

REPORT NUMBER: SINCAP-MGA-2011-042

**NEW CAR ASSESSMENT PROGRAM (NCAP)
Moving Deformable Barrier Side Impact Test**

**HONDA MOTOR COMPANY, LTD.
2011 Honda CR-V LX 5-Dr SUV
NHTSA No.: MB5307**

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



Test Date: November 16, 2010

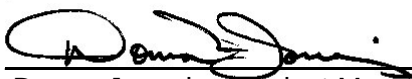
Final Report Date: December 28, 2010

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.

This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared by: 
Donna Janovicz, Project Manager

Approved by: 
Ben Fischer, Project Engineer

Approval Date: December 28, 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

1. Report No. SINCAP-MGA-2011-042	2. Government Accession No.	3. Recipient's Catalog No.																																													
4. Title and Subtitle Final Report of New Car Assessment Program Side Impact Testing of a 2011 Honda CR-V LX 5-Dr SUV NHTSA No.: MB5307		5. Report Date December 28, 2010																																													
		6. Performing Organization Code MGA																																													
7. Author(s) Donna Janovicz, Project Manager Ben Fischer, Project Engineer		8. Performing Organization Report No. SINCAP-MGA-2011-042																																													
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105		10. Work Unit No.																																													
		11. Contract or Grant No. DTNH22-09-D-00124																																													
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards 1200 New Jersey Ave, SE, Room W43-410 Washington, D.C. 20590		13. Type of Report and Period Covered: Final Test Report November 16, 2010 to December 28, 2010																																													
		14. Sponsoring Agency Code NVS-111																																													
15. Supplementary Notes																																															
16. Abstract A 55/28 km/h 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2011 Honda CR-V LX 5-Dr SUV in accordance with the specifications of the Office of Crashworthiness Standards NCAP Side Laboratory Test Procedure for the generation of consumer information on vehicle side crash protection. The test was conducted at MGA Research Corporation, in Burlington, Wisconsin, on November 16, 2010. The impact velocity of the Moving Deformable Barrier (MDB) was 62.1 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 target vehicle post-test maximum crush was 208 mm at level 3. The test vehicle's performance was as follows: <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th colspan="3">Driver ATD (ES-2re)</th> </tr> <tr> <th>Measurement Description</th> <th>Units</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td>N/A</td> <td>1000</td> <td>144</td> </tr> <tr> <td>Maximum Thorax Rib Deflection</td> <td>mm</td> <td>44</td> <td>38</td> </tr> <tr> <td>Combined Abdominal Force</td> <td>N</td> <td>2500</td> <td>911</td> </tr> <tr> <td>Pubic Symphysis Force</td> <td>N</td> <td>6000</td> <td>1295</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th colspan="3">Passenger ATD (SID-IIs)</th> </tr> <tr> <th>Measurement Description</th> <th>Units</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td>N/A</td> <td>1000</td> <td>212</td> </tr> <tr> <td>Lower Spine (T12) Resultant Acceleration</td> <td>G</td> <td>82</td> <td>57</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>4112</td> </tr> </tbody> </table>					Driver ATD (ES-2re)			Measurement Description	Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	144	Maximum Thorax Rib Deflection	mm	44	38	Combined Abdominal Force	N	2500	911	Pubic Symphysis Force	N	6000	1295		Passenger ATD (SID-IIs)			Measurement Description	Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	212	Lower Spine (T12) Resultant Acceleration	G	82	57	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	4112
	Driver ATD (ES-2re)																																														
Measurement Description	Units	Threshold	Result																																												
Head Injury Criteria (HIC ₃₆)	N/A	1000	144																																												
Maximum Thorax Rib Deflection	mm	44	38																																												
Combined Abdominal Force	N	2500	911																																												
Pubic Symphysis Force	N	6000	1295																																												
	Passenger ATD (SID-IIs)																																														
Measurement Description	Units	Threshold	Result																																												
Head Injury Criteria (HIC ₃₆)	N/A	1000	212																																												
Lower Spine (T12) Resultant Acceleration	G	82	57																																												
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	4112																																												
17. Key Words New Car Assessment Program (NCAP) Side Impact MDB ES-2re 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 199	22. Price																																												

TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	Purpose and Summary of Test	1
2	Occupant and Vehicle Information / Data Sheets	3
<u>Data Sheet No.</u>		<u>Page No.</u>
1	General Test and Vehicle Parameter Data	4
2	Seat Adjustment, Fuel System, and Steering Wheel Data	7
3	Dummy Longitudinal Clearance Dimensions	9
4	Dummy Lateral Clearance Dimensions	10
5	Camera Locations and Data	11
6	Vehicle Accelerometer Locations	12
7	Moving Deformable Barrier Accelerometer Locations	13
8	Test Vehicle Summary of Results	14
9	Moving Deformable Barrier Summary of Results	15
10	Post-Test Observations	16
11	Vehicle Profile Measurements	17
12	Vehicle Exterior Crush Measurements	18
13	Vehicle Damage Profile Distances	21
14	Exterior Static Crush for Impactor Face	22
15	FMVSS 301 Fuel System Integrity Post-Impact Data	23
16	Dummy/Vehicle Temperature Stabilization Data	24
<u>Appendix</u>		
A	Photographs	A
B	Dummy Response Data	B
C	Dummy Calibration and Performance Verification Data	C

SECTION 1

PURPOSE AND SUMMARY OF TEST

PURPOSE

This moving deformable barrier 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 Honda CR-V LX 5-Dr SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Laboratory Test Procedure dated January 2010.

SUMMARY

A 2011 Honda CR-V LX 5-Dr SUV was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 62.1 km/h (38.6 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by MGA Research Corporation in Burlington, Wisconsin, on November 16, 2010. Pretest and post test photographs of the test vehicle, the MDB, and the dummies (ES-2re and SID-IIs) are included in this report.

Dummies were placed in the driver and left rear designated seating positions according to instructions specified in the OCWS NCAP Side Laboratory Test Procedure dated January 2010. The side impact event was documented by eleven (11) cameras. Camera locations are included in this report.

The dummies were instrumented in the following manner:

DRIVER ATD (ES-2re)

- Head CG Triaxial Accelerometers
- Thorax Rib 1 to Rib 3 Displacement Potentiometers
- Abdomen Forward, Middle, and Rear Load Cells
- Lower Spine Triaxial Accelerometers
- Pubic Load Cell

PASSENGER ATD (SID-IIs)

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

DUMMY INJURY VALUES

Measurement Description	Driver ATD (ES-2re)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	144
Maximum Thorax Rib Deflection	mm	44	38
Combined Abdominal Force	N	2500	911
Pubic Symphysis Force	N	6000	1295

Measurement Description	Passenger ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	212
Lower Spine (T12) Resultant Acceleration	G	82	57
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	4112

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	No		No	
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso 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:
 Right Front Sill X after 10 msec.
 Left Lower B-Post Y after 70 msec.
 Left Lower A-Post Y after 5 msec.
 Left Mid A-Post Y after 10 msec.
 MDB Rear Y after 120 msec.

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

SECTION 2
OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
 Test Date: 11/16/2010

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	MB5307	Anti-Lock Brakes	Yes
Model Year	2011	All Wheel Drive	No
Make	Honda	Power Steering	Yes
Model	CR-V	Driver Front Airbag	Yes
Body Style	MPV	Driver Curtain Airbag	Yes
VIN	JHLRE3H3XBC004909	Driver Head/Torso Airbag	No
Body Color	Polished Metal M.	Driver Torso Airbag	Yes
Delivery Date	10/26/2010	Driver Torso/Pelvis Airbag	No
Odometer (mi)	37	Driver Pelvis Airbag	No
Odometer (km)	60	Driver Knee Airbag	No
Dealer	Rosen Honda	Rear Pass. Front Airbag	No
Transmission	Automatic	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)	2.4	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	Yes	Power Seats	No
Does owner's manual provide instruction to turn off automatic door locks?			Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Honda Motor Company, Ltd.	GVWR (kg)	2070
Date of Manufacture	09/'10	GAWR Front (kg)	1050
		GAWR Rear (kg)	1040

VEHICLE SEATING AND WEIGHT CAPACITY DATA

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

VEHICLE SEAT TYPE

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

GENERAL TEST AND VEHICLE PARAMETER DATA

NHTSA No. MB5307
Test Date: 11/16/2010

The diagram shows a cross-section of a tire mounted on a wheel. The following labels point to specific markings on the tire sidewall:

- Treadwear, traction and temperature grades:** Points to the top of the sidewall where 'TREADWEAR 220', 'TRACTION A', and 'TEMPERATURE A' are printed.
- Tire ply composition and materials used:** Points to the text 'SIDEWALL 2 PLYS 2XXXXX CORD • MAX LOAD 1300 LB • MAX PRESS 35 PSI • RADIAL • TUBELESS • DOT M49 ASBC66 • TREAD 4 PLYS • 2XXXXX'.
- Max. cold inflation & load limit:** Points to the text 'MAX. COLD INFLATION & LOAD LIMIT'.
- U.S. DOT safety standard code:** Points to the text 'DOT M49 ASBC66'.
- Load index & speed symbol:** Points to the text '89H'.
- Diameter of wheel in inches:** Points to the text '15'.
- Radial:** Points to the text 'RADIAL'.
- Ratio of height to width (aspect ratio):** Points to the text '65'.
- Width of tire in millimeters:** Points to the text '215'.
- Passenger car tire:** Points to the text 'P'.

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	210	210
Recommended Tire Size	225/65R17	225/65R17
Tire Size on Vehicle	225/65R17	225/65R17
Tire Manufacturer	Bridgestone	Bridgestone
Tire Model	Dueler H/L	Dueler H/L
Treadwear	400	400
Traction	B	B
Temperature Grades	B	B
Tire Plies Sidewall	2	2
Tire Plies Body	5	5
Load Index & Speed Symbol	102T	102T
Tire Material	Rubber	Rubber
DOT Safety Code Right	ELF5	ELF5
DOT Safety Code Left	ELF5	ELF5

DATA SHEET NO. 1 (continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
 Test Date: 11/16/2010

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	453.1	316.6		488.1	395.1		494.9	394.2	
Right	kg	444.1	318.0		449.0	366.5		449.0	368.3	
Ratio	%	58.6	41.4		55.2	44.8		55.3	44.7	
Totals	kg	897.2	634.6	1531.8	937.1	761.6	1698.7	943.9	762.5	1706.4

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1531.8	(A)
Sum of Actual Weight of 2 P572 ATDs Used	kg	129.3	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	45	(C)
Calculated Target Vehicle Test Weight (TVTW)	kg	1706.1	(A+B+C)

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
Fully Loaded	mm	784	789	760	769	
As Tested (Fully Loaded $\pm$ 10mm at each wheel well)	mm	780	793	769	773	1175

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	2620
Total Vehicle Length at Left Side	mm	3504
Total Vehicle Length at Centerline	mm	4546
Total Vehicle Length at Right Side	mm	3504
Weight of Ballast in Cargo Area	kg	20.4
Weight of Vehicle Components Removed	kg	0
Amount of Stoddard Solvent in Fuel Tank	L	53.7

Vehicle components removed to meet target vehicle test weight: Spare tire, right tail light, jack & tools.

TEST VEHICLE VERTICAL IMPACT POINT DATA

Measurement Description	Units	Value
Target Impact Point Aft of Front Axle	mm	370
Actual Impact Point Aft of Front Axle	mm	357

DATA SHEET NO. 2

SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL DATA

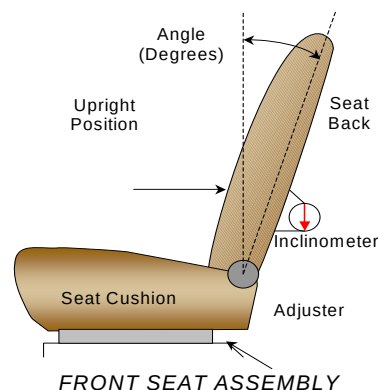
Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
Test Date: 11/16/2010

NOMINAL DESIGN RIDING POSITION

The driver and passenger seat backs are positioned to the manufacturer's designated angle. The procedure is as follows:

For the driver, set seat back at 15.0° at the headrest post. The rear passenger seat back was set as specified in Appendix B of the TP dated January 2010.



SEAT BACK ANGLES

	Degrees
Driver with Seated Dummy	13.2° on headrest post
Passenger with Seated Dummy	7.0° on headrest post

SEAT FORE/AFT POSITIONS

	Total Fore/Aft Travel	Placed in Position #
Driver Seat	25 detents	12 th detent (forward-most as 0)
Rear Seat	6 detents	5 th detent (forward-most as 0)

Describe method: For the driver seat track, using only the controls that primarily move the seat in the fore-aft direction, the seat was moved to the full rear position and marked. The seat was then moved to the foremost position and marked. The seat was then placed in the mid point of travel and marked. The left rear passenger seat track was placed in the rearmost position.

SEAT BELT UPPER ANCHORAGES

	Total # of Positions	Placed in Position #
Driver Seat	4 detents	0 (uppermost as 0)
Rear Seat	Fixed	Fixed

Describe method: The driver seat anchorage was set in the upper-most position. The left rear passenger seat anchorage was fixed.

DATA SHEET NO. 2 (CONTINUED)

SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL DATA

Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
 Test Date: 11/16/2010

FUEL TANK CAPACITY DATA

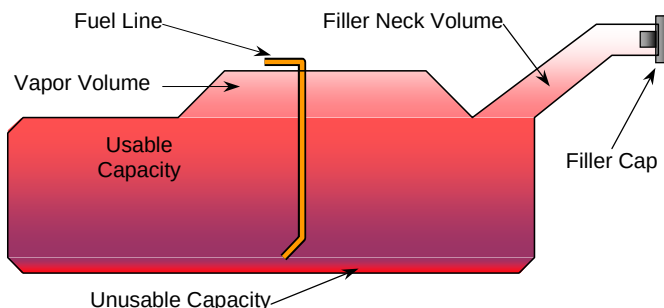
	Liters
Usable Capacity of "Standard Tank"	58.0
Usable Capacity of "Optional" Tank	
Usable Capacity Used for FMVSS 301	53.4 to 54.5
Actual Amount of Solvent used	53.7

FUEL PUMP

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. After the ignition key is turned from LOCK (0) to ON (II) position, the pump will be filled up for two seconds, and then the pressure is maintained.

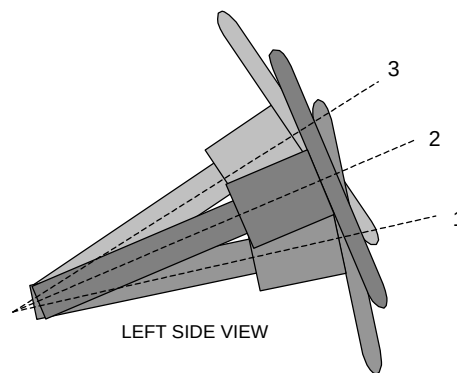
The fuel pipe is on the left side.



VEHICLE FUEL TANK ASSEMBLY

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 ASSEMBLY

STEERING COLUMN POSITION

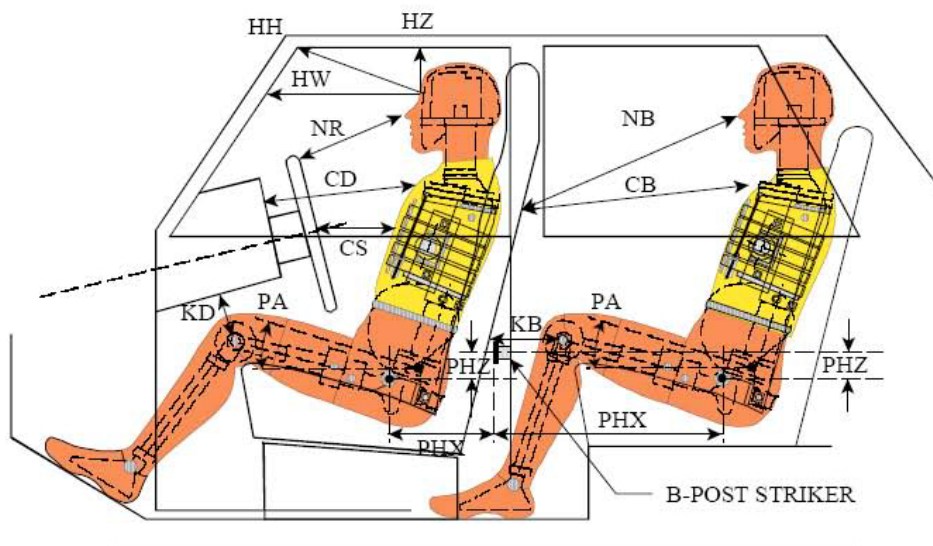
	Detent	Fore/Aft Position (mm)
Lowermost - Position 1	64.8	235
Geometric Center – Position 2	62.5	220
Uppermost – Position 3	60.2	205
Telescoping Steering Wheel Travel		30
Test Position	62.5	220

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
 Test Date: 11/16/2010



LEFT SIDE VIEW

NOTE: 2-DOOR VEHICLE SHOWN.
 REAR DUMMY PHX & PHZ
 MEASUREMENTS FOR A 4-DOOR
 VEHICLE WOULD USE THE C-POST
 STRIKER AS A REFERENCE POINT

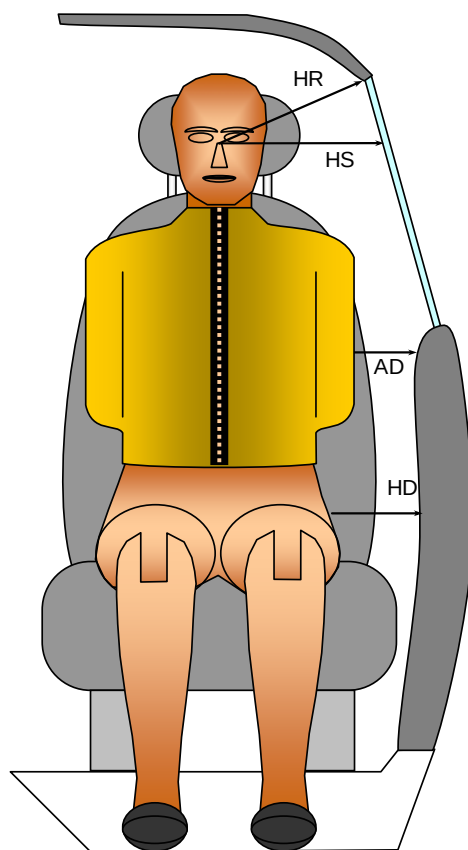
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Pass. Code	Measurement Description	Driver S/N 032		Passenger S/N 306	
			Length (mm)	Angle(°)	Length (mm)	Angle(°)
HH		Head to Header	402	14.0		
HW		Head to Windshield	613	0		
HZ	HZ	Head to Roof	180	90	276	90
NR	NB	Nose to Rim/Seat Back	472	22.5	546	15.3
CD	CB	Chest to Dash/Seat Back	576	2.0	531	6.7
CS		Chest to Steering Wheel	360	11.2		
KDL	KBL	Left Knee to Dash/Seat Back	130	33.6	321	18.4
KDR	KBR	Right Knee to Dash/Seat Back	102	36.1	326	17.1
PA	PA	Pelvic Angle		27.0		18.9
PHX	PHX	H-Point to Striker (X-Axis)	243	0	215	0
PHZ	PHZ	H-Point to Striker (Z-Axis)	80	90	191	90
SA	SA	Seat Back Angle		13.2		Fixed

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
Test Date: 11/16/2010



FRONT VIEW OF DUMMY

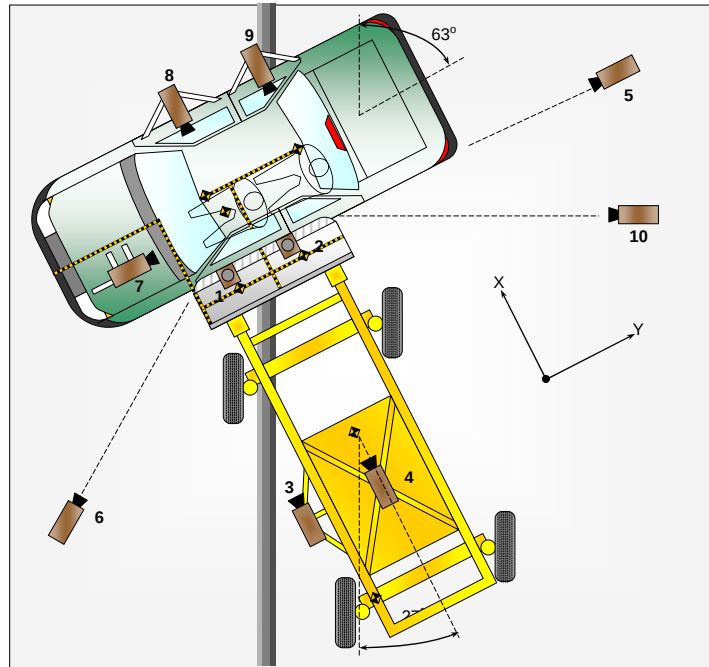
DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver S/N 032	Passenger S/N 306
HR	Head to Side Header	mm	189	239
HS	Head to Side Window	mm	315	351
AD	Arm to Door	mm	91	155
HD	H-Point to Door	mm	207	167

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

Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
 Test Date: 11/16/2010



CAMERA LOCATIONS AND DATA

No.	Camera View	Coordinates (mm)			Angle	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Overhead Overall	-180	0	-5050	86.7	14	1000
2	Overhead Close-up	360	1180	-5050	81.2	50	1000
3	Left Impact Point (MDB)					50	1000
4	Side Overall (MDB)					16	1000
5	Rear	-30	5140	-1230	6.9	24	1000
6	Left Front	3490	-4250	-1250	6.1	24	1000
7	Driver Front (OB)					12.5	1000
8	Driver Side (OB)					8	1000
9	Passenger Side (OB)					8	1000
10	Real Time Left Rear						30
11	Real Time Inrun						30

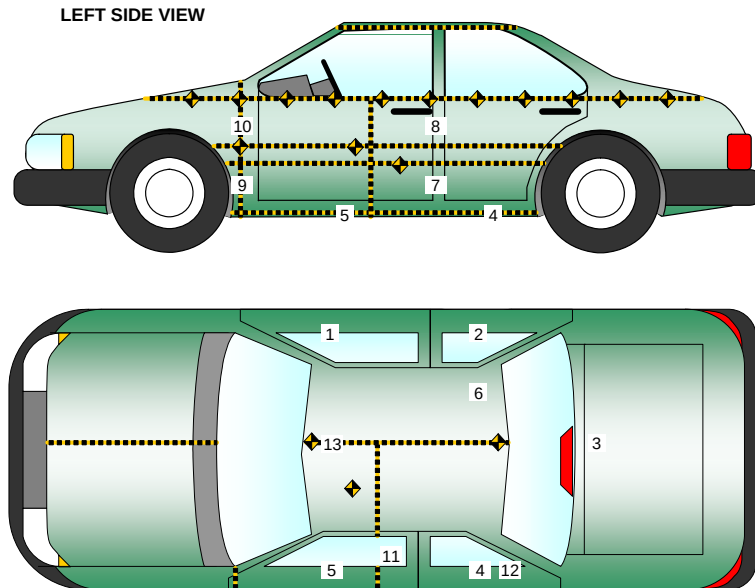
Reference: Impact Point projected to Ground
 +X = To Front of MDB, +Y = To Right of MDB, +Z = Down

* All measurements accurate to ± 6 mm

DATA SHEET NO. 6
VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
 Test Date: 11/16/2010



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

Accelerometer Location				
No.	ID	Coordinates (mm)		
		X	Y	Z
1	Right Sill at Front Seat	2468	725	310
2	Right Sill at Rear Seat	1625	725	323
3	Rear Floorpan Above Axle	782	0	390
4	Left Sill at Rear Door	1666	-725	332
5	Left Sill at Front Door	2920	-725	313
6	Rt. Rear Occ. Compartment	1778	392	380
7	Left Lower B-Post	2036	-698	656
8	Left Middle B-Post	2057	-695	945
9	Left Lower A-Post	3095	-736	614
10	Left Middle A-Post	3151	-815	866
11	Front Seat Track	2278	-545	482
12	Rear Seat Track or Structure	1508	-415	540
13	Vehicle CG	2465	0	325

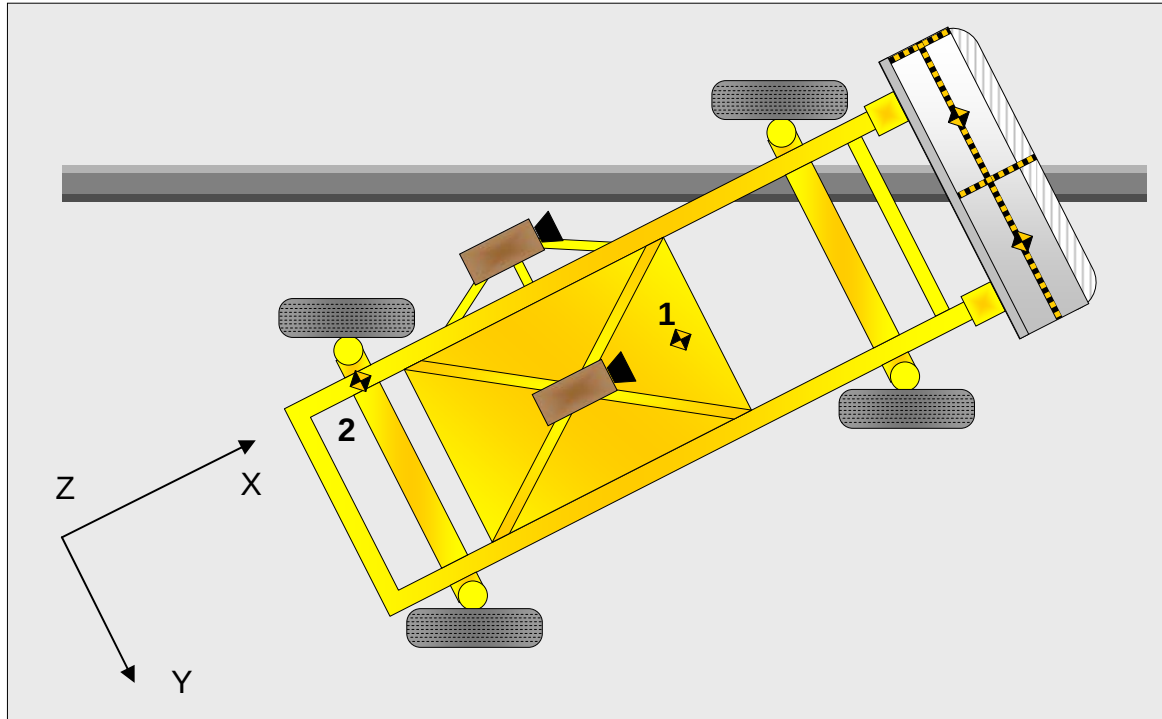
Reference: X – Rear Surface of Vehicle (+ forward)
 Y - Vehicle Centerline (+ to right)
 Z - Ground Plane (+ up)

DATA SHEET NO. 7

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS

Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
Test Date: 11/16/2010



MDB ACCELEROMETER LOCATIONS

Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	MDB CG	-1105	0	-330
2	MDB Rear	-2580	-650	-625

Reference: X - MDB Face (+ forward)
Y - MDB Centerline (+ to right)
Z - Ground Plane (+ down)

DATA SHEET NO. 8
TEST VEHICLE SUMMARY OF RESULTS

Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
 Test Date: 11/16/2010

MAXIMUM EXTERIOR STATIC CRUSH

Level	Measurement Description	Units	Maximum Crush	Above Ground
1	Sill Top Height	mm	34	306
2	Occupant H-Point	mm	202	675
3	Mid Door	mm	208	715
4	Window Sill	mm	52	1070
5	Window Top	mm	-4	1572
	Maximum Penetration	mm	208	

INSTRUMENTATION

Driver Dummy Channels	16
Passenger Dummy Channels	16
Vehicle Structure Accelerometers	21
MDB Accelerometers	5
Total No. of Contact Switches	8
Monitoring Channels	4
Total	70

CAMERA COVERAGE

High-Speed Vehicle Onboard	3
High-Speed Offboard	4
High-Speed MDB Onboard	2
Real-Time Stationary	1
Real-Time Panning	1
Total	11

DATA SHEET NO. 9**MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS**

Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
 Test Date: 11/16/2010

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1252
Overall Length Including Honeycomb Face	4115
Wheelbase of Framework Carriage	2592
CG Location aft of Front Axle	1129

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	411.8	281.6	
Right	kg	356.8	311.3	
Ratio	%	56.5	43.5	
Totals	kg	768.6	592.9	1361.5

SPEED AND IMPACT DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.1
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.3
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	89.7

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE

Vertical Location			From Centerline		Maximum Crush
Row	Description	Height	Distance	Direction	
A	Center of Bumper	432	800	Right	244
B	Top of Bumper	533	700	Right	153
C	Mid-Level	686	800	Left	138
D	Top of Stack	813	800	Left	175

MDB INSTRUMENTATION AND CAMERAS

Accelerometers	5
Contact Switches	2
High-Speed Cameras	2

DATA SHEET NO. 10

POST-TEST OBSERVATIONS

Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
 Test Date: 11/16/2010

TEST DUMMY INFORMATION AND CONTACT

Description	Driver (ES-2re)	Passenger (SID-IIs)
Dummy Type / Serial No.	ES-2re / 032	SID-IIs / 306
Head Contact	Curtain Airbag, Side Header, Headrest	Curtain Airbag, Headrest, Center Headrest
Upper Torso Contact	Torso Airbag, Seat	Door Panel
Lower Torso Contact	Door Panel	Seat, Door Panel
Left Knee Contact	Door Panel	Door Panel
Right Knee Contact	Left Knee	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	None
Window Damage	None
Other Notable Effects	None

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	No		No	
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso Airbag	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes		No	

MDB LEFT EDGE IMPACT POINT DATA

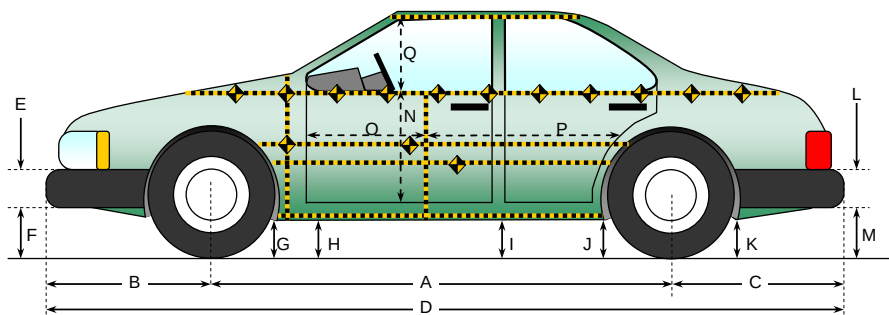
Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	13 forward
Vertical Offset	mm	+/-20	14 down

DATA SHEET NO. 11

VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
 Test Date: 11/16/2010



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

LEFT SIDE VIEW

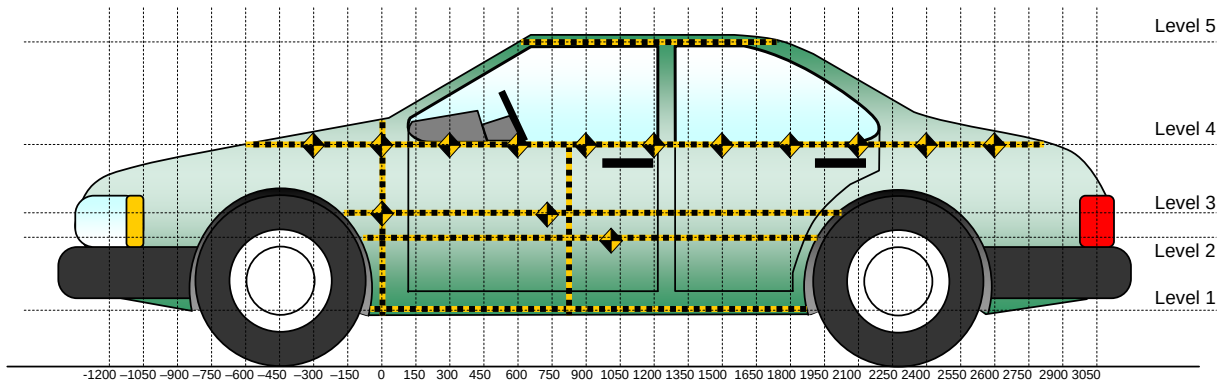
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2620	2615	5
B	Front Axle to FSOV	912	912	0
C	Rear Axle to RSOV	1014	990	24
D	Total Length at Centerline	4546	4517	29
E	Front Bumper Thickness	90	90	0
F	Front Bumper Bottom to Ground	370	320	50
G	Sill Height at Front Wheel Well	295	247	48
H	Sill Height at Front Door Leading Edge	271	232	39
I	Sill Height at B Pillar	283	282	1
J1	Sill Height at Rear Wheel Well	265	248	17
J2	Pinch Weld Height at Rear Wheel Well	290	246	44
K	Sill Height Aft of Rear Wheel Well	340	314	26
L	Rear Bumper Thickness	90	90	0
M	Rear Bumper Bottom to Ground	445	456	-11
N	Sill Height to Window Bottom Sill	790	786	4
O	Front Door Leading Edge to Impact CL	760	752	8
P	Rear Door Trailing Edge to Impact CL	1120	1100	20
Q	Front Window Opening	480	480	0
R	Right Side Length	3504	3502	2
S	Left Side Length	3504	3485	19
T	Vehicle Width at B Post	1800	1666	134

DATA SHEET NO. 12
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
 Test Date: 11/16/2010



All Measurements Shown in mm

LEFT SIDE VIEW

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	306
2	Occupant H-Point	675
3	Mid-Door	715
4	Window Sill	1070
5	Window Top	1572

DATA SHEET NO. 12 (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
 Test Date: 11/16/2010

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-450				315					315					0	
-300				300					305					5	
-150				286					291					5	
0		191	193	276			207	213	281			16	20	5	
150	250	209	210	269		283	319	327	270		33	110	117	1	
300	255	213	214	265		289	360	349	266		34	147	135	1	
450	259	211	211	260		289	360	344	265		30	149	133	5	
600	254	210	210	259		281	353	363	270		27	143	153	11	
750	257	209	209	258	489	287	367	389	277	477	30	158	180	19	-12
900	258	209	208	255	476	281	392	406	286	468	23	183	198	31	-8
1050	256	209	209	255	479	286	409	405	296	471	30	200	196	41	-8
1200	255	210	211	257	481	283	396	406	309	476	28	186	195	52	-5
1350	260	211	212	260	482	288	409	420	303	476	28	198	208	43	-6
1500	258	213	214	261	485	288	415	415	284	478	30	202	201	23	-7
1650	264	213	215	263	488	292	405	402	267	480	28	192	187	4	-8
1800	254	200	202	267	493	281	349	343	250	485	27	149	141	-17	-8
1950		191	190	272	496		239	230	241	487		48	40	-31	-9
2100				276	500				247	496				-29	-4
2250				282	512				288	504				6	-8
2400				289	525				290	512				1	-13

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

MAXIMUM CRUSH DATA

	Level 1	Level 2	Level 3	Level 4	Level 5
Maximum Crush (mm)	34	202	208	52	-4
Distance From Impact (mm)	300	1500	1350	1200	2100

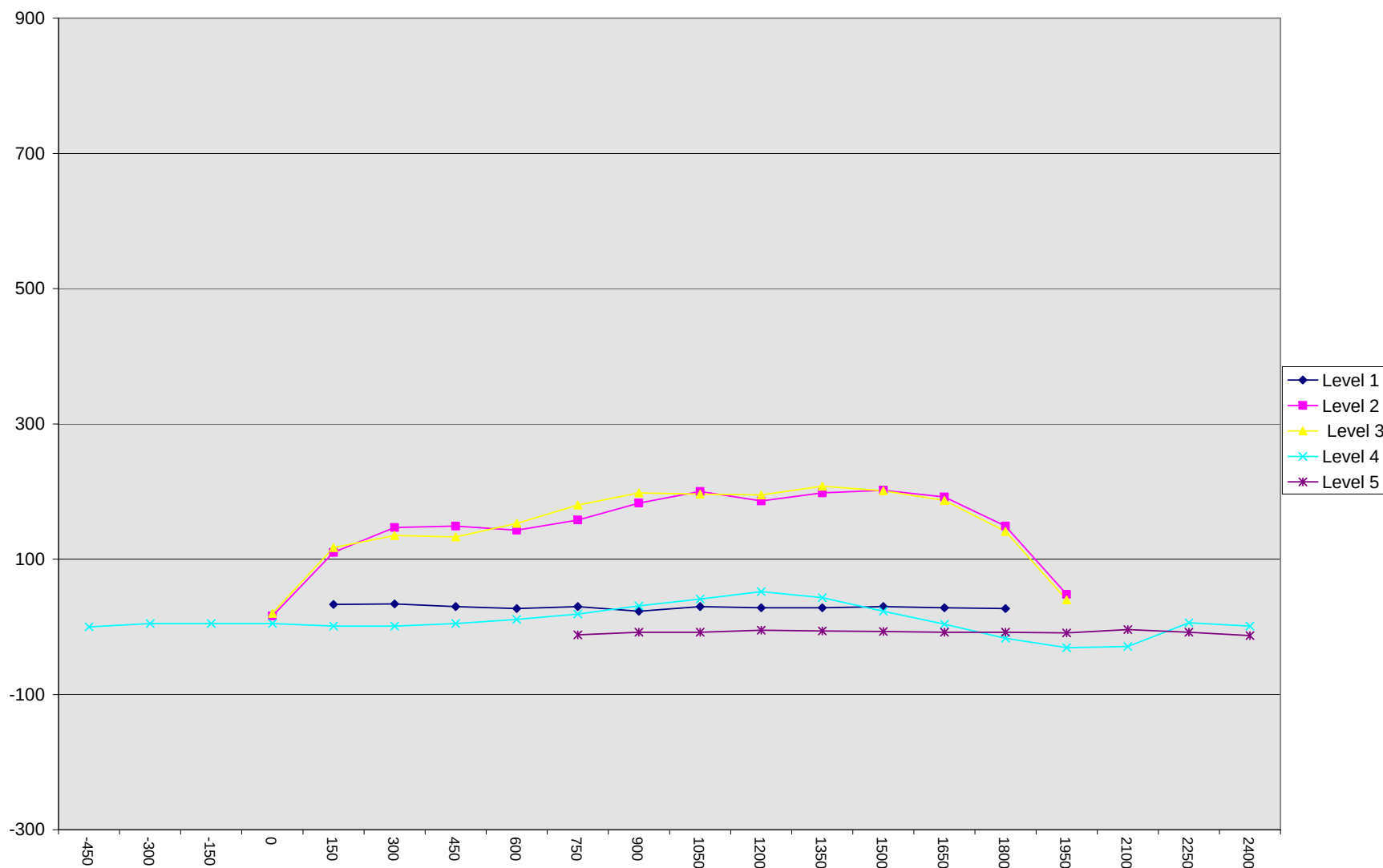
DATA SHEET NO. 12 (continued)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
 Test Date: 11/16/2010

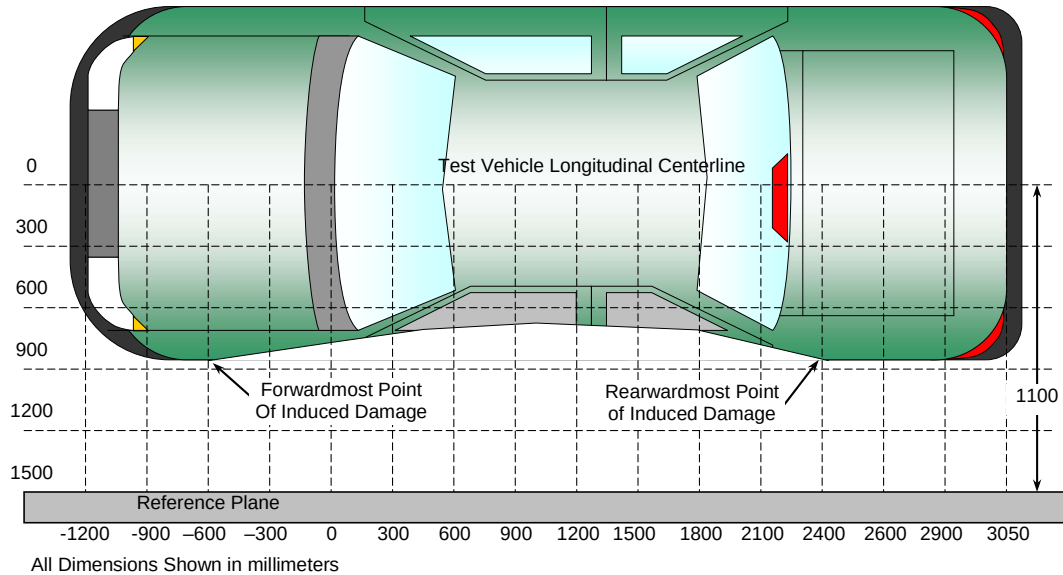
20



DATA SHEET NO. 13
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
 Test Date: 11/16/2010



TOP VIEW

DAMAGE PROFILE DISTANCES

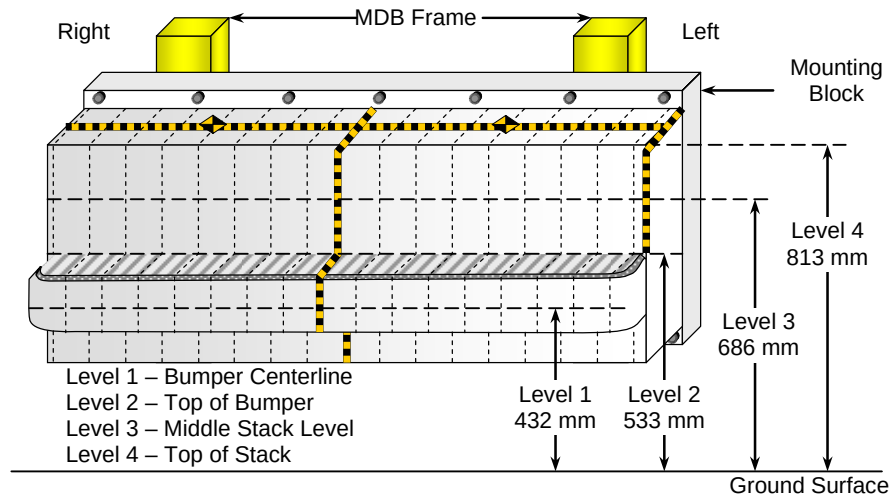
DPD	Distance from Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Max. Static Crush (mm)
1	2400	4	289	290	1
2	1835	3	204	361	157
3	1235	3	211	410	199
4	672	3	210	387	177
5	105	2	200	318	118
6	-450	4	315	315	0

DATA SHEET NO. 14

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
 Test Date: 11/16/2010



FRONT VIEW

DEFORMABLE BARRIER STATIC CRUSH

Stack Level	Distance Right of Center (mm)								C _L	Distance Left of Center (mm)							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
4	100	88	77	65	44	50	64	54	59	65	75	77	89	103	126	150	175
3	75	107	46	47	55	76	90	64	58	60	65	66	68	77	89	102	138
2	150	153	152	151	143	133	129	135	136	139	139	138	137	135	135	135	145
1	244	237	241	236	234	235	234	231	231	230	227	227	229	232	232	242	231

DATA SHEET NO. 15

FMVSS 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

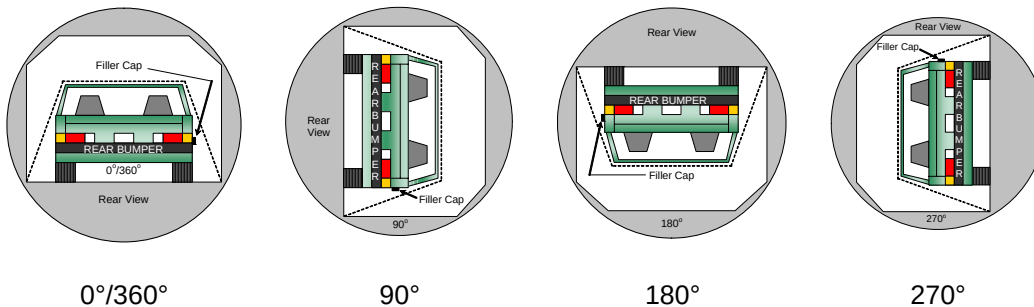
Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
 Test Date: 11/16/2010

Test Time: 10:39 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°	120	300	420
90° to 180°	120	300	420
180° to 270°	107	300	407
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

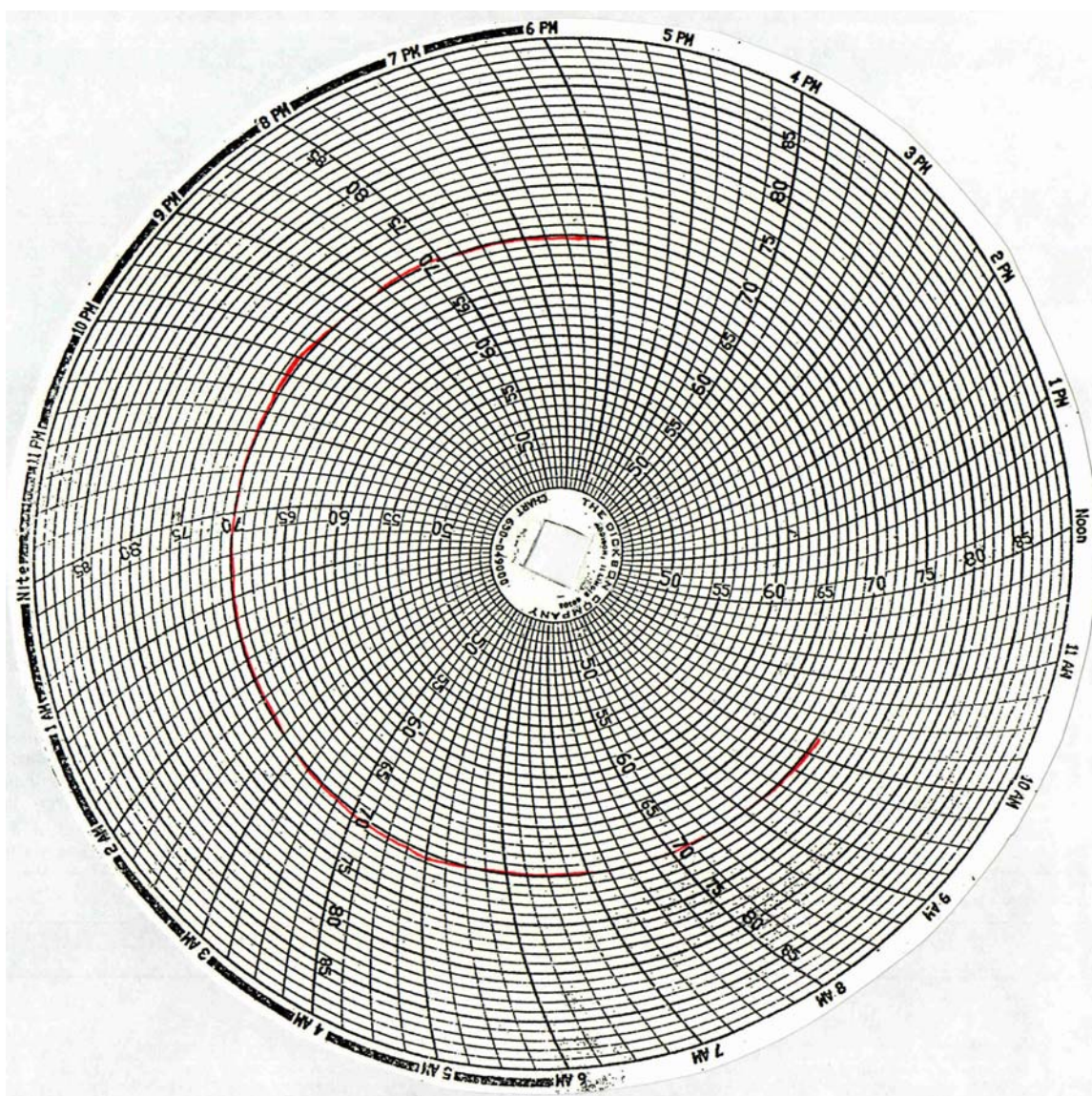
Test Phase	Spillage Location
0° to 90°	
90° to 180°	
180° to 270°	
270° to 360°	

DATA SHEET NO. 16

DUMMY/VEHICLE TEMPERATURE STABILIZATION DATA

Test Vehicle: 2011 Honda CR-V LX 5-Dr SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No. MB5307
Test Date: 11/16/2010



APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

		<u>Page No.</u>
Photo No. 1.	As Delivered Right Front Three-Quarter View of Test Vehicle	A-1
Photo No. 2.	As Delivered Left Rear Three-Quarter View of Test Vehicle	A-1
Photo No. 3.	Pre-Test Frontal View of Test Vehicle	A-2
Photo No. 4.	Post-Test Frontal View of Test Vehicle	A-2
Photo No. 5.	Pre-Test Left Three-Quarter Front View of Test Vehicle	A-3
Photo No. 6.	Post-Test Left Three-Quarter Front View of Test Vehicle	A-3
Photo No. 7.	Pre-Test Left Side View of Test Vehicle	A-4
Photo No. 8.	Post-Test Left Side View of Test Vehicle	A-4
Photo No. 9.	Pre-Test Left Three-Quarter Rear View of Test Vehicle	A-5
Photo No. 10.	Post-Test Left Three-Quarter Rear View of Test Vehicle	A-5
Photo No. 11.	Pre-Test Rear View of Test Vehicle	A-6
Photo No. 12.	Post-Test Rear View of Test Vehicle	A-6
Photo No. 13.	Pre-Test Right Side View of Test Vehicle	A-7
Photo No. 14.	Post-Test Right Side View of Test Vehicle	A-7
Photo No. 15.	Pre-Test Overhead View of Test Vehicle with MDB Positioned Against Side of Test Vehicle	A-8
Photo No. 16.	Post-Test Overhead View of Test Vehicle and MDB	A-8
Photo No. 17.	Pre-Test Left Side View of MDB Positioned Against Side of Test Vehicle	A-9
Photo No. 18.	Pre-Test Right Side View of MDB Positioned Against Side of Test Vehicle	A-9
Photo No. 19.	Pre-Test Close-Up View of Impact Point Target	A-10
Photo No. 20.	Post-Test Close-Up View of Impact Point Target	A-10
Photo No. 21.	Pre-Test Left Front Door Latch Close-Up	A-11
Photo No. 22.	Post-Test Left Front Door Latch Close-Up	A-11
Photo No. 23.	Pre-Test Left Rear Door Latch Close-Up	A-12

		<u>Page No.</u>
Photo No. 24.	Post-Test Left Rear Door Latch Close-Up	A-12
Photo No. 25.	Pre-Test Front Close-Up View of Driver Dummy	A-13
Photo No. 26.	Post-Test Front Close-Up View of Driver Dummy	A-13
Photo No. 27.	Pre-Test Left Side View of Driver Dummy Showing Belt, Chalking, and Contact Switches	A-14
Photo No. 28.	Pre-Test Left Side View of Driver Dummy Shoulder and Door Top View	A-15
Photo No. 29.	Post-Test Left Side View of Driver Dummy Shoulder and Door Top View	A-15
Photo No. 30.	Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning	A-16
Photo No. 31.	Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint	A-16
Photo No. 32.	Pre-Test Frontal View of Driver Seat Pan Prior to Dummy Positioning	A-17
Photo No. 33.	Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan	A-17
Photo No. 34.	Pre-Test Placement of Driver Dummy's Feet	A-18
Photo No. 35.	Pre-Test View of Belt Anchorage for Driver Dummy	A-18
Photo No. 36.	Pre-Test Left Side View of Steering Wheel	A-19
Photo No. 37.	Pre-Test View of Parking Brake	A-19
Photo No. 38.	Pre-Test Close-Up Left Side View of Driver Seat Track	A-20
Photo No. 39.	Pre-Test Close-Up Left Side View of Driver Seat Back	A-20
Photo No. 40.	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-21
Photo No. 41.	Pre-Test Driver Dummy and Door Clearance View	A-22
Photo No. 42.	Post-Test Driver Dummy and Door Clearance View	A-22
Photo No. 43.	Pre-Test Right Side View of Front Seat of Occupant Compartment	A-23
Photo No. 44.	Post-Test Right Side View of Front Seat of Occupant Compartment	A-23
Photo No. 45.	Pre-Test Driver Inner Door Panel View	A-24
Photo No. 46.	Post-Test Driver Inner Door Panel View Showing Driver Dummy Contact Locations	A-24
Photo No. 47.	Post-Test Driver Dummy Close-up Head Contact with Vehicle View	A-25

		<u>Page No.</u>
Photo No. 48.	Post-Test Driver Dummy Close-up Head Contact with Side Airbag View	A-25
Photo No. 49.	Post-Test Driver Dummy Close-up Torso Contact with Vehicle Interior View	A-26
Photo No. 50.	Post-Test Driver Dummy Close-up Torso Contact with Side Airbag View	A-26
Photo No. 51.	Post-Test Driver Dummy Close-up Pelvis Contact with Vehicle Interior View	A-27
Photo No. 52.	Post-Test Driver Dummy Close-up Pelvis Contact with Side Airbag View	A-27
Photo No. 53.	Pre-Test Left Side View of Passenger Dummy Showing Belt, Chalking, and Contact Switches	A-28
Photo No. 54.	Pre-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View	A-29
Photo No. 55.	Post-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View	A-29
Photo No. 56.	Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning	A-30
Photo No. 57.	Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint	A-30
Photo No. 58.	Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning	A-31
Photo No. 59.	Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan	A-31
Photo No. 60.	Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket	A-32
Photo No. 61.	Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head is Level	A-32
Photo No. 62.	Pre-Test Placement of Rear Passenger Dummy's Feet	A-33
Photo No. 63.	Pre-Test View of Belt Anchorage for Rear Passenger Dummy	A-33
Photo No. 64.	Pre-Test Close-Up Left Side View of Rear Passenger Seat Track	A-34
Photo No. 65.	Pre-Test Close-Up Left Side View of Rear Passenger Seat Back	A-34
Photo No. 66.	Pre-Test Close-up View of Rear Passenger Seat Back or Head Restraint	A-35
Photo No. 67.	Pre-Test Rear Passenger Dummy and Door Clearance View	A-36
Photo No. 68.	Post-Test Rear Passenger Dummy and Door Clearance View	A-36
Photo No. 69.	Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment	A-37
Photo No. 70.	Post-Test Right Side View of Rear Passenger Dummy Seat and Rear Seat Occupant Compartment	A-37
Photo No. 71.	Pre-Test Passenger Inner Door Panel View	A-38

		<u>Page No.</u>
Photo No. 72.	Post-Test Rear Passenger Inner Door Panel View Showing Dummy Contact Locations	A-38
Photo No. 73.	Post-Test Rear Passenger Dummy Close-up Head Contact with Vehicle View	A-39
Photo No. 74.	Post-Test Rear Passenger Dummy Close-up Head Contact with Side Airbag View	A-39
Photo No. 75.	Post-Test Rear Passenger Dummy Close-up Torso Contact with Vehicle Interior View	A-40
Photo No. 76.	Post-Test Rear Passenger Dummy Close-up Torso Contact with Side Airbag View	A-40
Photo No. 77.	Post-Test Rear Passenger Dummy Close-up Pelvis Contact with Vehicle Interior View	A-41
Photo No. 78.	Post-Test Rear Passenger Dummy Close-up Pelvis Contact with Side Airbag View	A-41
Photo No. 79.	Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-42
Photo No. 80.	Post-Test View of Fuel Filler Cap or Fuel Filler Neck	A-42
Photo No. 81.	Pre-Test Front View of MDB Impactor Face	A-43
Photo No. 82.	Post-Test Front View of MDB Impactor Face	A-43
Photo No. 83.	Pre-Test Top View of MDB Impactor Face	A-44
Photo No. 84.	Post-Test Top View of MDB Impactor Face	A-44
Photo No. 85.	Pre-Test Left Side View of MDB Impactor Face	A-45
Photo No. 86.	Post-Test Left Side View of MDB Impactor Face	A-45
Photo No. 87.	Pre-Test Right Side View of MDB Impactor Face	A-46
Photo No. 88.	Post-Test Right Side View of MDB Impactor Face	A-46
Photo No. 89.	Close-Up View of Vehicle's Certification Label	A-47
Photo No. 90.	Close-Up View of Vehicle's Tire Information Placard or Label	A-47
Photo No. 91.	Pre-Test Ballast View	A-48
Photo No. 92.	Post-Test Primary and Redundant Speed Trap Read-Out	A-48
Photo No. 93.	FMVSS No. 301/305 Rollover 0 Degrees	A-49
Photo No. 94.	FMVSS No. 301/305 Rollover 90 Degrees	A-49
Photo No. 95.	FMVSS No. 301/305 Rollover 180 Degrees	A-50

		<u>Page No.</u>
Photo No. 96.	FMVSS No. 301/305 Rollover 270 Degrees	A-50
Photo No. 97.	FMVSS No. 301/305 Rollover 360 Degrees	A-51
Photo No. 98.	Impact Event	A-51
Photo No. 99.	Monroney Label	A-52
Photo No. 100.	Head Restraint Use and Adjustment Information from Vehicle Manual	A-53
Photo No. 101.	Head Restraint Use and Adjustment Information from Vehicle Manual	A-54
Photo No. 102.	Head Restraint Use and Adjustment Information from Vehicle Manual	A-55



As Delivered Right Front Three-Quarter View of Test Vehicle



As Delivered Left Rear Three-Quarter View of Test Vehicle



Pre-Test Frontal View of Test Vehicle



Post-Test Frontal View of Test Vehicle



Pre-Test Left Three-Quarter Front View of Test Vehicle



Post-Test Left Three-Quarter Front View of Test Vehicle



Pre-Test Left Side View of Test Vehicle



Post-Test Left Side View of Test Vehicle



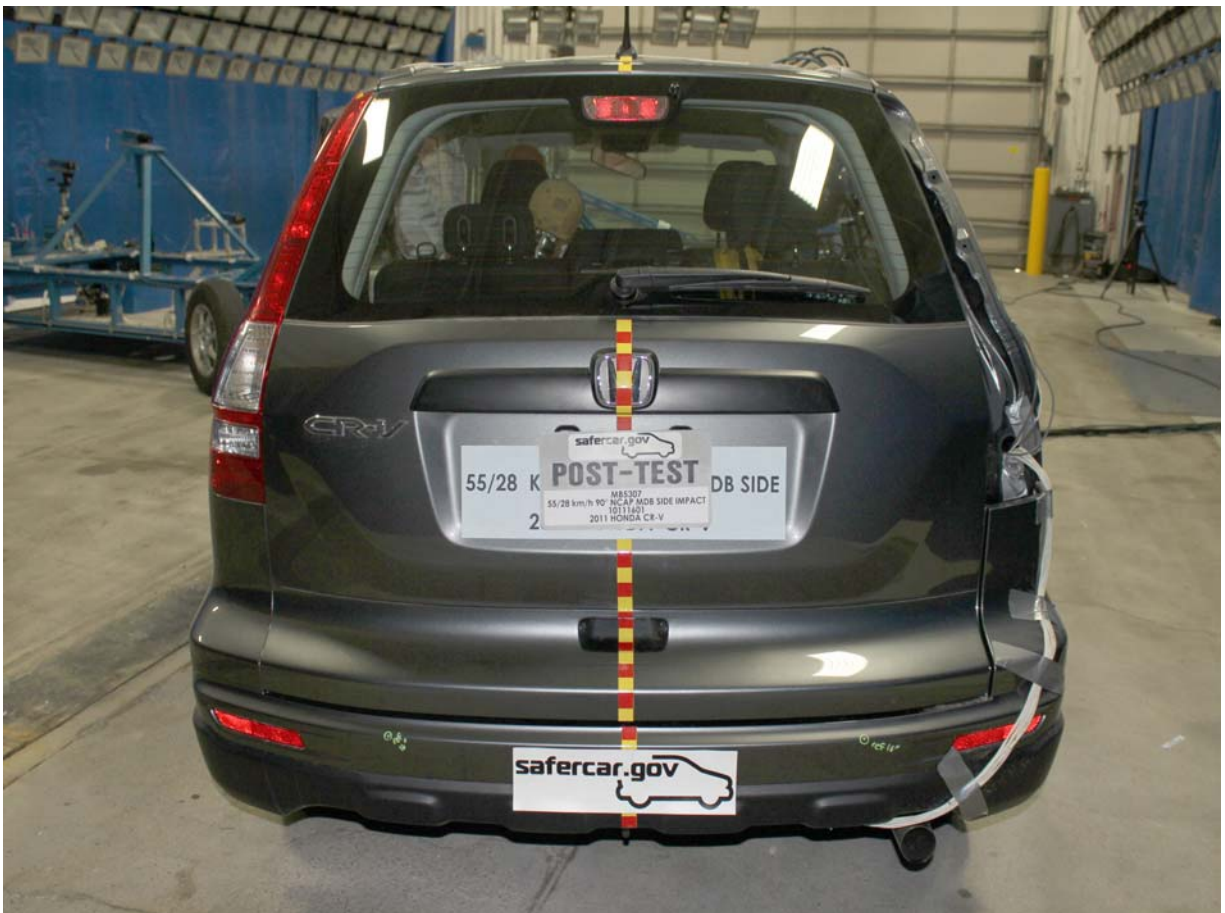
Pre-Test Left Three-Quarter Rear View of Test Vehicle



Post-Test Left Three-Quarter Rear 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 with MDB Positioned Against Side of Test Vehicle



Post-Test Overhead View of Test Vehicle and MDB



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



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



Pre-Test Close-Up View of Impact Point Target



Post-Test Close-Up View of Impact Point Target



Pre-Test Left Front Door Latch Close-Up



Post-Test Left Front Door Latch Close-Up



Pre-Test Left Rear Door Latch Close-Up



Post-Test Left Rear Door Latch Close-Up



Pre-Test Front Close-Up View of Driver Dummy



Post-Test Front Close-Up View of Driver Dummy



Pre-Test Left Side View of Driver Dummy Showing Belt, Chalking, and Contact Switches



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



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



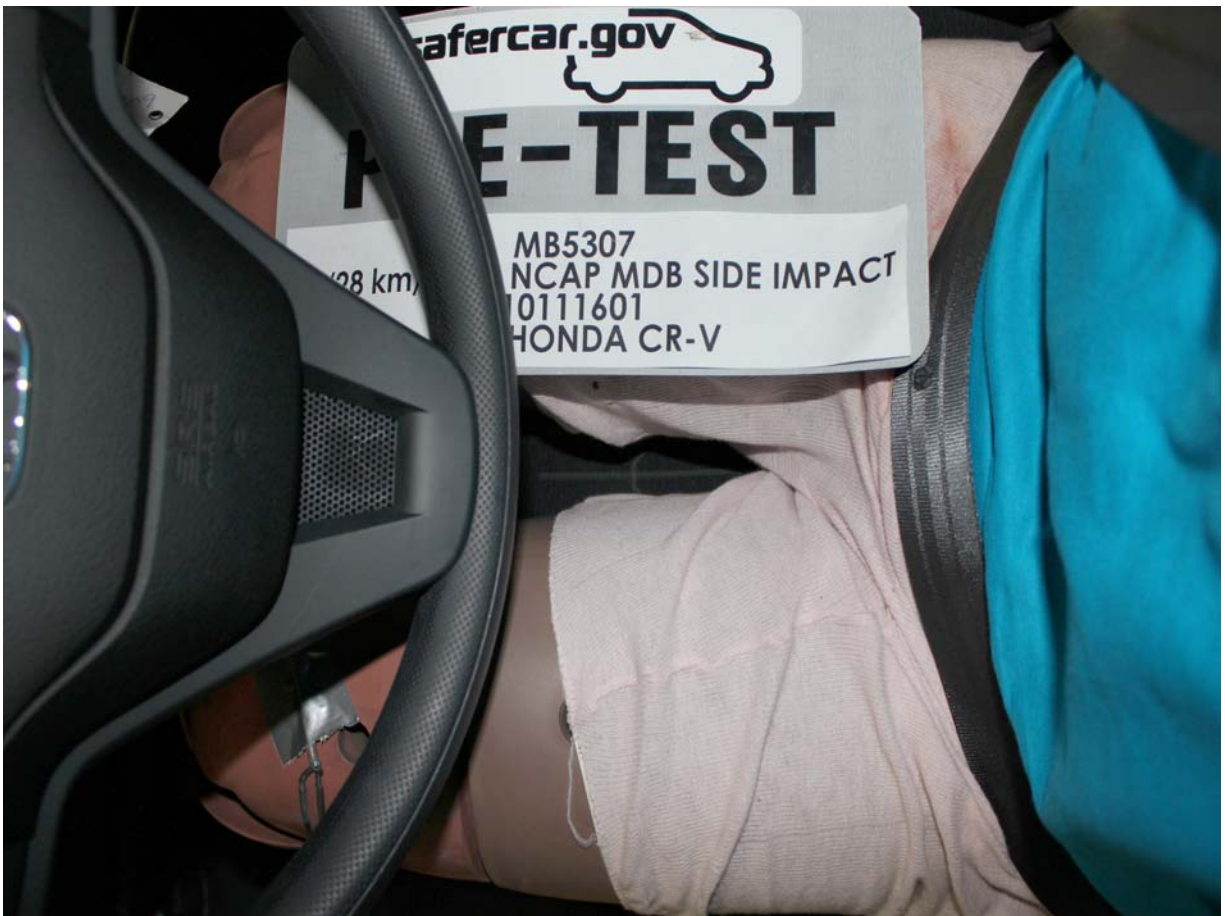
Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning



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



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



Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan



Pre-Test Placement of Driver Dummy's Feet



Pre-Test View of Belt Anchorage for Driver Dummy



Pre-Test Left Side View of Steering Wheel



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 Driver Dummy and Door Clearance View



Post-Test Driver Dummy and Door Clearance View



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



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



Pre-Test Driver Inner Door Panel View



Post-Test Driver Inner Door Panel View Showing Driver Dummy Contact Locations



Post-Test Driver Dummy Close-up Head Contact with Vehicle View



Post-Test Driver Dummy Close-up Head Contact with Side Airbag View



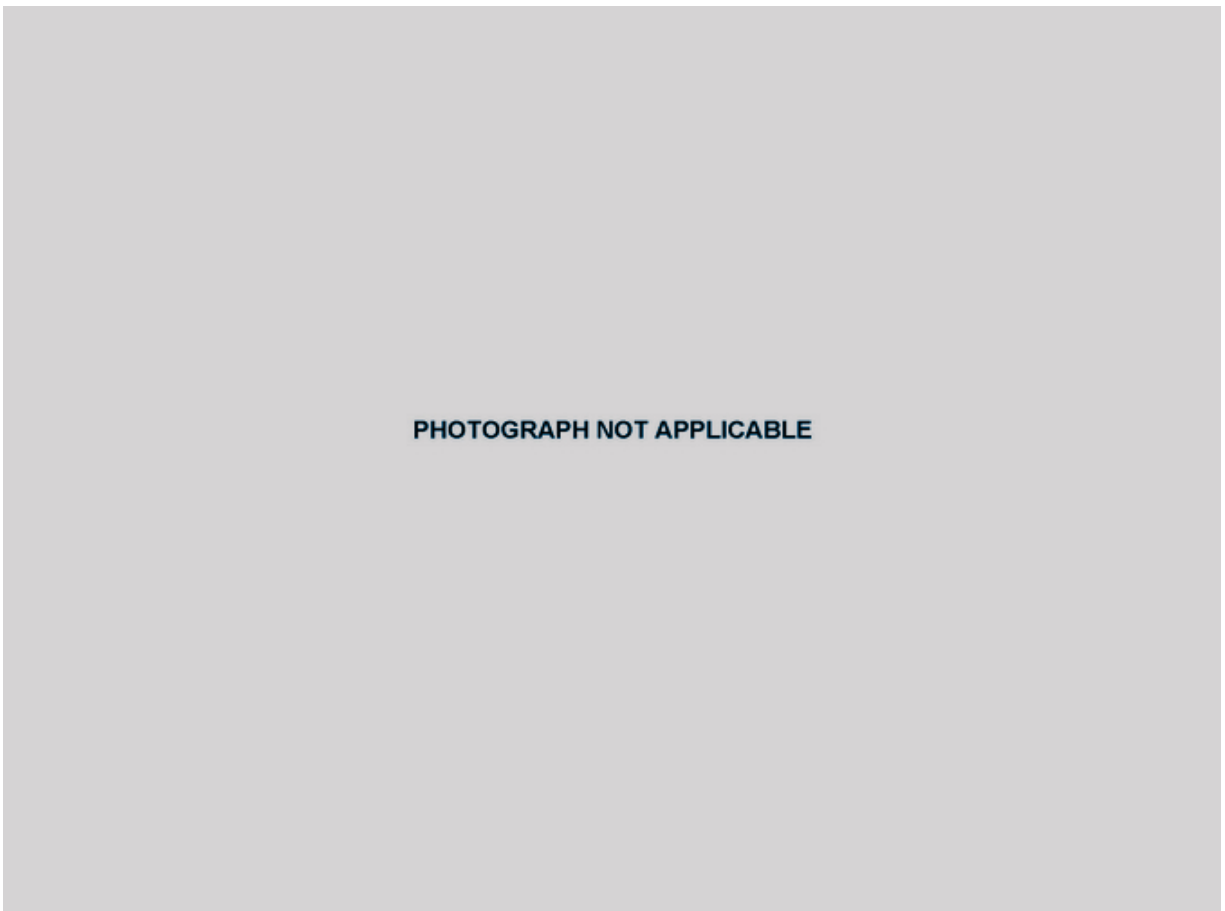
Post-Test Driver Dummy Close-up Torso Contact with Vehicle Interior View



Post-Test Driver Dummy Close-up Torso Contact with Side Airbag View



Post-Test Driver Dummy Close-up Pelvis Contact with Vehicle Interior View



Post-Test Driver Dummy Close-up Pelvis Contact with Side Airbag View



Pre-Test Left Side View of Passenger Dummy Showing Belt, Chalking, and Contact Switches



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



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



Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning



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



Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning



Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan



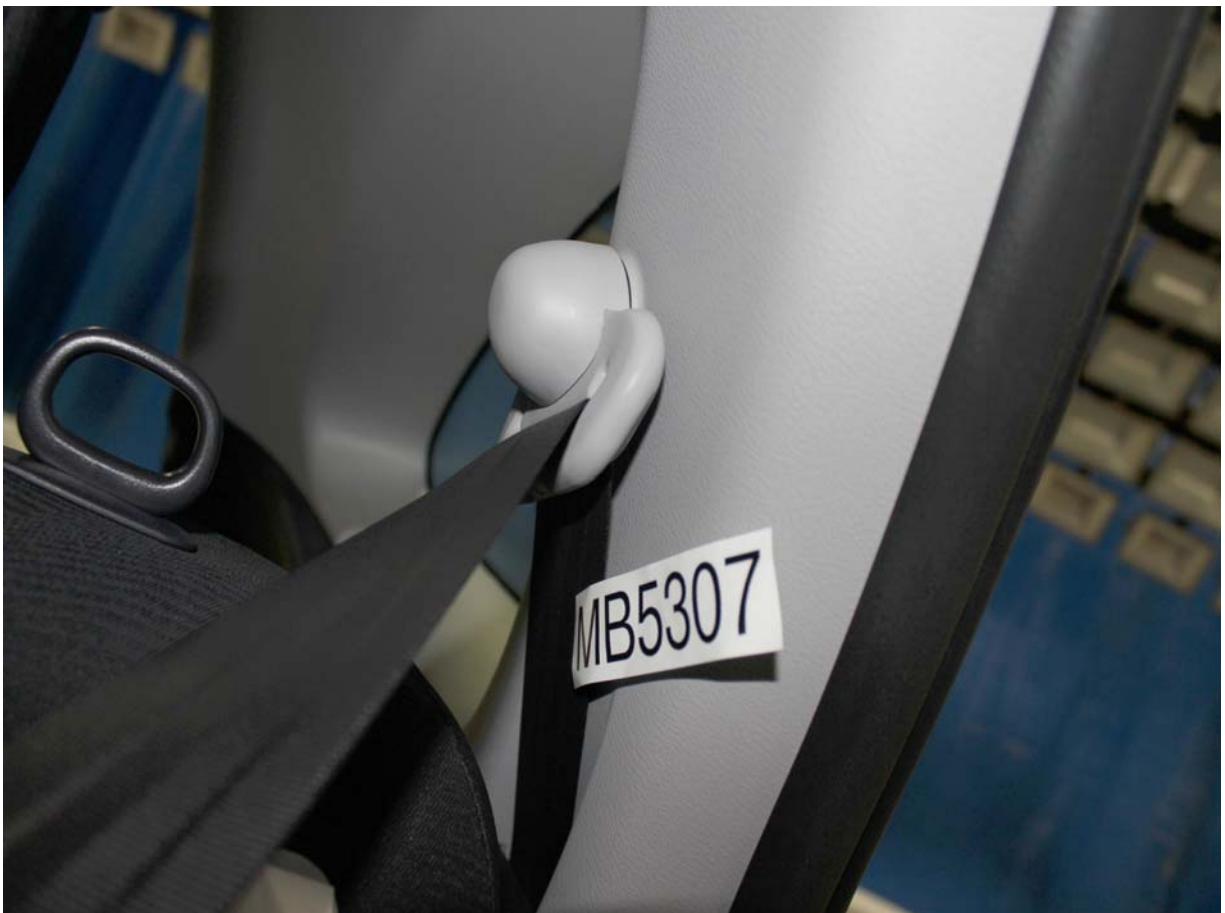
Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket



Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head is Level



Pre-Test Placement of Rear Passenger Dummy's Feet



Pre-Test View of Belt Anchorage for Rear Passenger Dummy



Pre-Test Close-Up Left Side View of Rear Passenger Seat Track



Pre-Test Close-Up Left Side View of Rear Passenger Seat Back



Pre-Test Close-up View of Rear Passenger Seat Back or Head Restraint



Pre-Test Rear Passenger Dummy and Door Clearance View



Post-Test Rear Passenger Dummy and Door Clearance View



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



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



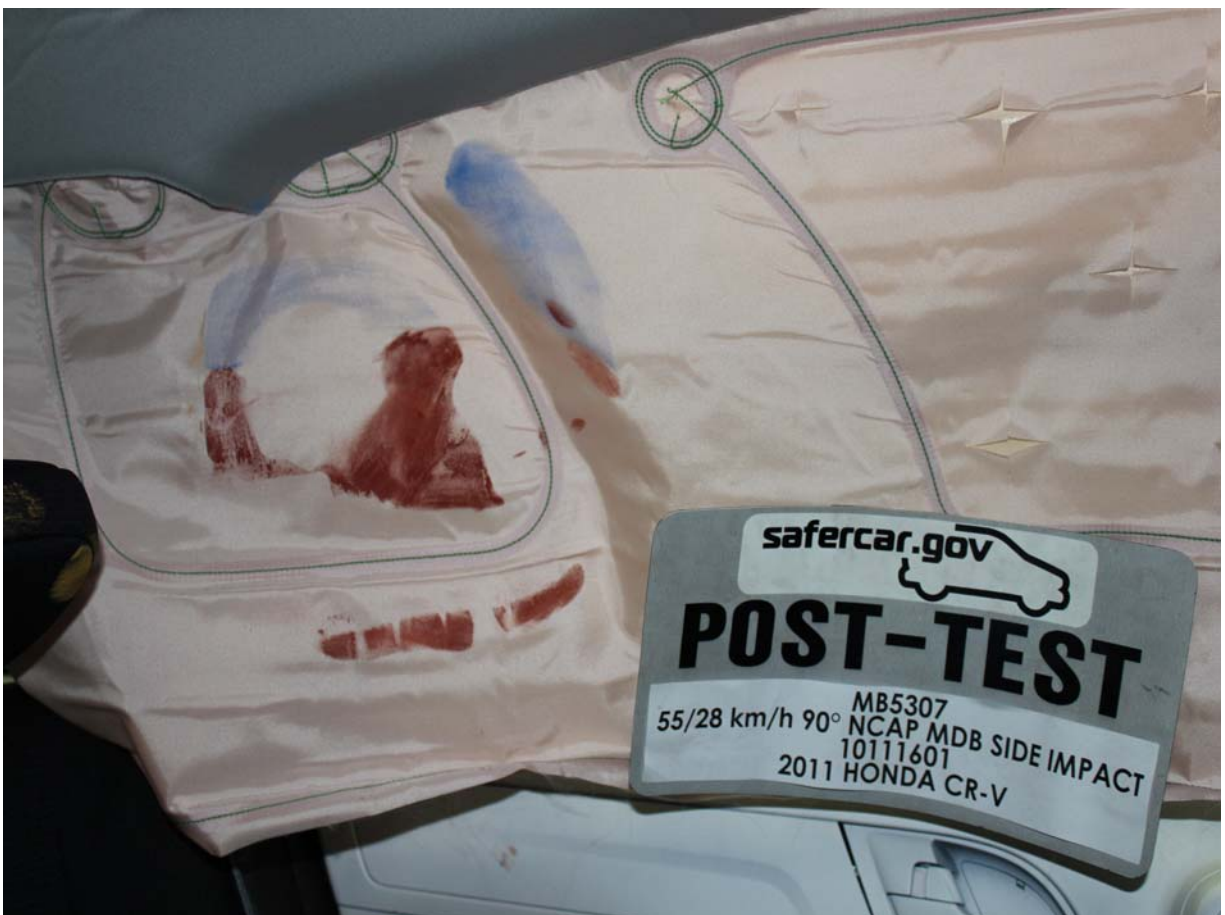
Pre-Test Passenger Inner Door Panel View



Post-Test Rear Passenger Inner Door Panel View Showing Dummy Contact Locations



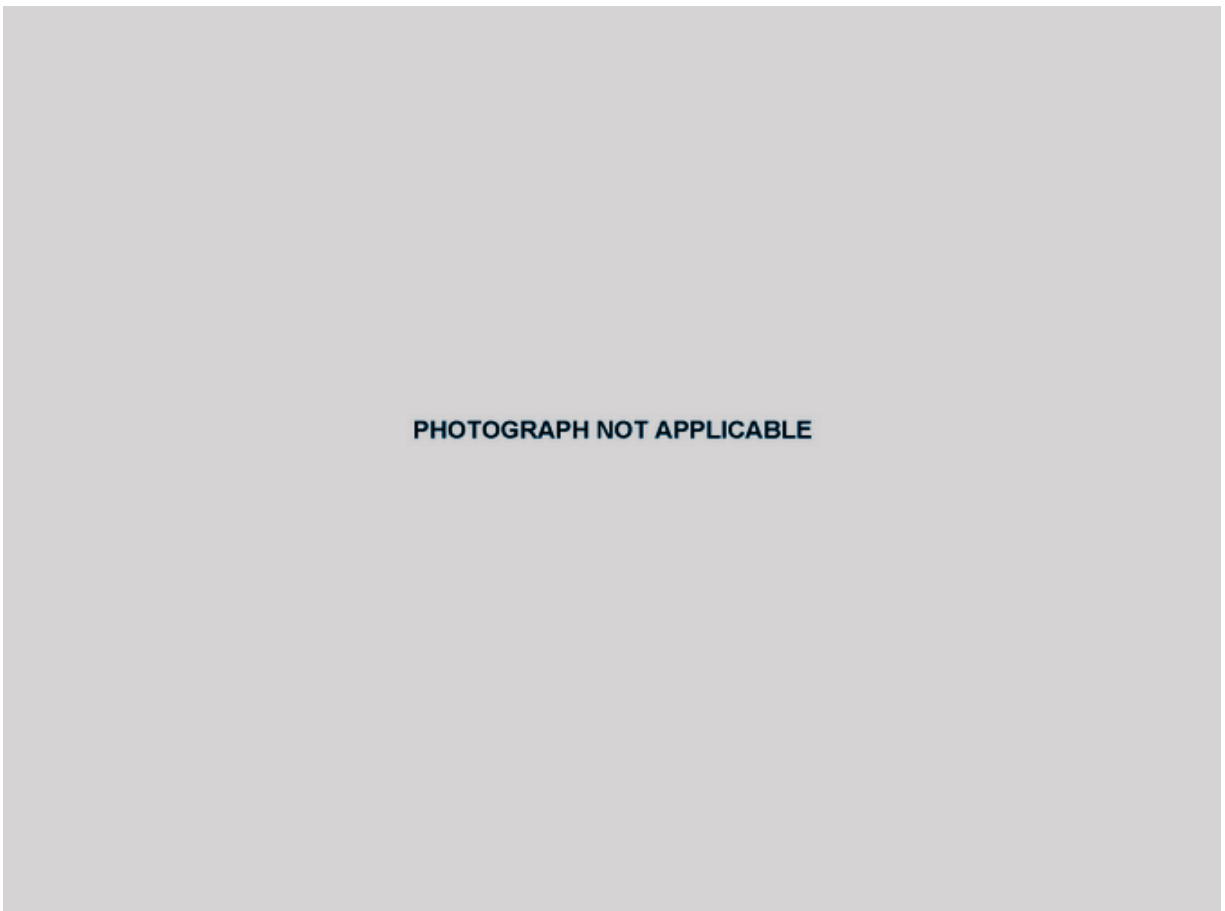
Post-Test Rear Passenger Dummy Close-up Head Contact with Vehicle View



Post-Test Rear Passenger Dummy Close-up Head Contact with Side Airbag View



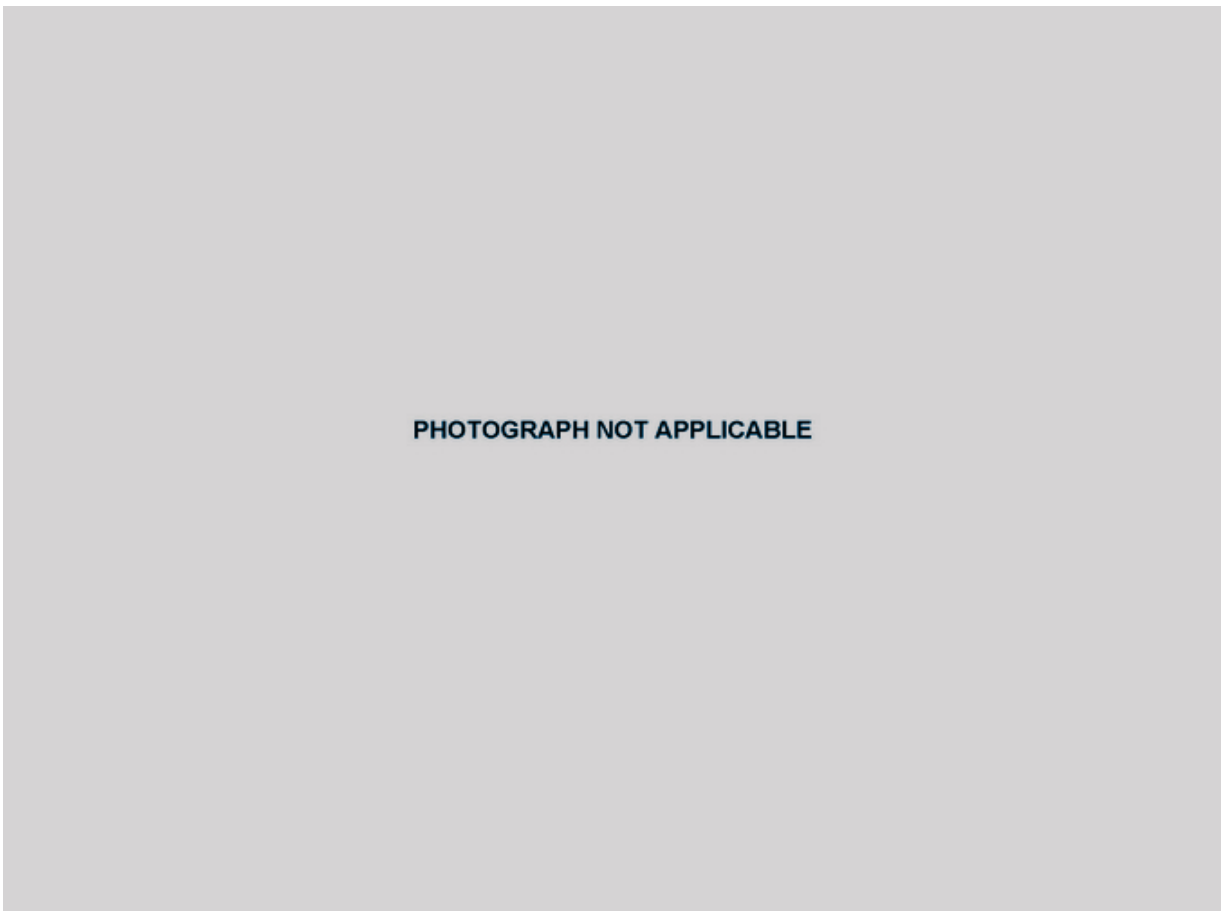
Post-Test Rear Passenger Dummy Close-up Torso Contact with Vehicle Interior View



Post-Test Rear Passenger Dummy Close-up Torso Contact with Side Airbag View



Post-Test Rear Passenger Dummy Close-up Pelvis Contact with Vehicle Interior View



Post-Test Rear Passenger Dummy Close-up Pelvis Contact with Side Airbag View



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



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



Pre-Test Front View of MDB Impactor Face



Post-Test Front View of MDB Impactor Face



Pre-Test Top View of MDB Impactor Face



Post-Test Top View of MDB Impactor Face



Pre-Test Left Side View of MDB Impactor Face



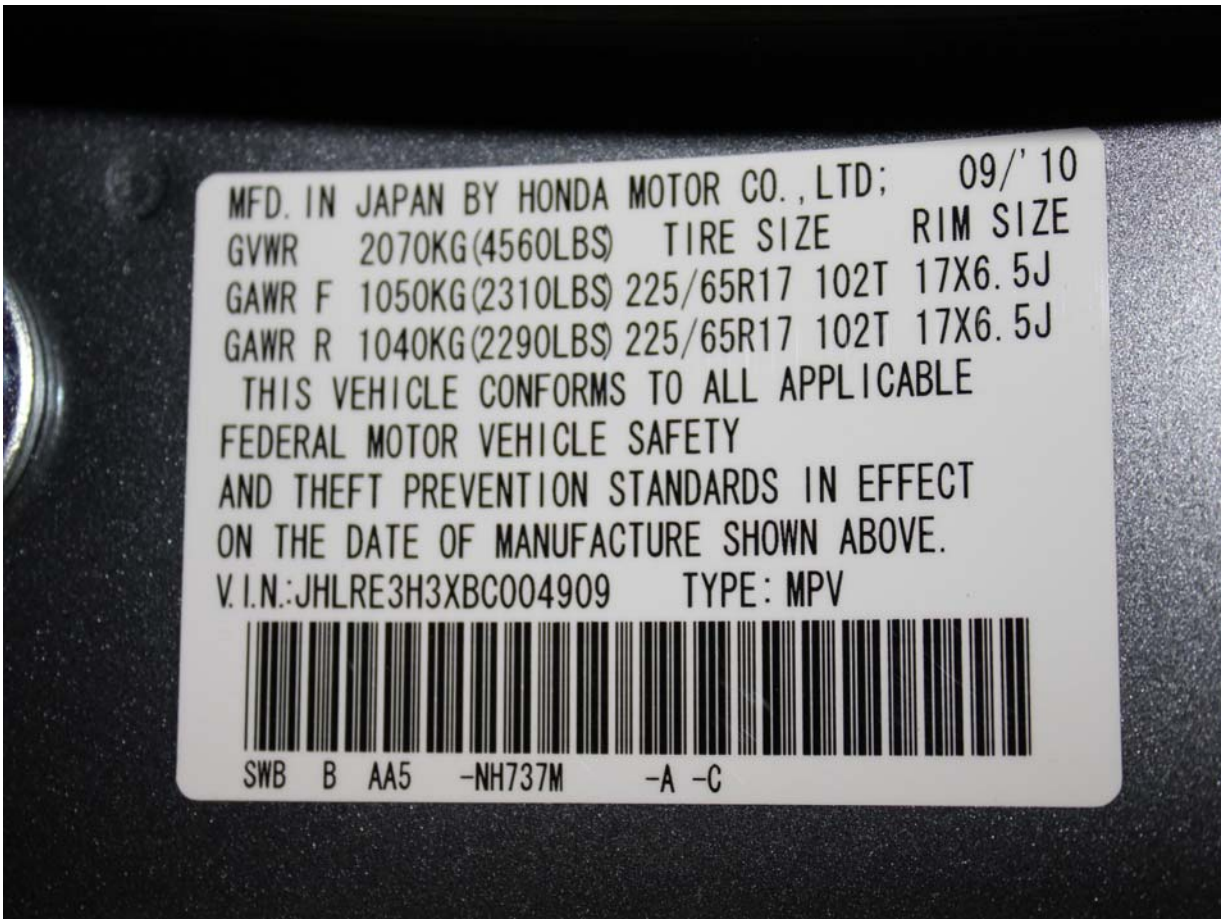
Post-Test Left Side View of MDB Impactor Face



Pre-Test Right Side View of MDB Impactor Face



Post-Test Right Side View of MDB Impactor Face



Close-Up View of Vehicle's Certification Label



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



Pre-Test Ballast View



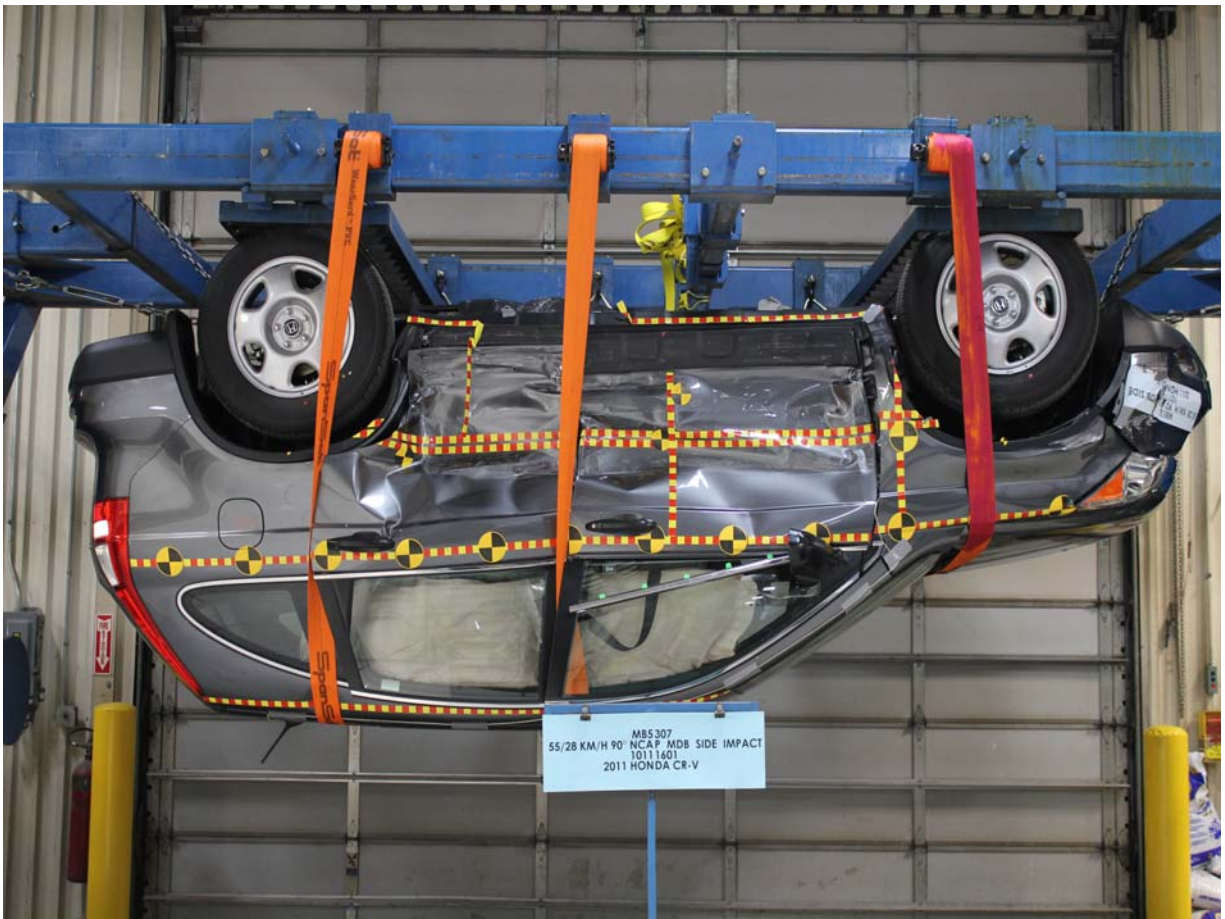
Post-Test Primary and Redundant Speed Trap Read-Out



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



2011 CR-V 5DR 2WD LX

VEHICLE NUMBER: JHLRE3H3BC004909
ENGINE NUMBER: K2426-2310276 EXT: POLISHED METAL M.
CONTROL NUMBER: 508732 INT: BLACK

STANDARD EQUIPMENT AT NO EXTRA COST

- TECHNICAL FEATURES ***
 - 180hp 2.4-Liter DOHC 16-Valve i-VTEC 4-Cylinder Engine
 - 5-Speed Automatic Transmission with Grade Logic Control
 - 4-Wheel Disc Brakes
 - Front MacPherson Strut Suspension
 - Rear Multi-Link Suspension
 - Drive-by-Wire Throttle System
 - Variable Valve Timing and Lift
 - Power Windows, Lock and Pinion Steering
 - Front and Rear Stabilizer Bars
 - Immobilizer Theft-Deterrent System
- SAFETY FEATURES ***
 - Driver's and Front Passenger's Dual-Stage Airbags (SRS)
 - Driver's and Front Passenger's Side Airbags
 - Side Curtain Airbags
 - with Rollover Sensor
 - Vehicle Stability Assist (VSA)
 - Anti-Lock Braking System (ABS)
 - Electronic Brake Distribution (EBD)
 - Blind Spot Warning
 - 3-Point Seat Belts
 - Active Front Head Restraints
 - Side-Impact Door Beams
 - Tire Pressure Monitoring System
 - ACE Body Structure
 - Front and Rear Crumple Zones
 - LATCH System for Child Seats

INTERIOR FEATURES *

- AM/FM/CD Audio System with 4 Speakers
- MP3/Auxiliary Input Jack
- Air Conditioning with Air Filtration System
- Driver's Seat Height Adjustment
- 60/40 Split Folding 2nd Row Seats
- 12-Way Power Windows
- Fold-Down Rear Seat Center Armrest
- Power Windows and Door Locks
- Driver's Auto Up/Down Window
- 12-Volt Power Outlets
- Cruise Control
- Floor Mats
- Folding Center Tray Table
- Sunglasses Holder
- with Conversation Mirror
- Maintenance Minder System

EXTERIOR FEATURES *

- 17" x 6.5" Steel Wheels
- P225 65R17 All-Season Tires
- Interior Window Moldings
- Power Door Mirrors
- Rear Mirror with Washer
- Rear Window Defroster
- Remote Entry System

Manufacturer's Suggested Retail Price
\$21,695.00

Full Tank of Fuel
No Charge

H35800

Destination and Handling
780.00

TOTAL VEHICLE PRICE
(Includes Pre-Delivery Service)

\$22,475.00

License and title fees, state and local taxes and dealer options and accessories are not included in the manufacturer's suggested retail price.

Environmental Performance

Protect the environment, choose vehicles with higher scores:

Global Warming Score



Smog Score



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

ROSEN HONDA
7000 GRAND AVENUE
GURNEE, IL 60031

PORT OF ENTRY: PORTLAND
DELIVERY POINT: SCHAMBURG
SHIP#: B96-327045
ROW/SPACE:
TRANSMETHOD: N50 ELWOOD
VIN: JHLRE3H3BC004909

ORIG. DLR: 207853
REF. NO: 40347
HN CODE: HN-2503
EMISSION: 50 STATE
DEALER: 207853



EPA Fuel Economy Estimates

CITY MPG

21

Expected range for most drivers
17 to 25 MPG

HIGHWAY MPG

28

Expected range for most drivers
23 to 33 MPG

Estimated Annual Fuel Cost
\$1,876

based on 15,000 miles at \$3.00 per gallon

Combined Fuel Economy
This Vehicle
24



Your actual mileage will vary depending on how you drive and maintain your vehicle

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



PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE
U.S./Canadian Parts Content: **60 %**
Major Sources of Foreign Parts Content:
JAPAN 35 %

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

GOVERNMENT SAFETY RATINGS

	Driver	Passenger
Frontal Crash	Not Rated	Not Rated
Side Crash	Not Rated	Not Rated
Rollover	★★★★	★★★★

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.

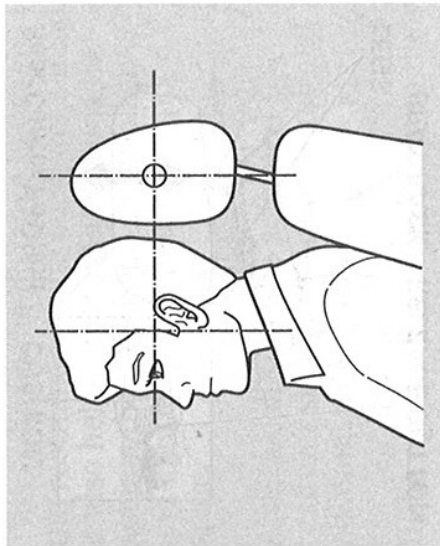
Source: National Highway Traffic Safety Administration (NHTSA).

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

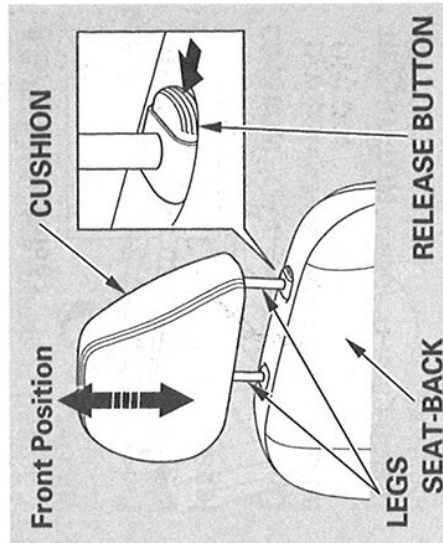
Head Restraints

See page 14 for important safety information and a warning about improperly positioning head restraints.

Your vehicle is equipped with head restraints in all seating positions to help protect you and your passengers from the likelihood of whiplash and other injuries.



They are most effective when you adjust them so the center of the back of the occupant's head rests against the center of the restraint.

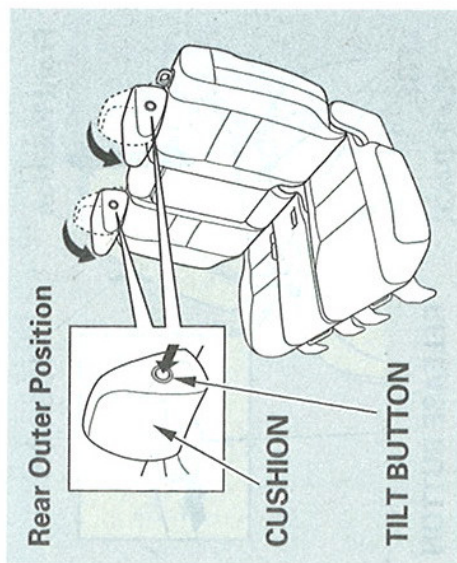


Adjusting the Head Restraint

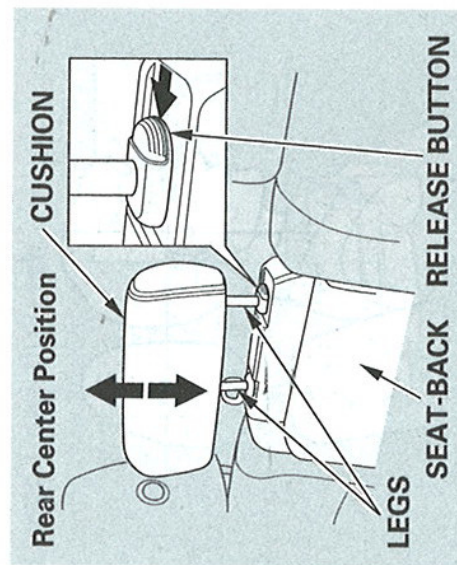
The head restraints adjust for height. You need both hands to adjust the restraint. Do not attempt to adjust it while driving. To raise a front or rear center head restraint, pull upward. To lower the restraint, push the release button sideways, and push the restraint down.

CONTINUED

Seats



To pivot the outer head restraint down for better visibility, press the tilt button on the side of the head restraint. It folds down forward. To raise the head restraint, pivot it up by hand. Make sure the head restraint locks in position.



Removing the Head Restraint
To remove a front or rear center head restraint, pull it up as far as it will go. Push the release button, then pull the restraint out of the seat-back.

When a passenger is seated in the rear center seating position, make sure the center head restraint is properly adjusted.

⚠ WARNING

Failure to reinstall the head restraints can result in severe injury during a crash.

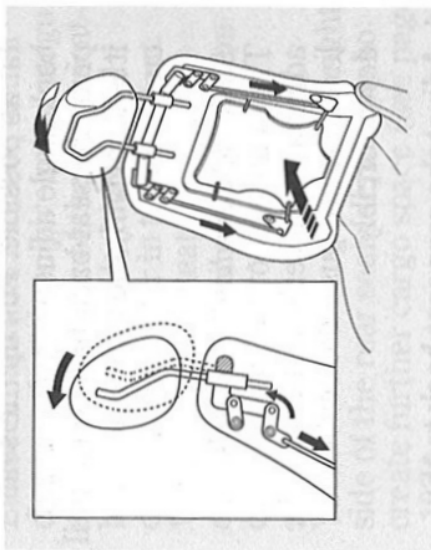
Always replace the head restraints before driving.

Make sure the removed head restraints are securely stored.

When reinstalling a head restraint, put the legs back in place. Then adjust it to the appropriate height while pressing the release button.

Make sure the head restraint locks in position when you reinstall it.

Active Head Restraints



The driver's and front passenger's seats have active head restraints. If the vehicle is struck severely from the rear, the occupant properly secured with the seat belt will be pushed against the seat-back and the head restraint will automatically move forward.

This reduces the distance between the restraint and the occupant's head. It also helps protect the occupants against the likelihood of whiplash and injuries to the neck and upper spine.

After a collision, the activated restraint should return to its normal position.

If the restraints do not return to their normal position, or in the event of a severe collision, have the vehicle inspected by a Honda dealer.

For a head restraint system to work properly:

- Do not hang any items on the head restraints, or from the restraint legs.
- Do not place any object between an occupant and the seat-back.
- Install each restraint in its proper location.
- Only use genuine Honda replacement head restraints.

APPENDIX B
DUMMY RESPONSE DATA

TABLE OF DATA PLOTS
Driver & Passenger Dummy Instrumentation Plots
FILTERED DATA

<u>No.</u>	<u>Description</u>	<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 Acceleration Primary vs. Time	B-1
Figure No. 5.	Driver Upper Thorax Rib Deflection (Y) vs. Time	B-2
Figure No. 6.	Driver Middle Thorax Rib Deflection (Y) vs. Time	B-2
Figure No. 7.	Driver Lower Thorax Rib Deflection (Y) vs. Time	B-2
Figure No. 8.	Driver Thorax Rib Deflection Maximum vs. Time	B-2
Figure No. 9.	Driver Anterior Abdomen Force (Y) vs. Time	B-3
Figure No. 10.	Driver Middle Abdomen Force (Y) vs. Time	B-3
Figure No. 11.	Driver Posterior Abdomen Force (Y) vs. Time	B-3
Figure No. 12.	Driver Total Abdominal Force (Y) vs. Time	B-3
Figure No. 13.	Driver Pubic Symphysis Force (Y) vs. Time	B-4
Figure No. 14.	Passenger Head Acceleration (X) Primary vs. Time	B-5
Figure No. 15.	Passenger Head Acceleration (Y) Primary vs. Time	B-5
Figure No. 16.	Passenger Head Acceleration (Z) Primary vs. Time	B-5
Figure No. 17.	Passenger Head Resultant Acceleration Primary vs. Time	B-5
Figure No. 18.	Passenger Lower Spine T12 Acceleration (X) vs. Time	B-6
Figure No. 19.	Passenger Lower Spine T12 Acceleration (Y) vs. Time	B-6
Figure No. 20.	Passenger Lower Spine T12 Acceleration (Z) vs. Time	B-6
Figure No. 21.	Passenger Lower Spine T12 Resultant Acceleration vs. Time	B-6
Figure No. 22.	Passenger Iliac Force on Impact Side (Y) vs. Time	B-7
Figure No. 23.	Passenger Acetabulum Force on Impact Side (Y) vs. Time	B-7
Figure No. 24.	Passenger Total Pelvic Force on Impact Side (Y) vs. Time	B-7

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

Driver & Passenger Dummy Instrumentation Data

Driver Lower Spine T12 Acceleration (X)
Driver Lower Spine T12 Acceleration (Y)
Driver Lower Spine T12 Acceleration (Z)
Passenger Upper Thorax Rib Deflection (Y)
Passenger Middle Thorax Rib Deflection (Y)
Passenger Lower Thorax Rib Deflection (Y)
Passenger Upper Abdomen Rib Deflection (Y)
Passenger Lower Abdomen Rib Deflection (Y)
Driver Head Acceleration Redundant (X)
Driver Head Acceleration Redundant (Y)
Driver Head Acceleration Redundant (Z)
Driver Shoulder Contact Switch
Driver Torso Contact Switch
Driver Pelvis Contact Switch
Passenger Head Acceleration Redundant (X)
Passenger Head Acceleration Redundant (Y)
Passenger Head Acceleration Redundant (Z)
Passenger Shoulder Contact Switch
Passenger Torso Contact Switch
Passenger Pelvis Contact Switch

Vehicle Instrumentation Data

Driver Side Airbag Timing
Driver Side Curtain Airbag Timing (not installed)
Passenger Side Airbag Timing (not installed)
Passenger Side Curtain Airbag Timing (not installed)
Right Side Sill at Front Seat Acceleration (X)

Right Side Sill at Front Seat Acceleration (Y)
Right Side Sill at Front Seat Acceleration (Z)
Right Side Sill at Rear Seat Acceleration (X)
Right Side Sill at Rear Seat Acceleration (Y)
Right Side Sill at Rear Seat Acceleration (Z)
Rear Floorpan Above Axle Acceleration (X)
Rear Floorpan Above Axle Acceleration (Y)
Rear Floorpan Above Axle Acceleration (Z)
Left Side Sill at Front Seat Acceleration (Y)
Left Side Sill at Rear Seat Acceleration (Y)
Right Rear Occupant Compartment Acceleration (Y)
Lower A-Post Acceleration (Y)
Middle A-Post Acceleration (Y)
Lower B-Post Acceleration (Y)
Middle B-Post Acceleration (Y)
Front Seat Track Acceleration (Y)
Rear Seat Track Acceleration (Y)
Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)

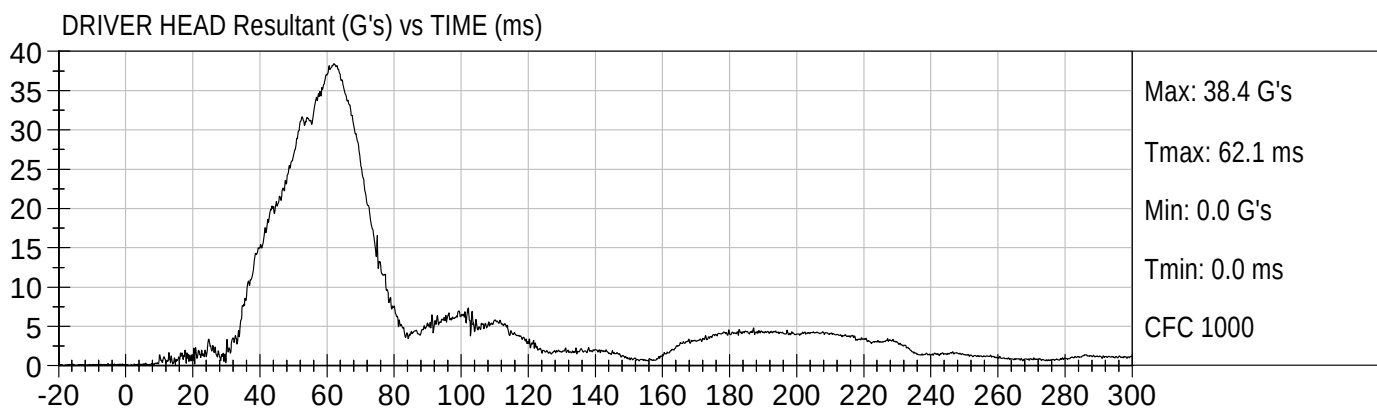
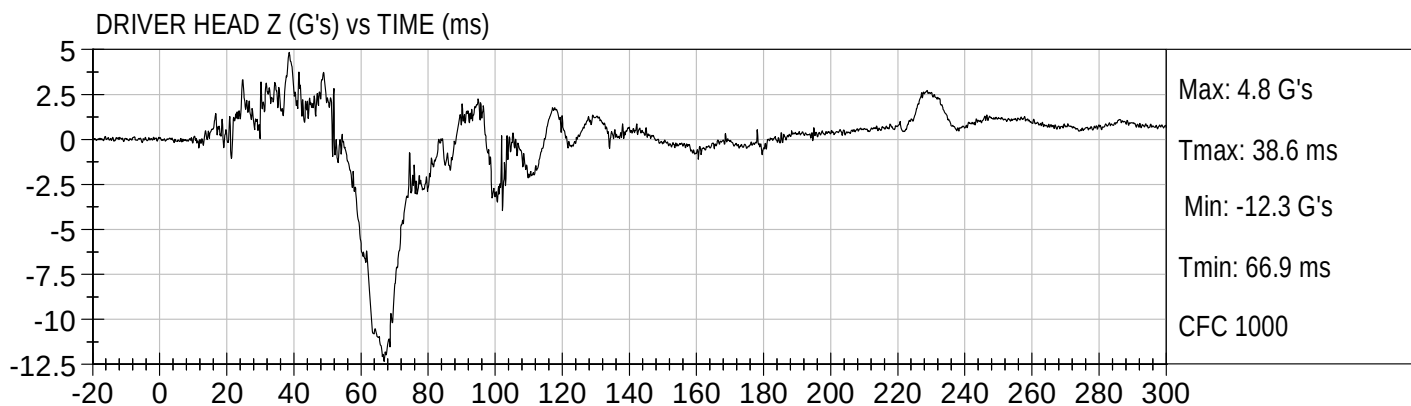
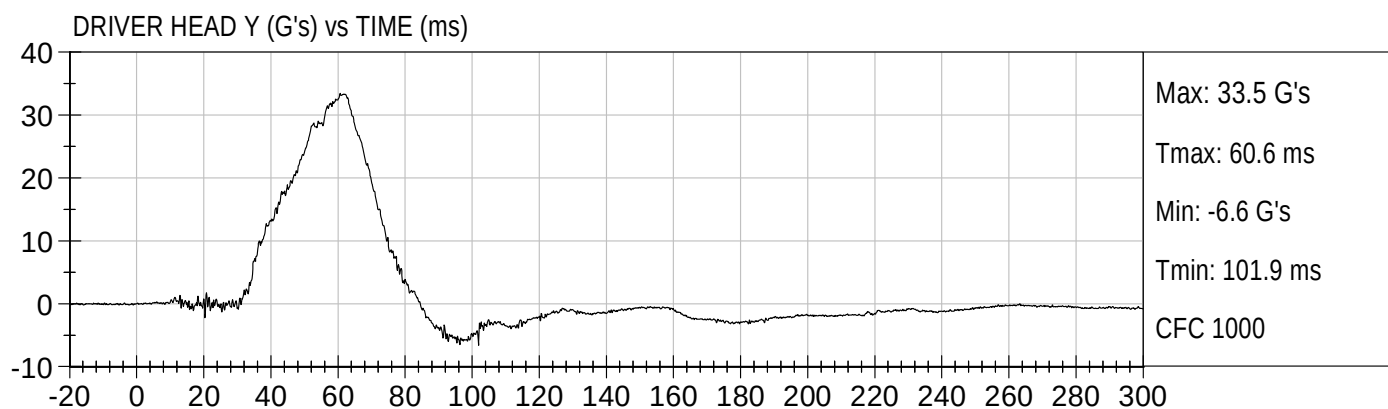
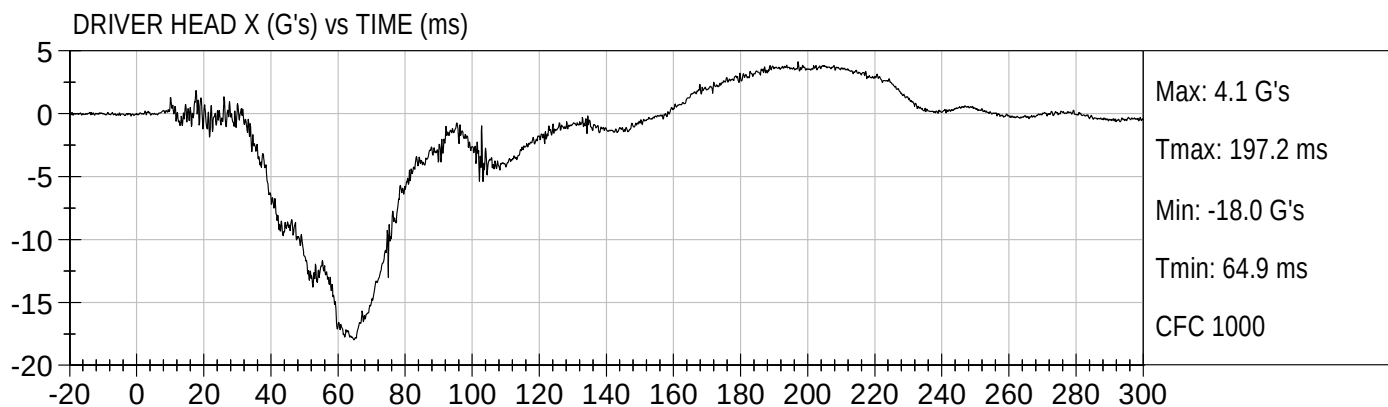
MDB Instrumentation Data

MDB Center of Gravity Acceleration (X)
MDB Center of Gravity Acceleration (Y)
MDB Center of Gravity Acceleration (Z)
MDB Rear Acceleration (X)
MDB Rear Acceleration (Y)
Left MDB Contact Switch
Right MDB Contact Switch



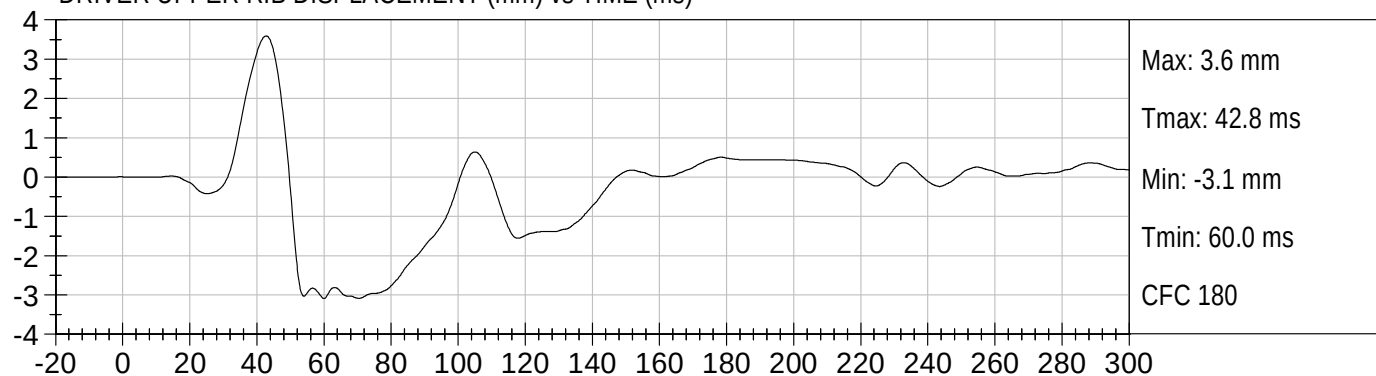
55/28 km/h 90° NCAP MDB Side Impact
2011 Honda CRV - MB5307

Test Date: 11/16/2010
Speed: 38.6 mph (62.1 km/h)

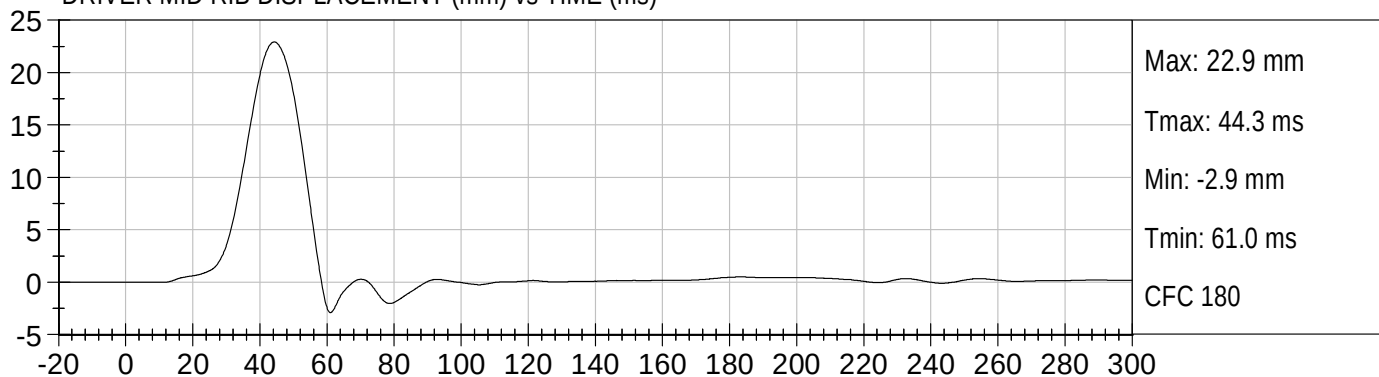




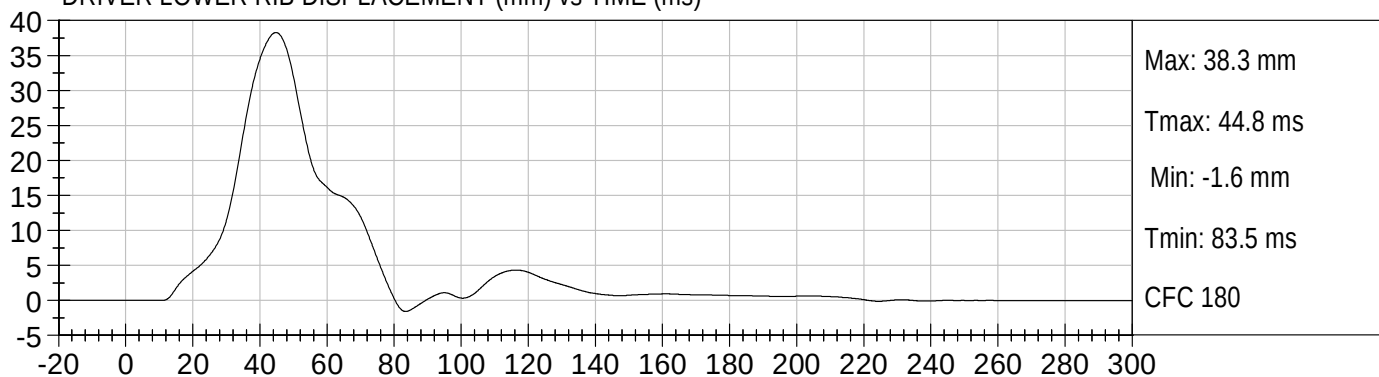
DRIVER UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



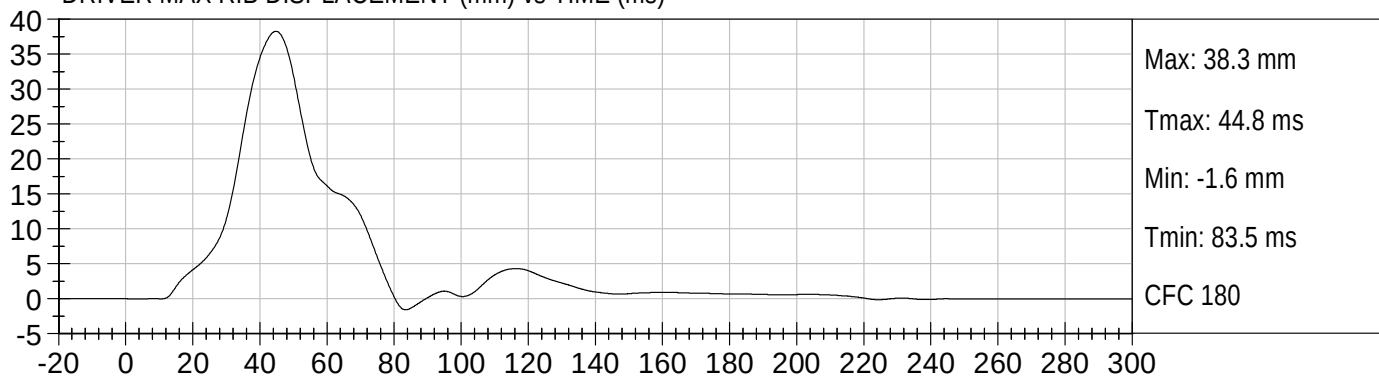
DRIVER MID RIB DISPLACEMENT (mm) vs TIME (ms)



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

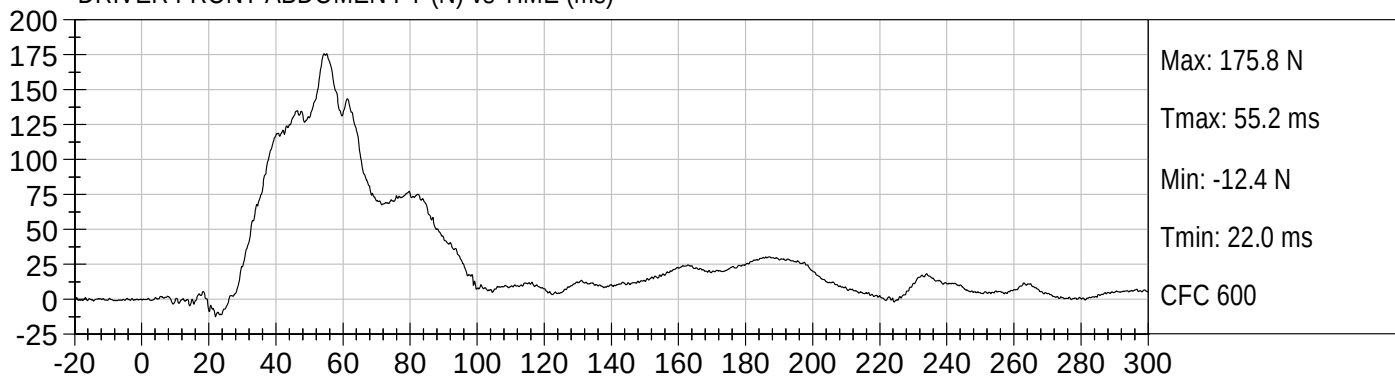


DRIVER MAX RIB DISPLACEMENT (mm) vs TIME (ms)

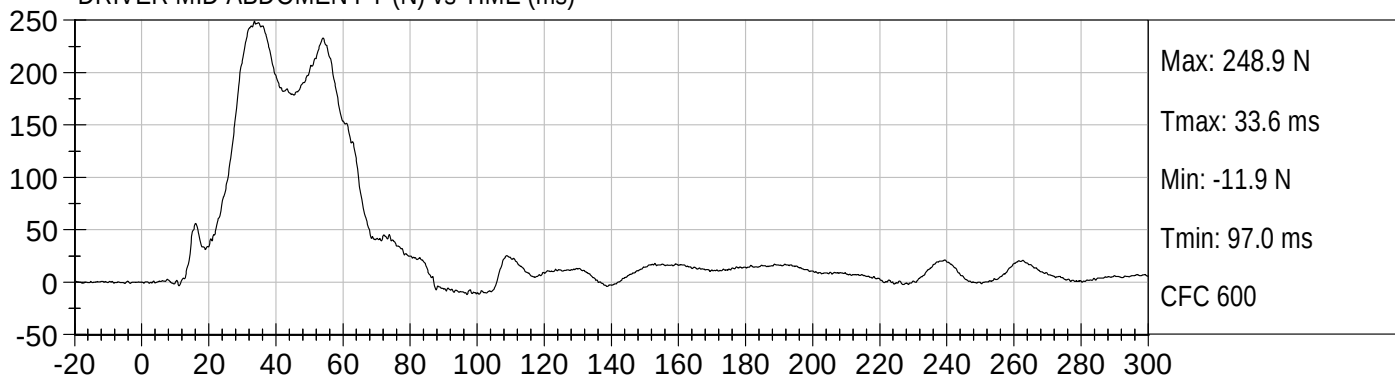




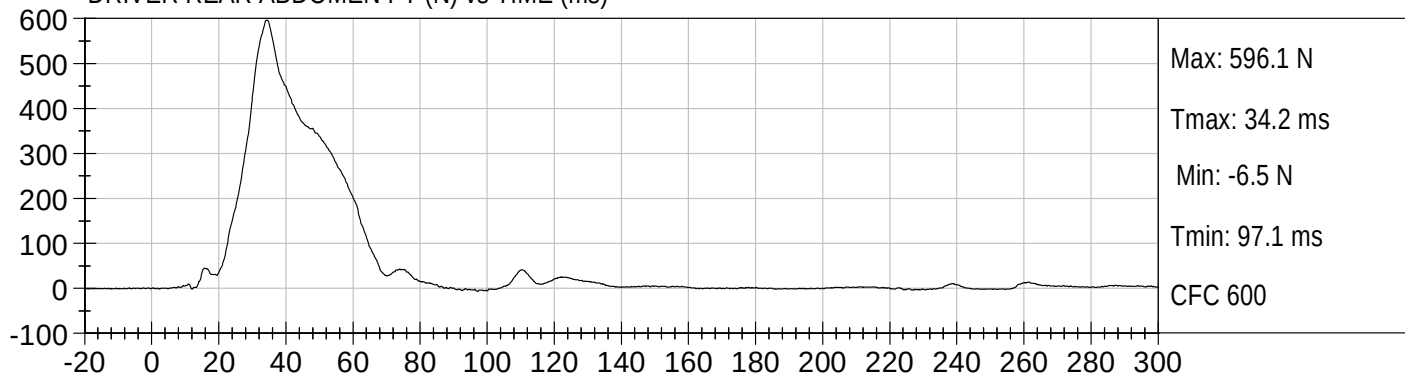
DRIVER FRONT ABDOMEN FY (N) vs TIME (ms)



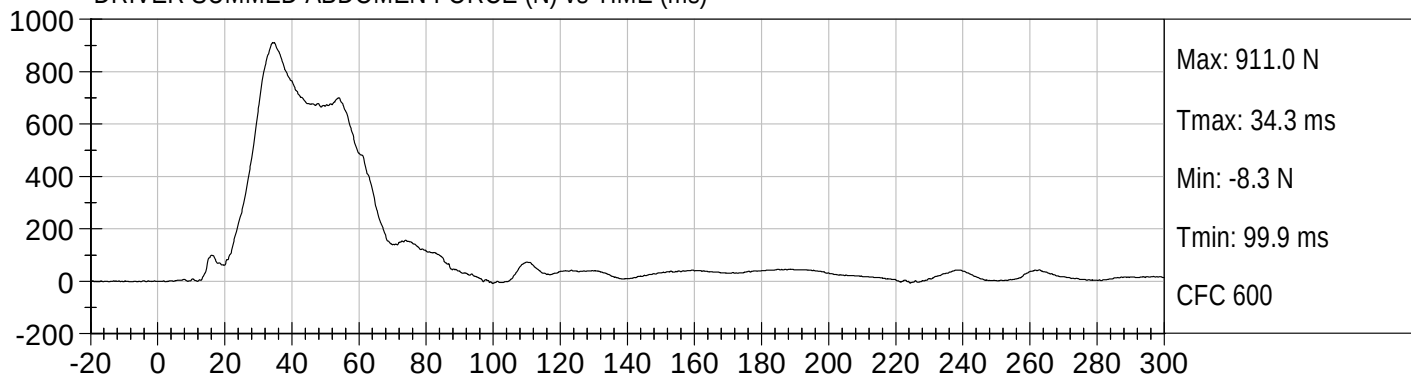
DRIVER MID ABDOMEN FY (N) vs TIME (ms)



DRIVER REAR ABDOMEN FY (N) vs TIME (ms)



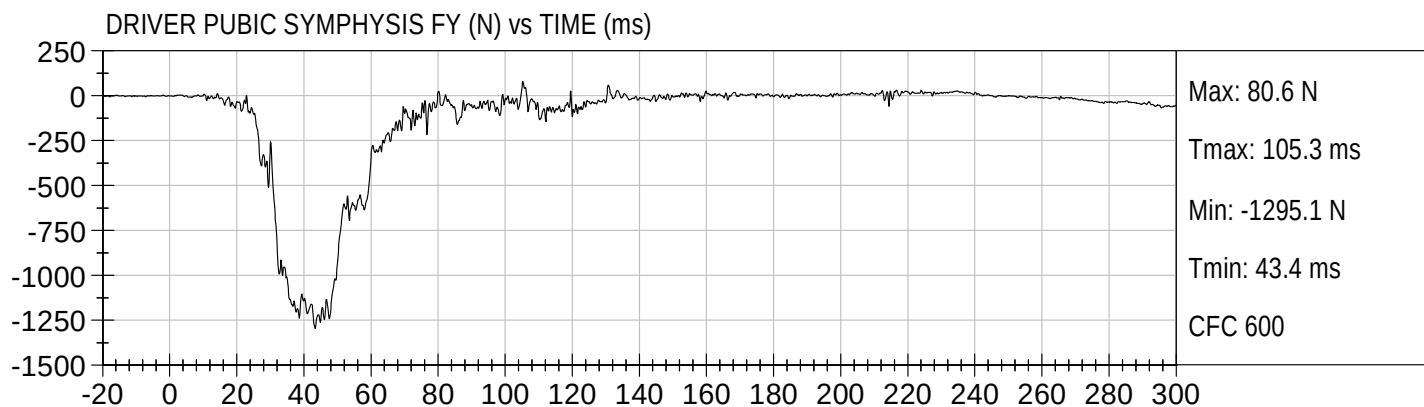
DRIVER SUMMED ABDOMEN FORCE (N) vs TIME (ms)





55/28 km/h 90° NCAP MDB Side Impact
2011 Honda CRV - MB5307

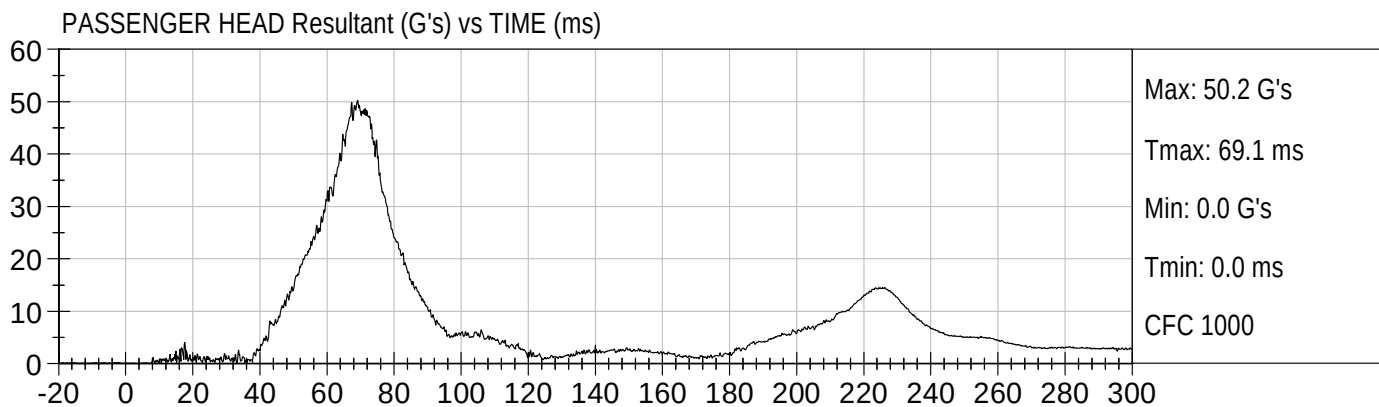
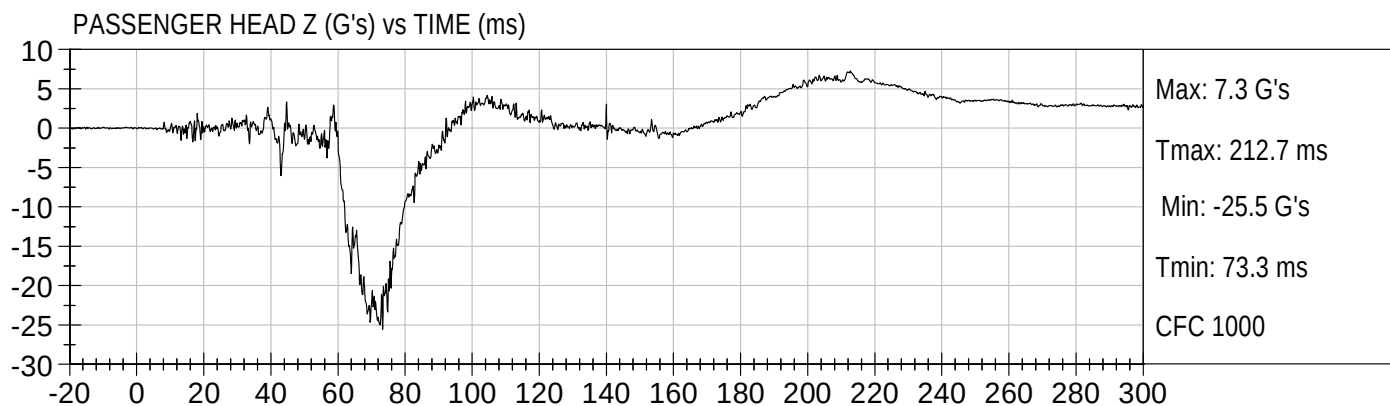
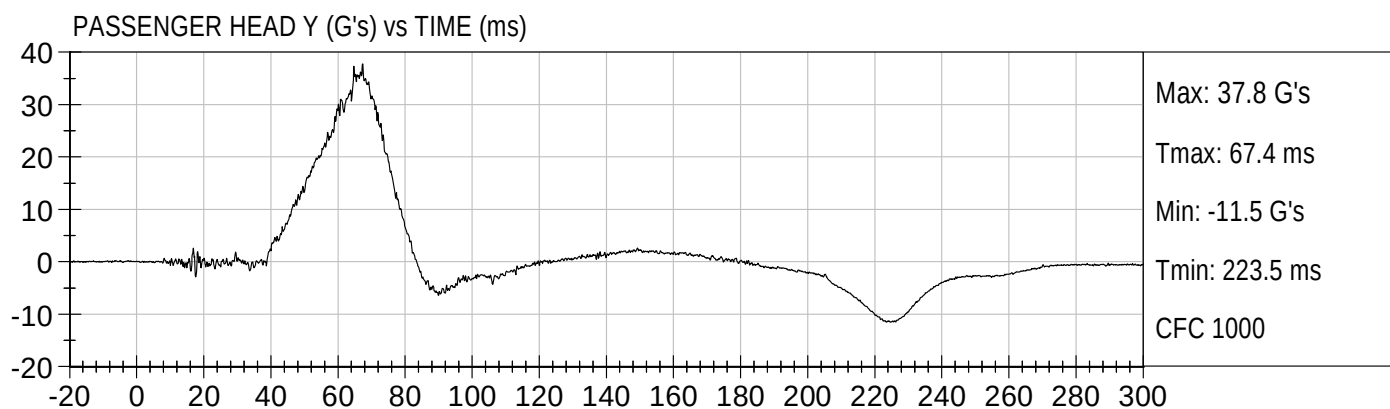
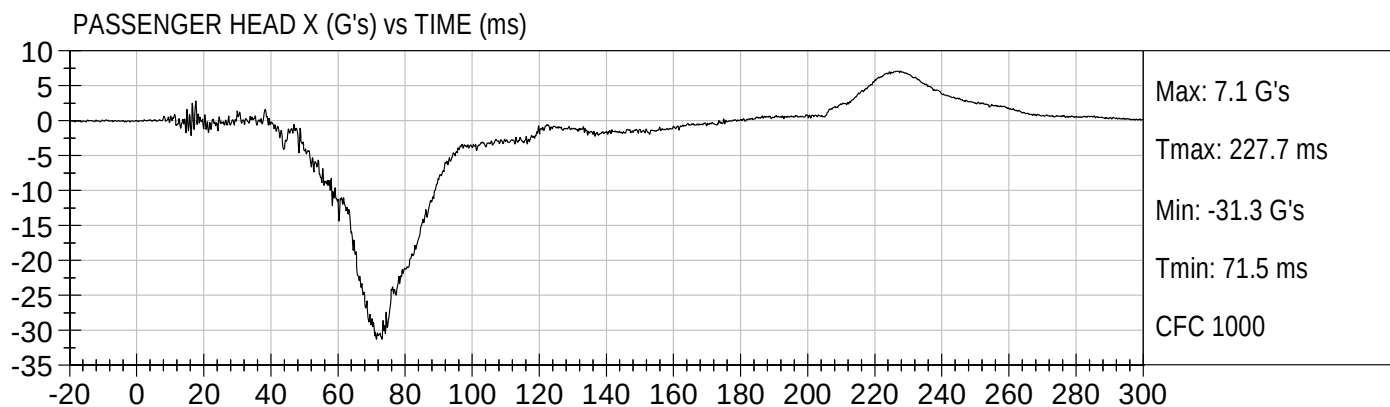
Test Date: 11/16/2010
Speed: 38.6 mph (62.1 km/h)





55/28 km/h 90° NCAP MDB Side Impact
2011 Honda CRV - MB5307

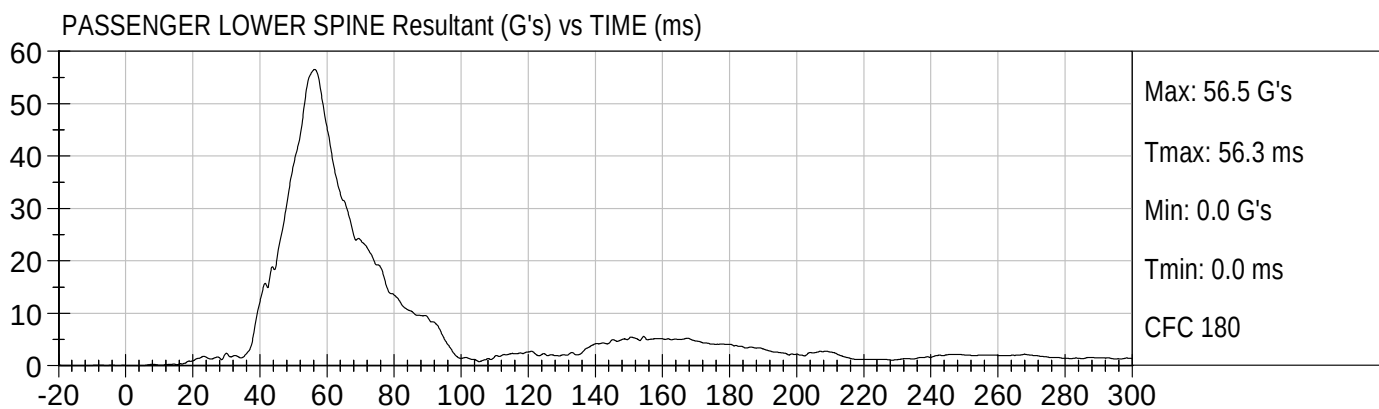
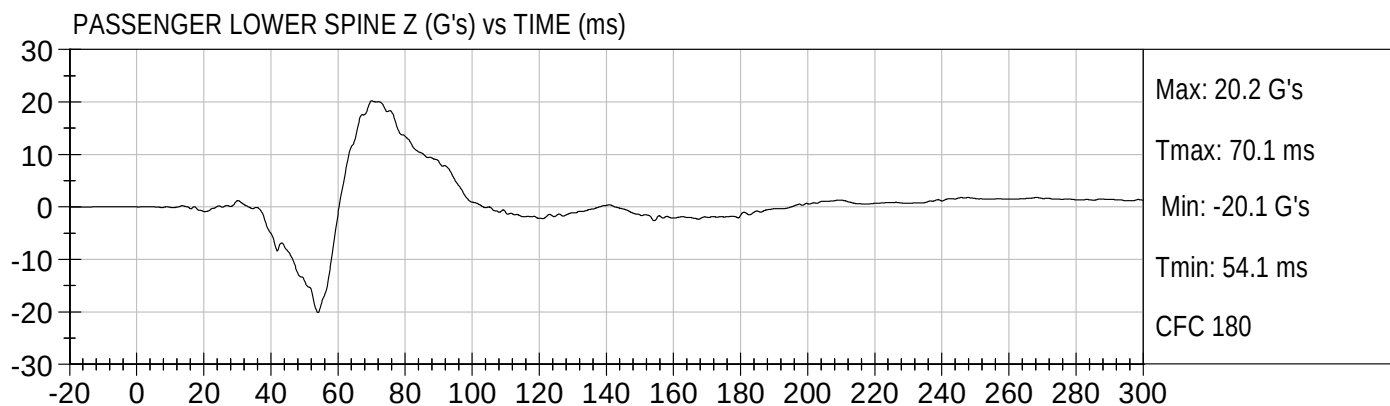
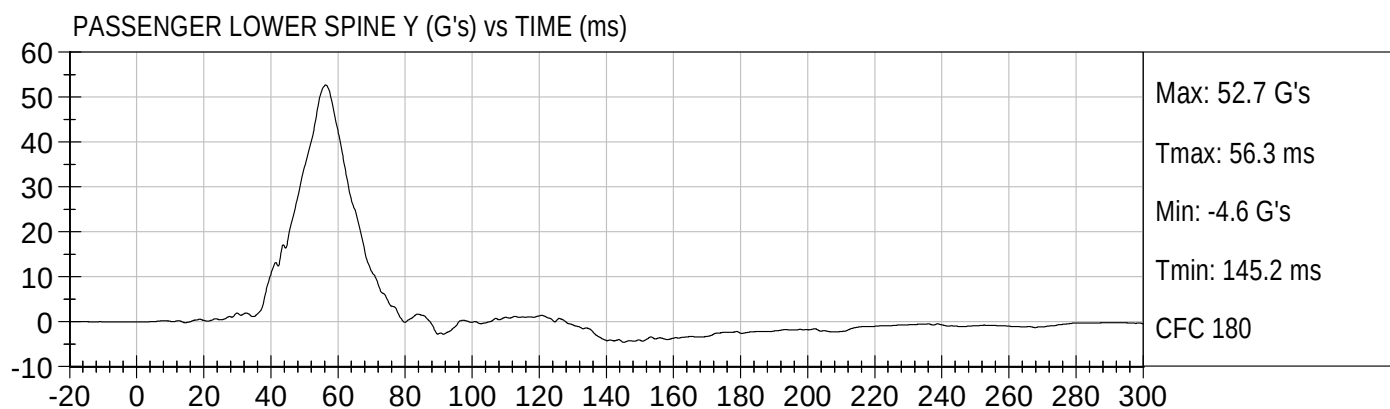
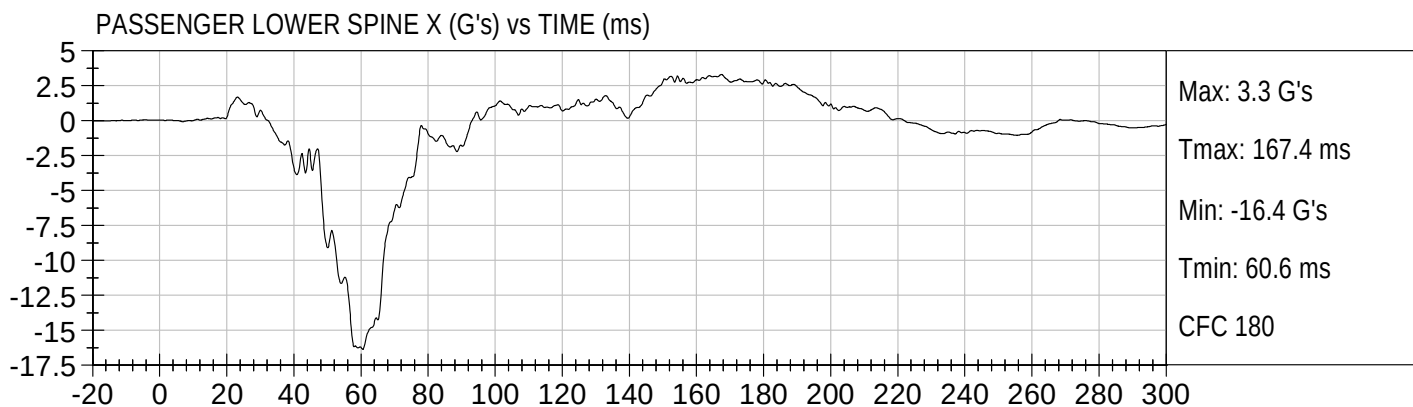
Test Date: 11/16/2010
Speed: 38.6 mph (62.1 km/h)





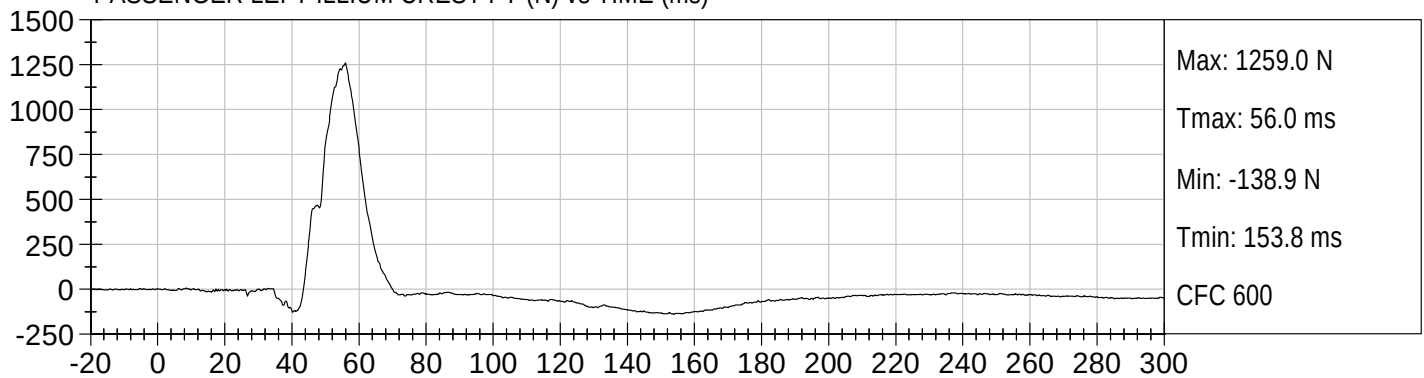
55/28 km/h 90° NCAP MDB Side Impact
2011 Honda CRV - MB5307

Test Date: 11/16/2010
Speed: 38.6 mph (62.1 km/h)

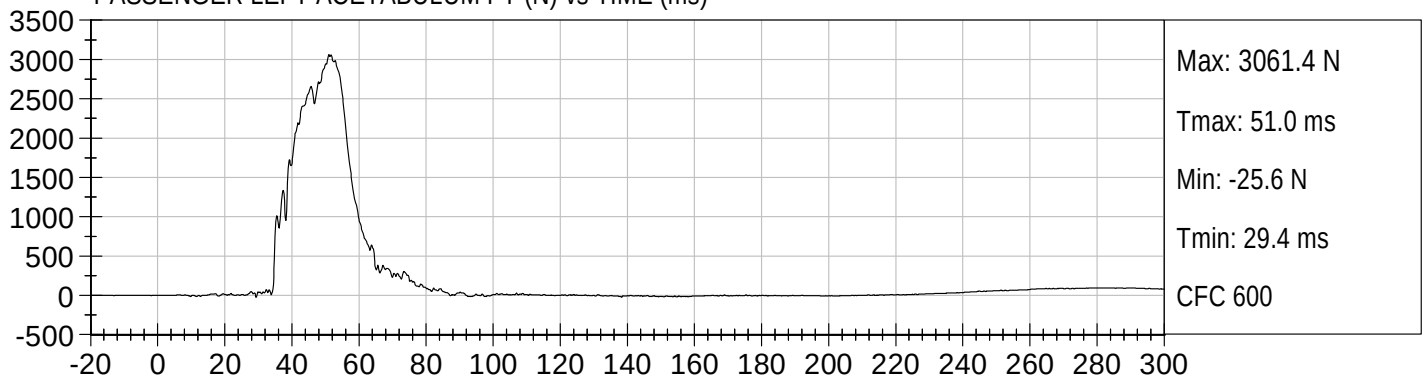




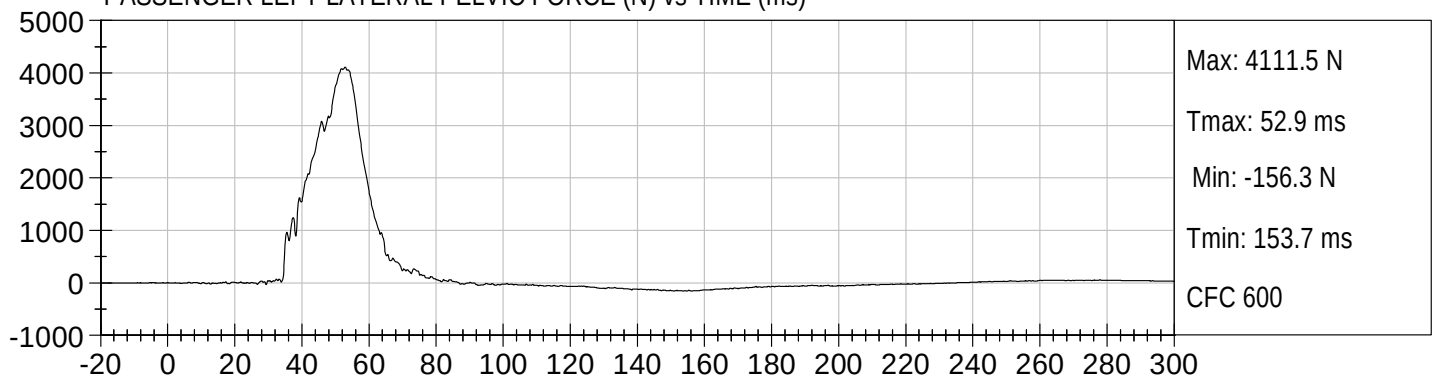
PASSENGER LEFT ILLIUM CREST FY (N) vs TIME (ms)



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



PASSENGER LEFT LATERAL PELVIC FORCE (N) vs TIME (ms)



APPENDIX C

DUMMY CALIBRATION AND PERFORMANCE VERIFICATION DATA

MGA RESEARCH CORPORATION

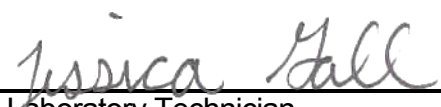
HEAD DROP TEST

ES-2re DUMMY

ATD Serial No: 032

Test ID: D103891

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	35	Pass
Peak Resultant Acceleration	G's	125 to 155	147	Pass
Peak Lateral Acceleration	G's	+/- 15	-7.4	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 15% of peak	Yes	Pass
Overall Test Results				Pass


Laboratory Technician

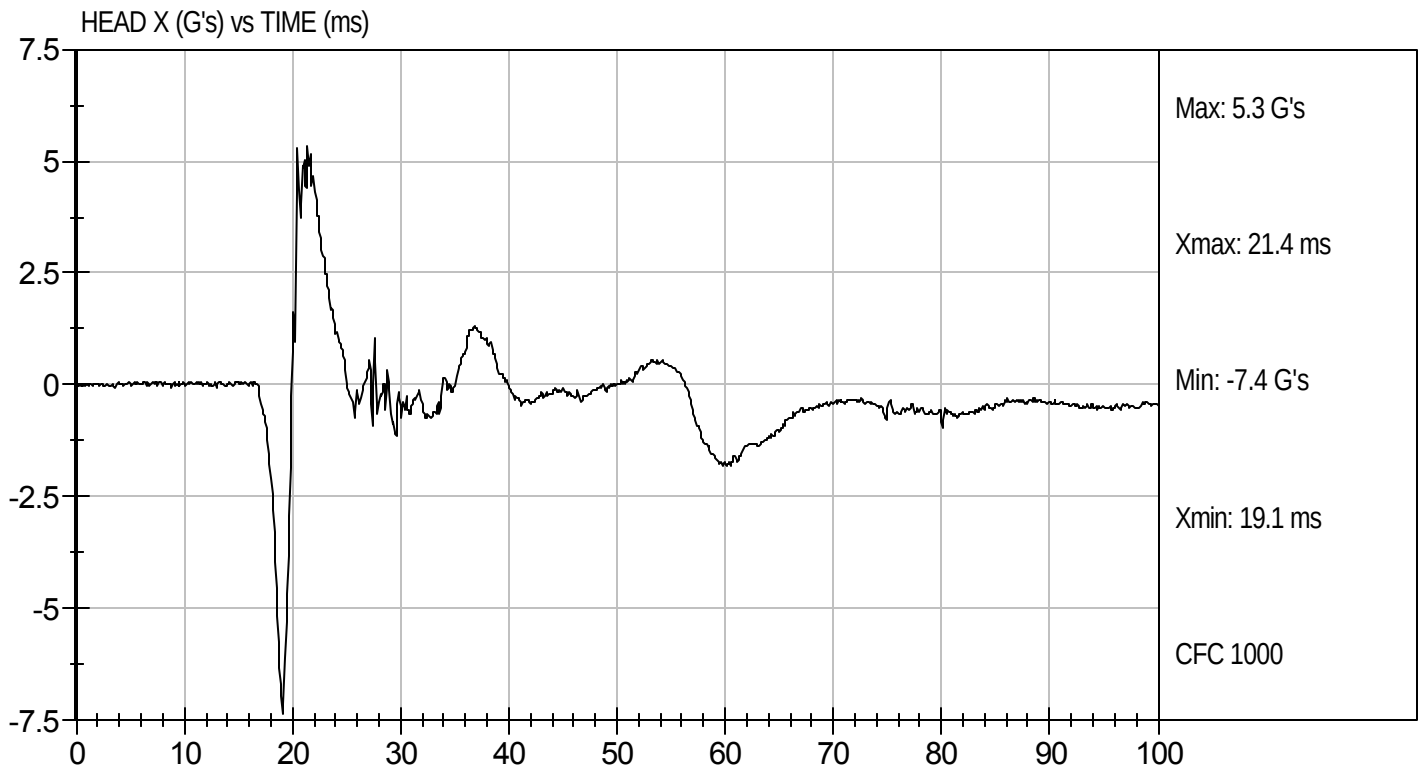
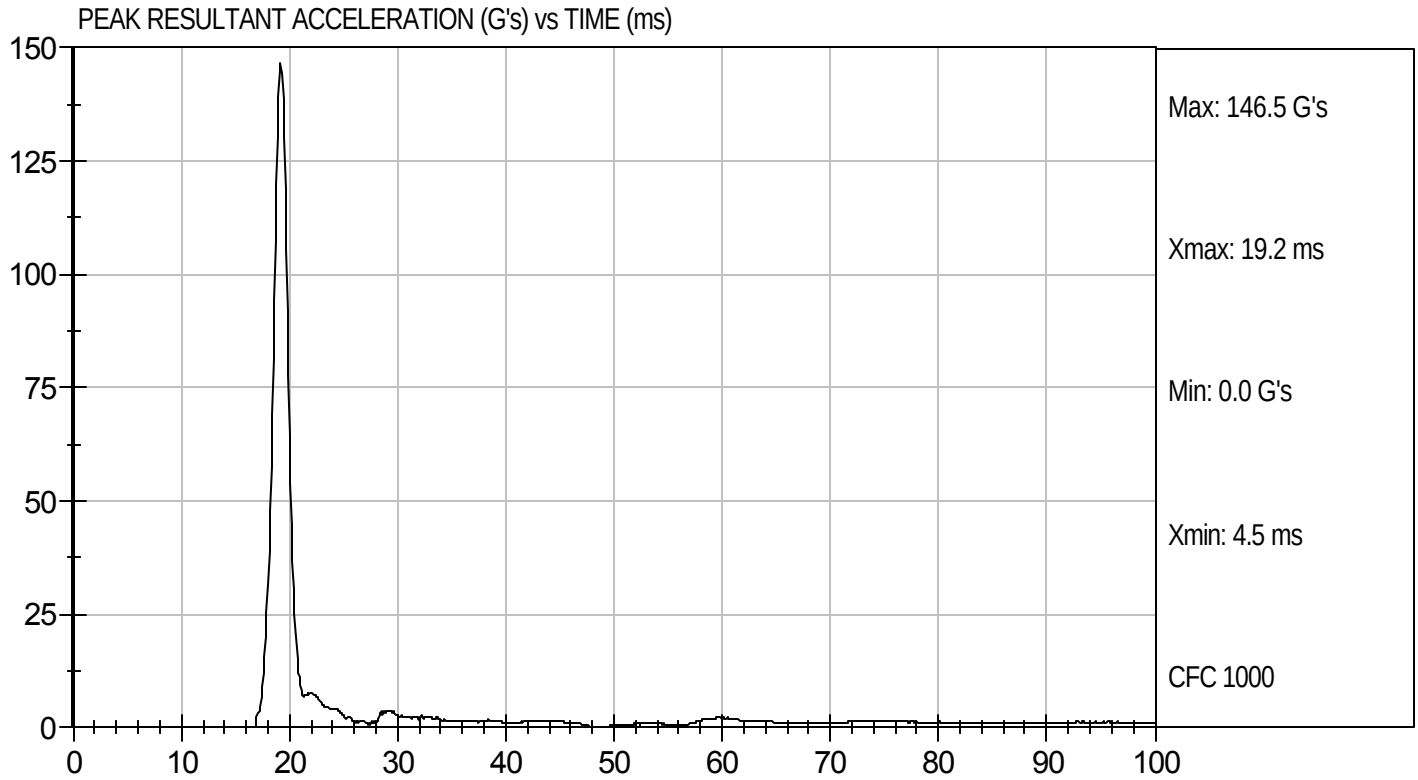
11/10/10
Test Date


Approved By



Test Desc: Head Drop
Component ID: D103891

Test Date: 11/10/10
Velocity: 0 ft/s, 0 m/s

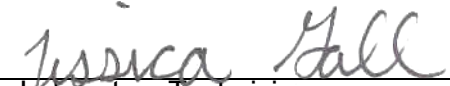


MGA RESEARCH CORPORATION
NECK PENDULUM TEST
ES-2re DUMMY

ATD Serial No: 032

Test I.D: D103892

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	18.0 to 22.0	22.0	Pass
Laboratory Relative Humidity		%	10 to 70	32	Pass
Pendulum Speed		m/s	3.3 to 3.5	3.3	Pass
Pendulum Deceleration	1 ms	m/s	0.00 to -0.05	-0.02	Pass
	3 ms	m/s	-0.25 to -0.375	-0.32	Pass
	14 ms	m/s	-3.20 to -3.70	-3.26	Pass
Maximum Flexion Angle		deg	49.0 to 59.0	51.9	Pass
Time of Maximum Flexion Angle		ms	54.0 to 66.0	61.4	Pass
Head Rotation Decay Time to 0 degree		ms	53.0 to 88.0	53.7	Pass
Overall Test Results					Pass


 Laboratory Technician

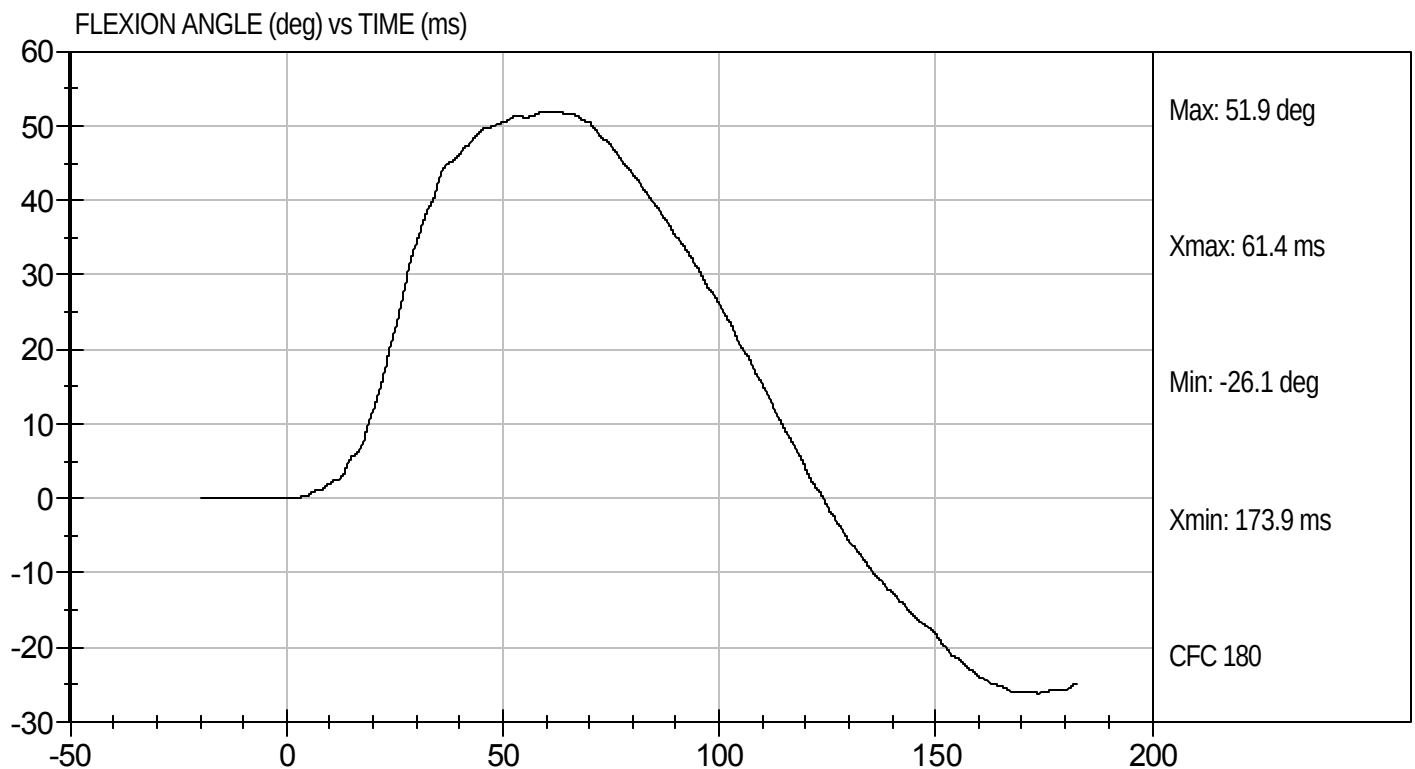
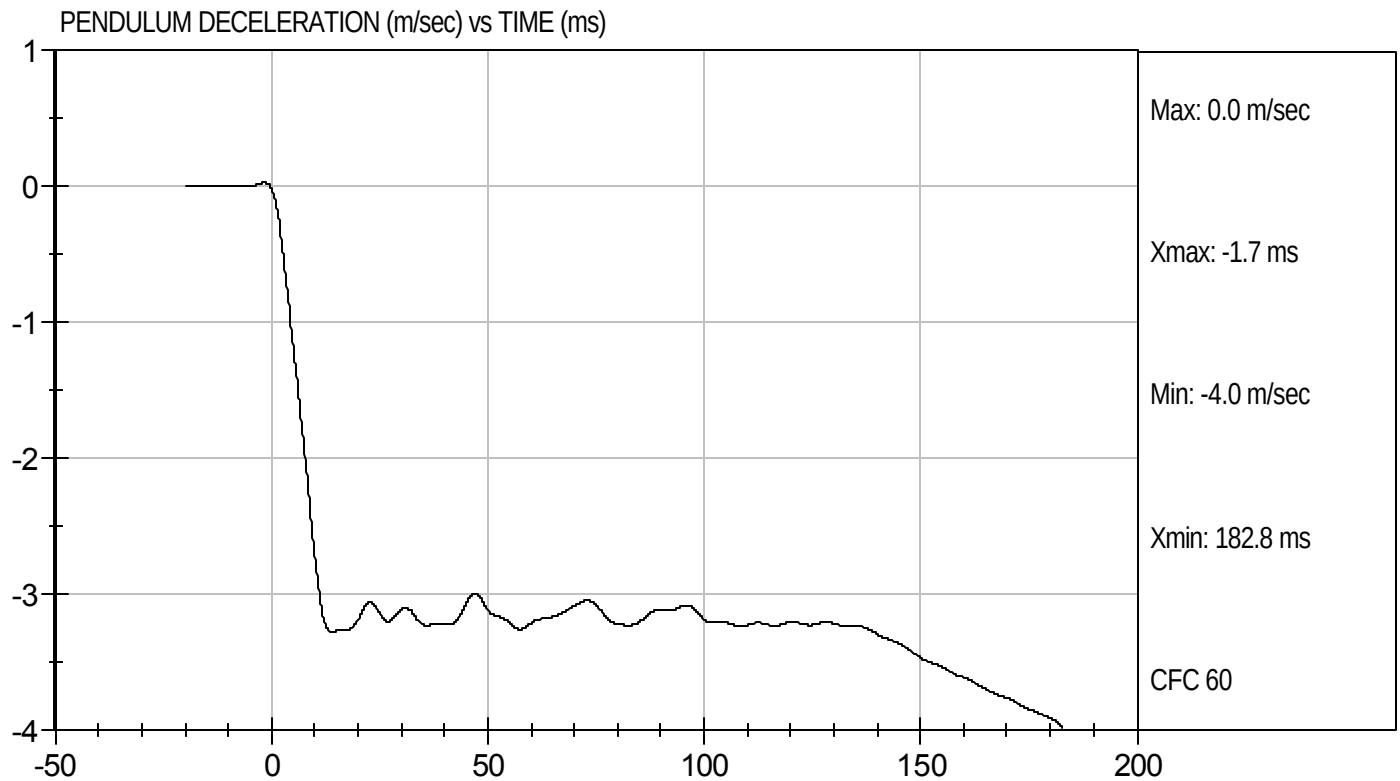
11/10/10
 Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D103892

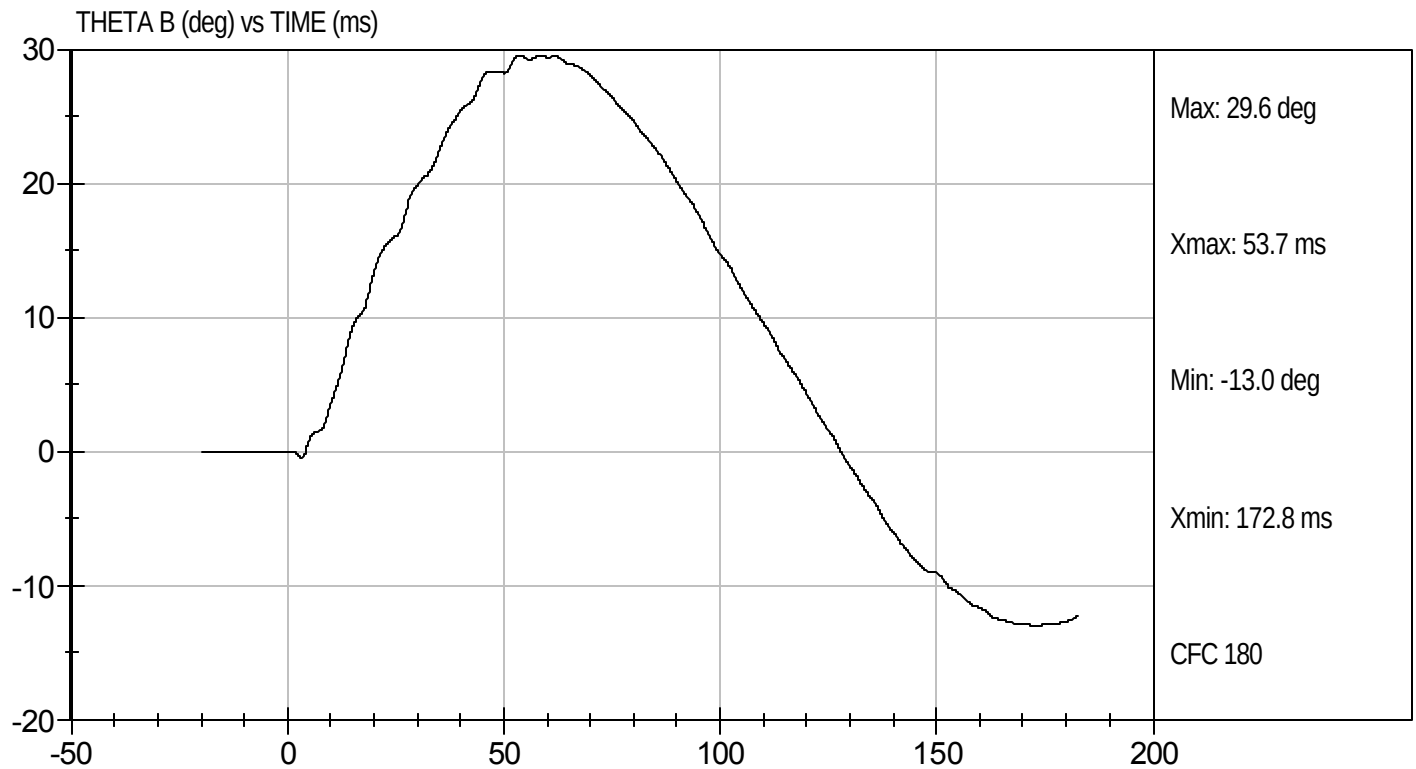
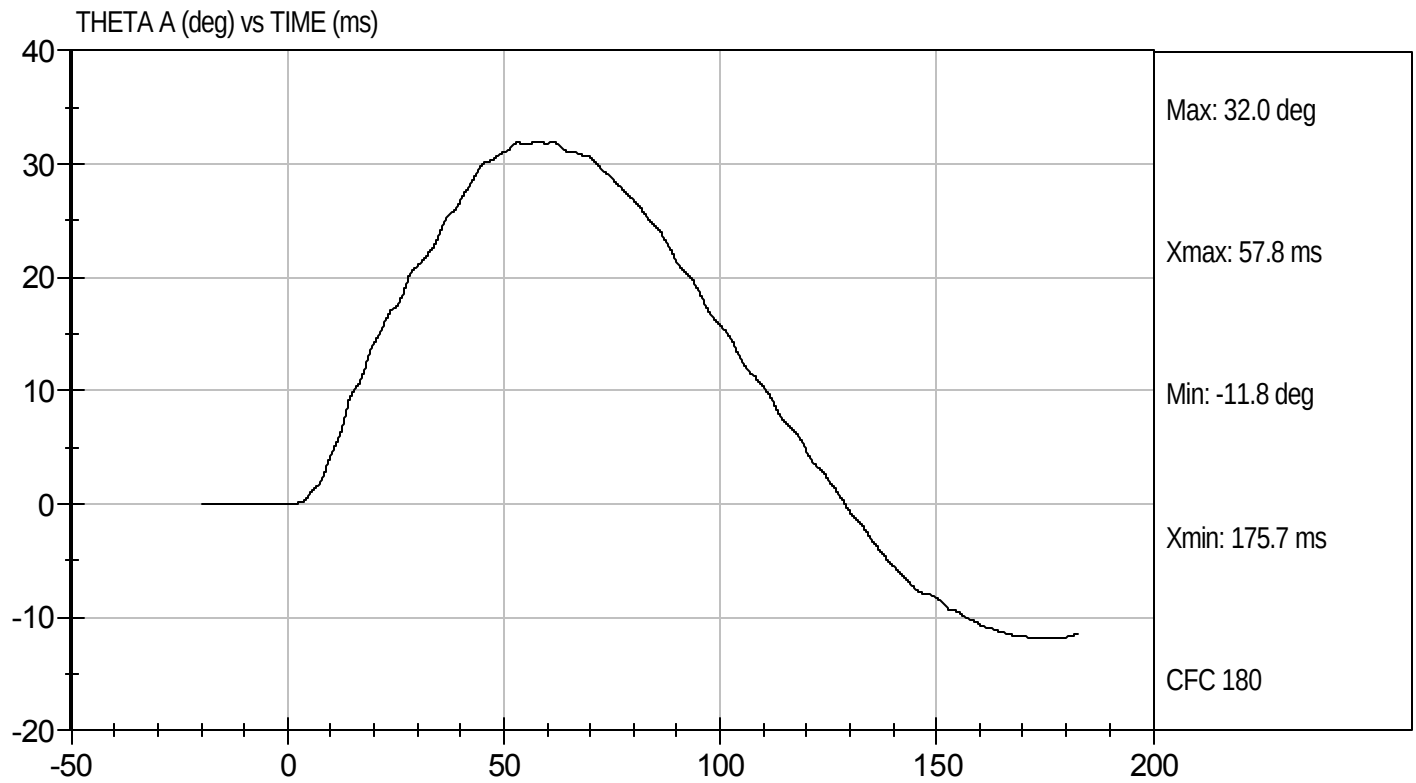
Test Date: 11/10/10
Velocity: 10.96 ft/s, 3.3 m/s





Test Desc: Neck Bending
Component ID: D103892

Test Date: 11/10/10
Velocity: 10.96 ft/s, 3.3 m/s



MGA RESEARCH CORPORATION
SHOULDER IMPACT TEST
ES-2re DUMMY

ATD Serial No: 032

Test I.D: D103893

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	35	Pass
Pendulum Speed	m/s	4.2 to 4.4	4.2	Pass
Peak Shoulder Acceleration	G's	7.5 to 10.5	9.6	Pass
Time of Peak Shoulder Acceleration	ms	NA	13.3	Pass
Overall Test Results			Pass	


Laboratory Technician

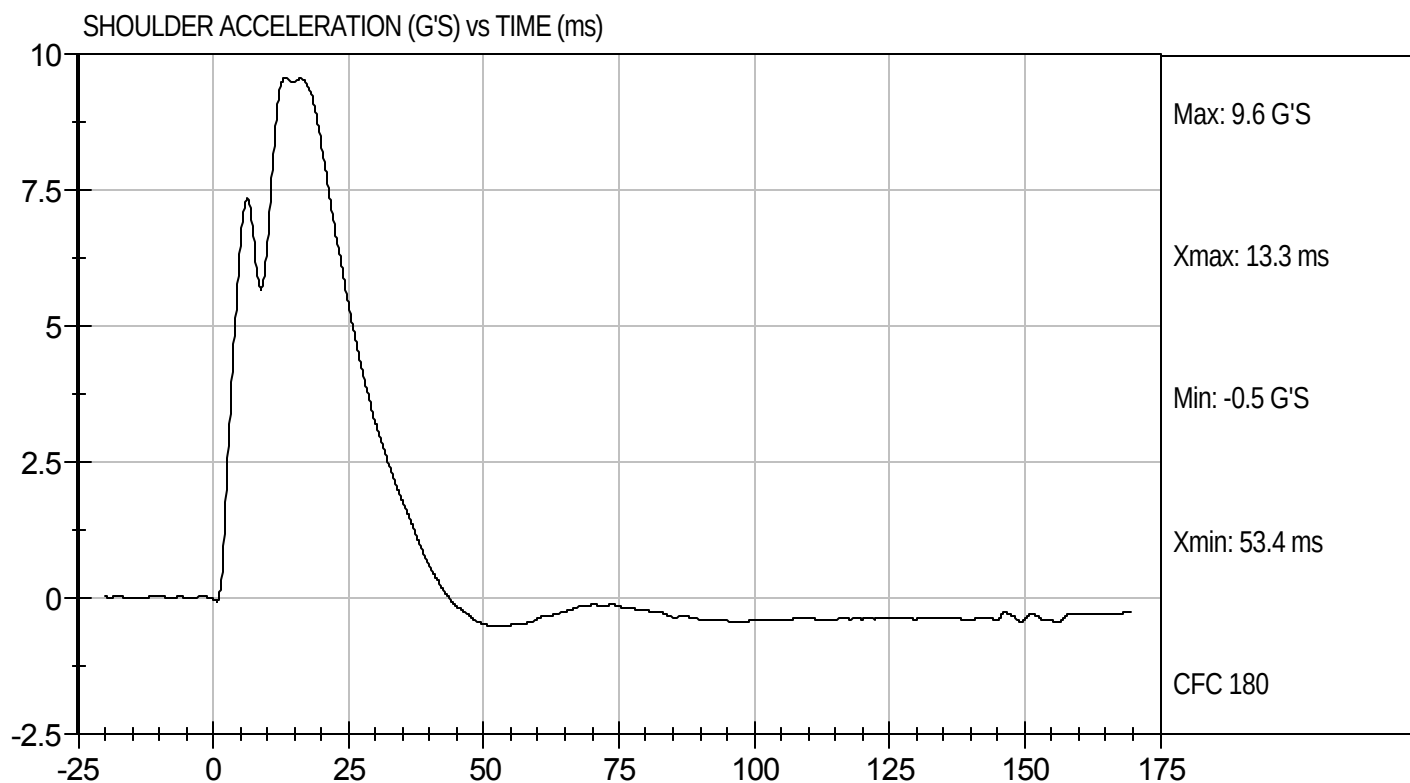
11/10/10
Test Date


Approved By



Test Desc: Shoulder Impact
Component ID: D103893

Test Date: 11/10/10
Velocity: 13.89 ft/s, 4.2 m/s



MGA RESEARCH CORPORATION

UPPER RIB TEST

ES-2re DUMMY

ATD Serial No: 032

Test I.D: D103894

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	22.1	Pass
Laboratory Relative Humidity	%	10 to 70	35	Pass
Displacement at 3 m/s	mm	36.0 to 40.0	37.8	Pass
Displacement at 4 m/s	mm	46.0 to 51.0	48.2	Pass
			Overall Test Results	Pass

Jessica Hall
Laboratory Technician

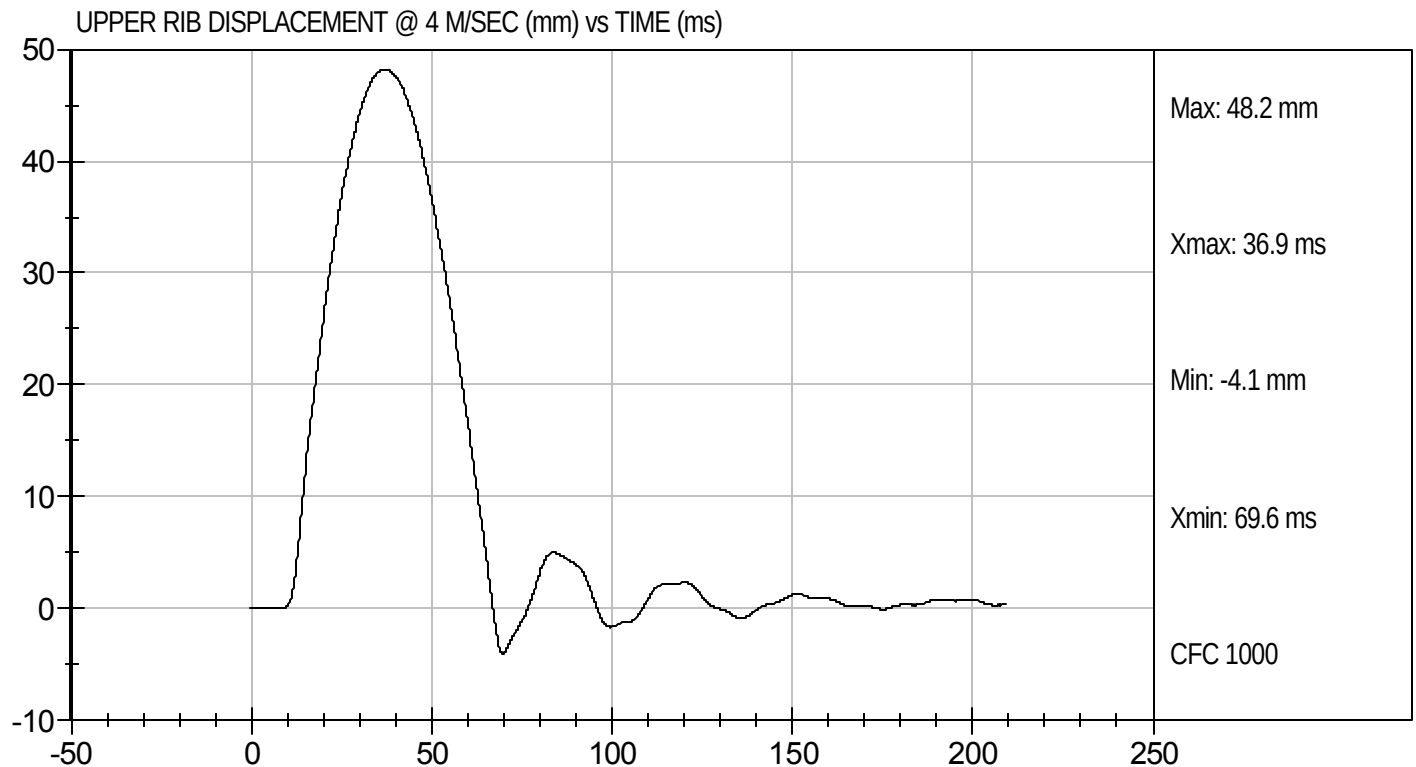
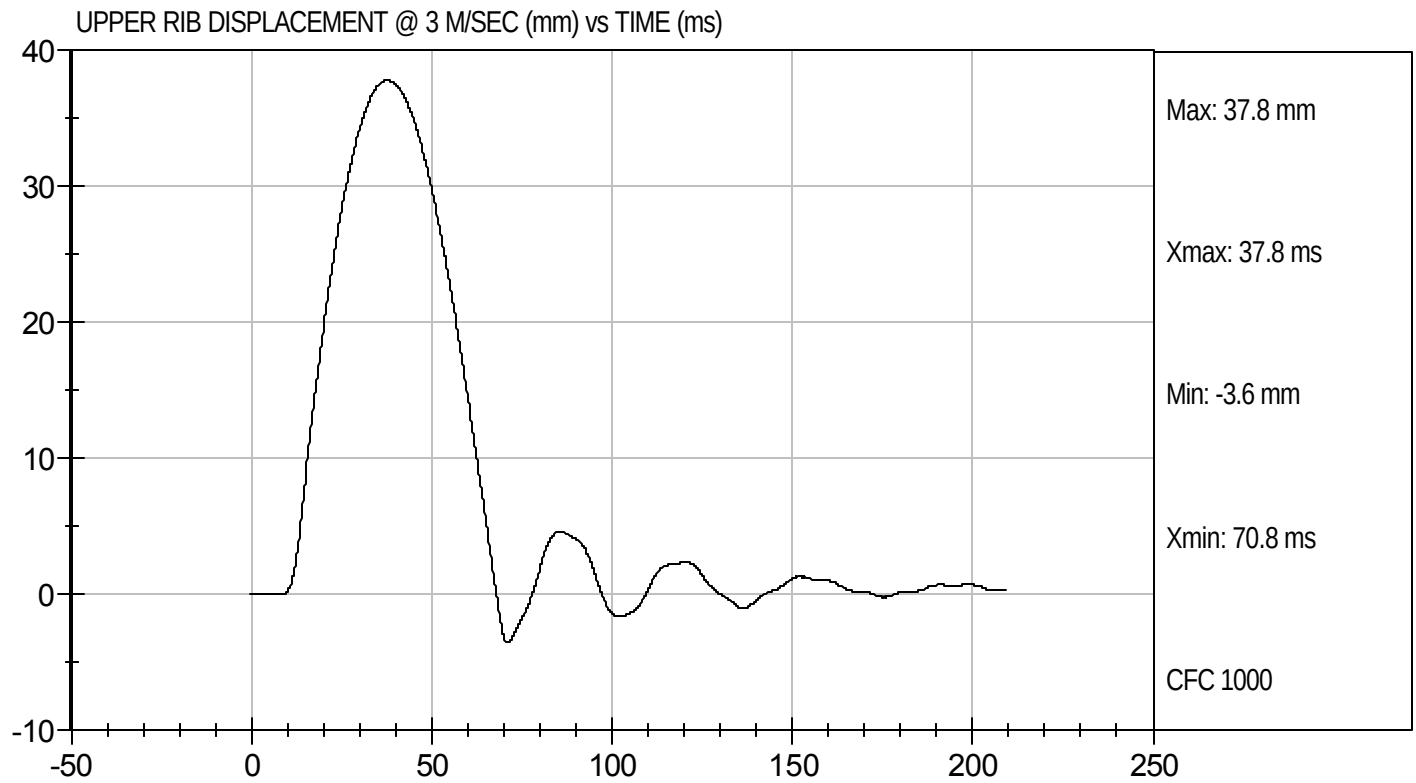
11/10/10
Test Date

David Winkelbauer
Approved By



Test Desc: Rib Impact - Upper
Component ID: D103894

Test Date: 11/10/10



MGA RESEARCH CORPORATION

MID RIB TEST
ES-2re DUMMY

ATD Serial No: 032

Test I.D: D103895

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	22.1	Pass
Laboratory Relative Humidity	%	10 to 70	35	Pass
Displacement at 3 m/s	mm	36.0 to 40.0	38.2	Pass
Displacement at 4 m/s	mm	46.0 to 51.0	48.2	Pass
Overall Test Results			Pass	

Jessica Gall
Laboratory Technician

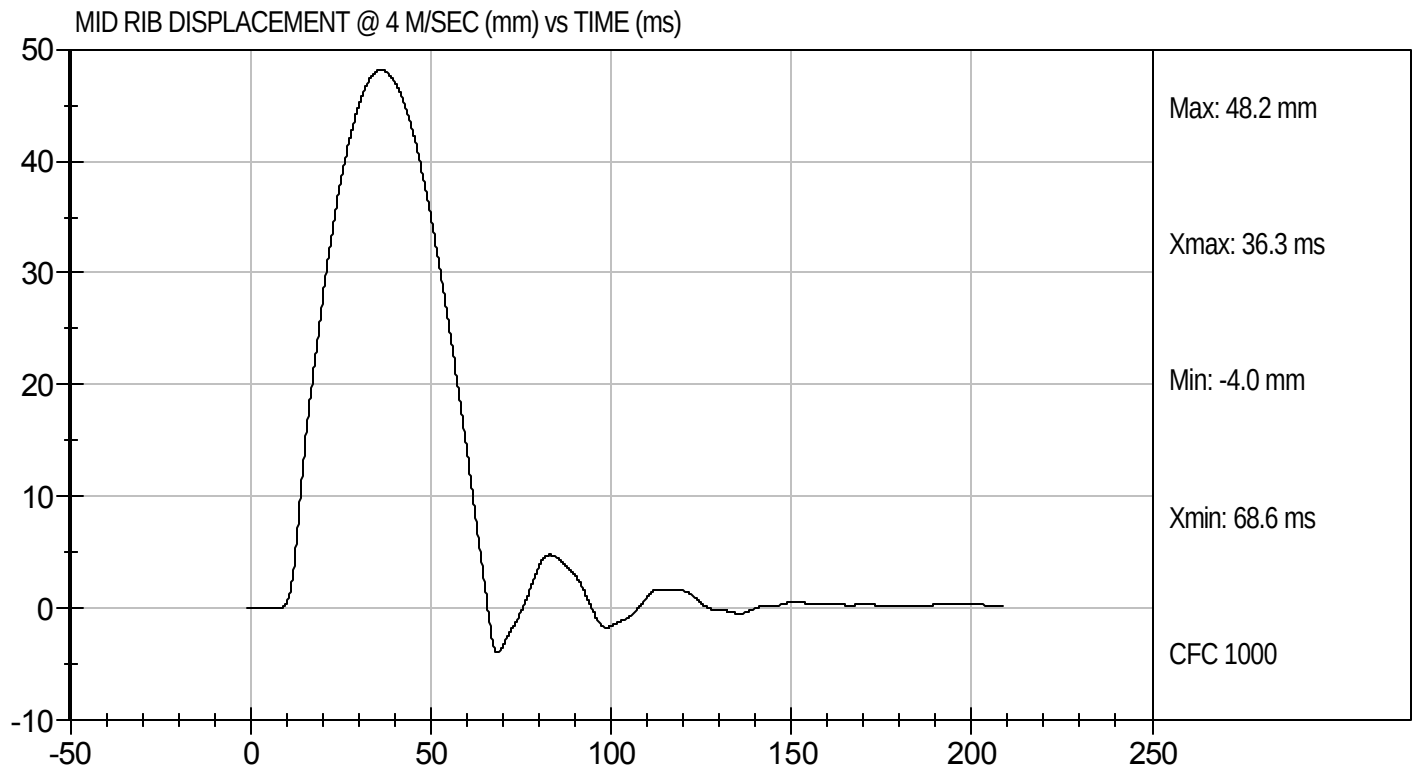
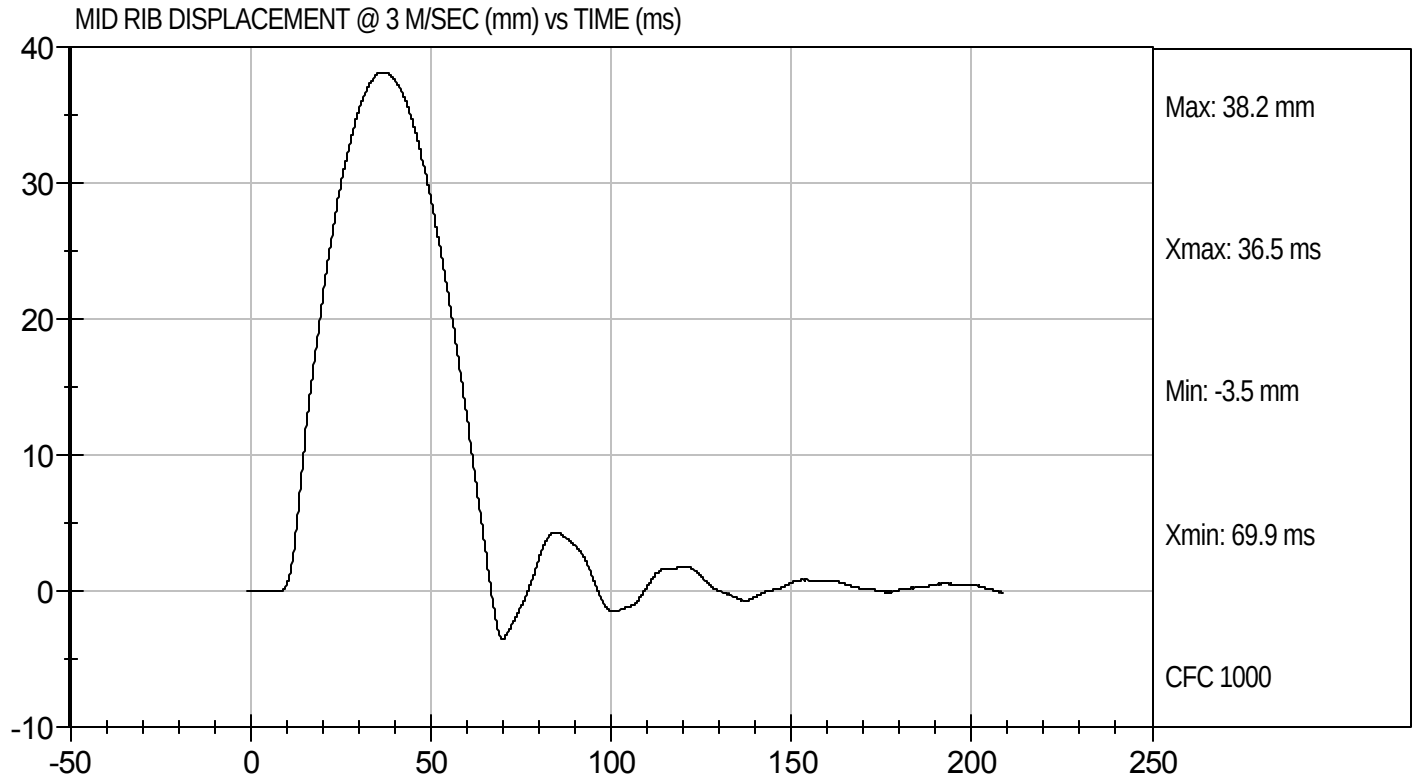
11/10/10
Test Date

David Winkelbauer
Approved By



Test Desc: Rib Impact - Mid
Component ID: D103895

Test Date: 11/10/10



MGA RESEARCH CORPORATION

LOWER RIB TEST

ES-2re DUMMY

ATD Serial No: 032

Test I.D: D103896

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	22.1	Pass
Laboratory Relative Humidity	%	10 to 70	35	Pass
Displacement at 3 m/s	mm	36.0 to 40.0	37.8	Pass
Displacement at 4 m/s	mm	46.0 to 51.0	49.3	Pass
Overall Test Results			Pass	


Laboratory Technician

11/10/10
Test Date

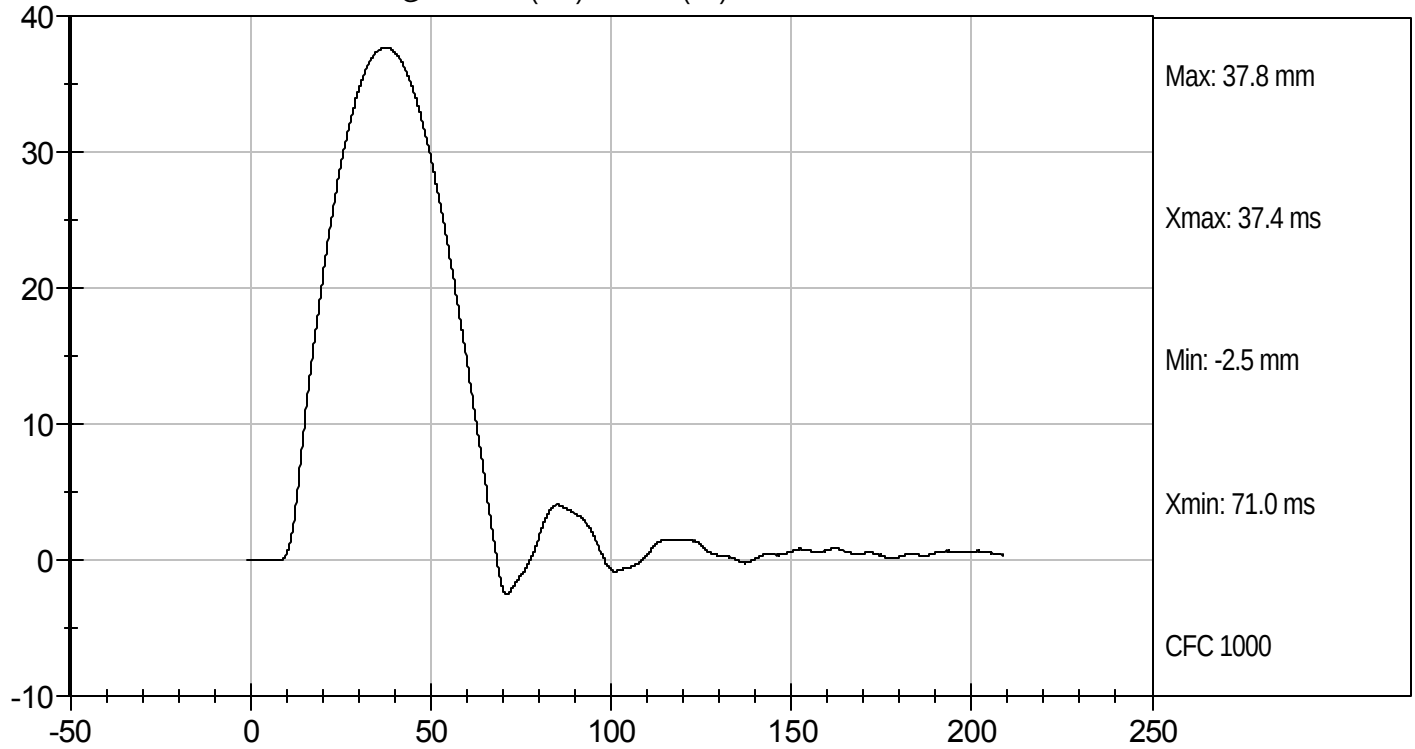

Approved By



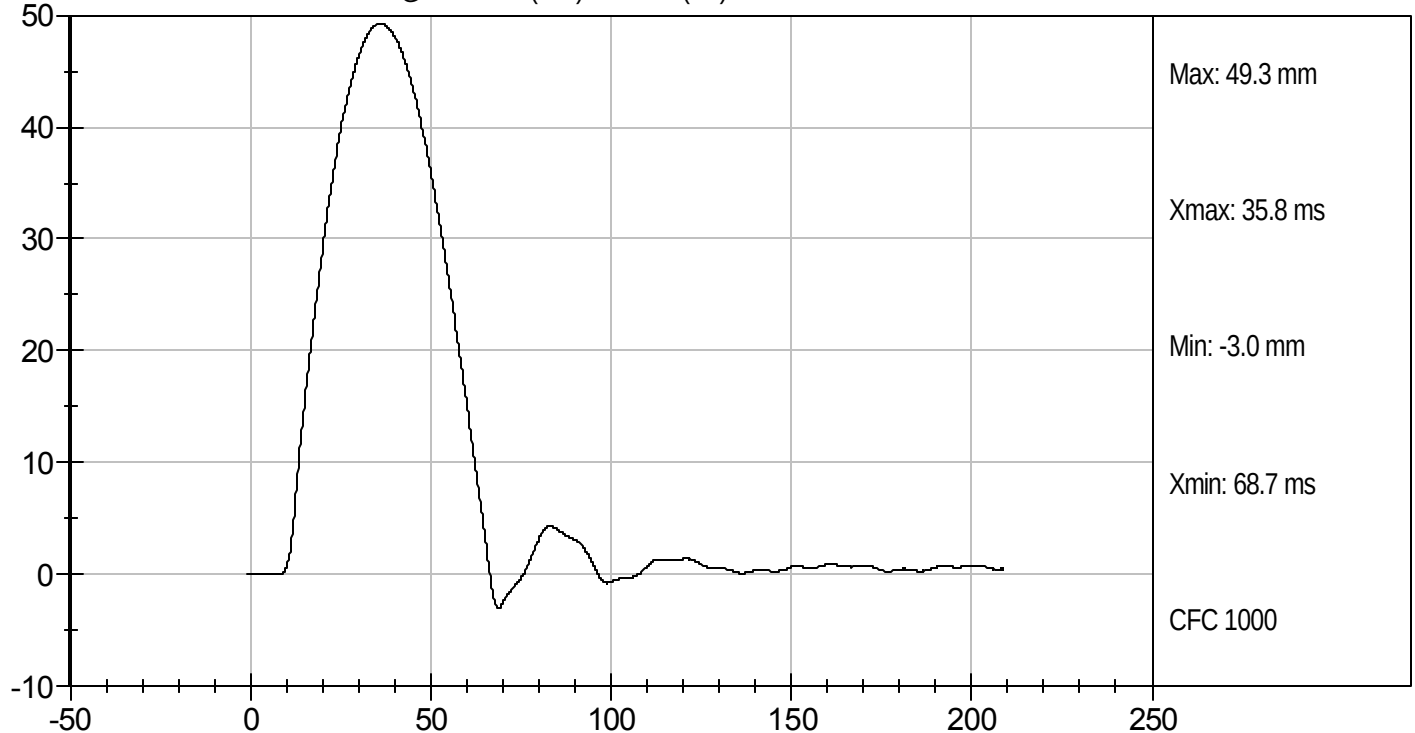
Test Desc: Rib Impact - Lower
Component ID: D103896

Test Date: 11/10/10

LOWER RIB DISPLACEMENT @ 3 M/SEC (mm) vs TIME (ms)



LOWER RIB DISPLACEMENT @ 4 M/SEC (mm) vs TIME (ms)



MGA RESEARCH CORPORATION
LUMBAR SPINE TEST
ES-2re DUMMY

ATD Serial No: 032

Test I.D: D103898

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	22.0	Pass
Laboratory Relative Humidity		%	10 to 70	32	Pass
Pendulum Speed		m/s	5.95 to 6.15	6.12	Pass
Pendulum Deceleration	1 ms	m/s	-0.05 to 0.00	-0.01	Pass
	3.7 ms	m/s	-0.425 to -0.24	-0.41	Pass
	27 ms	m/s	-6.50 to -5.80	-5.91	Pass
	30 ms	m/s	>= -6.5	-5.82	Pass
Maximum Flexion Angle		deg	45.0 to 55.0	45.1	Pass
Time of Maximum Flexion Angle		ms	39.0 to 53.0	42.0	Pass
Headform Rotation Decay to Initial Position		ms	37 to 57	41	Pass
Overall Results					Pass


 Laboratory Technician

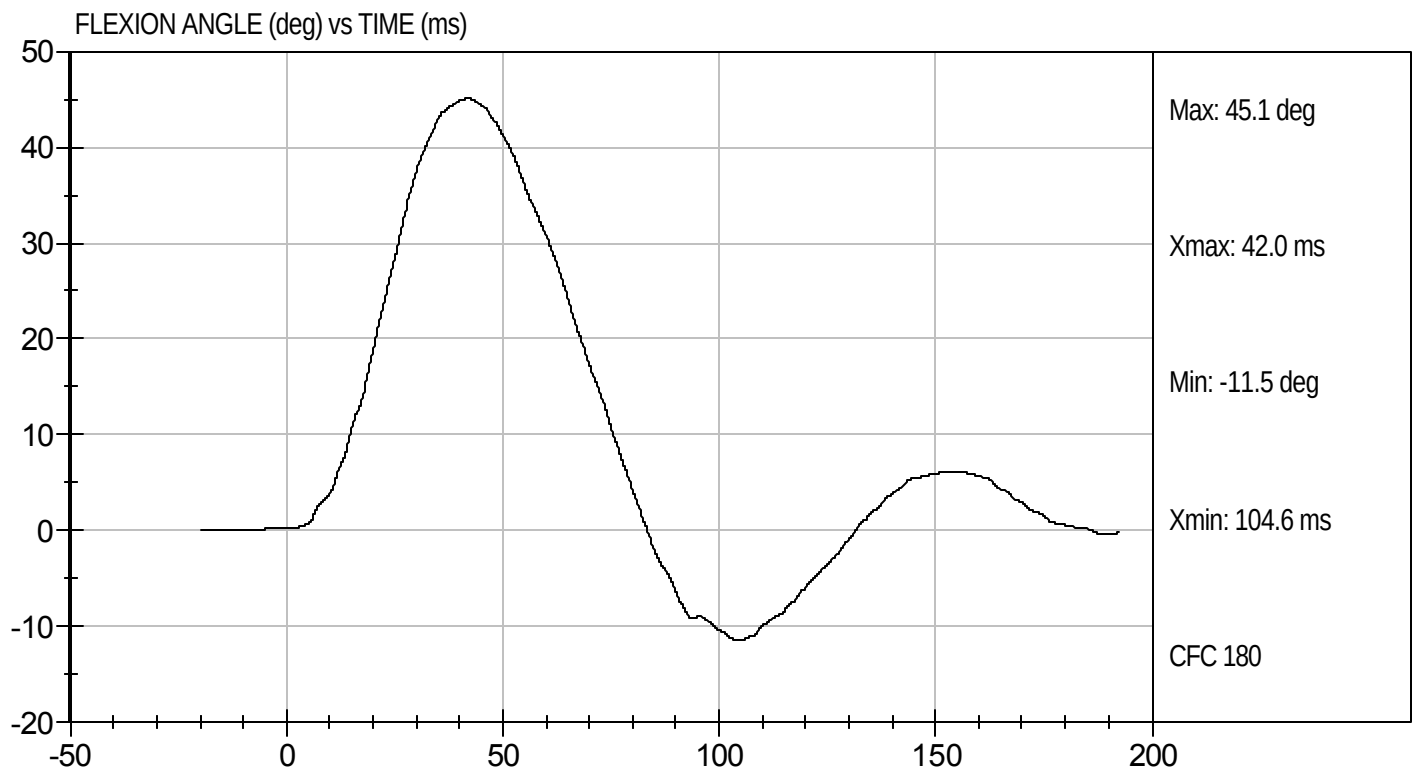
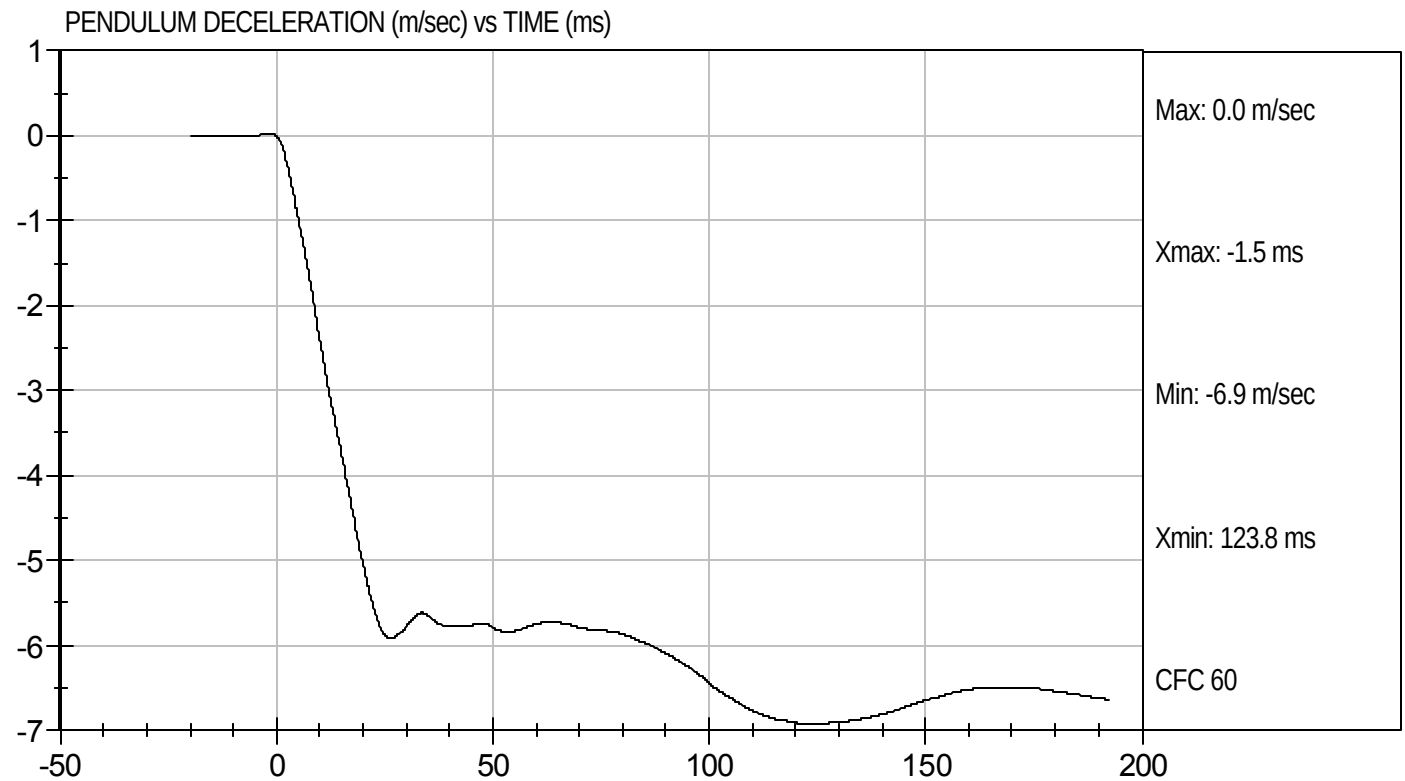
11/10/10
 Test Date


 Approved By



Test Desc: Lumbar Bending
Component ID: D103898

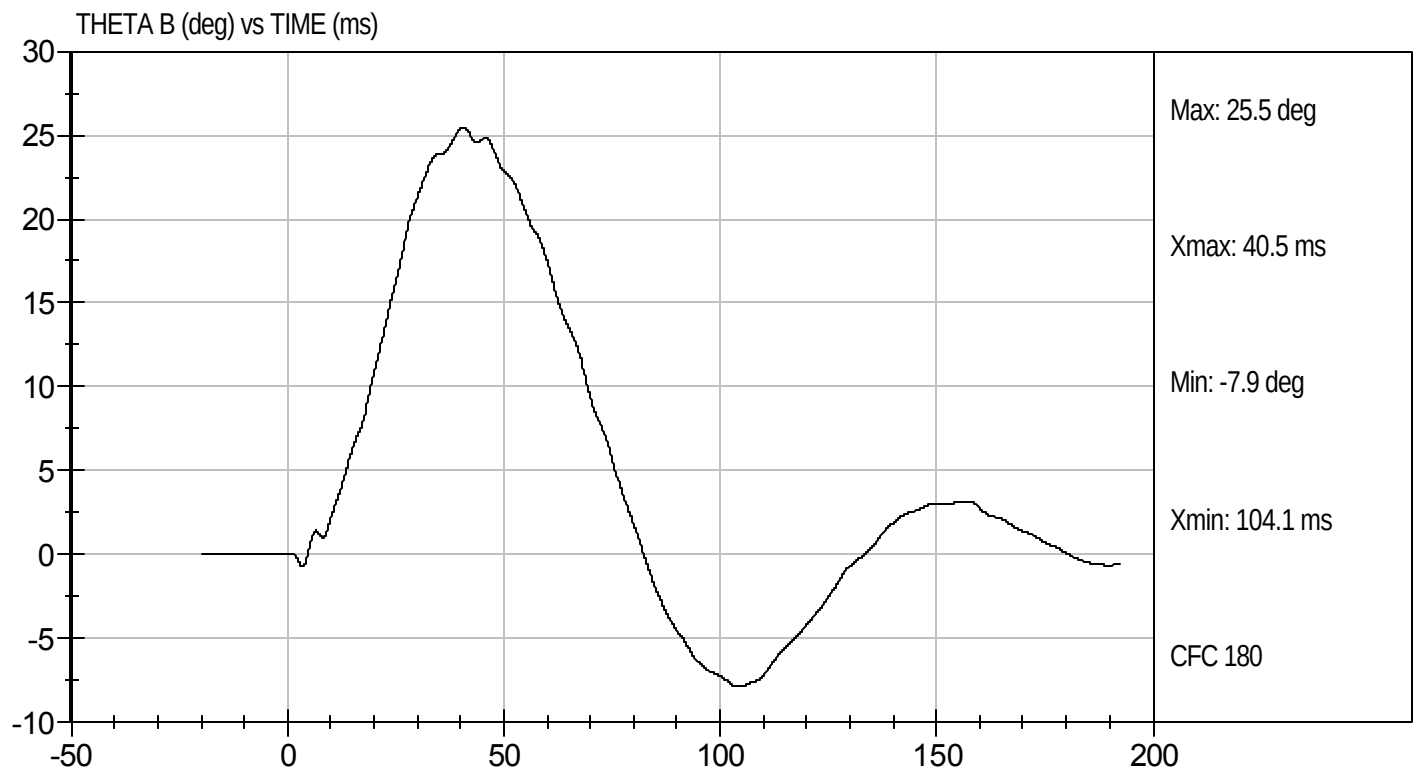
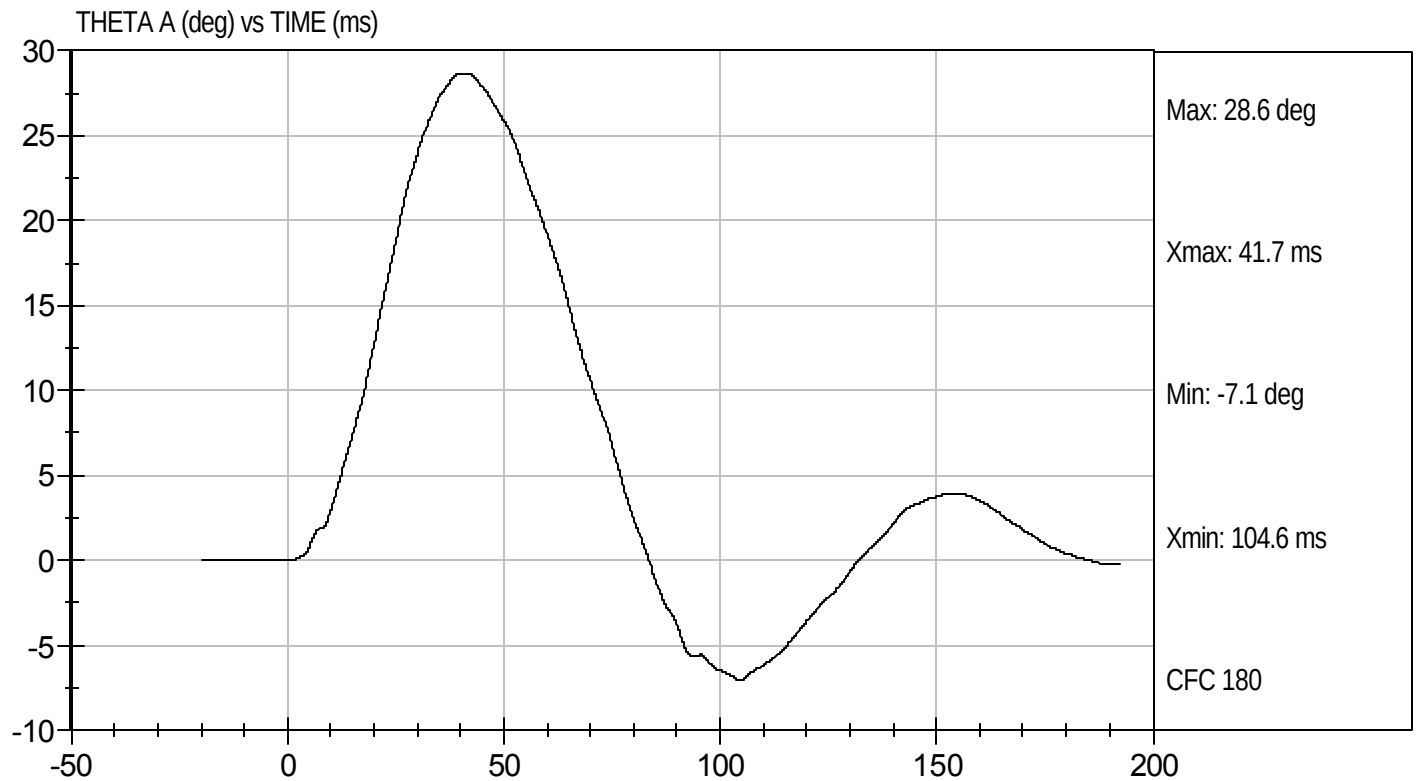
Test Date: 11/10/10
Velocity: 20.08 ft/s, 6.12 m/s





Test Desc: Lumbar Bending
Component ID: D103898

Test Date: 11/10/10
Velocity: 20.08 ft/s, 6.12 m/s



MGA RESEARCH CORPORATION

PELVIS TEST
ES-2re DUMMY

ATD Serial No: 032

Test I.D: D103899

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	35	Pass
Probe Speed	m/s	4.20 to 4.40	4.30	Pass
Maximum Impactor Force	kN	4.70 to 5.40	4.81	Pass
Time of Maximum Impactor Force	ms	11.80 to 16.10	13.90	Pass
Maximum Pubic Force	kN	1.23 to 1.59	1.43	Pass
Time of Maximum Pubic Force	ms	12.20 to 17.00	15.50	Pass
Overall Test Results				Pass


Laboratory Technician

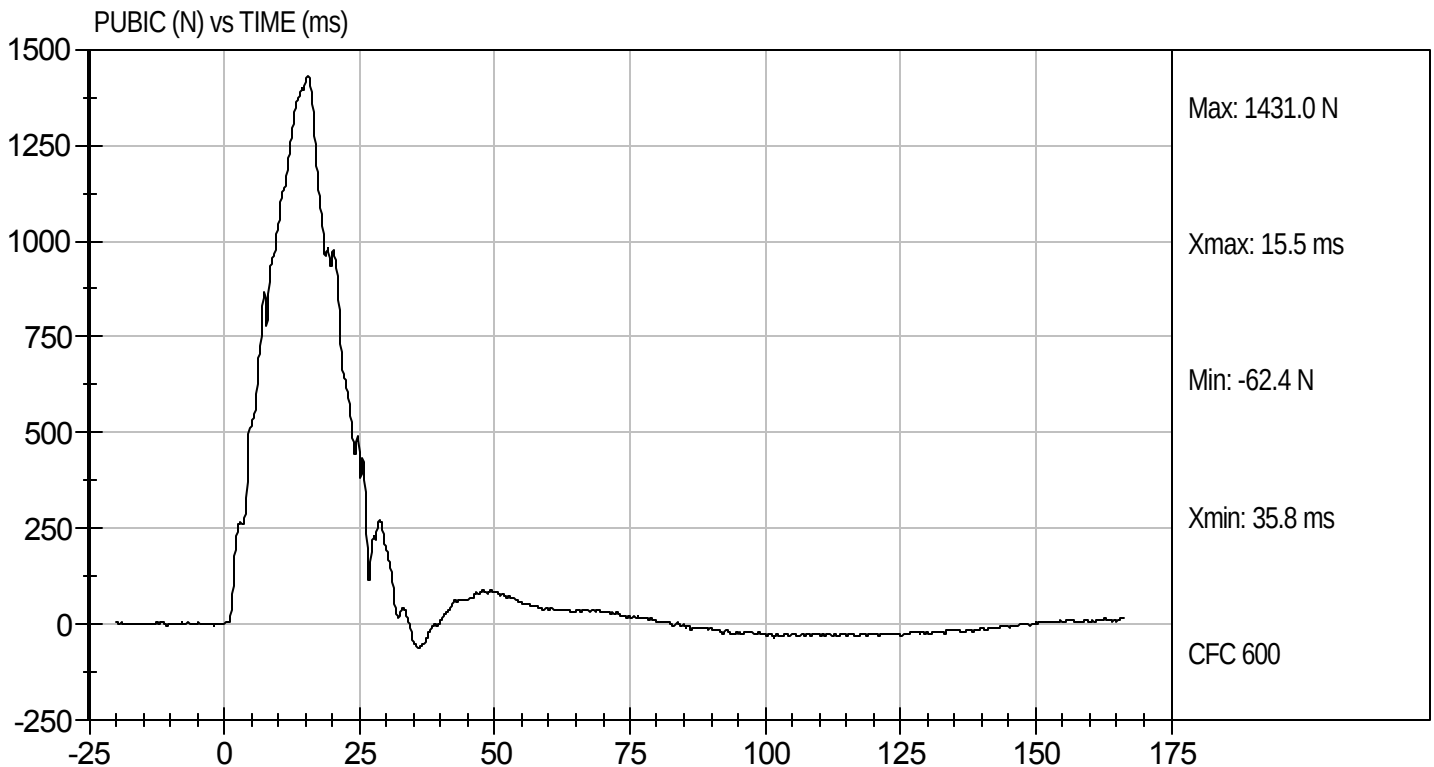
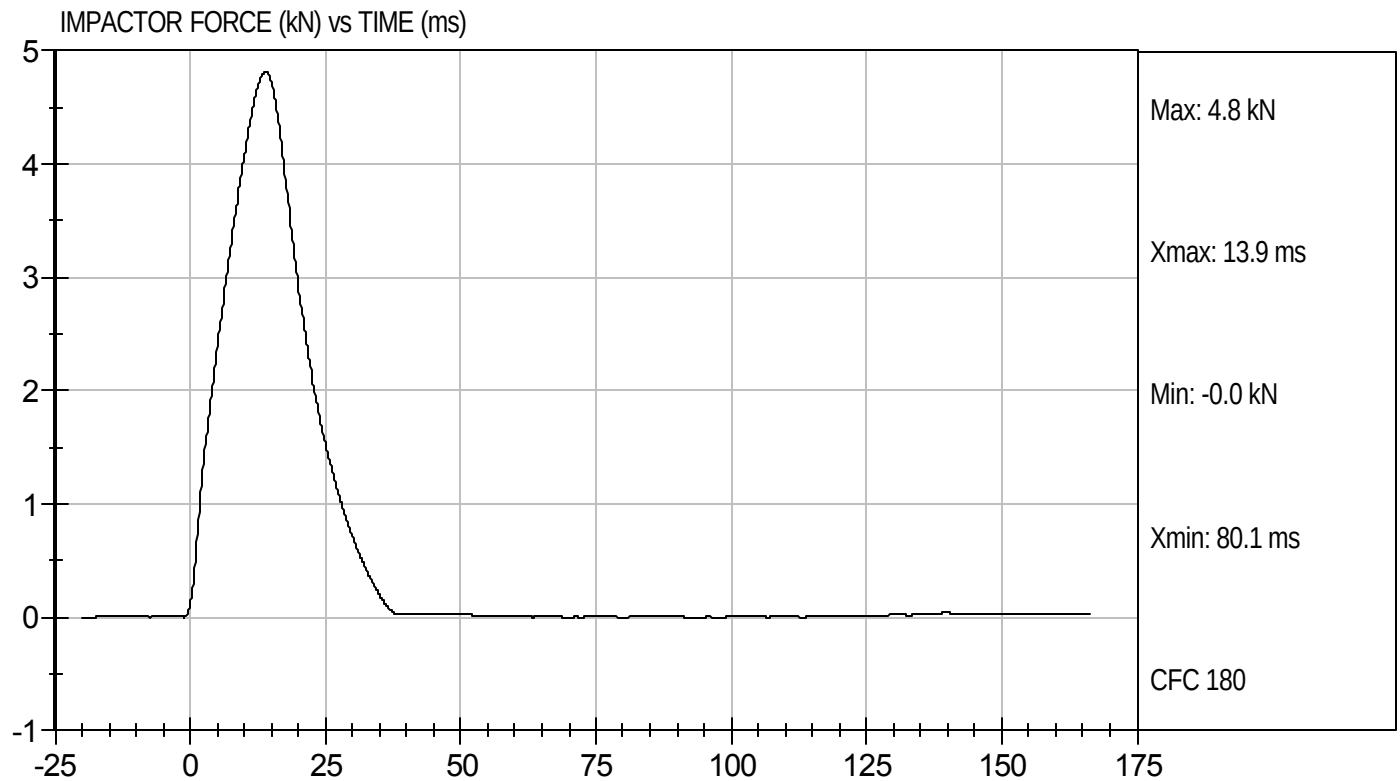
11/10/10
Test Date


Approved By



Test Desc: Pelvis Impact
Component ID: D103899

Test Date: 11/10/10
Velocity: 14.12 ft/s, 4.30 m/s



MGA RESEARCH CORPORATION

ABDOMEN TEST

ES-2re DUMMY

ATD Serial No: 032

Test I.D: D103907

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	35	Pass
Probe Speed	m/s	3.90 to 4.10	4.03	Pass
Maximum Impact Force	kN	4.00 to 4.80	4.21	Pass
Time of Maximum Impact Force	ms	10.60 to 13.00	10.90	Pass
Maximum Total Abdomen Force	kN	2.20 to 2.70	2.52	Pass
Time of Maximum Abdomen Force	ms	10.00 to 12.30	10.30	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

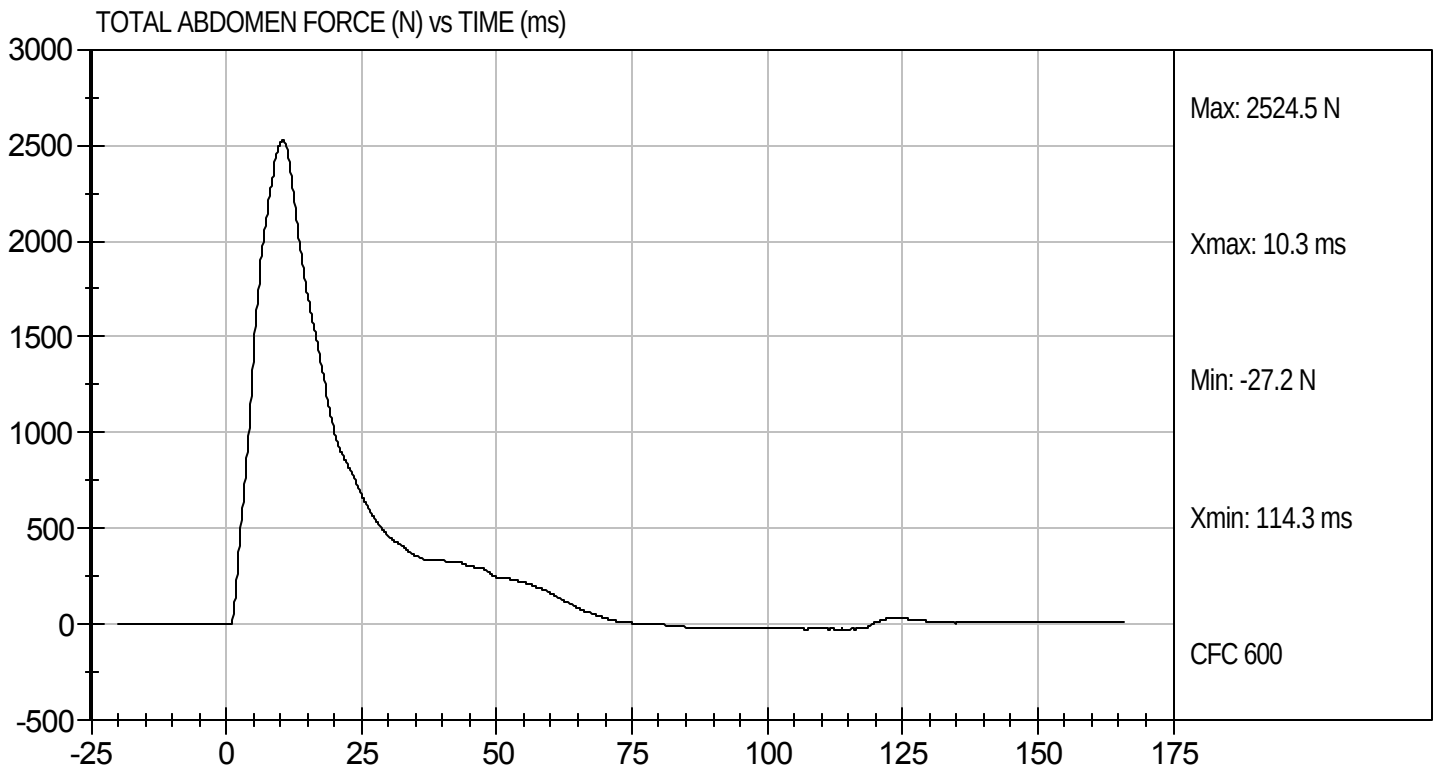
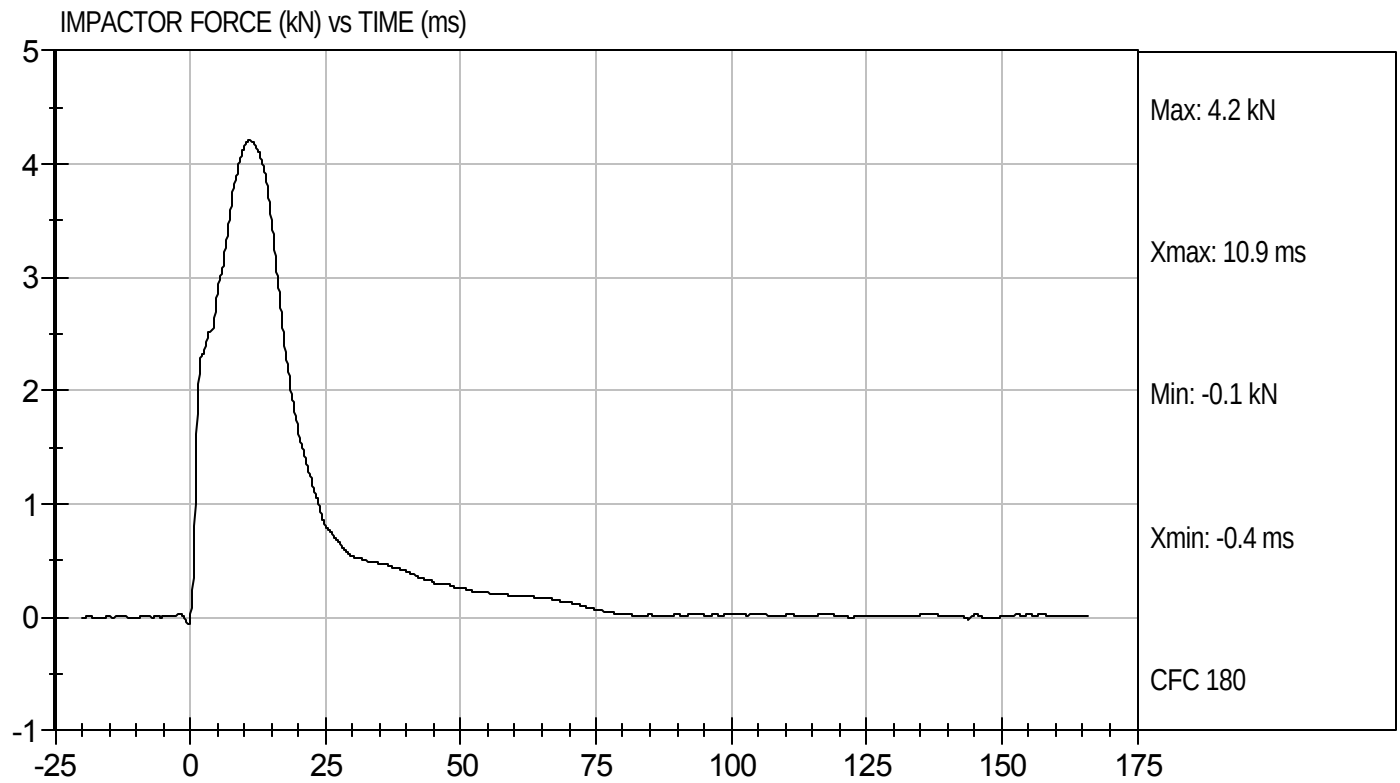
11/10/10
Test Date

David Winkelbauer
Approved By



Test Desc: Abdomen Impact
Component ID: D103907

Test Date: 11/10/10
Velocity: 13.23 ft/s, 4.03 m/s



MGA RESEARCH CORPORATION
FULL BODY THORAX IMPACT TEST
ES-2re DUMMY

ATD Serial No: 032

Test I.D: D103890

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	33	Pass
Probe Speed	m/s	5.40 to 5.60	5.46	Pass
Maximum Impactor Force (after 6 ms)	kN	5.10 to 6.20	5.13	Pass
Upper Rib Displacement	mm	34.0 to 41.0	38.0	Pass
Middle Rib Displacement	mm	37.0 to 45.0	40.5	Pass
Lower Rib Displacement	mm	37.0 to 44.0	39.9	Pass
			Overall Test Results	Pass


Laboratory Technician

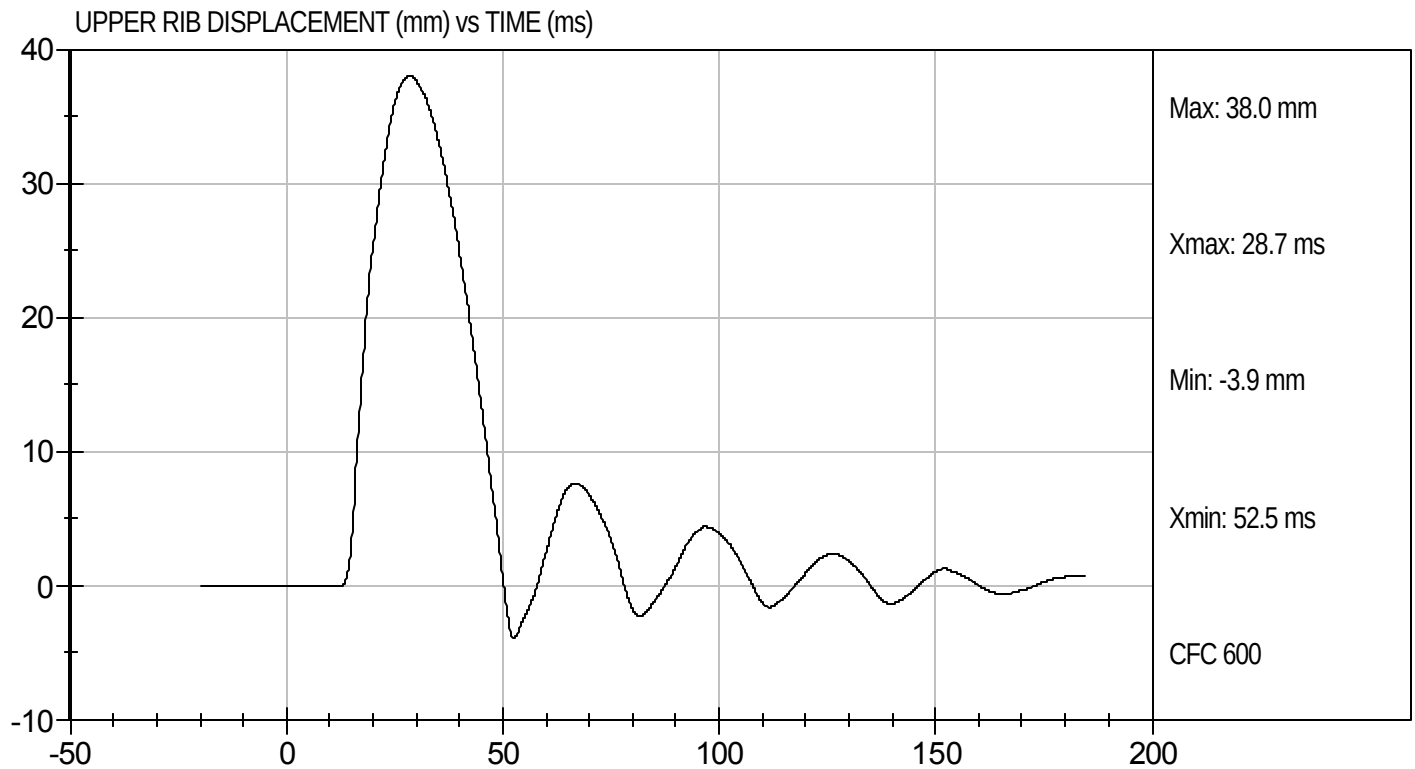
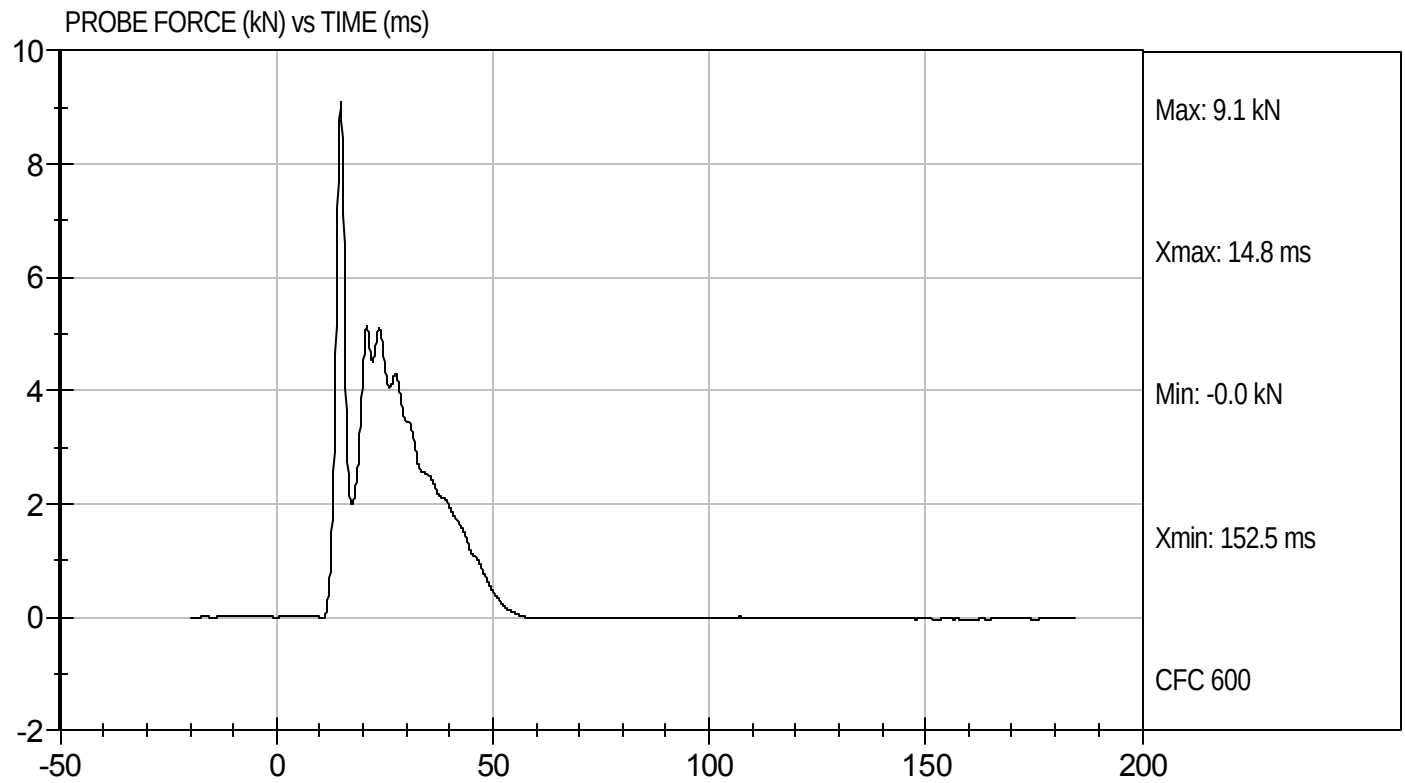
11/10/10
Test Date


Approved By



Test Desc: Thorax Impact
Component ID: D103890

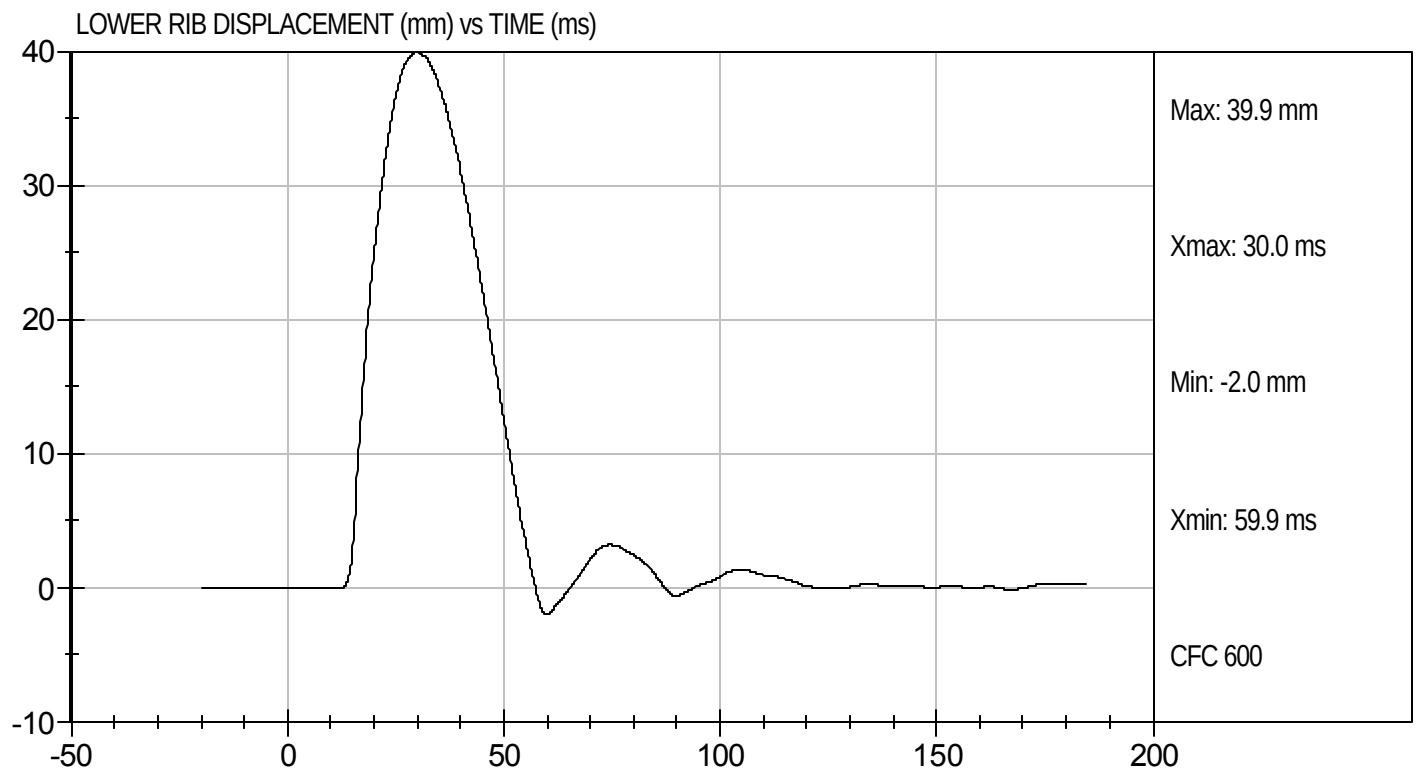
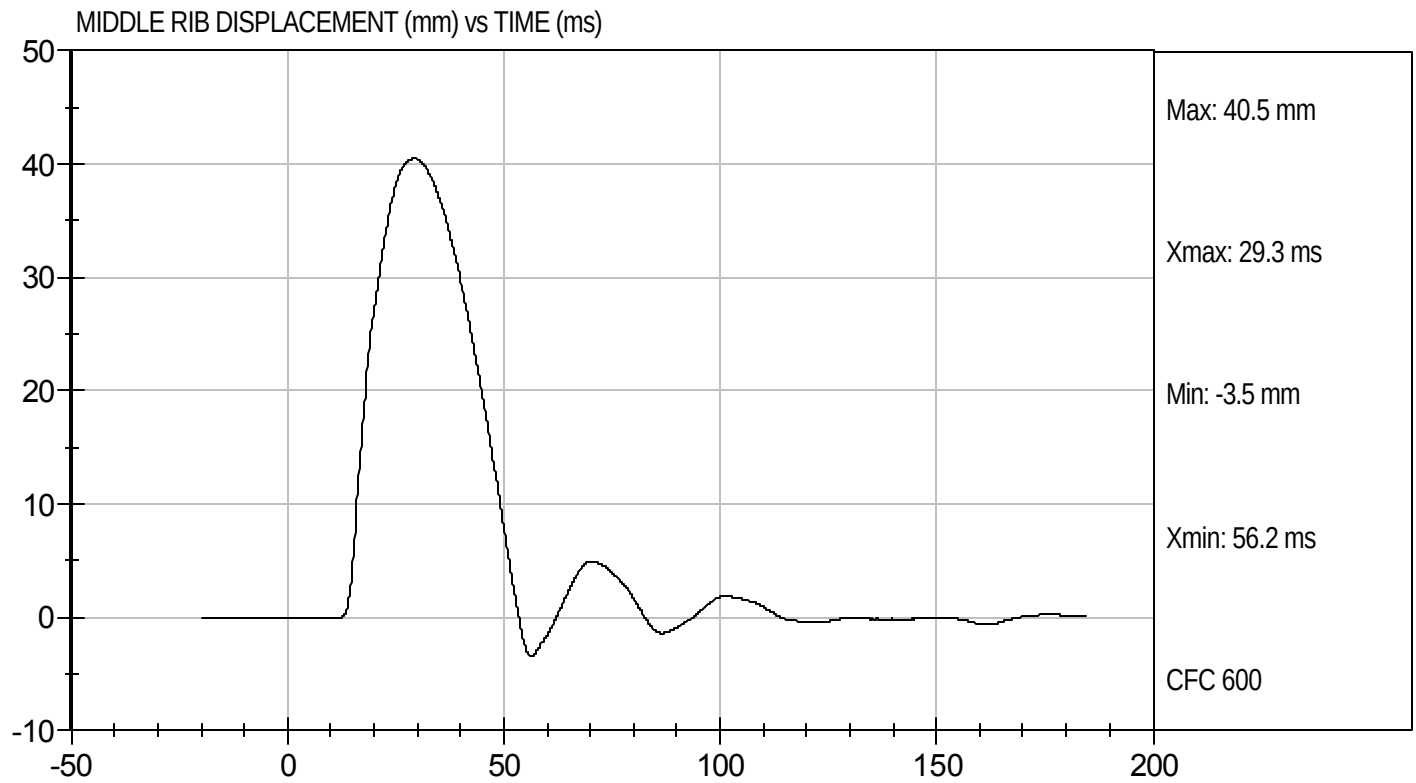
Test Date: 11/10/10
Velocity: 17.92 ft/s, 5.46 m/s





Test Desc: Thorax Impact
Component ID: D103890

Test Date: 11/10/10
Velocity: 17.92 ft/s, 5.46 m/s



MGA RESEARCH CORPORATION

HEAD DROP TEST

ES-2re DUMMY

ATD Serial No: 032

Test ID: D103991

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	28	Pass
Peak Resultant Acceleration	G's	125 to 155	142	Pass
Peak Lateral Acceleration	G's	+/- 15	6.2	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 15% of peak	Yes	Pass
Overall Test Results				Pass

Jessica Gall
Laboratory Technician

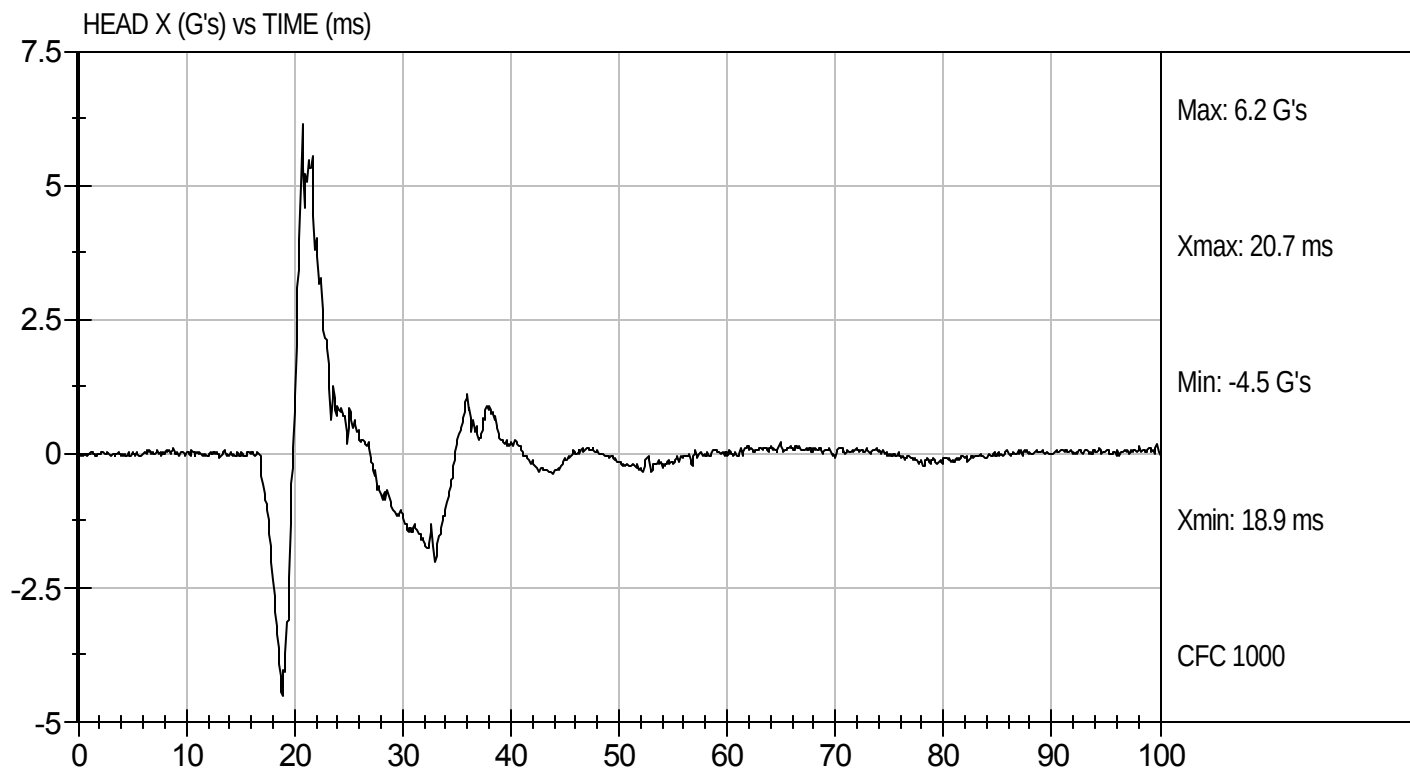
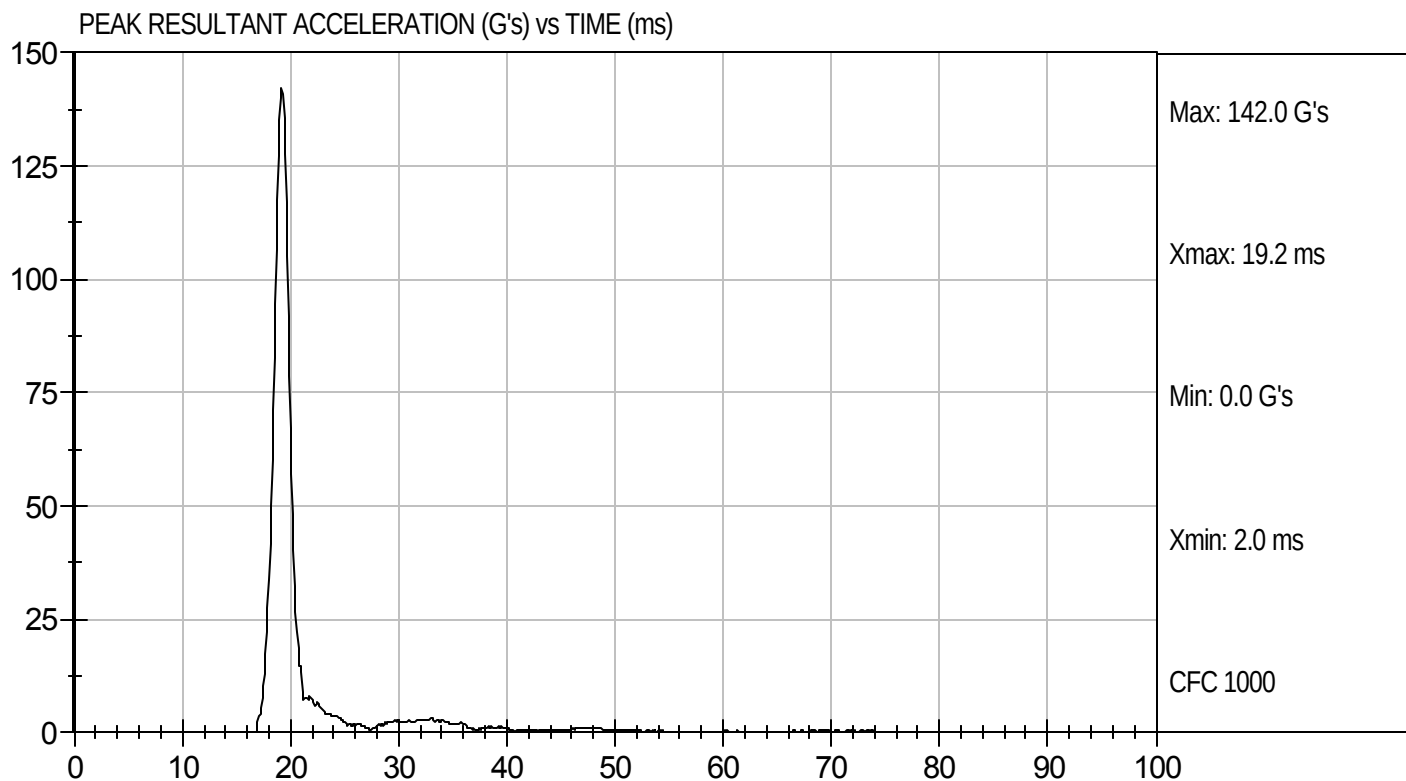
11/16/10
Test Date

David Winkelbauer
Approved By



Test Desc: Head Drop
Component ID: D103991

Test Date: 11/16/10
Velocity: 0 ft/s, 0 m/s

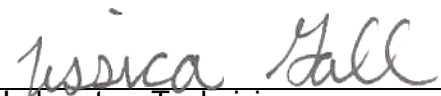


MGA RESEARCH CORPORATION
NECK PENDULUM TEST
ES-2re DUMMY

ATD Serial No: 032

Test I.D: D103992

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	18.0 to 22.0	22.0	Pass
Laboratory Relative Humidity		%	10 to 70	28	Pass
Pendulum Speed		m/s	3.3 to 3.5	3.5	Pass
Pendulum Deceleration	1 ms	m/s	0.00 to -0.05	-0.02	Pass
	3 ms	m/s	-0.25 to -0.375	-0.34	Pass
	14 ms	m/s	-3.20 to -3.70	-3.30	Pass
Maximum Flexion Angle		deg	49.0 to 59.0	53.3	Pass
Time of Maximum Flexion Angle		ms	54.0 to 66.0	59.9	Pass
Head Rotation Decay Time to 0 degree		ms	53.0 to 88.0	62.9	Pass
Overall Test Results					Pass


 Laboratory Technician

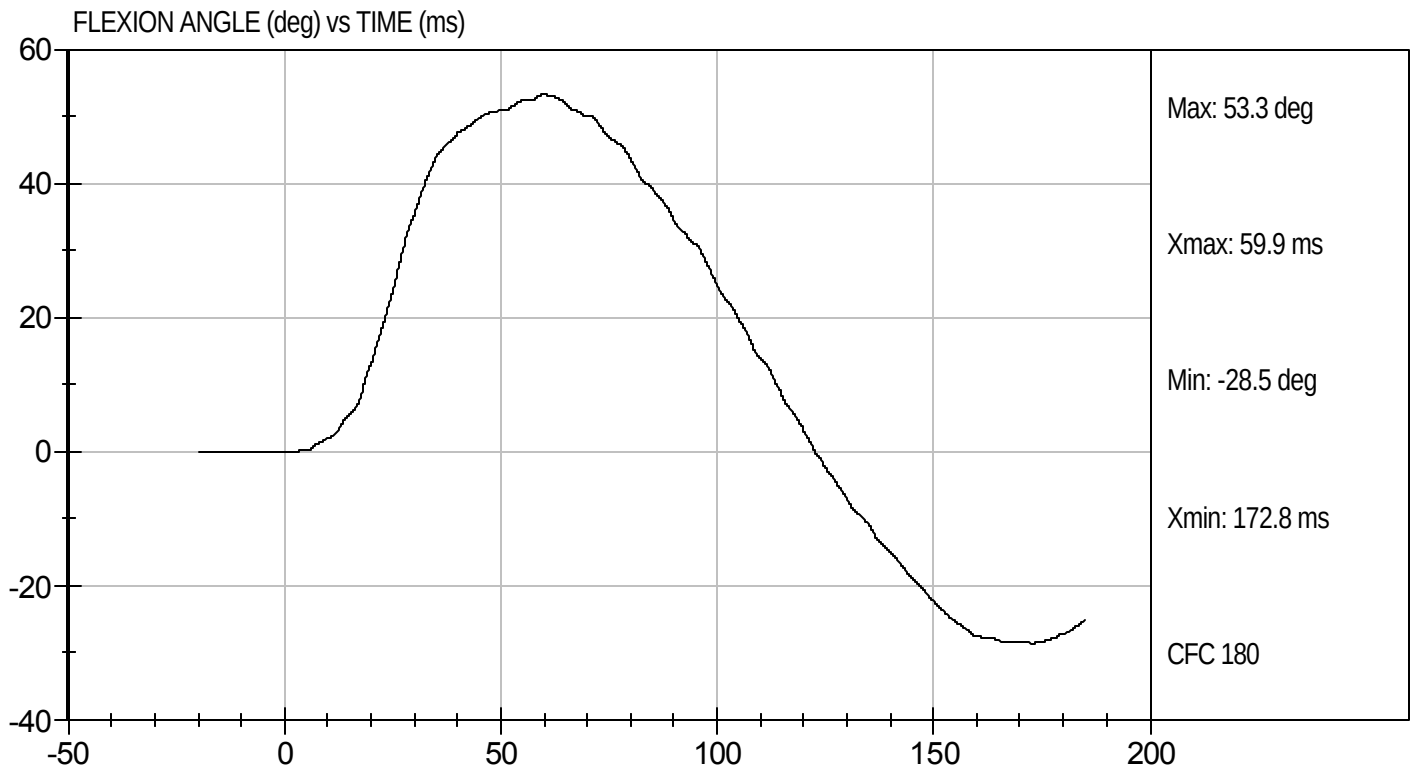
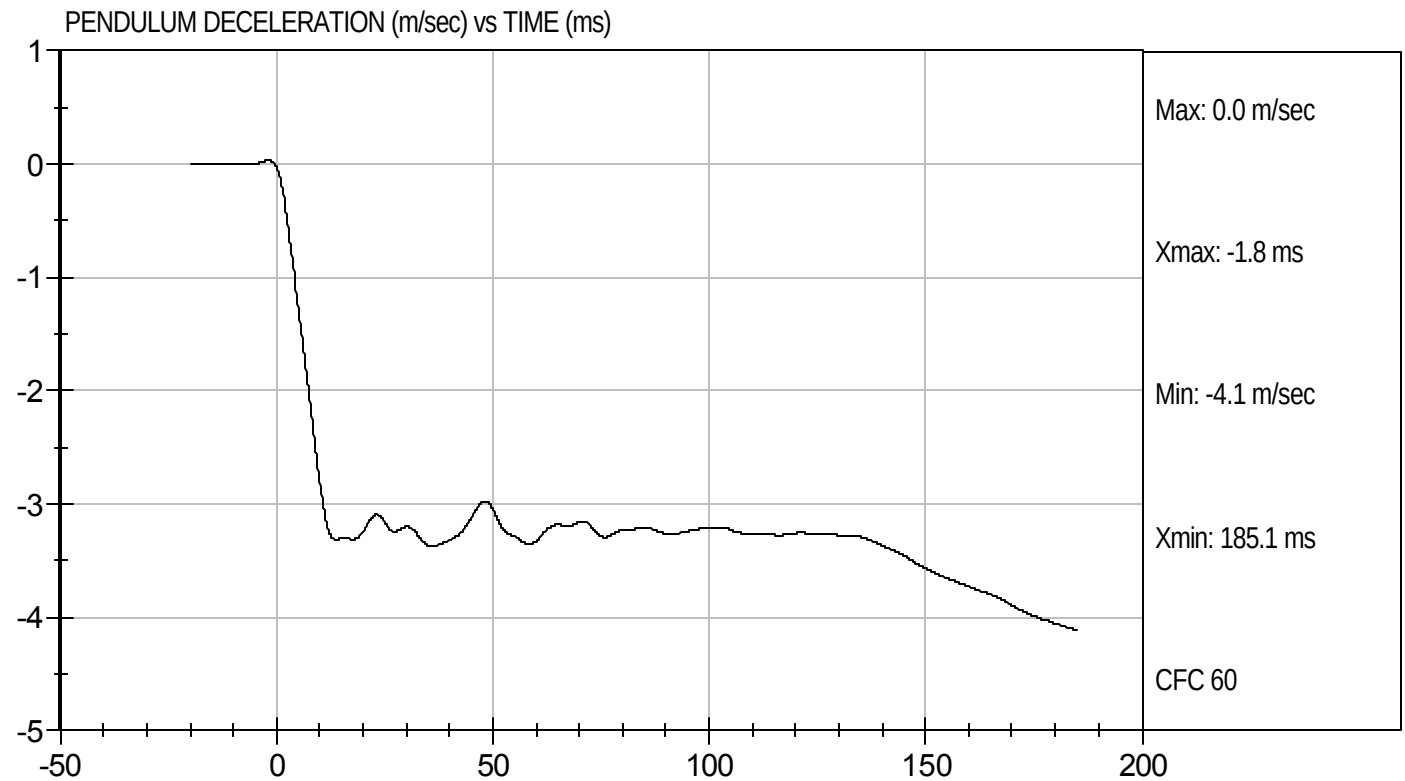
11/16/10
 Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D103992

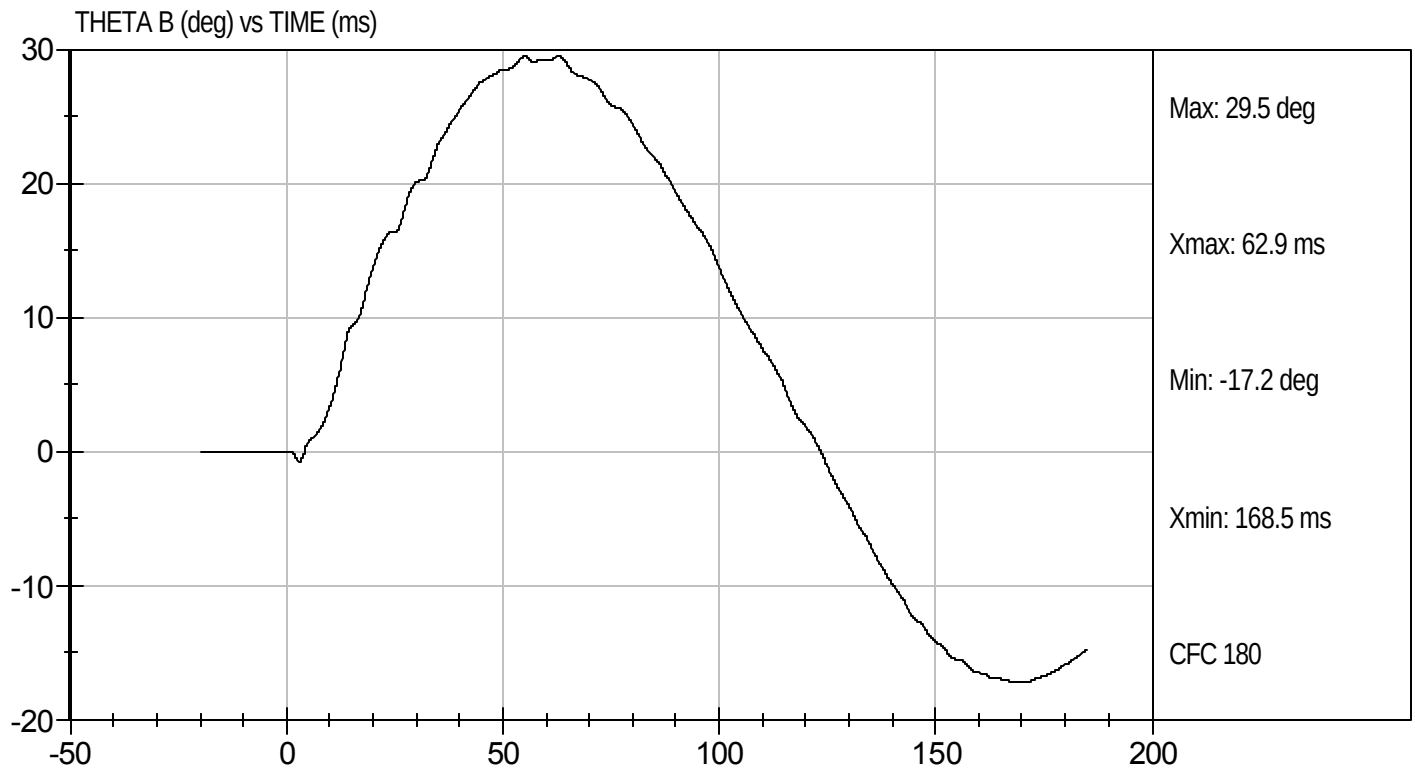
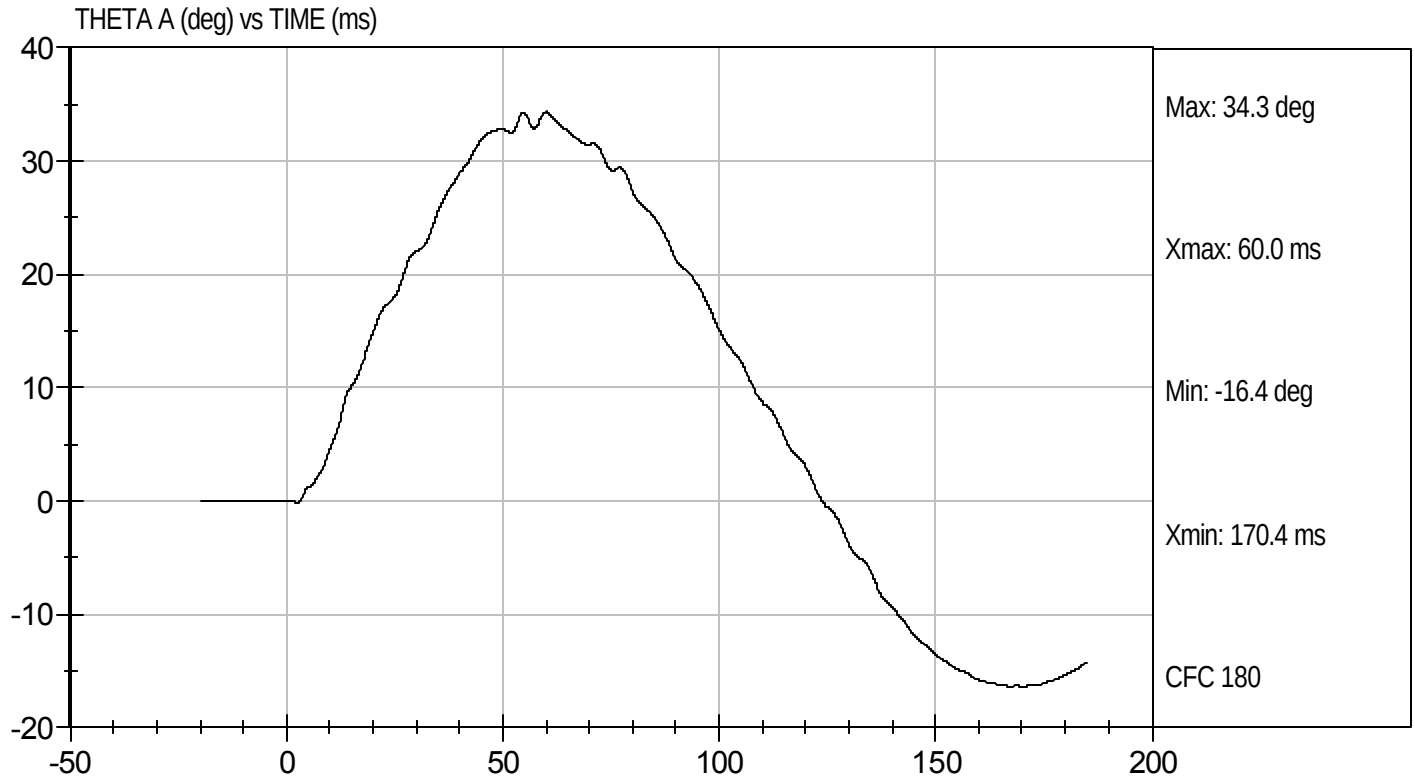
Test Date: 11/16/10
Velocity: 11.33 ft/s, 3.5 m/s





Test Desc: Neck Bending
Component ID: D103992

Test Date: 11/16/10
Velocity: 11.33 ft/s, 3.5 m/s



MGA RESEARCH CORPORATION
SHOULDER IMPACT TEST
ES-2re DUMMY

ATD Serial No: 032

Test I.D: D103993

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	22.1	Pass
Laboratory Relative Humidity	%	10 to 70	29	Pass
Pendulum Speed	m/s	4.2 to 4.4	4.3	Pass
Peak Shoulder Acceleration	G's	7.5 to 10.5	10.3	Pass
Time of Peak Shoulder Acceleration	ms	NA	13.4	Pass
Overall Test Results			Pass	


Laboratory Technician

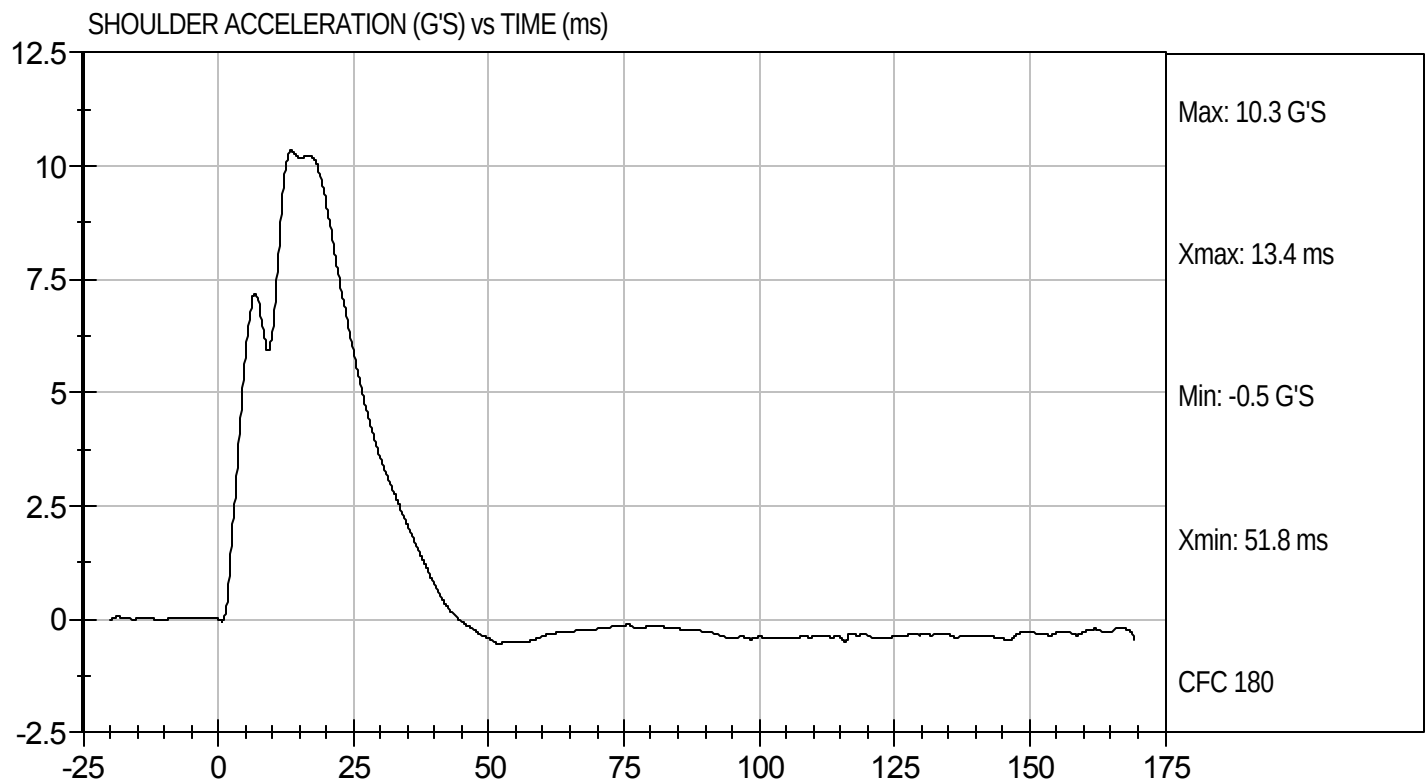
11/16/10
Test Date


Approved By



Test Desc: Shoulder Impact
Component ID: D103993

Test Date: 11/16/10
Velocity: 14.24 ft/s, 4.3 m/s



MGA RESEARCH CORPORATION

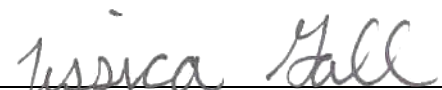
UPPER RIB TEST

ES-2re DUMMY

ATD Serial No: 032

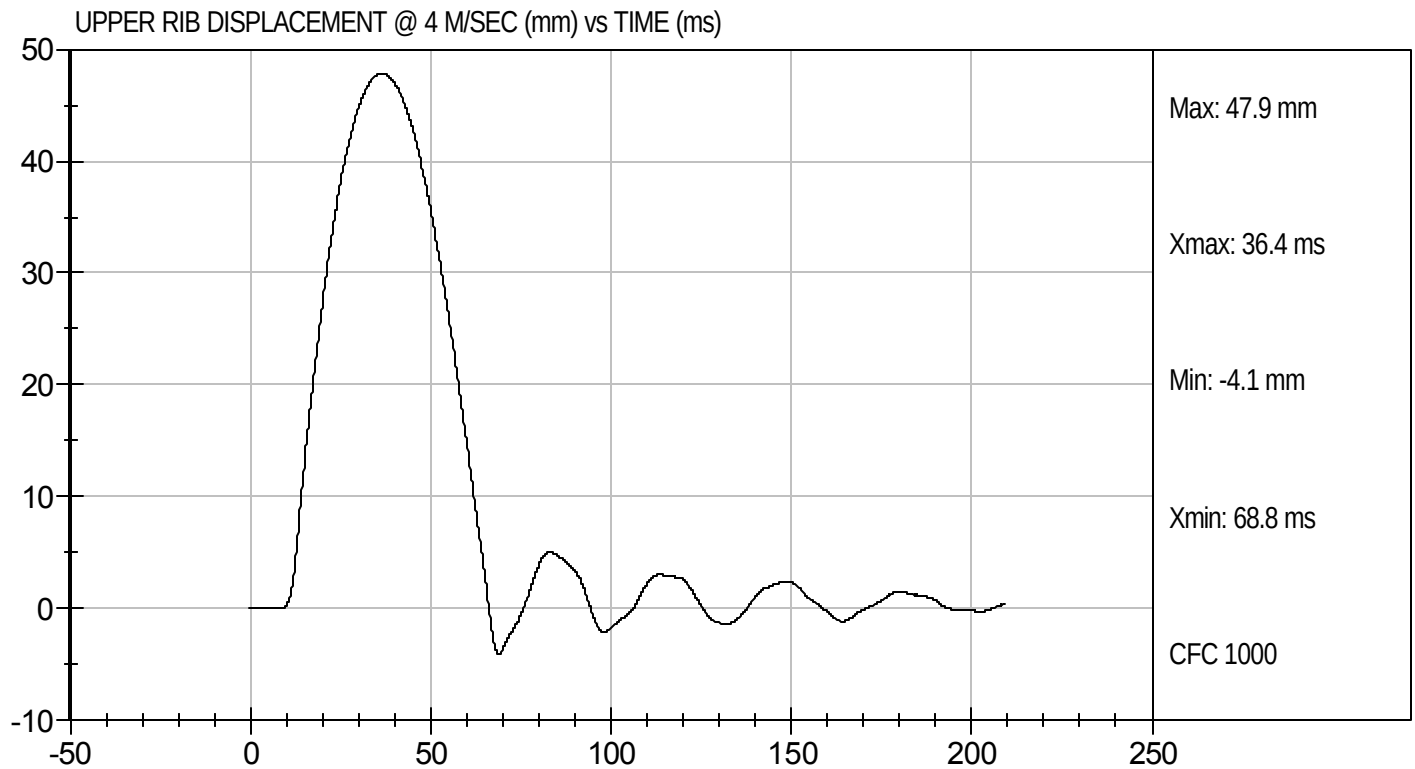
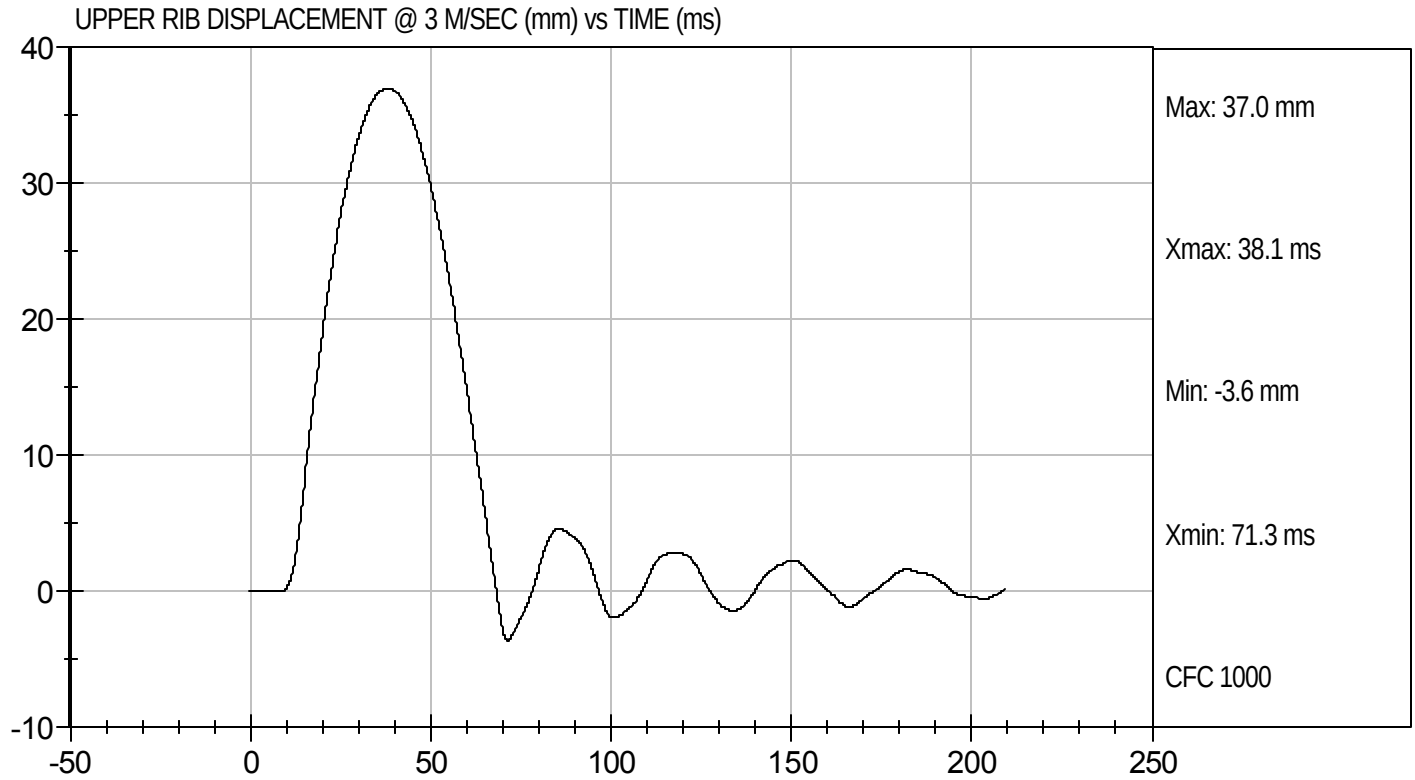
Test I.D: D103994

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	30	Pass
Displacement at 3 m/s	mm	36.0 to 40.0	37.0	Pass
Displacement at 4 m/s	mm	46.0 to 51.0	47.9	Pass
			Overall Test Results	Pass


Laboratory Technician

11/17/10
Test Date


Approved By



MGA RESEARCH CORPORATION

MID RIB TEST
ES-2re DUMMY

ATD Serial No: 032

Test I.D: D103995

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	30	Pass
Displacement at 3 m/s	mm	36.0 to 40.0	37.7	Pass
Displacement at 4 m/s	mm	46.0 to 51.0	48.0	Pass
			Overall Test Results	Pass

Jessica Hall
Laboratory Technician

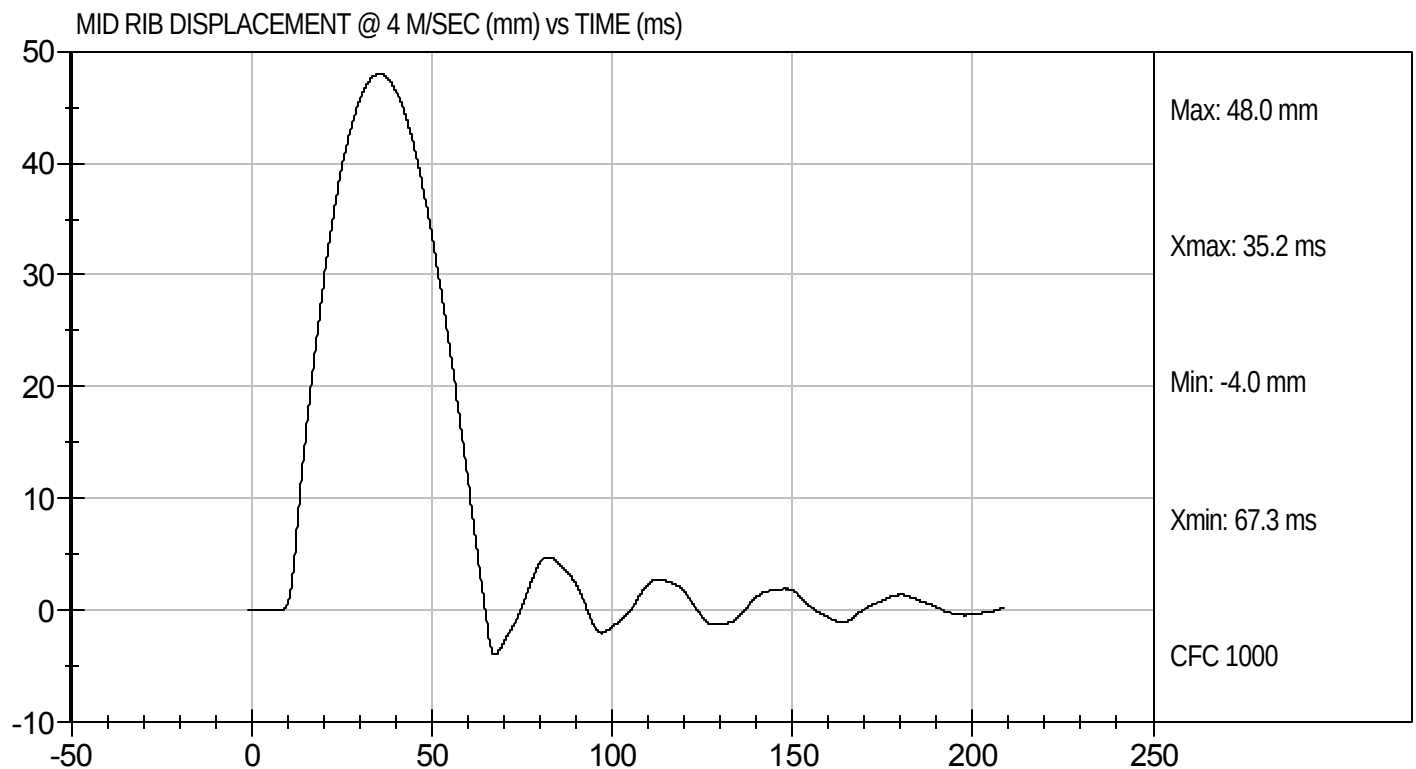
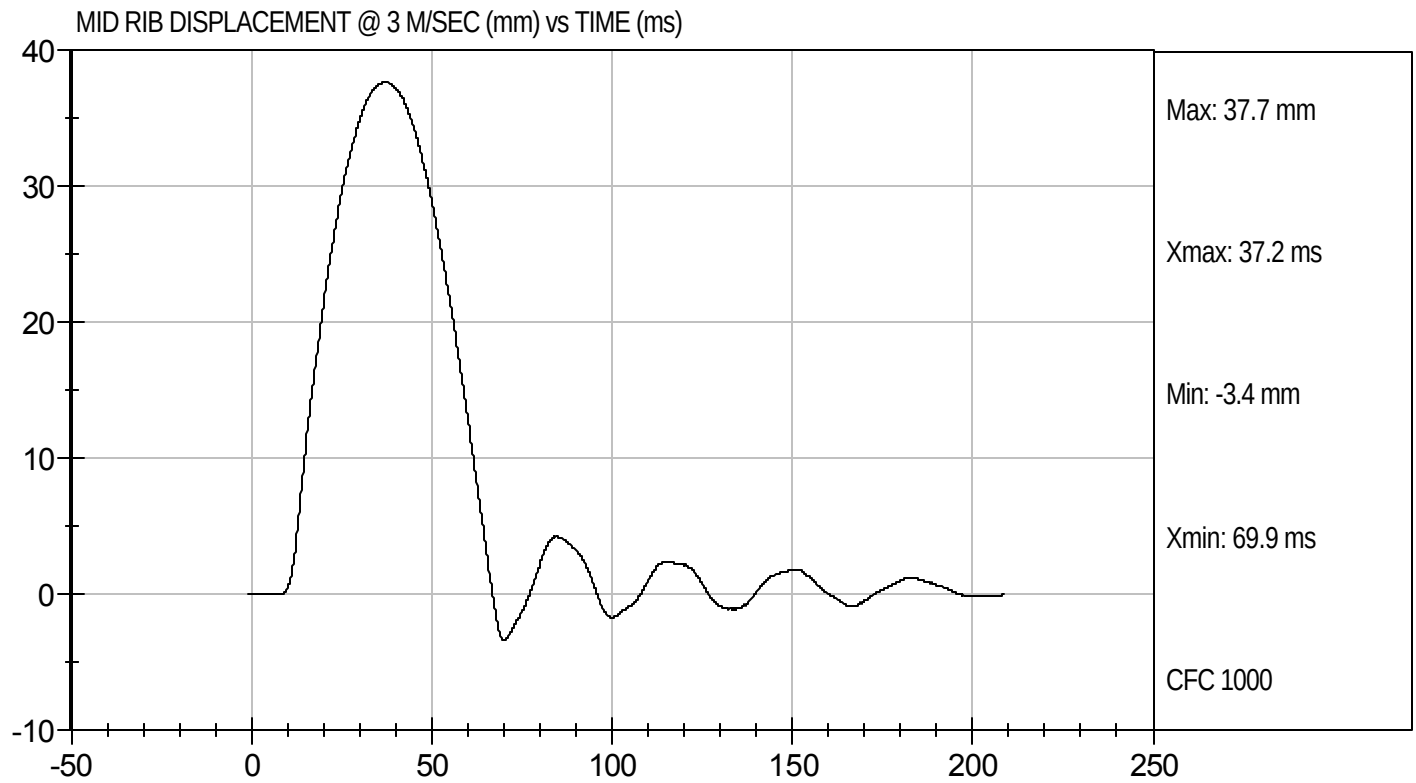
11/17/10
Test Date

David Winkelbauer
Approved By



Test Desc: Rib Impact - Mid
Component ID: D103995

Test Date: 11/17/10



MGA RESEARCH CORPORATION

LOWER RIB TEST

ES-2re DUMMY

ATD Serial No: 032

Test I.D: D103996

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	30	Pass
Displacement at 3 m/s	mm	36.0 to 40.0	37.7	Pass
Displacement at 4 m/s	mm	46.0 to 51.0	48.7	Pass
Overall Test Results			Pass	


Laboratory Technician

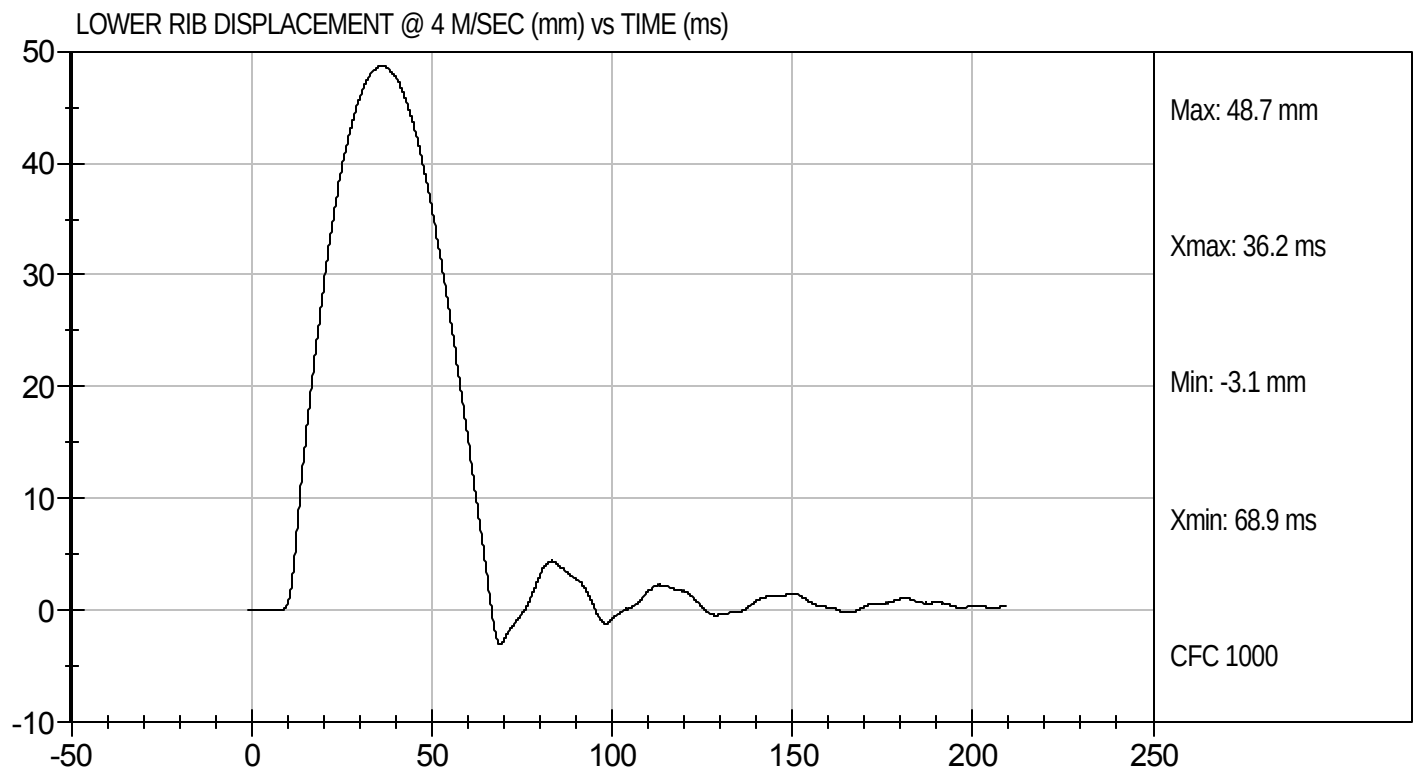
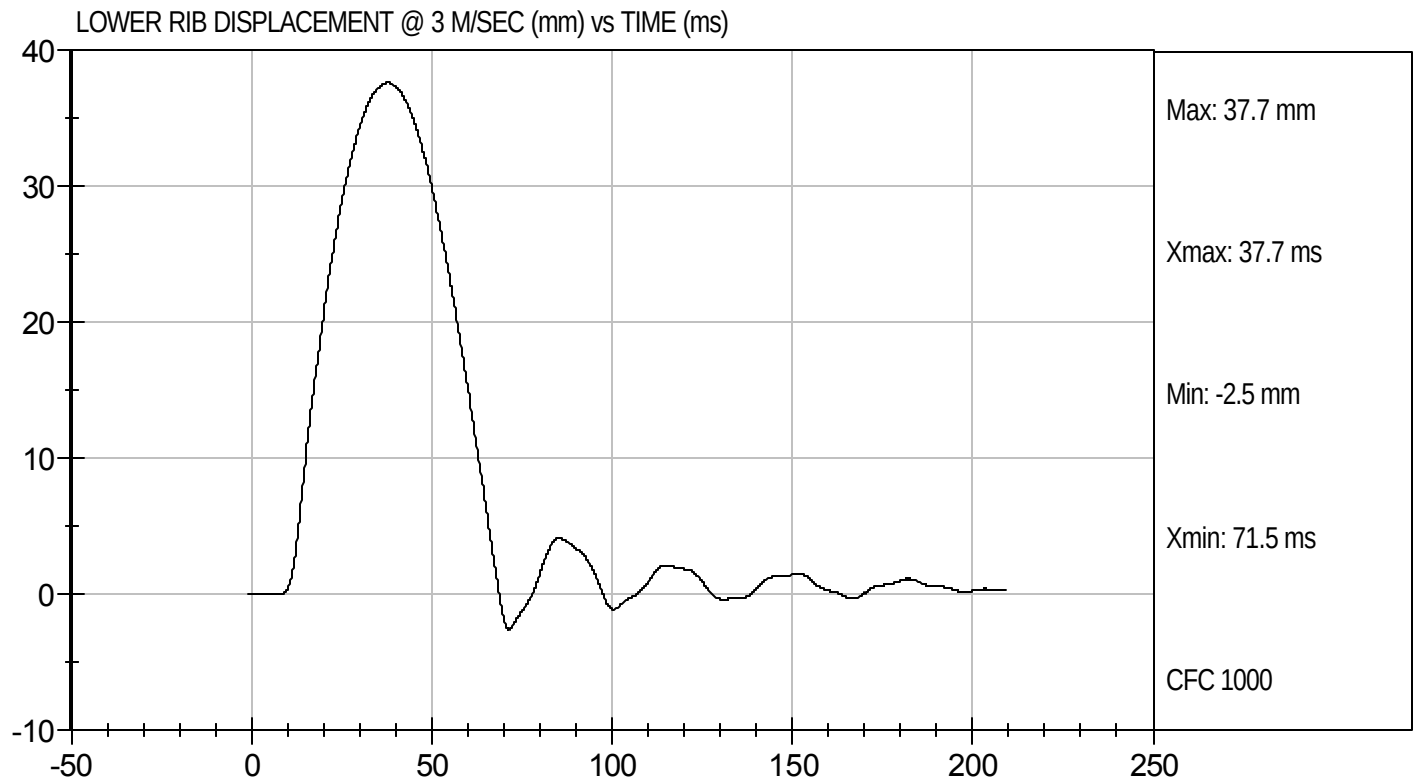
11/17/10
Test Date


Approved By



Test Desc: Rib Impact - Lower
Component ID: D103996

Test Date: 11/17/10



MGA RESEARCH CORPORATION

ABDOMEN TEST

ES-2re DUMMY

ATD Serial No: 032

Test I.D: D103997

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	22.1	Pass
Laboratory Relative Humidity	%	10 to 70	29	Pass
Probe Speed	m/s	3.90 to 4.10	4.06	Pass
Maximum Impact Force	kN	4.00 to 4.80	4.28	Pass
Time of Maximum Impact Force	ms	10.60 to 13.00	10.80	Pass
Maximum Total Abdomen Force	kN	2.20 to 2.70	2.44	Pass
Time of Maximum Abdomen Force	ms	10.00 to 12.30	10.60	Pass
Overall Test Results				Pass


Laboratory Technician

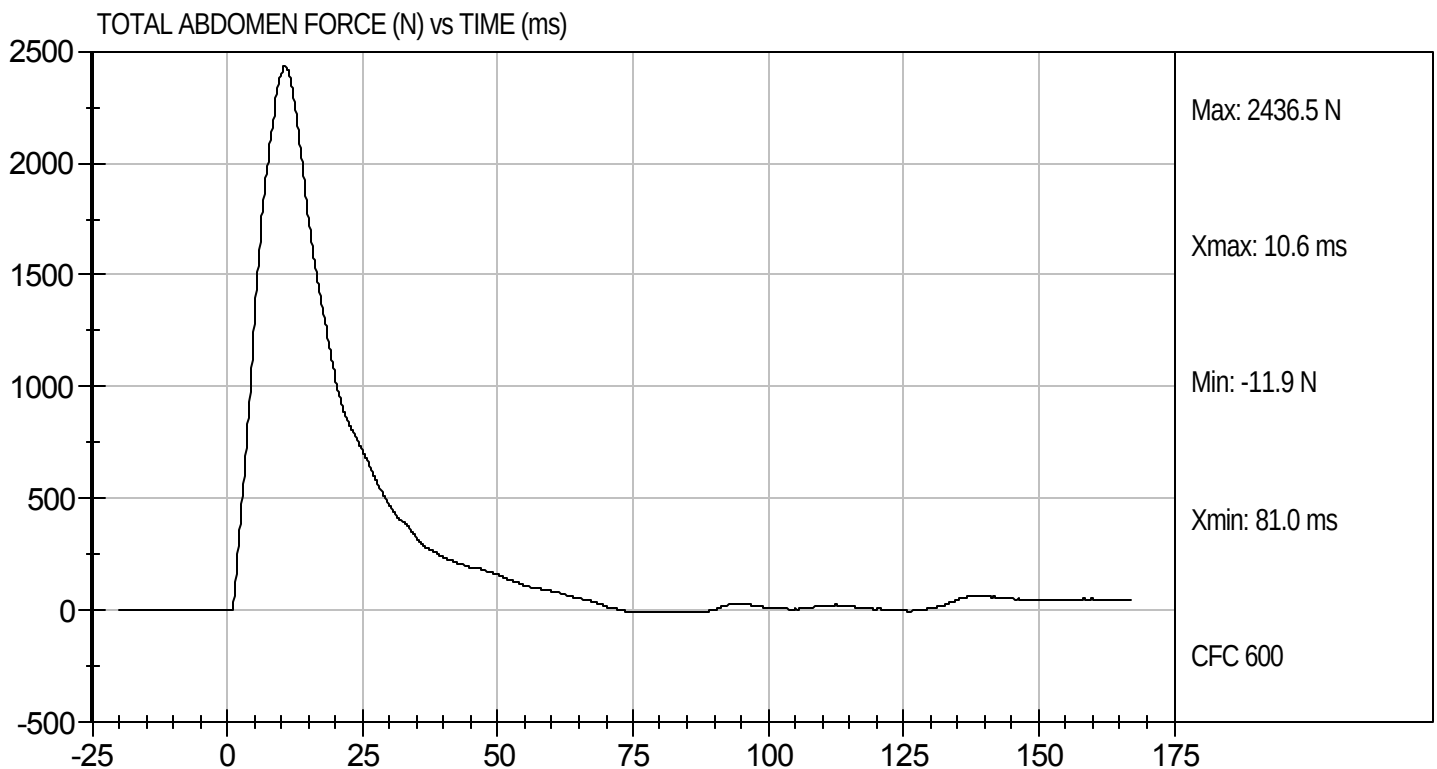
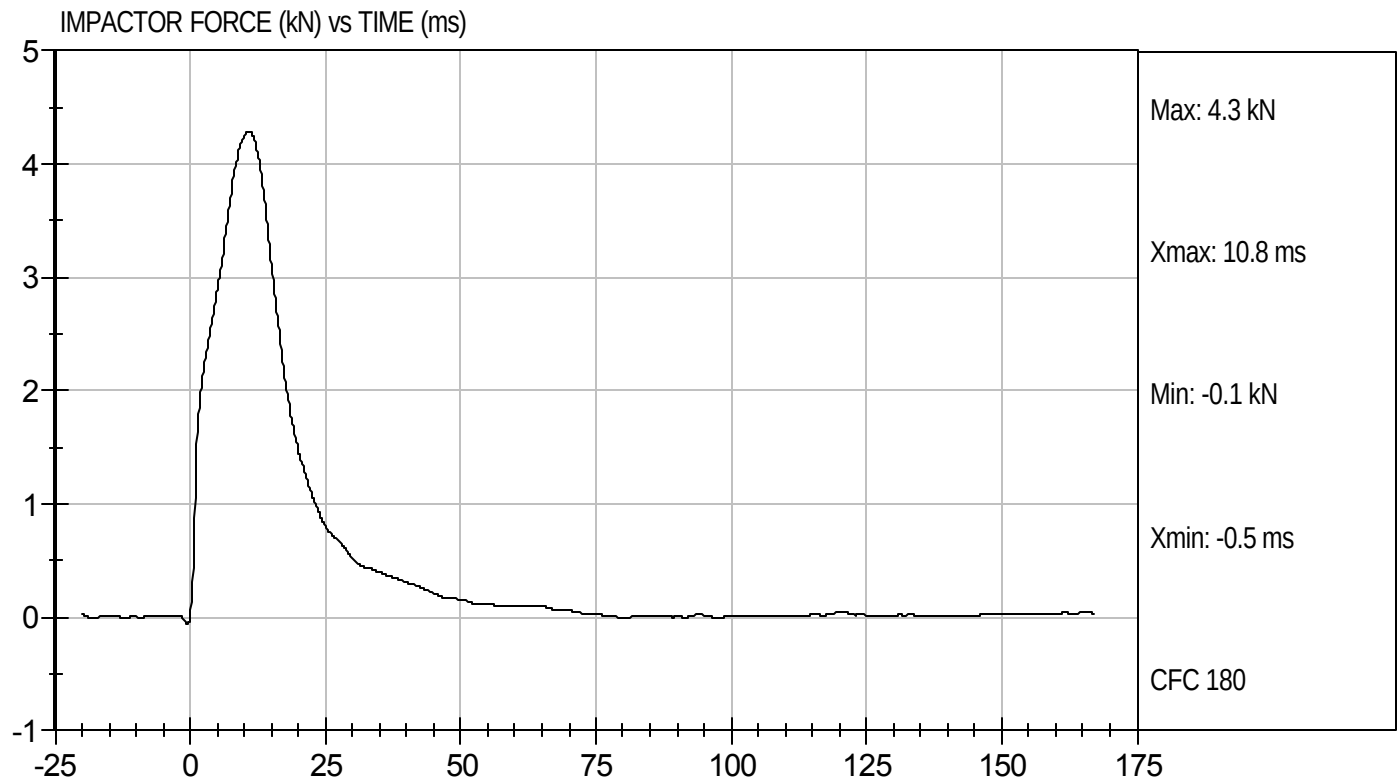
11/16/10
Test Date


Approved By



Test Desc: Abdomen Impact
Component ID: D103997

Test Date: 11/16/10
Velocity: 13.33 ft/s, 4.06 m/s

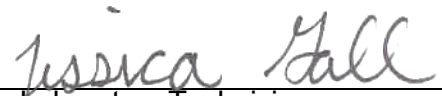


MGA RESEARCH CORPORATION
LUMBAR SPINE TEST
ES-2re DUMMY

ATD Serial No: 032

Test I.D.: D103998

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	22.1	Pass
Laboratory Relative Humidity		%	10 to 70	28	Pass
Pendulum Speed		m/s	5.95 to 6.15	6.05	Pass
Pendulum Deceleration	1 ms	m/s	-0.05 to 0.00	-0.02	Pass
	3.7 ms	m/s	-0.425 to -0.24	-0.42	Pass
	27 ms	m/s	-6.50 to -5.80	-6.01	Pass
	30 ms	m/s	>= -6.5	-6.00	Pass
Maximum Flexion Angle		deg	45.0 to 55.0	49.2	Pass
Time of Maximum Flexion Angle		ms	39.0 to 53.0	44.6	Pass
Headform Rotation Decay to Initial Position		ms	37 to 57	44	Pass
Overall Results					Pass


 Laboratory Technician

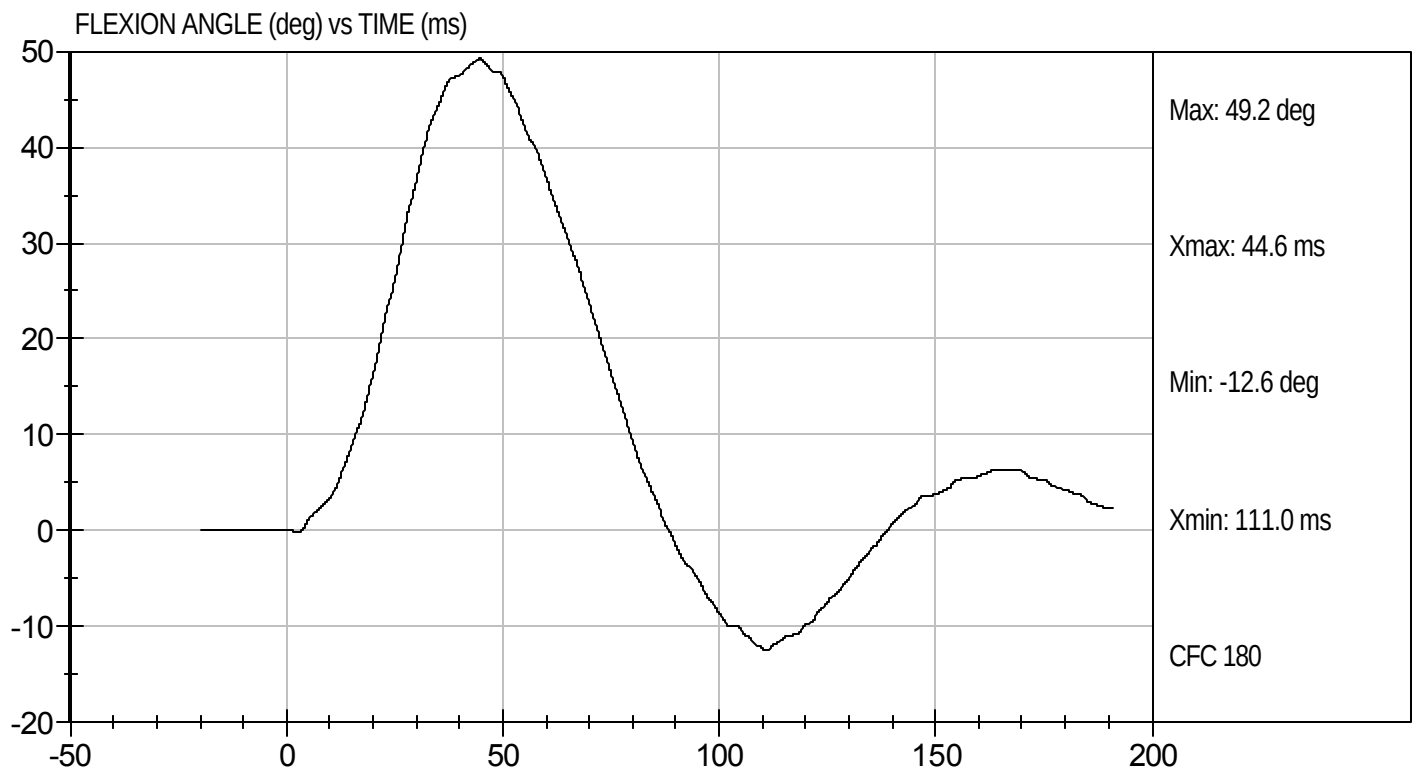
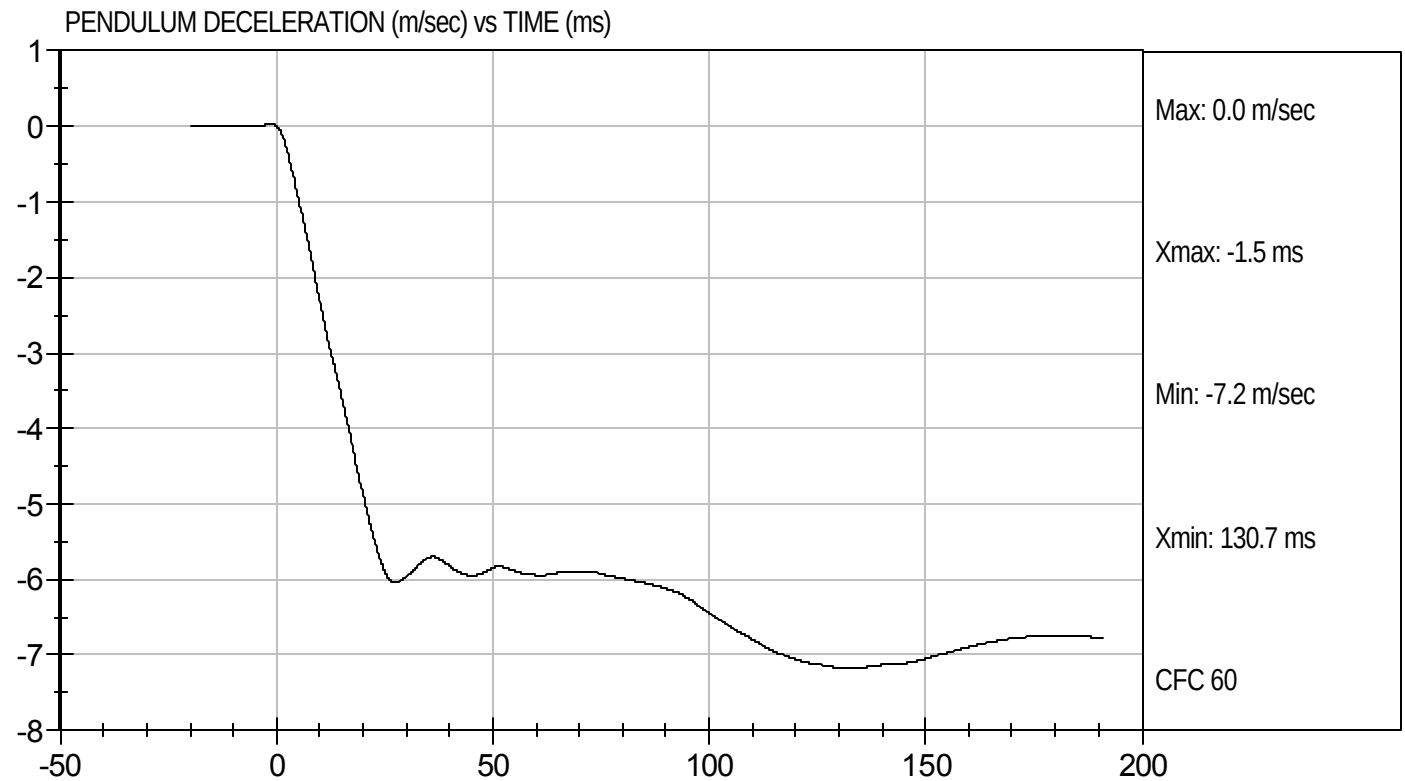
11/16/10
 Test Date


 Approved By



Test Desc: Lumbar Bending
Component ID: D103998

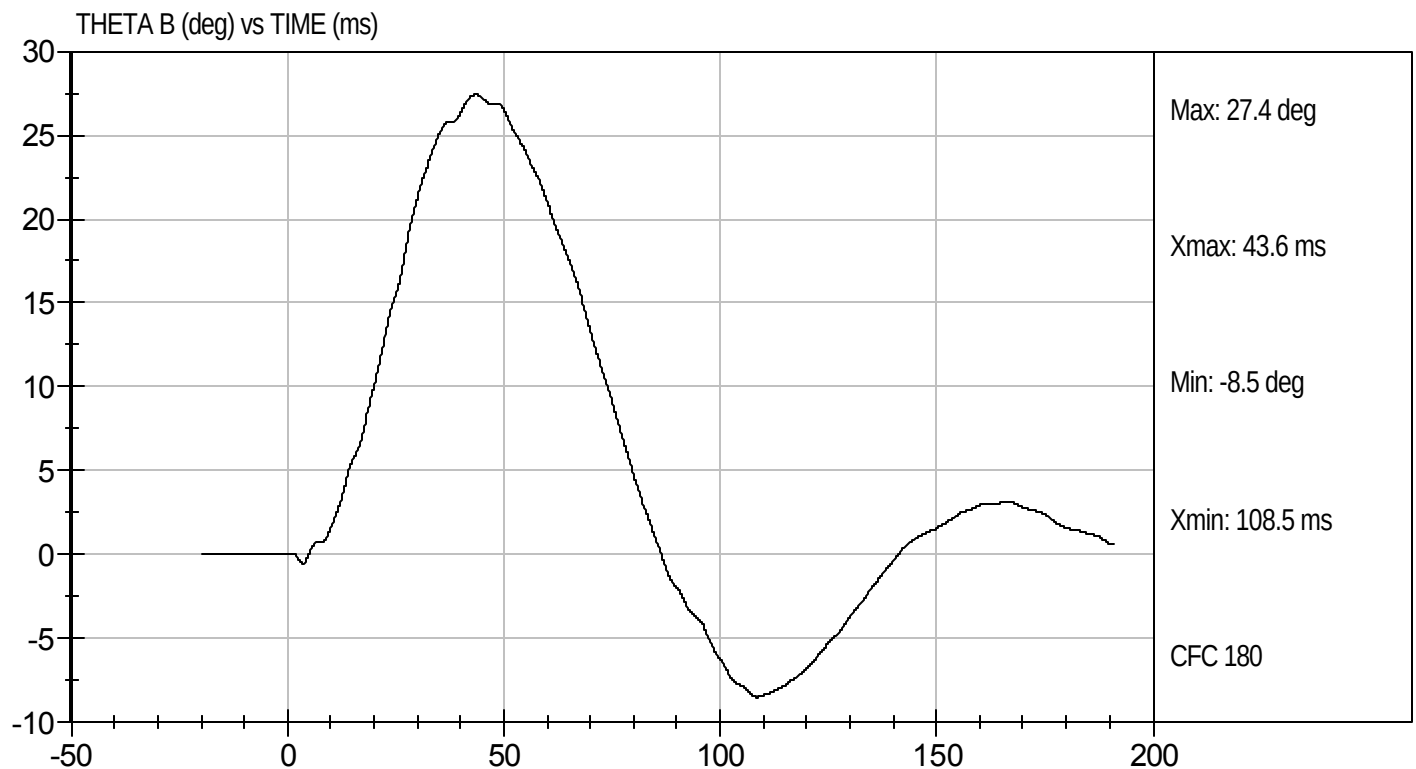
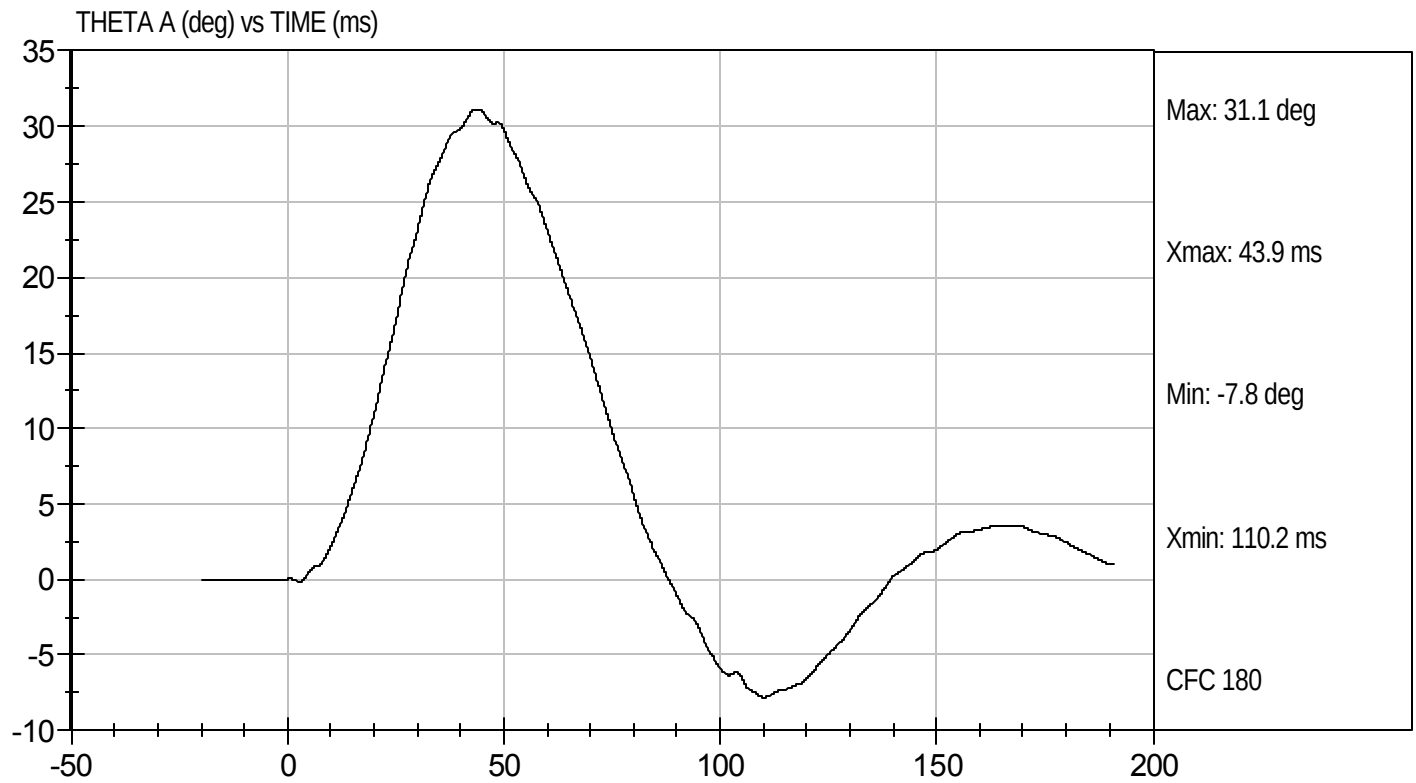
Test Date: 11/16/10
Velocity: 19.84 ft/s, 6.05 m/s





Test Desc: Lumbar Bending
Component ID: D103998

Test Date: 11/16/10
Velocity: 19.84 ft/s, 6.05 m/s



MGA RESEARCH CORPORATION

**PELVIS TEST
ES-2re DUMMY**

ATD Serial No: 032

Test I.D: D103999

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	22.1	Pass
Laboratory Relative Humidity	%	10 to 70	29	Pass
Probe Speed	m/s	4.20 to 4.40	4.34	Pass
Maximum Impactor Force	kN	4.70 to 5.40	4.82	Pass
Time of Maximum Impactor Force	ms	11.80 to 16.10	13.30	Pass
Maximum Pubic Force	kN	1.23 to 1.59	1.44	Pass
Time of Maximum Pubic Force	ms	12.20 to 17.00	14.30	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

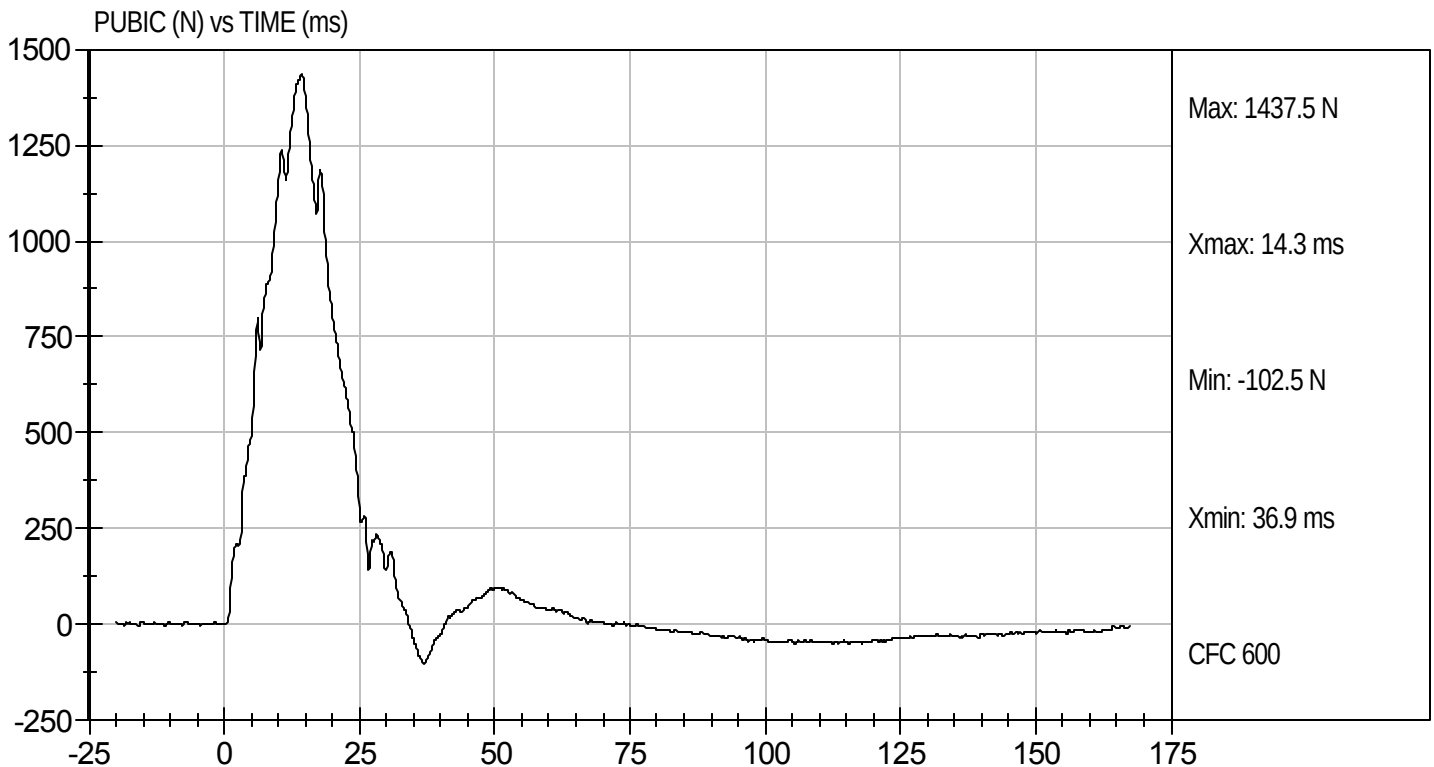
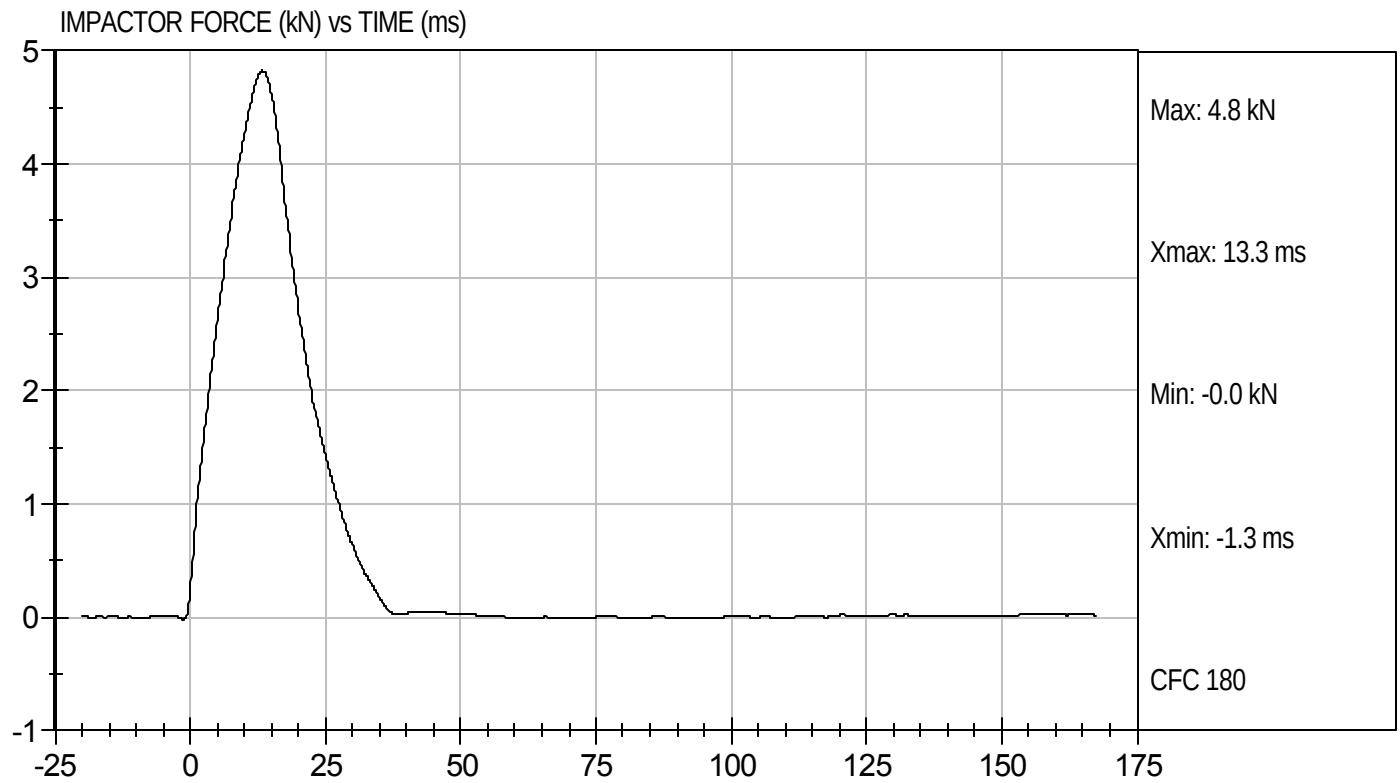
11/16/10
Test Date

David Winkelbauer
Approved By



Test Desc: Pelvis Impact
Component ID: D103999

Test Date: 11/16/10
Velocity: 14.24 ft/s, 4.06 m/s



MGA RESEARCH CORPORATION
FULL BODY THORAX IMPACT TEST
ES-2re DUMMY

ATD Serial No: 032

Test I.D: D103990

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.1	Pass
Humidity	%	10 to 70	29	Pass
Probe Speed	m/s	5.40 to 5.60	5.46	Pass
Maximum Impactor Force (after 6 ms)	kN	5.10 to 6.20	5.13	Pass
Upper Rib Displacement	mm	34.0 to 41.0	37.5	Pass
Middle Rib Displacement	mm	37.0 to 45.0	40.3	Pass
Lower Rib Displacement	mm	37.0 to 44.0	39.8	Pass
Overall Test Results			Pass	


Laboratory Technician

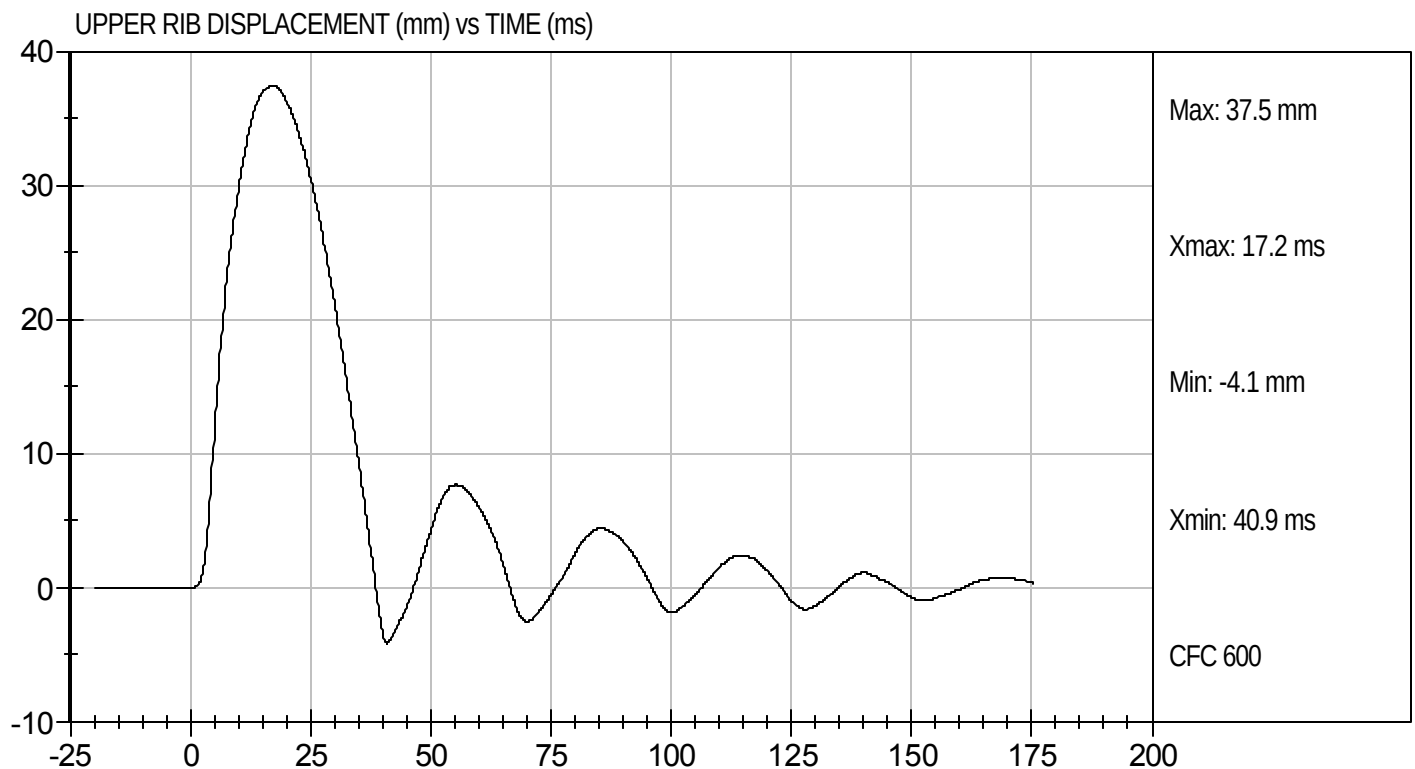
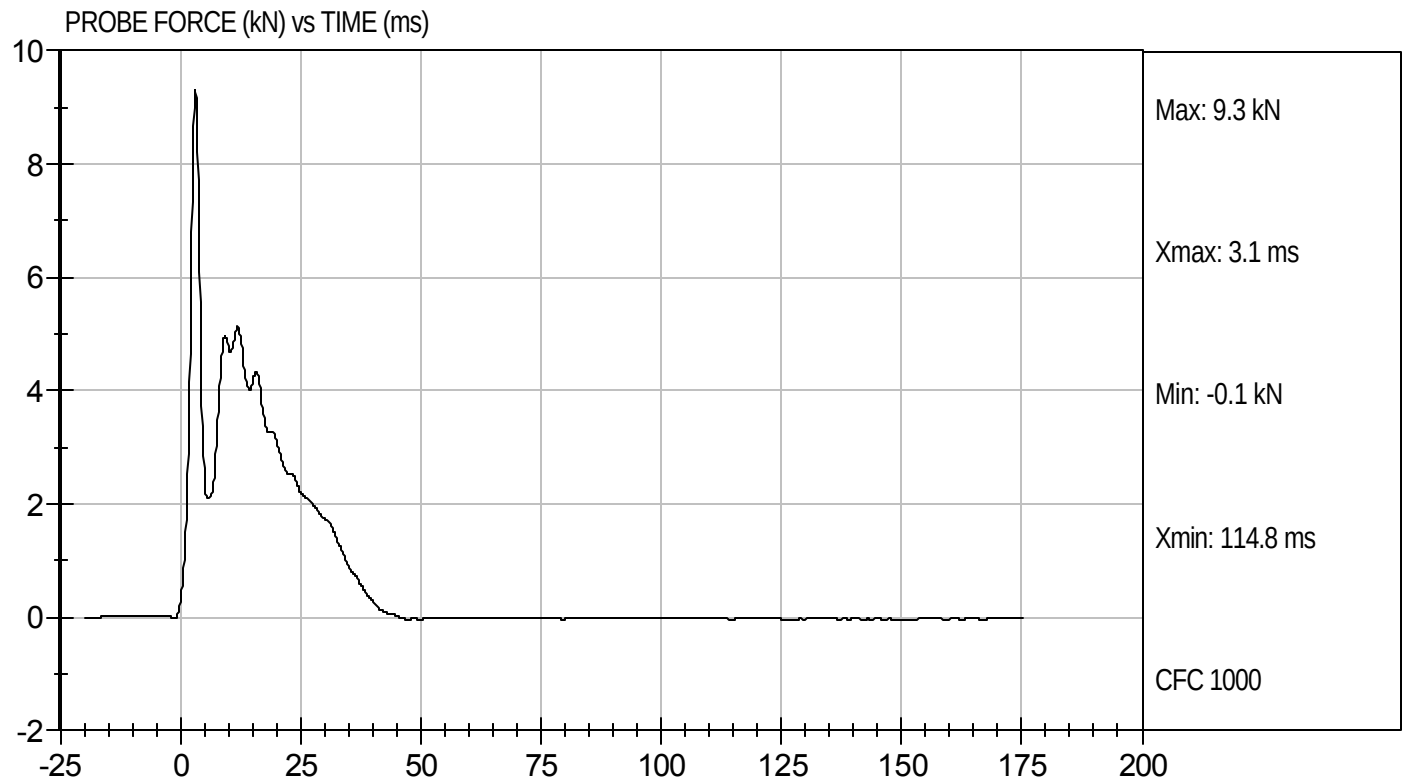
11/16/10
Test Date


Approved By



Test Desc: Thorax Impact
Component ID: D103990

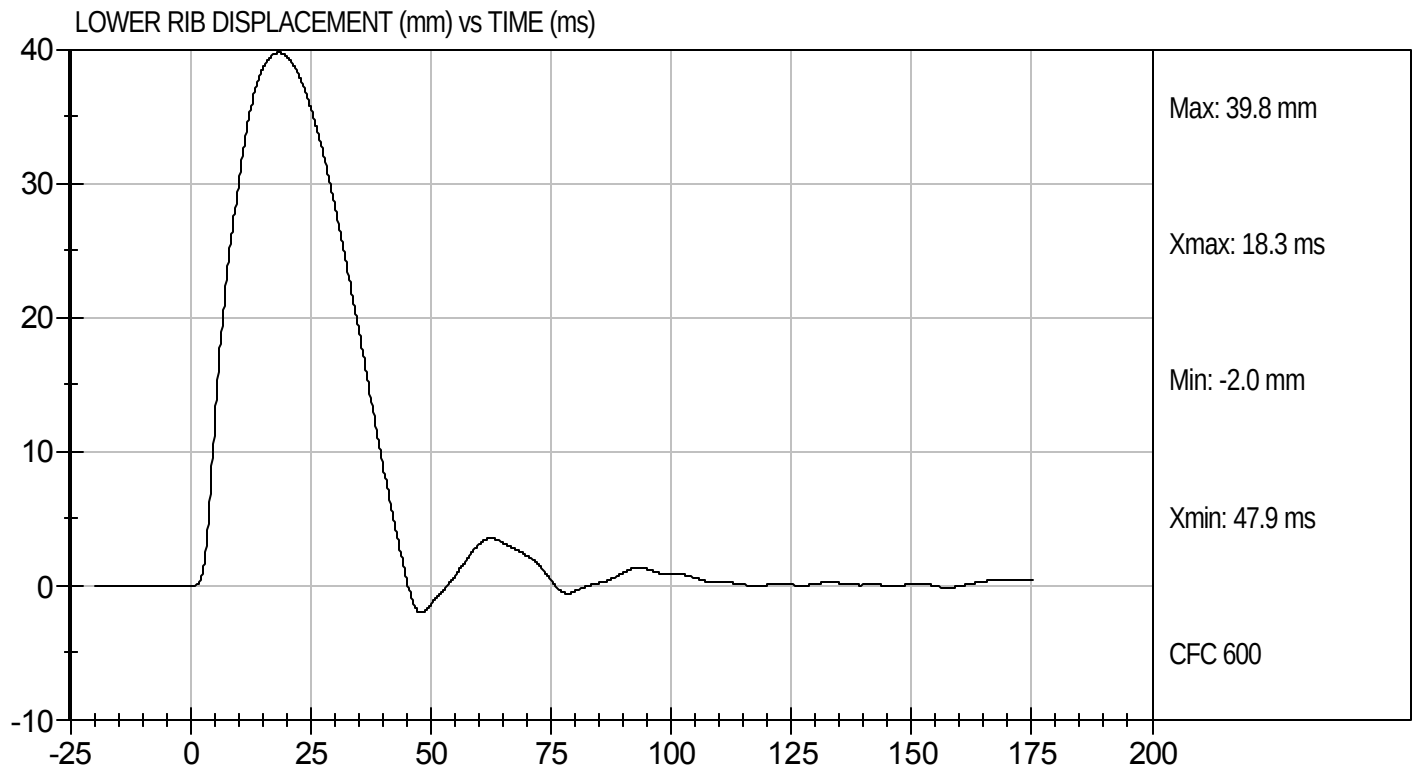
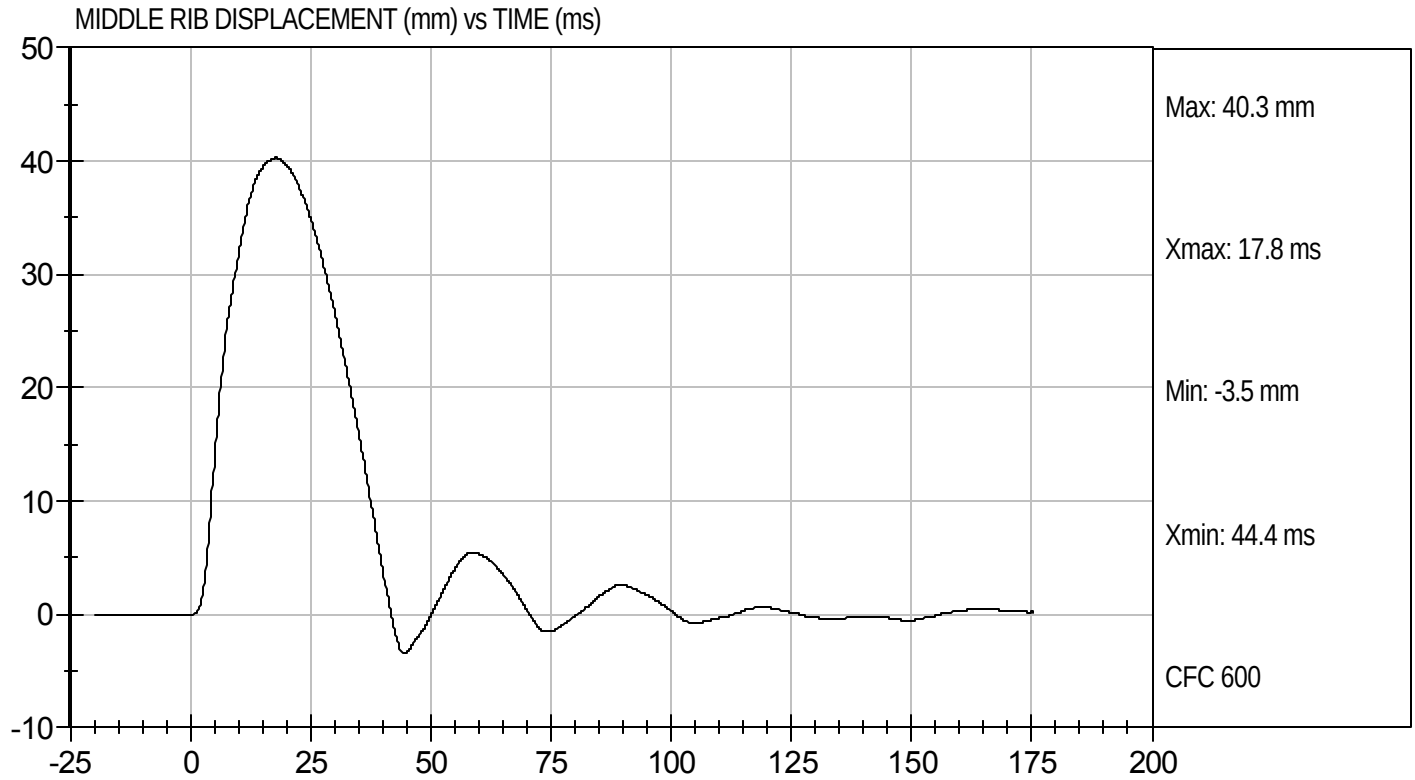
Test Date: 11/16/10
Velocity: 17.92 ft/s, 5.46 m/s





Test Desc: Thorax Impact
Component ID: D103990

Test Date: 11/16/10
Velocity: 17.92 ft/s, 5.46 m/s



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

ATD Serial No: 306

Test ID: D103901

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	37	Pass
Peak Resultant Acceleration	G's	115 to 137	118	Pass
Peak Lateral Acceleration	G's	+/- 15	2	Pass
Unimodal	N/A	<15%	Yes	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

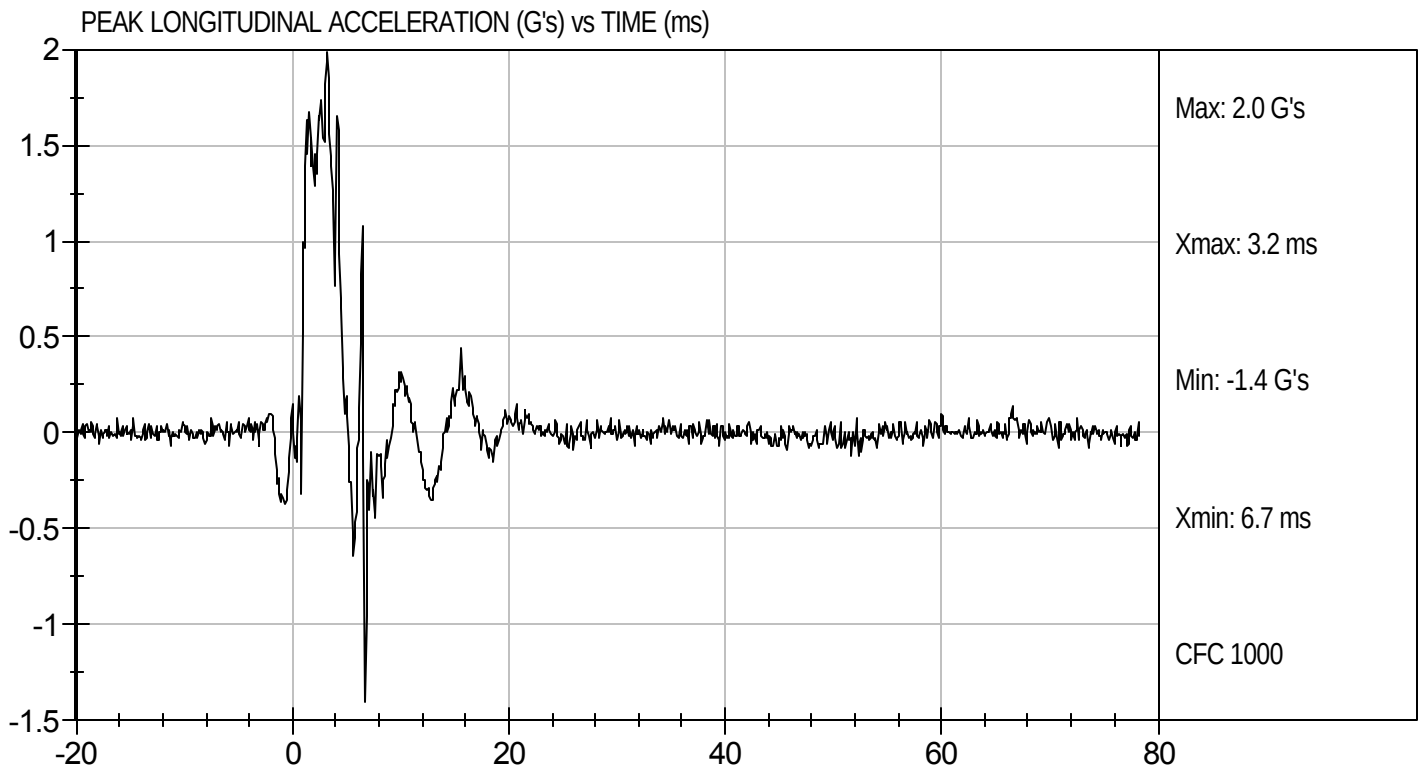
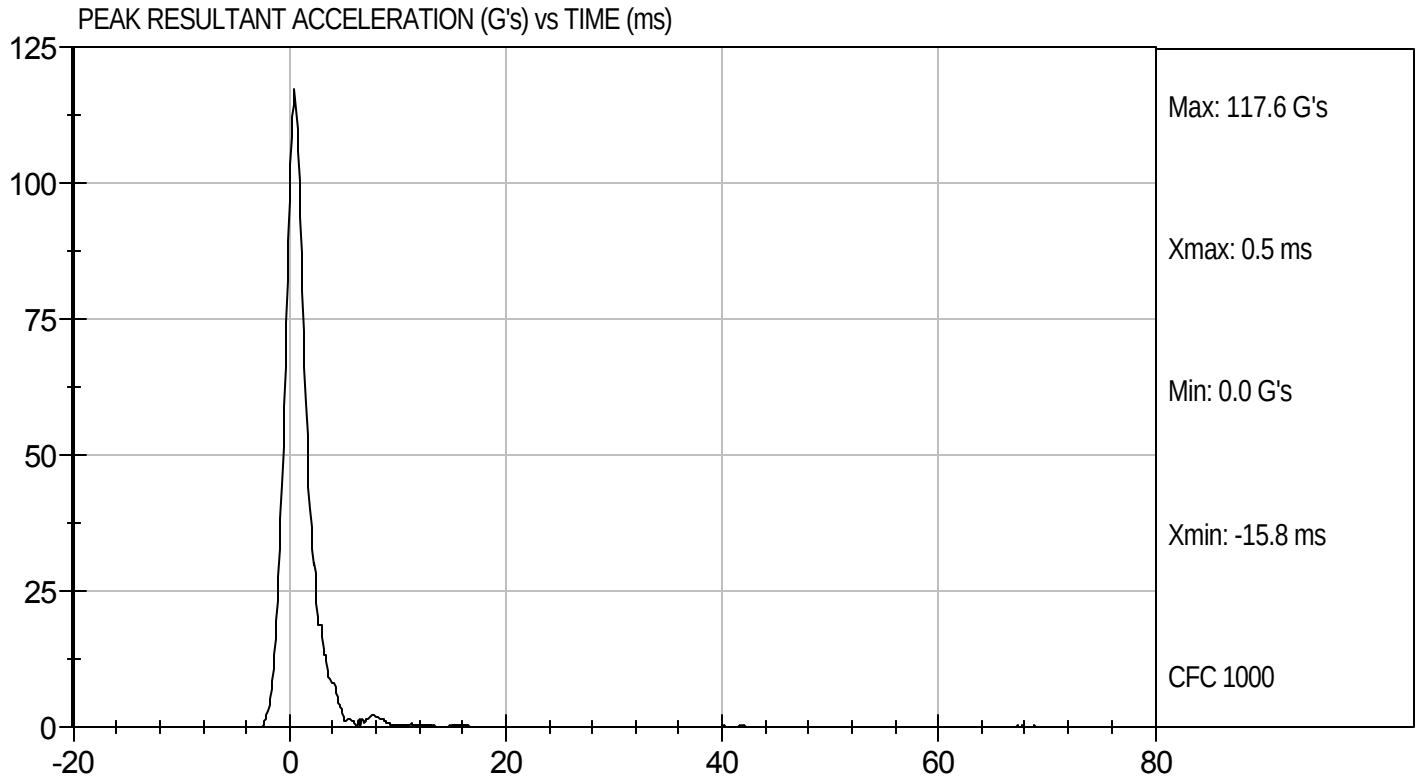
11/10/10
Test Date

David Winkelbauer
Approved By



Test Desc: Head Drop
Component ID: D103901

Test Date: 11/10/10
Velocity: 0 ft/s, 0 m/s

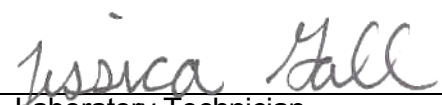


MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D.: D103902

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	20.8	Pass
Humidity		%	10 to 70	36	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Delta Velocity	10 ms	m/s	2.20 to 2.80	2.75	Pass
	15 ms	m/s	3.30 to 4.10	3.83	Pass
	20 ms	m/s	4.40 to 5.40	5.07	Pass
	25 ms	m/s	5.40 to 6.10	5.56	Pass
	25-100 ms	m/s	5.50 to 6.20	5.57	Pass
Maximum D-Plane Rotation		deg	71 to 81	71	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	111	Pass
Overall Test Results				Pass	


 Laboratory Technician

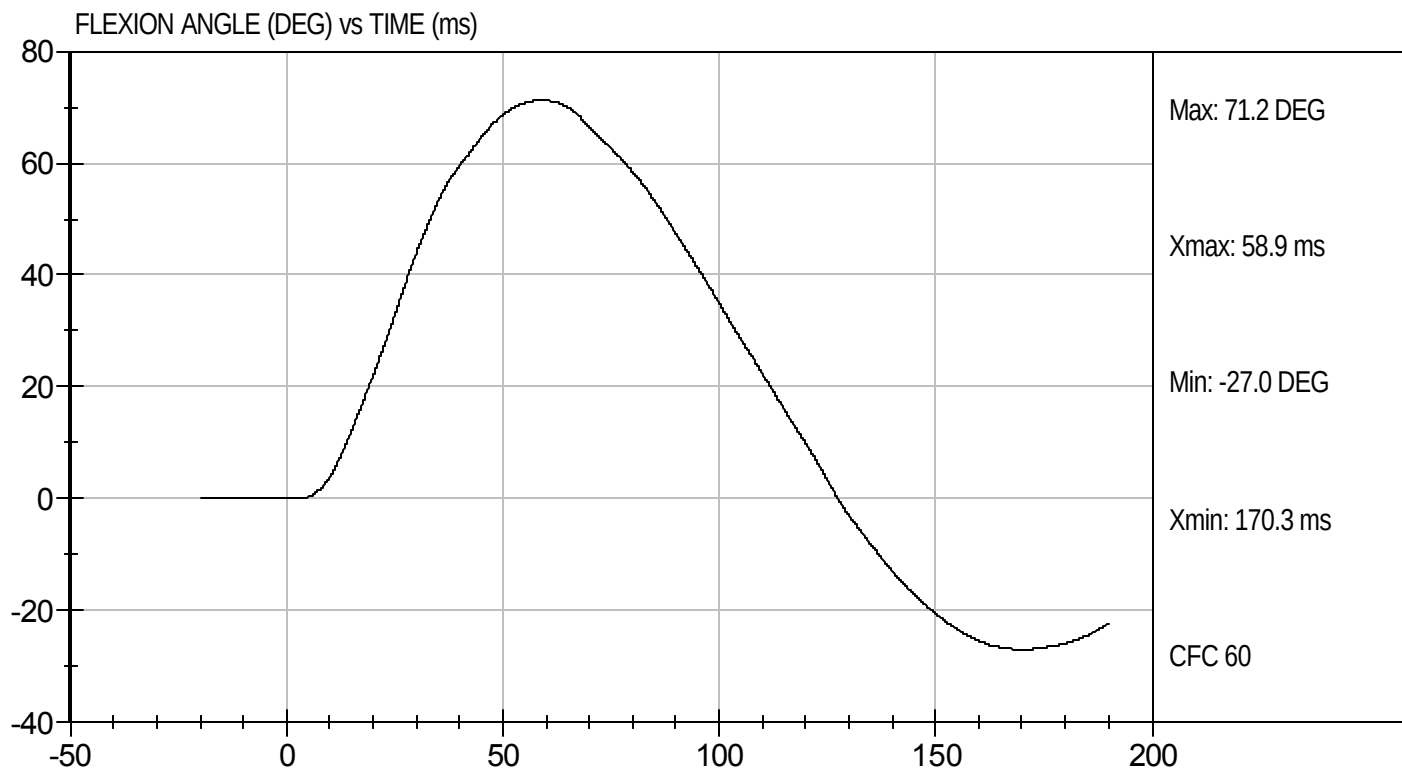
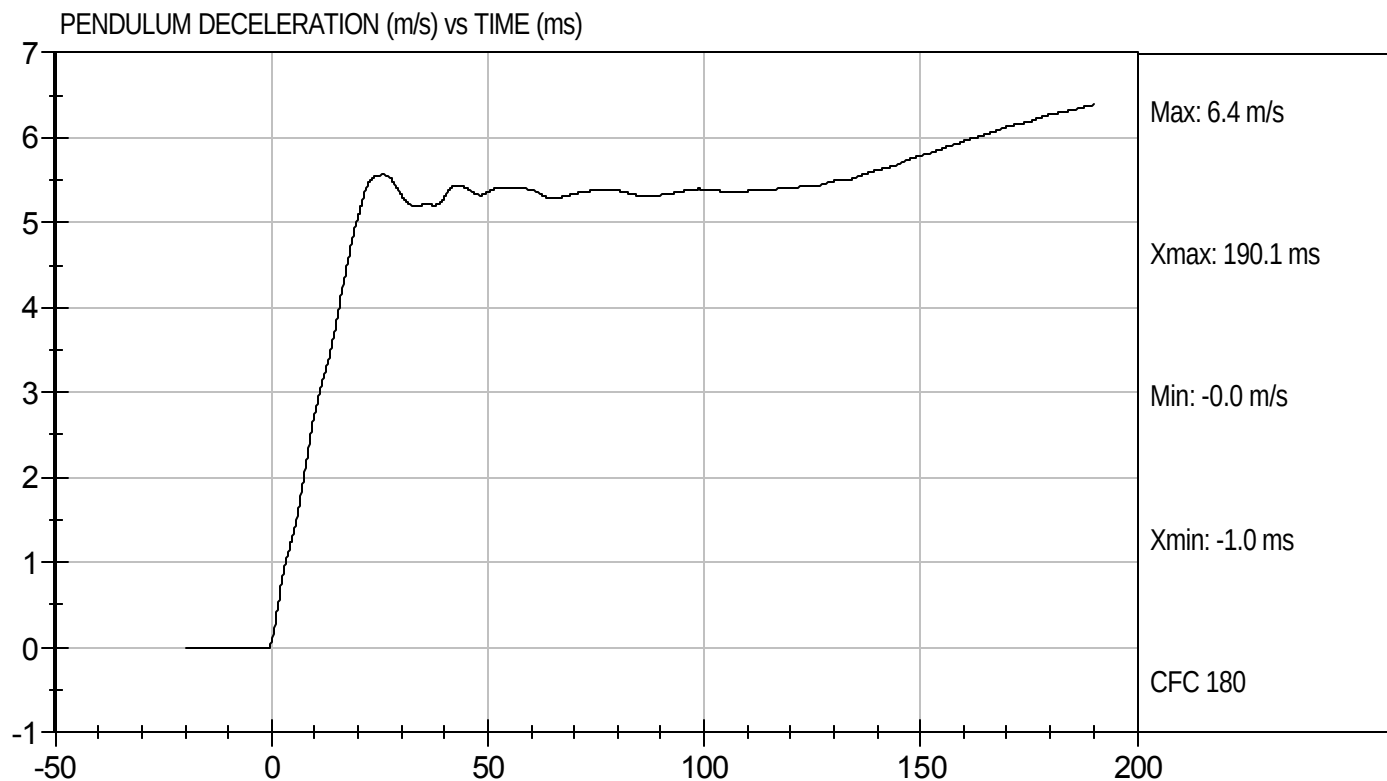
11/9/10
 Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D103902

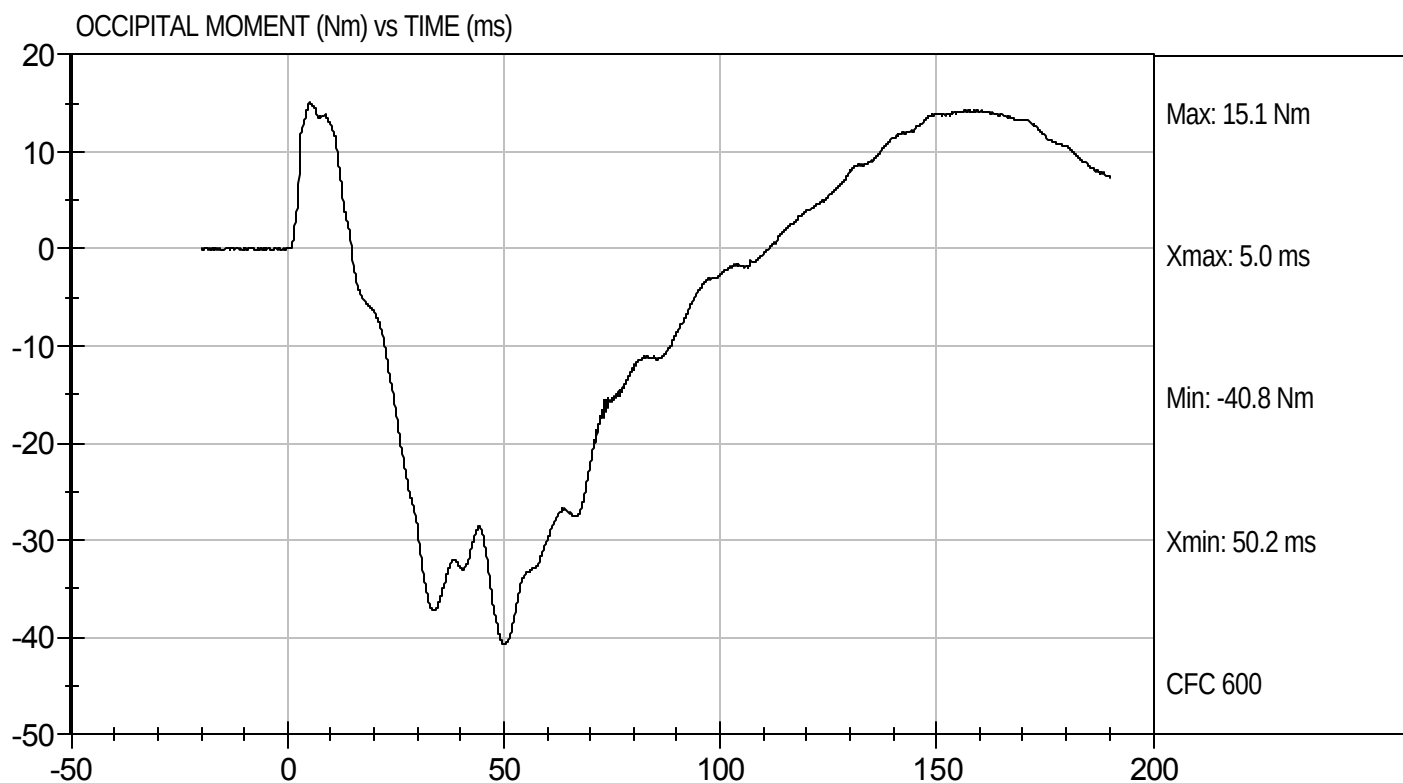
Test Date: 11/9/10
Velocity: 18.32 ft/s, 5.58 m/s





Test Desc: Neck Bending
Component ID: D103902

Test Date: 11/9/10
Velocity: 18.32 ft/s, 5.58 m/s



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

ATD Serial No: 306

Test ID: D103903

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	37	Pass
Impact Velocity	m/s	4.20 to 4.40	4.23	Pass
Maximum Probe Acceleration	G's	13 to 18	16	Pass
Shoulder Displacement	mm	28 to 37	30	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	19	Pass
Overall Test Results			Pass	


Laboratory Technician

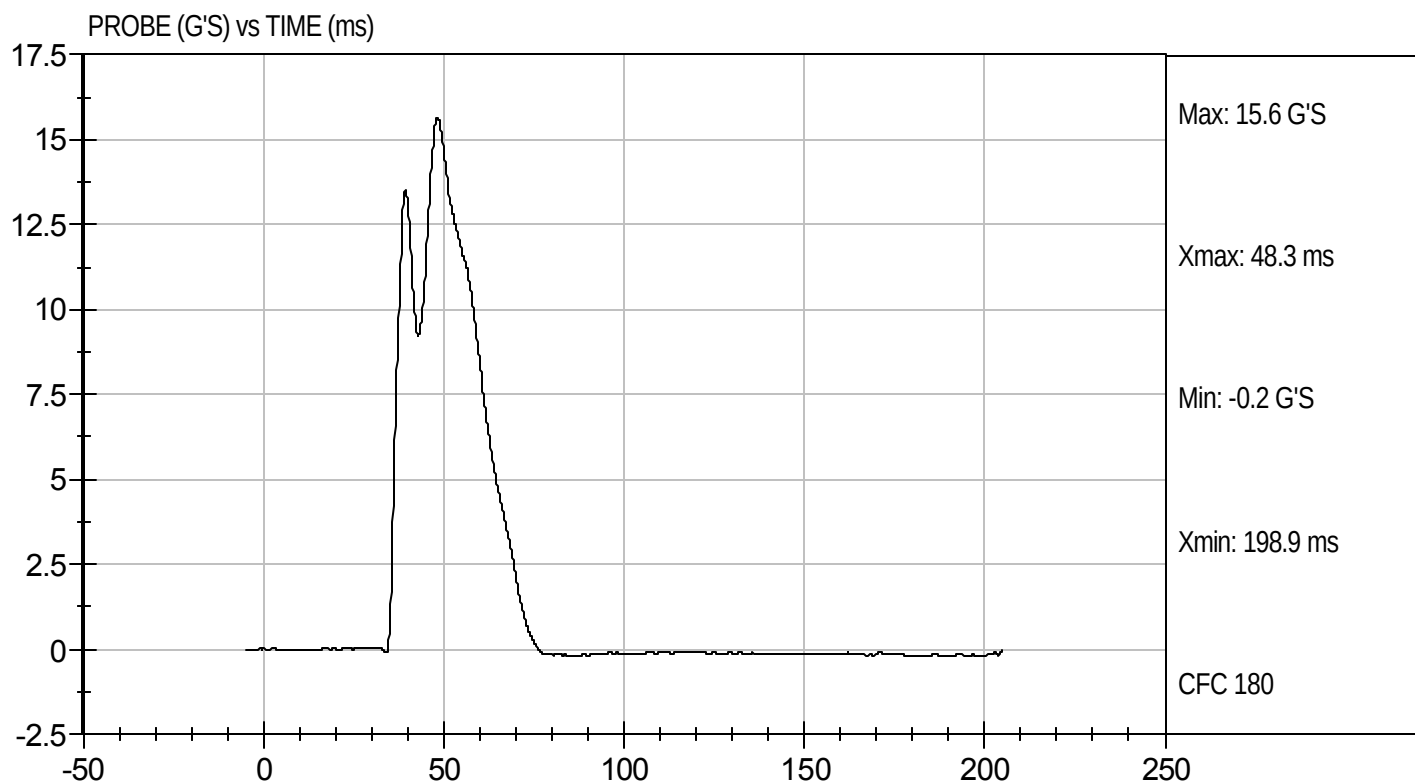
11/10/10
Test Date


Approved By



Test Desc: Shoulder Impact
Component ID: D103903

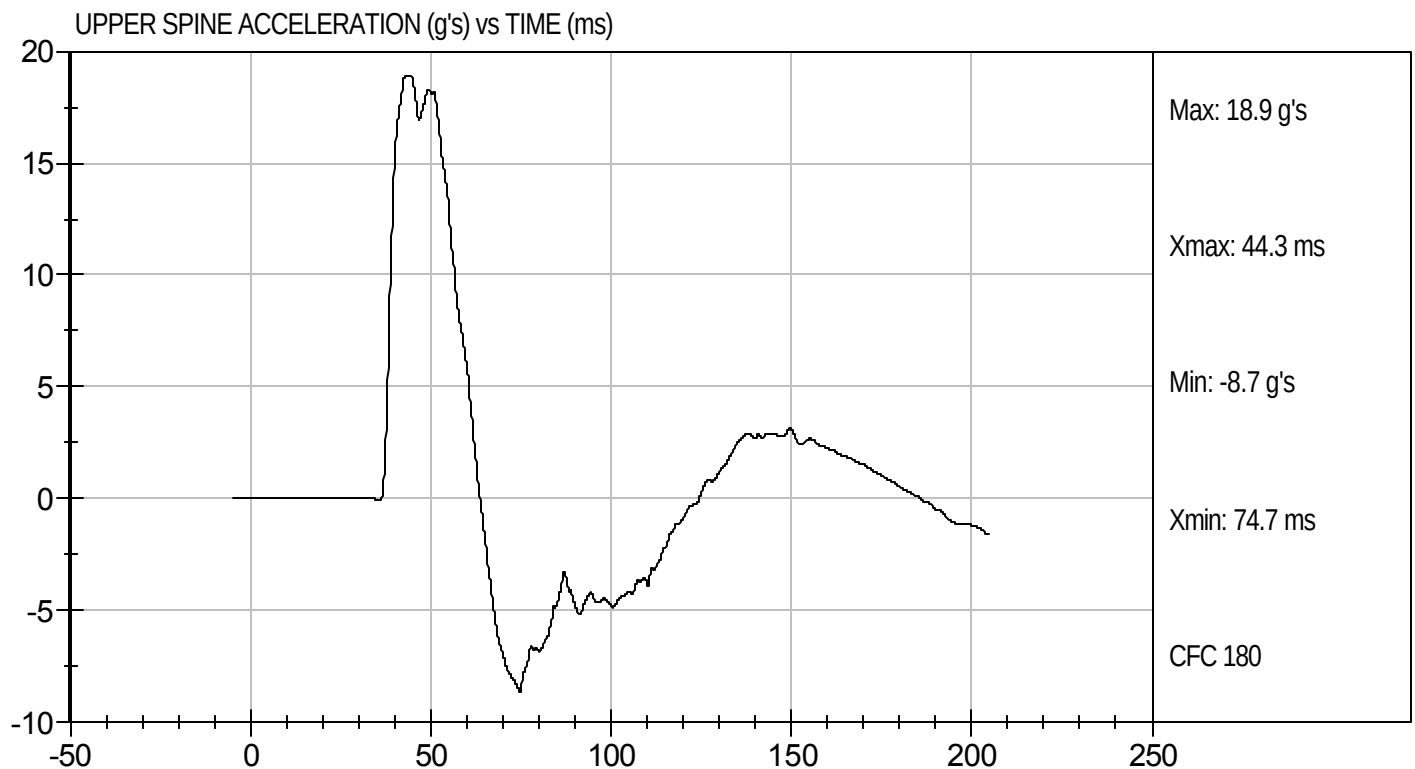
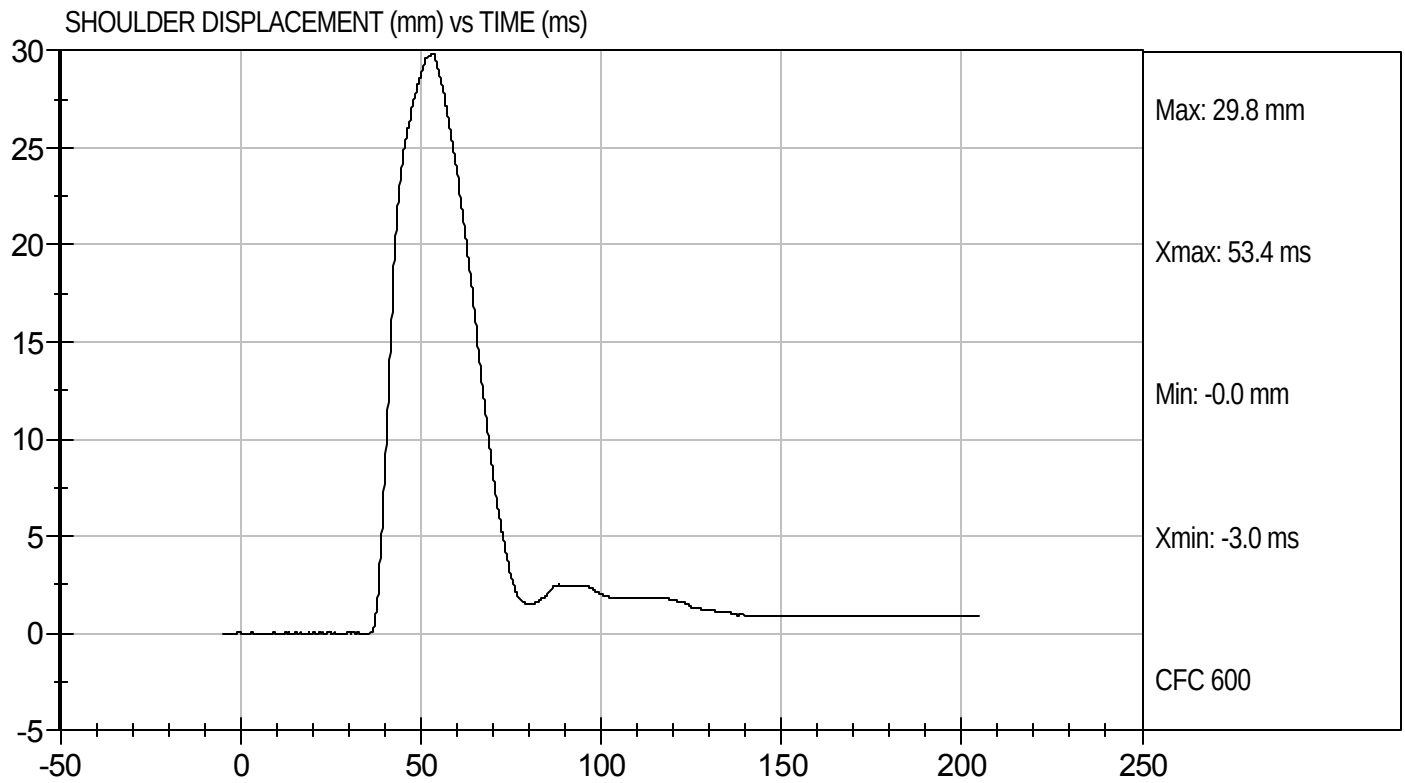
Test Date: 11/10/10
Velocity: 13.88 ft/s, 4.23 m/s





Test Desc: Shoulder Impact
Component ID: D103903

Test Date: 11/10/10
Velocity: 13.88 ft/s, 4.23 m/s



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

ATD Serial No: 306

Test I.D: D103904

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	37	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Peak Impactor Acceleration	G's	30 to 36	33	Pass
Shoulder Displacement	mm	31 to 40	34	Pass
Upper Rib Displacement	mm	25 to 32	27	Pass
Middle Rib Displacement	mm	30 to 36	30	Pass
Lower Rib Displacement	mm	32 to 38	33	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	41	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	34	Pass
Overall Test Results				Pass


Laboratory Technician

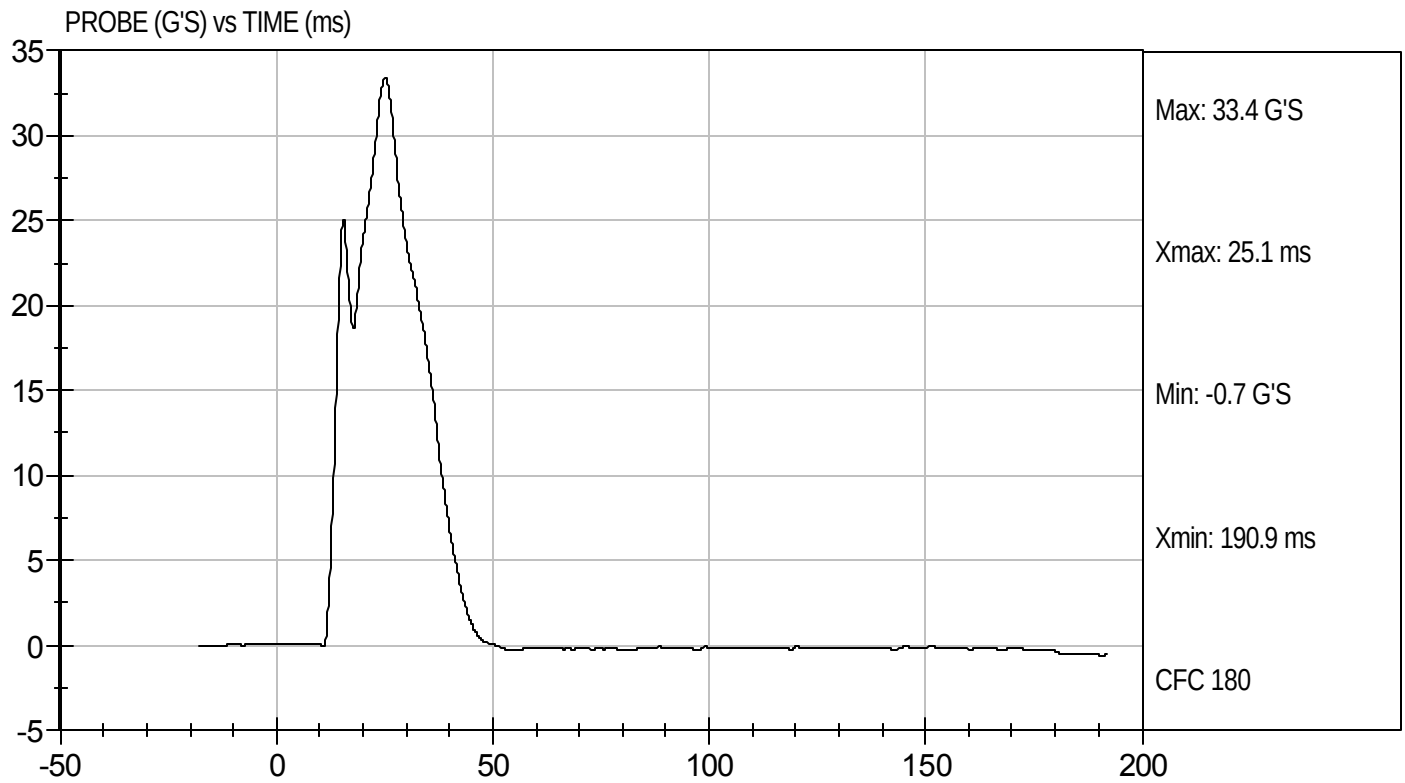
11/10/10
Test Date


Approved By



Test Desc: Thorax With Arm
Component ID: D103904

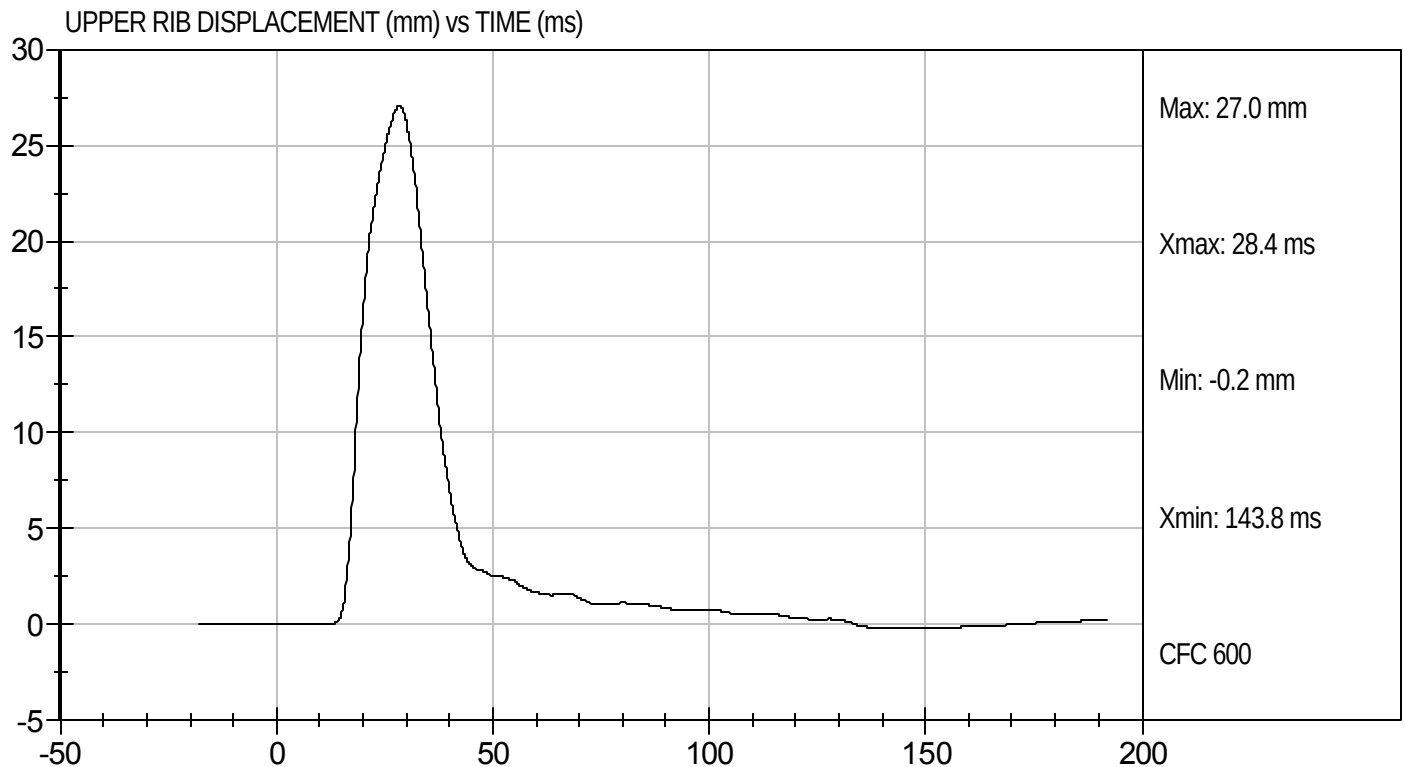
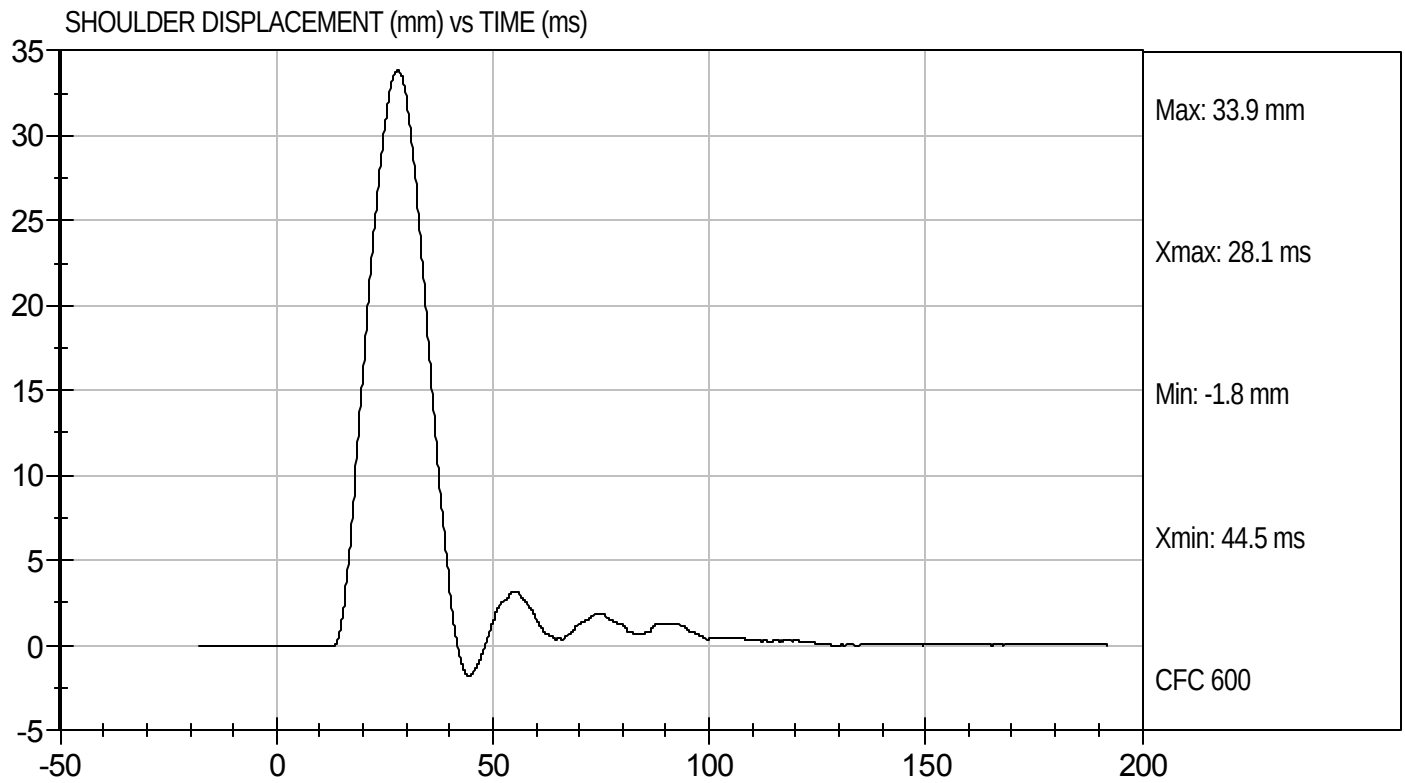
Test Date: 11/10/10
Velocity: 21.92 ft/s, 6.68 m/s





Test Desc: Thorax With Arm
Component ID: D103904

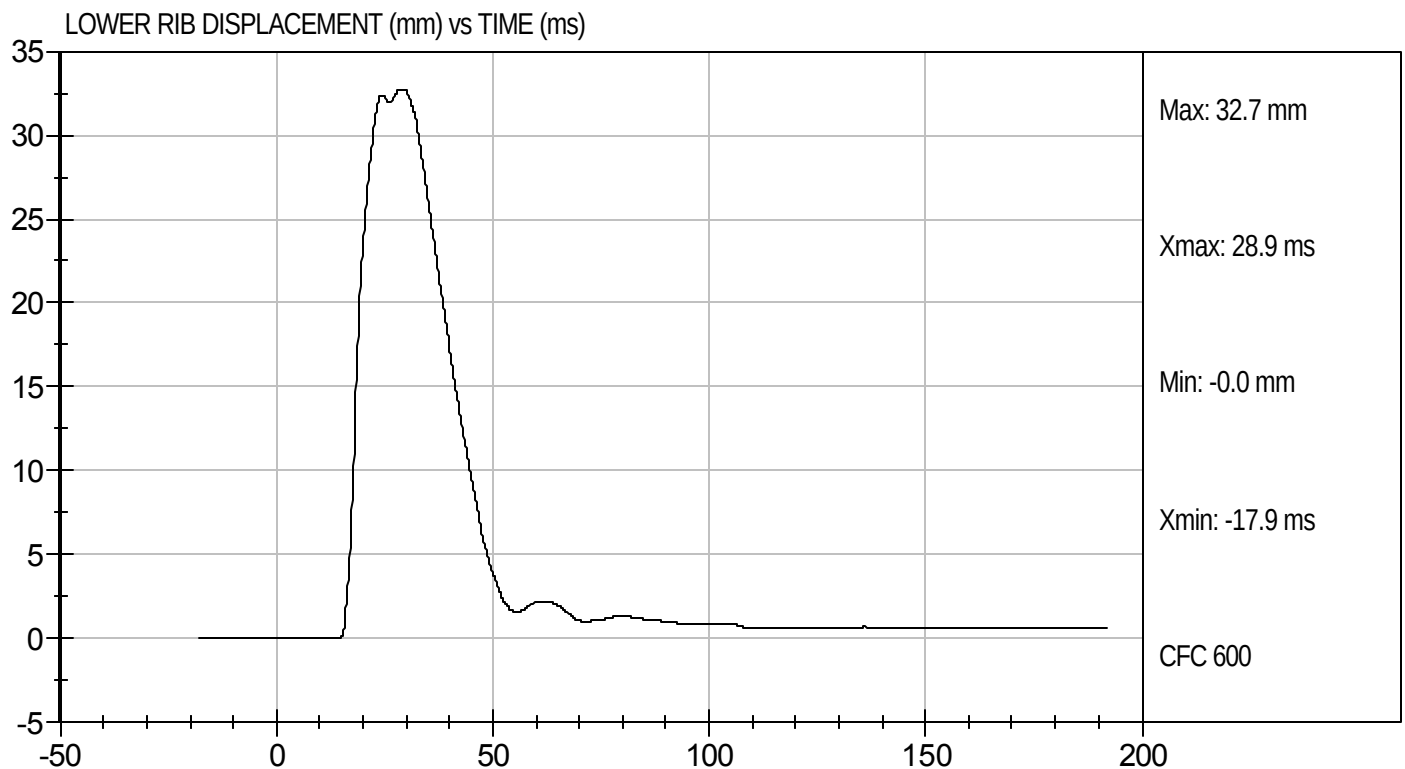
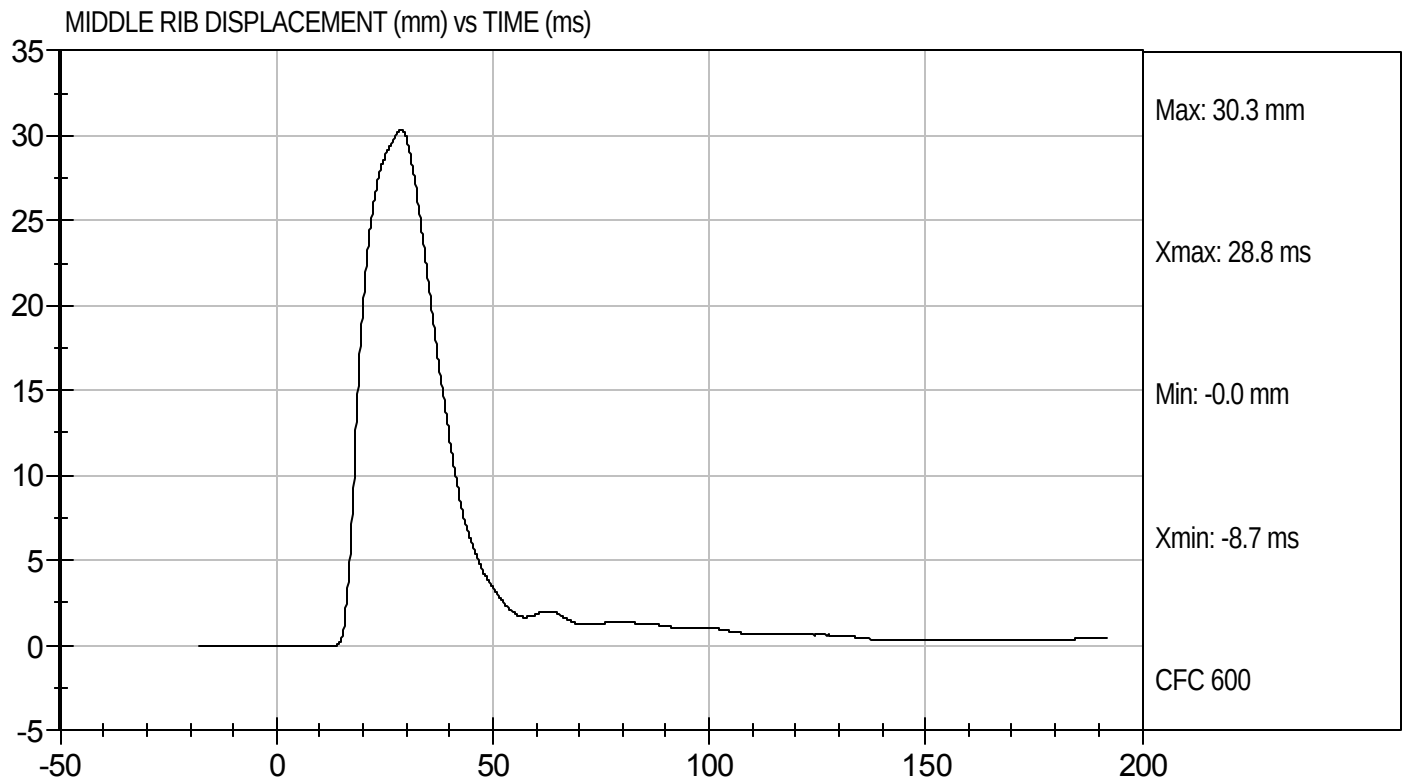
Test Date: 11/10/10
Velocity: 21.92 ft/s, 6.68 m/s





Test Desc: Thorax With Arm
Component ID: D103904

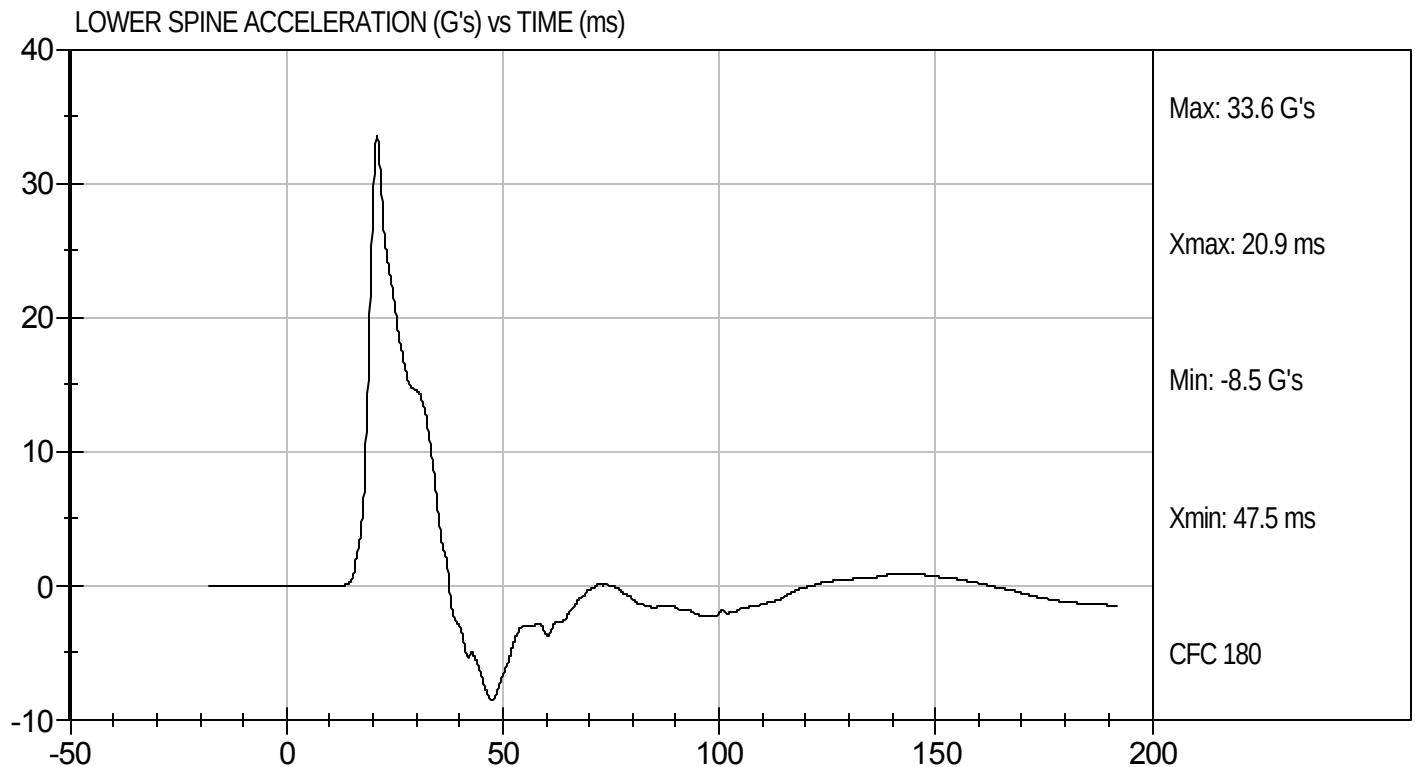
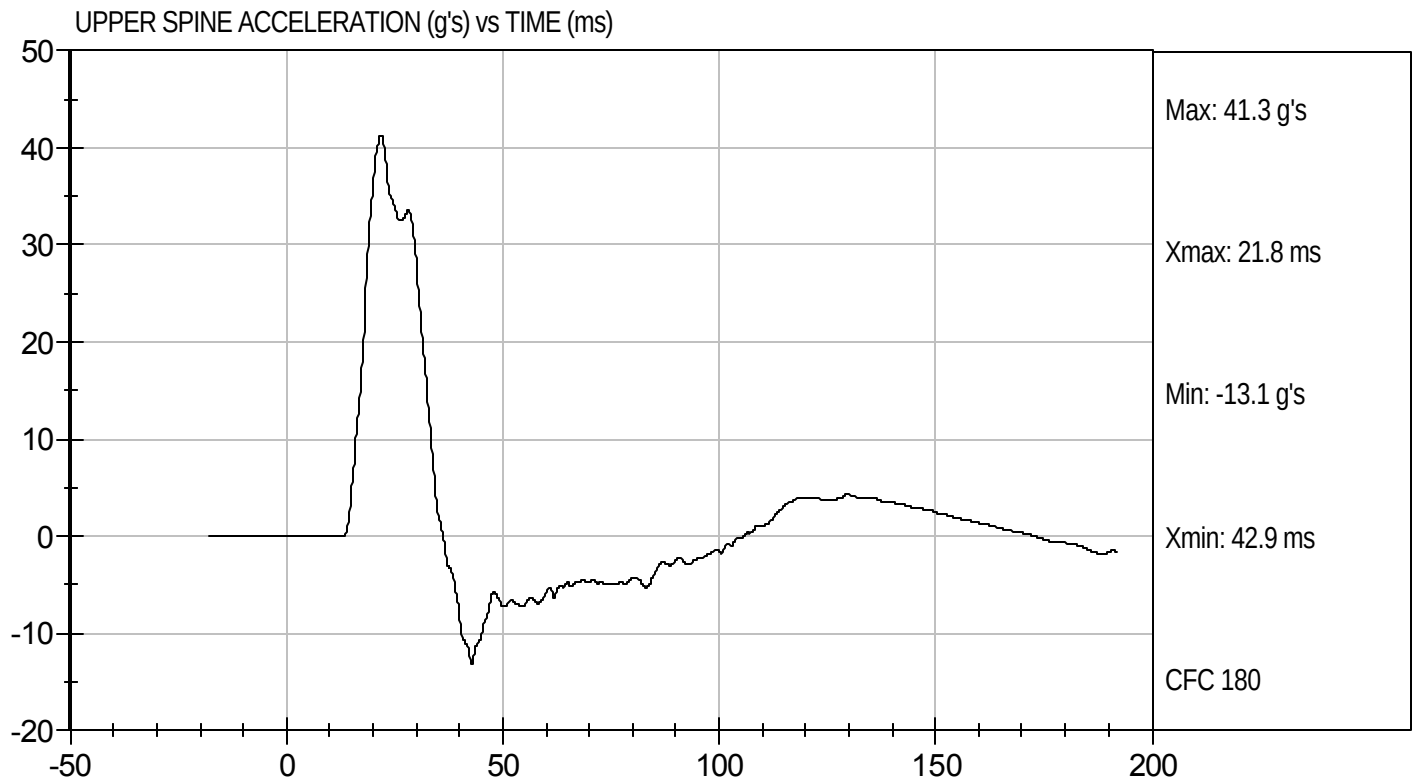
Test Date: 11/10/10
Velocity: 21.92 ft/s, 6.68 m/s





Test Desc: Thorax With Arm
Component ID: D103904

Test Date: 11/10/10
Velocity: 21.92 ft/s, 6.68 m/s



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

ATD Serial No: 306

Test I.D: D103905

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	37	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	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	40	Pass
Lower Rib Displacement	mm	35 to 43	37	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	15	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	8	Pass
Overall Test Results				Pass


Laboratory Technician

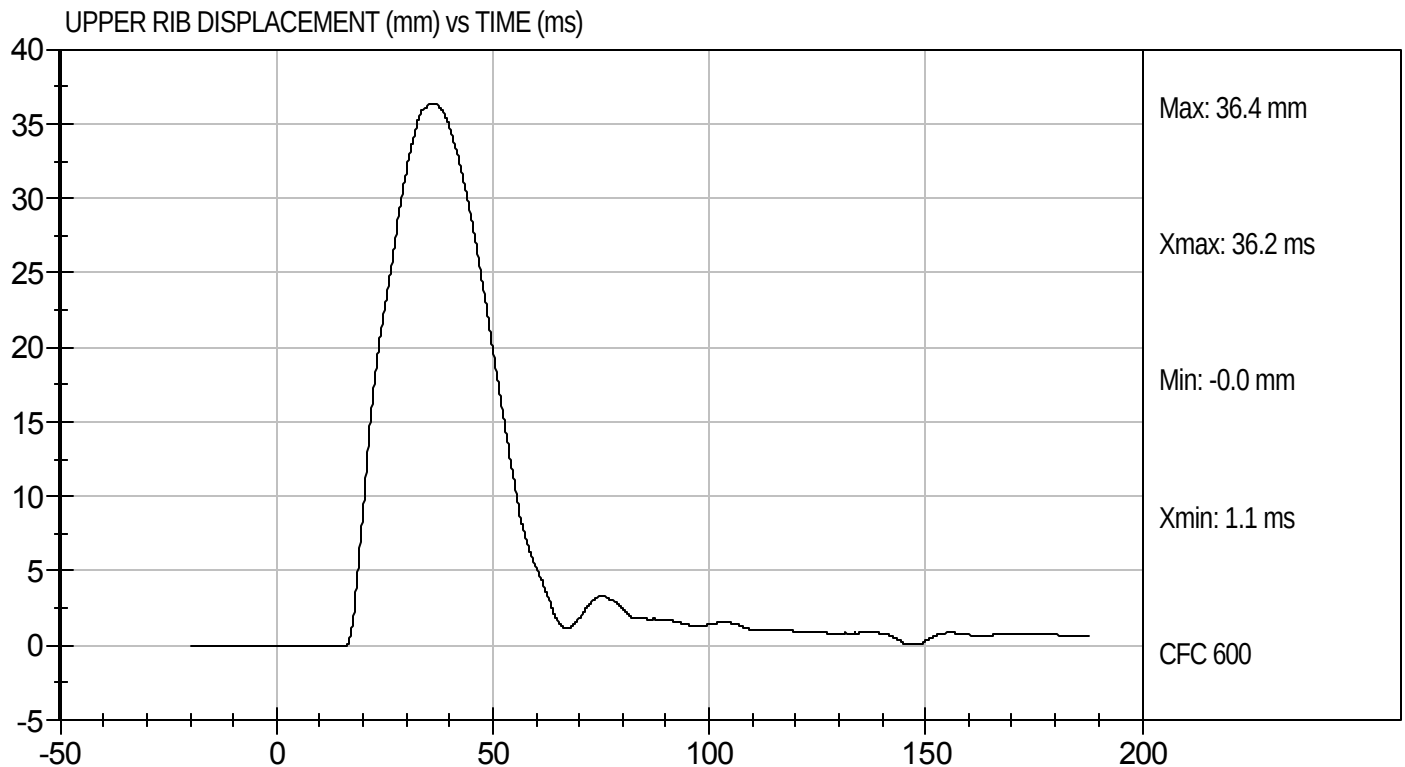
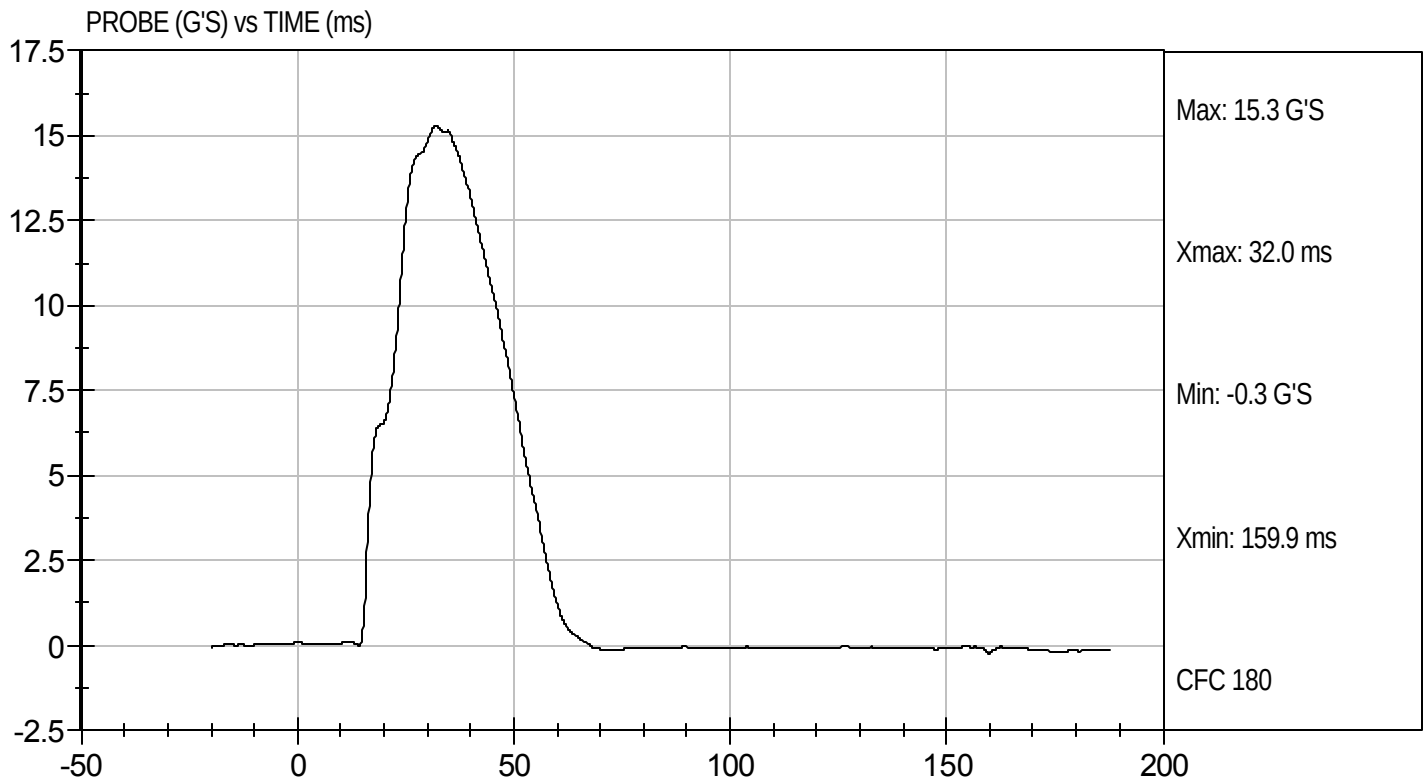
11/10/10
Test Date


Approved By



Test Desc: Thorax Without Arm
Component ID: D103905

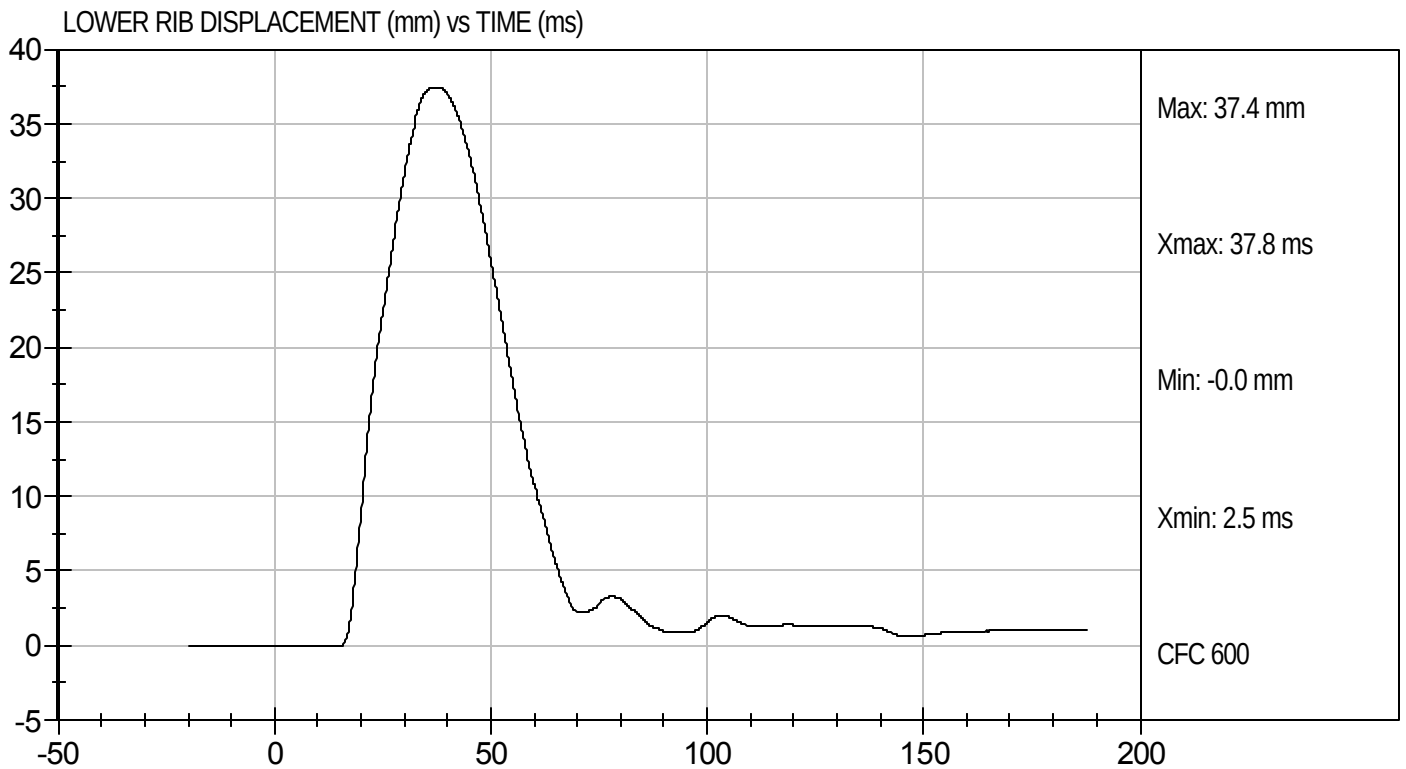
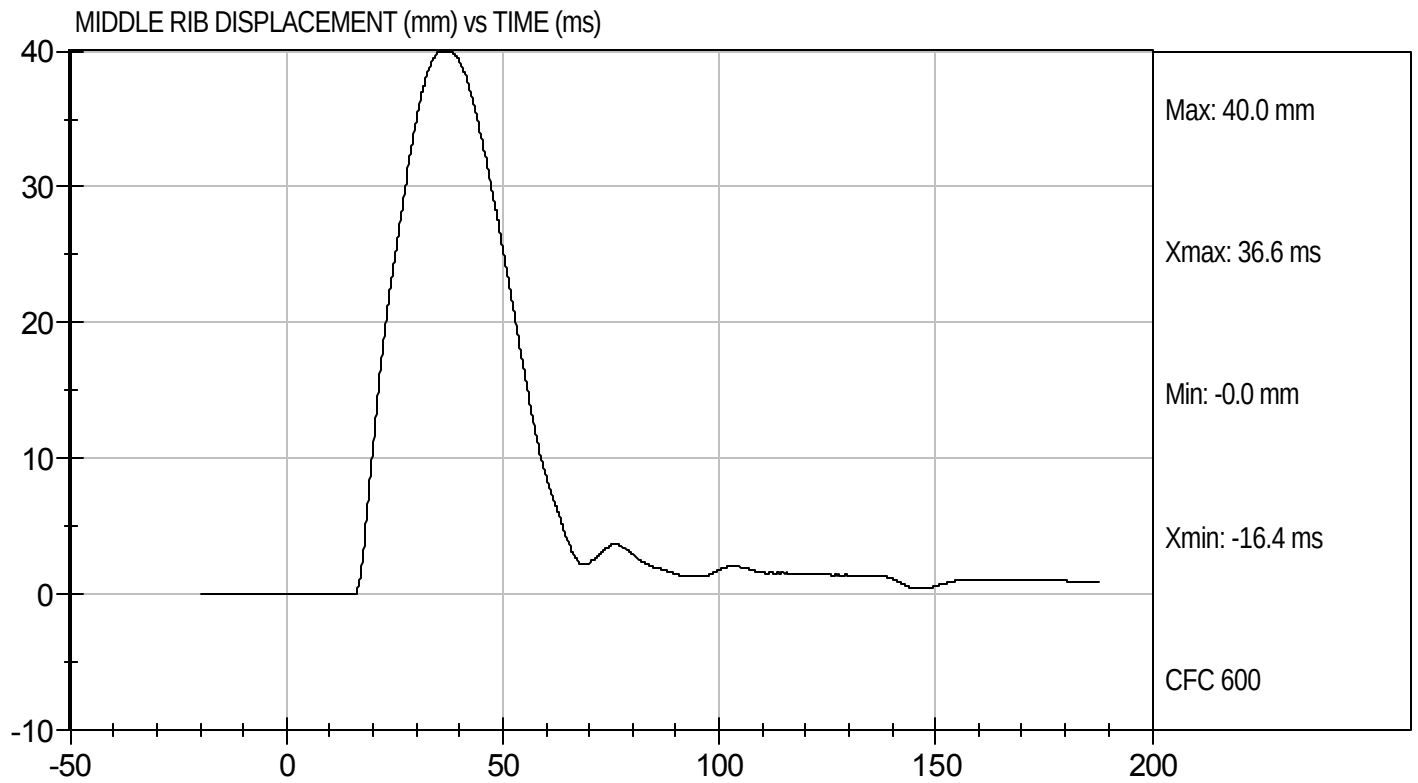
Test Date: 11/10/10
Velocity: 14.12 ft/s, 4.30 m/s





Test Desc: Thorax Without Arm
Component ID: D103905

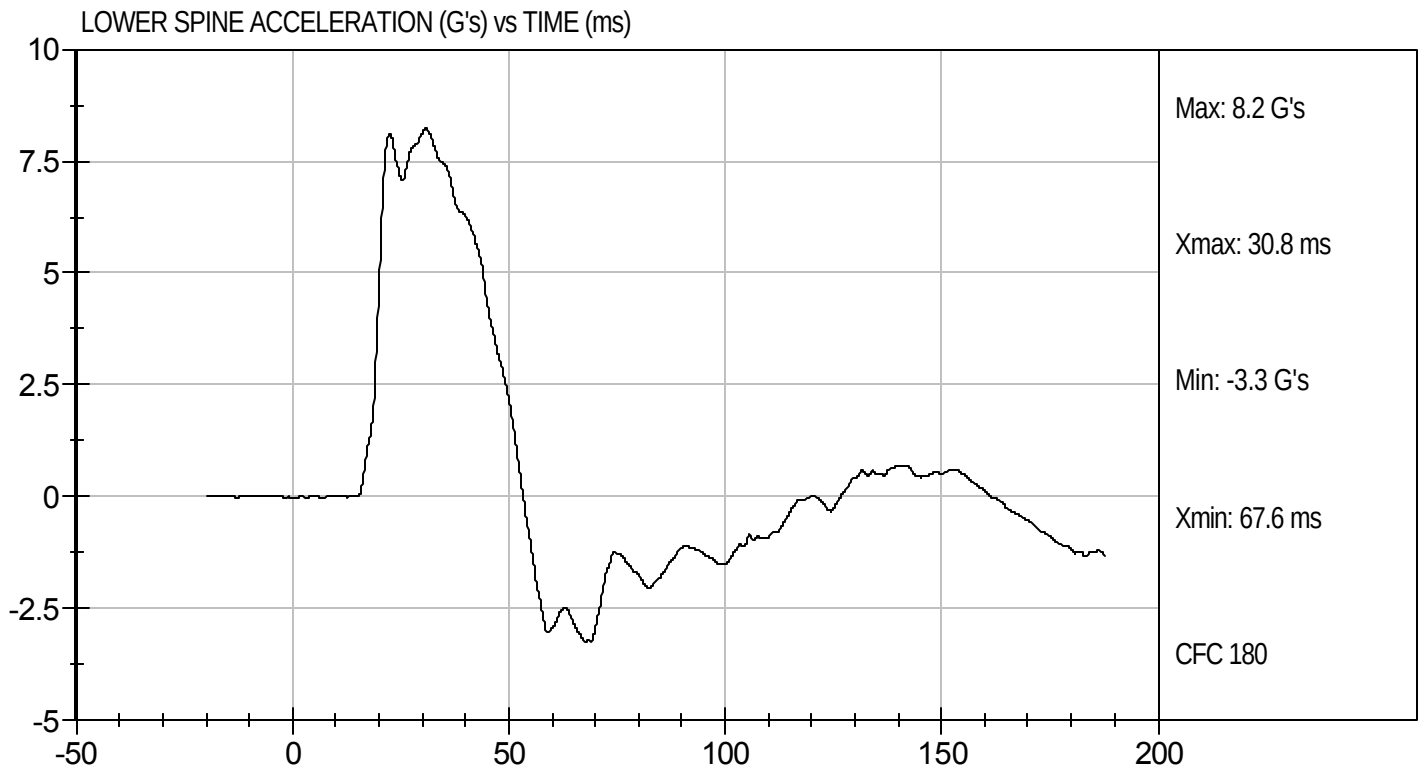
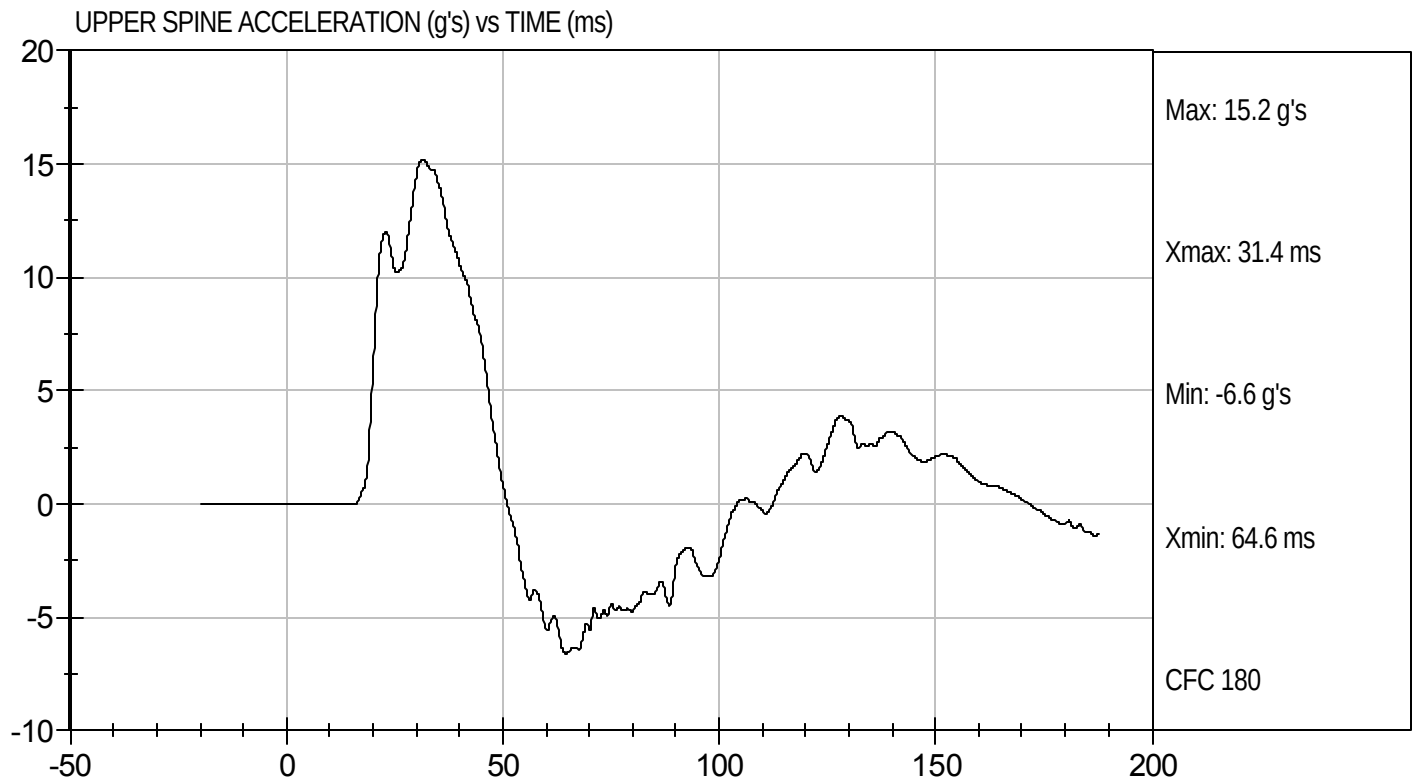
Test Date: 11/10/10
Velocity: 14.12 ft/s, 4.30 m/s





Test Desc: Thorax Without Arm
Component ID: D103905

Test Date: 11/10/10
Velocity: 14.12 ft/s, 4.30 m/s



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

ATD Serial No: 306

Test I.D: D103906

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	37	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Peak Impactor Acceleration	G's	12 to 16	15	Pass
Upper Rib Displacement	mm	36 to 47	40	Pass
Lower Rib Displacement	mm	33 to 44	36	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
Overall Test Results				Pass


Laboratory Technician

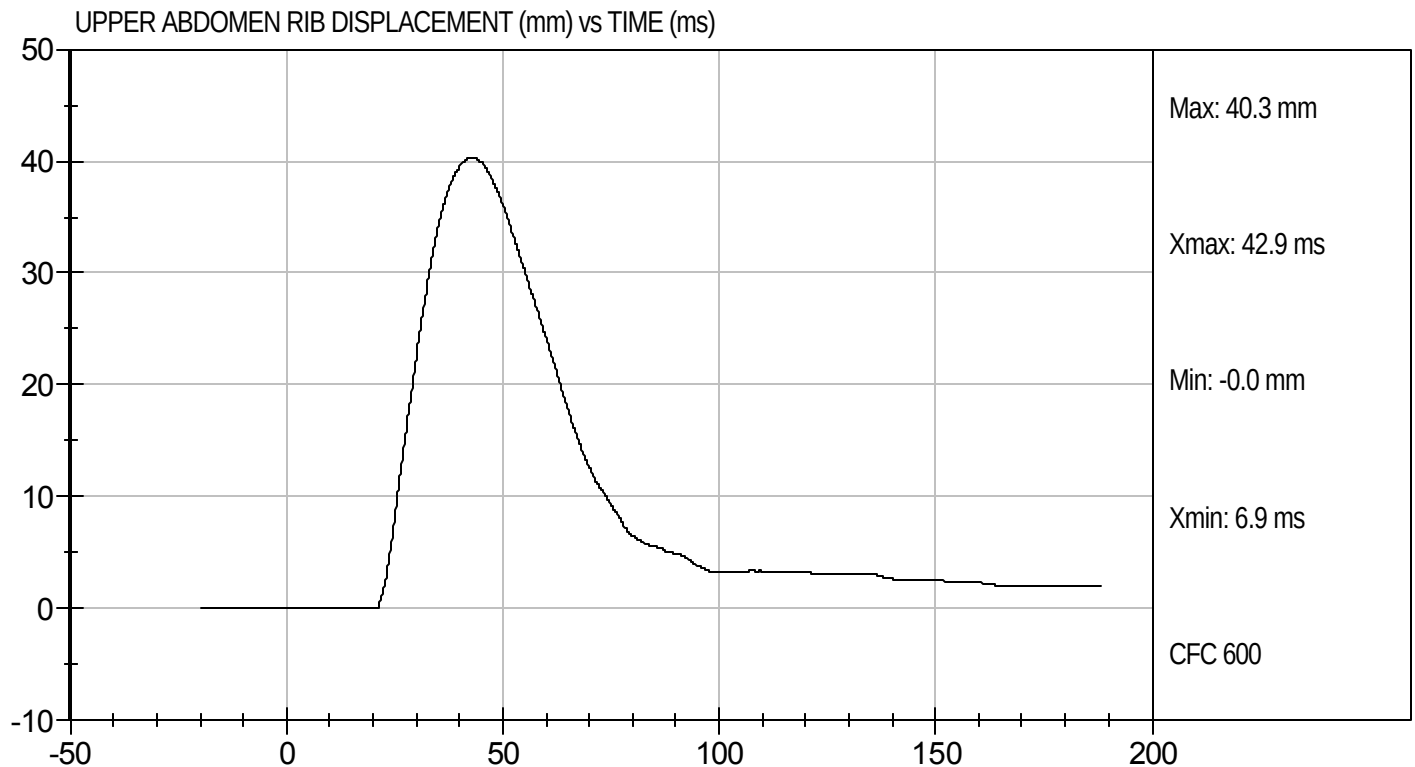
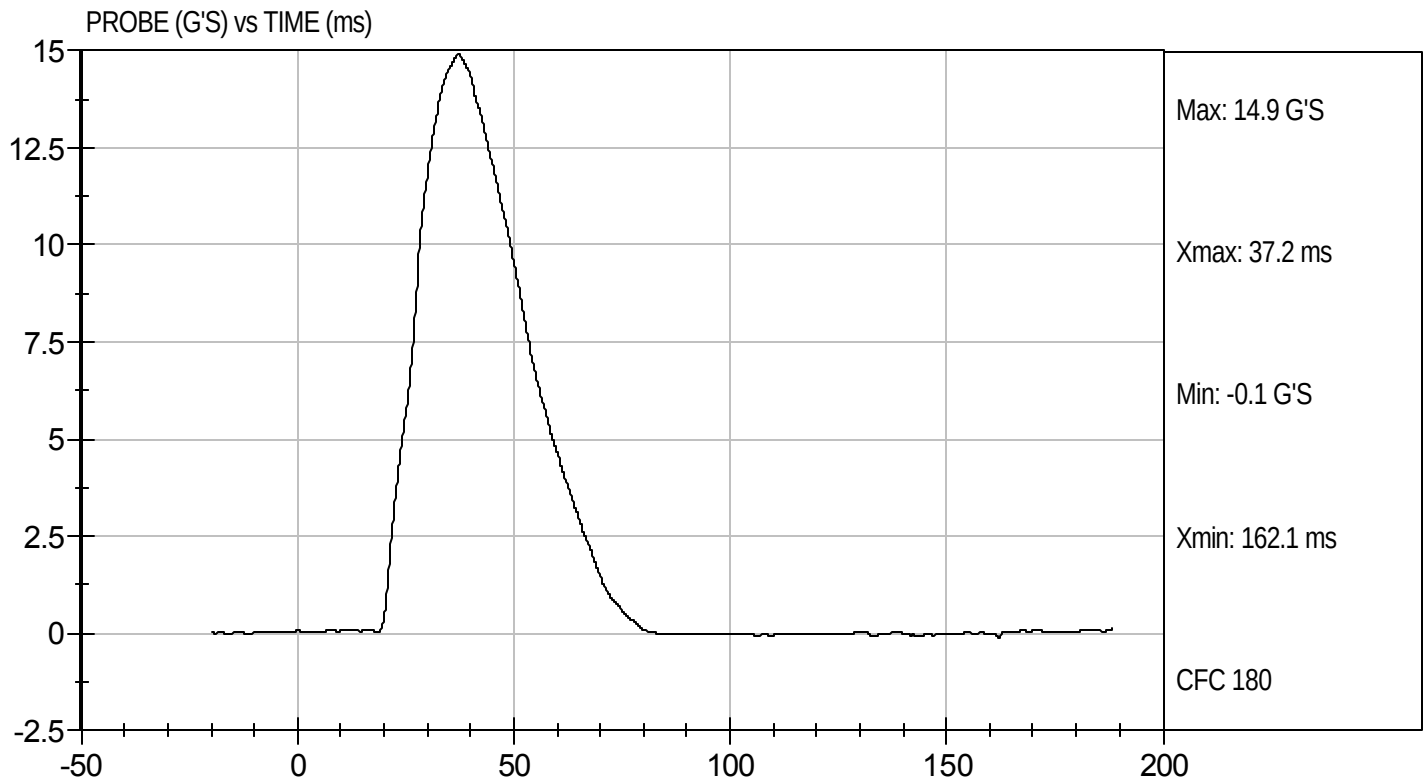
11/10/10
Test Date


Approved By



Test Desc: Abdomen Impact
Component ID: D103906

Test Date: 11/10/10
Velocity: 14.36 ft/s, 4.38 m/s

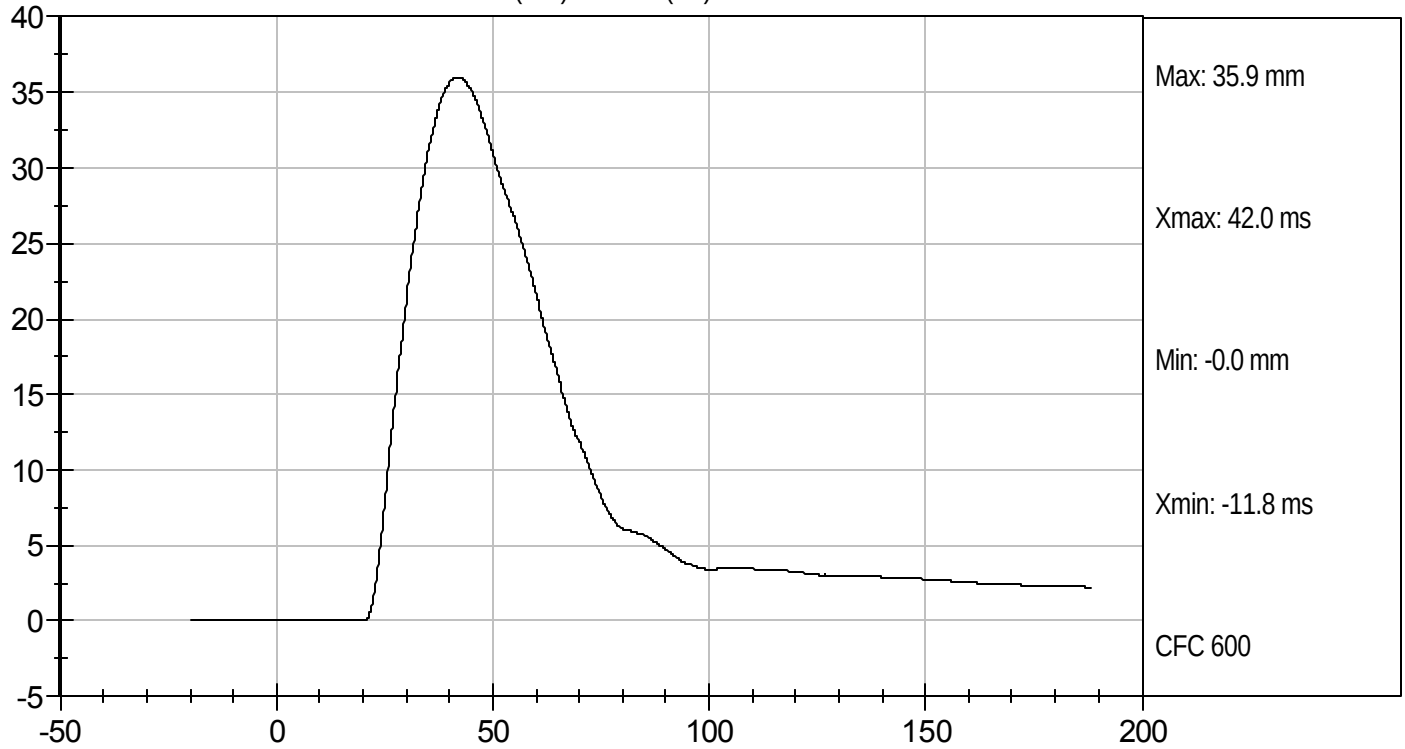




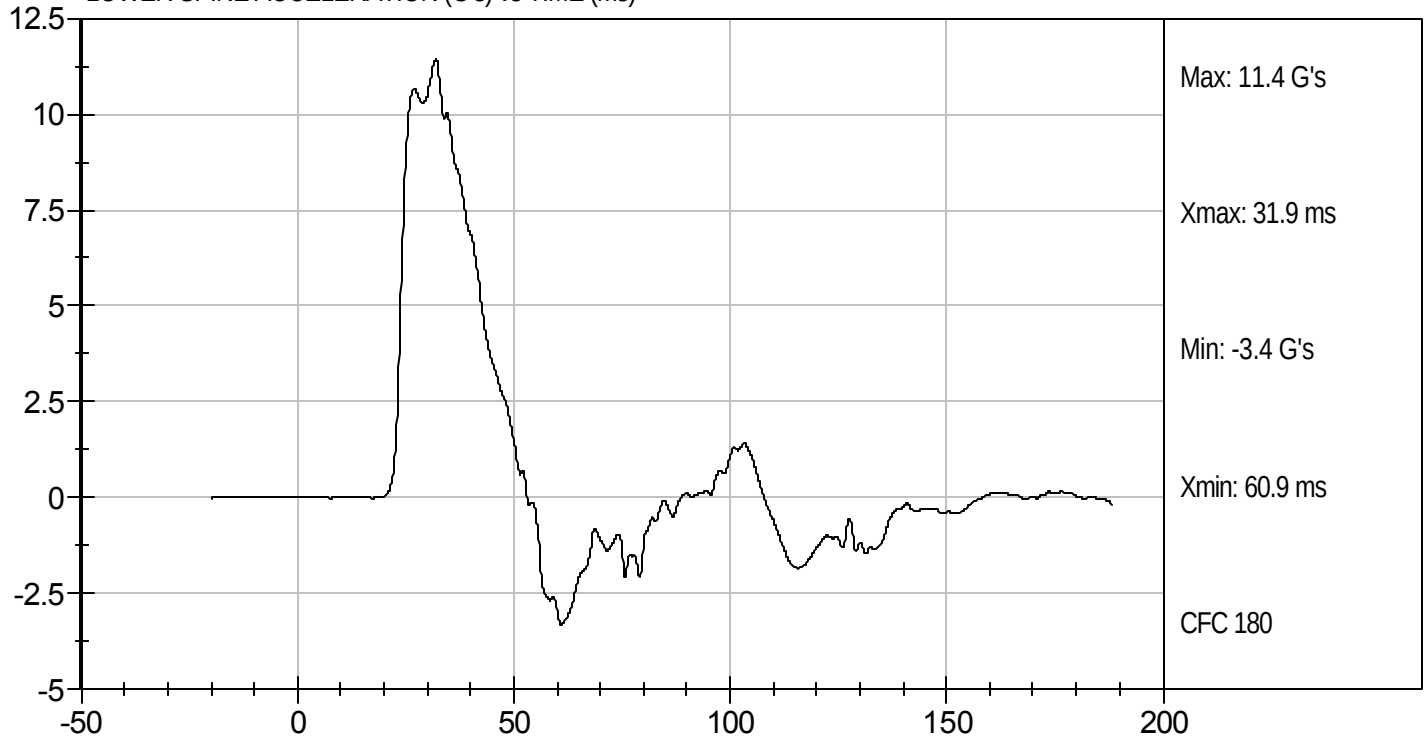
Test Desc: Abdomen Impact
Component ID: D103906

Test Date: 11/10/10
Velocity: 14.36 ft/s, 4.38 m/s

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



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



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

ATD Serial No: 306

Test I.D: D103907

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	37	Pass
Impact Velocity	m/s	6.60 to 6.80	6.74	Pass
Peak Impactor Acceleration	G's	38 to 47	44	Pass
Pelvis Y Acceleration after 6 ms	G's	34 to 42	36	Pass
Peak Acetabulum Force	N	3600 to 4300	4065	Pass
Overall Test Results			Pass	

Jessica Hall
Laboratory Technician

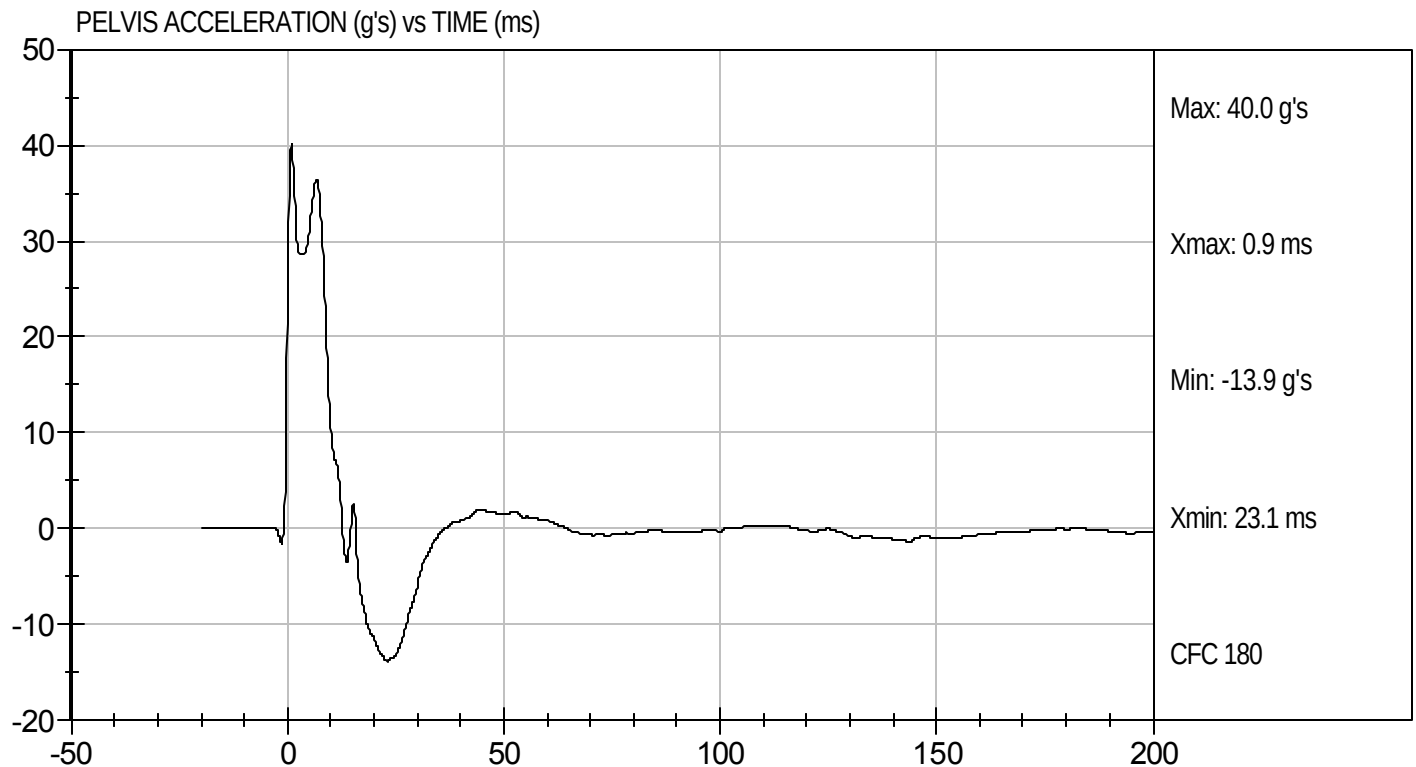
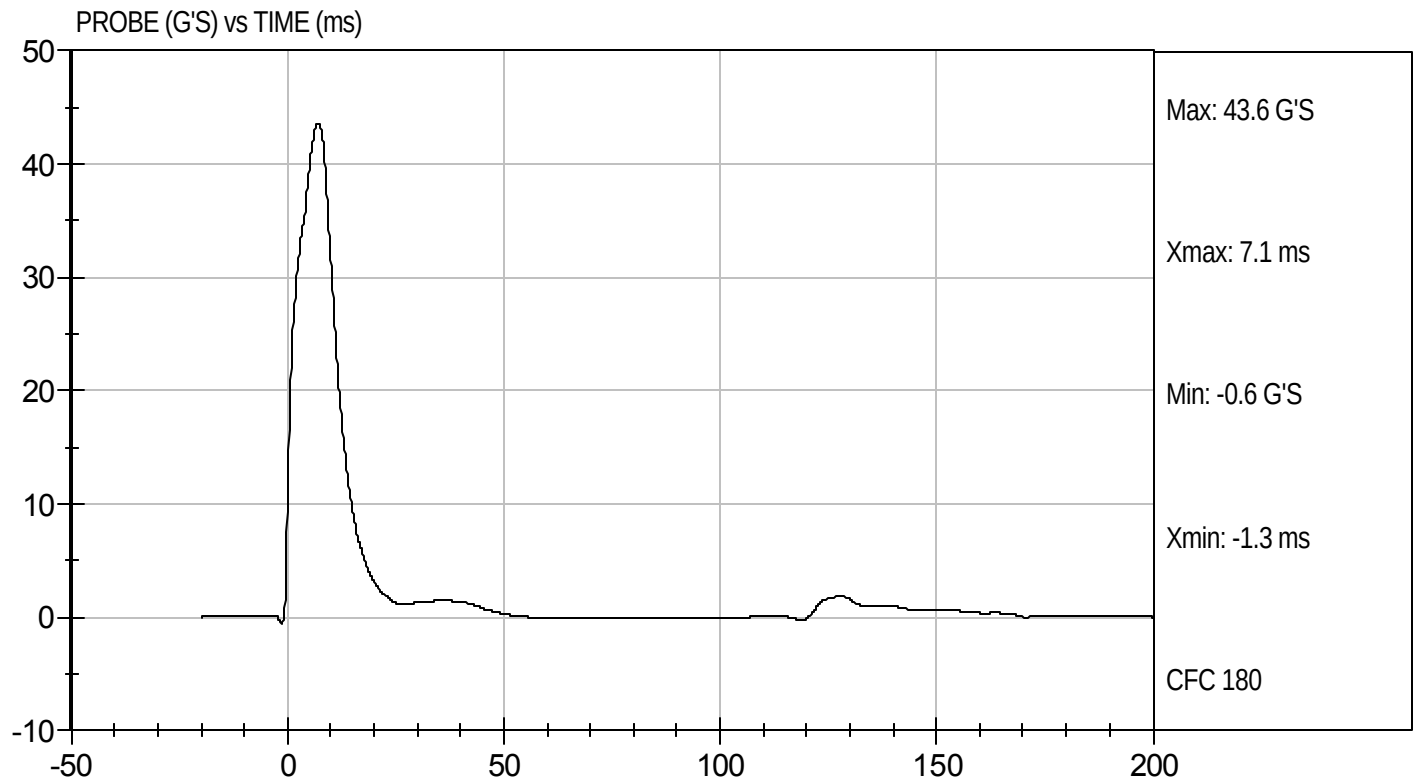
11/10/10
Test Date

David Winkelbauer
Approved By



Test Desc: Pelvis Impact
Component ID: D103907

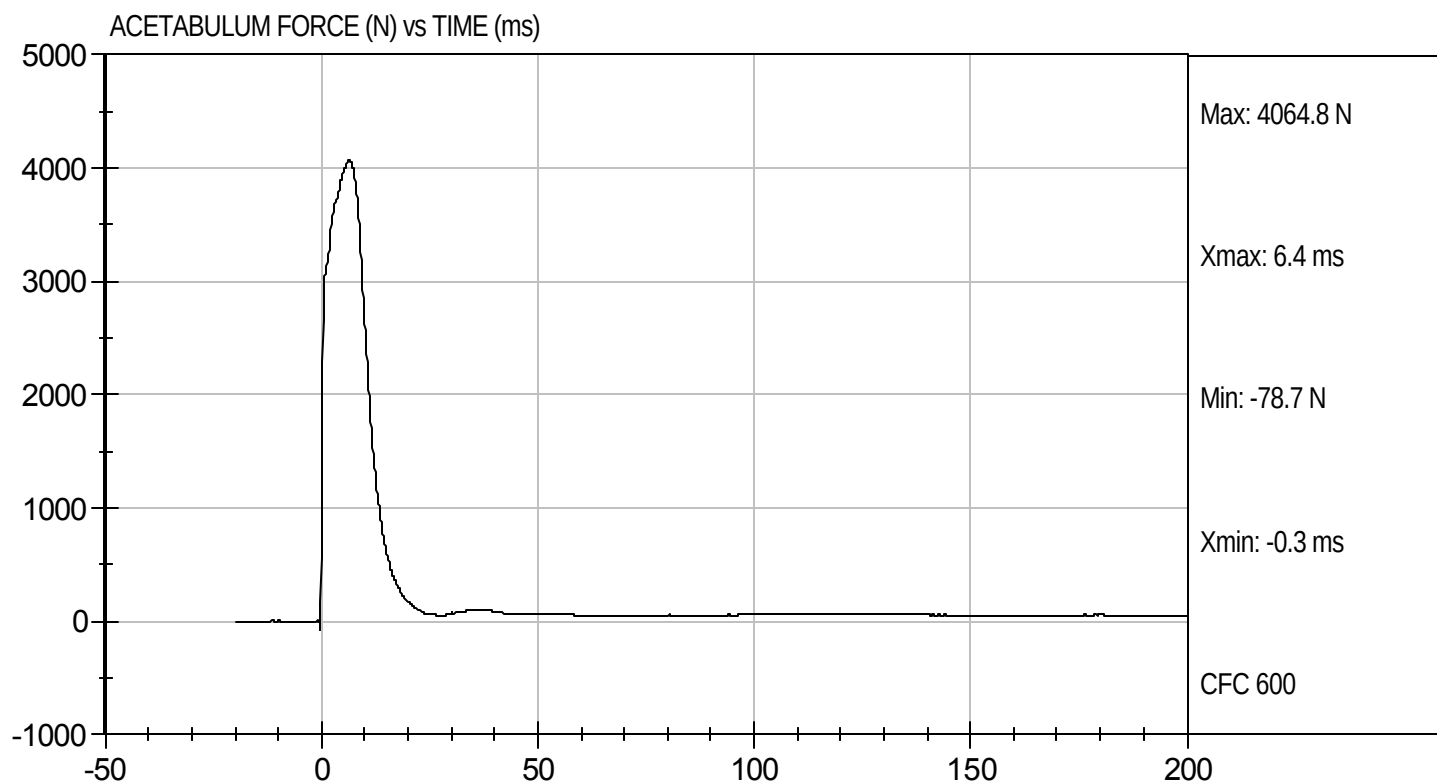
Test Date: 11/10/10
Velocity: 22.1 ft/s, 6.74 m/s





Test Desc: Pelvis Impact
Component ID: D103907

Test Date: 11/10/10
Velocity: 22.1 ft/s, 6.74 m/s



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

ATD Serial No: 306

Test I.D: D103908

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	37	Pass
Impact Velocity	m/s	4.20 to 4.40	4.27	Pass
Peak Impactor Acceleration	G's	36 to 45	39	Pass
Pelvis Y Acceleration	G's	28 to 39	28	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4858	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

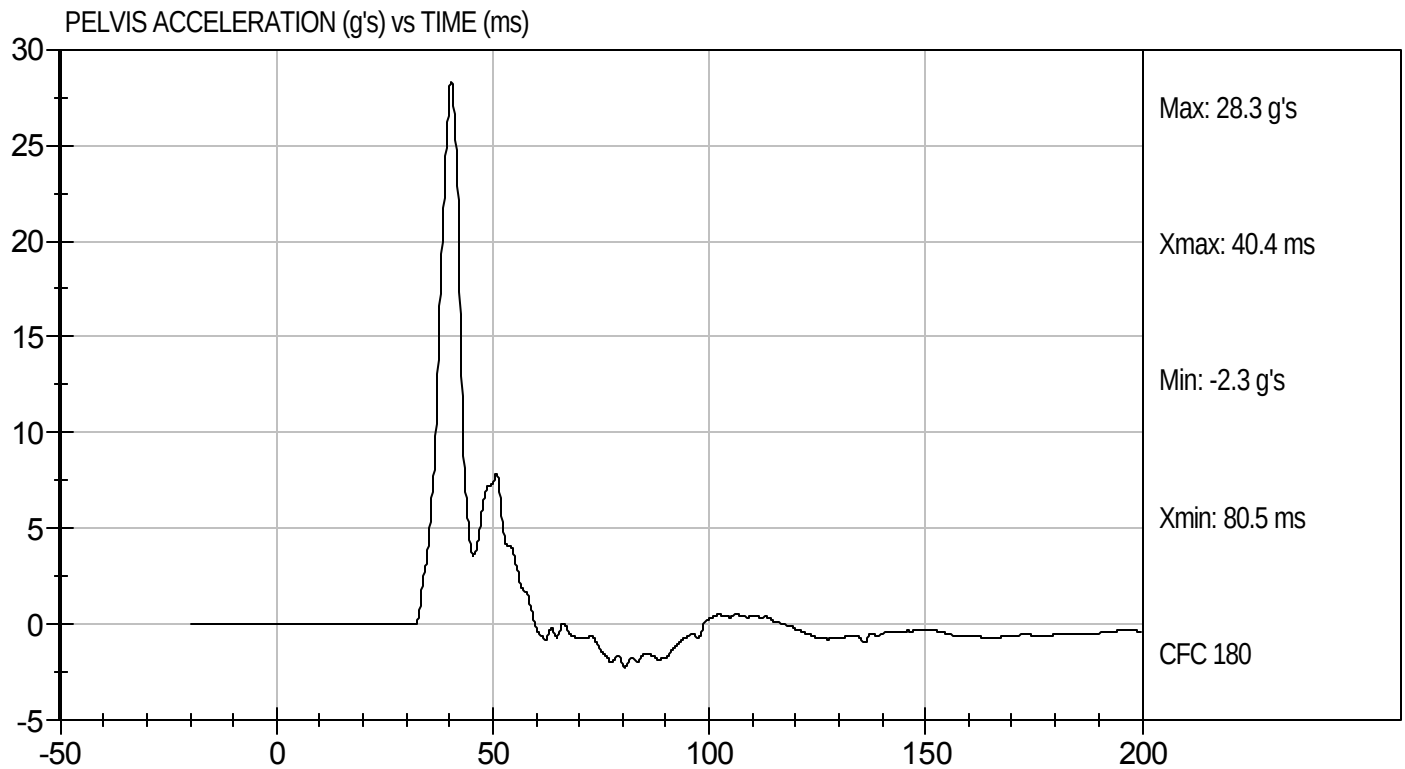
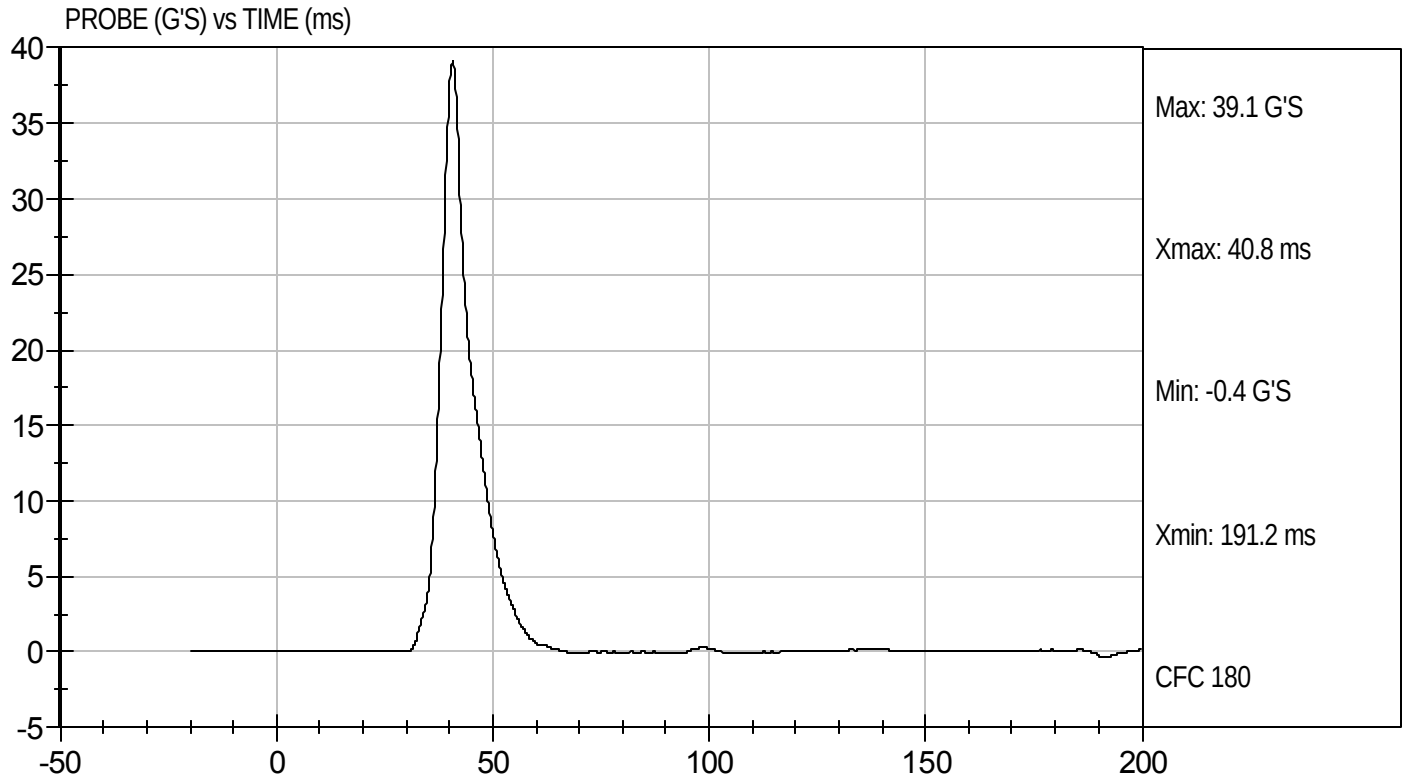
11/10/10
Test Date

David Winkelbauer
Approved By



Test Desc: Iliac Impact
Component ID: D103908

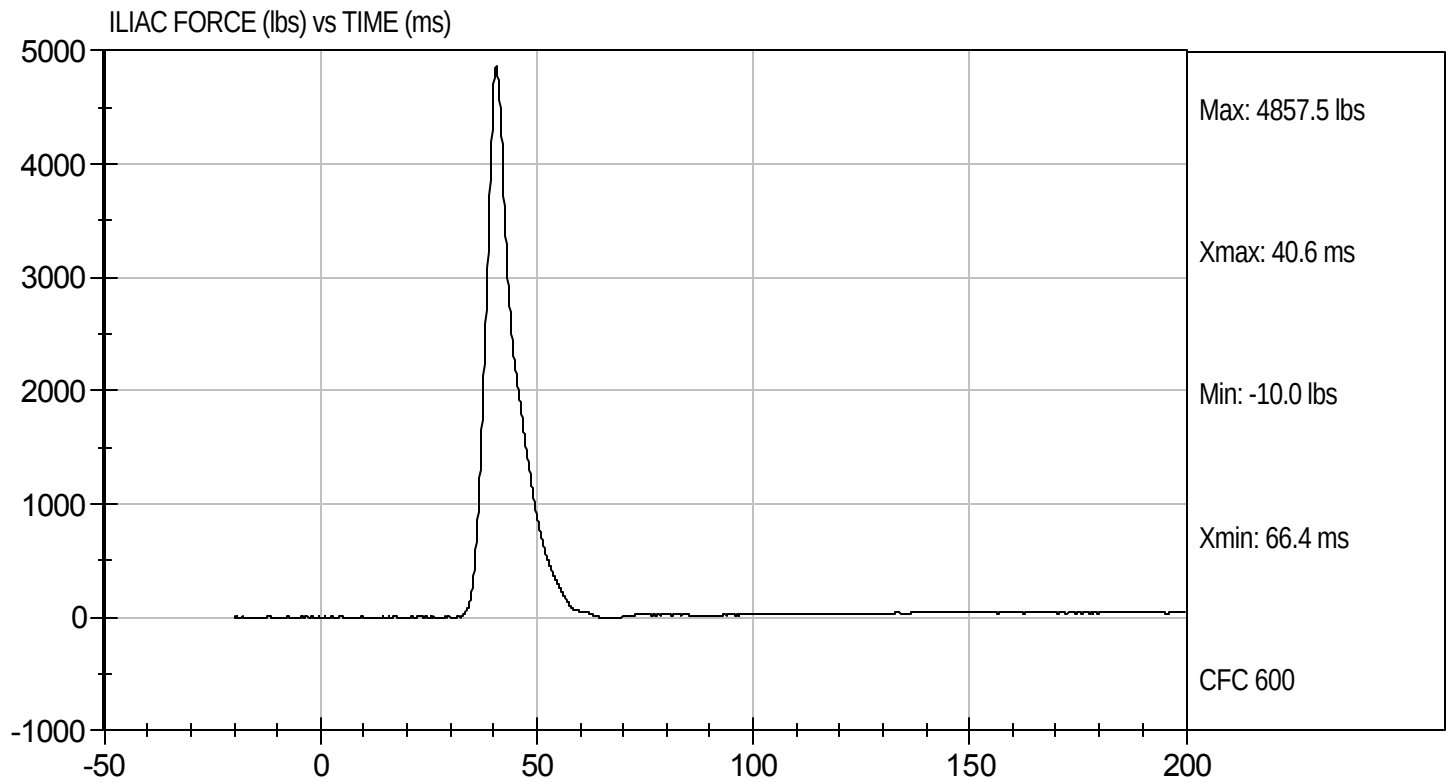
Test Date: 11/10/10
Velocity: 14.00 ft/s, 4.27 m/s





Test Desc: Iliac Impact
Component ID: D103908

Test Date: 11/10/10
Velocity: 14.00 ft/s, 4.27 m/s



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

ATD Serial No: 306

Test ID: D104001

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	22.1	Pass
Laboratory Relative Humidity	%	10 to 70	29	Pass
Peak Resultant Acceleration	G's	115 to 137	115	Pass
Peak Lateral Acceleration	G's	+/- 15	-5.2	Pass
Unimodal	N/A	<15%	Yes	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

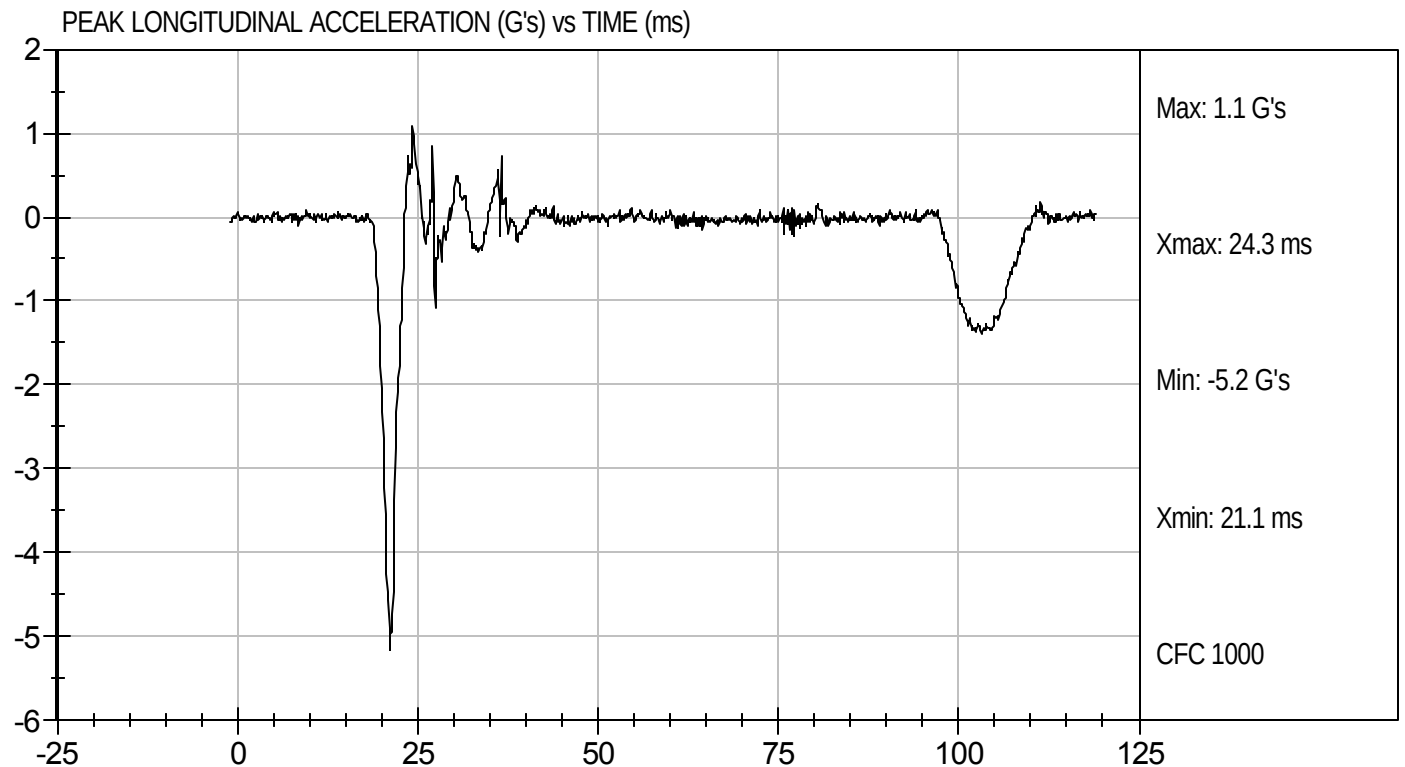
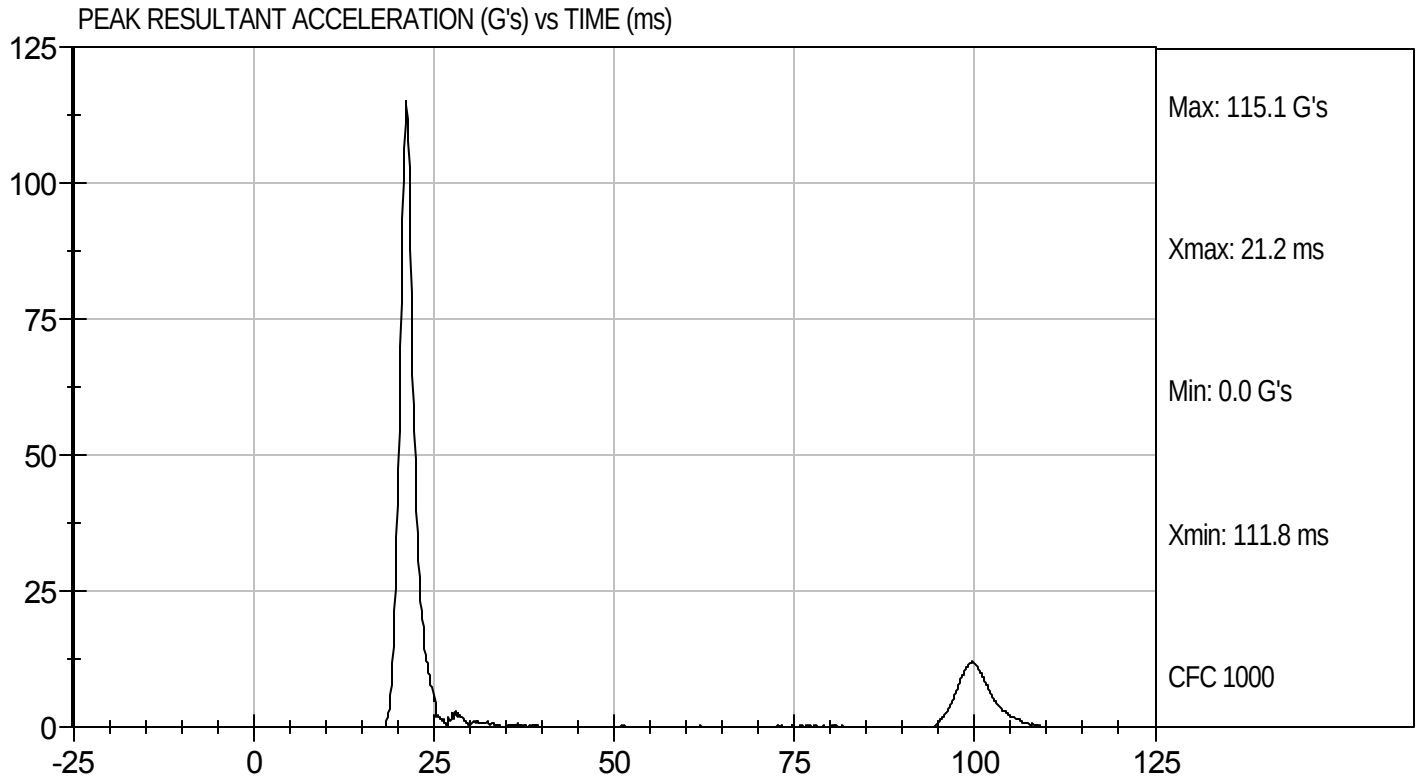
11/16/10
Test Date

David Winkelbauer
Approved By



Test Desc: Head Drop
Component ID: D104001

Test Date: 11/16/10
Velocity: 0 ft/s, 0 m/s



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

ATD Serial No: 306

Test I.D: D104002

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	22.1	Pass
Humidity		%	10 to 70	28	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Delta Velocity	10 ms	m/s	2.20 to 2.80	2.53	Pass
	15 ms	m/s	3.30 to 4.10	3.58	Pass
	20 ms	m/s	4.40 to 5.40	4.76	Pass
	25 ms	m/s	5.40 to 6.10	5.50	Pass
	25-100 ms	m/s	5.50 to 6.20	5.56	Pass
Maximum D-Plane Rotation		deg	71 to 81	74	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	62	Pass
Maximum Occipital Condyle Moment during Rotation Interval Nm			-44 to -36	-44	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	118	Pass
Overall Test Results				Pass	


 Laboratory Technician

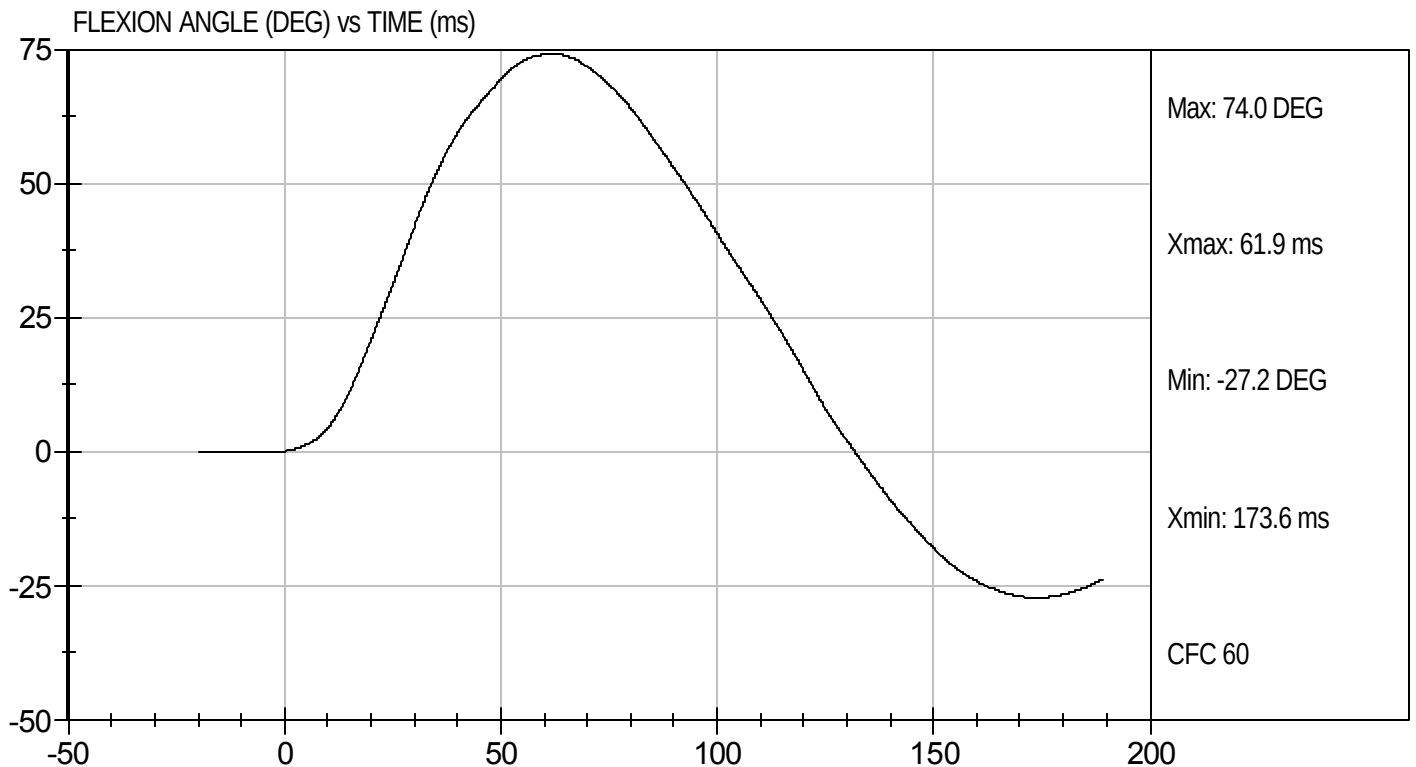
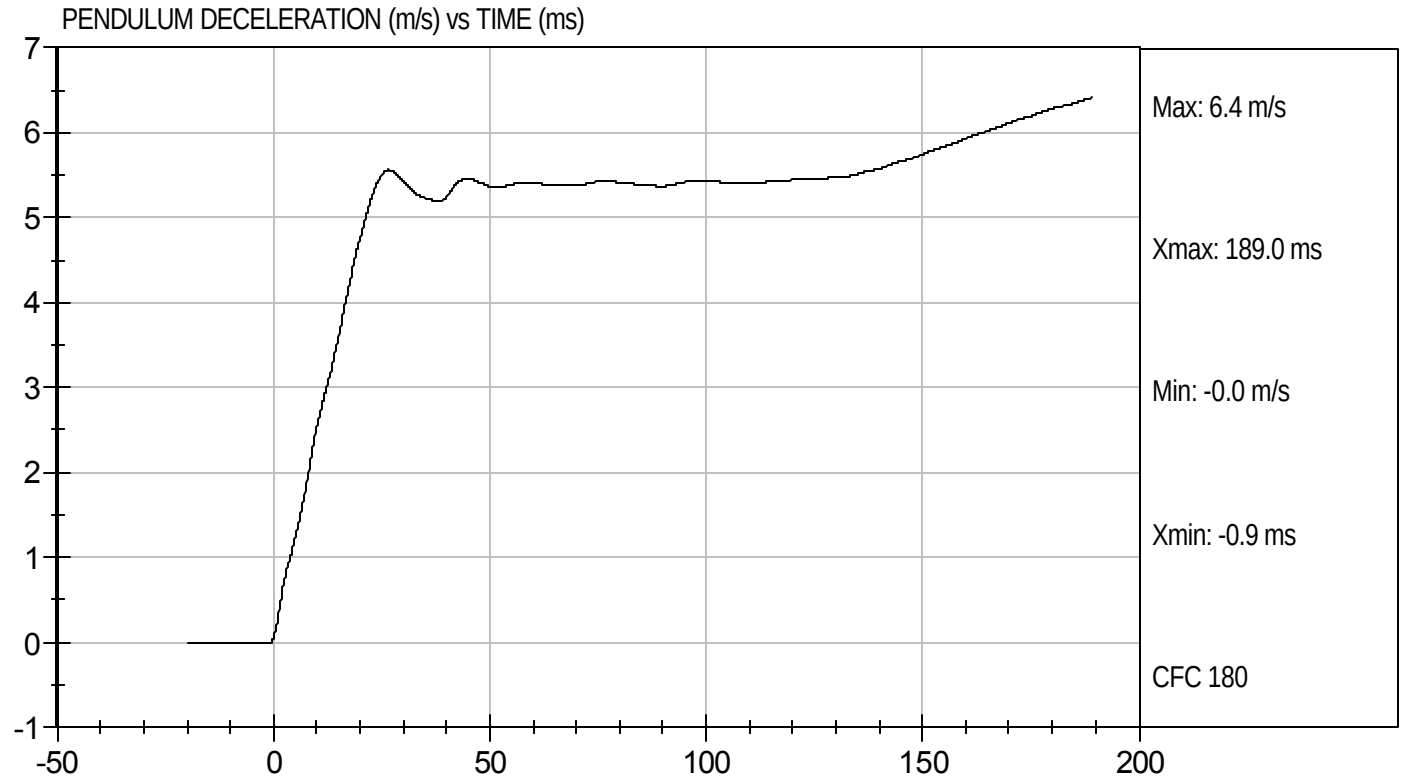
11/16/10
 Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D104002

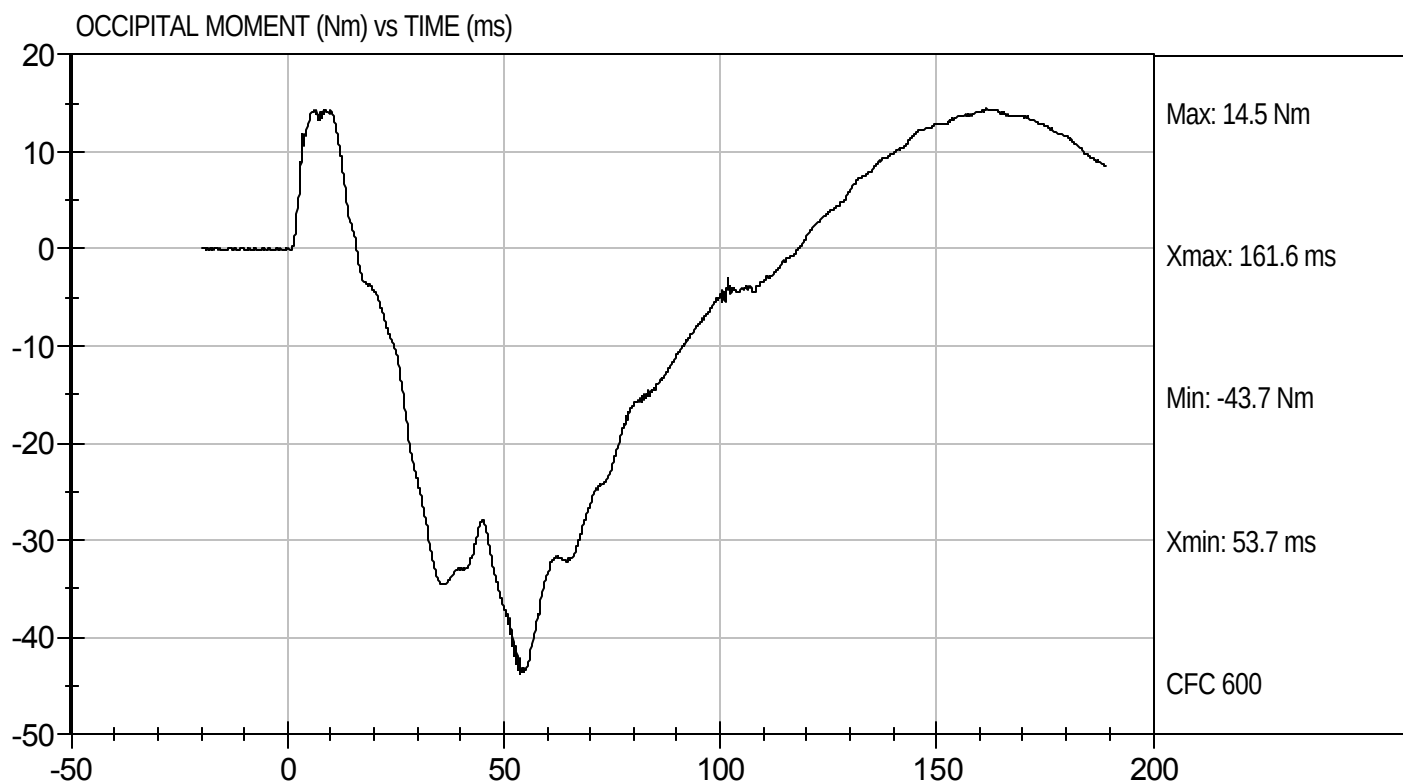
Test Date: 11/16/10
Velocity: 18.32 ft/s, 5.58 m/s





Test Desc: Neck Bending
Component ID: D104002

Test Date: 11/16/10
Velocity: 18.32 ft/s, 5.58 m/s



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

ATD Serial No: 306

Test ID: D104003

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	29	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Maximum Probe Acceleration	G's	13 to 18	16	Pass
Shoulder Displacement	mm	28 to 37	30	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	20	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

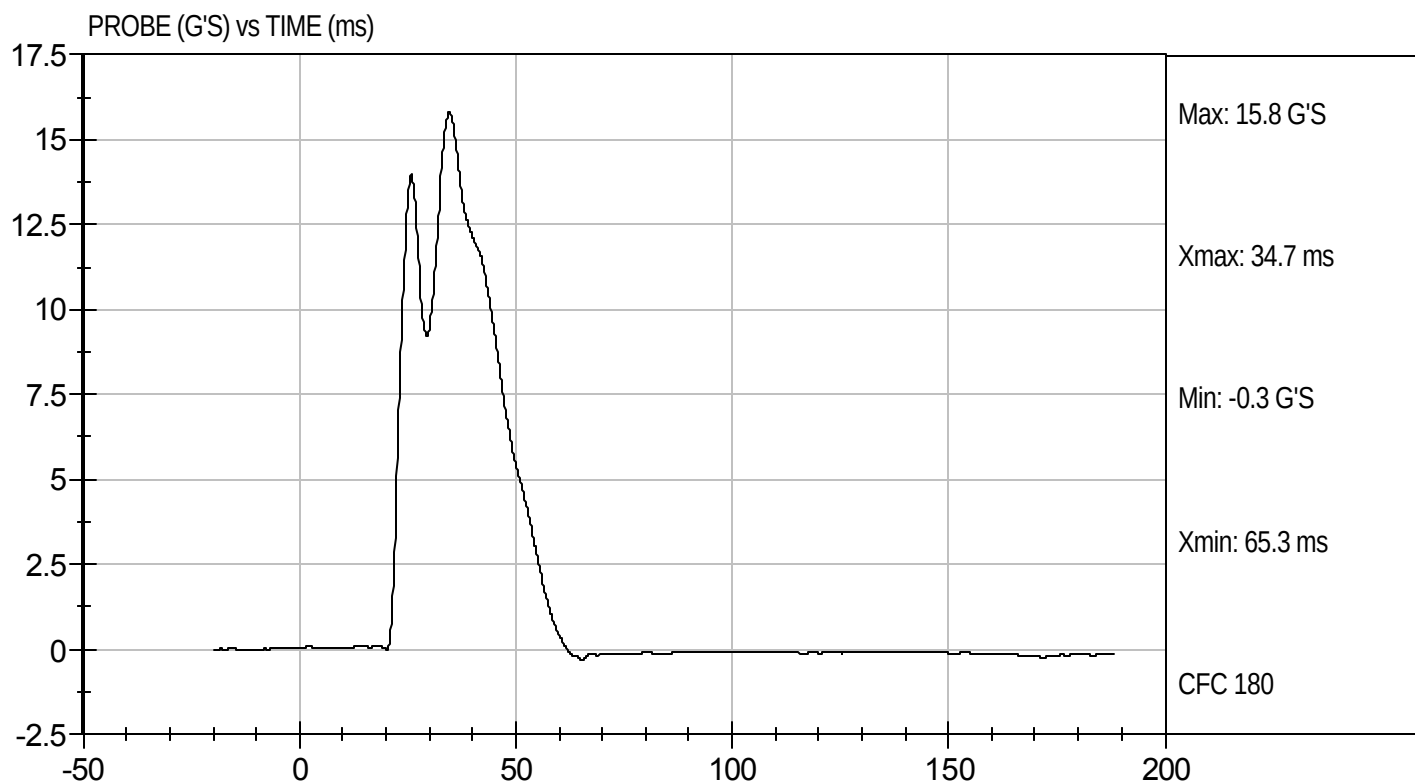
11/16/10
Test Date

David Winkelbauer
Approved By



Test Desc: Shoulder Impact
Component ID: D104003

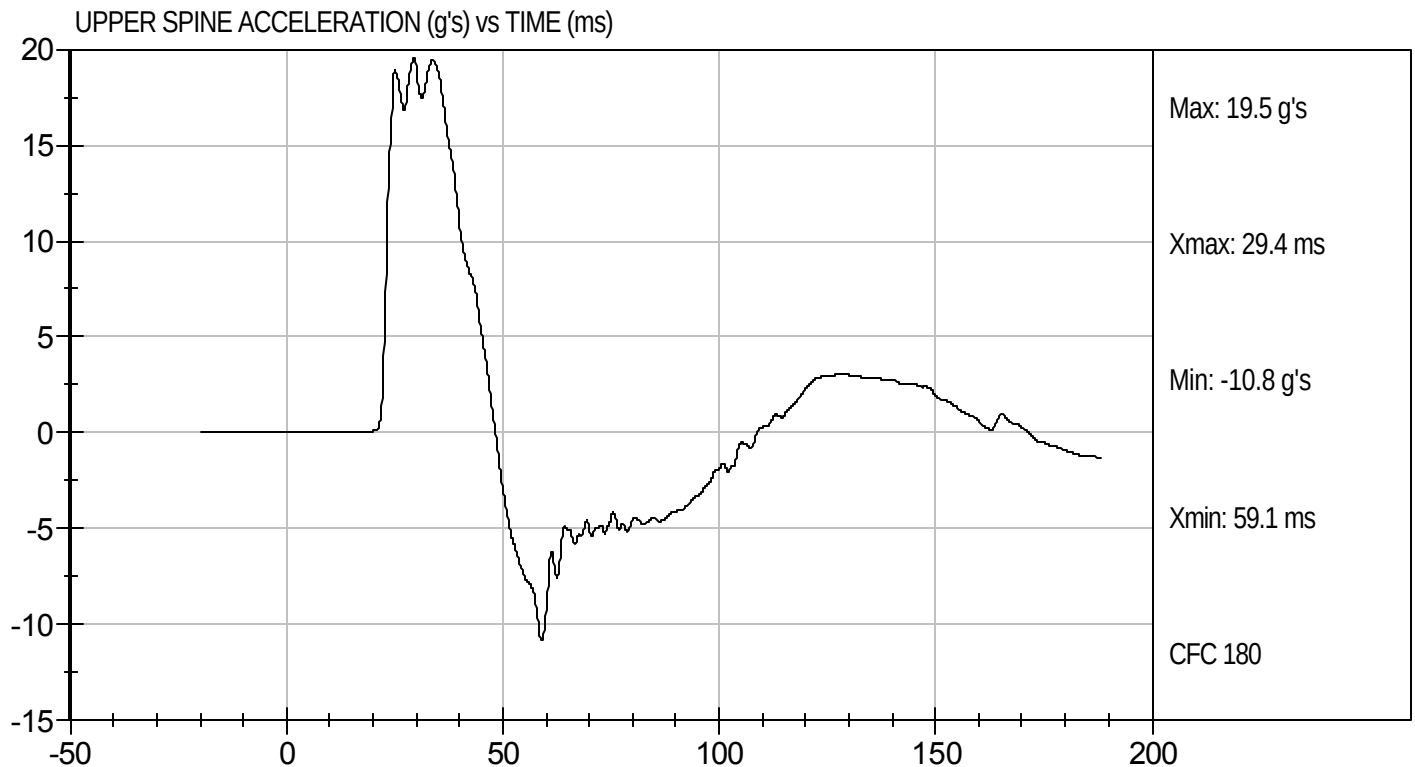
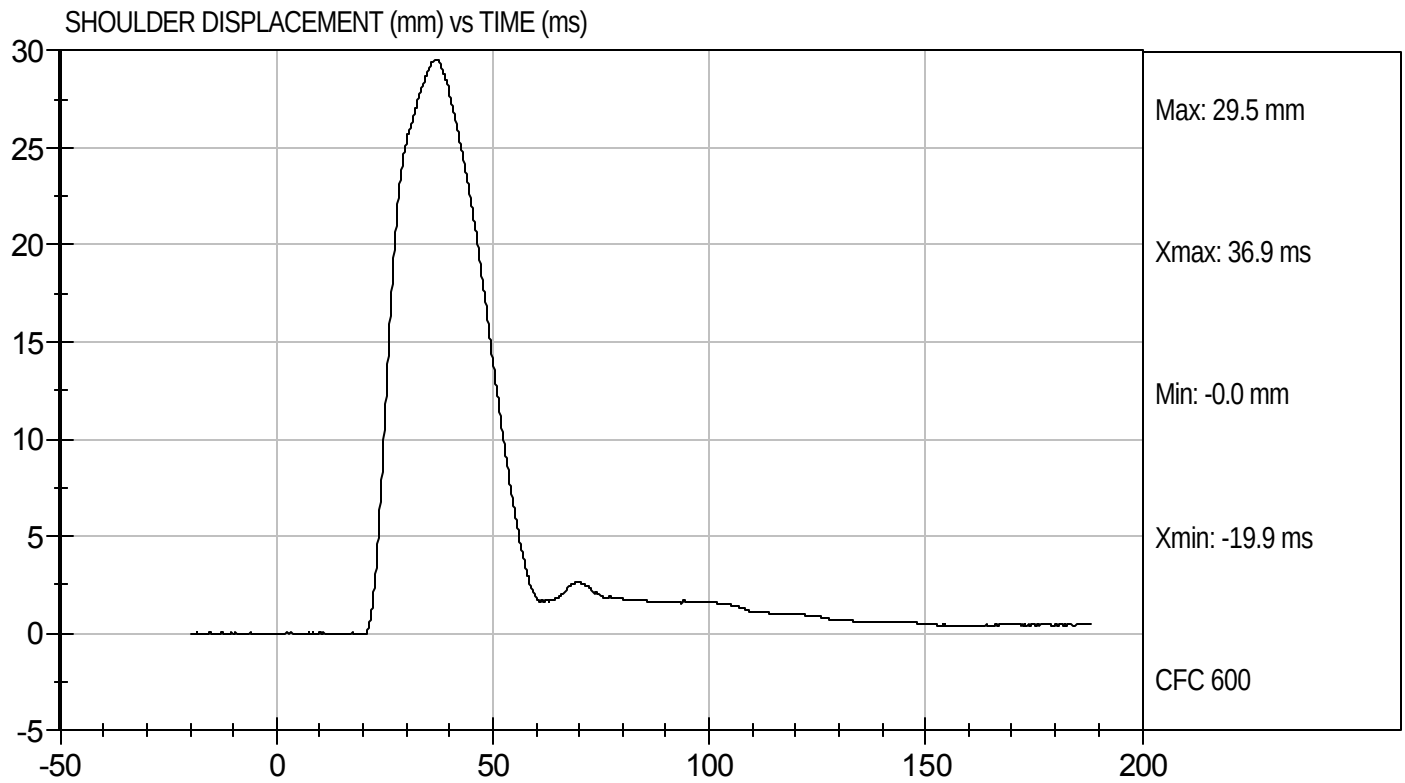
Test Date: 11/16/10
Velocity: 14.37 ft/s, 4.38 m/s





Test Desc: Shoulder Impact
Component ID: D104003

Test Date: 11/16/10
Velocity: 14.37 ft/s, 4.38 m/s



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

ATD Serial No: 306

Test I.D: D104004

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.9	Pass
Humidity	%	10 to 70	28	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Peak Impactor Acceleration	G's	30 to 36	33	Pass
Shoulder Displacement	mm	31 to 40	35	Pass
Upper Rib Displacement	mm	25 to 32	27	Pass
Middle Rib Displacement	mm	30 to 36	30	Pass
Lower Rib Displacement	mm	32 to 38	33	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	40	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	34	Pass
Overall Test Results				Pass


Laboratory Technician

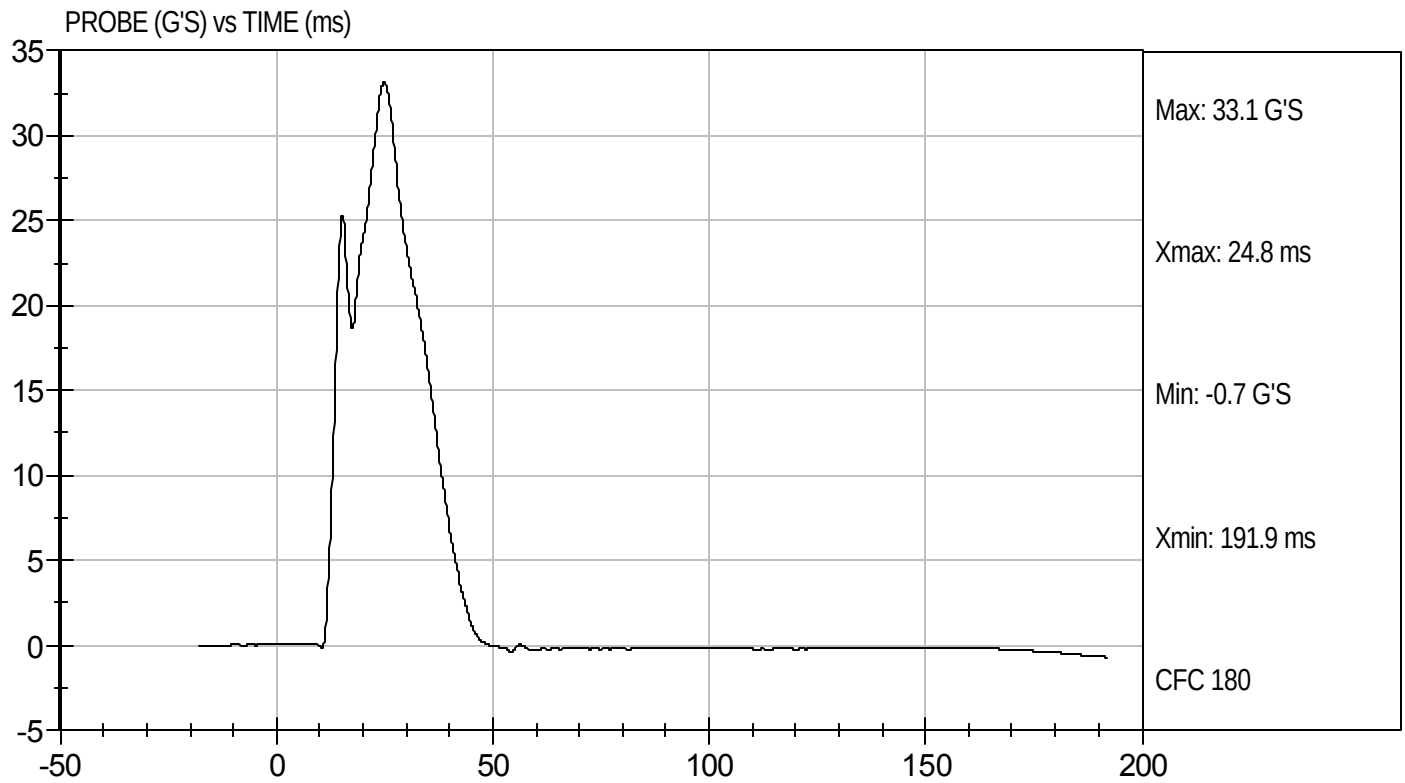
11/16/10
Test Date


Approved By



Test Desc: Thorax With Arm
Component ID: D104004

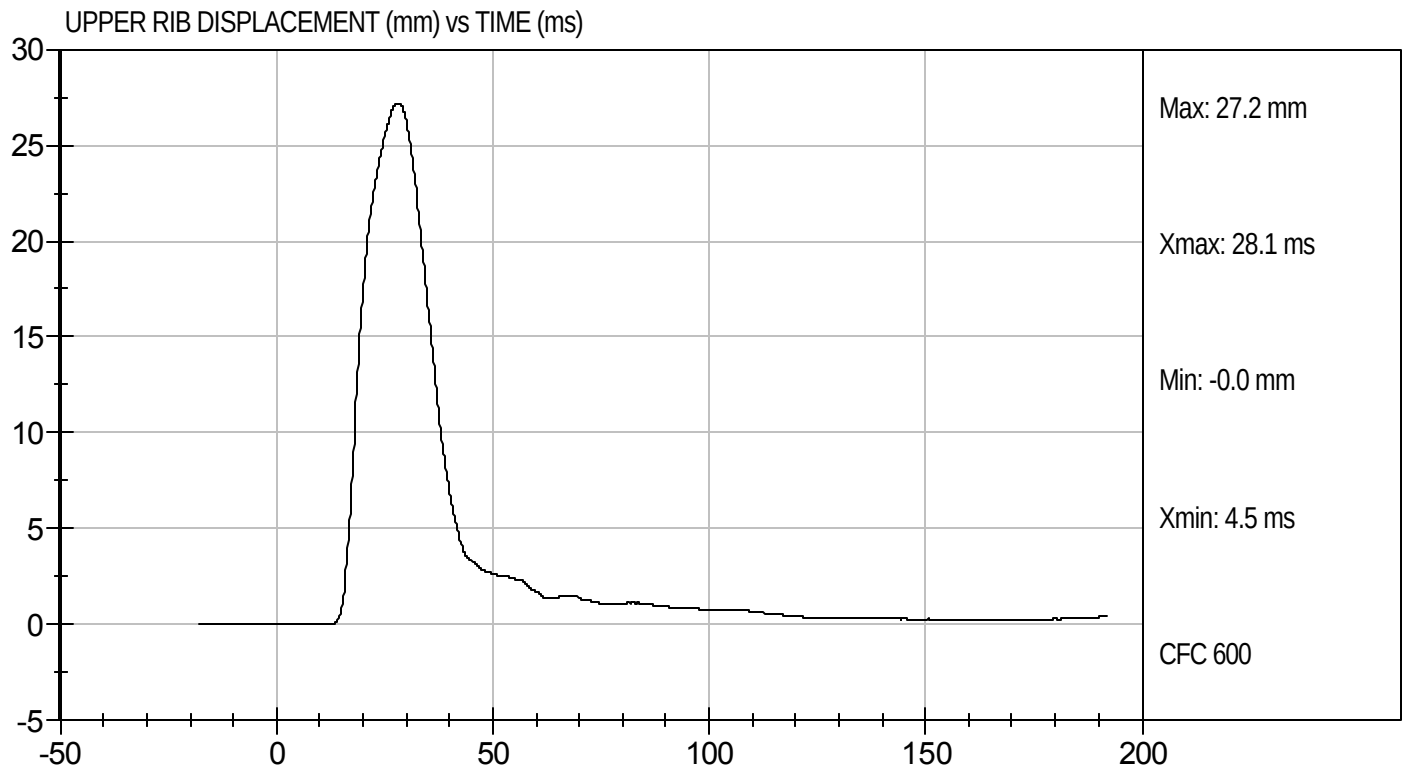
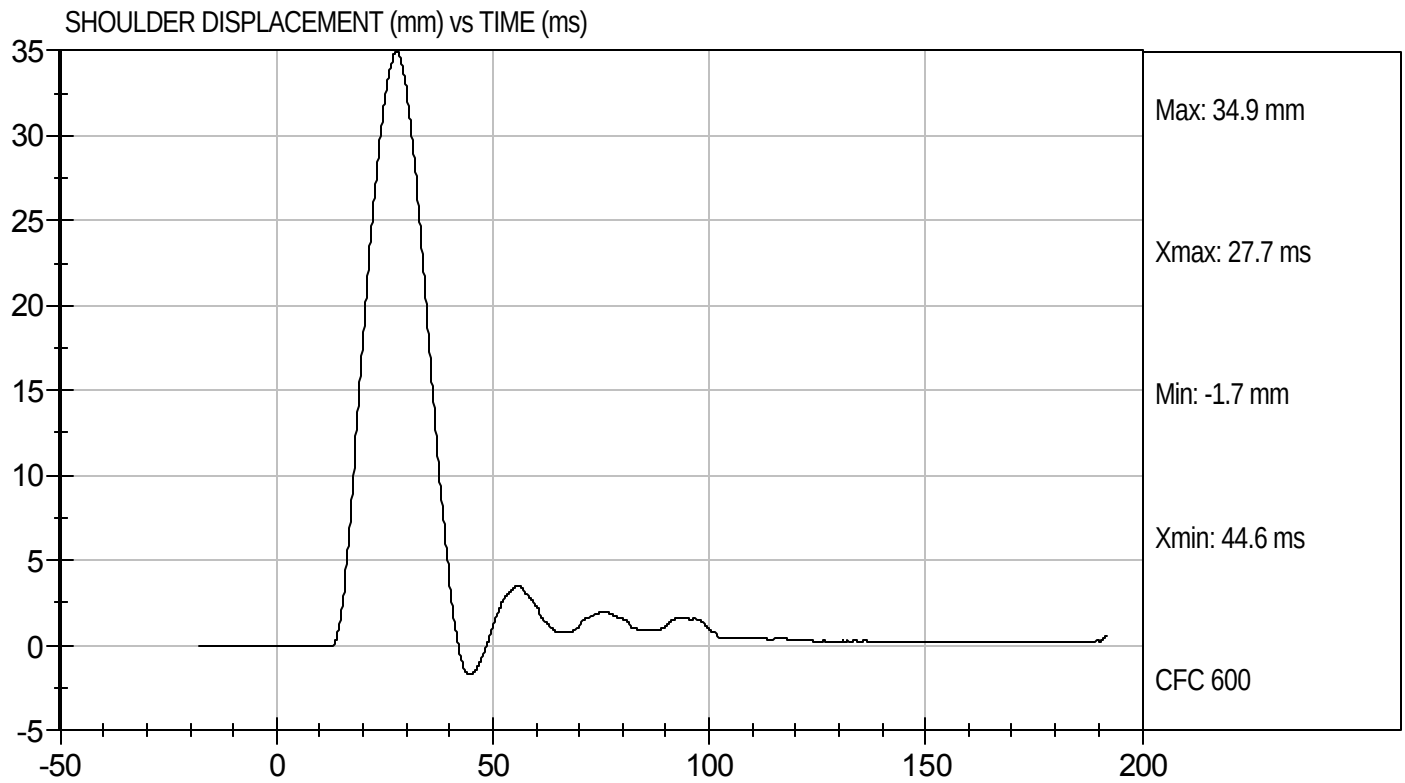
Test Date: 11/16/10
Velocity: 21.93 ft/s, 6.68 m/s





Test Desc: Thorax With Arm
Component ID: D104004

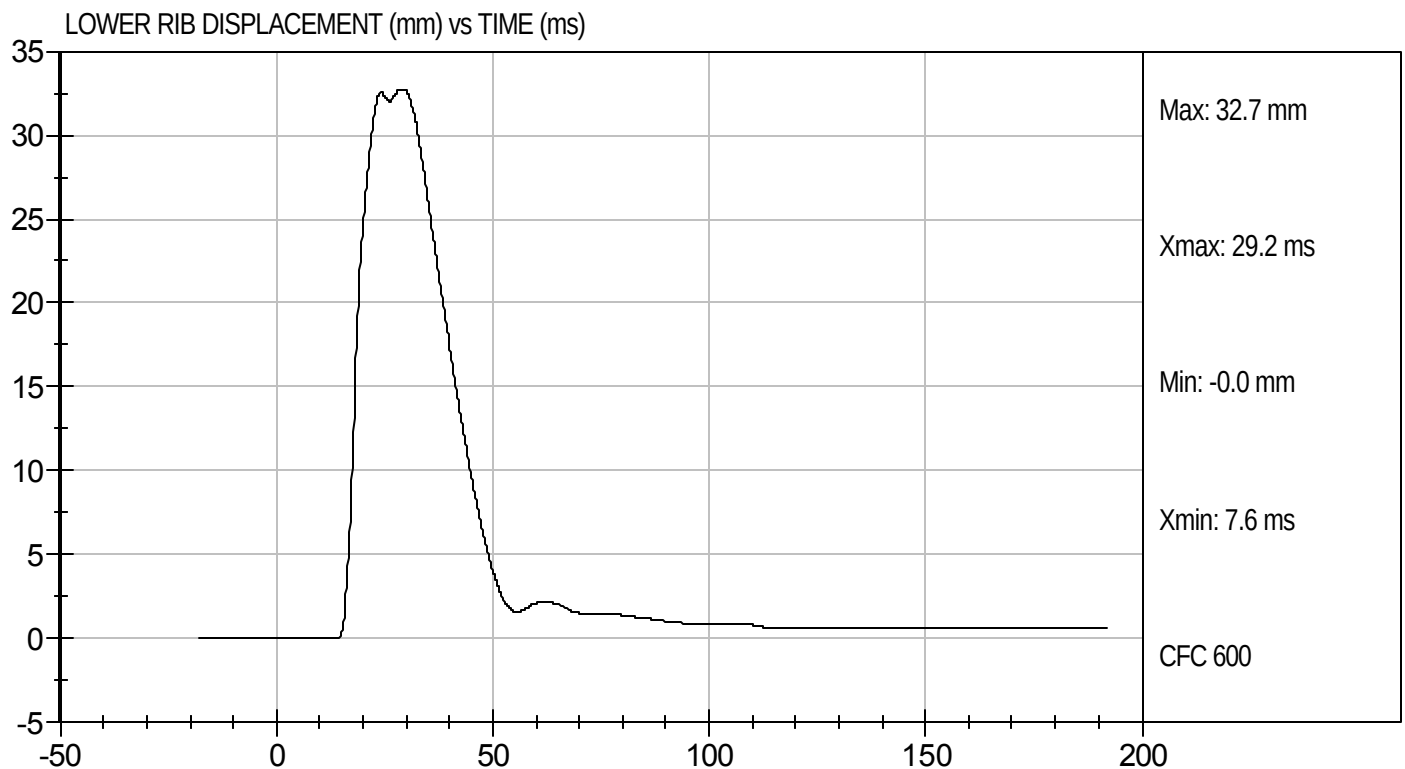
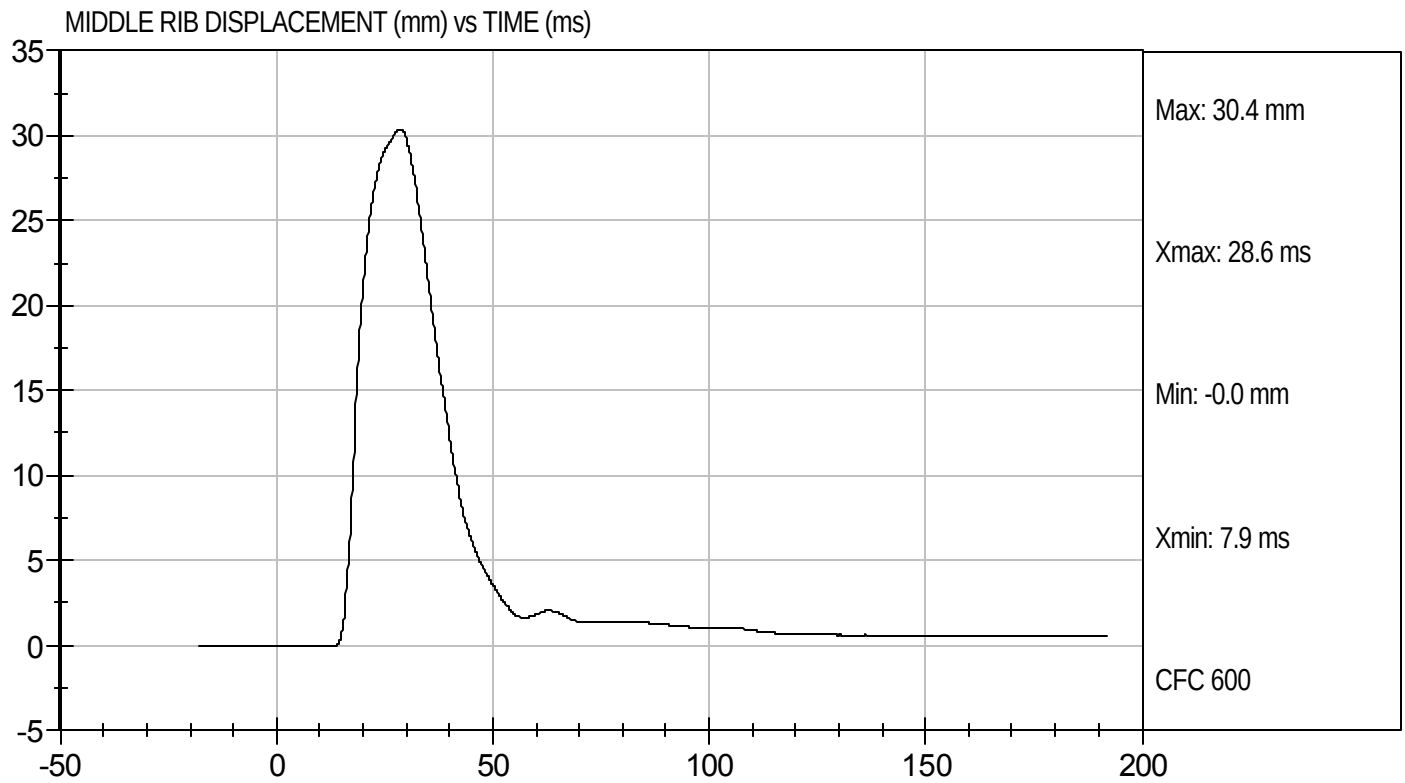
Test Date: 11/16/10
Velocity: 21.93 ft/s, 6.68 m/s





Test Desc: Thorax With Arm
Component ID: D104004

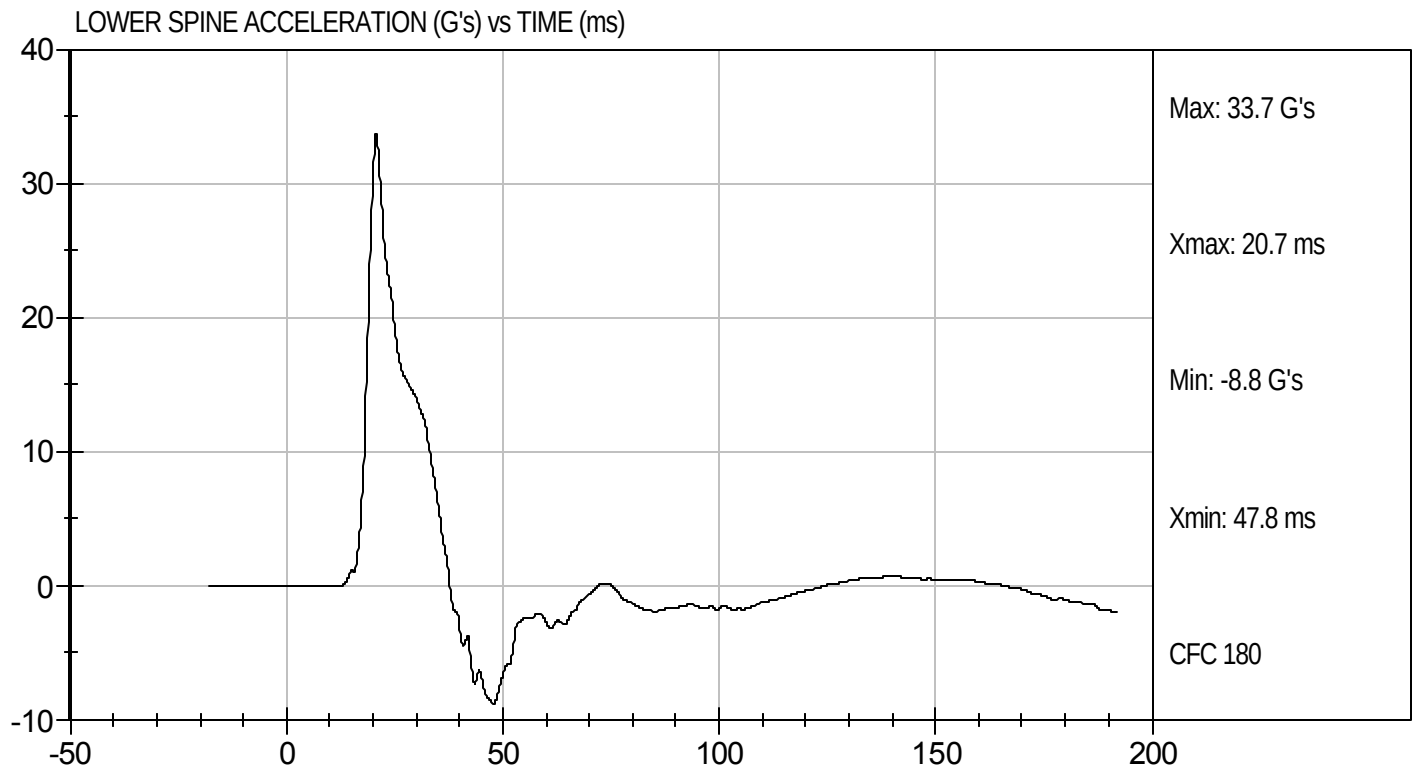
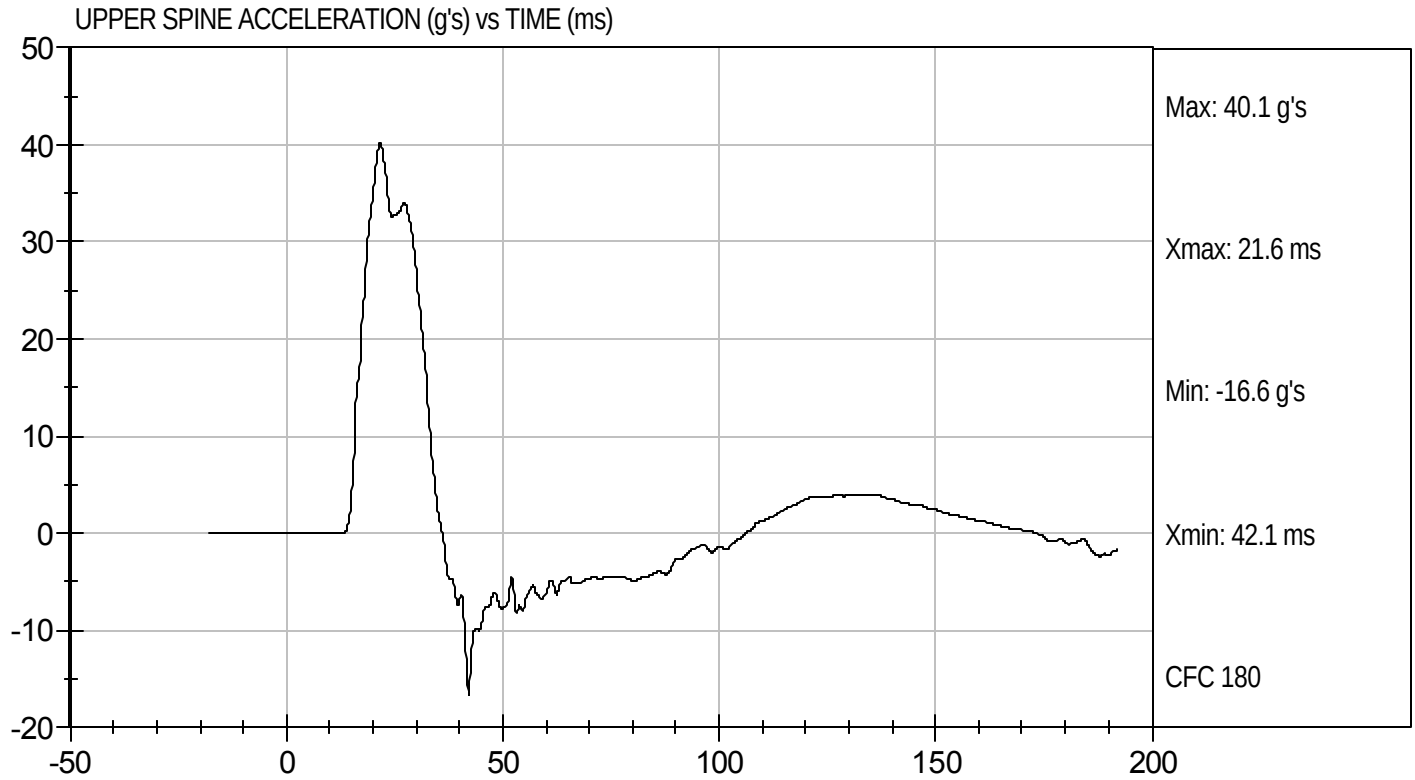
Test Date: 11/16/10
Velocity: 21.93 ft/s, 6.68 m/s





Test Desc: Thorax With Arm
Component ID: D104004

Test Date: 11/16/10
Velocity: 21.93 ft/s, 6.68 m/s

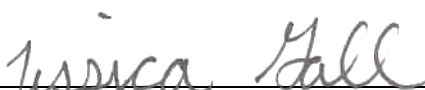


MGA RESEARCH CORPORATION
THORAX (WITHOUT ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D104005

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.0	Pass
Humidity	%	10 to 70	28	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Peak Impactor Force	G's	14 to 18	16	Pass
Upper Rib Displacement	mm	32 to 40	38	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	16	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	9	Pass
Overall Test Results			Pass	


Laboratory Technician

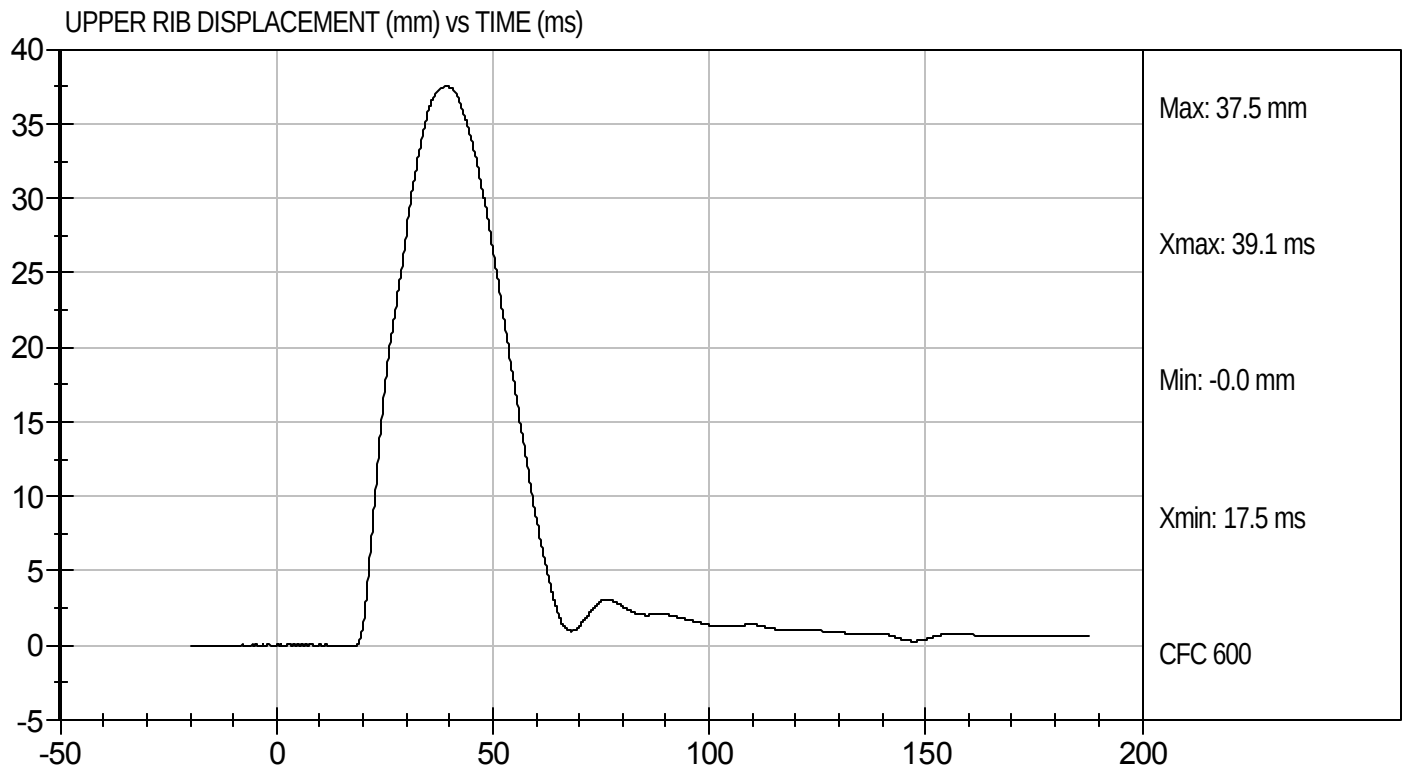
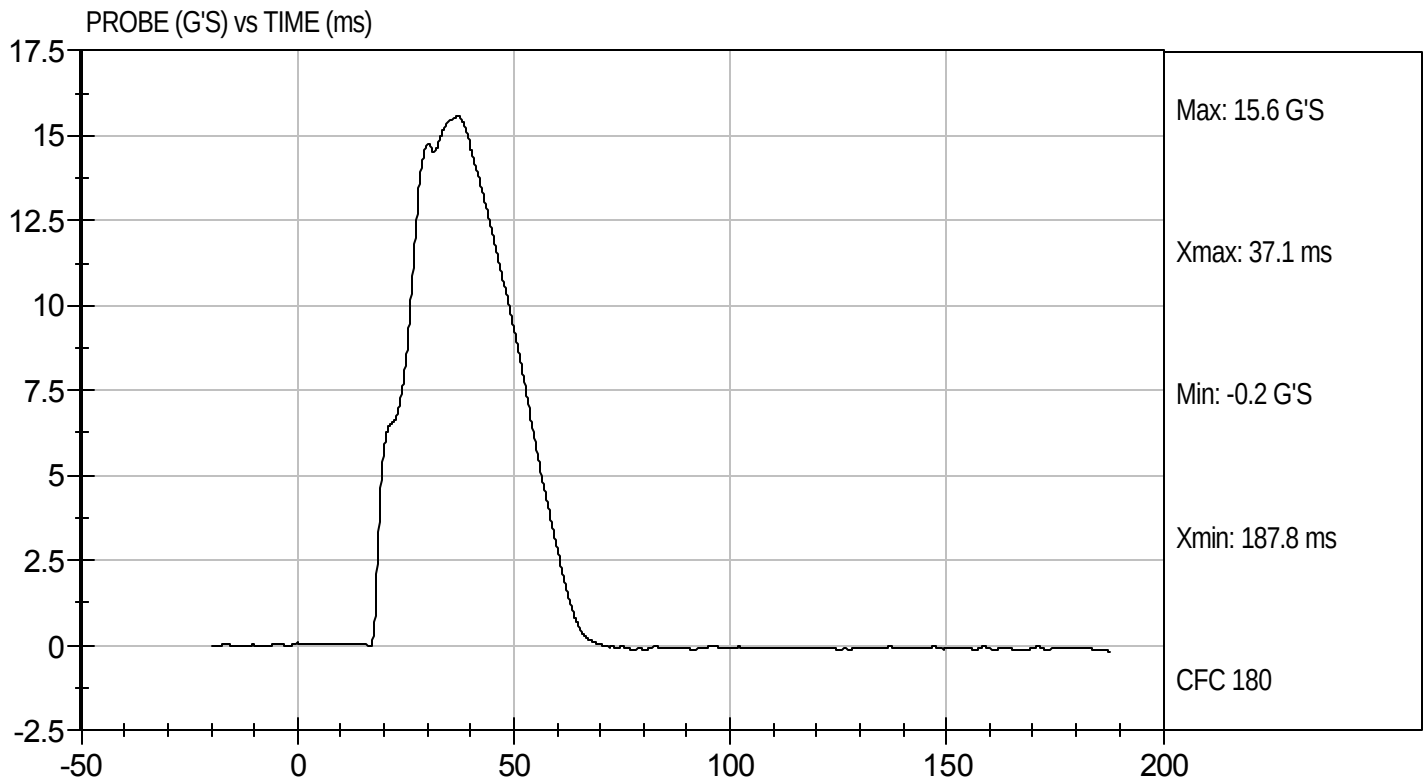
11/16/10
Test Date


Approved By



Test Desc: Thorax Without Arm
Component ID: D104005

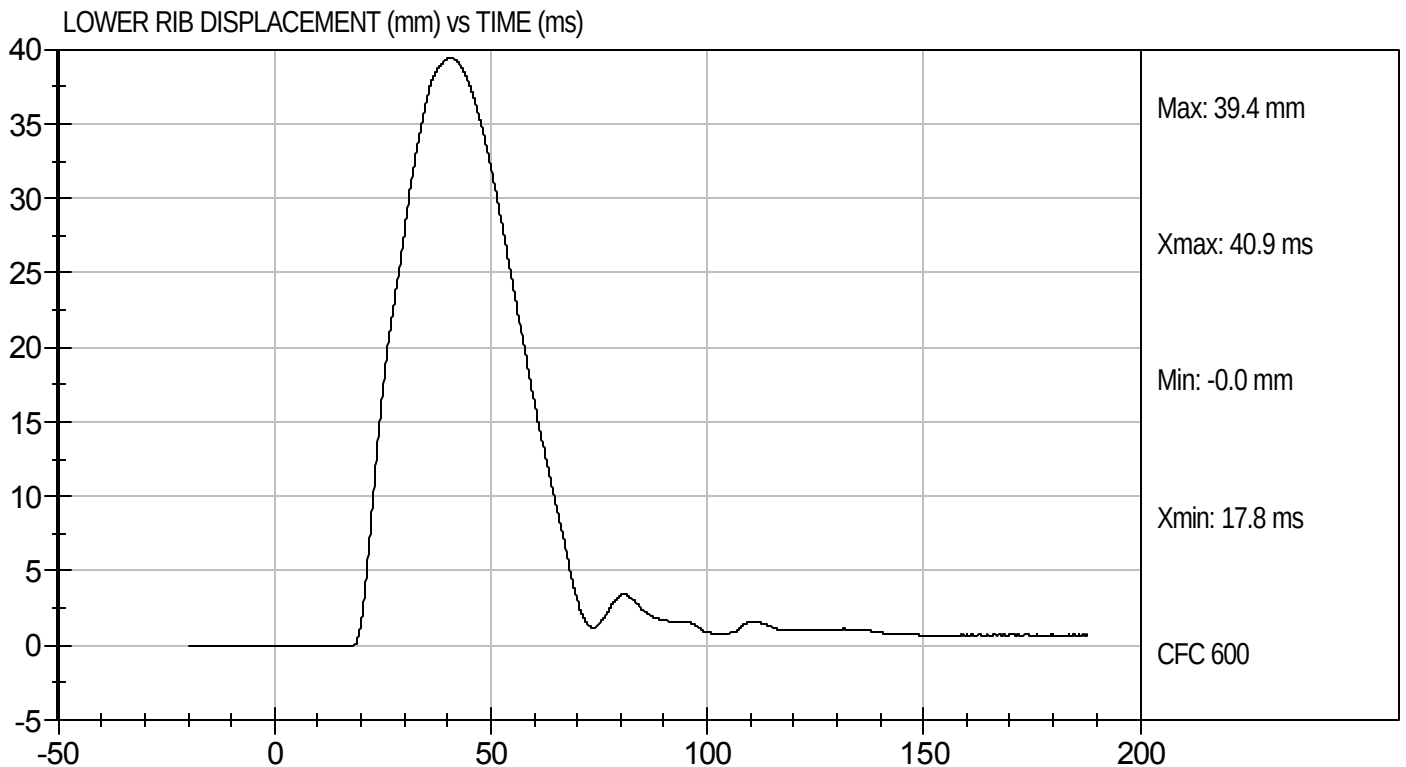
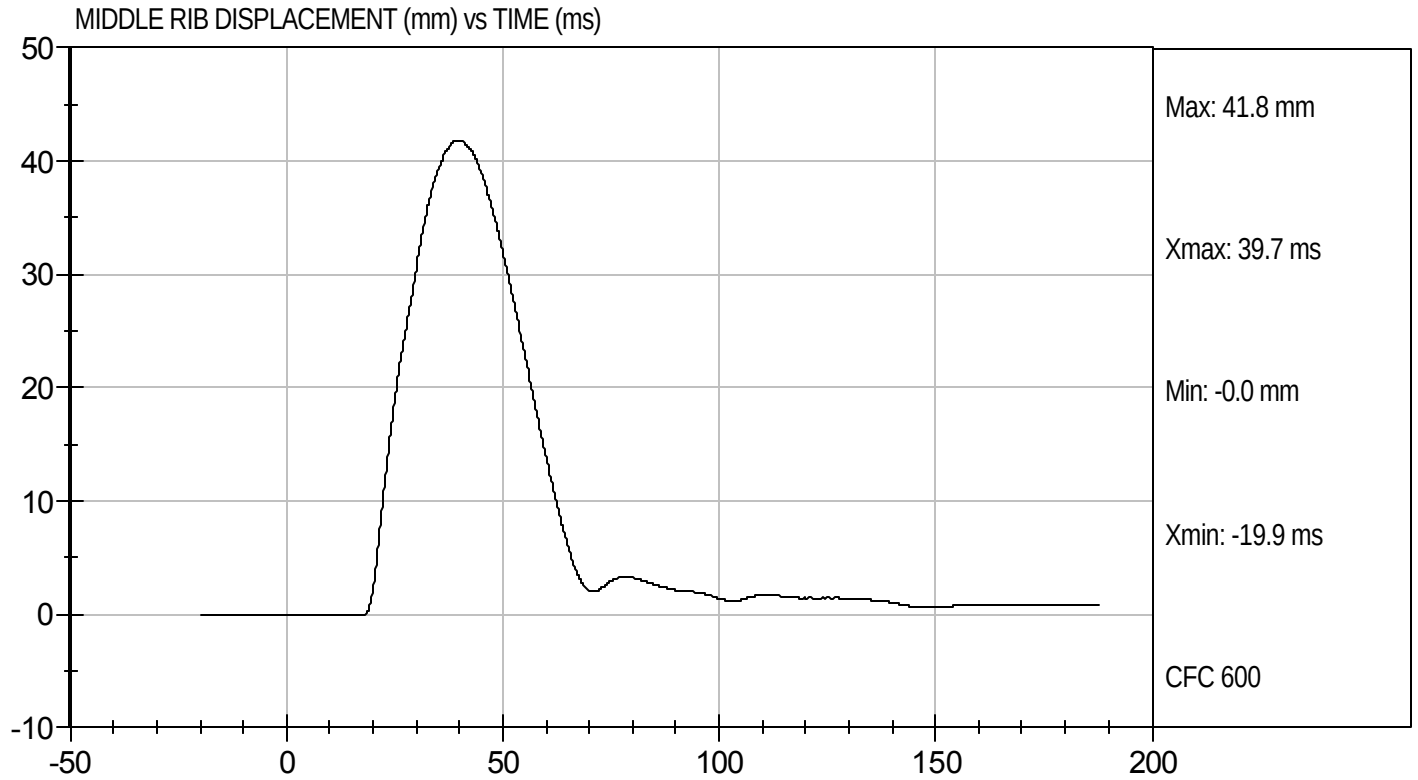
Test Date: 11/16/10
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Thorax Without Arm
Component ID: D104005

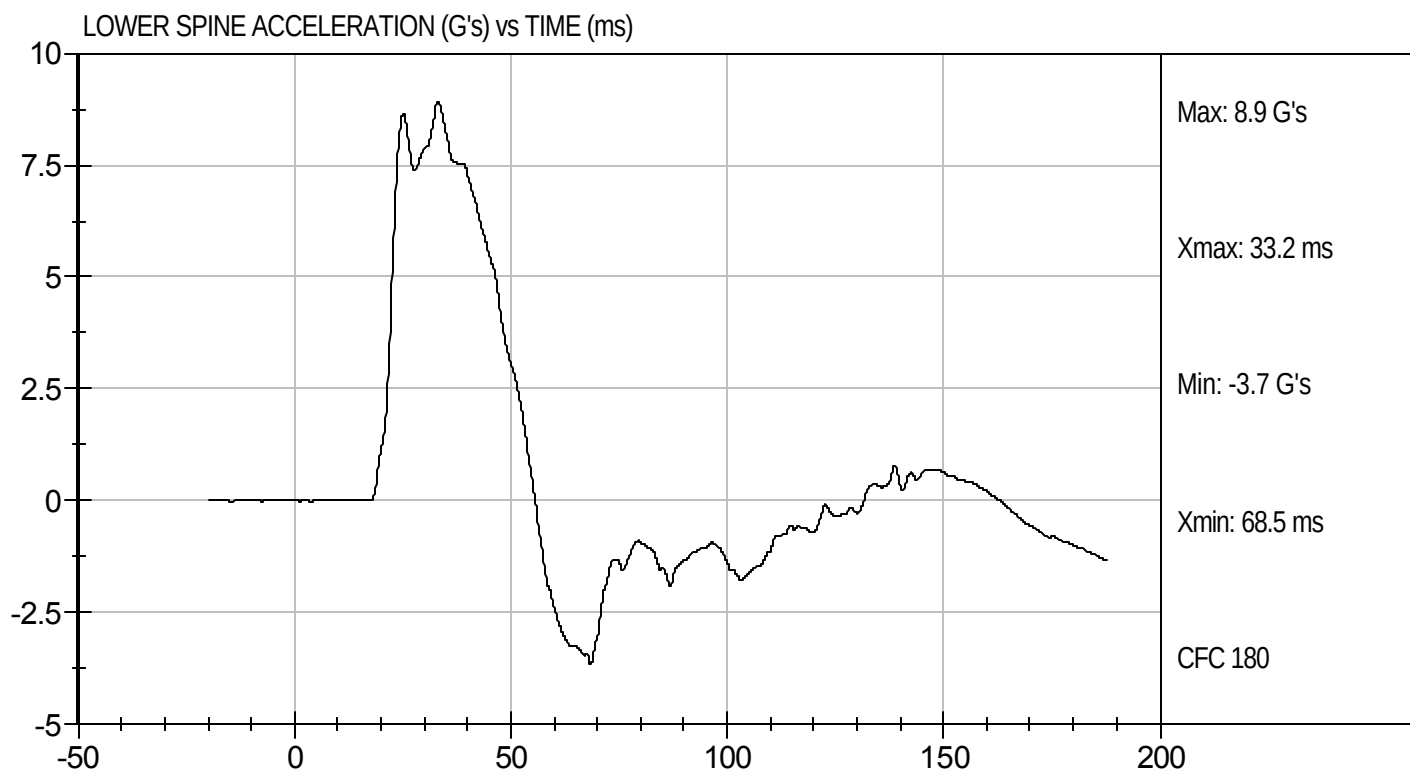
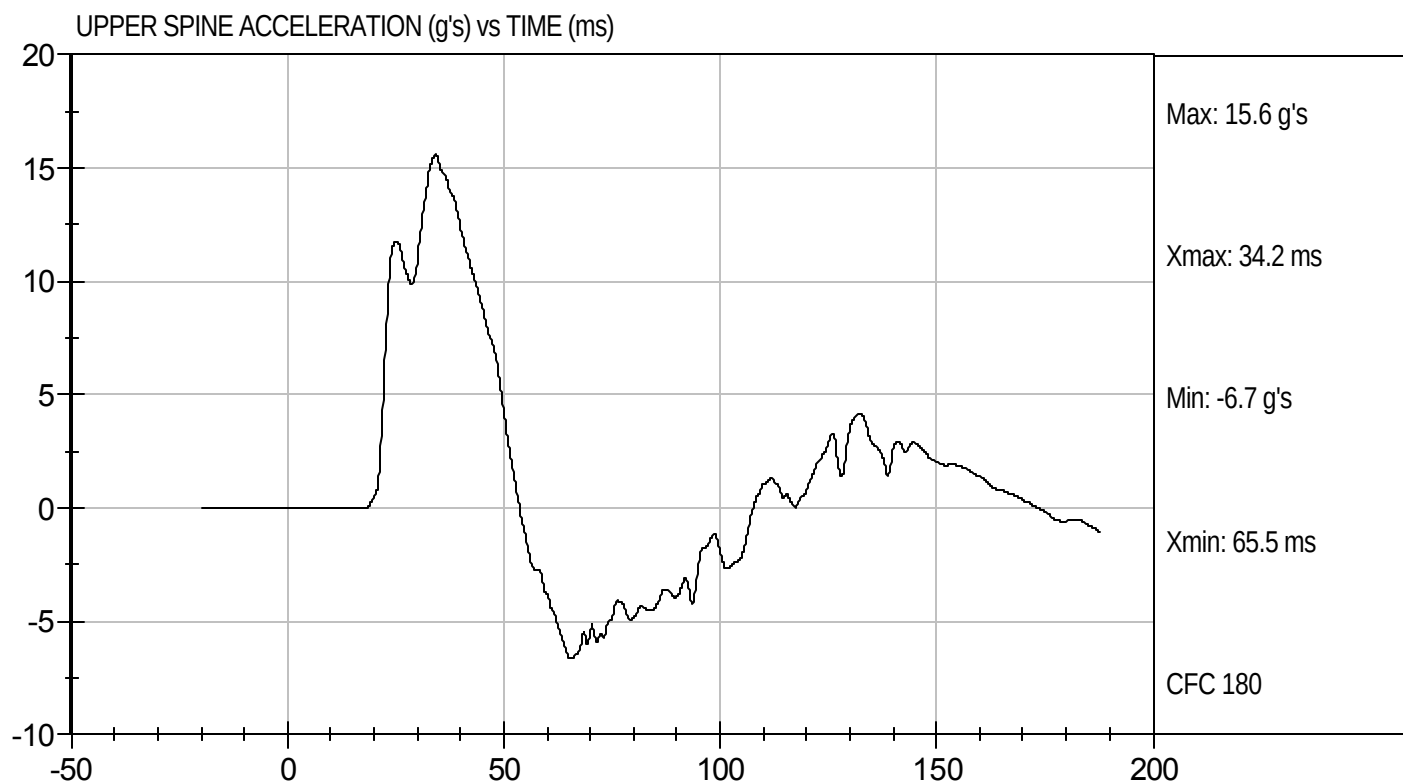
Test Date: 11/16/10
Velocity: 14.25 ft/s, 4.34 m/s





Test Desc: Thorax Without Arm
Component ID: D104005

Test Date: 11/16/10
Velocity: 14.25 ft/s, 4.34 m/s



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

ATD Serial No: 306

Test I.D: D104006

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.0	Pass
Humidity	%	10 to 70	28	Pass
Impact Velocity	m/s	4.20 to 4.40	4.39	Pass
Peak Impactor Acceleration	G's	12 to 16	15	Pass
Upper Rib Displacement	mm	36 to 47	44	Pass
Lower Rib Displacement	mm	33 to 44	37	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
Overall Test Results			Pass	


Laboratory Technician

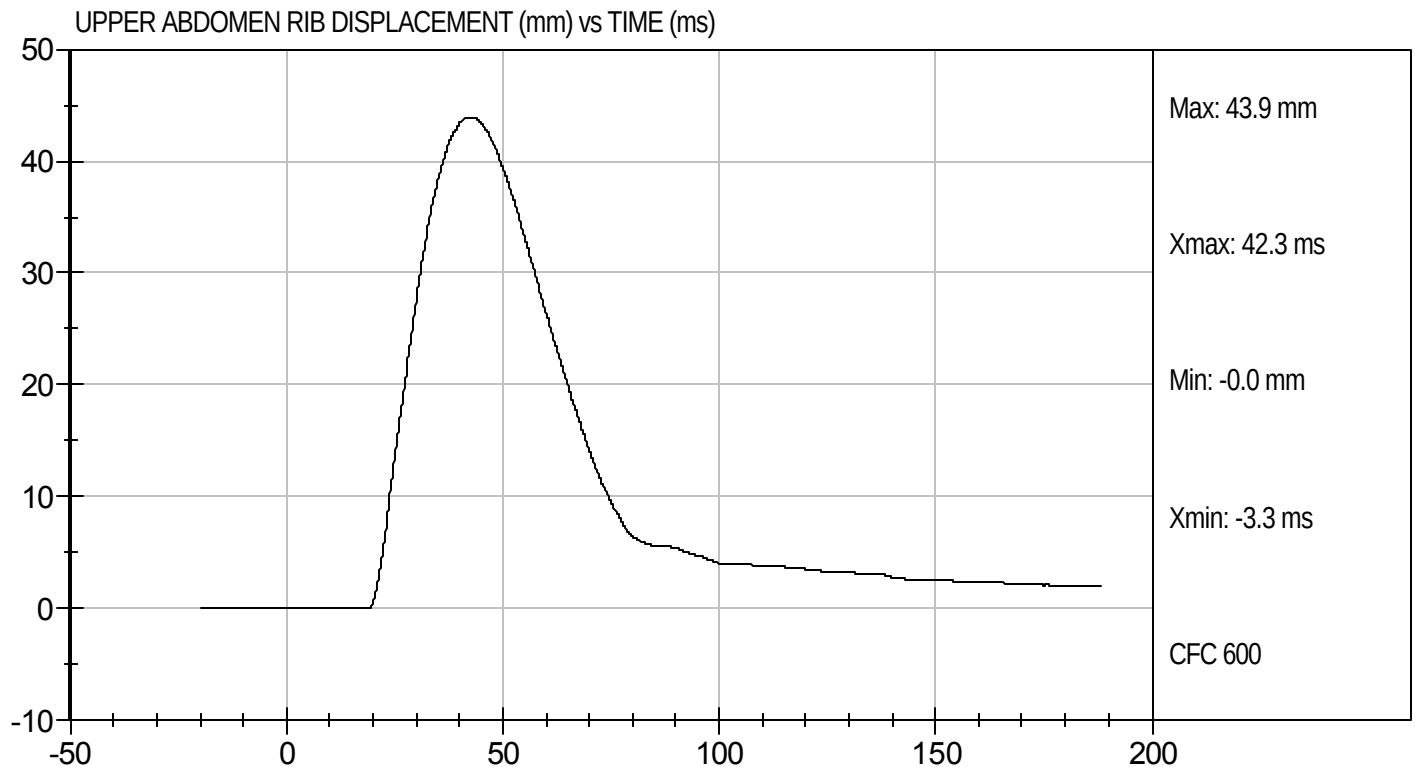
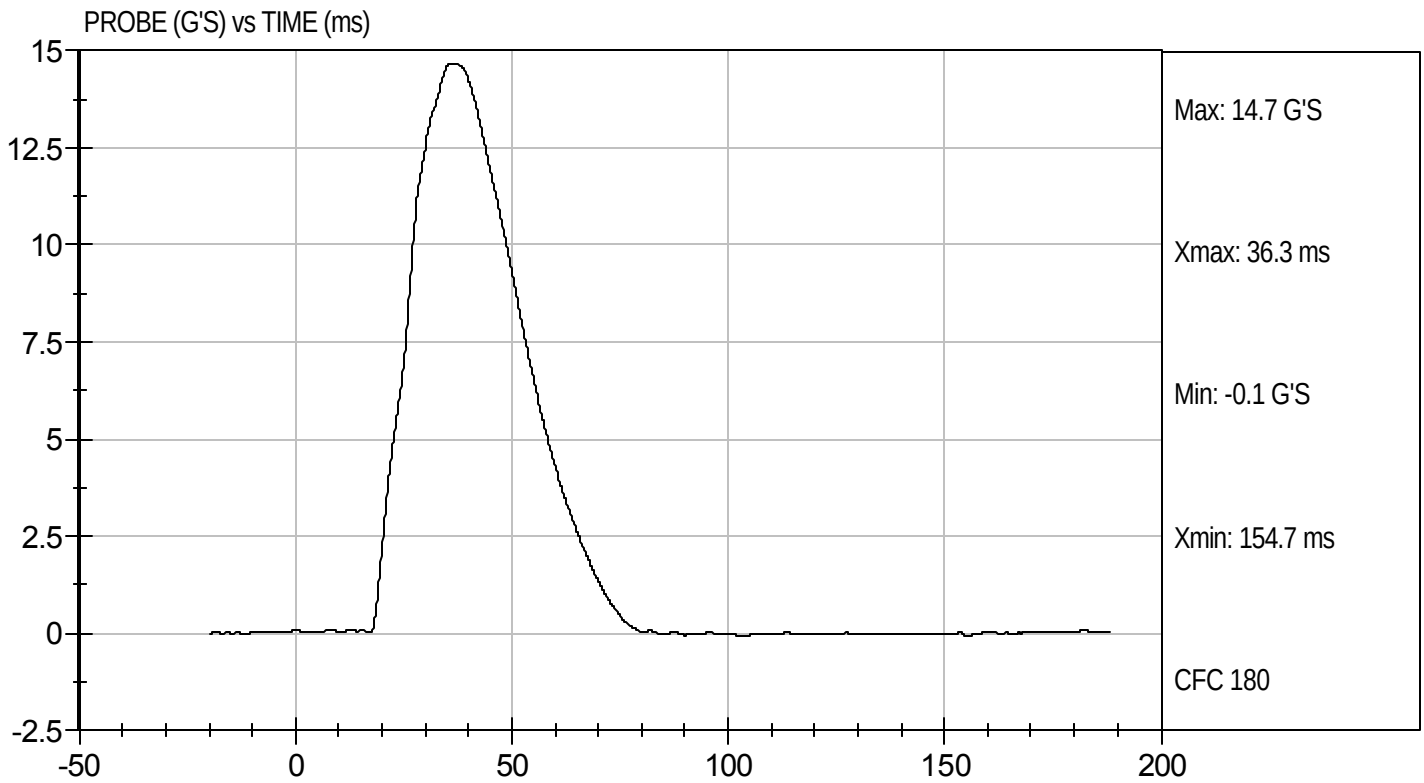
11/16/10
Test Date


Approved By



Test Desc: Abdomen Impact
Component ID: D104006

Test Date: 11/16/10
Velocity: 14.40 ft/s, 4.39 m/s

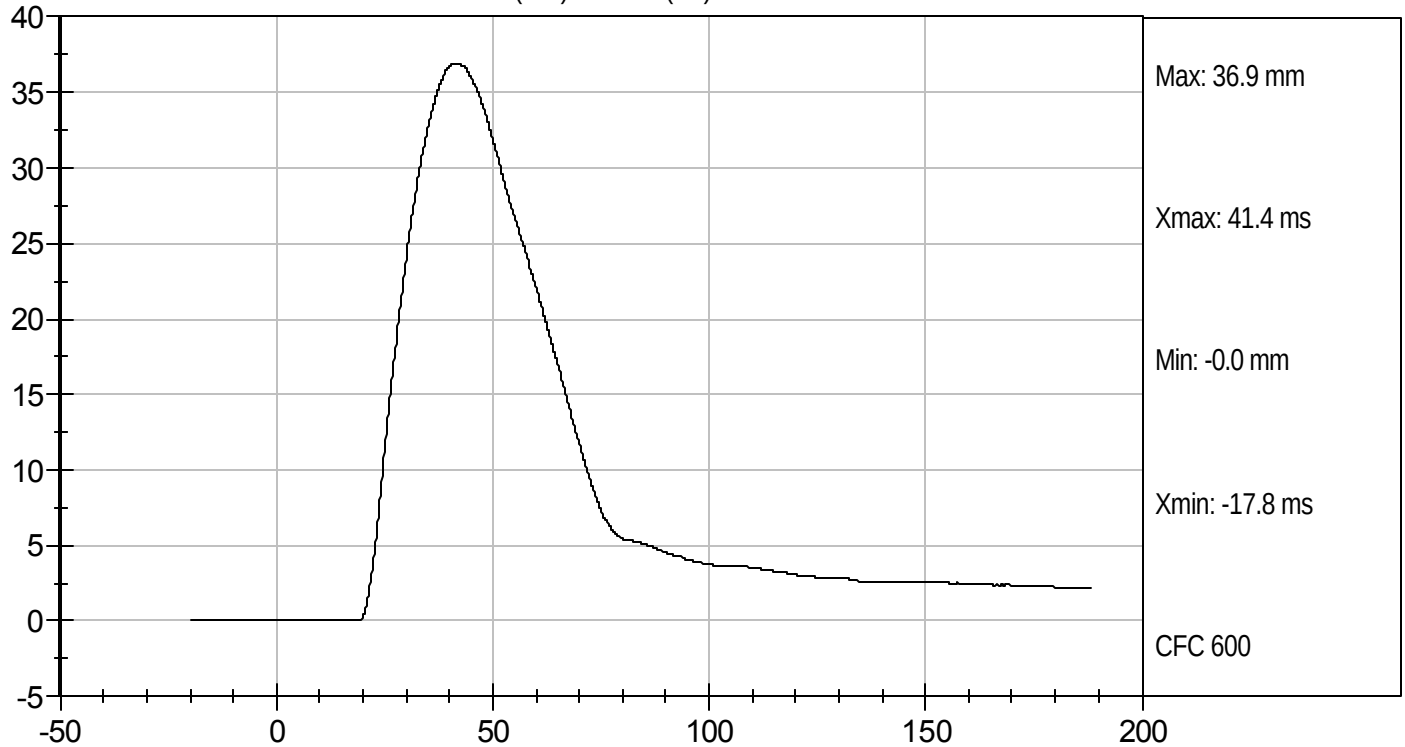




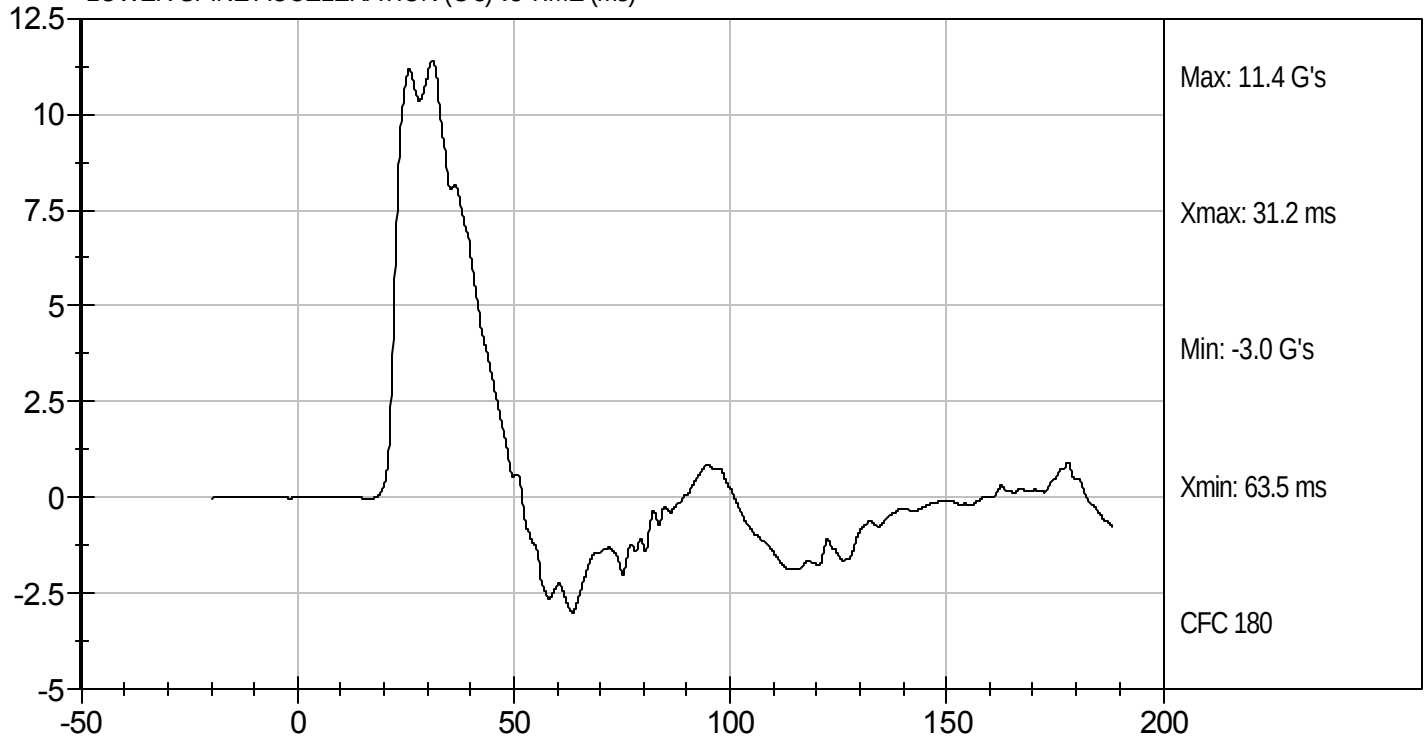
Test Desc: Abdomen Impact
Component ID: D104006

Test Date: 11/16/10
Velocity: 14.40 ft/s, 4.39 m/s

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



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



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

ATD Serial No: 306

Test I.D: D104007

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.0	Pass
Humidity	%	10 to 70	28	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	34	Pass
Peak Acetabulum Force	N	3600 to 4300	4293	Pass
Overall Test Results				Pass


Laboratory Technician

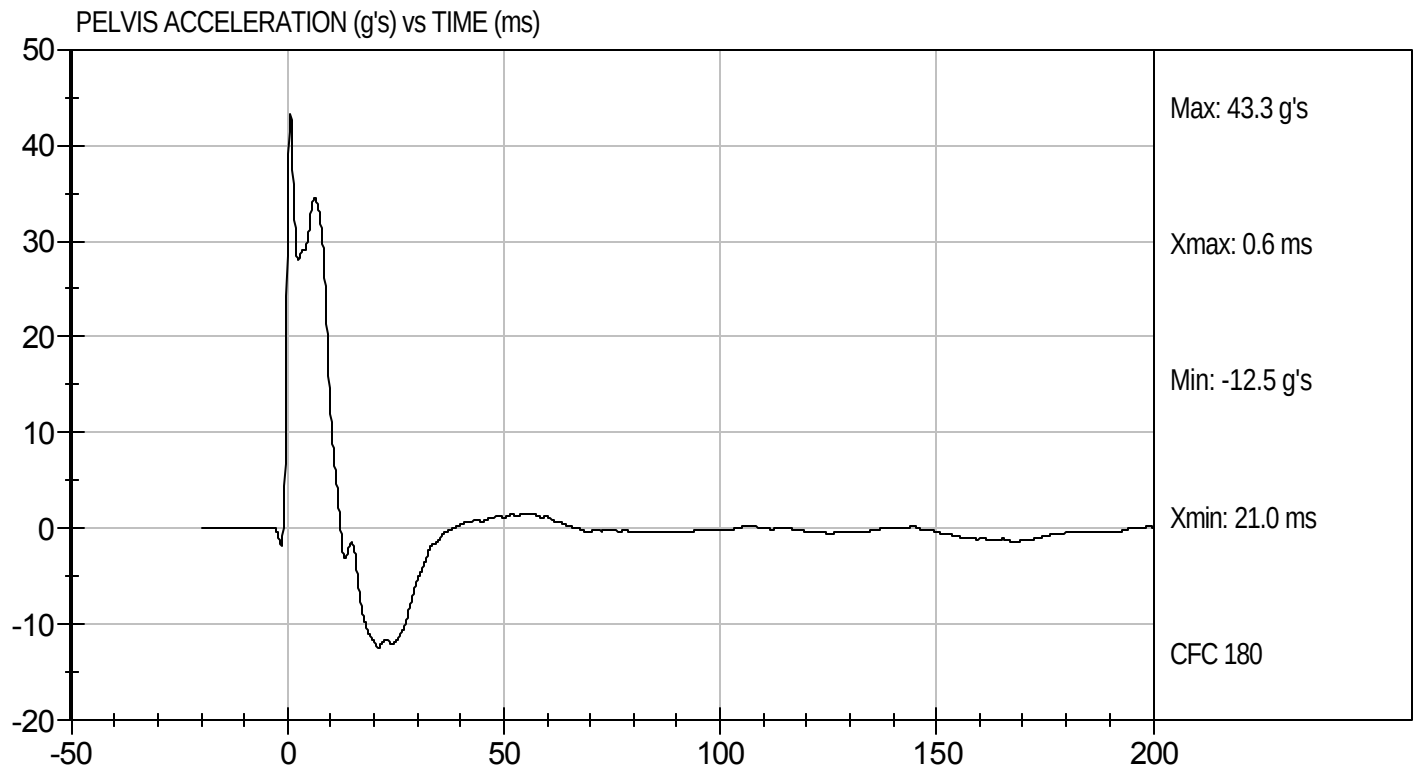
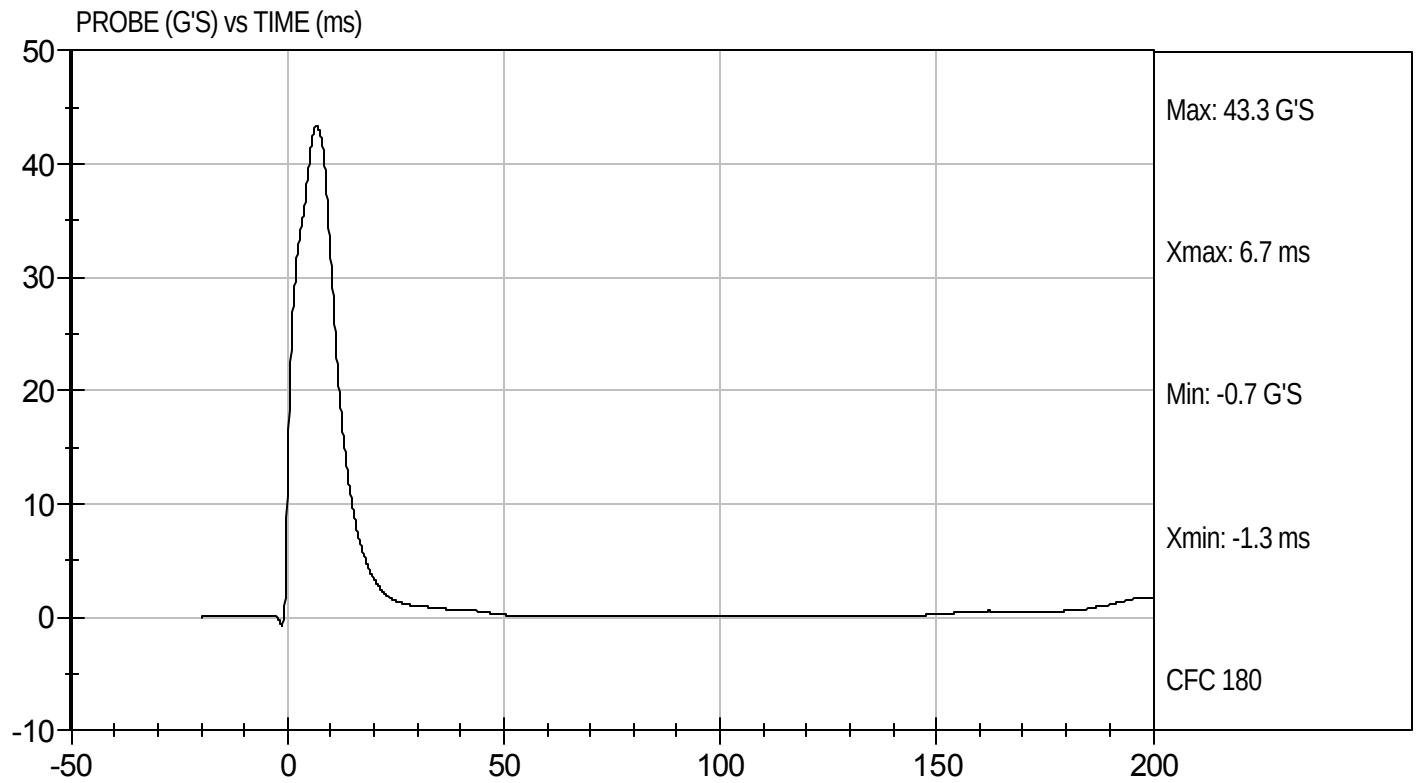
11/16/10
Test Date


Approved By



Test Desc: Pelvis Impact
Component ID: D104007

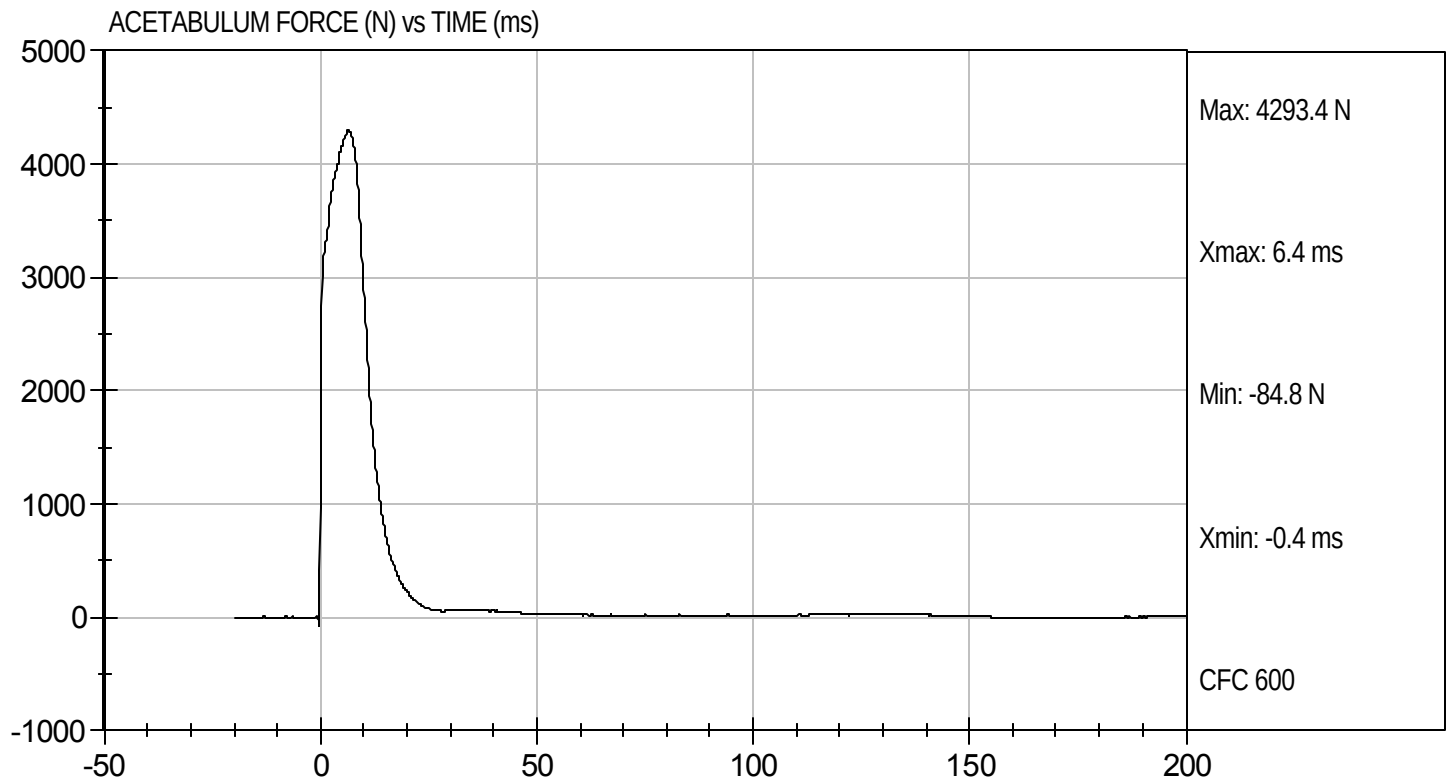
Test Date: 11/16/10
Velocity: 22.22 ft/s, 6.77 m/s





Test Desc: Pelvis Impact
Component ID: D104007

Test Date: 11/16/10
Velocity: 22.22 ft/s, 6.77 m/s



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

ATD Serial No: 306

Test I.D: D104008

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.0	Pass
Humidity	%	10 to 70	28	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Peak Impactor Acceleration	G's	36 to 45	38	Pass
Pelvis Y Acceleration	G's	28 to 39	29	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4677	Pass
Overall Test Results			Pass	


Laboratory Technician

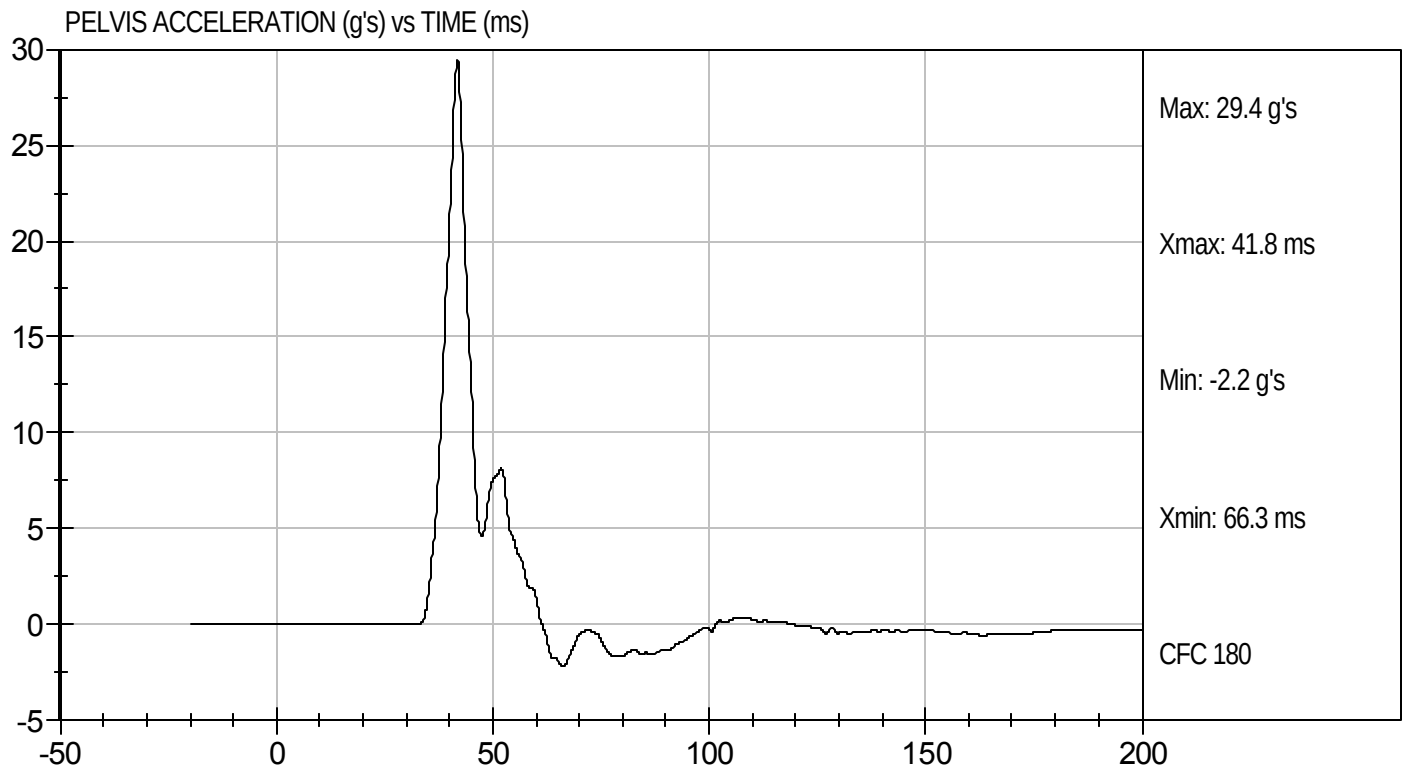
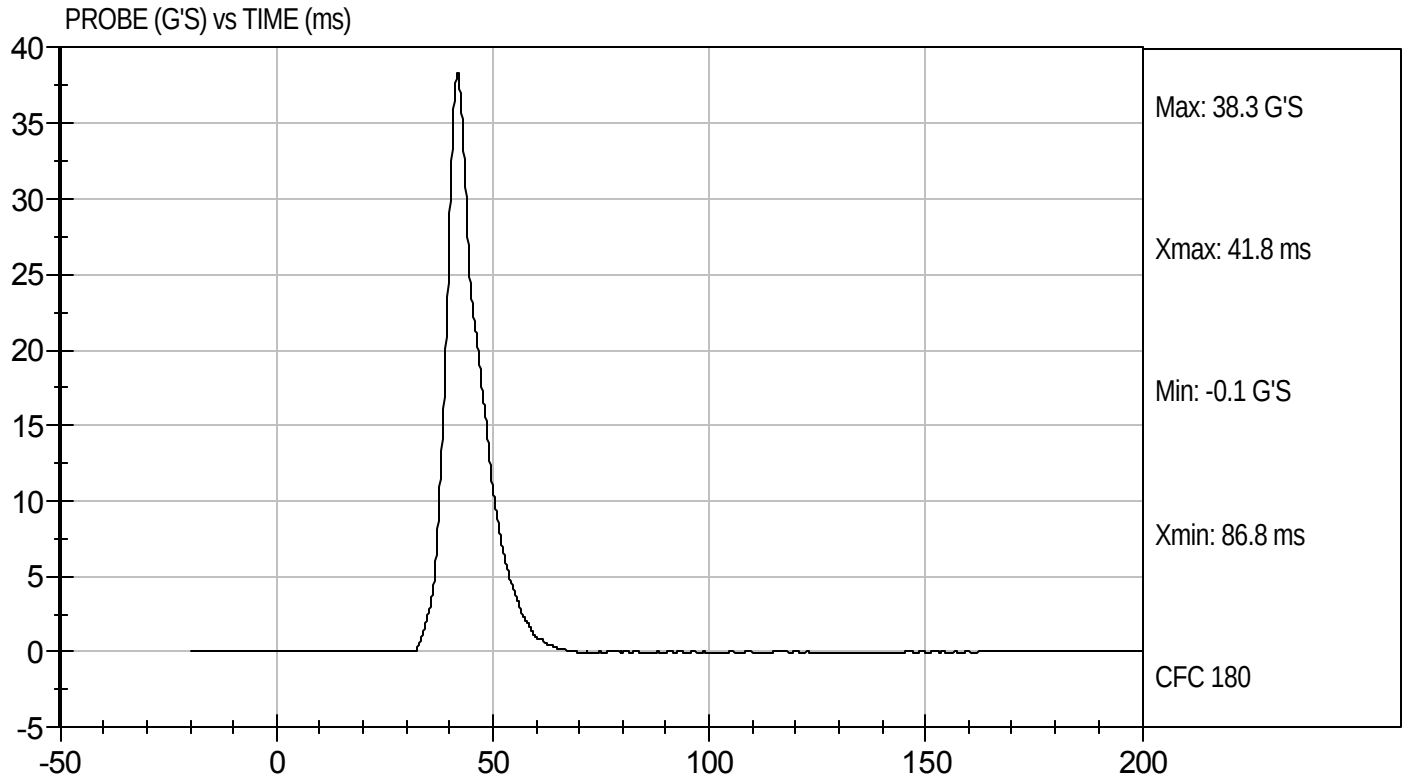
11/16/10
Test Date


Approved By



Test Desc: Iliac Impact
Component ID: D104008

Test Date: 11/16/10
Velocity: 14.37 ft/s, 4.38 m/s





Test Desc: Iliac Impact
Component ID: D104008

Test Date: 11/16/10
Velocity: 14.37 ft/s, 4.38 m/s

