

**REPORT NUMBER: SPNCAP-MGA-2018-040**

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

**MITSUBISHI MOTOR CORPORATION  
2018 Mitsubishi Outlander PHEV SEL S-AWC 5-Door SUV  
NHTSA No.: O20185601**

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



**Test Date: December 18, 2018**

**Final Report Date: August 2, 2019**

**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**

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Prepared by:   
Robert Schnorenberg, Project Engineer

Approved by:   
Ben Fischer, Project Engineer

Approval Date: August 2, 2019

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: \_\_\_\_\_

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

Date: \_\_\_\_\_

### Technical Report Documentation Page

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<b>4. Title and Subtitle</b> Final Report of New Car Assessment Program Side Impact Pole Testing of a 2018 Mitsubishi Outlander PHEV SEL S-AWC 5-Door SUV, NHTSA No.: O20185601		<b>5. Report Date</b> August 2, 2019																												
		<b>6. Performing Organization Code</b> MGA																												
<b>7. Author(s)</b> Robert Schnorenberg, Project Engineer		<b>8. Performing Organization Report No.</b> SPNCAP-MGA-2018-040																												
<b>9. Performing Organization Name and Address</b> MGA Research Corporation 5000 Warren Road Burlington, WI 53105		<b>10. Work Unit No.</b>																												
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<b>12. Sponsoring Agency Name and Address</b> 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		<b>13. Type of Report and Period Covered:</b> Final Test Report December 18, 2018 to August 2, 2019																												
		<b>14. Sponsoring Agency Code</b> NRM-110																												
<b>15. Supplementary Notes</b>																														
<b>16. Abstract</b> A 32.20 km/h, 75° oblique impact Side NCAP Test was conducted on the subject 2018 Mitsubishi Outlander PHEV SEL S-AWC 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 December 18, 2018.  The impact velocity was 32.28 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21.9°C. The test vehicle post-test maximum crush was 365 mm at level 3. The test vehicle's performance was as follows:																														
<table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="text-align: left;">Measurement Description</th> <th colspan="3" style="text-align: center;">Driver ATD (SID-IIs)</th> </tr> <tr> <th style="text-align: center;">Units</th> <th style="text-align: center;">Threshold</th> <th style="text-align: center;">Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC<sub>36</sub>)</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">1000</td> <td style="text-align: center;">367</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td style="text-align: center;">Gs</td> <td style="text-align: center;">82</td> <td style="text-align: center;">59</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td style="text-align: center;">N</td> <td style="text-align: center;">5525</td> <td style="text-align: center;">4301</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td style="text-align: center;">mm</td> <td style="text-align: center;">38*</td> <td style="text-align: center;">24</td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td style="text-align: center;">mm</td> <td style="text-align: center;">45*</td> <td style="text-align: center;">30</td> </tr> </tbody> </table>				Measurement Description	Driver ATD (SID-IIs)			Units	Threshold	Result	Head Injury Criteria (HIC <sub>36</sub> )	N/A	1000	367	Resultant Lower Spine Acceleration	Gs	82	59	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	4301	Maximum Thoracic Rib Deflection	mm	38*	24	Maximum Abdomen Rib Deflection	mm	45*	30
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*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.																														
<b>17. Key Words</b> New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		<b>18. Distribution Statement</b> 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																												
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**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 Mitsubishi Outlander PHEV SEL S-AWC 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 Mitsubishi Outlander PHEV SEL S-AWC 5-Door SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.28 km/h. The test was conducted by MGA Research Corporation in Burlington, Wisconsin on December 18, 2018. 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 <sub>36</sub> )	N/A	1000	367
Resultant Lower Spine Acceleration	Gs	82	59
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	4301
Maximum Thoracic Rib Deflection	mm	38*	24
Maximum Abdominal Rib Deflection	mm	45*	30

\*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	Yes	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.gov](http://www.nhtsa.gov)

### **GENERAL COMMENTS**

Left B-Post @ Sill Y recorded no valid data after 80ms.  
Load Cell Pole #8 FY 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 Mitsubishi Outlander PHEV SEL 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185601  
 Test Date: 12/18/2018

**TEST VEHICLE INFORMATION AND OPTIONS**

NHTSA No.	O20185601	Traction Control System (TCS)	Yes
Model Year	2018	Auto-Leveling System	No
Make	Mitsubishi	Automatic Door Locks (ADL)	No
Model	Outlander PHEV SEL	Power Window Auto-Reverse	Yes
Body Style	5-Door SUV	Other Optional Feature	N/A
VIN	JA4J24A52JZ059588	Driver Front Airbag	Yes
Body Color	Mercury Gray Metallic	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	203km / 126mi	Driver Head/Torso Airbag	No
Engine Displacement (L)	2.0 L	Driver Torso Airbag	No
Type/No. Cylinders	I4	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Lateral	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	Yes
Transmission Speeds	1	Rear Pass. Curtain Airbag	Yes
Overdrive	No	Rear Pass. Head/Torso Airbag	No
Final Drive	AWD	Rear Pass. Torso Airbag	No
Roof Rack	No	Rear Pass. Torso/Pelvis Airbag	No
Sunroof/T-Top	No	Rear Pass. Pelvis Airbag	No
Running Boards	No	Driver Seat Belt Pretensioner	Yes
Tilt Steering Wheel	Yes	Rear Pass. Seat Belt Pretensioner	No
Power Seats	Yes	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?	N/A
--	-----

**DATA FROM CERTIFICATION LABEL**

Manufactured By	MITSUBISHI MOTOR CORPORATION	GVWR (kg)	2370
Date of Manufacture	APR 2018	GAWR Front (kg)	1160
Vehicle Type	MPV	GAWR Rear (kg)	1270

**VEHICLE SEATING AND WEIGHT CAPACITY DATA**

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

**VEHICLE SEAT TYPE**

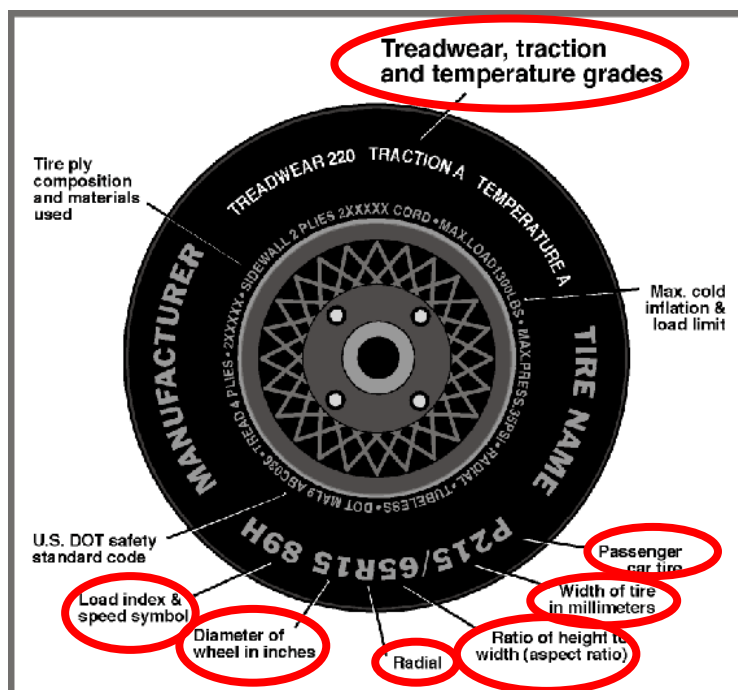
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						Manual	Power
Front Seat	X						X
Rear or Second Row			X			w/ Lever	
Third Row Seat							

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

Test Vehicle: 2018 Mitsubishi Outlander PHEV SEL 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185601  
 Test Date: 12/18/2018

**VEHICLE TIRE INFORMATION**



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	240	240
Recommended Tire Size	225/55R18	225/55R18
Tire Size on Vehicle	225/55R18	225/55R18
Tire Manufacturer	Toyo	Toyo
Tire Model	A24	A24
Treadwear	300	300
Traction	A	A
Temperature Grade	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester, 2 Steel, 1 Nylon	2 Polyester, 2 Steel, 1 Nylon
Load Index/Speed Symbol	97H	97H
Tire Material	Rubber	Rubber
DOT Safety Code Left	N300 182 1218	N300 182 1218
DOT Safety Code Right	N300 182 1218	N300 182 1218

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

Test Vehicle: 2018 Mitsubishi Outlander PHEV SEL 5-Door SUV NHTSA No. O20185601  
 Test Program: NCAP Side Pole Impact Test Test Date: 12/18/2018

**TEST PRESSURES**

	Units	LF	RF	LR	RR
As Delivered	kpa	303	303	303	303
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	526.0	457.5		543.5	489.0		544.5	494.0	
Right	kg	504.0	441.5		512.0	466.0		509.5	468.0	
Ratio	%	53.4%	46.6%		52.5%	47.5%		52.3%	47.7%	
Totals	kg	1030.0	899.0	1929.0	1055.5	955.0	2010.5	1054.0	962.0	2016.0

**TARGET TEST WEIGHT CALCULATION**

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1929	(A)
Actual Weight of 1 P572V ATD (SID-IIs) ATD Used	kg	52	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	35	(C)
Calculated Vehicle Target Weight (TVTW)	kg	2016	(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	0.0	0.1	0.1	Yes
Front Pass. Sill Angle (front-to-rear)*	deg	-0.9	-0.8	-0.8	Yes
Front Bumper Angle (left-to-right)**	deg	-0.6	-0.7	-0.7	Yes
Rear Bumper Angle (left-to-right)**	deg	0.4	0.4	0.4	Yes
Vehicle CG (Aft of Front Axle)	mm	1244	1268	1274	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	15	21	23	

\*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)	0
None	

Test height adjustable suspension setting, if applicable:	Not Applicable
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**DATA SHEET NO. 2**  
**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA**

Test Vehicle: 2018 Mitsubishi Outlander PHEV SEL 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185601  
 Test Date: 12/18/2018

**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	22.4	11.3	16.9
Front Passenger Seat	20.4	9.3	14.9
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 SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rear-most	Mid-Fore/Aft	Forward-Most
Driver Seat	16.9	20	Max	40	40	40
			Mid	20	20	20
			Min	0	0	0
Front Passenger Seat	14.9	20	Max	40	40	40
			Mid	20	20	20
			Min	0	0	0
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 Mitsubishi Outlander PHEV SEL 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

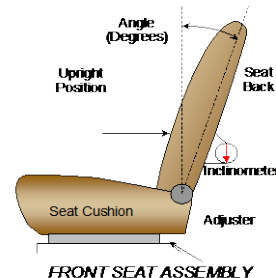
NHTSA No. O20185601  
 Test Date: 12/18/2018

**SEAT FORE/AFT POSITIONS**

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

**SEAT BACK ANGLE ADJUSTMENT**

The driver's seat back is positioned such that the dummy's head is level. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back. The struck-side rear passenger seat back is positioned in accordance with the information provided by the manufacturer on Form No. 1 for the 5<sup>th</sup> 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	67.1		-7.1	
Front Passenger Seat	66.7		-6.7	
Front Center Seat				
Struck Side Rear Seat	17.4	9 (1 <sup>st</sup> as 1)	7.7	0 <sup>th</sup> (1 <sup>st</sup> as 0)
Non-Struck Side Rear Seat	17.4	9 (1 <sup>st</sup> as 1)	7.7	0 <sup>th</sup> (1 <sup>st</sup> as 0)
Rear Center Seat	17.4	9 (1 <sup>st</sup> as 1)	7.7	0 <sup>th</sup> (1 <sup>st</sup> as 0)

Seat back angles measured on outboard headrest post.

**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 <sup>st</sup> as 1)	0 <sup>th</sup> (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 <sup>st</sup> as 1)	0 <sup>th</sup> (Lowermost as 0)

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

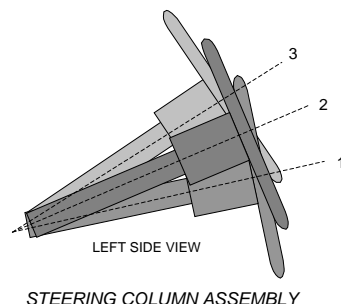
Test Vehicle: 2018 Mitsubishi Outlander PHEV SEL 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185601  
 Test Date: 12/18/2018

**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.

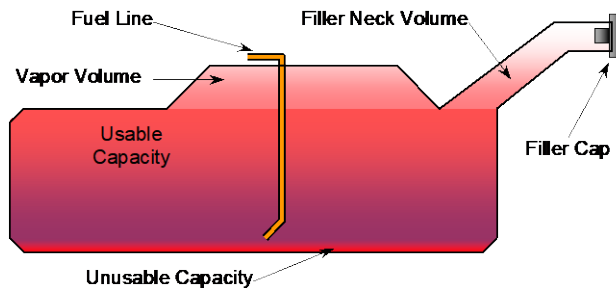
	Degrees	Fore/Aft Position (mm)
Lowermost, Position 1	65.7	224
Geometric Center, Position 2	63.6	205
Uppermost, Position 3	61.4	185
Telescoping Steering Wheel Travel		39
Test Position	63.6	205



**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 electric fuel pump only operates when the engine is running. The filler neck is located on the driver's side.



VEHICLE FUEL TANK ASSEMBLY

**FUEL TANK CAPACITY DATA**

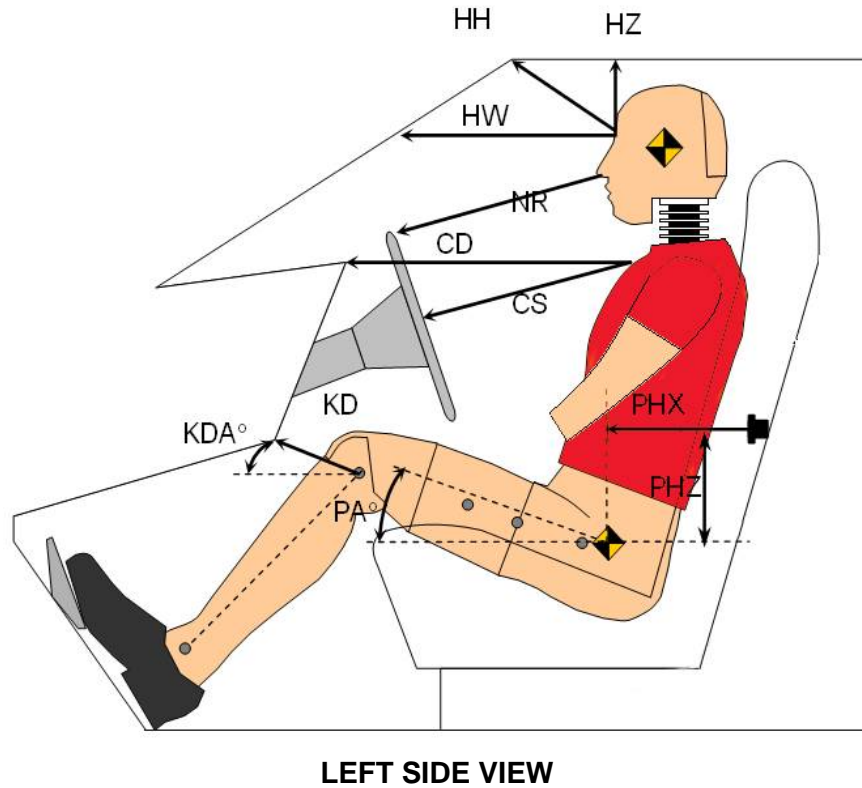
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	43.0
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	43.2
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	40.0
Actual Amount of Solvent Used	40.1
1/3 of Usable Capacity	14.3

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

**DATA SHEET NO. 3  
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS**

Test Vehicle: 2018 Mitsubishi Outlander PHEV SEL 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185601  
 Test Date: 12/18/2018

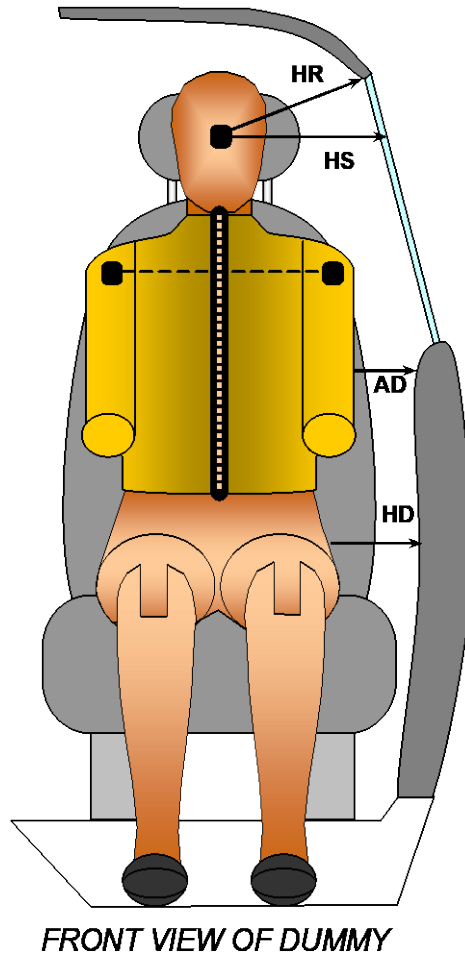


Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	283	
HW	Head to Windshield	605	
HZ	Head to Roof Liner	178	
NR	Nose to Rim	263	
CD	Chest to Dashboard	412	
CS	Chest to Steering Wheel	191	
KDL/KDAL°	Left Knee to Dash	106	41.4
KDR/KDAR°	Right Knee to Dash	95	43.6
PAX°	Pelvic Tilt Angle (X-Axis)		19.5
PAY°	Pelvic Tilt Angle (Y-Axis)		0.4
PHX	Hip Point to Striker (X-Axis)	367	
PHZ	Hip Point to Striker (Z-Axis)	106	

**DATA SHEET NO. 4  
DUMMY LATERAL CLEARANCE DIMENSIONS**

Test Vehicle: 2018 Mitsubishi Outlander PHEV SEL 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185601  
 Test Date: 12/18/2018

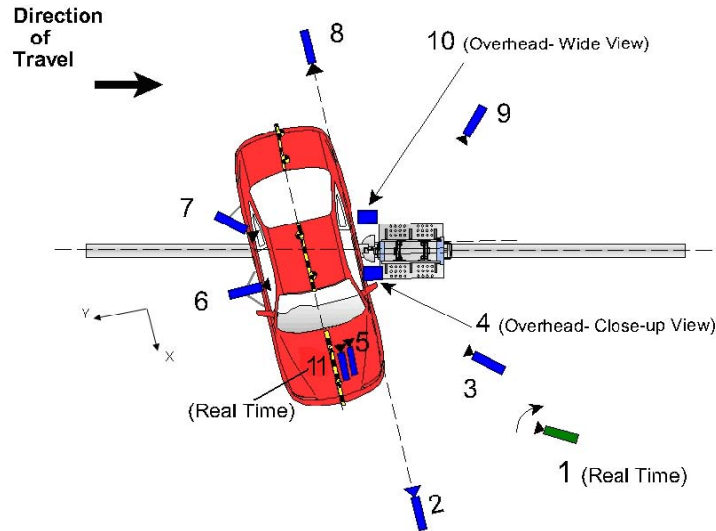


Code	Measurement Description	Driver
		Length (mm)
HR	Head to Side Header	286
HS	Head to Side Window	375
AD	Arm to Door	157
HD	Hip Point to Door	178

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

Test Vehicle: 2018 Mitsubishi Outlander PHEV SEL 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185601  
 Test Date: 12/18/2018



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	6440	-200	-2000	24	1000
3	Impact Side 45° Forward	4240	-1725	-2040	20	1000
4	Overhead Closeup	0	0	-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	-6930	-70	-1985	24	1000
9	Impact Side 45° Rearward	-3035	-3750	-1945	20	1000
10	Overhead Wide View	-120	765	-6660	14	1000
11	Real-Time Dummy Front View					30

\*All measurements accurate to  $\pm 6$  mm

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

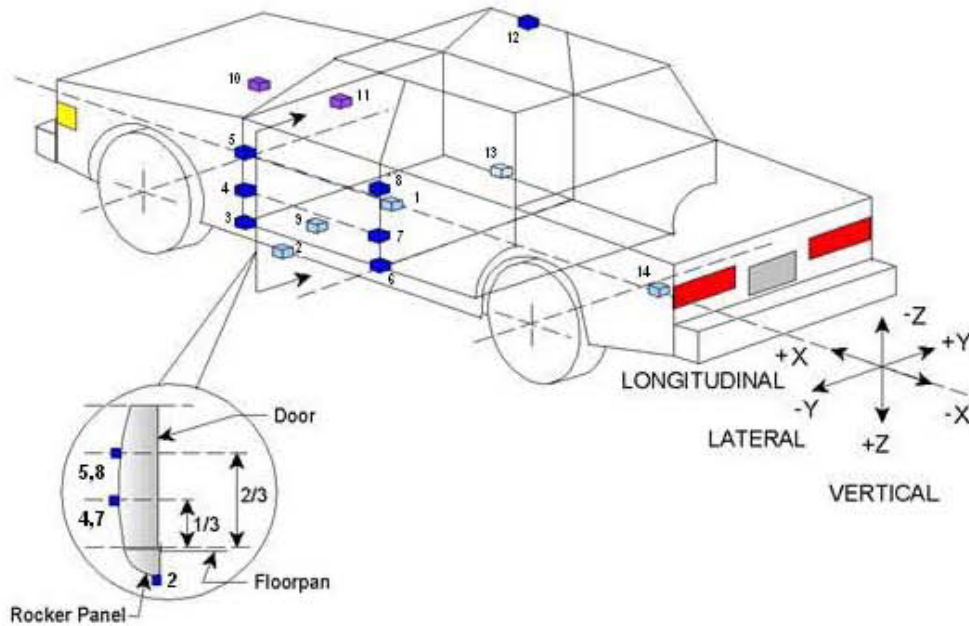
Explain why camera(s) did not operate as intended: None

INSTRUMENTATION	Number of Channels
Driver Dummy	19
Vehicle Structure	18
Pole Load Cells	8
<b>TOTAL</b>	<b>45</b>

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

Test Vehicle: 2018 Mitsubishi Outlander PHEV SEL 5-Door SUV  
Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185601  
Test Date: 12/18/2018



	Accelerometer Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2352	446	-222
2	Left Floor Sill	2765	-715	-261
3	A Pillar Sill	3238	-715	-263
4	A Pillar Low	3160	-816	-630
5	A Pillar Mid	3160	-811	-871
6	B Pillar Sill	2070	-715	-263
7	B Pillar Low	2070	-701	-659
8	B Pillar Mid	2072	-706	-904
9	Driver Seat Track	2284	-300	-358
10	Engine Top	3878	36	-868
11	Firewall	3671	0	-998
12	Right Roof	2268	496	-1654
13	Right Floor Sill	2765	715	-266
14	Rear Floorpan	789	56	-592

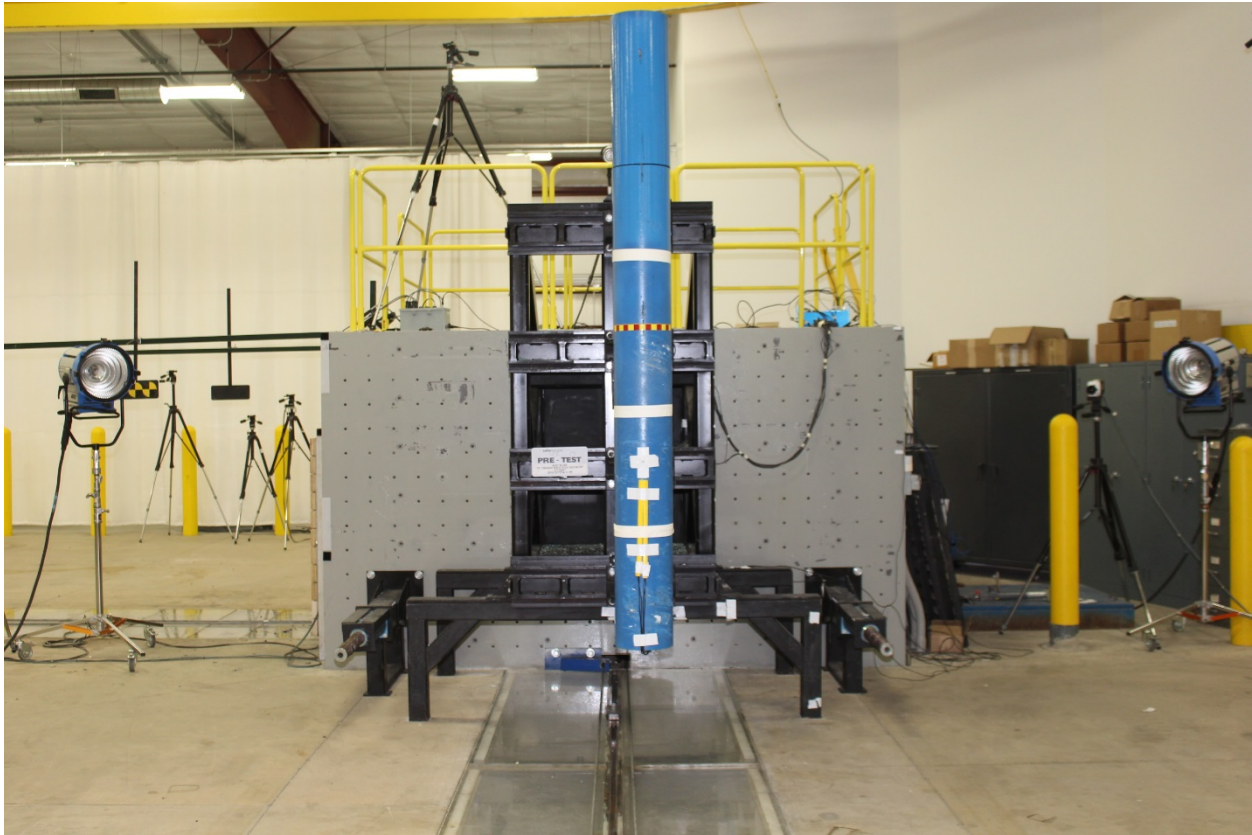
Reference:

- 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 Mitsubishi Outlander PHEV SEL 5-Door SUV  
Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185601  
Test Date: 12/18/2018



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 Mitsubishi Outlander PHEV SEL 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185601  
 Test Date: 12/18/2018

**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	Curtain Airbag, Headrest
Left Shoulder	Side Torso/Pelvis Airbag
Upper Torso	Side Torso/Pelvis Airbag
Lower Torso	Side Torso/Pelvis Airbag
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 Mitsubishi Outlander PHEV SEL 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185601  
 Test Date: 12/18/2018

**SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION**

Restraint Type	Struck Side Driver		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	Yes	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				

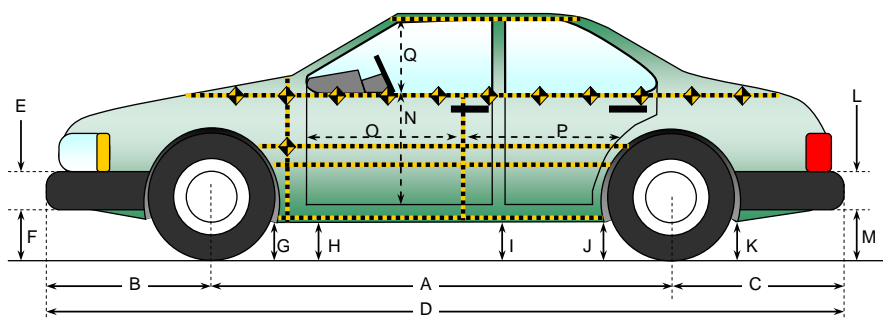
**VEHICLE SPEED, VEHICLE ANGLE AT IMPACT, AND IMPACT POINT LOCATION DATA**

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1095
Actual Impact Point (Aft of Front Axle)	mm		1097
Horizontal Offset (+forward / -rearward)	mm	+/- 38 of Intended Impact Point	-2
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	deg	75 +/- 3	74.8
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.28
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.26

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

Test Vehicle: 2018 Mitsubishi Outlander PHEV SEL 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185601  
 Test Date: 12/18/2018



All measurements in (mm) with tolerance of  $\pm 3$  mm

**LEFT SIDE VIEW**

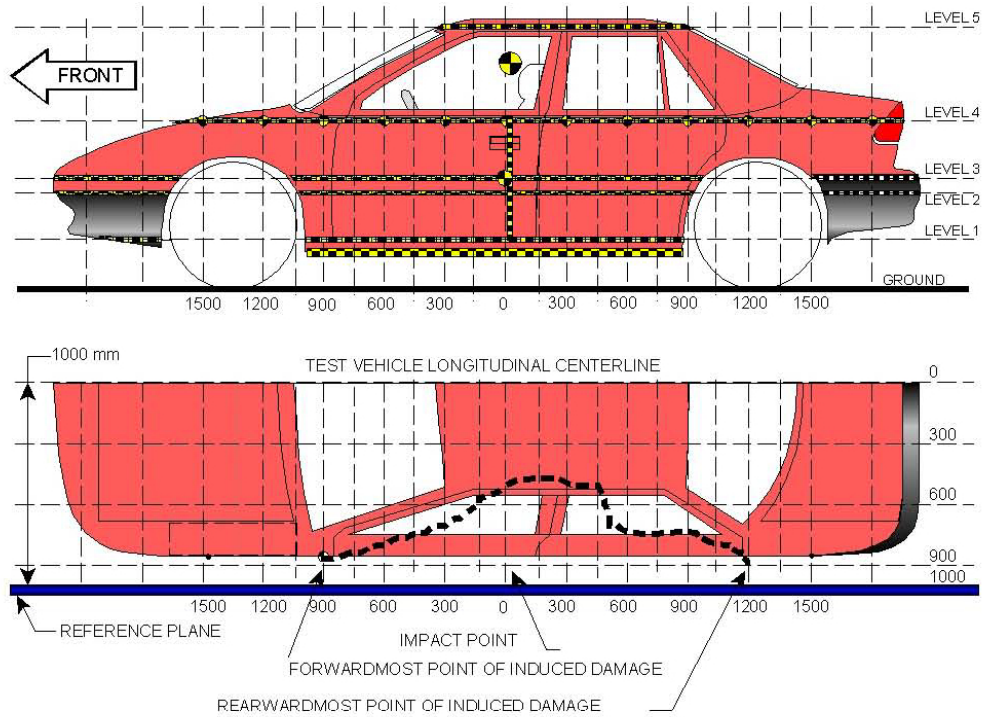
**VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION**

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2670	2667	3
B	Front Axle to FSOV	991	980	11
C	Rear Axle to RSOV	1029	1000	29
D	Total Vehicle Length at Centerline	4690	4647	43
E	Front Bumper Thickness	140	140	0
F	Front Bumper Bottom to Ground	312	347	-35
G	Sill Height at Front Wheel Well	238	234	4
H	Sill Height at Front Door Leading Edge	240	230	10
I	Sill Height at B-Pillar	245	241	-4
J1	Sill Height at Rear Wheel Well	250	272	-22
J2	Pinch Weld Height at Rear Wheel Well	246	266	-20
K	Sill Height Aft of Rear Wheel Well	299	308	-9
L	Rear Bumper Thickness	104	104	0
M	Rear Bumper Bottom to Ground	367	363	4
N	Sill Height to Bottom of Front Window Sill	771	789	-18
O	Front Door Leading Edge to Impact CL	656	493	163
P	Rear Door Trailing Edge to Impact CL	1209	1081	128
Q	Front Window Opening	417	437	-20
R	Right Side Length	3732	3747	-15
S	Left Side Length	3732	3605	127
T	Vehicle Width at B-Pillars	1766	1631	135

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

Test Vehicle: 2018 Mitsubishi Outlander PHEV SEL 5-Door SUV  
Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185601  
Test Date: 12/18/2018



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	380	304	75
2	Mid Door	659	360	75
3	Occupant Hip Point	684	365	75
4	Window Sill	1055	353	75
5	Window Top	1565	172	75

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

Test Vehicle: 2018 Mitsubishi Outlander PHEV SEL 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185601  
 Test Date: 12/18/2018

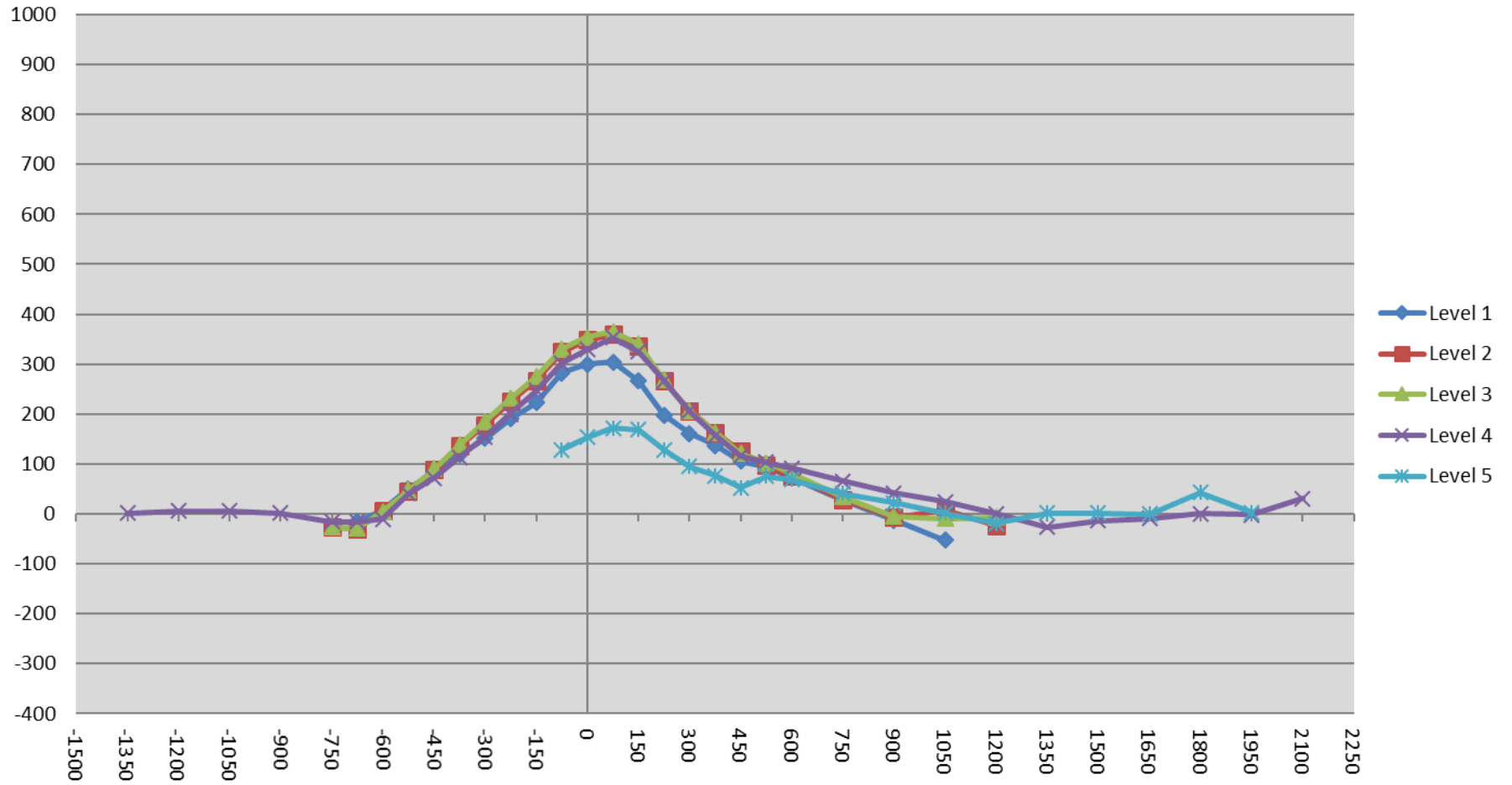
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-2700															
-2550															
-2400															
-2250															
-2100															
-1950															
-1800															
-1650															
-1500															
-1350				355					357					2	
-1200				324					330					6	
-1050				305					311					6	
-900				294					296					2	
-825															
-750		198	198	285			171	171	269			-27	-27	-16	
-675	225	204	204	280		209	174	175	264		-16	-30	-29	-16	
-600	234	212	212	277		241	218	217	267		7	6	5	-10	
-525	244	218	217	274		294	263	264	315		50	45	47	41	
-450	254	221	220	270		338	309	311	342		84	88	91	72	
-375	262	222	221	266		381	358	359	379		119	136	138	113	
-300	265	222	220	260		416	400	405	415		151	178	185	155	
-225	265	221	220	256		455	446	452	456		190	225	232	200	
-150	267	221	219	251		490	488	494	498		223	267	275	247	
-75	267	220	218	248	464	550	545	548	550	592	283	325	330	302	128
0	267	220	218	244	452	567	569	572	573	605	300	349	354	329	153
75	267	220	218	241	448	571	580	583	594	620	304	360	365	353	172
150	268	220	218	239	444	534	557	558	564	613	266	337	340	325	169
225	269	220	218	236	444	467	486	486	503	572	198	266	268	267	128
300	270	220	219	234	441	431	427	424	440	536	161	207	205	206	95
375	270	221	219	233	440	407	384	382	390	516	137	163	163	157	76
450	271	222	220	233	438	377	347	341	350	491	106	125	121	117	53
525	270	224	221	232	438	365	321	323	335	513	95	97	102	103	75
600	271	225	223	231	439	344	300	305	323	508	73	75	82	92	69
675															
750	266	227	225	232	441	294	256	259	297	482	28	29	34	65	41
825															
900	254	223	222	237	445	241	216	217	279	467	-13	-7	-5	42	22
1050	240	213	212	242	449	187	221	203	266	451	-53	8	-9	24	2
1200		205	204	246	452		182	197	247	433		-23	-7	1	-19
1350				248	457				221	459				-27	2
1500				251	465				237	467				-14	2
1650				254	475				245	474				-9	-1
1800				258	448				258	491				0	43
1950				265	515				263	518				-2	3
2100				276					307					31	
2250															
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 Mitsubishi Outlander PHEV SEL 5-Door SUV  
Test Program: NCAP Side Pole Impact Test

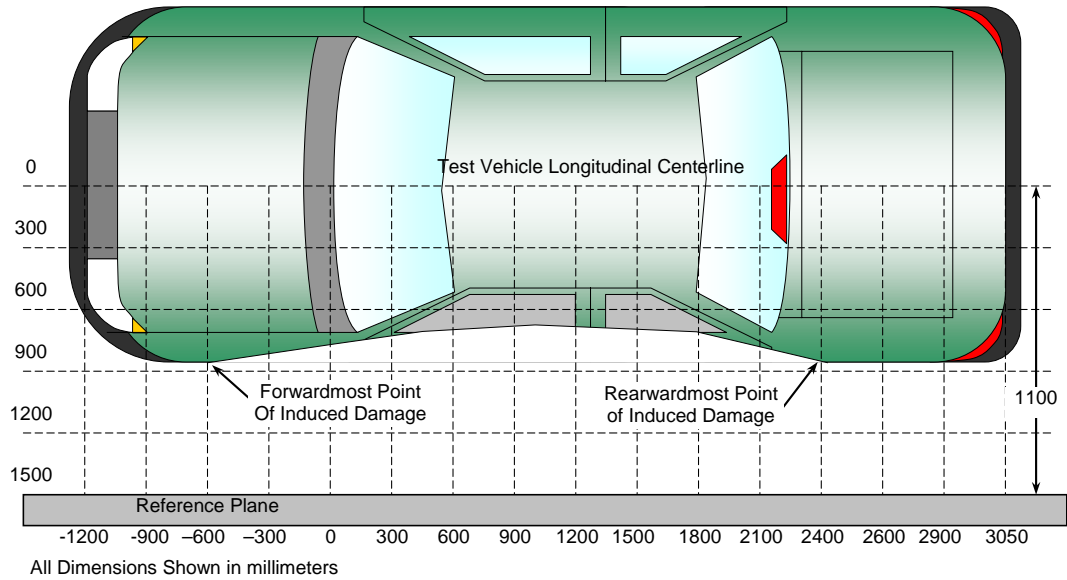
NHTSA No. O20185601  
Test Date: 12/18/2018



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

Test Vehicle: 2018 Mitsubishi Outlander PHEV SEL 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185601  
 Test Date: 12/18/2018



**TOP VIEW**

**DAMAGE PROFILE DISTANCES**

DPD	Distance from Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	1200	3	204	197	-7
2	900	3	222	217	-5
3	555	3	222	317	95
4	150	3	218	558	340
5	-225	3	220	452	232
6	-655	3	206	182	-24

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

Test Vehicle: 2018 Mitsubishi Outlander PHEV SEL 5-Door SUV  
Test Program: NCAP Side Pole Impact Test

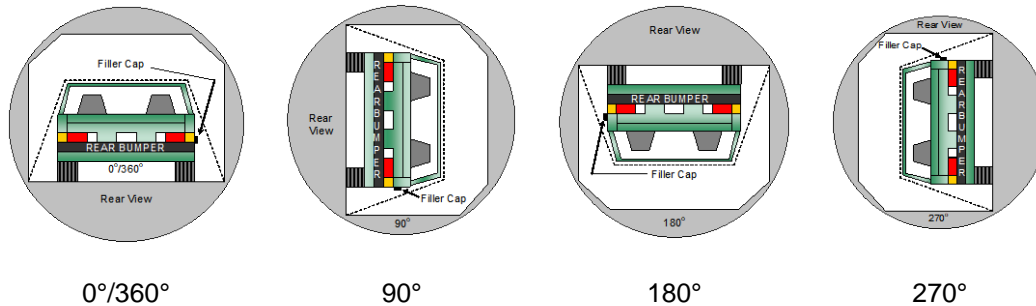
NHTSA No. O20185601  
Test Date: 12/18/2018

Test Time: 2:05 p.m.

Temperature: 21.9°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°	117	300	417
90° to 180°	118	300	418
180° to 270°	116	300	416
270° to 360°	117	300	417

**FMVSS 301 ROLLOVER SPILLAGE TABLE (units in ounces)**

Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eight Minute
0° to 90°	0	0	0	0
90° to 180°	0	0	0	0
180° to 270°	0	0	0	0
270° to 360°	0	0	0	0

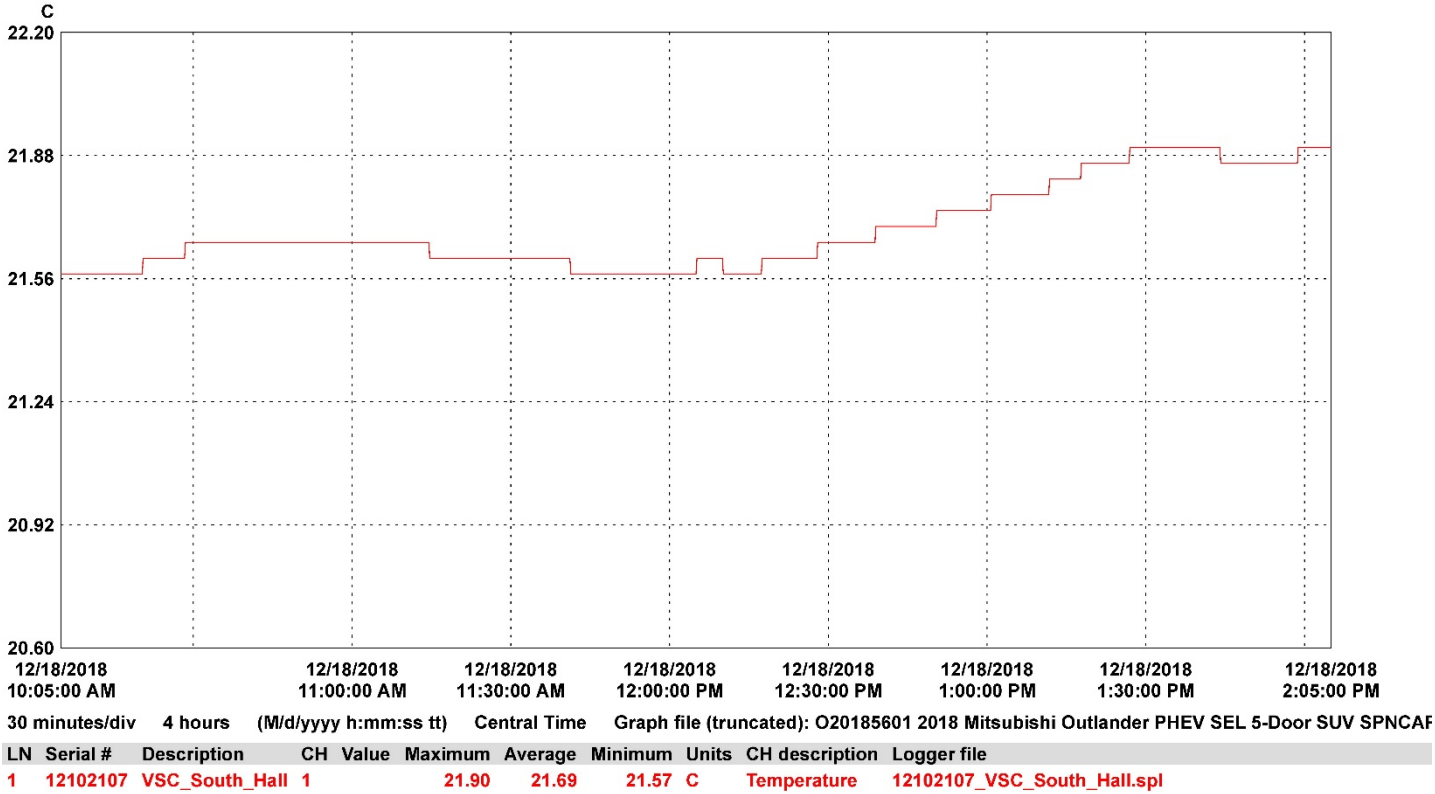
**ROLLOVER SOLVENT SPILLAGE LOCATION TABLE**

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

**DATA SHEET NO. 13  
DUMMY/VEHICLE TEMPERATURE STABILIZATION DATA**

Test Vehicle: 2018 Mitsubishi Outlander PHEV SEL 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20185601  
 Test Date: 12/18/2018



**APPENDIX A  
PHOTOGRAPHS**

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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

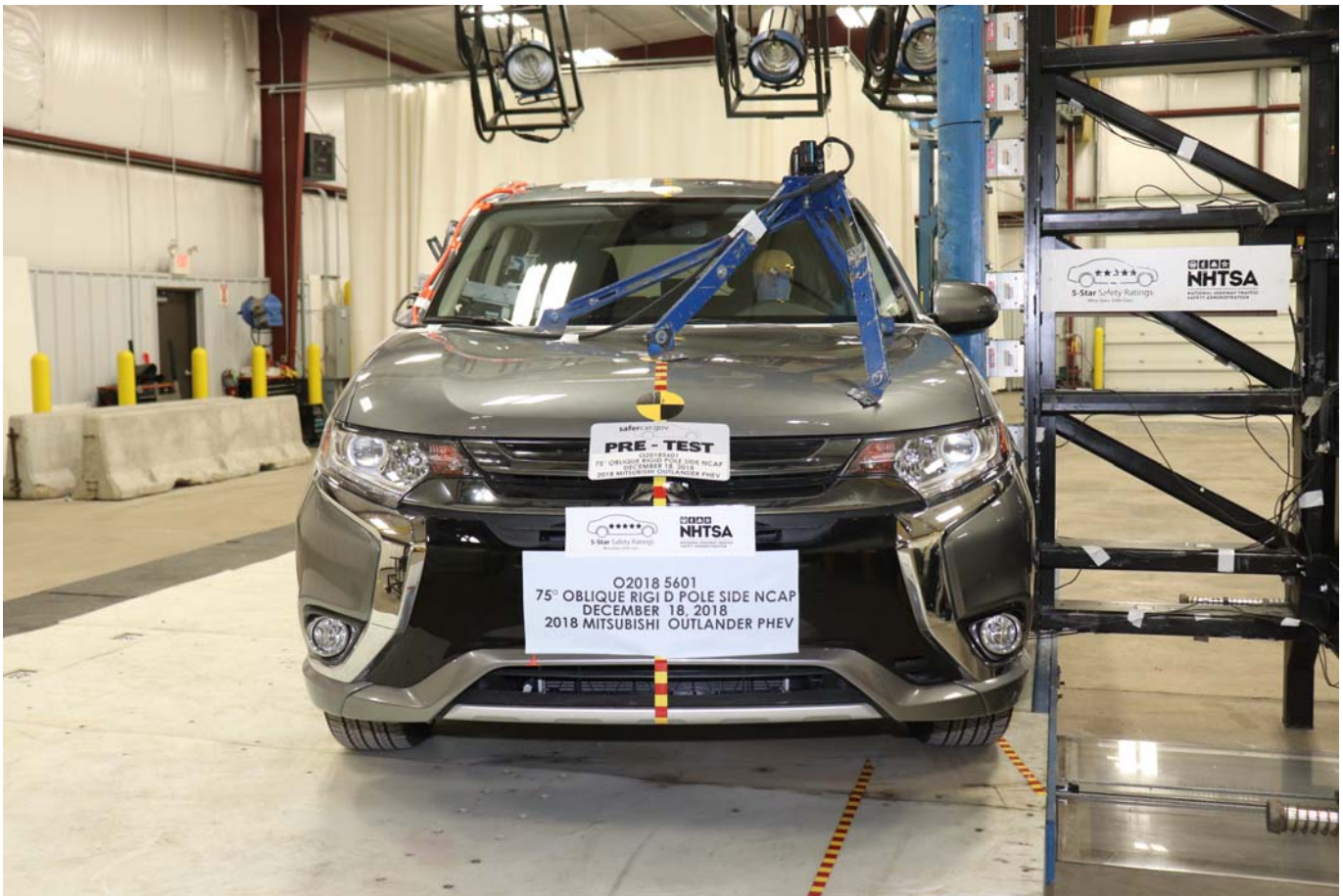


Photo No. 003 - Pre-Test Frontal View of Test Vehicle

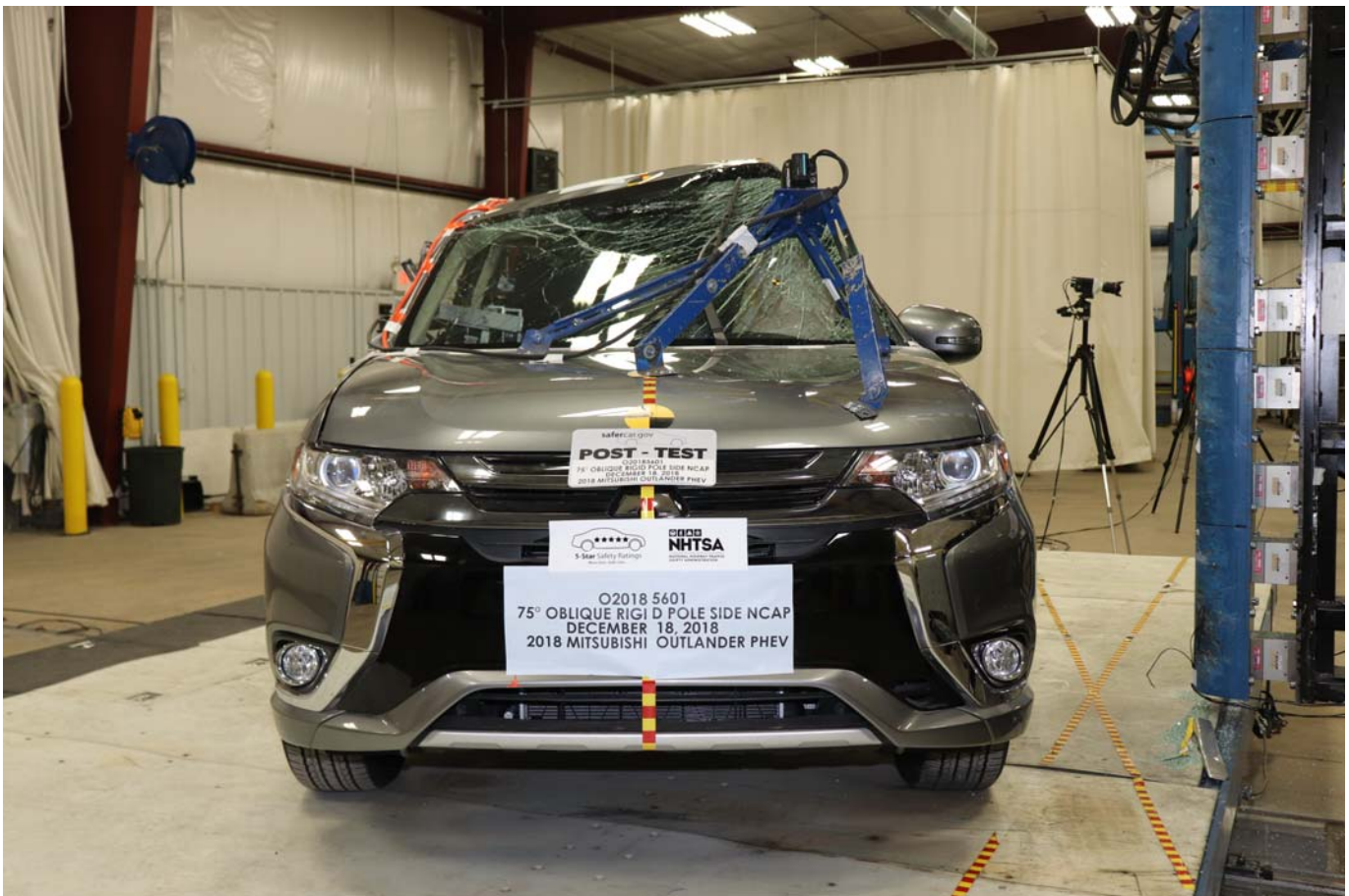


Photo No. 004 - Post-Test Frontal View of Test Vehicle



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

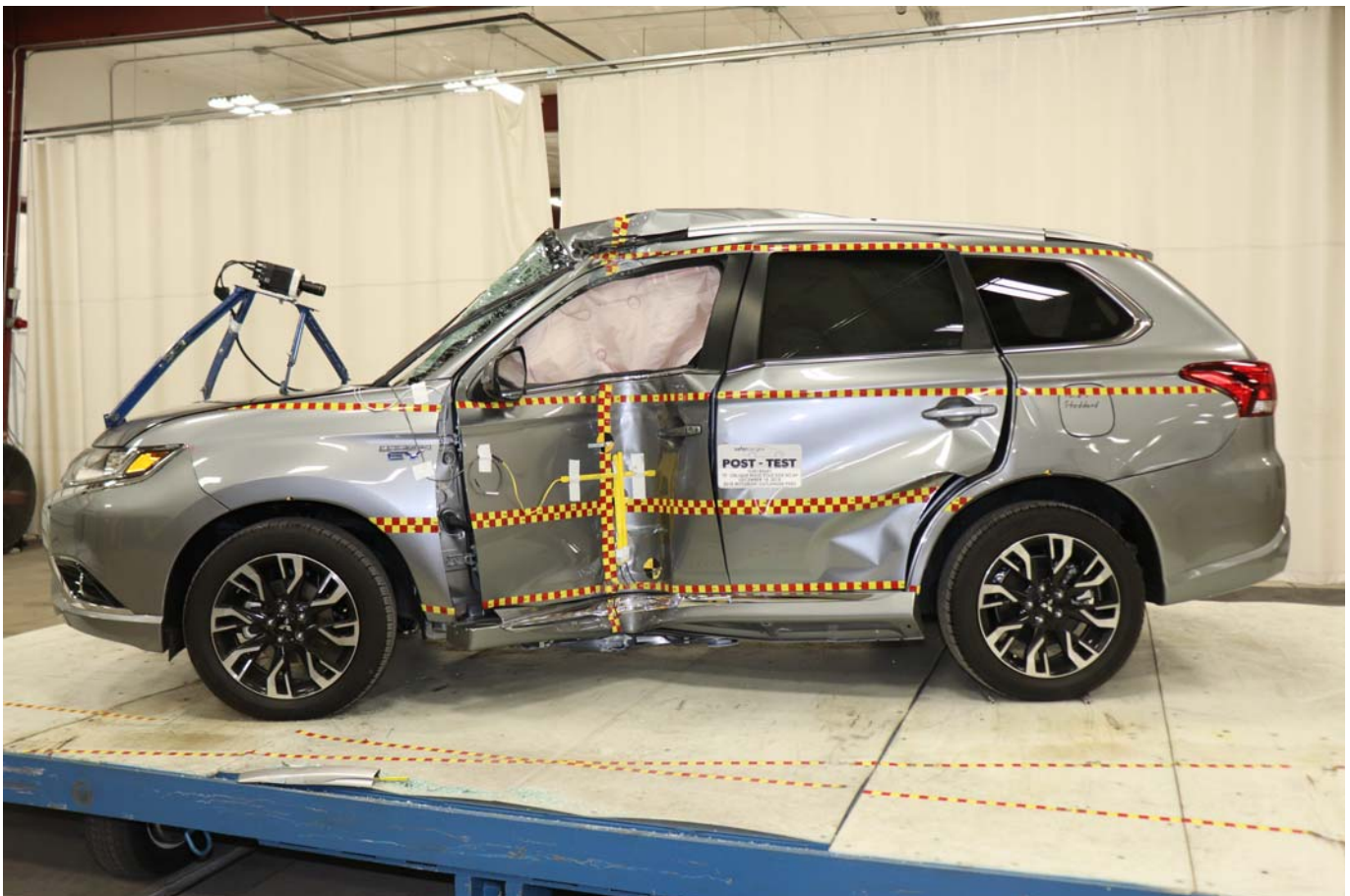


Photo No. 008 - Post-Test Left Side View of Test Vehicle



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

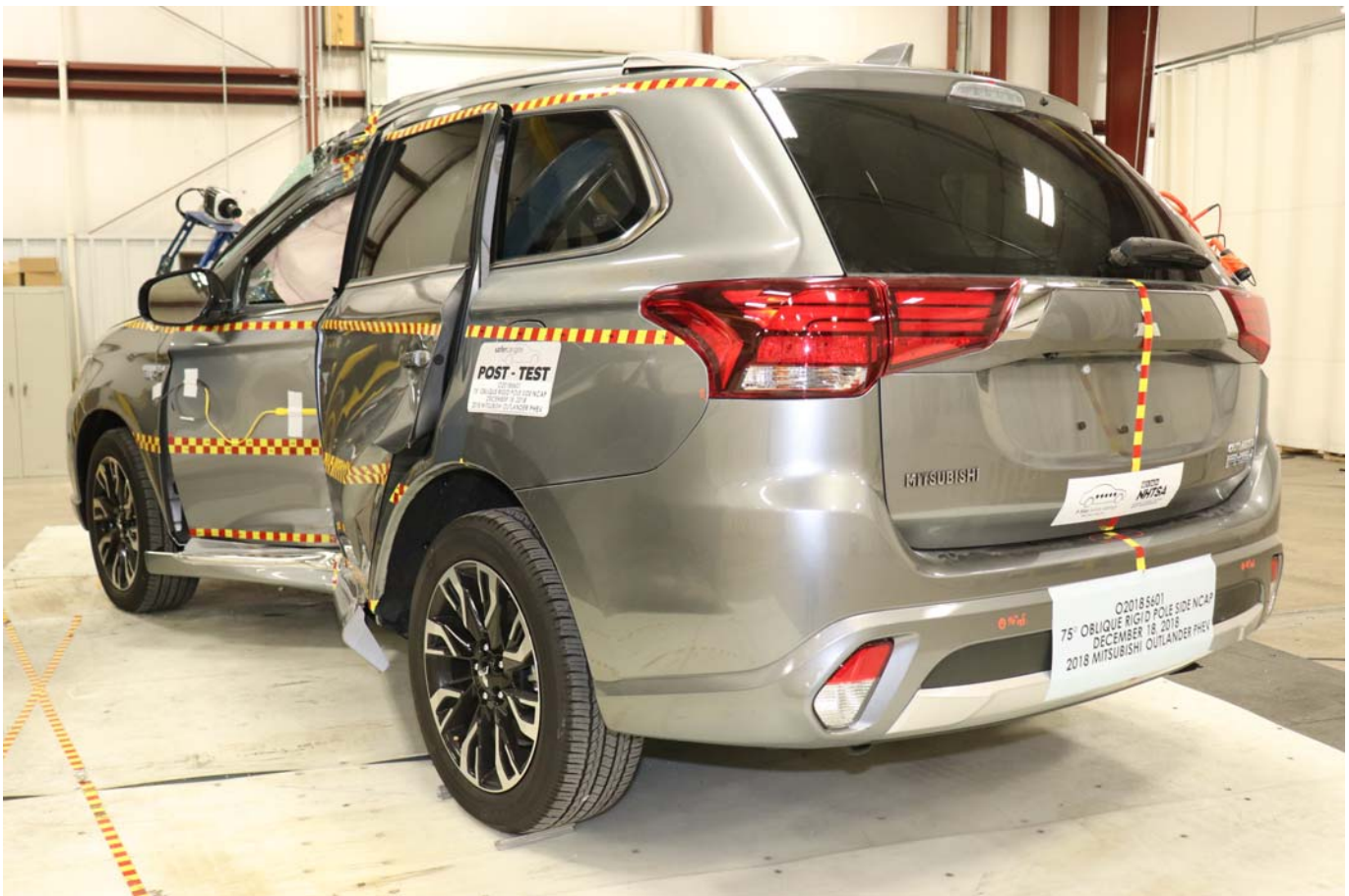


Photo No. 010 - Post-Test Left Rear Three-Quarter View of Test Vehicle



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



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

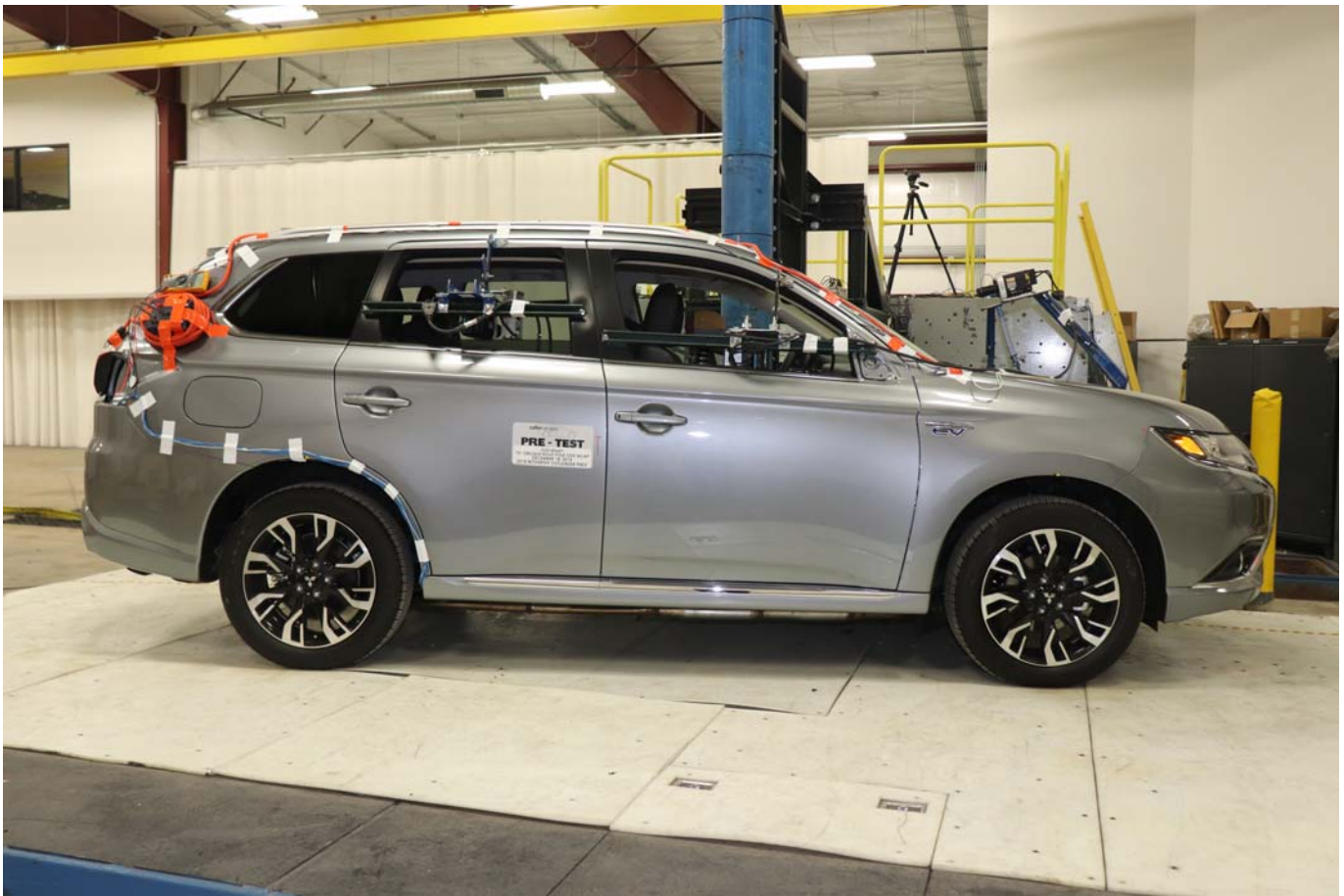


Photo No. 013 - Pre-Test Right Side View of Test Vehicle



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



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

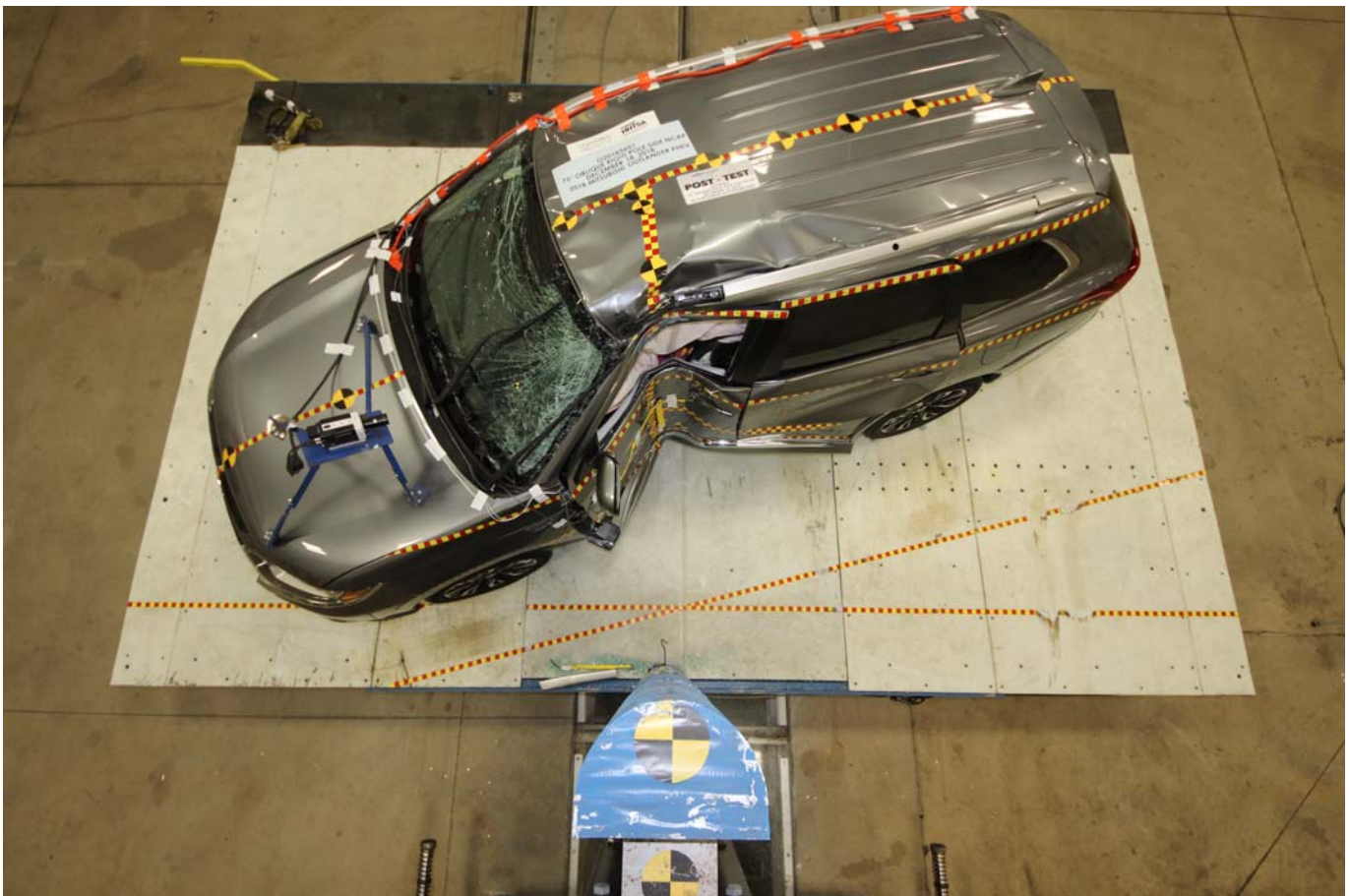


Photo No. 016 - Post-Test Overhead View of Test Area



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

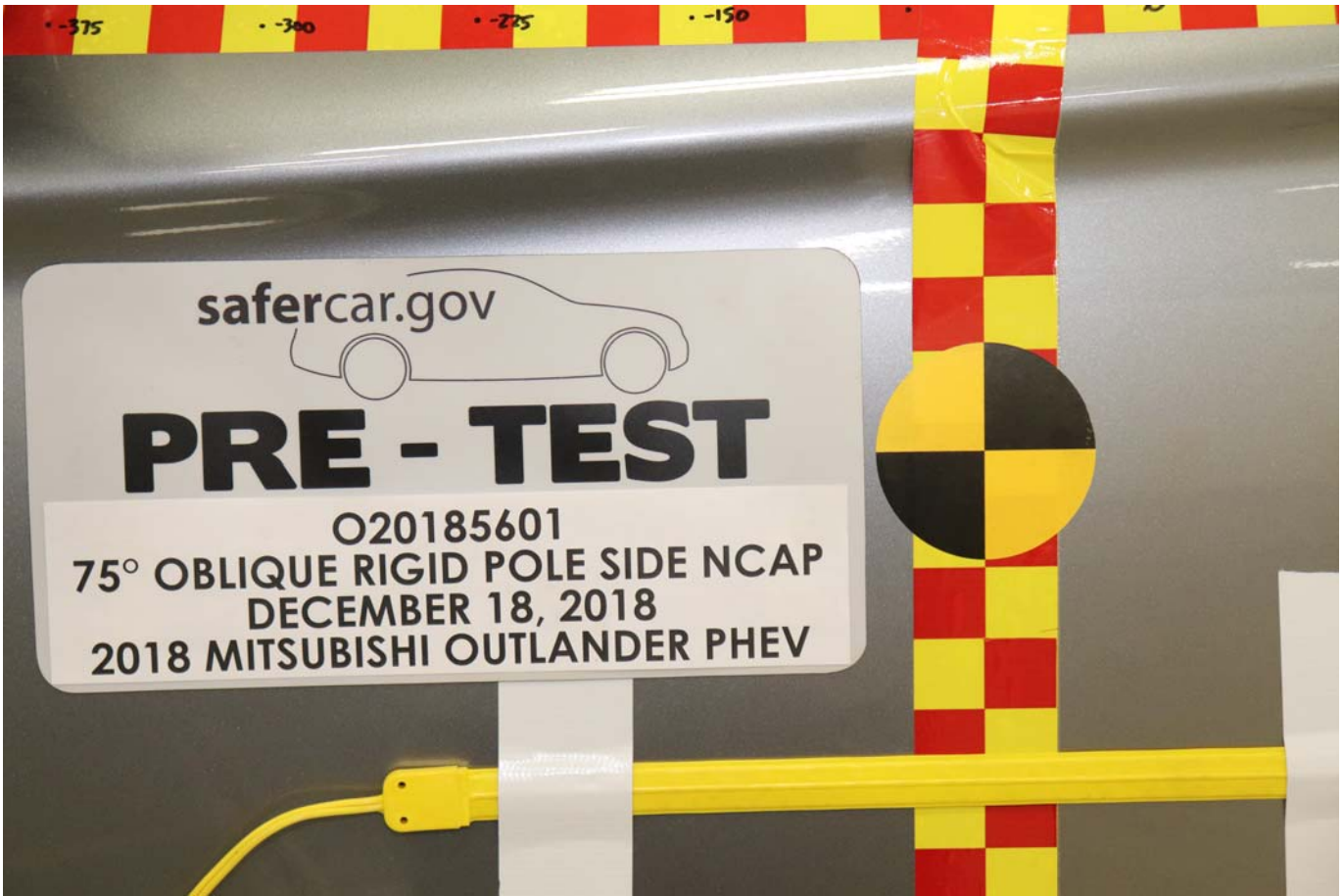


Photo No. 019 - Pre-Test Close-Up View of Impact Point Target



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

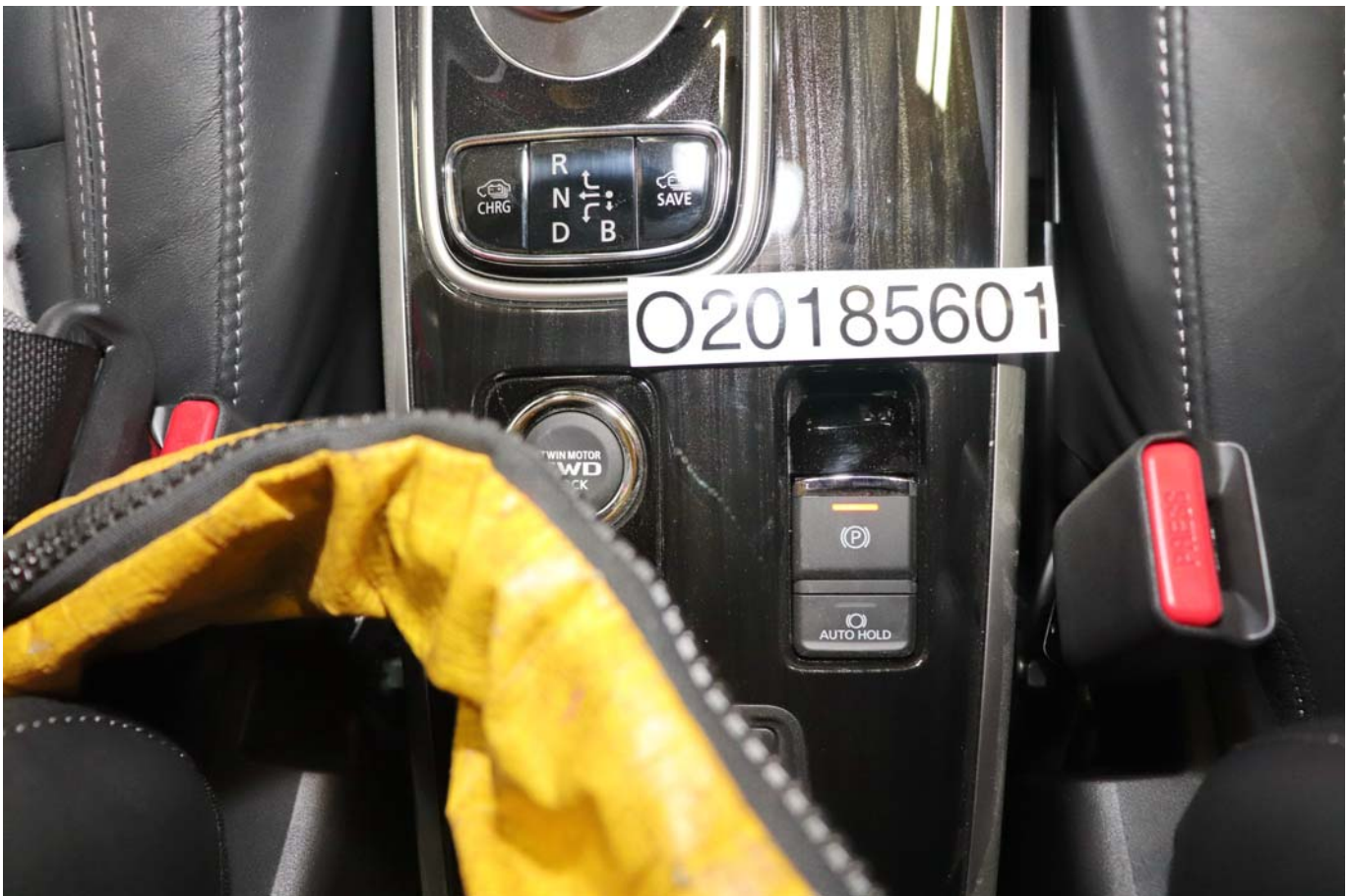


Photo No. 036 - Pre-Test View of Parking Brake

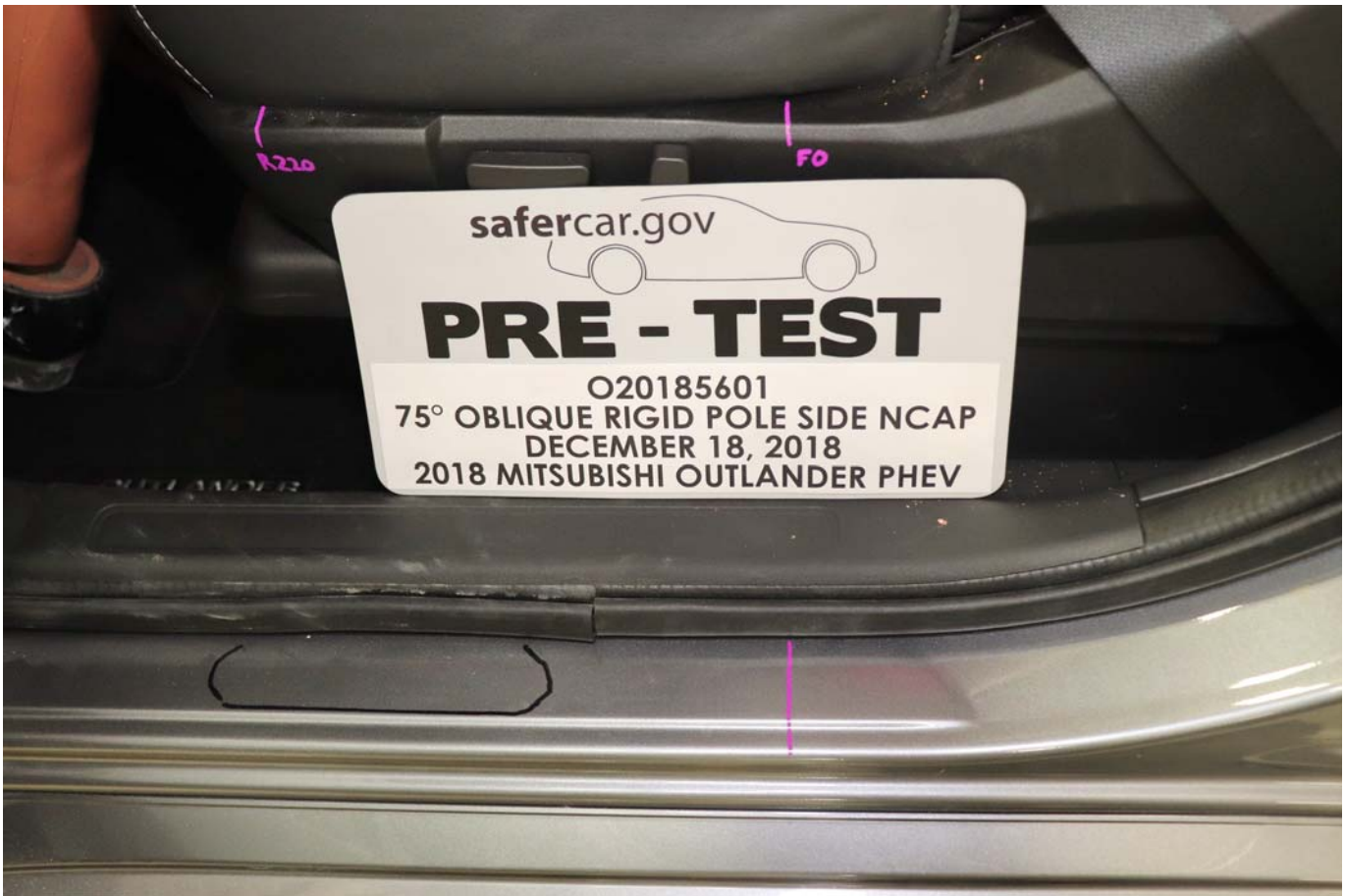


Photo No. 037 - Pre-Test Close-Up Left Side View of Driver Seat Track

**PHOTOGRAPH NOT AVAILABLE**

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

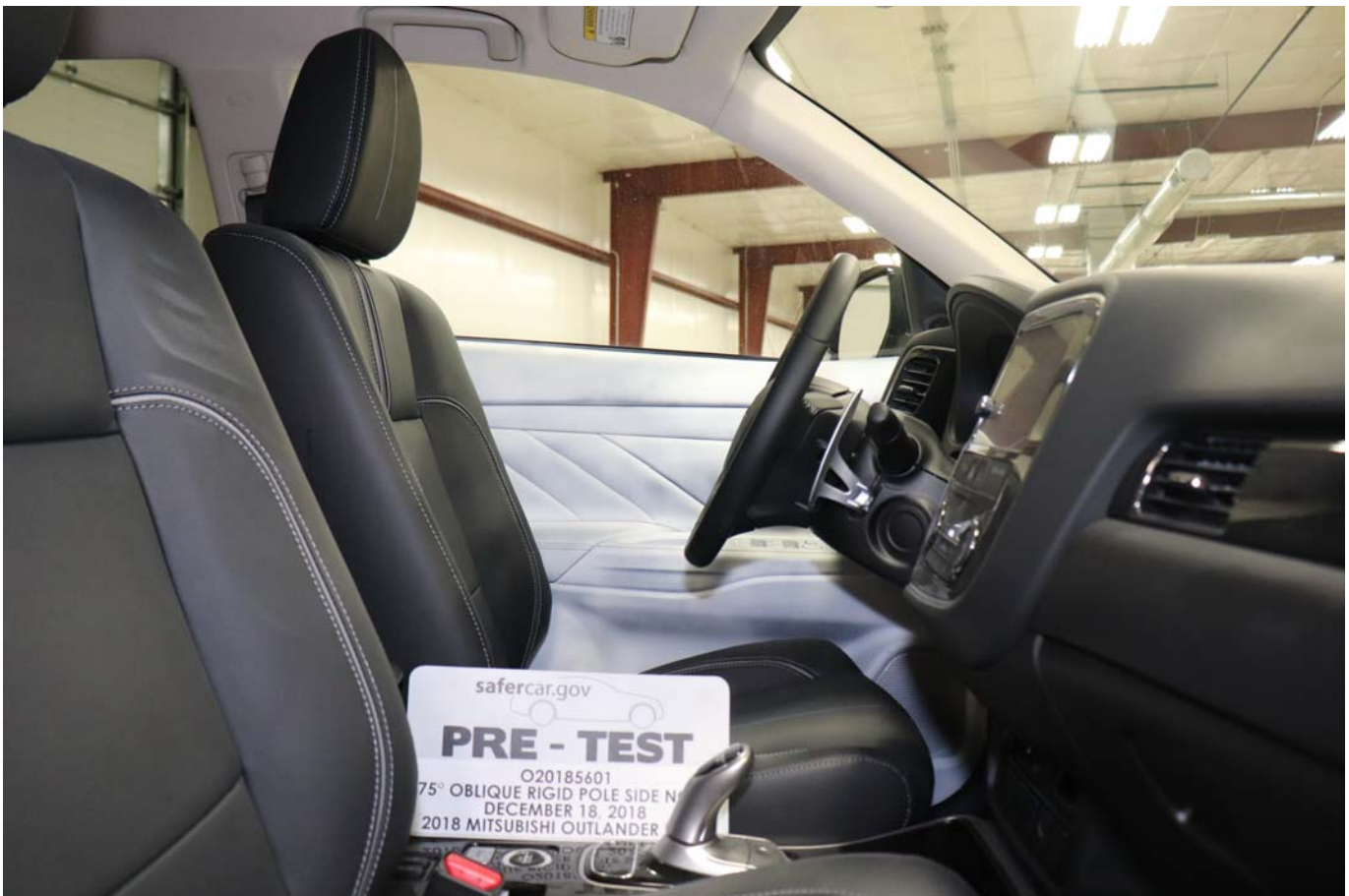


Photo No. 044 - Pre-Test Inner Door Panel View



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

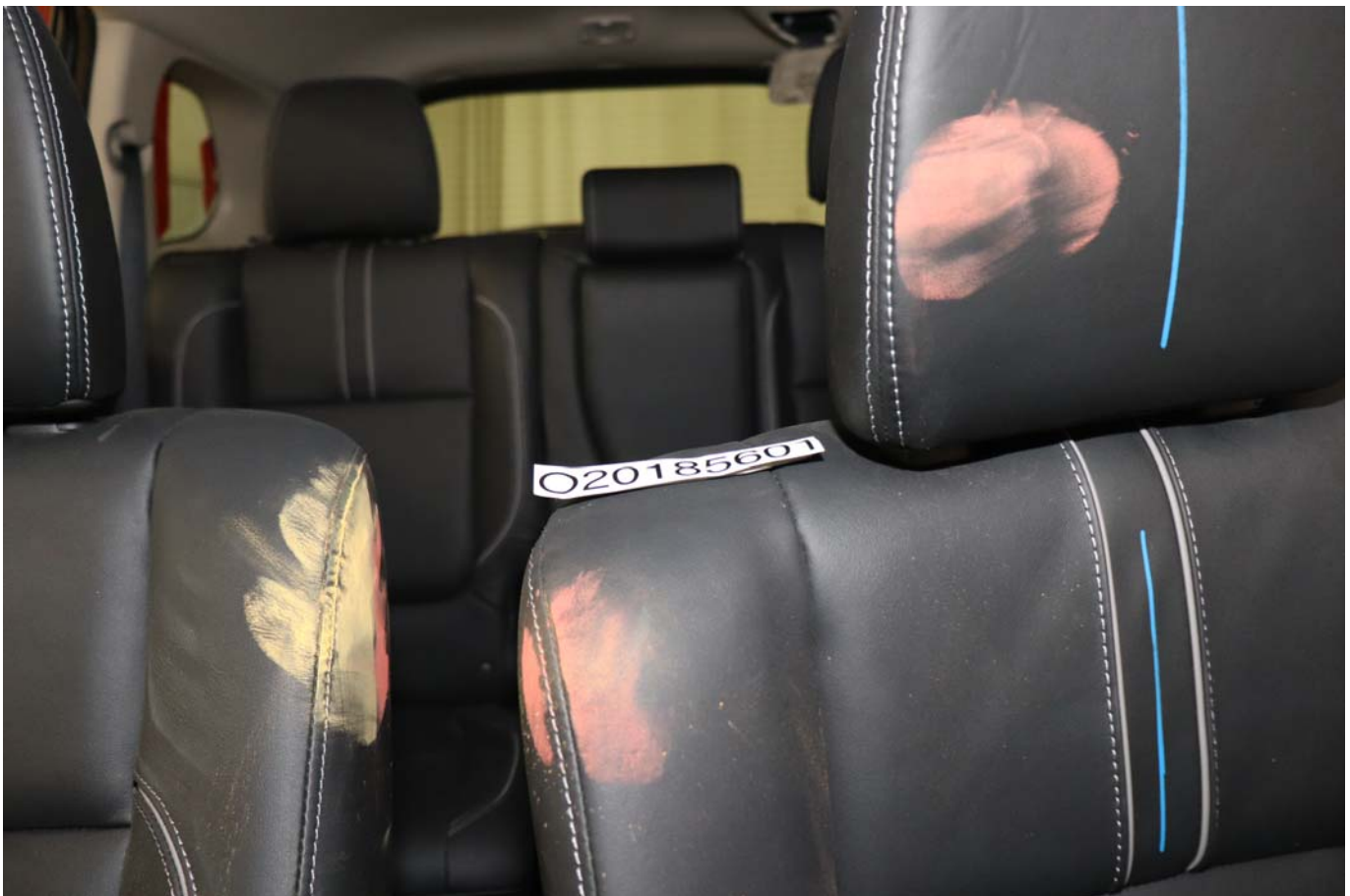


Photo No. 046 - Post-Test Dummy Close-Up Head Contact with Vehicle Interior View



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

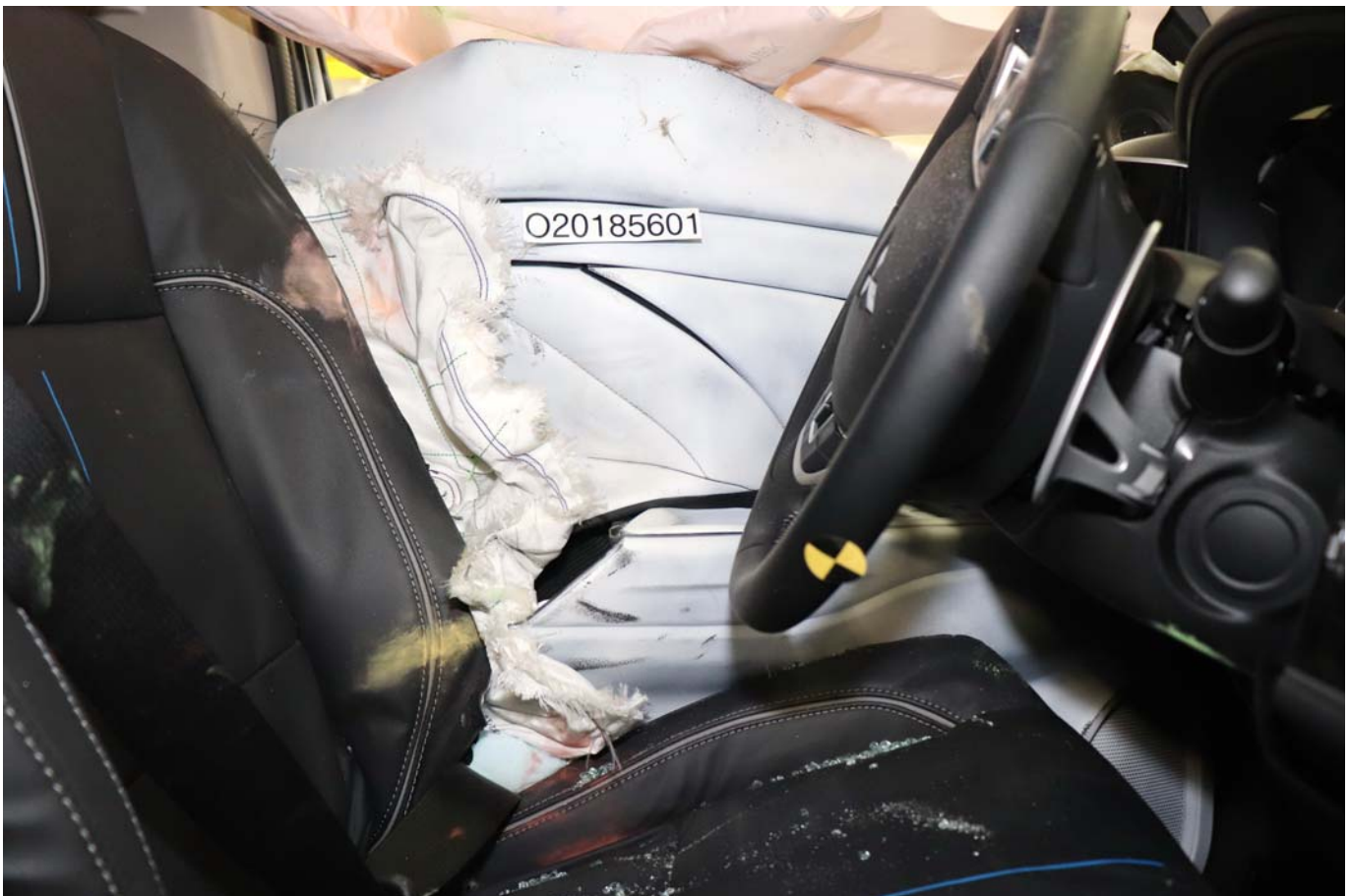


Photo No. 048 - Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View



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

**PHOTOGRAPH NOT APPLICABLE**

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

**PHOTOGRAPH NOT AVAILABLE**

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



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



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



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

**PHOTOGRAPH NOT AVAILABLE**

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



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

**PHOTOGRAPH NOT AVAILABLE**

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

# PHOTOGRAPH NOT APPLICABLE

Photo No. 061 - Pre-Test Ballast View



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

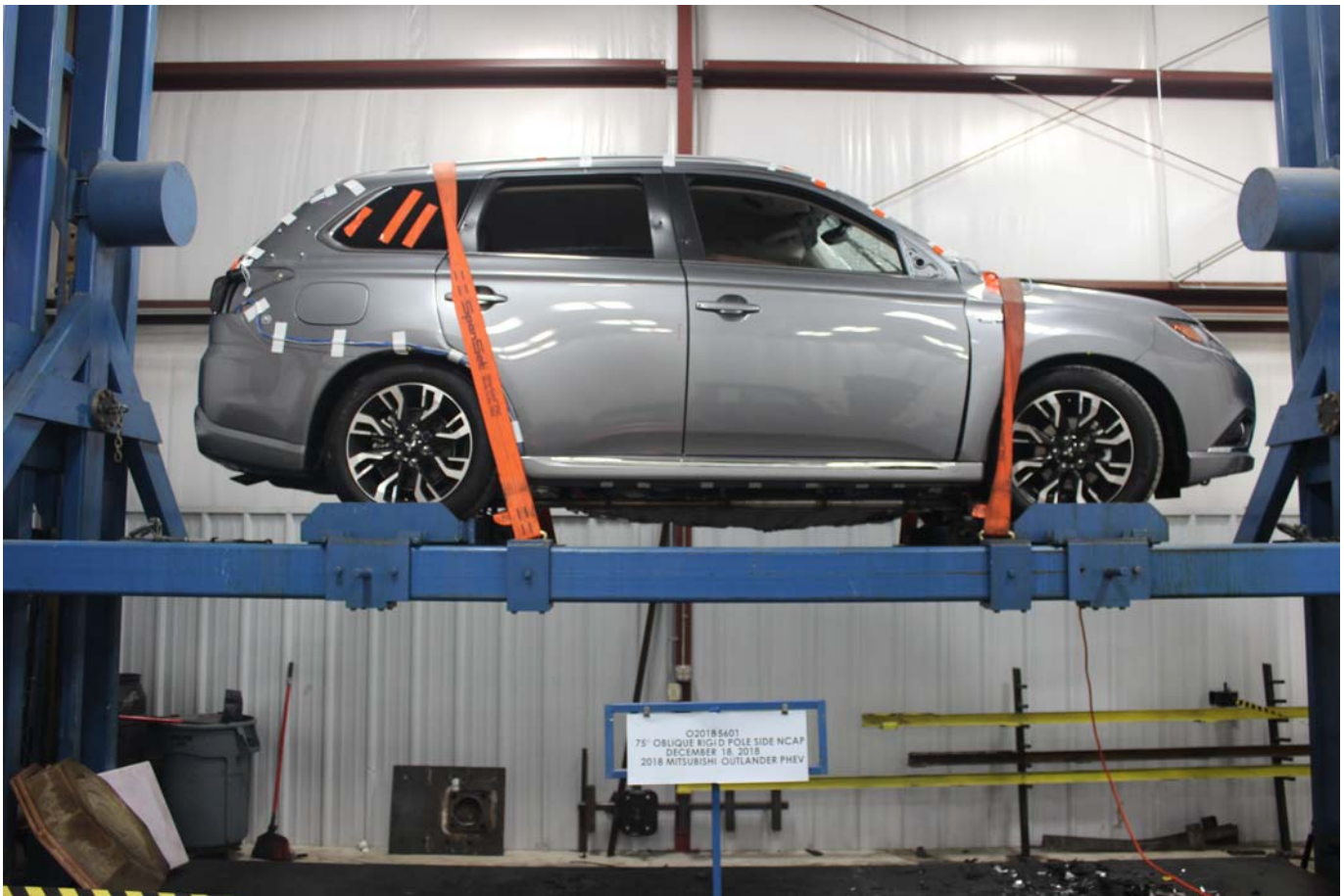


Photo No. 063 - FMVSS Photo No. 301 Static Rollover 0 Degrees

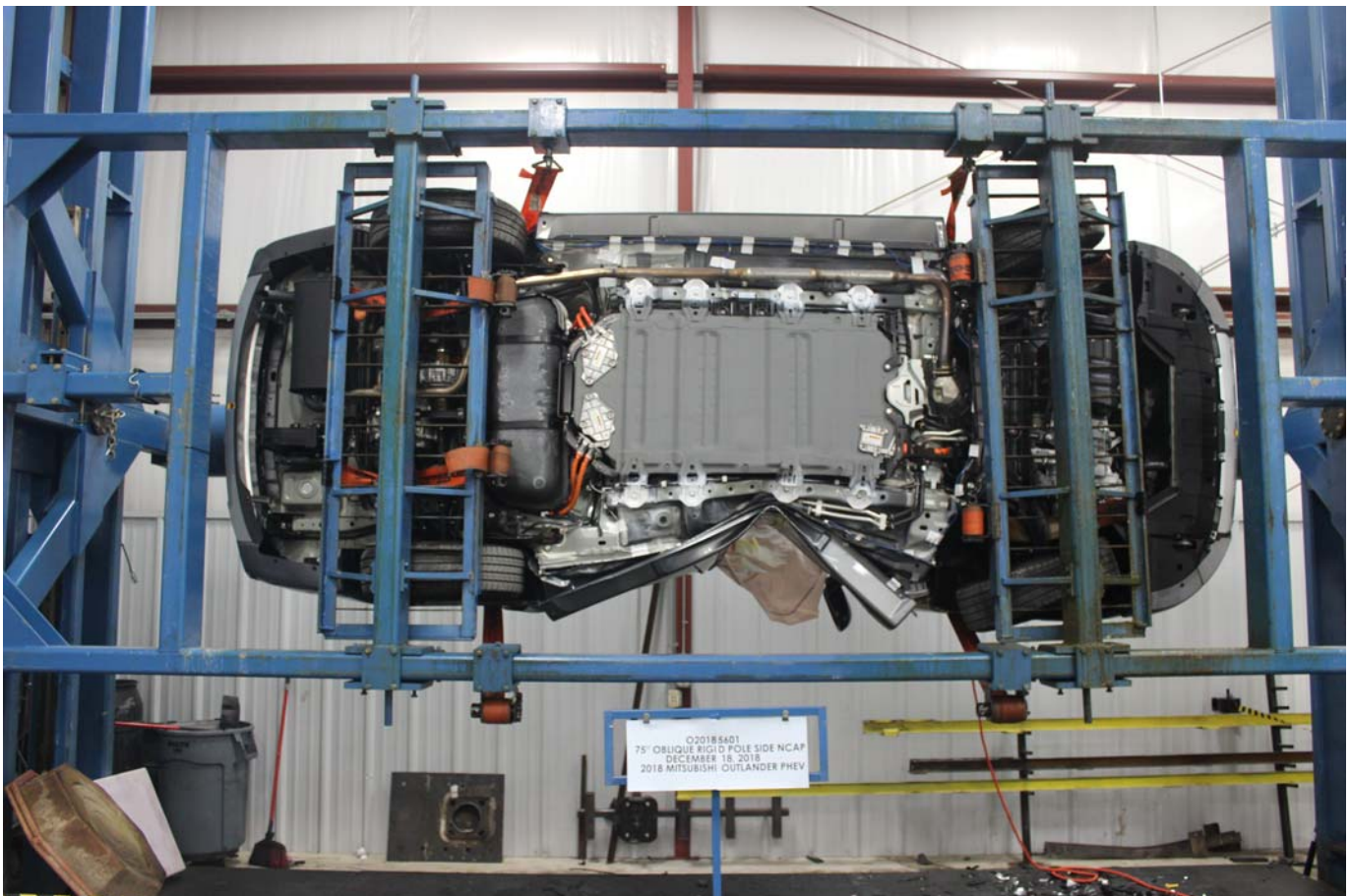


Photo No. 064 - FMVSS Photo No. 301 Static Rollover 90 Degrees



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

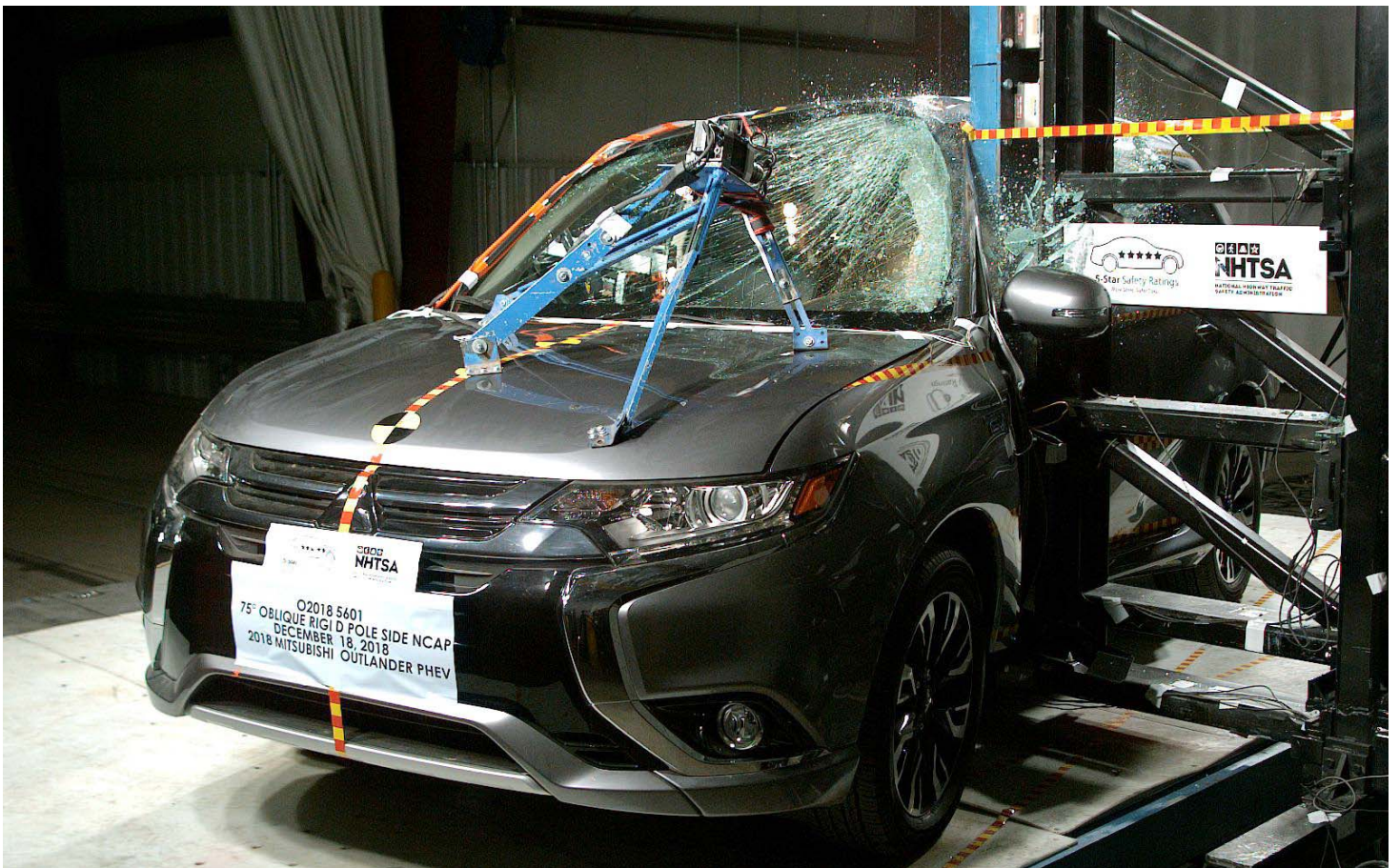


Photo No. 068 - Impact Event



**2018 OUTLANDER PHEV SEL S-AWC**  
4-DOOR SUV  
MERCURY GRAY METALLIC / BLACK

2.0L MIVEC W/ TWIN ELECTRIC MOTORS  
1 SPEED TRANSMISSION  
50-STATE EMISSIONS STANDARD

**Additional Equipment**

Full Tank of Gas	INCLUDED
Acry Tonneau Cover	\$190.00
Acry Carpeted Floor Mats and Portfolio	\$135.00

**EPA DOT Fuel Economy and Environment**

**Fuel Economy** Small SUVs range from 18 to 37 MPG. The best vehicle rates 136 MPG.

**Electricity + Gasoline** Charge Time: 3.5 hours (240V)

**74** MPG<sub>combined</sub> **45** MPG<sub>city</sub> **0** MPG<sub>highway</sub>

**Gasoline Only**

**25** MPG<sub>combined</sub> **4.0** gallons per 100 miles

**You save \$1,000** in fuel costs over 5 years compared to the average new vehicle.

**Mechanical Features**

- 12 kWh Lithium-ion main drive battery
- 120-volt charging cable, switchable 8A/12A
- 120V/240V charging system
- DC Fast Charge capability
- Regenerative Braking System (RBS) with steering mounted paddle shifters
- Main battery warming system
- Charge door light and lid locking system
- Acoustic Vehicle Alert System
- 2.0L DOHC MIVEC range extender engine
- 60kW Twin AC synchronous electric motors
- Single speed, fixed reduction gear
- Twin Motor Super All-Wheel Control (S-AWC)

**Interior Features**

- LED running lights
- Fog lights
- Auto on/off headlights
- LED Rear combination tail lights
- Chrome beltline molding
- Dark chrome grille accents
- Color-keyed, heated, power folding side-view mirrors with turn indicators
- Front windshield rain-sensing wipers
- Windshield wiper de-icer
- Rear privacy glass
- Silver roof rails
- PHEV badges
- 18-inch two-tone alloy wheels
- Emergency fire repair kit

**Convenience Features**

- 7.0" Smartphone Link Display Audio (SDA) System
- Apple CarPlay™ and Android Auto™ Compatibility
- SiriusXM® Satellite Radio with 3-month subscription
- Digital HD Radio®
- Six speakers
- Bluetooth® wireless technology
- Steering wheel audio controls
- Steering wheel phone controls

**Convenience Features (cont'd)**

- Steering wheel voice controls
- Dual USB ports
- Rearview camera
- Twin Motor S-AWC Drive mode selector
- Electric shift lever
- EV Drive mode switches (EV Priority, Charge, Save)
- Smartphone EV remote capability
- Dual-zone automatic climate control
- Electric heater
- Cruise Control
- FAST-Key passive entry system with push button start and panic feature
- Power remote liftgate
- Power windows with driver's auto up/down
- 12-volt accessory outlets
- Auto-dimming rearview mirror with Homelink®
- Sunglass holder (via with sunroof)
- Rear seat center armrest with cupholders
- Underfloor cargo area storage
- Cargo tie-down utility hooks

**Safety & Security**

- Electric parking brake w/ auto hold
- Anti-lock Braking System (ABS) with Electronic Brakeforce Distribution (EBD) and Brake Assist (BA)
- Traction Control Logic (TCL)
- Active Stability Control (ASC)
- Hill Start Assist (HSA)
- Tire Pressure Monitoring System (TPMS)
- Blind Spot Warning (BSW) with Rear Cross Traffic Alert (RCTA) and Lane Change Assist (LCA)
- Advanced dual-stage SRS front airbags
- Front seat-mounted side airbags
- Side curtain airbags
- Driver's knee airbag
- LATCH child-restraint system
- Child safety rear door locks
- Anti-theft alarm system
- RISE body construction

**MSRP: \$34,595.00**

**Total Additional Equipment: \$325.00**

**Subtotal: \$34,920.00**

**Destination/Handling: \$995.00**

**Total MSRP: \$35,915.00**

\*MSRP (Manufacturer's Suggested Retail Price)

Visit us at [www.mitsubishicars.com](http://www.mitsubishicars.com)

**Annual Fuel Cost**

**\$1,150**

**Fuel Economy & Greenhouse Gas Rating** (tailpipe only) **Smog Rating** (tailpipe only)

**1** **8** **10** **7** **10**

This vehicle emits 174 grams CO<sub>2</sub> per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel & electricity also create emissions. Learn more at [fuel economy.gov](http://fuel economy.gov).

**10-year 100,000-mile LIMITED POWERTRAIN WARRANTY**

10<sup>mi</sup>/100,000<sup>mi</sup> 7<sup>mi</sup>/100,000<sup>mi</sup>

5<sup>mi</sup>/60,000<sup>mi</sup> 5<sup>mi</sup>/UNLIMITED<sup>mi</sup>

**GOVERNMENT 5-STAR SAFETY RATINGS**

This vehicle has not been rated by the government for overall vehicle score, frontal crash, side crash, or rollover risk.

Source: National Highway Traffic Safety Administration (NHTSA). [www.safercar.gov](http://www.safercar.gov) or 1-888-327-4236

**Parts Content Information**

For vehicles in this carline:

U.S./Canadian Parts Content: 0%	Major Sources of Foreign Parts Content: JAPAN 96%
---------------------------------	---

For this vehicle:

Final Assembly Point: OKAZAKI, JAPAN

Country of Origin: JAPAN

Engine: JAPAN

Transmission: JAPAN

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

**Ship To:** (DBA) ANDERSON MITSUBISHI-IL 204 NORTH ALPINE ROAD 15084 ROCKFORD, IL 61107-0000

**Sold To:** (Same unless indicated)

Method of Transport: RAIL

Plant/Port of Entry: TACOMA, WA

VIN: JA4J24A52JZ059588

Route Code: RJO

Cumulative Accessory Weight is 8.1 lbs.


Gasoline, license and title fees, applicable federal, state and local taxes and dealer and distributor installed options and accessories are not included in the manufacturer's suggested retail price. This label has been applied to this vehicle pursuant to federal law and cannot be moved or altered prior to delivery to the ultimate purchaser.

Photo No. 069 - Monroney Label

**Head restraints**

Head restraints can reduce the risk of a whiplash injury if your vehicle is hit from the rear. The head restraints are equipped in the illustrated position.

To maximize the effectiveness of the head restraints, adjust the seatback to the upright position, and the head restraint to the proper position. Sit back against the seatback with your head close to the head restraint.



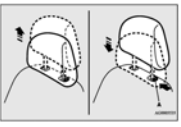
**WARNING**

- Driving without the head restraints in place can cause you and your passengers serious injury or death in an accident. To reduce the risk of injury in an accident, always make sure the head restraints are installed and properly positioned when the seat is occupied.
- In order to minimize the risk of a neck injury due to a rear impact, the seatback should be adjusted to the upright position and the head restraint must be adjusted to the proper position before vehicle operation. The driver should never adjust the seat while the vehicle is in motion.
- Never place a cushion or similar device on the seatback. This can adversely affect head restraint performance by increasing the distance between your head and the restraint.

**Adjustment of the head restraint height**

To reduce the risk of injury in an accident, adjust the head restraint height so that the center of the restraint is at your car level when seated. Any person too tall for the restraint to reach their ear level when seated should raise the restraint to the highest locked position.

- To raise the restraint, pull it straight up.
- To lower the restraint, push down on it while pressing the lock knob (A) in the direction shown by the arrow.
- After adjusting the height, push down on the restraint to make sure it is locked in position.



**Front seats**

**WARNING**

- In the cargo area, do not load the luggage higher than the top of the seats and make sure that the luggage is firmly secured. Restricted rear vision or flying objects entering the passenger compartment during sudden braking could result in a serious accident and/or injury.
- Seats should always be operated by an adult. Seat adjustments by a child could lead to an unexpected accident.
- When adjusting the seats, be careful not to catch your hand or leg. Personal injury could result.

**NOTE**

- When the seatback of a front seat is reclined, return it to the upright position before driving.

**Folding the rear seats**

The rear seat can be folded to create an additional cargo area.

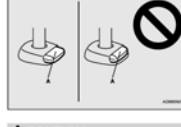
- You can separately fold the right and left side of the rear seat.

**Making a cargo area**

pressing the lock knob (A) until the restraint locks into place.

**CAUTION**

- Check that the lock knob (A) is extended out as shown in the illustration. Then pull the head restraint up to make sure that it is locked in place and will not come out of the seatback.



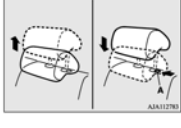
**WARNING**

- Never adjust the seats to make a cargo area when the vehicle is in motion or on a slope. The seats could move more than necessary or more suddenly and causing a serious accident and/or injury.
- When returning a seat back to its seating position after folding down, make sure that the seat is firmly secured and seat belt buckles are in proper position. If the seat is not secured, it could move causing a serious accident.
- Do not allow anyone to ride in the cargo area while the vehicle is in motion. People who are not properly seated and restrained can be seriously injured or killed in an accident.

**Rear center seat**

To reduce the risk of injury in an accident, pull up the head restraint to the locked position.

- To raise the restraint, pull it straight up.
- To lower the restraint, push down on it while pressing the lock knob (A) in the direction shown by the arrow.
- After adjusting the height, push down on the restraint to make sure it is locked in position.



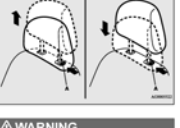
**NOTE**

- The head restraint height in the rear outboard seats cannot be adjusted.

**Head restraints**

**To remove**

Press the lock knob (A) in the direction shown by the arrows. Then pull the head restraint up and out of the seatback.



**WARNING**

- To help minimize the risk of neck injury in the event of an accident, the head restraints must be properly installed and positioned to proper height before vehicle operation.


**To install**

First check that the head restraint is facing in the right direction as shown in the previous illustration, and then insert it into the seatback. Push the head restraint down while

**Making a cargo area**

**CAUTION**

- Do not fold the rear seat while the 120 V AC power supply on the back of the floor console box is being used or while the lid of the 120 V AC power supply is open. Doing so may damage the 120 V AC power supply, its lid, a connected appliance and/or the rear seat. Also, this could lead to an electrical shock.



**CAUTION ATTENTION**

5. Fold forward the seat belt buckle.




Photo No. 070 - Head Restraint Use and Adjustment Information from Vehicle Owners Manual

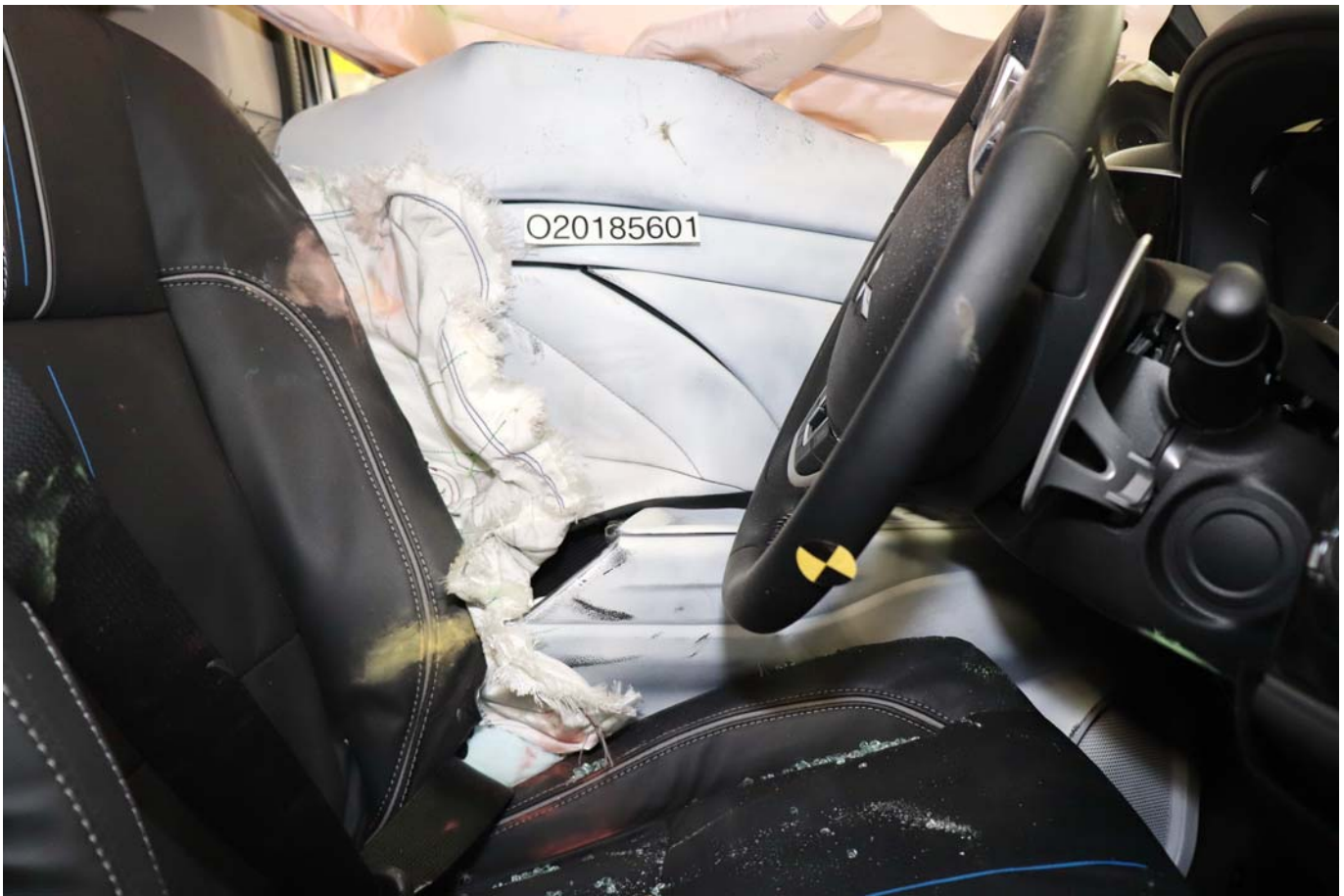


Photo No. 071 - Post-Test View of Shattered Vehicle Inner Door Panel

**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.gov](http://www.NHTSA.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)

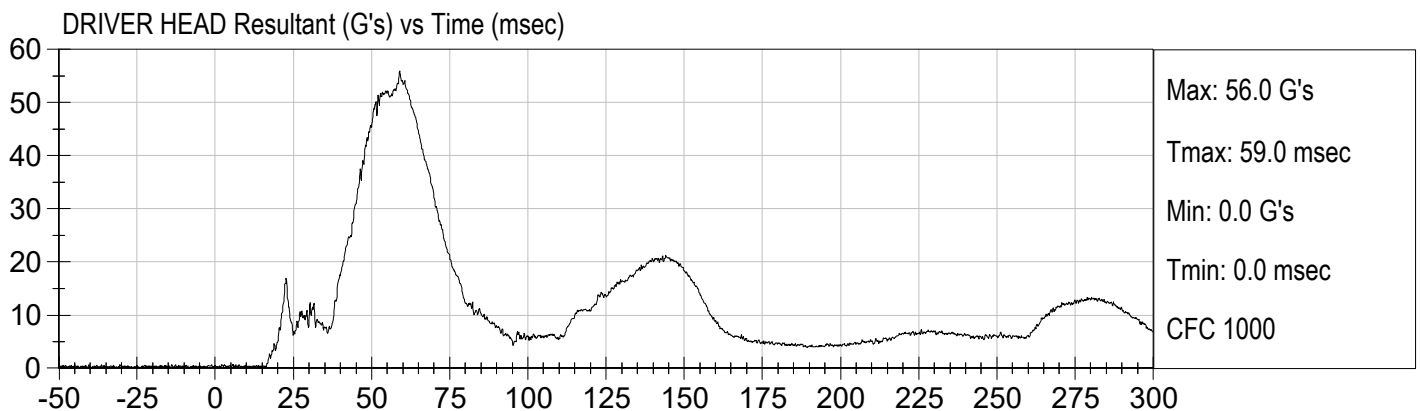
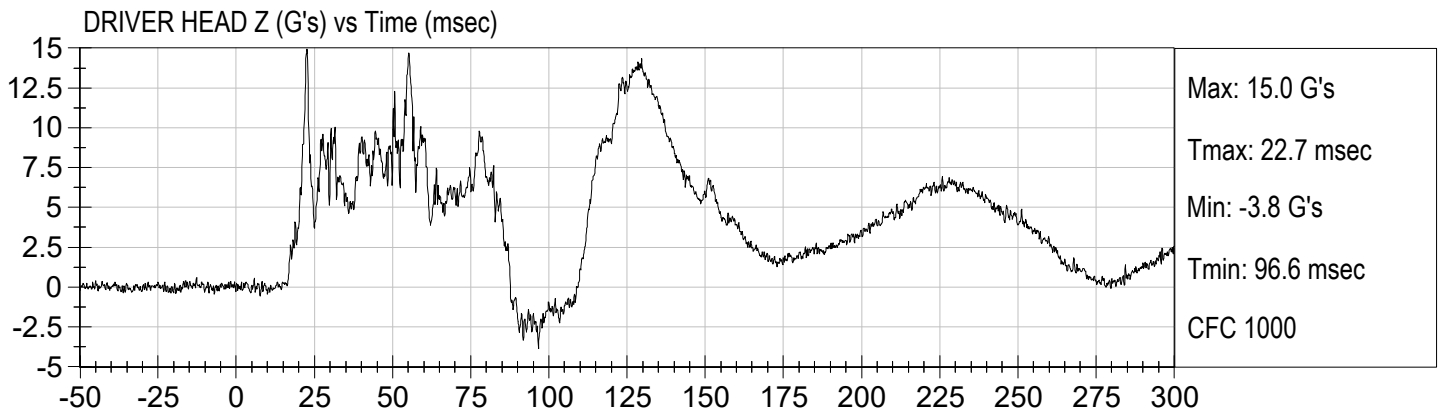
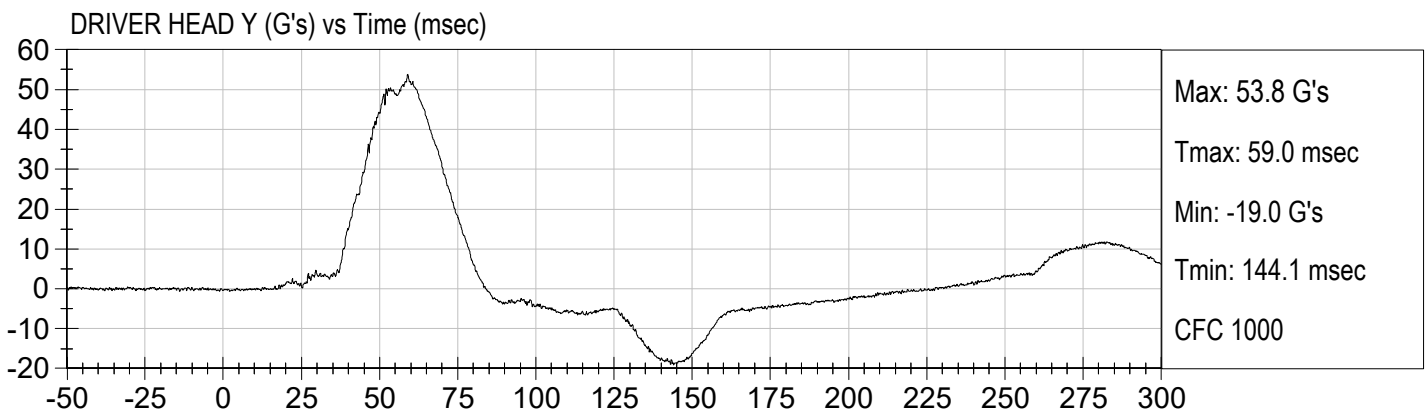
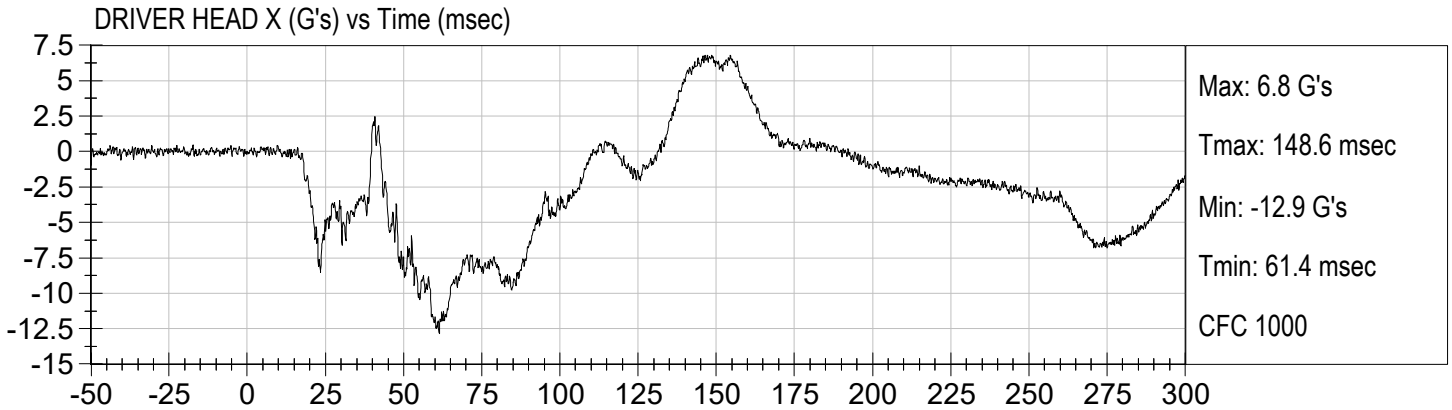
Load Cell Pole Barrier #4 Force (Y)

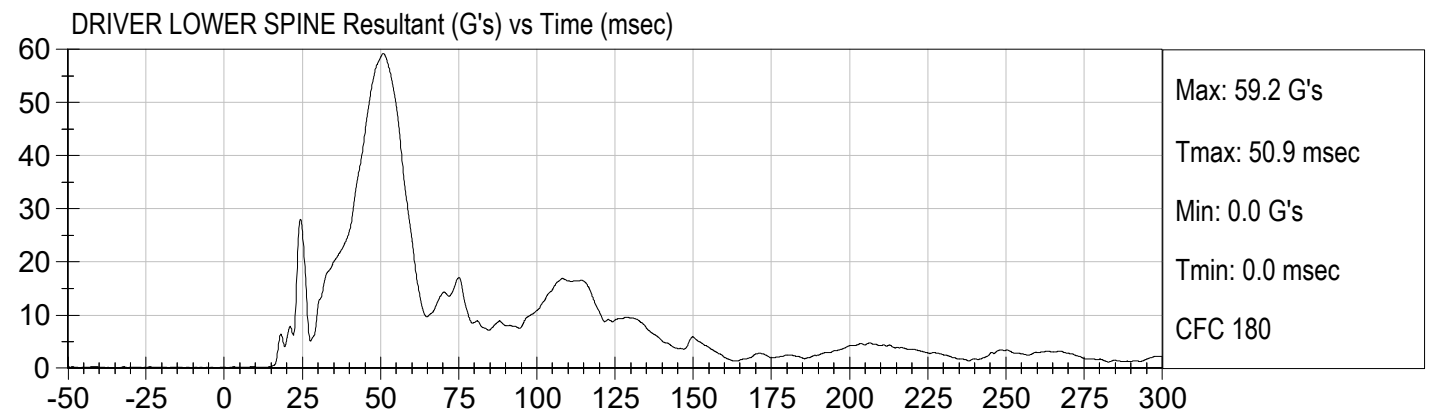
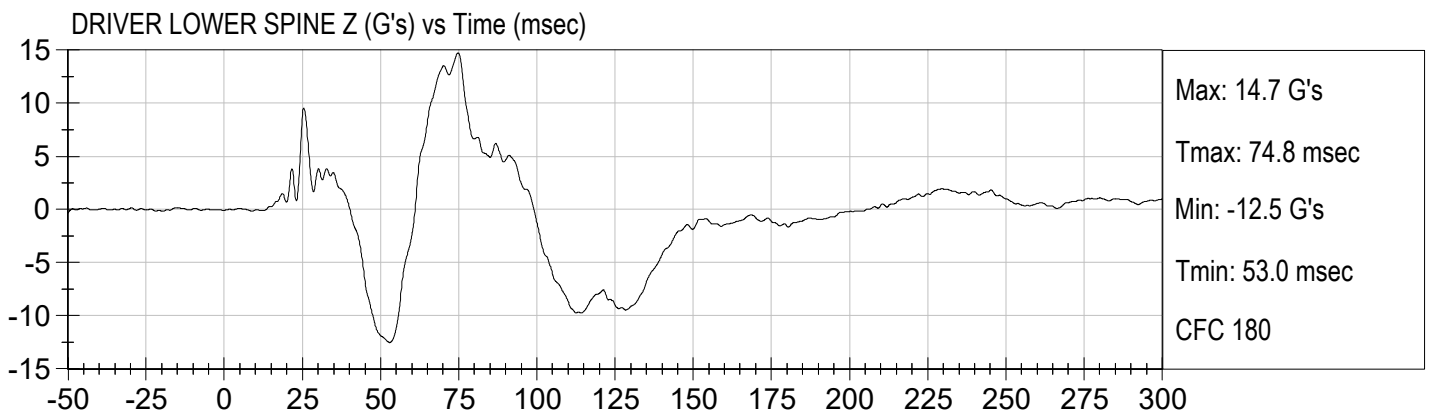
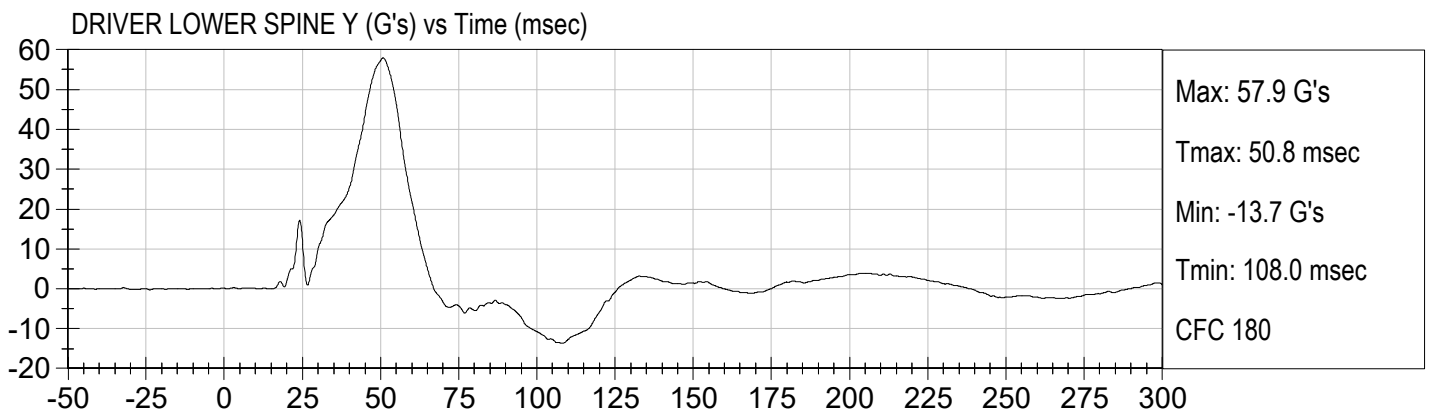
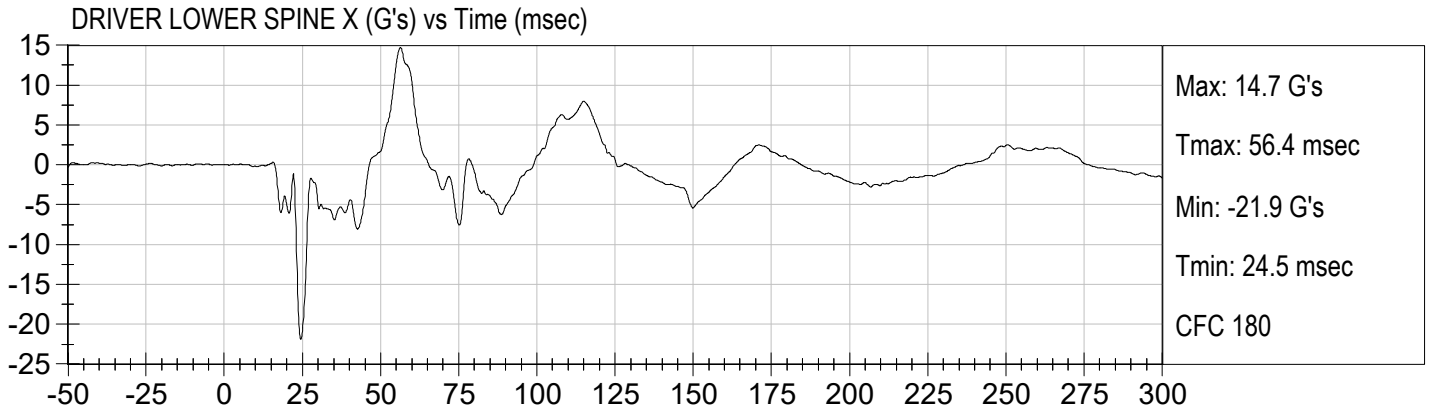
Load Cell Pole Barrier #5 Force (Y)

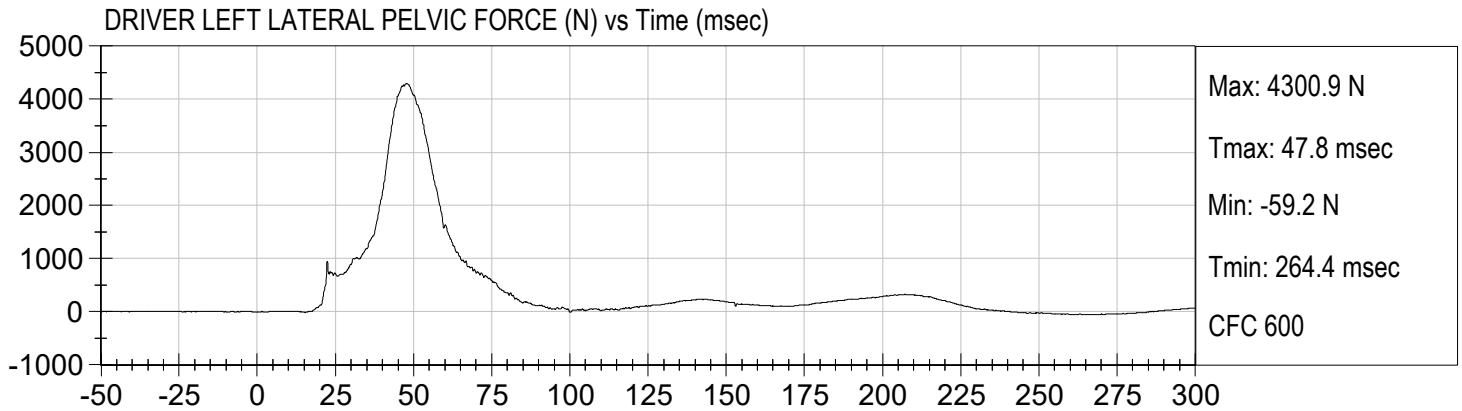
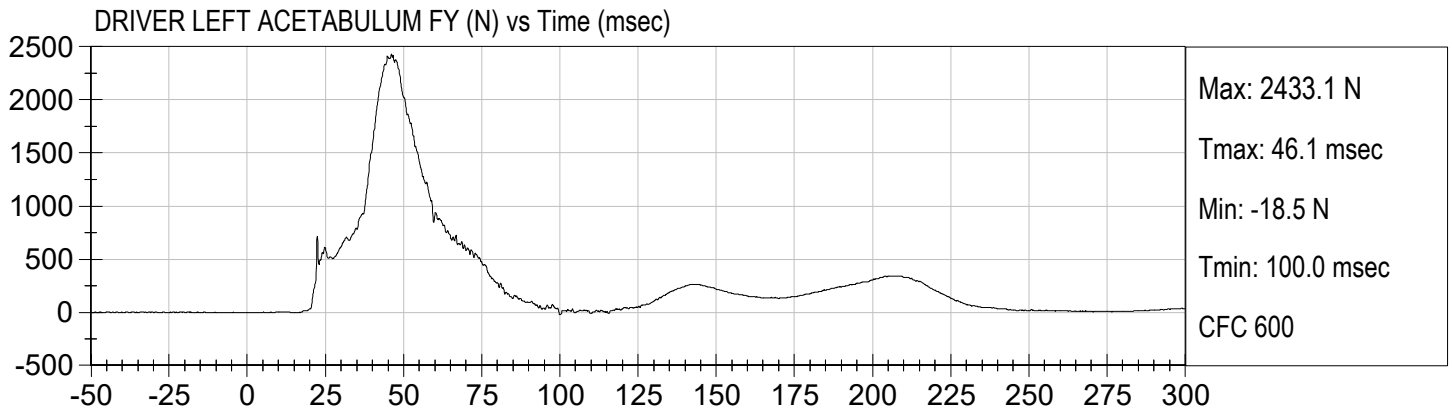
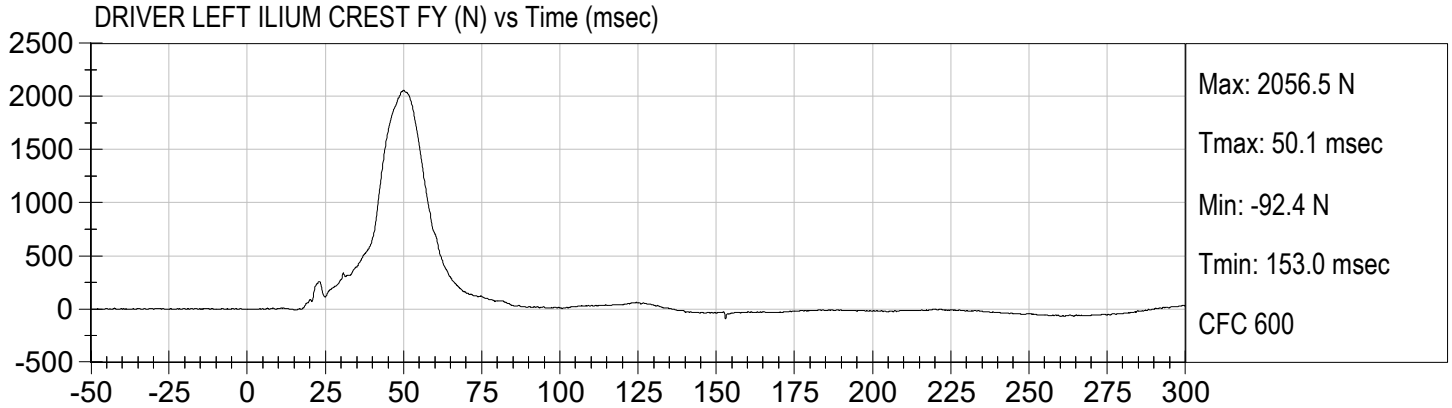
Load Cell Pole Barrier #6 Force (Y)

Load Cell Pole Barrier #7 Force (Y)

Load Cell Pole Barrier #8 Force (Y)







**APPENDIX C**  
**DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA**

**CALIBRATION TEST RESULTS**

**PRE-TEST**

**SID-IIS 5<sup>TH</sup> PERCENTILE FEMALE - DRIVER ATD**

**SID-IIsD External Measurements**  
**SN: 296**

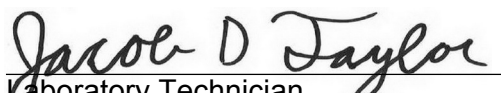
<b>No.</b>	<b>Name</b>	<b>Spec. (mm)</b>	<b>Result</b>	<b>Pass/Fail</b>
<b>A</b>	Sitting Height	772 - 788	784	Pass
<b>B</b>	Shoulder Pivot Height	437 - 453	442	Pass
<b>C</b>	H-point Height	79 - 89	83	Pass
<b>D</b>	H-point from Seatback	141 - 151	145	Pass
<b>E</b>	Shoulder Pivot from Backline	97 - 107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

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

ATD Serial No: 296

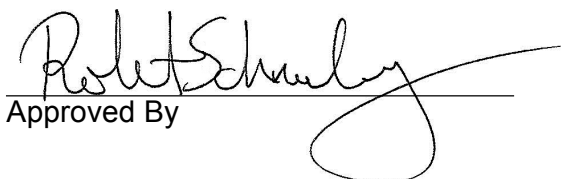
Test ID: D183321

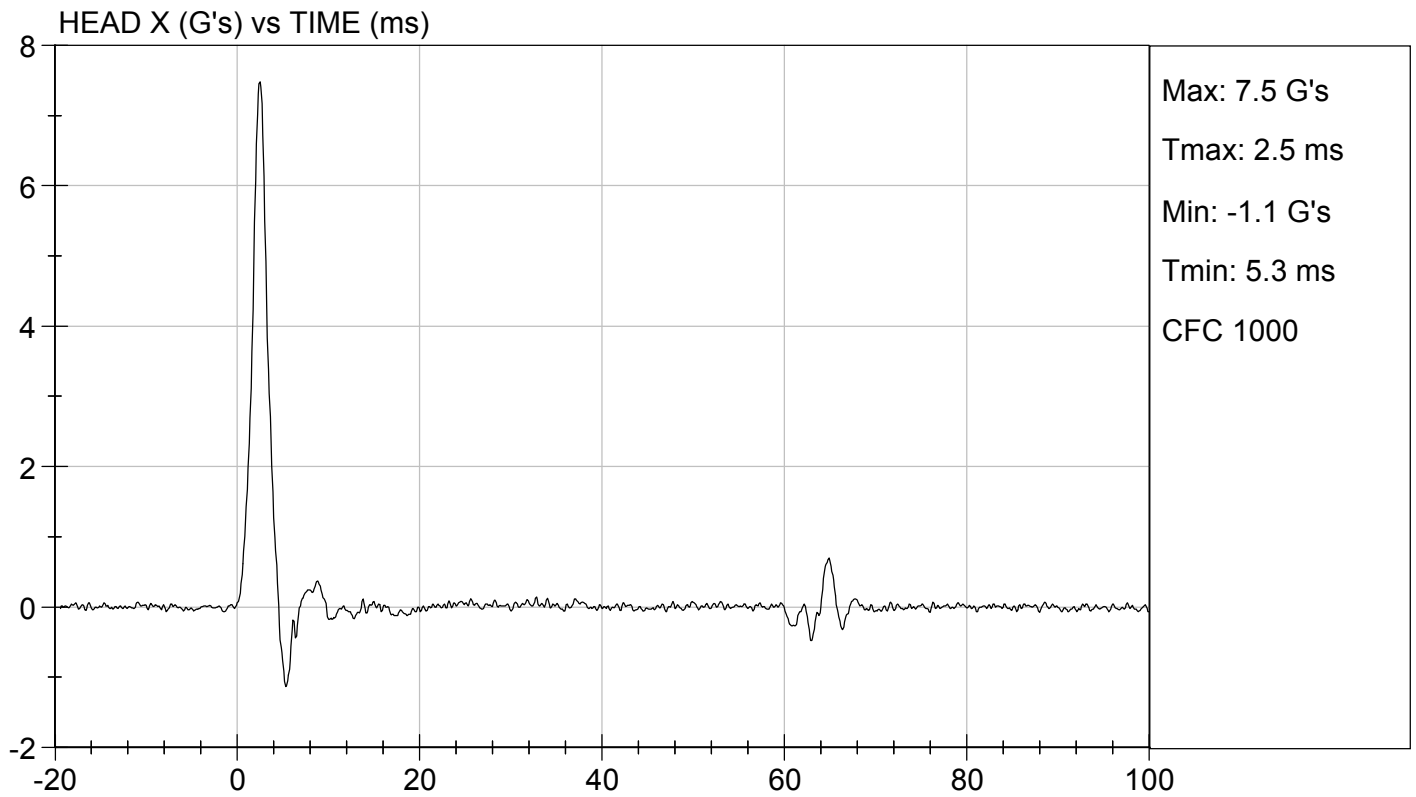
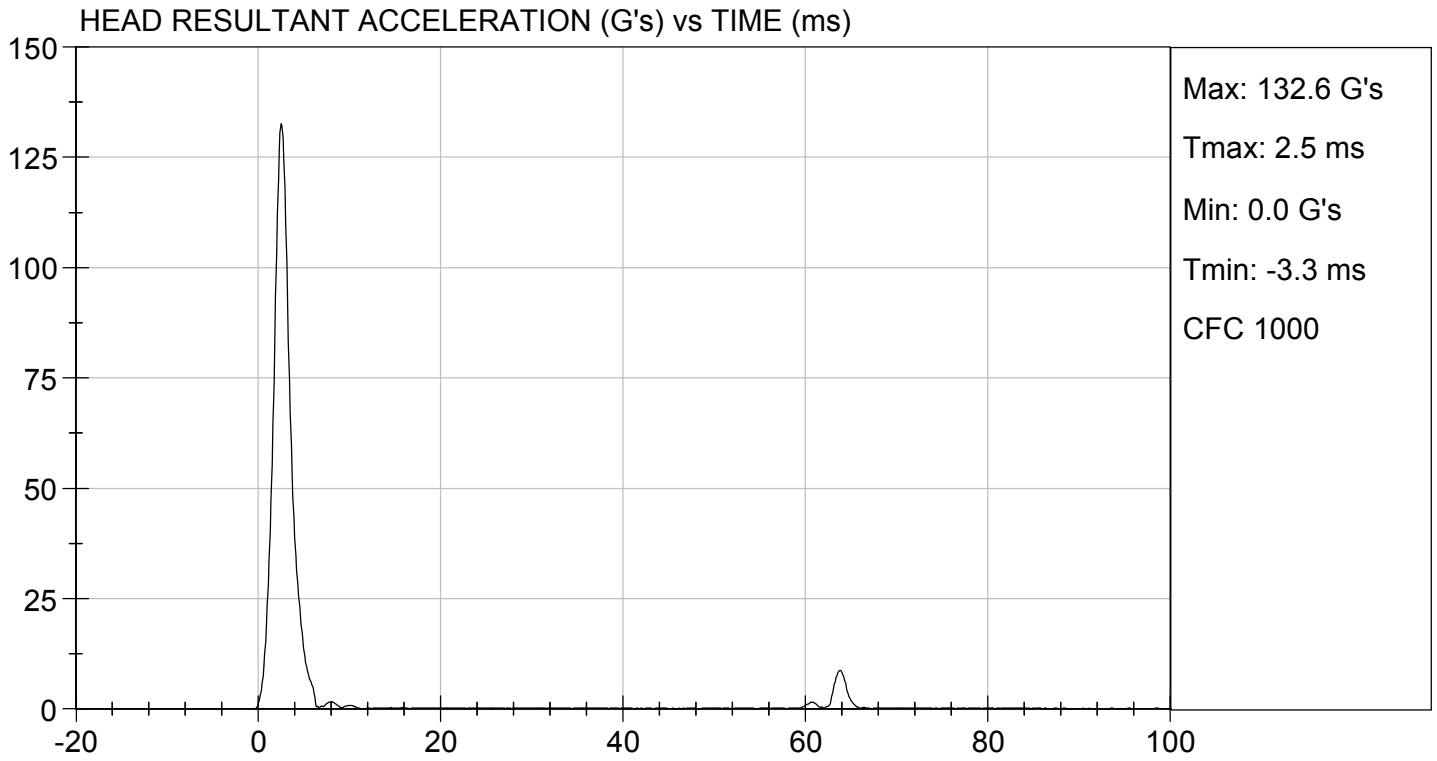
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	32	Pass
Peak Resultant Acceleration	G's	115 to 137	133	Pass
Peak Longitudinal Acceleration	G's	+/- 15	7.5	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
Overall Test Results				Pass

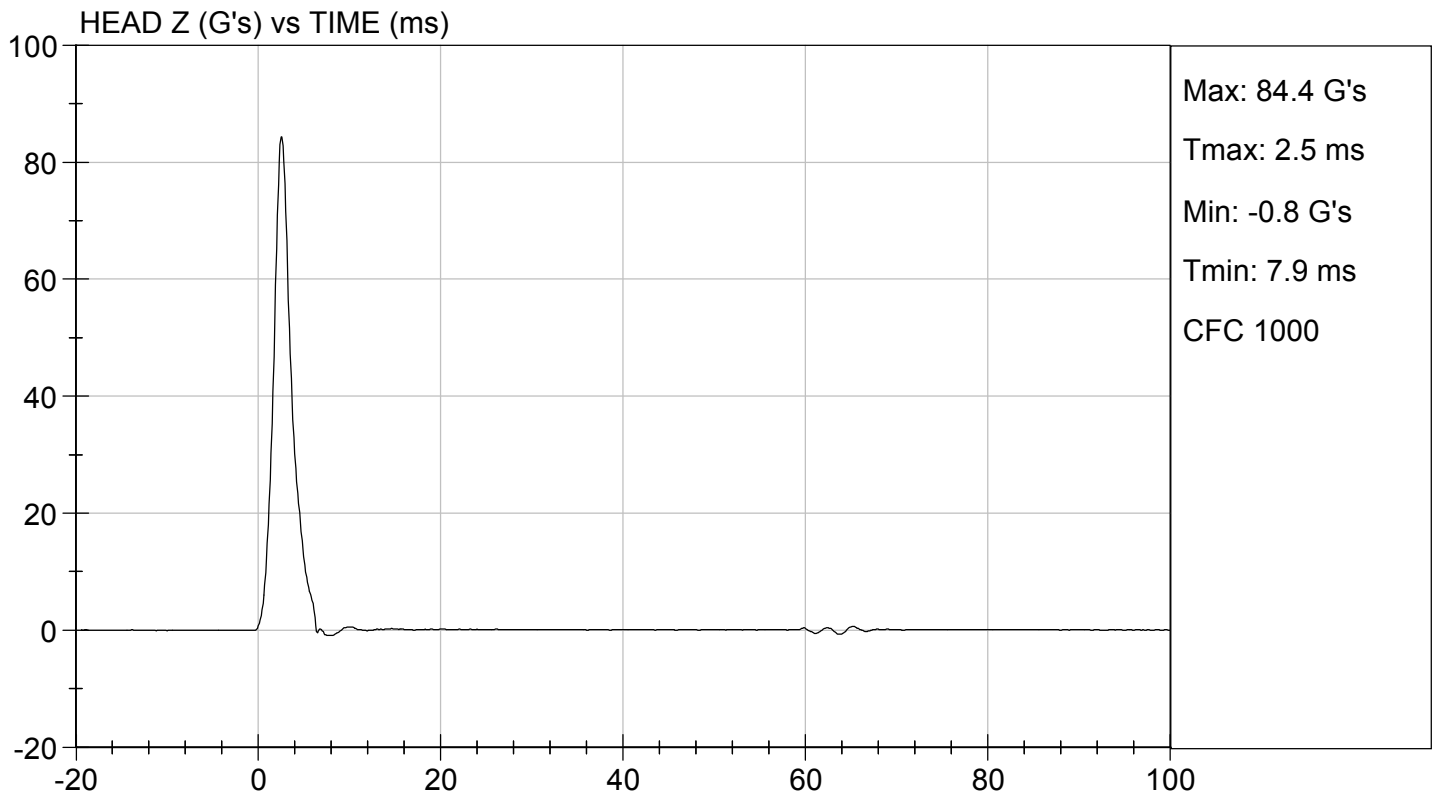
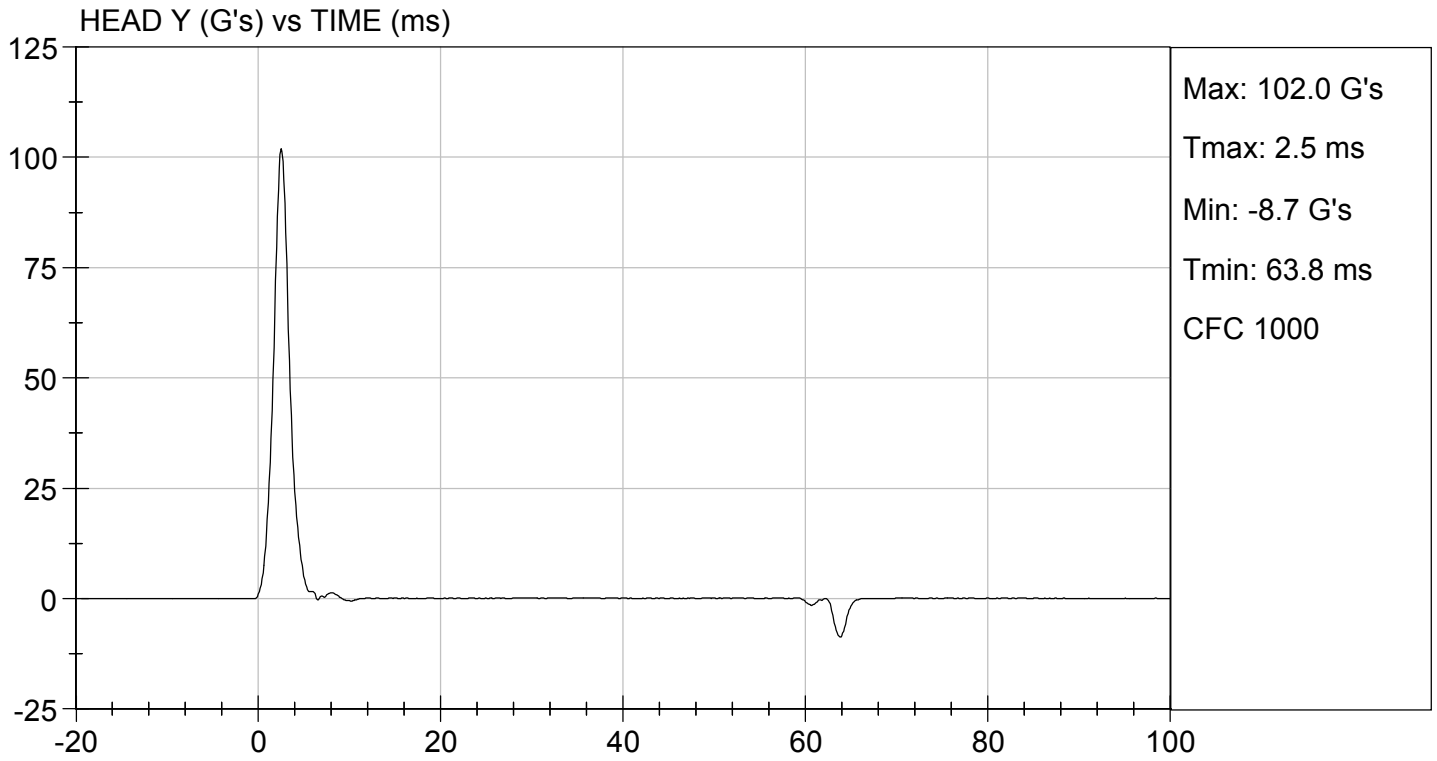
  
 Laboratory Technician

11/02/2018

Test Date

  
 Approved By





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

**ATD Serial No:** 296

**Test I.D.:** D183322

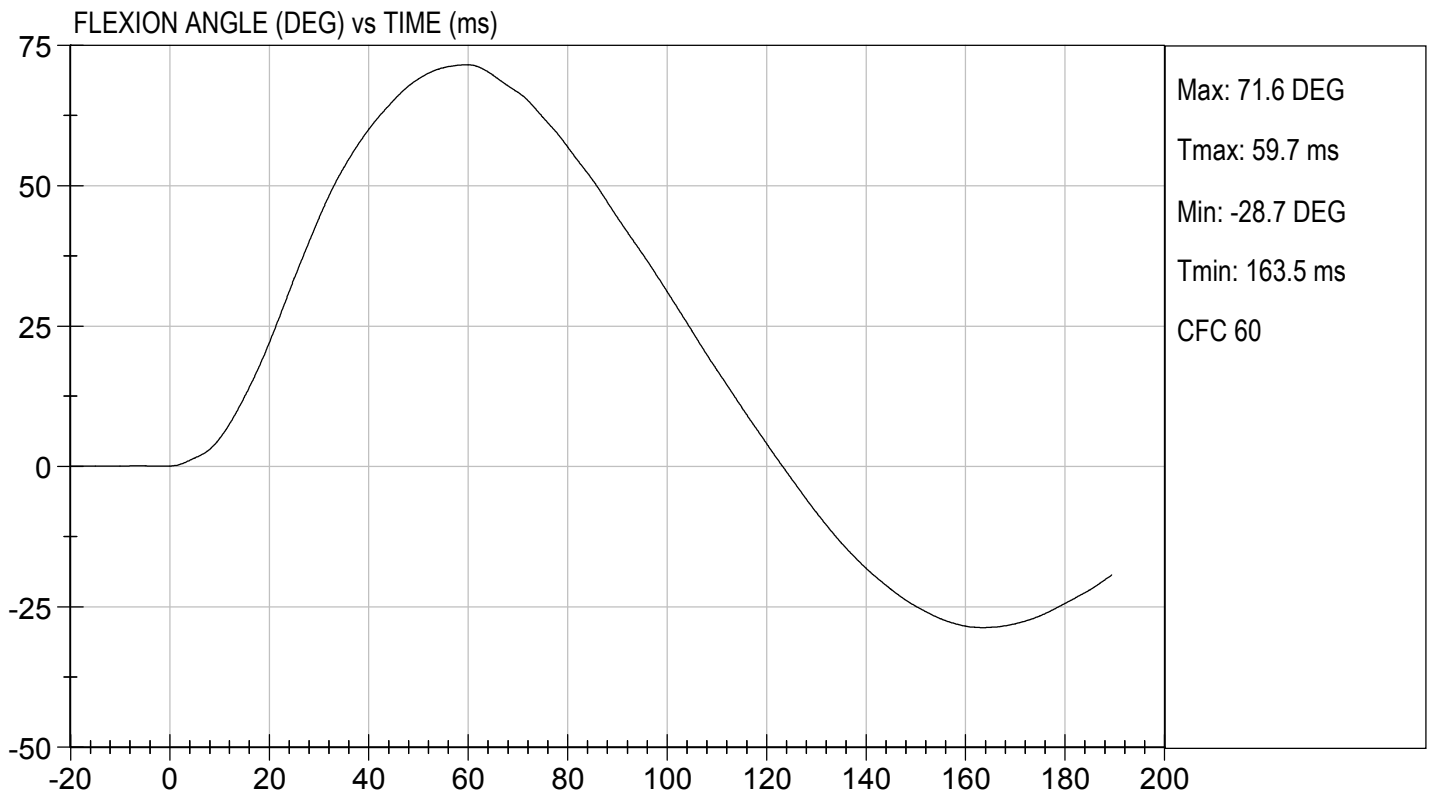
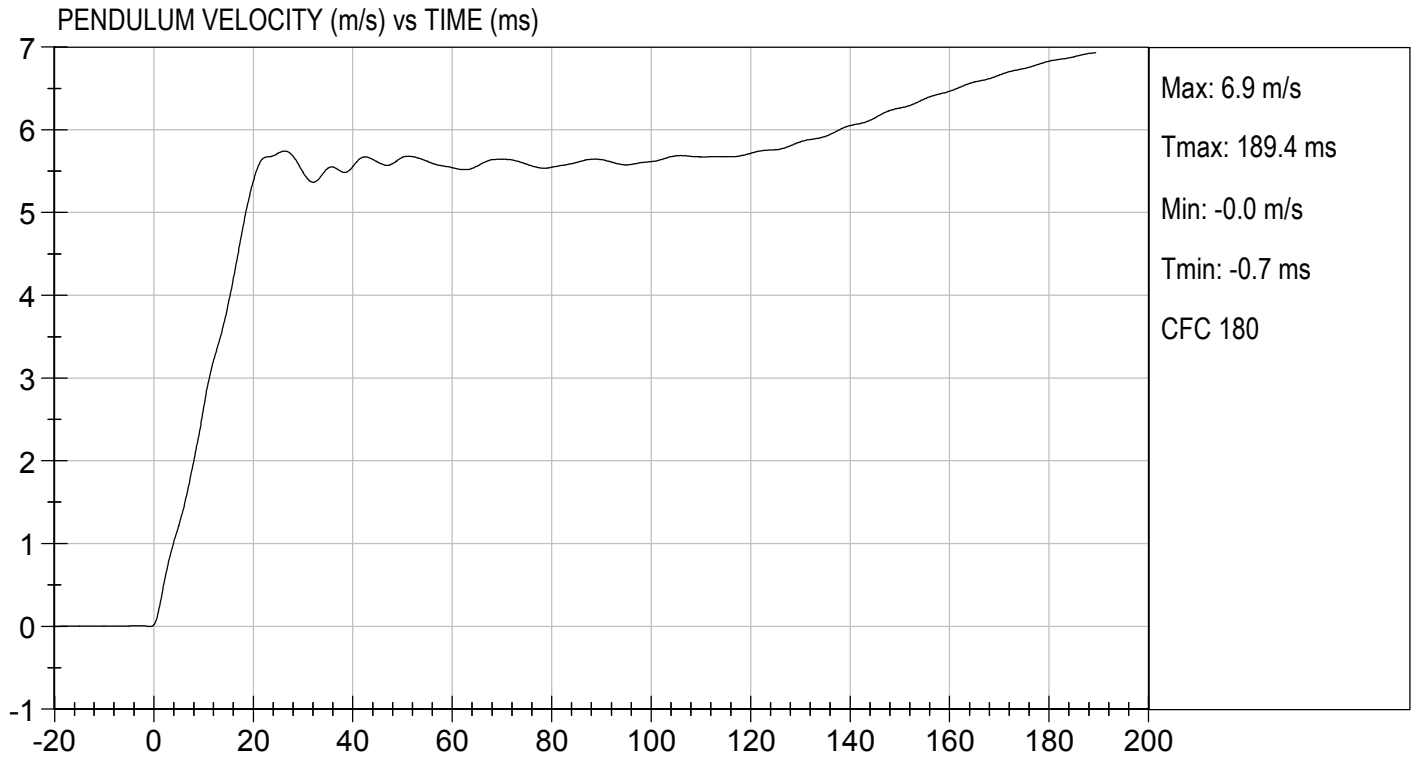
Tested Parameter	Units	Specification	Result	Pass/Fail	
Temperature	deg C	20.6 to 22.2	21.2	Pass	
Humidity	%	10 to 70	32	Pass	
Impact Velocity	m/s	5.51 to 5.63	5.58	Pass	
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.64	Pass
	15 ms	m/s	3.30 to 4.10	3.91	Pass
	20 ms	m/s	4.40 to 5.40	5.38	Pass
	25 ms	m/s	5.40 to 6.10	5.72	Pass
	25-100 ms	m/s	5.50 to 6.20	5.74	Pass
Maximum D-Plane Rotation	deg	71 to 81	72	Pass	
Time of Maximum D-Plane Rotation	ms	50 to 70	60	Pass	
Maximum Occipital Condyle Moment	Nm	-44 to -36	-43	Pass	
Time of Moment Decay to 0 Nm	ms	102 to 126	104	Pass	
<b>Overall Test Results</b>				<b>Pass</b>	

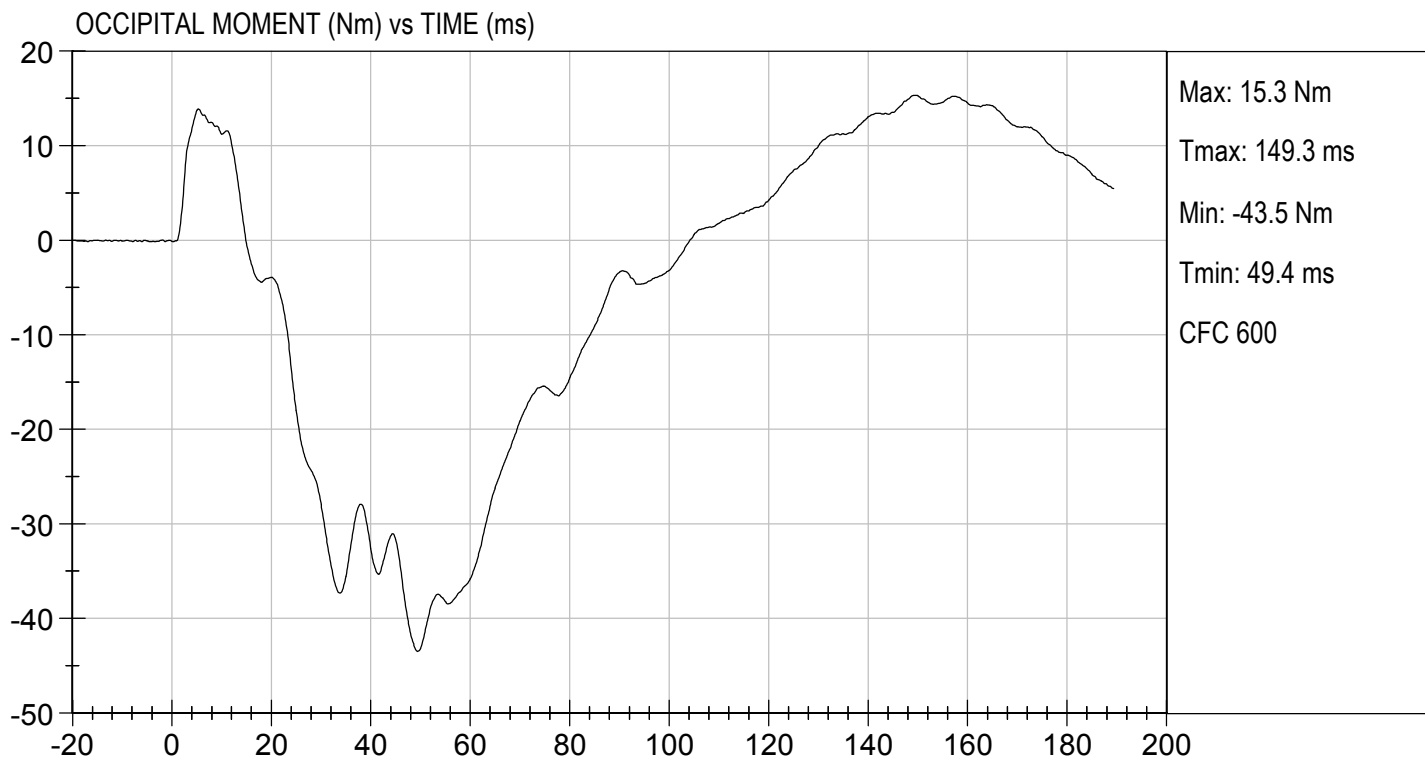
*Danielle Redinlaugh*  
Laboratory Technician

11/02/2018

Test Date

*Robert Schaub*  
Approved By





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

ATD Serial No: 296

Test ID: D183323

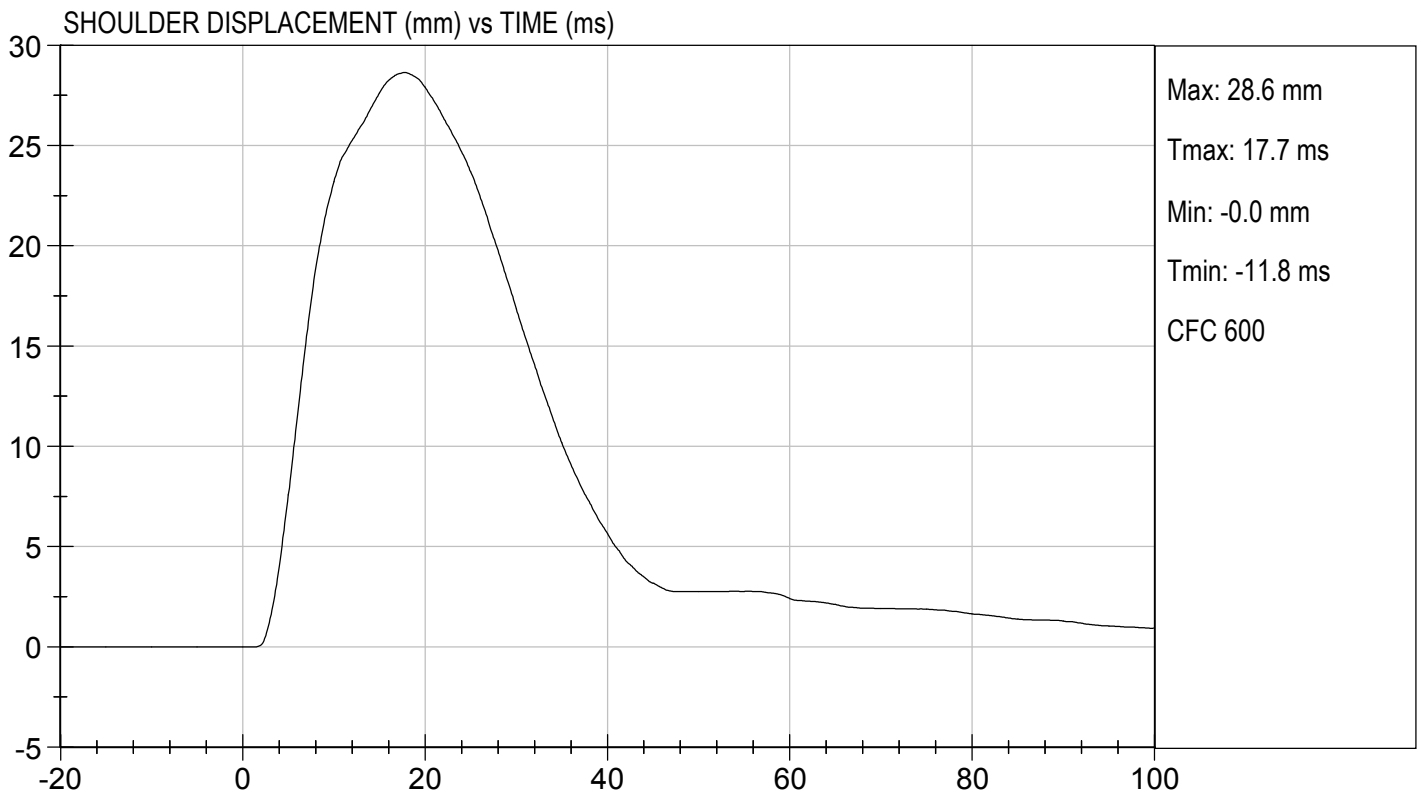
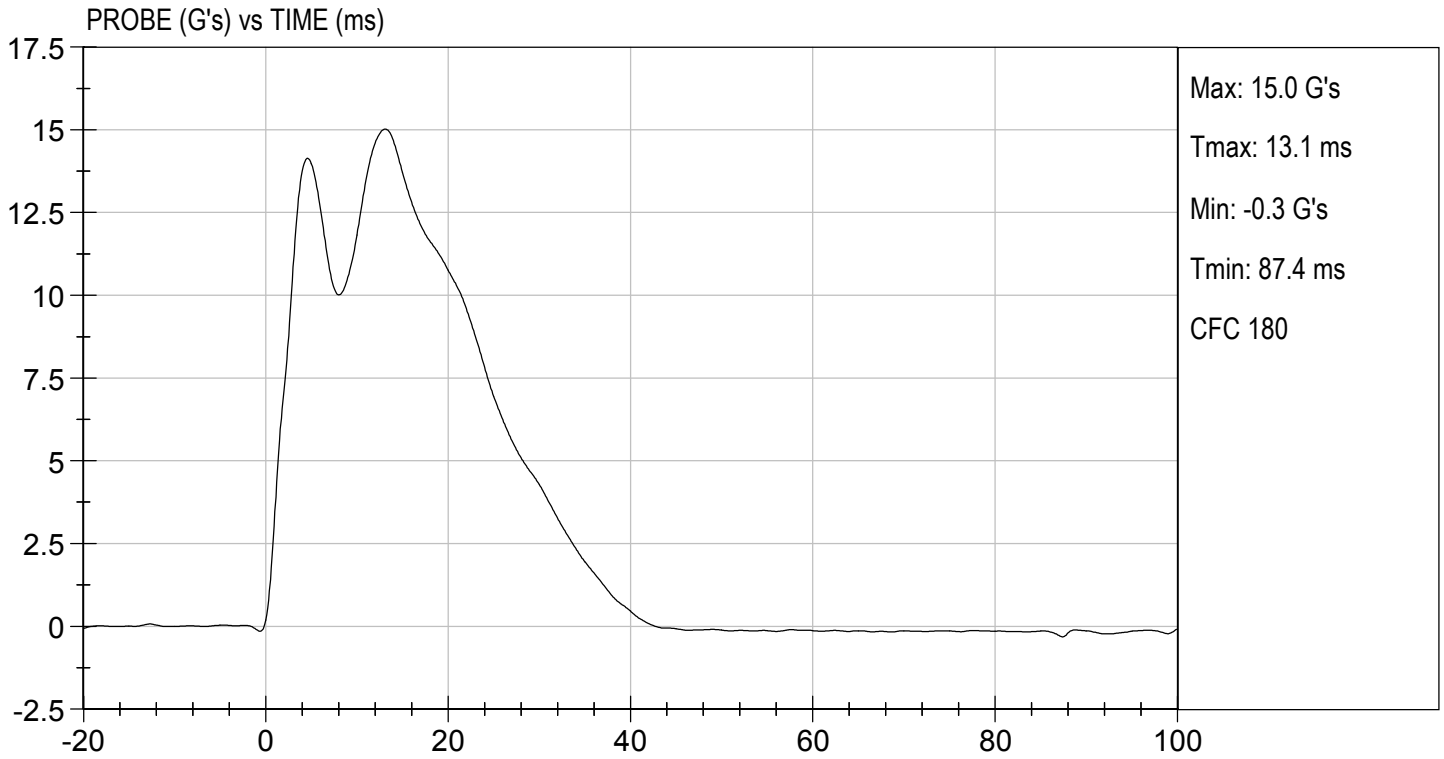
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21	Pass
Laboratory Relative Humidity	%	10 to 70	40	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	29	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	21	Pass
Overall Test Results				Pass

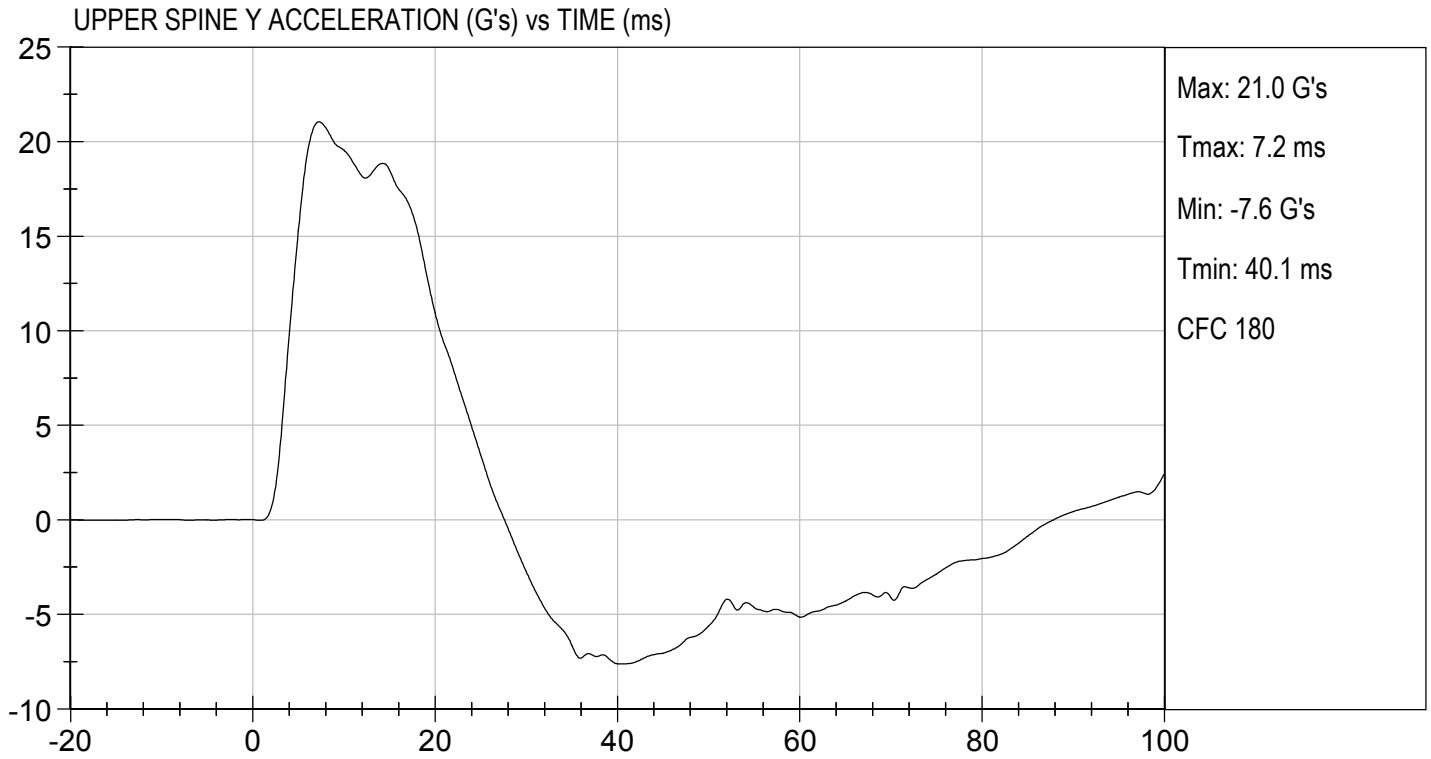
*Jacob D Taylor*  
Laboratory Technician

11/06/2018

Test Date

*Robert Schaub*  
Approved By





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

ATD Serial No: 296

Test I.D: D183324

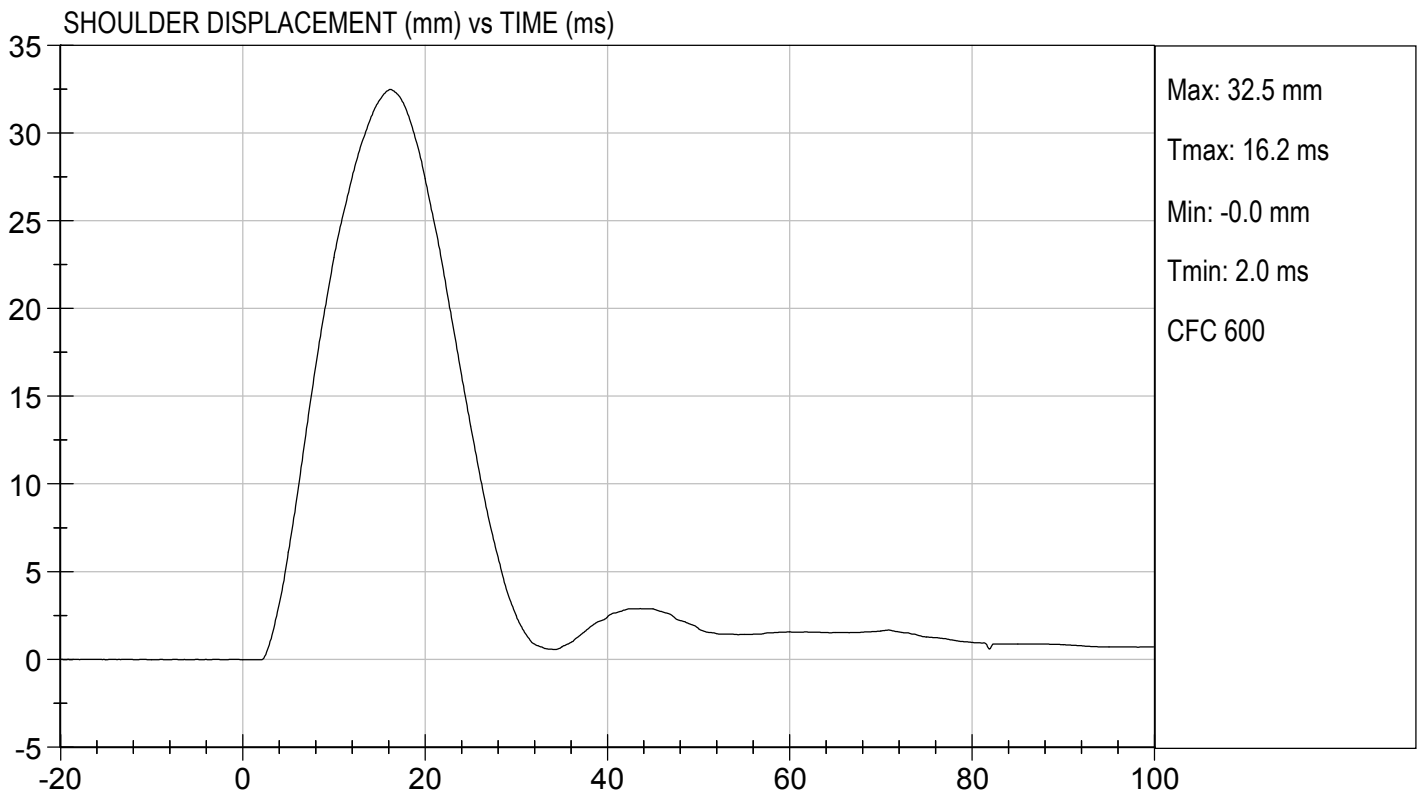
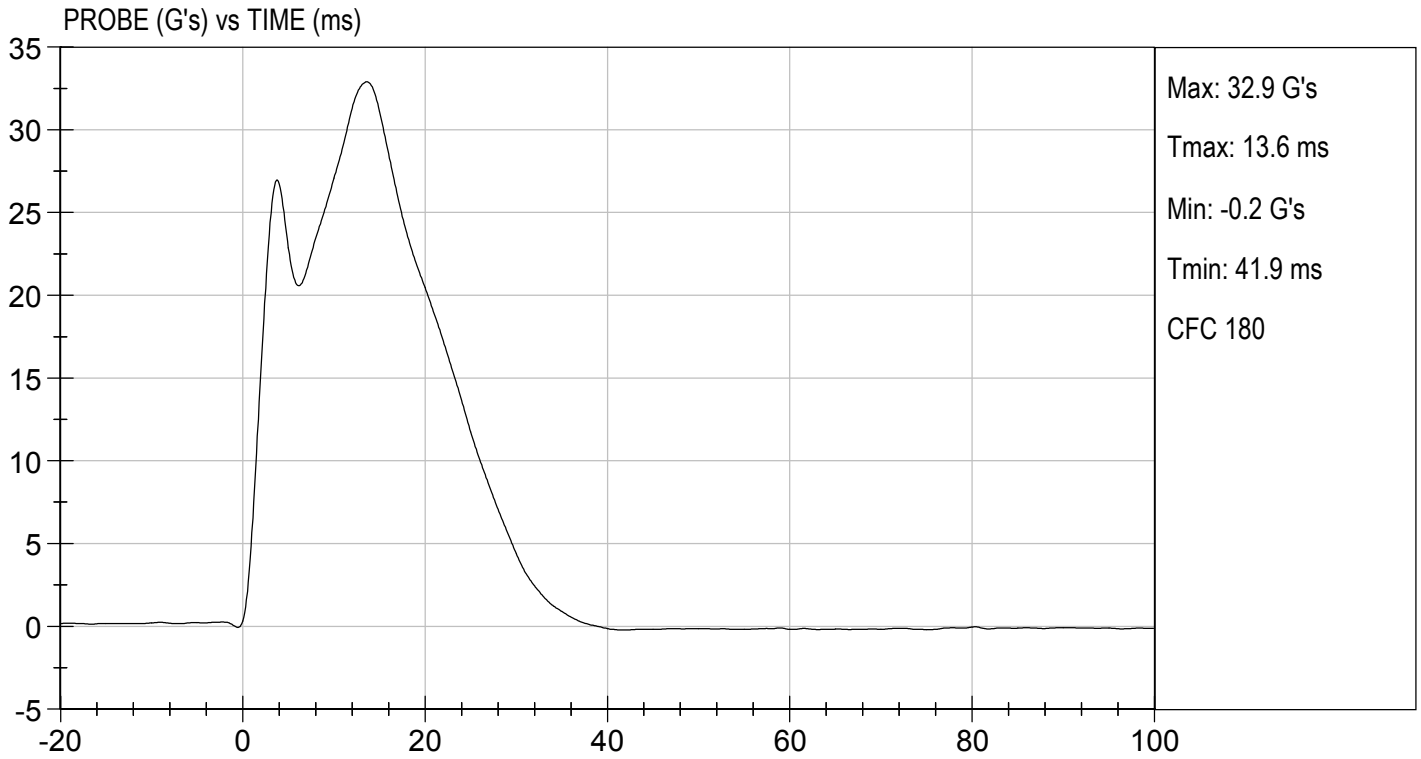
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21	Pass
Humidity	%	10 to 70	40	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	30 to 36	33	Pass
Shoulder Displacement	mm	31 to 40	32	Pass
Upper Rib Displacement	mm	25 to 32	26	Pass
Middle Rib Displacement	mm	30 to 36	31	Pass
Lower Rib Displacement	mm	32 to 38	33	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	41	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	33	Pass
Overall Test Results				Pass

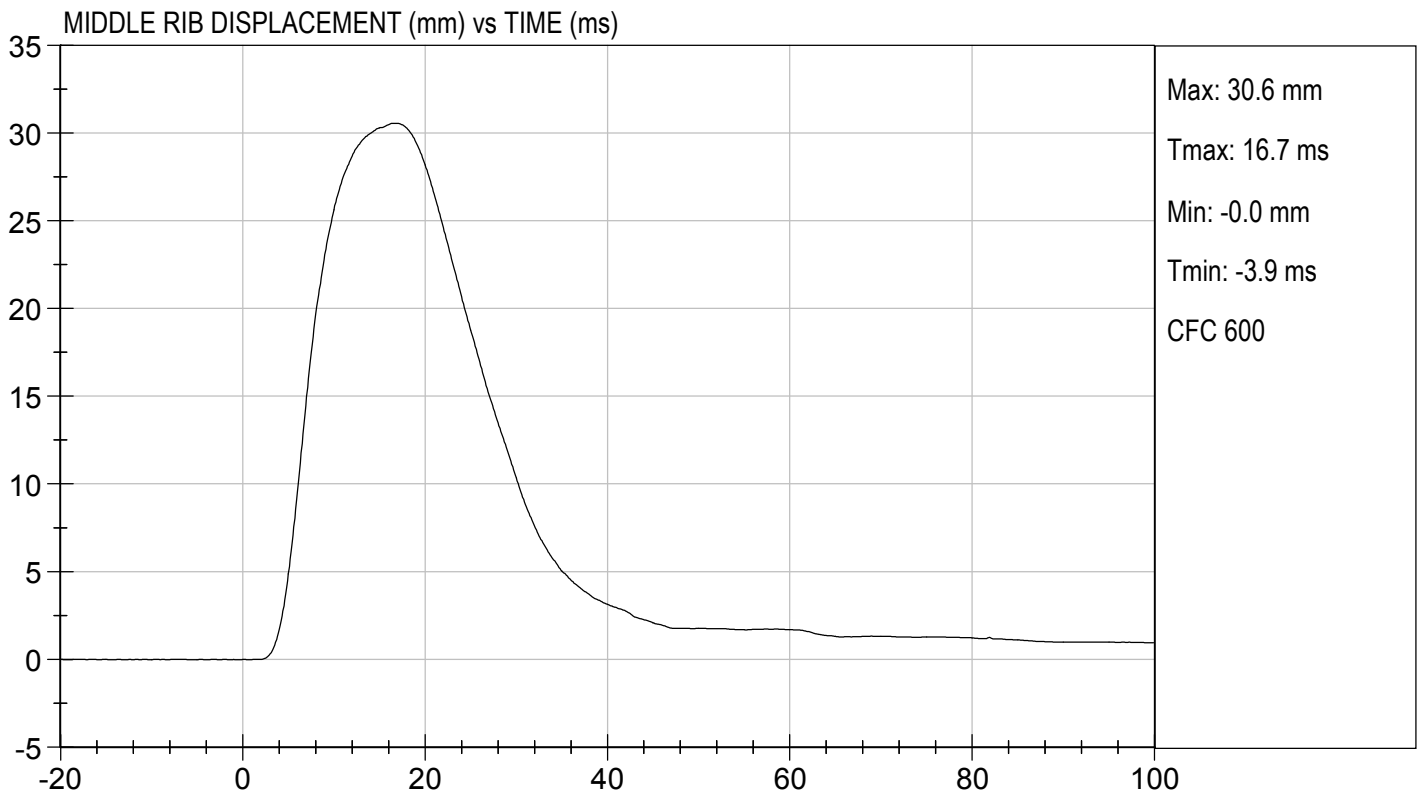
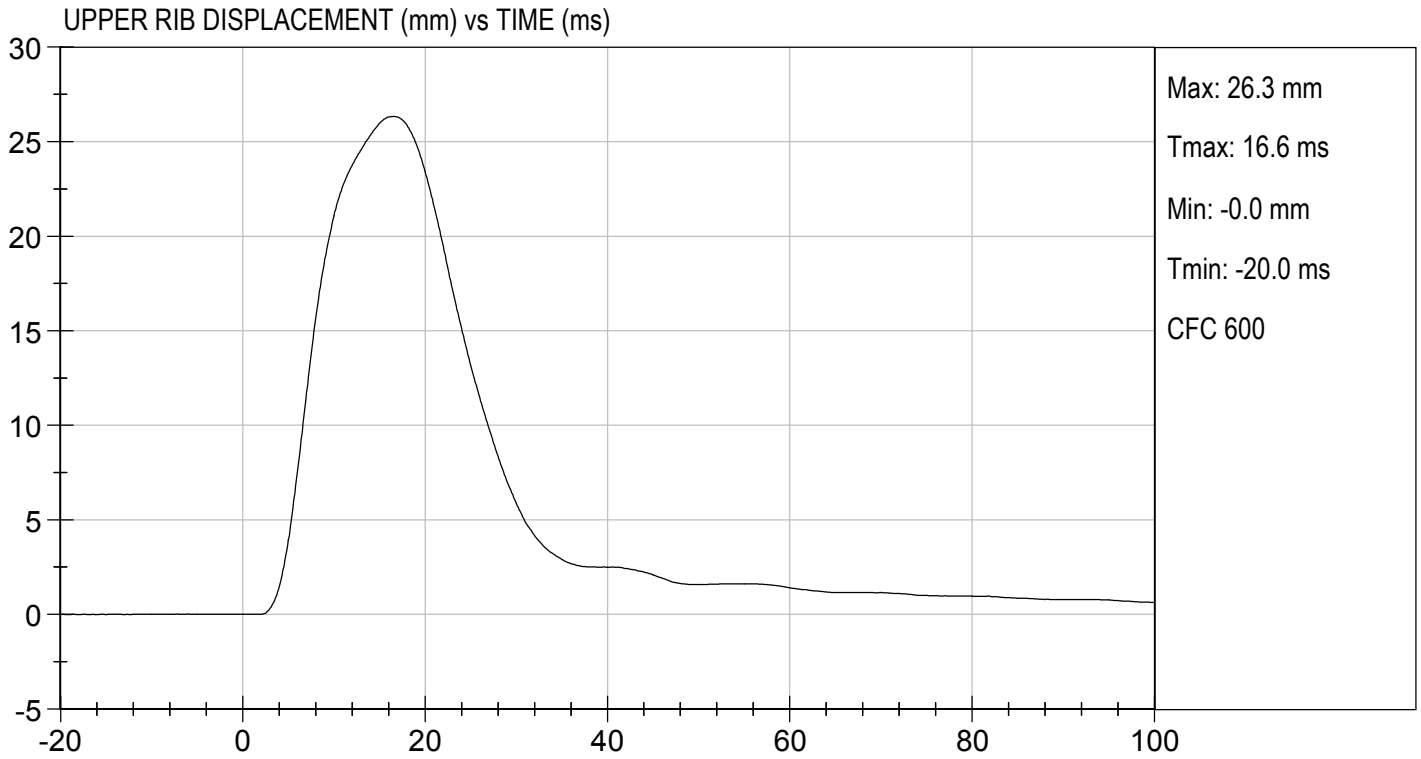
*Jacob D Taylor*  
Laboratory Technician

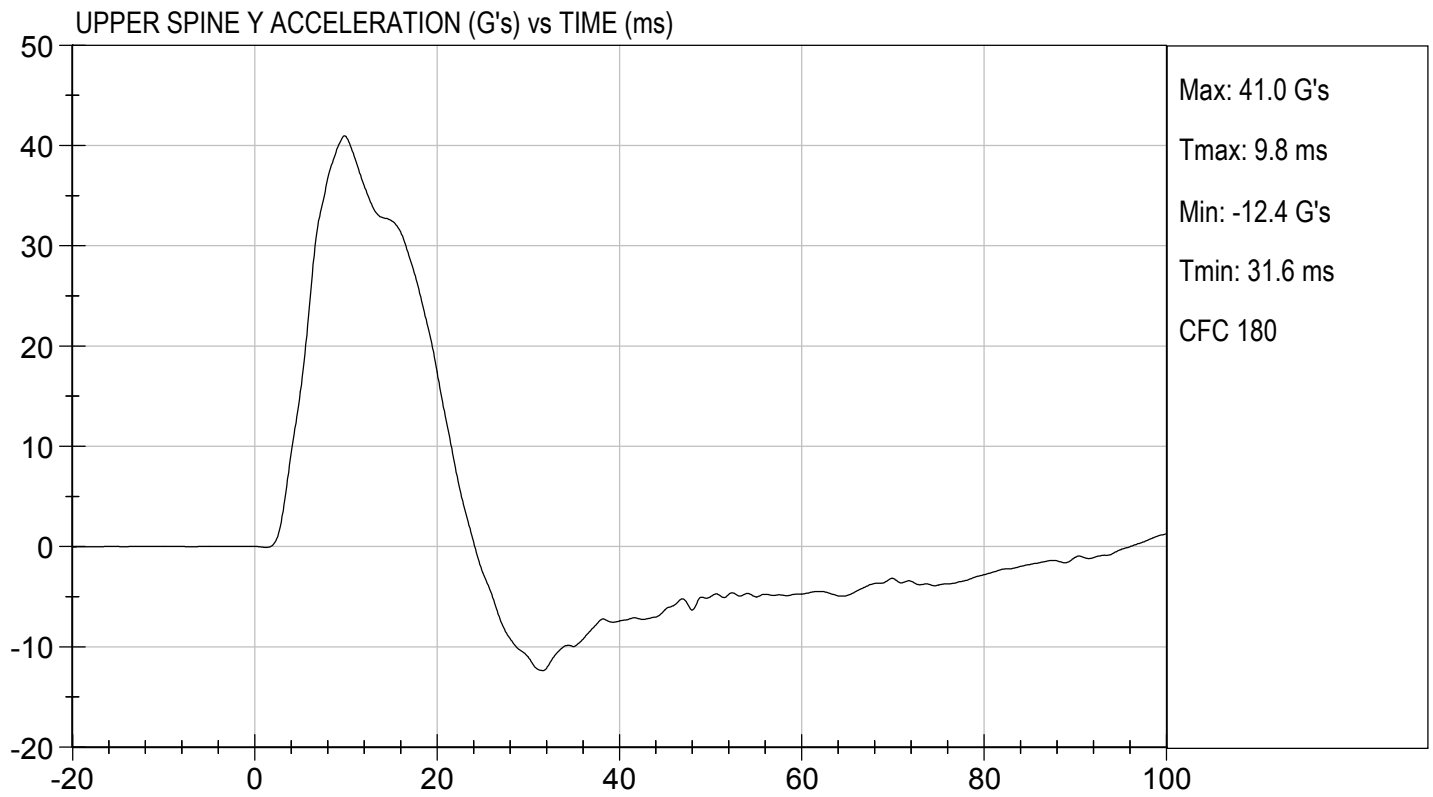
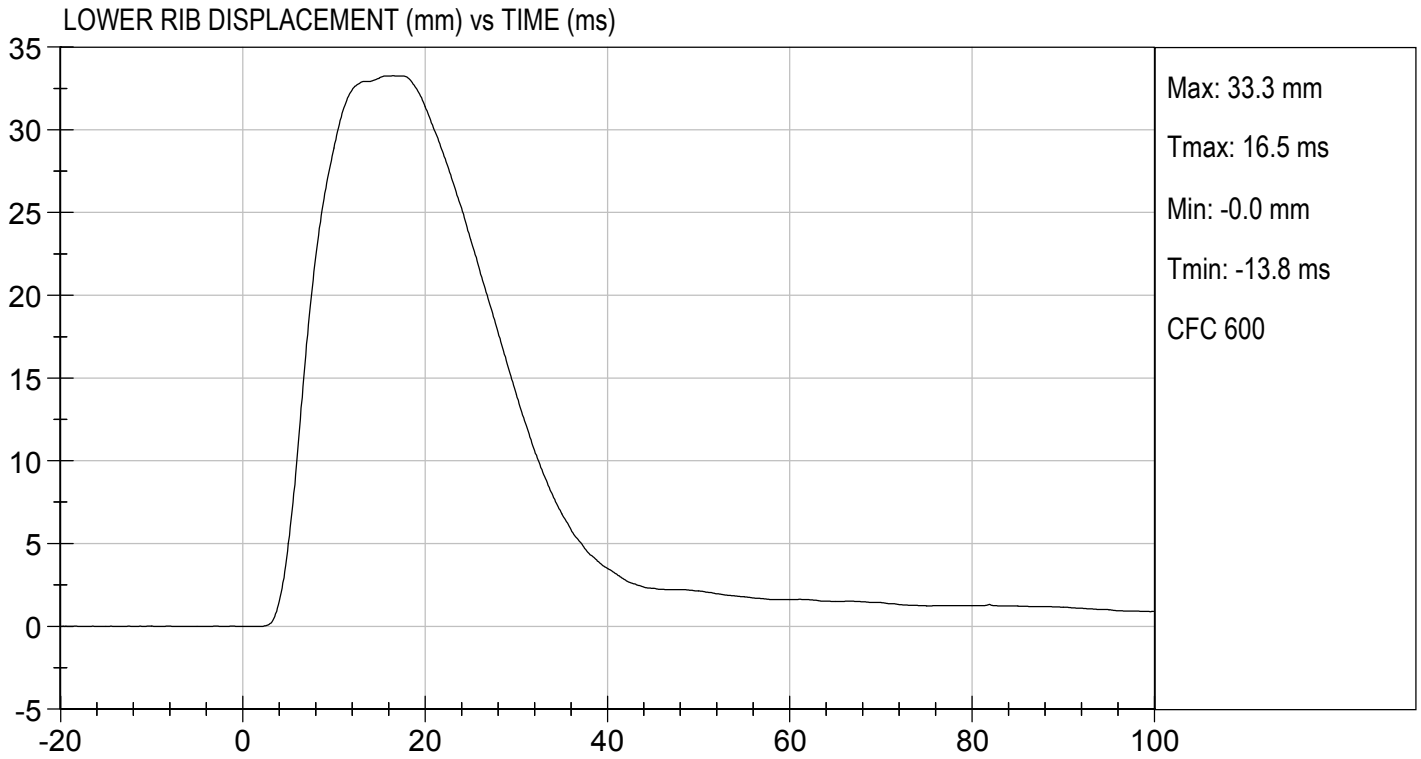
11/06/2018

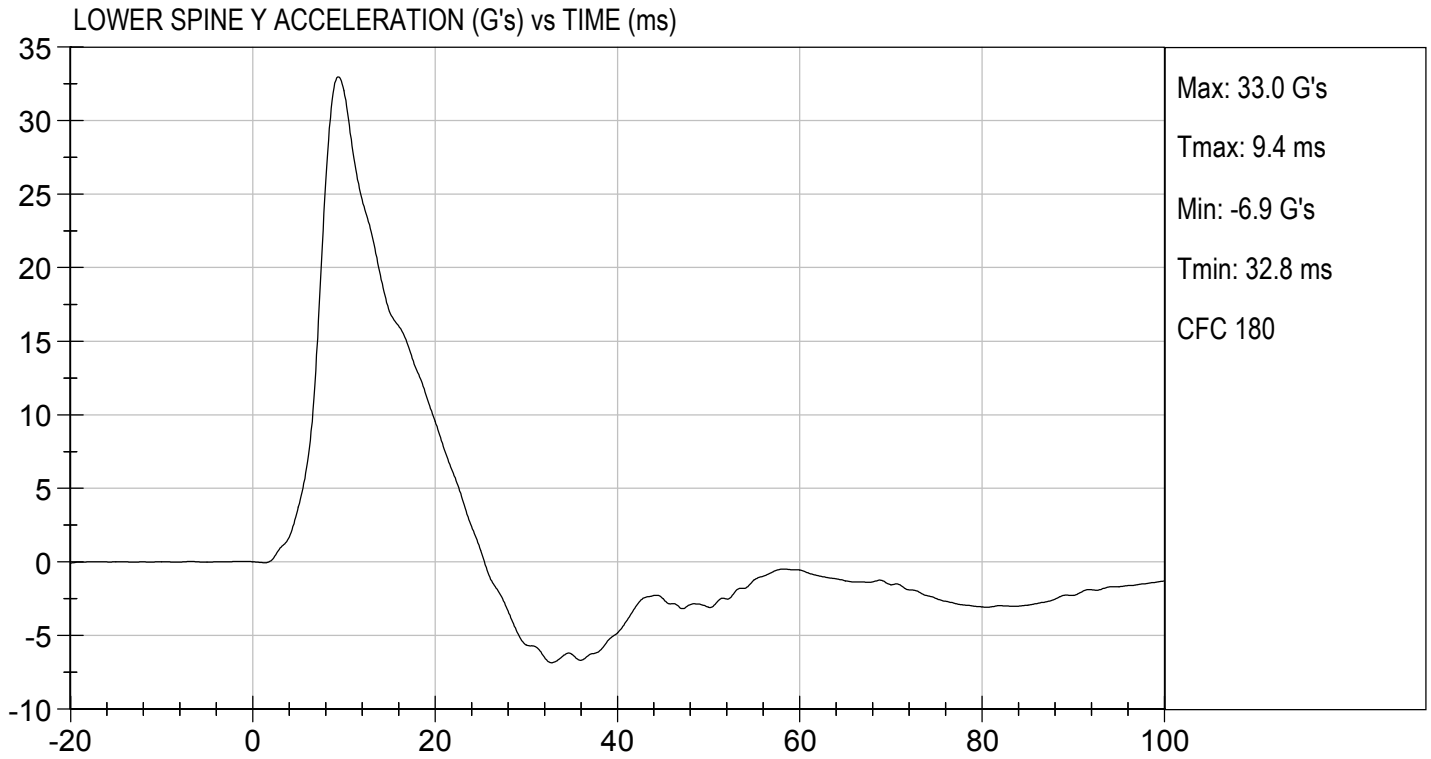
Test Date

*Robert Schaubert*  
Approved By









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

ATD Serial No: 296

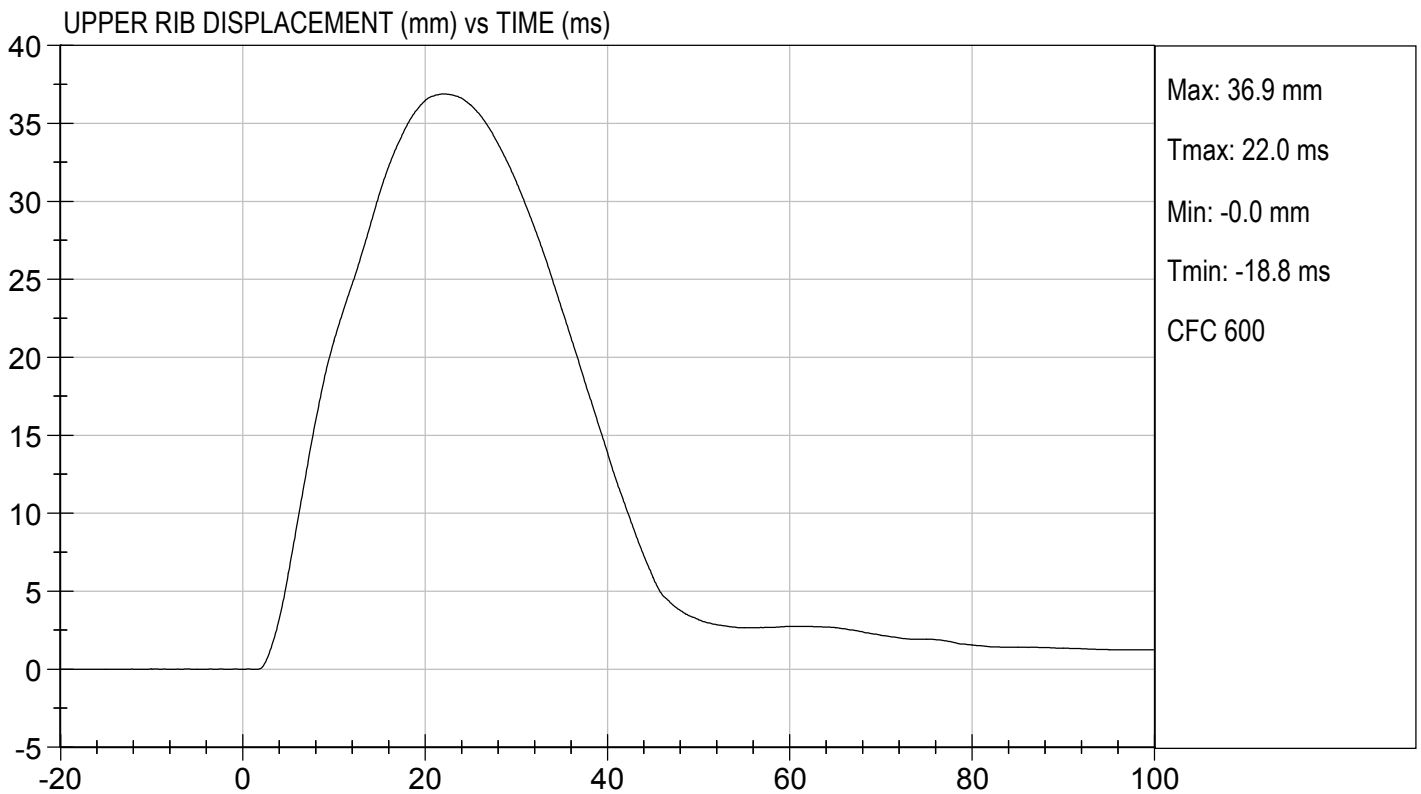
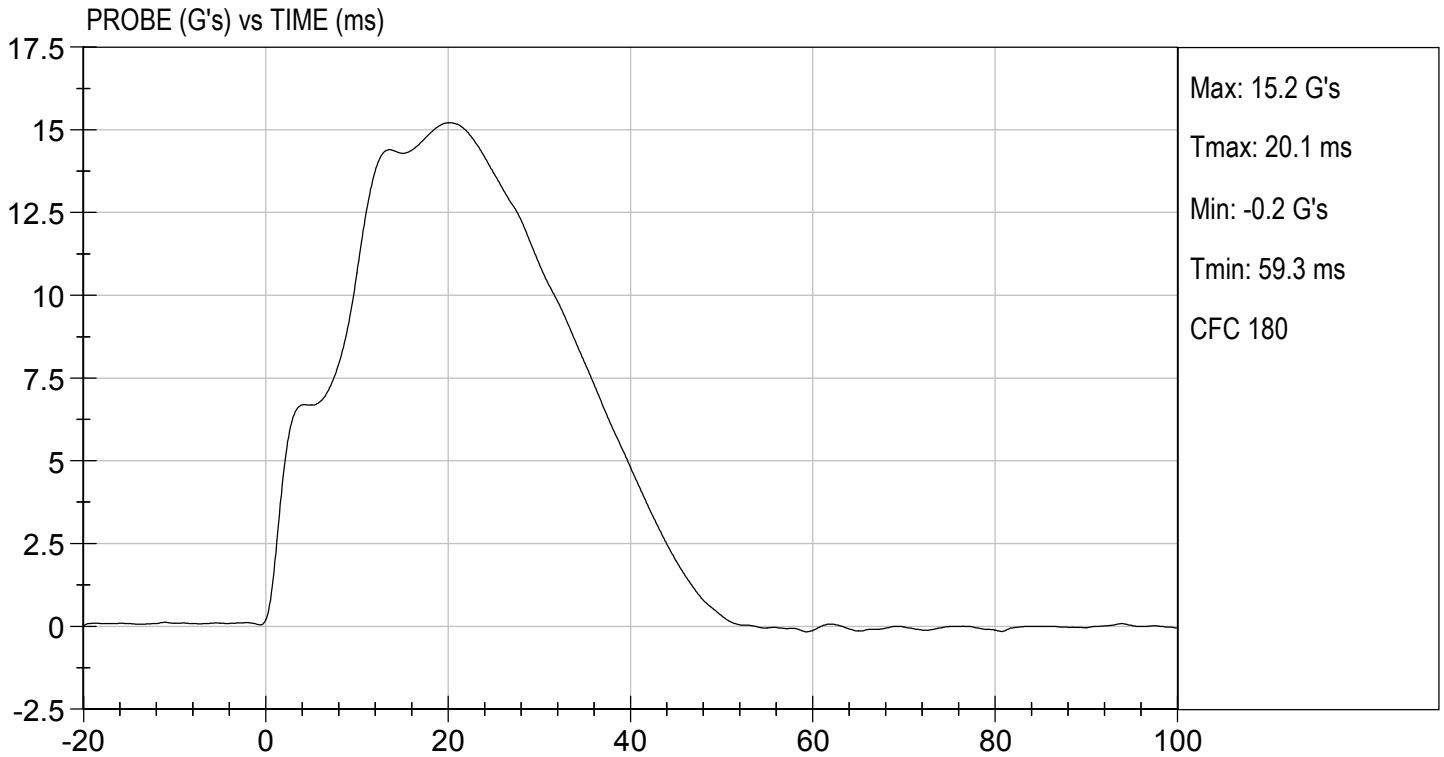
Test I.D: D183325

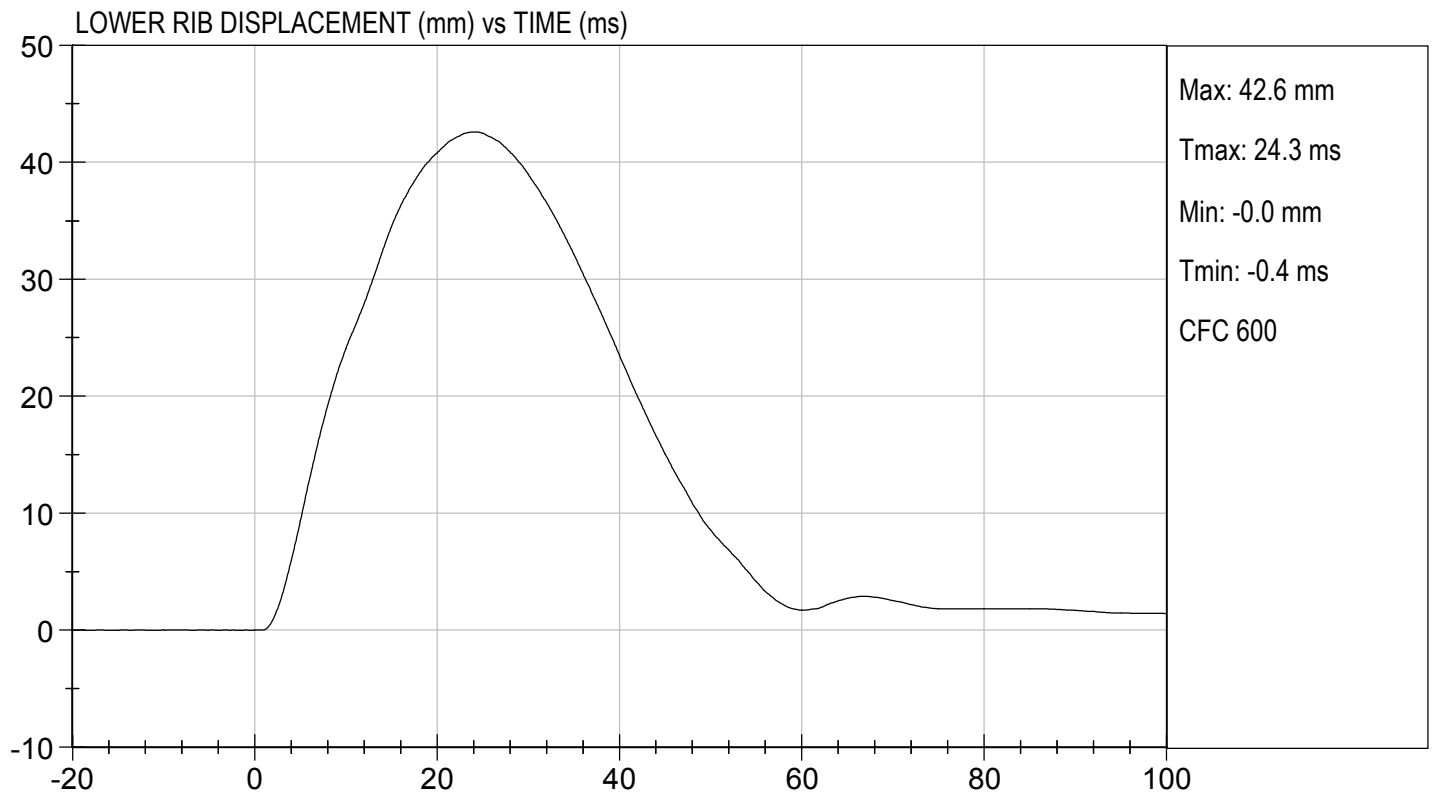
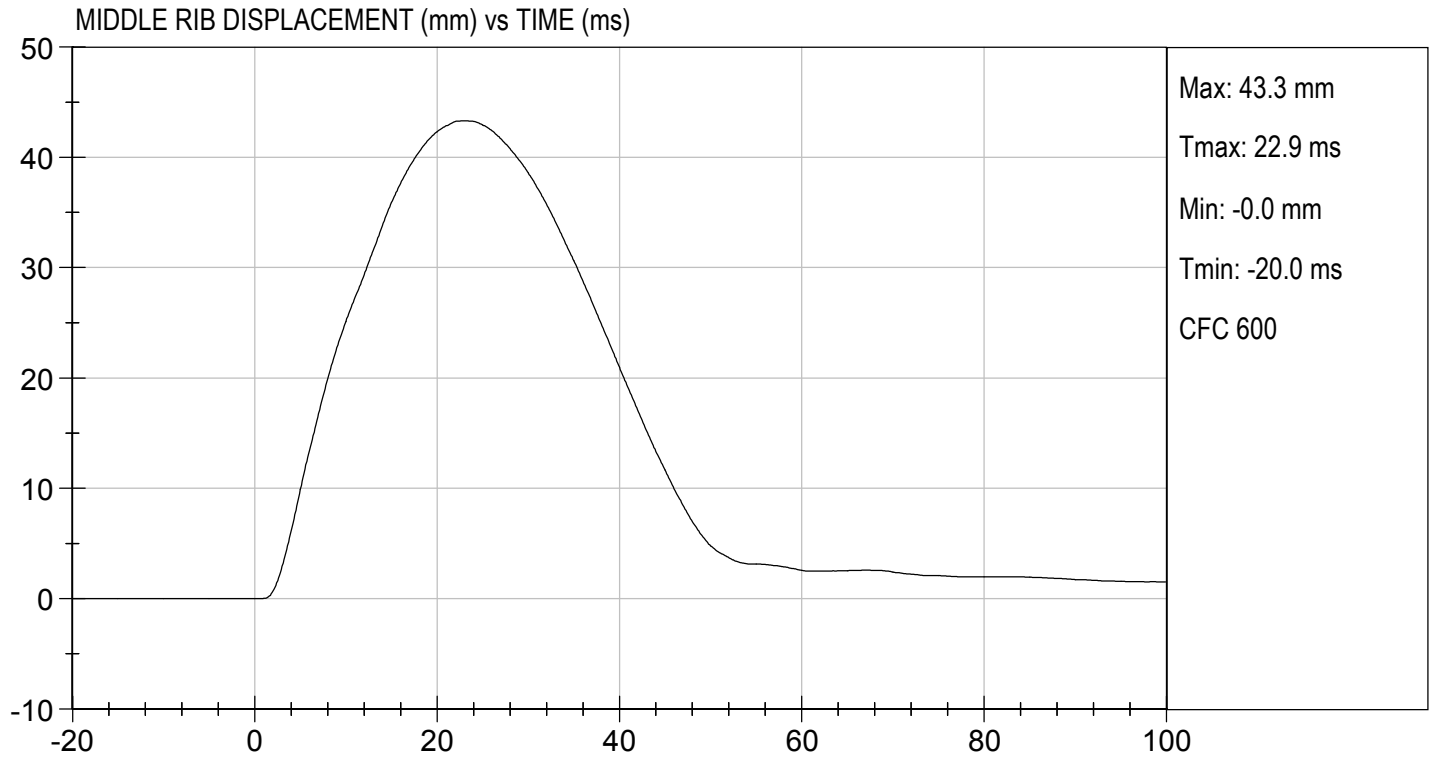
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21	Pass
Humidity	%	10 to 70	40	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	14 to 18	15	Pass
Upper Rib Displacement	mm	32 to 40	37	Pass
Middle Rib Displacement	mm	39 to 45	43	Pass
Lower Rib Displacement	mm	35 to 43	43	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	15	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	9	Pass
Overall Test Results				Pass

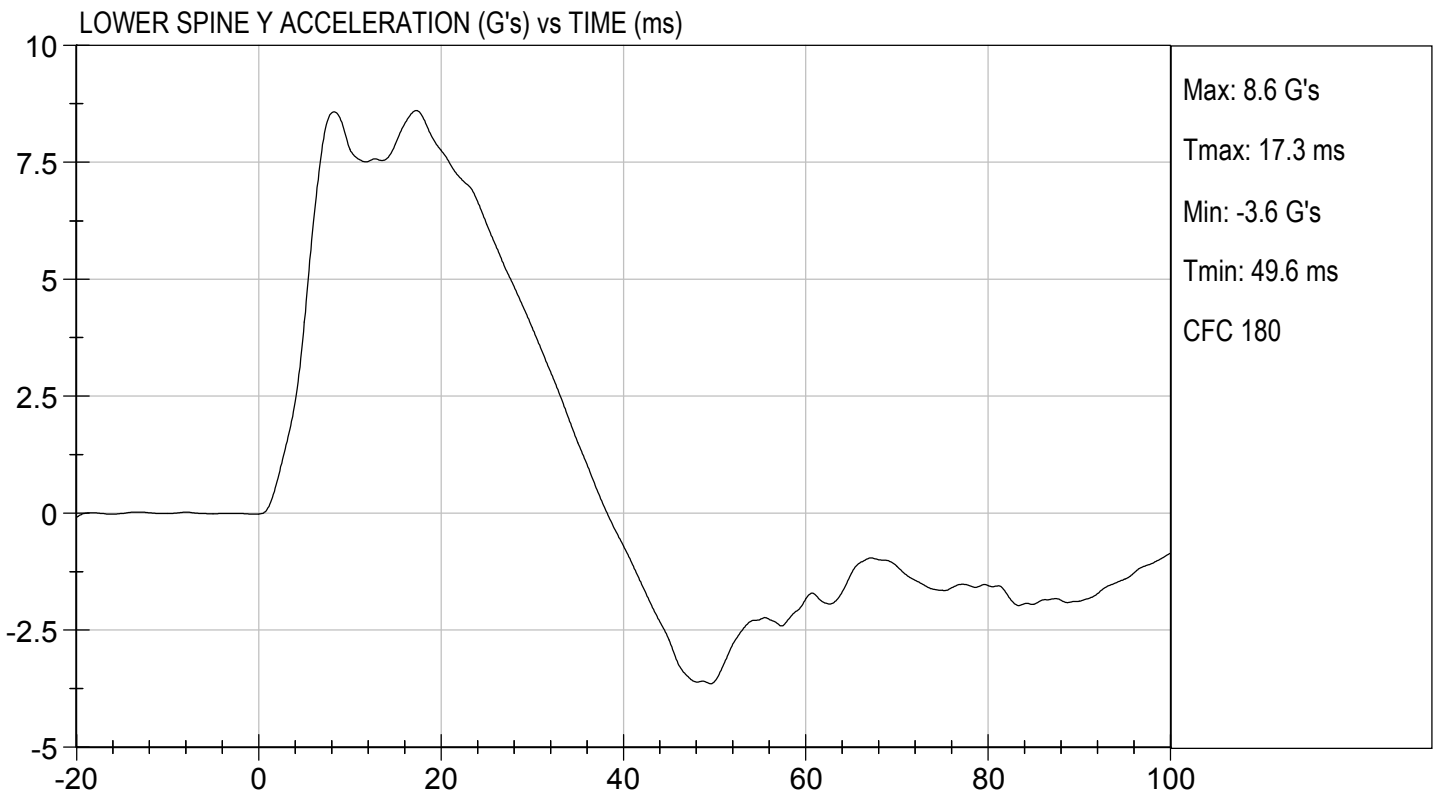
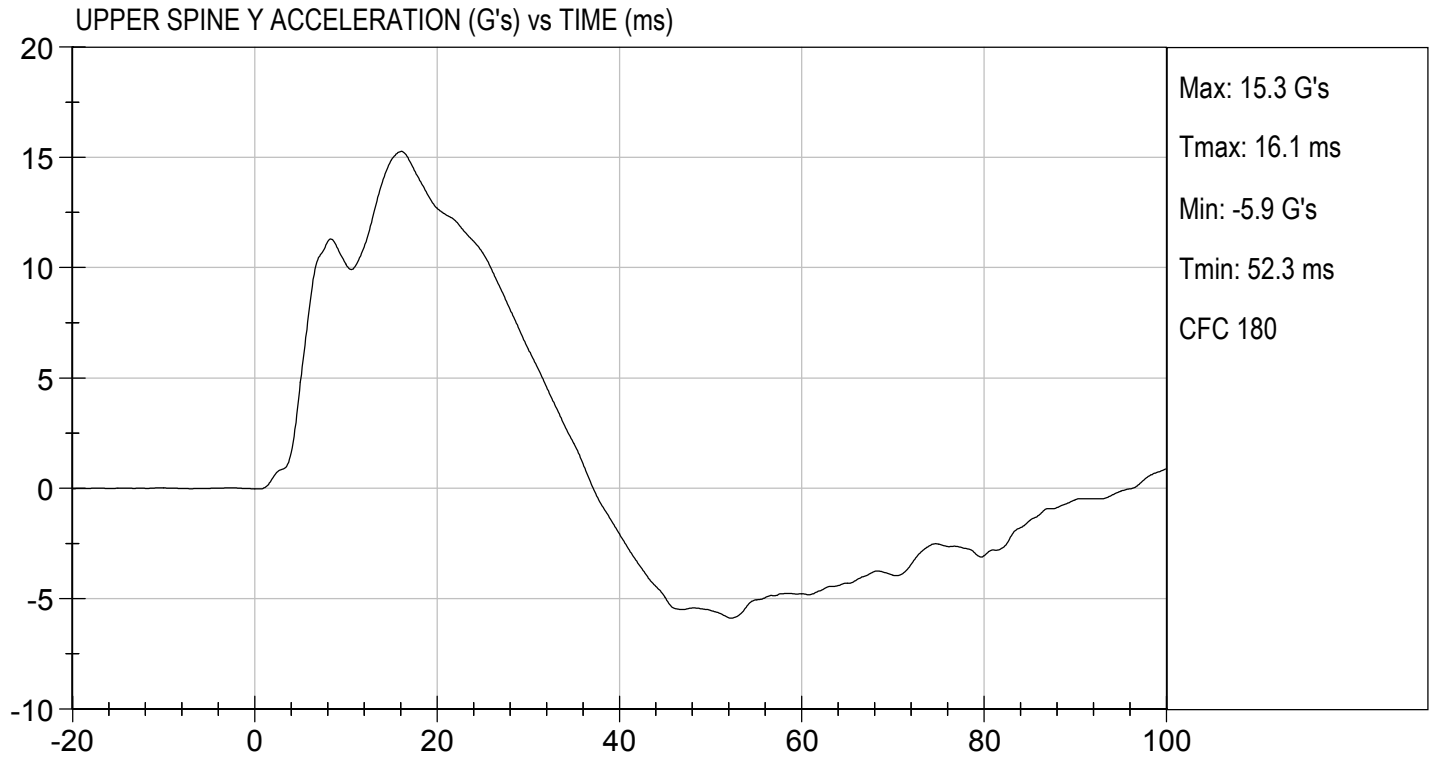
*Jacob D Taylor*  
 Laboratory Technician

11/06/2018  
 Test Date

*Robert Schaub*  
 Approved By







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

ATD Serial No: 296

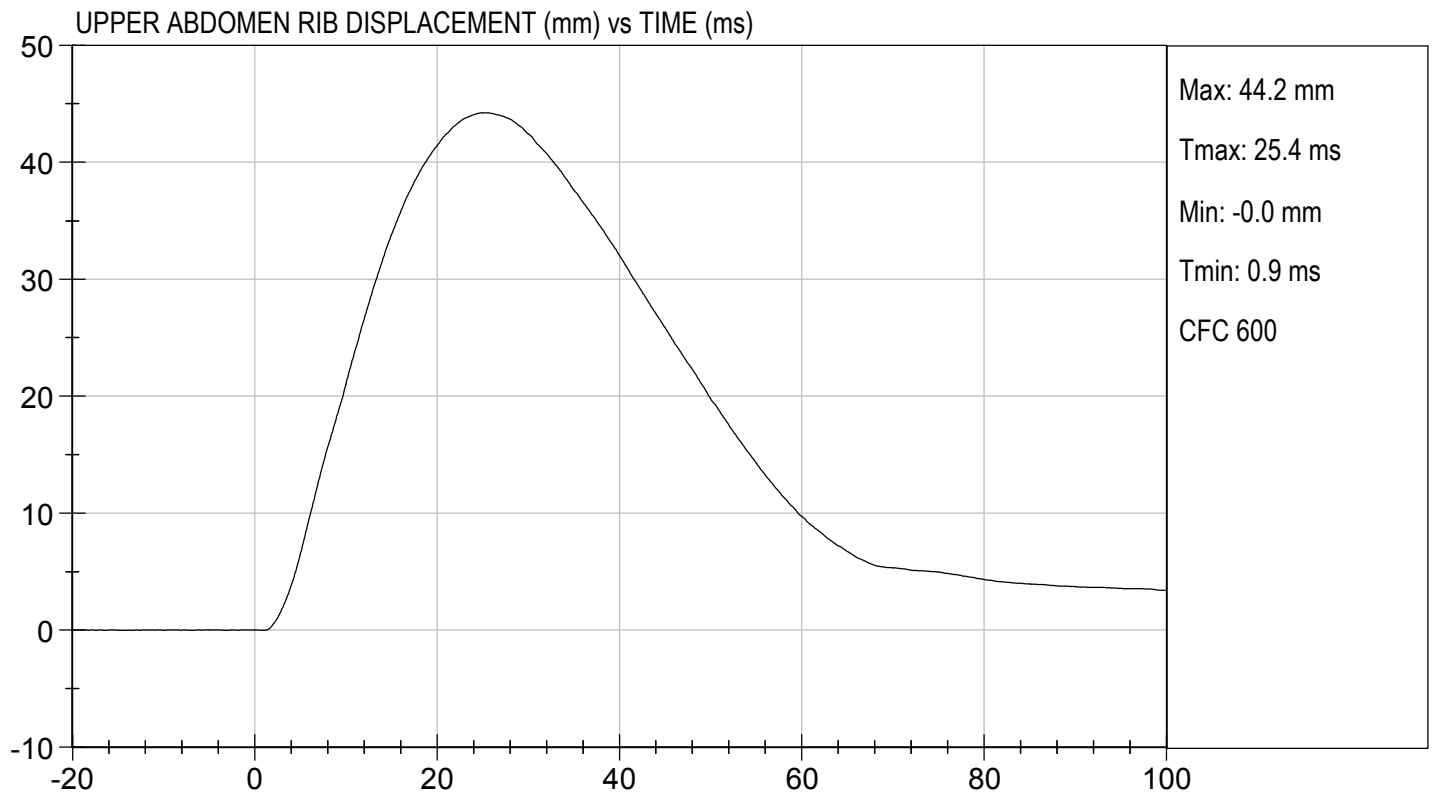
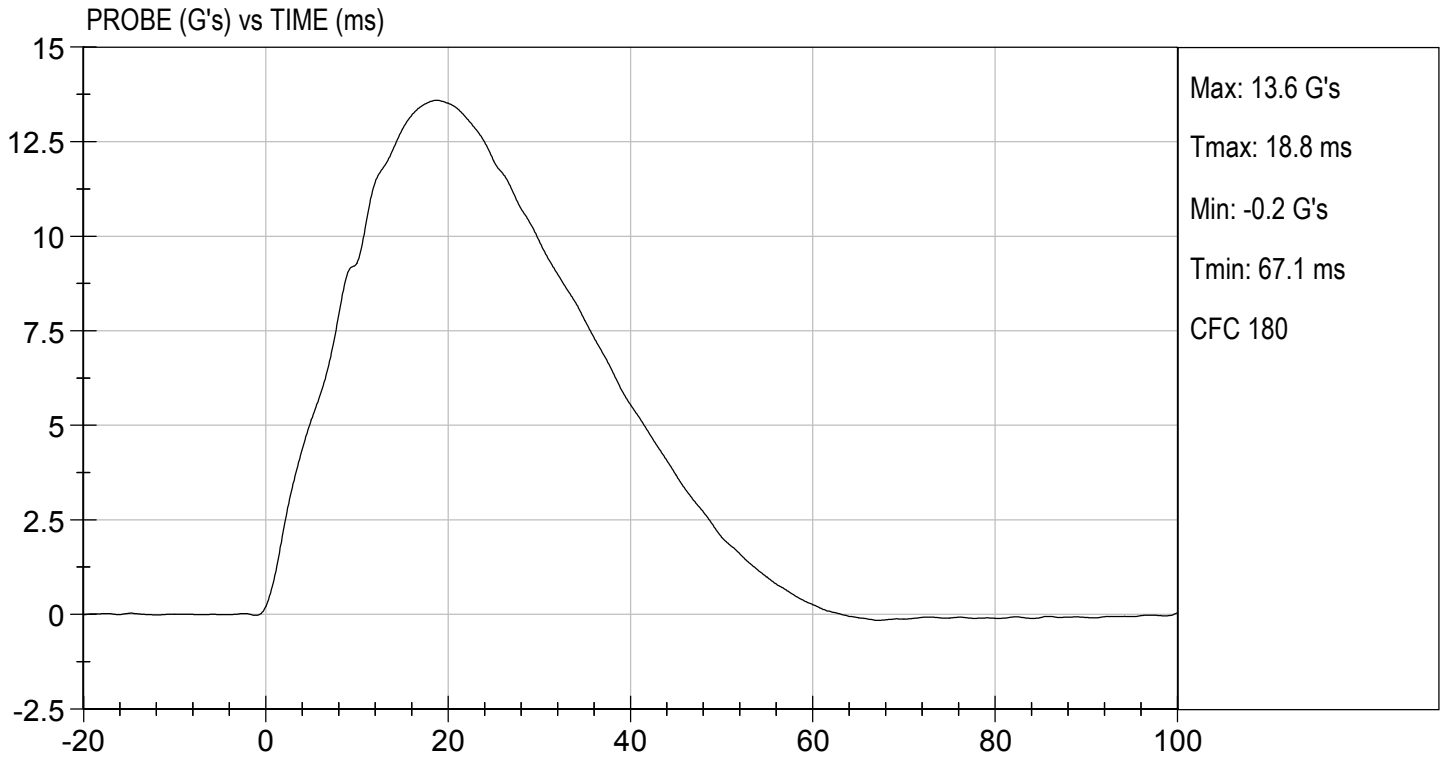
Test I.D: D183326

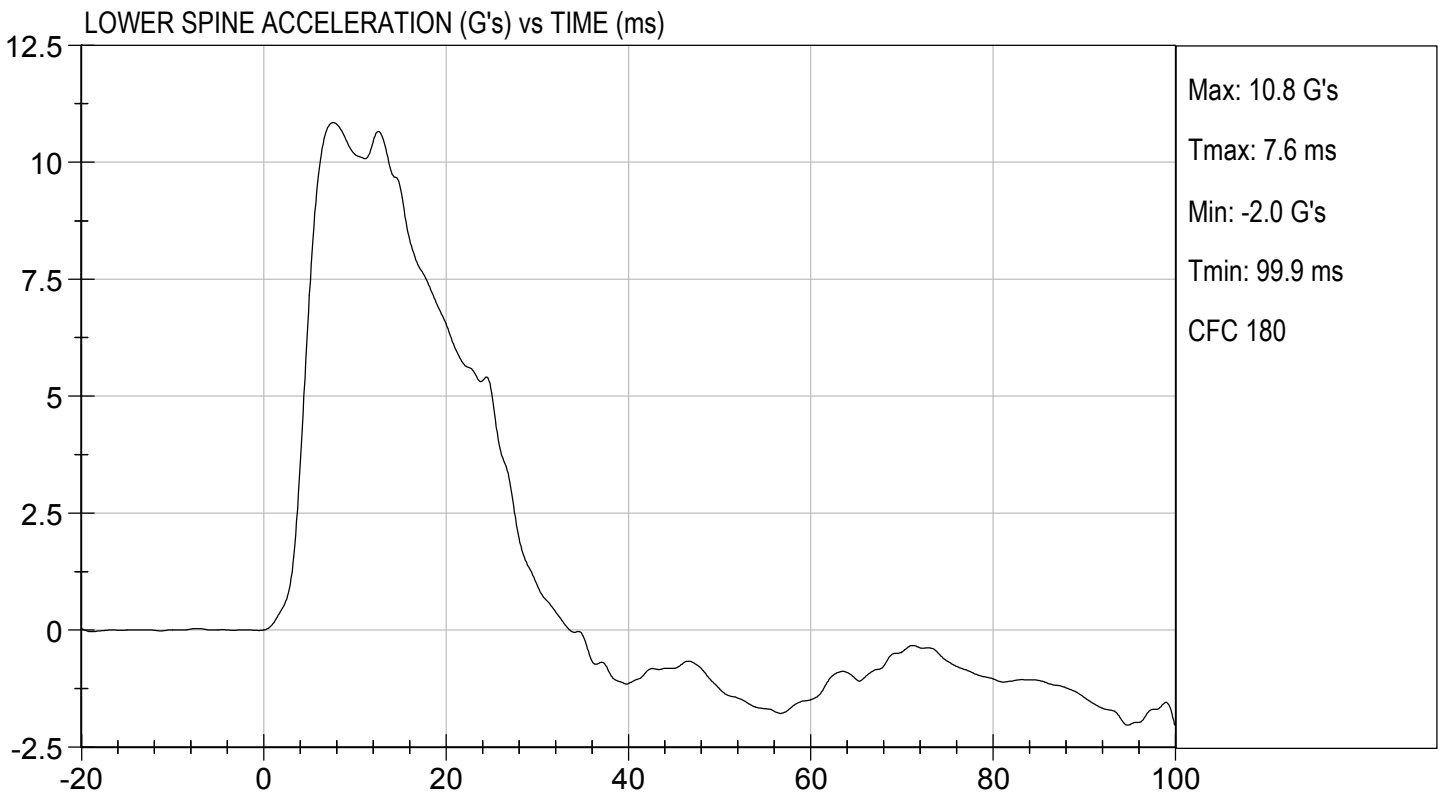
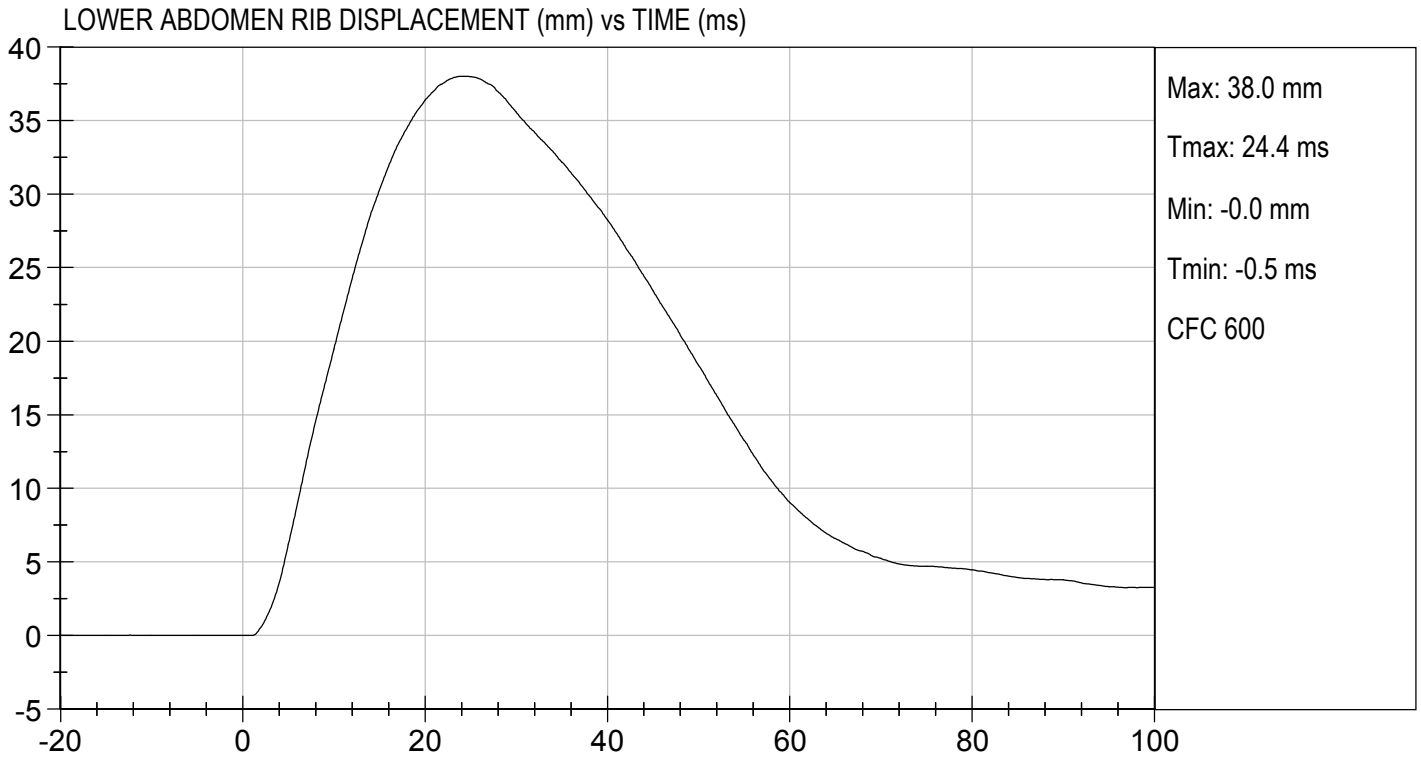
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21	Pass
Humidity	%	10 to 70	40	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	12 to 16	14	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	44	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	38	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
Overall Test Results				Pass

*Jacob D Taylor*  
 Laboratory Technician

11/06/2018  
 Test Date

*Robert Schaubert*  
 Approved By





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

ATD Serial No: 296

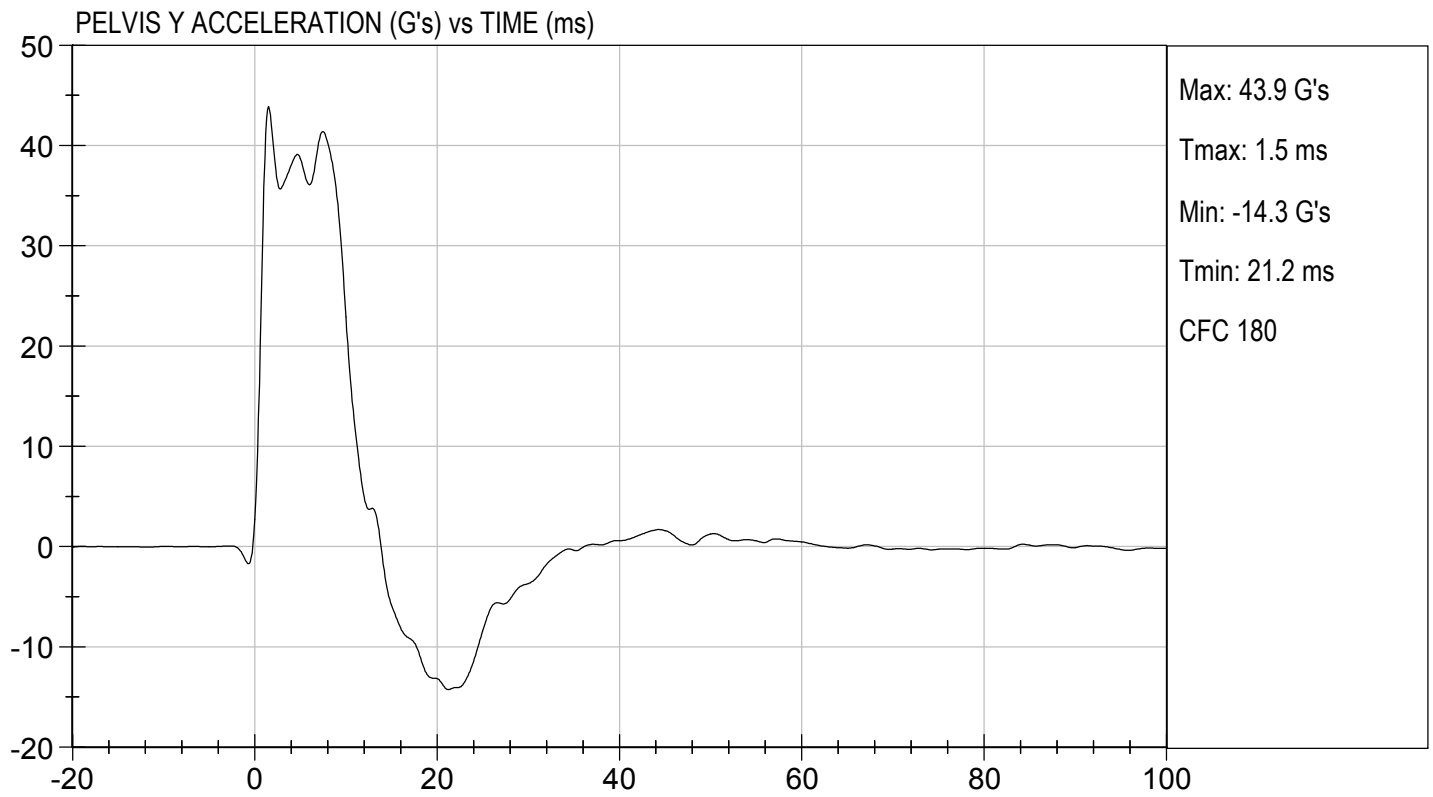
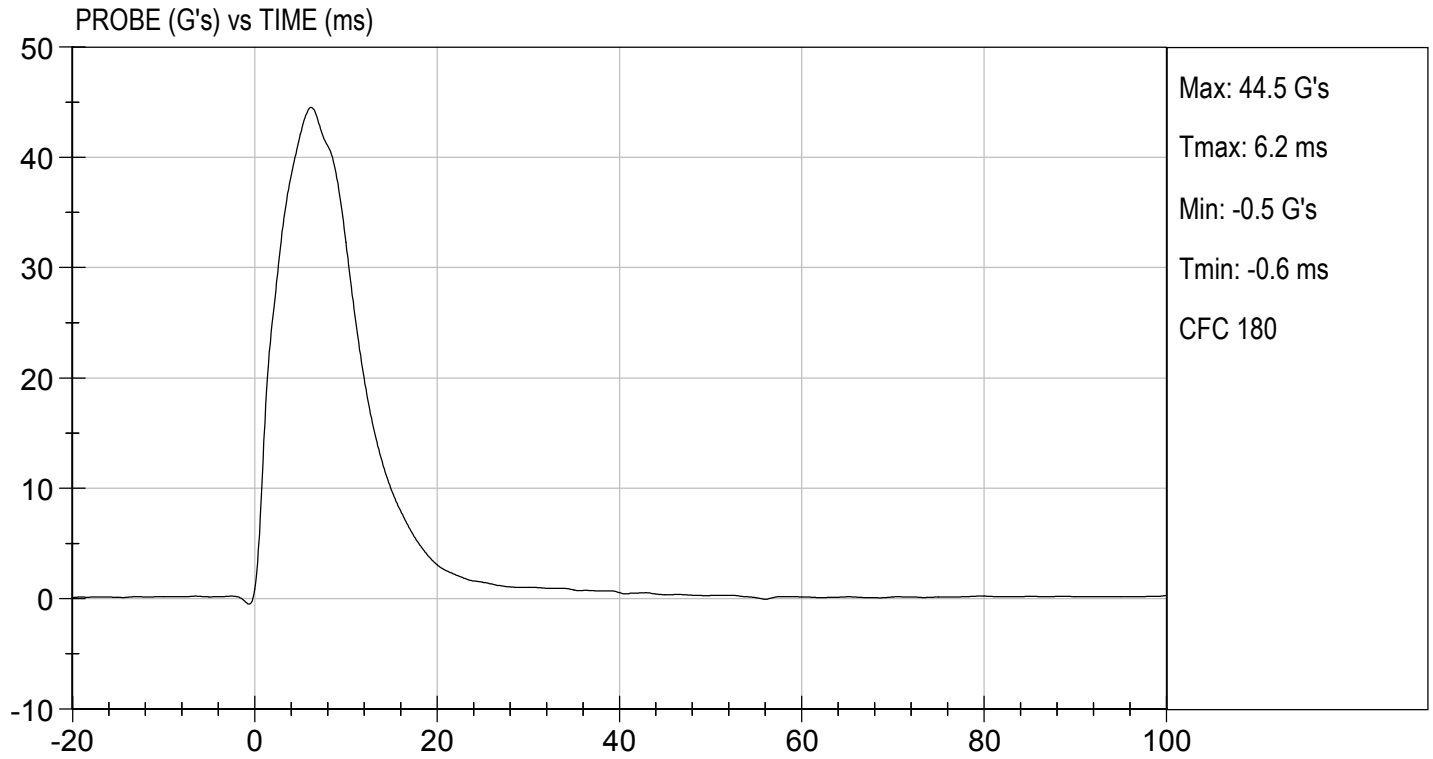
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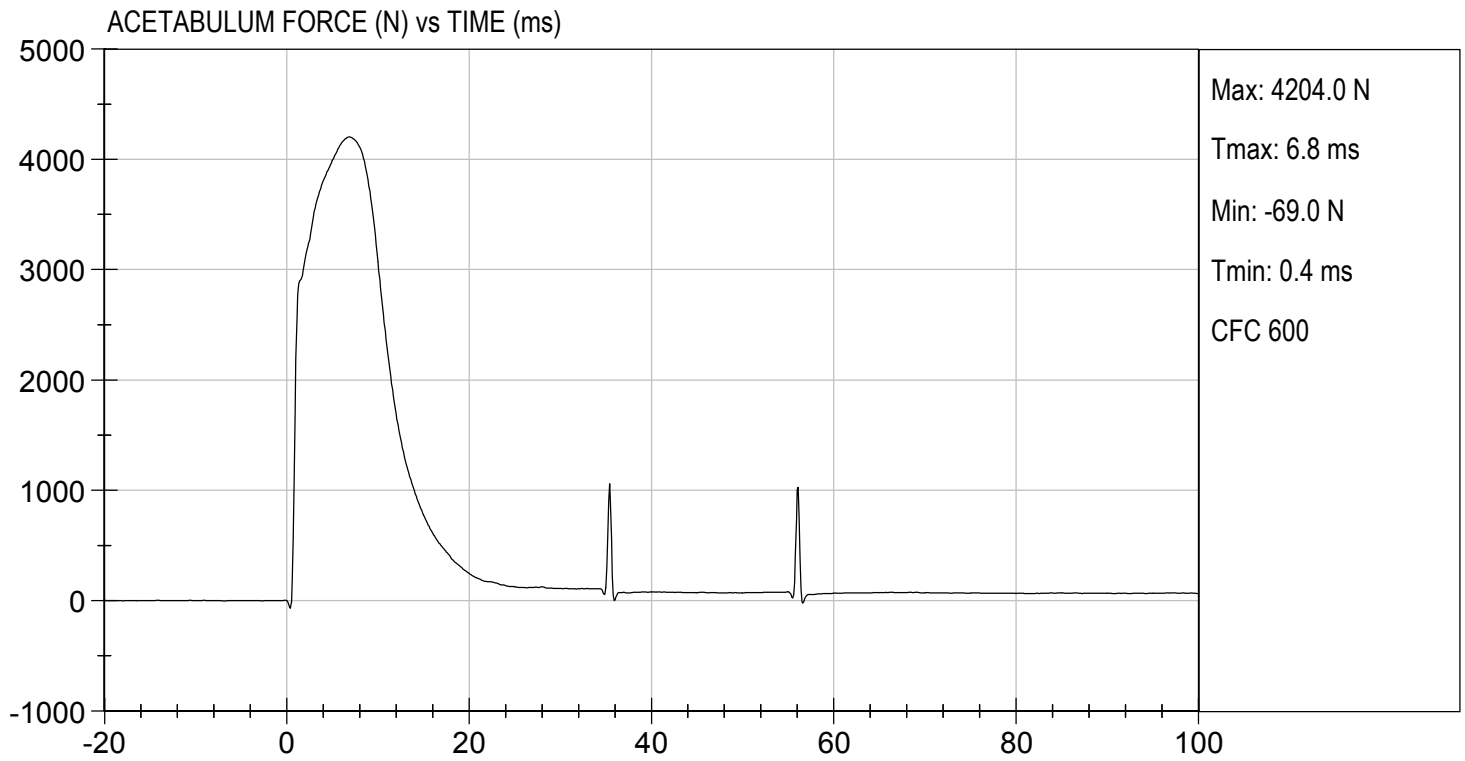
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21	Pass
Humidity	%	10 to 70	40	Pass
Impact Velocity	m/s	6.60 to 6.80	6.60	Pass
Maximum Probe Acceleration	G's	38 to 47	45	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	41	Pass
Peak Acetabulum Force	N	3600 to 4300	4,204	Pass
Overall Test Results				Pass

*Jacob D Taylor*  
 Laboratory Technician

11/06/2018  
 Test Date

*Robert Schaub*  
 Approved By



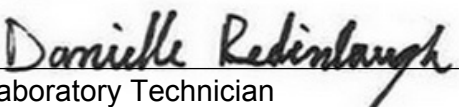


**MGA RESEARCH CORPORATION**  
**ILIAC IMPACT TEST**  
**SID-IIs BUILD LEVEL D DUMMY**

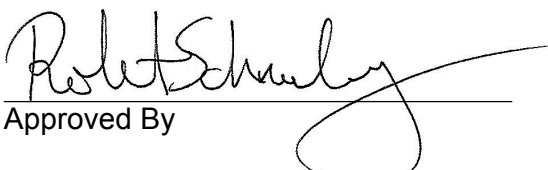
ATD Serial No: 296

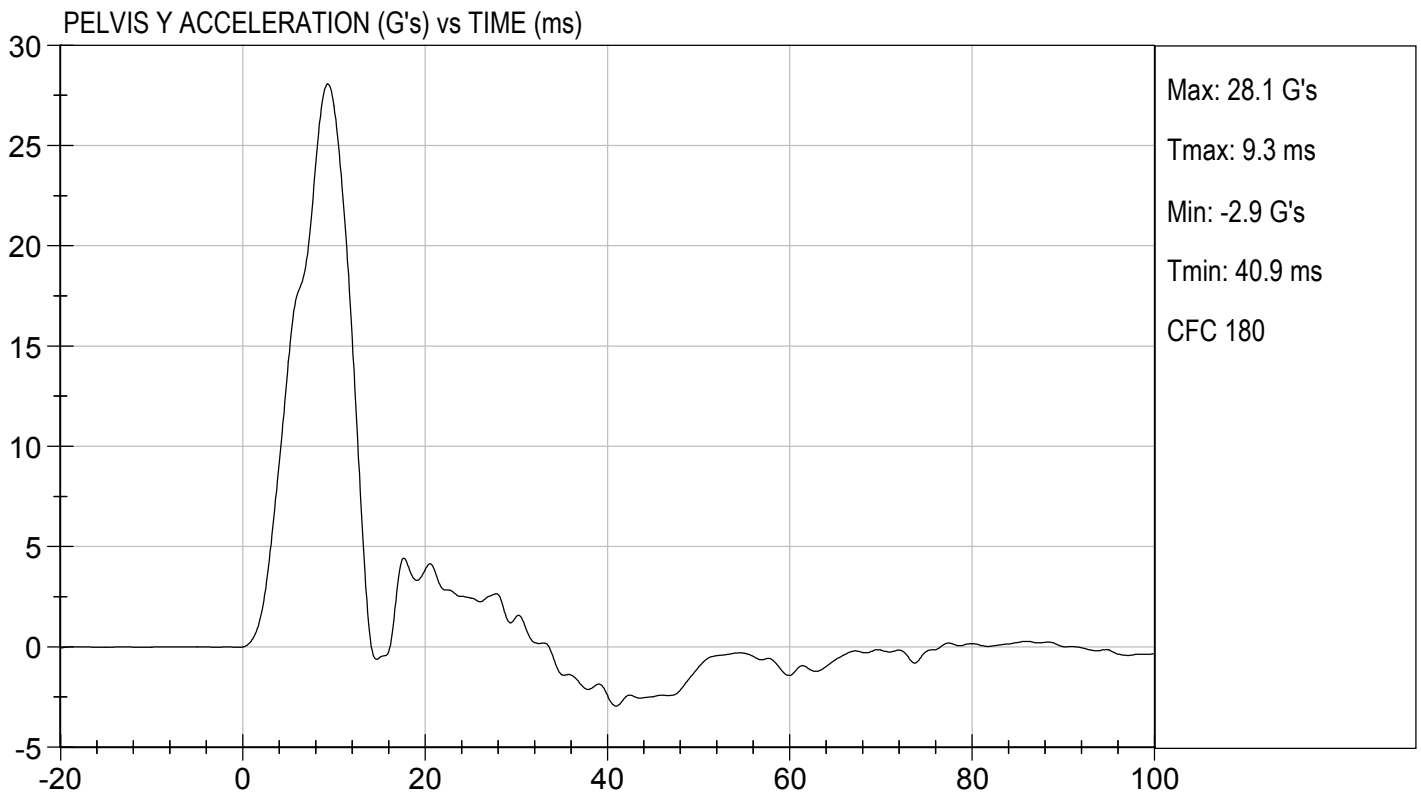
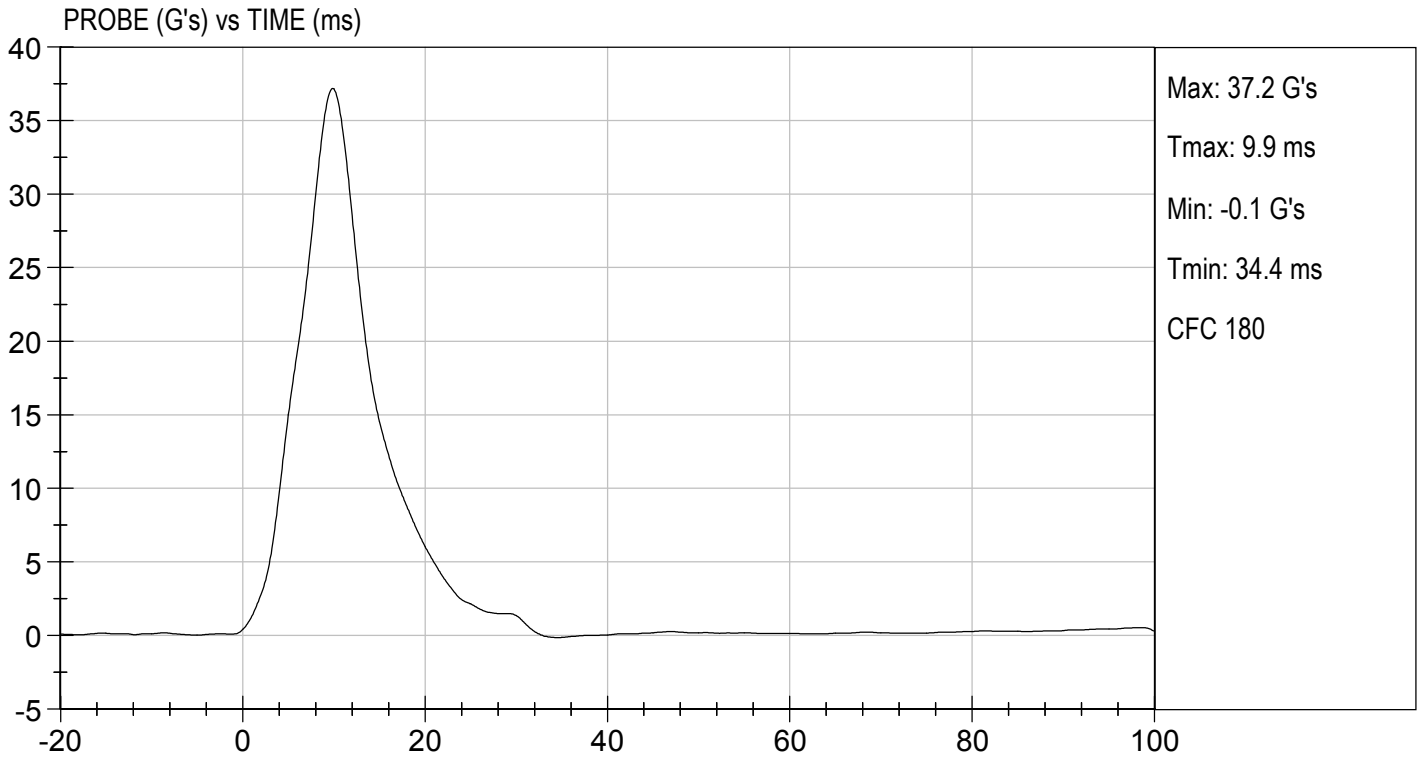
Test I.D: D183328

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21	Pass
Humidity	%	10 to 70	40	Pass
Impact Velocity	m/s	4.20 to 4.40	4.39	Pass
Maximum Probe Acceleration	G's	36 to 45	37	Pass
Pelvis Y Acceleration	G's	28 to 39	28	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,270	Pass
Overall Test Results				Pass

  
 Laboratory Technician

11/06/2018  
 Test Date

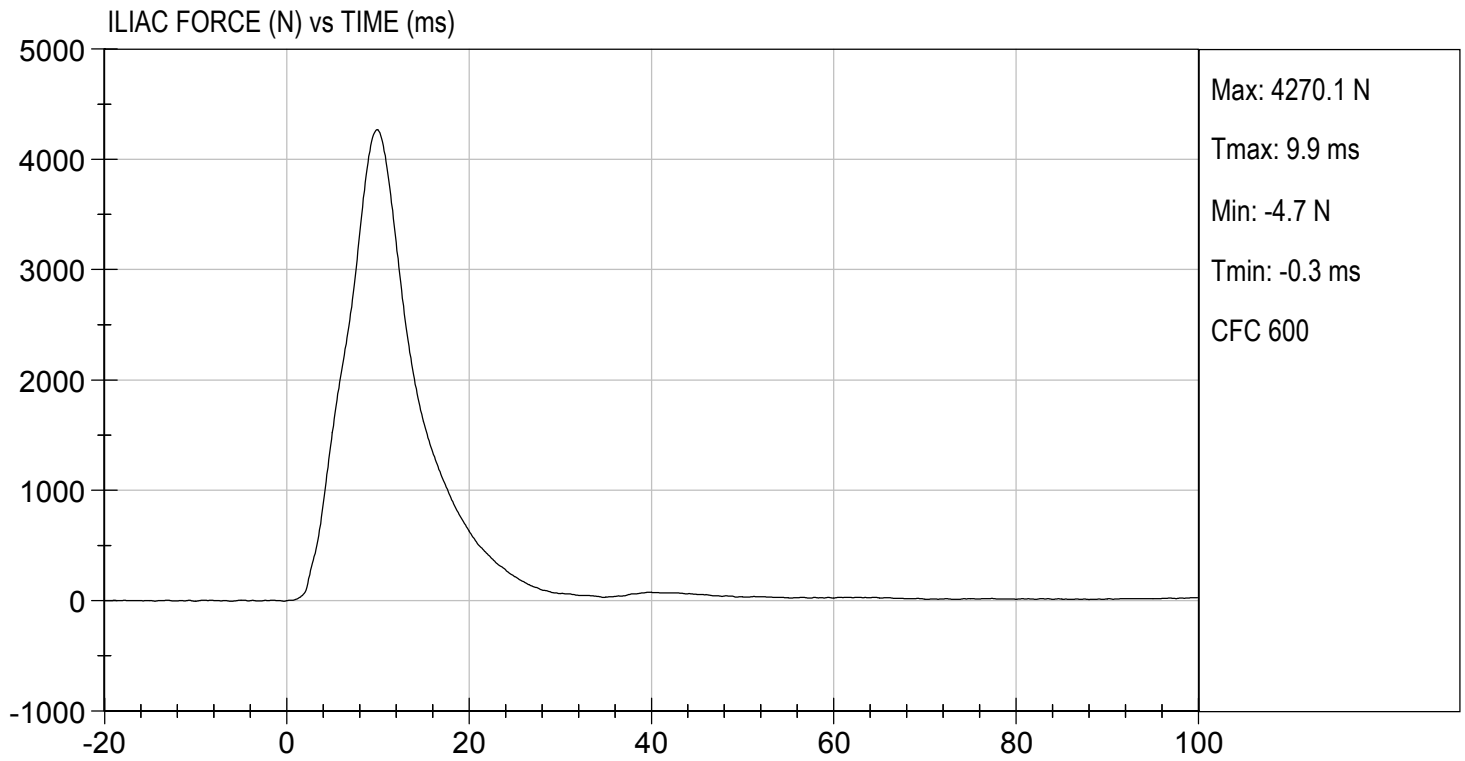
  
 Approved By





TEST DESC: ILLIAC  
VELOCITY: 14.40 ft/s, 4.39 m/s

TEST DATE: 11/06/2018  
TEST #: D183328



**CALIBRATION TEST RESULTS**

**POST-TEST**

**SID-IIS 5<sup>TH</sup> PERCENTILE FEMALE - DRIVER ATD**

**SID-IIsD External Measurements**  
**SN: 296**

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

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

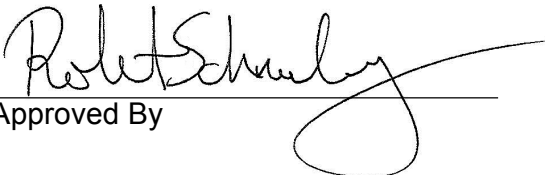
ATD Serial No: 296

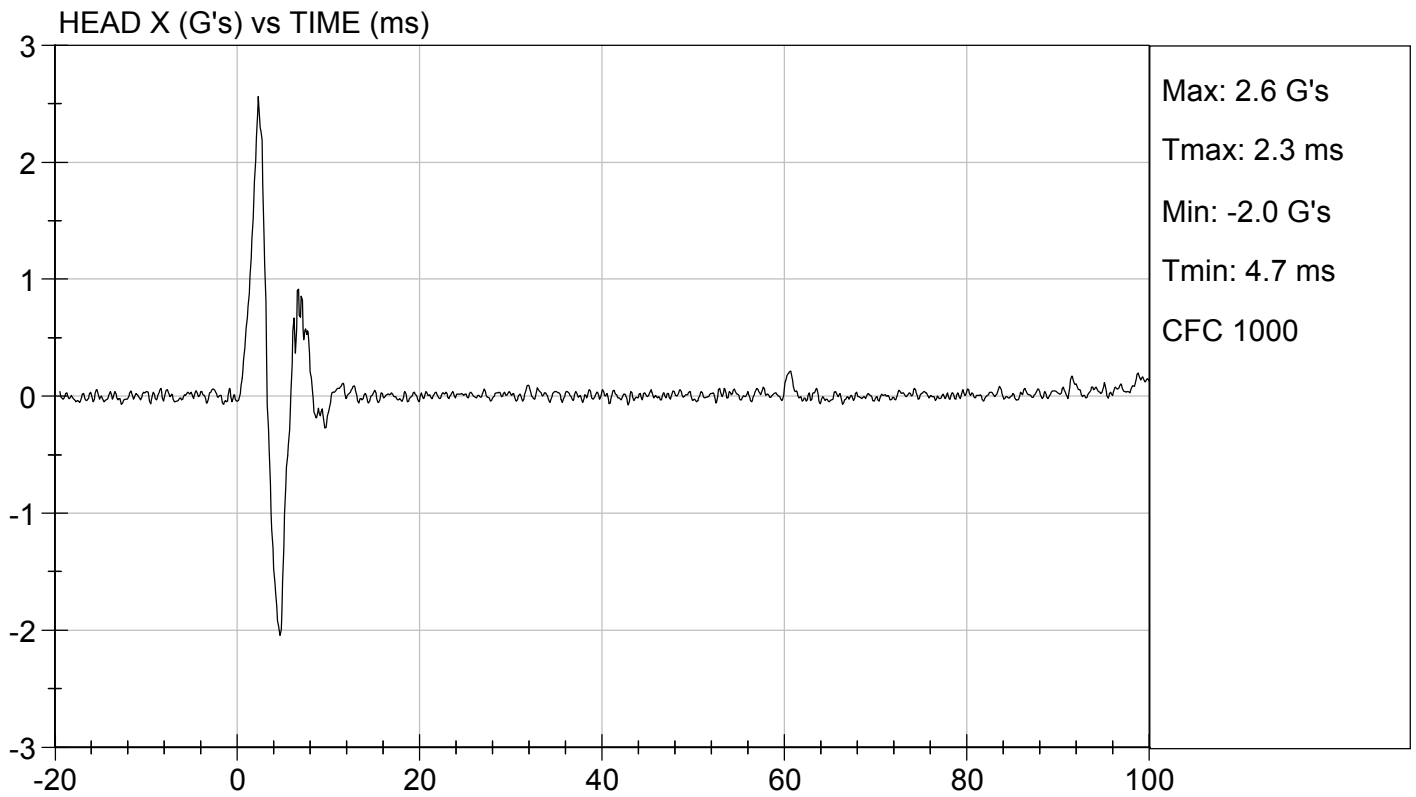
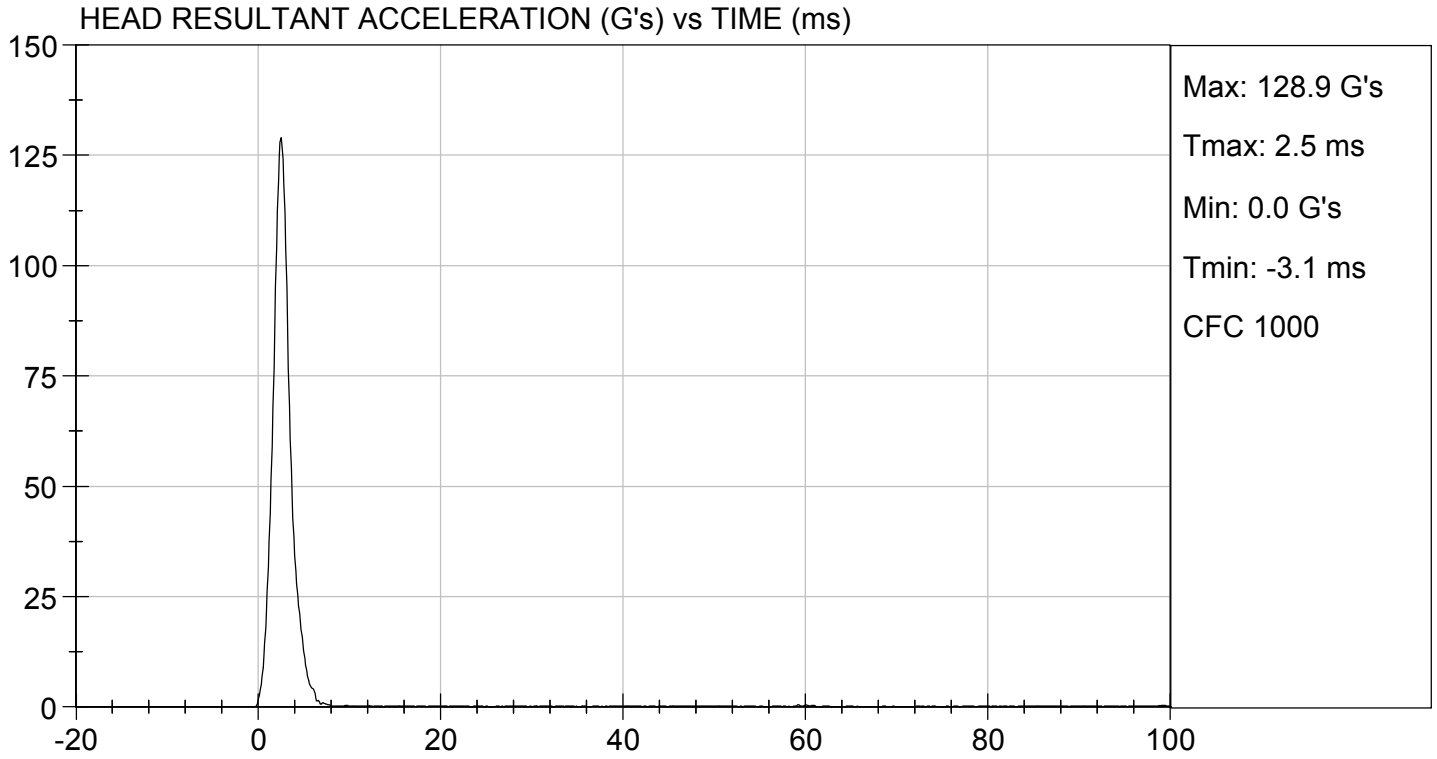
Test ID: D183711

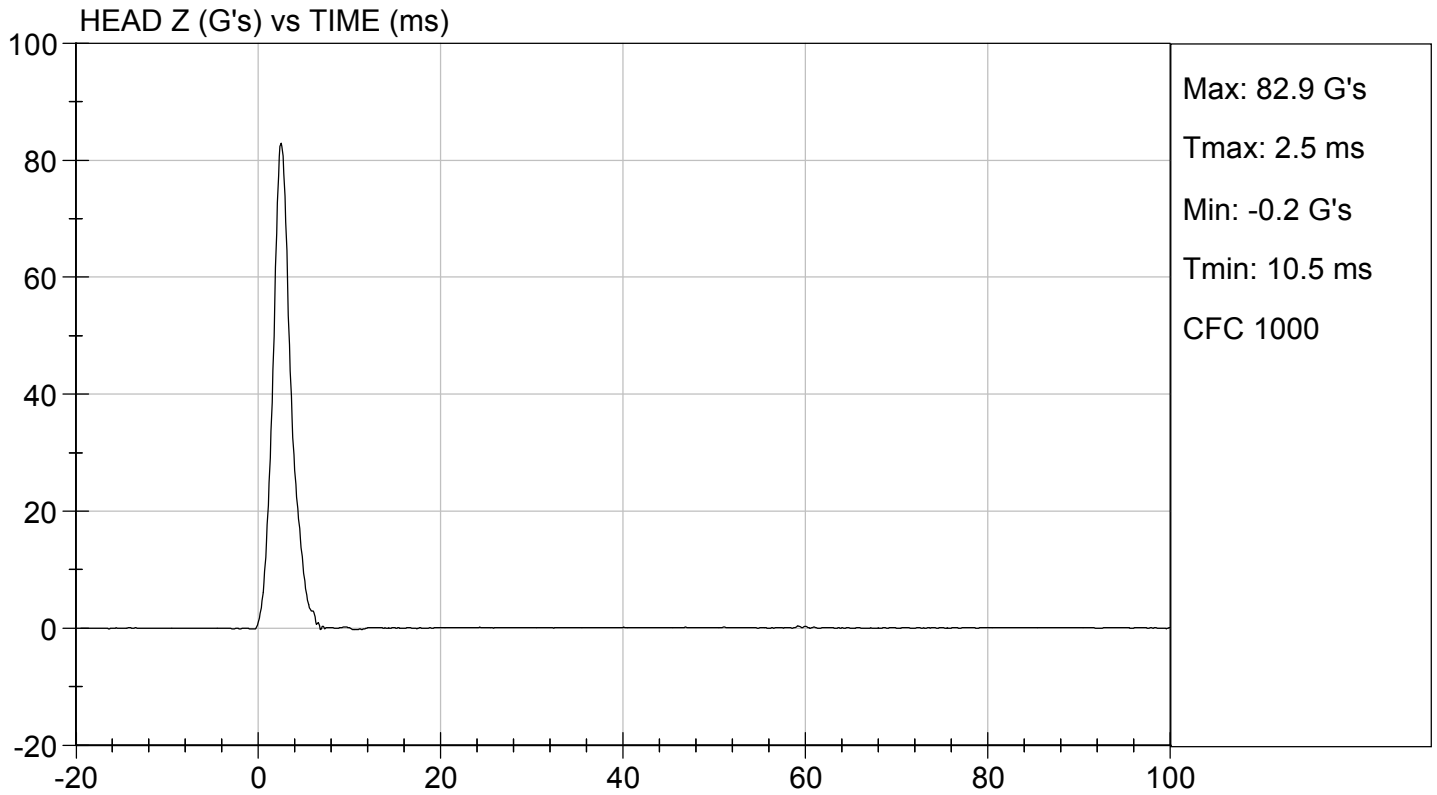
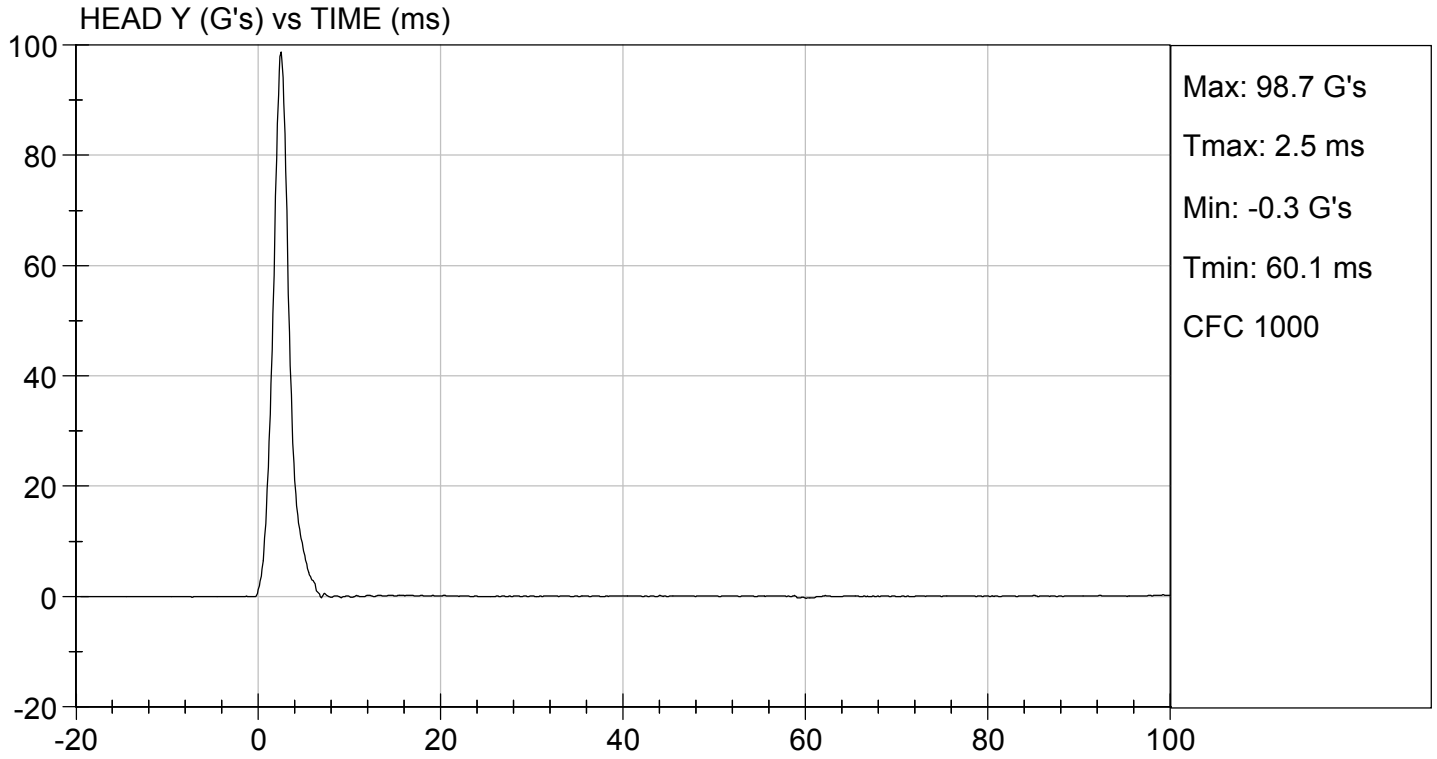
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	31	Pass
Peak Resultant Acceleration	G's	115 to 137	129	Pass
Peak Longitudinal Acceleration	G's	+/- 15	2.6	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
Overall Test Results				Pass

  
 Laboratory Technician

12/20/2018  
 Test Date

  
 Approved By



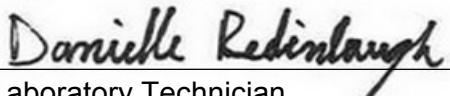


**MGA RESEARCH CORPORATION  
LATERAL NECK PENDULUM TEST  
SID-IIs BUILD LEVEL D DUMMY**

**ATD Serial No:** 296

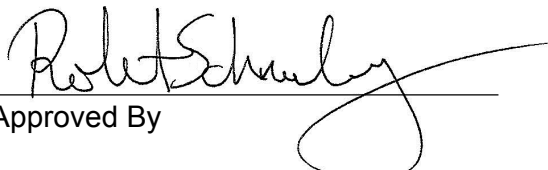
**Test I.D.:** D183712

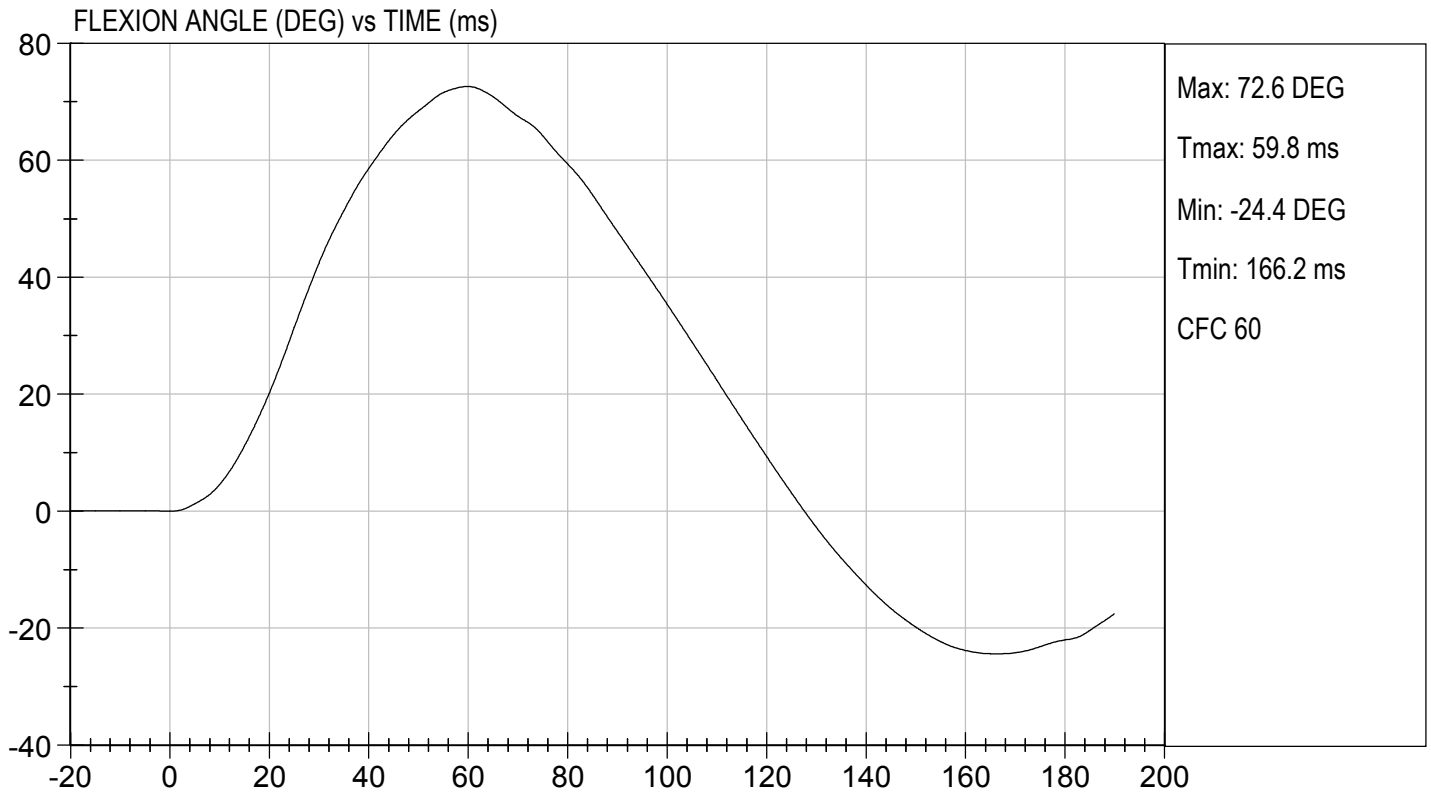
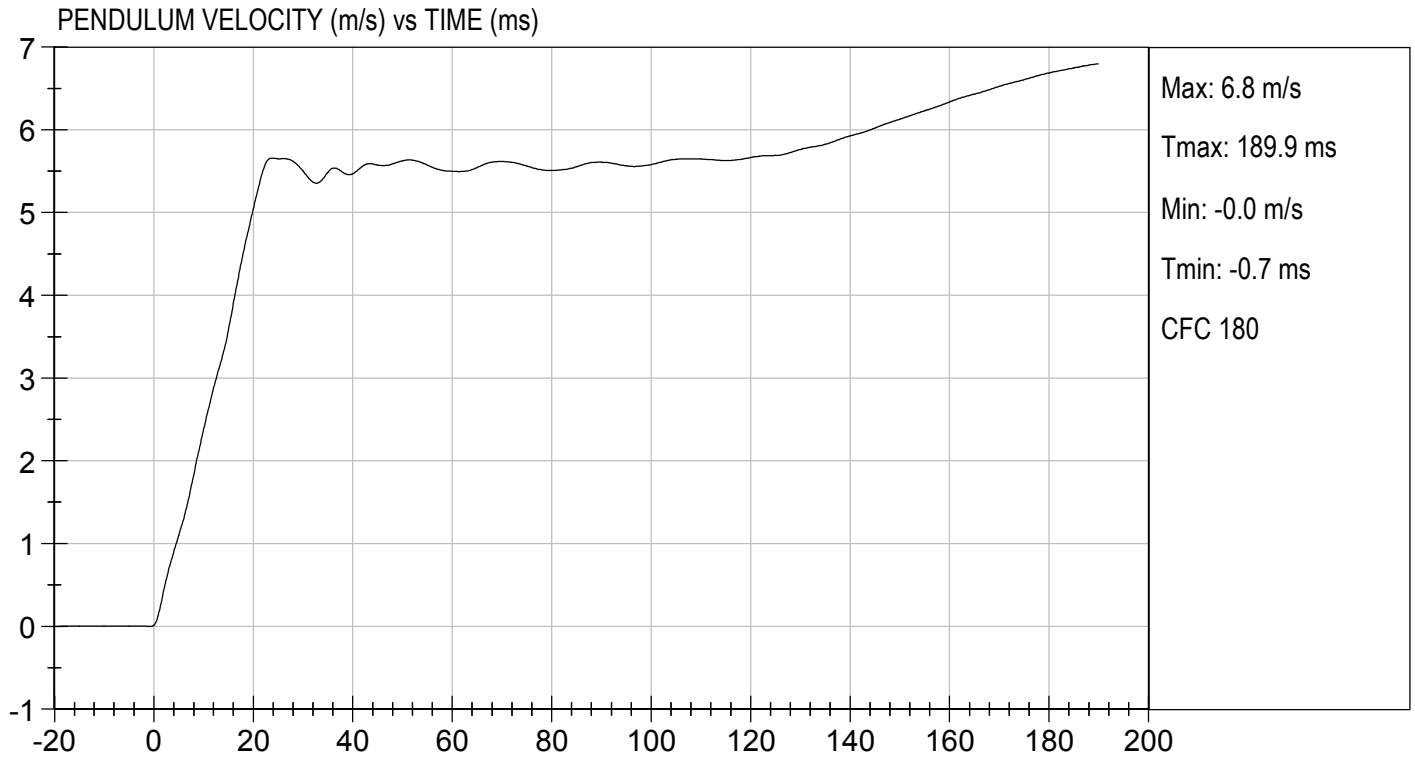
Tested Parameter	Units	Specification	Result	Pass/Fail	
Temperature	deg C	20.6 to 22.2	21.5	Pass	
Humidity	%	10 to 70	31	Pass	
Impact Velocity	m/s	5.51 to 5.63	5.61	Pass	
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.38	Pass
	15 ms	m/s	3.30 to 4.10	3.58	Pass
	20 ms	m/s	4.40 to 5.40	5.05	Pass
	25 ms	m/s	5.40 to 6.10	5.65	Pass
	25-100 ms	m/s	5.50 to 6.20	5.65	Pass
Maximum D-Plane Rotation	deg	71 to 81	73	Pass	
Time of Maximum D-Plane Rotation	ms	50 to 70	60	Pass	
Maximum Occipital Condyle Moment	Nm	-44 to -36	-40	Pass	
Time of Moment Decay to 0 Nm	ms	102 to 126	109	Pass	
<b>Overall Test Results</b>				<b>Pass</b>	

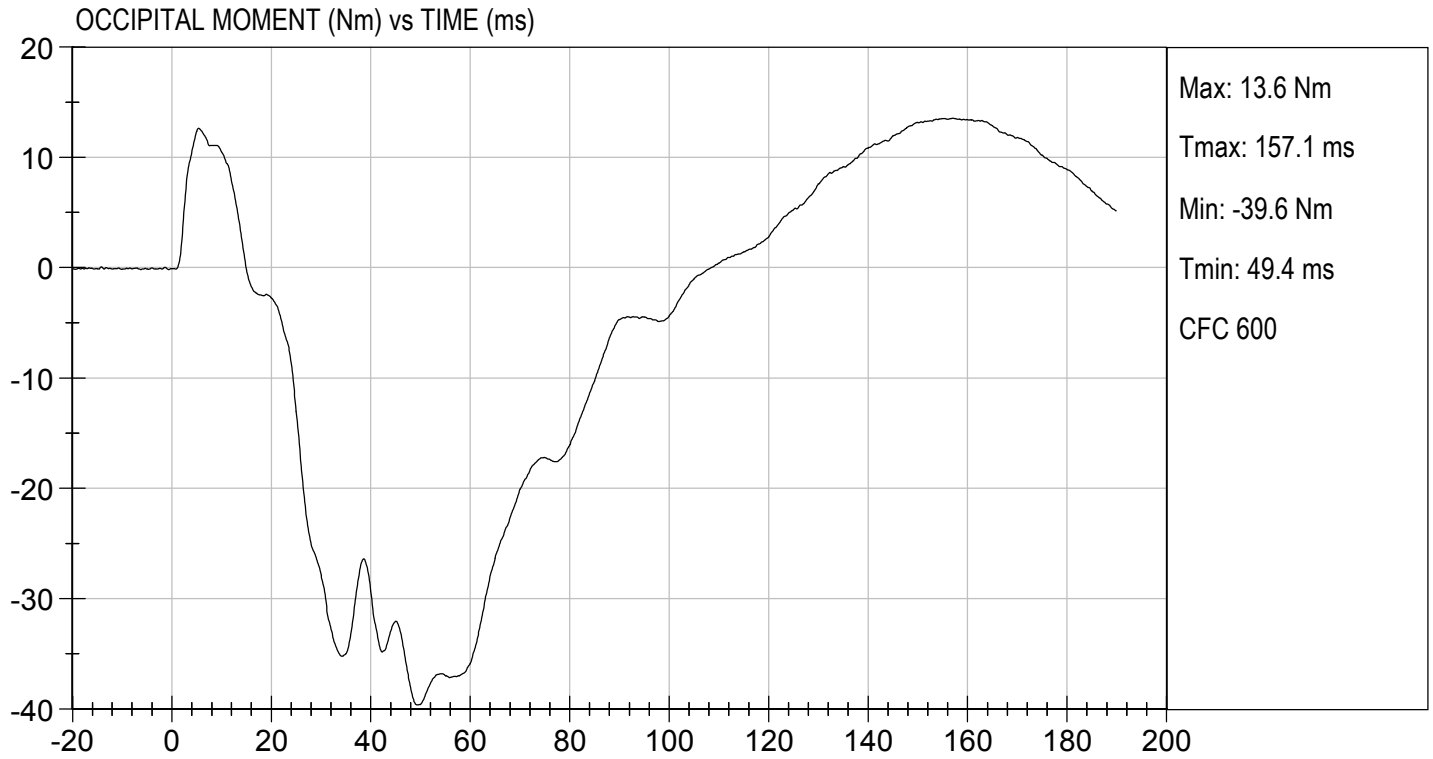
  
Laboratory Technician

12/20/2018

Test Date

  
Approved By





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

ATD Serial No: 296

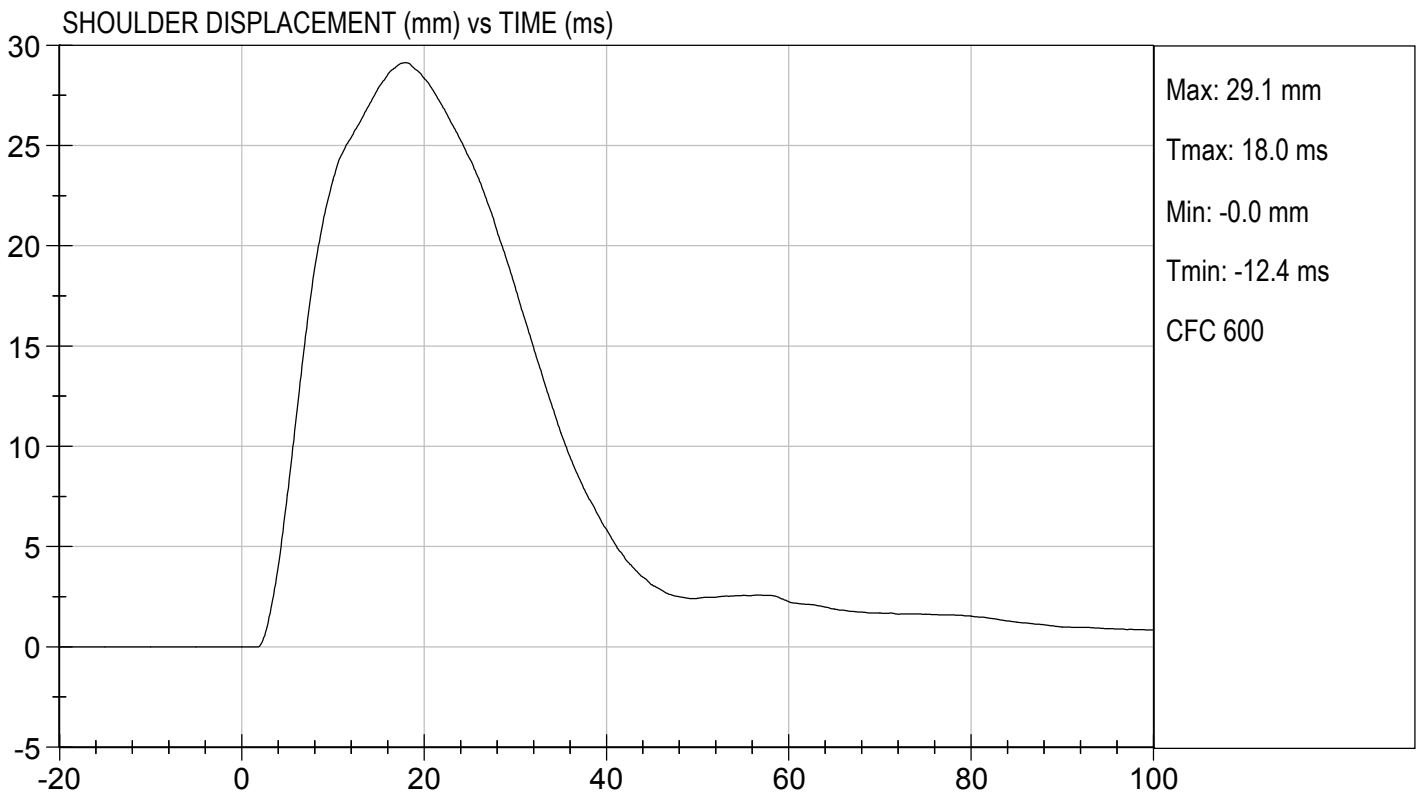
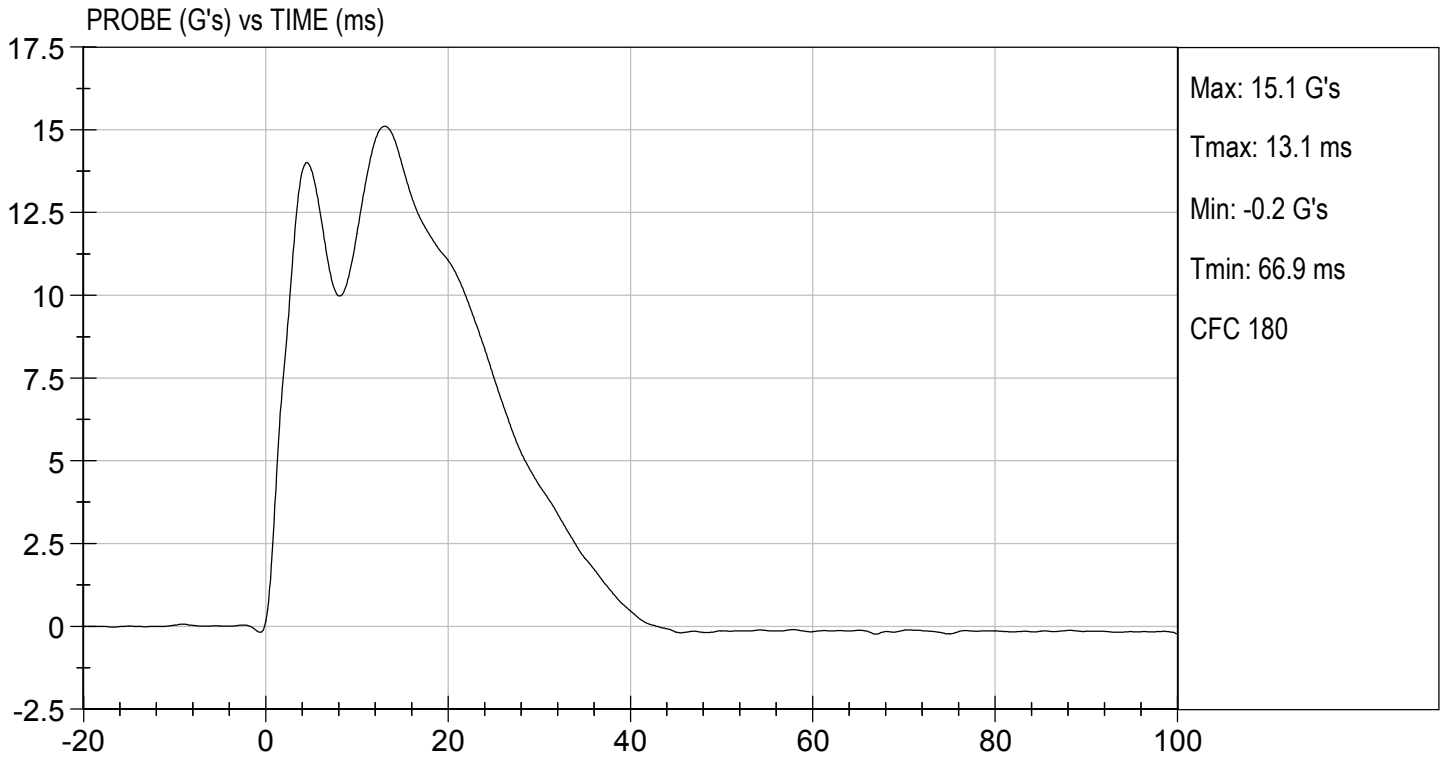
Test ID: D183713

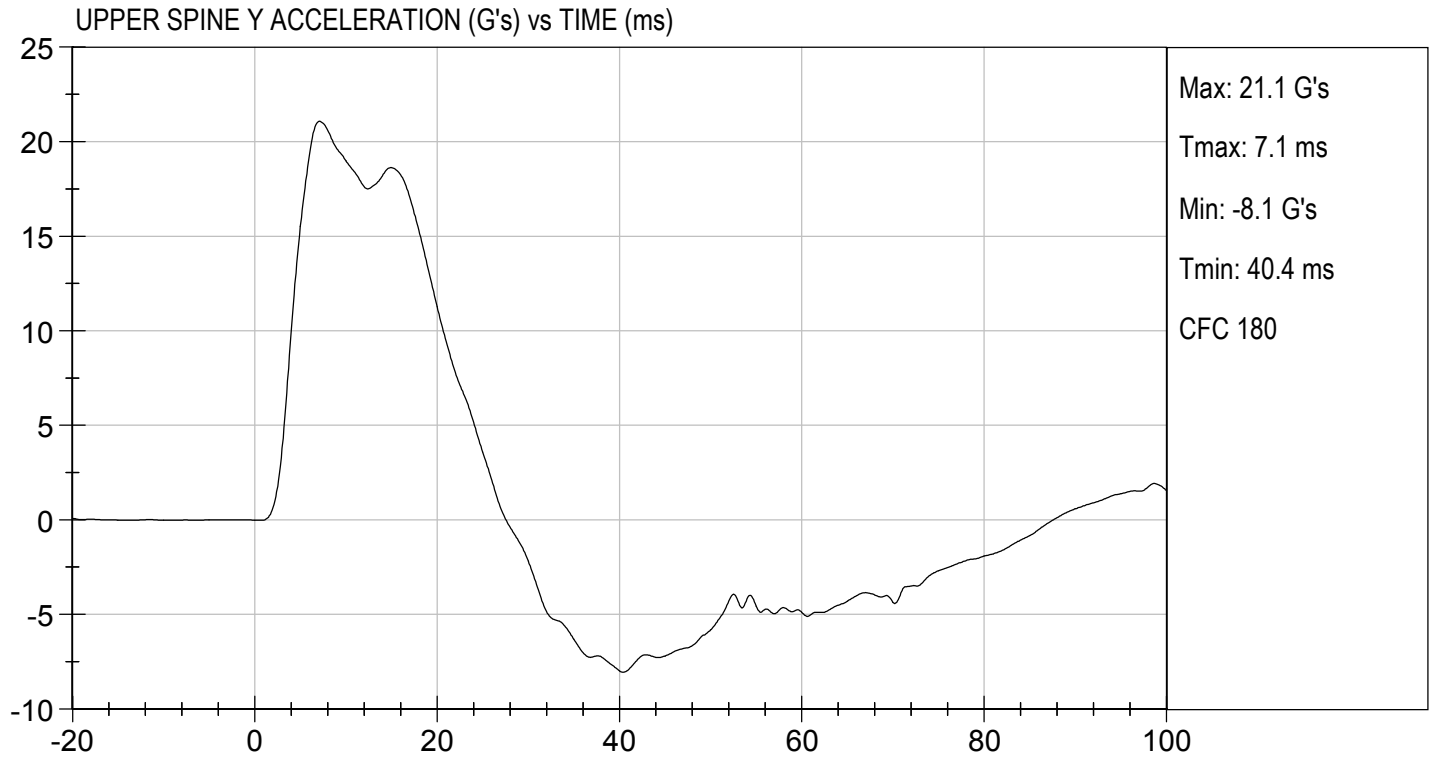
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	24	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	29	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	21	Pass
Overall Test Results				Pass

*Danielle Redinlaugh*  
 Laboratory Technician

12/19/2018  
 Test Date

*Robert Schaubert*  
 Approved By



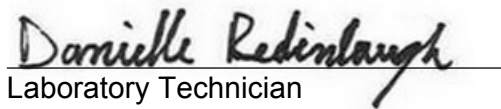


**MGA RESEARCH CORPORATION**  
**THORAX (WITH ARM) IMPACT TEST**  
**SID-IIs BUILD LEVEL D DUMMY**

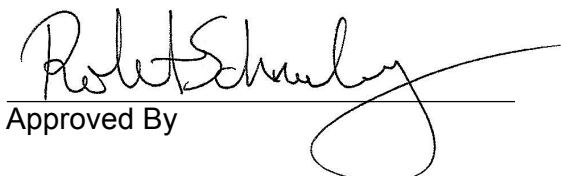
ATD Serial No: 296

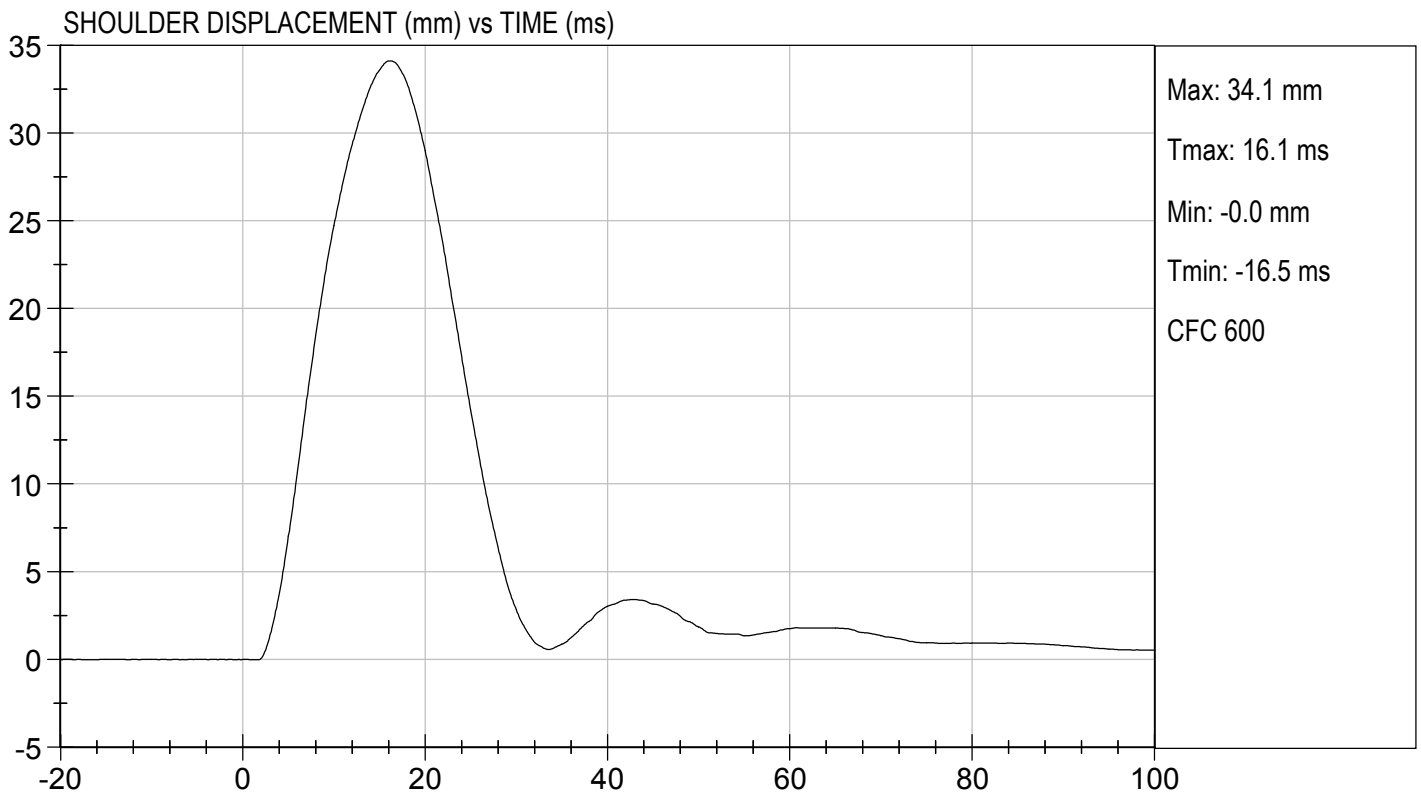
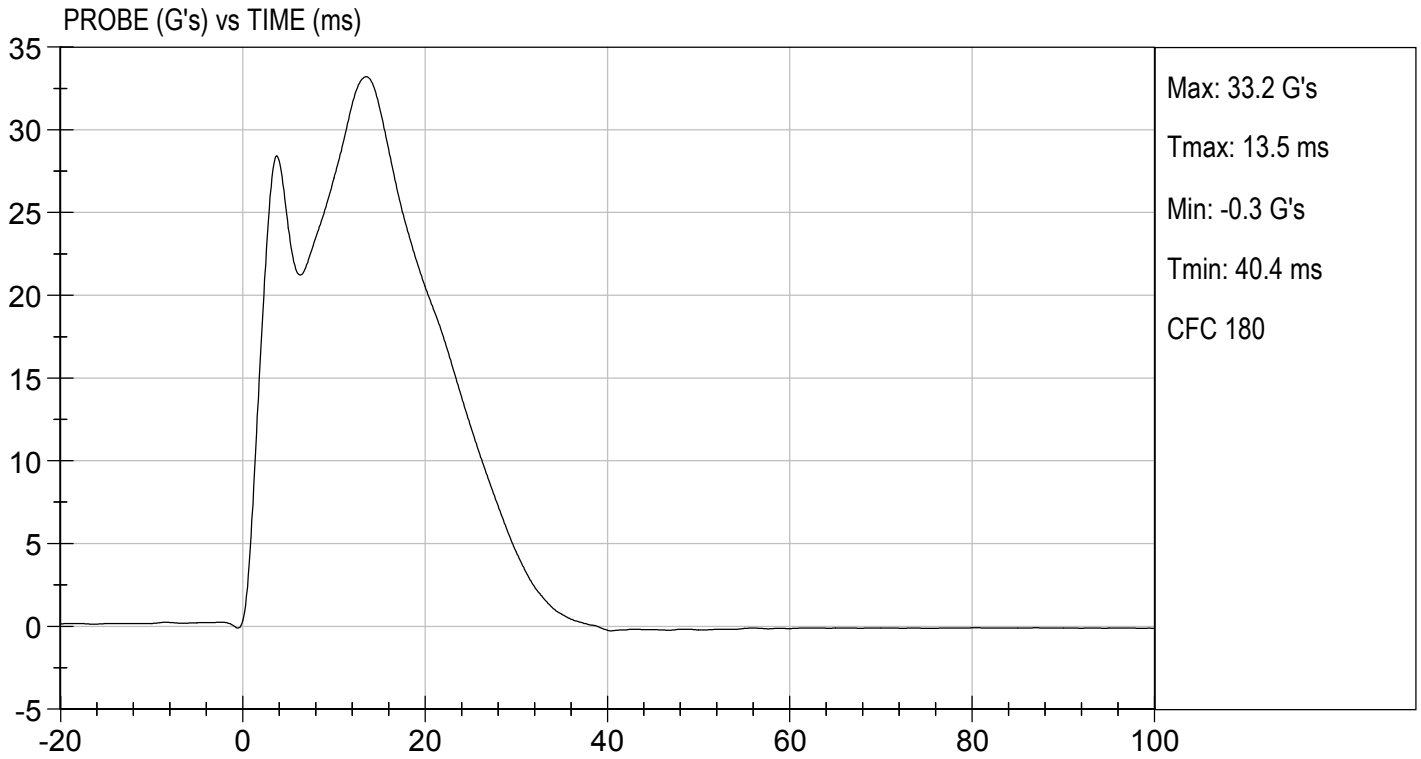
Test I.D: D183714

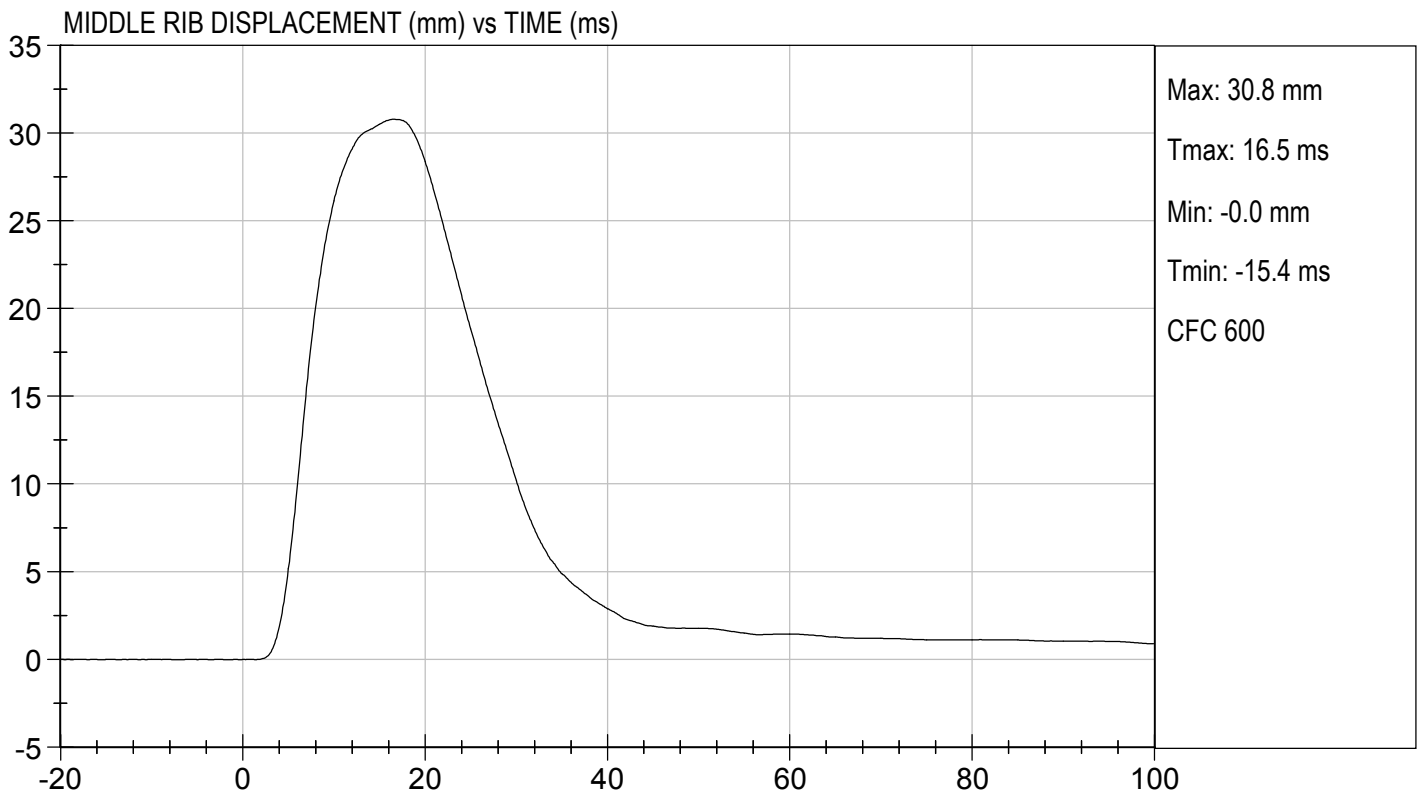
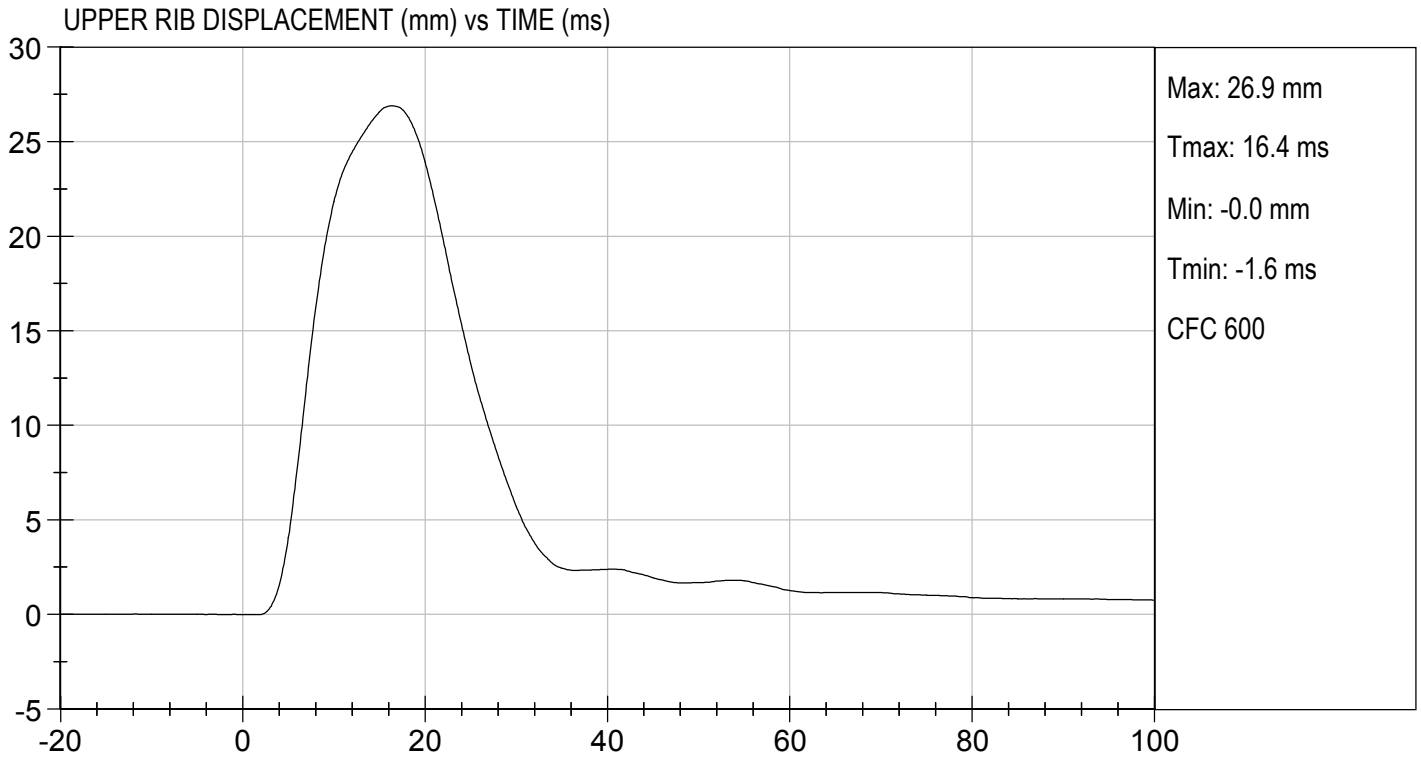
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.4	Pass
Humidity	%	10 to 70	24	Pass
Impact Velocity	m/s	6.60 to 6.80	6.80	Pass
Maximum Probe Acceleration	G's	30 to 36	33	Pass
Shoulder Displacement	mm	31 to 40	34	Pass
Upper Rib Displacement	mm	25 to 32	27	Pass
Middle Rib Displacement	mm	30 to 36	31	Pass
Lower Rib Displacement	mm	32 to 38	33	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	41	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	34	Pass
Overall Test Results				Pass

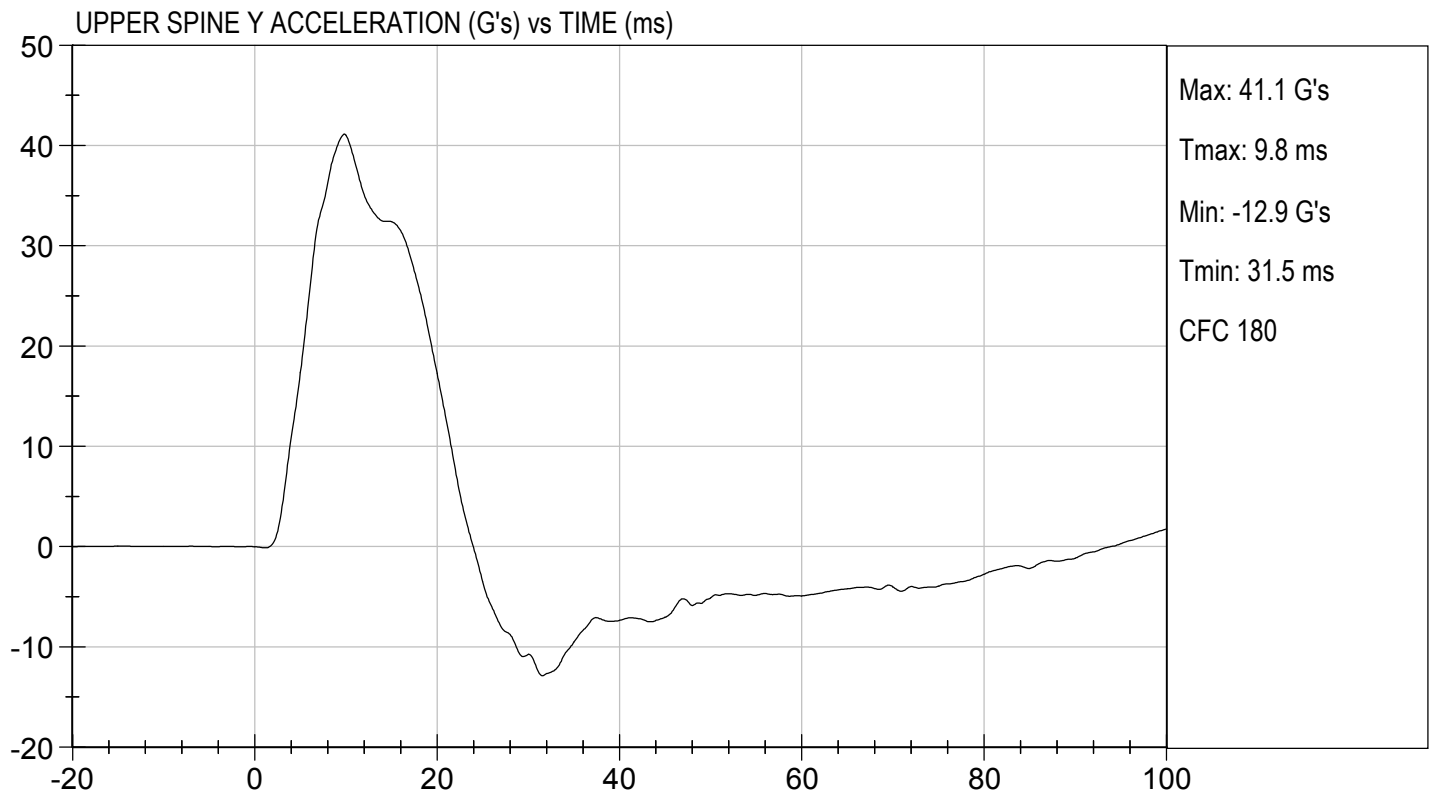
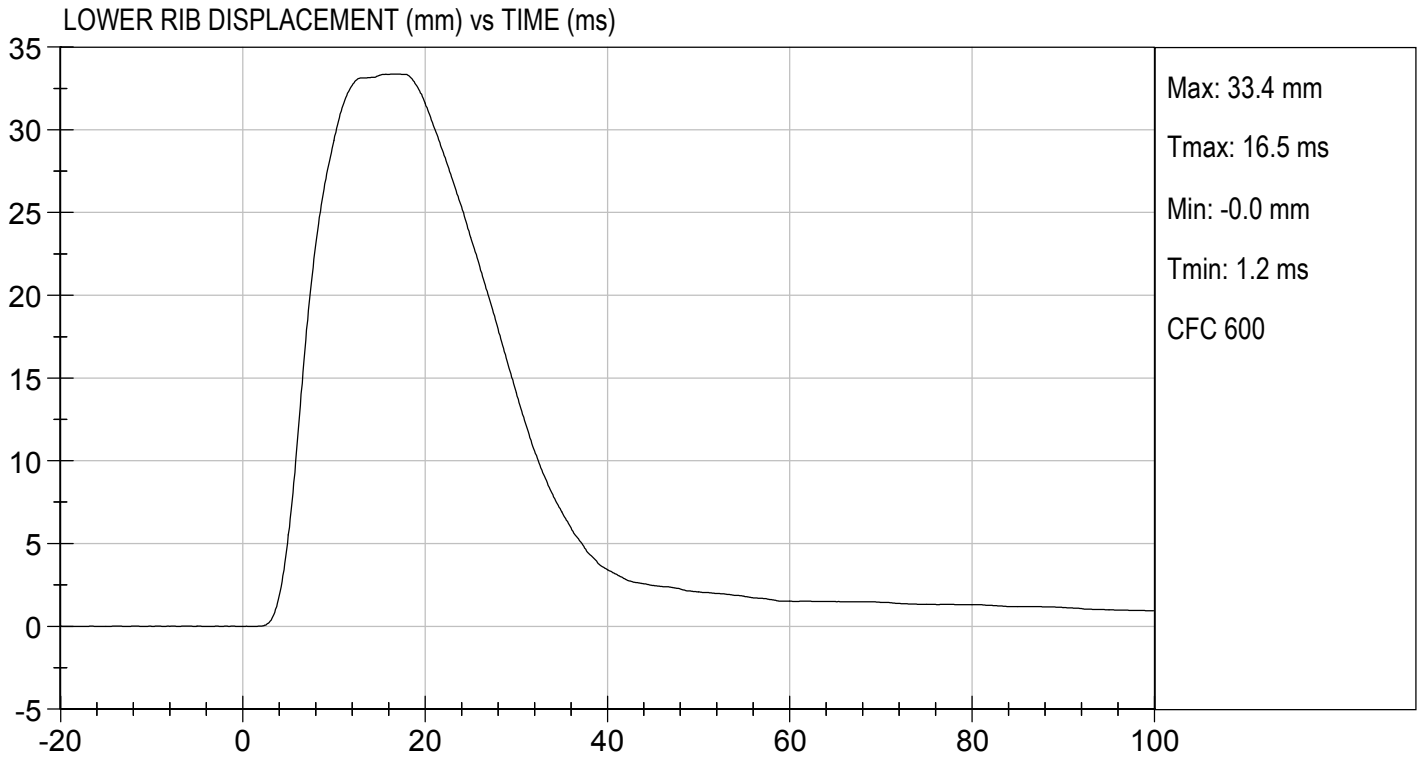
  
 Laboratory Technician

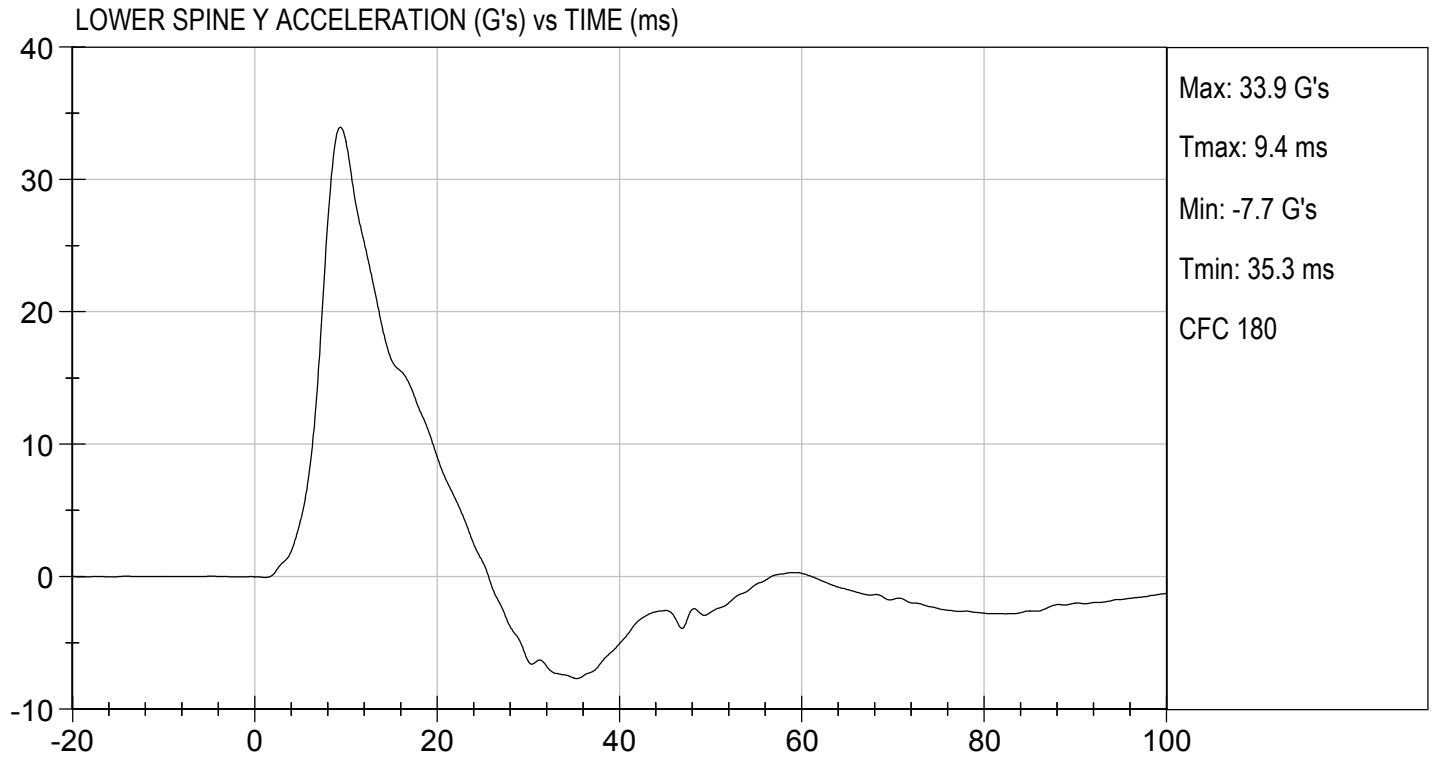
12/19/2018  
 Test Date

  
 Approved By









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

ATD Serial No: 296

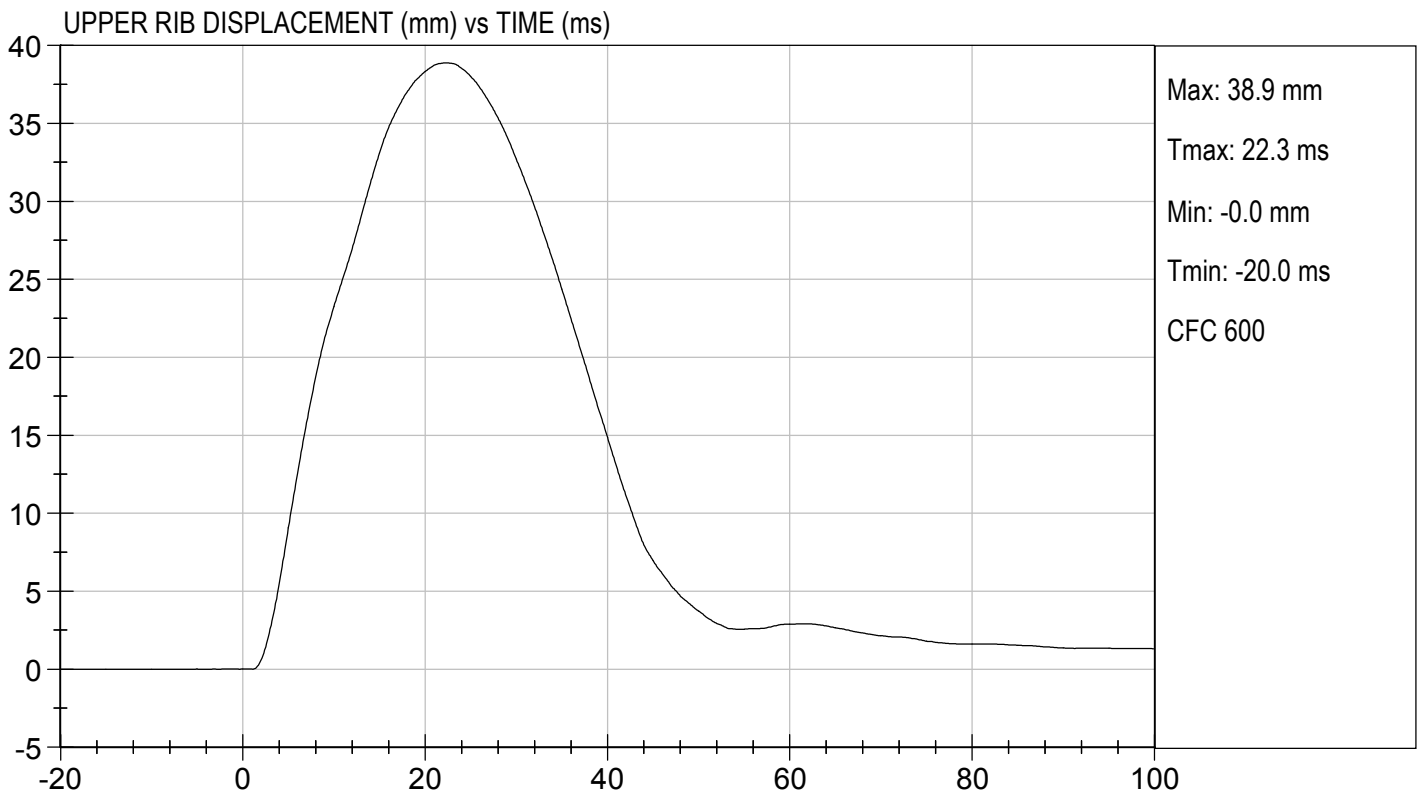
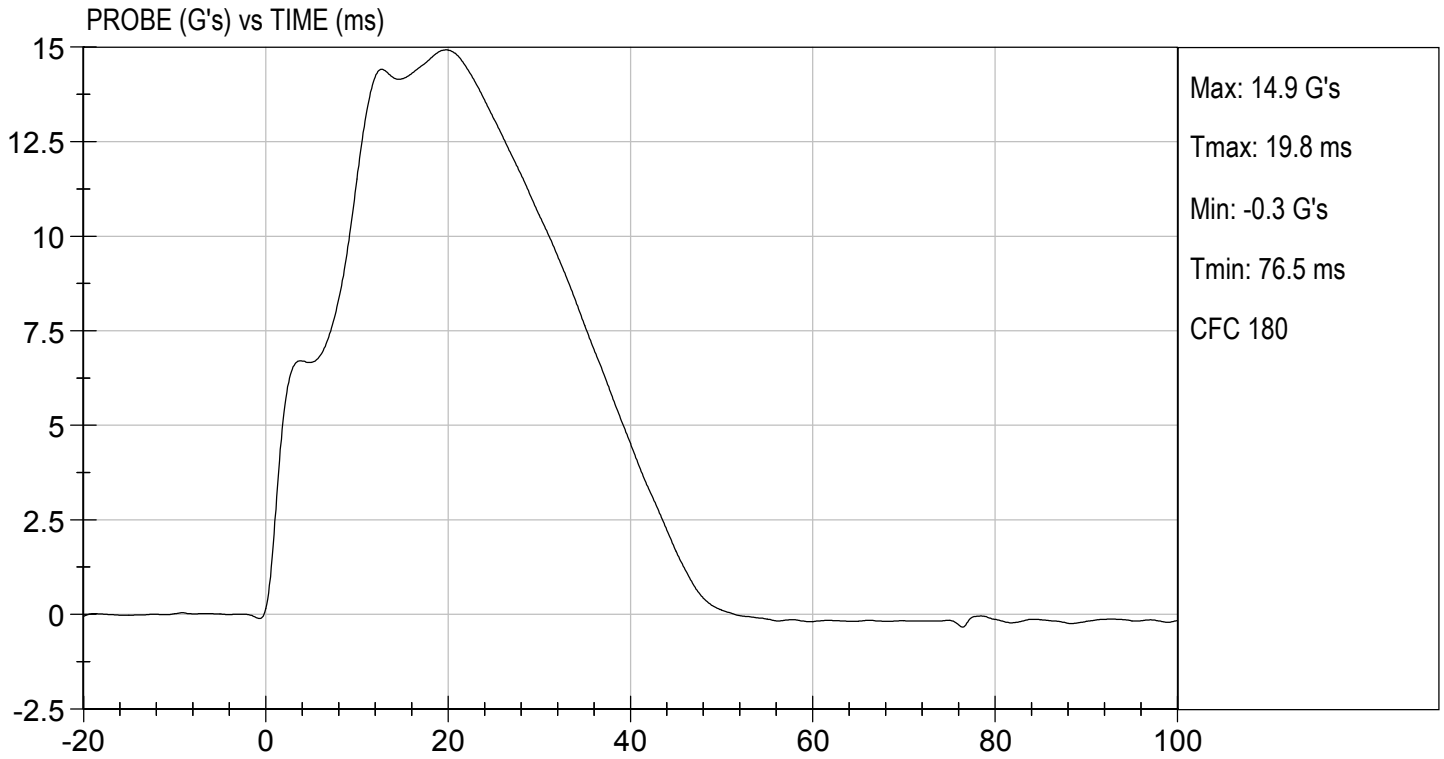
Test I.D: D183715

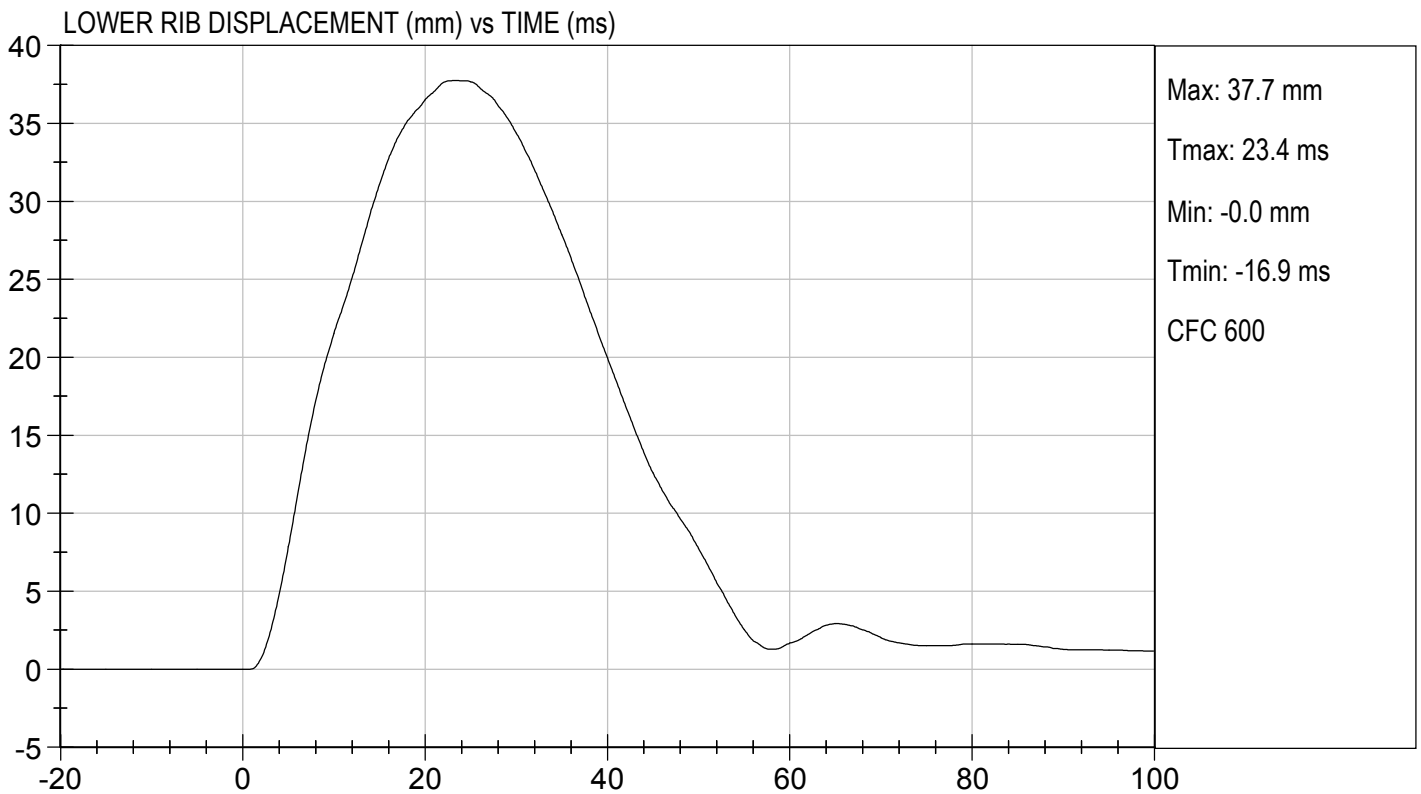
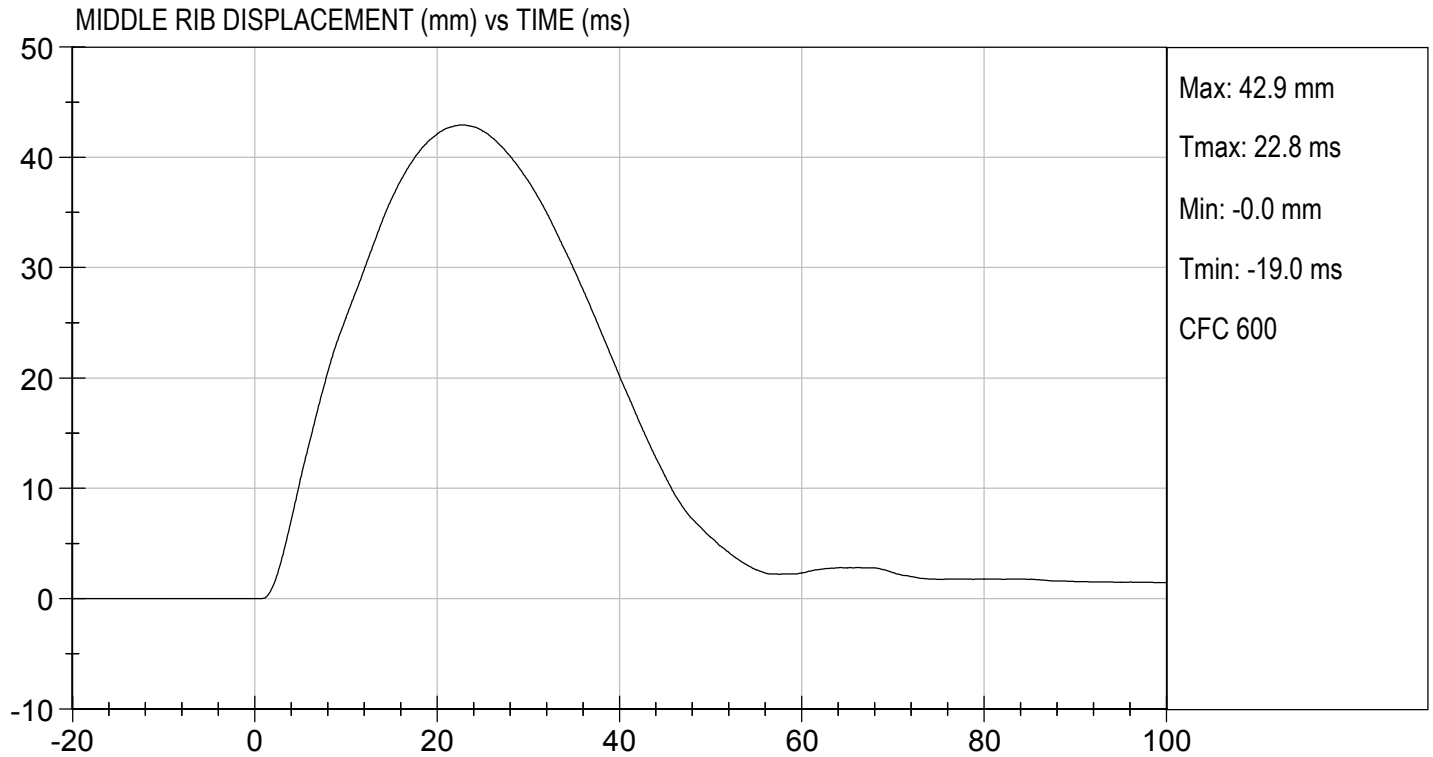
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.4	Pass
Humidity	%	10 to 70	24	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	14 to 18	15	Pass
Upper Rib Displacement	mm	32 to 40	39	Pass
Middle Rib Displacement	mm	39 to 45	43	Pass
Lower Rib Displacement	mm	35 to 43	38	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	15	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	9	Pass
<b>Overall Test Results</b>				<b>Pass</b>

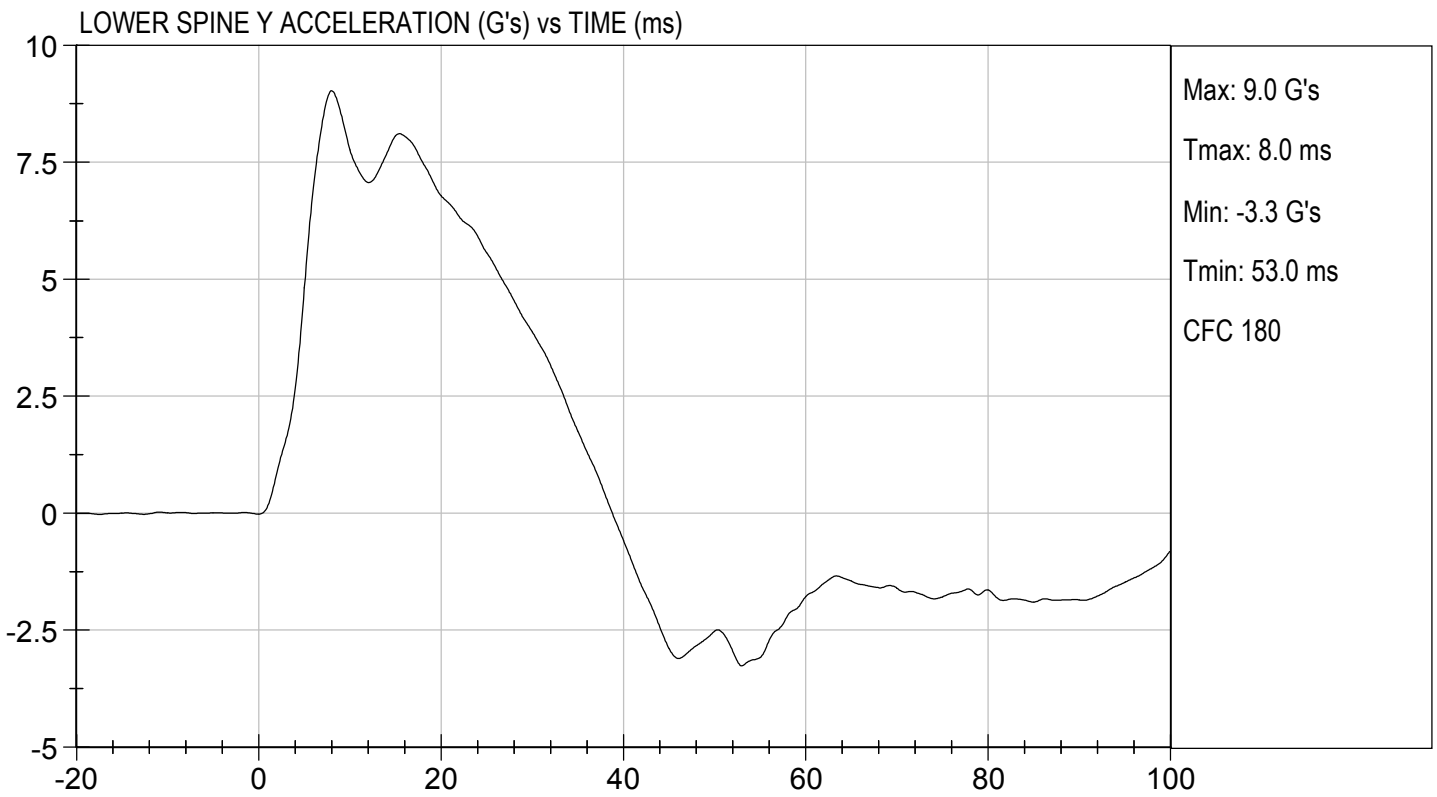
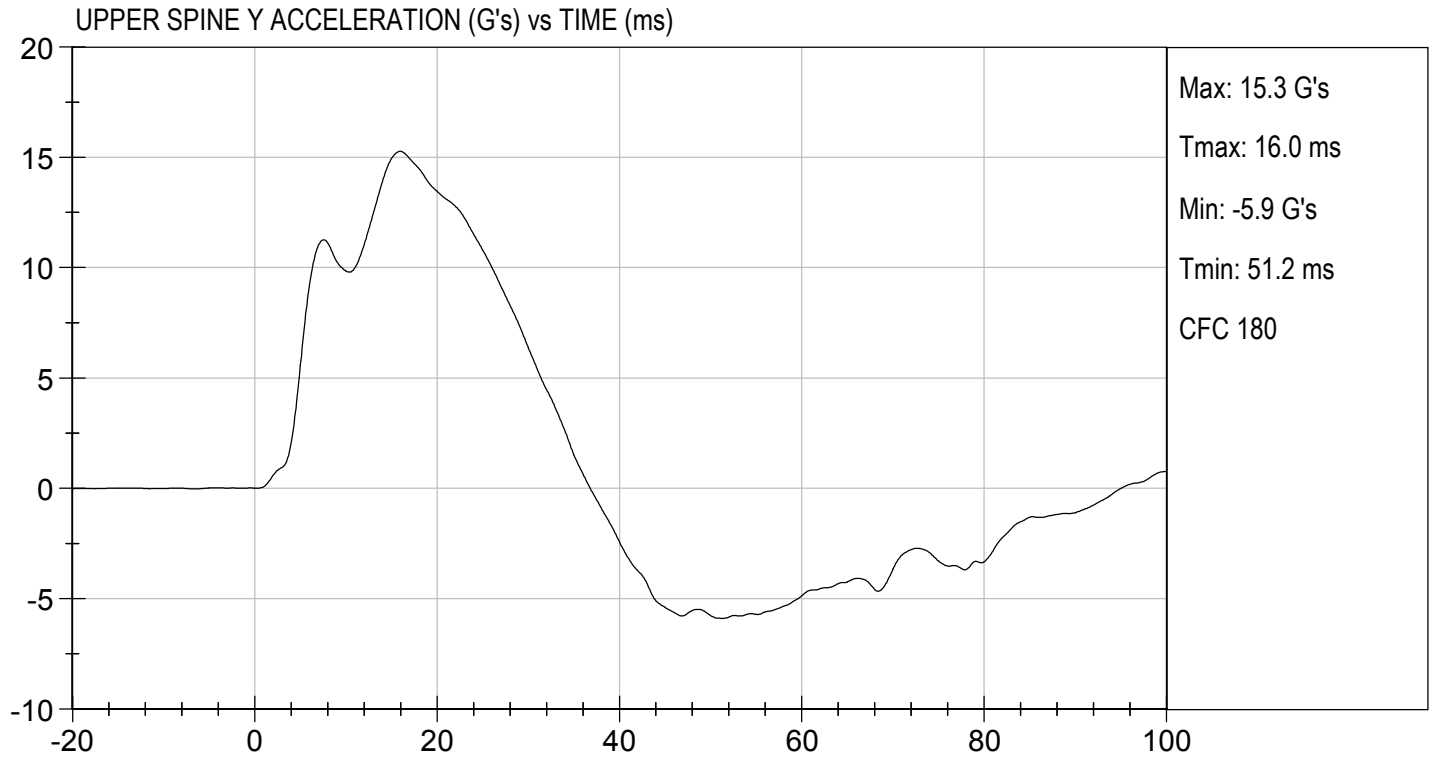
*Danielle Redinlaugh*  
 Laboratory Technician

12/19/2018  
 Test Date

*Robert Schaubert*  
 Approved By







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

ATD Serial No: 296

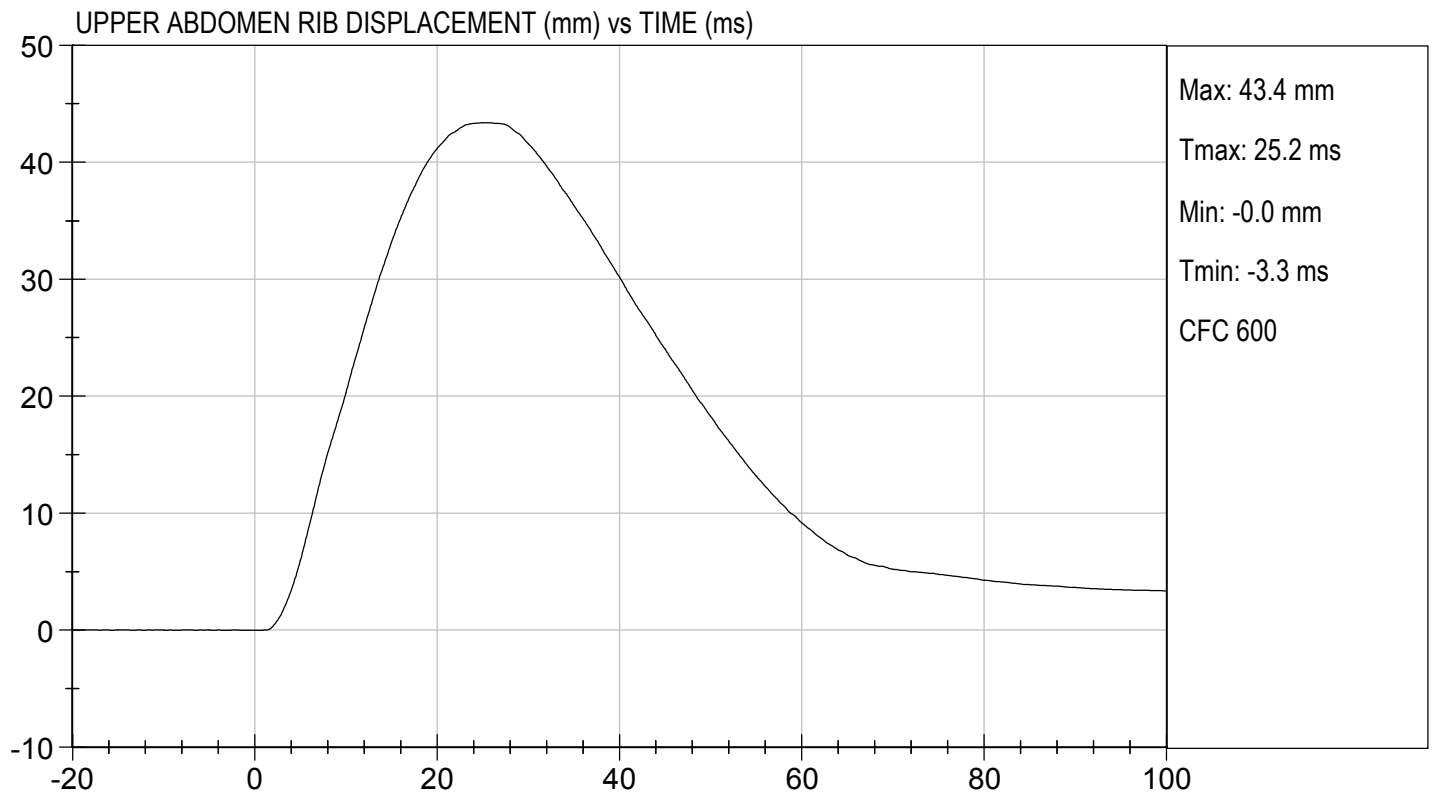
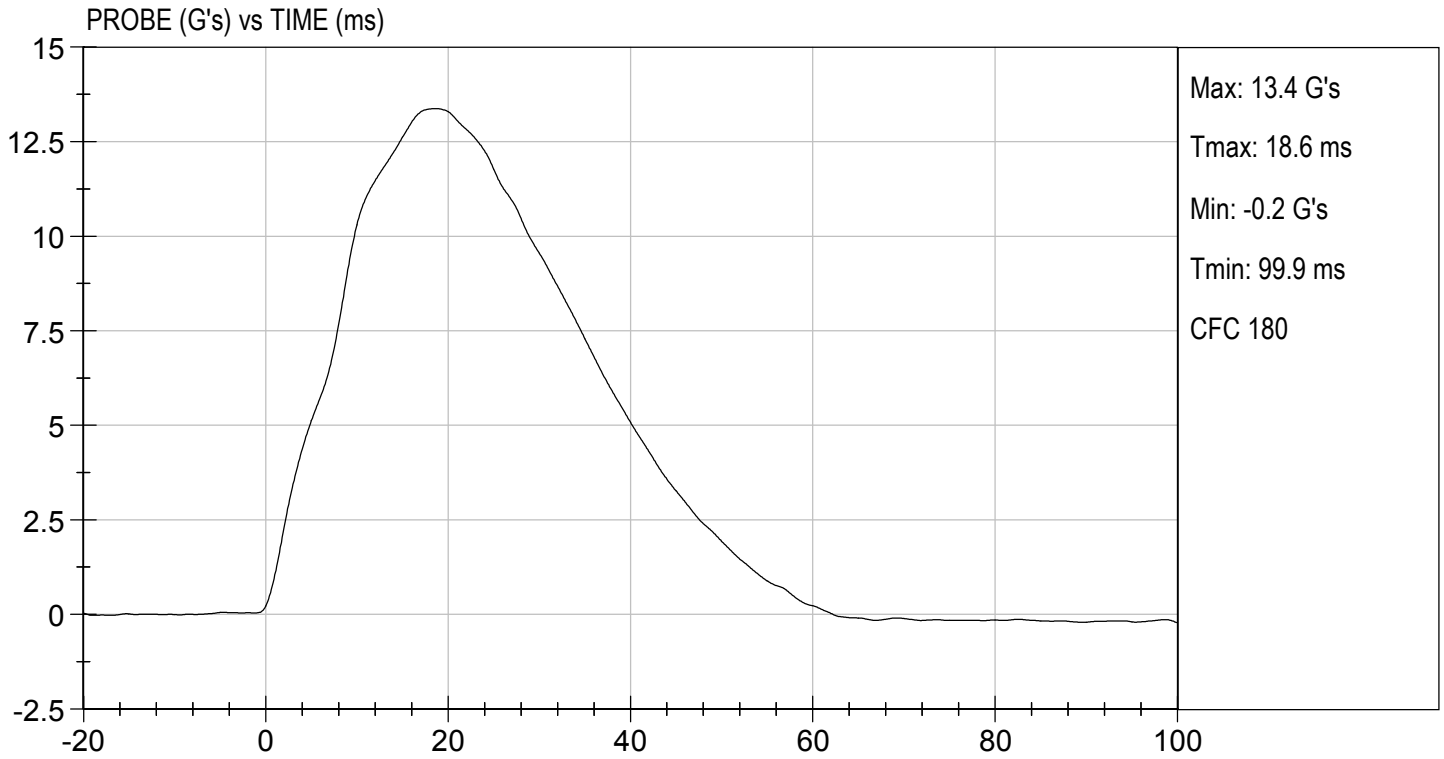
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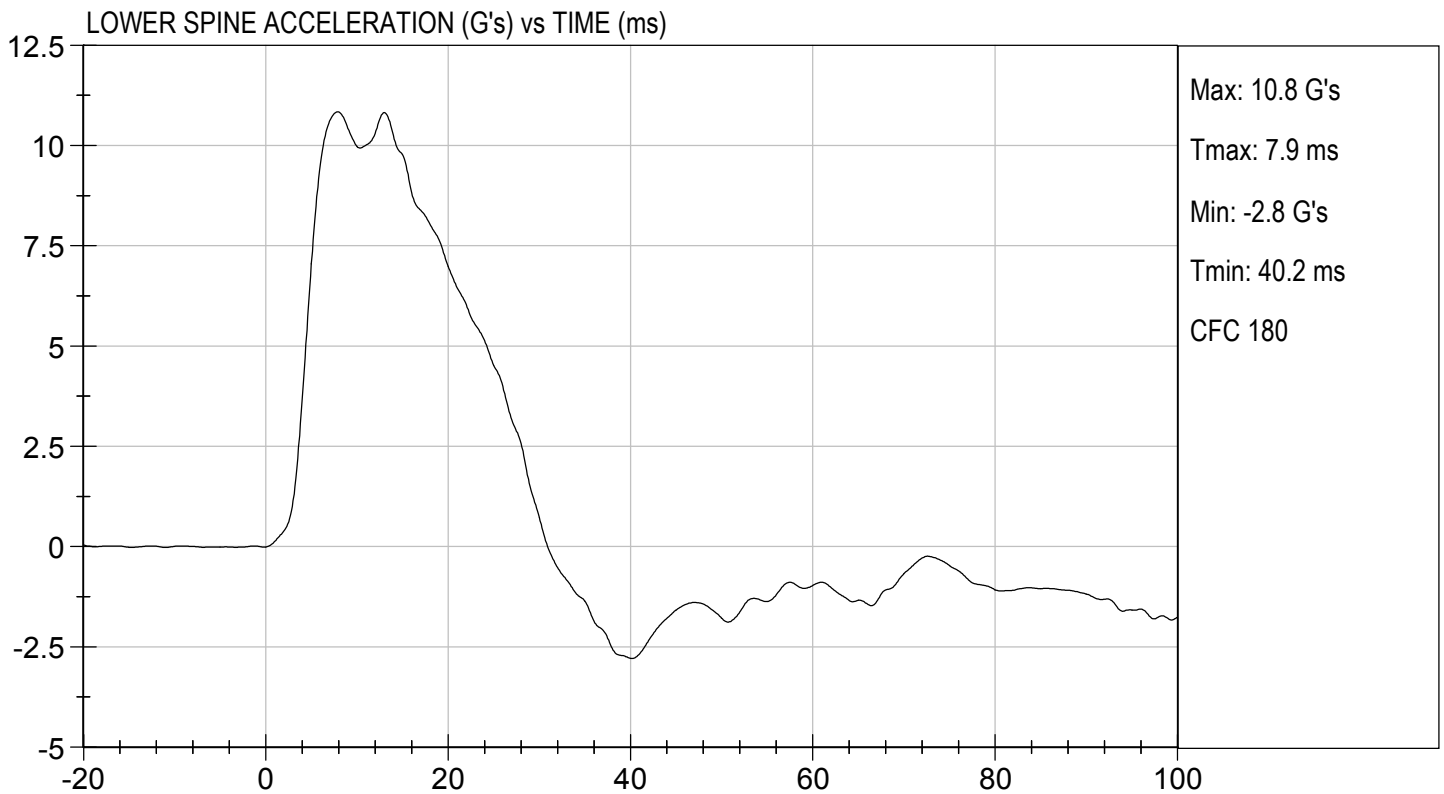
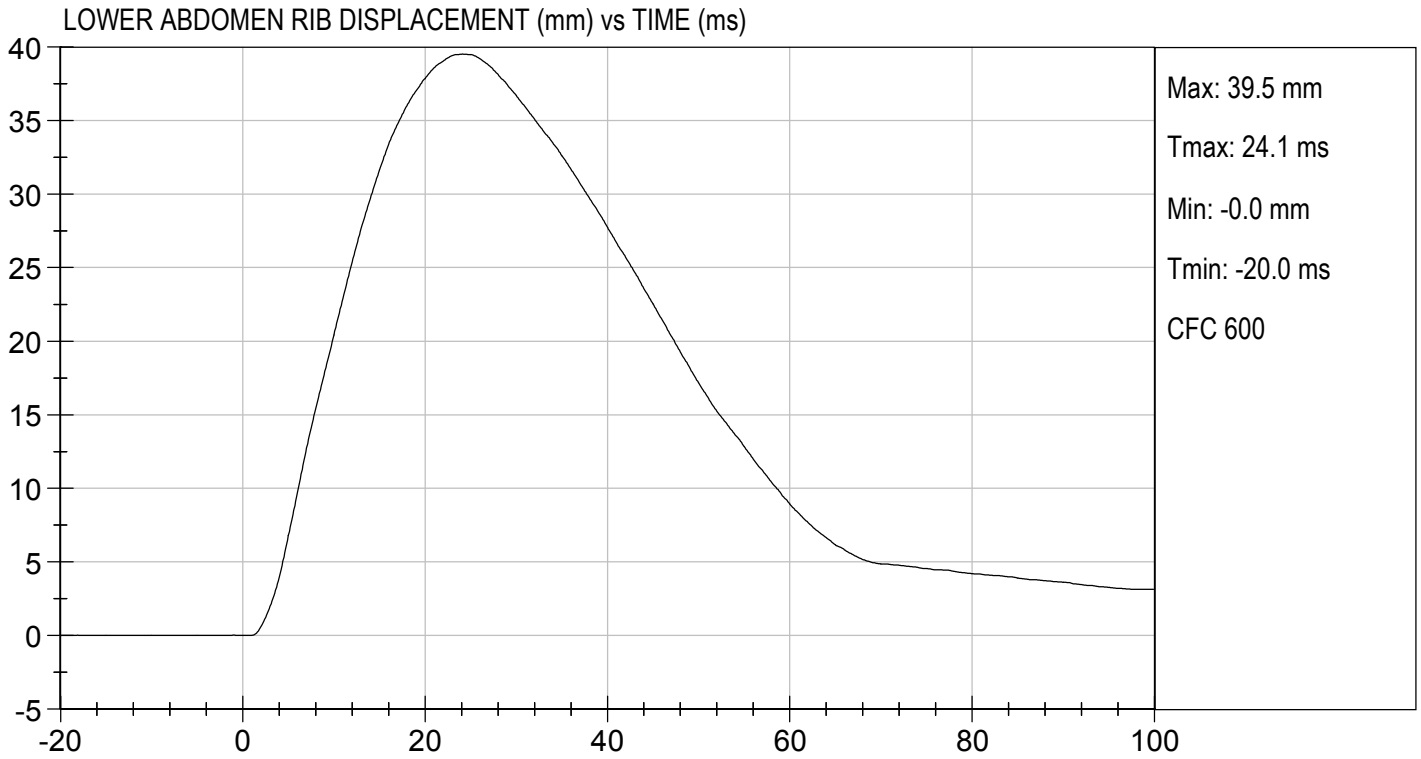
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.4	Pass
Humidity	%	10 to 70	24	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Maximum Probe Acceleration	G's	12 to 16	13	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	43	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	40	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
Overall Test Results				Pass

*Danielle Redinlaugh*  
Laboratory Technician

12/19/2018  
Test Date

*Robert Schaefer*  
Approved By





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

**ATD Serial No:** 296

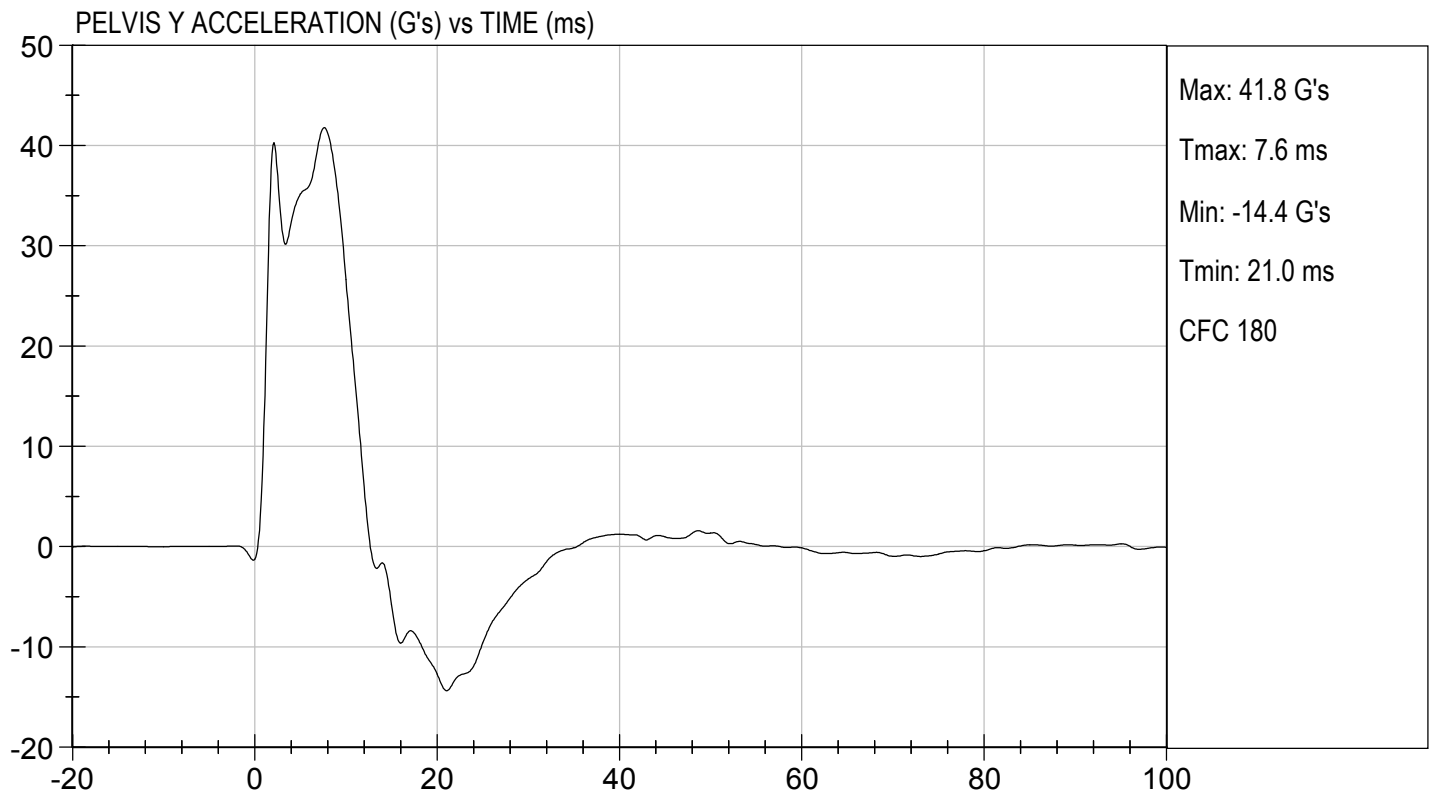
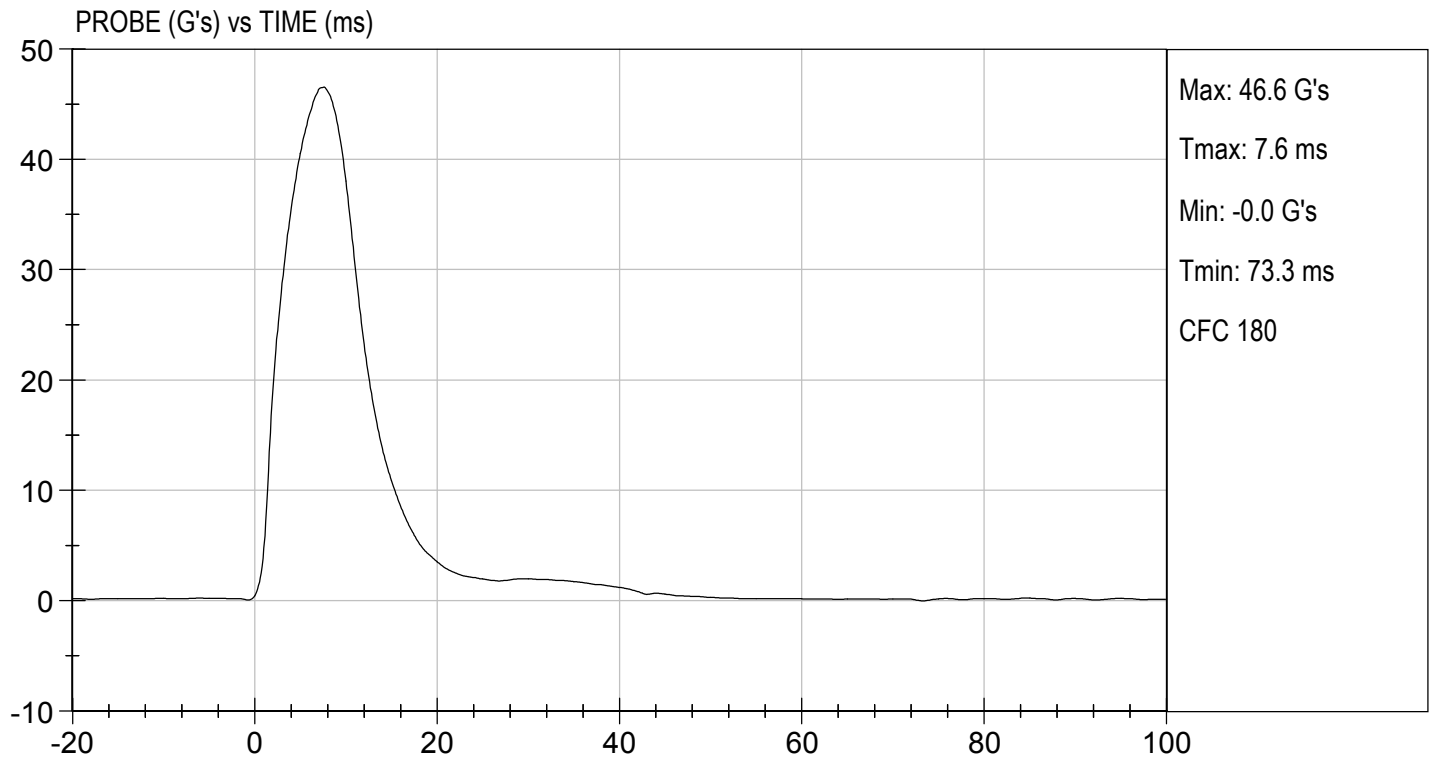
**Test I.D.:** D183717

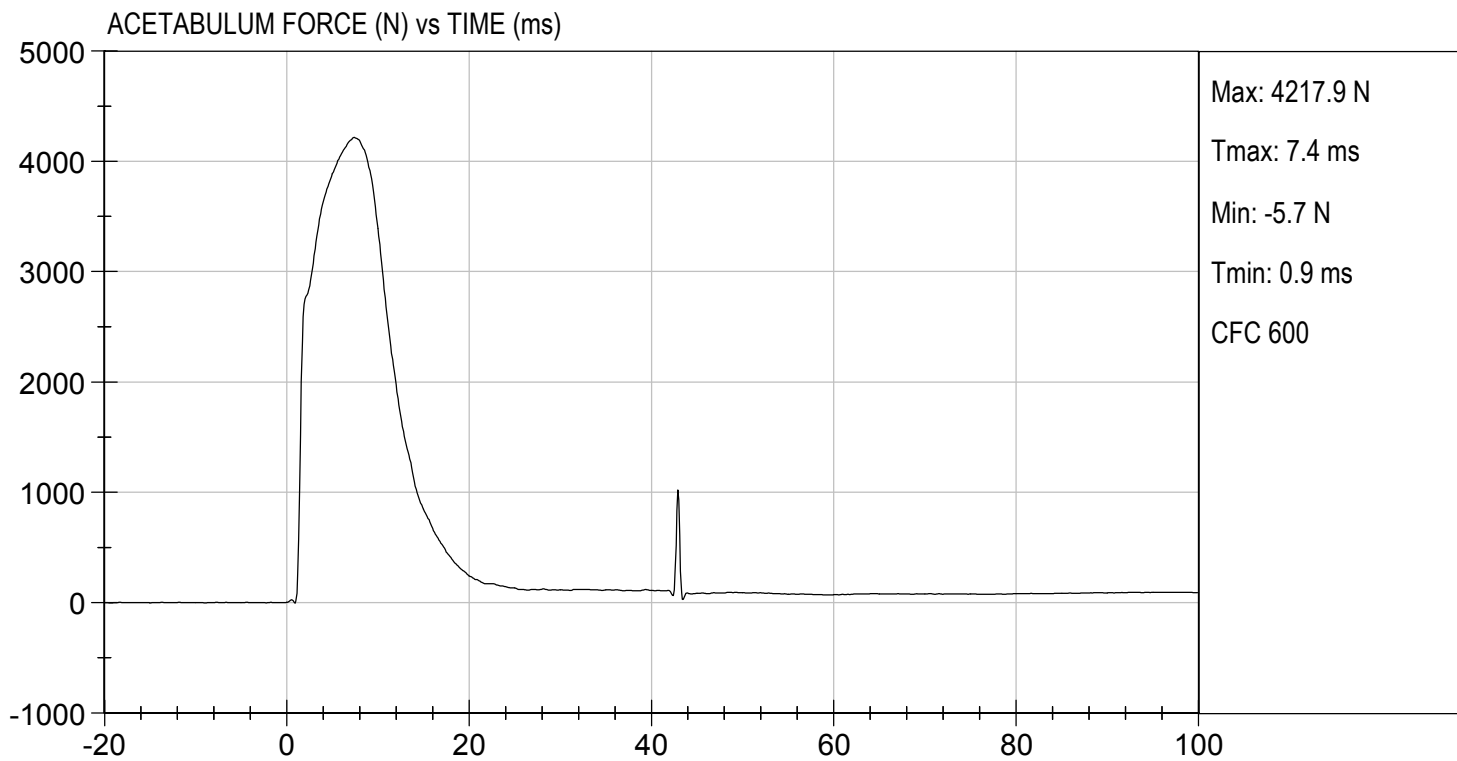
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.4	Pass
Humidity	%	10 to 70	24	Pass
Impact Velocity	m/s	6.60 to 6.80	6.60	Pass
Maximum Probe Acceleration	G's	38 to 47	47	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	42	Pass
Peak Acetabulum Force	N	3600 to 4300	4,218	Pass
<b>Overall Test Results</b>				<b>Pass</b>

*Danielle Redinlaugh*  
 Laboratory Technician

12/19/2018  
 Test Date

*Robert Schaubert*  
 Approved By





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

ATD Serial No: 296

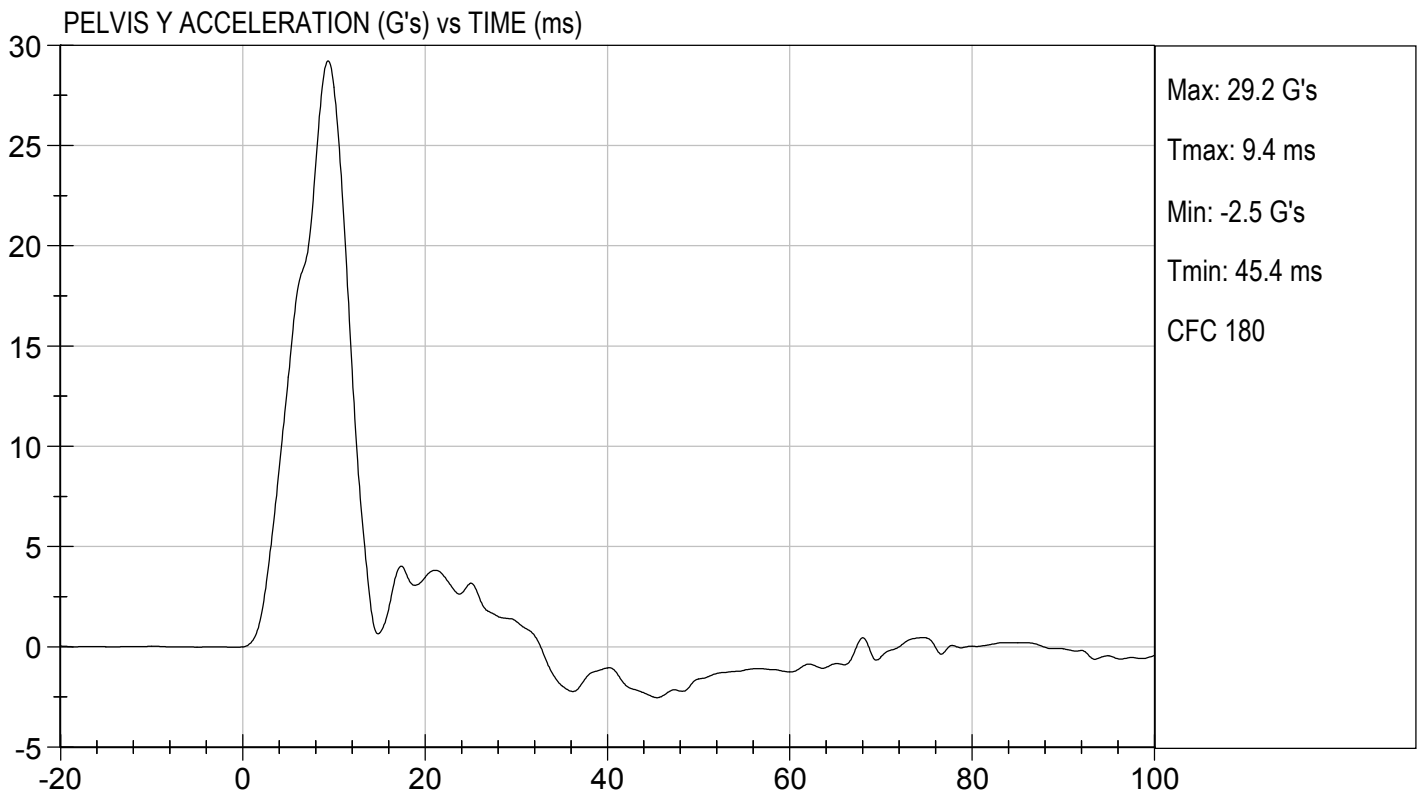
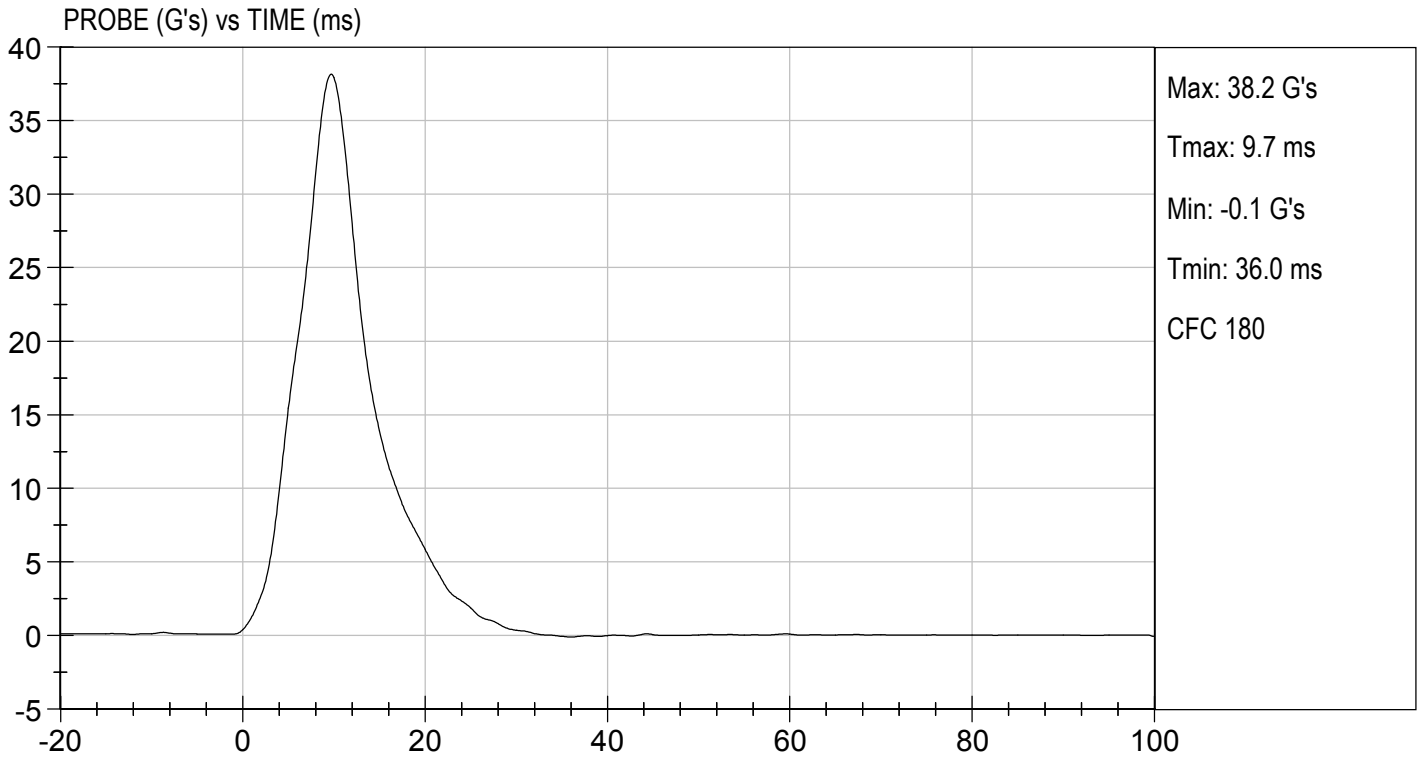
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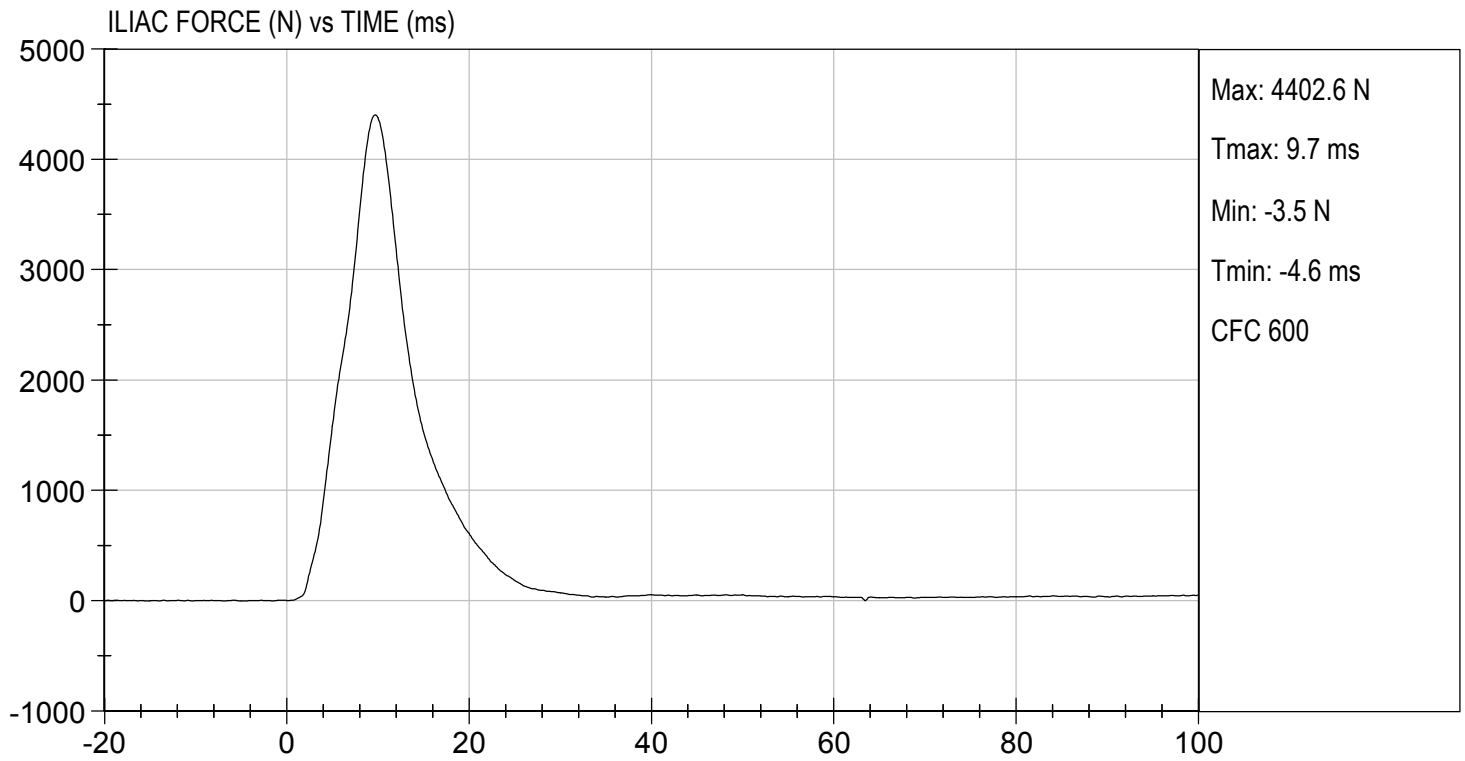
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.4	Pass
Humidity	%	10 to 70	24	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	36 to 45	38	Pass
Pelvis Y Acceleration	G's	28 to 39	29	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,403	Pass
Overall Test Results				Pass

*Danielle Redinlaugh*  
 Laboratory Technician

12/19/2018  
 Test Date

*Robert Schaefer*  
 Approved By







**SID-IIs Pelvis Plug Certification Test**

Plug S/N 12073

Test Number 6476

Report Number 6491

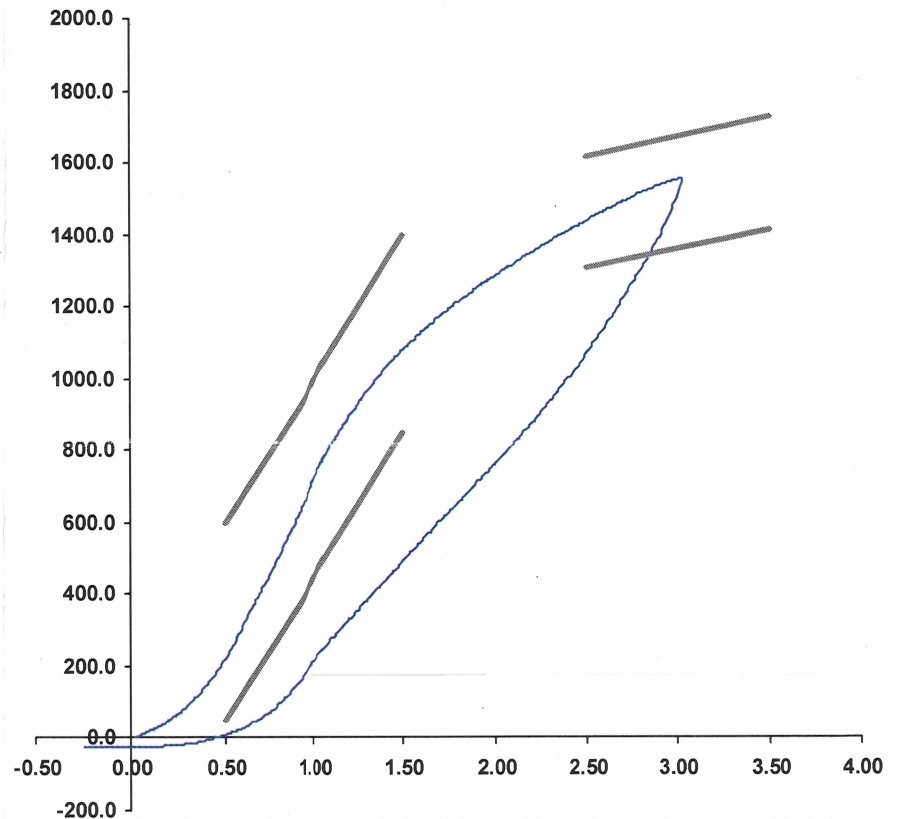
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	<u>Test Results</u>	<u>Spec Min</u>	<u>Spec Max</u>
Force @ 0.5 mm (N)	220.65	50.00	600.00
Force @ 1.5 mm (N)	1,080.21	850.00	1,400.00
Force @ 2.5 mm (N)	1,441.36	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,556.65	1,361.00	1,673.00

Testing Machine STM-20 5965542  
 Load Cell S/N (FI360947), 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 \_\_\_\_\_  
 Part Number 180-4450

Template No 107 27-Feb-18  
 SACO Research

By : DC Date : 2/27/18



**SID-IIs Pelvis Plug Certification Test**

Plug S/N 12138

Test Number 6497

Report Number 6512

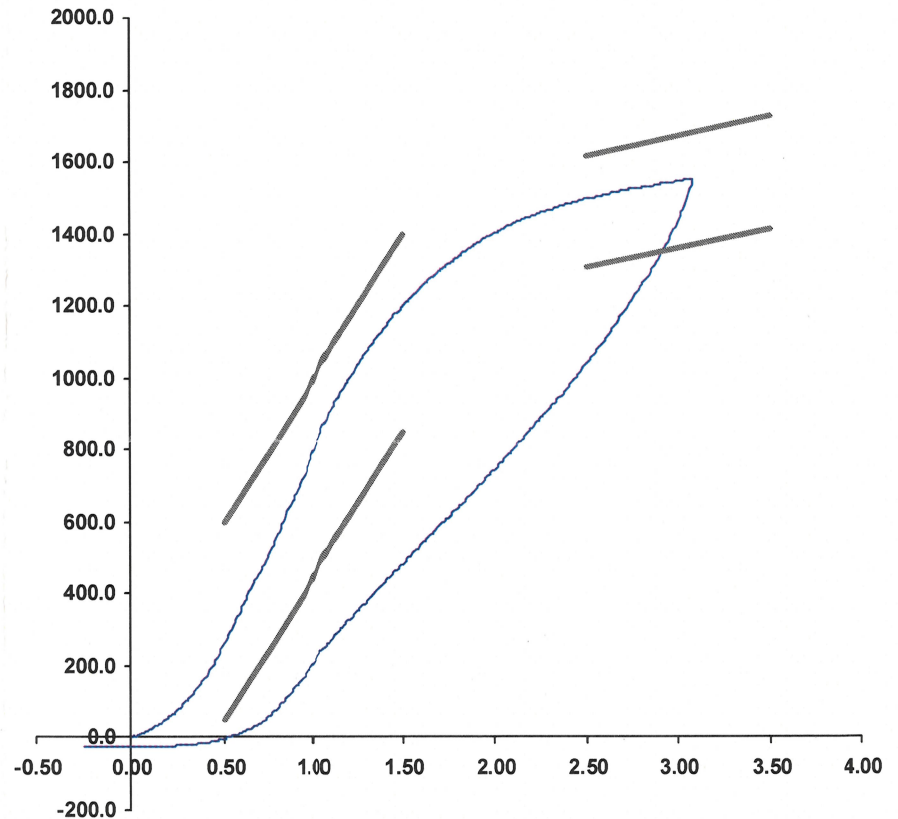
Test Date 2/28/2018 9:59:46 AM

	<u>Test Results</u>	<u>Spec Min</u>	<u>Spec Max</u>
Force @ 0.5 mm (N)	261.89	50.00	600.00
Force @ 1.5 mm (N)	1,200.48	850.00	1,400.00
Force @ 2.5 mm (N)	1,497.44	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,547.84	1,361.00	1,673.00

Testing Machine STM-20 5965542  
 Load Cell S/N (FI360947), 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 12123  
 Part Number 180-4450

Template No 107 28-Feb-18  
 SACO Research

By: DE Date: 2/28/18

**APPENDIX D**  
**TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA**

**Table 1 – Dummy Instrumentation**

			SID-IIs S/N 296			
			Serial Number	Manufacturer	Calibration Date	
Head CG Accelerometers			X	P85003	Endevco	07/17/18
			Y	P94783	Endevco	07/17/18
			Z	P94786	Endevco	07/17/18
			Xr	P94938	Endevco	07/17/18
			Yr	P96854	Endevco	07/17/18
			Zr	P97386	Endevco	07/17/18
Head Angular Rate Sensors			X	ARS7413	DTS	07/15/14
			Y	ARS7421	DTS	07/15/14
			Z	ARS7423	DTS	07/15/14
Displacement Potentiometers	Thoracic Rib	Upper	Y	G012	FTSS	07/31/18
		Middle	Y	G1163	FTSS	07/31/18
		Lower	Y	G1158	FTSS	07/31/18
	Abdominal Rib	Upper	Y	G1146	FTSS	07/31/18
		Lower	Y	G1126	FTSS	07/31/18
Lower Spine Accelerometers (T12)			X	P79418	Endevco	07/17/18
			Y	P79439	Endevco	07/17/18
			Z	P79614	Endevco	07/17/18
Acetabulum Load Cell			Y	ACG111	FTSS	04/04/18
Iliac Wing Load Cell			Y	IWG226	FTSS	04/04/18
Pelvis Plug (struck side)				12073	SACO	02/27/18
Pelvis Plug (non-struck side)				12138	SACO	02/28/18

**Table 2 – Vehicle Instrumentation**

		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	PCB1359	PCB	08/14/18
Vehicle Center of Gravity	Y	PCB1340	PCB	08/14/18
Vehicle Center of Gravity	Z	PCB1339	PCB	08/14/18
Left Floor Sill	Y	PCB1351	PCB	08/20/18
A-Pillar Sill	Y	PCB1367	PCB	08/20/18
A-Pillar Low	Y	T16908	Endevco	12/05/18
A-Pillar Mid	Y	T16907	Endevco	12/05/18
B-Pillar Sill	Y	T16917	Endevco	12/05/18
B-Pillar Low	Y	PCB1349	PCB	08/14/18
B-Pillar Mid	Y	T16915	Endevco	12/05/18
Driver Seat	Y	T17825	Endevco	12/05/18
Engine Top	X	PCB1324	PCB	06/29/18
Engine Top	Y	PCB1248	PCB	06/29/18
Firewall	Y	T16873	Endevco	08/15/18
Right Roof	Y	T10534	Endevco	08/06/18
Right Floor Sill	Y	PCB1347	PCB	06/29/18
Rear Floorpan	X	T16895	Endevco	12/05/18
Rear Floorpan	Y	T17827	Endevco	12/05/18

**Table 3 – Pole Instrumentation**

	Serial Number	Manufacturer	Calibration Date
Load Cell 1	DG6277	FTSS	07/30/18
Load Cell 2	DG6278	FTSS	07/30/18
Load Cell 3	DG6279	FTSS	07/30/18
Load Cell 4	DG6280	FTSS	07/30/18
Load Cell 5	DG6281	FTSS	07/30/18
Load Cell 6	DG6283	FTSS	07/30/18
Load Cell 7	DG6284	FTSS	07/30/18
Load Cell 8	DG6582	FTSS	07/30/18