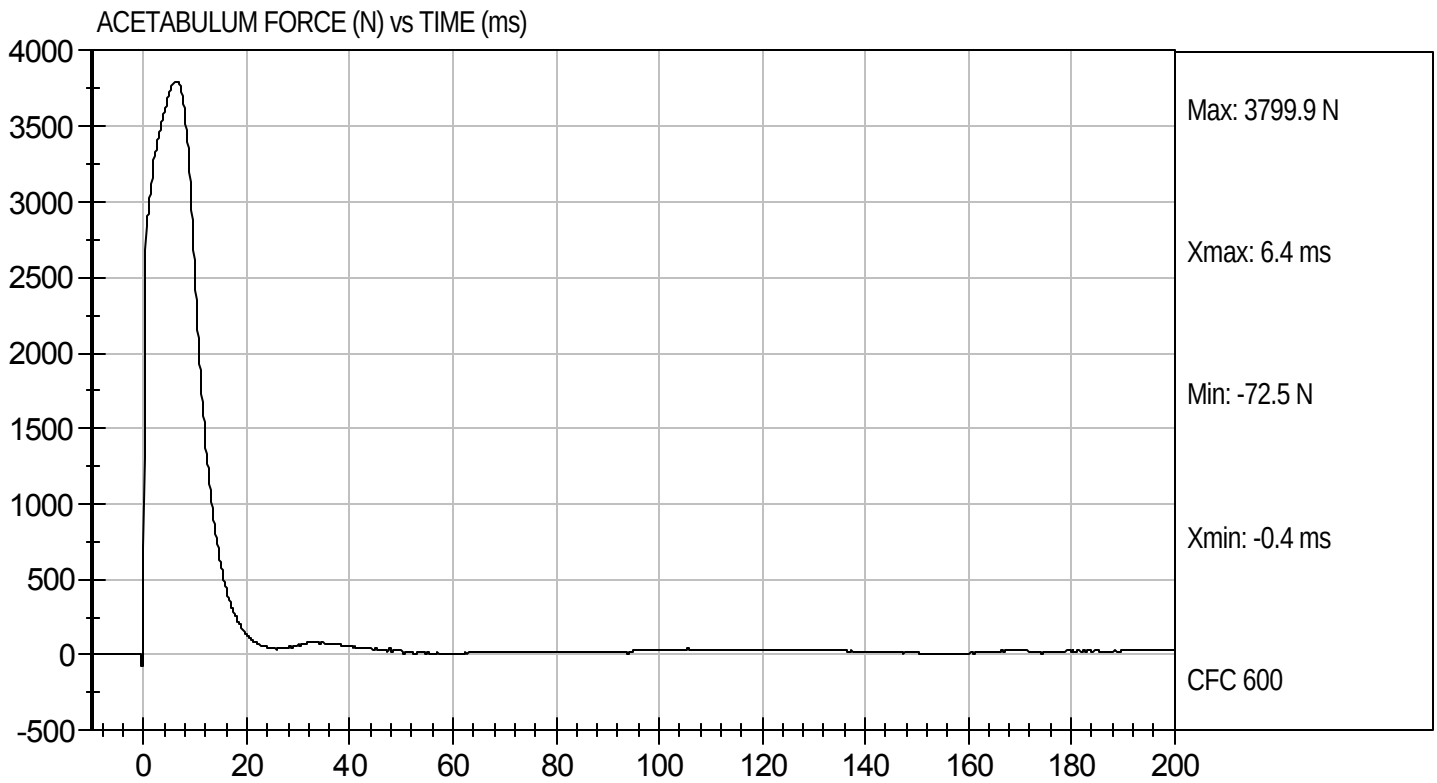
Test Date: 2/15/12
Velocity: 22.11 ft/s, 6.74 m/s





Test Desc: Pelvis Impact
Component ID: D12507

Test Date: 2/15/12
Velocity: 22.11 ft/s, 6.74 m/s



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

ATD Serial No: 306

Test I.D: D12508

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.0	Pass
Humidity	%	10 to 70	25	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	32	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4564	Pass
Overall Test Results				Pass


Laboratory Technician

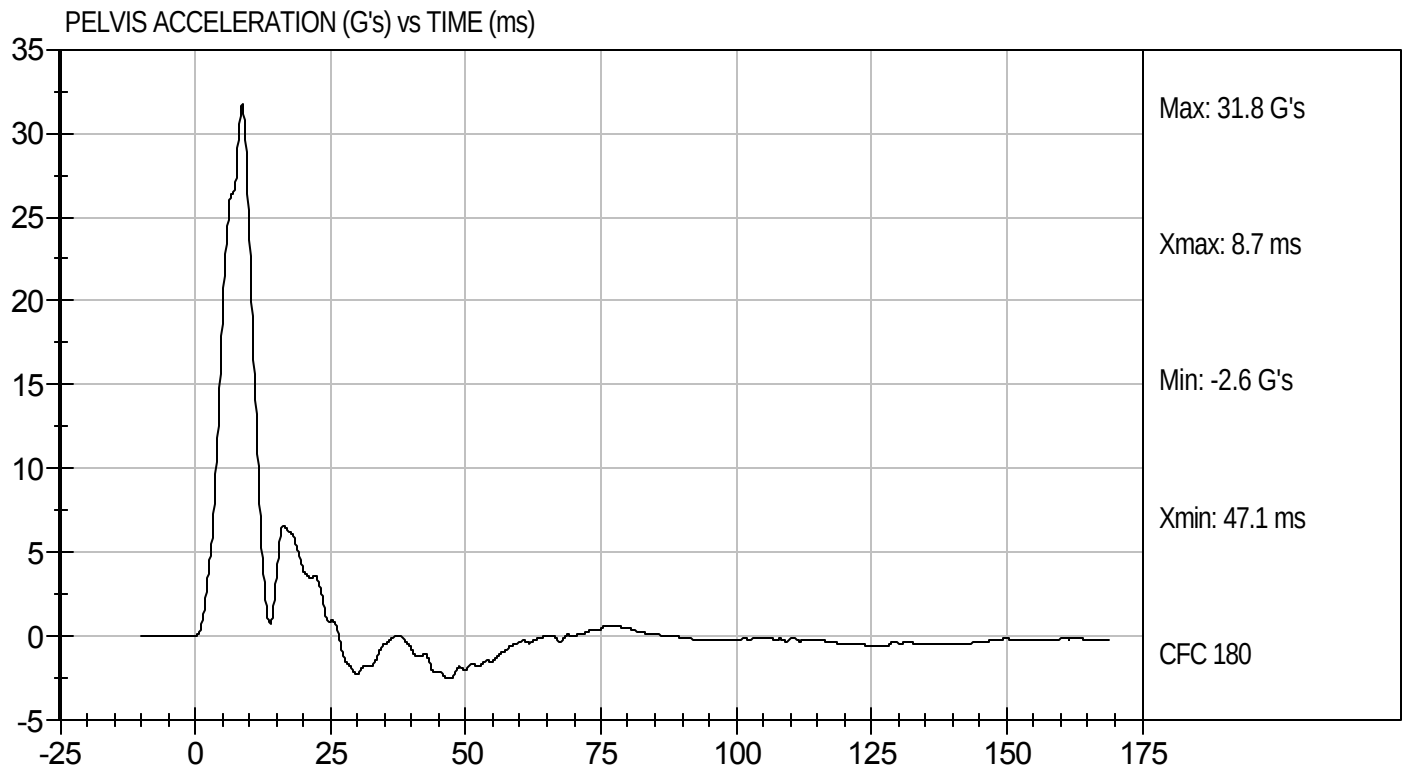
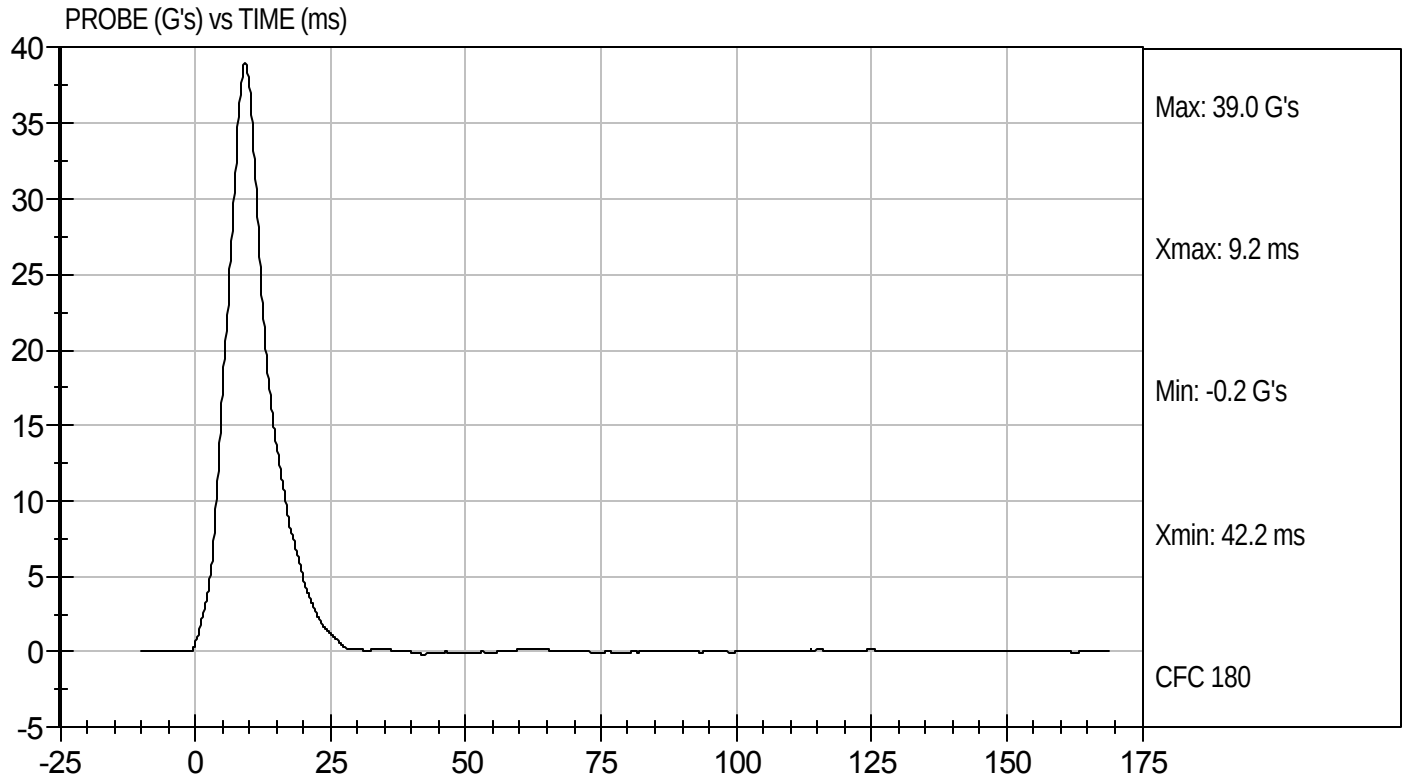
2/15/12
Test Date


Approved By



Test Desc: Iliac Impact
Component ID: D12508

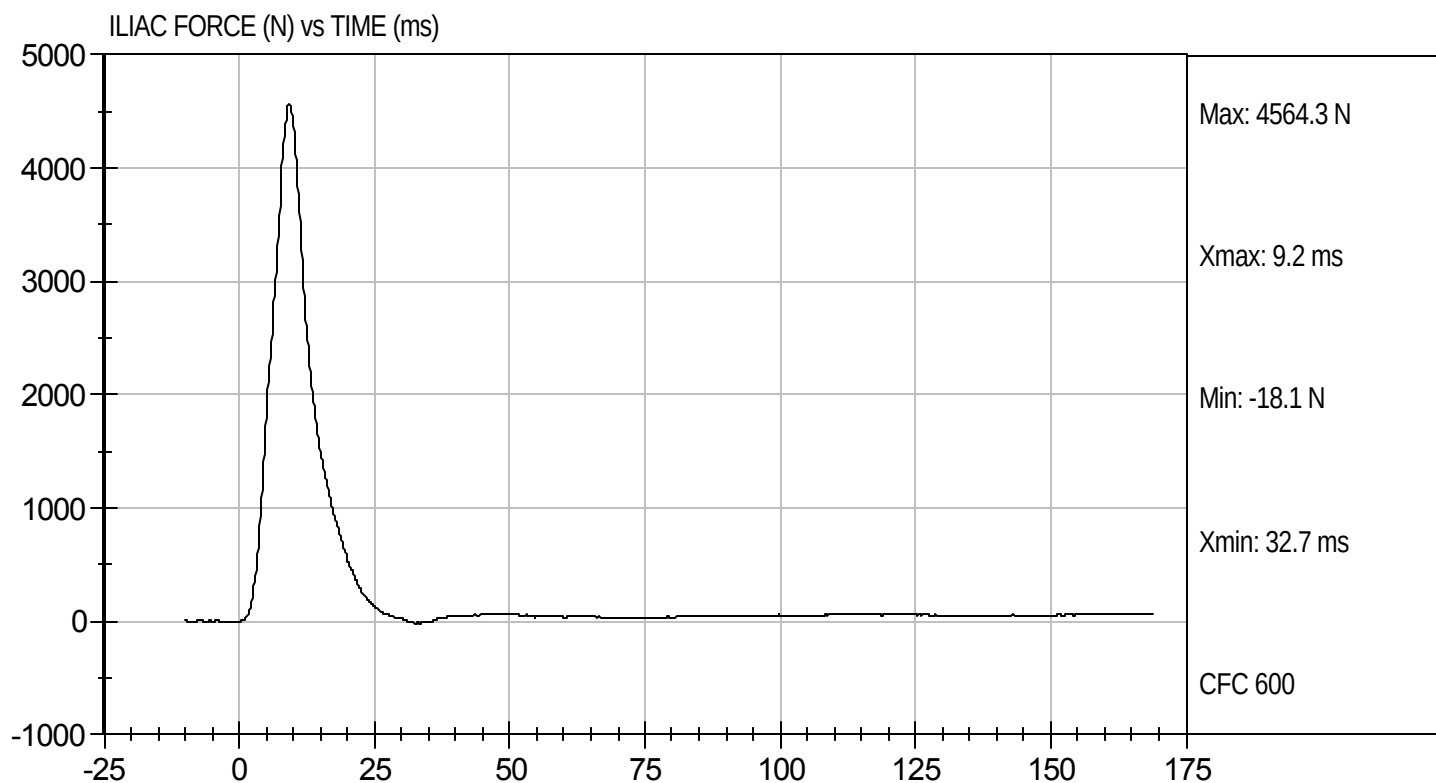
Test Date: 2/15/12
Velocity: 14.37 ft/s, 4.38 m/s





Test Desc: Iliac Impact
Component ID: D12508

Test Date: 2/15/12
Velocity: 14.37 ft/s, 4.38 m/s



APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation

				SID-IIs S/N 306			
				Serial Number	Manufacturer	Calibration Date	
Head Accelerometers				X	P67884	Endevco	12/06/11
				Y	P67886	Endevco	12/06/11
				Z	P67887	Endevco	12/06/11
Head Accelerometers				Xr	P67888	Endevco	12/06/11
				Yr	P67889	Endevco	120/6/11
				Zr	P67890	Endevco	12/06/11
Displacement Potentiometers	Thoracic Rib	Upper	Y	G1187	FTSS	12/06/11	
		Middle	Y	G1261	FTSS	12/06/11	
		Lower	Y	G1270	FTSS	12/06/11	
	Abdominal Rib	Upper	Y	G1287	FTSS	12/06/11	
		Lower	Y	G1304	FTSS	12/06/11	
Lower Spine Accelerometers (T12)				X	P67893	Endevco	12/06/11
				Y	P67894	Endevco	12/06/11
				Z	P67895	Endevco	12/06/11
Acetabulum Load Cell				Y	ACG111	FTSS	05/20/11
Iliac Wing Load Cell				Y	IWG226	FTSS	05/20/11
Pelvis Plug (struck side)					46417	FTSS	09/22/11
Pelvis Plug (non-struck side)					46416	FTSS	09/22/11

Table 2 – Vehicle Instrumentation

		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	P63498	Endevco	01/13/12
Vehicle Center of Gravity	Y	P63497	Endevco	01/13/12
Vehicle Center of Gravity	Z	P63499	Endevco	01/13/12
Left Floor Sill	Y	P47310	Endevco	09/12/11
A-Pillar Sill	Y	P63210	Endevco	01/12/12
A-Pillar Low	Y	P52205	Endevco	09/12/11
A-Pillar Mid	Y	L02-Z18	Entran	01/12/12
B-Pillar Sill	Y	P63206	Endevco	10/20/11
B-Pillar Low	Y	P63533	Endevco	01/12/12
B-Pillar Mid	V	P52278	Endevco	01/12/12
Driver Seat	Y	P48166	Endevco	12/13/11
Engine Top	X	P59391	Endevco	12/13/11
Engine Top	Y	P59390	Endevco	12/13/11
Firewall	Y	P59631	Endevco	12/13/11
Right Roof	Y	P45392	Endevco	09/12/11
Right Floor Sill	Y	P63279	Endevco	11/04/11
Rear Floorpan	X	P63334	Endevco	10/25/11
Rear Floorpan	Y	P63335	Endevco	10/25/11

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