

REPORT NUMBER: SPNCAP-MGA-2011-011

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

**FORD MOTOR COMPANY
2011 Ford Fiesta S 4-Dr Sedan
NHTSA No.: MB0212**

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



Test Date: August 12, 2010

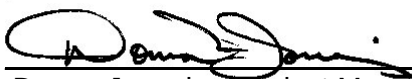
Final Report Date: September 9, 2010

FINAL REPORT

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

This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number DTNH22-09-D-00124.

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Approval Date: September 9, 2010

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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4. Title and Subtitle Final Report of New Car Assessment Program Side Impact Pole Testing of 2011 Ford Fiesta S 4-Dr Sedan NHTSA No.: MB0212		5. Report Date September 9, 2010																				
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		14. Sponsoring Agency Code NVS-111																				
15. Supplementary Notes																						
16. Abstract A 32.2 km/h (20 mph), 75° oblique impact NCAP Side Pole Test was conducted on the subject 2011 Ford Fiesta S 4-Dr Sedan in accordance with the specifications of the Office of Crashworthiness Standards NCAP Side 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 August 12, 2010. The impact velocity was 32.3 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21°C. The test vehicle post-test maximum crush was 328 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>184</td> </tr> <tr> <td style="text-align: left;">Resultant Lower Spine Acceleration</td> <td>Gs</td> <td>82</td> <td>57</td> </tr> <tr> <td style="text-align: left;">Combined Acetabular and Iliac Pelvic Force</td> <td>N</td> <td>5525</td> <td>4554</td> </tr> </tbody> </table> 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	184	Resultant Lower Spine Acceleration	Gs	82	57	Combined Acetabular and Iliac Pelvic Force	N	5525	4554
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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 Adm. Technical Reference Division 1200 New Jersey Ave, SE Washington, D.C. 20590																				
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 126	22. Price																			

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SECTION 1
TEST PURPOSE AND PROCEDURE

This side impact test is part of the MY 2011 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 2011 Ford Fiesta S 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 January 2010.

SECTION 2

SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2011 Ford Fiesta S 4-Dr Sedan. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.3 km/h. The test was conducted by MGA Research Corporation in Burlington, Wisconsin, on August 12, 2010. 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 NCAP Side Pole Laboratory Test Procedure dated January 2010. Camera locations and other pertinent camera information are included in this report.

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

Head Accelerometers
 Thorax Upper, Middle, and Lower Rib Potentiometers
 Abdomen Upper and Lower Rib Potentiometers
 Lower Spine Accelerometers
 Iliac Load Cell
 Acetabulum Load Cell

Appendix B contains the vehicle and dummy response data. Dummy configuration and performance verification data can be found in Appendix C of this report.

The following table summarizes the results of the test:

DUMMY INJURY VALUES

Dummy	HIC (36ms)	Resultant Lower Spine Acceleration	Pelvic Force (N)	
			Iliac Wing	
SID-IIs 5 th Percentile Female	184	57	Acetabular	1782
			Sum	3234
				4554

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Left Front (Driver) P1		Left Rear (Passenger) P4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No	No	
Knee Airbag	Yes	No	No	
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes		No	

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

GENERAL COMMENTS

There was no valid data collected for:

- Left A-Post @ Sill Y after 90 msec.
- Left Lower A-Post Y after 100 msec.
- Left Lower B-Post Y after 40 msec.
- Left Mid B-Post Y after 10 msec.
- Driver Seat Track Y after 30 msec.

.

Camera No. 6 – Dummy Side View (Onboard) did not run.

There were incorrect labels on some of the post-test photographs.
These photo labels were removed.

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: 2011 Ford Fiesta S 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB0212
 Test Date: 8/12/2010

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	MB0212	Anti-Lock Brakes	Yes
Model Year	2011	All Wheel Drive	No
Make	Ford	Power Steering	Yes
Model	Fiesta	Driver Front Airbag	Yes
Body Style	Sedan	Driver Curtain Airbag	Yes
VIN	3FADP4AJ4BM111412	Driver Head/Torso Airbag	No
Body Color	Blue Flame Metallic	Driver Torso Airbag	No
Delivery Date	7/29/10	Driver Torso/Pelvis Airbag	Yes
Odometer (mi)	178	Driver Pelvis Airbag	No
Odometer (km)	286	Driver Knee Airbag	Yes
Dealer	Boucher Fleet Group	Rear Pass. Front Airbag	No
Transmission	Manual	Rear Pass. Curtain Airbag	Yes
Final Drive	Front	Rear Pass. Head/Torso Airbag	No
Type/No. Cylinders	4	Rear Pass. Torso Airbag	No
Engine Displacement (L)	1.6	Rear Pass. Torso/Pelvis Airbag	No
Engine Placement	Lateral	Rear Pass. Pelvis Airbag	No
Roof Rack	No	Rear Pass. Knee Airbag	No
Sunroof/T-Top	No	Pretensioners	Yes
Tinted Glass	No	Load Limiters	Yes
Traction Control	Yes	Automatic Door Locks	Yes
Power Brakes	Yes	Bucket Seats	Yes
Front Disc	Yes	Tilt Steering	Yes
Rear Disc	No	Power Seats	No
Does owner's manual provide instruction to turn off automatic door locks?			Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Company	GVWR (kg)	1642
Date of Manufacture	06/10	GAWR Front (kg)	839
		GAWR Rear (kg)	816

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	(A)
Capacity Weight (VCW) (kg)				375	(B)
DSC x 68.04 kg				340	(A-B)
Cargo Weight (RCLW) (kg)				35	

VEHICLE SEAT TYPE

Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	60/40 Split Folding	Contoured	Fixed	Adjustable	
						Manual	Power
Front Seat	X					w/Lever	
Rear or Second Row			X		X		
Third Row Seat							

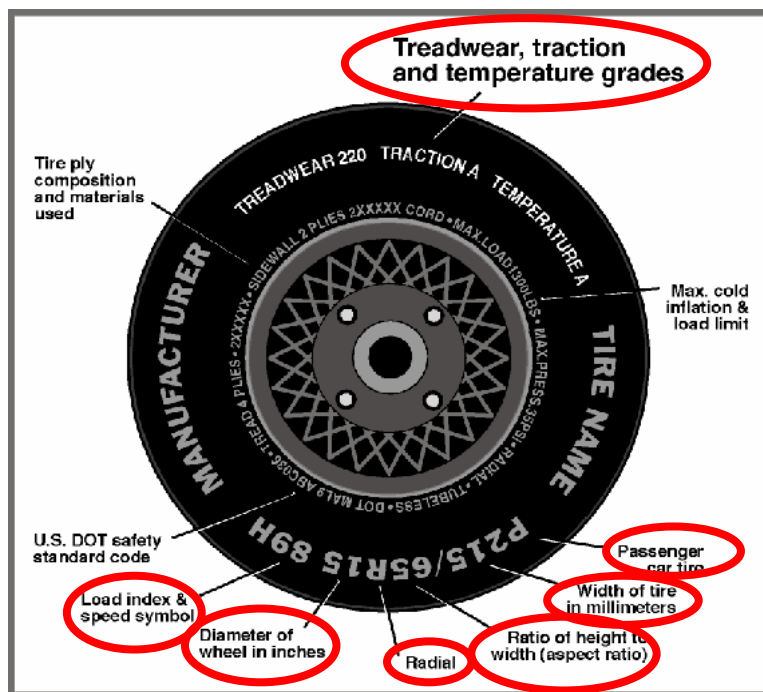
DATA SHEET NO. 1 (continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Ford Fiesta S 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB0212
 Test Date: 8/12/2010

VEHICLE TIRE INFORMATION



Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	220	220
Recommended Tire Size	P185/60R15	P185/60R15
Tire Size on Vehicle	P185/60R15	P185/60R15
Tire Model	Kumho	Kumho
Tire Manufacturer	SOLUS KH25	SOLUS KH25
Treadwear	480	480
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	1	1
Tire Plies Body	4	4
Load Index & Speed Symbol	84H	84H
Tire Material	Rubber	Rubber
DOT Safety Code Right	DOT COR9 YPL8	DOT COR9 YPL8
DOT Safety Code Left	DOT COR9 YPL8	DOT COR9 YPL8

DATA SHEET NO. 1 (continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Ford Fiesta S 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB0212
 Test Date: 8/12/2010

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	341.1	247.7		364.3	280.3		363.3	286.7	
Right	kg	330.2	244.5		332.9	268.1		331.6	269.0	
Ratio	%	57.7	42.3		56.0	44.0		55.6	44.4	
Totals	kg	671.3	492.2	1163.5	697.2	548.4	1245.6	694.9	555.7	1250.6

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1163.5	(A)
Actual Weight of 1 P572V ATD (SID-IIs) ATD Used	kg	52.2	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	35	(C)
Calculated Target Vehicle Test Weight (TVTW)	kg	1250.7	(A+B+C)

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded
Driver Door Sill Angle (front-to-rear)*	deg	-0.7	-0.7	-0.4
Front Passenger Sill Angle (front-to-rear)*	deg	-0.9	-0.6	-0.6
Front Bumper Angle (left-to-right)**	deg	0.0	-0.1	-0.1
Rear Bumper Angle (left-to-right)**	deg	0.1	0.1	0.1
Vehicle CG (Aft of Front Axle)	mm	1056	1099	1110
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	9	26	29

*Front up is positive ** Left up is positive

GENERAL VEHICLE TEST DATA

Measurement Description	Units	Value
Weight of Ballast in Cargo Area	kg	0.0
Weight of Vehicle Components Removed	kg	48.1

Vehicle components removed to meet target vehicle test weight: Spare tire, trunk carpet, jack & tools, tail lights, right front mirror, hub caps, passenger headrests, non-struck side door panels, non-struck side windows and mechanisms, rear seat, trunk vents, brake lights, antenna, passenger floor mats.

TEST VEHICLE IMPACT POINT DATA

Measurement Parameter	Units	Value
Vertical Impact Reference Line (Aft of Front Axle)	mm	1065
Actual Impact Point (Aft of Front Axle)	mm	1077
Impact Point Difference (- forward / + rearward)	mm	12

DATA SHEET NO. 2

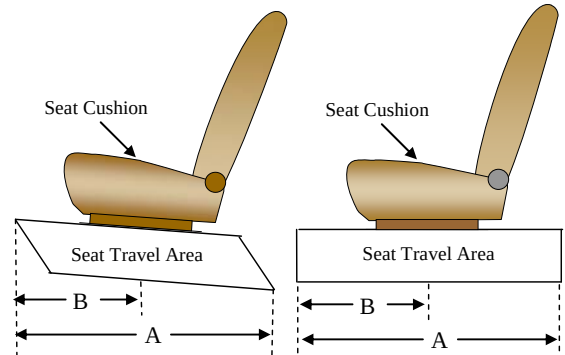
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

Test Vehicle: 2011 Ford Fiesta S 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB0212
 Test Date: 8/12/2010

SEAT FORE/AFT POSITIONS

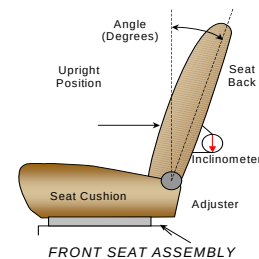
The driver seat was a manual fore/aft adjustable seat with a manual angle adjustment. The seat travel was set as specified in Appendix B of the TP dated January 2010. The right front passenger manual seat was set to match the driver seat. The rear passenger seats were not adjustable.



SEAT FORE/AFT POSITIONING	Total Fore/Aft Travel (mm)	Placed in Detent # or Position (mm)
Driver Seat	25 detents	0 detent (full forward)
Front Passenger Seat	25 detents	0 detent (full forward)
Rear Seat – Struck Side		Fixed
Rear Seat – Non-Struck Side		Fixed

SEAT BACK ANGLE POSITION

The seat back was set as specified in Appendix B of the TP dated January 2010. The seat back angle measurement was made relative to the rocker sill at the headrest post for the front seats and at the seat back frame for the rear seats.



SEAT BACK ANGLE	Degrees	Detents
Driver Seat Back Angle with Seated Dummy	2.8 (headrest post)	
Front Passenger Seat Back Angle	3.3 (headrest post)	
Struck Side Rear Seat Back Angle	Fixed	
Non-Struck Side Rear Passenger Seat Back Angle	Fixed	

SEAT BELT UPPER ANCHORAGE

The driver and passenger seat belt upper anchorages were set at the manufacturer's specified placement in Form 1.

SEAT BELT UPPER ANCHORAGES	Total # of Positions	Placed in Position #
Driver Seat	4 detents	0 (uppermost as 0)
Front Passenger Seat	4 detents	0 (uppermost as 0)

DATA SHEET NO. 2 (CONTINUED)

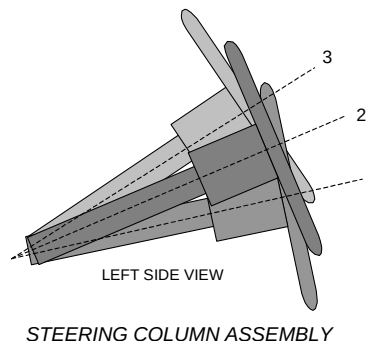
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

Test Vehicle: 2011 Ford Fiesta S 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB0212
 Test Date: 8/12/2010

STEERING COLUMN ADJUSTMENT

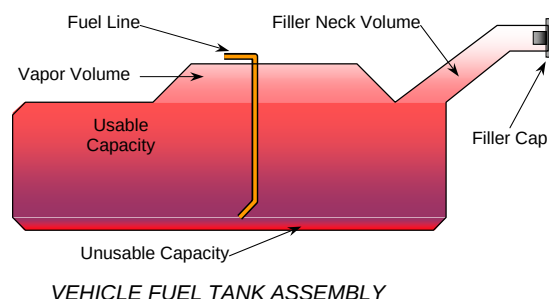
Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. An aluminum plate is placed across the rim of the steering wheel, an inclinometer is placed on the plate and the angle is measured.



STEERING COLUMN POSITIONING

	Degrees	Fore/Aft Position (mm)
Lowermost - Position 1	69.8	204 mm
Geometric Center – Position 2	67.8	182 mm
Uppermost – Position 3	65.8	160 mm
Telescoping Steering Wheel Travel	4.0	44 mm
Test Position	67.8	182 mm

Describe the fuel pump type, its behavior, and the location of the fuel filler pipe. The test vehicle is equipped with an electric fuel pump. Fuel pump will operate when keyed on, pumps run a 2 second cycle to prime system, and otherwise doesn't run until engine is cranked. The fuel pipe is on the left side.



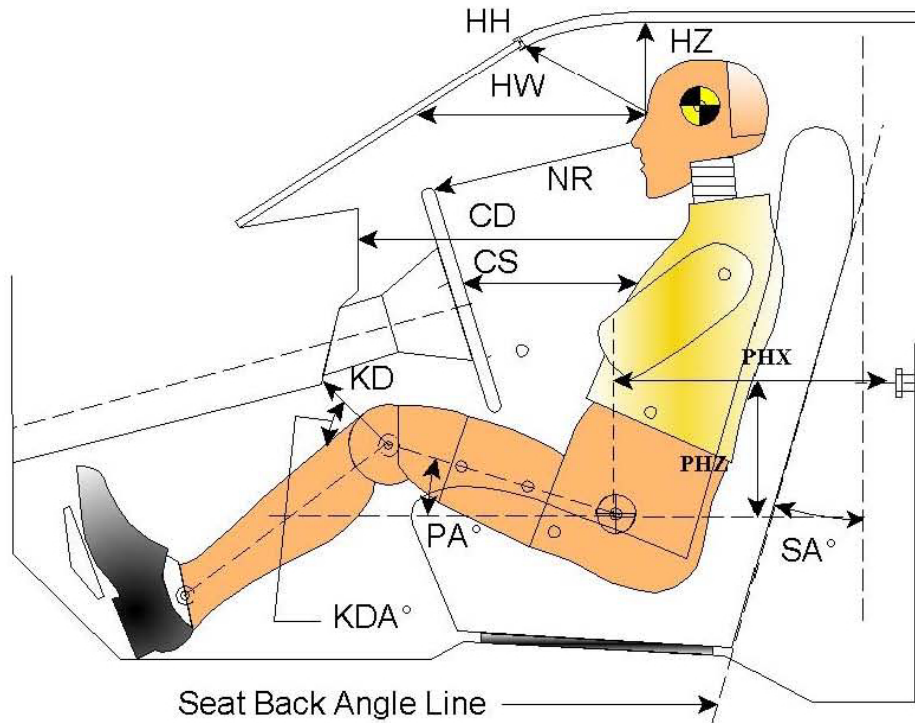
FUEL TANK CAPACITY DATA

	Liters
Usable Capacity of "Standard" Tank	47.0
Usable Capacity of "Optional" Tank	
Usable Capacity of Standard Tank as Specified in Owner's Manual	47.0
Usable Capacity of Optional Tank as Specified in Owner's Manual	
92-94% of Usable Capacity	43.2 to 44.2
Actual Amount of Solvent Used	43.7
1/3 of Usable Capacity	15.7

.DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Ford Fiesta S 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB0212
 Test Date: 8/12/2010

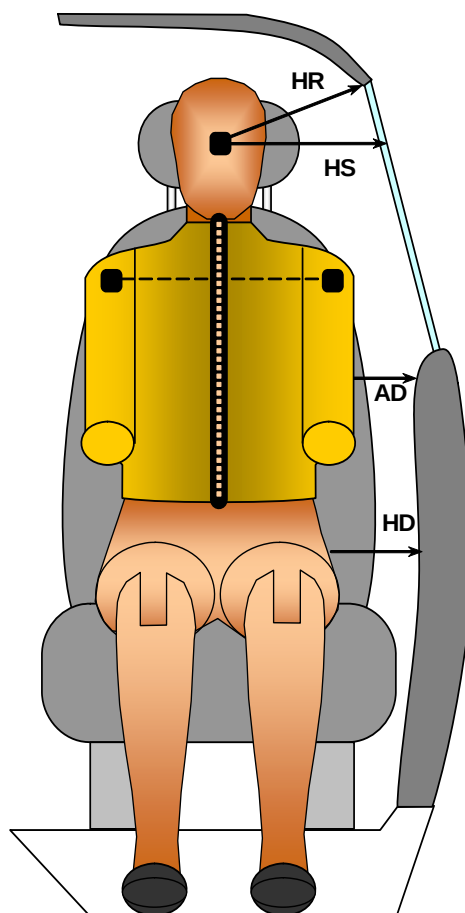


Code	Measurement Description	Driver S/N 296	
		Length (mm)	Angle (°)
HH	Head to Header	221	
HW	Head to Windshield	626	
HZ	Head to Roof	183	
NR	Nose to Rim	200	
CD	Chest to Dash	392	
CS	Chest to Steering Wheel	163	
KDL/KDAL	Left Knee to Dash	153	53.4
KDR/KDAR	Right Knee to Dash	136	49.9
PA	Pelvic Angle		18.5
PHX	H-Point to Striker (X-Axis)	303	
PHZ	H-Point to Striker (Z-Axis)	125	
SA	Seat Back Angle		2.8

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Ford Fiesta S 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB0212
 Test Date: 8/12/2010



FRONT VIEW OF DUMMY

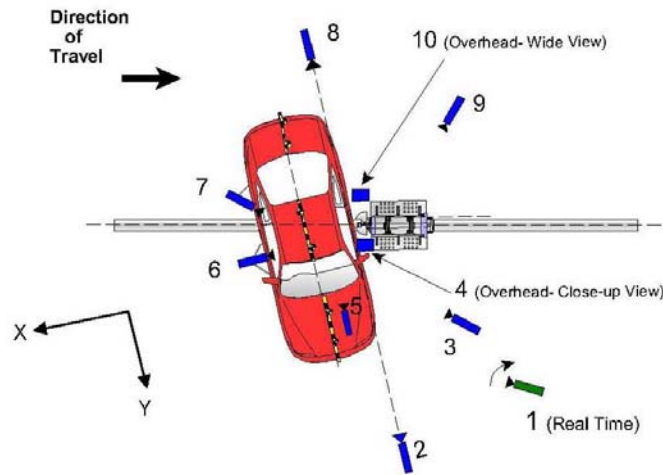
Code	Measurement Description	Driver S/N 296
		Length (mm)
HR	Head to Side Header	223
HS	Head to Side Window	333
AD	Arm to Door	154
HD	H-Point to Door	161

DATA SHEET NO. 5

CAMERA LOCATIONS AND DATA

Test Vehicle: 2011 Ford Fiesta S 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB0212
 Test Date: 8/12/2010



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	20	5530	-1630	24	1000
3	Impact Side 45° Forward	-1780	4160	-1640	20	1000
4	Overhead Closeup	40	0	-4520	50	1000
5	Onboard – Driver Front				12.5	1000
6	Onboard – Driver Side				8	1000
7	Onboard – Driver Rear				8	1000
8	Rear Ground Level	0	-6580	-1630	24	1000
9	Impact Side 45° Rearward	-3510	-2870	-1660	20	1000
10	Overhead Wide View	90	0	-4520	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.

INSTRUMENTATION

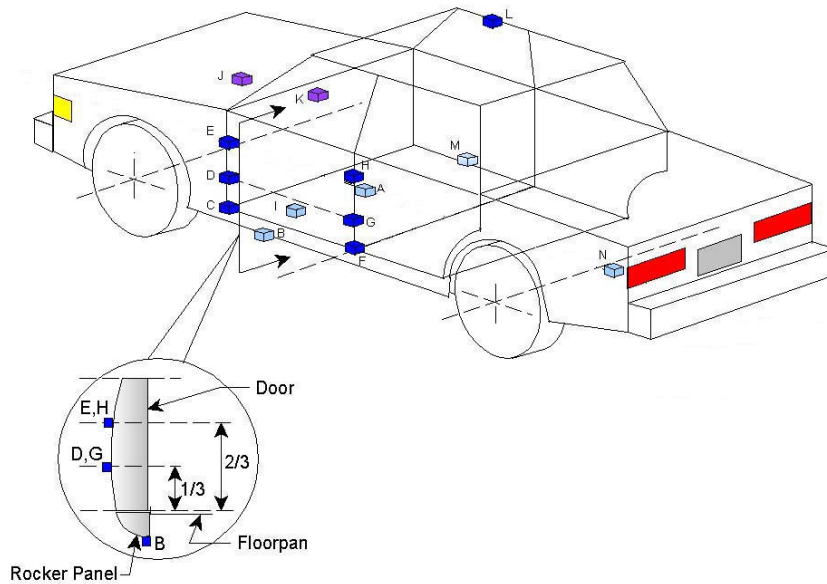
	Number of Channels
Driver Dummy	16
Vehicle Structure	21
Pole Load Cells – Not used	8
Contact Switches	3
Airbag Timing	2
Total No. of Data Channels	50

DATA SHEET NO. 6

VEHICLE ACCELEROMETER DATA

Test Vehicle: 2011 Ford Fiesta S 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB0212
 Test Date: 8/12/2010



	Accelerometer Location			
	ID	Coordinates (mm)		
		X	Y	Z
A	Vehicle CG	2411	-165	-215
	Vehicle CG Sensor	2528	-165	-215
B	Left Floor Sill	2809	-667	-218
C	A Pillar Sill	3094	-667	-210
D	A Pillar Low	3015	-645	-519
E	A Pillar Mid	3088	-753	-758
F	B Pillar Sill	2056	-667	-225
G	B Pillar Low	1972	-658	-560
H	B Pillar Mid	1970	-678	-780
I	Driver Seat	2213	-540	-411
L	Engine Top	3680	-10	-780
J	Firewall	3289	0	-700
K	Right Roof	2022	460	-1481
M	Right Floor Sill	2316	662	-230
N	Rear Floorpan	643	0	-317

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

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2011 Ford Fiesta S 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. MB0212
Test Date: 8/12/2010



254 mm Diameter Rigid Pole

The pole was not instrumented.

Load Cell Locations	
ID	Height From Ground (m)
1	
2	
3	
4	
5	
6	
7	
8	

DATA SHEET NO. 8

POST-TEST OBSERVATIONS

Test Vehicle: 2011 Ford Fiesta S 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB0212
 Test Date: 8/12/2010

TEST DUMMY INFORMATION AND CONTACT

Description	Driver
Dummy Type / Serial No.	SID-IIs / 296
Head Contact	Curtain Airbag, Headrest, Seatback
Upper Torso Contact	Side Airbag
Lower Torso Contact	Side Airbag
Left Knee Contact	Door Panel
Right Knee Contact	Left Knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Left Side Doors	Remained closed and jammed shut	Remained closed and jammed shut
Right Side Doors	Remained closed and operational	Remained closed and operational
Hatch and Other Doors	Remained closed and operational	Remained closed and operational
Seat Movement	0	0
Seat Back Failure	None	None

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No Separation
Sill Separation	None
Windshield Damage	Cracked
Window Damage	Left Front Window Broke
Other Notable Effects	Loss of windshield retention on left side

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Left Front (Driver) P1		Left Rear (Passenger) P4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No	No	
Knee Airbag	Yes	No	No	
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes		No	

VEHICLE SPEED AND IMPACT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset from Vertical Impact Reference Line	mm	+/- 38	+12
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.3
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.5

DATA SHEET NO. 9

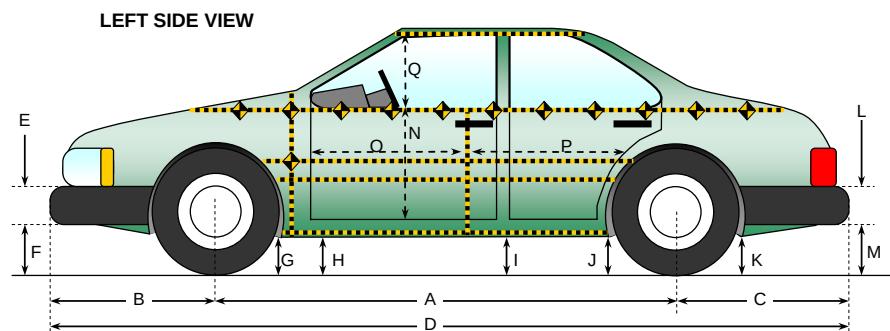
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta S 4-Dr Sedan

NHTSA No. MB0212

Test Program: NCAP Side Pole Impact Test

Test Date: 8/12/2010



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

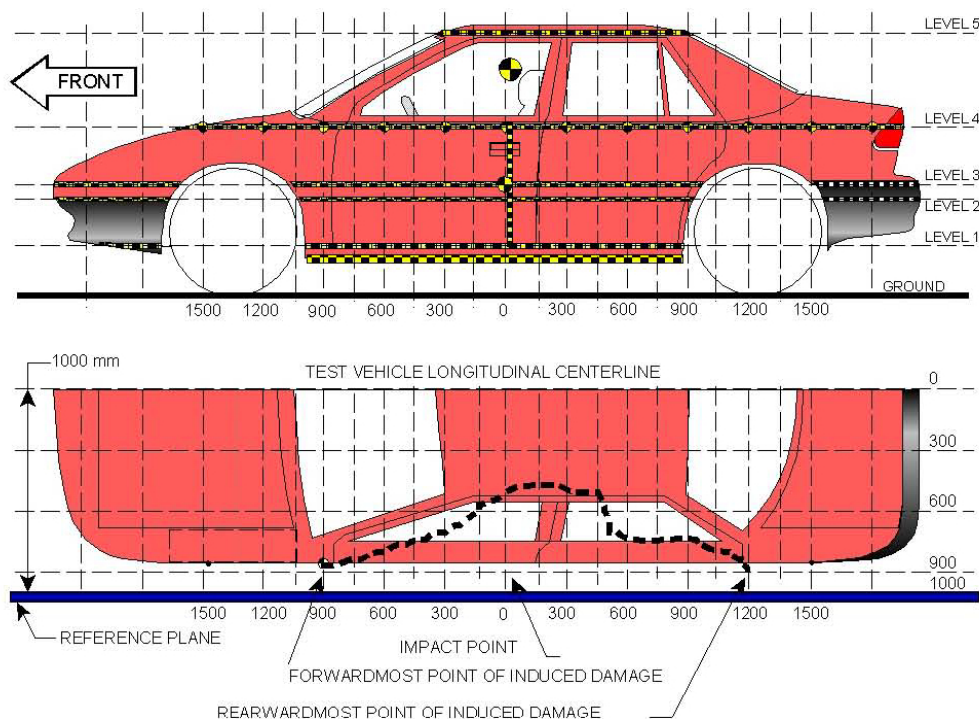
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2497	2460	37
B	Front Axle to FSOV	857	862	-5
C	Rear Axle to RSOV	1065	1065	0
D1	Total Vehicle Length at Left Side	3110	3040	70
D2	Total Vehicle Length at Centerline	4419	4387	32
D3	Total Vehicle Length at Right Side	3110	3114	-4
E	Front Bumper Thickness	140	140	0
F	Front Bumper Bottom to Ground	219	232	-13
G	Sill Height at Front Wheel Well	179	184	-5
H	Sill Height at Front Door Leading Edge	185	165	20
I	Sill Height at B Pillar	195	197	-2
J1	Sill Height at Rear Wheel Well	205	234	-29
J2	Pinch Weld Height at Rear Wheel Well	207	220	-13
K	Sill Height Aft of Rear Wheel Well	215	226	-11
L	Rear Bumper Thickness	120	120	0
M	Rear Bumper Bottom to Ground	337	350	-13
N	Sill Height to Window Bottom Sill	704	692	12
O	Front Door Leading Edge to Impact CL	708	710	-2
P	Rear Door Trailing Edge to Impact CL	1150	1175	-25
Q	Front Window Opening	440	390	50
R	Right Side Length	3110	3114	-4
S	Left Side Length	3110	3040	70
T	Vehicle Width at B Post	1683	1570	113

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta S 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB0212
 Test Date: 8/12/2010



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

Level	Measurement Description	Height Above Ground (mm)
1	Sill Top	260
2	Occupant H-Point	560
3	Mid-Door	625
4	Window Sill	910
5	Window Top	1375

DATA SHEET NO. 10 (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta S 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. MB0212
Test Date: 8/12/2010

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-975			249	350				256	352				7	2	
-825		251	254	349			264	264	349			13	10	0	
-750	301	256	264	342		305	265	271	350		4	9	7	8	
-675	302	264	270	340		309	278	278	350		7	14	8	10	
-600	300	265	266	333		337	306	303	356		37	41	37	23	
-525	298	263	264	329		358	334	330	372		60	71	66	43	
-450	297	261	262	320		388	360	361	393		91	99	99	73	
-375	296	260	260	314		417	394	396	424		121	134	136	110	
-300	296	259	257	310		454	437	439	464		158	178	182	154	
-225	296	258	255	306		485	470	473	495		189	212	218	189	
-150	296	257	256	301	529	533	518	520	535	650	237	261	264	234	121
-75	297	257	256	297	525	569	564	564	577	644	272	307	308	280	119
0	298	257	255	293	522	578	576	583	589	639	280	319	328	296	117
75	300	257	255	289	521	548	556	562	566	624	248	299	307	277	103
150	304	257	255	288	521	490	514	519	515	607	186	257	264	227	86
225	304	257	255	285	523	459	461	463	475	598	155	204	208	190	75
300	306	258	255	283	527	429	399	399	407	582	123	141	144	124	55
375	308	260	257	282	528	403	363	358	374	569	95	103	101	92	41
450	311	262	259	282	530	386	352	350	364	561	75	90	91	82	31
600	311	266	262	283	536	353	336	333	349	554	42	70	71	66	18
750	308	270	267	286	543	313	316	315	334	553	5	46	48	48	10
900	302	274	272	292	553	268	291	294	315	552	-34	17	22	23	-1
1050		261	265	276	566		255	262	283	563		-6	-3	7	-3
1200			254	310				257	298				3	-12	
1350				321					323					2	
1500				331					331					0	

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

DATA SHEET NO. 10 (CONTINUED)**VEHICLE EXTERIOR CRUSH MEASUREMENTS**Test Vehicle: 2011 Ford Fiesta S 4-Dr SedanNHTSA No. MB0212Test Program: NCAP Side Pole Impact TestTest Date: 8/12/2010**MAXIMUM CRUSH DATA**

	Level 1	Level 2	Level 3	Level 4	Level 5
Maximum Crush (mm)	280	319	328	296	121
Distance From Impact (mm)	0	0	0	0	-150

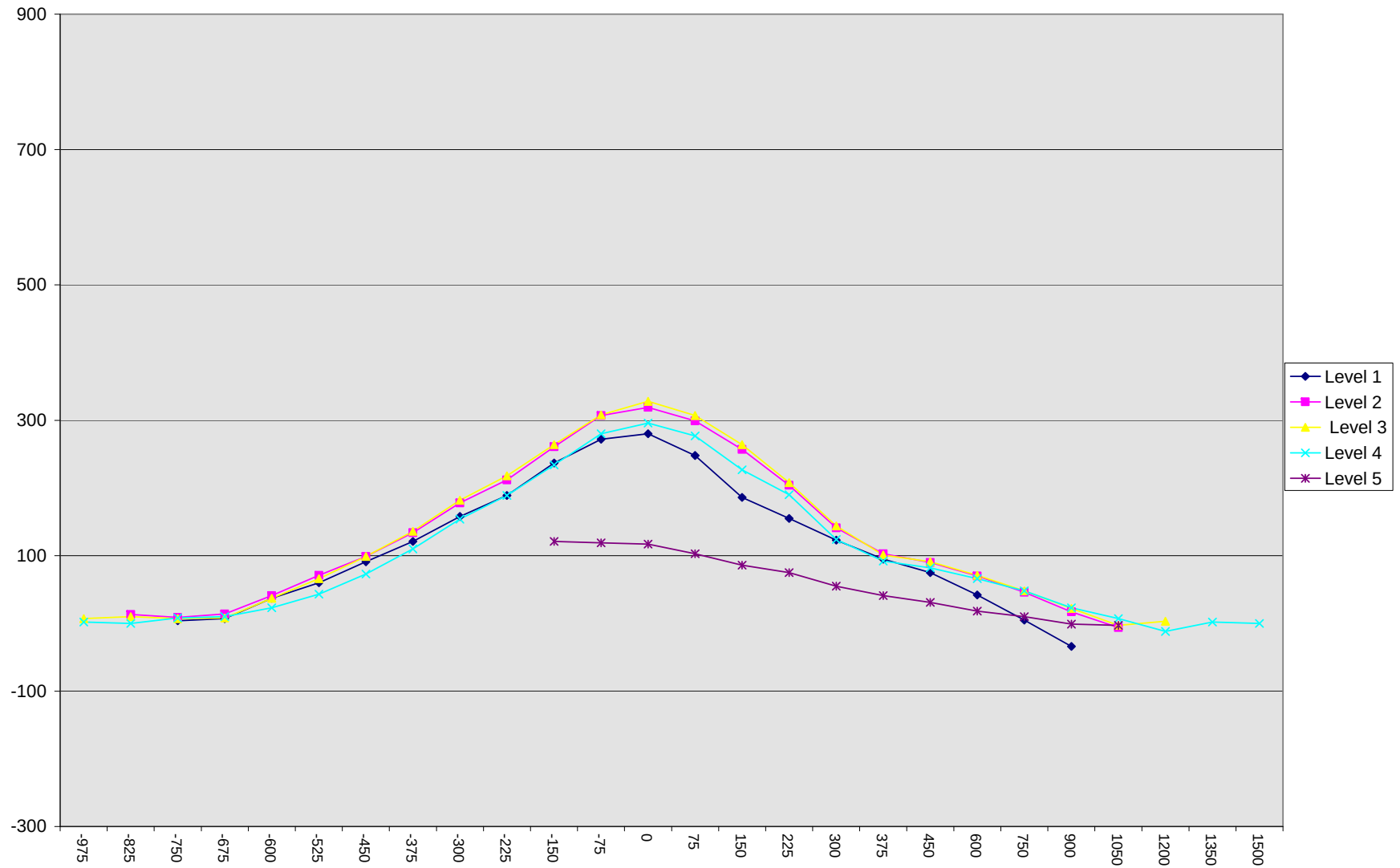
Note: Pre-test measurements are taken when the vehicle is in the "As Tested" weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to test based on an estimated impact point. The final distance to impact is determined 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: 2011 Ford Fiesta S 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. MB0212
Test Date: 8/12/2010

20



DATA SHEET NO. 11

FMVSS 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

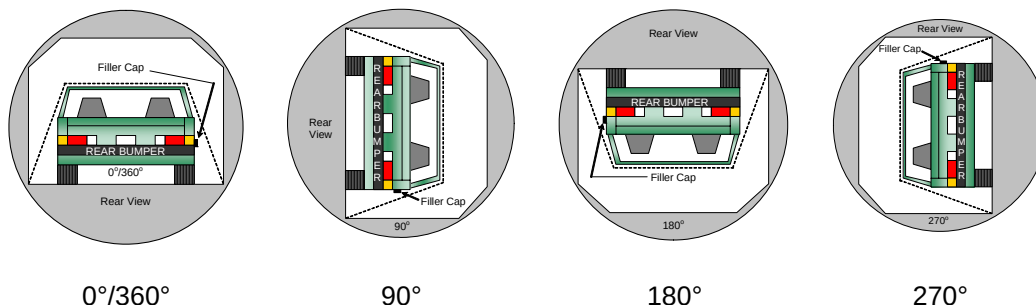
Test Vehicle: 2011 Ford Fiesta S 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MB0212
 Test Date: 8/12/2010

Test Time: 10:53 am Temperature: 21° 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°	124	300	424
90° to 180°	114	300	414
180° to 270°	111	300	411
270° to 360°	121	300	421

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

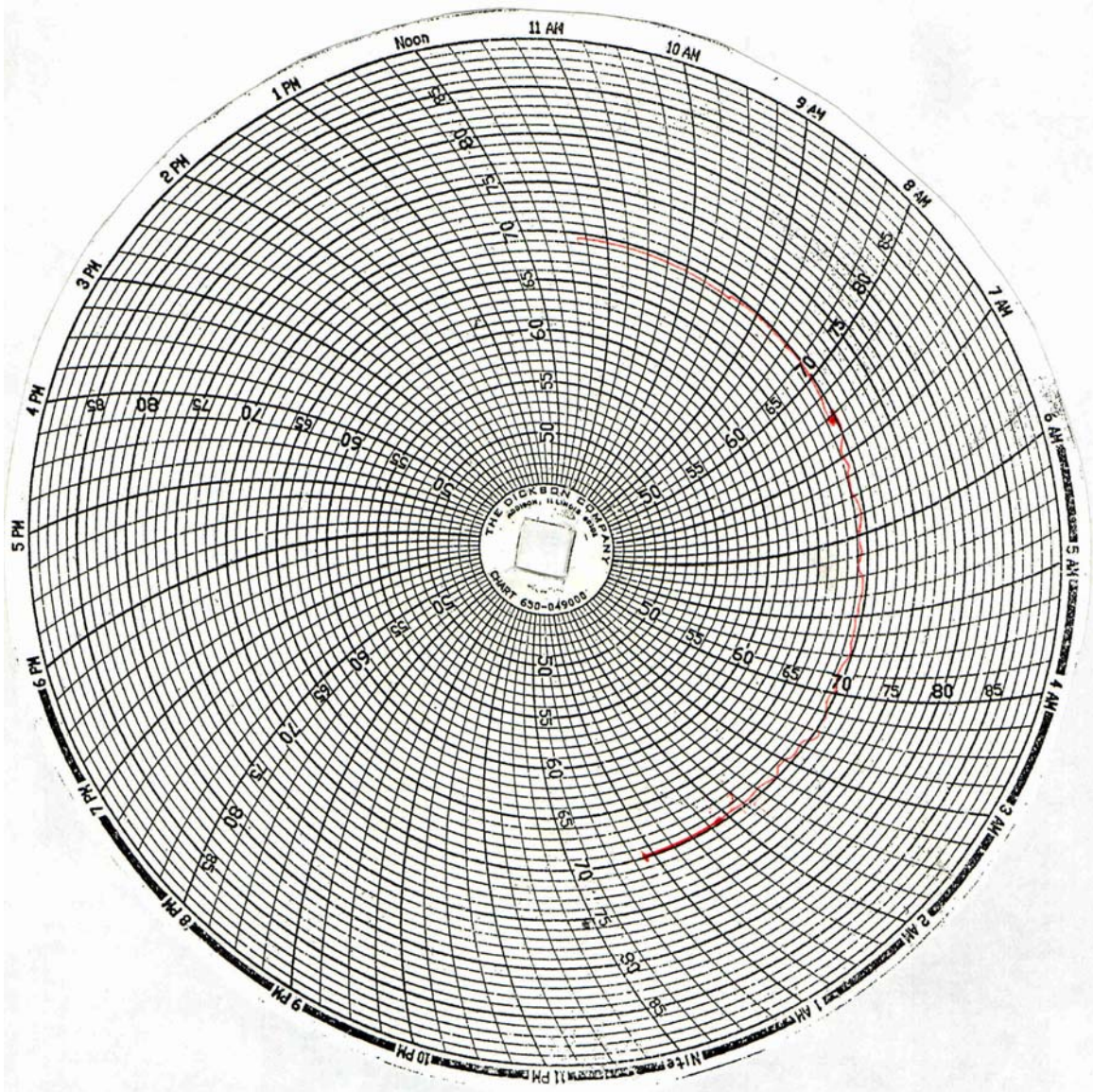
Test Phase	Spillage Location
0° to 90°	
90° to 180°	
180° to 270°	
270° to 360°	

DATA SHEET NO. 12

DUMMY/VEHICLE TEMPERATURE STABILIZATION DATA

Test Vehicle: 2011 Ford Fiesta S 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. MB0212
Test Date: 8/12/2010



APPENDIX A
PHOTOGRAPHS

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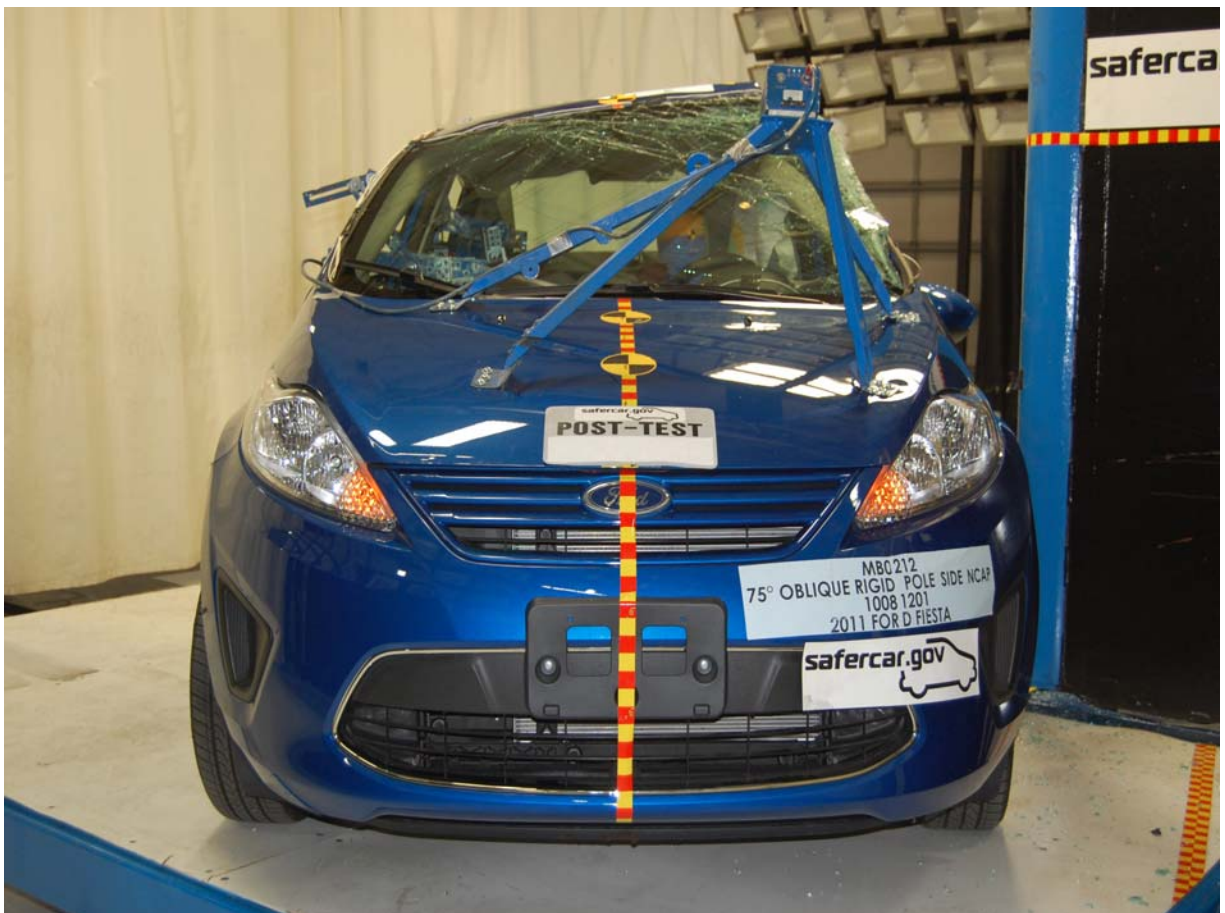
As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



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 Vehicle and Pole



Post-Test Overhead View of Test Vehicle and Pole



Pre-Test Left Side View of Pole Positioned Against Side of Vehicle at Ideal Impact Point



Pre-Test Right Side View of Pole Positioned Against Side of Vehicle at Ideal Impact Point



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



Post-Test Front Close-Up View of Dummy



Pre-Test Left Side View of Dummy Showing Belts, Chalking, and Contact Switches (Door Open)



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 Frontal View of Seat Back Prior to Dummy Positioning



Pre-Test Frontal View of Dummy Head and Shoulders in Relation to Head Restraint



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



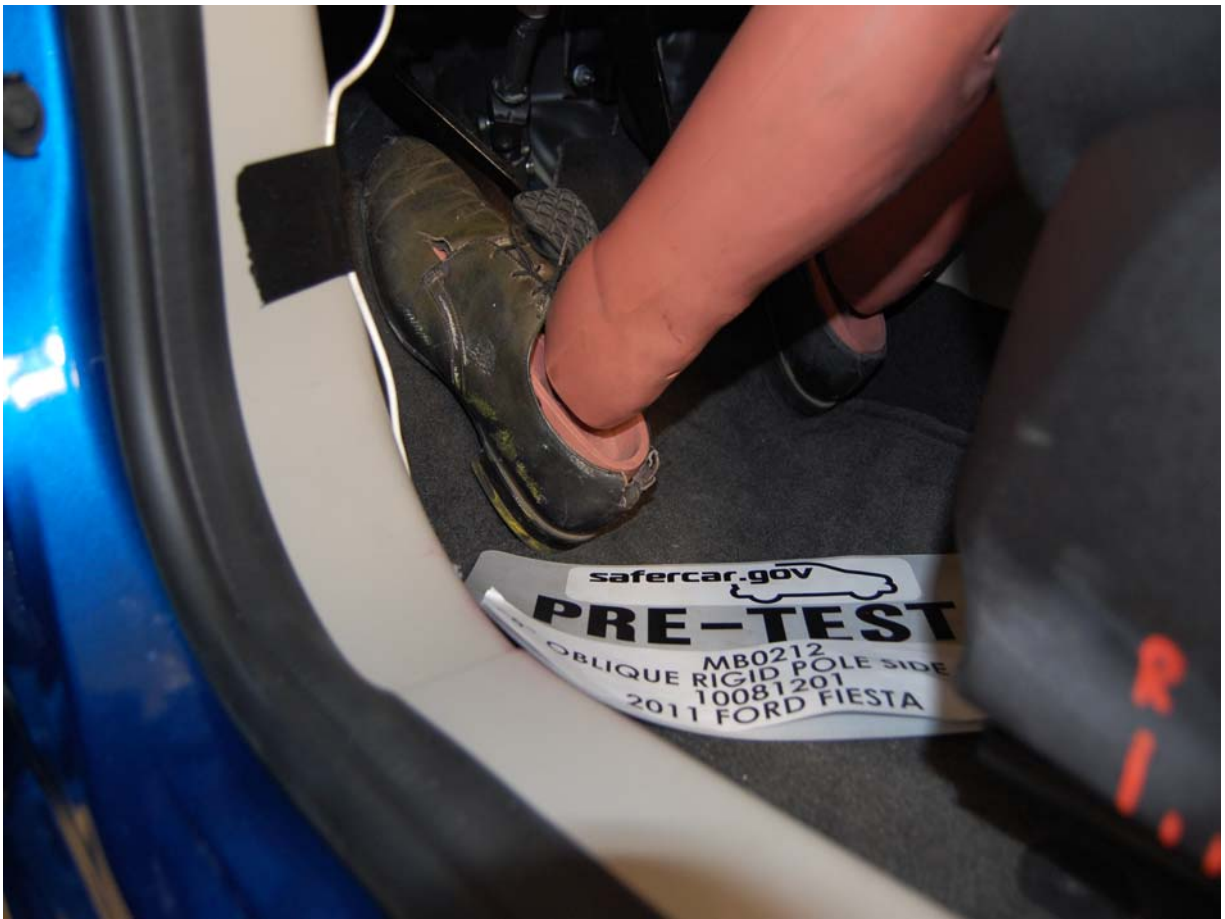
Pre-Test Overhead View of Dummy Thighs on Seat Pan



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



Pre-Test 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 to Show Position



Pre-Test Left Side View of Steering Wheel to Show Position



Pre-Test View of Parking Brake



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



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



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



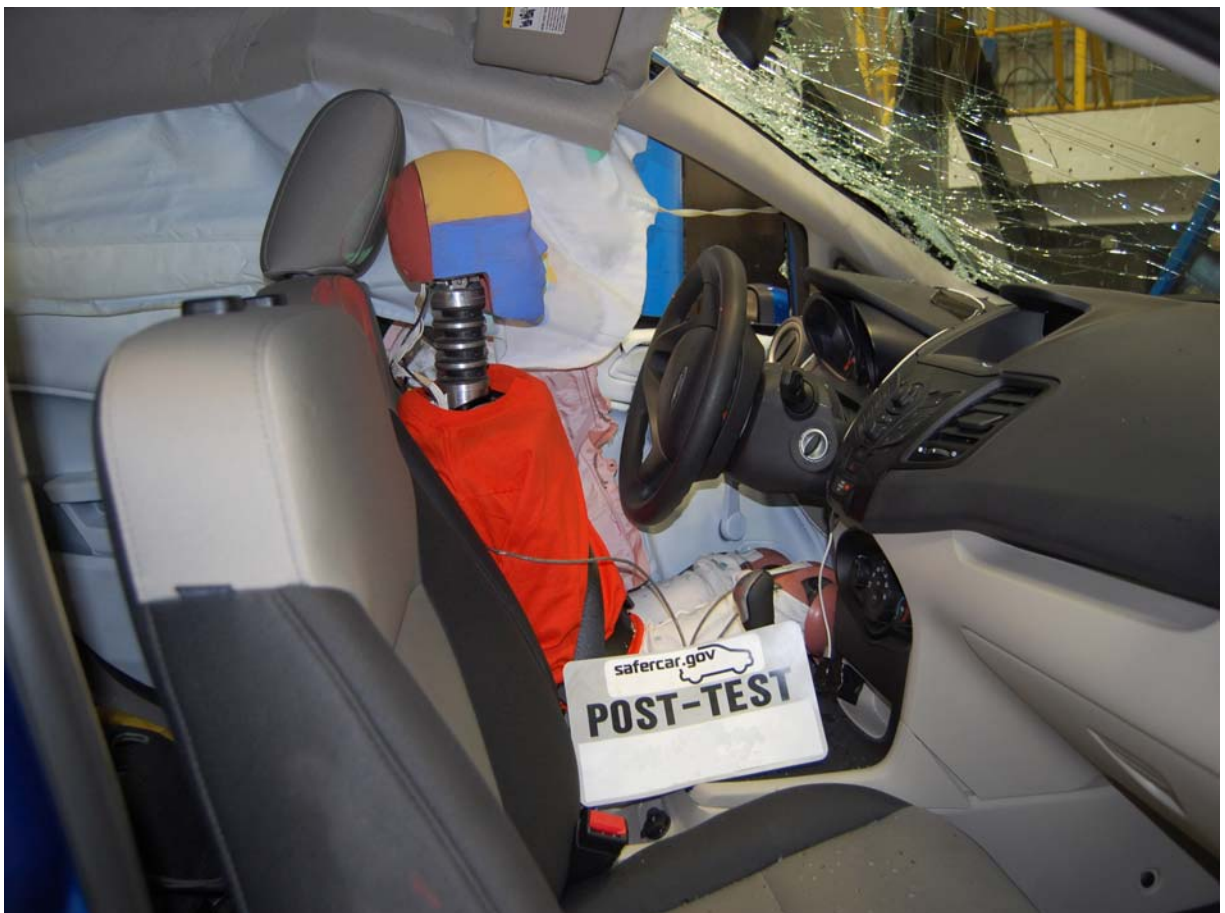
Pre-Test Dummy and Door Clearance View



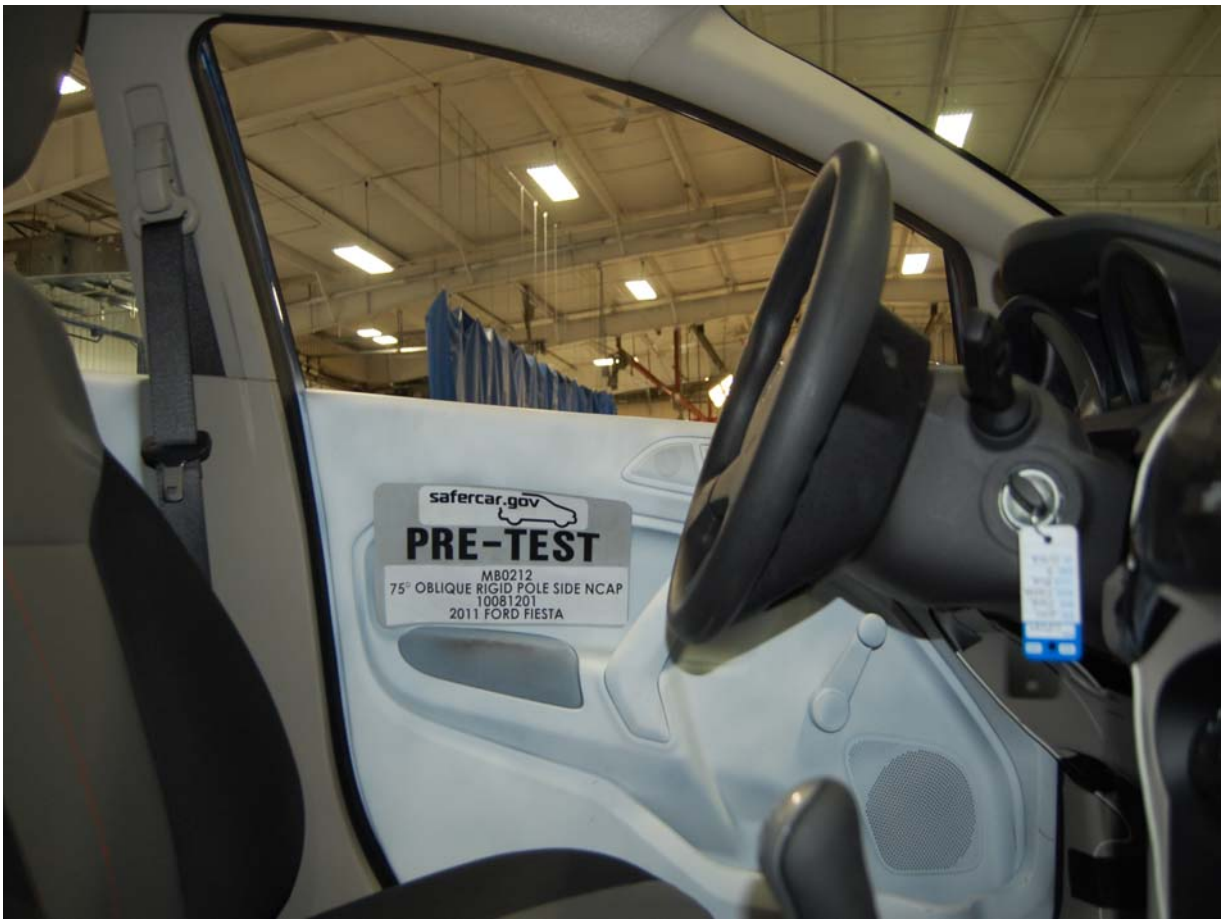
Post-Test Dummy and Door Clearance View



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



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



Post-Test Dummy Close-Up Head Contact with Side Airbag View



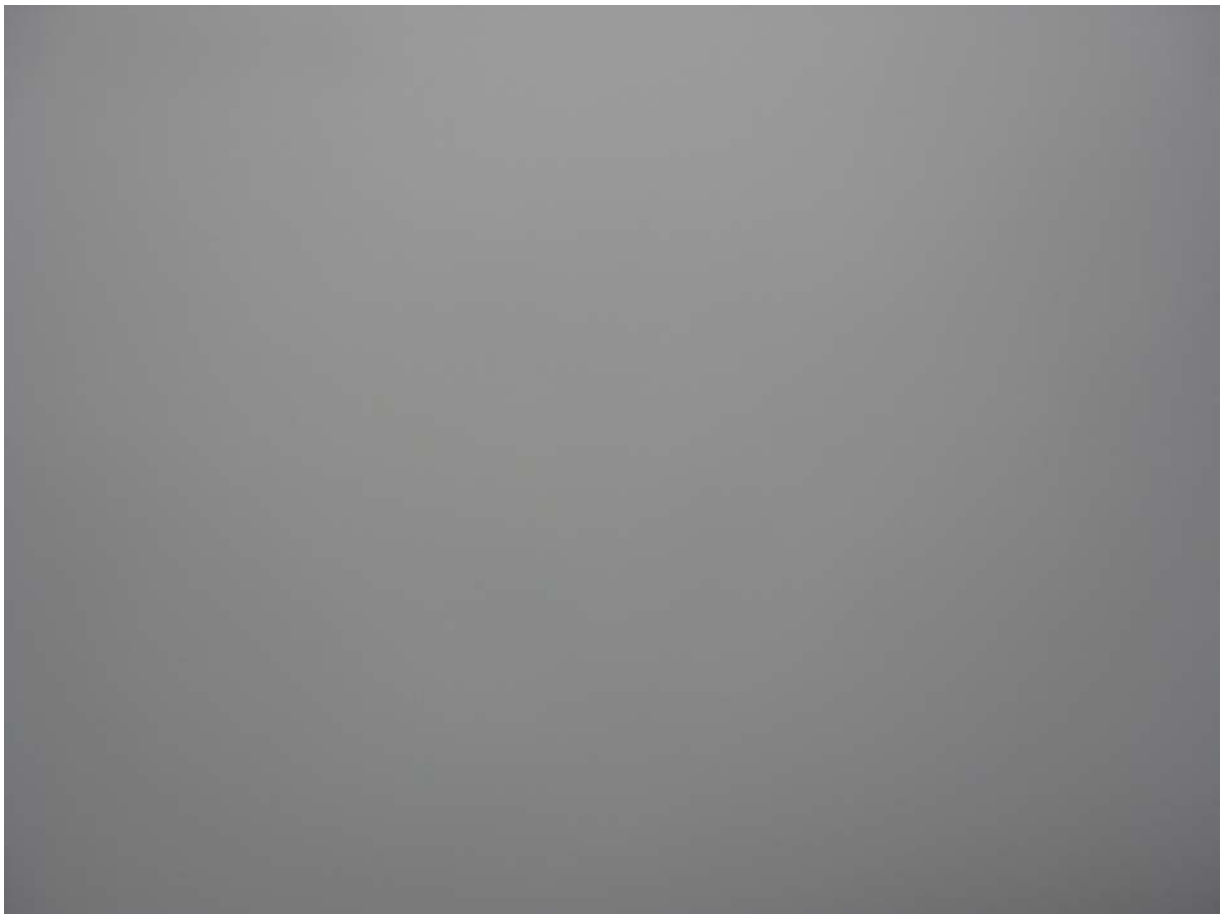
Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View



Post-Test Dummy Close-Up Torso Contact with Side Airbag View



Post-Test Dummy Close-Up Pelvis Contact View



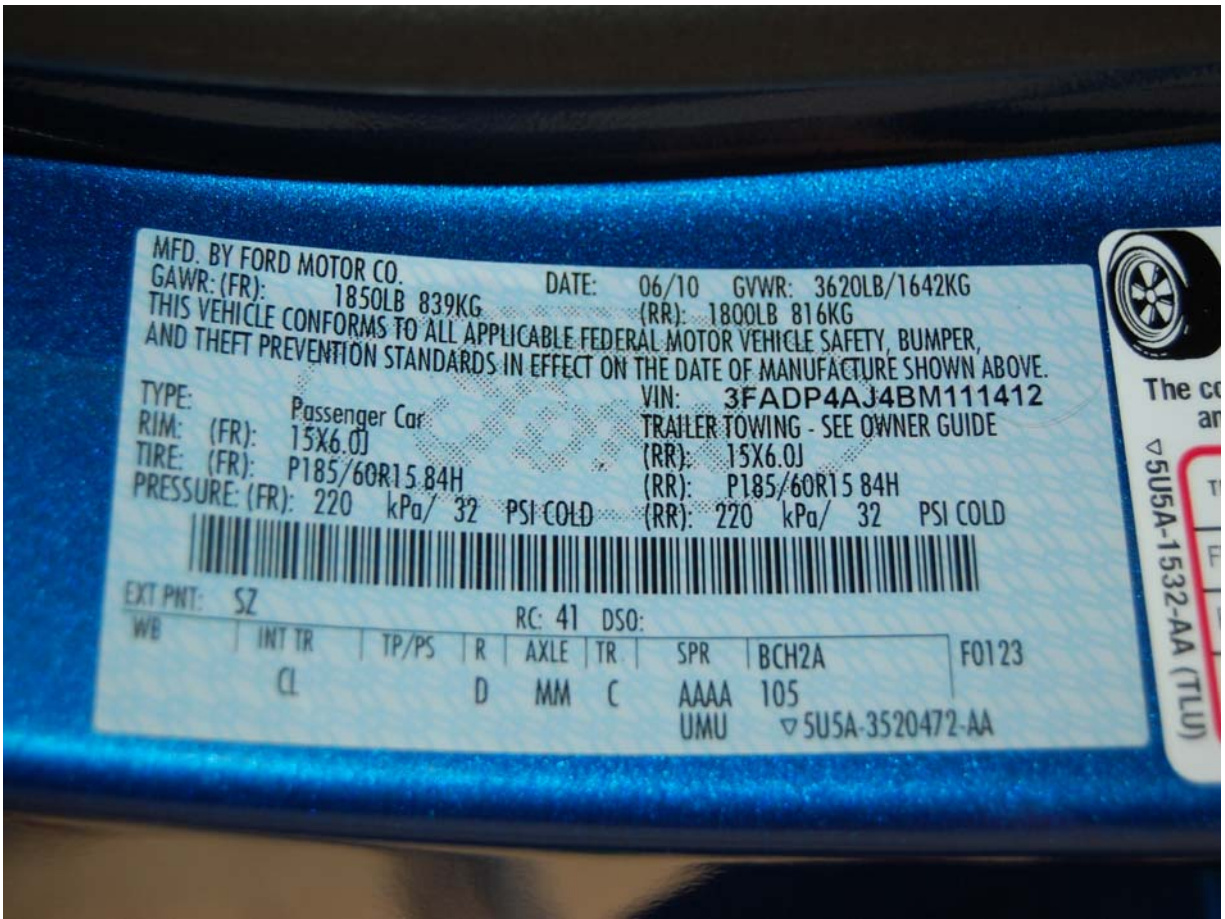
Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View (Photo Not Applicable)



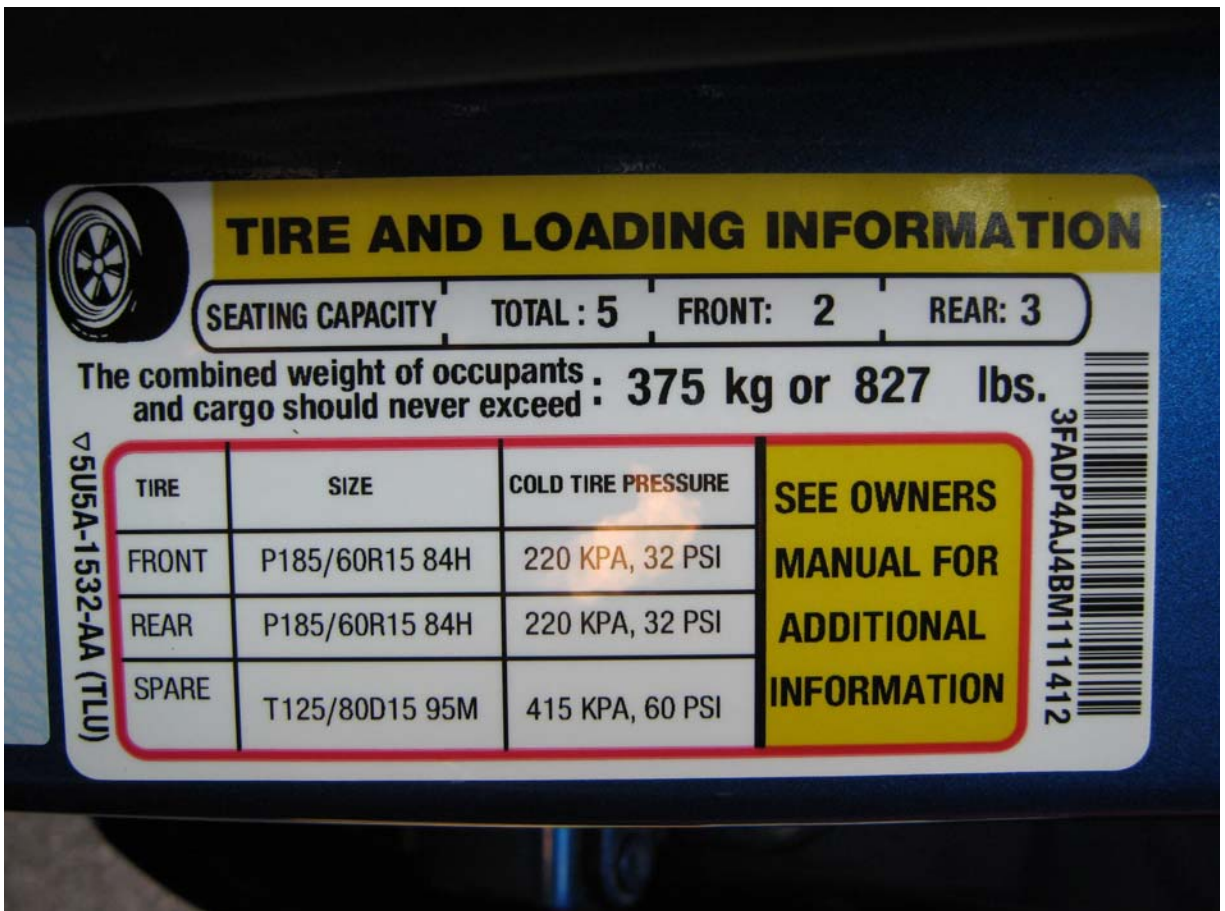
Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



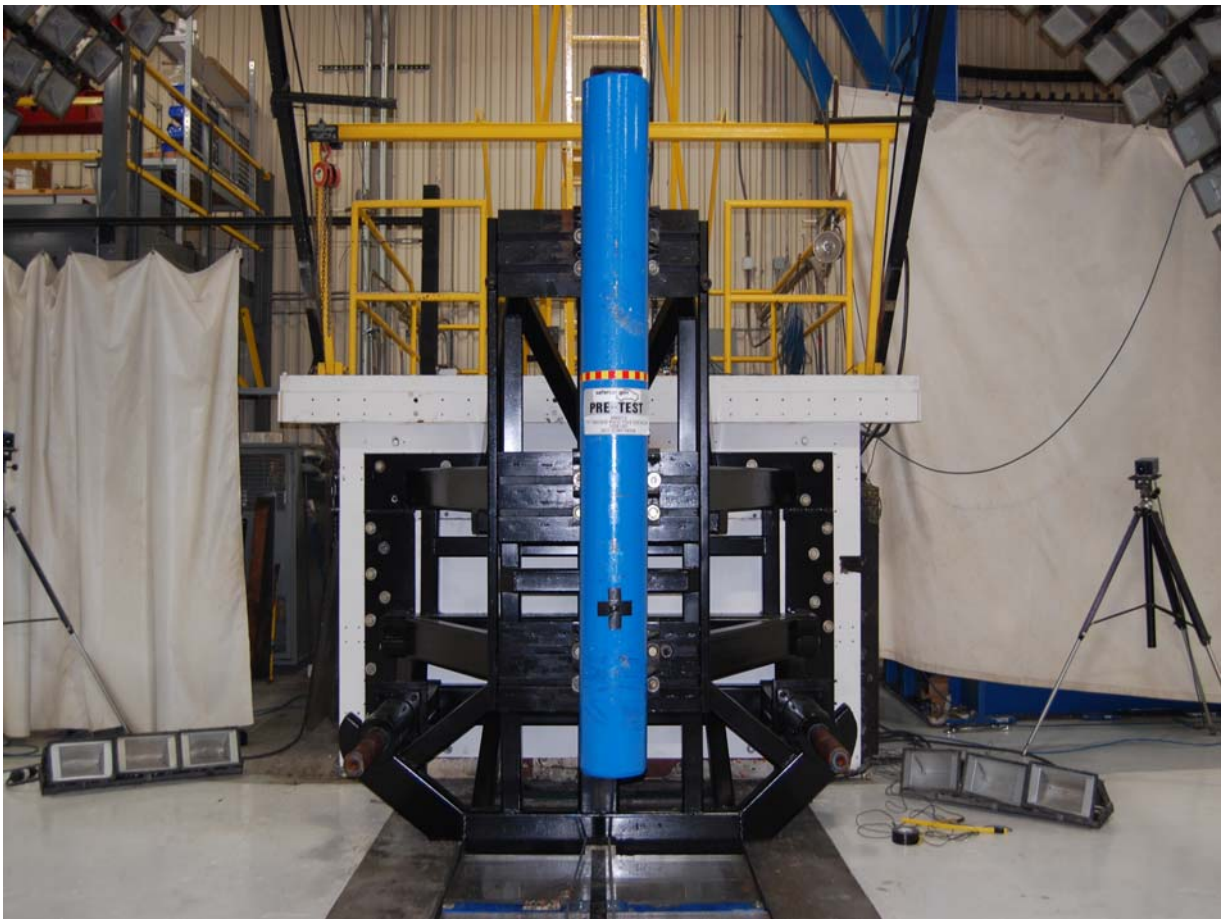
Post-Test View of Fuel Filler Cap or Fuel Filler Neck



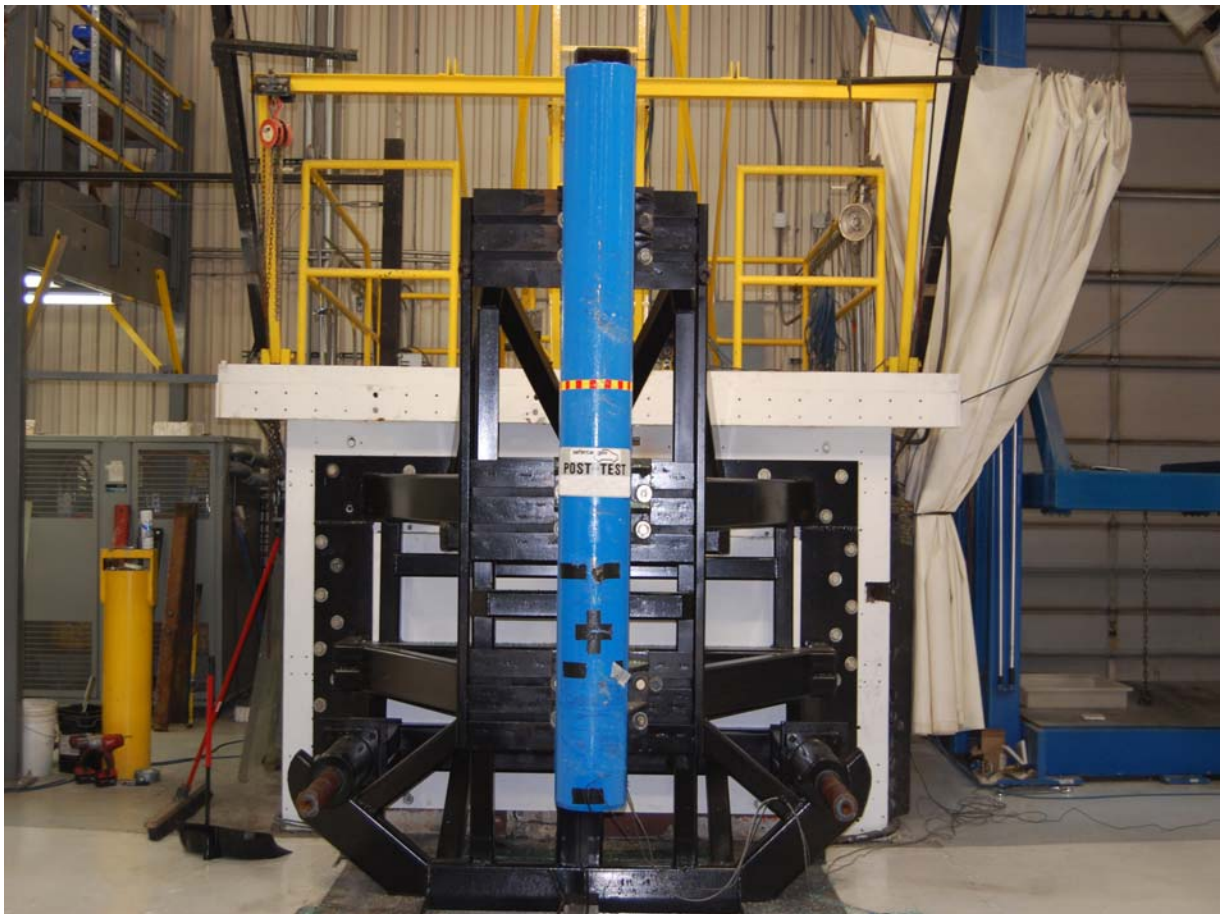
Close-Up View of Vehicle's Certification Label



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



Pre-Test Pole Barrier Front View



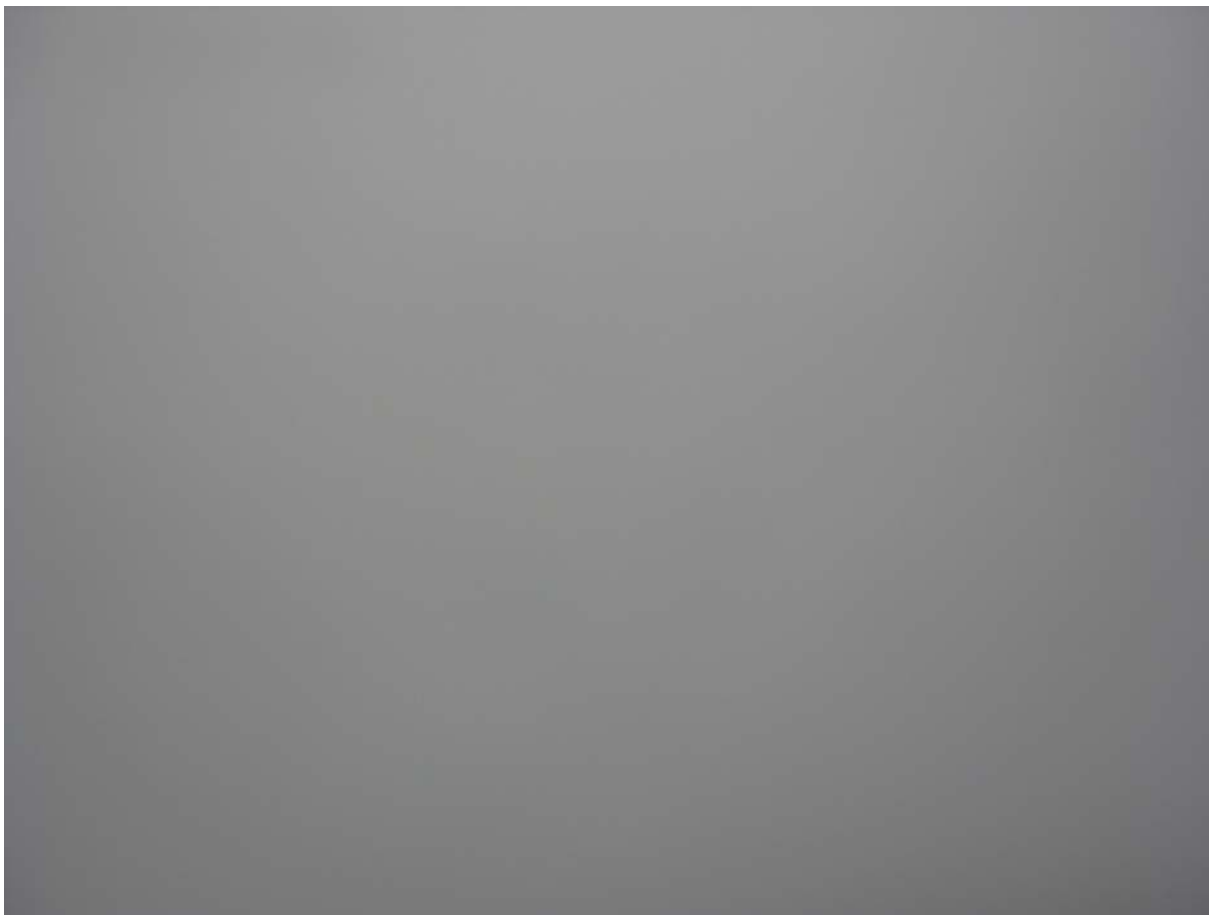
Post-Test Pole Barrier Front View



Pre-Test Pole Barrier Side View



Post-Test Pole Barrier Side View



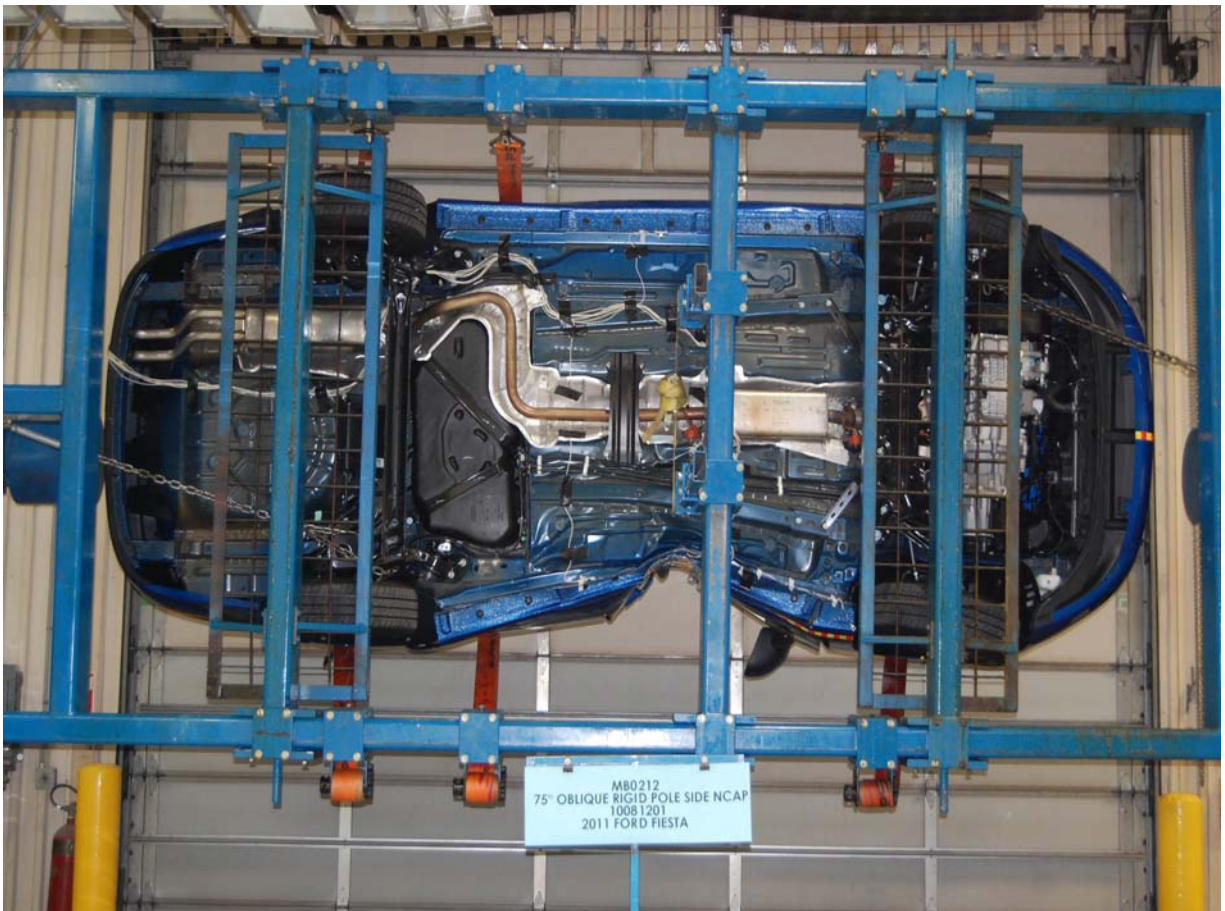
Pre-Test Ballast View (Photo Not Applicable)



Post-Test Primary and Redundant Speed Trap Read-Out



FMVSS No. 301/305 Rollover 0 Degrees



FMVSS No. 301/305 Rollover 90 Degrees



FMVSS No. 301/305 Rollover 180 Degrees



FMVSS No. 301/305 Rollover 270 Degrees



FMVSS No. 301/305 Rollover 360 Degrees



Impact Event (Impact Side)

FIESTA



www.fordvehicles.com

STANDARD EQUIPMENT INCLUDED AT NO EXTRA CHARGE

- EXTERIOR**
- 15" STEEL WHEEL W/ COVER
 - EASYFUEL CAPLESS FILLER
 - INTEGRATED SPOTTER MIRRORS
 - POWER MIRRORS
 - QUAD BEAM HALOGEN HEADLAMP
 - REAR WINDOW DEFROSTER
 - VARIABLE INTERVAL WIPERS
- INTERIOR**
- 60/40 SPLIT FOLD REAR SEAT
 - AM/FM STEREO
 - AUXILIARY AUDIO INPUT JACK
 - AIR CONDITIONING
 - CENTER DOME LAMP
 - W/ MAP LIGHTS
 - CLOTH BUCKET FRONT SEATS
 - FLOOR MATS - 1ST ROW
 - DUAL SUNVISORS
 - POWER LOCKS
- FUNCTIONAL**
- ADVANCETRAC W/ ESC
 - FRONT DISC REAR DRUM BRAKES (ABS)
 - POWER STEERING W/ EPS
 - TRUCKER'S VIEW MIRROR
 - SAFETY/SECURITY
 - DRIVER/PASSENGER AIR BAGS
 - DRIVER KNEE AIR BAG
 - SIDE AIR BAGS/CURTAINS
 - CHILD SAFETY REAR DR LOCKS
 - SECURITY ANTI-THEFT ENGINE IMMOBILIZER
 - TIRE PRESSURE MONITOR SYS
 - WARRANTY
 - 3YR/36,000 BUMPER / BUMPER
 - 5YR/60,000 POWERTRAIN
 - 5YR/60,000 ROADSIDE ASSIST

EPA Fuel Economy Estimates

CITY MPG

28

Expected range
for most drivers
23 to 33 MPG

HIGHWAY MPG

37

Expected range
for most drivers
30 to 44 MPGYour actual
mileage will vary
depending on how you
drive and maintain
your vehicle.Estimated
Annual Fuel Cost
\$1,217
based on 15,000 miles
at \$2.60 per gallonCombined Fuel Economy
This Vehicle

12 32 32

All Subcompact



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

SOLD TO#1E 314 Soerens Ford, Inc. 18900 W Capitol Dr Brookfield WI 53045	ONE RJ73	DEALER NO. 41E 314	METHOD OF TRANSP. RAIL ITEM #: 41-0524 O/T 2
SHIP TO #1 OMEN THAW 5000 702	TWO	3FADPAAJMBM111412 	
SHIP THROUGH	FINAL ASSEMBLY POINT CUAUTITLAN	This label is subject pursuant to the Federal Automobile Information Disclosure Act. Description, Location, and Title Fees, State and Local taxes are not included. Dealer installed options or accessories are not included unless noted above. AF081 N RA 2X .125 000070 06 08 10	

EXTENDED
SERVICE
PLANFord Extended Service Plan is the only service contract backed by Ford and honored at all Ford and Lincoln Mercury Dealers. Ask your dealer for prices and additional details or see our website at www.ford-esp.com.

PRICE INFORMATION

Manufacturer's
Suggested Retail Price

STANDARD VEHICLE PRICE \$13,320.00

INCLUDED ON THIS VEHICLE
RAPID SPEC 100AOPTIONAL EQUIPMENT
FRONT LICENSE PLATE BRACKET
ENGINE BLOCK HEATER
50 STATE EMISSIONS
TOTAL OPTIONSNO CHARGE
NO CHARGE
25.00
25.00TOTAL VEHICLE & OPTIONS
DESTINATION & DELIVERY13,345.00
675.00This vehicle qualifies for auto insurance discounts, call
1-866-367-3131 or visit www.fordautoinsurance.com for
availability in your state.

TOTAL MSRP

\$14,020.00

GOVERNMENT SAFETY RATINGS

Frontal Crash Driver Not Rated
Passenger Not Rated

Star ratings based on the risk of injury in a frontal impact.
Frontal ratings should ONLY be compared to other vehicles of similar size and weight.

Side Crash Front seat Not Rated
Rear seat Not Rated

Star ratings based on the risk of injury in a side impact.

Rollover Not Rated

Star ratings based on the risk of rollover in a single vehicle crash.

Star ratings range from 1 to 5 stars (*****), with 5 being the highest.
Source: National Highway Traffic Safety Administration (NHTSA).

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

Seating and Safety Restraints

To adjust the head restraint, do the following:

1. Adjust the seatback to an upright driving/riding position.
2. Raise the head restraint by pulling up on the head restraint (1).
3. Lower the head restraint by pressing and holding the guide sleeve adjust release button (3) and pushing down on the head restraint (1).

Properly adjust the head restraint so that the top of the head restraint is even with the top of your head and positioned as close as possible to the back of your head. For occupants of extremely tall stature, adjust the head restraint to its full up position.

WARNING: The adjustable head restraint is a safety device. Whenever possible it should be installed and properly adjusted when the seat is occupied.

To remove the adjustable head restraint, do the following:

1. Pull up the head restraint until it reaches the highest adjustment position.
2. Simultaneously press and hold both the adjust/release button (3) and the unlock/remove button (4), then pull up on the head restraint.

To reinstall the adjustable head restraint, do the following:

1. Insert the two stems into the guide sleeve collars.
2. Push the head restraint down until it locks.

Properly adjust the head restraint so that the top of the head restraint is even with the top of your head and positioned as close as possible to the back of your head. For occupants of extremely tall stature, adjust the head restraint to its full up position.

WARNING: To minimize the risk of neck injury in the event of a crash, head restraints must be installed properly.

Adjusting the front manual seat

WARNING: Sitting improperly out of position or with the seat back reclined too far can take off weight from the seat cushion and affect the decision of the passenger sensing system, resulting in serious injury or death in a crash. Always sit upright against your seatback, with your feet on the floor.

146

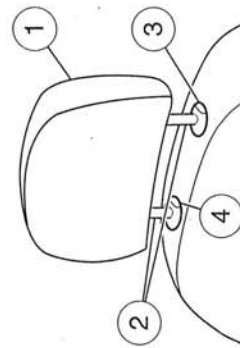
Adjustable head restraints

Your vehicle is equipped with front row outboard head restraints that are vertically adjustable.

WARNING: To minimize the risk of neck injury in the event of a crash, the driver and passenger occupants should not sit in and/or operate the vehicle, until the head restraint is placed in its proper position. The driver should never adjust the head restraint while the vehicle is in motion.

The adjustable head restraints consist of :

- a trimmed energy absorbing foam and structure (1),
- two steel stems (2),
- a guide sleeve adjust release button (3),
- and a guide sleeve unlock/remove button (4).



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APPENDIX B
DUMMY RESPONSE DATA

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The following dummy and vehicle response data can be found in the R&D section of the NHTSA website at www.nhtsa.dot.gov

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)

Driver Shoulder Contact Switch

Driver Torso Contact Switch

Driver Pelvis Contact Switch

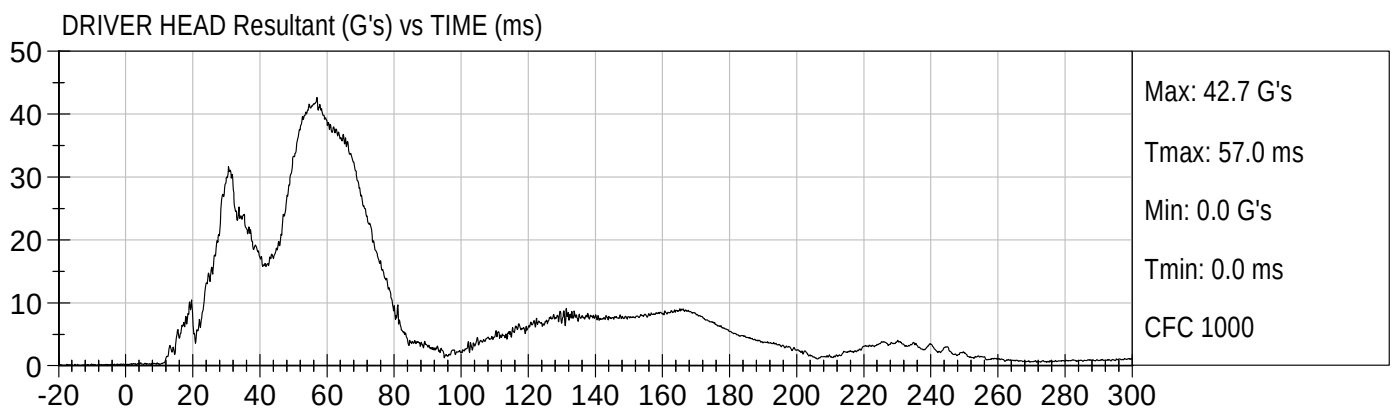
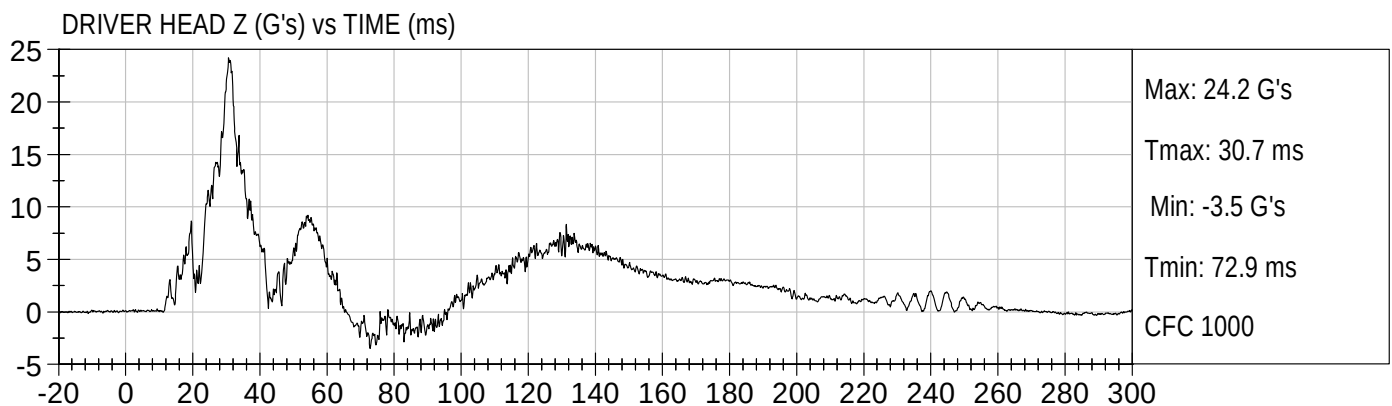
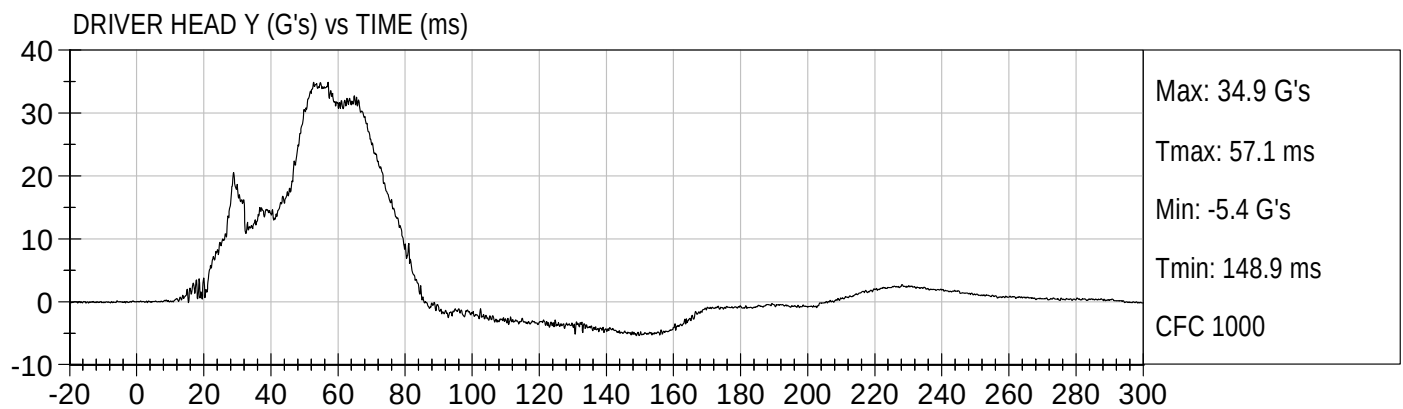
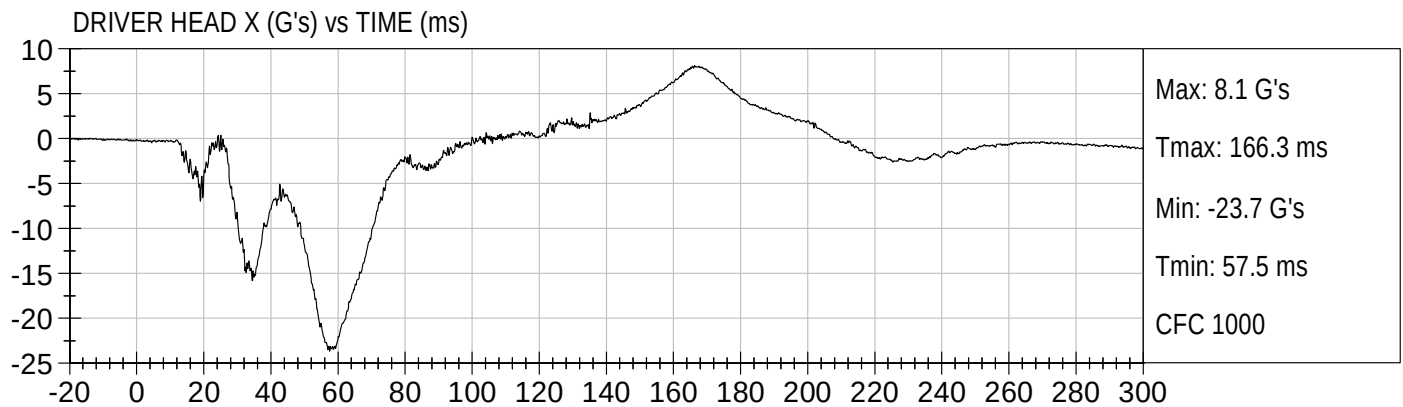
Vehicle CG Acceleration (X)

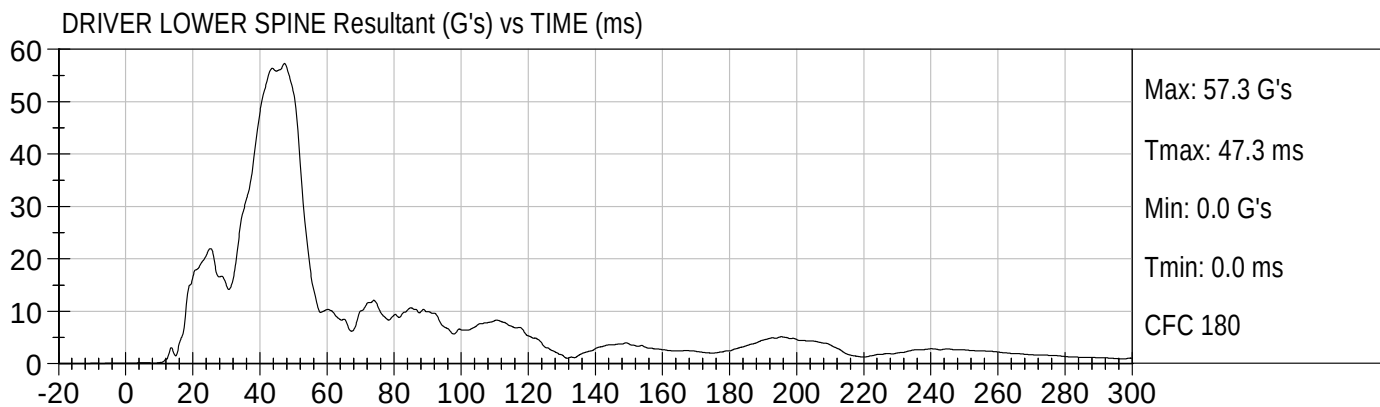
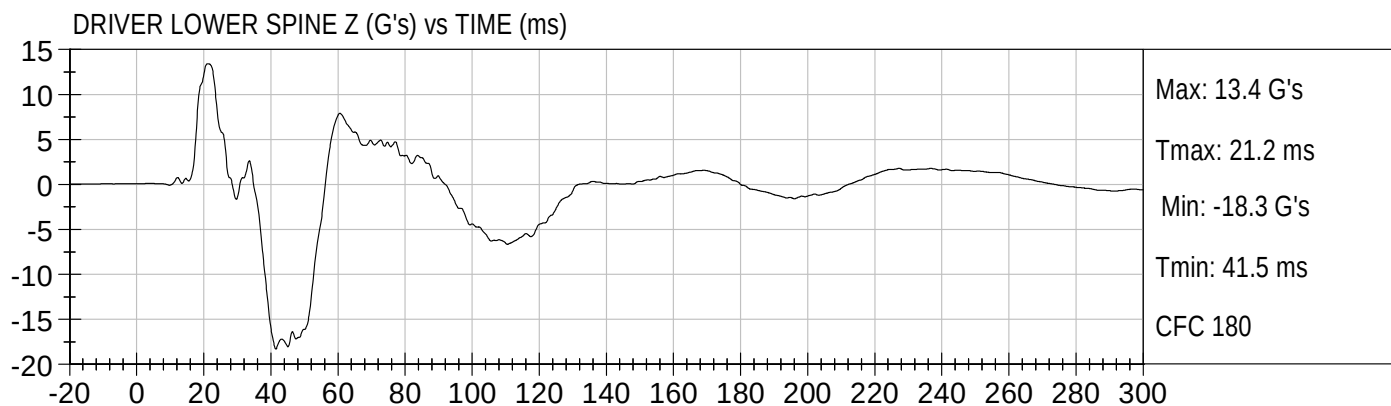
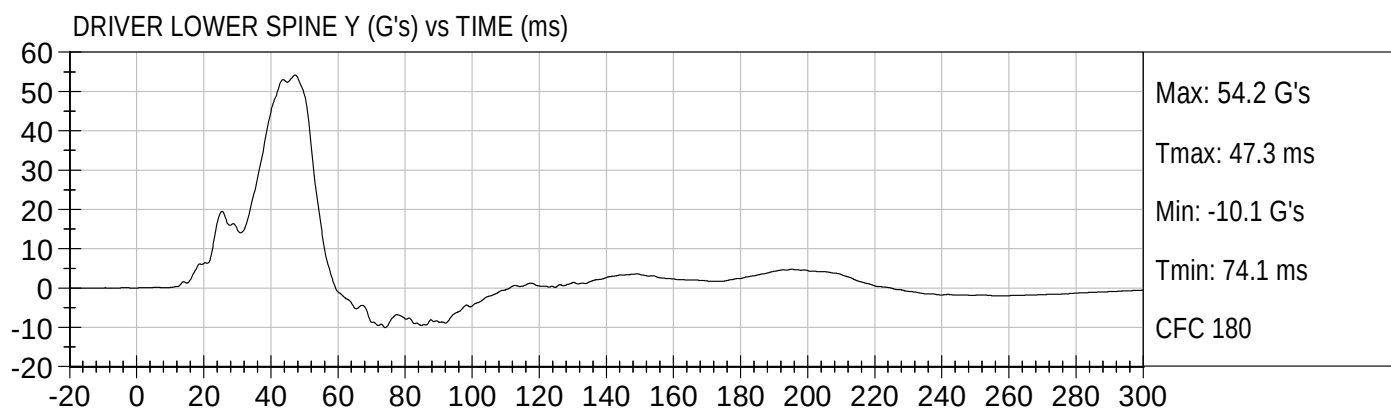
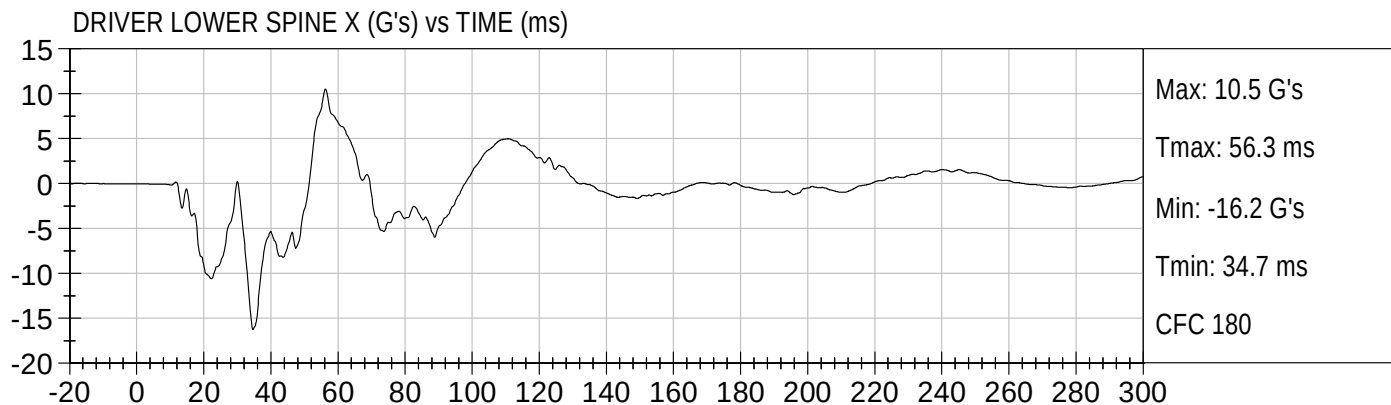
Vehicle CG Acceleration (Y)

Vehicle CG Acceleration (Z)

Vehicle CG Angular Rate About X (Roll)

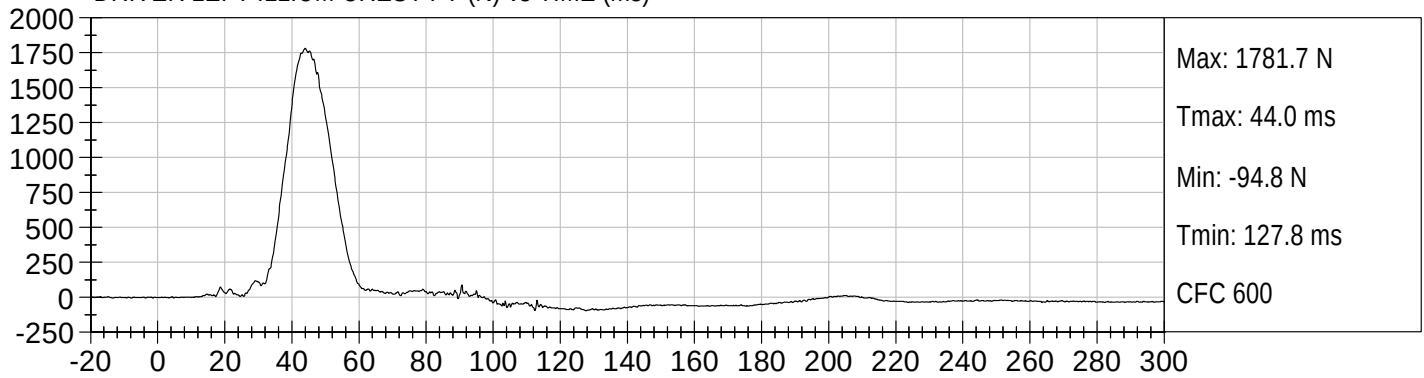
Vehicle CG Angular Rate About Y (Pitch)
Vehicle CG Angular Rate About Z (Yaw)
Left Floor Sill Acceleration (Y)
Left A-Pillar Sill Acceleration (Y)
Left Lower A-Pillar Acceleration (Y)
Left Mid A-Pillar Acceleration (Y)
Left B-Pillar Sill Acceleration (Y)
Left Lower B-Pillar Acceleration (Y)
Left Mid B-Pillar Acceleration (Y)
Driver Seat Track at Dummy H-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)
Driver Side Airbag Timing
Driver Side Curtain Airbag Timing – Not Installed
Load Cell Pole Barrier #1 Force (Y) – Not used
Load Cell Pole Barrier #2 Force (Y) – Not used
Load Cell Pole Barrier #3 Force (Y) – Not used
Load Cell Pole Barrier #4 Force (Y) – Not used
Load Cell Pole Barrier #5 Force (Y) – Not used
Load Cell Pole Barrier #6 Force (Y) – Not used
Load Cell Pole Barrier #7 Force (Y) – Not used
Load Cell Pole Barrier #8 Force (Y) – Not used



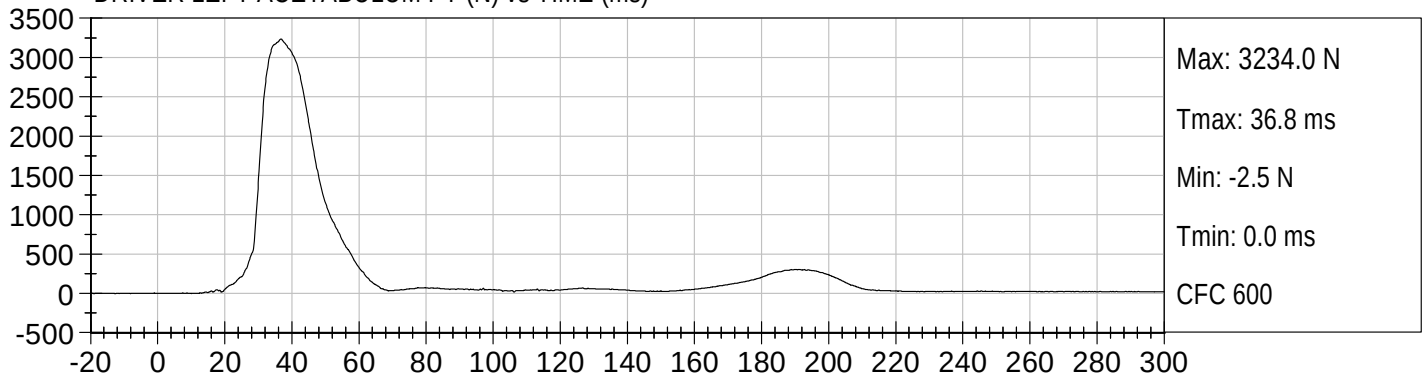




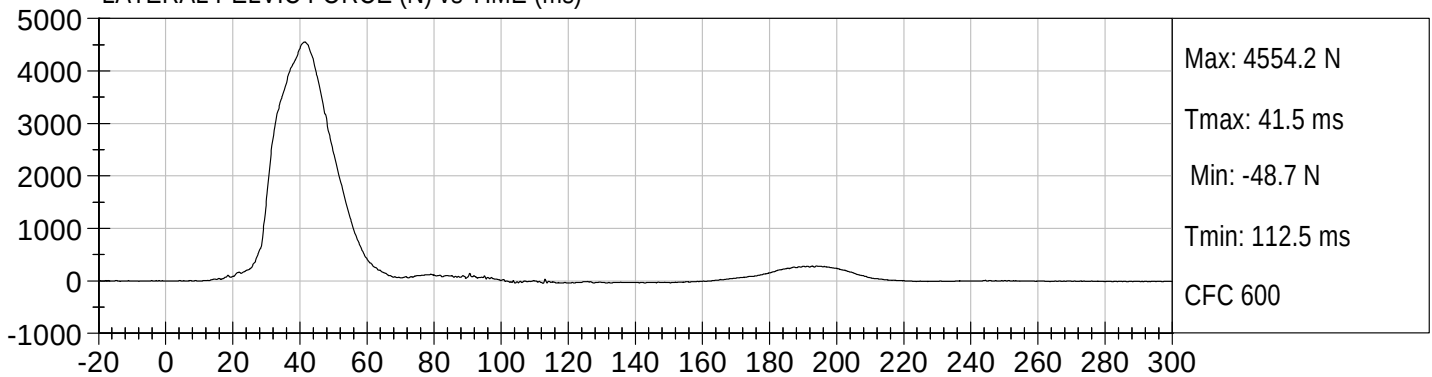
DRIVER LEFT ILLIUM CREST FY (N) vs TIME (ms)



DRIVER LEFT ACETABULUM FY (N) vs TIME (ms)



LATERAL PELVIC FORCE (N) vs TIME (ms)



APPENDIX C

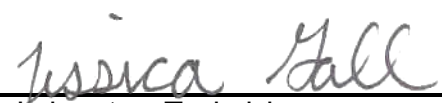
DUMMY CALIBRATION AND PERFORMANCE VERIFICATION DATA

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

ATD Serial No: 296

Test ID: D102551

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	53	Pass
Peak Resultant Acceleration	G's	115 to 137	121	Pass
Peak Lateral Acceleration	G's	+/- 15	-4.2	Pass
Unimodal	N/A	<15%	Yes	Pass
Overall Test Results				Pass


Laboratory Technician

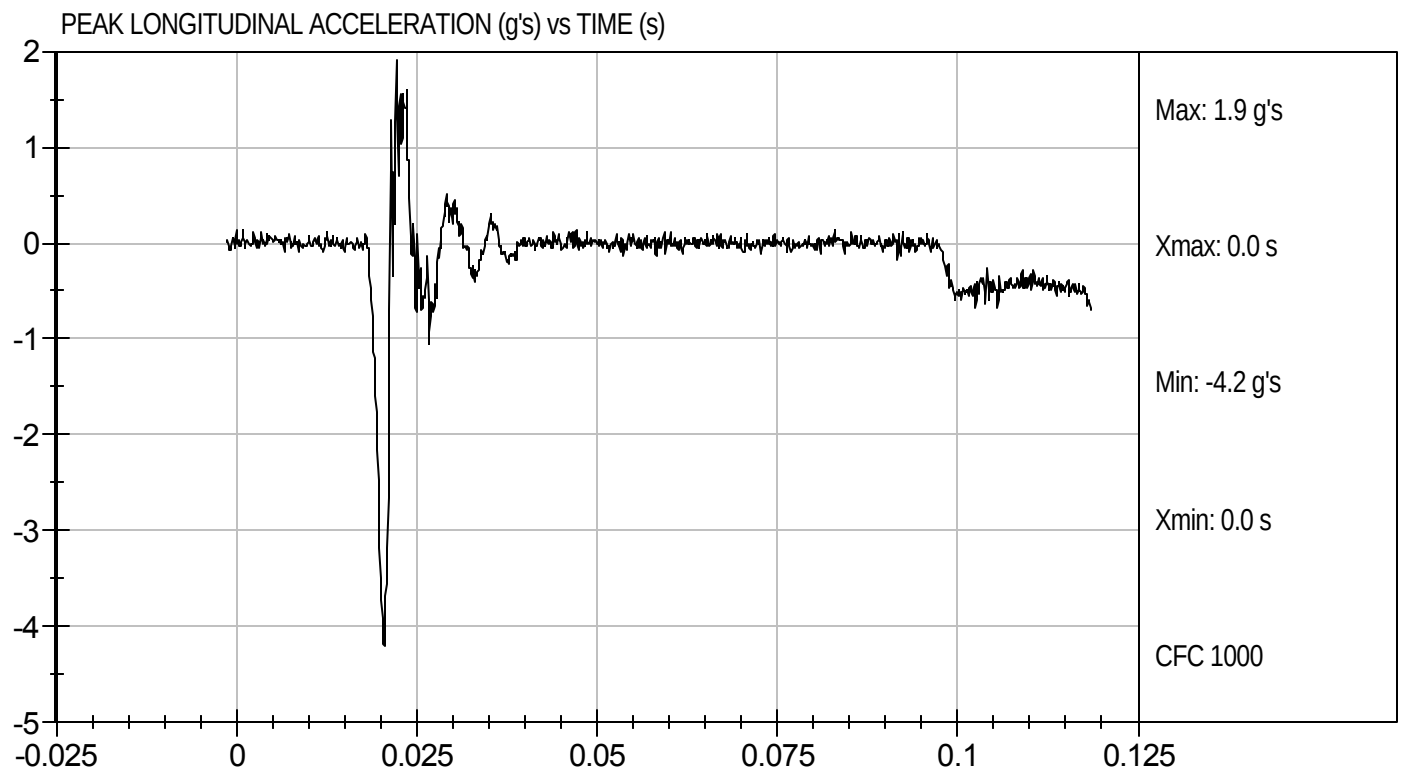
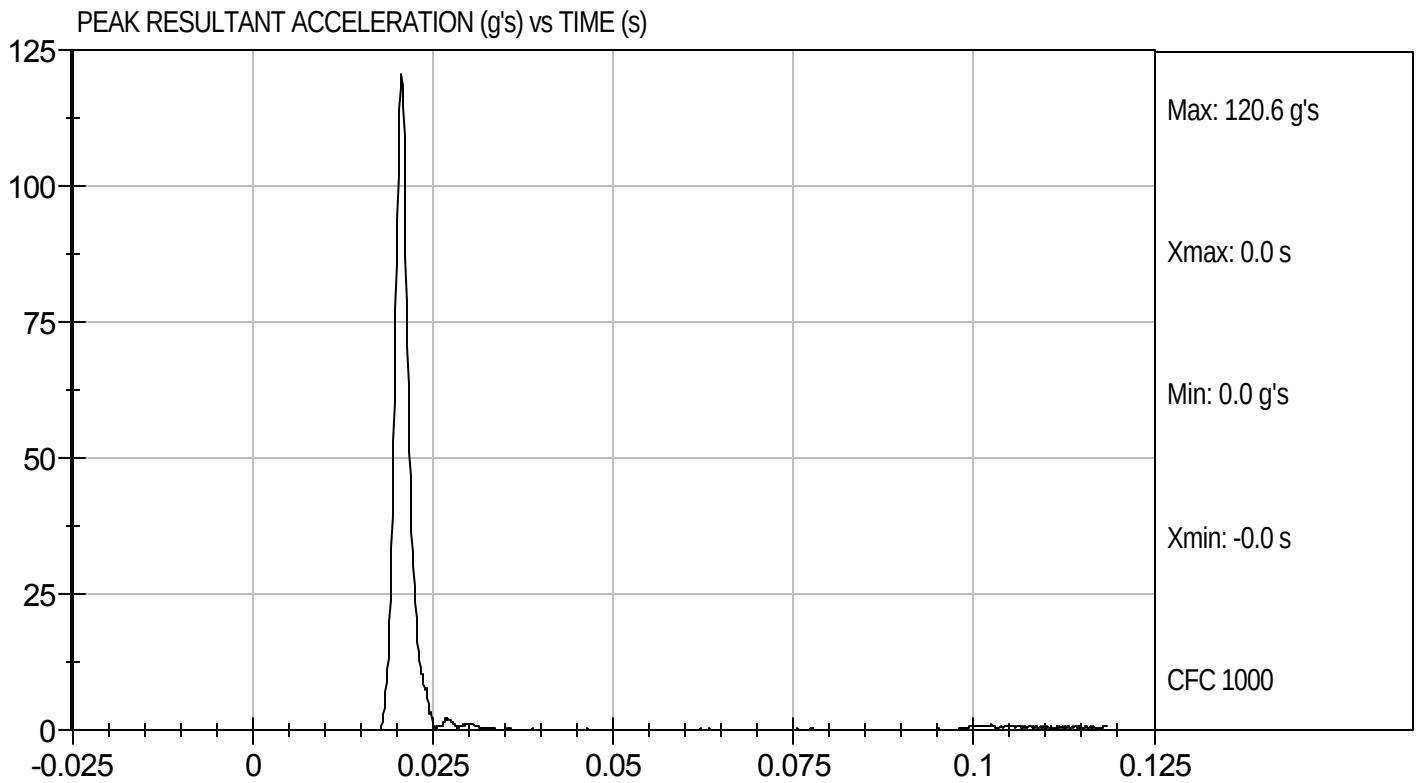
8/9/10
Test Date


Approved By



Test Desc: Head Drop
Component ID: D102551

Test Date: 8/9/10
Velocity: 0 ft/s, 0 m/s

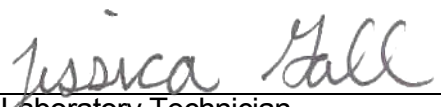


MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D102552

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	20.9	Pass
Humidity		%	10 to 70	52	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Delta Velocity	10 ms	m/s	2.20 to 2.80	2.77	Pass
	15 ms	m/s	3.30 to 4.10	3.85	Pass
	20 ms	m/s	4.40 to 5.40	5.13	Pass
	25 ms	m/s	5.40 to 6.10	5.70	Pass
	25-100 ms	m/s	5.50 to 6.20	5.70	Pass
Maximum D-Plane Rotation		deg	71 to 81	72	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	58	Pass
Maximum Occipital Condyle Moment during Rotation Interval Nm			-44 to -36	-43	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	113	Pass
Overall Test Results				Pass	


 Laboratory Technician

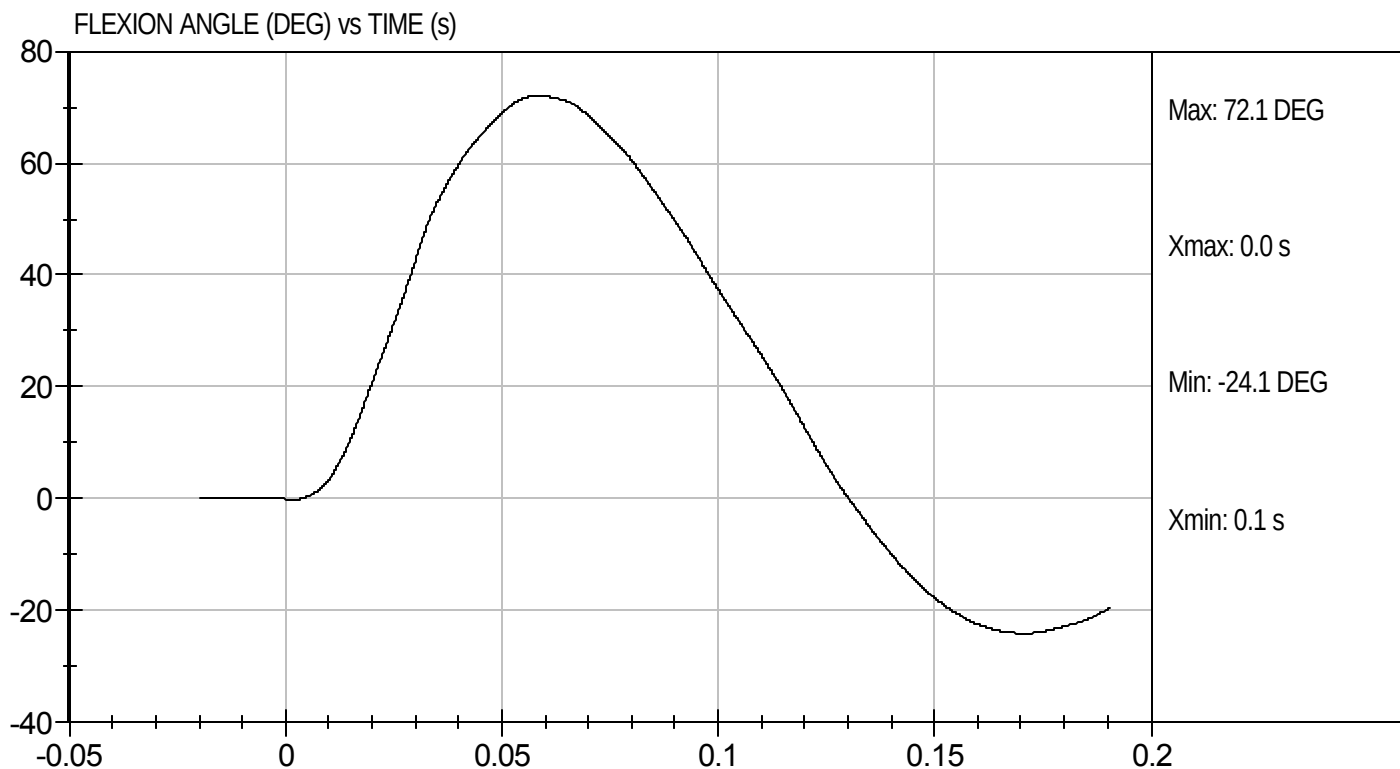
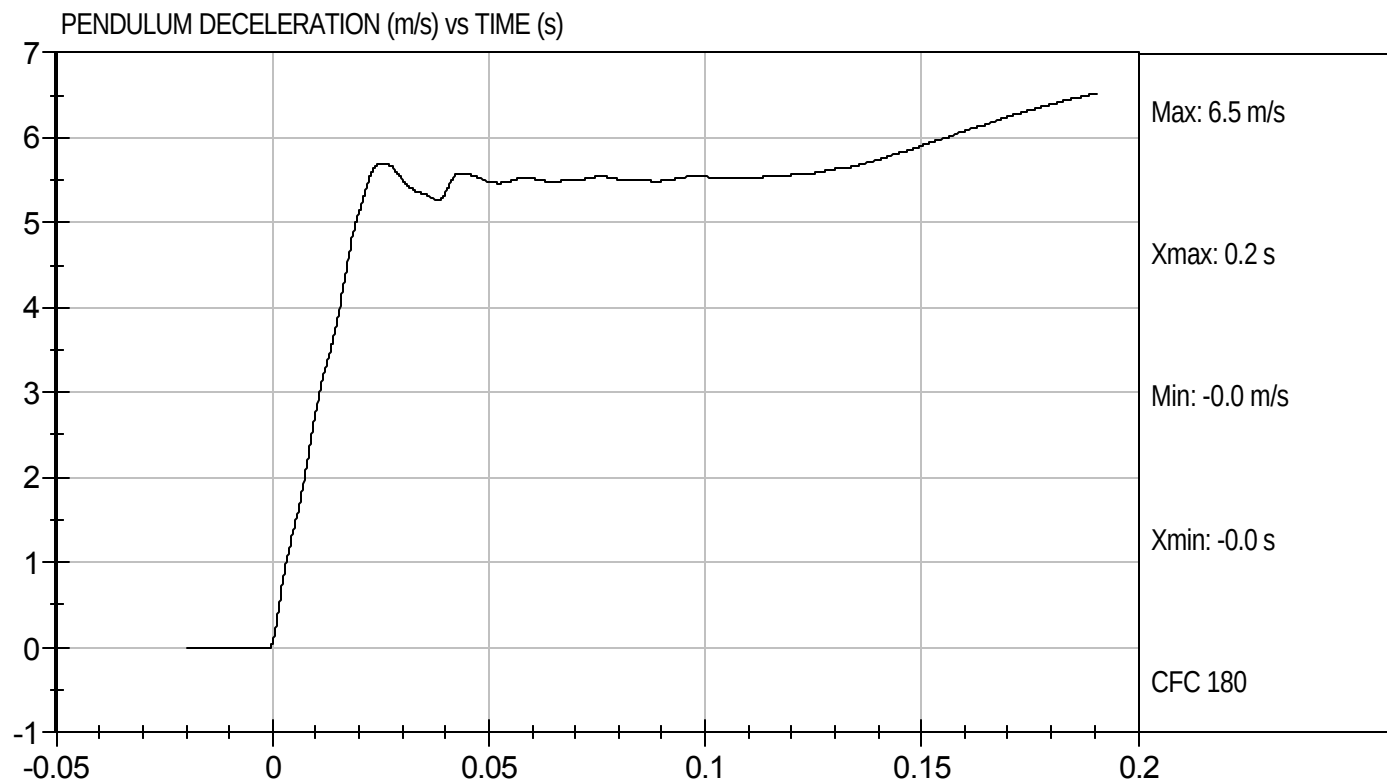
8/9/10
 Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D102552

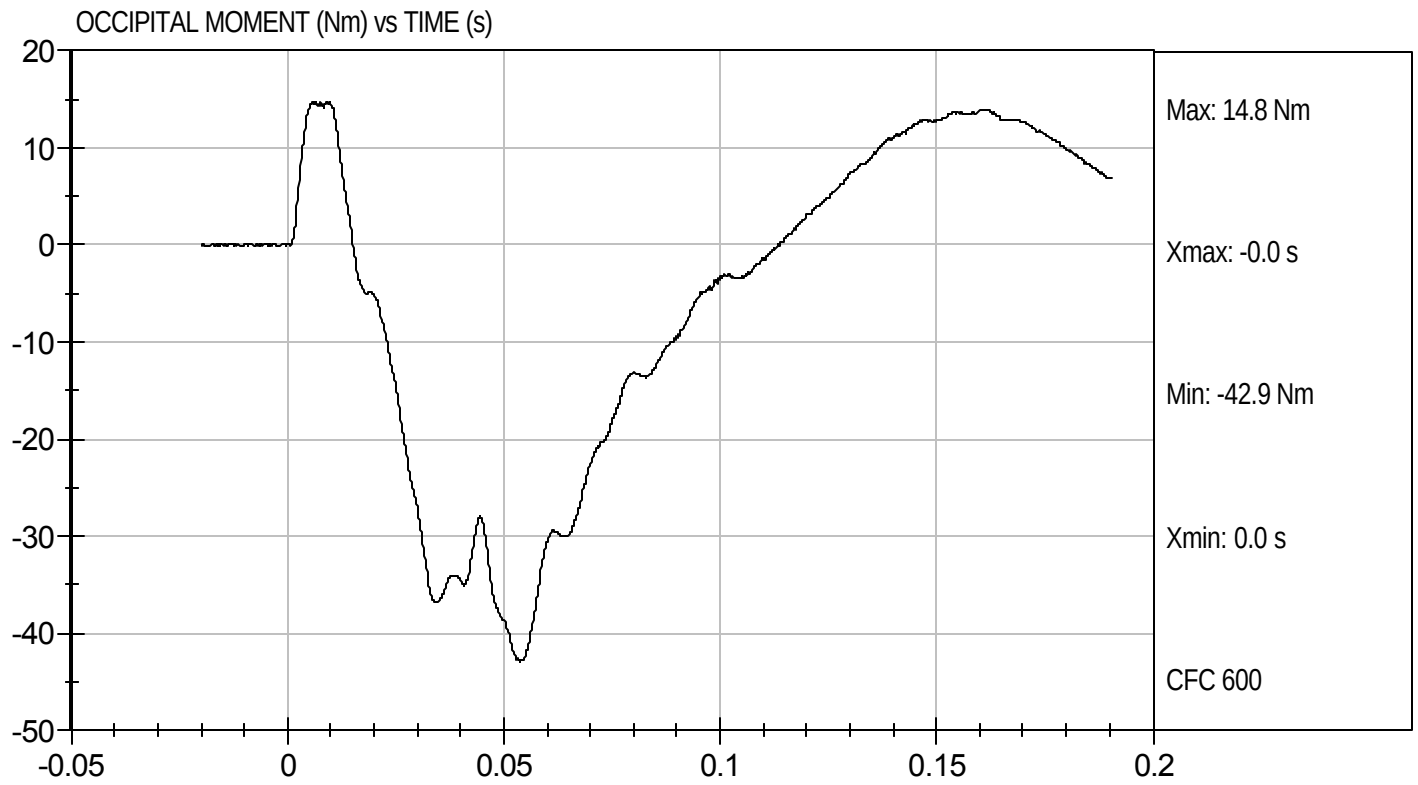
Test Date: 8/9/10
Velocity: 18.32 ft/s, 5.58 m/s





Test Desc: Neck Bending
Component ID: D102552

Test Date: 8/9/10
Velocity: 18.32 ft/s, 5.58 m/s

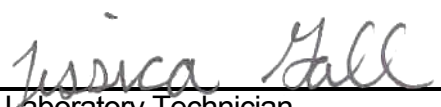


MGA RESEARCH CORPORATION
SHOULDER IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test ID: D102553

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	51	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	31	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	18	Pass
Overall Test Results				Pass


Laboratory Technician

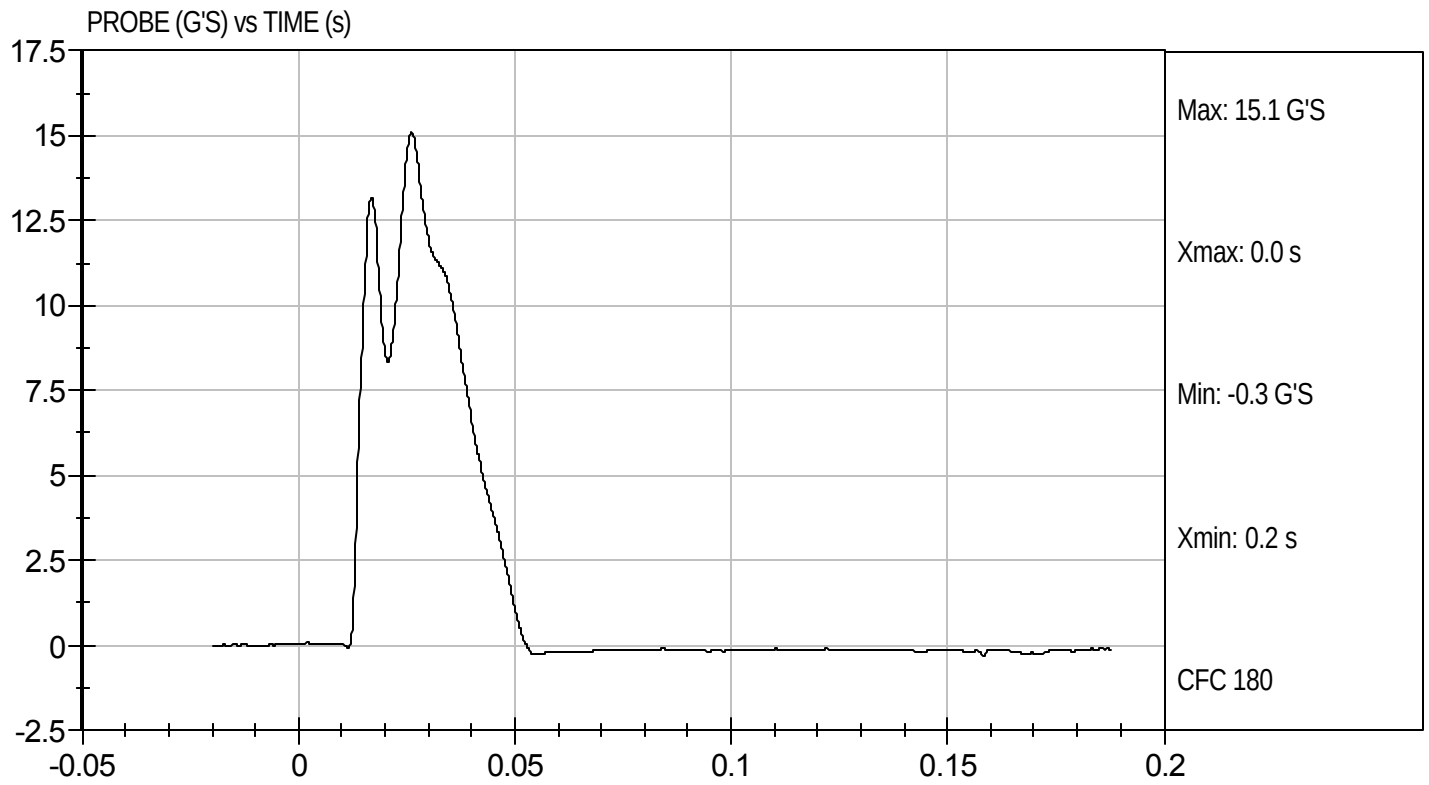
8/9/10
Test Date


Approved By



Test Desc: Shoulder Impact
Component ID: D102553

Test Date: 8/9/10
Velocity: 14.25 ft/s, 4.34 m/s

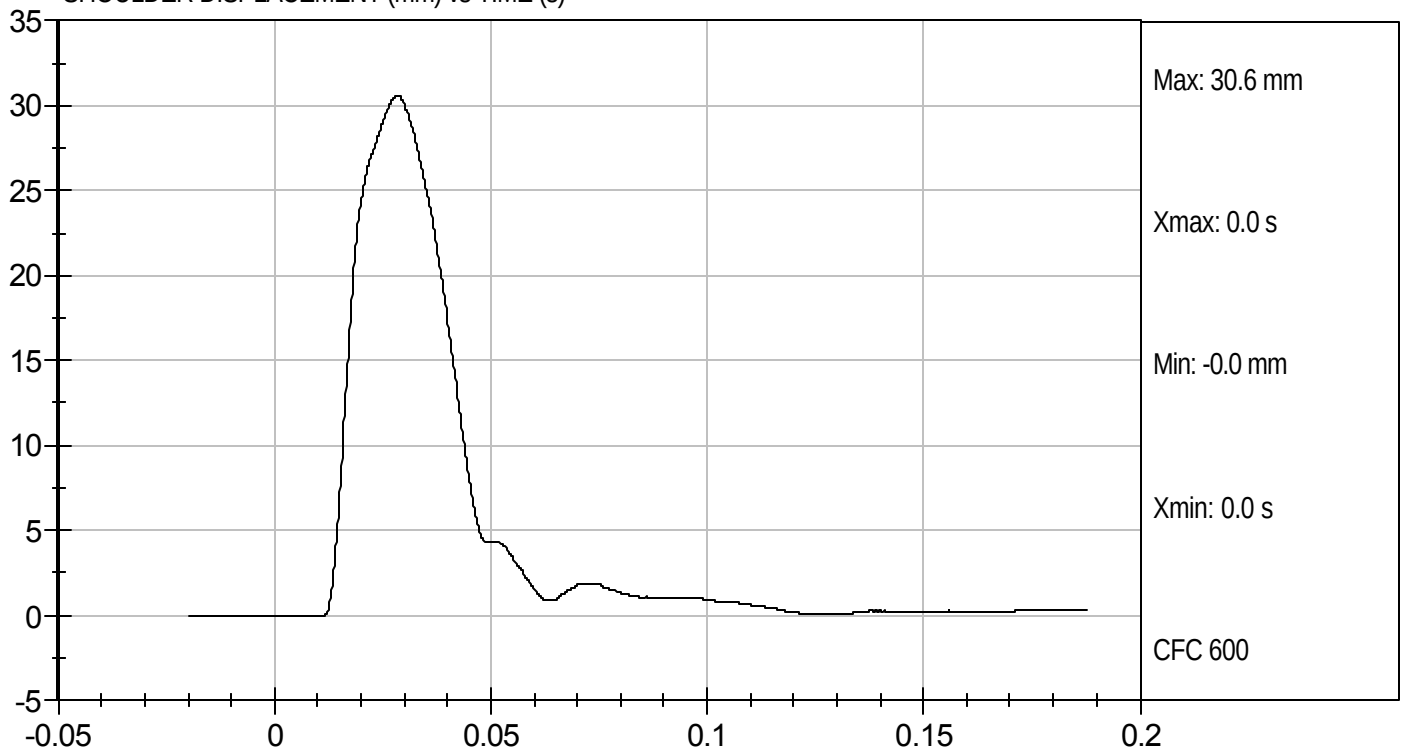




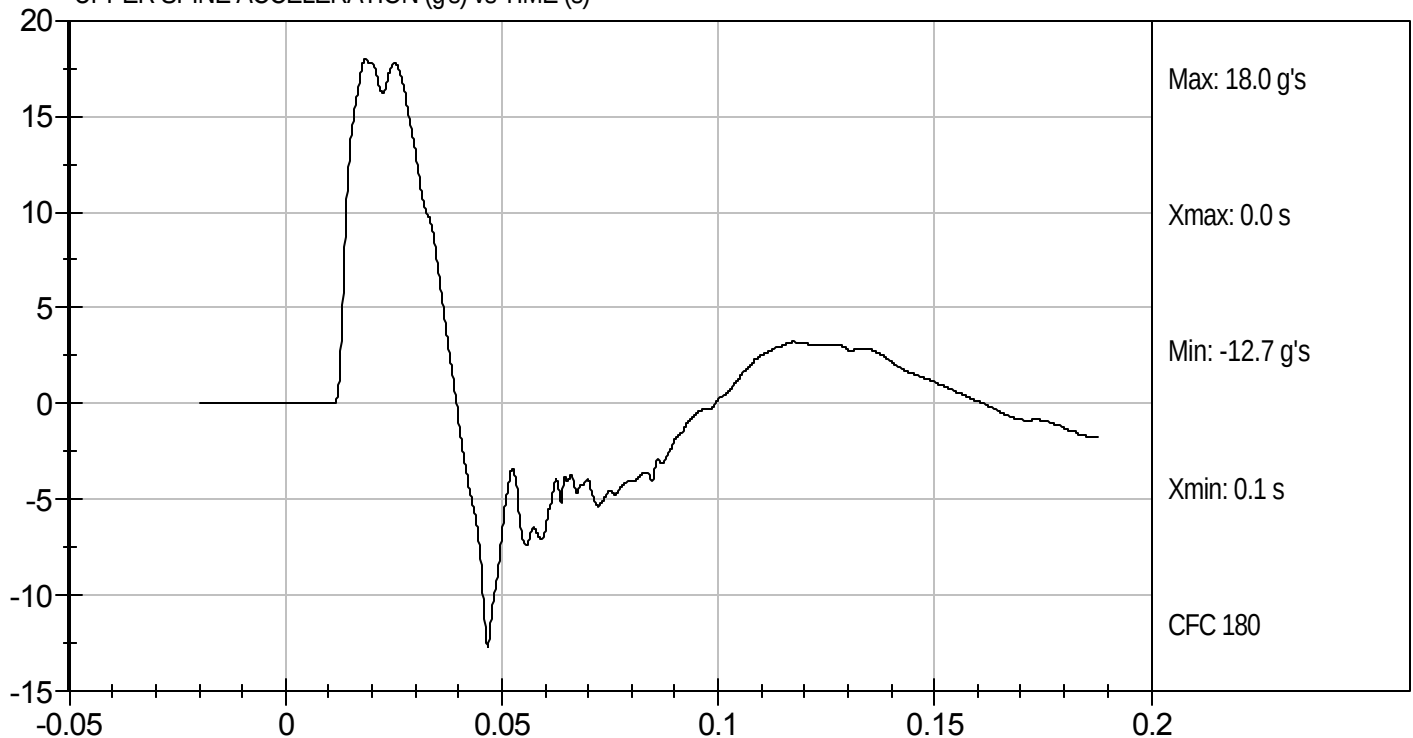
Test Desc: Shoulder Impact
Component ID: D102553

Test Date: 8/9/10
Velocity: 14.25 ft/s, 4.34 m/s

SHOULDER DISPLACEMENT (mm) vs TIME (s)



UPPER SPINE ACCELERATION (g's) vs TIME (s)



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

ATD Serial No: 296

Test I.D: D102554

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	51	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	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	26	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	38	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	30	Pass
Overall Test Results			Pass	


 Laboratory Technician

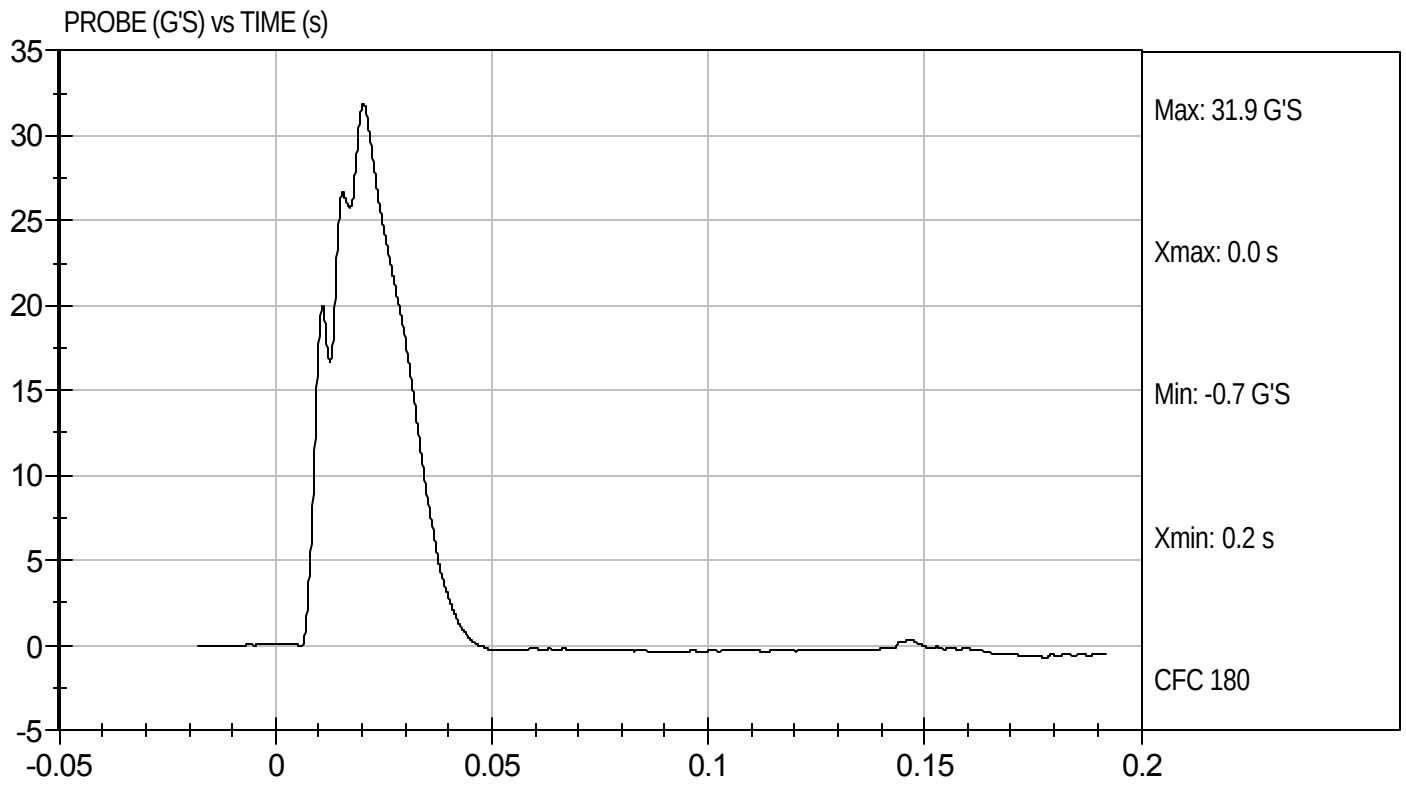
8/9/10
 Test Date


 Approved By



Test Desc: Thorax With Arm
Component ID: D102554

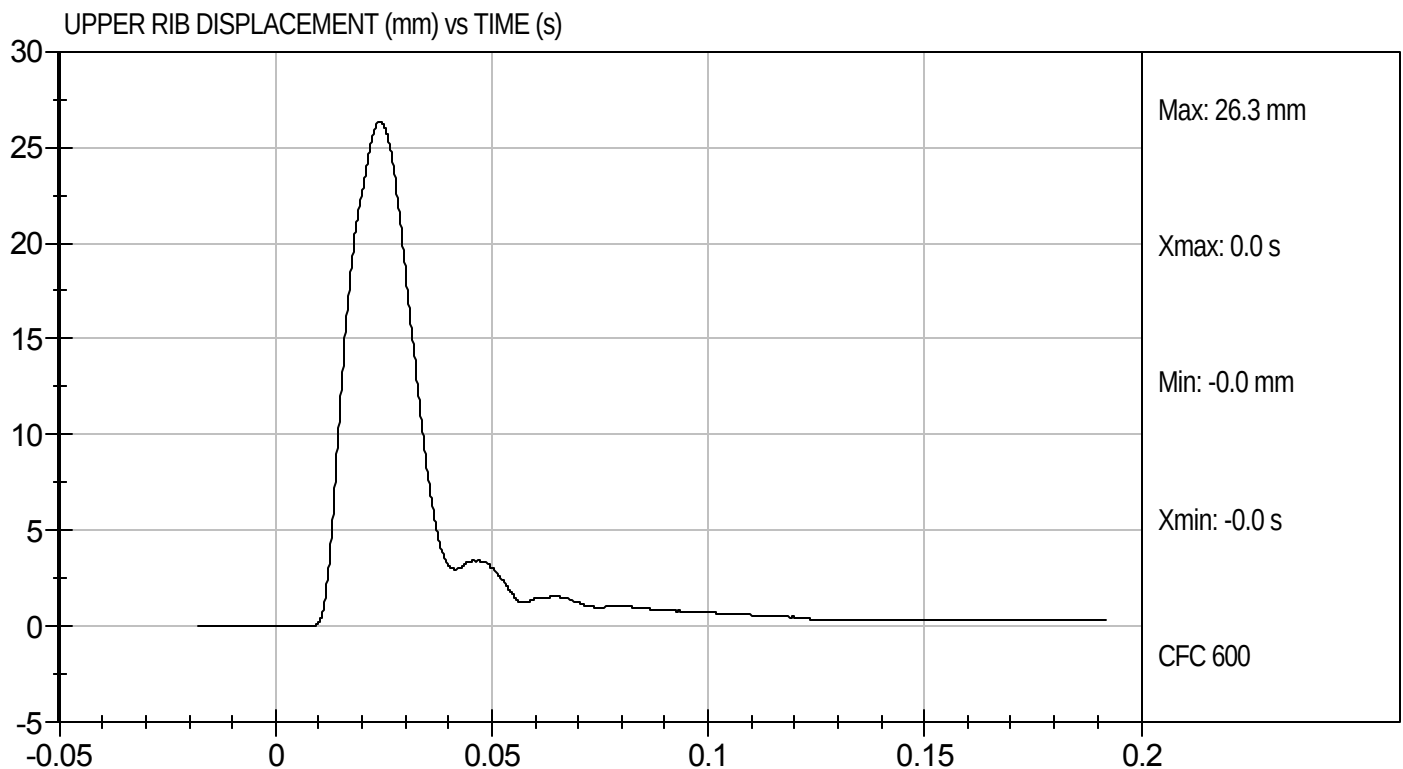
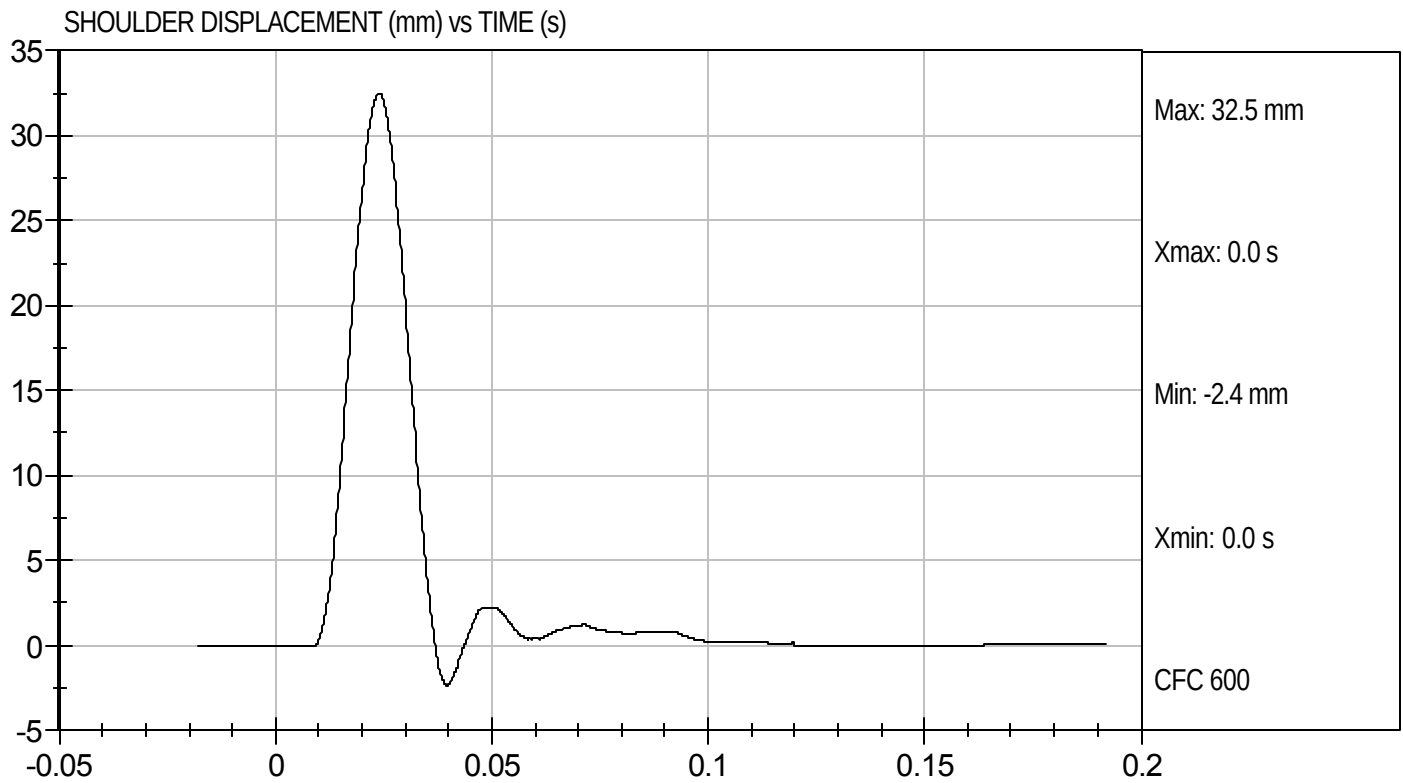
Test Date: 8/9/10
Velocity: 21.93 ft/s, 6.68 m/s





Test Desc: Thorax With Arm
Component ID: D102554

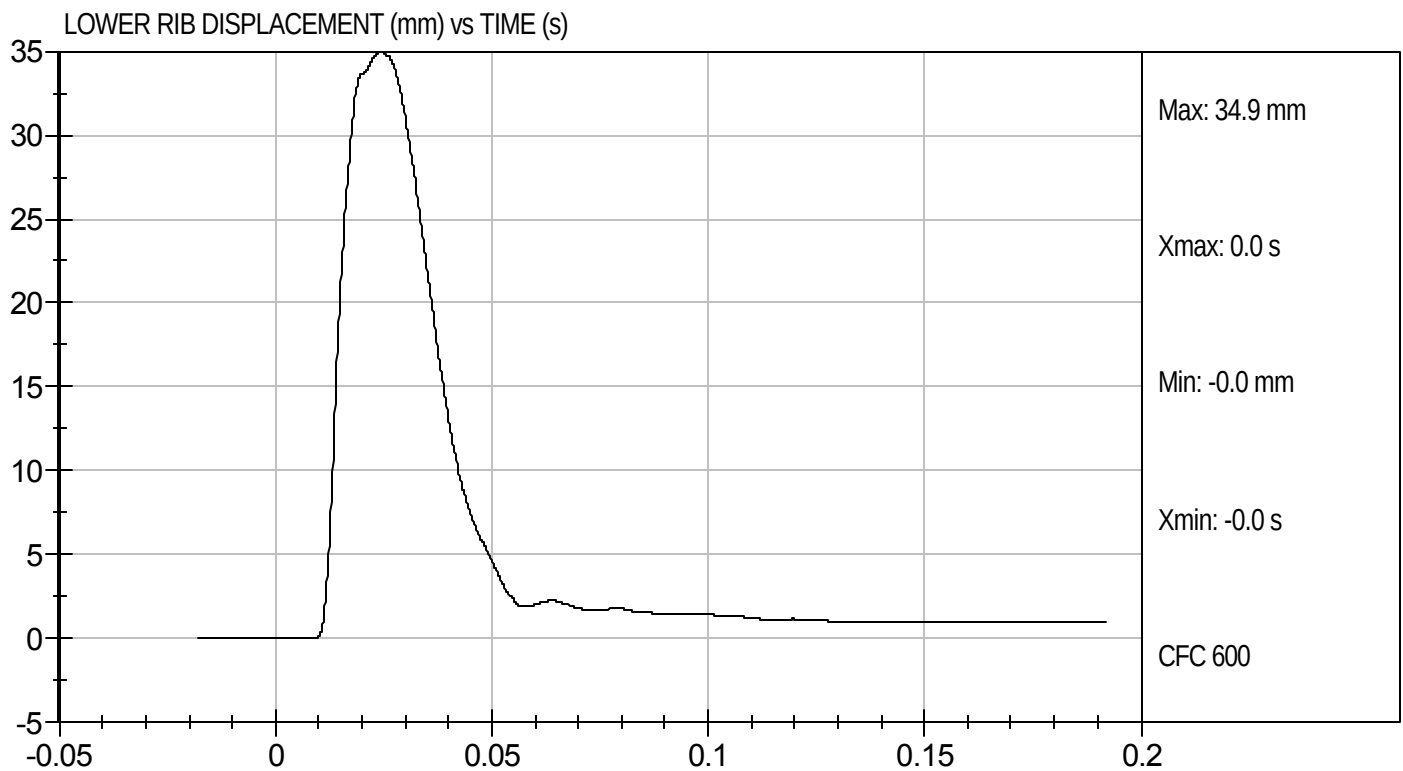
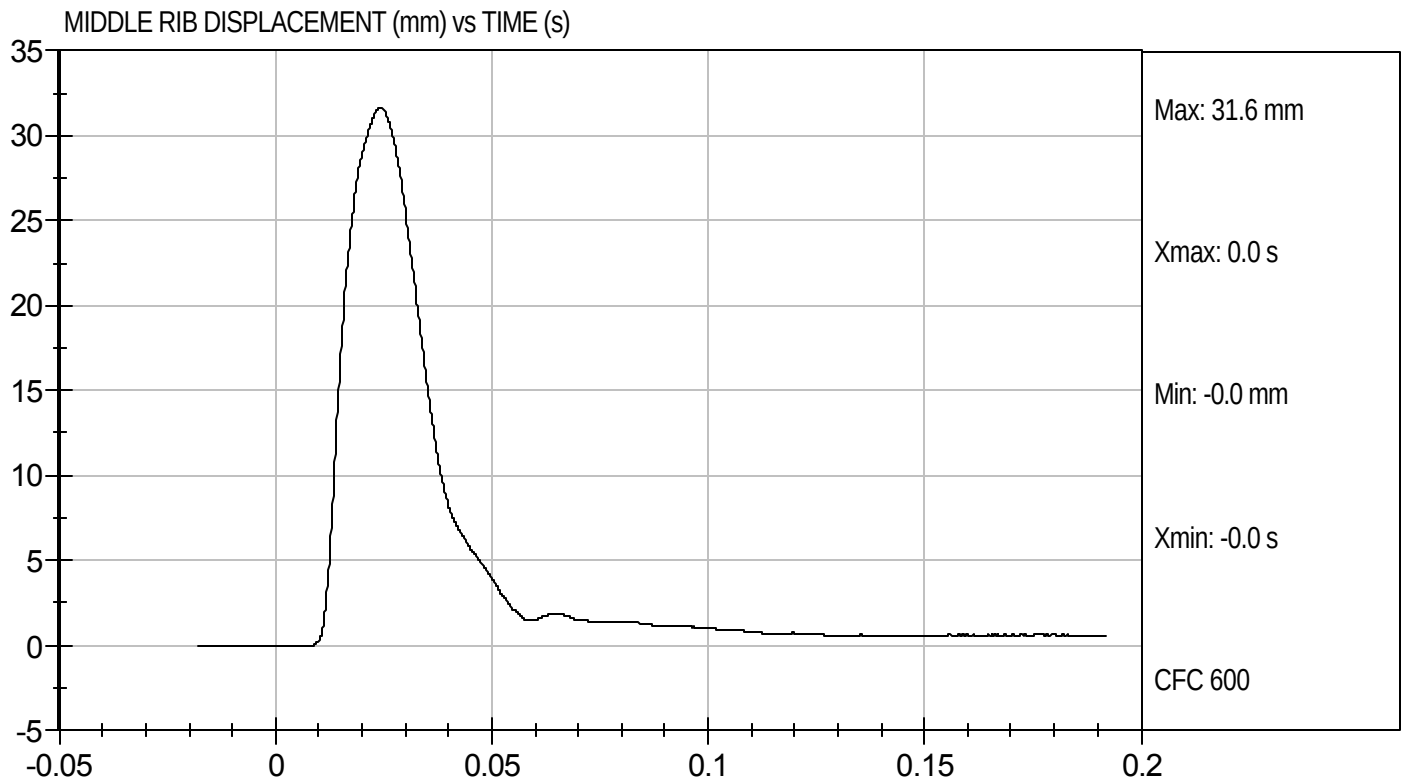
Test Date: 8/9/10
Velocity: 21.93 ft/s, 6.68 m/s





Test Desc: Thorax With Arm
Component ID: D102554

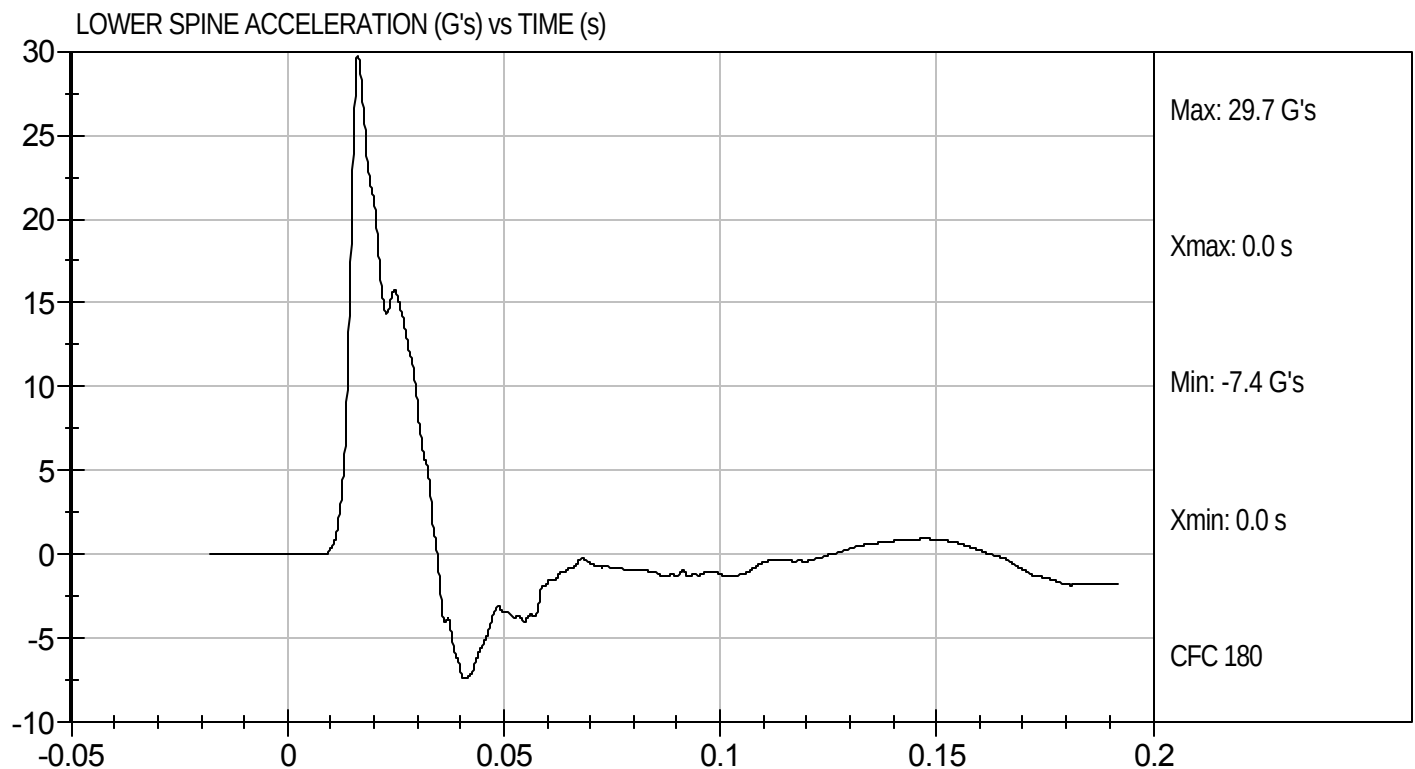
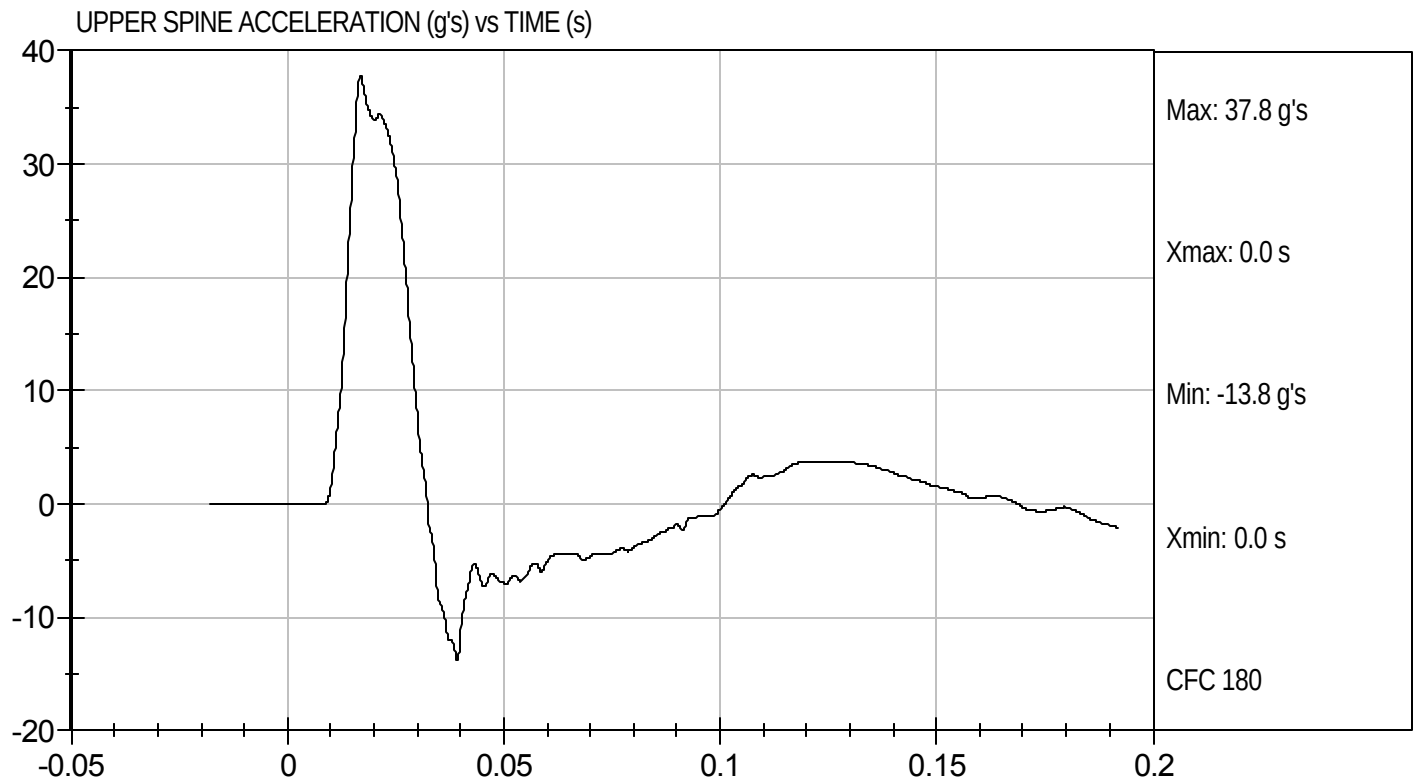
Test Date: 8/9/10
Velocity: 21.93 ft/s, 6.68 m/s





Test Desc: Thorax With Arm
Component ID: D102554

Test Date: 8/9/10
Velocity: 21.93 ft/s, 6.68 m/s



MGA RESEARCH CORPORATION
THORAX (WITHOUT ARM) IMPACT TEST
SID-11s BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D102555

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	51	Pass
Impact Velocity	m/s	4.20 to 4.40	4.27	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	41	Pass
Lower Rib Displacement	mm	35 to 43	40	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	14	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	9	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

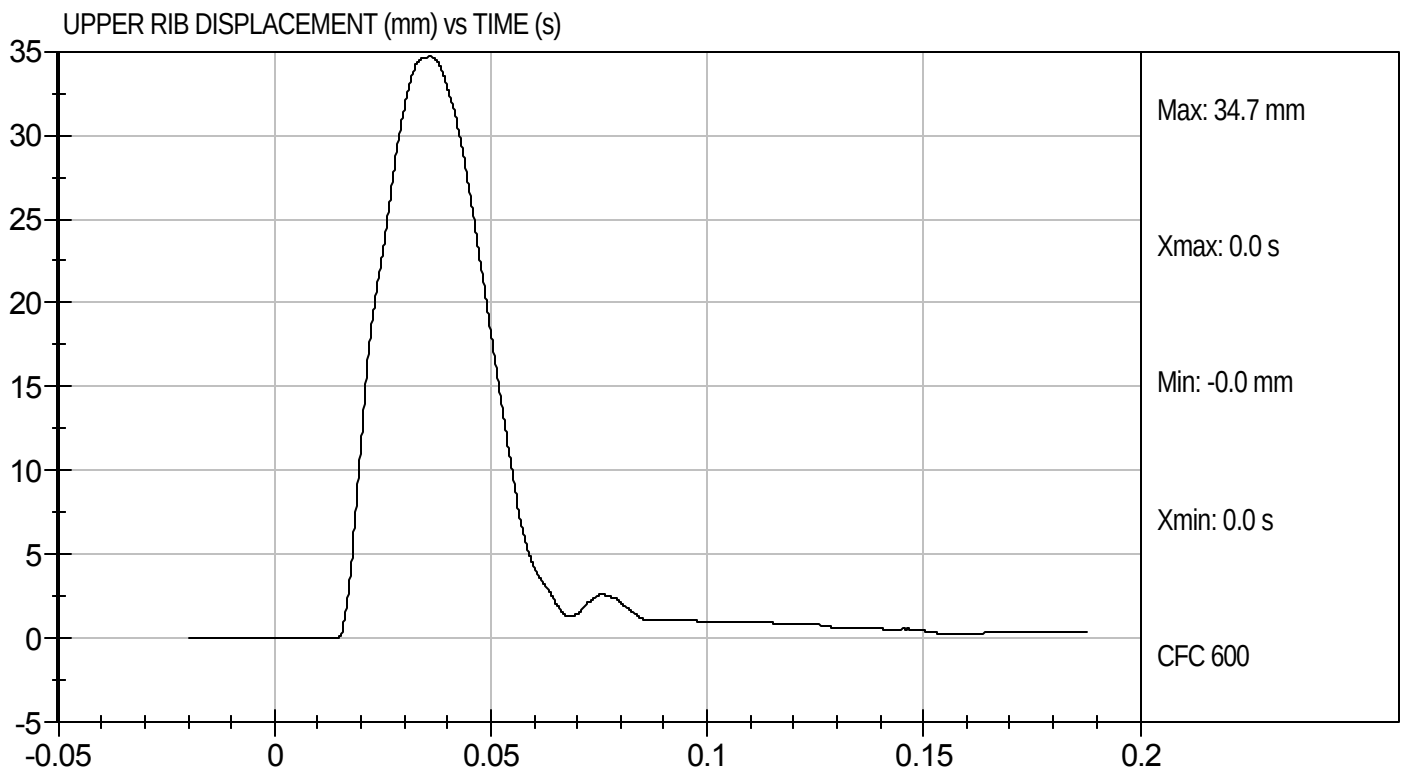
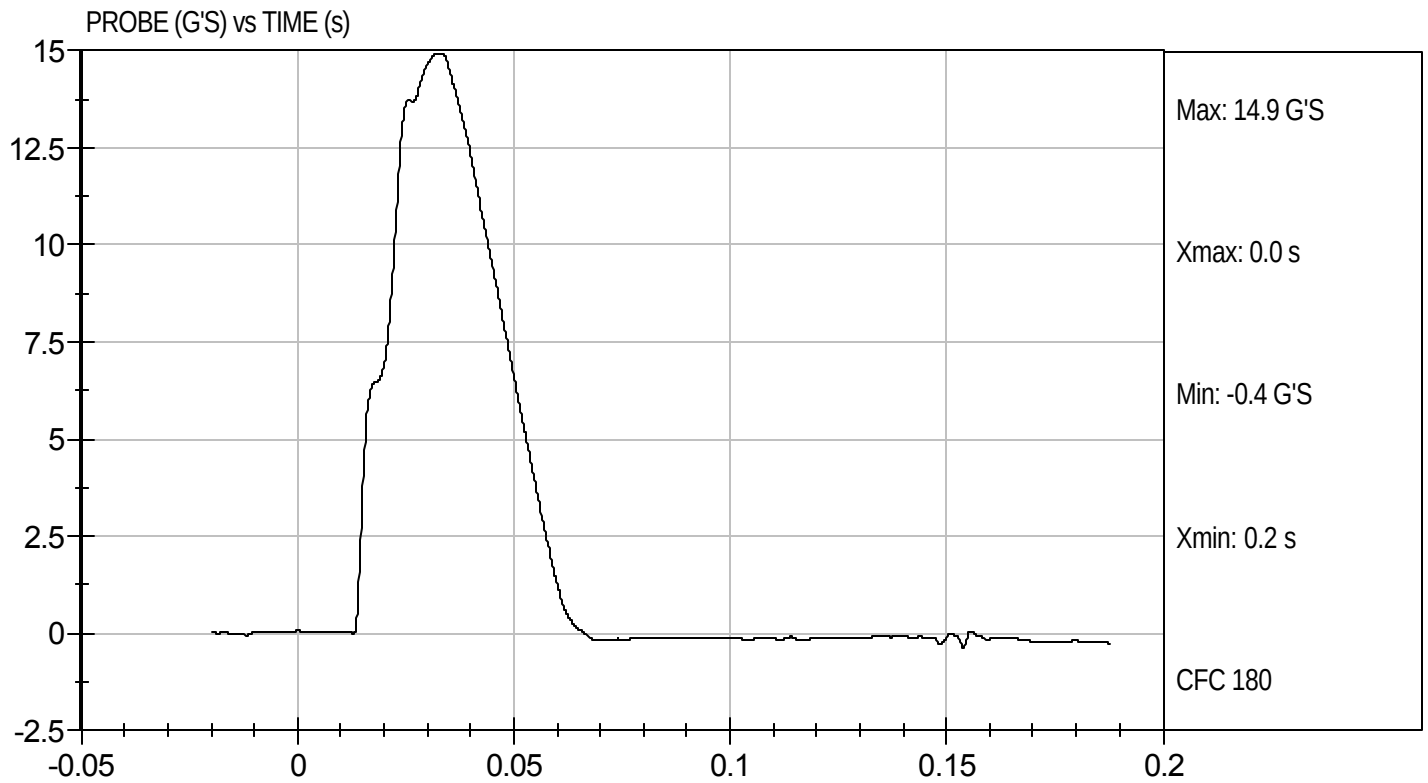
8/9/10
Test Date

David Winkelbauer
Approved By



Test Desc: Thorax Without Arm
Component ID: D102555

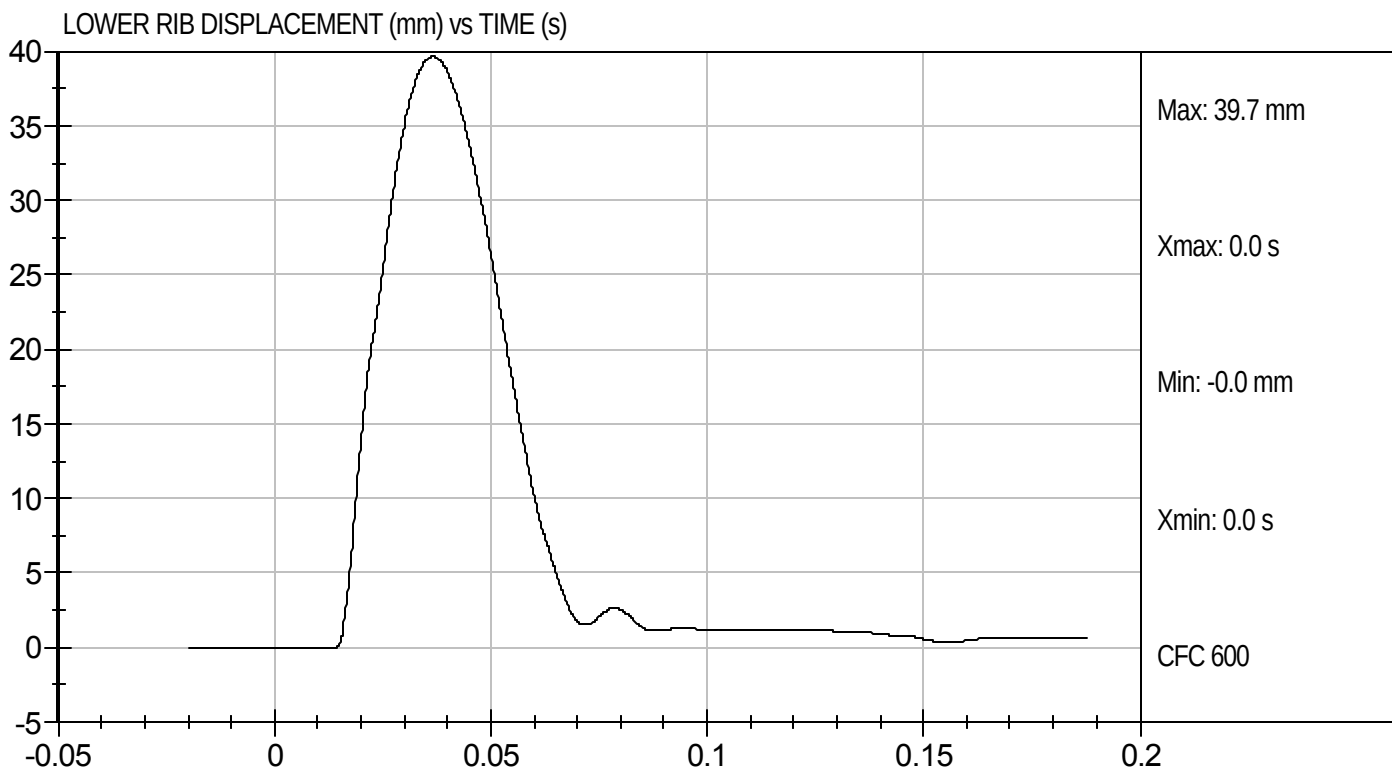
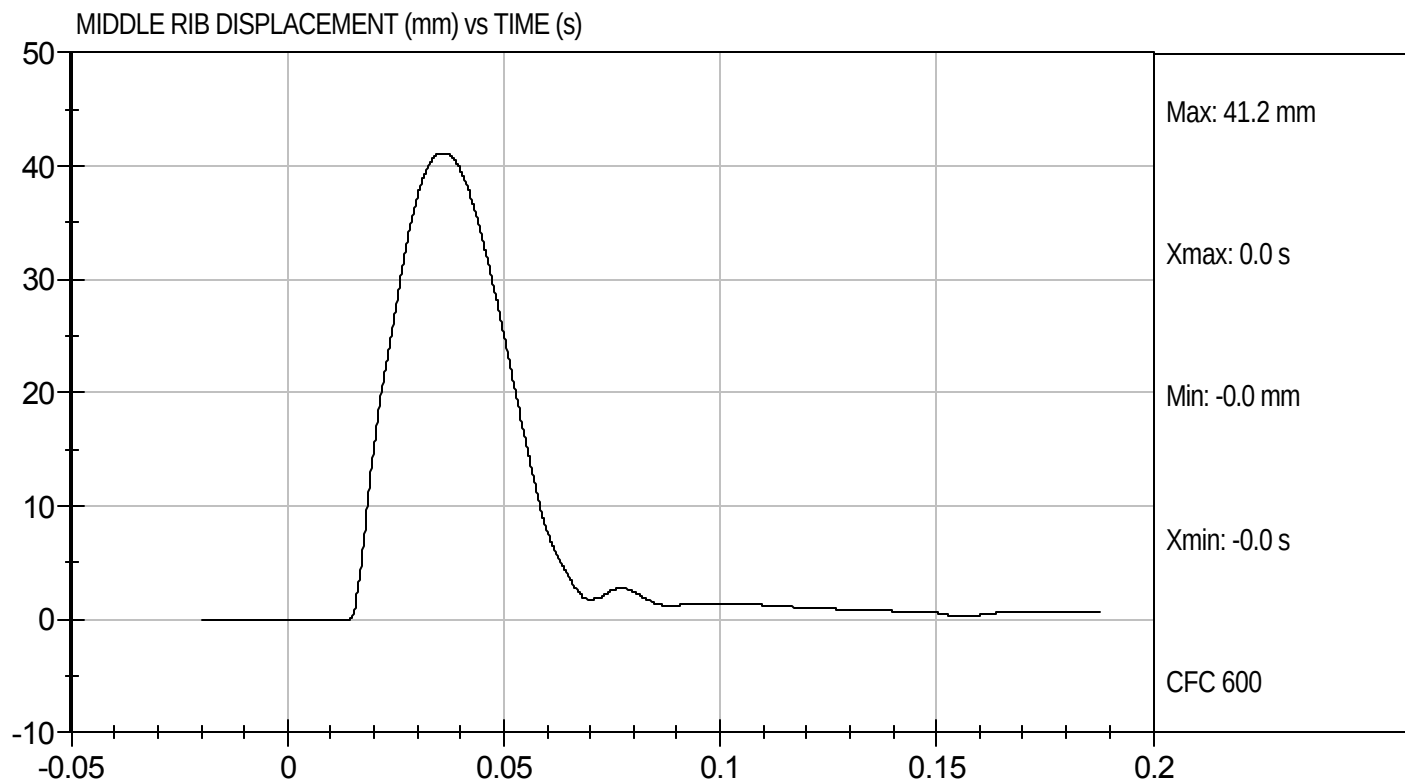
Test Date: 8/9/10
Velocity: 14.01 ft/s, 4.27 m/s





Test Desc: Thorax Without Arm
Component ID: D102555

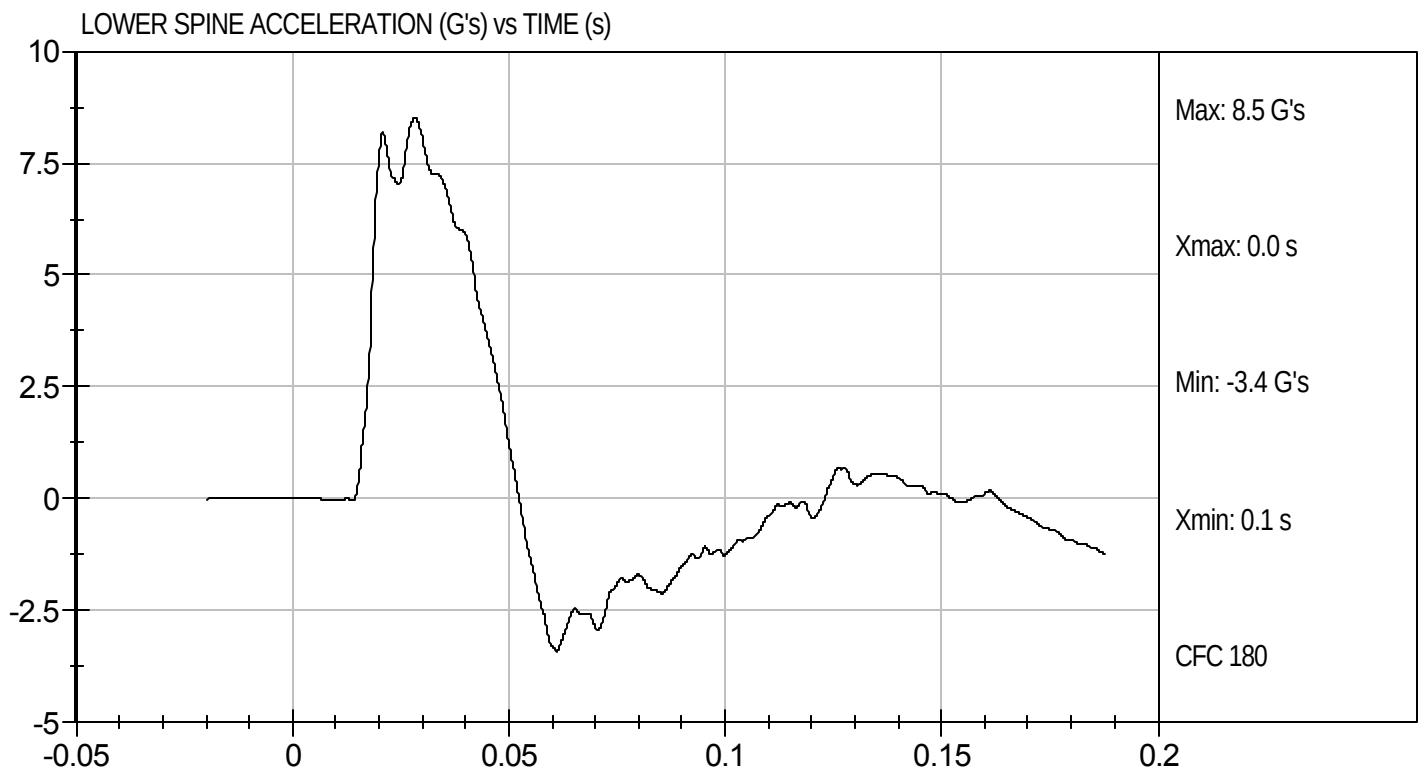
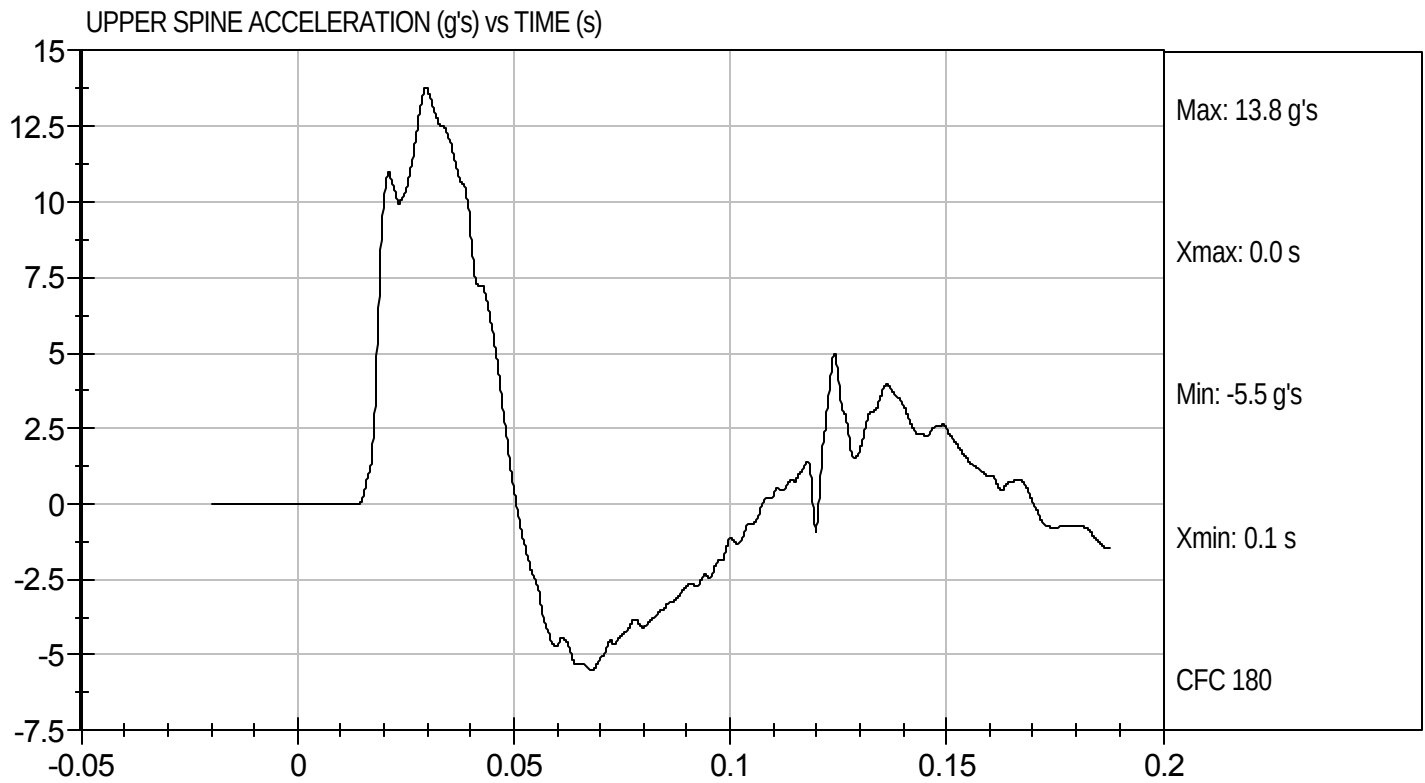
Test Date: 8/9/10
Velocity: 14.01 ft/s, 4.27 m/s





Test Desc: Thorax Without Arm
Component ID: D102555

Test Date: 8/9/10
Velocity: 14.01 ft/s, 4.27 m/s



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

ATD Serial No: 296

Test I.D: D102556

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.4	Pass
Humidity	%	10 to 70	53	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	36	Pass
Lower Rib Displacement	mm	33 to 44	42	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
Overall Test Results				Pass


Laboratory Technician

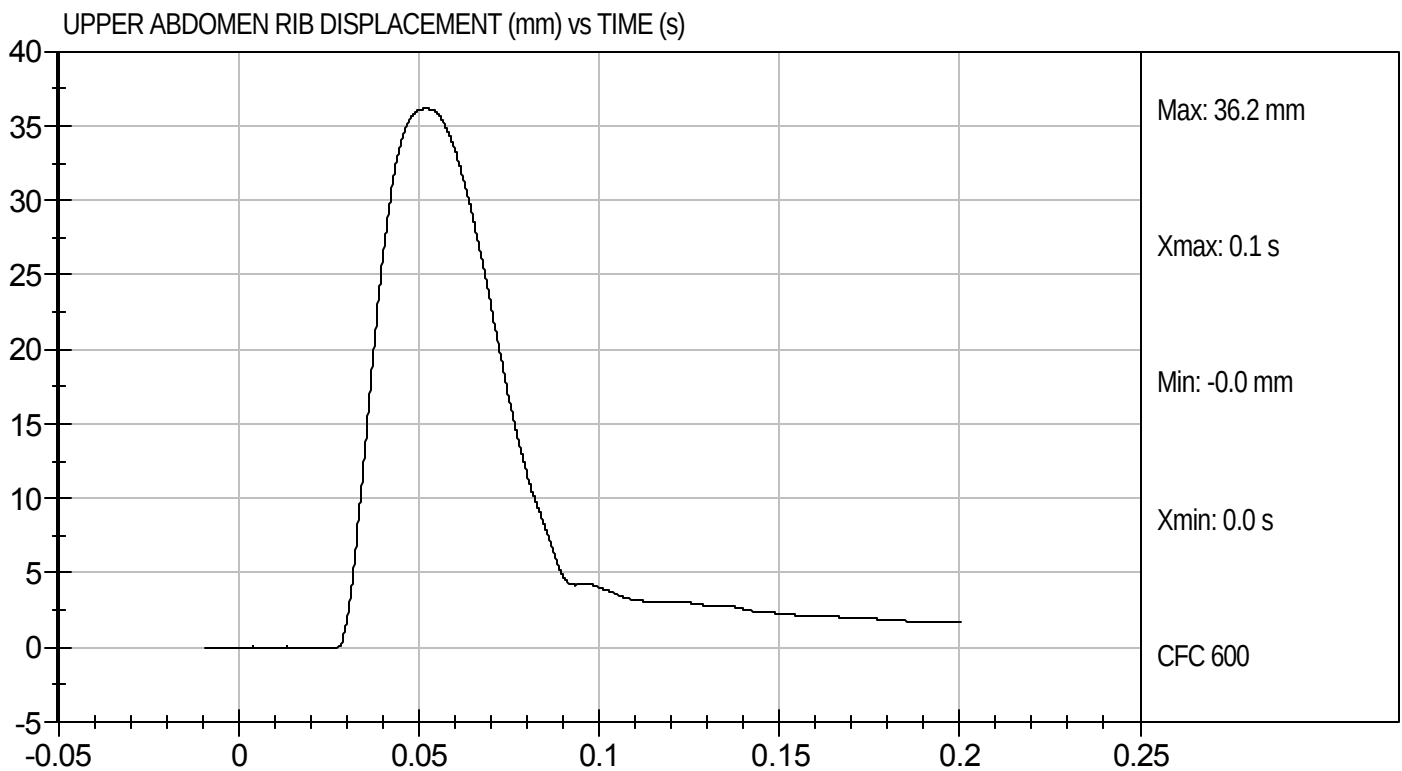
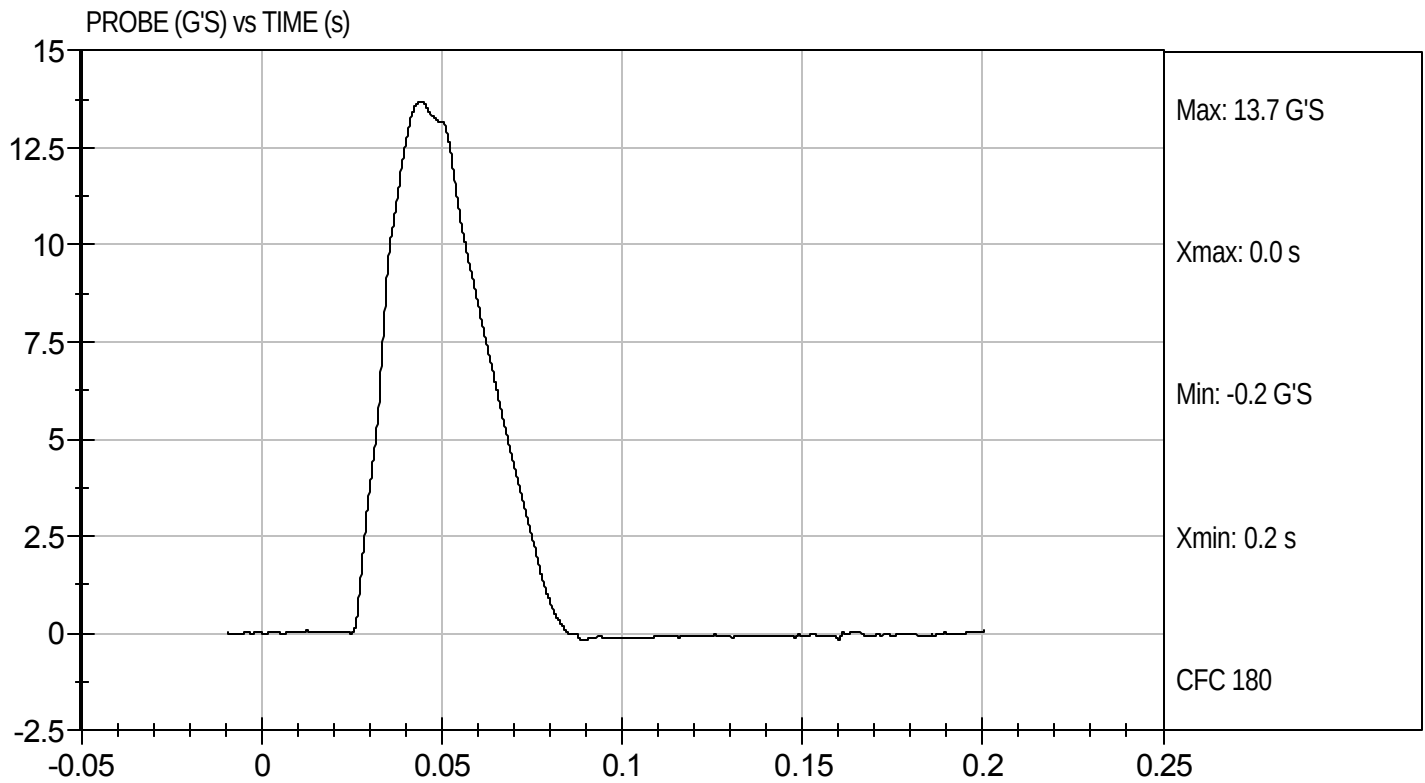
8/9/10
Test Date


Approved By



Test Desc: Abdomen Impact
Component ID: D102556

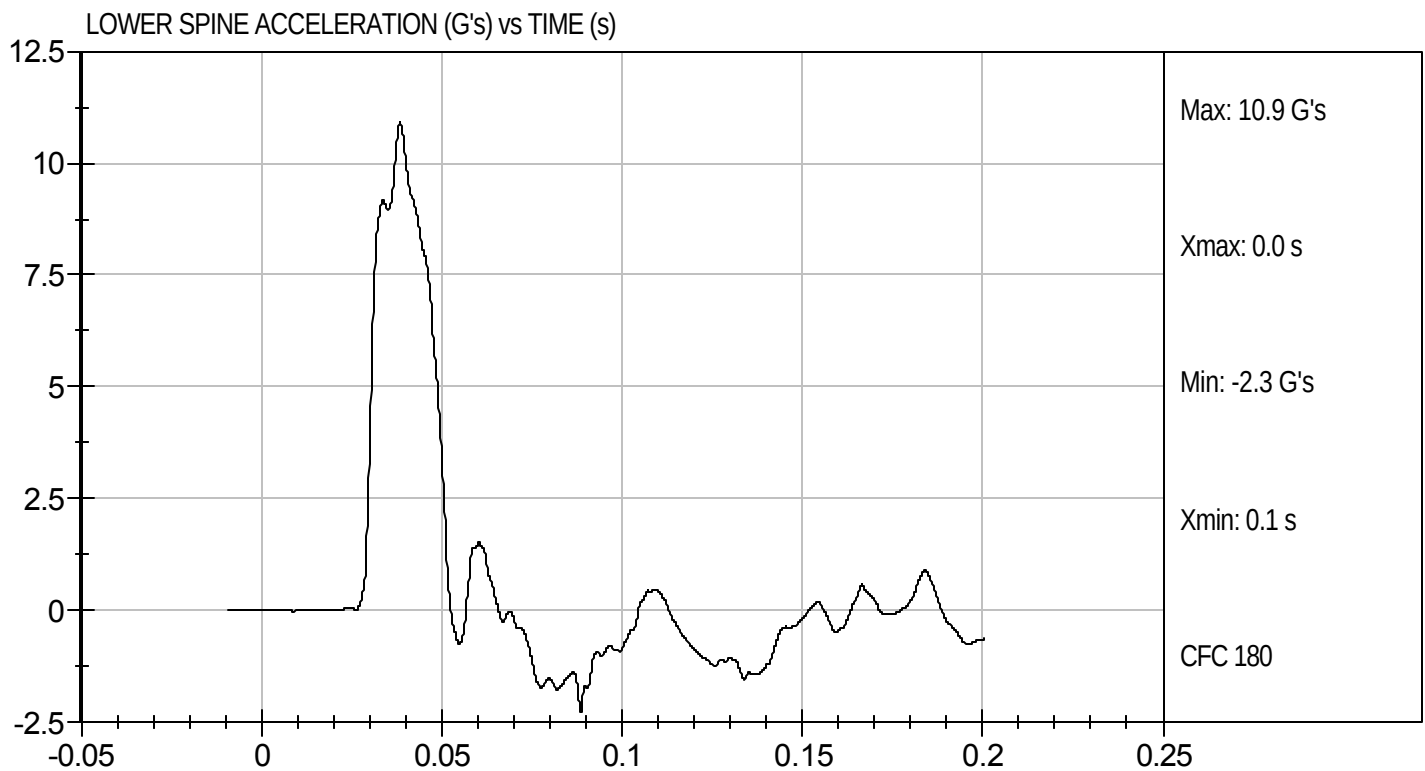
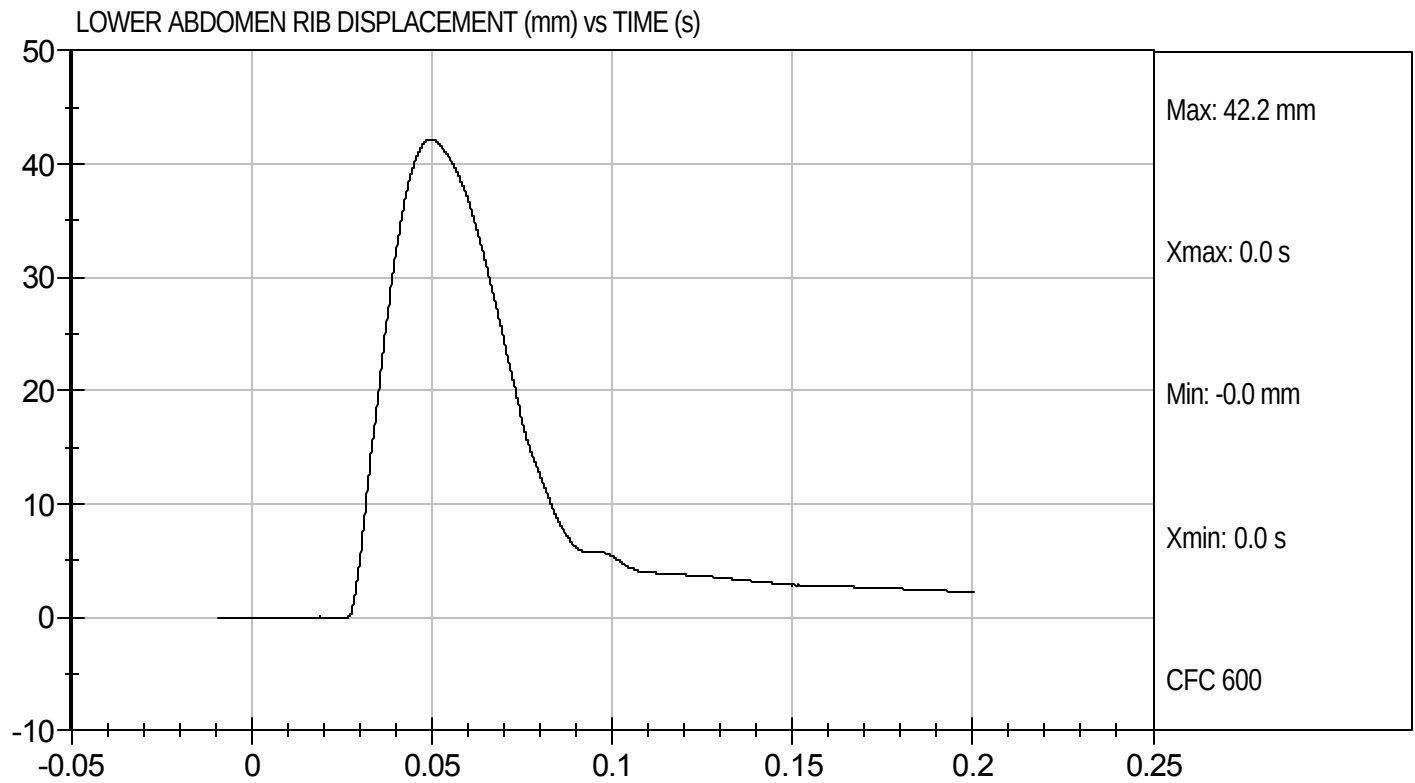
Test Date: 8/9/10
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Abdomen Impact
Component ID: D102556

Test Date: 8/9/10
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: D102557

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.4	Pass
Humidity	%	10 to 70	53	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	39	Pass
Peak Acetabulum Force	N	3600 to 4300	4112	Pass
Overall Test Results			Pass	


Laboratory Technician

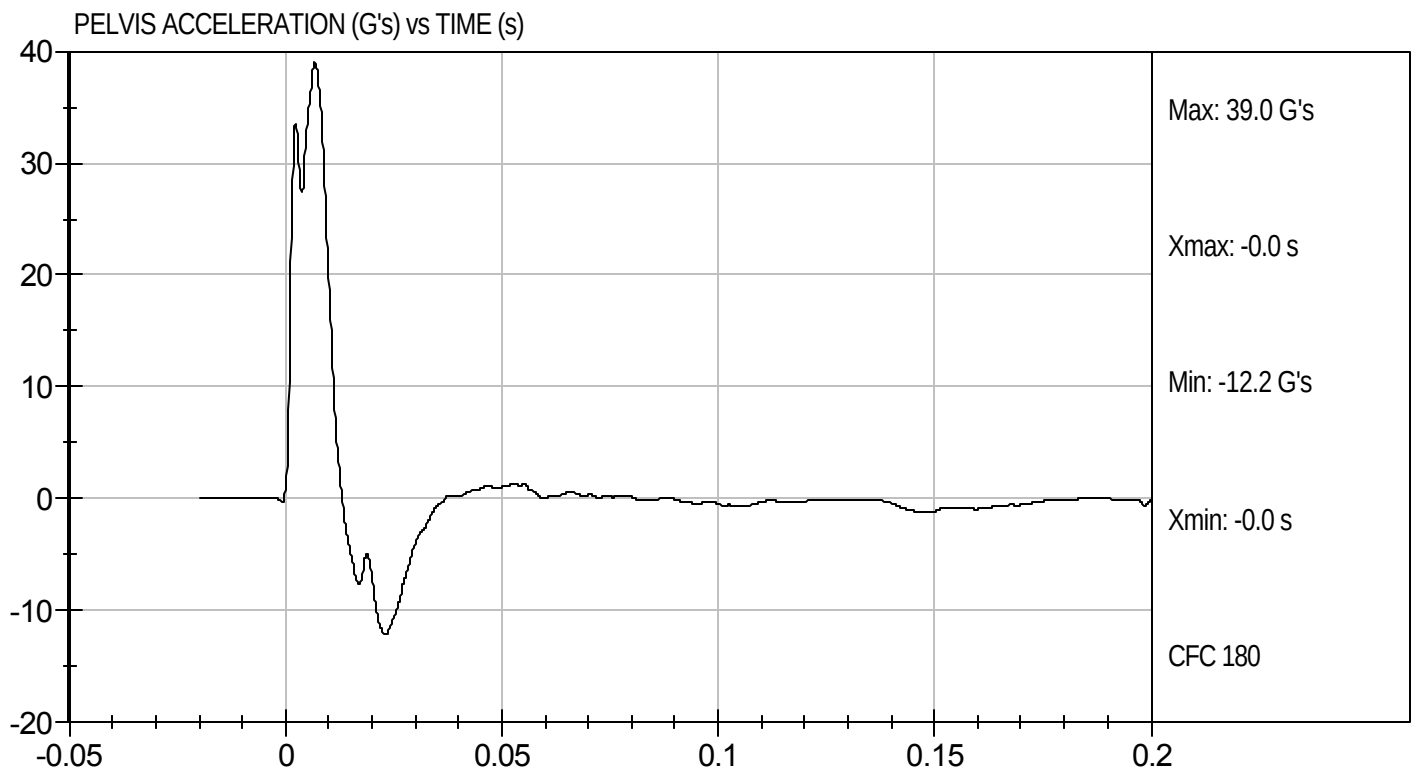
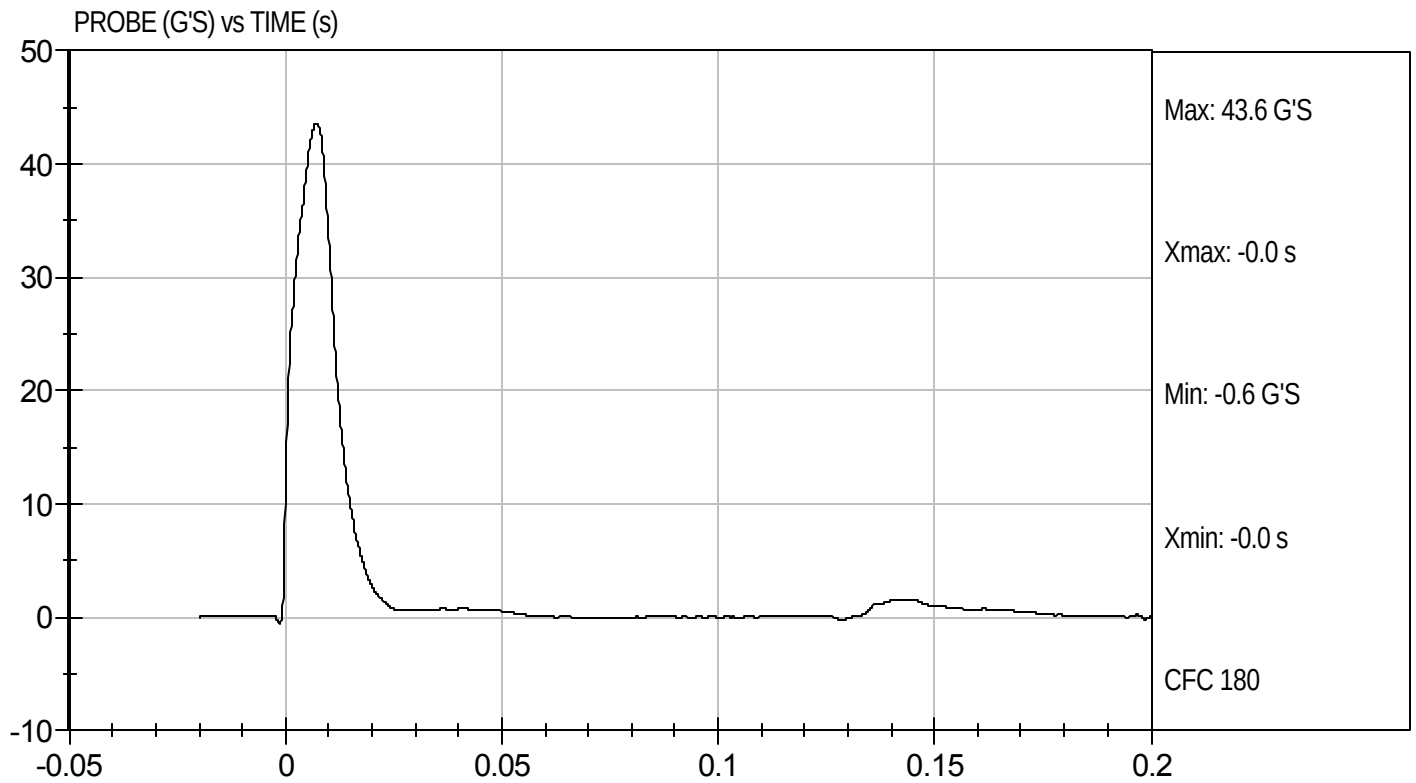
8/9/10
Test Date


Approved By



Test Desc: Pelvis Impact
Component ID: D102557

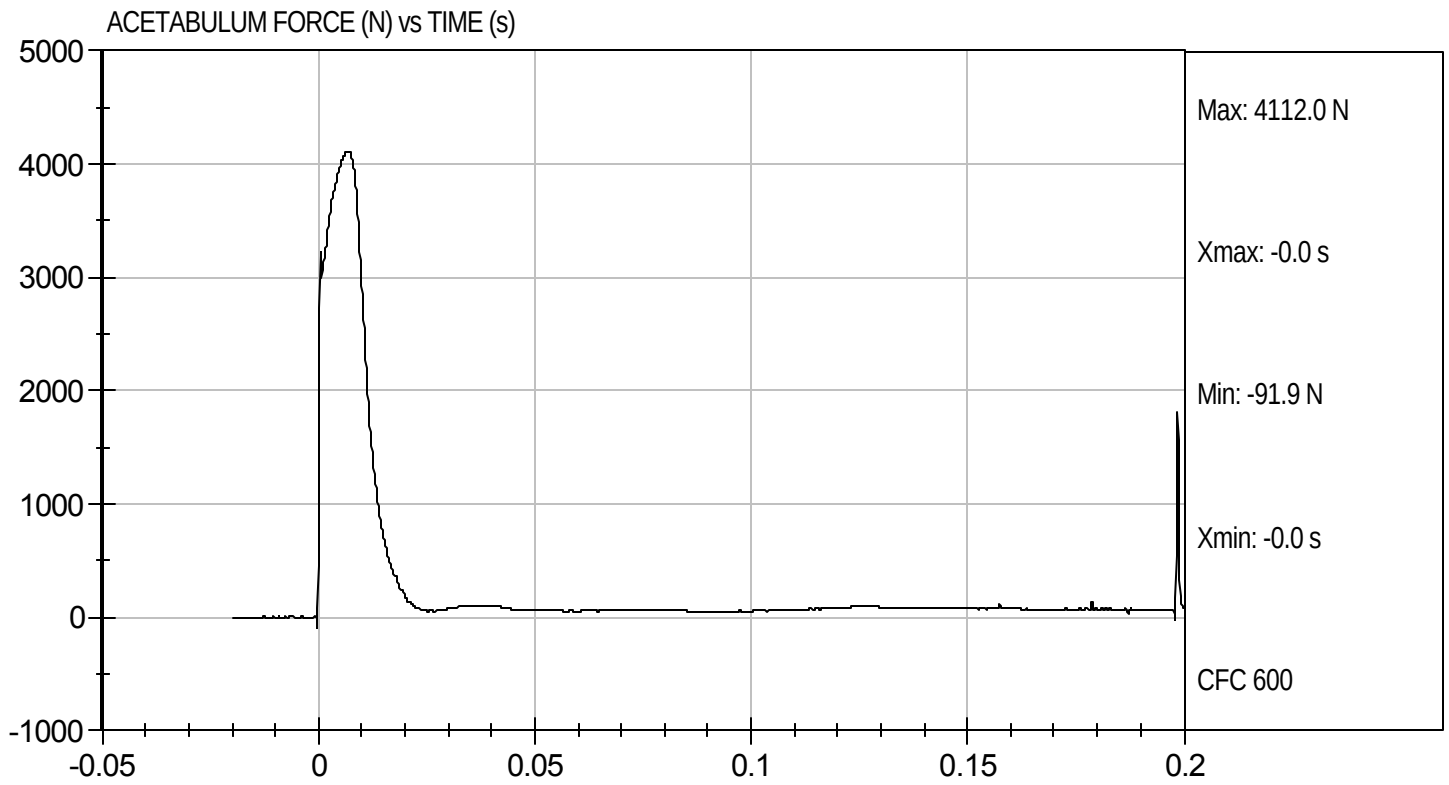
Test Date: 8/9/10
Velocity: 21.93 ft/s, 6.68 m/s





Test Desc: Pelvis Impact
Component ID: D102557

Test Date: 8/9/10
Velocity: 21.93 ft/s, 6.68 m/s

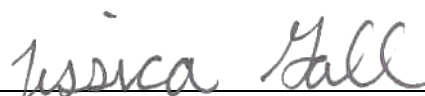


MGA RESEARCH CORPORATION
ILIAC IMPACT TEST
SID-II's BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D102558

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	52	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	33	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4664	Pass
Overall Test Results			Pass	


Laboratory Technician

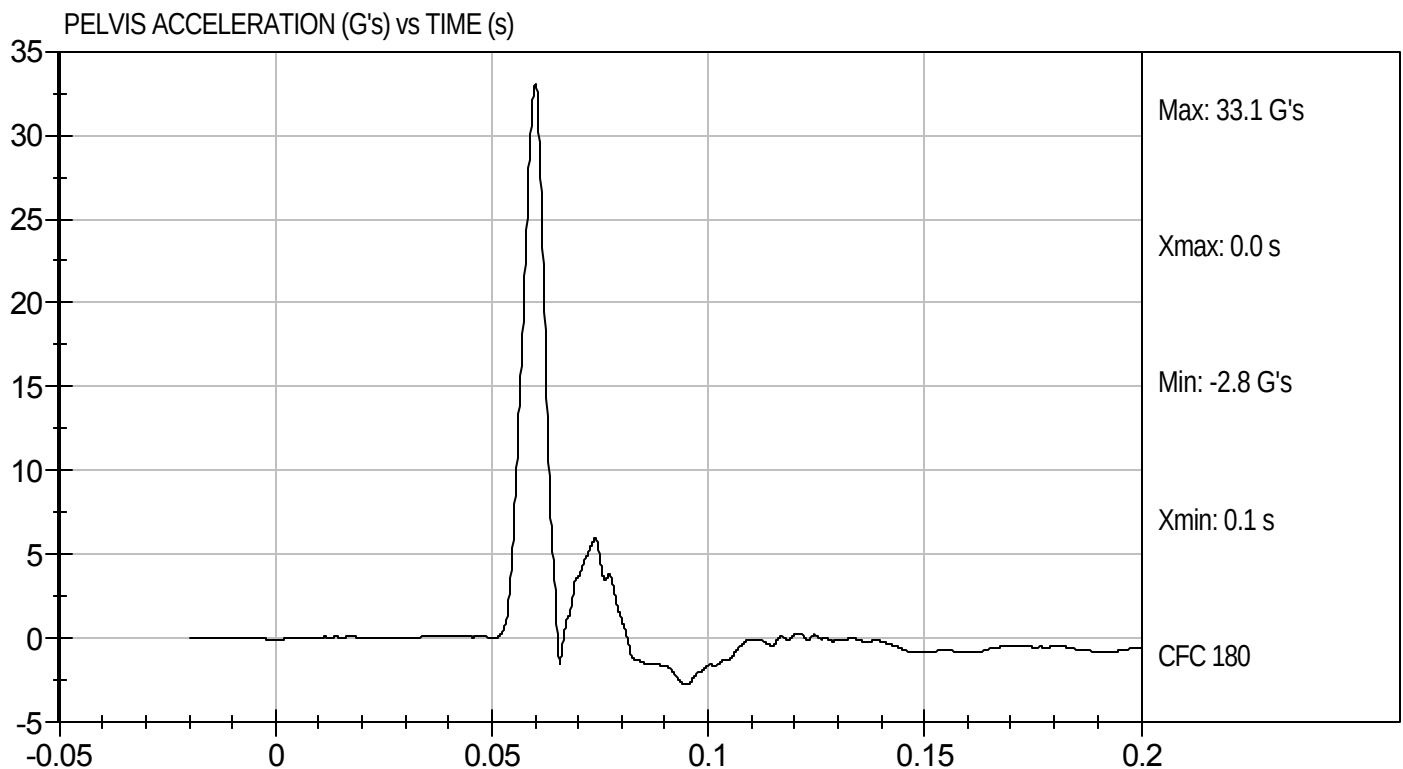
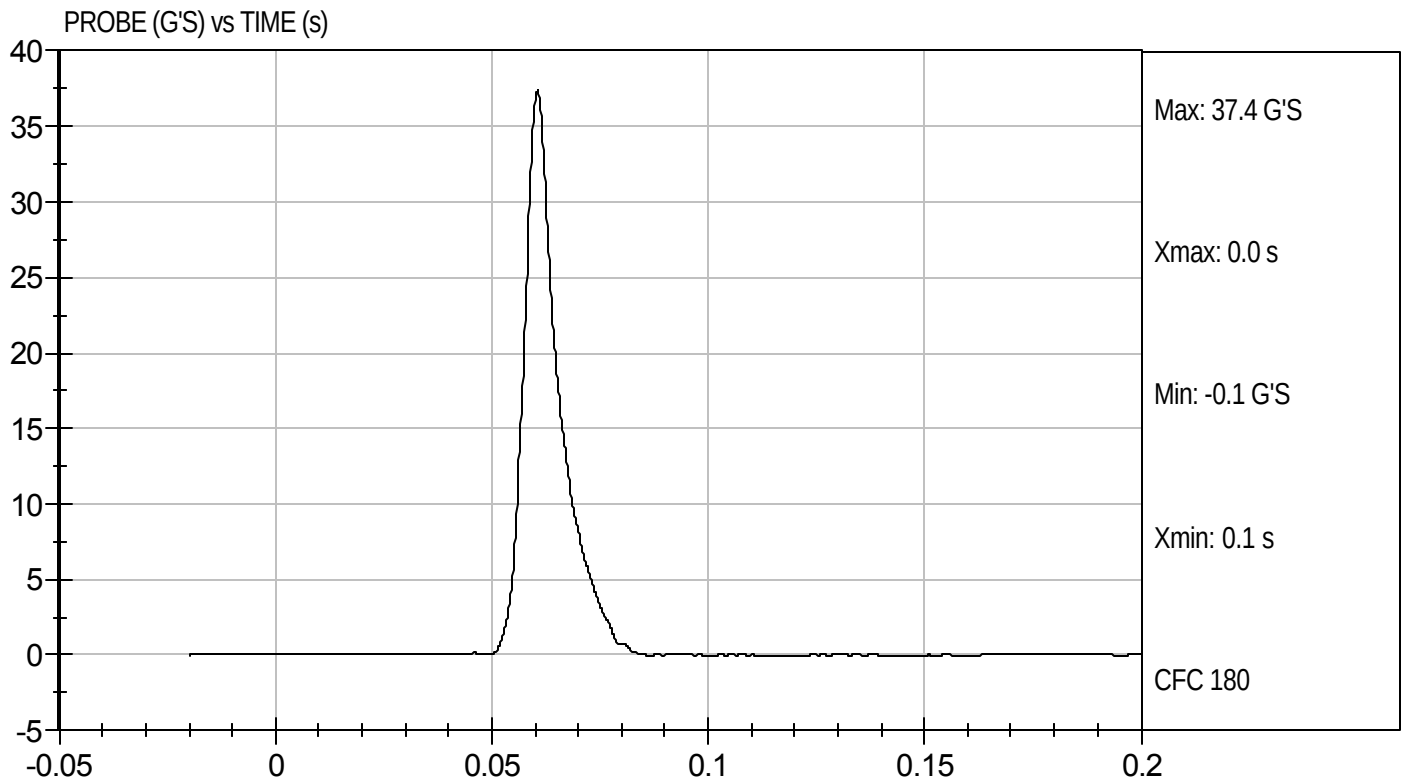
8/9/10
Test Date


Approved By



Test Desc: Iliac Impact
Component ID: D102558

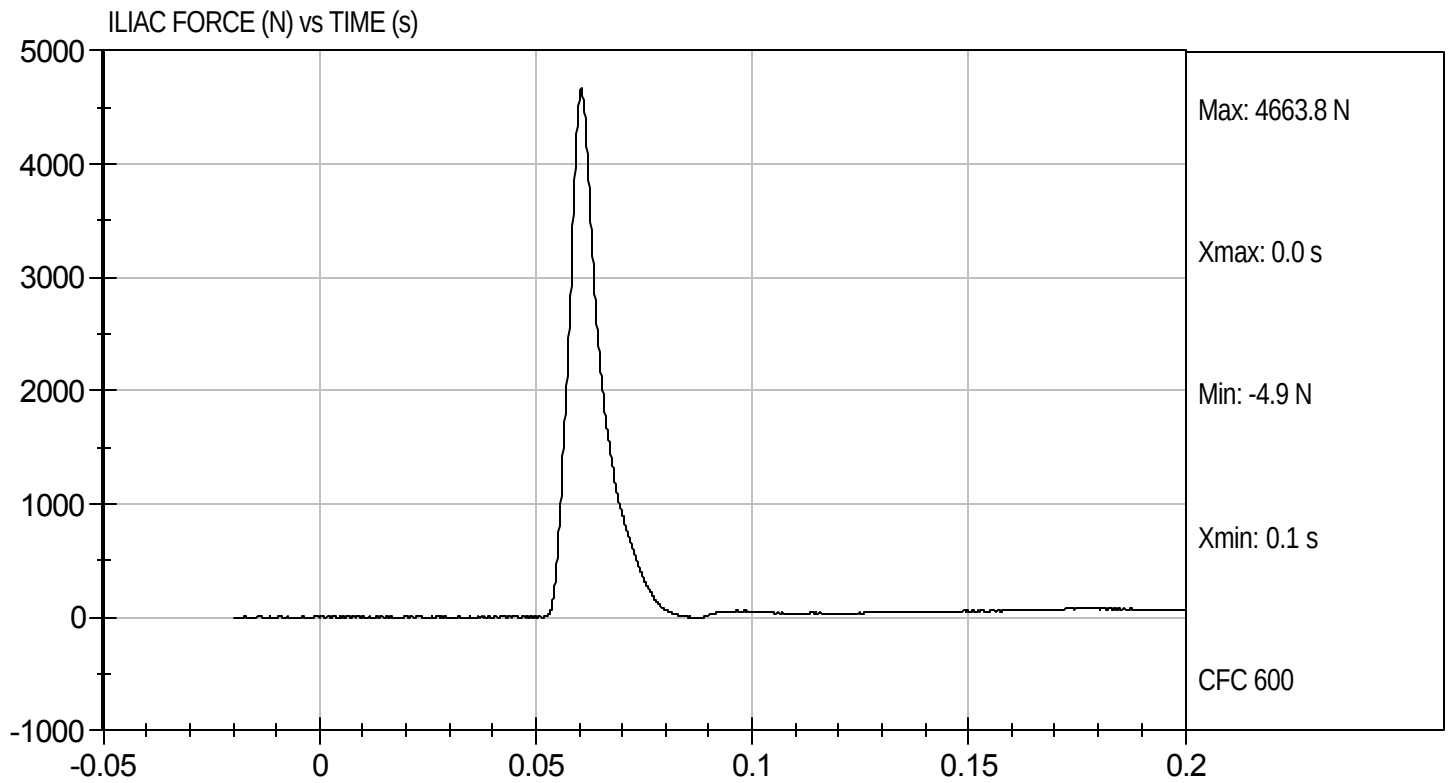
Test Date: 8/9/10
Velocity: 14.37 ft/s, 4.38 m/s





Test Desc: Iliac Impact
Component ID: D102558

Test Date: 8/9/10
Velocity: 14.37 ft/s, 4.38 m/s

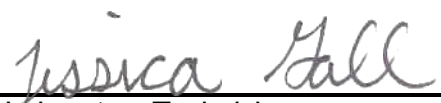


MGA RESEARCH CORPORATION
HEAD DROP TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test ID: D102561

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	49	Pass
Peak Resultant Acceleration	G's	115 to 137	127	Pass
Peak Lateral Acceleration	G's	+/- 15	-3.1	Pass
Unimodal	N/A	<15%	Yes	Pass
Overall Test Results				Pass


Laboratory Technician

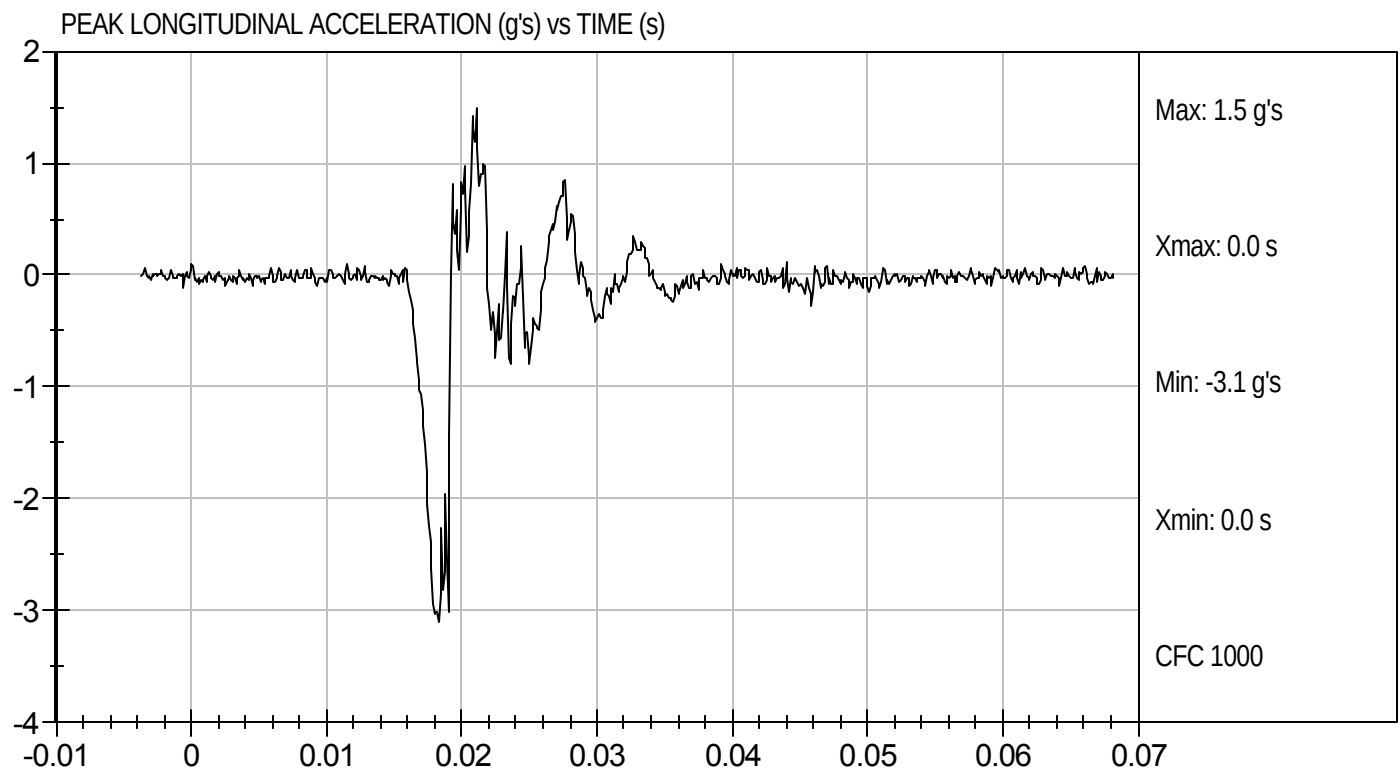
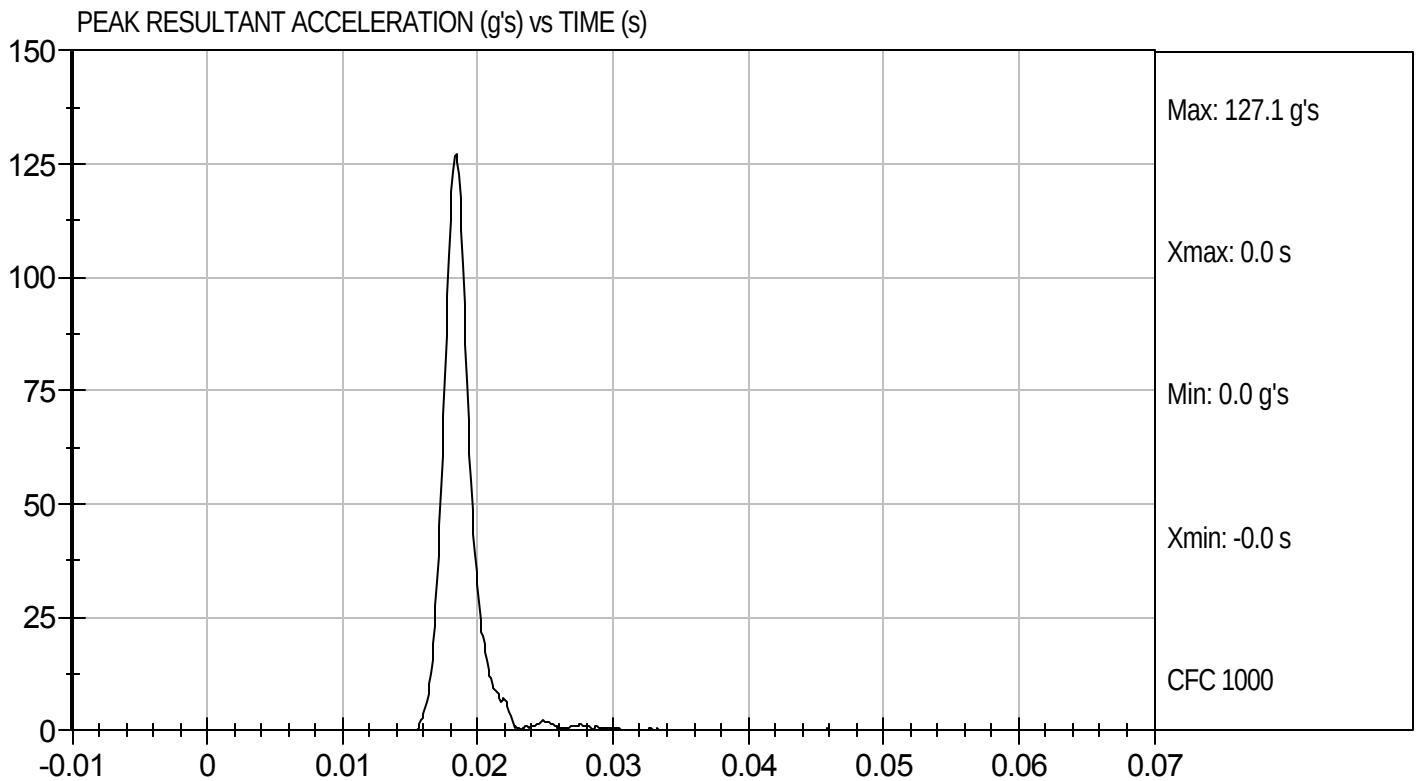
8/13/10
Test Date


Approved By



Test Desc: Head Drop
Component ID: D102561

Test Date: 8/13/10
Velocity: 0 ft/s, 0 m/s

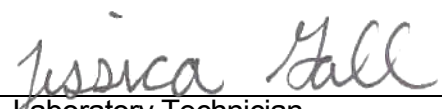


MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIS BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D102562

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.9	Pass
Humidity		%	10 to 70	49	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Delta Velocity	10 ms	m/s	2.20 to 2.80	2.77	Pass
	15 ms	m/s	3.30 to 4.10	3.93	Pass
	20 ms	m/s	4.40 to 5.40	5.28	Pass
	25 ms	m/s	5.40 to 6.10	5.52	Pass
	25-100 ms	m/s	5.50 to 6.20	5.54	Pass
Maximum D-Plane Rotation		deg	71 to 81	72	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	59	Pass
Maximum Occipital Condyle Moment during Rotation Interval Nm			-44 to -36	-43	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	112	Pass
Overall Test Results				Pass	


 Laboratory Technician

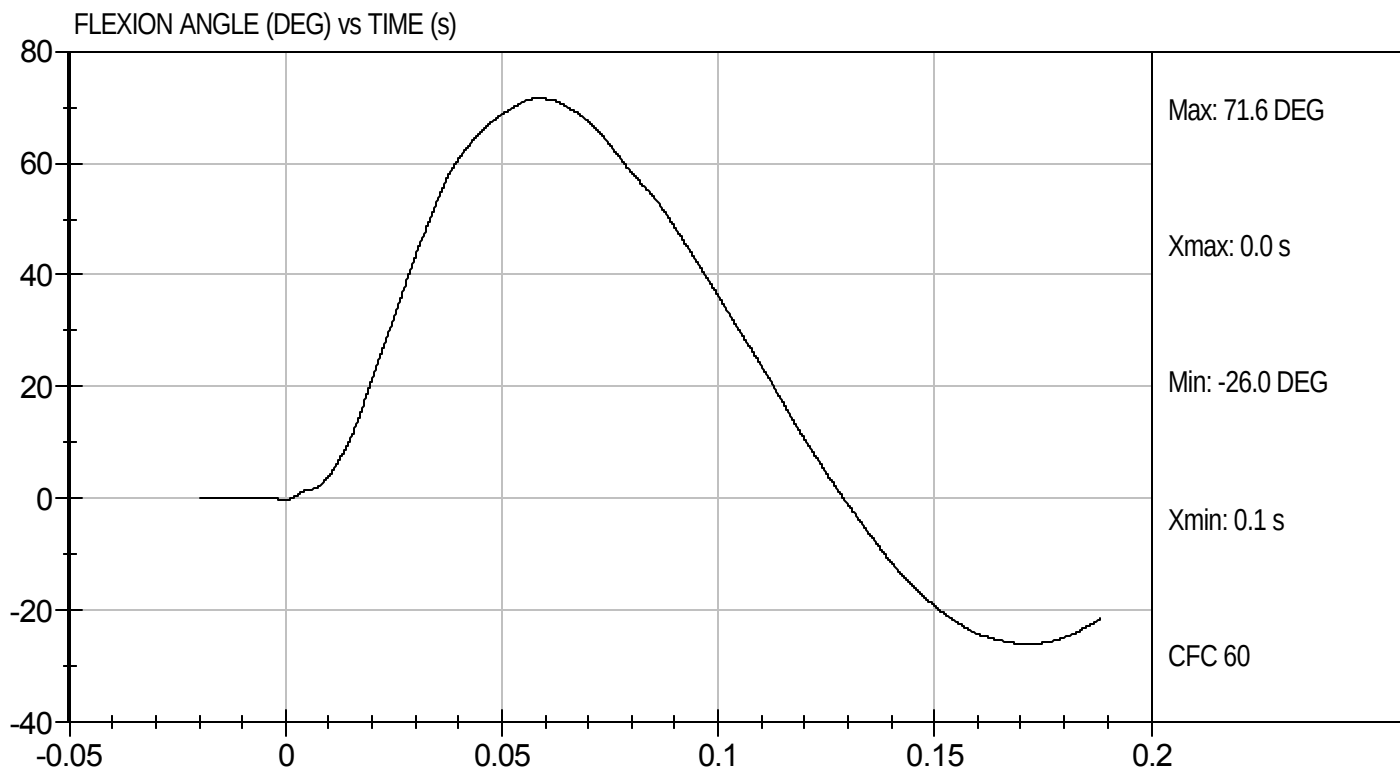
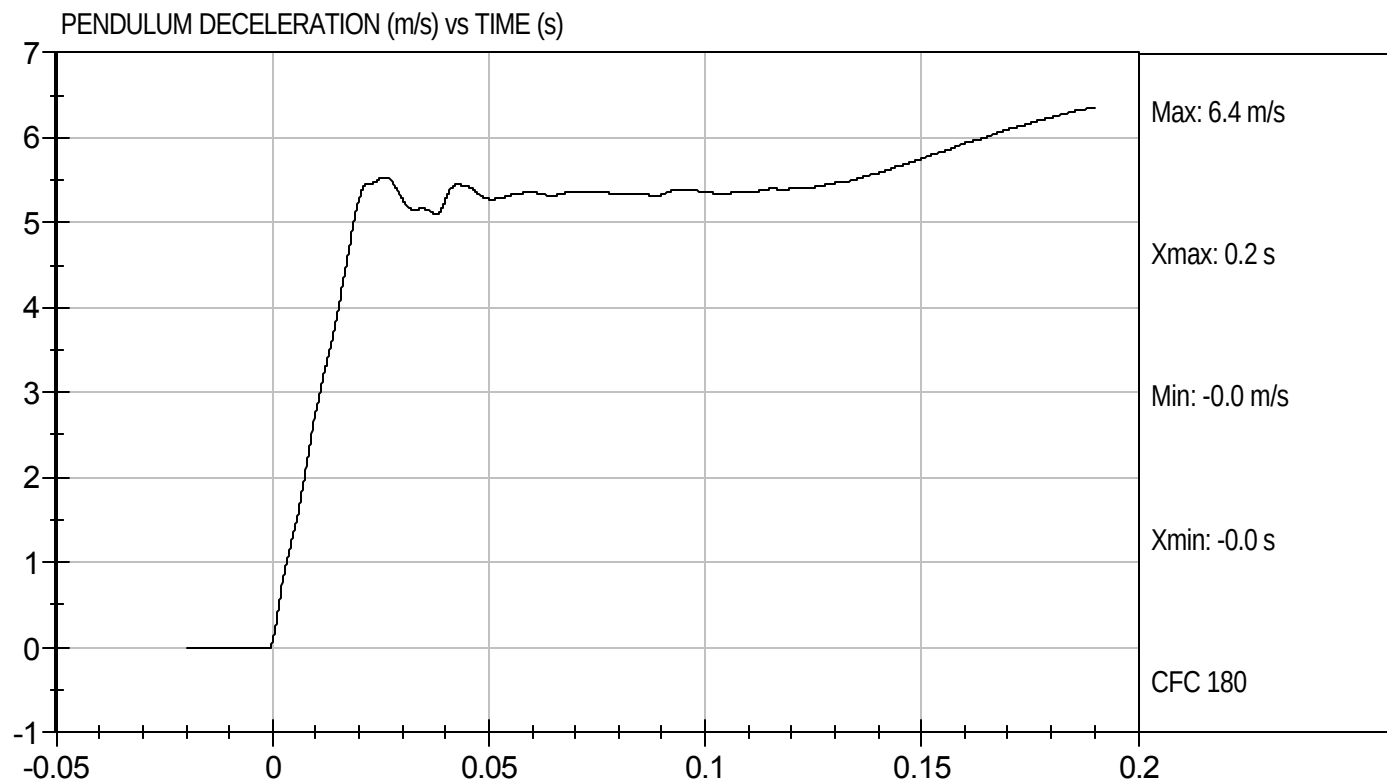
8/13/10
 Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D102562

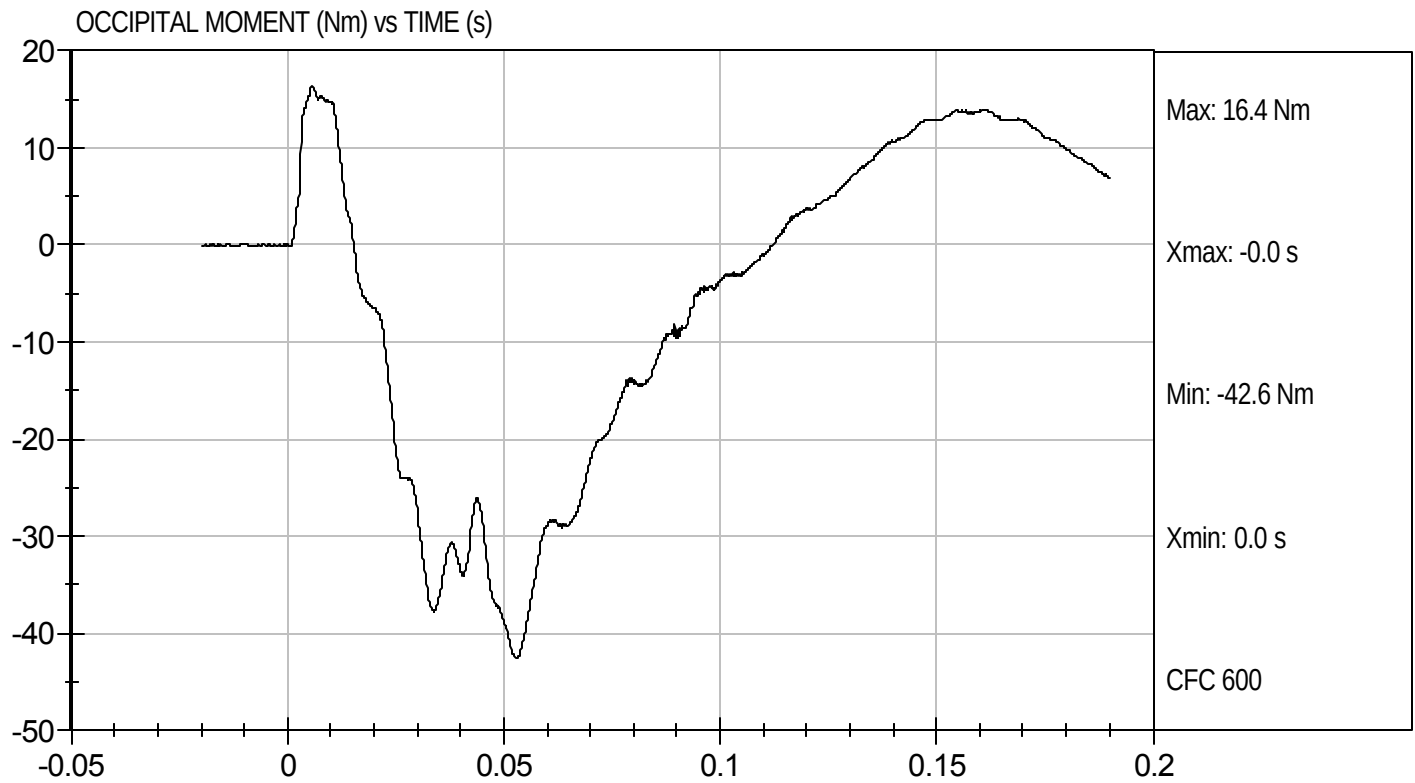
Test Date: 8/13/10
Velocity: 18.32 ft/s, 5.58 m/s





Test Desc: Neck Bending
Component ID: D102562

Test Date: 8/13/10
Velocity: 18.32 ft/s, 5.58 m/s



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

ATD Serial No: 296

Test ID: D102563

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	58	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	33	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	18	Pass
Overall Test Results				Pass


Laboratory Technician

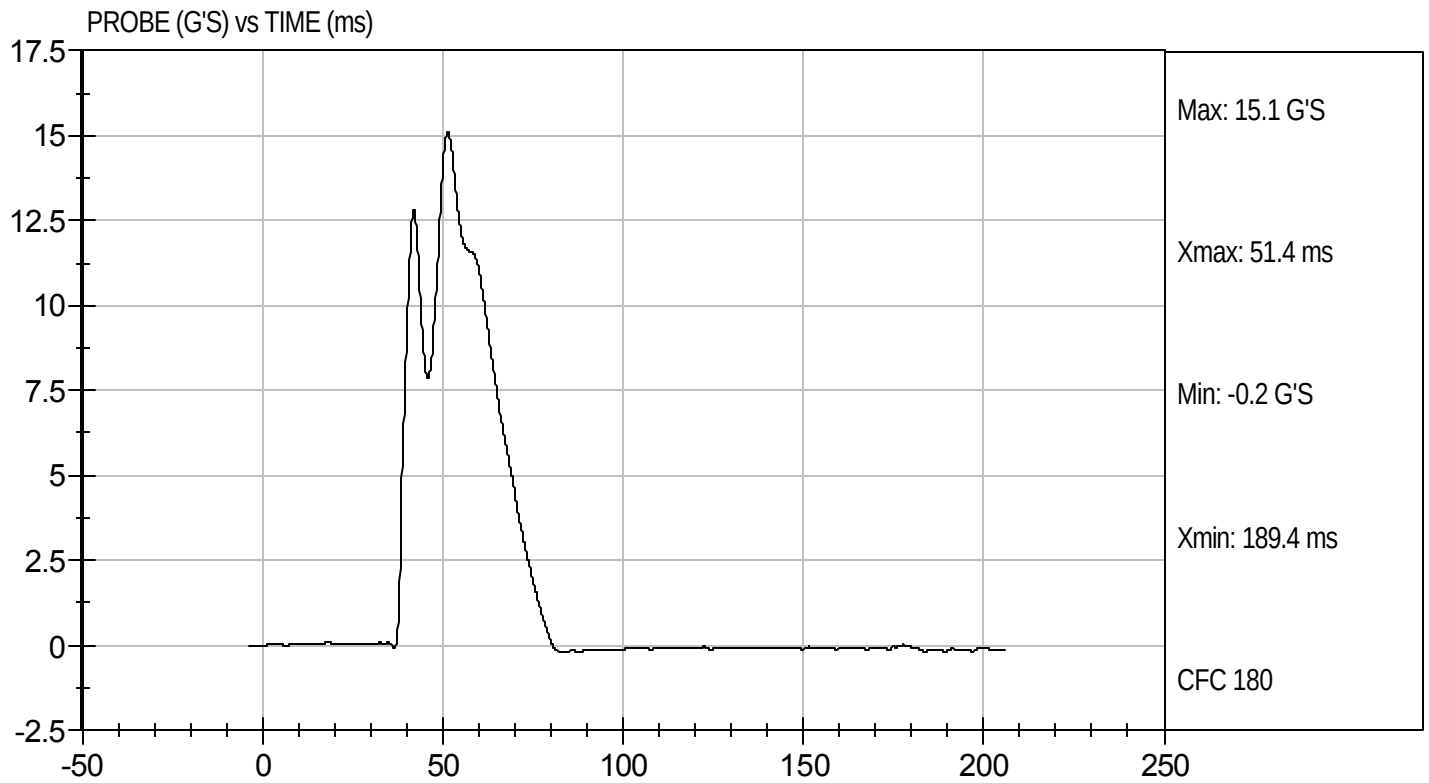
8/12/10
Test Date


Approved By



Test Desc: Shoulder Impact
Component ID: D102563

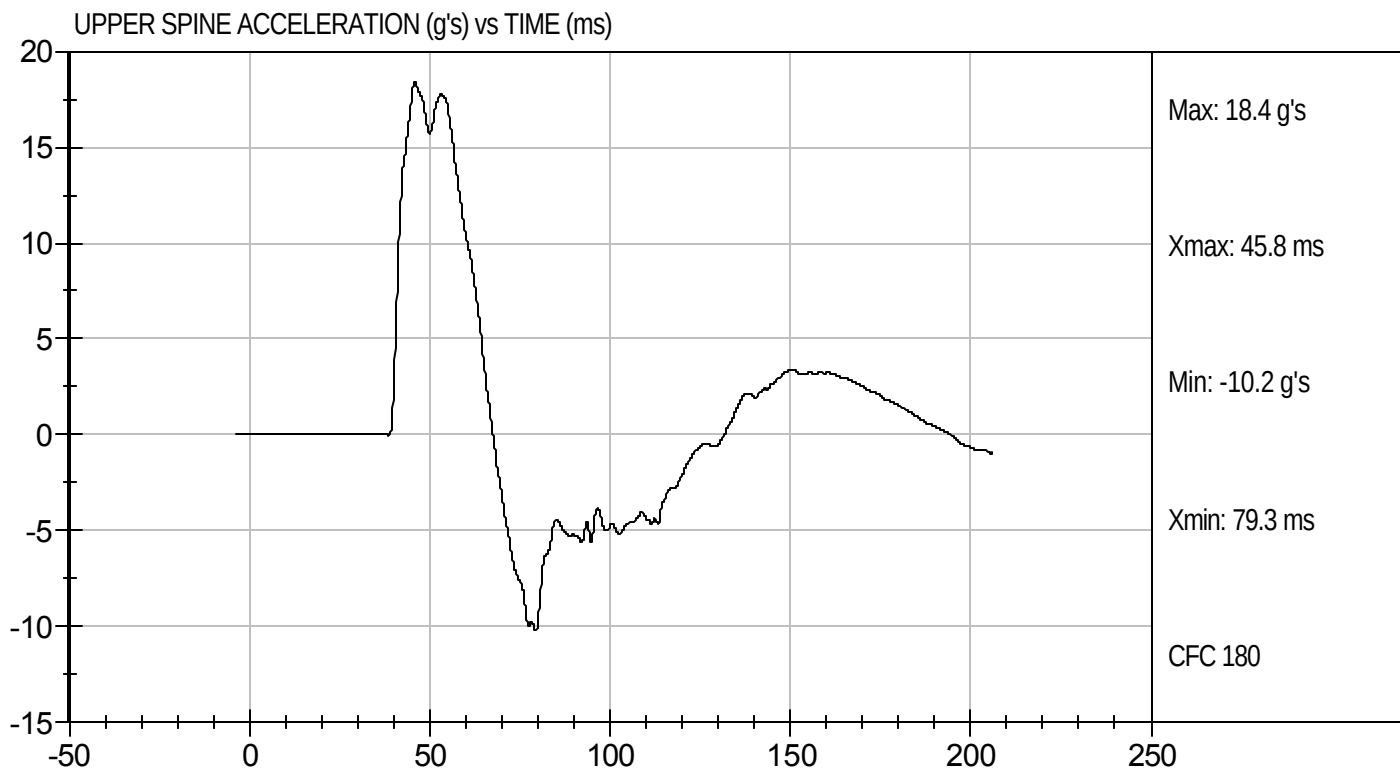
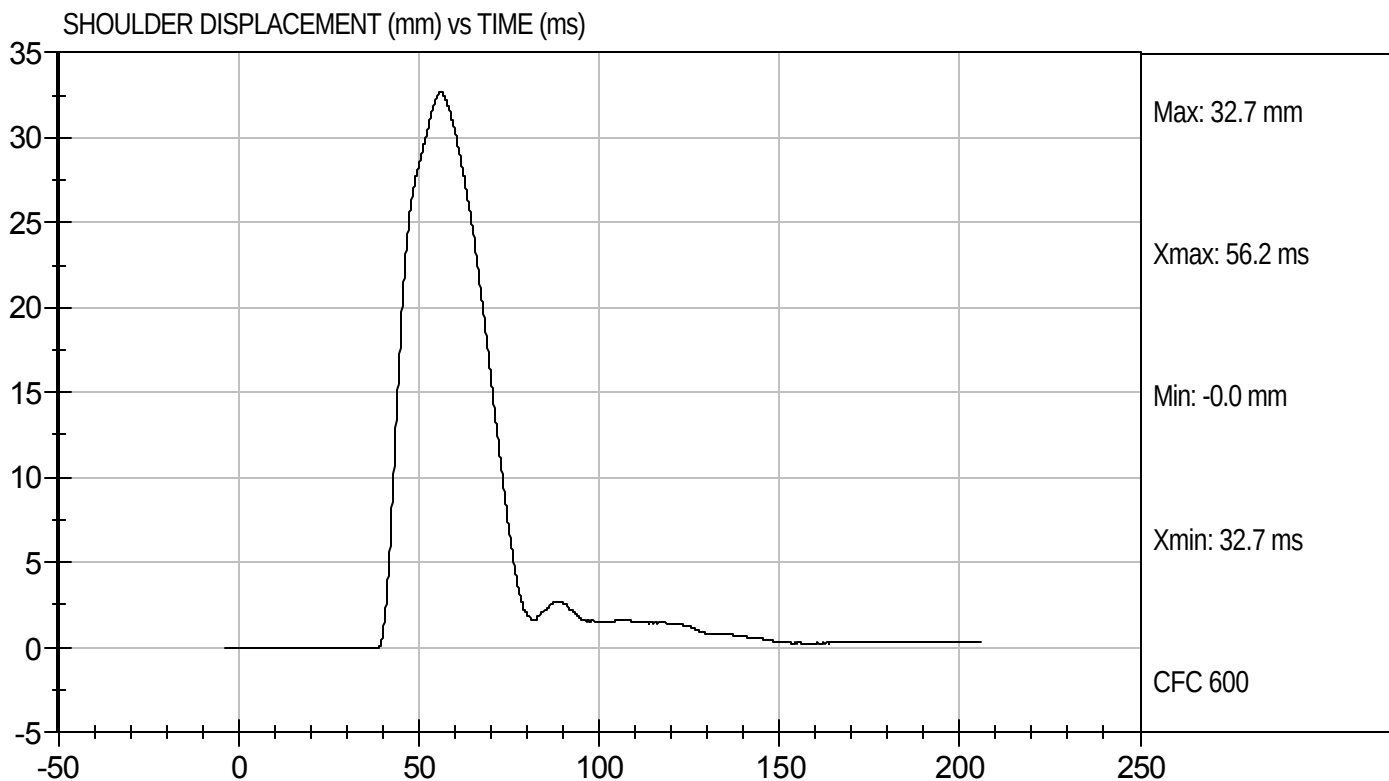
Test Date: 8/12/10
Velocity: 14.1 ft/s, 4.30 m/s





Test Desc: Shoulder Impact
Component ID: D102563

Test Date: 8/12/10
Velocity: 14.1 ft/s, m/s



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

ATD Serial No: 296

Test I.D: D102564

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	58	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Peak Impactor Acceleration	G's	30 to 36	31	Pass
Shoulder Displacement	mm	31 to 40	37	Pass
Upper Rib Displacement	mm	25 to 32	28	Pass
Middle Rib Displacement	mm	30 to 36	32	Pass
Lower Rib Displacement	mm	32 to 38	33	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	36	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	33	Pass
Overall Test Results			Pass	


 Laboratory Technician

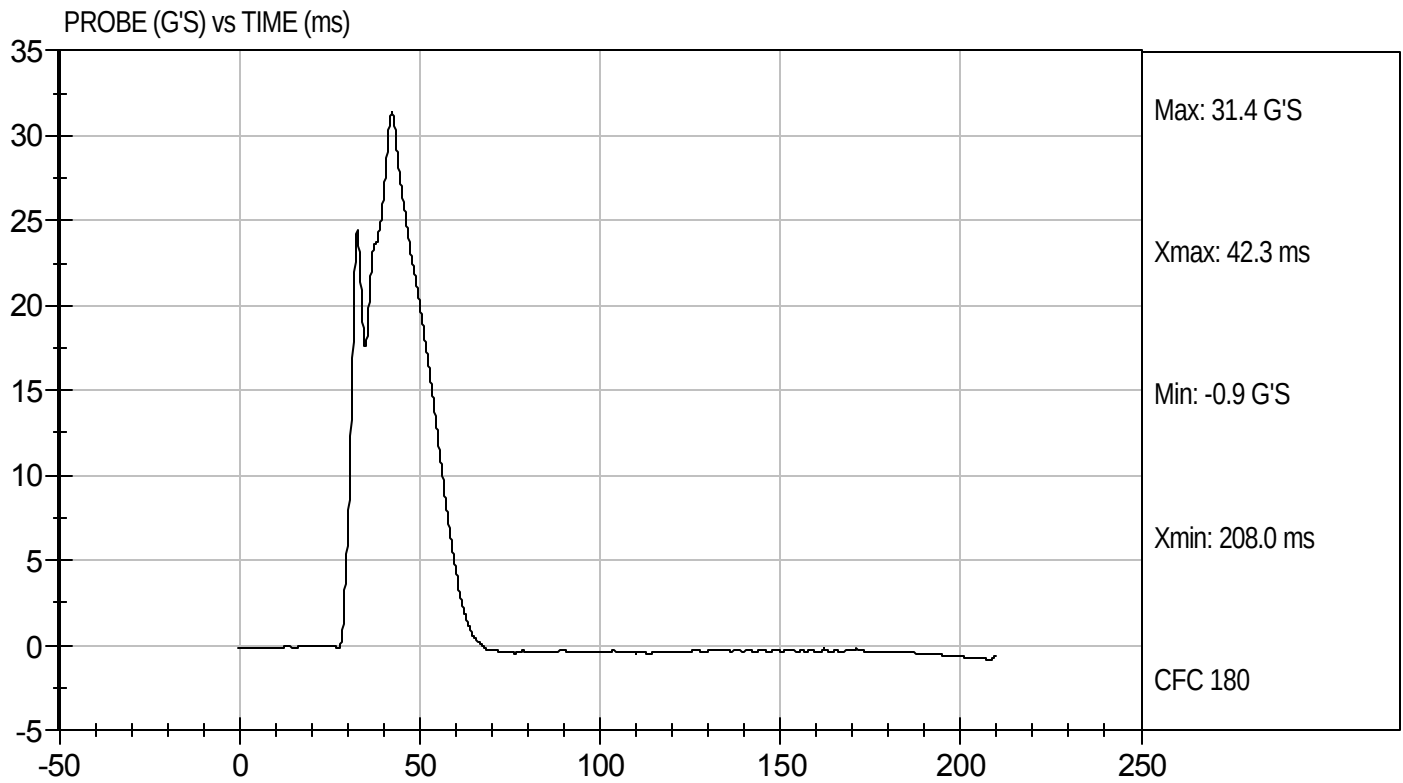
8/12/10
 Test Date


 Approved By



Test Desc: Thorax With Arm
Component ID: D102564

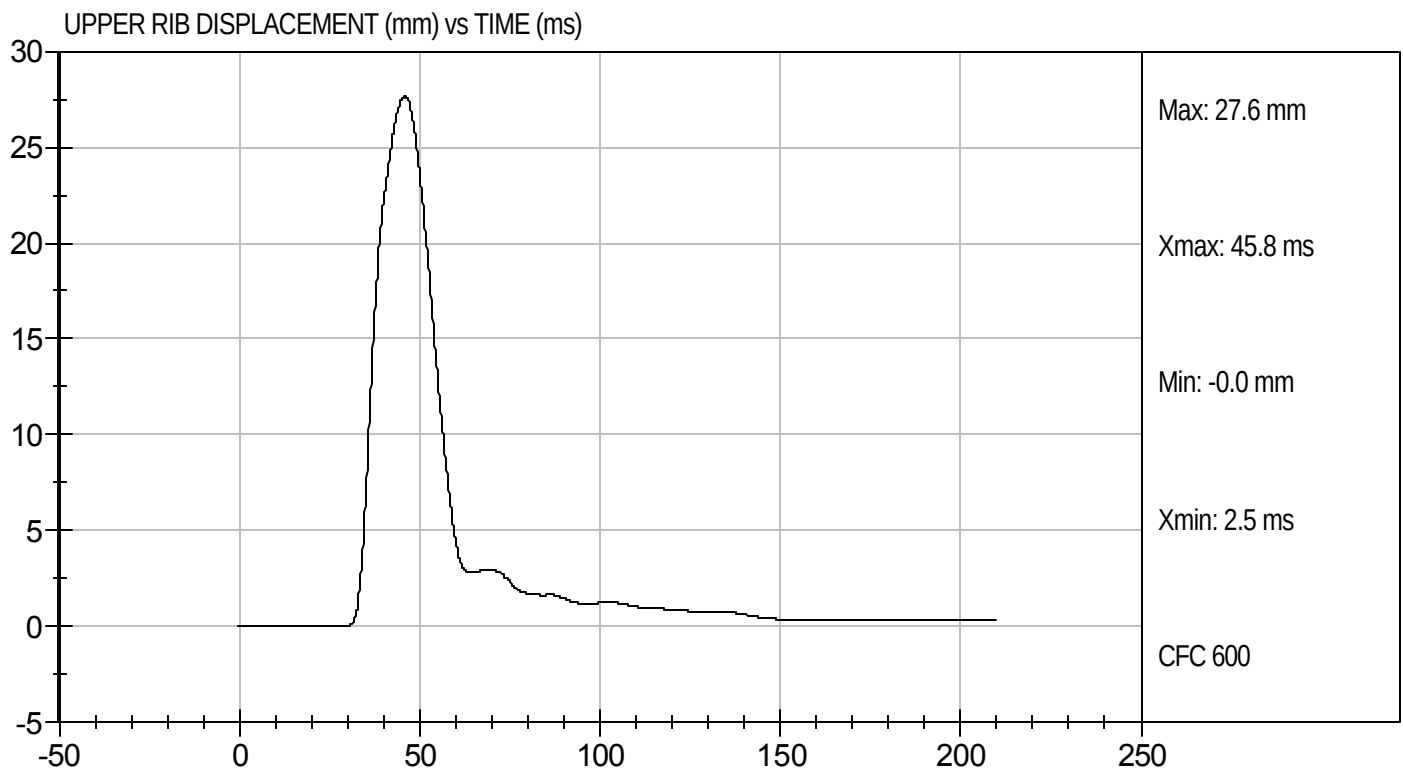
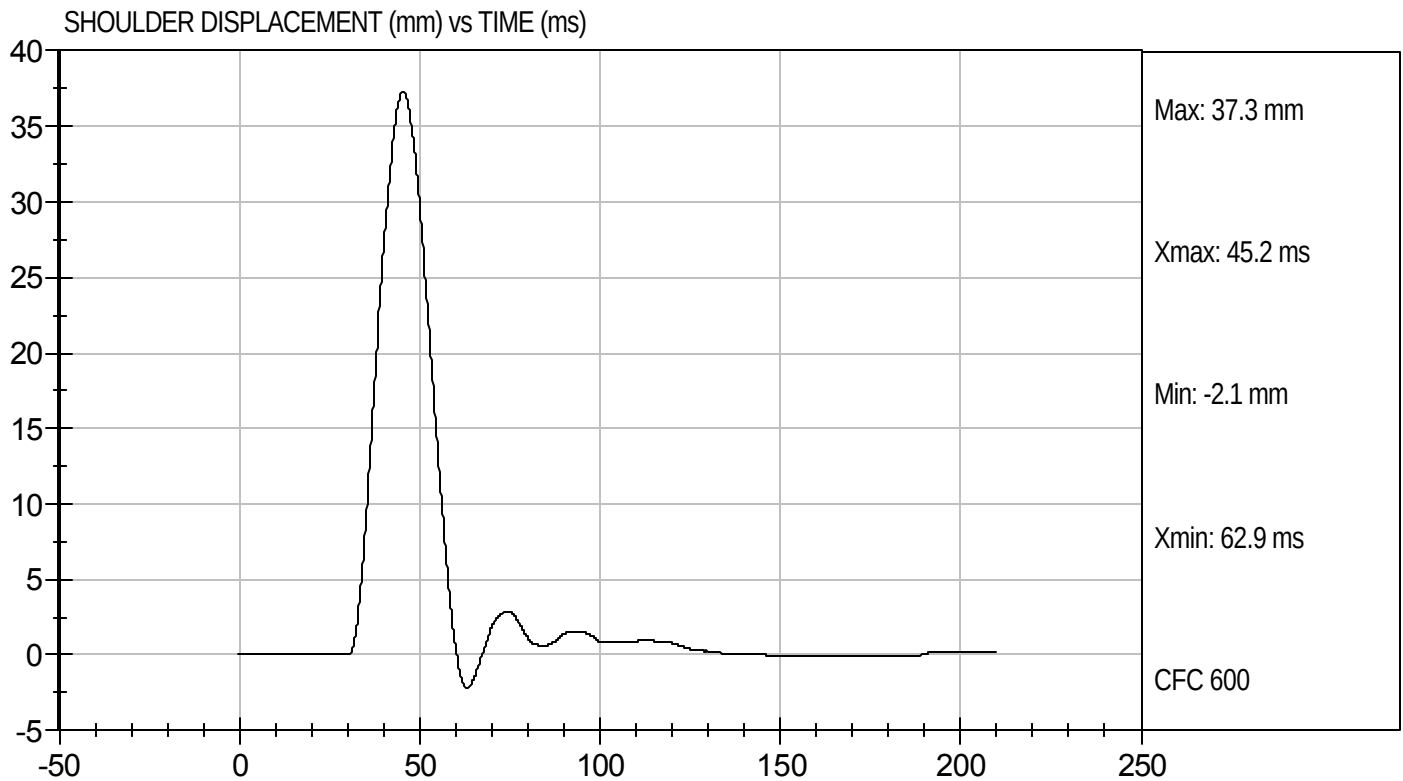
Test Date: 8/12/10
Velocity: 21.9 ft/s, 6.68 m/s





Test Desc: Thorax With Arm
Component ID: D102564

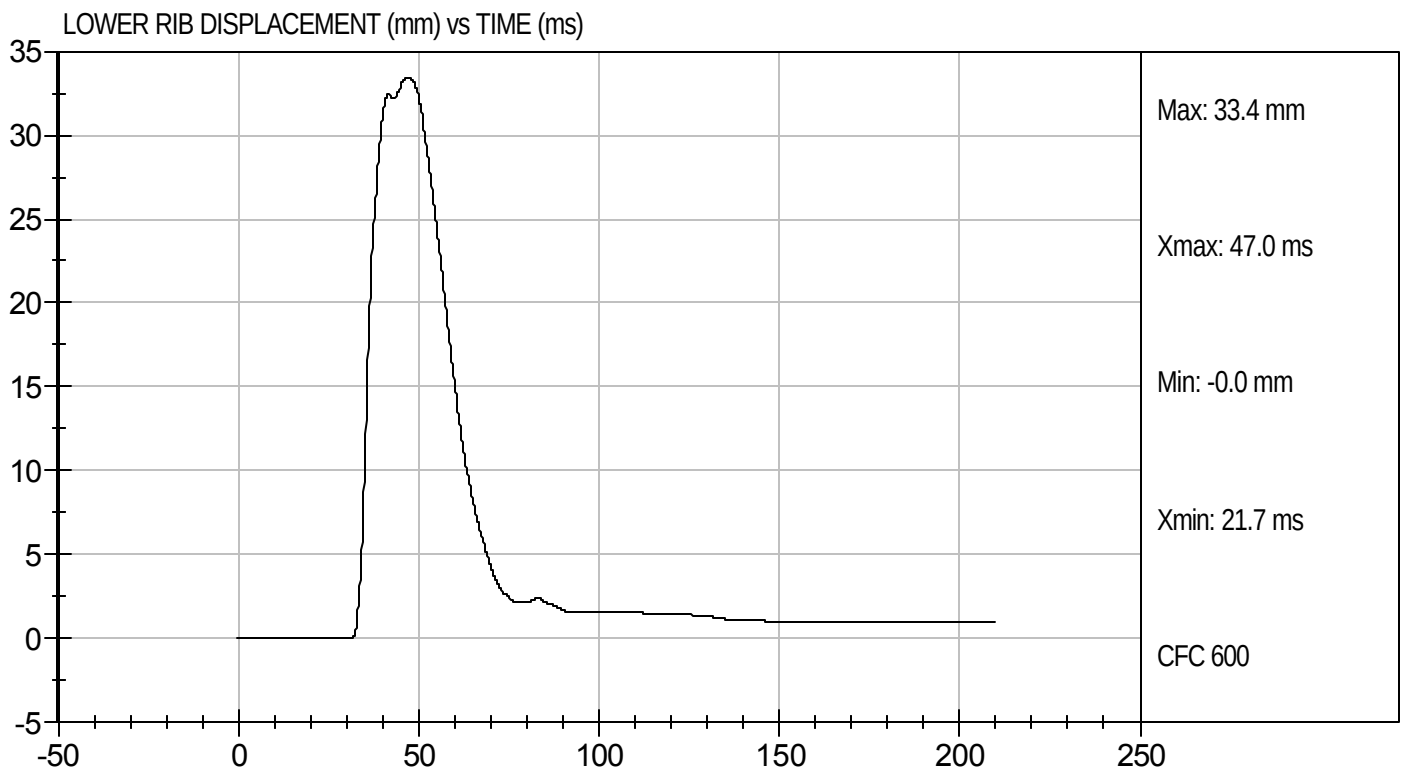
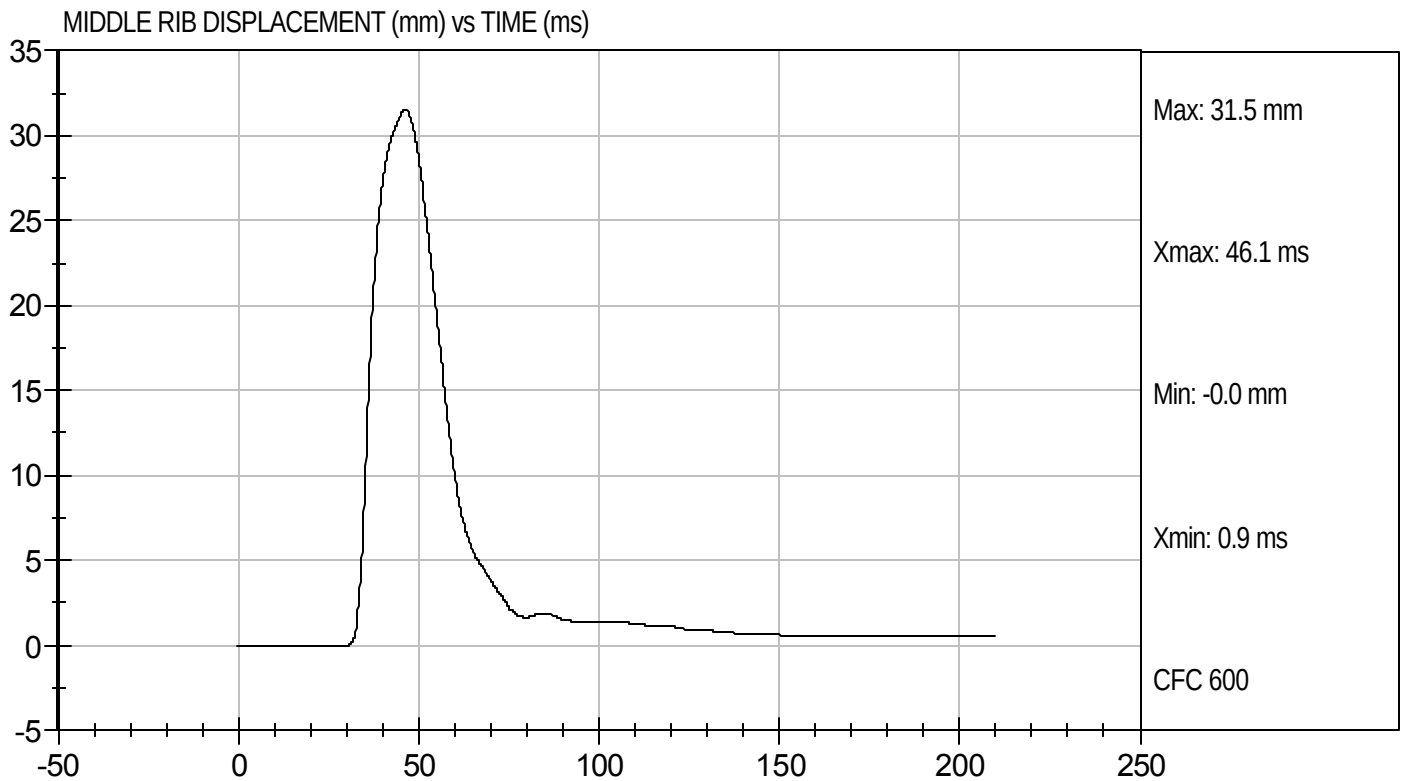
Test Date: 8/12/10
Velocity: 21.9 ft/s, 6.68 m/s





Test Desc: Thorax With Arm
Component ID: D102564

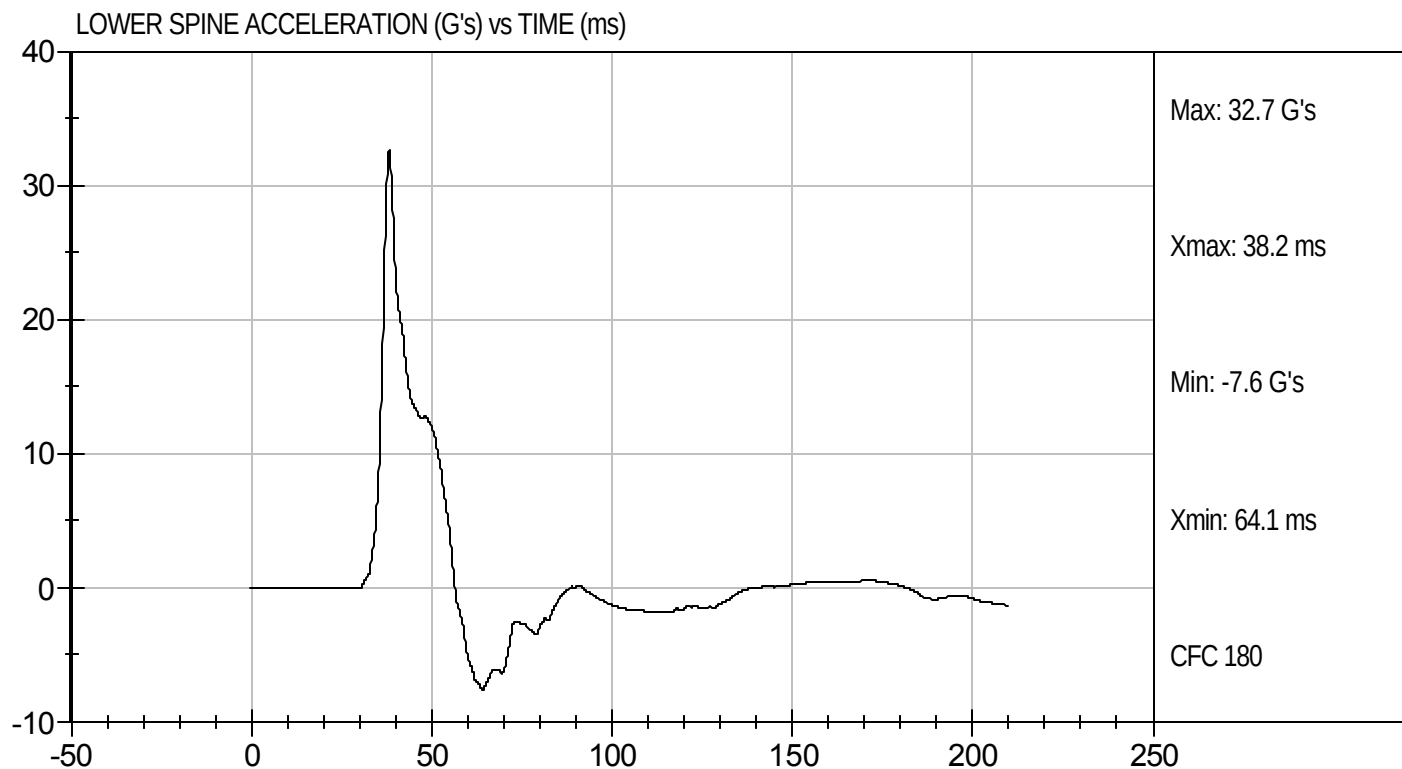
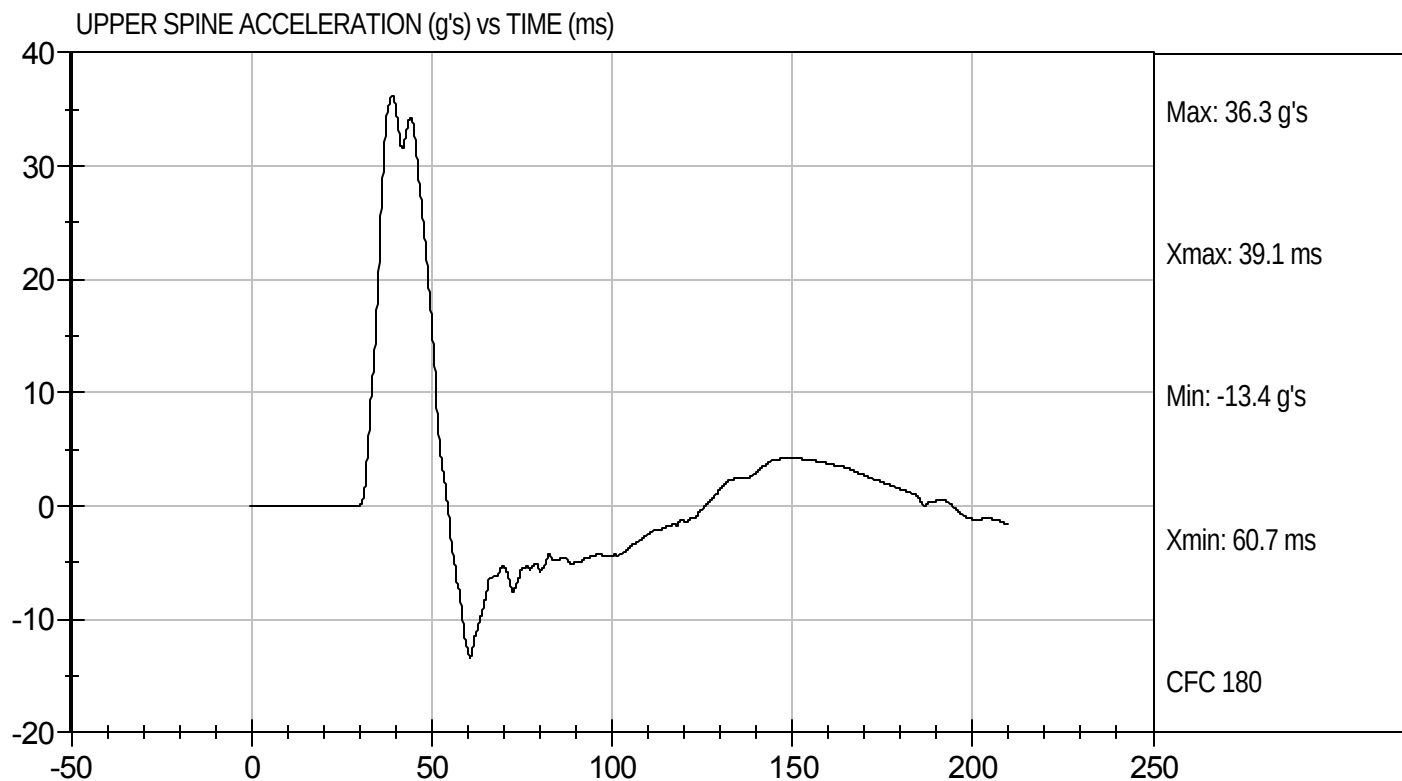
Test Date: 8/12/10
Velocity: 21.9 ft/s, 6.68 m/s





Test Desc: Thorax With Arm
Component ID: D102564

Test Date: 8/12/10
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: 296

Test I.D: D102565

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	58	Pass
Impact Velocity	m/s	4.20 to 4.40	4.27	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	41	Pass
Lower Rib Displacement	mm	35 to 43	39	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	13	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	8	Pass
Overall Test Results			Pass	

Jessica Hall
Laboratory Technician

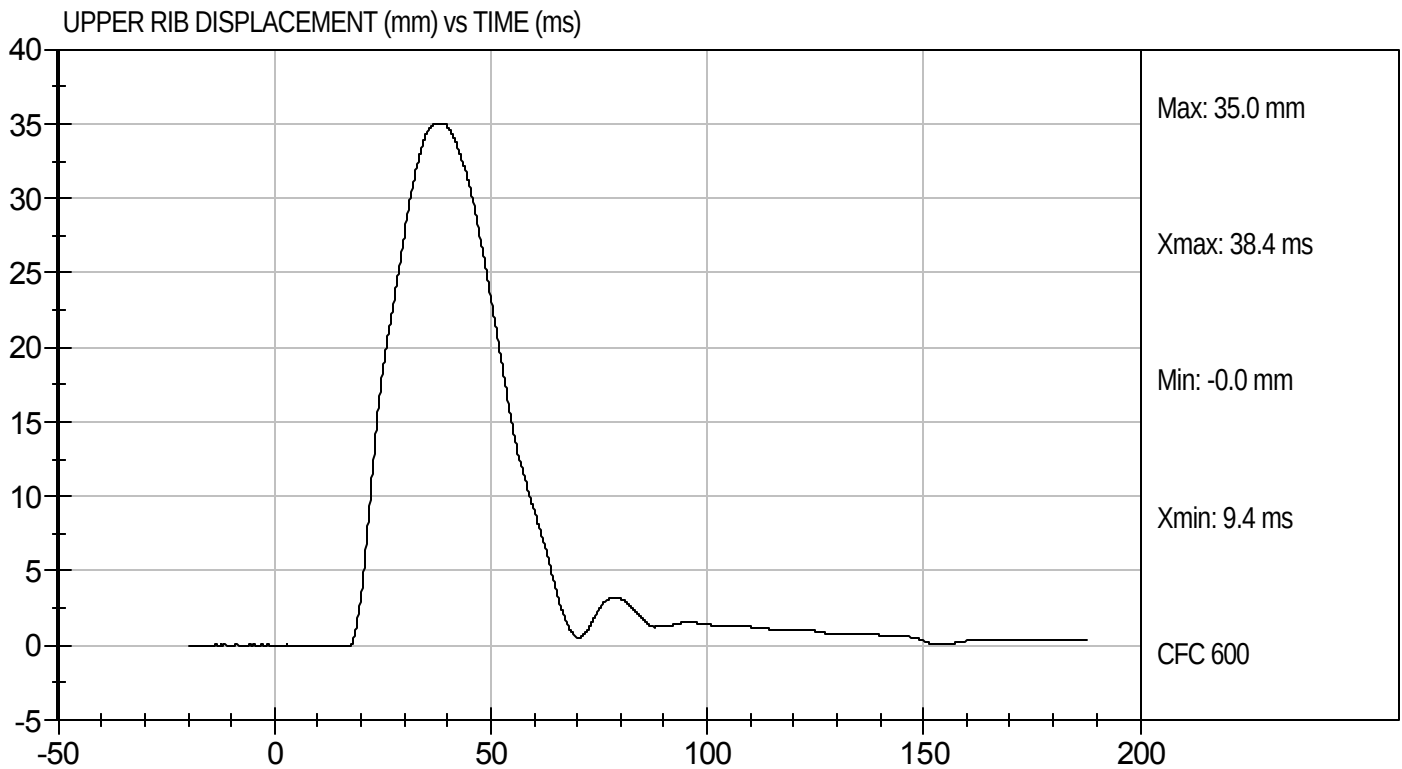
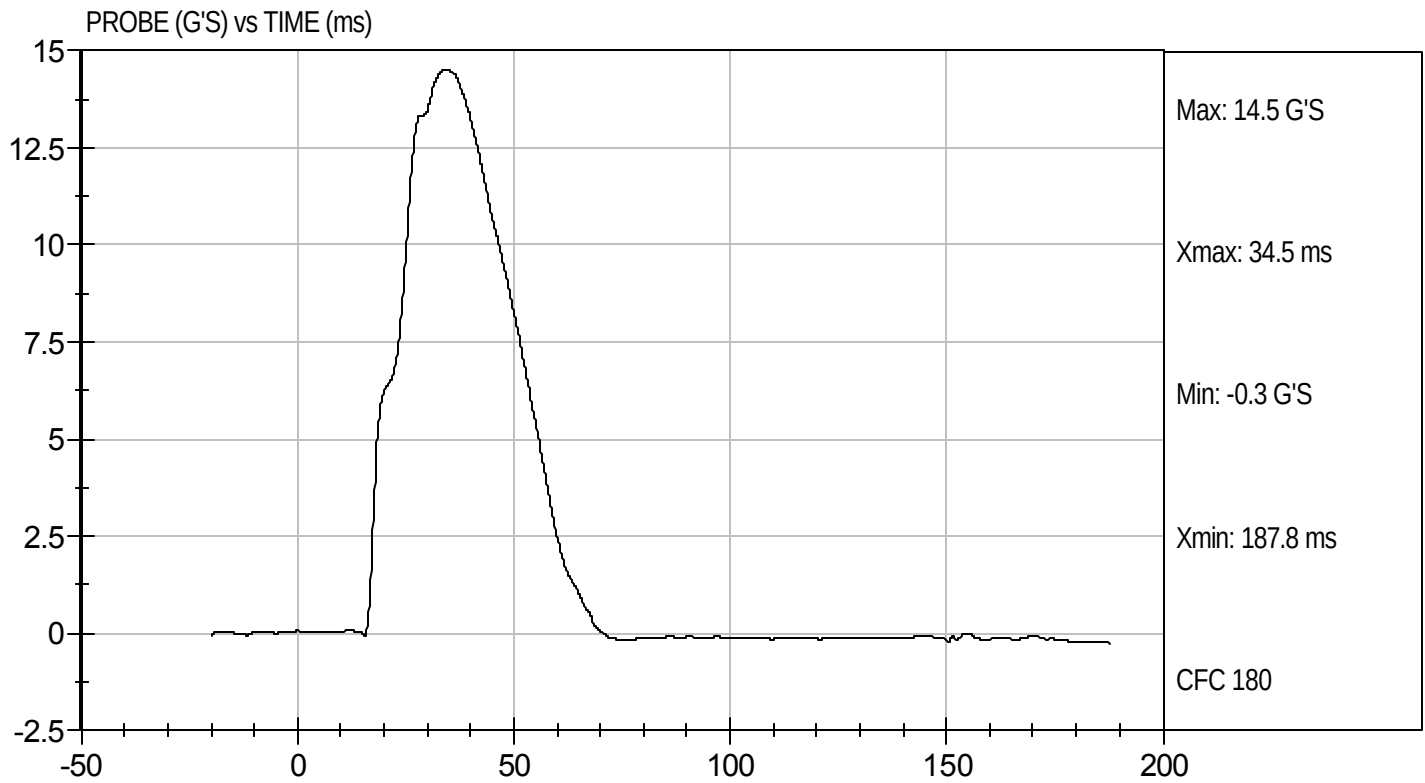
8/12/10
Test Date

David Winkelbauer
Approved By



Test Desc: Thorax Without Arm
Component ID: D102565

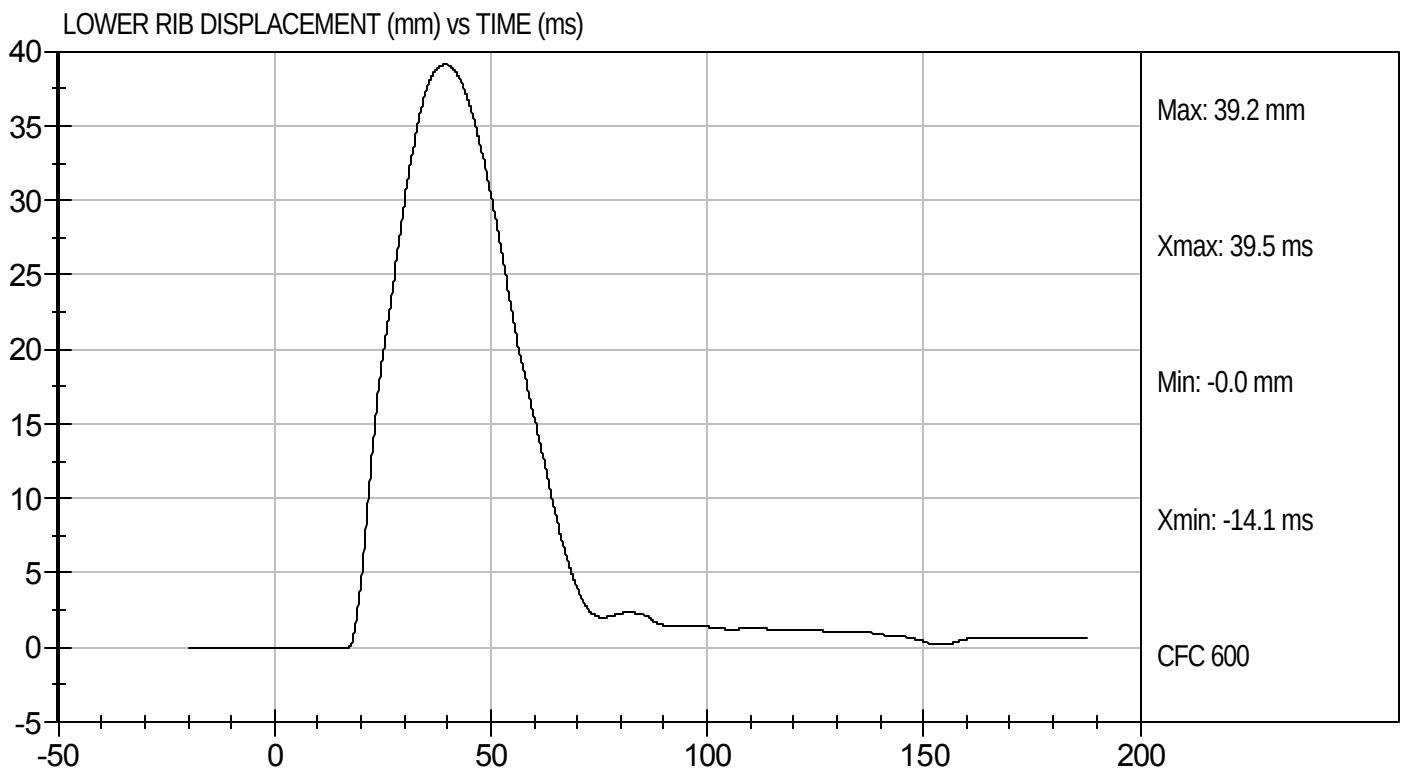
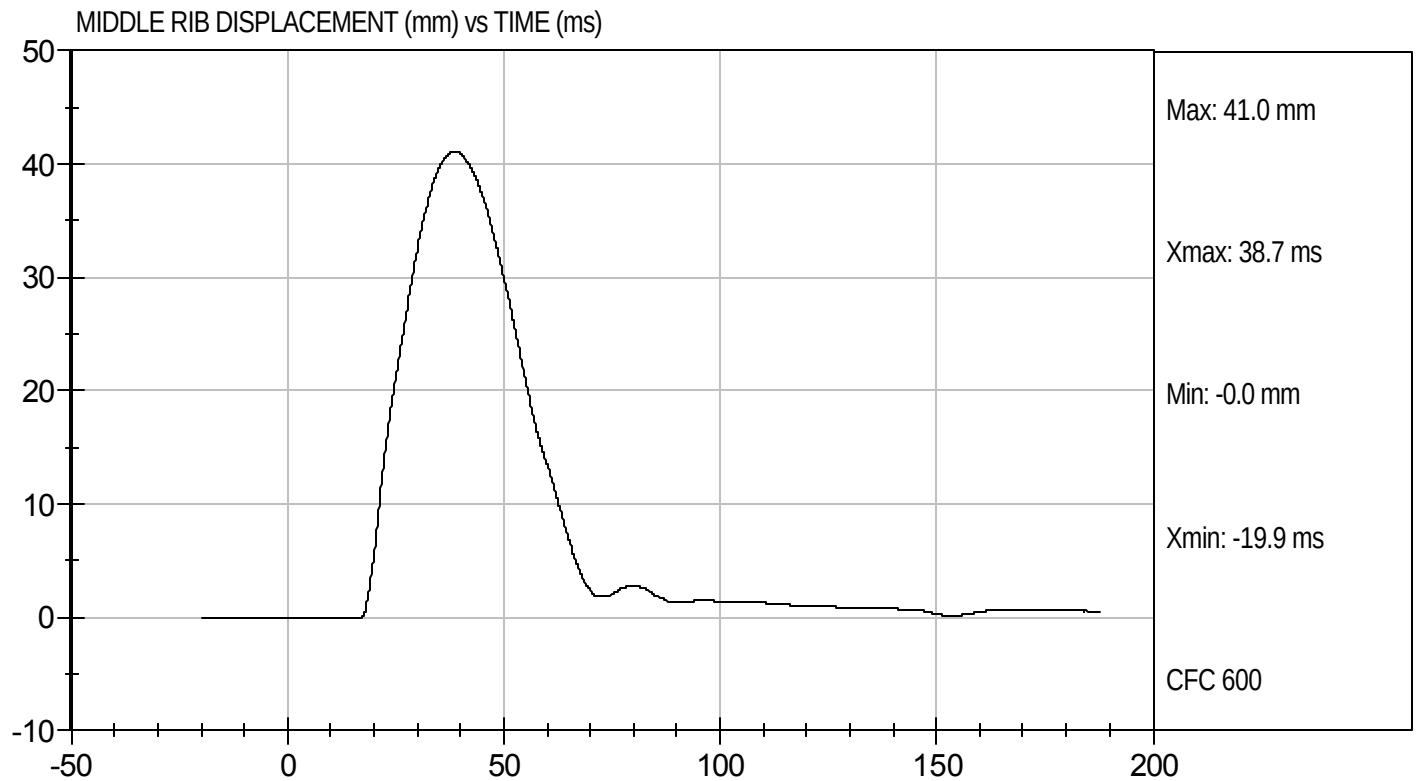
Test Date: 8/12/10
Velocity: 14.0 ft/s, 4.27 m/s





Test Desc: Thorax Without Arm
Component ID: D102565

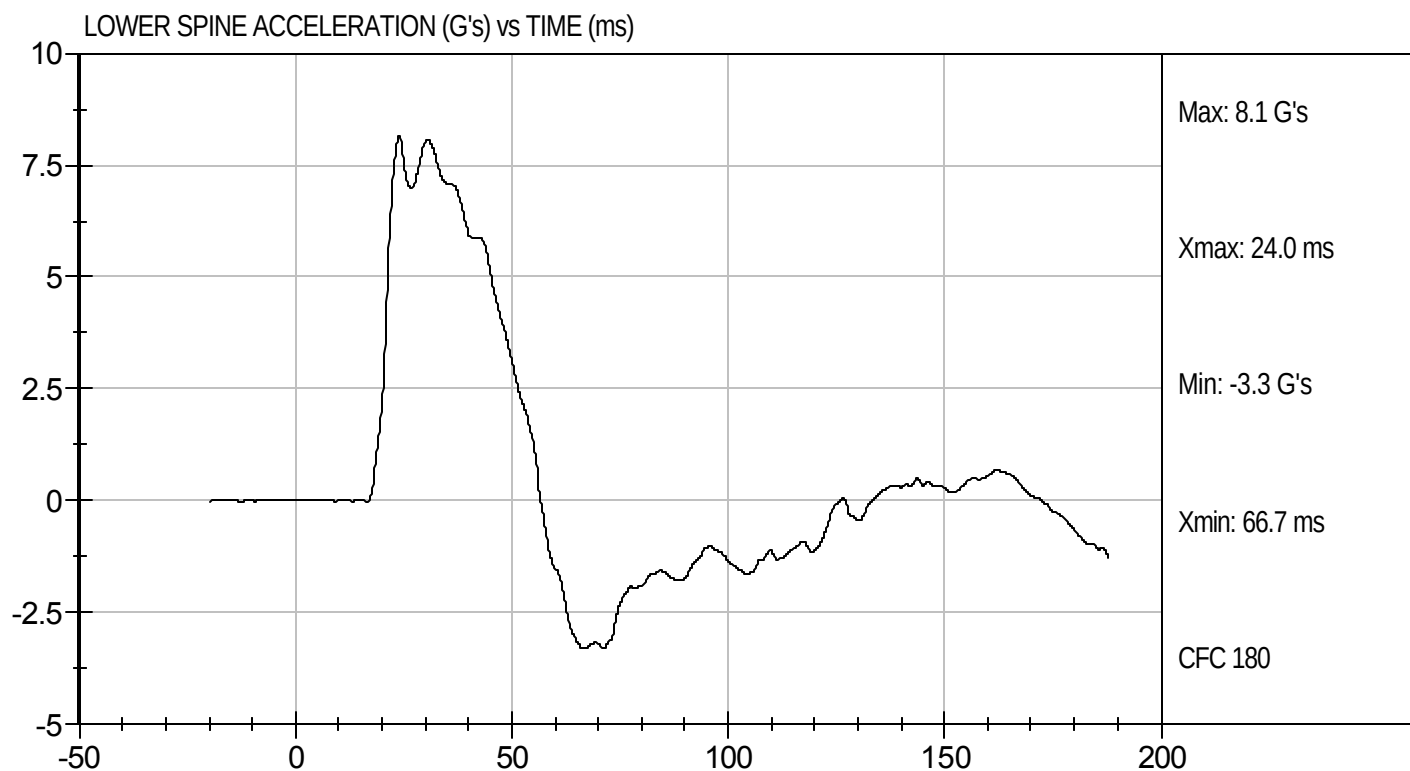
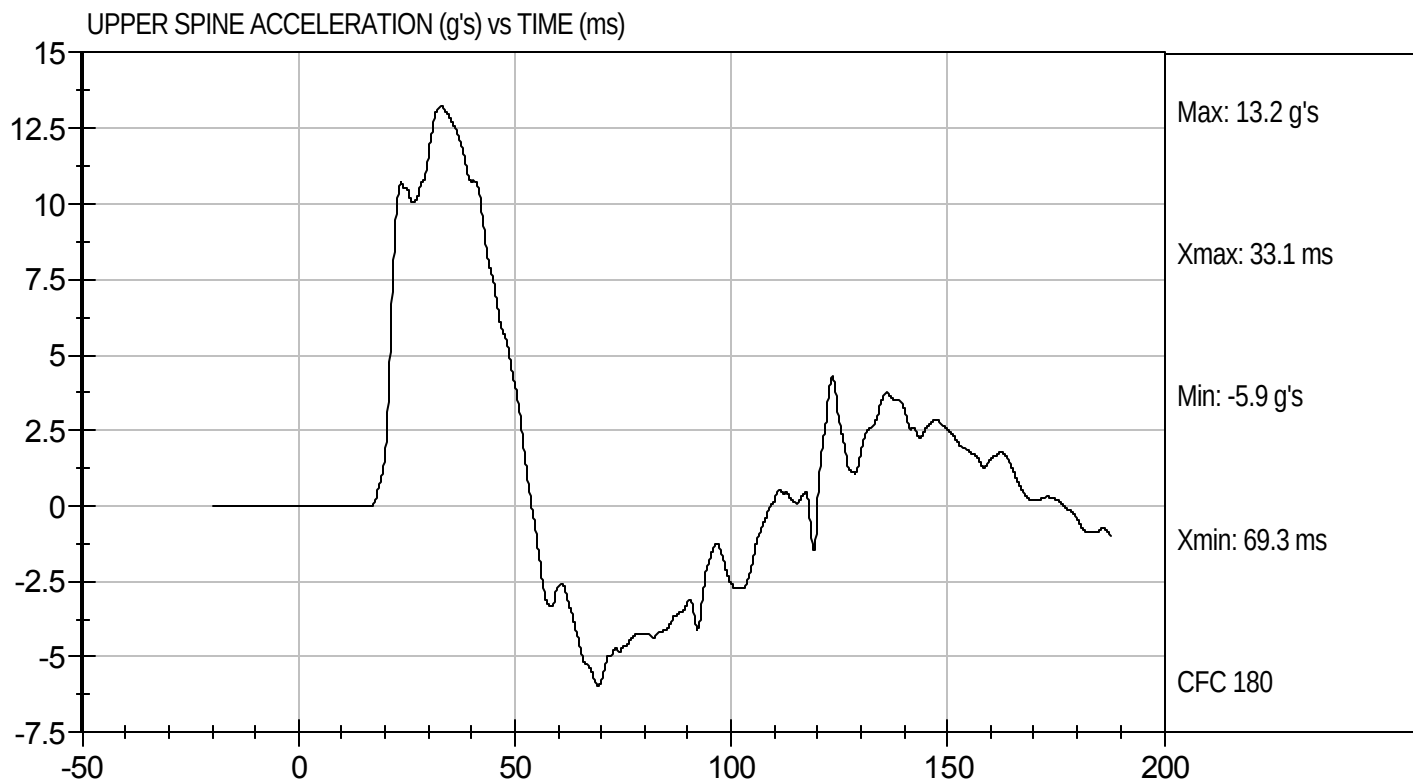
Test Date: 8/12/10
Velocity: 14.0 ft/s, 4.27 m/s





Test Desc: Thorax Without Arm
Component ID: D102565

Test Date: 8/12/10
Velocity: 14.0 ft/s, 4.27 m/s



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

ATD Serial No: 296

Test I.D: D102566

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	58	Pass
Impact Velocity	m/s	4.20 to 4.40	4.21	Pass
Peak Impactor Acceleration	G's	12 to 16	14	Pass
Upper Rib Displacement	mm	36 to 47	38	Pass
Lower Rib Displacement	mm	33 to 44	38	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
Overall Test Results				Pass


Laboratory Technician

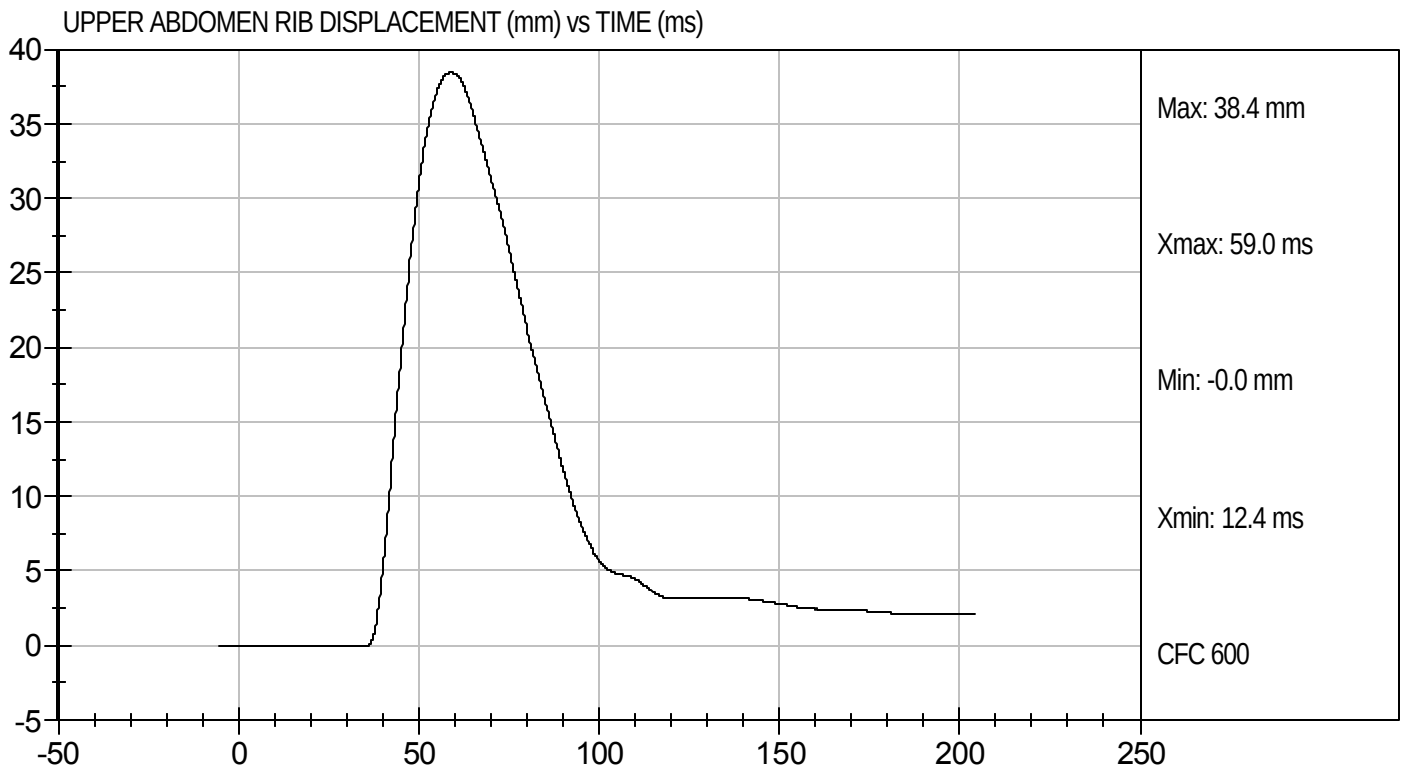
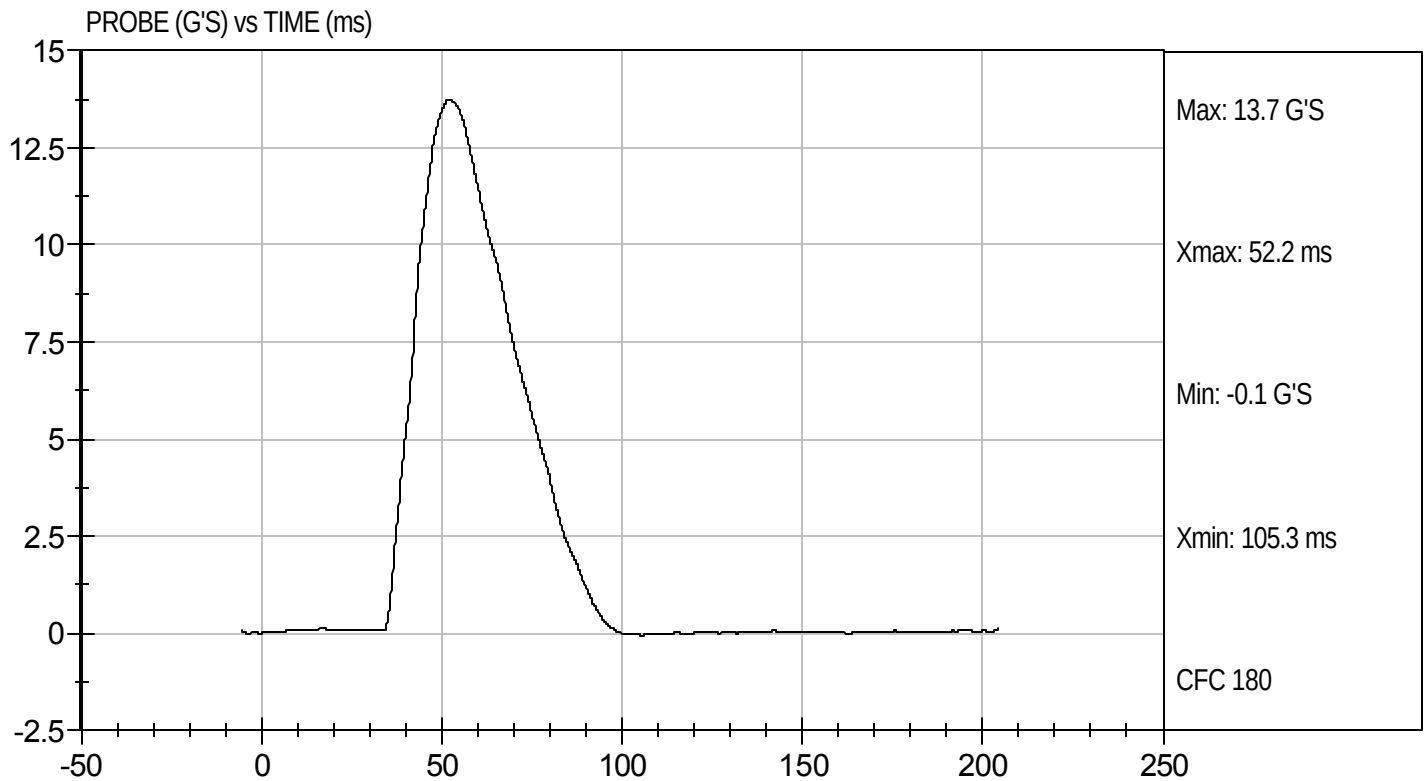
8/12/10
Test Date


Approved By



Test Desc: Abdomen Impact
Component ID: D102566

Test Date: 8/12/10
Velocity: 13.8 ft/s, 4.21 m/s

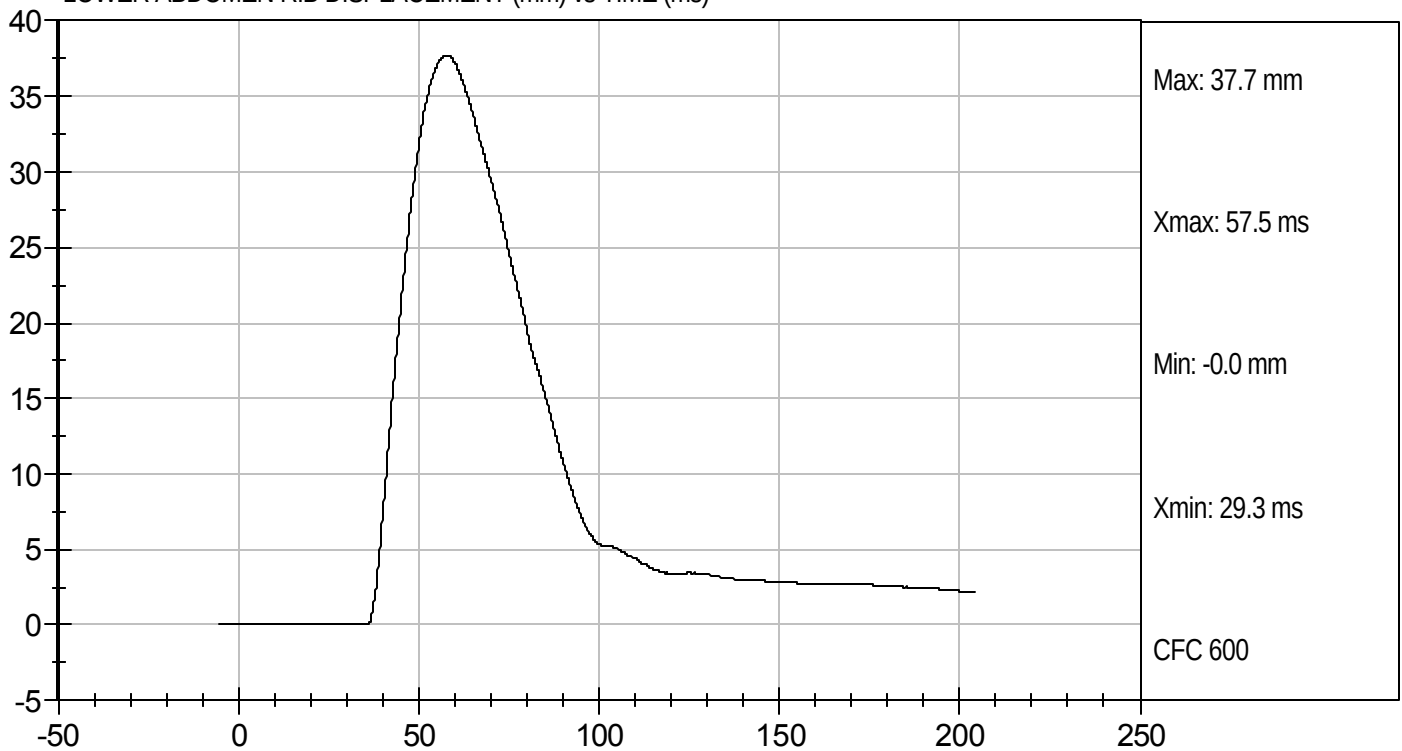




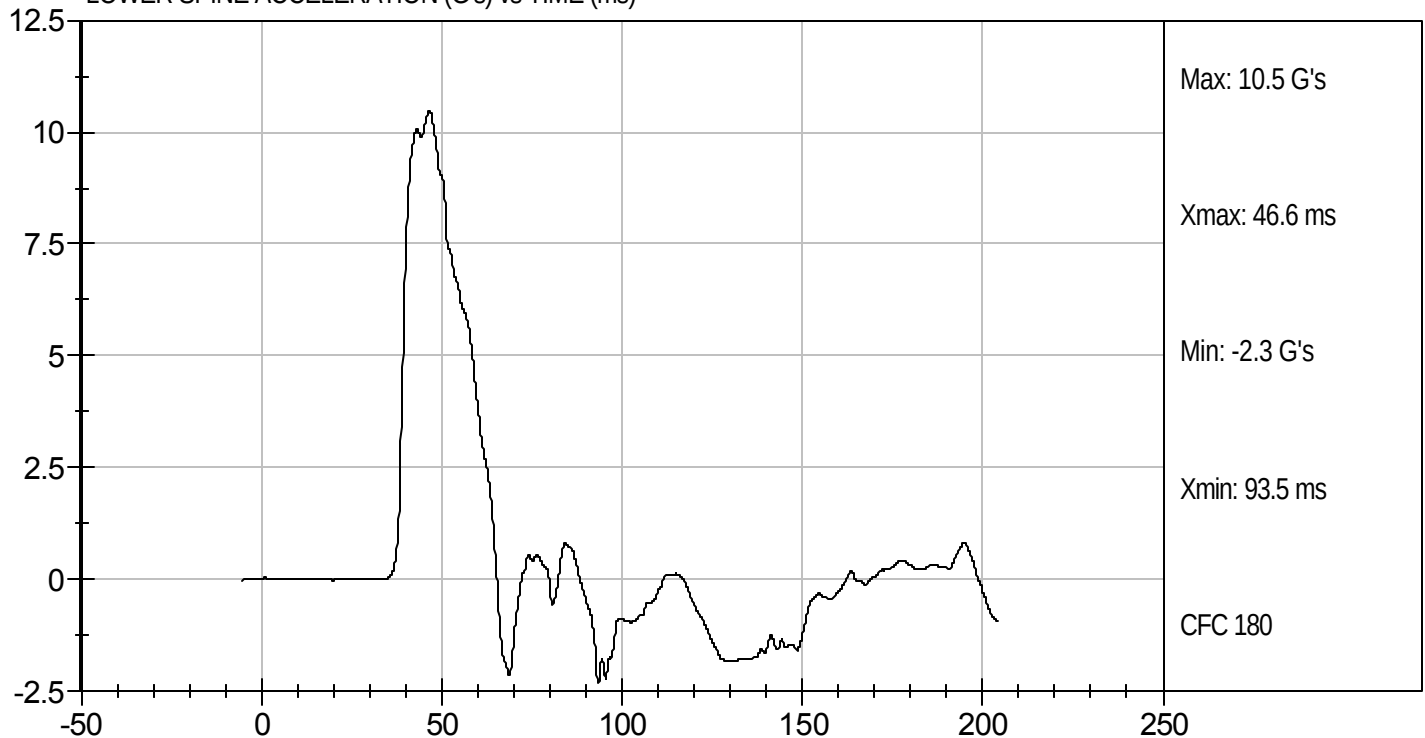
Test Desc: Abdomen Impact
Component ID: D102566

Test Date: 8/12/10
Velocity: 13.8 ft/s, 4.21 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: D102567

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	58	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	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	4095	Pass
Overall Test Results			Pass	


Laboratory Technician

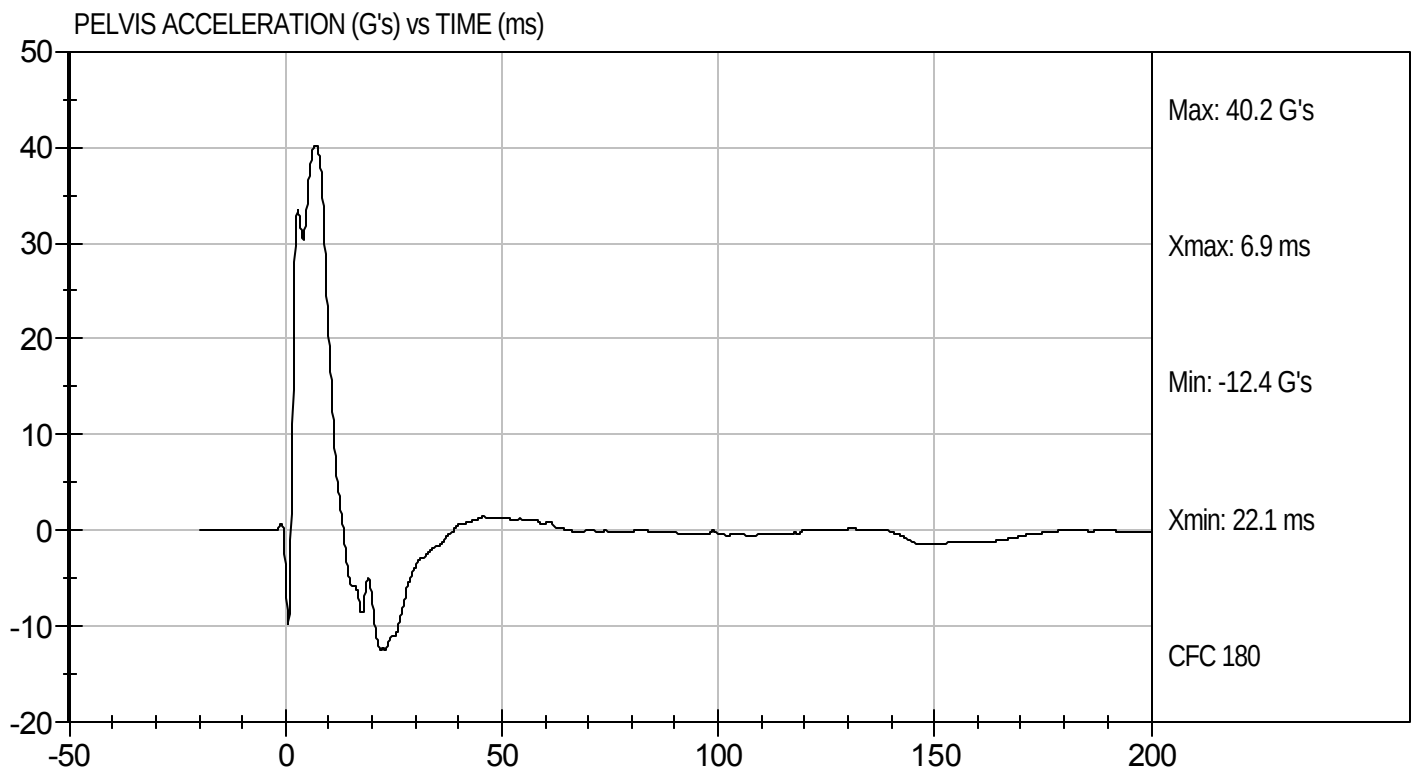
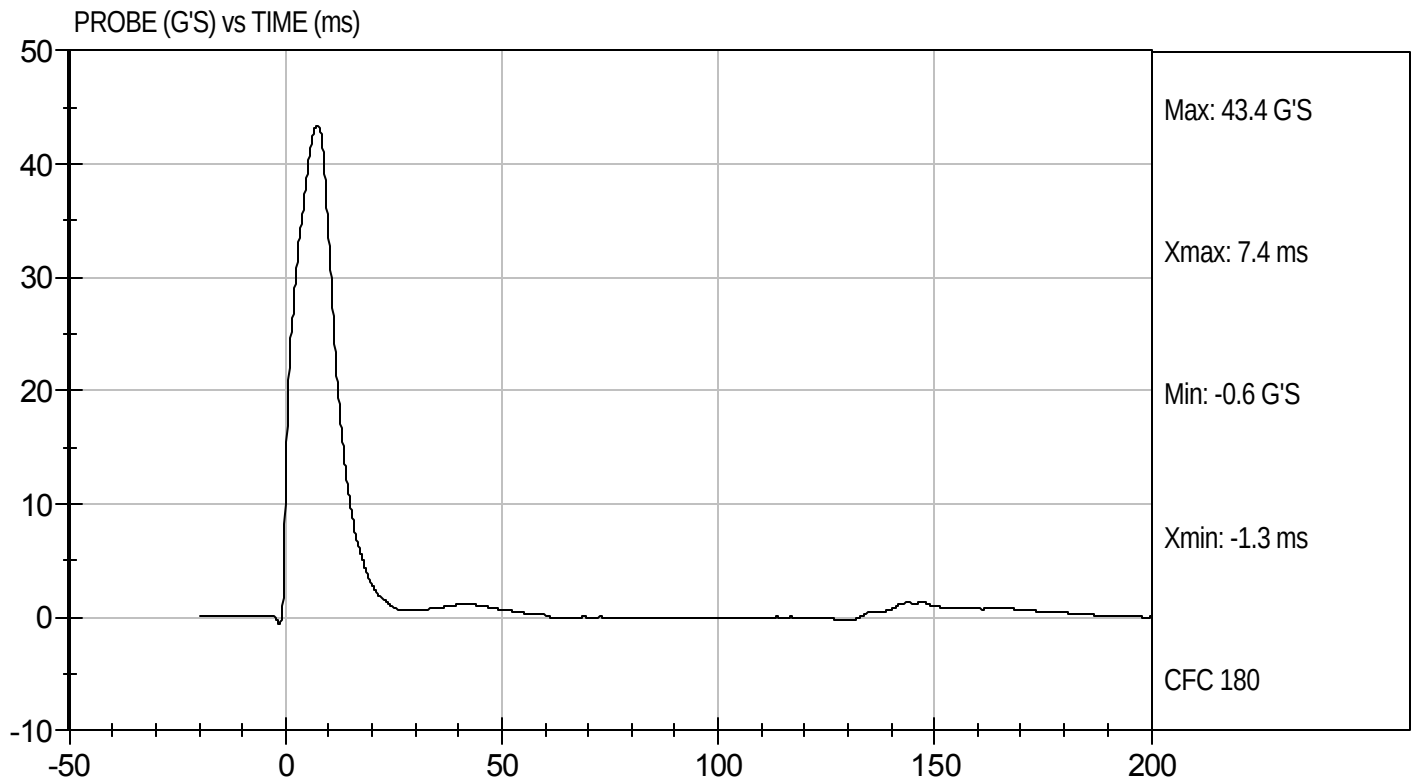
8/12/10
Test Date


Approved By



Test Desc: Pelvis Impact
Component ID: D102567

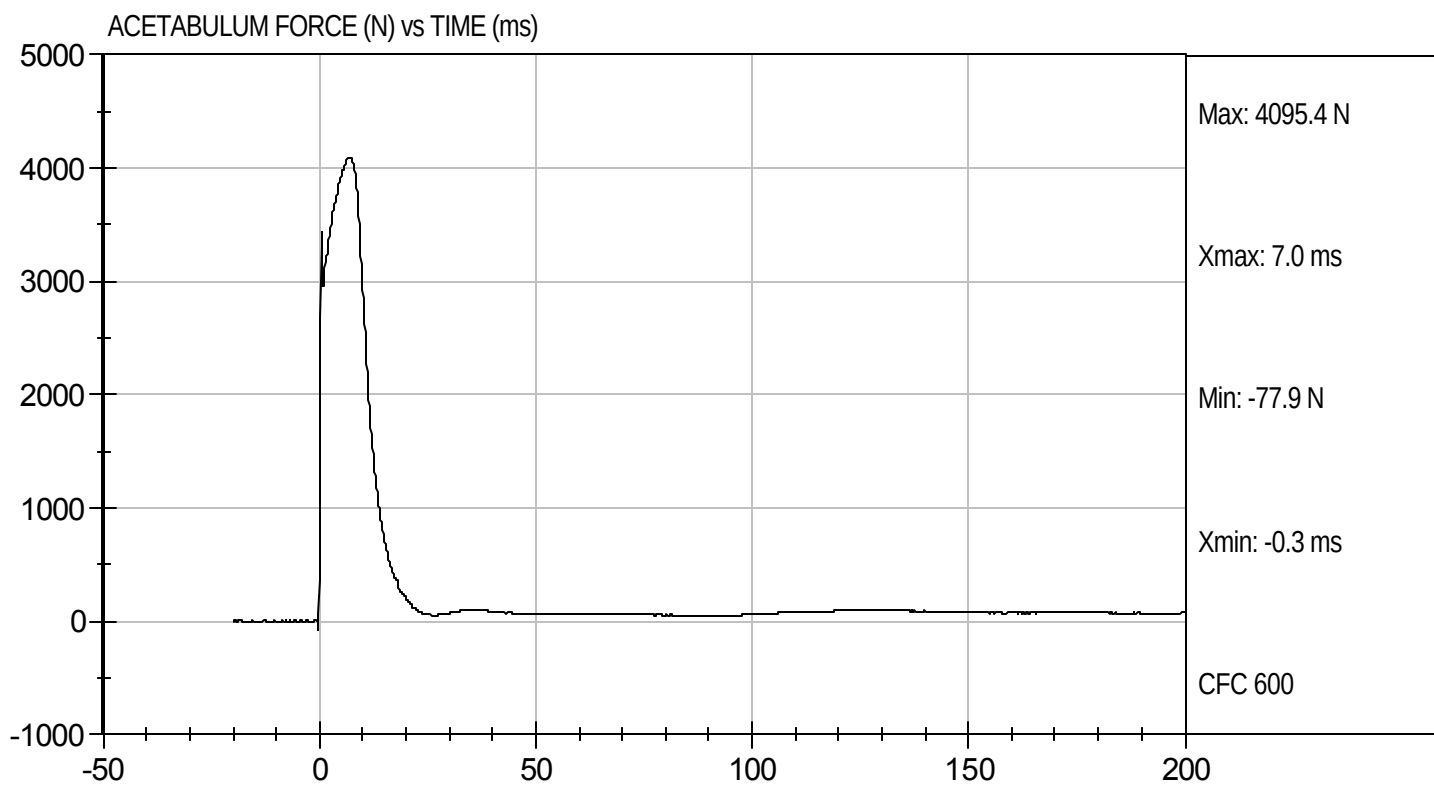
Test Date: 8/12/10
Velocity: 22.2 ft/s, 6.77 m/s





Test Desc: Pelvis Impact
Component ID: D102567

Test Date: 8/12/10
Velocity: 22.2 ft/s, 6.77 m/s

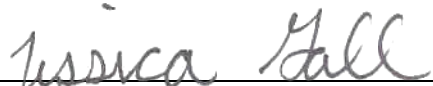


MGA RESEARCH CORPORATION
ILIAC IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D102568

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	58	Pass
Impact Velocity	m/s	4.20 to 4.40	4.36	Pass
Peak Impactor Acceleration	G's	36 to 45	38	Pass
Pelvis Y Acceleration	G's	28 to 39	35	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4614	Pass
Overall Test Results			Pass	


Laboratory Technician

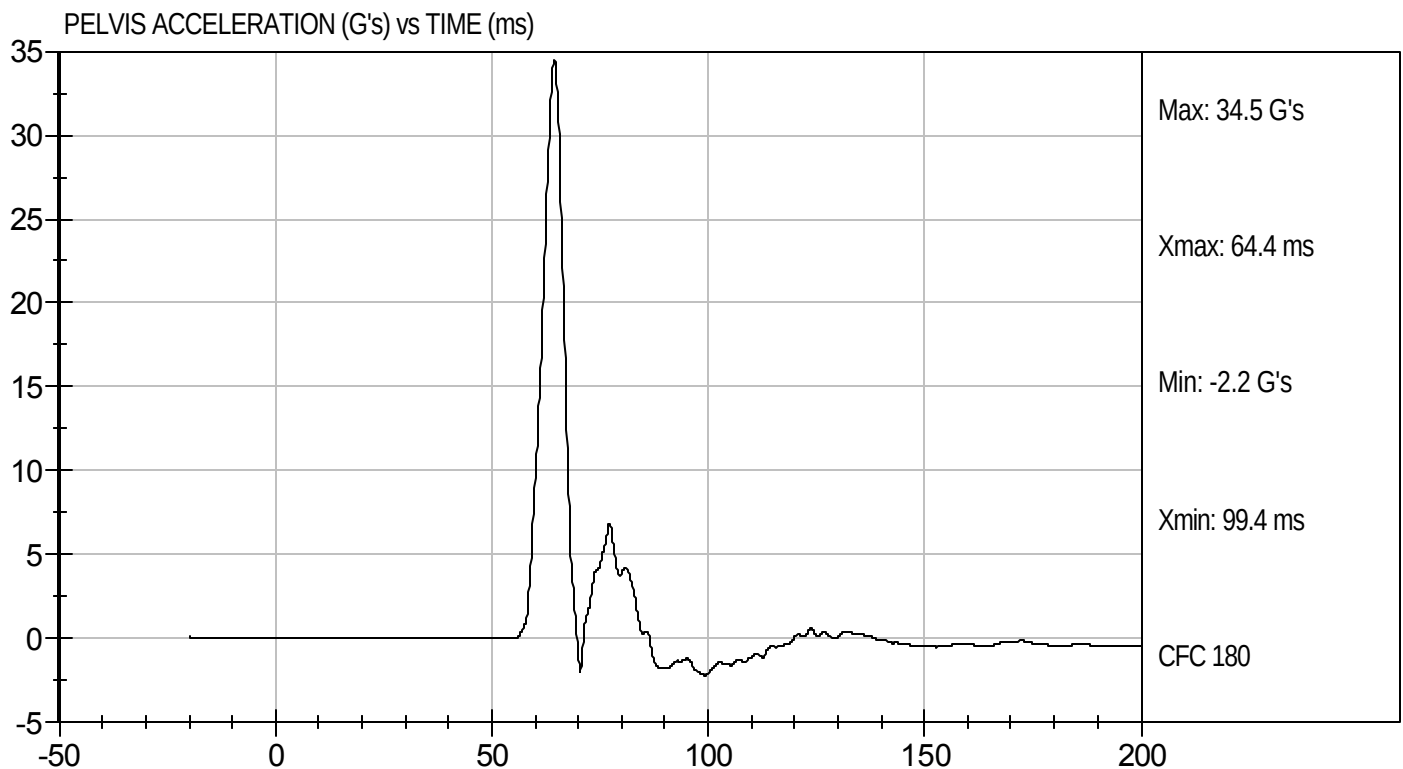
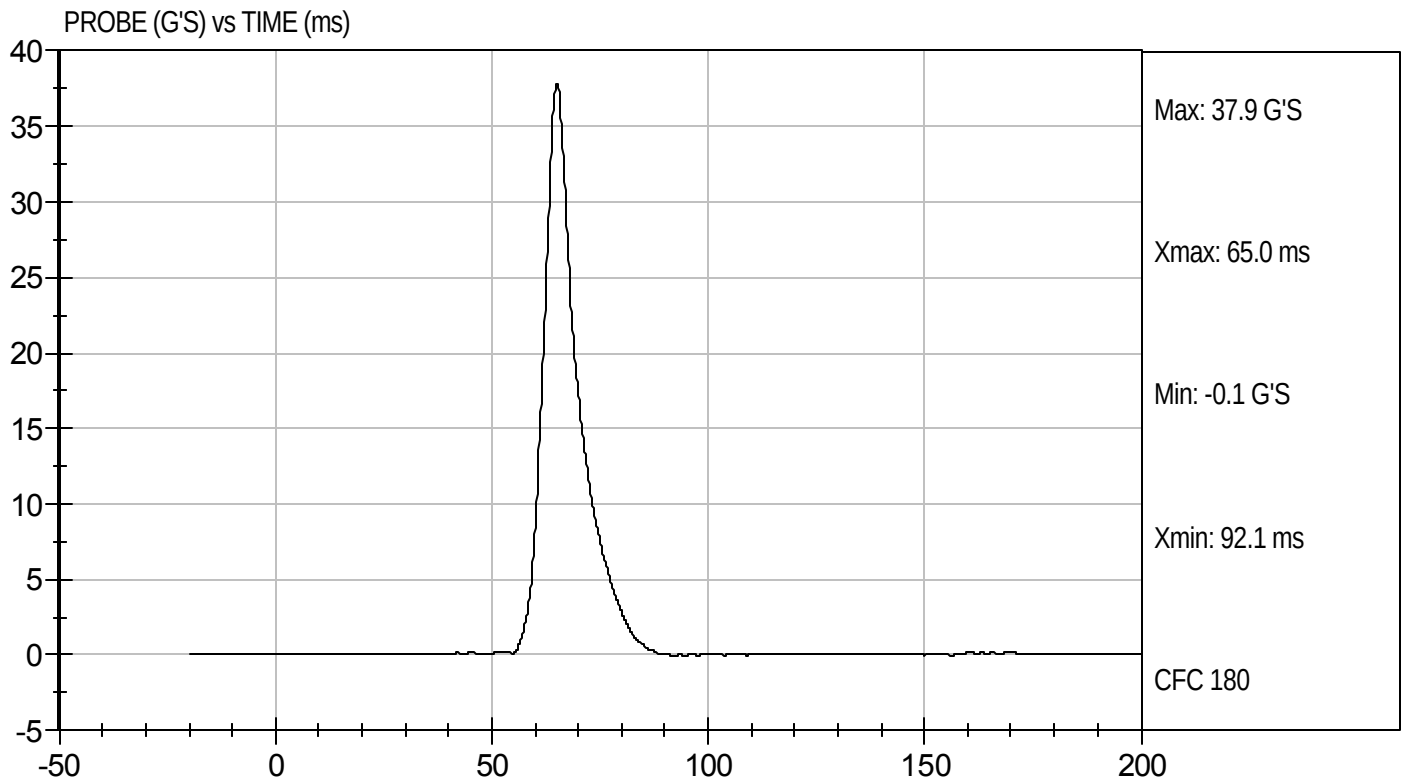
8/12/10
Test Date


Approved By



Test Desc: Iliac Impact
Component ID: D102568

Test Date: 8/12/10
Velocity: 14.3 ft/s, 4.36 m/s





Test Desc: Iliac Impact
Component ID: D102568

Test Date: 8/12/10
Velocity: 14.3 ft/s, 4.36 m/s

