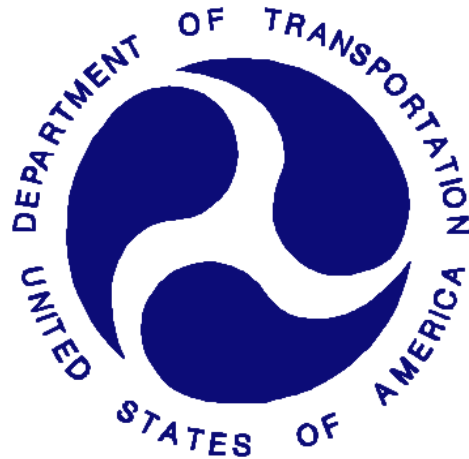


REPORT NUMBER: SPNCAP-MGA-2012-072

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

**GENERAL MOTORS OF CANADA LTD.
2012 Buick Regal with eAssist 4-Dr Sedan
NHTSA No.: MC0120**

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



Test Date: March 5, 2012

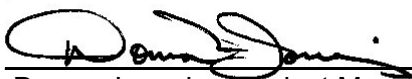
Final Report Date: April 27, 2012

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-2012-072		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 Buick Regal with eAssist 4-Dr Sedan, NHTSA No.: MC0120				5. Report Date April 27, 2012																												
				6. Performing Organization Code MGA																												
7. Author(s) Donna Janovicz, Project Manager Ben Fischer, Project Engineer				8. Performing Organization Report No. SPNCAP-MGA-2012-072																												
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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 March 5 to April 27, 2012																												
				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 Buick Regal with eAssist 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 March 5, 2012. The impact velocity was 32.1 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21.4°C. The test vehicle post-test maximum crush was 368 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>370</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>Gs</td> <td>82</td> <td>48</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>2750</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38*</td> <td>15</td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td>mm</td> <td>45*</td> <td>13</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	370	Resultant Lower Spine Acceleration	Gs	82	48	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2750	Maximum Thoracic Rib Deflection	mm	38*	15	Maximum Abdomen Rib Deflection	mm	45*	13
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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 Buick Regal with eAssist 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 Buick Regal with eAssist 4-Dr Sedan. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.1 km/h. The test was conducted by MGA Research Corporation in Burlington, Wisconsin, on March 5, 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	370
Resultant Lower Spine Acceleration	Gs	82	48
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2750
Maximum Thoracic Rib Deflection	mm	38*	15
Maximum Abdomen Rib Deflection	mm	45*	13

*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	Yes		
Knee Airbag	No			
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Abdomen/Pelvis Airbag	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes		No	
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 17ms
- Left Lower A-Post Y after 17ms
- Left Mid A-Post Y
- Left Lower B-Post Y after 5ms
- Left Mid B-Post Y after 10ms
- Driver Seat Track Y after 15ms

Vehicle CG X, Y, and Z are questionable from 37-40ms

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 Buick Regal with eAssist 4-Dr Sedan NHTSA No. MC0120
 Test Program: NCAP Side Pole Impact Test Test Date: 3/05/2012

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	MC0120	Traction Control System (TCS)	Yes
Model Year	2012	Auto-Leveling System	No
Make	Buick	Automatic Door Locks (ADL)	Yes
Model	Regal eAssist	Power Window Auto-Reverse	No
Body Style	Sedan	Other Optional Feature	N/A
VIN	2G4GR5ER3C9162798	Driver Front Airbag	Yes
Body Color	Quicksilver Metallic	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	185 / 115	Driver Head/Torso Airbag	No
Engine Displacement (L)	2.4	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	Driver Only	Driver Load Limiter	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Pass. Load Limiter	No
All Wheel Drive (AWD)	No	Other Safety Restraint	N/A
Does owner's manual provide instruction to turn off automatic door locks?			No

DATA FROM CERTIFICATION LABEL

Manufactured By	General Motors of Canada Ltd.	GVWR (kg)	2069
Date of Manufacture	01/12	GAWR Front (kg)	1071
Vehicle Type	Passenger Car	GAWR Rear (kg)	998

VEHICLE SEATING AND WEIGHT CAPACITY DATA

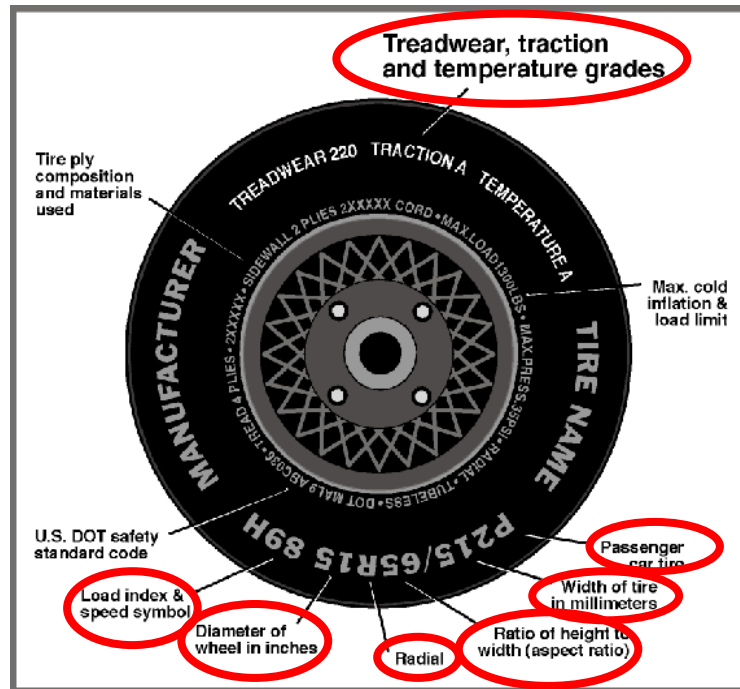
Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	
Capacity Weight (VCW) (kg)				410	(A)
DSC x 68.04 kg				340	(B)
Rated Cargo and Luggage Weight (RCLW)				70	(A-B)

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						X
Rear or Second Row			X		X		
Third Row Seat							

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

Test Vehicle: 2012 Buick Regal with eAssist 4-Dr Sedan NHTSA No. MC0120
 Test Program: NCAP Side Pole Impact Test Test Date: 3/05/2012



TIRE PLACARD INFORMATION

Measured Parameter	Front	Rear
Recommended Cold Tire Pressure (kPa)	240	240
Recommended Tire Size	P235/50R17	P235/50R17

TIRE SIDEWALL INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	300	300
Tire Size on Vehicle	P235/50R17	P235/50R17
Tire Manufacturer	Michelin	Michelin
Tire Name	ENERGY SAVER A/S	ENERGY SAVER A/S
Tire Type	Passenger	Passenger
Tire Width	235	235
Aspect Ratio	50	50
Radial	Yes	Yes
Wheel Diameter	17	17
Load Index/Speed Symbol	95T	95T
Treadwear	480	480
Traction Grade	A	A
Temperature Grade	B	B
Tire Material	Rubber	Rubber

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

Test Vehicle: 2012 Buick Regal with eAssist 4-Dr Sedan NHTSA No. MC0120
 Test Program: NCAP Side Pole Impact Test Test Date: 3/05/2012

TEST PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kpa	240	240	240	240
Tire Placard	kpa	240	240	240	240
Owner's Manual	kpa				
As Tested	kpa	240	240	240	240

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	503.9	334.8		522.0	378.3		520.7	392.8	
Right	kg	476.3	332.0		492.2	369.7		476.8	378.3	
Ratio	%	59.5	40.5		57.6	42.4		56.4	43.6	
Totals	kg	980.2	666.8	1647.0	1014.2	748.0	1762.2	997.5	771.1	1768.6

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1647.0	(A)
Actual Weight of 1 P572V ATD (SID-IIs) ATD Used	kg	52.2	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	70	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1769.2	(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)
Weight of Ballast, if any	0.0
Right taillight, air pump, trunk cargo cover, right trunk lining.	5.9

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	deg	-1.0	-0.7	-0.7	Yes
Front Pass. Sill Angle (front-to-rear)*	deg	-1.1	-0.8	-0.8	Yes
Front Bumper Angle (left-to-right)**	deg	0.0	0.0	-0.1	Yes
Rear Bumper Angle (left-to-right)**	deg	0.0	0.0	-0.1	Yes
Vehicle CG (Aft of Front Axle)	mm	1107	1161	1192	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	15	17	26	

*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 Buick Regal with eAssist 4-Dr Sedan NHTSA No. MC0120
 Test Program: NCAP Side Pole Impact Test Test Date: 3/05/2012

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	23.0	12.6	17.8
Front Passenger Seat	23.8	19.0	21.4
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	17.8	34	Max	68	68	68
	17.8	34	Mid	34	34	34
	17.8	34	Min	0	0	0
Front Passenger Seat	19.0	Fixed	Max	Fixed	Fixed	Fixed
	19.0	Fixed	Mid	Fixed	Fixed	Fixed
	19.0	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

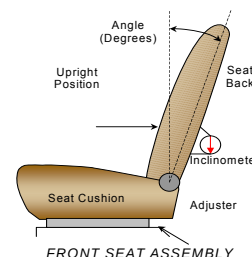
Test Vehicle: 2012 Buick Regal with eAssist 4-Dr Sedan NHTSA No. MC0120
 Test Program: NCAP Side Pole Impact Test Test Date: 3/05/2012

SEAT FORE/AFT POSITIONS

Seat	Total Fore/Aft Travel		Test Position from Forward-most Position	
	mm	Detents	mm	Detent
Driver Seat	270		0	
Front Passenger Seat	270	59 (1 st as 0)	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	92.6		-26.7	
Front Passenger Seat	90.0		-26.0	
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 0)	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	9	Lowest

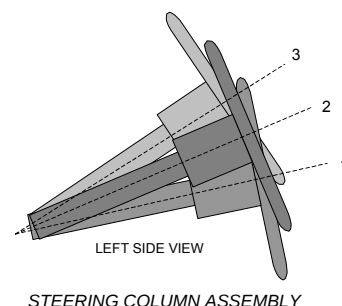
DATA SHEET NO. 2 (CONTINUED)
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

Test Vehicle: 2012 Buick Regal with eAssist 4-Dr Sedan NHTSA No. MC0120
 Test Program: NCAP Side Pole Impact Test Test Date: 3/05/2012

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.

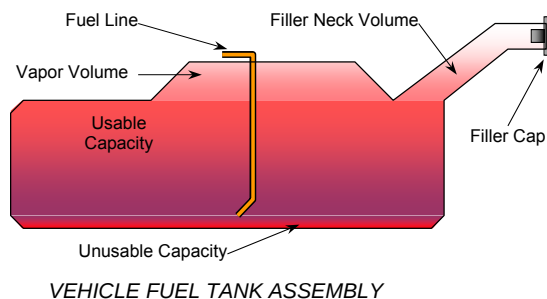
	Degrees	Fore/Aft Position (mm)
Lowermost, Position 1	69.4	241
Geometric Center, Position 2	67.4	214
Uppermost, Position 3	65.4	186
Telescoping Steering Wheel Travel		55
Test Position	67.4	214



FUEL PUMP

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

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



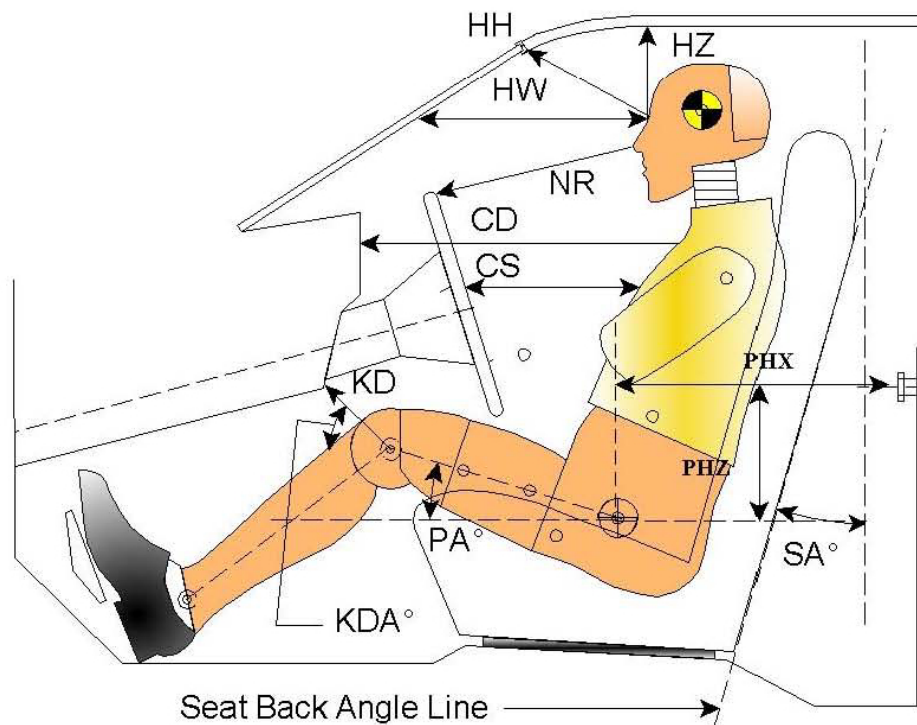
FUEL TANK CAPACITY DATA

	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	59.8
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	59.8
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	55.6
Actual Amount of Solvent Used	55.6
1/3 of Usable Capacity	19.9

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 Buick Regal with eAssist 4-Dr Sedan NHTSA No. MC0120
Test Program: NCAP Side Pole Impact Test Test Date: 3/05/2012

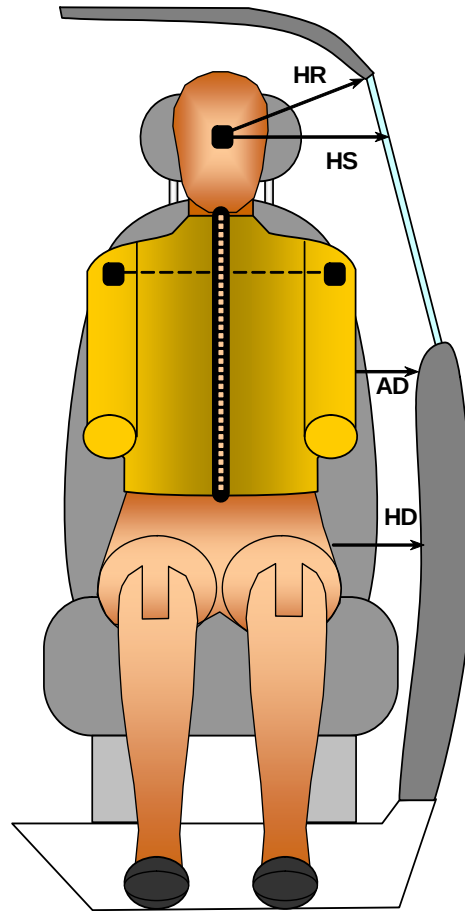


LEFT SIDE VIEW

Code	Measurement Description	Driver S/N 306	
		Length (mm)	Angle (°)
HH	Head to Header	211	
HW	Head to Windshield	508	
HZ	Head to Roof Liner	147	
NR	Nose to Rim	210	
CD	Chest to Dashboard	413	
CS	Chest to Steering Wheel	161	
KDL/KDAL°	Left Knee to Dash	100	34.5
KDR/KDAR°	Right Knee to Dash	96	31.8
PAX°	Pelvic Tilt Angle (X-Axis)		17.6
PAY°	Pelvic Tilt Angle (Y-Axis)		-1.0
PHX	Hip Point to Striker (X-Axis)	339	
PHZ	Hip Point to Striker (Z-Axis)	145	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle:	2012 Buick Regal with eAssist 4-Dr Sedan	NHTSA No.	MC0120
Test Program:	NCAP Side Pole Impact Test	Test Date:	3/05/2012

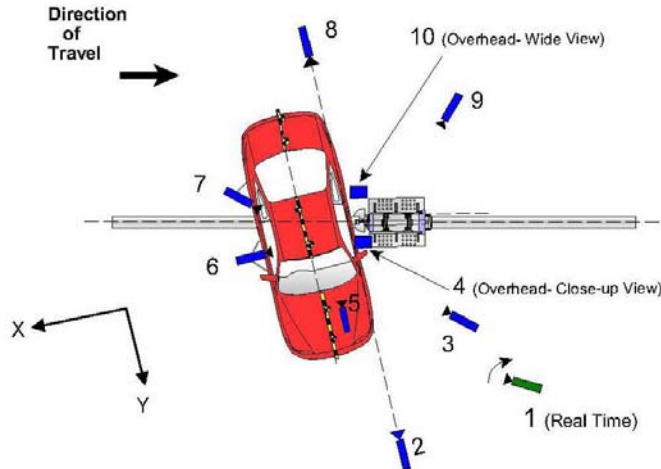


FRONT VIEW OF DUMMY

Code	Measurement Description	Driver S/N 306
		Length (mm)
HR	Head to Side Header	215
HS	Head to Side Window	349
AD	Arm to Door	182
HD	Hip Point to Door	262

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2012 Buick Regal with eAssist 4-Dr Sedan NHTSA No. MC0120
Test Program: NCAP Side Pole Impact Test Test Date: 3/05/2012



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	-130	5540	-1850	24	1000
3	Impact Side 45° Forward	-2250	4550	-1950	20	1000
4	Overhead Closeup	90	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	-100	-6020	-1830	24	1000
9	Impact Side 45° Rearward	-3630	-3140	-1930	20	1000
10	Overhead Wide View	270	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.

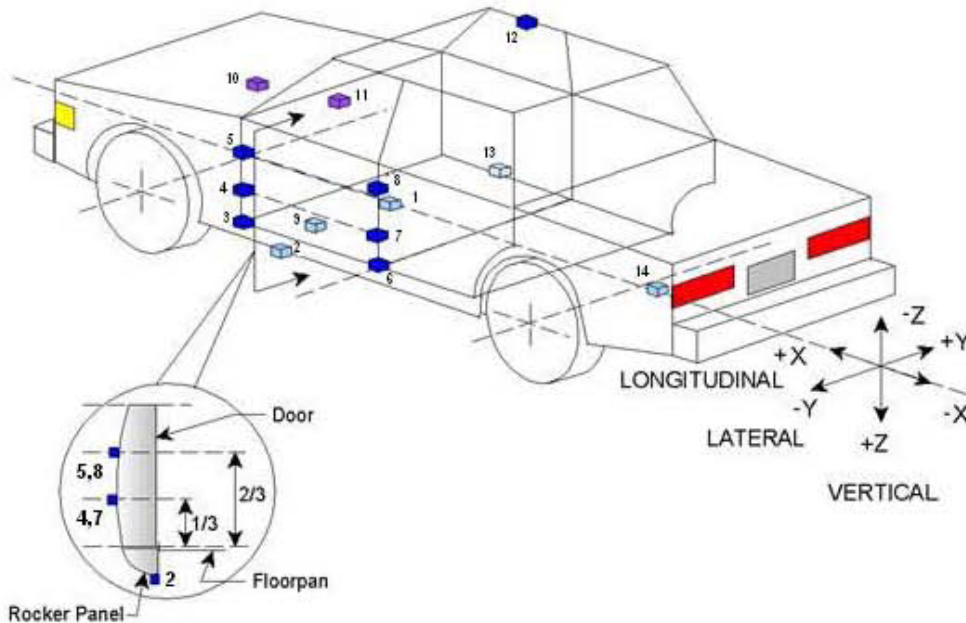
Explain why camera(s) did not operate as intended: Not Applicable

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 Buick Regal with eAssist 4-Dr Sedan NHTSA No. MC0120
Test Program: NCAP Side Pole Impact Test Test Date: 3/05/2012



	Accelerometer Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2607	-150	-174
2	Left Floor Sill	2852	-735	-185
3	A Pillar Sill	3283	-745	-183
4	A Pillar Low	3198	-709	-498
5	A Pillar Mid	3272	-814	-728
6	B Pillar Sill	2176	-750	-195
7	B Pillar Low	2327	-732	-494
8	B Pillar Mid	2114	-719	-808
9	Driver Seat Track	2444	-552	-390
10	Engine Top	3979	32	-806
11	Firewall	3674	0	-855
12	Right Roof	2959	500	-1472
13	Right Floor Sill	2898	735	-195
14	Rear Floorpan	326	0	-378

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 Buick Regal with eAssist 4-Dr Sedan NHTSA No. MC0120
Test Program: NCAP Side Pole Impact Test Test Date: 3/05/2012



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 Buick Regal with eAssist 4-Dr Sedan NHTSA No. MC0120
Test Program: NCAP Side Pole Impact Test Test Date: 3/05/2012

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Driver SID-IIs Dummy
Face	Curtain Airbag, Driver Airbag, Headrest
Top of Head	Curtain Airbag, Headrest
Left Side of Head	Curtain Airbag
Back of Head	Headrest
Left Shoulder	Side Airbag
Upper Torso	Side Airbag, Seatback
Lower Torso	Side Airbag, Seatback
Left Hip	Side Airbag, Seat Cushion
Left Knee	None

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 Buick Regal with eAssist 4-Dr Sedan NHTSA No. MC0120
Test Program: NCAP Side Pole Impact Test Test Date: 3/05/2012

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

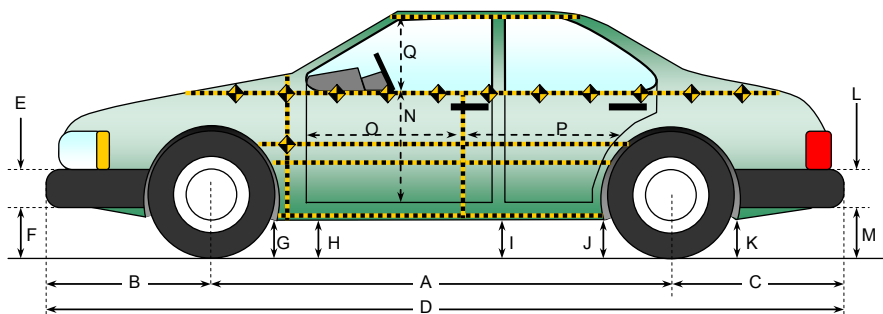
Restraint Type	Struck Side Driver		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	Yes		
Knee Airbag	No			
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Abdomen/Pelvis Airbag	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes		No	
Other				

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		1091
Actual Impact Point (Aft of Front Axle)	mm		1089
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	32.1
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.2

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2012 Buick Regal with eAssist 4-Dr Sedan NHTSA No. MC0120
Test Program: NCAP Side Pole Impact Test Test Date: 3/05/2012



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

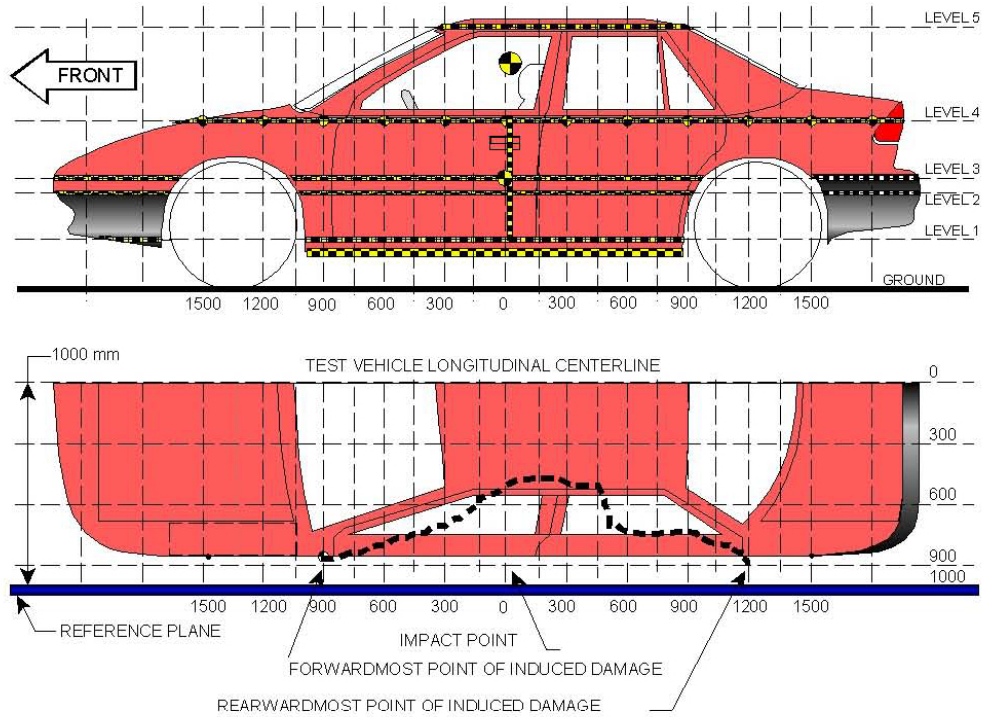
LEFT SIDE VIEW

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2735	2662	73
B	Front Axle to FSOV	1034	1034	0
C	Rear Axle to RSOV	1077	1077	0
D	Total Vehicle Length at Centerline	4846	4773	73
E	Front Bumper Thickness	140	140	0
F	Front Bumper Bottom to Ground	248	284	-36
G	Sill Height at Front Wheel Well	155	145	10
H	Sill Height at Front Door Leading Edge	170	160	10
I	Sill Height at B Pillar	168	145	23
J1	Sill Height at Rear Wheel Well	176	186	-10
J2	Pinch Weld Height at Rear Wheel Well	176	181	-5
K	Sill Height Aft of Rear Wheel Well	240	249	-9
L	Rear Bumper Thickness	124	124	0
M	Rear Bumper Bottom to Ground	355	358	-3
N	Sill Height to Bottom of Front Window Sill	741	747	-6
O	Front Door Leading Edge to Impact CL	612	610	2
P	Rear Door Trailing Edge to Impact CL	1298	1325	-27
Q	Front Window Opening	410	357	53
R	Right Side Length	3528	3545	-17
S	Left Side Length	3528	3426	102
T	Vehicle Width at B-Pillars	1819	1721	98

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

Test Vehicle: 2012 Buick Regal with eAssist 4-Dr Sedan NHTSA No. MC0120
 Test Program: NCAP Side Pole Impact Test Test Date: 3/05/2012



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	231
2	Occupant Hip Point	541
3	Mid Door	612
4	Window Sill	918
5	Window Top	1375

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

Test Vehicle: 2012 Buick Regal with eAssist 4-Dr Sedan NHTSA No. MC0120
 Test Program: NCAP Side Pole Impact Test Test Date: 3/05/2012

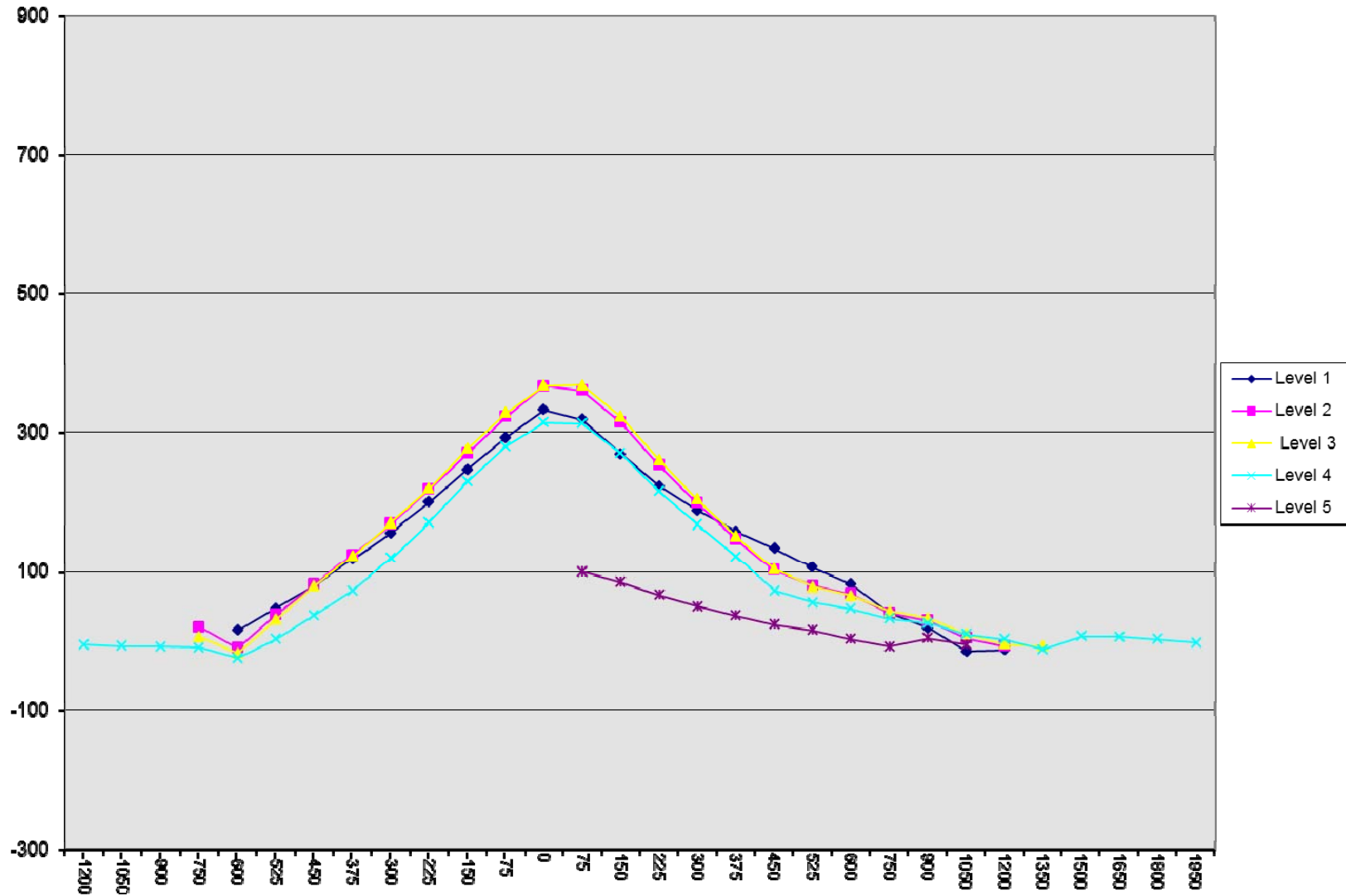
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1200				337					333					-4	
-1050				319					313					-6	
-900				306					299					-7	
-750		179	183	295			200	190	287			21	7	-8	
-600	230	195	195	279		246	186	178	255		16	-9	-17	-24	
-525	232	195	195	275		280	234	227	279		48	39	32	4	
-450	233	194	194	271		314	276	274	309		81	82	80	38	
-375	233	197	196	267		351	322	319	340		118	125	123	73	
-300	232	198	195	263		388	366	365	383		156	168	170	120	
-225	230	197	194	260		429	414	412	430		199	217	218	170	
-150	230	196	192	255		476	465	468	483		246	269	276	228	
-75	229	195	191	253		521	517	519	532		292	322	328	279	
0	229	194	191	251		561	560	558	565		332	366	367	314	
75	229	193	190	247	508	547	553	558	559	608	318	360	368	312	100
150	229	193	190	246	502	497	507	512	515	587	268	314	322	269	85
225	229	193	190	243	498	451	445	450	457	565	222	252	260	214	67
300	230	192	190	241	497	417	389	393	408	548	187	197	203	167	51
375	229	192	190	240	497	386	339	341	362	534	157	147	151	122	37
450	230	192	190	239	497	364	294	294	312	522	134	102	104	73	25
525	231	195	192	238	498	337	275	271	294	514	106	80	79	56	16
600	232	195	193	237	499	314	263	259	284	503	82	68	66	47	4
750	235	198	195	238	507	276	239	239	271	500	41	41	44	33	-7
900	238	201	198	241	511	258	231	232	268	516	20	30	34	27	5
1050	242	206	202	244	531	228	211	213	255	527	-14	5	11	11	-4
1200	236	205	205	247		224	199	202	251		-12	-6	-3	4	
1350			190	251				184	240				-6	-11	
1500				257					265					8	
1650				261					268					7	
1800				272					276					4	
1950				290					289					-1	

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 Buick Regal with eAssist 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. MC0120
Test Date: 3/05/2012



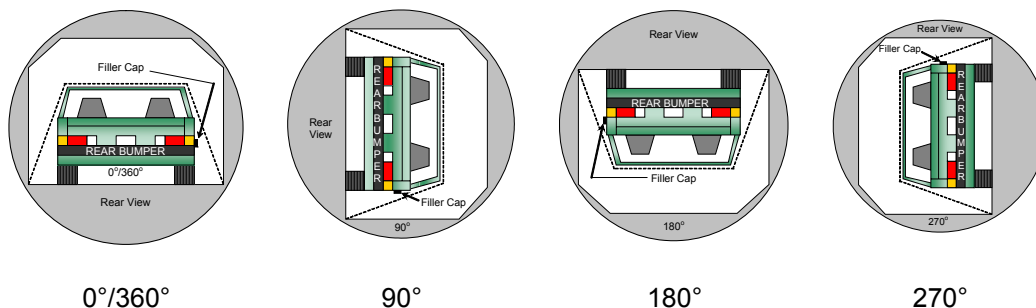
DATA SHEET NO. 11
FMVSS 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle: 2012 Buick Regal with eAssist 4-Dr Sedan NHTSA No. MC0120
 Test Program: NCAP Side Pole Impact Test Test Date: 3/05/2012

Test Time: 1:05 pm Temperature: 21.4° 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°	174	300	474
90° to 180°	145	300	445
180° to 270°	135	300	435
270° to 360°	156	300	456

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

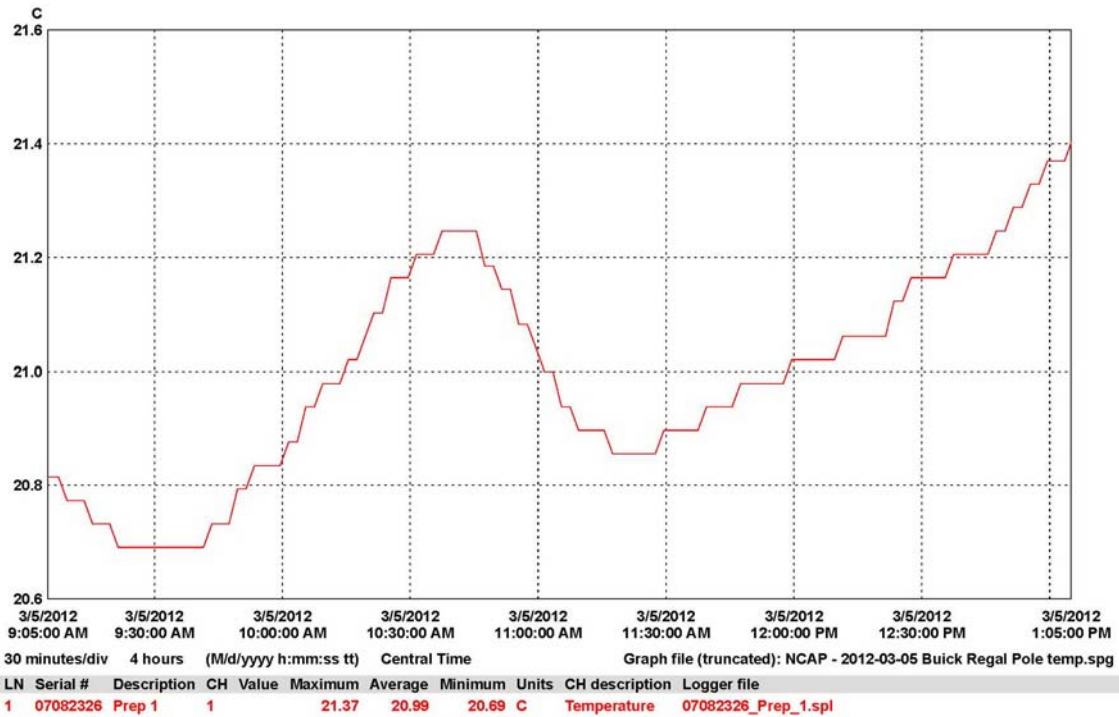
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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 Buick Regal with eAssist 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MC0120
 Test Date: 3/05/2012



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



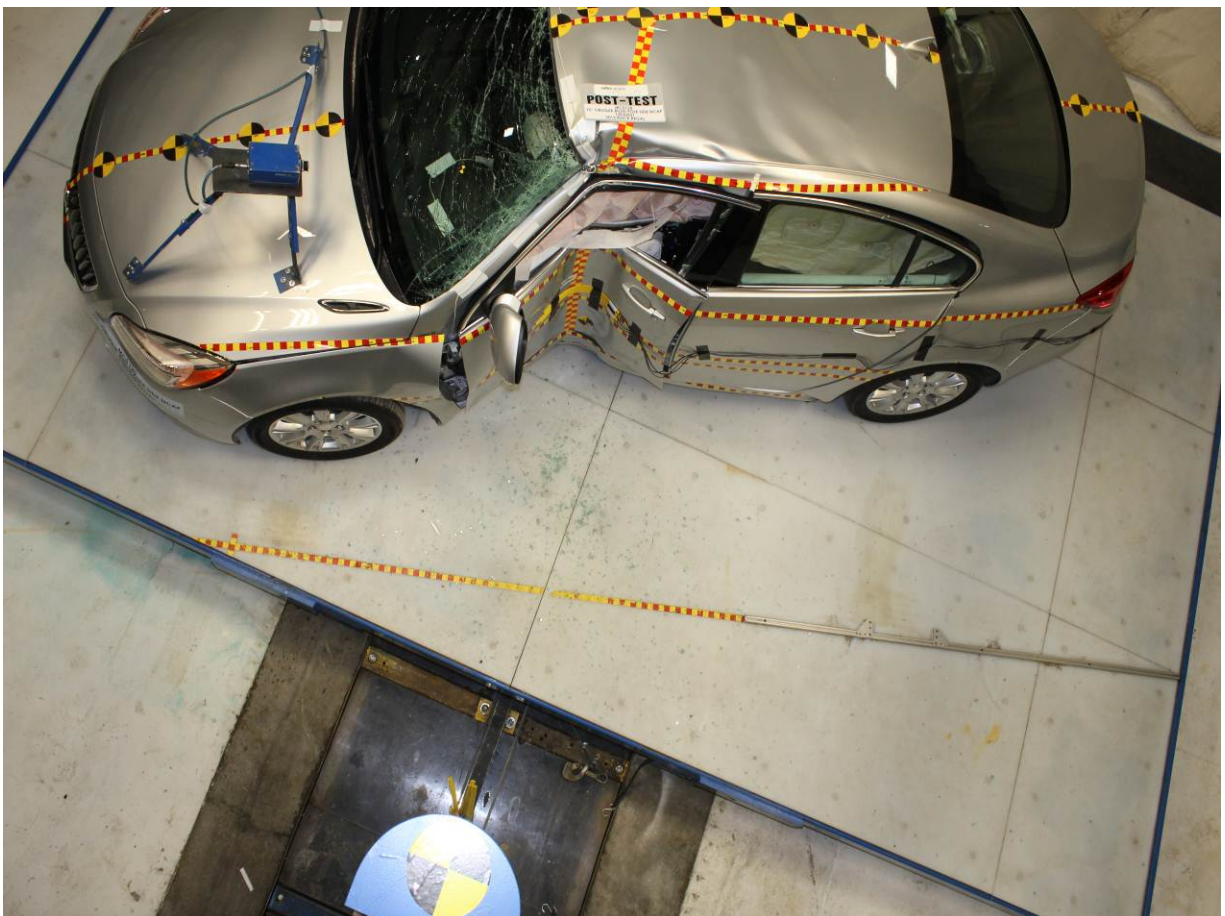
Pre-Test Right Side View of Test Vehicle



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 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



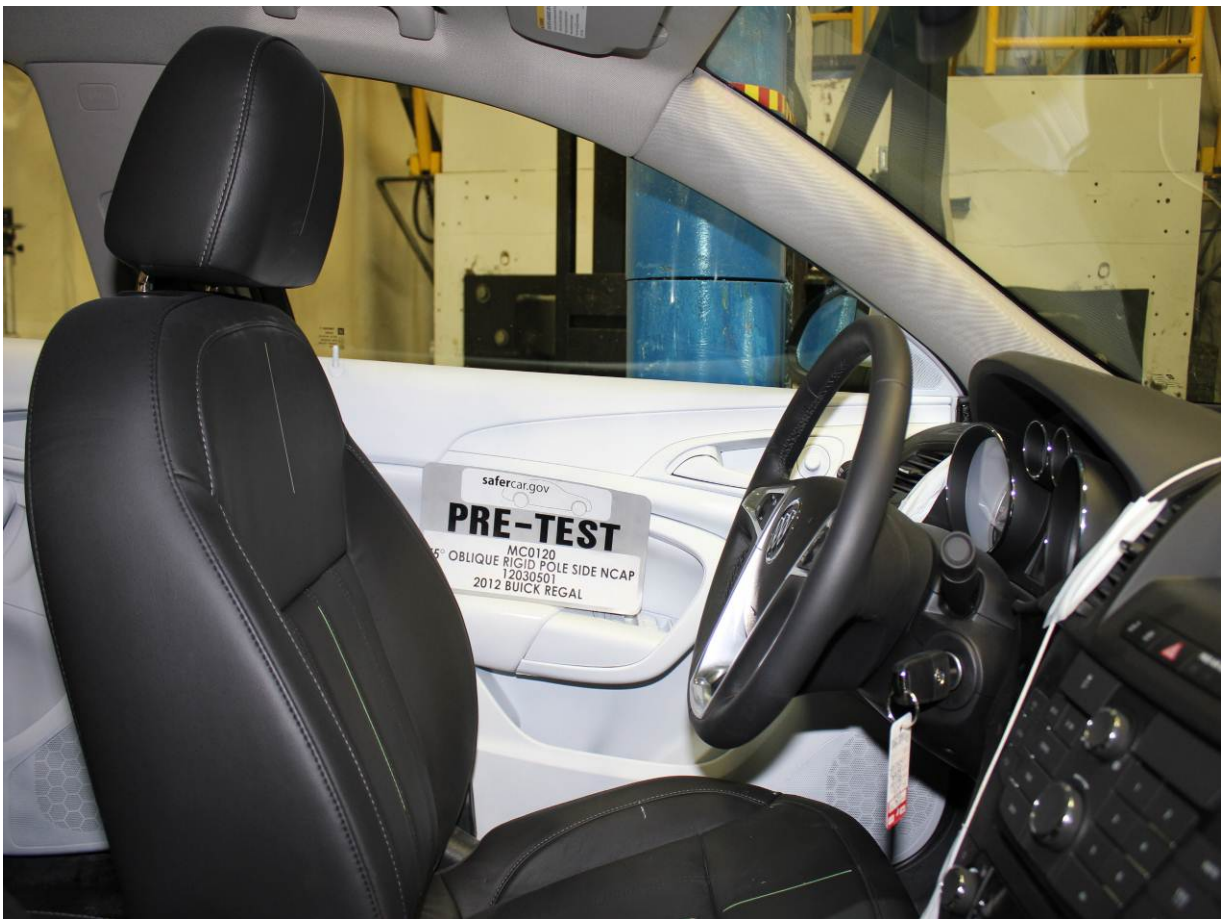
Post-Test Dummy and Door Clearance View



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 Head Contact with Frontal Air Bag View



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



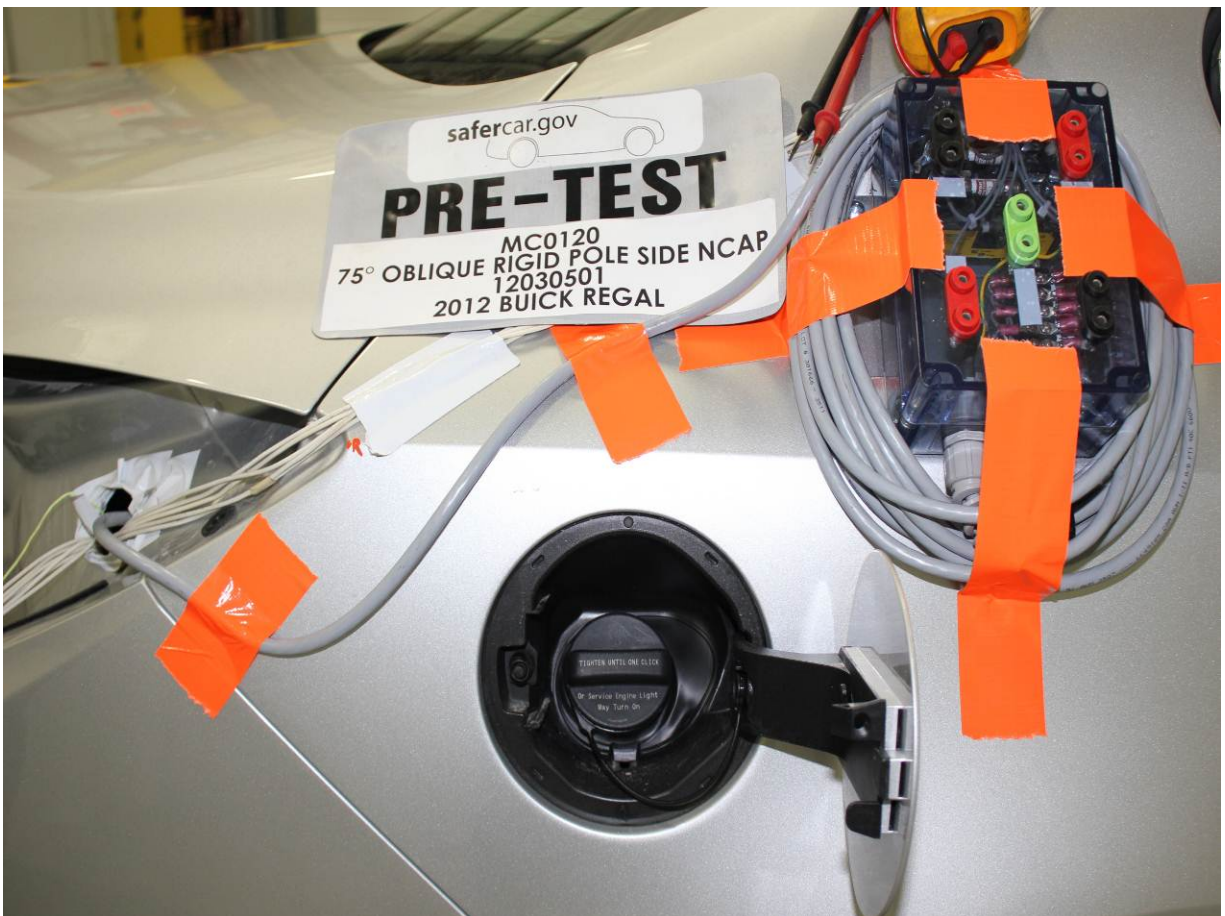
Post-Test Dummy Close-Up Torso Contact with Side Air Bag View



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



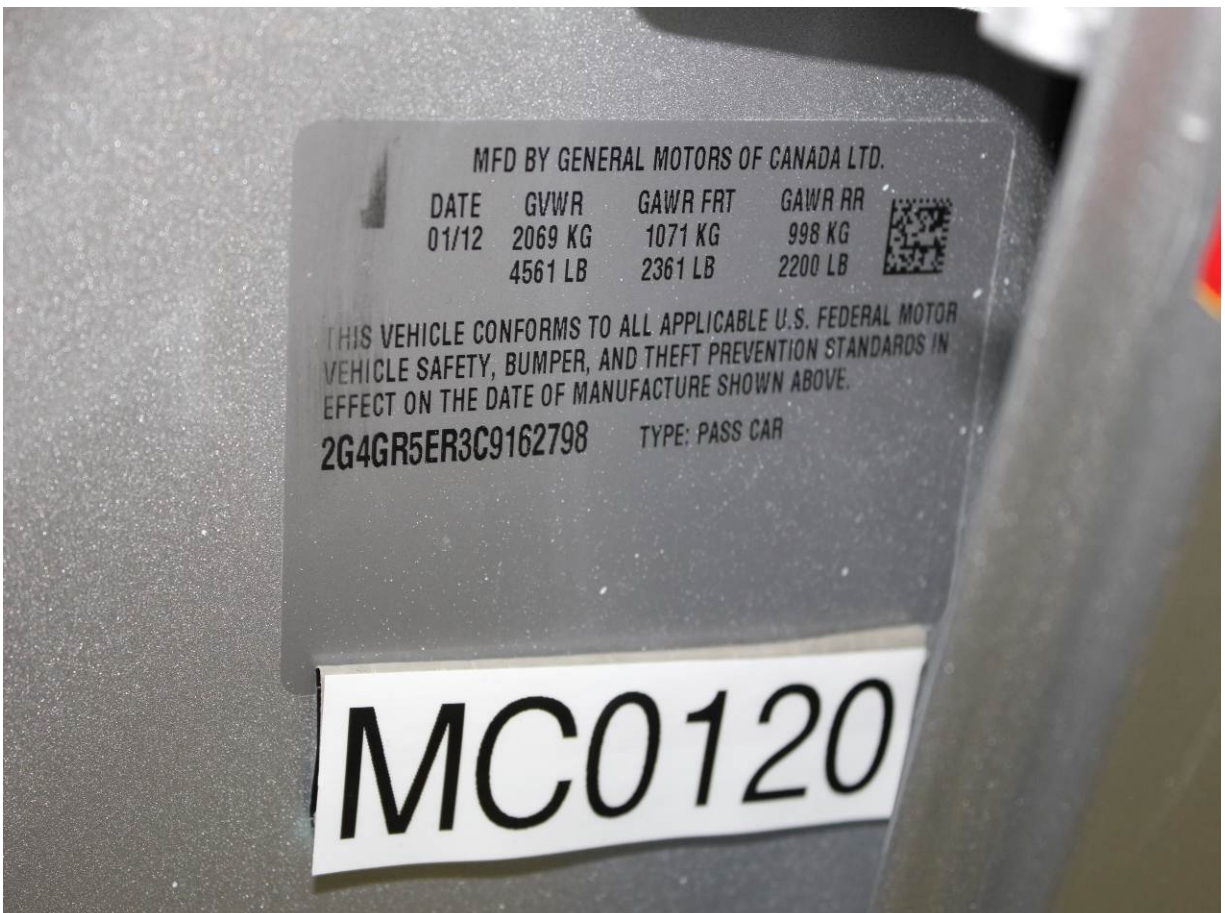
Post-Test Dummy Close-Up Pelvis Contact with Side Air Bag View



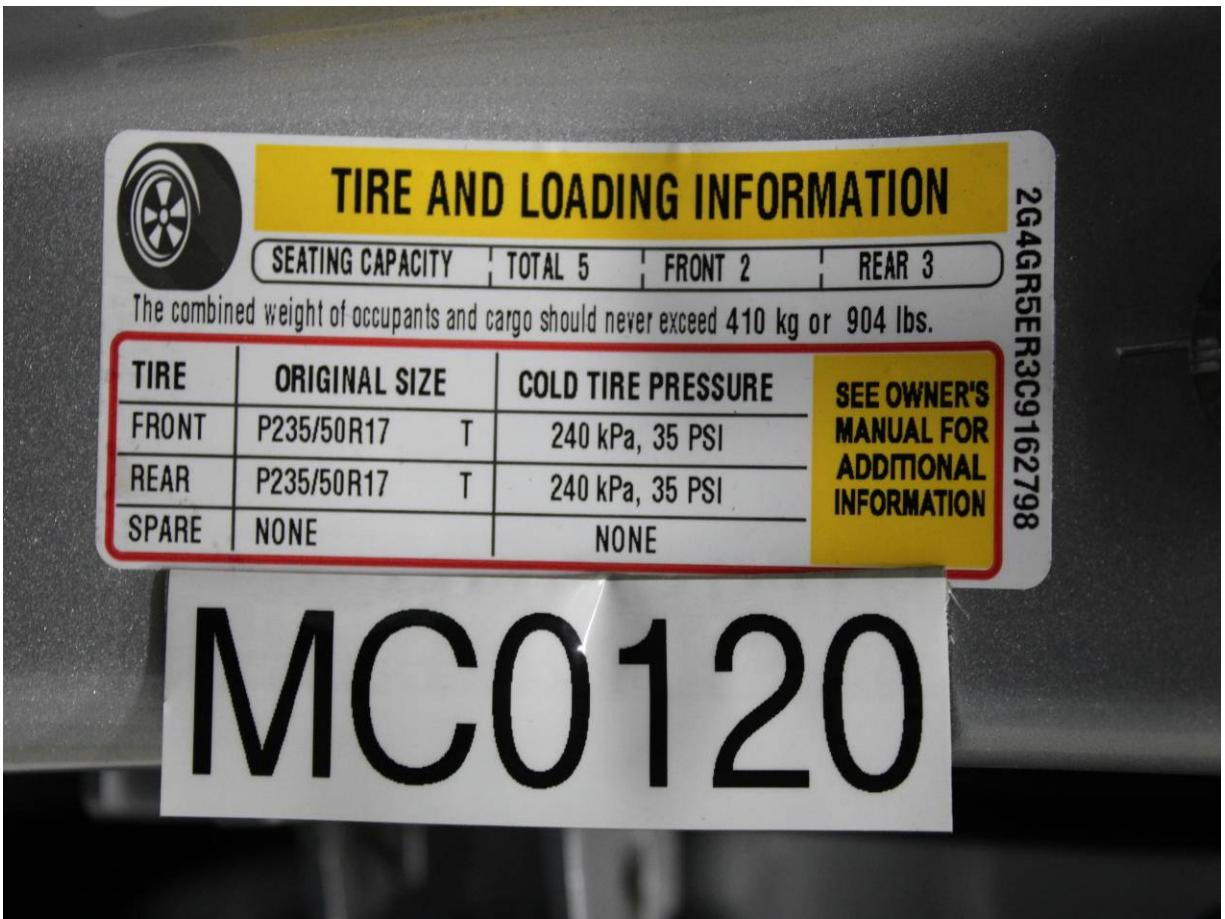
Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



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



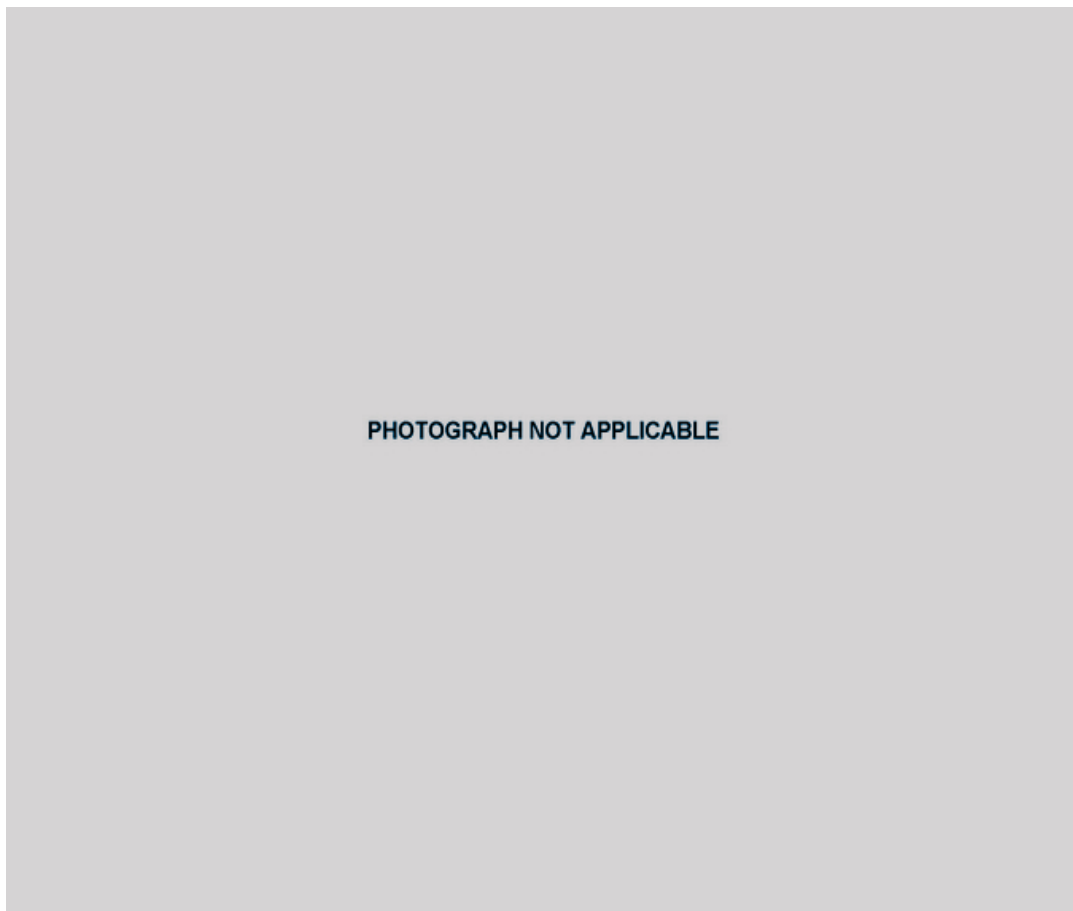
Post-Test Pole Barrier Front View



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



BUICK

2012 REGAL

**EXTERIOR: QUICKSILVER METALLIC
INTERIOR: EBONY W/ PIANO BLACK
ACCENTS**

**ENGINE: ECOTEC 2.4L DOHC 4CYL
TRANSMISSION: 6-SPEED AUTOMATIC**

Visit us at www.buick.com

STANDARD EQUIPMENT

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

- 5 YEAR/100,000 MILE POWERTRAIN LIMITED WARRANTY SEE DEALER FOR DETAILS
- 4 YEAR/50,000 MILE BUMPER-TO-BUMPER WARRANTY SEE DEALER FOR DETAILS

MECHANICAL

- ENGINE, 2.4L ECOTEC DOHC 4 CYL, 16V VVT
- TRANSMISSION, 6 SPD AUTOMATIC

SAFETY & SECURITY

- NAMED A 2012 TOP SAFETY PICK BY IIHS
- 6 MOS. ONSTAR DIRECTIONS & CONNECTIONS W/ AUTOMATIC CRASH RESPONSE, TURN-BY-TURN NAVIGATION, AND ONSTAR REMOTE LINK (ASK DEALER ABOUT GEOGRAPHIC COVERAGE)

- ANTI-LOCK BRAKE SYSTEM, 4 WHEEL DISC
- STABILITRAK-STABILITY CONTROL SYSTEM W/ TRACTION CONTROL
- AIRBAGS, DUAL FRONTAL, HEAD CURTAIN SIDE AIRBAGS, FRONT SIDE IMPACT AIRBAGS
- AIRBAG SENSING SYSTEM, PASSENGER
- DAYTIME RUNNING LAMPS
- REAR CHILD SEAT LATCH ANCHORS
- REAR DR LOCKS, CHILD SECURITY
- TIRE PRESSURE MONITORING SYSTEM

EXTERIOR

- WHEELS, 18" PAINTED ALLOY
- HEADLAMPS, HALOGEN W/ FLASH TO PASS, AUTOMATIC ON/OFF
- FRONT FOG LAMPS
- POWER FOLD OUTSIDE MIRRORS, HEATED

INTERIOR

- POWER OUTLETS (2) 12 VOLT
- PWR SEAT ADJUST, DRIVER, 8 WAY
- PWR SEAT ADJUST, DRIVER 4-WAY LUMBAR
- AIR CONDITIONING, DUAL ZONE CLIMATE CONTROL
- AIR FILTRATION SYSTEM
- BLUETOOTH FOR PHONE
- CONVENIENCE NET, TRUNK
- CRUISE CONTROL
- DRIVER & FRONT PASSENGER HEATED SEATS
- FLOOR MATS, FRONT & REAR
- DRIVER INFORMATION CENTER
- INSIDE REARVIEW MIRROR, AUTO DIMMING
- LEATHER WRAP STEERING WHEEL
- POWER WINDOWS, DRIVER & PASSENGER EXPRESS UP/DOWN
- POWER DOOR LOCKS WITH LOCKOUT PROTECTION

- REAR SEAT, 60/40 SPLIT FOLDING SEATBACK
- REMOTE KEYLESS ENTRY
- SEATS, LEATHER APPOINTED
- STEERING COLUMN, TILT* AND TELESCOPI
- STEERING WHEEL CONTROLS
- AM/FM/XM STEREO, CD PLAYER
- USB PORT
- AUDIO SYSTEM, 7 SPEAKERS
- XM RADIO + SERVICE SUBSCRIPTION SOLD SEPARATELY BY SIRIUSXM AFTER 3 MTHS

OPTIONS & PRICING

MANUFACTURER'S SUGGESTED RETAIL PRICE

STANDARD VEHICLE PRICE \$26,705.00

OPTIONS INSTALLED BY THE MANUFACTURER (MAY REPLACE STANDARD EQUIPMENT SHOWN)

ENGINE, ECOTEC 2.4L DOHC 4CYL 2,000.00 WITH EASSIST, AND 17"

MACHINED ALLOY WHEELS REPLACING 18" PAINTED ALLOY WHEELS

TOTAL OPTIONS	\$2,000.00
TOTAL VEHICLE & OPTIONS	\$28,705.00
DESTINATION CHARGE	685.00
TOTAL VEHICLE PRICE*	\$29,390.00

EPA Fuel Economy Estimates

**GASOLINE
CITY MPG**

25

Expected range for most drivers
20 to 30 MPG

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

**HYBRID VEHICLE*
GASOLINE - ELECTRICITY**

**Estimated Annual Fuel Cost
\$1,915**

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

**Combined GASOLINE Fuel Economy
This Vehicle
29**

10 99
ALL MID-SIZE CARS

**GASOLINE
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.

GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score To Be 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 To Be Rated To Be Rated
Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.

Side Crash Front seat Rear seat To Be Rated To Be Rated
Based on the risk of injury in a side impact.

Rollover To Be Rated
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) www.safercar.gov or 1-888-327-4236

PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE:
U.S./CANADIAN PARTS CONTENT: 60%
MAJOR SOURCES OF FOREIGN PARTS CONTENT: MEXICO 15%

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

FOR THIS VEHICLE:
FINAL ASSEMBLY POINT:
OSHAWA, ON CANADA
COUNTRY OF ORIGIN:
ENGINE: UNITED STATES
TRANSMISSION: UNITED STATES

*This label has been applied pursuant to Federal law. Do not remove prior to delivery to the ultimate purchaser. *Includes transportation & environmental Pre-Delivery Service. Does not include dealer-installed options and accessories not listed above. Excludes taxes or license fees.

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ORDER NO. 201204 SALE CODE E
SALES CODE CODE 4086
DEALER NO. 12087
VIN 204GR5ER3C08162798



DEALER TO WHOM DELIVERED
LIBERTYVILLE BUICK GMC, INC.
1120 S MILWAUKEE AVE
LIBERTYVILLE, IL 62048-3717

CE
1GA0307764

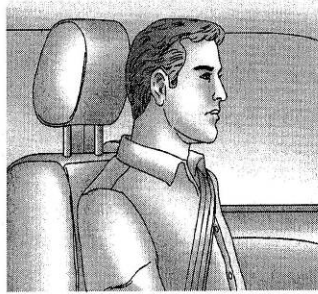
Monroney Label

Head Restraints

The vehicle's front and rear seats have adjustable head restraints in the outboard seating positions.

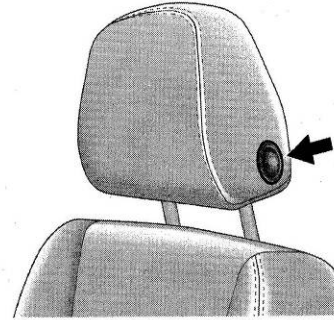
WARNING

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



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

Front Seat



To raise or lower the head restraint, press the release button located on the side of the head restraint and pull up or push the head restraint down and release the button.

Pull and push on the head restraint after the button is released to make sure that it is locked in place.

The front head restraints are not designed to be removed.

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

APPENDIX B

VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS
Driver Dummy Instrumentation Plots

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

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

Additional Driver Dummy Instrumentation Data

Driver Head Acceleration (X) Redundant
Driver Head Acceleration (Y) Redundant
Driver Head Acceleration (Z) Redundant
Driver Upper Thorax Rib Deflection (Y)
Driver Middle Thorax Rib Deflection (Y)
Driver Lower Thorax Rib Deflection (Y)
Driver Upper Abdomen Rib Deflection (Y)
Driver Lower Abdomen Rib Deflection (Y)

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)

Vehicle Center of Gravity Acceleration (Y)

Vehicle Center of Gravity Acceleration (Z)

Left Floor Sill Acceleration (Y)

Left A-Pillar Sill Acceleration (Y)

Left Lower A-Pillar Acceleration (Y)

Left Mid A-Pillar Acceleration (Y)

Left B-Pillar Sill Acceleration (Y)

Left Lower B-Pillar Acceleration (Y)

Left Mid B-Pillar Acceleration (Y)

Driver Seat Track at Dummy Hip Point Acceleration (Y)

Engine Top Acceleration (X)

Engine Top Acceleration (Y)

Firewall Center Acceleration (Y)

Right Roof at Vertical Impact Reference Line Acceleration (Y)

Right Sill at Vertical Impact Reference Line Acceleration (Y)

Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)

Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)

Pole Instrumentation Data

Load Cell Pole Barrier #1 Force (Y)

Load Cell Pole Barrier #2 Force (Y)

Load Cell Pole Barrier #3 Force (Y)

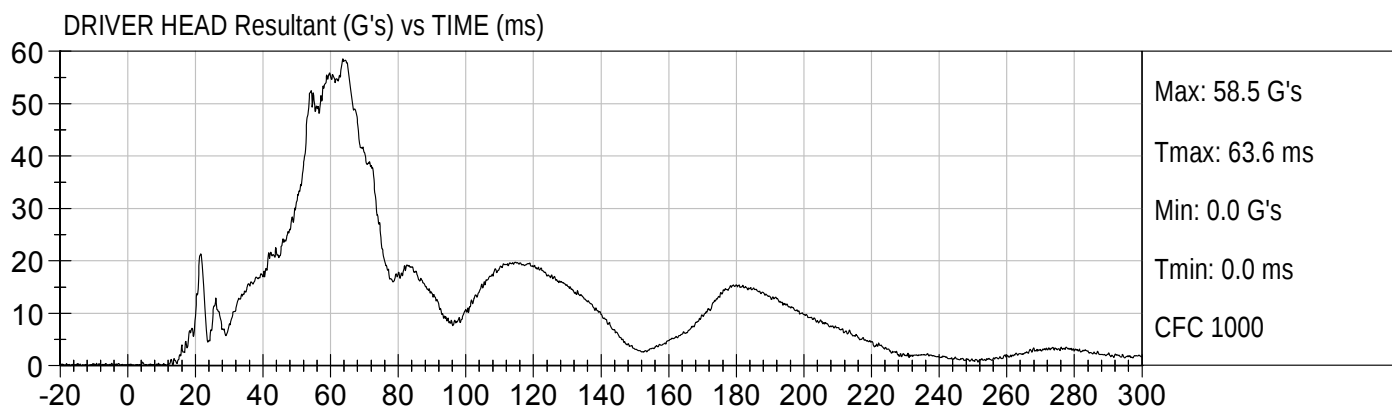
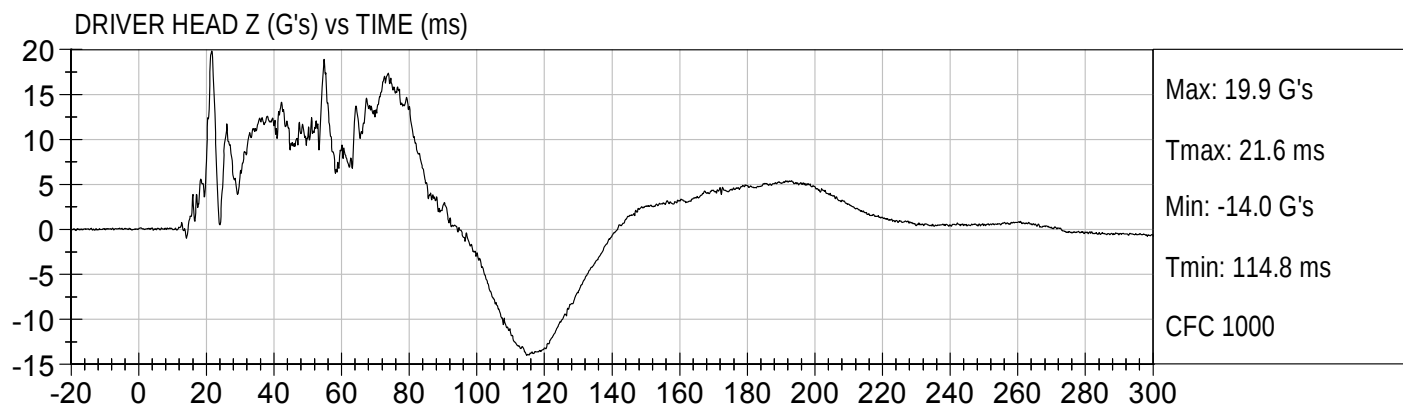
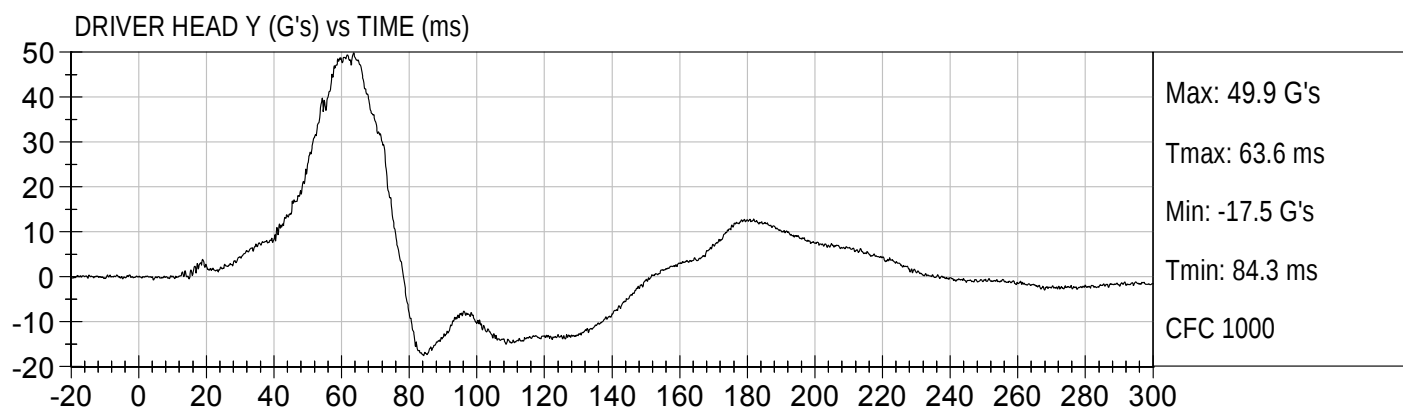
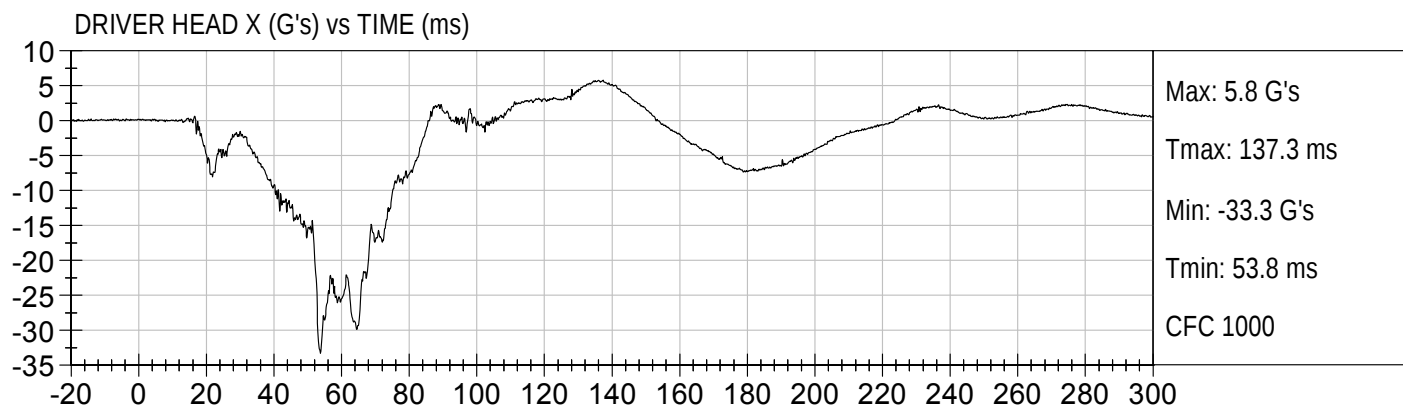
Load Cell Pole Barrier #4 Force (Y)

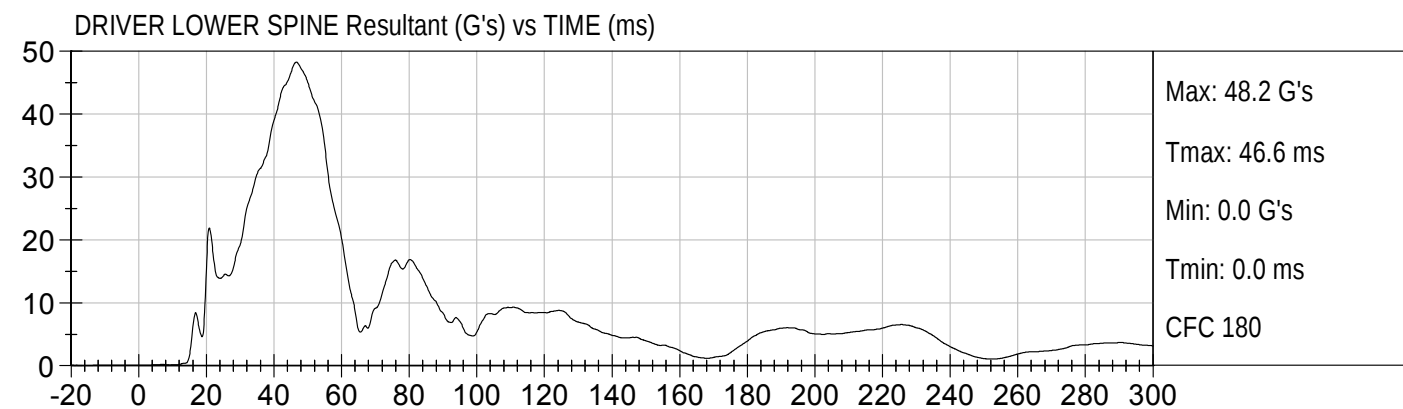
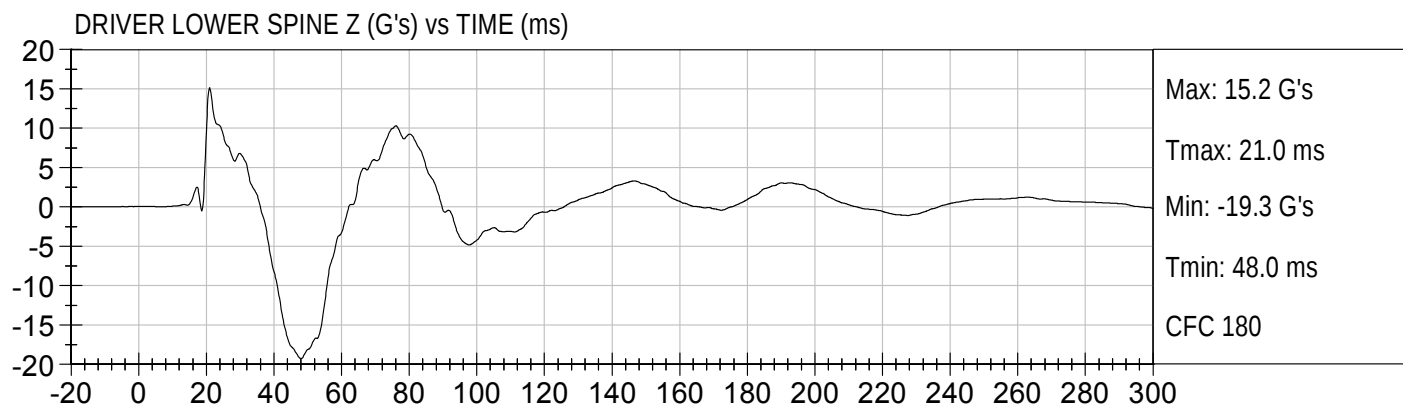
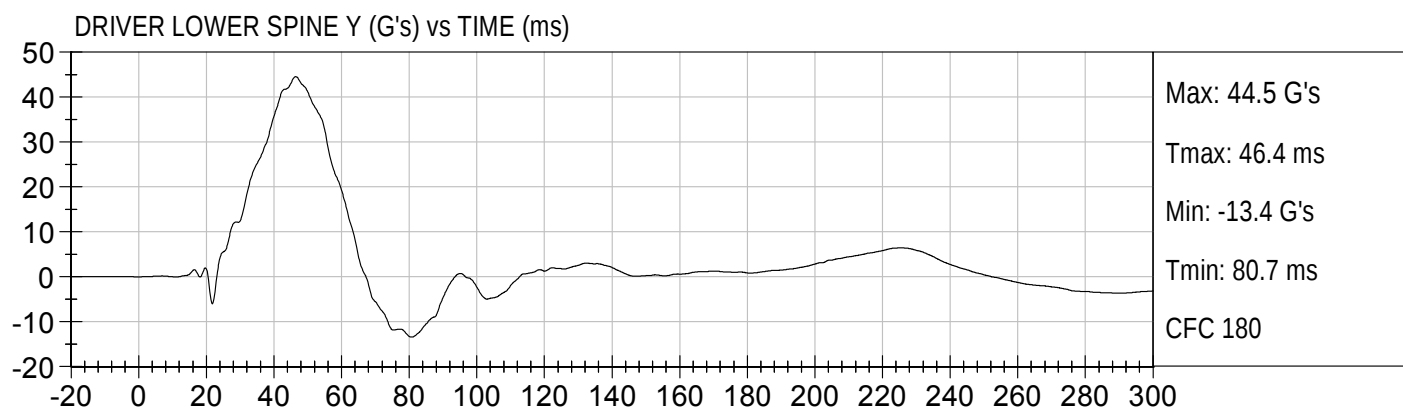
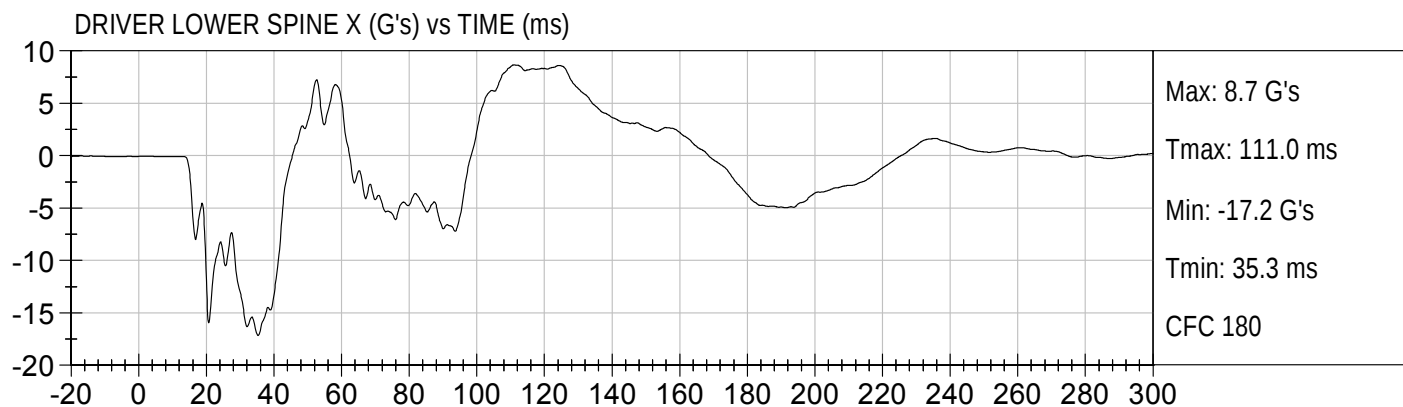
Load Cell Pole Barrier #5 Force (Y)

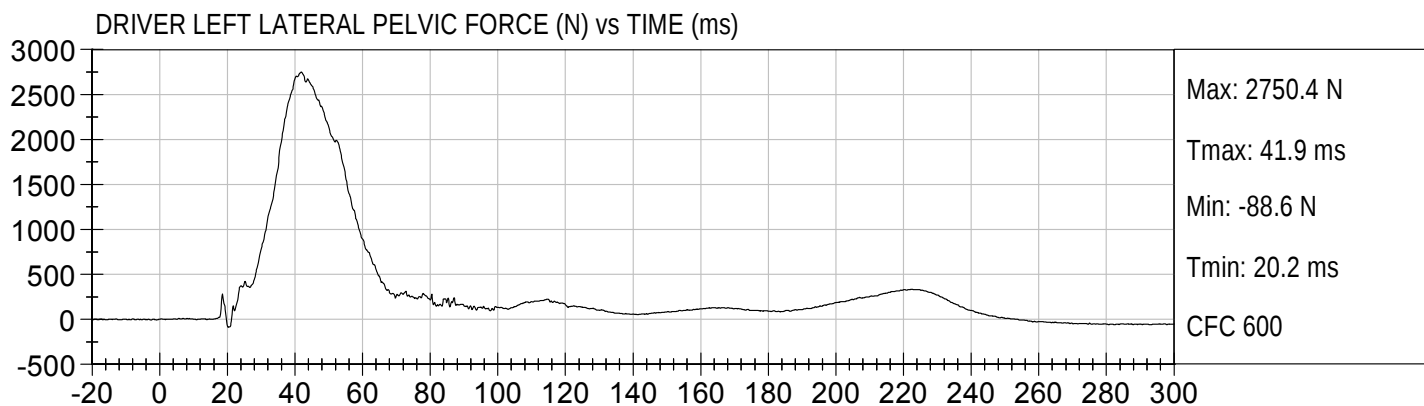
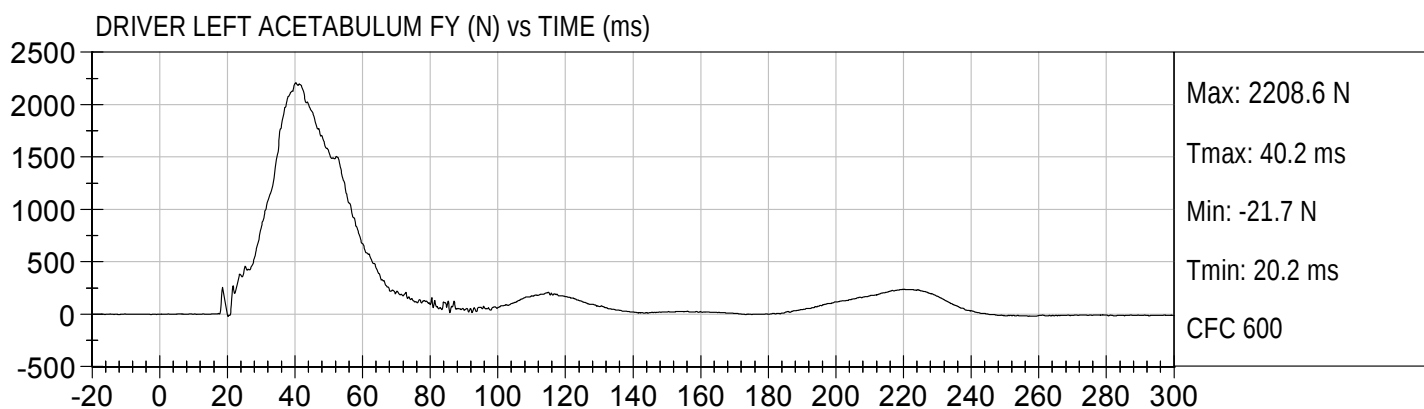
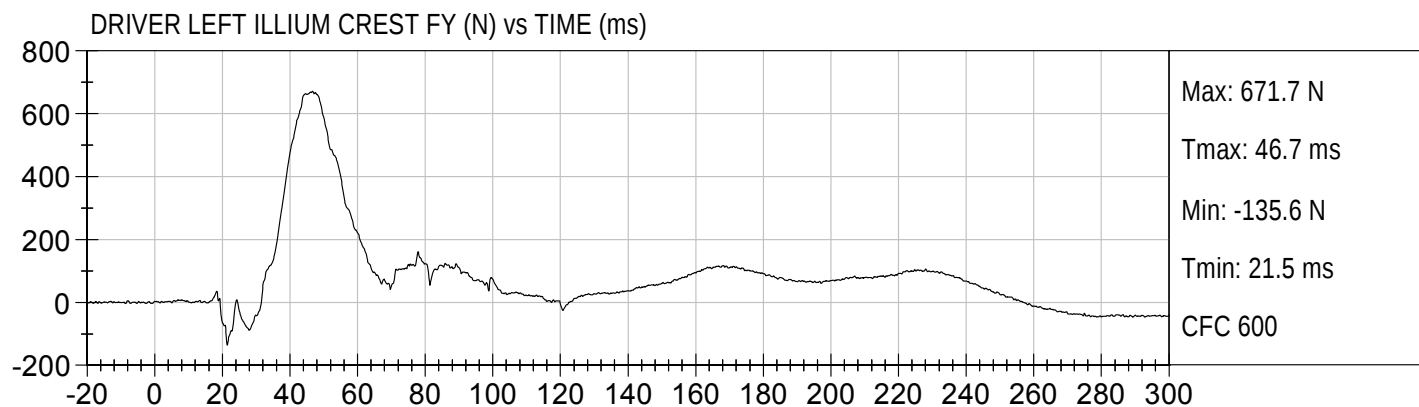
Load Cell Pole Barrier #6 Force (Y)

Load Cell Pole Barrier #7 Force (Y)

Load Cell Pole Barrier #8 Force (Y)







APPENDIX C

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SID-IIsD External Measurements
SN: 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: D12711

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	17	Pass
Peak Resultant Acceleration	G's	115 to 137	126	Pass
Peak Longitudinal Acceleration	G's	+/- 15	2.7	Pass
Unimodal	N/A	<15%	Yes	Pass
Overall Test Results				Pass


Laboratory Technician

2/27/12
Test Date

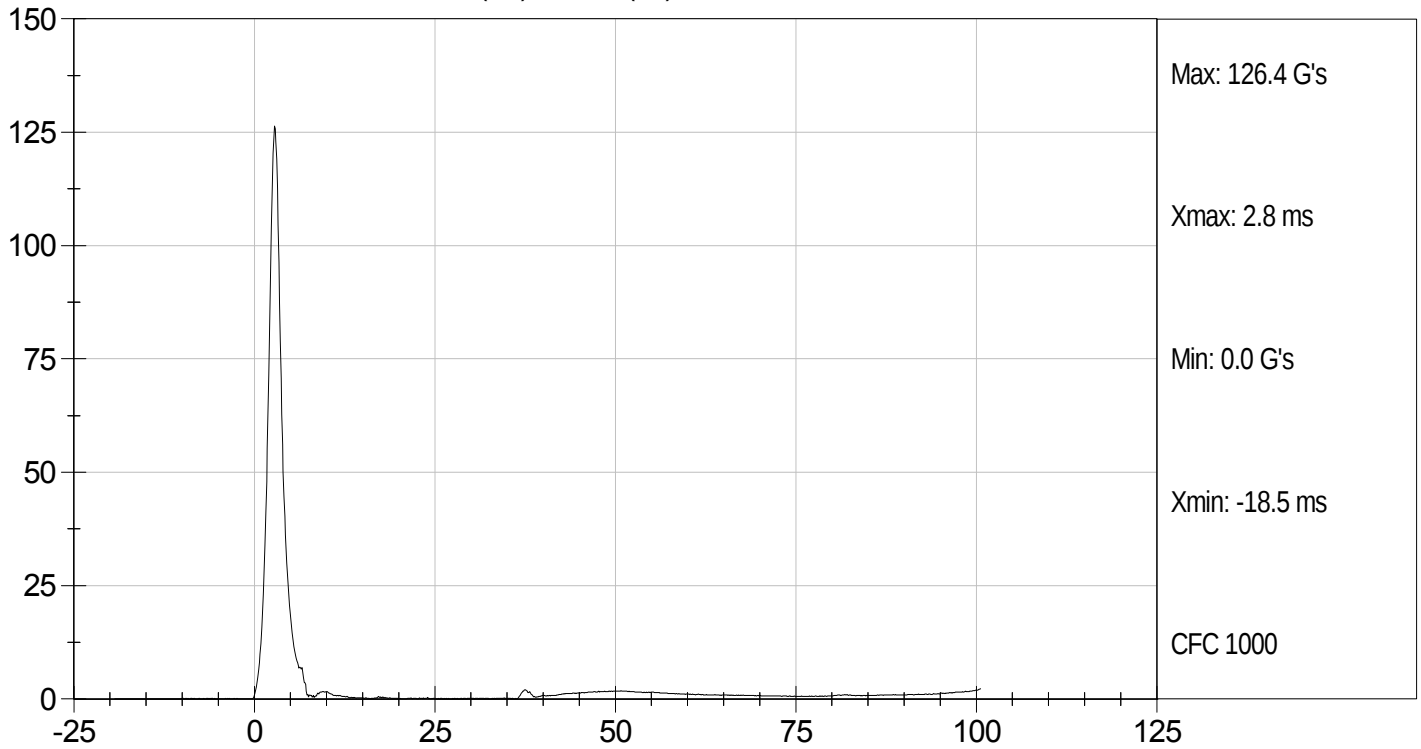

Approved By



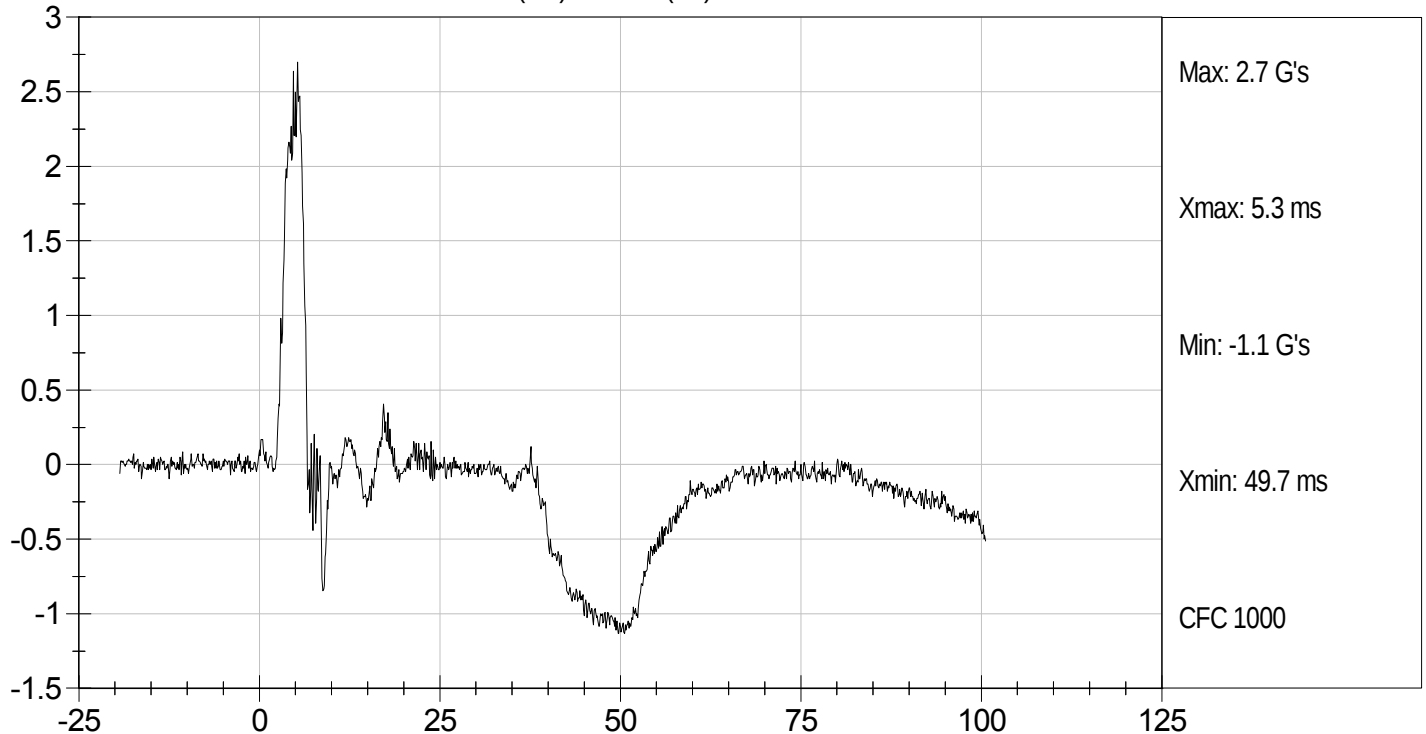
Test Desc: Head Drop
Component ID: D12711

Test Date: 2/27/12
Velocity: 0 ft/s, 0 m/s

PEAK RESULTANT ACCELERATION (G's) vs TIME (ms)



PEAK LONGITUDINAL ACCELERATION (G's) vs TIME (ms)

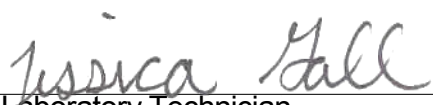


MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D12712

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.9	Pass
Humidity		%	10 to 70	17	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Delta Velocity	10 ms	m/s	2.20 to 2.80	2.78	Pass
	15 ms	m/s	3.30 to 4.10	3.89	Pass
	20 ms	m/s	4.40 to 5.40	5.14	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	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

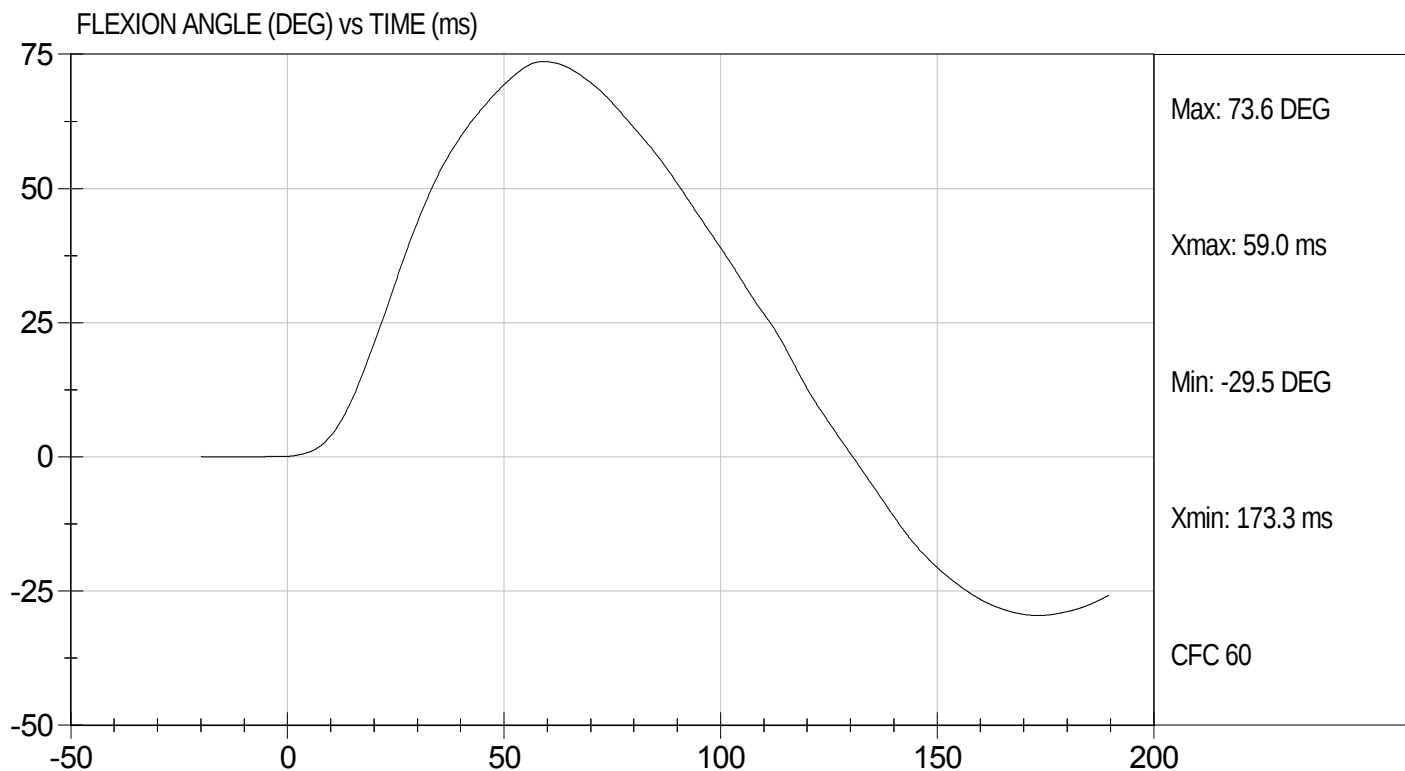
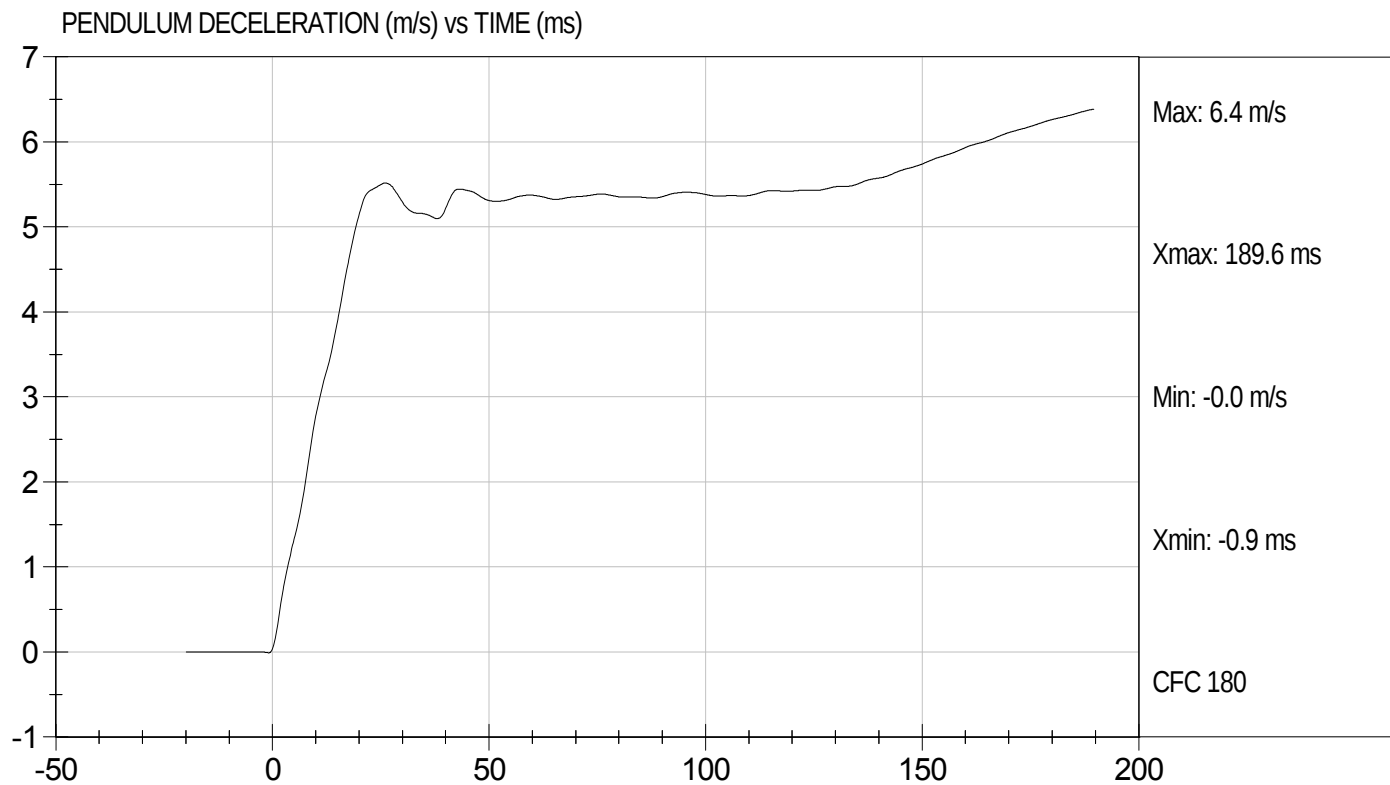
2/27/12
 Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D12712

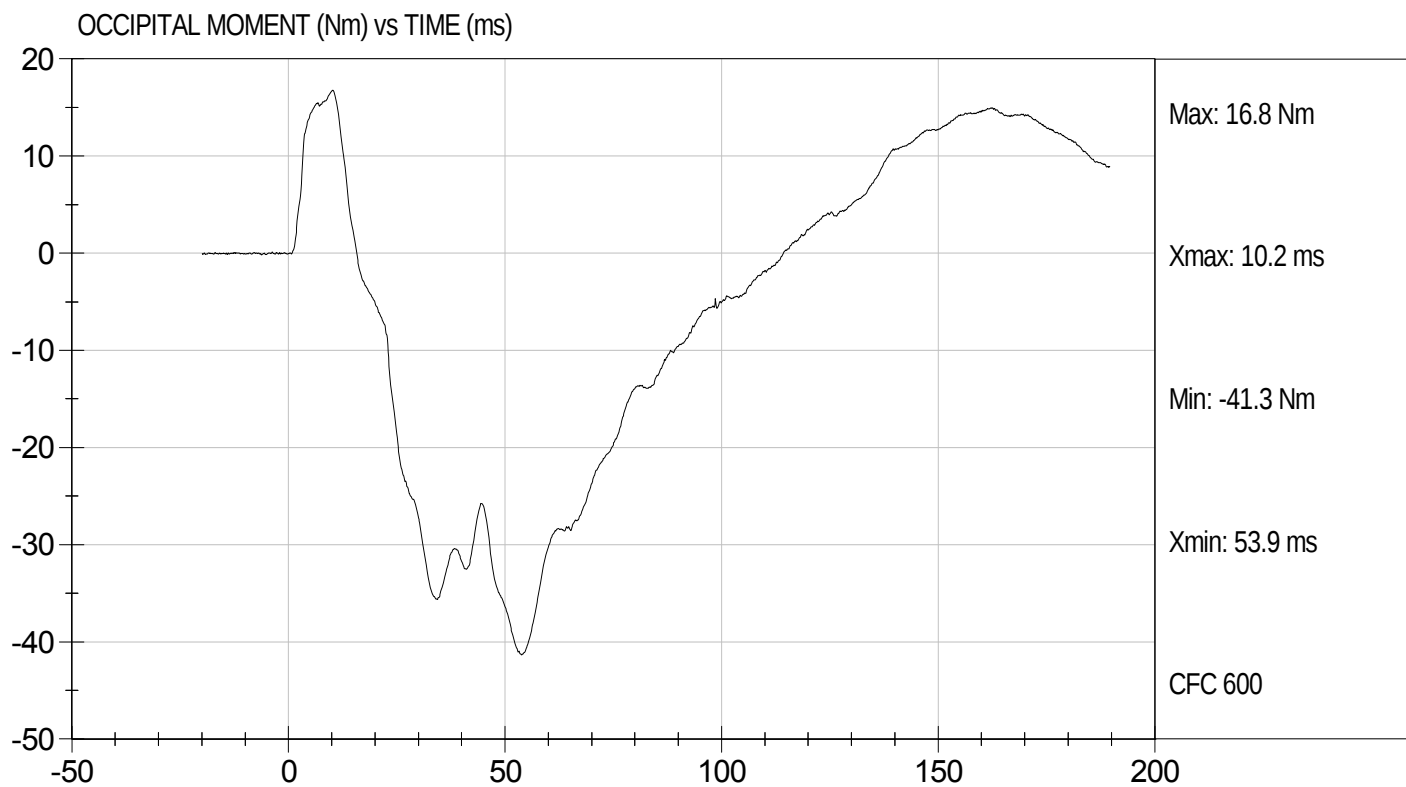
Test Date: 2/27/12
Velocity: 18.31 ft/s, 5.58 m/s





Test Desc: Neck Bending
Component ID: D12712

Test Date: 2/27/12
Velocity: 18.31 ft/s, 5.58 m/s

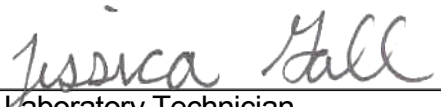


MGA RESEARCH CORPORATION
SHOULDER IMPACT TEST
SID-Its BUILD LEVEL D DUMMY

ATD Serial No: 306

Test ID: D12713

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	18	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	30	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	19	Pass
Overall Test Results				Pass


Laboratory Technician

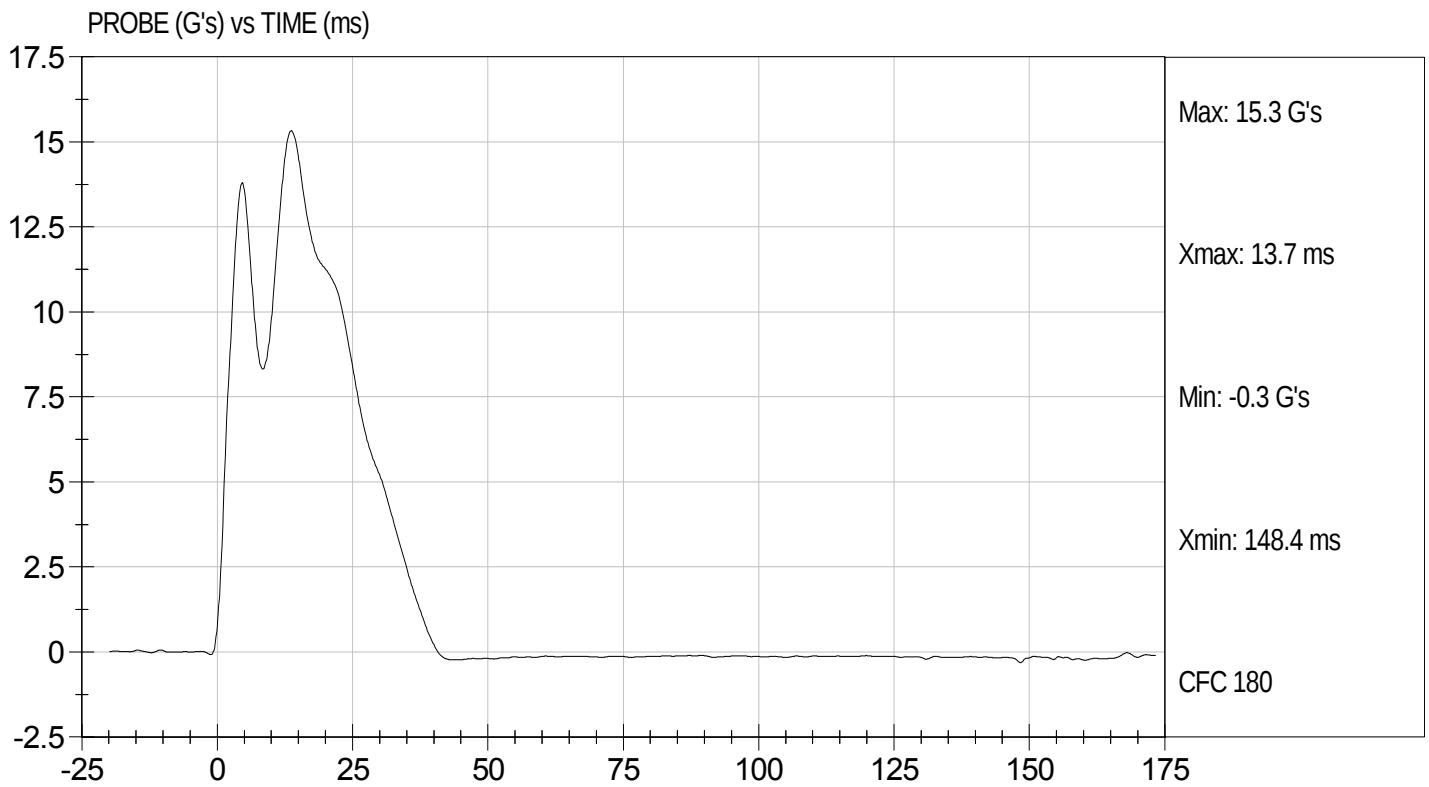
2/27/12
Test Date


Approved By



Test Desc: Shoulder Impact
Component ID: D12713

Test Date: 2/27/12
Velocity: 14.36 ft/s, 4.38 m/s

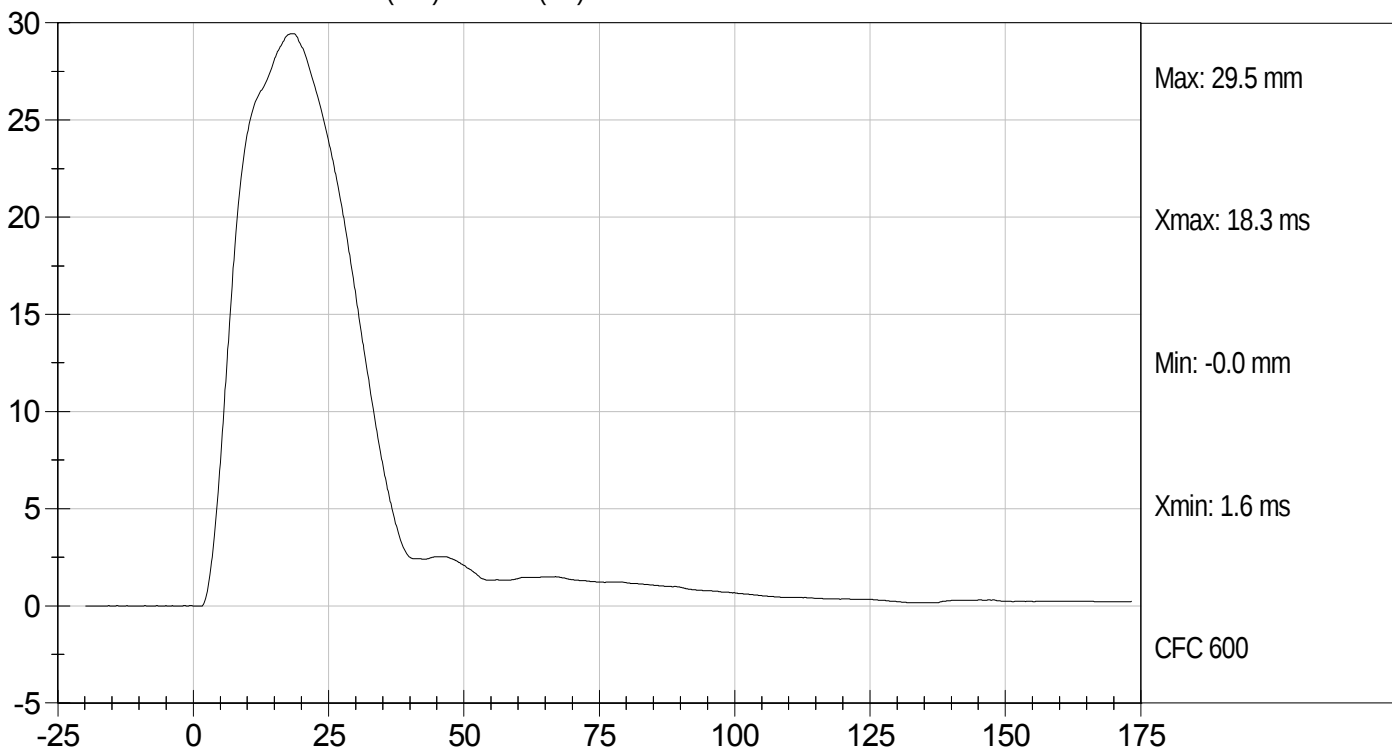




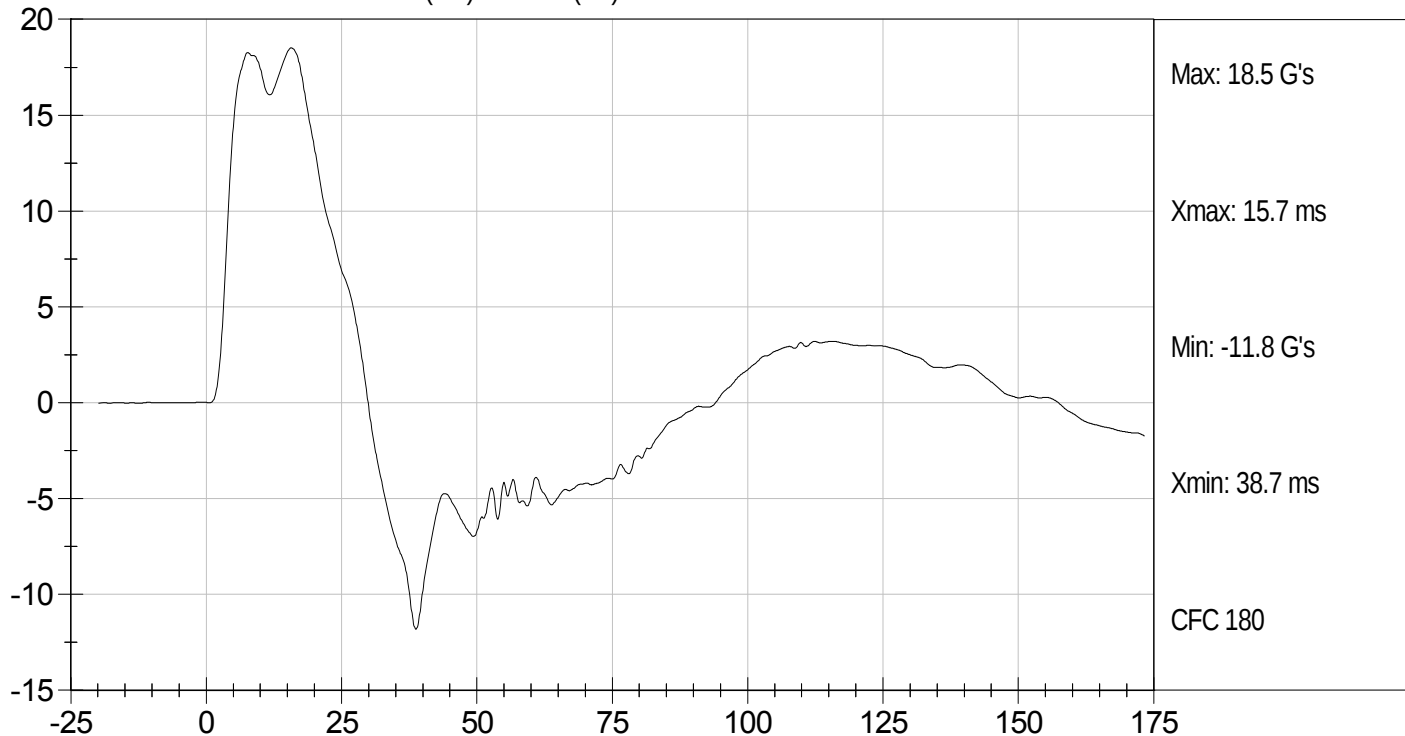
Test Desc: Shoulder Impact
Component ID: D12713

Test Date: 2/27/12
Velocity: 14.36 ft/s, 4.38 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: D12714

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.0	Pass
Humidity	%	10 to 70	18	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Peak Impactor Acceleration	G's	30 to 36	33	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	39	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	32	Pass
Overall Test Results				Pass


 Laboratory Technician

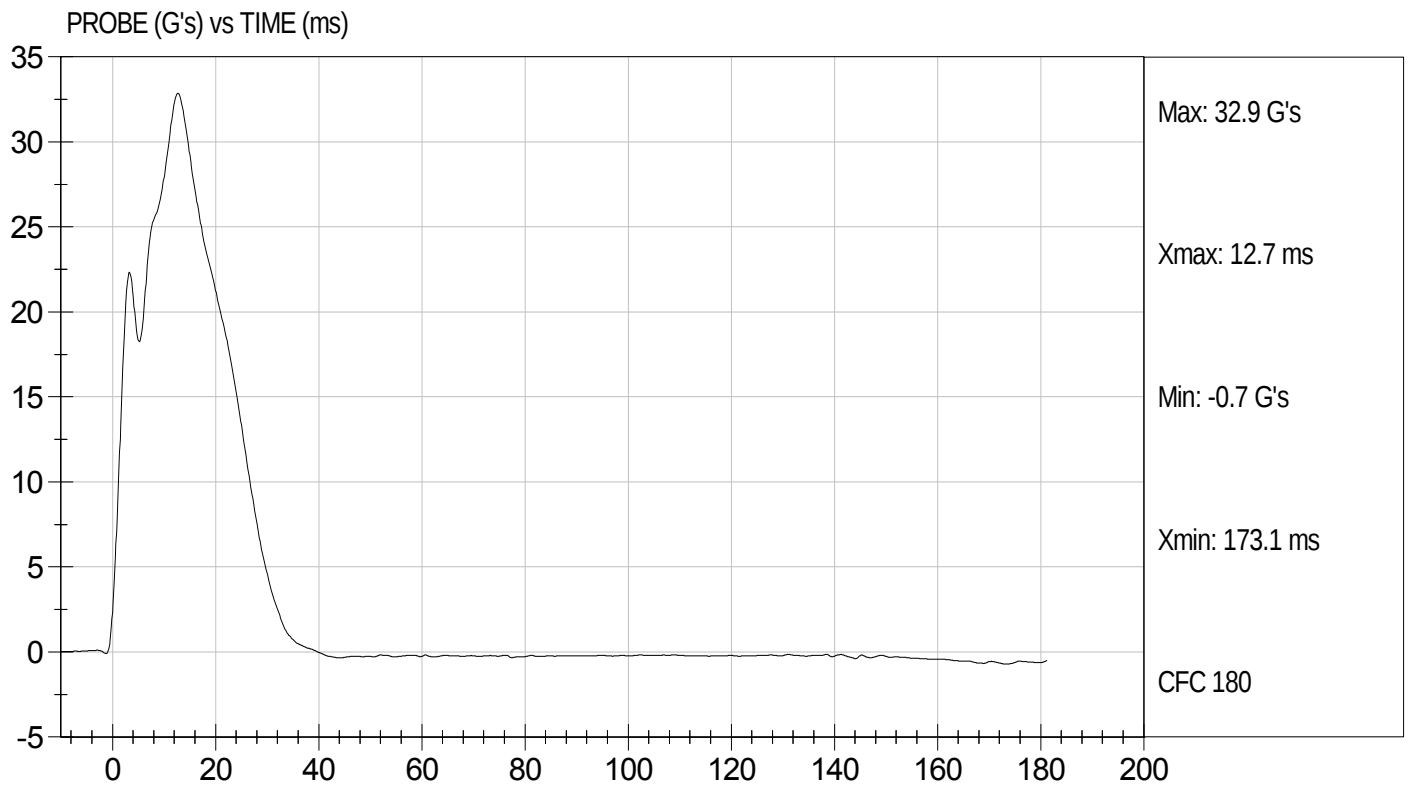
2/27/12
 Test Date


 Approved By



Test Desc: Thorax With Arm
Component ID: D12714

Test Date: 2/27/12
Velocity: 21.9 ft/s, 6.68 m/s

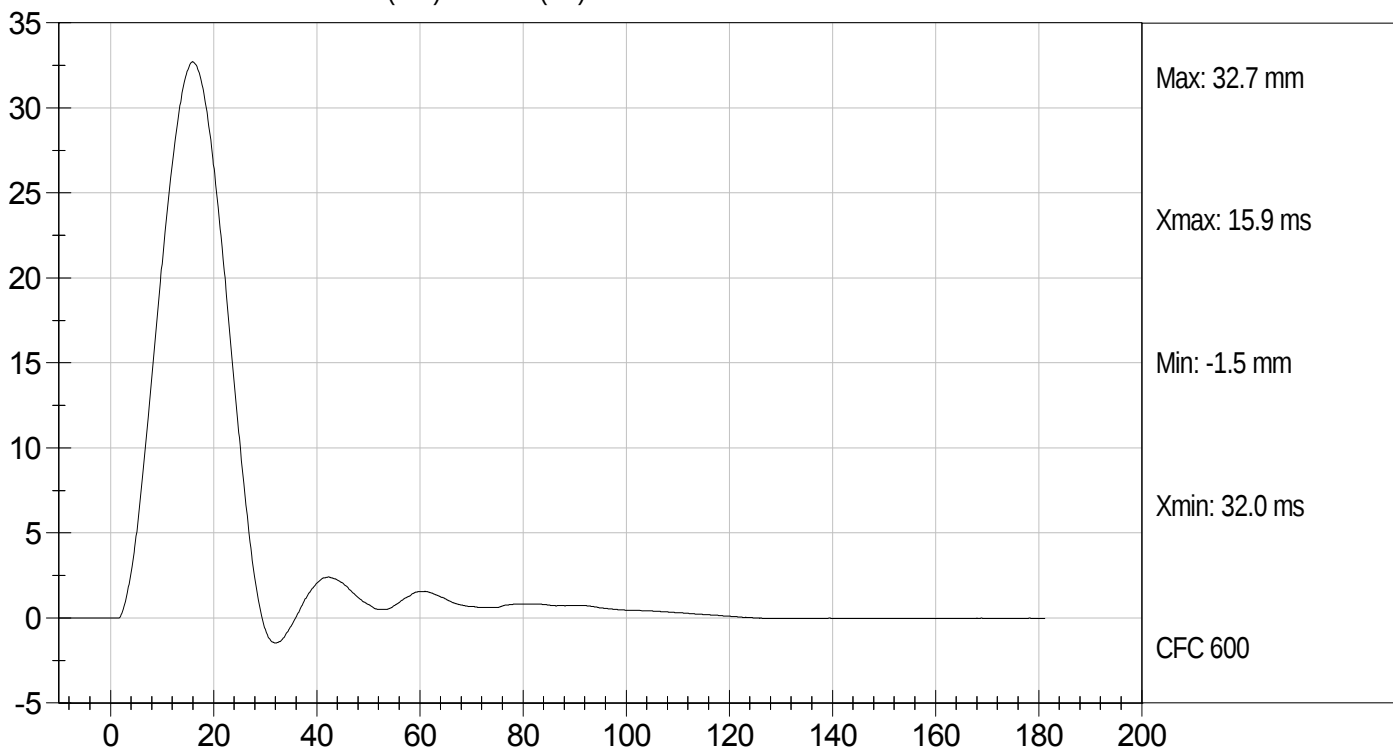




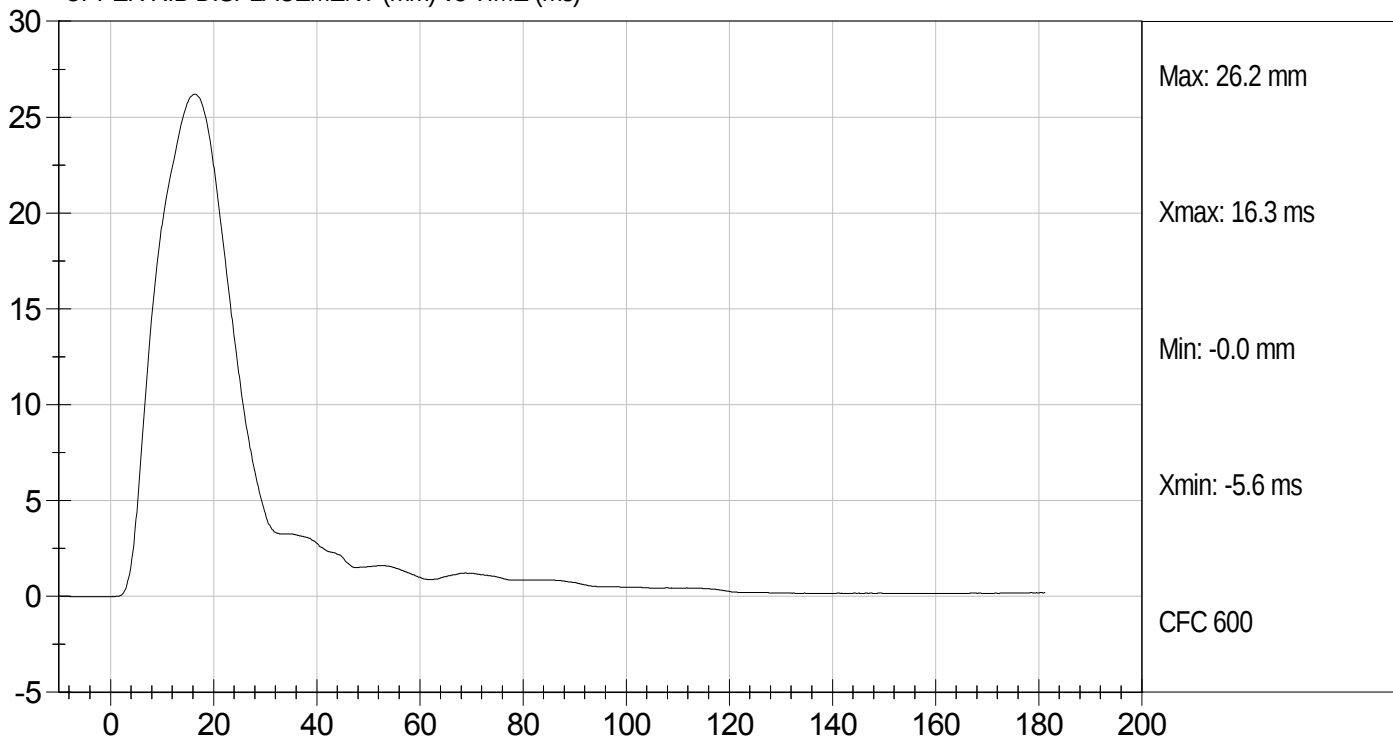
Test Desc: Thorax With Arm
Component ID: D12714

Test Date: 2/27/12
Velocity: 21.9 ft/s, 6.68 m/s

SHOULDER DISPLACEMENT (mm) vs TIME (ms)



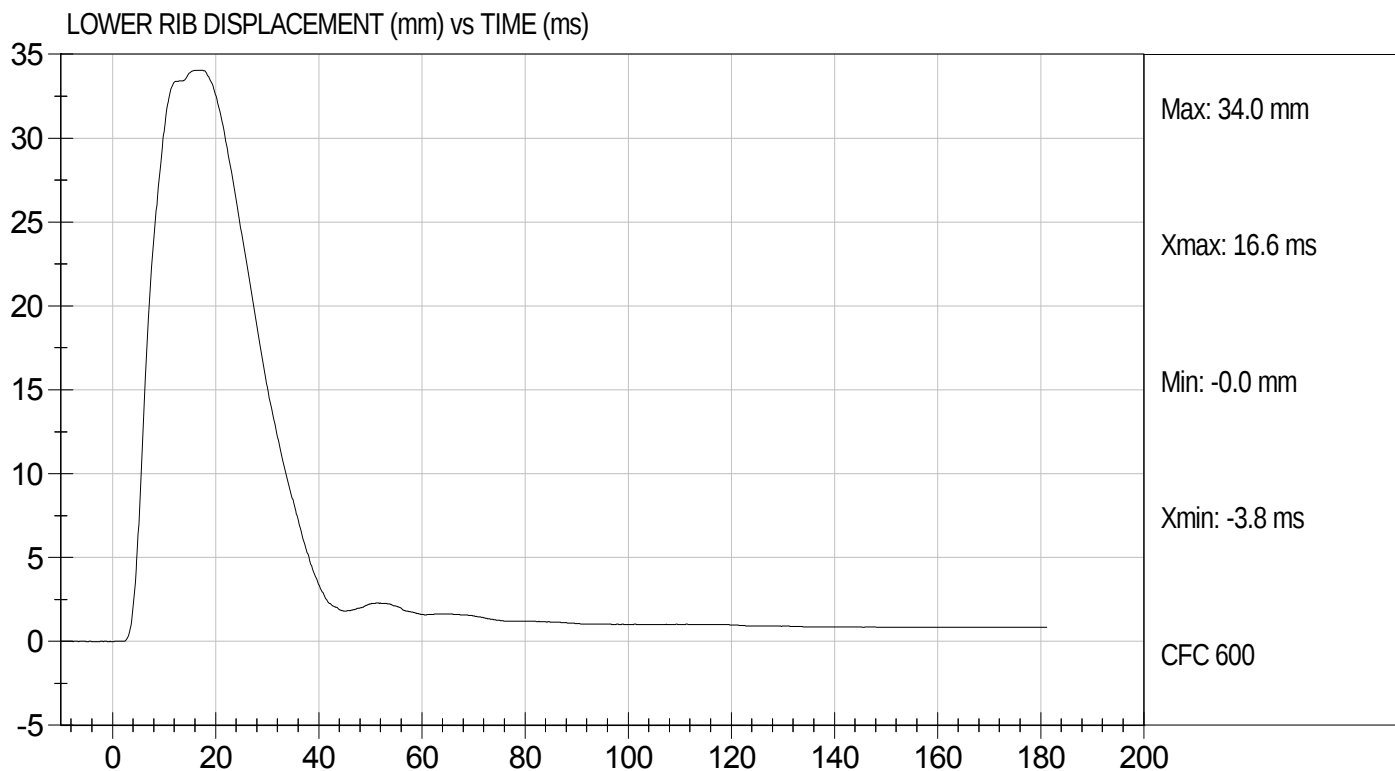
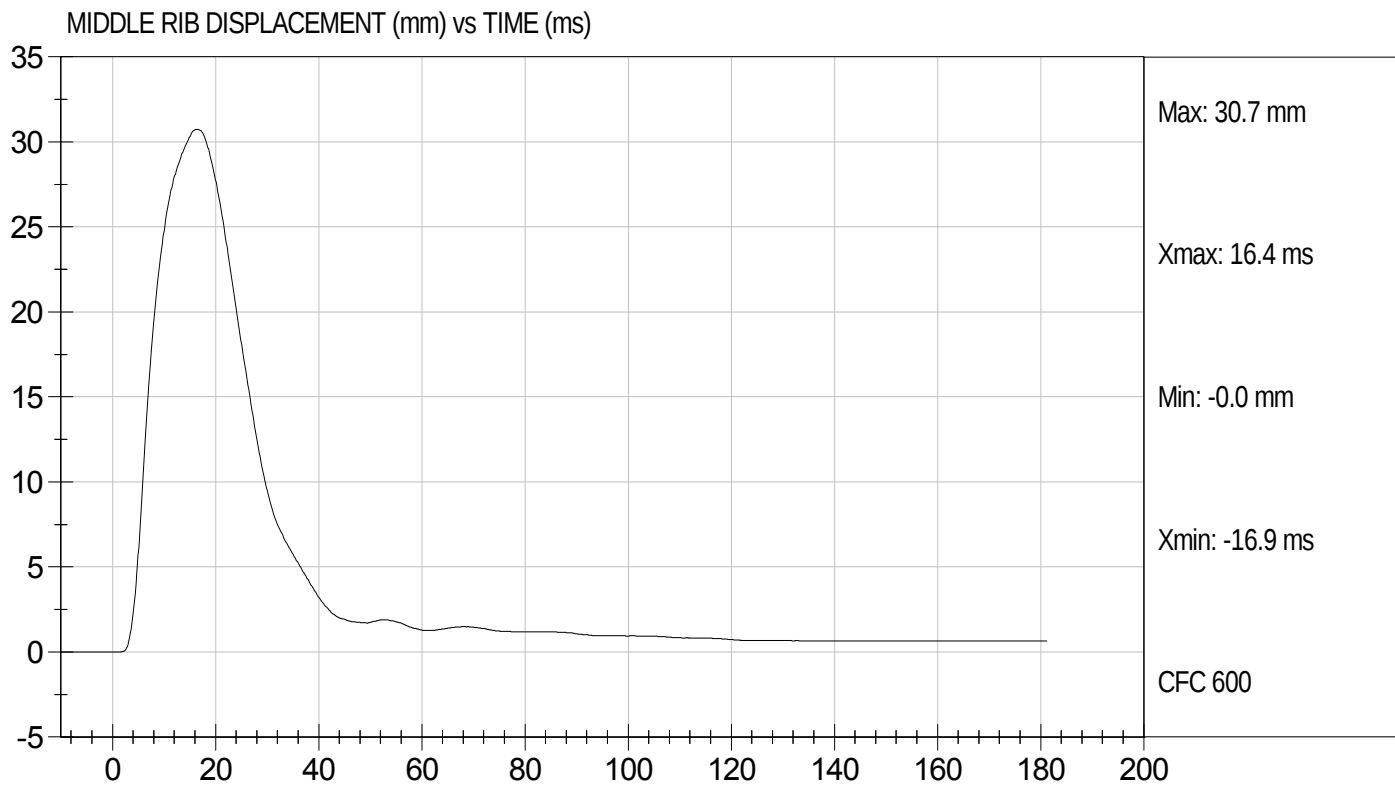
UPPER RIB DISPLACEMENT (mm) vs TIME (ms)





Test Desc: Thorax With Arm
Component ID: D12714

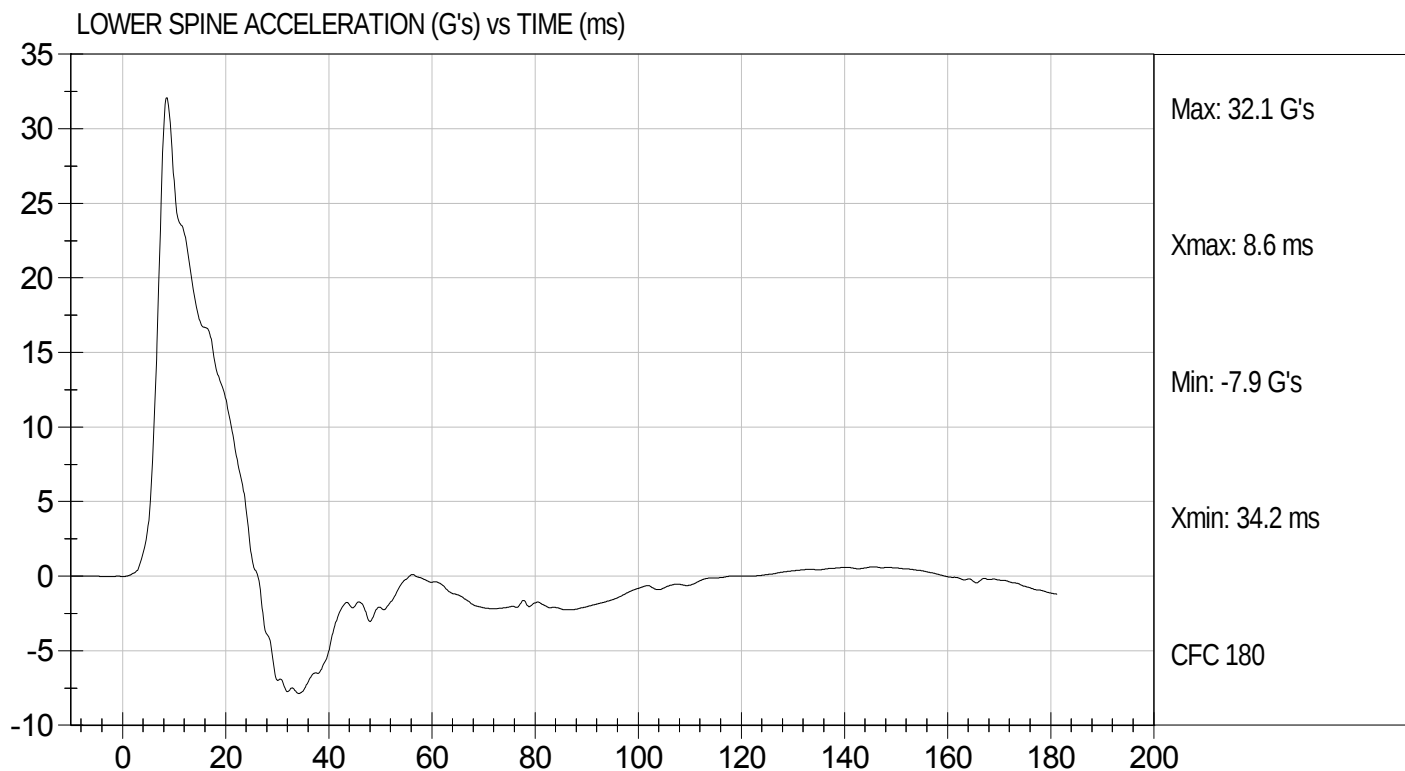
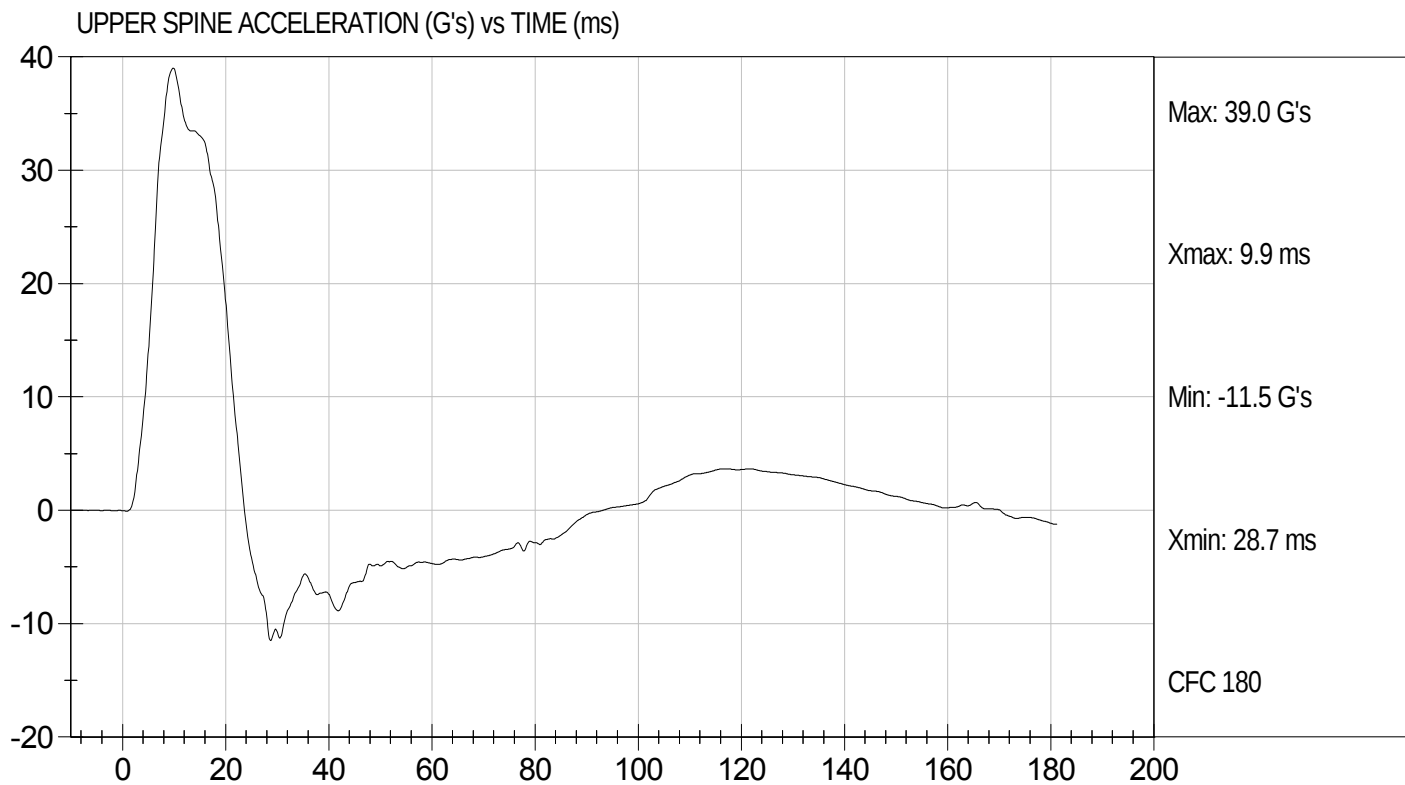
Test Date: 2/27/12
Velocity: 21.9 ft/s, 6.68 m/s





Test Desc: Thorax With Arm
Component ID: D12714

Test Date: 2/27/12
Velocity: 21.9 ft/s, 6.68 m/s



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

ATD Serial No: 306

Test I.D: D12715

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.0	Pass
Humidity	%	10 to 70	18	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	34	Pass
Middle Rib Displacement	mm	39 to 45	40	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

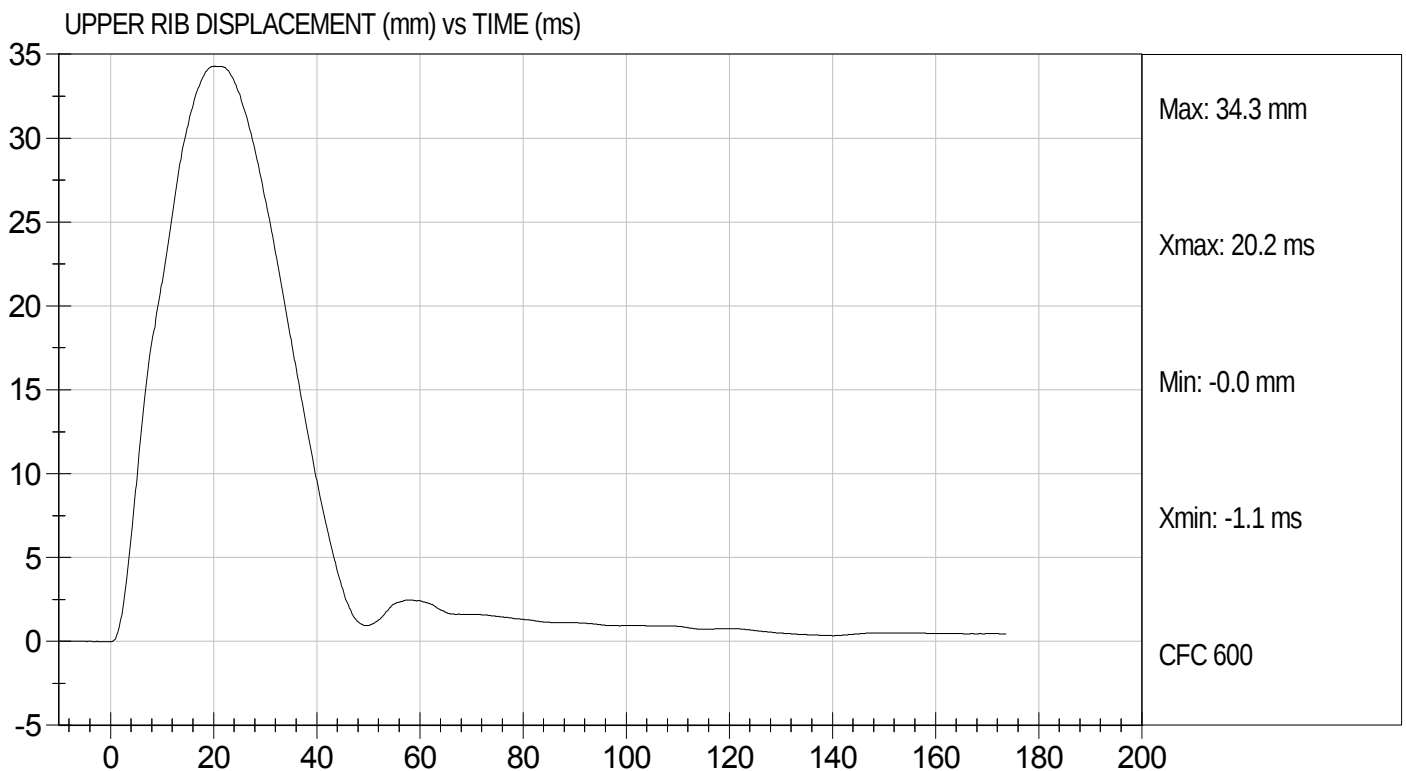
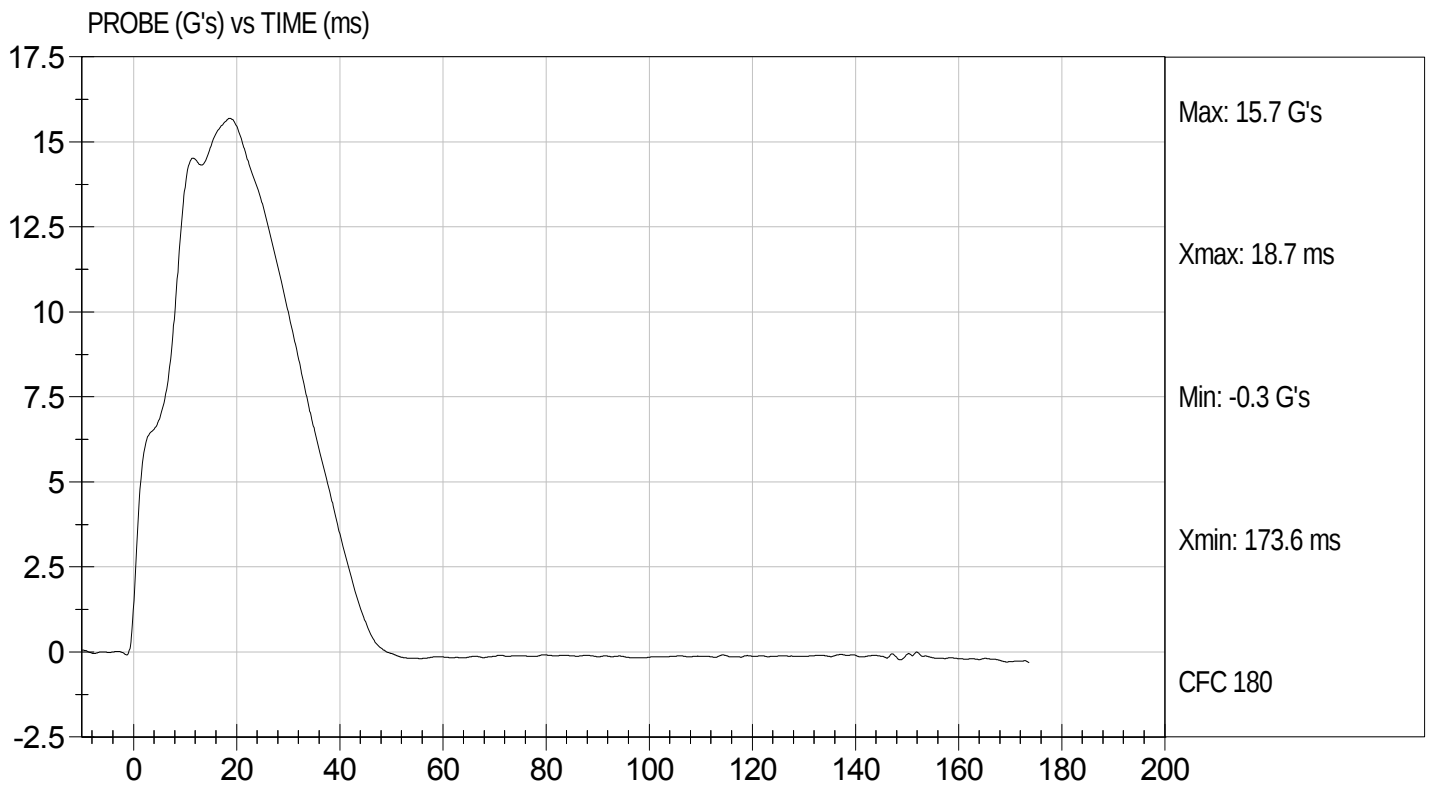
2/27/12
Test Date


Approved By



Test Desc: Thorax Without Arm
Component ID: D12715

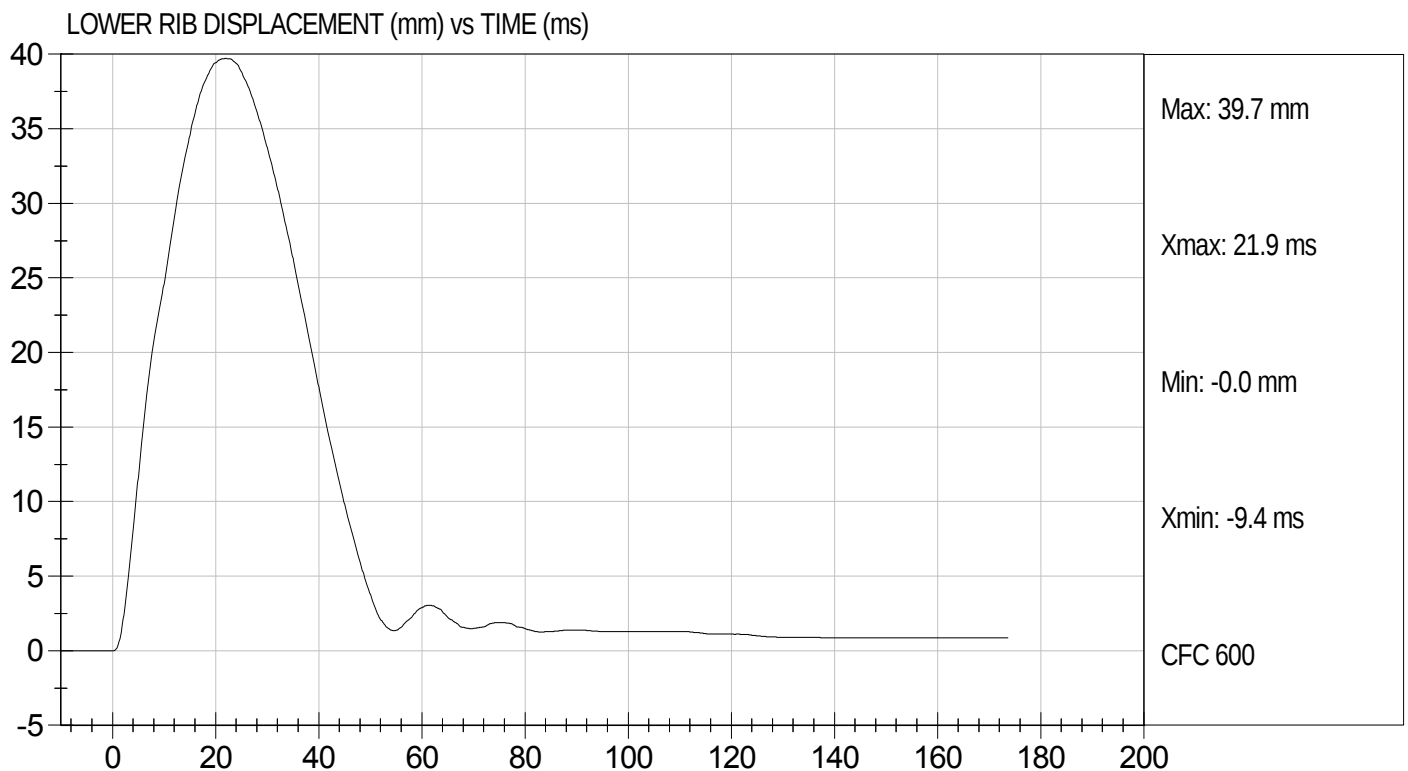
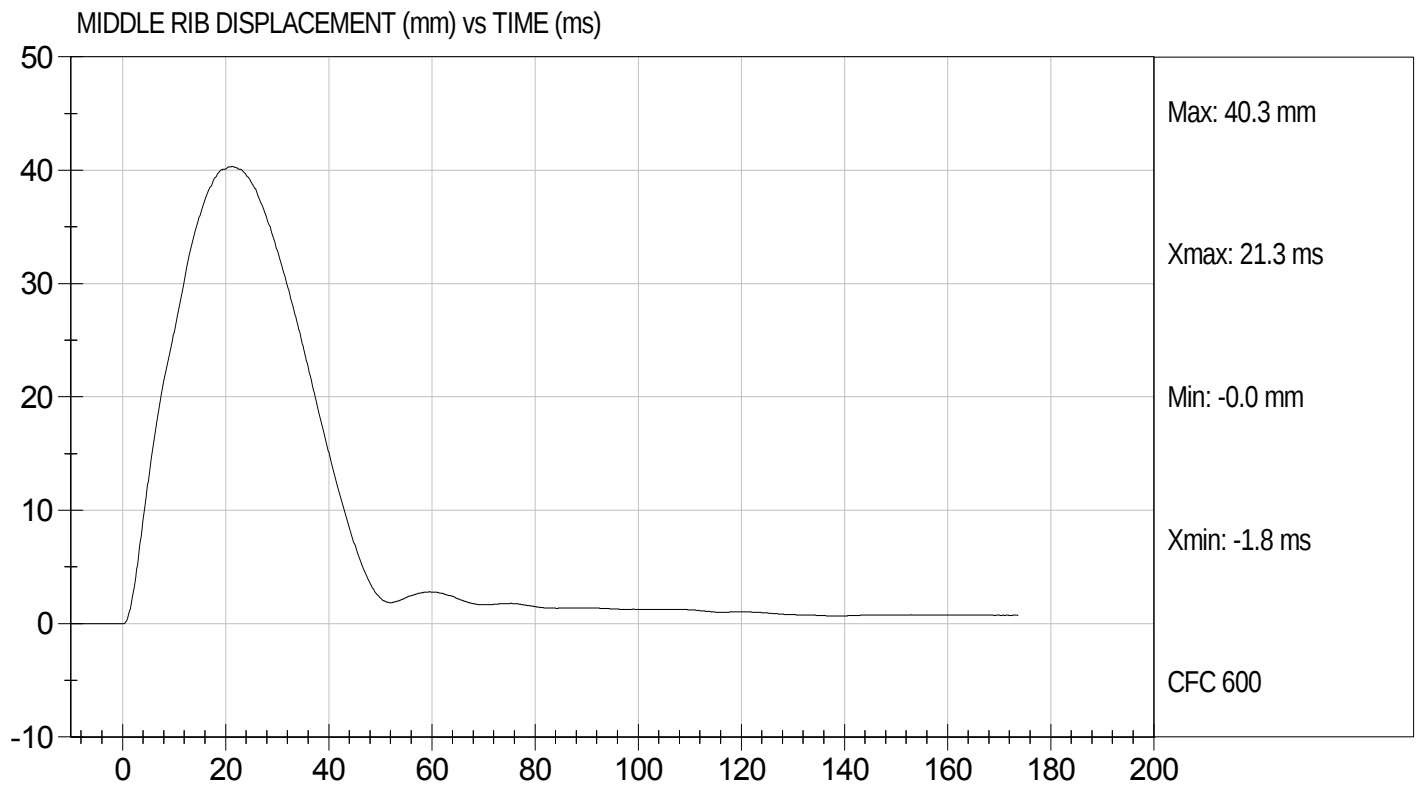
Test Date: 2/27/12
Velocity: 14.24 ft/s, 4.34 m/s





Test Desc: Thorax Without Arm
Component ID: D12715

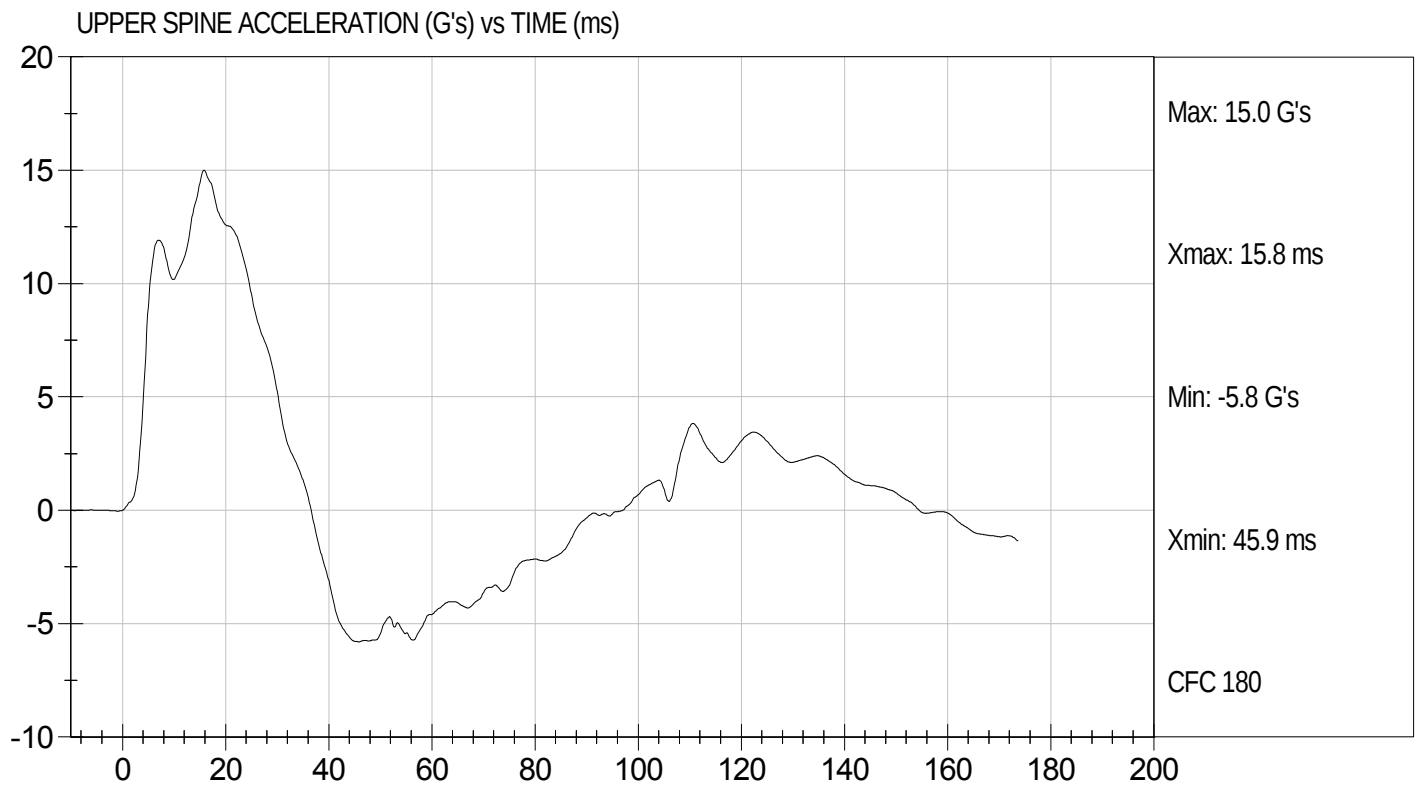
Test Date: 2/27/12
Velocity: 14.24 ft/s, 4.34 m/s





Test Desc: Thorax Without Arm
Component ID: D12715

Test Date: 2/27/12
Velocity: 14.24 ft/s, 4.34 m/s

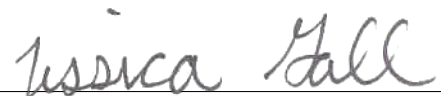


MGA RESEARCH CORPORATION
ABDOMINAL IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

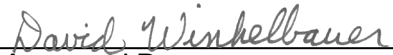
ATD Serial No: 306

Test I.D: D12716

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.0	Pass
Humidity	%	10 to 70	18	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Peak Impactor Acceleration	G's	12 to 16	14	Pass
Upper Rib Displacement	mm	36 to 47	40	Pass
Lower Rib Displacement	mm	33 to 44	38	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
Overall Test Results				Pass


Laboratory Technician

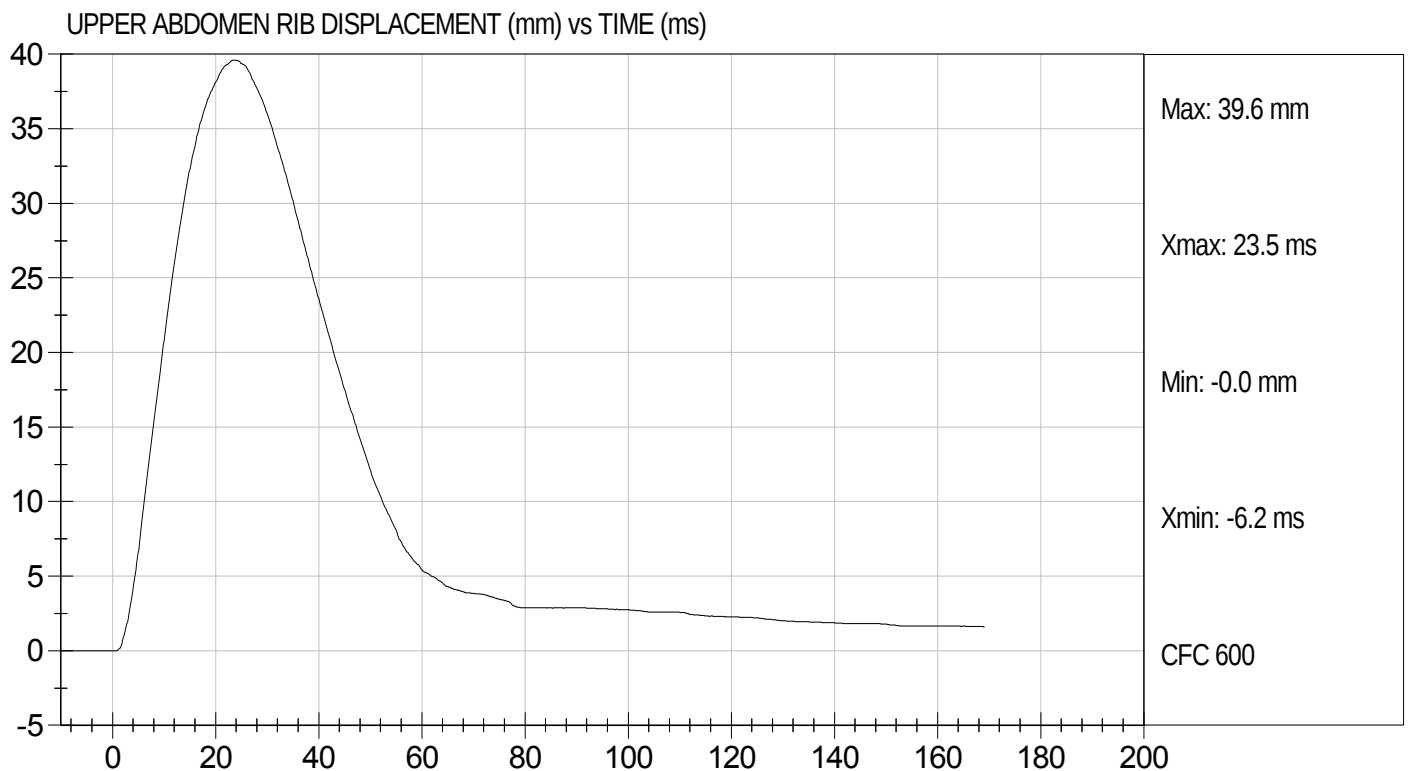
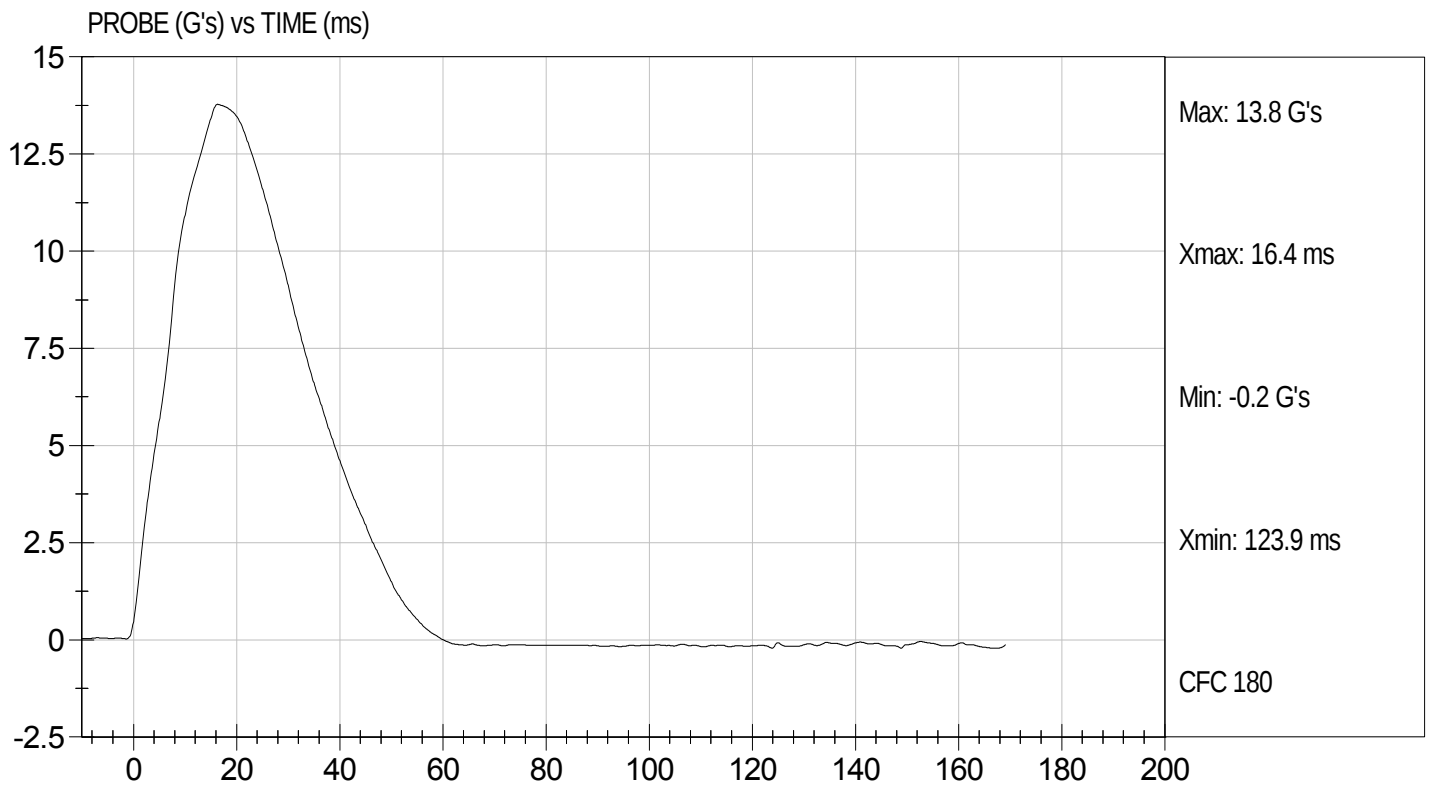
2/27/12
Test Date


Approved By



Test Desc: Abdomen Impact
Component ID: D12716

Test Date: 2/27/12
Velocity: 14.12 ft/s, 4.30 m/s

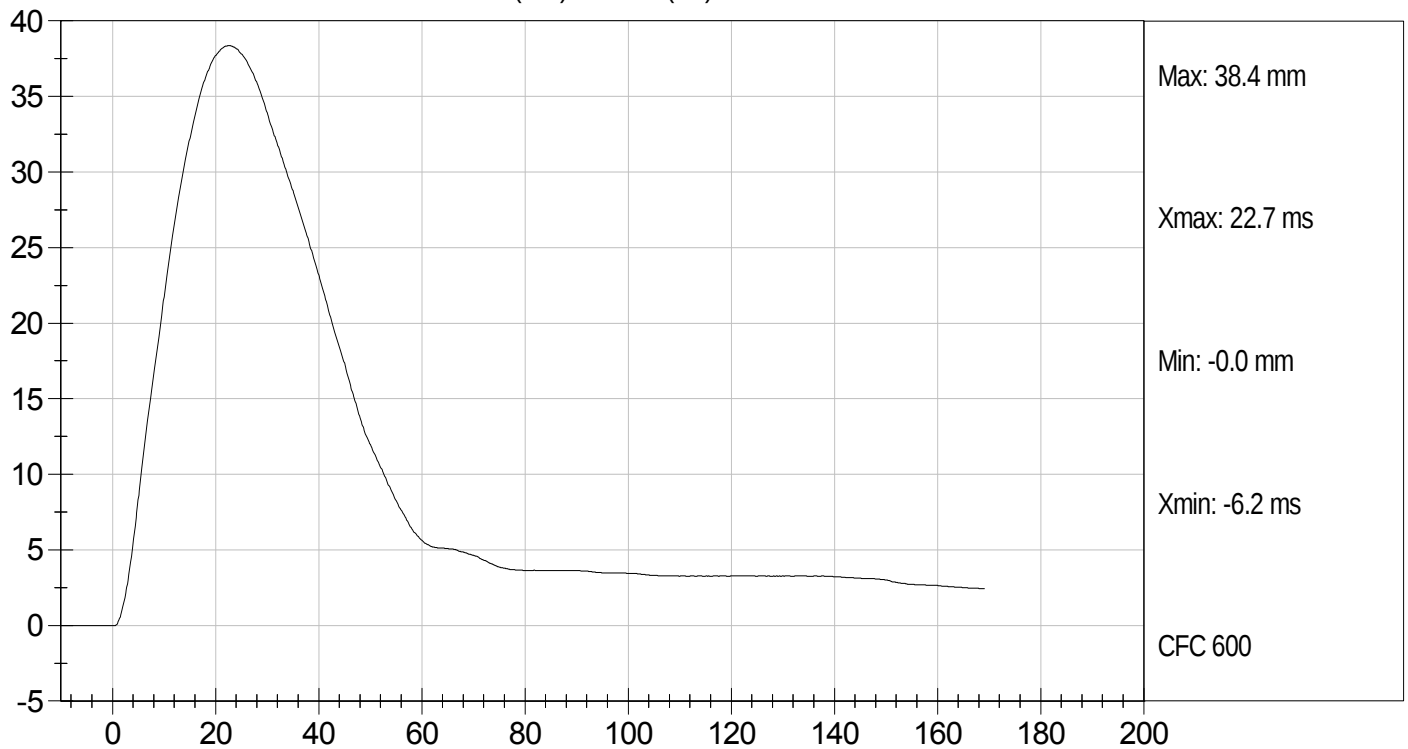




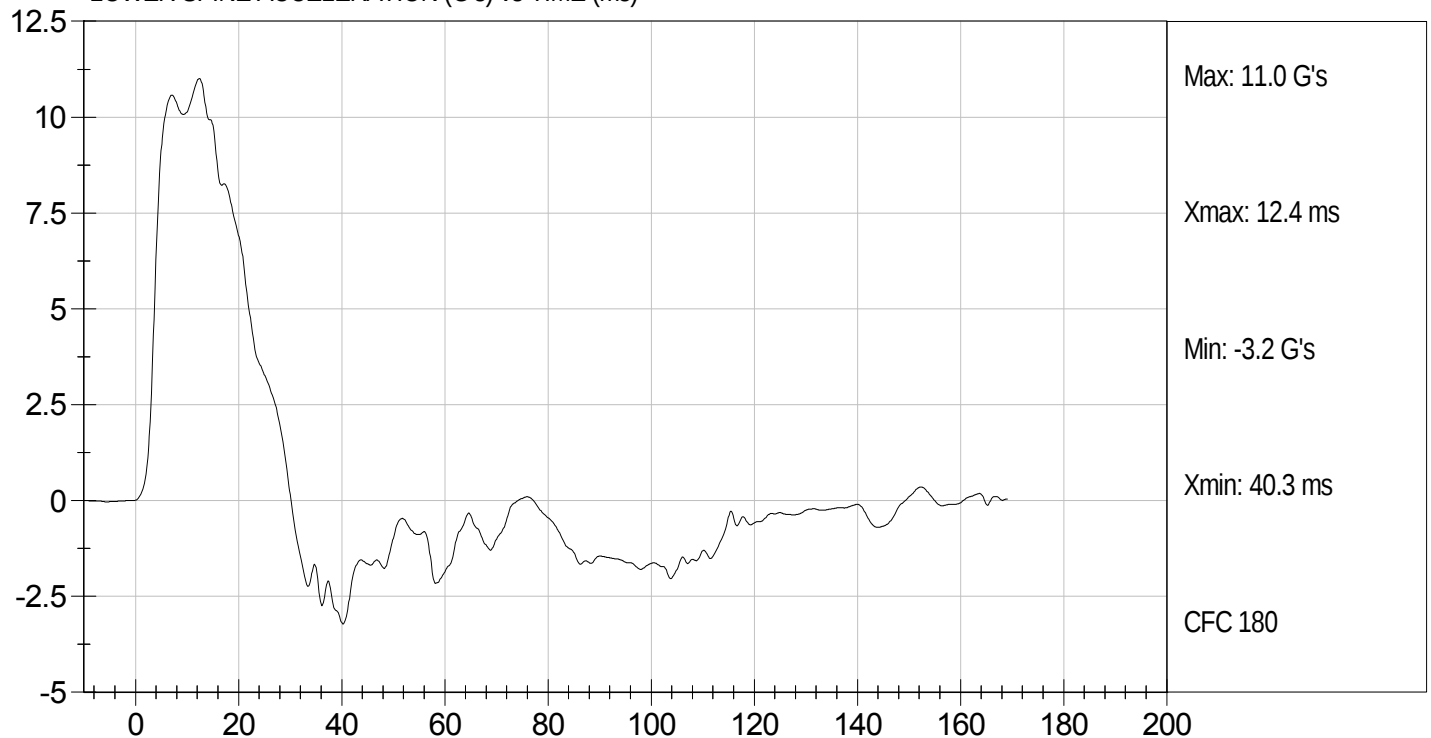
Test Desc: Abdomen Impact
Component ID: D12716

Test Date: 2/27/12
Velocity: 14.12 ft/s, 4.30 m/s

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



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

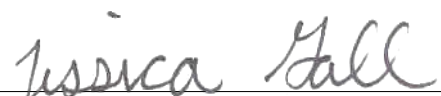


MGA RESEARCH CORPORATION
PELVIS IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D12717

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.0	Pass
Humidity	%	10 to 70	18	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	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

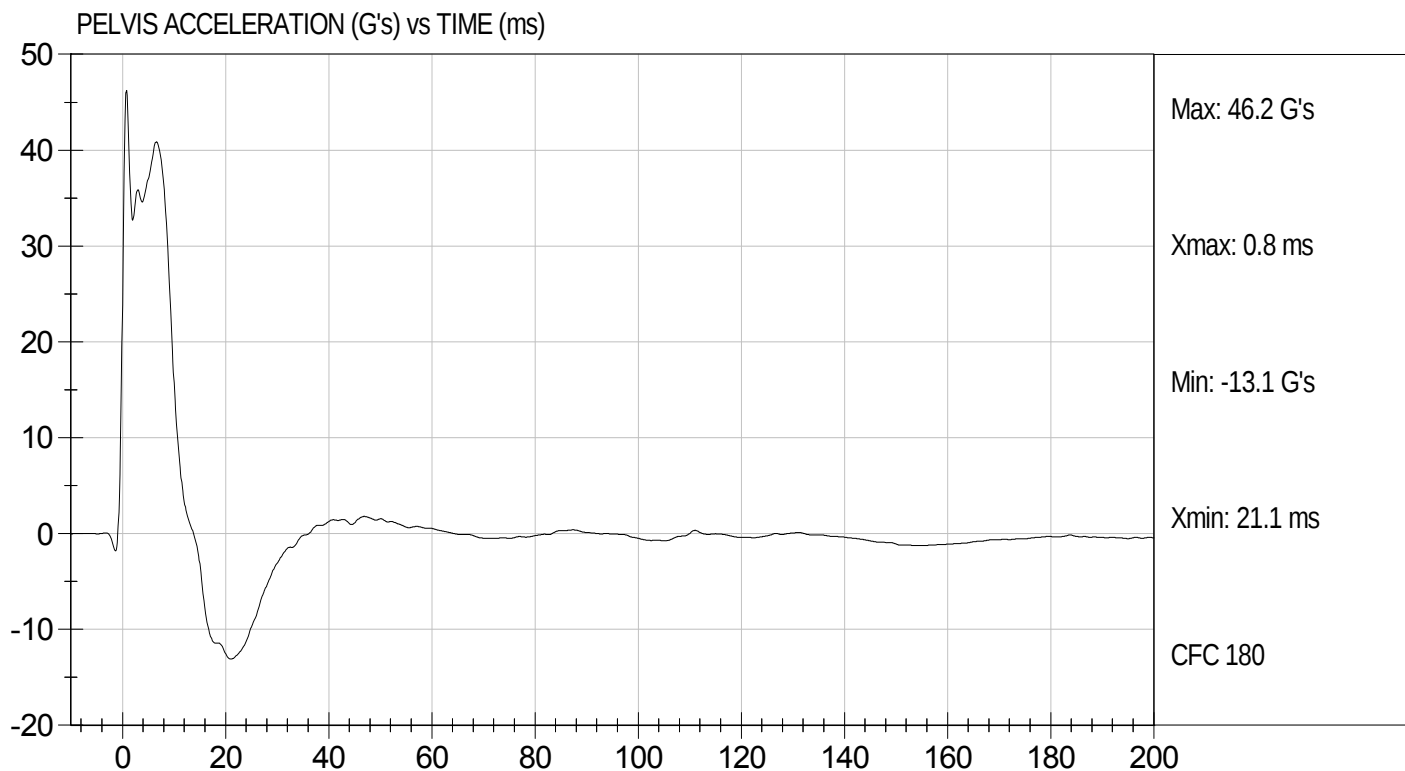
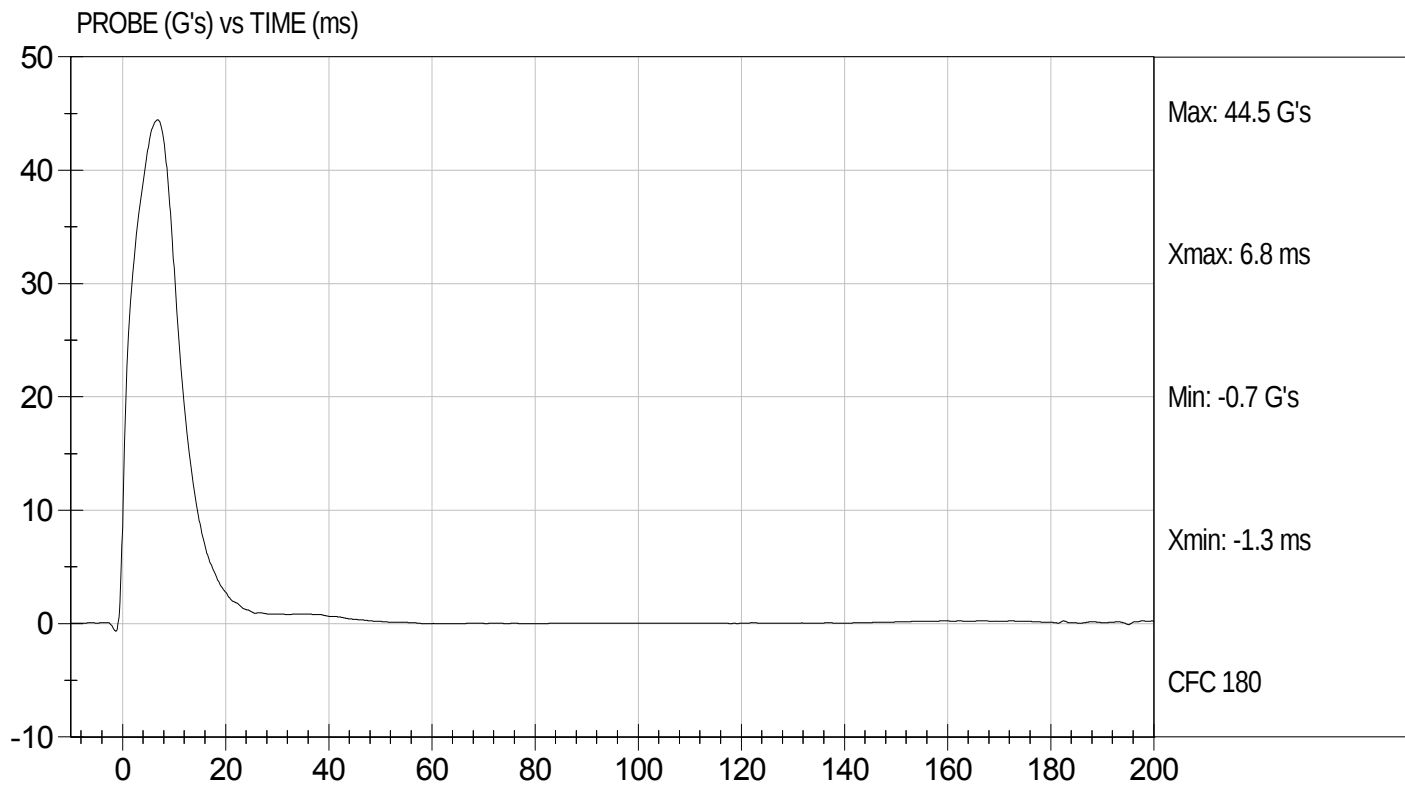
2/27/12
Test Date


Approved By



Test Desc: Pelvis Impact
Component ID: D12717

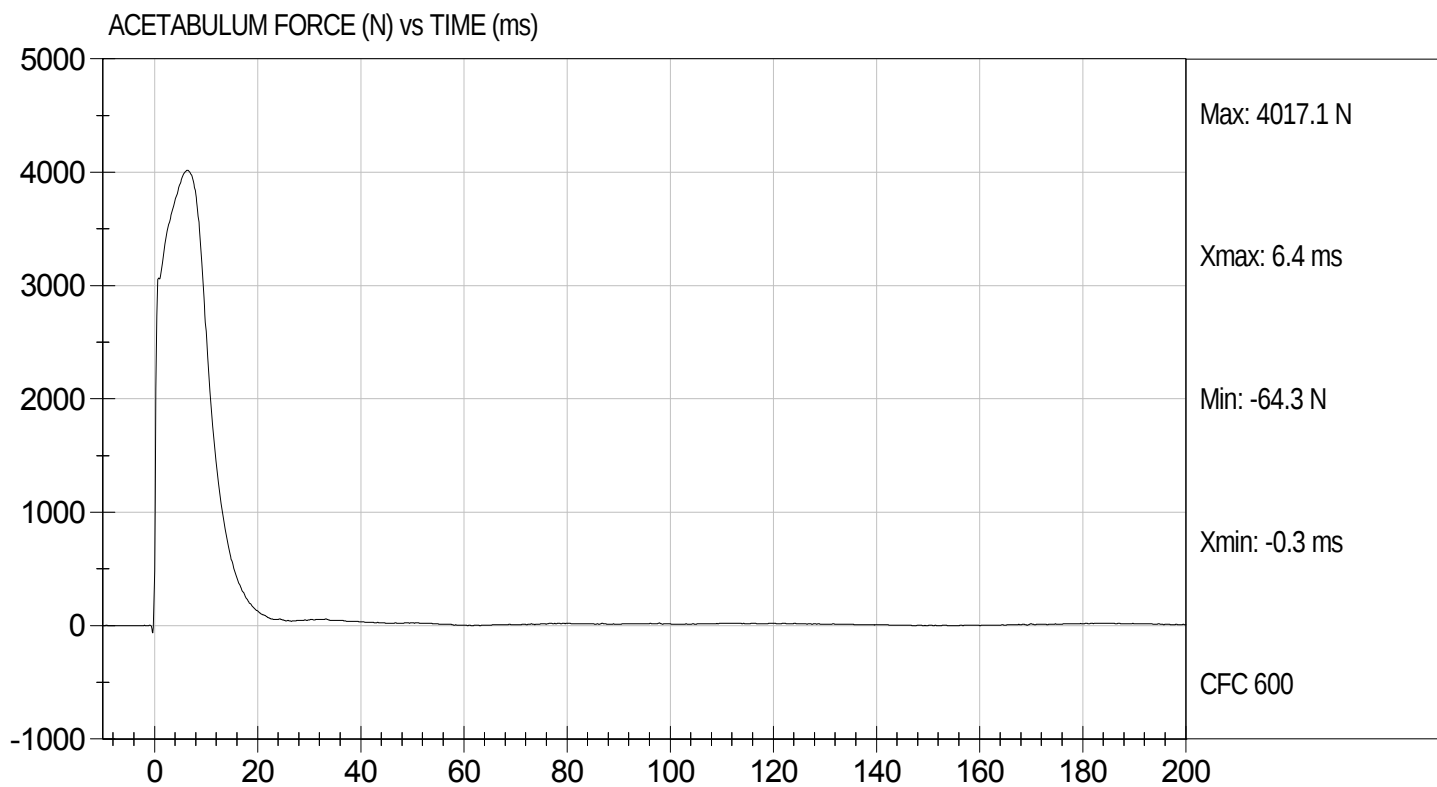
Test Date: 2/27/12
Velocity: 21.9 ft/s, 6.68 m/s





Test Desc: Pelvis Impact
Component ID: D12717

Test Date: 2/27/12
Velocity: 21.9 ft/s, 6.68 m/s



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

ATD Serial No: 306

Test I.D: D12718

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.0	Pass
Humidity	%	10 to 70	18	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	4632	Pass
Overall Test Results				Pass


Laboratory Technician

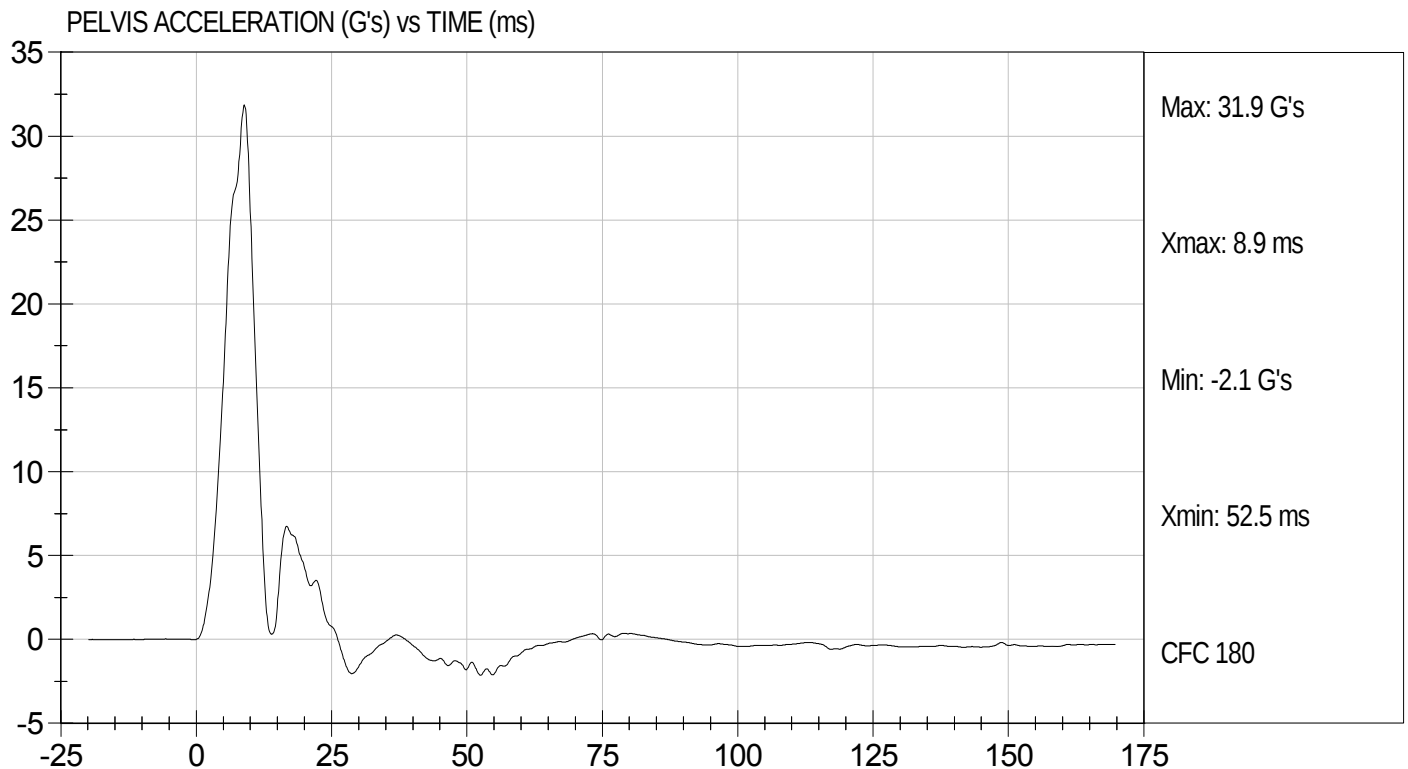
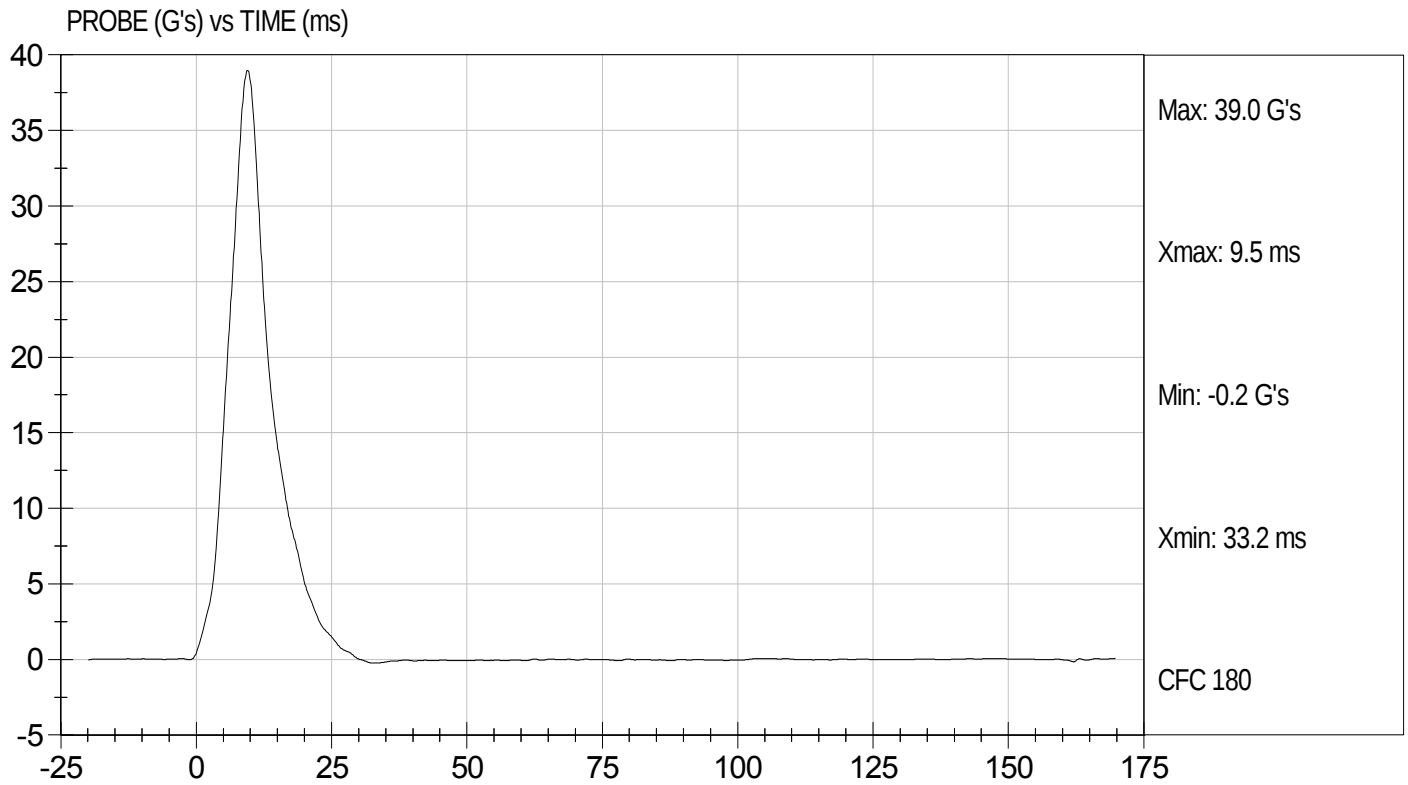
2/27/12
Test Date


Approved By



Test Desc: Iliac Impact
Component ID: D12718

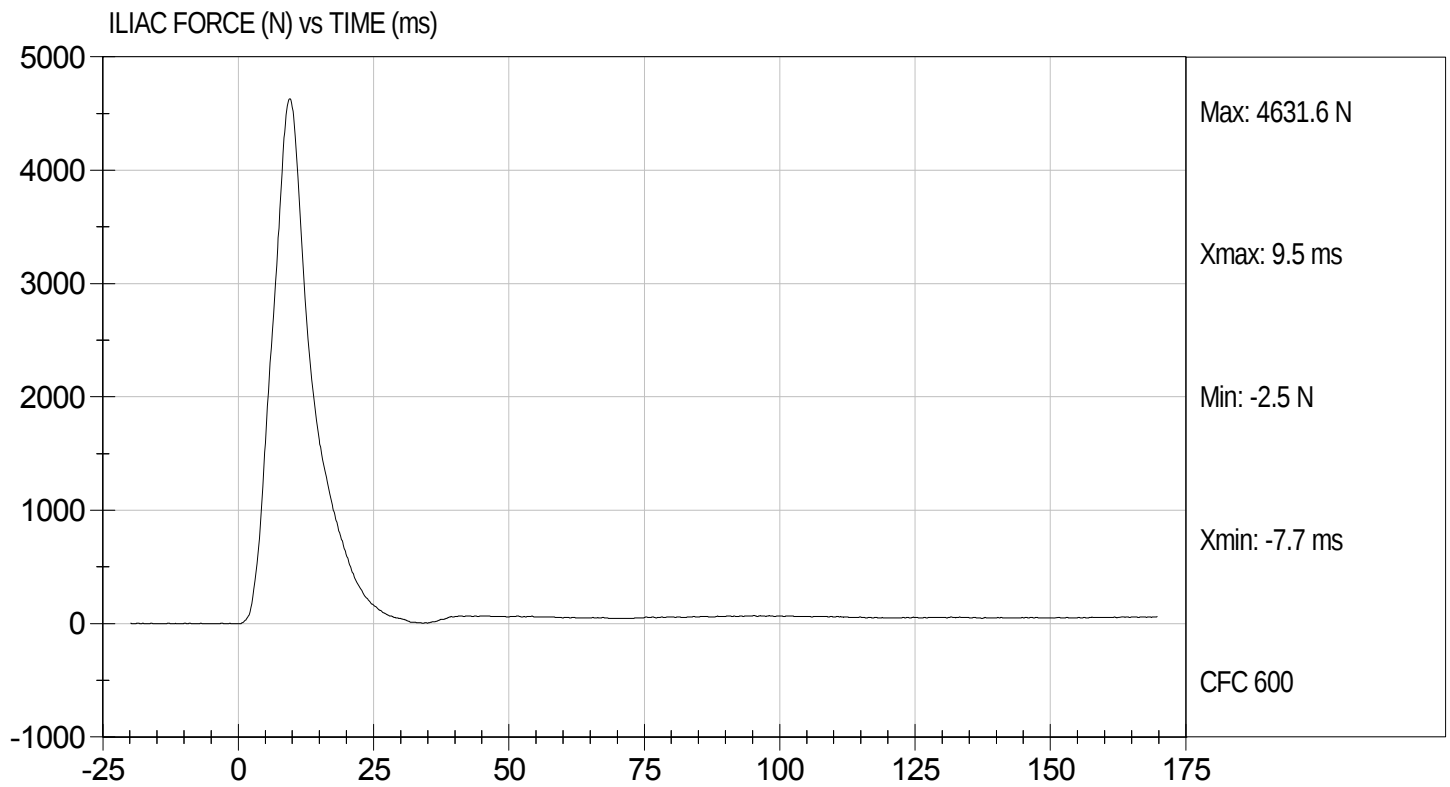
Test Date: 2/27/12
Velocity: 14.24 ft/s, 4.34 m/s





Test Desc: Iliac Impact
Component ID: D12718

Test Date: 2/27/12
Velocity: 14.24 ft/s, 4.34 m/s



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

ATD Serial No: 306

Test ID: D12841

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Peak Resultant Acceleration	G's	115 to 137	122	Pass
Peak Longitudinal Acceleration	G's	+/- 15	2.4	Pass
Unimodal	N/A	<15%	Yes	Pass
Overall Test Results				Pass

Jessica Galt
Laboratory Technician

3/6/12
Test Date

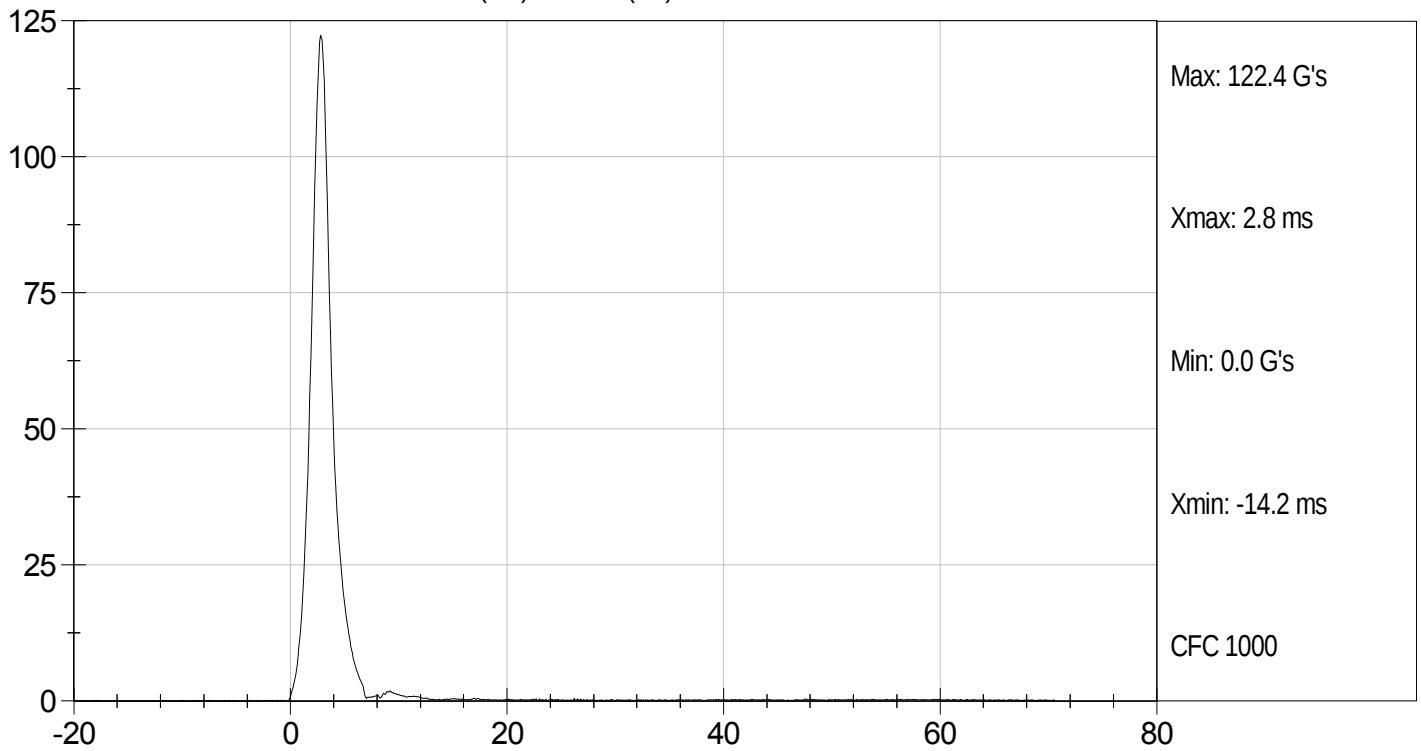
David Winkelbauer
Approved By



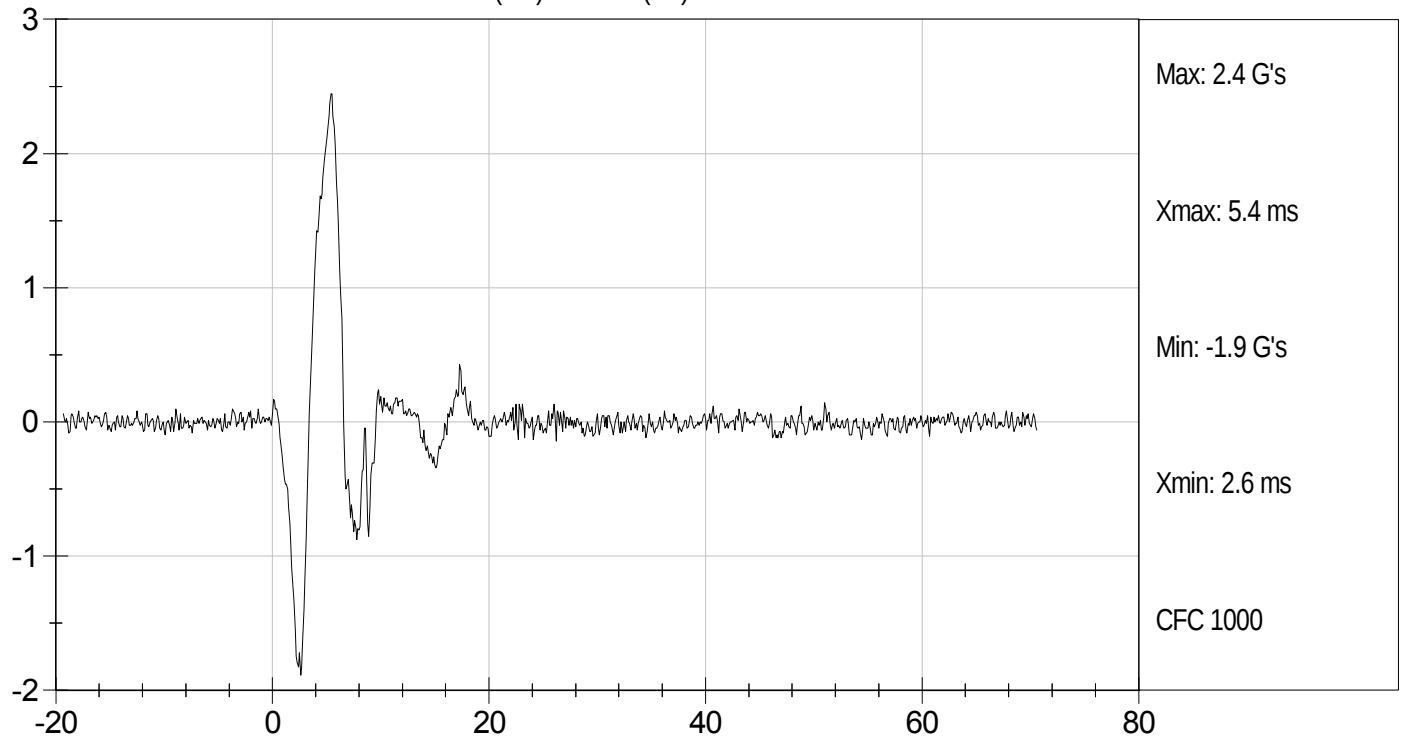
Test Desc: Head Drop
Component ID: D12841

Test Date: 3/6/12
Velocity: 0 ft/s, 0 m/s

PEAK RESULTANT ACCELERATION (G's) vs TIME (ms)



PEAK LONGITUDINAL ACCELERATION (G's) vs TIME (ms)

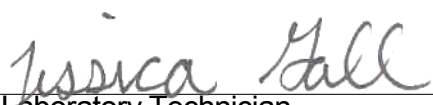


MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D12842

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.7	Pass
Humidity		%	10 to 70	21	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Delta Velocity	10 ms	m/s	2.20 to 2.80	2.62	Pass
	15 ms	m/s	3.30 to 4.10	3.75	Pass
	20 ms	m/s	4.40 to 5.40	5.13	Pass
	25 ms	m/s	5.40 to 6.10	5.53	Pass
	25-100 ms	m/s	5.50 to 6.20	5.55	Pass
Maximum D-Plane Rotation		deg	71 to 81	74	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	61	Pass
Maximum Occipital Condyle Moment during Rotation Interval Nm			-44 to -36	-42	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	117	Pass
Overall Test Results					Pass


 Laboratory Technician

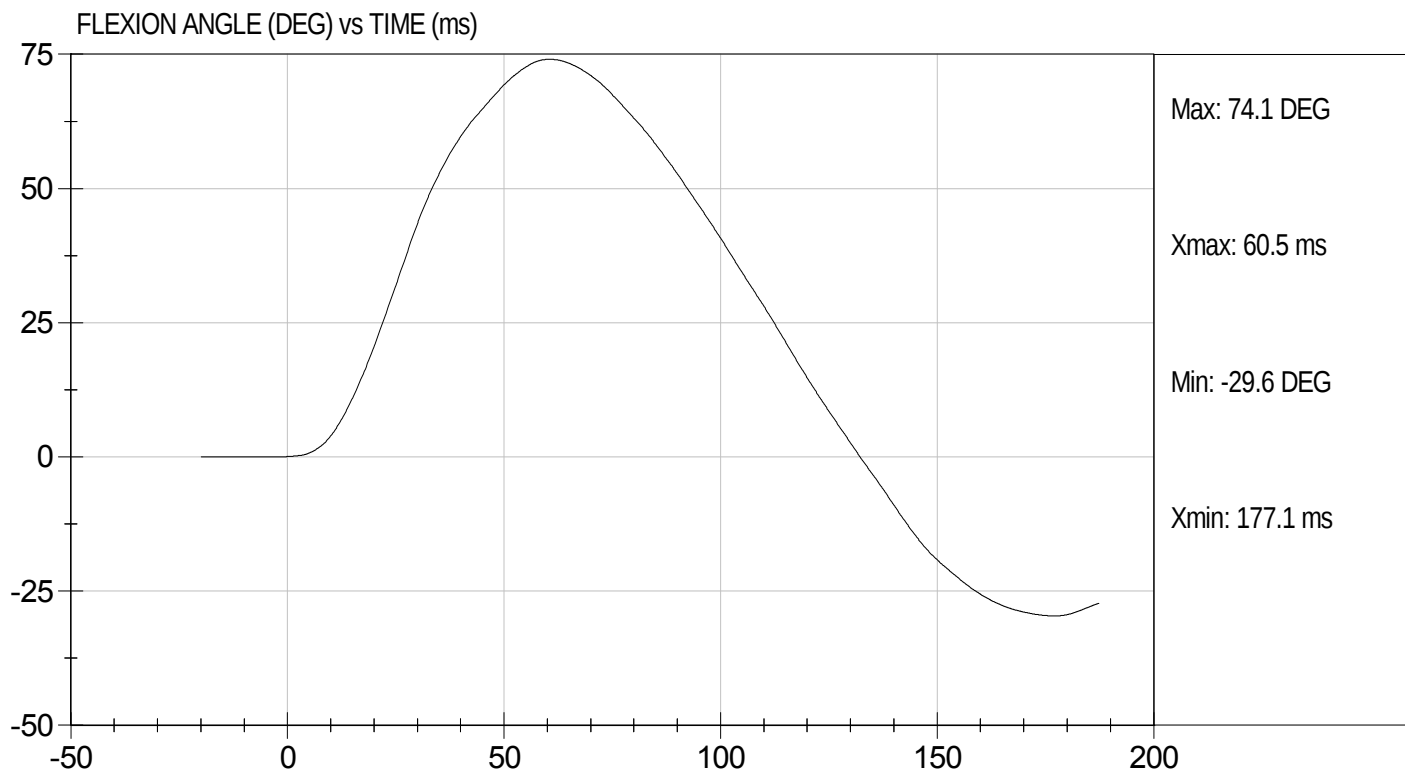
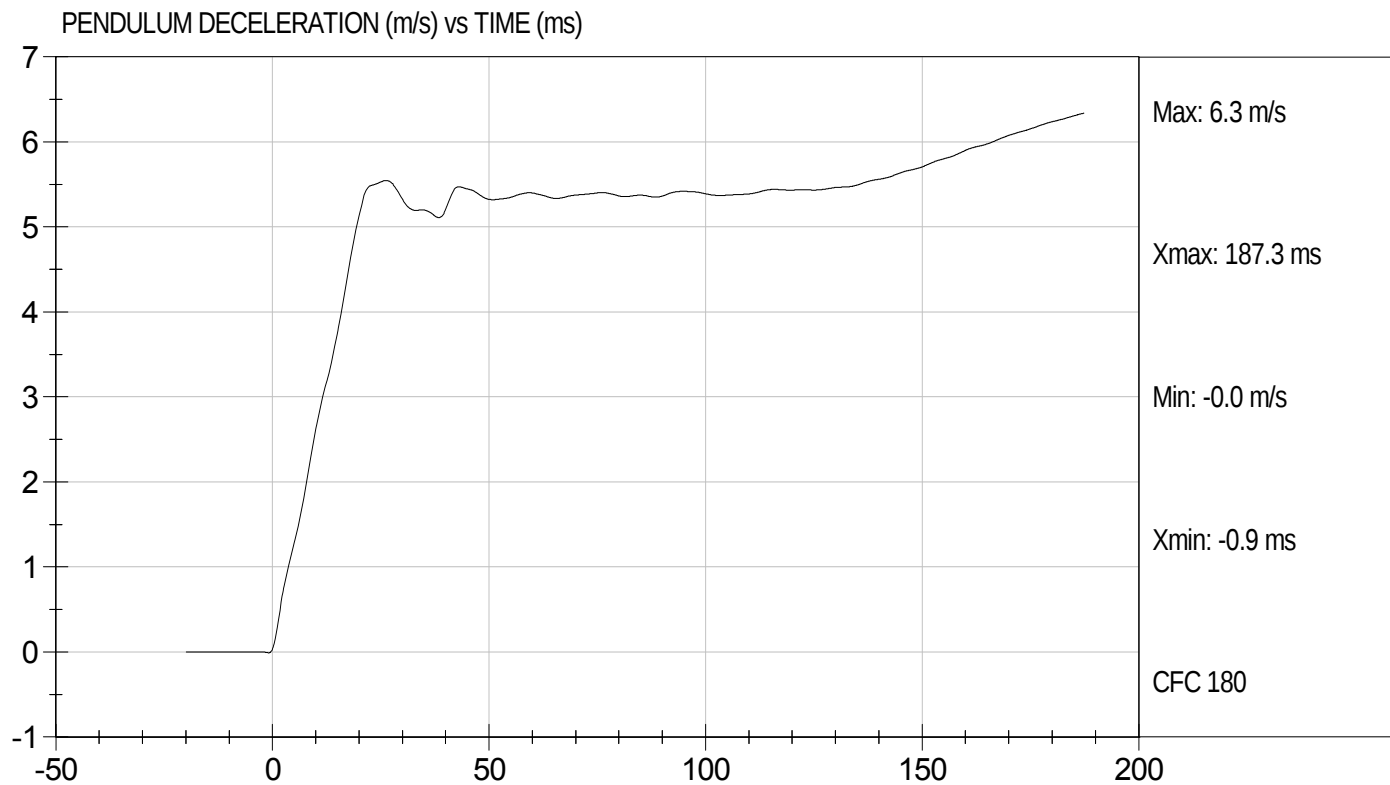
3/6/12
 Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D12842

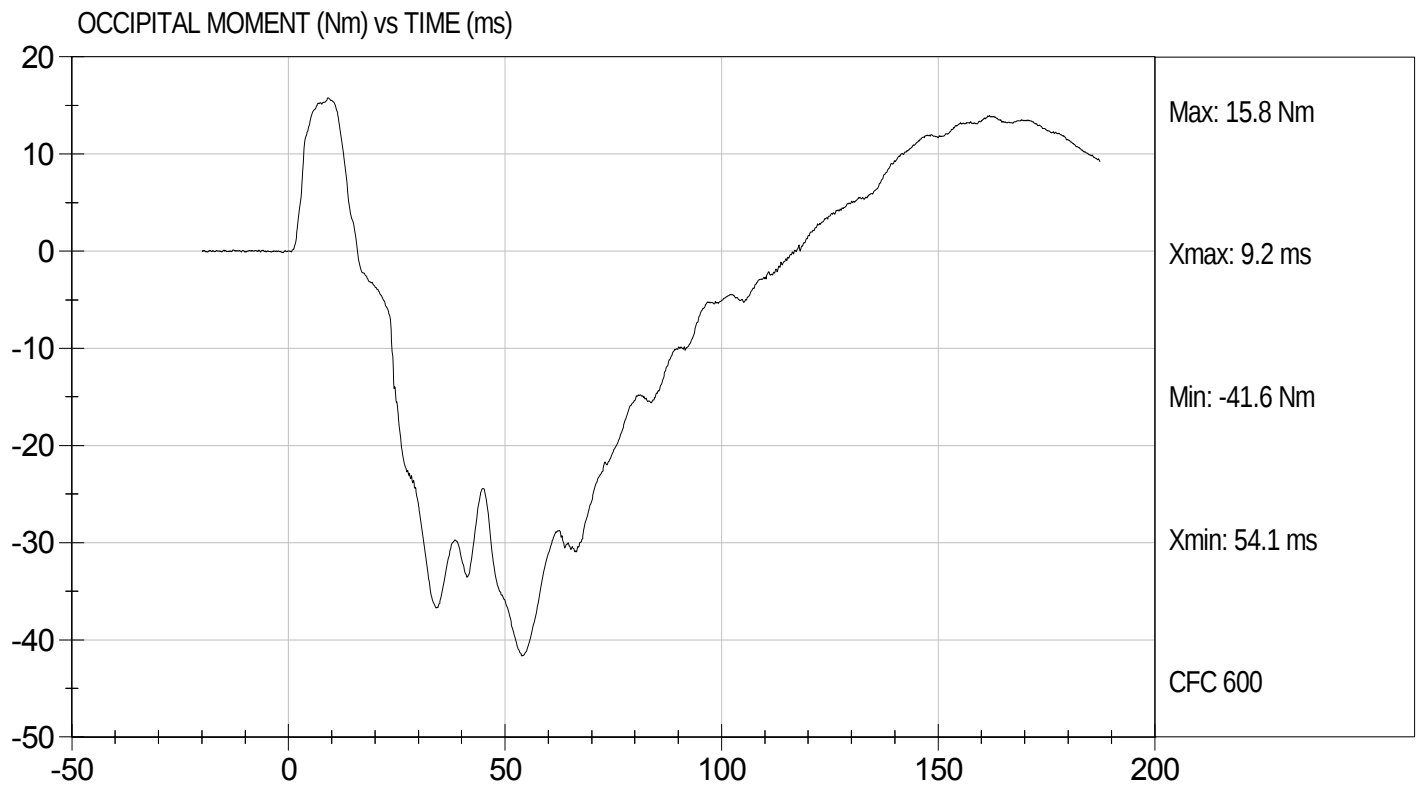
Test Date: 3/6/12
Velocity: 18.31 ft/s, 5.58 m/s





Test Desc: Neck Bending
Component ID: D12842

Test Date: 3/6/12
Velocity: 18.31 ft/s, 5.58 m/s

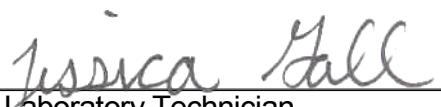


MGA RESEARCH CORPORATION
SHOULDER IMPACT TEST
SID-ILs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test ID: D12843

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	19	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


Laboratory Technician

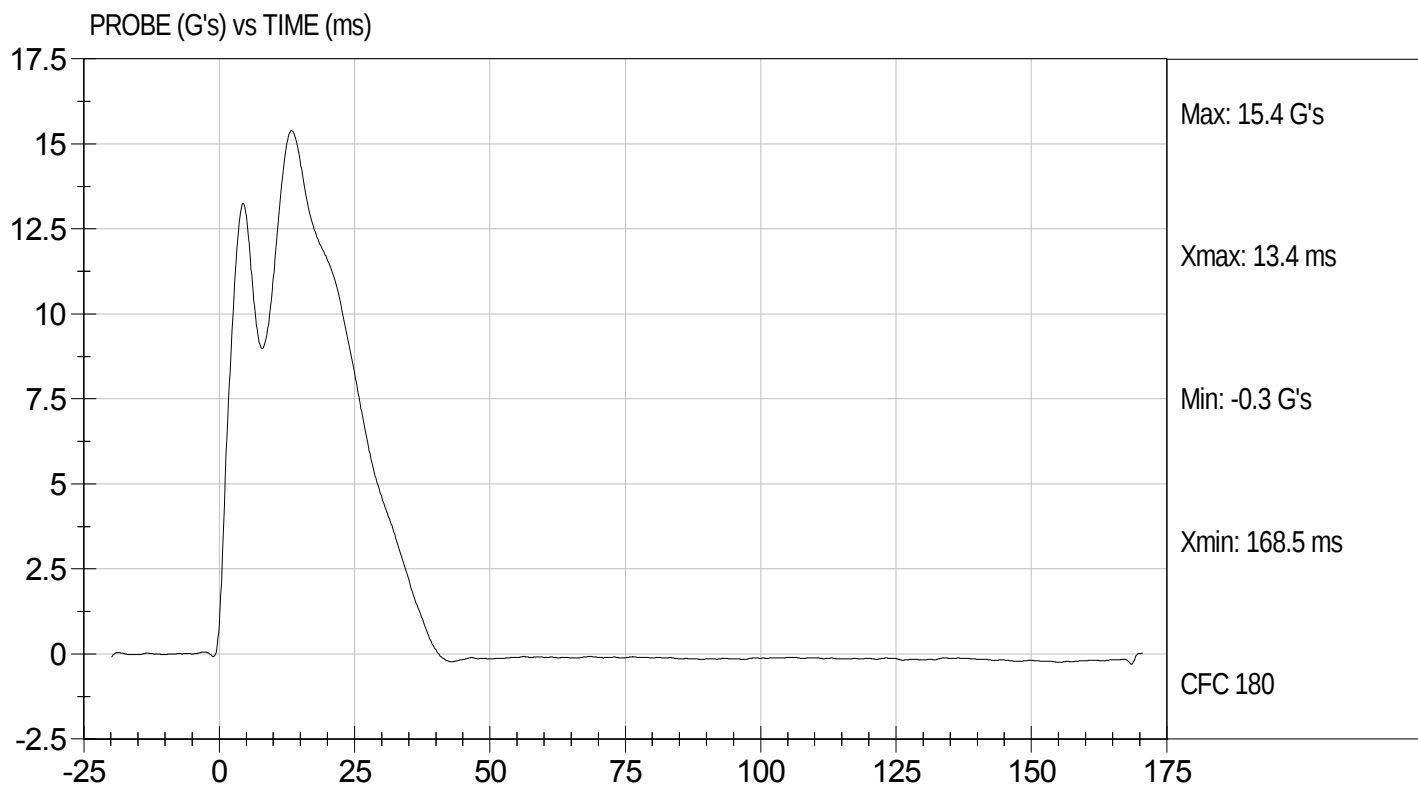
3/5/12
Test Date


Approved By



Test Desc: Shoulder Impact
Component ID: D12843

Test Date: 3/5/12
Velocity: 14.24 ft/s, 4.34 m/s

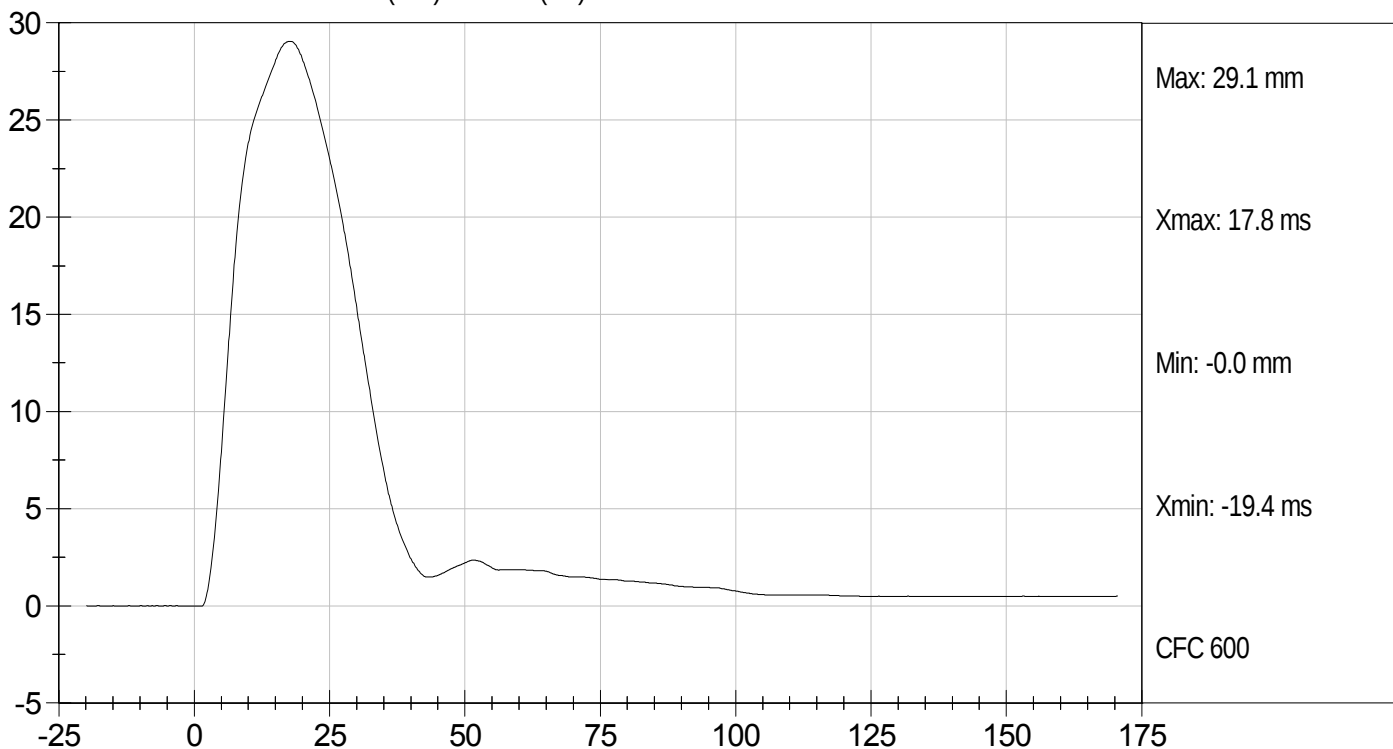




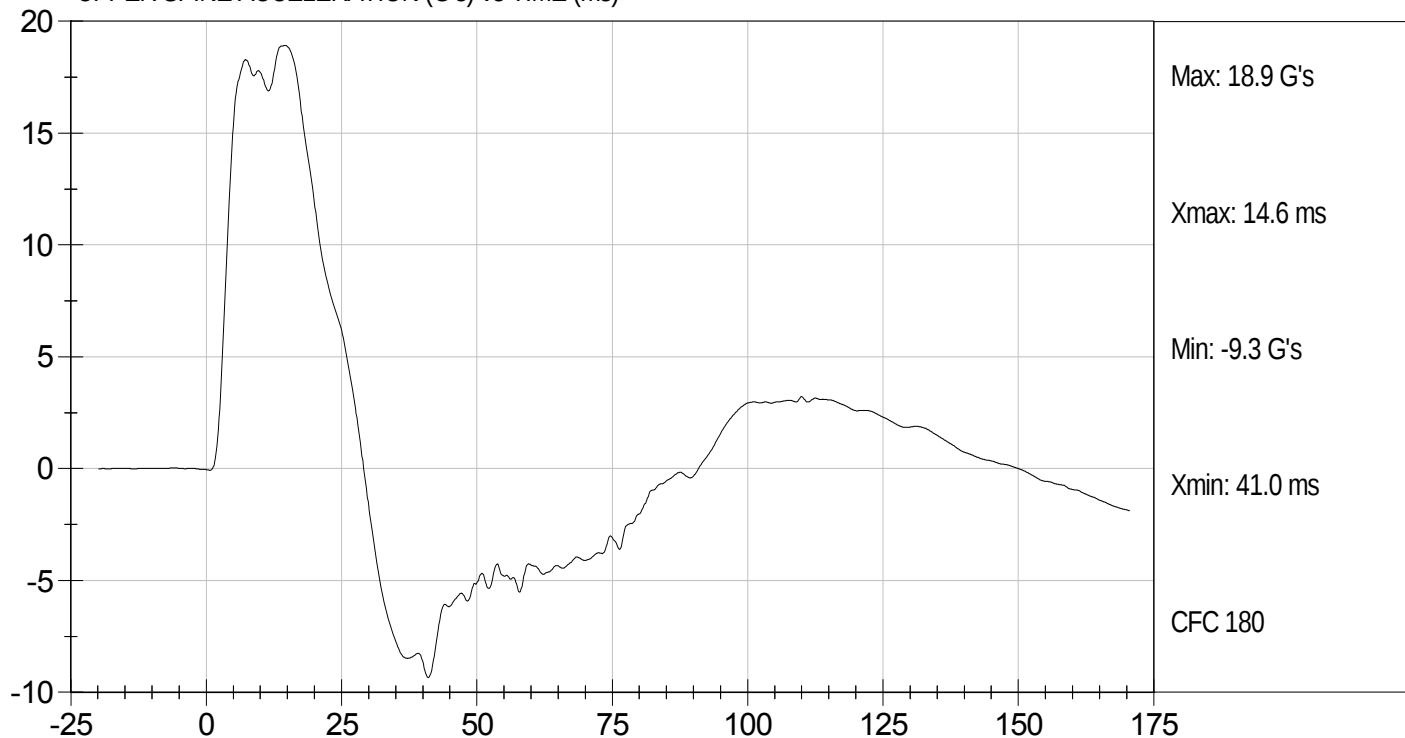
Test Desc: Shoulder Impact
Component ID: D12843

Test Date: 3/5/12
Velocity: 14.24 ft/s, 4.34 m/s

SHOULDER DISPLACEMENT (mm) vs TIME (ms)



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

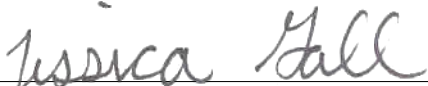


MGA RESEARCH CORPORATION
THORAX (WITH ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

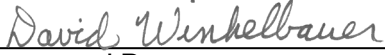
ATD Serial No: 306

Test I.D: D12844

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	19	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Peak Impactor Acceleration	G's	30 to 36	33	Pass
Shoulder Displacement	mm	31 to 40	33	Pass
Upper Rib Displacement	mm	25 to 32	26	Pass
Middle Rib Displacement	mm	30 to 36	30	Pass
Lower Rib Displacement	mm	32 to 38	34	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	40	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	33	Pass
Overall Test Results				Pass


 Laboratory Technician

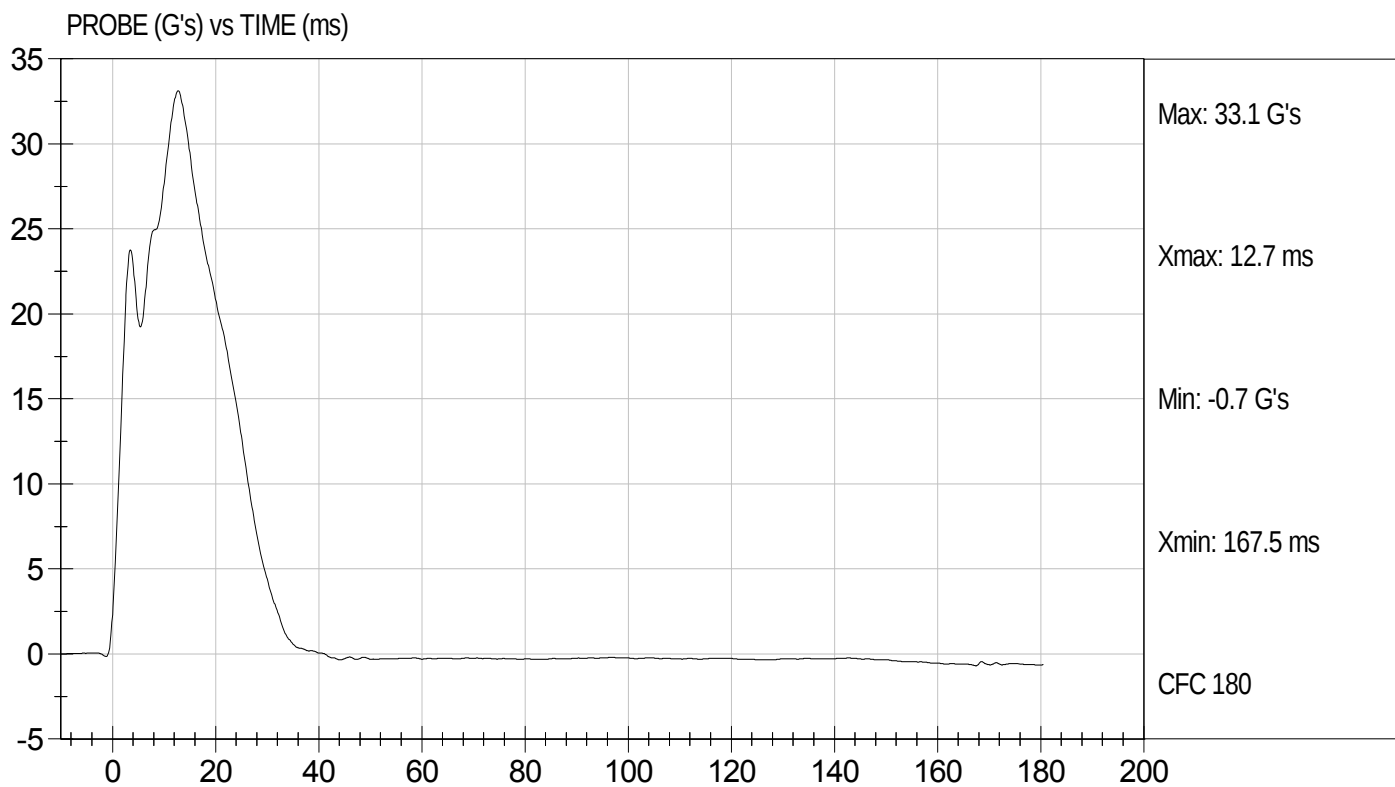
3/5/12
 Test Date


 Approved By



Test Desc: Thorax With Arm
Component ID: D12844

Test Date: 3/5/12
Velocity: 22.22 ft/s, 6.77 m/s

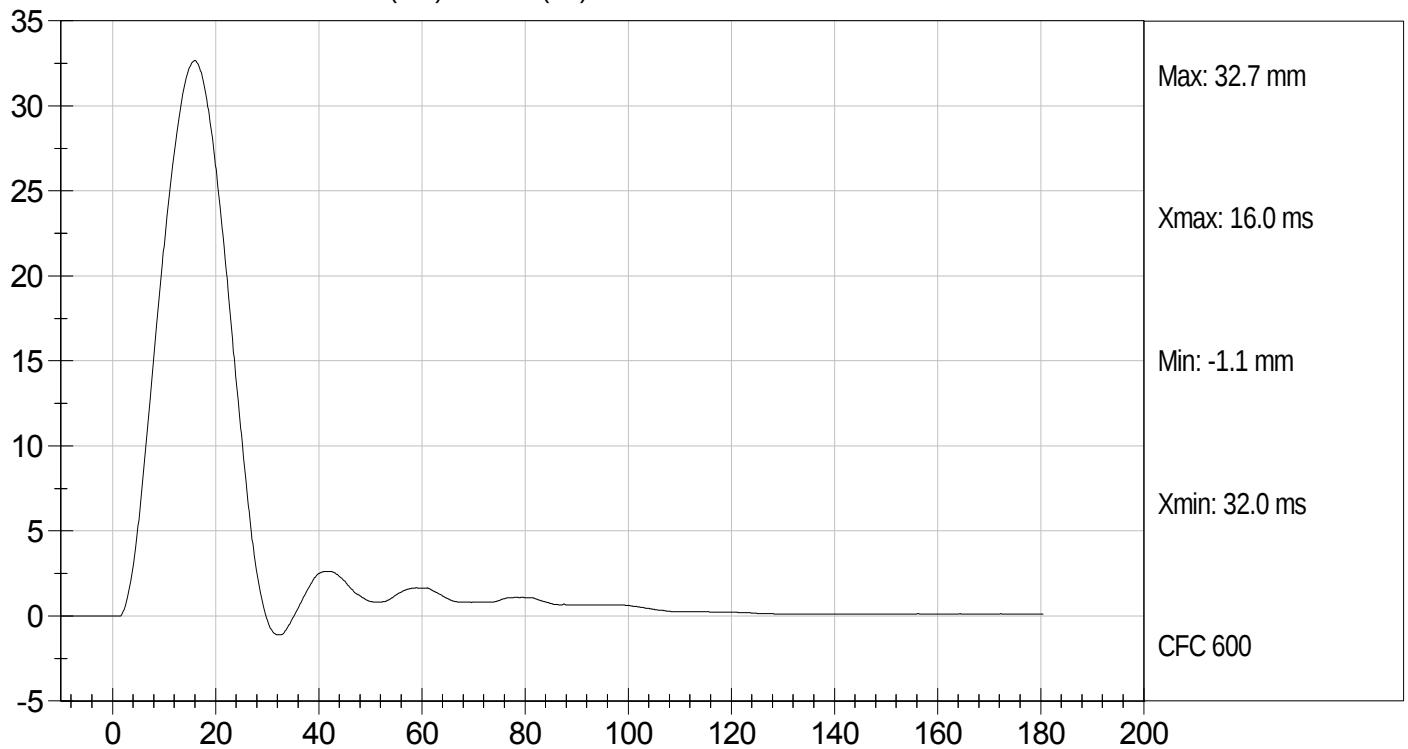




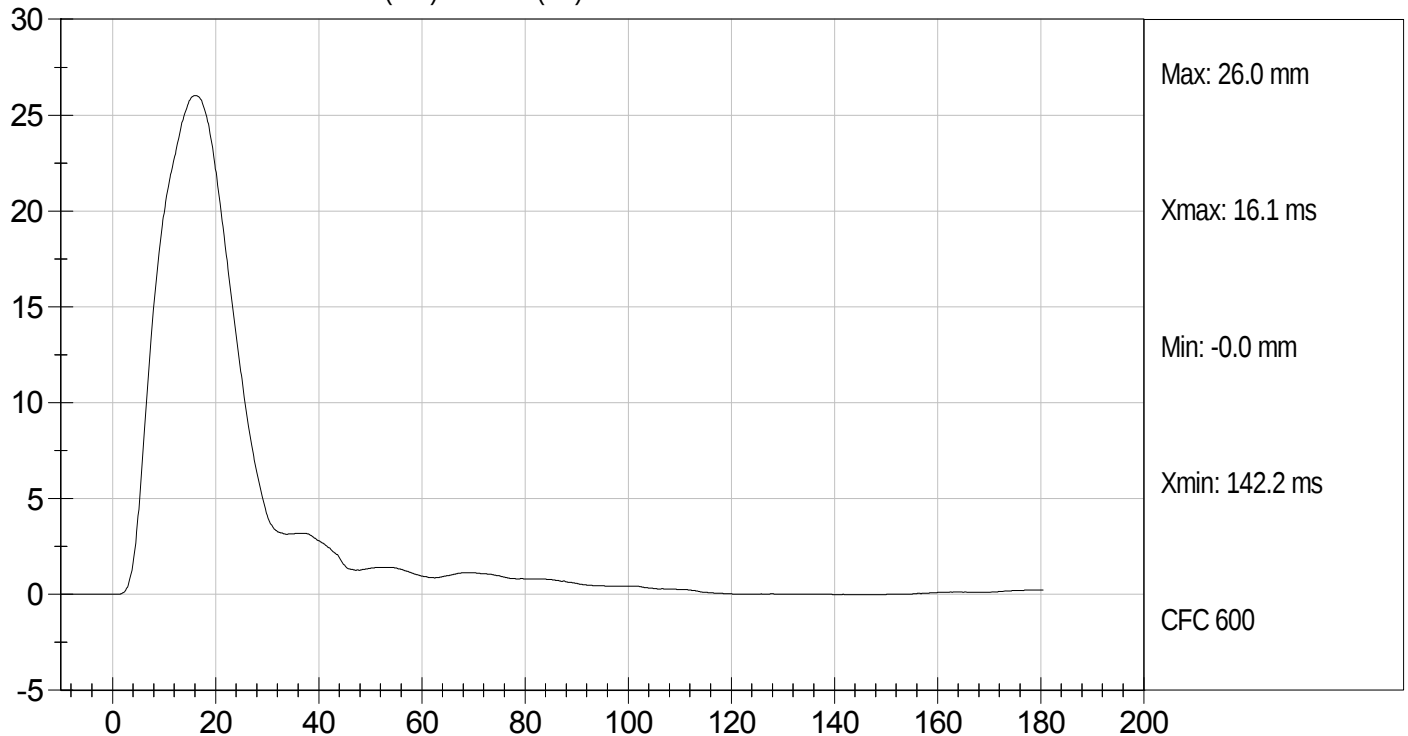
Test Desc: Thorax With Arm
Component ID: D12844

Test Date: 3/5/12
Velocity: 22.22 ft/s, 6.77 m/s

SHOULDER DISPLACEMENT (mm) vs TIME (ms)



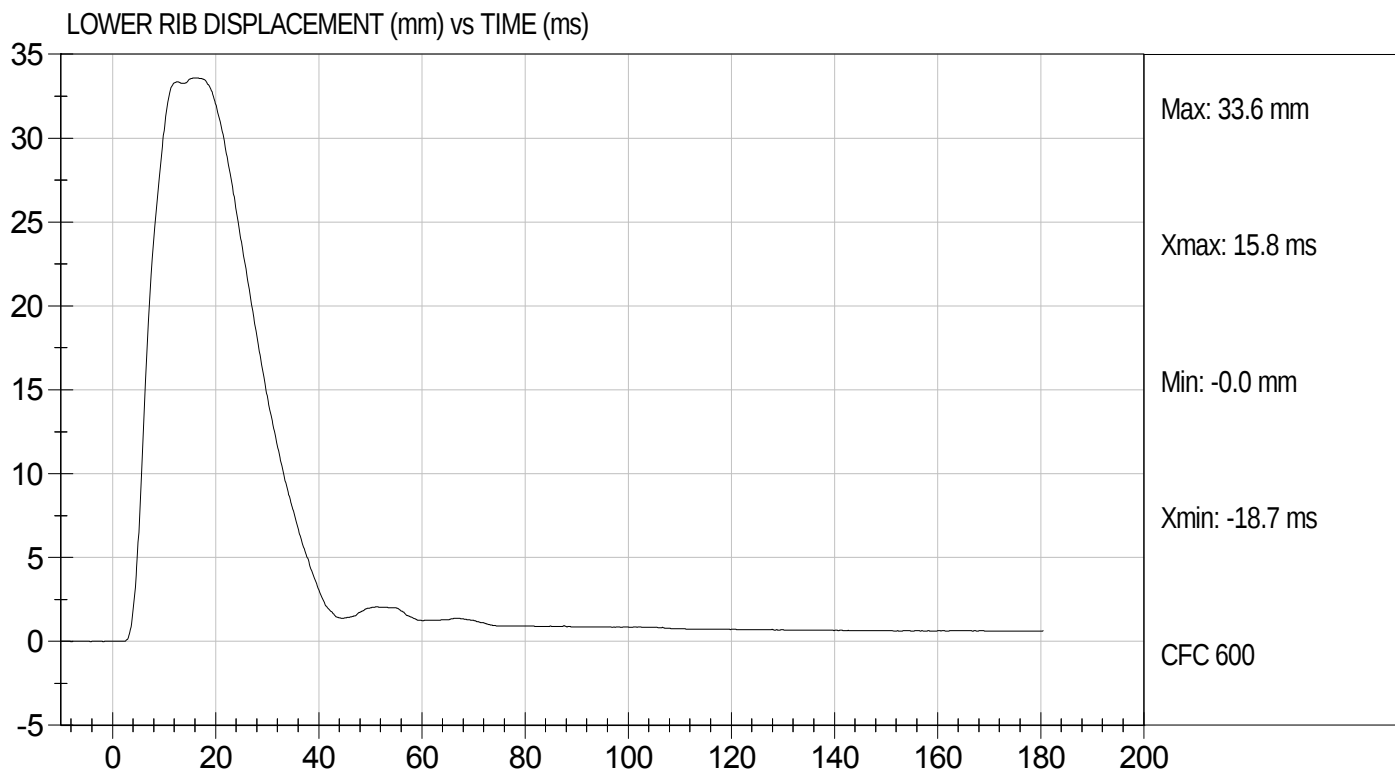
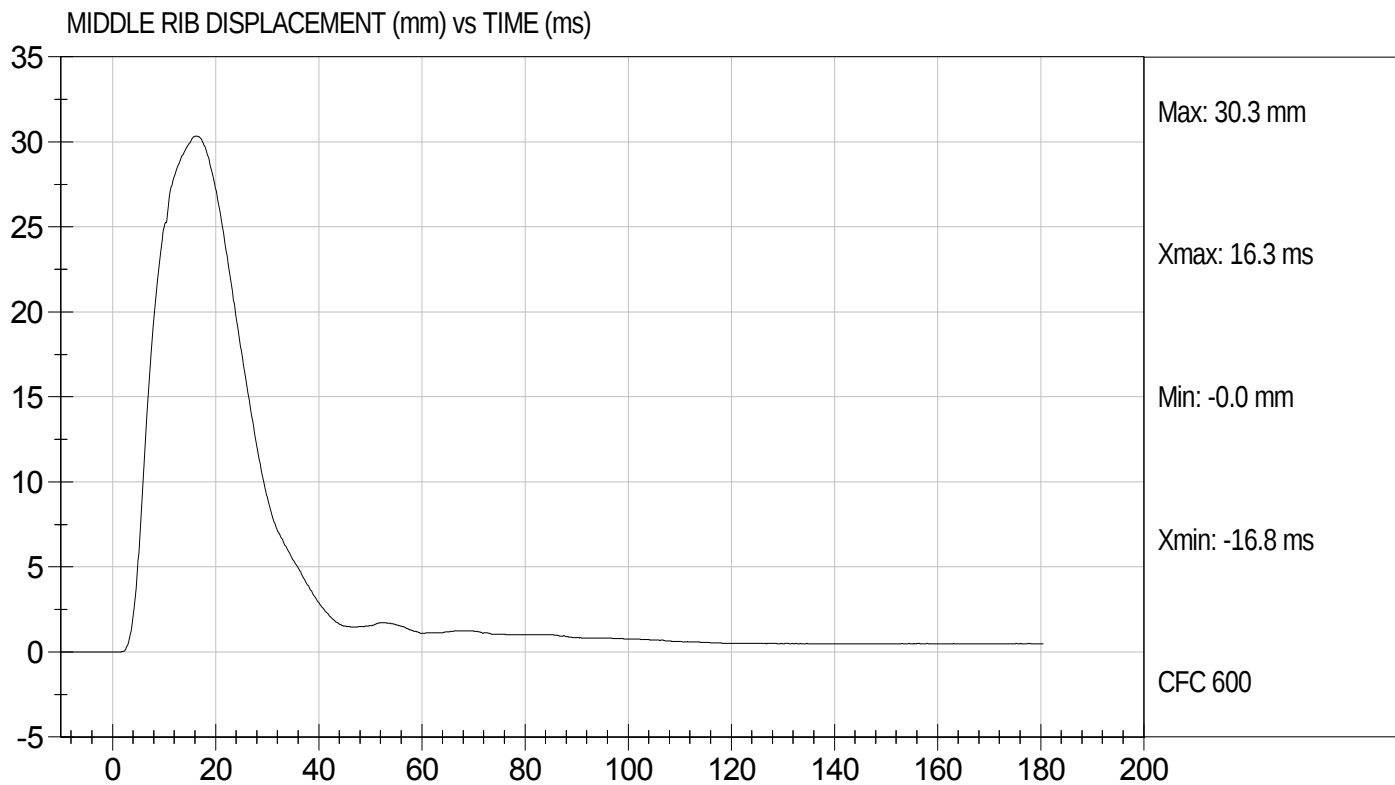
UPPER RIB DISPLACEMENT (mm) vs TIME (ms)





Test Desc: Thorax With Arm
Component ID: D12844

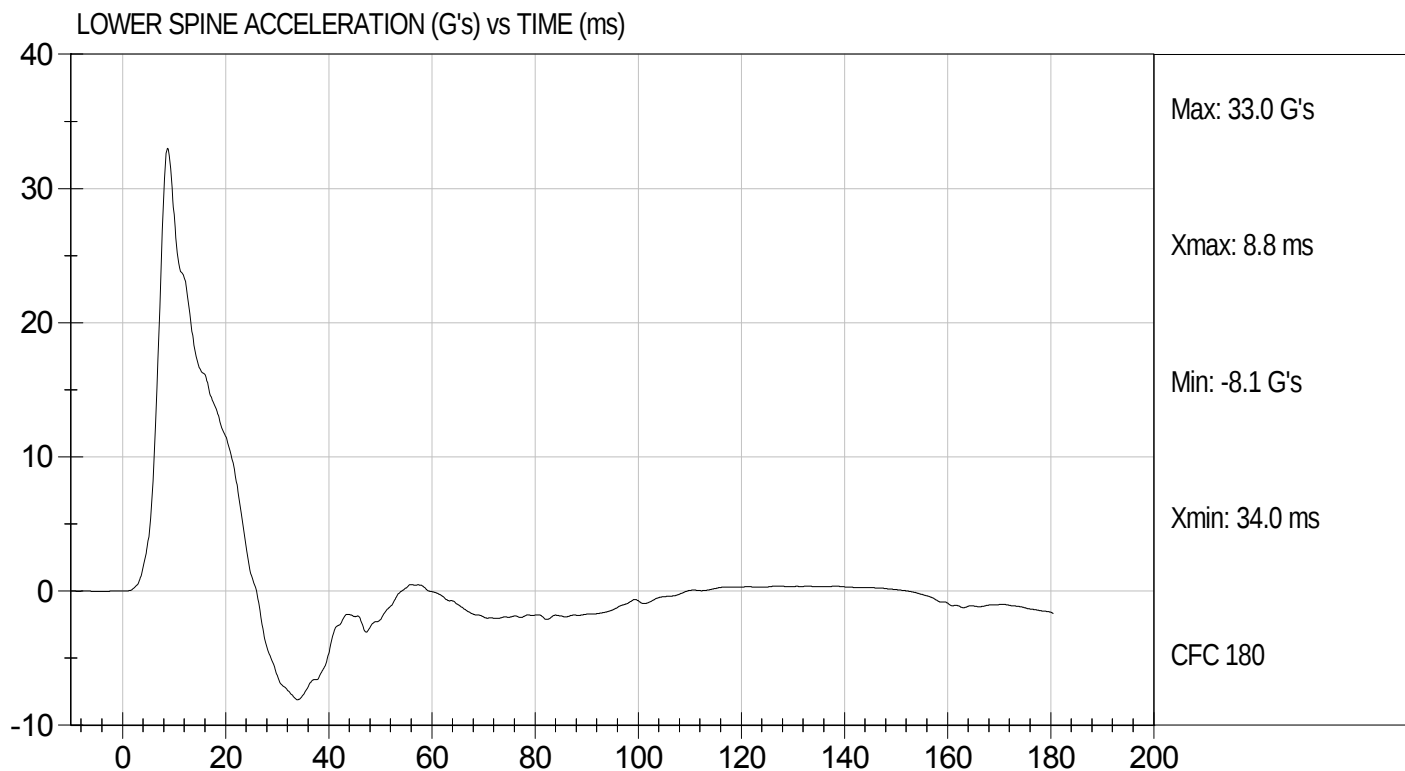
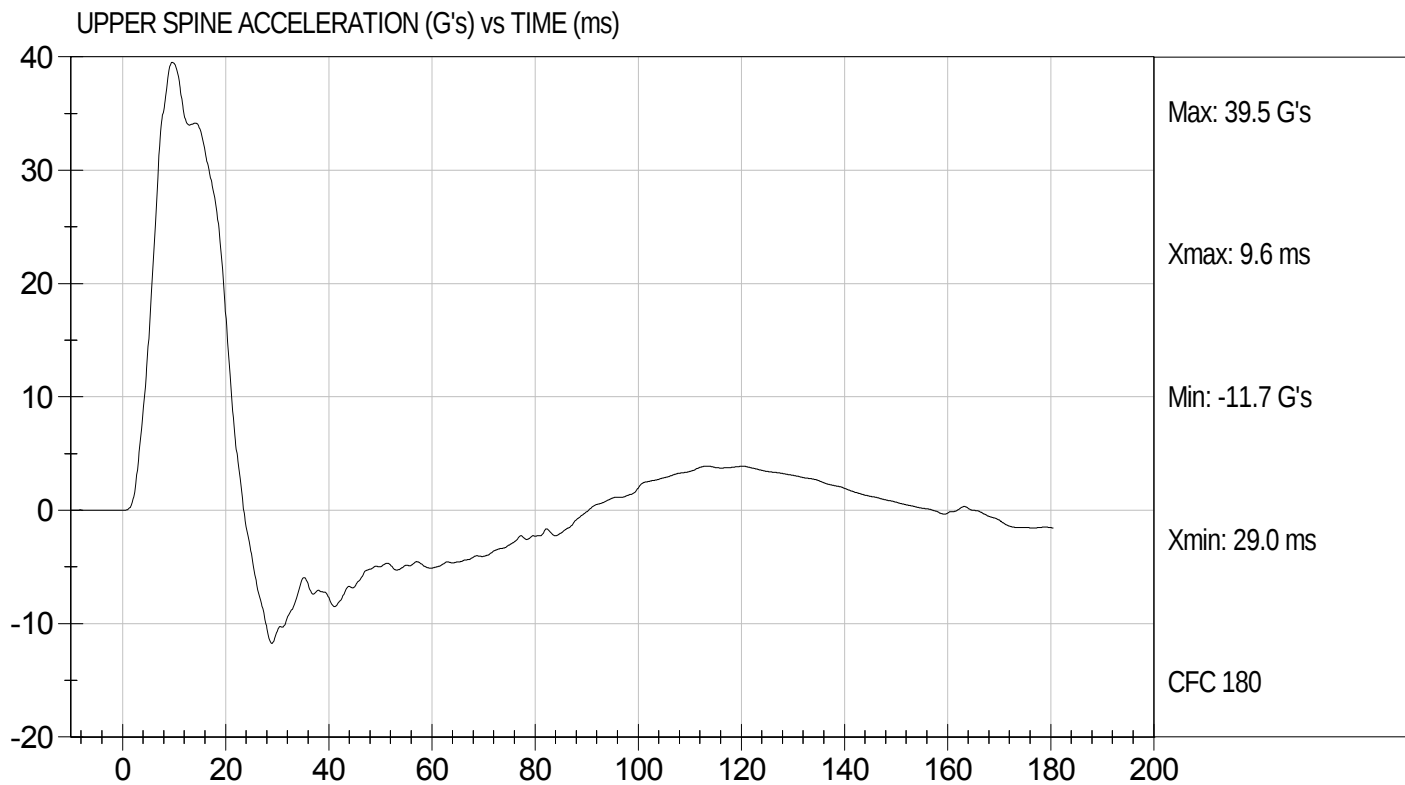
Test Date: 3/5/12
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D12844

Test Date: 3/5/12
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: D12845

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	19	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	36	Pass
Middle Rib Displacement	mm	39 to 45	40	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	9	Pass
Overall Test Results				Pass


Laboratory Technician

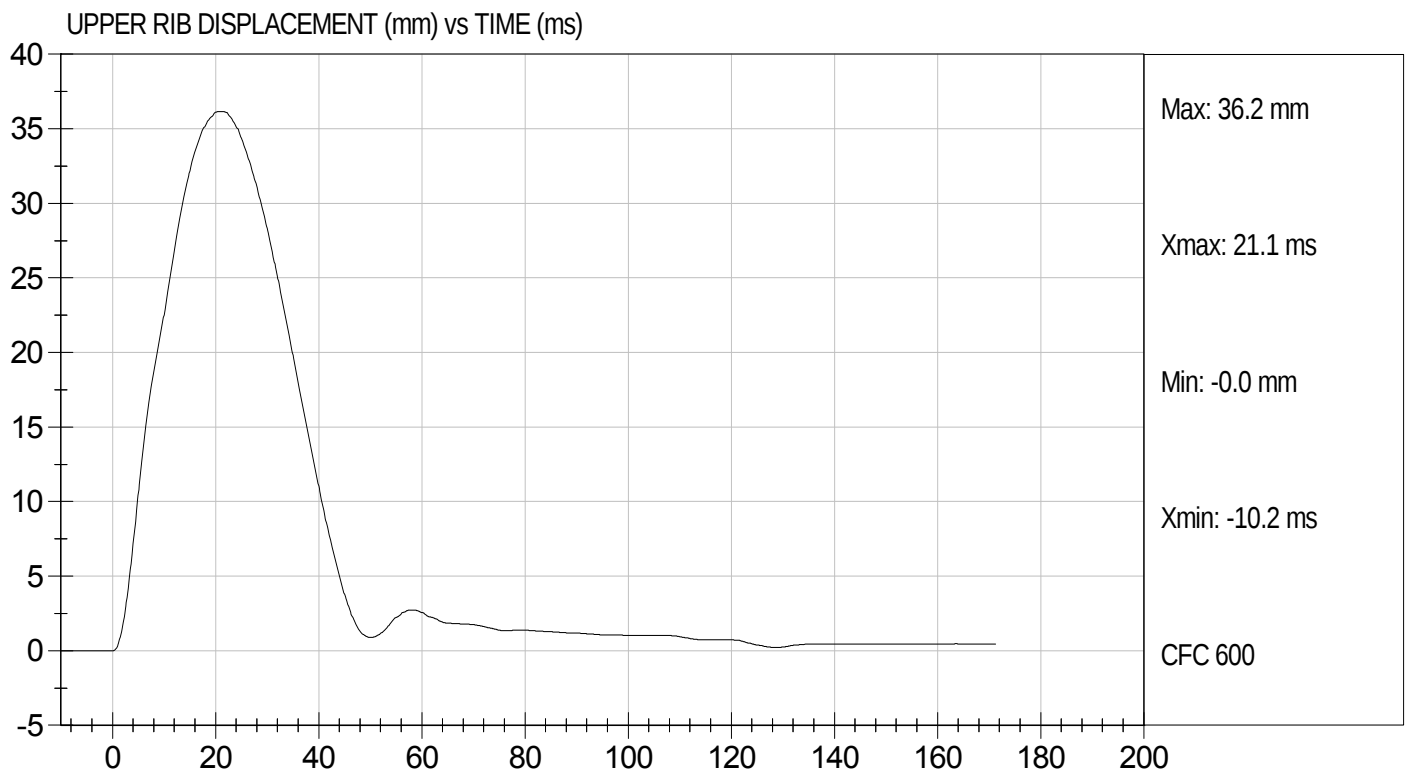
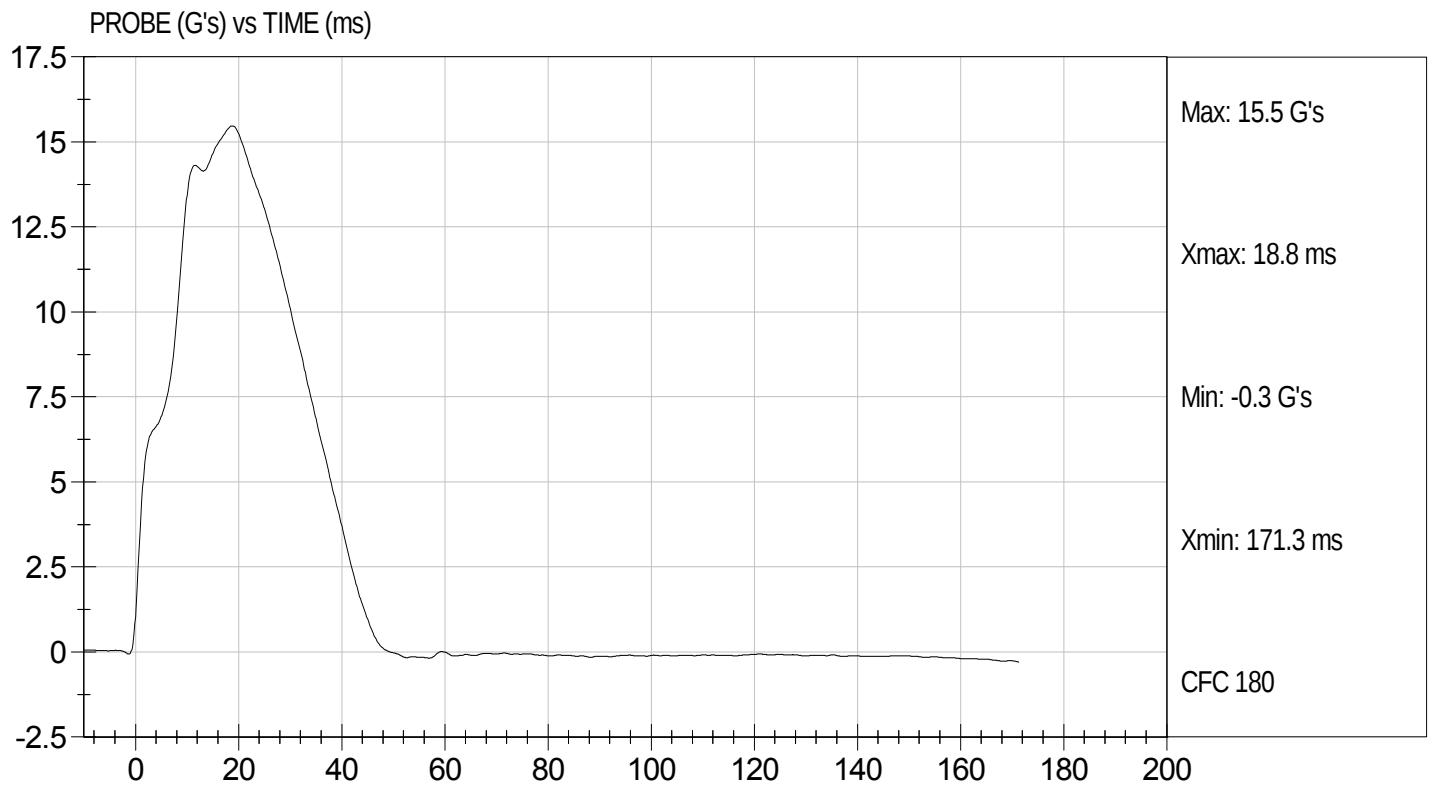
3/5/12
Test Date


Approved By



Test Desc: Thorax Without Arm
Component ID: D12845

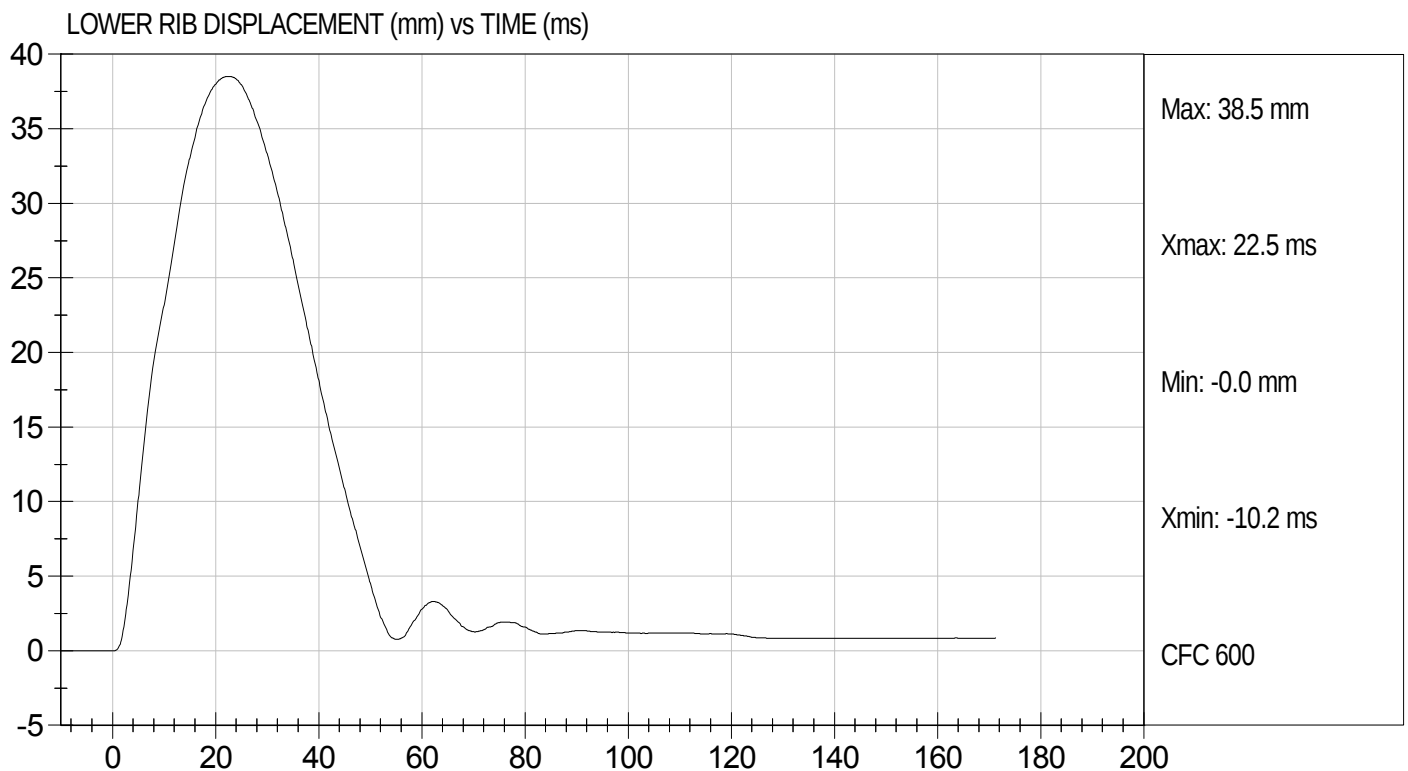
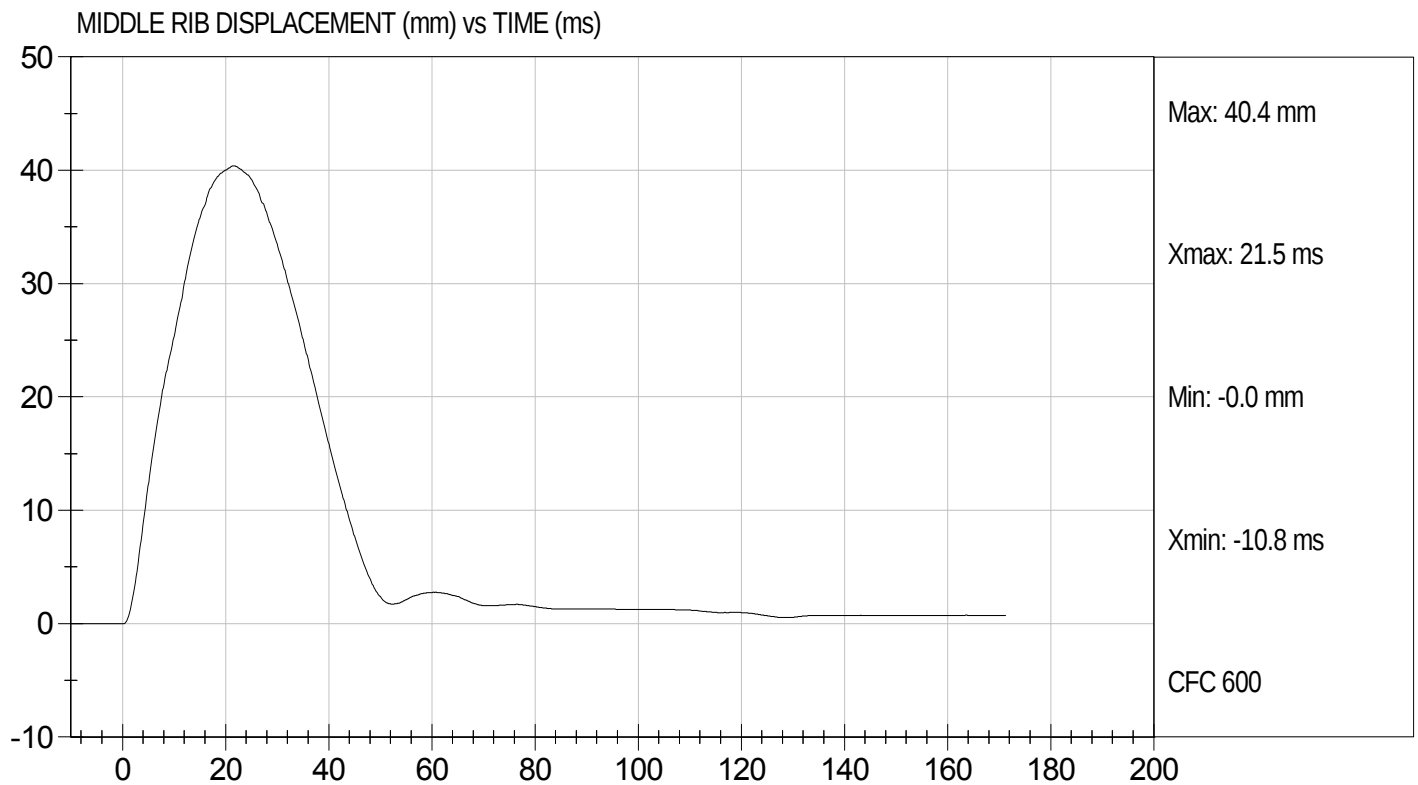
Test Date: 3/5/12
Velocity: 14.36 ft/s, 4.38 m/s





Test Desc: Thorax Without Arm
Component ID: D12845

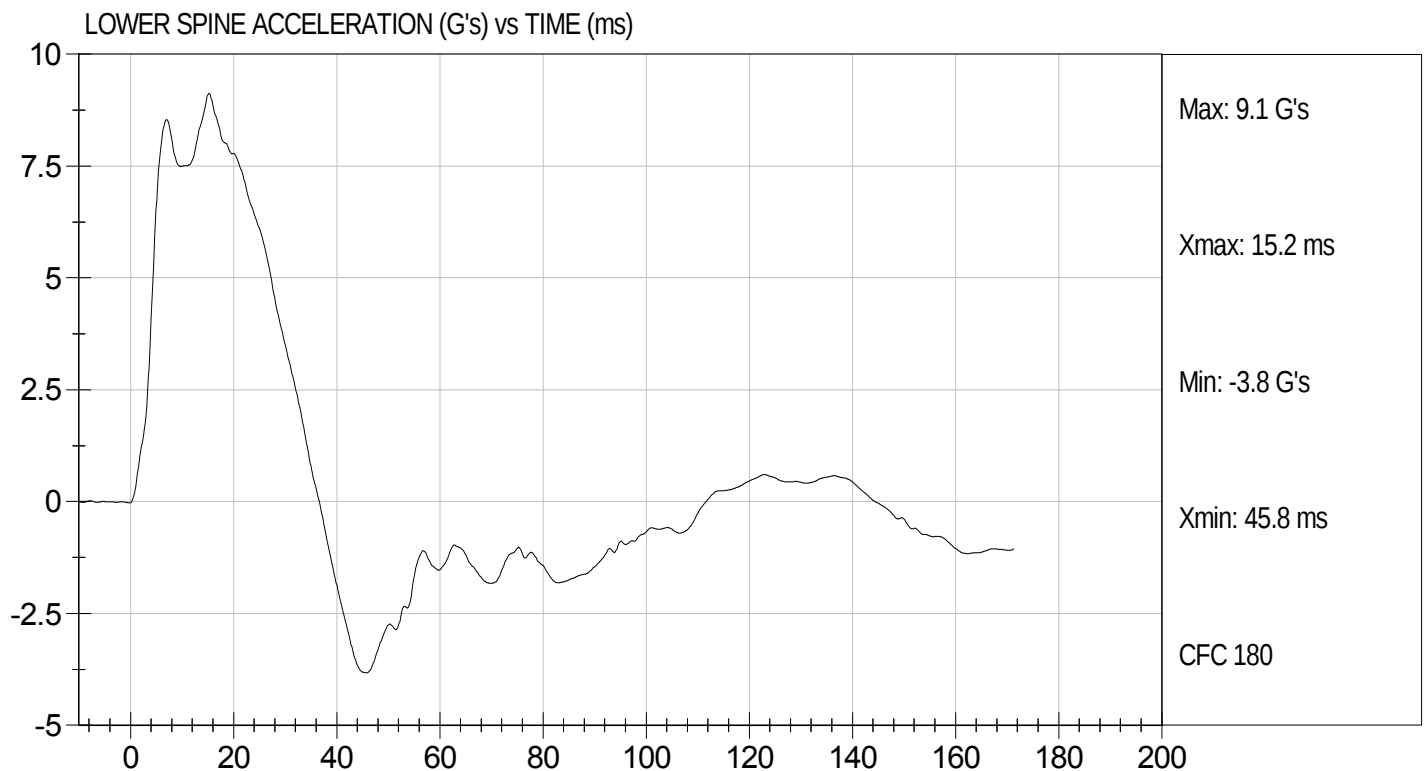
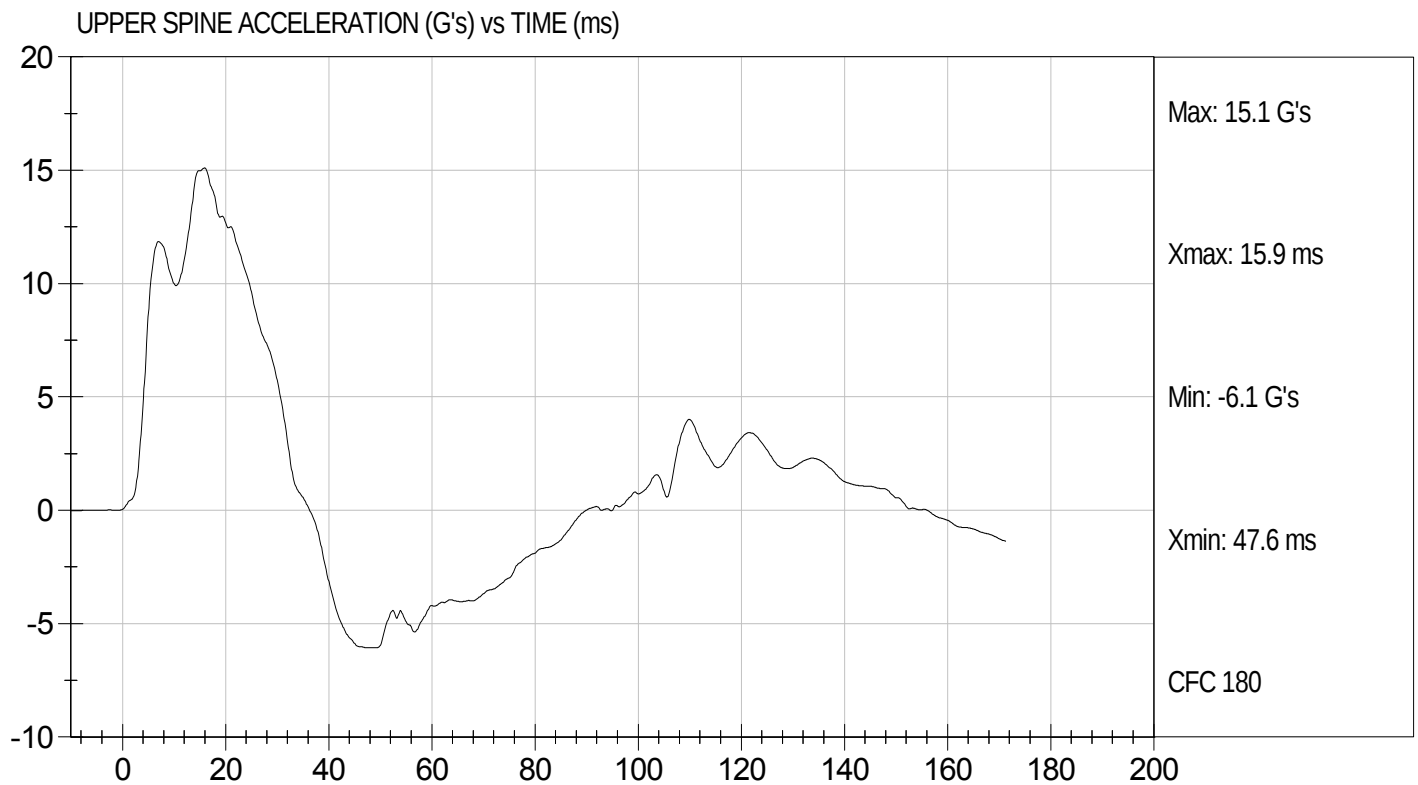
Test Date: 3/5/12
Velocity: 14.36 ft/s, 4.38 m/s





Test Desc: Thorax Without Arm
Component ID: D12845

Test Date: 3/5/12
Velocity: 14.36 ft/s, 4.38 m/s

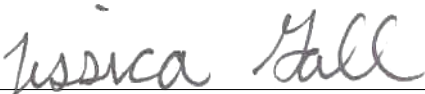


MGA RESEARCH CORPORATION
ABDOMINAL IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D12846

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	19	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	40	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

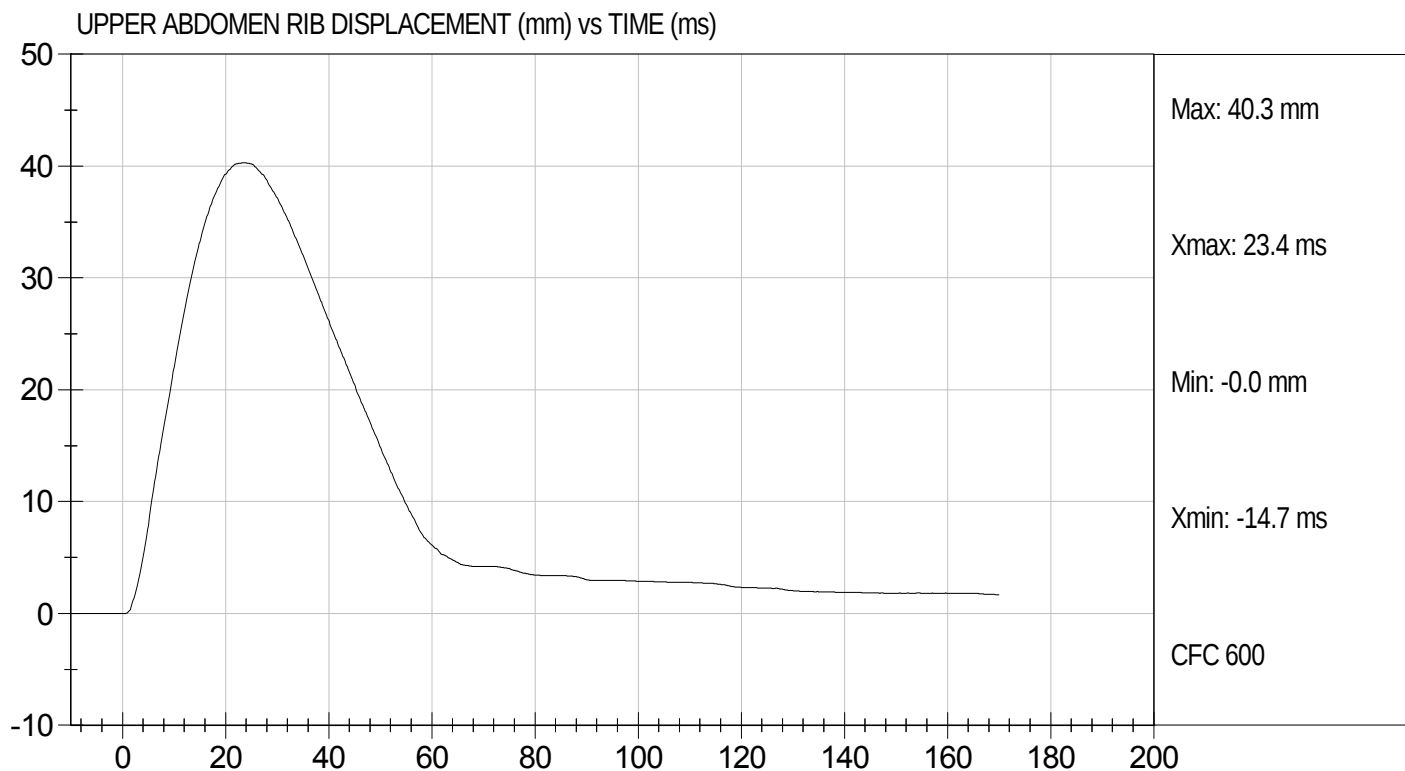
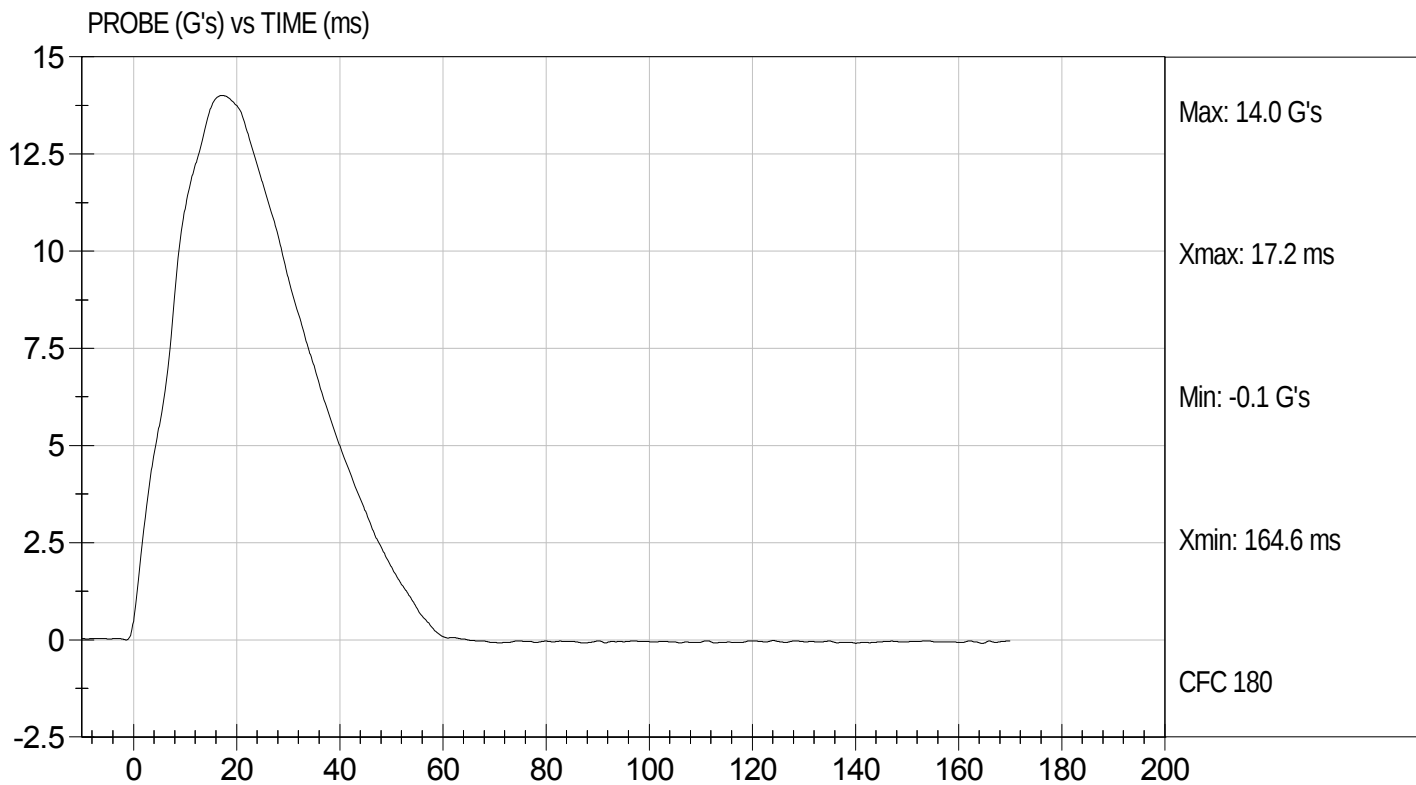
3/5/12
Test Date


Approved By



Test Desc: Abdomen Impact
Component ID: D12846

Test Date: 3/5/12
Velocity: 14.24 ft/s, 4.34 m/s

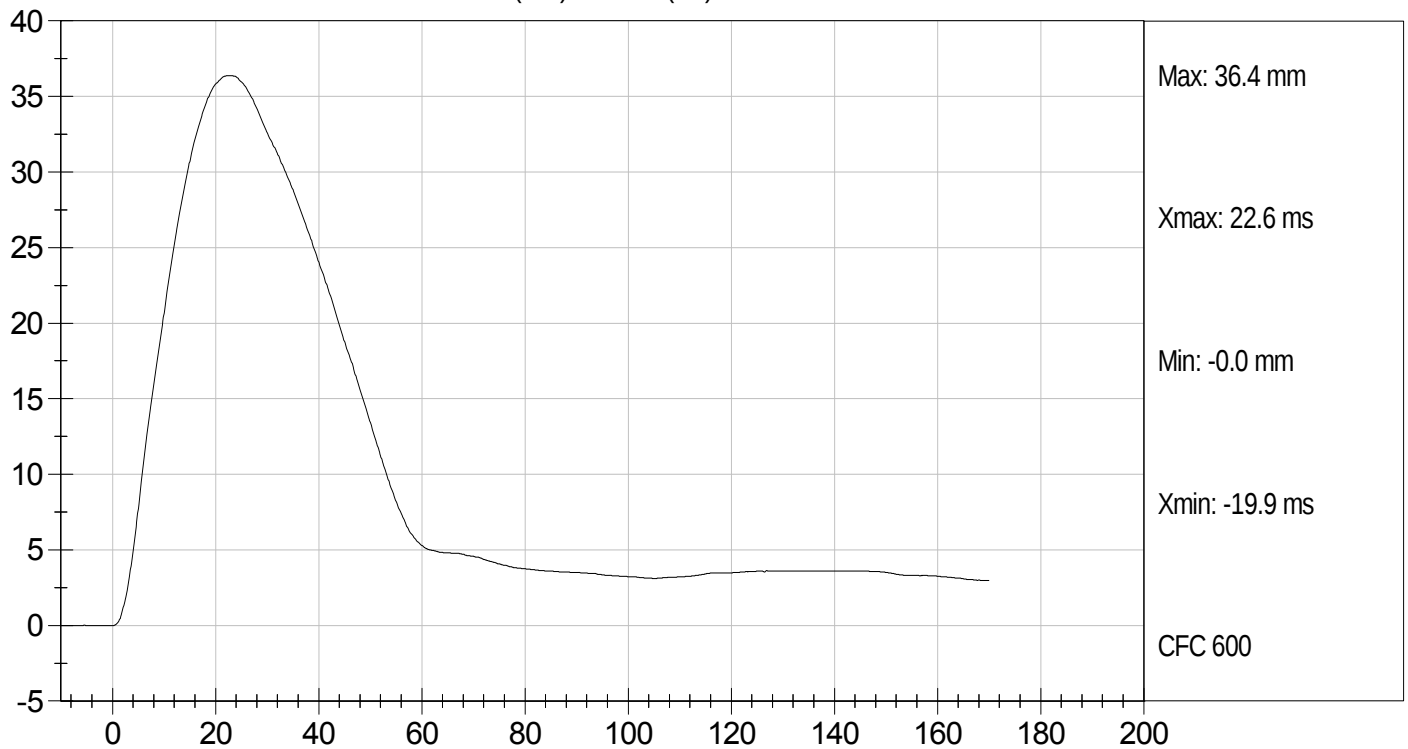




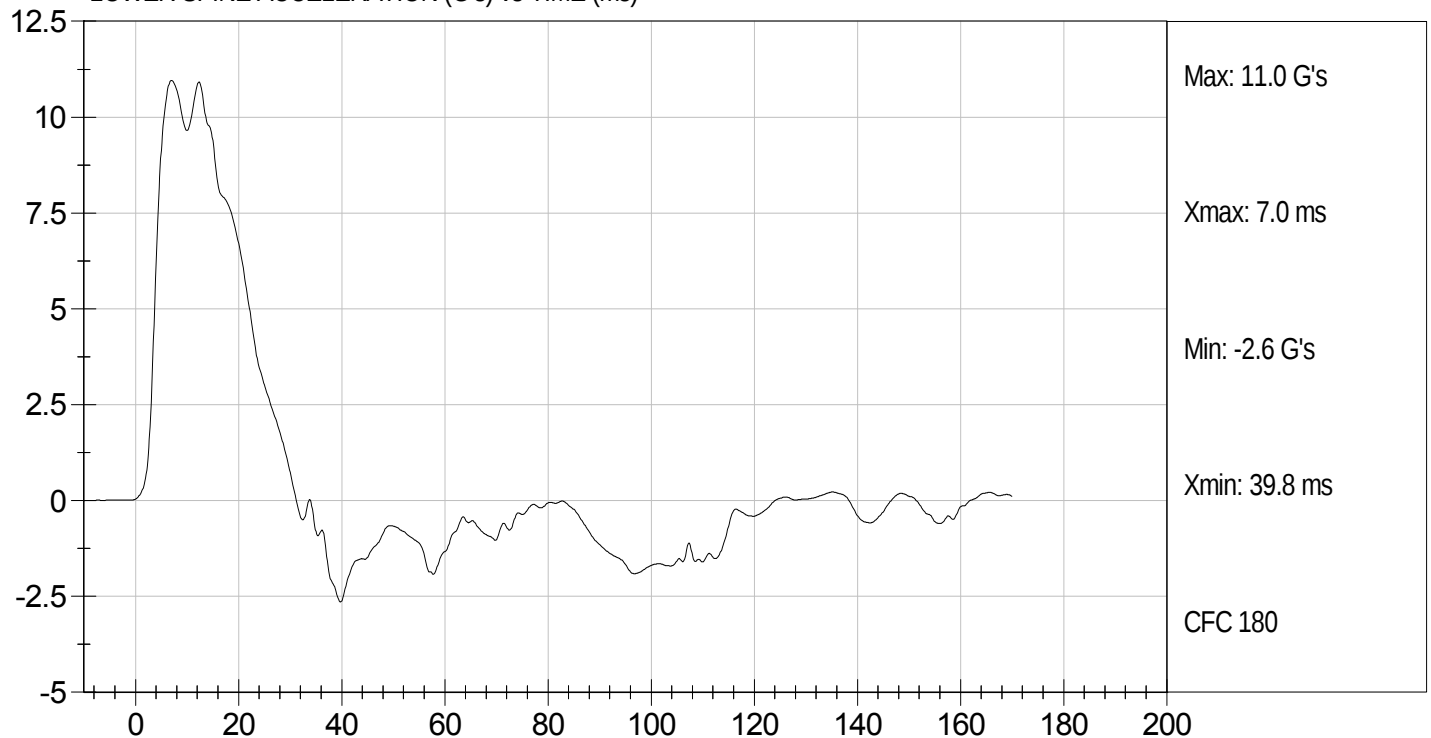
Test Desc: Abdomen Impact
Component ID: D12846

Test Date: 3/5/12
Velocity: 14.24 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: D12847

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	19	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Peak Impactor Acceleration	G's	38 to 47	44	Pass
Pelvis Y Acceleration after 6 ms	G's	34 to 42	40	Pass
Peak Acetabulum Force	N	3600 to 4300	4046	Pass
Overall Test Results				Pass


Laboratory Technician

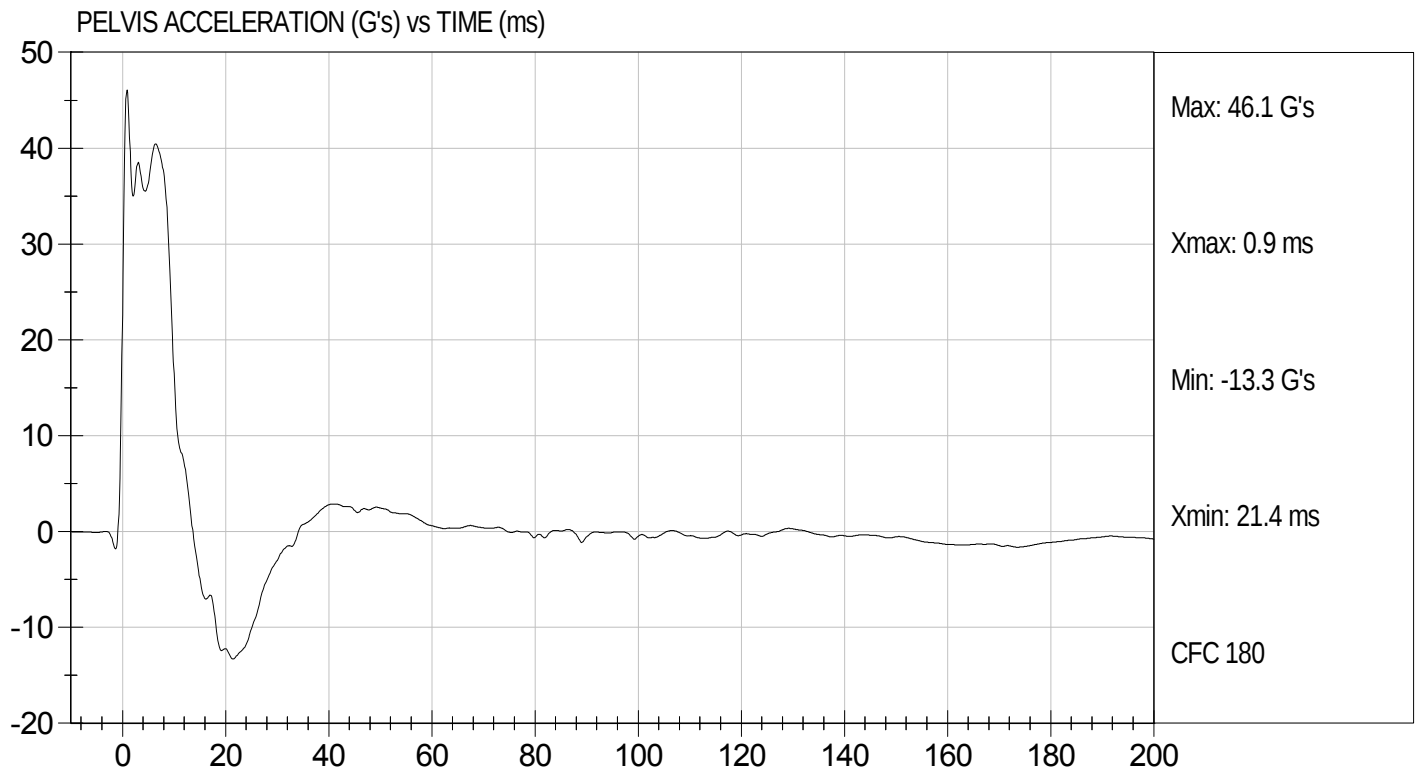
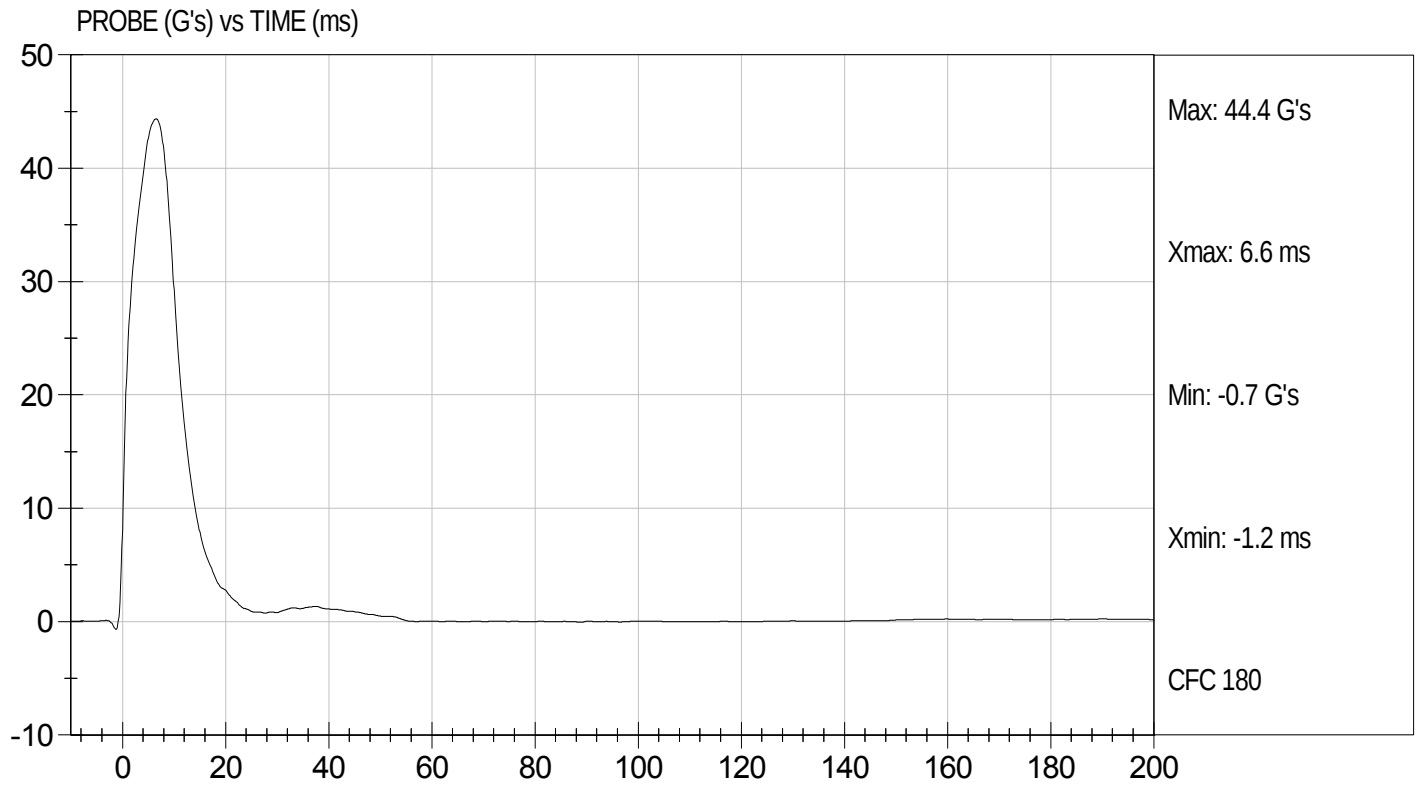
3/5/12
Test Date


Approved By



Test Desc: Pelvis Impact
Component ID: D12847

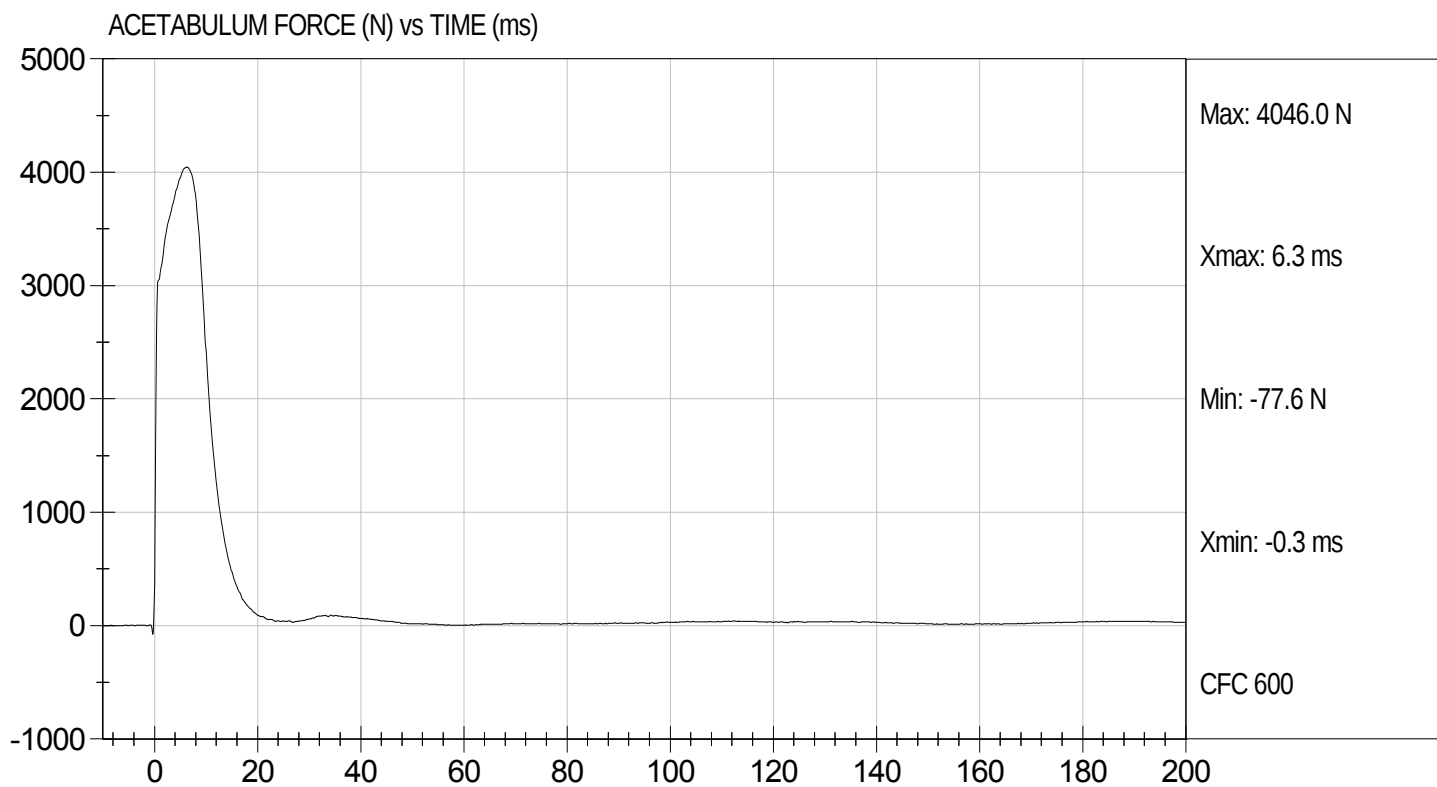
Test Date: 3/5/12
Velocity: 21.9 ft/s, 6.68 m/s





Test Desc: Pelvis Impact
Component ID: D12847

Test Date: 3/5/12
Velocity: 21.9 ft/s, 6.68 m/s

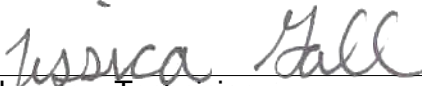


MGA RESEARCH CORPORATION
ILIAC IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

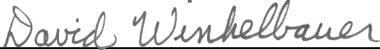
ATD Serial No: 306

Test I.D: D12848

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	19	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	31	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4534	Pass
Overall Test Results				Pass


Laboratory Technician

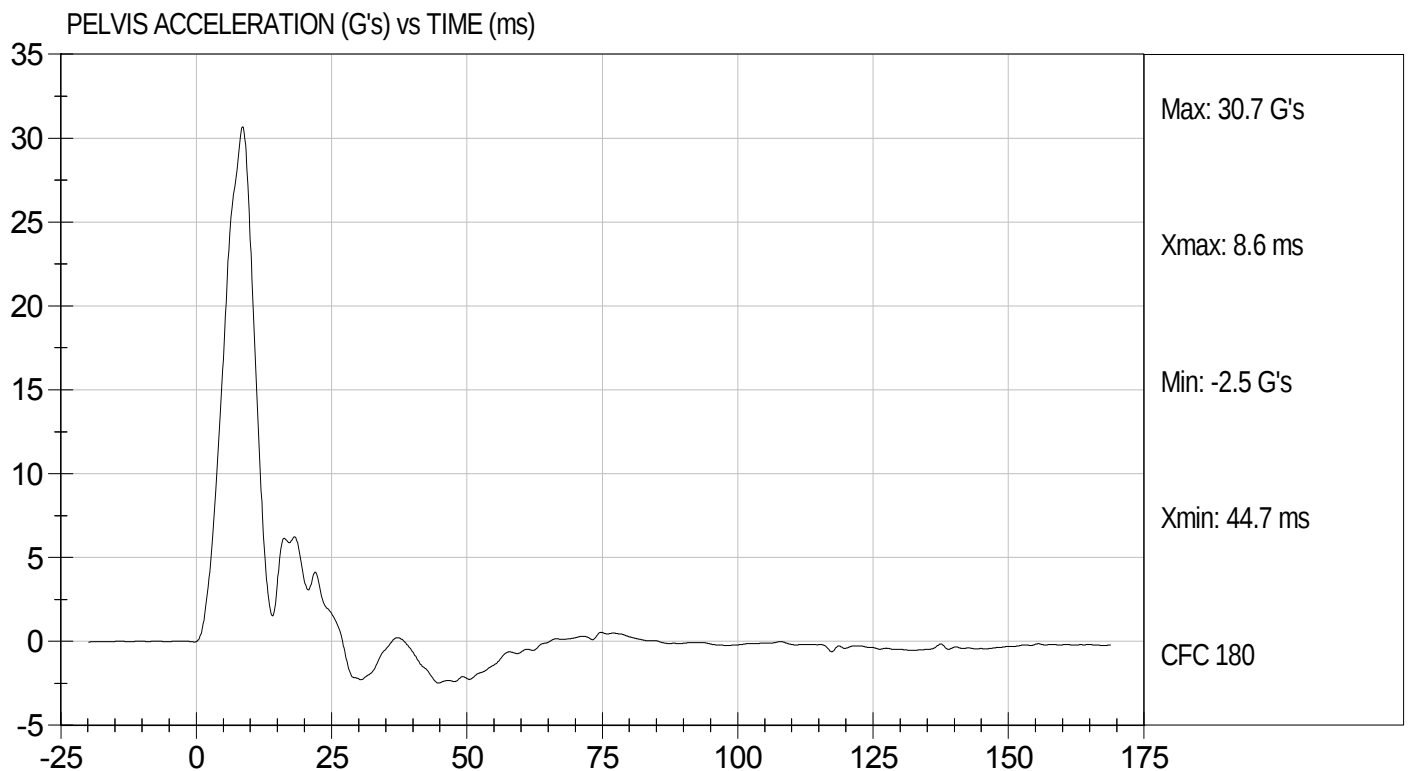
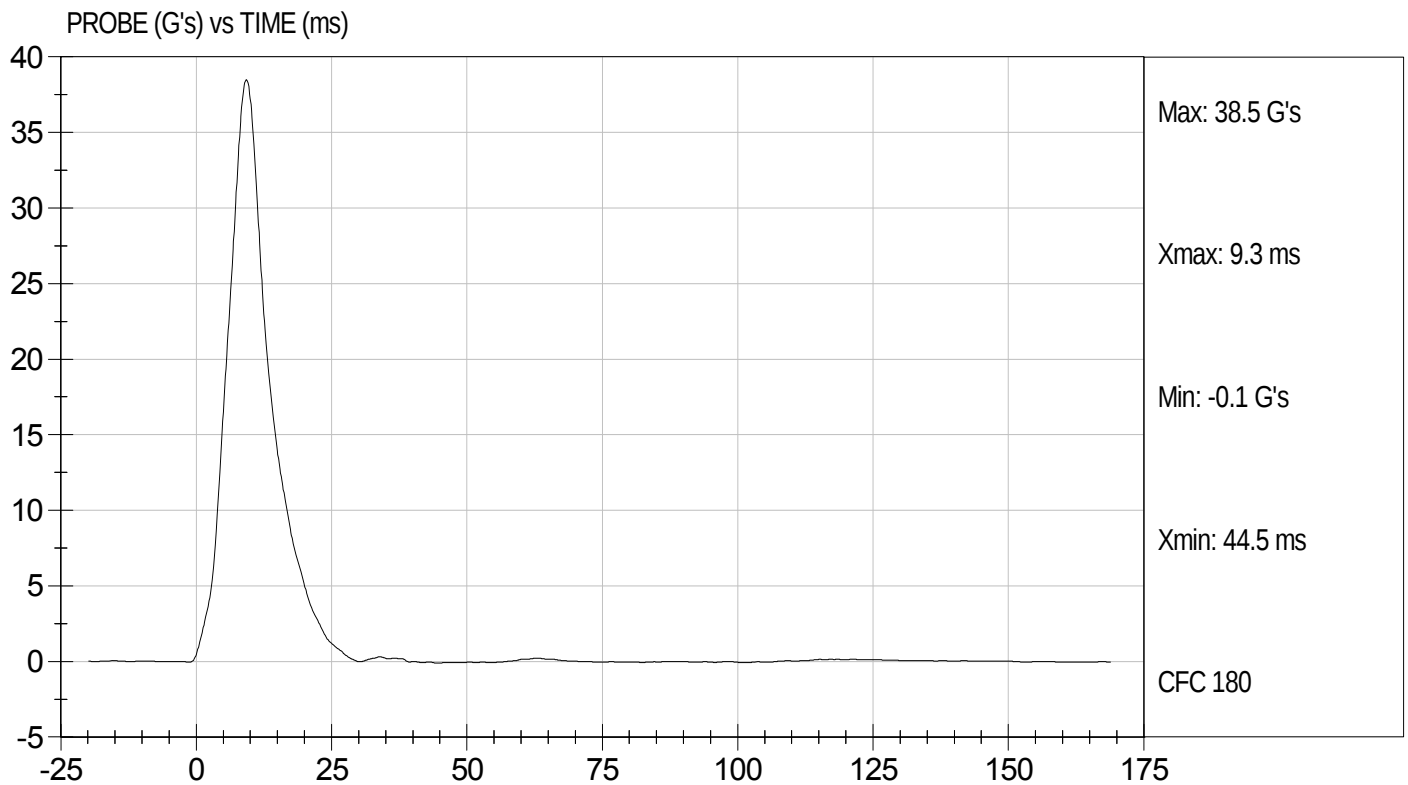
3/5/12
Test Date


Approved By



Test Desc: Iliac Impact
Component ID: D12848

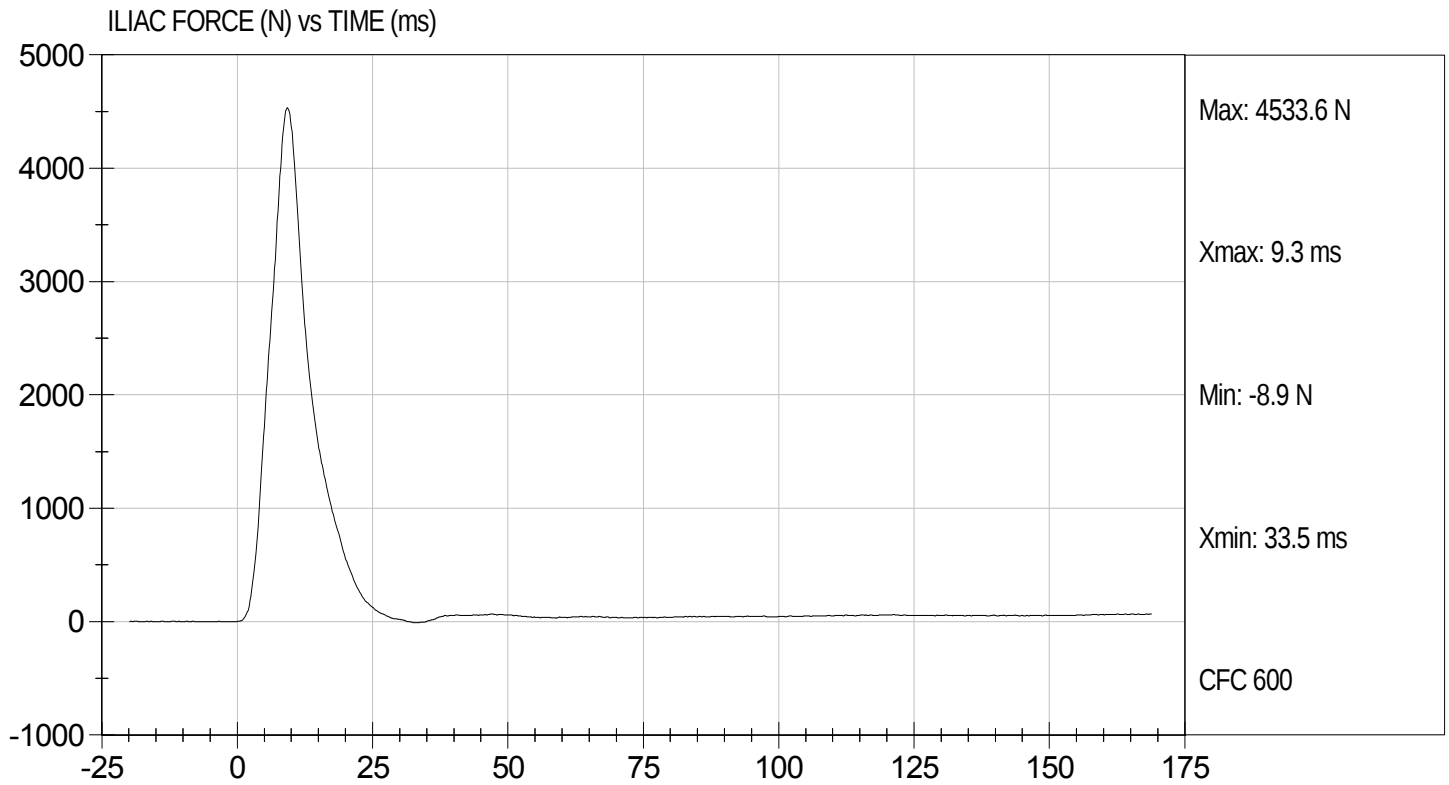
Test Date: 3/5/12
Velocity: 14.36 ft/s, 4.38 m/s





Test Desc: Iliac Impact
Component ID: D12848

Test Date: 3/5/12
Velocity: 14.36 ft/s, 4.38 m/s



APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation

			SID-IIs S/N 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)				49176	FTSS	12/08/11
Pelvis Plug (non-struck side)				49036	FTSS	12/07/11

Table 2 – Vehicle Instrumentation

		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	P63222	Endevco	02/10/12
Vehicle Center of Gravity	Y	P63221	Endevco	02/10/12
Vehicle Center of Gravity	Z	P63220	Endevco	02/10/12
Left Floor Sill	Y	P63226	Endevco	10/20/11
A-Pillar Sill	Y	P63277	Endevco	11/04/11
A-Pillar Low	Y	P63280	Endevco	11/04/11
A-Pillar Mid	Y	P63530	Endevco	02/10/12
B-Pillar Sill	Y	P63401	Endevco	11/04/11
B-Pillar Low	Y	P63206	Endevco	10/20/11
B-Pillar Mid	V	P63533	Endevco	01/12/12
Driver Seat	Y	P59283	Endevco	01/12/12
Engine Top	X	P63343	Endevco	11/04/11
Engine Top	Y	P63342	Endevco	11/04/11
Firewall	Y	P63538	Endevco	12/13/11
Right Roof	Y	P45392	Endevco	09/12/11
Right Floor Sill	Y	P50050	Endevco	12/13/11
Rear Floorpan	X	P63884	Endevco	02/10/12
Rear Floorpan	Y	P63883	Endevco	02/10/12

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	DG6582	FTSS	09/15/11