

REPORT NUMBER: SPNCAP-MGA-2018-004

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

**VOLKSWAGEN GROUP OF AMERICA CHATTANOOGA OPERATIONS, LLC
2018 Volkswagen Atlas Launch Edition 5-Door SUV
NHTSA No.: O20185801**

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



Test Date: August 22, 2017

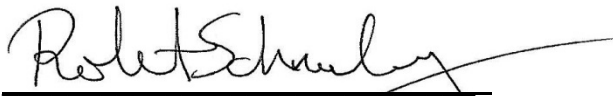
Final Report Date: September 19, 2017

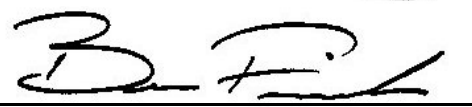
FINAL REPORT

**U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Office of Crashworthiness Standards
Mail Code: NRM-110
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: 
Robert Schnorenberg, Project Engineer

Approved by: 
Ben Fischer, Project Engineer

Approval Date: September 19, 2017

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-2018-004	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 2018 Volkswagen Atlas Launch Edition 5-Door SUV, NHTSA No.: O20185801		5. Report Date September 19, 2017																												
		6. Performing Organization Code MGA																												
7. Author(s) Robert Schnorenberg, Project Engineer		8. Performing Organization Report No. SPNCAP-MGA-2018-004																												
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105		10. Work Unit No.																												
		11. Contract or Grant No. DTNH22-14-D-00353																												
12. Sponsoring Agency Name and Address United States Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards (NRM-110) 1200 New Jersey Ave, SE, Room W43-410 Washington, DC 20590		13. Type of Report and Period Covered: Final Test Report August 22, 2017 to September 19, 2017																												
		14. Sponsoring Agency Code NRM-110																												
15. Supplementary Notes																														
16. Abstract A 32.20 km/h, 75° oblique impact Side NCAP Test was conducted on the subject 2018 Volkswagen Atlas Launch Edition 5-Door SUV 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 August 22, 2017. The impact velocity was 32.55 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 22.1°C. The test vehicle post-test maximum crush was 344 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>279</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>Gs</td> <td>82</td> <td>51</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>3560</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38*</td> <td>22</td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td>mm</td> <td>45*</td> <td>22</td> </tr> </tbody> </table> *Proposed IARV The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.				Measurement Description	Driver ATD (SID-IIs)			Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	279	Resultant Lower Spine Acceleration	Gs	82	51	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3560	Maximum Thoracic Rib Deflection	mm	38*	22	Maximum Abdomen Rib Deflection	mm	45*	22
Measurement Description	Driver ATD (SID-IIs)																													
	Units	Threshold	Result																											
Head Injury Criteria (HIC ₃₆)	N/A	1000	279																											
Resultant Lower Spine Acceleration	Gs	82	51																											
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3560																											
Maximum Thoracic Rib Deflection	mm	38*	22																											
Maximum Abdomen Rib Deflection	mm	45*	22																											
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 136	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 2018 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-14-D-00353. The purpose of this test is to generate comparative side impact performance in a 2018 Volkswagen Atlas Launch Edition 5-Door SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated October 2015.

SECTION 2 SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2018 Volkswagen Atlas Launch Edition 5-Door SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.55 km/h. The test was conducted by MGA Research Corporation in Burlington, Wisconsin on August 22, 2017. 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 October 2015. 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	279
Resultant Lower Spine Acceleration	Gs	82	51
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3560
Maximum Thoracic Rib Deflection	mm	38*	22
Maximum Abdominal Rib Deflection	mm	45*	22

*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	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

Vehicle CG Z recorded no valid data after 17ms.
Load Cell Pole #7 recorded no valid data.

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: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185801
Test Date: 8/22/2017

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	O20185801	Traction Control System (TCS)	Yes
Model Year	2018	Auto-Leveling System	No
Make	Volkswagen	Automatic Door Locks (ADL)	Yes
Model	Atlas Launch Edition	Power Window Auto-Reverse	Yes
Body Style	5-Door SUV	Other Optional Feature	N/A
VIN	1V2BR2CA3JC513174	Driver Front Airbag	Yes
Body Color	Platinum Gray Metallic	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	217km / 135mi	Driver Head/Torso Airbag	No
Engine Displacement (L)	3.6 L	Driver Torso Airbag	No
Type/No. Cylinders	V6	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Lateral	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	No
Transmission Speeds	8	Rear Pass. Curtain Airbag	Yes
Overdrive	Yes	Rear Pass. Head/Torso Airbag	No
Final Drive	FWD	Rear Pass. Torso Airbag	No
Roof Rack	No	Rear Pass. Torso/Pelvis Airbag	No
Sunroof/T-Top	Yes	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 Restraint Feature	N/A

Does owner's manual provide instructions to turn off automatic door locks?	No
--	----

DATA FROM CERTIFICATION LABEL

Manufactured By	VOLKSWAGEN GROUP OF AMERICA CHATTANOOGA OPERATIONS, LLC	GVWR (kg)	2600
Date of Manufacture	08/17	GAWR Front (kg)	1310
Vehicle Type	MPV	GAWR Rear (kg)	1340

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3	2	7	(A)
Capacity Weight (VCW) (kg)				550	(B)
DSC x 68.04 kg				476	(A-B)
Rated Cargo and Luggage Weight (RCLW) (kg)				74	

VEHICLE SEAT TYPE

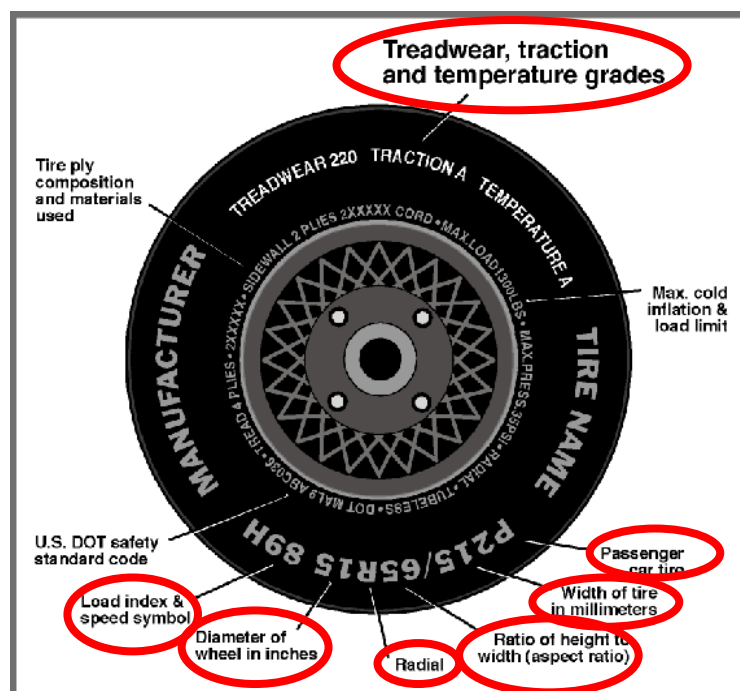
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable Manual	Power
Front Seat	X					X	
Rear or Second Row			X			X	
Third Row Seat			X		X		

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

Test Vehicle: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185801
 Test Date: 8/22/2017

VEHICLE TIRE INFORMATION



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	240	240
Recommended Tire Size	245/60R18	245/60R18
Tire Size on Vehicle	245/60R18	245/60R18
Tire Manufacturer	Continental	Continental
Tire Model	Cross Contact LX Sport	Cross Contact LX Sport
Treadwear	480	480
Traction	A	A
Temperature Grade	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Steel, 2 Polyester, 1 Polyamide	2 Steel, 2 Polyester, 1 Polyamide
Load Index/Speed Symbol	105T	105T
Tire Material	Rubber	Rubber
DOT Safety Code Left	A383 WC9V 2117	A383 WC9V 2417
DOT Safety Code Right	A383 WC9V 2417	A383 WC9V 2417

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

Test Vehicle: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185801
 Test Date: 8/22/2017

TEST PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kpa	248	240	255	240
Tire Placard	kpa	240	240	240	240
Owner's Manual	kpa	240	240	240	240
As Tested	kpa	240	240	240	240

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	550.5	445.5		567.0	506.5		562.0	508.0	
Right	kg	584.5	411.5		575.0	463.5		583.5	464.5	
Ratio	%	57.0%	43.0%		54.1%	45.9%		54.1%	45.9%	
Totals	kg	1135.0	857.0	1992.0	1142.0	1013.0	2112.0	1145.5	972.5	2118.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1992.0	(A)
Actual Weight of 1 P572V ATD (SID-IIs) ATD Used	kg	52	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	74	(C)
Calculated Vehicle Target Weight (TVTW)	kg	2118.0	(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	0.4	0.4	0.7	Yes
Front Pass. Sill Angle (front-to-rear)*	deg	0.8	0.5	0.5	Yes
Front Bumper Angle (left-to-right)**	deg	-0.1	-0.1	-0.1	Yes
Rear Bumper Angle (left-to-right)**	deg	0.0	0.0	0.0	Yes
Vehicle CG (Aft of Front Axle)	mm	1281	1368	1368	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	0	14	9	

*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)	26
None	

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: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185801
 Test Date: 8/22/2017

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	18.5	14.2	16.4
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 SCRIP Height (mm)	SCRIP Height Position	SCRIP Height (mm)		
				Rear- most	Mid- Fore/Aft	Forward- Most
Driver Seat	16.4	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Front Passenger Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Front Center Seat			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed

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

Test Vehicle: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

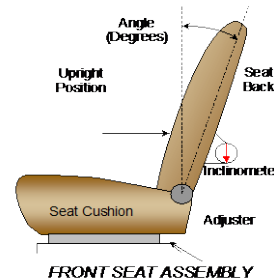
NHTSA No. O20185801
 Test Date: 8/22/2017

SEAT FORE/AFT POSITIONS

Seat	Total Fore/Aft Travel		Test Position from Forward-most Position	
	mm	Detents	mm	Detent
Driver Seat	256	39 (1 st as 1)	0	0 th (1 st as 0)
Front Passenger Seat	256	39 (1 st as 1)	0	0 th (1 st as 0)
Front Center Seat				
Struck Side Rear Seat	200	21 (1 st as 1)	200	20 th (1 st as 0)
Non-Struck Side Rear Seat	200	21 (1 st as 1)	200	20 th (1 st as 0)
Rear Center Seat	200	21 (1 st as 1)	200	20 th (1 st as 0)

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	64.1	35 (1 st as 1)	7.8	5 th (1 st as 0)
Front Passenger Seat	63.5	35 (1 st as 1)	8.8	6 th (1 st as 0)
Front Center Seat				
Struck Side Rear Seat	12.7	8 (1 st as 1)	16	0 th (1 st as 0)
Non-Struck Side Rear Seat	12.7	8 (1 st as 1)	16	0 th (1 st as 0)
Rear Center Seat	12.7	8 (1 st as 1)	16	0 th (1 st as 0)

Seat back angles measured on seat back center.

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	4 detents (1 st as 1)	0 (Lowermost as 0)

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

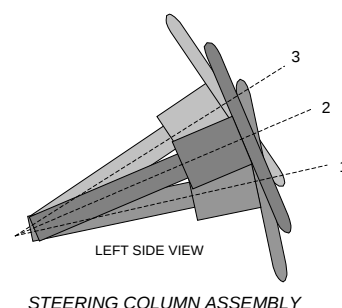
Test Vehicle: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185801
 Test Date: 8/22/2017

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.

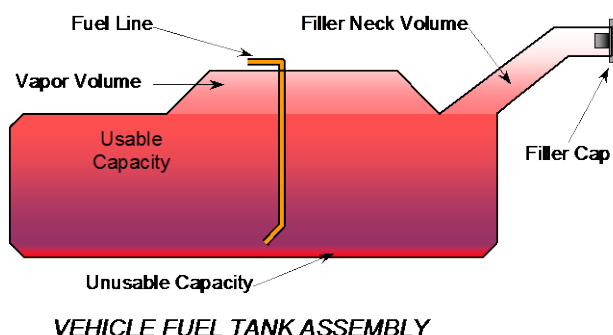
	Degrees	Fore/Aft Position (mm)
Lowermost, Position 1	65.7	190
Geometric Center, Position 2	63.1	163
Uppermost, Position 3	60.5	135
Telescoping Steering Wheel Travel		55
Test Position	63.1	163



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 electronic fuel pump. The fuel pump runs for 2 seconds after ignition is switched on. If the engine doesn't run, the fuel pump stops running. The filler neck is located on the passenger's side.



FUEL TANK CAPACITY DATA

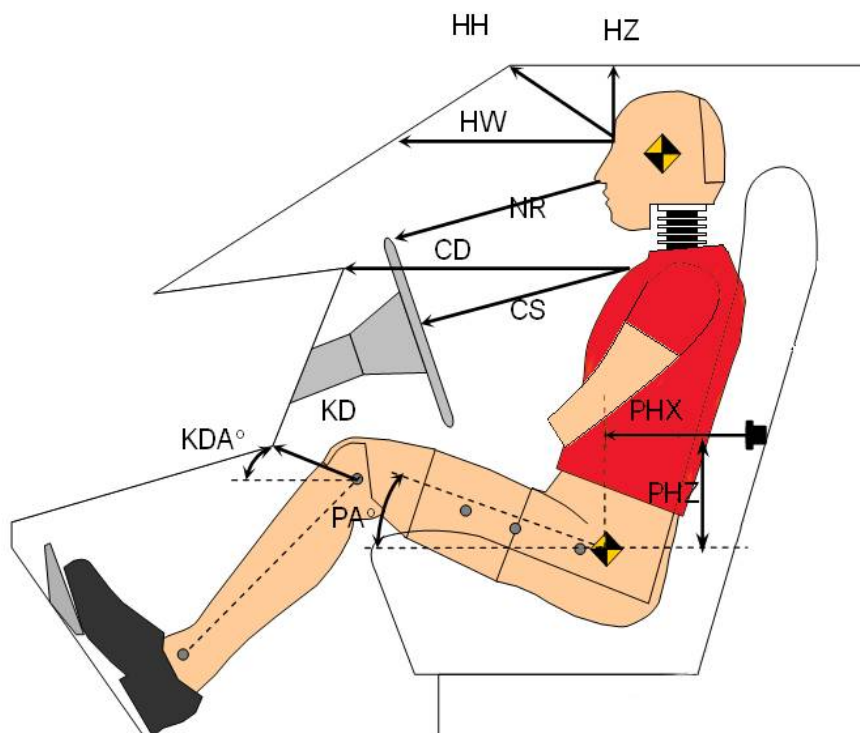
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	70.4
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	70.4
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	65.5
Actual Amount of Solvent Used	65.1
1/3 of Usable Capacity	23.2

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: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185801
 Test Date: 8/22/2017



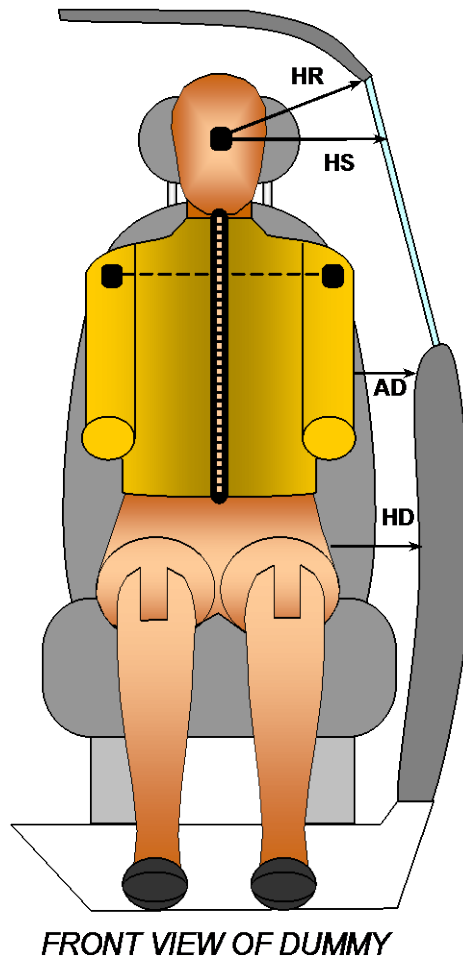
LEFT SIDE VIEW

Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	321	
HW	Head to Windshield	613	
HZ	Head to Roof Liner	246	
NR	Nose to Rim	245	
CD	Chest to Dashboard	432	
CS	Chest to Steering Wheel	200	
KDL/KDAL°	Left Knee to Dash	145	38.5
KDR/KDAR°	Right Knee to Dash	153	42.6
PAX°	Pelvic Tilt Angle (X-Axis)		20.4
PAY°	Pelvic Tilt Angle (Y-Axis)		-1.0
PHX	Hip Point to Striker (X-Axis)	357	
PHZ	Hip Point to Striker (Z-Axis)	237	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185801
Test Date: 8/22/2017

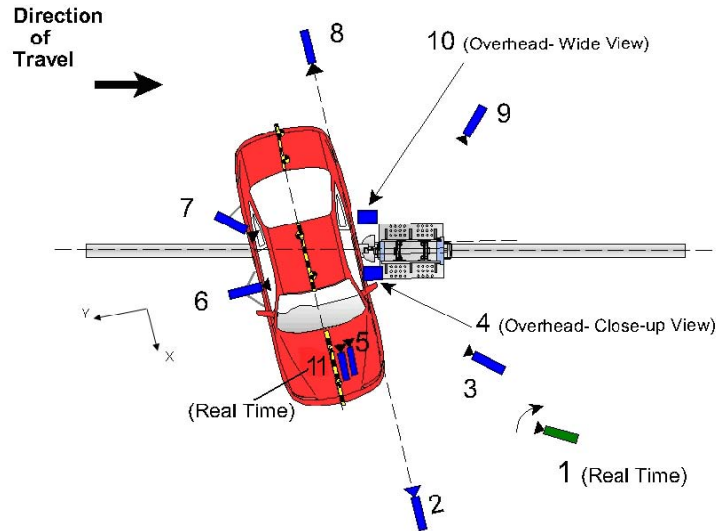


Code	Measurement Description	Driver
		Length (mm)
HR	Head to Side Header	295
HS	Head to Side Window	408
AD	Arm to Door	214
HD	Hip Point to Door	185

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185801
Test Date: 8/22/2017



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	6230	-380	-1780	24	1000
3	Impact Side 45° Forward	5240	-1710	-1770	20	1000
4	Overhead Closeup	0	50	-6670	70	1000
5	Onboard – Driver Front				16	1000
6	Onboard – Driver Side				8	1000
7	Onboard – Driver Rear				8	1000
8	Rear Ground Level	-7170	240	-1800	24	1000
9	Impact Side 45° Rearward	-4810	-3770	-1780	20	1000
10	Overhead Wide View	110	580	-6650	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.

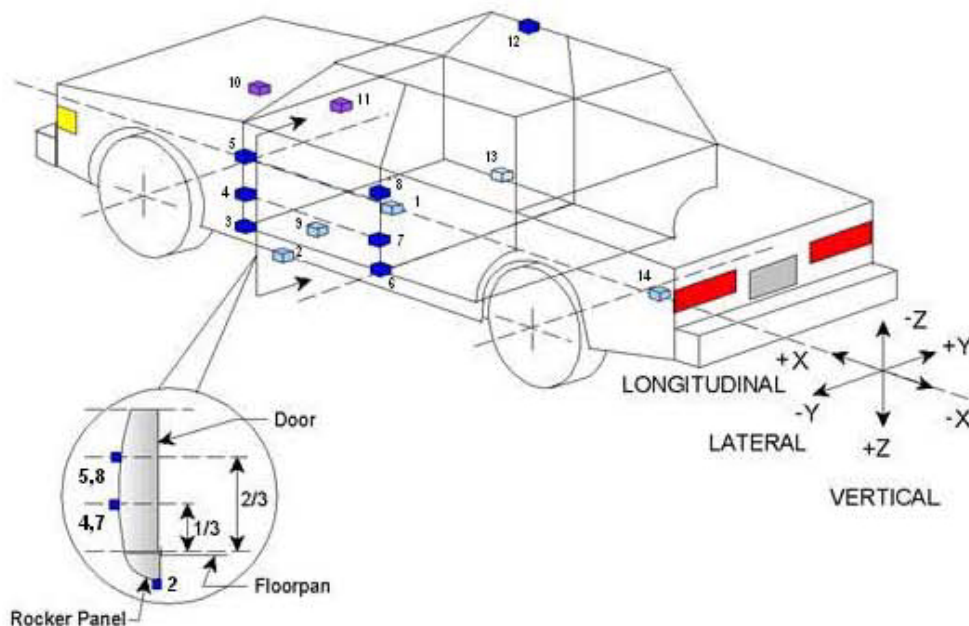
Explain why camera(s) did not operate as intended: None

INSTRUMENTATION	Number of Channels
Driver Dummy	19
Vehicle Structure	16
Pole Load Cells	8
TOTAL	43

DATA SHEET NO. 6 **VEHICLE ACCELEROMETER DATA**

Test Vehicle: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185801
 Test Date: 8/22/2017



	Accelerometer Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2818	0	-303
2	Left Floor Sill	3231	-828	-286
3	A Pillar Sill	3476	-828	-282
4	A Pillar Low	3516	-882	-728
5	A Pillar Mid	3518	-885	-952
6	B Pillar Sill	2505	-828	-301
7	B Pillar Low			
8	B Pillar Mid			
9	Driver Seat Track	2772	-445	-420
10	Engine Top	4318	0	-935
11	Firewall	4025	0	-1044
12	Right Roof	2480	676	-1722
13	Right Floor Sill	3231	828	-290
14	Rear Floorpan	867	0	-541

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: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185801
Test Date: 8/22/2017



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: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185801
Test Date: 8/22/2017

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Driver SID-IIs Dummy
Face	Curtain Airbag
Top of Head	Curtain Airbag
Left Side of Head	Curtain Airbag
Back of Head	Headrest
Left Shoulder	Side Torso/Pelvis Airbag
Upper Torso	Side Torso/Pelvis Airbag, Seat Back
Lower Torso	Side Torso/Pelvis Airbag, Seat Back
Left Hip	Side Torso/Pelvis Airbag
Left Knee	Door Panel

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: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185801
Test Date: 8/22/2017

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

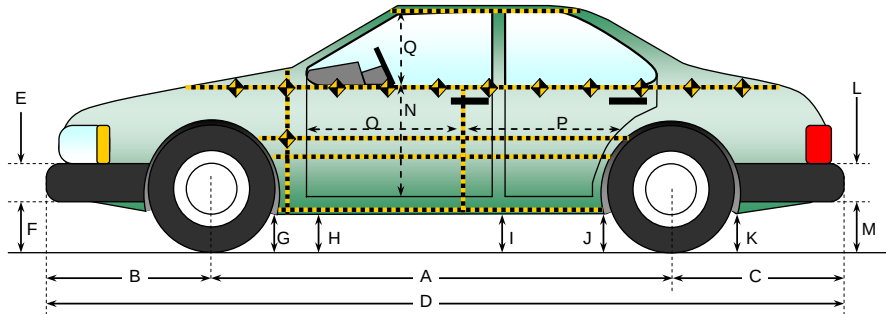
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT, AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1126
Actual Impact Point (Aft of Front Axle)	mm		1134
Horizontal Offset (+forward / -rearward)	mm	+/- 38 of Intended Impact Point	-8
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	deg	75 +/- 3	75.3
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.55
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.71

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185801
Test Date: 8/22/2017



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

LEFT SIDE VIEW

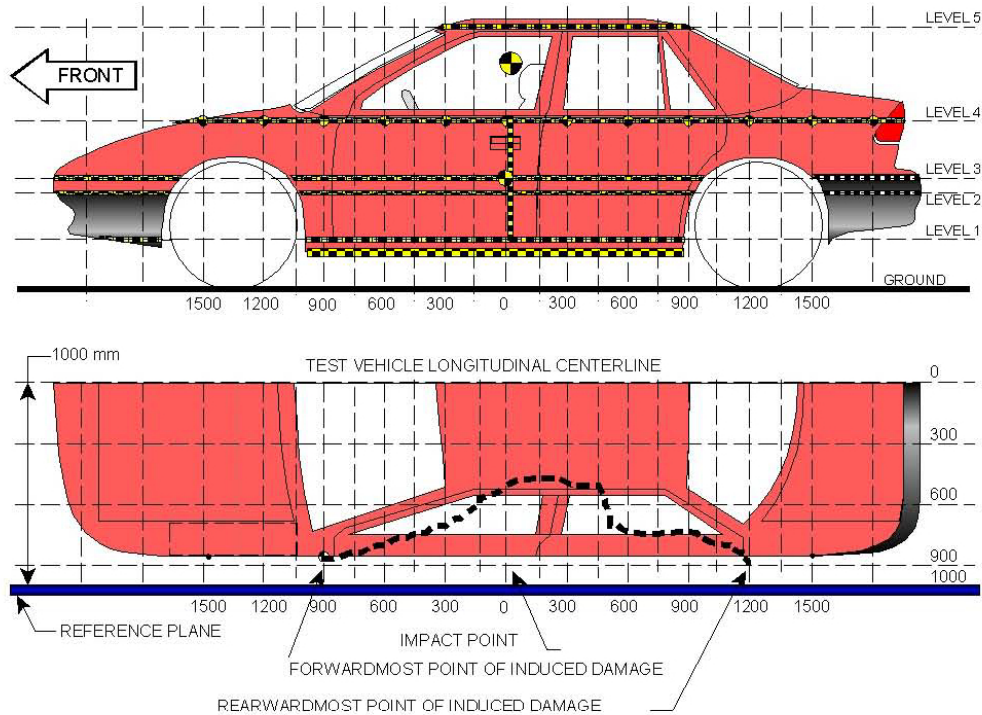
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2979	2933	46
B	Front Axle to FSOV	904	954	-50
C	Rear Axle to RSOV	1137	1139	-2
D	Total Vehicle Length at Centerline	5020	5026	-6
E	Front Bumper Thickness	125	125	0
F	Front Bumper Bottom to Ground	237	221	16
G	Sill Height at Front Wheel Well	268	261	7
H	Sill Height at Front Door Leading Edge	262	259	3
I	Sill Height at B-Pillar	275	291	-16
J1	Sill Height at Rear Wheel Well	289	294	-5
J2	Pinch Weld Height at Rear Wheel Well	273	279	-6
K	Sill Height Aft of Rear Wheel Well	302	309	-7
L	Rear Bumper Thickness	150	150	0
M	Rear Bumper Bottom to Ground	338	332	6
N	Sill Height to Bottom of Front Window Sill	731	699	32
O	Front Door Leading Edge to Impact CL	674	537	137
P	Rear Door Trailing Edge to Impact CL	1376	1321	55
Q	Front Window Opening	449	432	17
R	Right Side Length	4319	4327	-8
S	Left Side Length	4319	4227	92
T	Vehicle Width at B-Pillars	1980	1869	111

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

Test Vehicle: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185801
 Test Date: 8/22/2017



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

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	532	333	-75
2	Occupant Hip Point	722	343	-75
3	Mid Door	746	344	-75
4	Window Sill	1153	302	-75
5	Window Top	1683	112	0

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

Test Vehicle: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185801
 Test Date: 8/22/2017

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-2700															
-2550															
-2400															
-2250															
-2100															
-1950															
-1800															
-1650															
-1500															
-1350				263					254					-9	
-1200				247					248					1	
-1050				236					247					11	
-900			109	227				127	237				18	10	
-825															
-750	126	114	114	220		148	138	139	246		22	24	25	26	
-675															
-600	131	123	123	212		165	160	163	250		34	37	40	38	
-525	132	122	122	204		206	186	189	267		74	64	67	63	
-450	134	121	120	200		252	228	229	285		118	107	109	85	
-375	133	120	119	193		296	271	273	314		163	151	154	121	
-300	132	119	118	190		338	318	318	348		206	199	200	158	
-225	130	118	118	187		386	374	374	396		256	256	256	209	
-150	129	118	117	185		431	435	435	454		302	317	318	269	
-75	128	117	116	183		461	460	460	485		333	343	344	302	
0	127	117	116	181	429	437	458	459	482	541	310	341	343	301	112
75	124	116	116	180	417	397	418	421	450	526	273	302	305	270	109
150	123	116	116	177	414	332	353	356	395	515	209	237	240	218	101
225	122	116	116	177	412	270	290	294	357	503	148	174	178	180	91
300	122	116	117	176	410	230	250	252	327	496	108	134	135	151	86
375	122	117	117	175	407	189	205	209	291	483	67	88	92	116	76
450	123	119	119	175	407	218	214	214	271	477	95	95	95	96	70
525	122	119	119	175	407	209	207	207	264	472	87	88	88	89	65
600	122	120	120	176	406	205	204	203	262	471	83	84	83	86	65
675															
750	122	122	122	175	408	190	190	190	248	461	68	68	68	73	53
825															
900	122	125	124	177	408	169	173	174	231	447	47	48	50	54	39
1050	123	126	126	177	412	150	155	155	214	434	27	29	29	37	22
1200	123	118	120	179	415	139	137	138	206	433	16	19	18	27	18
1350		111	110	182	423		125	117	192	436		14	7	10	13
1500				183	425				178	438				-5	13
1650				182	433				198	447				16	14
1800				185	444				200	457				15	13
1950				195	457				209	468				14	11
2100				208	481				221	494				13	13
2250				219					231					12	
2400															
2550															
2700															

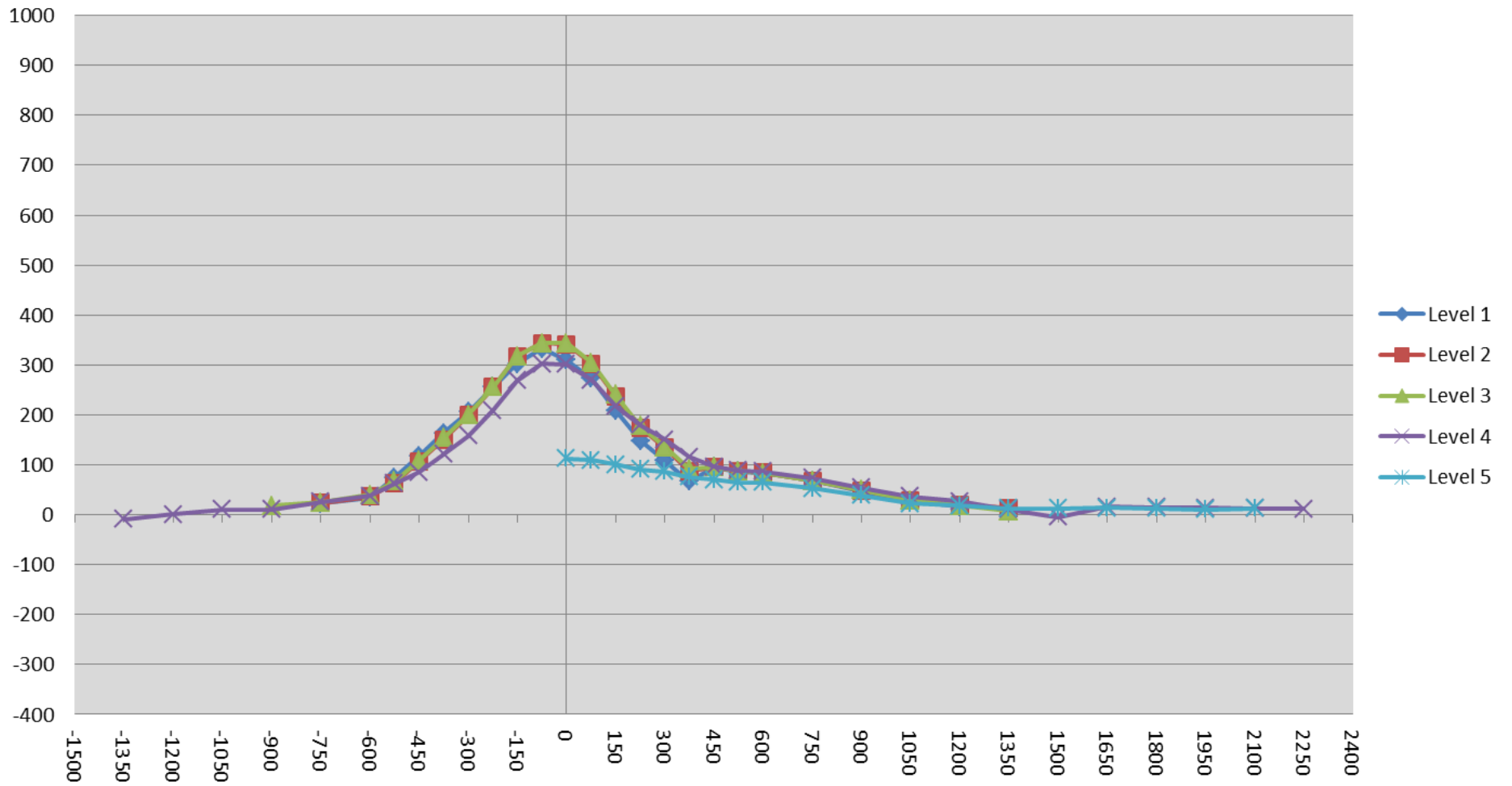
Pre-test measurements are taken when the vehicle is in the "As Tested" weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush pile grid is established prior to the test based on an estimated impact point. The final distance from impact is determined 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: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185801
Test Date: 8/22/2017

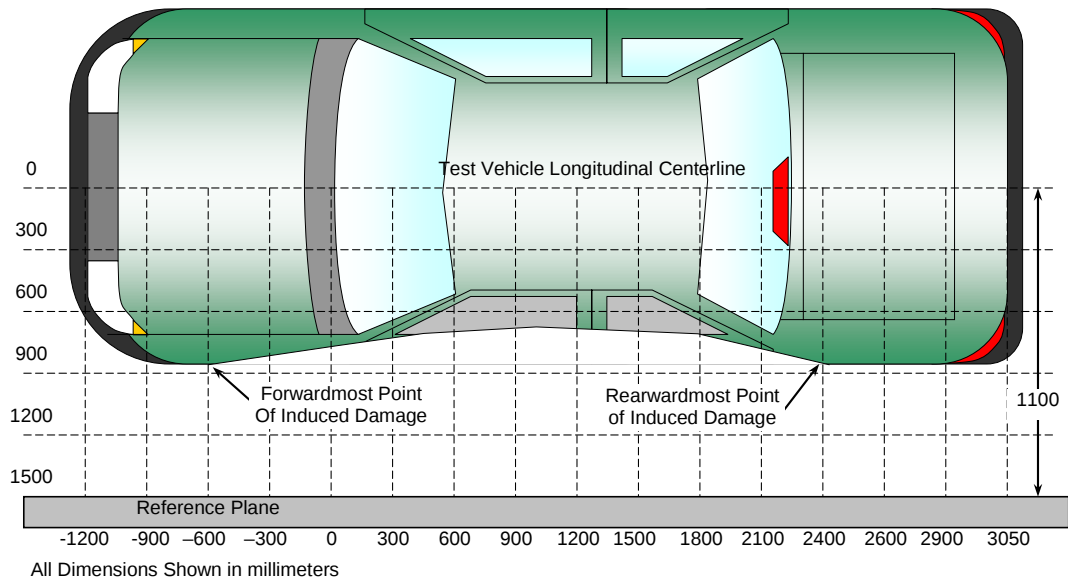
21



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

Test Vehicle: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185801
 Test Date: 8/22/2017



TOP VIEW

DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	410	3	118	216	98
2	192	3	116	316	200
3	-26	3	116	464	348
4	-244	3	118	359	241
5	-462	3	120	220	100
6	-680	3	117	142	25

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

Test Vehicle: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

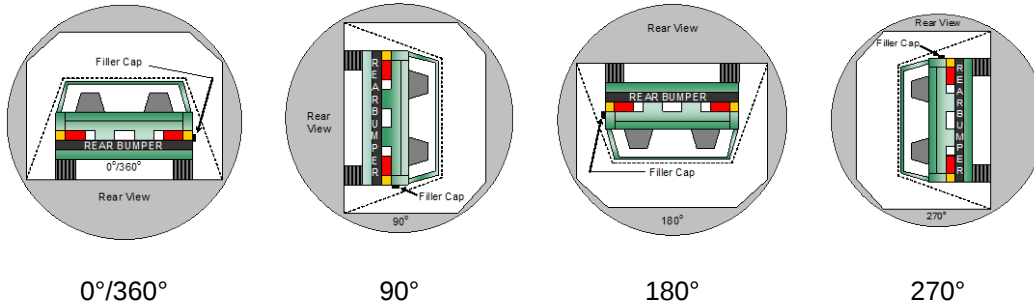
NHTSA No. O20185801
 Test Date: 8/22/2017

Test Time: 10:39 a.m.

Temperature: 22.1°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°	90	300	390
90° to 180°	92	300	392
180° to 270°	84	300	384
270° to 360°	86	300	386

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

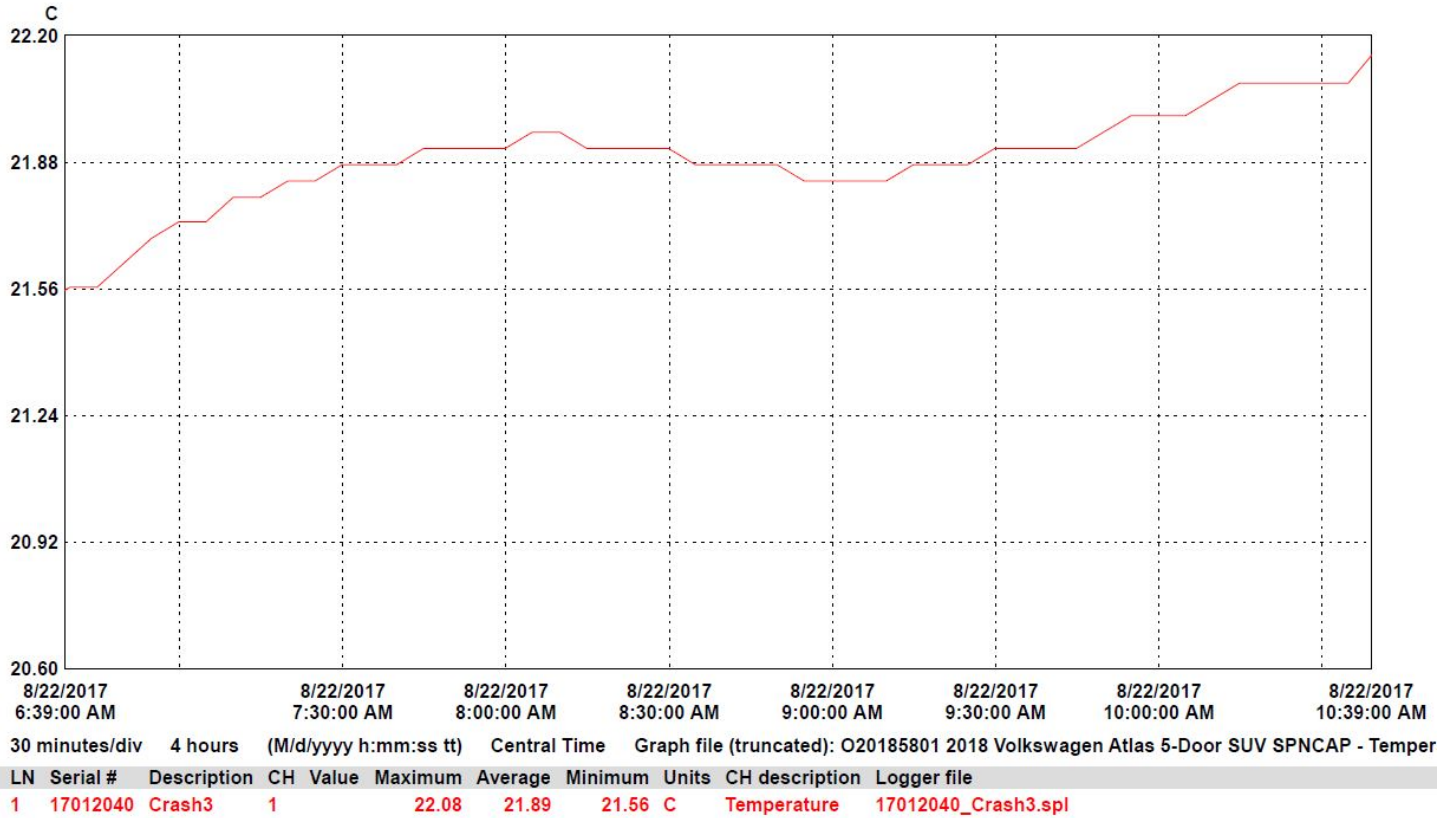
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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: 2018 Volkswagen Atlas Launch Edition 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185801
 Test Date: 8/22/2017



**APPENDIX A
PHOTOGRAPHS**

TABLE OF PHOTOGRAPHS

		<u>Page No.</u>
Photo No. 001	As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle	A-1
Photo No. 002	As Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle	A-1
Photo No. 003	Pre-Test Frontal View of Test Vehicle	A-2
Photo No. 004	Post-Test Frontal View of Test Vehicle	A-2
Photo No. 005	Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-3
Photo No. 006	Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-3
Photo No. 007	Pre-Test Left Side View of Test Vehicle	A-4
Photo No. 008	Post-Test Left Side View of Test Vehicle	A-4
Photo No. 009	Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-5
Photo No. 010	Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-5
Photo No. 011	Pre-Test Rear View of Test Vehicle	A-6
Photo No. 012	Post-Test Rear View of Test Vehicle	A-6
Photo No. 013	Pre-Test Right Side View of Test Vehicle	A-7
Photo No. 014	Post-Test Right Side View of Test Vehicle	A-7
Photo No. 015	Pre-Test Overhead View of Test Area	A-8
Photo No. 016	Post-Test Overhead View of Test Area	A-8
Photo No. 017	Pre-Test Left Side View of Pole Positioned Against Side of Vehicle	A-9
Photo No. 018	Pre-Test Right Side View of Pole Positioned Against Side of Vehicle	A-9
Photo No. 019	Pre-Test Close-Up View of Impact Point Target	A-10
Photo No. 020	Post-Test Close-Up View of Impact Point Target Showing Impact Location	A-10
Photo No. 021	Pre-Test Front Close-Up View of Dummy Head and Chest	A-11
Photo No. 022	Post-Test Front Close-Up View of Dummy	A-11
Photo No. 023	Pre-Test Left Side View of Dummy Showing Belt and Chalking	A-12
Photo No. 024	Pre-Test Left Side View of Dummy Shoulder and Door Top View	A-12
Photo No. 025	Post-Test Left Side View of Dummy Shoulder and Door Top View	A-13

		<u>Page No.</u>
Photo No. 026	Pre-Test Front View of Seat Back Prior to Dummy Positioning	A-13
Photo No. 027	Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint	A-14
Photo No. 028	Pre-Test Front View of Seat Pan Prior to Dummy Positioning	A-14
Photo No. 029	Pre-Test Overhead View of Dummy Thighs on Seat Pan	A-15
Photo No. 030	Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket	A-15
Photo No. 031	Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level	A-16
Photo No. 032	Pre-Test Placement of Dummy's Feet	A-16
Photo No. 033	Pre-Test View of Belt Anchorage for Dummy	A-17
Photo No. 034	Pre-Test Left Side View of Steering Wheel	A-17
Photo No. 035	Pre-Test View of Disengaged Parking Brake	A-18
Photo No. 036	Pre-Test View of Parking Brake	A-18
Photo No. 037	Pre-Test Close-Up Left Side View of Driver Seat Track	A-19
Photo No. 038	Pre-Test Close-Up Left Side View of Driver Seat Back	A-19
Photo No. 039	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-20
Photo No. 040	Pre-Test Dummy and Door Clearance View	A-20
Photo No. 041	Post-Test Dummy and Door Clearance View	A-21
Photo No. 042	Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-21
Photo No. 043	Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-22
Photo No. 044	Pre-Test Inner Door Panel View	A-22
Photo No. 045	Post-Test Inner Door Panel View Showing Dummy Contact Location	A-23
Photo No. 046	Post-Test Dummy Close-Up Head Contact with Vehicle Interior View	A-23
Photo No. 047	Post-Test Dummy Close-Up Head Contact with Side Air Bag View	A-24
Photo No. 048	Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View	A-24
Photo No. 049	Post-Test Dummy Close-Up Torso Contact with Side Air Bag View	A-25
Photo No. 050	Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-25
Photo No. 051	Post-Test Dummy Close-Up Pelvis Contact with Side Air Bag View	A-26

		<u>Page No.</u>
Photo No. 052	Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View	A-26
Photo No. 053	Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-27
Photo No. 054	Post-Test View of Fuel Filler Cap or Fuel Filler Neck	A-27
Photo No. 055	Close-Up View of Vehicle's Certification Label	A-28
Photo No. 056	Close-Up View of Vehicle's Tire Information Placard or Label	A-28
Photo No. 057	Pre-Test Pole Barrier Front View	A-29
Photo No. 058	Post-Test Pole Barrier Front View	A-29
Photo No. 059	Pre-Test Pole Barrier Side View	A-30
Photo No. 060	Post-Test Pole Barrier Side View	A-30
Photo No. 061	Pre-Test Ballast View	A-31
Photo No. 062	Post-Test Primary and Redundant Speed Trap Read-Out	A-31
Photo No. 063	FMVSS No. 301 Static Rollover 0 Degrees	A-32
Photo No. 064	FMVSS No. 301 Static Rollover 90 Degrees	A-32
Photo No. 065	FMVSS No. 301 Static Rollover 180 Degrees	A-33
Photo No. 066	FMVSS No. 301 Static Rollover 270 Degrees	A-33
Photo No. 067	FMVSS No. 301 Static Rollover 360 Degrees	A-34
Photo No. 068	Impact Event	A-34
Photo No. 069	Monroney Label	A-35
Photo No. 070	Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-35
Photo No. 071	Post-Test View of Shattered Vehicle Inner Door Panel	A-36



Photo No. 001 - As Delivered Right Front Three-Quarter View of Test Vehicle



Photo No. 002 - As Delivered Left Rear Three-Quarter View of Test Vehicle

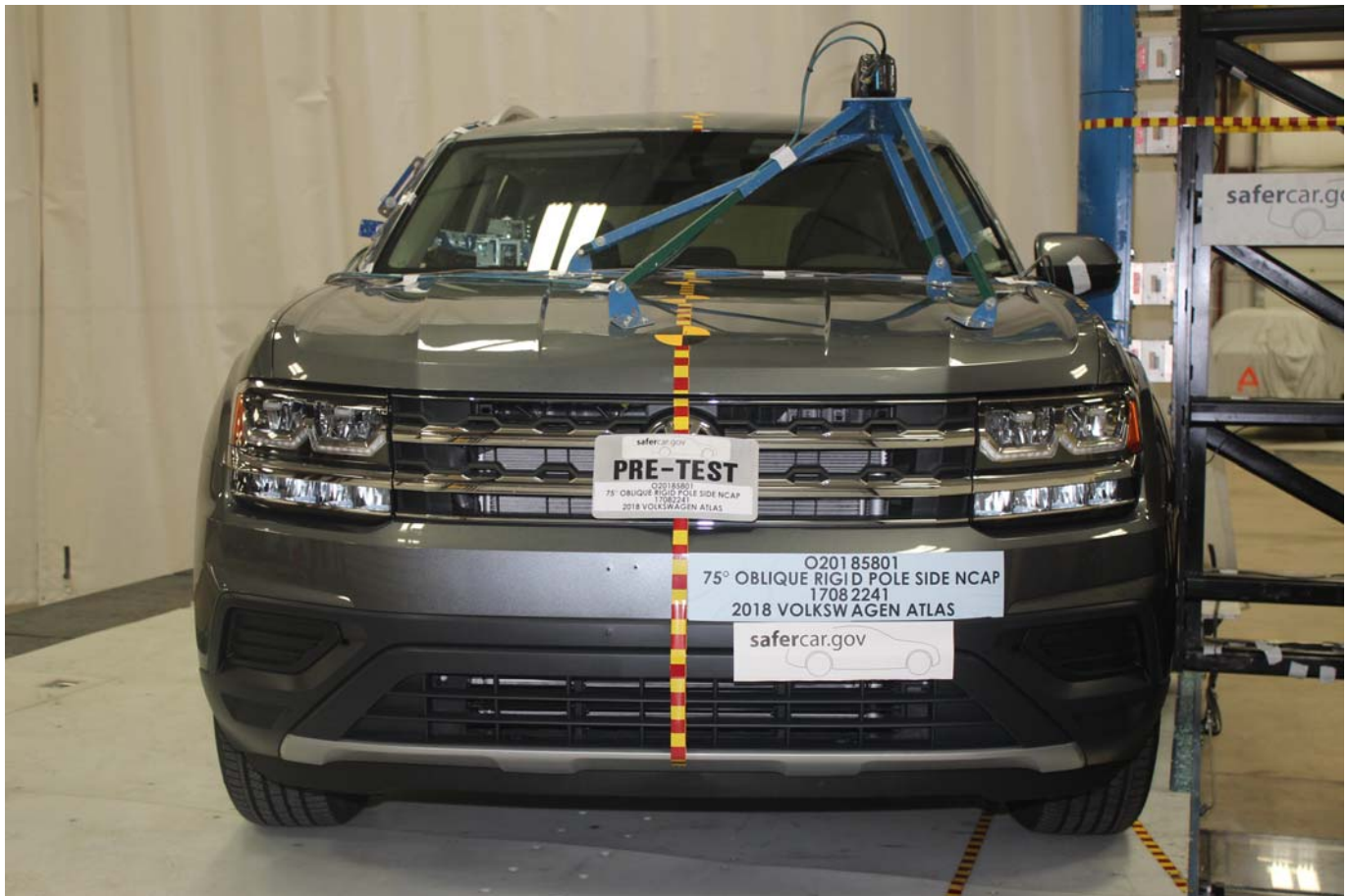


Photo No. 003 - Pre-Test Frontal View of Test Vehicle

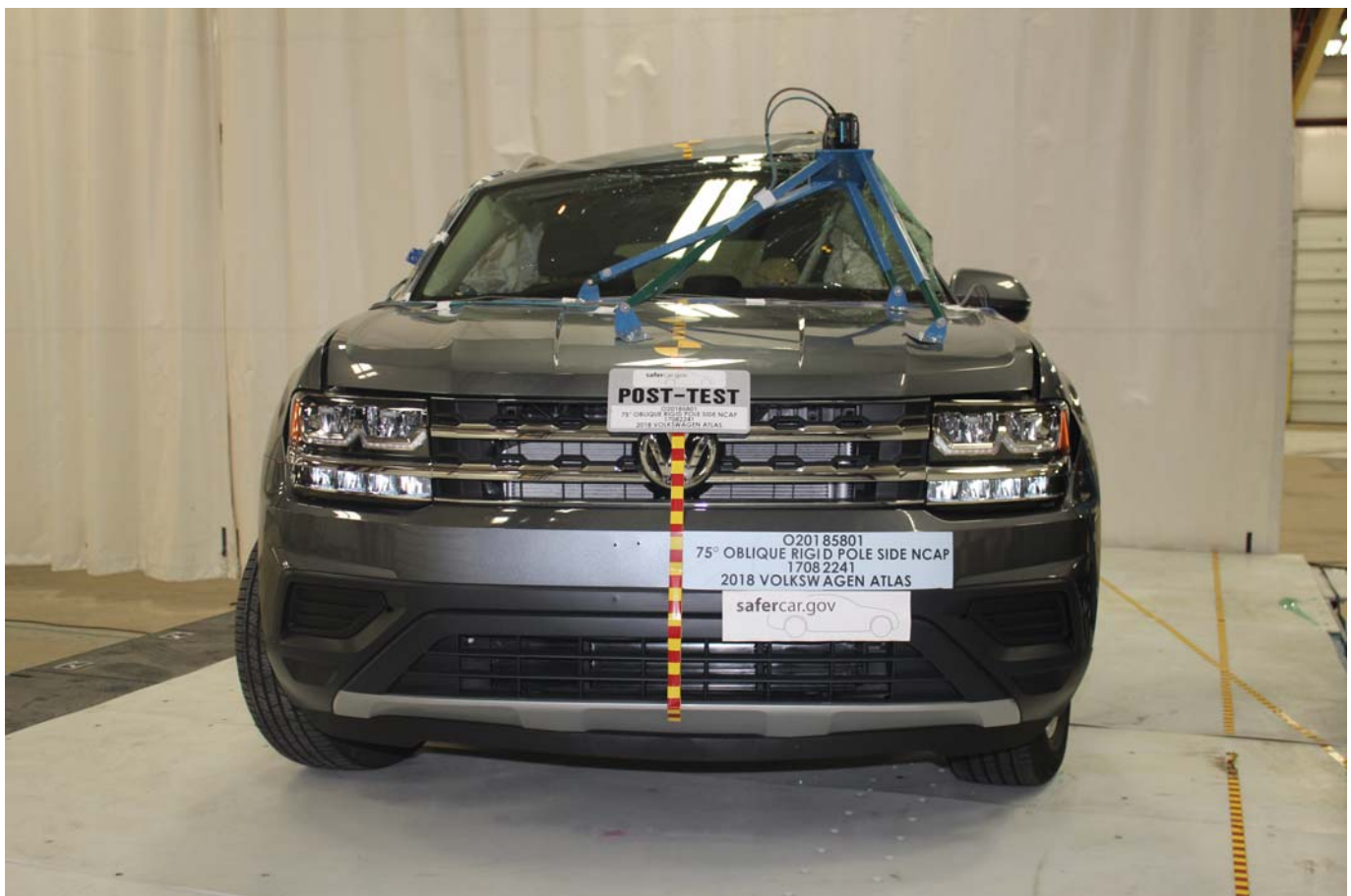


Photo No. 004 - Post-Test Frontal View of Test Vehicle



Photo No. 005 - Pre-Test Left Front Three-Quarter View of Test Vehicle



Photo No. 006 - Post-Test Left Front Three-Quarter View of Test Vehicle



Photo No. 007 - Pre-Test Left Side View of Test Vehicle



Photo No. 008 - Post-Test Left Side View of Test Vehicle



Photo No. 009 - Pre-Test Left Rear Three-Quarter View of Test Vehicle



Photo No. 010 - Post-Test Left Rear Three-Quarter View of Test Vehicle



Photo No. 011 - Pre-Test Rear View of Test Vehicle

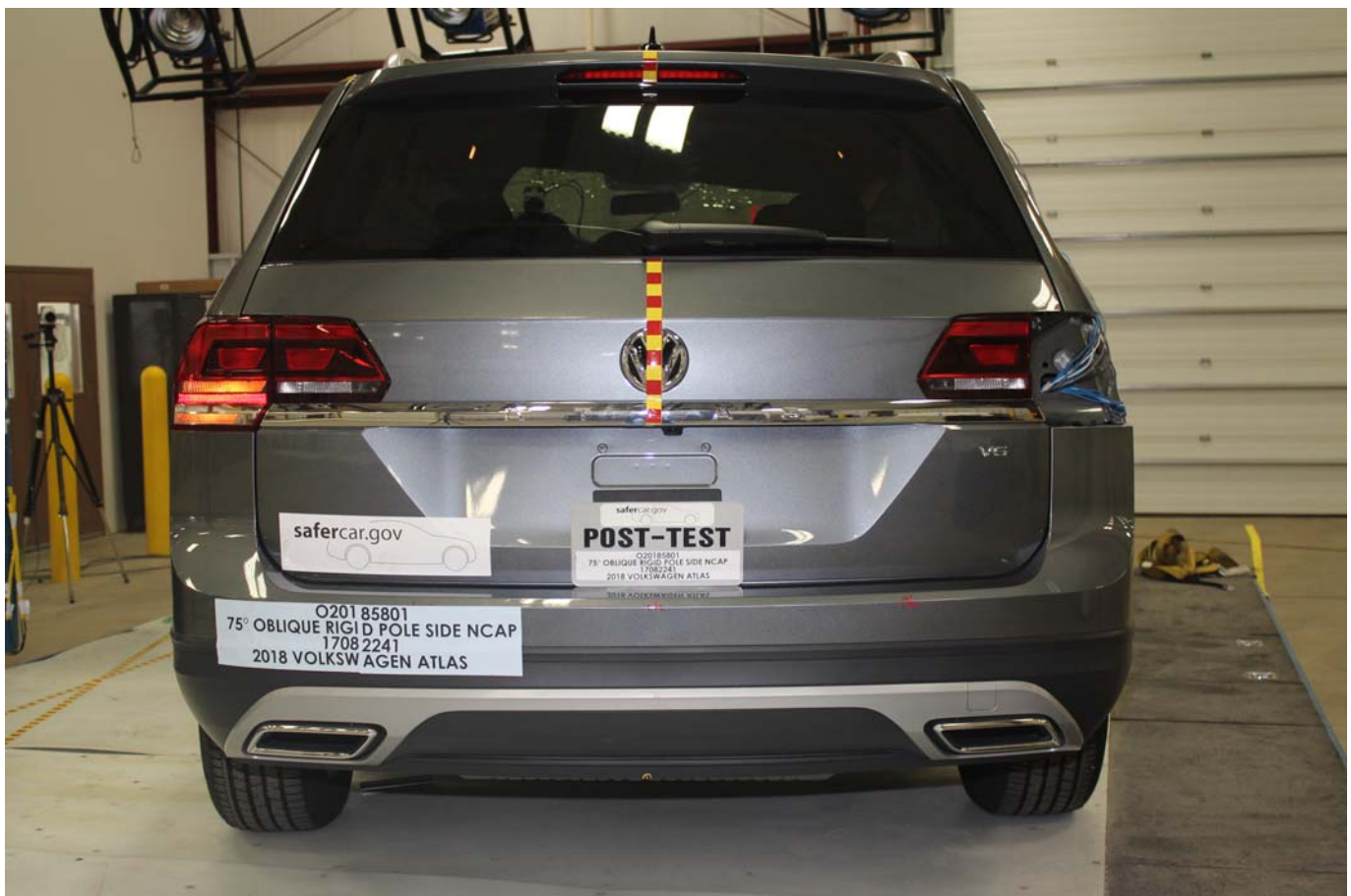


Photo No. 012 - Post-Test Rear View of Test Vehicle



Photo No. 013 - Pre-Test Right Side View of Test Vehicle



Photo No. 014 - Post-Test Right Side View of Test Vehicle

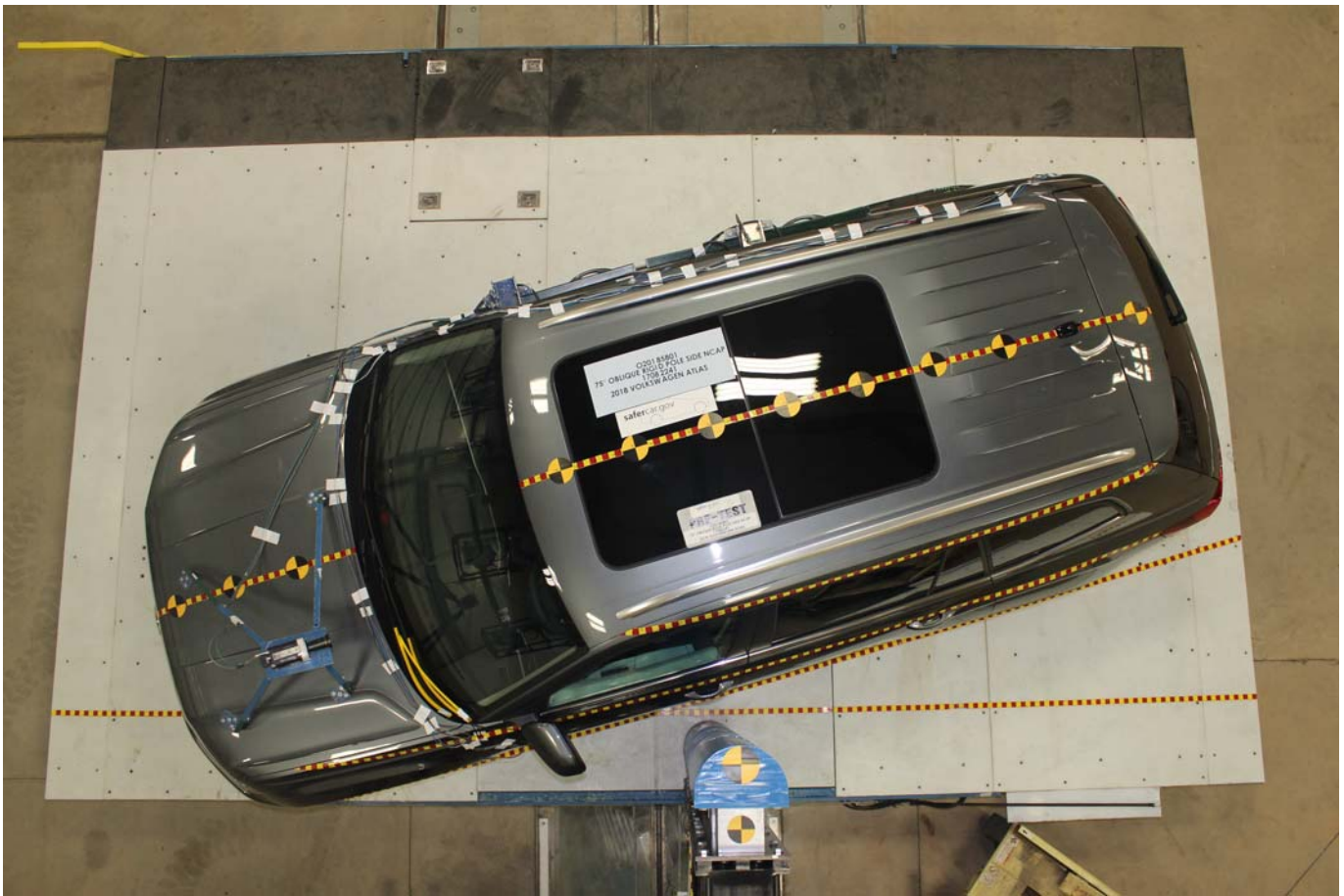


Photo No. 015 - Pre-Test Overhead View of Test Area

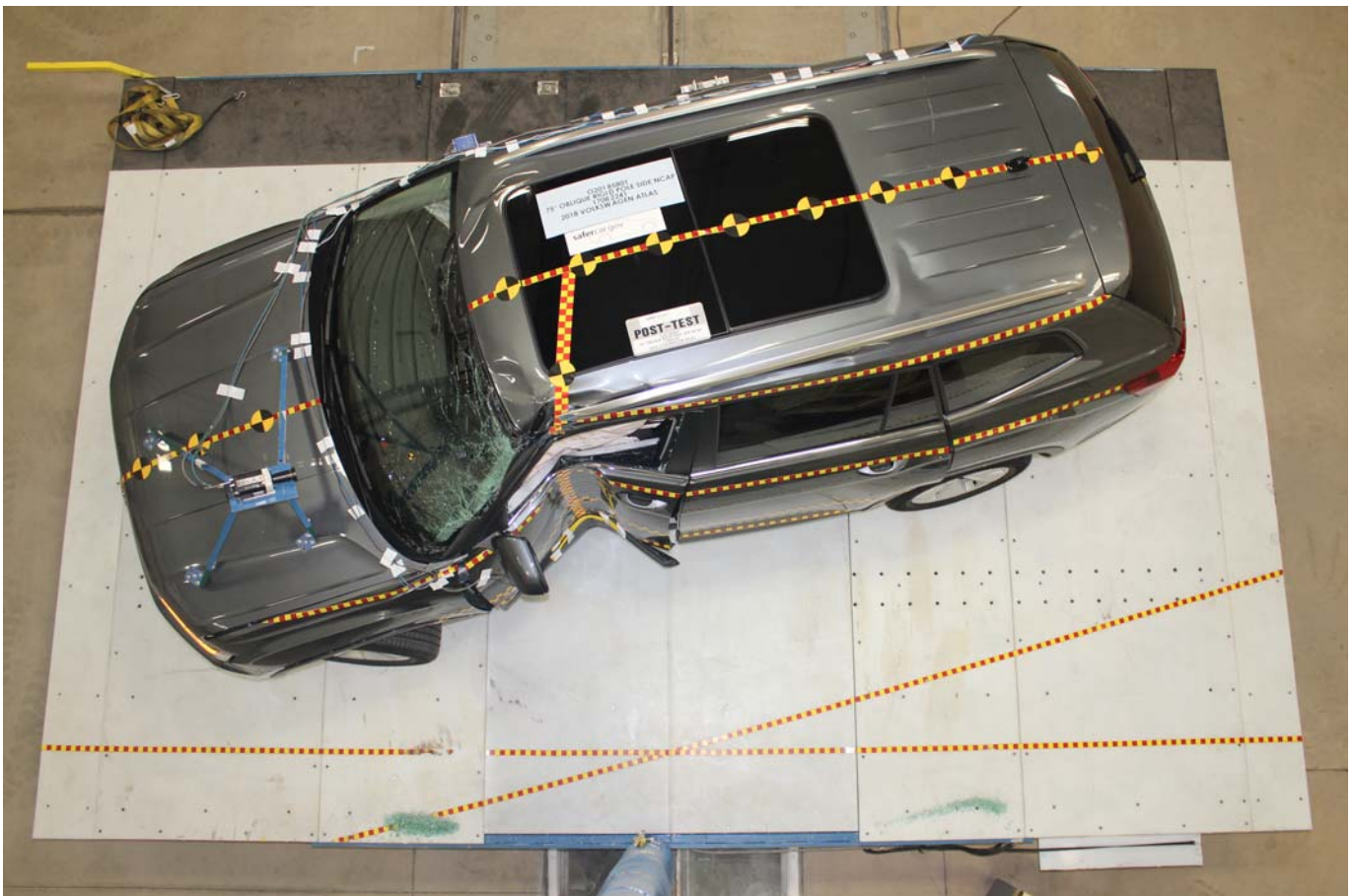


Photo No. 016 - Post-Test Overhead View of Test Area



Photo No. 017 - Pre-Test Left Side View of Pole Positioned Against Side of Vehicle

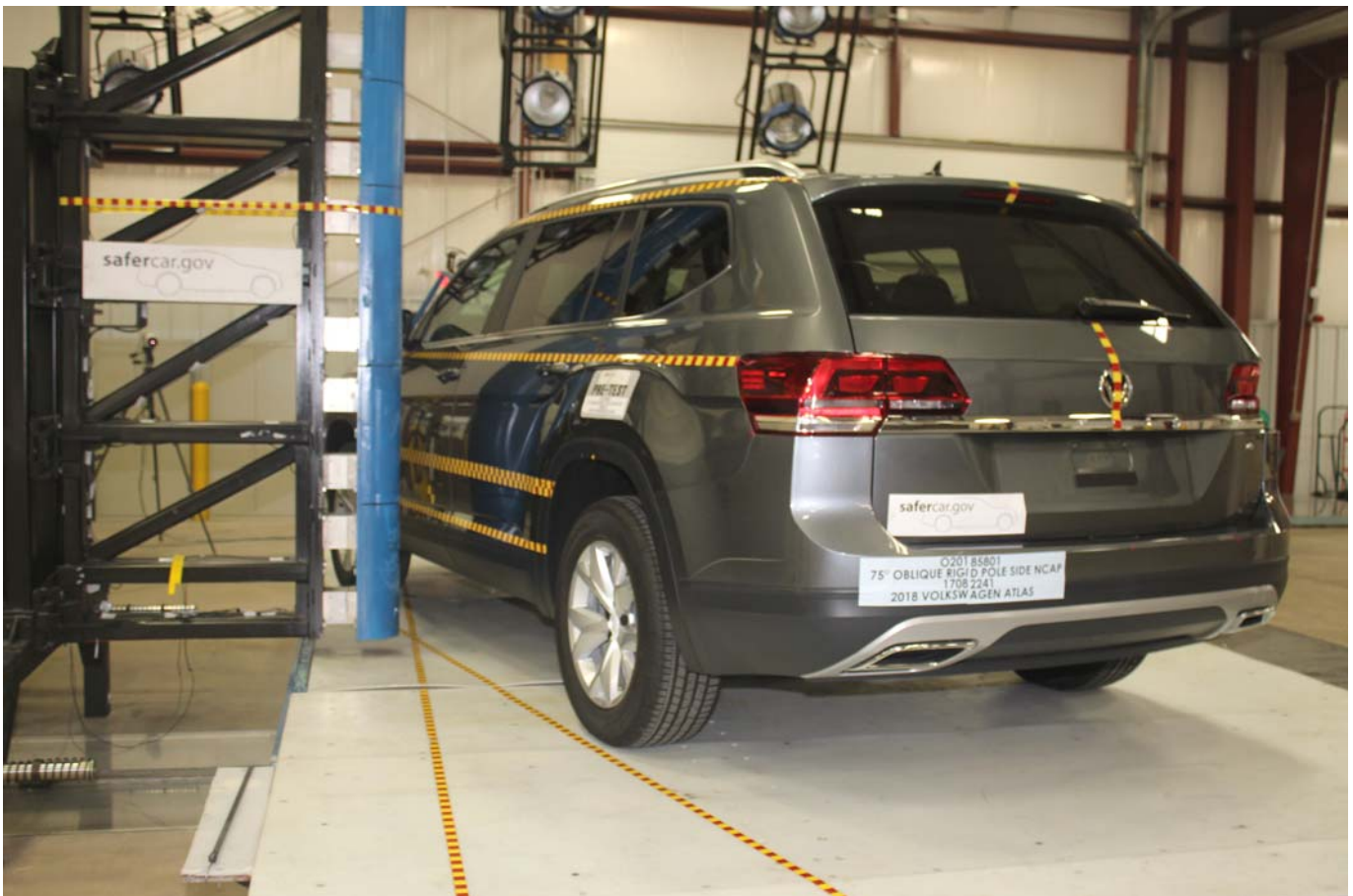


Photo No. 018 - Pre-Test Right Side View of Pole Positioned Against Side of Vehicle

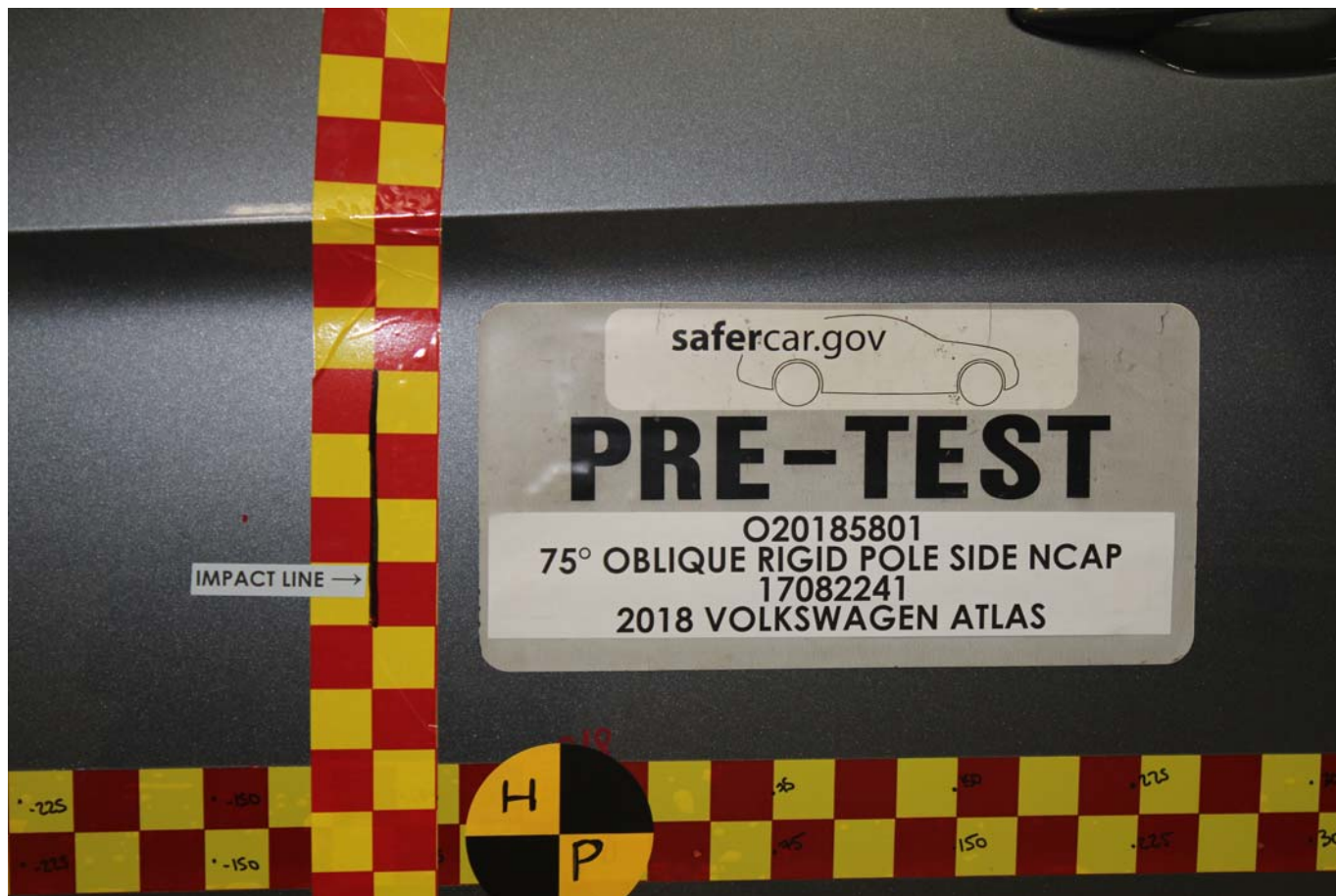


Photo No. 019 - Pre-Test Close-Up View of Impact Point Target

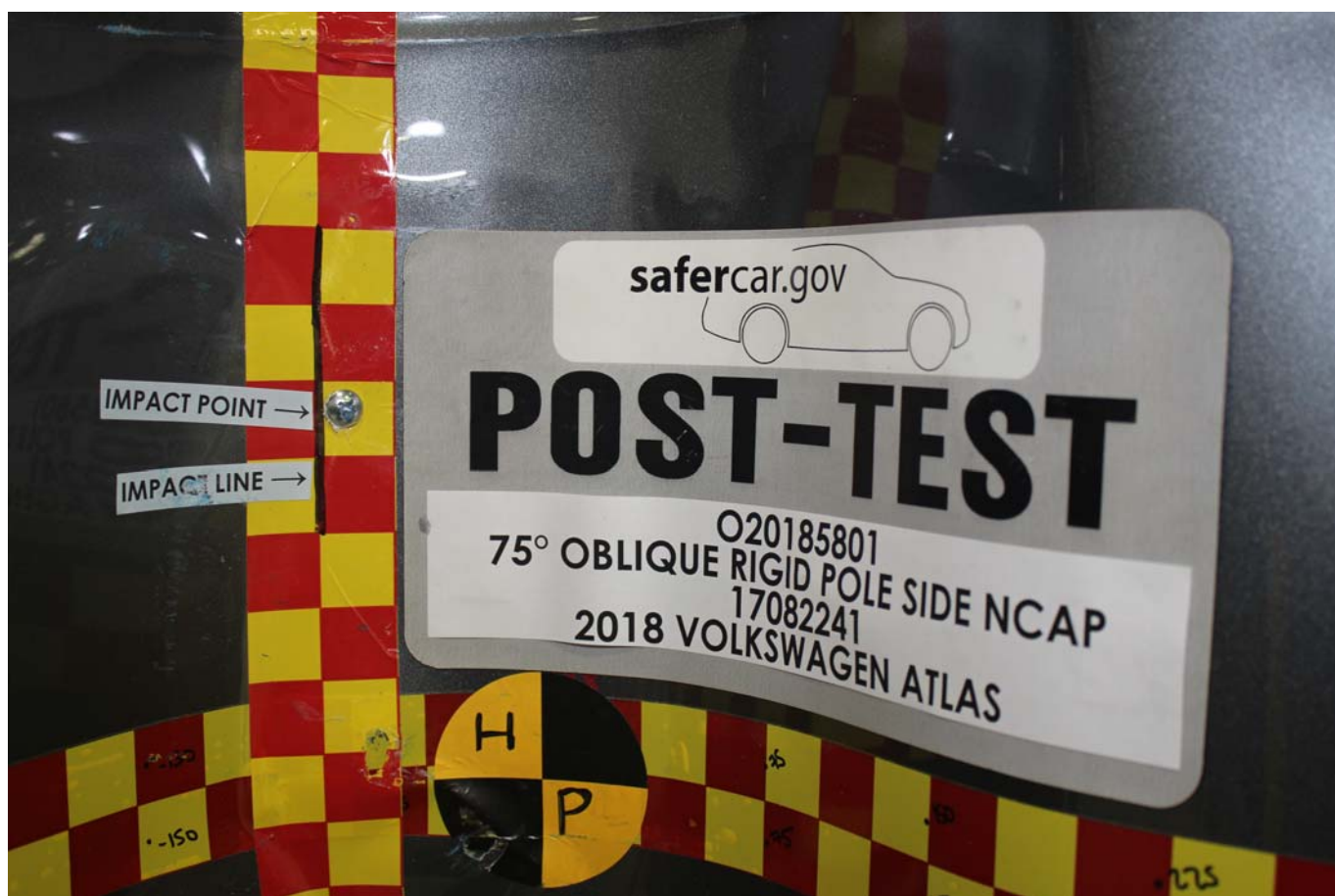


Photo No. 020 - Post-Test Close-Up View of Impact Point Target Showing Impact Location



Photo No. 021 - Pre-Test Front Close-Up View of Dummy Head and Chest



Photo No. 022 - Post-Test Front Close-Up View of Dummy



Photo No. 023 - Pre-Test Left Side View of Dummy Showing Belt and Chalking



Photo No. 024 - Pre-Test Left Side View of Dummy Shoulder and Door Top View



Photo No. 025 - Post-Test Left Side View of Dummy Shoulder and Door Top View



Photo No. 026 - Pre-Test Front View of Seat Back Prior to Dummy Positioning



Photo No. 027 - Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint



Photo No. 028 - Pre-Test Front View of Seat Pan Prior to Dummy Positioning



Photo No. 029 - Pre-Test Overhead View of Dummy Thighs on Seat Pan



Photo No. 030 - Pre-Test Left Side View of Dummy Neck Showing Position of Adjustable Neck Bracket



Photo No. 031 - Pre-Test Left Side View of Dummy Head Showing Dummy Head is Level



Photo No. 032 - Pre-Test Placement of Dummy Feet



Photo No. 033 - Pre-Test View of Belt Anchorage for Dummy



Photo No. 034 - Pre-Test Left Side View of Steering Wheel



Photo No. 035 - Pre-Test View of Disengaged Parking Brake



Photo No. 036 - Pre-Test View of Parking Brake



Photo No. 037 - Pre-Test Close-Up Left Side View of Driver Seat Track



Photo No. 038 - Pre-Test Close-Up Left Side View of Driver Seat Back



Photo No. 039 - Pre-Test Close-Up View of Driver Seat Back or Head Restraint



Photo No. 040 - Pre-Test Dummy and Door Clearance View



Photo No. 041 - Post-Test Dummy and Door Clearance View



Photo No. 042 - Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment



Photo No. 043 - Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment

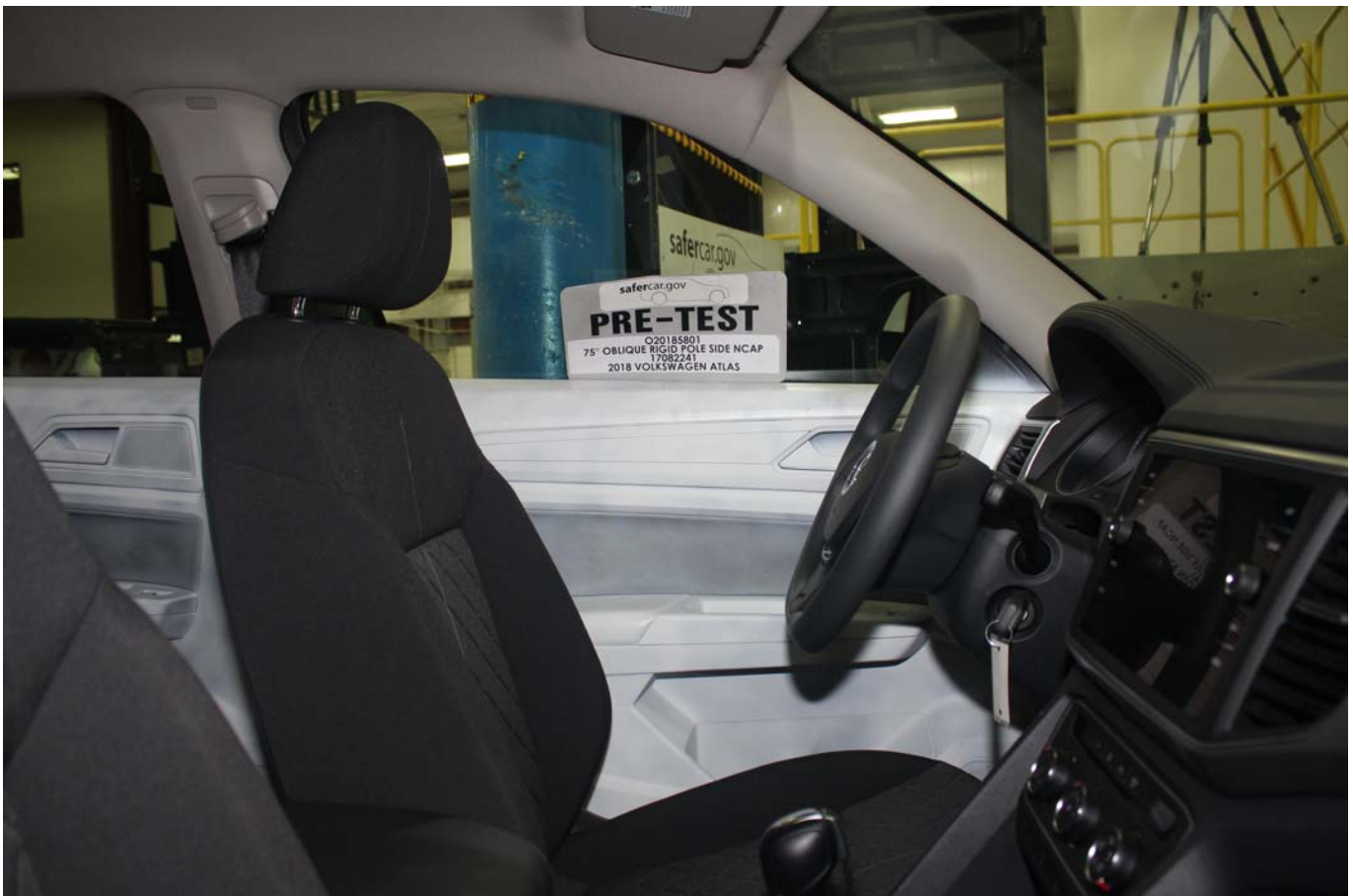


Photo No. 044 - Pre-Test Inner Door Panel View

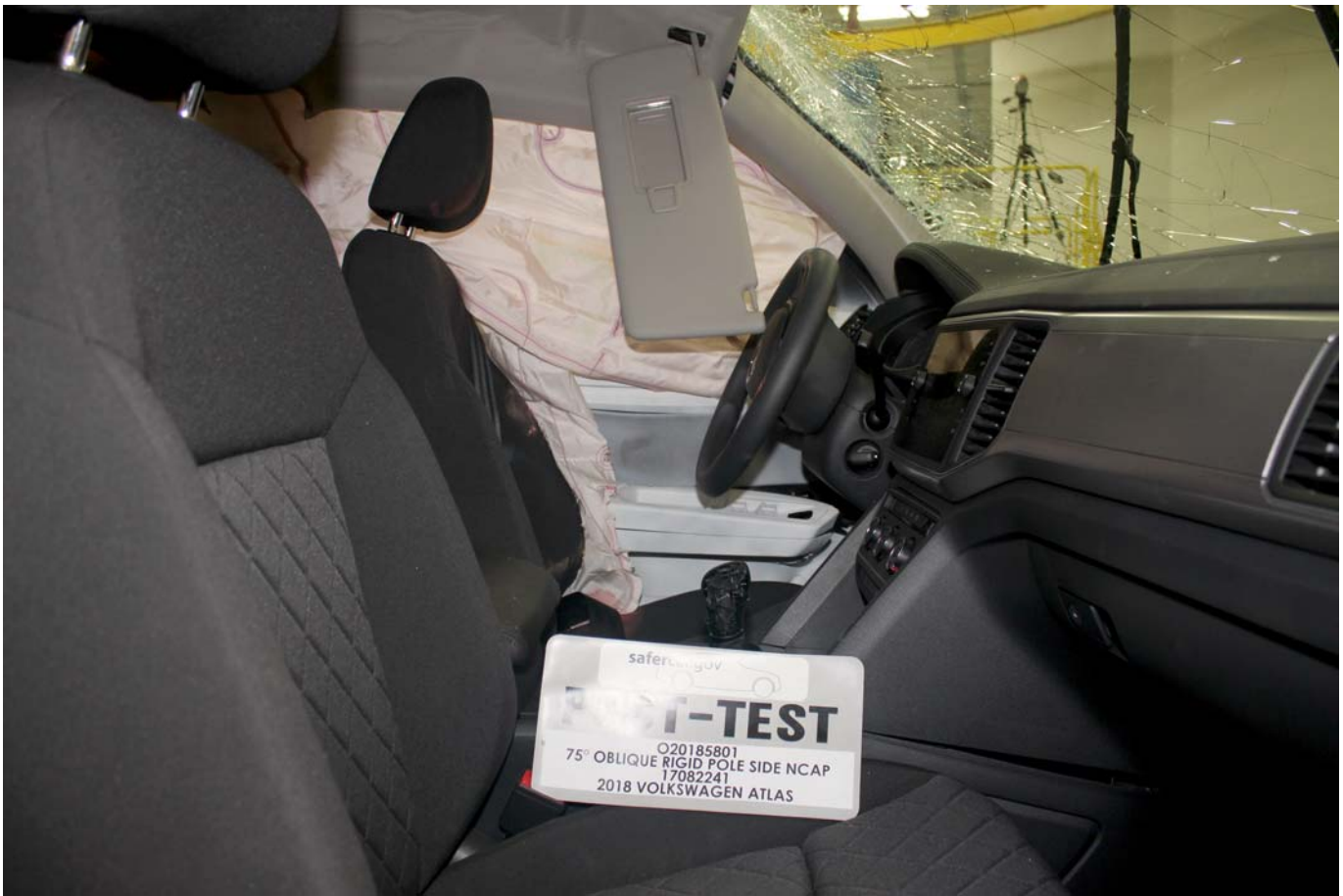


Photo No. 045 - Post-Test Inner Door Panel View Showing Dummy Contact Location



Photo No. 046 - Post-Test Dummy Close-Up Head Contact with Vehicle Interior View



Photo No. 047 - Post-Test Dummy Close-Up Head Contact with Side Air Bag View



Photo No. 048 - Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View



Photo No. 049 - Post-Test Dummy Close-Up Torso Contact with Side Air Bag View



Photo No. 050 - Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View



Photo No. 051 - Post-Test Dummy Close-Up Pelvis Contact with Side Air Bag View



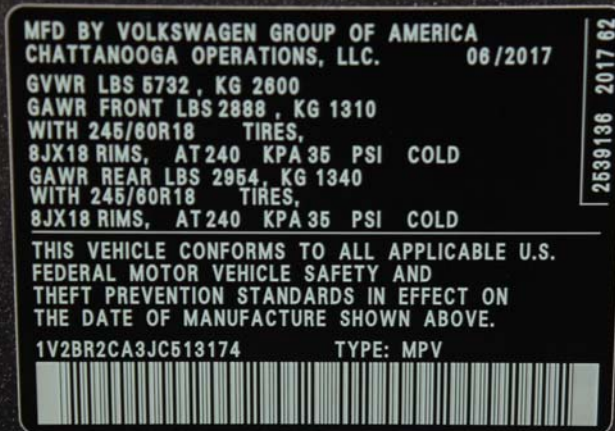
Photo No. 052 - Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View



Photo No. 053 - Pre-Test View of Fuel Filler Cap or Fuel Filler Neck

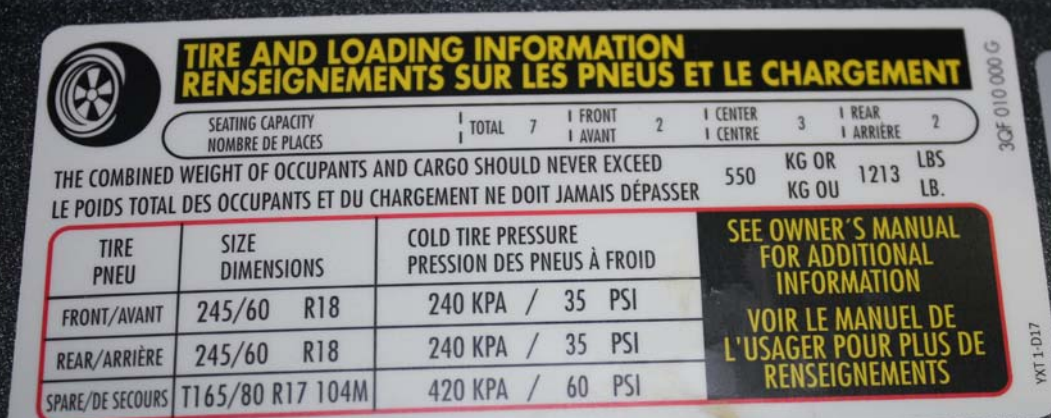


Photo No. 054 - Post-Test View of Fuel Filler Cap or Fuel Filler Neck



O20185801

Photo No. 055 - Close-Up View of Vehicle Certification Label



O20185801

Photo No. 056 - Close-Up View of Vehicle Tire Information Placard or Label



Photo No. 057 - Pre-Test Pole Barrier Front View



Photo No. 058 - Post-Test Pole Barrier Front View



Photo No. 059 - Pre-Test Pole Barrier Side View



Photo No. 060 - Post-Test Pole Barrier Side View

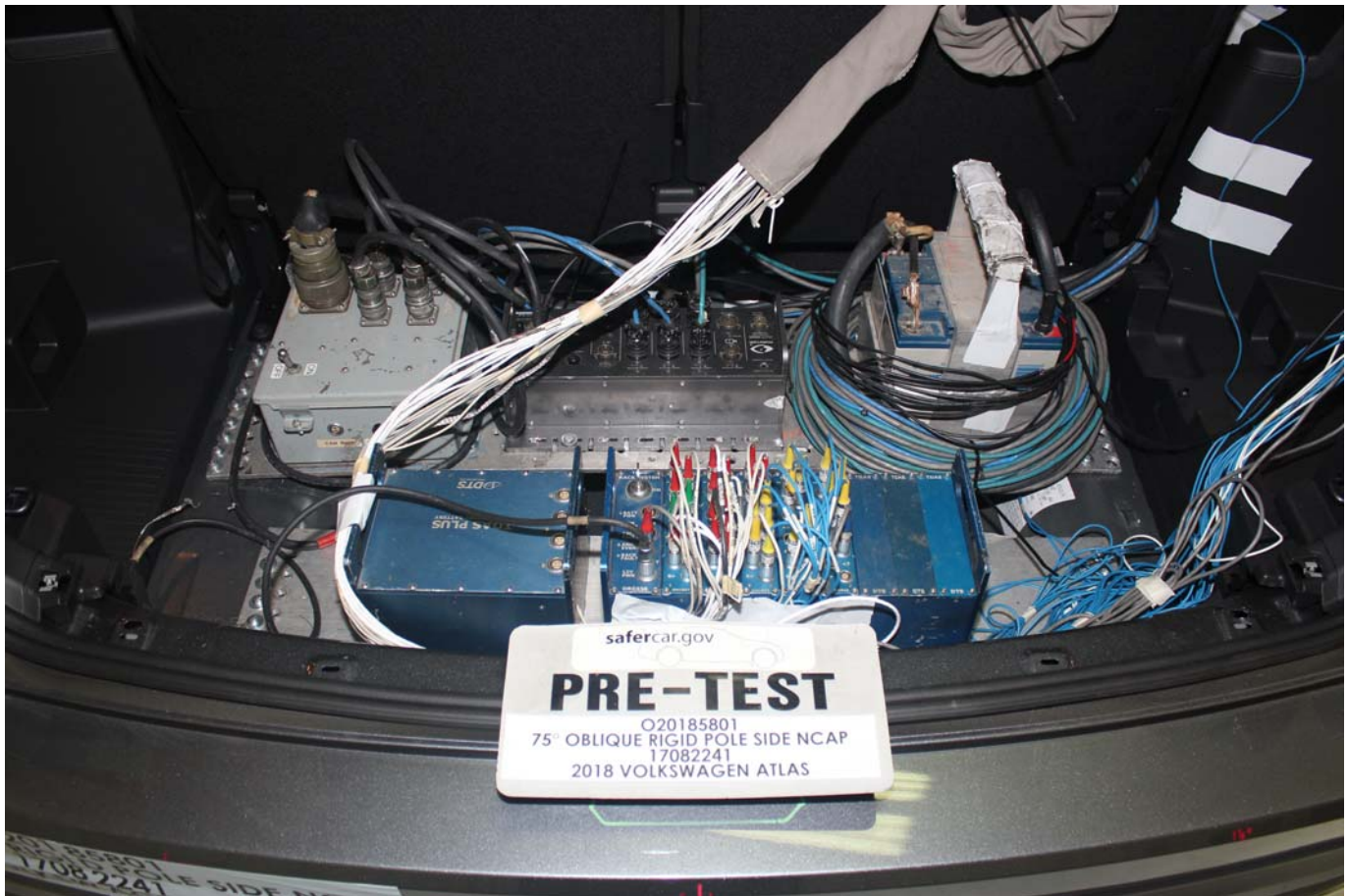


Photo No. 061 - Pre-Test Ballast View



Photo No. 062 - Post-Test Primary and Redundant Speed Trap Read-Out



Photo No. 063 - FMVSS Photo No. 301 Static Rollover 0 Degrees



Photo No. 064 - FMVSS Photo No. 301 Static Rollover 90 Degrees



Photo No. 065 - FMVSS Photo No. 301 Static Rollover 180 Degrees



Photo No. 066 - FMVSS Photo No. 301 Static Rollover 270 Degrees



Photo No. 067 - FMVSS Photo No. 301 Static Rollover 360 Degrees



Photo No. 068 - Impact Event

2018 Atlas V6 Launch Edition

Platinum Gray Metallic Exterior Titan Black Cloth Interior

135 miles



STANDARD FEATURES (unless replaced by options)

- PERFORMANCE**
- 3.6L 24-valve DOHC narrow-angle V6 engine w/ FSI® direct fuel injection
 - Front-wheel-drive
 - Four-wheel independent suspension

SAFETY FEATURES

- Driver & front passenger front & side airbag supplemental restraint systems
- Side Curtain Protection® head impact airbags
- 3-point safety belts, all seating positions
- Anti-lock Braking System (ABS) w/ disc brakes
- Anti-Slip Regulation (ASR) & Engine Brake Assist (EBA)
- Electronic Brake-pressure Distribution (EBD) & Hydraulic Brake Assist (HBA)
- Electronic Stability Control (ESC) & Electronic Differential Lock (EDL)
- Intelligent Crash Response System (ICRS)
- Lower Anchors & Tethers for Children (LATCH)
- Tire Pressure Monitoring System (TPMS)

EXTERIOR

- 18" alloy wheels w/ all-season tires
- LED headlights w/ LED Daytime Running Lights (DRL)
- Foldable, power adjustable side mirrors w/ integrated turn signals
- Variable intermittent front wipers
- Silver roof rails & chrome window trim
- Power tilting & sliding panoramic sunroof

INTERIOR

- Dual-zone manual climate control w/ air vents for all three rows
- 3-spoke, multi-function steering wheel
- Tilting & telescoping adjustable steering column
- Driver's seat: 6-way manual w/ height adjustment
- Front passenger seat: 4-way manual
- 2nd-row seat: 60/40 split-folding, adjustable w/ 3rd-row Easy Access
- 3rd-row seat: 50/50 split-folding & folds flat
- Cloth seating surfaces
- Front center console w/ cup holders, armrest & storage
- Reading lights, all three rows (2 per row)

TECHNOLOGY

- Rear View Camera System
- Composition Media: 8" touchscreen AM/FM/DAB radio & CD player w/ USB input, aux-in & voice control
- 6-speaker sound system
- Bluetooth® connectivity (for compatible devices)
- SiriusXM® Satellite Radio (w/ limited time trial subscription)
- Cruise control
- Color multi-function display (MFD) w/ trip computer
- HomeLink® integrated garage door opener
- Electric parking brake

Manufacturer's Suggested Retail Price:

\$33,500.00

VW CAR-NET® EQUIPPED. Features include:

-> App-Connect® (Smartphone Integration & Interface)

DRIVER CARE PACKAGE

WARRANTY INFORMATION

- Volkswagen New Vehicle Limited Warranty
- 6 years/72,000 miles (whichever occurs first)
- Includes coverage for powertrain components
- Limited Warranty against Corrosion Perforation
- 7 years/100,000 miles (whichever occurs first)
- Please ask your dealer for a copy of the Volkswagen warranty booklet for details.
- 24-HOUR ROADSIDE ASSISTANCE
- 3 years/36,000 miles (whichever occurs first)
- (Towing, Jump Starts, Tire Changes, Out of Fuel, and Lock-Out)
- Provided by a third party supplier

PACKAGES/OPTIONS

- Platinum Gray Metallic Exterior No Charge
- Titan Black Cloth Interior No Charge
- Monster Mats® w/ Heavy Duty Trunk Liner & VW CarGo Blocks \$285.00
- Luggage Net for cargo area \$100.00
- Roadside Assistance Kit \$85.00
- 8-Speed Automatic w/ Tiptronic® No Charge

Destination Charge

\$925.00

Total Price:

\$34,895.00

Fuel, license, title fees, taxes and dealer-installed accessories are not included.

PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE: U.S./CANADIAN
PARTS CONTENT: 46%
MAJOR SOURCES OF FOREIGN: CHATTANOOGA TN, U.S.A.
COUNTRY OF ORIGIN: GERMANY
ENGINE: GERMANY
TRANSMISSION: JAPAN

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

Fuel Economy and Environment

Gasoline Vehicle

Fuel Economy

20 MPG
combined city/hwy

18 city
25 highway

5 gallons per 100 miles

Small Sport Utility Vehicles range from 18 to 34 MPG. The best vehicle rates 136 MPG.

You spend

\$2,250

more in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost

\$1,800

Fuel Economy & Greenhouse Gas Rating (tailpipe only)



This vehicle emits 435 grams of CO₂ per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also create emissions. Learn more at fuelconomy.gov.

Smog Rating (tailpipe only)



Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 27 MPG and costs \$6,790 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$2.40 per gallon. MPG is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuelconomy.gov

Calculate personalized estimates and compare vehicles

SOLD TO: 402120
LIBERTY IMPORT CENTER
920 S MILWAUKEE AVE
LIBERTYVILLE, IL 60048

SHIP TO: 402120
LIBERTY IMPORT CENTER
920 S MILWAUKEE AVE
LIBERTYVILLE, IL 60048

Port of Entry: CHATTANOOGA
VIN: 1V2BR2CA3JC513174



GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score Not Rated

Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.

Frontal Crash Driver Passenger Not Rated

Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.

Side Crash Front Seat Rear Seat Not Rated

Based on the risk of injury in a side impact.

Rollover Not Rated

Based on the risk of rollover in a single-vehicle crash.

Star ratings range from 1 to 5 stars (★★★★★) with 5 being the highest.

Source: National Highway Traffic Safety Administration (NHTSA).

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

Who better to get you into a Volkswagen than us?

Volkswagen Credit



Photo No. 069 - Monroney Label

Adjusting the height of the rear head restraints

- Push the head restraint up.
- To lower the headrest, first push the headrest down as far as it will go. Then push the button → Fig. 85 (1) or → Fig. 86 (1) and push the head restraint down completely.
- The head restraint must lock securely in position. There are two possible positions for the head restraints in the second row and one possible position for the head restraints in the third row.

Proper head restraint adjustment

Adjust head restraints so that the upper edge of the head restraint is at least at eye level or higher. Position the back of the head as close as possible to the head restraint.

If the head restraints can be adjusted front to back, move the head restraints as close as possible to the back of the head.

Adjusting the head restraint for shorter people

Push the head restraint down as far as it will go, even if this means the person's head is still below the top edge of the head restraint. A small gap may remain between the head restraint and the backrest when the head restraint is all the way down.

Adjusting the head restraint for taller people

Pull the head restraint up as far as it will go.

Removing and reinstalling the head restraints

Please read the introductory information and heed the Warnings and Notice (1) and (2) on page 133.

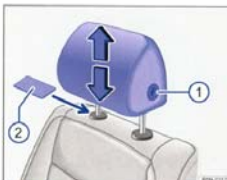


Fig. 87 Removing the front head restraints.

All seats are equipped with head restraints. The rear center head restraint is designed only for the center seat on the rear bench. Therefore, only install the center head restraint in the center position.

Removing the front head restraints

- Slide a flat object, such as a plastic credit card, underneath the right side of one seat guide rod cap → Fig. 87 (2).
- Use one hand to hold the release button in with the flat object. With your other hand, lift the same guide rod slightly to expose a notch in the rod at the bottom (can be seen and felt with fingers). This guide rod is now released.
- Repeat the process with the other guide rod.
- Pull the head restraint out completely.

Reinstalling the front head restraints

- Position head restraint rods properly over the head restraint guides of the respective seat backrest and insert the head restraint rod into the guides.
- Push the head restraint all the way down.
- Adjust the head restraint according to the occupant's size → page 134, Adjusting the front head restraints.

Removing and reinstalling the head restraints

Please read the introductory information and heed the Warnings and Notice (1) and (2) on page 133.



Fig. 88 Removing the second row head restraints.



Fig. 89 Removing the third row head restraints.

All seats are equipped with head restraints. The rear center head restraint is designed only for the center seat on the rear bench. Therefore, only install the center head restraint in the center position.

Removing the second row rear head restraints

- Pull the head restraint all the way up → Fig. 88 (1) in and hold it.
- Push button → Fig. 88 (2) in and hold it.
- Pull out the head restraint completely.

Removing the third row rear head restraints

- If necessary, unlock the backrest of the third row seat bench and fold it forward → page 132, Folding the third row of seats forward and back into place.
- Pull the head restraint all the way up → Fig. 89 (1) in and hold it.
- Press button → Fig. 89 (2) while pulling out the head restraint completely.
- Fold the backrest of the rear seat bench back so that it locks securely.

Reinstalling the rear head restraints (second and third row)

- If necessary, unlock the backrest of the third row seat bench and fold it forward → page 132, Folding the third row of seats forward and back into place.
- Position head restraint rods properly over the head restraint guides of the respective seat backrest and insert the head restraint rod into the guides.
- Push the head restraint down while pressing button → Fig. 88 (1) or → Fig. 89 (1).
- Fold the backrest of the third row seat bench back so that it locks securely.
- Adjust the head restraint according to the occupant's size → page 134, Adjusting the rear head restraints.

NOTICE

Before folding the third row backrest forward, adjust the second row seats so that the third row head restraints or backrest cushion will not touch the second row seats.

Seat functions

Introduction

WARNING

Improper use of seat adjustment controls can cause severe personal injuries.

- Never adjust head restraint while driving.

NOTICE

When removing or reinstalling the head restraint, take care that the head restraint does not strike the headliner or other parts of the vehicle. The headliner or other parts of the vehicle could otherwise be damaged.

Adjusting the front head restraints

Please read the introductory information and heed the Warnings and Notice (1) and (2) on page 133.



Fig. 84 Adjusting the front head restraints.

All seats are equipped with head restraints.

Adjusting the height of front head restraints

- While pressing the button → Fig. 84 (1), pull up or push down the head restraint → Fig. 84 (2) in introduction on page 133.
- The head restraint must lock securely in position.

Proper head restraint adjustment

Adjust head restraints so that the upper edge of the head restraint is at least at eye level or higher. Position the back of the head as close as possible to the head restraint.

If the head restraints can be adjusted front to back, move the head restraints as close as possible to the back of the head.

Adjusting the head restraint for shorter people

Push the head restraint down as far as it will go, even if this means the person's head is still below the top edge of the head restraint. A small gap

may remain between the head restraint and the backrest when the head restraint is all the way down.

Adjusting the head restraint for taller people

Pull the head restraint up as far as it will go.

Adjusting the rear head restraints

Please read the introductory information and heed the Warnings and Notice (1) and (2) on page 133.

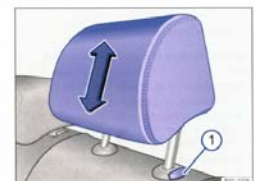


Fig. 85 Adjusting the second row head restraints.



Fig. 86 Adjusting the third row head restraints.

All seats are equipped with head restraints.



Photo No. 071 - 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 Head Angular Velocity X (Deg/Sec) vs. Time
Driver Head Angular Velocity Y (Deg/Sec) vs. Time
Driver Head Angular Velocity Z (Deg/Sec) 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)

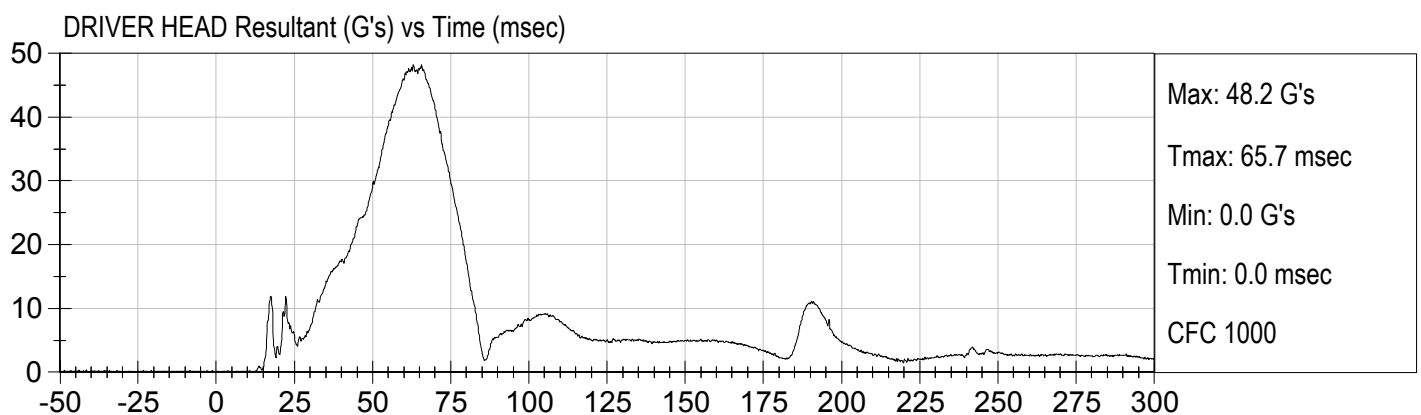
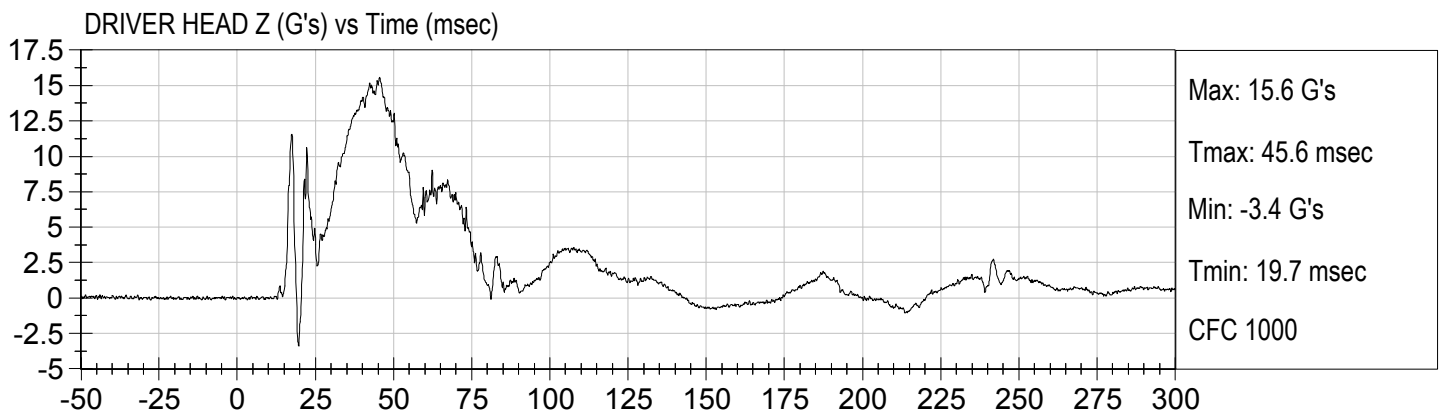
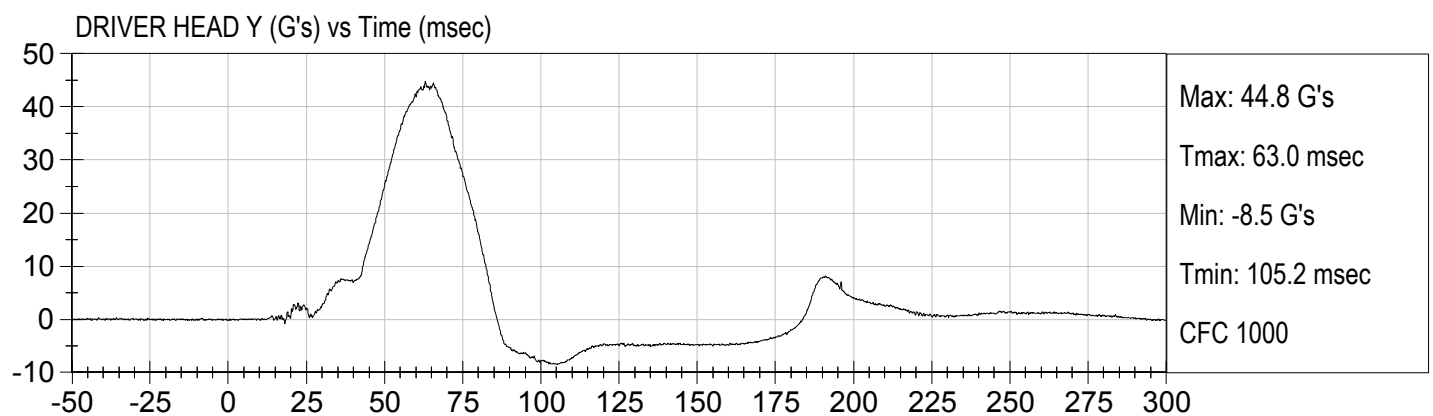
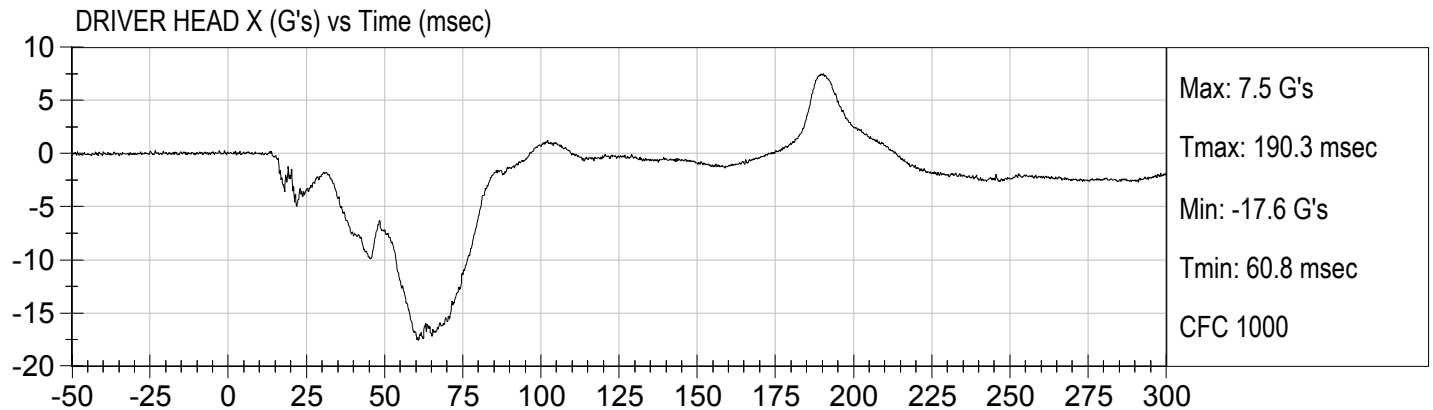
Load Cell Pole Barrier #4 Force (Y)

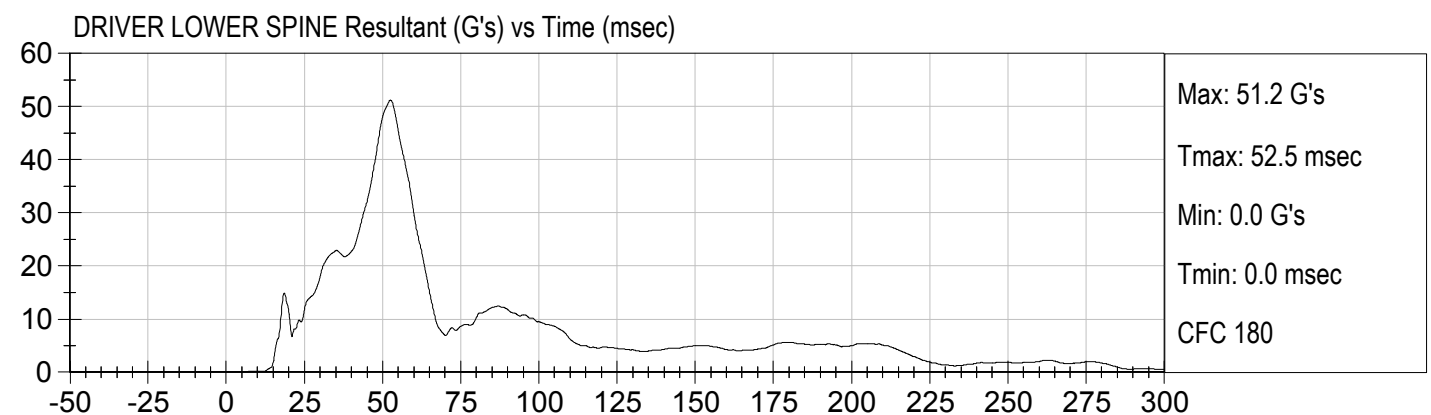
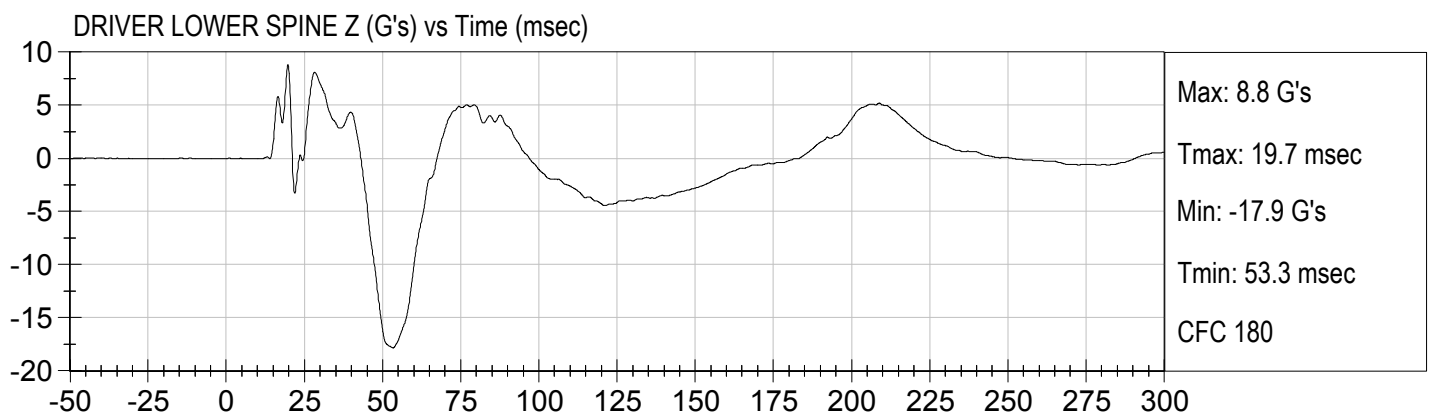
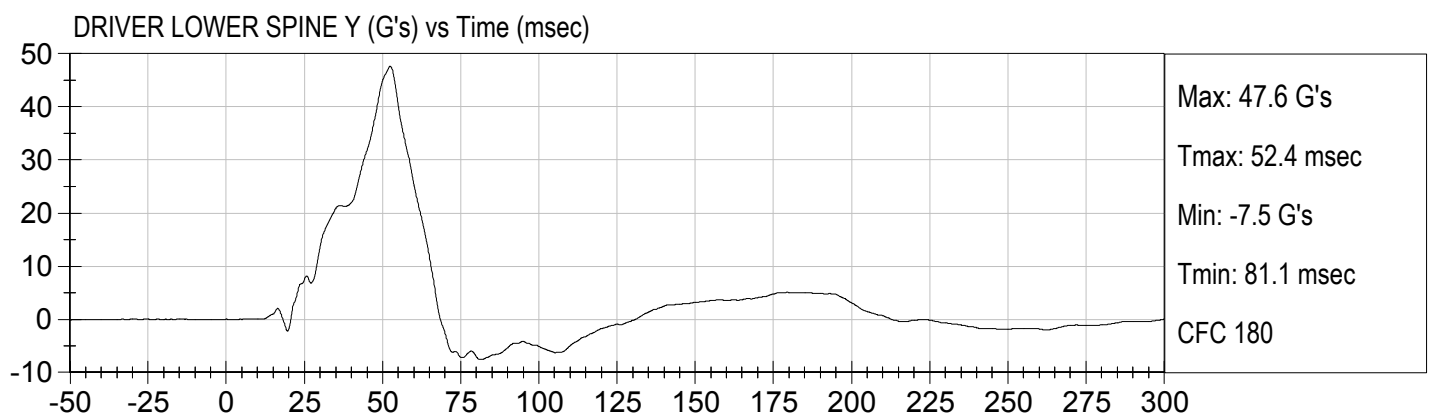
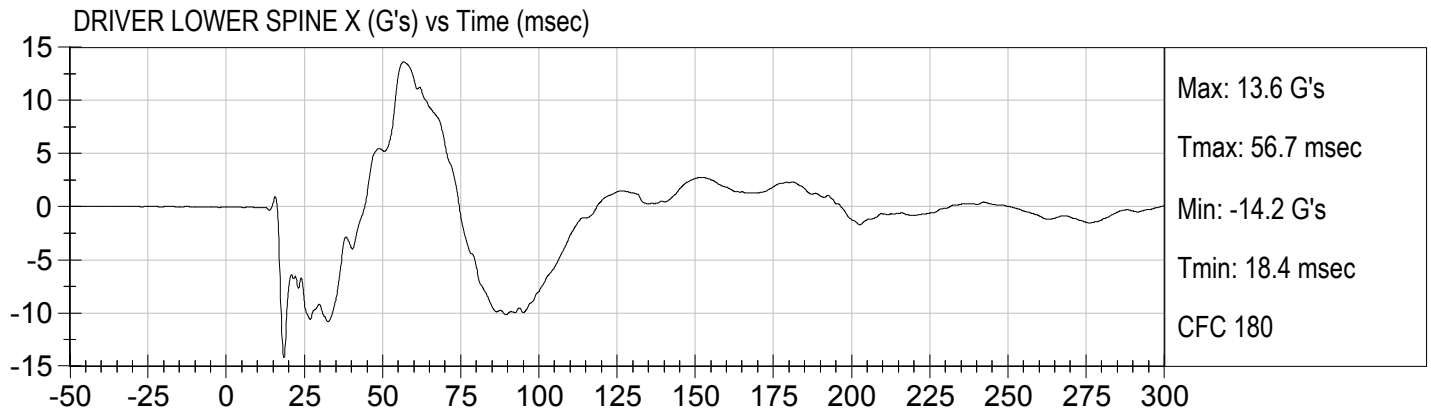
Load Cell Pole Barrier #5 Force (Y)

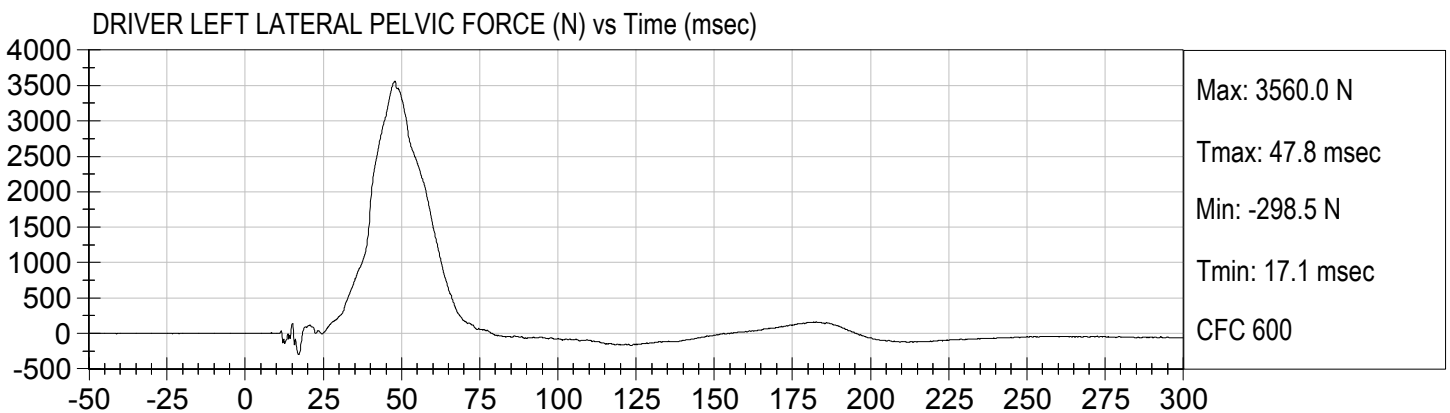
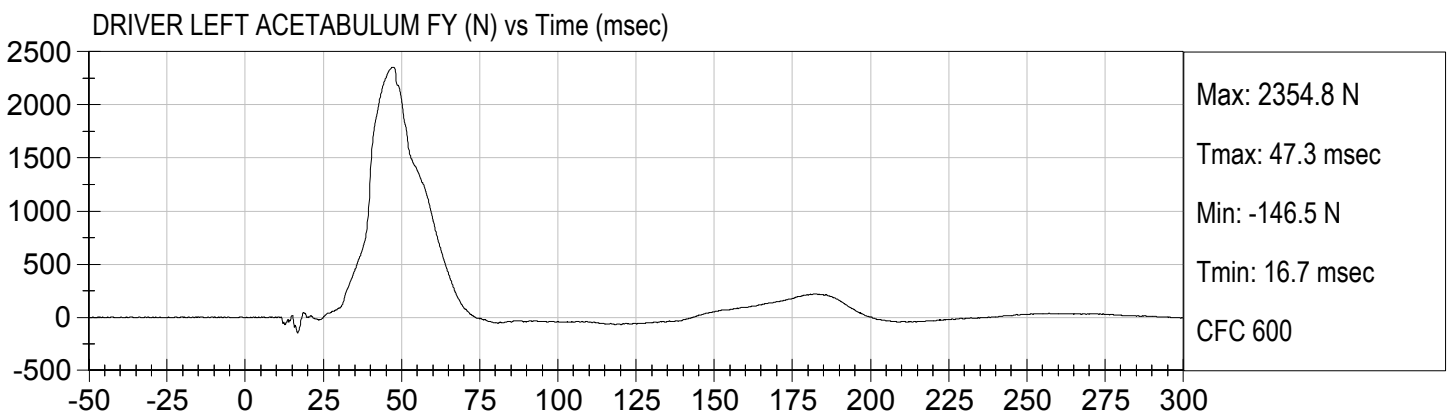
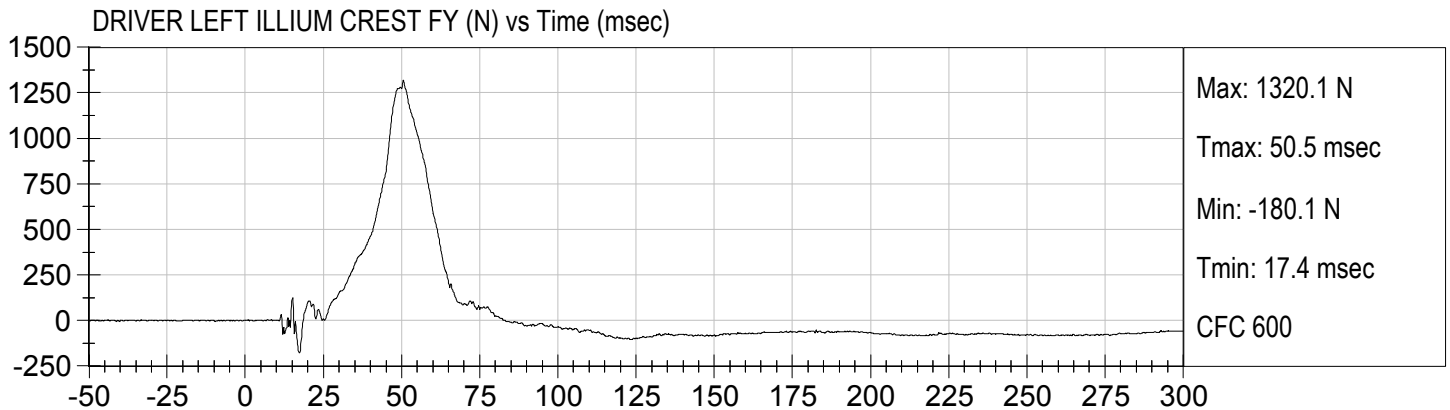
Load Cell Pole Barrier #6 Force (Y)

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

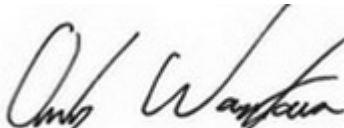
No.	Name	Spec. (mm)	Result	Pass/Fail
A	Sitting Height	772 - 788	785	Pass
B	Shoulder Pivot Height	437 - 453	449	Pass
C	H-point Height	79 - 89	86	Pass
D	H-point from Seatback	141 - 151	147	Pass
E	Shoulder Pivot from Backline	97 - 107	99	Pass
F	Thigh Clearance	119 -135	120	Pass
G	Head Breadth	140 - 148	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

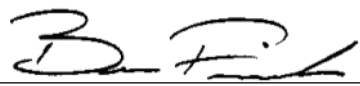
ATD Serial No: 306

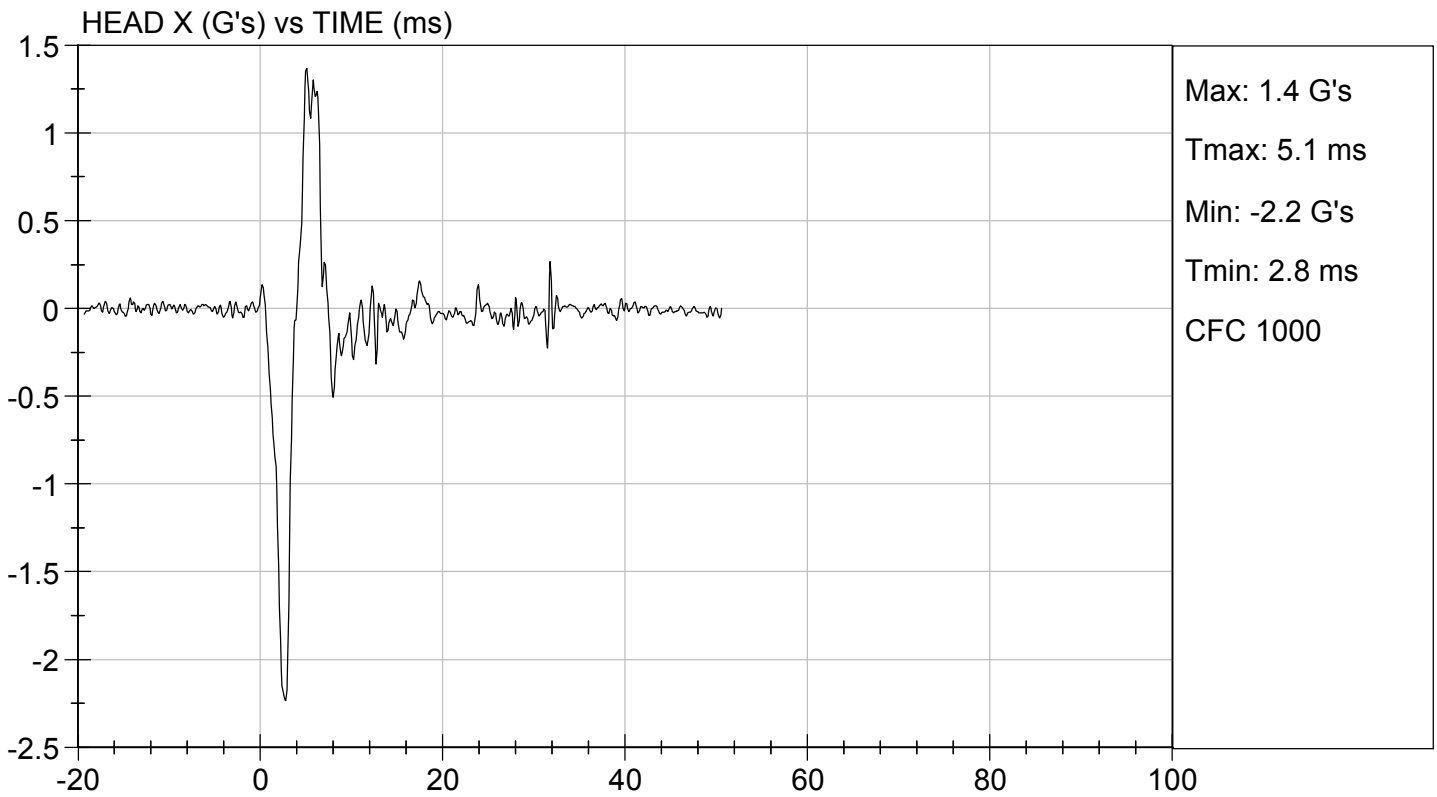
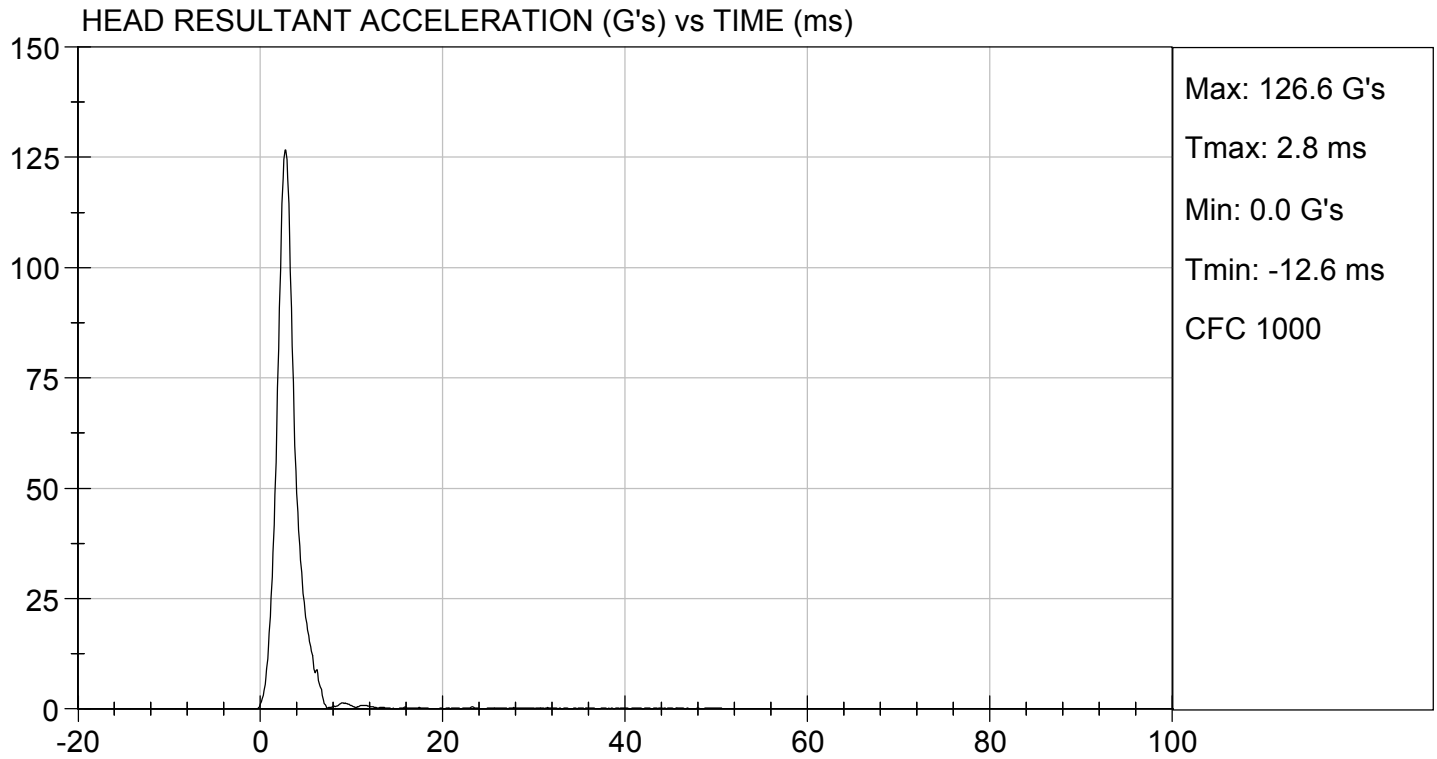
Test ID: D172141

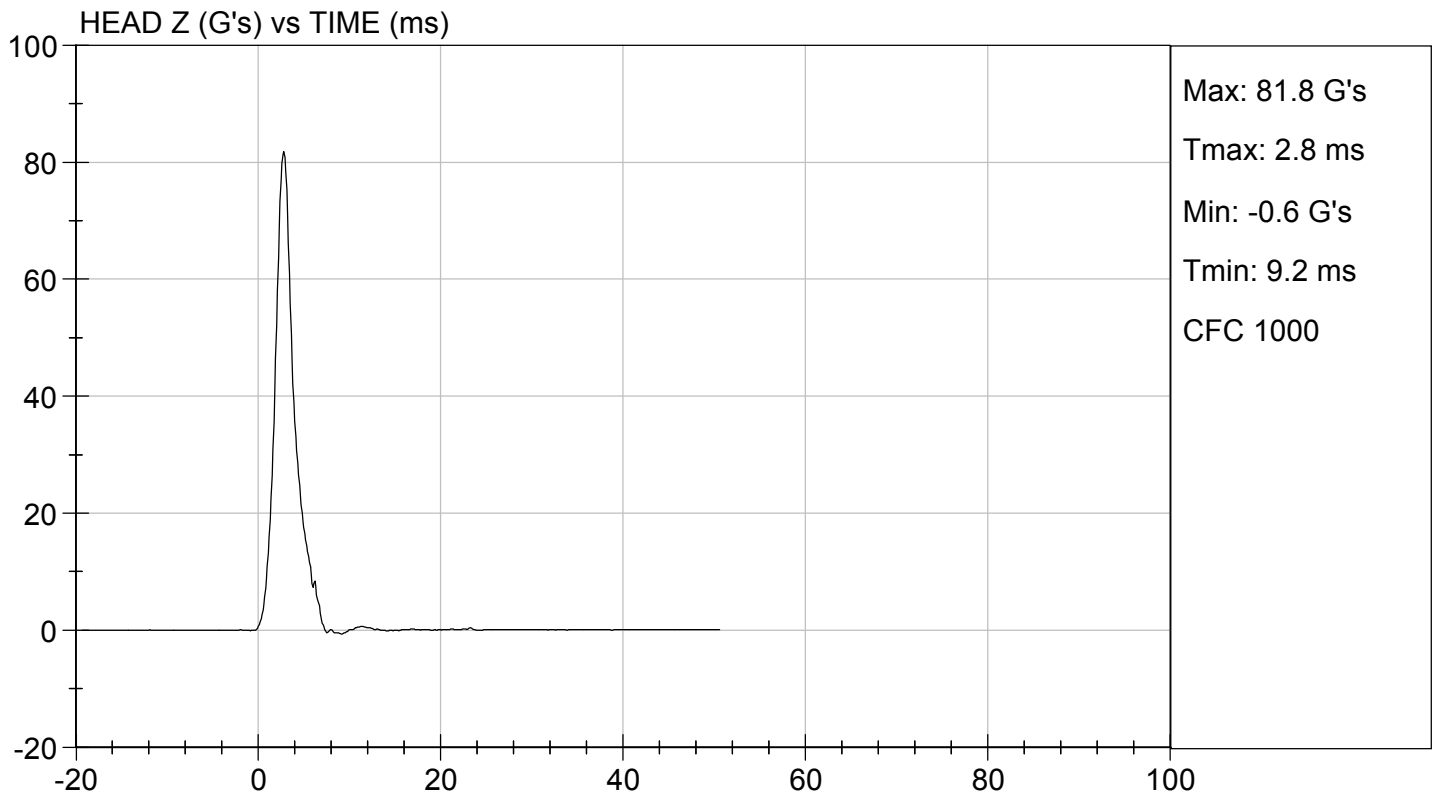
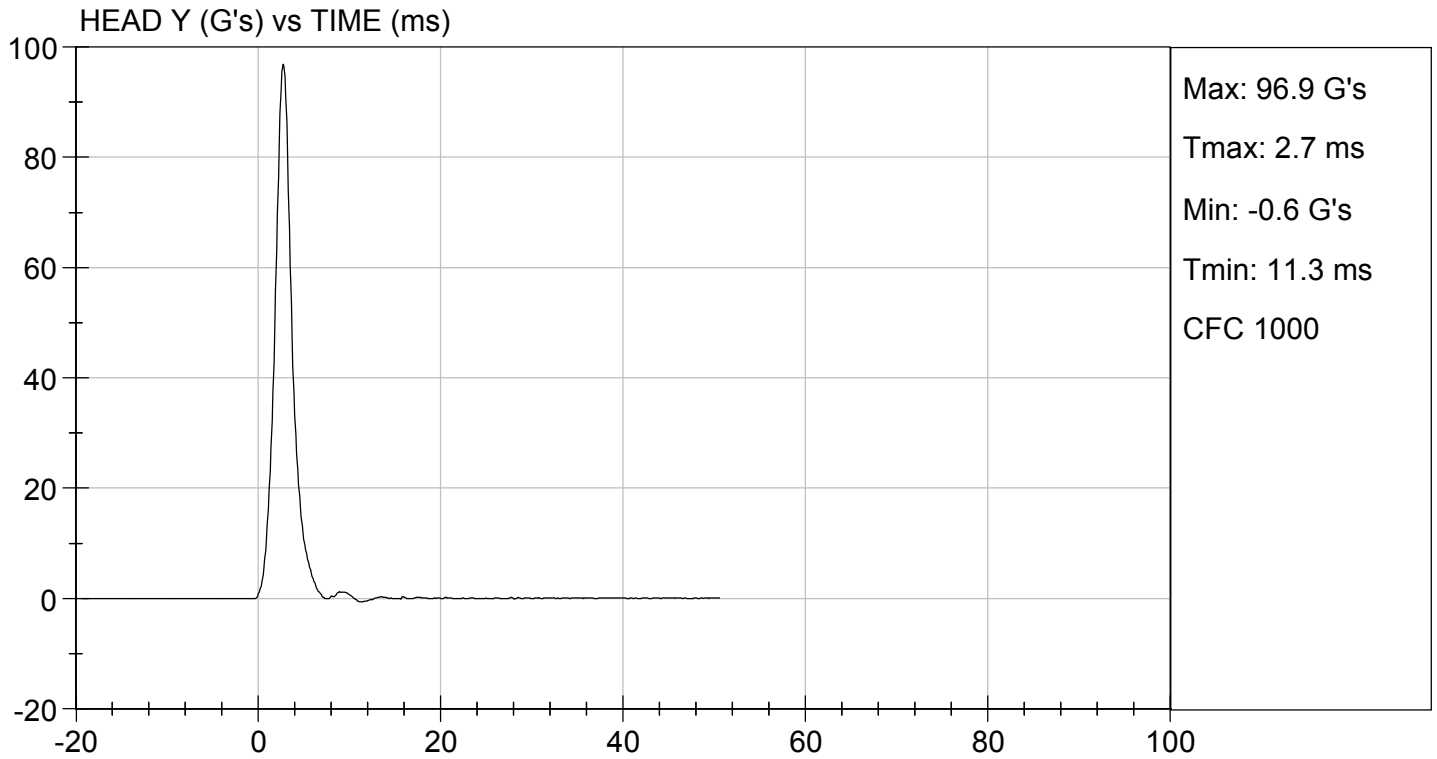
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	43	Pass
Peak Resultant Acceleration	G's	115 to 137	127	Pass
Peak Longitudinal Acceleration	G's	+/- 15	-2.2	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
Overall Test Results			Pass	


Laboratory Technician

08/09/2017
Test Date


Approved By



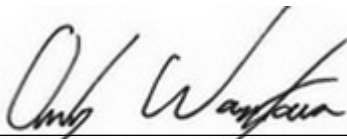


MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D172142

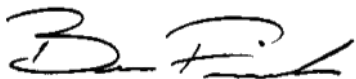
Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.6	Pass
Humidity		%	10 to 70	45	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.66	Pass
	15 ms	m/s	3.30 to 4.10	3.87	Pass
	20 ms	m/s	4.40 to 5.40	5.19	Pass
	25 ms	m/s	5.40 to 6.10	5.71	Pass
	25-100 ms	m/s	5.50 to 6.20	5.73	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	-41	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	119	Pass
Overall Test Results					Pass



Laboratory Technician

08/09/2017

Test Date

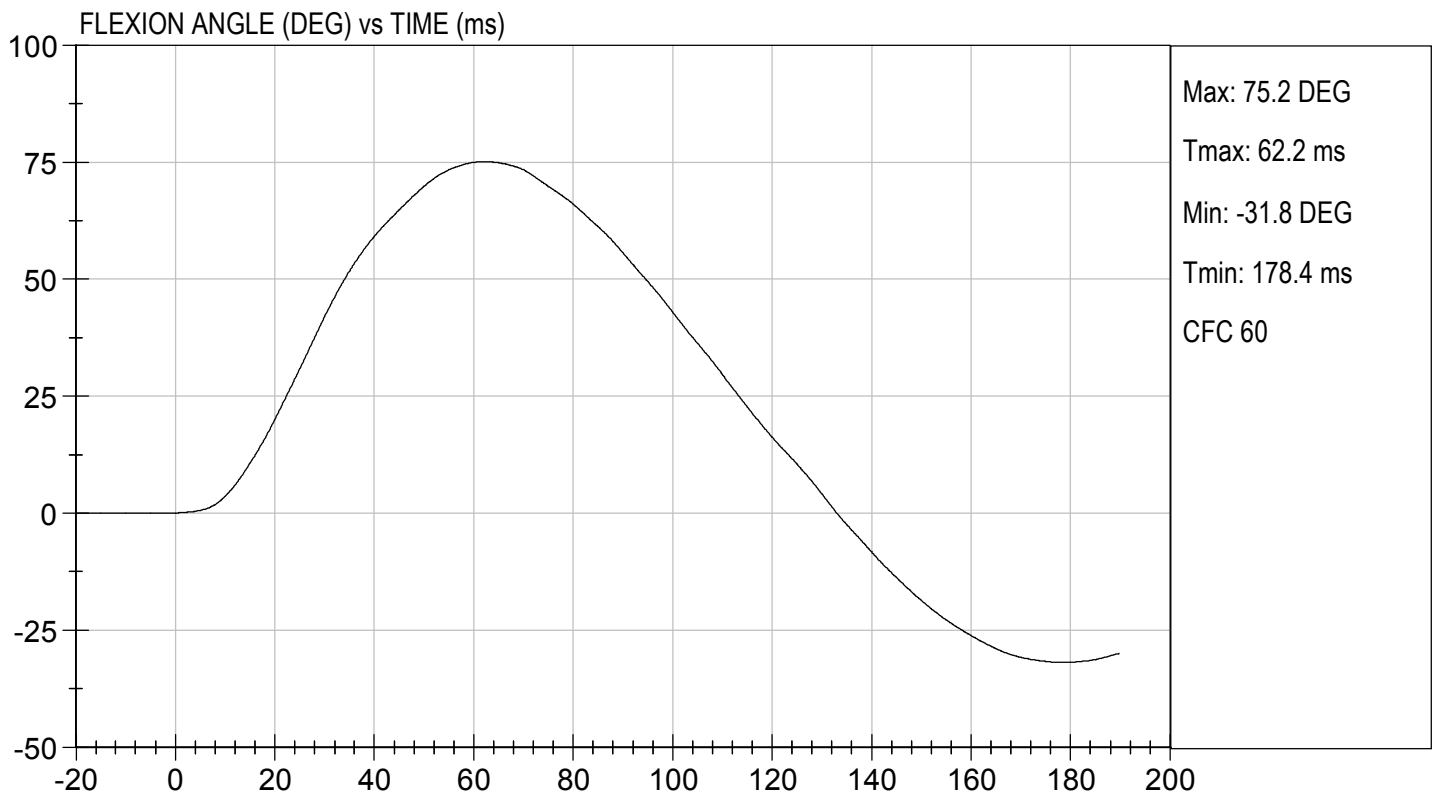
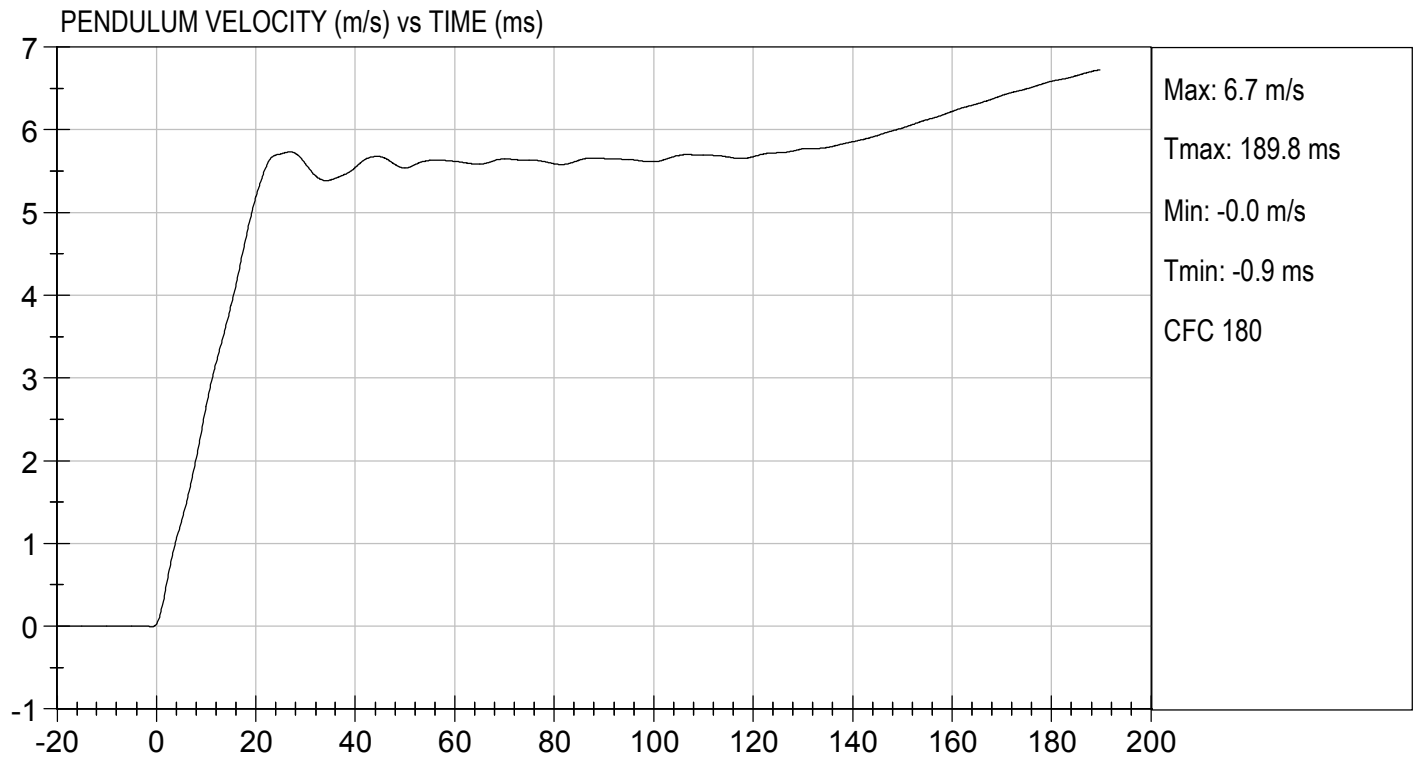


Approved By



TEST DESC: NECK BENDING
VELOCITY: 18.32 ft/s, 5.58 m/s

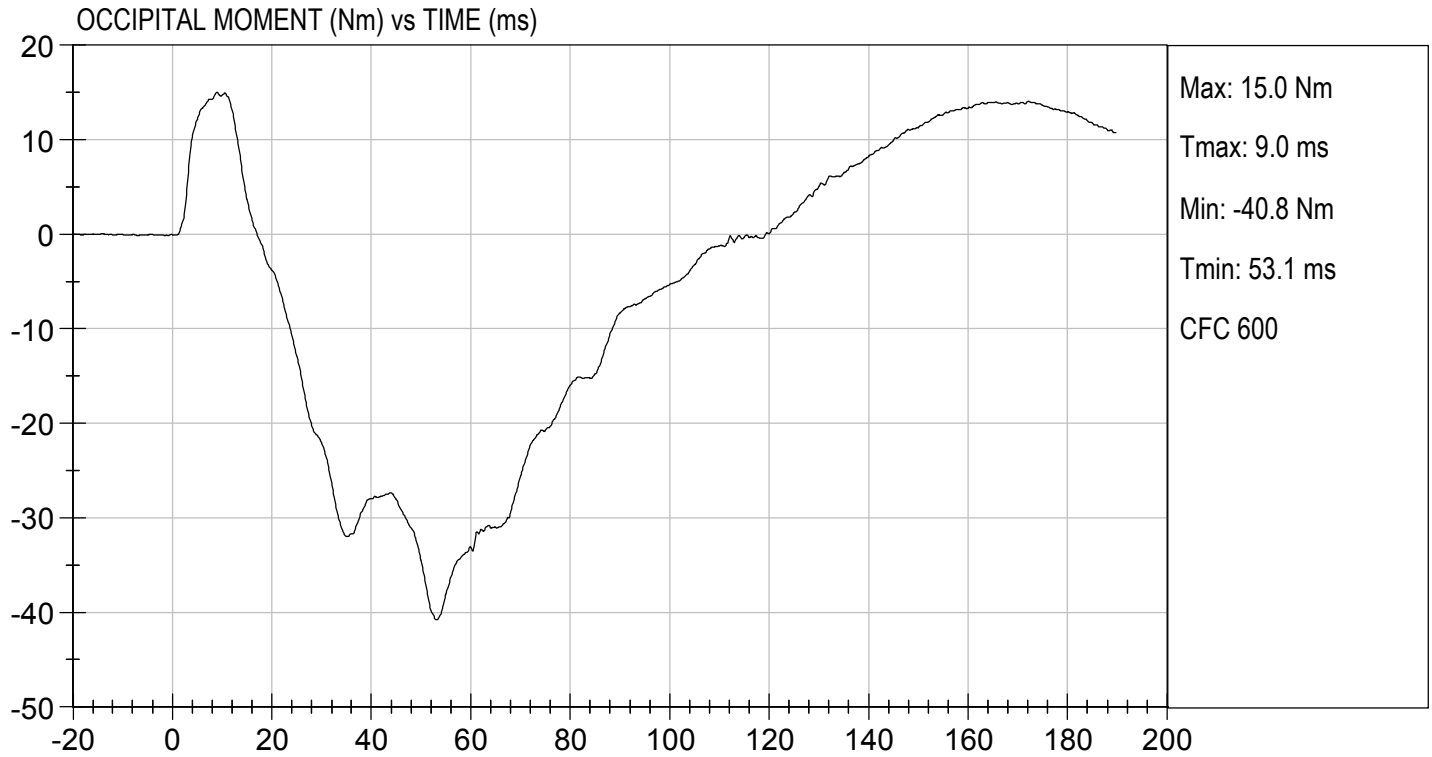
TEST DATE: 08/09/2017
TEST #: D172142





TEST DESC: NECK BENDING
VELOCITY: 18.32 ft/s, 5.58 m/s

TEST DATE: 08/09/2017
TEST #: D172142

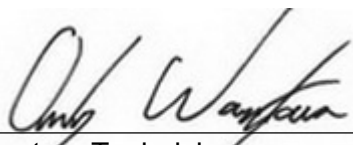


MGA RESEARCH CORPORATION
SHOULDER IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

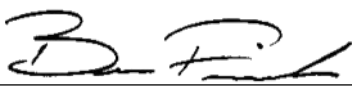
Test ID: D172143

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	45	Pass
Impact Velocity	m/s	4.20 to 4.40	4.27	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	30	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	18	Pass
Overall Test Results				Pass



Laboratory Technician

08/14/2017
Test Date

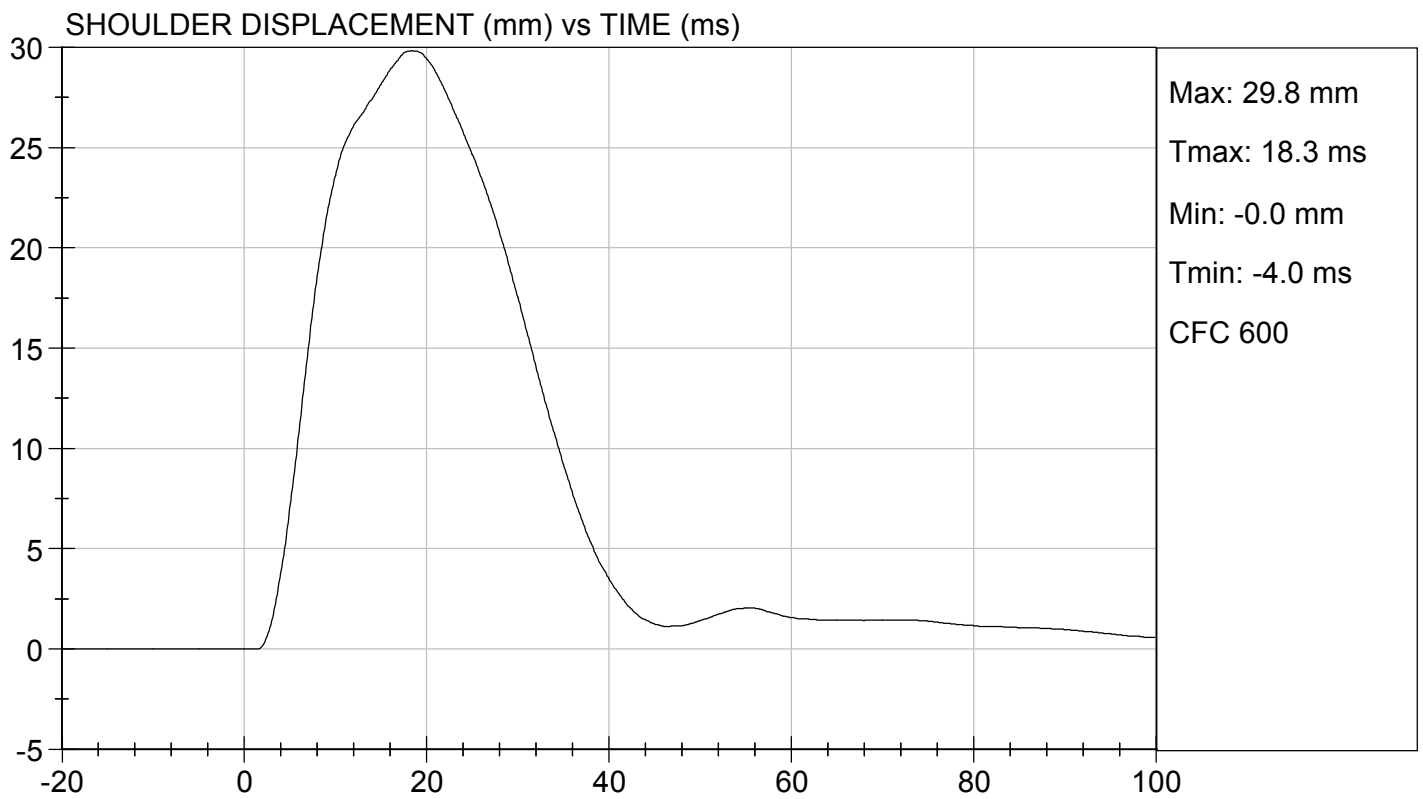
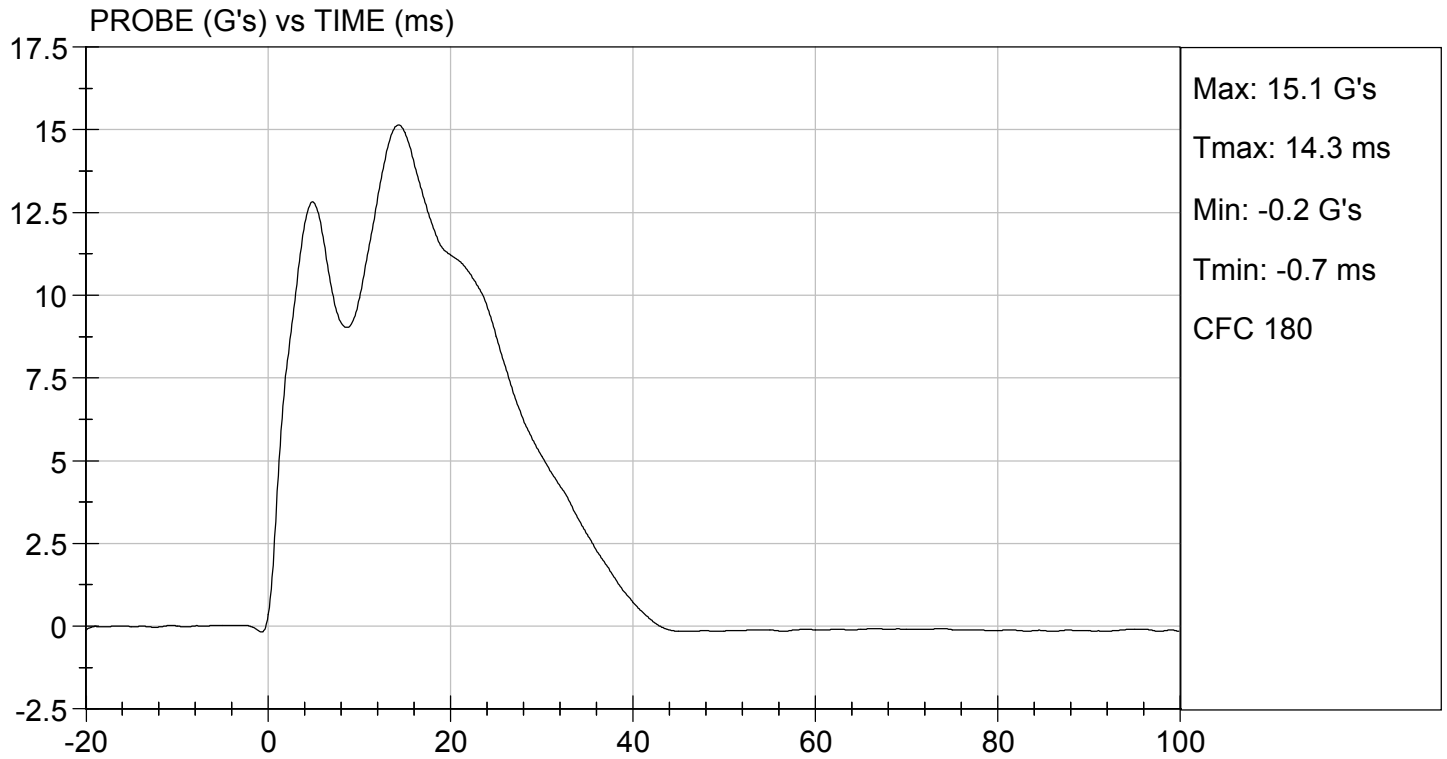


Approved By



TEST DESC: SHOULDER IMPACT
VELOCITY: 14.01 ft/s, 4.27 m/s

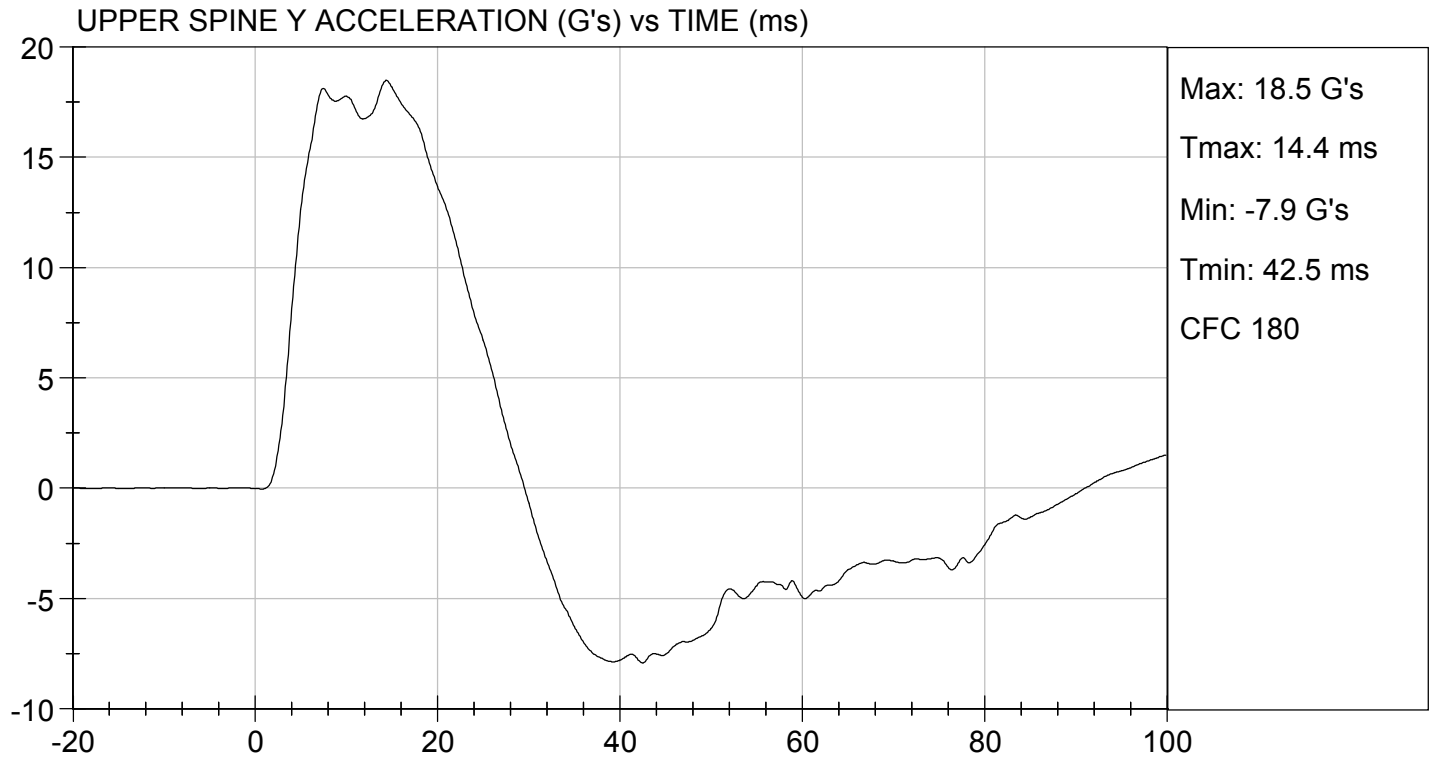
TEST DATE: 08/14/2017
TEST #: D172143





TEST DESC: SHOULDER IMPACT
VELOCITY: 14.01 ft/s, 4.27 m/s

TEST DATE: 08/14/2017
TEST #: D172143

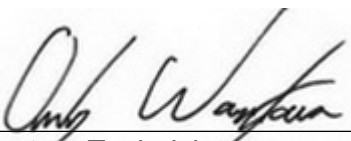


MGA RESEARCH CORPORATION
THORAX (WITH ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

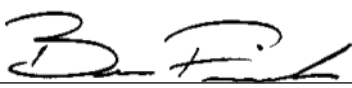
ATD Serial No: 306

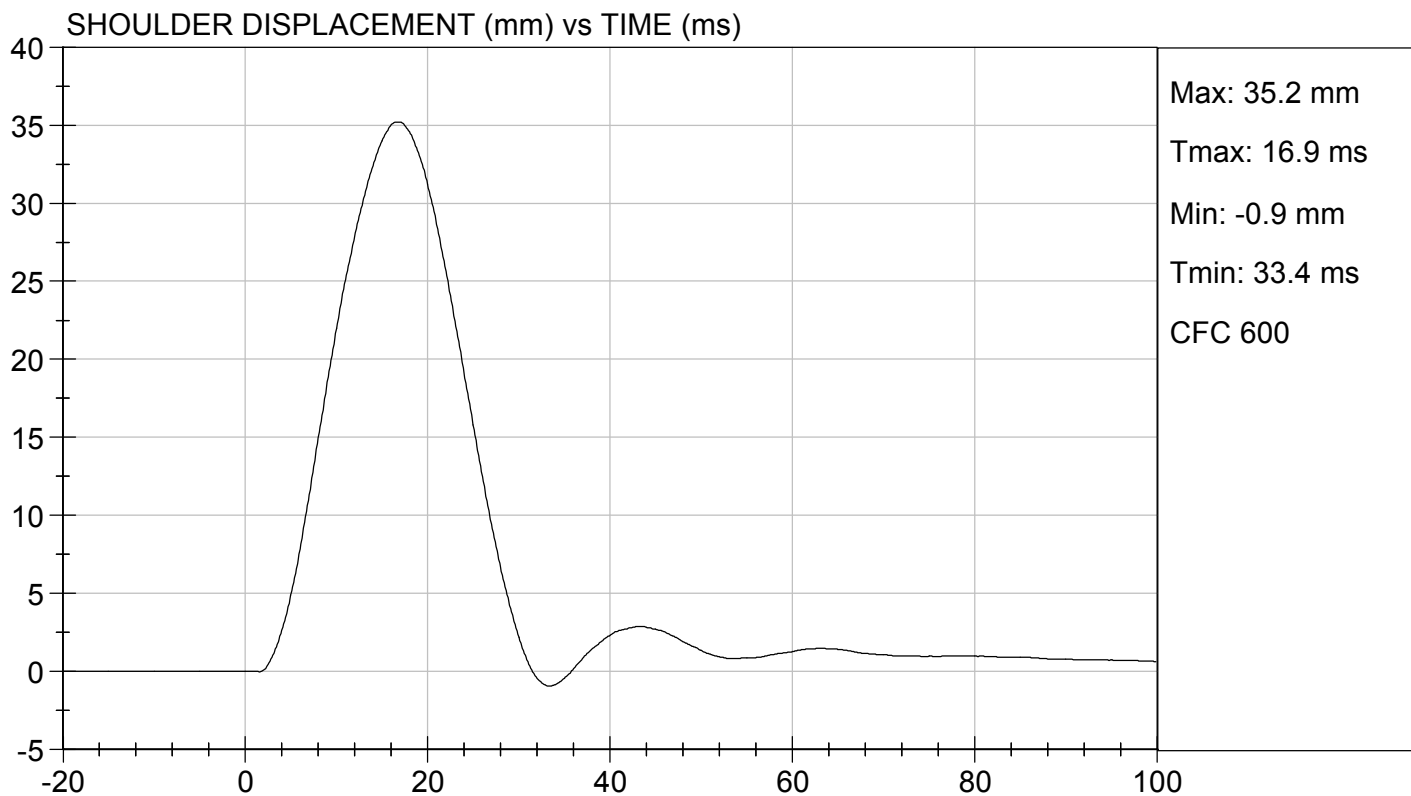
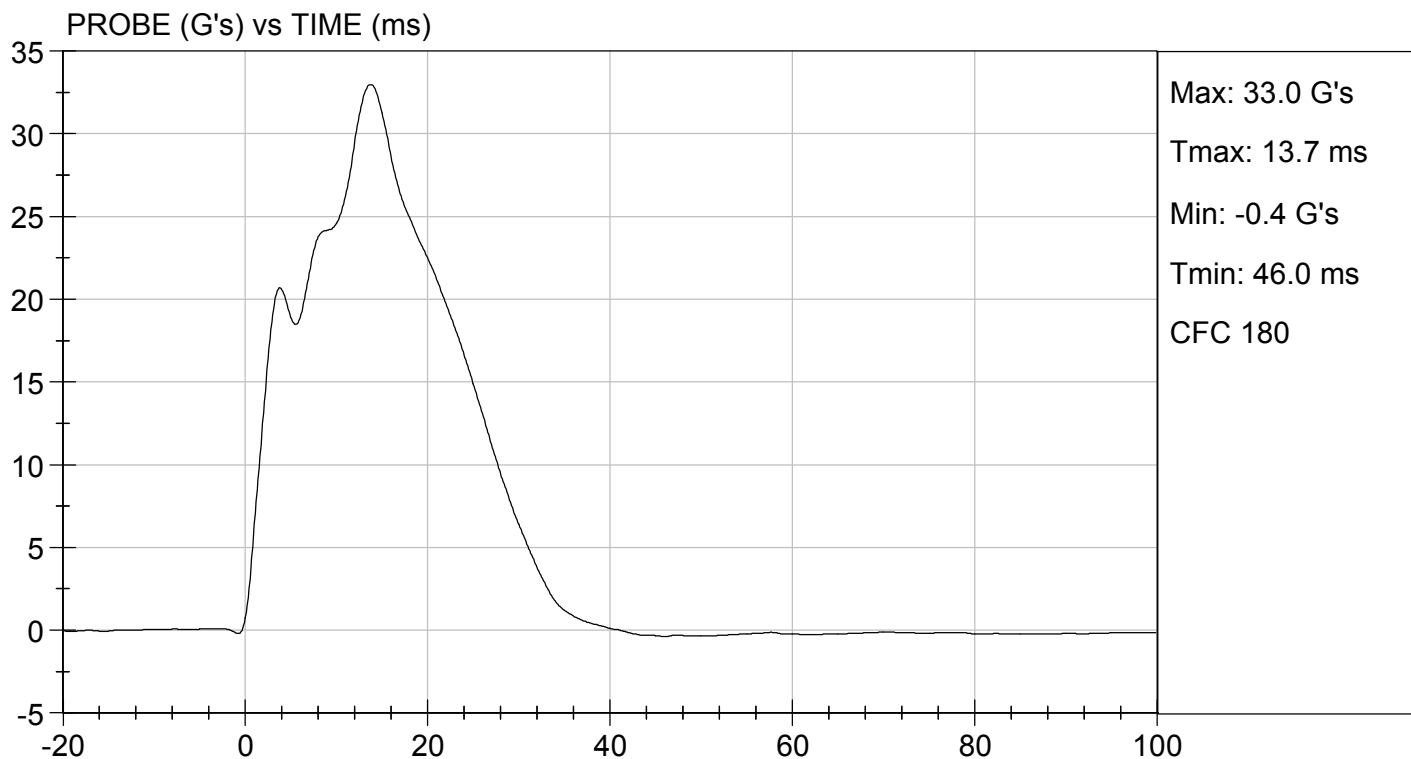
Test I.D: D172144

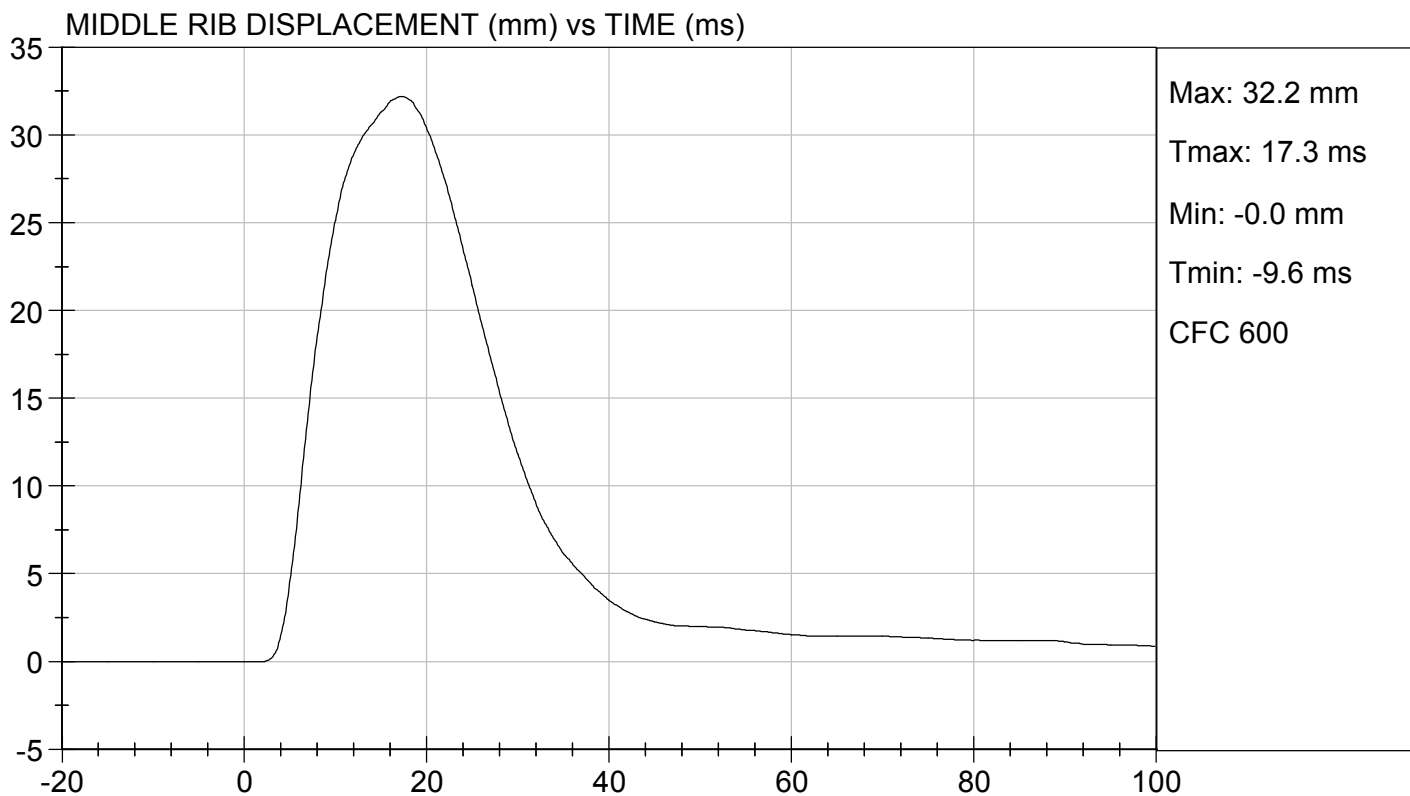
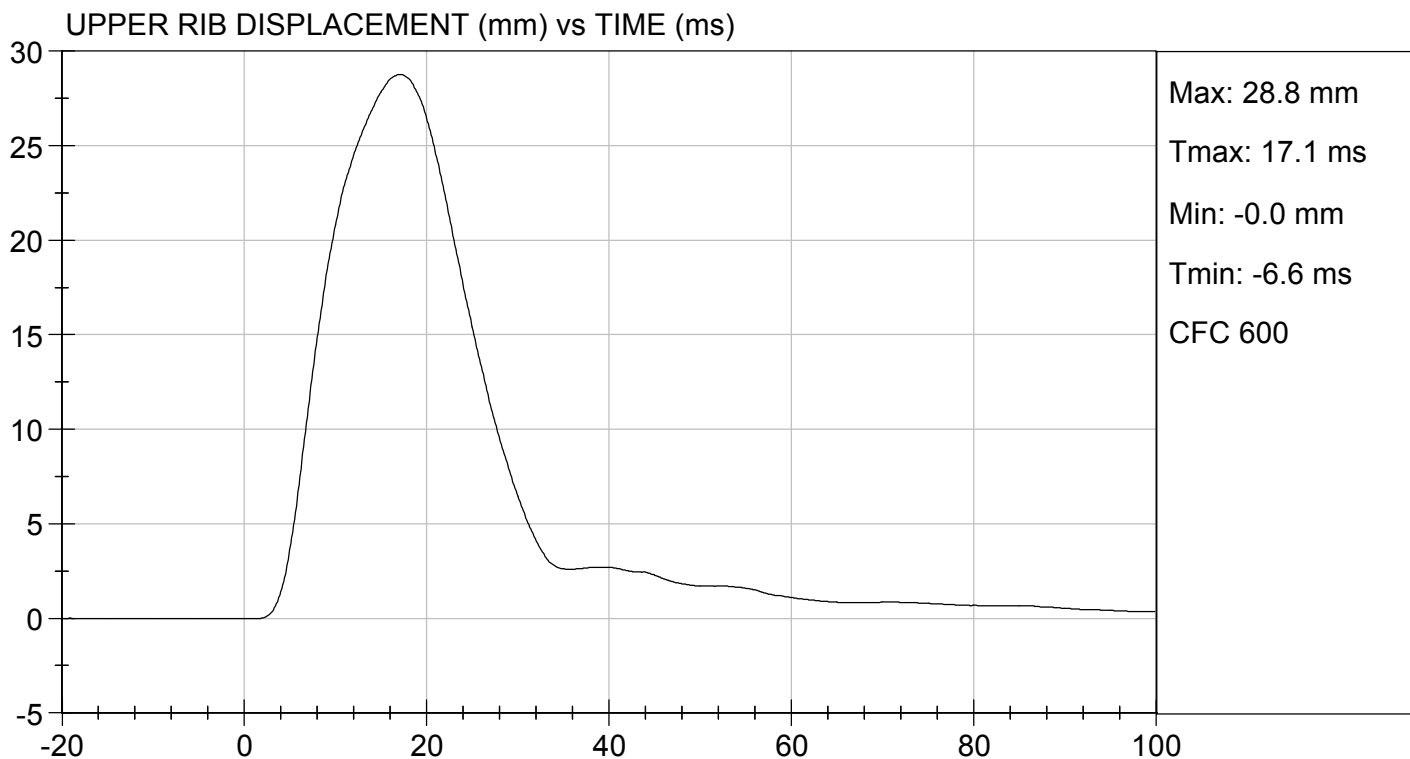
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.7	Pass
Humidity	%	10 to 70	45	Pass
Impact Velocity	m/s	6.60 to 6.80	6.60	Pass
Maximum Probe Acceleration	G's	30 to 36	33	Pass
Shoulder Displacement	mm	31 to 40	35	Pass
Upper Rib Displacement	mm	25 to 32	29	Pass
Middle Rib Displacement	mm	30 to 36	32	Pass
Lower Rib Displacement	mm	32 to 38	35	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	36	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	33	Pass
Overall Test Results				Pass


 Laboratory Technician

08/14/2017
 Test Date


 Approved By

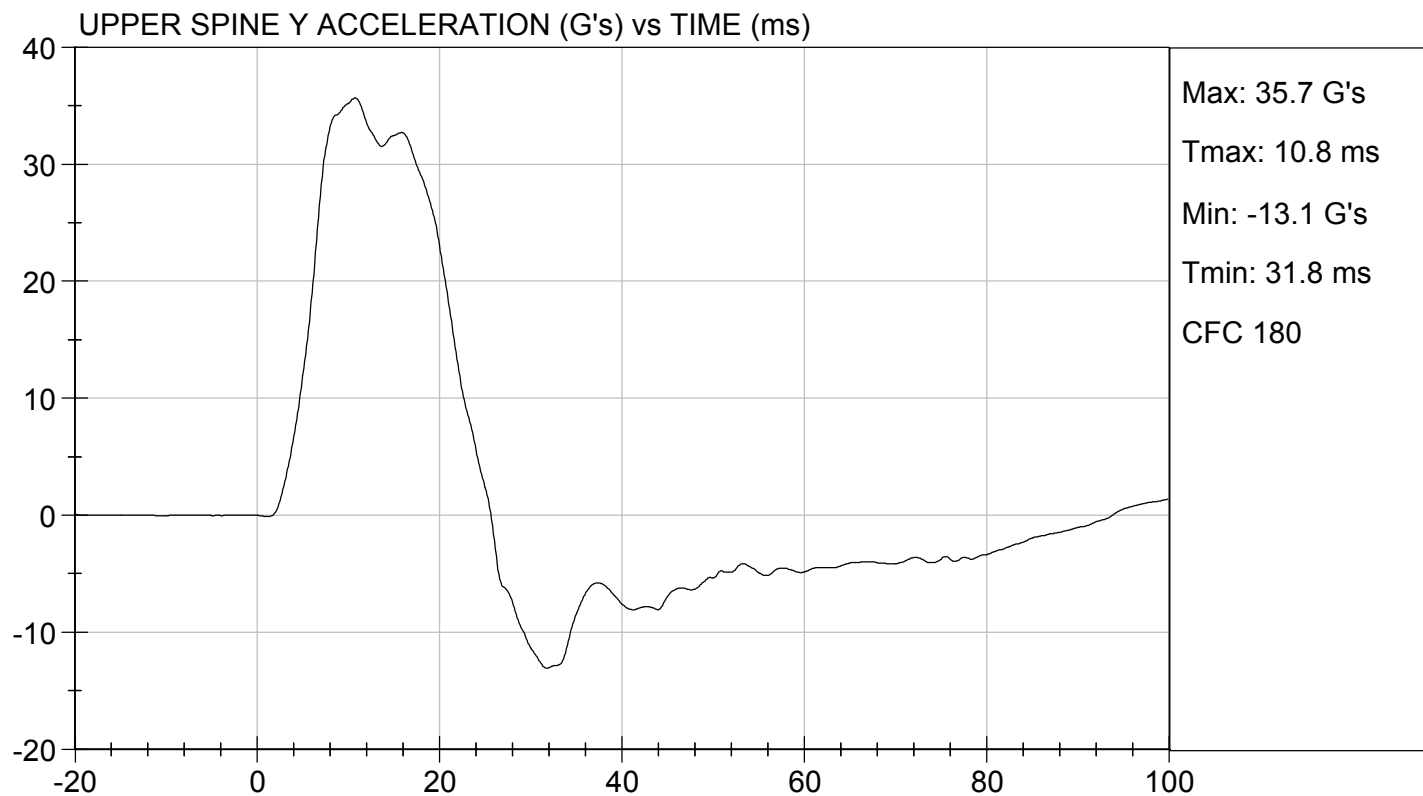
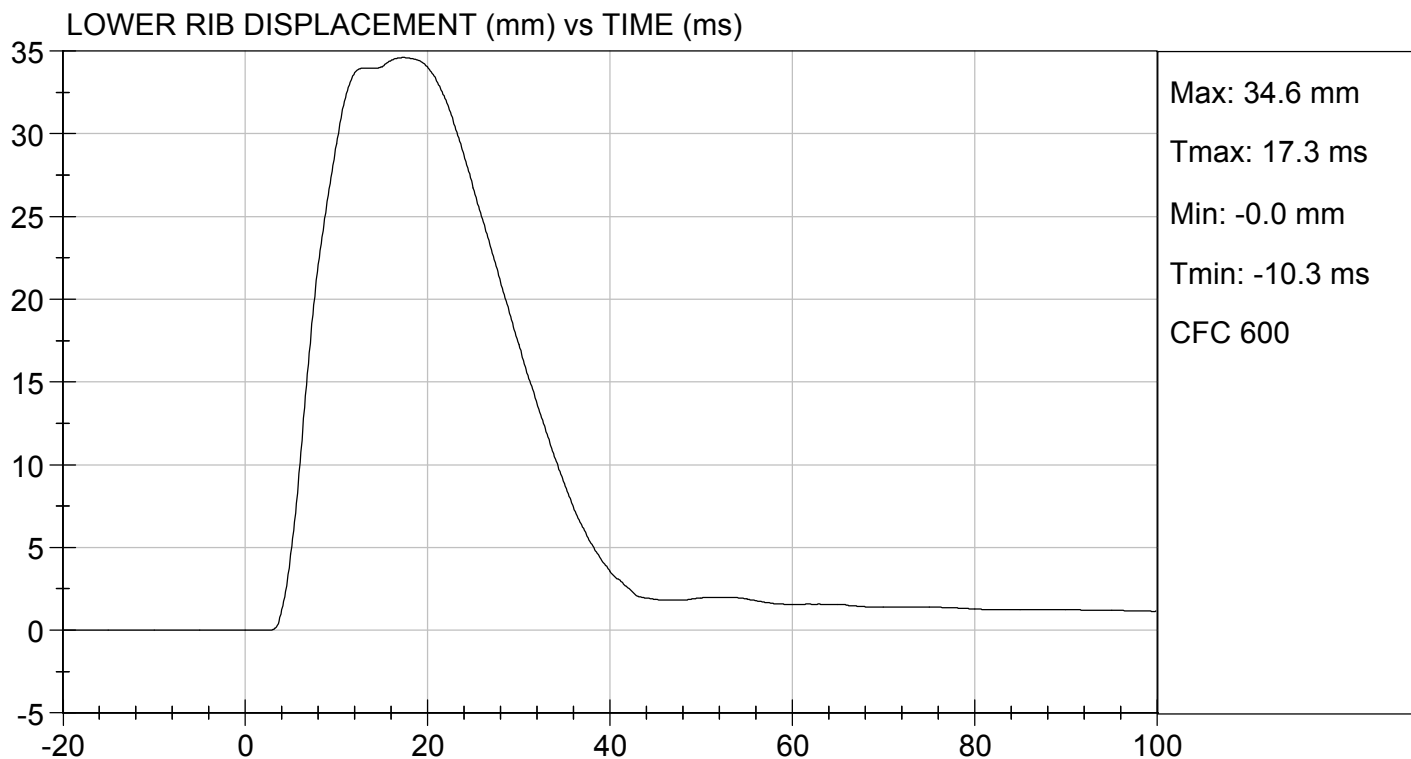






TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 21.65 ft/s, 6.60 m/s

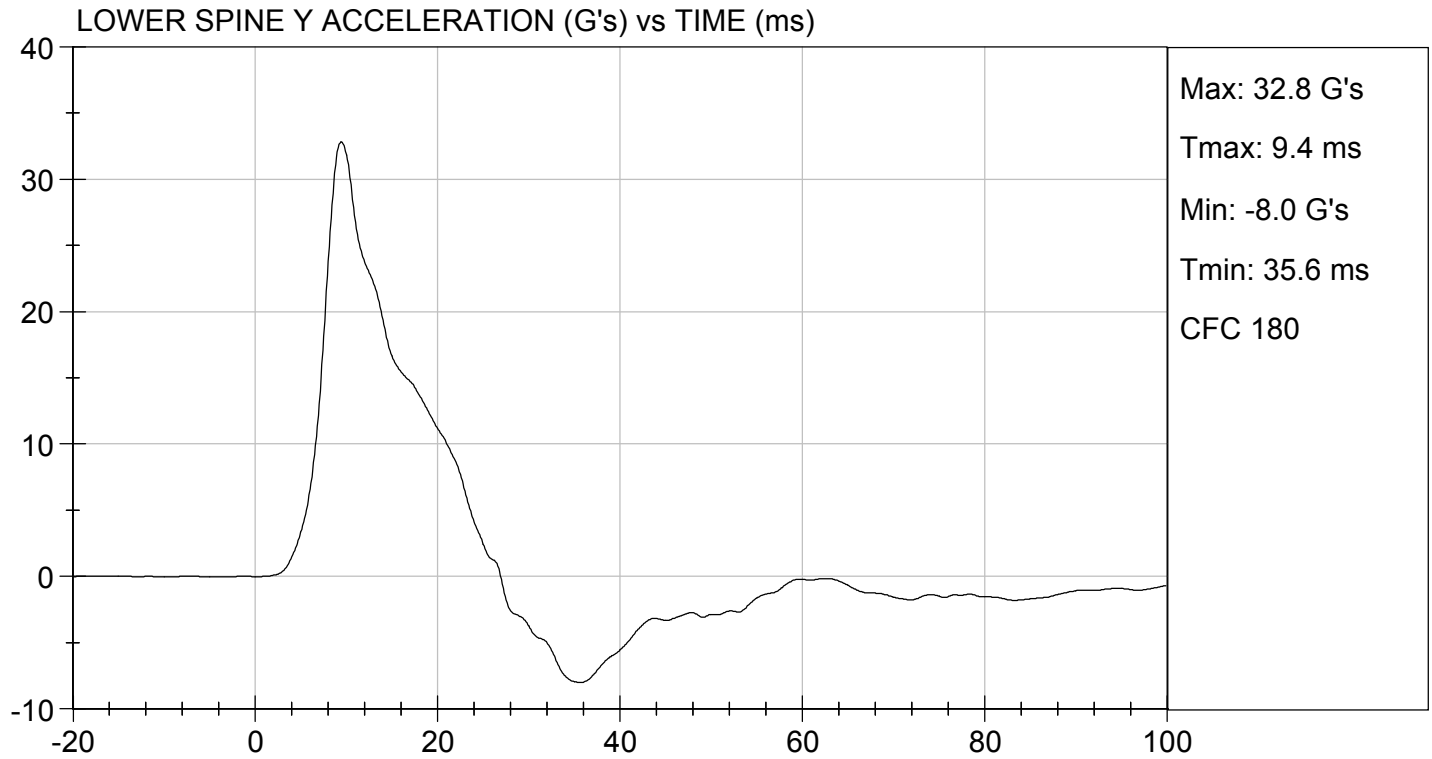
TEST DATE: 08/14/2017
TEST #: D172144





TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 21.65 ft/s, 6.60 m/s

TEST DATE: 08/14/2017
TEST #: D172144

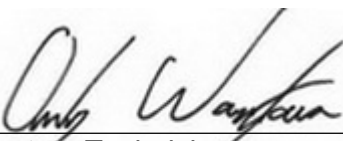


MGA RESEARCH CORPORATION
THORAX (WITHOUT ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

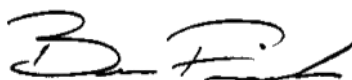
ATD Serial No: 306

Test I.D: D172145

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.1	Pass
Humidity	%	10 to 70	49	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	14 to 18	15	Pass
Upper Rib Displacement	mm	32 to 40	38	Pass
Middle Rib Displacement	mm	39 to 45	42	Pass
Lower Rib Displacement	mm	35 to 43	40	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	15	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	8	Pass
Overall Test Results				Pass


 Laboratory Technician

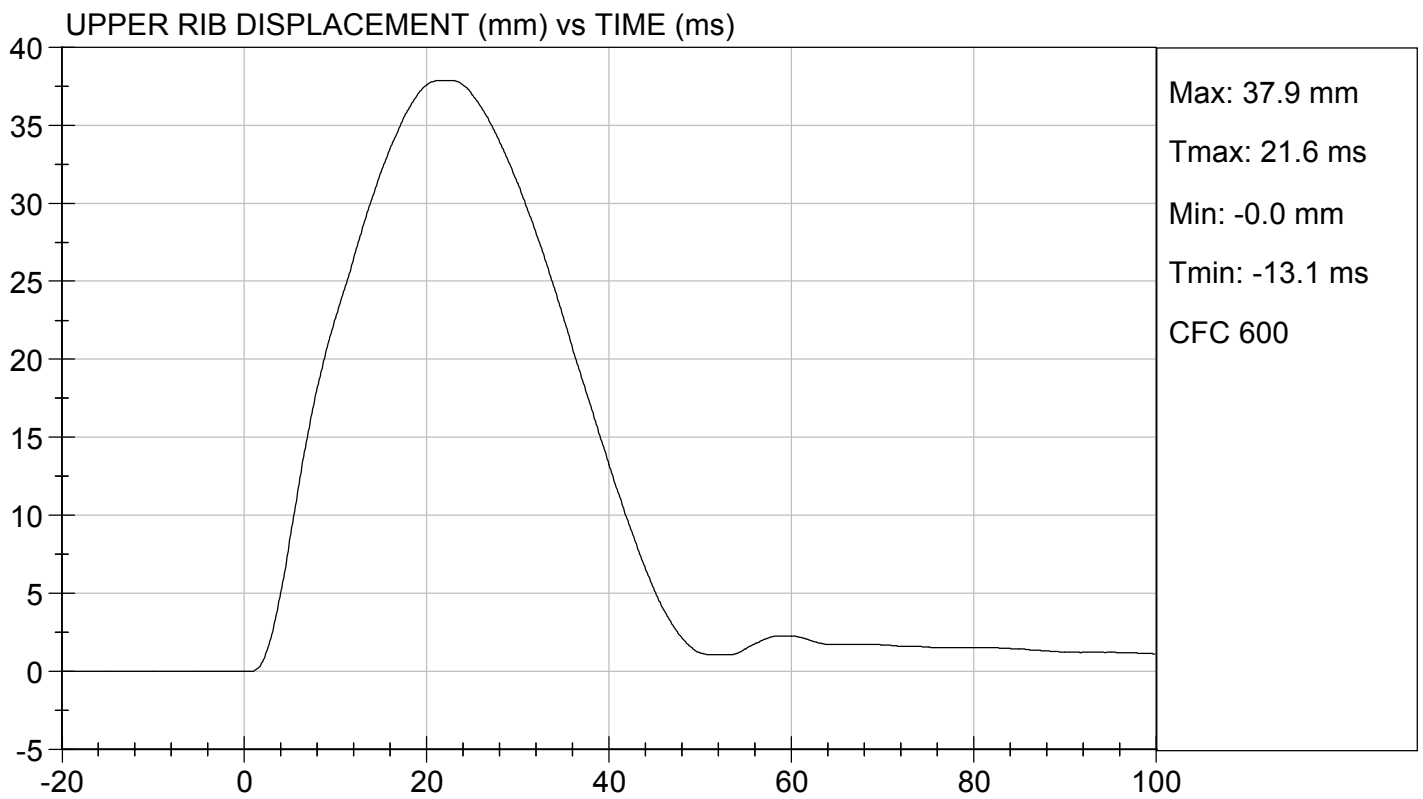
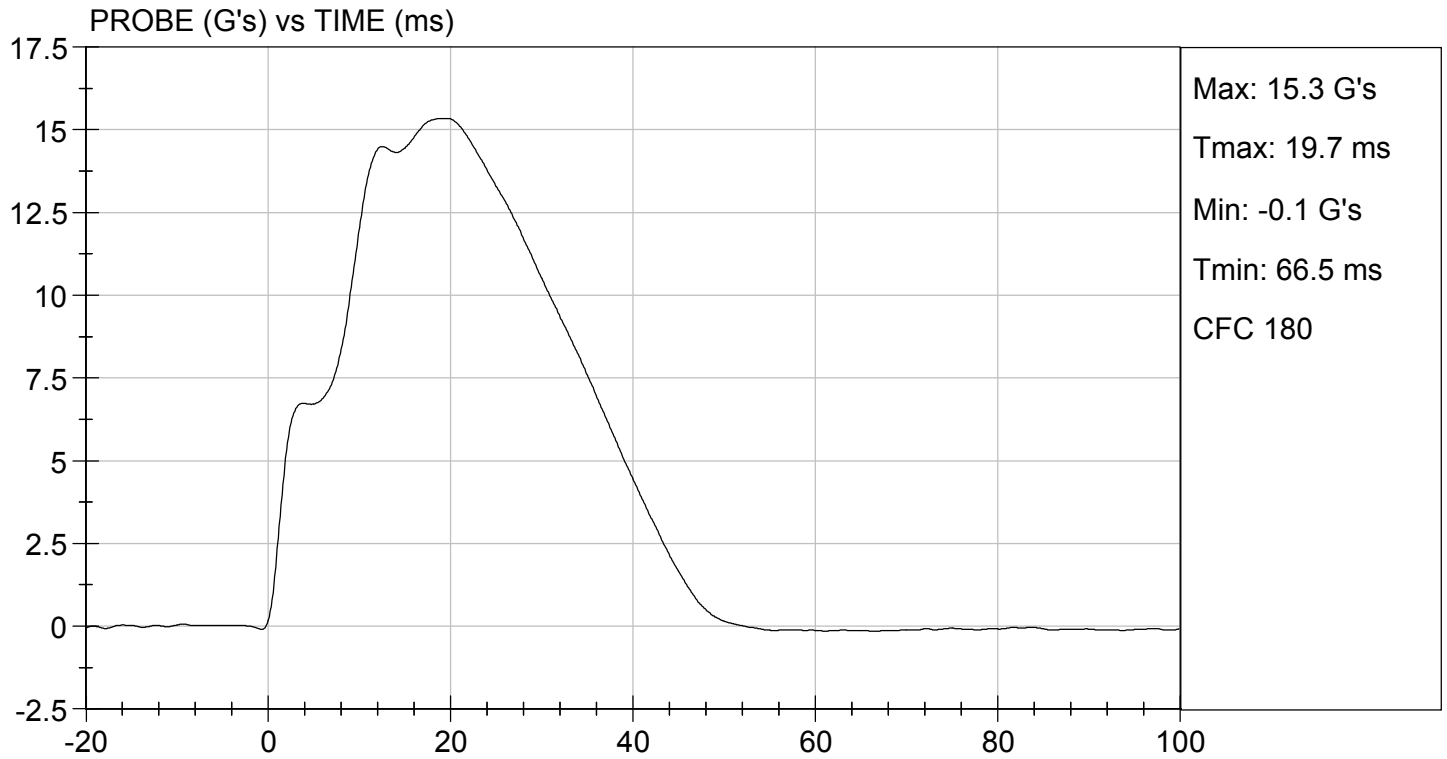
08/10/2017
 Test Date


 Approved By



TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.12 ft/s, 4.30 m/s

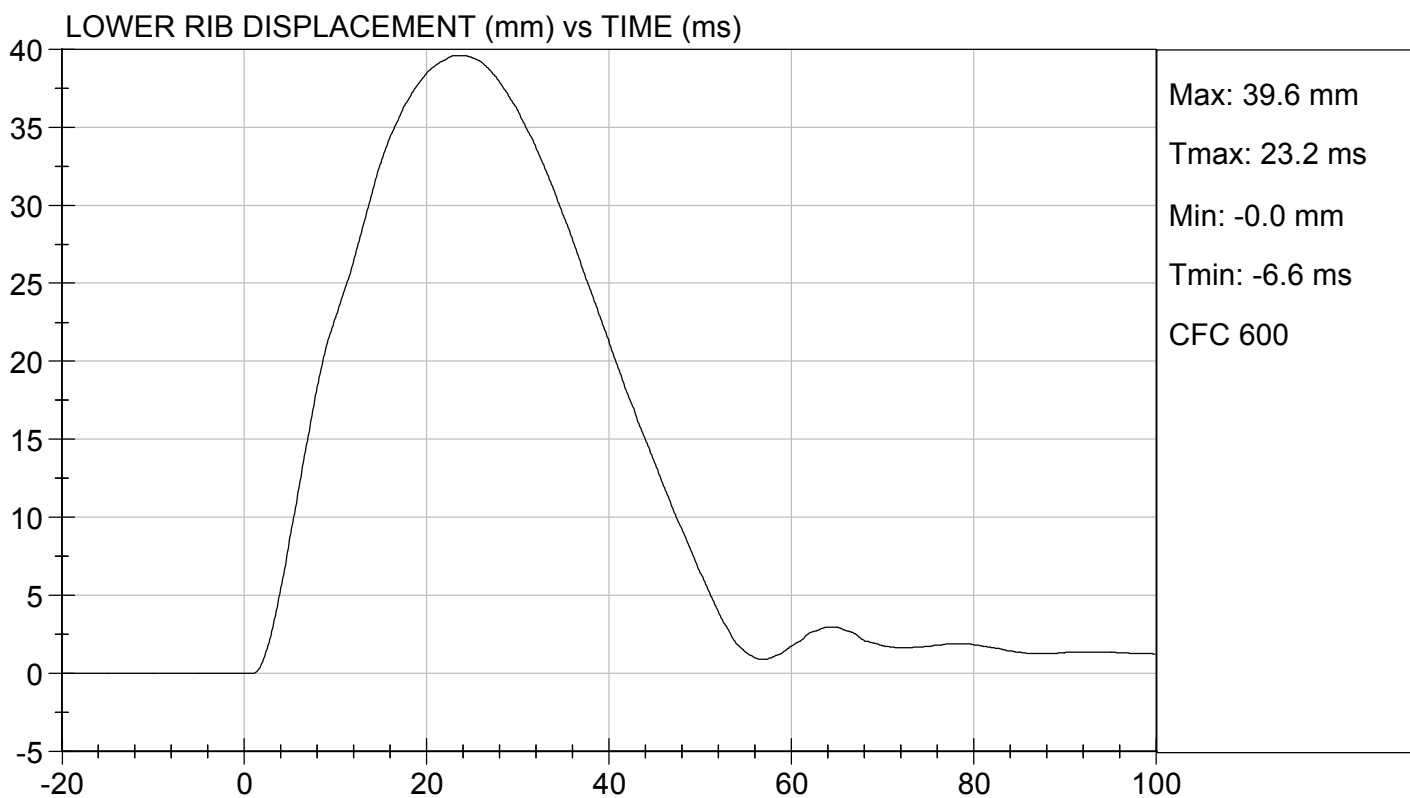
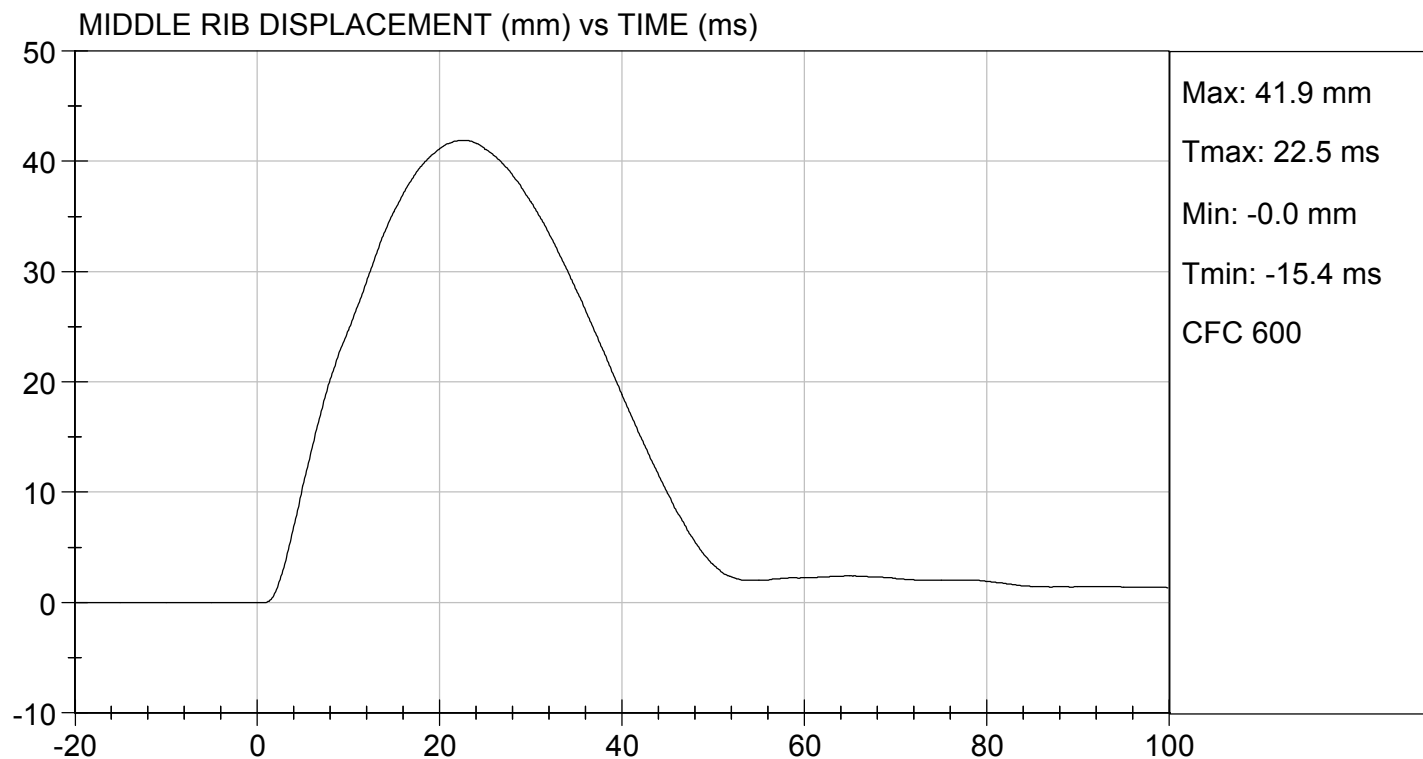
TEST DATE: 08/10/2017
TEST #: D172145





TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.12 ft/s, 4.30 m/s

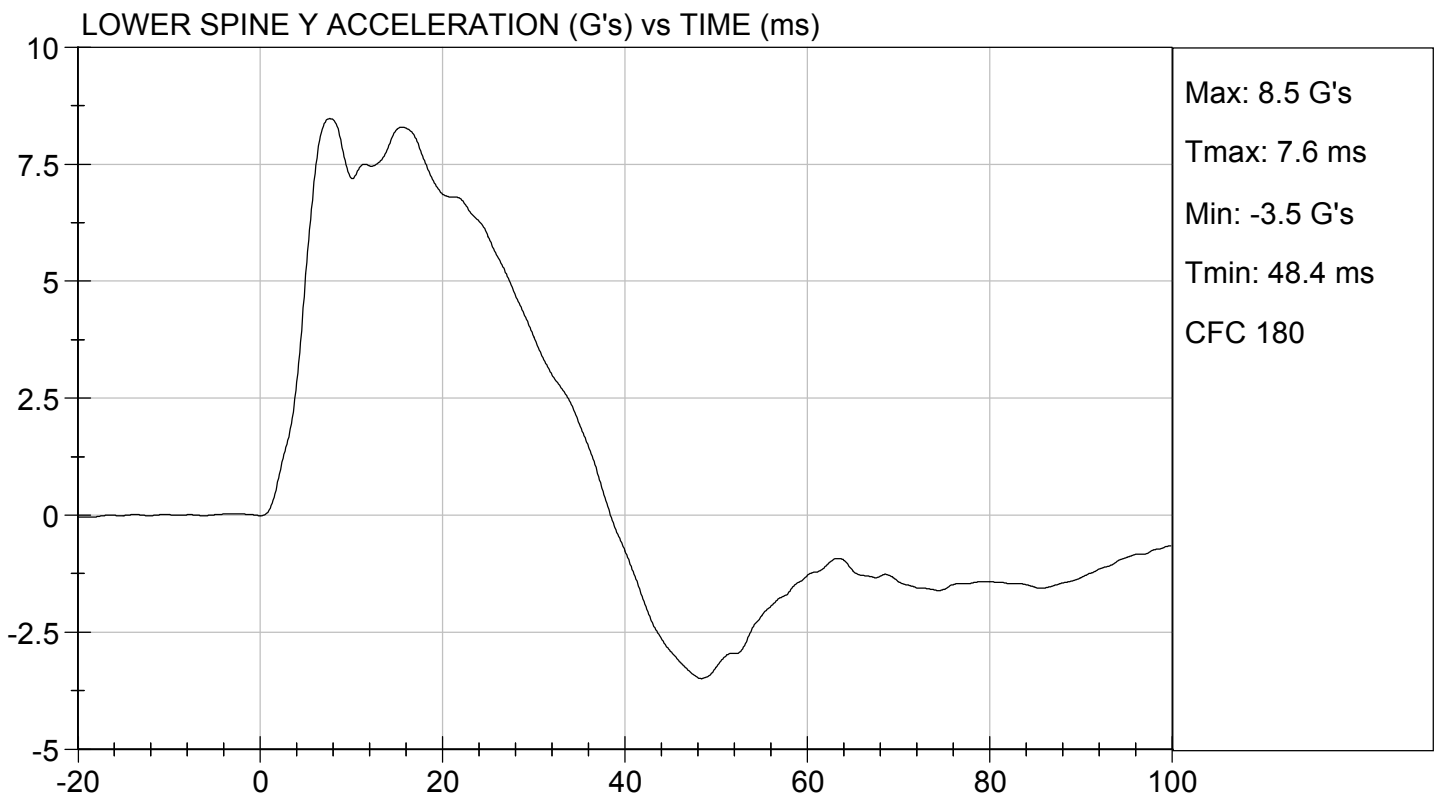
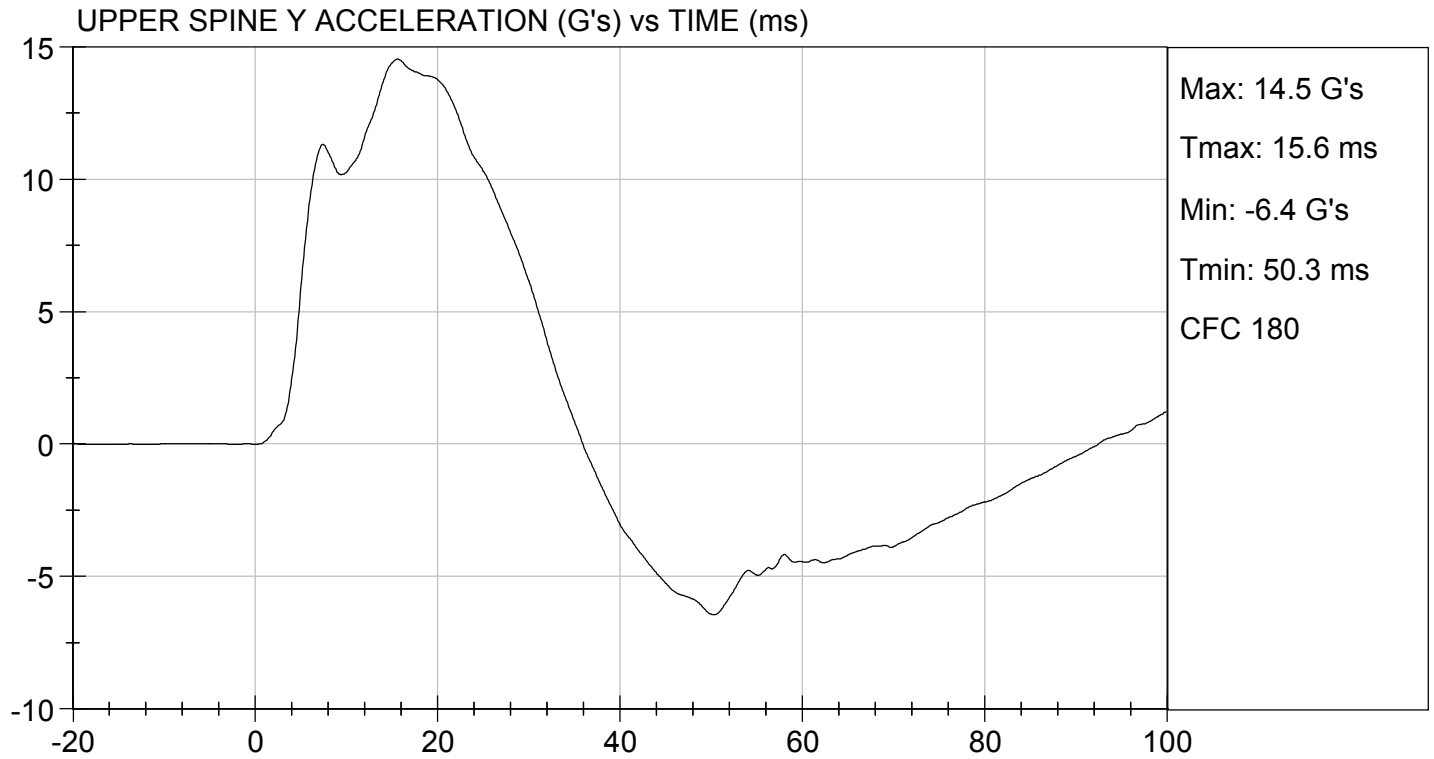
TEST DATE: 08/10/2017
TEST #: D172145





TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 08/10/2017
TEST #: D172145

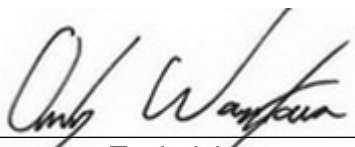


MGA RESEARCH CORPORATION
ABDOMINAL IMPACT TEST
SID-III BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D172146

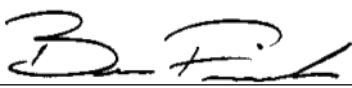
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.1	Pass
Humidity	%	10 to 70	49	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	12 to 16	14	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	41	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	37	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
Overall Test Results				Pass



Laboratory Technician

08/10/2017

Test Date

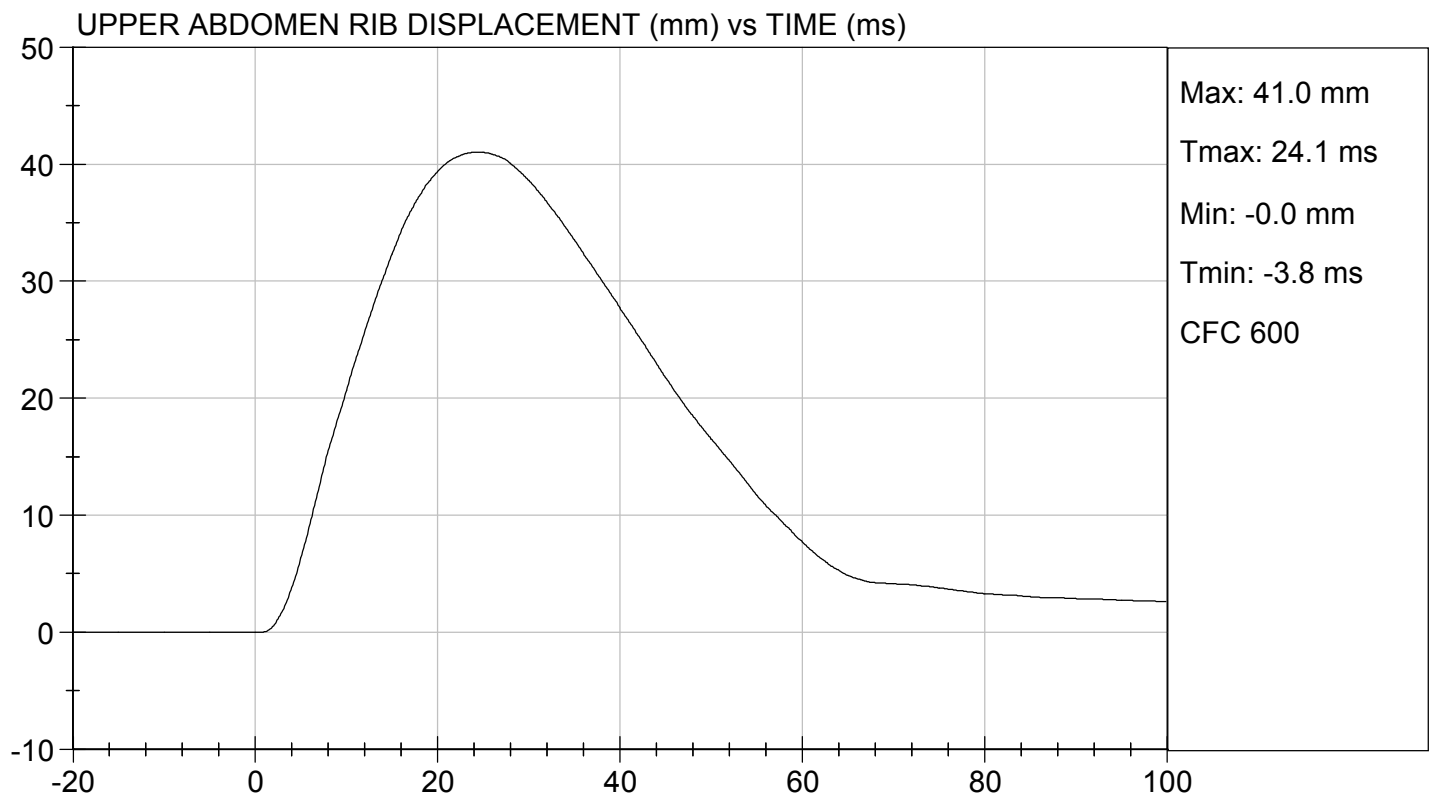
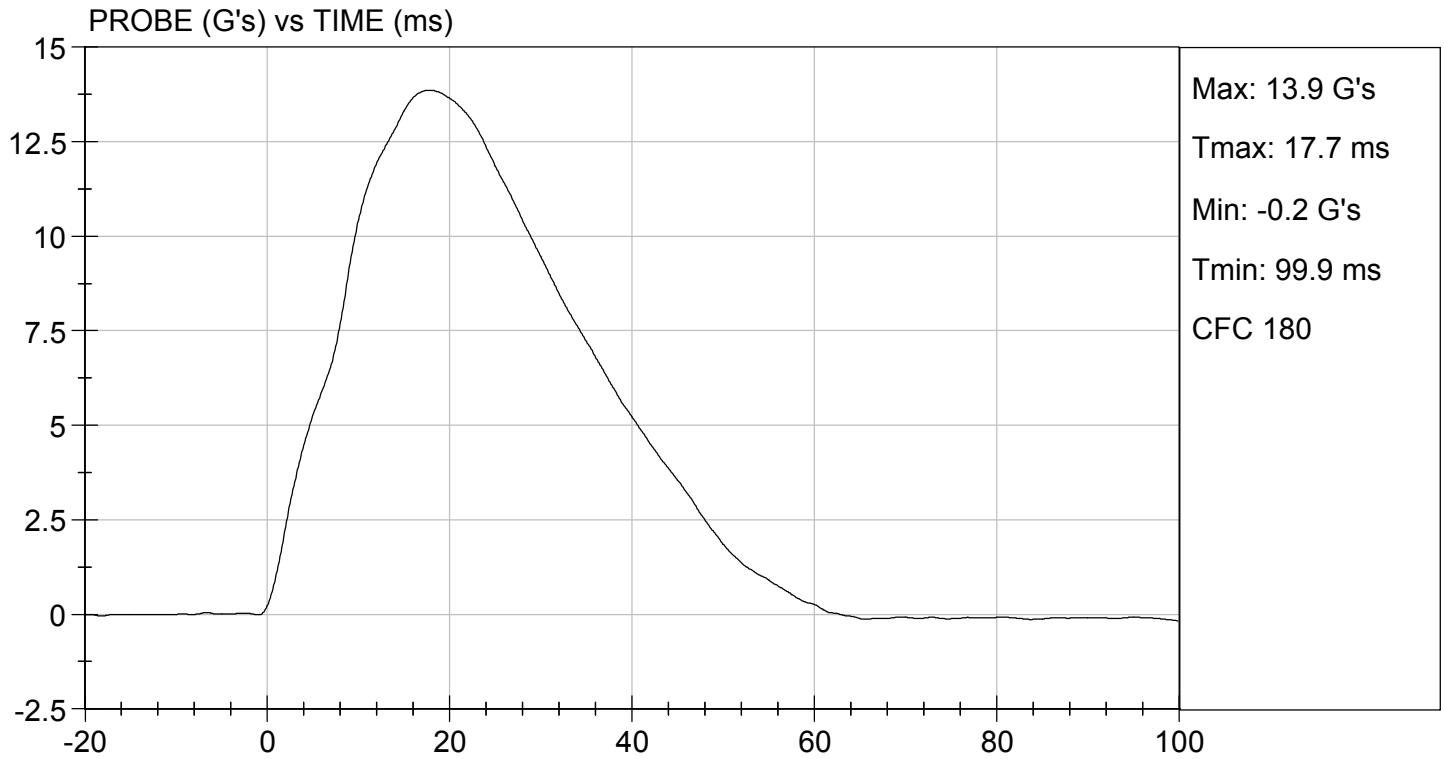


Approved By



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

TEST DATE: 08/10/2017
TEST #: D172146

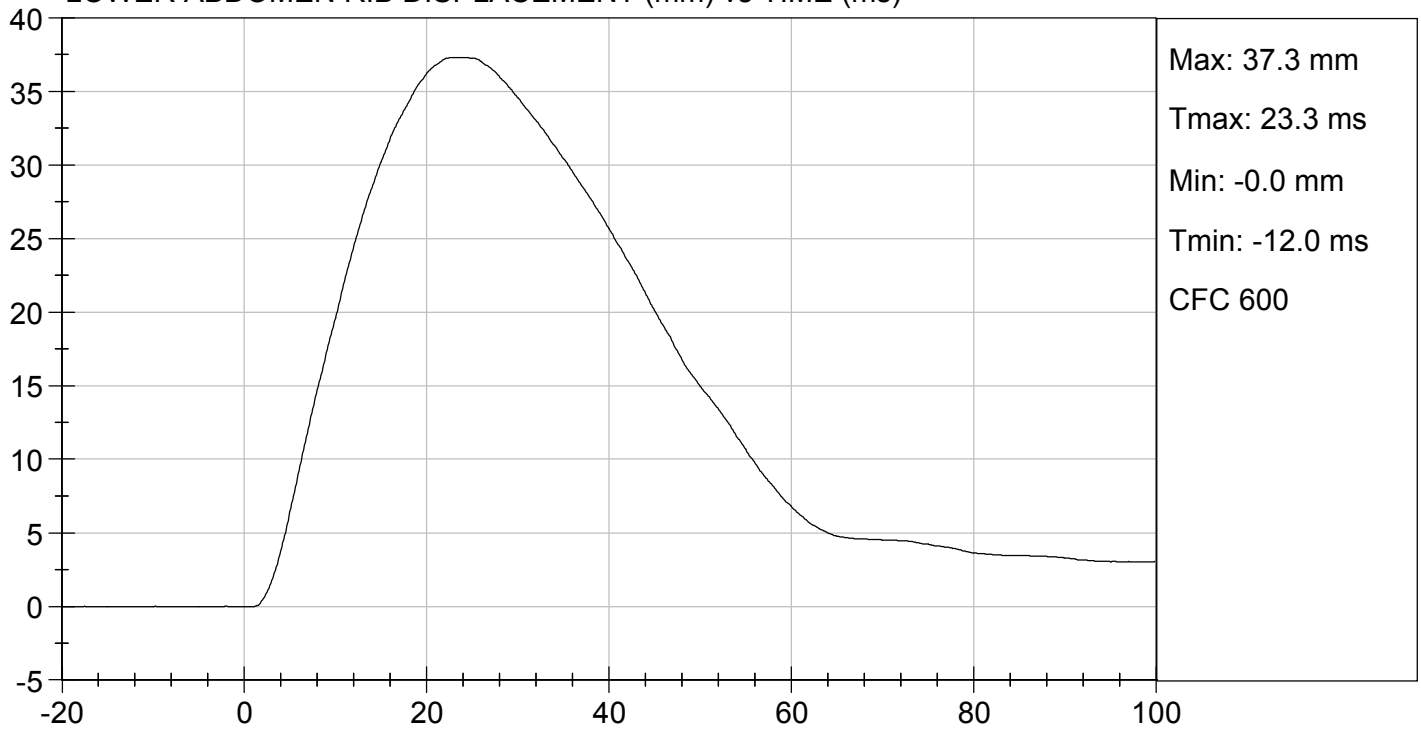




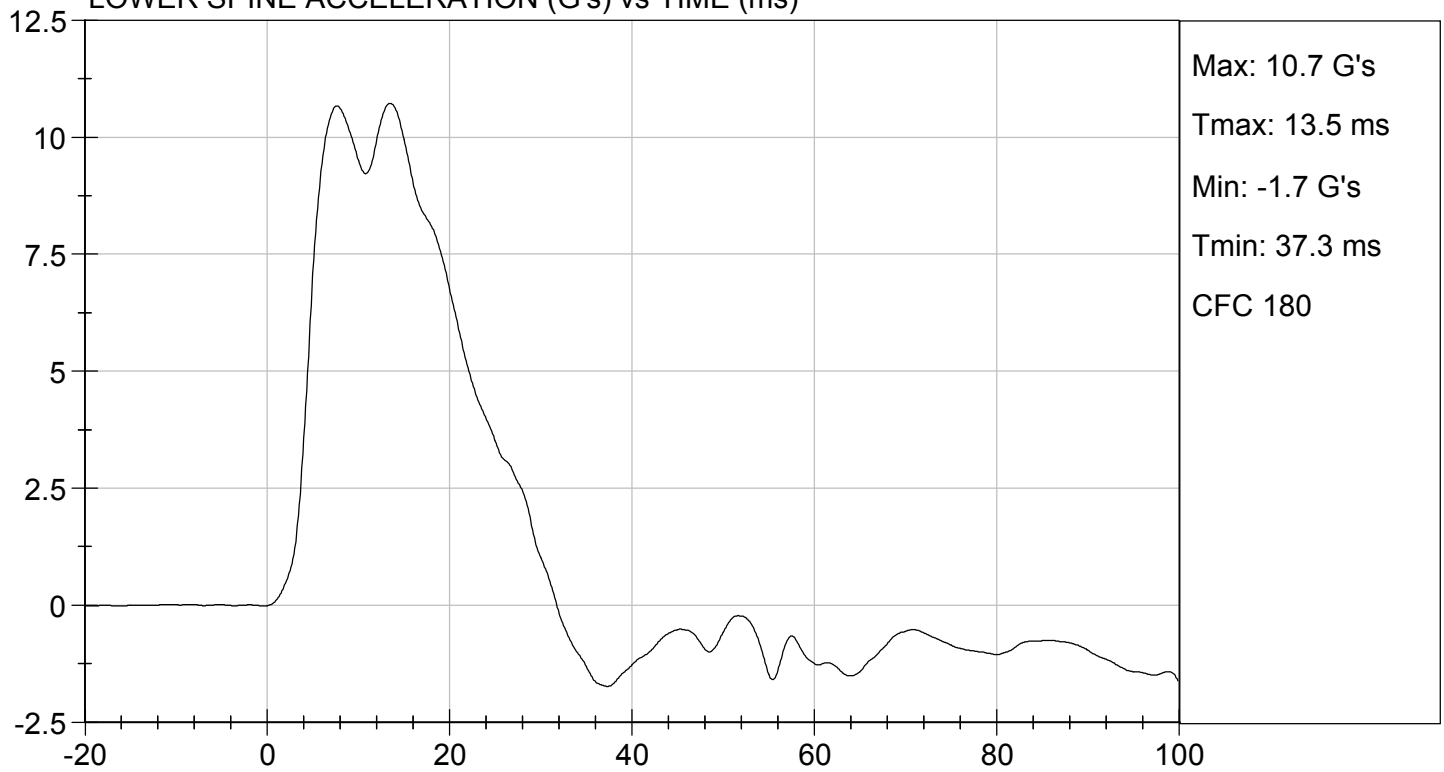
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 08/10/2017
TEST #: D172146

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



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

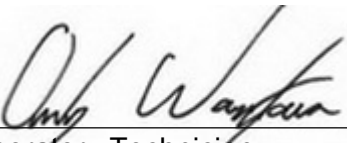


MGA RESEARCH CORPORATION
PELVIS IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

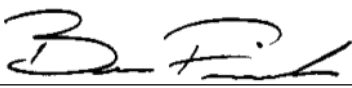
Test I.D: D172147

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.1	Pass
Humidity	%	10 to 70	49	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	38 to 47	43	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	42	Pass
Peak Acetabulum Force	N	3600 to 4300	3,731	Pass
Overall Test Results				Pass



Laboratory Technician

08/11/2017
Test Date

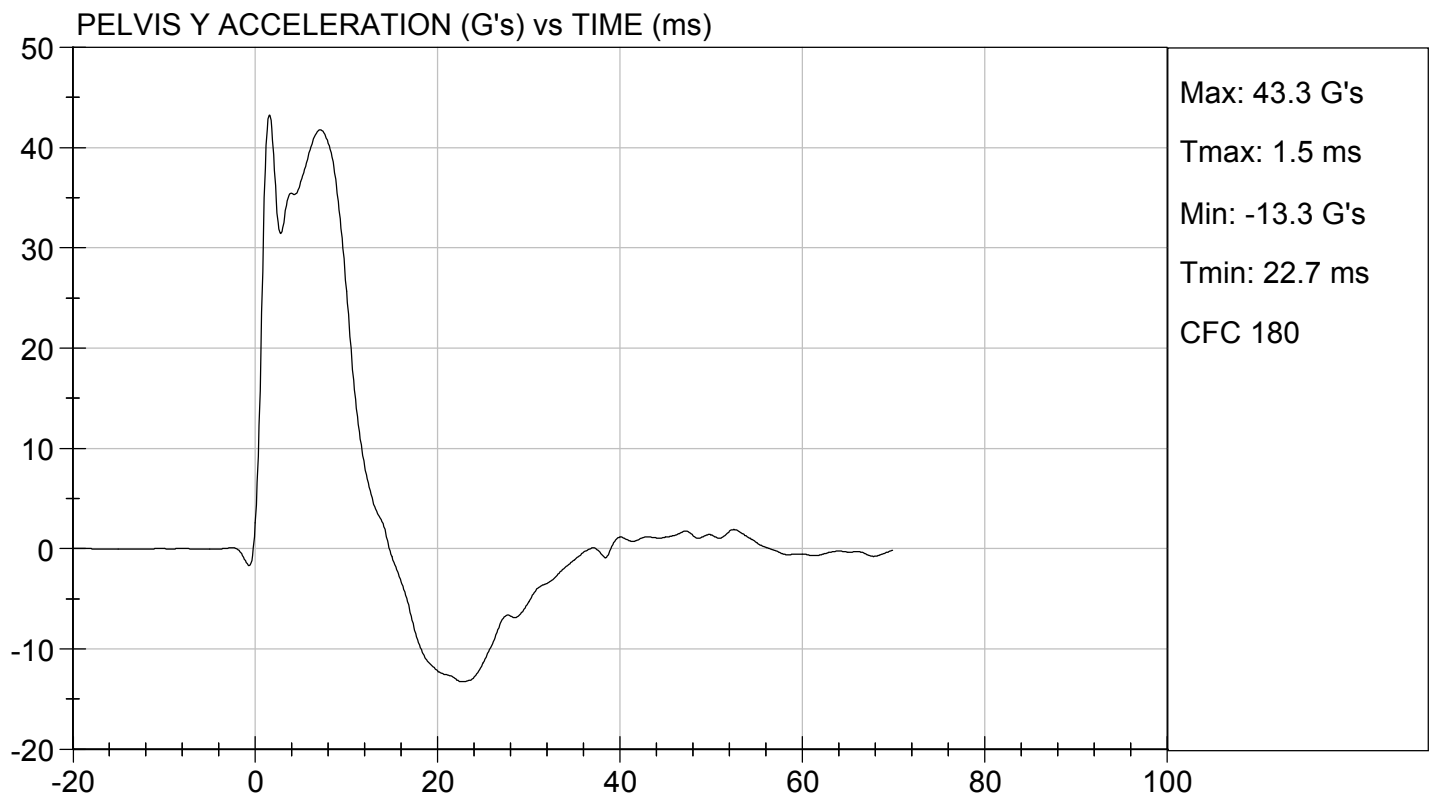
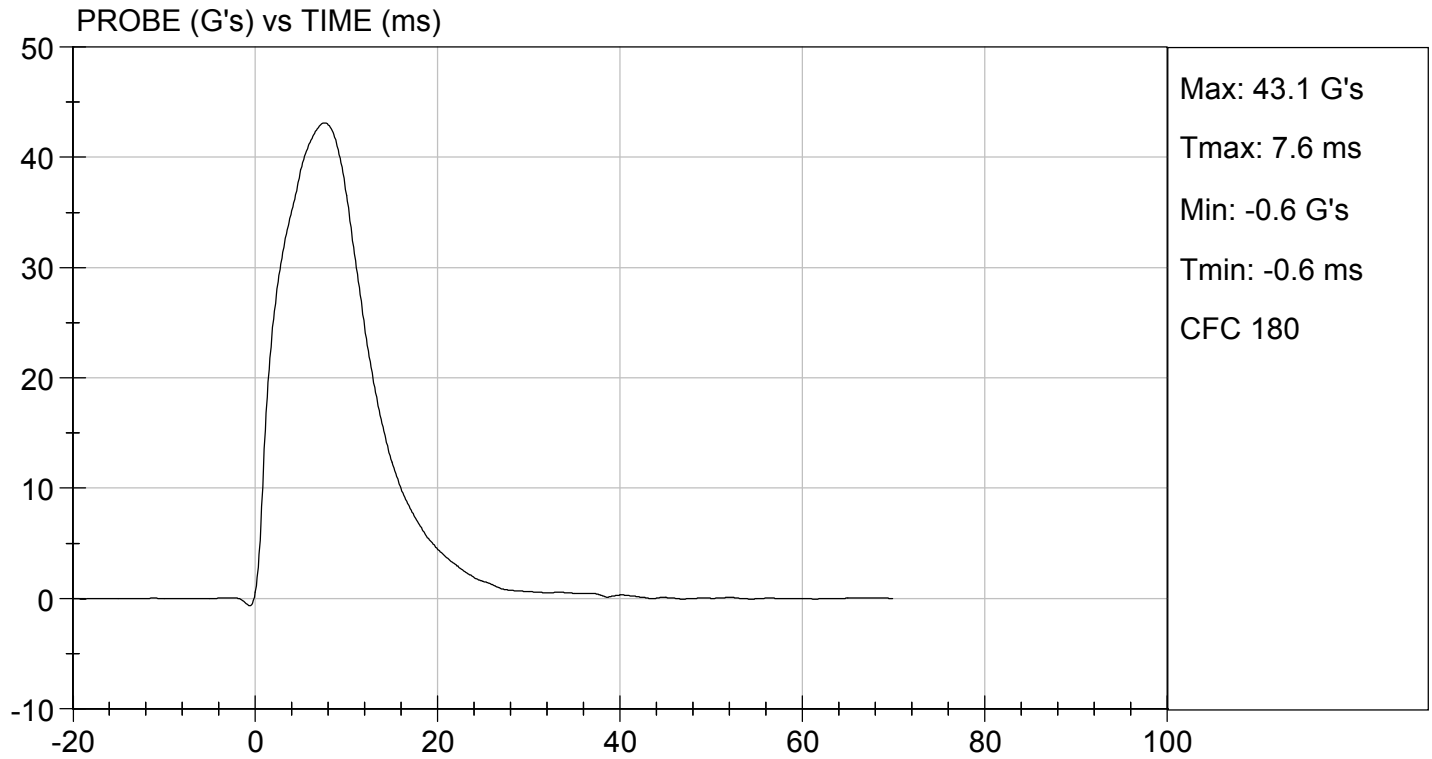


Approved By



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

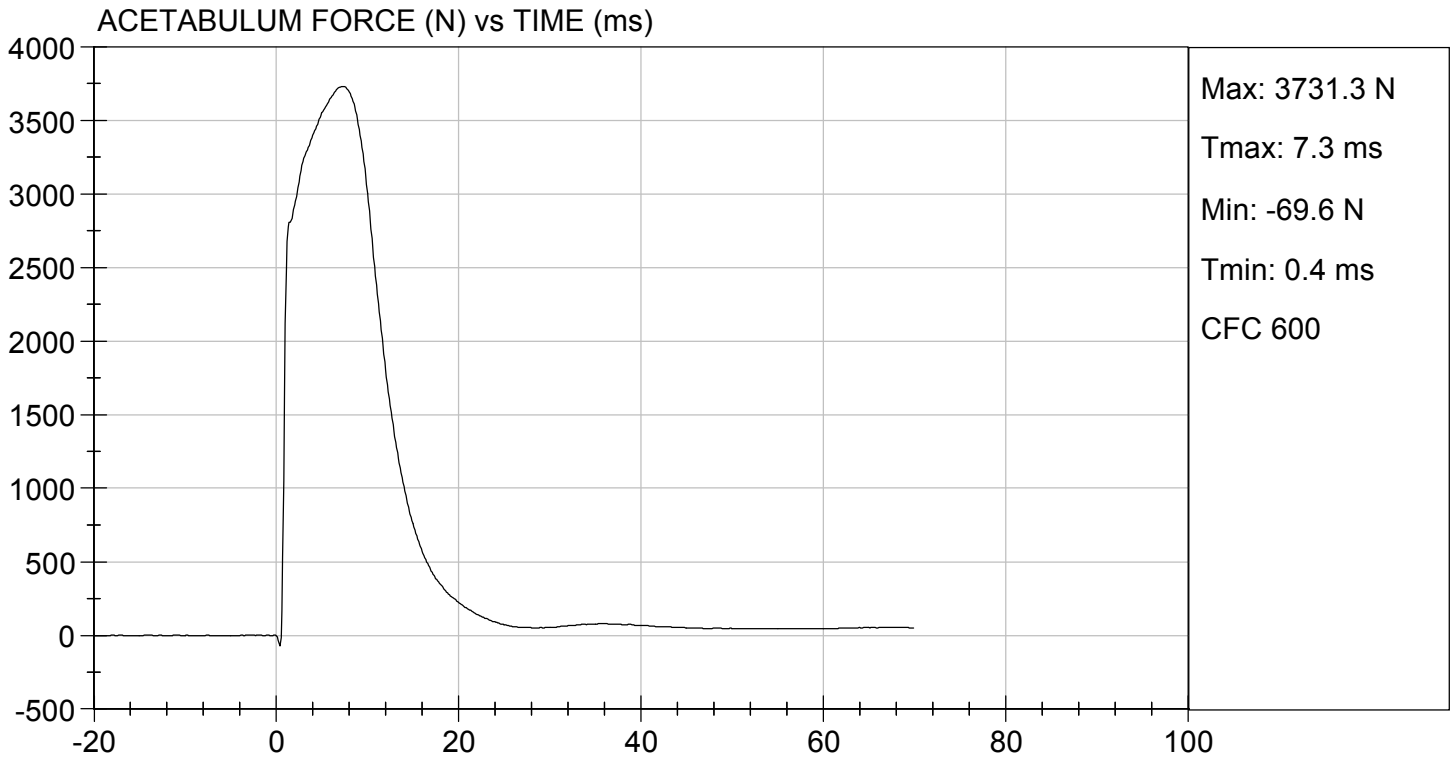
TEST DATE: 08/11/2017
TEST #: D172147





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

TEST DATE: 08/11/2017
TEST #: D172147



MGA RESEARCH CORPORATION

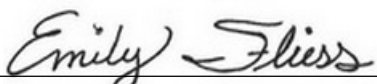
ILIAC IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

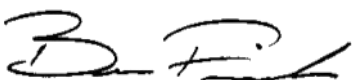
Test I.D: D172148

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	48	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	36 to 45	40	Pass
Pelvis Y Acceleration	G's	28 to 39	31	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,436	Pass
Overall Test Results				Pass


Laboratory Technician

08/11/2017

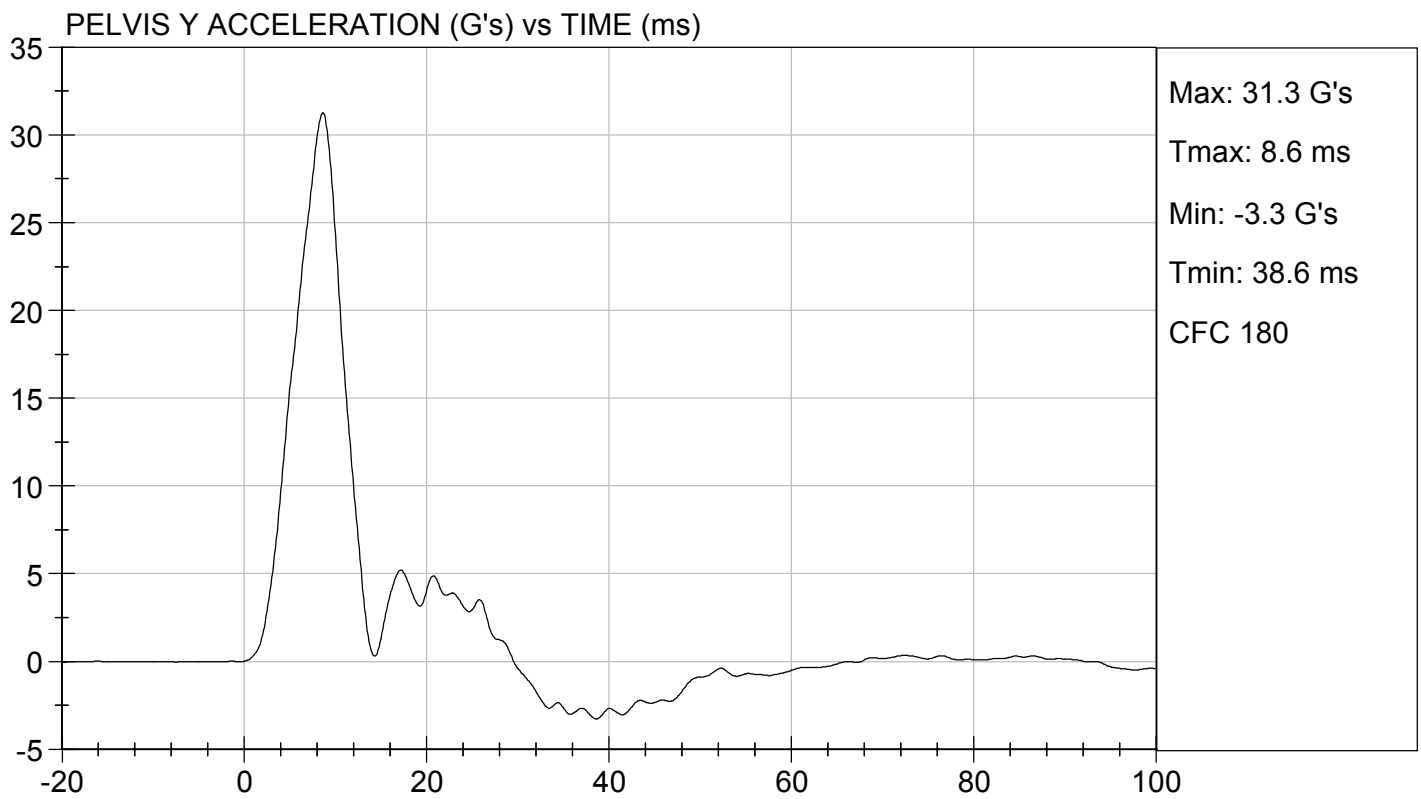
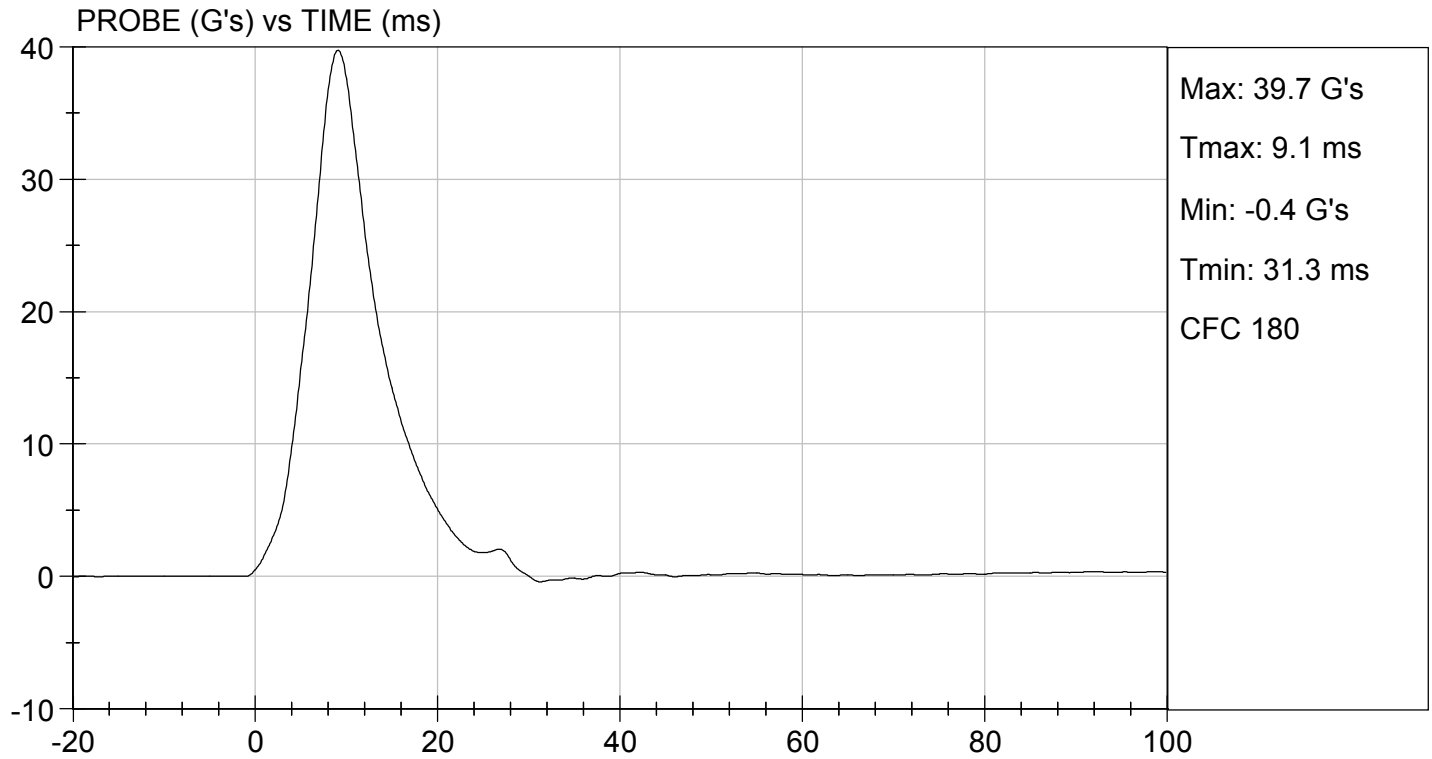
Test Date


Approved By



TEST DESC: ILLIAC
VELOCITY: 14.25 ft/s, 4.34 m/s

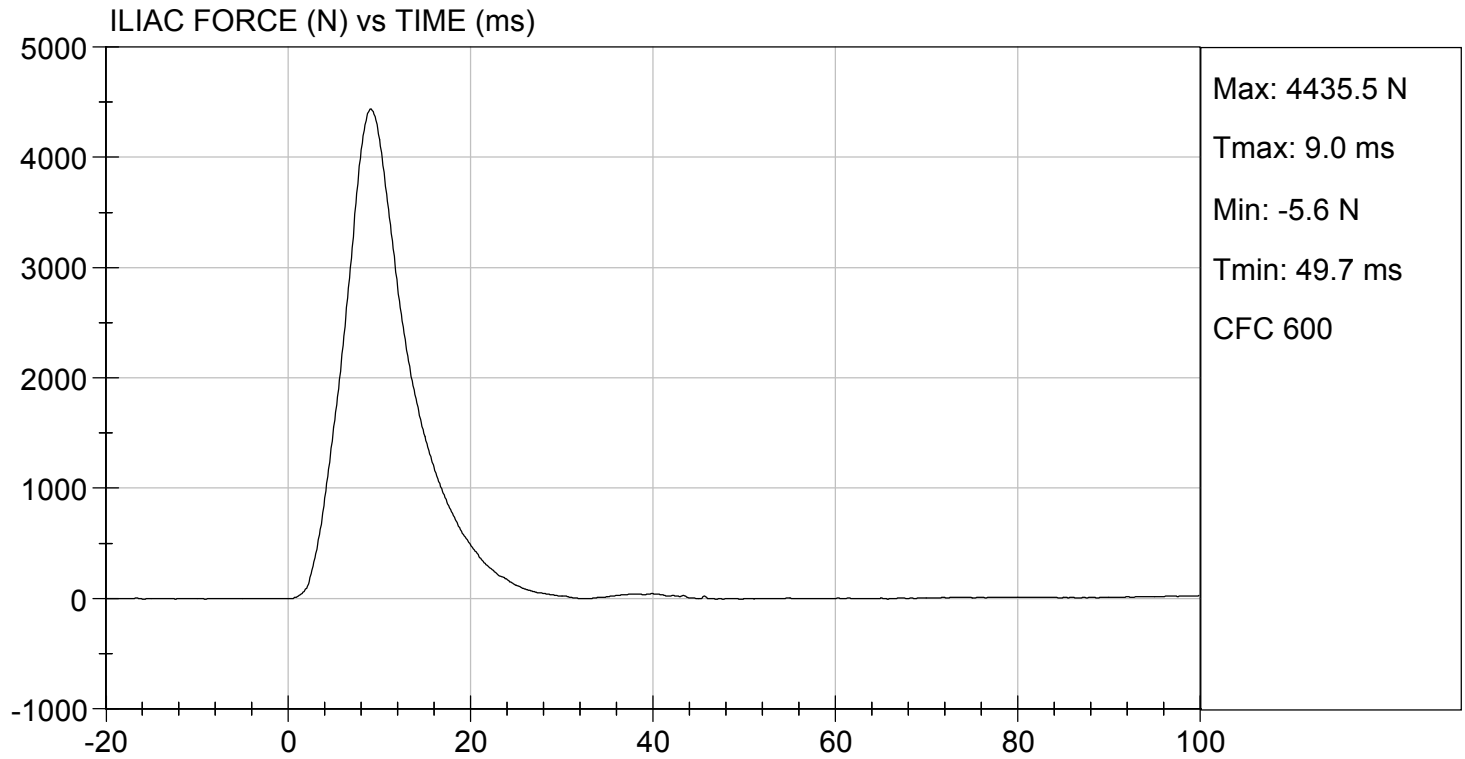
TEST DATE: 08/11/2017
TEST #: D172148





TEST DESC: ILLIAC
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 08/11/2017
TEST #: D172148



SID-IIsD External Measurements
SN: 306

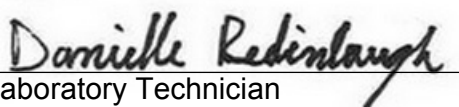
No.	Name	Spec. (mm)	Result	Pass/Fail
A	Sitting Height	772 - 788	785	Pass
B	Shoulder Pivot Height	437 - 453	449	Pass
C	H-point Height	79 - 89	86	Pass
D	H-point from Seatback	141 - 151	147	Pass
E	Shoulder Pivot from Backline	97 - 107	99	Pass
F	Thigh Clearance	119 -135	120	Pass
G	Head Breadth	140 - 148	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

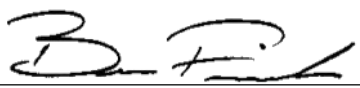
ATD Serial No: 306

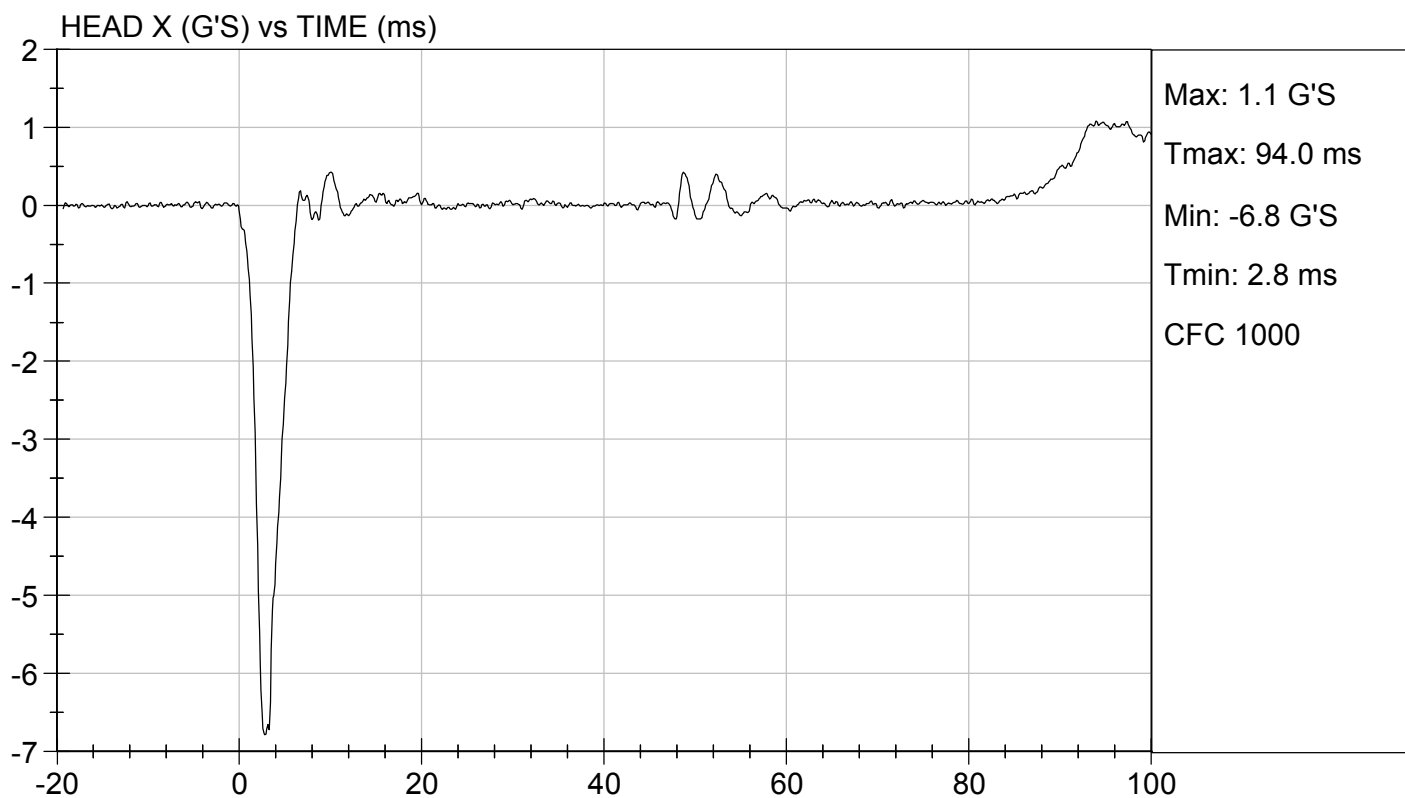
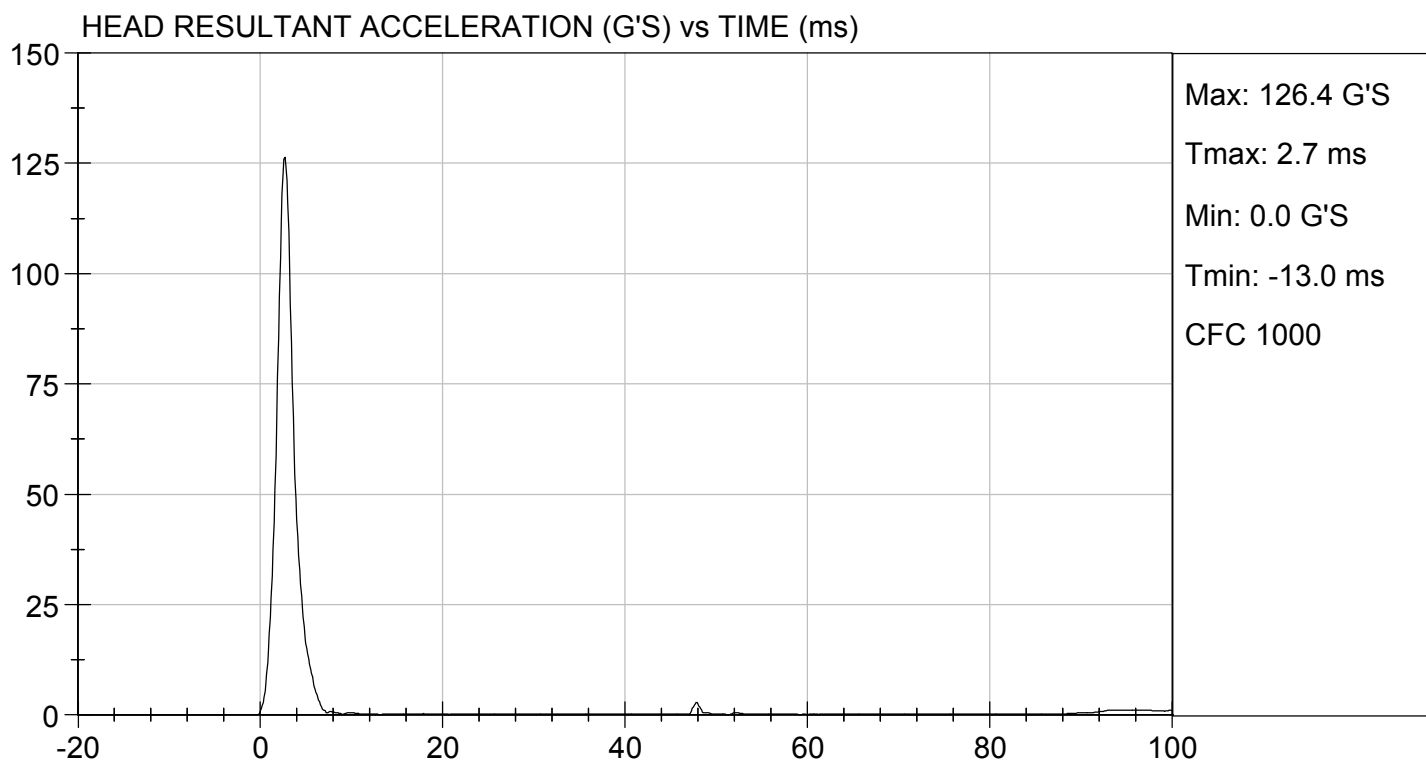
Test ID: D172311

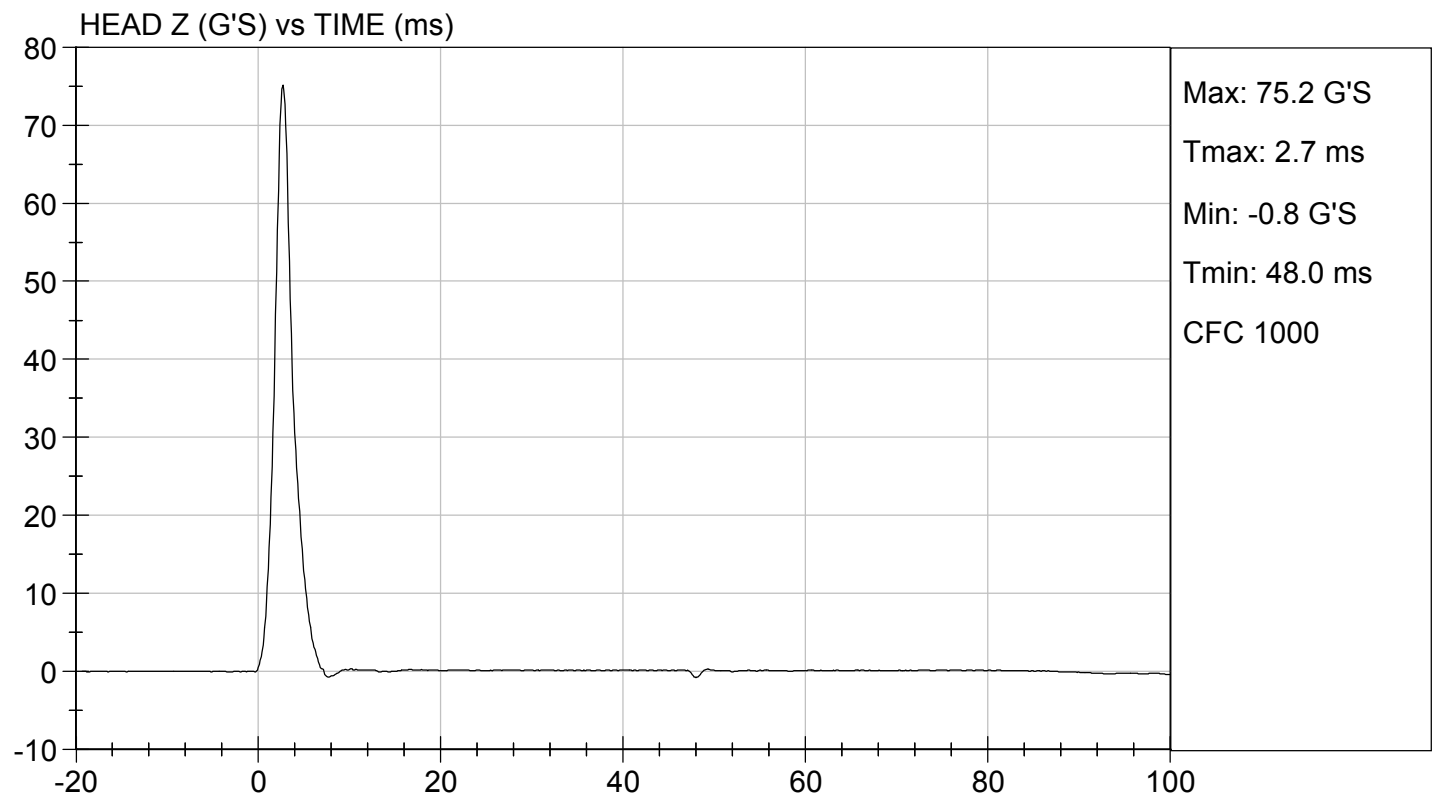
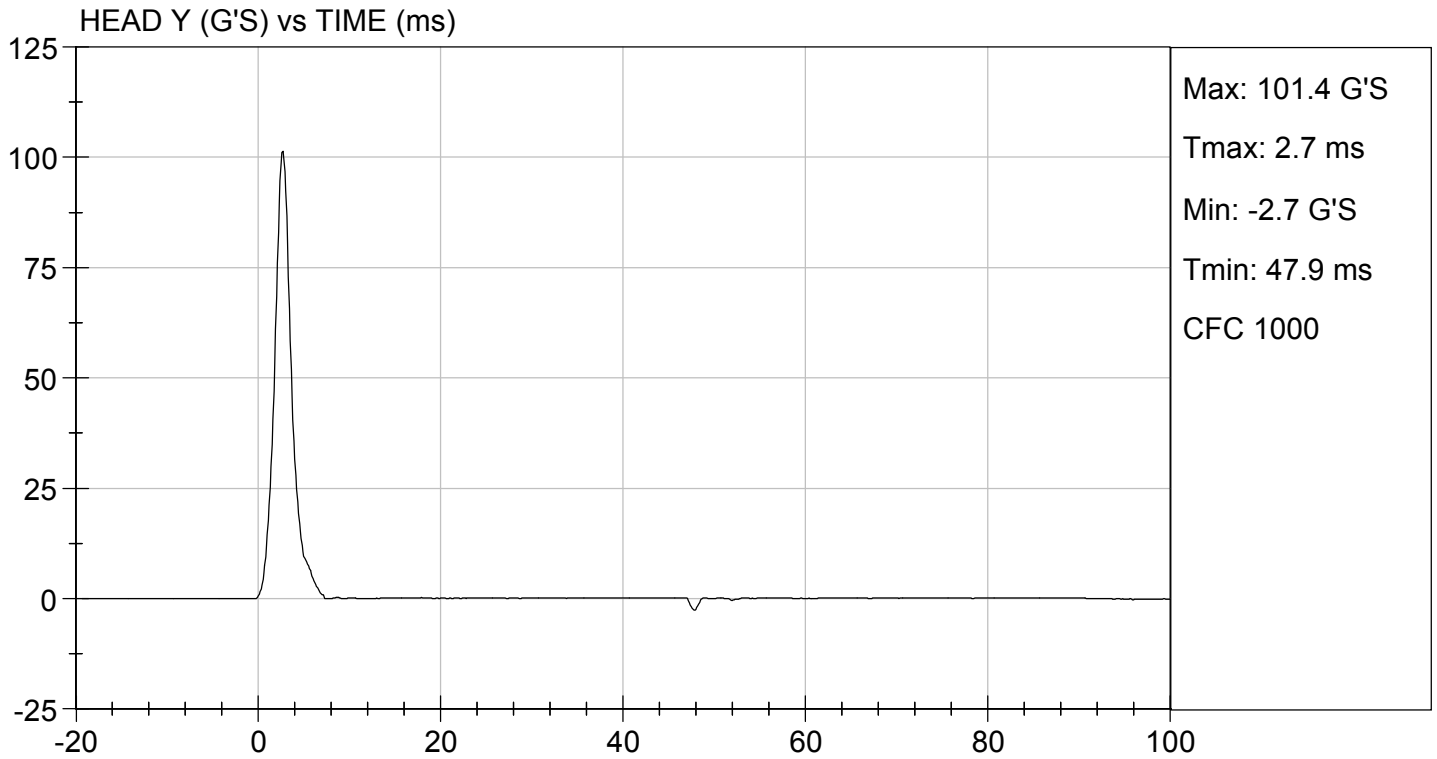
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	48	Pass
Peak Resultant Acceleration	G's	115 to 137	126	Pass
Peak Longitudinal Acceleration	G's	+/- 15	-6.8	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
Overall Test Results			Pass	


Laboratory Technician

08/22/2017
Test Date


Approved By



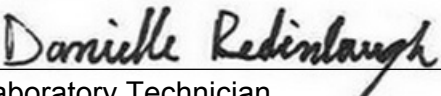


MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

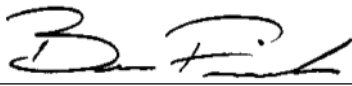
Test I.D: D172312

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.7	Pass
Humidity		%	10 to 70	48	Pass
Impact Velocity		m/s	5.51 to 5.63	5.52	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.72	Pass
	15 ms	m/s	3.30 to 4.10	3.96	Pass
	20 ms	m/s	4.40 to 5.40	5.32	Pass
	25 ms	m/s	5.40 to 6.10	5.70	Pass
	25-100 ms	m/s	5.50 to 6.20	5.74	Pass
Maximum D-Plane Rotation		deg	71 to 81	71	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	113	Pass
Overall Test Results					Pass


 Laboratory Technician

08/22/2017

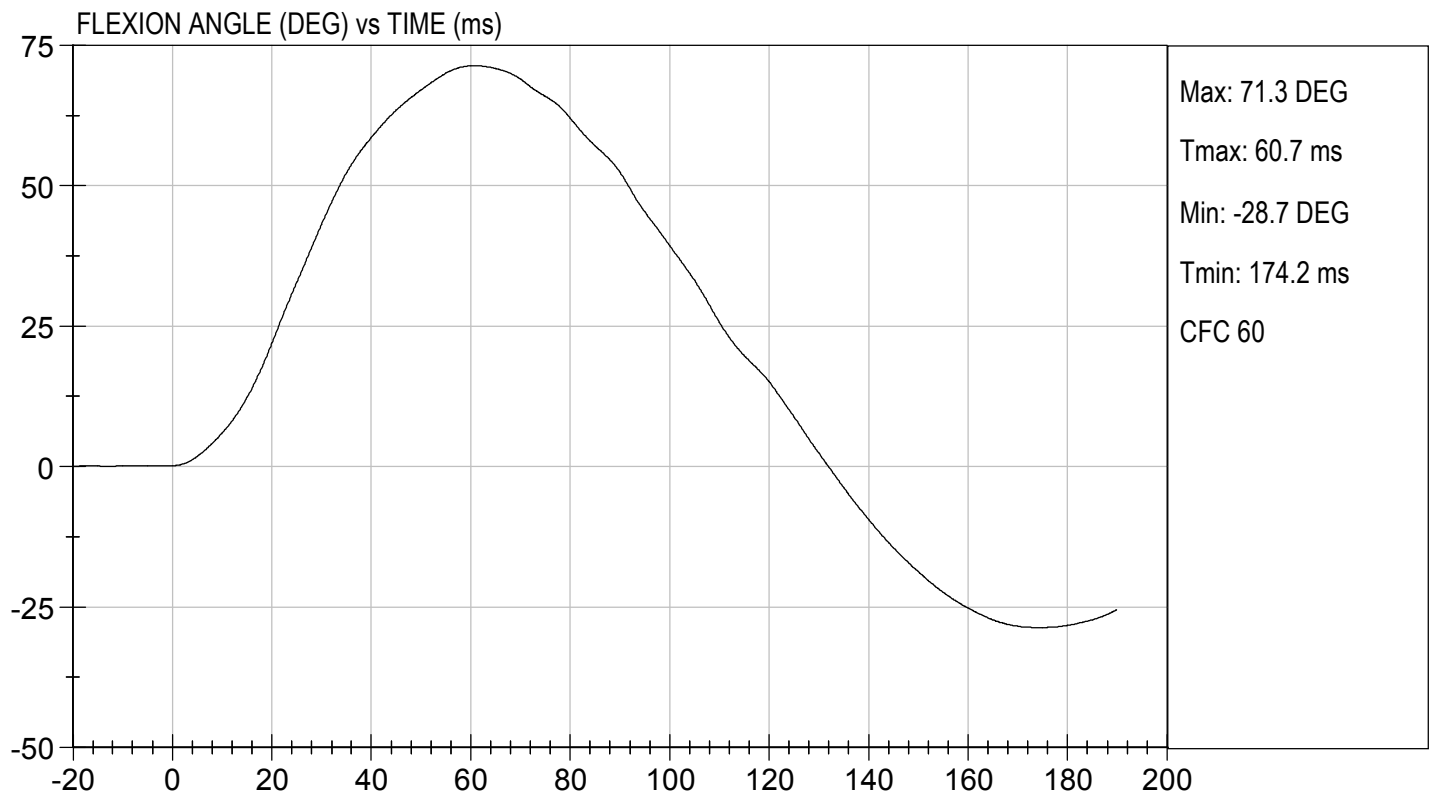
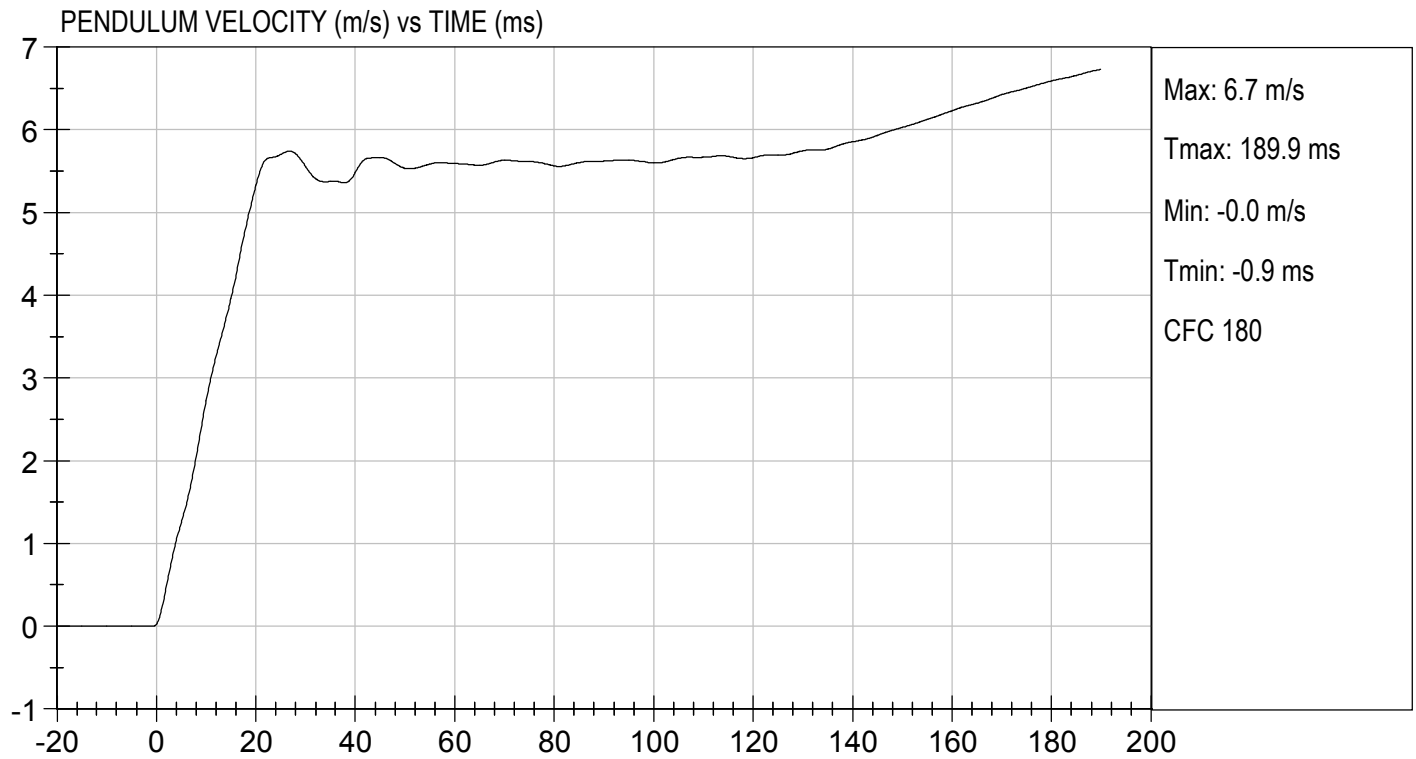
Test Date


 Approved By



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

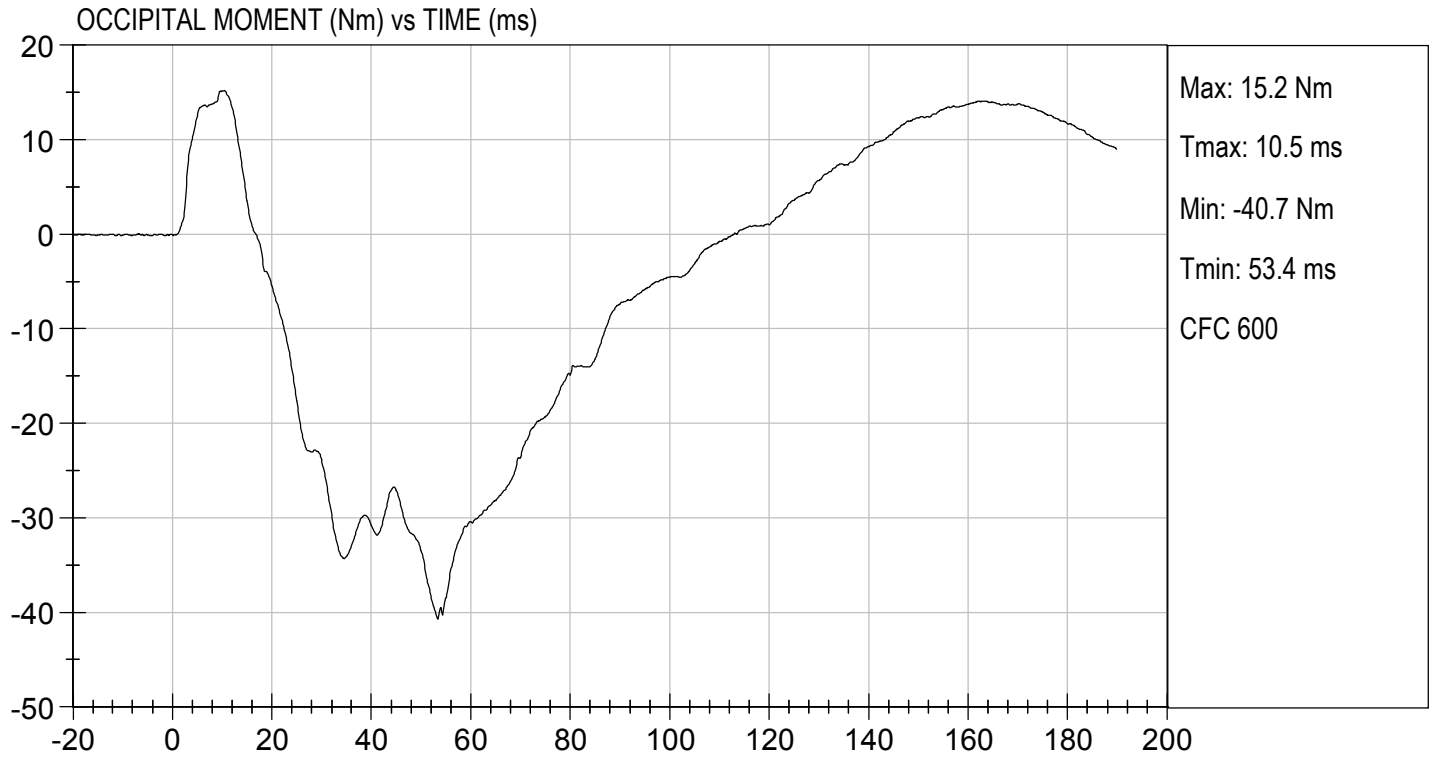
TEST DATE: 08/22/2017
TEST #: D172312





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

TEST DATE: 08/22/2017
TEST #: D172312



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

ATD Serial No: 306

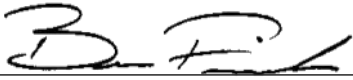
Test ID: D172313

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	40	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	13 to 18	16	Pass
Shoulder Displacement	mm	28 to 37	29	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	19	Pass
Overall Test Results				Pass


Laboratory Technician

08/23/2017

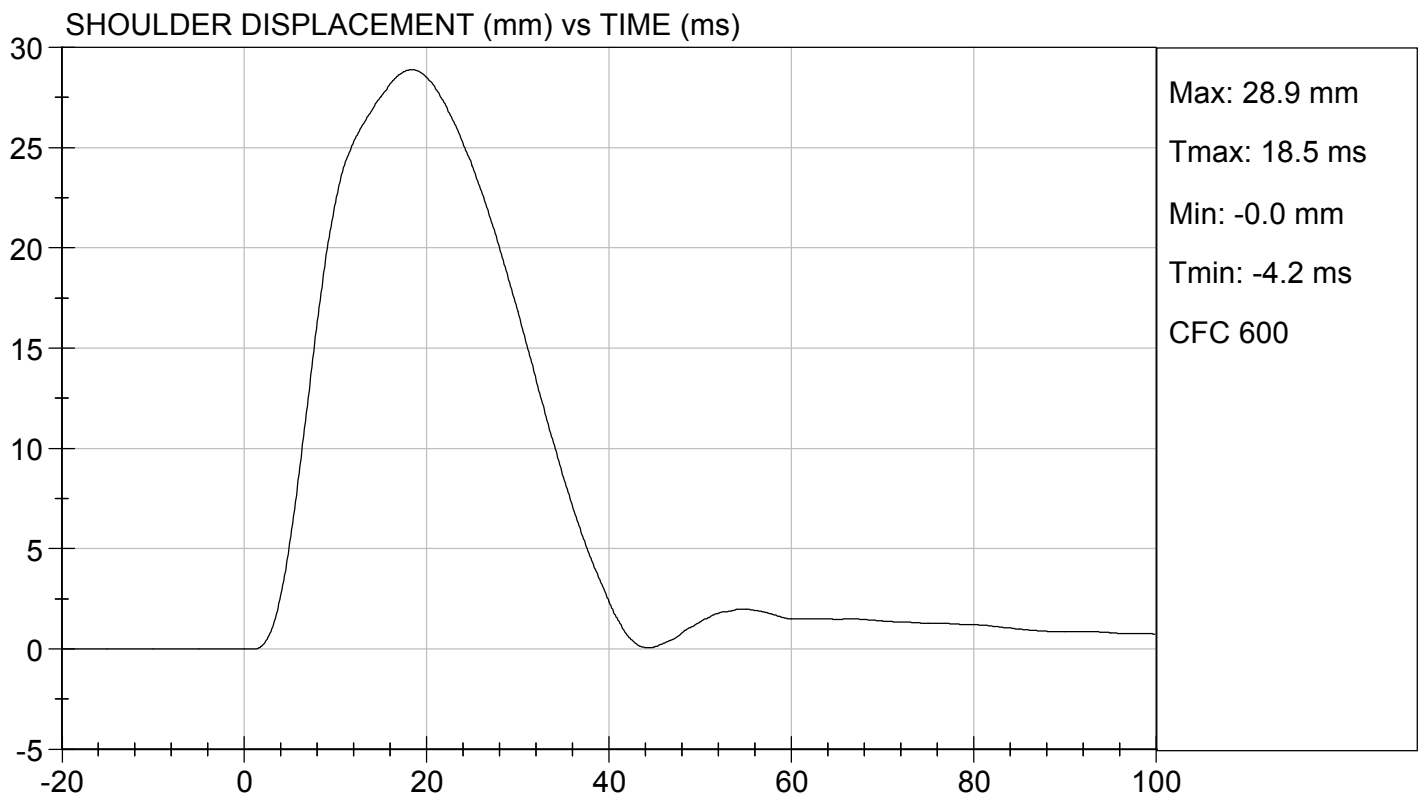
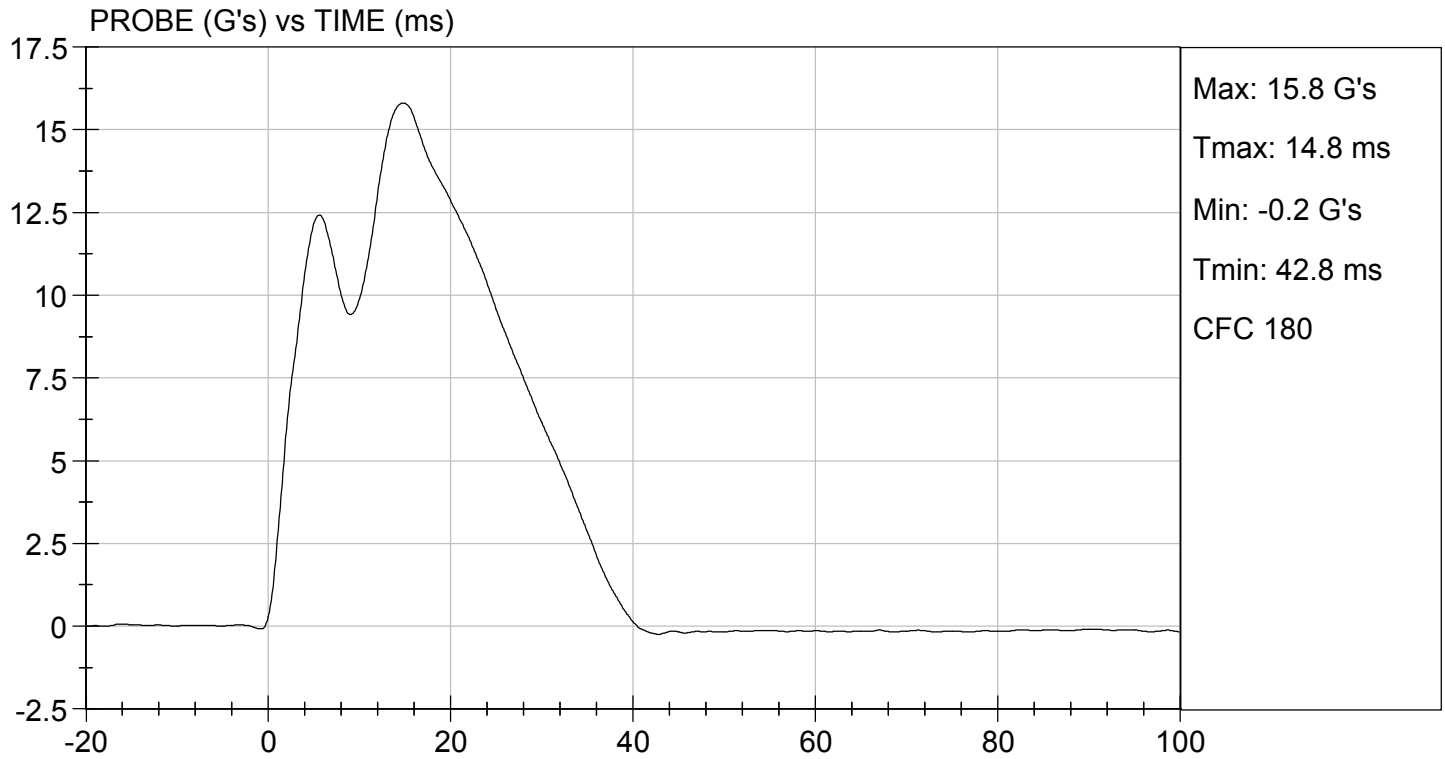
Test Date


Approved By



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

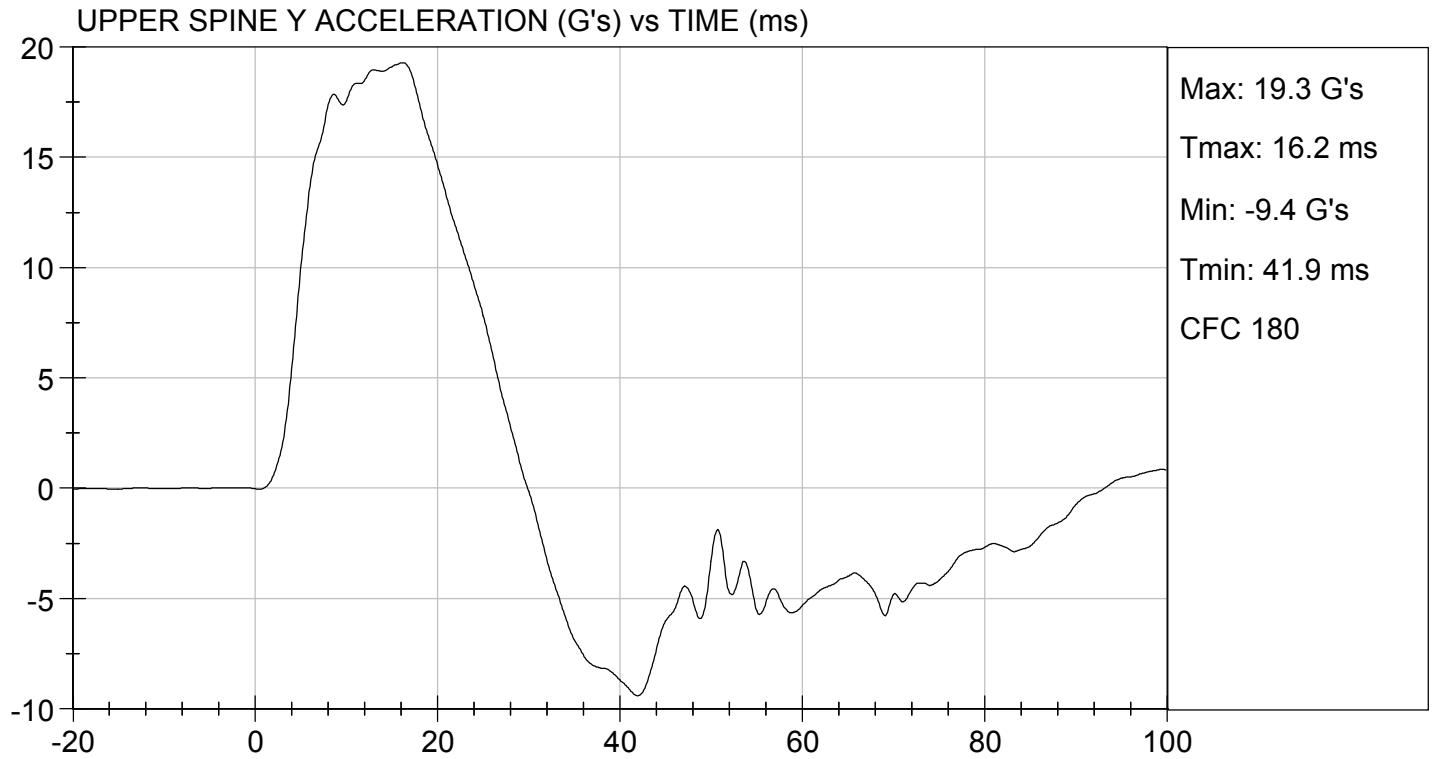
TEST DATE: 08/23/2017
TEST #: D172313





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

TEST DATE: 08/23/2017
TEST #: D172313



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

ATD Serial No: 306

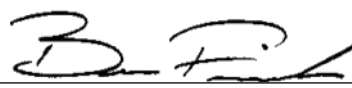
Test I.D: D172314

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	40	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	30 to 36	32	Pass
Shoulder Displacement	mm	31 to 40	37	Pass
Upper Rib Displacement	mm	25 to 32	29	Pass
Middle Rib Displacement	mm	30 to 36	32	Pass
Lower Rib Displacement	mm	32 to 38	34	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	36	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	34	Pass
Overall Test Results				Pass


Laboratory Technician

08/23/2017

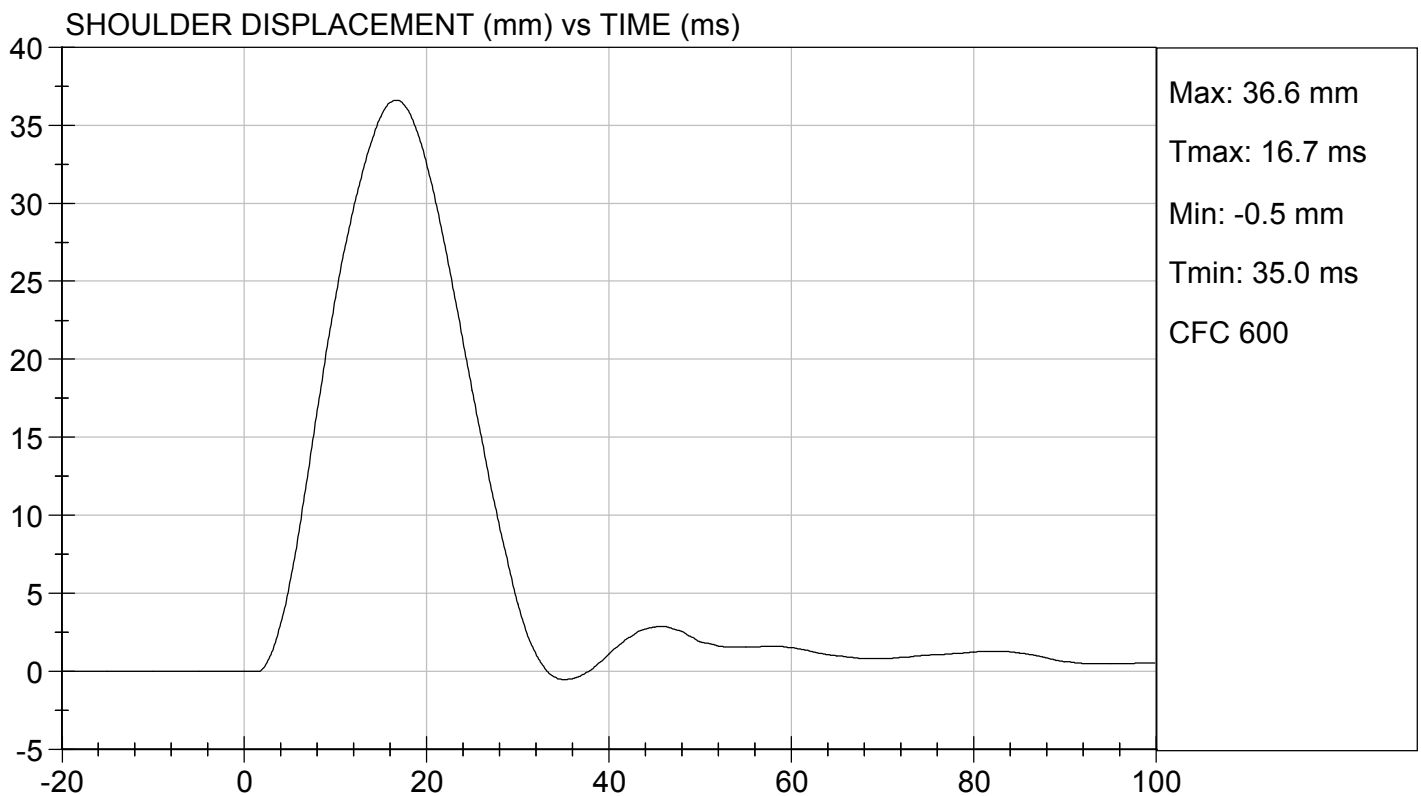
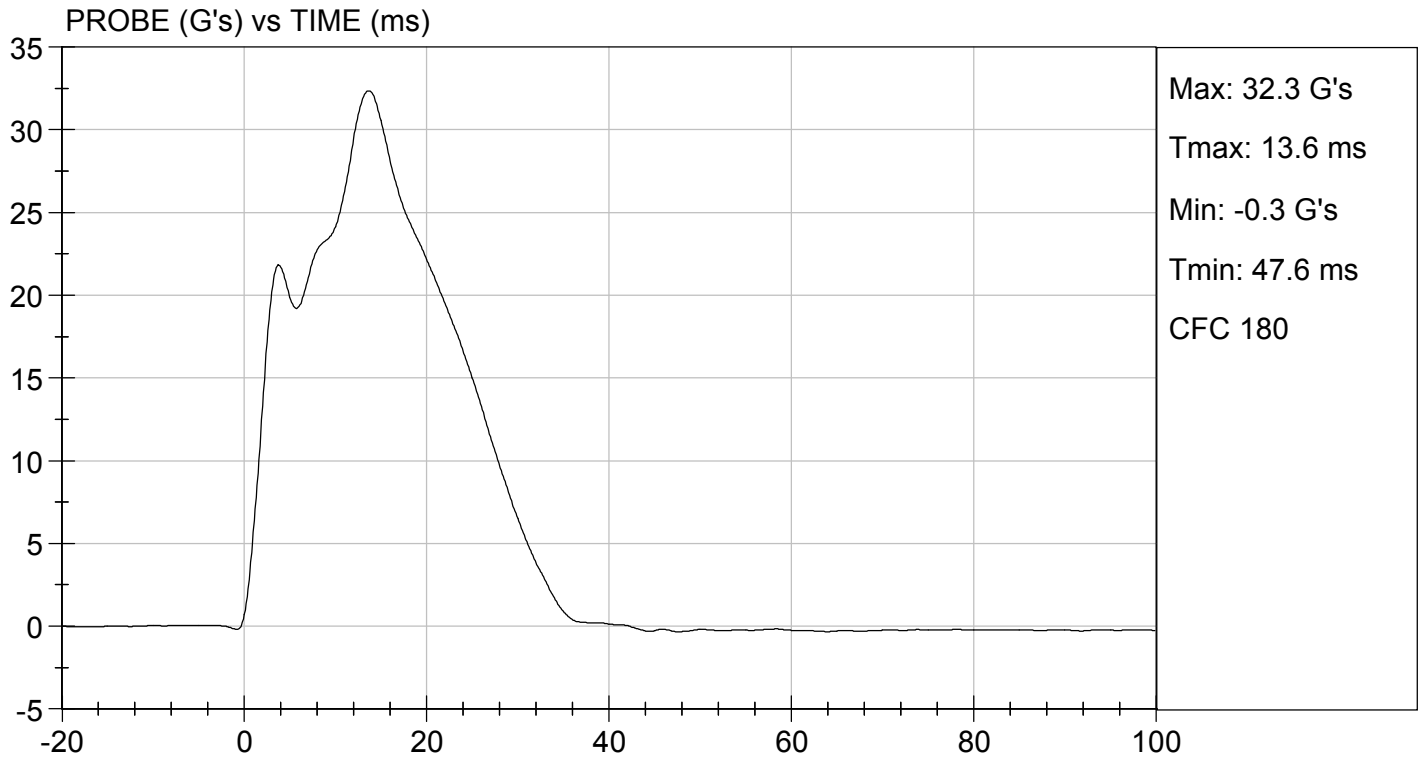
Test Date


Approved By



TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 21.93 ft/s, 6.68 m/s

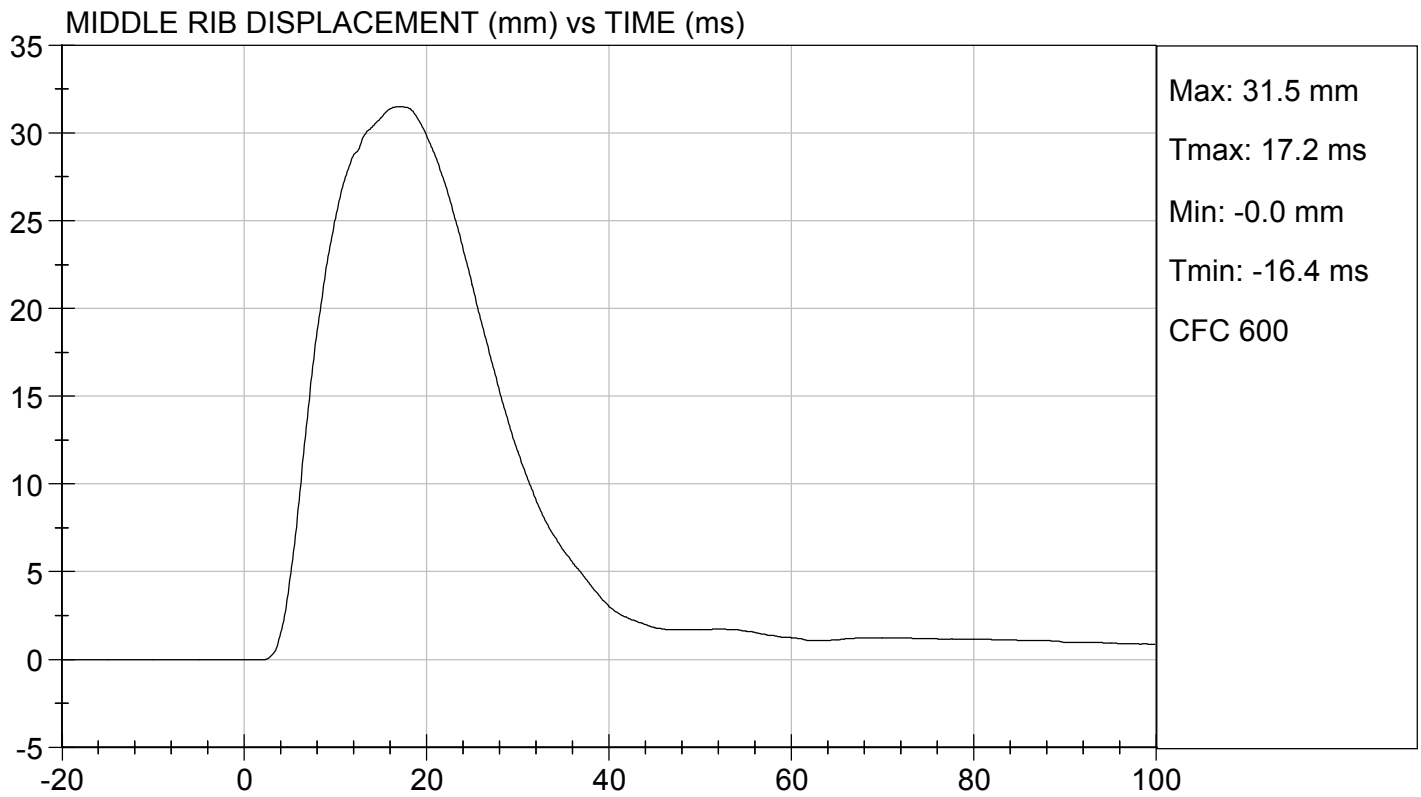
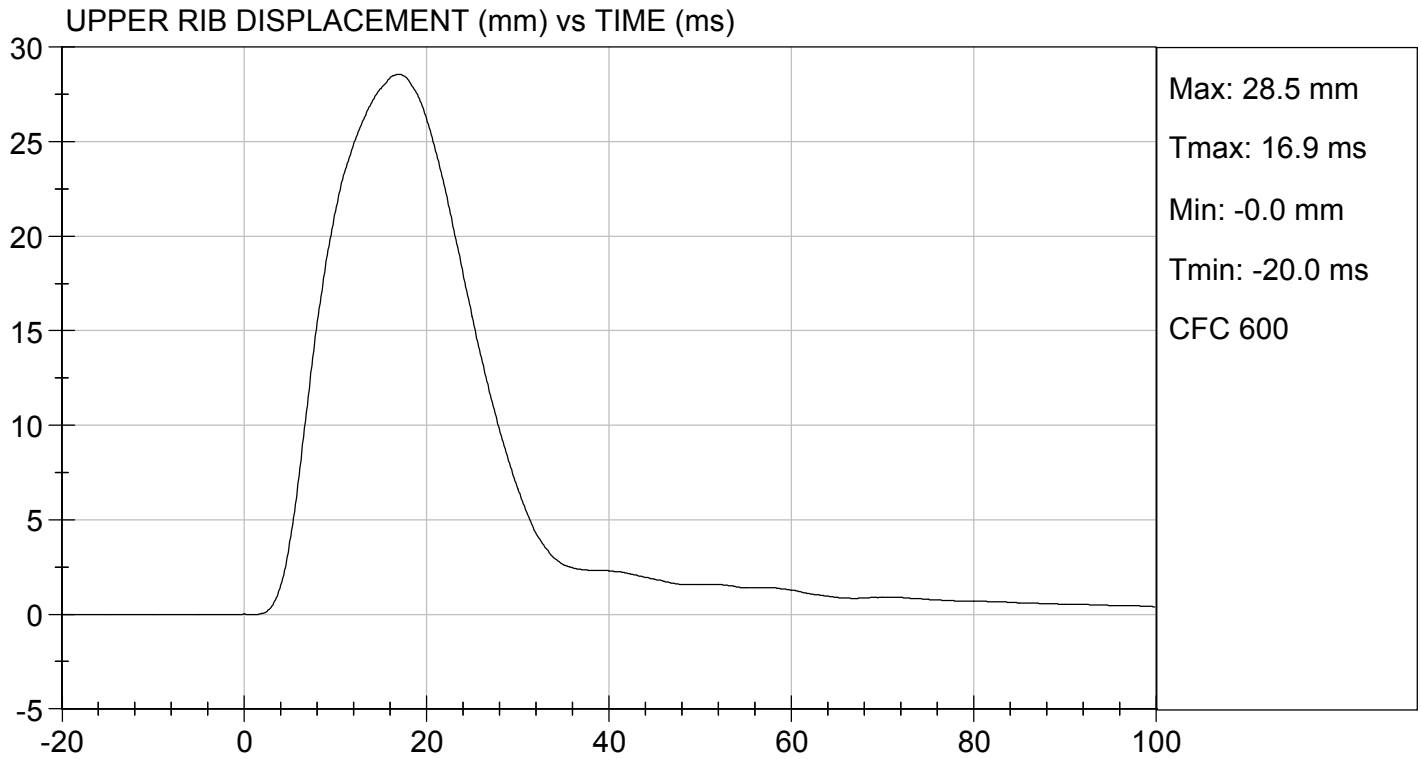
TEST DATE: 08/23/2017
TEST #: D172314





TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 21.93 ft/s, 6.68 m/s

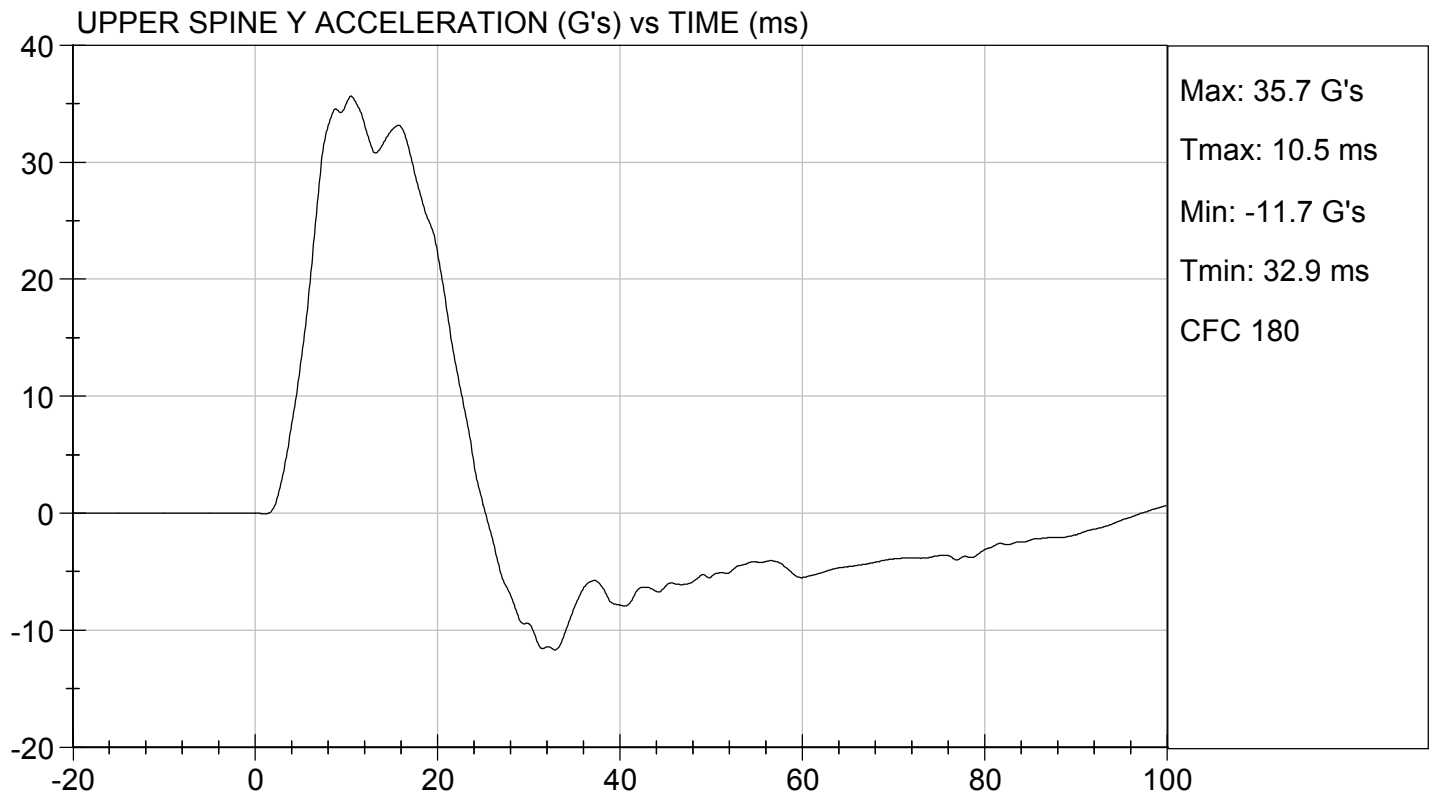
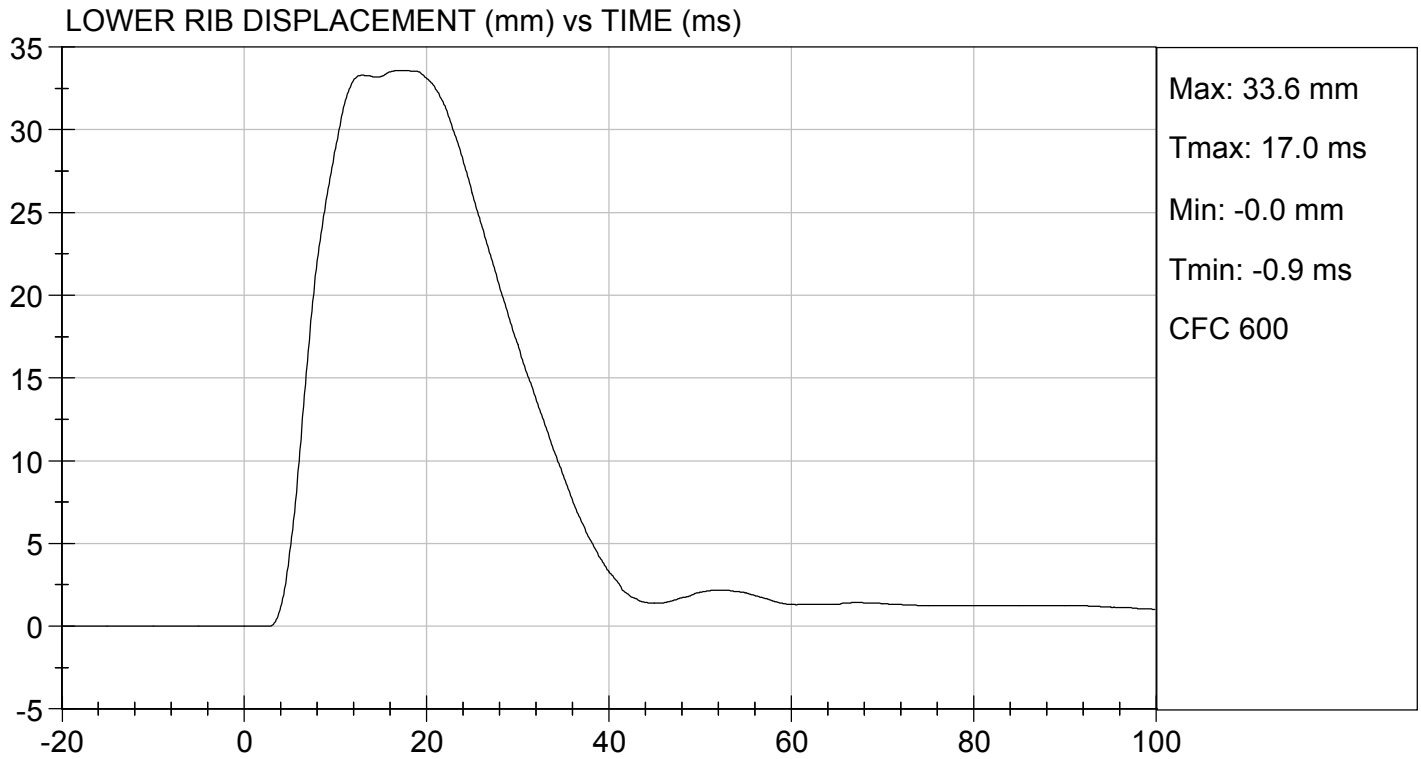
TEST DATE: 08/23/2017
TEST #: D172314





TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 21.93 ft/s, 6.68 m/s

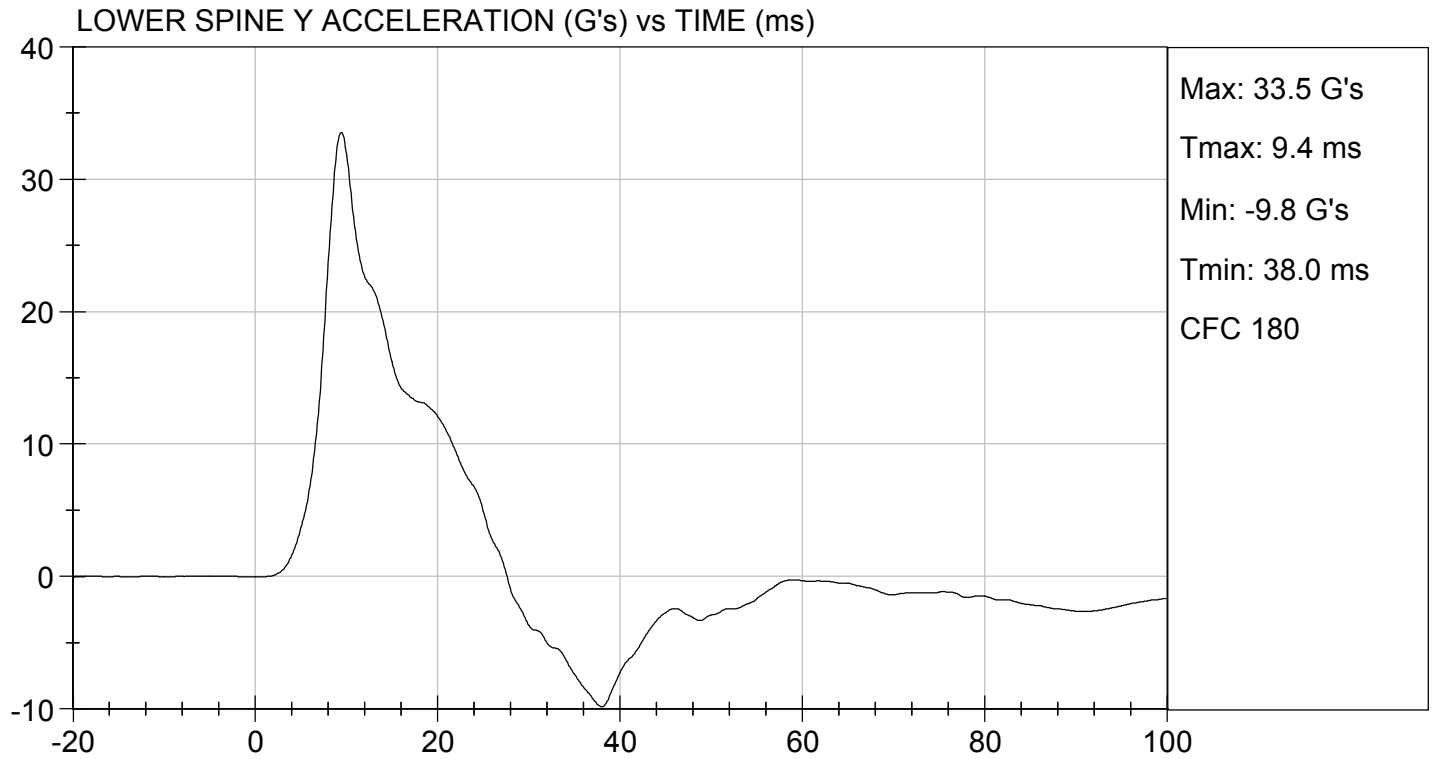
TEST DATE: 08/23/2017
TEST #: D172314





TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 21.93 ft/s, 6.68 m/s

TEST DATE: 08/23/2017
TEST #: D172314



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

ATD Serial No: 306

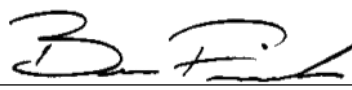
Test I.D: D172315

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	40	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	14 to 18	15	Pass
Upper Rib Displacement	mm	32 to 40	36	Pass
Middle Rib Displacement	mm	39 to 45	41	Pass
Lower Rib Displacement	mm	35 to 43	40	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	14	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	8	Pass
			Overall Test Results	Pass


Laboratory Technician

08/23/2017

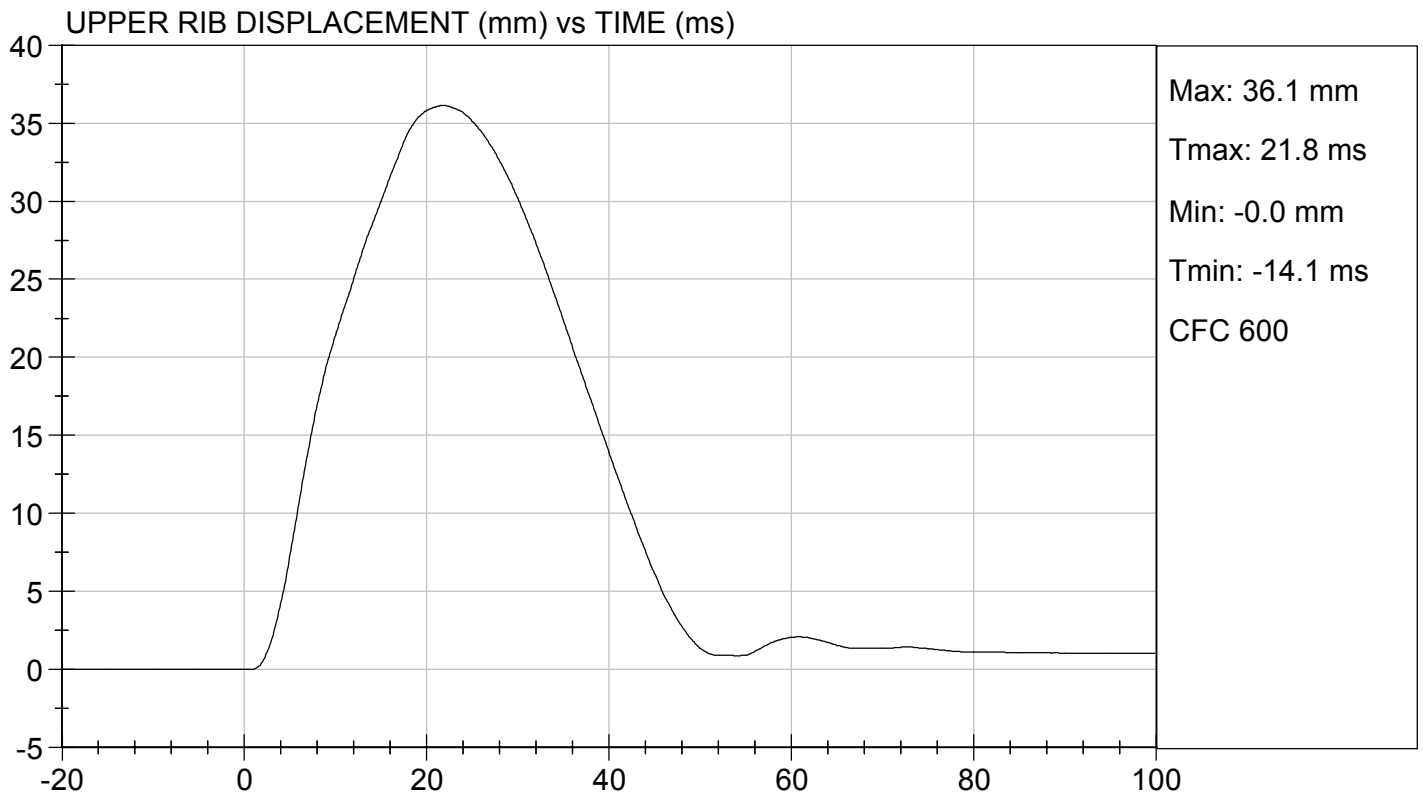
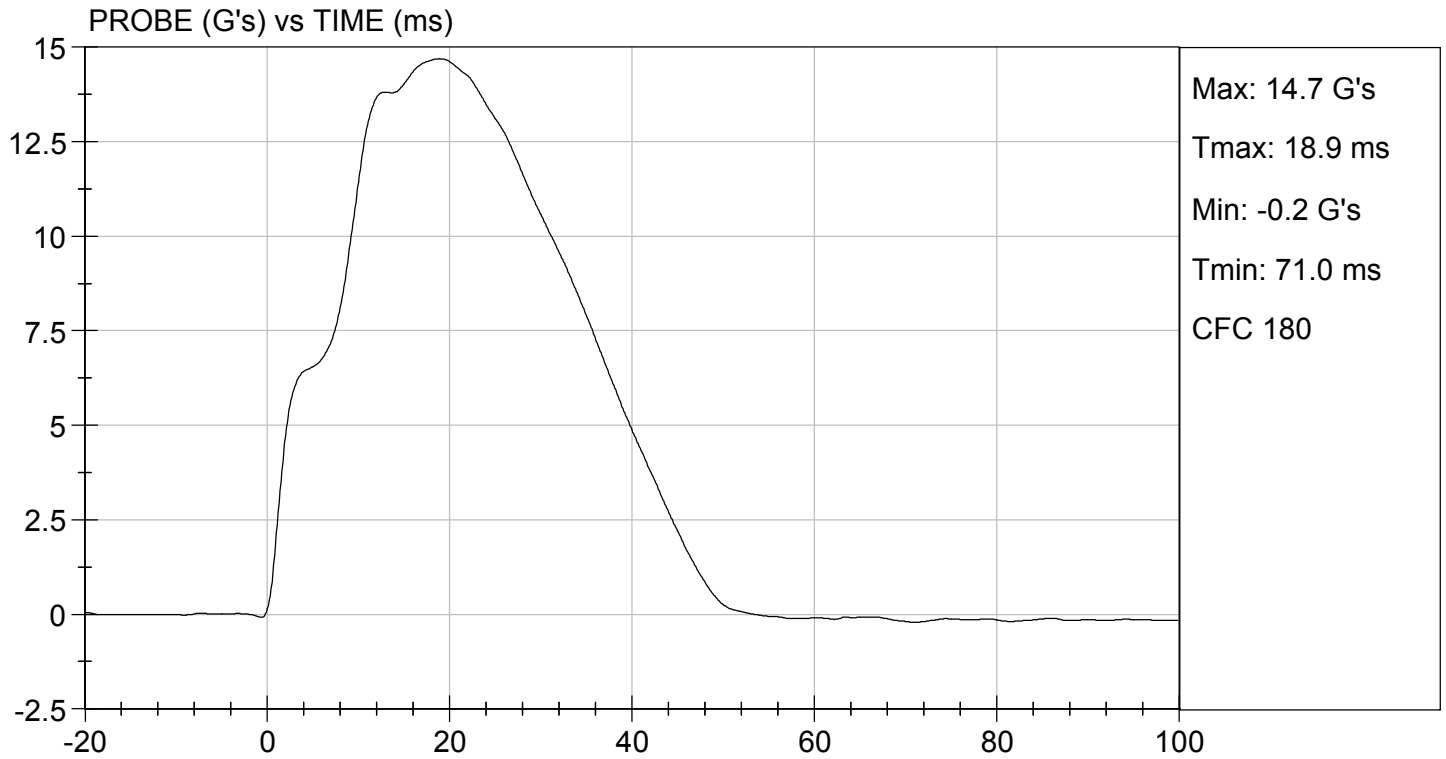
Test Date

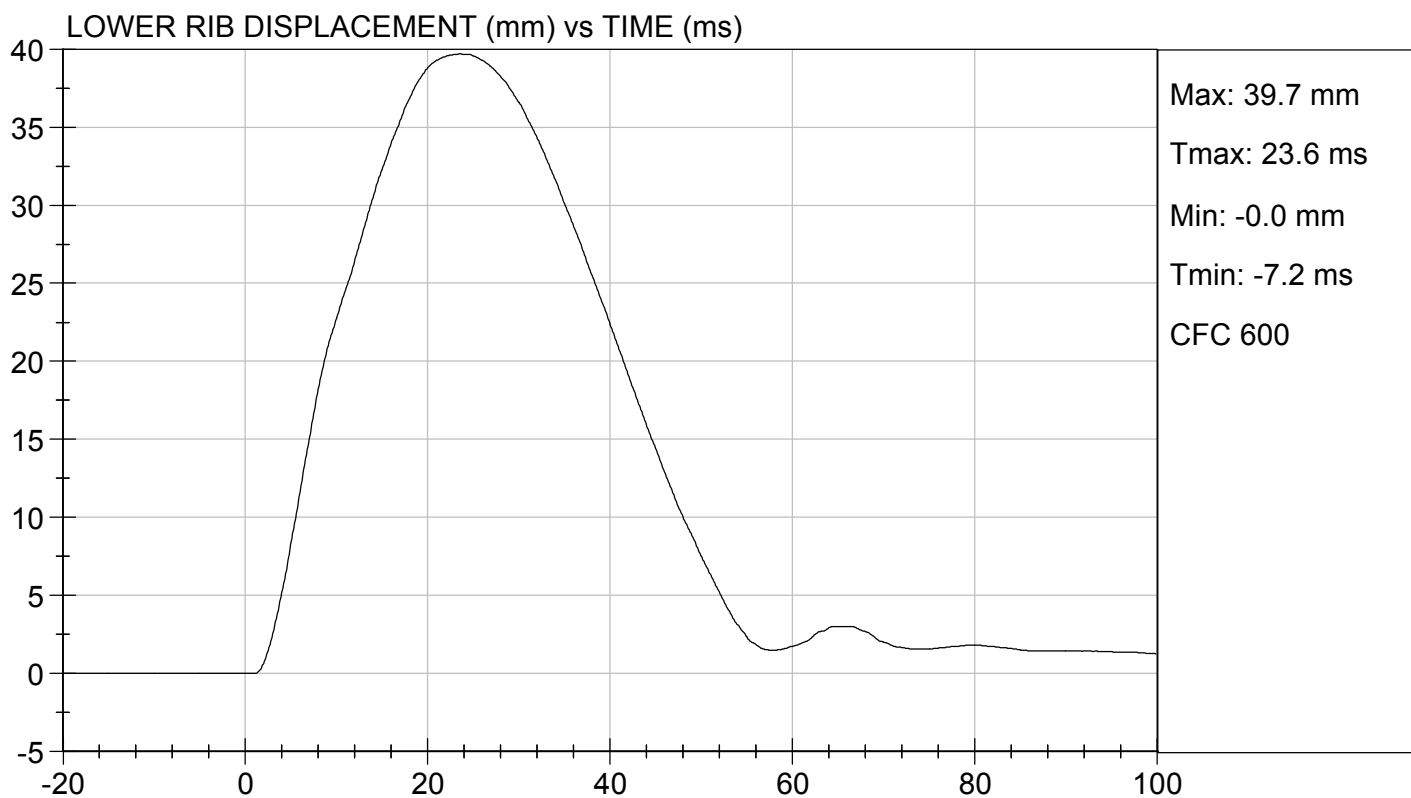
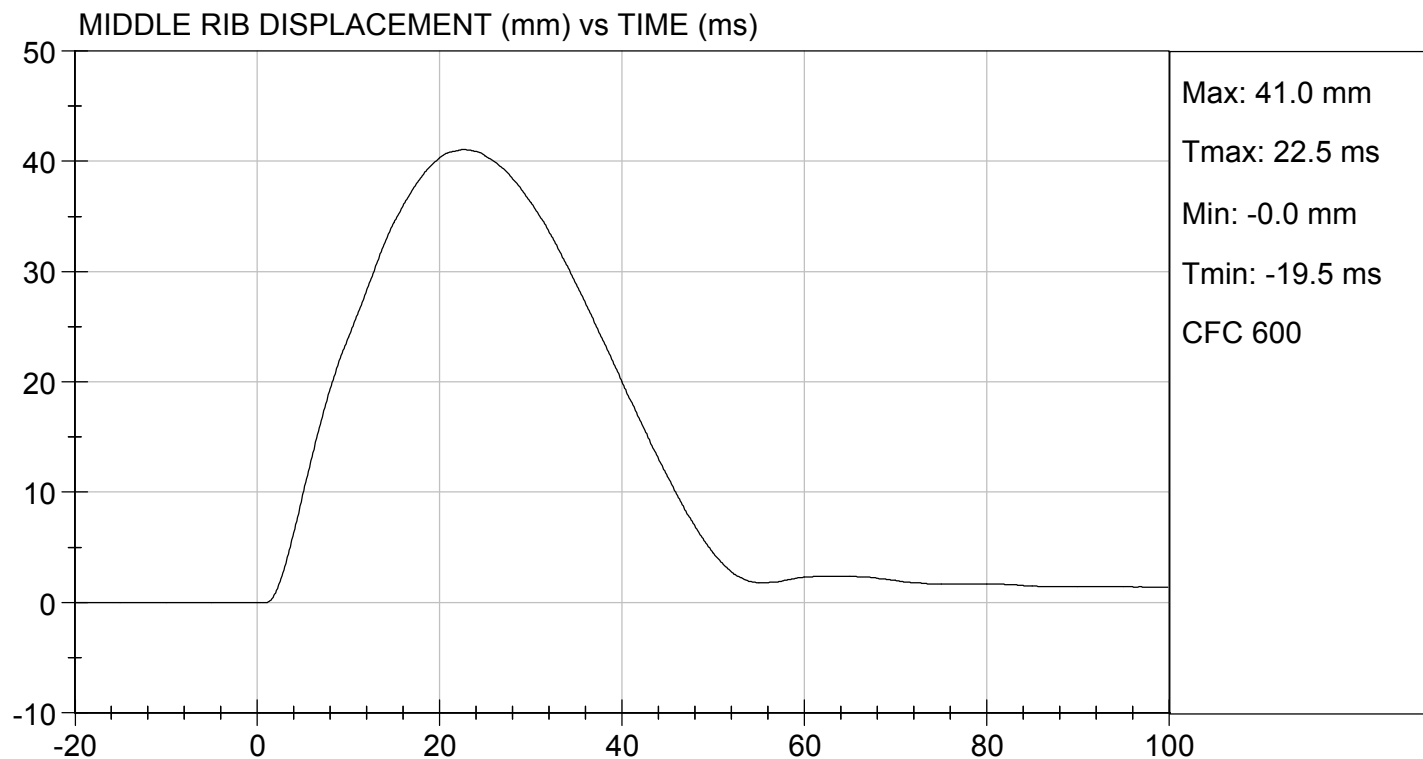

Approved By



TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 08/23/2017
TEST #: D172315

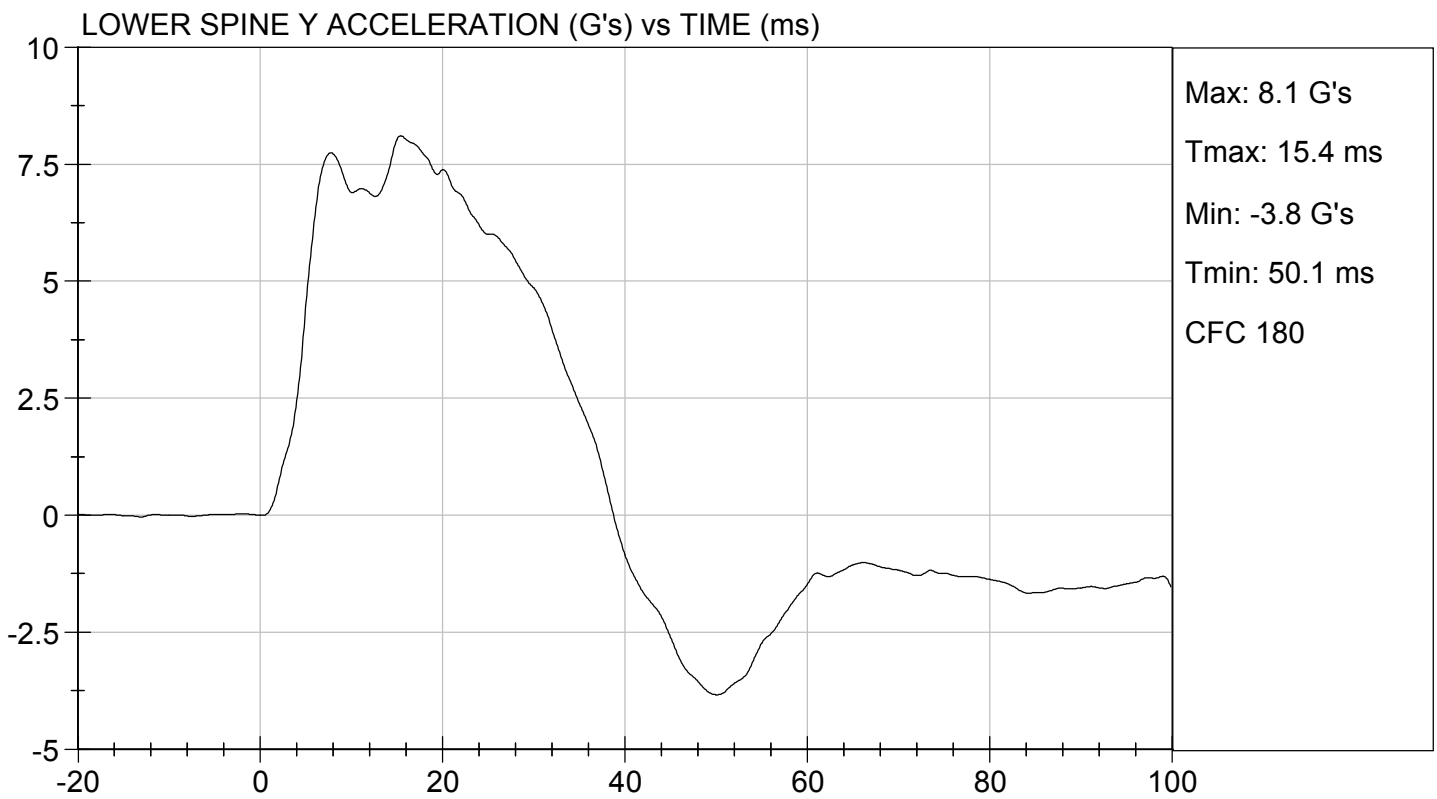
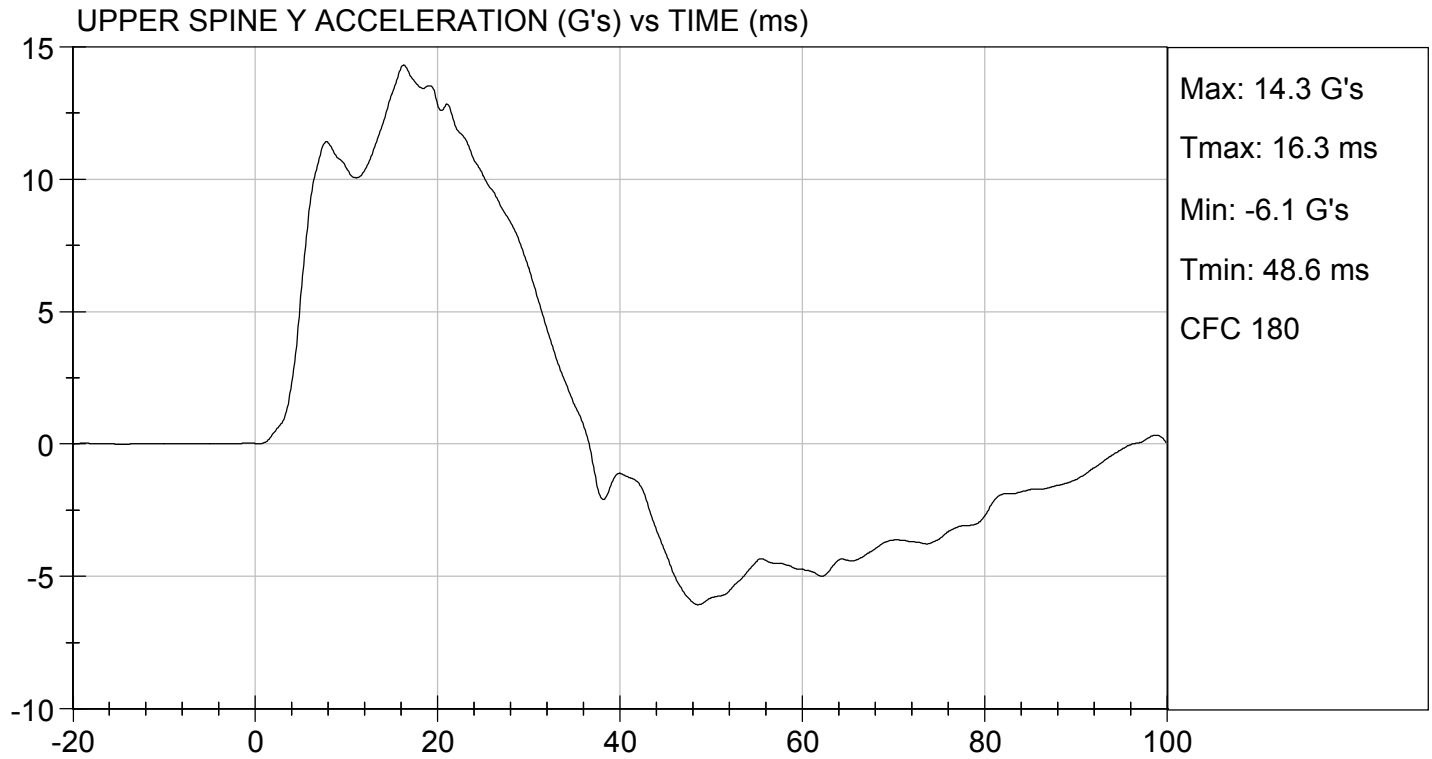






TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 08/23/2017
TEST #: D172315



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

ATD Serial No: 306

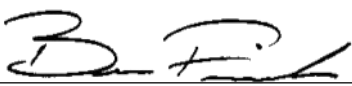
Test I.D: D172316

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	40	Pass
Impact Velocity	m/s	4.20 to 4.40	4.23	Pass
Maximum Probe Acceleration	G's	12 to 16	13	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	40	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	40	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	10	Pass
Overall Test Results				Pass


Laboratory Technician

08/23/2017

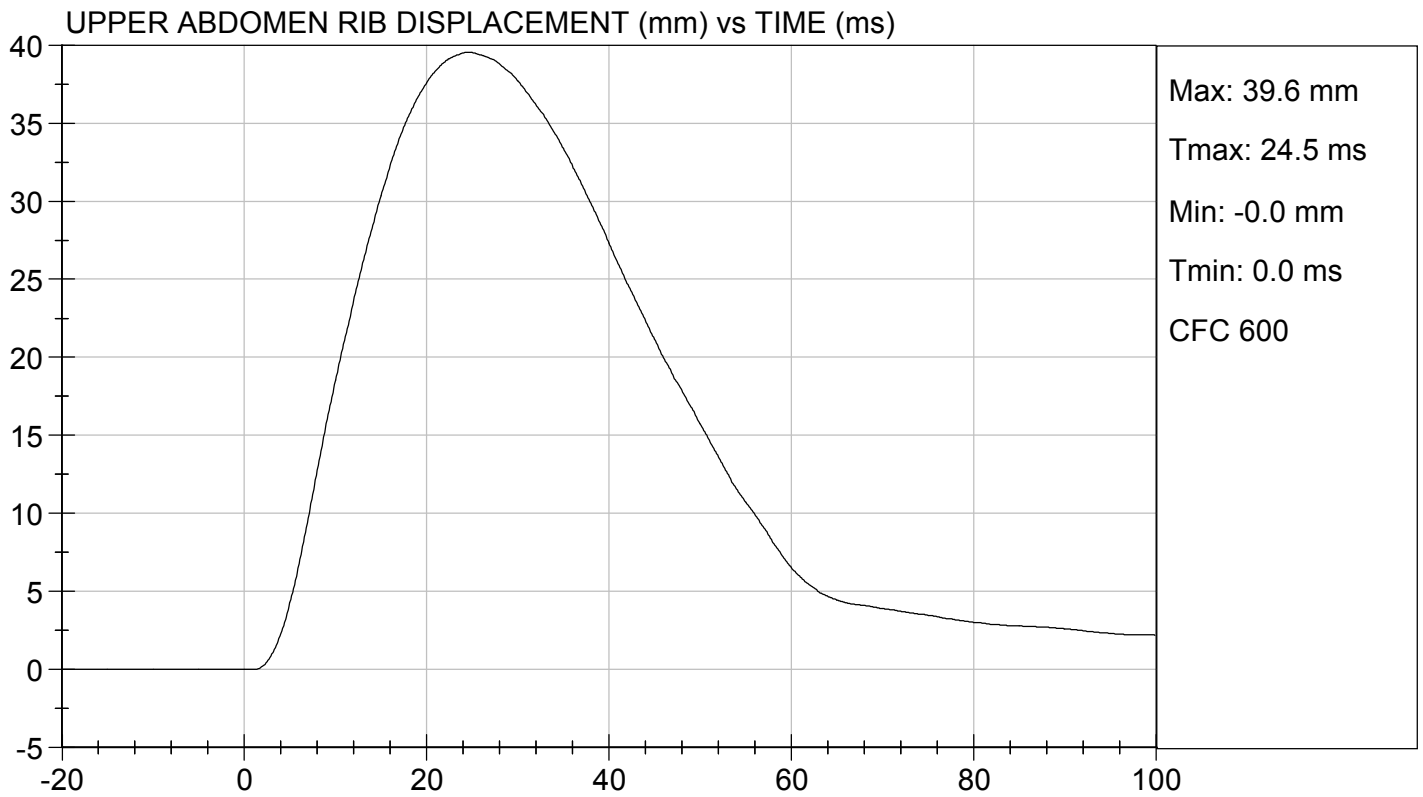
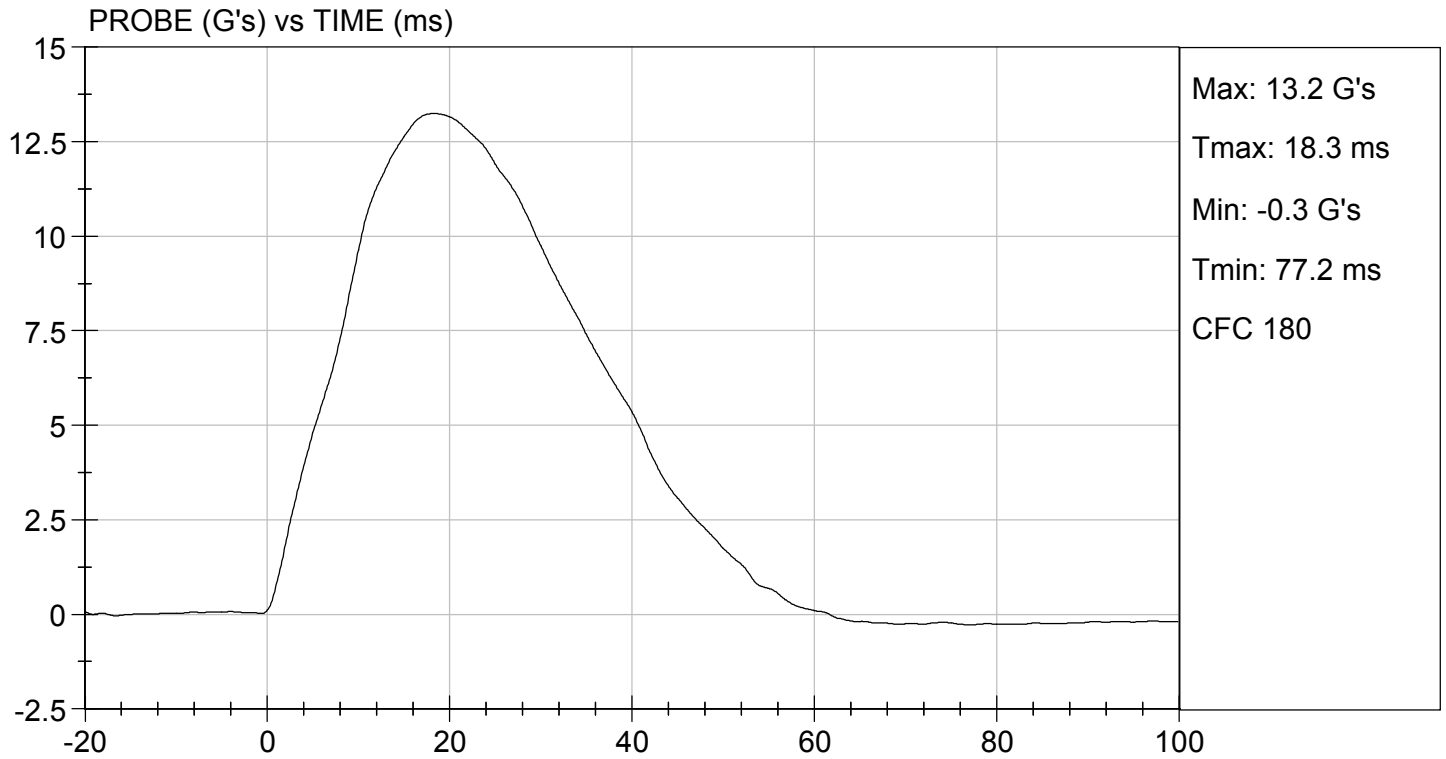
Test Date


Approved By



TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.89 ft/s, 4.23 m/s

TEST DATE: 08/23/2017
TEST #: D172316

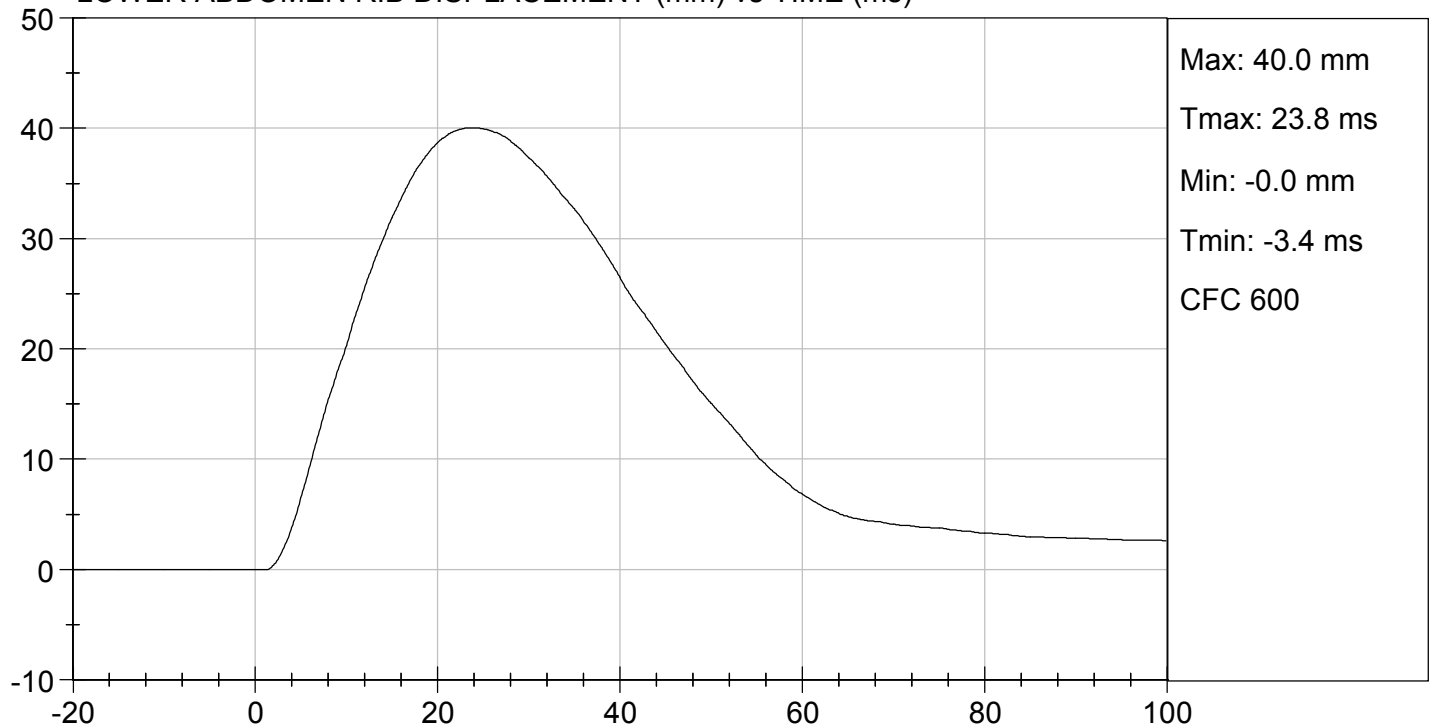




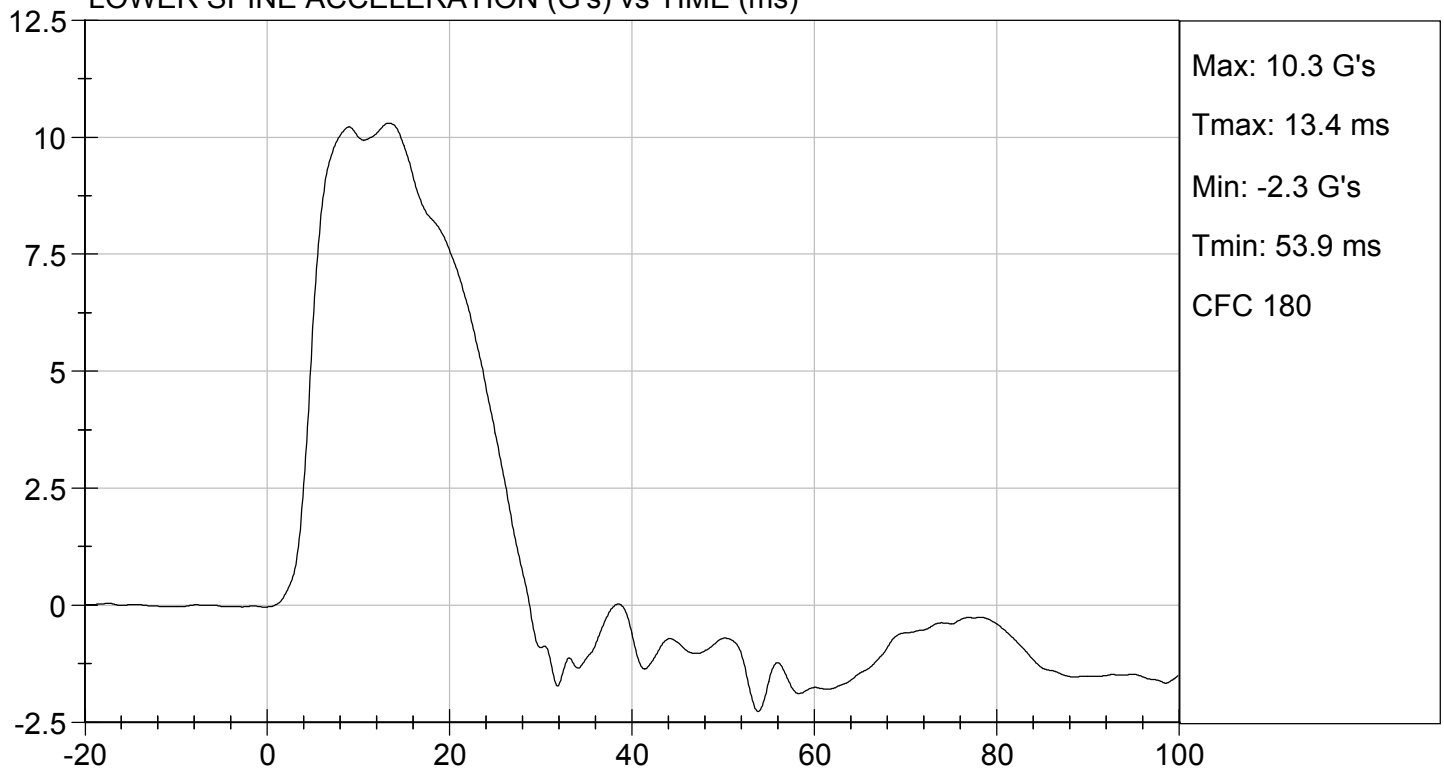
TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.89 ft/s, 4.23 m/s

TEST DATE: 08/23/2017
TEST #: D172316

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



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

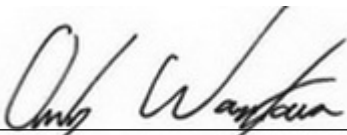


MGA RESEARCH CORPORATION
PELVIS IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D172317

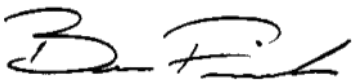
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	40	Pass
Impact Velocity	m/s	6.60 to 6.80	6.60	Pass
Maximum Probe Acceleration	G's	38 to 47	44	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	40	Pass
Peak Acetabulum Force	N	3600 to 4300	3,879	Pass
Overall Test Results				Pass



Laboratory Technician

08/23/2017

Test Date

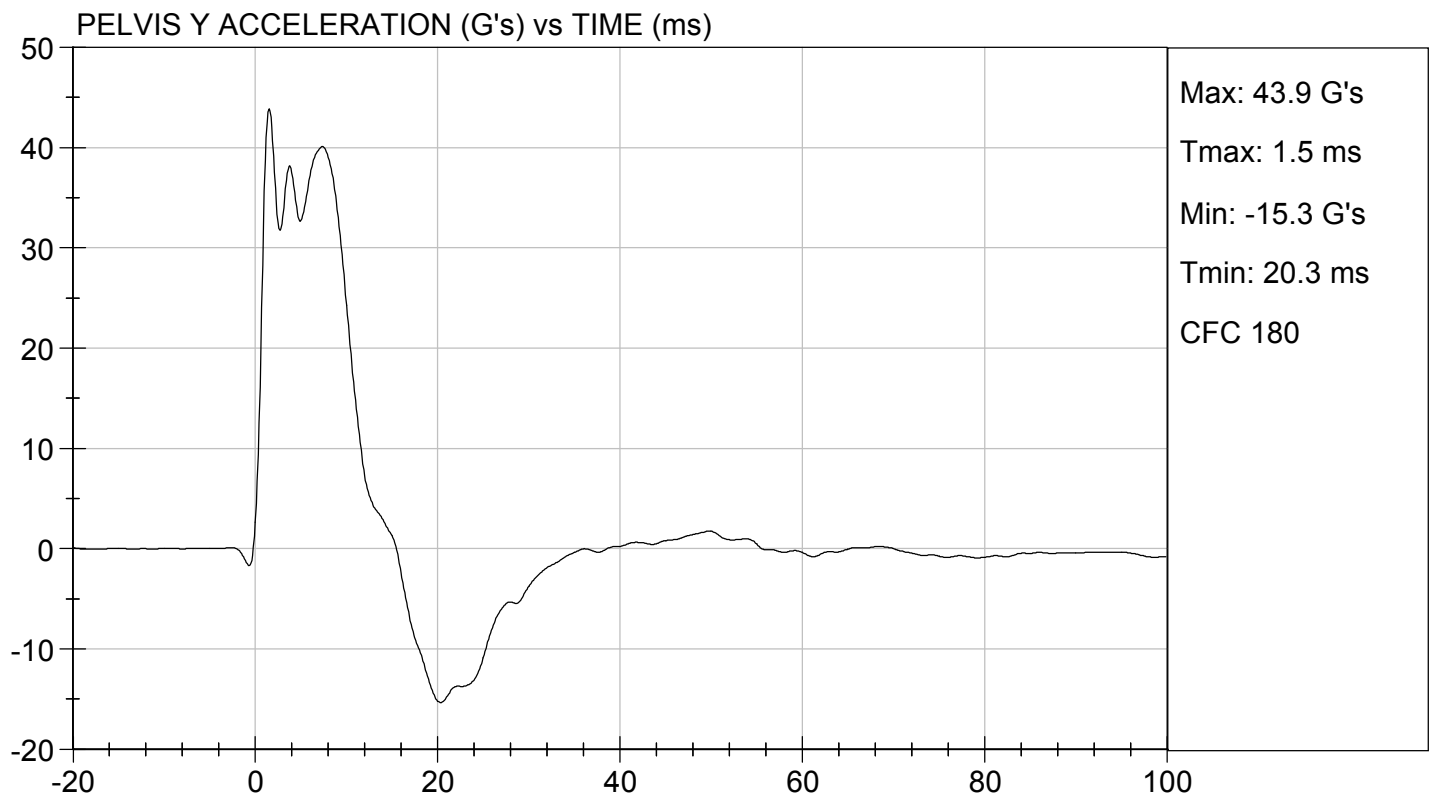
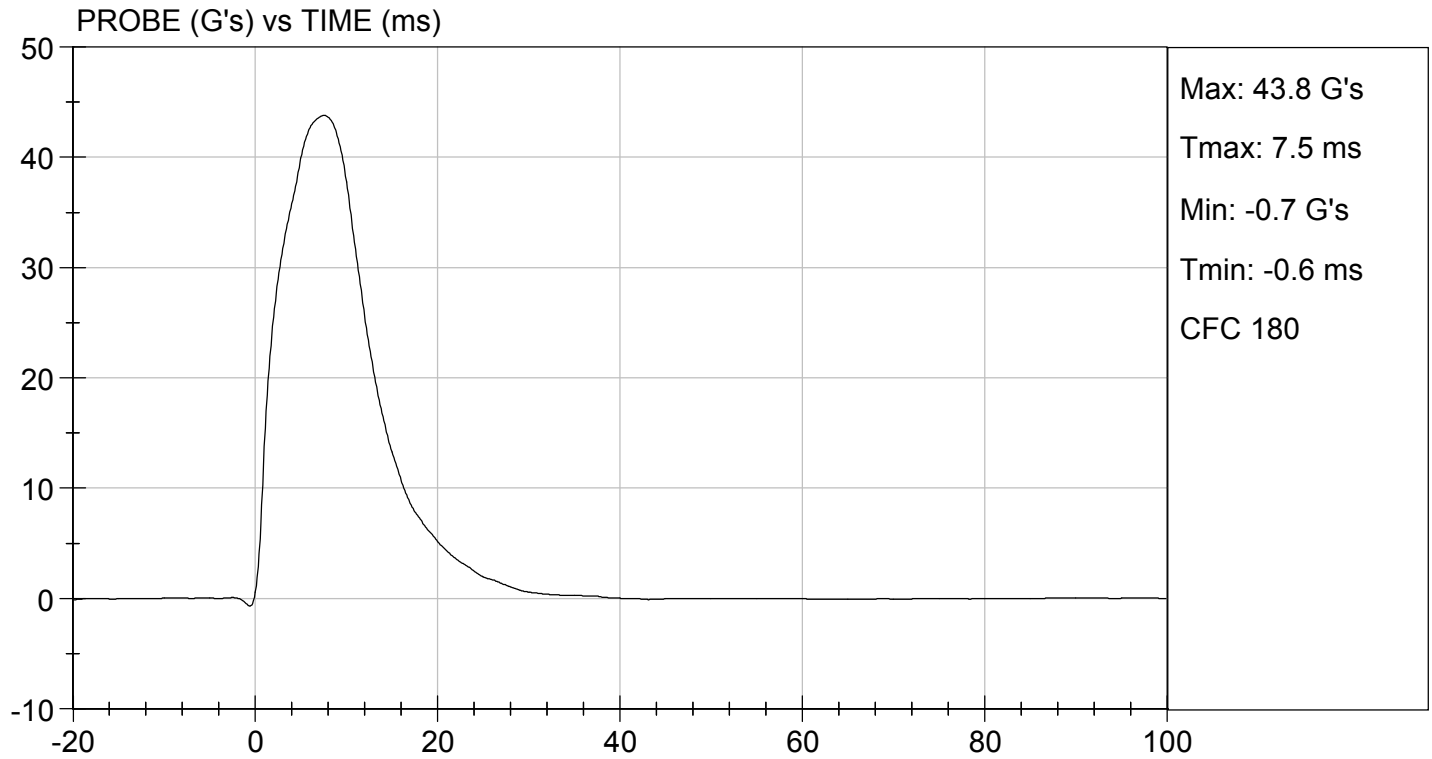


Approved By



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

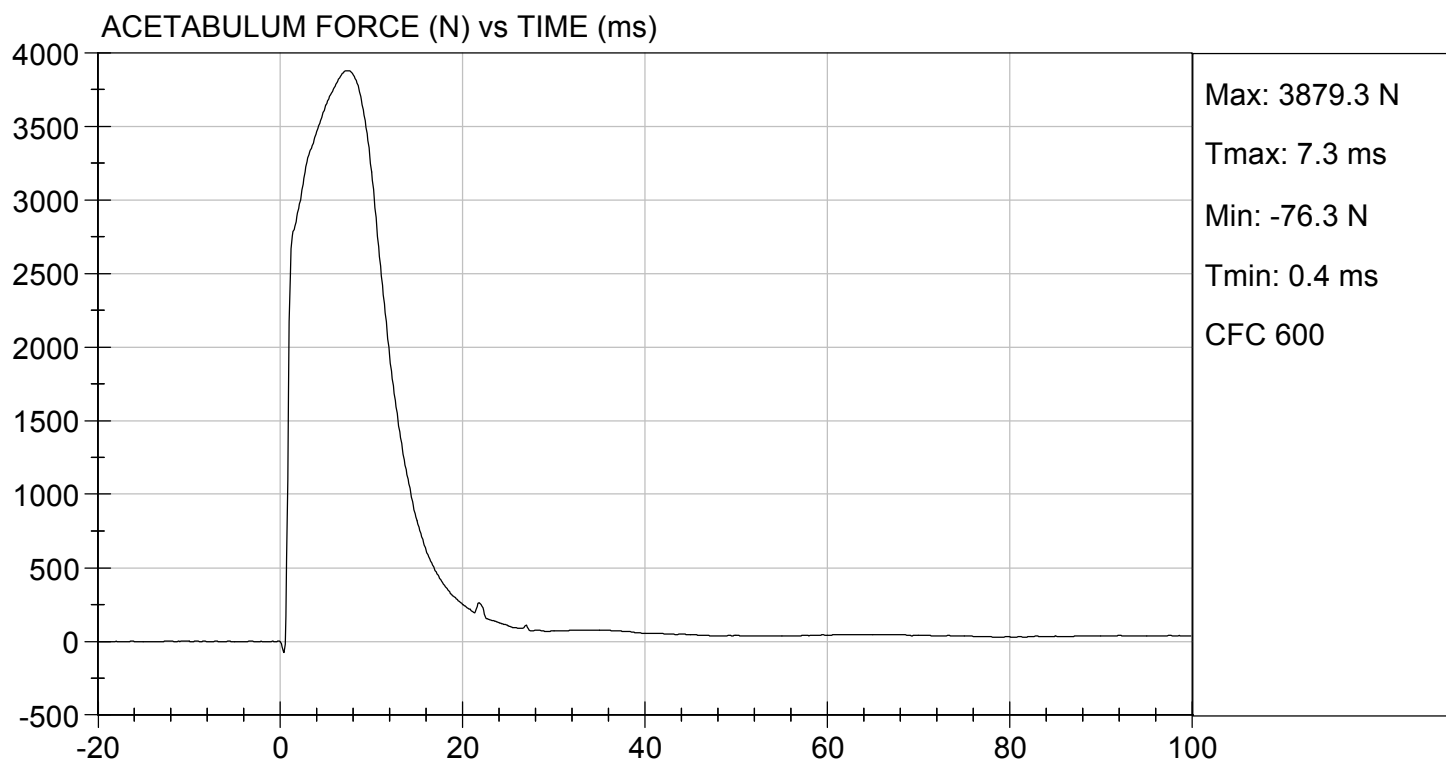
TEST DATE: 08/23/2017
TEST #: D172317





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

TEST DATE: 08/23/2017
TEST #: D172317

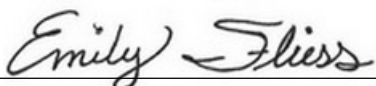


MGA RESEARCH CORPORATION
ILIAC IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

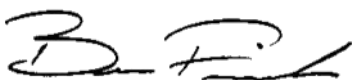
Test I.D: D172318

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.4	Pass
Humidity	%	10 to 70	42	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Maximum Probe Acceleration	G's	36 to 45	41	Pass
Pelvis Y Acceleration	G's	28 to 39	31	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,586	Pass
Overall Test Results				Pass


Laboratory Technician

08/24/2017

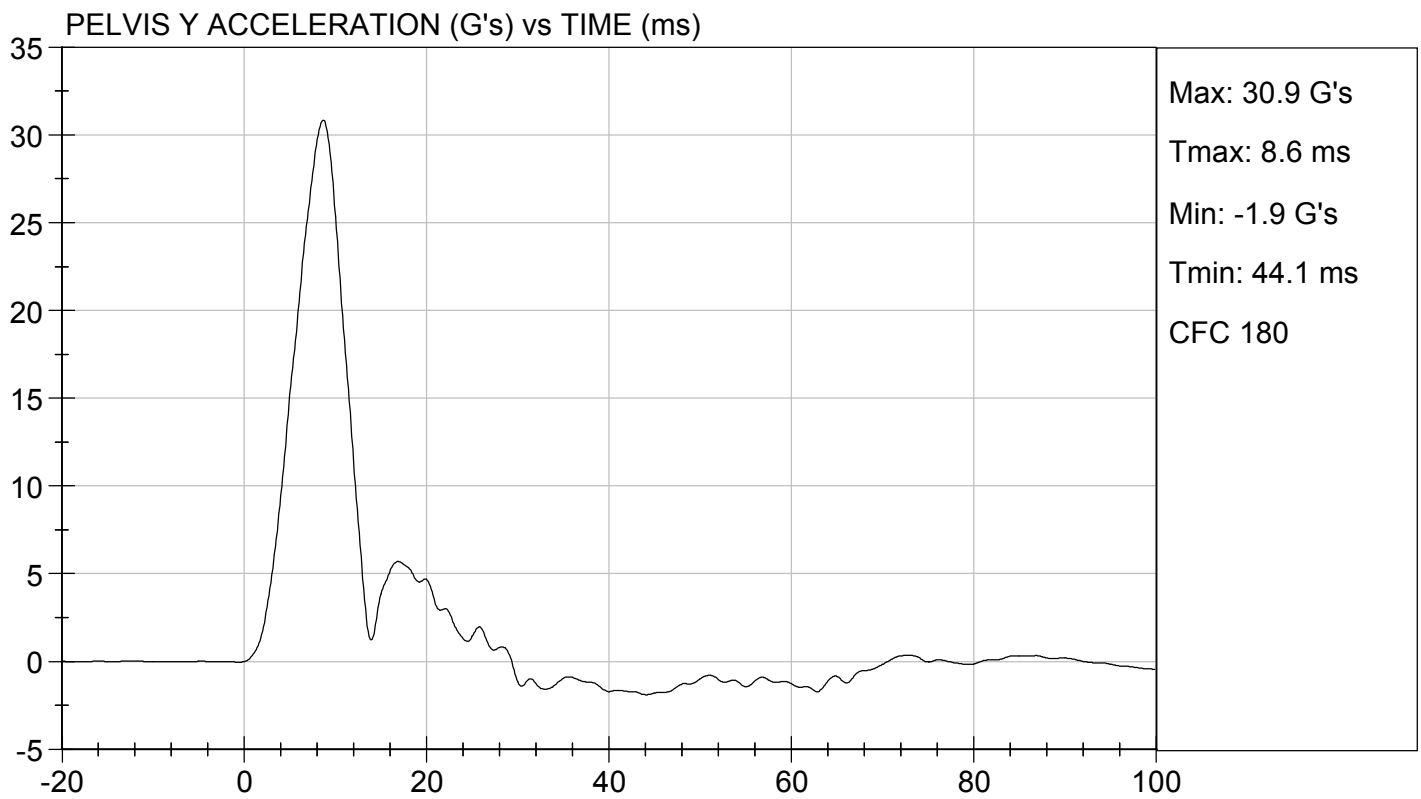
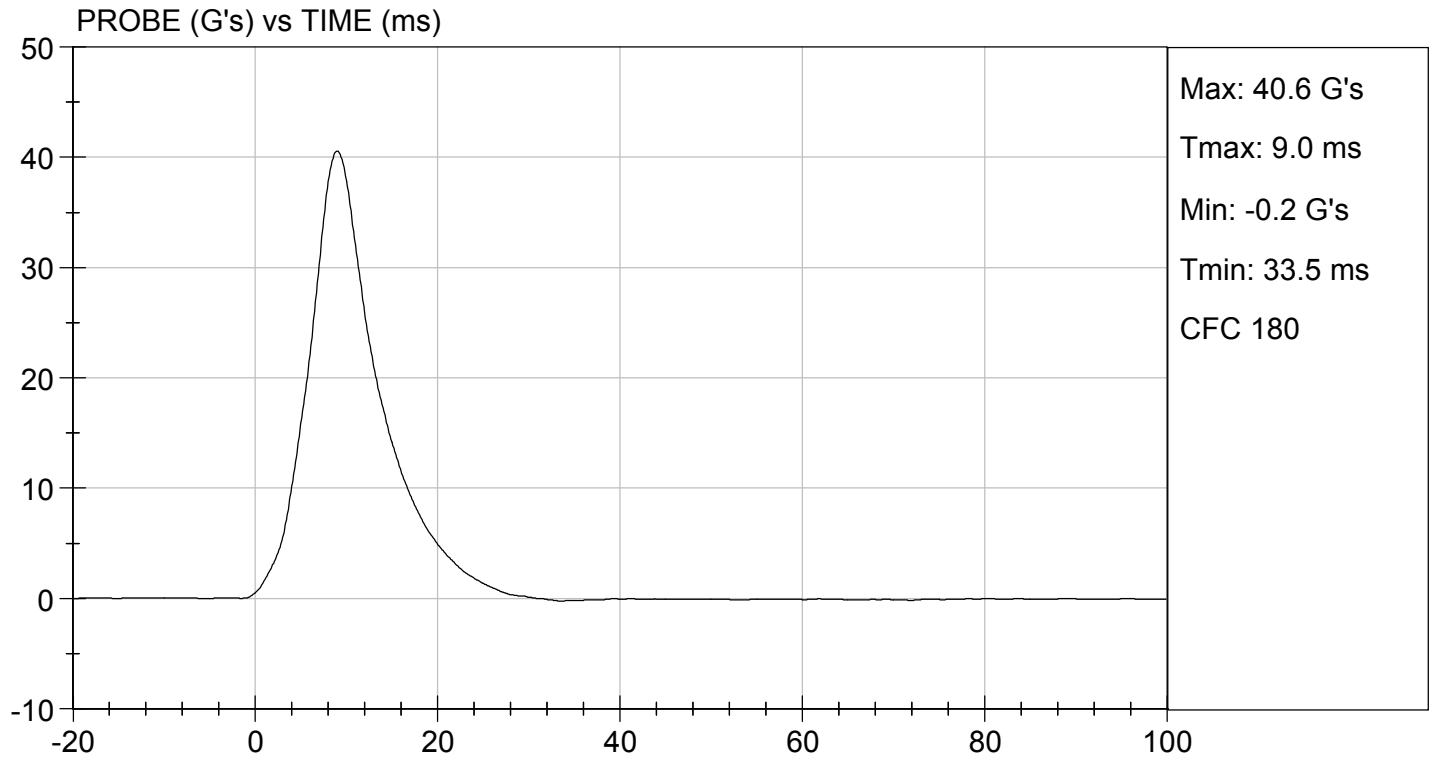
Test Date


Approved By



TEST DESC: ILLIAC
VELOCITY: 14.36 ft/s, 4.38 m/s

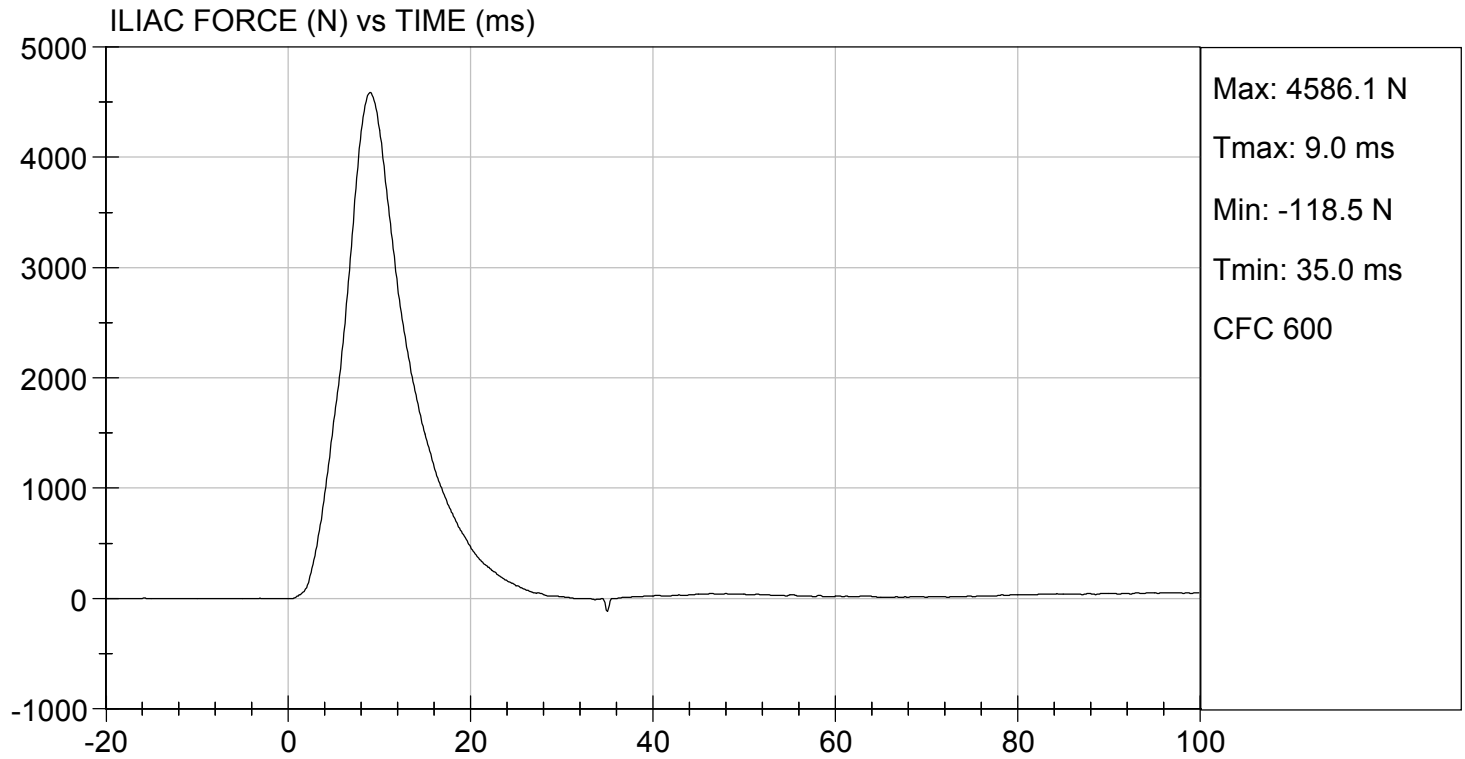
TEST DATE: 08/24/2017
TEST #: D172318





TEST DESC: ILLIAC
VELOCITY: 14.36 ft/s, 4.38 m/s

TEST DATE: 08/24/2017
TEST #: D172318





SID-IIs Pelvis Plug Certification Test

Plug S/N 11494

Test Number 2998

Report Number 2995

Test Date 8/31/2016 10:36:01 AM

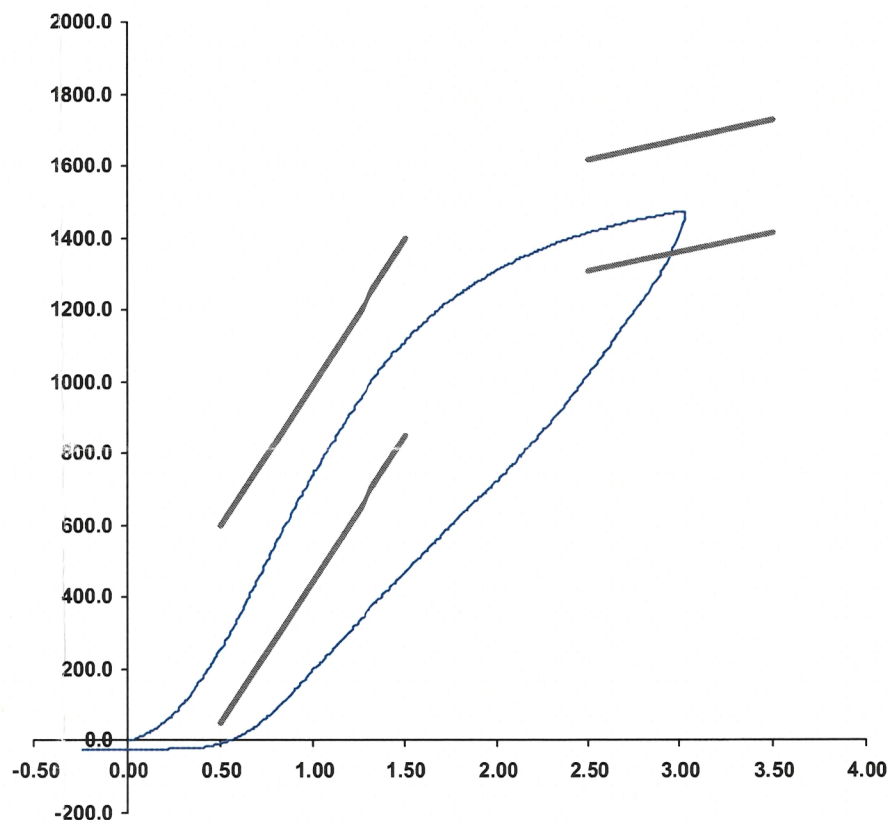
	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	258.31	50.00	600.00
Force @ 1.5 mm (N)	1,115.50	850.00	1,400.00
Force @ 2.5 mm (N)	1,414.30	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,472.74	1,361.00	1,673.00

Testing Machine STM-20 5965542
Load Cell S/N (TI240813), Units (LBS) 1000

Crosshead Speed (mm / min) or Rate 12.7
Extension or Position Measured by XHD_100 (XHD100)

Notes:

Force (-N) vs Extension (-mm)



Operator DC

Part Number 180-4450

Template No 107

31-Aug-16

SACO Research

By : DC

Date : 8/31/16

SACO Research 41735 Elm St, #401 Murrieta, CA 92562 Tel 310-694-2082 FAX



SID-IIs Pelvis Plug Certification Test

Plug S/N 11197

Test Number 2562

Report Number 2557

Test Date 4/26/2016 8:44:15 AM

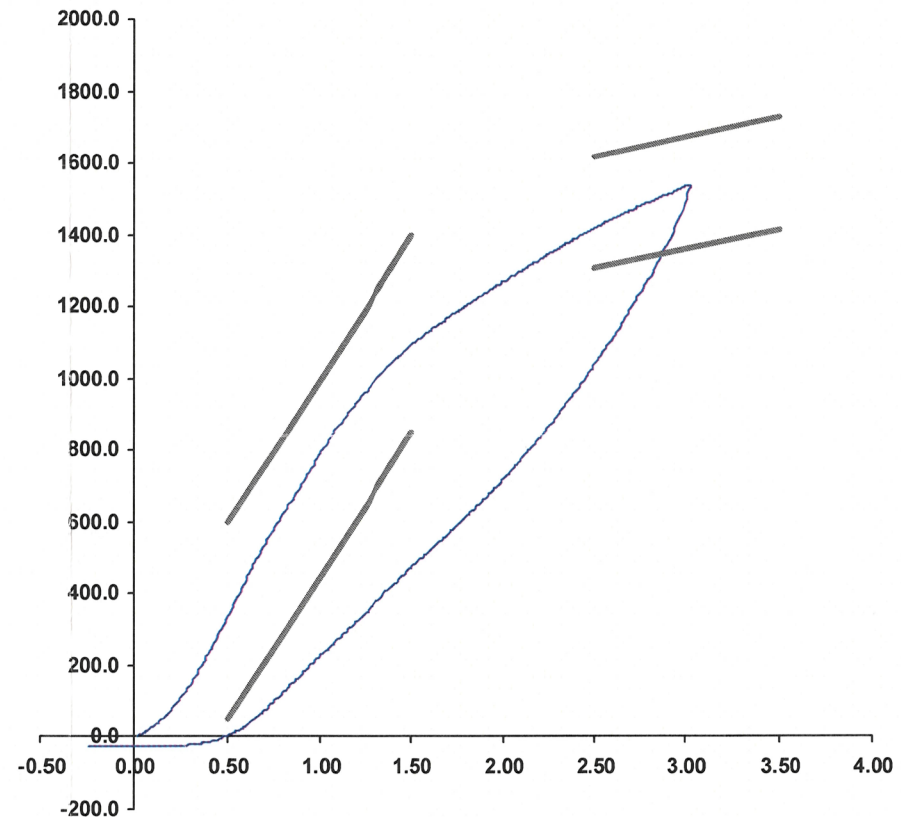
	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	336.16	50.00	600.00
Force @ 1.5 mm (N)	1,094.30	850.00	1,400.00
Force @ 2.5 mm (N)	1,417.22	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,535.85	1,361.00	1,673.00

Testing Machine STM-20 5965542
Load Cell S/N (TI240813), Units (LBS) 1000

Crosshead Speed (mm / min) or Rate 12.7
Extension or Position Measured by XHD_100 (XHD100)

Notes:

Force (-N) vs Extension (-mm)



Operator DC

Part Number 180-4450

Template No 107

26-Apr-16

SACO Research

By : DC

Date : 4/26/16

SACO Research 41735 Elm St, #401 Murrieta, CA 92562 Tel 310-694-2082 FAX

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	P82075	Endevco	03/06/17
				Y	P82076	Endevco	03/06/17
				Z	P82077	Endevco	03/06/17
				Xr	P84464	Endevco	03/06/17
				Yr	P84466	Endevco	03/06/17
				Zr	P84467	Endevco	03/02/17
Head Angular Rate Sensors				X	ARS7416	DTS	07/15/14
				Y	ARS7442	DTS	07/15/14
				Z	ARS7475	DTS	07/08/14
Displacement Potentiometers	Thoracic Rib	Upper	Y	G033	FTSS	03/07/17	
		Middle	Y	G1261	FTSS	03/07/17	
		Lower	Y	G1270	FTSS	03/07/17	
	Abdominal Rib	Upper	Y	G032	FTSS	03/07/17	
		Lower	Y	G1304	FTSS	03/07/17	
Lower Spine Accelerometers (T12)				X	P82090	Endevco	03/08/17
				Y	P82091	Endevco	03/08/17
				Z	P82092	Endevco	03/08/17
Acetabulum Load Cell				Y	ACG268	FTSS	12/20/16
Iliac Wing Load Cell				Y	IWG273	FTSS	12/20/16
Pelvis Plug (struck side)					11494	SACO	08/31/16
Pelvis Plug (non-struck side)					11197	SACO	04/26/16

Table 2 – Vehicle Instrumentation

		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	PCB779	PCB	03/10/17
Vehicle Center of Gravity	Y	PCB599	PCB	03/27/17
Vehicle Center of Gravity	Z	PCB597	PCB	03/13/17
Left Floor Sill	Y	T10422	Endevco	08/07/17
A-Pillar Sill	Y	PCB651	PCB	03/24/17
A-Pillar Low	Y	PCB355	PCB	08/14/17
A-Pillar Mid	Y	PCB563	PCB	08/14/17
B-Pillar Sill	Y	PCB771	PCB	03/09/17
B-Pillar Low	Y			
B-Pillar Mid	Y			
Driver Seat	Y	PCB827	PCB	06/02/17
Engine Top	X	T10851	Endevco	08/07/17
Engine Top	Y	P96720	Endevco	08/07/17
Firewall	Y	PCB510	PCB	08/14/17
Right Roof	Y	PCB776	PCB	03/09/17
Right Floor Sill	Y	PCB556	PCB	05/18/17
Rear Floorpan	X	PCB677	PCB	08/14/17
Rear Floorpan	Y	PCB620	PCB	08/14/17

Table 3 – Pole Instrumentation

	Serial Number	Manufacturer	Calibration Date
Load Cell 1	DG6277	FTSS	07/19/17
Load Cell 2	DG6278	FTSS	07/19/17
Load Cell 3	DG6279	FTSS	07/19/17
Load Cell 4	DG6280	FTSS	07/19/17
Load Cell 5	DG6281	FTSS	07/19/17
Load Cell 6	DG6283	FTSS	07/19/17
Load Cell 7	DG6284	FTSS	07/19/17
Load Cell 8	DG6582	FTSS	07/19/17