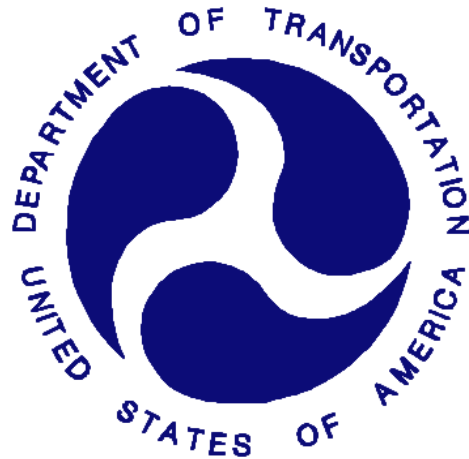


REPORT NUMBER: SPNCAP-MGA-2014-056

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

**FORD MOTOR COMPANY
2014 Ford Transit Connect XLT Wagon SWB
NHTSA No.: M20140203**

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



Test Date: March 5, 2014

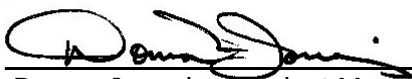
Final Report Date: April 4, 2014

FINAL REPORT

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

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: April 4, 2014

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

Technical Report Documentation Page

1. Report No. SPNCAP-MGA-2014-056	2. Government Accession No.	3. Recipient's Catalog No.																												
4. Title and Subtitle Final Report of New Car Assessment Program Side Impact Pole Testing of a 2014 Ford Transit Connect XLT Wagon SWB, NHTSA No.: M20140203		5. Report Date April 4, 2014																												
		6. Performing Organization Code MGA																												
7. Author(s) Donna Janovicz, Project Manager Ben Fischer, Project Engineer		8. Performing Organization Report No. SPNCAP-MGA-2014-056																												
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105		10. Work Unit No.																												
		11. Contract or Grant No. DTNH22-09-D-00124																												
12. Sponsoring Agency Name and Address United States Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards (NVS-111) 1200 New Jersey Ave, SE, Room W43-410 Washington, DC 20590		13. Type of Report and Period Covered: Final Test Report March 5, 2014 to April 4, 2014																												
		14. Sponsoring Agency Code NVS-111																												
15. Supplementary Notes																														
16. Abstract A 32.20 km/h, 75° oblique impact Side NCAP Test was conducted on the subject 2014 Ford Transit Connect XLT Wagon SWB in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. The test was conducted at MGA Research Corporation, in Burlington, Wisconsin, on March 5, 2014. The impact velocity was 31.9 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21.0°C. The test vehicle post-test maximum crush was 327 mm at level 3. The test vehicle's performance was as follows: <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th colspan="3">Driver ATD (SID-IIs)</th> </tr> <tr> <th>Units</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td>N/A</td> <td>1000</td> <td>115</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>Gs</td> <td>82</td> <td>38</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>3584</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38*</td> <td>16</td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td>mm</td> <td>45*</td> <td>24</td> </tr> </tbody> </table> *Proposed IARV The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.				Measurement Description	Driver ATD (SID-IIs)			Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	115	Resultant Lower Spine Acceleration	Gs	82	38	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3584	Maximum Thoracic Rib Deflection	mm	38*	16	Maximum Abdomen Rib Deflection	mm	45*	24
Measurement Description	Driver ATD (SID-IIs)																													
	Units	Threshold	Result																											
Head Injury Criteria (HIC ₃₆)	N/A	1000	115																											
Resultant Lower Spine Acceleration	Gs	82	38																											
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3584																											
Maximum Thoracic Rib Deflection	mm	38*	16																											
Maximum Abdomen Rib Deflection	mm	45*	24																											
17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division, NPO-411 1200 New Jersey Ave, SE Washington, DC 20590 e-mail: tis@nhtsa.dot.gov FAX: 202-493-2833																												
19. Security Classification of Report Unclassified	20. Security Classification of Page Unclassified	21. No. of Pages 137	22. Price																											

TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
----------------	--	-----------------

1	Test Purpose and Procedure	1
2	Summary of Test Results	2
3	Occupant and Vehicle Information	4

<u>Data Sheet No.</u>		<u>Page No.</u>
-----------------------	--	-----------------

1	General Test and Vehicle Parameter Data	5
2	Seat, Seat Belt, Steering Wheel Adjustment and Fuel System Data	8
3	Dummy Longitudinal Clearance Dimensions	11
4	Dummy Lateral Clearance Dimensions	12
5	Camera and Instrumentation Data	13
6	Vehicle Accelerometer Data	14
7	Rigid Pole Load Cell Data	15
8	Post-Test Observations	16
9	Vehicle Profile Measurements	18
10	Vehicle Exterior Crush Measurements	19
11	Vehicle Damage Profile Distances	22
12	FMVSS No. 301 Static Rollover Results	23
13	Dummy/Vehicle Temperature Stabilization Data	24

Appendix

A	Photographs	A
B	Vehicle and Dummy Response Data Plots	B
C	Dummy Configuration and Performance Verification Data	C
D	Test Equipment and Instrumentation Calibration Data	D

SECTION 1

TEST PURPOSE AND PROCEDURE

This side impact test is part of the MY 2014 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 2014 Ford Transit Connect XLT Wagon SWB. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated September 2013.

SECTION 2 SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2014 Ford Transit Connect XLT Wagon SWB. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 31.9 km/h. The test was conducted by MGA Research Corporation in Burlington, Wisconsin, on March 5, 2014. Pre-test and post-test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure dated September 2013. Camera locations and other pertinent camera information are included in this report.

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

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

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

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

Measurement Description	Driver ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	115
Resultant Lower Spine Acceleration	Gs	82	38
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3584
Maximum Thoracic Rib Deflection	mm	38*	16
Maximum Abdominal Rib Deflection	mm	45*	24

*Proposed IARV

Supplemental restraint information is given below:

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

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

GENERAL COMMENTS

Left Floor Sill Y has questionable data from 33-88ms
Left Mid A-Post Y has questionable data from 84-90ms
Left Lower B-Post Y has questionable data from 12-28ms
Left Mid B-Post Y has questionable data from 10-59ms
Vehicle CG Y has questionable data from 42-46 and 56-59ms
Vehicle CG Z has questionable data from 42-46 and 56-59ms

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

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20140203
 Test Date: 3/5/2014

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20140203	Traction Control System (TCS)	Yes
Model Year	2014	Auto-Leveling System	No
Make	Ford	Automatic Door Locks (ADL)	Yes
Model	Transit Connect	Power Window Auto-Reverse	Yes
Body Style	Truck	Other Optional Feature	N/A
VIN	NM0AE8F70E1142727	Driver Front Airbag	Yes
Body Color	Frozen White Metallic	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	35 / 22	Driver Head/Torso Airbag	No
Engine Displacement (L)	2.5	Driver Torso Airbag	No
Type/No. Cylinders	4	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Lateral	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	No
Transmission Speeds	6	Rear Pass. Curtain Airbag	Yes
Overdrive	Yes	Rear Pass. Head/Torso Airbag	No
Final Drive	Front	Rear Pass. Torso Airbag	No
Roof Rack	No	Rear Pass. Torso/Pelvis Airbag	No
Sunroof/T-Top	No	Rear Pass. Pelvis Airbag	No
Running Boards	No	Driver Seat Belt Pretensioner	Yes
Tilt Steering Wheel	Yes	Rear Pass. Seat Belt Pretensioner	No
Power Seats	No	Driver Load Limiter	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Pass. Load Limiter	No
		Other Safety Restraint	N/A

Does owner's manual provide instructions to turn off automatic door locks?	Yes
--	-----

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Company	GVWR (kg)	2186
Date of Manufacture	12/13	GAWR Front (kg)	1232
Vehicle Type	Truck	GAWR Rear (kg)	1160

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	(A)
Capacity Weight (VCW) (kg)				513	(B)
DSC x 68.04 kg				340	(A-B)
Rated Cargo and Luggage Weight (RCLW) (kg)				173	

VEHICLE SEAT TYPE

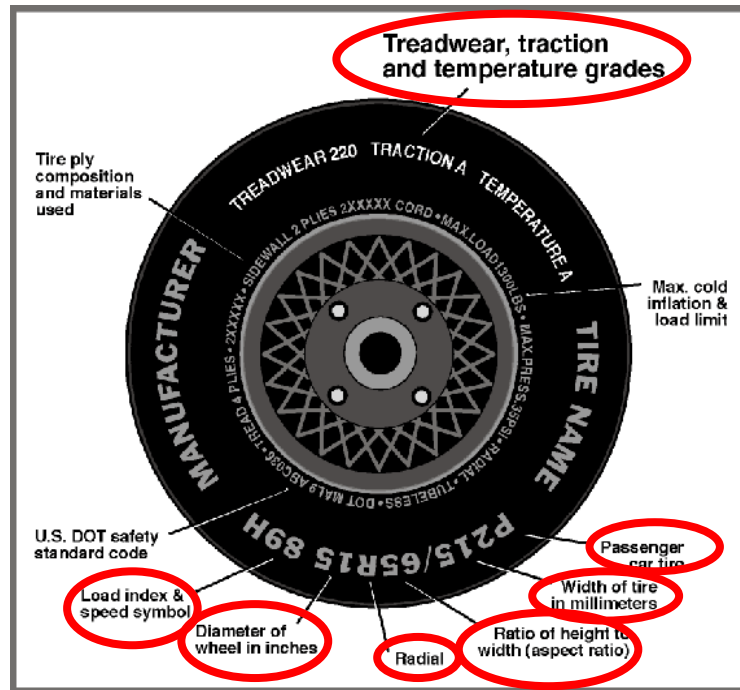
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						Manual	Power
Front Seat	X					w/lever	
Rear or Second Row			X		X		
Third Row Seat							

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

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20140203
 Test Date: 3/5/2014

VEHICLE TIRE INFORMATION



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	280	300
Recommended Tire Size	215/55R16	215/55R16
Tire Size on Vehicle	215/55R16	215/55R16
Tire Manufacturer	Continental	Continental
Tire Model	Contipro Contact	Contipro Contact
Treadwear	400	400
Traction	AA	AA
Temperature Grade	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 2 Nylon	1 Polyester, 2 Steel, 2 Nylon
Load Index/Speed Symbol	97H	97H
Tire Material	Rubber	Rubber
DOT Safety Code Left	6GB3 WBEC 4513	6GB3 WBEC 4513
DOT Safety Code Right	6GB3 WBEC 4513	6GB3 WBEC 4513

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

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20140203
 Test Date: 3/5/2014

TEST PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kpa	255	255	262	280
Tire Placard	kpa	280	280	300	300
Owner's Manual	kpa				
As Tested	kpa	280	280	300	300

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	482.6	342.0		496.7	405.1		490.8	434.1	
Right	kg	466.8	358.3		499.0	430.0		464.5	447.7	
Ratio	%	57.5	42.5		54.4	45.6		52.0	48.0	
Totals	kg	949.4	700.3	1649.7	995.7	835.1	1830.8	955.3	881.8	1837.1

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1649.7	(A)
Actual Weight of 1 P572V ATD (SID-IIs) ATD Used	kg	52.2	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	136	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1837.9	(A+B+C)

Does the measured As Tested Vehicle Weight lie within the required weight range
 (i.e. Calculated Test Vehicle Target Weight – 4.5 kg to 9 kg)? **YES**

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	deg	-1.0	-0.9	-0.3	Yes
Front Pass. Sill Angle (front-to-rear)*	deg	-1.1	-0.3	-0.3	Yes
Front Bumper Angle (left-to-right)**	deg	-0.5	-0.5	-0.6	Yes
Rear Bumper Angle (left-to-right)**	deg	-0.6	-0.7	-0.7	Yes
Vehicle CG (Aft of Front Axle)	mm	1131	1215	1279	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	0	-11	5	

*ND=Nose Down (-), NU=Nose Up (+) ** LD=Left Down (-), LU=Left Up (+)

*** The "As Tested" vehicle attitude measurements must be equal to or between the "As Delivered" and "Fully Loaded" vehicle attitude measurements.

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Ballast (if any)	58.1
None	0.0

Test height adjustable suspension setting, if applicable:	Not Applicable
---	----------------

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

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20140203
 Test Date: 3/5/2014

SEAT POSITIONING

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

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	15.9	10.5	13.2
Front Passenger Seat	Fixed	Fixed	Fixed
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCR Height (mm)	SCR Height Position	SCR Height (mm)		
				Rear- most	Mid- Fore/Aft	Forward- Most
Driver Seat	13.2	Fixed	Max	Fixed	Fixed	Fixed
	13.2	Fixed	Mid	Fixed	Fixed	Fixed
	13.2	Fixed	Min	Fixed	Fixed	Fixed
Front Passenger Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Front Center Seat			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed

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

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
 Test Program: NCAP Side Pole Impact Test

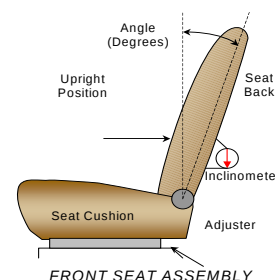
NHTSA No. M20140203
 Test Date: 3/5/2014

SEAT FORE/AFT POSITIONS

Seat	Total Fore/Aft Travel		Test Position from Forward-most Position	
	mm	Detents	mm	Detent
Driver Seat	220	22 (1 st as 0)	0	0 (1 st as 0)
Front Passenger Seat	220	22 (1 st as 0)	0	0 (1 st as 0)
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

SEAT BACK ANGLE ADJUSTMENT

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



Seat	Total Seat Back Angle Range		Test Position from Vertical	
	Degrees	Detents	Degree	Detent
Driver Seat w/Seated Dummy	71.2	37 (1 st as 1)	0.6	9 th (1 st as 0)
Front Passenger Seat	48.9	27 (1 st as 1)	4.9	0 (1 st as 0)
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

Seat back angles measured on headrest post guide.

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1.

	Total # of Positions	Placed in Position #
Driver Seat	4 detents (1 st as 1)	0 (uppermost as 0)

HEAD RESTRAINT ADJUSTMENT

Head restraints are adjusted to the lowest and most full forward in-use position.

	Total # of Positions	Placed in Position #
Driver Seat	3	Lowest / Full Forward

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

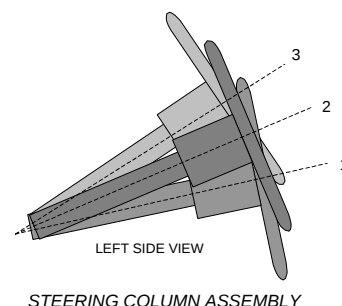
Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20140203
 Test Date: 3/5/2014

STEERING COLUMN ADJUSTMENT

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

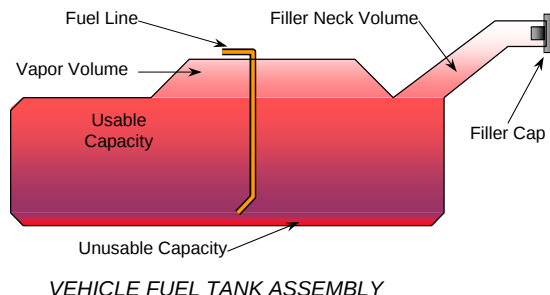
	Degrees	Fore/Aft Position (mm)
Lowermost, Position 1	67.3	260
Geometric Center, Position 2	64.1	235
Uppermost, Position 3	60.9	210
Telescoping Steering Wheel Travel		50
Test Position	64.1	235



FUEL PUMP

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

The vehicle is equipped with an electric fuel pump. The electronic fuel pump operates for a prescribed amount of time to pressurize the fuel system following the actuation of the ignition. If no attempt has been made to start the engine within 450ms following ignition operation, the fuel pump will shut off. The fuel pump operates continuously while the engine is running. If the engine stalls, the fuel pump is deactivated. Also, fuel pump shut-off is provided, which is designed to stop the fuel flow to the engine if the vehicle sustains an impact above a certain magnitude. The fuel pipe is on the right side.



FUEL TANK CAPACITY DATA

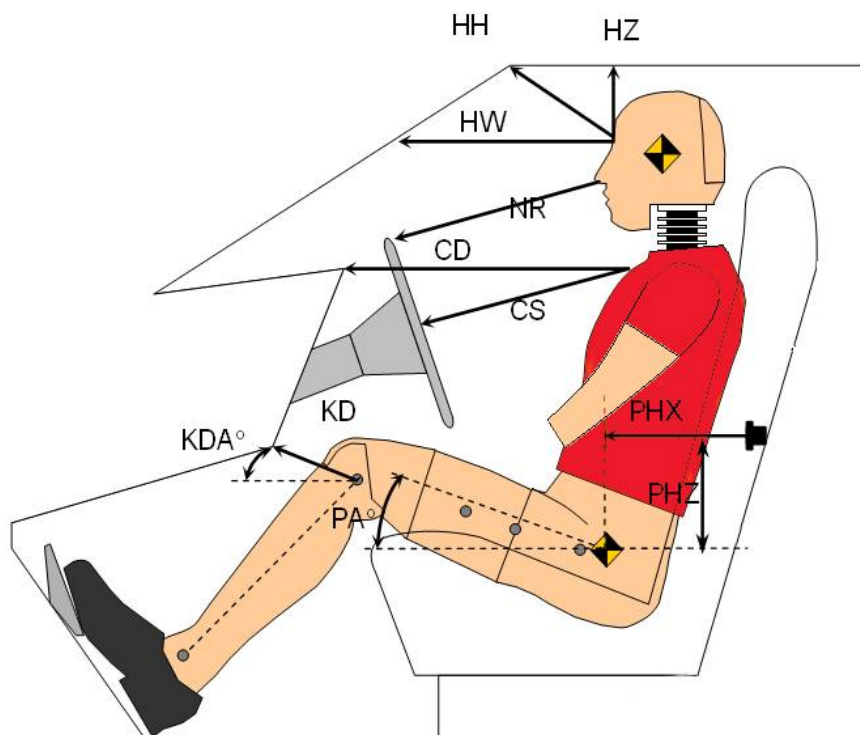
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	60.0
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	60.0
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	55.8
Actual Amount of Solvent Used	55.8
1/3 of Usable Capacity	20.0

Is the actual amount of solvent used in the test equal to 93% $\pm$ 1% of the Usable Capacity stated in Form No. 1? **YES**

.DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20140203
 Test Date: 3/5/2014



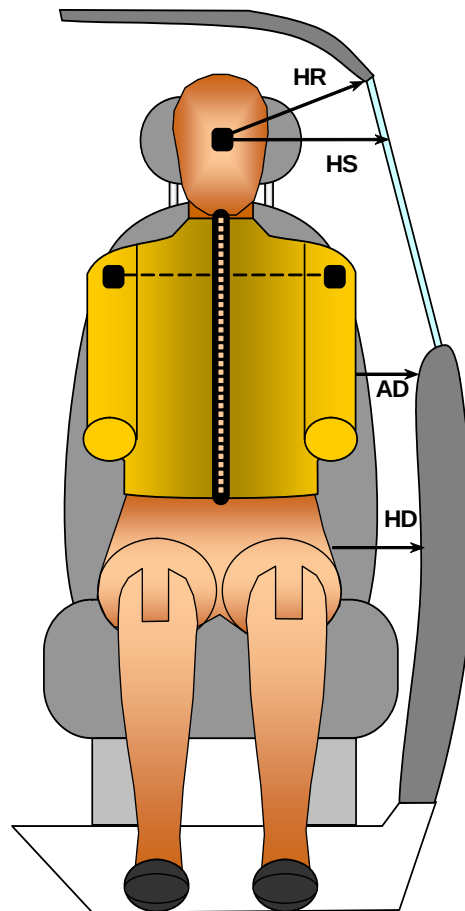
LEFT SIDE VIEW

Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	455	
HW	Head to Windshield	830	
HZ	Head to Roof Liner	290	
NR	Nose to Rim	246	
CD	Chest to Dashboard	403	
CS	Chest to Steering Wheel	186	
KDL/KDAL°	Left Knee to Dash	106	23.8
KDR/KDAR°	Right Knee to Dash	107	30.3
PAX°	Pelvic Tilt Angle (X-Axis)		20.3
PAY°	Pelvic Tilt Angle (Y-Axis)		0.1
PHX	Hip Point to Striker (X-Axis)	350	
PHZ	Hip Point to Striker (Z-Axis)	49	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20140203
 Test Date: 3/5/2014



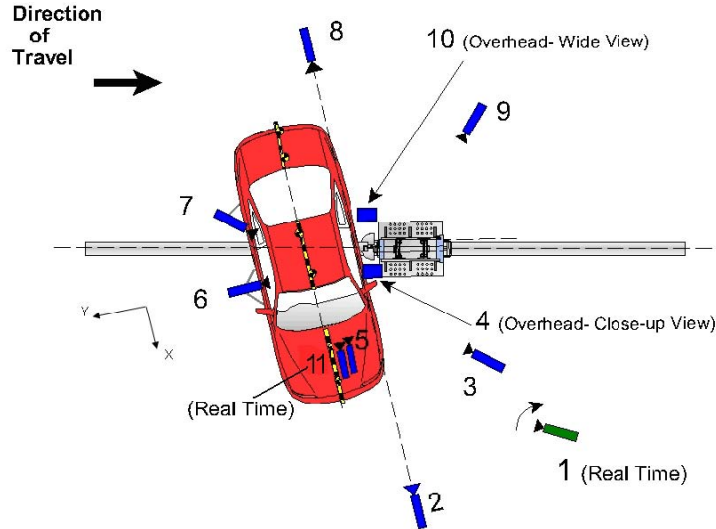
FRONT VIEW OF DUMMY

Code	Measurement Description	Driver
		Length (mm)
HR	Head to Side Header	383
HS	Head to Side Window	426
AD	Arm to Door	161
HD	Hip Point to Door	223

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20140203
 Test Date: 3/5/2014



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

Camera No.	View	Coordinates (mm)			Lens (mm)	Film Speed (fps)
		X*	Y*	Z*		
1	Real-Time Pan View					30
2	Front Ground Level	-70	5310	-1660	24	1000
3	Impact Side 45° Forward	-2520	5310	-1660	20	1000
4	Overhead Closeup	70	0	-4530	50	1000
5	Onboard – Driver Front				16	1000
6	Onboard – Driver Side				8	1000
7	Onboard – Driver Rear				8	1000
8	Rear Ground Level	-40	-5440	-1690	24	1000
9	Impact Side 45° Rearward	-3420	-3270	-1750	20	1000
10	Overhead Wide View	520	0	-4610	14	1000
11	Real-Time Dummy Front View					30

* All measurements accurate to ± 6 mm

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

Explain why camera(s) did not operate as intended: None

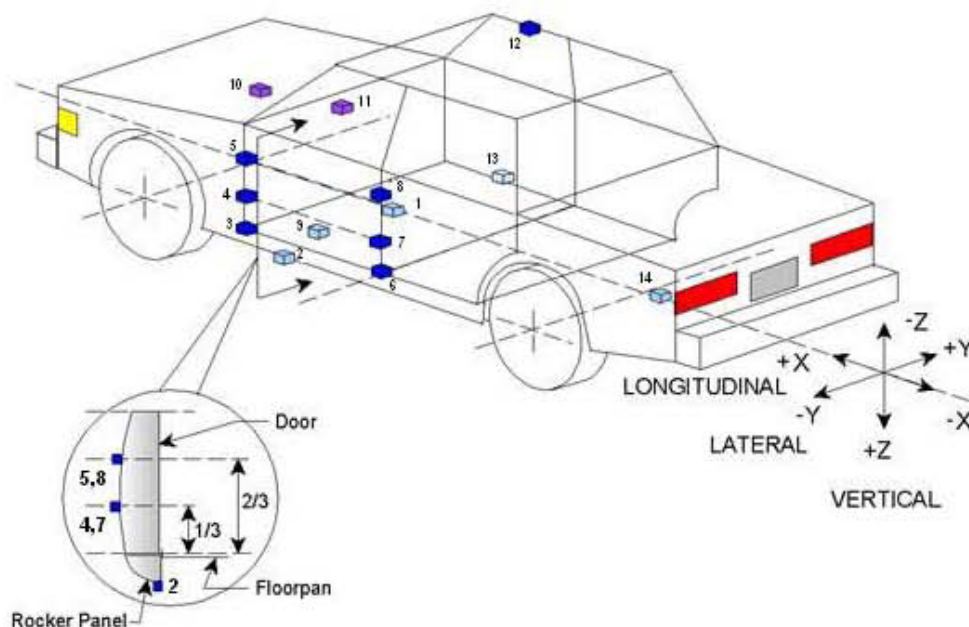
INSTRUMENTATION

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

DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20140203
 Test Date: 3/5/2014



	Accelerometer Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2278	180	-202
2	Left Floor Sill	2691	-701	-191
3	A Pillar Sill	3003	-701	-193
4	A Pillar Low	3038	-798	-562
5	A Pillar Mid	3055	-794	-887
6	B Pillar Sill	1970	-701	-193
7	B Pillar Low	1976	-717	-683
8	B Pillar Mid	1976	-737	-899
9	Driver Seat Track	2252	-364	-259
10	Engine Top	3757	0	-831
11	Firewall	3487	0	-831
12	Right Roof	2022	525	-1762
13	Right Floor Sill	2694	701	-193
14	Rear Floorpan	259	0	-546

Reference:

X – Test Vehicle Rear Bumper (+forward)
 Y – Test Vehicle Centerline (+ to right)
 Z – Ground Plane (+ down)

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20140203
Test Date: 3/5/2014



254 mm Diameter Rigid Pole

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

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20140203
Test Date: 3/5/2014

TEST DUMMY INFORMATION AND CONTACT POINTS

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

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch/ Other Door
	Front	Rear	Front	Rear	
Remained Closed and Operational	No	No	Yes	Yes	Yes
Total Separation from Vehicle at Hinges or Latches	No	No	No	No	No
Latch or Hinge Systems Pulled Out of Their Anchorages	No	No	No	No	No
Disengaged from Latched Position	No	No	No	No	No
Latch Separated from Striker	No	No	No	No	No
Jammed Shut	Yes	Yes	No	No	No
If Door Opened at Striker, Record Width of Opening at Striker (mm)	N/A	N/A	N/A	N/A	N/A

POST-TEST SEAT PERFORMANCE

Description	Struck Side		Non-Struck Side	
	Front	Rear	Front	Rear
Seat Movement Along Seat Track	No	No	No	No
Seat Disengagement from Floor Pan	No	No	No	No
Seat Back Movement from Initial Position	No	No	No	No
Seat Back Collapse	No	No	No	No

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No Separation
Sill Separation	None
Windshield Damage	Cracked
Side Window Damage	Left Front Window Broken
Other Notable Effects	None

DATA SHEET NO. 8 (CONTINUED)
POST-TEST OBSERVATIONS

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20140203
Test Date: 3/5/2014

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

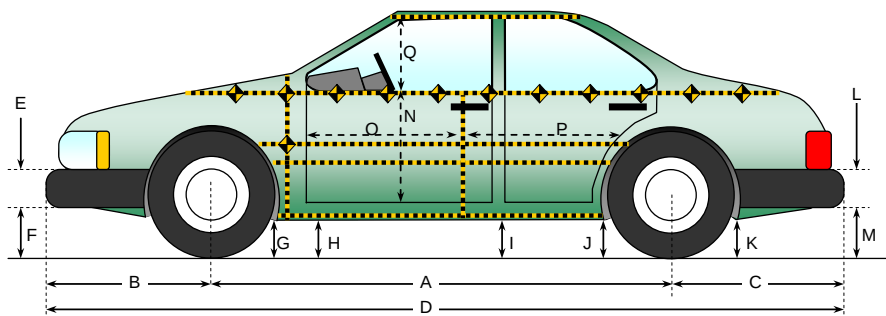
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT, AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1054
Actual Impact Point (Aft of Front Axle)	mm		1054
Horizontal Offset (+forward / -rearward)	mm	+/- 38 of Intended Impact Point	0
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	deg	75 +/- 3	75
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	31.90
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	31.99

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

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20140203
 Test Date: 3/5/2014



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

LEFT SIDE VIEW

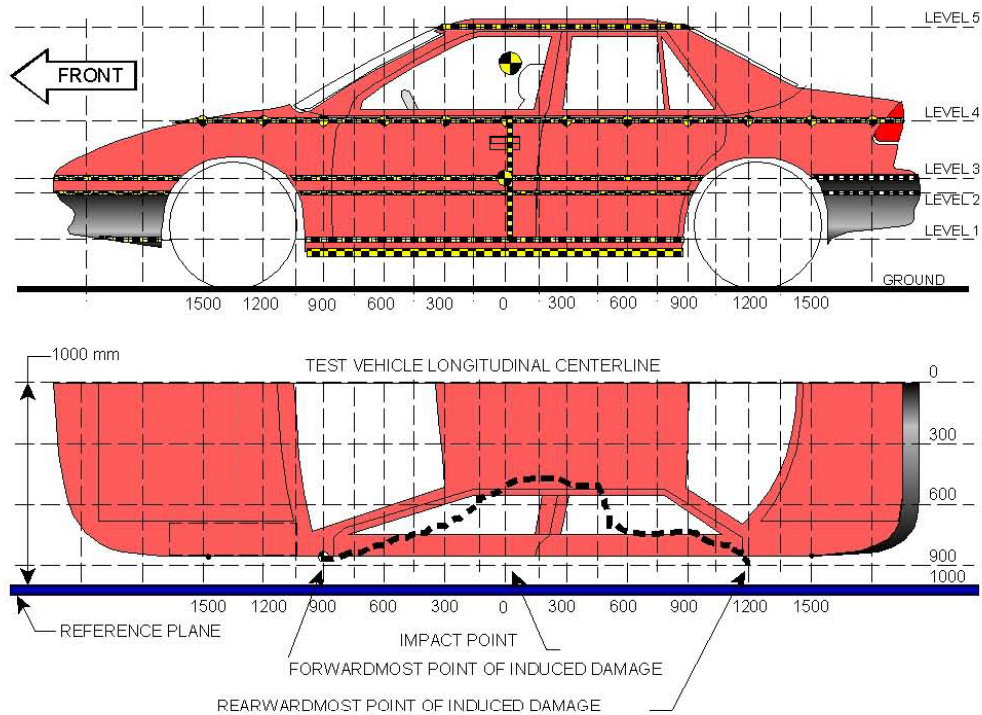
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2664	2596	68
B	Front Axle to FSOV	878	923	-45
C	Rear Axle to RSOV	882	884	-2
D	Total Vehicle Length at Centerline	4424	4403	21
E	Front Bumper Thickness	120	120	0
F	Front Bumper Bottom to Ground	208	232	-24
G	Sill Height at Front Wheel Well	179	171	8
H	Sill Height at Front Door Leading Edge	176	172	4
I	Sill Height at B-Pillar	195	185	10
J1	Sill Height at Rear Wheel Well	205	217	-12
J2	Pinch Weld Height at Rear Wheel Well	203	214	-11
K	Sill Height Aft of Rear Wheel Well	254	273	-19
L	Rear Bumper Thickness	110	110	0
M	Rear Bumper Bottom to Ground	311	309	2
N	Sill Height to Bottom of Front Window Sill	786	783	3
O	Front Door Leading Edge to Impact CL	627	532	95
P	Rear Door Trailing Edge to Impact CL	1416	1353	63
Q	Front Window Opening	536	531	5
R	Right Side Length	3464	3465	-1
S	Left Side Length	3464	3361	103
T	Vehicle Width at B-Pillars	1807	1735	72

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

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20140203
 Test Date: 3/5/2014



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

MAXIMUM EXTERIOR CRUSH MEAUREMENTS

Level	Measurement Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	303	278	0
2	Mid Door	634	324	0
3	Occupant Hip Point	657	327	0
4	Window Sill	932	319	0
5	Window Top	1627	227	0

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

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20140203
 Test Date: 3/5/2014

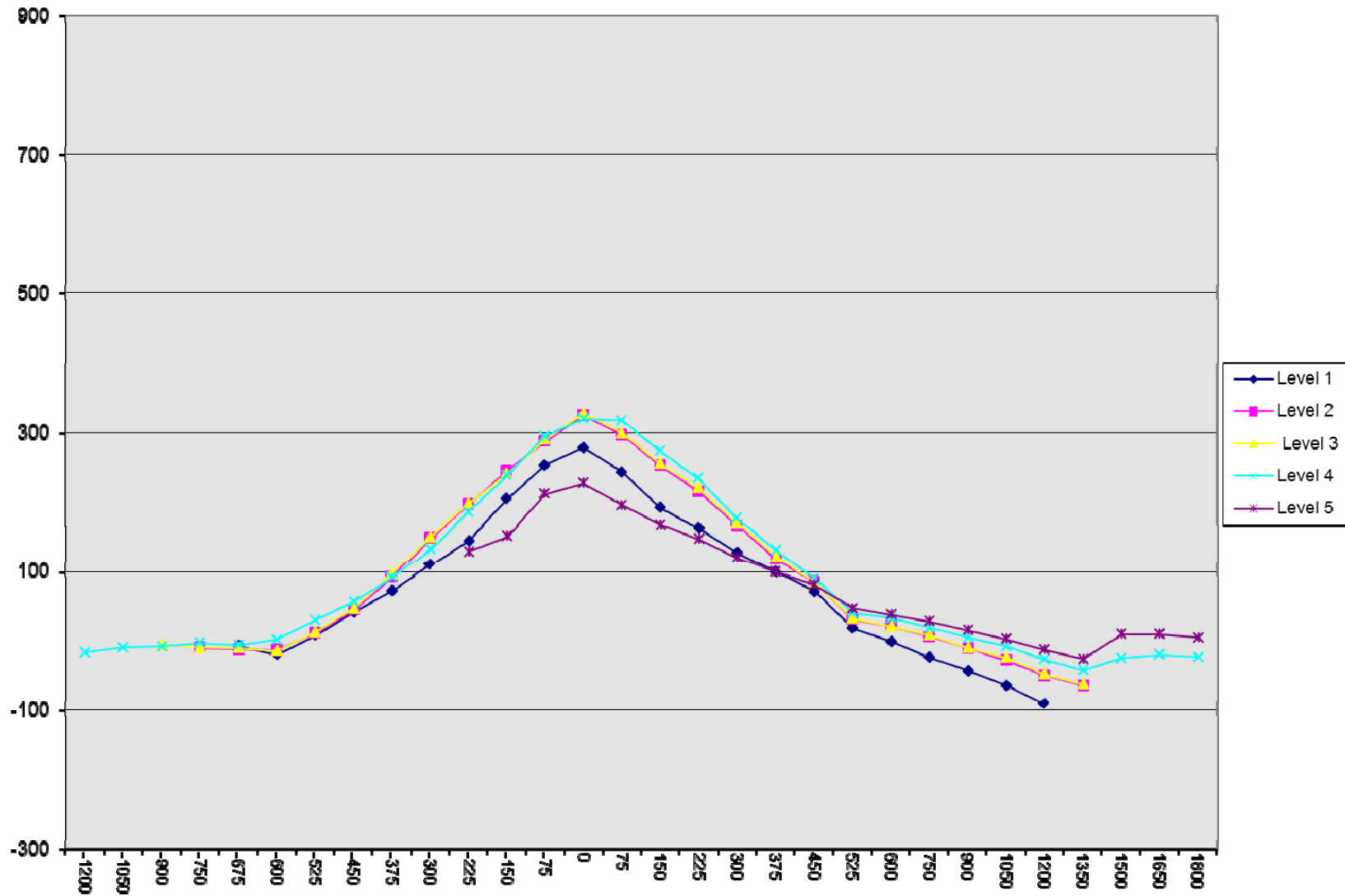
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1200				293					278					-15	
-1050				283					275					-8	
-900			186	274				182	267				-4	-7	
-750		199	200	261			190	192	259			-9	-8	-2	
-675	237	211	213	256		231	200	204	251		-6	-11	-9	-5	
-600	241	223	225	252		222	211	212	255		-19	-12	-13	3	
-525	242	224	224	247		251	237	238	278		9	13	14	31	
-450	242	223	223	242		284	269	271	300		42	46	48	58	
-375	242	222	221	239		315	315	318	331		73	93	97	92	
-300	242	220	220	237		352	368	370	370		110	148	150	133	
-225	242	219	218	231	442	387	415	415	416	571	145	196	197	185	129
-150	242	218	218	228	420	446	462	459	466	571	204	244	241	238	151
-75	241	217	216	225	404	494	504	506	520	615	253	287	290	295	211
0	243	216	215	222	398	521	540	542	541	625	278	324	327	319	227
75	243	215	215	219	395	486	511	514	536	590	243	296	299	317	195
150	243	215	214	216	392	435	467	469	489	559	192	252	255	273	167
225	243	214	213	216	388	405	429	433	450	525	162	215	220	234	147
300	243	213	213	213	387	370	379	382	389	507	127	166	169	176	120
375	243	213	212	211	384	343	331	334	342	484	100	118	122	131	100
450	243	213	211	211	382	315	298	296	301	463	72	85	85	90	81
525	246	213	212	211	380	265	245	245	252	428	19	32	33	41	48
600	247	213	213	203	377	247	235	235	237	416	0	22	22	34	39
750	247	214	213	187	372	224	221	222	207	401	-23	7	9	20	29
900	247	215	214	211	368	205	205	205	217	384	-42	-10	-9	6	16
1050	248	217	215	216	366	185	190	192	209	370	-63	-27	-23	-7	4
1200	244	197	199	221	365	154	148	152	195	353	-90	-49	-47	-26	-12
1350		191	189	226	364		128	128	185	339		-63	-61	-41	-25
1500				231	362				207	373				-24	11
1650				234	361				215	372				-19	11
1800				240	362				218	368				-22	6

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

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

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
Test Program: NCAP Side Pole Impact Test

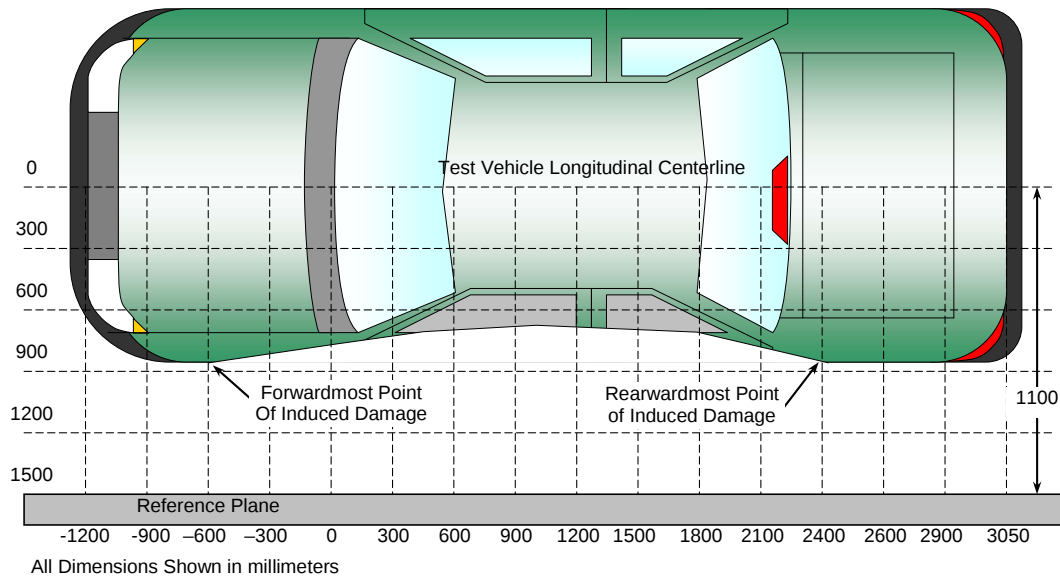
NHTSA No. M20140203
Test Date: 3/5/2014



DATA SHEET NO. 11 **VEHICLE DAMAGE PROFILE DISTANCES**

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20140203
 Test Date: 3/5/2014



TOP VIEW

DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	525	3	212	325	113
2	285	3	213	482	269
3	45	3	215	620	405
4	-195	3	218	529	311
5	-435	3	222	381	159
6	-675	3	213	297	84

DATA SHEET NO. 12
FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
 Test Program: NCAP Side Pole Impact Test

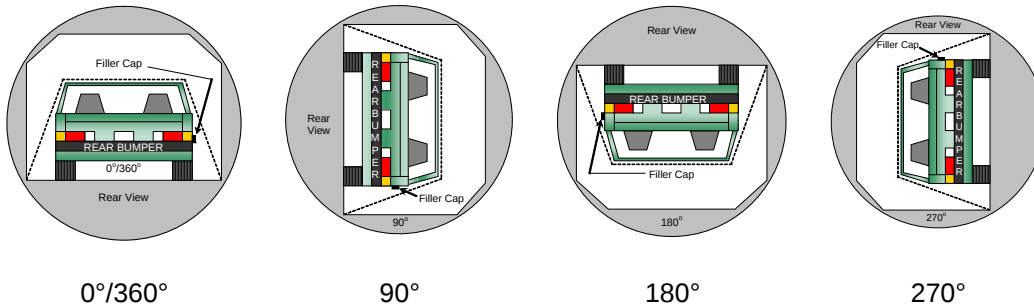
NHTSA No. M20140203
 Test Date: 3/5/2014

Test Time: 10:03 am

Temperature: 21.0°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°	111	300	411
90° to 180°	112	300	412
180° to 270°	109	300	409
270° to 360°	111	300	411

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

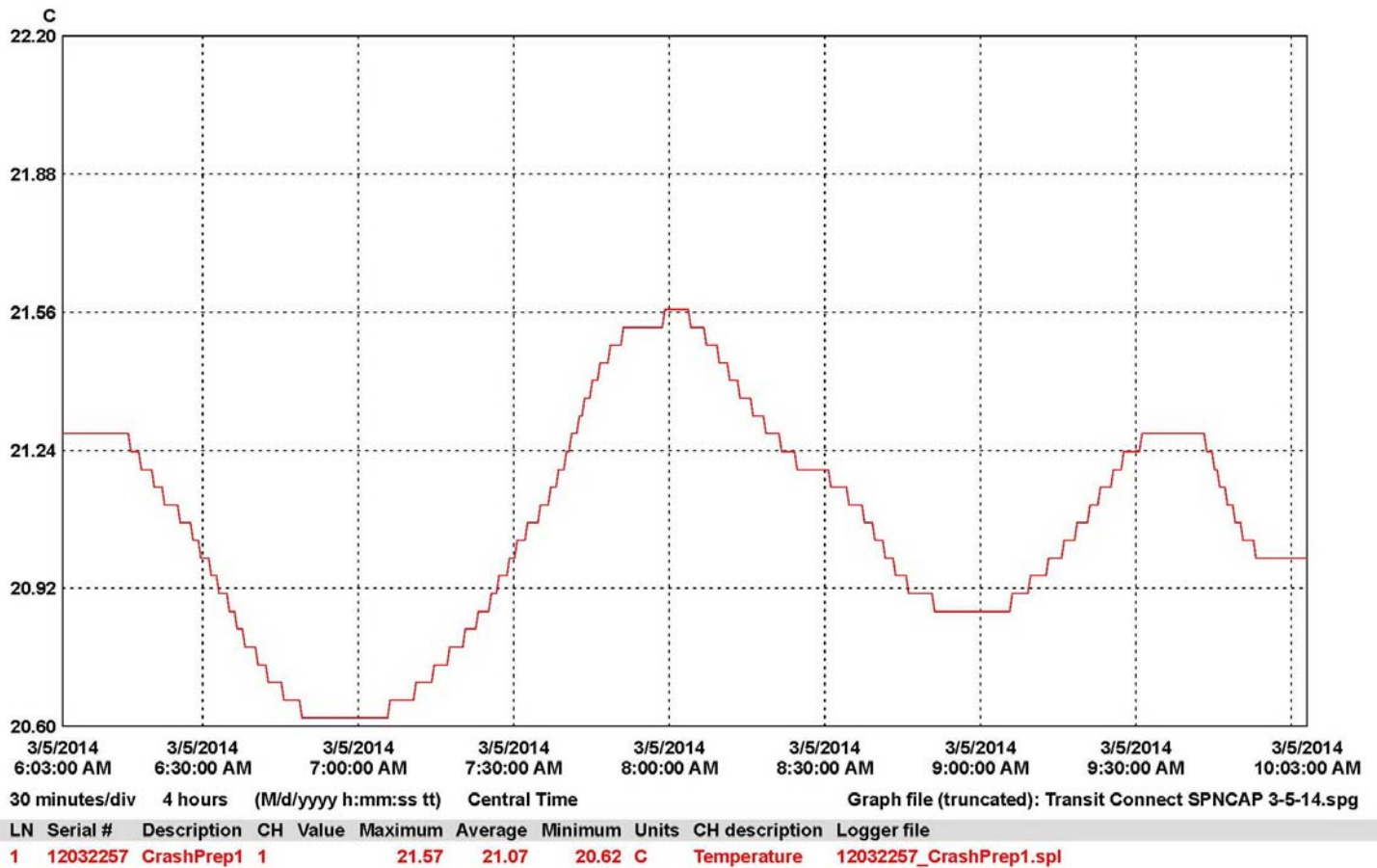
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 13
DUMMY/VEHICLE TEMPERATURE STABILIZATION DATA

Test Vehicle: 2014 Ford Transit Connect XLT Wagon SWB
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20140203
 Test Date: 3/5/2014



**APPENDIX A
PHOTOGRAPHS**

TABLE OF PHOTOGRAPHS

	<u>Page No.</u>
Photo No. 1. As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle	A-1
Photo No. 2. As Delivered Left Rear $\frac{3}{4}$ 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 Front $\frac{3}{4}$ View of Test Vehicle	A-3
Photo No. 6. Post-Test Left Front $\frac{3}{4}$ 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 Rear $\frac{3}{4}$ View of Test Vehicle	A-5
Photo No. 10. Post-Test Left Rear $\frac{3}{4}$ 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 Area	A-8
Photo No. 16. Post-Test Overhead View of Test Area	A-8
Photo No. 17. Pre-Test Left Side View of Pole Positioned Against Side of Vehicle	A-9
Photo No. 18. Pre-Test Right Side View of Pole Positioned Against Side of 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 Showing Impact Location	A-10
Photo No. 21. Pre-Test Front Close-Up View of Dummy Head and Chest	A-11
Photo No. 22. Post-Test Front Close-Up View of Dummy	A-11
Photo No. 23. Pre-Test Left Side View of Dummy Showing Belt and Chalking	A-12
Photo No. 24. Pre-Test Left Side View of Dummy Shoulder and Door Top View	A-12

		<u>Page No.</u>
Photo No. 25.	Post-Test Left Side View of Dummy Shoulder and Door Top View	A-13
Photo No. 26.	Pre-Test Front View of Seat Back Prior to Dummy Positioning	A-13
Photo No. 27.	Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint	A-14
Photo No. 28.	Pre-Test Front View of Seat Pan Prior to Dummy Positioning	A-14
Photo No. 29.	Pre-Test Overhead View of Dummy Thighs on Seat Pan	A-15
Photo No. 30.	Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket	A-15
Photo No. 31.	Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level	A-16
Photo No. 32.	Pre-Test Placement of Dummy's Feet	A-16
Photo No. 33.	Pre-Test View of Belt Anchorage for Dummy	A-17
Photo No. 34.	Pre-Test Left Side View of Steering Wheel	A-17
Photo No. 35.	Pre-Test View of Disengaged Parking Brake	A-18
Photo No. 36.	Pre-Test View of Parking Brake	A-18
Photo No. 37.	Pre-Test Close-Up Left Side View of Driver Seat Track	A-19
Photo No. 38.	Pre-Test Close-Up Left Side View of Driver Seat Back	A-19
Photo No. 39.	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-20
Photo No. 40.	Pre-Test Dummy and Door Clearance View	A-20
Photo No. 41.	Post-Test Dummy and Door Clearance View	A-21
Photo No. 42.	Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-21
Photo No. 43.	Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-22
Photo No. 44.	Pre-Test Inner Door Panel View	A-22
Photo No. 45.	Post-Test Inner Door Panel View Showing Dummy Contact Location	A-23
Photo No. 46.	Post-Test Dummy Close-Up Head Contact with Vehicle Interior View	A-23
Photo No. 47.	Post-Test Dummy Close-Up Head Contact with Side Air Bag View	A-24
Photo No. 48.	Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View	A-24
Photo No. 49.	Post-Test Dummy Close-Up Torso Contact with Side Air Bag View	A-25
Photo No. 50.	Post-Test Dummy Close-Up Torso Contact with Side Air Bag View	A-25

	<u>Page No.</u>
Photo No. 51. Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-26
Photo No. 52. Post-Test Dummy Close-Up Pelvis Contact with Side Air Bag View	A-26
Photo No. 53. Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View	A-27
Photo No. 54. Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-27
Photo No. 55. Post-Test View of Fuel Filler Cap or Fuel Filler Neck	A-28
Photo No. 56. Close-Up View of Vehicle's Certification Label	A-28
Photo No. 57. Close-Up View of Vehicle's Tire Information Placard or Label	A-29
Photo No. 58. Pre-Test Pole Barrier Front View	A-29
Photo No. 59. Post-Test Pole Barrier Front View	A-30
Photo No. 60. Pre-Test Pole Barrier Side View	A-30
Photo No. 61. Post-Test Pole Barrier Side View	A-31
Photo No. 62. Pre-Test Ballast View	A-31
Photo No. 63. Post-Test Primary and Redundant Speed Trap Read-Out	A-32
Photo No. 64. FMVSS No. 301 Static Rollover 0 Degrees	A-32
Photo No. 65. FMVSS No. 301 Static Rollover 90 Degrees	A-33
Photo No. 66. FMVSS No. 301 Static Rollover 180 Degrees	A-33
Photo No. 67. FMVSS No. 301 Static Rollover 270 Degrees	A-34
Photo No. 68. FMVSS No. 301 Static Rollover 360 Degrees	A-34
Photo No. 69. Impact Event	A-35
Photo No. 70. Monroney Label	A-35
Photo No. 71. Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-36
Photo No. 72. Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-36
Photo No. 73. Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-37
Photo No. 74. Post-Test View of Shattered Vehicle Inner Door Panel	A-37



As Delivered Right Front ¾ View of Test Vehicle



As Delivered Left Rear ¾ View of Test Vehicle



Pre-Test Frontal View of Test Vehicle



Post-Test Frontal View of Test Vehicle



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



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



Pre-Test Left Side View of Test Vehicle



Post-Test Left Side View of Test Vehicle



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



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



Pre-Test Rear View of Test Vehicle



Post-Test Rear View of Test Vehicle



Pre-Test Right Side View of Test Vehicle



Post-Test Right Side View of Test Vehicle



Pre-Test Overhead View of Test Area



Post-Test Overhead View of Test Area



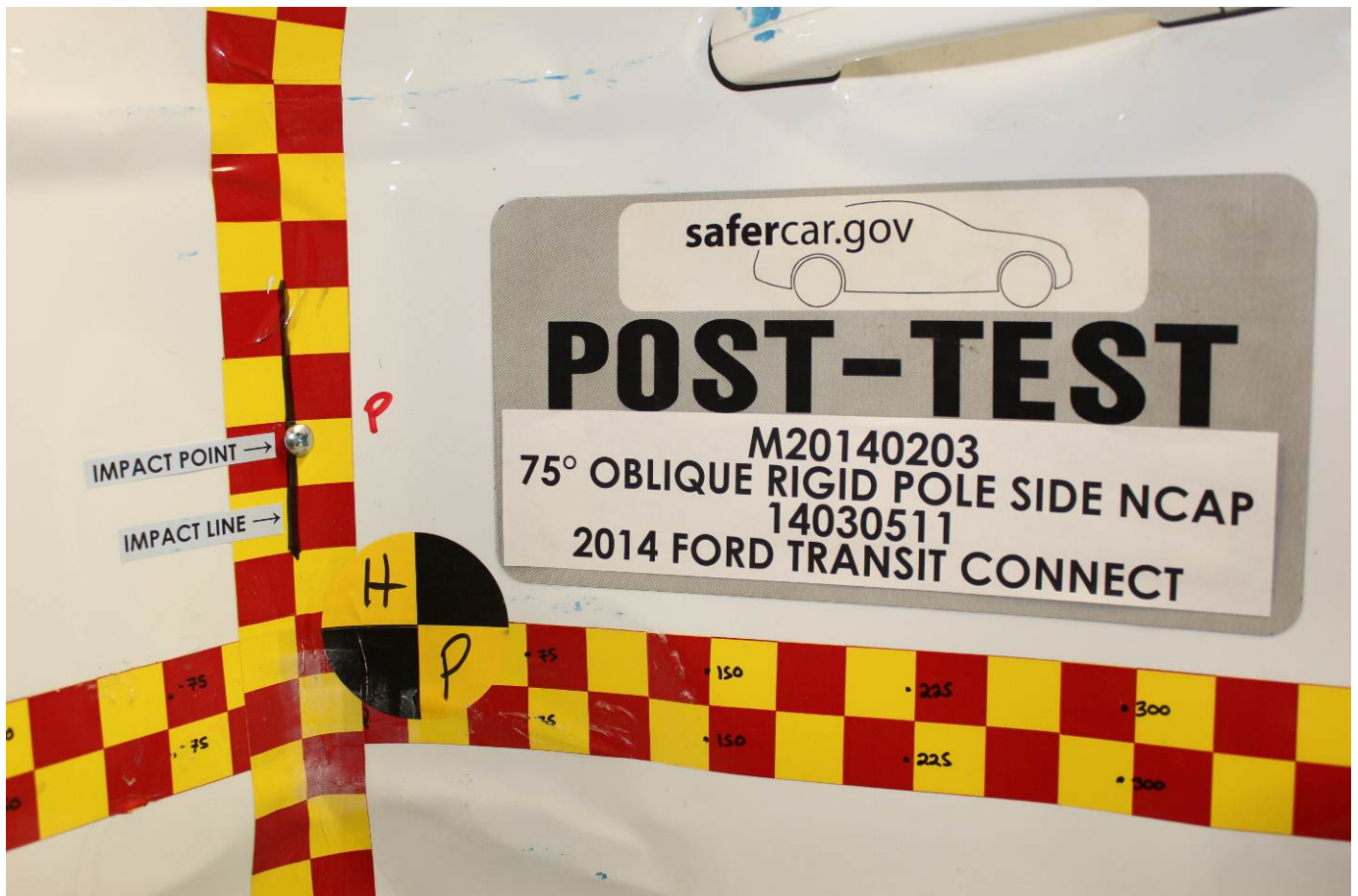
Pre-Test Left Side View of Pole Positioned Against Side of Vehicle



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



Pre-Test Close-Up View of Impact Point Target



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



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



Post-Test Front Close-Up View of Dummy



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



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



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



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



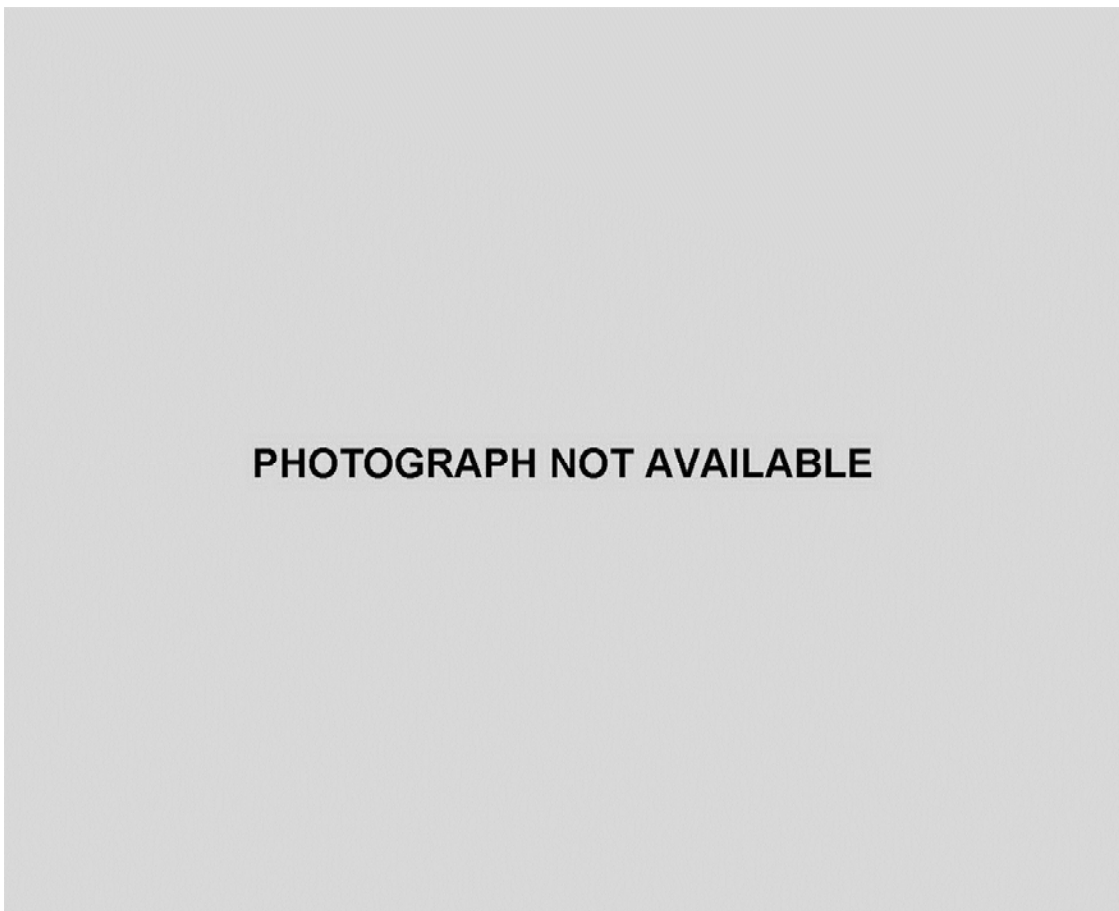
Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint



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



Pre-Test Overhead View of Dummy Thighs on Seat Pan



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



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



Pre-Test Placement of Dummy's Feet



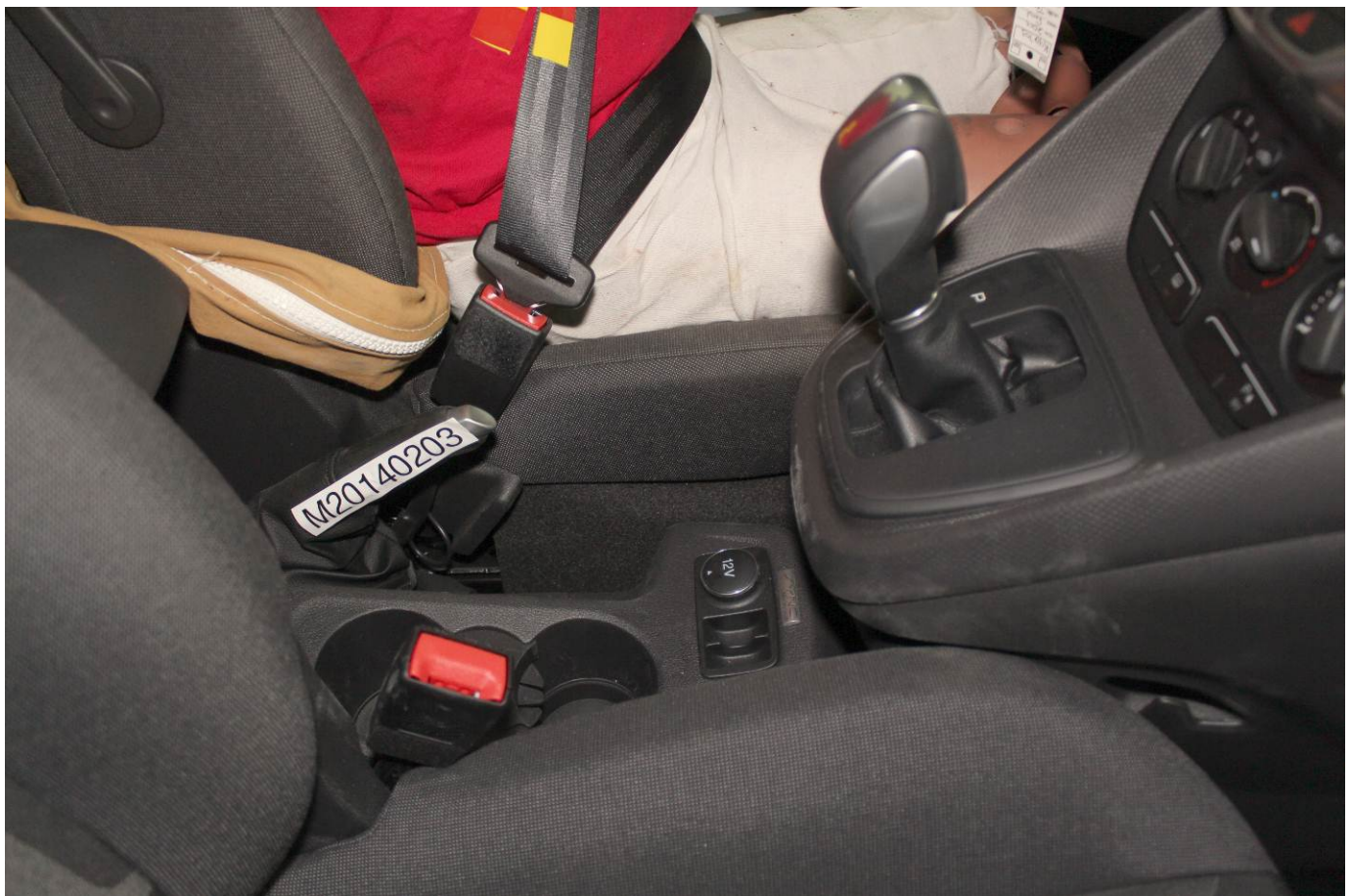
Pre-Test View of Belt Anchorage for Dummy



Pre-Test Left Side View of Steering Wheel



Pre-Test View of Disengaged Parking Brake



Pre-Test View of Parking Brake



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



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



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



Pre-Test Dummy and Door Clearance View



Post-Test Dummy and Door Clearance View



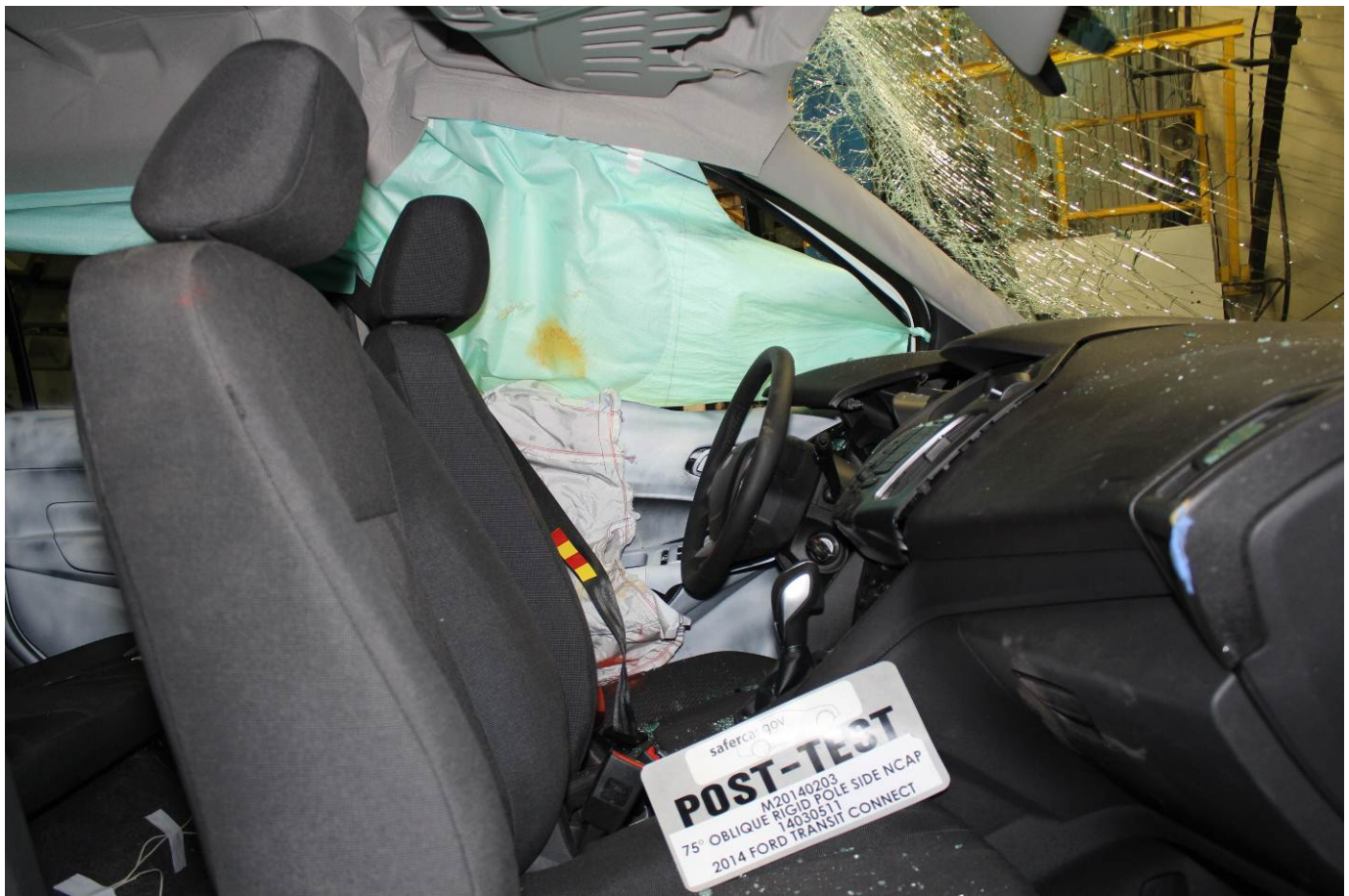
Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment



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



Pre-Test Inner Door Panel View



Post-Test Inner Door Panel View Showing Dummy Contact Location



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



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



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



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



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



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



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

PHOTOGRAPH NOT APPLICABLE

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



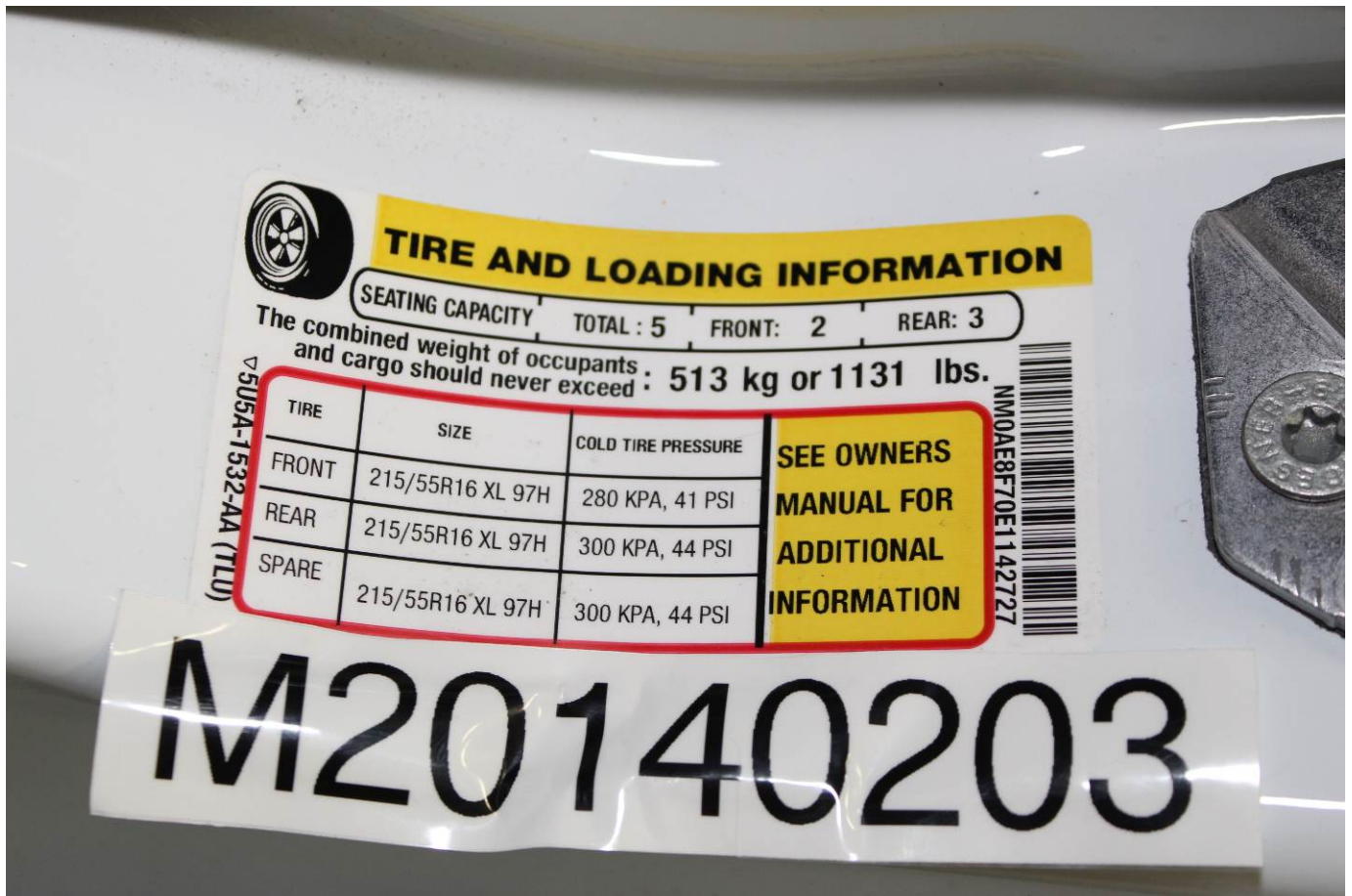
Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



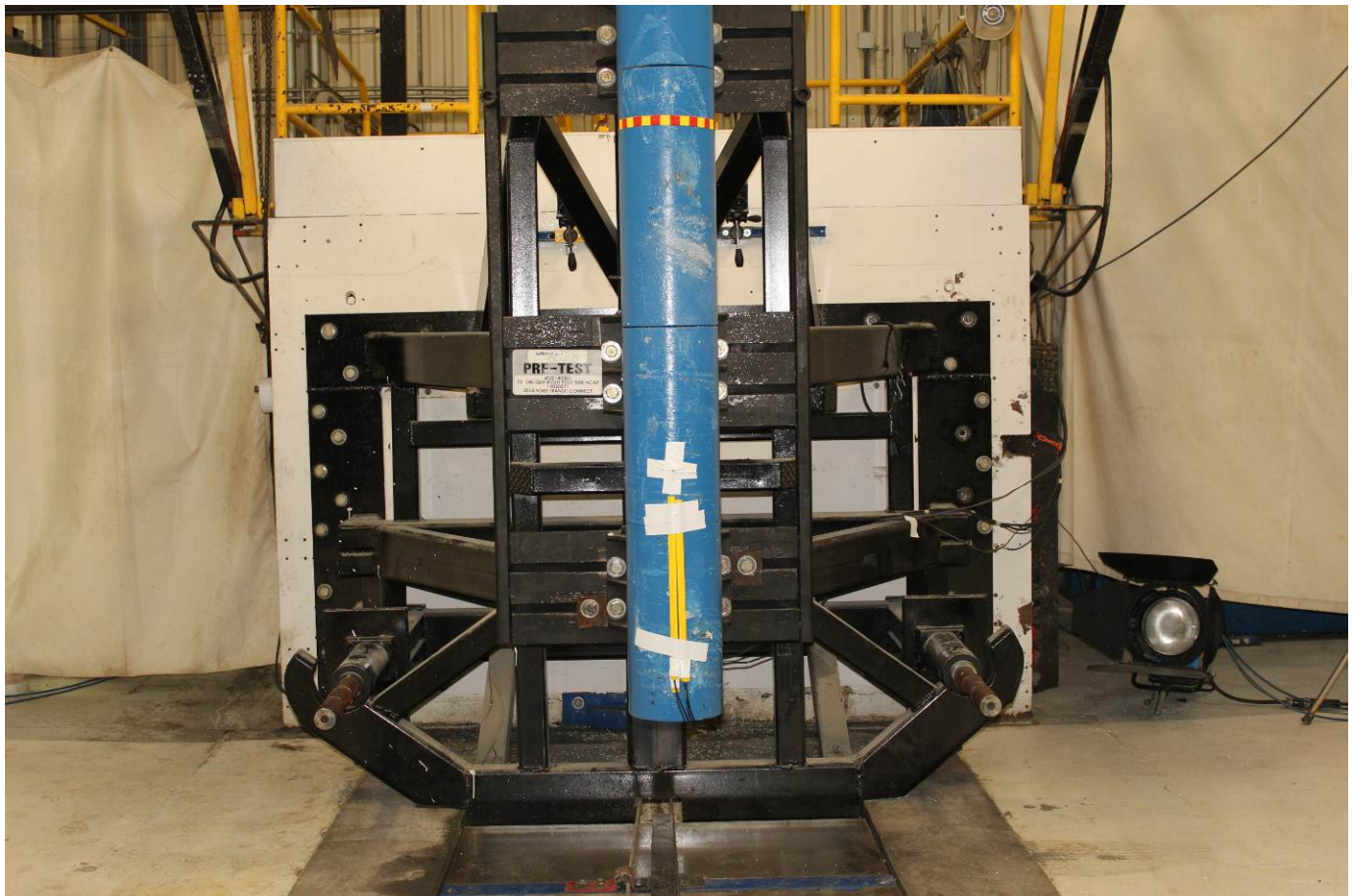
Post-Test View of Fuel Filler Cap or Fuel Filler Neck



Close-Up View of Vehicle's Certification Label



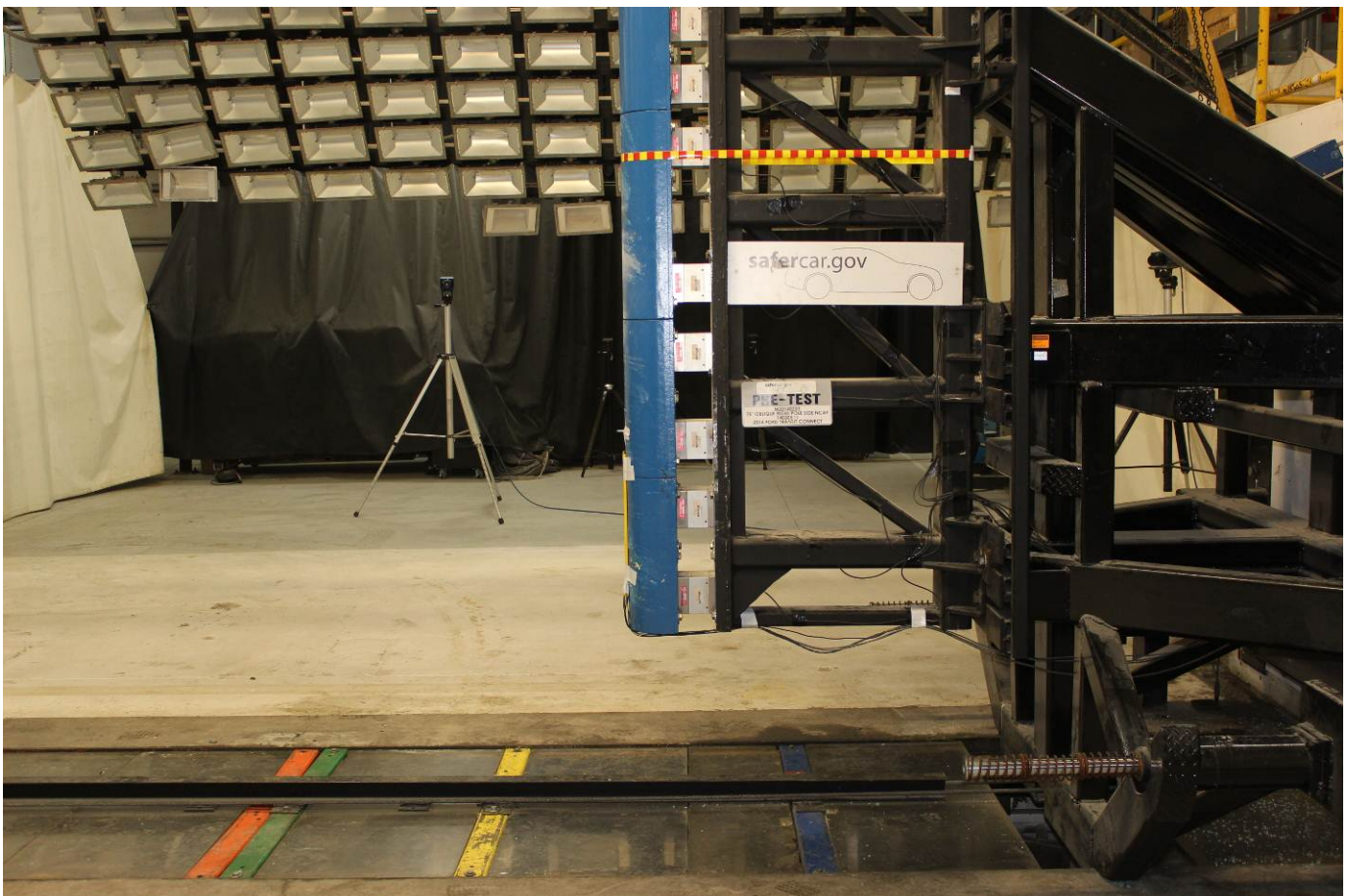
Close-Up View of Vehicle's Tire Information Placard or Label



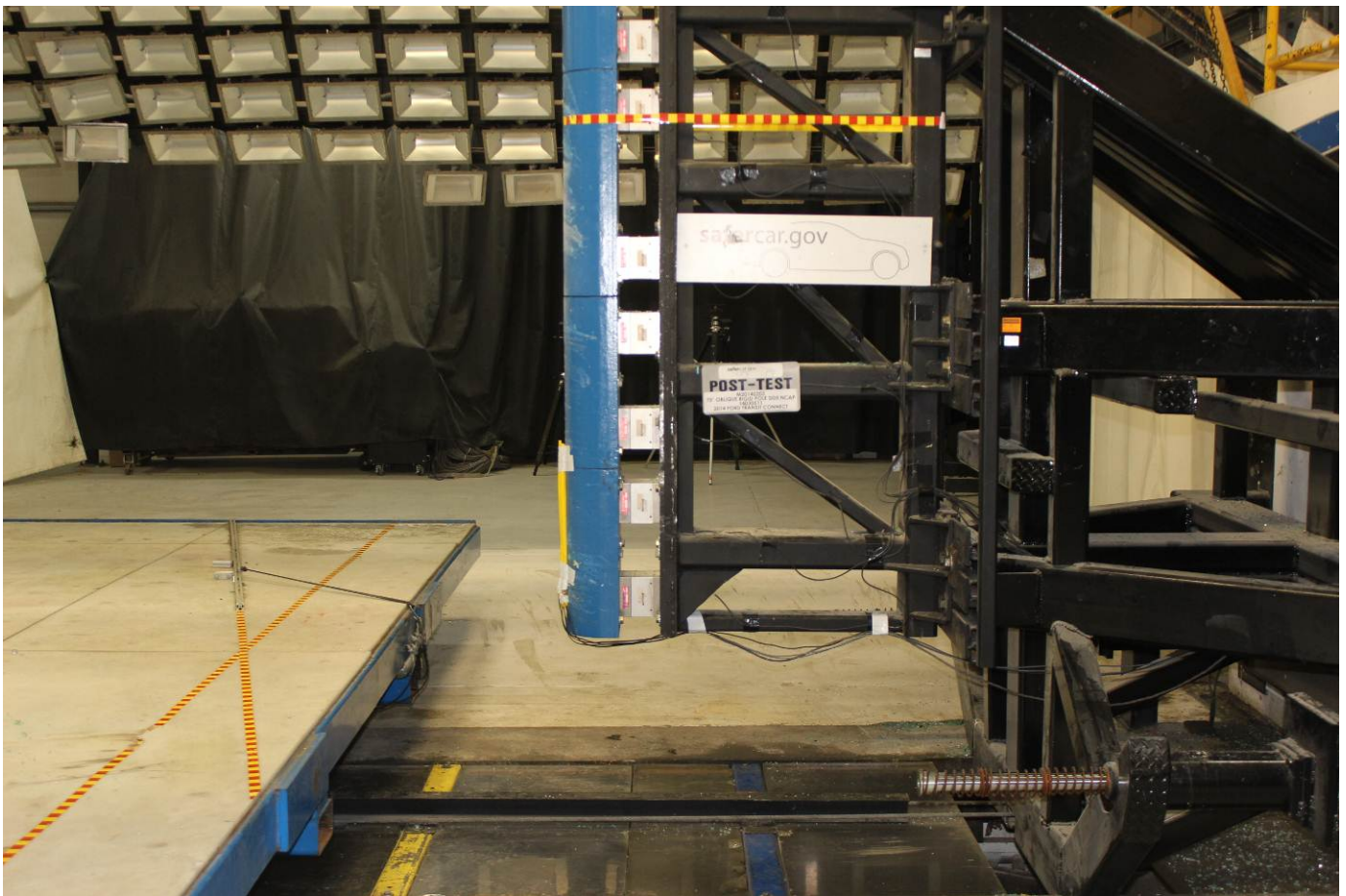
Pre-Test Pole Barrier Front View



Post-Test Pole Barrier Front View



Pre-Test Pole Barrier Side View



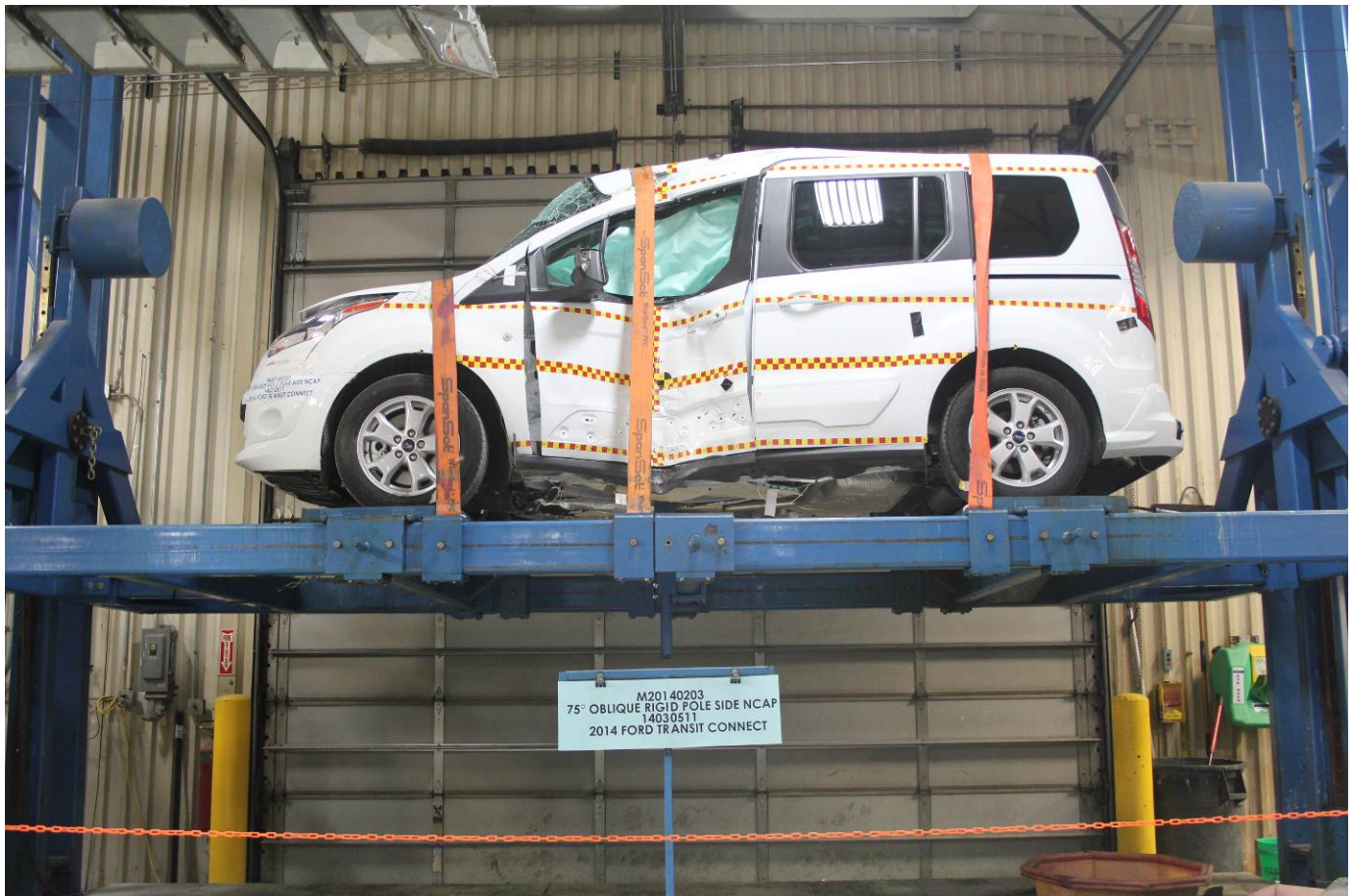
Post-Test Pole Barrier Side View



Pre-Test Ballast View



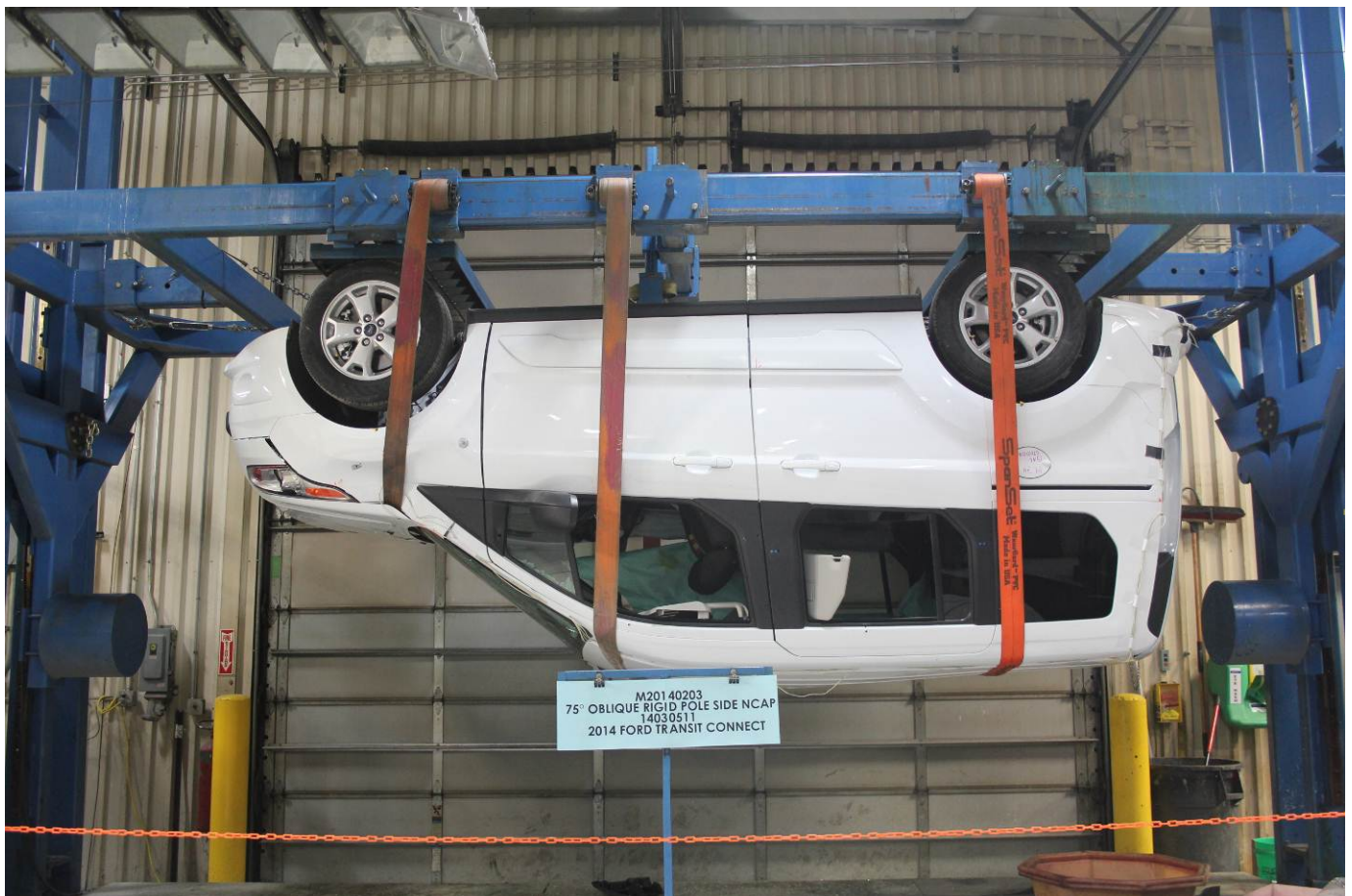
Post-Test Primary and Redundant Speed Trap Read-Out



FMVSS No. 301 Static Rollover 0 Degrees



FMVSS No. 301 Static Rollover 90 Degrees



FMVSS No. 301 Static Rollover 180 Degrees



FMVSS No. 301 Static Rollover 270 Degrees



FMVSS No. 301 Static Rollover 360 Degrees



Impact Event

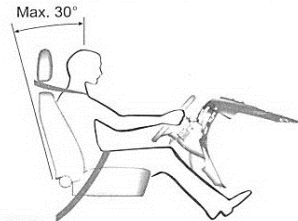
Go Further ford.com		VEHICLE DESCRIPTION TRANSIT CONNECT 2014 XLT WAGON SWB XLT 5-PASSENGER 2.5L DOHC ENGINE 6 SPD AUTO TRANSAXLE W/ O/D		E1 142727		EPA DOT Fuel Economy and Environment Gasoline Vehicle																	
STANDARD EQUIPMENT INCLUDED AT NO EXTRA CHARGE		EXTERIOR 16" STEEL WHEELS WITH COVERS - BODY SIDE MOLDINGS - BODY COLOR - BUMPERS - BODY COLOR - DOOR HANDLES - BODY COLOR - DOORS - DUAL SLIDING SIDE LIFTGATE W/ FXD GLASS REA - FOG LAMPS WITH BODY COLOR BEZEL - HALOGEN HEADLAMPS - INTEGRATED SPOTTER MIRRORS - POWER, HEATED, MANUAL FOLD EXTERIOR MIRRORS - PRIVACY GLASS		INTERIOR 2ND ROW BENCH SEAT - AIR COND, MANUAL FRONT - AM/FM SINGLE CD/MP3 PLAYER - CARGO HOOKS - DUAL VANITY MIRRORS - FLOOR CONSOLE W/ CUPHOLDERS - FLOOR COVERING - CARPETED - FOLD FLAT FRONT PASS SEAT - FRONT FLOOR MATS - HEADLINER - FULL CLOTH - MANUAL BUCKET SEATS - 6-WAY DRIV AND 4-WAY PASS - OVERHEAD STORAGE SHELF - STEERING - TILT/TELESCOPIC		FUNCTIONAL 5-SPEED SELECTSHIFT TRANS - ALTERNATOR 150 AMP - BRAKES, 4-WHEEL DISC/ABS - FRONT WHEEL DRIVE - FUEL TANK - 15.3 GAL - FULL-SIZE SPARE TIRE - HILL START ASSIST - POWER STEERING W/EPAS - POWER WINDOWS & LOCKS - POWERPOINTS (2) - REAR VIEW CAMERA - REMOTE KEYLESS ENTRY		SAFETY/SECURITY - ADVANCETRAC WITH RSC - AIRBAGS - DUAL STAGE FRONT - AIRBAGS - FRONT SEAT MOUNTED SIDE IMPACT - AIRBAGS - SIDE AIR CURTAINS - EMERGENCY BRAKE ASSIST - MYKEY - SECURILOCK PASS ANTI THEFT - TIRE PRESSURE MONITOR SYS															
INCLUDED ON THIS VEHICLE (MSRP)		PRICE INFORMATION		Annual fuel cost \$2,300		Fuel Economy & Greenhouse Gas Rating (tailpipe only)																	
ORDER CODE 210A		OPTIONAL EQUIPMENT <table border="1"> <tr> <td>SINGLE CD W/SIRIUS/SYNC/RR CAM</td> <td>520.00</td> </tr> <tr> <td>16" ALLOY WHEELS</td> <td>495.00</td> </tr> <tr> <td>REVERSE SENSING SYSTEM</td> <td>295.00</td> </tr> </table>		SINGLE CD W/SIRIUS/SYNC/RR CAM	520.00	16" ALLOY WHEELS	495.00	REVERSE SENSING SYSTEM	295.00	<table border="1"> <tr> <td>BASE PRICE</td> <td>\$24,525.00</td> </tr> <tr> <td>TOTAL OPTIONS</td> <td>1,310.00</td> </tr> <tr> <td>TOTAL VEHICLE & OPTIONS</td> <td>25,835.00</td> </tr> <tr> <td>DESTINATION & DELIVERY</td> <td>995.00</td> </tr> </table>		BASE PRICE	\$24,525.00	TOTAL OPTIONS	1,310.00	TOTAL VEHICLE & OPTIONS	25,835.00	DESTINATION & DELIVERY	995.00	23 MPG combined city/hwy 4.3 gallons per 100 miles		You save \$0 in fuel costs over 5 years compared to the average new vehicle.	
SINGLE CD W/SIRIUS/SYNC/RR CAM	520.00																						
16" ALLOY WHEELS	495.00																						
REVERSE SENSING SYSTEM	295.00																						
BASE PRICE	\$24,525.00																						
TOTAL OPTIONS	1,310.00																						
TOTAL VEHICLE & OPTIONS	25,835.00																						
DESTINATION & DELIVERY	995.00																						
WARRANTY 5YR/60,000 BUMPER / BUMPER 5YR/60,000 POWERTRAIN 5YR/60,000 ROADSIDE ASSIST		GOVERNMENT 5-STAR SAFETY RATINGS		fuel economygov Calculate personalized estimates and compare vehicles		Smog Rating (tailpipe only)																	
Overall Vehicle Score Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.		Frontal Crash Driver Passenger To Be Rated To Be Rated		Side Crash Front seat Rear seat To Be Rated To Be Rated		Rollover To Be Rated																	
Star ratings range from 1 to 5 stars (★★★★★), with 5 being the highest. Source: National Highway Traffic Safety Administration (NHTSA). www.safercar.gov or 1-888-327-4236		GOVERNMENT 5-STAR SAFETY RATINGS		Go Further		Scan this code to experience this vehicle or text NME1142727 to 48028 or Visit ford.com/windowsboker																	
SOLD TO Krieger Ford Inc 1800 Morse Rd Columbus OH 43229		RAMP ONE RA07		DEALER NO. 47B 018		TOTAL MSRP \$26,830.00																	
SHIP TO (IF OTHER THAN SOLD TO)		RAMP TWO		FINAL ASSEMBLY PLANT VALENCIA		This label is affixed pursuant to the Federal Automobile Information Disclosure Act. Gasoline, License, and Title Fees, State and Local taxes are not included. Dealer installed options or accessories are not included unless listed above.																	
SHIP THROUGH		METHOD OF TRANSP. RAIL		ITEM #: 47-Z209 O/T 2		DM253 N RB22X 420 000969 12 25 13																	

Monroney Label

SITTING IN THE CORRECT POSITION

WARNINGS

- ⚠ Do not recline the seatback too far as this can cause the occupant to slide under the safety belt, resulting in serious injury in the event of a collision.
- ⚠ Sitting improperly, out of position or with the seatback reclined too far, can result in serious injury or death in the event of a collision. Always sit upright against your seatback, with your feet on the floor.
- ⚠ Do not place objects higher than the seatback to reduce the risk of serious injury in the event of a collision or during heavy braking.



E68595

When you use them properly, the seat, head restraint, safety belt and air bags will provide optimum protection in the event of a collision.

We recommend that you follow these guidelines:

- Sit in an upright position with the base of your spine as far back as possible.
- Do not recline the seatback more than 30 degrees.

- Adjust the head restraint so that the top of it is level with the top of your head and as far forward as possible. Make sure that you remain comfortable.
- Keep sufficient distance between yourself and the steering wheel. We recommend a minimum of 10 inches (25 centimeters) between your breastbone and the air bag cover.
- Hold the steering wheel with your arms slightly bent.
- Bend your legs slightly so that you can press the pedals fully.
- Position the shoulder strap of the safety belt over the center of your shoulder and position the lap strap tightly across your hips.

Make sure that your driving position is comfortable and that you can maintain full control of your vehicle.

HEAD RESTRAINTS

WARNINGS

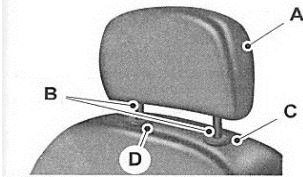
- ⚠ Fully adjust the head restraint before you sit in or operate your vehicle. This will help minimize the risk of neck injury in the event of a crash. Do not adjust the head restraint when your vehicle is moving.
- ⚠ The head restraint is a safety device. Whenever possible it should be installed and properly adjusted when the seat is occupied. An improperly adjusted head restraint may not adequately protect an occupant during an impact from the rear.
- ⚠ Install the head restraint properly to help minimize the risk of neck injury in the event of a crash.

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

Seats

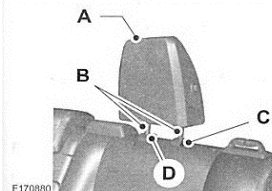
Note: Adjust the seat back to an upright driving position before adjusting the head restraint. Adjust the head restraint so that the top of it is level with the top of your head and as far forward as possible. Make sure that you remain comfortable. If you are extremely tall, adjust the head restraint to its highest position.

Front Seat Head Restraint



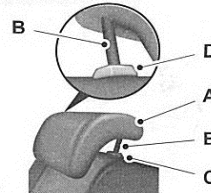
E138642

2nd Row Outboard Head Restraints



E170890

2nd Row Center Head Restraint and 3rd Row Head Restraints



E138645

The head restraints consist of:

- A an energy absorbing head restraint
- B two steel stems
- C guide sleeve adjust and unlock button
- D guide sleeve unlock and remove button

Adjusting the Head Restraint

Raising the Head Restraint

Pull the head restraint up.

Lowering the Head Restraint

1. Press and hold button C.
2. Push the head restraint down.

Removing the Head Restraint

1. Pull the head restraint up until it reaches its highest position.
2. Press and hold buttons C and D.
3. Pull the head restraint up.

Installing the Head Restraint

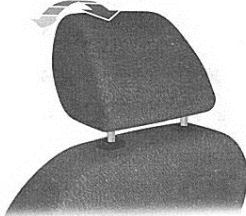
Align the steel stems into the guide sleeves and push the head restraint down until it locks.

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

Seats

Tilting Head Restraints (If Equipped)

The front head restraints may have a tilting feature for extra comfort. To tilt the head restraint, do the following:



E144727

1. Adjust the seat back to an upright driving or riding position.
2. Pivot the head restraint forward toward your head to the desired position.

After the head restraint reaches the forward-most tilt position, pivot it forward again to release it to the rearward, un-tilted position.

MANUAL SEATS

WARNINGS

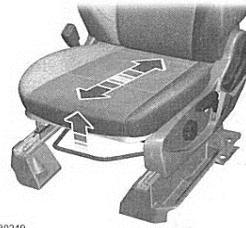
 Do not adjust the driver seat or seatback when your vehicle is moving. Failure to follow this warning could result in serious personal injury or death.

 Do not place cargo or any objects behind the seatback before returning it to the original position. Pull on the seatback to make sure that it has fully latched after returning the seatback to its original position. An unlatched seat may become dangerous if you stop suddenly or have a crash.

Moving the Seat Backward and Forward

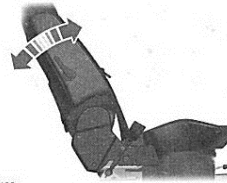
WARNING

 Rock the seat backward and forward after releasing the lever to make sure that it is fully engaged in its catch. An unlatched seat can be dangerous in a crash and could result in serious personal injury or death.



E130249

Adjusting the Lumbar Support



E142199

98

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



Post-Test View of Shattered Vehicle Inner Door Panel

APPENDIX B
DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS
Driver Dummy Instrumentation Plots

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

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

Additional Driver Dummy Instrumentation Data

Driver Head CG Redundant Acceleration (X) vs. Time

Driver Head CG Redundant Acceleration (Y) vs. Time

Driver Head CG Redundant Acceleration (Z) vs. Time

Driver Upper Thorax Rib Deflection (Y)

Driver Middle Thorax Rib Deflection (Y)

Driver Lower Thorax Rib Deflection (Y)

Driver Upper Abdomen Rib Deflection (Y)

Driver Lower Abdomen Rib Deflection (Y)

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)

Vehicle Center of Gravity Acceleration (Y)

Vehicle Center of Gravity Acceleration (Z)

Left Floor Sill Acceleration (Y)

Left A-Pillar Sill Acceleration (Y)

Left Lower A-Pillar Acceleration (Y)

Left Mid A-Pillar Acceleration (Y)

Left B-Pillar Sill Acceleration (Y)

Left Lower B-Pillar Acceleration (Y)

Left Mid B-Pillar Acceleration (Y)

Driver Seat Track at Dummy Hip Point Acceleration (Y)

Engine Top Acceleration (X)

Engine Top Acceleration (Y)

Firewall Center Acceleration (Y)

Right Roof at Vertical Impact Reference Line Acceleration (Y)

Right Sill at Vertical Impact Reference Line Acceleration (Y)

Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)

Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)

Pole Instrumentation Data

Load Cell Pole Barrier #1 Force (Y)

Load Cell Pole Barrier #2 Force (Y)

Load Cell Pole Barrier #3 Force (Y)

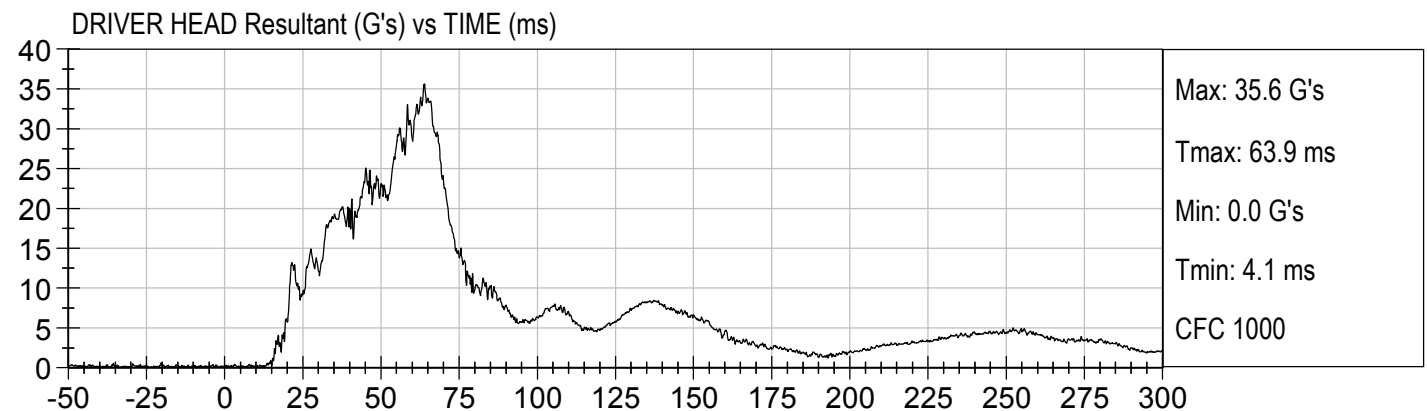
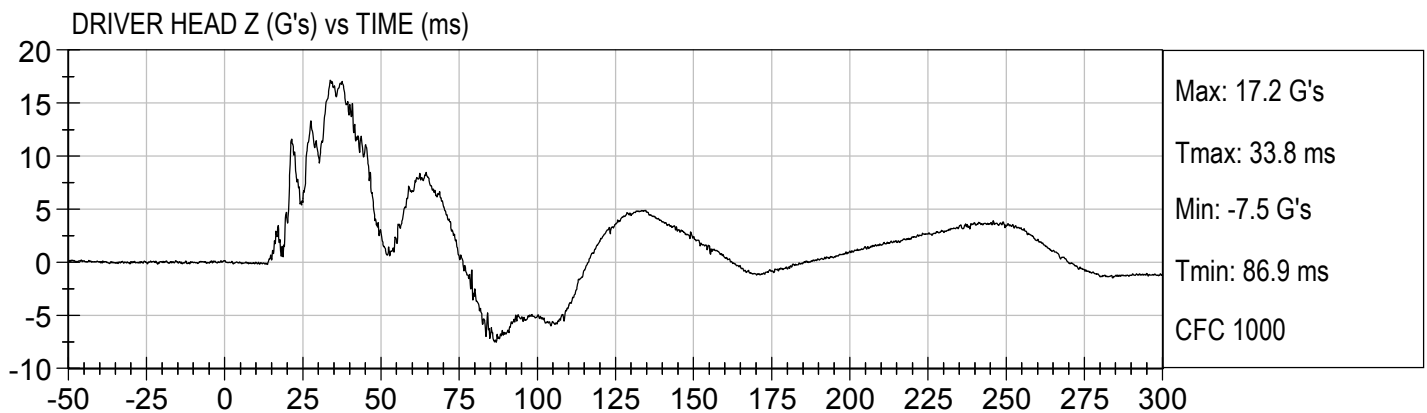
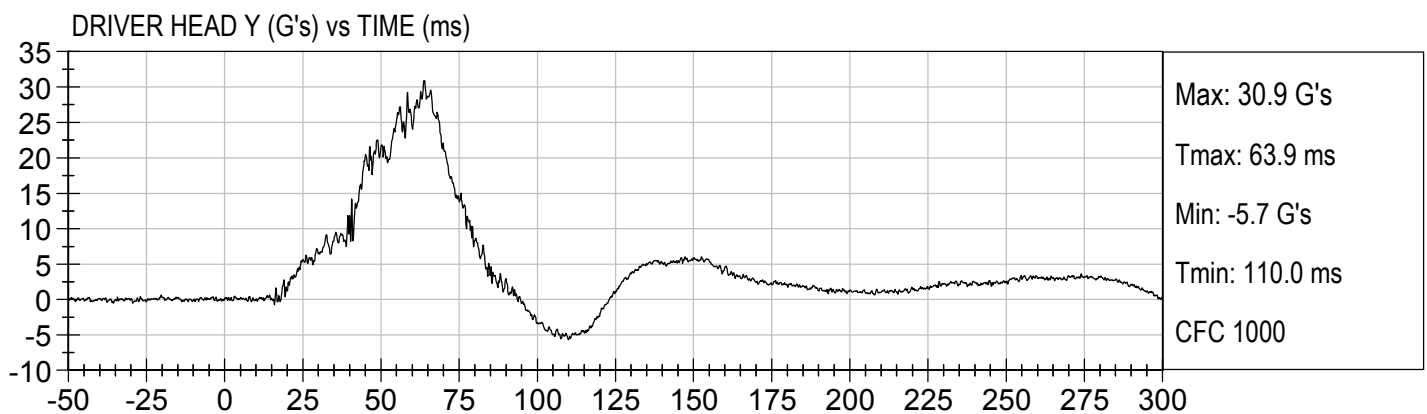
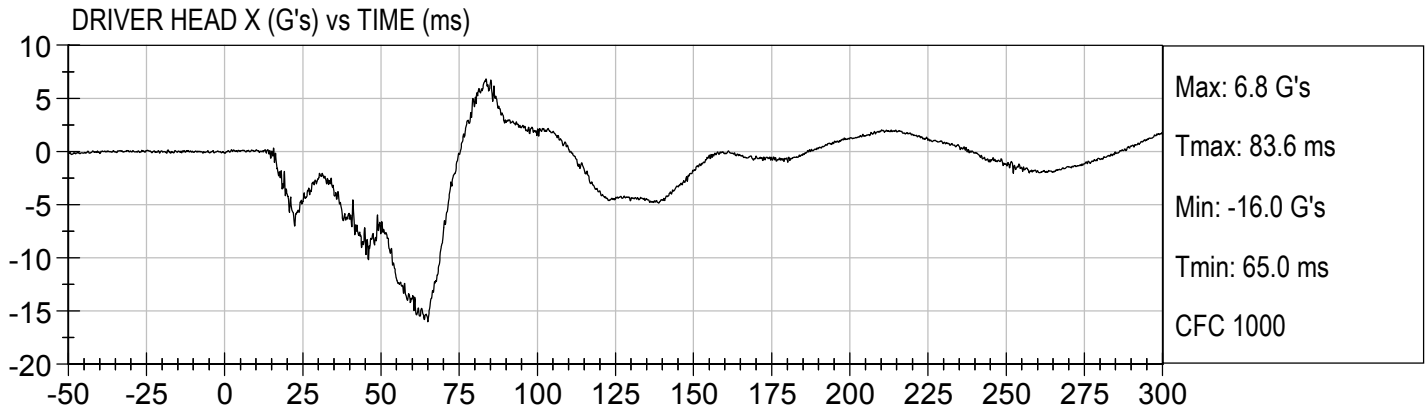
Load Cell Pole Barrier #4 Force (Y)

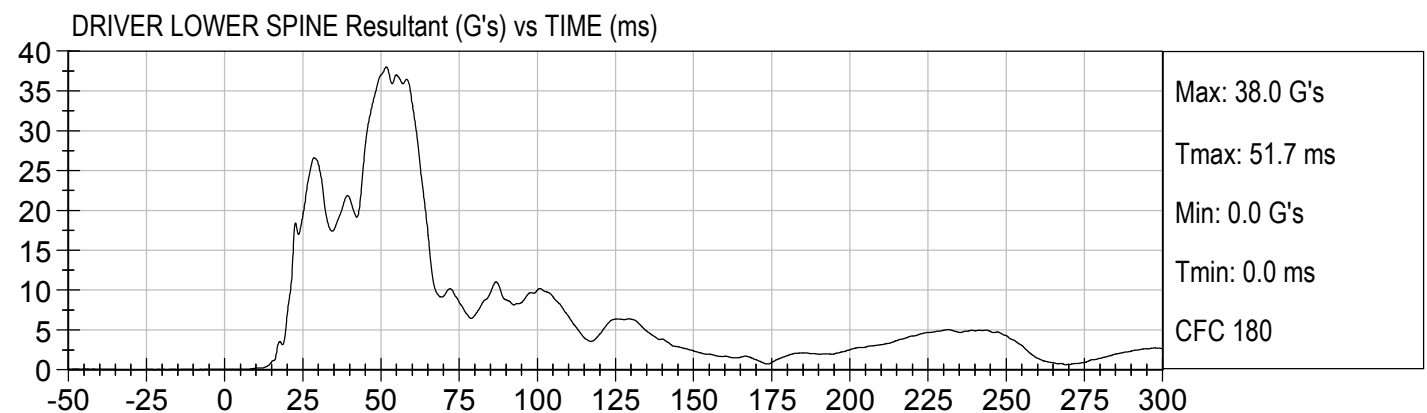
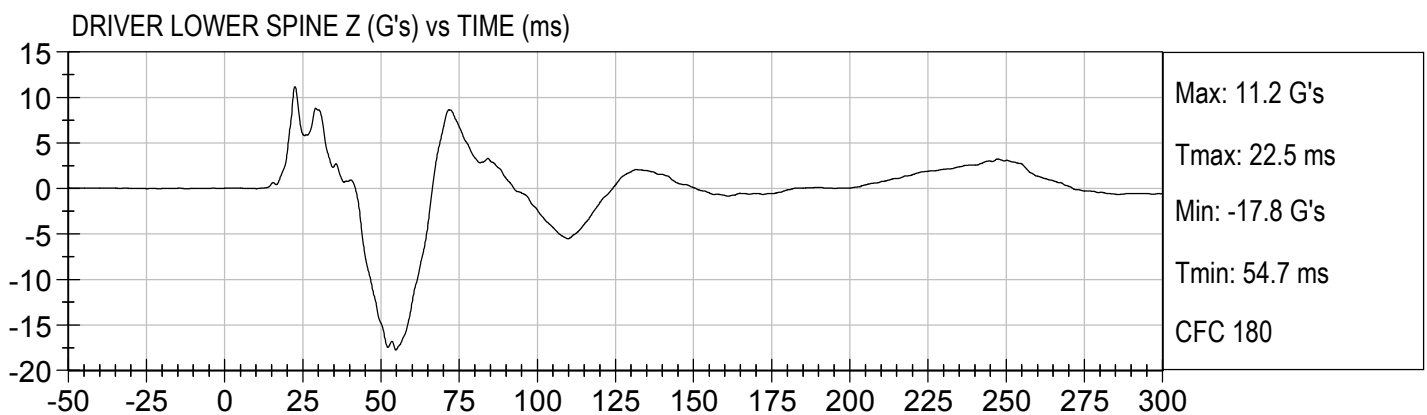
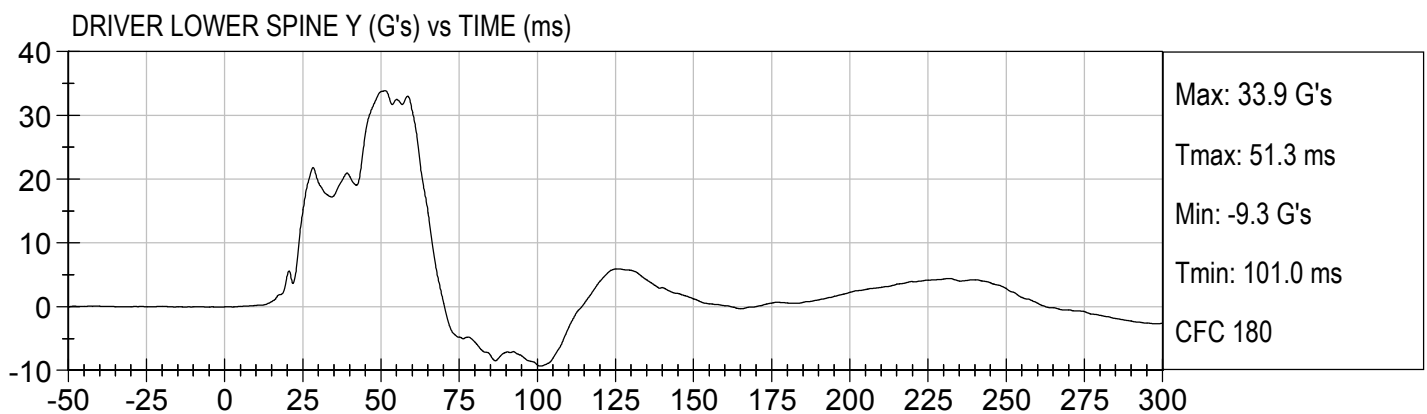
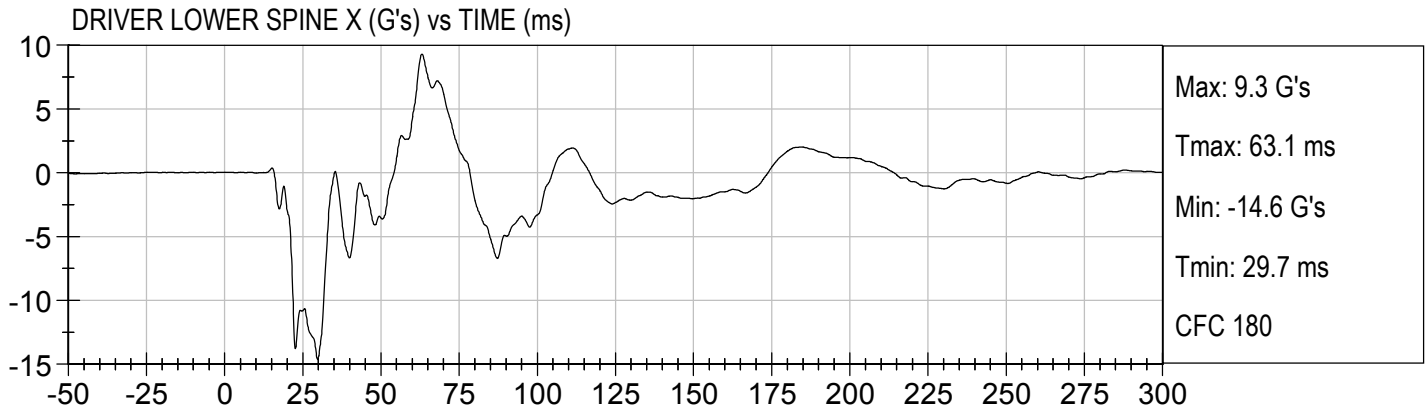
Load Cell Pole Barrier #5 Force (Y)

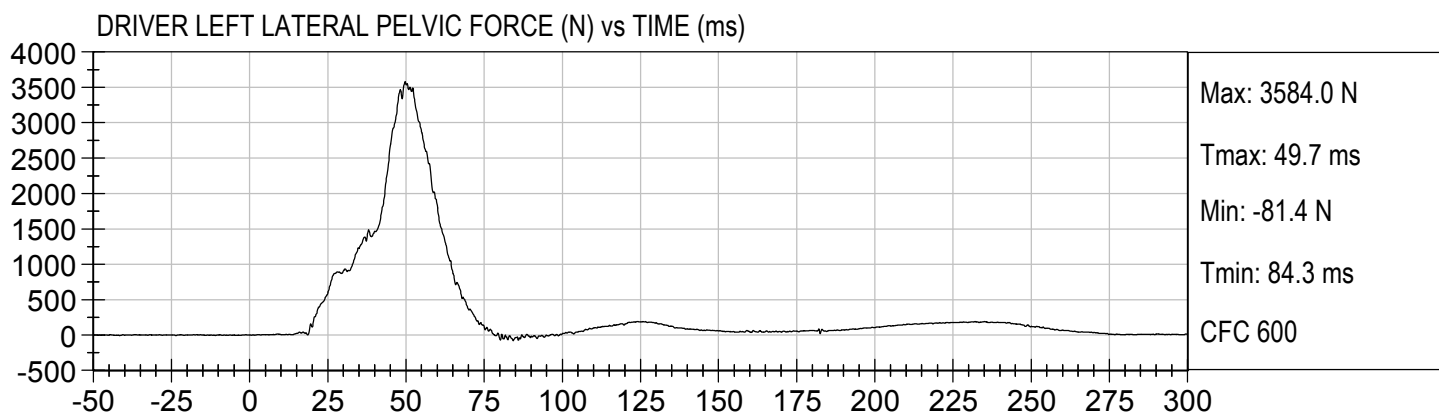
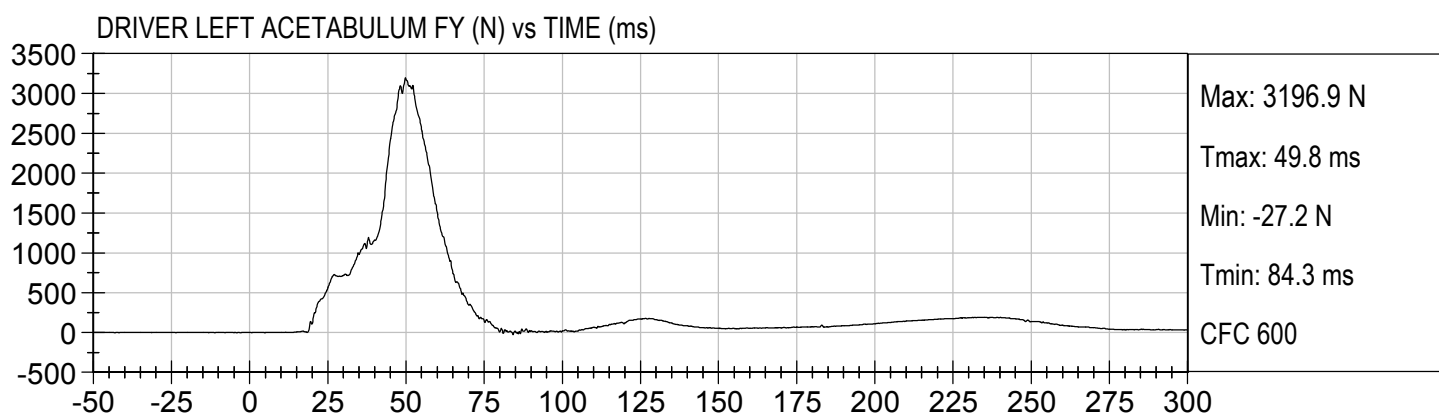
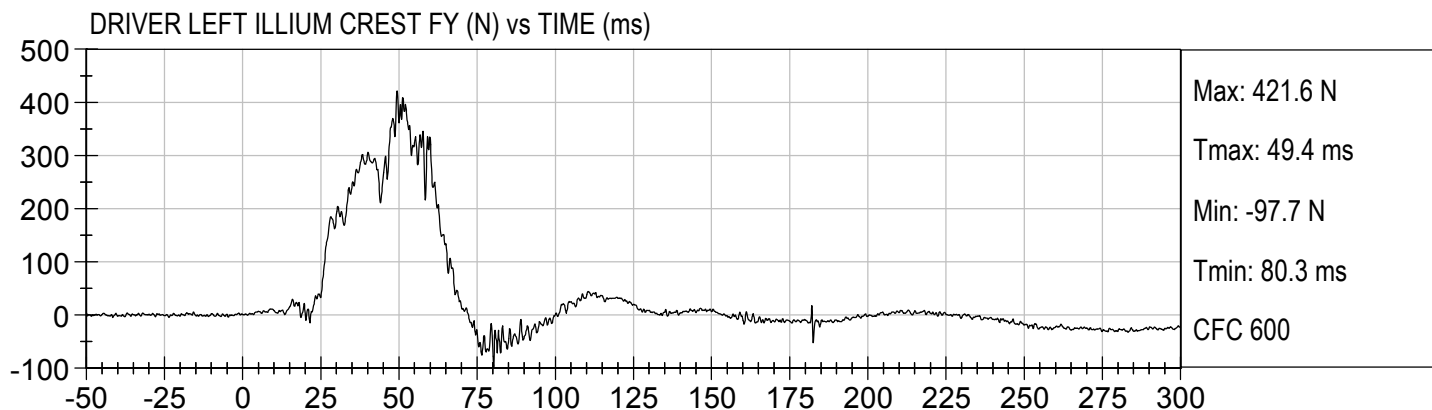
Load Cell Pole Barrier #6 Force (Y)

Load Cell Pole Barrier #7 Force (Y)

Load Cell Pole Barrier #8 Force (Y)







APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SID-IIsD External Measurements
SN: 306

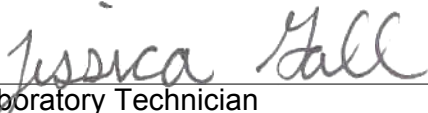
No.	Name	Spec. (mm)	Result	Pass/Fail
A	Sitting Height	772 - 788	785	Pass
B	Shoulder Pivot Height	437 - 453	449	Pass
C	H-point Height	79 - 89	86	Pass
D	H-point from Seatback	141 - 151	147	Pass
E	Shoulder Pivot from Backline	97 - 107	99	Pass
F	Thigh Clearance	119 -135	120	Pass
G	Head Breadth	140 - 148	141	Pass
H	Head Back from Backline	40 - 46	45	Pass
I	Head Depth	178 - 188	182	Pass
J	Head Circumference	541 - 551	550	Pass
K	Buttock to Knee Length	514 - 540	538	Pass
L	Popliteal Height	343 - 369	349	Pass
M	Knee Pivot to Floor Height	392 - 409	394	Pass
N	Buttock Popliteal Length	416 - 442	435	Pass
O	Chest Depth w/o Jacket	195 - 211	198	Pass
P	Foot Length	216 - 232	222	Pass
Q	Hip Breadth (w/ pelvic plugs)	313 - 323	317	Pass
R	Arm Length	249 - 259	250	Pass
S	Knee Joint to Seatback	477 - 493	483	Pass
V	Shoulder Width	341 - 357	351	Pass
W	Foot Width	78 - 94	82	Pass
Y	Chest Circumference w/ jacket	851 - 881	863	Pass
Z	Waist Circumference	761 - 791	782	Pass

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

ATD Serial No: 306

Test ID: D14771

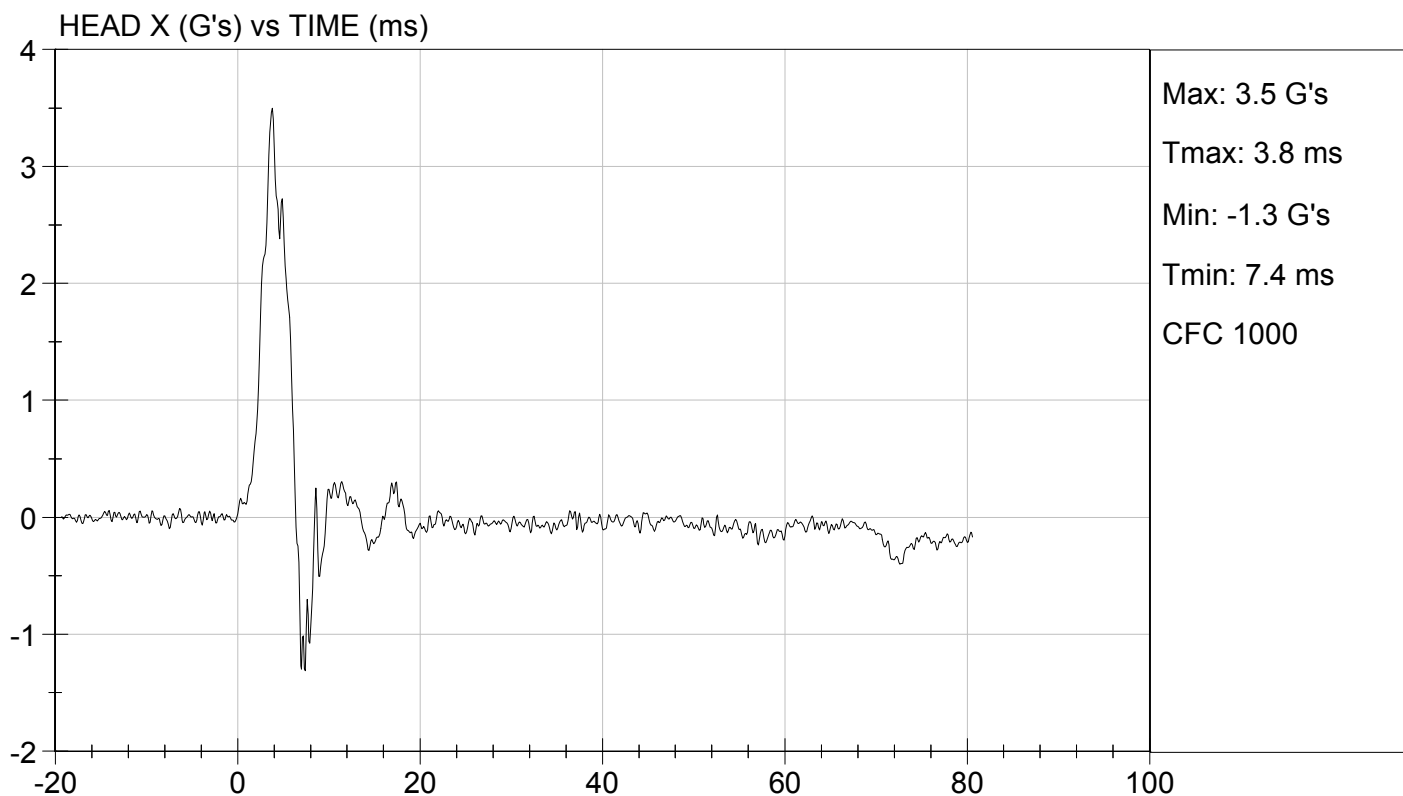
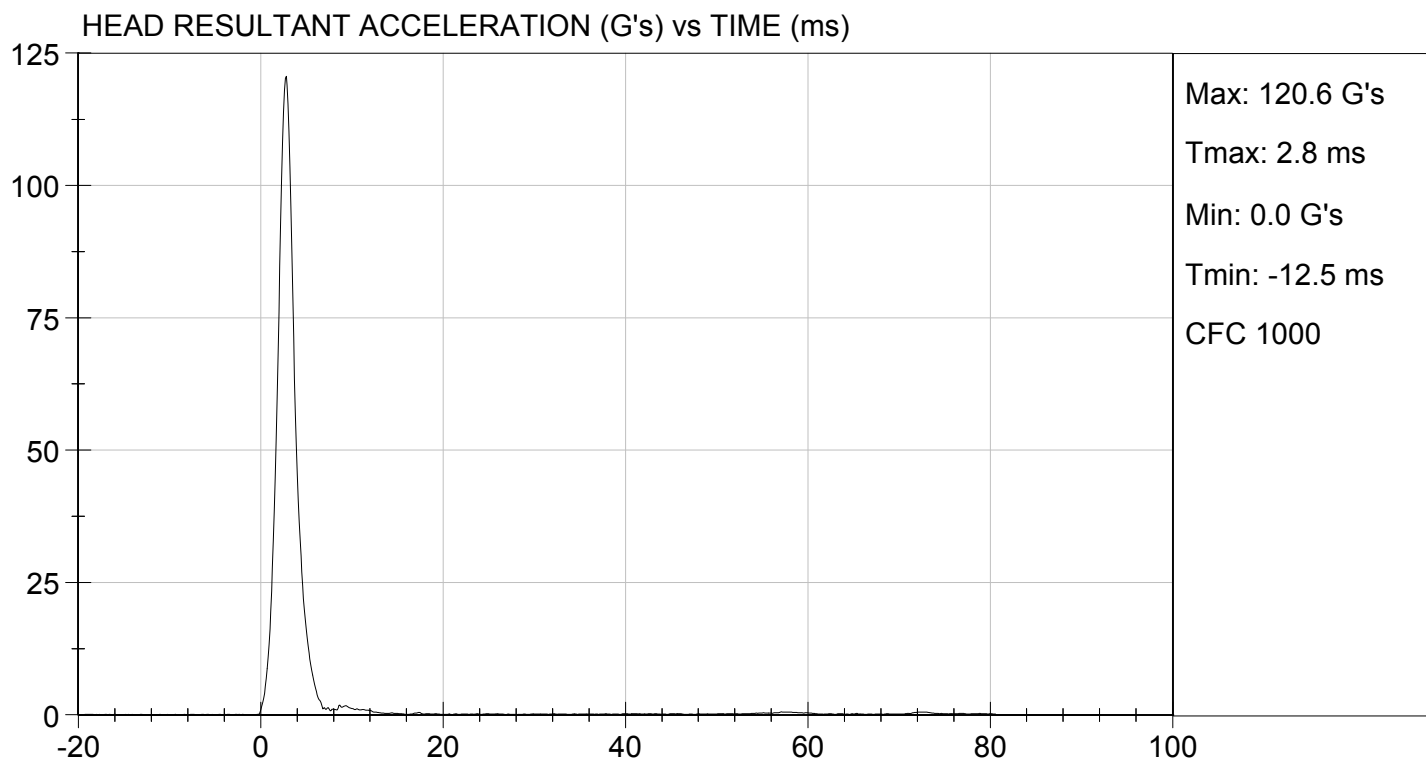
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	12	Pass
Peak Resultant Acceleration	G's	115 to 137	121	Pass
Peak Longitudinal Acceleration	G's	+/- 15	3.5	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
Overall Test Results			Pass	

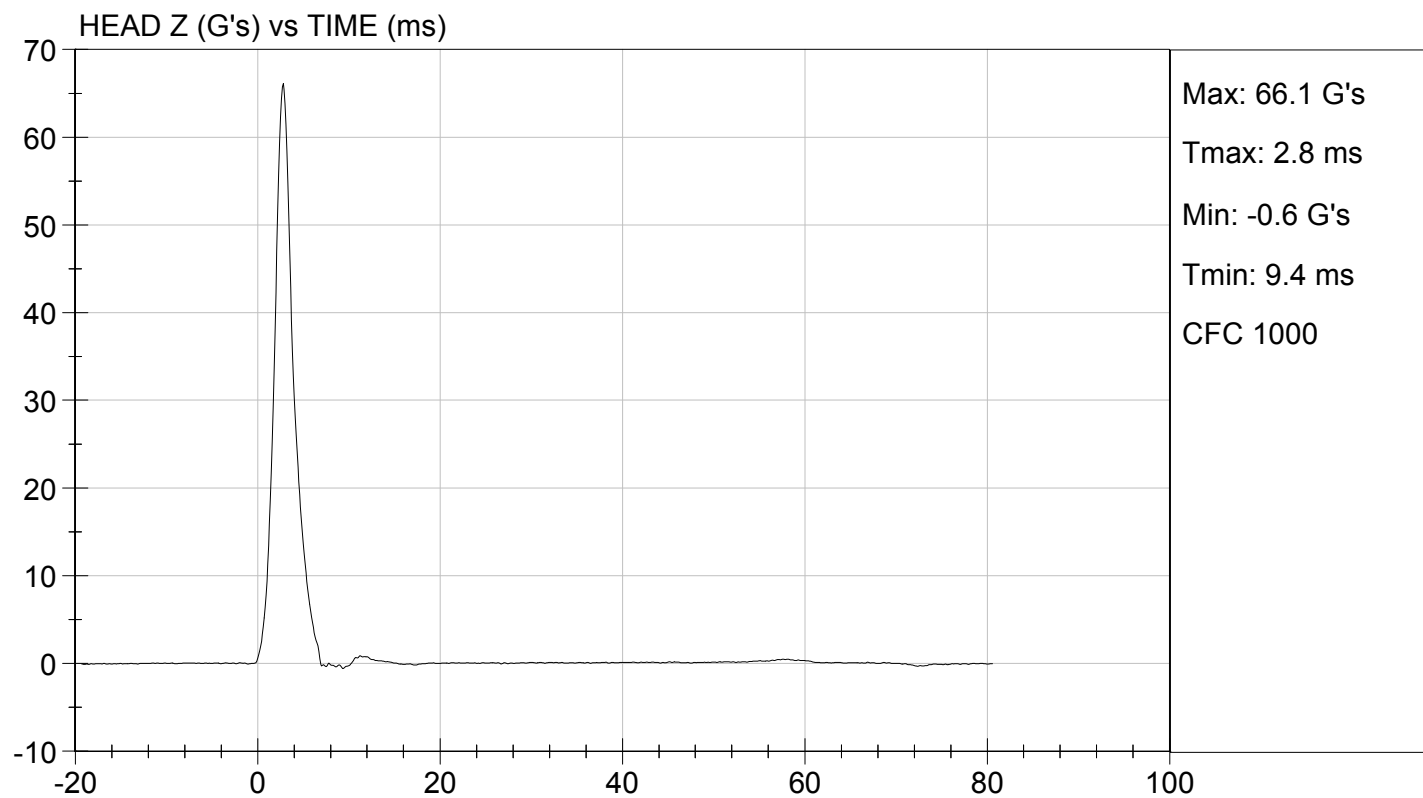
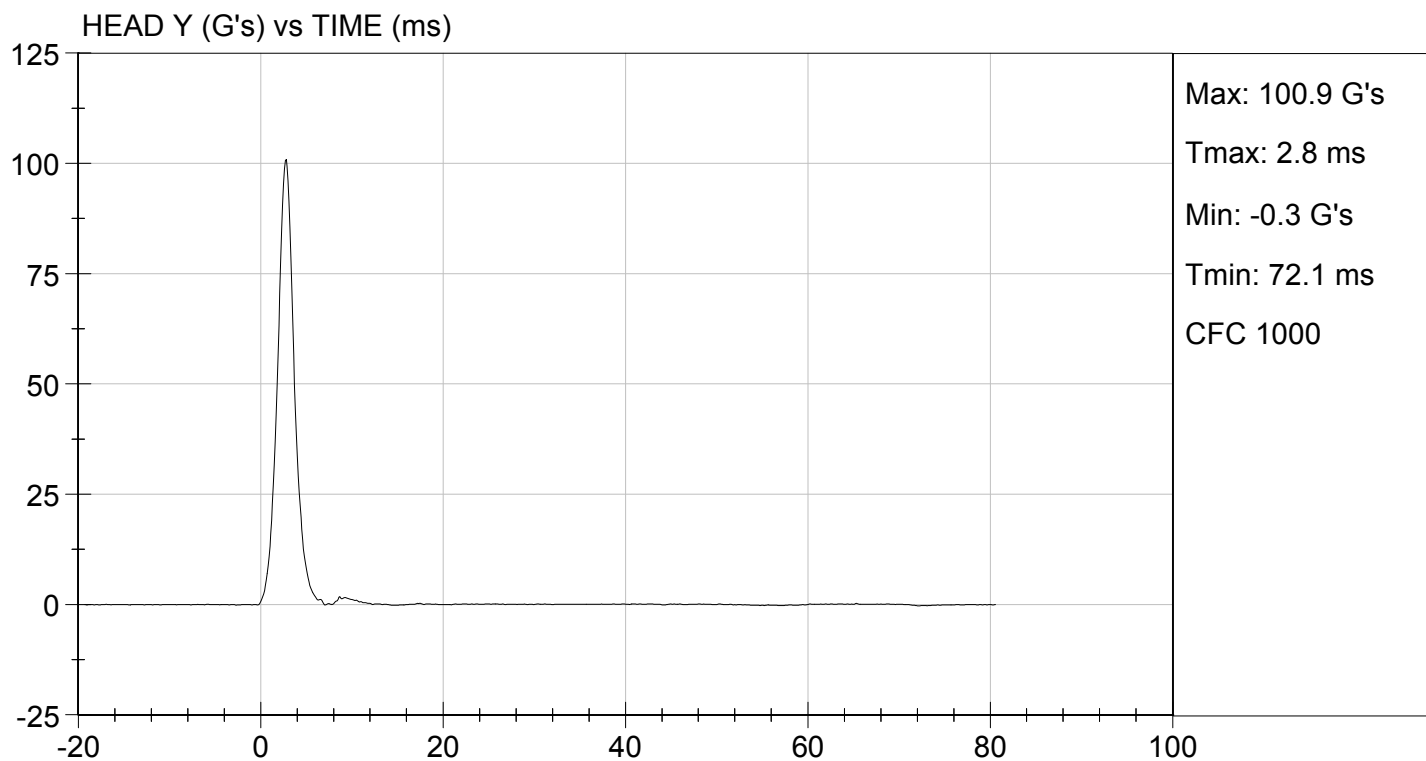

Laboratory Technician

03/03/2014

Test Date


Approved By



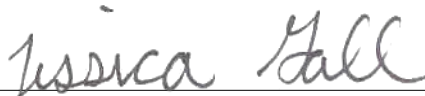


MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D14772

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	20.7	Pass
Humidity		%	10 to 70	12	Pass
Impact Velocity		m/s	5.51 to 5.63	5.52	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.41	Pass
	15 ms	m/s	3.30 to 4.10	3.44	Pass
	20 ms	m/s	4.40 to 5.40	4.59	Pass
	25 ms	m/s	5.40 to 6.10	5.48	Pass
	25-100 ms	m/s	5.50 to 6.20	5.57	Pass
Maximum D-Plane Rotation		deg	71 to 81	74	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	61	Pass
Maximum Occipital Condyle Moment		Nm	-44 to -36	-41	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	115	Pass
Overall Test Results				Pass	


 Laboratory Technician

03/03/2014

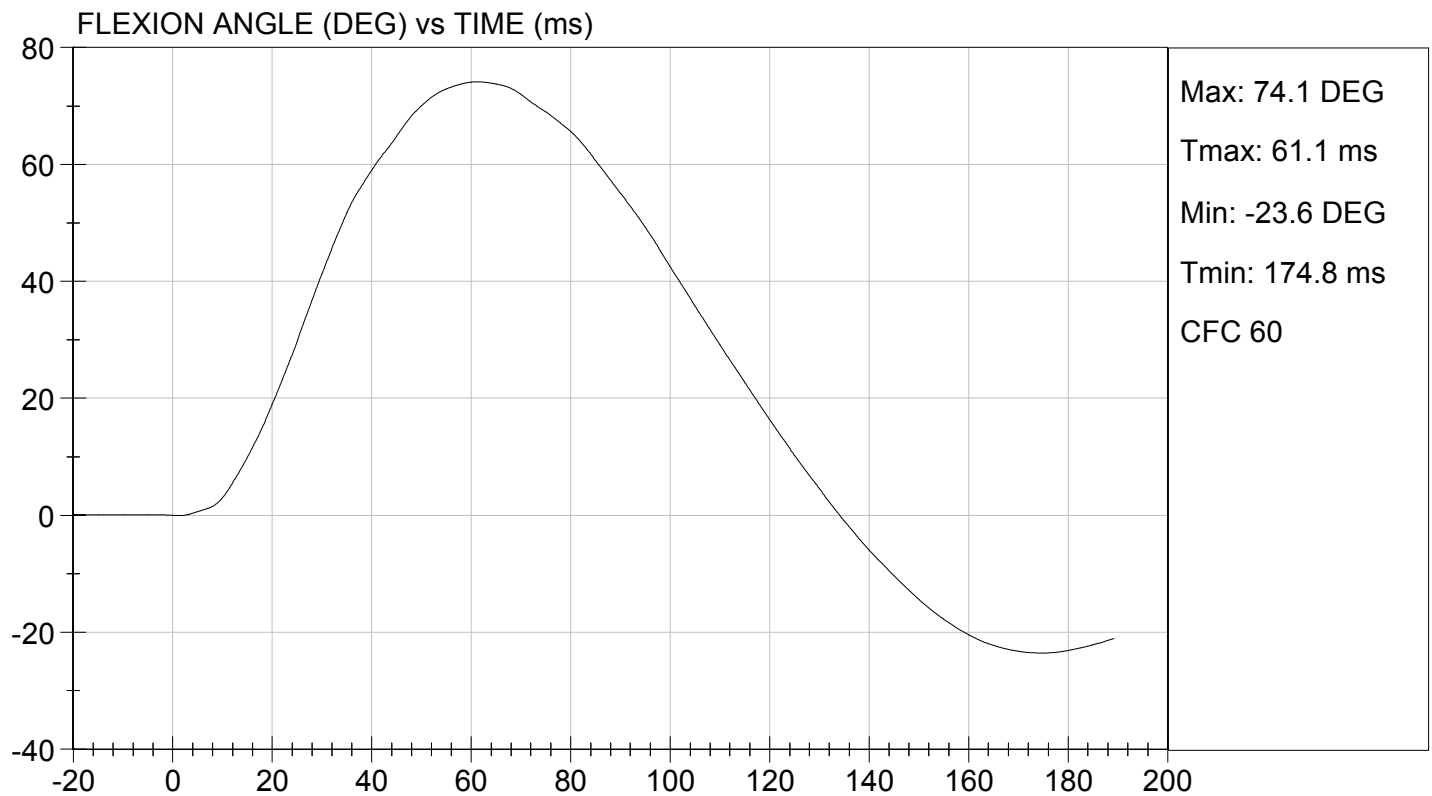
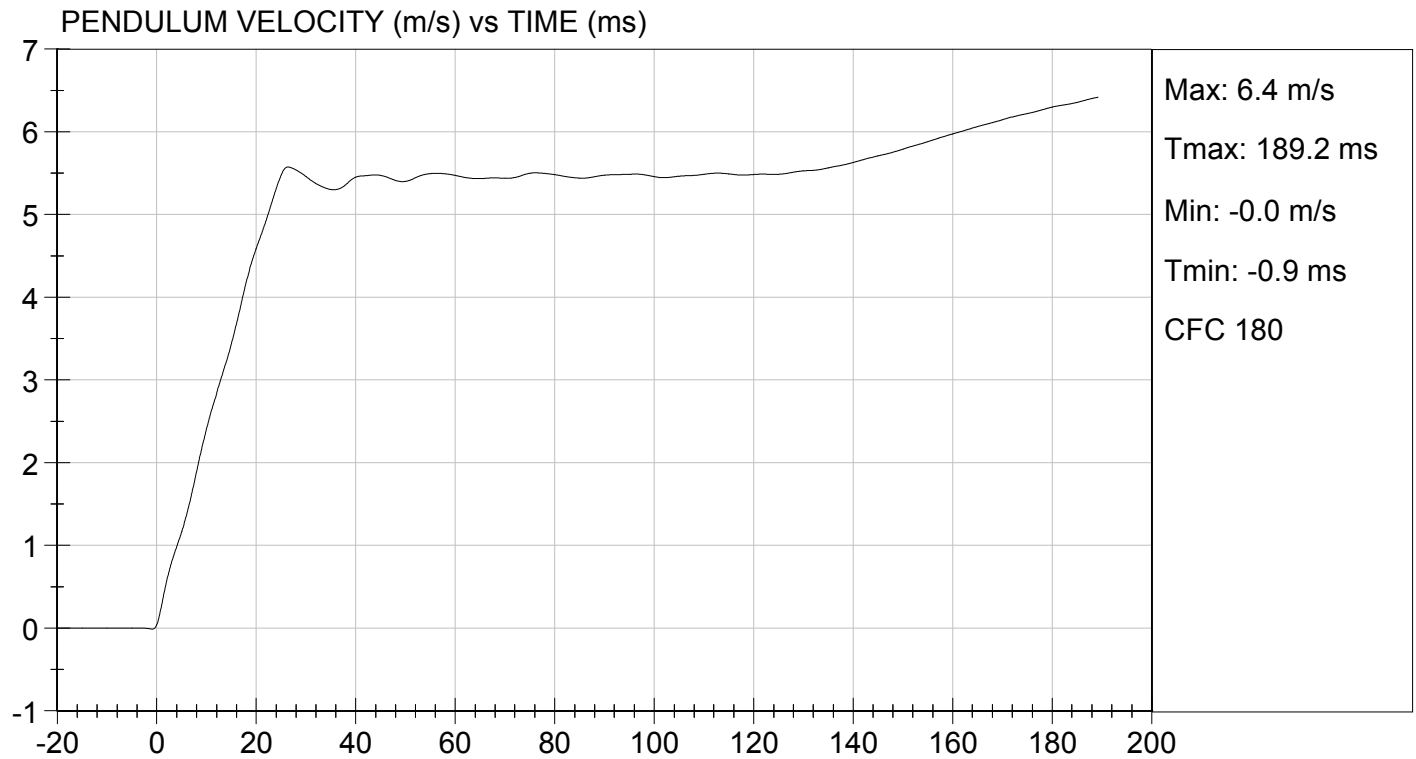
Test Date


 Approved By



TEST DESC: NECK BENDING
VELOCITY: 18.12 ft/s, 5.52 m/s

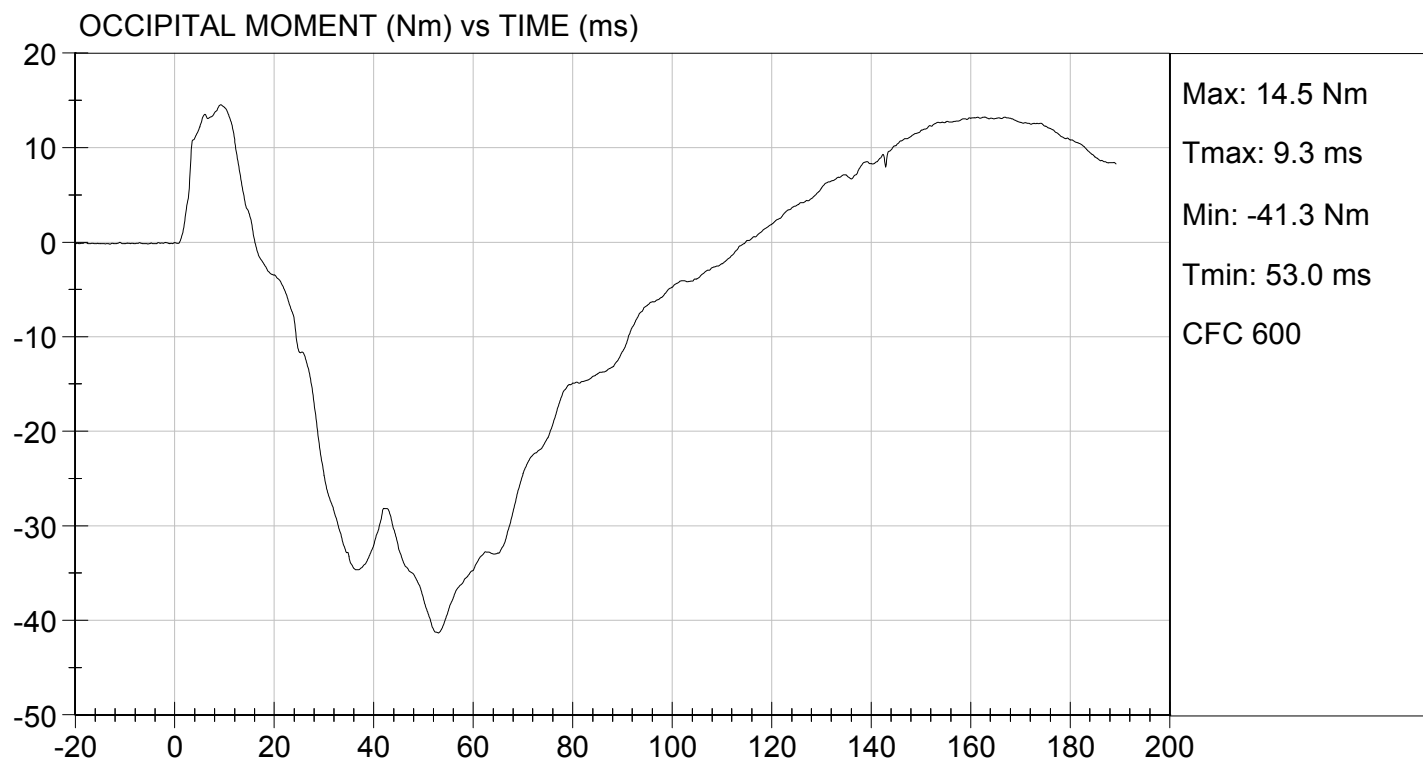
TEST DATE: 03/03/2014
TEST #: D14772





TEST DESC: NECK BENDING
VELOCITY: 18.12 ft/s, 5.52 m/s

TEST DATE: 03/03/2014
TEST #: D14772



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

ATD Serial No: 306

Test ID: D14773

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	12	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	29	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	19	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

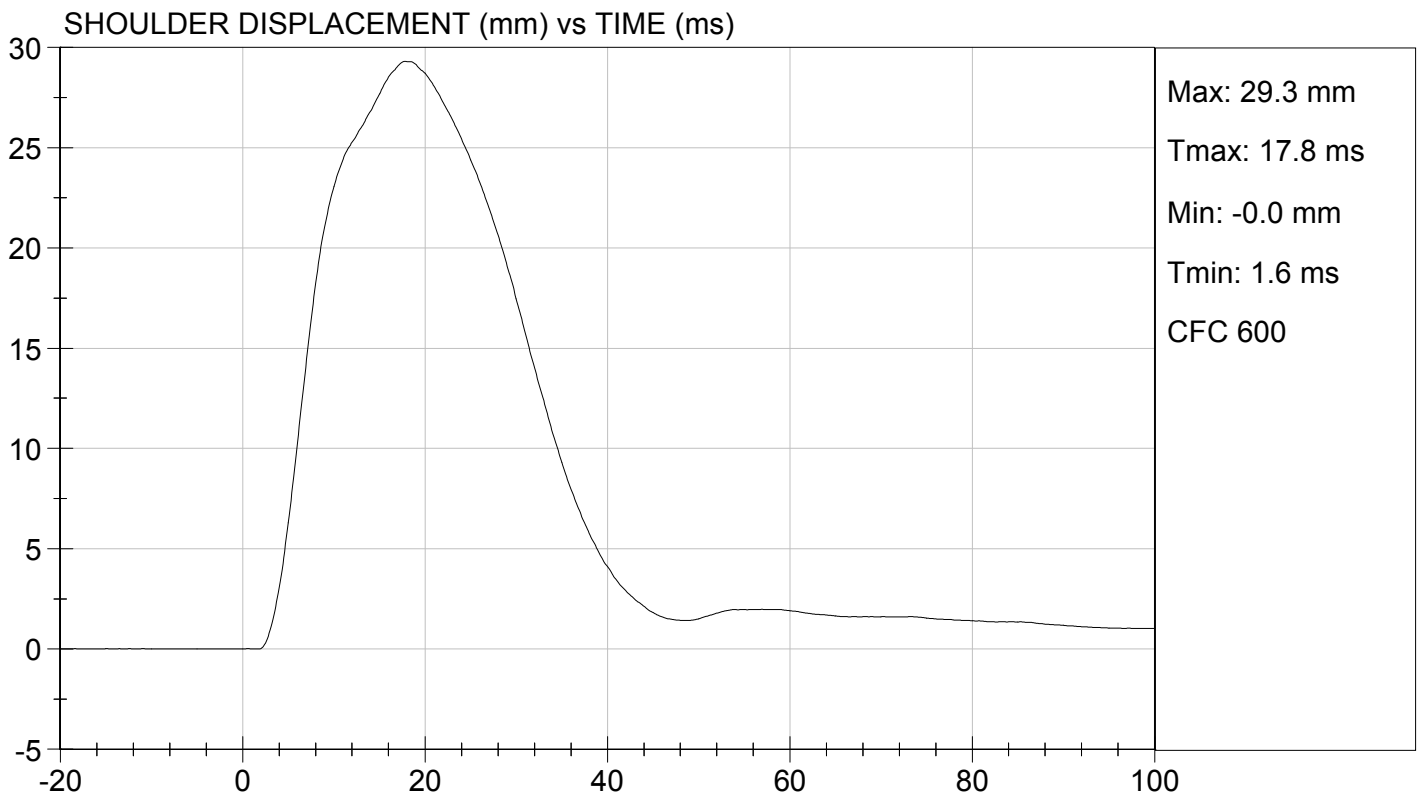
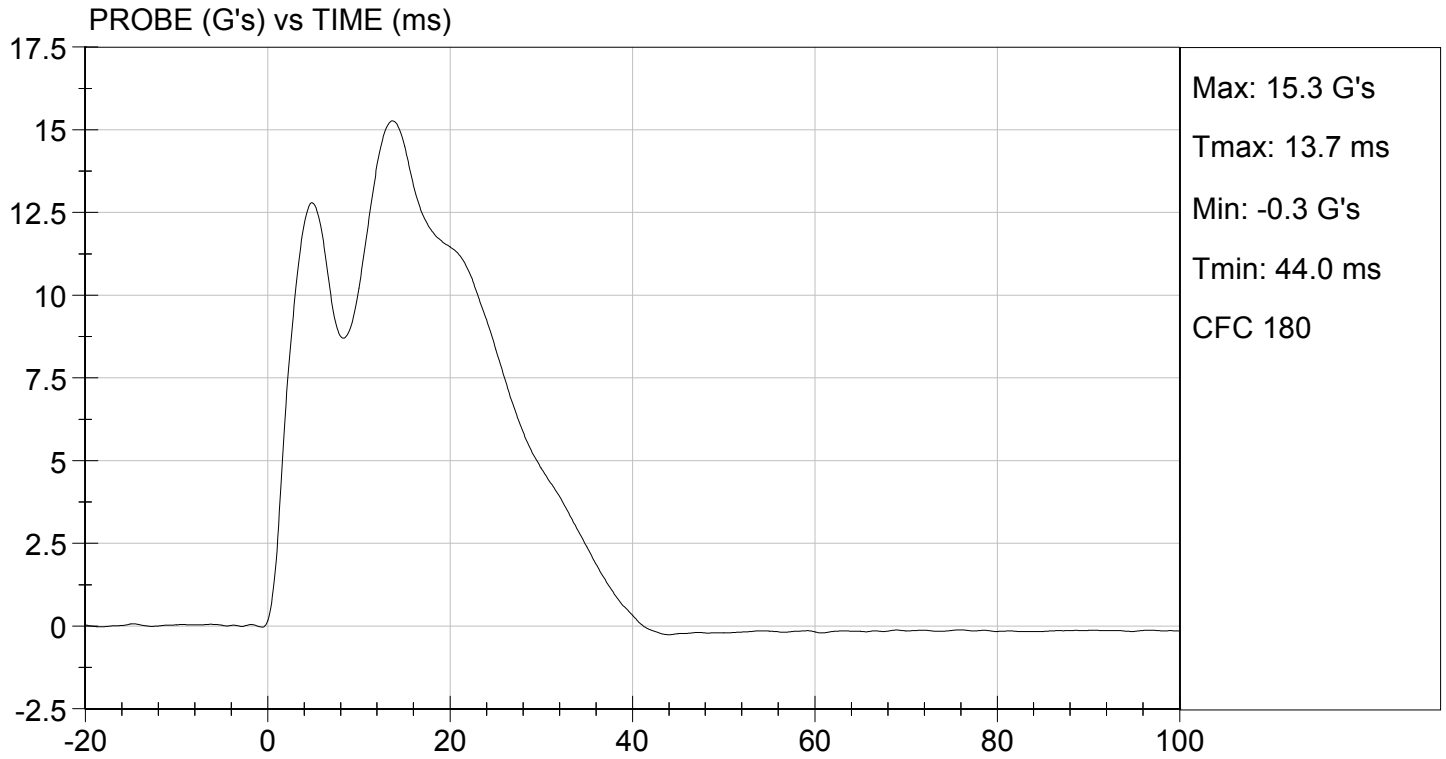
03/03/2014
Test Date

David Winkelbauer
Approved By



TEST DESC: SHOULDER IMPACT
VELOCITY: 14.25 ft/s, 4.34 m/s

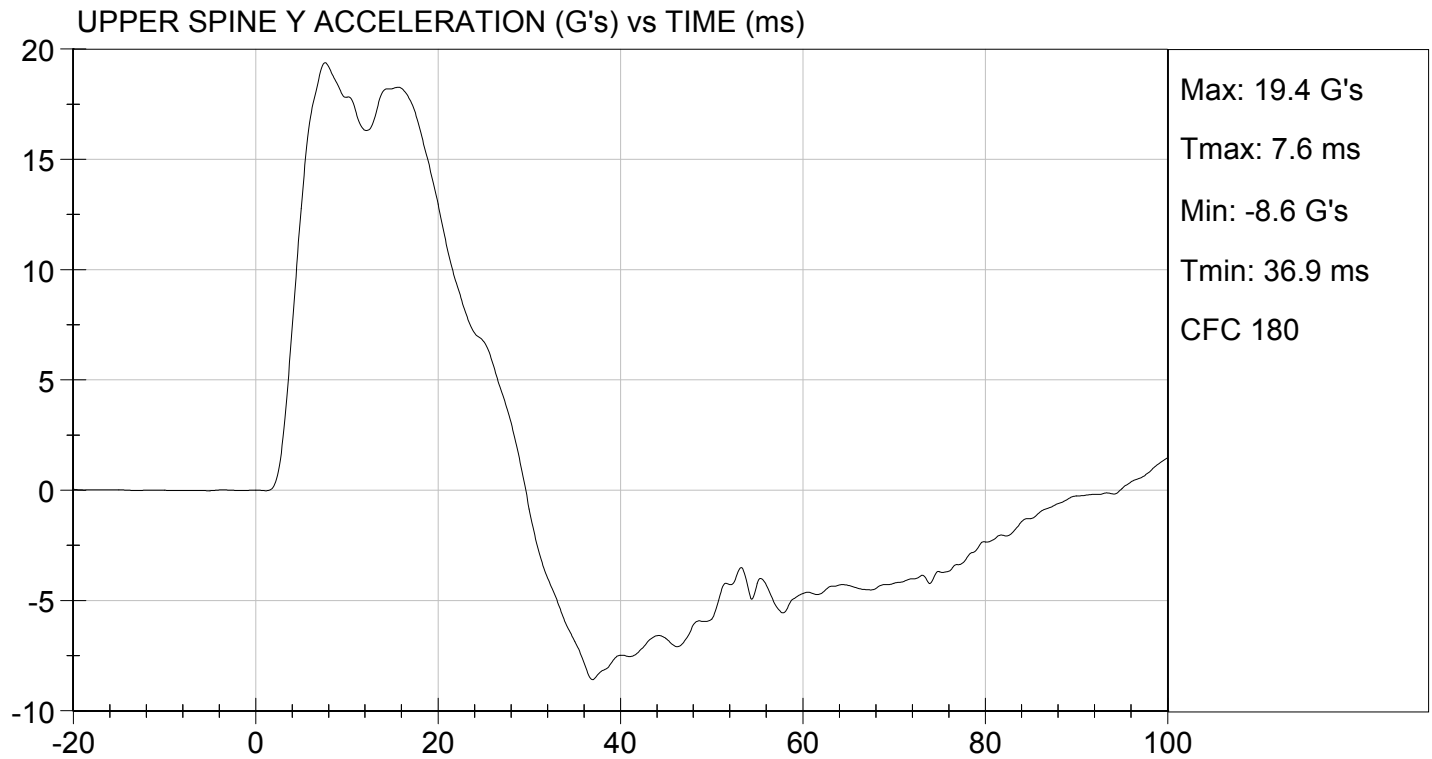
TEST DATE: 03/03/2014
TEST #: D14773





TEST DESC: SHOULDER IMPACT
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 03/03/2014
TEST #: D14773



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

ATD Serial No: 306

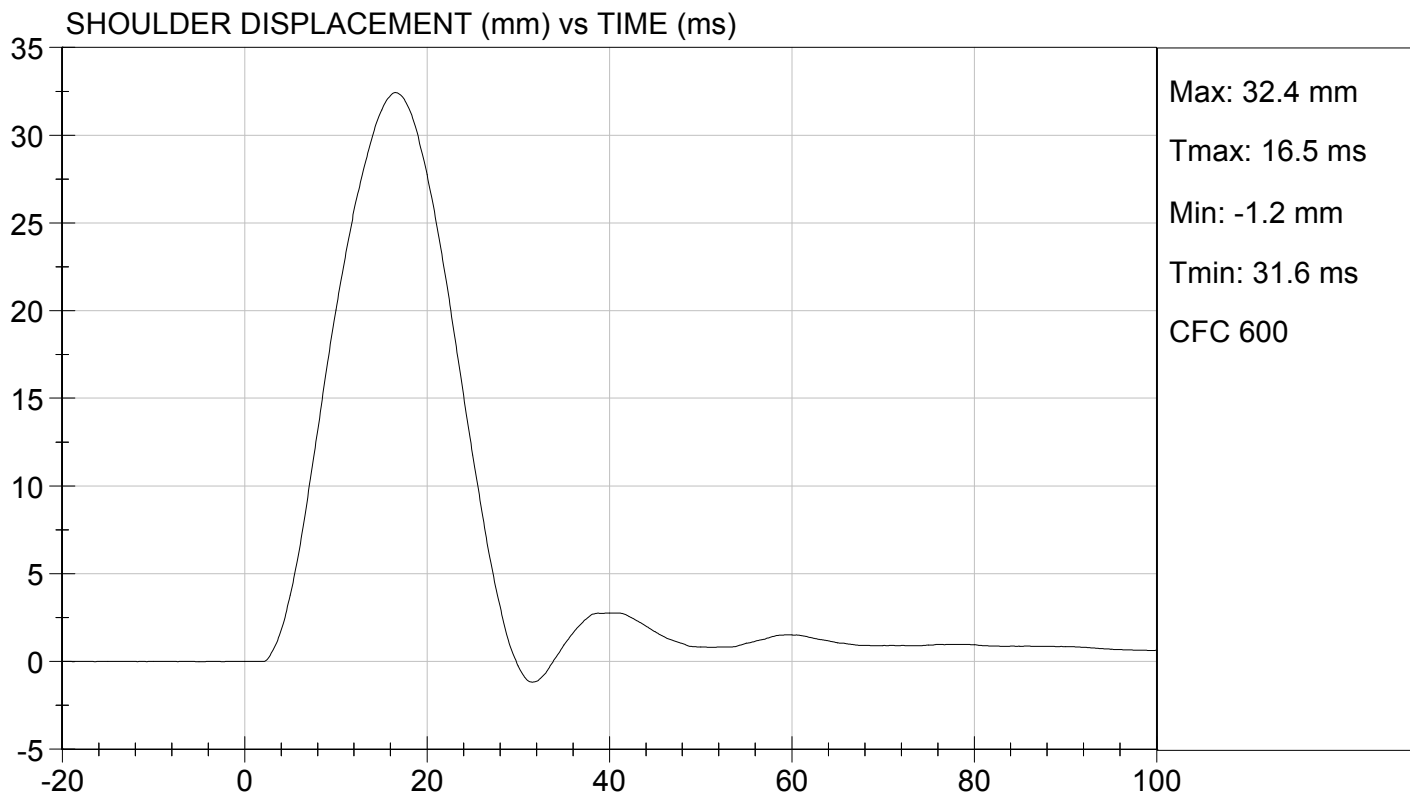
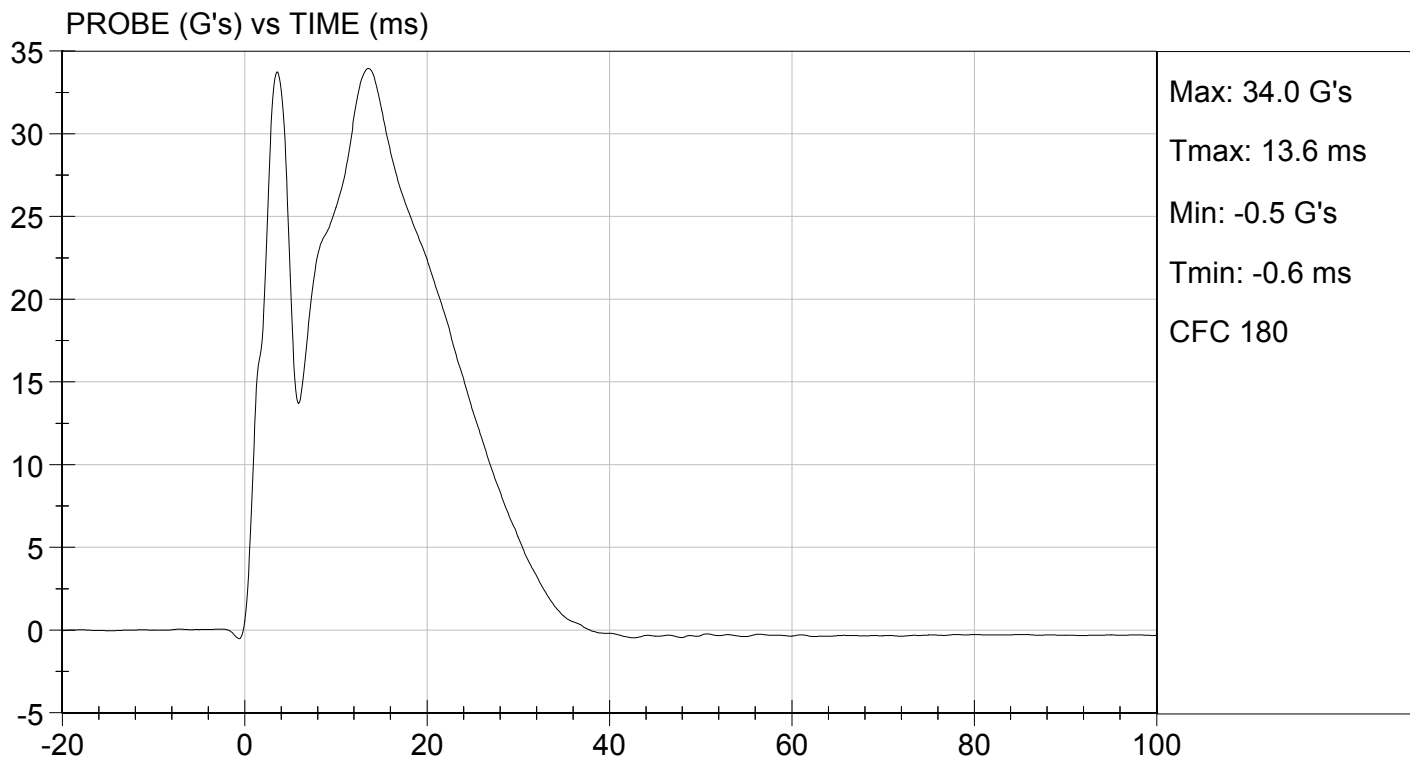
Test I.D: D14774

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.7	Pass
Humidity	%	10 to 70	12	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	30 to 36	34	Pass
Shoulder Displacement	mm	31 to 40	32	Pass
Upper Rib Displacement	mm	25 to 32	26	Pass
Middle Rib Displacement	mm	30 to 36	31	Pass
Lower Rib Displacement	mm	32 to 38	34	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	41	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	33	Pass
Overall Test Results				Pass


Laboratory Technician

03/03/2014
Test Date

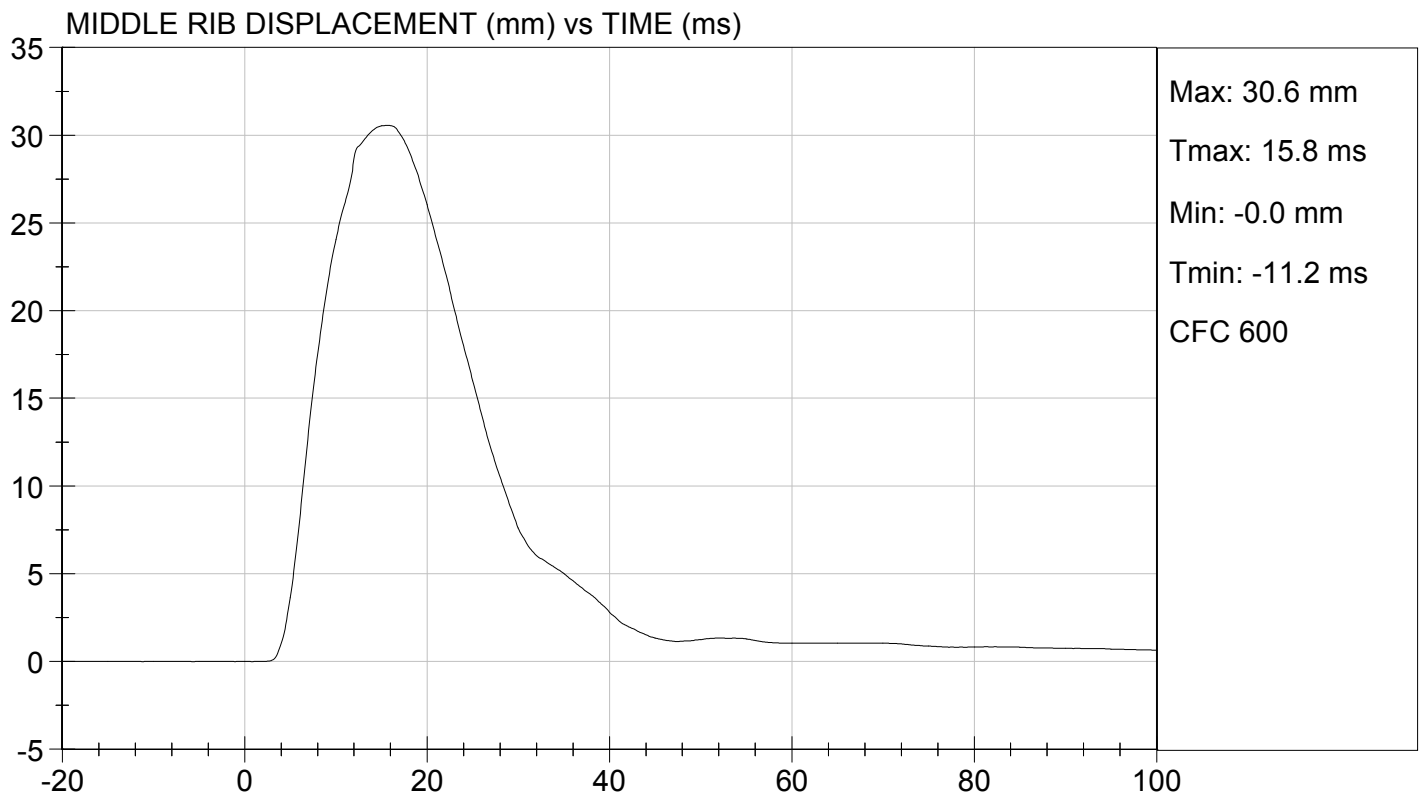
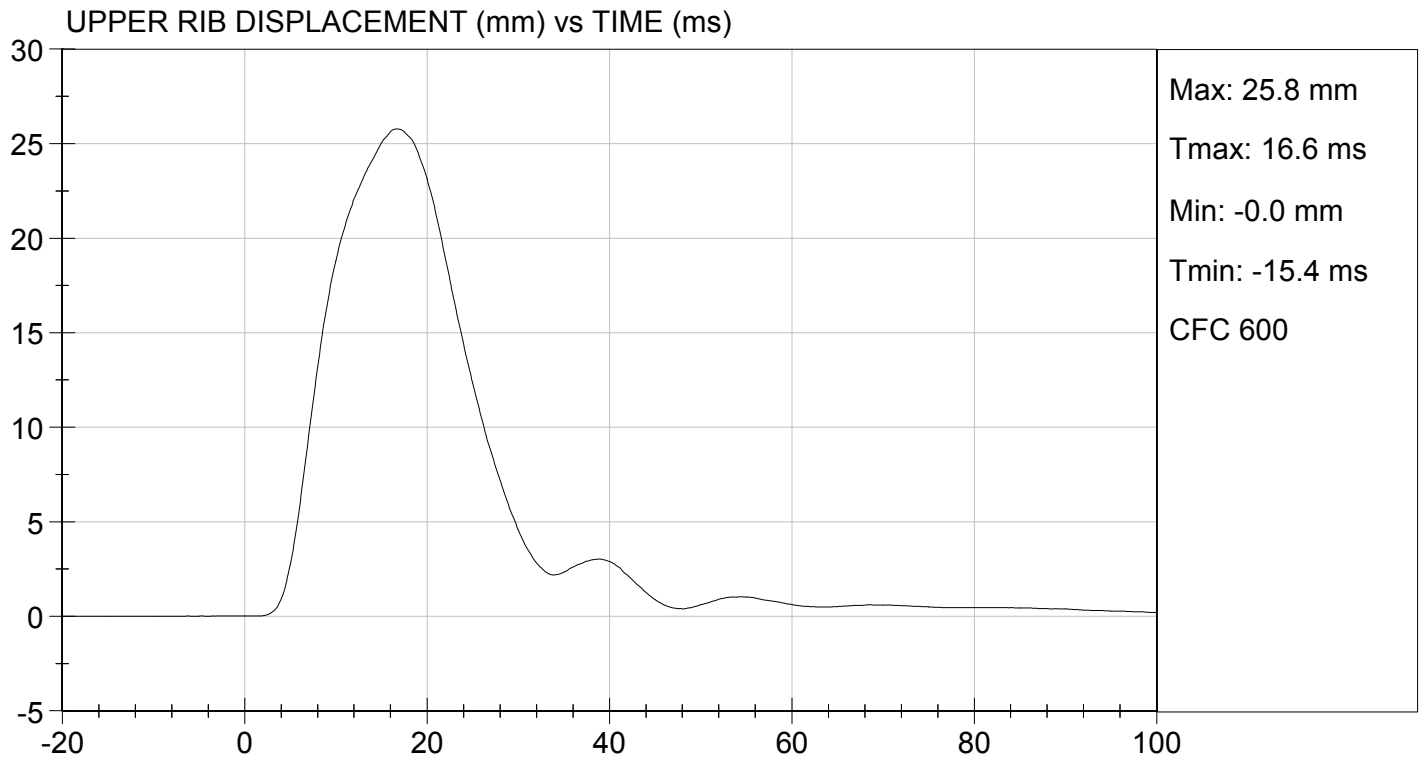

Approved By





TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 03/03/2014
TEST #: D14774

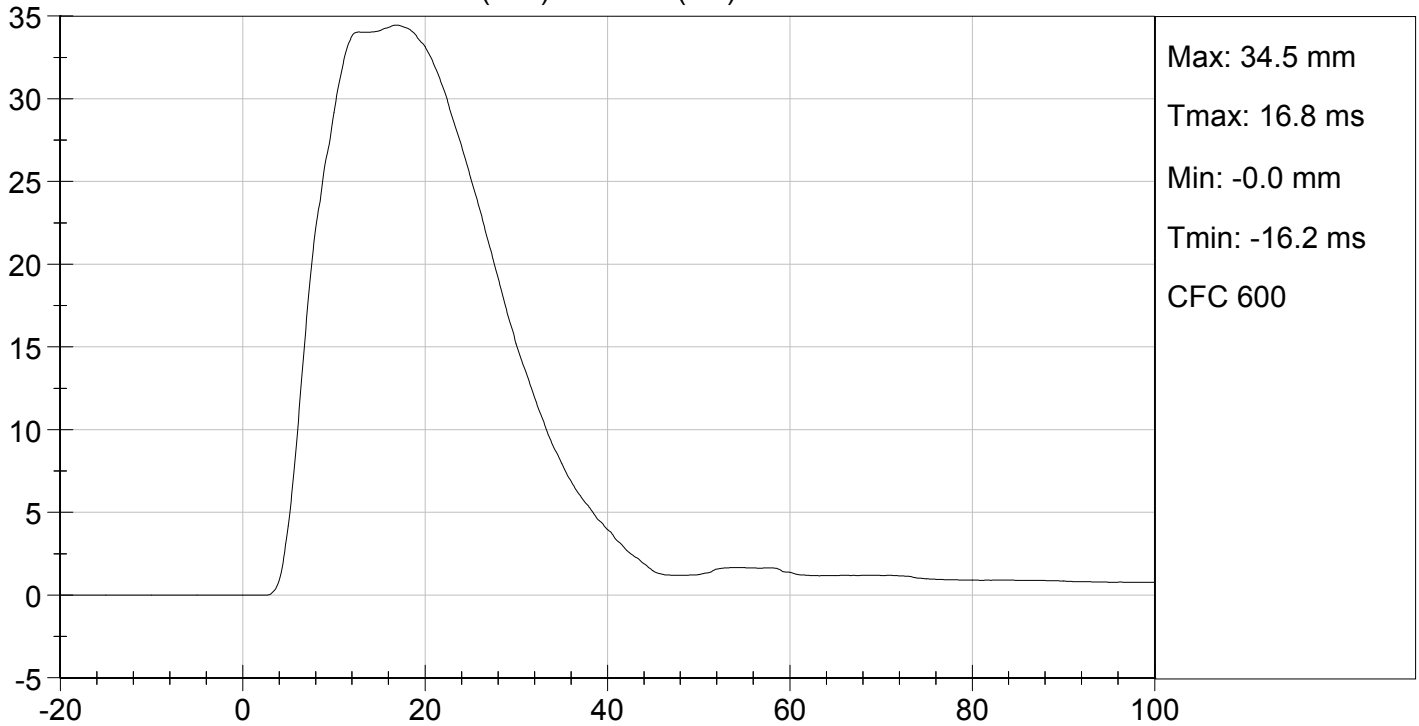




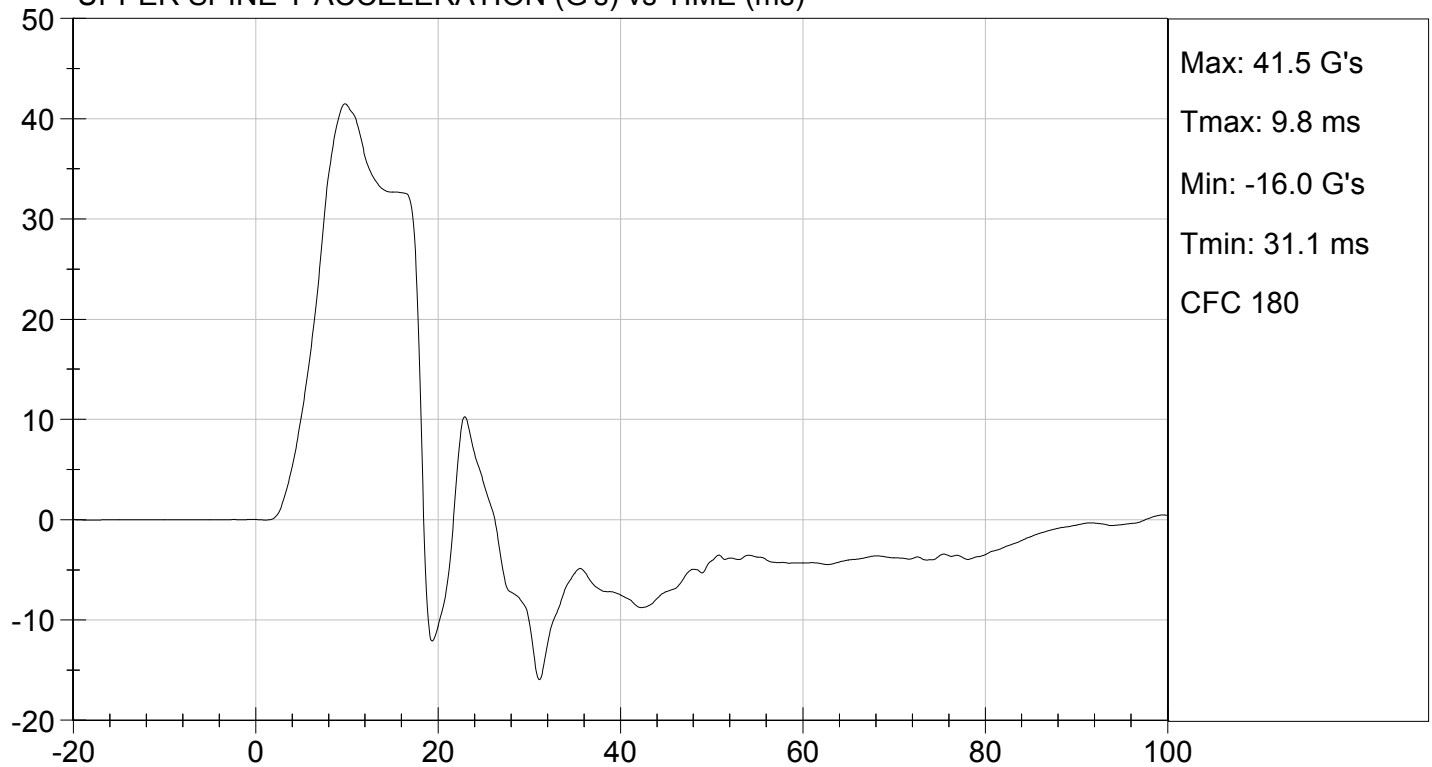
TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 03/03/2014
TEST #: D14774

LOWER RIB DISPLACEMENT (mm) vs TIME (ms)



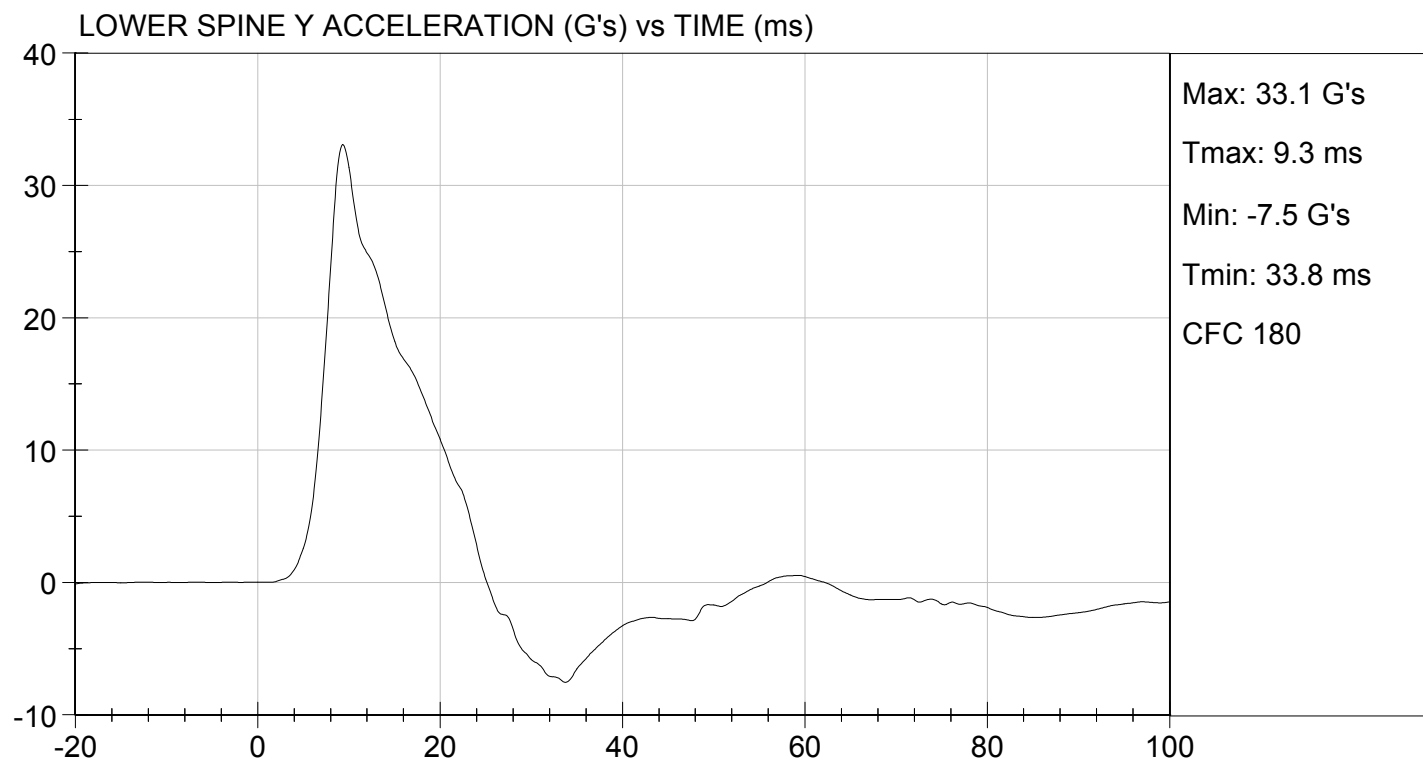
UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)





TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 03/03/2014
TEST #: D14774



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

ATD Serial No: 306

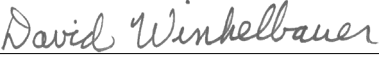
Test I.D: D14775

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.7	Pass
Humidity	%	10 to 70	12	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	14 to 18	16	Pass
Upper Rib Displacement	mm	32 to 40	34	Pass
Middle Rib Displacement	mm	39 to 45	40	Pass
Lower Rib Displacement	mm	35 to 43	40	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	15	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	10	Pass
Overall Test Results				Pass


 Laboratory Technician

03/03/2014

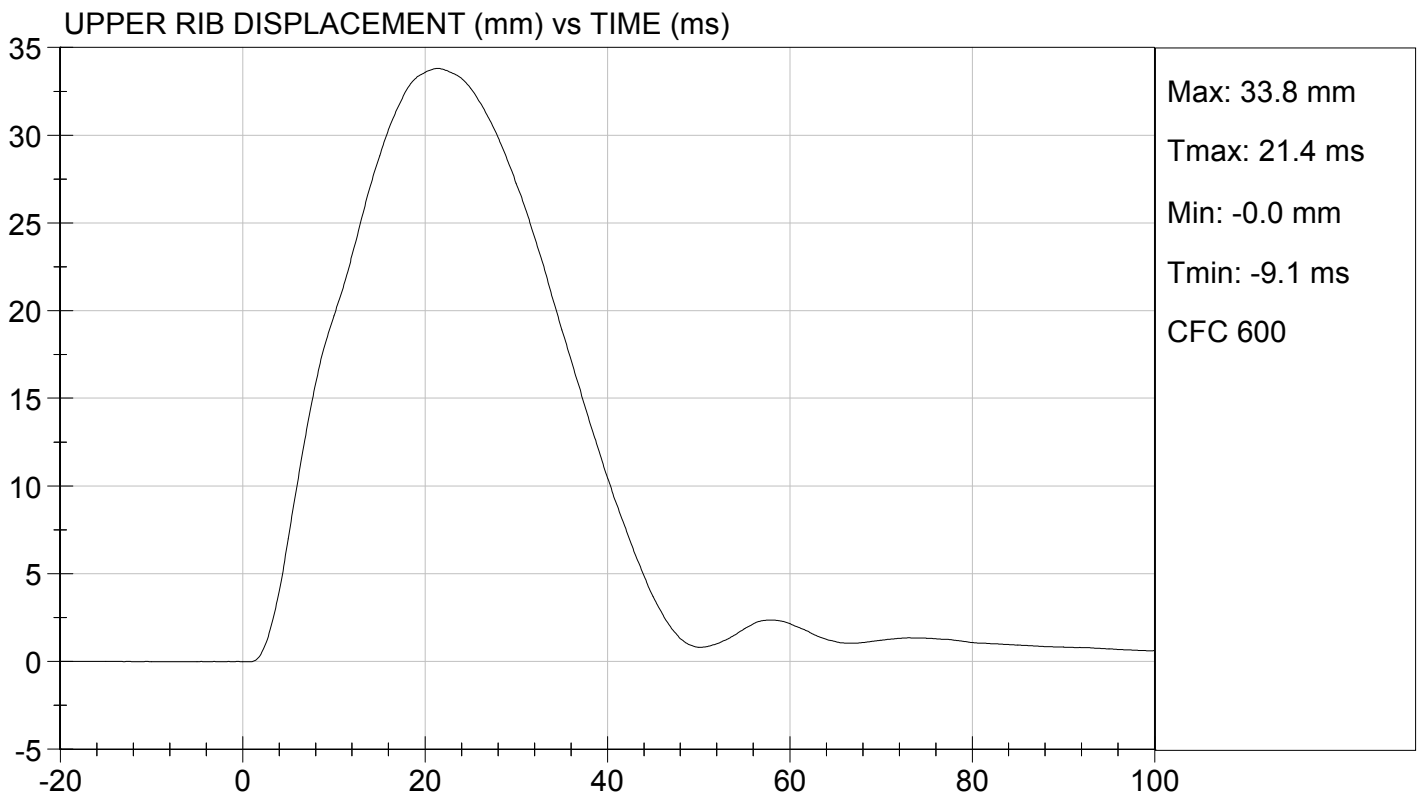
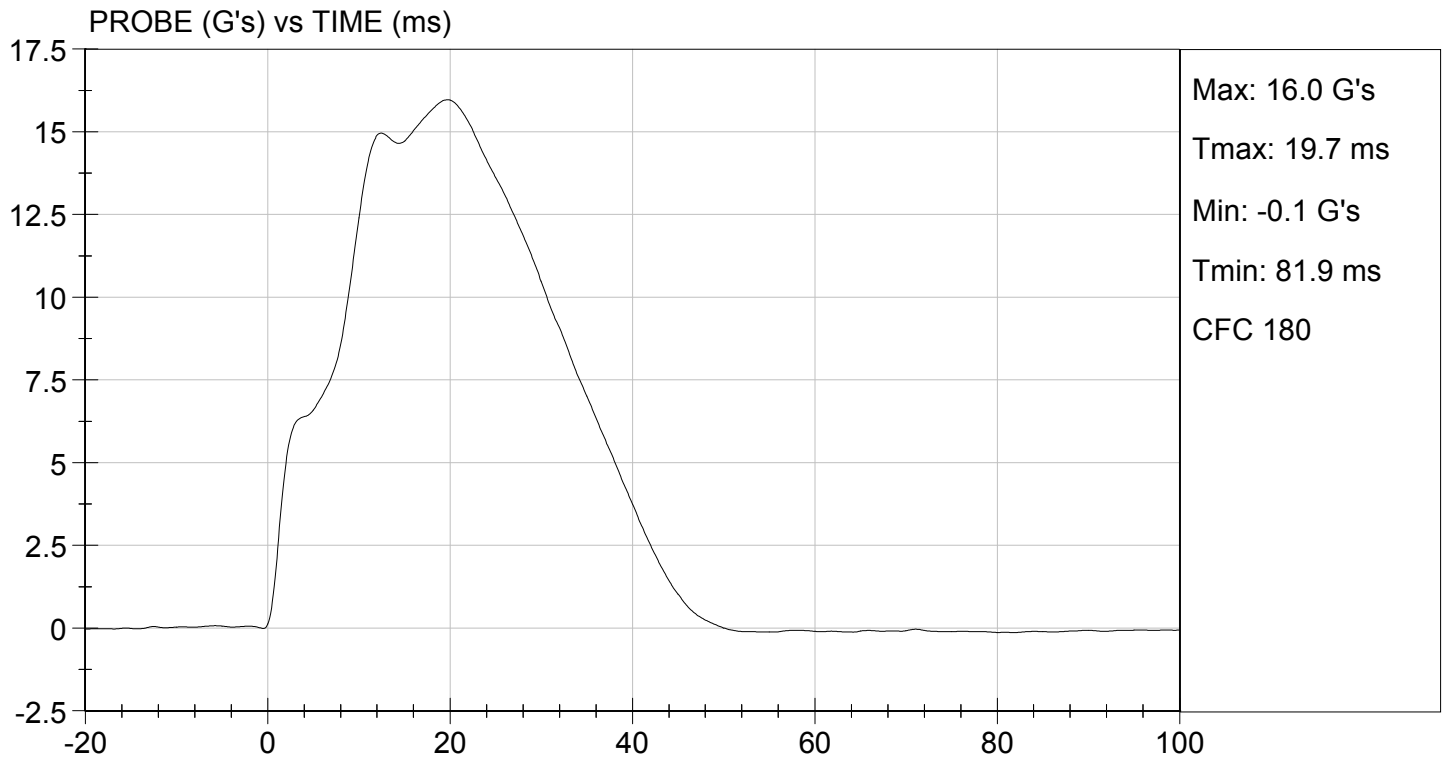
Test Date


 Approved By



TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.25 ft/s, 4.34 m/s

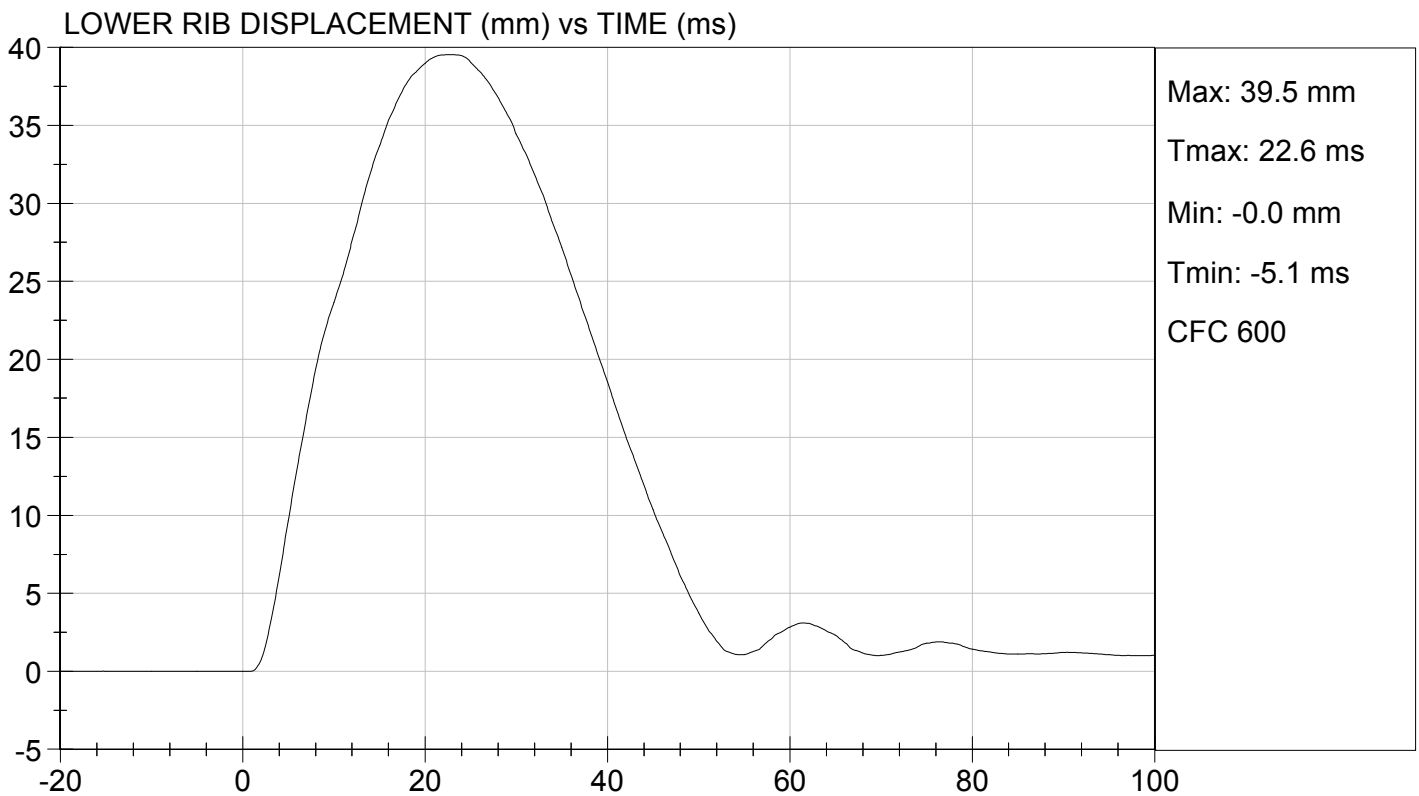
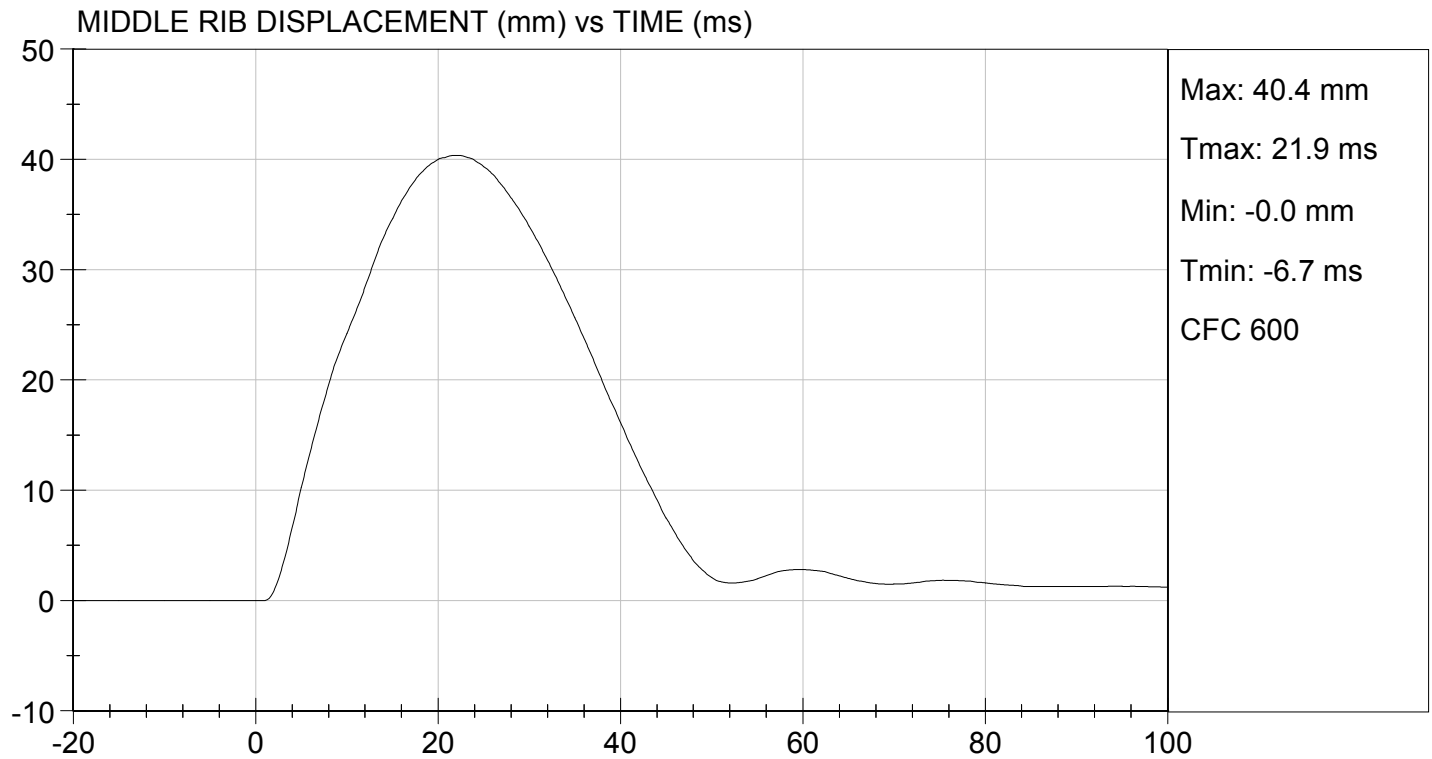
TEST DATE: 03/03/2014
TEST #: D14775





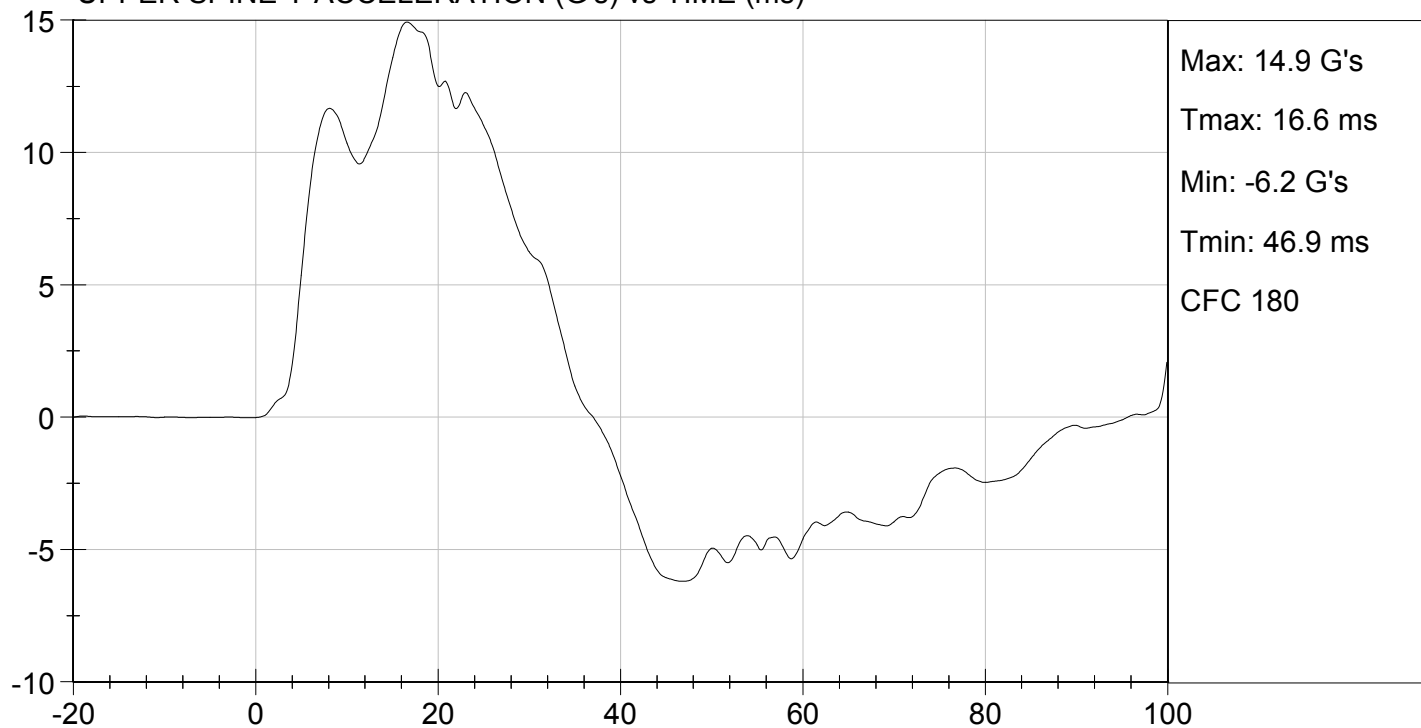
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 03/03/2014
TEST #: D14775

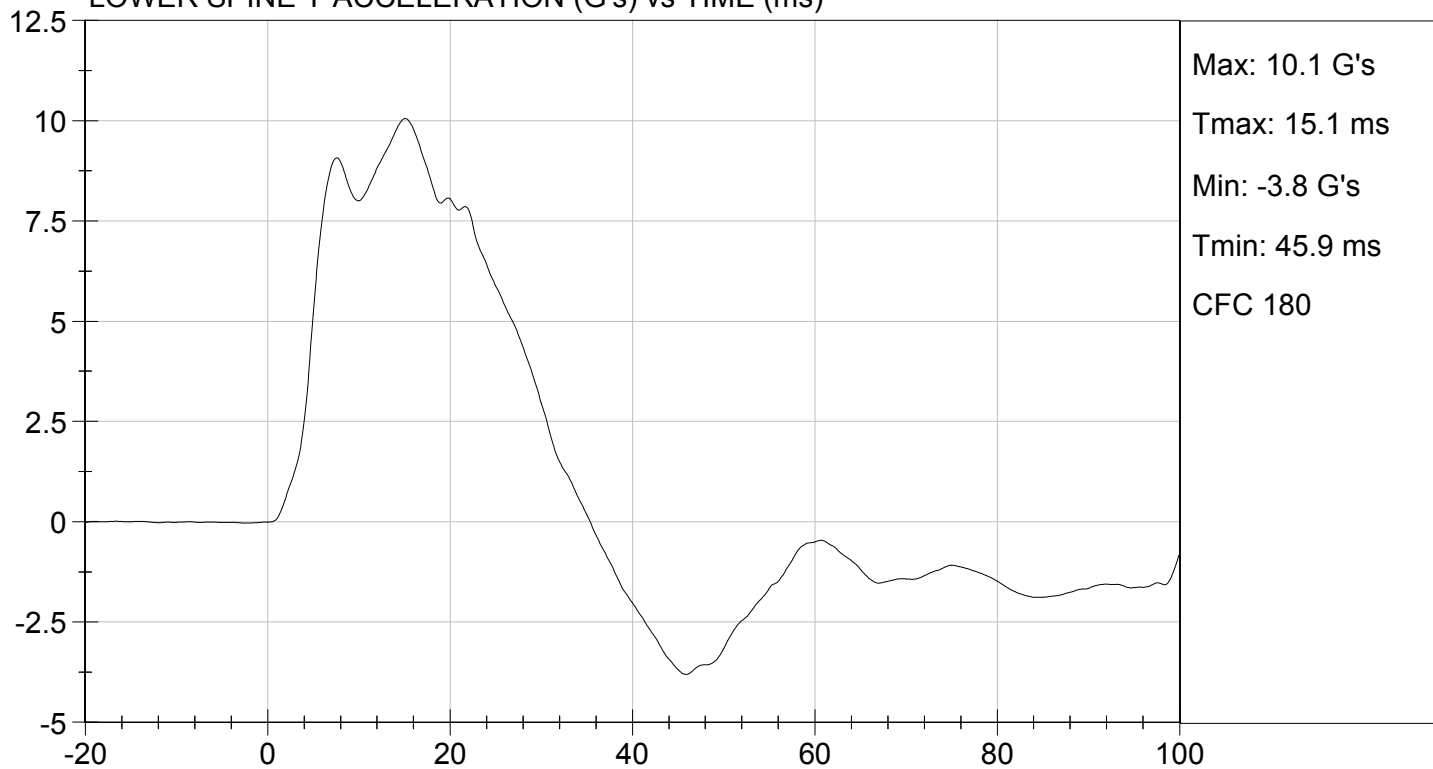




UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)



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



MGA RESEARCH CORPORATION

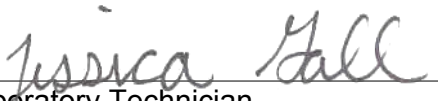
ABDOMINAL IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D14776

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.7	Pass
Humidity	%	10 to 70	12	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	12 to 16	13	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	42	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	39	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
Overall Test Results				Pass


Laboratory Technician

03/03/2014

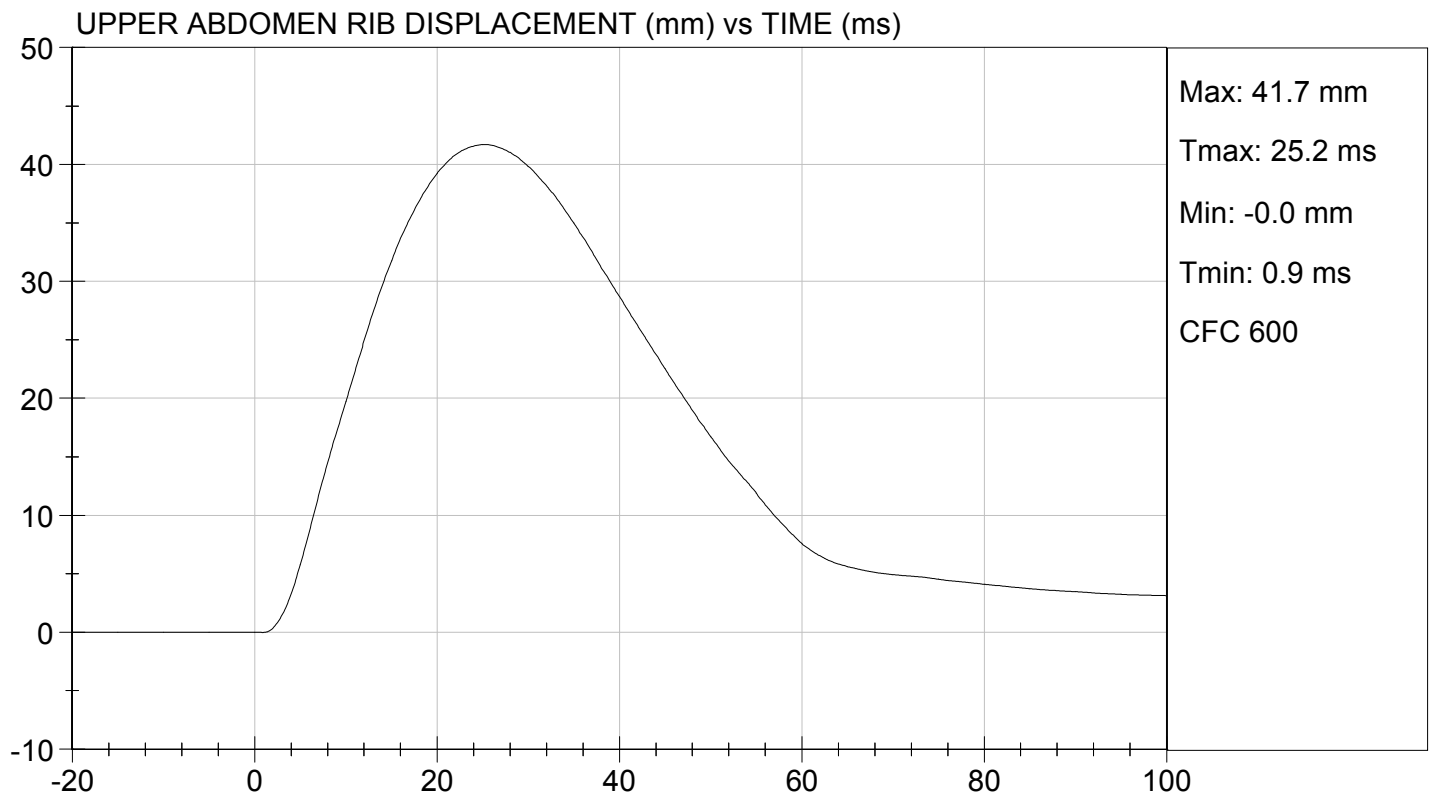
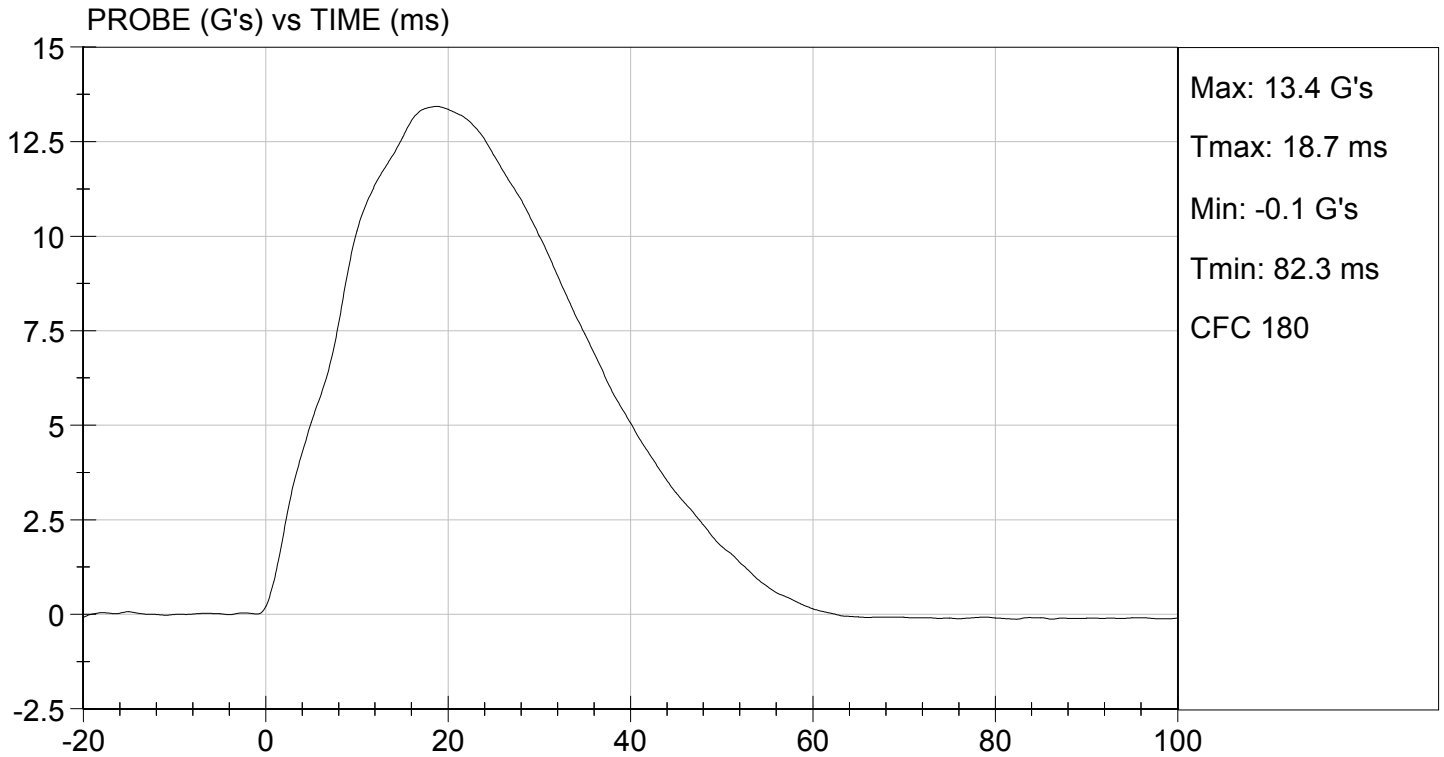
Test Date


Approved By



TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 03/03/2014
TEST #: D14776

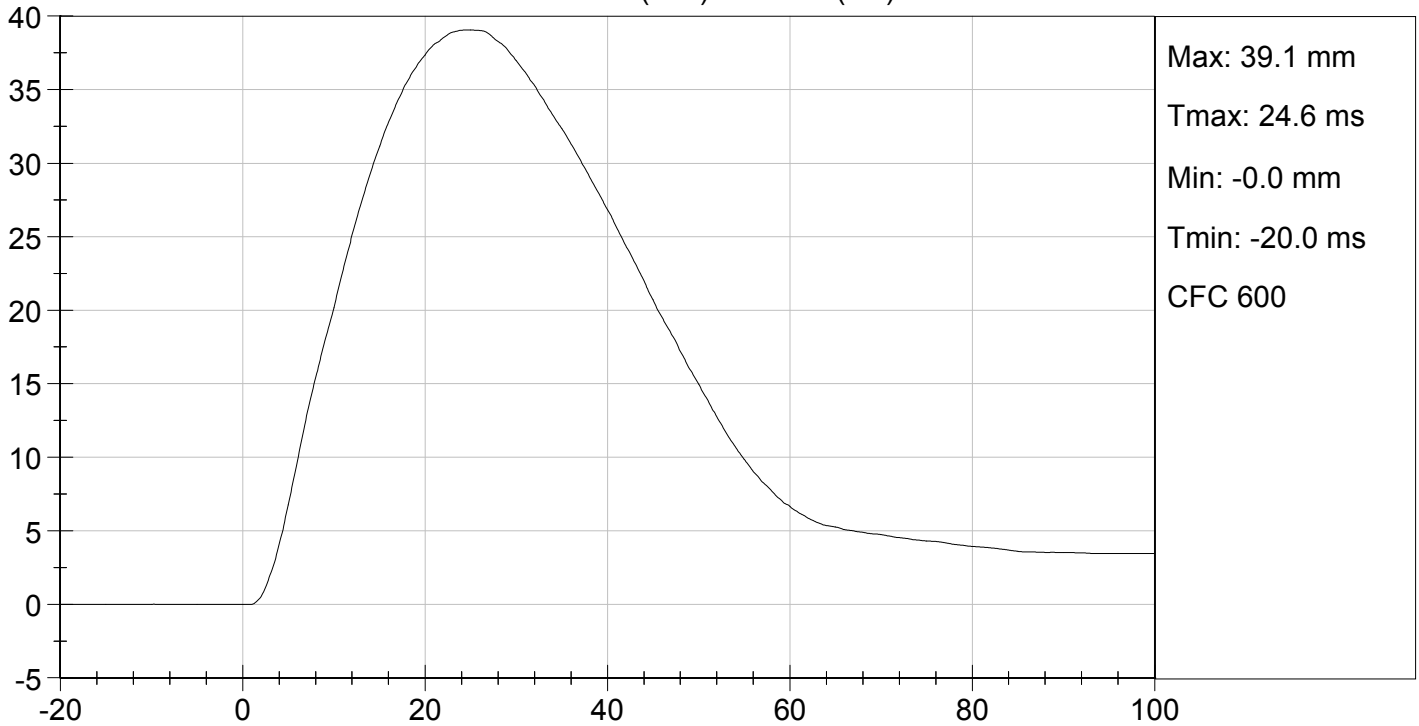




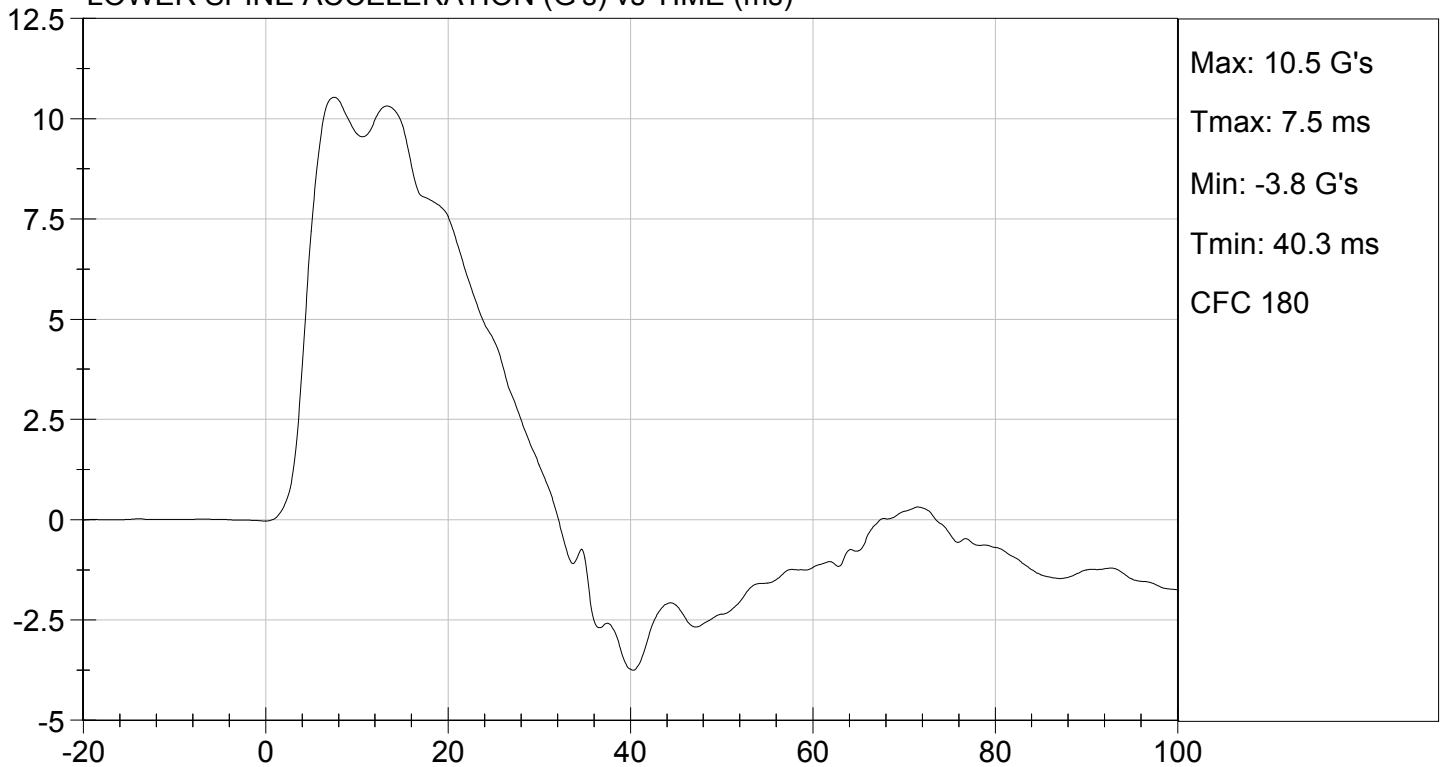
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 03/03/2014
TEST #: D14776

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



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



MGA RESEARCH CORPORATION

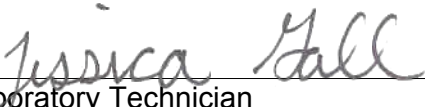
PELVIS IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D14777

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.7	Pass
Humidity	%	10 to 70	12	Pass
Impact Velocity	m/s	6.60 to 6.80	6.60	Pass
Maximum Probe Acceleration	G's	38 to 47	43	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	40	Pass
Peak Acetabulum Force	N	3600 to 4300	3,957	Pass
Overall Test Results				Pass


Laboratory Technician

03/03/2014

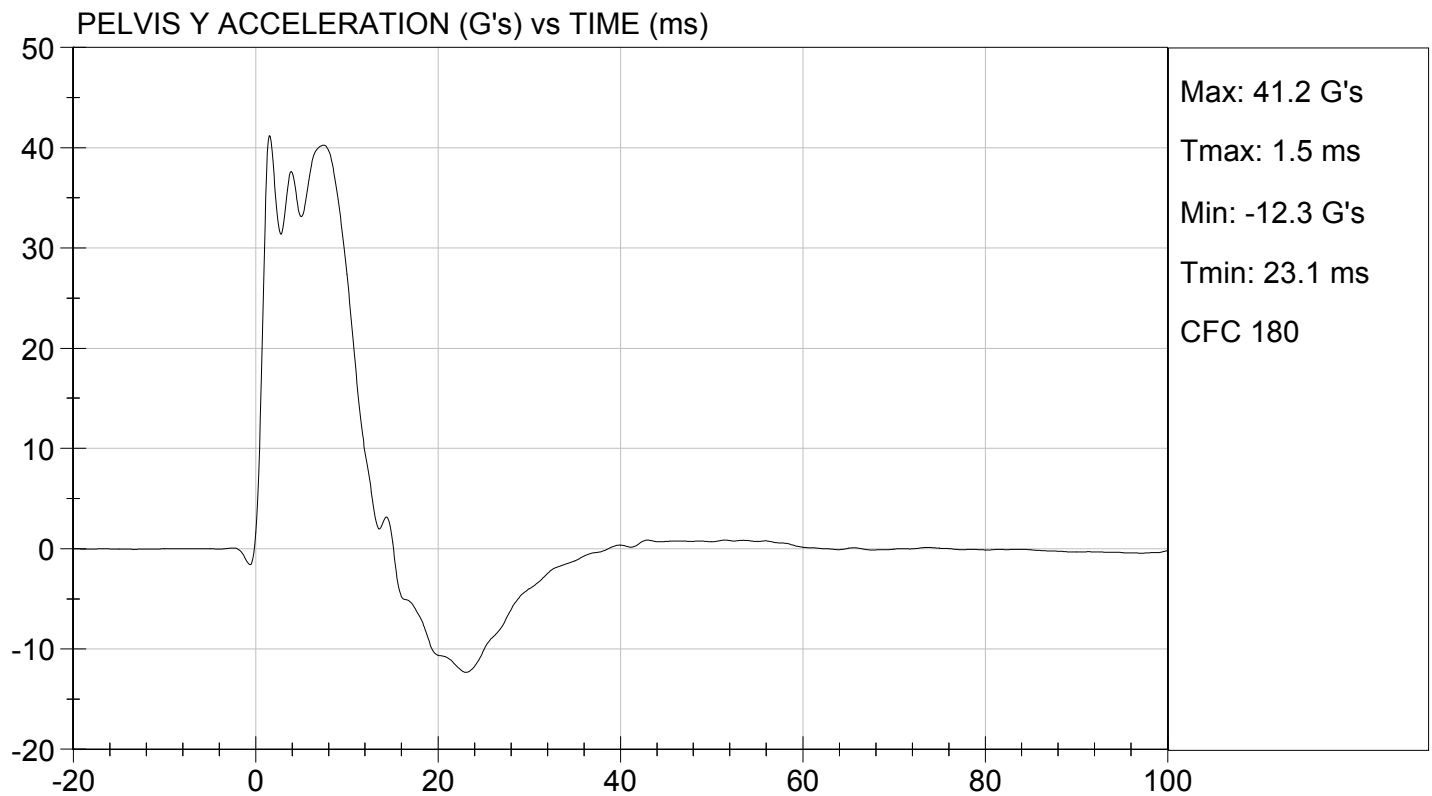
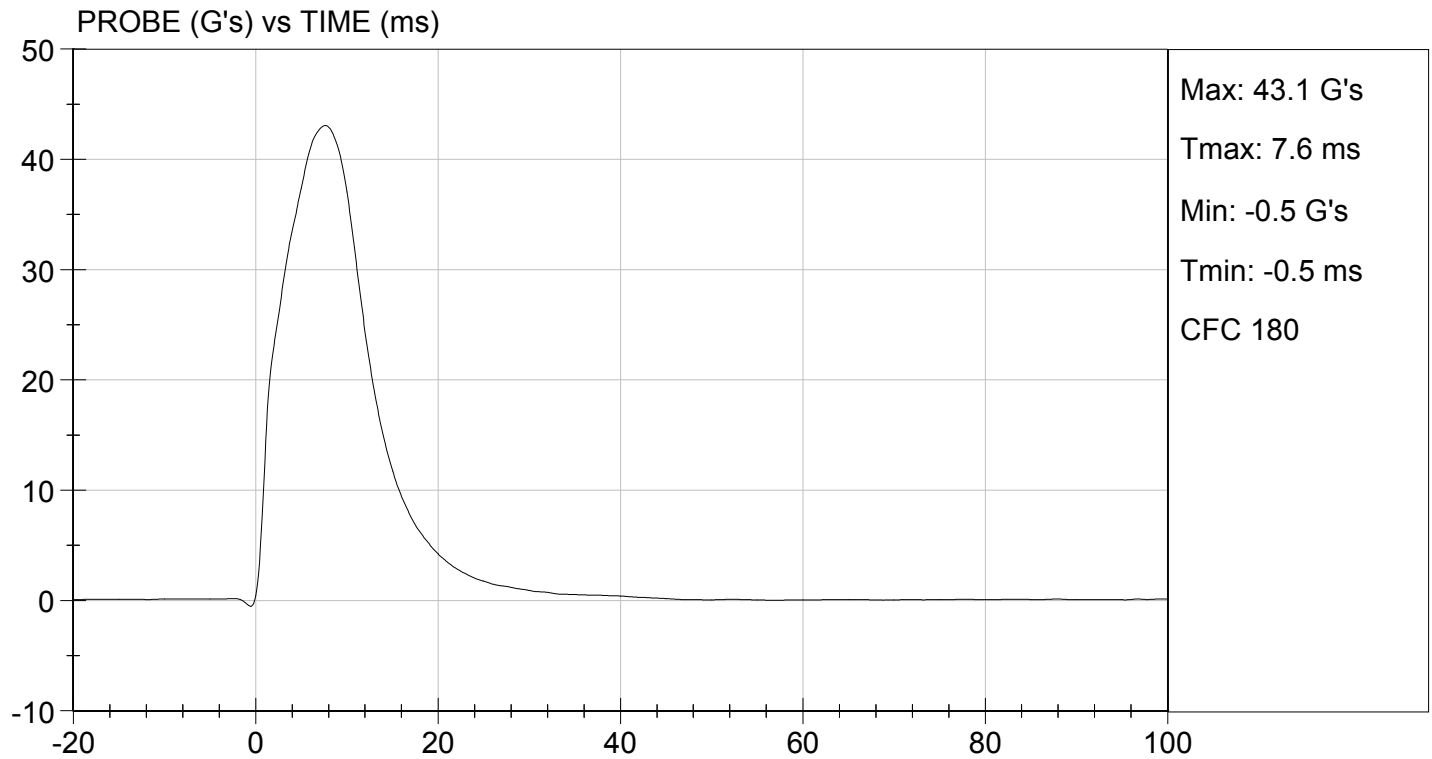
Test Date


Approved By



TEST DESC: PELVIS IMPACT
VELOCITY: 21.65 ft/s, 6.60 m/s

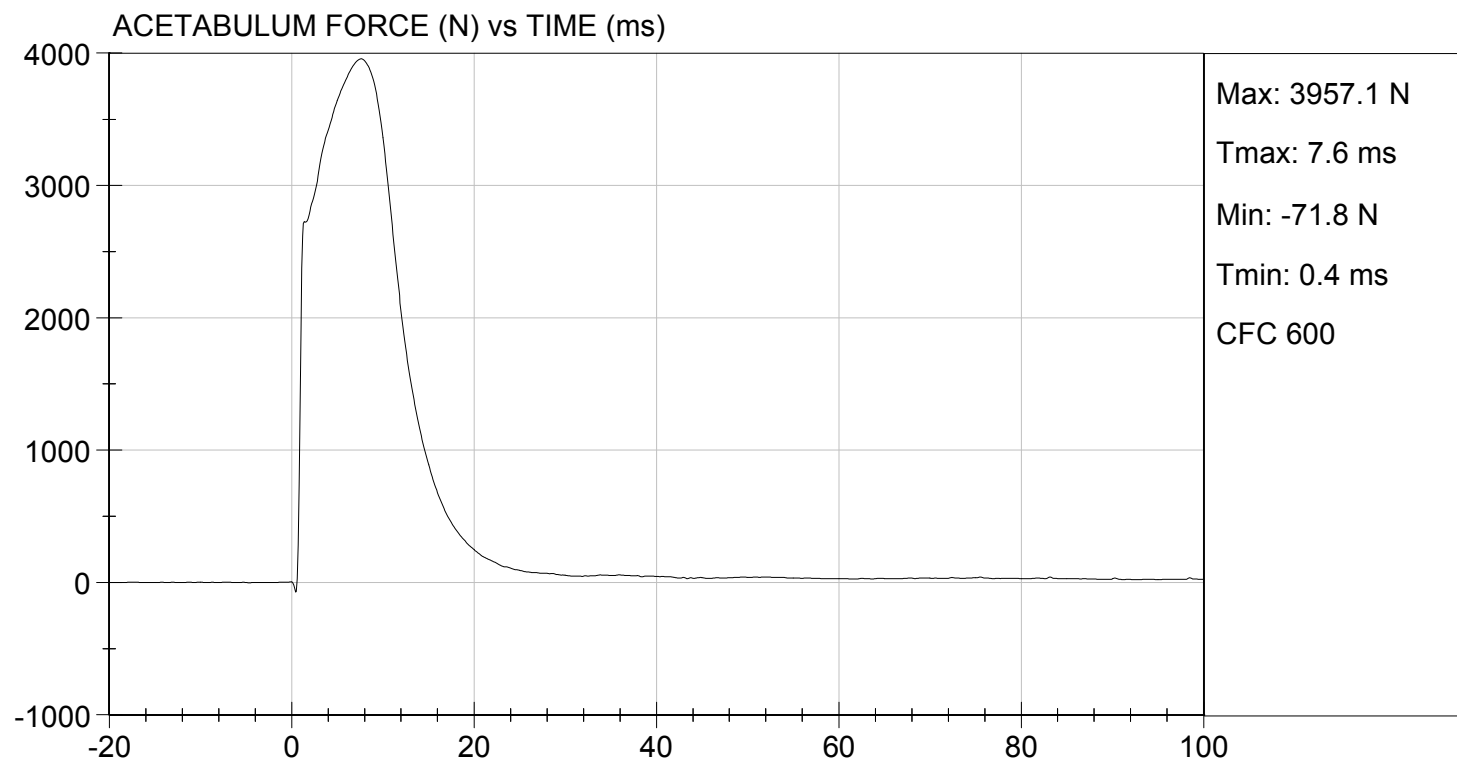
TEST DATE: 03/03/2014
TEST #: D14777





TEST DESC: PELVIS IMPACT
VELOCITY: 21.65 ft/s, 6.60 m/s

TEST DATE: 03/03/2014
TEST #: D14777



MGA RESEARCH CORPORATION

ILIAC IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D14778

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.7	Pass
Humidity	%	10 to 70	12	Pass
Impact Velocity	m/s	4.20 to 4.40	4.27	Pass
Maximum Probe Acceleration	G's	36 to 45	41	Pass
Pelvis Y Acceleration	G's	28 to 39	35	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,860	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

03/03/2014

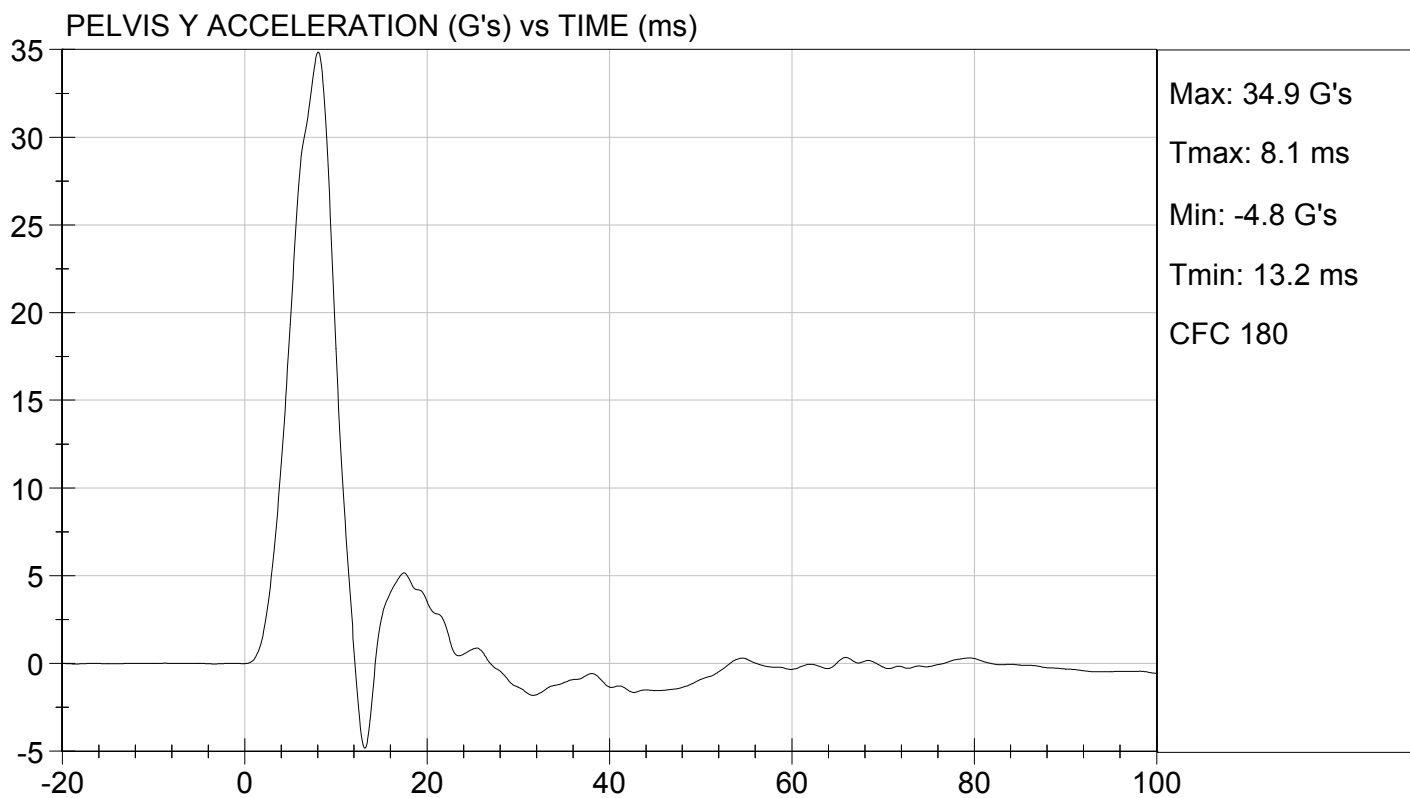
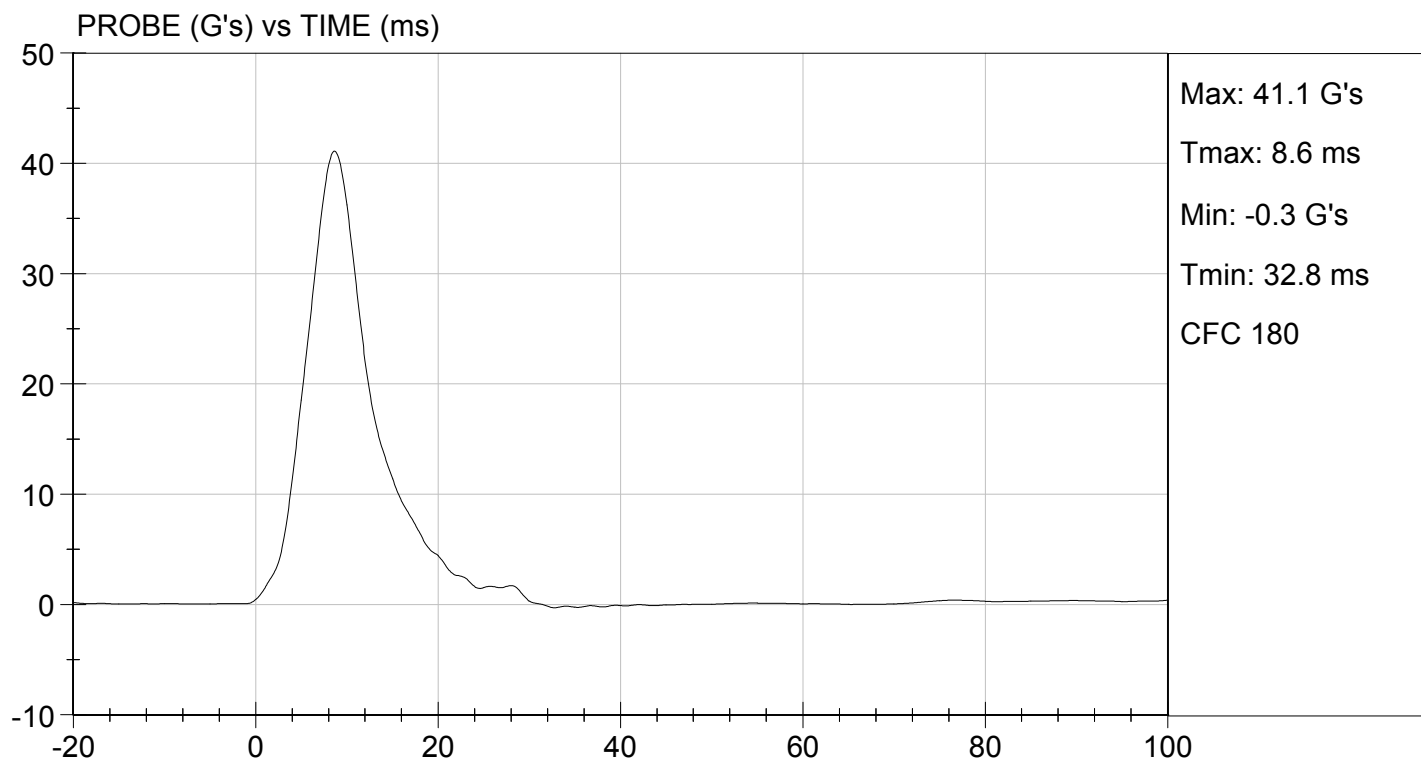
Test Date

David Winkelbauer
Approved By



TEST DESC: ILLIAC
VELOCITY: 14.01 ft/s, 4.27 m/s

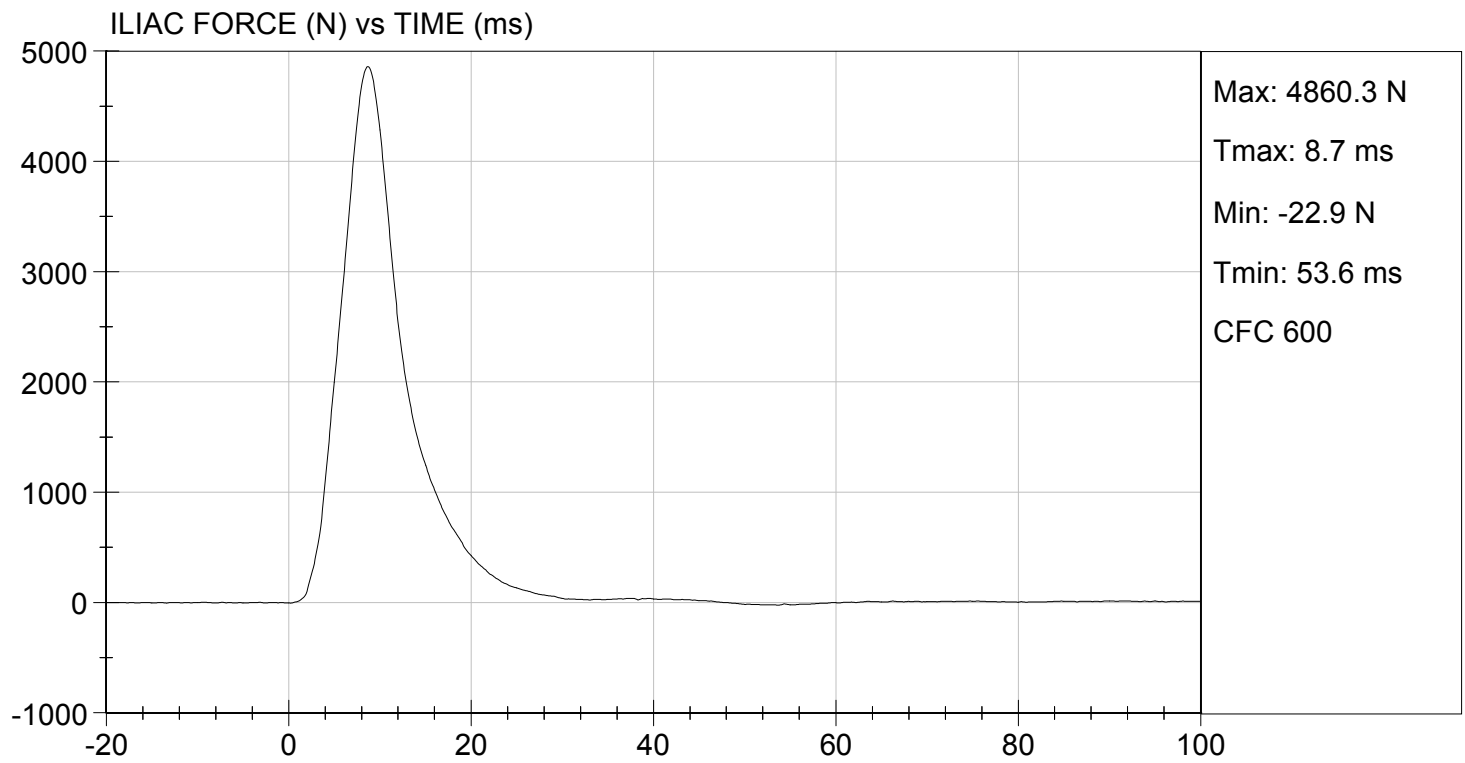
TEST DATE: 03/03/2014
TEST #: D14778





TEST DESC: ILLIAC
VELOCITY: 14.01 ft/s, 4.27 m/s

TEST DATE: 03/03/2014
TEST #: D14778



SID-IIsD External Measurements
SN: 306

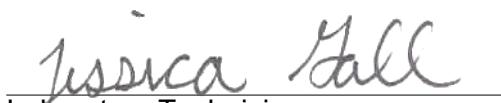
No.	Name	Spec. (mm)	Result	Pass/Fail
A	Sitting Height	772 - 788	785	Pass
B	Shoulder Pivot Height	437 - 453	449	Pass
C	H-point Height	79 - 89	86	Pass
D	H-point from Seatback	141 - 151	147	Pass
E	Shoulder Pivot from Backline	97 - 107	99	Pass
F	Thigh Clearance	119 -135	120	Pass
G	Head Breadth	140 - 148	141	Pass
H	Head Back from Backline	40 - 46	45	Pass
I	Head Depth	178 - 188	182	Pass
J	Head Circumference	541 - 551	550	Pass
K	Buttock to Knee Length	514 - 540	538	Pass
L	Popliteal Height	343 - 369	349	Pass
M	Knee Pivot to Floor Height	392 - 409	394	Pass
N	Buttock Popliteal Length	416 - 442	435	Pass
O	Chest Depth w/o Jacket	195 - 211	198	Pass
P	Foot Length	216 - 232	222	Pass
Q	Hip Breadth (w/ pelvic plugs)	313 - 323	317	Pass
R	Arm Length	249 - 259	250	Pass
S	Knee Joint to Seatback	477 - 493	483	Pass
V	Shoulder Width	341 - 357	351	Pass
W	Foot Width	78 - 94	82	Pass
Y	Chest Circumference w/ jacket	851 - 881	863	Pass
Z	Waist Circumference	761 - 791	782	Pass

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

ATD Serial No: 306

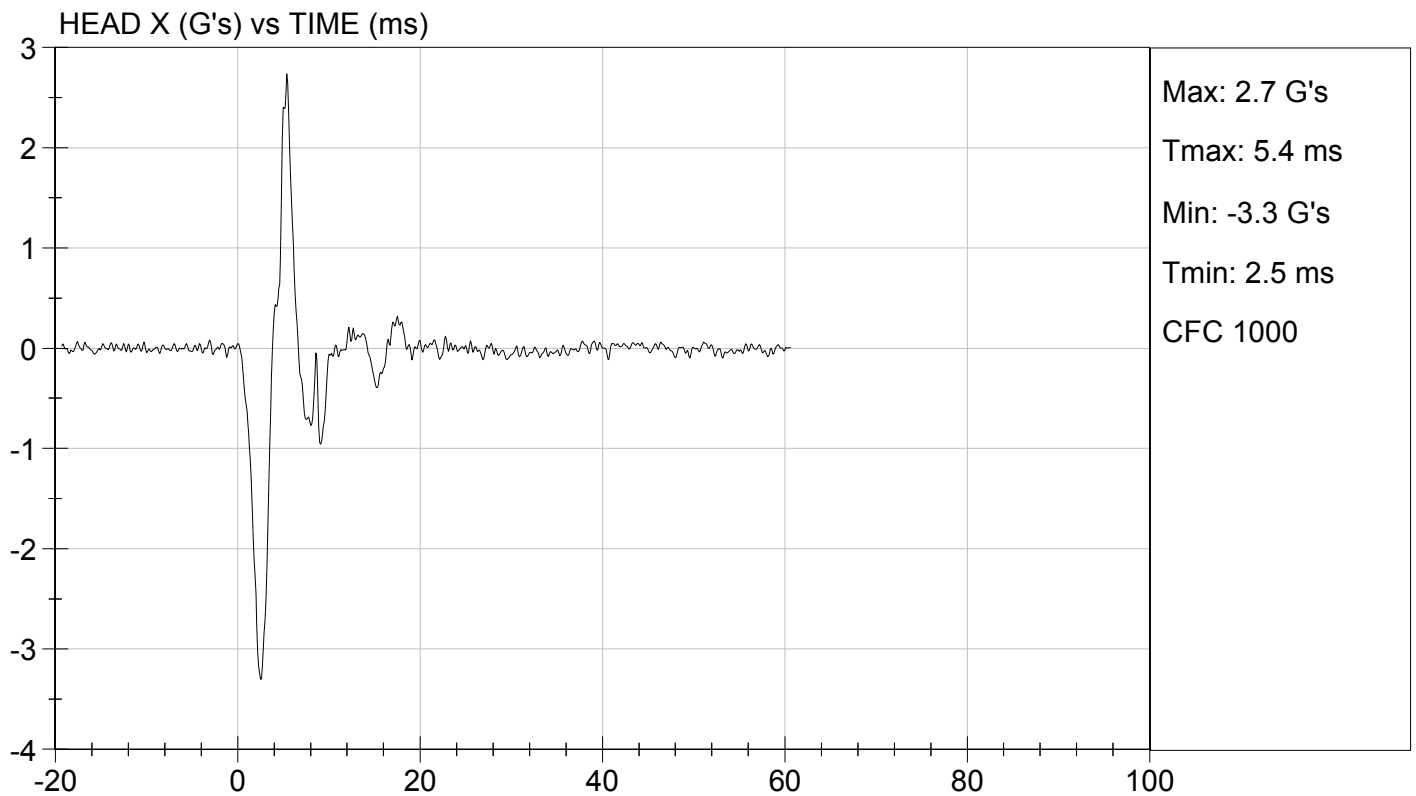
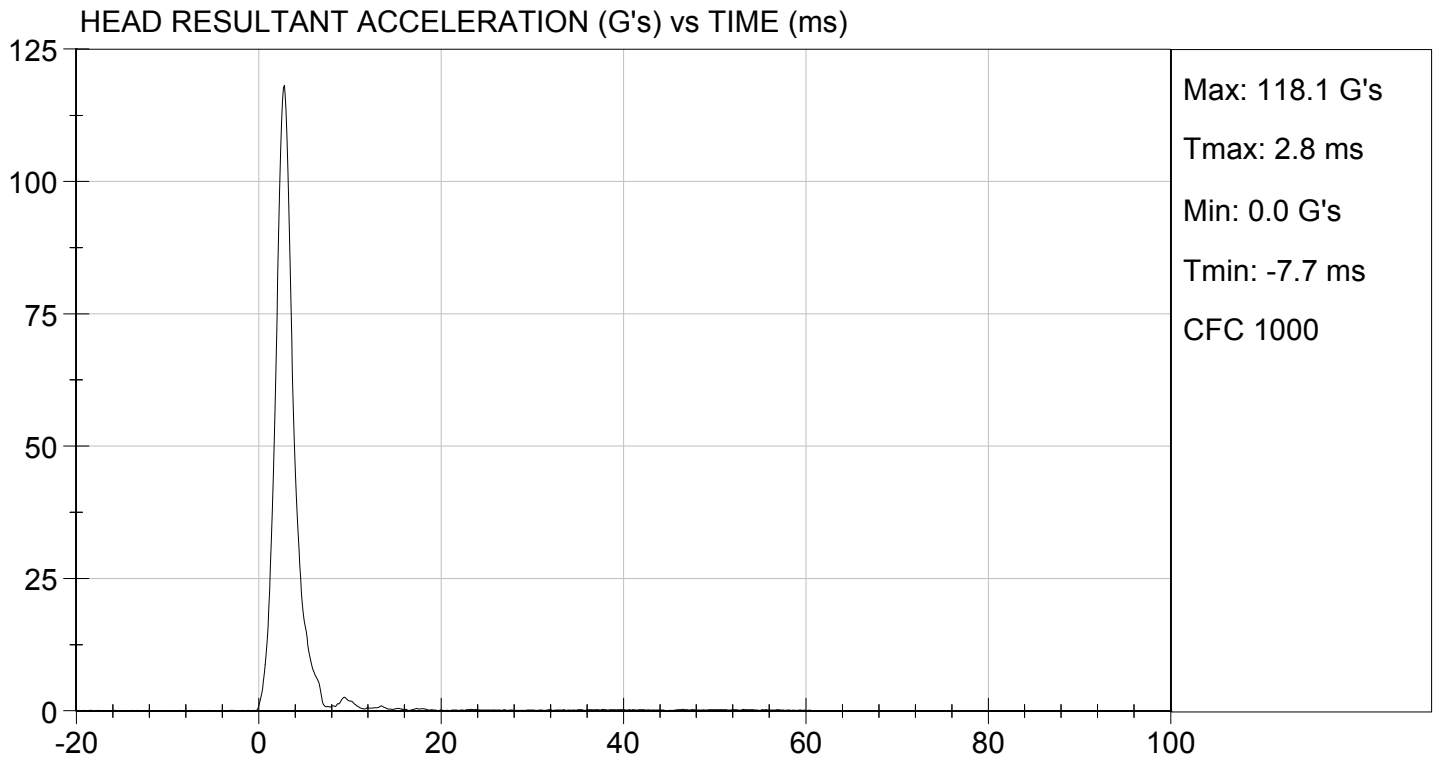
Test ID: D14811

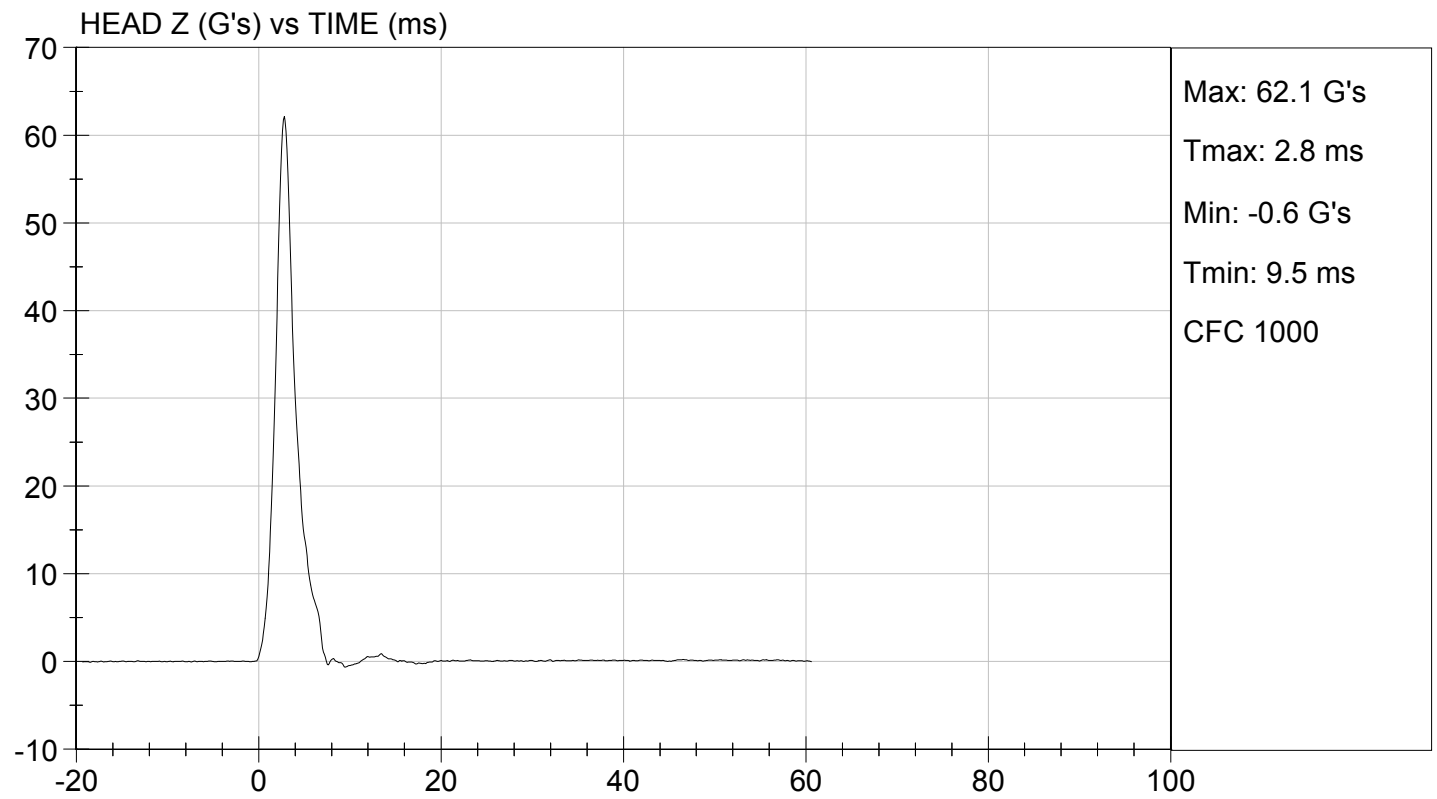
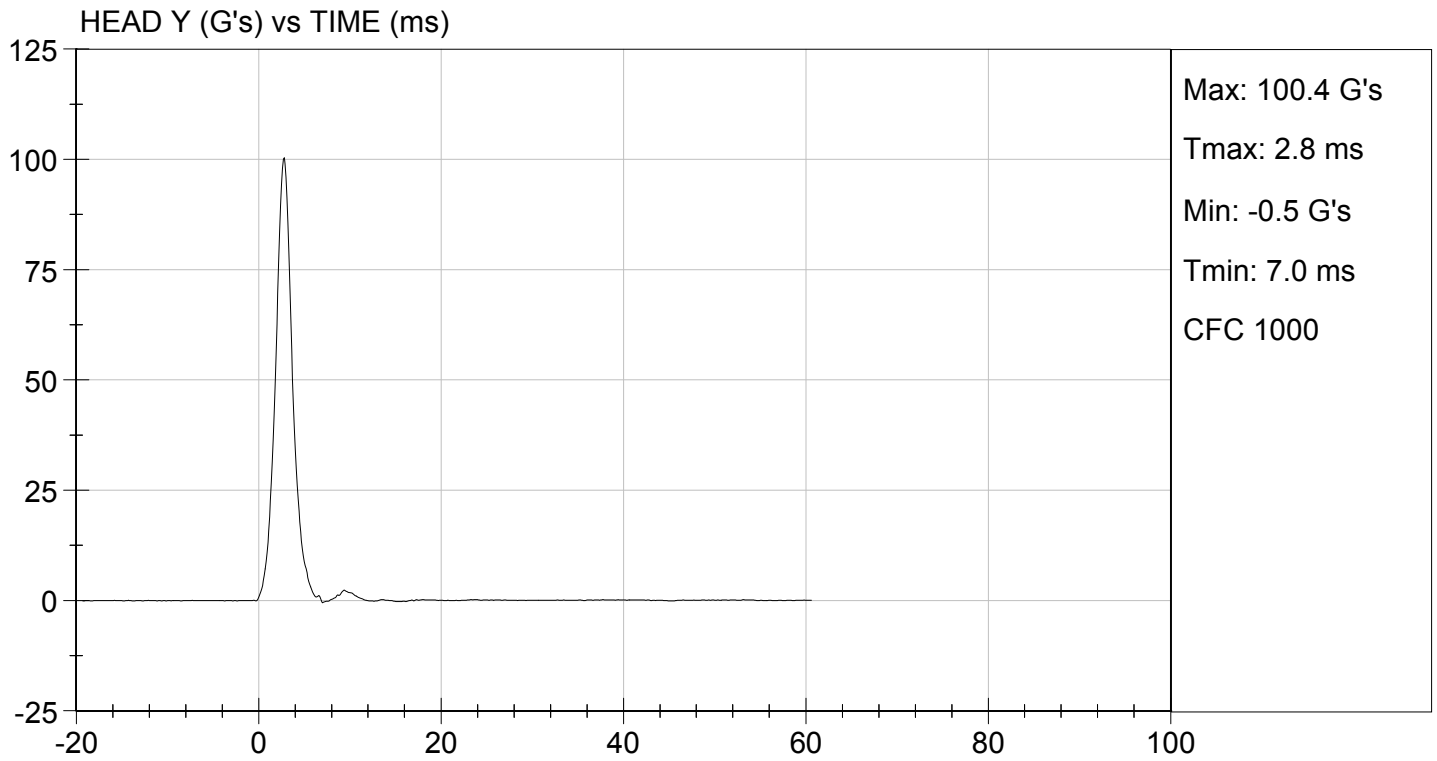
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	17	Pass
Peak Resultant Acceleration	G's	115 to 137	118	Pass
Peak Longitudinal Acceleration	G's	+/- 15	-3.3	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
			Overall Test Results	Pass


Laboratory Technician

03/05/2014
Test Date


Approved By





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

ATD Serial No: 306

Test I.D: D14812

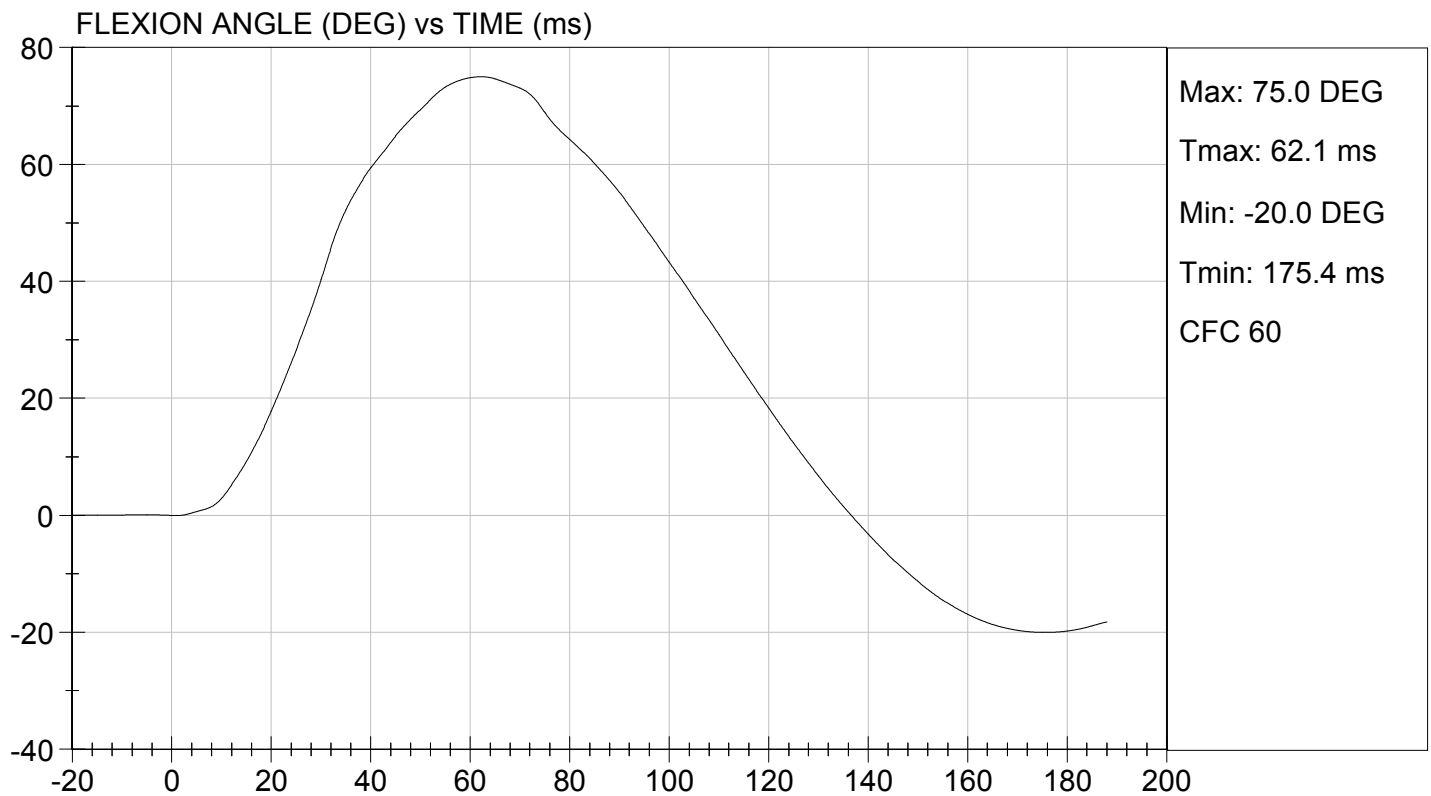
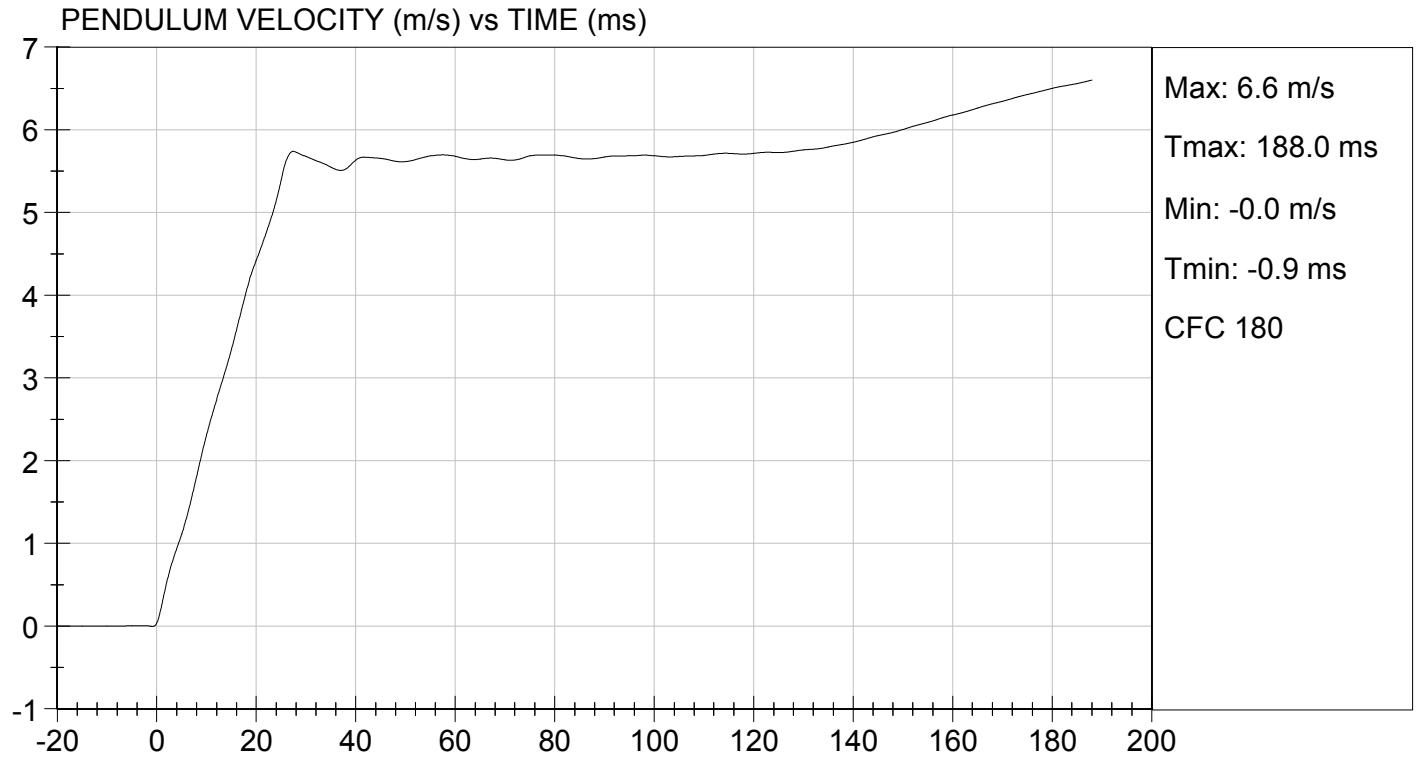
Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.3	Pass
Humidity		%	10 to 70	17	Pass
Impact Velocity		m/s	5.51 to 5.63	5.63	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.32	Pass
	15 ms	m/s	3.30 to 4.10	3.34	Pass
	20 ms	m/s	4.40 to 5.40	4.42	Pass
	25 ms	m/s	5.40 to 6.10	5.40	Pass
	25-100 ms	m/s	5.50 to 6.20	5.74	Pass
Maximum D-Plane Rotation		deg	71 to 81	75	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	62	Pass
Maximum Occipital Condyle Moment		Nm	-44 to -36	-39	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	116	Pass
Overall Test Results				Pass	


 Laboratory Technician

03/05/2014

Test Date

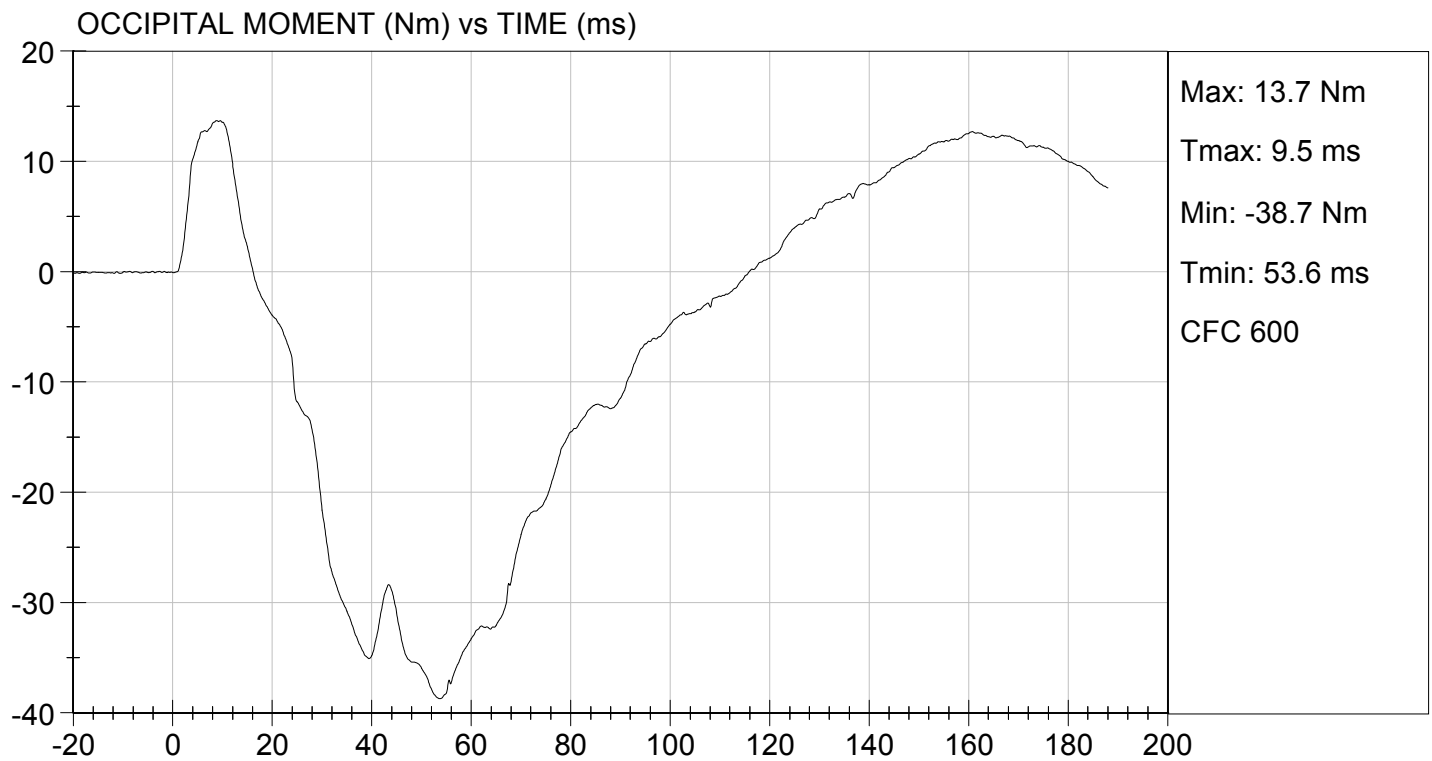

 Approved By





TEST DESC: NECK BENDING
VELOCITY: 18.47 ft/s, 5.63 m/s

TEST DATE: 03/05/2014
TEST #: D14812

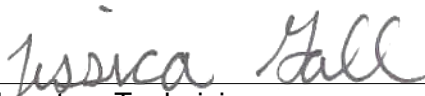


MGA RESEARCH CORPORATION
SHOULDER IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test ID: D14813

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	20.9	Pass
Laboratory Relative Humidity	%	10 to 70	16	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	29	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	18	Pass
Overall Test Results				Pass


Laboratory Technician

03/05/2014

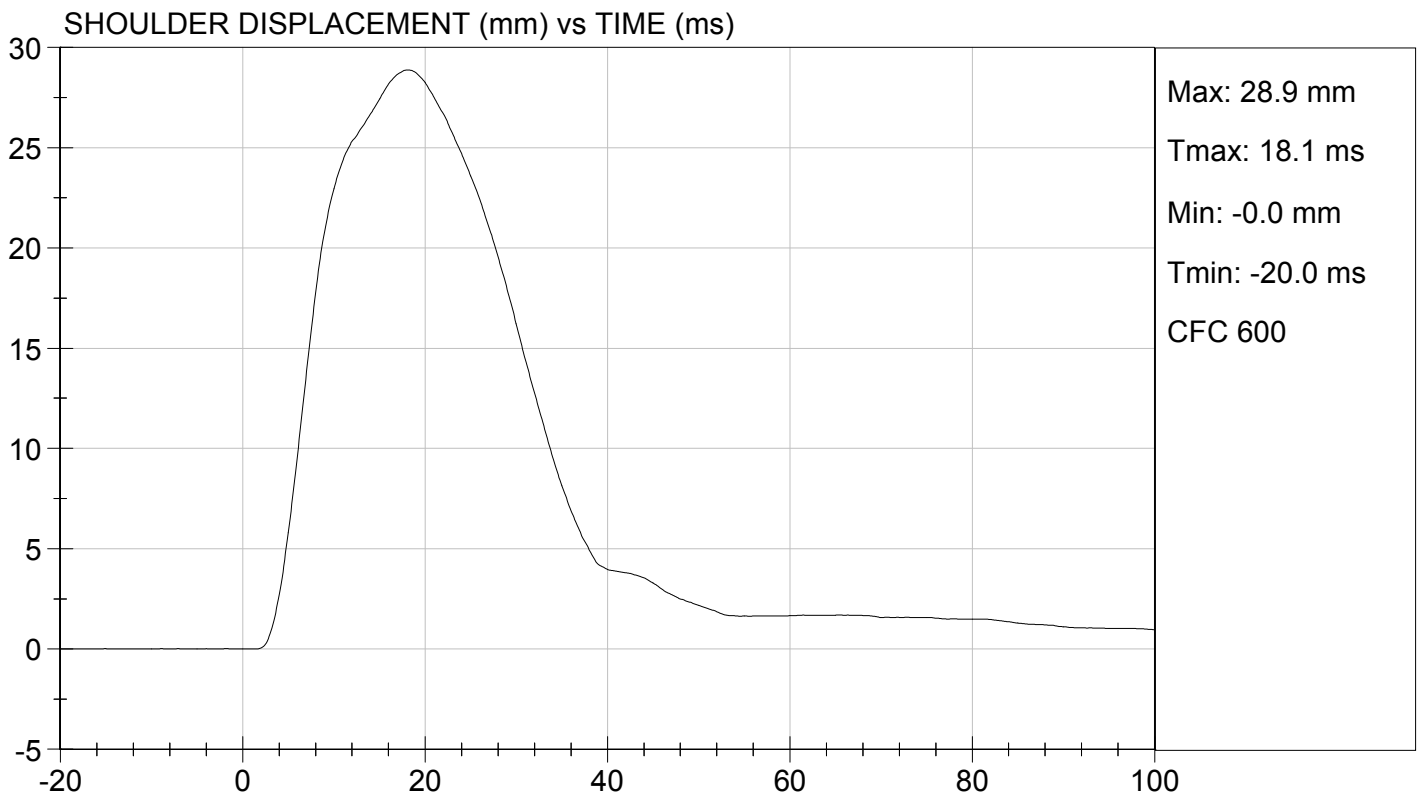
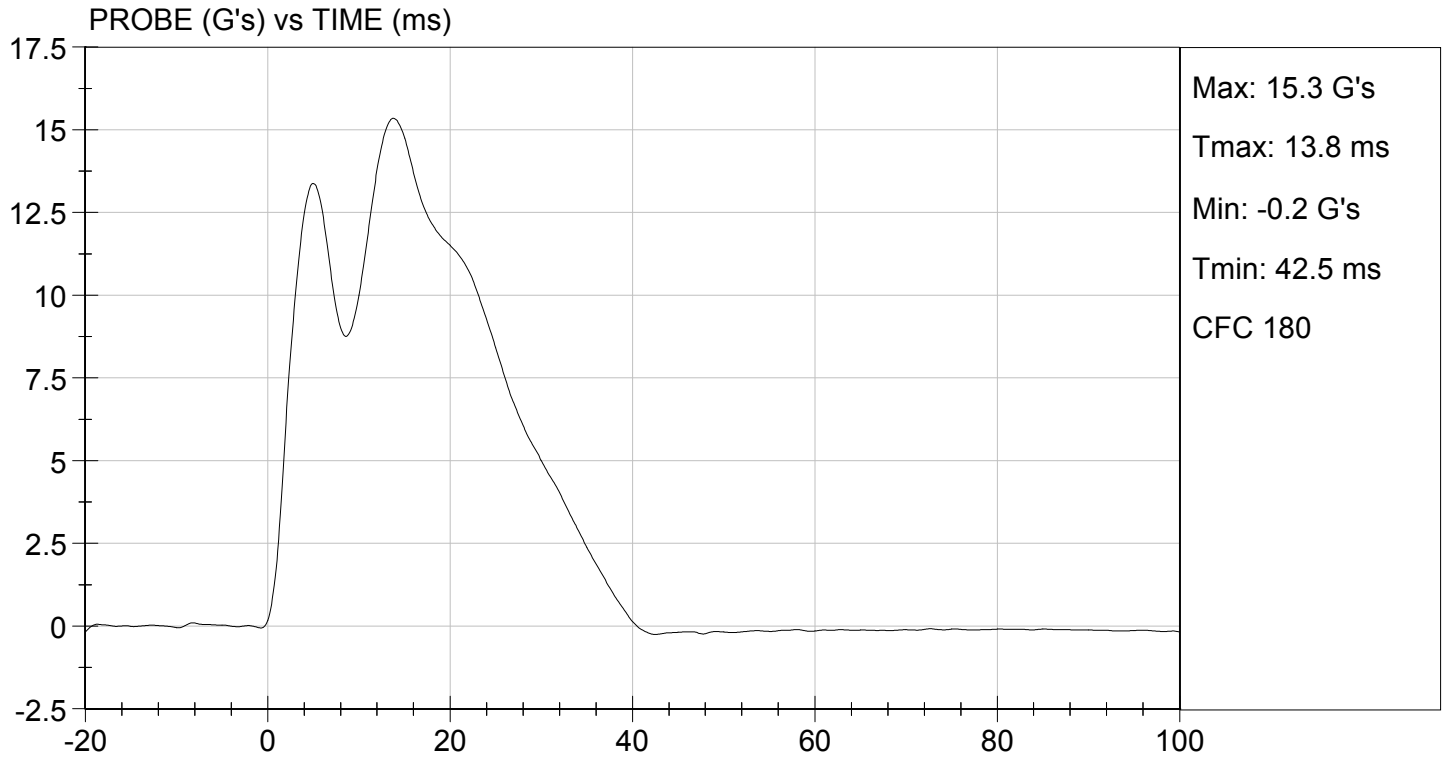
Test Date


Approved By



TEST DESC: SHOULDER IMPACT
VELOCITY: 14.12 ft/s, 4.30 m/s

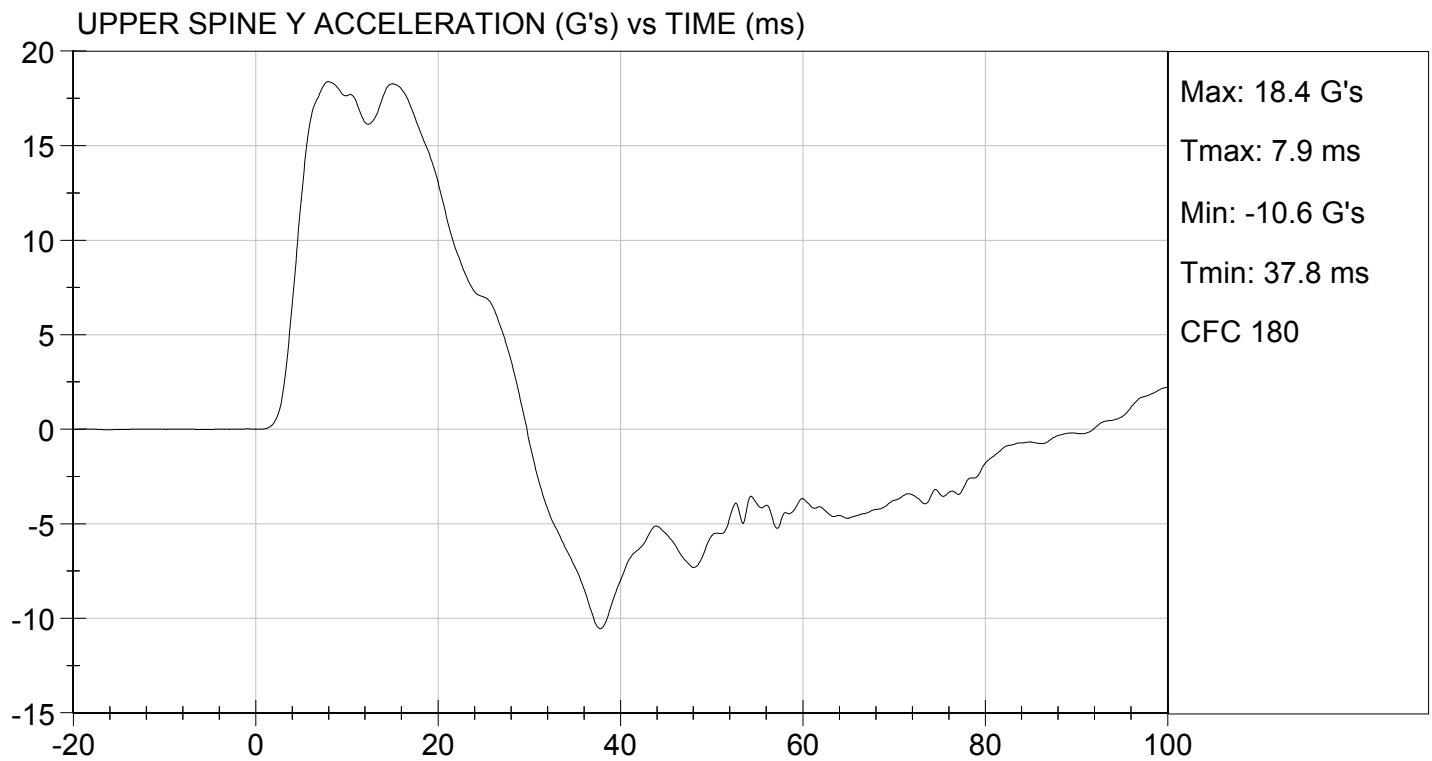
TEST DATE: 03/05/2014
TEST #: D14813





TEST DESC: SHOULDER IMPACT
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 03/05/2014
TEST #: D14813

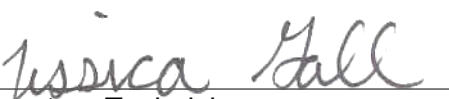


MGA RESEARCH CORPORATION
THORAX (WITH ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

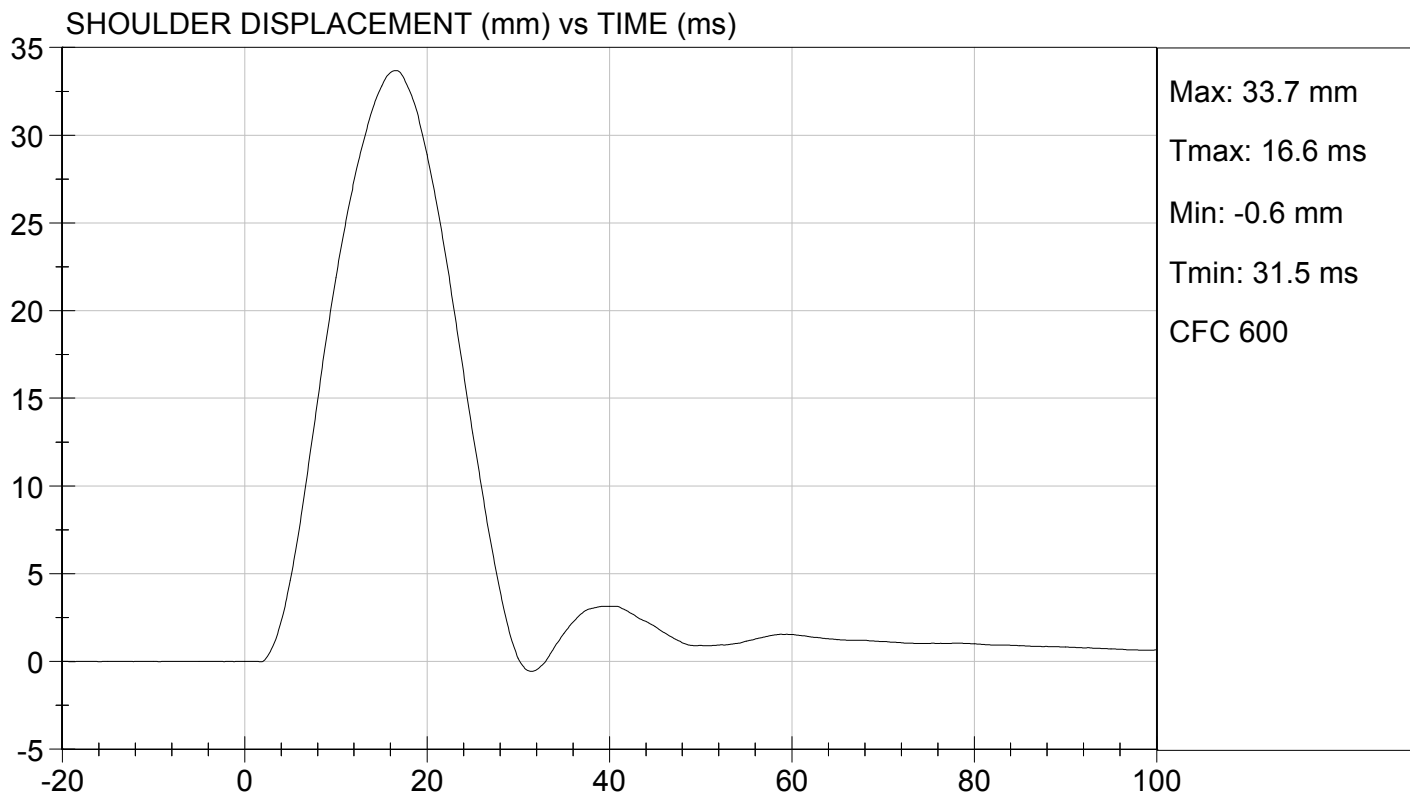
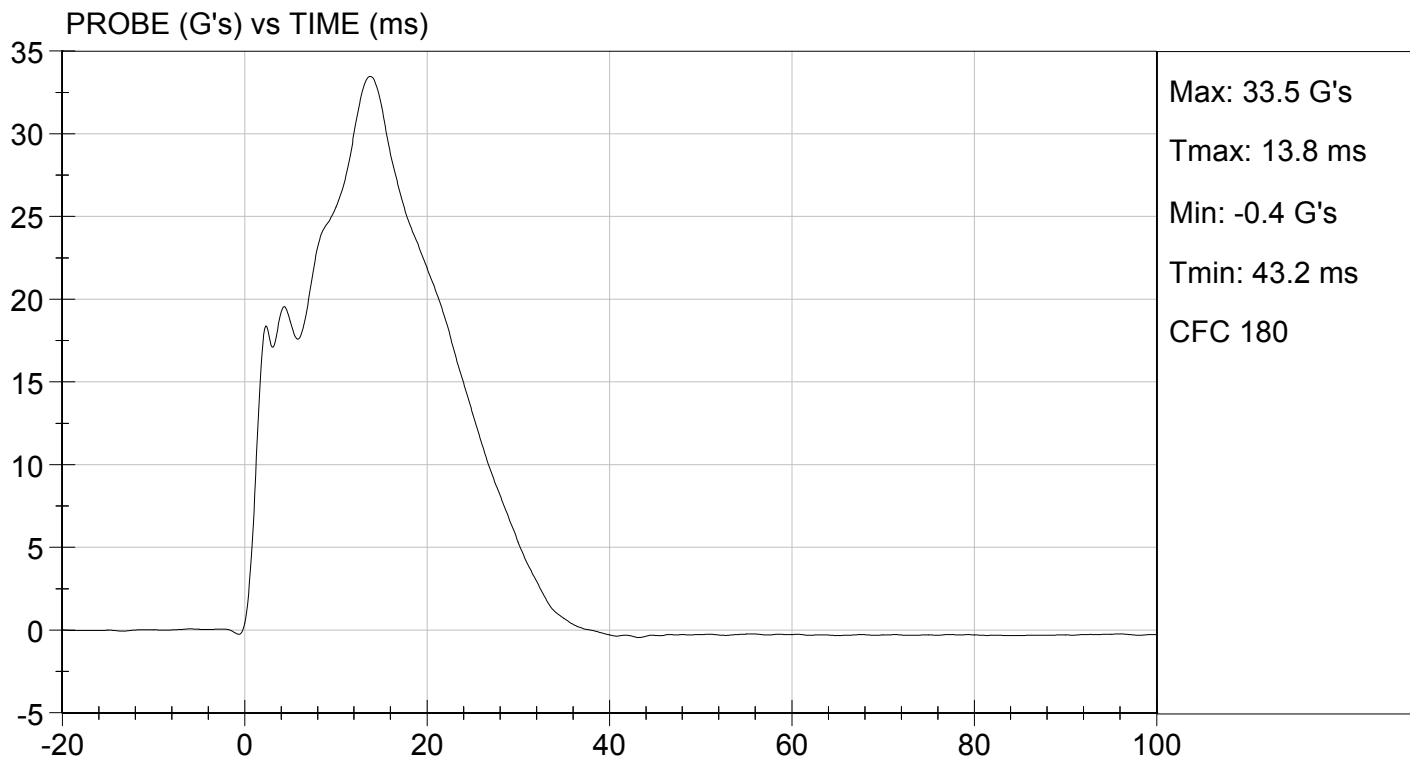
Test I.D: D14814

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.9	Pass
Humidity	%	10 to 70	16	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	30 to 36	33	Pass
Shoulder Displacement	mm	31 to 40	34	Pass
Upper Rib Displacement	mm	25 to 32	26	Pass
Middle Rib Displacement	mm	30 to 36	30	Pass
Lower Rib Displacement	mm	32 to 38	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

03/05/2014
 Test Date

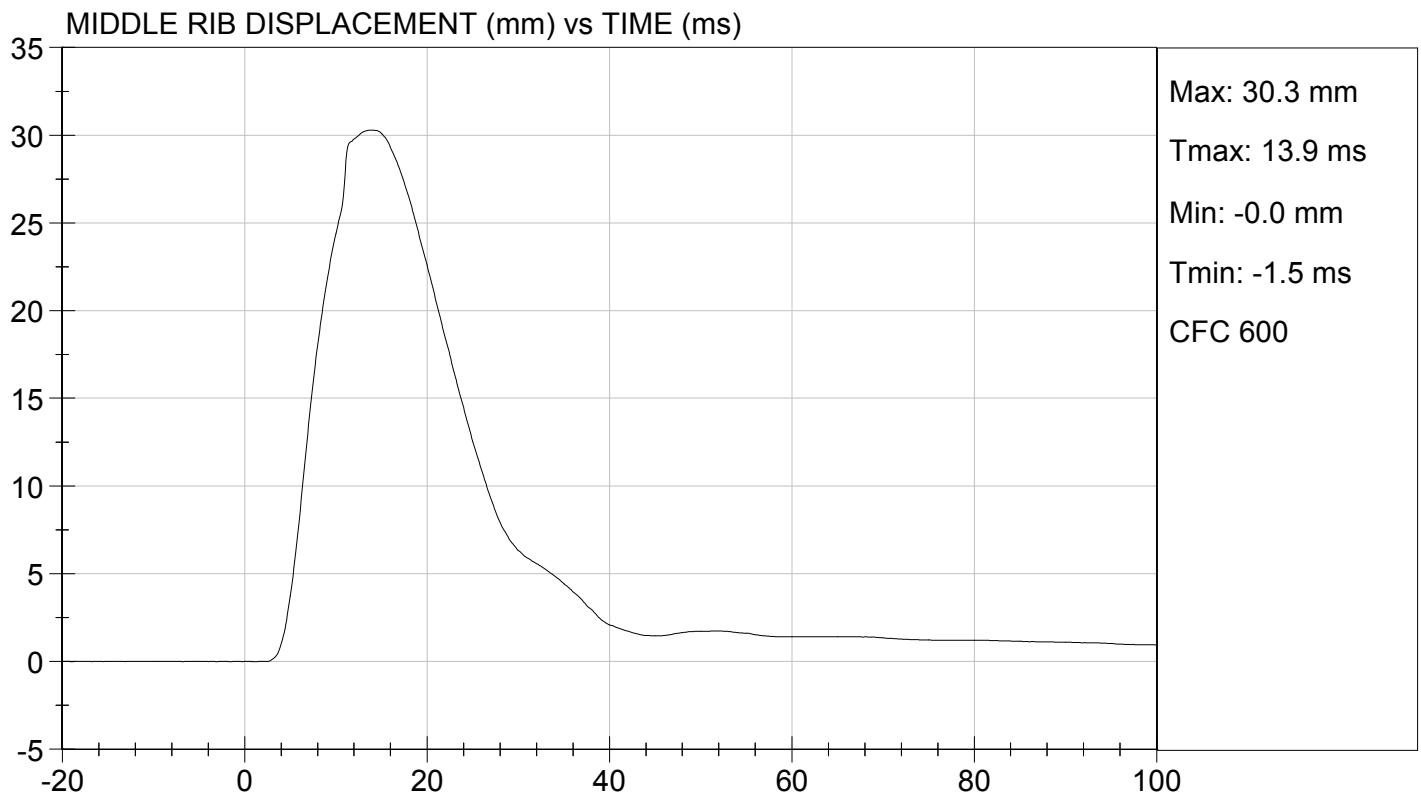
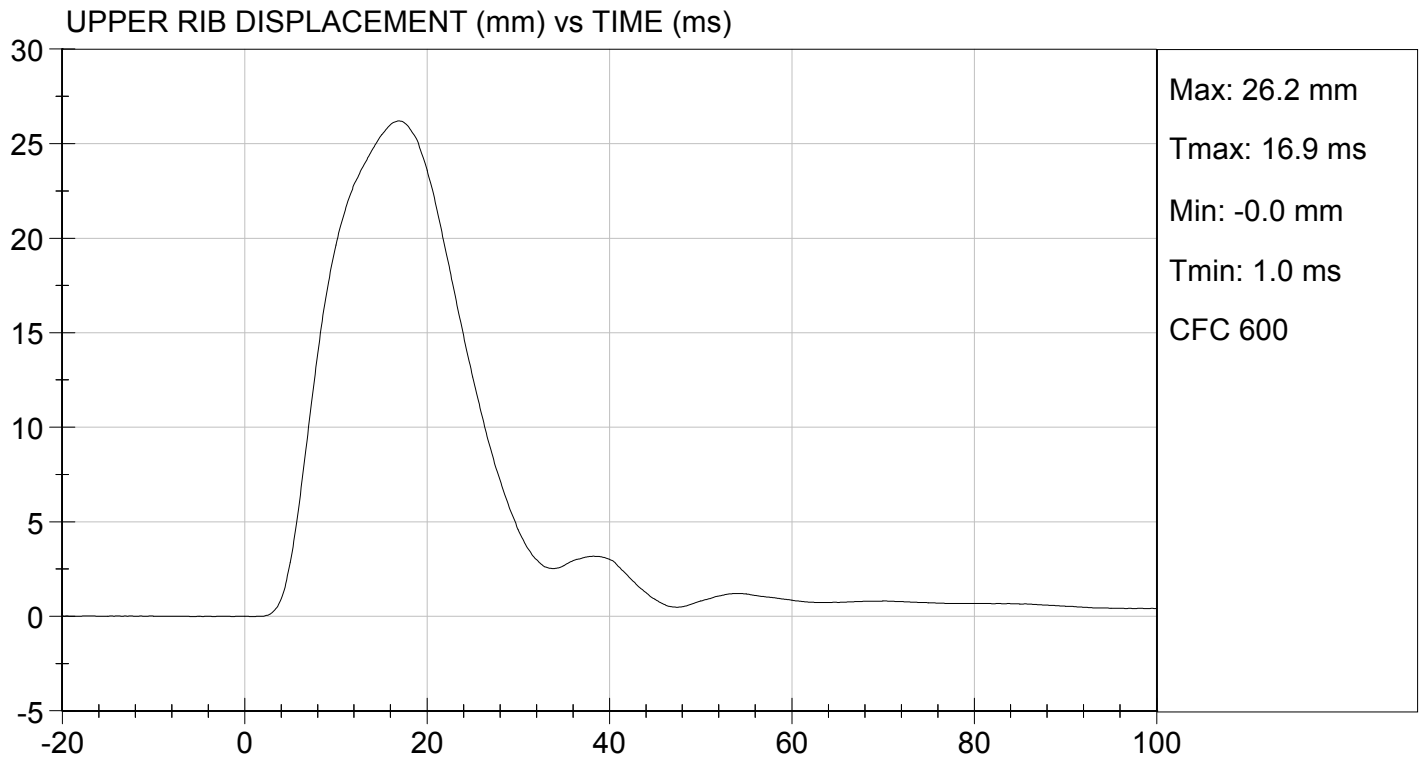

 Approved By





TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 03/05/2014
TEST #: D14814

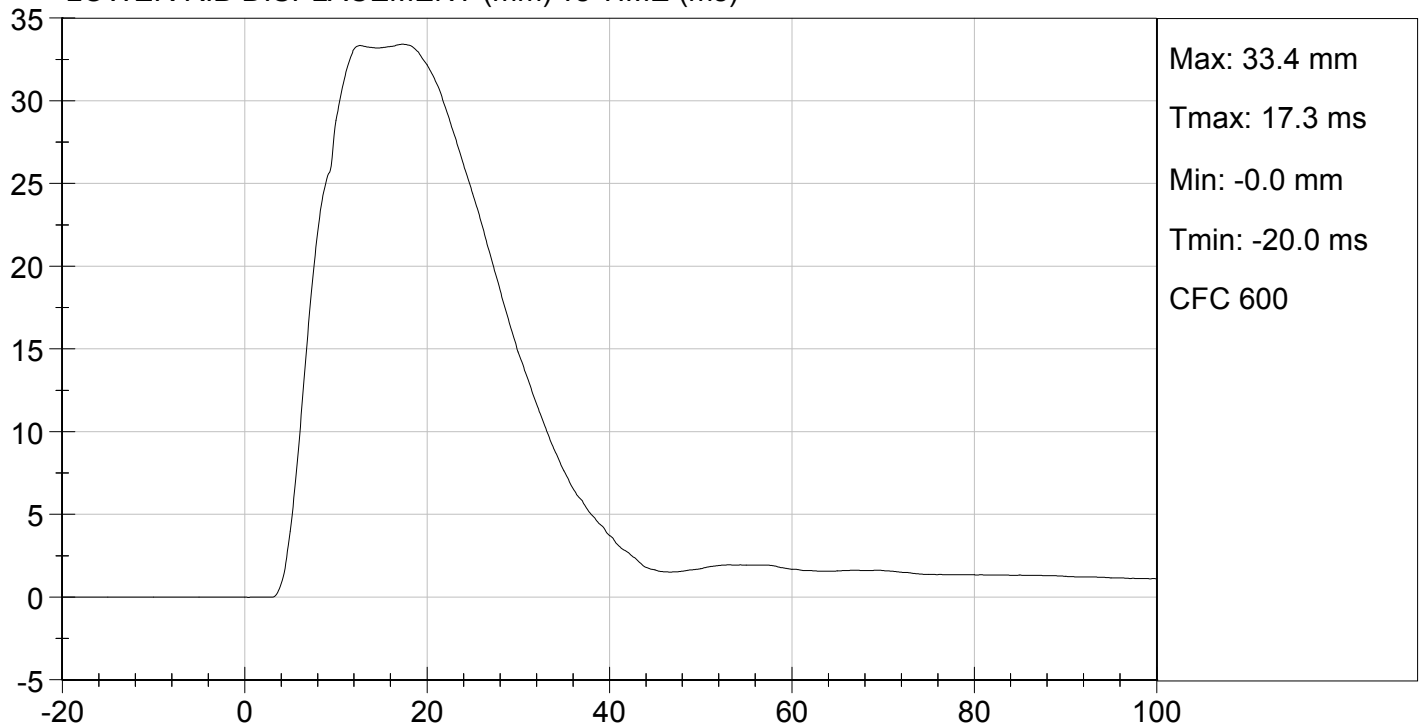




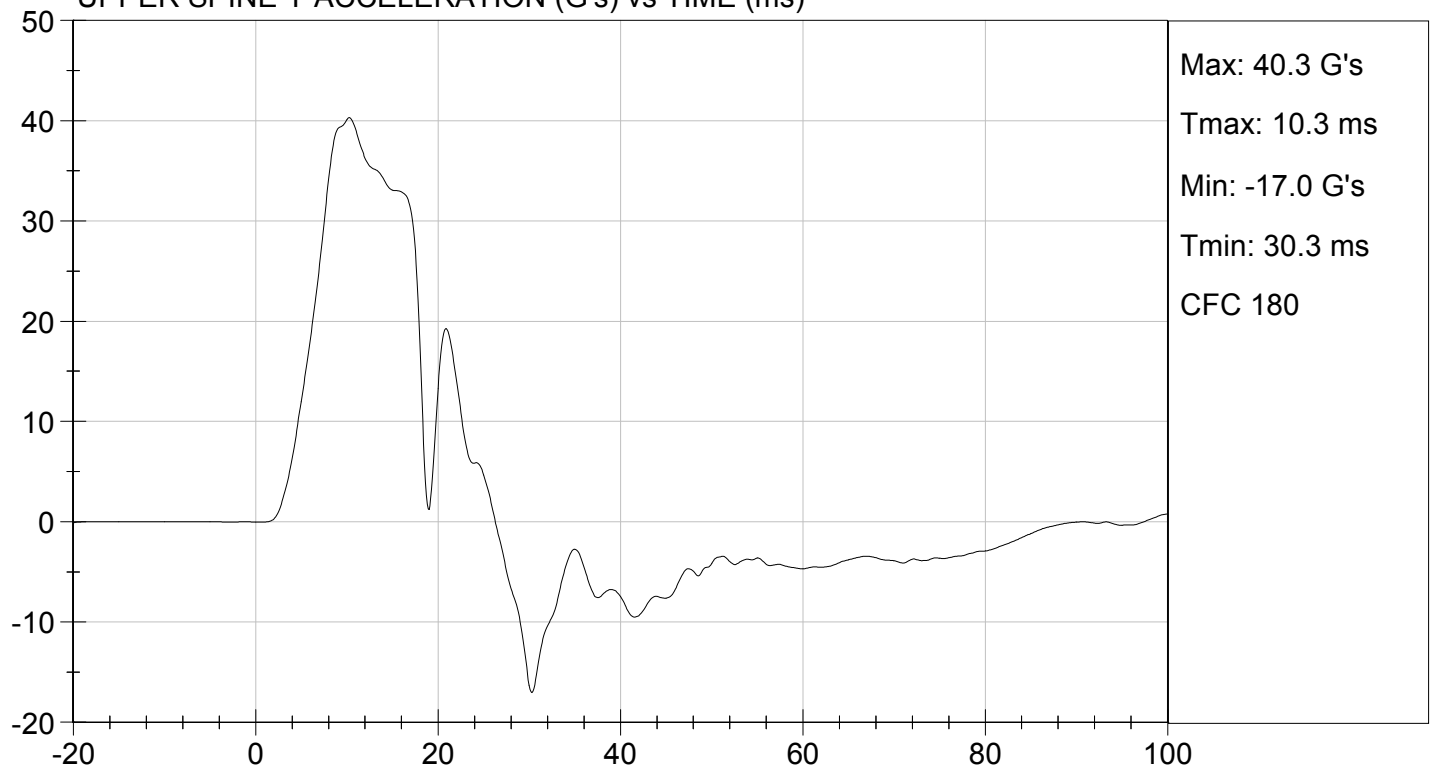
TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 03/05/2014
TEST #: D14814

LOWER RIB DISPLACEMENT (mm) vs TIME (ms)



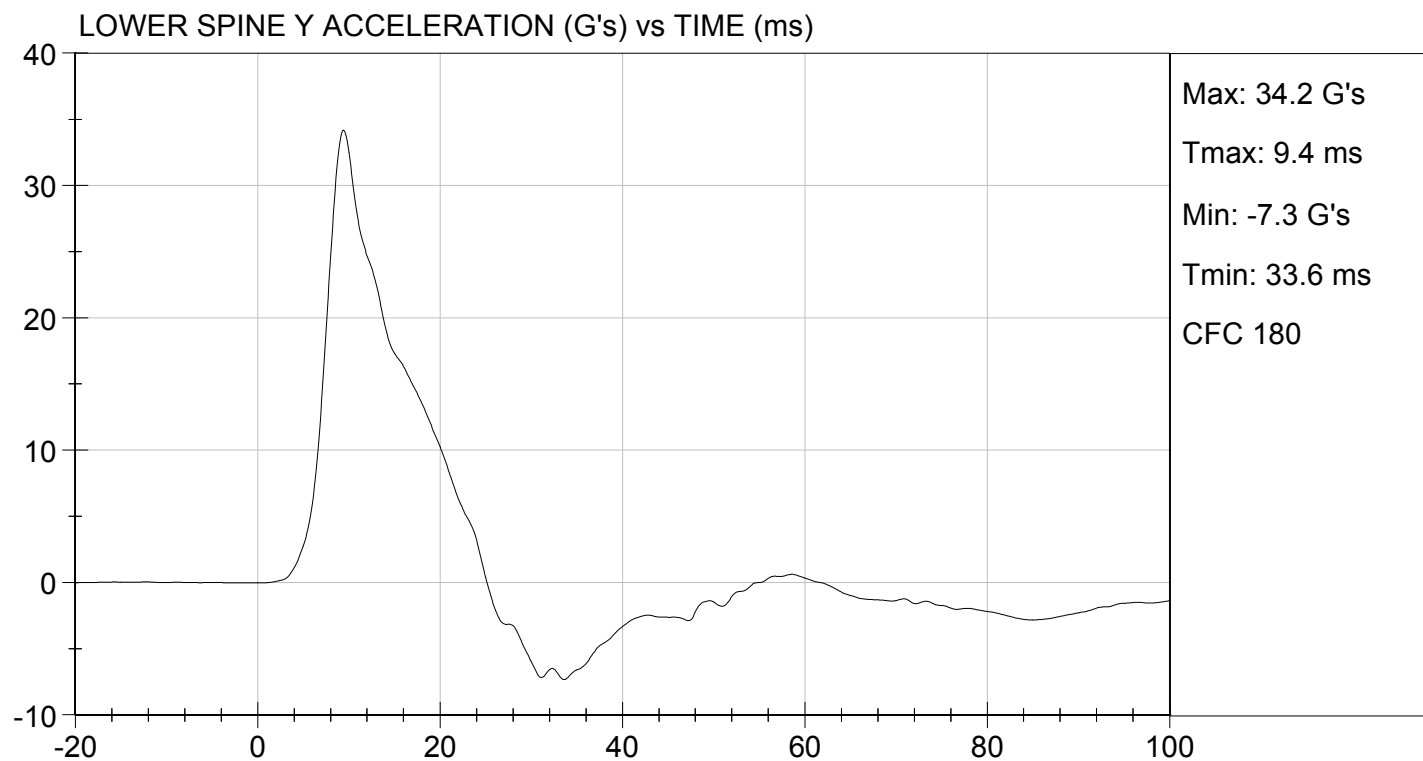
UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)





TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 03/05/2014
TEST #: D14814

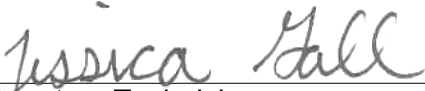


MGA RESEARCH CORPORATION
THORAX (WITHOUT ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D14815

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.9	Pass
Humidity	%	10 to 70	16	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Maximum Probe Acceleration	G's	14 to 18	16	Pass
Upper Rib Displacement	mm	32 to 40	37	Pass
Middle Rib Displacement	mm	39 to 45	42	Pass
Lower Rib Displacement	mm	35 to 43	40	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	16	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	9	Pass
Overall Test Results				Pass


 Laboratory Technician

03/05/2014

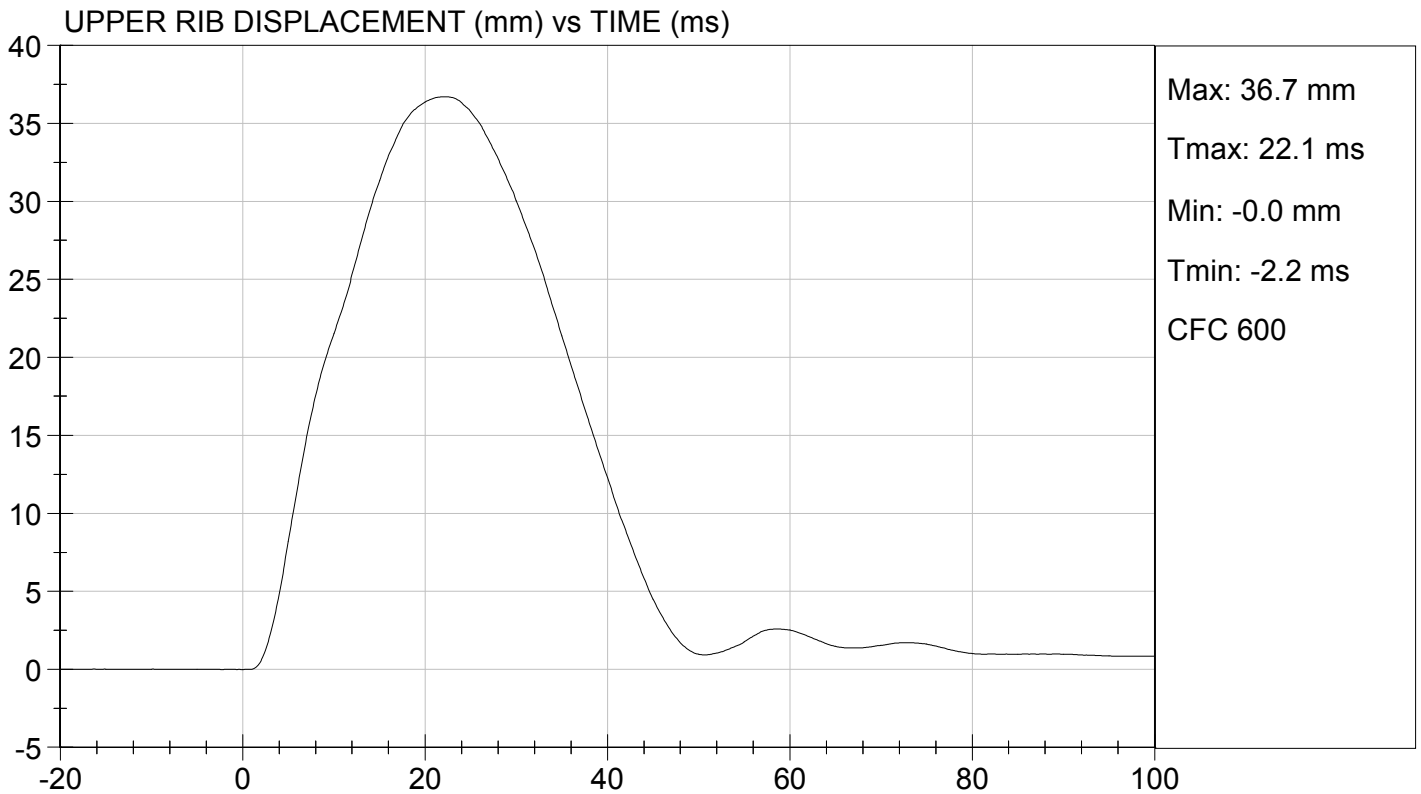
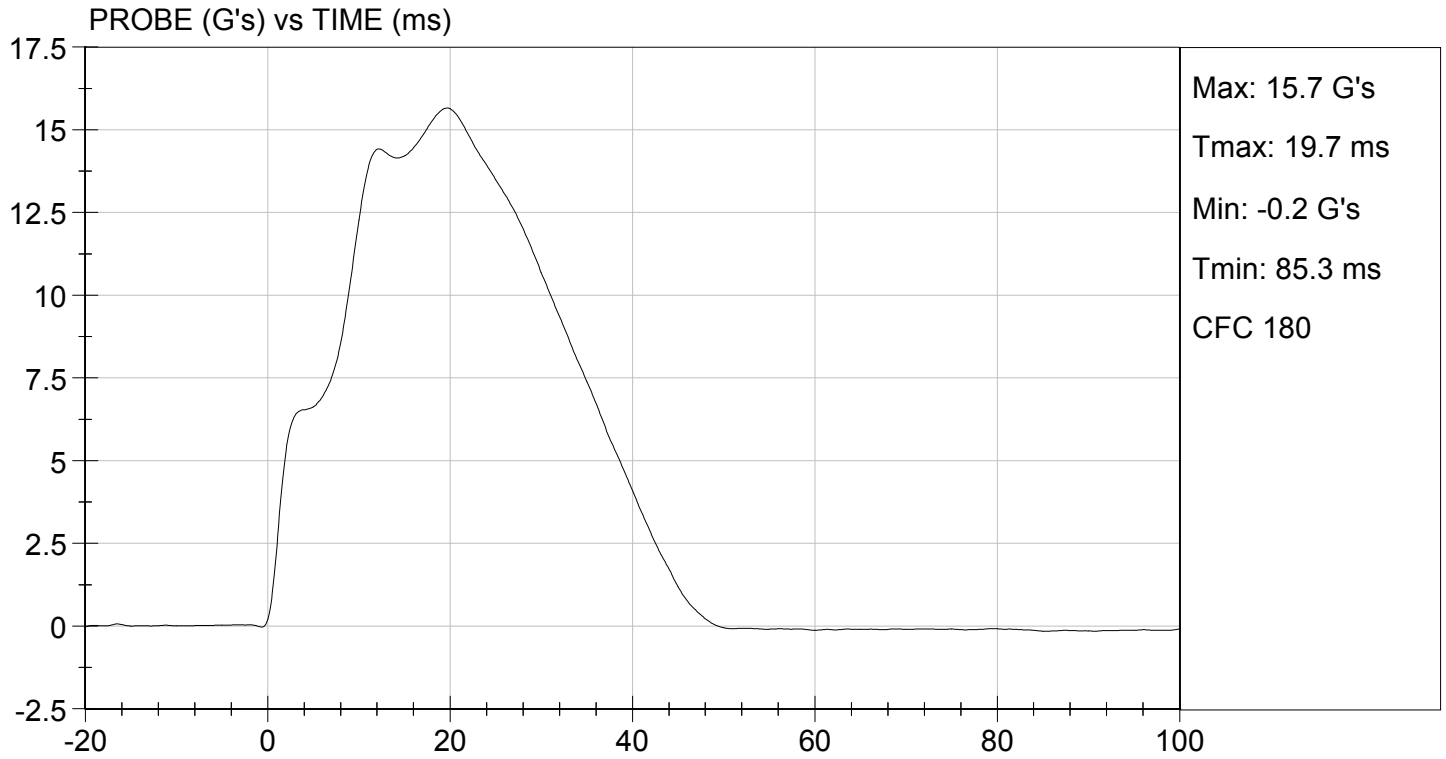
Test Date


 Approved By



TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 03/05/2014
TEST #: D14815

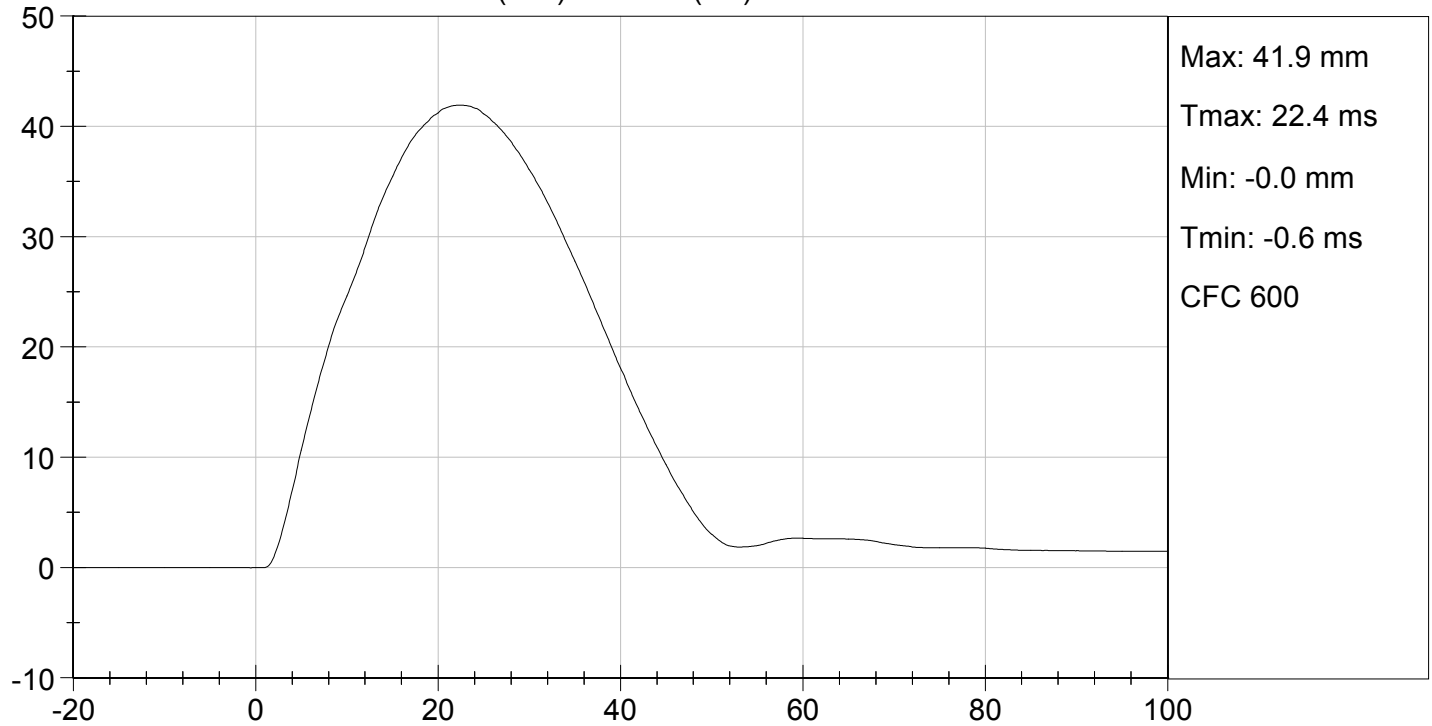




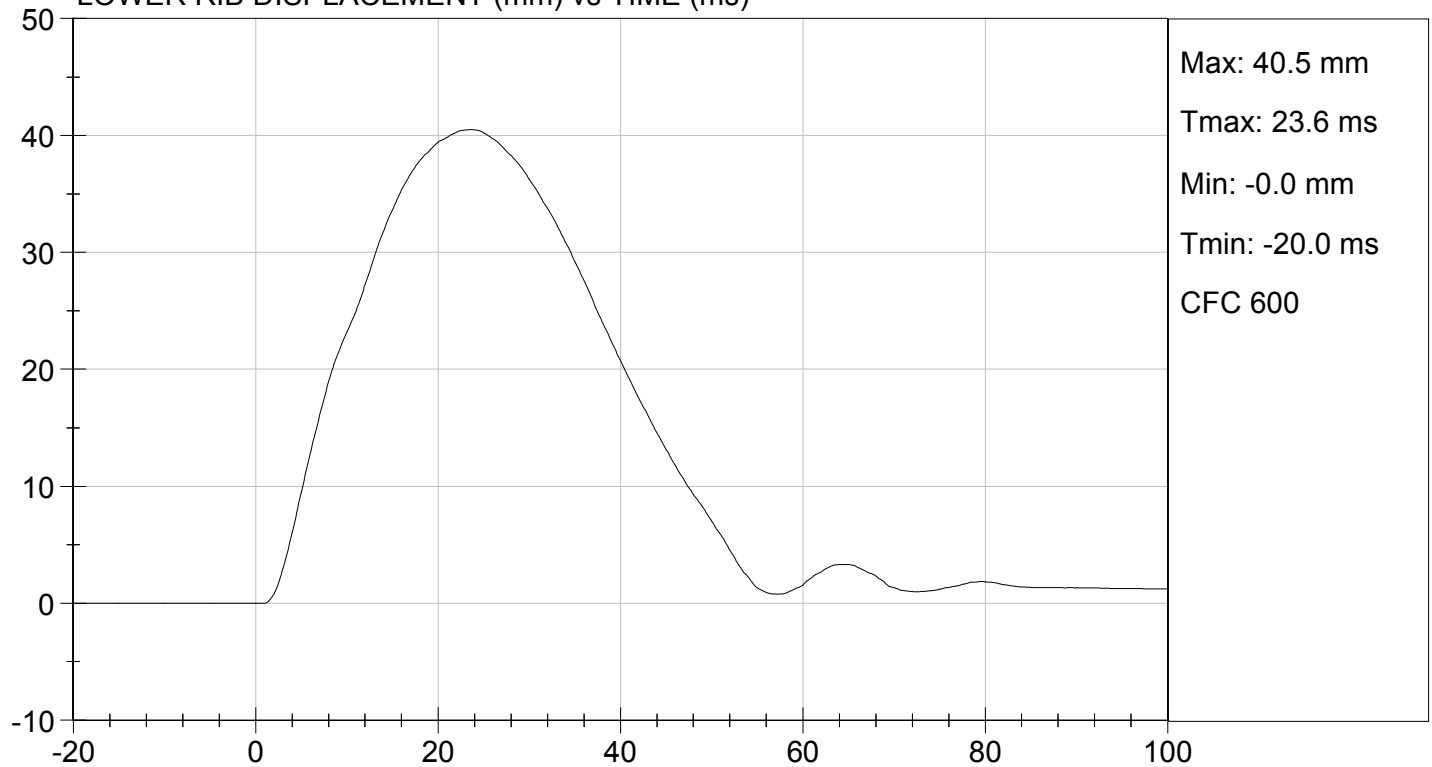
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 03/05/2014
TEST #: D14815

MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



LOWER RIB DISPLACEMENT (mm) vs TIME (ms)

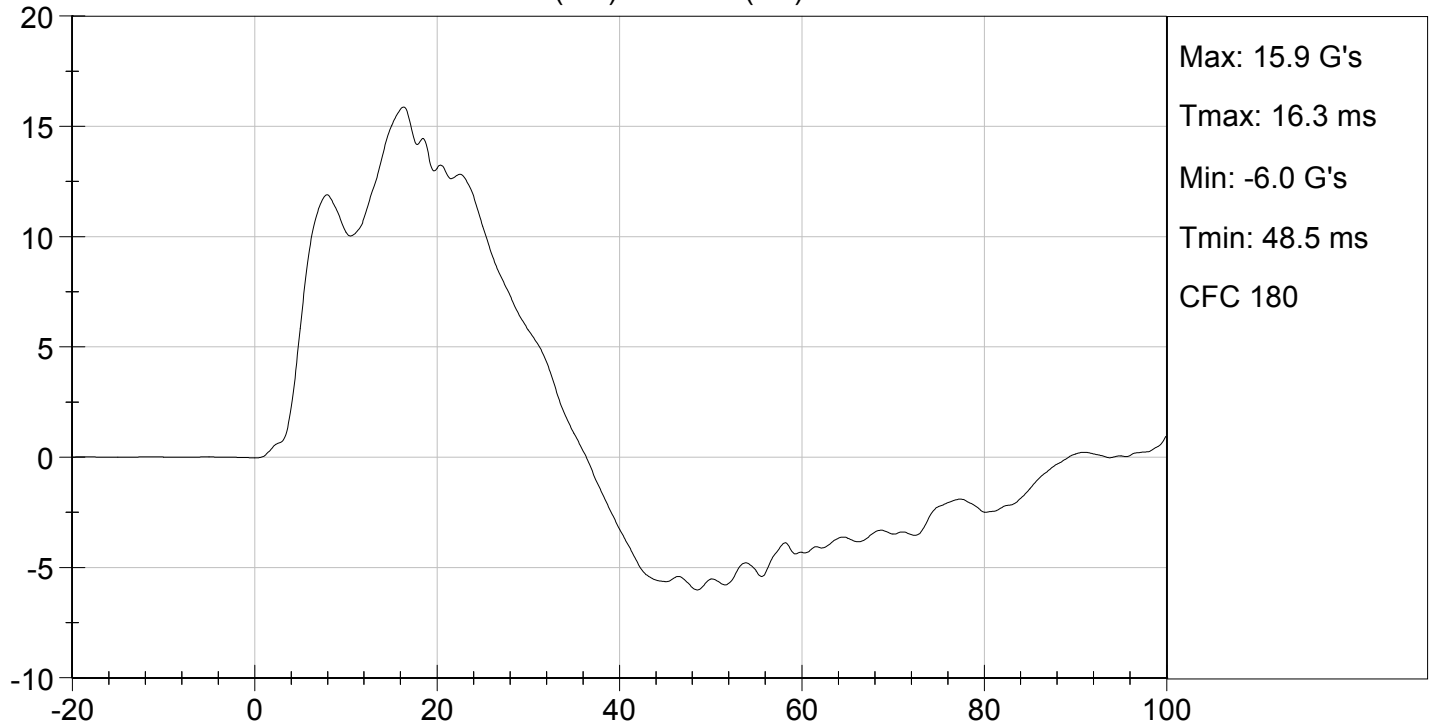




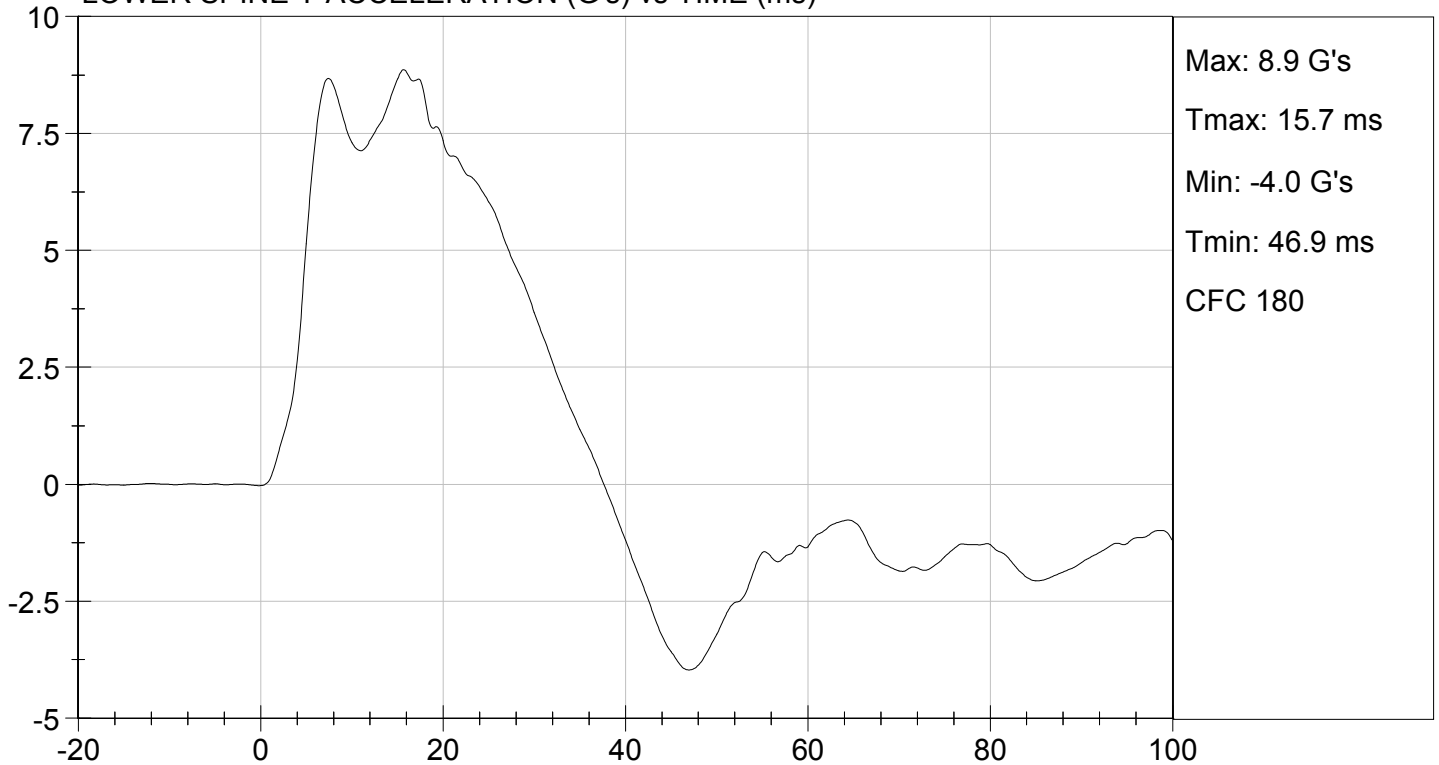
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 03/05/2014
TEST #: D14815

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



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



MGA RESEARCH CORPORATION

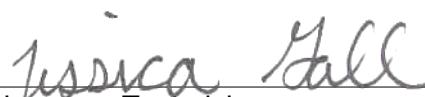
ABDOMINAL IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D14816

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.9	Pass
Humidity	%	10 to 70	16	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Maximum Probe Acceleration	G's	12 to 16	14	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	41	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	41	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	10	Pass
Overall Test Results				Pass


Laboratory Technician

03/05/2014

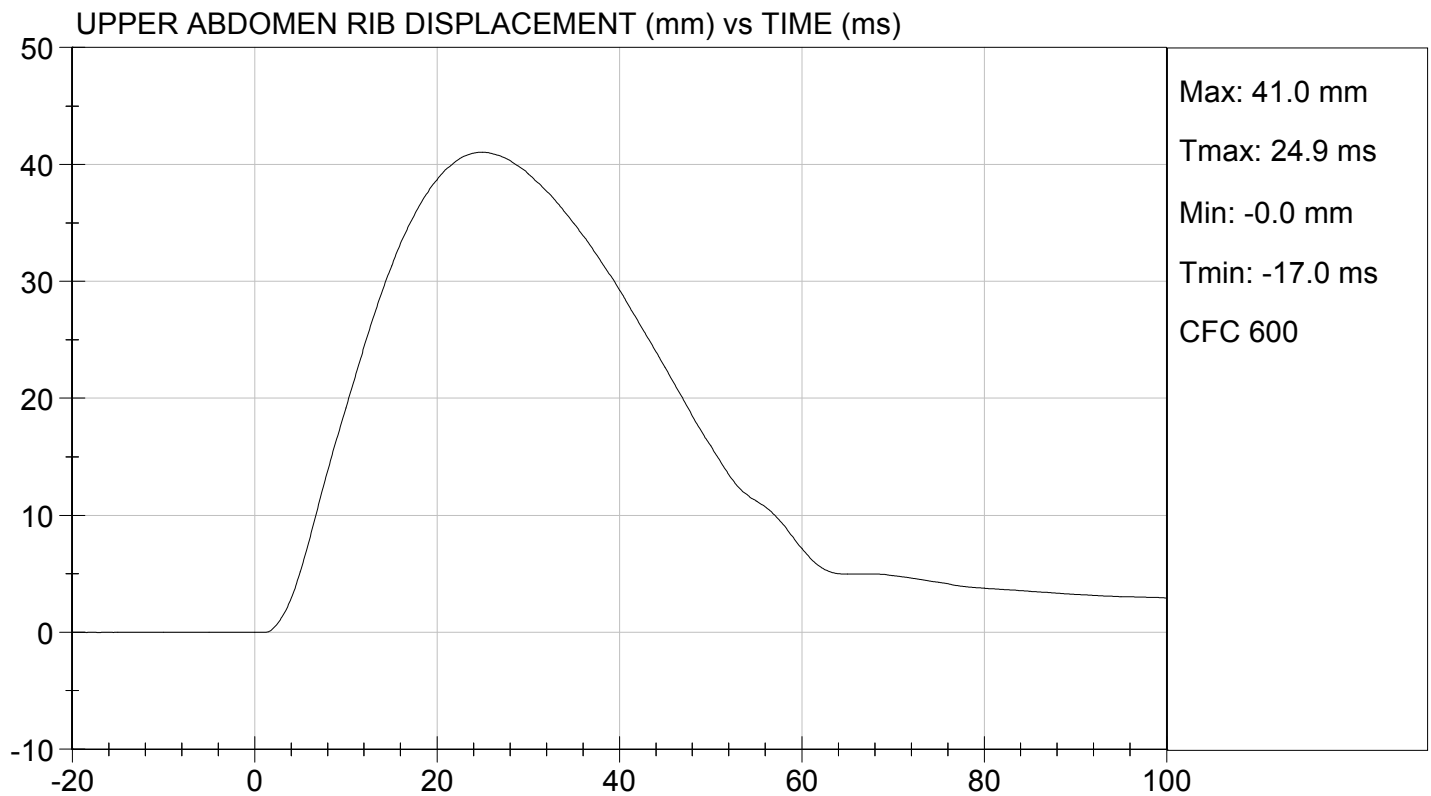
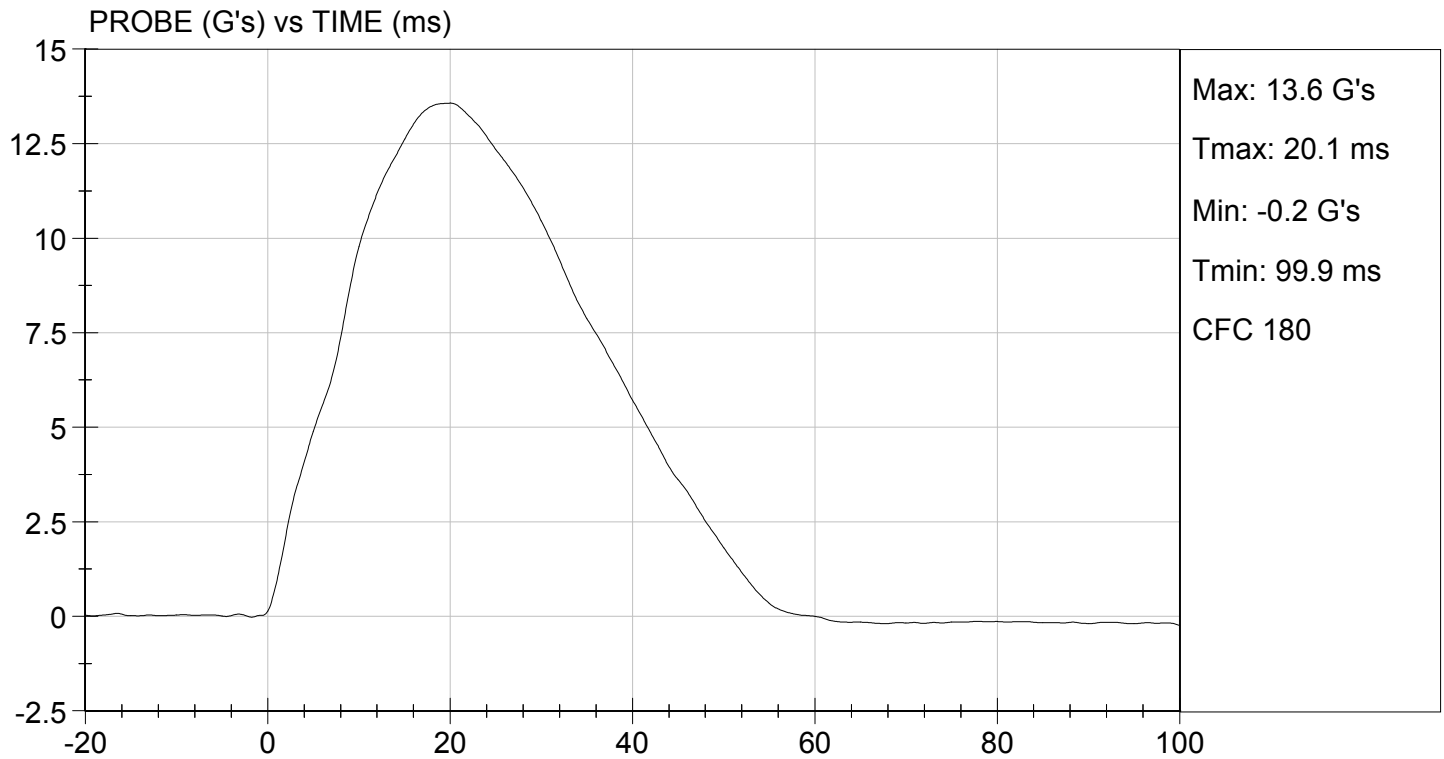
Test Date


Approved By



TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 03/05/2014
TEST #: D14816

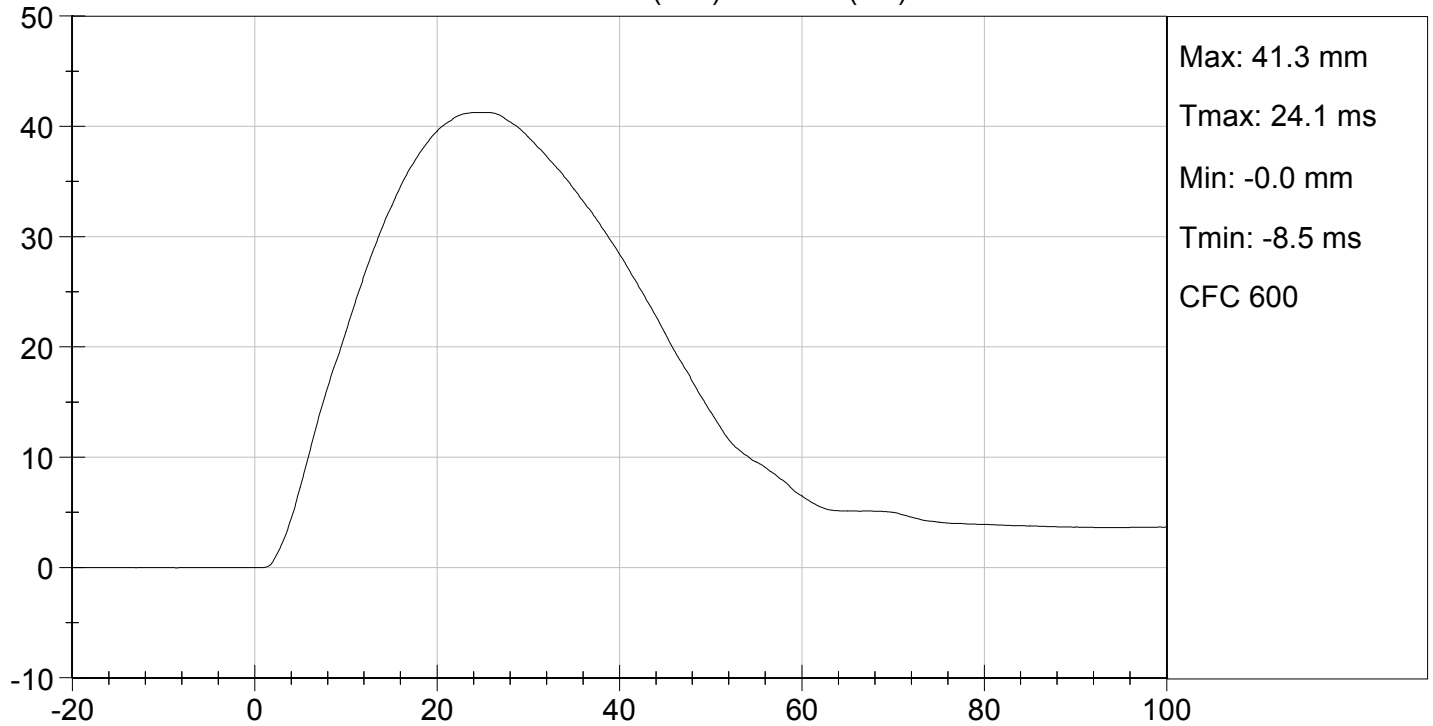




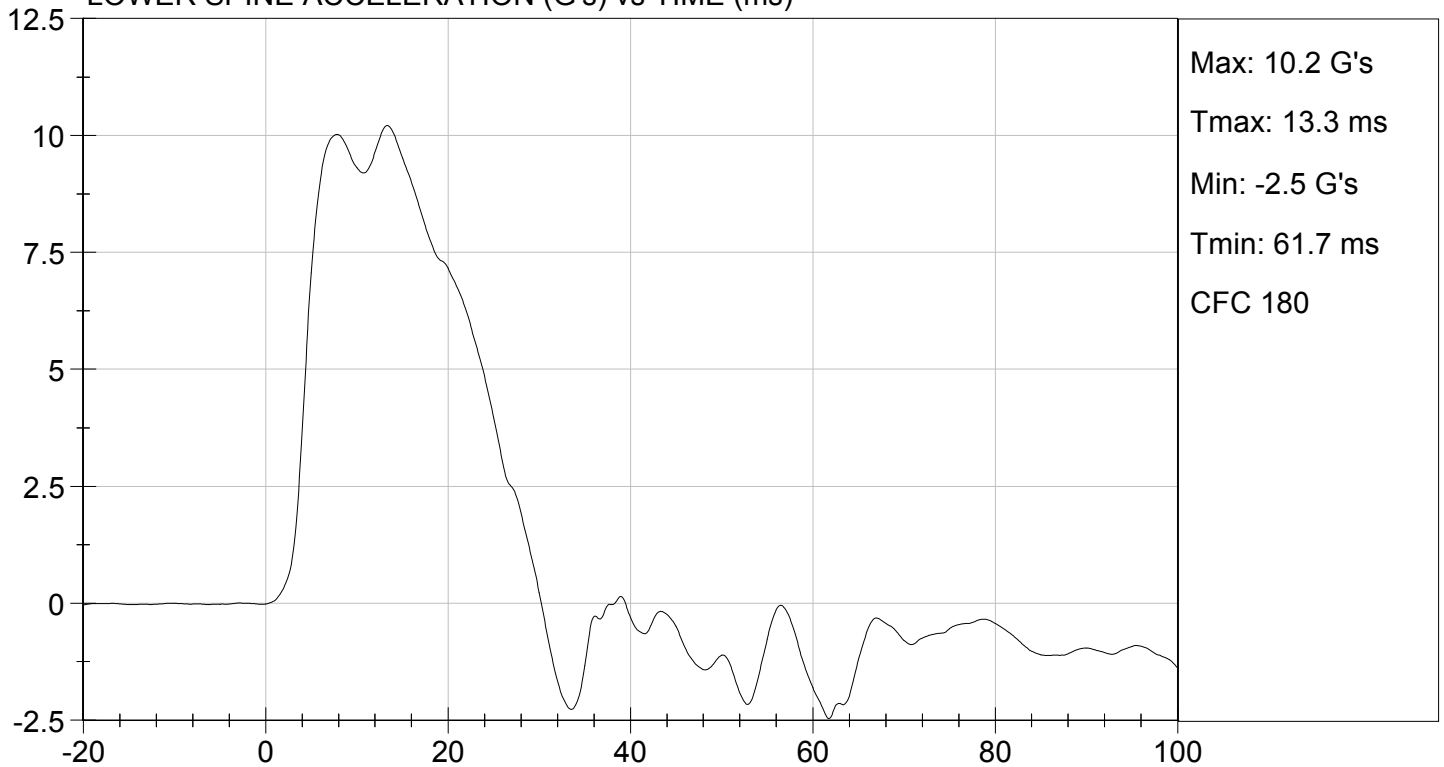
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 03/05/2014
TEST #: D14816

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: D14817

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.9	Pass
Humidity	%	10 to 70	16	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	38 to 47	44	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	41	Pass
Peak Acetabulum Force	N	3600 to 4300	4,185	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

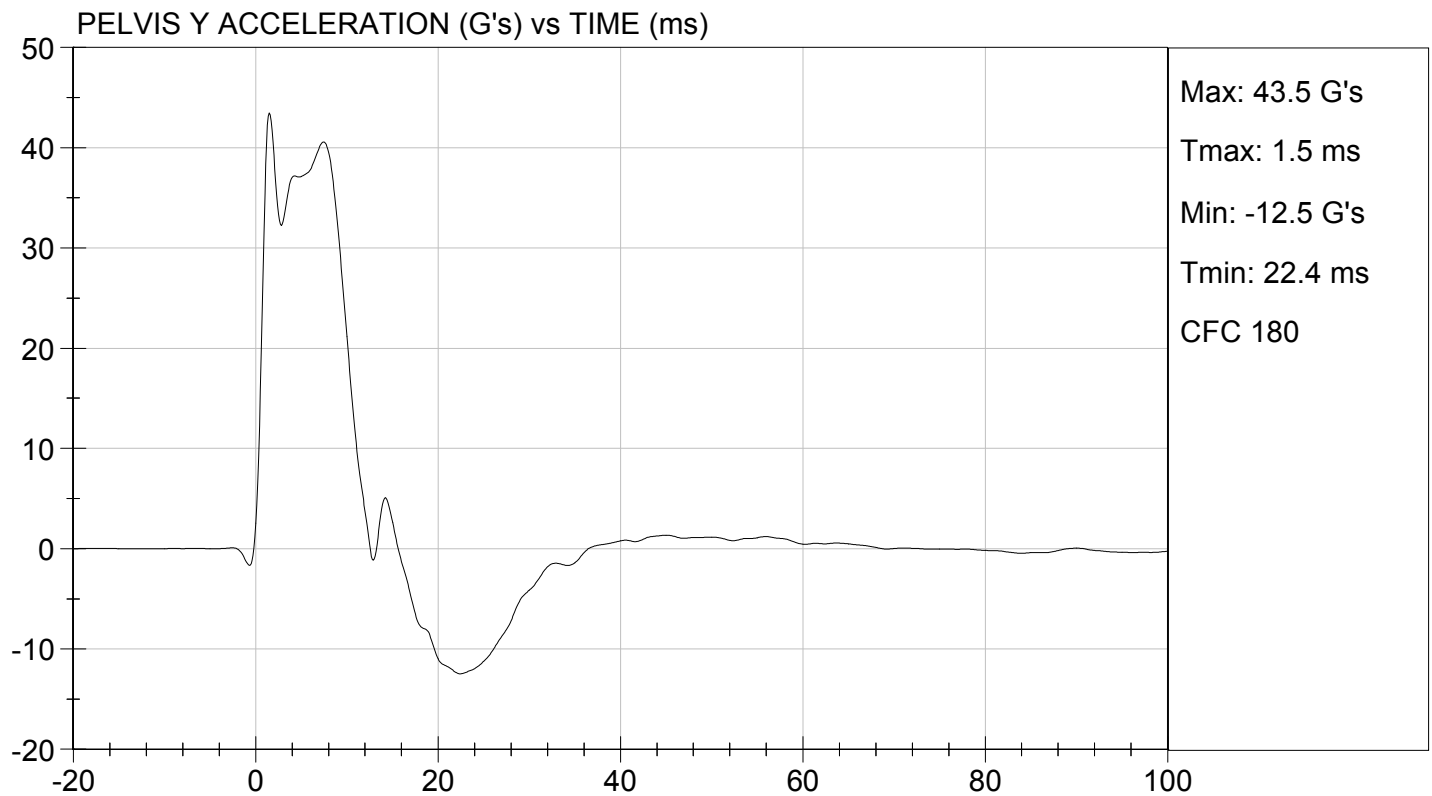
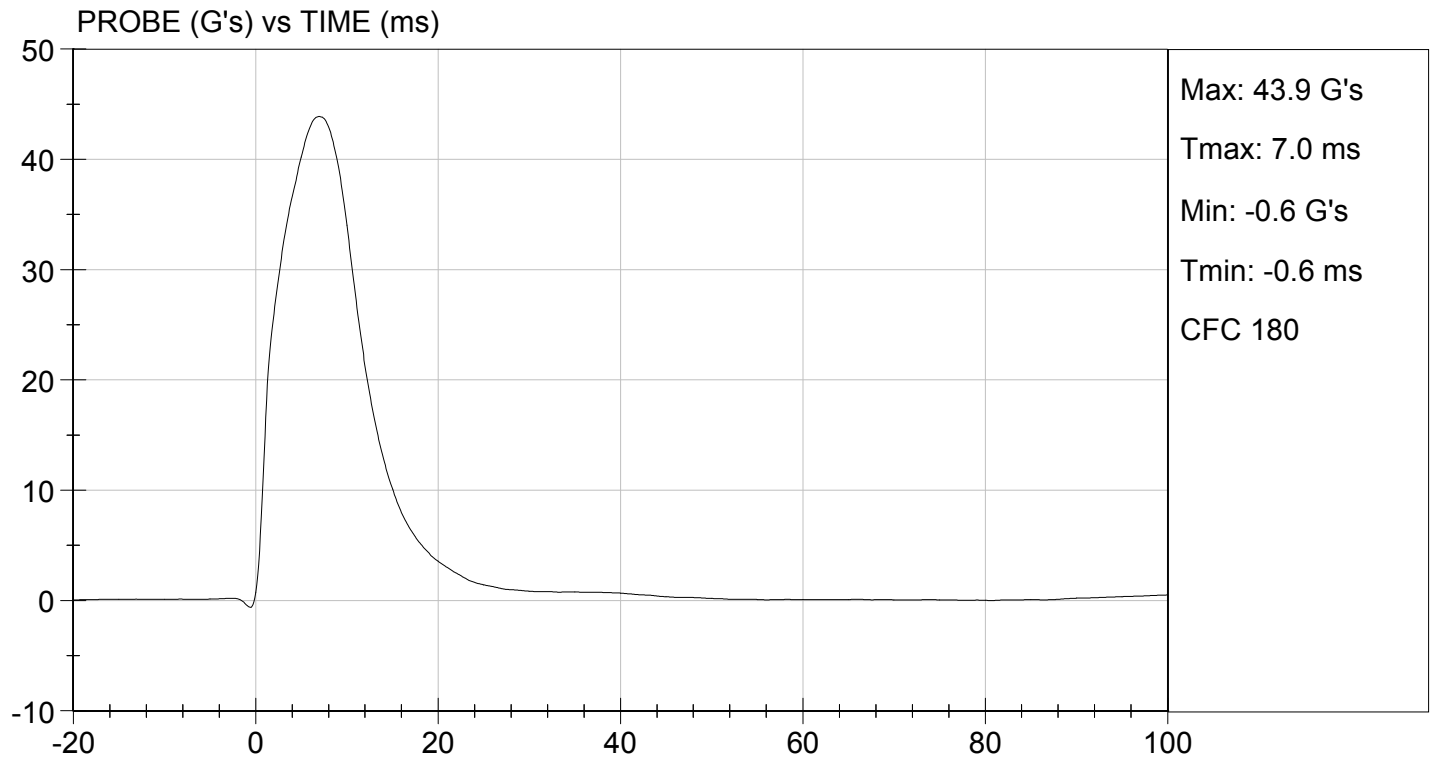
03/05/2014
Test Date

David Winkelbauer
Approved By



TEST DESC: PELVIS IMPACT
VELOCITY: 21.93 ft/s, 6.68 m/s

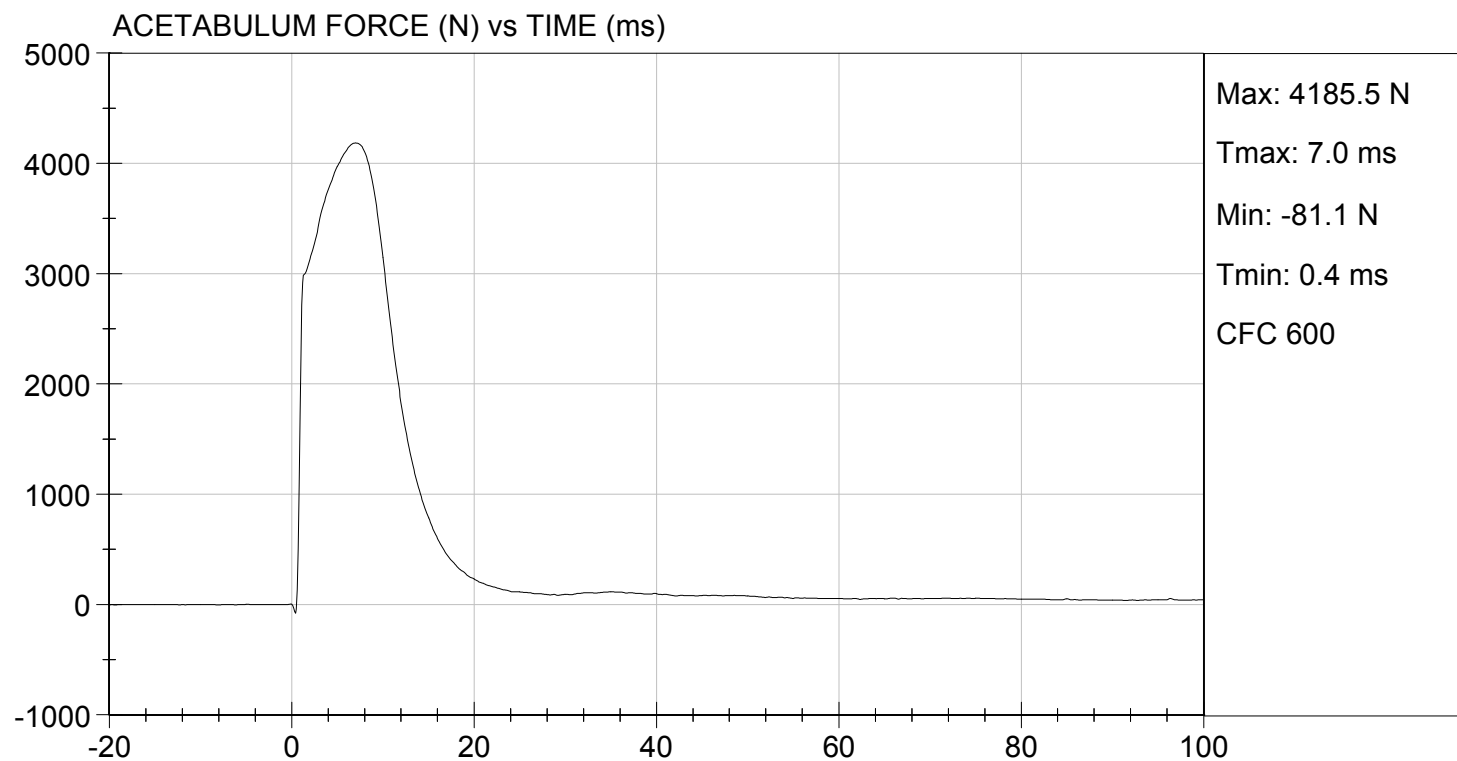
TEST DATE: 03/05/2014
TEST #: D14817





TEST DESC: PELVIS IMPACT
VELOCITY: 21.93 ft/s, 6.68 m/s

TEST DATE: 03/05/2014
TEST #: D14817



MGA RESEARCH CORPORATION

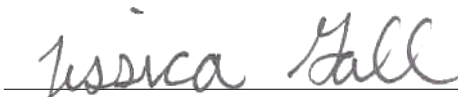
ILIAC IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D14818

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.9	Pass
Humidity	%	10 to 70	16	Pass
Impact Velocity	m/s	4.20 to 4.40	4.27	Pass
Maximum Probe Acceleration	G's	36 to 45	40	Pass
Pelvis Y Acceleration	G's	28 to 39	34	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,696	Pass
Overall Test Results				Pass


Laboratory Technician

03/05/2014

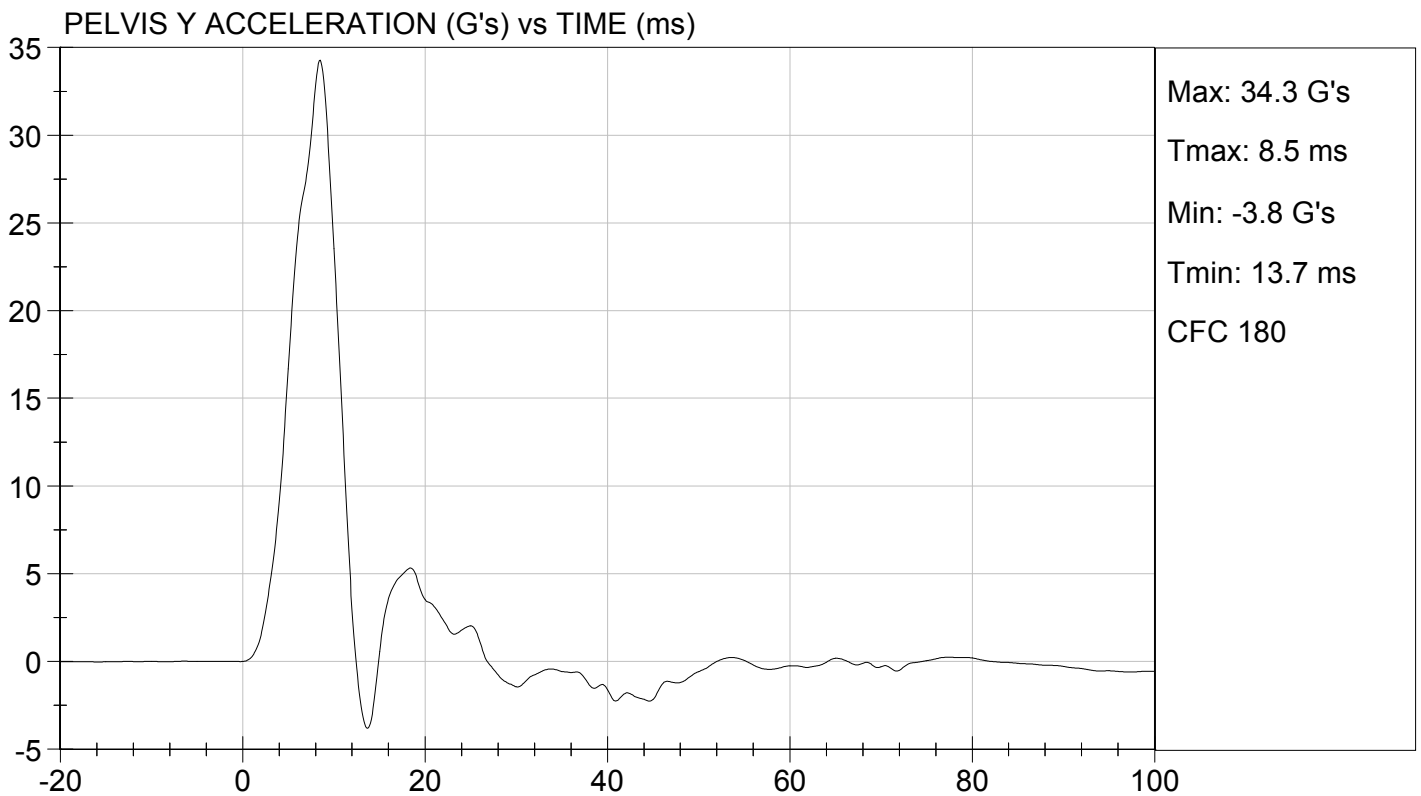
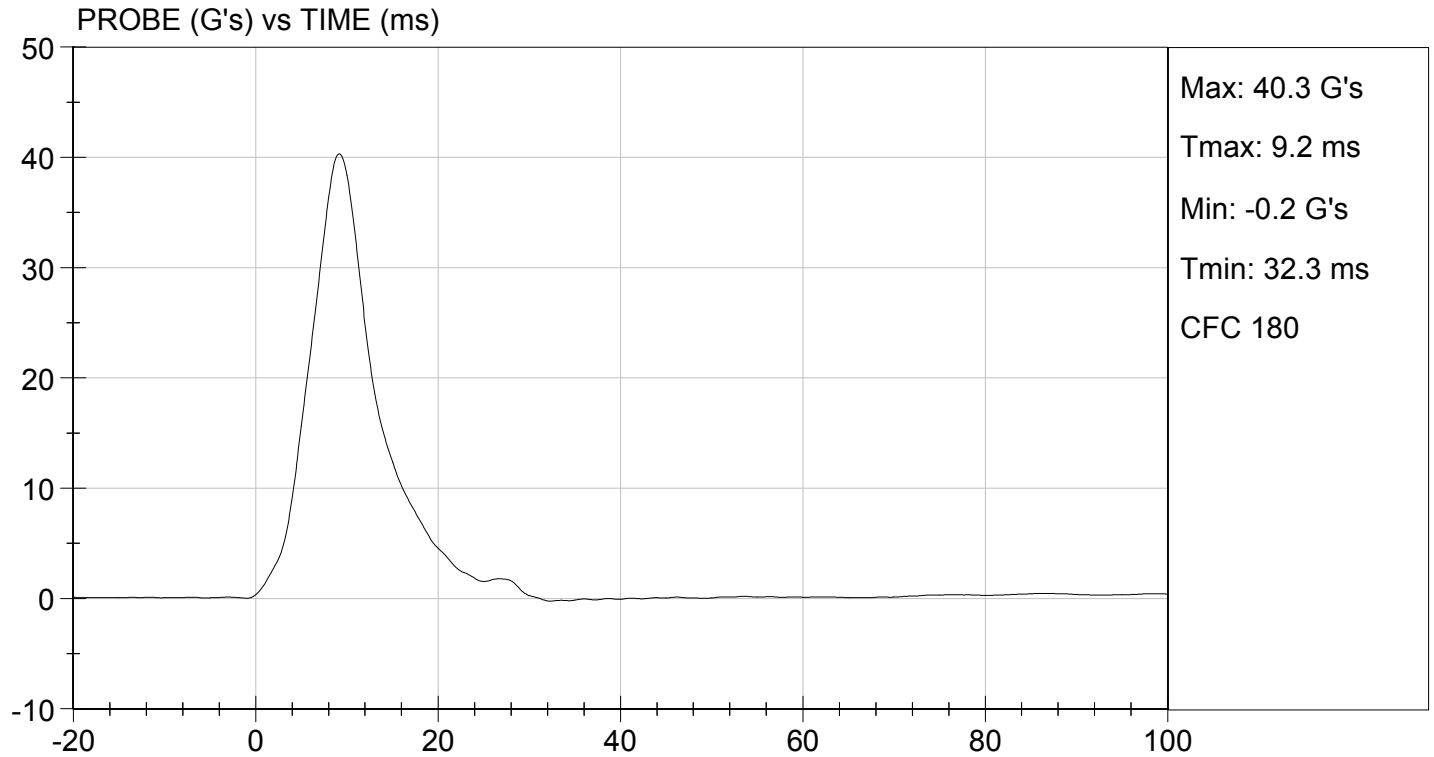
Test Date


Approved By



TEST DESC: ILLIAC
VELOCITY: 14.01 ft/s, 4.27 m/s

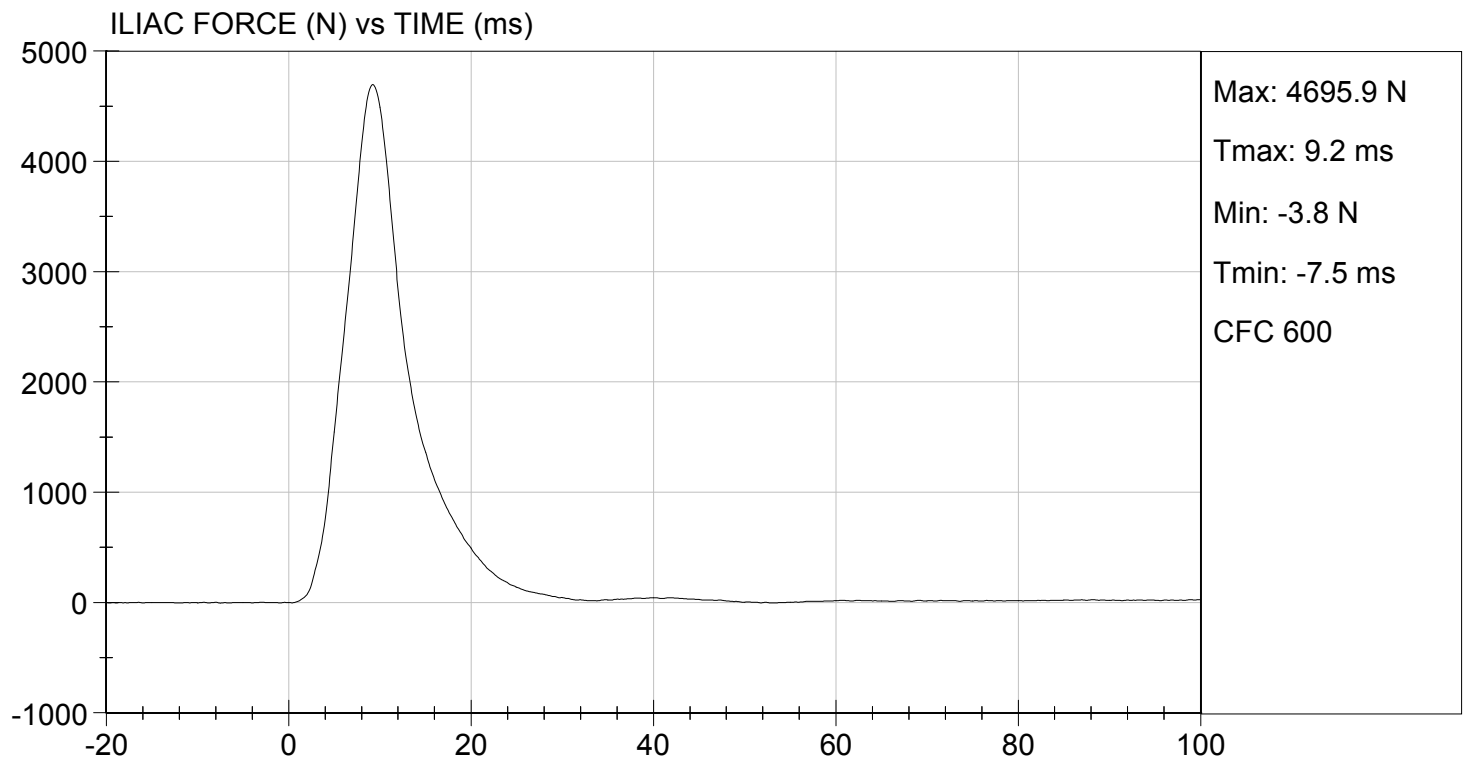
TEST DATE: 03/05/2014
TEST #: D14818



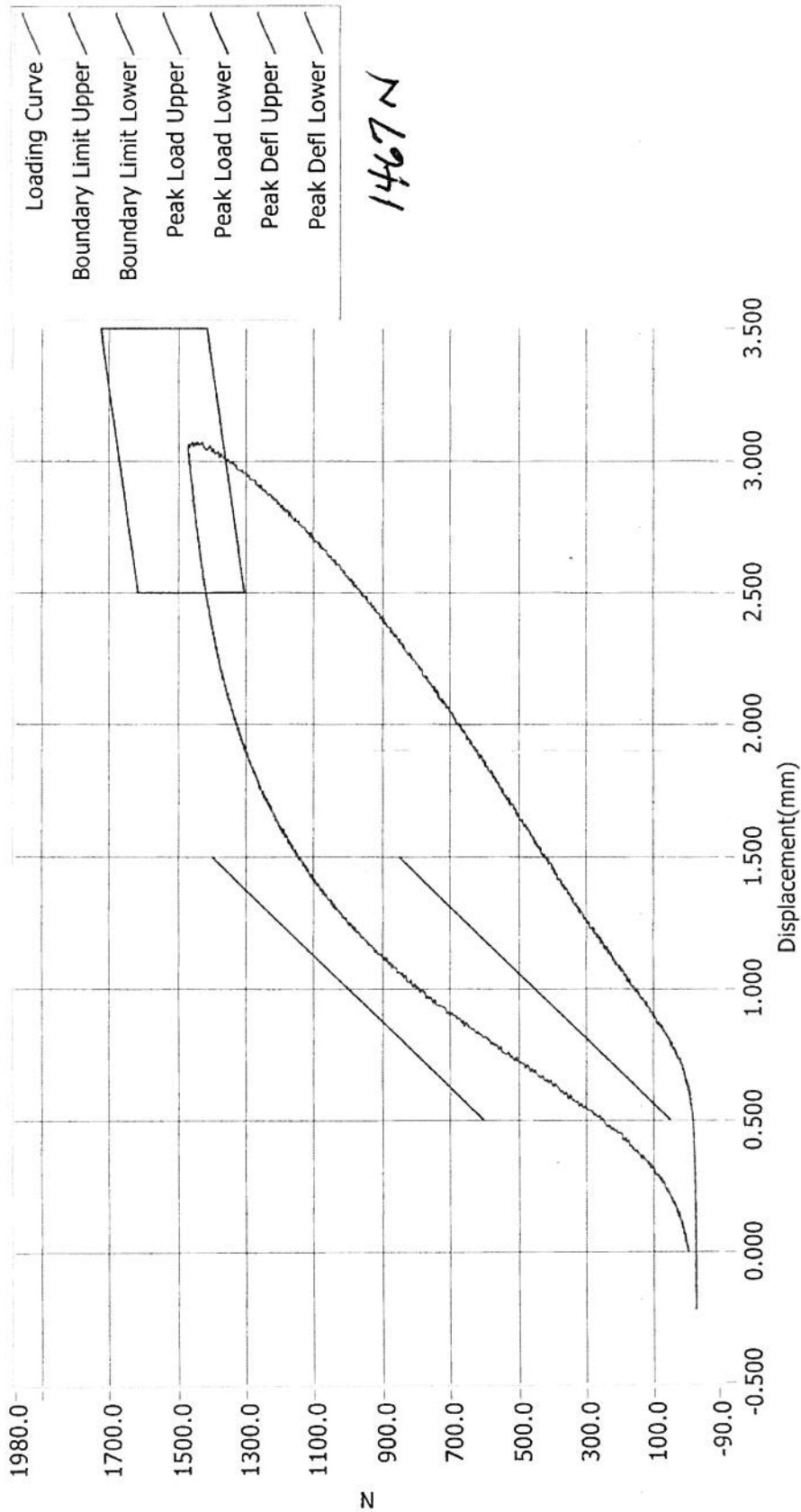


TEST DESC: ILLIAC
VELOCITY: 14.01 ft/s, 4.27 m/s

TEST DATE: 03/05/2014
TEST #: D14818



Resultant Data - SIDIIs Plug Compression



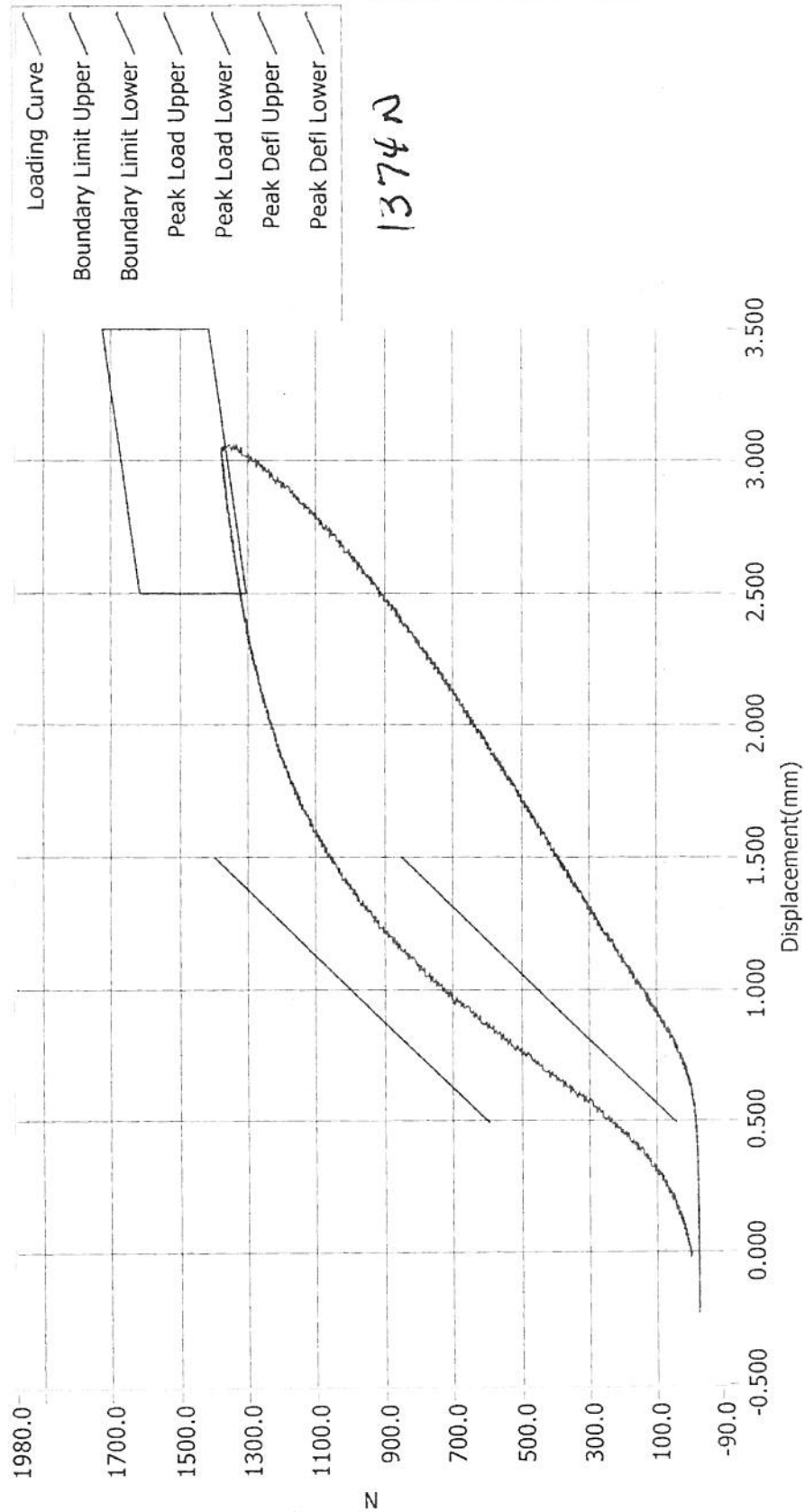
ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
	63502	2/4/2013	8:43 PM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 2/4/2013

Current Time : 20:43:47

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
	63561	2/5/2013	12:28 AM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 2/5/2013 Current Time : 00:28:43

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation

				SID-IIs S/N 306			
				Serial Number	Manufacturer	Calibration Date	
Head CG Accelerometers				X	P79575	Endevco	12/30/13
				Y	P79577	Endevco	12/30/13
				Z	P79578	Endevco	12/30/13
				Xr	P79799	Endevco	12/30/13
				Yr	P79802	Endevco	12/30/13
				Zr	P79803	Endevco	12/30/13
Displacement Potentiometers	Thoracic Rib	Upper	Y	G033	FTSS	01/03/14	
		Middle	Y	G1261	FTSS	10/17/13	
		Lower	Y	G1270	FTSS	10/17/13	
	Abdominal Rib	Upper	Y	G032	FTSS	10/17/13	
		Lower	Y	G1304	FTSS	10/17/13	
Lower Spine Accelerometers (T12)				X	P78279	Endevco	10/10/13
				Y	P78280	Endevco	10/10/13
				Z	P78281	Endevco	10/10/13
Acetabulum Load Cell				Y	ACG111	FTSS	04/26/13
Iliac Wing Load Cell				Y	IWG226	FTSS	04/26/13
Pelvis Plug (struck side)					63502	FTSS	02/04/13
Pelvis Plug (non-struck side)					63581	FTSS	02/05/13

Table 2 – Vehicle Instrumentation

		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	P73997	Endevco	01/14/14
Vehicle Center of Gravity	Y	P73998	Endevco	01/14/14
Vehicle Center of Gravity	Z	P73996	Endevco	01/14/14
Left Floor Sill	Y	P73691	Endevco	10/16/13
A-Pillar Sill	Y	P67502	Endevco	02/19/14
A-Pillar Low	Y	P78746	Endevco	11/06/13
A-Pillar Mid	Y	P67504	Endevco	02/19/14
B-Pillar Sill	Y	P67590	Endevco	12/23/13
B-Pillar Low	Y	P68853	Endevco	09/16/13
B-Pillar Mid	V	P72749	Endevco	11/06/13
Driver Seat	Y	P72774	Endevco	11/20/13
Engine Top	X	P78881	Endevco	01/06/14
Engine Top	Y	P63891	Endevco	10/23/13
Firewall	Y	P67933	Endevco	12/23/13
Right Roof	Y	P78892	Endevco	01/06/14
Right Floor Sill	Y	P66511	Endevco	10/23/13
Rear Floorpan	X	P68842	Endevco	01/15/14
Rear Floorpan	Y	P67376	Endevco	10/23/13

Table 3 – Pole Instrumentation

	Serial Number	Manufacturer	Calibration Date
Load Cell 1	DG6277	FTSS	08/16/13
Load Cell 2	DG6278	FTSS	08/16/13
Load Cell 3	DG6279	FTSS	08/19/13
Load Cell 4	DG6280	FTSS	08/19/13
Load Cell 5	DG6281	FTSS	08/19/13
Load Cell 6	DG6283	FTSS	08/19/13
Load Cell 7	DG6284	FTSS	08/19/13
Load Cell 8	DG6582	FTSS	08/19/13