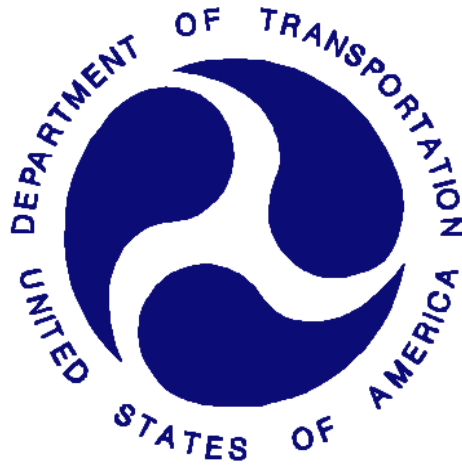


**REPORT NUMBER: SideNCAPPole-MGA-23-006**

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

**HONDA DE MEXICO S.A. DE C.V.  
2023 Honda HR-V LX 5-Door SUV  
NHTSA No.: O20235304**

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



**Test Date: January 20, 2023**

**Final Report Date: December 19, 2023**

**FINAL REPORT**

**U.S. DEPARTMENT OF TRANSPORTATION  
National Highway Traffic Safety Administration  
Office of Crashworthiness Standards  
Mail Code: NRM-100  
1200 New Jersey Ave, SE  
Washington, DC 20590**

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If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement.

Prepared by:   
Ben Fischer, Program Manager

Approved by:   
Robert Schnorenberg, Project Engineer

Approval Date: December 19, 2023

FINAL REPORT ACCEPTANCE BY OCWS:

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

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

## TECHNICAL REPORT DOCUMENTATION PAGE

<b>1. Report No.</b> SideNCAPPole-MGA-23-006	<b>2. Government Accession No.</b>	<b>3. Recipient's Catalog No.</b>																											
<b>4. Title and Subtitle</b> Final Report of New Car Assessment Program Side Impact Pole Testing of a 2023 Honda HR-V LX 5-Door SUV, NHTSA No.: O20235304		<b>5. Report Date</b> December 19, 2023																											
<b>7. Author(s)</b> Ben Fischer, Program Manager		<b>6. Performing Organization Code</b> MGA																											
<b>9. Performing Organization Name and Address</b> MGA Research Corporation 5000 Warren Road Burlington, WI 53105		<b>8. Performing Organization Report No.</b> SideNCAPPole-MGA-23-006																											
<b>12. Sponsoring Agency Name and Address</b> United States Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards Mail Code: NRM-100 1200 New Jersey Ave, SE Washington, DC 20590		<b>10. Work Unit No.</b>																											
		<b>11. Contract or Grant No.</b> 693JJ920D000017																											
<b>15. Supplementary Notes</b>		<b>13. Type of Report and Period Covered:</b> Final Test Report January 20, 2023 to December 19, 2023																											
		<b>14. Sponsoring Agency Code</b> NRM-100																											
<b>16. Abstract</b> A 32.20 km/h, 75° oblique impact Side NCAP Test was conducted on the subject 2023 Honda HR-V LX 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 the MGA Research Corporation facility in Burlington, Wisconsin on January 20, 2023.  The impact velocity was 32.11 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21.4°C. The test vehicle post-test maximum crush was 293 mm at level 3. The test vehicle's performance was as follows:																													
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="width: 55%;">Measurement Description</th> <th rowspan="2" style="width: 10%;">Units</th> <th colspan="2" style="width: 35%;">Driver ATD (SID-IIs)</th> </tr> <tr> <th style="width: 15%;">Threshold</th> <th style="width: 20%;">Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC<sub>36</sub>)</td> <td></td> <td style="text-align: center;">1000</td> <td style="text-align: center;">292.072</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td style="text-align: center;">g</td> <td style="text-align: center;">82</td> <td style="text-align: center;">41.743</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;">2510.424</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;">19.197</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;">18.066</td> </tr> </tbody> </table>				Measurement Description	Units	Driver ATD (SID-IIs)		Threshold	Result	Head Injury Criteria (HIC <sub>36</sub> )		1000	292.072	Resultant Lower Spine Acceleration	g	82	41.743	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2510.424	Maximum Thoracic Rib Deflection	mm	38*	19.197	Maximum Abdomen Rib Deflection	mm	45*	18.066
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*Proposed IARV																													
The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite door(s) 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 1200 New Jersey Ave, SE Washington, DC 20590																											
<b>19. Security Classification of Report</b> Unclassified	<b>20. Security Classification of Page</b> Unclassified	<b>21. No. of Pages</b> 139	<b>22. Price</b>																										

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## SECTION 1 PURPOSE AND SUMMARY OF TEST

### PURPOSE

This side pole impact test is part of the MY 2023 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. 693JJ920D000017. The purpose of this test is to generate comparative side impact performance in a 2023 Honda HR-V LX 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 March 2020.

### SUMMARY

A rigid pole side impact test was conducted on a 2023 Honda HR-V LX 5-Door SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.11 km/h. The test was conducted by MGA Research Corporation in Burlington, Wisconsin on January 20, 2023. 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 March 2020. 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
- Head Triaxial Angular Rate Sensors
- 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	Units	Driver ATD (SID-IIs)	
		Threshold	Result
Head Injury Criteria (HIC36)		1000	292.072
Resultant Lower Spine Acceleration	g	82	41.743
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2510.424
Maximum Thoracic Rib Deflection	mm	38*	19.197
Maximum Abdomen Rib Deflection	mm	45*	18.066

\*Proposed IARV

Supplemental restraint information is given below:

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	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	Yes	Yes
Side Torso Airbag	No		No	
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes		Yes	
Other:	No		No	

The test data can be found on the NHTSA website at [www.nhtsa.gov](http://www.nhtsa.gov)

#### GENERAL COMMENTS

None.

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

**SECTION 2**  
**OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS**

**DATA SHEET NO. 1  
GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2023 Honda HR-V LX 5-Door SUV  
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20235304  
Test Date: 1/20/2023

**TEST VEHICLE INFORMATION AND OPTIONS**

NHTSA No.	O20235304	Traction Control System (TCS)	Yes
Model Year	2023	Auto-Leveling System	No
Make	Honda	Automatic Door Locks (ADL)	Yes
Model	HR-V LX	Power Window Auto-Reverse	Yes
Body Style	5-Door SUV	Other Optional Feature	No
VIN	3CZRZ1H35PM714581	Driver Front Airbag	Yes
Body Color	Crystal Black Pearl	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	58 km / 36 mi	Driver Head/Torso Airbag	No
Engine Displacement (L)	2.0 L	Driver Torso Airbag	No
Type/No. Cylinders	Inline 4	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Lateral	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	Yes
Transmission Speeds	CVT	Rear Pass. Curtain Airbag	Yes
Overdrive	Yes	Rear Pass. Head/Torso Airbag	No
Final Drive	2WD	Rear Pass. Torso Airbag	No
Roof Rack	No	Rear Pass. Torso/Pelvis Airbag	Yes
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	Yes
Power Seats	No	Driver Load Limiter	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Pass. Load Limiter	Yes
		Other Safety Restraint	N/A

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

**DATA FROM CERTIFICATION LABEL**

Manufactured By	HONDA DE MEXICO S.A. DE C.V.	GVWR (kg)	1910
Date of Manufacture	10/22	GAWR Front (kg)	1020
Vehicle Type	MPV	GAWR Rear (kg)	925

**VEHICLE SEATING AND WEIGHT CAPACITY DATA**

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	
Capacity Weight (VCW) (kg)				380	(A)
DSC x 68 kg				340	(B)
Rated Cargo and Luggage Weight (RCLW) (kg)				40	(A-B)

**VEHICLE SEAT TYPE**

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



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

Test Vehicle: 2023 Honda HR-V LX 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20235304  
 Test Date: 1/20/2023

**TEST PRESSURES**

	Units	LF	RF	LR	RR
As Delivered	kPa	235	235	235	220
Tire Placard	kPa	230	230	220	220
Owner's Manual	kPa	230	230	220	220
As Tested	kPa	230	230	220	220

**TEST AXLE VEHICLE WEIGHTS**

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	415.5	302.5		438.0	333.5		434.5	343.5	
Right	kg	416.5	288.0		422.5	312.5		419.0	317.5	
Ratio	%	58.5%	41.5%		57.1%	42.9%		56.4%	43.6%	
Totals	kg	832.0	590.5	1422.5	860.5	646.0	1506.5	853.5	661.0	1514.5

**TARGET TEST WEIGHT CALCULATION**

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1422.5	(A)
Actual Weight of 1 P572 ATD (SID-IIs) Used	kg	52	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	40	(C)
Calculated Test Vehicle Target Weight (TVTWT)	kg	1514.5	(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-back)*	deg	-0.3	0.6	0.8	Yes
Front Pass. Door Sill Angle (front-to-back)*	deg	-0.2	0.6	0.7	Yes
Front Bumper Angle (left-to-right)**	deg	0.5	0.4	0.4	Yes
Rear Bumper Angle (left-to-right)**	deg	0.2	0.5	0.8	Yes
Vehicle CG (Aft of Front Axle)	mm	1103	1140	1160	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	8	19	22	

\* 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 TVTWT**

Component Description	Units	Weight
Weight of Ballast Added	kg	0
Components Removed: none	kg	

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

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

Test Vehicle: 2023 Honda HR-V LX 5-Door SUV  
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20235304  
Test Date: 1/20/2023

**TEST SURFACE MARKINGS**

	Distance from 75° Impact Location Line (mm)
Fore 25 mm Target	898
Aft 25 mm Target	891

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

Test Vehicle: 2023 Honda HR-V LX 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20235304  
 Test Date: 1/20/2023

**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	24.0	17.8	20.9
Front Passenger Seat	Fixed	Fixed	Fixed
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed

**SEAT HEIGHT AND ANGLE**

Seat	As-Tested SCRL Angle (Mid) (°)	As-Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rear-Most	Mid	Forward-Most
Driver Seat	20.9	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Front Passenger Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Front Center Seat			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed

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

Test Vehicle: 2023 Honda HR-V LX 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

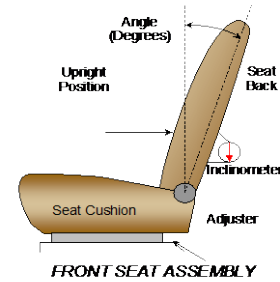
NHTSA No.: O20235304  
 Test Date: 1/20/2023

**SEAT FORE/AFT POSITIONS**

Seat	Total Fore/Aft Travel		Test Position from Forward-Most Position	
	mm	Detents (1 <sup>st</sup> as 1)	mm	Detent (1 <sup>st</sup> as 0)
Driver Seat	240	25	0	0
Front Passenger Seat	210	22	0	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 S1 – Vehicle Setup Information 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 (1 <sup>st</sup> as 1)	Degrees	Detent (1 <sup>st</sup> as 0)
Driver Seat	70.9	36	-8.9	0
Front Passenger Seat	70.6	36	-8.1	1
Front Center Seat				
Struck Side Rear Seat	Fixed		Fixed	
Non-Struck Side Rear Seat	Fixed		Fixed	
Rear Center Seat	Fixed		Fixed	

All 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 S1 – Vehicle Setup Information.

	Total # of Positions	Placed in Position #
Driver Seat	4	0 (Uppermost as 0)

**HEAD RESTRAINT ADJUSTMENT**

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

	Total # of Positions	Placed in Position #
Driver Seat	5	0 (Lowest as 0) / Fixed Fore-Aft

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

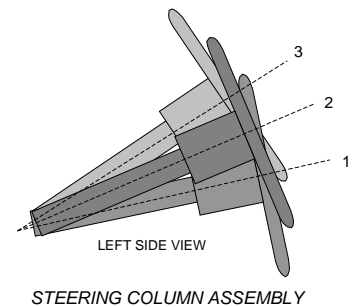
Test Vehicle: 2023 Honda HR-V LX 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20235304  
 Test Date: 1/20/2023

**STEERING COLUMN ADJUSTMENT**

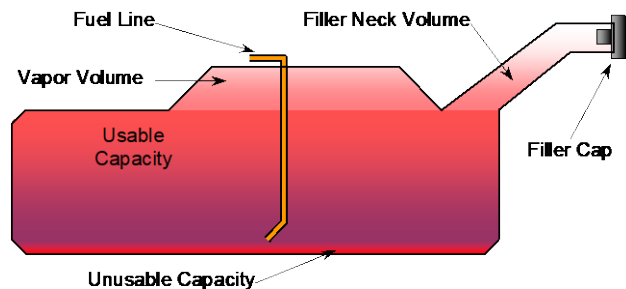
Steering wheel and column adjustments are made so that the steering wheel geometric locus is described when it moves through its full range of motion.

	Wheel Angle (°)	Fore/Aft Position (mm)
Lowermost, Position 1	68.0	
Geometric Center, Position 2	65.2	
Uppermost, Position 3	62.4	
Telescoping Steering Wheel Travel		40
Test Position	65.2	20



**FUEL PUMP**

The vehicle is equipped with an electronic fuel pump and will operate after the Engine Start/Stop Switch is pushed two times and ON (II) position is achieved. The pump will be filled up for two seconds, and then the pressure is maintained. The filler neck is located on the driver's side.



VEHICLE FUEL TANK ASSEMBLY

**FUEL TANK CAPACITY DATA**

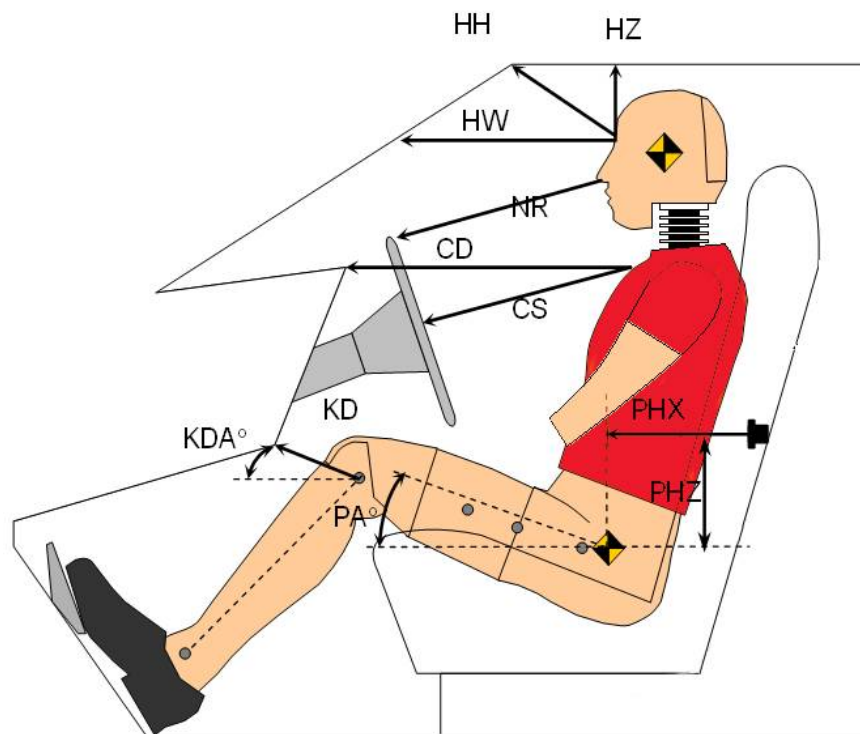
	Liters
Usable Capacity of Standard Tank (see S1 – Vehicle Setup Information)	53.0
Usable Capacity of Optional Tank (see S1 – Vehicle Setup Information)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	53.0
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	49.3
Actual Amount of Solvent Used	49.2
1/3 of Usable Capacity	17.7

Is the actual amount of solvent used in the test equal to 93%  $\pm$  1% of the Usable Capacity stated in S1 – Vehicle Setup Information? **YES**

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

Test Vehicle: 2023 Honda HR-V LX 5-Door SUV  
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20235304  
Test Date: 1/20/2023



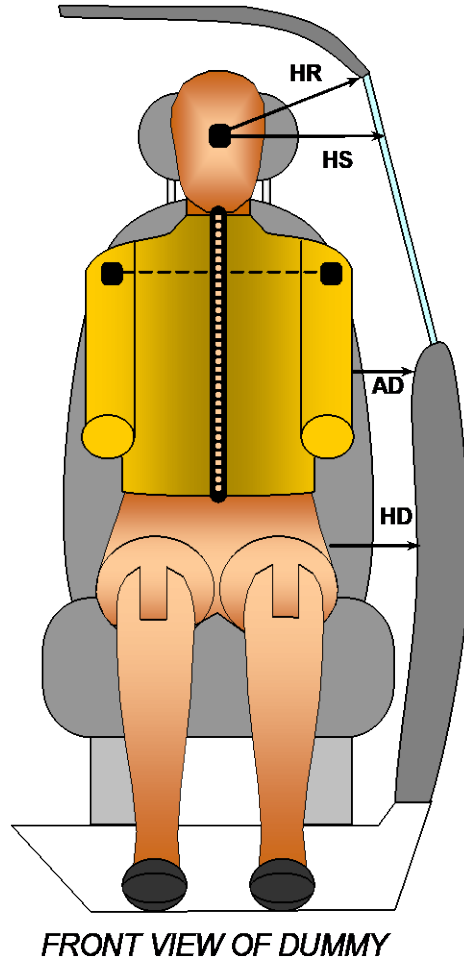
**LEFT SIDE VIEW**

Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	272	
HW	Head to Windshield	549	
HZ	Head to Roof Liner	190	
NR	Nose to Rim/Seat Back	201	
CD	Chest to Dashboard/Seat Back	386	
CS	Chest to Steering Wheel	140	
KDL / KDAL	Left Knee to Dash/Seat Back	170	36.0
KDR / KDAL	Right Knee to Dash/Seat Back	166	36.5
PAX	Pelvic Tilt Angle X		17.8
PAY	Pelvic Tilt Angle Y		0.1
PHX	Hip Point to Striker (X-Axis)	354	
PHZ	Hip Point to Striker (Z-Axis)	225	

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

Test Vehicle: 2023 Honda HR-V LX 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20235304  
 Test Date: 1/20/2023

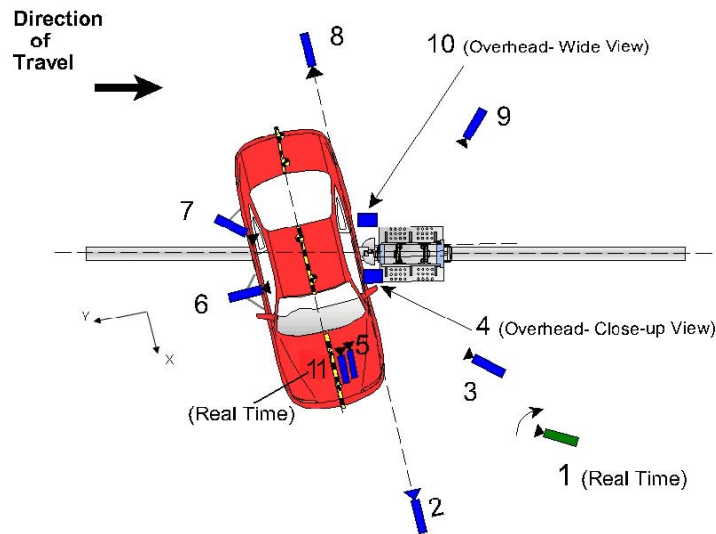


Code	Measurement Description	Driver
		Length (mm)
HR	Head to Side Header	258
HS	Head to Side Window	381
AD	Arm to Door	185
HD	Hip Point to Door	166

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

Test Vehicle: 2023 Honda HR-V LX 5-Door SUV  
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20235304  
Test Date: 1/20/2023



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

No.	Camera View	Coordinates* (mm)			Lens (mm)	Frame Rate (fps)
		X	Y	Z		
1	Real-Time Pan View					30
2	Front Ground Level	6195	-35	-1460	24	1000
3	Impact Side 45° Forward	4110	-1955	-1505	12	1000
4	Overhead Closeup	0	0	-6670	85	1000
5	Onboard – Driver Front				16	1000
6	Onboard – Driver Side				8	1000
7	Onboard – Driver Rear				8	1000
8	Rear Ground Level	-7350	-40	-1500	24	1000
9	Impact Side 45° Rearward	-2995	-3490	-1490	12	1000
10	Overhead Wide View	35	680	-6650	12	1000
11	Real-Time Dummy Front View					30

\*All measurements accurate to ±6 mm

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

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

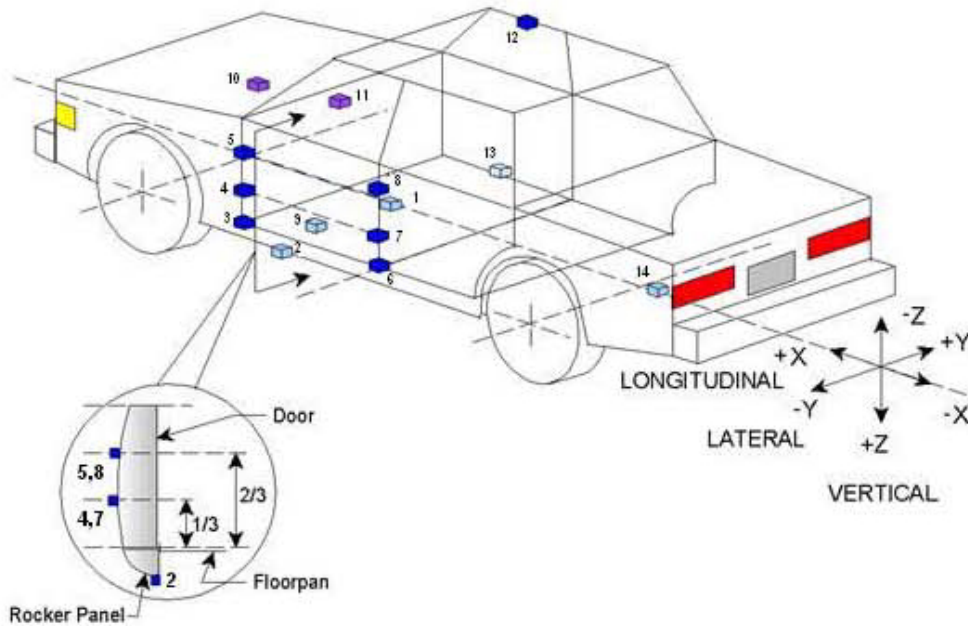
**INSTRUMENTATION**

	Number of Channels
Driver Dummy	19
Vehicle Structure	18
Pole Load Cells	8
Total	45

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

Test Vehicle: 2023 Honda HR-V LX 5-Door SUV  
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20235304  
Test Date: 1/20/2023



**TEST VEHICLE ACCELEROMETER LOCATIONS**

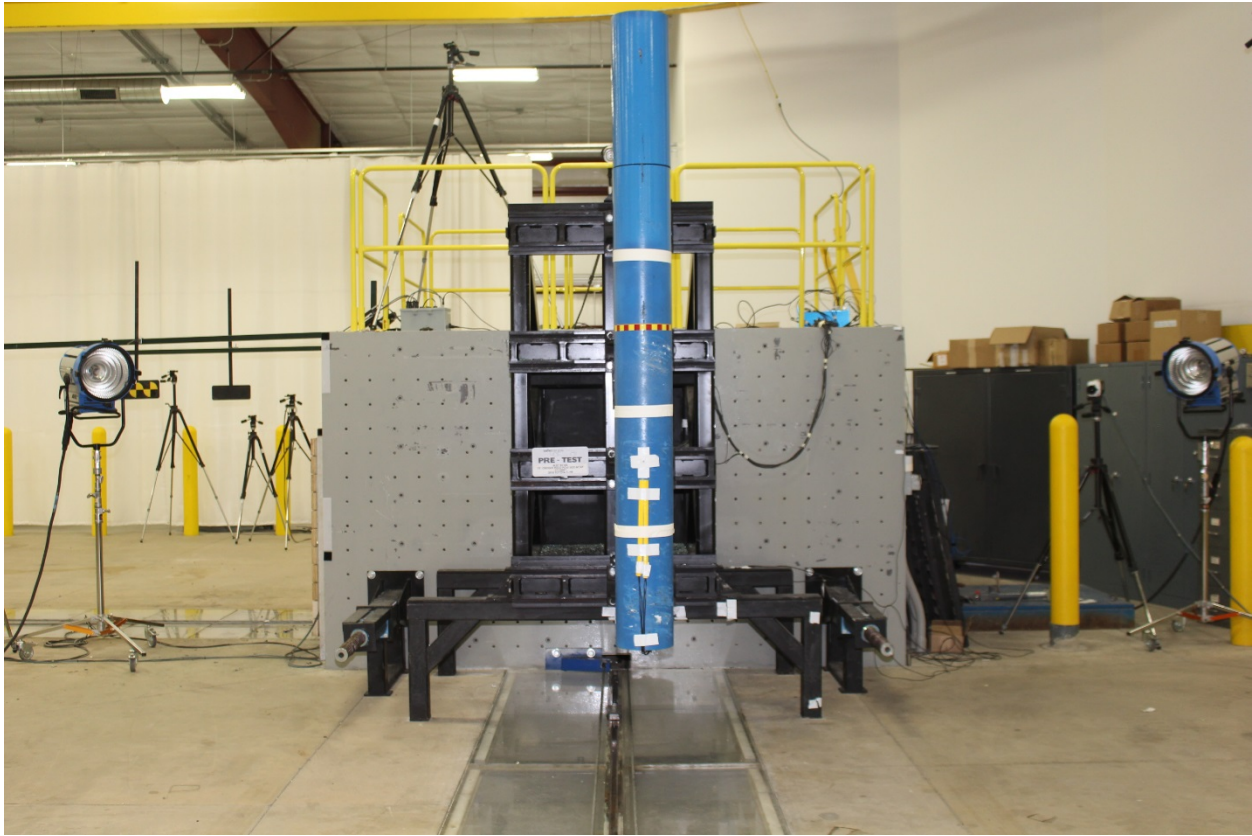
No.	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2408	130	-375
2	Left Floor Sill	2903	-712	-258
3	A Pillar Sill	3138	-712	-258
4	A Pillar Low	3049	-854	-574
5	A Pillar Mid	3049	-854	-786
6	B Pillar Sill	1988	-712	-255
7	B Pillar Low	1874	-732	-599
8	B Pillar Mid	1874	-732	-781
9	Driver Seat Track	2083	-394	-370
10	Engine Top	3851	30	-830
11	Firewall	3484	0	-921
12	Right Roof	1909	526	-1544
13	Right Floor Sill	2903	712	-258
14	Rear Floorpan	818	0	-560

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: 2023 Honda HR-V LX 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20235304  
 Test Date: 1/20/2023



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: 2023 Honda HR-V LX 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20235304  
 Test Date: 1/20/2023

**TEST DUMMY INFORMATION AND CONTACT POINTS**

Description	Driver Dummy (SID-IIs)
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	Seatback
Lower Torso	Side Torso/Pelvis Airbag, Seatback
Left Hip	Side Torso/Pelvis Airbag
Left Knee	Door Panel

**POST-TEST DOOR PERFORMANCE**

Description	Struck Side		Non-Struck Side		Rear Hatch
	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)					

**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	No Separation
Windshield Damage	Cracked
Side Window Damage	LF window broken
Other Notable Effects	None

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

Test Vehicle: 2023 Honda HR-V LX 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20235304  
 Test Date: 1/20/2023

**SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION**

Restraint Type	Struck Side Driver		Struck Side Left 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	Yes	Yes
Side Torso Airbag	No		No	
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes		Yes	
Other:	No		No	

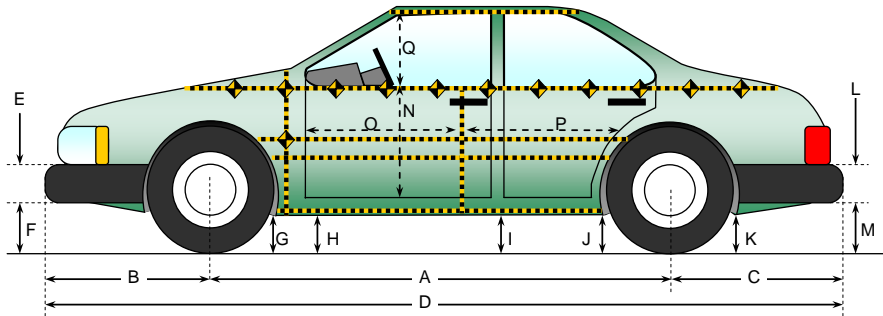
**SPEED, ANGLE AT IMPACT, AND IMPACT POINT LOCATION DATA**

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1069
Actual Impact Point (Aft of Front Axle)	mm		1069
Horizontal Offset (+forward / -rearward)	mm	+/- 38 of Intended Impact Point	0
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	degrees	75 +/- 3	75.0
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.11
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.05

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

Test Vehicle: 2023 Honda HR-V LX 5-Door SUV  
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20235304  
Test Date: 1/20/2023



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

**LEFT SIDE VIEW**

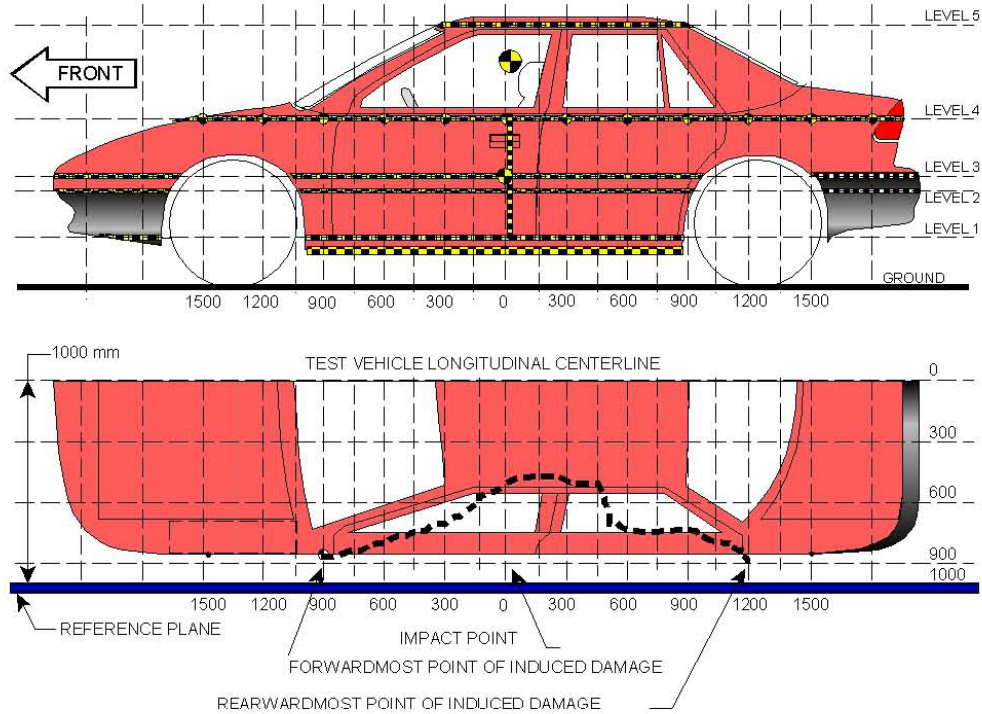
**VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION**

Code	Measurement Description	Pre-Test	Post-Test	Change
A	Wheelbase	2658	2631	-27
B	Front Axle to FSOV	970	962	-8
C	Rear Axle to RSOV	916	949	33
D	Total Vehicle Length at Centerline	4544	4542	-2
E	Front Bumper Thickness	142	142	0
F	Front Bumper Bottom to Ground	225	240	15
G	Sill Height at Front Wheel Well	247	244	-3
H	Sill Height at Front Door Leading Edge	232	231	-1
I	Sill Height at B-Pillar	249	227	-22
J1	Sill Height at Rear Wheel Well	246	268	22
J2	Pinch Weld Height at Rear Wheel Well	234	244	10
K	Sill Height Aft of Rear Wheel Well	287	292	5
L	Rear Bumper Thickness	102	102	0
M	Rear Bumper Bottom to Ground	245	231	-14
N	Sill Height to Bottom of Front Window Sill	806	803	-3
O	Front Door Leading Edge to Impact CL	683	573	-110
P	Rear Door Trailing Edge to Impact CL	1159	1182	23
Q	Front Window Opening	403	382	-21
R	Right Side Length	3382	3387	5
S	Left Side Length	3382	3340	-42
T	Vehicle Width at B-Pillars	1859	1841	-18
U	Front Wheel Track Width	1587		
V	Rear Wheel Track Width	1594		

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

Test Vehicle: 2023 Honda HR-V LX 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20235304  
 Test Date: 1/20/2023



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	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	348	251	-75
2	Occupant H-Point	649	285	-75
3	Mid Door	709	293	-75
4	Window Sill	1058	228	-75
5	Window Top	1515	59	-75

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

Test Vehicle: 2023 Honda HR-V LX 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20235304  
 Test Date: 1/20/2023

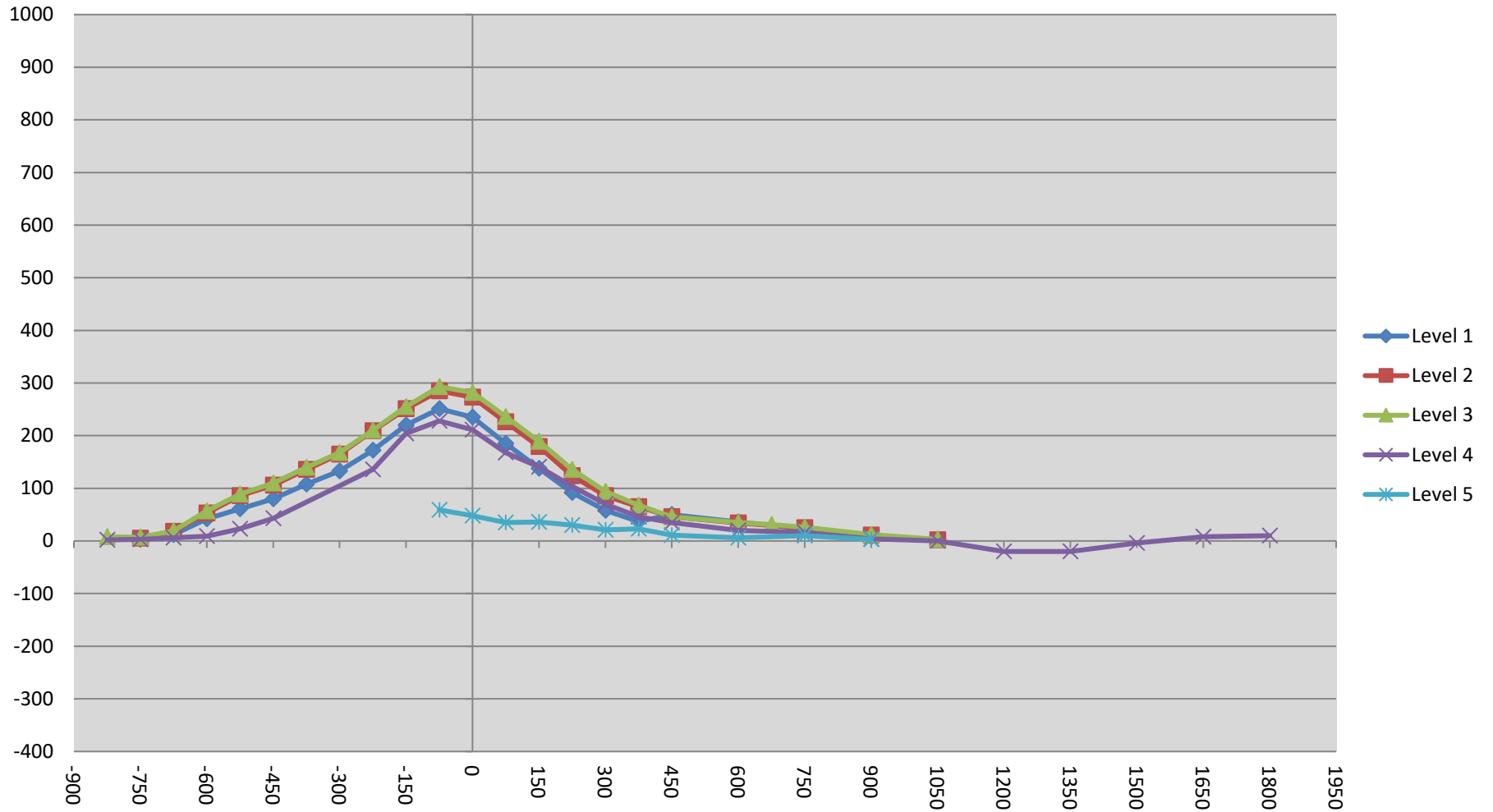
Pre-test measurements are taken when the vehicle is in the “As Tested” weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to the test based on an estimated impact point.

	Pre-Test					Post-Test					Exterior Crush				
	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															
-1200															
-1050															
-900															
-825			183	312				191	314				8	2	
-750		183	180	308			188	187	311			5	7	3	
-675	224	186	184	303		236	204	203	309		12	18	19	6	
-600	224	190	186	300		266	243	243	309		42	53	57	9	
-525	224	191	188	297		285	277	277	320		61	86	89	23	
-450	223	194	190	291		303	300	300	334		80	106	110	43	
-375	223	195	190			331	331	330			108	136	140		
-300	222	196	191			355	361	359			133	165	168		
-225	220	199	193	280		392	408	403	416		172	209	210	136	
-150	220	200	194	274		440	451	449	478		220	251	255	204	
-75	220	200	195	271	492	471	485	488	499	551	251	285	293	228	59
0	220	202	195	270	480	455	475	477	481	528	235	273	282	211	48
75	220	205	198	268	476	405	431	434	436	511	185	226	236	168	35
150	221	204	199	267	475	359	383	388	408	511	138	179	189	141	36
225	223	205	200	266	472	315	329	336	370	502	92	124	136	104	30
300	225	205	200	266	472	283	291	294	336	493	58	86	94	70	21
375	225	203	202	267	474	262	268	270	313	497	37	65	68	46	23
450	226	202	202	268	475	276	248	248	303	486	50	46	46	35	11
525															
600	228	200	200	267	477	264	234	235	287	483	36	34	35	20	6
675			198					229					31		
750	228	196	197	267	482	251	221	223	283	492	23	25	26	16	10
825															
900	227	192	192	265	492	235	203	204	269	495	8	11	12	4	3
1050		185	183	255	505		187	186	255	511		2	3	0	6
1200				244	527				224	529				-20	2
1350				236	564				216	567				-20	3
1500				236					232					-4	
1650				247					255					8	
1800				262					272					10	
1950															
2100															
2250															
2400															
2550															
2700															

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

Test Vehicle: 2023 Honda HR-V LX 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

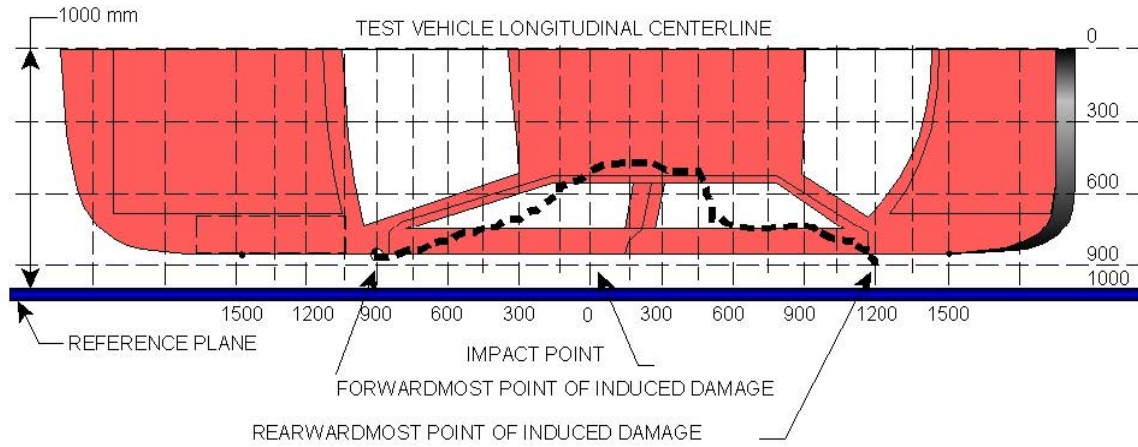
NHTSA No.: O20235304  
 Test Date: 1/20/2023



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

Test Vehicle: 2023 Honda HR-V LX 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20235304  
 Test Date: 1/20/2023



**VEHICLE DAMAGE PROFILE DISTANCES**

DPD	Distance from Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Max. Static Crush (mm)
1	1100	3	200	179	-21
2	740	3	197	229	32
3	380	3	202	254	52
4	20	3	196	459	263
5	-340	3	190	349	159
6	-700	3	183	188	5

**DATA SHEET NO. 11**  
**FMVSS NO. 301 STATIC ROLLOVER RESULTS**

Test Vehicle: 2023 Honda HR-V LX 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

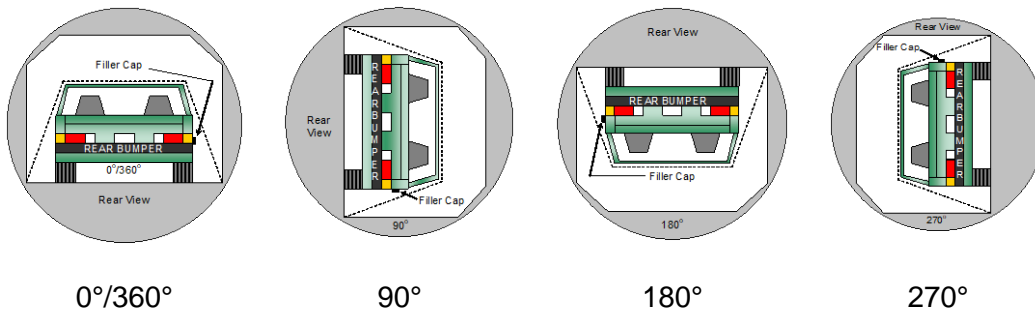
NHTSA No.: O20235304  
 Test Date: 1/20/2023

Test Time: 11:24 am

Temperature: 21.4°C

- A. From impact until vehicle motion ceases: (Maximum Allowable = 1 ounce) 0.0 oz.  
 B. For the 5 minute period after motion ceases: (Maximum Allowable = 5 ounces) 0.0 oz.  
 C. For the following 25 minutes: (Maximum Allowable = 1 ounce / minute) None  
 D. Spillage Details: None

**FMVSS 301 STATIC ROLLOVER DATA**



**ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS**

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	111	300	411
90° to 180°	112	300	412
180° to 270°	108	300	408
270° to 360°	111	300	411

**FMVSS 301 ROLLOVER SPILLAGE TABLE (UNITS IN OUNCES)**

Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0° to 90°	0.0	0.0	0.0	
90° to 180°	0.0	0.0	0.0	
180° to 270°	0.0	0.0	0.0	
270° to 360°	0.0	0.0	0.0	

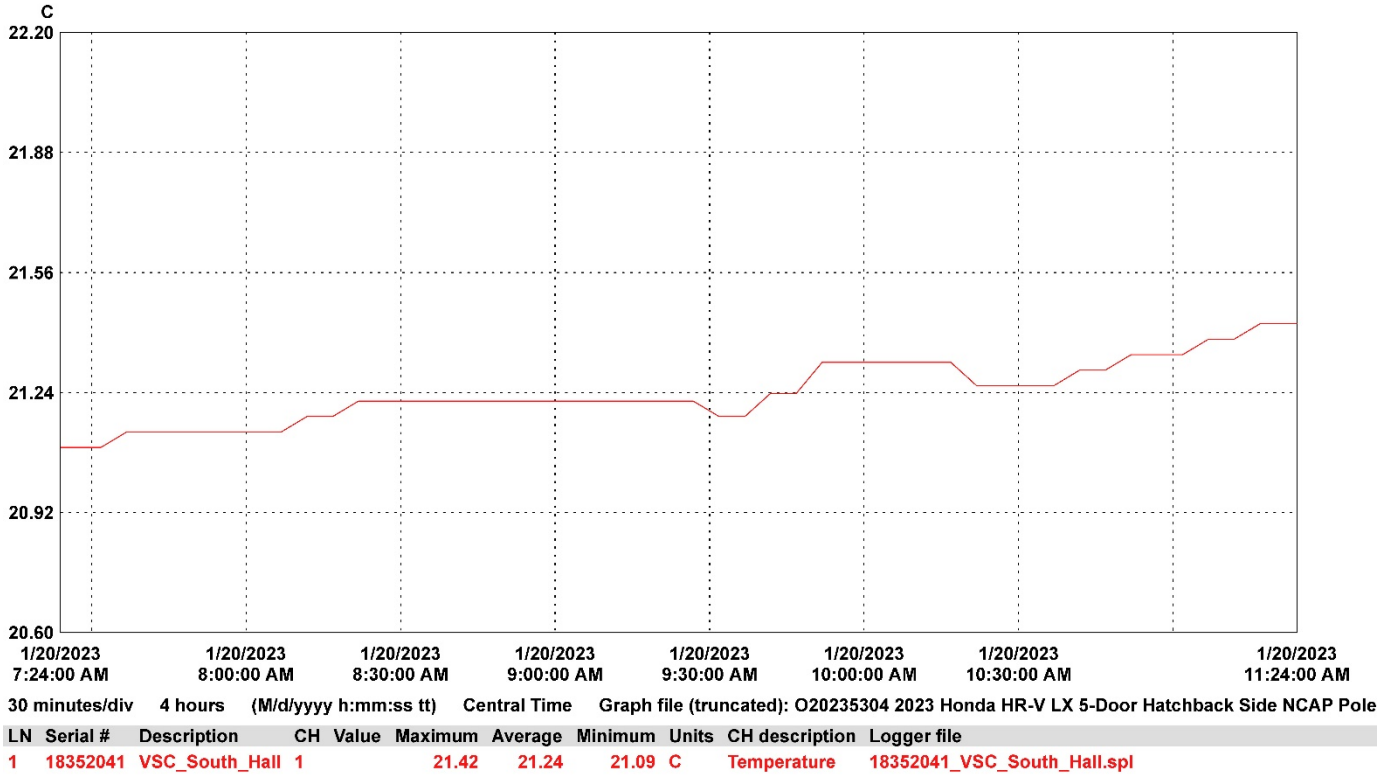
**ROLLOVER SOLVENT SPILLAGE LOCATION TABLE**

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

**DATA SHEET NO. 12**  
**DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA**

Test Vehicle: 2023 Honda HR-V LX 5-Door SUV  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20235304  
 Test Date: 1/20/2023



**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

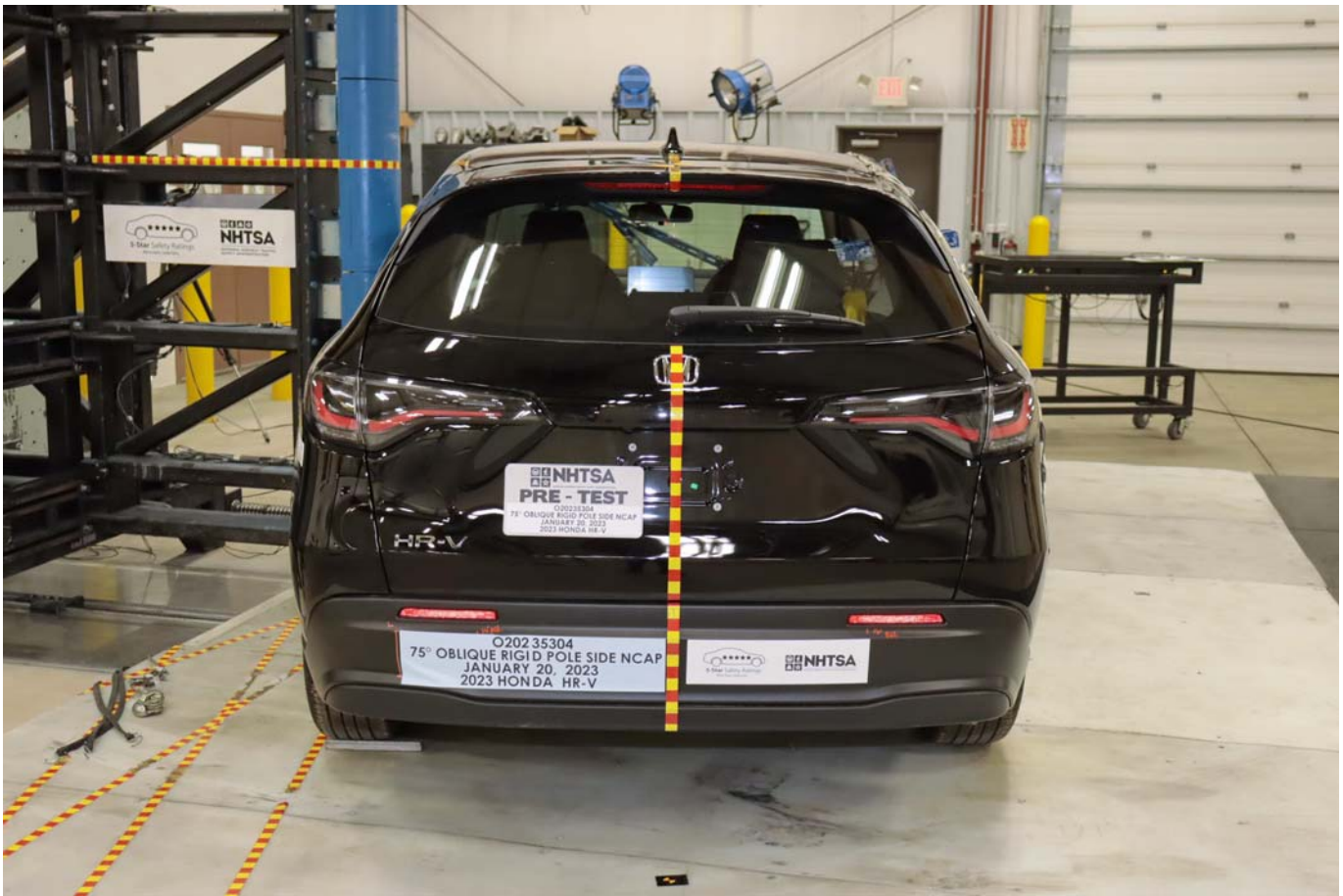


Photo No. 011 - Pre-Test Rear View of Test Vehicle

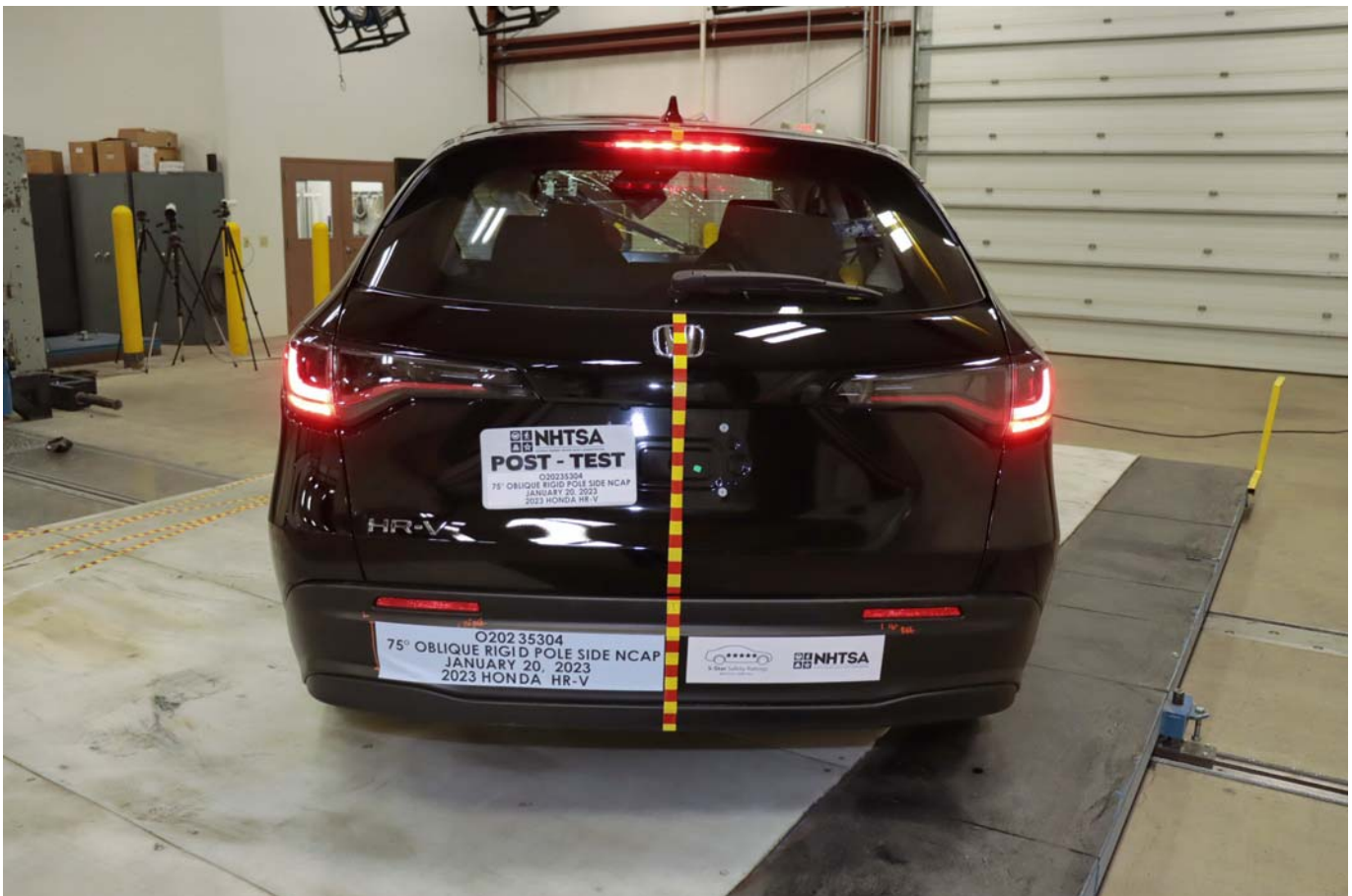


Photo No. 012 - Post-Test Rear View of Test Vehicle



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

**PHOTOGRAPH NOT AVAILABLE**

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

**PHOTOGRAPH NOT AVAILABLE**

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

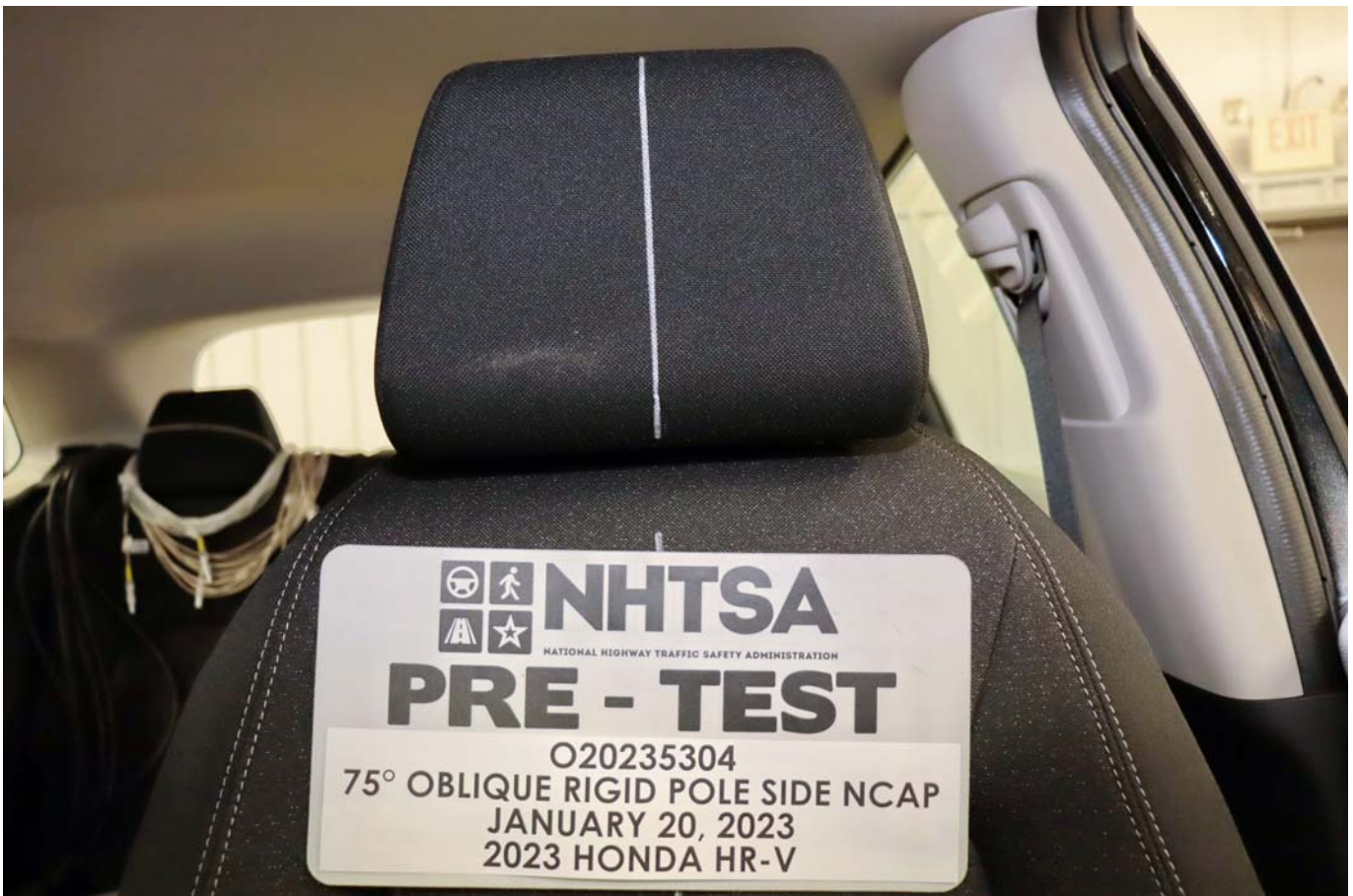


Photo No. 026 - Pre-Test Front View of Seat Back Prior to Dummy Positioning



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's Neck Showing Position of Adjustable Neck Bracket



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

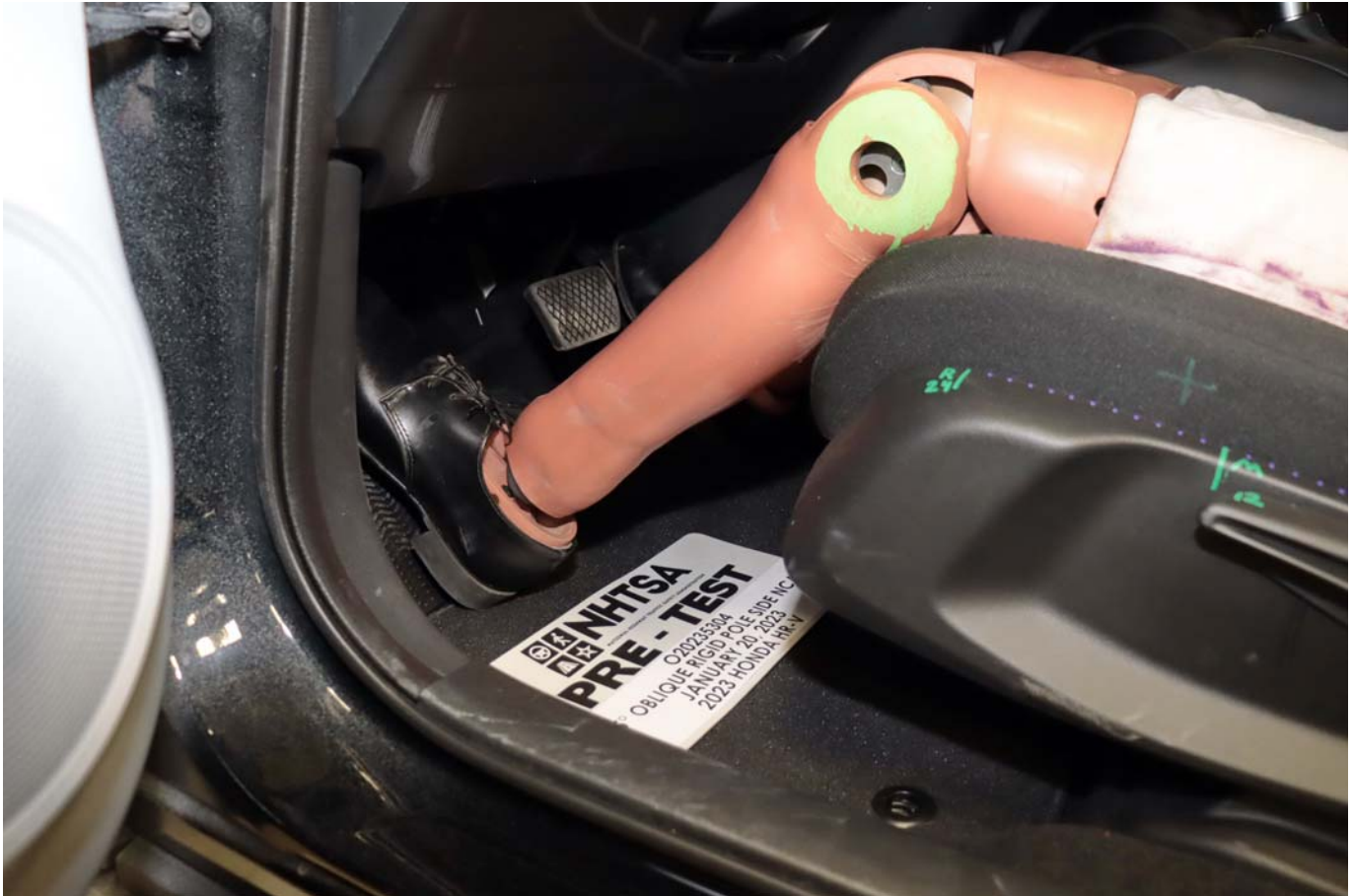


Photo No. 032 - Pre-Test Placement of Dummy's Feet



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



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



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

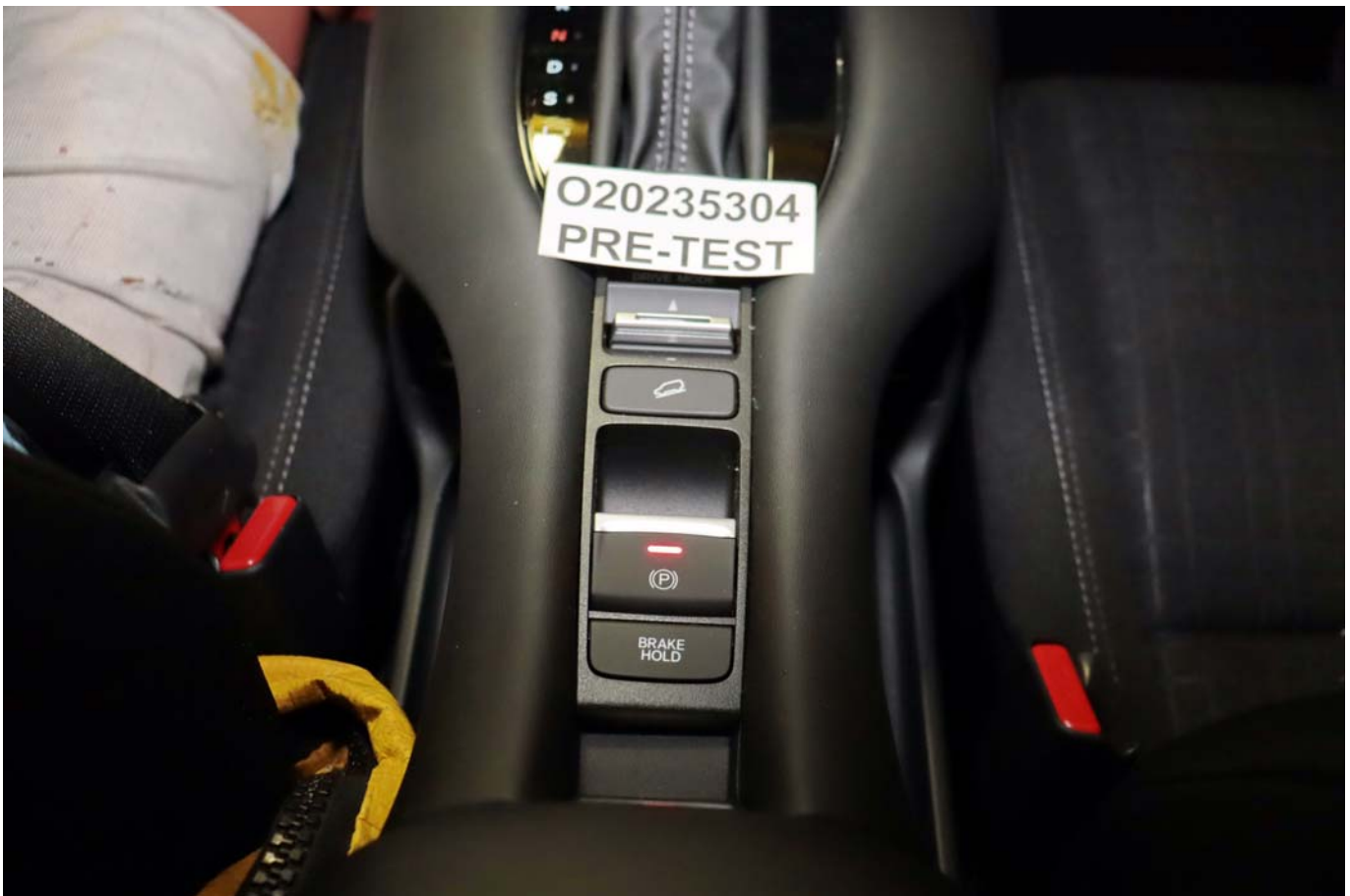


Photo No. 036 - Pre-Test View of Parking Brake



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



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



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



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



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



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

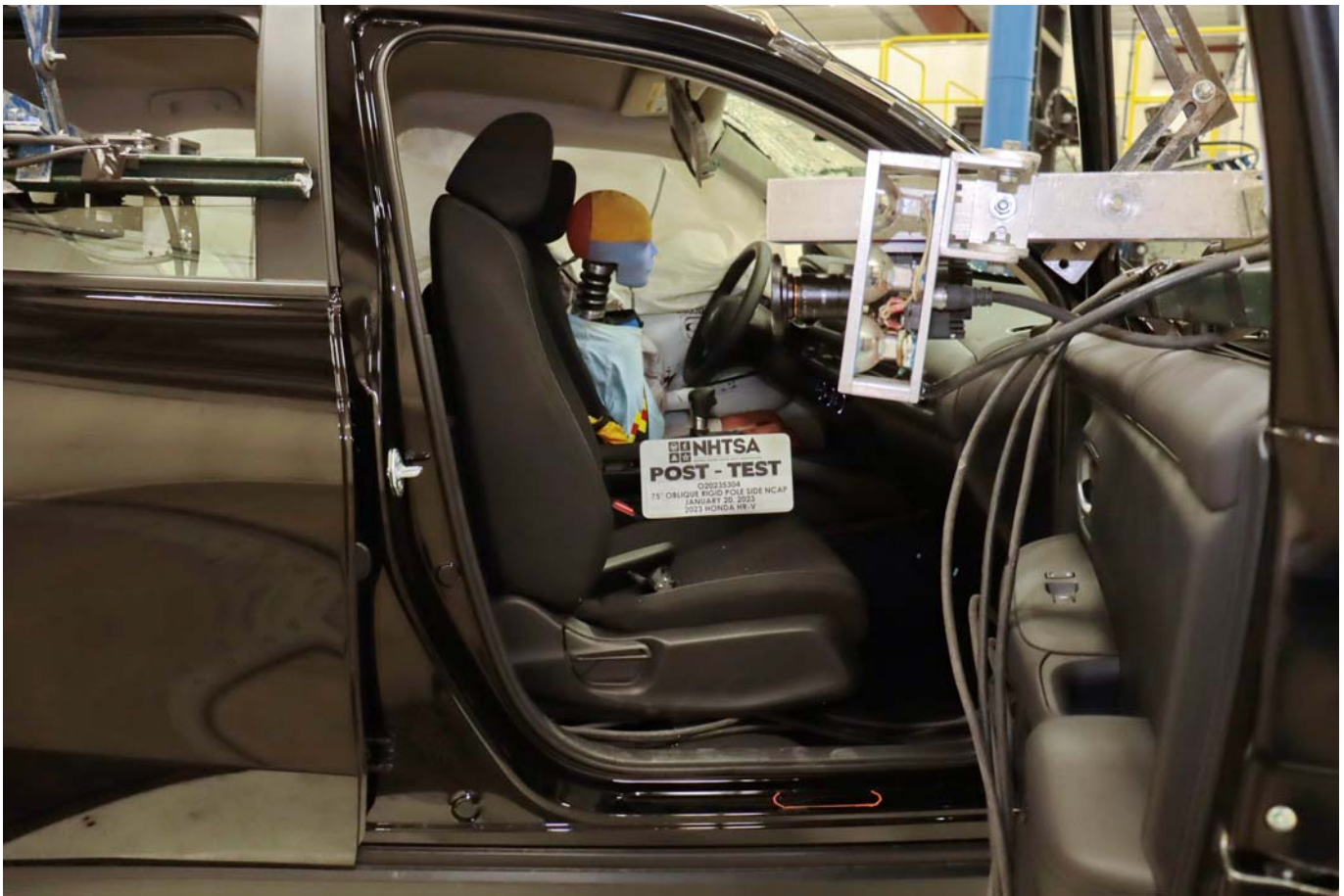


Photo No. 043 - Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment

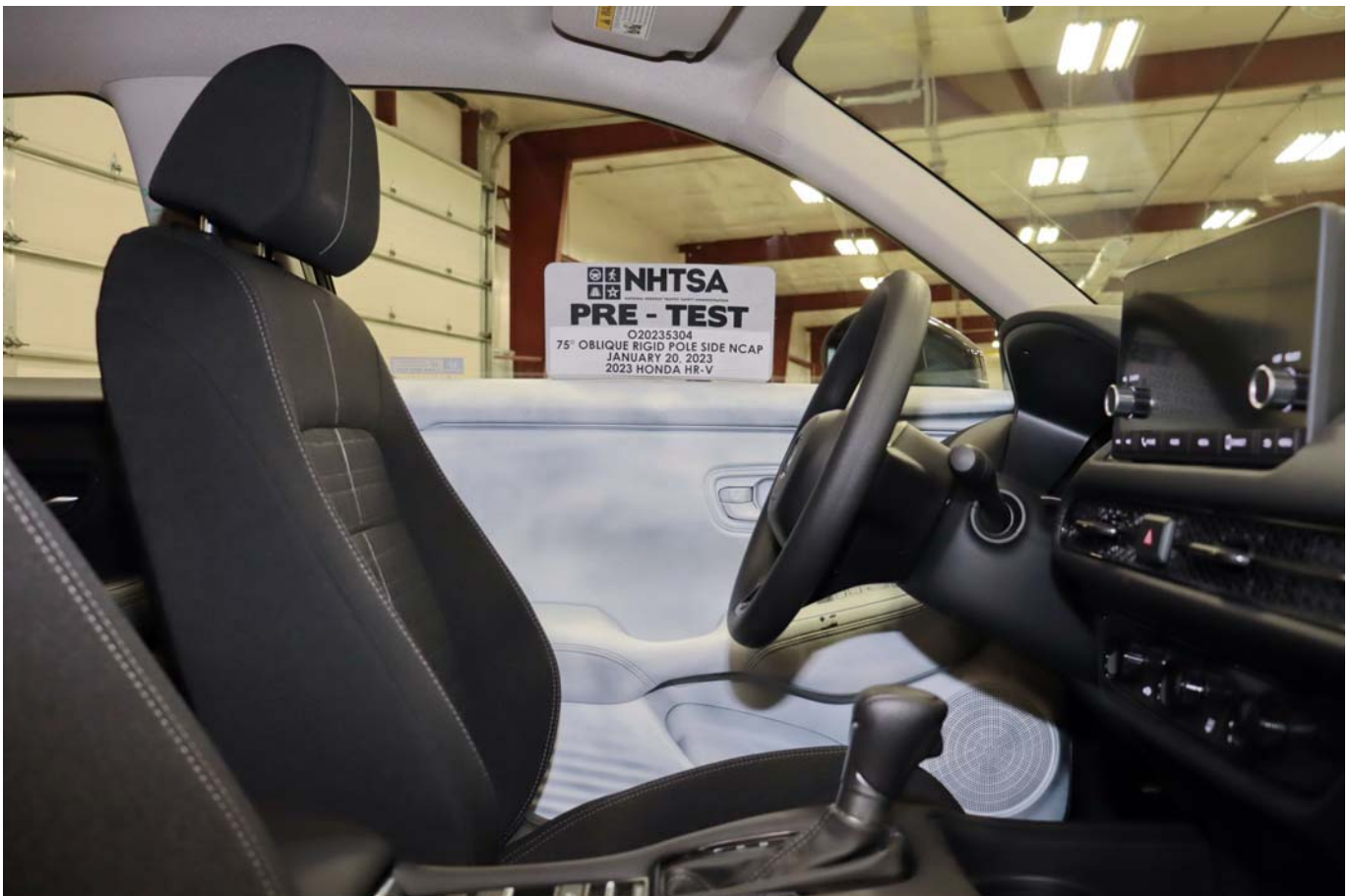


Photo No. 044 - Pre-Test Inner Door Panel View

**PHOTOGRAPH NOT AVAILABLE**

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

**PHOTOGRAPH NOT AVAILABLE**

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

# PHOTOGRAPH NOT AVAILABLE

Photo No. 053 - Post-Test Right Side View of Dummy and Rear Seat of Occupant Compartment



Photo No. 054 - Post-Test Inner Rear Passenger Torso Air Bag Deployment View



Photo No. 055 - Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



Photo No. 056 - Post-Test View of Fuel Filler Cap or Fuel Filler Neck

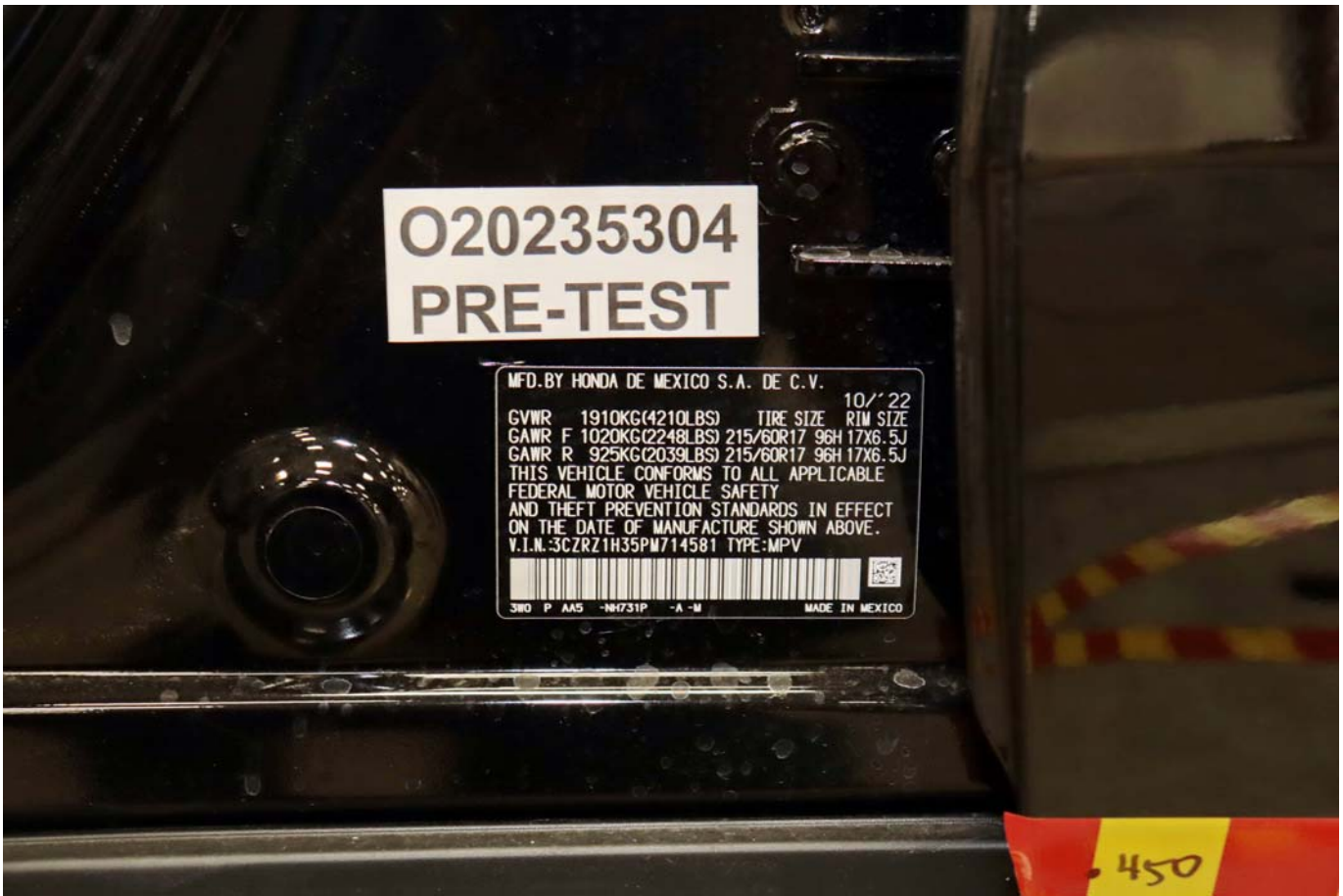


Photo No. 057 - Close-Up View of Vehicle's Certification Label



Photo No. 058 - Close-Up View of Vehicle's Tire Information Placard or Label



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



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



Photo No. 061 - Pre-Test Pole Barrier Side View



Photo No. 062 - Post-Test Pole Barrier Side View

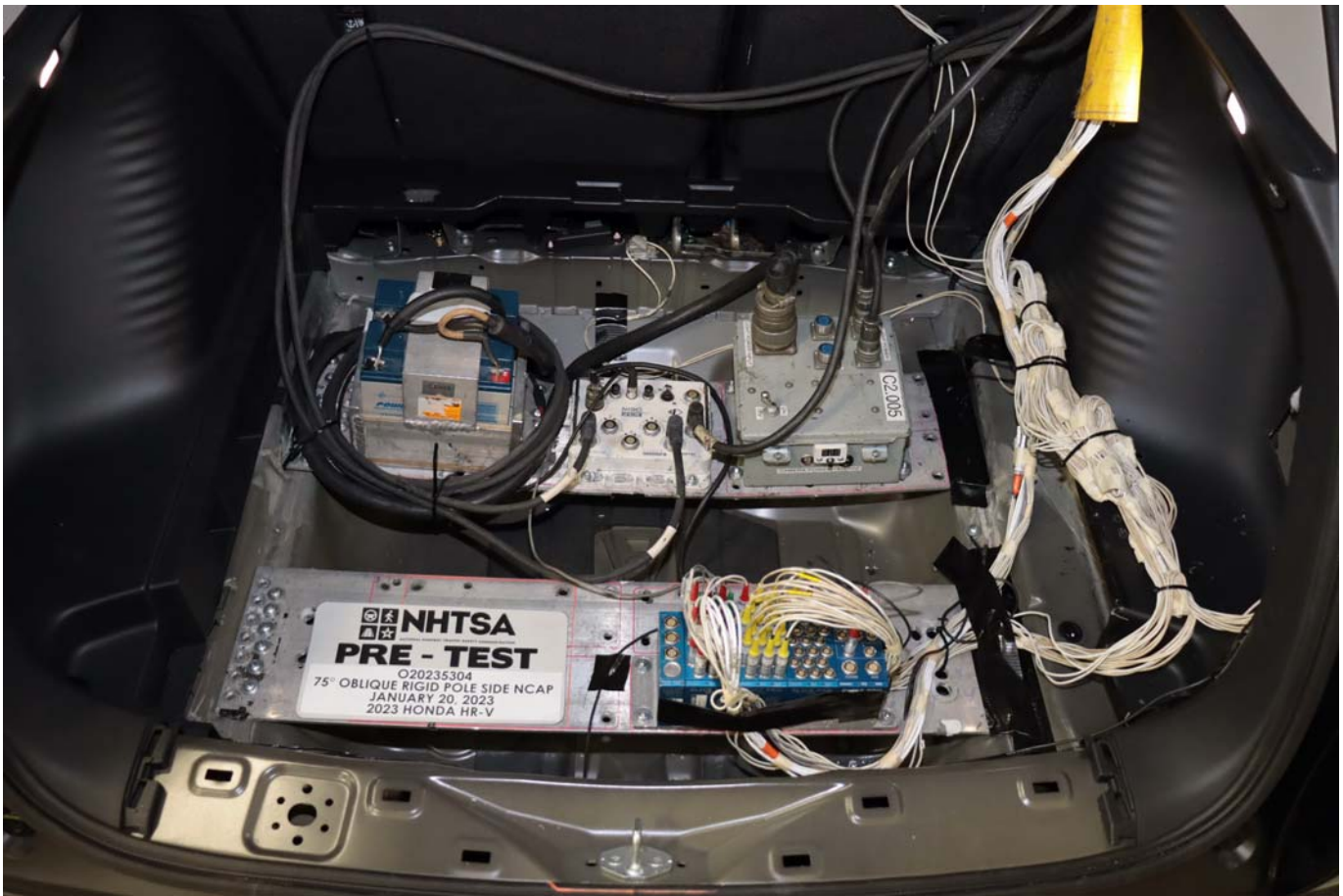


Photo No. 063 - Pre-Test Ballast View



Photo No. 064 - Post-Test Primary and Redundant Speed Trap Read-Out



Photo No. 065 - FMVSS Photo No. 301 Static Rollover 0 Degrees

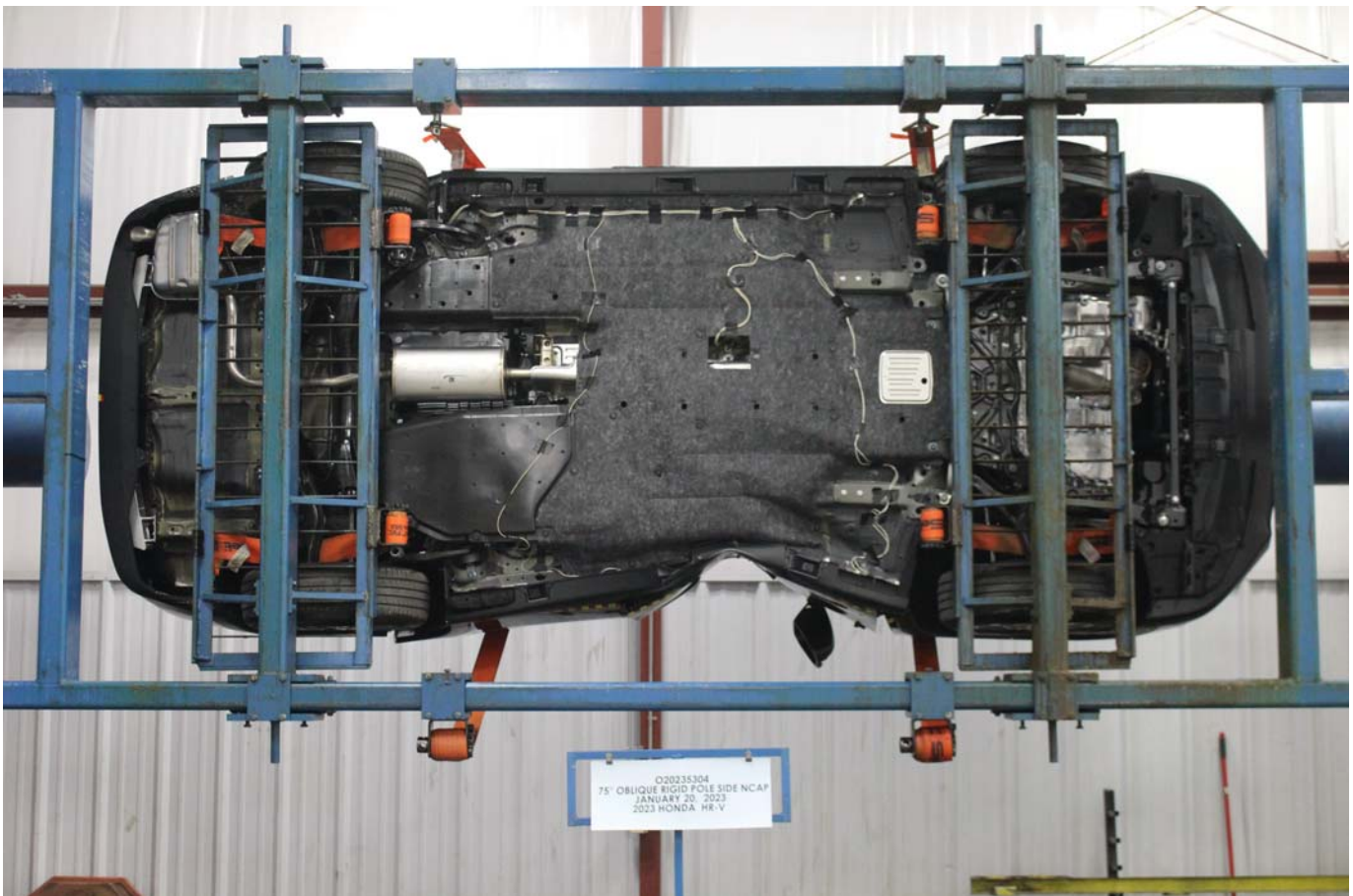


Photo No. 066 - FMVSS Photo No. 301 Static Rollover 90 Degrees



Photo No. 067 - FMVSS Photo No. 301 Static Rollover 180 Degrees



Photo No. 068 - FMVSS Photo No. 301 Static Rollover 270 Degrees



Photo No. 069 - FMVSS Photo No. 301 Static Rollover 360 Degrees



Photo No. 070 - Impact Event

**STANDARD EQUIPMENT AT NO EXTRA COST**

- TECHNICAL FEATURES\***
  - 158hp 2.0-Liter 4-Cylinder Engine
  - Continuously Variable Transmission (CVT)
  - 4-Wheel Disc Brakes
  - Front MacPherson Strut Suspension
  - Rear Multi-Link Suspension
  - Electric Power Steering
  - Hill Start Assist
  - Snow Mode
- SAFETY FEATURES\***
  - Driver's and Front Passenger's Airbags
  - Driver's and Front Passenger's Side Airbags
  - Side Curtain Airbags with Rollover Sensor
  - Driver's and Front Passenger's Knee Airbags
  - Rear Side Airbags
  - Vehicle Stability Assist (VSA)
  - Anti-Lock Braking System (ABS)
  - Tire Pressure Monitoring System
  - LED Daytime Running Lights
  - LATCH System for Child Seats
- INTERIOR FEATURES\***
  - Audio System with 4 Speakers
  - 7" Color Touchscreen with Multi-View Rear Camera
  - Apple CarPlay/Android Auto Integration
  - Driver Attention Monitor
  - Bluetooth HandsFreeLink
  - USB Audio Interface
  - Steering Wheel-Mounted Controls
  - Push-Button Start
- EXTERIOR FEATURES\***
  - 17" Alloy Wheels
  - 215/60 R17 All-Season Tires
  - Auto High-Beam
  - Auto-On/Off Headlights
  - LED Headlights & Taillights
  - Body-Colored Power Door Mirrors
  - Intermittent Windshield Wipers
  - Remote Entry with Security System
  - Tailgate Spoiler
- HONDA SENSING\***
  - Adaptive Cruise Control (ACC)
  - Collision Mitigation Braking System (CMBS)
  - Lane Keeping Assist System (LKAS)
  - Road Departure Mitigation (RDM)
  - Traffic Jam Assist

Automatic Climate Control System with Air Filtration System  
 Rear Passenger Capacitive Touch Lighting  
 Center Storage Console w/ Armrest  
 Power Windows and Door Locks  
 Driver's Auto Up/Down Window  
 Tilt & Telescopic Steering Column  
 Visor Vanity Mirrors  
 12-Volt Power Outlet  
 Floor Mats  
 Electric Parking Brake

Manufacturer's Suggested Retail Price **\$23,650.00**

Full Tank of Fuel **No Charge**

-Honda Roadside Assistance  
 3YR/36K Mile Warranty Term

Destination and Handling **2,450.00**

**TOTAL VEHICLE PRICE**  
 (Includes Pre-Delivery Service)  
**\$24,895.00**

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

5 miles  
10/22

MULLER HONDA OF GURNEE  
 7000 GRAND AVENUE  
 GURNEE, IL 60031

PORT OF ENTRY: LAREDO  
 DELIVERY POINT: CHICAGO  
 SHIP#: 984-008  
 ROW/SPACE: 984-008  
 TRANS.METHOD: N50 ELWOOD

ORIG. DLR: 208663  
 REF.NO: 40851  
 HN CODE: HN-5616  
 EMISSION: 50 STATE  
 CONTROL NO: 874097  
 DEALER: 208663

VIN: 3CZRZH35PM714581

**Fuel Economy**

**28** MPG combined city/hwy  
 26 city  
 32 highway

Small Station Wagons range from 25 to 120 MPG. The best vehicle rates 132 MPGe.

**you spend \$0** in fuel costs over 5 years compared to the average new vehicle.

3.6 gallons per 100 miles

**Annual fuel cost \$1,600**

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

1 6 10 Best 1 7 10 Best

This vehicle emits 309 grams CO<sub>2</sub> per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also create emissions. Learn more at [fuel economy.gov](http://fuel economy.gov).

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 28 MPG and costs \$8,000 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$2.95 per gallon. MPG is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

**fuel economy.gov**  
 Calculate personalized estimates and compare vehicles

Smartphone QR Code

**PARTS CONTENT INFORMATION**

FOR VEHICLES IN THIS CARLINE  
 U.S./Canadian Parts Content: **30 %**

Major Sources of Foreign Parts Content:  
**MEXICO 45 %**

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

FOR THIS VEHICLE  
 Final Assembly Point:  
**CELAYA, GUANAJUATO MEXICO**  
 Country of Origin: Engine:  
**U.S.A.**  
 Transmission:  
**MEXICO**

**GOVERNMENT 5-STAR SAFETY RATING**

**Overall Vehicle Score To Be Rated**

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

<b>Frontal Crash</b>	Driver	To Be Rated
	Passenger	To Be Rated

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

<b>Side Crash</b>	Front seat	To Be Rated
	Rear seat	To Be Rated

Based on the risk of injury in a side impact.

<b>Rollover</b>	To Be Rated
-----------------	-------------

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

Star Ratings range from 1 to 5 stars (\*\*\*\*) with 5 being the highest. Source: National Highway Traffic Safety Administration (NHTSA) [www.safercar.gov](http://www.safercar.gov) or 1-888-327-4236

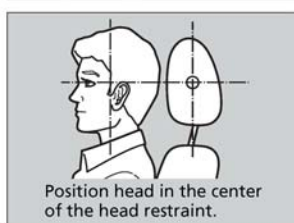
Photo No. 071 - Monroney Label

►► Seats ►► Head Restraints

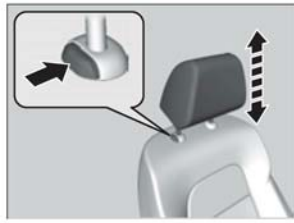
**Head Restraints**

Your vehicle is equipped with head restraints in all seating positions.

**Adjusting the front head restraint positions**



Head restraints are most effective for protection against whiplash and other rear-impact crash injuries when the center of the back of the occupant's head rests against the center of the restraint. The tops of the occupant's ears should be level with the center height of the restraint.



►► Adjusting the front head restraint positions

**WARNING**

Improperly positioning head restraints reduces their effectiveness and increases the likelihood of serious injury in a crash.

Make sure head restraints are in place and positioned properly before driving.

- In order for the head restraint system to work properly:
- Do not hang any items on the head restraints, or from the restraint legs.
  - Do not place any objects between an occupant and the seat-back.
  - Install each restraint in its proper location.



Photo No. 073 - 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)

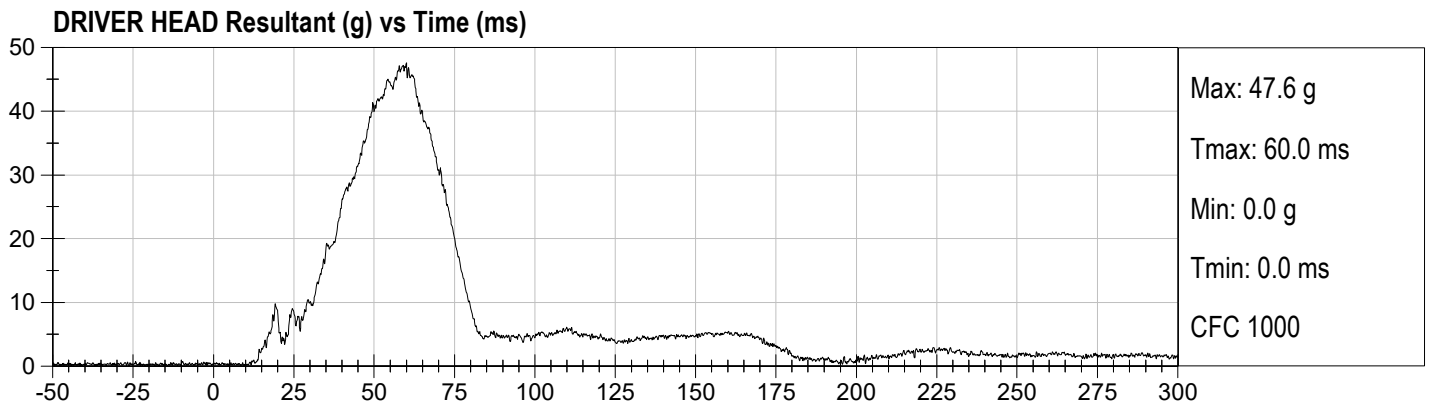
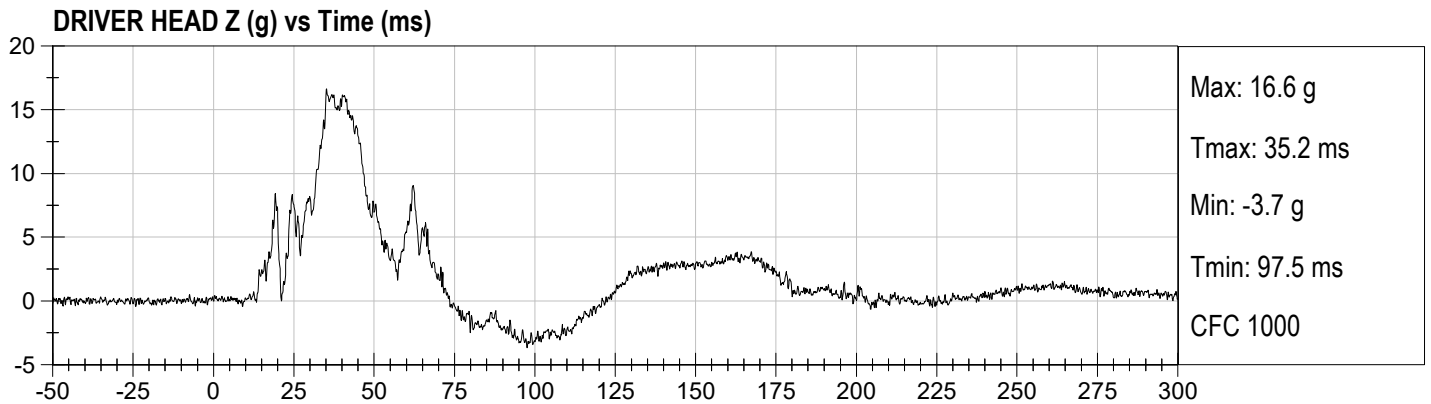
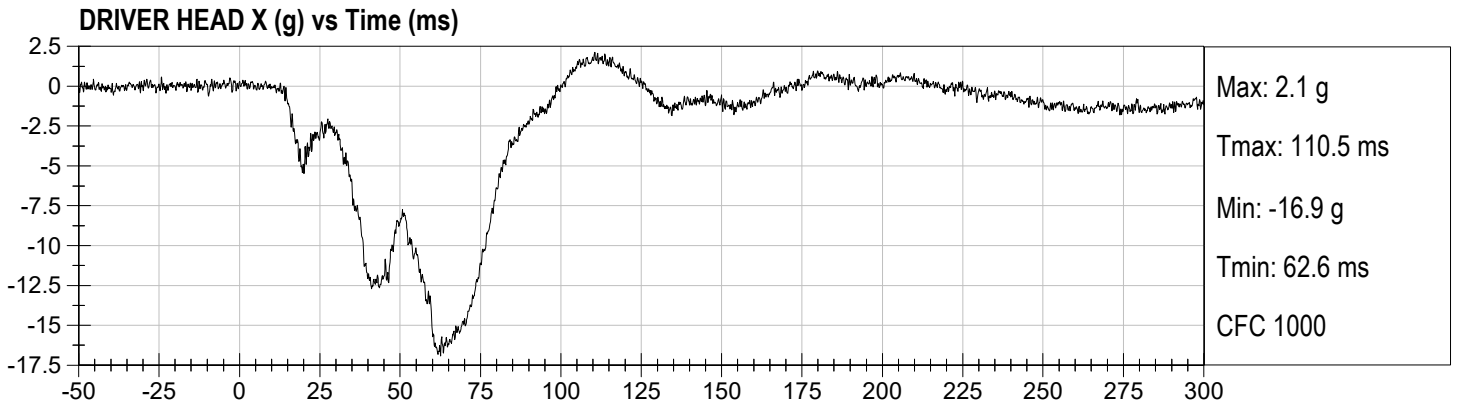
Load Cell Pole Barrier #4 Force (Y)

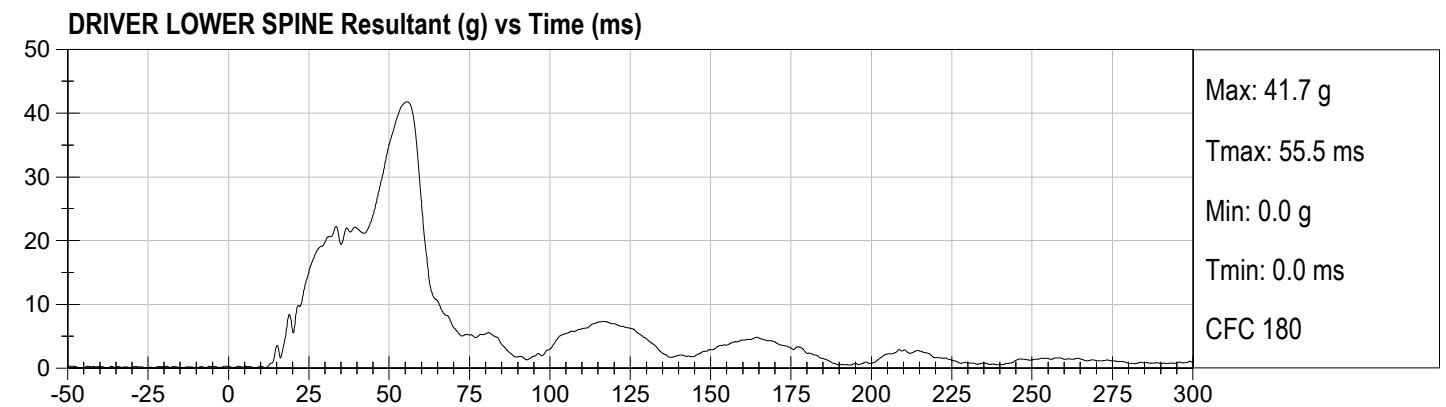
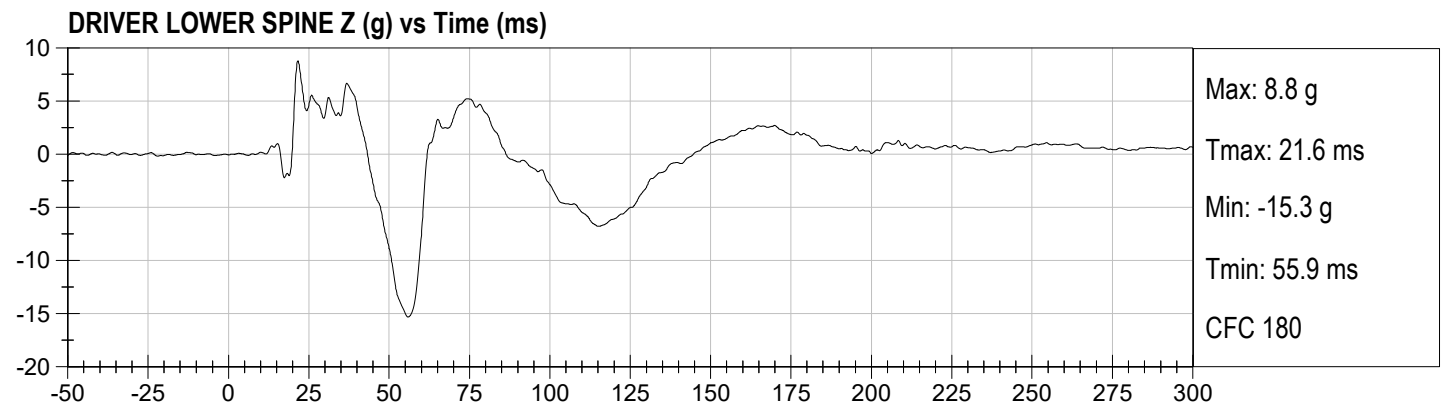
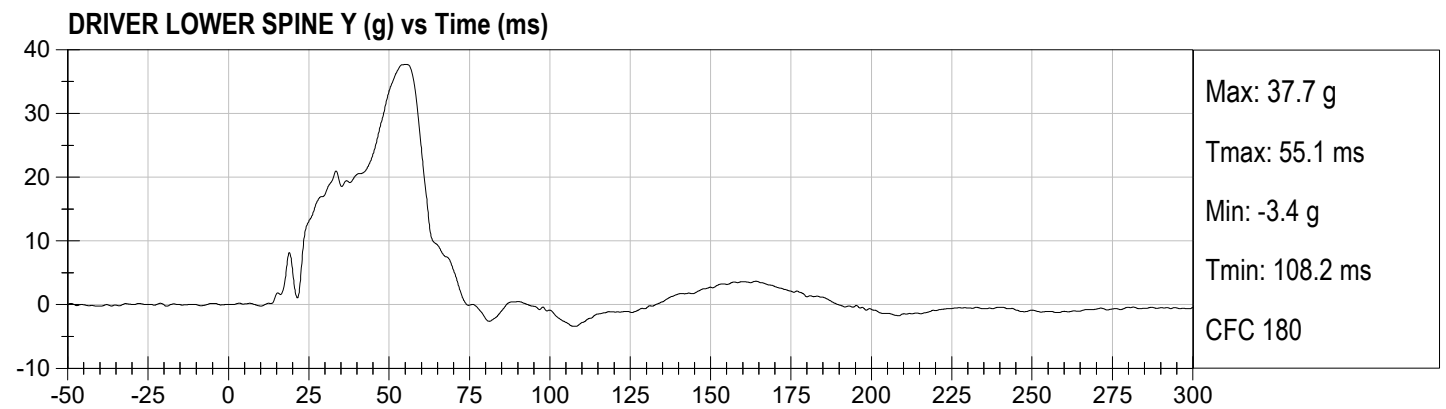
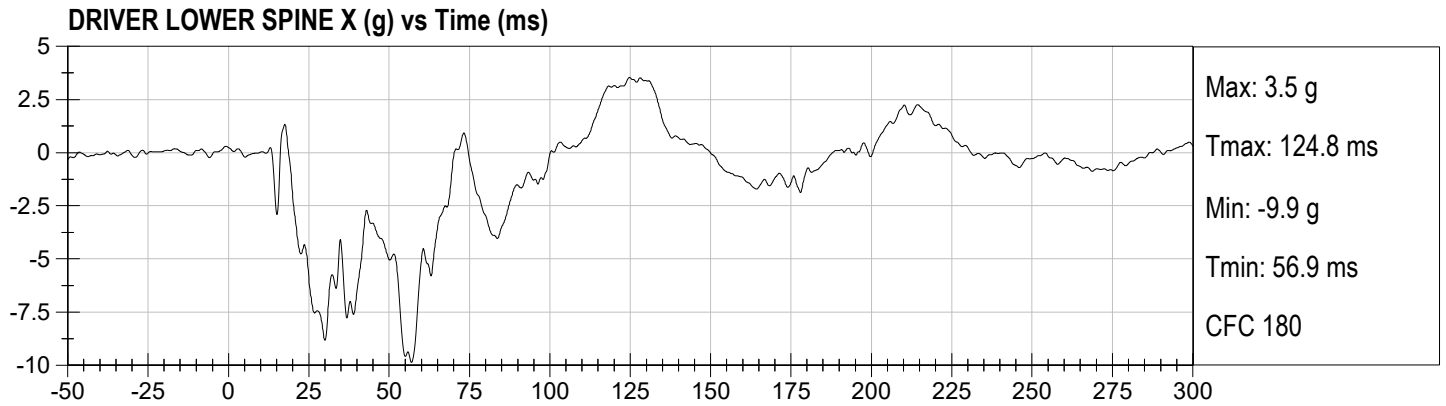
Load Cell Pole Barrier #5 Force (Y)

Load Cell Pole Barrier #6 Force (Y)

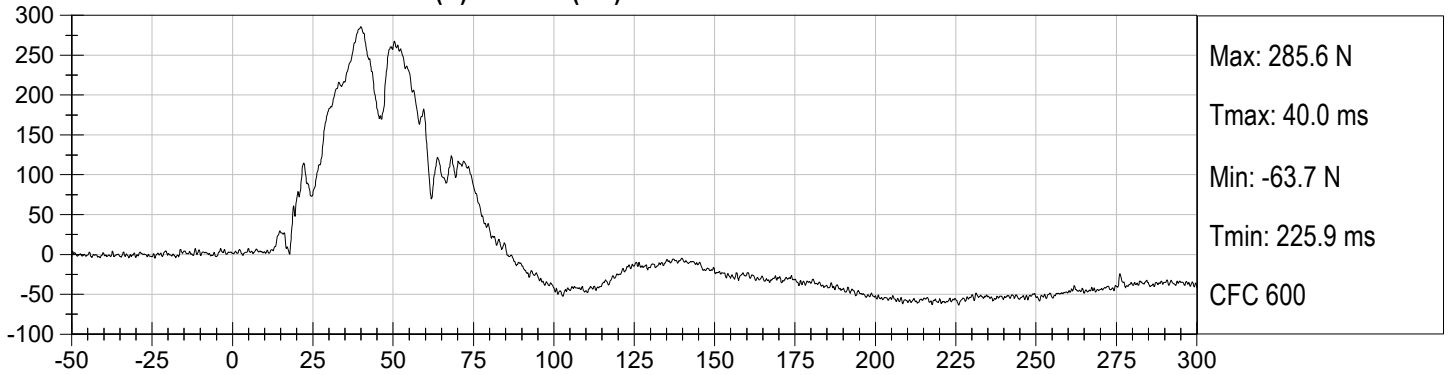
Load Cell Pole Barrier #7 Force (Y)

Load Cell Pole Barrier #8 Force (Y)

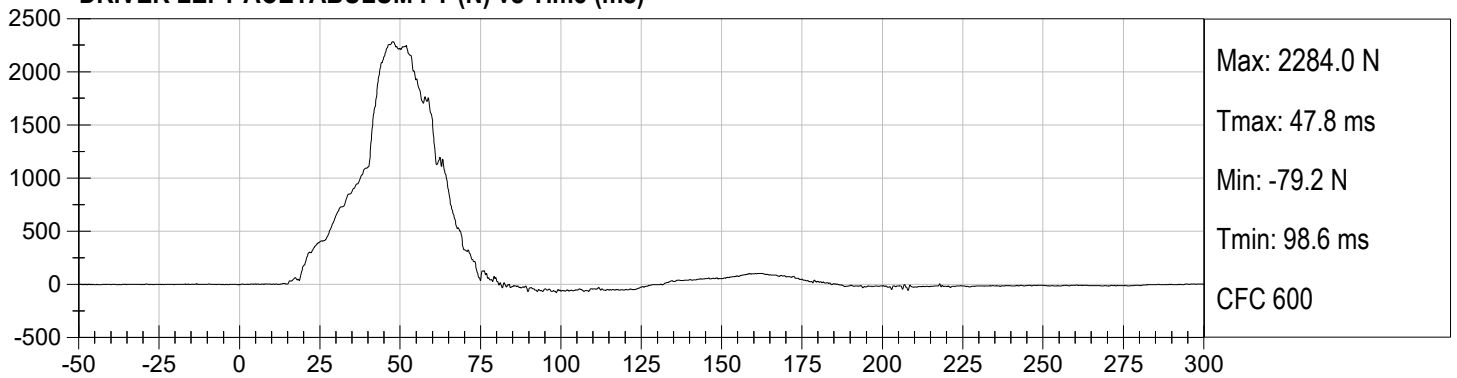




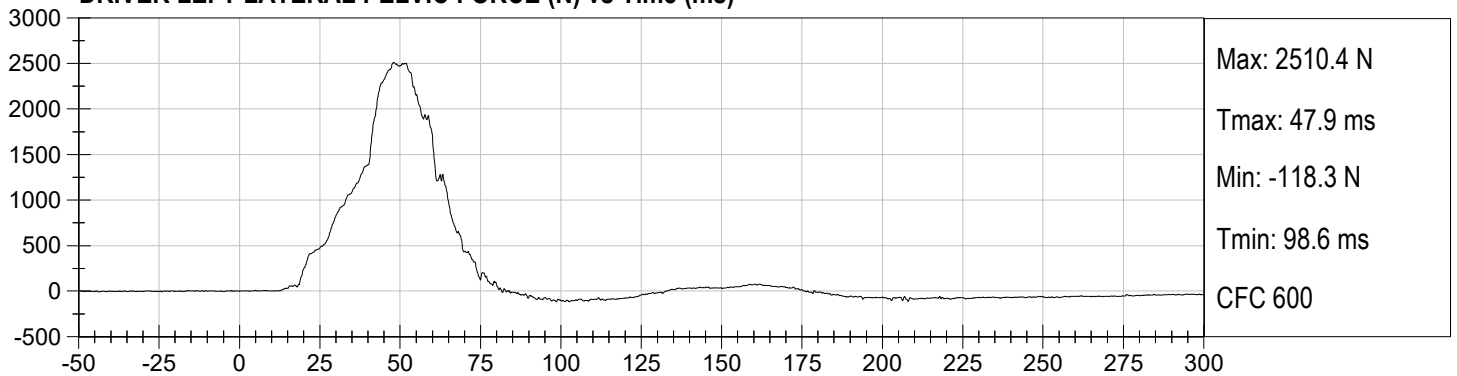
**DRIVER LEFT ILIUM CREST FY (N) vs Time (ms)**



**DRIVER LEFT ACETABULUM FY (N) vs Time (ms)**



**DRIVER LEFT LATERAL PELVIC FORCE (N) vs Time (ms)**



**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**

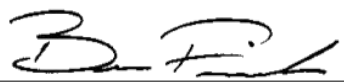
ATD Serial No: 296

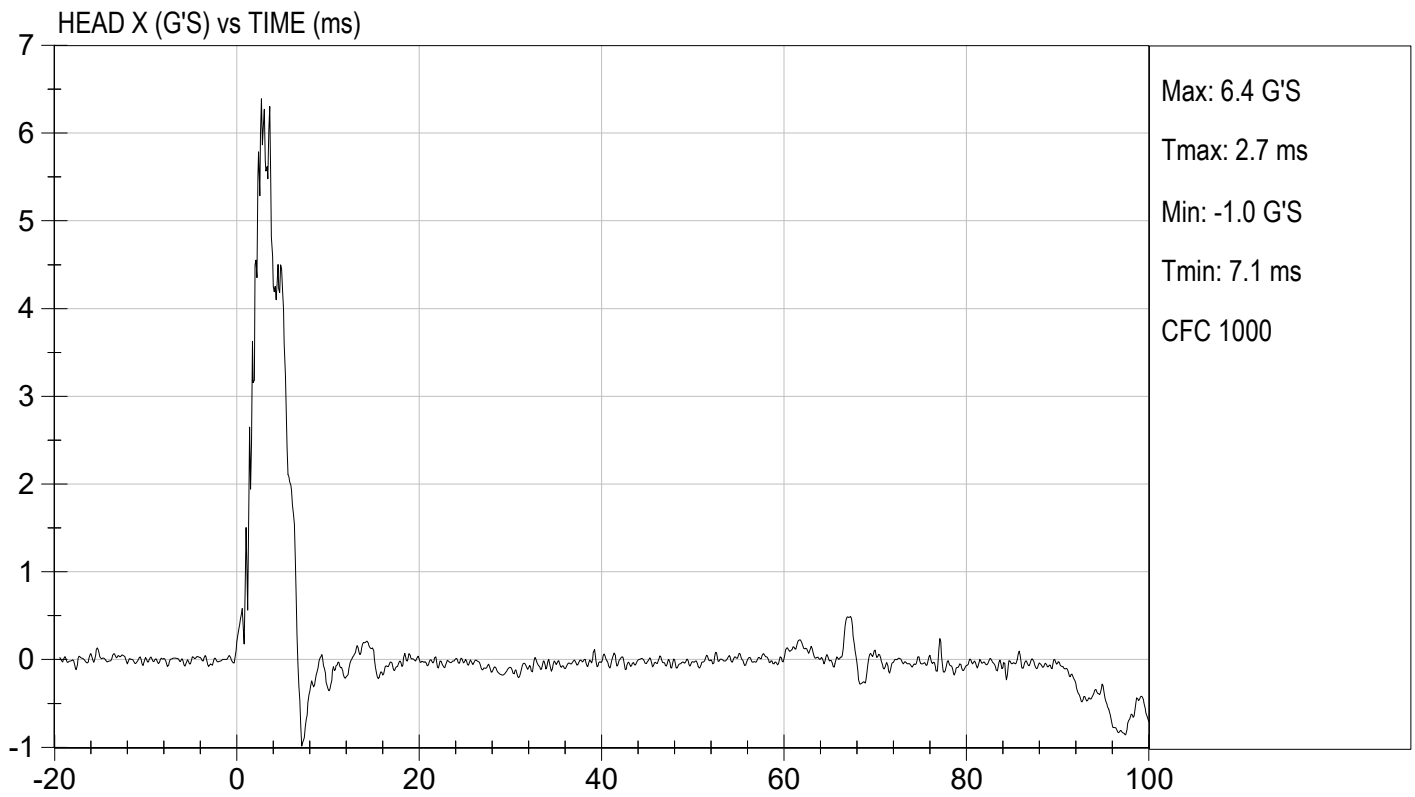
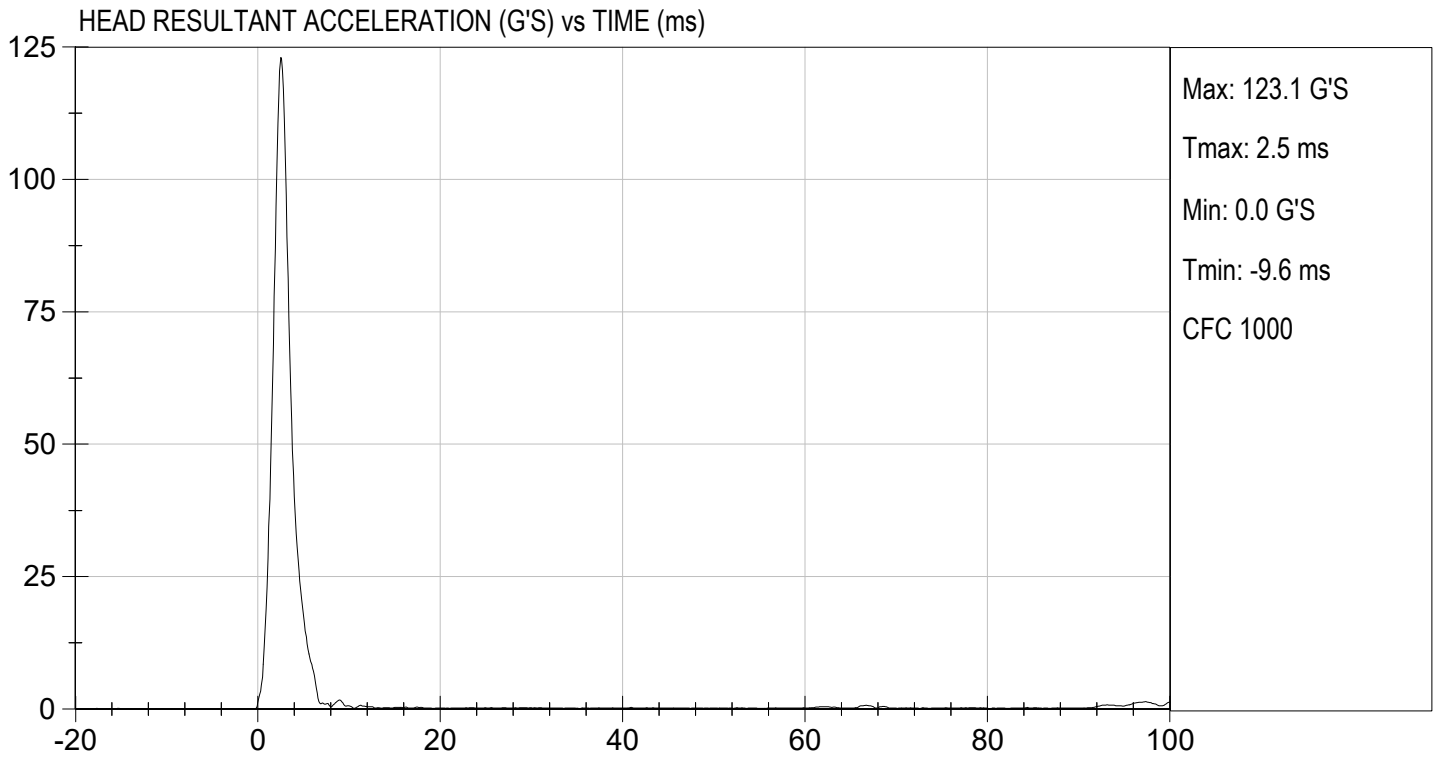
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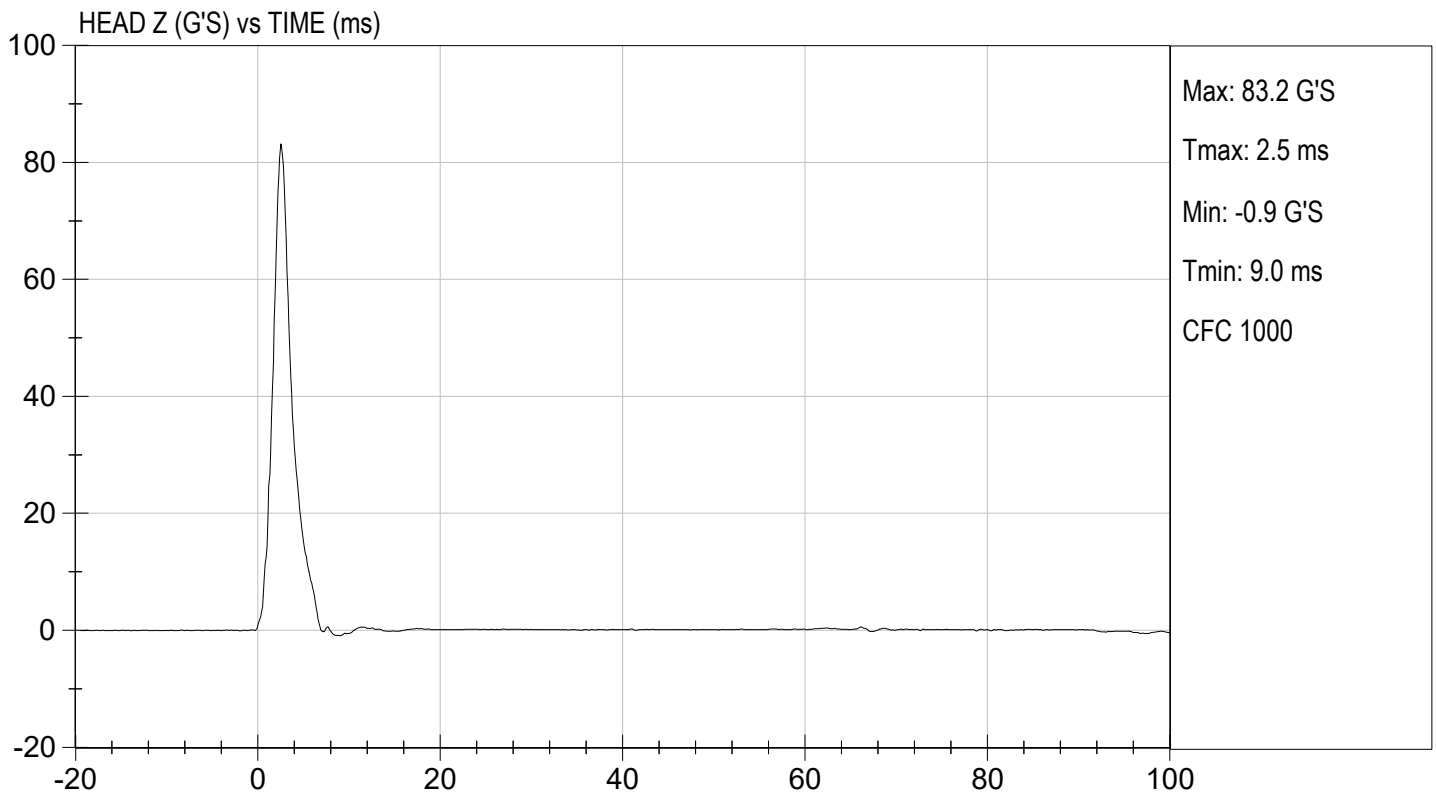
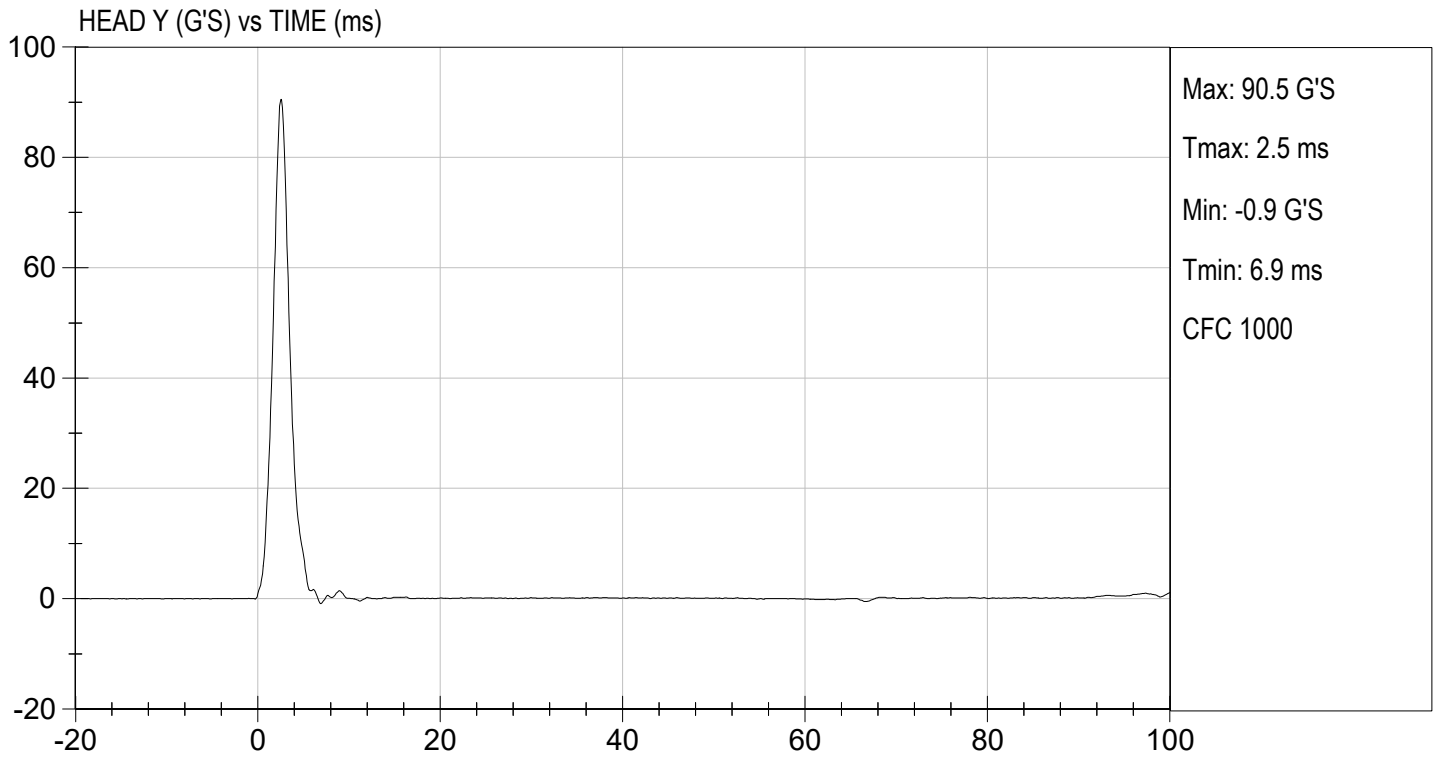
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	29	Pass
Peak Resultant Acceleration	G's	115 to 137	123	Pass
Peak Longitudinal Acceleration	G's	+/- 15	6.4	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
Overall Test Results				Pass

  
 Laboratory Technician

01/06/2023  
 Test Date

  
 Approved By





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

ATD Serial No: 296

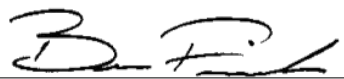
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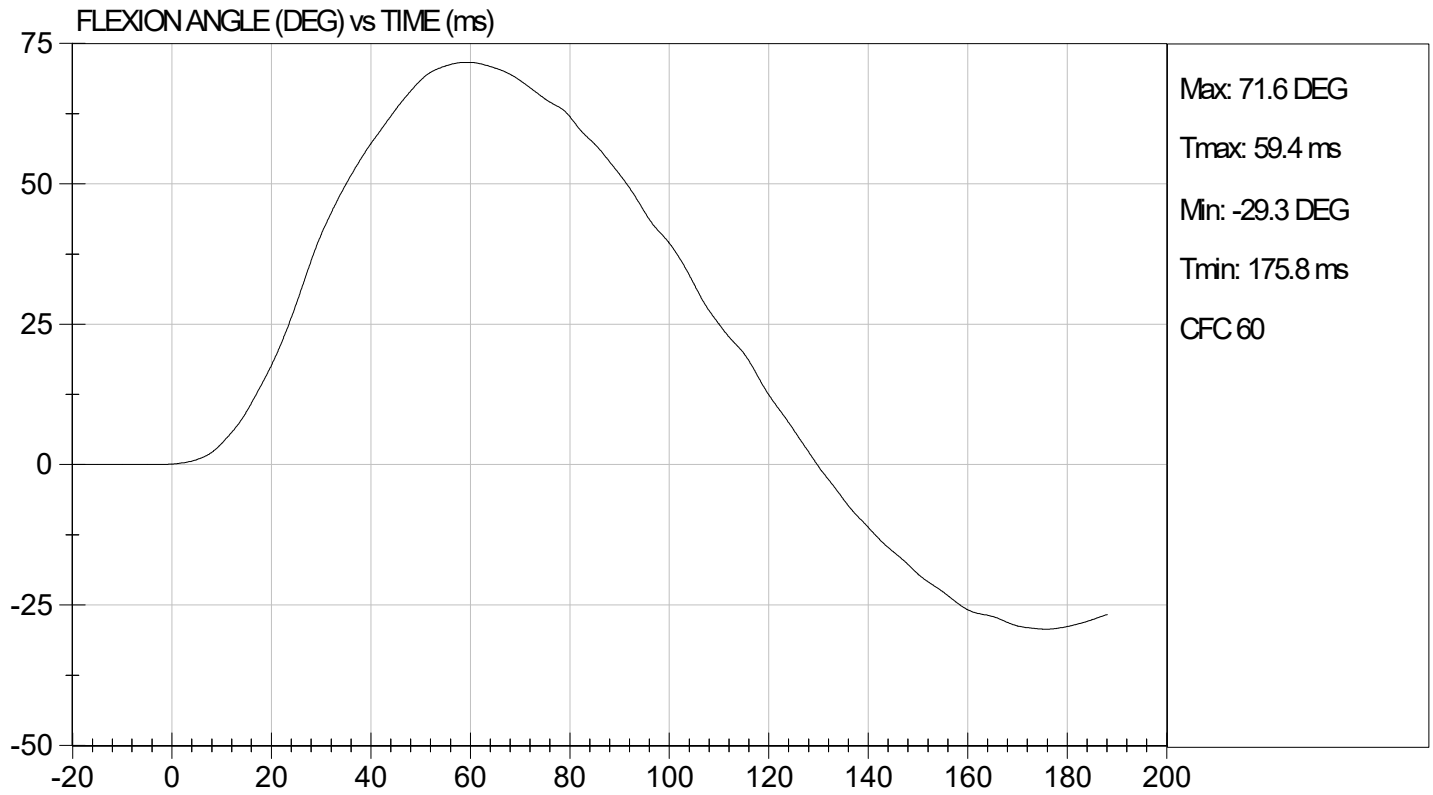
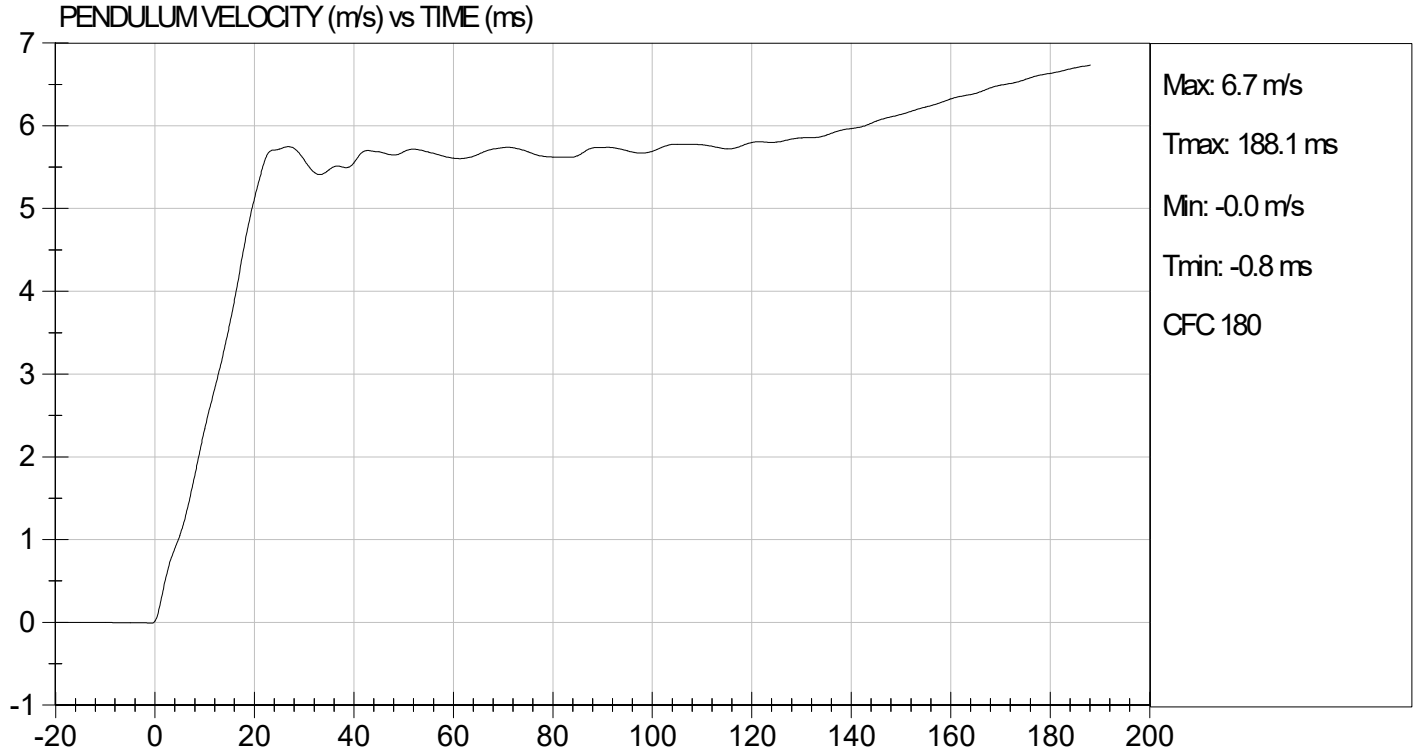
Tested Parameter	Units	Specification	Result	Pass/Fail	
Temperature	deg C	20.6 to 22.2	21.6	Pass	
Humidity	%	10 to 70	29	Pass	
Impact Velocity	m/s	5.51 to 5.63	5.58	Pass	
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.34	Pass
	15 ms	m/s	3.30 to 4.10	3.60	Pass
	20 ms	m/s	4.40 to 5.40	5.12	Pass
	25 ms	m/s	5.40 to 6.10	5.72	Pass
	25-100 ms	m/s	5.50 to 6.20	5.75	Pass
Maximum D-Plane Rotation	deg	71 to 81	72	Pass	
Time of Maximum D-Plane Rotation	ms	50 to 70	59	Pass	
Maximum Occipital Condyle Moment	Nm	-44 to -36	-40	Pass	
Time of Moment Decay to 0 Nm	ms	102 to 126	111	Pass	
Overall Test Results				Pass	

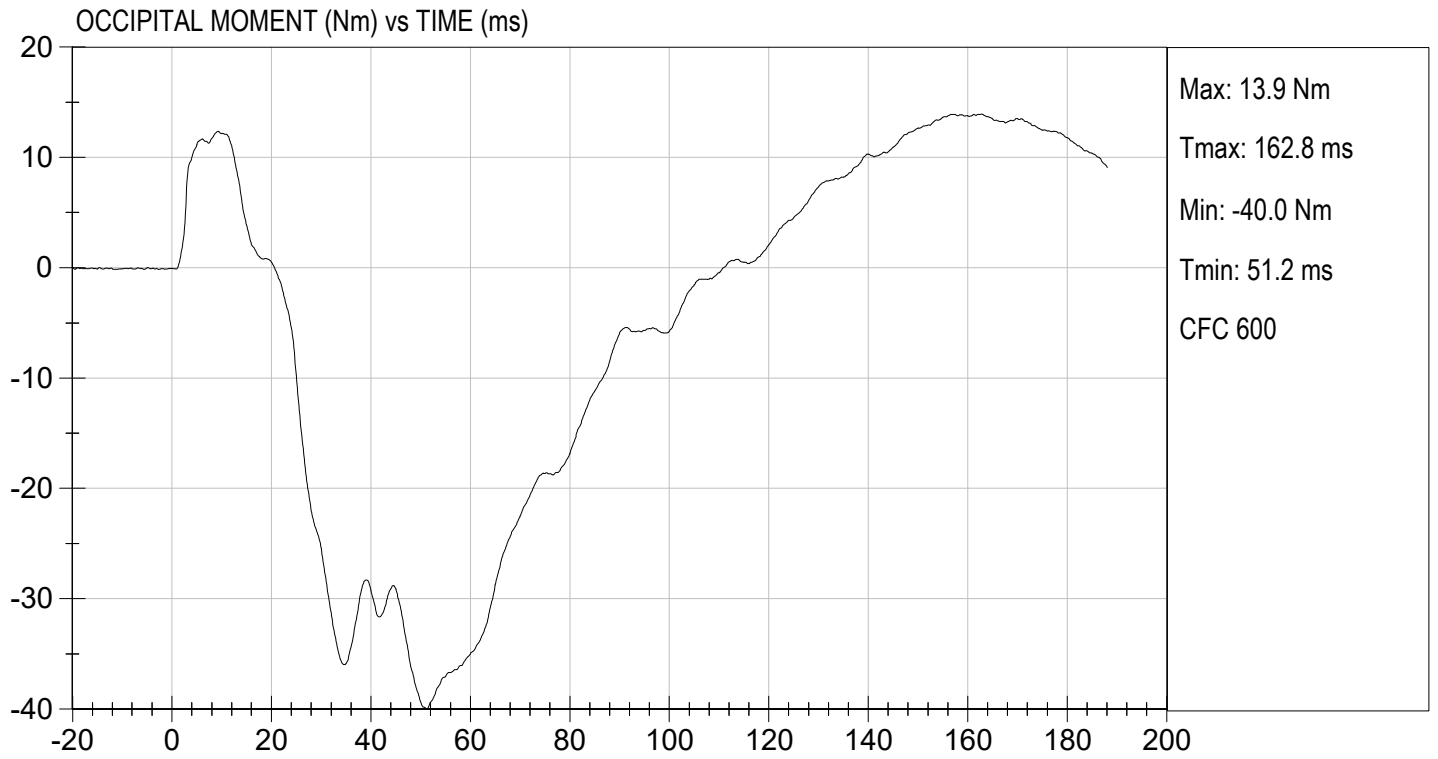
  
Laboratory Technician

01/06/2023

Test Date

  
Approved By





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

ATD Serial No: 296

Test ID: D230013

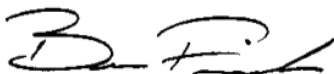
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	31	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	30	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	19	Pass
Overall Test Results				Pass



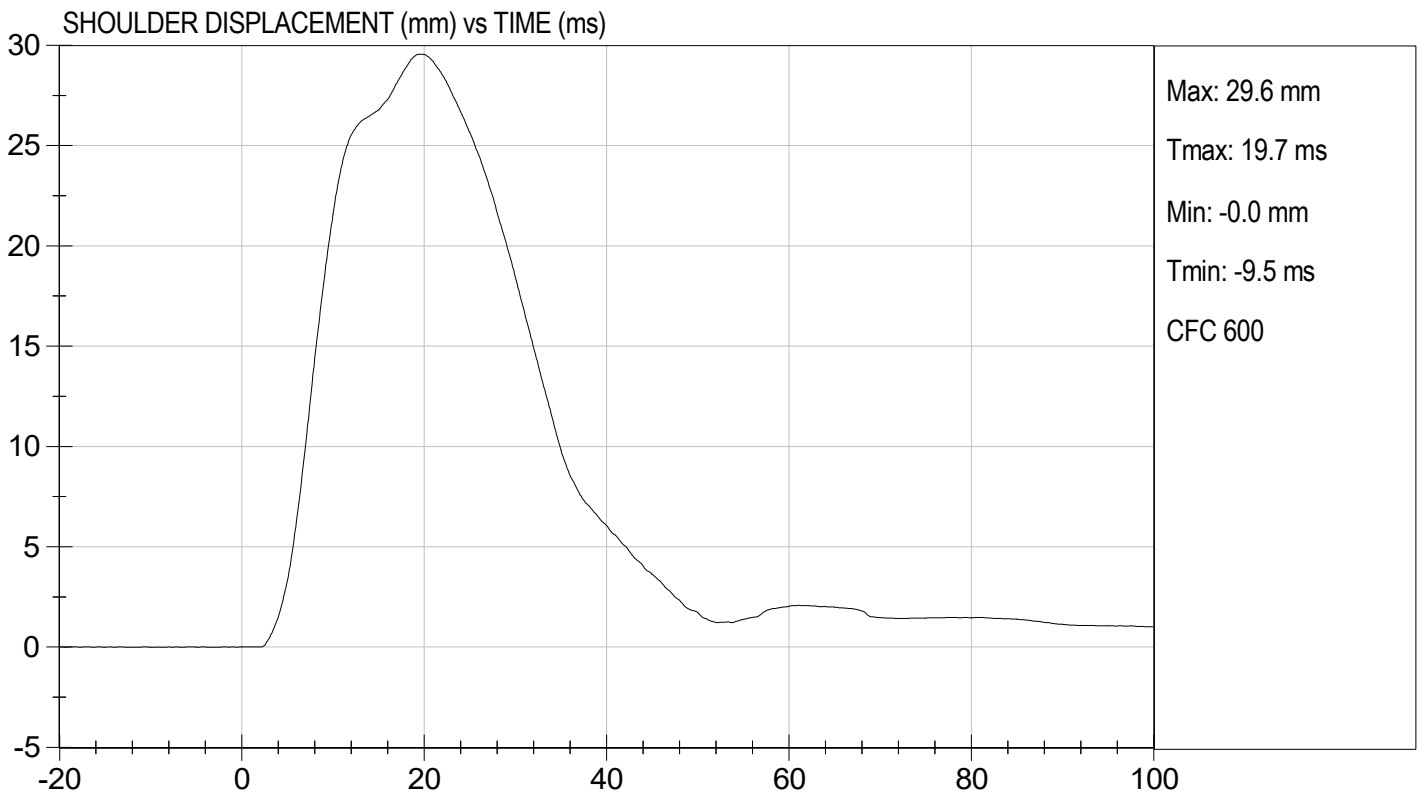
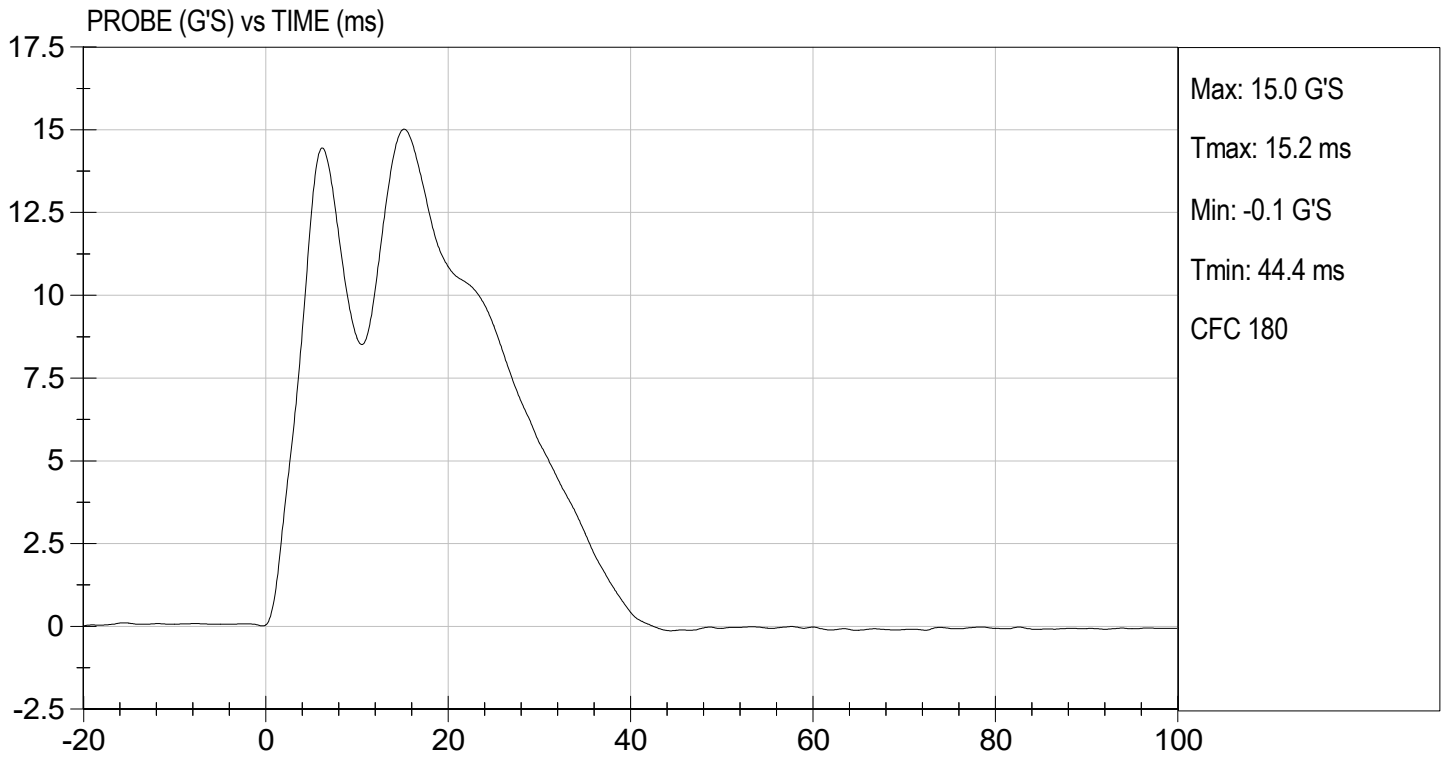
Laboratory Technician

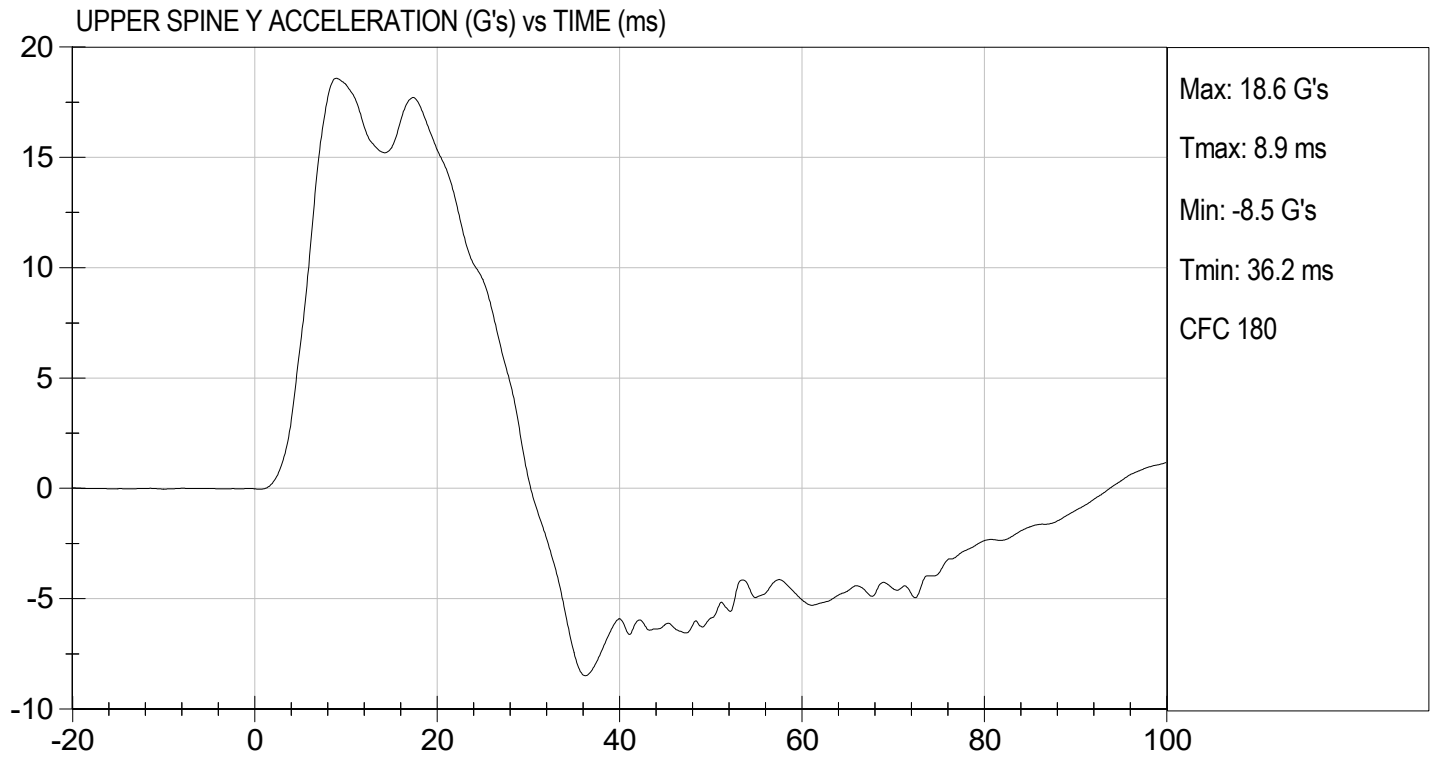
01/10/2023

Test Date



Approved By





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

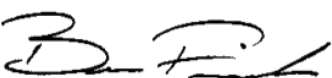
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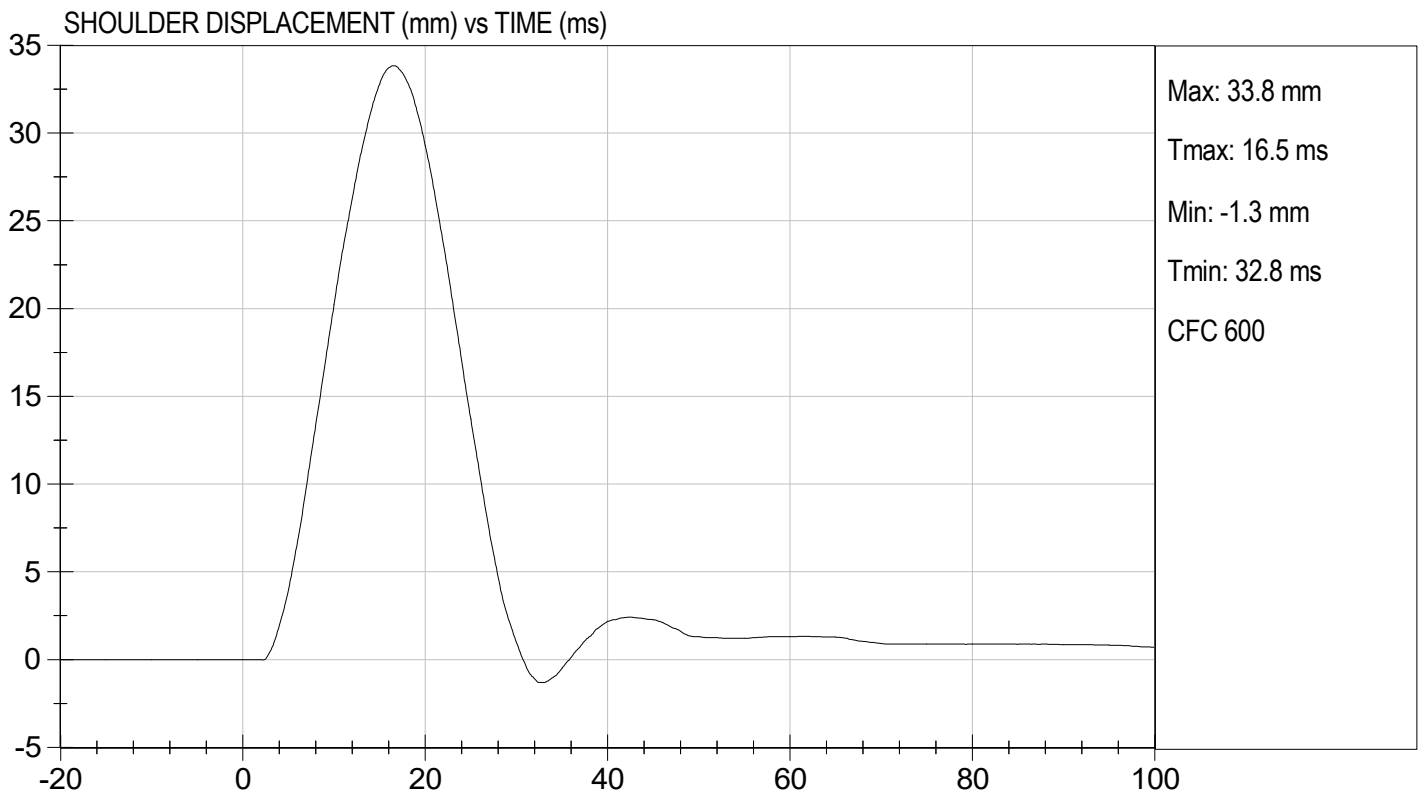
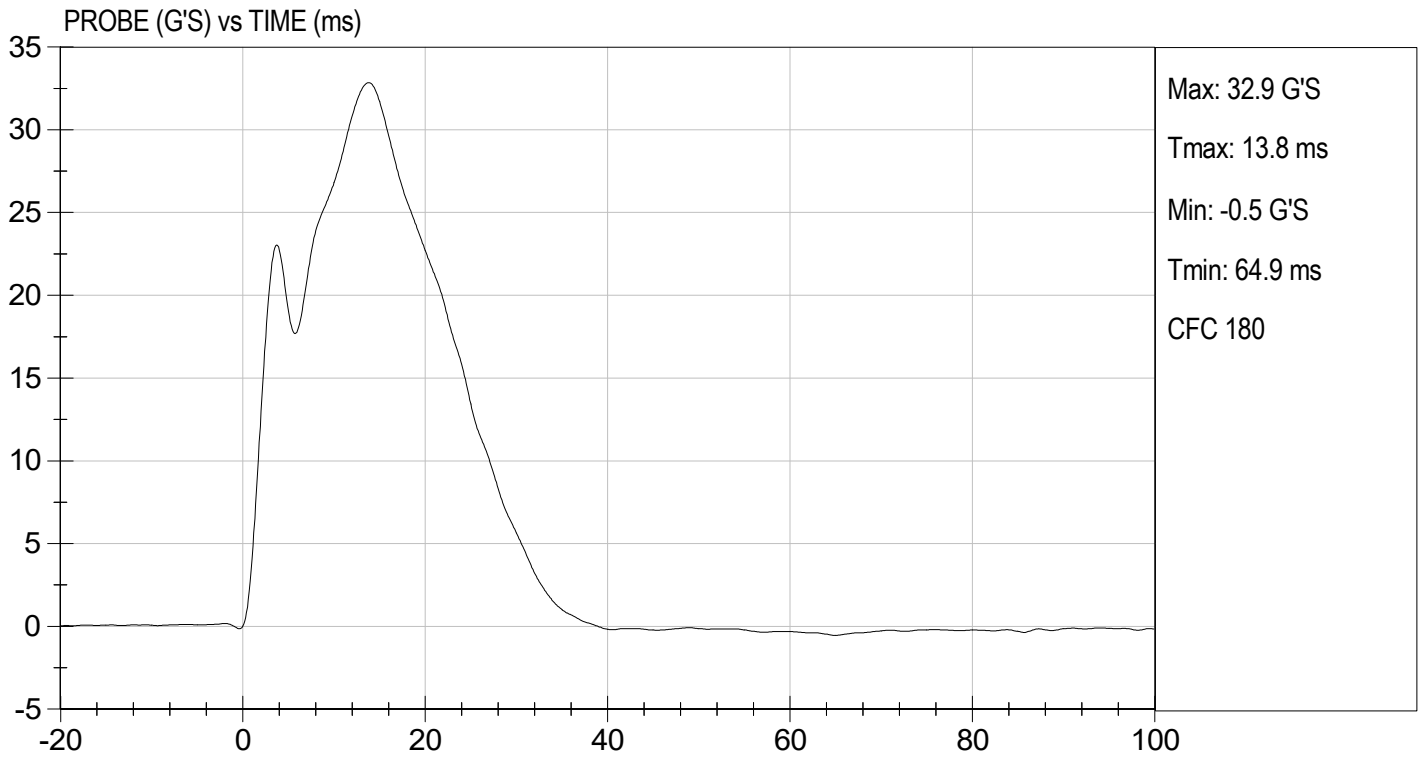
Test I.D: D230014

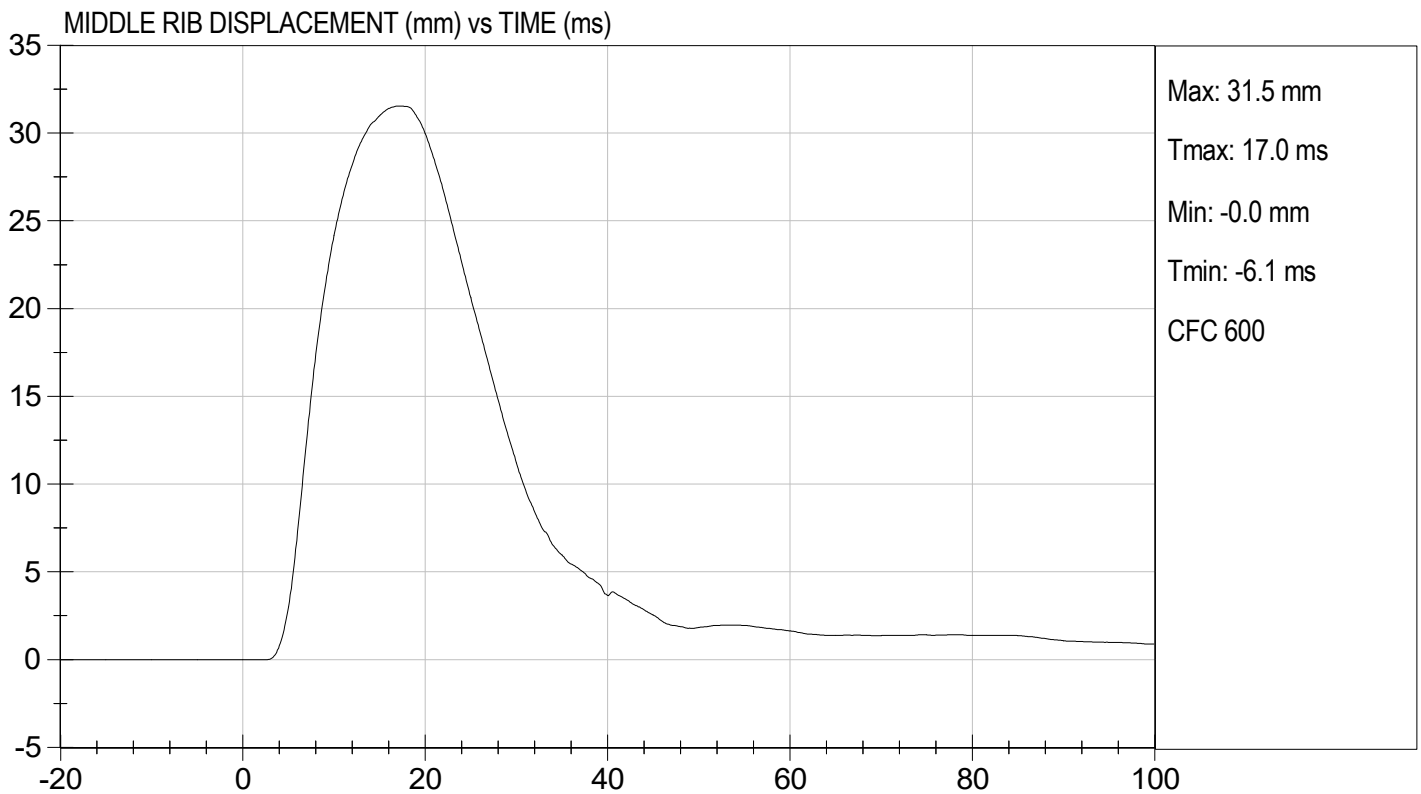
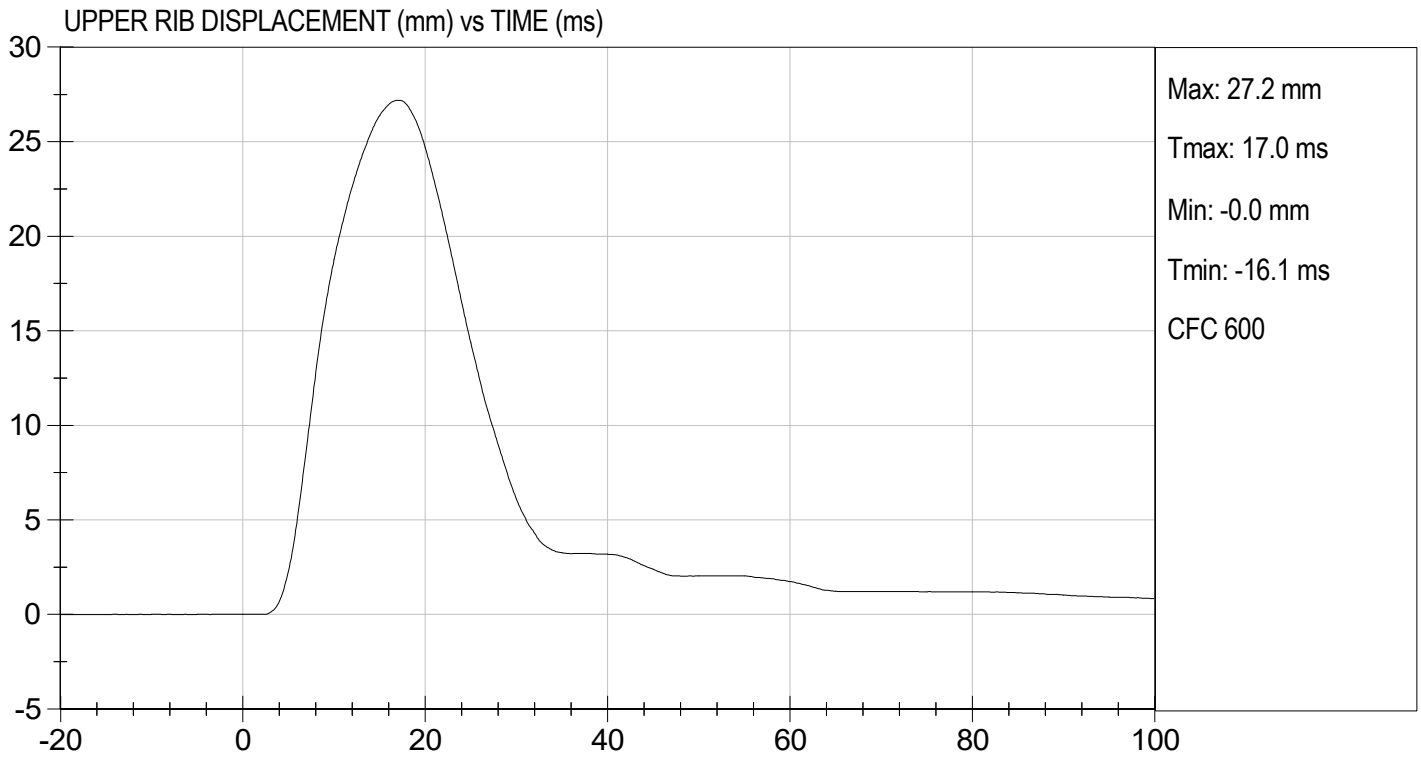
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	32	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	30 to 36	33	Pass
Shoulder Displacement	mm	31 to 40	34	Pass
Upper Rib Displacement	mm	25 to 32	27	Pass
Middle Rib Displacement	mm	30 to 36	32	Pass
Lower Rib Displacement	mm	32 to 38	34	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	38	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	33	Pass
Overall Test Results				Pass

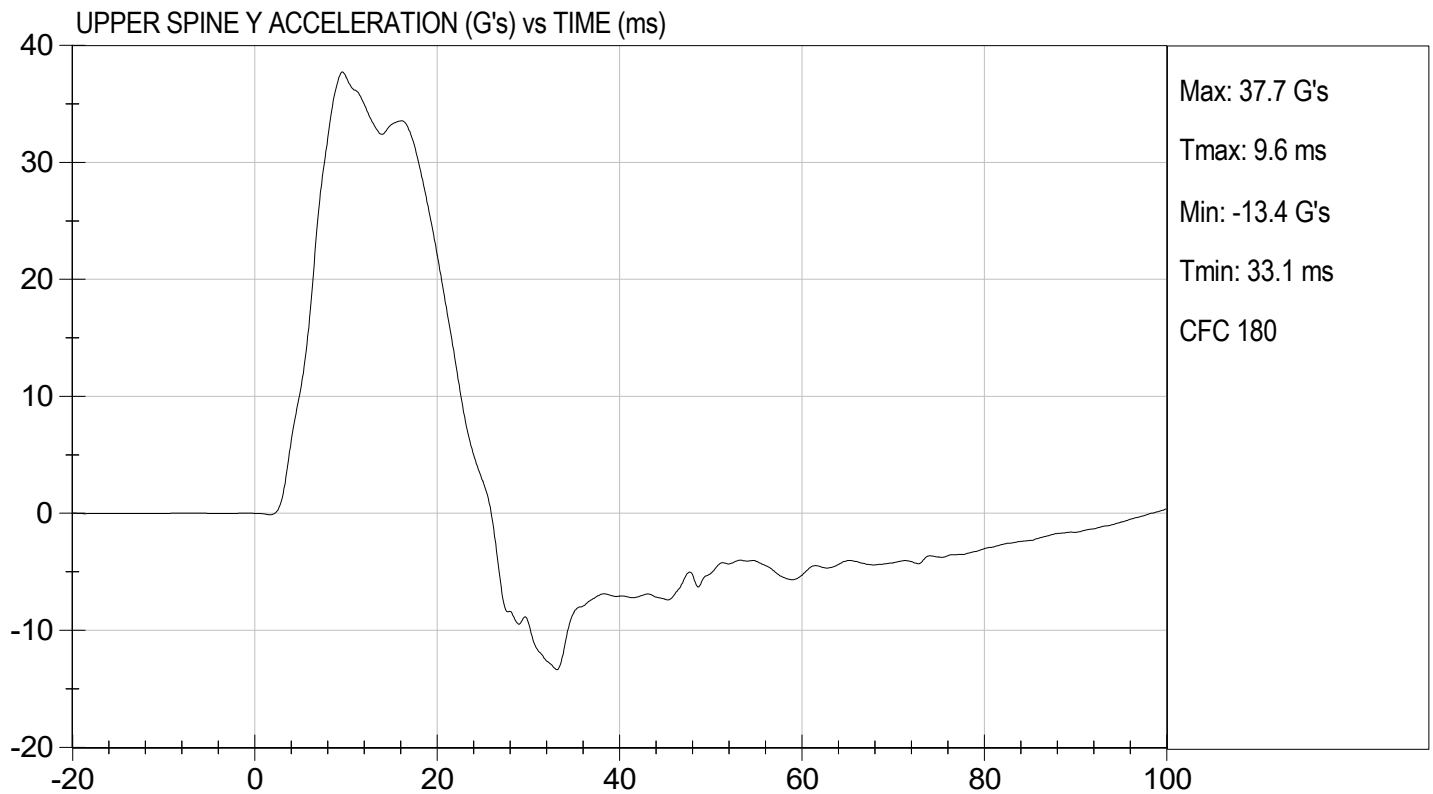
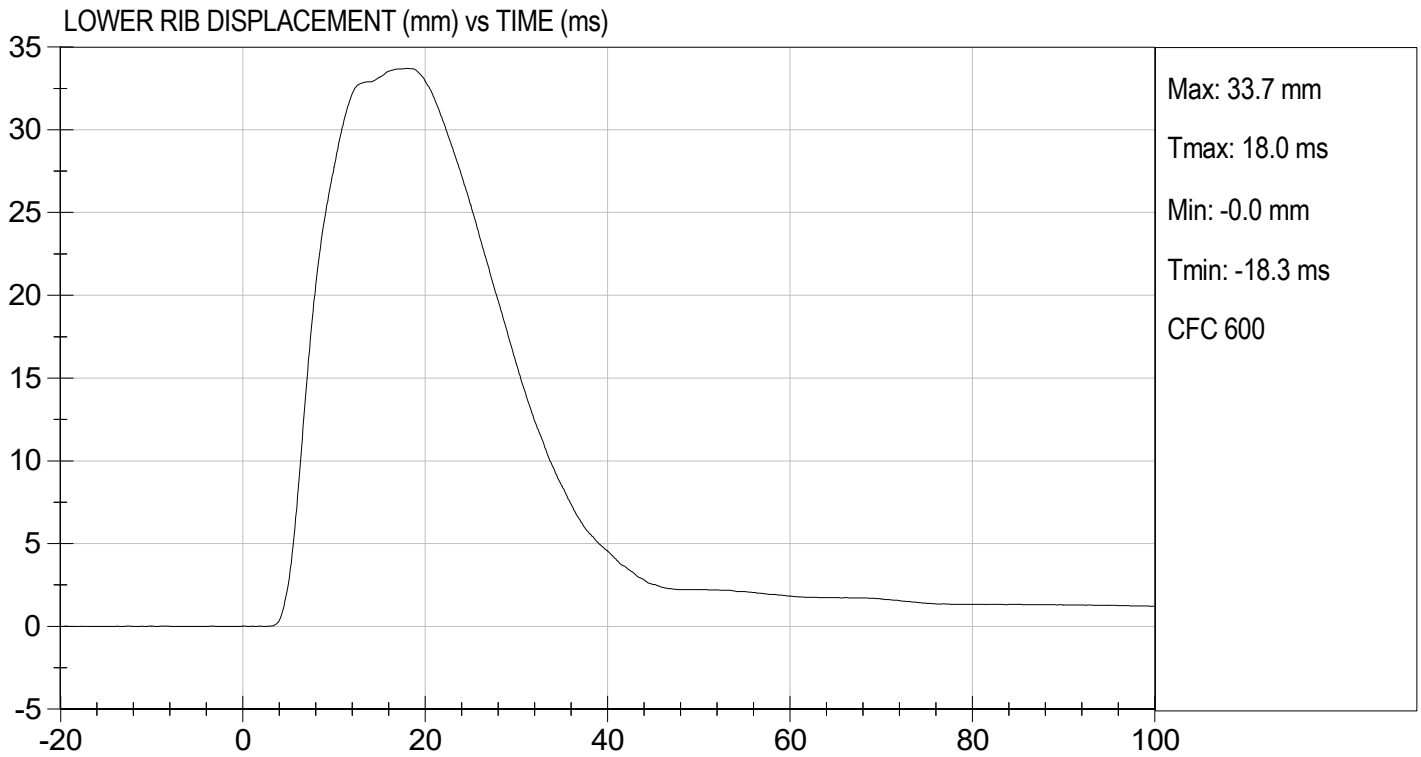
  
 Laboratory Technician

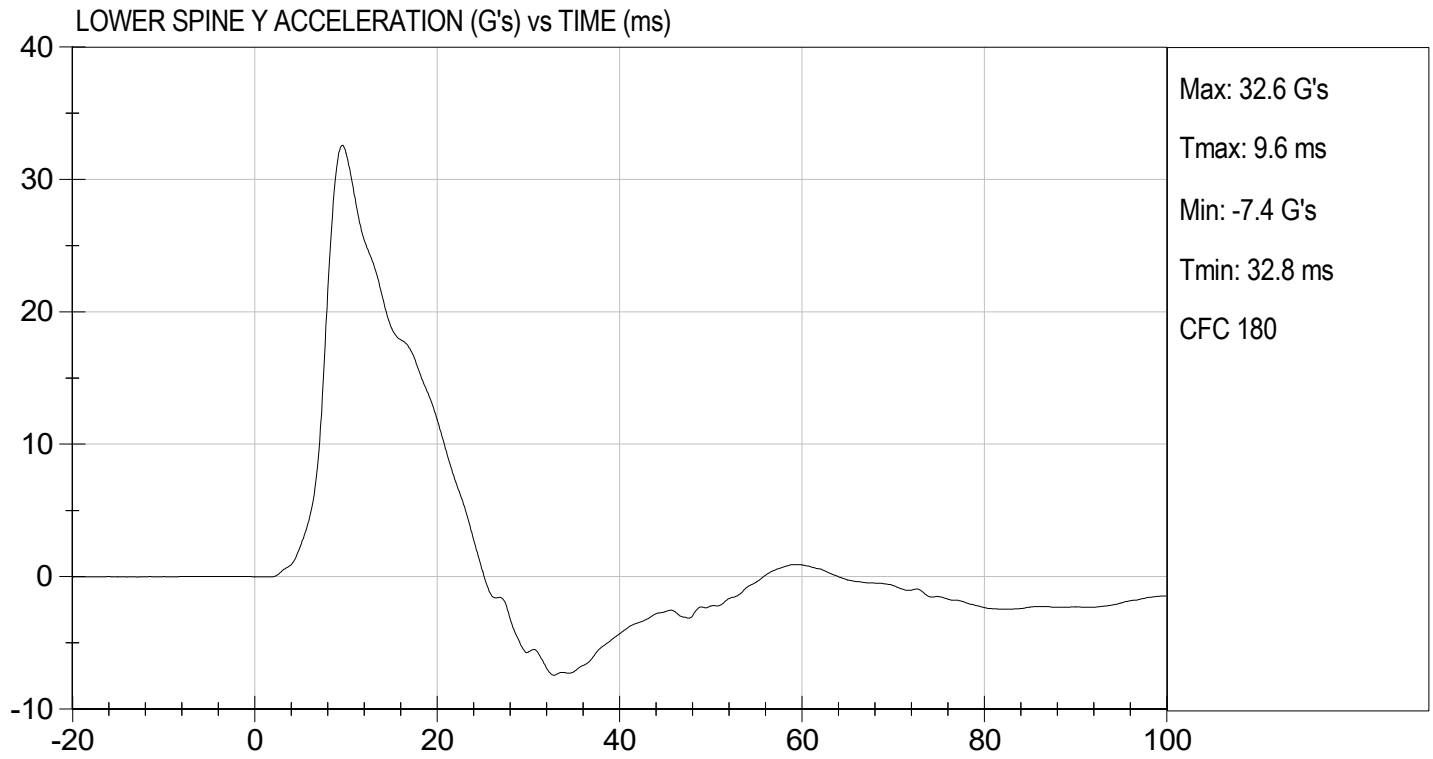
01/10/2023  
 Test Date

  
 Approved By









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

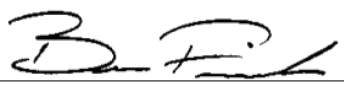
ATD Serial No: 296

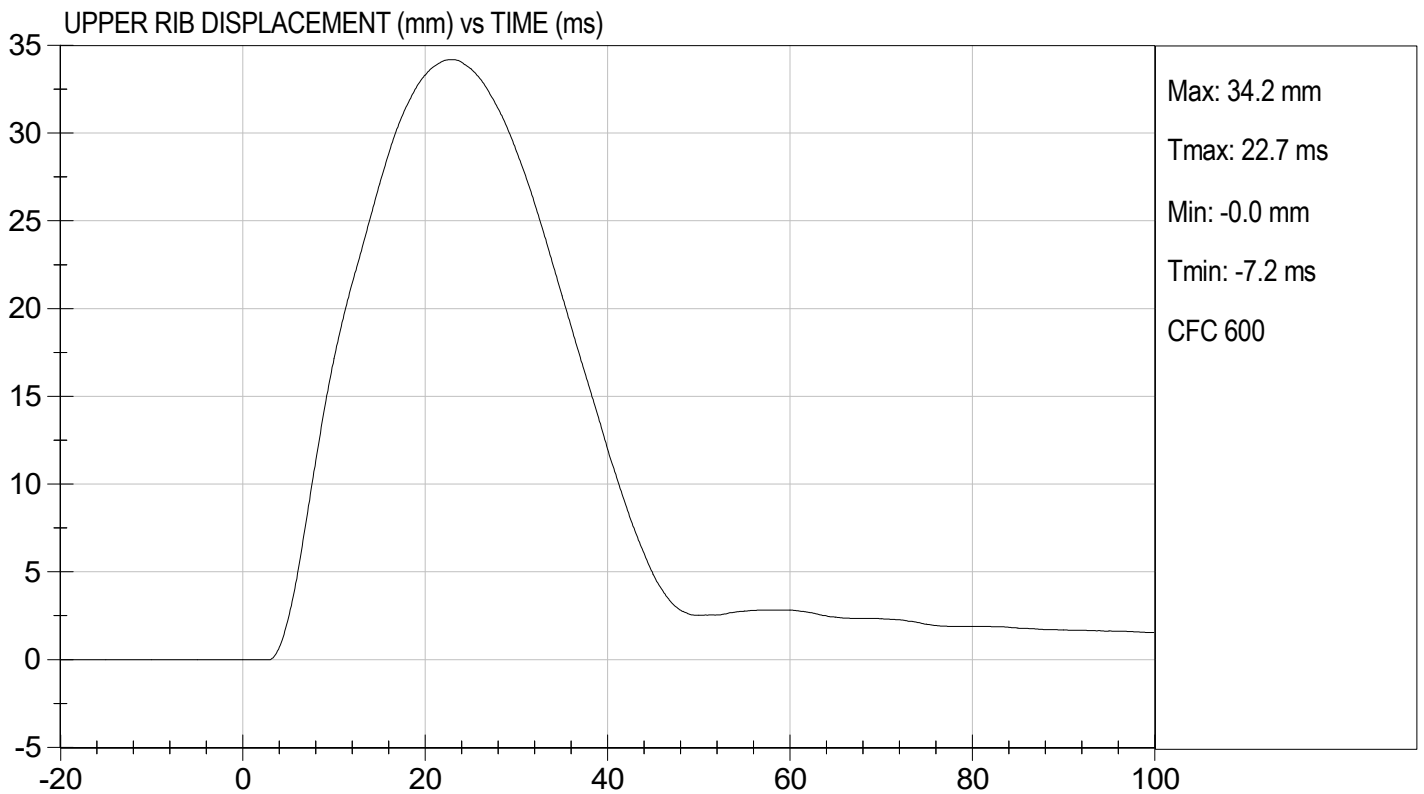
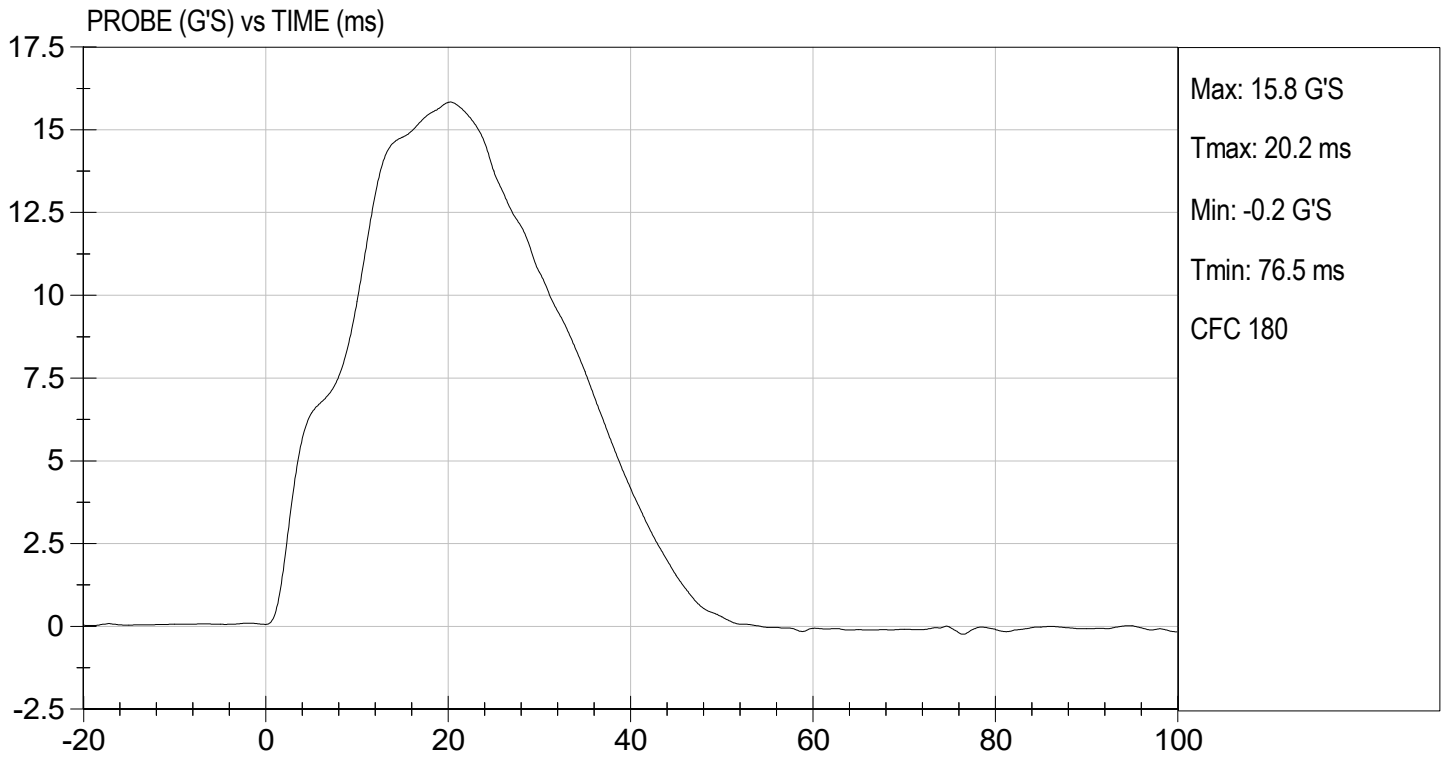
Test I.D: D230015

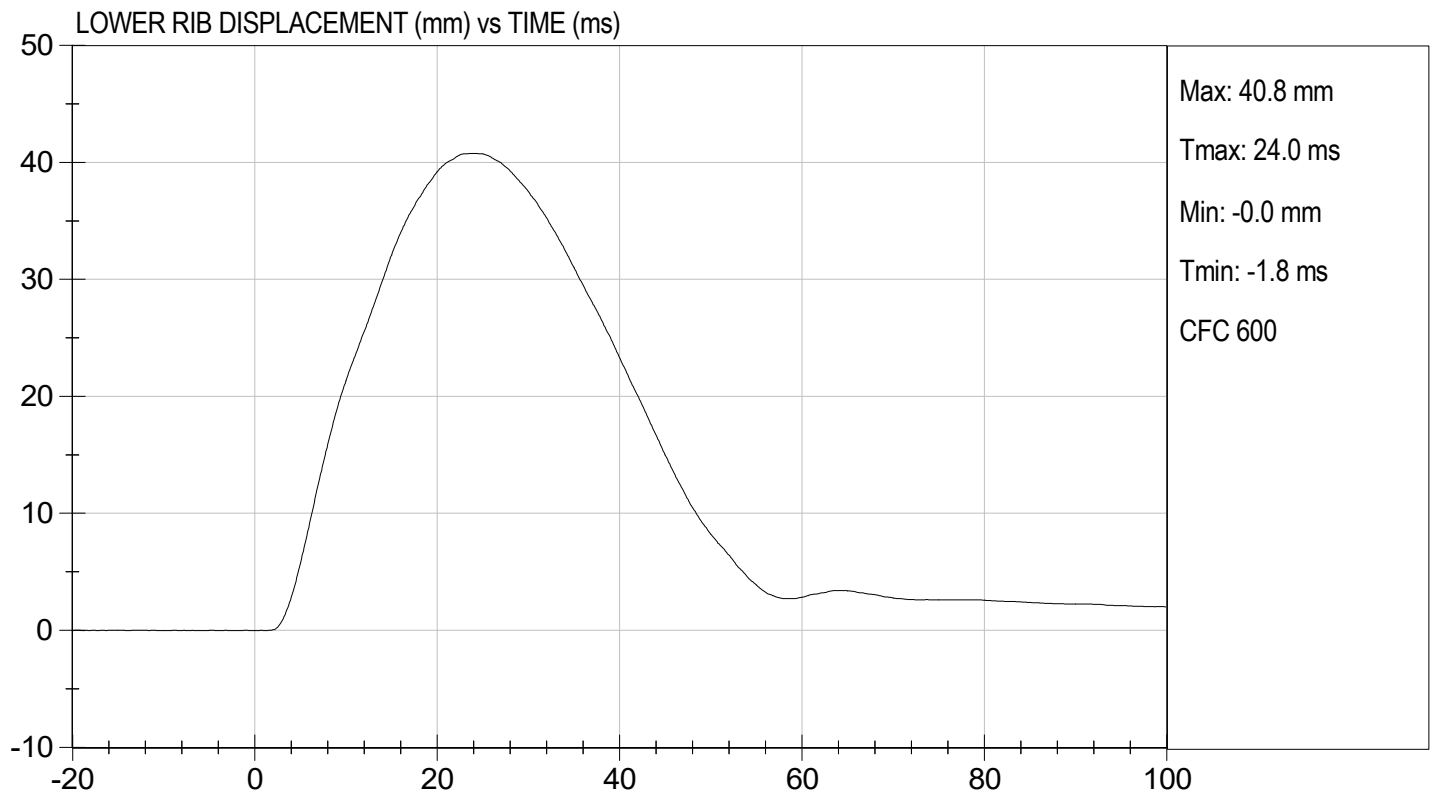
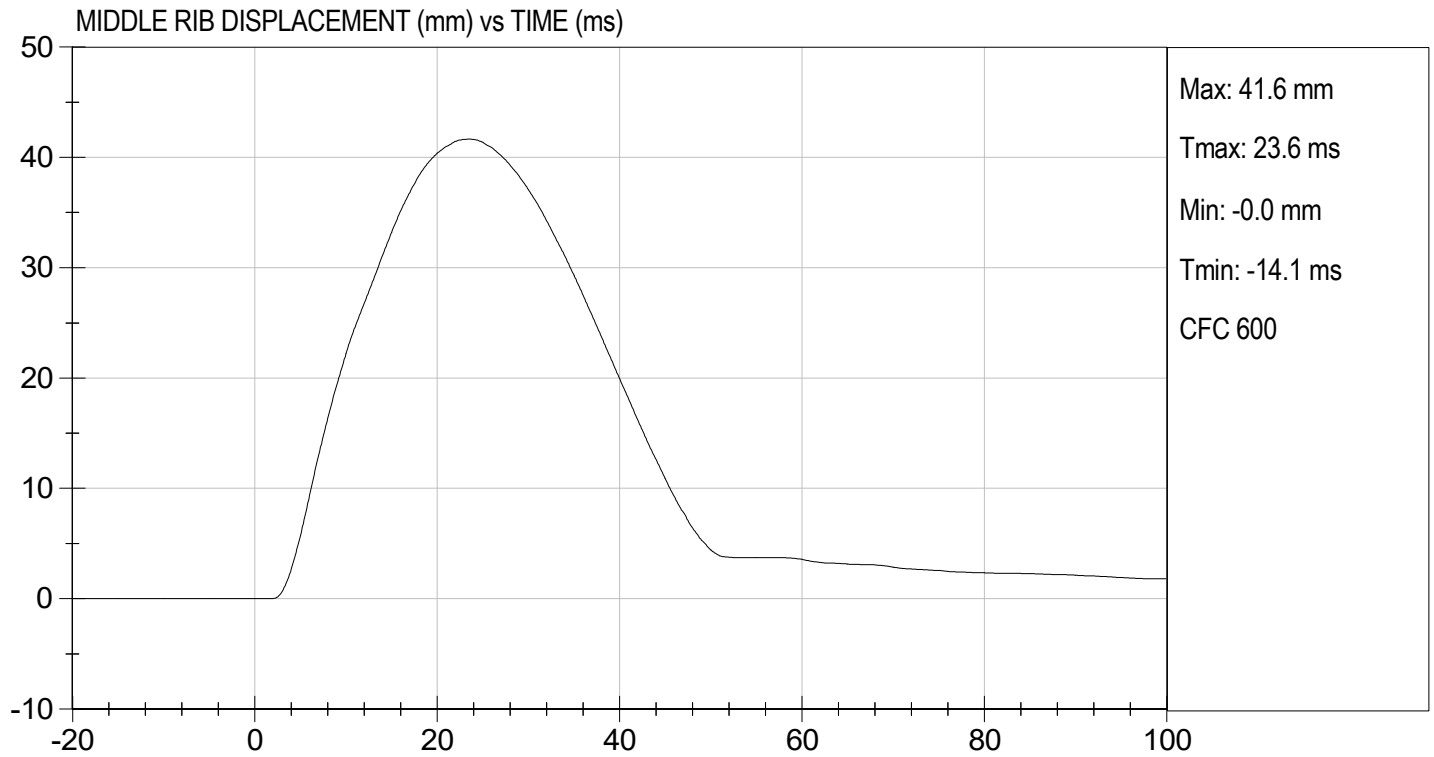
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	31	Pass
Impact Velocity	m/s	4.20 to 4.40	4.20	Pass
Maximum Probe Acceleration	G's	14 to 18	16	Pass
Upper Rib Displacement	mm	32 to 40	34	Pass
Middle Rib Displacement	mm	39 to 45	42	Pass
Lower Rib Displacement	mm	35 to 43	41	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

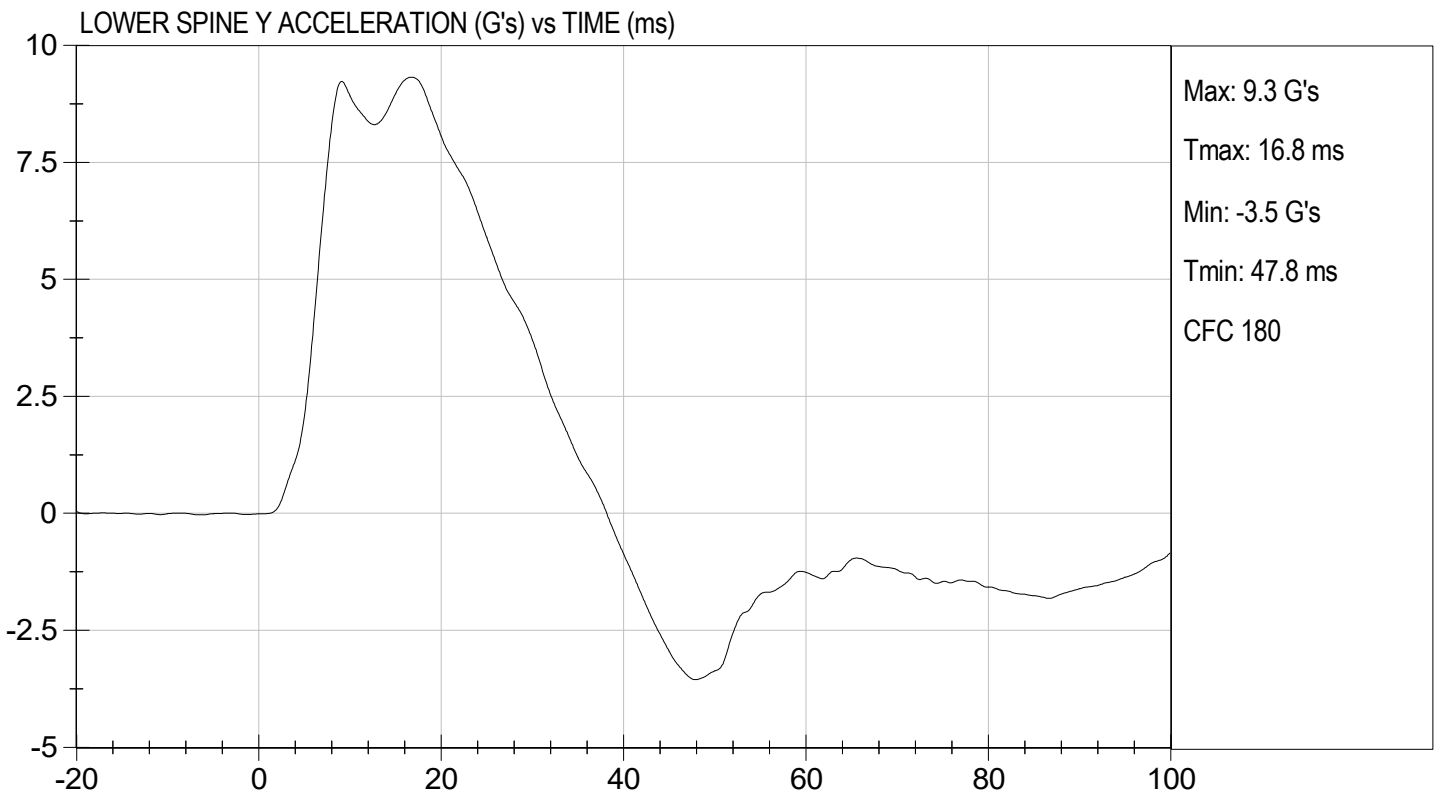
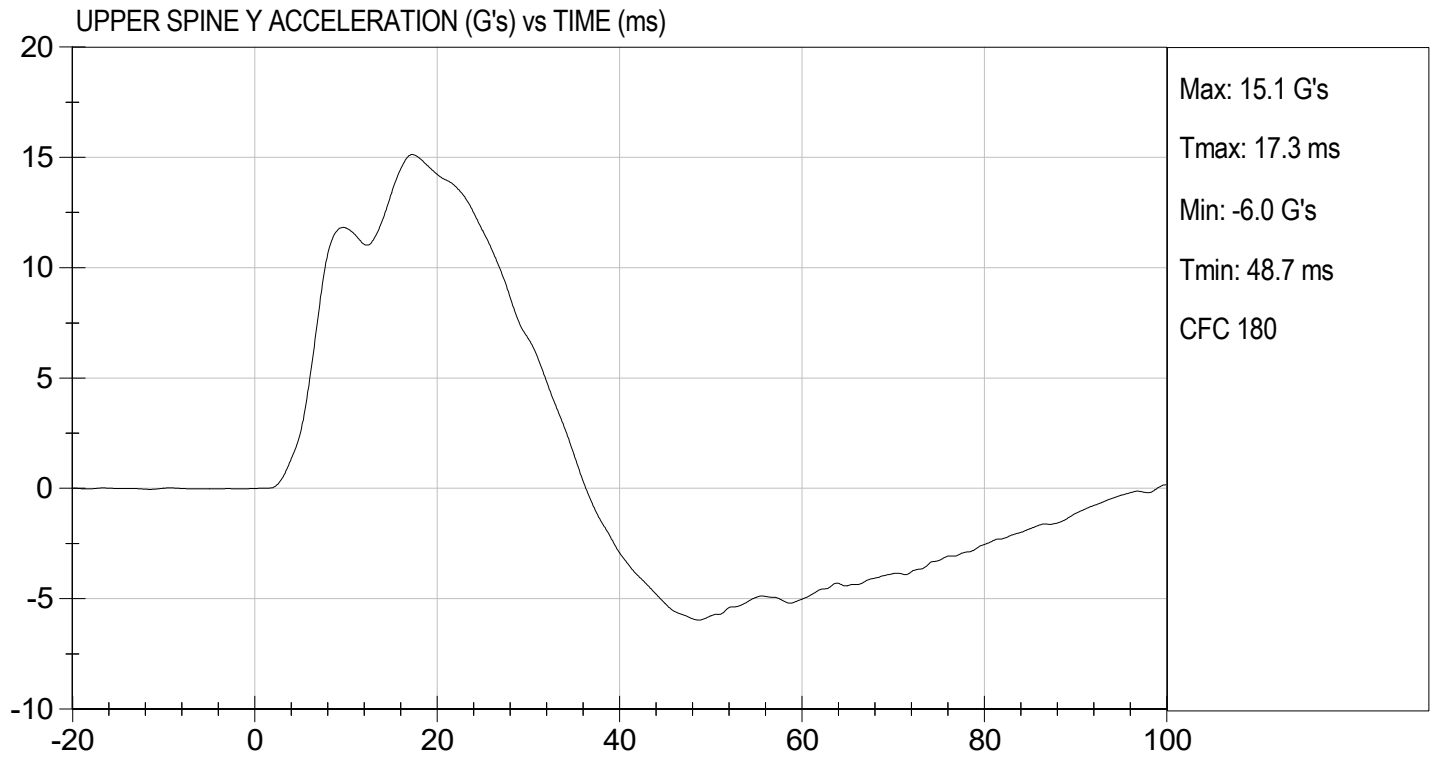
  
 Laboratory Technician

01/10/2023  
 Test Date

  
 Approved By







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

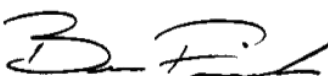
ATD Serial No: 296

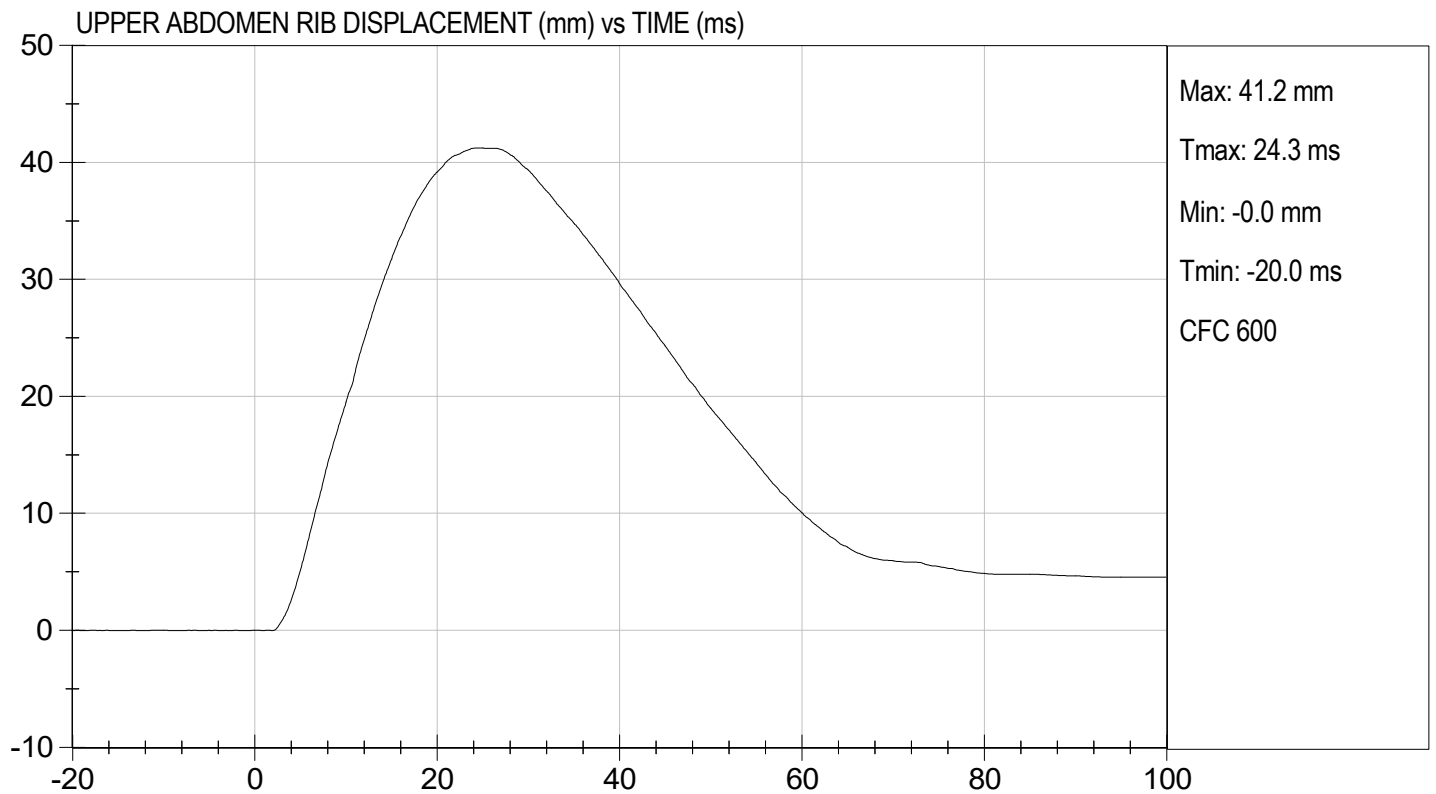
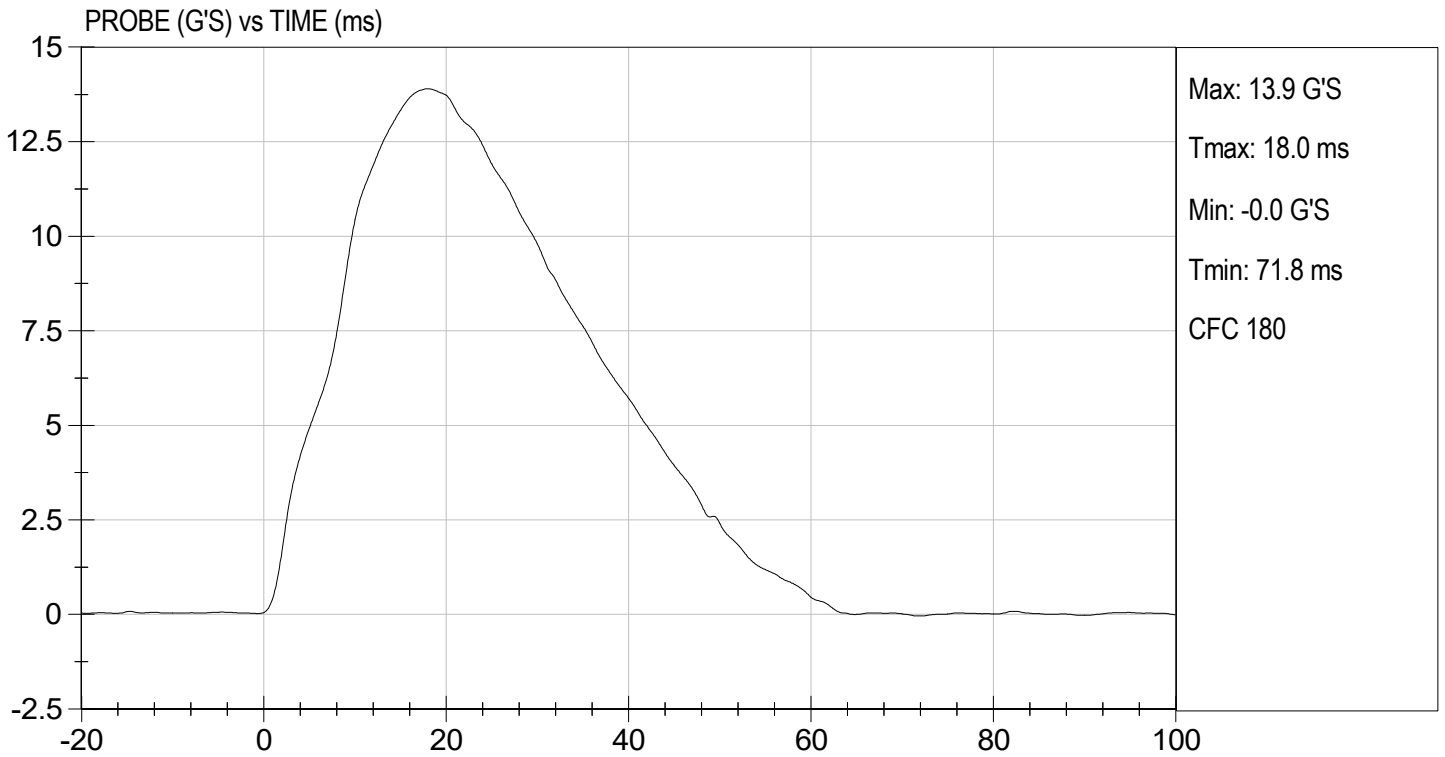
Test I.D: D230016

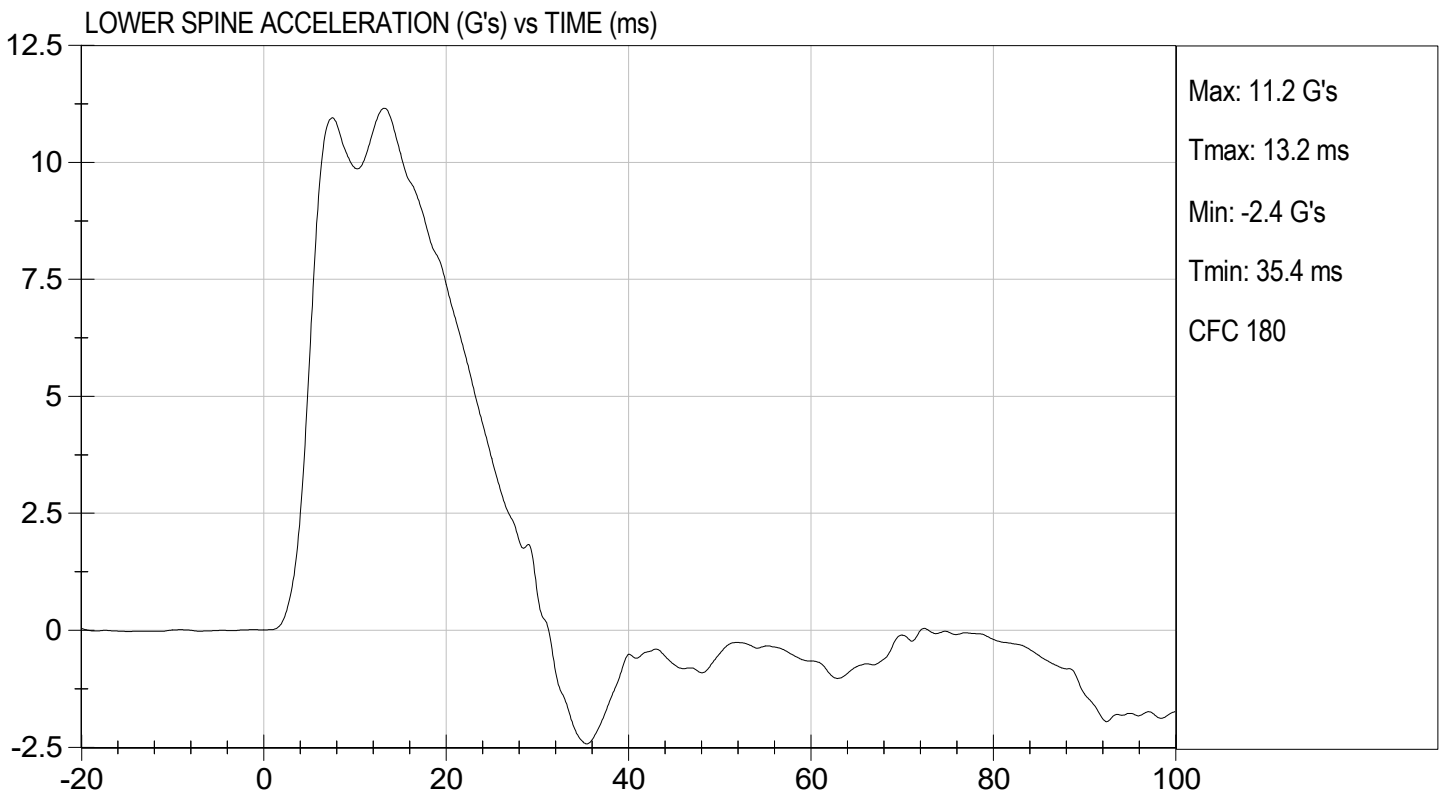
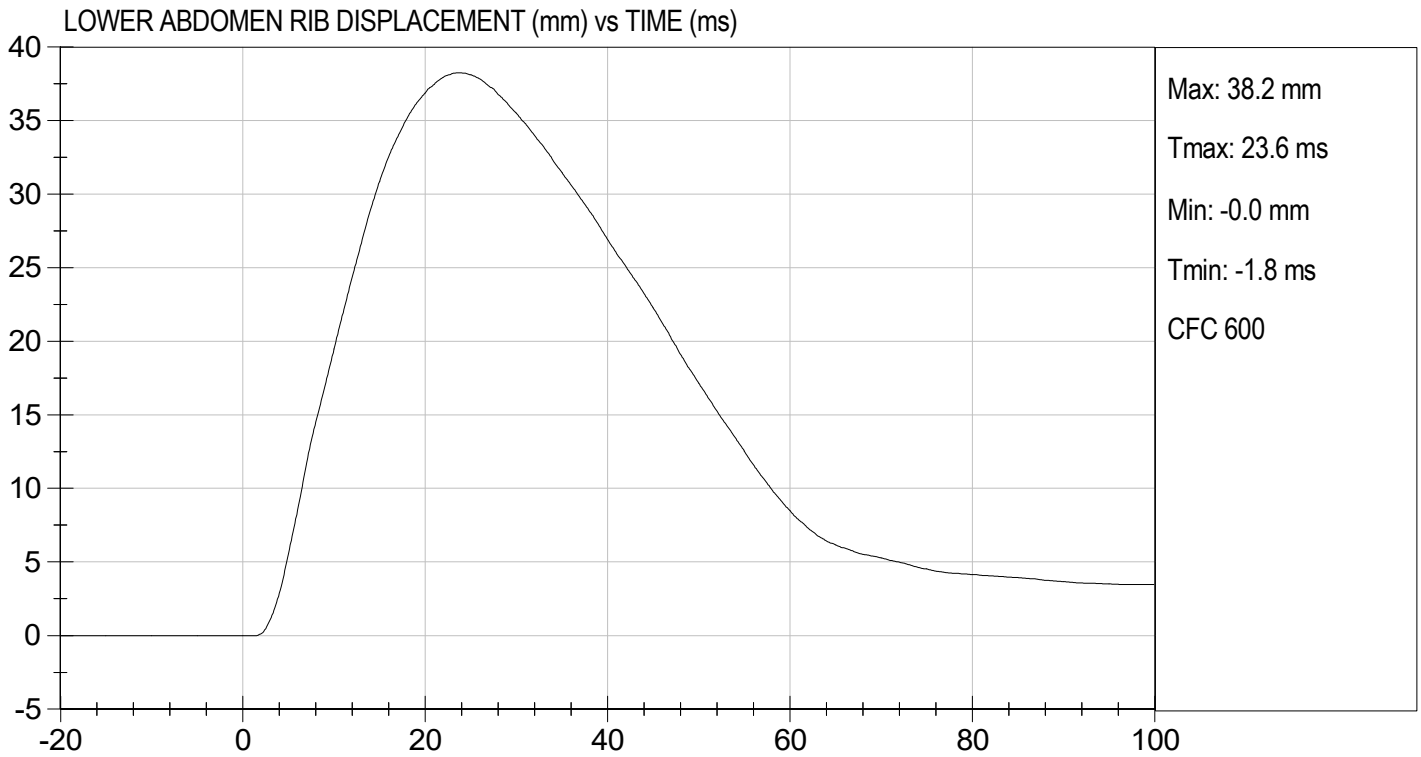
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	31	Pass
Impact Velocity	m/s	4.20 to 4.40	4.27	Pass
Maximum Probe Acceleration	G's	12 to 16	14	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	41	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	38	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
Overall Test Results				Pass

  
 Laboratory Technician

01/10/2023  
 Test Date

  
 Approved By





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

ATD Serial No: 296

Test I.D: D230017

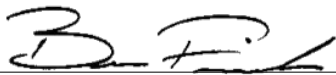
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	29	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	38 to 47	42	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	41	Pass
Peak Acetabulum Force	N	3600 to 4300	4,110	Pass
<b>Overall Test Results</b>				<b>Pass</b>



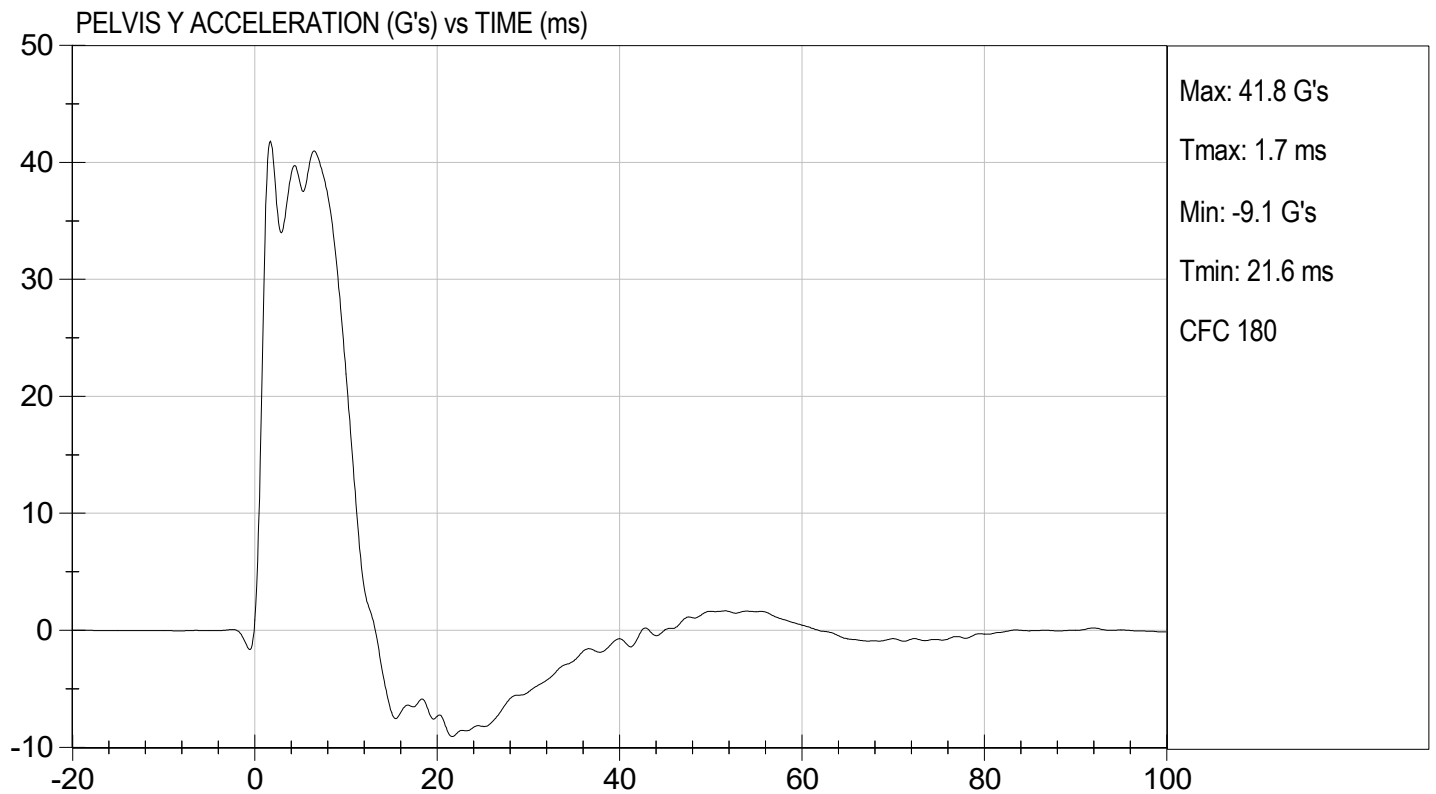
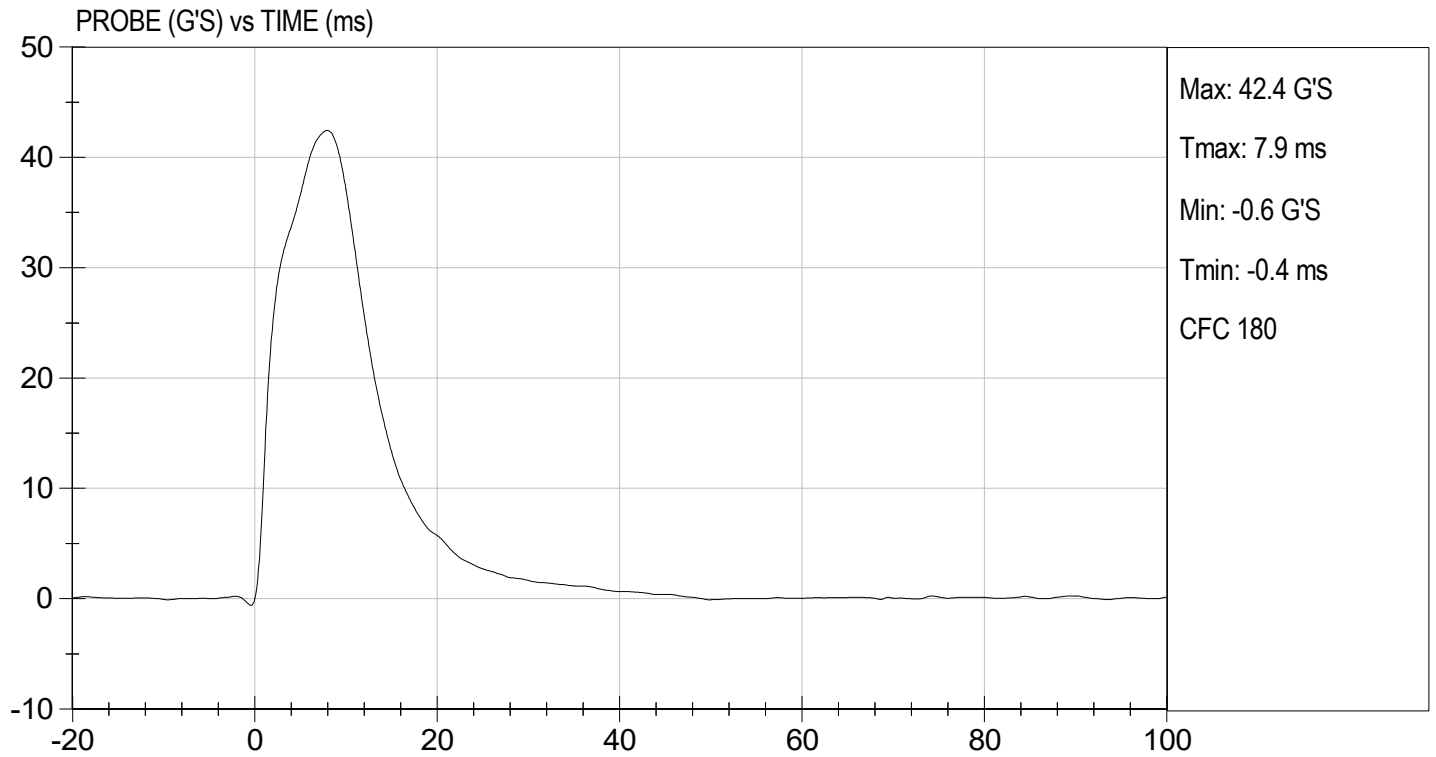
Laboratory Technician

01/11/2023

Test Date



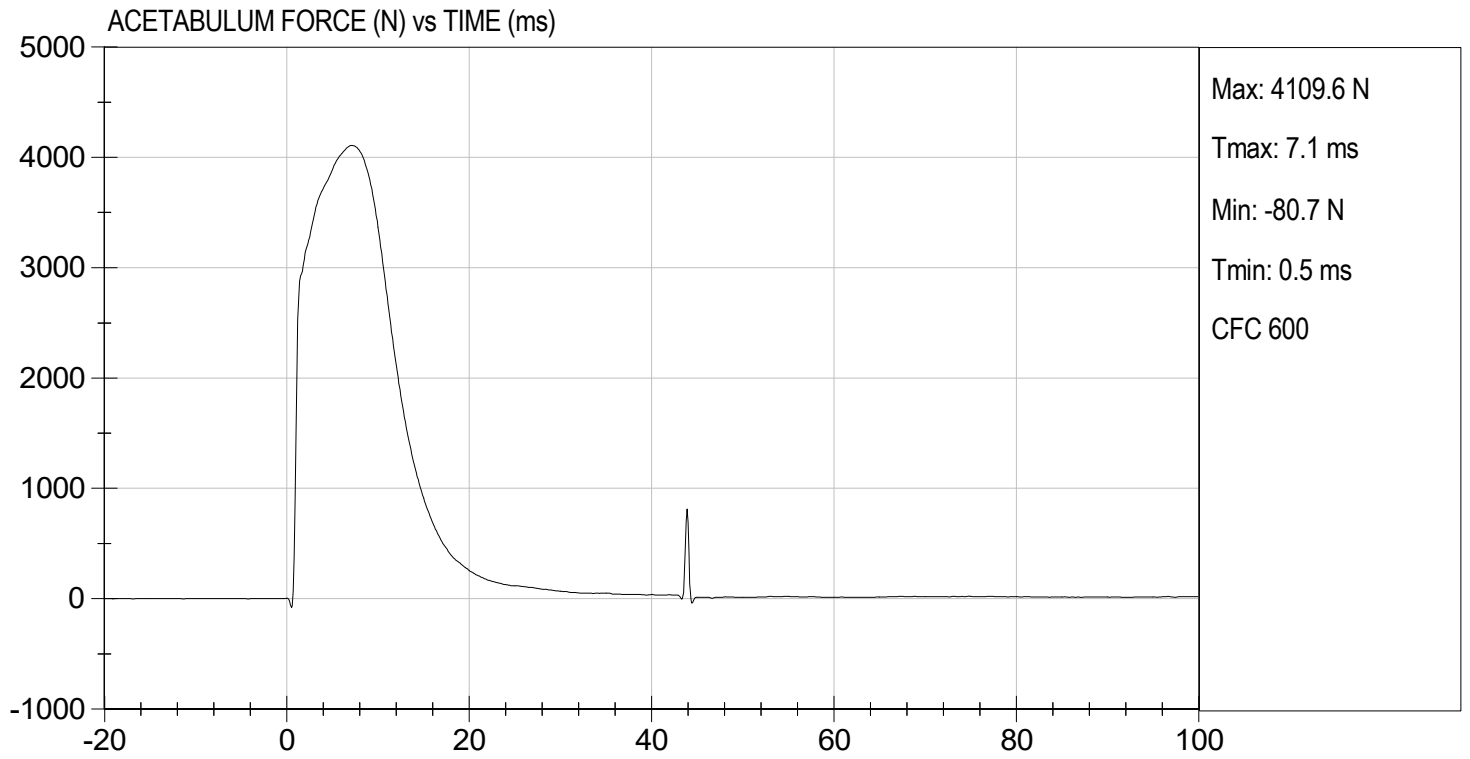
Approved By





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

TEST DATE: 01/11/2023  
TEST #: D230017



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

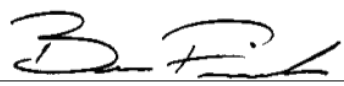
ATD Serial No: 296

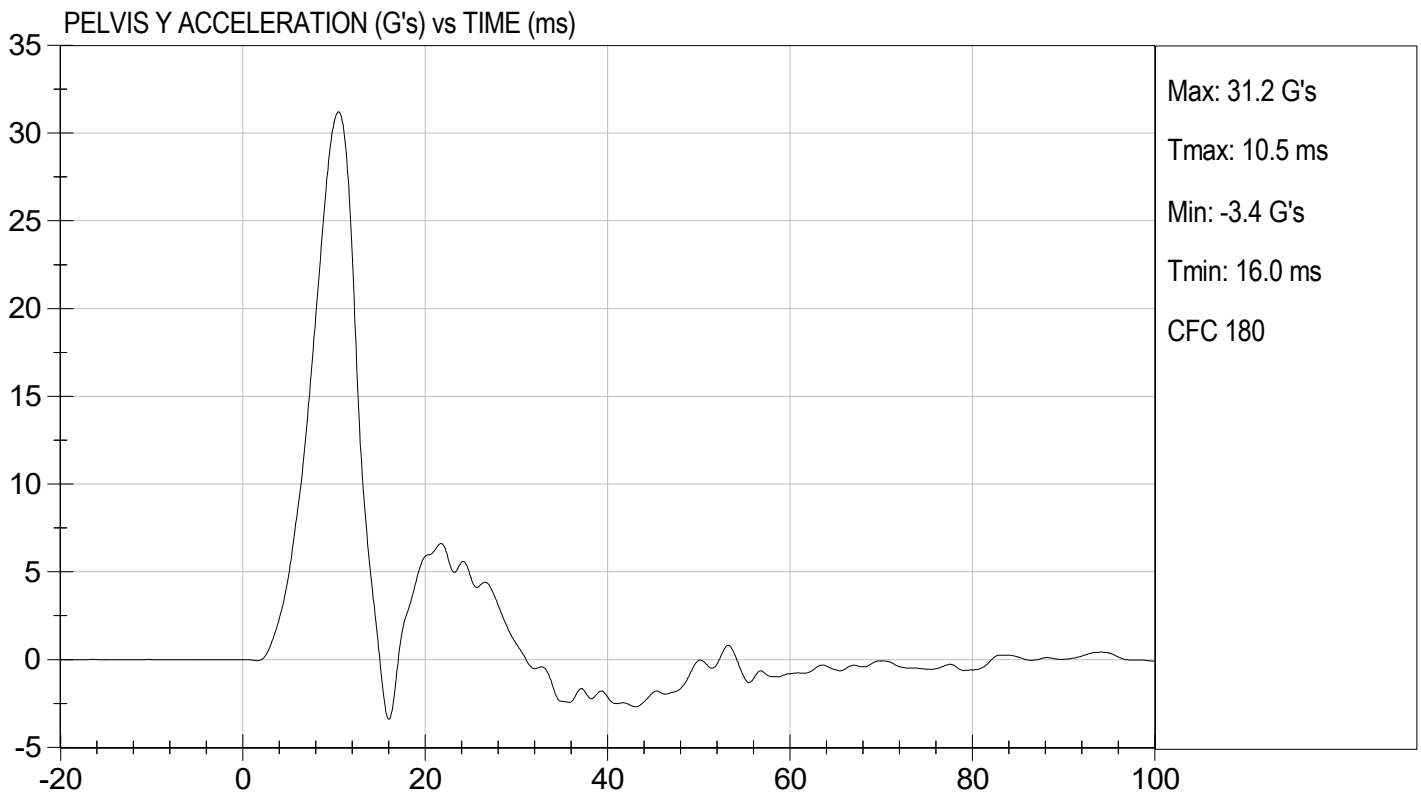
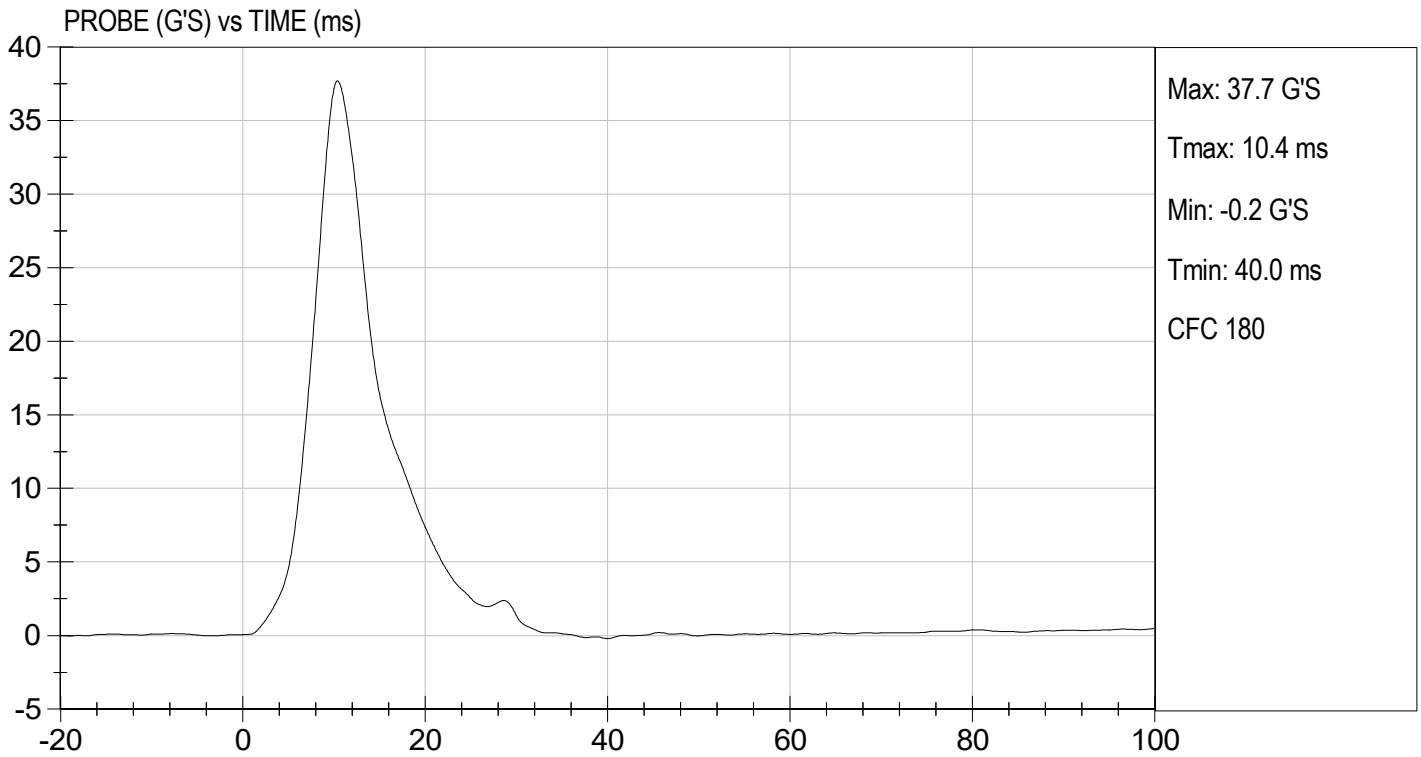
Test I.D: D230018

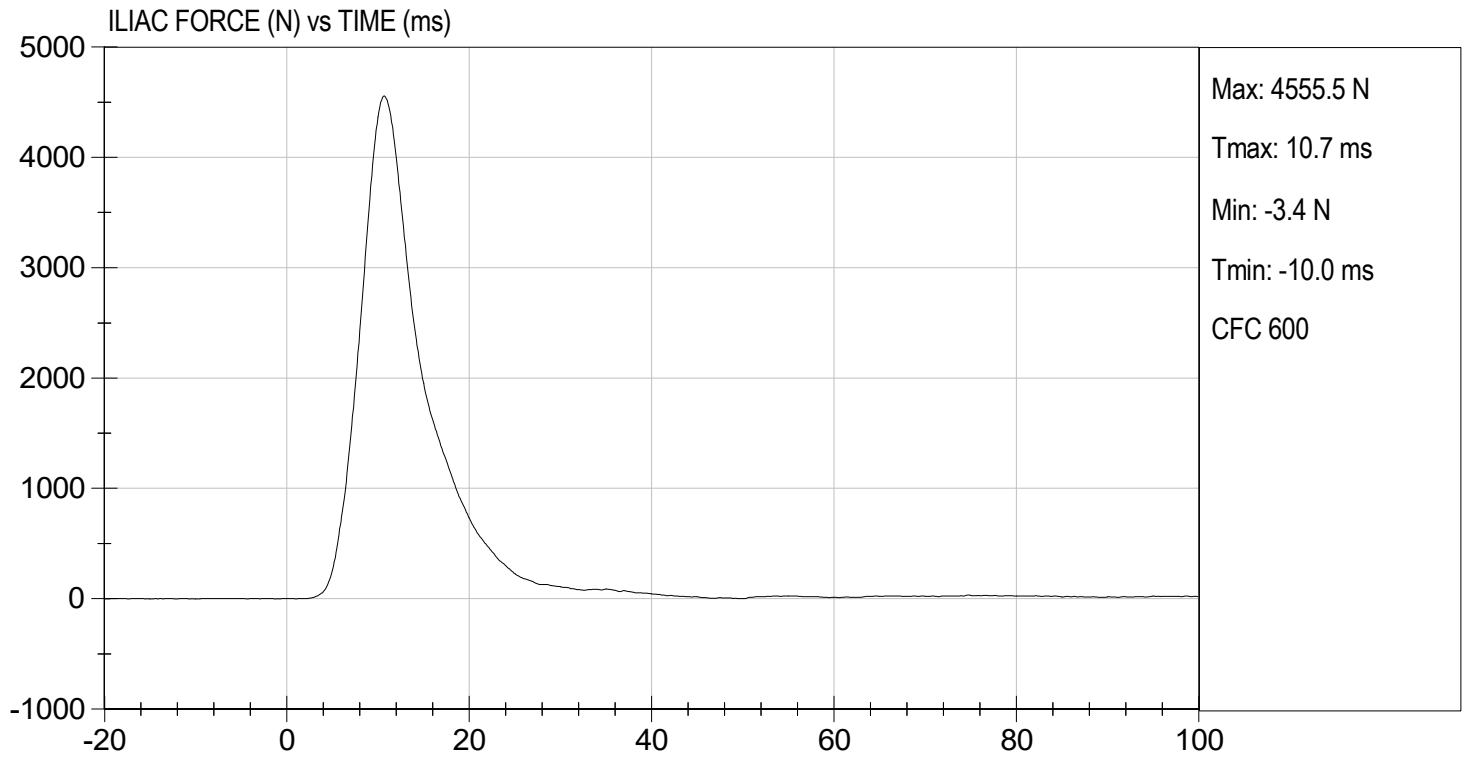
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	30	Pass
Impact Velocity	m/s	4.20 to 4.40	4.20	Pass
Maximum Probe Acceleration	G's	36 to 45	38	Pass
Pelvis Y Acceleration	G's	28 to 39	31	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,556	Pass
Overall Test Results				Pass

  
 \_\_\_\_\_  
 Laboratory Technician

01/10/2023  
 \_\_\_\_\_  
 Test Date

  
 \_\_\_\_\_  
 Approved By





**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**

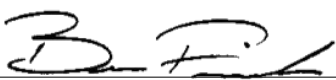
ATD Serial No: 296

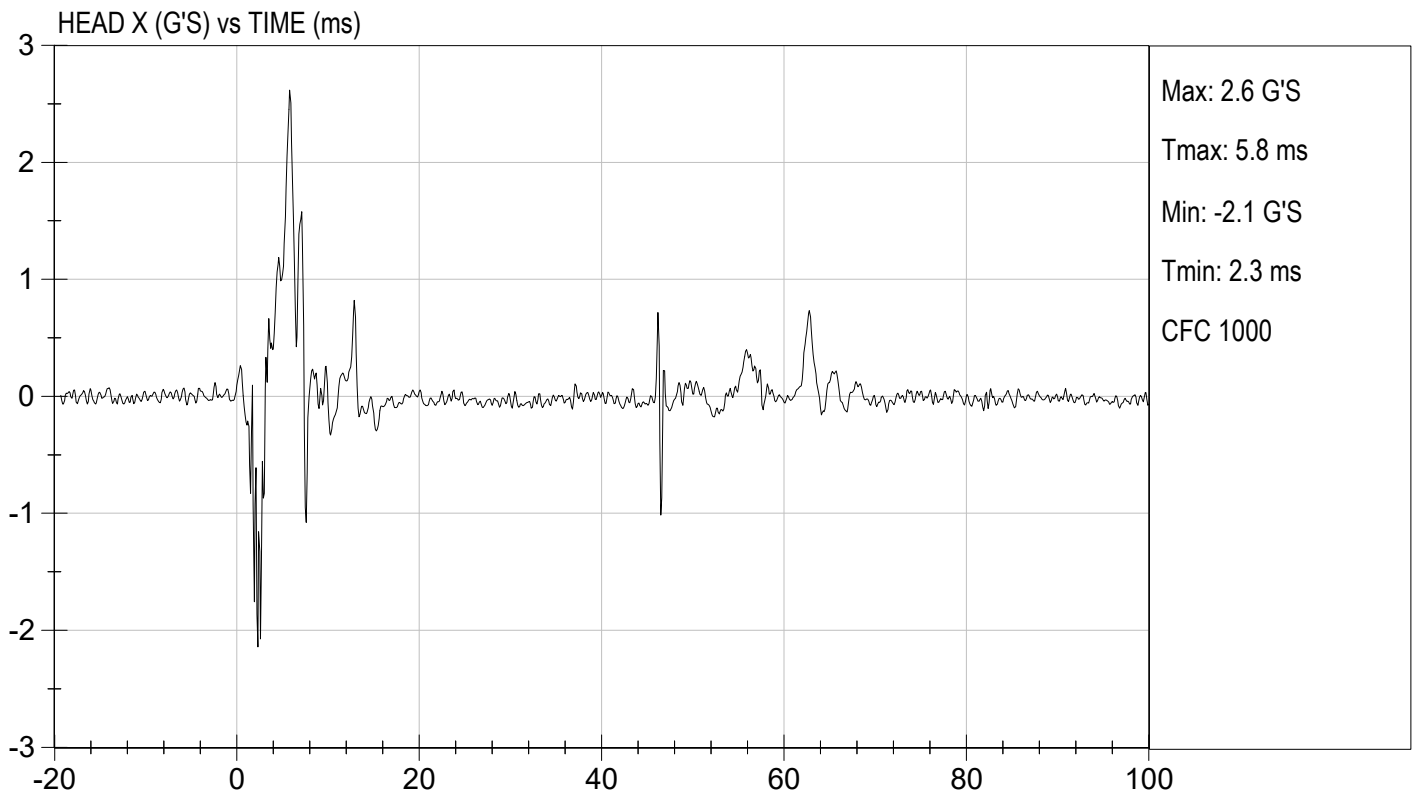
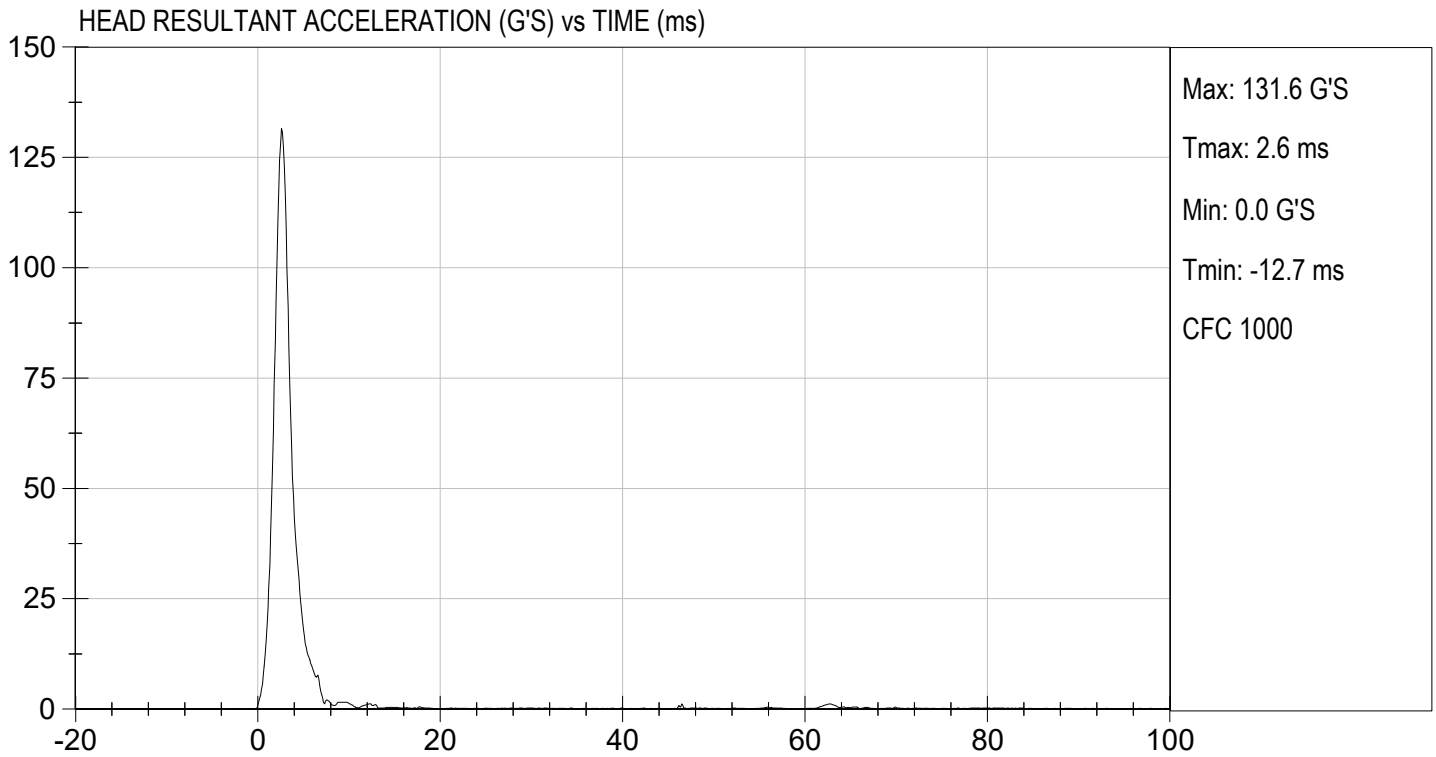
Test ID: D230211

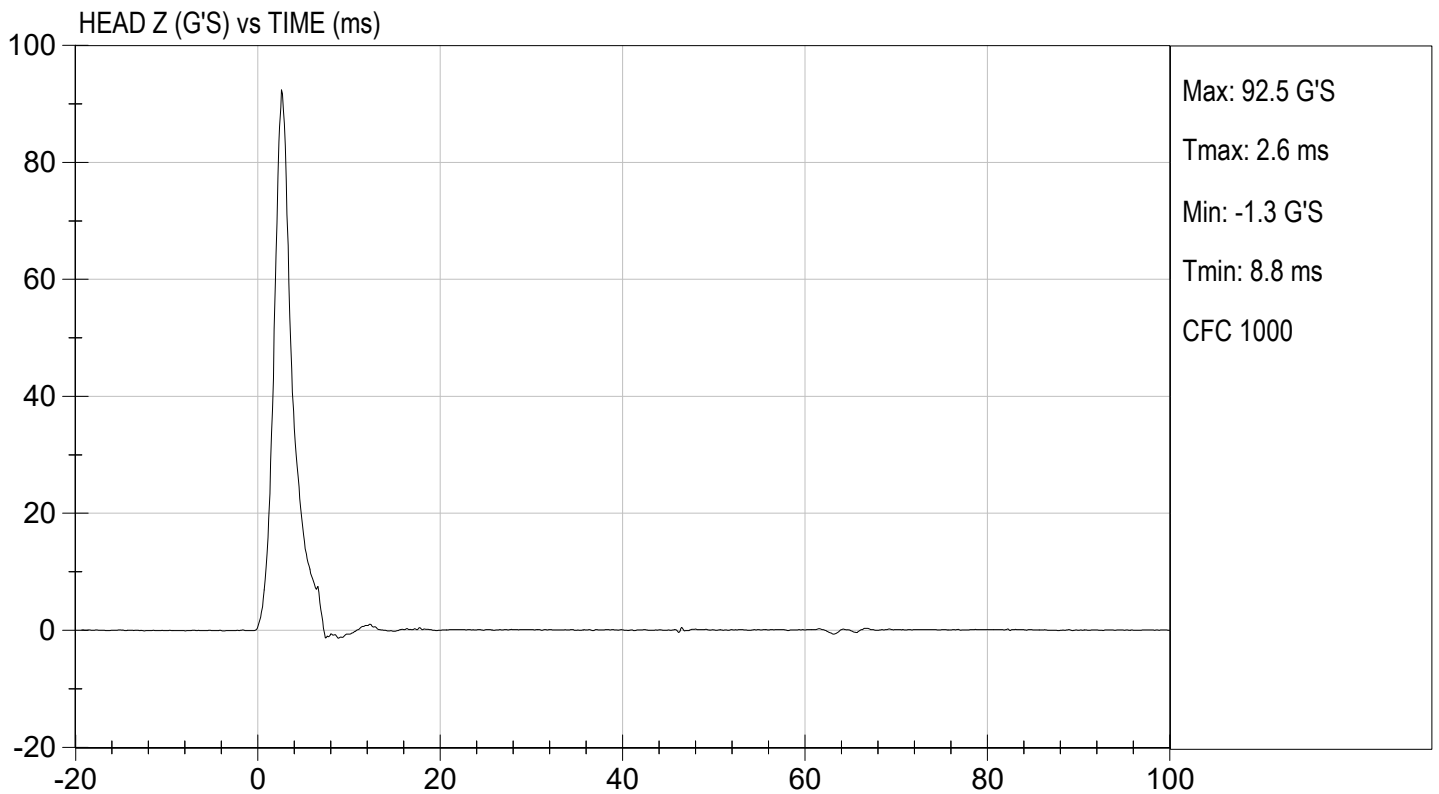
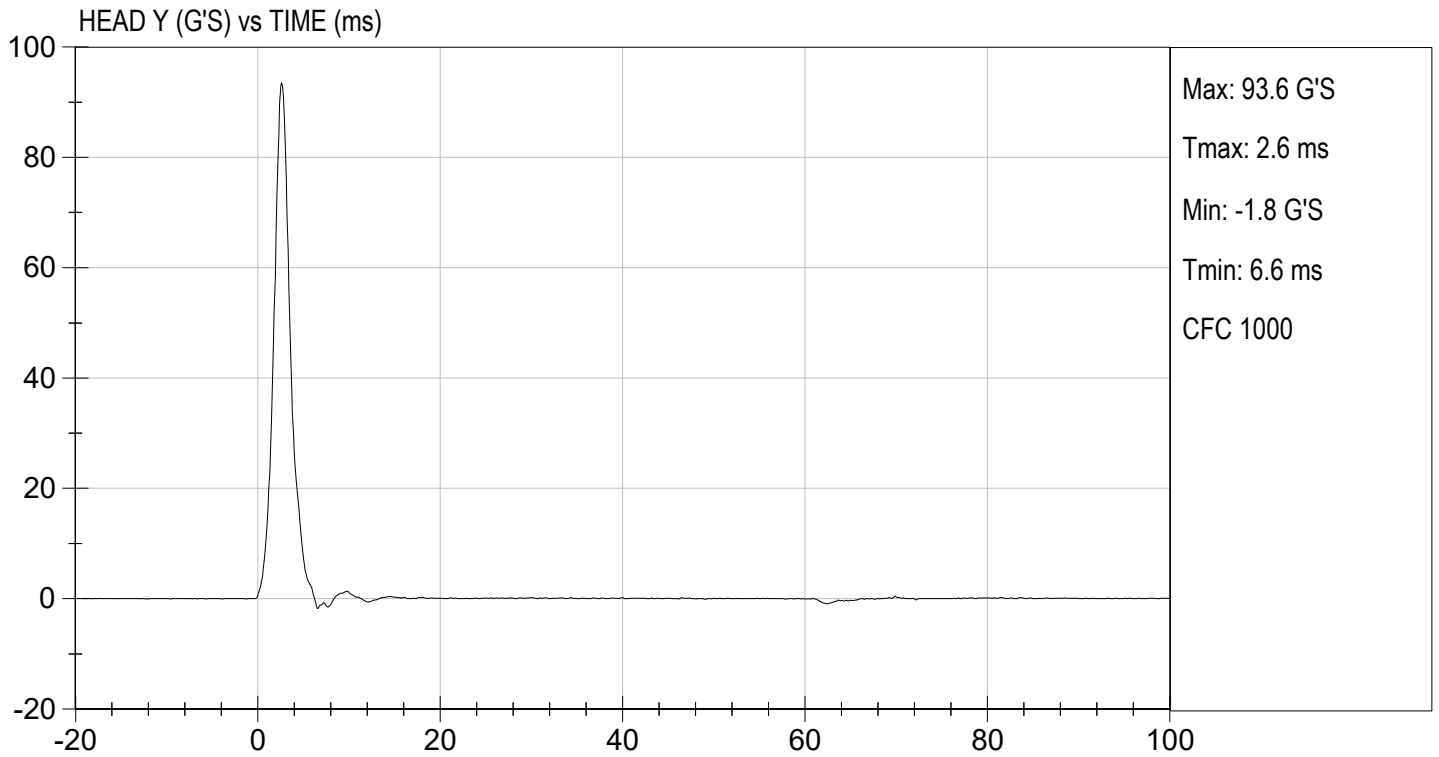
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Peak Resultant Acceleration	G's	115 to 137	132	Pass
Peak Longitudinal Acceleration	G's	+/- 15	2.6	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
Overall Test Results				Pass

  
 Laboratory Technician

01/23/2023  
 Test Date

  
 Approved By





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

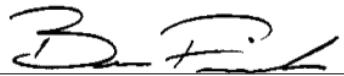
ATD Serial No: 296

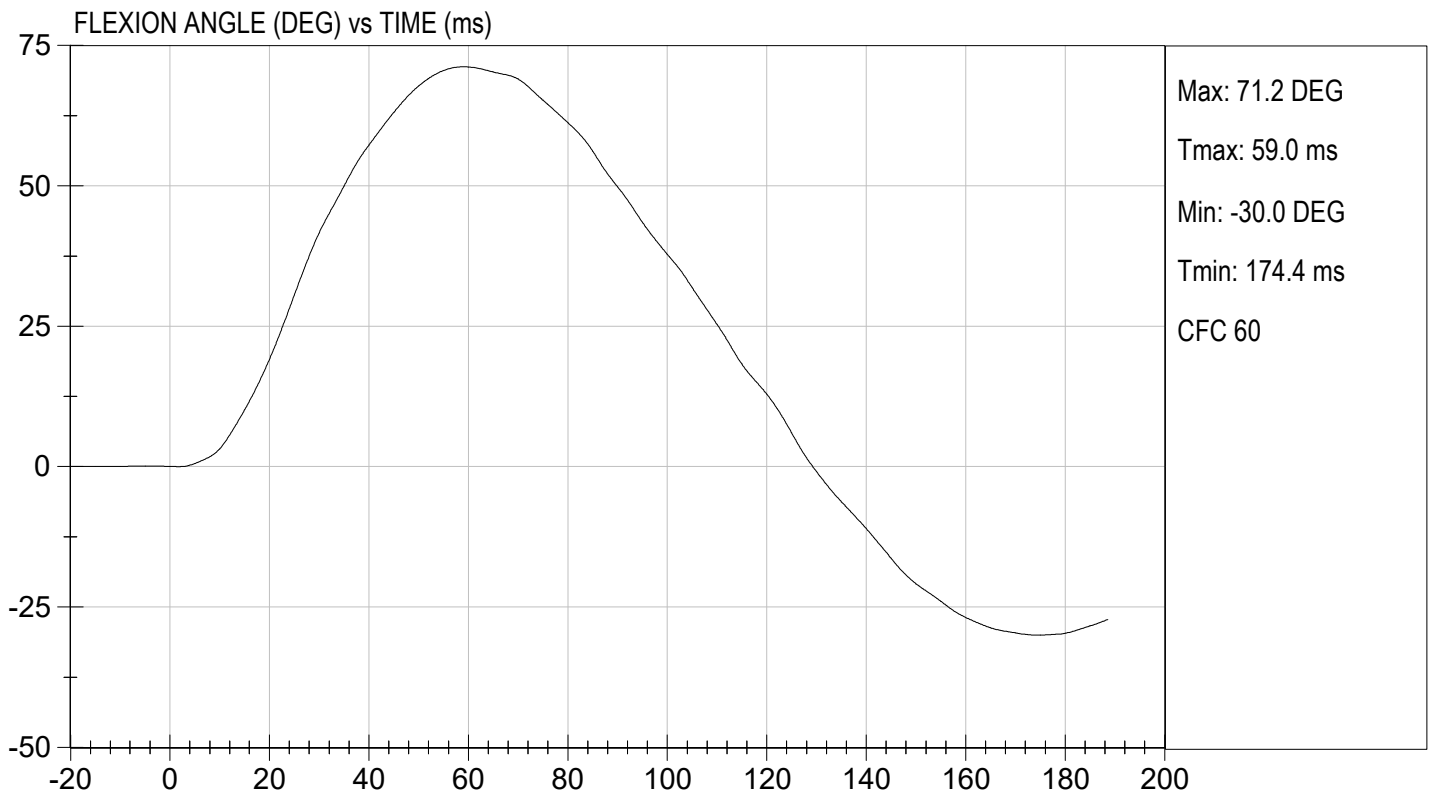
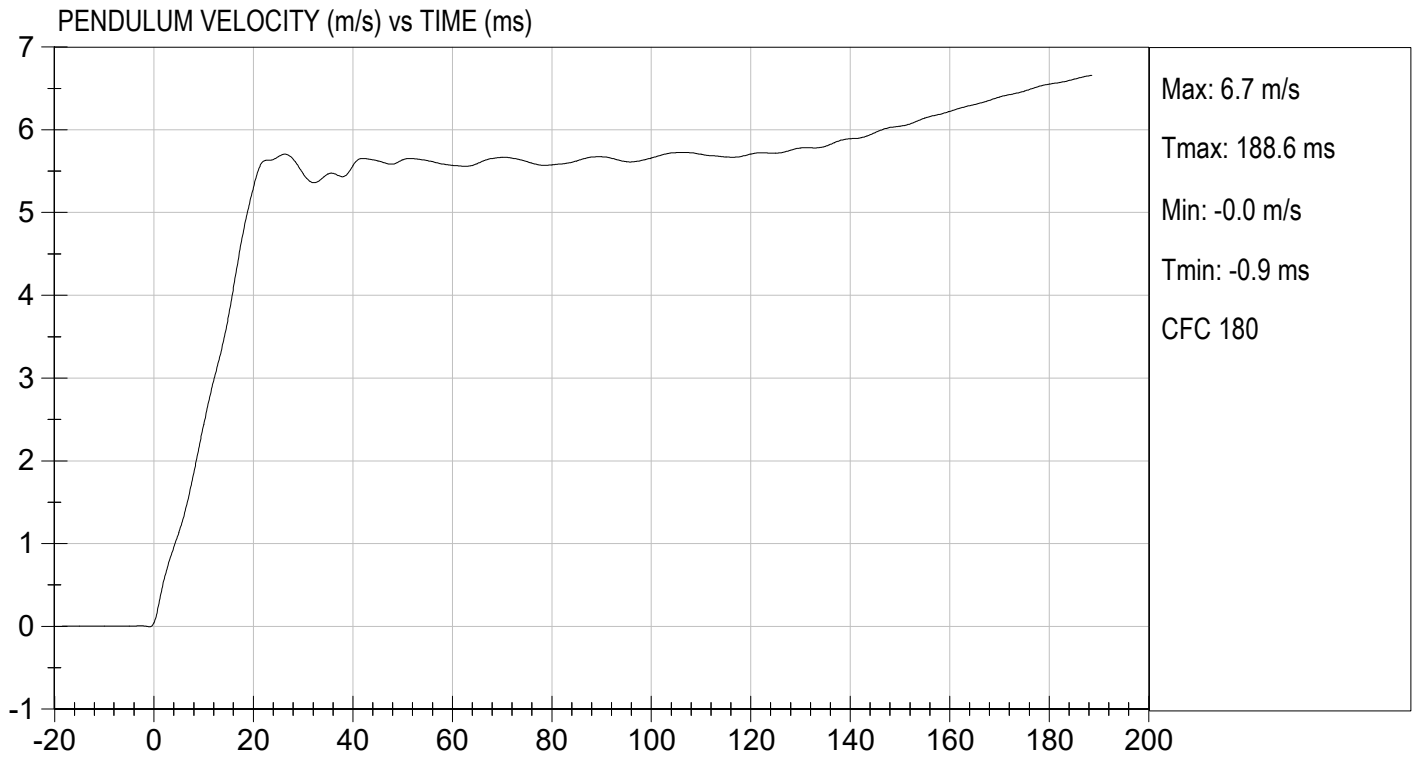
Test I.D.: D230212

Tested Parameter	Units	Specification	Result	Pass/Fail	
Temperature	deg C	20.6 to 22.2	21.6	Pass	
Humidity	%	10 to 70	22	Pass	
Impact Velocity	m/s	5.51 to 5.63	5.62	Pass	
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.44	Pass
	15 ms	m/s	3.30 to 4.10	3.75	Pass
	20 ms	m/s	4.40 to 5.40	5.30	Pass
	25 ms	m/s	5.40 to 6.10	5.68	Pass
	25-100 ms	m/s	5.50 to 6.20	5.70	Pass
Maximum D-Plane Rotation	deg	71 to 81	71	Pass	
Time of Maximum D-Plane Rotation	ms	50 to 70	59	Pass	
Maximum Occipital Condyle Moment	Nm	-44 to -36	-40	Pass	
Time of Moment Decay to 0 Nm	ms	102 to 126	111	Pass	
Overall Test Results				Pass	

  
 Laboratory Technician

01/23/2023  
 Test Date

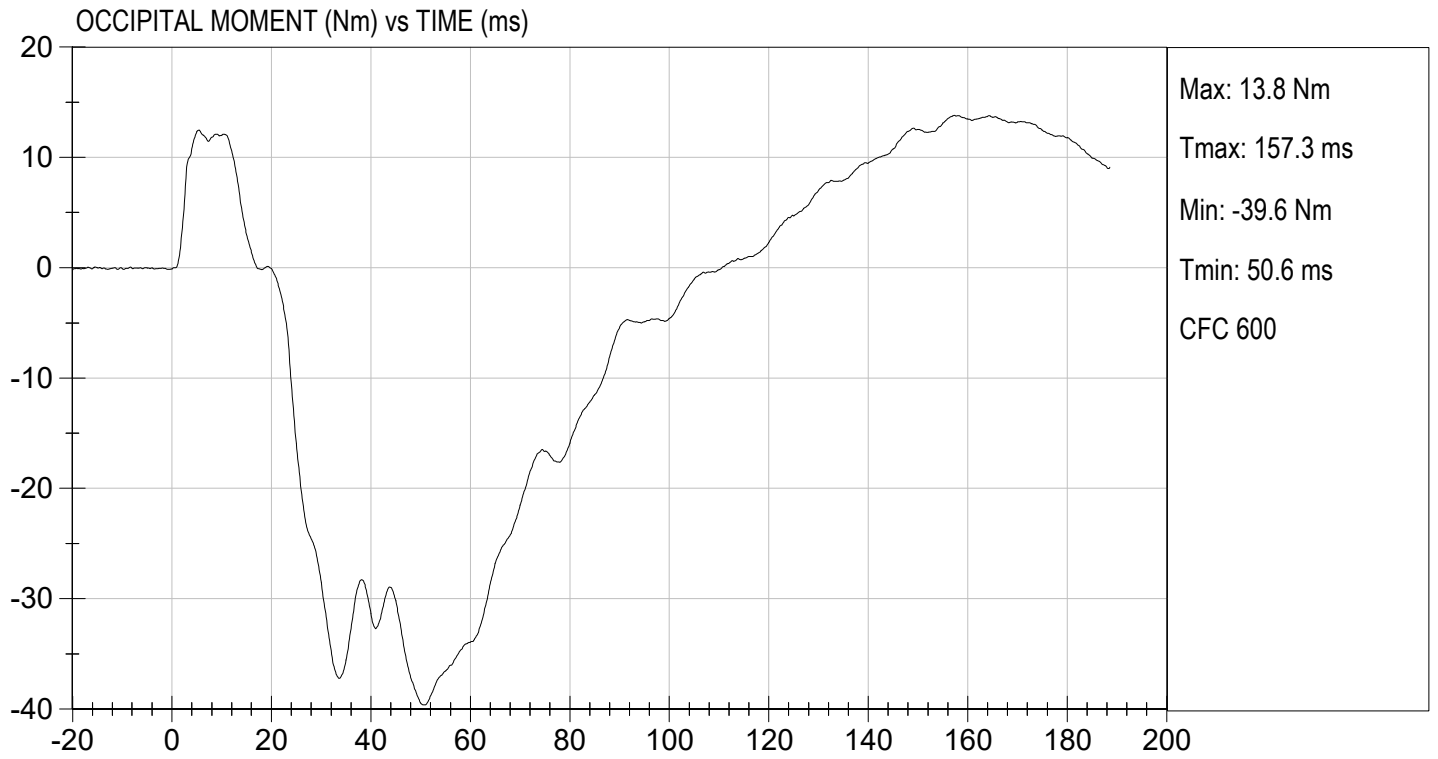
  
 Approved By





TEST DESC: NECK BENDING  
VELOCITY: 18.45 ft/s, 5.62 m/s

TEST DATE: 01/23/2023  
TEST #: D230212



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

ATD Serial No: 296

Test ID: D230213

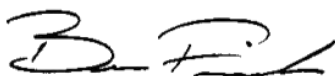
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	13 to 18	16	Pass
Shoulder Displacement	mm	28 to 37	30	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	20	Pass
Overall Test Results				Pass



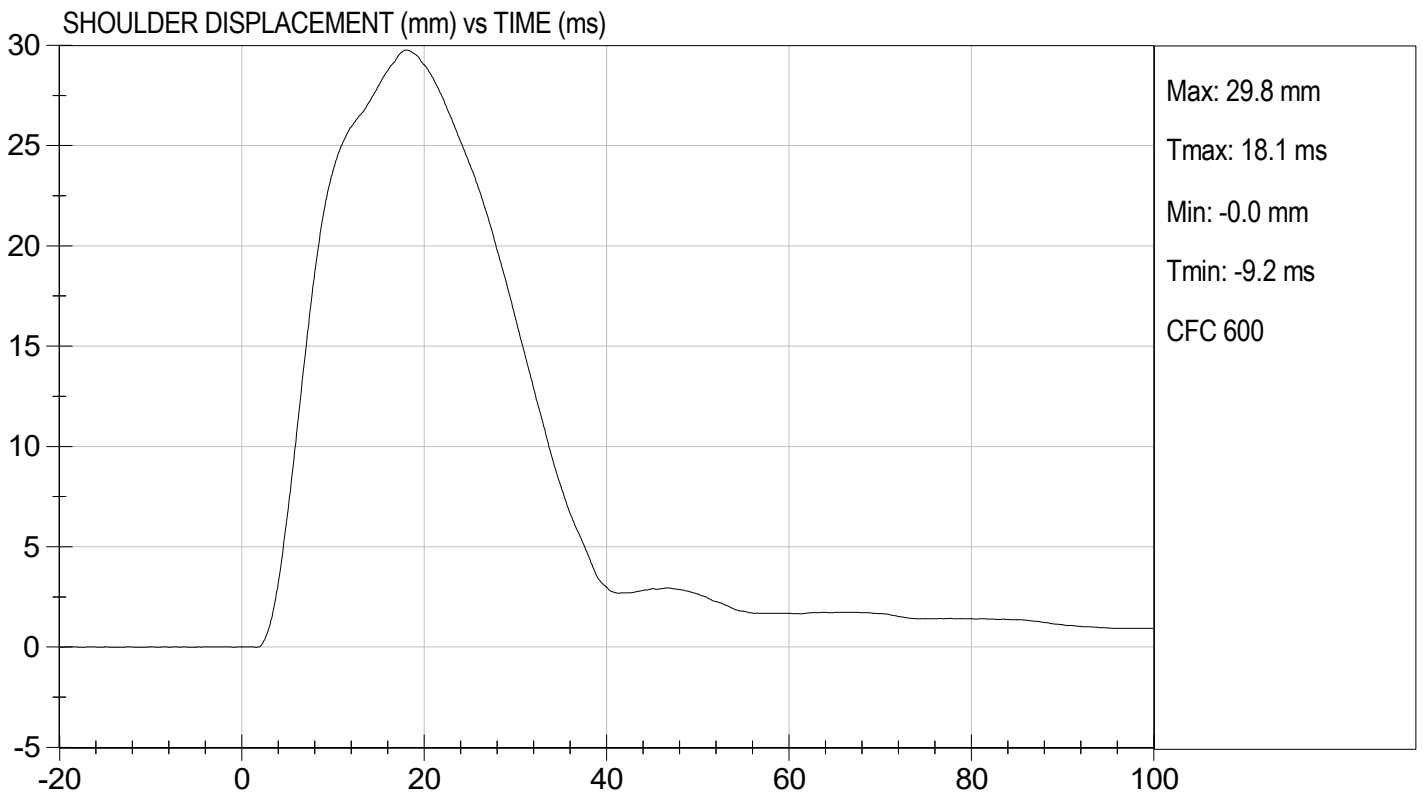
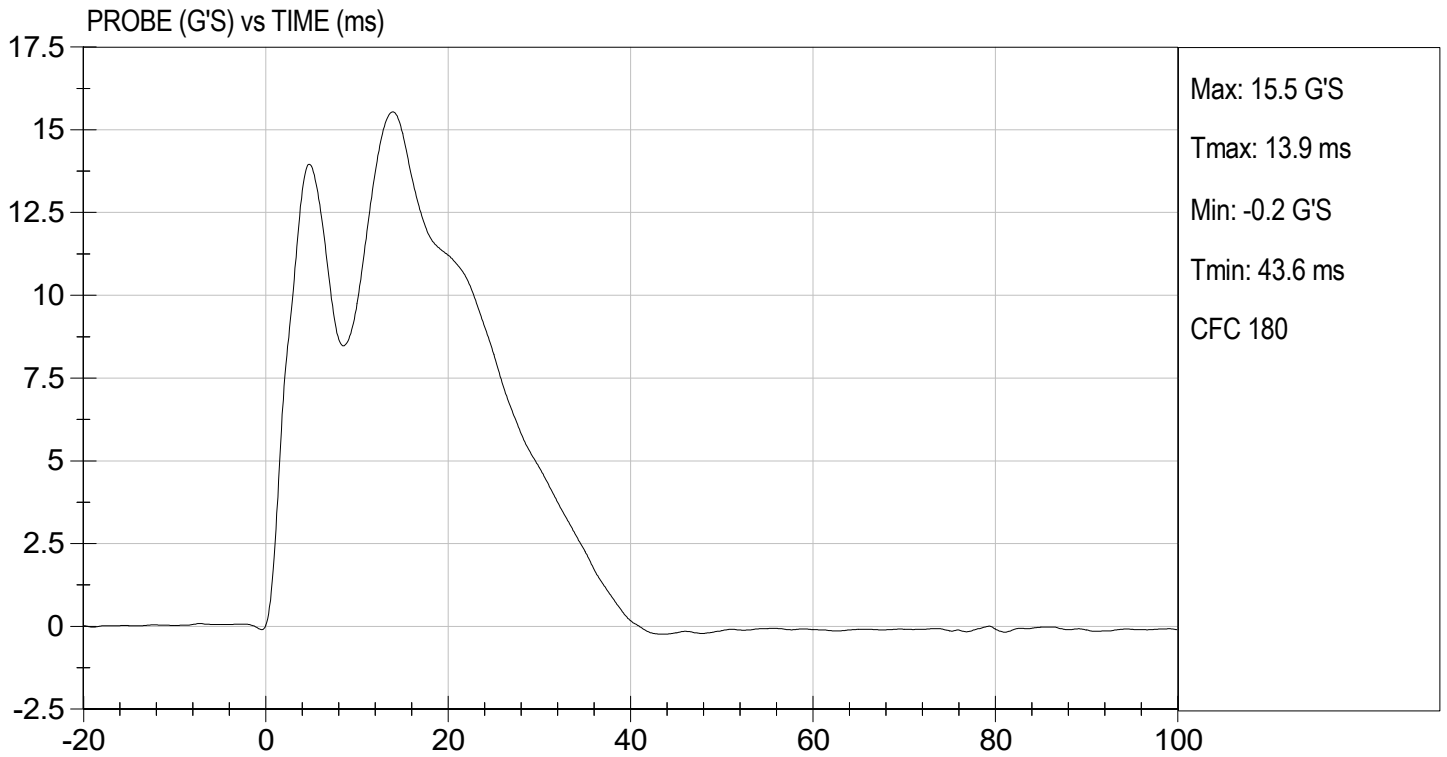
Laboratory Technician

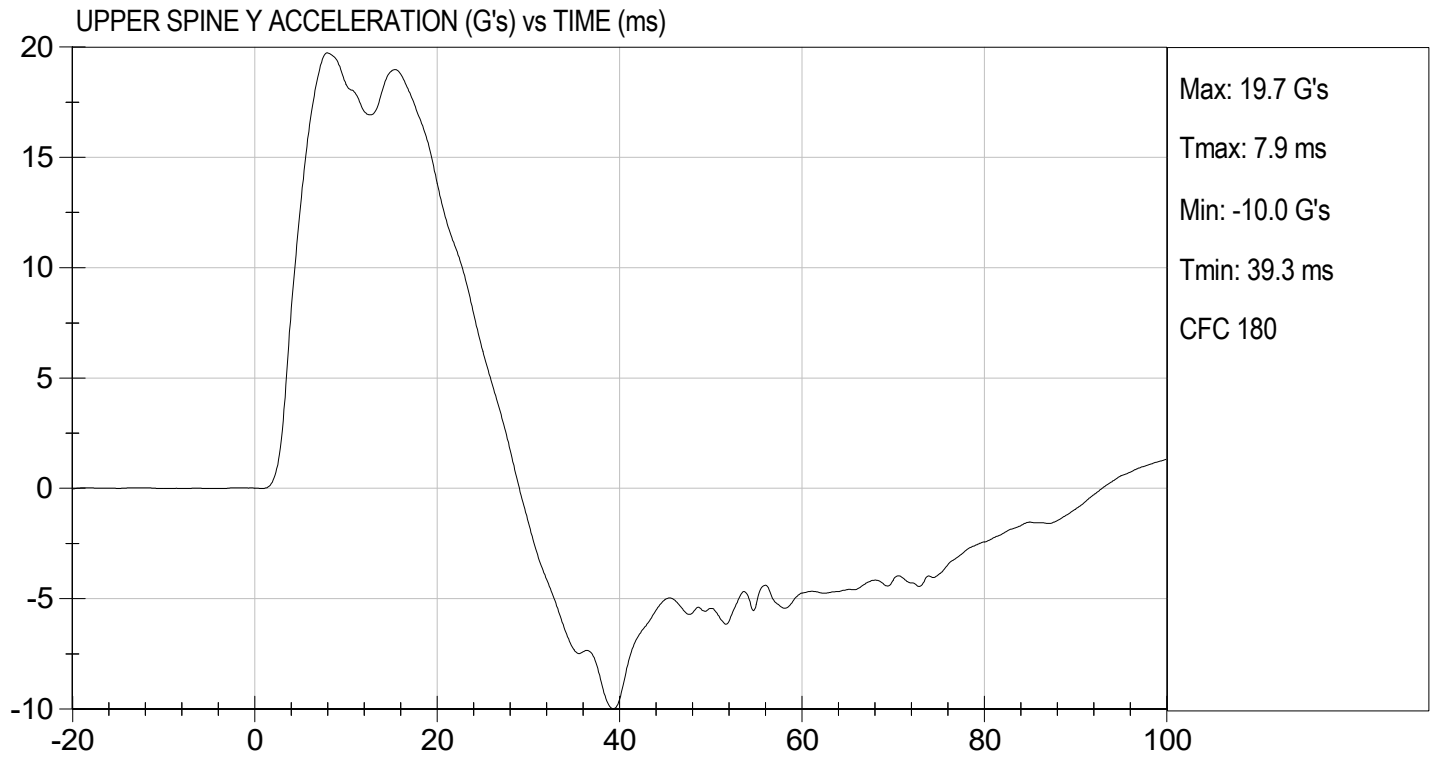
01/23/2023

Test Date



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

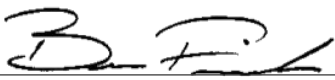
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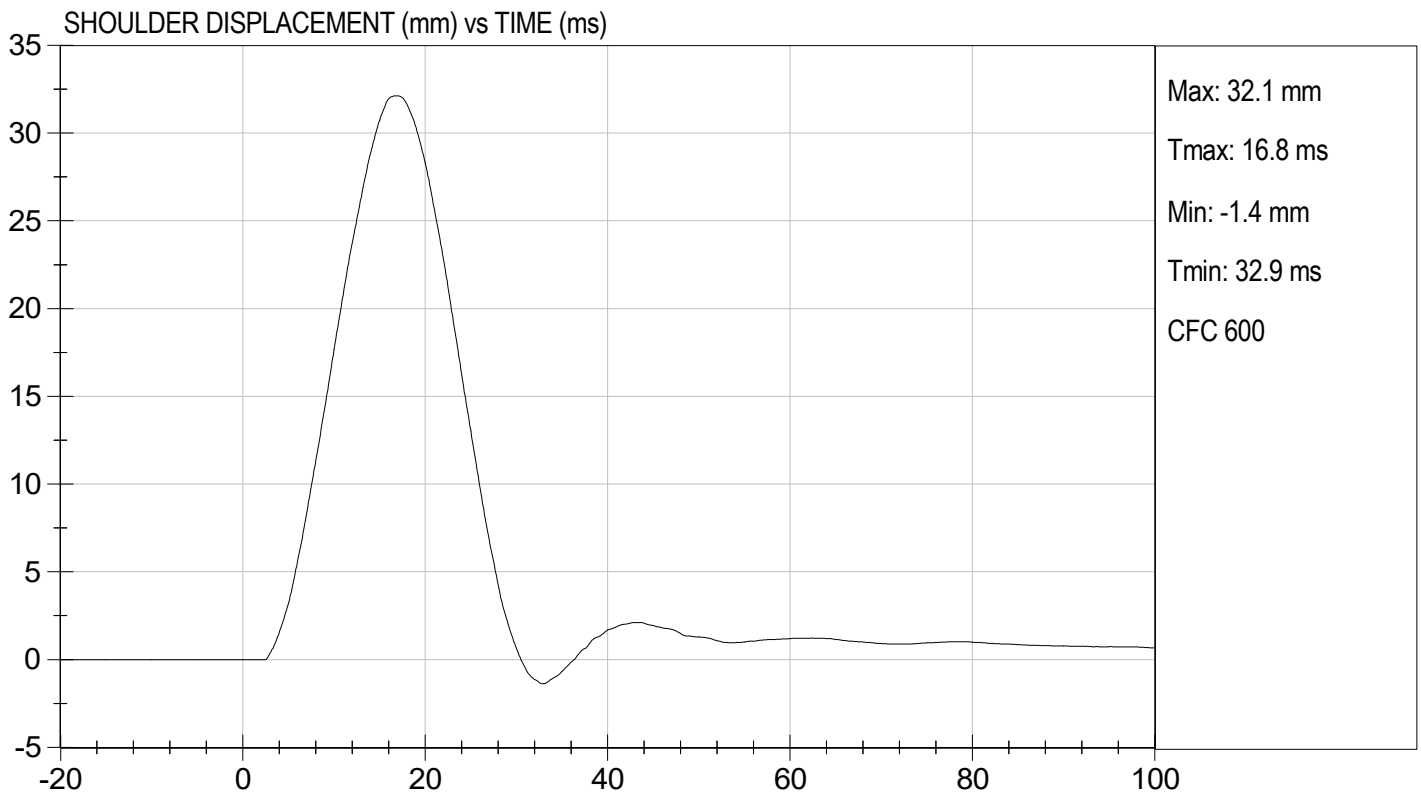
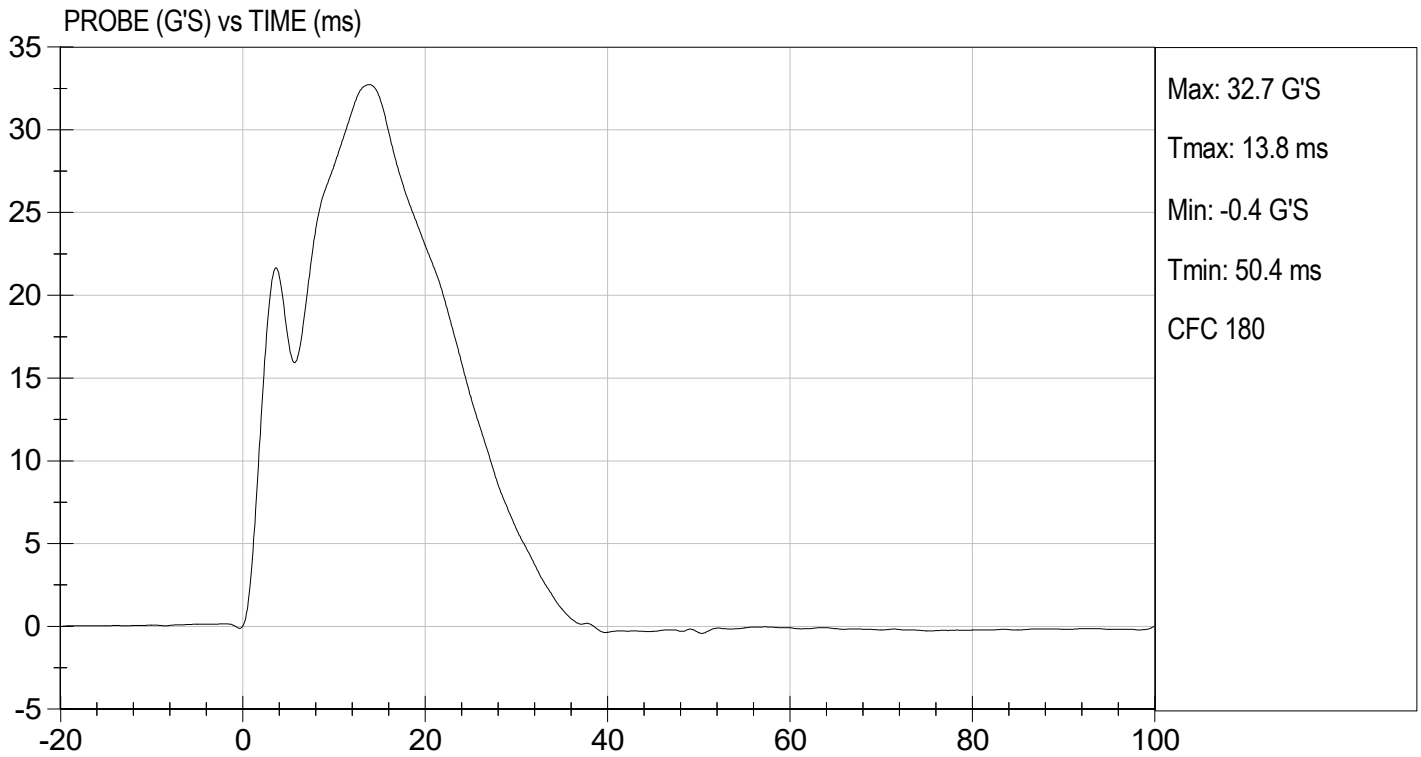
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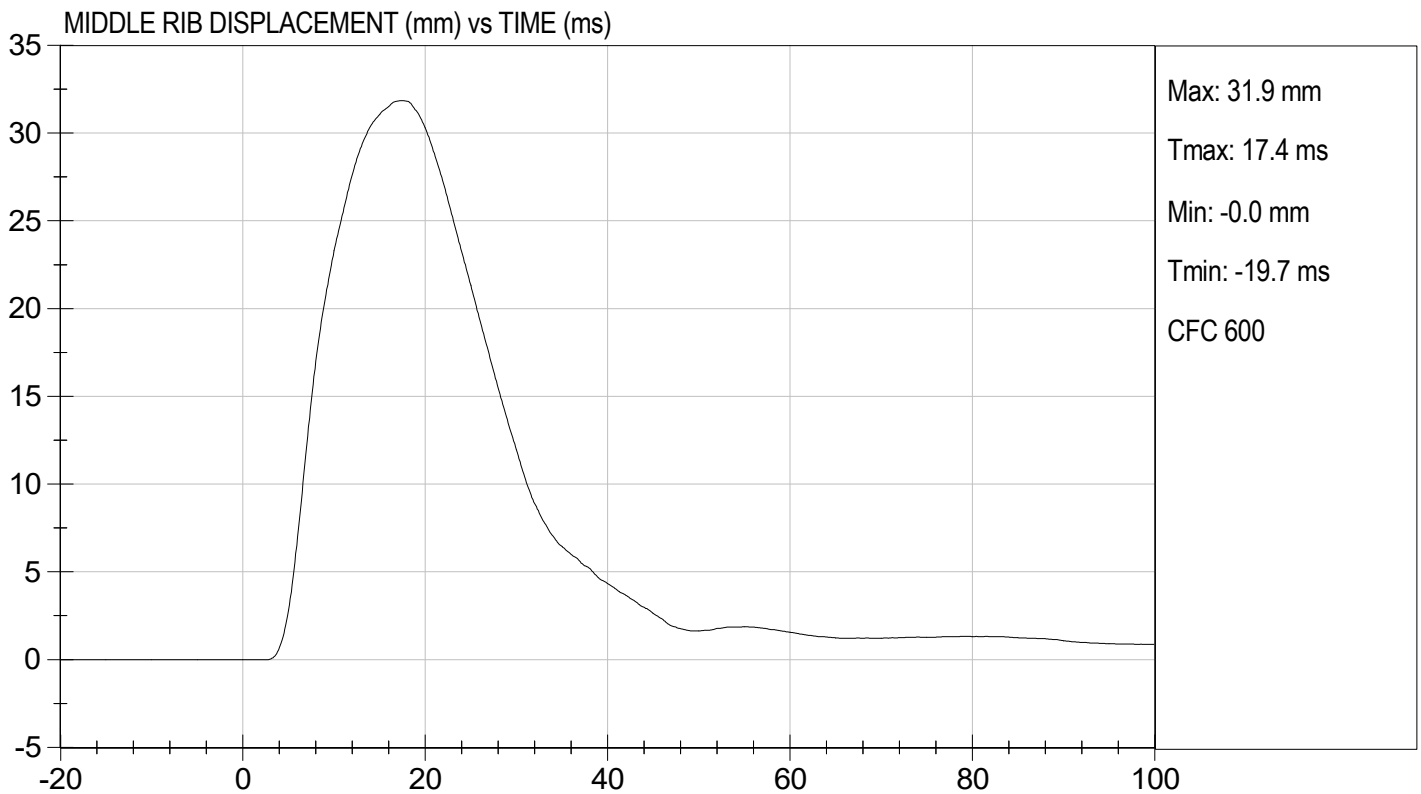
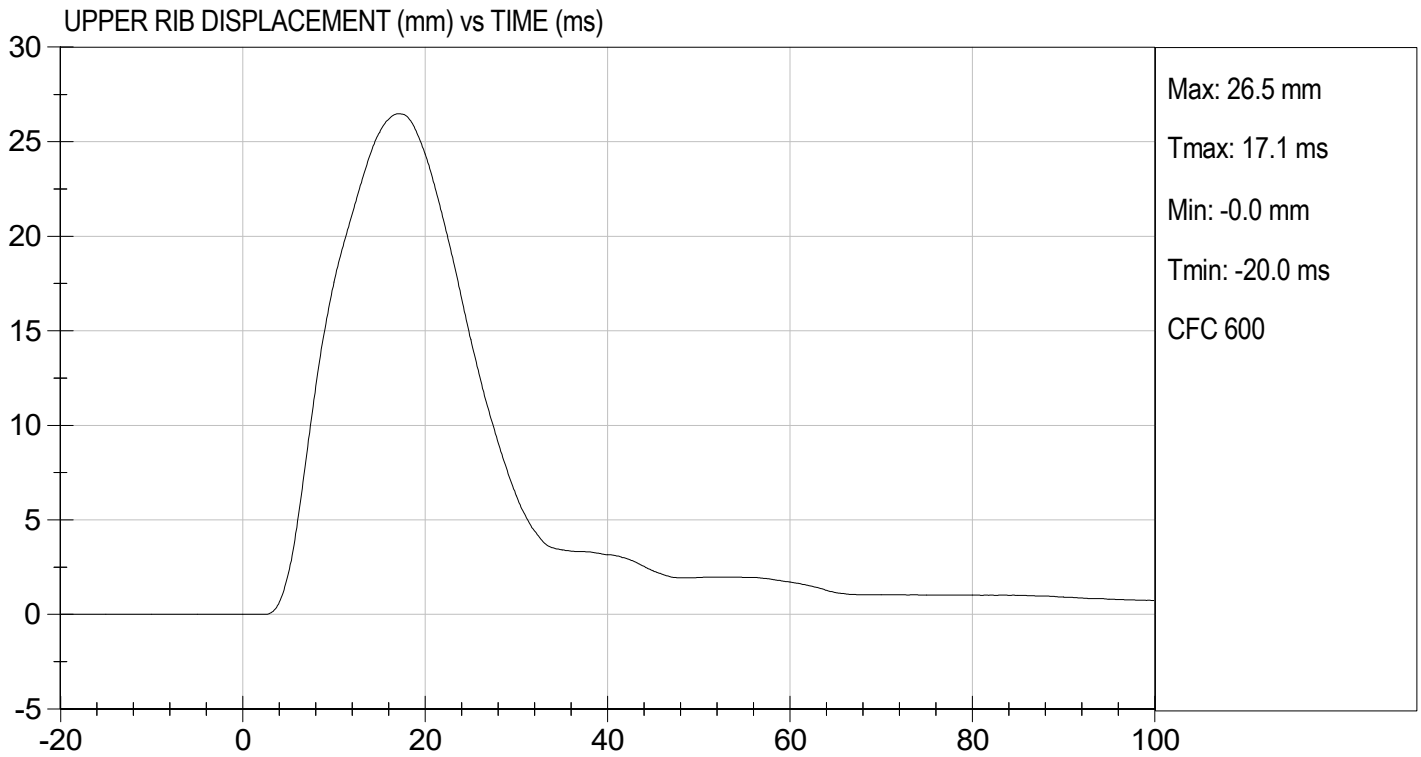
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	22	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	30 to 36	33	Pass
Shoulder Displacement	mm	31 to 40	32	Pass
Upper Rib Displacement	mm	25 to 32	26	Pass
Middle Rib Displacement	mm	30 to 36	32	Pass
Lower Rib Displacement	mm	32 to 38	35	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	38	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	33	Pass
Overall Test Results				Pass

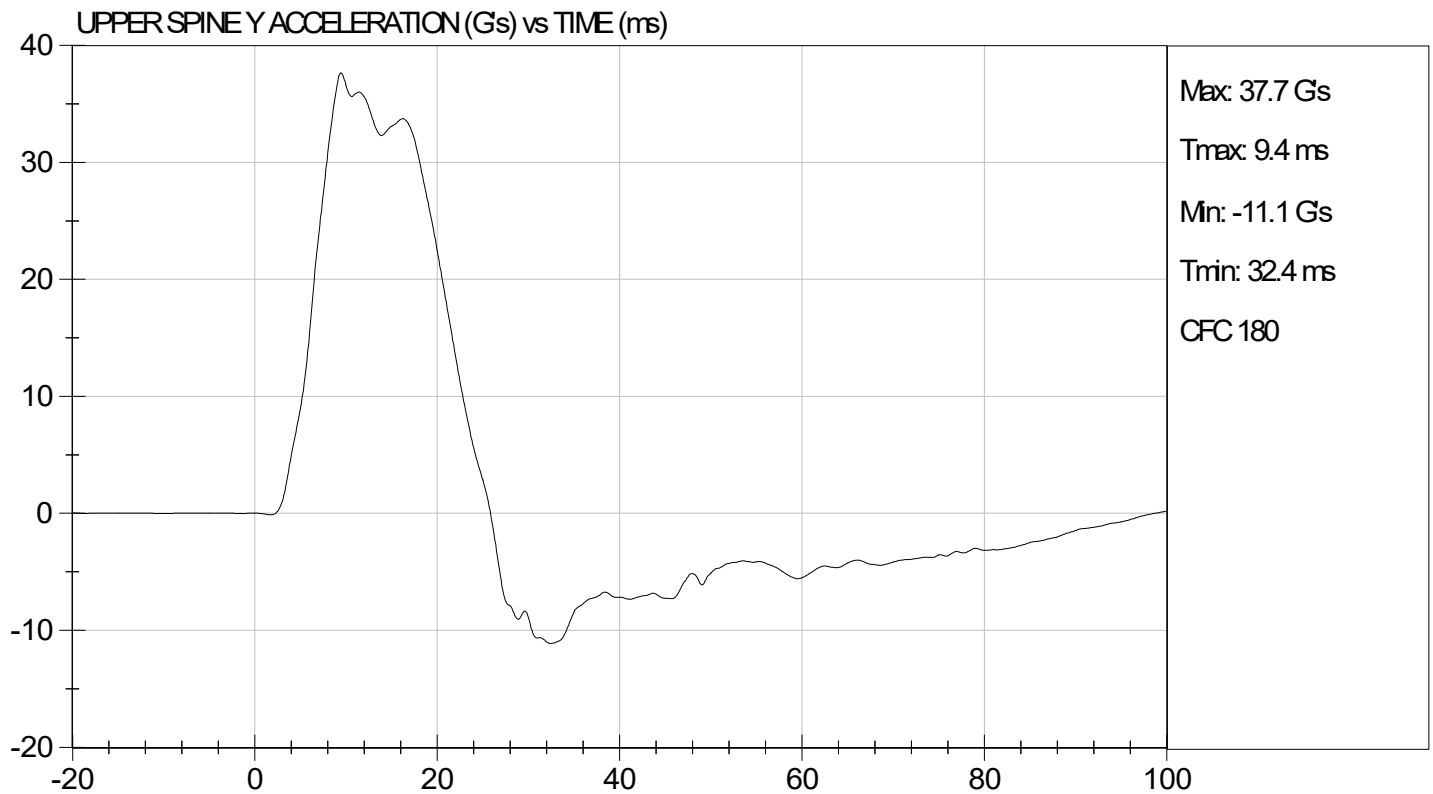
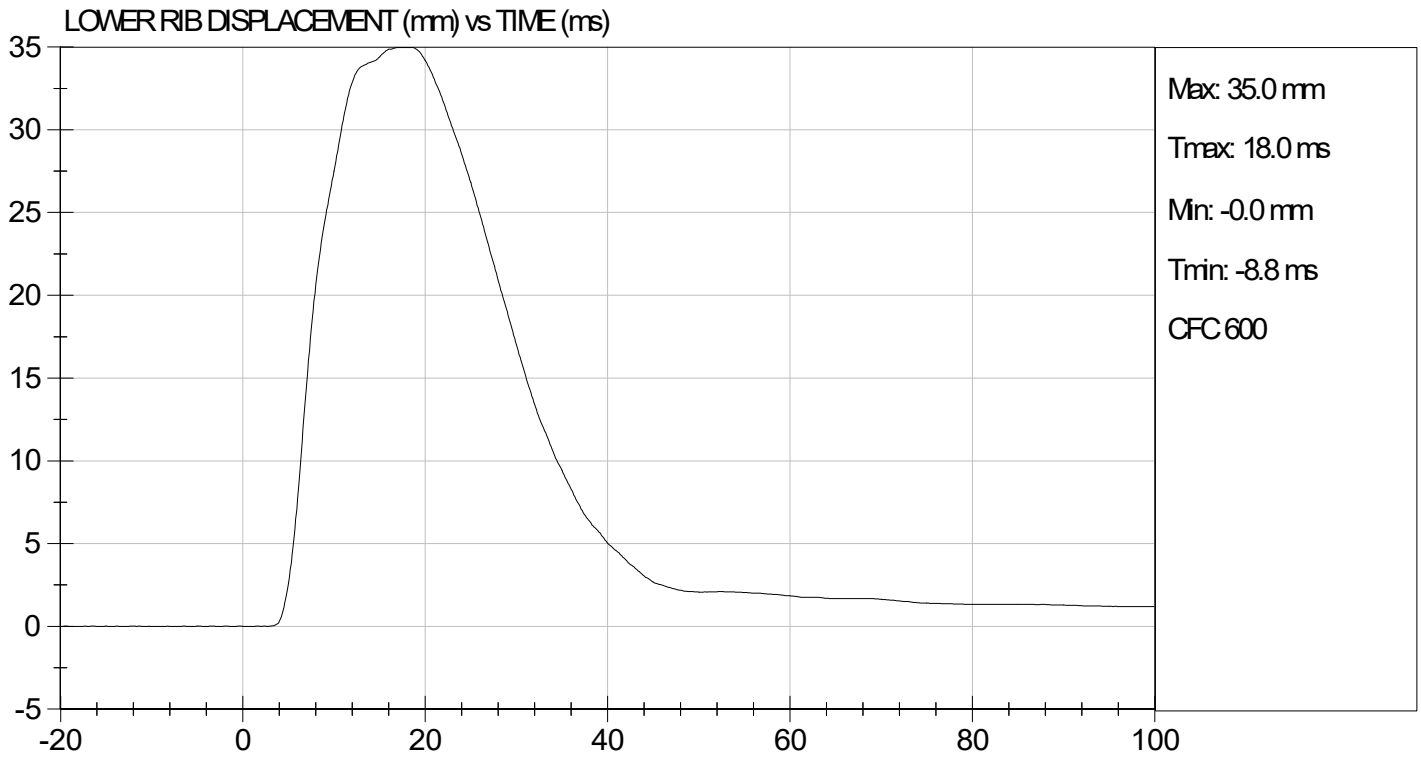
  
Laboratory Technician

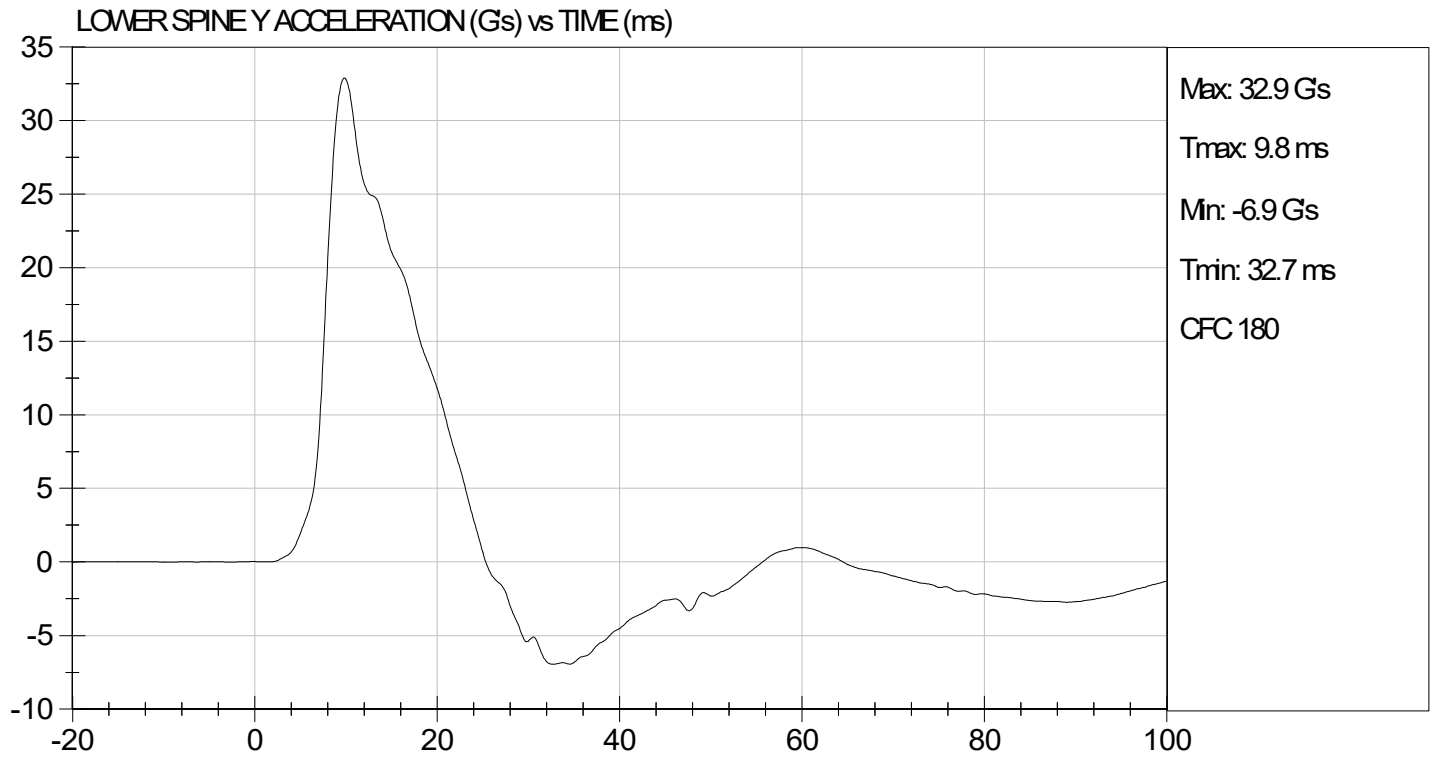
01/23/2023  
Test Date

  
Approved By









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

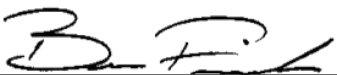
ATD Serial No: 296

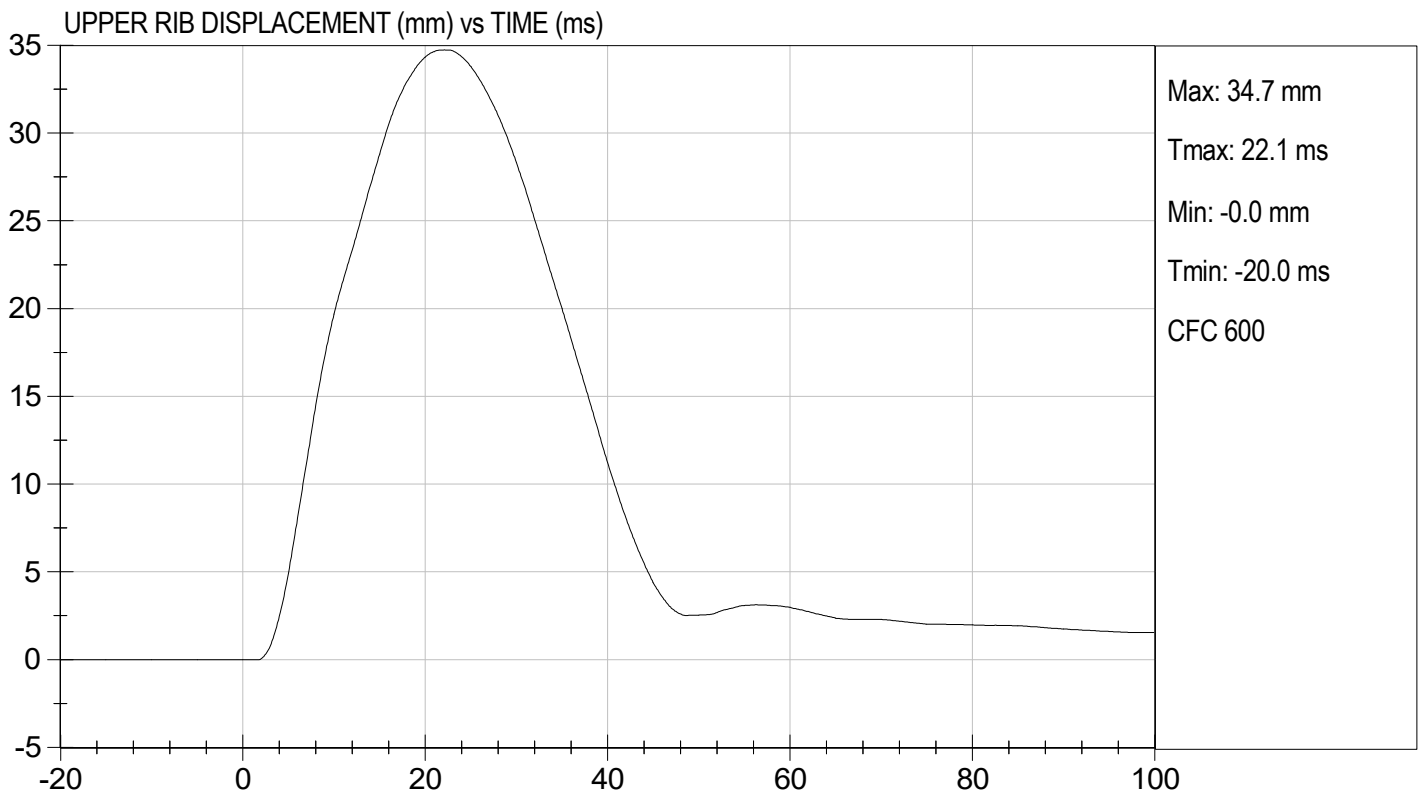
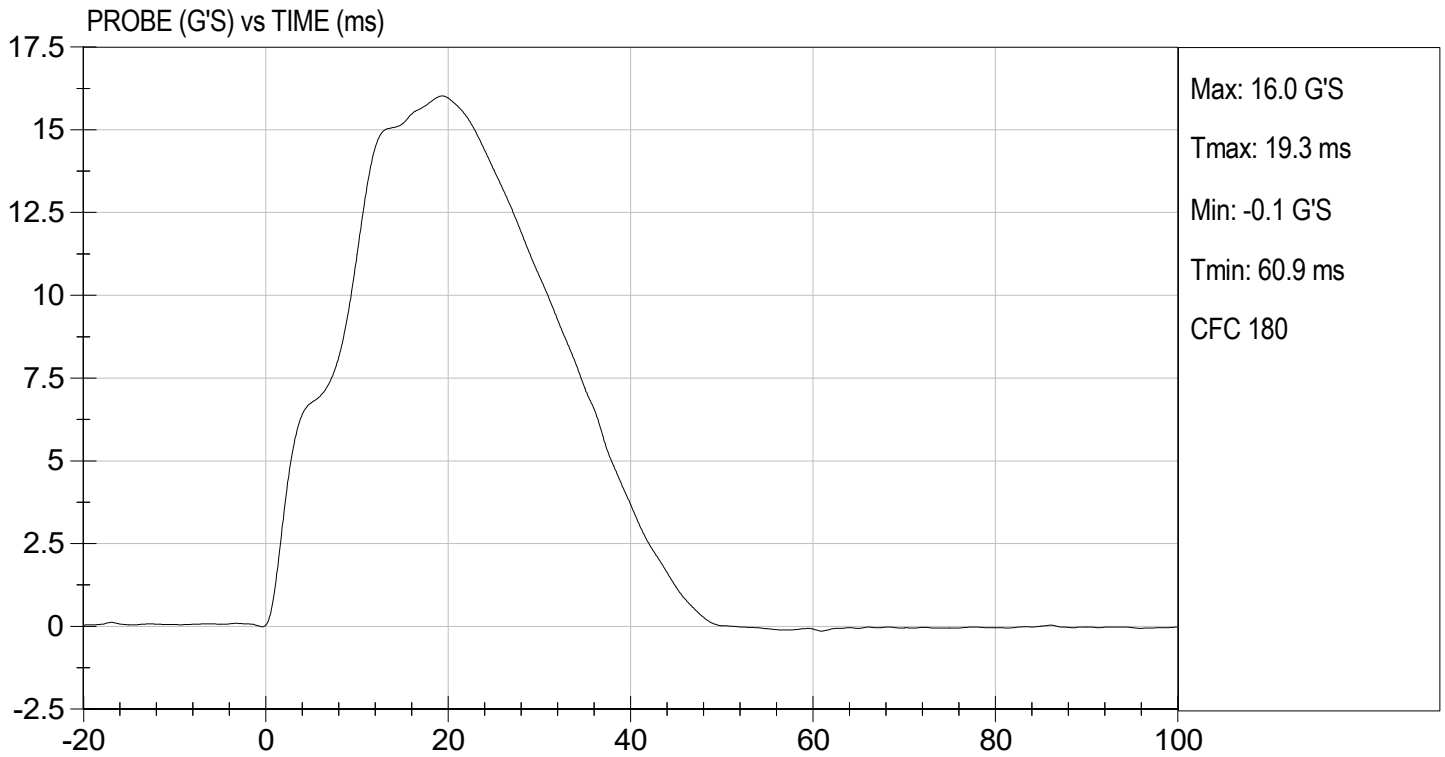
Test I.D: D230215

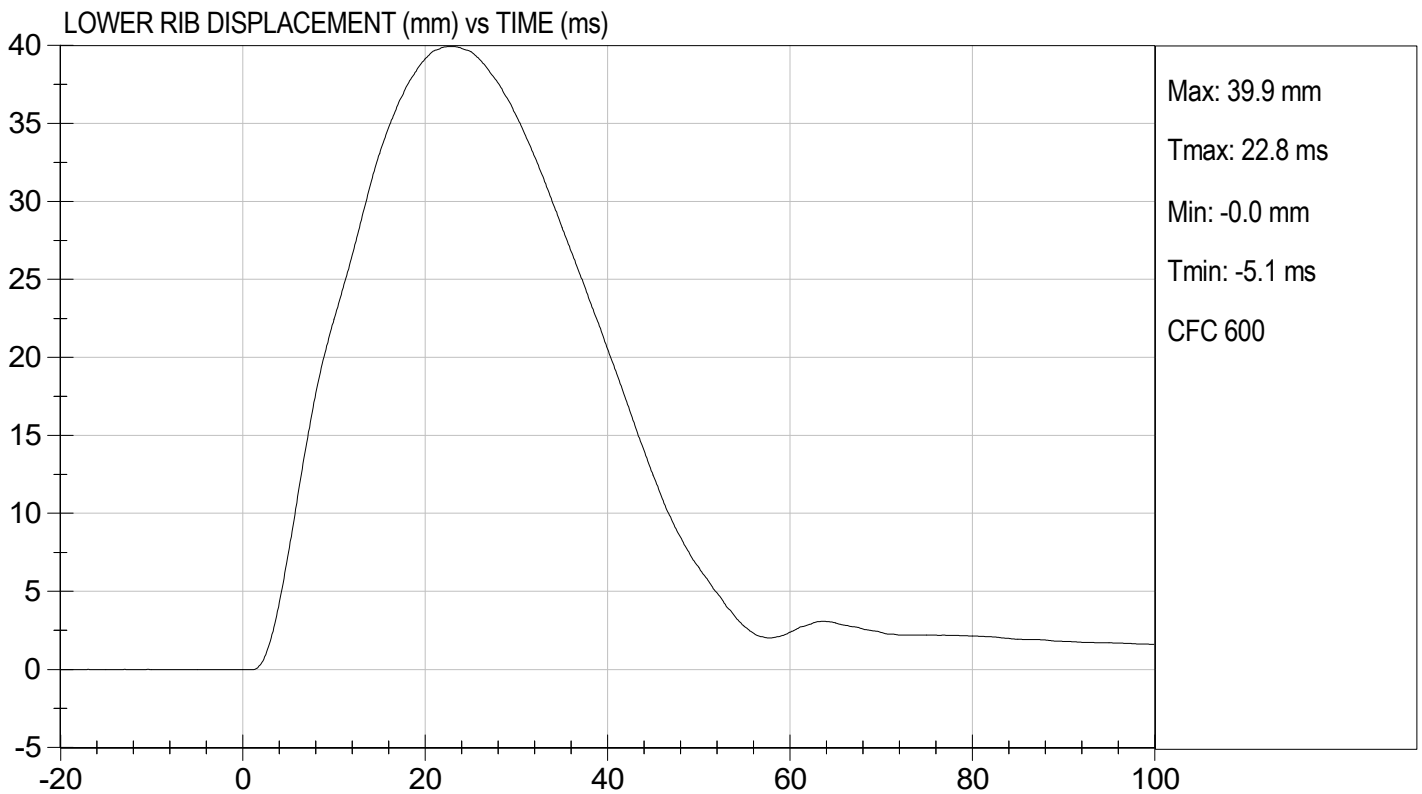
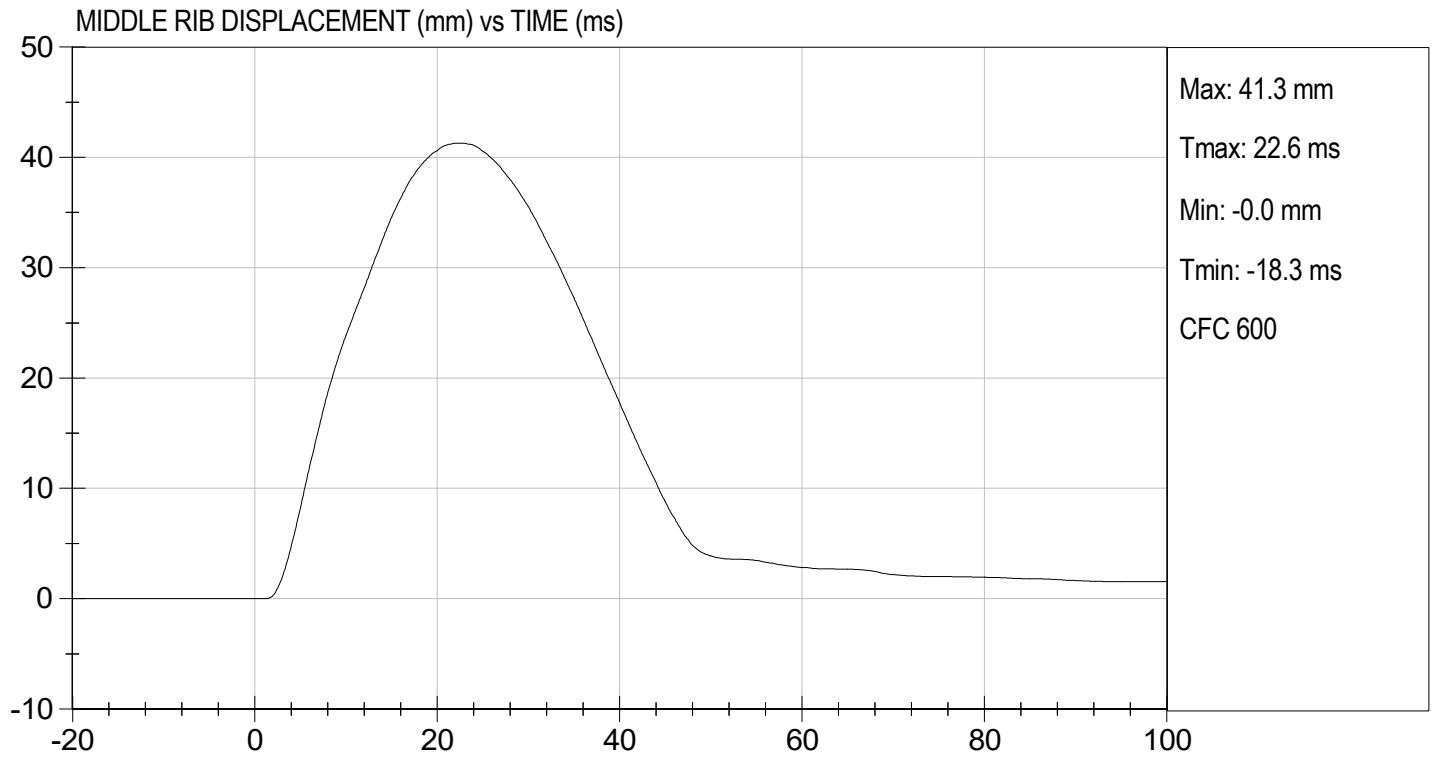
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	22	Pass
Impact Velocity	m/s	4.20 to 4.40	4.23	Pass
Maximum Probe Acceleration	G's	14 to 18	16	Pass
Upper Rib Displacement	mm	32 to 40	35	Pass
Middle Rib Displacement	mm	39 to 45	41	Pass
Lower Rib Displacement	mm	35 to 43	40	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	15	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	10	Pass
Overall Test Results				Pass

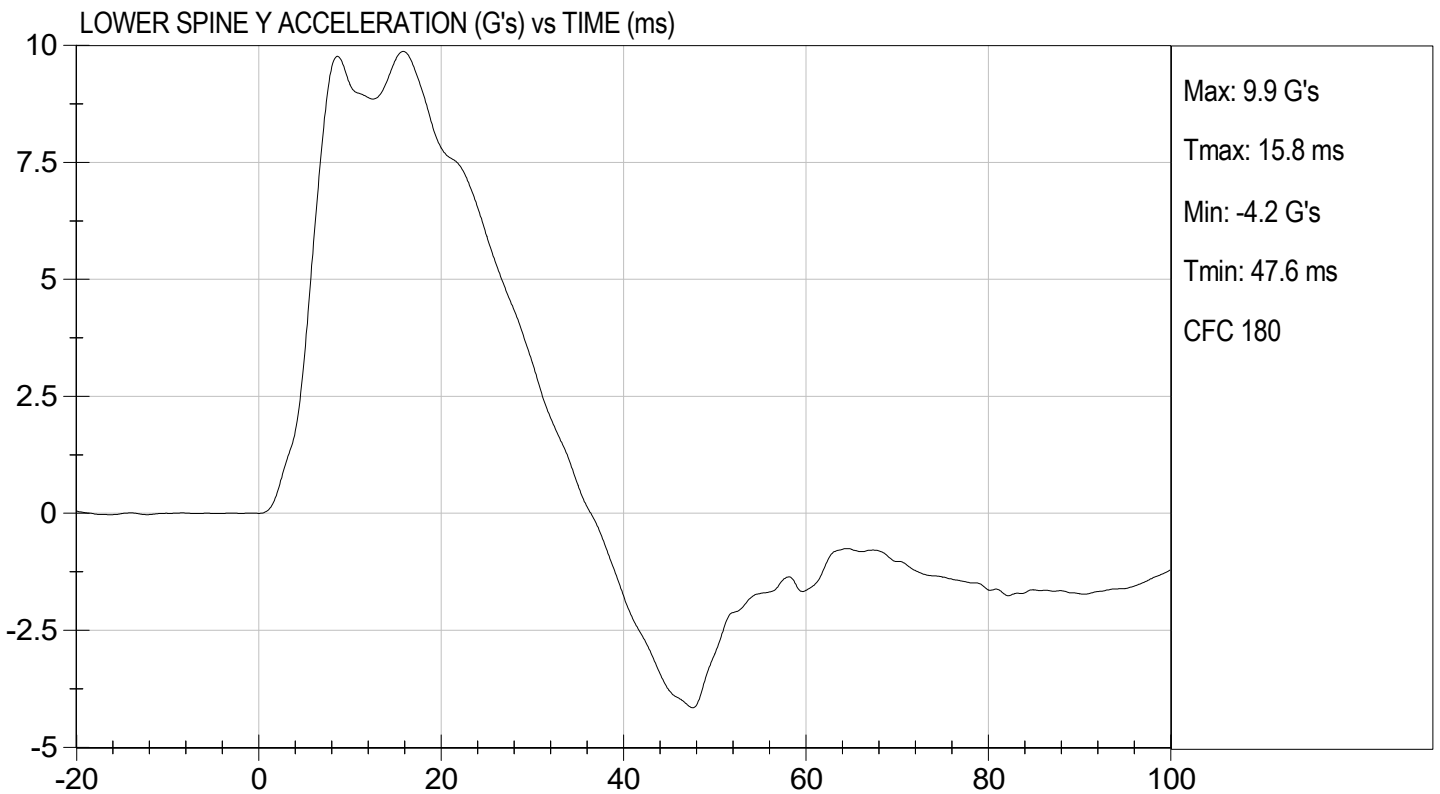
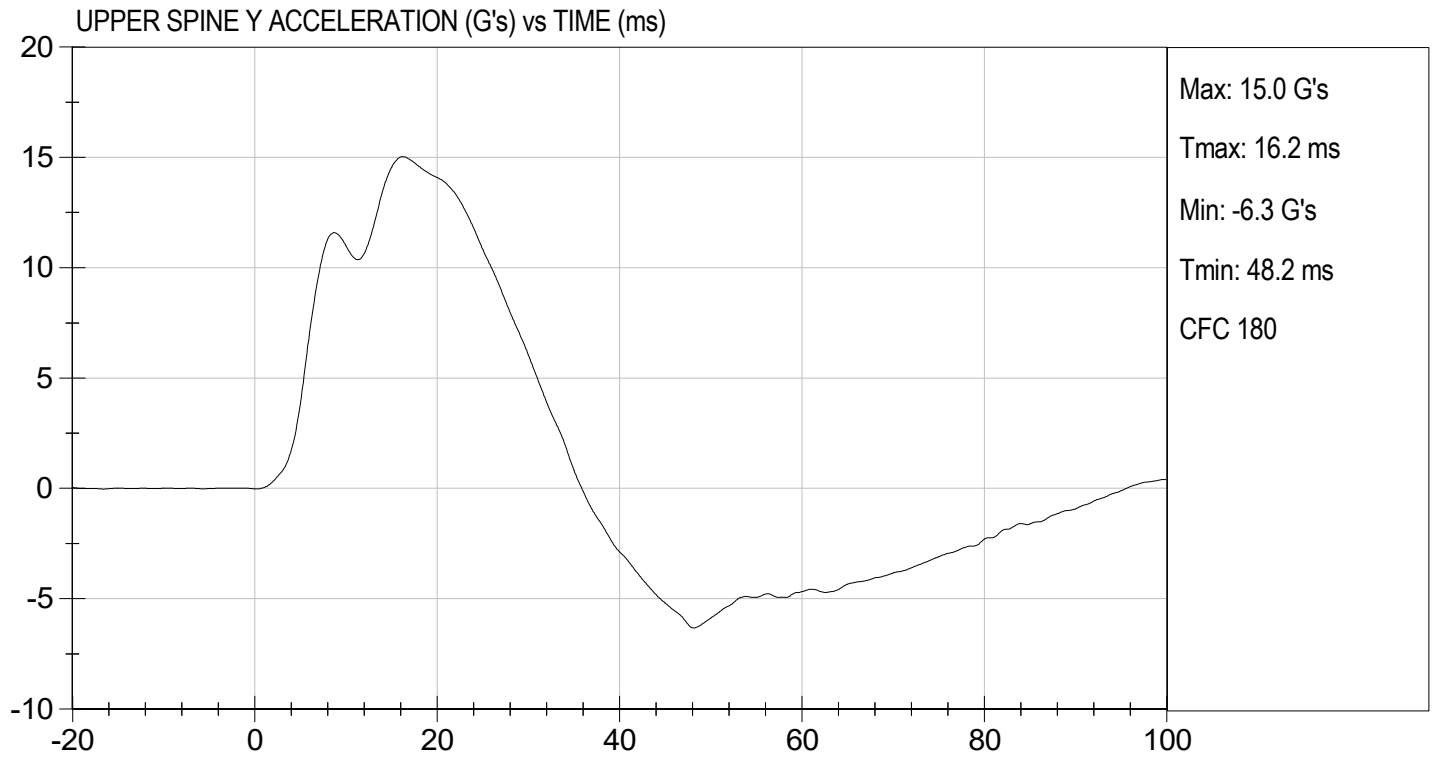
  
 Laboratory Technician

01/23/2023  
 Test Date

  
 Approved By







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

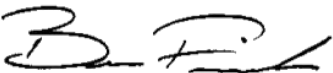
ATD Serial No: 296

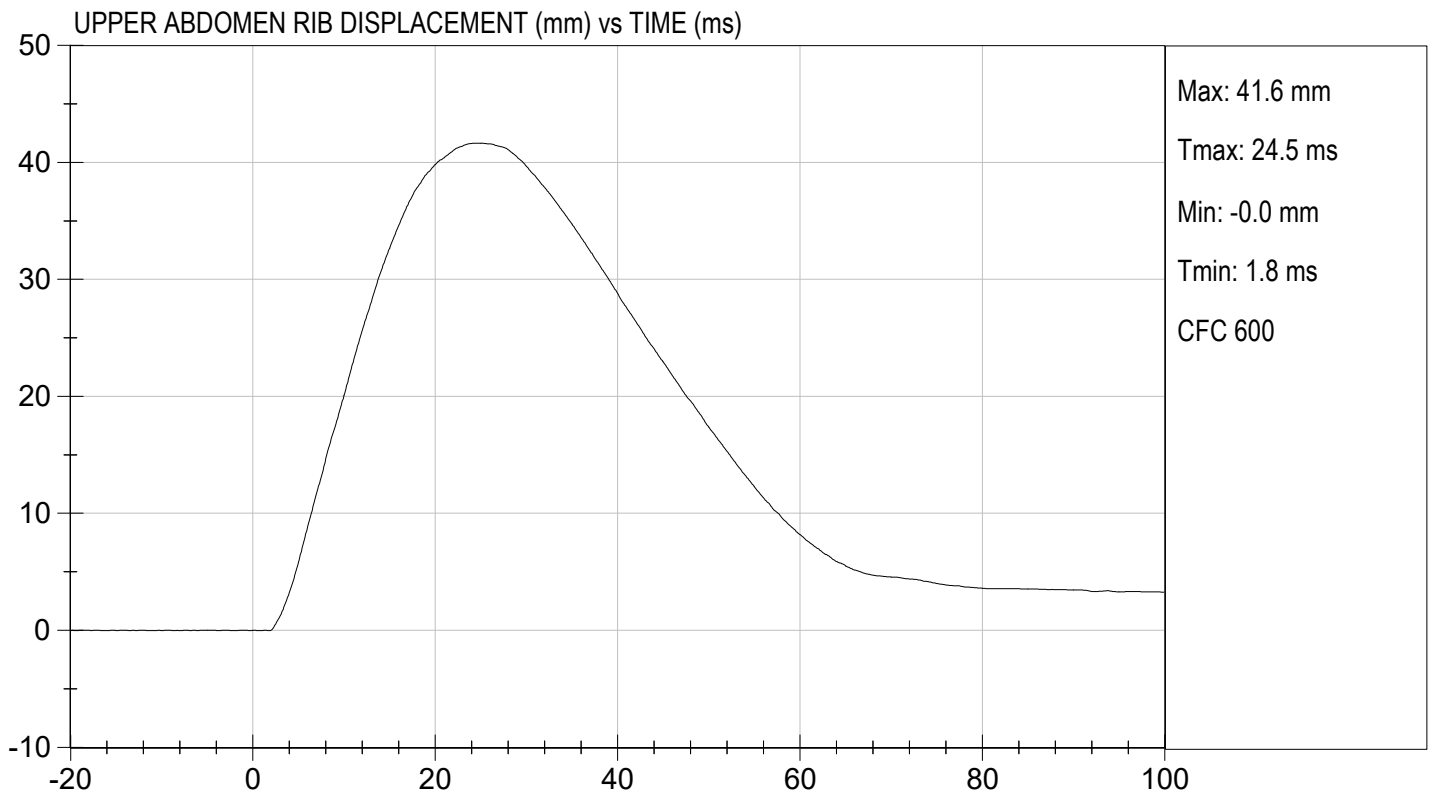
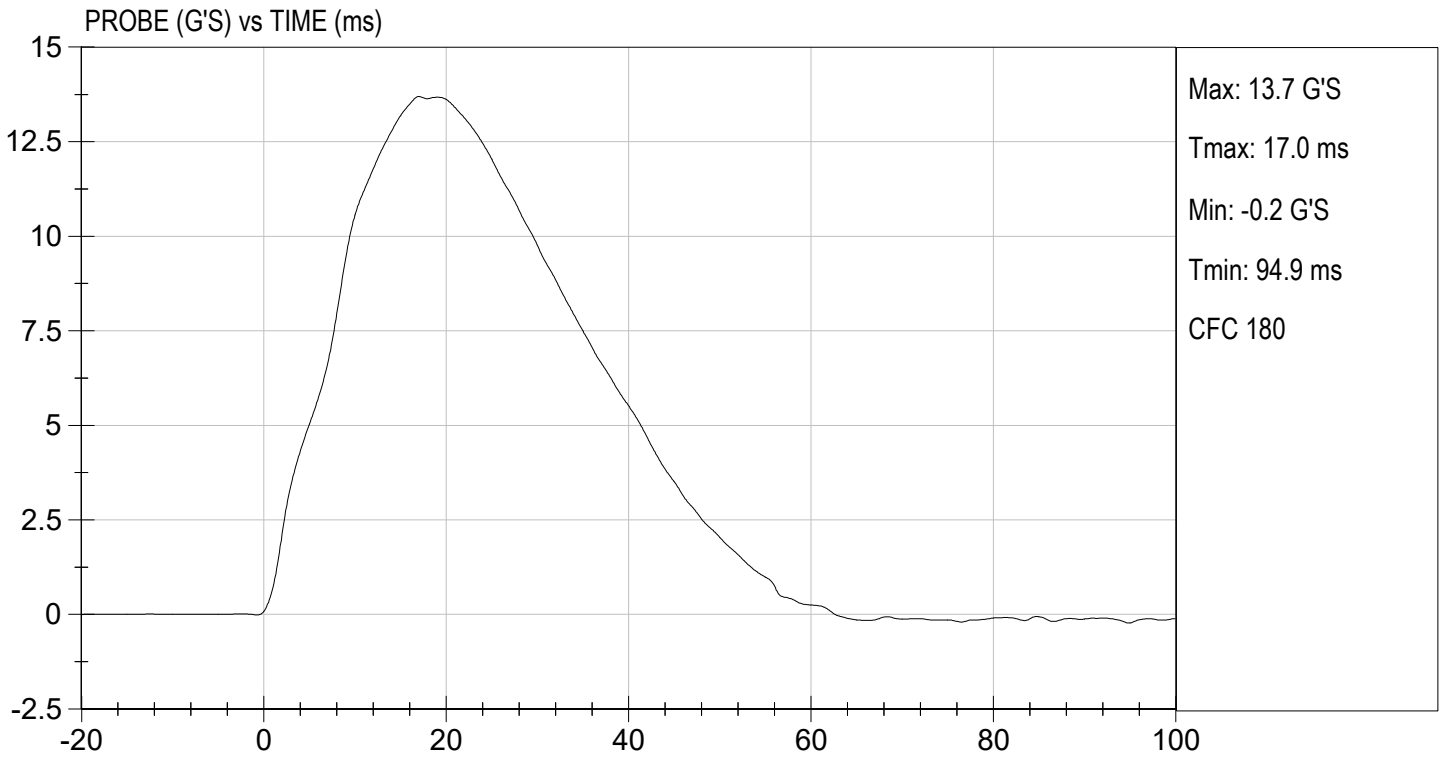
Test I.D: D230216

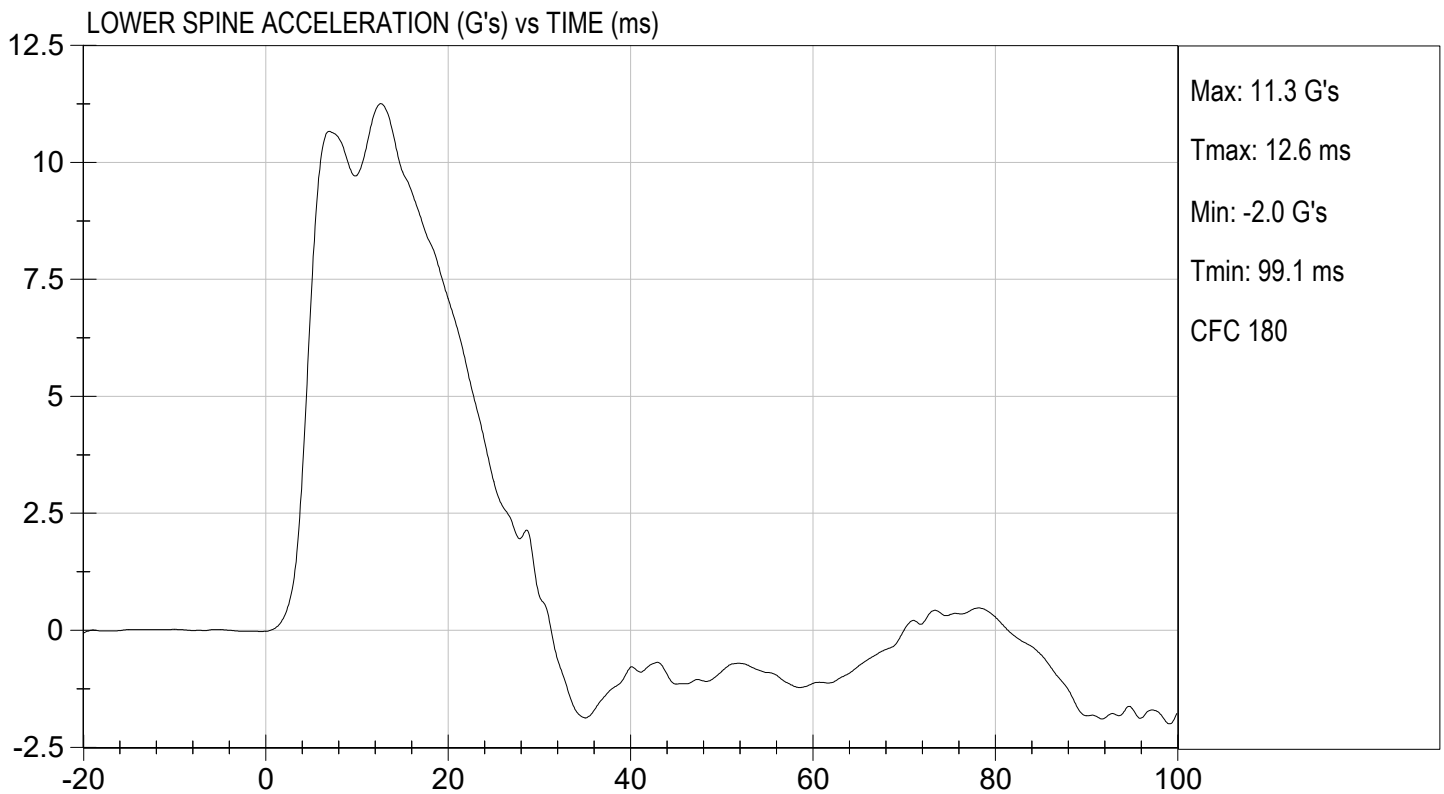
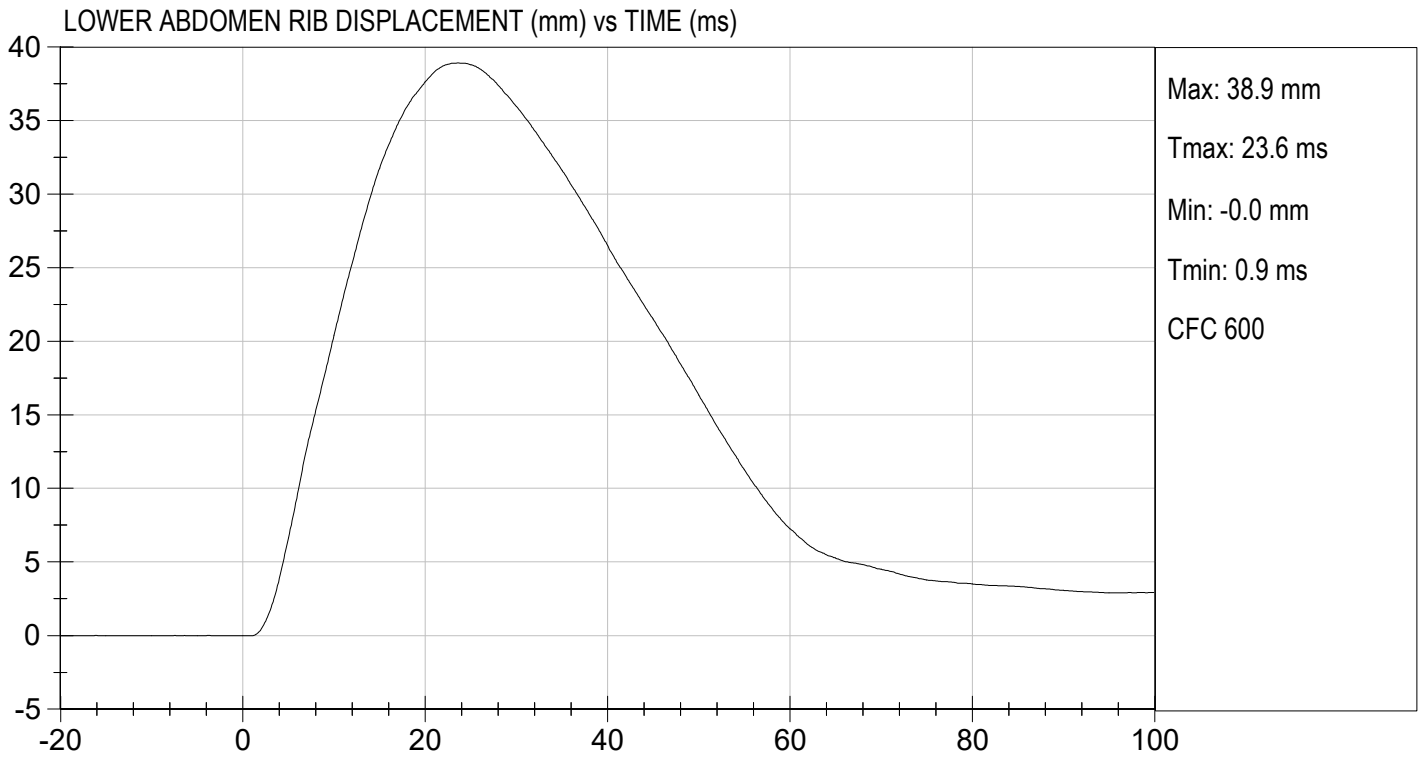
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	22	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	12 to 16	14	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	42	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	39	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
Overall Test Results				Pass

  
 Laboratory Technician

01/23/2023  
 Test Date

  
 Approved By





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

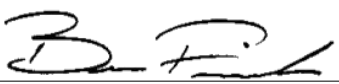
ATD Serial No: 296

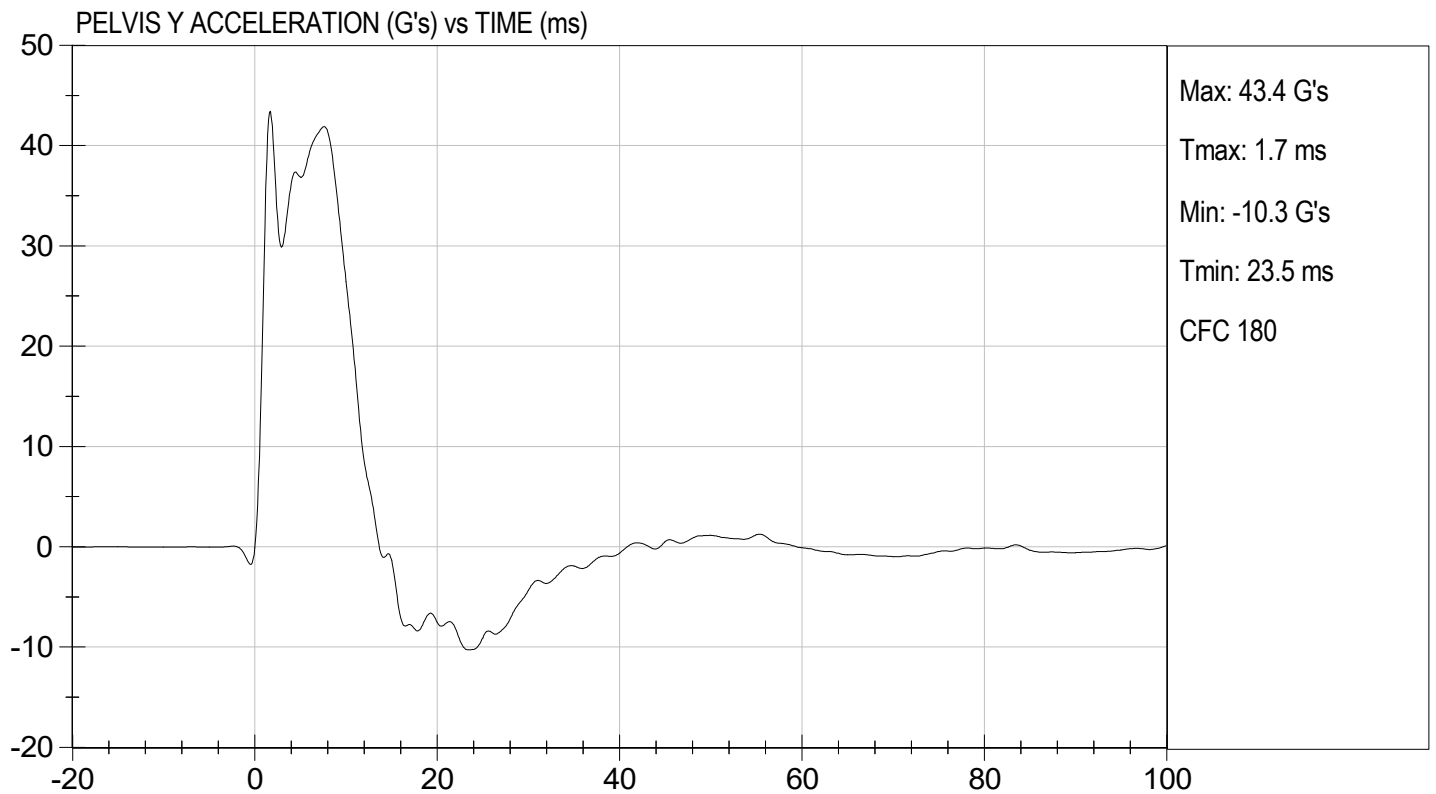
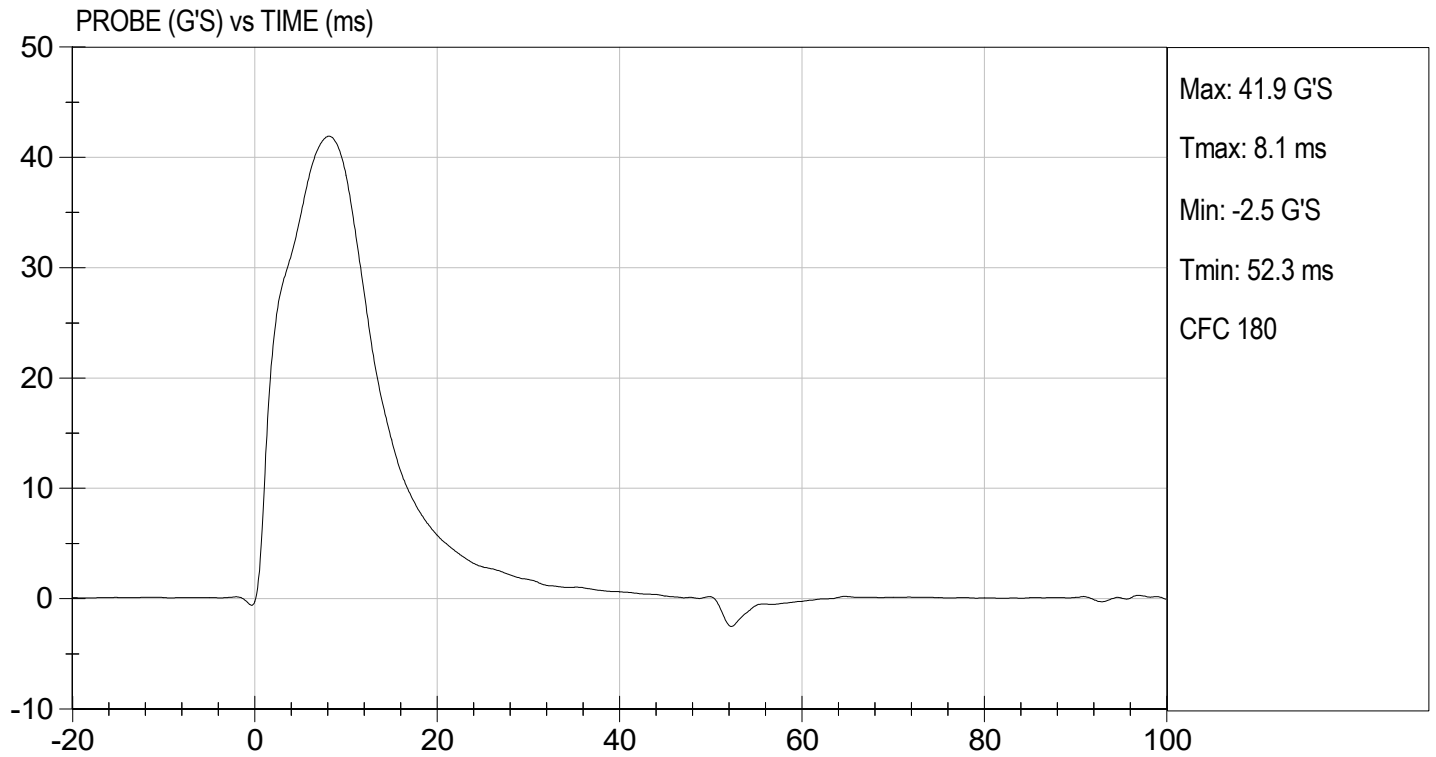
Test I.D: D230217

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	22	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	38 to 47	42	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	42	Pass
Peak Acetabulum Force	N	3600 to 4300	4,003	Pass
<b>Overall Test Results</b>				<b>Pass</b>

  
 Laboratory Technician

01/23/2023  
 Test Date

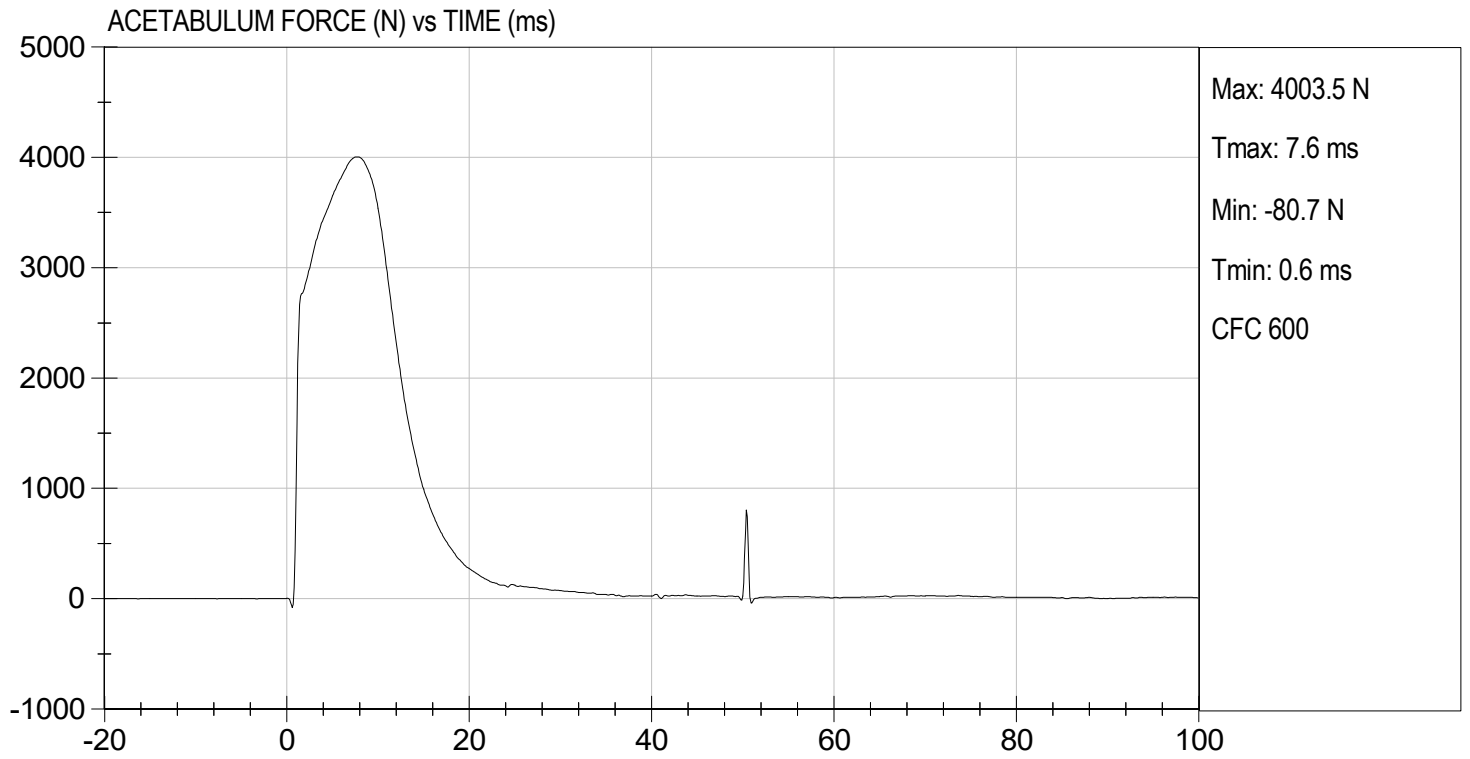
  
 Approved By





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

TEST DATE: 01/23/2023  
TEST #: D230217



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

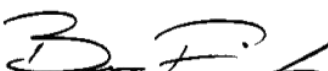
ATD Serial No: 296

Test I.D: D230218

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	28	Pass
Impact Velocity	m/s	4.20 to 4.40	4.23	Pass
Maximum Probe Acceleration	G's	36 to 45	39	Pass
Pelvis Y Acceleration	G's	28 to 39	31	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,577	Pass
Overall Test Results				Pass

  
 \_\_\_\_\_  
 Laboratory Technician

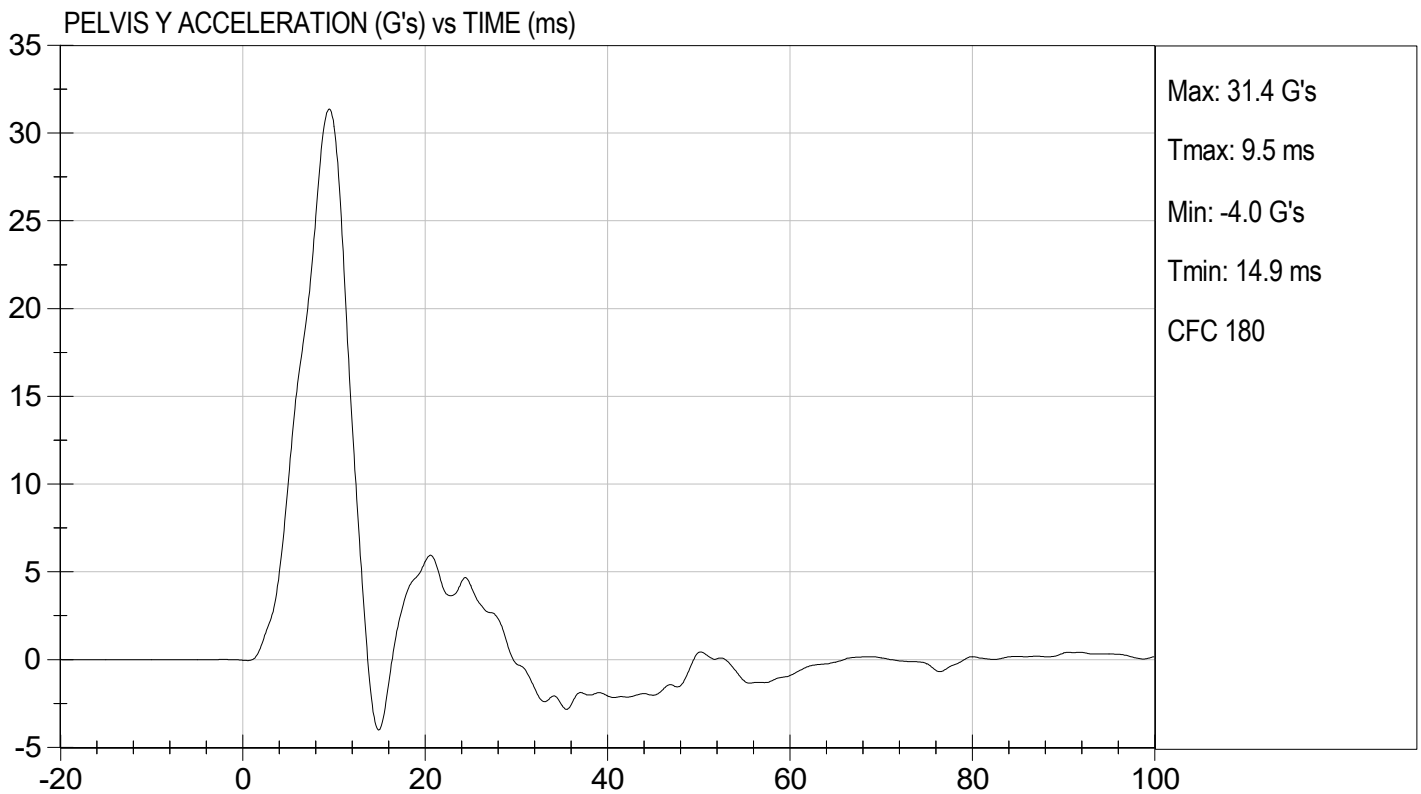
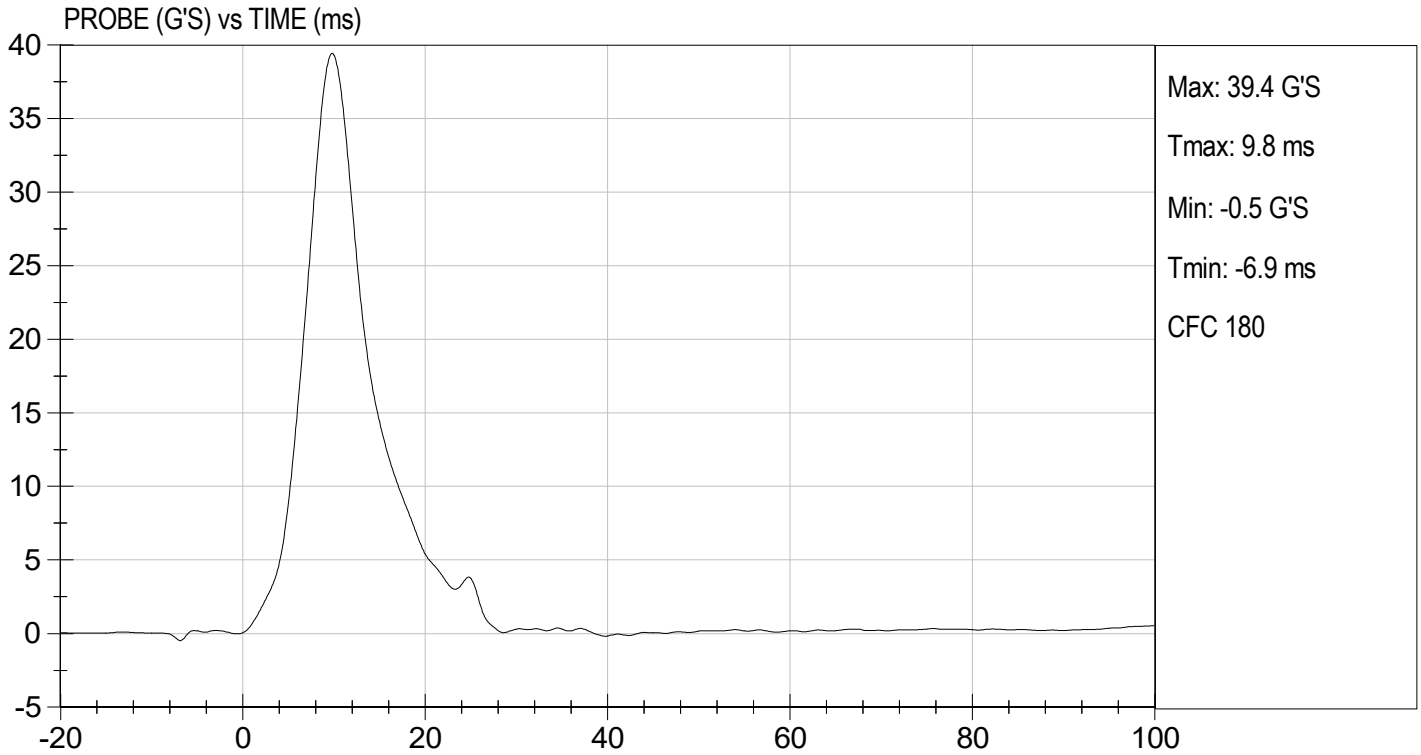
01/20/2023  
 \_\_\_\_\_  
 Test Date

  
 \_\_\_\_\_  
 Approved By



TEST DESC: ILLIAC  
VELOCITY: 13.89 ft/s, 4.23 m/s

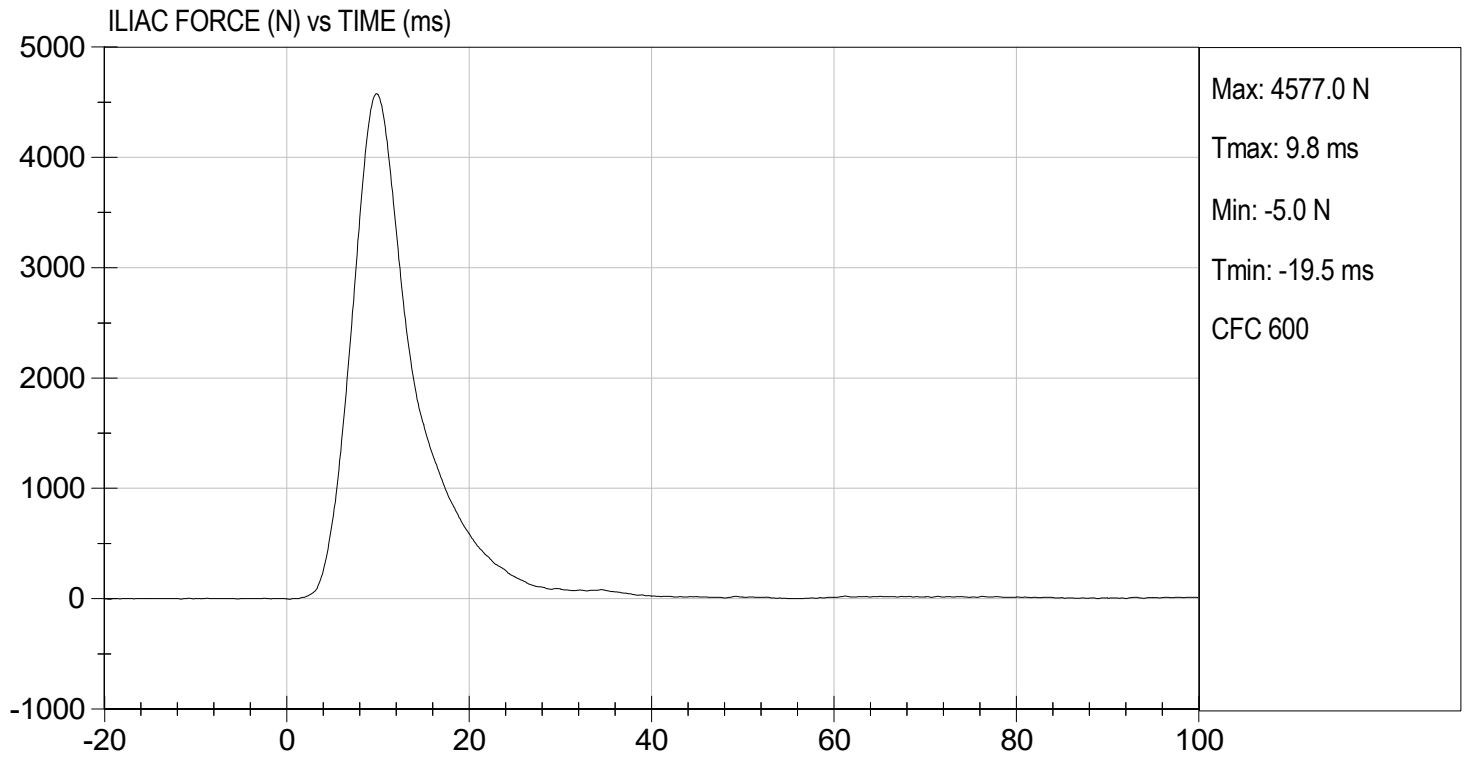
TEST DATE: 01/20/2023  
TEST #: D230218





TEST DESC: ILLIAC  
VELOCITY: 13.89 ft/s, 4.23 m/s

TEST DATE: 01/20/2023  
TEST #: D230218





**SID-IIs Pelvis Plug Certification Test**

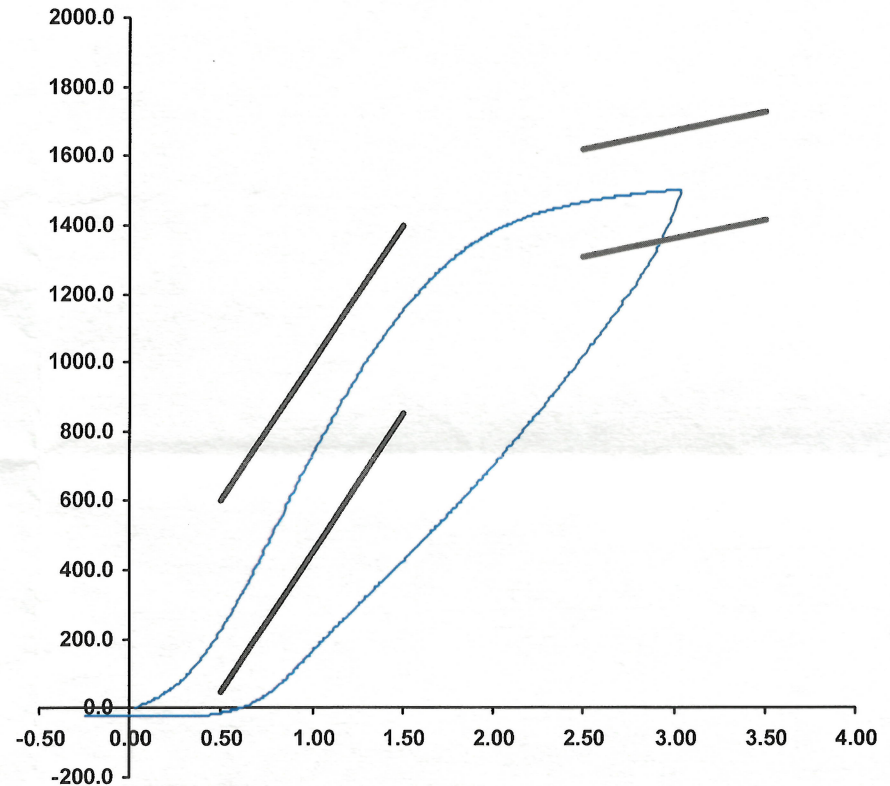
Plug S/N 15388  
 Test Number 19804  
 Report Number 19856  
 Test Date 7/26/2021 9:35:18 AM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	234	50	600
Force @ 1.5 mm (N)	1,157	850	1,400
Force @ 2.5 mm (N)	1,469	1,306	1,618
Force @ 3.0 mm (N)	1,504	1,361	1,673

Testing Machine STM-20 5965542  
 Load Cell S/N (F1360947), 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 26-Jul-21  
 SACO Research

By : DC Date : 7/26/2021



### SID-IIs Pelvis Plug Certification Test

Plug S/N 15275

Test Number 18150

Report Number 18198

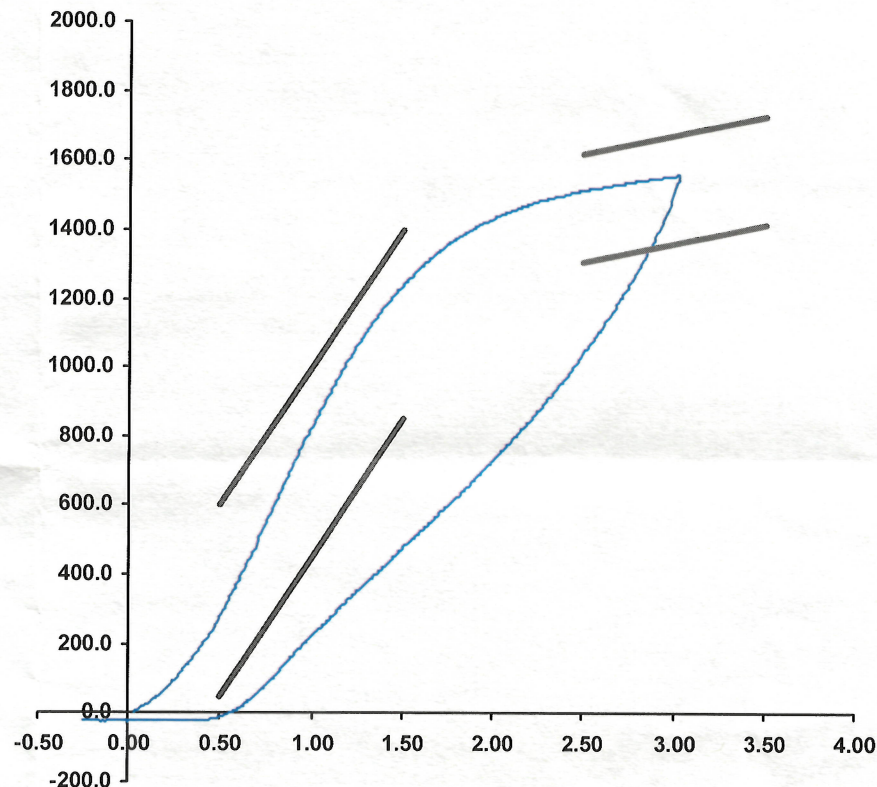
Test Date 3/22/2021 11:12:54 AM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	285	50	600
Force @ 1.5 mm (N)	1,244	850	1,400
Force @ 2.5 mm (N)	1,515	1,306	1,618
Force @ 3.0 mm (N)	1,558	1,361	1,673

Testing Machine STM-20 596542  
Load Cell S/N (F1360947), 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 22-Mar-21  
SACO Research

By : DC Date : 3/22/2021

**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	P82109	Endevco	01/04/2023
			Y	P94783	Endevco	01/04/2023
			Z	P94786	Endevco	01/04/2023
			Xr	P94938	Endevco	01/04/2023
			Yr	P96854	Endevco	01/04/2023
			Zr	P97386	Endevco	01/04/2023
Head Angular Rate Sensors			X	ARS7357	DTS	09/06/2022
			Y	ARS7366	DTS	09/06/2022
			Z	ARS7371	DTS	09/06/2022
Displacement Potentiometers	Thoracic Rib	Upper	Y	G012	FTSS	01/04/2023
		Middle	Y	G1163	FTSS	01/04/2023
		Lower	Y	G1158	FTSS	01/04/2023
	Abdominal Rib	Upper	Y	G1146	FTSS	01/04/2023
		Lower	Y	G1126	FTSS	01/04/2023
Lower Spine Accelerometers (T12)			X	P79418	Endevco	01/04/2023
			Y	P79439	Endevco	01/04/2023
			Z	P79614	Endevco	01/04/2023
Acetabulum Load Cell			Y	ACG111	FTSS	06/30/2022
Iliac Wing Load Cell			Y	IWG226	FTSS	06/30/2022
Pelvis Plug (struck side)				15388	SACO	07/26/2021
Pelvis Plug (non-struck side)				15275	SACO	03/22/2021

**Table 2 – Vehicle Instrumentation**

		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	A337216	MSI	01/04/2023
Vehicle Center of Gravity	Y	A340809	MSI	01/04/2023
Vehicle Center of Gravity	Z	A390891	MSI	01/04/2023
Left Floor Sill	Y	T25689	Endevco	01/04/2023
A-Pillar Sill	Y	T26699	Endevco	08/04/2022
A-Pillar Low	Y	A416919	MSI	08/16/2022
A-Pillar Mid	Y	A416950	MSI	08/18/2022
B-Pillar Sill	Y	A391139	MSI	10/19/2022
B-Pillar Low	Y	T29886	Endevco	11/10/2022
B-Pillar Mid	Y	T29905	Endevco	11/10/2022
Driver Seat	Y	T32319	Endevco	11/01/2022
Engine Top	X	A391134	MSI	09/21/2022
Engine Top	Y	A390966	MSI	09/21/2022
Firewall	Y	T32345	Endevco	11/01/2022
Right Roof	Y	A383489	MSI	08/08/2022
Right Floor Sill	Y	T32192	Endevco	11/01/2022
Rear Floorpan	X	A383092	MSI	10/07/2022
Rear Floorpan	Y	A385781	MSI	10/07/2022

**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