

REPORT NUMBER: SPNCAP-MGA-2012-028

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

**TOYOTA MOTOR MANUFACTURING, NORTHERN KENTUCKY, INC.
2012 Toyota Camry LE 4-Dr Sedan
NHTSA No.: YC5102**

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



Test Date: November 16, 2011

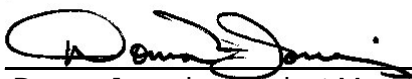
Final Report Date: December 16, 2011

FINAL REPORT

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

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Approved by: 
Ben Fischer, Project Engineer

Approval Date: December 16, 2011

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

Technical Report Documentation Page

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15. Supplementary Notes																														
16. Abstract A 32.2 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject 2012 Toyota Camry LE 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 November 16, 2011. 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 21.5°C. The test vehicle post-test maximum crush was 394 mm at level 3. The test vehicle's performance was as follows: <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2" style="text-align: left;">Measurement Description</th> <th colspan="3">Driver ATD (SID-IIs)</th> </tr> <tr> <th>Units</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">Head Injury Criteria (HIC₃₆)</td> <td>N/A</td> <td>1000</td> <td>188</td> </tr> <tr> <td style="text-align: left;">Resultant Lower Spine Acceleration</td> <td>Gs</td> <td>82</td> <td>45</td> </tr> <tr> <td style="text-align: left;">Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>3914</td> </tr> <tr> <td style="text-align: left;">Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38*</td> <td>17</td> </tr> <tr> <td style="text-align: left;">Maximum Abdomen Rib Deflection</td> <td>mm</td> <td>45*</td> <td>24</td> </tr> </tbody> </table> * Proposed IARV The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.				Measurement Description	Driver ATD (SID-IIs)			Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	188	Resultant Lower Spine Acceleration	Gs	82	45	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3914	Maximum Thoracic Rib Deflection	mm	38*	17	Maximum Abdomen Rib Deflection	mm	45*	24
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17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division, NPO-411 1200 New Jersey Ave, SE, Room E12-100 Washington, DC 20590 Email: tis@nhtsa.dot.gov FAX: 202-493-2833																												
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SECTION 1

TEST PURPOSE AND PROCEDURE

This side impact test is part of the MY 2012 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-09-D-00124. The purpose of this test is to generate comparative side impact performance in a 2012 Toyota Camry LE 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 Toyota Camry LE 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 November 16, 2011. Pre-test and post-test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure dated August 2011. Camera locations and other pertinent camera information are included in this report.

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

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

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

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

Measurement Description	Driver ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	188
Resultant Lower Spine Acceleration	Gs	82	45
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3914
Maximum Thoracic Rib Deflection	mm	38*	17
Maximum Abdomen Rib Deflection	mm	45*	24

*Proposed IARV

Supplemental restraint information is given below:

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

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

GENERAL COMMENTS

There was no valid data collected for:

- Left Floor Sill Y after 63 msec.

- Left Mid A-Post Y after 52 msec.

- Left Lower B-Post Y is questionable from 16-19 and 64-69 msec.

- Left Mid B-Post Y is questionable from 15-18 msec.

- Driver Seat Track Y is questionable from 42-54 msec.

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

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2012 Toyota Camry LE 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. YC5102
Test Date: 11/16/2011

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	YC5102	Traction Control System (TCS)	Yes
Model Year	2012	Auto-Leveling System	No
Make	Toyota	Automatic Door Locks (ADL)	Yes
Model	Camry	Power Window Auto-Reverse	No
Body Style	Sedan	Other Optional Feature	N/A
VIN	4T4BF1FK9CR159958	Driver Front Airbag	Yes
Body Color	Magnetic Gray Met.	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	111 / 69	Driver Head/Torso Airbag	No
Engine Displacement (L)	2.5	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	Yes
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	Yes
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	Yes, 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	Toyota Motor Manufacturing, Northern Kentucky, Inc.	GVWR (kg)	2100
Date of Manufacture	09/11	GAWR Front (kg)	1191
Vehicle Type	Passenger Car	GAWR Rear (kg)	1191

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	(A)
Capacity Weight (VCW) (kg)				407	(B)
DSC x 68.04 kg				340	(A-B)
Rated Cargo and Luggage Weight (RCLW)				67	

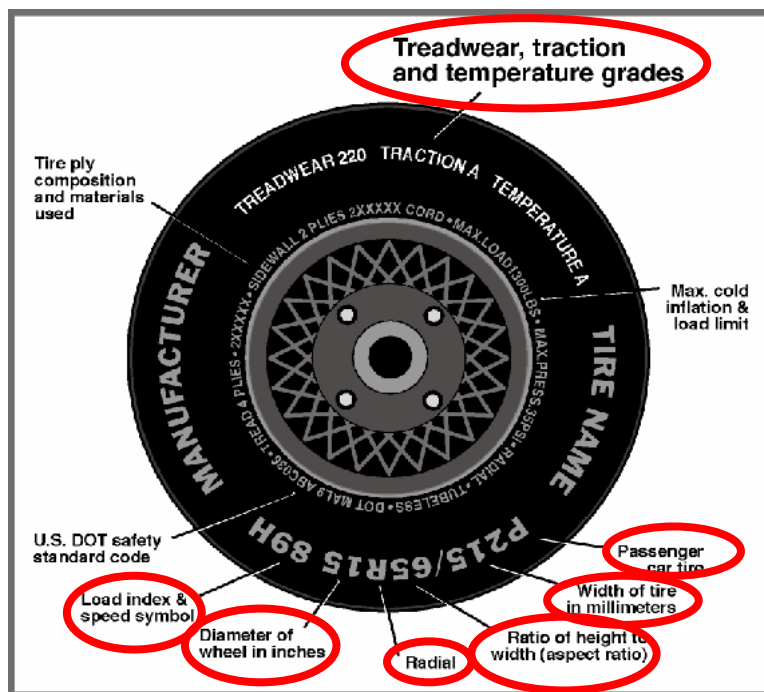
VEHICLE SEAT TYPE

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 Toyota Camry LE 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. YC5102
Test Date: 11/16/2011



TIRE PLACARD INFORMATION

Measured Parameter	Front	Rear
Recommended Cold Tire Pressure (kPa)	240	240
Recommended Tire Size	P205/65R16	P205/65R16

TIRE SIDEWALL INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	350	350
Tire Size on Vehicle	P205/65R16	P205/65R16
Tire Manufacturer	Michelin	Michelin
Tire Name	Energy Saver	Energy Saver
Tire Type	Passenger	Passenger
Tire Width	205	205
Aspect Ratio	65	65
Radial	Yes	Yes
Wheel Diameter	16	16
Load Index/Speed Symbol	94S	94S
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 Toyota Camry LE 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. YC5102
 Test Date: 11/16/2011

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	457.7	279.4		465.4	333.8		475.8	333.4	
Right	kg	439.1	278.5		443.2	323.9		441.4	323.4	
Ratio	%	61.6	38.4		58.0	42.0		58.3	41.7	
Totals	kg	896.8	557.9	1454.7	908.6	657.7	1566.3	917.2	656.8	1574.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1454.7	(A)
Actual Weight of 1 P572V ATD (SID-IIs) ATD Used	kg	52.2	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	67	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1573.9	(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	16.8
Right tail light, spare tire, jack & tools, right side mirror, trunk carpet	24.0

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	deg	-0.4	-0.1	0.2	Yes
Front Pass. Sill Angle (front-to-rear)*	deg	-0.4	-0.2	0.0	Yes
Front Bumper Angle (left-to-right)**	deg	-0.3	-0.3	-0.4	Yes
Rear Bumper Angle (left-to-right)**	deg	0.0	-0.1	-0.1	Yes
Vehicle CG (Aft of Front Axle)	mm	1064	1165	1158	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	10	16	22	

*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 Toyota Camry LE 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. YC5102
 Test Date: 11/16/2011

SEAT POSITIONING

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

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	23.1	10.8	17.0
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	17.0	22	Max	43	43	43
	17.0	22	Mid	22	22	22
	17.0	22	Min	0	0	0
Front Passenger Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Front Center Seat			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 Toyota Camry LE 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

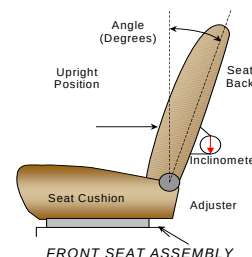
NHTSA No. YC5102
 Test Date: 11/16/2011

SEAT FORE/AFT POSITIONS

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

SEAT BACK ANGLE ADJUSTMENT

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



Seat	Total Seat Back Angle Range		Test Position from Vertical	
	Degrees	Detents	Degrees	Detent
Driver Seat w/Seated Dummy	51.9		-4.7	
Front Passenger Seat	54.5		-4.5	
Front Center Seat				
Struck Side Rear Seat	Fixed		30.7*	Fixed
Non-Struck Side Rear Seat	Fixed		30.7*	Fixed
Rear Center Seat	Fixed		30.7*	Fixed

* angle measured on the seatback.

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)	1 (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	2	Lowest

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

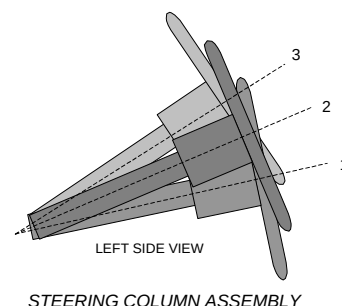
Test Vehicle: 2012 Toyota Camry LE 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. YC5102
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STEERING COLUMN ADJUSTMENT

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

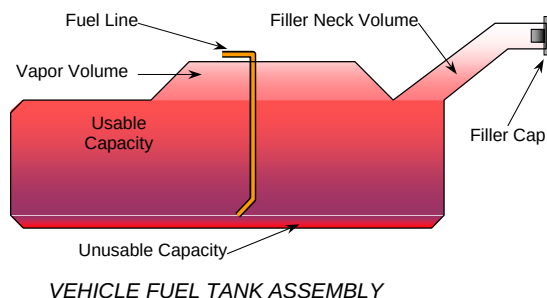
	Degrees	Fore/Aft Position (mm)
Lowermost, Position 1	68.7	172
Geometric Center, Position 2	66.7	153
Uppermost, Position 3	64.7	134
Telescoping Steering Wheel Travel		38
Test Position	66.7	153



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. No operating instructions. The fuel pipe is on the left side.



FUEL TANK CAPACITY DATA

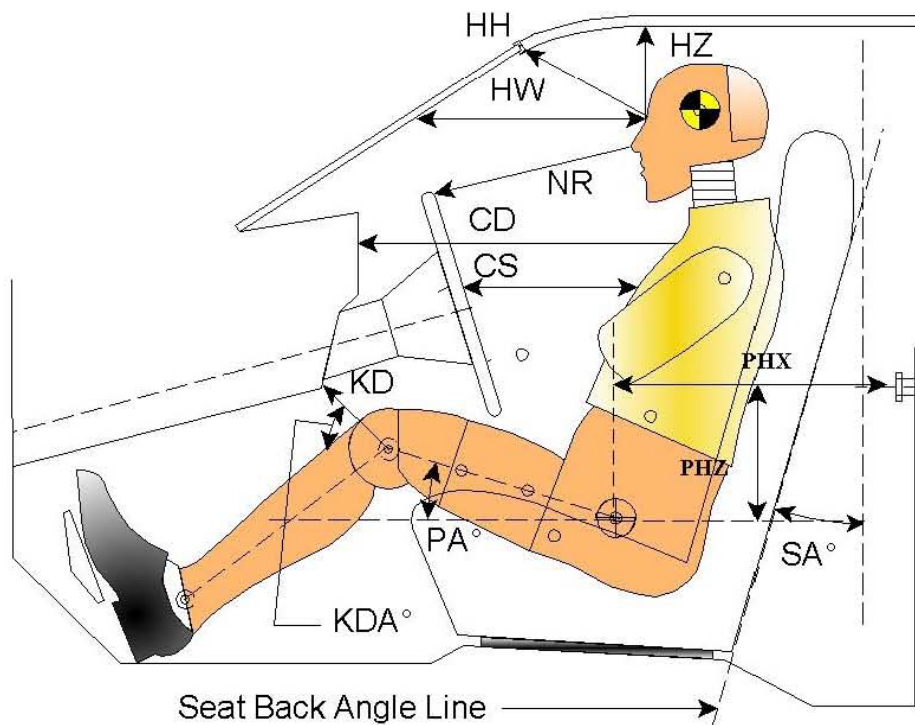
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	65.1
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	64.35
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	60.5
Actual Amount of Solvent Used	60.6
1/3 of Usable Capacity	21.7

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 Toyota Camry LE 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. YC5102
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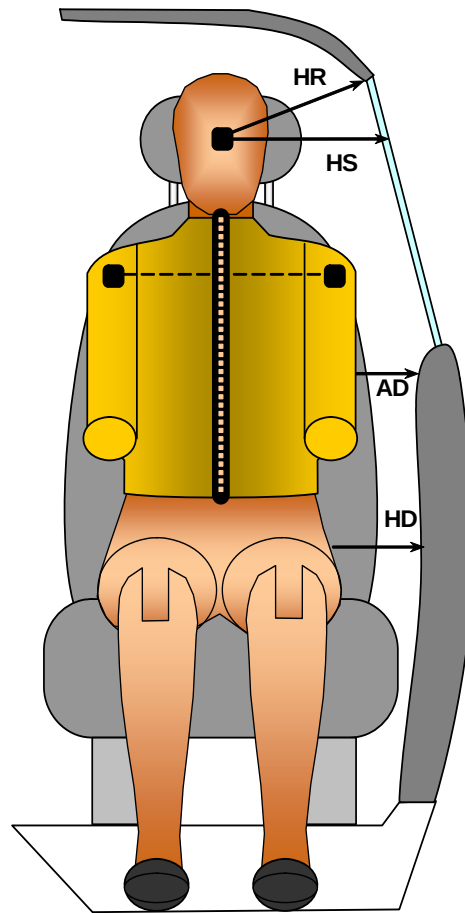
LEFT SIDE VIEW

Code	Measurement Description	Driver S/N 296	
		Length (mm)	Angle (°)
HH	Head to Header	233	
HW	Head to Windshield	603	
HZ	Head to Roof Liner	157	
NR	Nose to Rim	246	
CD	Chest to Dashboard	413	
CS	Chest to Steering Wheel	185	
KDL/KDAL°	Left Knee to Dash	122	49.8
KDR/KDAR°	Right Knee to Dash	118	48.5
PAX°	Pelvic Tilt Angle (X-Axis)		18.1
PAY°	Pelvic Tilt Angle (Y-Axis)		0.9
PHX	Hip Point to Striker (X-Axis)	343	
PHZ	Hip Point to Striker (Z-Axis)	216	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2012 Toyota Camry LE 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. YC5102
 Test Date: 11/16/2011



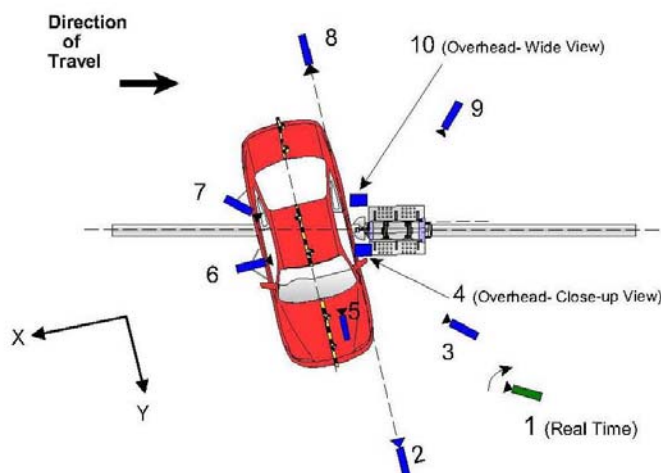
FRONT VIEW OF DUMMY

Code	Measurement Description	Driver S/N 296
		Length (mm)
HR	Head to Side Header	223
HS	Head to Side Window	378
AD	Arm to Door	182
HD	Hip Point to Door	231

DATA SHEET NO. 5 **CAMERA AND INSTRUMENTATION DATA**

Test Vehicle: 2012 Toyota Camry LE 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. YC5102
 Test Date: 11/16/2011



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

Camera No.	View	Coordinates (mm)			Lens (mm)	Film Speed (fps)
		X*	Y*	Z*		
1	Real-Time Pan View					30
2	Front Ground Level	-50	6140	-1830	24	1000
3	Impact Side 45° Forward	-2410	5230	-1950	20	1000
4	Overhead Closeup	120	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	-60	-6870	-1800	24	1000
9	Impact Side 45° Rearward	-4370	-3910	-1970	20	1000
10	Overhead Wide View	280	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

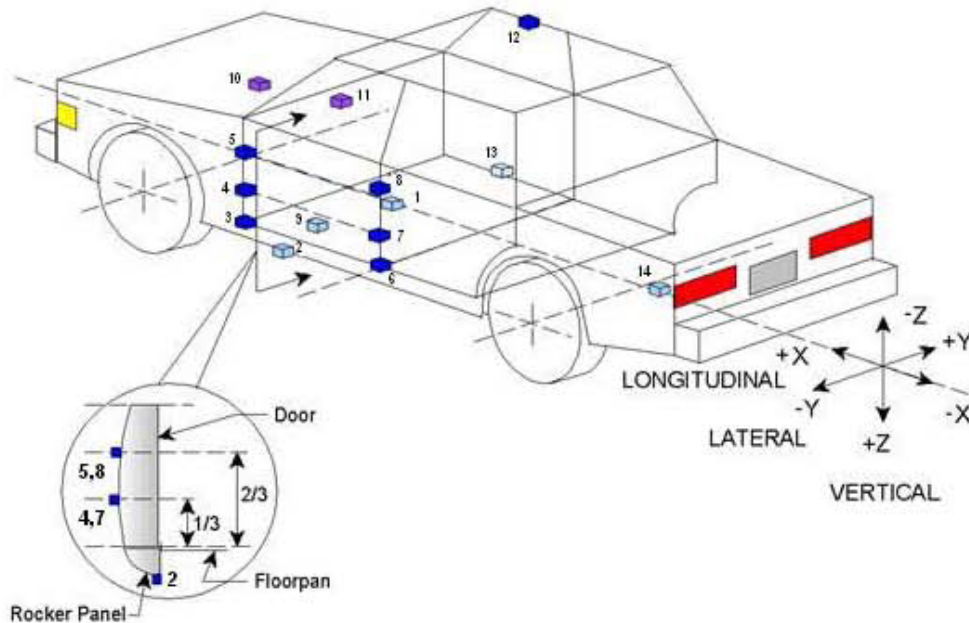
INSTRUMENTATION

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 Toyota Camry LE 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. YC5102
Test Date: 11/16/2011



	Accelerometer Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2791	195	-205
2	Left Floor Sill	2965	-725	-232
3	A Pillar Sill	3340	-725	-215
4	A Pillar Low	3305	-698	-565
5	A Pillar Mid	3374	-814	-754
6	B Pillar Sill	2200	-725	-226
7	B Pillar Low	2164	-739	-511
8	B Pillar Mid	2214	-739	-795
9	Driver Seat Track	2510	-549	-335
10	Engine Top	4061	-80	-842
11	Firewall	3740	0	-866
12	Right Roof	2144	490	-1468
13	Right Floor Sill	2903	725	-232
14	Rear Floorpan	922	0	-500

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 Toyota Camry LE 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. YC5102
Test Date: 11/16/2011



254 mm Diameter Rigid Pole

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

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2012 Toyota Camry LE 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. YC5102
Test Date: 11/16/2011

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Driver SID-IIs Dummy
Face	Curtain Airbag
Top of Head	Curtain Airbag, Headrest
Left Side of Head	Curtain Airbag
Back of Head	Curtain Airbag, Headrest
Left Shoulder	Side Airbag, Seatback
Upper Torso	Side Airbag, Seatback
Lower Torso	Side Airbag, Seatback
Left Hip	Side Airbag, 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 Toyota Camry LE 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. YC5102
Test Date: 11/16/2011

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

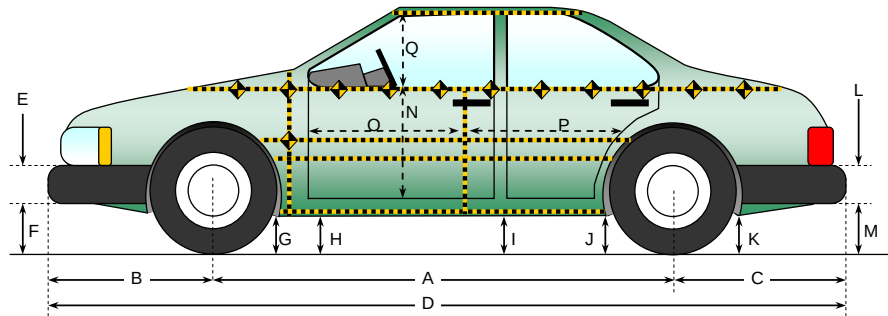
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT, AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1101
Actual Impact Point (Aft of Front Axle)	mm		1101
Horizontal Offset (+forward / -rearward)	mm	+/- 38 of Intended Impact Point	0
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	32.1

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2012 Toyota Camry LE 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. YC5102
Test Date: 11/16/2011



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

LEFT SIDE VIEW

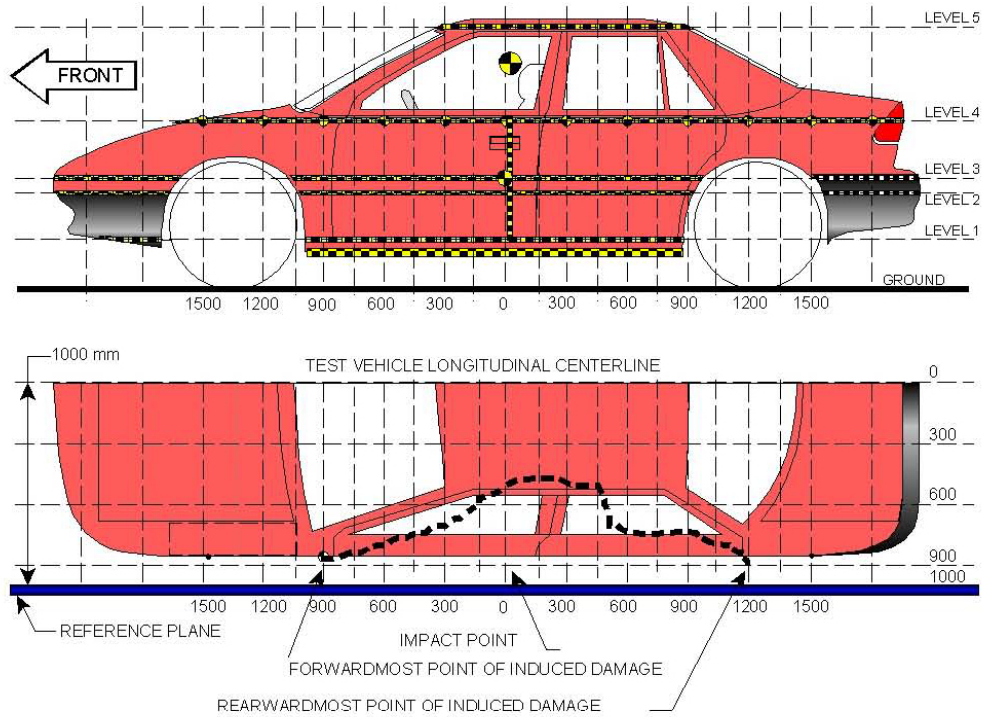
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2774	2645	129
B	Front Axle to FSOV	957	958	-1
C	Rear Axle to RSOV	1078	1078	0
D	Total Vehicle Length at Centerline	4809	4681	128
E	Front Bumper Thickness	120	120	0
F	Front Bumper Bottom to Ground	234	266	-32
G	Sill Height at Front Wheel Well	210	202	8
H	Sill Height at Front Door Leading Edge	213	210	3
I	Sill Height at B Pillar	212	235	-23
J1	Sill Height at Rear Wheel Well	207	233	-26
J2	Pinch Weld Height at Rear Wheel Well	210	230	-20
K	Sill Height Aft of Rear Wheel Well	246	255	-9
L	Rear Bumper Thickness	130	130	0
M	Rear Bumper Bottom to Ground	363	354	9
N	Sill Height to Bottom of Front Window Sill	722	730	-8
O	Front Door Leading Edge to Impact CL	661	660	1
P	Rear Door Trailing Edge to Impact CL	1384	1410	-26
Q	Front Window Opening	455	390	65
R	Right Side Length	3803	3810	-7
S	Left Side Length	3803	3668	135
T	Vehicle Width at B-Pillars	1821	1710	111

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

Test Vehicle: 2012 Toyota Camry LE 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. YC5102
 Test Date: 11/16/2011



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

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground (mm)
1	Sill Top	314
2	Occupant Hip Point	561
3	Mid Door	626
4	Window Sill	940
5	Window Top	1403

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

Test Vehicle: 2012 Toyota Camry LE 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. YC5102
 Test Date: 11/16/2011

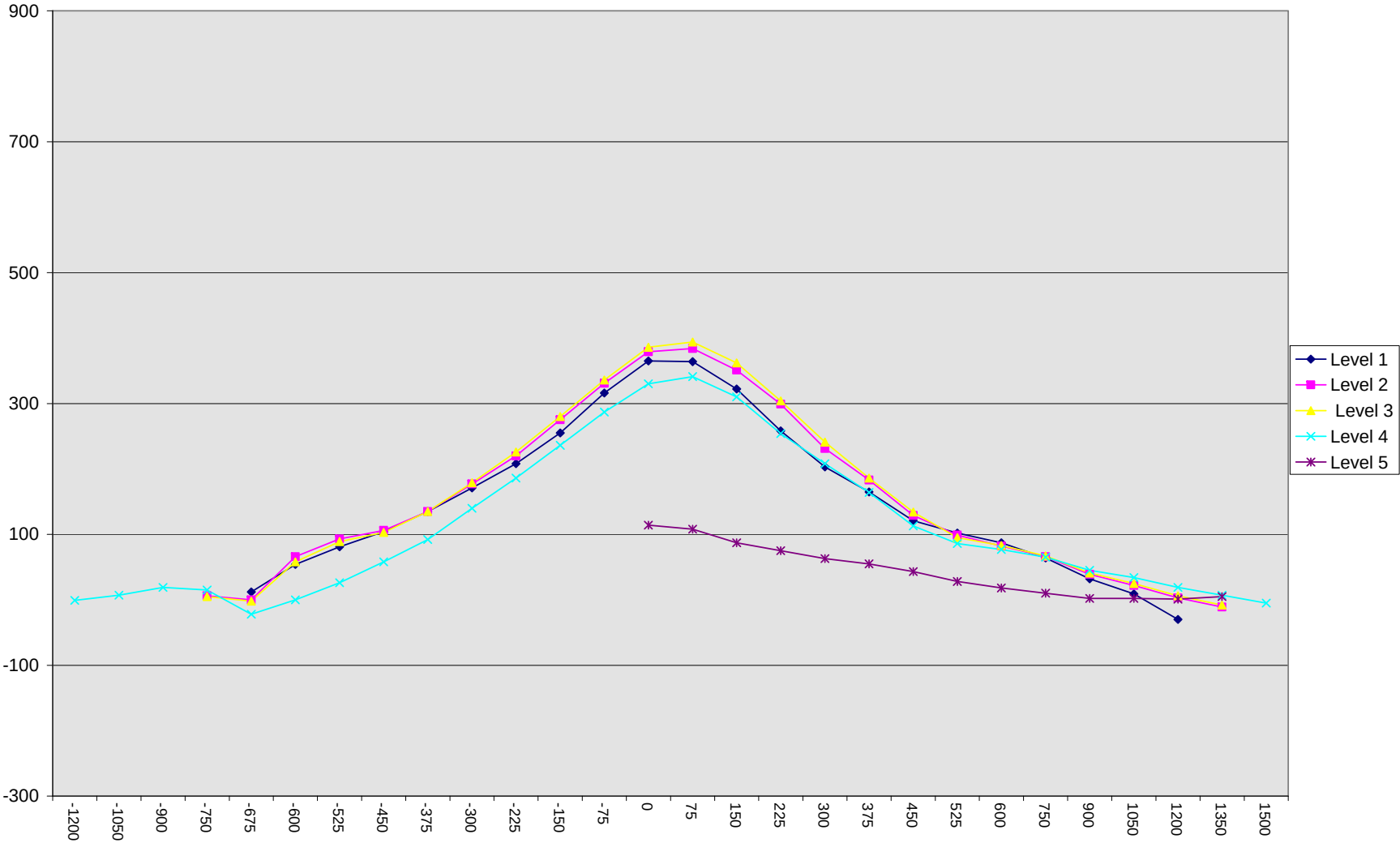
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1200				302					301					-1	
-1050				284					291					7	
-900				270					289					19	
-750		190	190	266			196	195	281			6	5	15	
-675	216	194	197	268		228	194	195	246		12	0	-2	-22	
-600	227	199	198	268		281	265	256	268		54	66	58	0	
-525	228	201	199	267		309	294	288	293		81	93	89	26	
-450	227	202	198	265		331	308	301	323		104	106	103	58	
-375	225	202	197	261		360	337	332	353		135	135	135	92	
-300	223	201	196	259		394	378	375	399		171	177	179	140	
-225	222	200	195	256		430	420	421	442		208	220	226	186	
-150	219	200	195	254		474	475	475	490		255	275	280	236	
-75	218	200	195	251		534	531	531	538		316	331	336	287	
0	217	199	193	249	513	582	578	579	579	627	365	379	386	330	114
75	216	200	193	245	506	580	584	587	586	614	364	384	394	341	108
150	214	199	193	242	502	536	550	555	552	589	322	351	362	310	87
225	214	199	193	240	501	472	498	497	494	576	258	299	304	254	75
300	214	199	193	238	498	417	430	434	446	561	203	231	241	208	63
375	214	200	193	235	498	379	383	379	399	553	165	183	186	164	55
450	214	200	194	233	498	335	329	328	346	541	121	129	134	113	43
525	216	201	195	231	498	318	300	290	317	526	102	99	95	86	28
600	217	204	196	229	496	304	286	279	306	514	87	82	83	77	18
750	219	205	198	226	500	283	271	265	291	510	64	66	67	65	10
900	221	209	202	224	503	253	248	243	269	505	32	39	41	45	2
1050	225	212	205	224	504	234	234	230	258	506	9	22	25	34	2
1200	225	210	206	226	514	195	213	212	245	515	-30	3	6	19	1
1350		196	196	230	531		185	188	237	536		-11	-8	7	5
1500				236					231					-5	

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

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

Test Vehicle: 2012 Toyota Camry LE 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. YC5102
Test Date: 11/16/2011



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

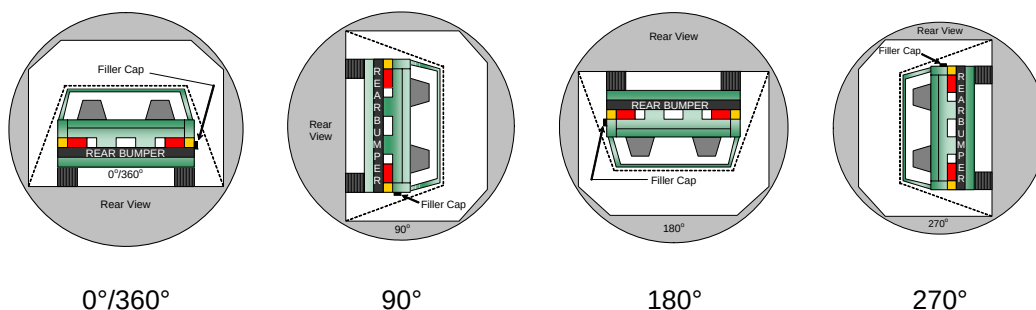
Test Vehicle: 2012 Toyota Camry LE 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. YC5102
 Test Date: 11/16/2011

Test Time: 10:01 am Temperature: 21.5° C

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

FMVSS 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	118	300	418
90° to 180°	114	300	414
180° to 270°	108	300	408
270° to 360°	117	300	417

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

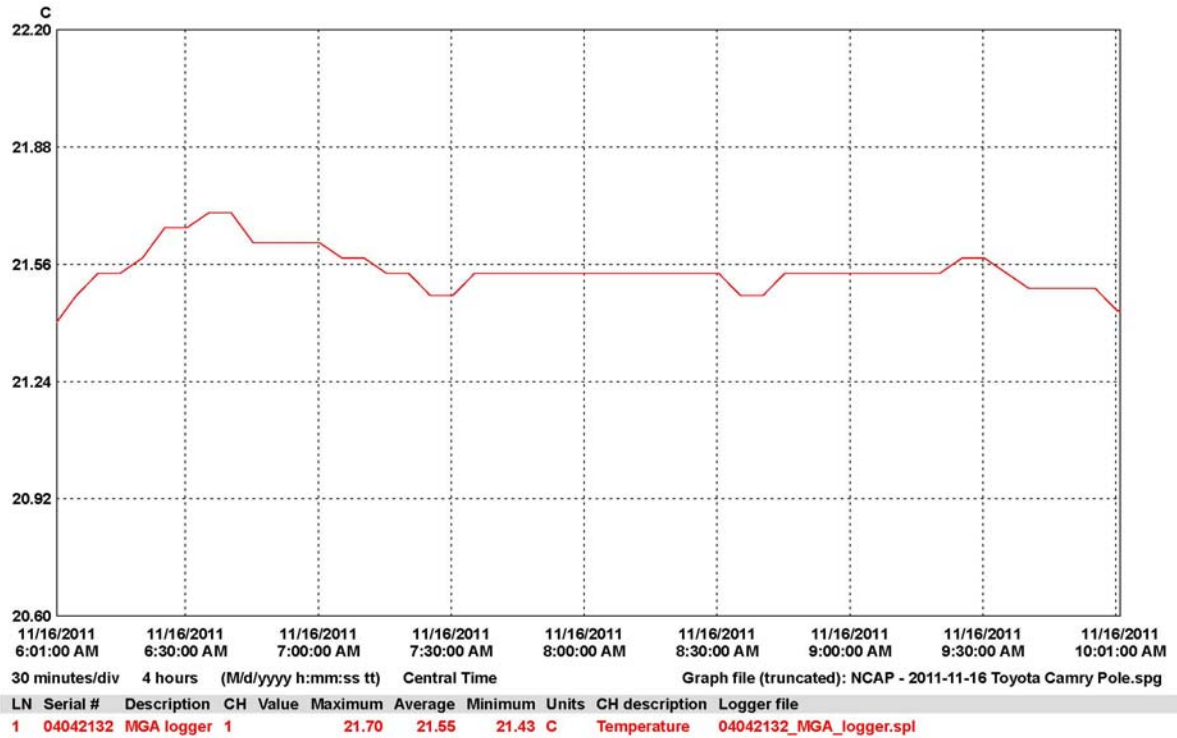
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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 Toyota Camry LE 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. YC5102
 Test Date: 11/16/2011



APPENDIX A
PHOTOGRAPHS

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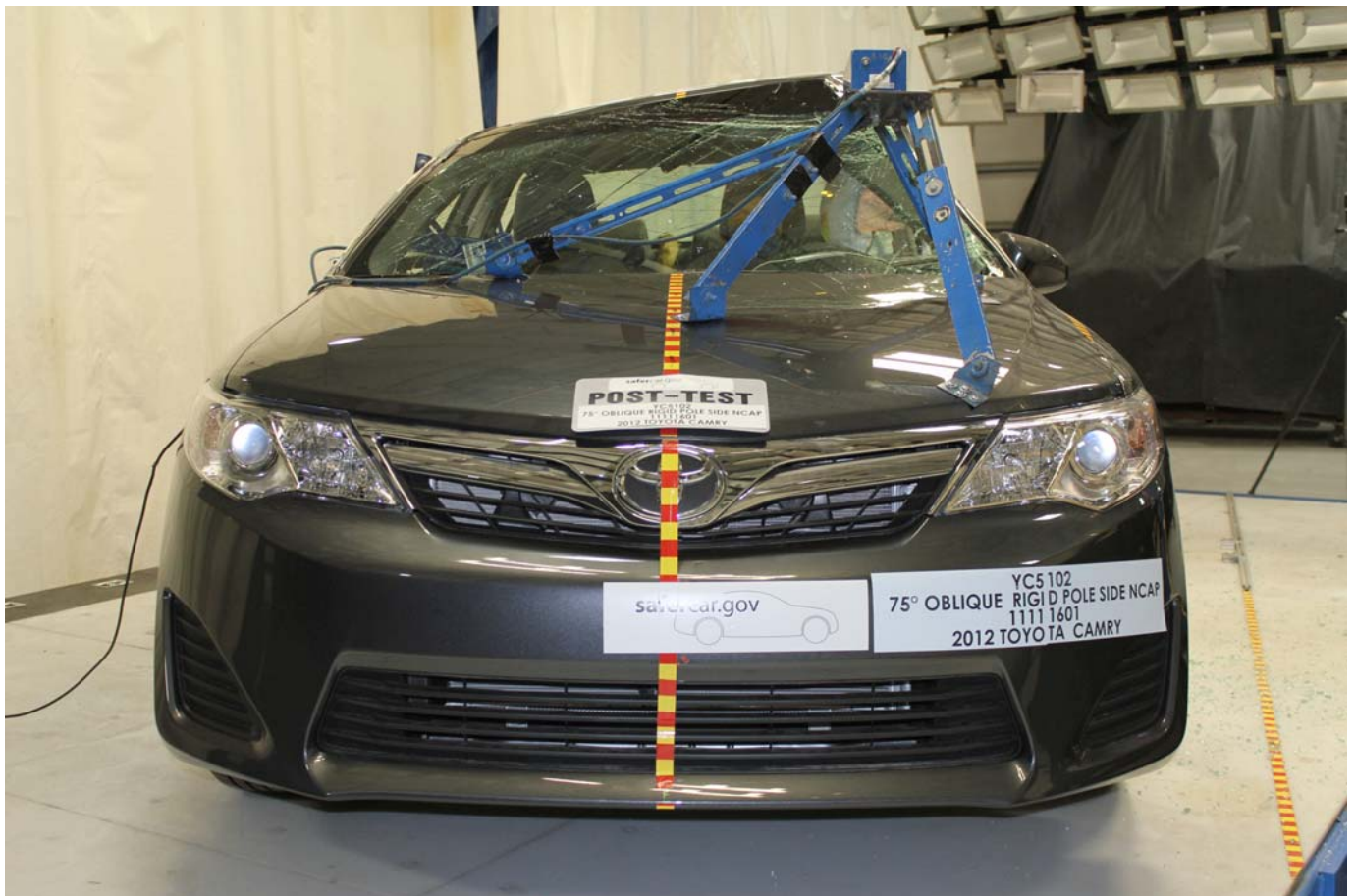
As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



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



Pre-Test Frontal View of Test Vehicle



Post-Test Frontal View of Test Vehicle



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



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



Pre-Test Left Side View of Test Vehicle



Post-Test Left Side View of Test Vehicle



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



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



Pre-Test Rear View of Test Vehicle



Post-Test Rear View of Test Vehicle



Pre-Test Right Side View of Test Vehicle



Post-Test Right Side View of Test Vehicle



Pre-Test Overhead View of Test Area



Post-Test Overhead View of Test Area



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



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



Pre-Test Close-Up View of Impact Point Target



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



Pre-Test Front Close-Up View of Dummy Head and Chest



Post-Test Front Close-Up View of Dummy



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



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



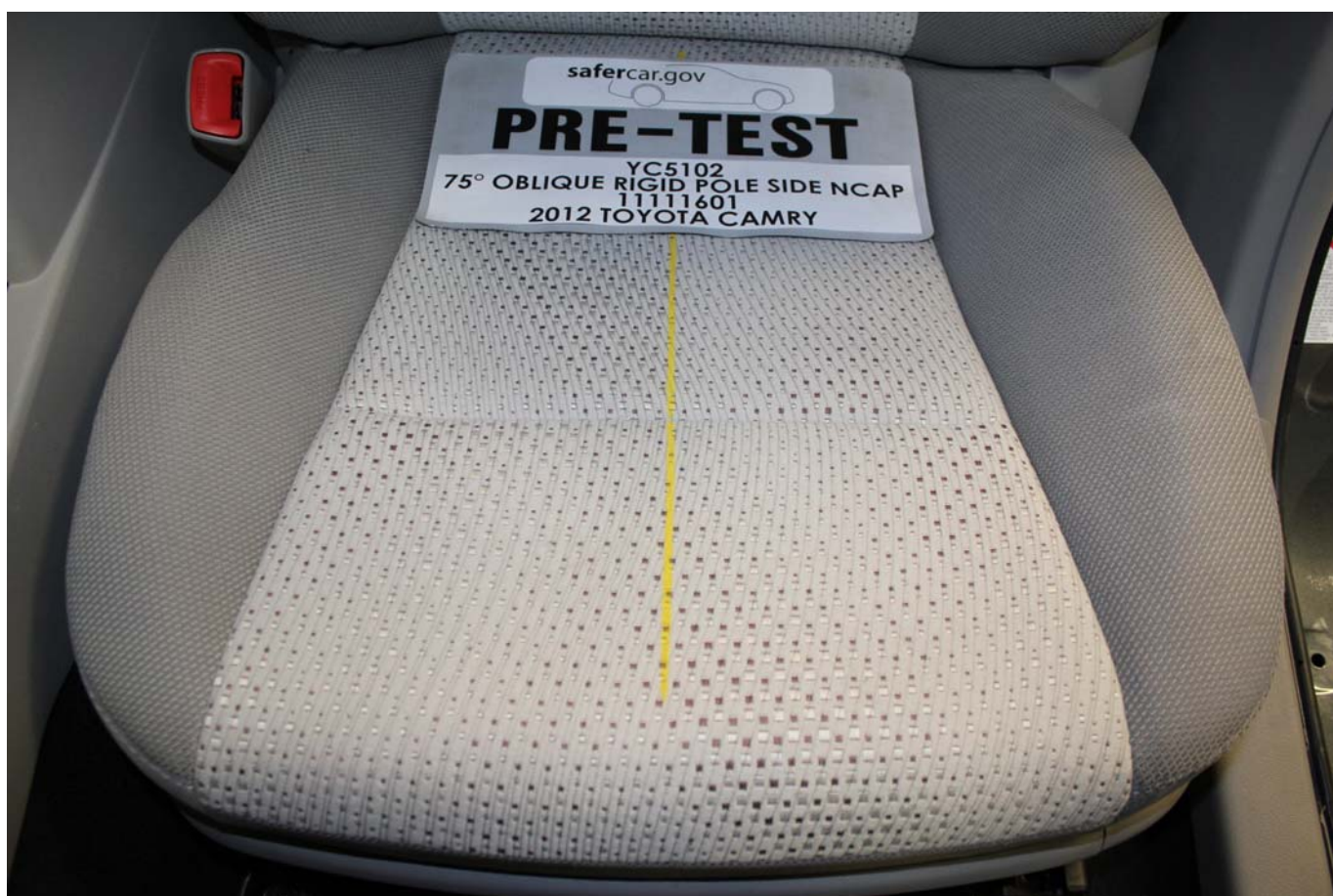
Post-Test Left Side View of Dummy Shoulder and Door Top View



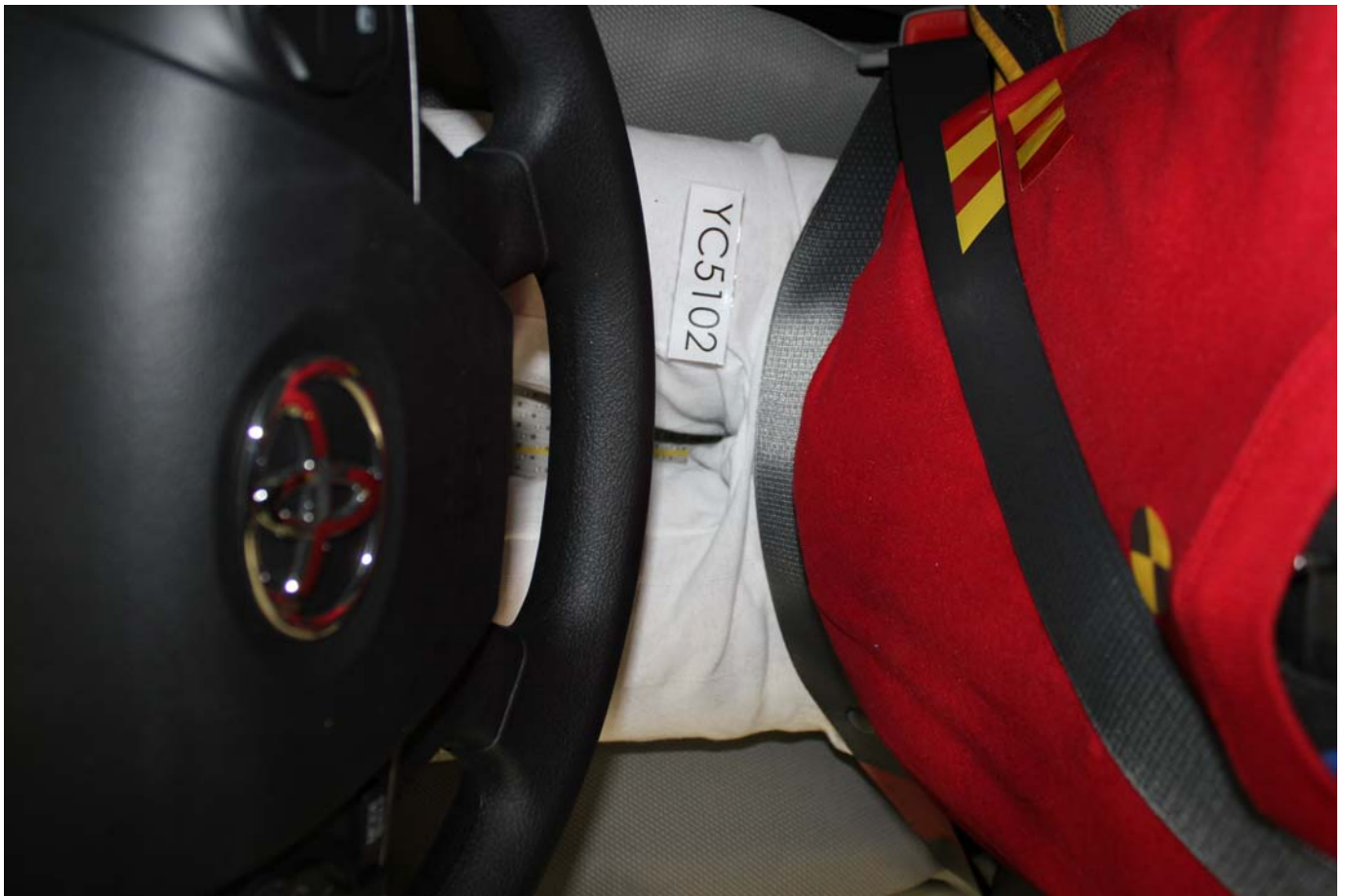
Pre-Test Front View of Seat Back Prior to Dummy Positioning



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



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



Pre-Test Overhead View of Dummy Thighs on Seat Pan



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



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



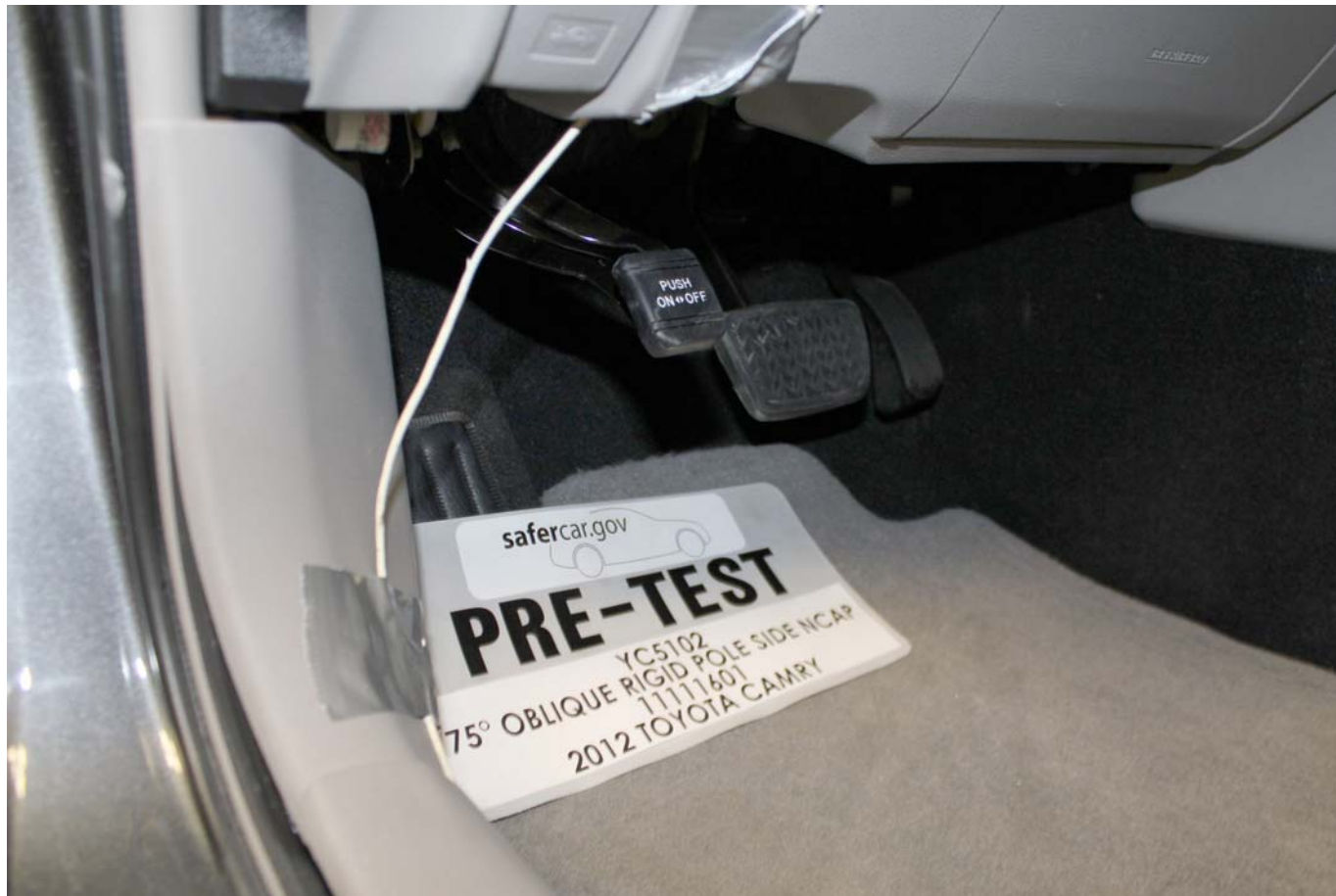
Pre-Test Placement of Dummy's Feet



Pre-Test View of Belt Anchorage for Dummy



Pre-Test Left Side View of Steering Wheel



Pre-Test View of Disengaged Parking Brake



Pre-Test View of Parking Brake



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



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



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



Pre-Test Dummy and Door Clearance View



Post-Test Dummy and Door Clearance View



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



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



Pre-Test Inner Door Panel View



Post-Test Inner Door Panel View Showing Dummy Contact Location



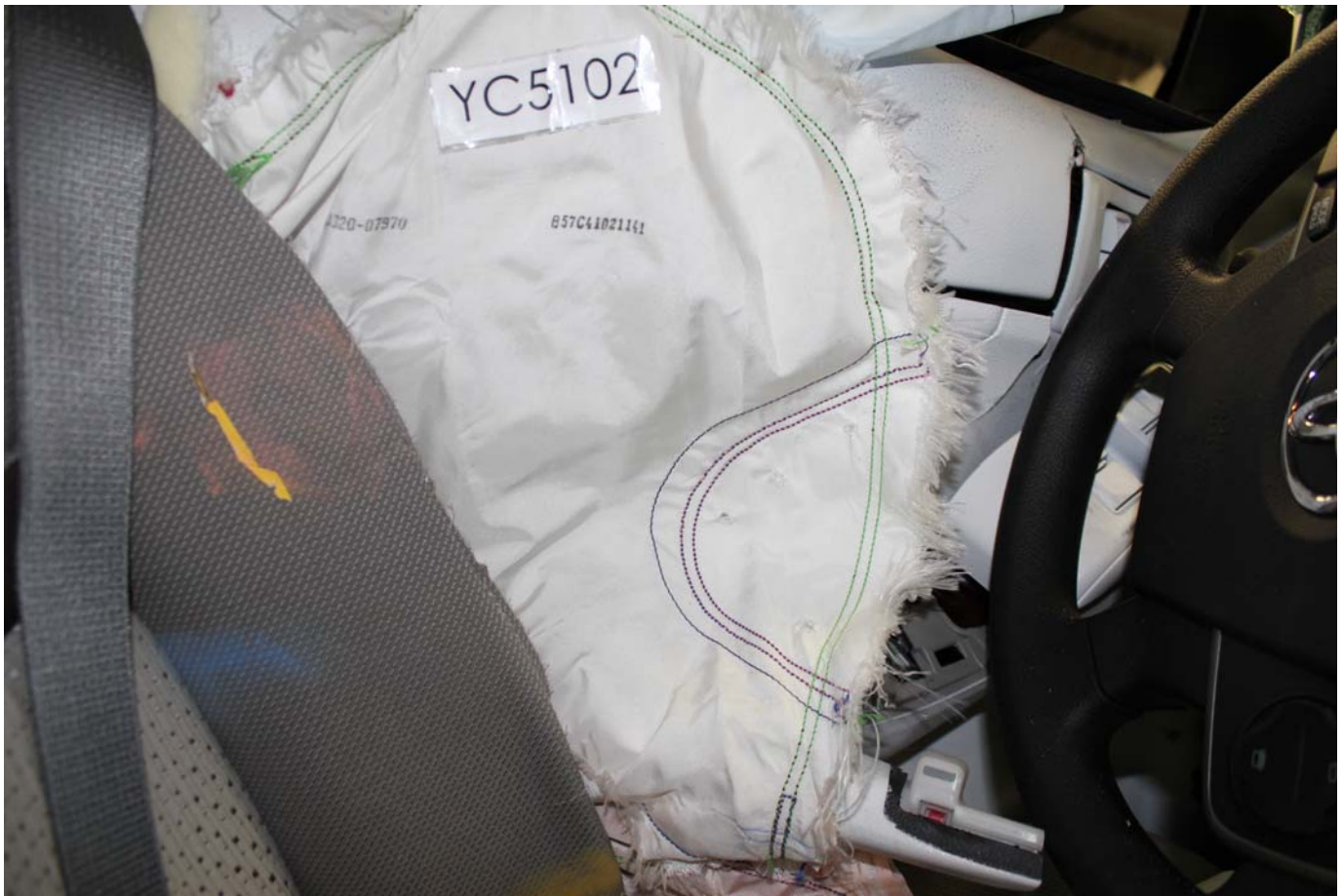
Post-Test Dummy Close-Up Head Contact with Vehicle Interior View



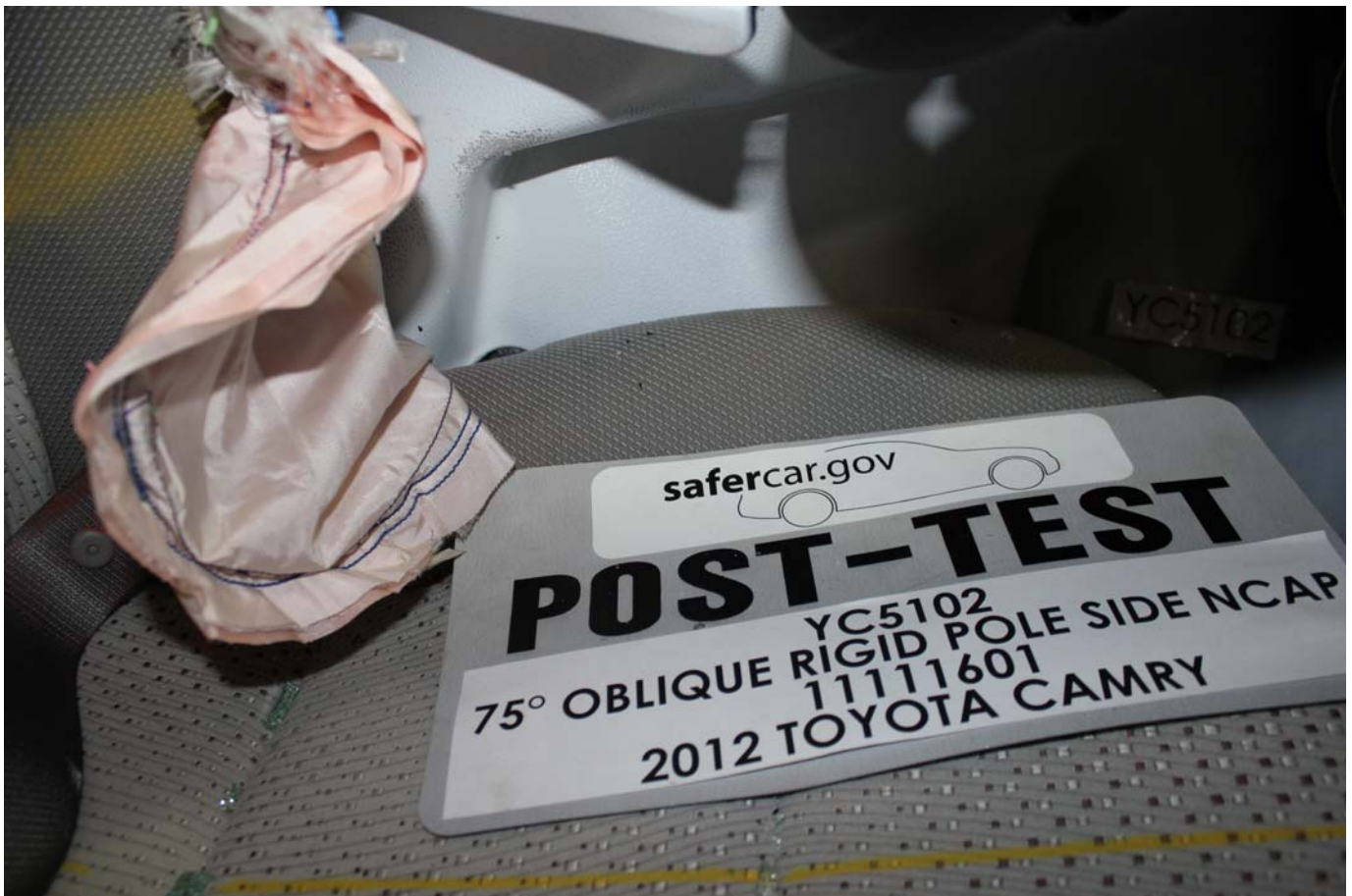
Post-Test Dummy Close-Up Head Contact with Side Air Bag View



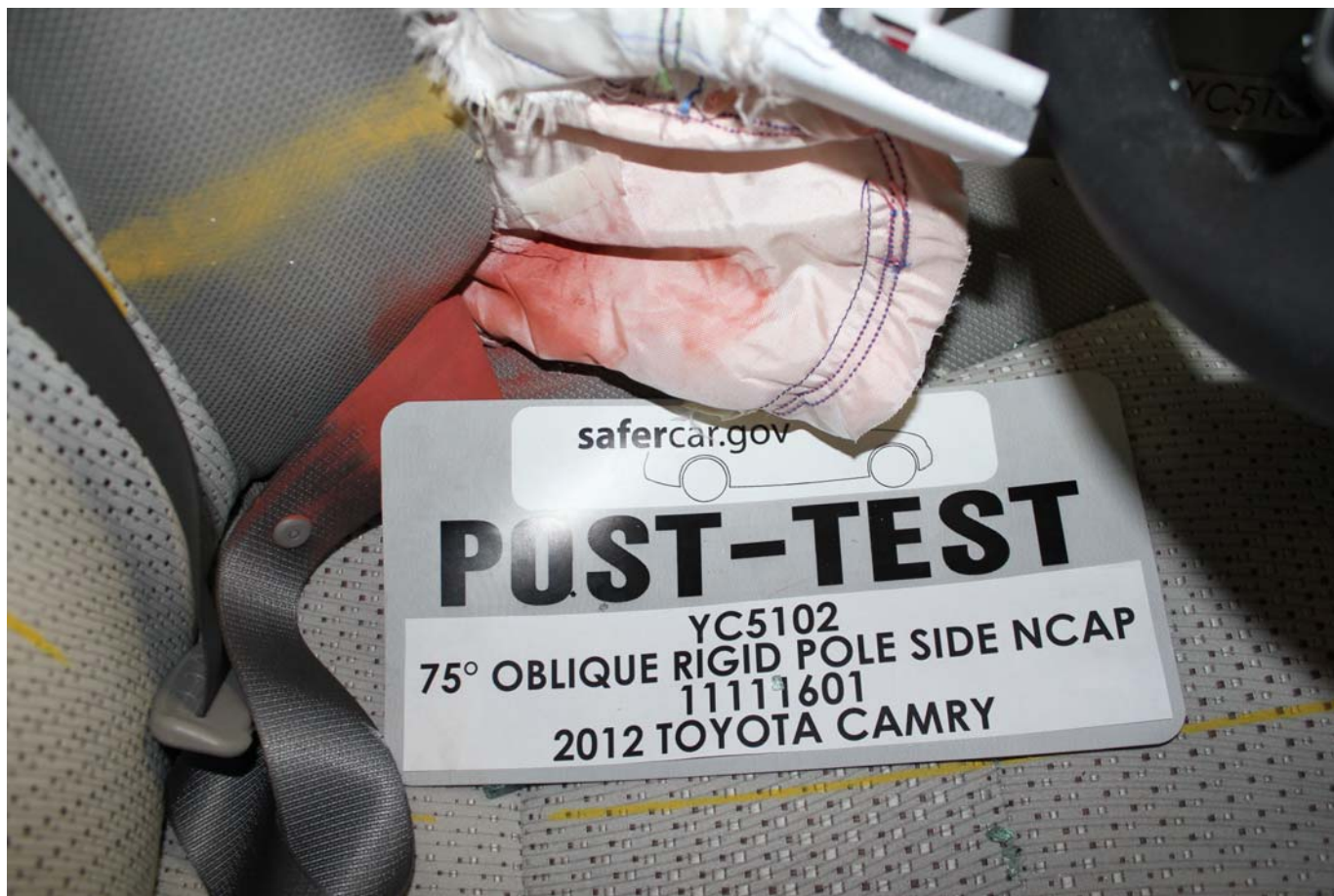
Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View



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



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



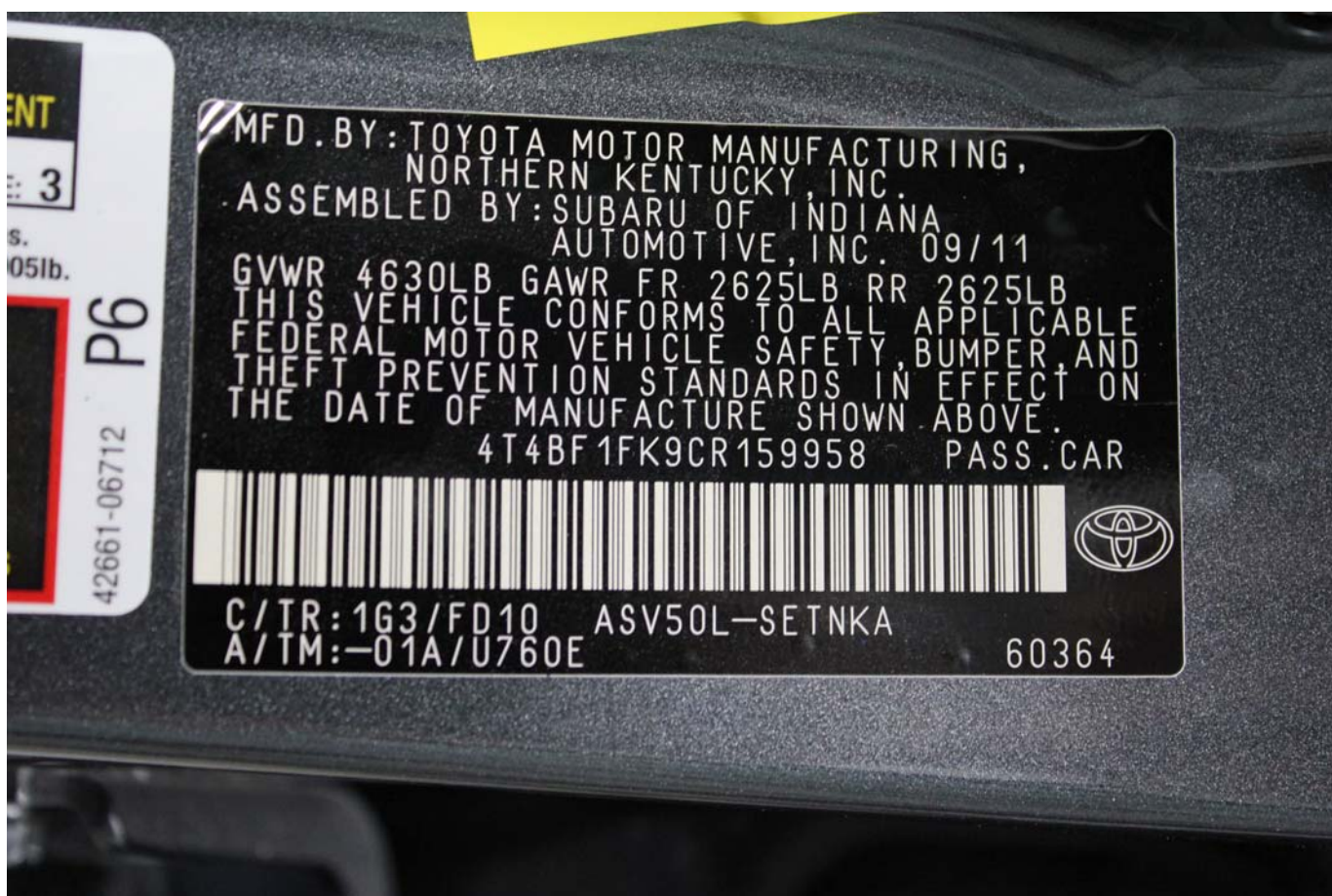
Post-Test Dummy Close-Up Pelvis Contact with Side Air Bag View



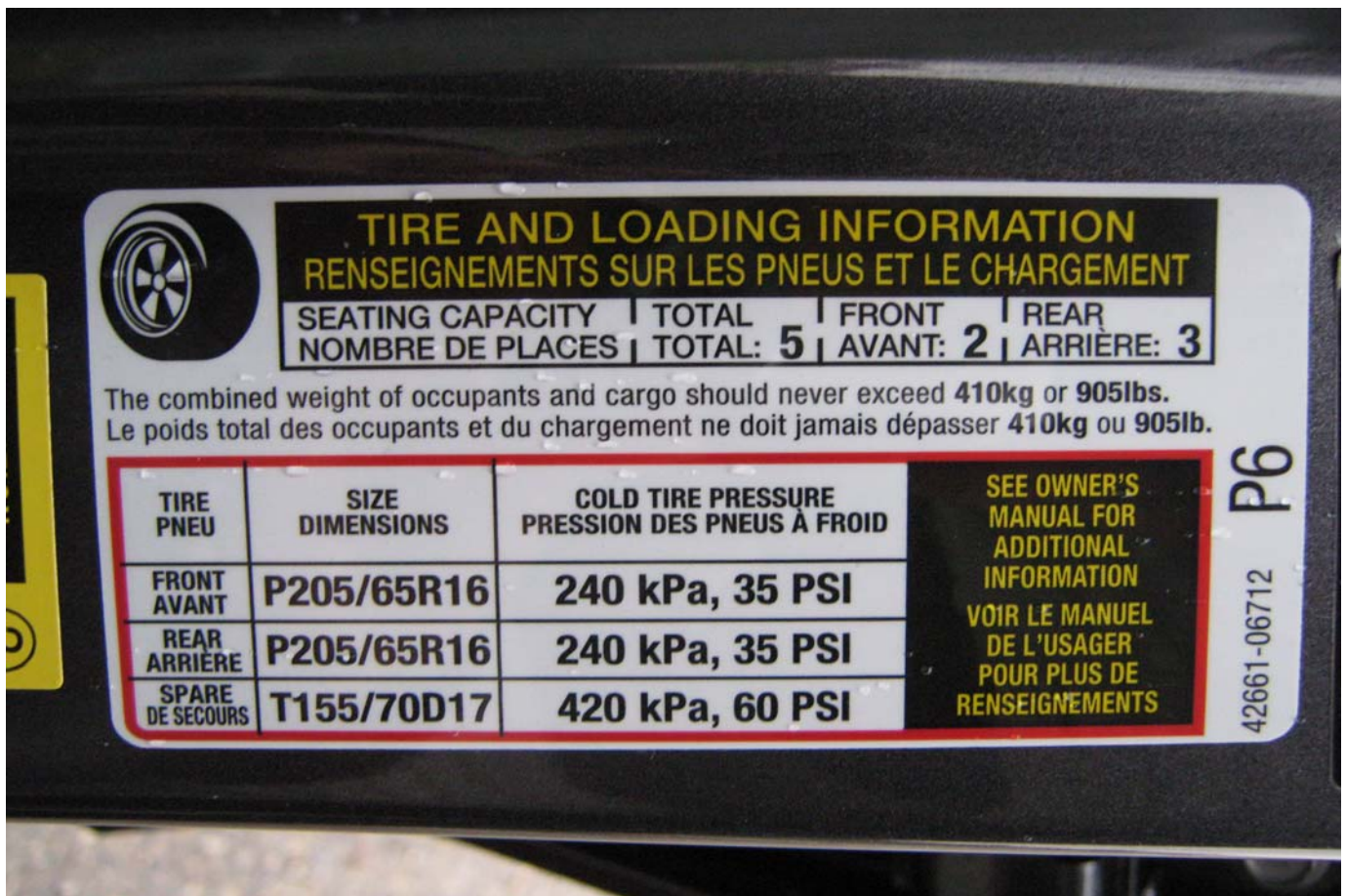
Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



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



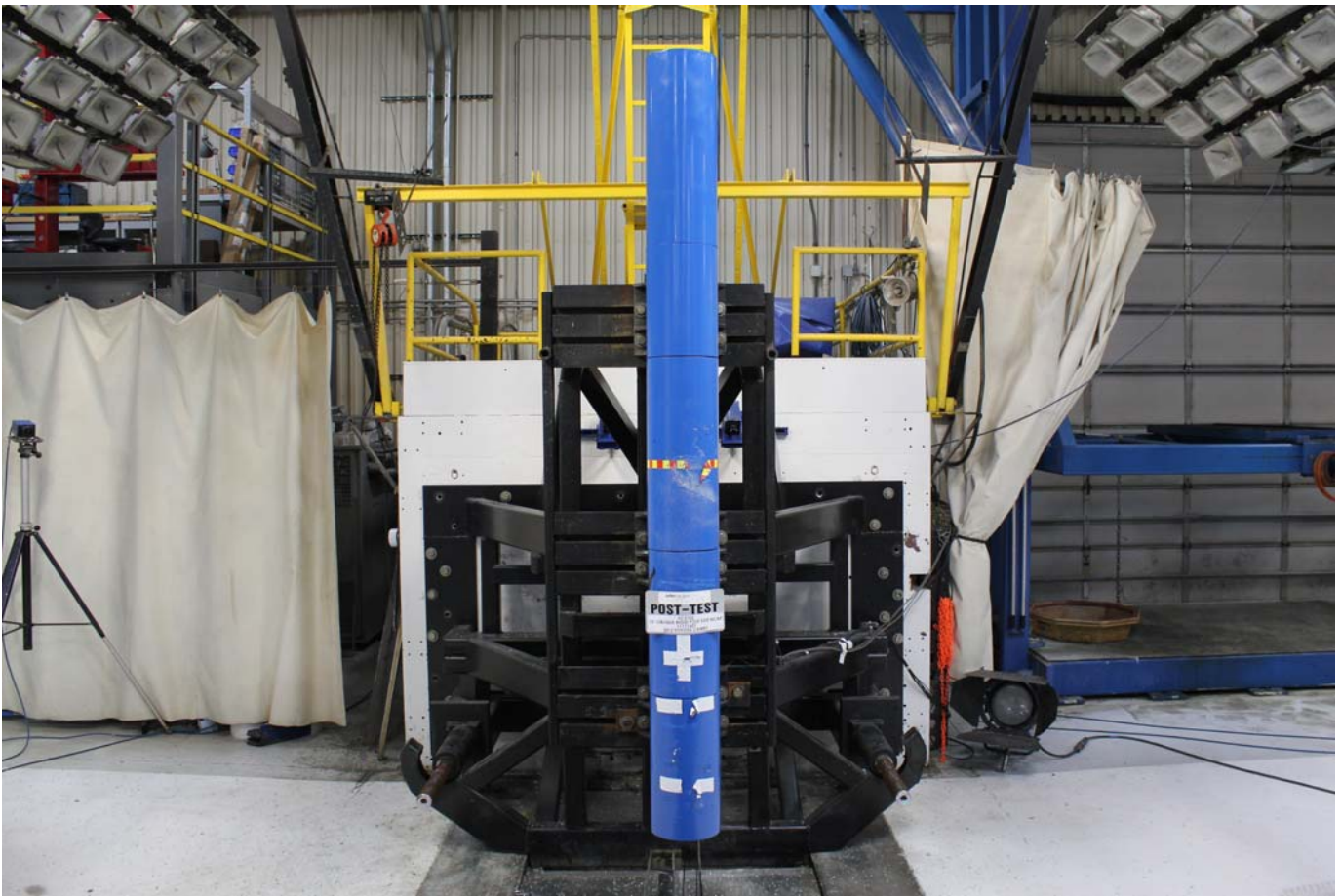
Close-Up View of Vehicle's Certification Label



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



Pre-Test Pole Barrier Front View



Post-Test Pole Barrier Front View



Pre-Test Pole Barrier Side View



Post-Test Pole Barrier Side View



Pre-Test Ballast View



Post-Test Primary and Redundant Speed Trap Read-Out



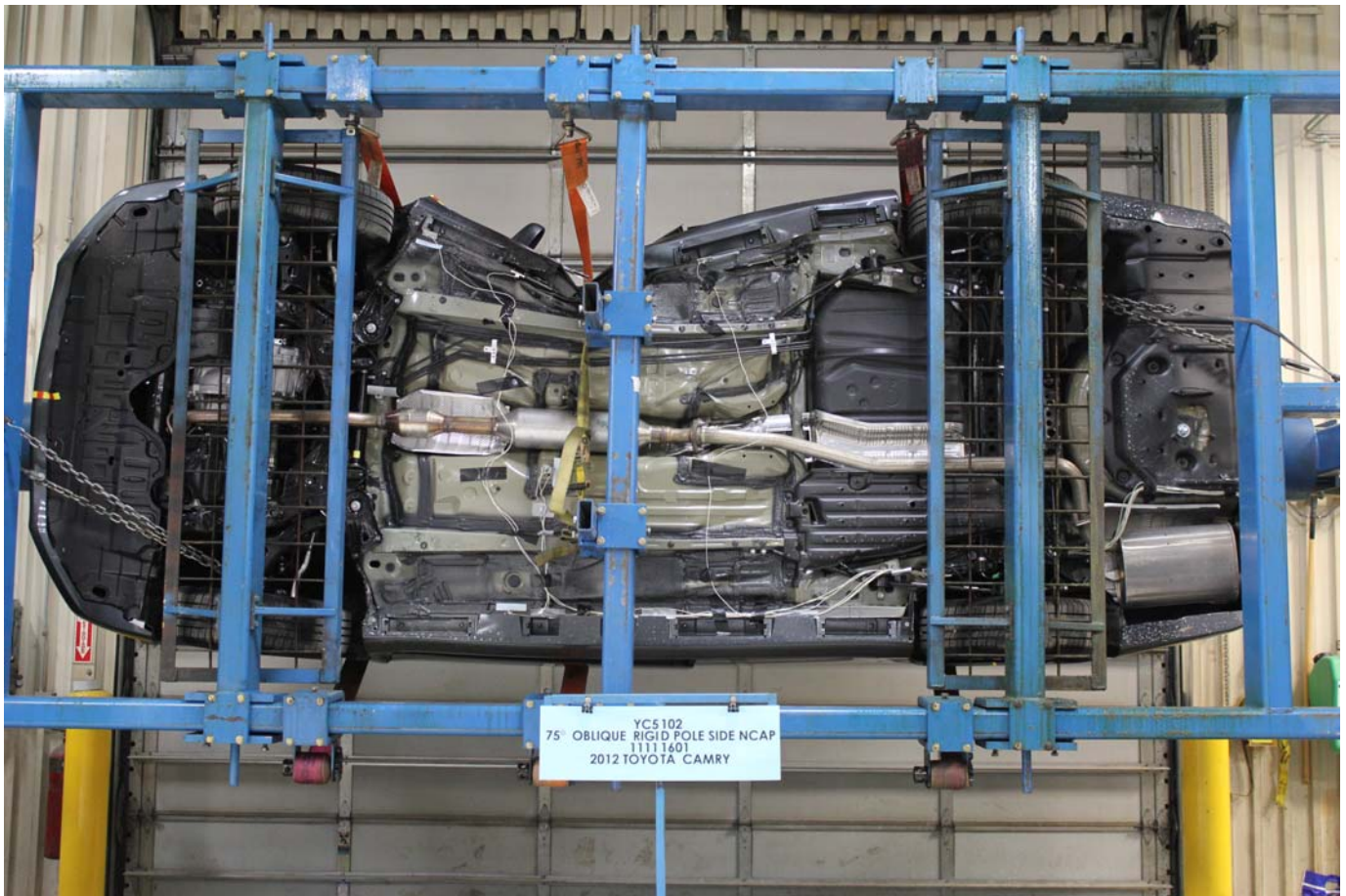
FMVSS No. 301 Static Rollover 0 Degrees



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

TOYOTA
moving forward

DESC: **CAMRY** 4-DOOR LE SEDAN
VIN: **4T4BF1FK9CR159958**
YR/MDL: 2012/2532A
CLR: MAGNETIC GRAY MET/FO10 (01G3/10)
PORT/PLANT: Lafayette, IN/TMMSA RAILHEAD:

STANDARD EQUIPMENT

MECHANICAL & PERFORMANCE

- 2.5L 4-Cyl DOHC 18V w/ Dual VVT-i Engine
- 5-Speed SCTH Transmission
- 16" Steel Wheels w/ Covers
- P205/65R16 Tires
- Electric Power Steering (EPS)
- Power-Assisted (Rigid) Disc Brakes

SAFETY & CONVENIENCE

- Star Safety System Includes: VSC, TRAC, Anti-lock Brake System, EBD, Brake Assist & Smart Stop Tech (SST)
- 10 Airbags: Dr & Fr Pass Adv Airbag Sys, Dr & Fr Pass Knee & Seat-Mounted Side, Front & Rear Side Curtain, and Rear Seat-Mounted Side Airbags
- LATCH (Lwr Anchor & Tethers for Children) for Outboard Rear Seating Positions Only
- Whiplash-Injury-Mitigating Front Seats
- Tire Pressure Monitor System

EXTERIOR

- Projector-Beam Headlamps with Auto On/Off Feature
- Daytime Running Lights w/ On/Off Switch
- Color-Keyed Folding Power Outside Mirrs
- Side Rocker Panels w/ Chrome Inserts

INTERIOR

- Air Conditioning w/ Air Filter
- Display Audio 8.1" Touch Screen, AM/FM/CD w/ MP3/WMA, 6 Speakers
- Aux Jack, USB w/ iPod Conn & Bluetooth
- 60/40 Split Fold-Down Fr Seats and Center Armrest w/ Cup Holders
- Cruise Control
- Power Windows w/ Dr Side Auto Up/Down, Jam Protection & Retained-Park Features
- Remote Keyless Entry System
- Tilt/Telescopic Steering Wheel w/ Audio & Bluetooth Hands-Free Calls
- Average Fuel Consumption Gauge
- Variable Intermittent Windshield Wipers
- Rear Window Defogger with Timer
- 4 Cup Holders & 8 In-Door Bottle Holders
- 12V DCV Power Outlets
- **Full Tank of Gas***

MANUFACTURER'S SUGGESTED RETAIL PRICE \$22,500.00

OPTIONAL EQUIPMENT

FE	50 State Emissions	
PD	8-Way Power Adjustable Driver's Seat	440.00
CL	Carpeted Floor Mats	130.00

GOVERNMENT SAFETY RATINGS

This vehicle has not been rated by the government for frontal crash, side crash or rollover risk.
Source: National Highway Traffic Safety Administration (NHTSA).

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

EPA Fuel Economy Estimates

CITY MPG	Estimated Annual Fuel Cost	HIGHWAY MPG
25	\$1,981 based on 15,000 miles at \$3.70 per gallon	35
Expected range for most drivers 20 to 30 MPG	Combined Fuel Economy This Vehicle	Expected range for most drivers 29 to 41 MPG
28 Your actual mileage will vary depending on how you drive and maintain your vehicle. All Midsize Cars		

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

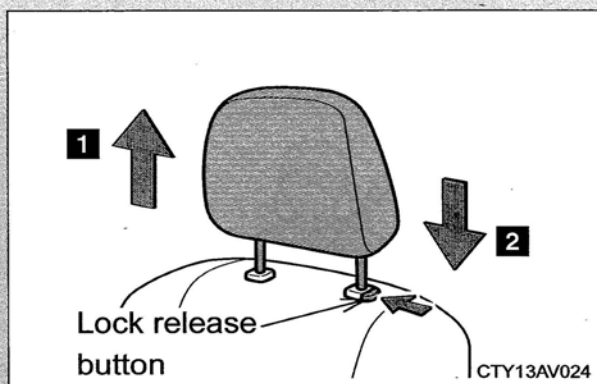
DELIVERY PROCESSING AND HANDLING FEE 760.00

- TOTAL \$23,830.00

The New Vehicle Limited Warranty provides 3-Year/36,000 mile basic coverage, & 5-Year/60,000 mile powertrain coverage, plus 24-hour roadside assistance. See Warranty and Maintenance Guide for details. See dealer for complete details. Manufacturer's suggested retail price includes manufacturer's recommended pre-delivery service, destination, taxes and title fees, applicable license, and any local taxes and dealer and distributor installed options and accessories are not included in the manufacturer's suggested retail price. Toyota Camry, which carries a 2012 Midsize Sedan award for best value, is a 2012 model.

Dealer Name / Address: 48052
JACK SAFFO TOYOTA
20445 WEST CAPITOL DRIVE
BROOKFIELD WISCONSIN 53005

Head restraints are provided for all seats.



Vertical adjustment (front seats)

1 Up

Pull the head restraints up.

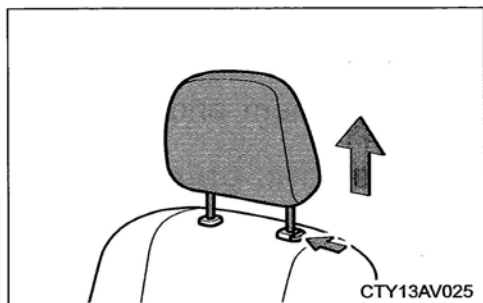
2 Down

Push the head restraint down while pushing the lock release button.

1

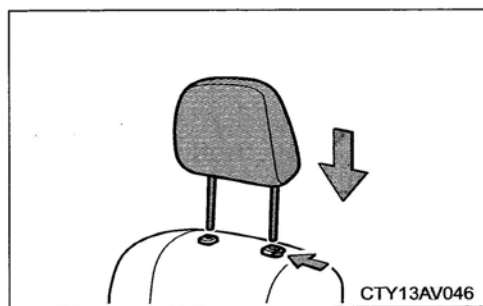
Before driving

■ Removing the head restraints (front seats)



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

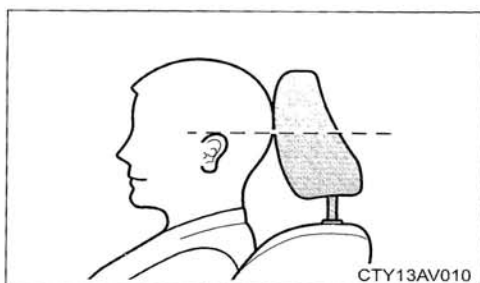
■ Installing the head restraints (front seats)



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

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

■ **Adjusting the height of the head restraints (front seats)**



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

! CAUTION

■ **Head restraint precautions (front seats)**

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

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



Load Carrying Capacity Reduced Label

APPENDIX B

VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS
Driver Dummy Instrumentation Plots

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

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

Additional Driver Dummy Instrumentation Data

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

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)

Vehicle Center of Gravity Acceleration (Y)

Vehicle Center of Gravity Acceleration (Z)

Left Floor Sill Acceleration (Y)

Left A-Pillar Sill Acceleration (Y)

Left Lower A-Pillar Acceleration (Y)

Left Mid A-Pillar Acceleration (Y)

Left B-Pillar Sill Acceleration (Y)

Left Lower B-Pillar Acceleration (Y)

Left Mid B-Pillar Acceleration (Y)

Driver Seat Track at Dummy Hip Point Acceleration (Y)

Engine Top Acceleration (X)

Engine Top Acceleration (Y)

Firewall Center Acceleration (Y)

Right Roof at Vertical Impact Reference Line Acceleration (Y)

Right Sill at Vertical Impact Reference Line Acceleration (Y)

Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)

Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)

Pole Instrumentation Data

Load Cell Pole Barrier #1 Force (Y)

Load Cell Pole Barrier #2 Force (Y)

Load Cell Pole Barrier #3 Force (Y)

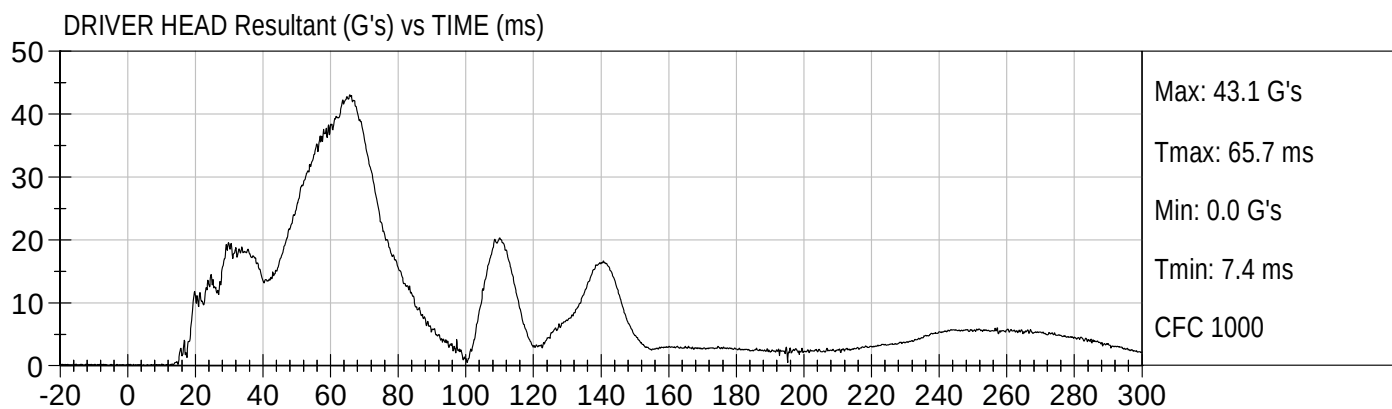
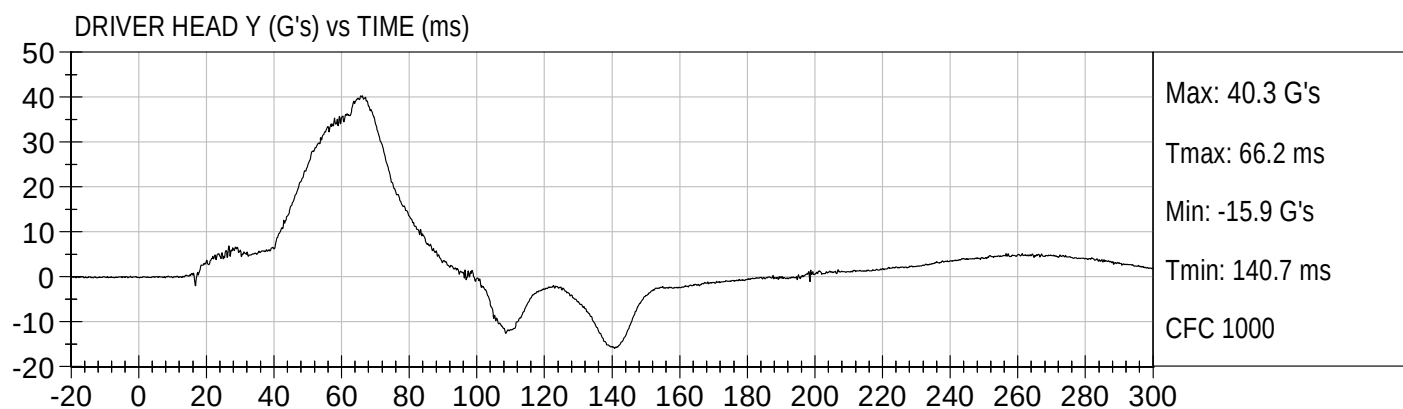
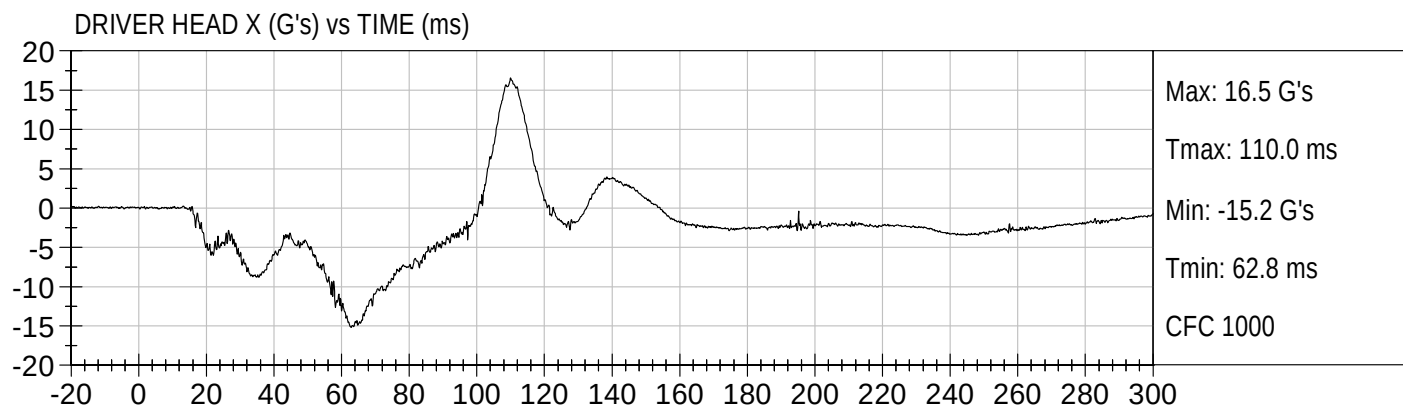
Load Cell Pole Barrier #4 Force (Y)

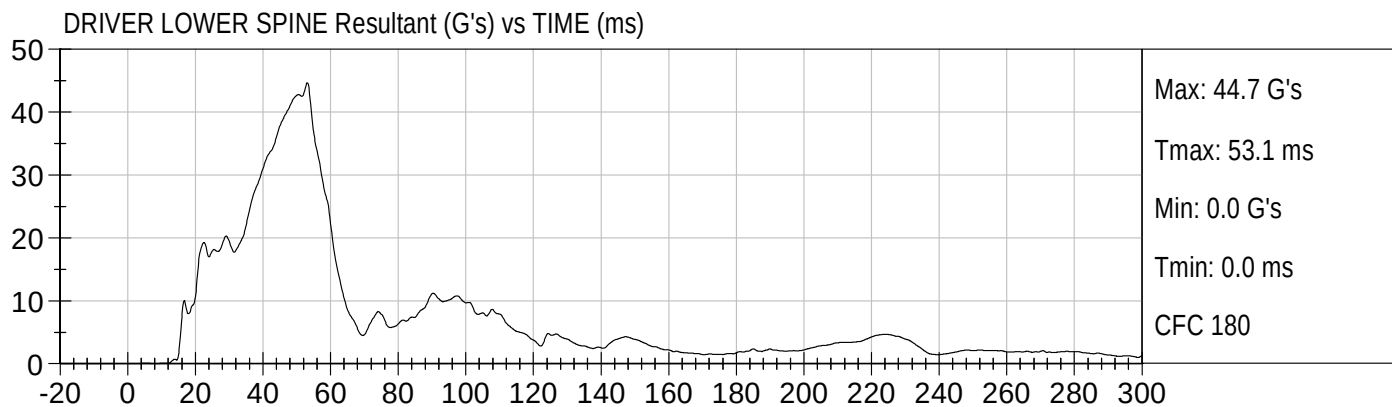
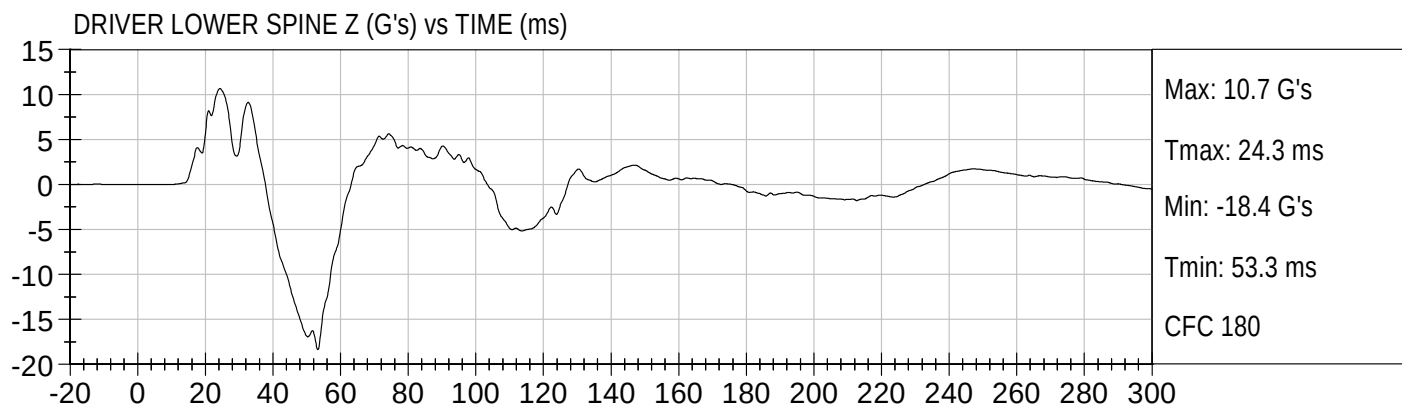
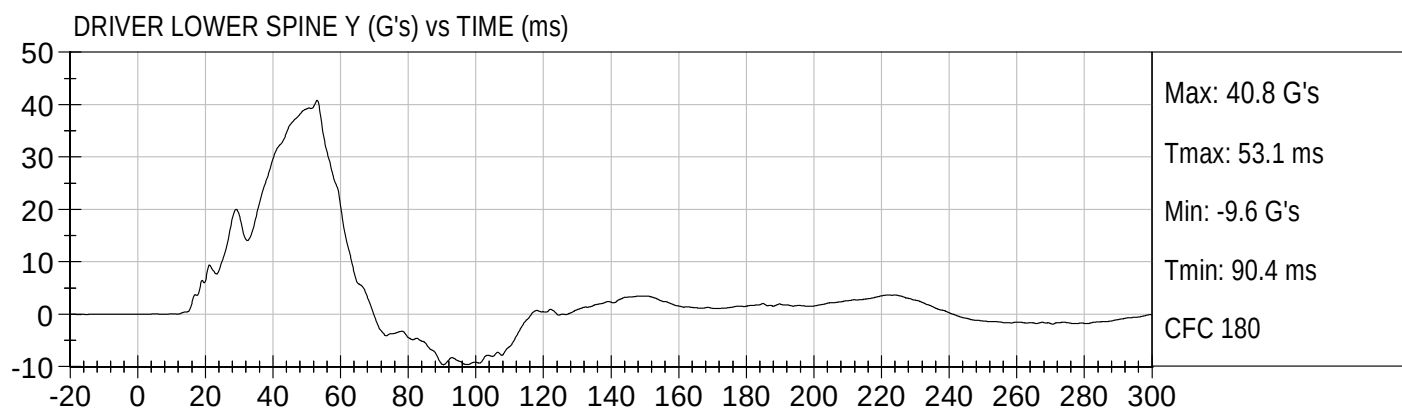
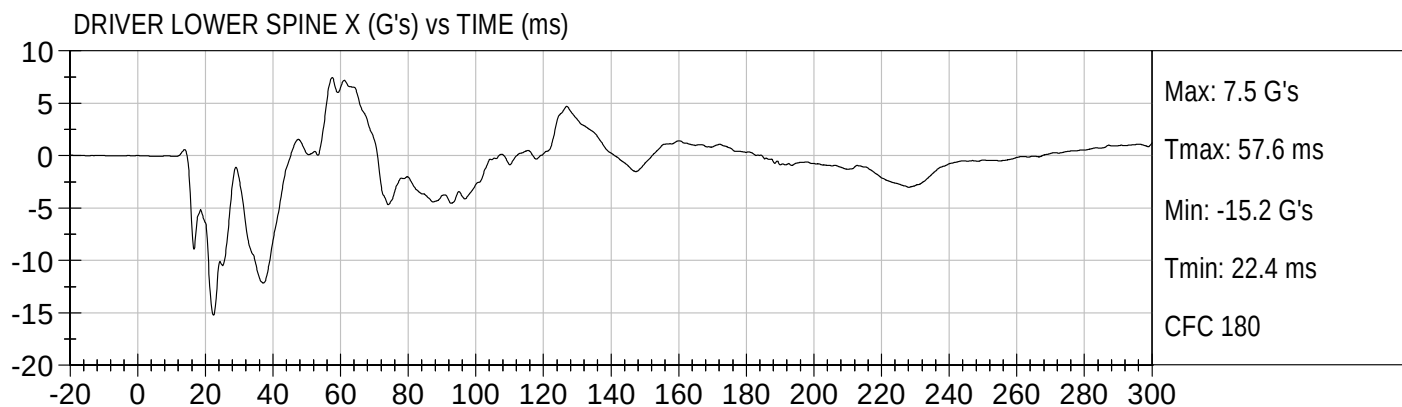
Load Cell Pole Barrier #5 Force (Y)

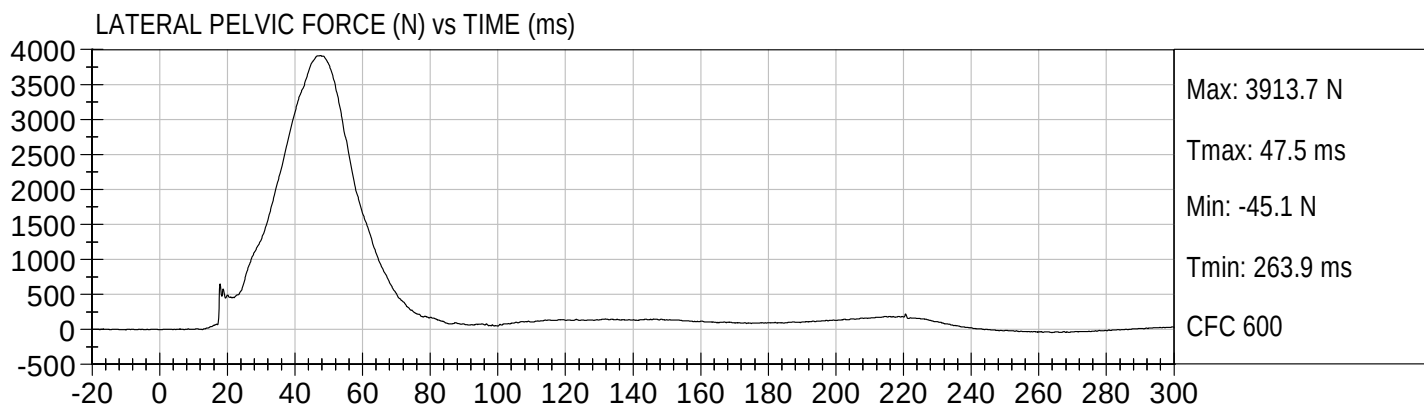
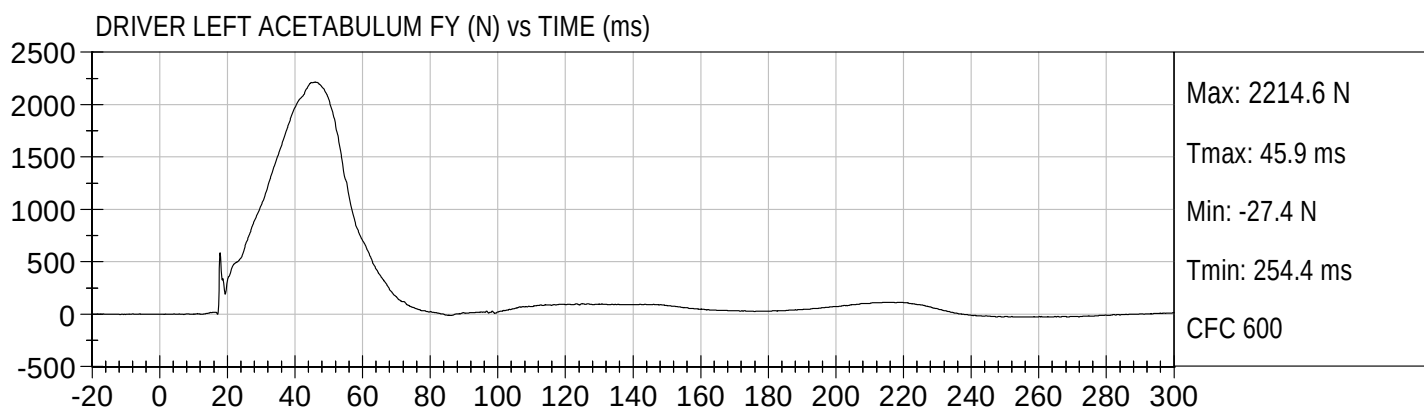
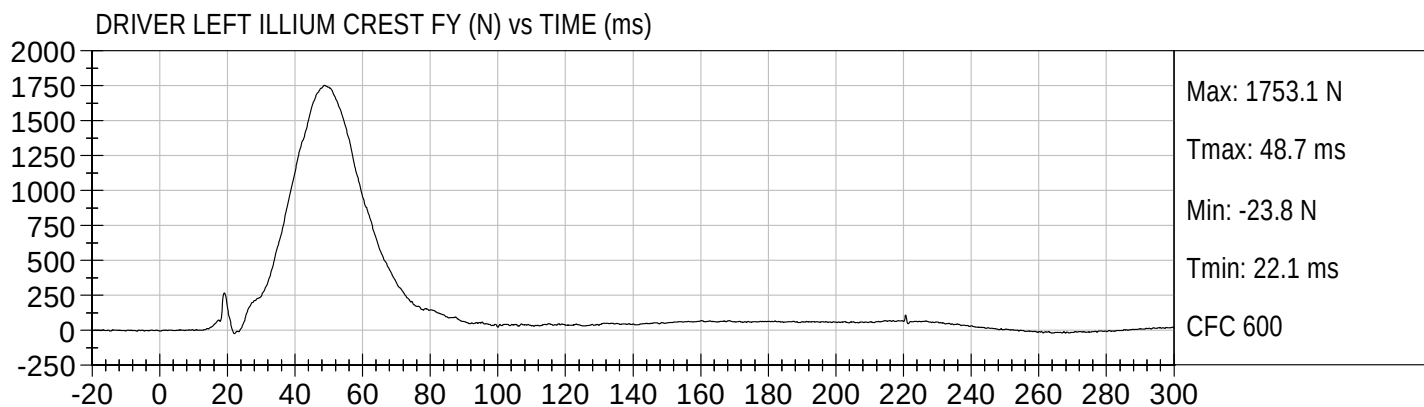
Load Cell Pole Barrier #6 Force (Y)

Load Cell Pole Barrier #7 Force (Y)

Load Cell Pole Barrier #8 Force (Y)







APPENDIX C

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SID-IIsD External Measurements
SN: 296

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

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

ATD Serial No: 296

Test ID: D113711

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

Jessica Hall
Laboratory Technician

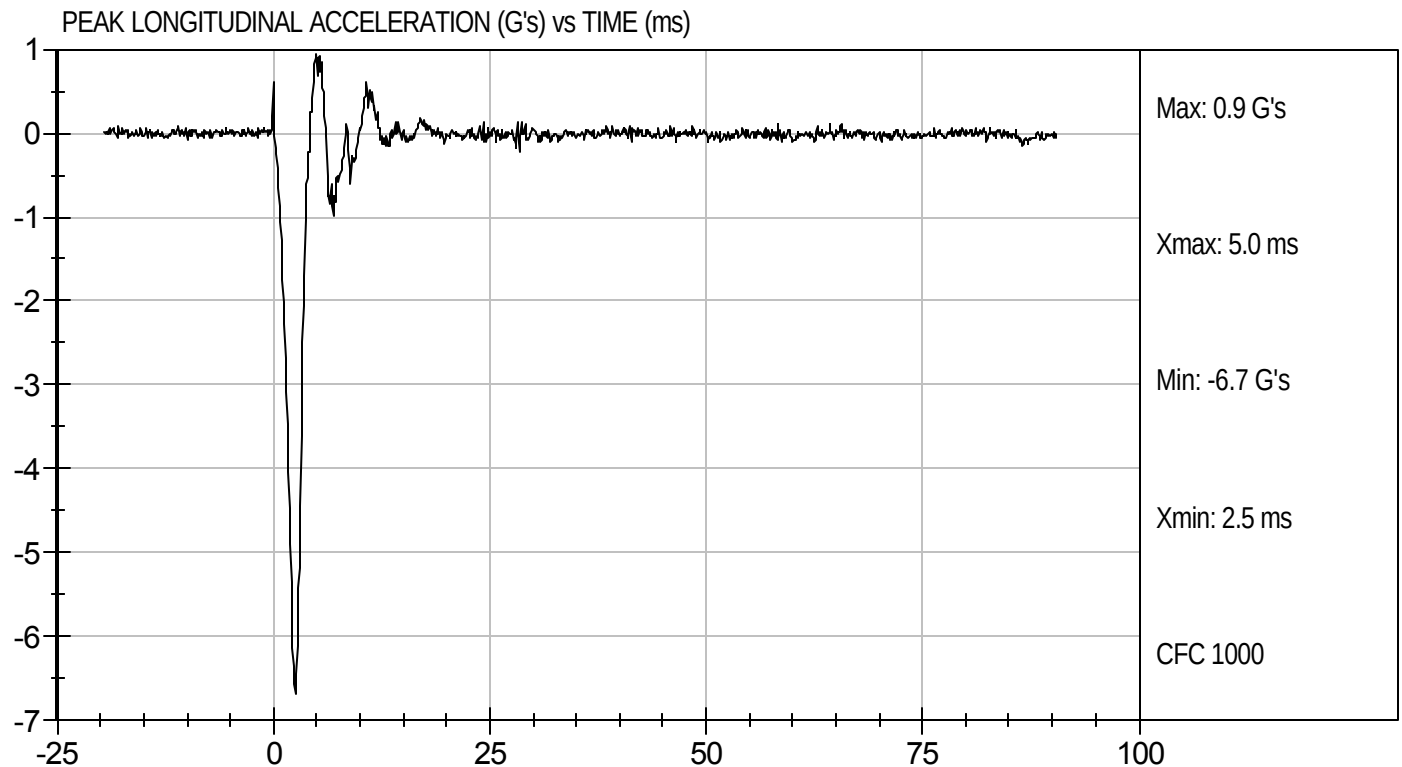
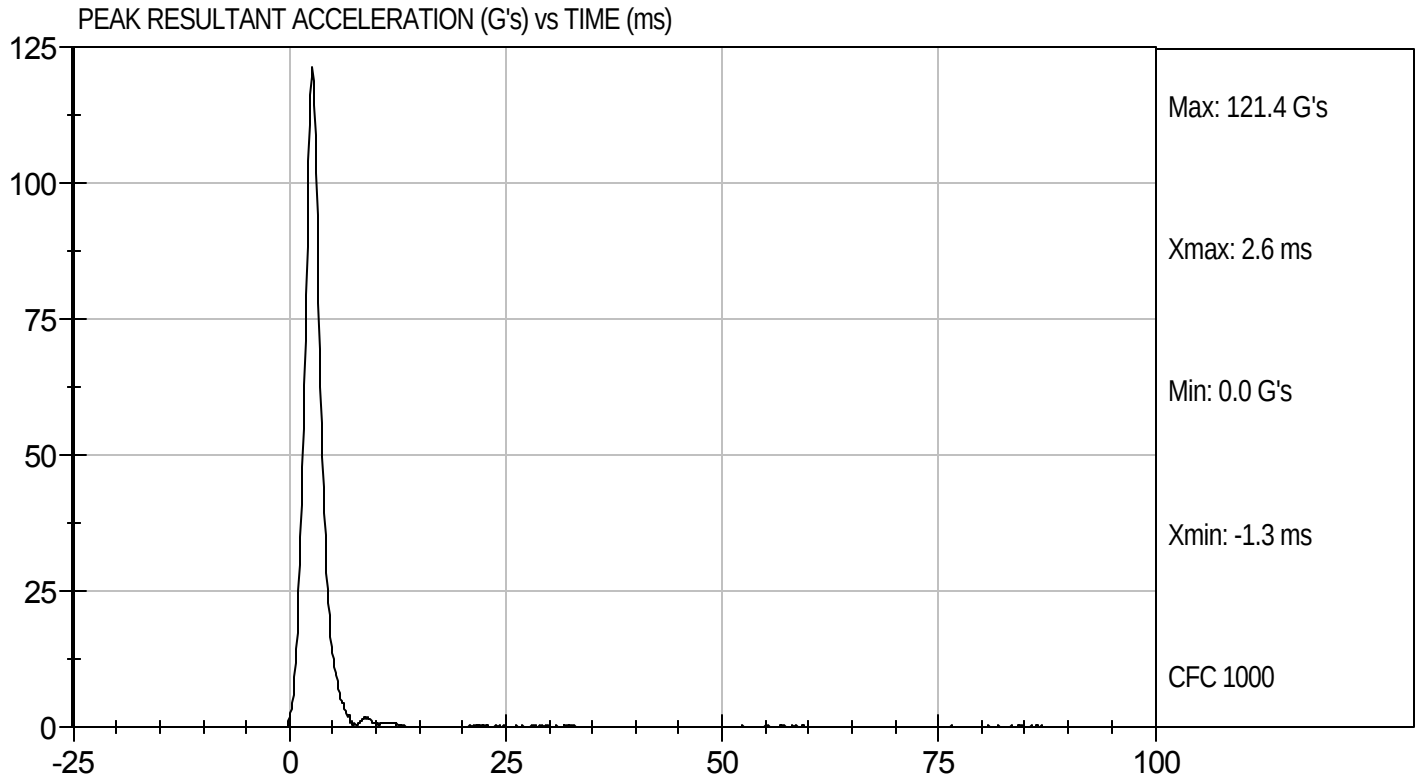
11/7/11
Test Date

David Winkelbauer
Approved By



Test Desc: Head Drop
Component ID: D113711

Test Date: 11/7/11
Velocity: 0 ft/s, 0 m/s



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

ATD Serial No: 296

Test I.D: D113712

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


 Laboratory Technician

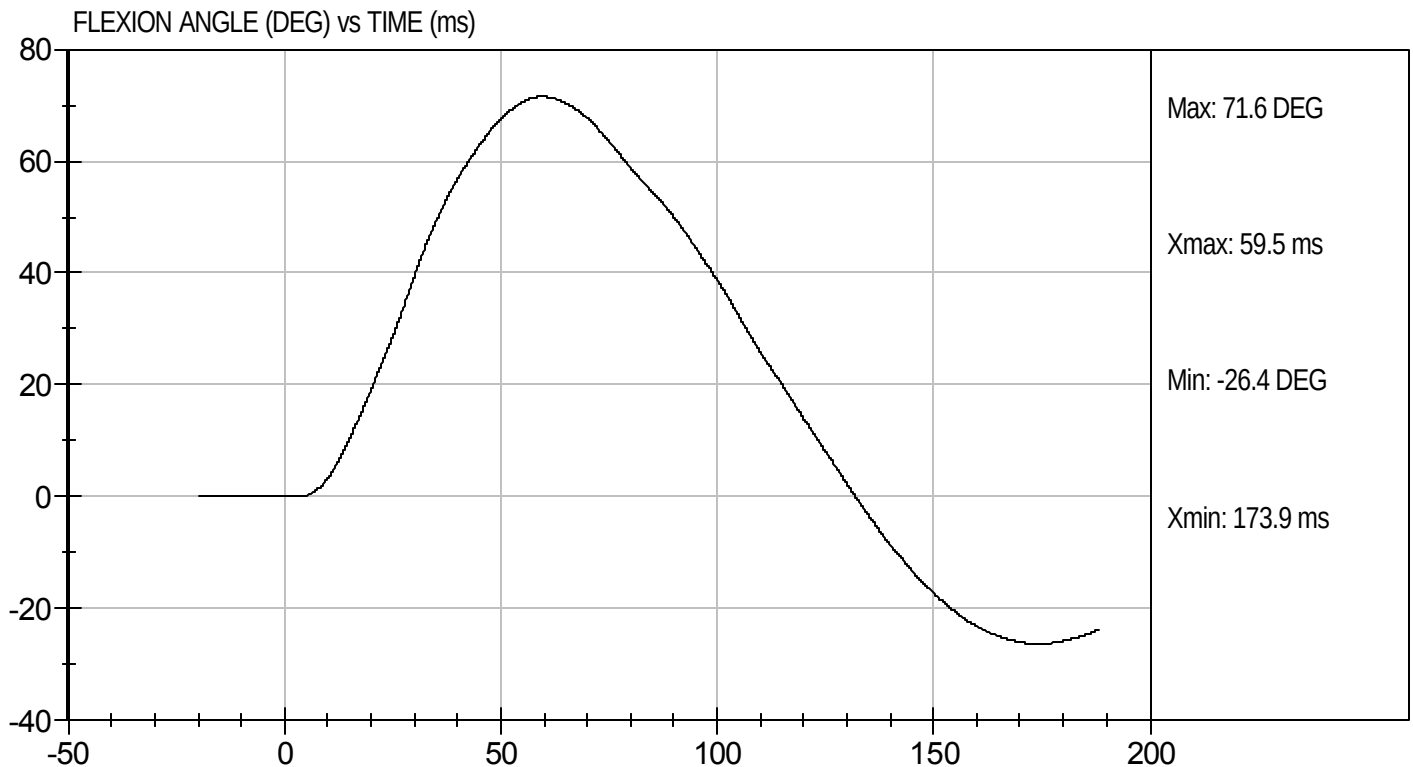
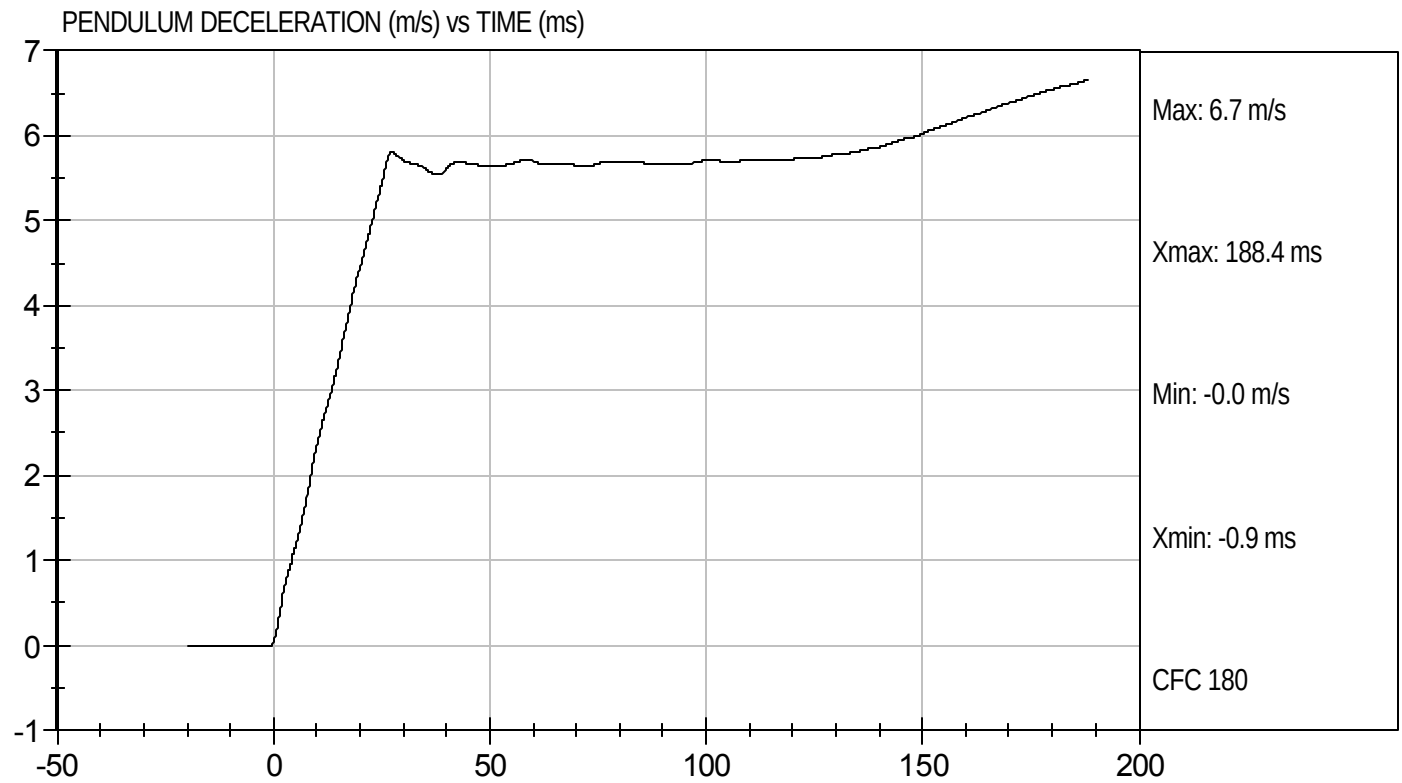
11/8/11
 Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D113712

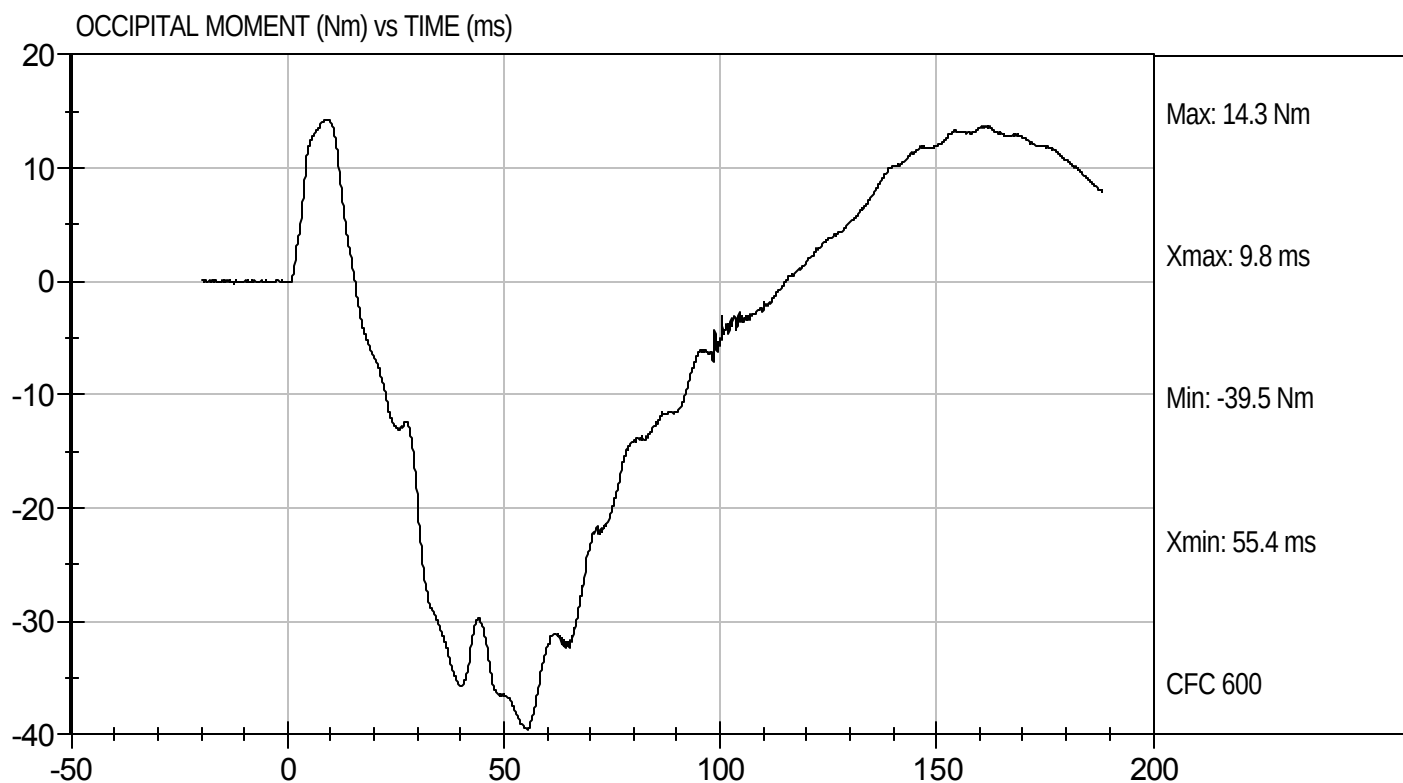
Test Date: 11/8/11
Velocity: 18.31 ft/s, 5.58 m/s





Test Desc: Neck Bending
Component ID: D113712

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



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

ATD Serial No: 296

Test ID: D113713

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

Jessica Hall
Laboratory Technician

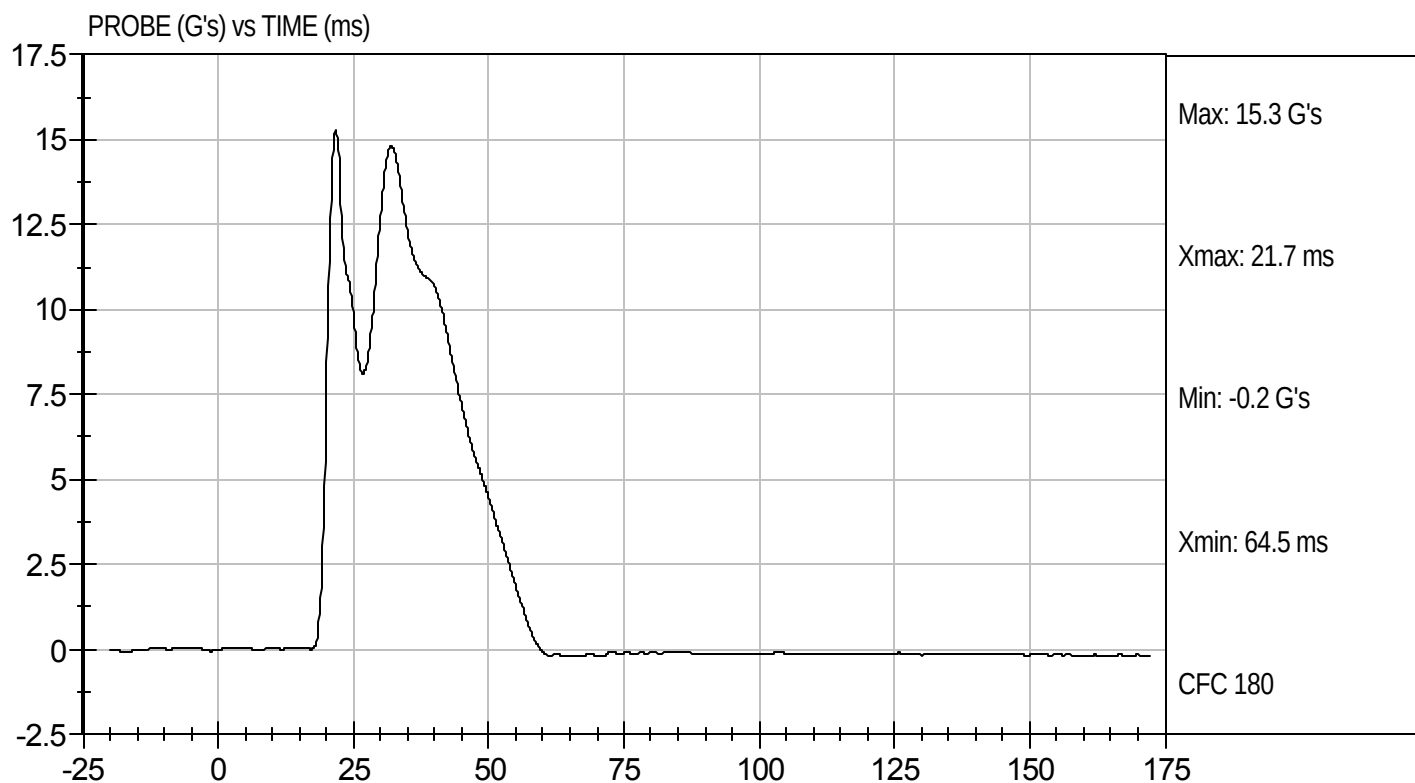
11/8/11
Test Date

David Winkelbauer
Approved By



Test Desc: Shoulder Impact
Component ID: D113713

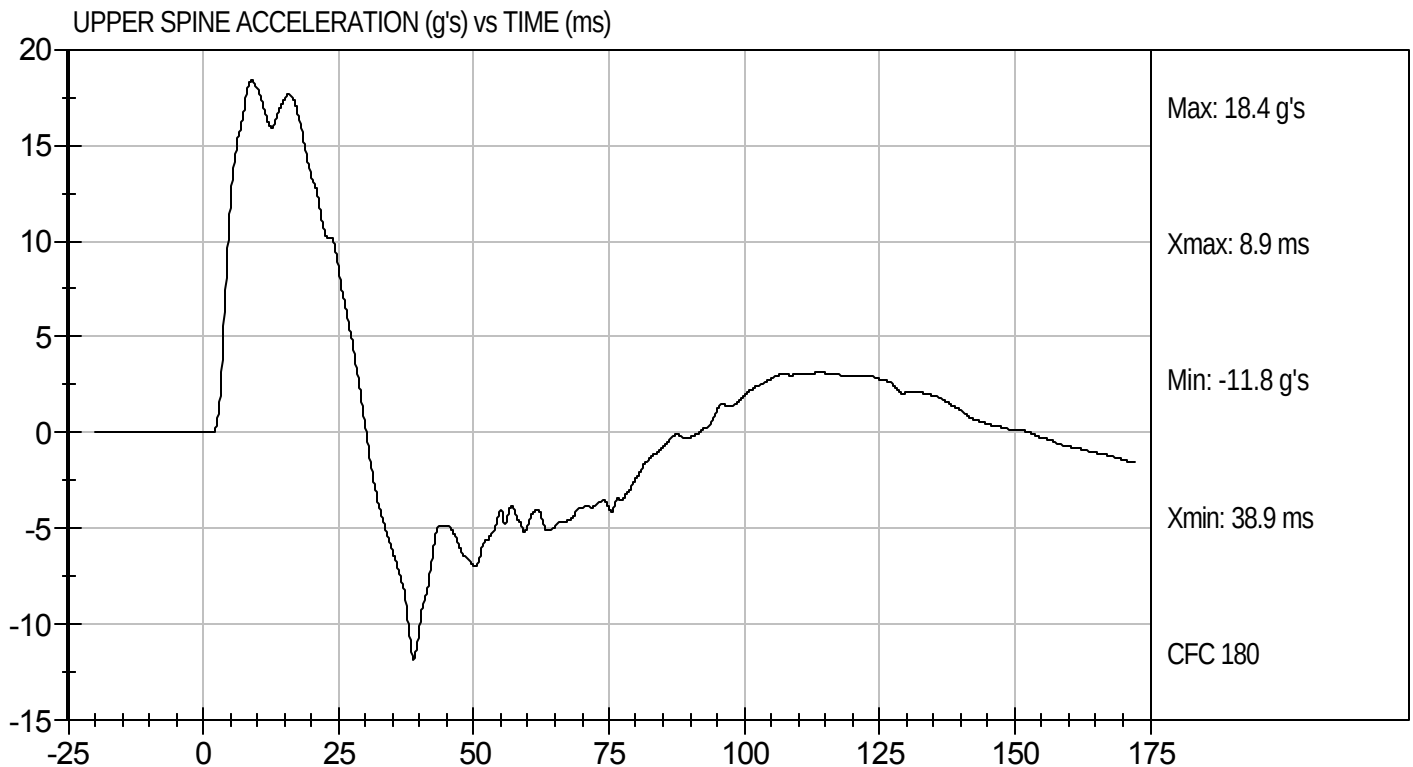
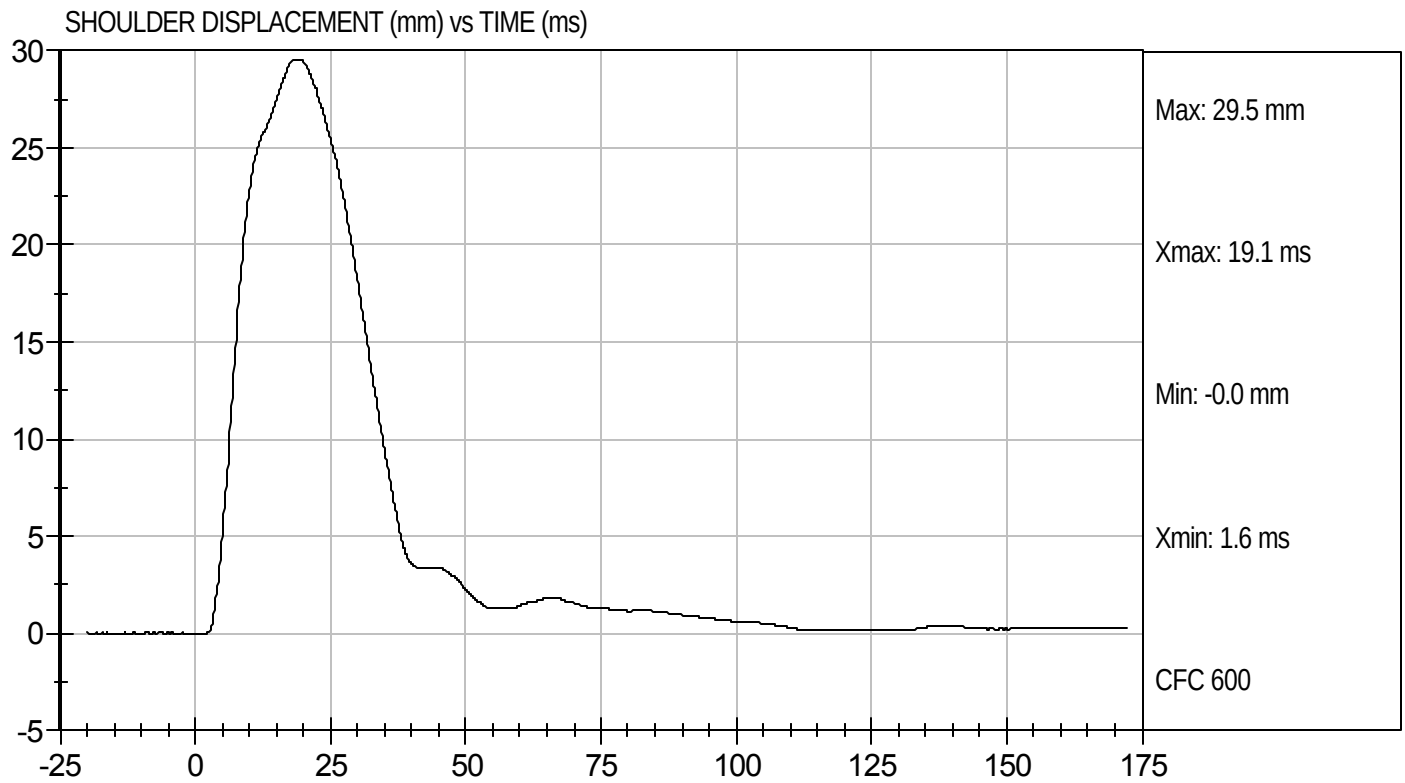
Test Date: 11/8/11
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Shoulder Impact
Component ID: D113713

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



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

ATD Serial No: 296

Test I.D: D113714

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.0	Pass
Humidity	%	10 to 70	36	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Peak Impactor Acceleration	G's	30 to 36	32	Pass
Shoulder Displacement	mm	31 to 40	36	Pass
Upper Rib Displacement	mm	25 to 32	27	Pass
Middle Rib Displacement	mm	30 to 36	31	Pass
Lower Rib Displacement	mm	32 to 38	33	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	38	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	33	Pass
Overall Test Results			Pass	


Laboratory Technician

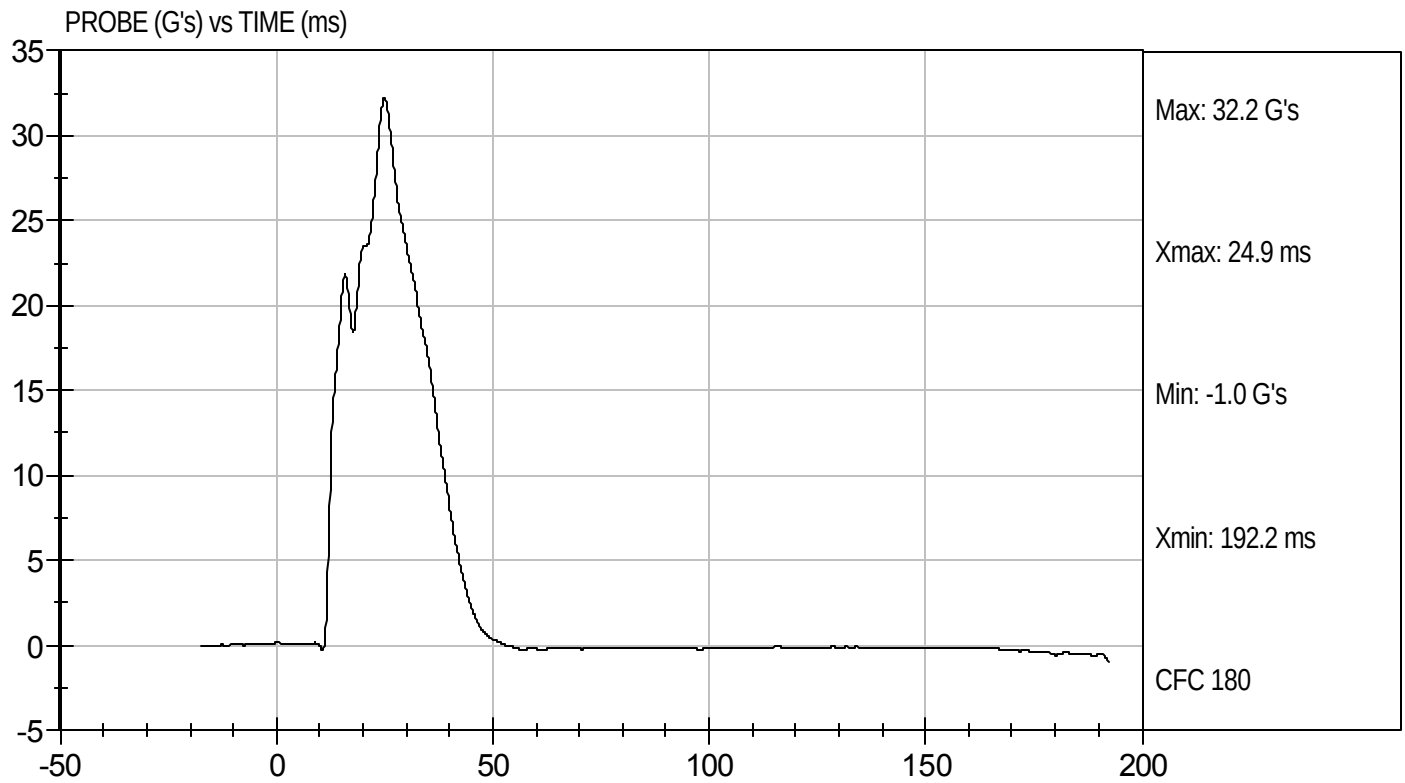
11/8/11
Test Date


Approved By



Test Desc: Thorax With Arm
Component ID: D113714

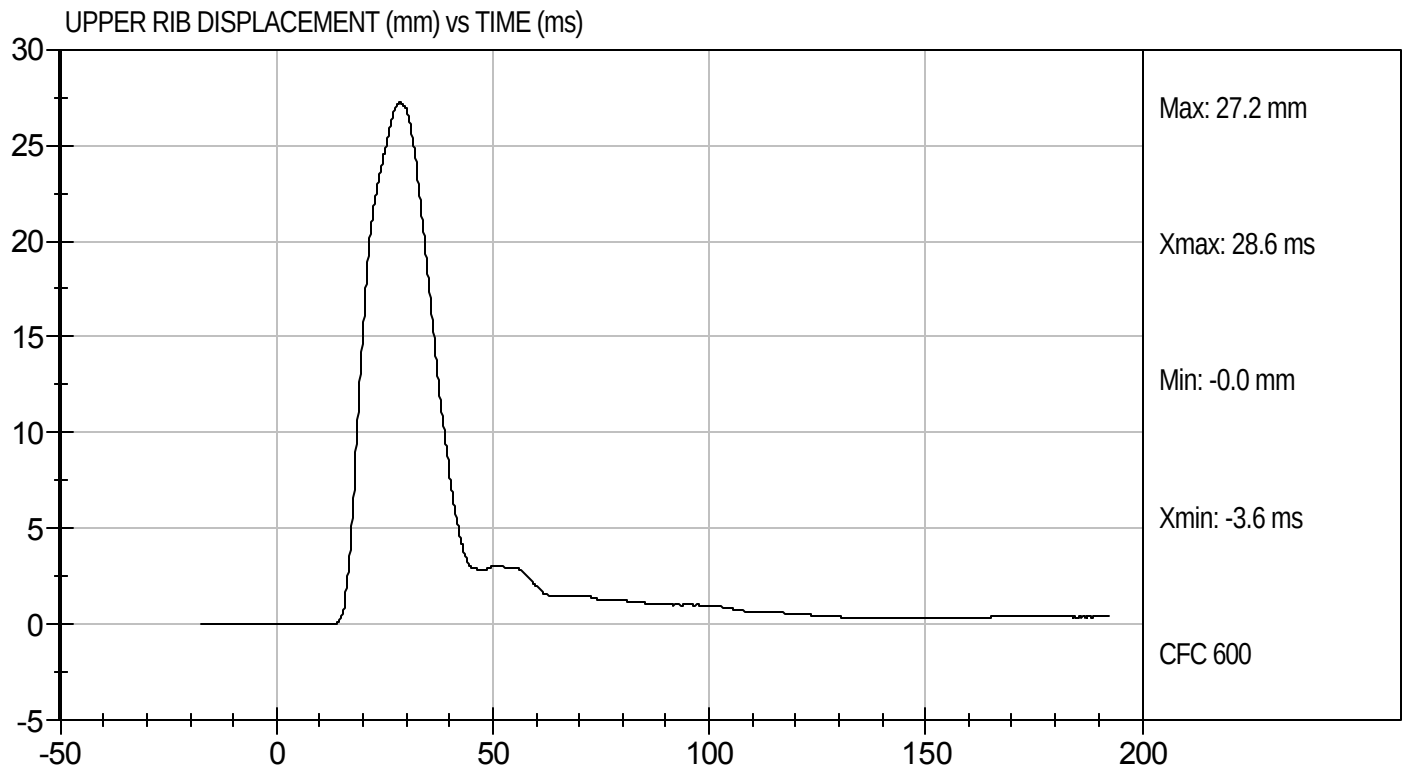
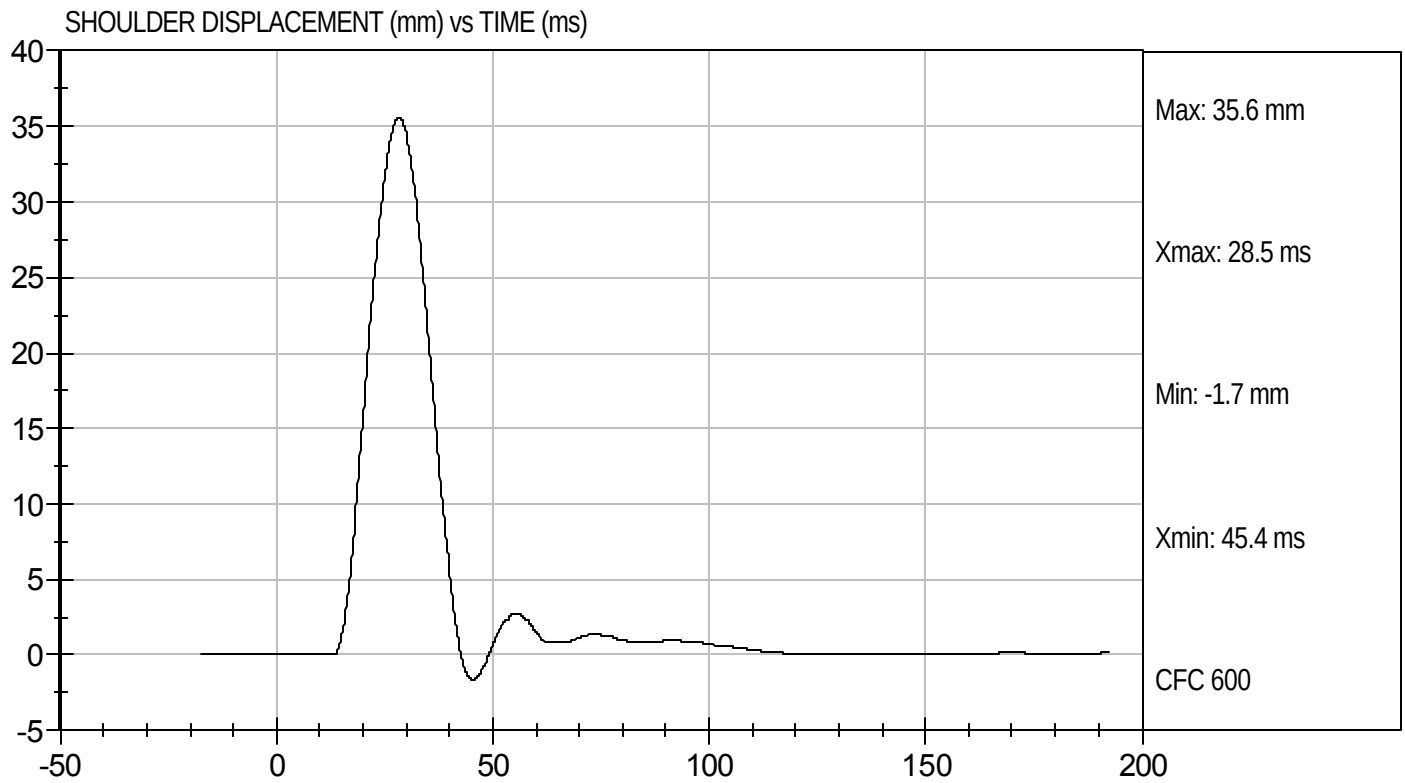
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Test Desc: Thorax With Arm
Component ID: D113714

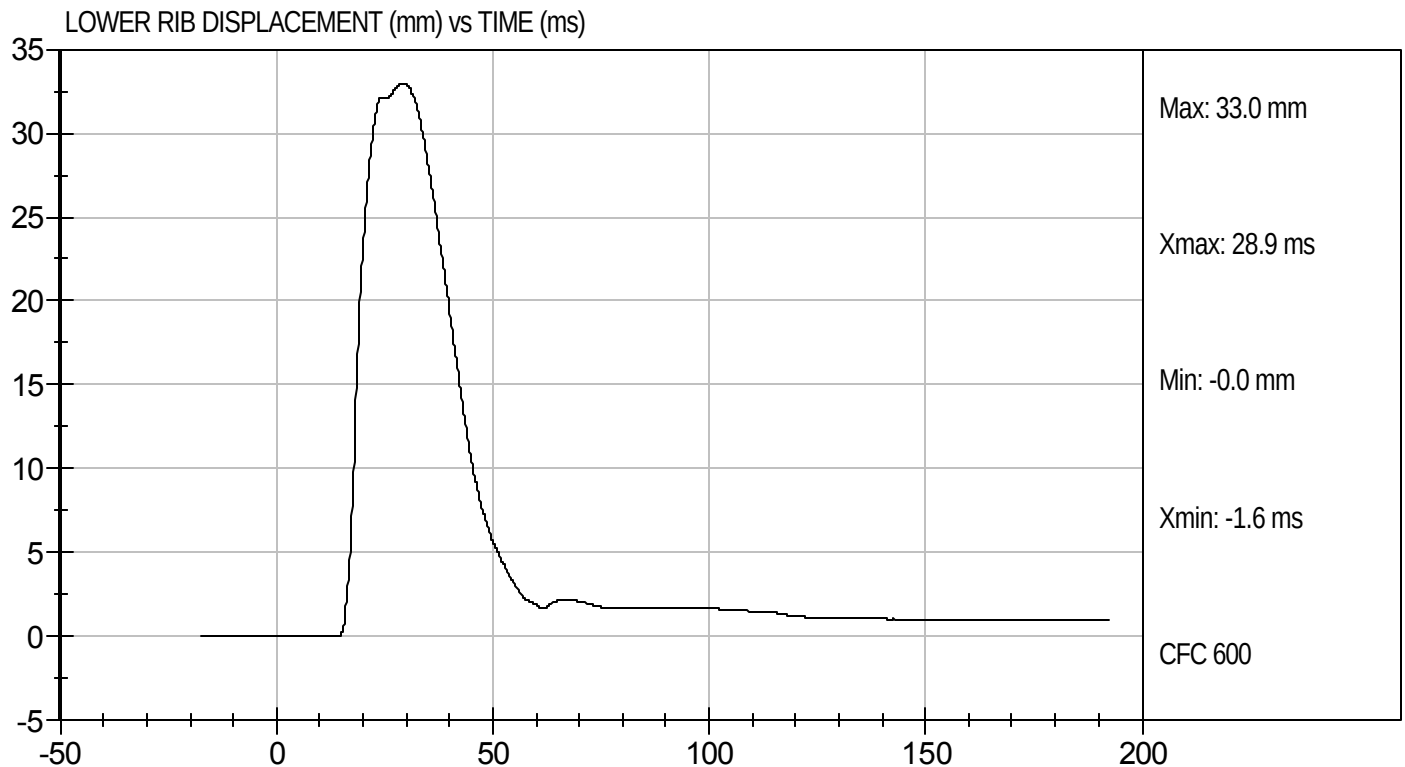
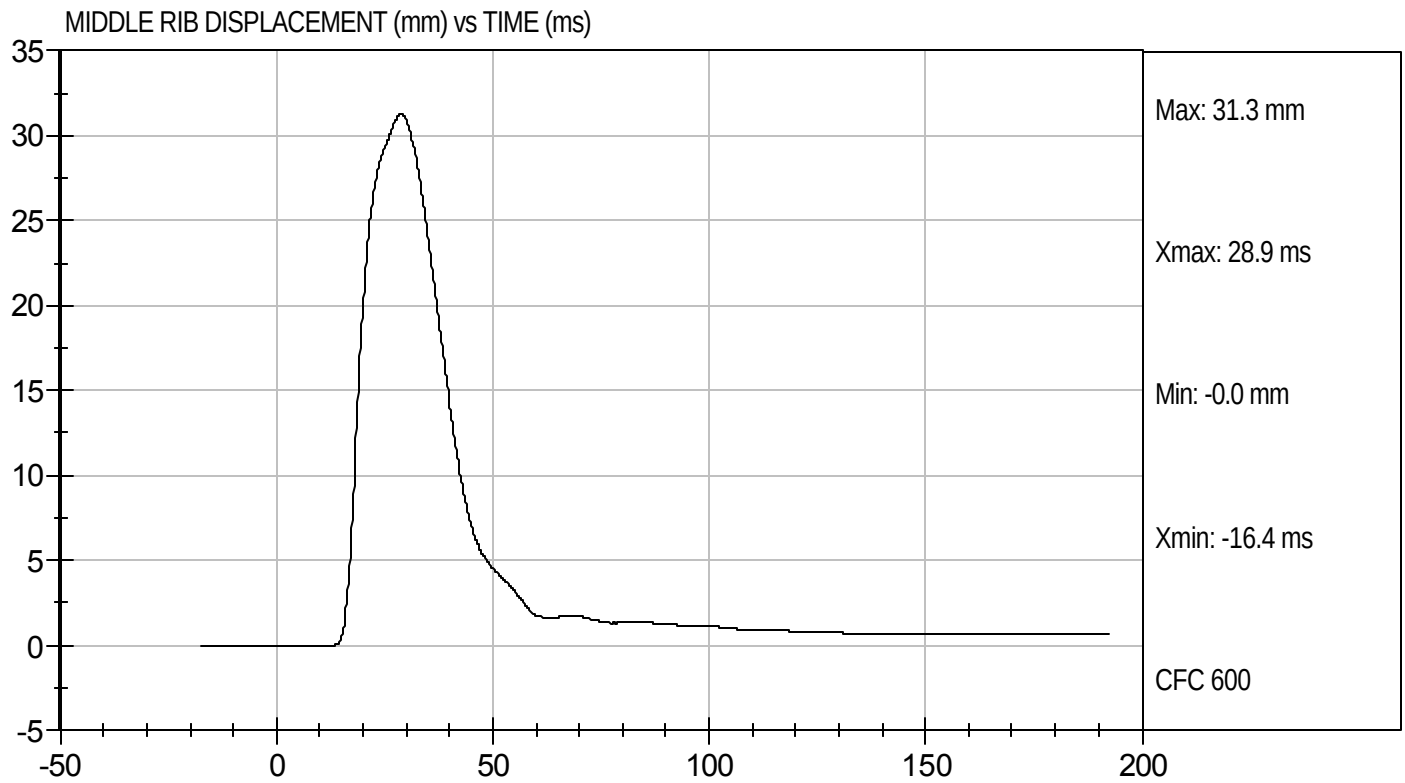
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Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D113714

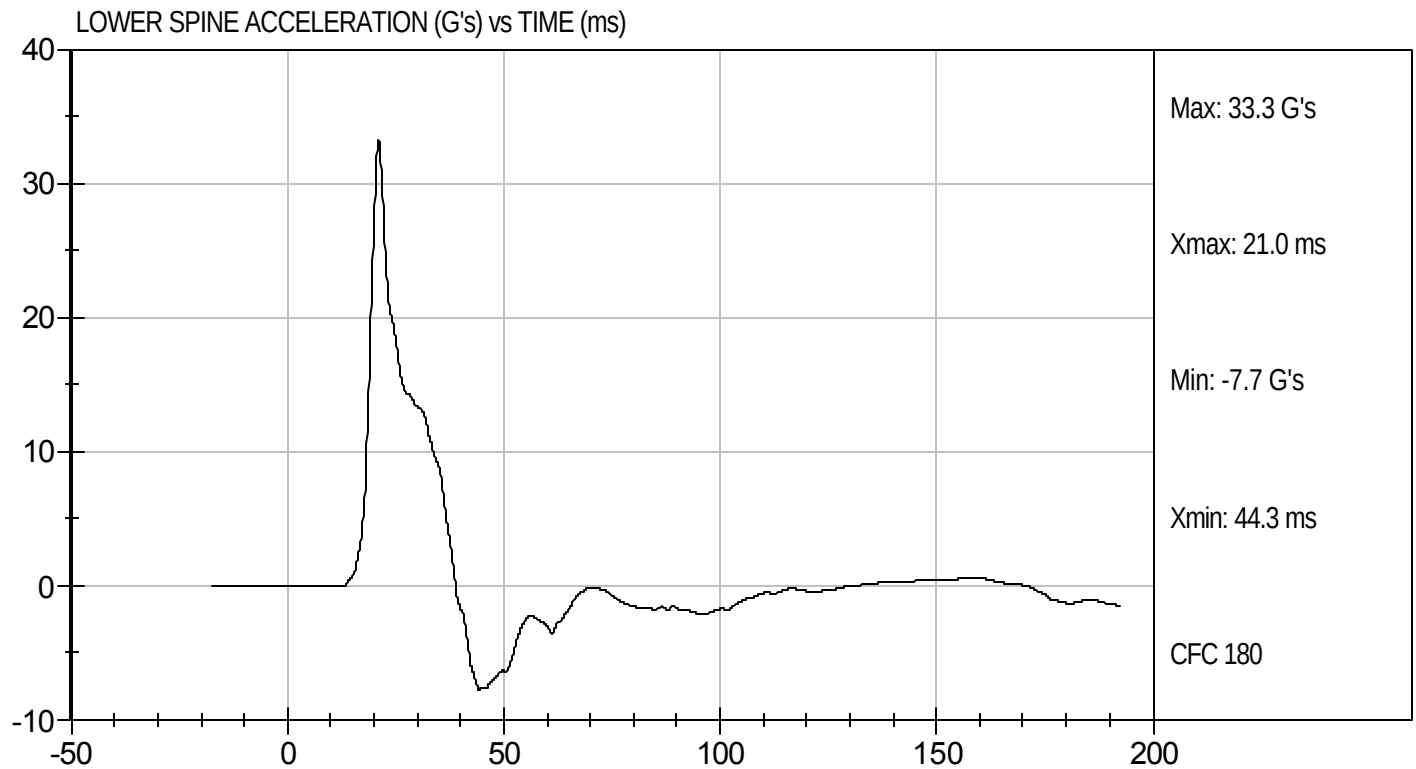
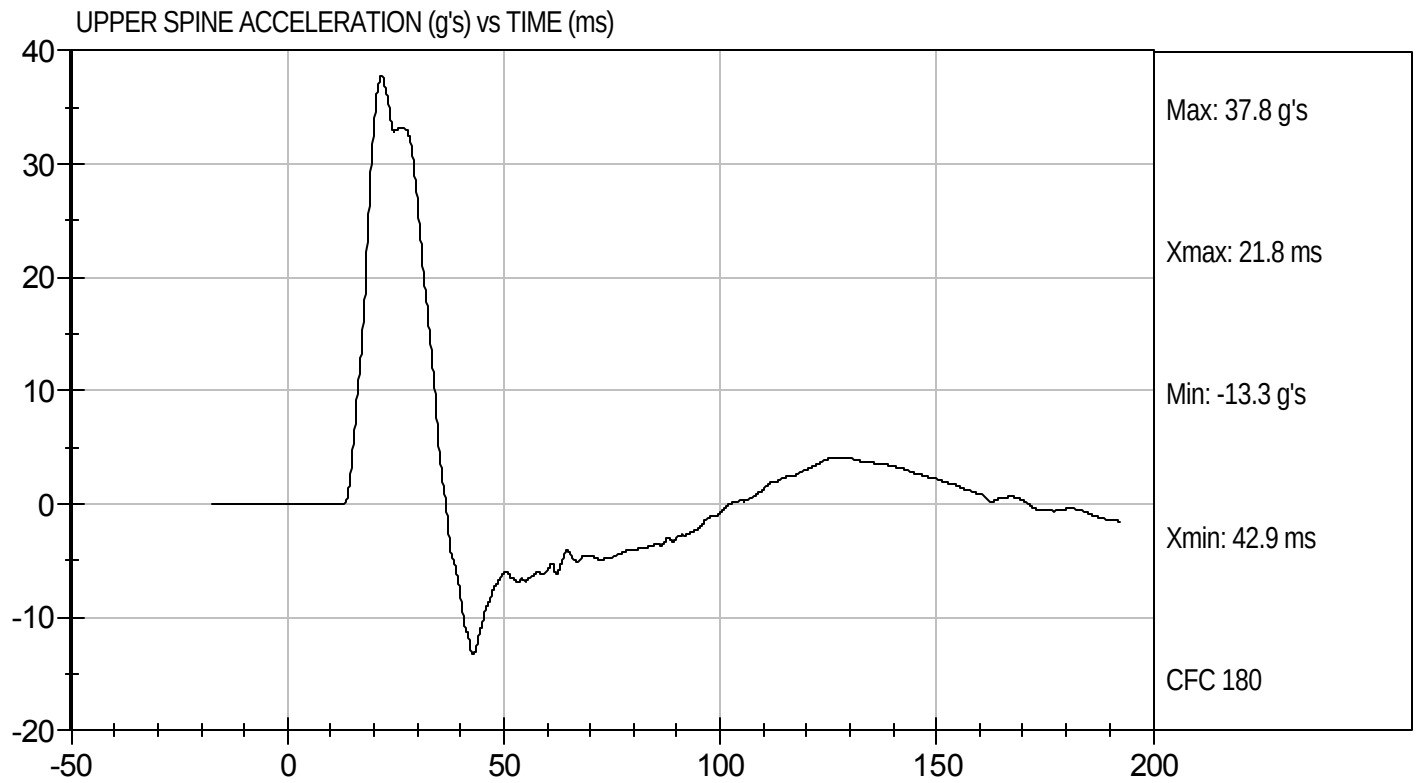
Test Date: 11/8/11
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D113714

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



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

ATD Serial No: 296

Test I.D: D113715

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.0	Pass
Humidity	%	10 to 70	35	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Peak Impactor Force	G's	14 to 18	15	Pass
Upper Rib Displacement	mm	32 to 40	36	Pass
Middle Rib Displacement	mm	39 to 45	41	Pass
Lower Rib Displacement	mm	35 to 43	37	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	14	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	8	Pass
Overall Test Results				Pass


 Laboratory Technician

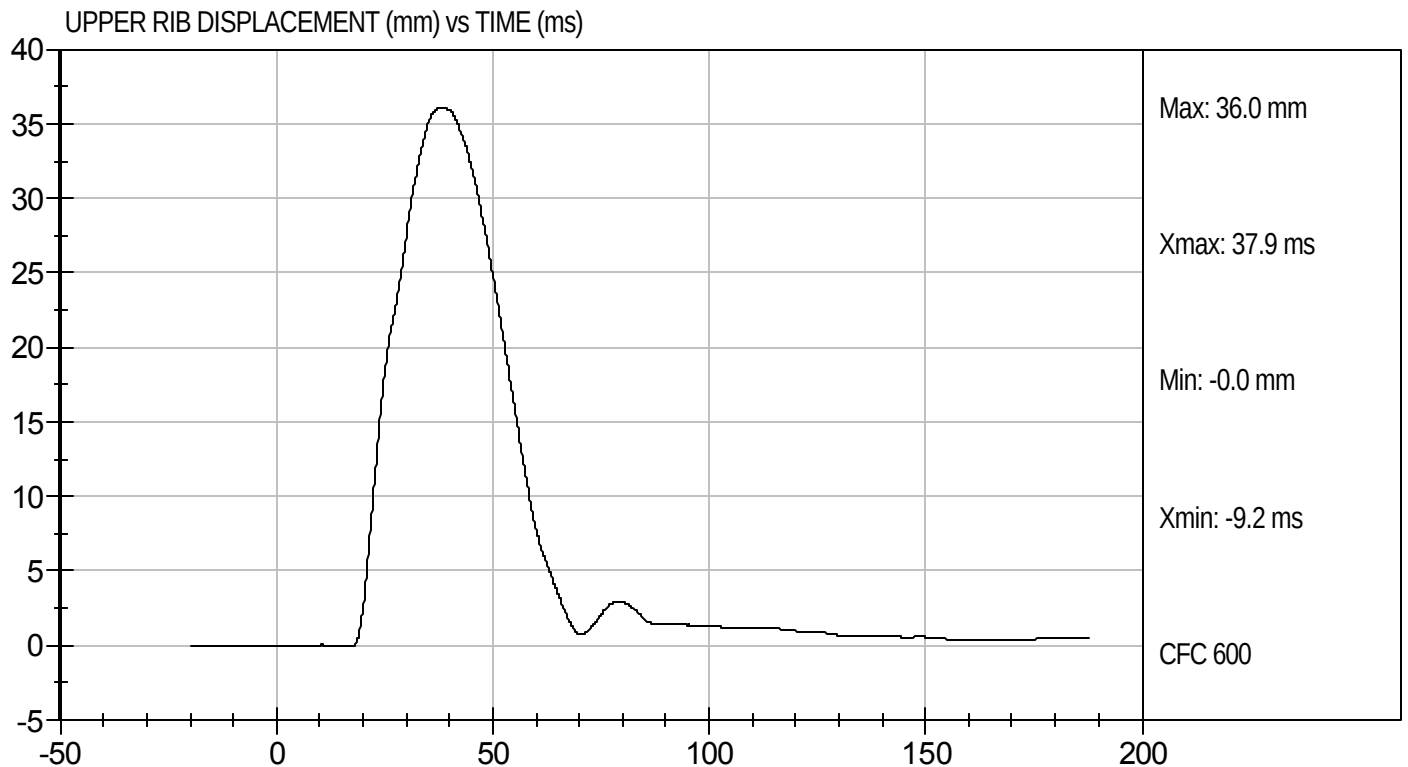
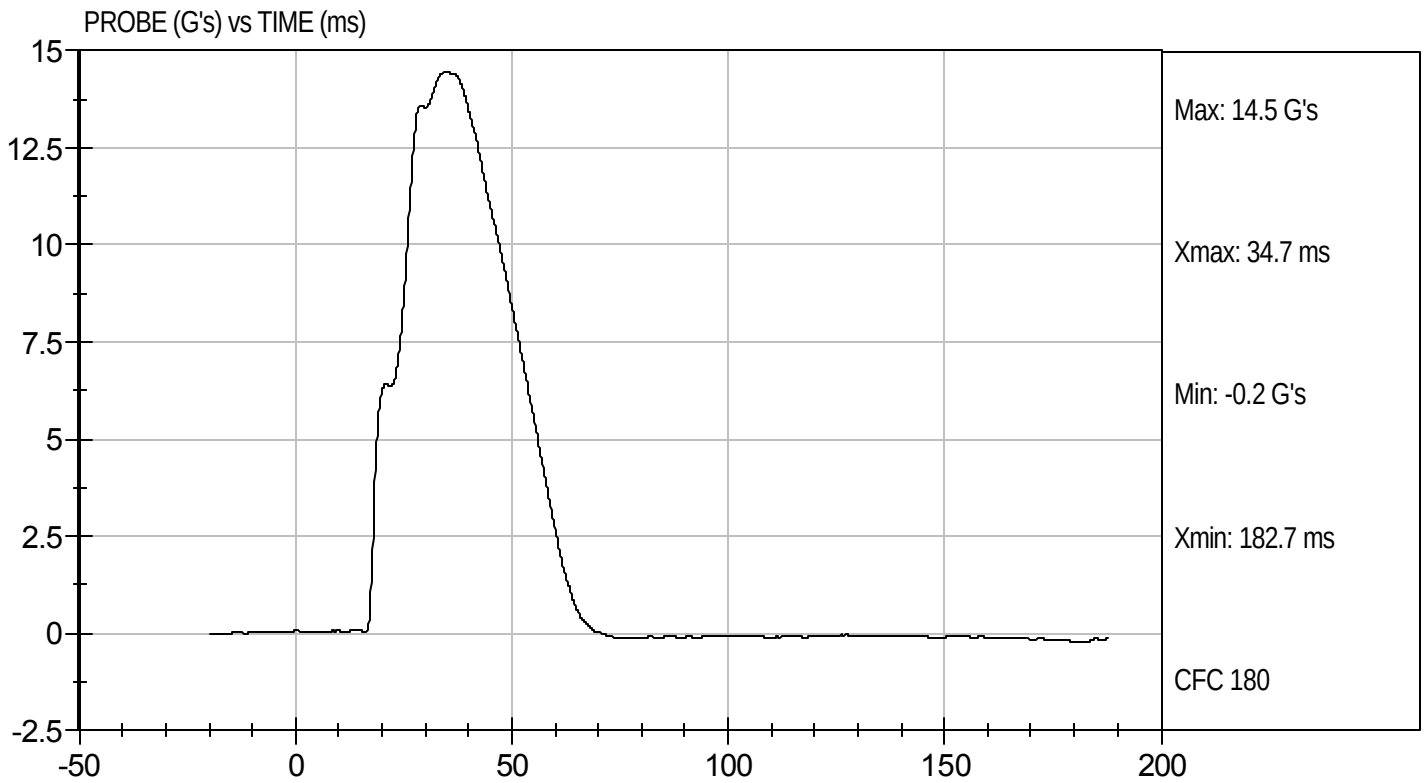
11/8/11
 Test Date


 Approved By



Test Desc: Thorax Without Arm
Component ID: D113715

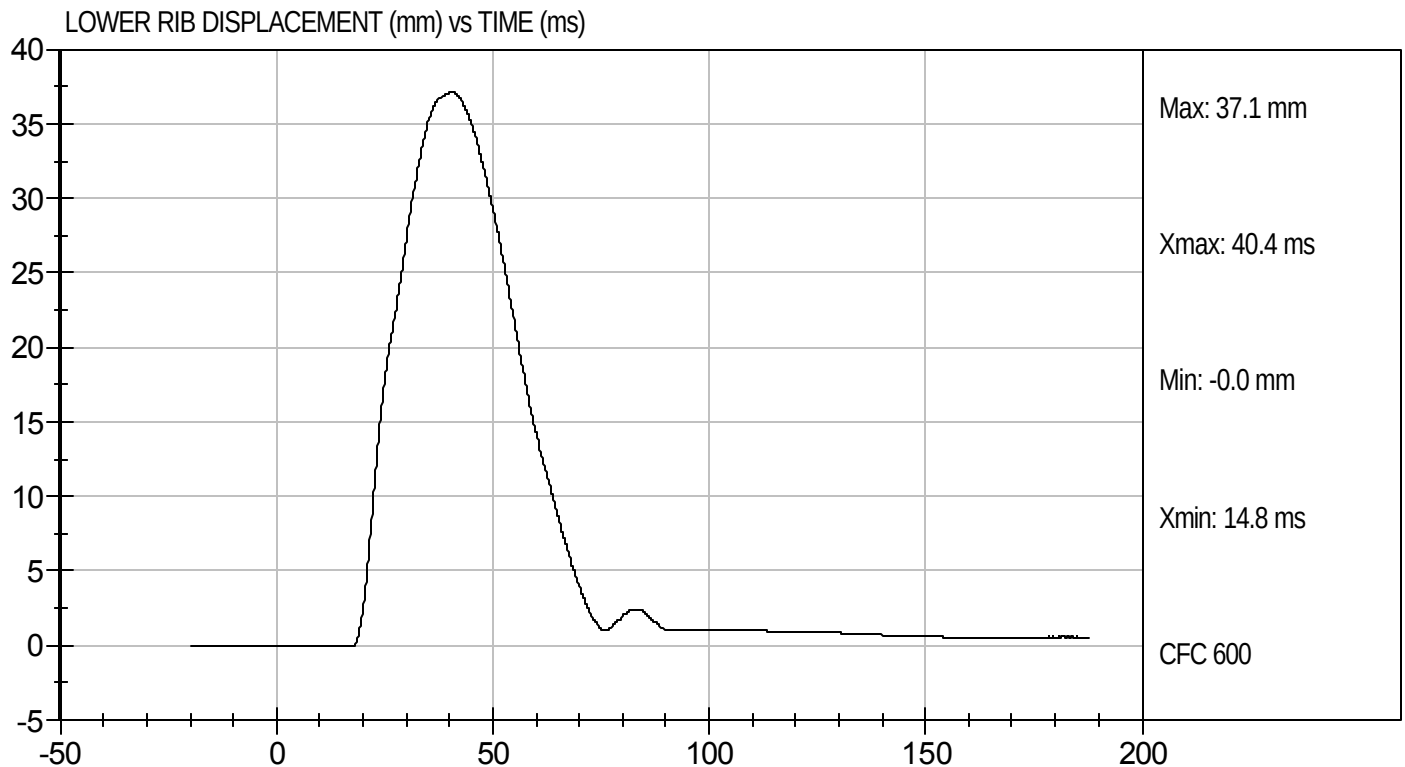
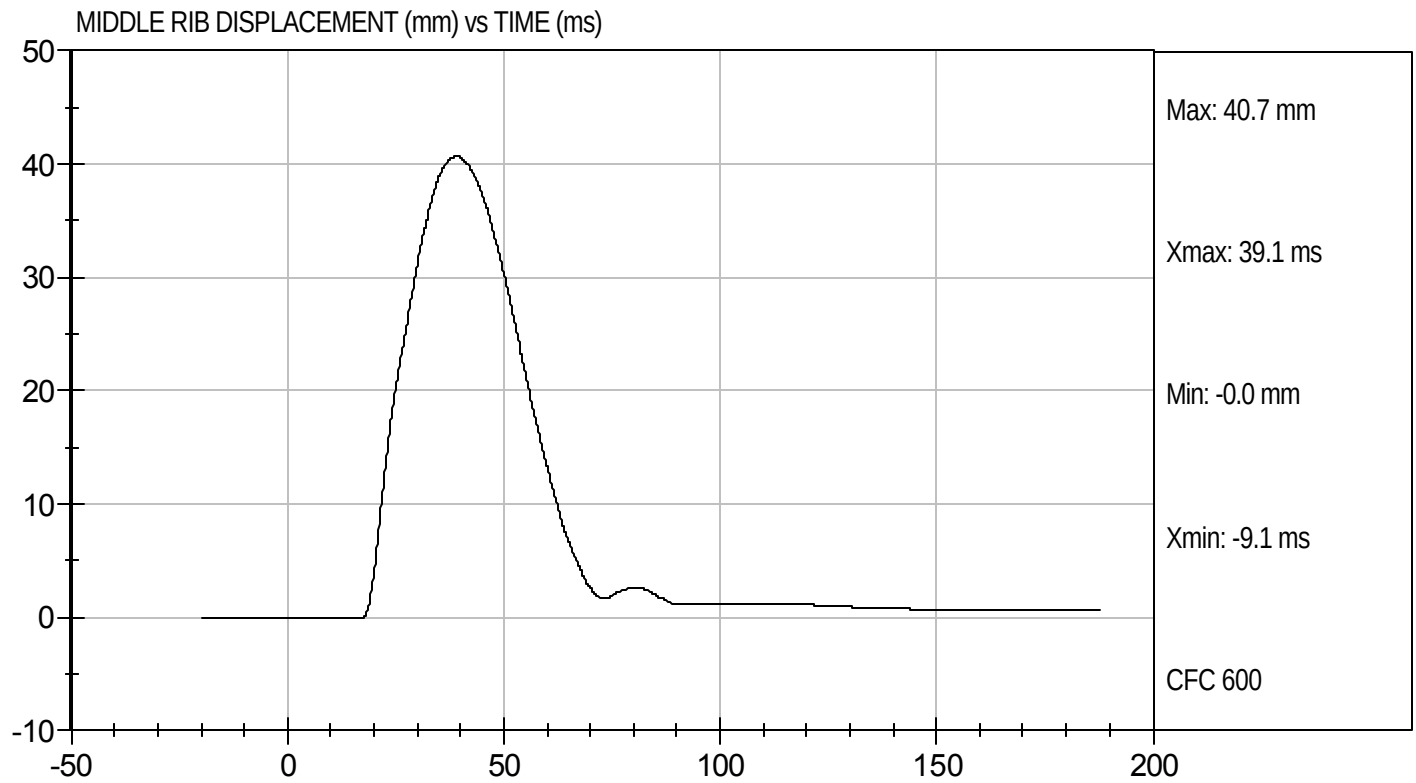
Test Date: 11/8/11
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Test Desc: Thorax Without Arm
Component ID: D113715

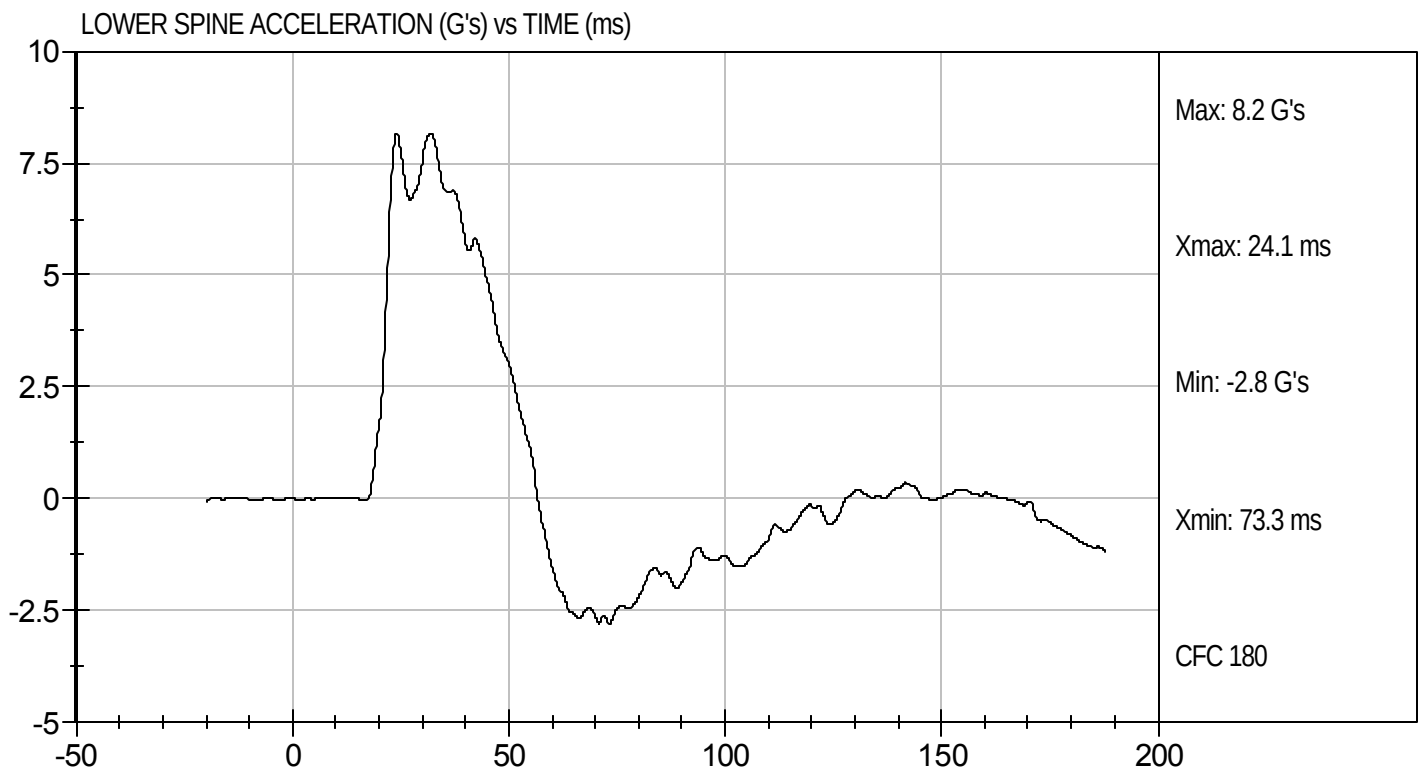
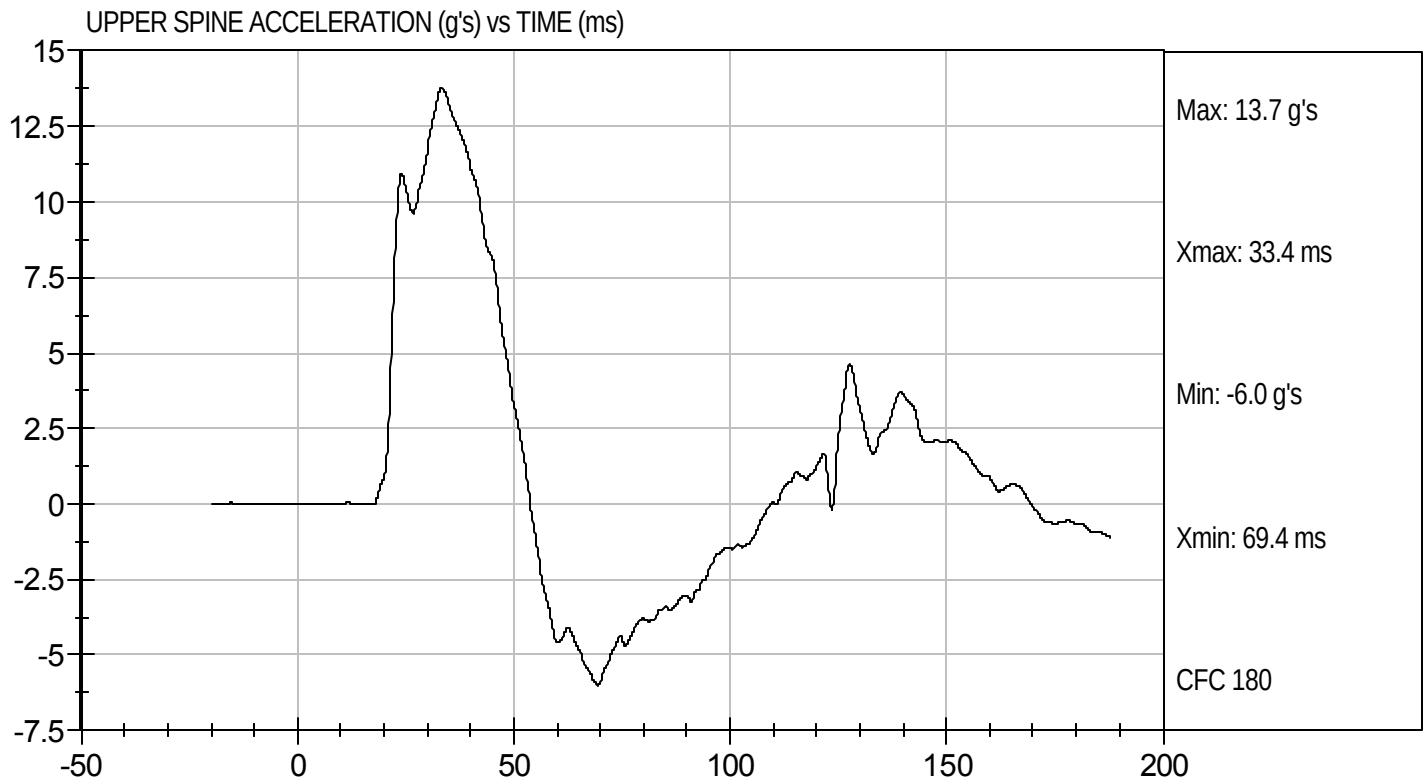
Test Date: 11/8/11
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Thorax Without Arm
Component ID: D113715

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



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

ATD Serial No: 296

Test I.D: D113716

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


Laboratory Technician

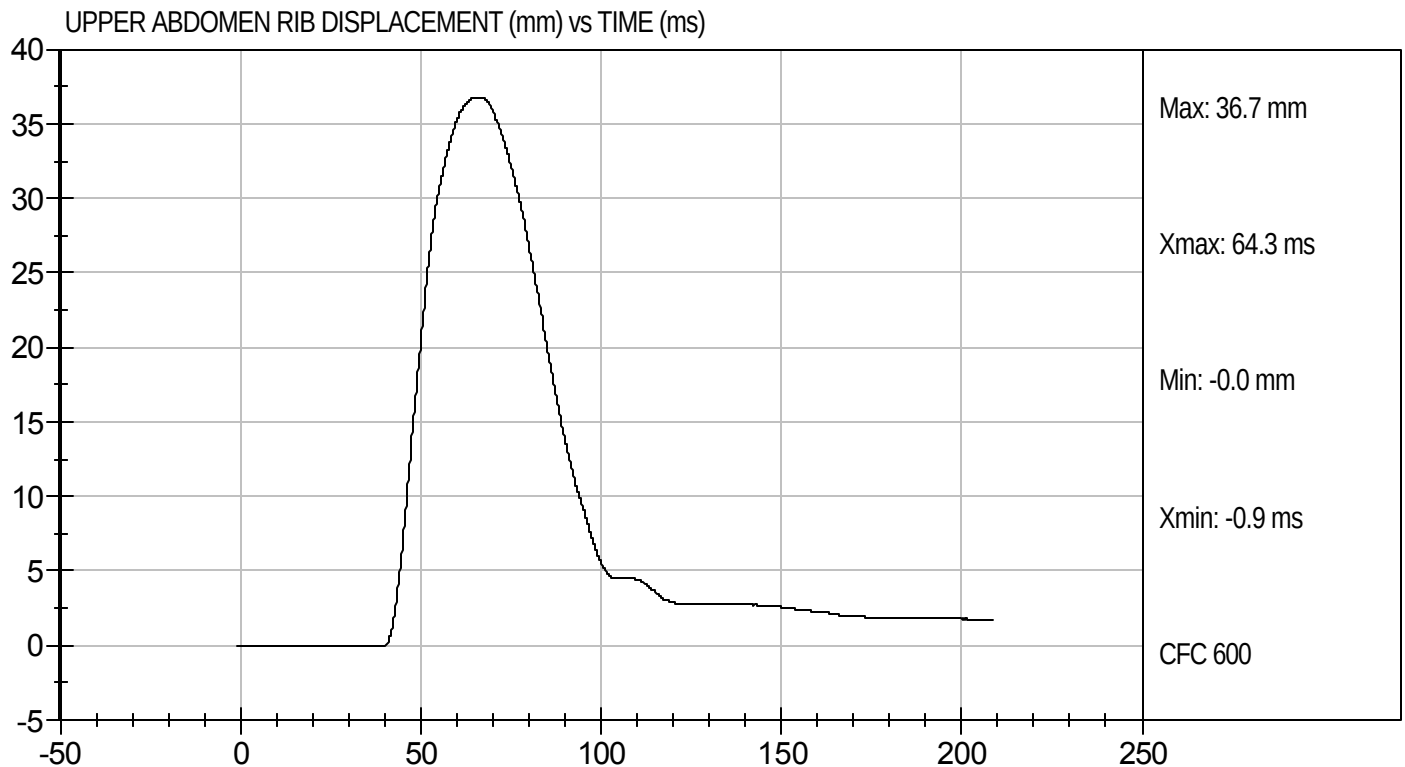
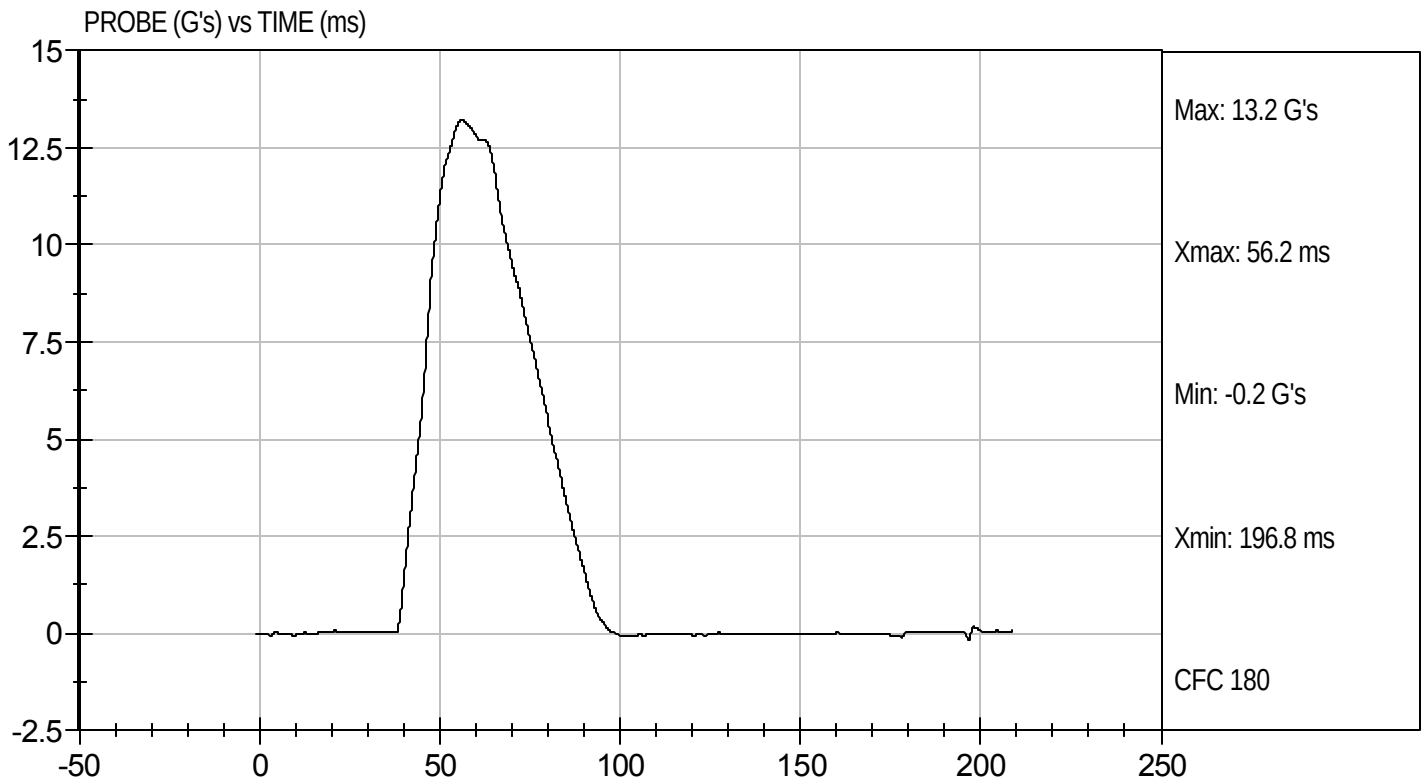
11/8/11
Test Date


Approved By



Test Desc: Abdomen Impact
Component ID: D113716

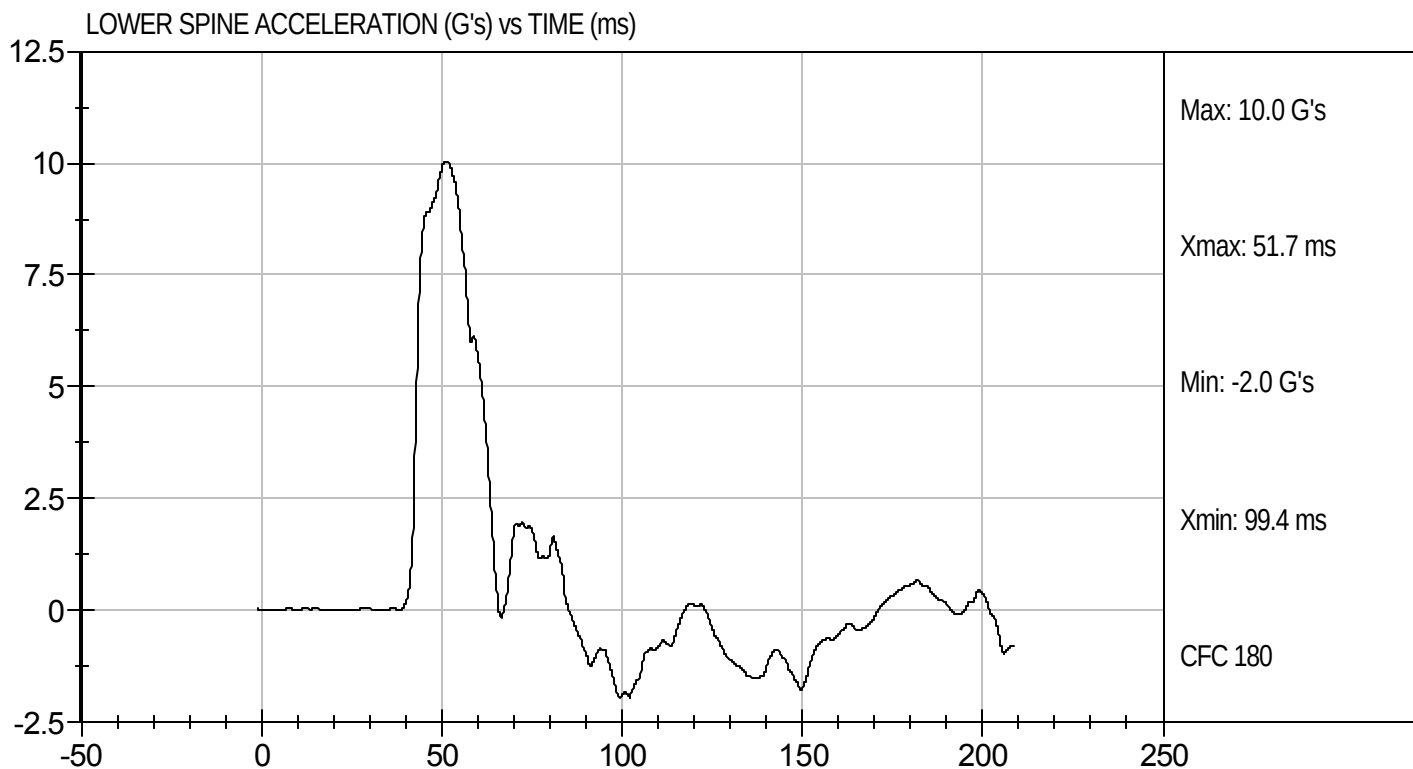
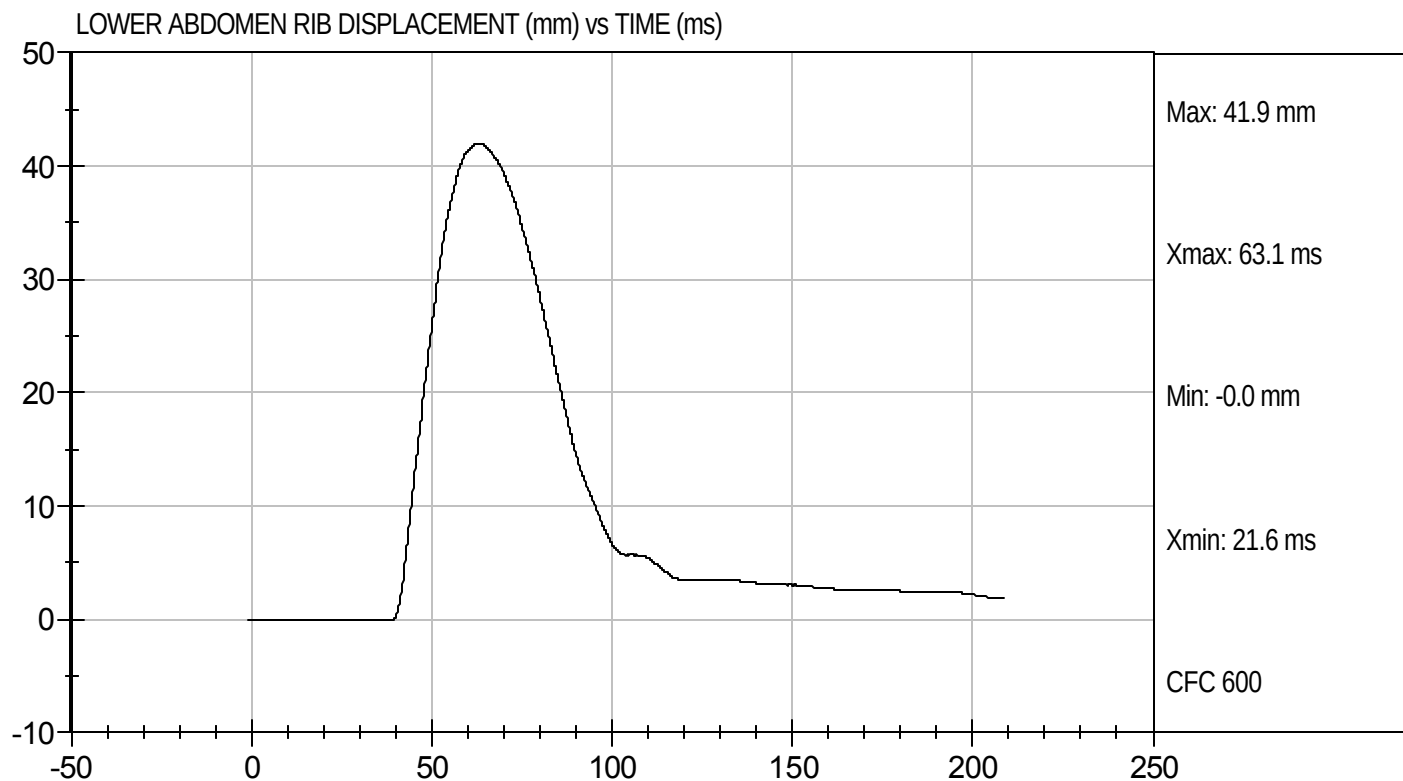
Test Date: 11/8/11
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Abdomen Impact
Component ID: D113716

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

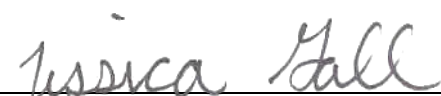


MGA RESEARCH CORPORATION
PELVIS IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D113717

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


Laboratory Technician

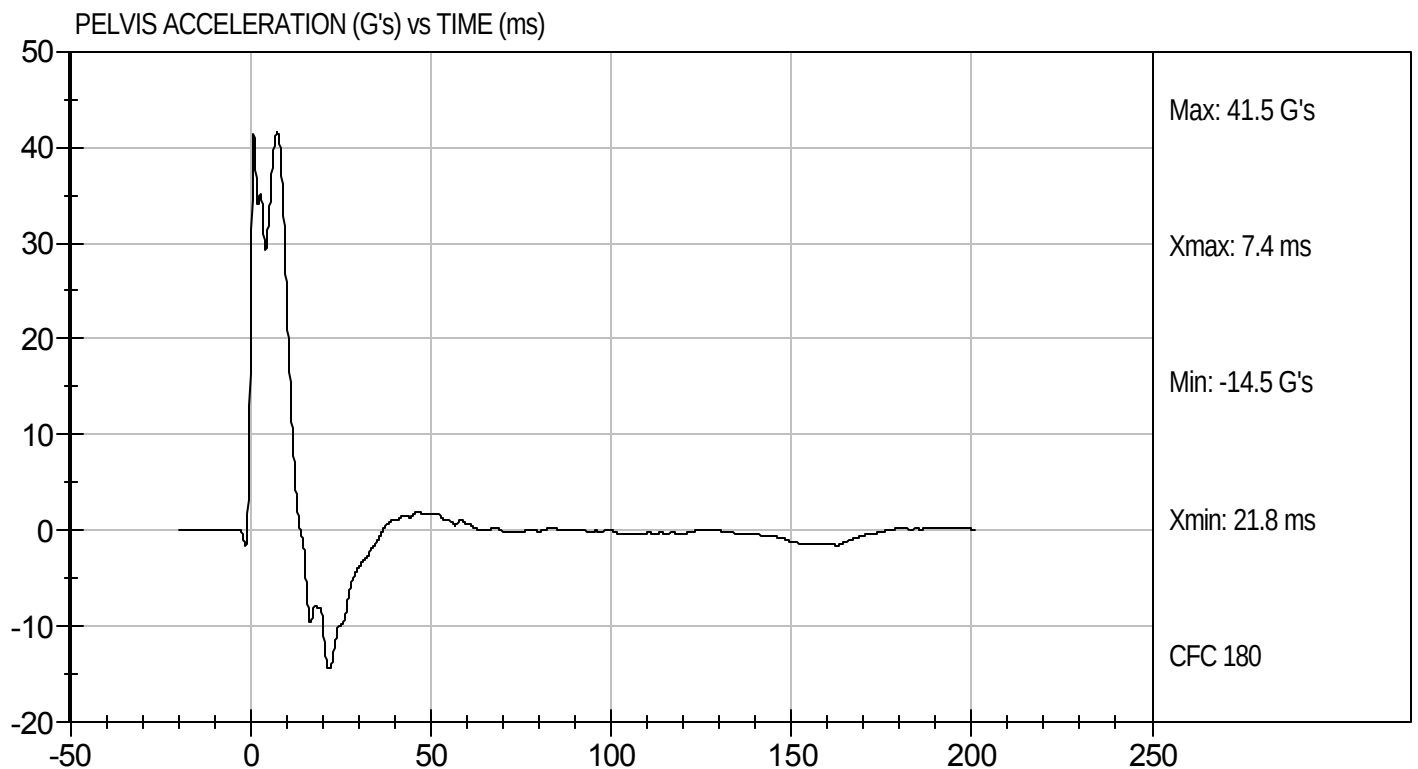
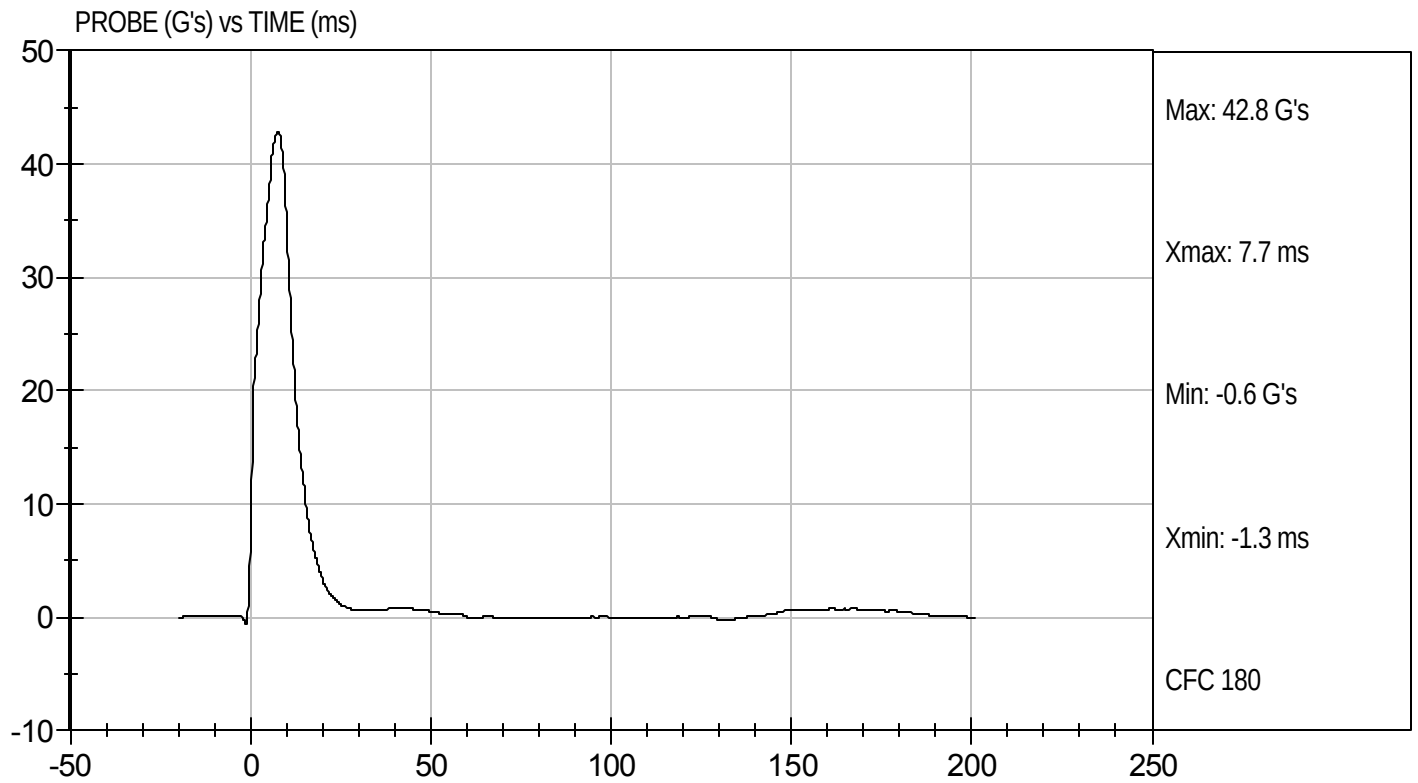
11/8/11
Test Date


Approved By



Test Desc: Pelvis Impact
Component ID: D113717

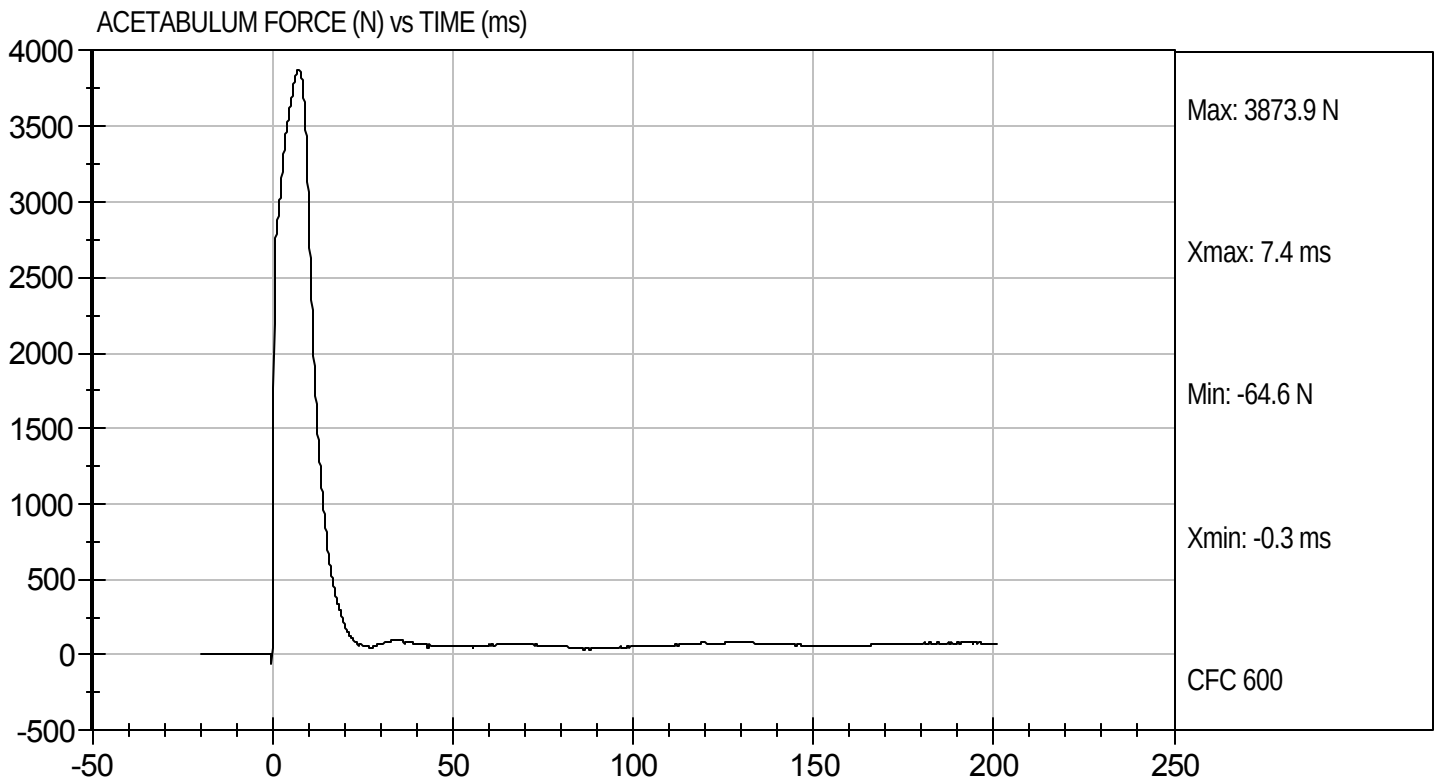
Test Date: 11/8/11
Velocity: 21.99 ft/s, 6.70 m/s





Test Desc: Pelvis Impact
Component ID: D113717

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



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

ATD Serial No: 296

Test I.D: D113718

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


Laboratory Technician

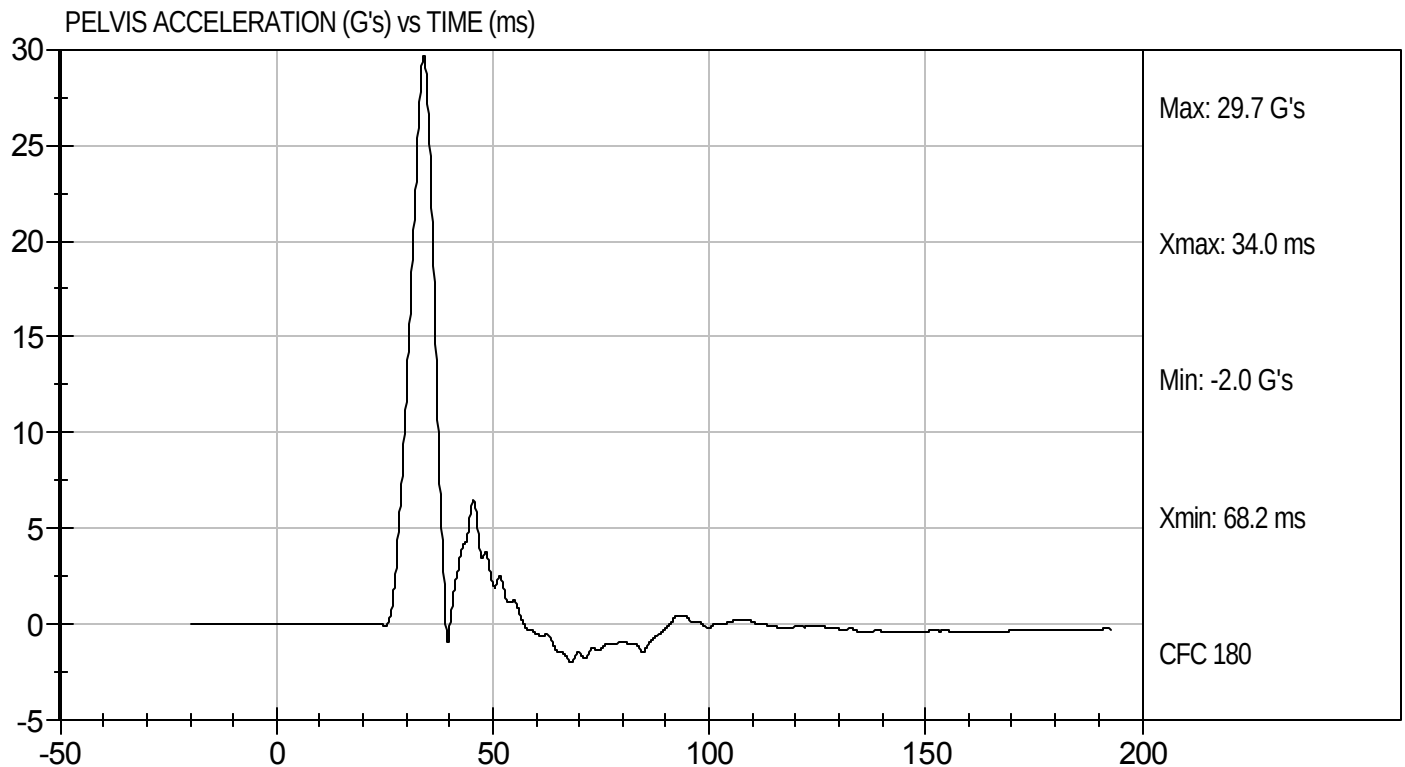
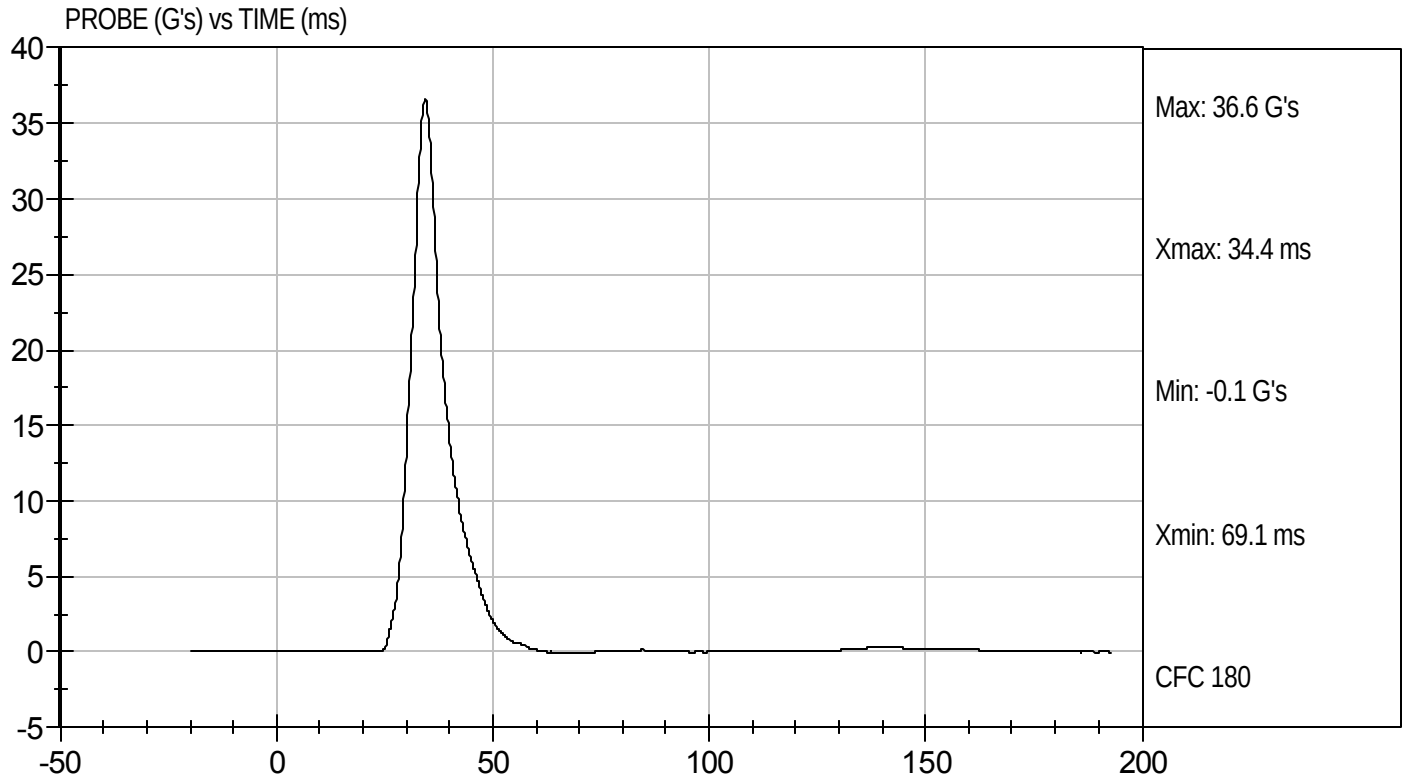
11/8/11
Test Date


Approved By



Test Desc: Iliac Impact
Component ID: D113718

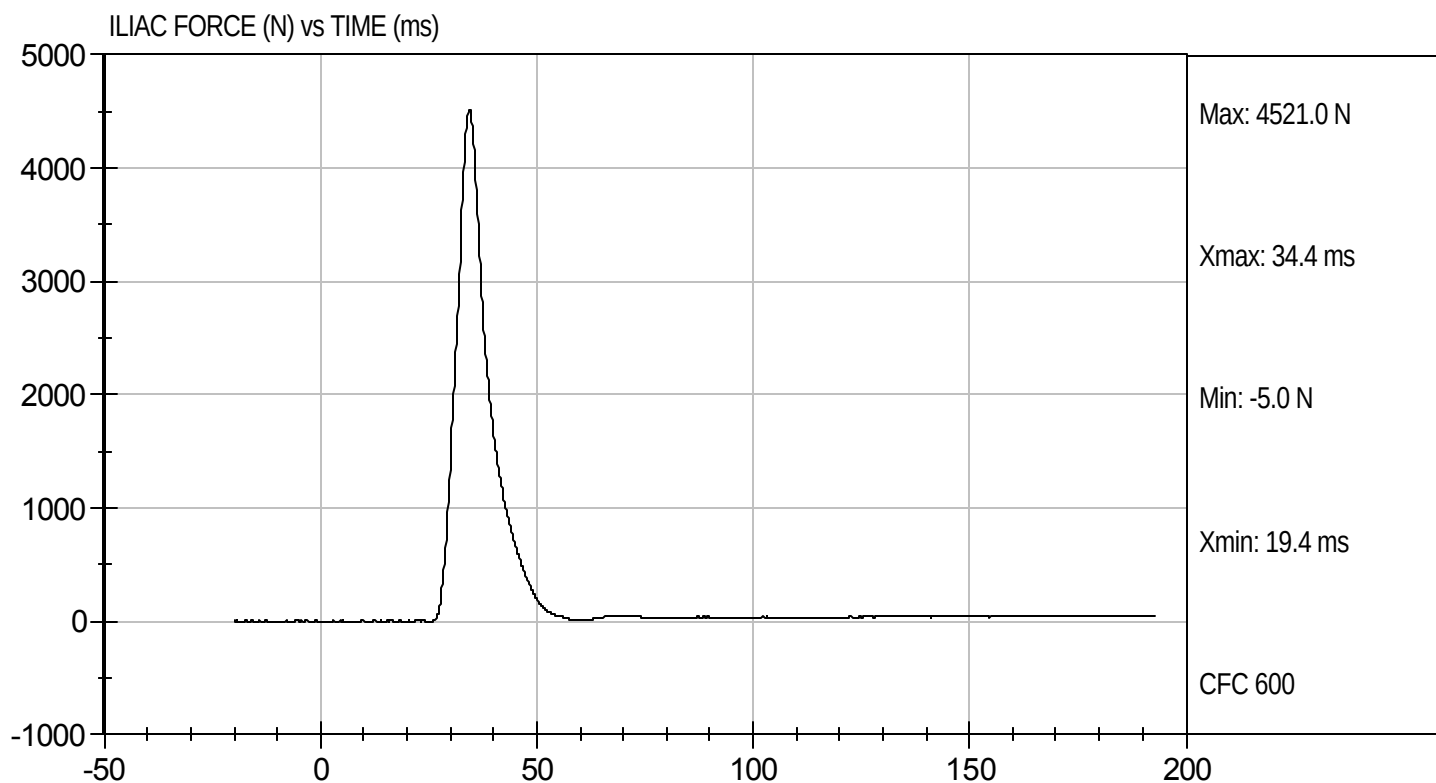
Test Date: 11/8/11
Velocity: 14.36 ft/s, 4.38 m/s





Test Desc: Iliac Impact
Component ID: D113718

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



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

ATD Serial No: 296

Test ID: D113851

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	18	Pass
Peak Resultant Acceleration	G's	115 to 137	122	Pass
Peak Lateral Acceleration	G's	+/- 15	-5.1	Pass
Unimodal	N/A	<15%	Yes	Pass
Overall Test Results				Pass



Laboratory Technician

11/16/11
Test Date

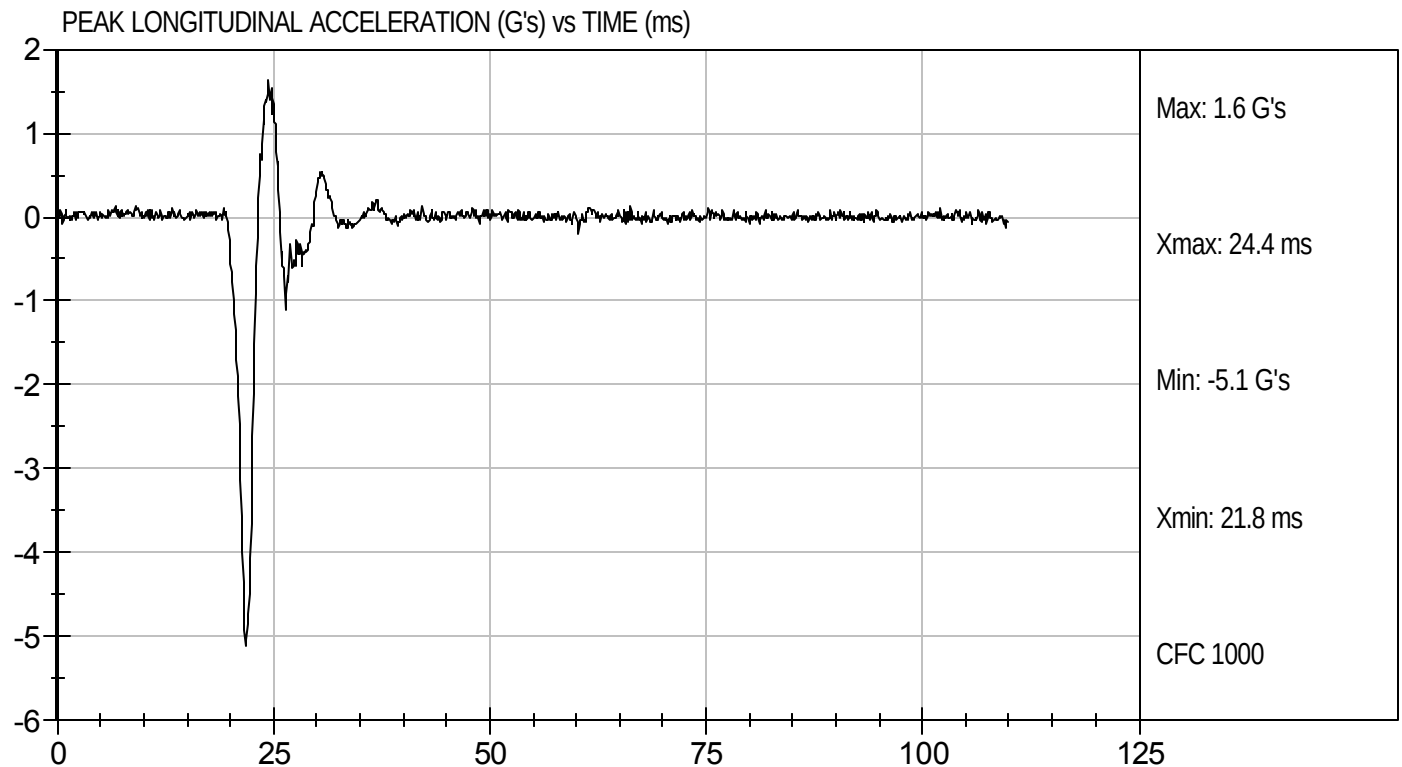
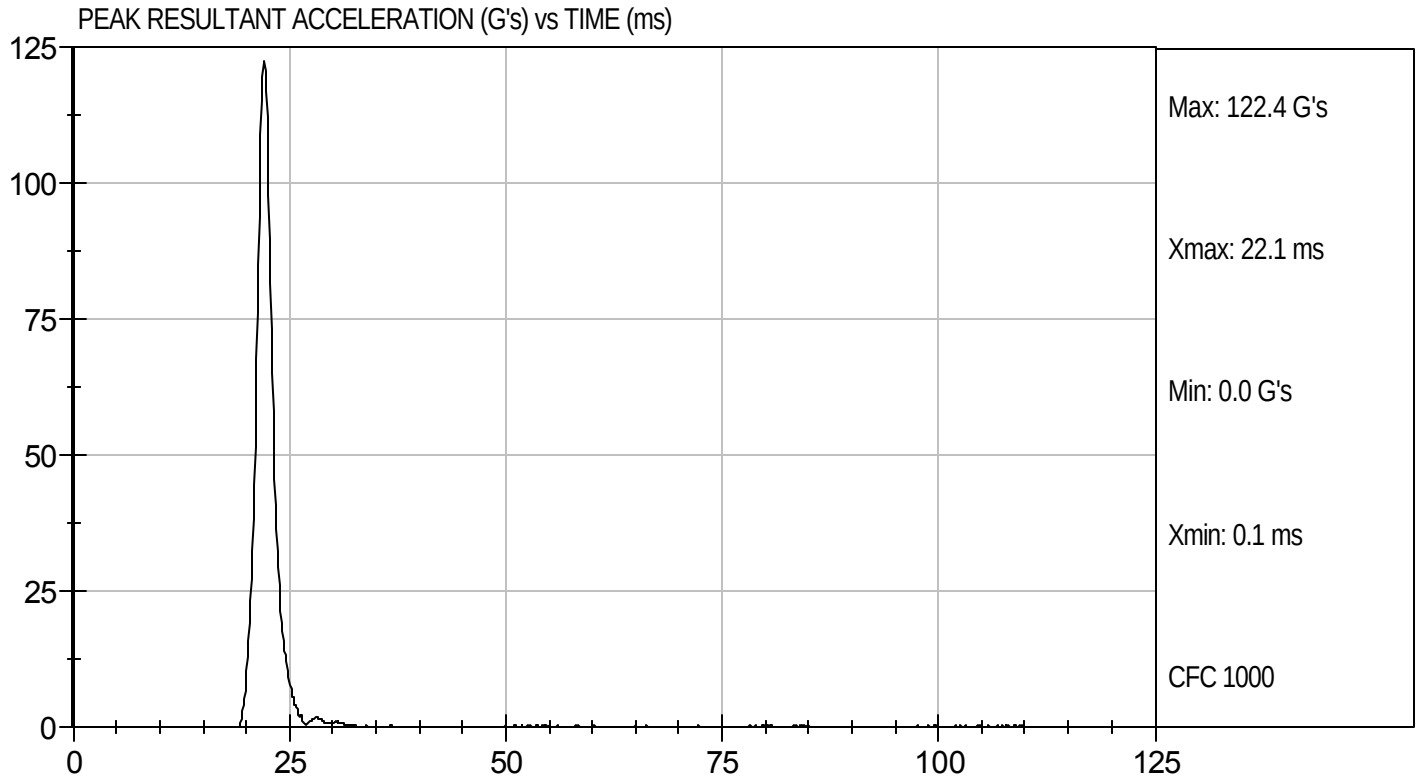


Approved By



Test Desc: Head Drop
Component ID: D113851

Test Date: 11/16/11
Velocity: 0 ft/s, 0 m/s



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

ATD Serial No: 296

Test I.D: D113852

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.4	Pass
Humidity		%	10 to 70	18	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Delta Velocity	10 ms	m/s	2.20 to 2.80	2.37	Pass
	15 ms	m/s	3.30 to 4.10	3.41	Pass
	20 ms	m/s	4.40 to 5.40	4.55	Pass
	25 ms	m/s	5.40 to 6.10	5.44	Pass
	25-100 ms	m/s	5.50 to 6.20	5.66	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	-41	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	115	Pass
Overall Test Results				Pass	


 Laboratory Technician

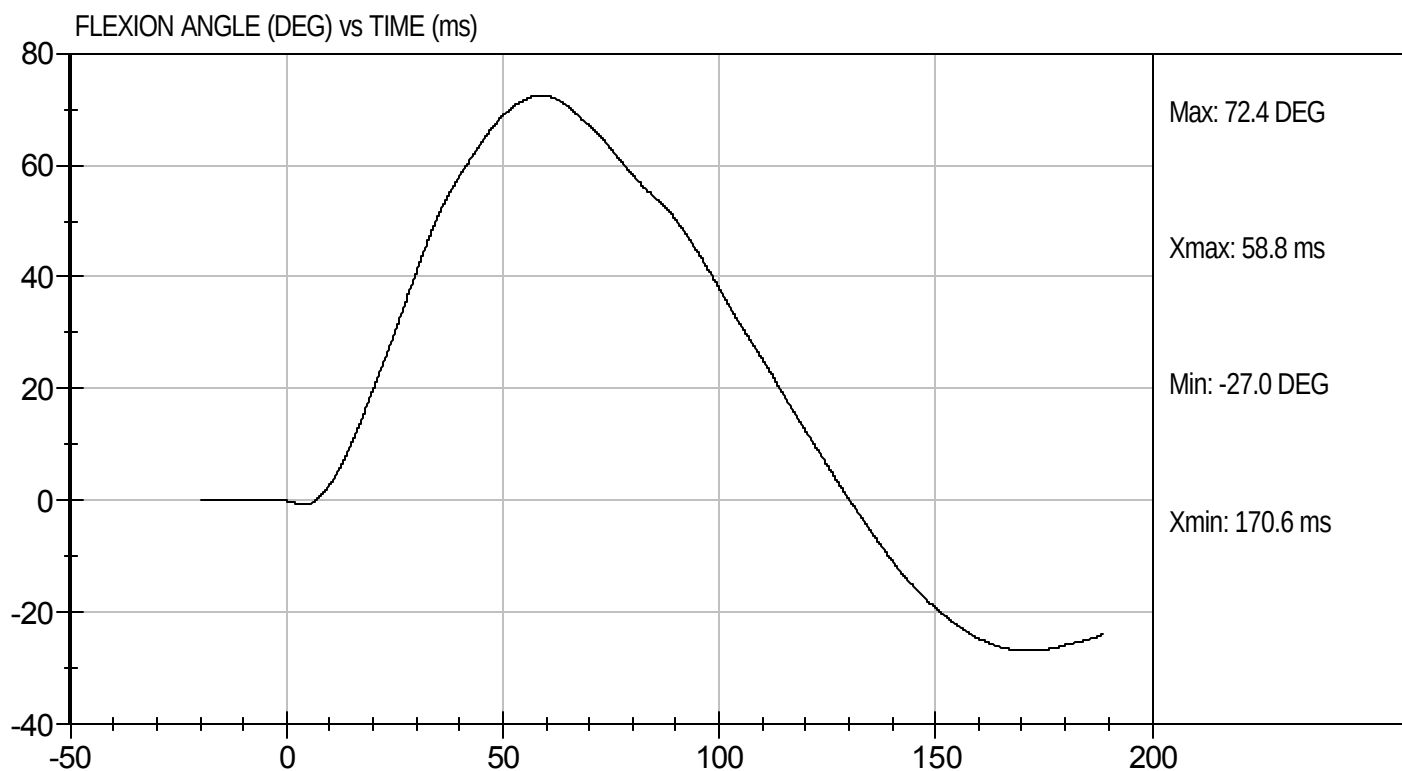
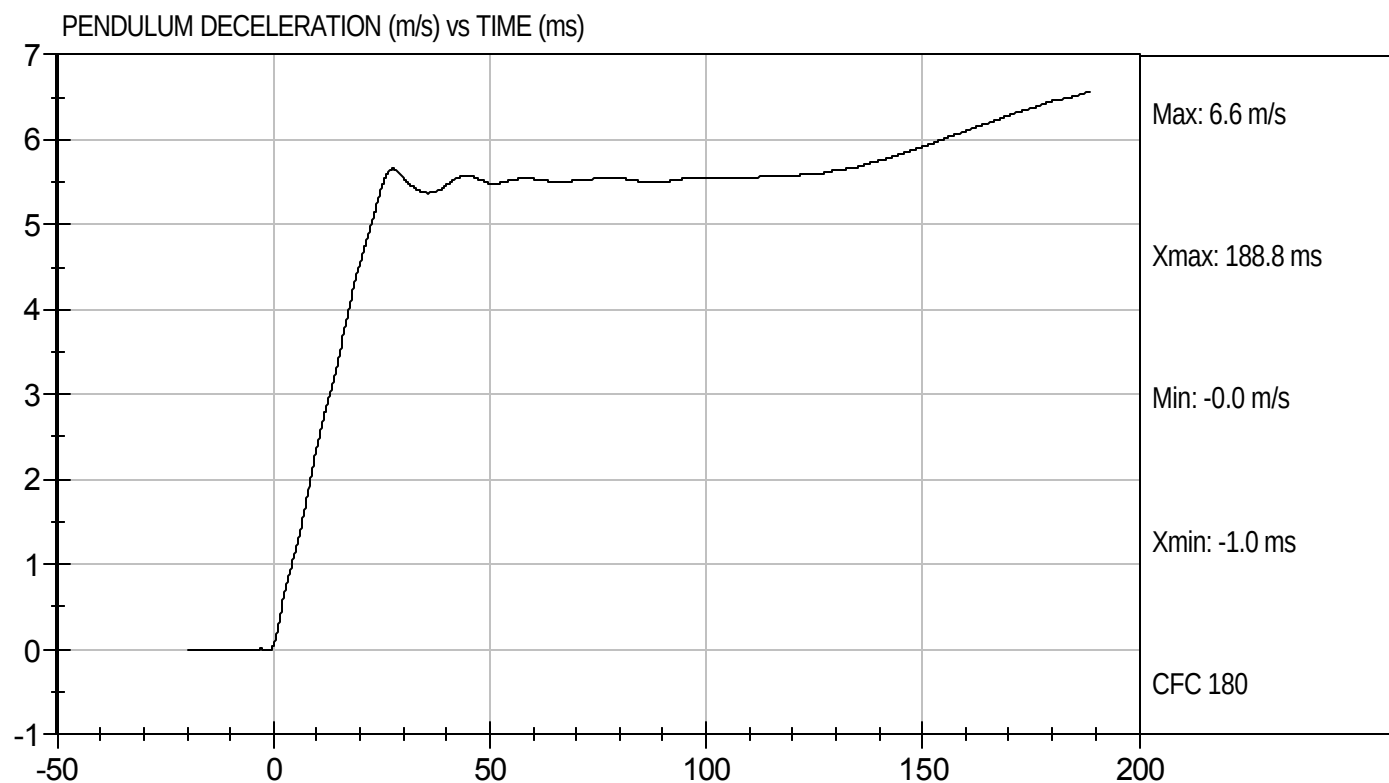
11/16/11
 Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D113852

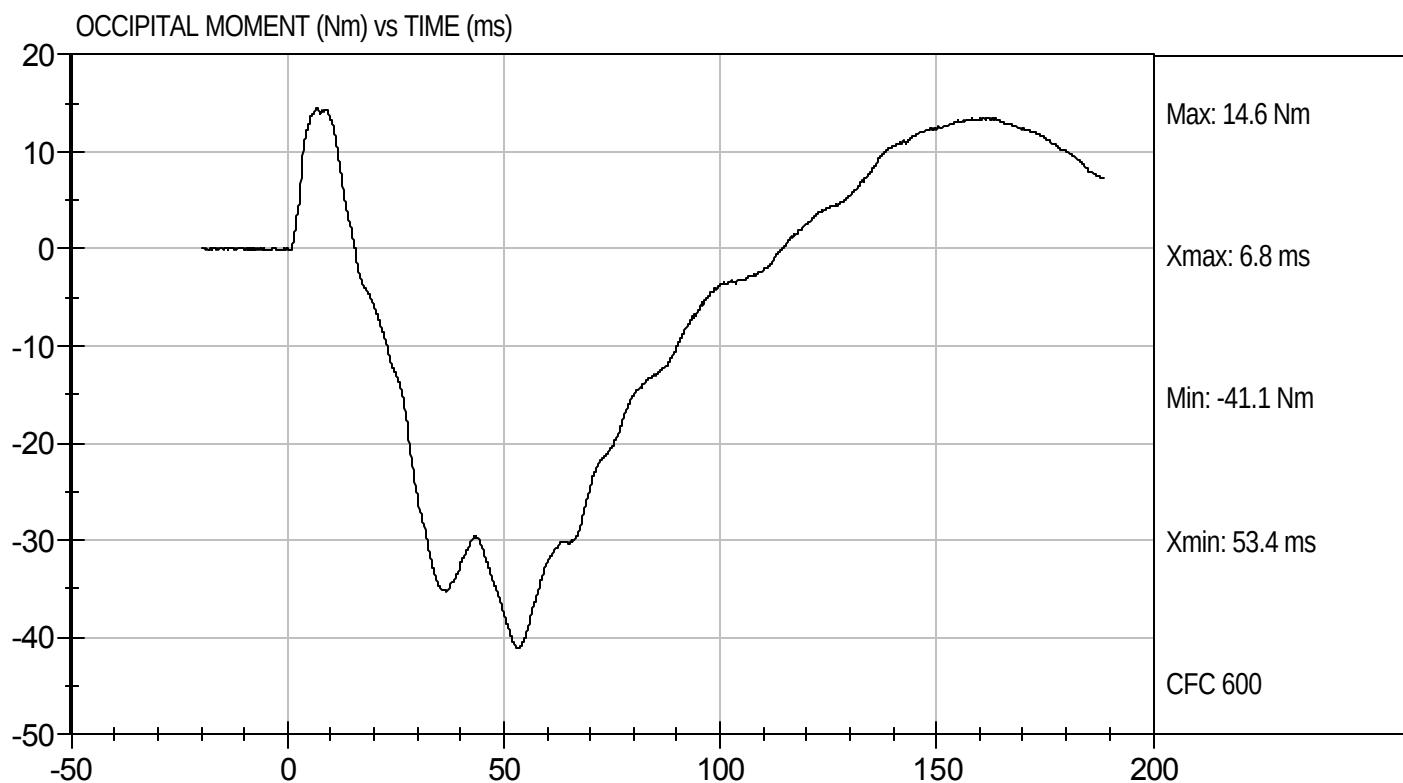
Test Date: 11/16/11
Velocity: 18.31 ft/s, 5.58 m/s





Test Desc: Neck Bending
Component ID: D113852

Test Date: 11/16/11
Velocity: 18.31 ft/s, 5.58 m/s



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

ATD Serial No: 296

Test ID: D113853

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	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	18	Pass
Overall Test Results			Pass	



Laboratory Technician

11/16/11
Test Date

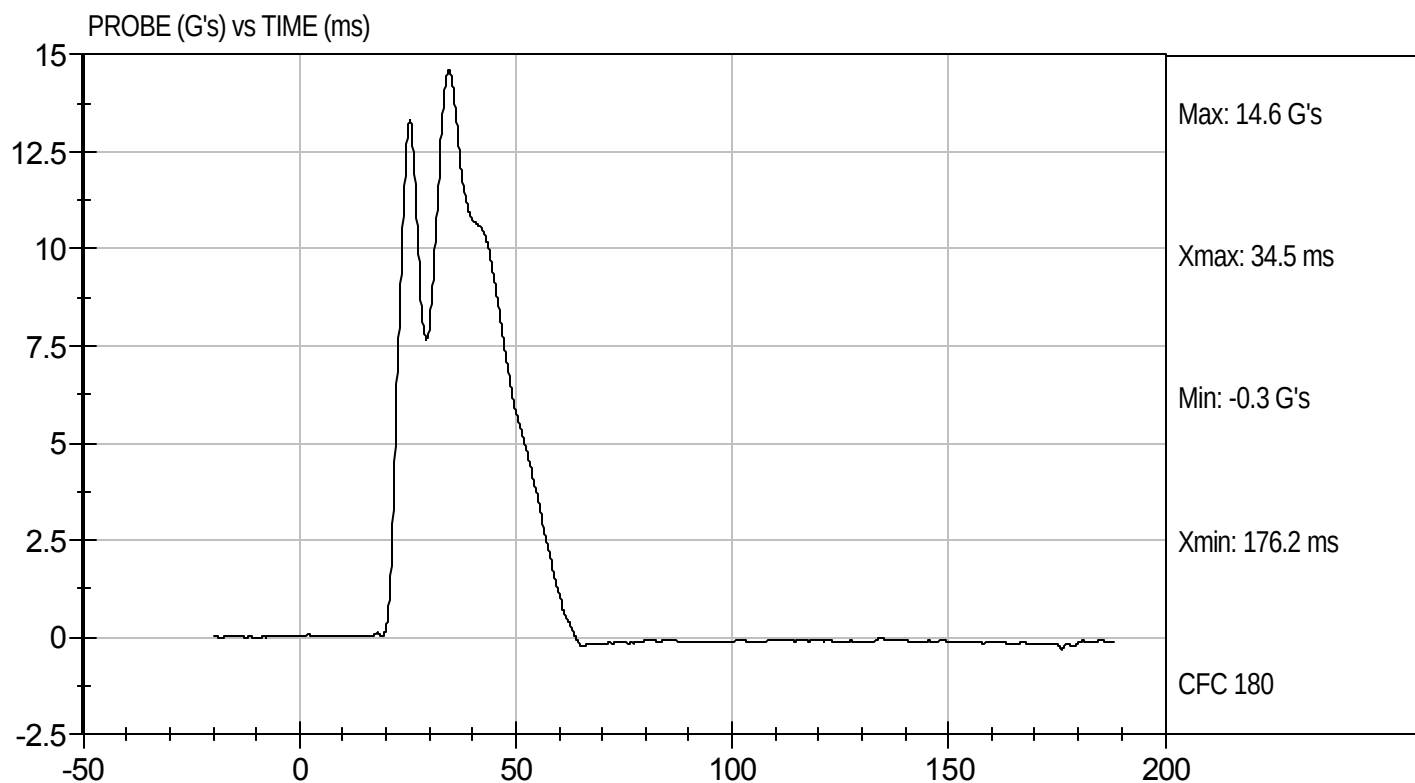


Approved By



Test Desc: Shoulder Impact
Component ID: D113853

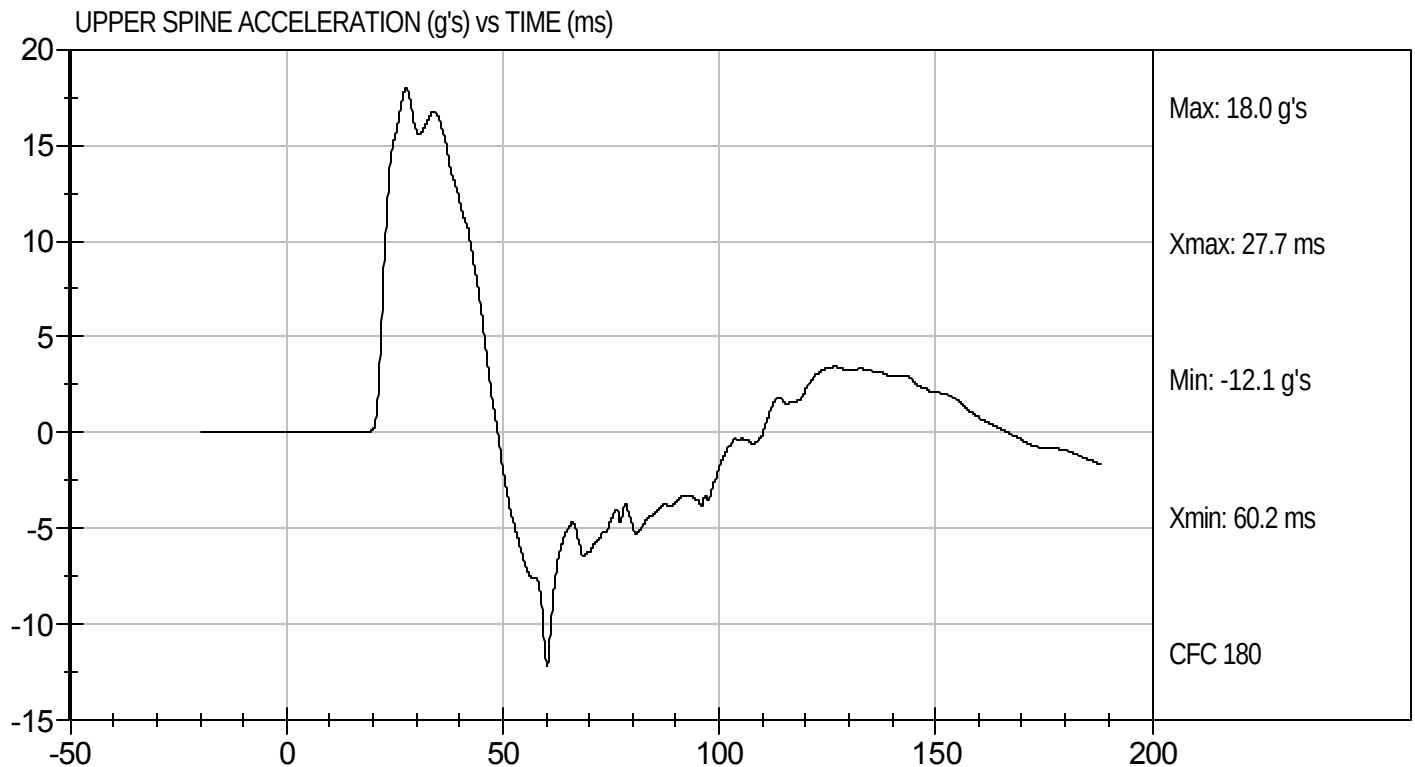
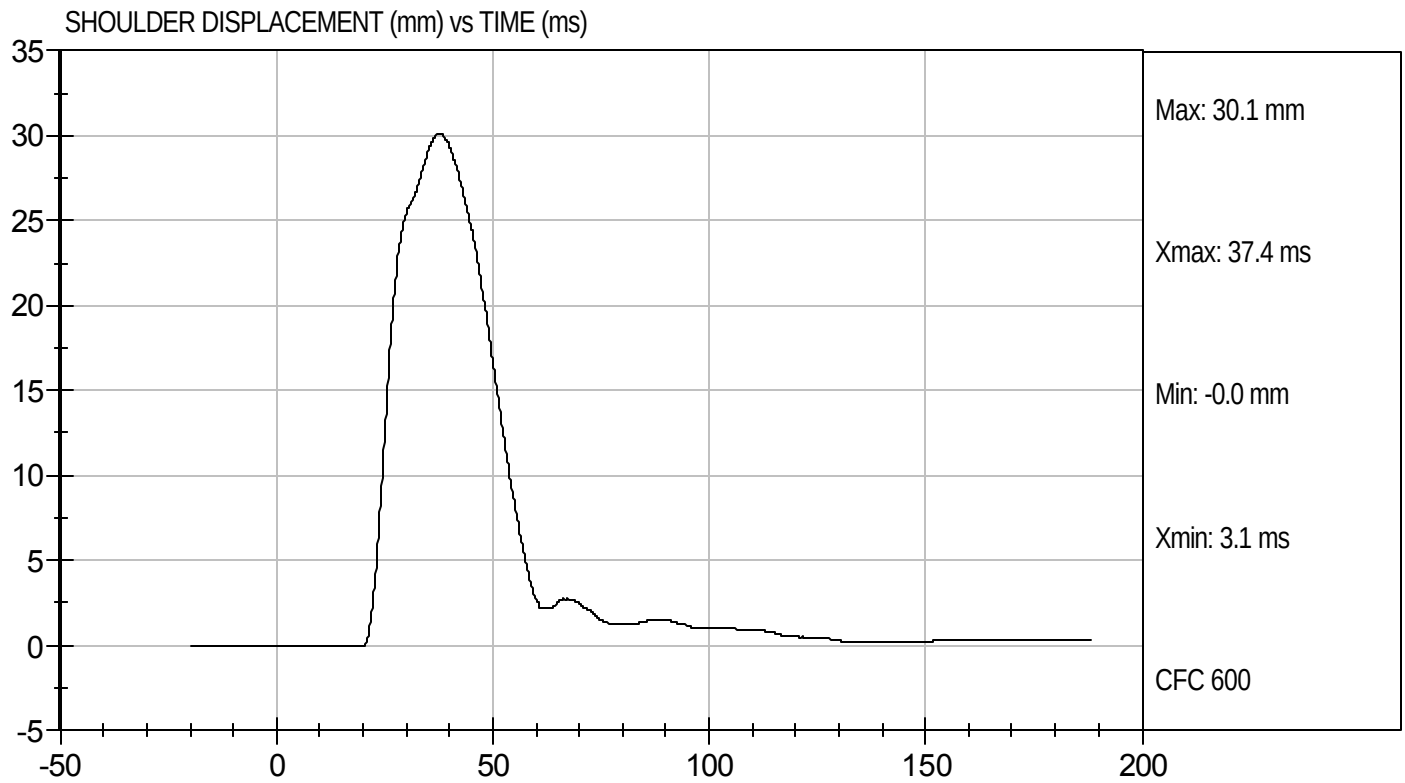
Test Date: 11/16/11
Velocity: 14.36 ft/s, 4.38 m/s





Test Desc: Shoulder Impact
Component ID: D113853

Test Date: 11/16/11
Velocity: 14.36 ft/s, 4.38 m/s



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

ATD Serial No: 296

Test I.D: D113854

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	18	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	32	Pass
Lower Rib Displacement	mm	32 to 38	35	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	37	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	29	Pass
Overall Test Results				Pass


Laboratory Technician

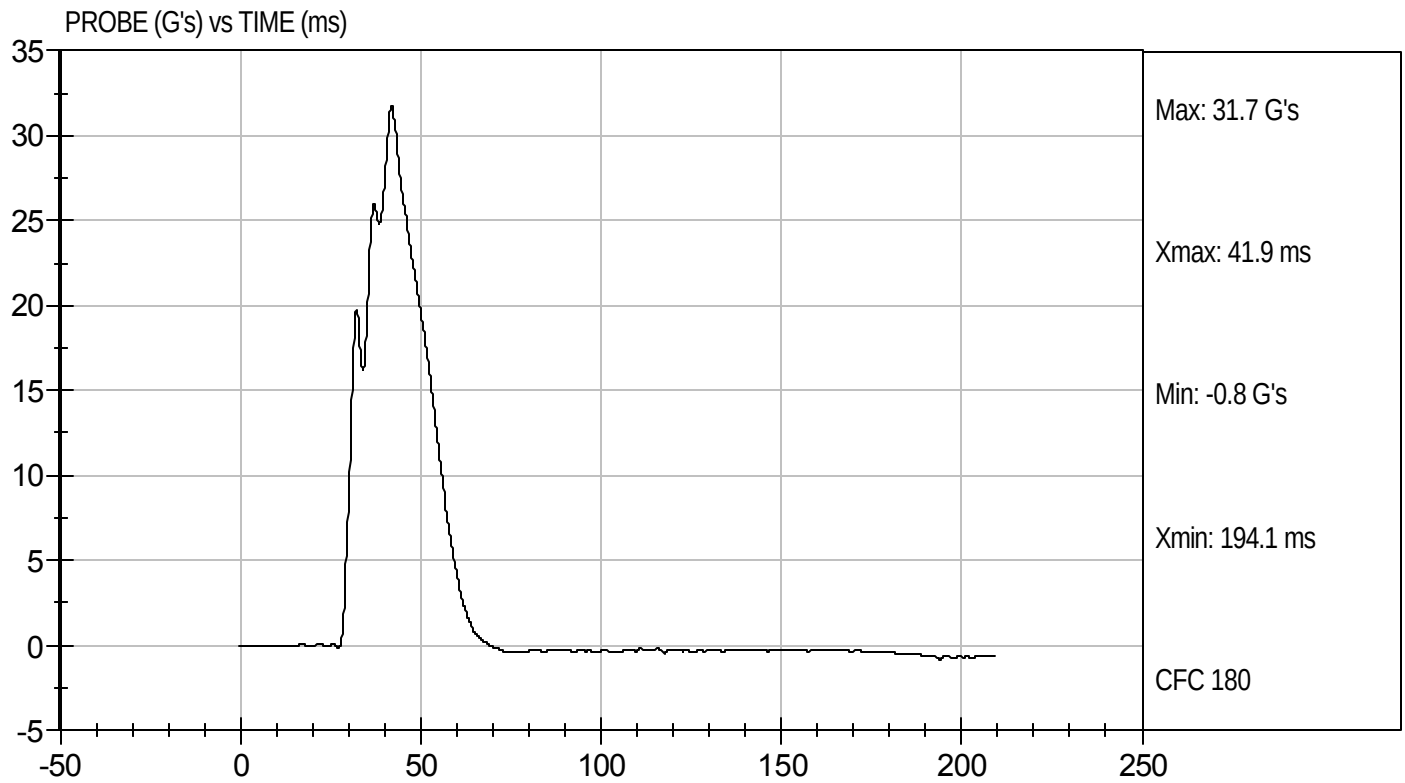
11/16/11
Test Date


Approved By



Test Desc: Thorax With Arm
Component ID: D113854

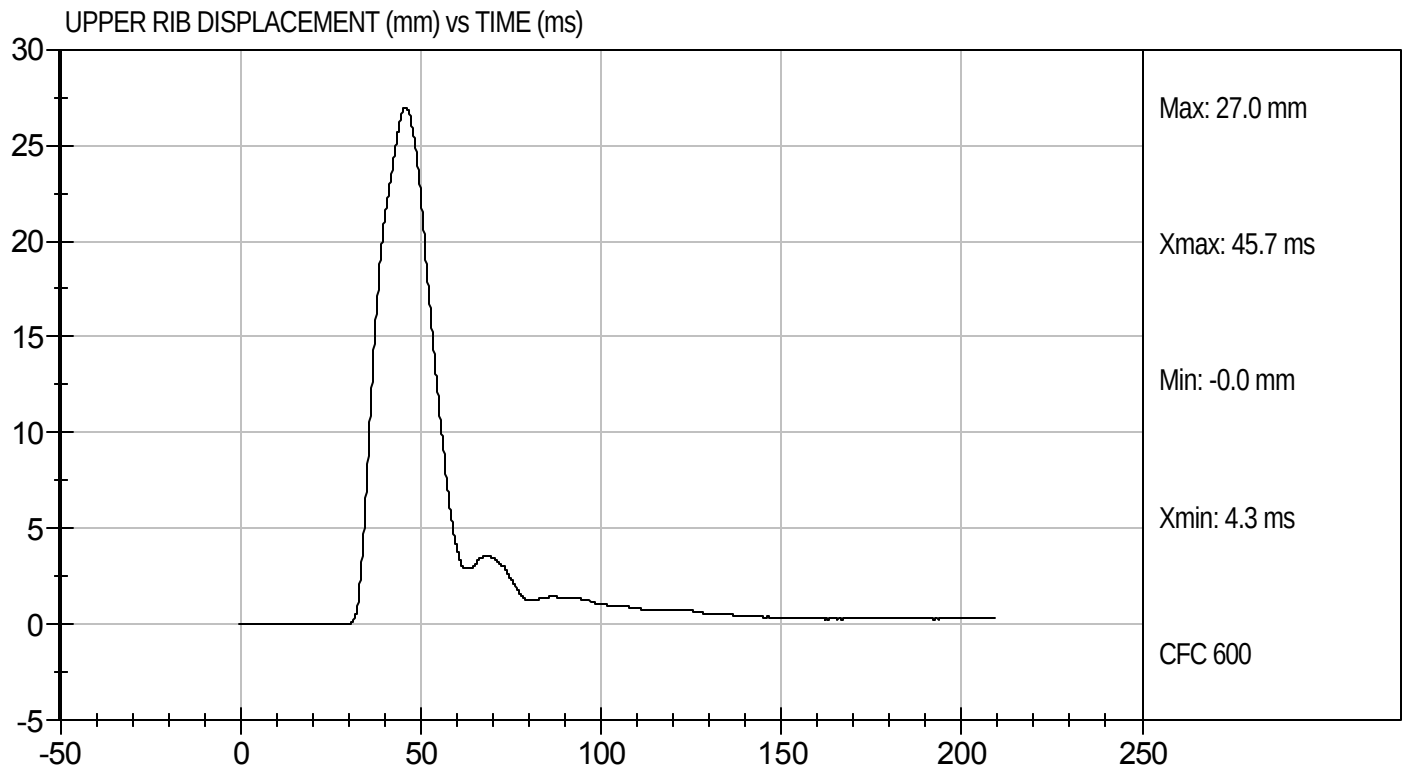
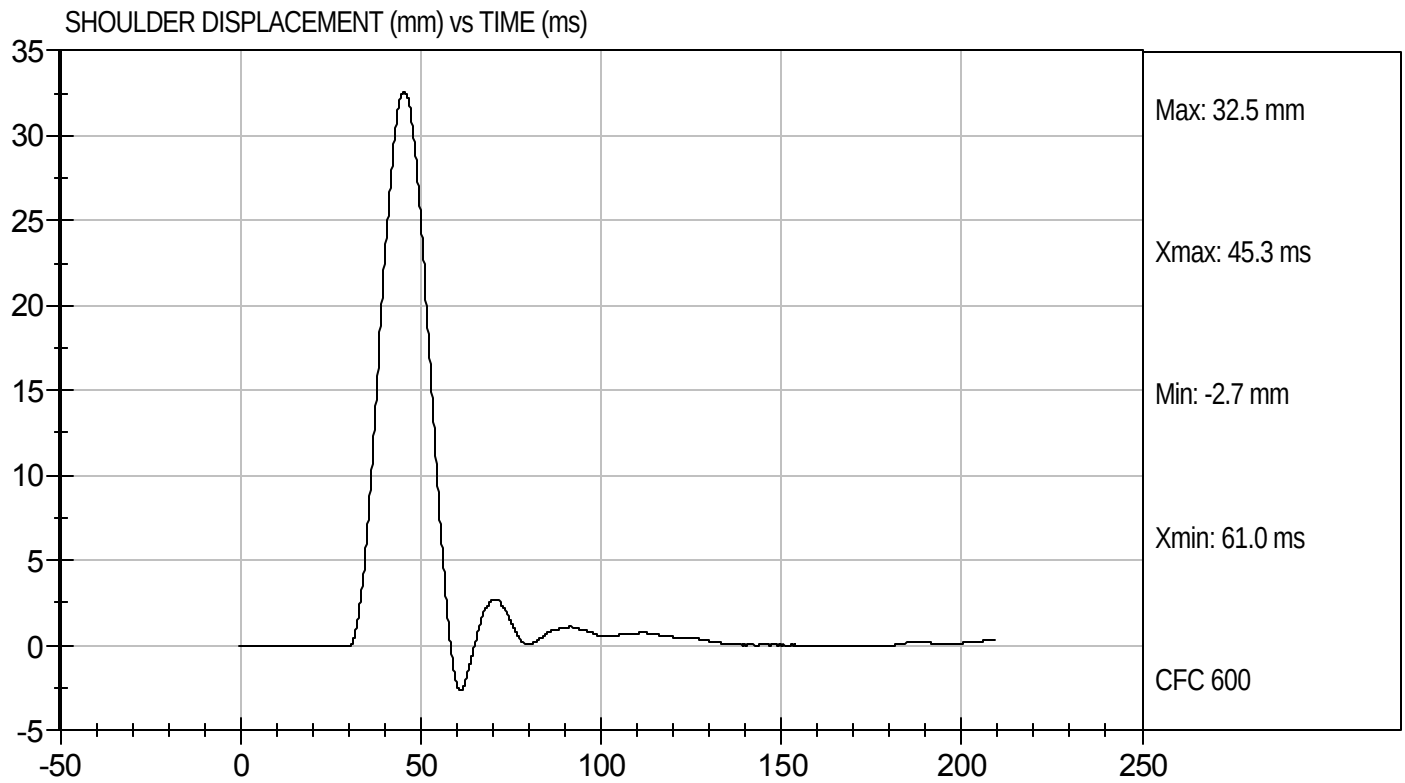
Test Date: 11/16/11
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D113854

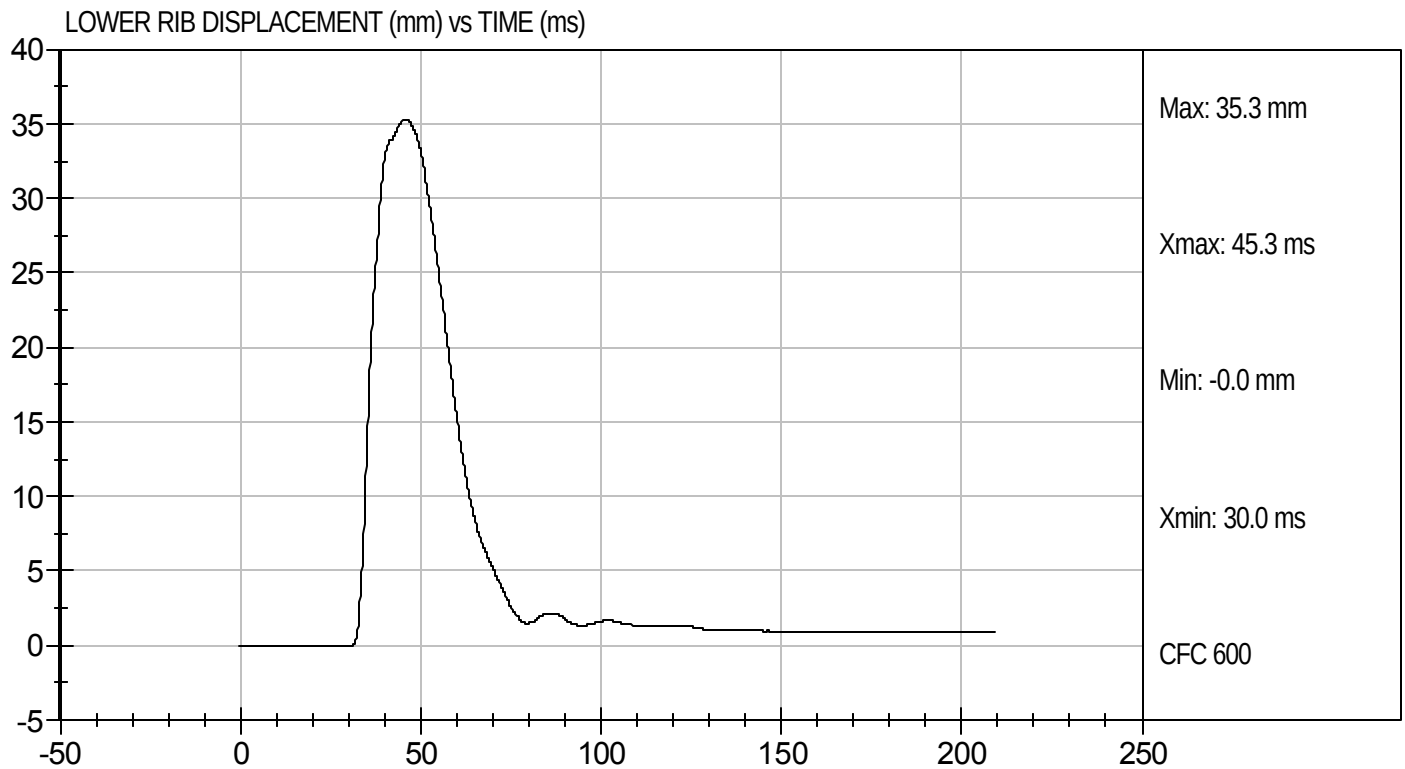
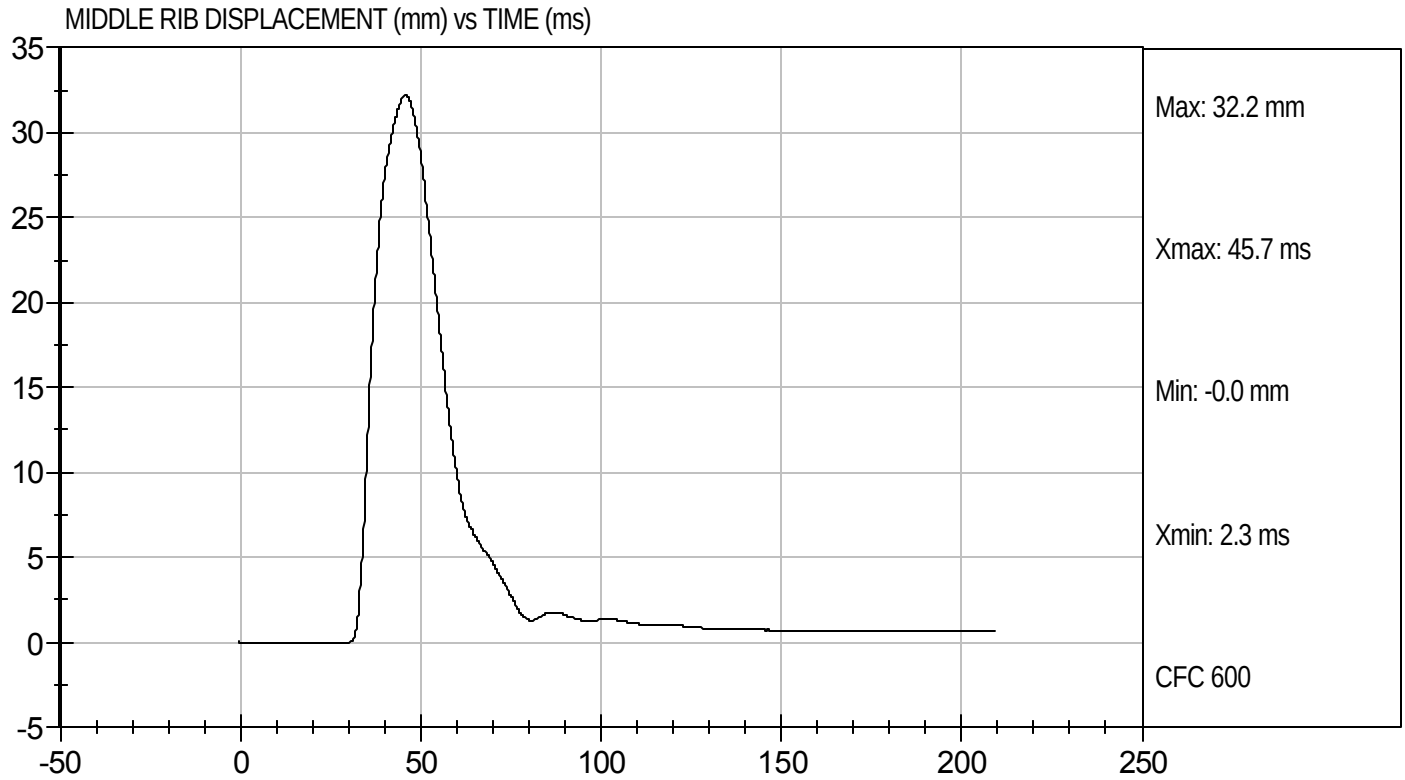
Test Date: 11/16/11
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D113854

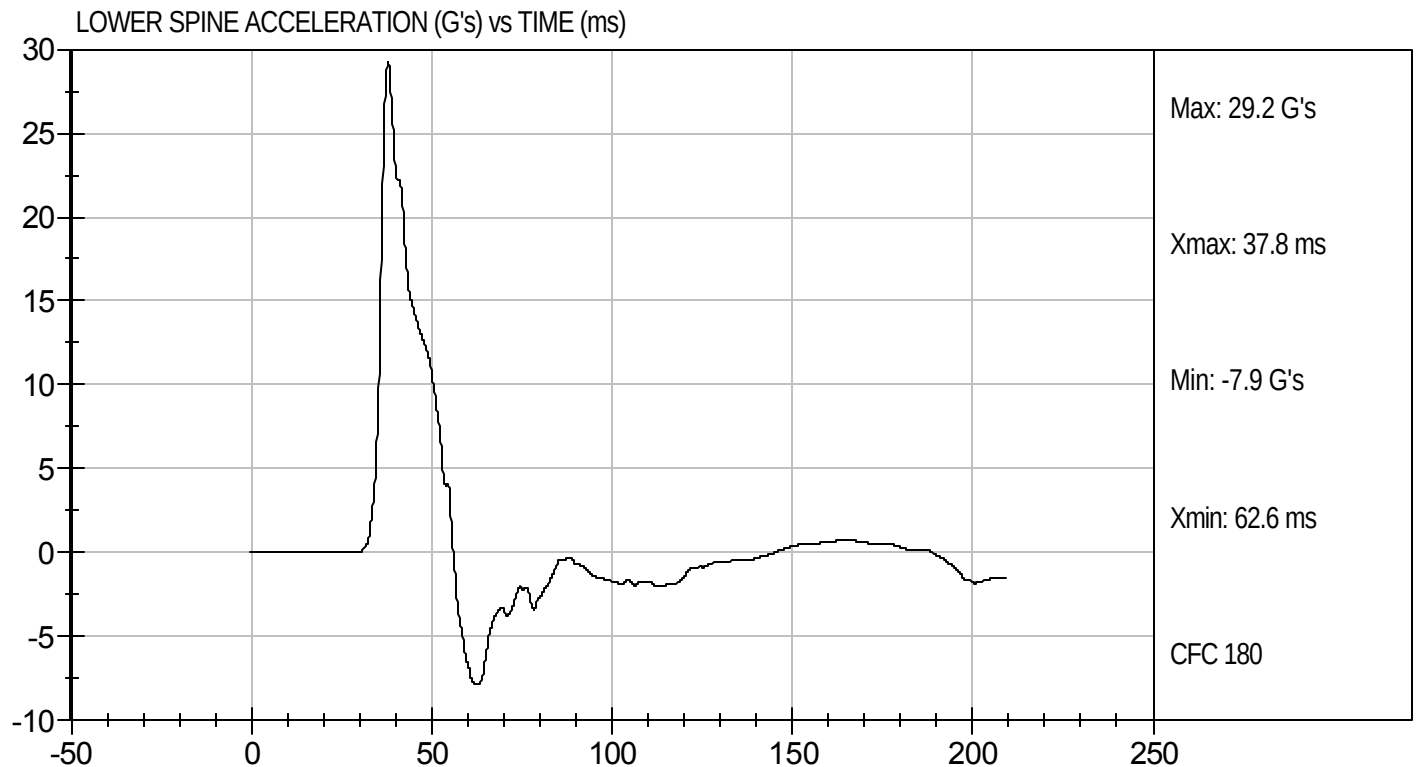
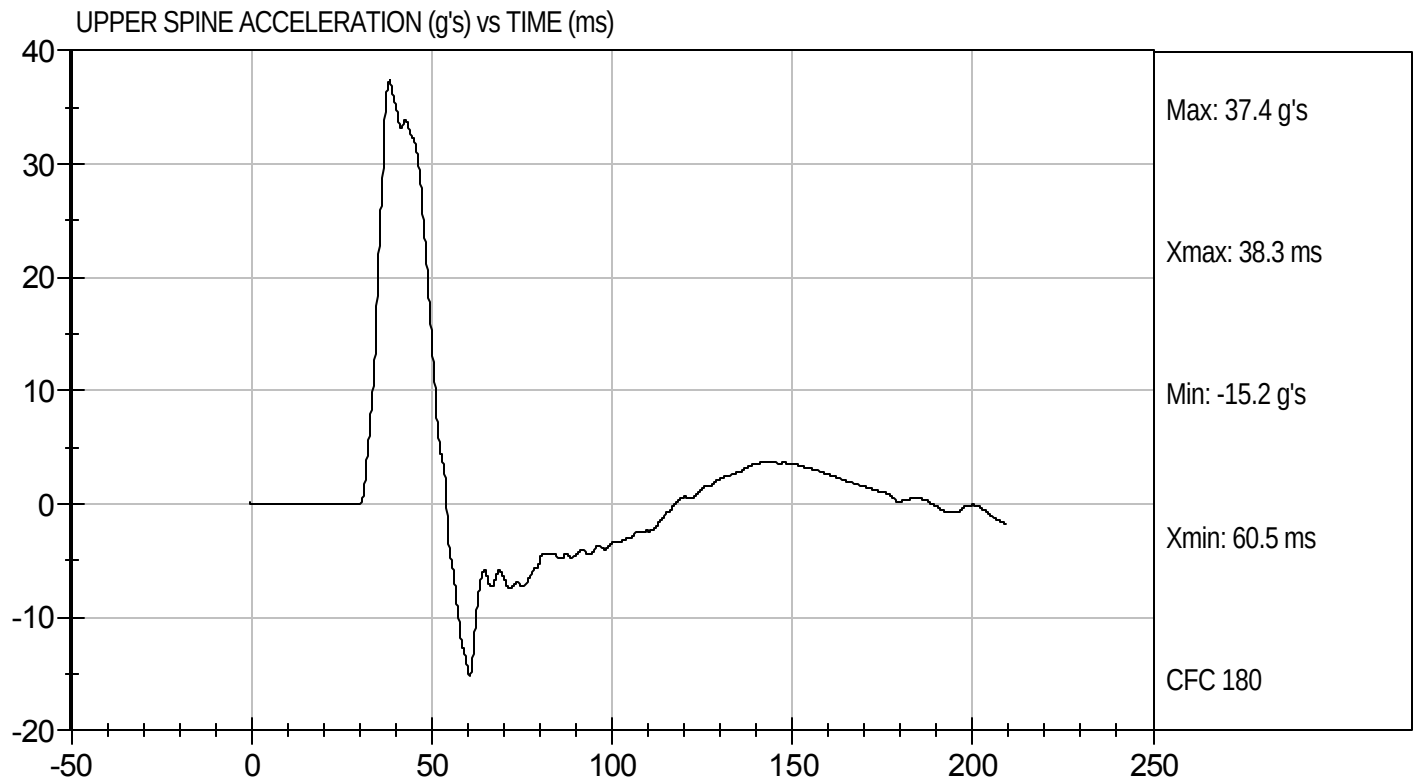
Test Date: 11/16/11
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Thorax With Arm
Component ID: D113854

Test Date: 11/16/11
Velocity: 22.22 ft/s, 6.77 m/s



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

ATD Serial No: 296

Test I.D: D113855

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	19	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Peak Impactor Force	G's	14 to 18	15	Pass
Upper Rib Displacement	mm	32 to 40	35	Pass
Middle Rib Displacement	mm	39 to 45	42	Pass
Lower Rib Displacement	mm	35 to 43	39	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	14	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	9	Pass
Overall Test Results				Pass


Laboratory Technician

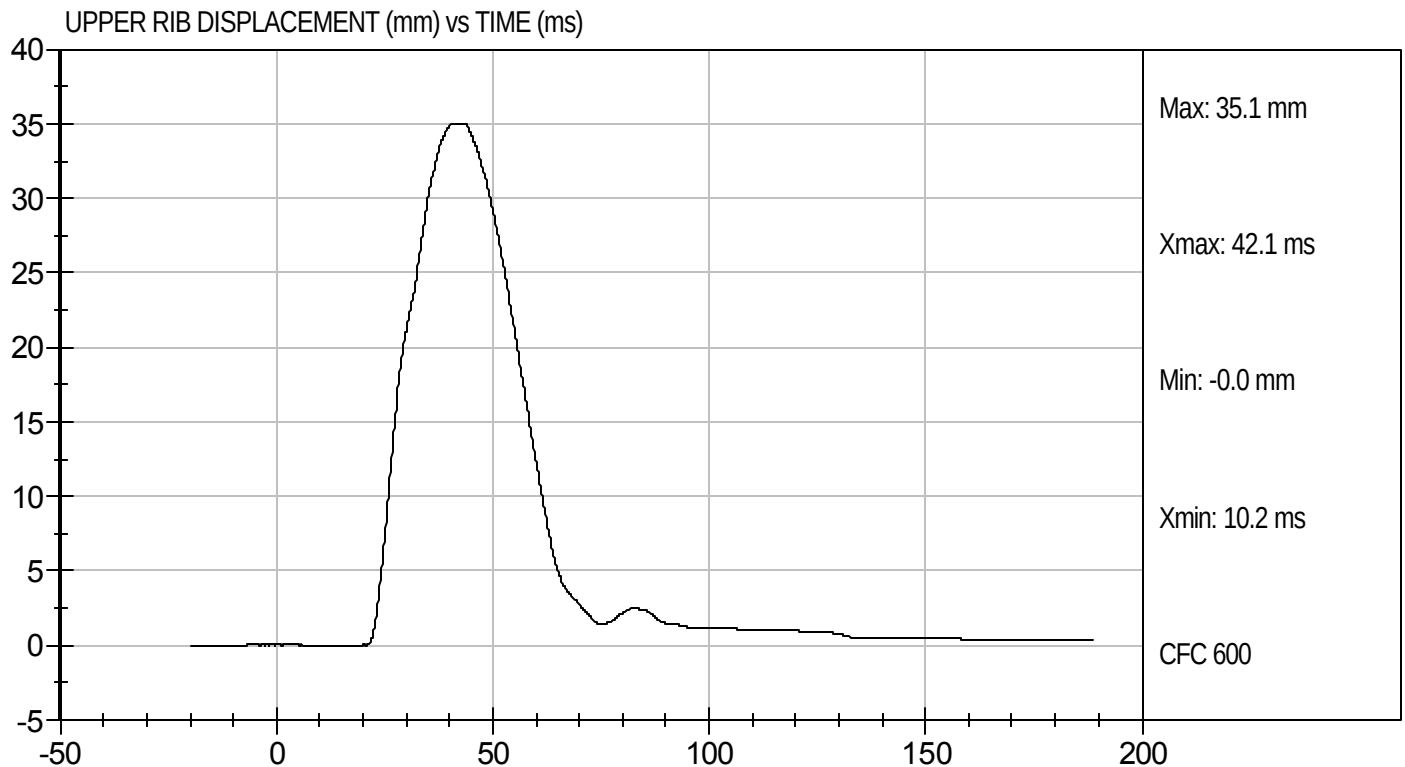
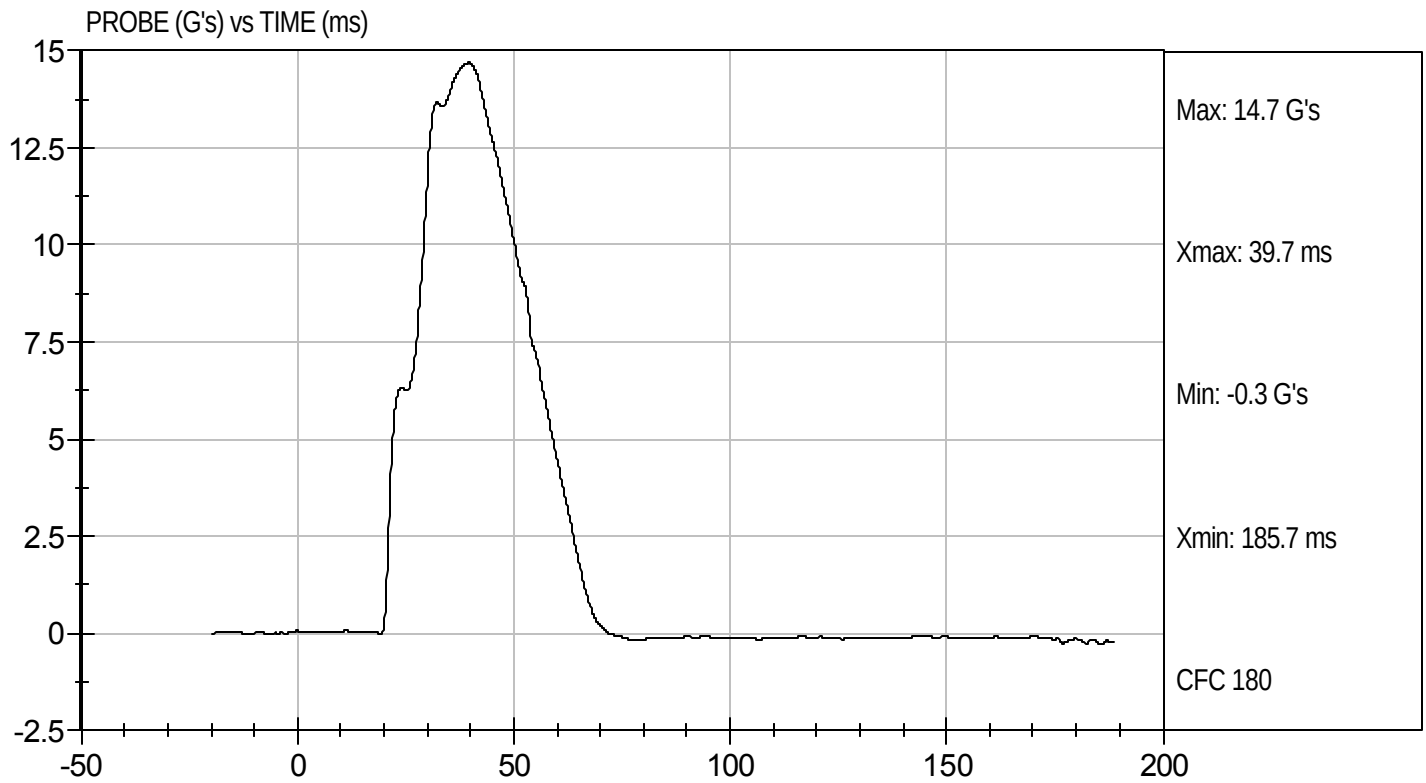
11/16/11
Test Date


Approved By



Test Desc: Thorax Without Arm
Component ID: D113855

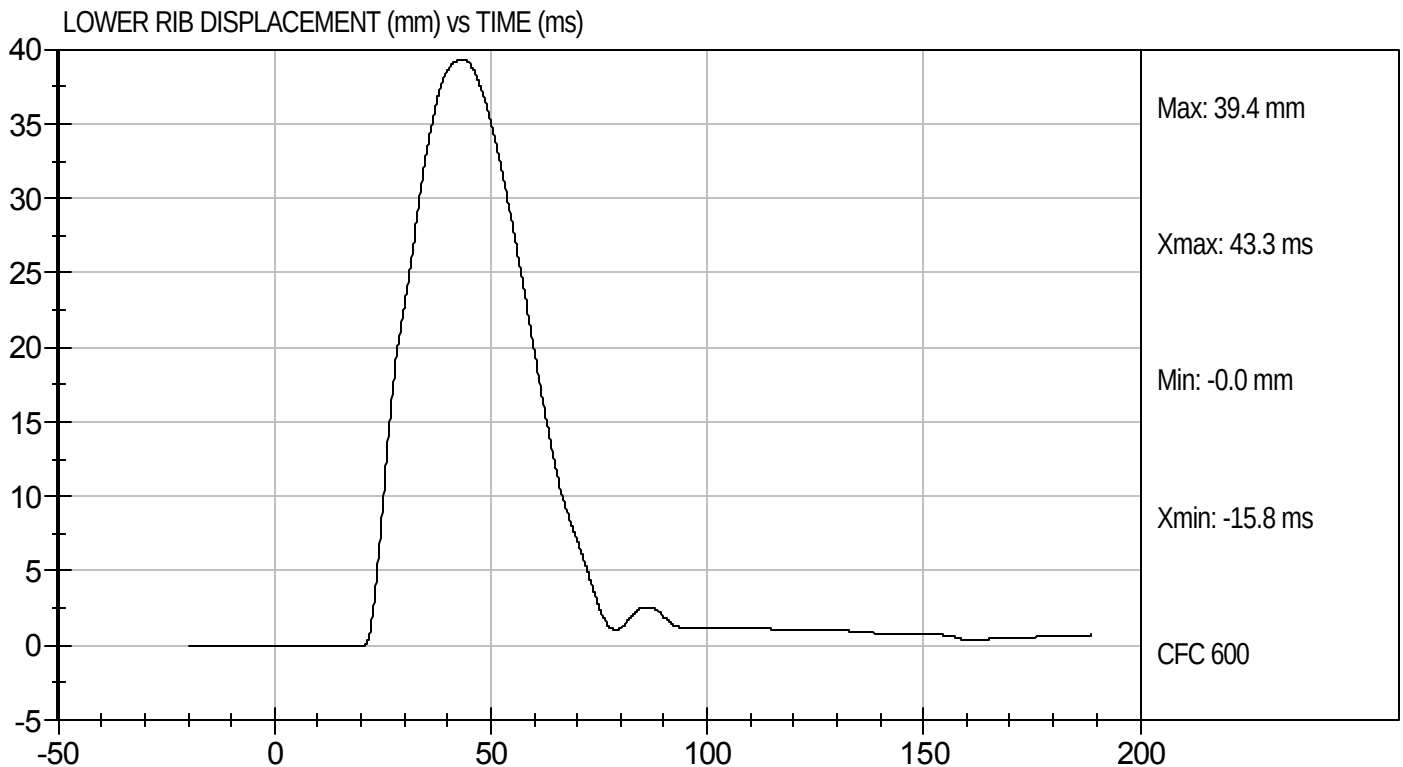
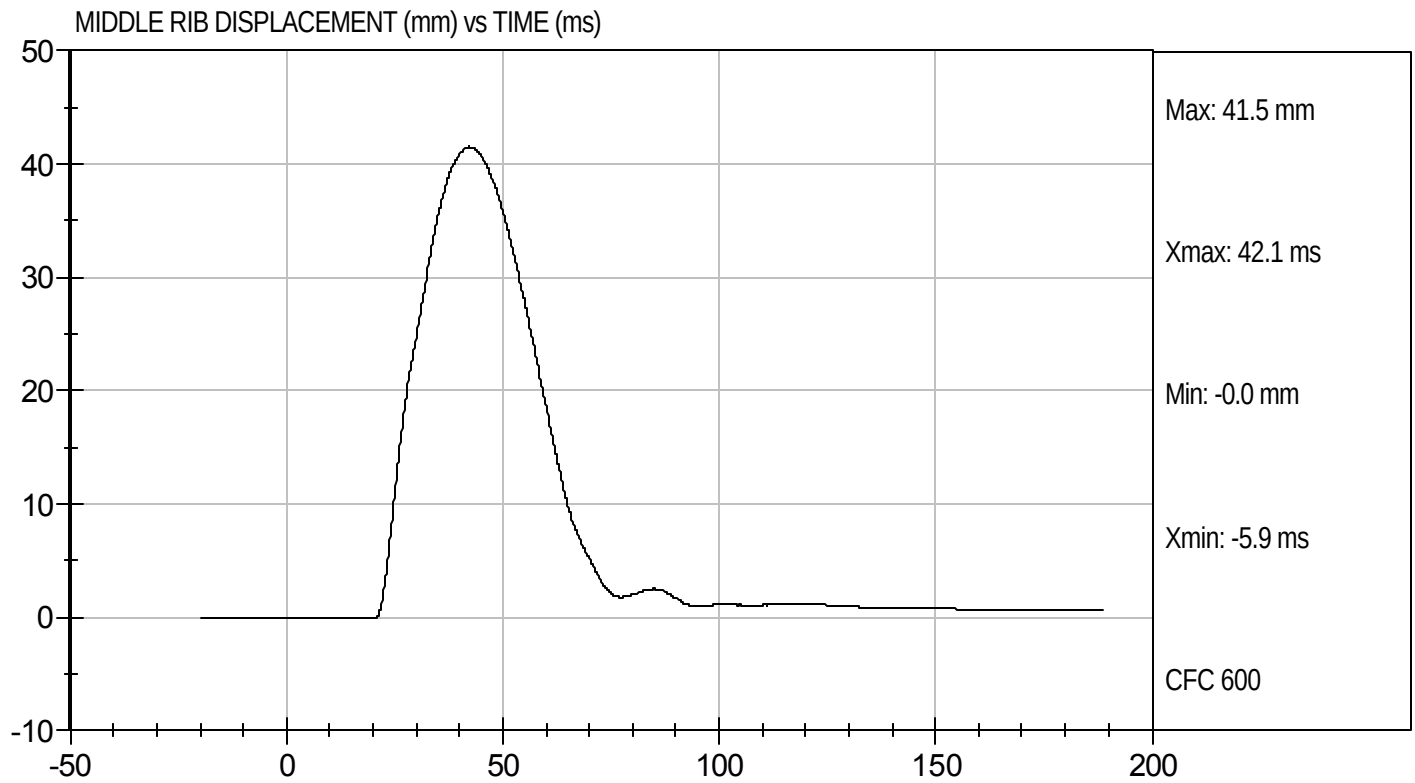
Test Date: 11/16/11
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Thorax Without Arm
Component ID: D113855

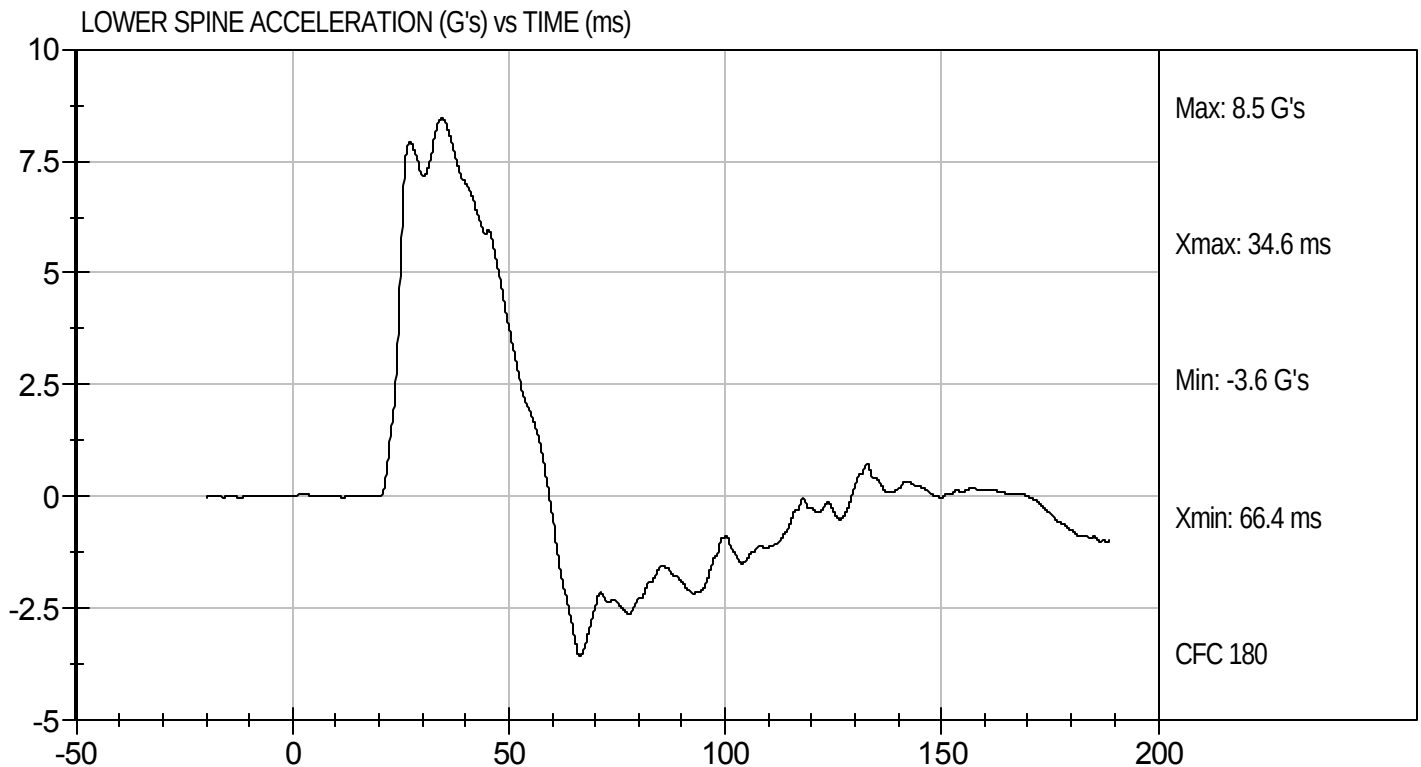
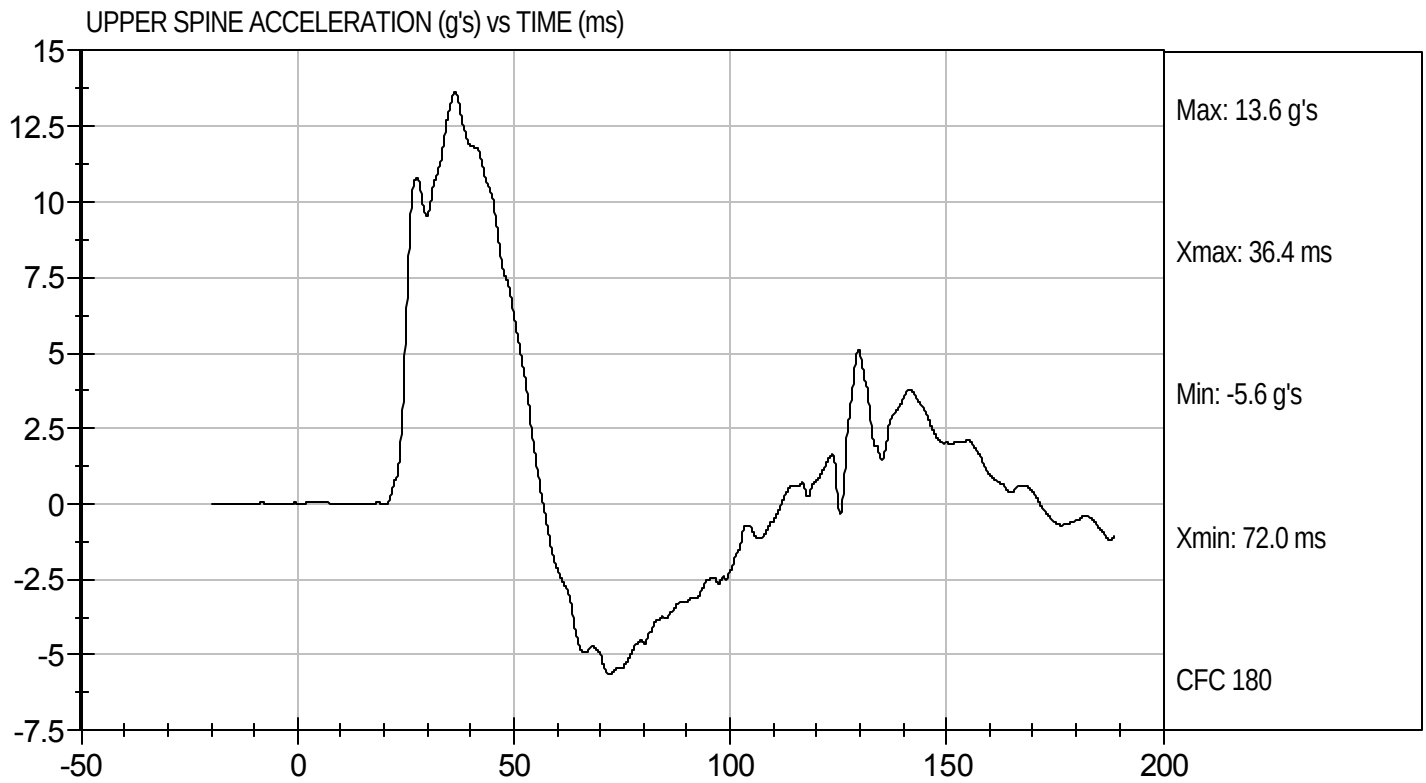
Test Date: 11/16/11
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Thorax Without Arm
Component ID: D113855

Test Date: 11/16/11
Velocity: 14.25 ft/s, 4.34 m/s



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

ATD Serial No: 296

Test I.D: D113856

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	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	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


Laboratory Technician

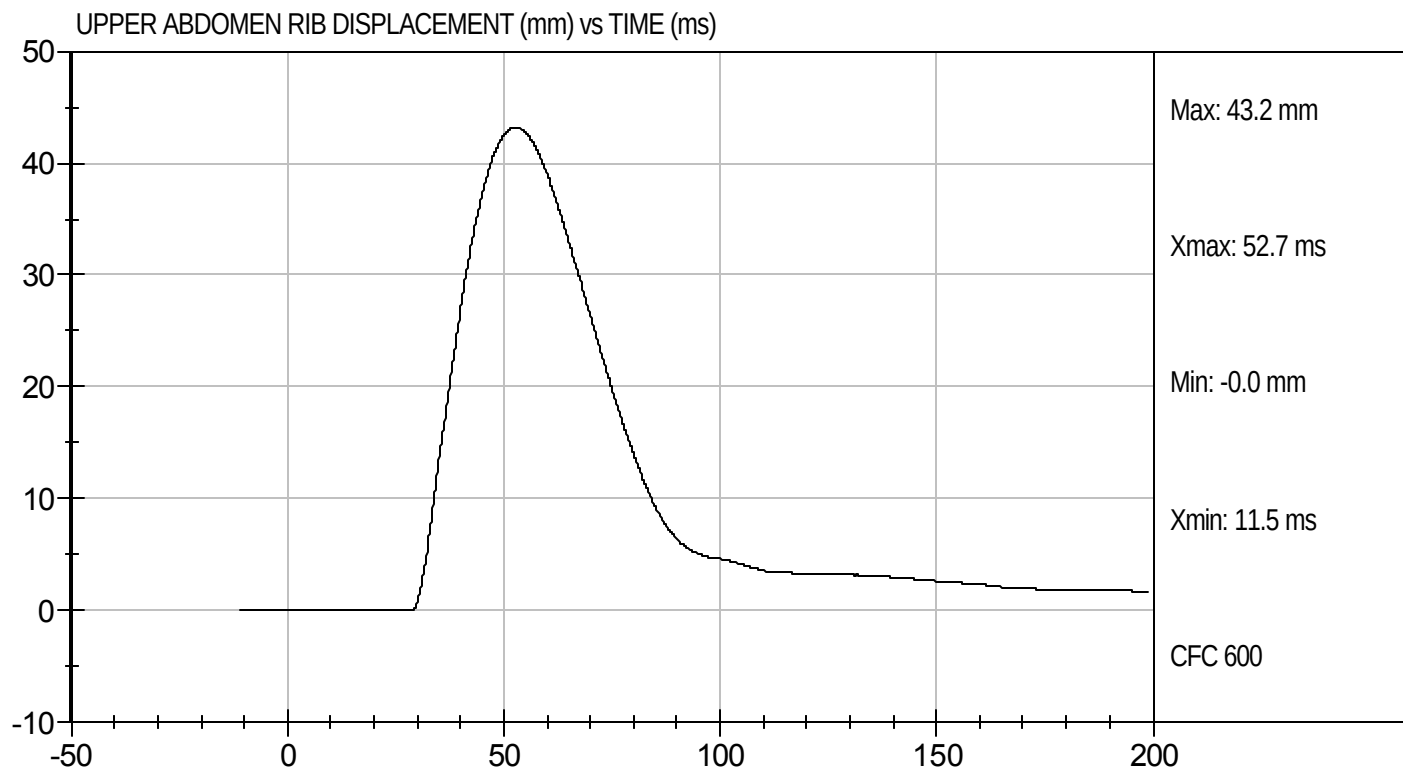
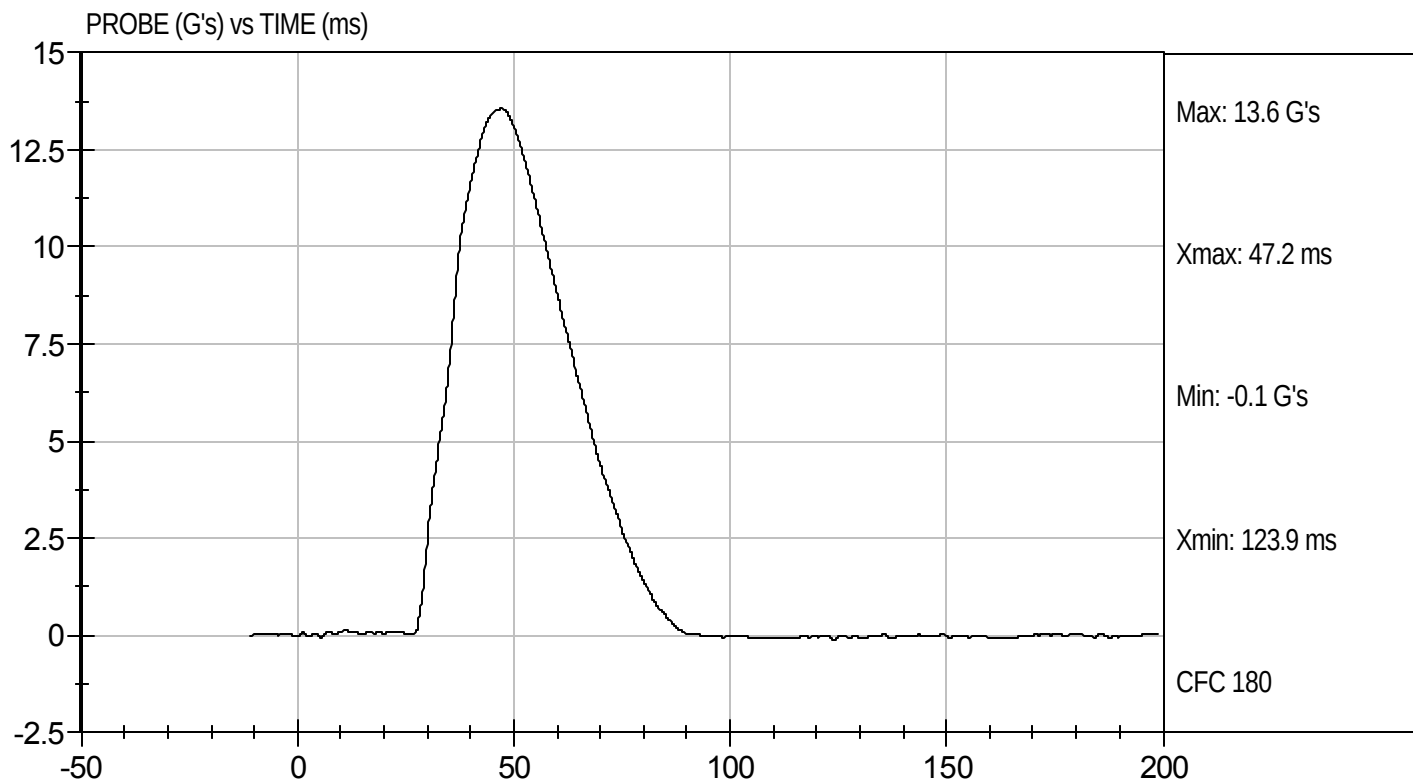
11/16/11
Test Date


Approved By



Test Desc: Abdomen Impact
Component ID: D113856

Test Date: 11/16/11
Velocity: 14.25 ft/s, 4.34 m/s

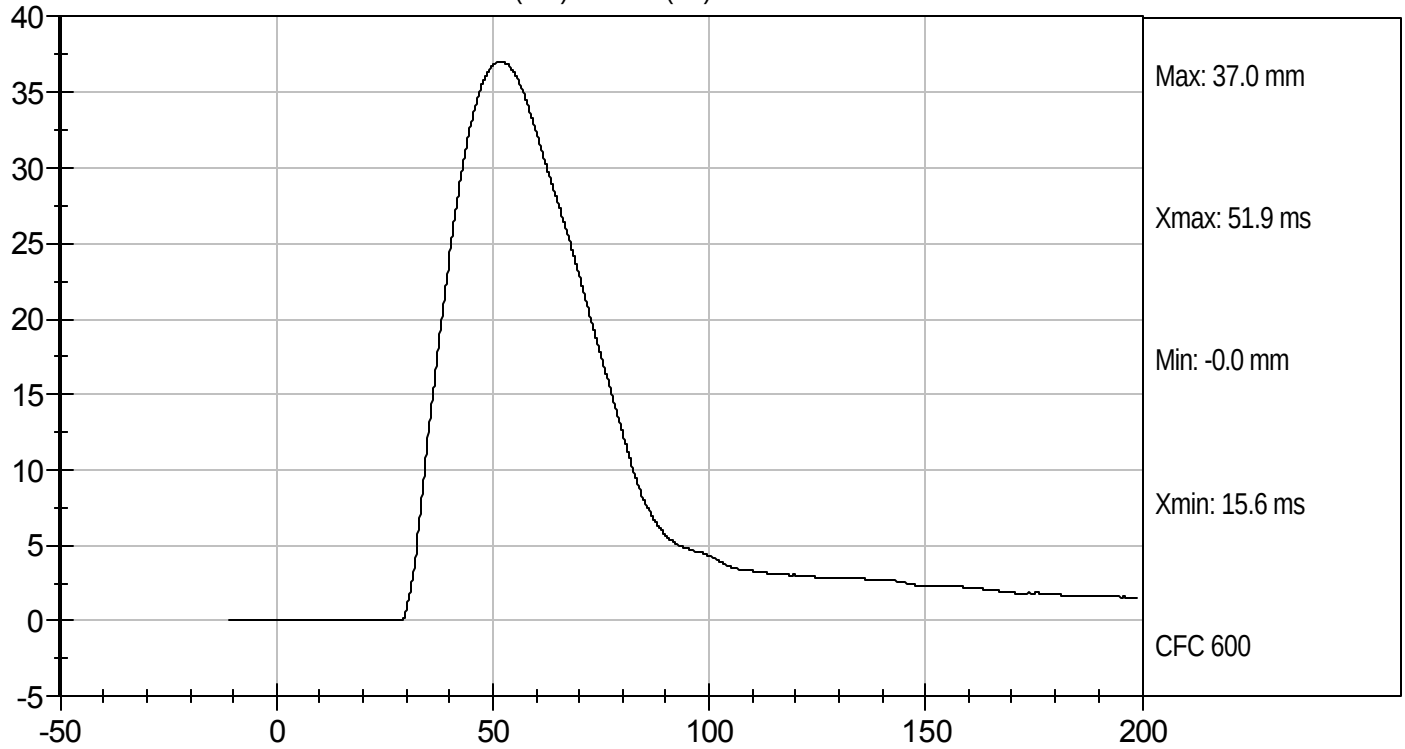




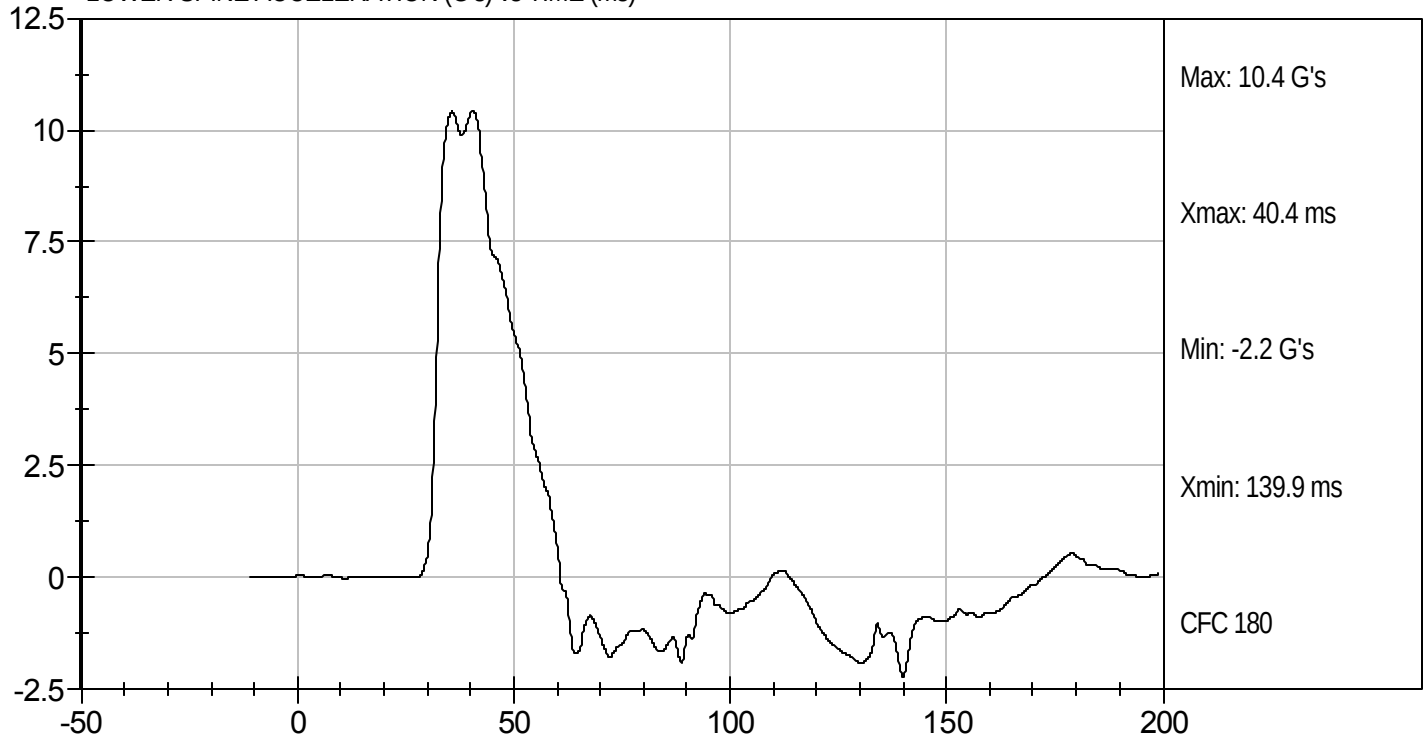
Test Desc: Abdomen Impact
Component ID: D113856

Test Date: 11/16/11
Velocity: 14.25 ft/s, 4.34 m/s

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



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



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

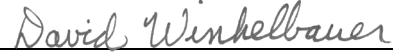
ATD Serial No: 296

Test I.D: D113857

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	19	Pass
Impact Velocity	m/s	6.60 to 6.80	6.74	Pass
Peak Impactor Acceleration	G's	38 to 47	43	Pass
Pelvis Y Acceleration after 6 ms	G's	34 to 42	40	Pass
Peak Acetabulum Force	N	3600 to 4300	4021	Pass
Overall Test Results				Pass


Laboratory Technician

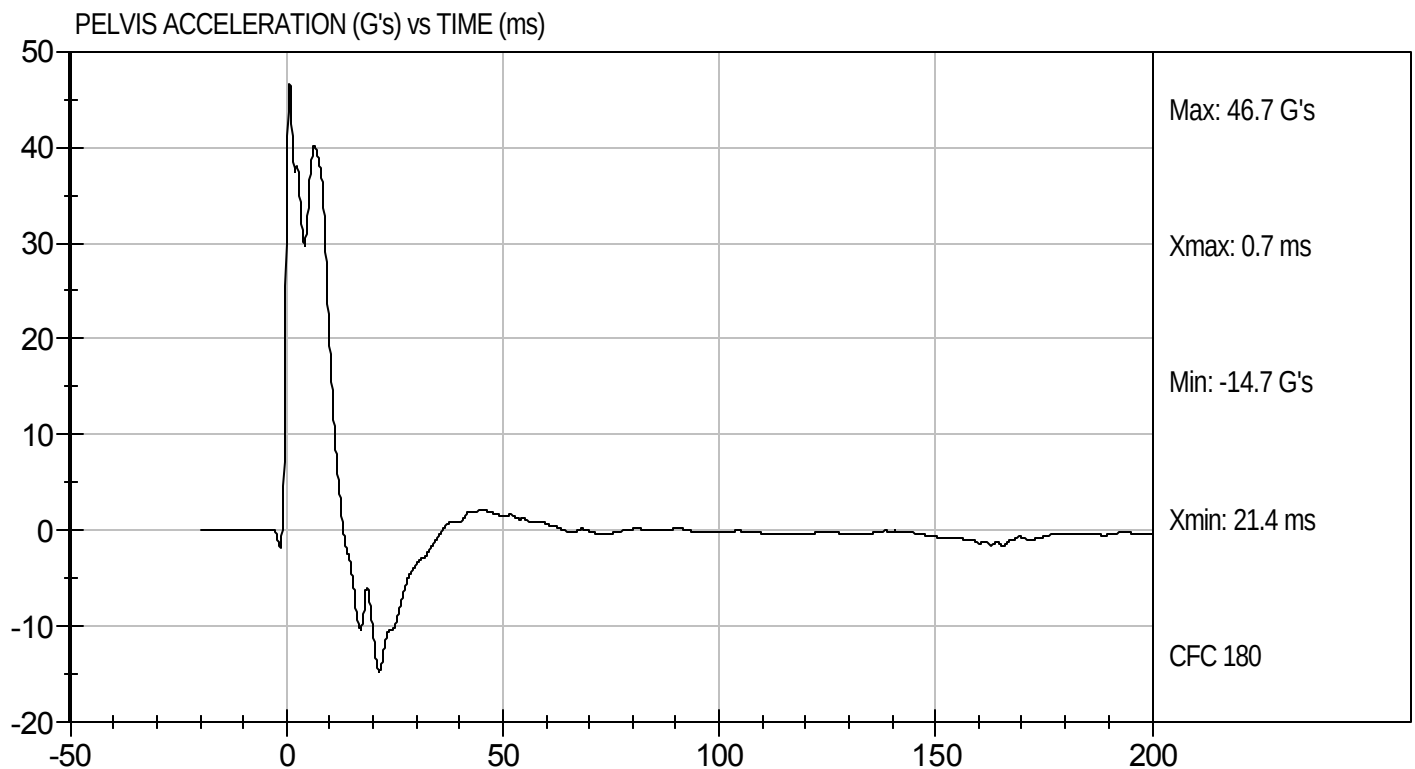
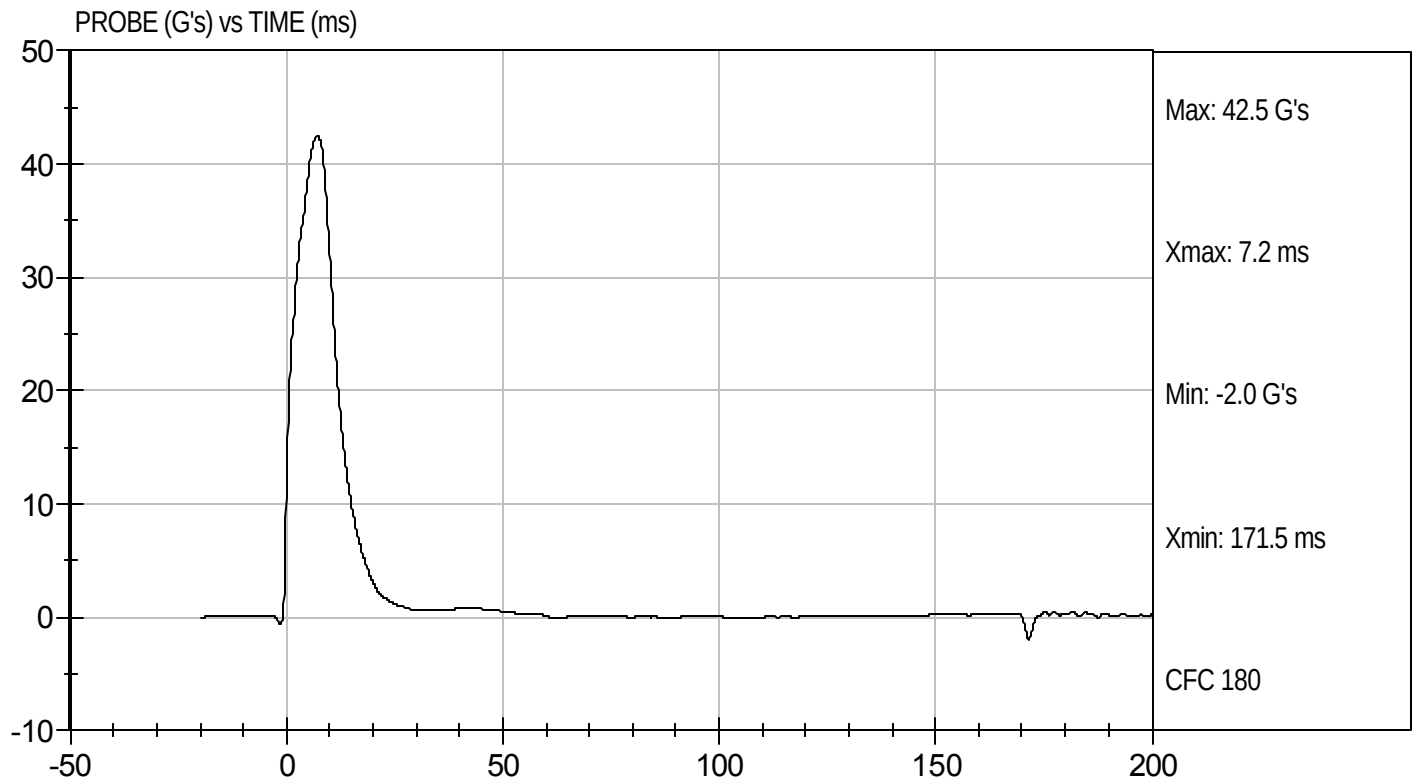
11/16/11
Test Date


Approved By



Test Desc: Pelvis Impact
Component ID: D113857

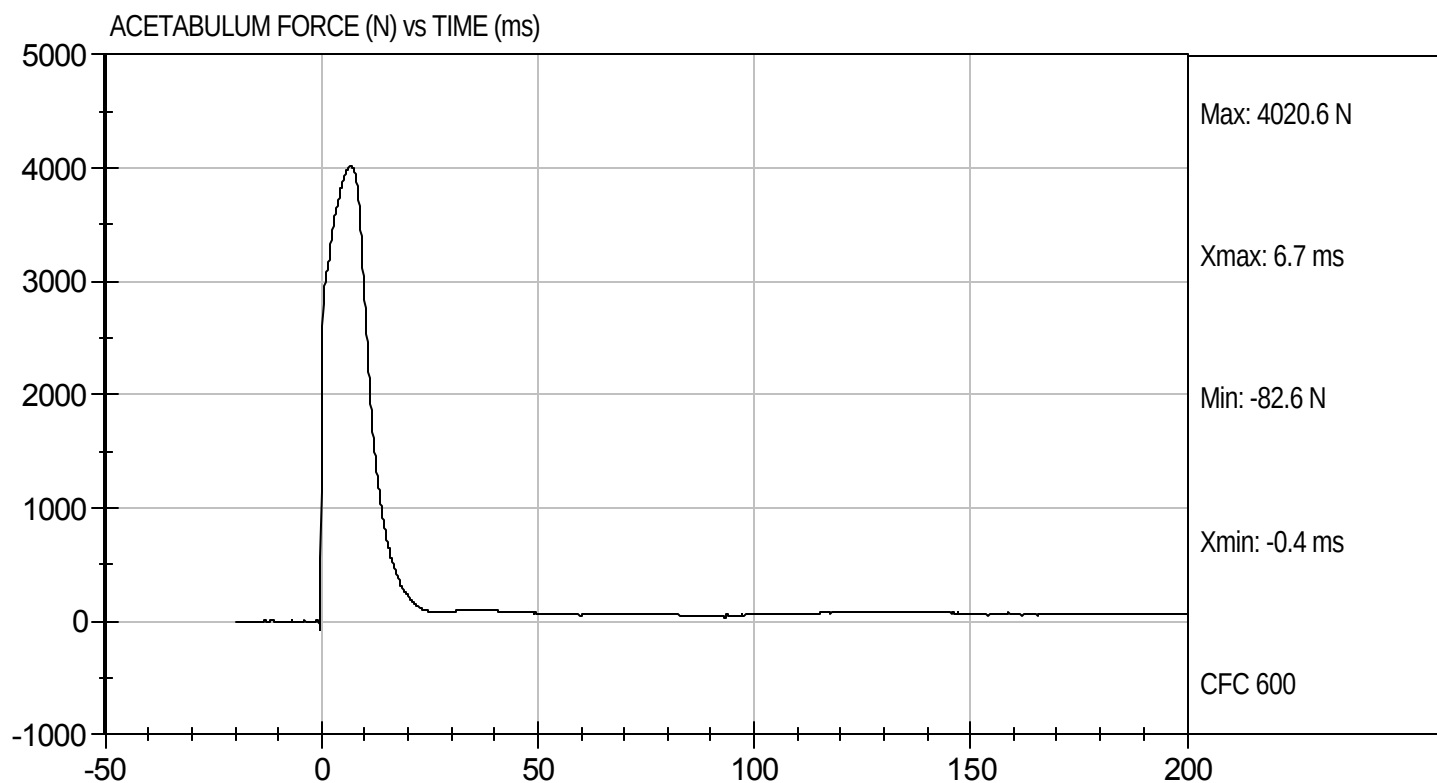
Test Date: 11/16/11
Velocity: 22.11 ft/s, 6.74 m/s





Test Desc: Pelvis Impact
Component ID: D113857

Test Date: 11/16/11
Velocity: 22.11 ft/s, 6.74 m/s



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

ATD Serial No: 296

Test I.D: D113858

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	18	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Peak Impactor Acceleration	G's	36 to 45	39	Pass
Pelvis Y Acceleration	G's	28 to 39	34	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4925	Pass
Overall Test Results			Pass	


Laboratory Technician

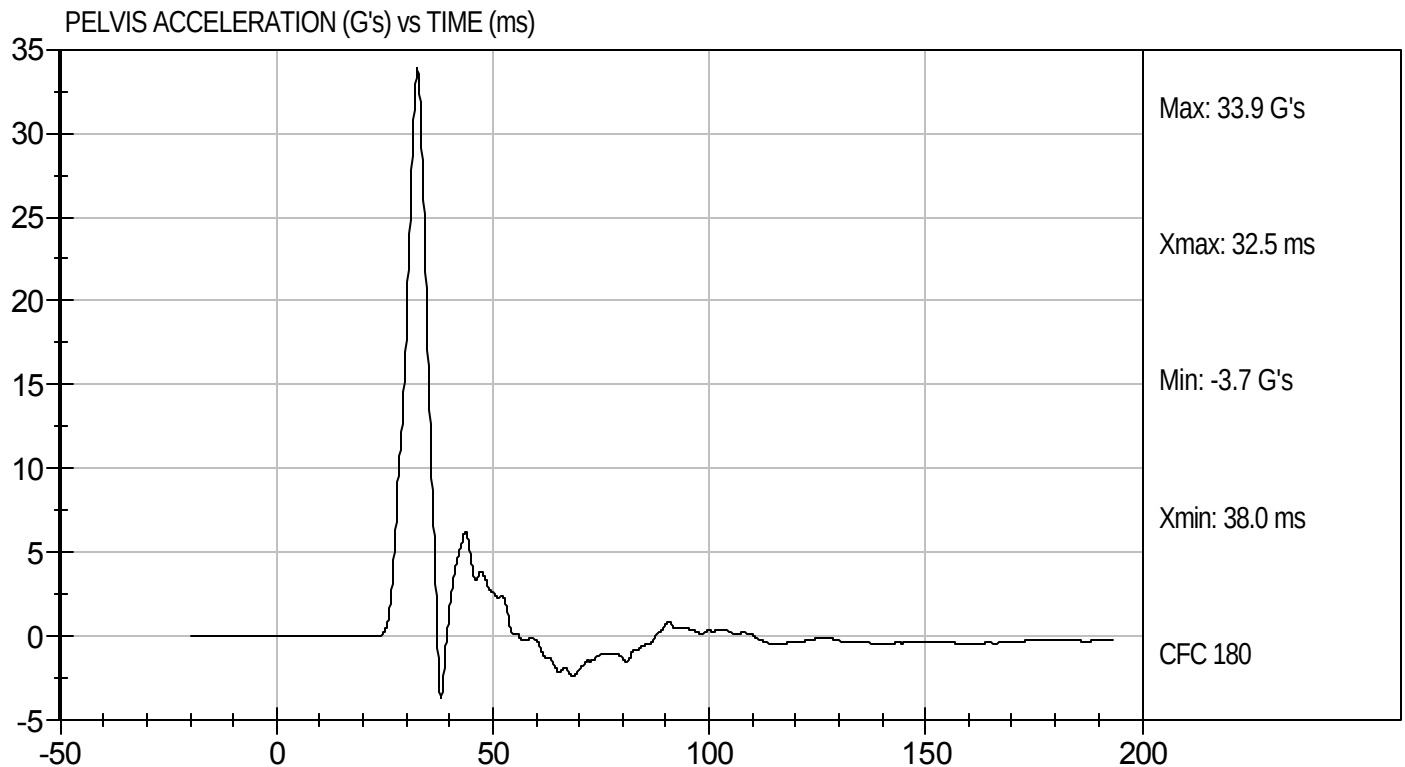
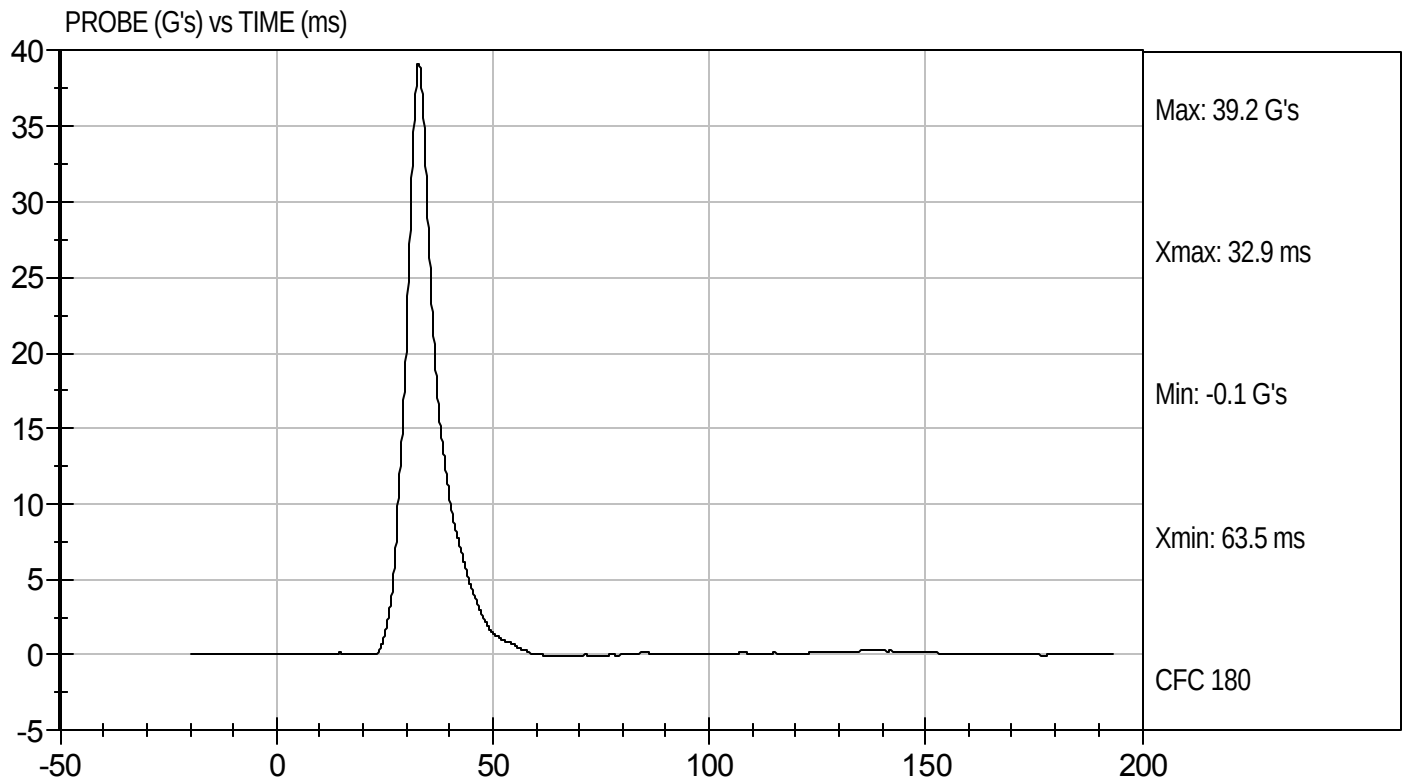
11/16/11
Test Date


Approved By



Test Desc: Iliac Impact
Component ID: D113858

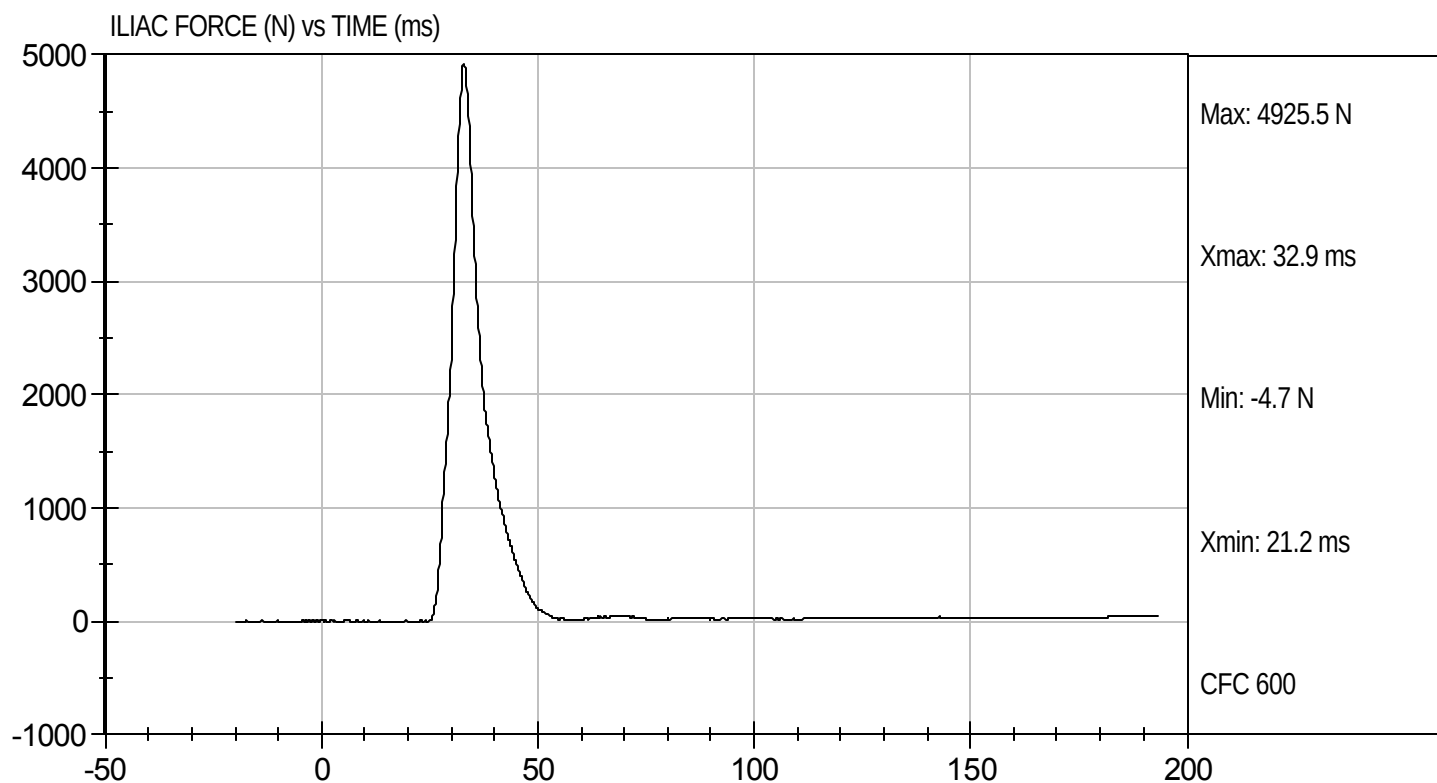
Test Date: 11/16/11
Velocity: 14.36 ft/s, 4.38 m/s





Test Desc: Iliac Impact
Component ID: D113858

Test Date: 11/16/11
Velocity: 14.36 ft/s, 4.38 m/s



APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation

				SID-IIs S/N 296			
				Serial Number	Manufacturer	Calibration Date	
Head Accelerometers				X	P67363	Endevco	10/13/11
				Y	P67364	Endevco	10/13/11
				Z	P67365	Endevco	10/13/11
Head Accelerometers				Xr	P64023	Endevco	10/13/11
				Yr	P66672	Endevco	10/13/11
				Zr	P66762	Endevco	10/13/11
Displacement Potentiometers	Thoracic Rib	Upper	Y	G1214	FTSS	10/18/11	
		Middle	Y	G1163	FTSS	10/18/11	
		Lower	Y	G1158	FTSS	10/18/11	
	Abdominal Rib	Upper	Y	G1146	FTSS	10/18/11	
		Lower	Y	G1126	FTSS	10/18/11	
Lower Spine Accelerometers (T12)				X	P67286	Endevco	09/22/11
				Y	P67289	Endevco	09/22/11
				Z	P67291	Endevco	09/22/11
Acetabulum Load Cell				Y	ACG269	Denton	01/06/11
Iliac Wing Load Cell				Y	IWG282	Denton	01/06/11
Pelvis Plug (struck side)					38400	FTSS	12/29/10
Pelvis Plug (non-struck side)					36426	FTSS	09/23/10

Table 2 – Vehicle Instrumentation

		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	P63406	Endevco	11/04/11
Vehicle Center of Gravity	Y	P63405	Endevco	11/04/11
Vehicle Center of Gravity	Z	P63407	Endevco	11/04/11
Left Floor Sill	Y	P52209	Endevco	08/22/11
A-Pillar Sill	Y	P63280	Endevco	11/04/11
A-Pillar Low	Y	P52278	Endevco	07/07/11
A-Pillar Mid	Y	P59376	Endevco	10/20/11
B-Pillar Sill	Y	P63274	Endevco	08/22/11
B-Pillar Low	Y	P59386	Endevco	11/04/11
B-Pillar Mid	V	P47079	Endevco	10/20/11
Driver Seat	Y	P63226	Endevco	10/20/11
Engine Top	X	P63334	Endevco	10/25/11
Engine Top	Y	P63335	Endevco	10/25/11
Firewall	Y	P59230	Endevco	10/20/11
Right Roof	Y	P63516	Endevco	11/04/11
Right Floor Sill	Y	P59352	Endevco	07/07/11
Rear Floorpan	X	P59388	Endevco	11/04/11
Rear Floorpan	Y	P59389	Endevco	11/04/11

Table 3 – Pole Instrumentation

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