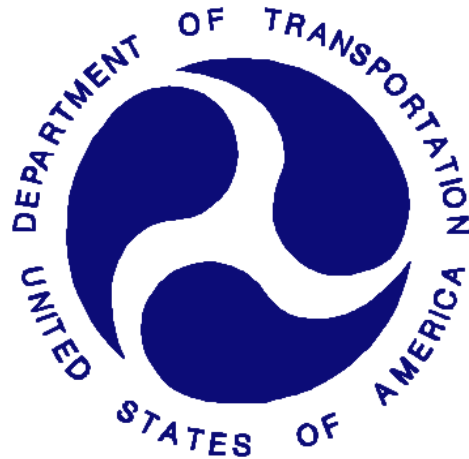


REPORT NUMBER: SPNCAP-MGA-2013-002

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

**MAZDA MOTOR CORPORATION
2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV
NHTSA No.: MD5402**

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



Test Date: July 6, 2012

Final Report Date: August 2, 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: August 2, 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-2013-002		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 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV, NHTSA No.: MD5402				5. Report Date August 2, 2012																												
				6. Performing Organization Code MGA																												
7. Author(s) Donna Janovicz, Project Manager Ben Fischer, Project Engineer				8. Performing Organization Report No. SPNCAP-MGA-2013-002																												
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105				10. Work Unit No.																												
				11. Contract or Grant No. DTNH22-09-D-00124																												
12. Sponsoring Agency Name and Address United States Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards (NVS-111) 1200 New Jersey Ave, SE, Room W43-410 Washington, DC 20590				13. Type of Report and Period Covered: Final Test Report July 6, 2012 to August 2, 2012																												
				14. Sponsoring Agency Code NVS-111																												
15. Supplementary Notes																																
16. Abstract A 32.20 km/h, 75° oblique impact Side NCAP Test was conducted on the subject 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr 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 July 6, 2012. The impact velocity was 32.3 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 381 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">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>Head Injury Criteria (HIC₃₆)</td> <td>N/A</td> <td>1000</td> <td>235</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>Gs</td> <td>82</td> <td>42</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>3899</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38*</td> <td>17</td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td>mm</td> <td>45*</td> <td>17</td> </tr> </tbody> </table> *Proposed IARV The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.						Measurement Description	Driver ATD (SID-IIs)			Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	235	Resultant Lower Spine Acceleration	Gs	82	42	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3899	Maximum Thoracic Rib Deflection	mm	38*	17	Maximum Abdomen Rib Deflection	mm	45*	17
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SECTION 1

TEST PURPOSE AND PROCEDURE

This side impact test is part of the MY 2013 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 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated May 2012.

SECTION 2 SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.3 km/h. The test was conducted by MGA Research Corporation in Burlington, Wisconsin, on July 6, 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 May 2012. Camera locations and other pertinent camera information are included in this report.

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

Head CG Triaxial Accelerometers (Primary and Redundant)
 Thorax Upper, Middle, and Lower Rib Displacement Potentiometers
 Abdomen Upper Rib and Lower Rib Displacement Potentiometers
 Lower Spine (T12) Triaxial Accelerometers
 Iliac Load Cell
 Acetabulum Load Cell

Appendix B contains the vehicle and dummy response data. Dummy configuration and performance verification data can be found in Appendix C of this report. 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	235
Resultant Lower Spine Acceleration	Gs	82	42
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3899
Maximum Thoracic Rib Deflection	mm	38*	17
Maximum Abdominal Rib Deflection	mm	45*	17

*Proposed IARV

Supplemental restraint information is given below:

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
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	
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:

- Vehicle CG X after 35ms
- Left B-Post @ Sill Y after 15ms
- Driver Seat Track Y after 13ms

Driver Mid Thorax Rib DY is questionable from 26-39ms

Vehicle CG Y is questionable from 21-26ms

Left Floor Sill Y is questionable from 32-37ms

Left Lower B-Post Y is questionable from 13-19ms

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: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV NHTSA No. MD5402
 Test Program: NCAP Side Pole Impact Test Test Date: 7/06/2012

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	MD5402	Traction Control System (TCS)	Yes
Model Year	2013	Auto-Leveling System	No
Make	Mazda	Automatic Door Locks (ADL)	Yes
Model	CX-5 Sport	Power Window Auto-Reverse	Yes
Body Style	SUV	Other Optional Feature	N/A
VIN	JM3KE2BE8D0120222	Driver Front Airbag	Yes
Body Color	Zeal Red Metallic	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	77 /48	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	Lateral	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	Front	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)	No	Other Safety Restraint	N/A
Does owner's manual provide instructions to turn off automatic door locks?			Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Mazda Motor Corporation	GVWR (kg)	1961
Date of Manufacture	04/12	GAWR Front (kg)	1000
Vehicle Type	MPV	GAWR Rear (kg)	964

VEHICLE SEATING AND WEIGHT CAPACITY DATA

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

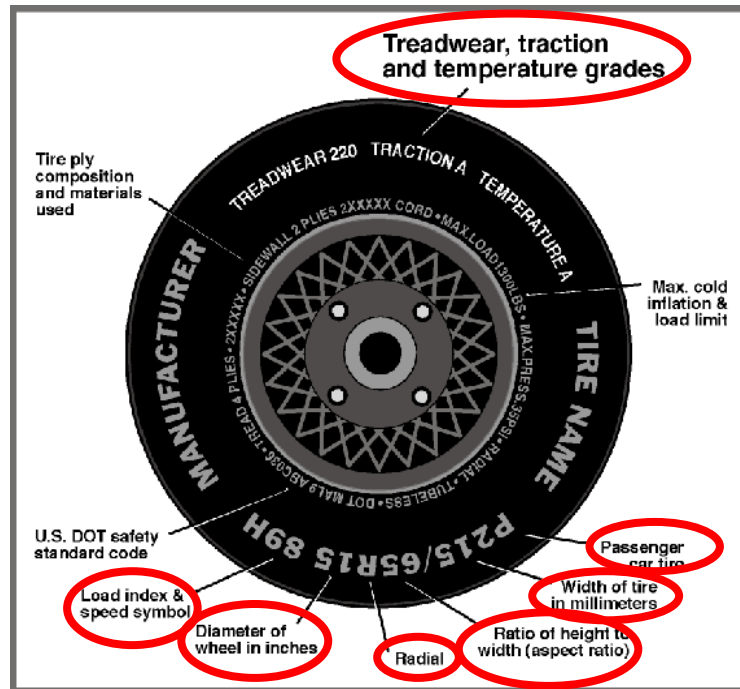
VEHICLE SEAT TYPE

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							

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

Test Vehicle: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MD5402
 Test Date: 7/06/2012



TIRE PLACARD INFORMATION

Measured Parameter	Front	Rear
Recommended Cold Tire Pressure (kPa)	230	230
Recommended Tire Size	P225/65R17	P225/65R17

TIRE SIDEWALL INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	300	300
Tire Size on Vehicle	P225/65R17	P225/65R17
Tire Manufacturer	Yokohama	Yokohama
Tire Name	Geolander	Geolander
Tire Type	Passenger	Passenger
Tire Width	225	225
Aspect Ratio	65	65
Radial	Yes	Yes
Wheel Diameter	17	17
Load Index/Speed Symbol	100H	100H
Treadwear	280	280
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: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV NHTSA No. MD5402
 Test Program: NCAP Side Pole Impact Test Test Date: 7/06/2012

TEST PRESSURES

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

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	429.6	313.4		449.5	342.5		450.4	357.0	
Right	kg	420.9	293.1		431.8	323.4		425.1	321.1	
Ratio	%	58.4	41.6		57.0	43.0		56.4	43.6	
Totals	kg	850.5	606.5	1457.0	881.3	665.9	1547.2	875.5	678.1	1553.6

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1457.0	(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	1554.2	(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)
Ballast (if any)	0.0
Left/right taillight, spare tire, jack & tools, cargo cover, right side mirror, third brake light, rear headrests, RF headrest.	28.1

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	deg	-0.5	-0.5	-0.2	Yes
Front Pass. Sill Angle (front-to-rear)*	deg	-0.6	-0.4	-0.4	Yes
Front Bumper Angle (left-to-right)**	deg	-0.2	-0.2	-0.4	Yes
Rear Bumper Angle (left-to-right)**	deg	0.0	0.0	0.0	Yes
Vehicle CG (Aft of Front Axle)	mm	1123	1161	1178	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	15	18	31	

*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: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV NHTSA No. MD5402
 Test Program: NCAP Side Pole Impact Test Test Date: 7/06/2012

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	13.5	8.5	11.0
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	11.0	Fixed	Max	Fixed	Fixed	Fixed
	11.0	Fixed	Mid	Fixed	Fixed	Fixed
	11.0	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: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV
 Test Program: NCAP Side Pole Impact Test

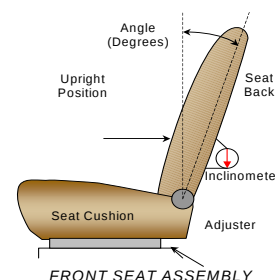
NHTSA No. MD5402
 Test Date: 7/06/2012

SEAT FORE/AFT POSITIONS

Seat	Total Fore/Aft Travel		Test Position from Forward-most Position	
	mm	Detents	mm	Detent
Driver Seat	260	26 (1 st as 0)	0	0 (1 st as 0)
Front Passenger Seat	260	26 (1 st as 0)	0	0 (1 st as 0)
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	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	Degree	Detent
Driver Seat w/Seated Dummy	72.3		-4.2	2 (1 st as 0)
Front Passenger Seat	69.5		-4.2	2 (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

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

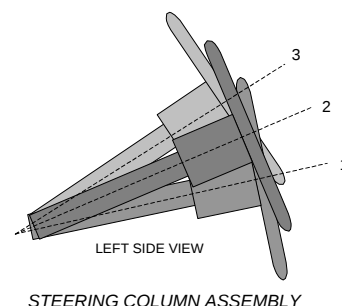
Test Vehicle: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MD5402
 Test Date: 7/06/2012

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.

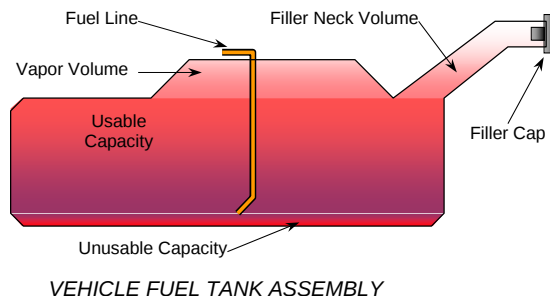
	Degrees	Fore/Aft Position (mm)
Lowermost, Position 1	67.2	228
Geometric Center, Position 2	64.9	203
Uppermost, Position 3	62.6	178
Telescoping Steering Wheel Travel		50
Test Position	64.9	203



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. The fuel pump operates when starter or engine is activated. The fuel pipe is on the left side.



FUEL TANK CAPACITY DATA

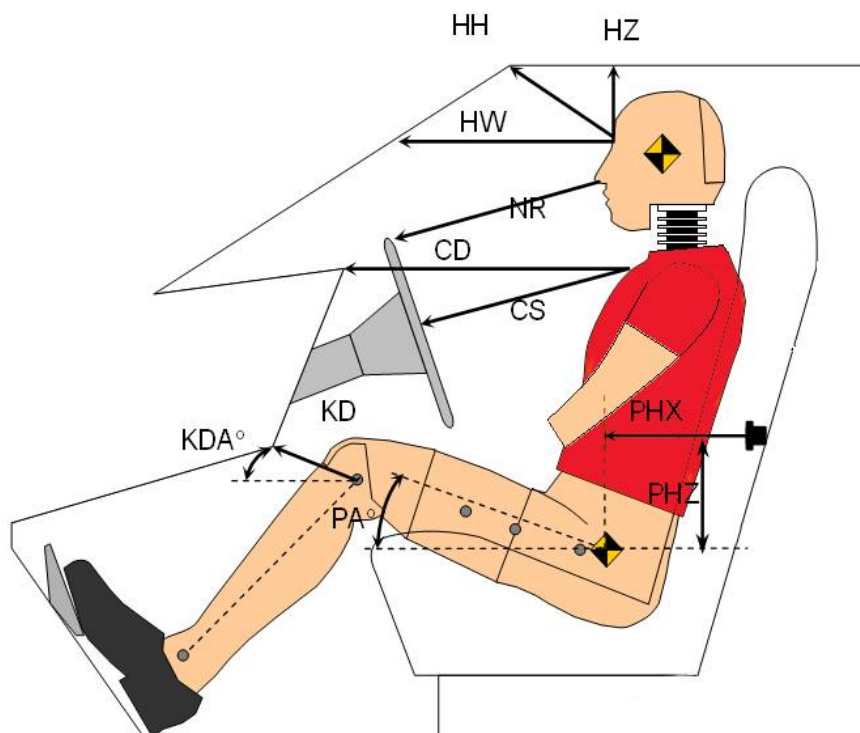
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	57.9
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	56.0
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	53.8
Actual Amount of Solvent Used	53.9
1/3 of Usable Capacity	19.3

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: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MD5402
 Test Date: 7/06/2012



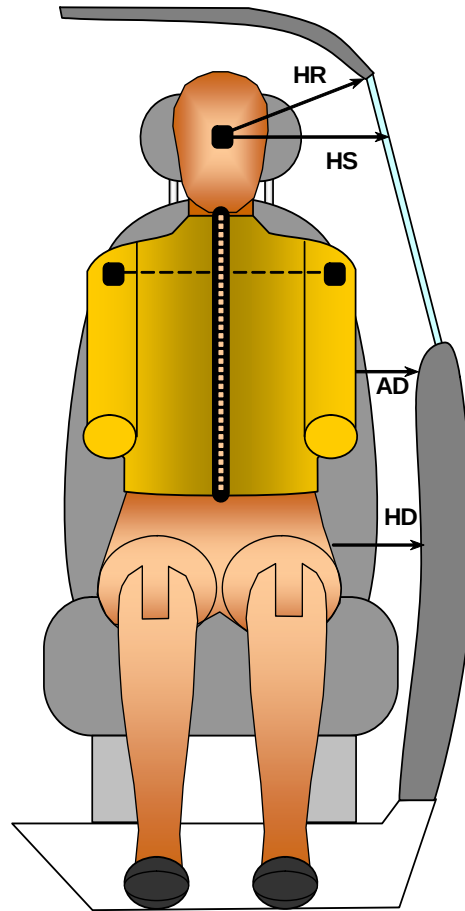
LEFT SIDE VIEW

Code	Measurement Description	Driver S/N 306	
		Length (mm)	Angle (°)
HH	Head to Header	237	
HW	Head to Windshield	536	
HZ	Head to Roof Liner	199	
NR	Nose to Rim	212	
CD	Chest to Dashboard	375	
CS	Chest to Steering Wheel	128	
KDL/KDAL°	Left Knee to Dash	69	36.3
KDR/KDAR°	Right Knee to Dash	68	34.1
PAX°	Pelvic Tilt Angle (X-Axis)		18.6
PAY°	Pelvic Tilt Angle (Y-Axis)		0.5
PHX	Hip Point to Striker (X-Axis)	380	
PHZ	Hip Point to Striker (Z-Axis)	142	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MD5402
 Test Date: 7/06/2012



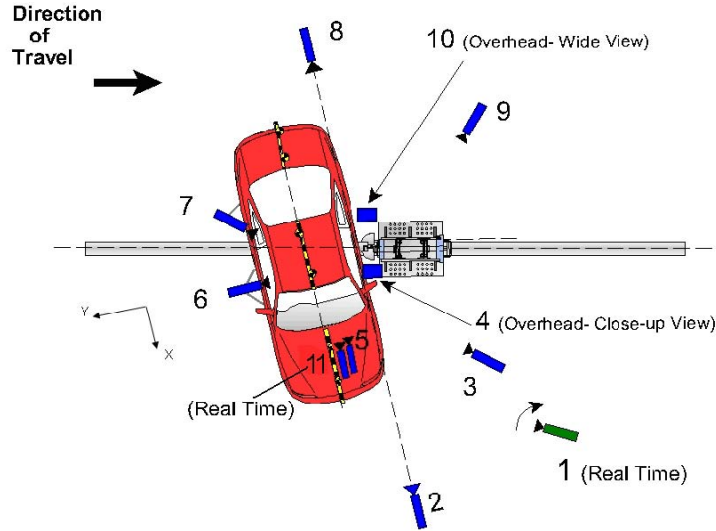
FRONT VIEW OF DUMMY

Code	Measurement Description	Driver S/N 306
		Length (mm)
HR	Head to Side Header	250
HS	Head to Side Window	376
AD	Arm to Door	185
HD	Hip Point to Door	174

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MD5402
 Test Date: 7/06/2012



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	-120	5830	-1850	24	1000
3	Impact Side 45° Forward	-2720	5210	-1930	20	1000
4	Overhead Closeup	260	0	-4420	50	1000
5	Onboard – Driver Front				16	
6	Onboard – Driver Side				8	
7	Onboard – Driver Rear				8	
8	Rear Ground Level	-80	-5940	-1870	24	1000
9	Impact Side 45° Rearward	-4120	-4400	-1960	20	1000
10	Overhead Wide View	540	0	-4610	14	1000
11	Real-Time Dummy Front View					30

* All measurements accurate to ± 6 mm

Note: Vehicle was at a 75° angle to the rigid pole.

Explain why camera(s) did not operate as intended: Not Applicable

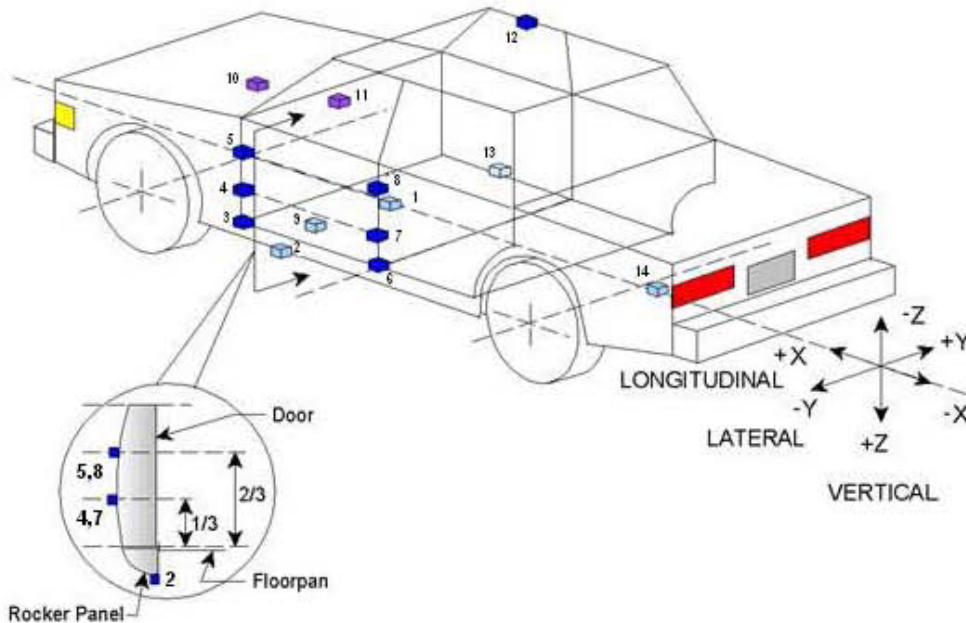
INSTRUMENTATION

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

DATA SHEET NO. 6 **VEHICLE ACCELEROMETER DATA**

Test Vehicle: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. MD5402
Test Date: 7/06/2012



	Accelerometer Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2398	218	-306
2	Left Floor Sill	2774	-700	-251
3	A Pillar Sill	3032	-707	-245
4	A Pillar Low	3034	-830	-559
5	A Pillar Mid	3039	-822	-810
6	B Pillar Sill	2005	-712	-254
7	B Pillar Low	1927	-752	-661
8	B Pillar Mid	1927	-748	-1021
9	Driver Seat Track	2284	582	-442
10	Engine Top	3949	0	-874
11	Firewall	3532	0	-971
12	Right Roof	1851	510	-1651
13	Right Floor Sill	2768	700	-265
14	Rear Floorpan	205	0	-530

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: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. MD5402
Test Date: 7/06/2012



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: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV NHTSA No. MD5402
Test Program: NCAP Side Pole Impact Test Test Date: 7/06/2012

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Driver SID-IIs Dummy
Face	Curtain Airbag
Top of Head	Curtain Airbag
Left Side of Head	Curtain Airbag
Back of Head	Headrest
Left Shoulder	Side Airbag, Seatback
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)	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: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. MD5402
Test Date: 7/06/2012

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	No		
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	
Other				

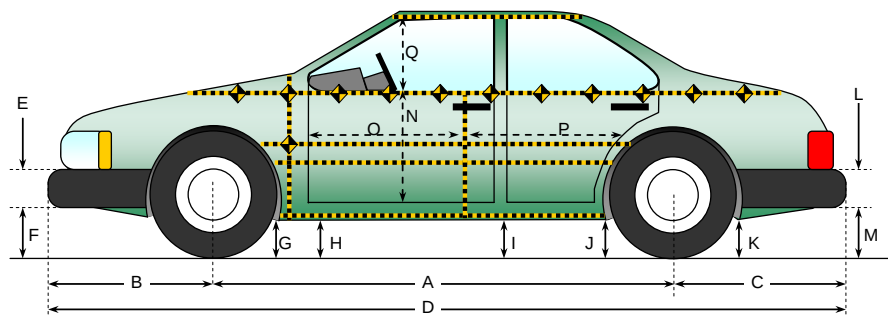
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT, AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1081
Actual Impact Point (Aft of Front Axle)	mm		1087
Horizontal Offset (+forward / -rearward)	mm	+/- 38 of Intended Impact Point	-6
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	32.3
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.2

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

Test Vehicle: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. MD5402
Test Date: 7/06/2012



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

LEFT SIDE VIEW

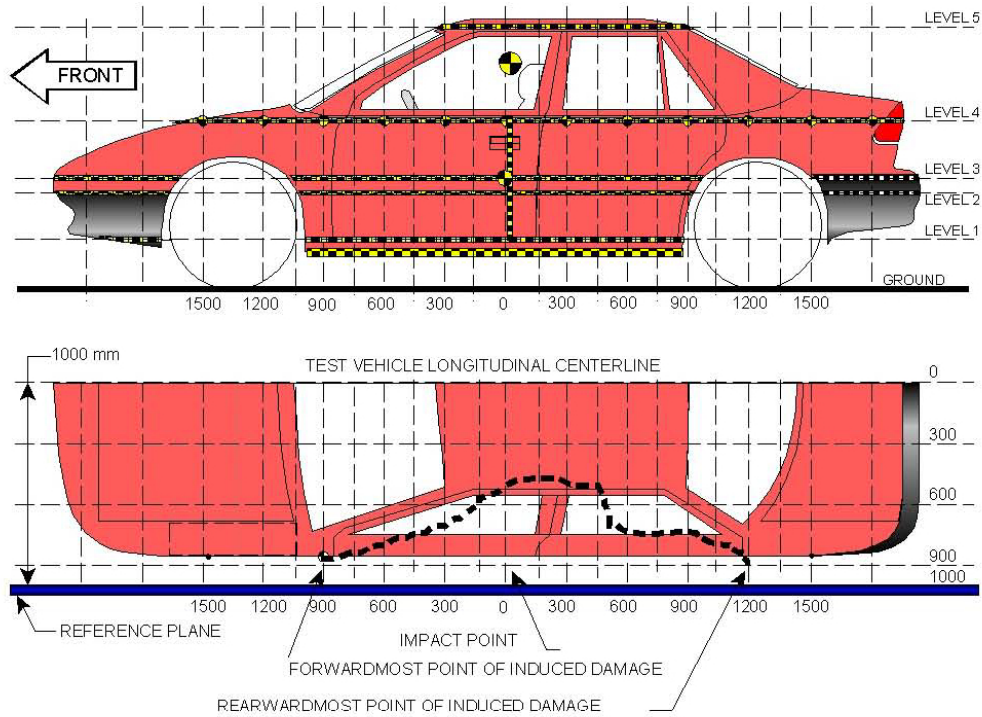
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2698	2626	72
B	Front Axle to FSOV	936	920	16
C	Rear Axle to RSOV	911	906	5
D	Total Vehicle Length at Centerline	4545	4452	93
E	Front Bumper Thickness	160	160	0
F	Front Bumper Bottom to Ground	287	315	-28
G	Sill Height at Front Wheel Well	254	233	21
H	Sill Height at Front Door Leading Edge	258	242	16
I	Sill Height at B-Pillar	261	275	-14
J1	Sill Height at Rear Wheel Well	266	258	8
J2	Pinch Weld Height at Rear Wheel Well	268	260	8
K	Sill Height Aft of Rear Wheel Well	318	317	1
L	Rear Bumper Thickness	170	170	0
M	Rear Bumper Bottom to Ground	370	353	17
N	Sill Height to Bottom of Front Window Sill	776	785	-9
O	Front Door Leading Edge to Impact CL	580	575	5
P	Rear Door Trailing Edge to Impact CL	1224	1270	-46
Q	Front Window Opening	428	389	39
R	Right Side Length	3264	3265	-1
S	Left Side Length	3264	3145	119
T	Vehicle Width at B-Pillars	1840	1745	95

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

Test Vehicle: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MD5402
 Test Date: 7/06/2012



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	367
2	Mid Door	690
3	Occupant Hip Point	713
4	Window Sill	1074
5	Window Top	1563

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

Test Vehicle: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV

NHTSA No. MD5402

Test Program: NCAP Side Pole Impact Test

Test Date: 7/06/2012

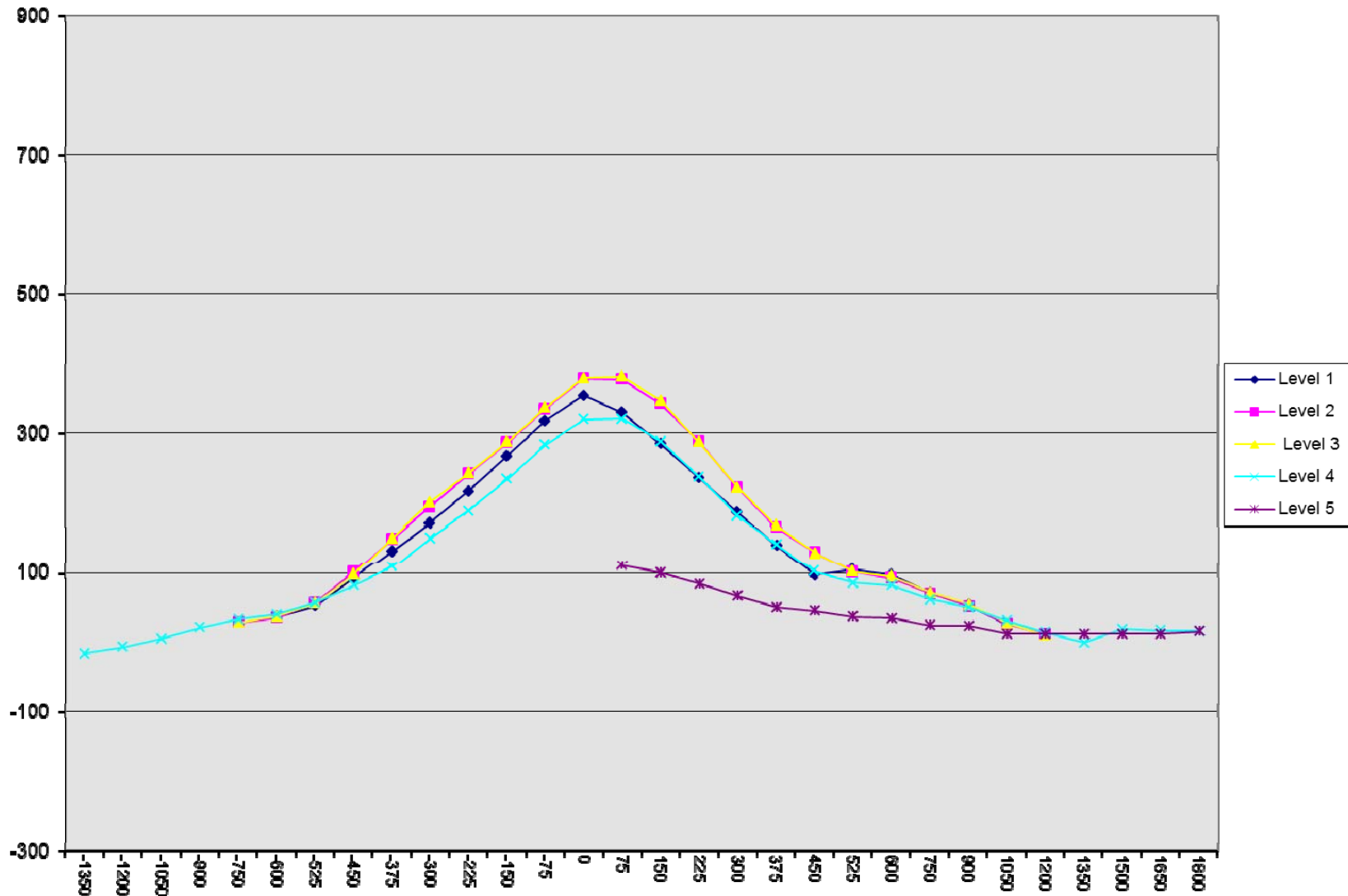
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1350				320					305					-15	
-1200				305					299					-6	
-1050				291					297					6	
-900				280					302					22	
-750		180	180	271			209	209	305			29	29	34	
-600	203	189	188	262		240	225	226	303		37	36	38	41	
-525	204	193	192	259		257	251	249	317		53	58	57	58	
-450	206	194	194	259		299	295	292	341		93	101	98	82	
-375	206	195	194	259		338	344	344	368		132	149	150	109	
-300	207	195	194	257		378	389	395	407		171	194	201	150	
-225	207	195	194	258		423	436	436	446		216	241	242	188	
-150	207	195	194	255		474	481	481	489		267	286	287	234	
-75	207	195	194	254		524	529	530	537		317	334	336	283	
0	205	195	194	250		559	573	573	569		354	378	379	319	
75	202	196	195	248	501	531	573	576	568	611	329	377	381	320	110
150	199	196	195	244	487	483	538	542	532	587	284	342	347	288	100
225	198	196	195	242	482	434	484	482	479	566	236	288	287	237	84
300	196	197	196	239	479	382	418	418	420	546	186	221	222	181	67
375	194	198	196	235	477	334	363	364	376	528	140	165	168	141	51
450	191	199	197	233	476	288	329	326	335	522	97	130	129	102	46
525	190	199	197	230	476	295	300	299	316	513	105	101	102	86	37
600	189	199	197	228	477	286	291	292	310	512	97	92	95	82	35
750	188	199	198	224	480	259	269	270	286	505	71	70	72	62	25
900	190	199	199	224	484	244	251	254	275	508	54	52	55	51	24
1050	198	194	195	225	490	224	221	223	257	503	26	27	28	32	13
1200		186	185	227	497		198	196	242	510		12	11	15	13
1350				232	508				232	521				0	13
1500				235	518				255	531				20	13
1650				240	533				258	546				18	13
1800				249	553				266	569				17	16

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: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. MD5402
Test Date: 7/06/2012



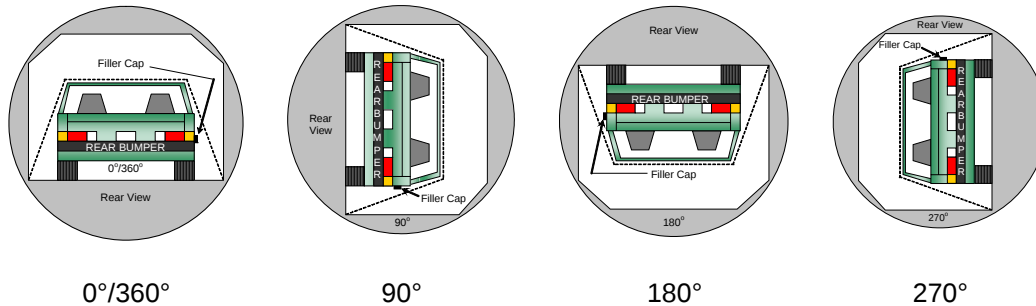
DATA SHEET NO. 11
FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV NHTSA No. MD5402
 Test Program: NCAP Side Pole Impact Test Test Date: 7/06/2012

Test Time: 10:23 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°	117	300	417
90° to 180°	113	300	413
180° to 270°	109	300	409
270° to 360°	118	300	418

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

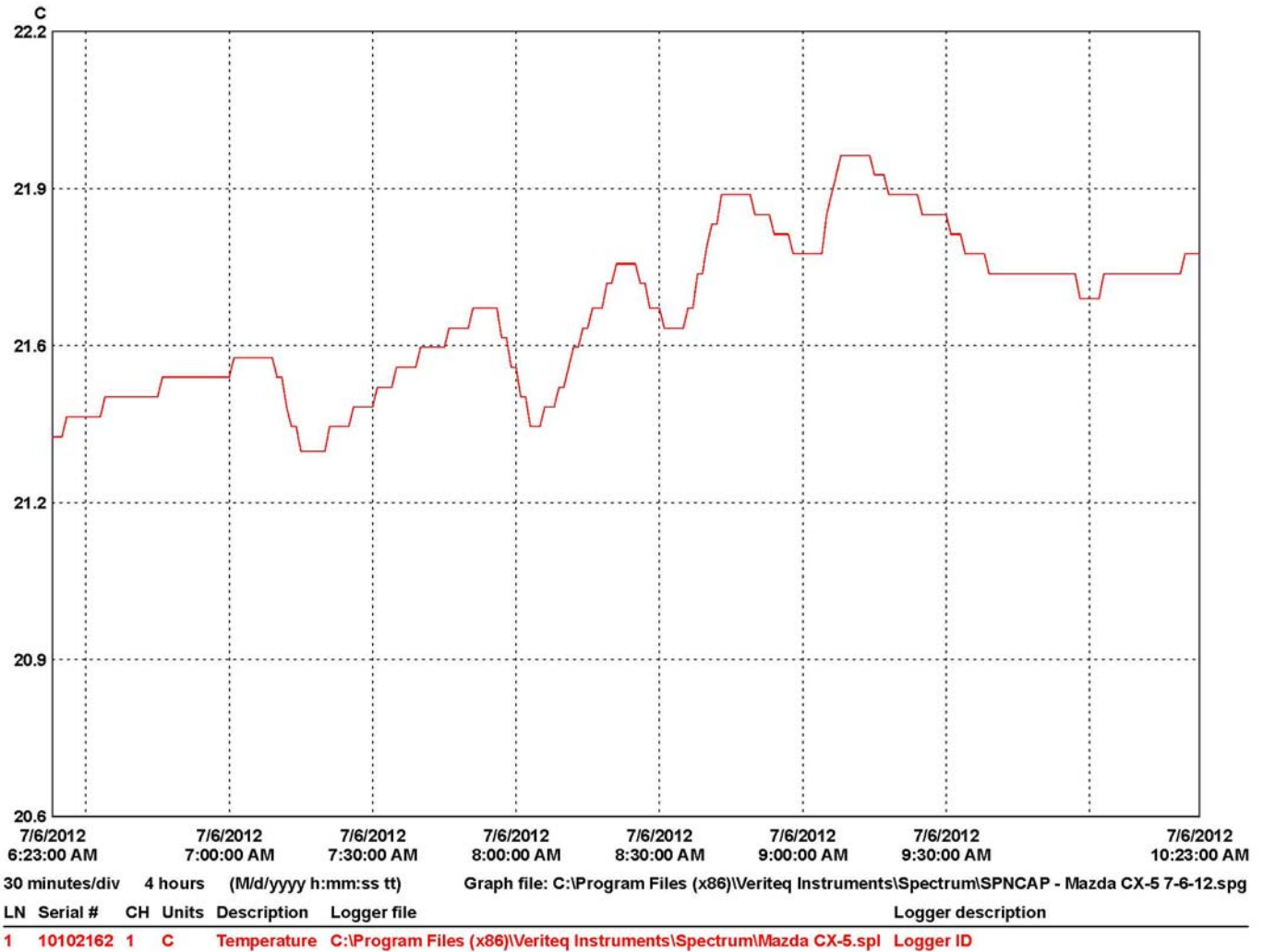
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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: 2013 Mazda CX-5 Sport Front Wheel Drive 5-Dr SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MD5402
 Test Date: 7/06/2012



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



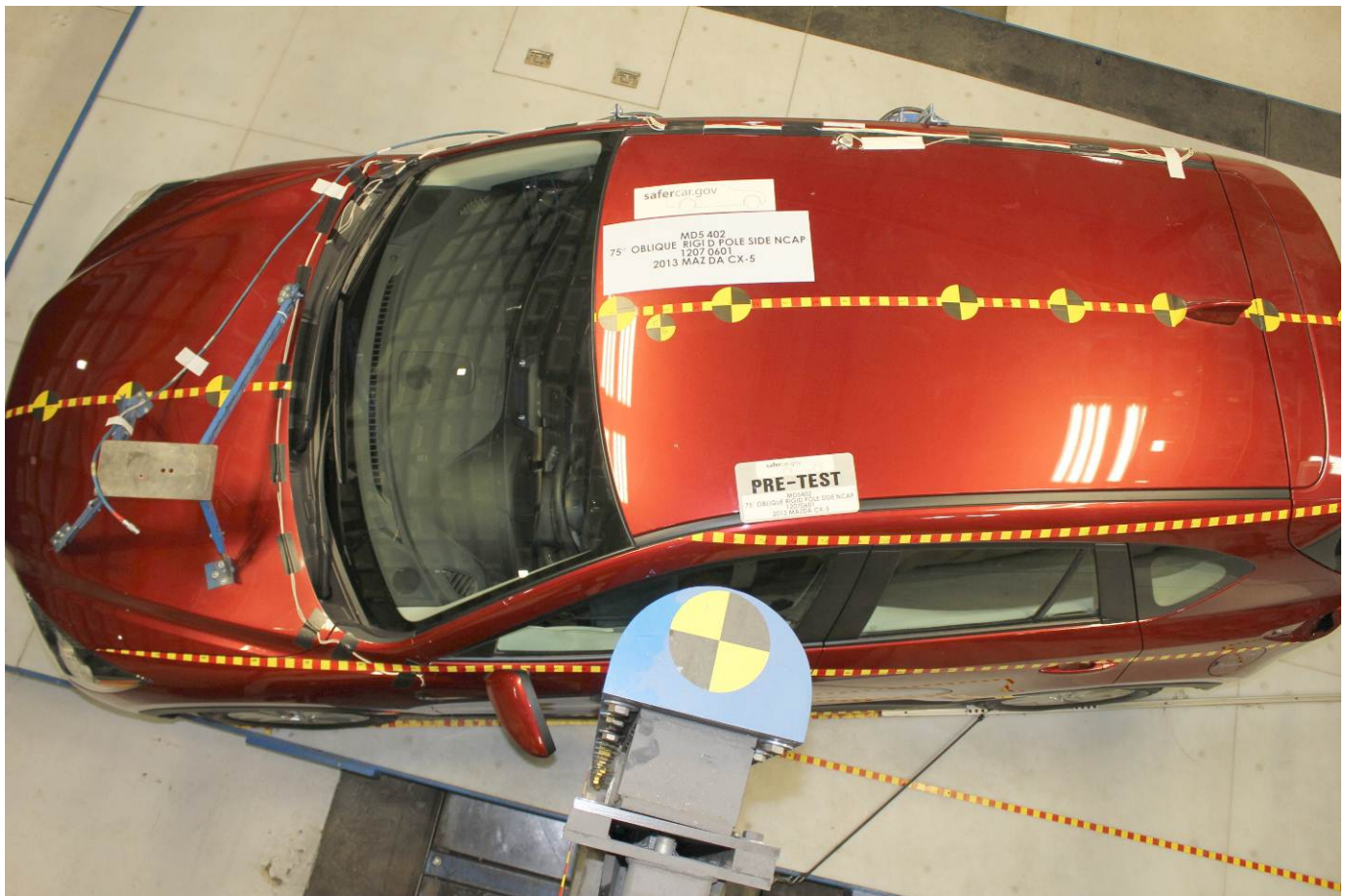
Post-Test Rear View of Test Vehicle



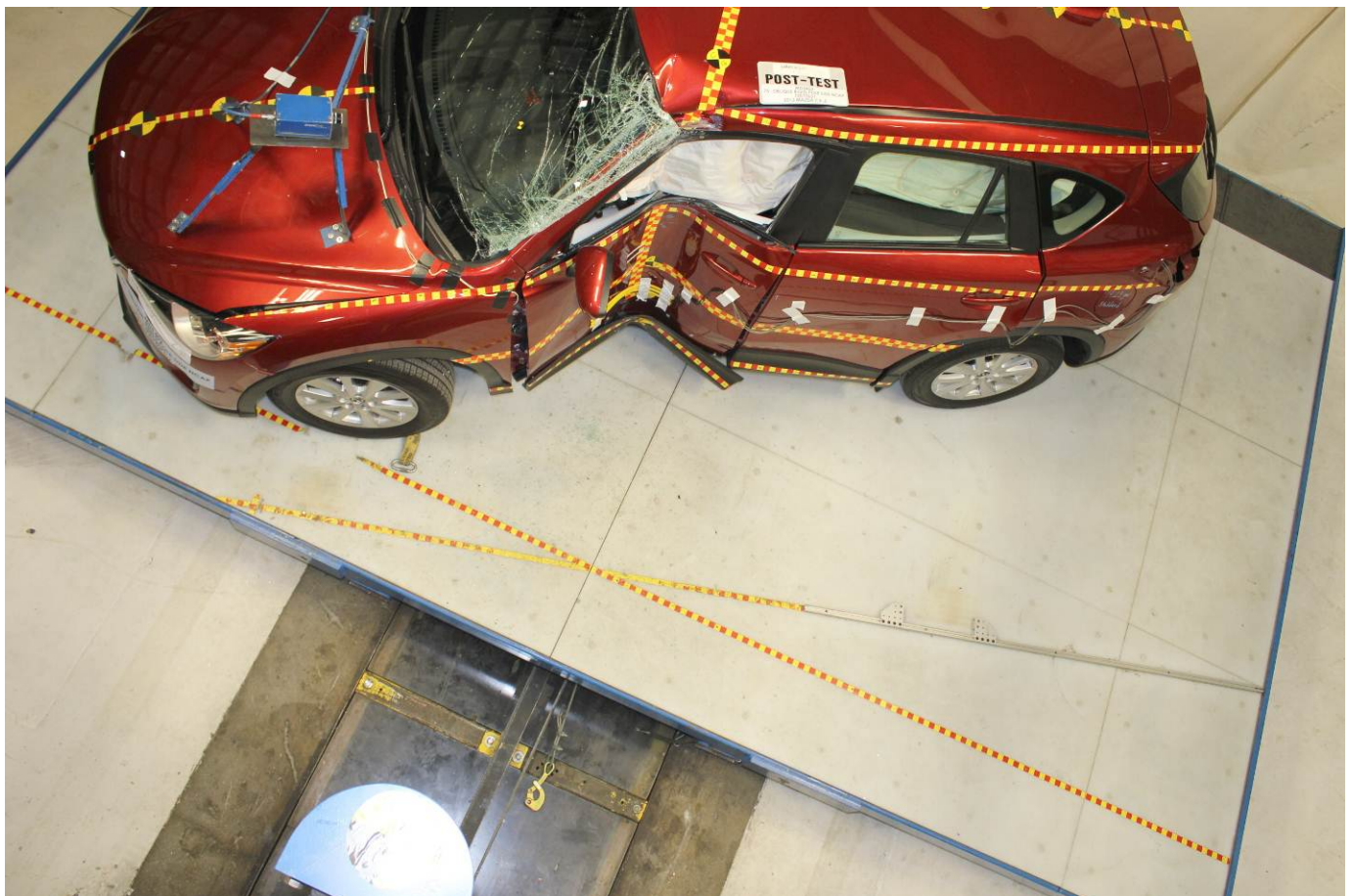
Pre-Test Right Side View of Test Vehicle



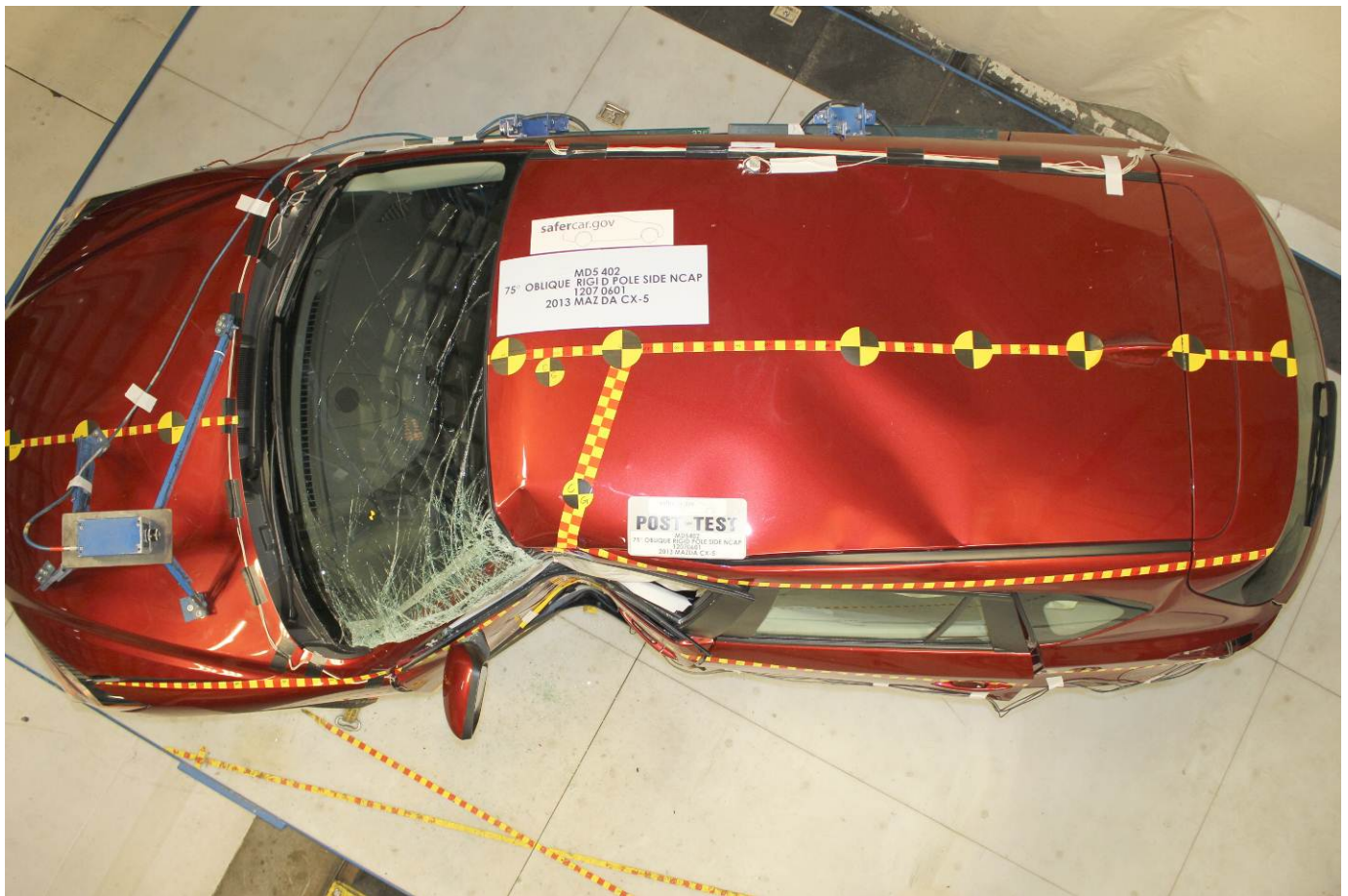
Post-Test Right Side View of Test Vehicle



Pre-Test Overhead View of Test Area



Post-Test Overhead View of Test Area



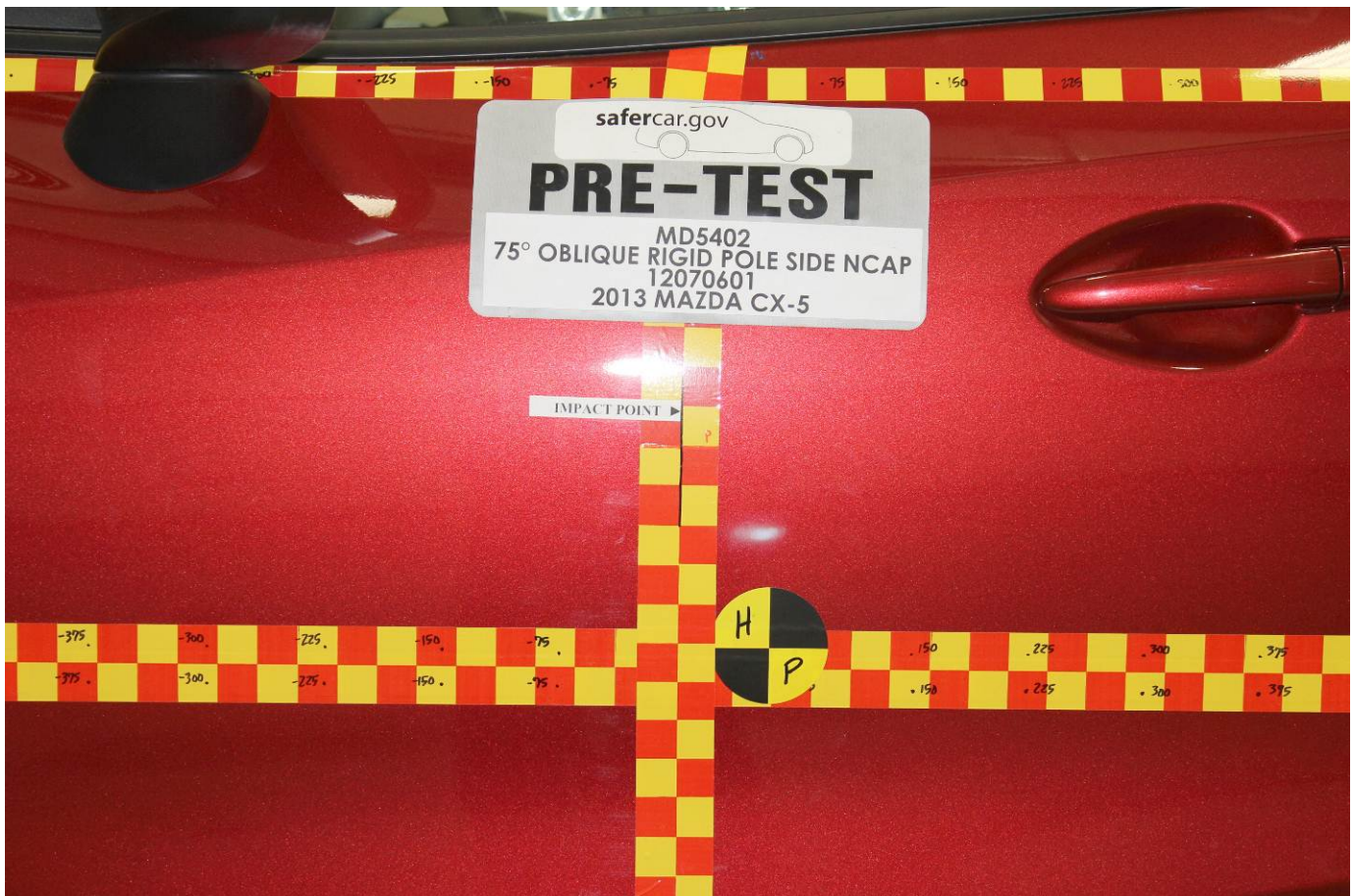
Post-Test Overhead View of Test Area



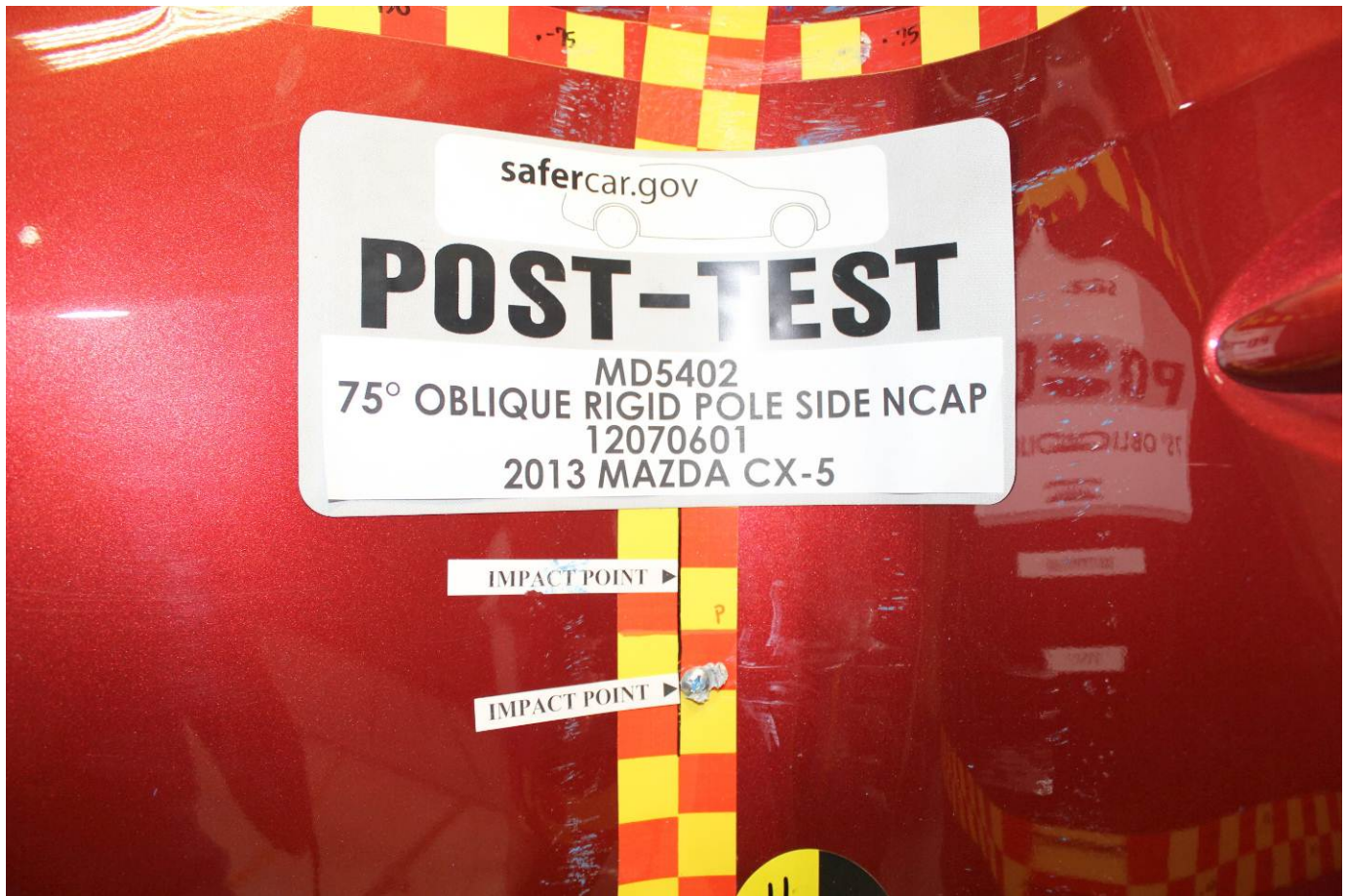
Pre-Test Left Side View of Pole Positioned Against Side of Vehicle



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 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



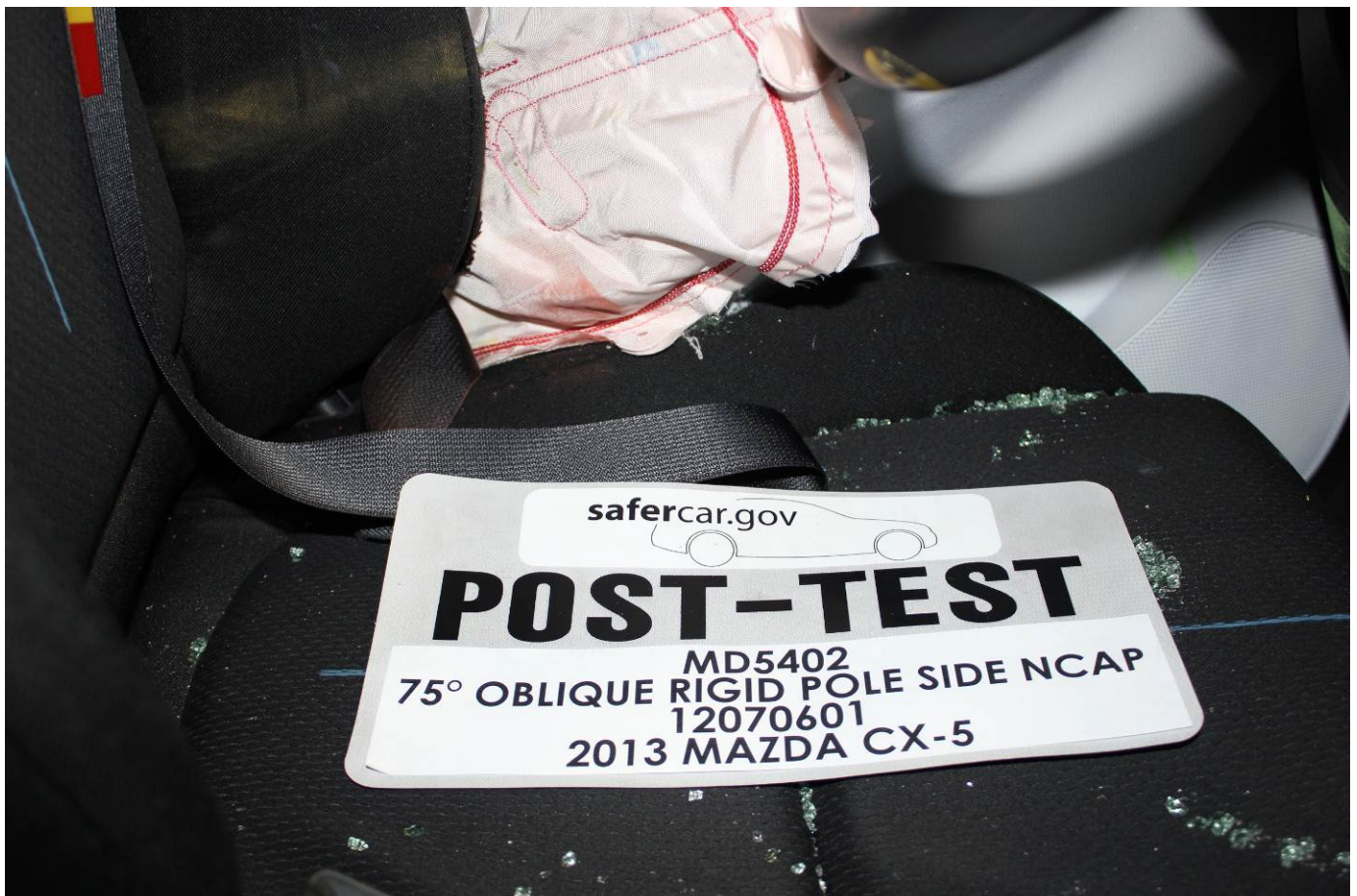
Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View



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



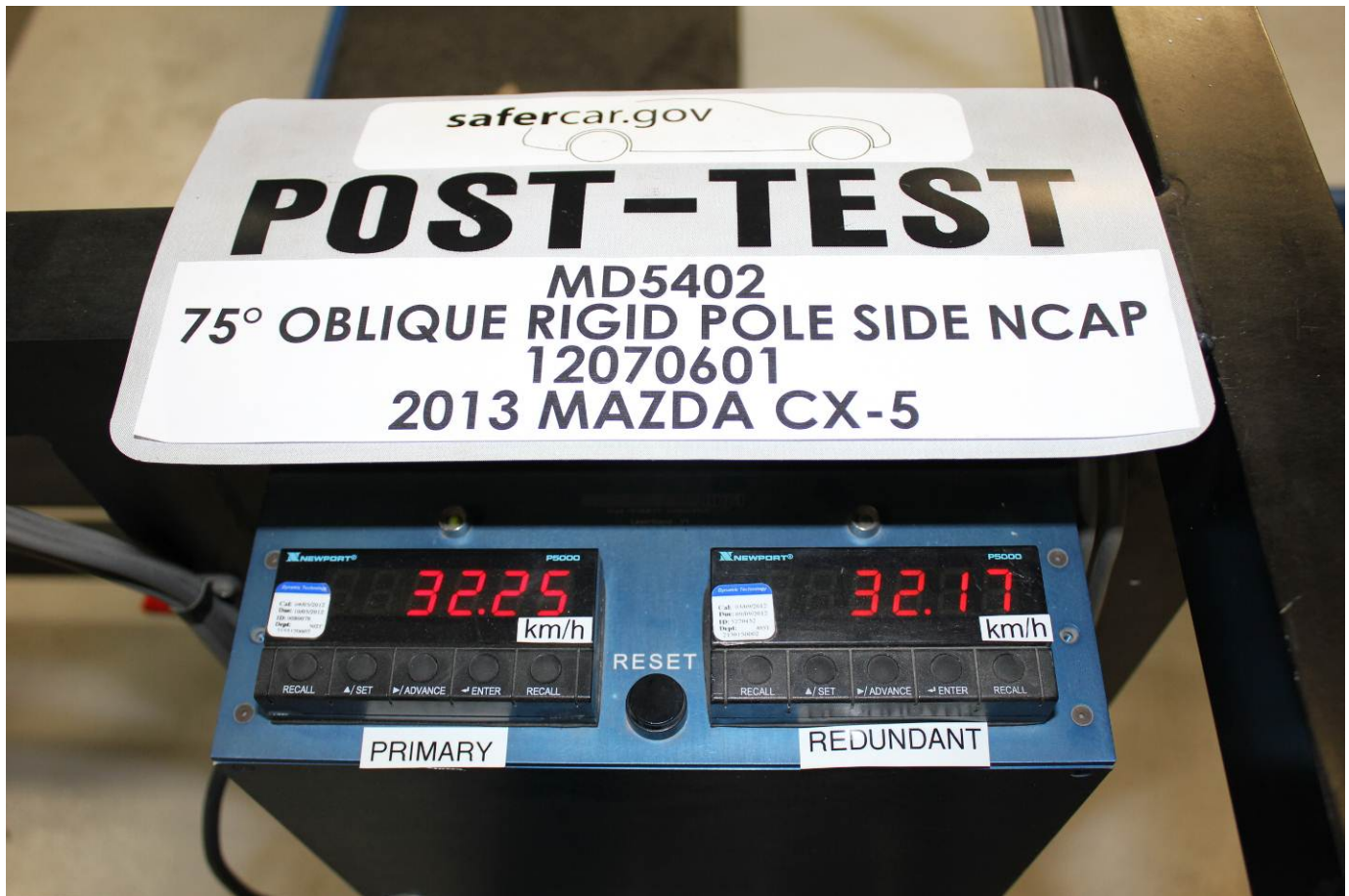
Pre-Test Pole Barrier Side View



Post-Test Pole Barrier Side View

PHOTOGRAPH NOT APPLICABLE

Pre-Test Ballast View



Post-Test Primary and Redundant Speed Trap Read-Out



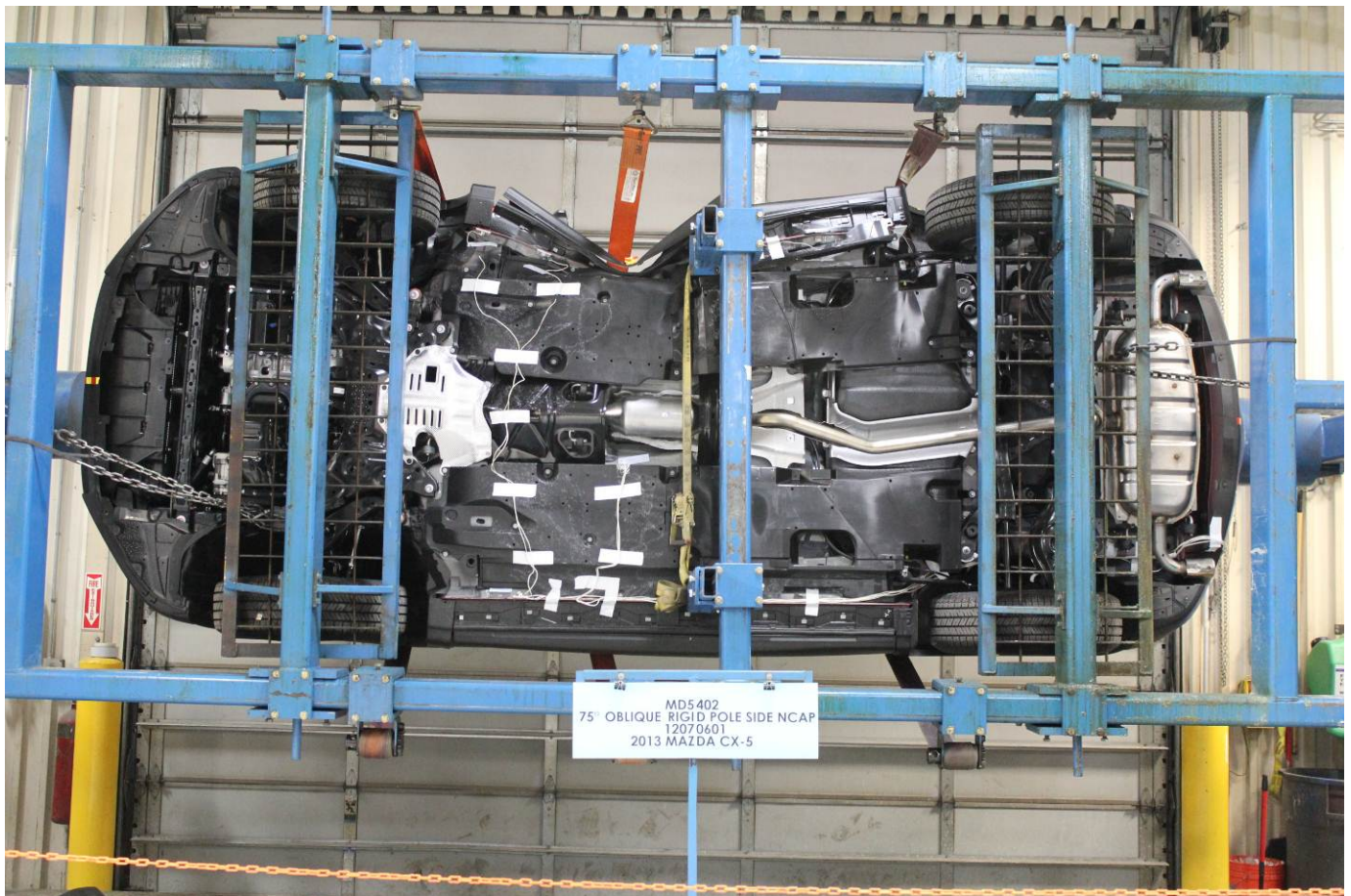
FMVSS No. 301 Static Rollover 0 Degrees



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



Scan for Vehicle Info and offers



2013 CX-5

Model: 2013 CX-5 SPORT FRONT WHEEL DRIVE
Exterior Color: ZEAL RED MC
Interior Color: BLACK

SKYACTIV[®]
TECHNOLOGY

EPA DOT Fuel Economy and Environment

Fuel Economy

29 MPG
combined city/hwy

26 city
32 highway

3.5 gallons per 100 miles

You save \$2,400
in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost \$1,850

Fuel Economy & Greenhouse Gas Rating (tailpipe only)

8 (Best)

Smog Rating (tailpipe only)

5 (Best)

GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score Not Rated

Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.

Frontal Crash	Driver Passenger	Not Rated
Side Crash	Front seat	Not Rated
	Rear seat	Not Rated
Rollover		Not Rated

Star ratings 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: 5%
MAJOR SOURCES OF FOREIGN PARTS CONTENT: JAPAN 90%

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

FOR THIS VEHICLE:
FINAL ASSEMBLY POINT: HIROSHIMA, JAPAN
COUNTRY OF ORIGIN: JAPAN
TRANSMISSION: JAPAN

STANDARD EQUIPMENT

ENGINE/MECHANICAL FEATURES

- SKYACTIV-G 2.0L ENGINE
- SKYACTIV-DRIVE 6-SPEED SPORT A/T
- 155 HORSEPOWER; 150 LB-FT TORQUE
- FRONT-WHEEL DRIVE

EXTERIOR FEATURES

- 17-INCH ALLOY WHEELS
- P225/65 R17 ALL-SEASON TIRES
- VARIABLE INTERMITTENT WIPERS
- FIXED-INTERMITTENT REAR WIPER
- POWER MIRRORS WITH TURN LAMPS

INTERIOR FEATURES

- 5-PASSENGER SEATING
- TILT & TELESCOPIC STEERING COLUMN
- STEERING WHEEL W/ AUDIO/CRUISE CONTROLS
- POWER AUTOMATIC DOOR LOCKS
- POWER WINDOWS WITH DRIVER ONE-TOUCH
- CLOTH TRIMMED SPORT SEATS
- CARPETED FLOOR MATS

SAFETY AND SECURITY FEATURES

- 36-MONTH/105,000 MILE "BUMPER-TO-BUMPER" WARRANTY
- 60 MONTH/105,000 MILE POWERTRAIN WARRANTY
- 24-HOUR ROADSIDE ASSISTANCE
- ANTI-LOCK BRAKE SYSTEM (ABS) WITH EBD & BRAKE ASSIST
- 5-PASSENGER 3-POINT SAFETY BELTS
- LATCH CHILD SAFETY SEAT ANCHORS

OPTIONAL EQUIPMENT

- 4-WHEEL DISC BRAKES
- ELECTRIC POWER ASSISTED STEERING
- INDEPENDENT FRONT/REAR SUSPENSION
- FRONT & REAR STABILIZER BARS
- HALOGEN HEADLIGHTS
- DAYTIME RUNNING LIGHTS
- STAINLESS STEEL EXHAUST OUTLETS
- REAR ROOF SPOILER
- ROOF MOUNTED SHARK FIN ANTENNA
- REMOTE KEYLESS ENTRY
- AIR CONDITIONING W/ POLLEN FILTER
- DUAL VANITY MIRRORS
- 60/40 SPLIT FOLD-DOWN REAR SEAT
- AM/FM/CD/MP3 4-SPEAKER AUDIO
- AUXILIARY INPUT JACK & USB PORT
- CENTER ARMREST WITH COVERED STORAGE
- 6-WAY MANUAL DRIVER'S SEAT
- DYNAMIC STABILITY CONTROL (DSC)
- TRACTION CONTROL SYSTEM (TCS)
- HILL LAUNCH ASSIST
- ADVANCED DUAL FRONT AND FRONT SIDE-IMPACT AIR BAGS
- FRONT & REAR SIDE AIR CURTAINS
- SKYACTIV BODY - RING STRUCTURE
- TIRE PRESSURE MONITORING SYSTEM
- ANTI-THEFT ENGINE IMMOBILIZER

MSRP \$22,095

OPTIONAL EQUIPMENT

- REMOTE ENGINE START \$225
- BLUETOOTH AUDIO PACKAGE \$400
- BLUETOOTH
- BLUETOOTH STR WHEEL SWITCH
- COLOR MONITOR
- HD RADIO (UPGRADED SYSTEM)

Total Vehicle and Options \$23,020
Delivery, Processing and Handling Fee \$795
Total MSRP \$23,815

SOLD TO: 60249
BROWN MAZDA
5625 WEST CENTRAL AVENUE
TOLEDO, OH 43615

SHIP TO: 60249 LP
BROWN MAZDA
5625 WEST CENTRAL AVENUE
TOLEDO, OH 43615

JM3KE2BE8D0120222



CX5-SP-2A-KF6NAE-7A-TA-29120221

MAZDAUSA.COM

Monroney Label

Head Restraints

Your vehicle is equipped with head restraints on all outboard seats and the rear center seat. The head restraints are intended to help protect you and the passengers from neck injury.

⚠ WARNING

Always drive with the head restraints installed when seats are being used and make sure they are properly adjusted.

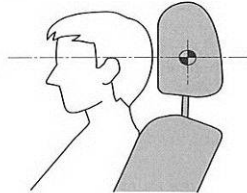
Driving with the head restraints adjusted too low or removed is dangerous. With no support behind your head, your neck could be seriously injured in a collision.

Height adjustment

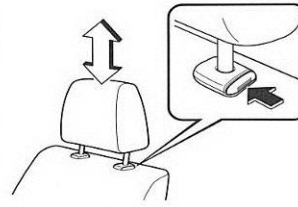
To raise a head restraint, pull it up to the desired position.

To lower the head restraint, press the stop-catch release, then push the head restraint down.

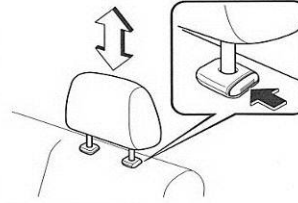
Adjust the head restraint so that the center is even with the top of the passenger's ears.



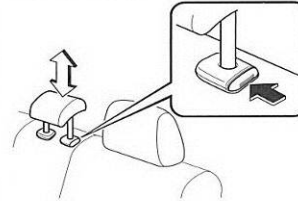
Front outboard seat



Rear outboard seat



Rear center seat



2-11

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

Removal/Installation

To remove the head restraint, pull it up while pressing the stop-catch.

To install the head restraint, insert the uprights into the holes while pressing the stop-catch.

⚠ WARNING

Always drive with the head restraints installed when seats are being used and make sure they are properly installed.

Driving with the head restraints not installed is dangerous. With no support behind your head, your neck could be seriously injured in a collision.

2-12

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)

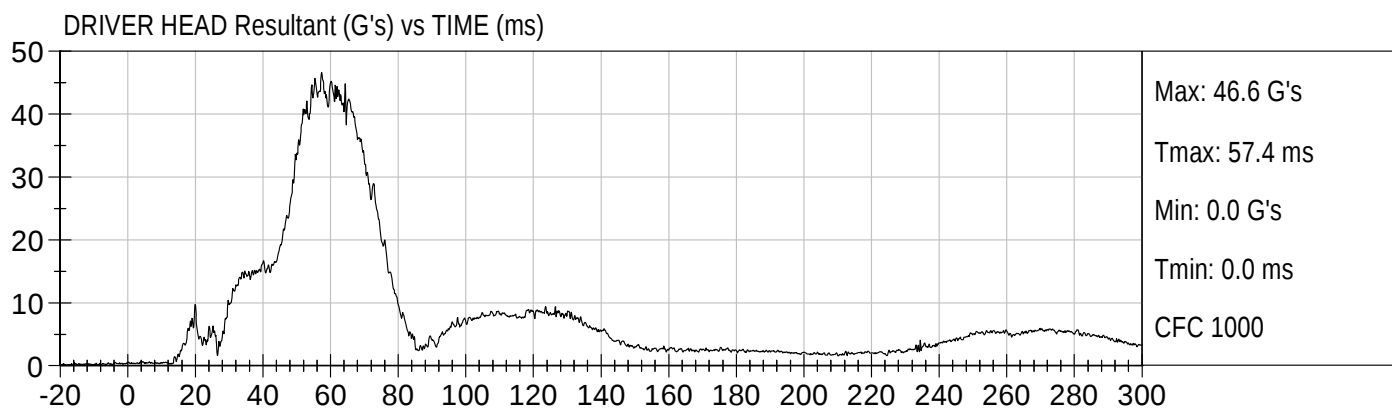
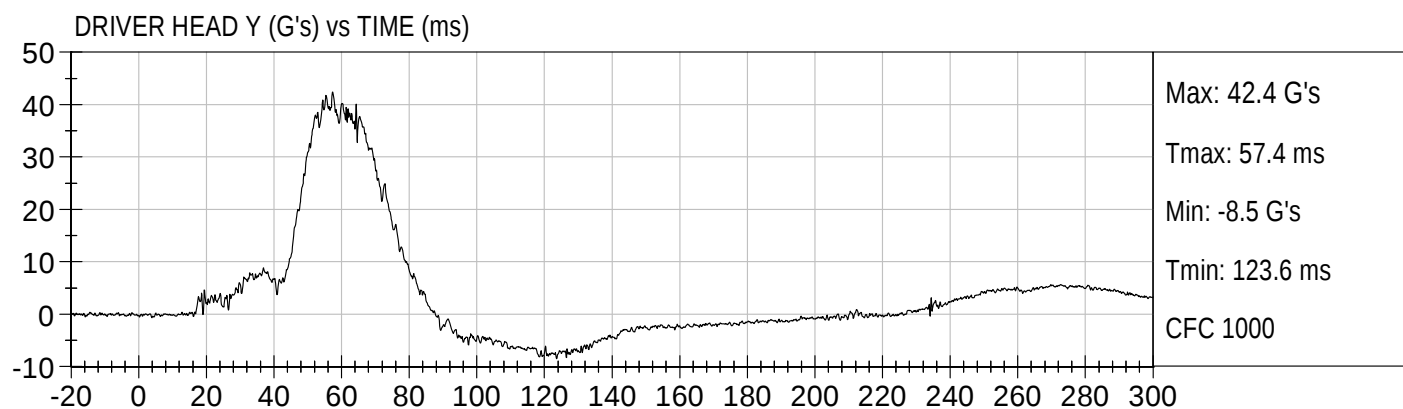
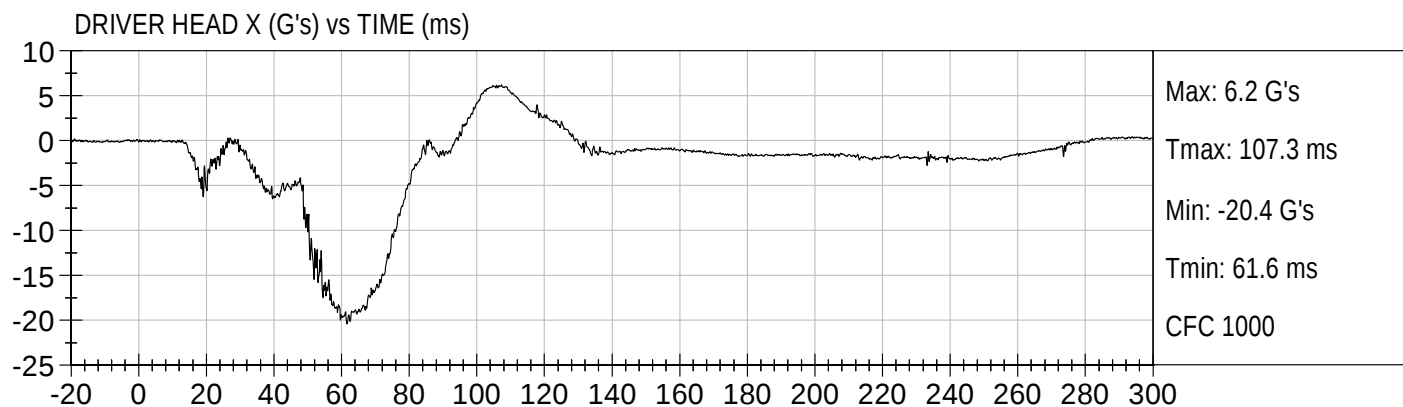
Load Cell Pole Barrier #4 Force (Y)

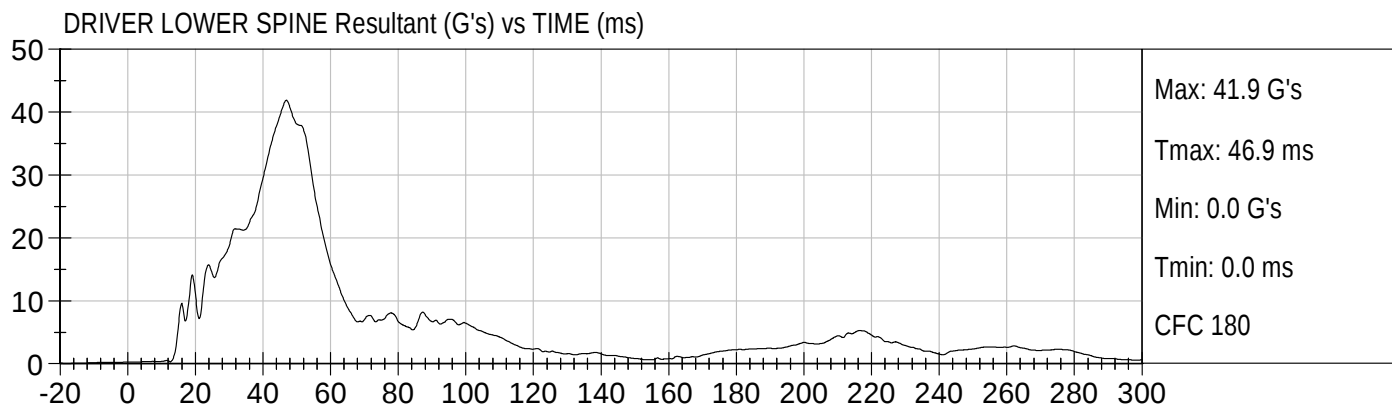
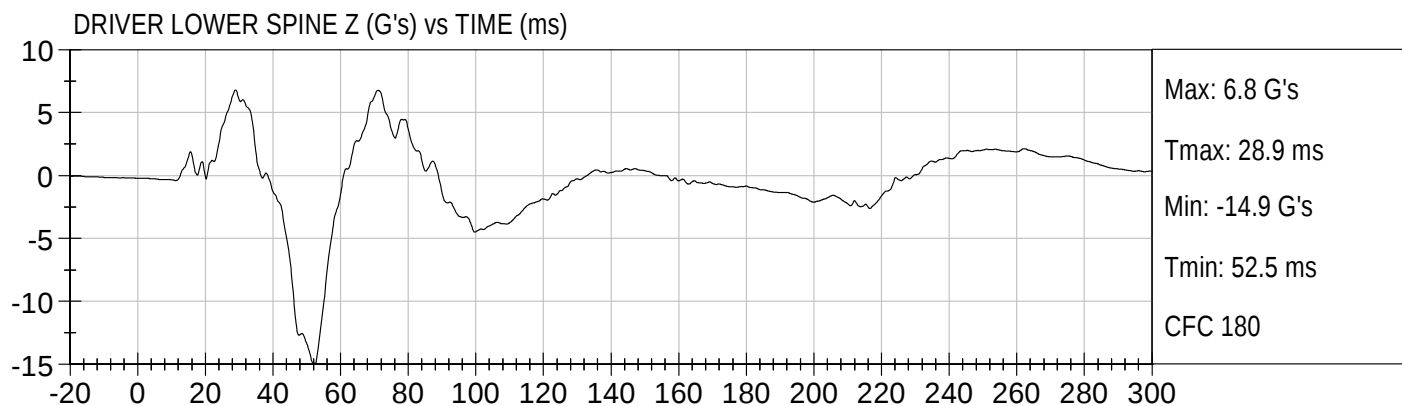
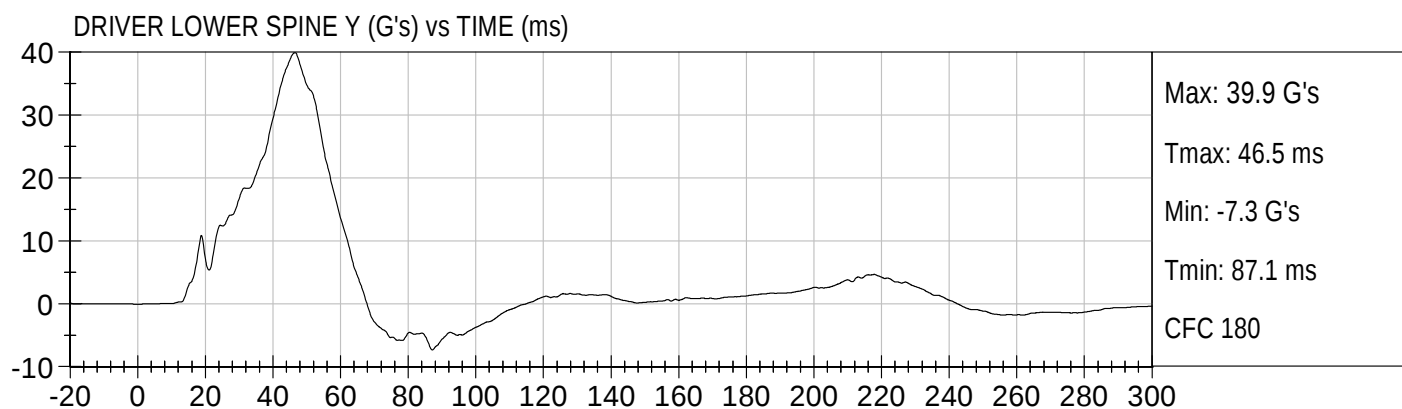
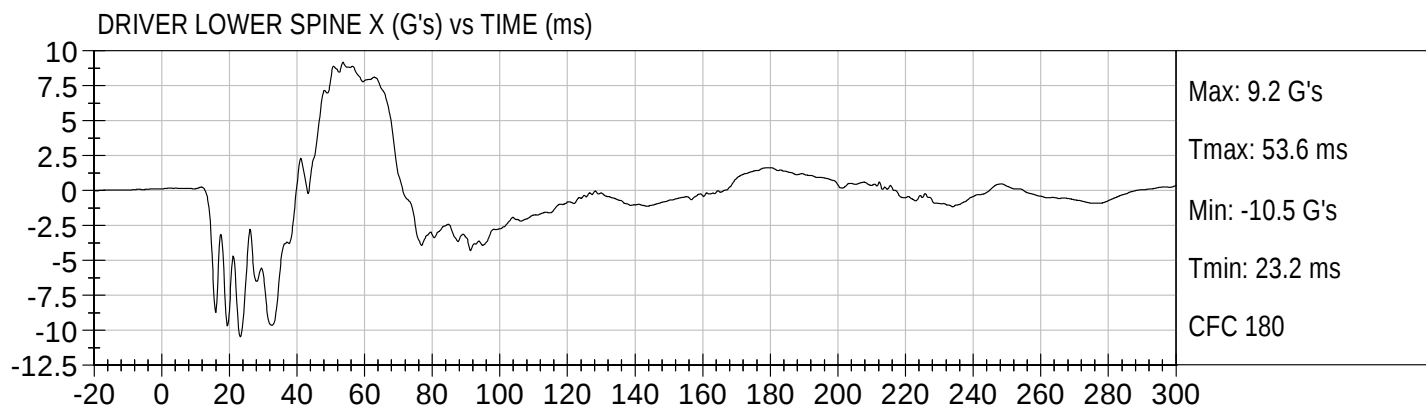
Load Cell Pole Barrier #5 Force (Y)

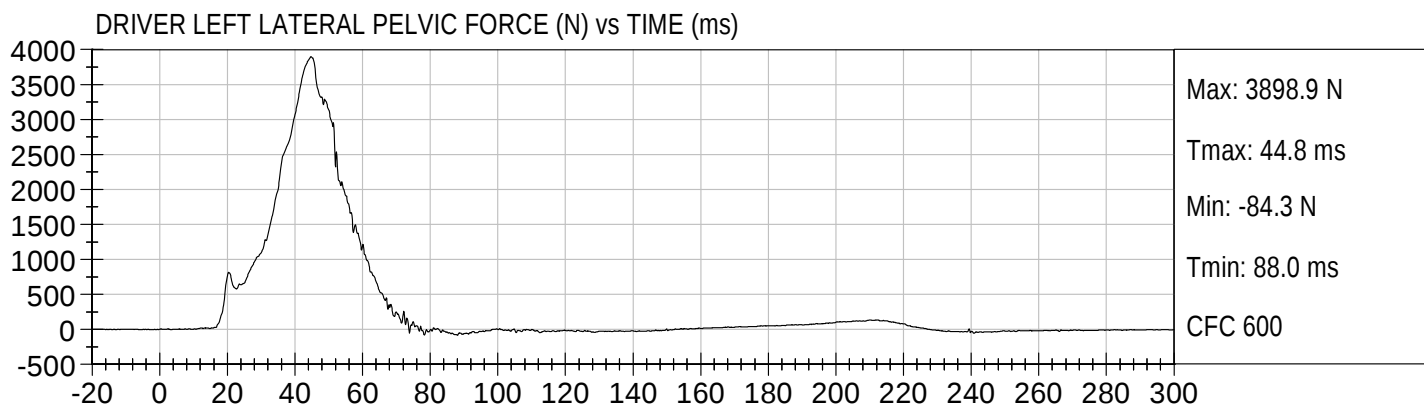
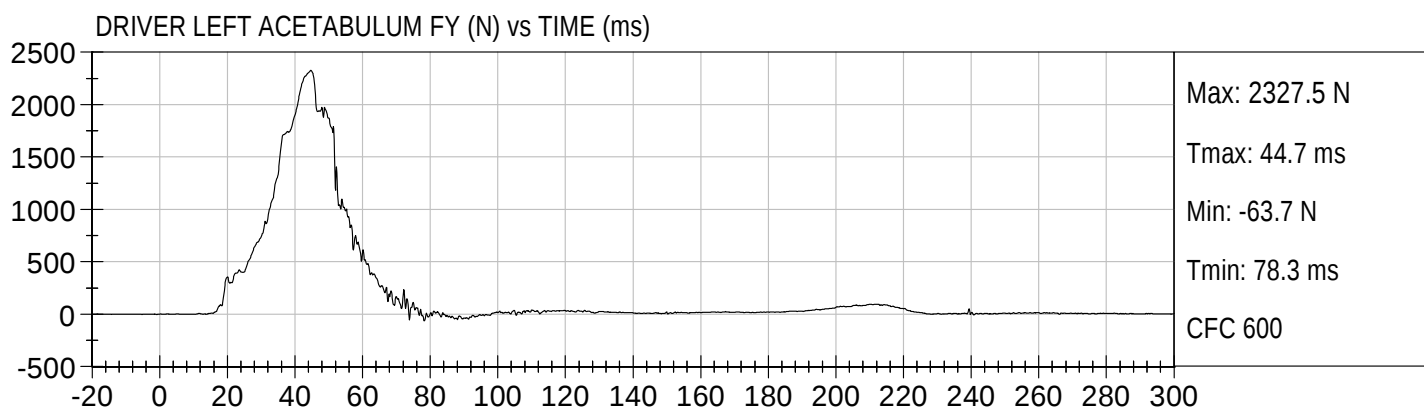
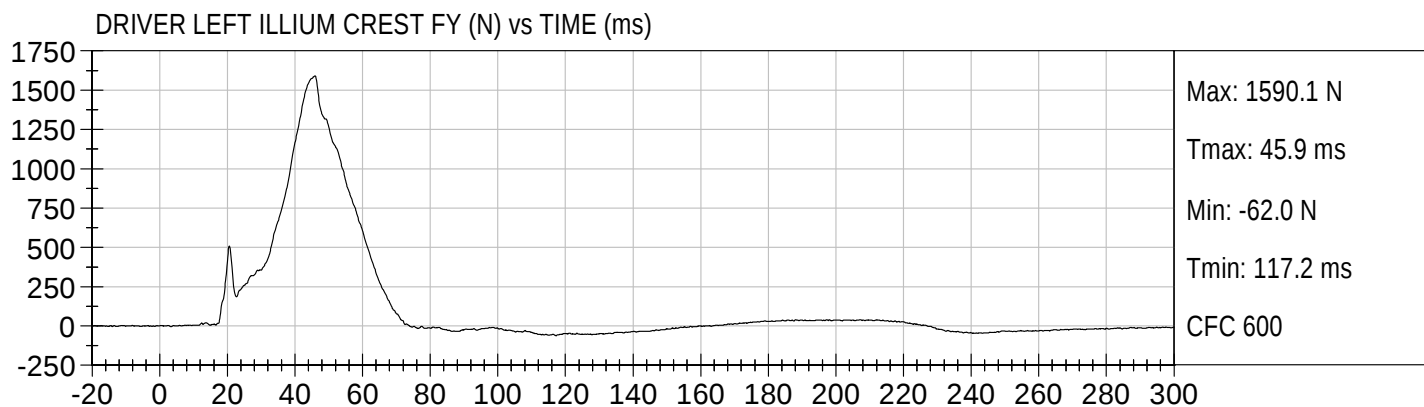
Load Cell Pole Barrier #6 Force (Y)

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-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test ID: D122301

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	50	Pass
Peak Resultant Acceleration	G's	115 to 137	122	Pass
Peak Longitudinal Acceleration	G's	+/- 15	2.5	Pass
Unimodal	N/A	<15%	Yes	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

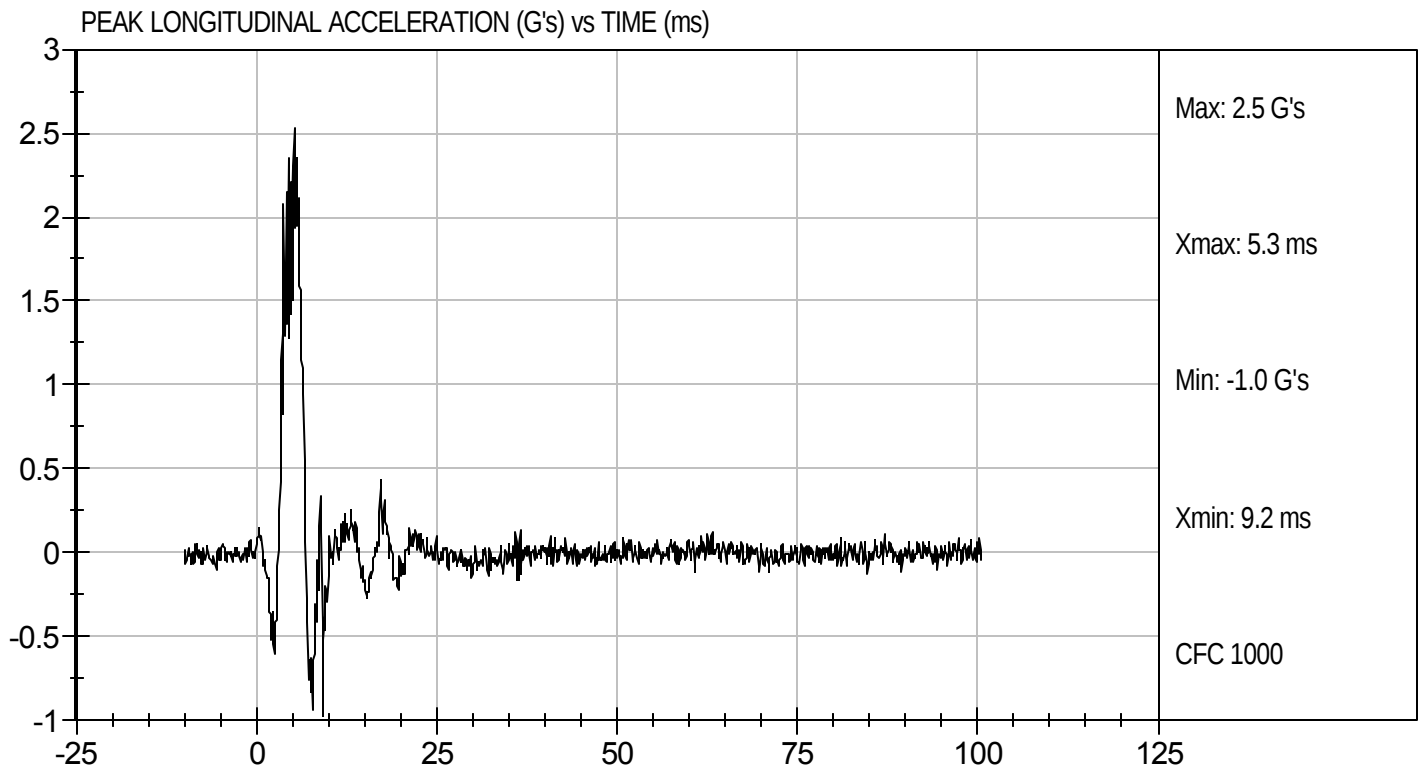
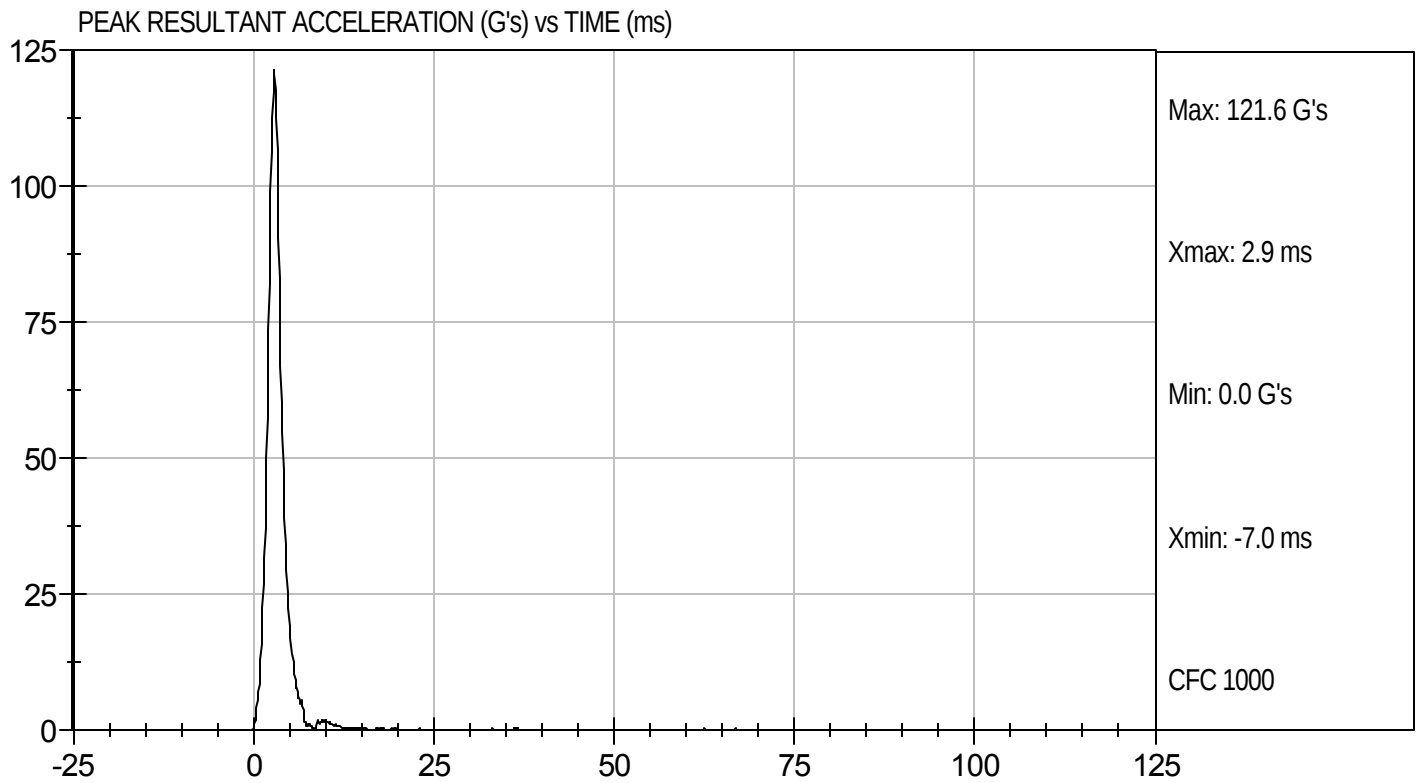
6/20/12
Test Date

David Winkelbauer
Approved By



Test Desc: Head Drop
Component ID: D122301

Test Date: 6/20/12
Velocity: 0 ft/s, 0 m/s

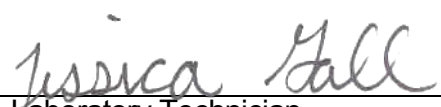


MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D122302

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.1	Pass
Humidity		%	10 to 70	50	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Delta Velocity	10 ms	m/s	2.20 to 2.80	2.78	Pass
	15 ms	m/s	3.30 to 4.10	3.94	Pass
	20 ms	m/s	4.40 to 5.40	5.26	Pass
	25 ms	m/s	5.40 to 6.10	5.57	Pass
	25-100 ms	m/s	5.50 to 6.20	5.59	Pass
Maximum D-Plane Rotation		deg	71 to 81	74	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	59	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	114	Pass
Overall Test Results				Pass	


 Laboratory Technician

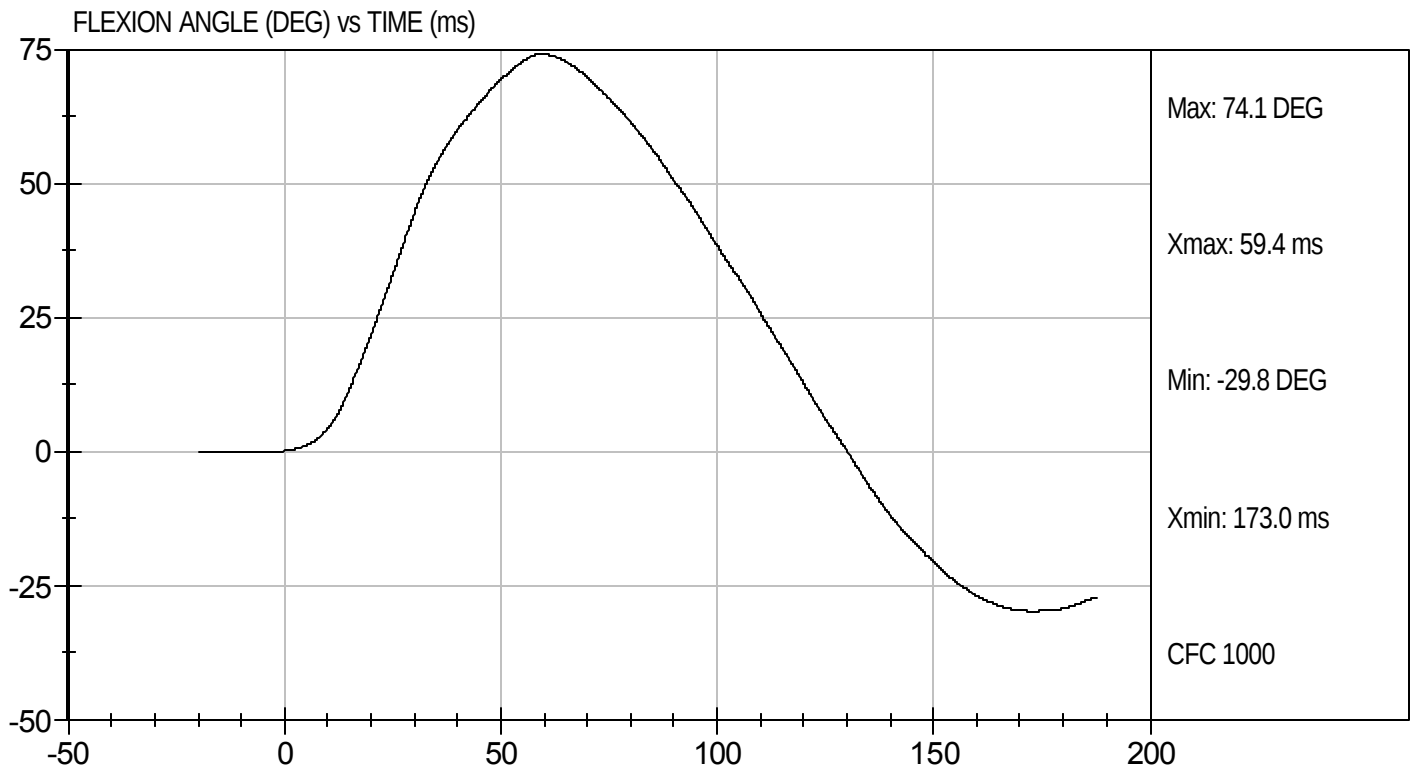
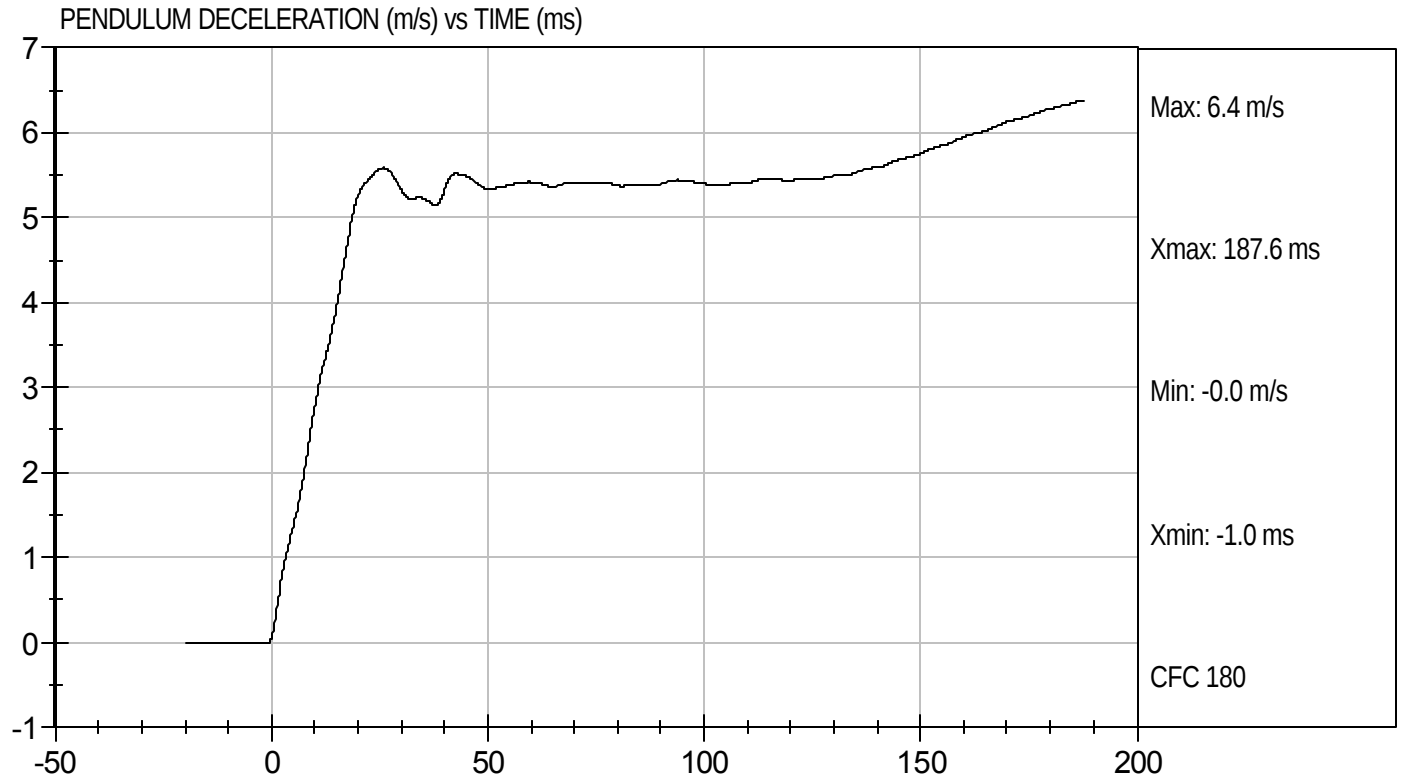
6/20/12
 Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D122302

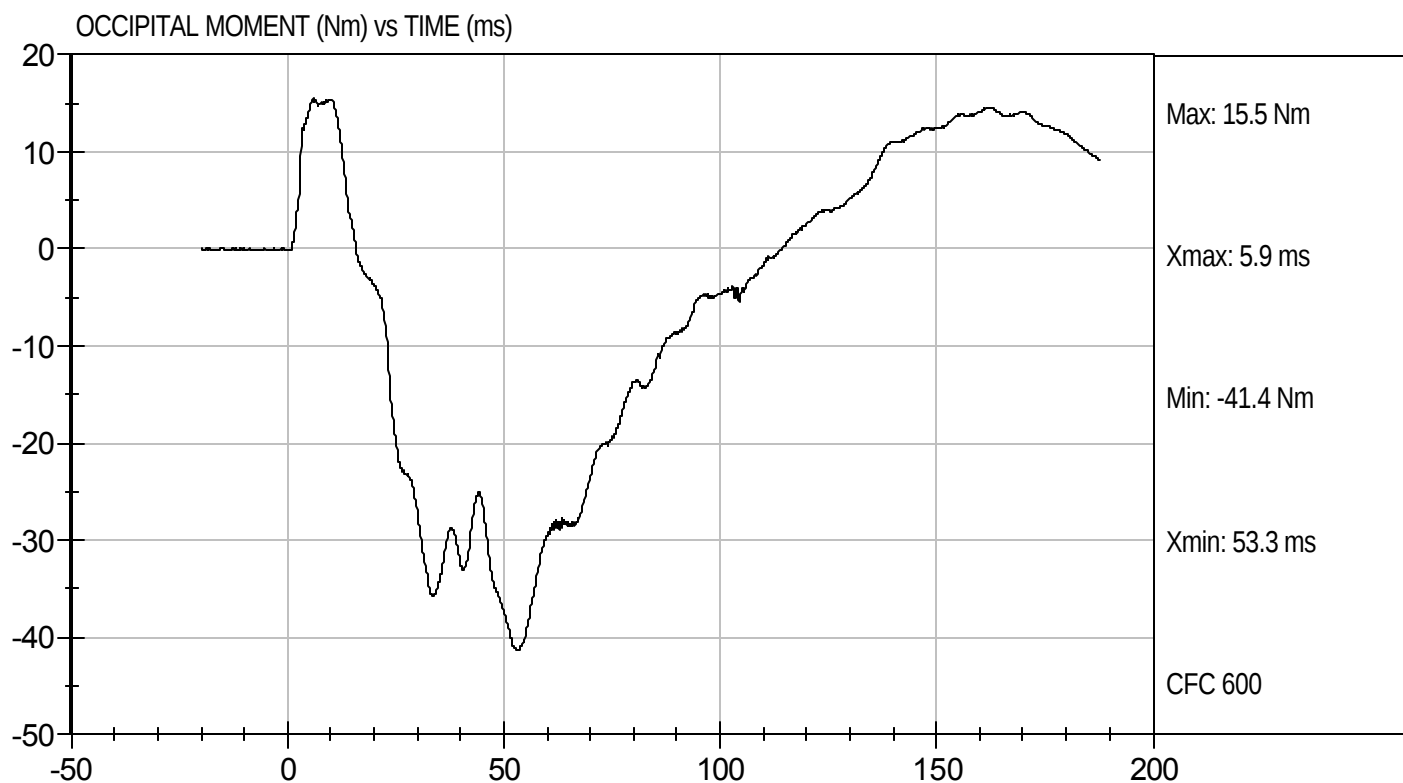
Test Date: 6/20/12
Velocity: 18.31 ft/s, 5.58 m/s





Test Desc: Neck Bending
Component ID: D122302

Test Date: 6/20/12
Velocity: 18.31 ft/s, 5.58 m/s



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

ATD Serial No: 306

Test ID: D122303

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	55	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	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	19	Pass
Overall Test Results				Pass

Jessica Gall
Laboratory Technician

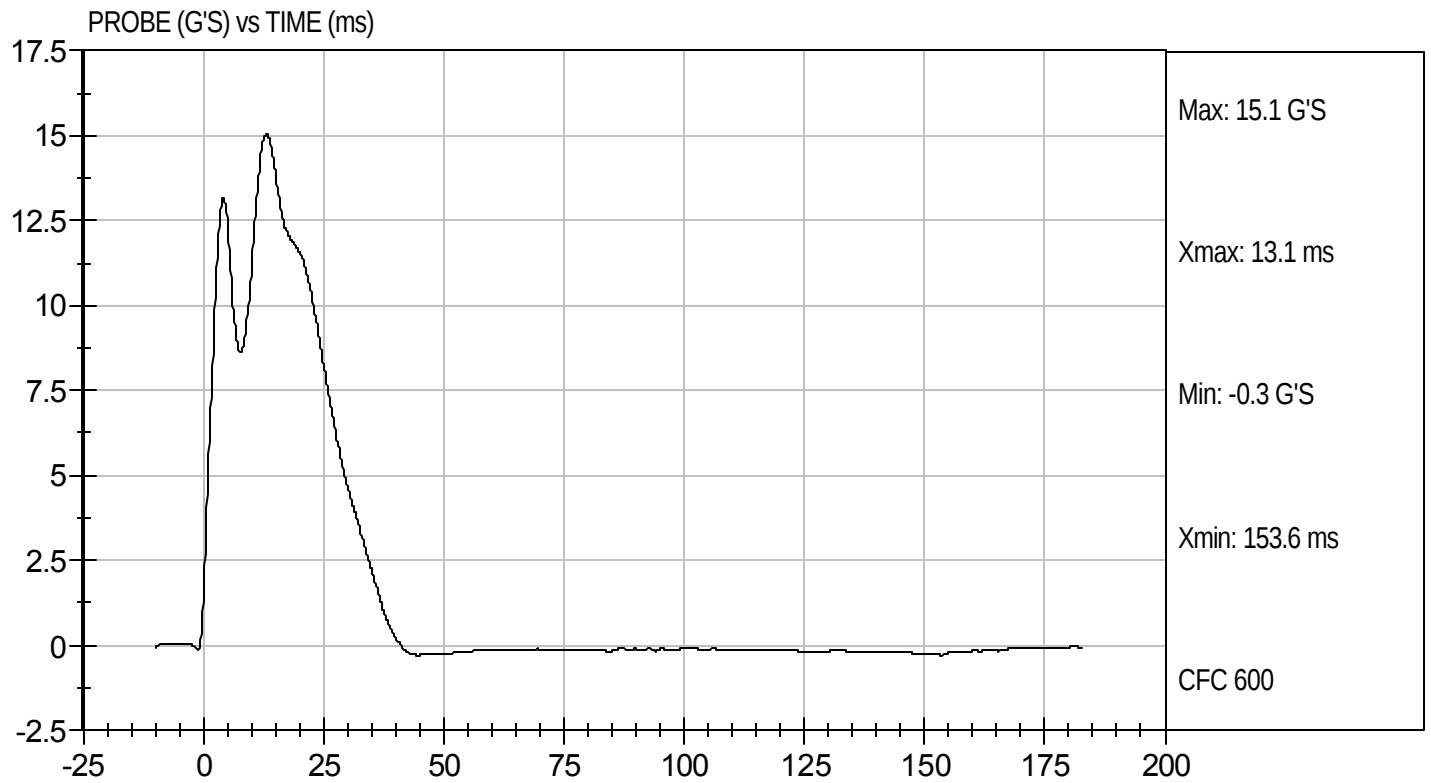
6/20/12
Test Date

David Winkelbauer
Approved By



Test Desc: Shoulder Impact
Component ID: D122303

Test Date: 6/20/12
Velocity: 14.12 ft/s, 4.30 m/s

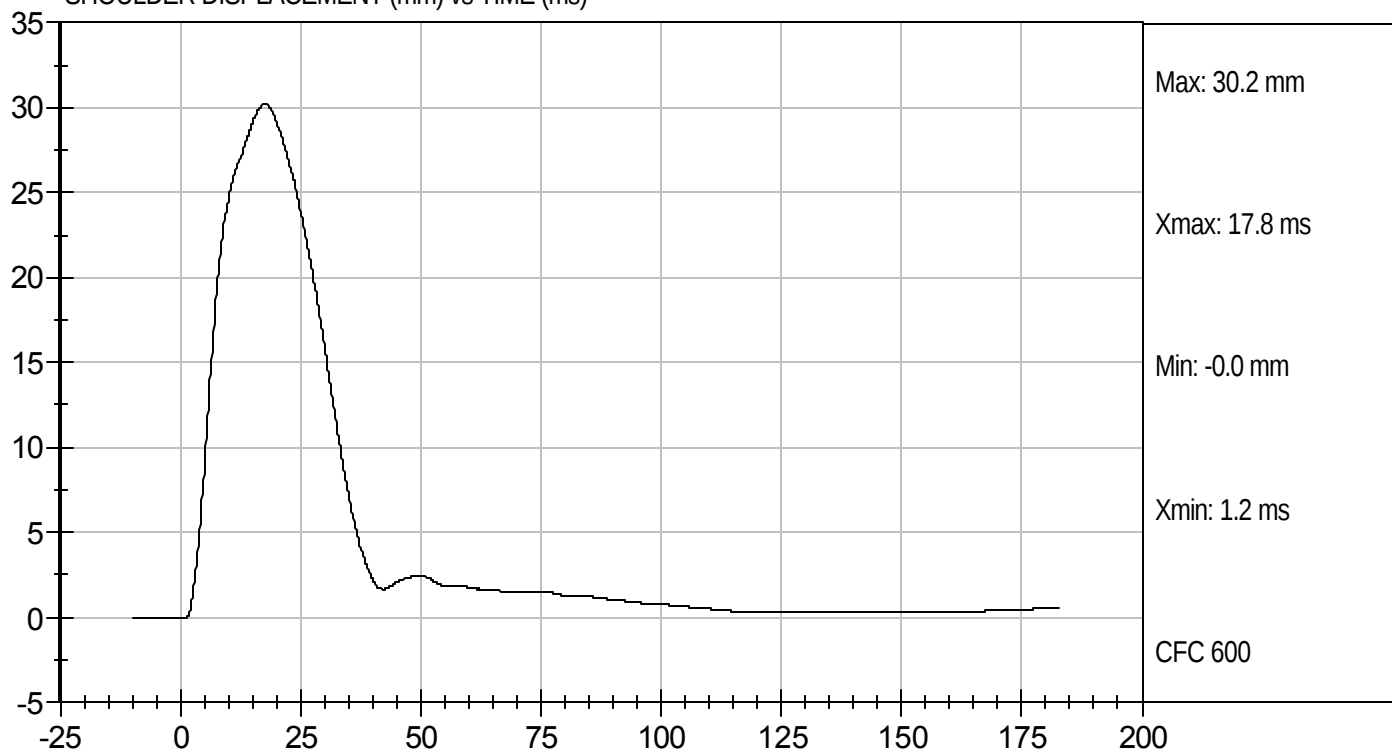




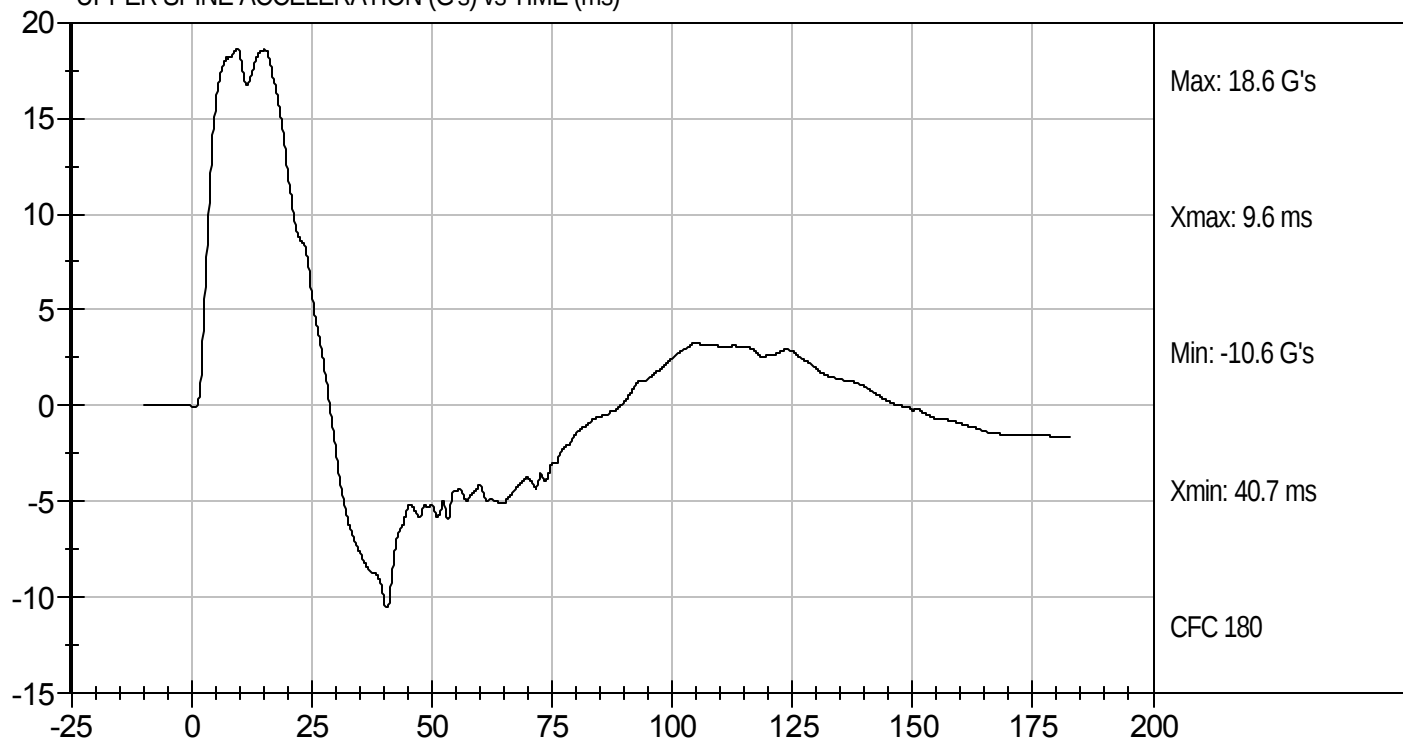
Test Desc: Shoulder Impact
Component ID: D122303

Test Date: 6/20/12
Velocity: 14.12 ft/s, 4.30 m/s

SHOULDER DISPLACEMENT (mm) vs TIME (ms)



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

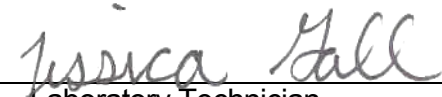


MGA RESEARCH CORPORATION
THORAX (WITH ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D122304

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	56	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	32	Pass
Upper Rib Displacement	mm	25 to 32	27	Pass
Middle Rib Displacement	mm	30 to 36	32	Pass
Lower Rib Displacement	mm	32 to 38	35	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	40	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	30	Pass
Overall Test Results			Pass	


Laboratory Technician

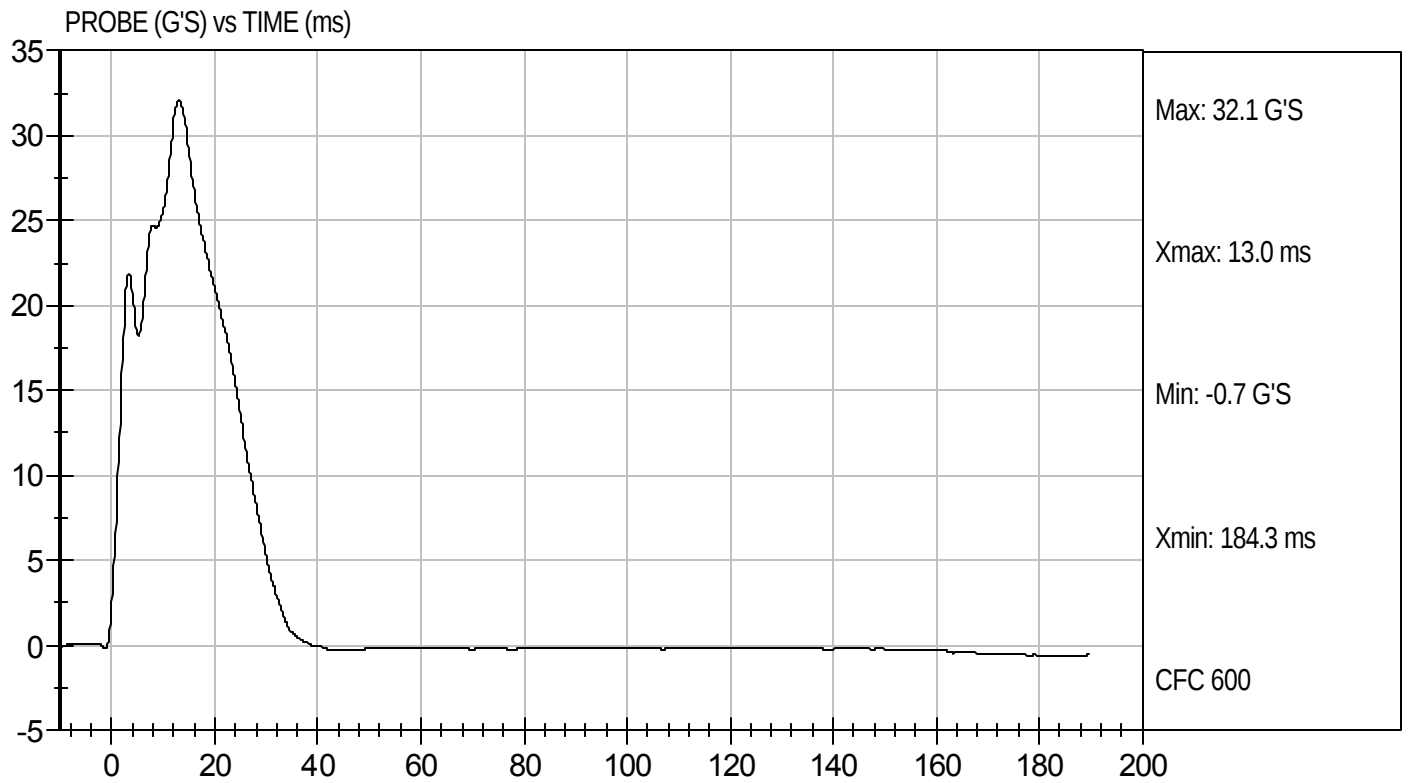
6/20/12
Test Date


Approved By



Test Desc: Thorax With Arm
Component ID: D122304

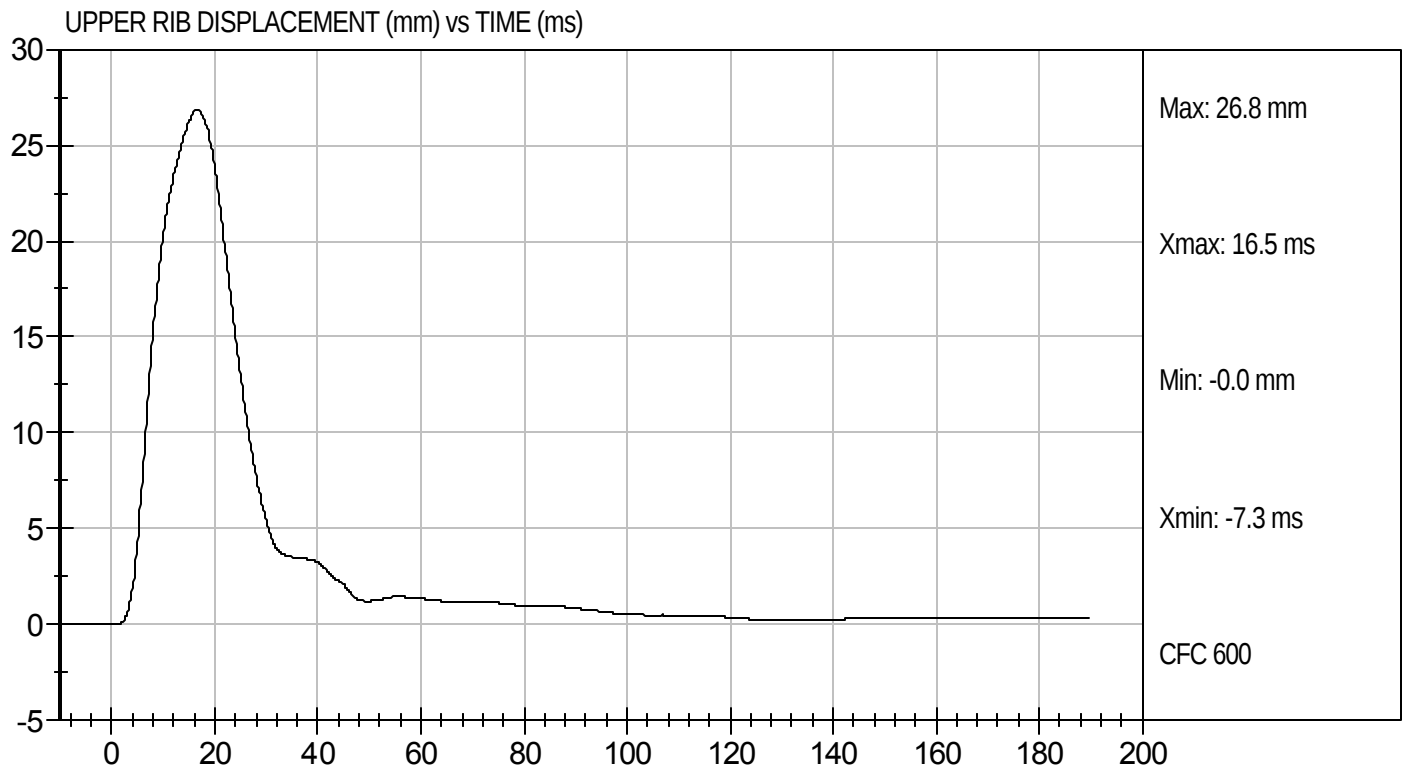
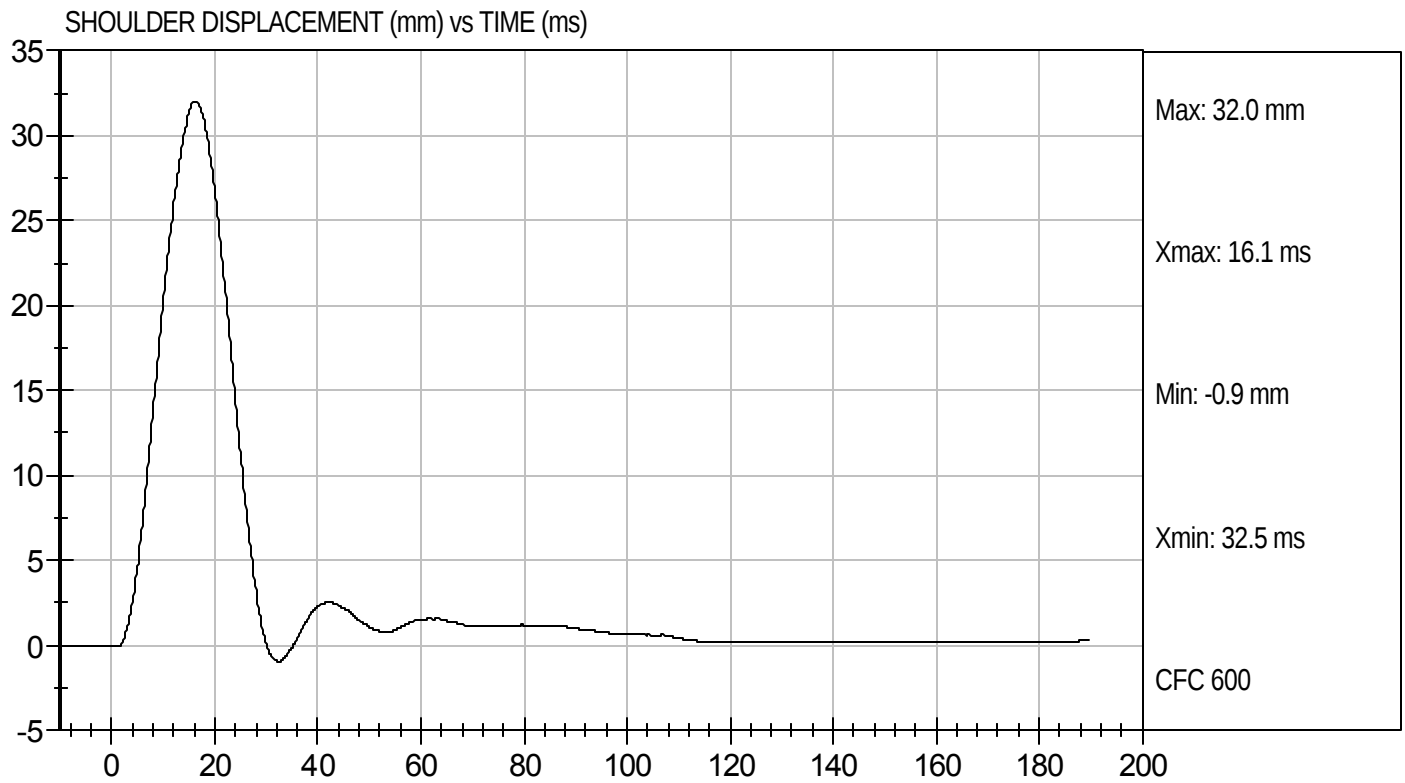
Test Date: 6/20/12
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D122304

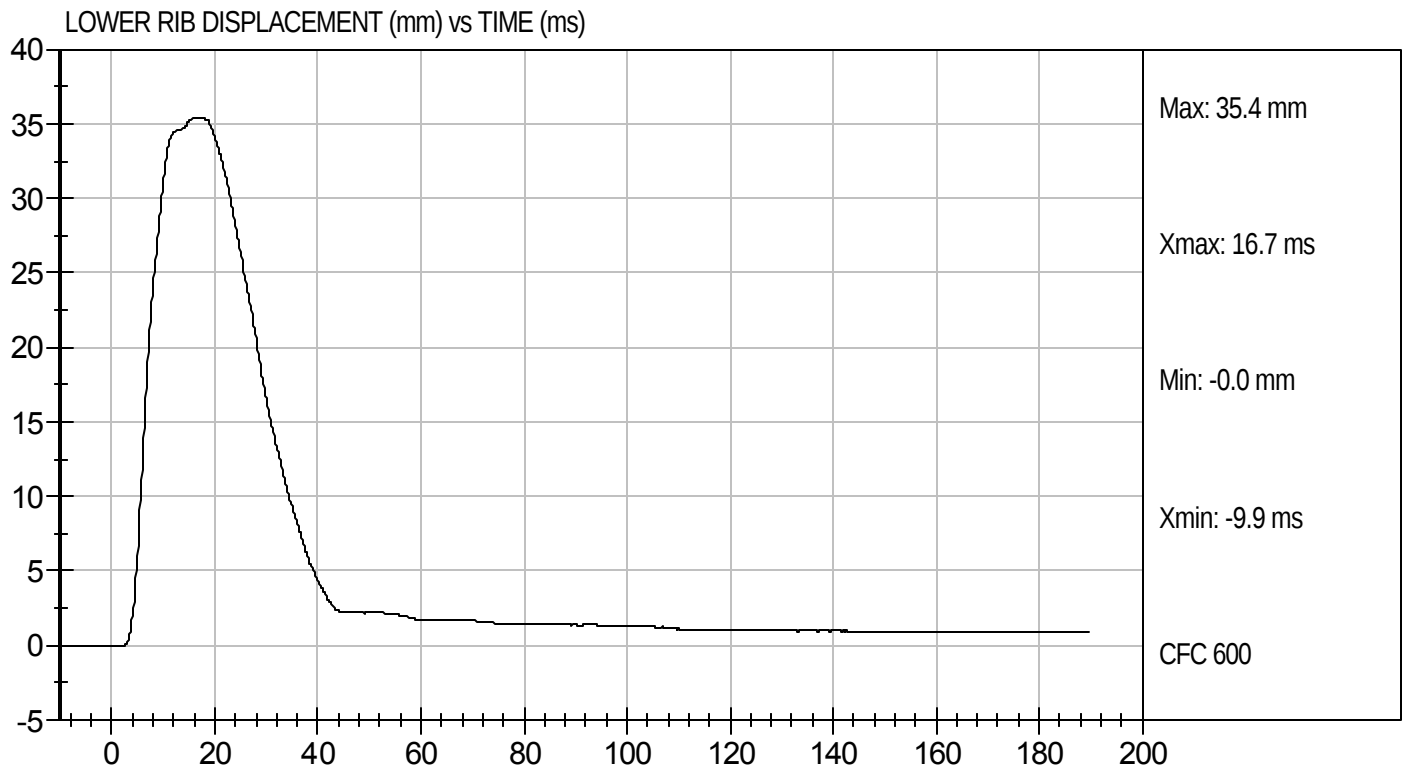
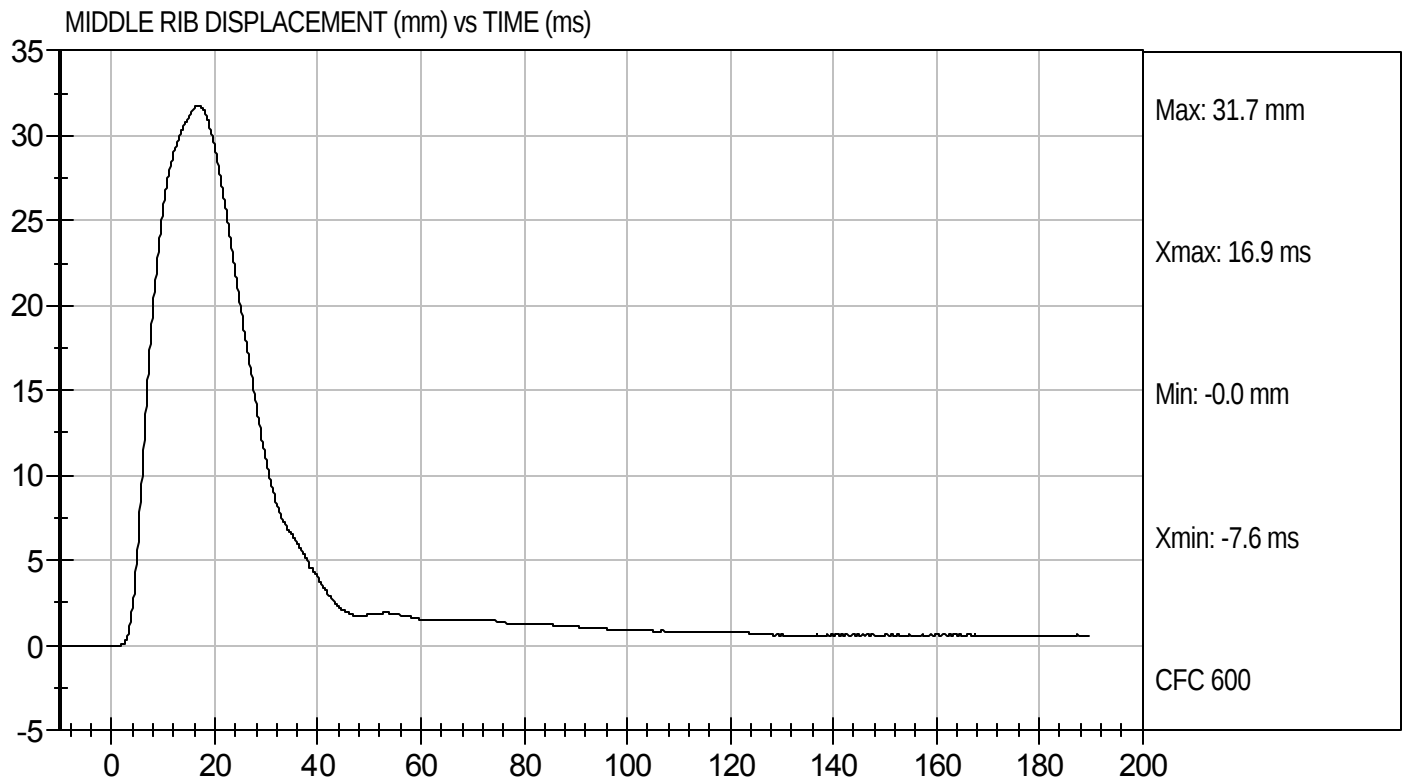
Test Date: 6/20/12
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D122304

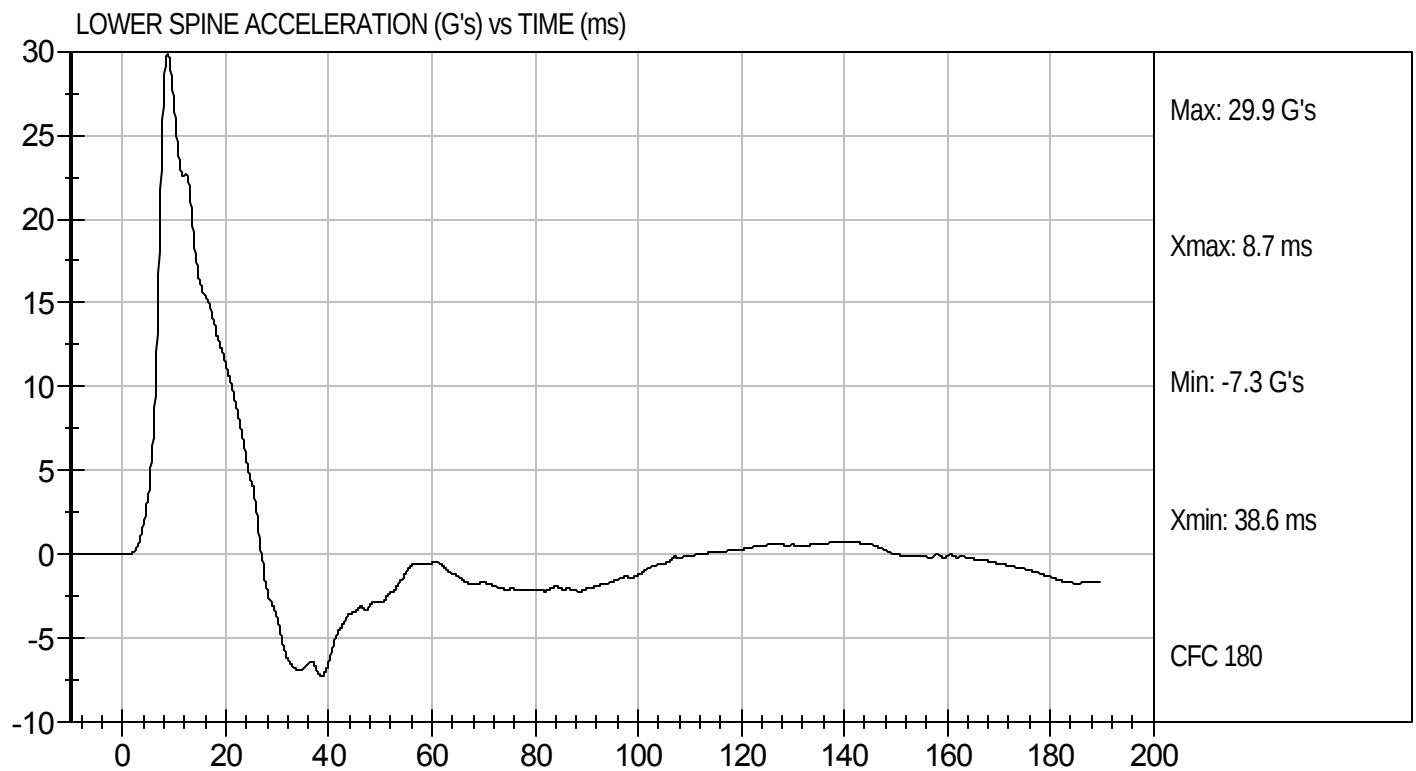
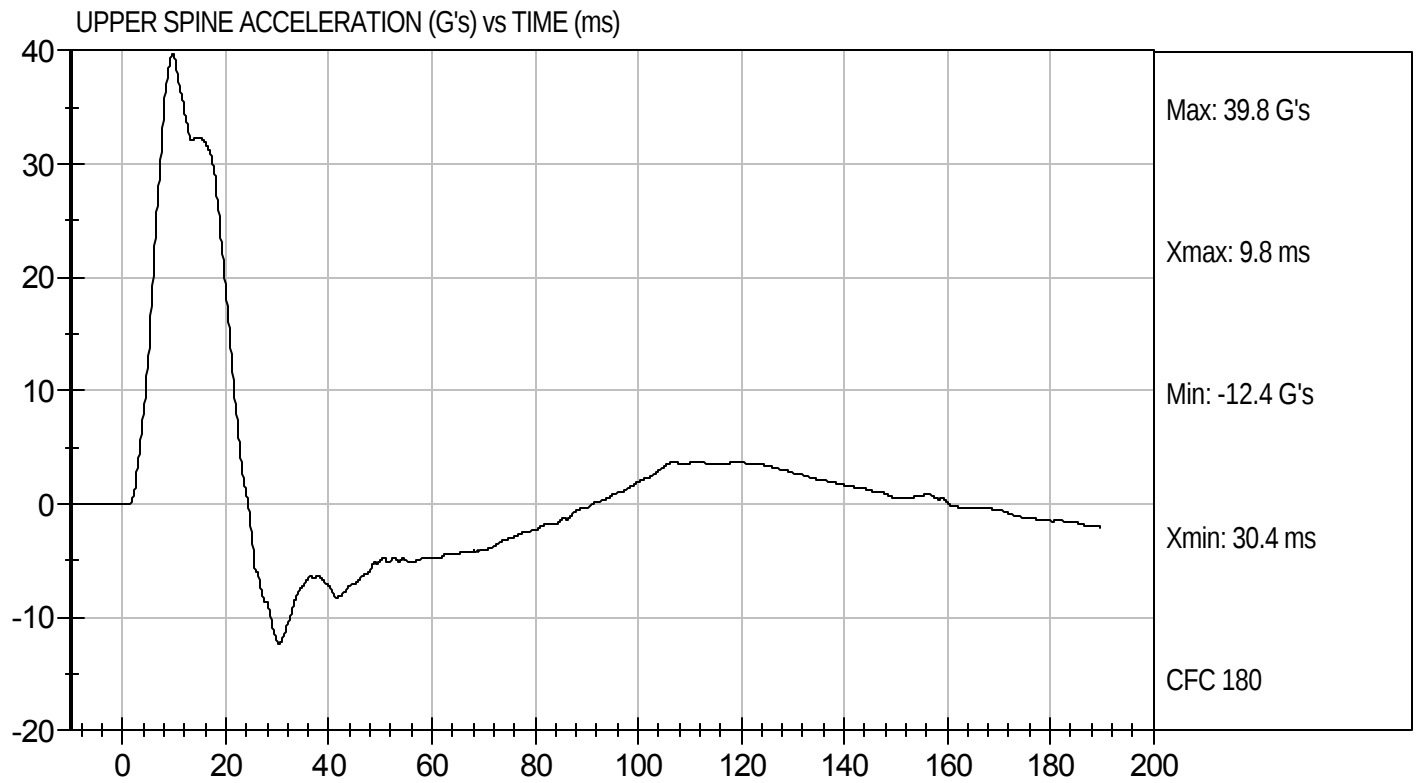
Test Date: 6/20/12
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D122304

Test Date: 6/20/12
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: D122305

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	56	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Peak Impactor Force	G's	14 to 18	15	Pass
Upper Rib Displacement	mm	32 to 40	38	Pass
Middle Rib Displacement	mm	39 to 45	43	Pass
Lower Rib Displacement	mm	35 to 43	41	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	15	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	9	Pass
Overall Test Results			Pass	


Laboratory Technician

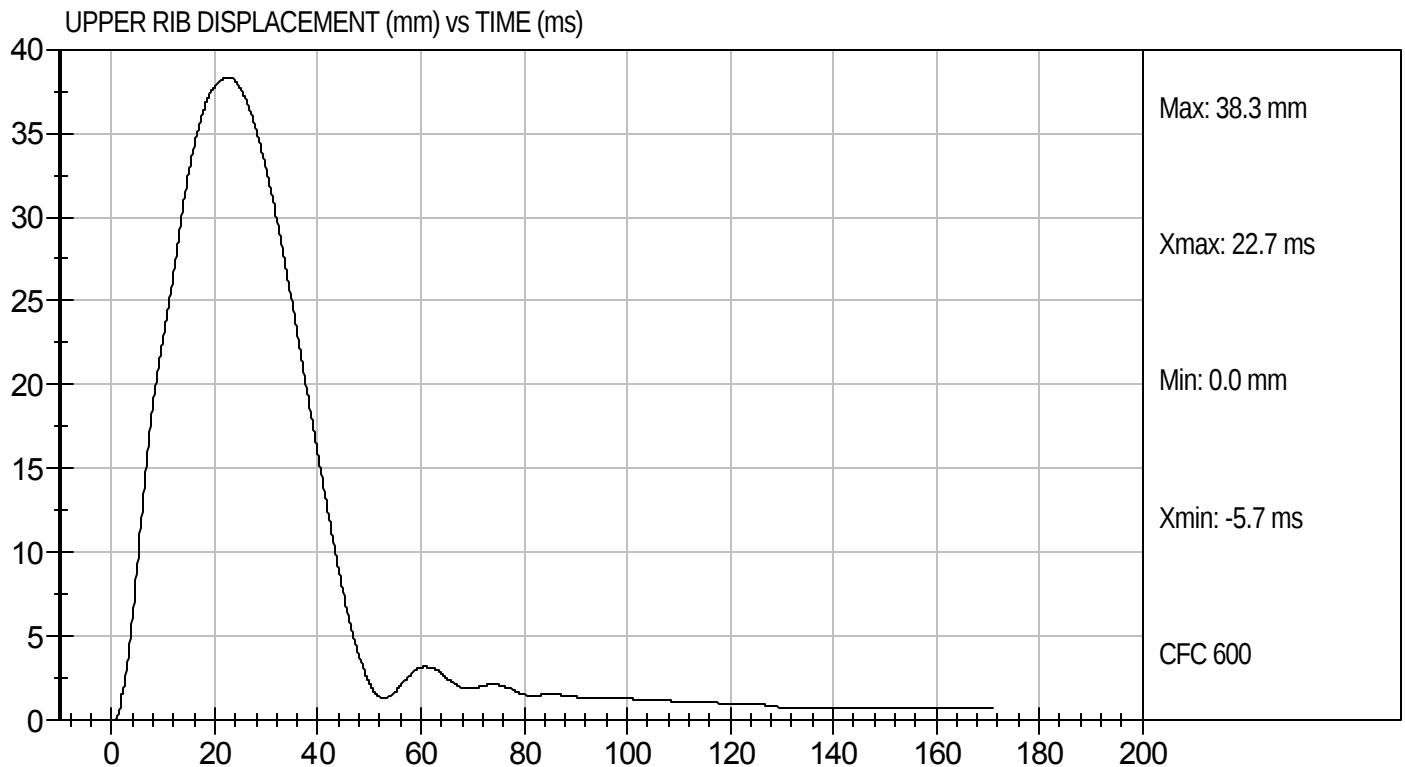
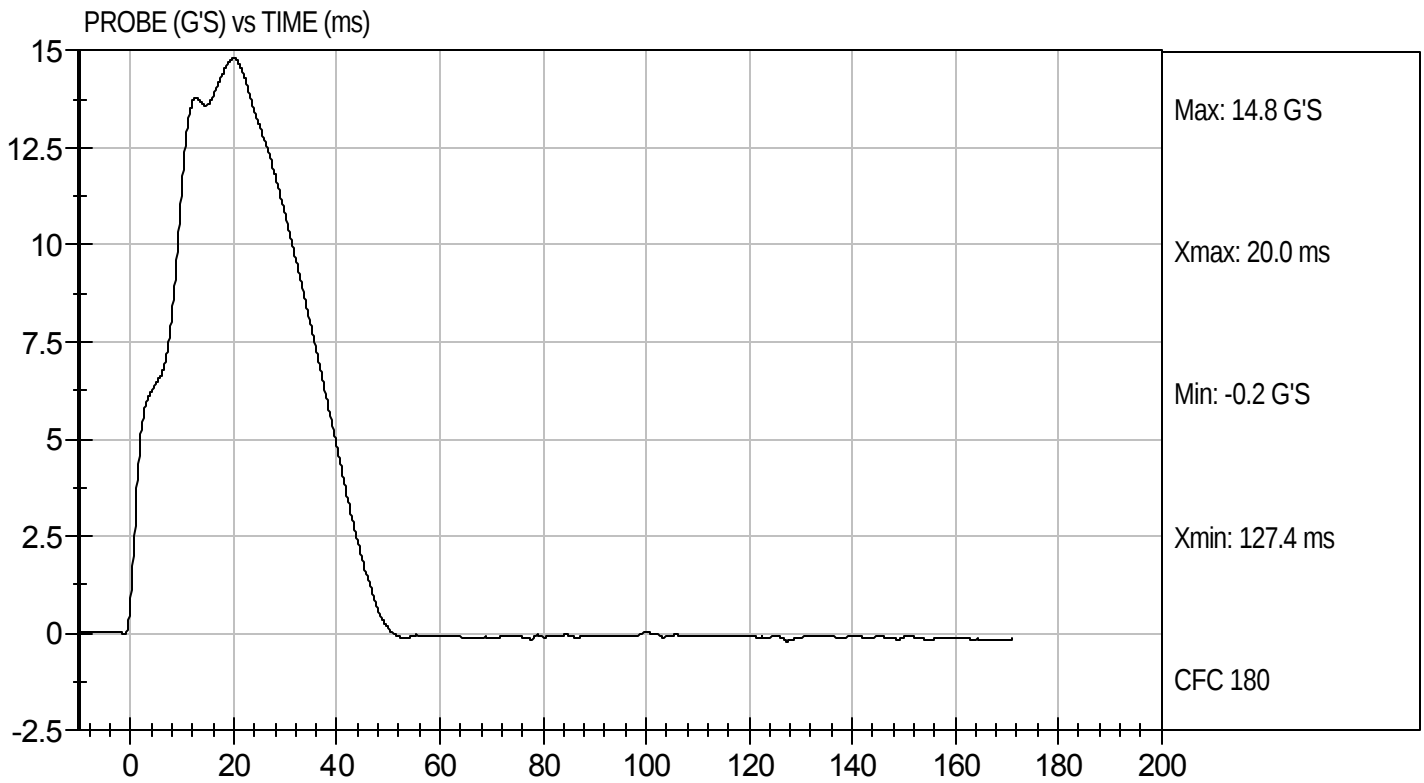
6/20/12
Test Date


Approved By



Test Desc: Thorax Without Arm
Component ID: D122305

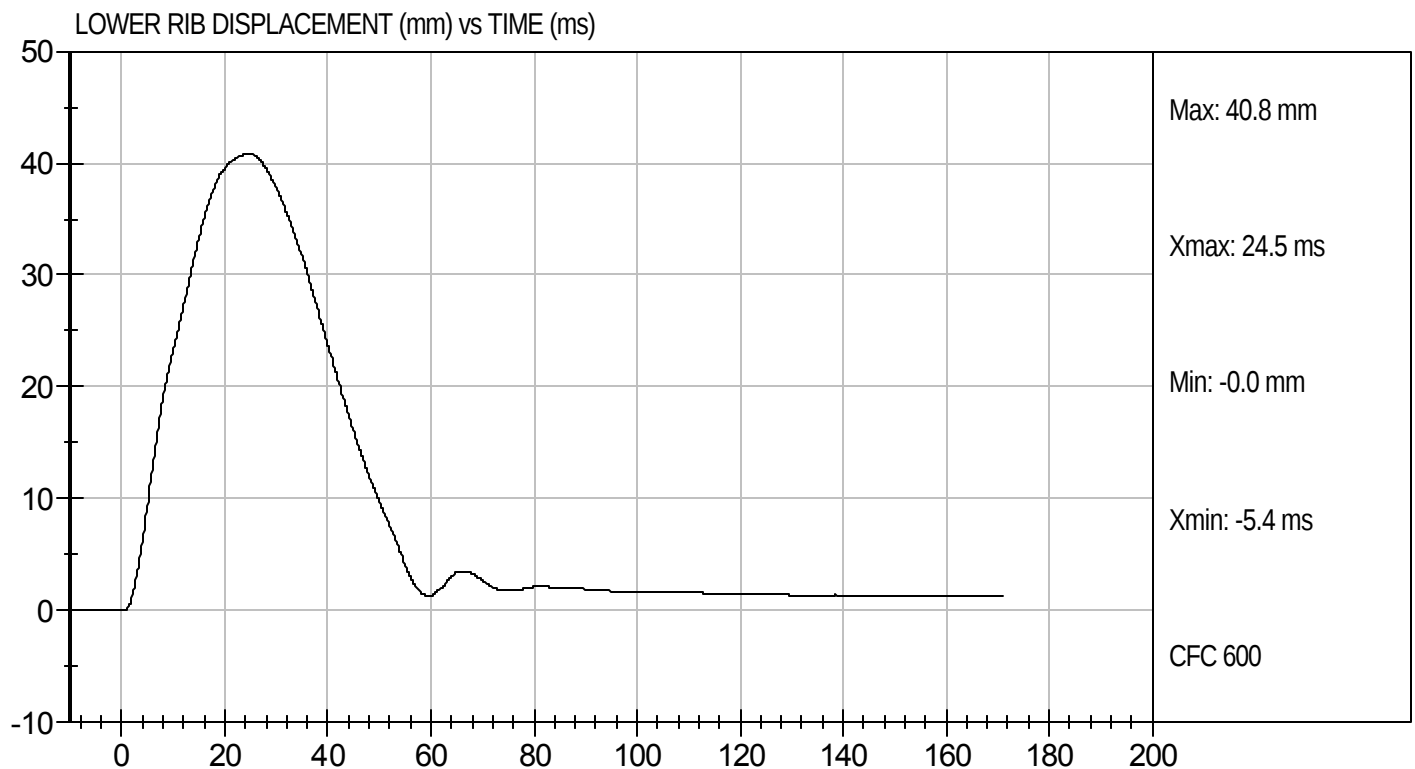
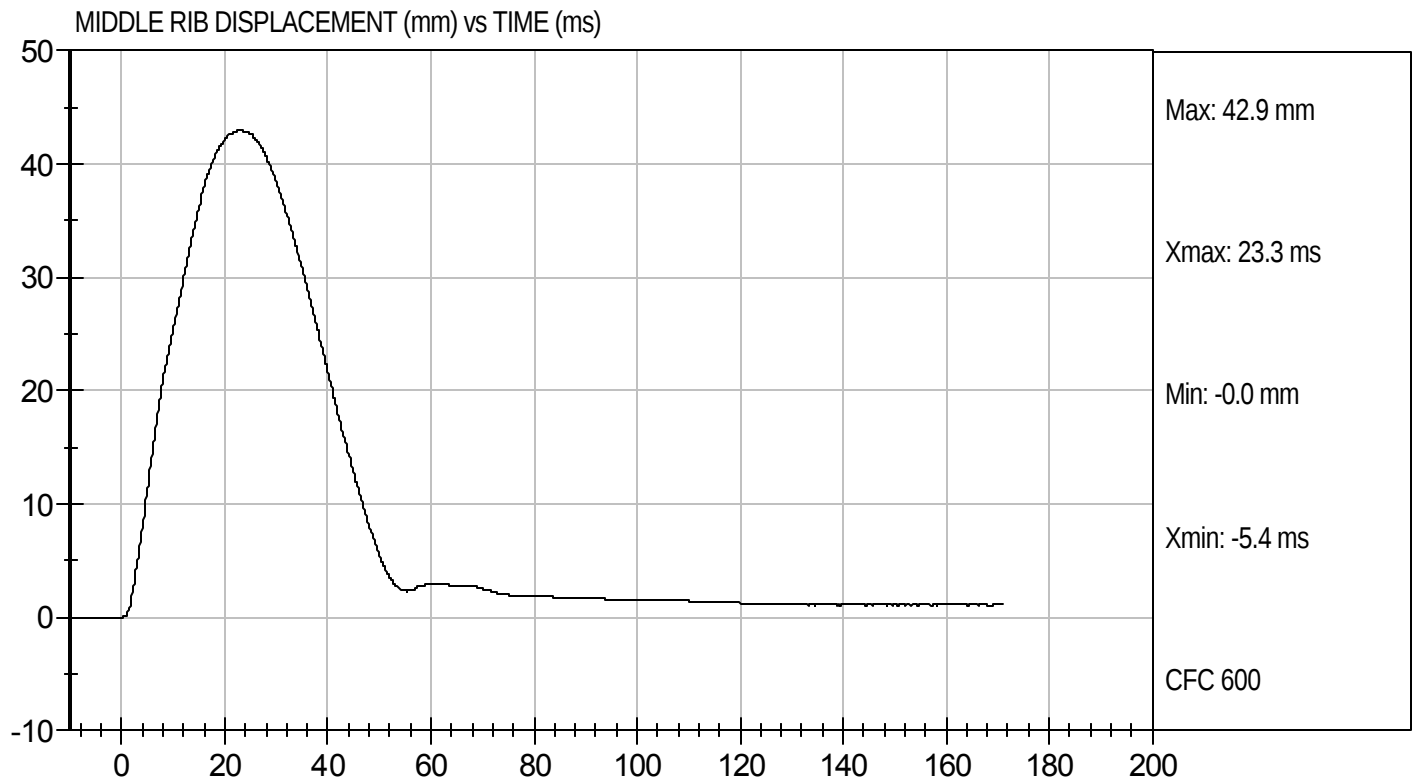
Test Date: 6/20/12
Velocity: 14.37 ft/s, 4.38 m/s





Test Desc: Thorax Without Arm
Component ID: D122305

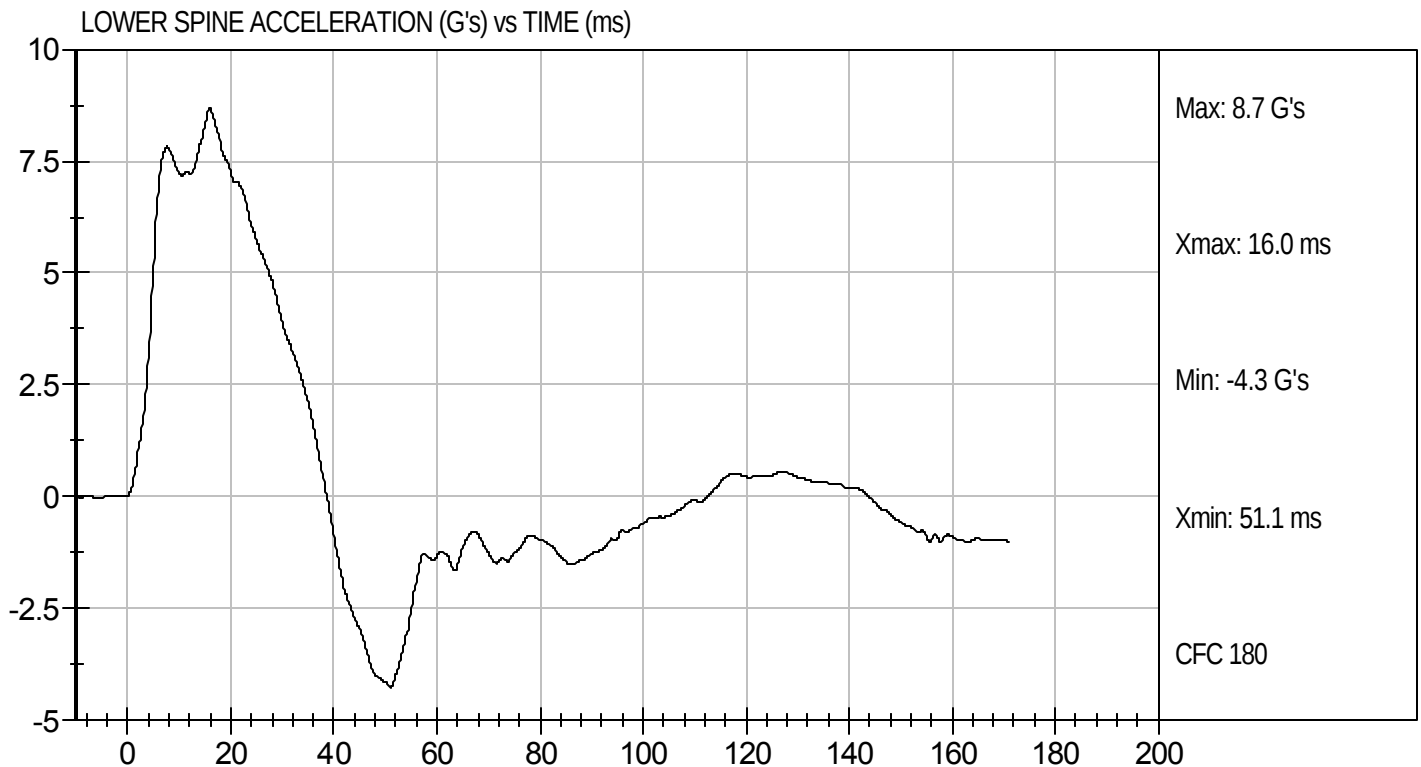
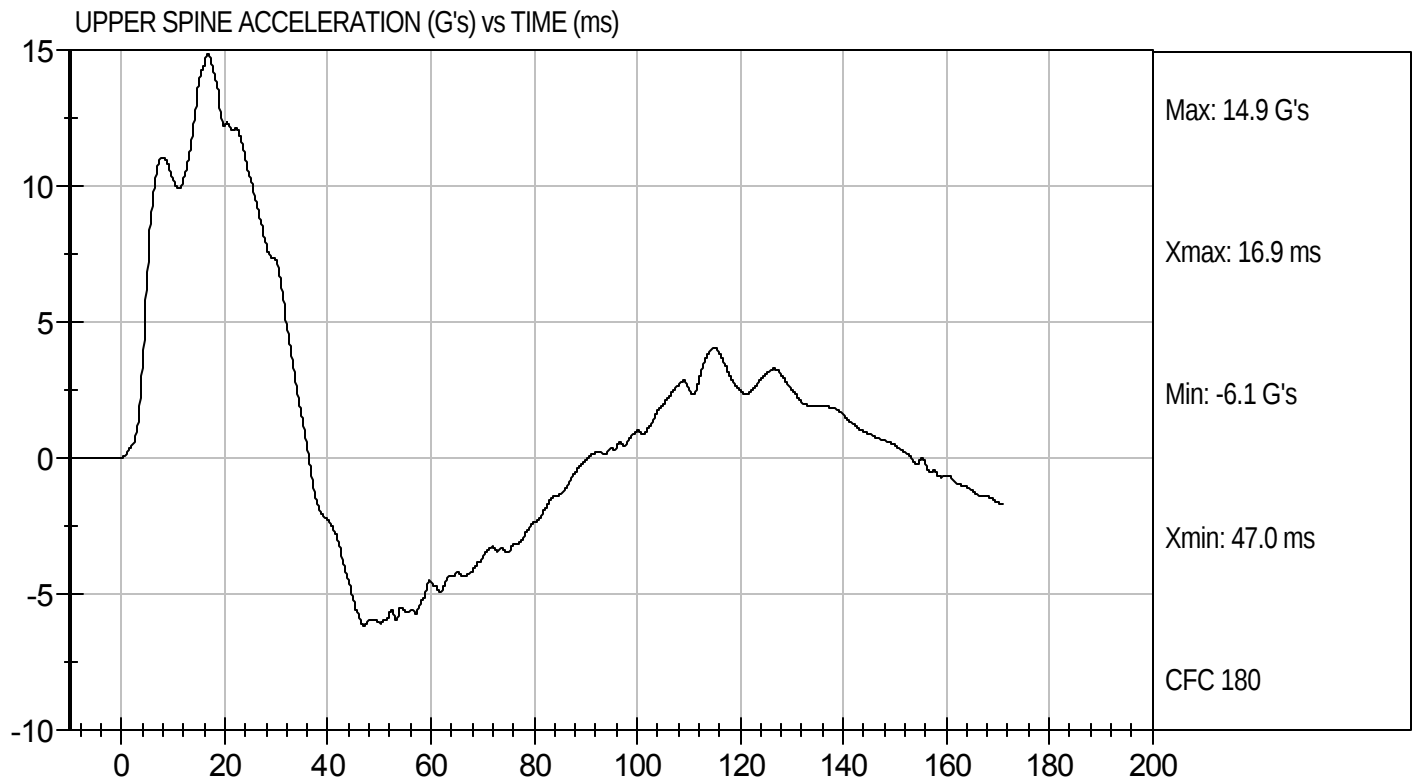
Test Date: 6/20/12
Velocity: 14.37 ft/s, 4.38 m/s





Test Desc: Thorax Without Arm
Component ID: D122305

Test Date: 6/20/12
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: D122306

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.0	Pass
Humidity	%	10 to 70	56	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Peak Impactor Acceleration	G's	12 to 16	14	Pass
Upper Rib Displacement	mm	36 to 47	38	Pass
Lower Rib Displacement	mm	33 to 44	41	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	10	Pass
			Overall Test Results	Pass


Laboratory Technician

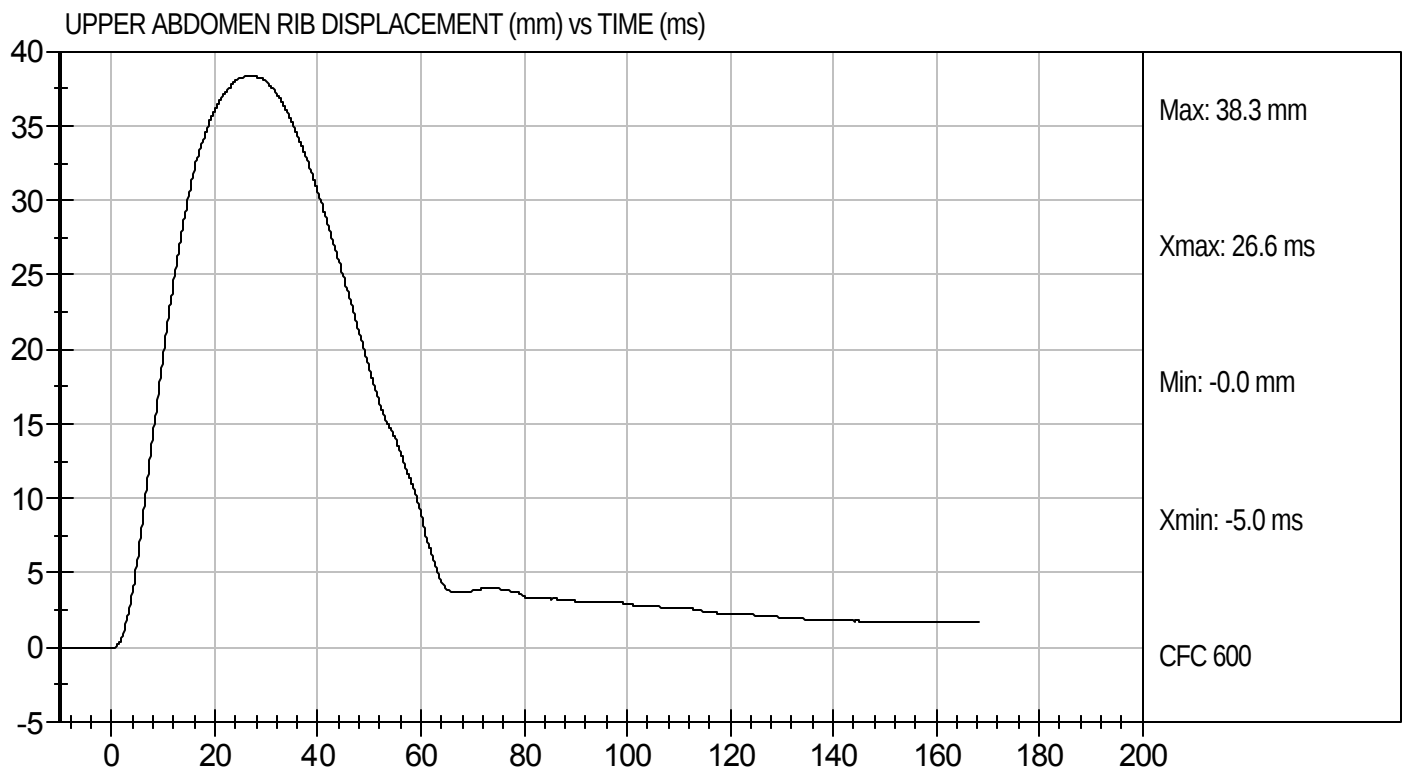
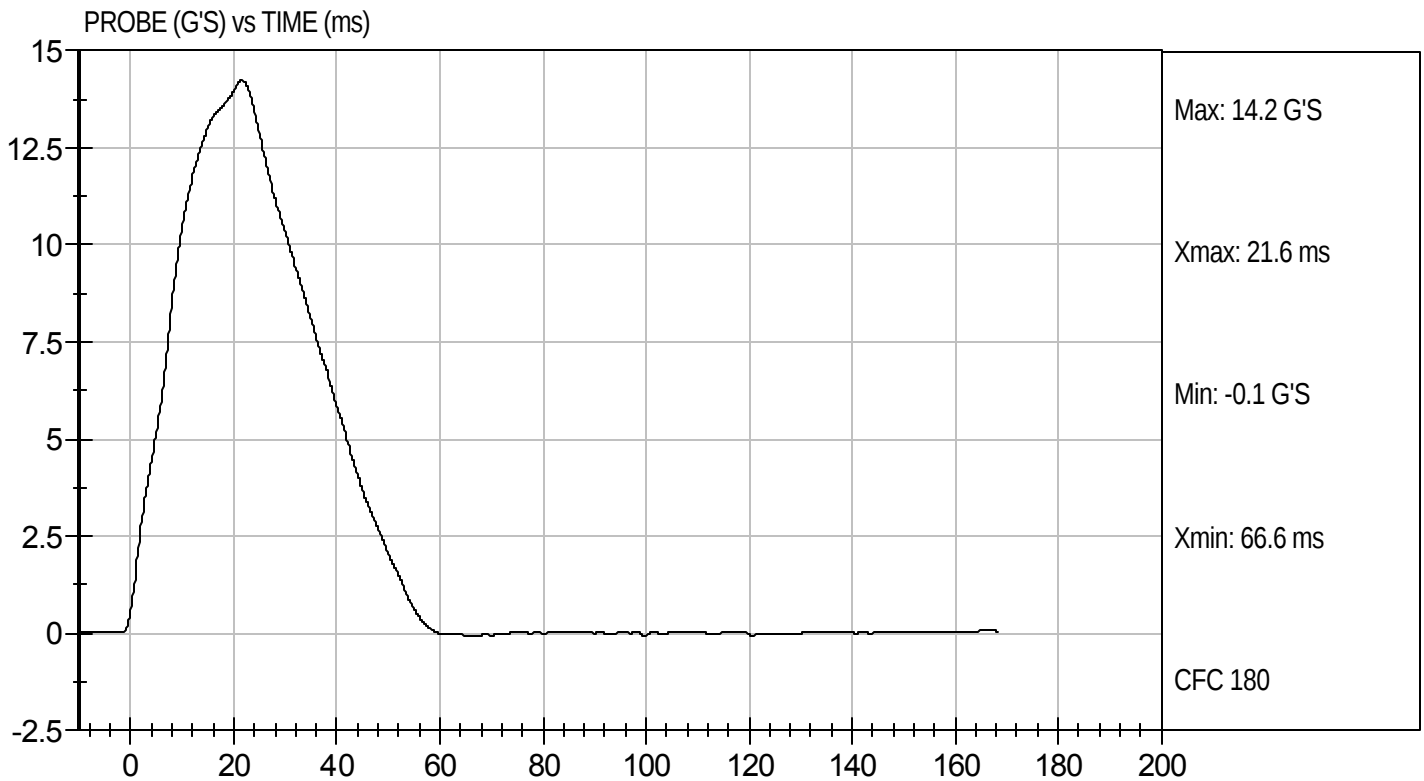
6/20/12
Test Date


Approved By



Test Desc: Abdomen Impact
Component ID: D122306

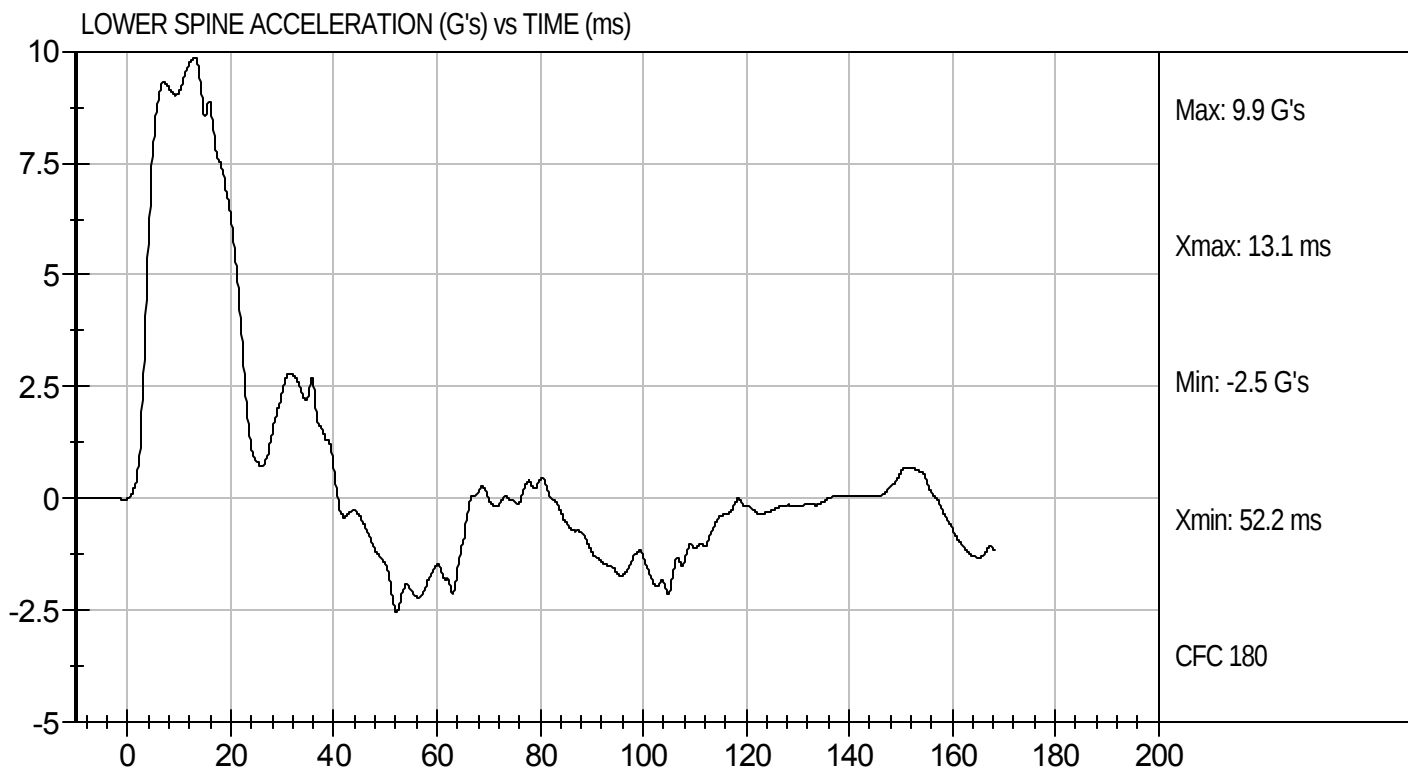
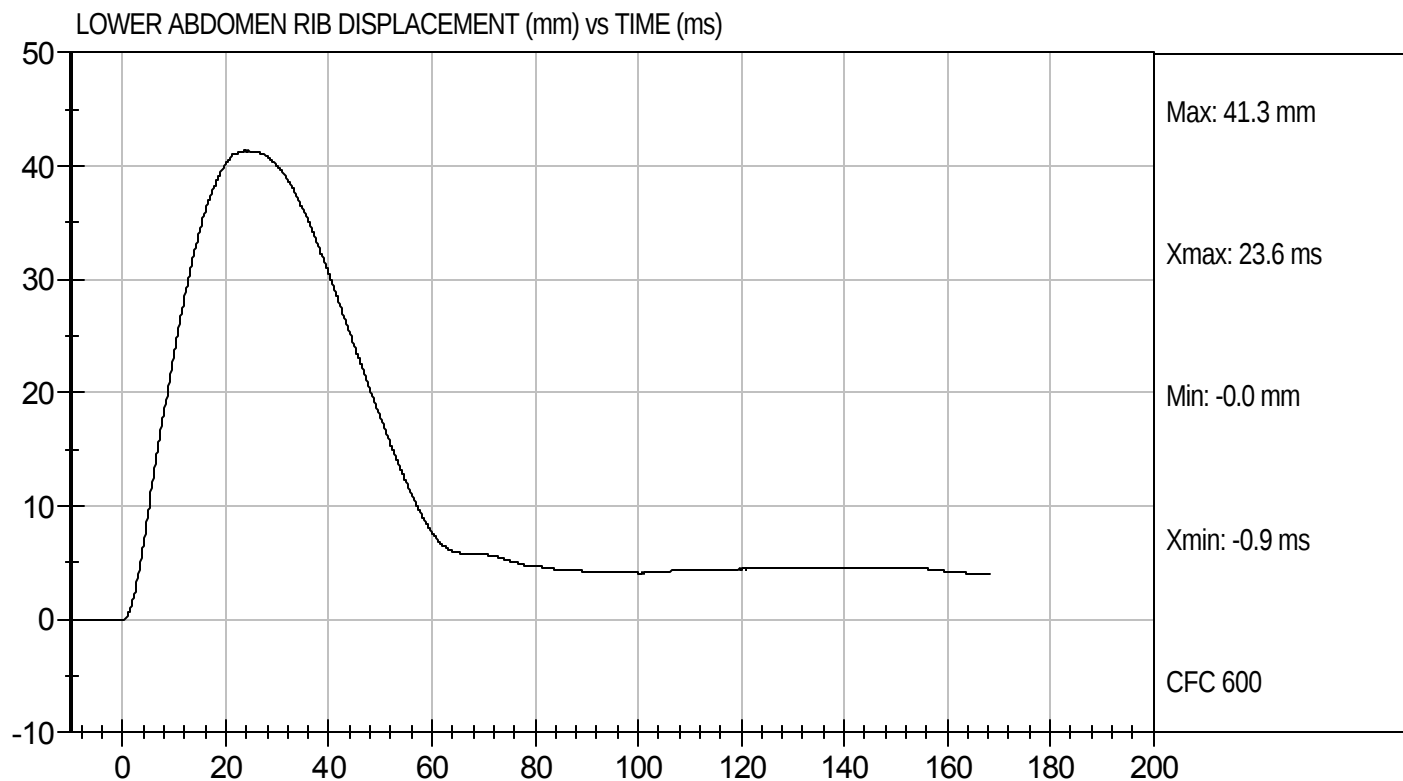
Test Date: 6/20/12
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Abdomen Impact
Component ID: D122306

Test Date: 6/20/12
Velocity: 14.25 ft/s, 4.34 m/s



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

ATD Serial No: 306

Test I.D: D122307

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	48	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Peak Impactor Acceleration	G's	38 to 47	45	Pass
Pelvis Y Acceleration after 6 ms	G's	34 to 42	41	Pass
Peak Acetabulum Force	N	3600 to 4300	4017	Pass
Overall Test Results				Pass


Laboratory Technician

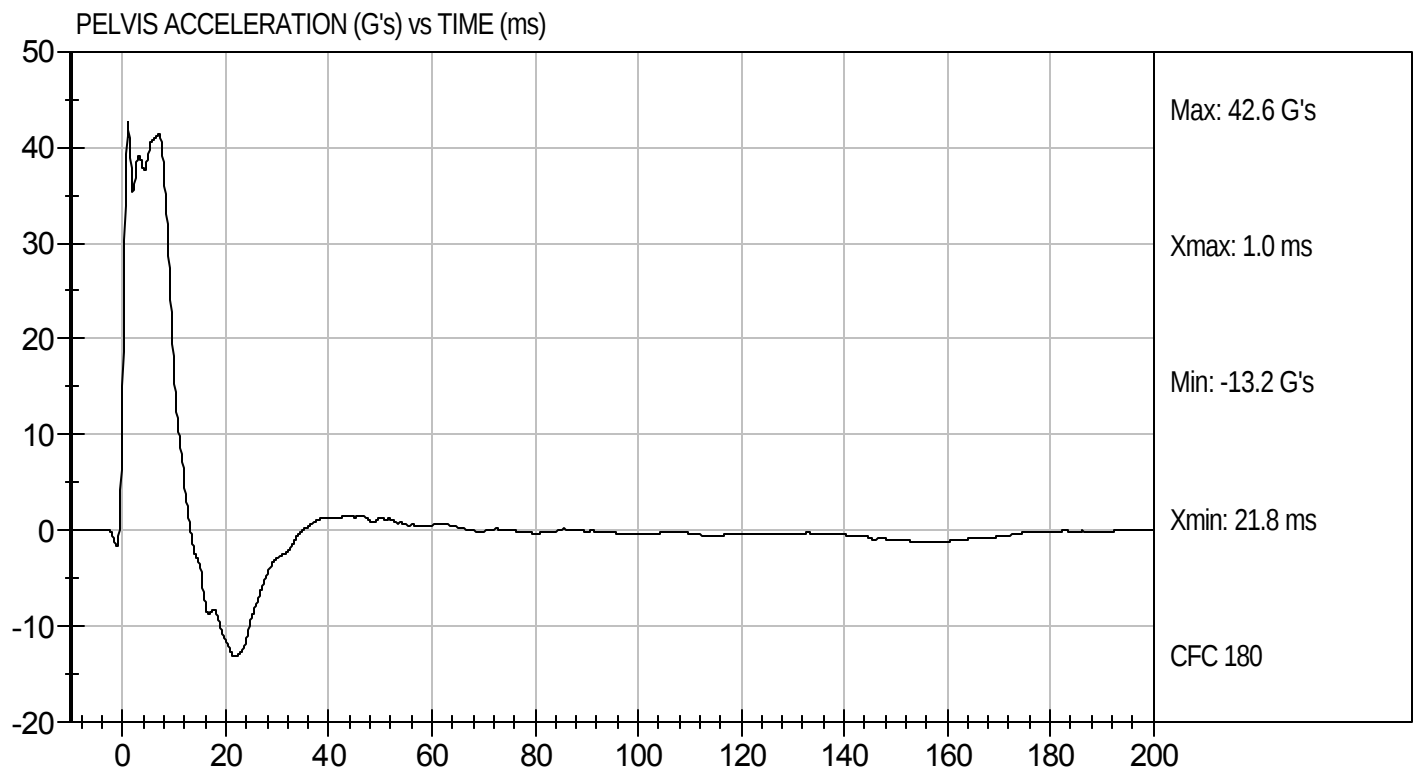
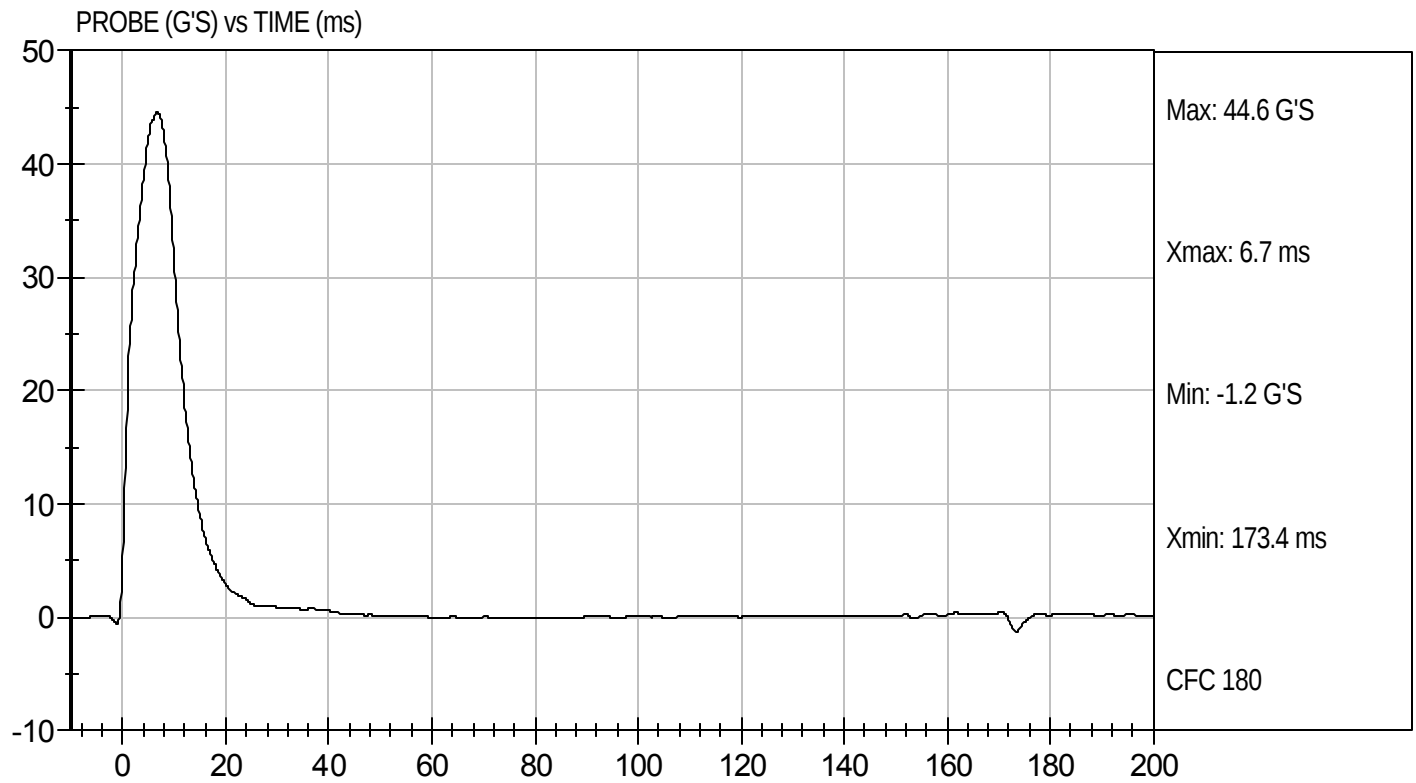
6/21/12
Test Date


Approved By



Test Desc: Pelvis Impact
Component ID: D122307

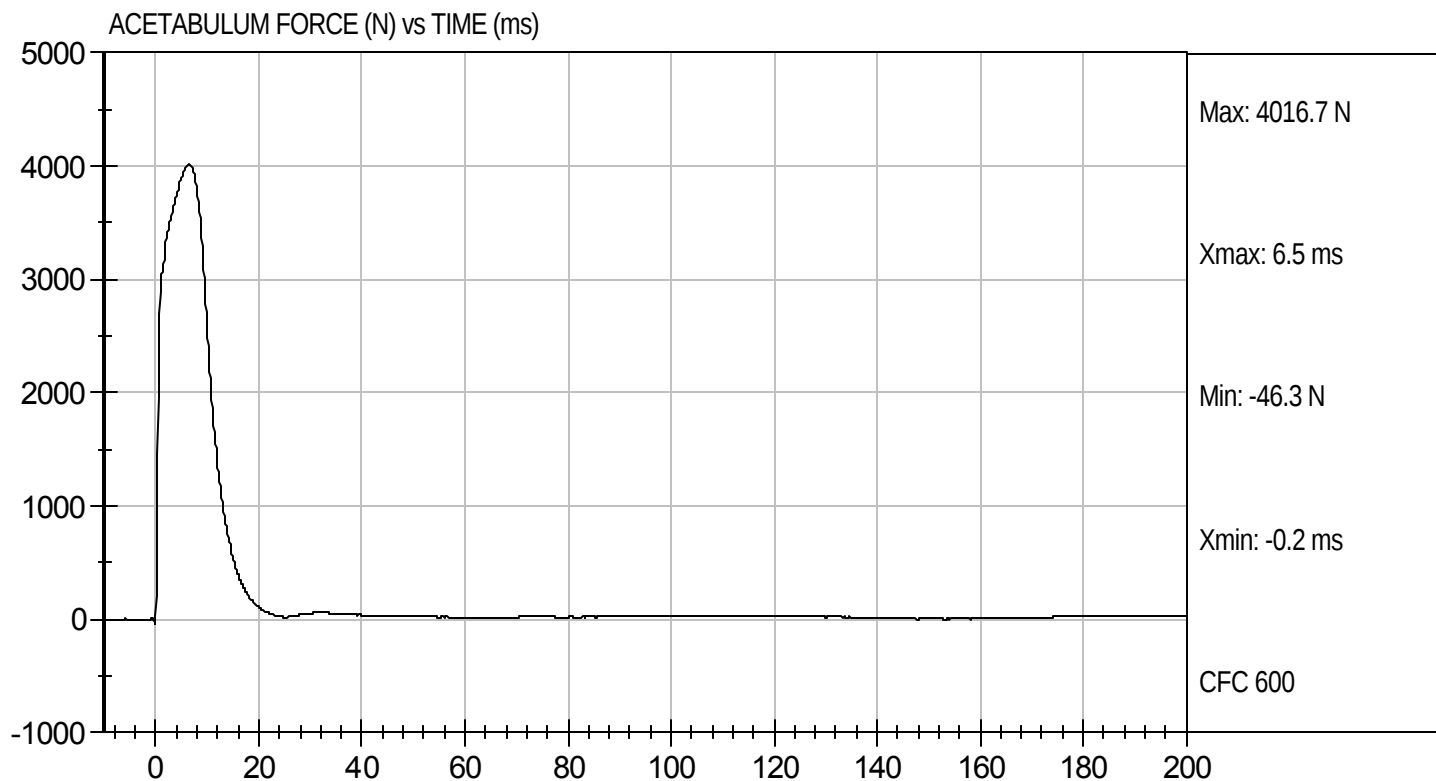
Test Date: 6/21/12
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Pelvis Impact
Component ID: D122307

Test Date: 6/21/12
Velocity: 22.22 ft/s, 6.77 m/s



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

ATD Serial No: 306

Test I.D: D122308

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	48	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Peak Impactor Acceleration	G's	36 to 45	38	Pass
Pelvis Y Acceleration	G's	28 to 39	32	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4485	Pass
Overall Test Results			Pass	


Laboratory Technician

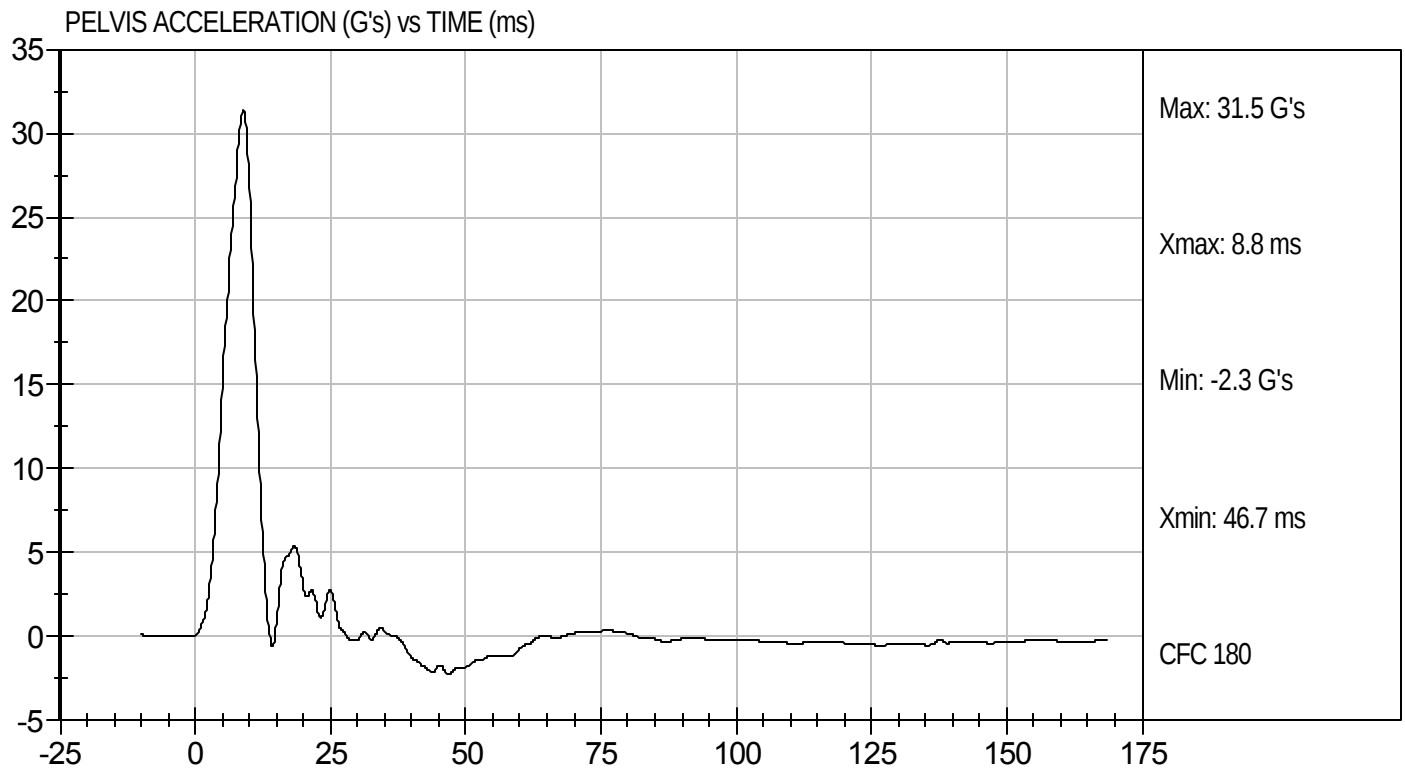
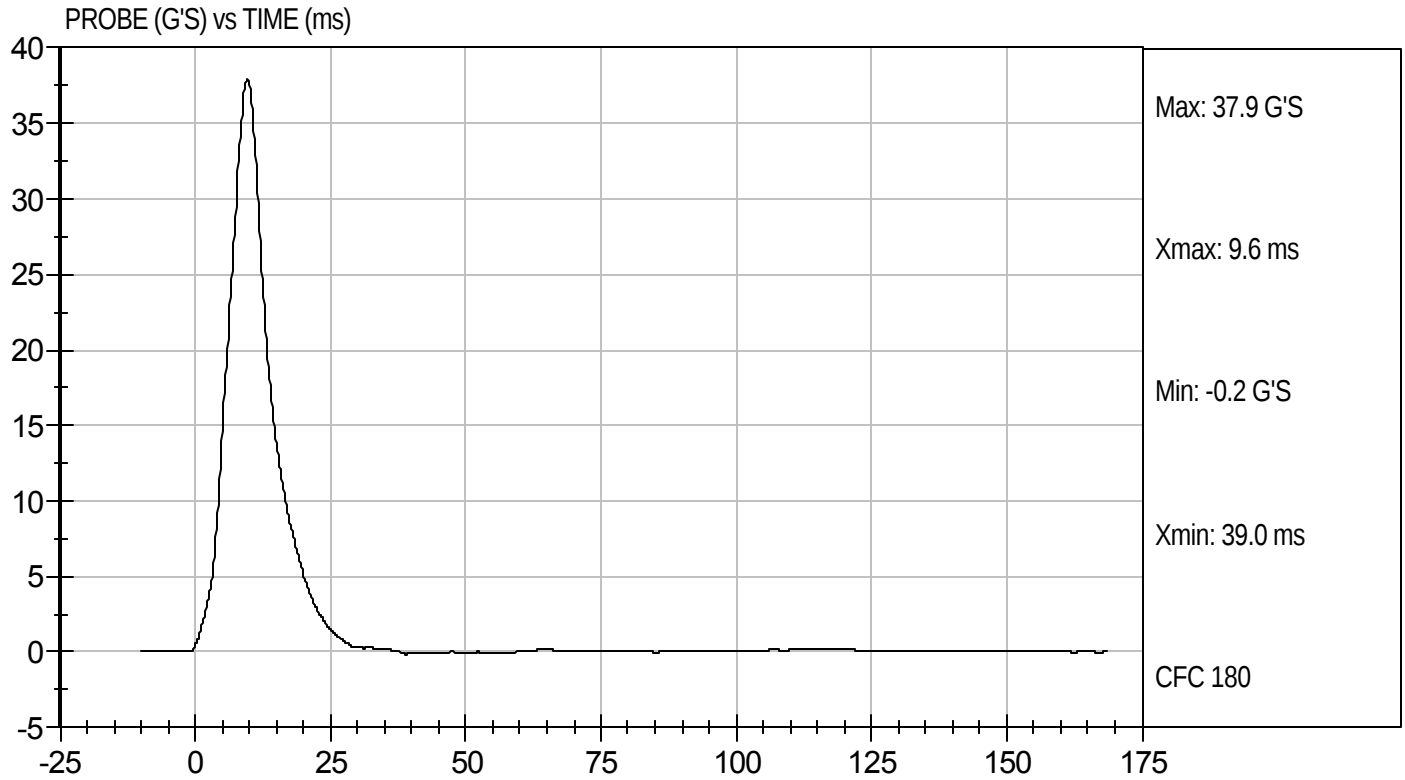
6/21/12
Test Date


Approved By



Test Desc: Iliac Impact
Component ID: D122308

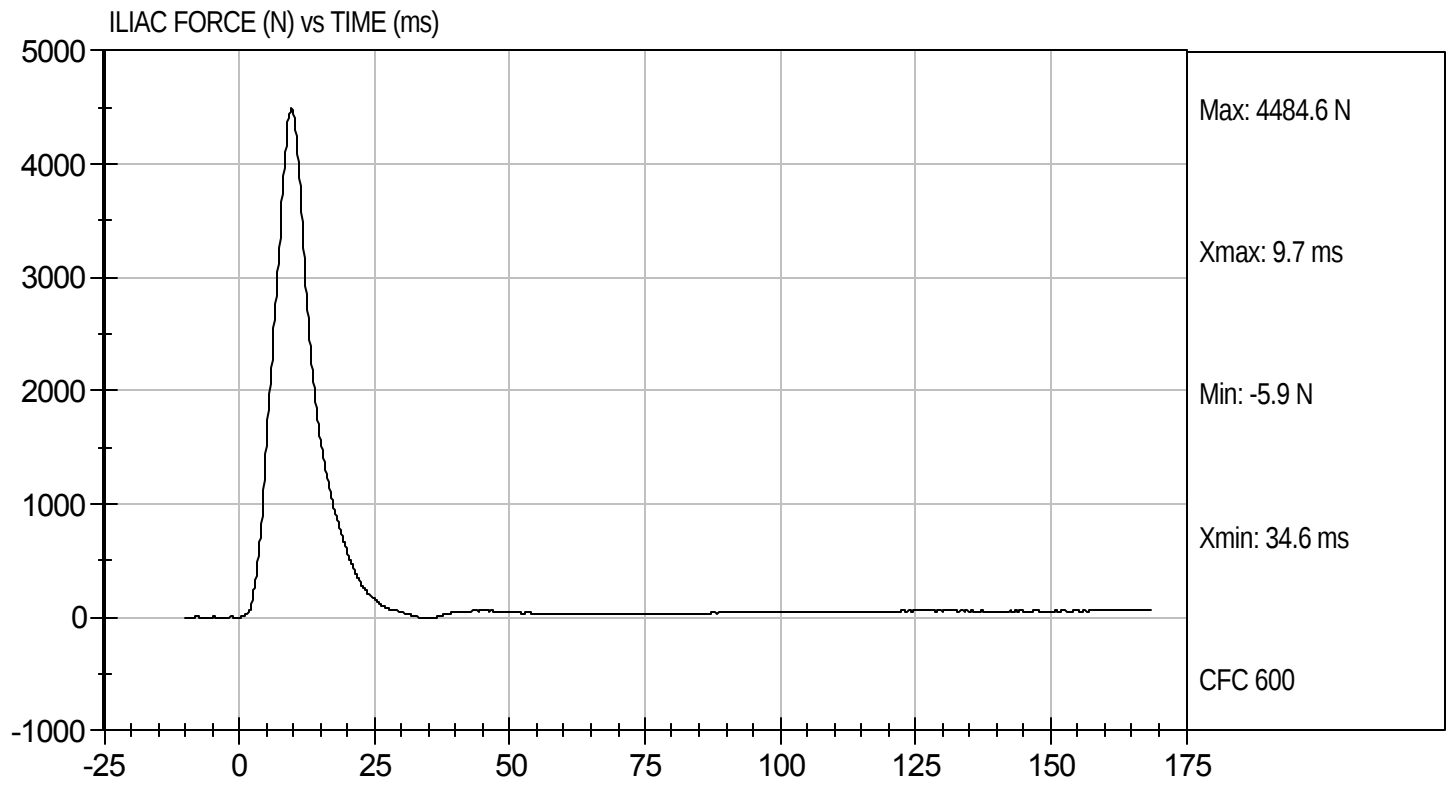
Test Date: 6/21/12
Velocity: 14.37 ft/s, 4.38 m/s





Test Desc: Iliac Impact
Component ID: D122308

Test Date: 6/21/12
Velocity: 14.37 ft/s, 4.38 m/s



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

ATD Serial No: 306

Test ID: D122501

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	47	Pass
Peak Resultant Acceleration	G's	115 to 137	122	Pass
Peak Longitudinal Acceleration	G's	+/- 15	3	Pass
Unimodal	N/A	<15%	Yes	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

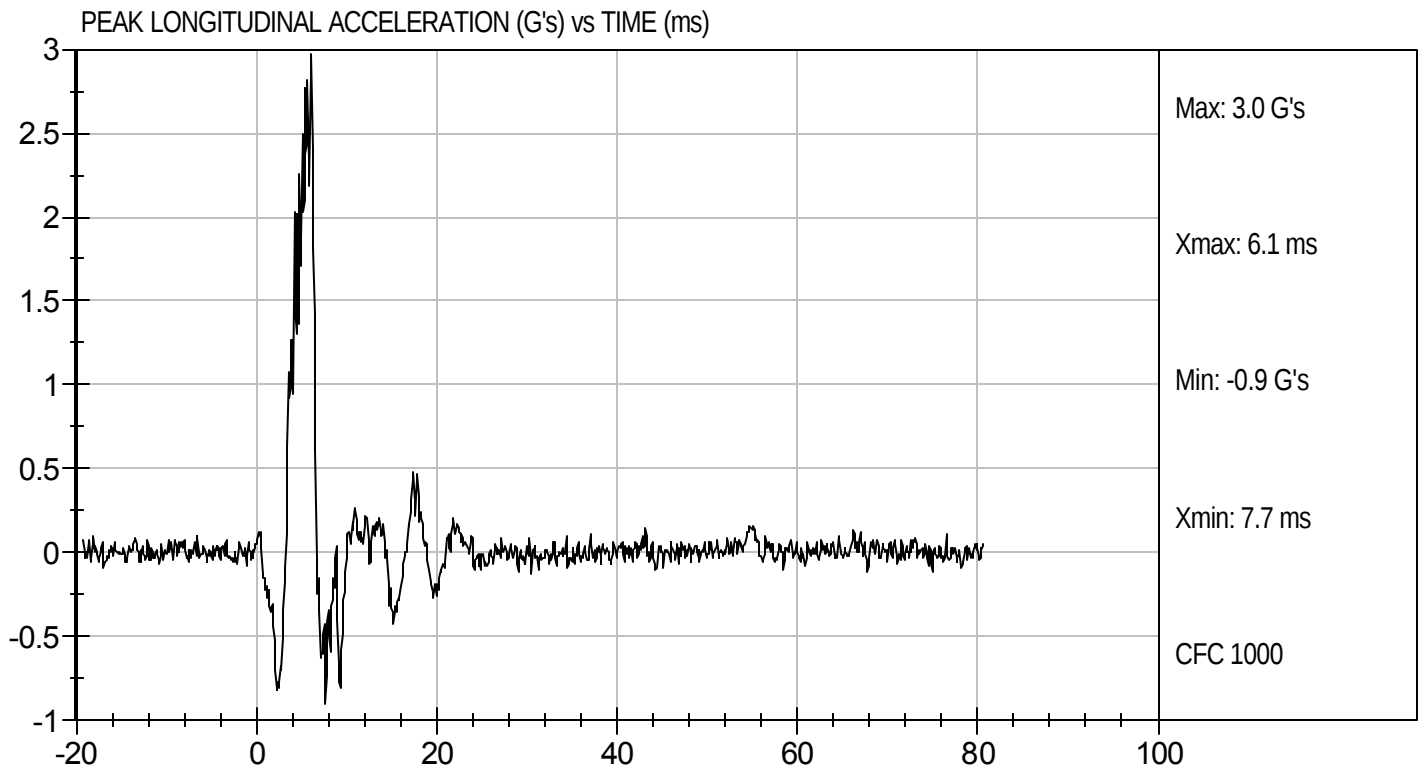
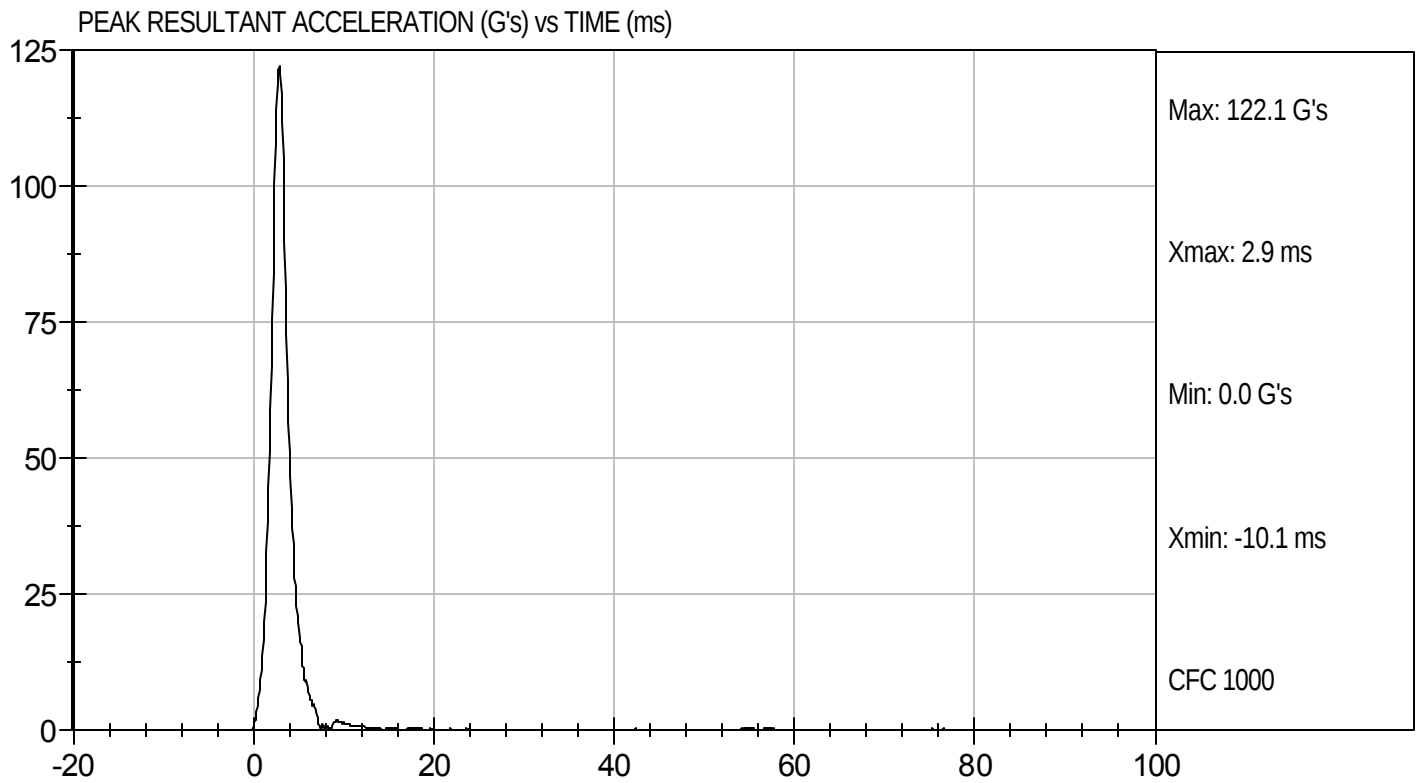
7/6/12
Test Date

David Winkelbauer
Approved By



Test Desc: Head Drop
Component ID: D122501

Test Date: 7/6/12
Velocity: 0 ft/s, 0 m/s

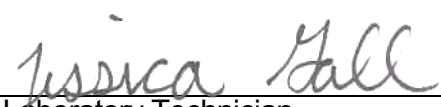


MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D.: D122502

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	22.0	Pass
Humidity		%	10 to 70	47	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Delta Velocity	10 ms	m/s	2.20 to 2.80	2.63	Pass
	15 ms	m/s	3.30 to 4.10	3.69	Pass
	20 ms	m/s	4.40 to 5.40	4.91	Pass
	25 ms	m/s	5.40 to 6.10	5.51	Pass
	25-100 ms	m/s	5.50 to 6.20	5.53	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	117	Pass
Overall Test Results				Pass	


 Laboratory Technician

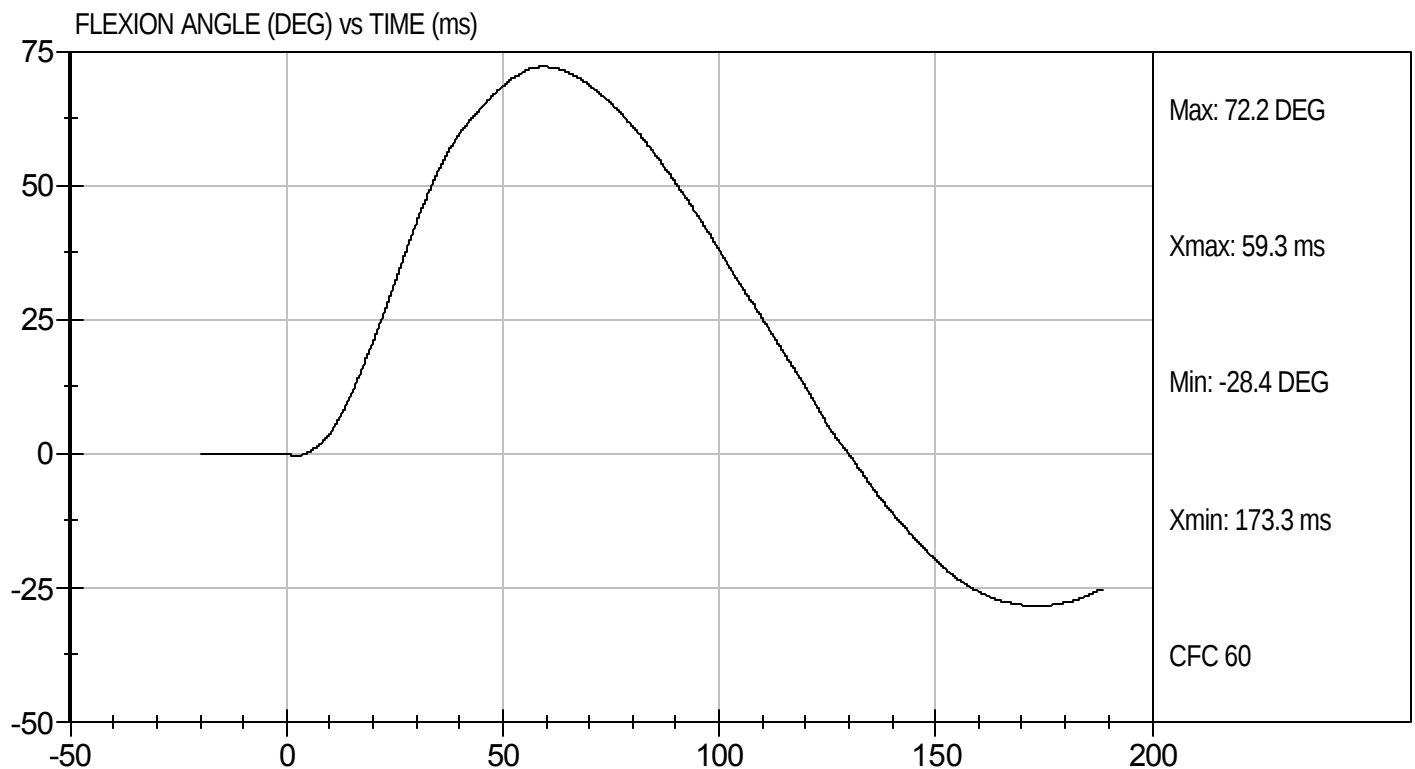
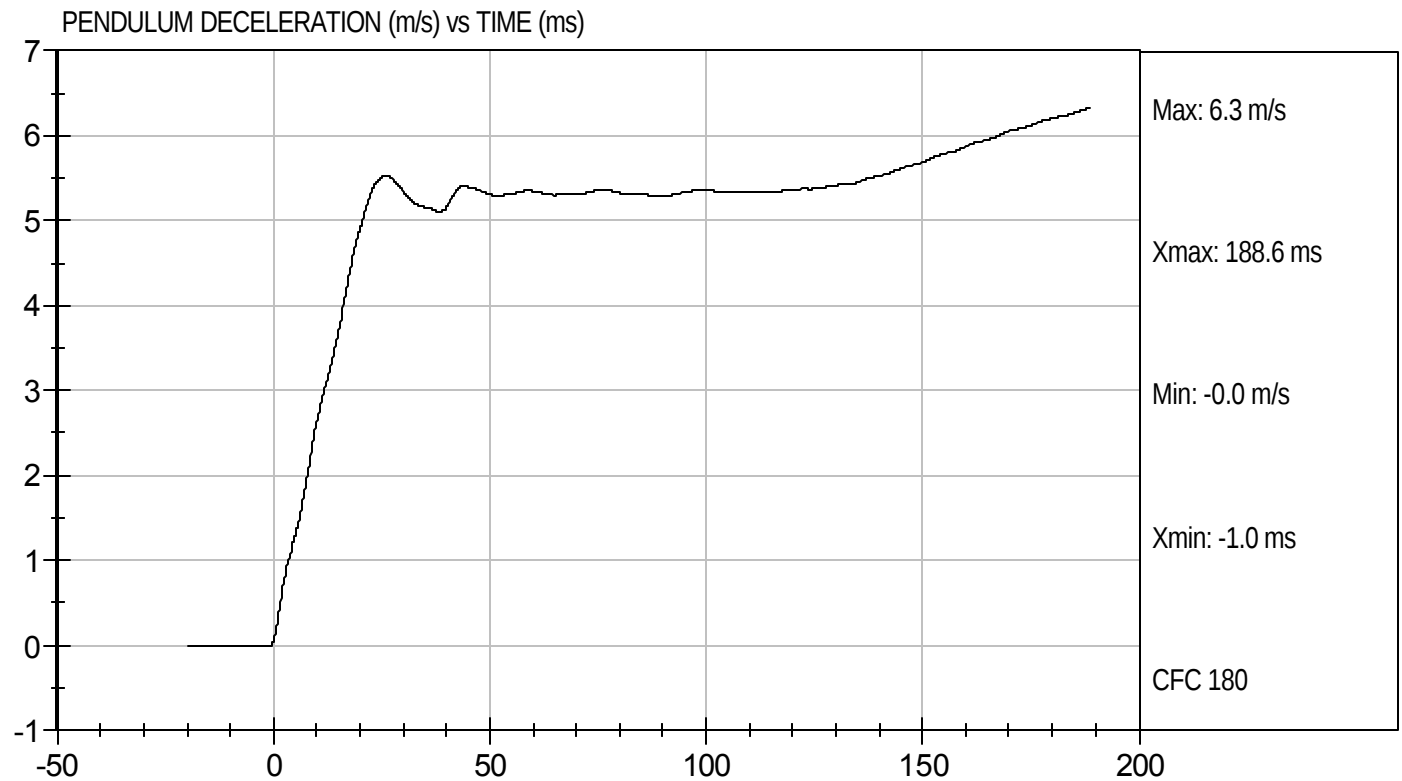
7/6/12
 Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D122502

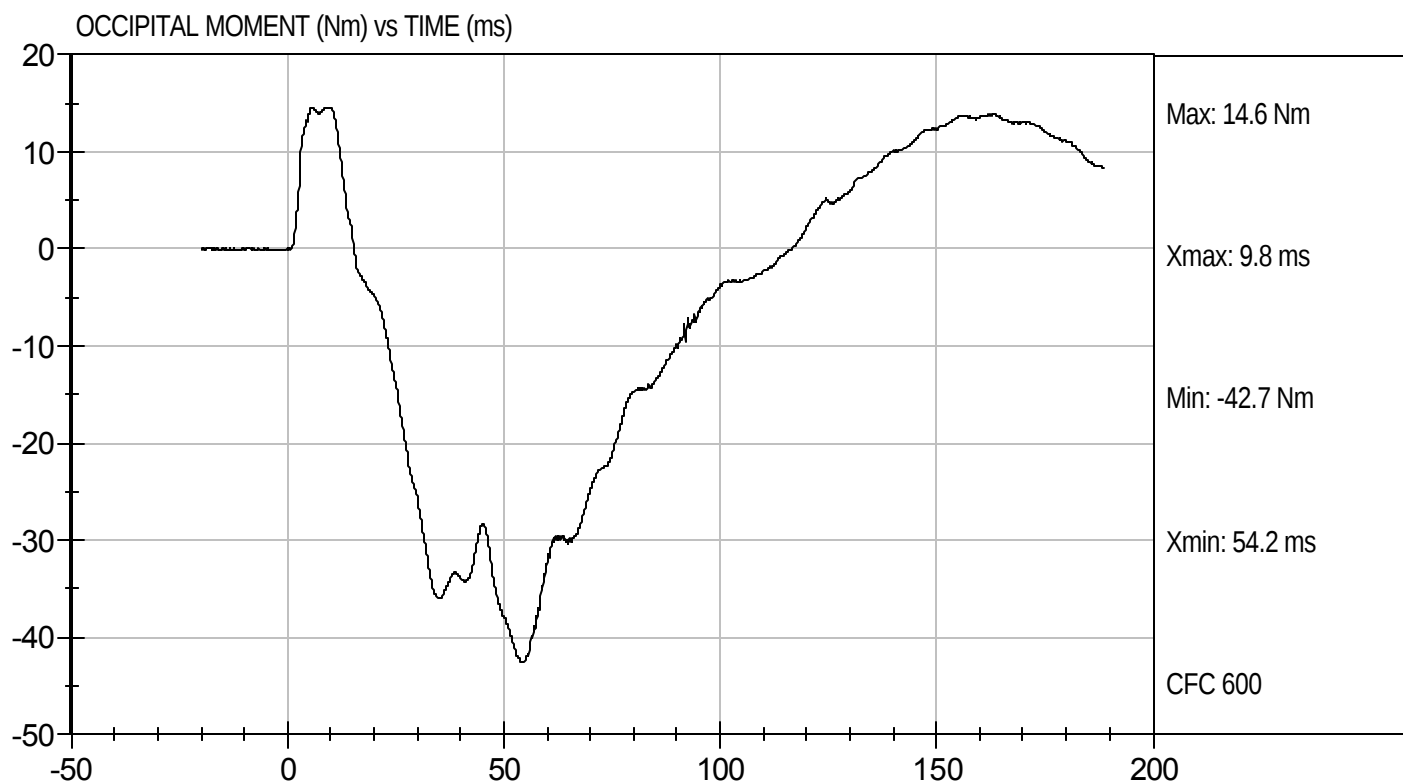
Test Date: 7/6/12
Velocity: 18.32 ft/s, 5.58 m/s





Test Desc: Neck Bending
Component ID: D122502

Test Date: 7/6/12
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: D122503

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	47	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	18	Pass
Overall Test Results			Pass	

Jessica Hall
Laboratory Technician

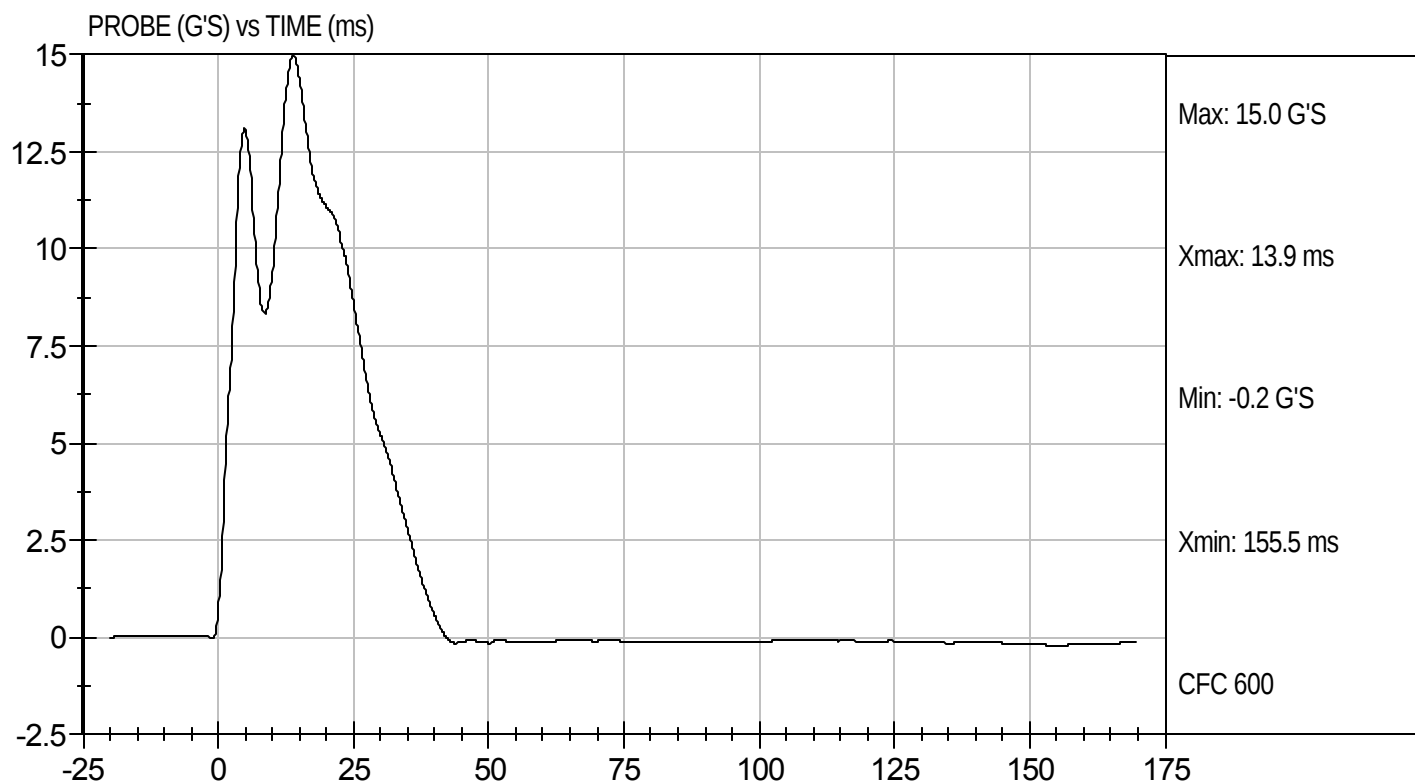
7/6/12
Test Date

David Winkelbauer
Approved By



Test Desc: Shoulder Impact
Component ID: D122503

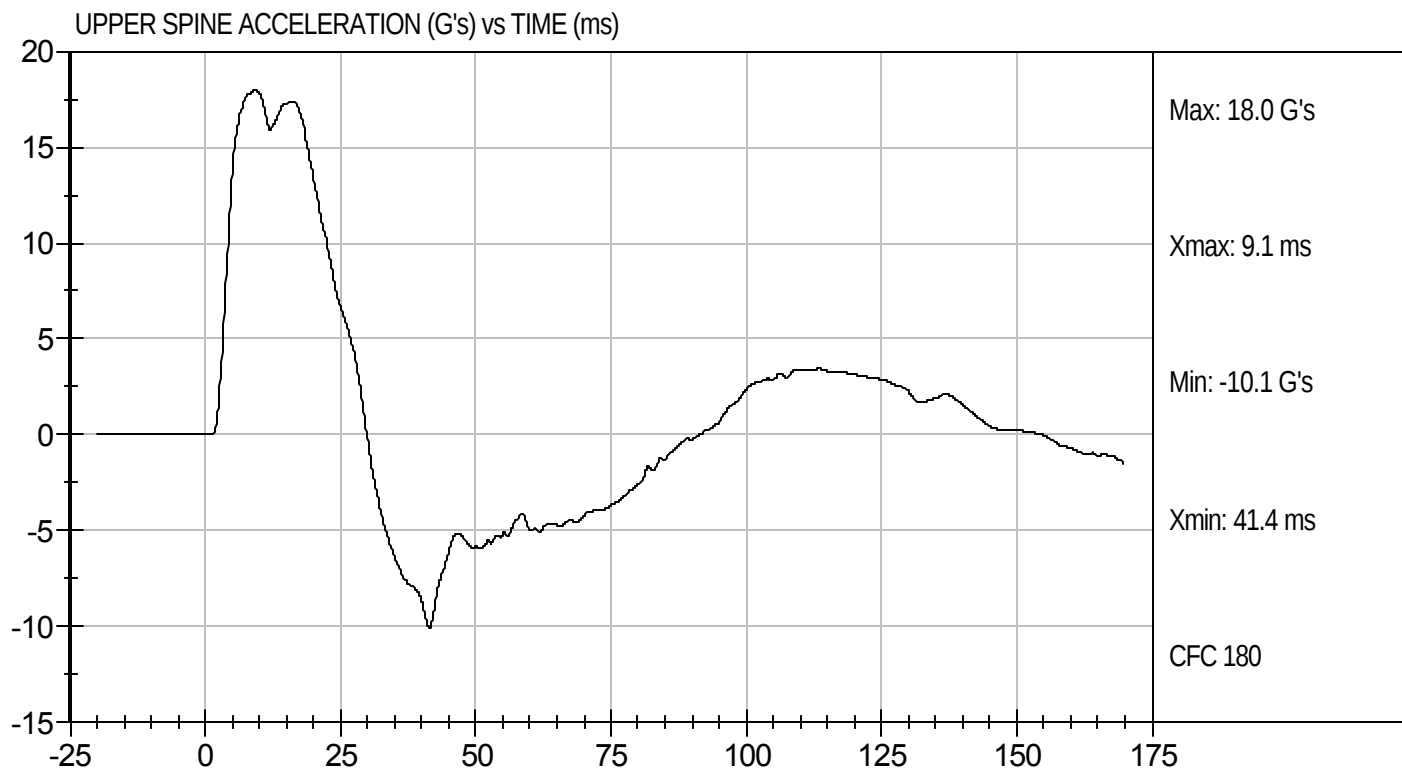
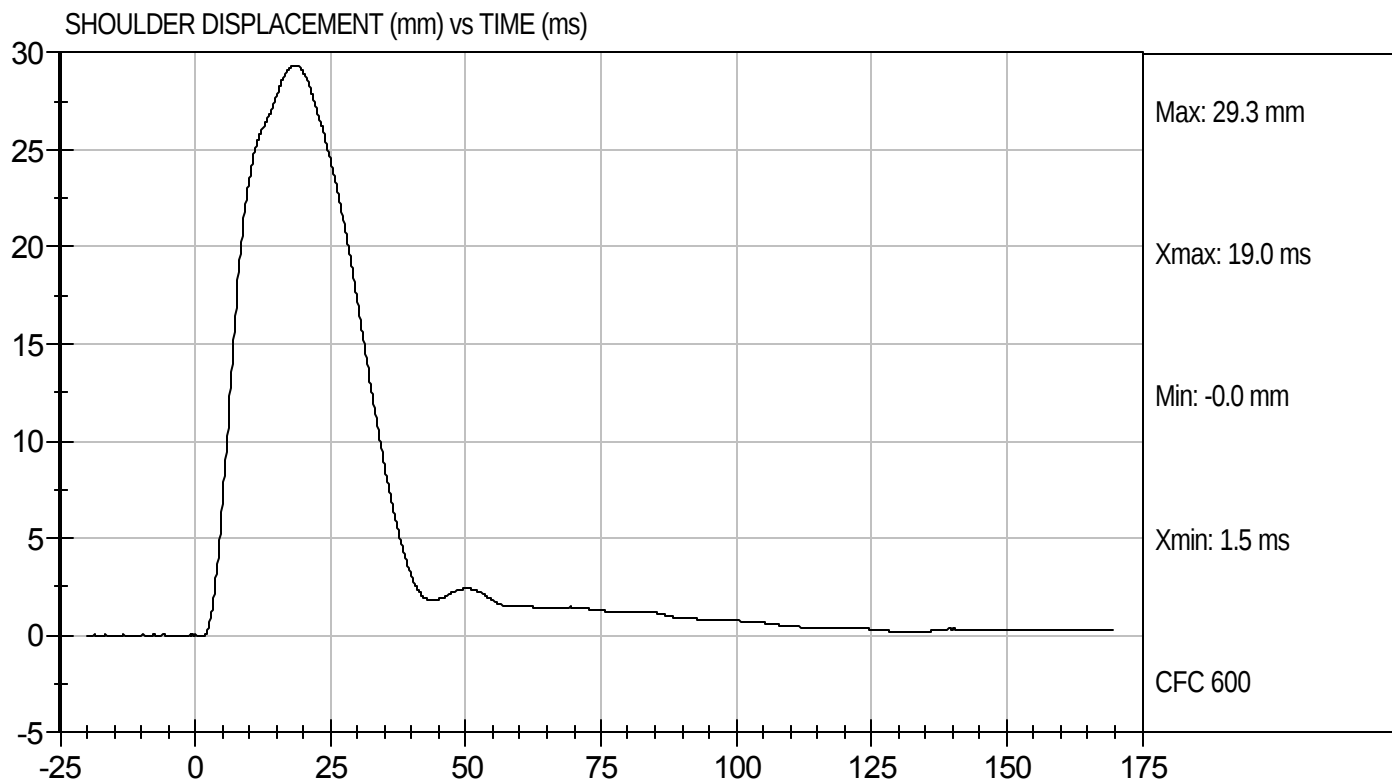
Test Date: 7/6/12
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Shoulder Impact
Component ID: D122503

Test Date: 7/6/12
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: D122504

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.0	Pass
Humidity	%	10 to 70	47	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	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

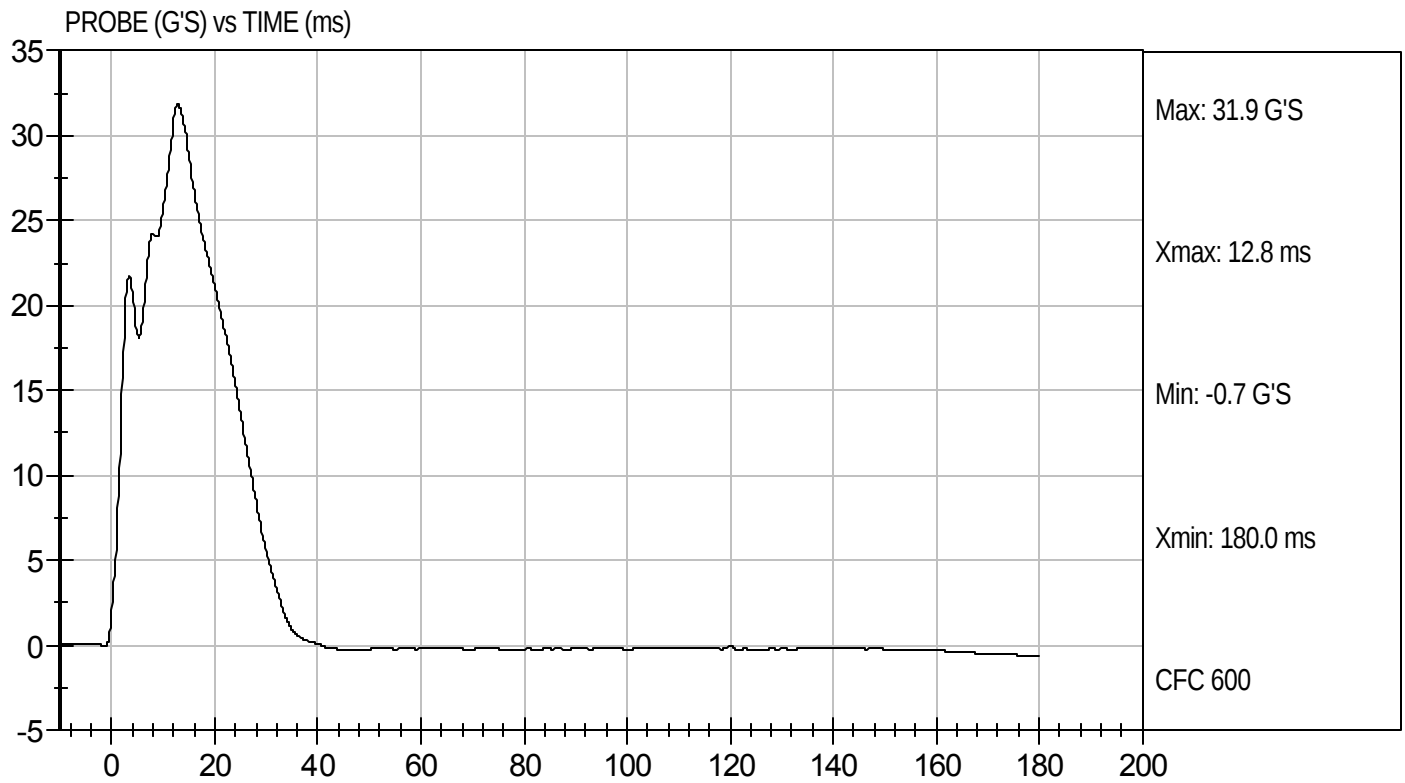
7/6/12
 Test Date


 Approved By



Test Desc: Thorax With Arm
Component ID: D122504

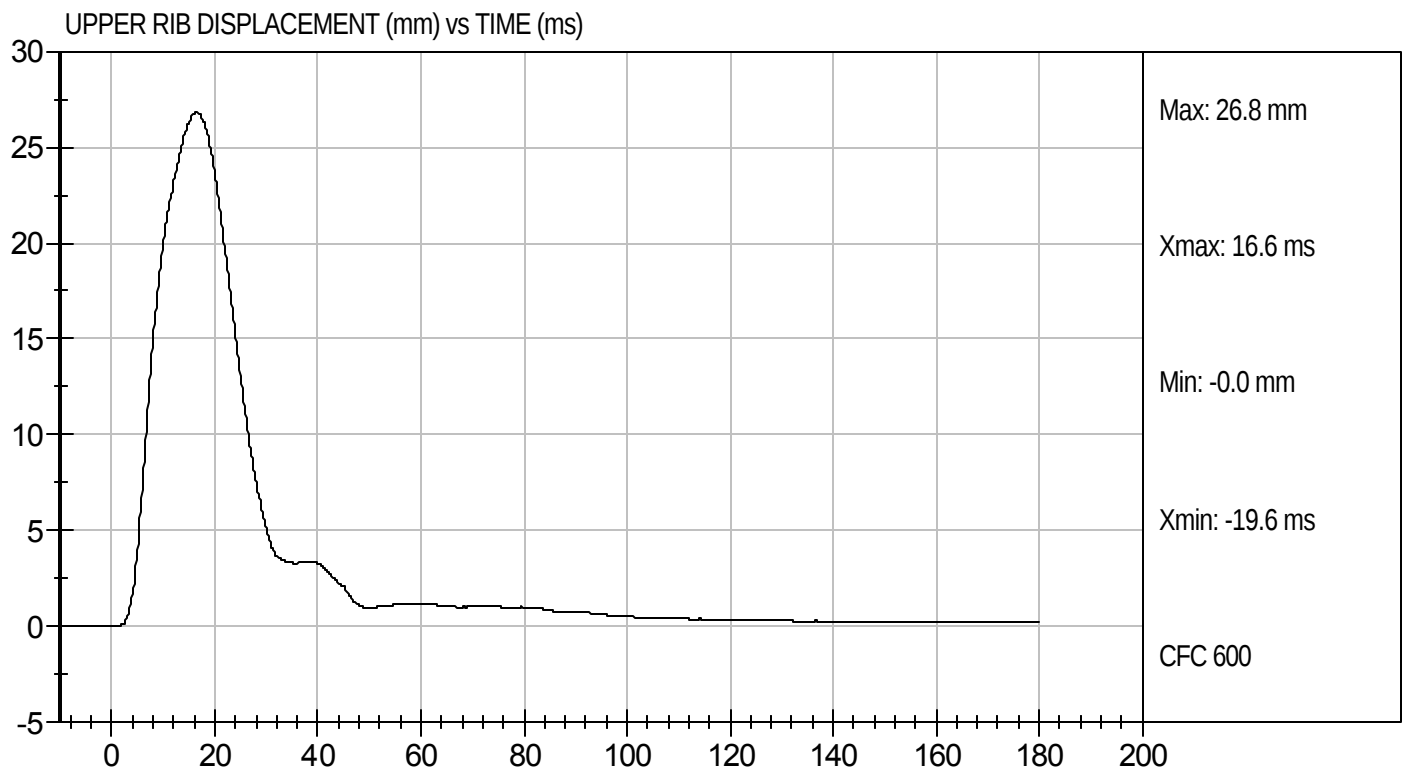
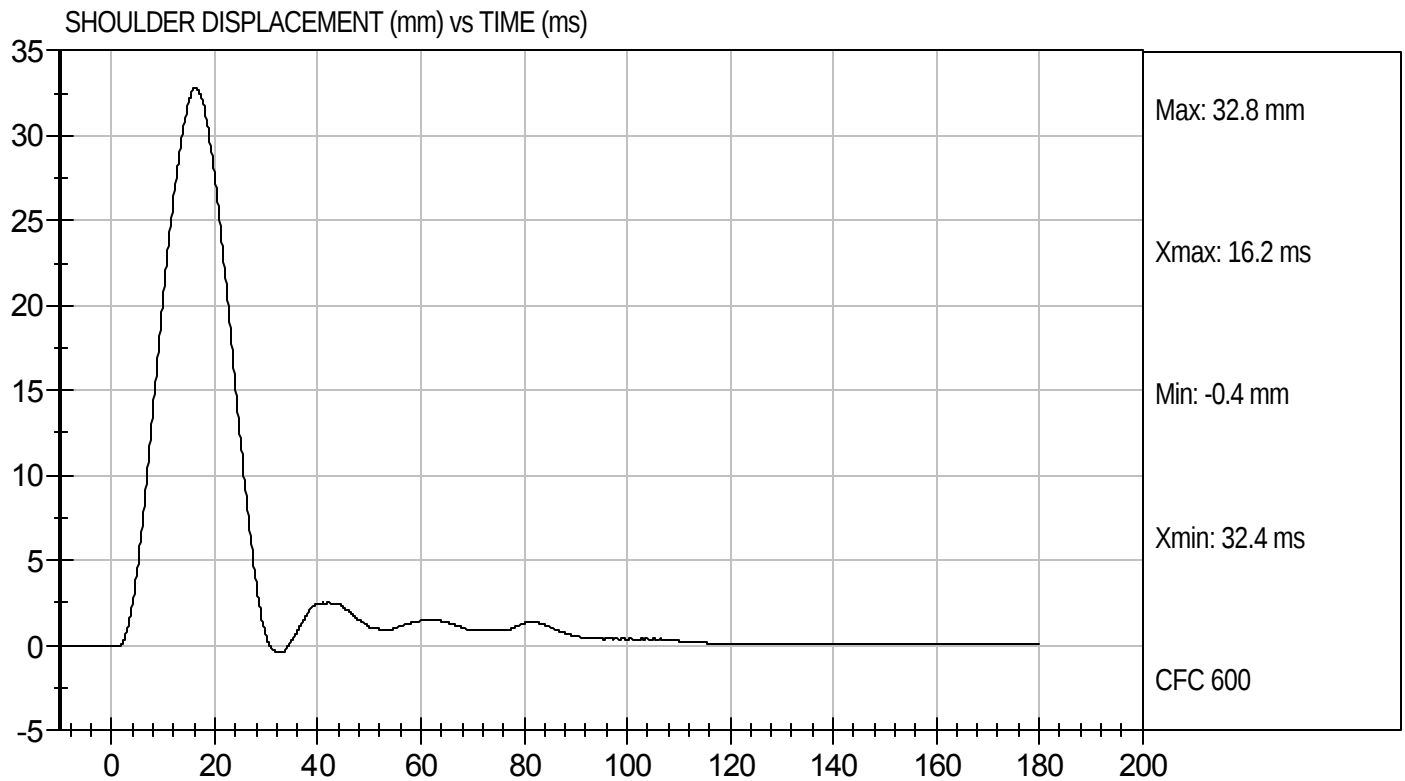
Test Date: 7/6/12
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D122504

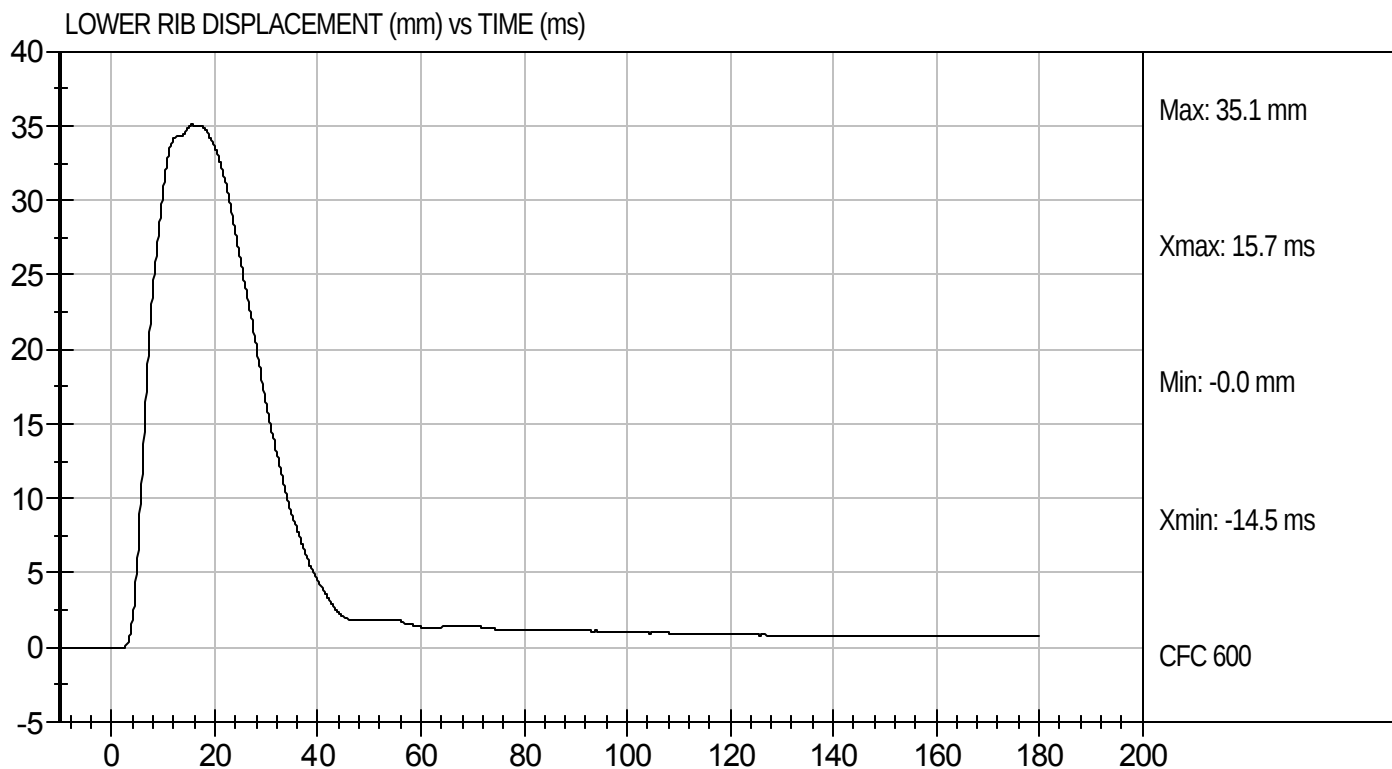
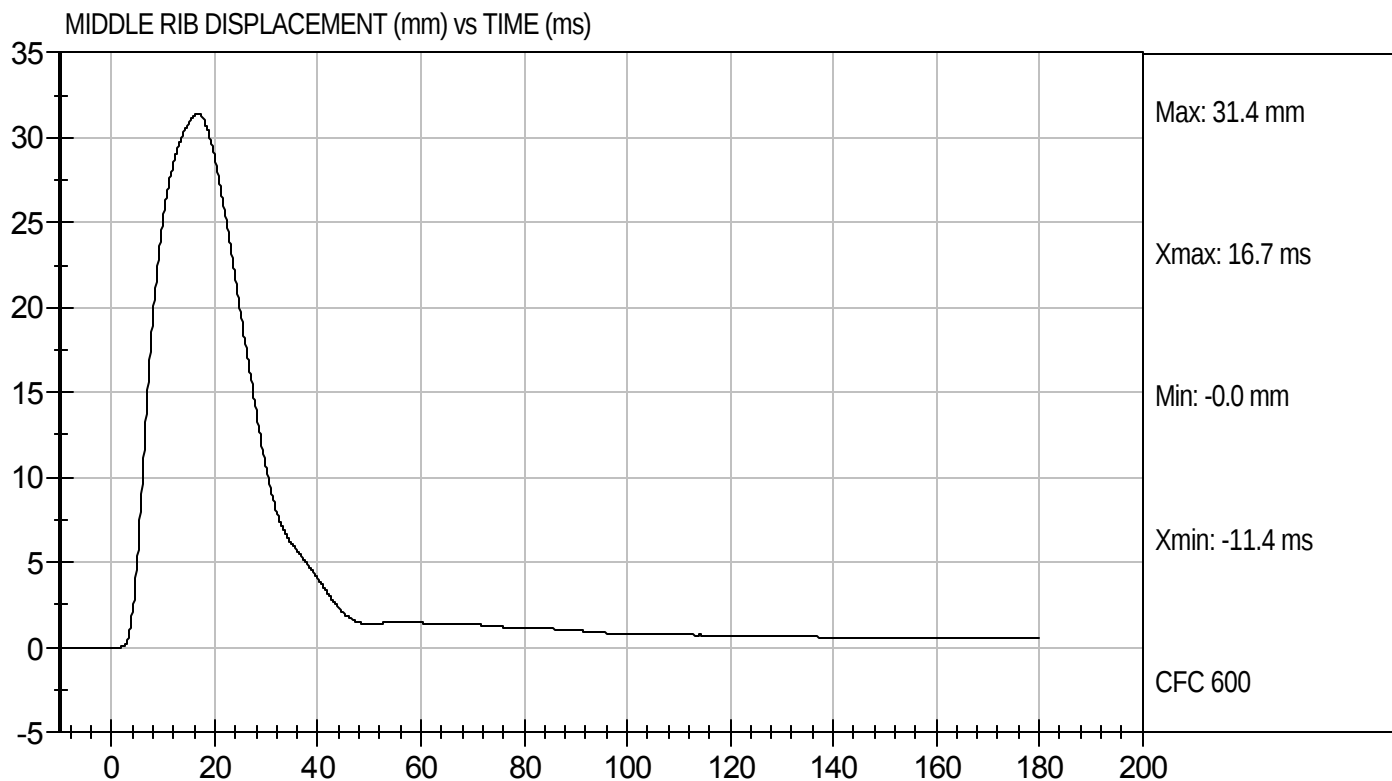
Test Date: 7/6/12
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D122504

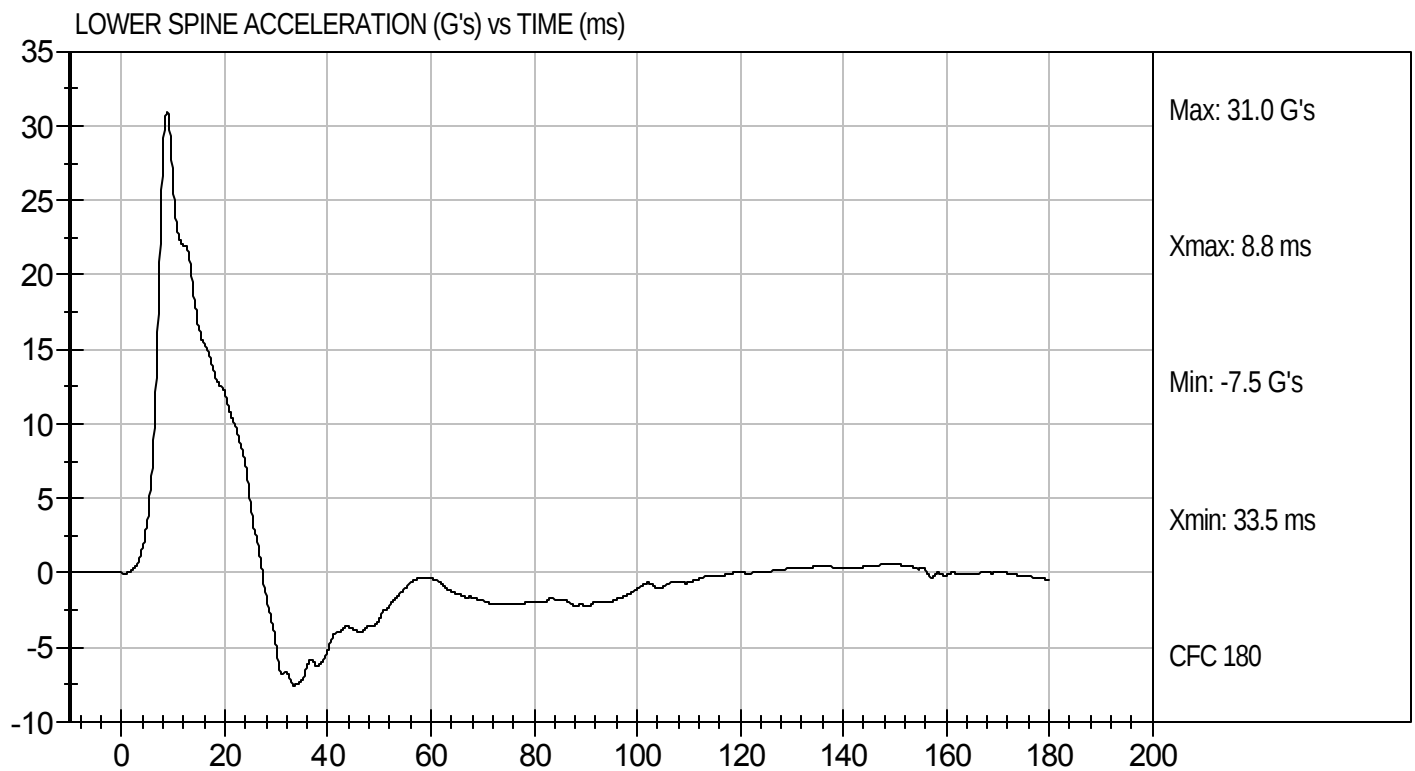
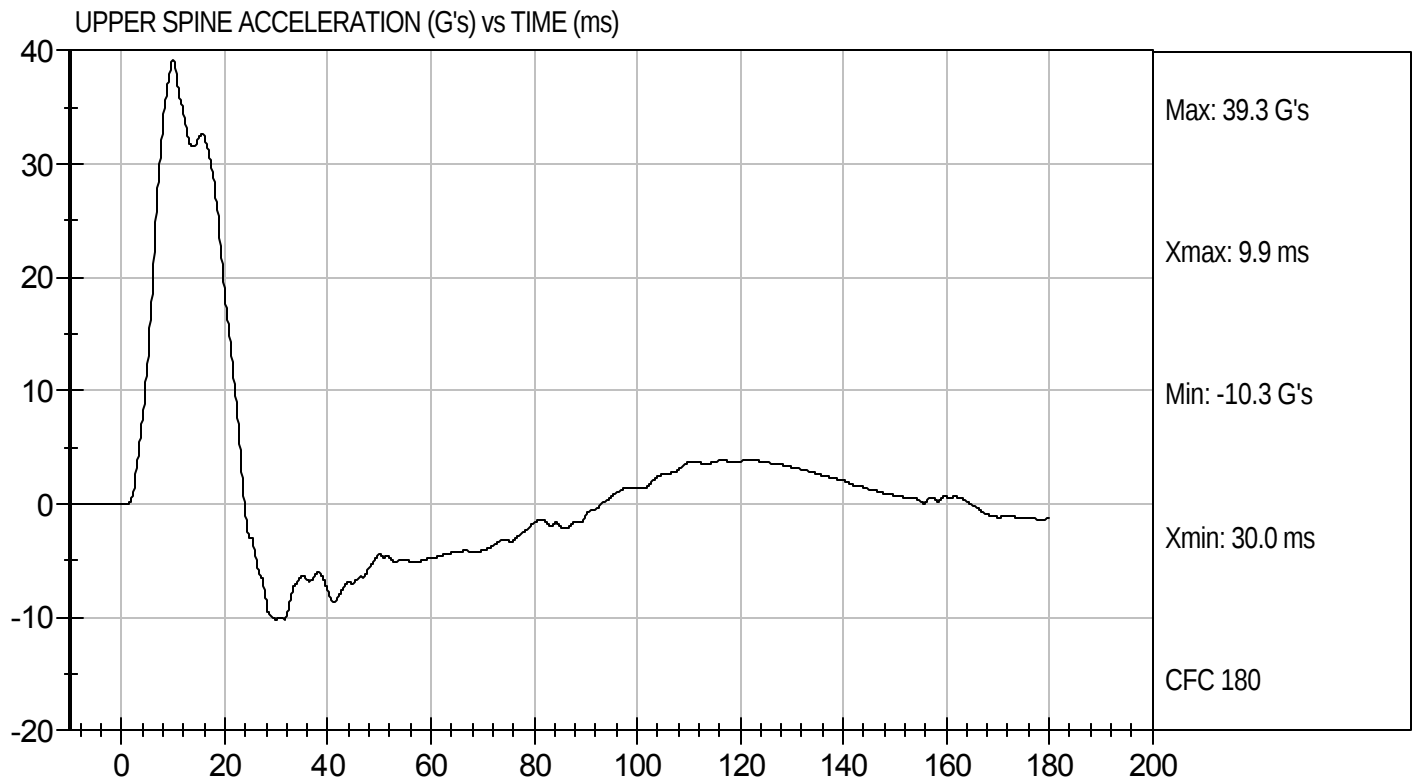
Test Date: 7/6/12
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D122504

Test Date: 7/6/12
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: D122505

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.9	Pass
Humidity	%	10 to 70	47	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	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

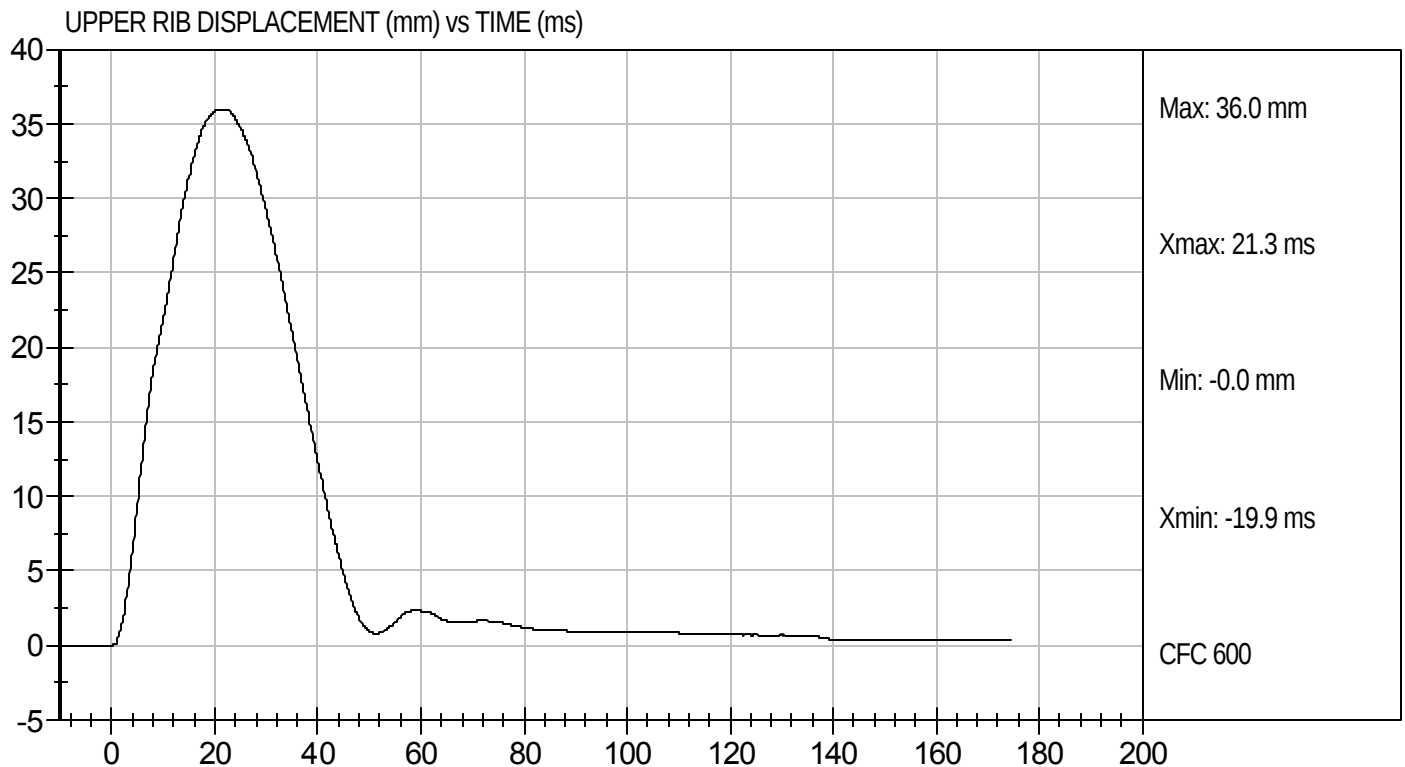
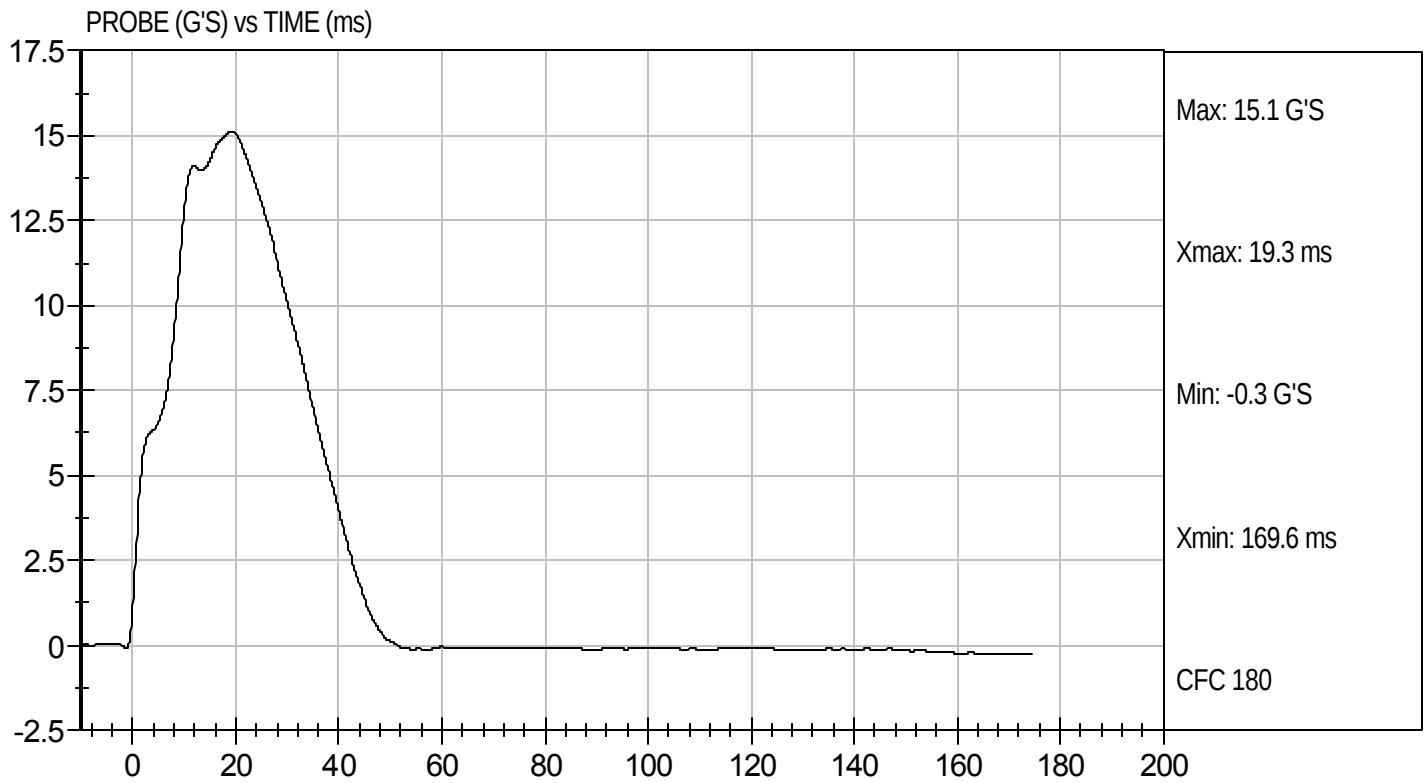
7/6/12
Test Date


Approved By



Test Desc: Thorax Without Arm
Component ID: D122505

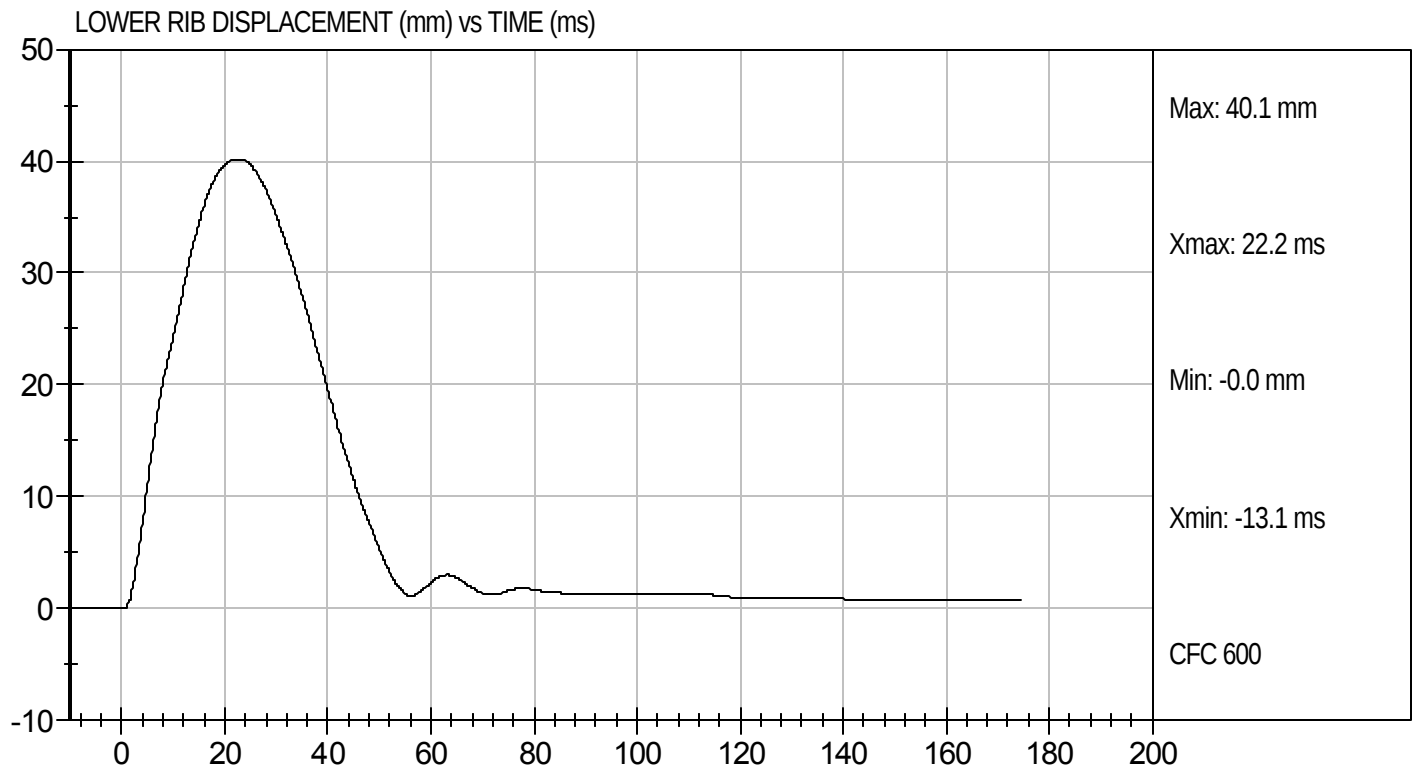
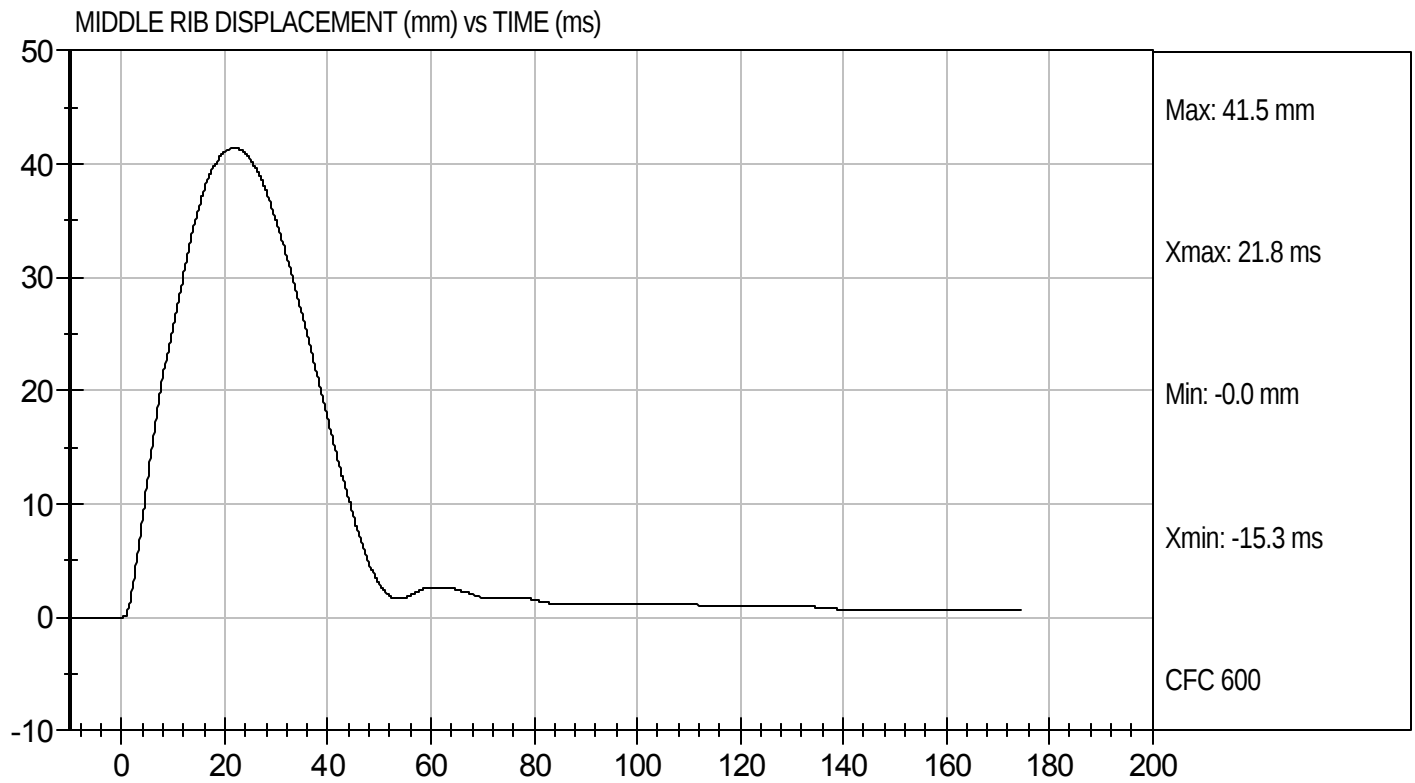
Test Date: 7/6/12
Velocity: 14.37 ft/s, 4.38 m/s





Test Desc: Thorax Without Arm
Component ID: D122505

Test Date: 7/6/12
Velocity: 14.37 ft/s, 4.38 m/s

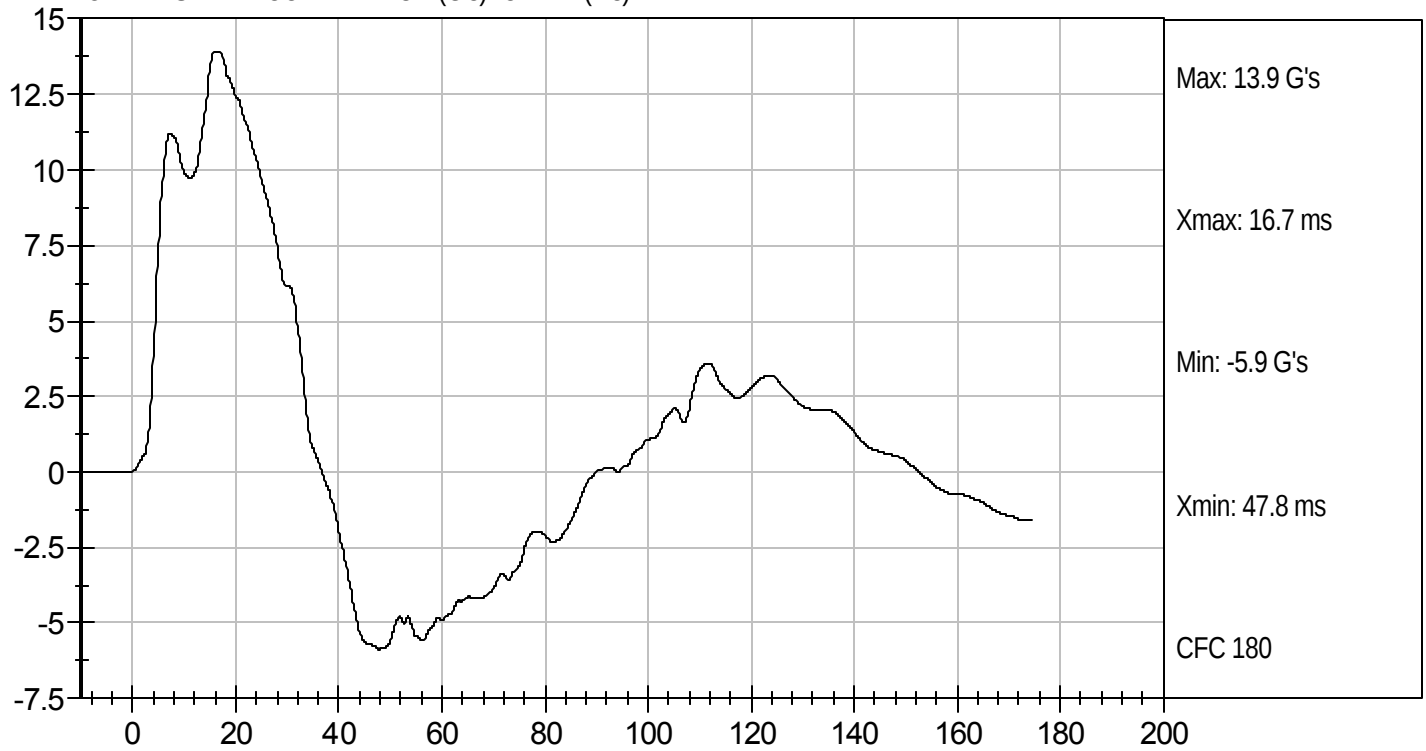




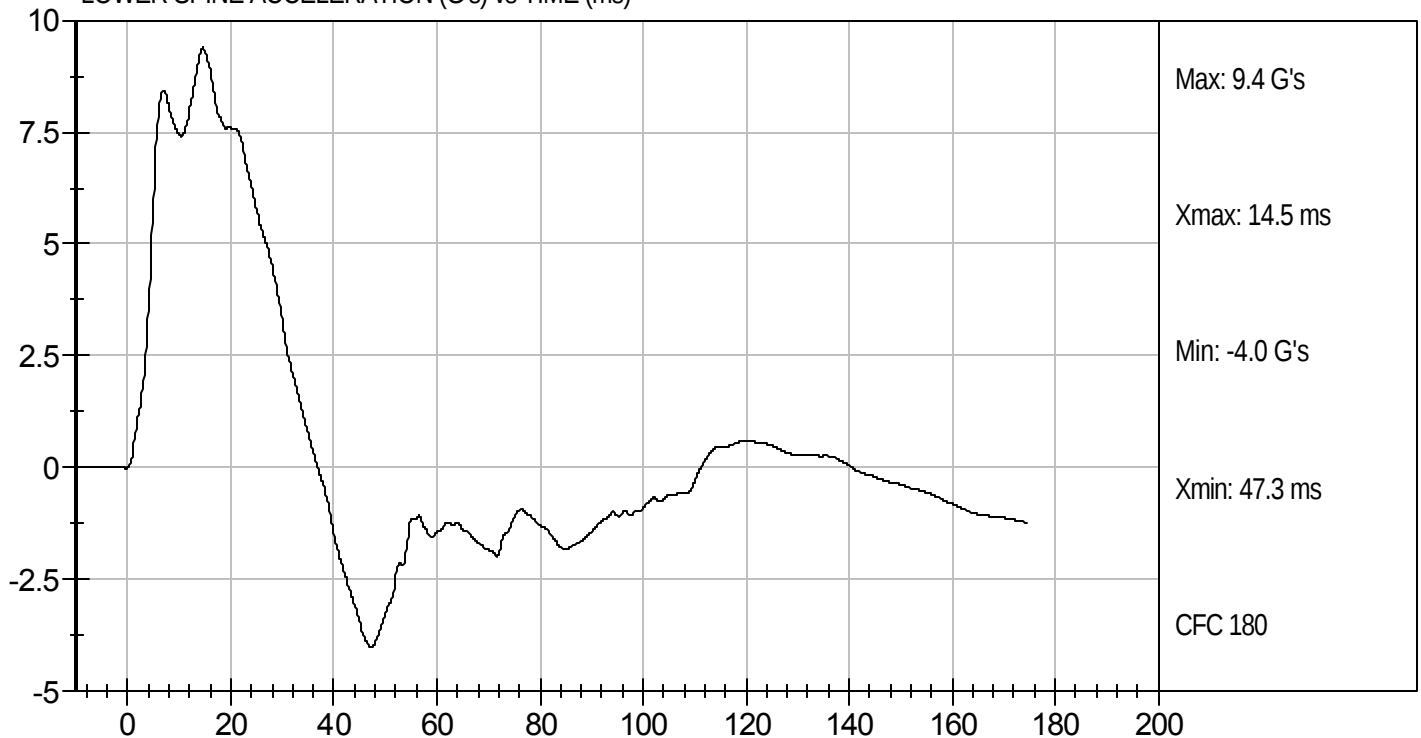
Test Desc: Thorax Without Arm
Component ID: D122505

Test Date: 7/6/12
Velocity: 14.37 ft/s, 4.38 m/s

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



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



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

ATD Serial No: 306

Test I.D: D122506

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.9	Pass
Humidity	%	10 to 70	47	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	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	37	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	10	Pass
Overall Test Results			Pass	

Jessica Hall
Laboratory Technician

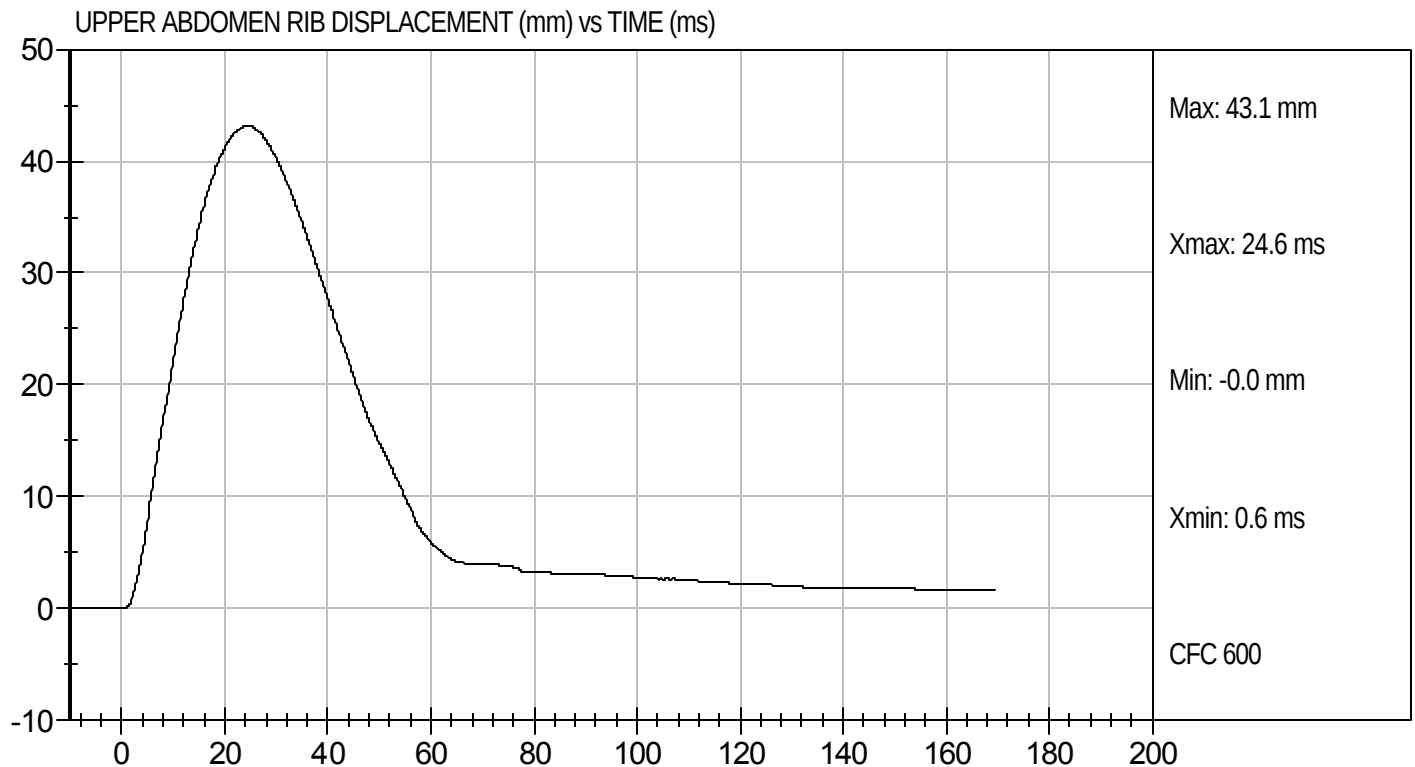
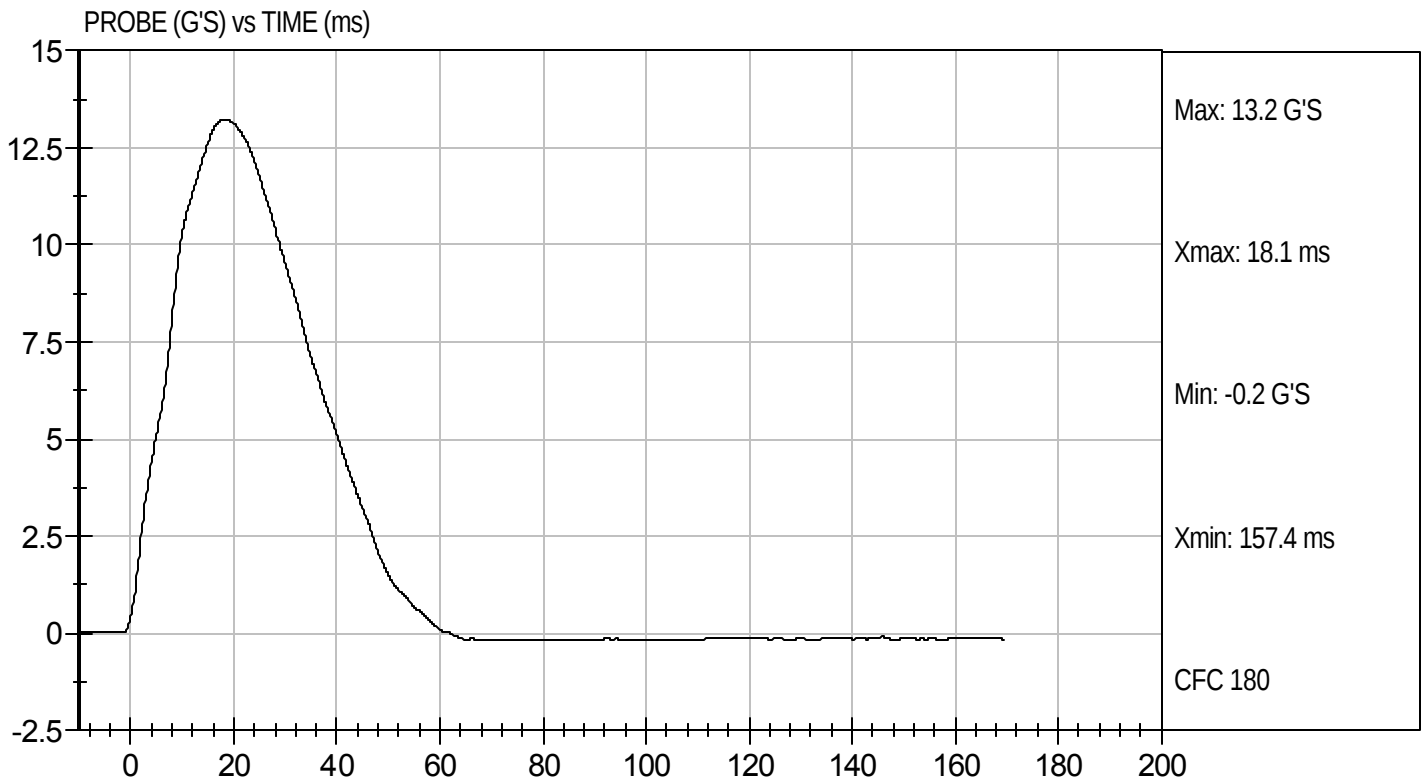
7/6/12
Test Date

David Winkelbauer
Approved By



Test Desc: Abdomen Impact
Component ID: D122506

Test Date: 7/6/12
Velocity: 14.37 ft/s, 4.38 m/s

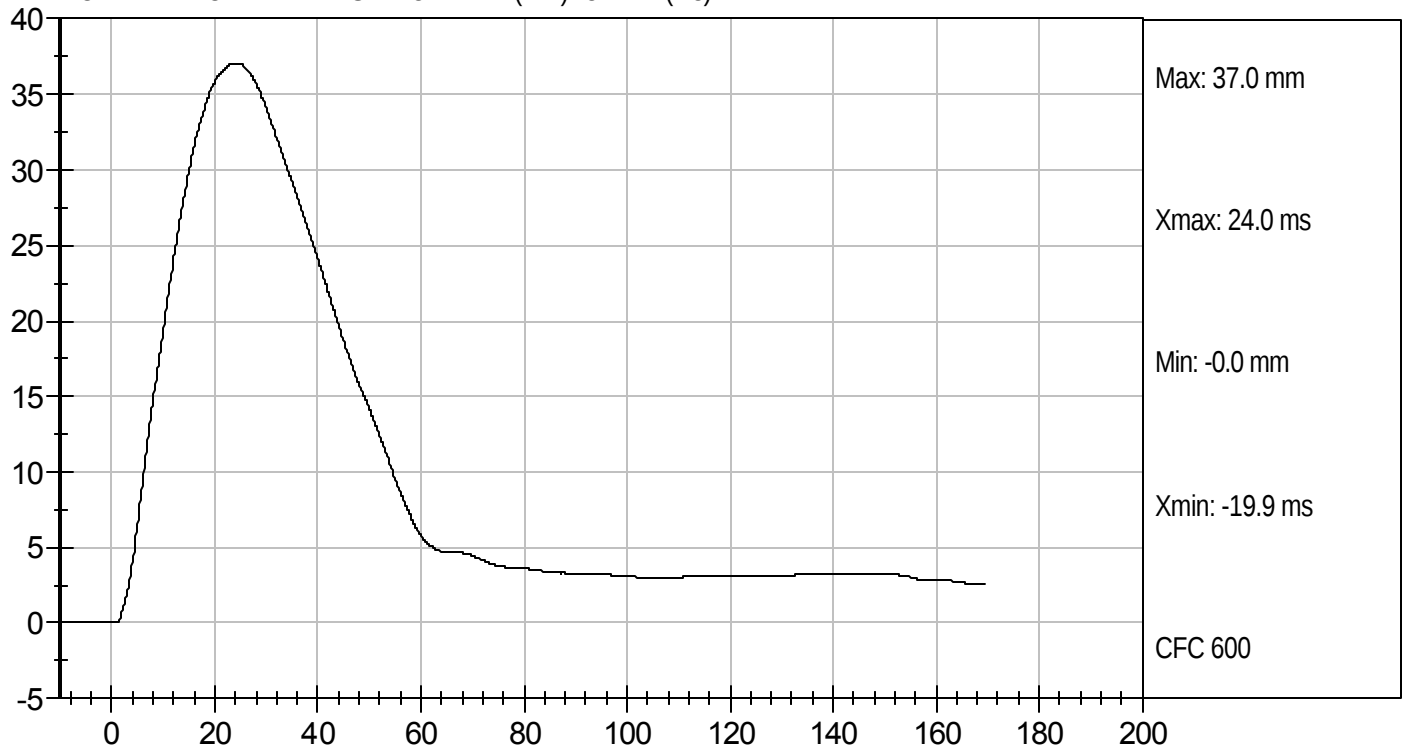




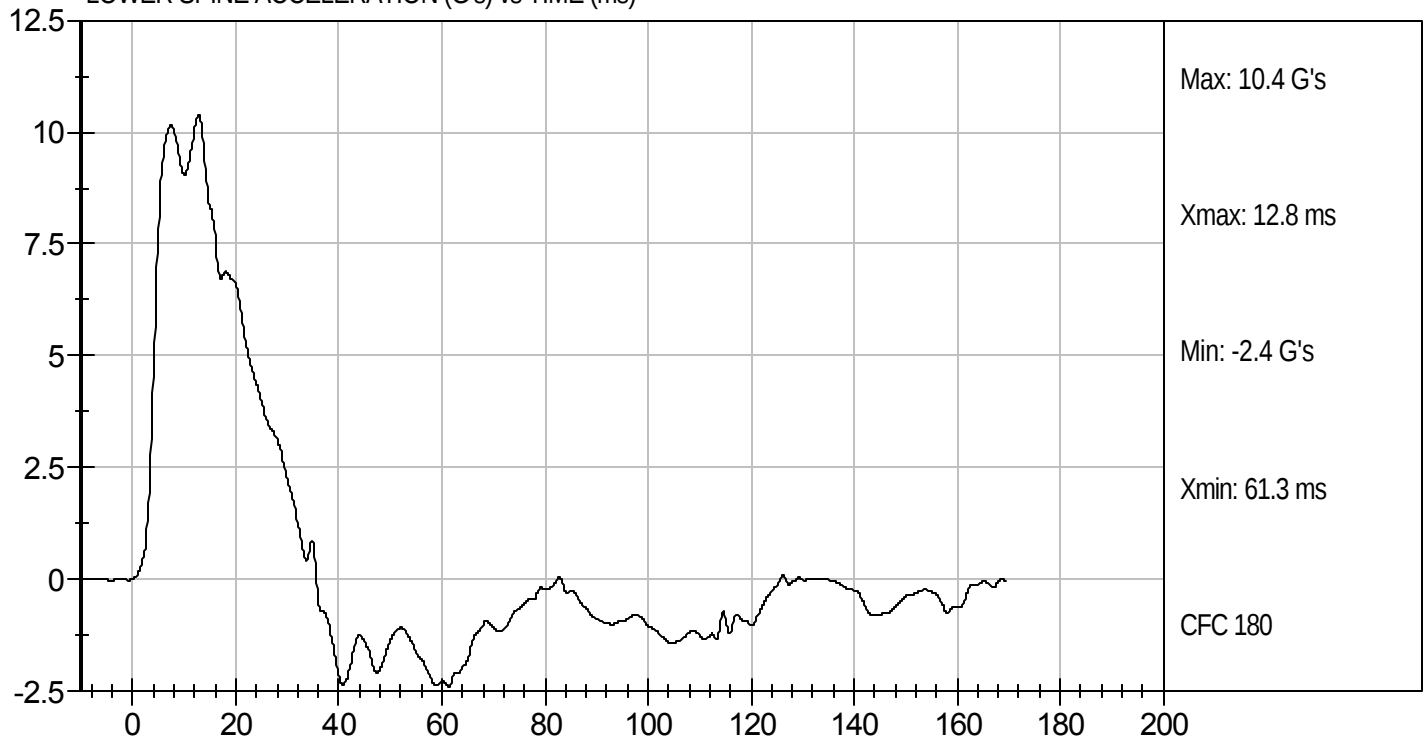
Test Desc: Abdomen Impact
Component ID: D122506

Test Date: 7/6/12
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: D122507

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.0	Pass
Humidity	%	10 to 70	47	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Peak Impactor Acceleration	G's	38 to 47	44	Pass
Pelvis Y Acceleration after 6 ms	G's	34 to 42	41	Pass
Peak Acetabulum Force	N	3600 to 4300	3921	Pass
Overall Test Results				Pass


Laboratory Technician

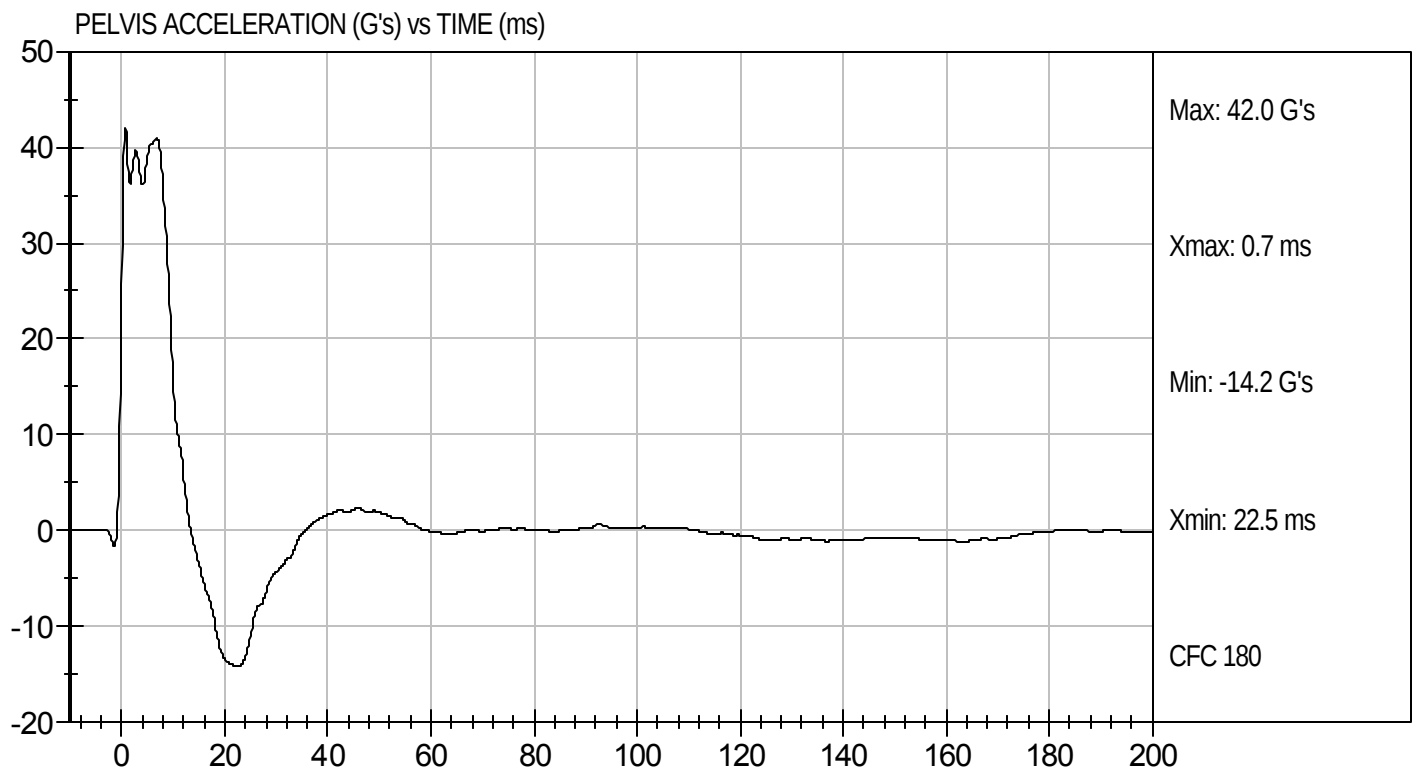
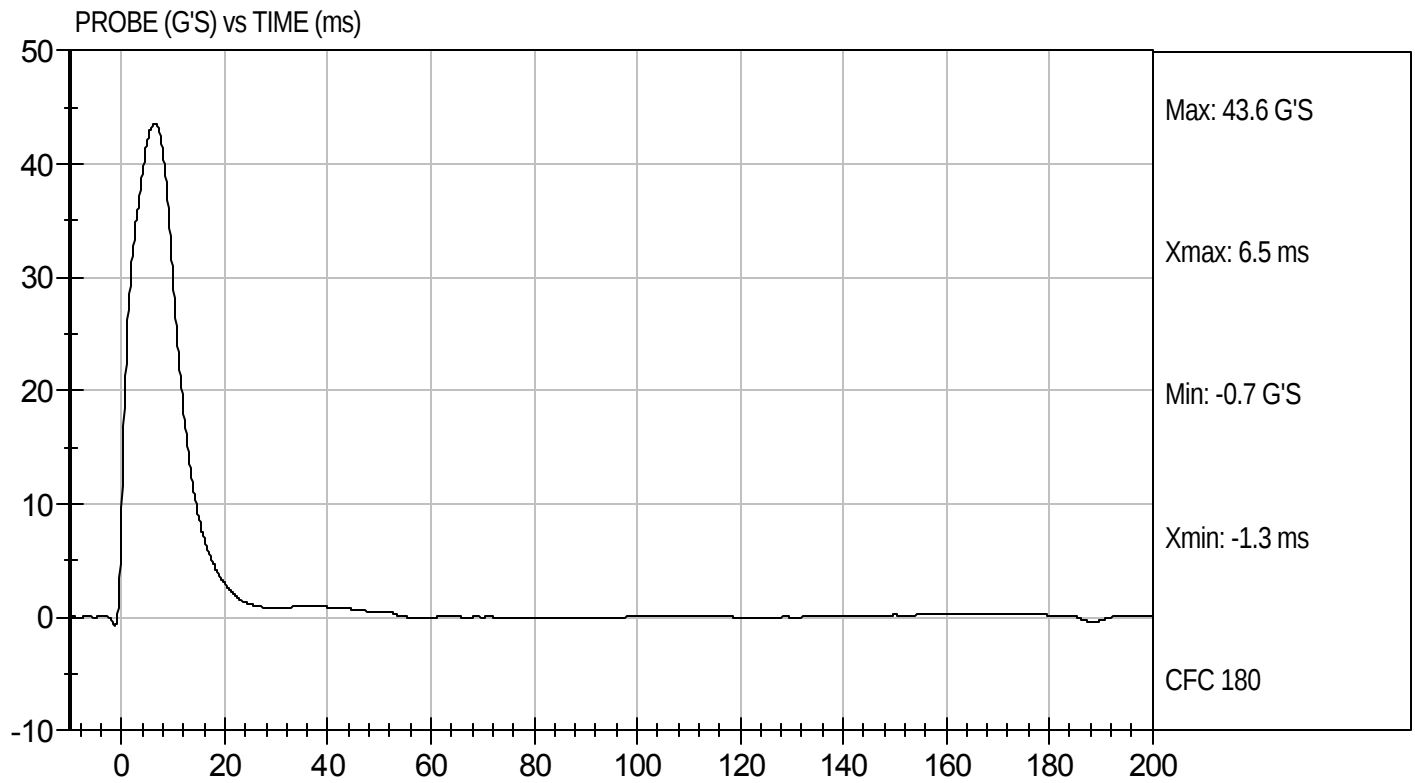
7/6/12
Test Date


Approved By



Test Desc: Pelvis Impact
Component ID: D122507

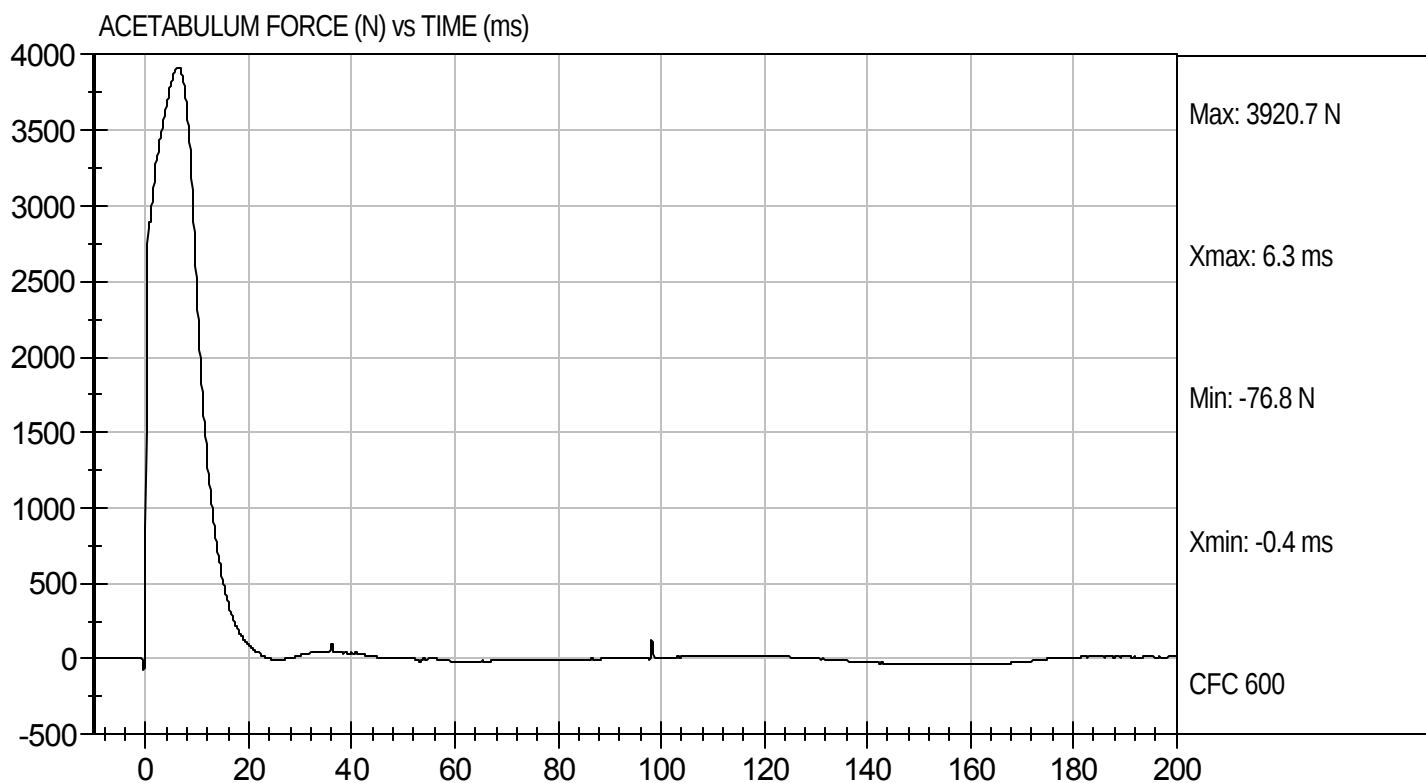
Test Date: 7/6/12
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Pelvis Impact
Component ID: D122507

Test Date: 7/6/12
Velocity: 22.22 ft/s, 6.77 m/s



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

ATD Serial No: 306

Test I.D: D122508

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.9	Pass
Humidity	%	10 to 70	46	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Peak Impactor Acceleration	G's	36 to 45	38	Pass
Pelvis Y Acceleration	G's	28 to 39	31	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4497	Pass
Overall Test Results				Pass


Laboratory Technician

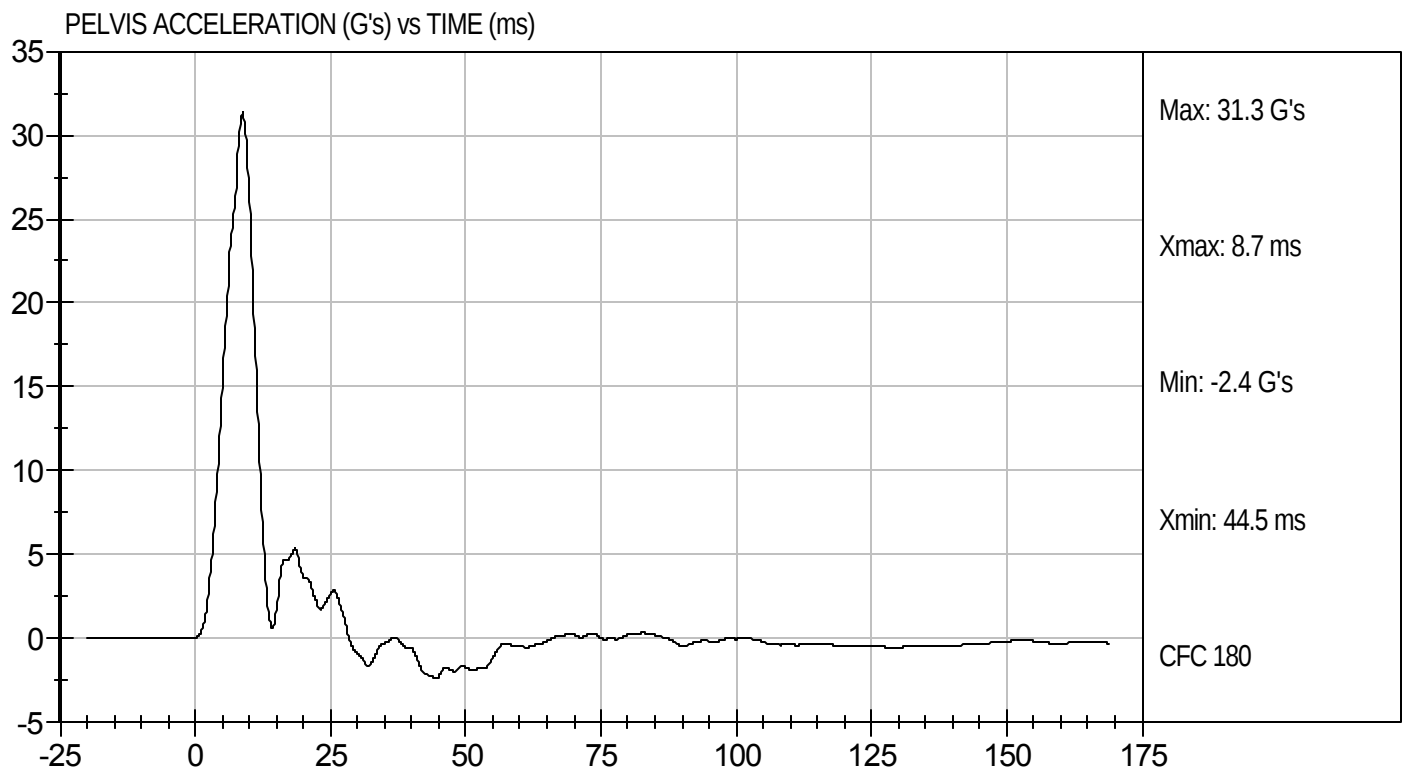
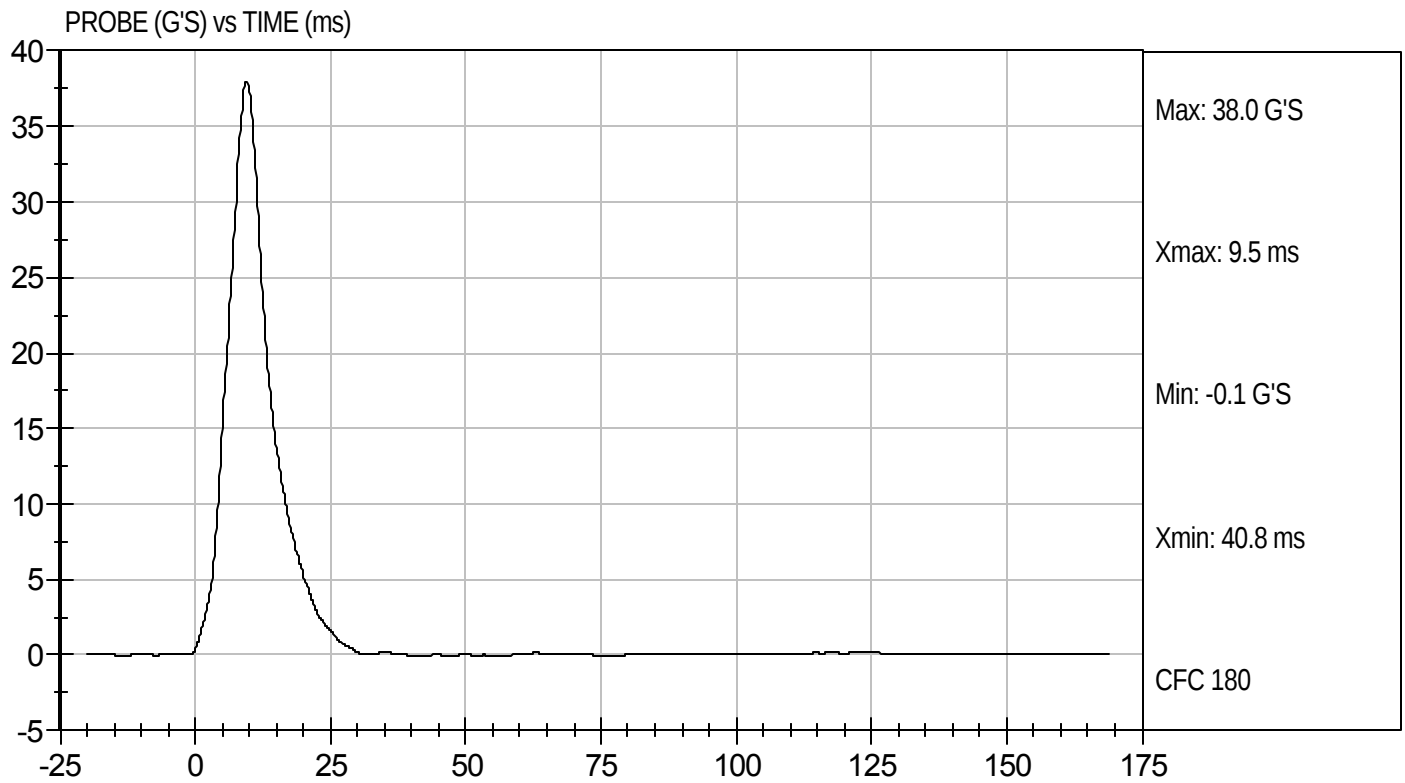
7/6/12
Test Date


Approved By



Test Desc: Iliac Impact
Component ID: D122508

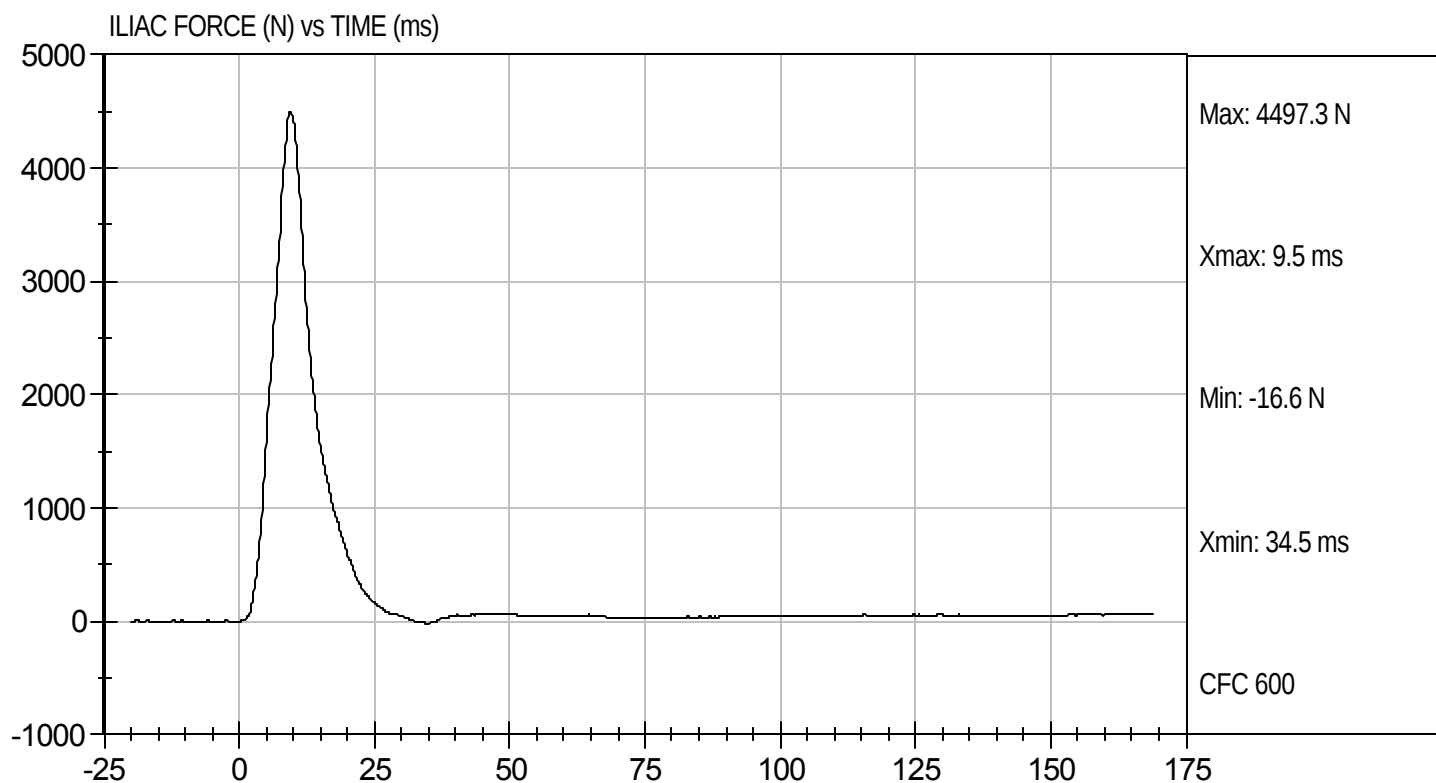
Test Date: 7/6/12
Velocity: 14.37 ft/s, 4.38 m/s



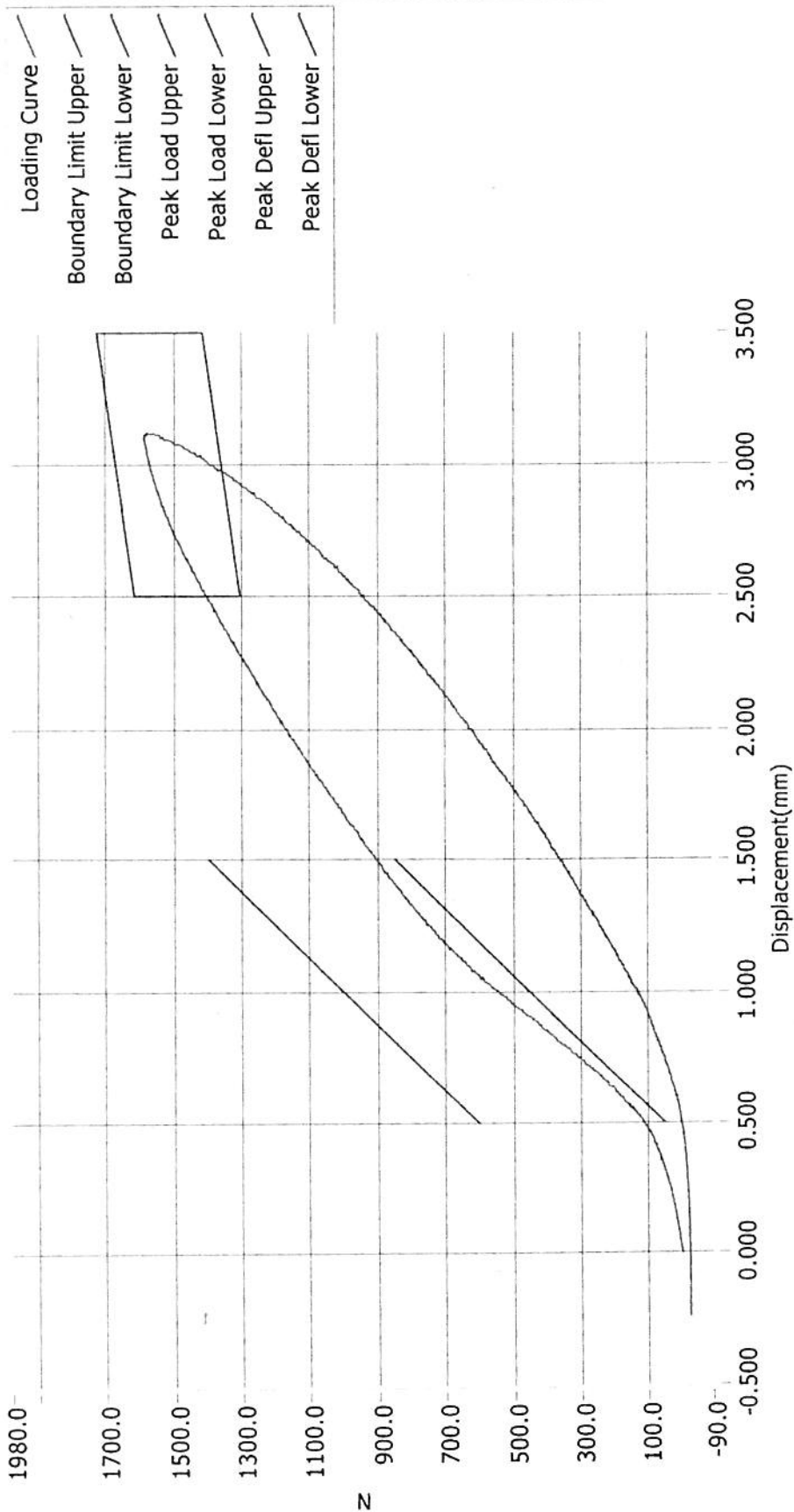


Test Desc: Iliac Impact
Component ID: D122508

Test Date: 7/6/12
Velocity: 14.37 ft/s, 4.38 m/s



Resultant Data - SIDIIs Plug Compression

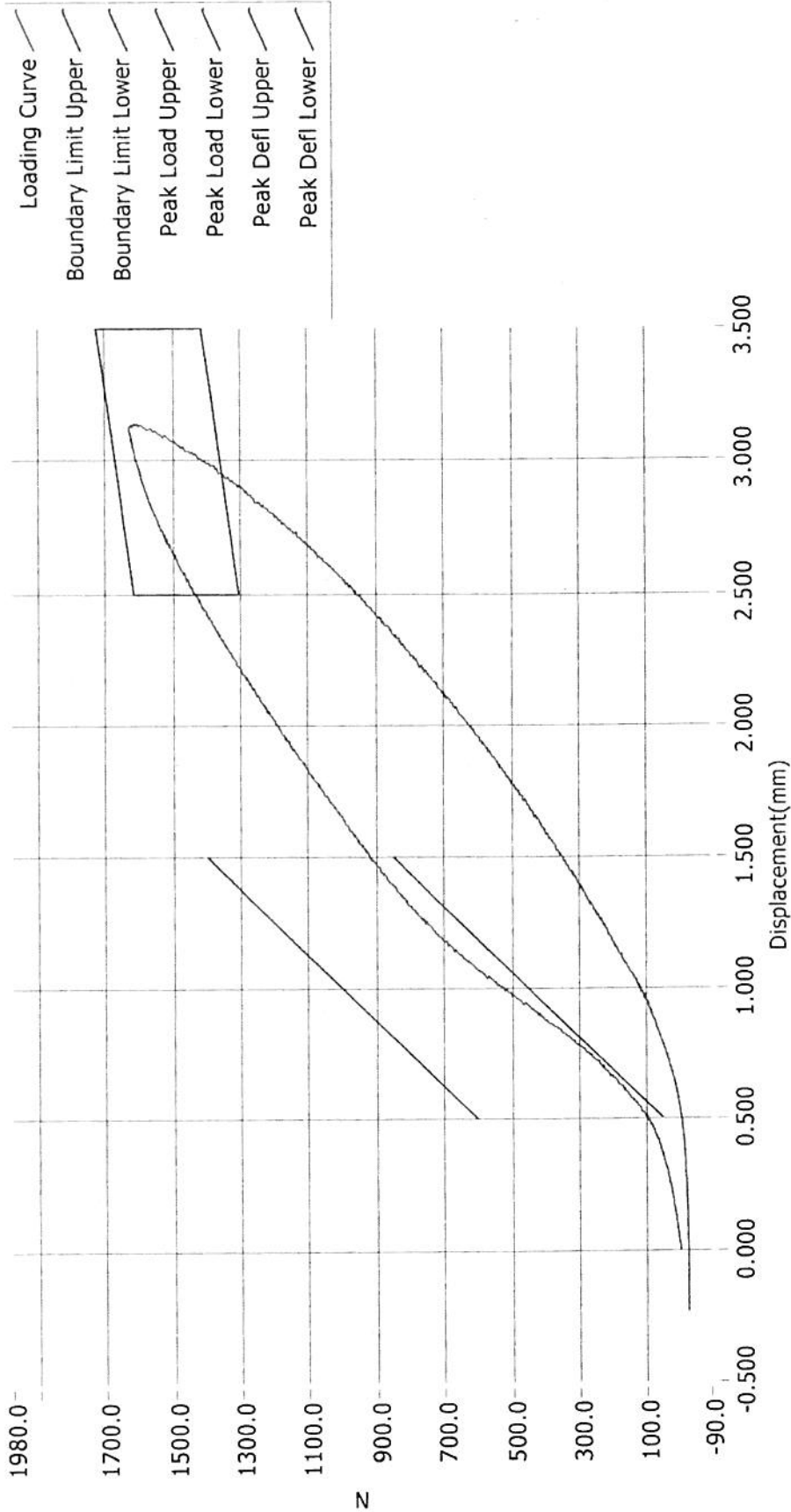


ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
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Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 12/7/2011 Current Time : 23:58:50

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
	49035	12/7/2011	7:52 PM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 12/7/2011

Current Time : 19:54:26

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	05/23/12
			Y	P67886	Endevco	05/23/12
			Z	P67887	Endevco	05/23/12
Head Accelerometers			Xr	P67888	Endevco	05/23/12
			Yr	P67889	Endevco	05/23/12
			Zr	P67890	Endevco	05/23/12
Displacement Potentiometers	Thoracic Rib	Upper	Y	G1187	FTSS	05/23/12
		Middle	Y	G1261	FTSS	05/23/12
		Lower	Y	G1270	FTSS	05/23/12
	Abdominal Rib	Upper	Y	G1287	FTSS	05/23/12
		Lower	Y	G1304	FTSS	05/23/12
Lower Spine Accelerometers (T12)			X	P67508	Endevco	05/23/12
			Y	P67510	Endevco	05/23/12
			Z	P67511	Endevco	05/23/12
Acetabulum Load Cell			Y	ACG111	FTSS	05/09/12
Iliac Wing Load Cell			Y	IWG226	FTSS	05/14/12
Pelvis Plug (struck side)				49142	FTSS	12/07/11
Pelvis Plug (non-struck side)				49035	FTSS	12/07/11

Table 2 – Vehicle Instrumentation

		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	P52179	Endevco	04/23/12
Vehicle Center of Gravity	Y	P52180	Endevco	04/23/12
Vehicle Center of Gravity	Z	P52178	Endevco	04/23/12
Left Floor Sill	Y	P63412	Endevco	01/13/12
A-Pillar Sill	Y	P59327	Endevco	06/12/12
A-Pillar Low	Y	P55690	Endevco	06/12/12
A-Pillar Mid	Y	P55687	Endevco	05/02/12
B-Pillar Sill	Y	P59283	Endevco	01/12/12
B-Pillar Low	Y	P63282	Endevco	06/12/12
B-Pillar Mid	V	P48388	Endevco	06/12/12
Driver Seat	Y	P47853	Endevco	06/12/12
Engine Top	X	P63330	Endevco	02/10/12
Engine Top	Y	P63329	Endevco	02/10/12
Firewall	Y	P59325	Endevco	06/12/12
Right Roof	Y	P63530	Endevco	02/10/12
Right Floor Sill	Y	P52191	Endevco	02/10/12
Rear Floorpan	X	P63349	Endevco	05/01/12
Rear Floorpan	Y	P63348	Endevco	05/01/12

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	DG6282	FTSS	09/15/11