

REPORT NUMBER: SideNCAPPole-MGA-22-041

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

**TOYOTA MOTOR MANUFACTURING CANADA, INC.
2022 Lexus NX 250 5-Door SUV
NHTSA No.: O20225104**

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



Test Date: April 11, 2023

Final Report Date: January 3, 2024

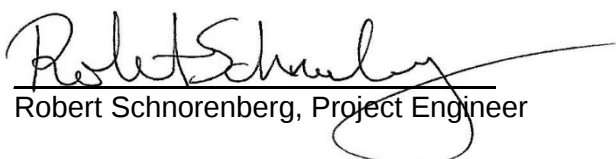
FINAL REPORT

**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.

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Approved by: 
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Approval Date: January 3, 2024

FINAL REPORT ACCEPTANCE BY OCWS:

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

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

TECHNICAL REPORT DOCUMENTATION PAGE

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7. Author(s) Ben Fischer, Program Manager				8. Performing Organization Report No. SideNCAPPole-MGA-22-041																											
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105				10. Work Unit No.																											
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12. Sponsoring Agency Name and Address 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				13. Type of Report and Period Covered: Final Test Report April 11, 2023 to January 3, 2024																											
				14. Sponsoring Agency Code NRM-100																											
15. Supplementary Notes																															
16. Abstract A 32.20 km/h, 75° oblique impact Side NCAP Test was conducted on the subject 2022 Lexus NX 250 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 April 11, 2023. The impact velocity was 32.15 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 22.0°C. The test vehicle post-test maximum crush was 323 mm at level 1. The test vehicle's performance was as follows: <table border="1" data-bbox="175 1121 1443 1411"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th colspan="2">Driver ATD (SID-IIs)</th> </tr> <tr> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td></td> <td>1000</td> <td>379.551</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>g</td> <td>82</td> <td>48.387</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>3967.634</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38*</td> <td>18.961</td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td>mm</td> <td>45*</td> <td>28.264</td> </tr> </tbody> </table> *Proposed IARV The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite door(s) did not open during the side impact event.						Measurement Description	Units	Driver ATD (SID-IIs)		Threshold	Result	Head Injury Criteria (HIC ₃₆)		1000	379.551	Resultant Lower Spine Acceleration	g	82	48.387	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3967.634	Maximum Thoracic Rib Deflection	mm	38*	18.961	Maximum Abdomen Rib Deflection	mm	45*	28.264
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17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs				18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division 1200 New Jersey Ave, SE Washington, DC 20590																											
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SECTION 1 PURPOSE AND SUMMARY OF TEST

PURPOSE

This side pole impact test is part of the MY 2022 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 2022 Lexus NX 250 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 2022 Lexus NX 250 5-Door SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.15 km/h. The test was conducted by MGA Research Corporation in Burlington, Wisconsin on April 11, 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	379.551
Resultant Lower Spine Acceleration	g	82	48.387
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3967.634
Maximum Thoracic Rib Deflection	mm	38*	18.961
Maximum Abdomen Rib Deflection	mm	45*	28.264

*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	No	
Side Airbag (Other)				
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

GENERAL COMMENTS

Firewall Y recorded no valid data after 40 ms.

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: 2022 Lexus NX 250 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20225104
Test Date: 4/11/2023

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	O20225104	Traction Control System (TCS)	Yes
Model Year	2022	Auto-Leveling System	No
Make	Lexus	Automatic Door Locks (ADL)	Yes
Model	NX 250	Power Window Auto-Reverse	Yes
Body Style	5-Door SUV	Other Optional Feature	No
VIN	2T2ADCAZ8NC002580	Driver Front Airbag	Yes
Body Color	Cloudburst Gray	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	10 km / 6 mi	Driver Head/Torso Airbag	No
Engine Displacement (L)	2.5 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	8	Rear Pass. Curtain Airbag	Yes
Overdrive	Yes	Rear Pass. Head/Torso Airbag	No
Final Drive	FWD	Rear Pass. Torso Airbag	No
Roof Rack	No	Rear Pass. Torso/Pelvis Airbag	No
Sunroof/T-Top	Yes	Rear Pass. Pelvis Airbag	No
Running Boards	No	Driver Seat Belt Pretensioner	Yes
Tilt Steering Wheel	Yes	Rear Pass. Seat Belt Pretensioner	Yes
Power Seats	Yes	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	TOYOTA MOTOR MANUFACTURING CANADA, INC.	GVWR (kg)	2205
Date of Manufacture	09/22	GAWR Front (kg)	1270
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)				405	(A)
DSC x 68 kg				340	(B)
Rated Cargo and Luggage Weight (RCLW) (kg)				46	(A-B)

* Rated Cargo and Luggage Weight (RCLW) reduced by 19 kg to account for Load Carrying Capacity Reduction Label.

VEHICLE SEAT TYPE

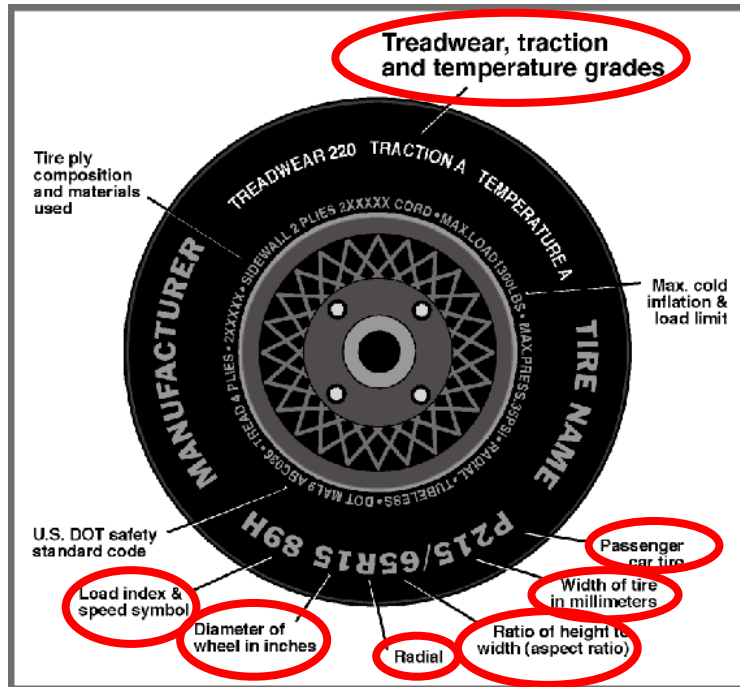
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						w/ Lever	w/ Knob
Front Seat	X					X	
Rear or Second Row				X	X		
Third Row Seat							

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

Test Vehicle: 2022 Lexus NX 250 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20225104
 Test Date: 4/11/2023

VEHICLE TIRE INFORMATION



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	230	230
Recommended Tire Size	235/60R18	235/60R18
Tire Size on Vehicle	235/60R18	235/60R18
Tire Manufacturer	Bridgestone	Bridgestone
Tire Model	Alenza	Alenza
Treadwear	380	380
Traction	B	B
Temperature Grade	A	A
Tire Plies Sidewall	2 Rayon	2 Rayon
Tire Plies Body	1 Rayon, 2 Steel, 1 Polyester	1 Rayon, 2 Steel, 1 Polyester
Load Index/Speed Symbol	103H	103H
Tire Material	Rubber	Rubber
DOT Safety Code Left	EJDC JKE 0622	EJDC JKE 0522
DOT Safety Code Right	EJDC JKE 0622	EJDC JKE 0622

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

Test Vehicle: 2022 Lexus NX 250 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20225104
 Test Date: 4/11/2023

TEST PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	250	250	240	240
Tire Placard	kPa	230	230	230	230
Owner's Manual	kPa	230	230	230	230
As Tested	kPa	230	230	230	230

TEST AXLE VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	509.5	323.5		527.0	365.5		525.5	370.0	
Right	kg	468.0	357.5		472.5	385.0		469.5	391.5	
Ratio	%	58.9%	41.1%		57.1%	42.9%		56.6%	43.4%	
Totals	kg	977.5	681.0	1658.5	999.5	750.5	1750.0	995.0	761.5	1756.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1658.5	(A)
Actual Weight of 1 P572 ATD (SID-IIs) Used	kg	52	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	46	(C)
Calculated Test Vehicle Target Weight (TVTW)	kg	1756.5	(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	0.3	0.5	Yes
Front Pass. Door Sill Angle (front-to-back)*	deg	-0.1	0.3	0.4	Yes
Front Bumper Angle (left-to-right)**	deg	0.1	0.2	0.2	Yes
Rear Bumper Angle (left-to-right)**	deg	0.1	0.2	0.2	Yes
Vehicle CG (Aft of Front Axle)	mm	1106	1155	1168	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	4	16	16	

* 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	Units	Weight
Weight of Ballast Added	kg	10
Components Removed: none	kg	

Test height adjustable suspension setting, if applicable:	Not Applicable
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DATA SHEET NO. 1 (CONTINUED)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2022 Lexus NX 250 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20225104
Test Date: 4/11/2023

TEST SURFACE MARKINGS

	Distance from 75° Impact Location Line (mm)
Fore 25 mm Target	926
Aft 25 mm Target	919

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

Test Vehicle: 2022 Lexus NX 250 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20225104
 Test Date: 4/11/2023

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	20.9	11.3	16.1
Front Passenger Seat	19.3	10.1	14.7
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As-Tested SCRL Angle (Mid) (°)	As-Tested SCR Height (mm)	SCR Height Position	SCR Height (mm)		
				Rear-Most	Mid	Forward- Most
Driver Seat	16.1	26	Max	52	52	52
			Mid	26	26	26
			Min	0	0	0
Front Passenger Seat	14.7	25	Max	50	50	50
			Mid	25	25	25
			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: 2022 Lexus NX 250 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

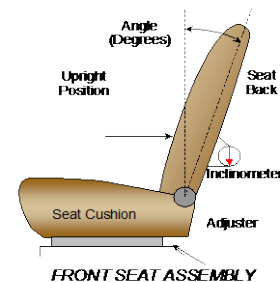
NHTSA No.: O20225104
 Test Date: 4/11/2023

SEAT FORE/AFT POSITIONS

Seat	Total Fore/Aft Travel		Test Position from Forward-Most Position	
	mm	Detents (1 st as 1)	mm	Detent (1 st as 0)
Driver Seat	240		0	
Front Passenger Seat	240		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 5th percentile female dummy in a Side NCAP MDB test. The rear center and non-struck side rear passenger's seat back is set to match the struck-side rear seat back.



Seat	Total Seat Back Angle Range		Test Position from Vertical	
	Degrees	Detents (1 st as 1)	Degrees	Detent (1 st as 0)
Driver Seat	52.2		-5.1	
Front Passenger Seat	52.3		-5.1	
Front Center Seat				
Struck Side Rear Seat	6.0	2	13.4	0
Non-Struck Side Rear Seat	6.0	2	13.4	0
Rear Center Seat	6.0	2	13.4	0

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	3	0 (Lowest as 0) / Fixed Fore-Aft

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

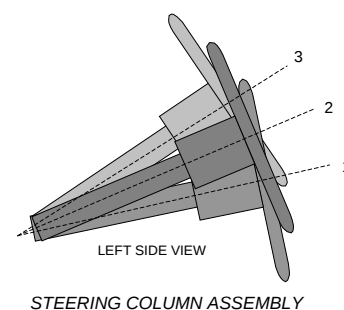
Test Vehicle: 2022 Lexus NX 250 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20225104
 Test Date: 4/11/2023

STEERING COLUMN ADJUSTMENT

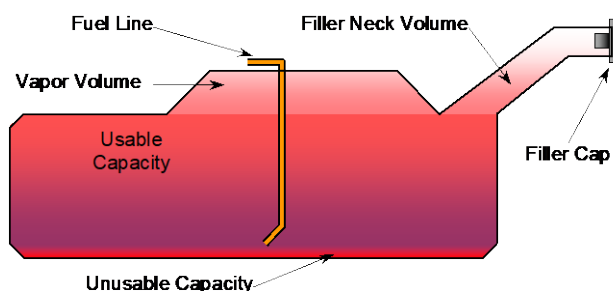
Steering wheel and column adjustments are made so that the steering wheel geometric locus is described when it moves through its full range of motion.

	Wheel Angle (°)	Fore/Aft Position (mm)
Lowermost, Position 1	69.2	
Geometric Center, Position 2	67.2	
Uppermost, Position 3	65.1	
Telescoping Steering Wheel Travel		60
Test Position	67.2	30



FUEL PUMP

The vehicle is equipped with an electronic fuel pump. The fuel pump is activated when the ignition is turned on. The filler neck is located on the driver's side.



FUEL TANK CAPACITY DATA

VEHICLE FUEL TANK ASSEMBLY

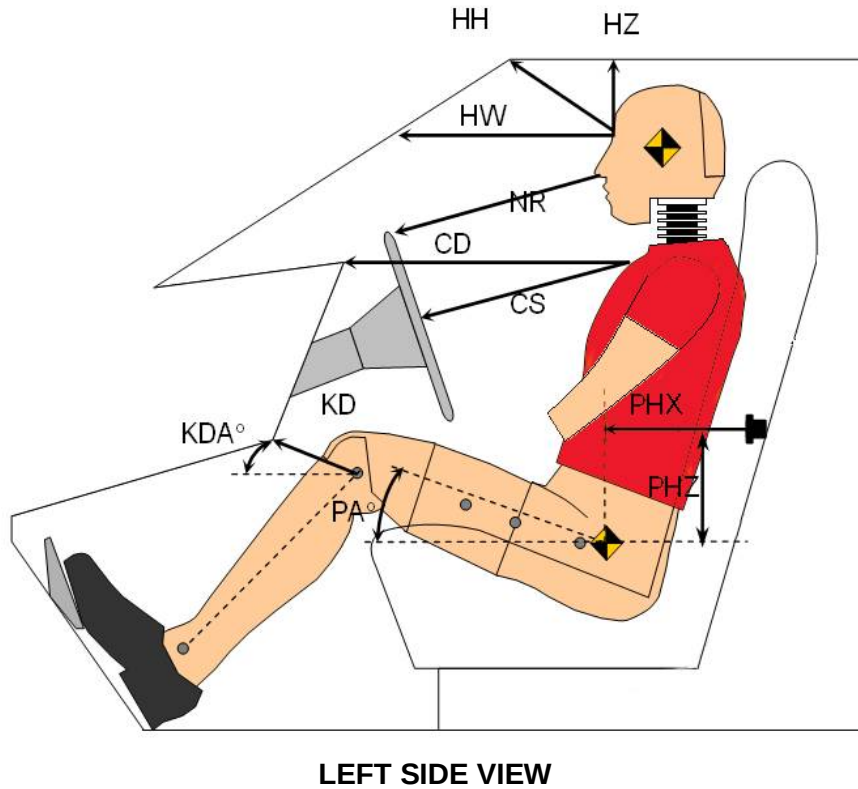
	Liters
Usable Capacity of Standard Tank (see S1 – Vehicle Setup Information)	54.9
Usable Capacity of Optional Tank (see S1 – Vehicle Setup Information)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	54.9
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	51.0
Actual Amount of Solvent Used	51.1
1/3 of Usable Capacity	18.3

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: 2022 Lexus NX 250 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20225104
 Test Date: 4/11/2023

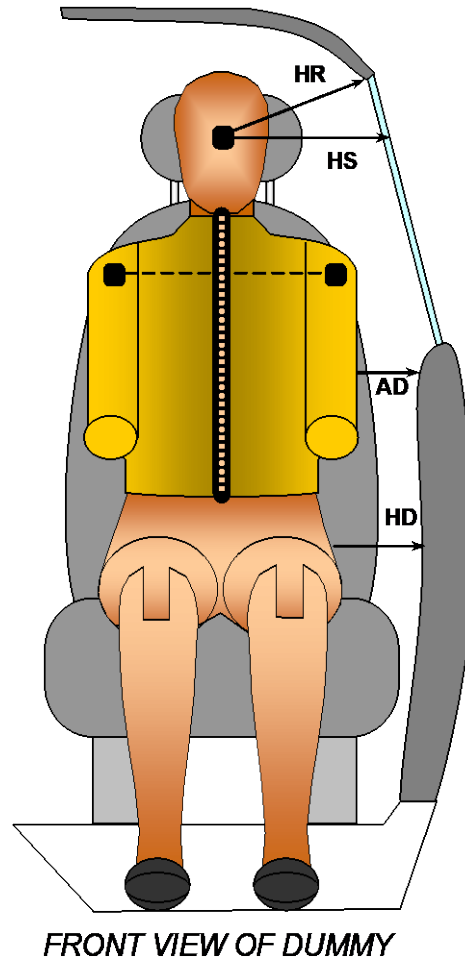


Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	232	
HW	Head to Windshield	566	
HZ	Head to Roof Liner	163	
NR	Nose to Rim/Seat Back	224	
CD	Chest to Dashboard/Seat Back	405	
CS	Chest to Steering Wheel	160	
KDL / KDAL	Left Knee to Dash/Seat Back	130	34.0
KDR / KDAL	Right Knee to Dash/Seat Back	110	32.6
PAX	Pelvic Tilt Angle X		20.6
PAY	Pelvic Tilt Angle Y		-0.2
PHX	Hip Point to Striker (X-Axis)	334	
PHZ	Hip Point to Striker (Z-Axis)	202	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2022 Lexus NX 250 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20225104
 Test Date: 4/11/2023

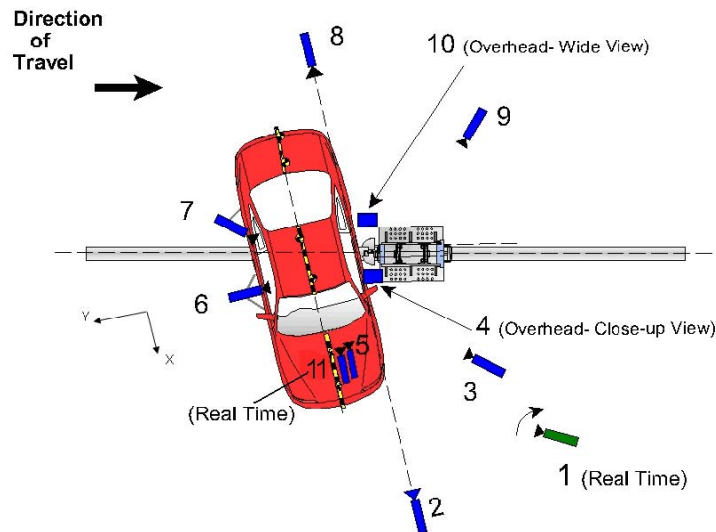


Code	Measurement Description	Driver
		Length (mm)
HR	Head to Side Header	244
HS	Head to Side Window	375
AD	Arm to Door	178
HD	Hip Point to Door	193

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2022 Lexus NX 250 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20225104
Test Date: 4/11/2023



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	5980	-20	-1460	24	1000
3	Impact Side 45° Forward	4090	-1895	-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	-7185	-30	-1485	24	1000
9	Impact Side 45° Rearward	-2845	-3490	-1505	12	1000
10	Overhead Wide View	50	595	-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

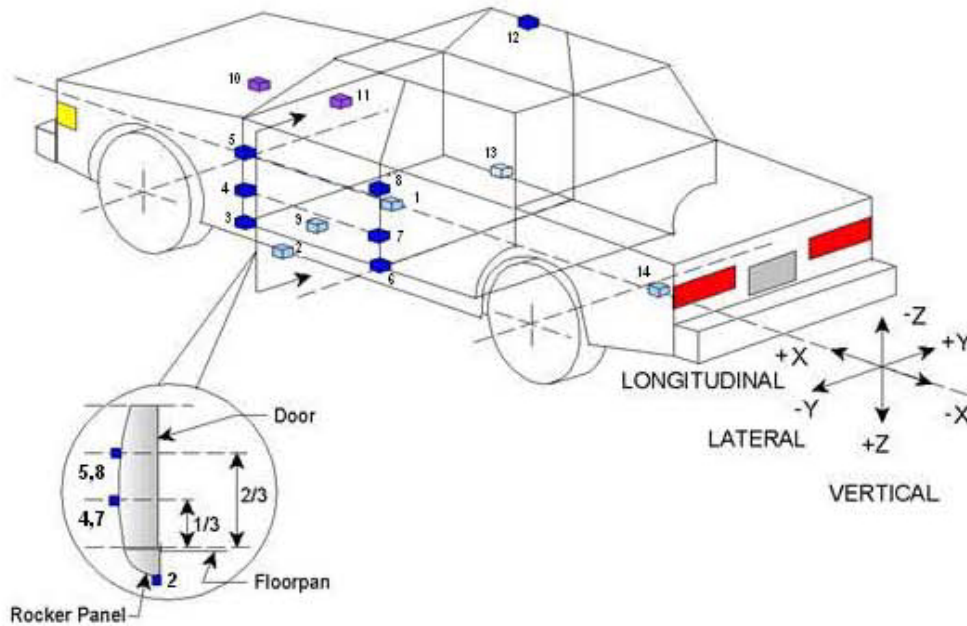
INSTRUMENTATION

	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: 2022 Lexus NX 250 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20225104
Test Date: 4/11/2023



TEST VEHICLE ACCELEROMETER LOCATIONS

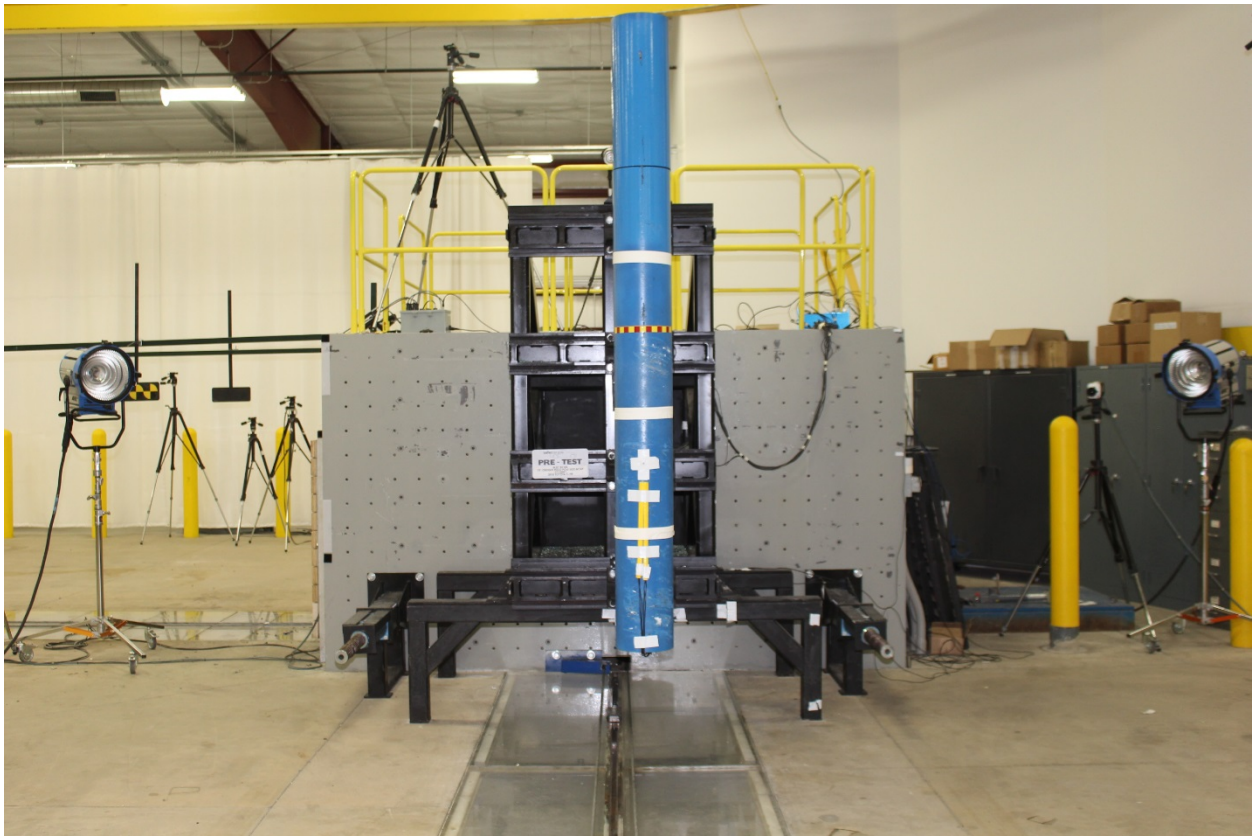
No.	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2541	300	-570
2	Left Floor Sill	2886	-750	-315
3	A Pillar Sill	3076	-750	-315
4	A Pillar Low	3118	-845	-645
5	A Pillar Mid	3118	-845	-880
6	B Pillar Sill	2047	-750	-315
7	B Pillar Low	2234	-740	-712
8	B Pillar Mid	2230	-740	-963
9	Driver Seat Track	2292	-392	-384
10	Engine Top	3812	0	-930
11	Firewall	4083	0	-1017
12	Right Roof	2086	461	-1624
13	Right Floor Sill	2886	750	-315
14	Rear Floorpan	1003	0	-582

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: 2022 Lexus NX 250 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20225104
Test Date: 4/11/2023



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: 2022 Lexus NX 250 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20225104
Test Date: 4/11/2023

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	Seatback
Upper Torso	Seatback
Lower Torso	Seatback
Left Hip	Side Torso/Pelvis Airbag, Seat Cushion
Left Knee	None

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	None
Windshield Damage	Cracked and separated at left roof and upper A-pillar
Side Window Damage	LF window broken
Other Notable Effects	None

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

Test Vehicle: 2022 Lexus NX 250 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20225104
Test Date: 4/11/2023

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side		Struck Side	
	Driver		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	No	
Side Airbag (Other)				
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes		Yes	
Other:	No		No	

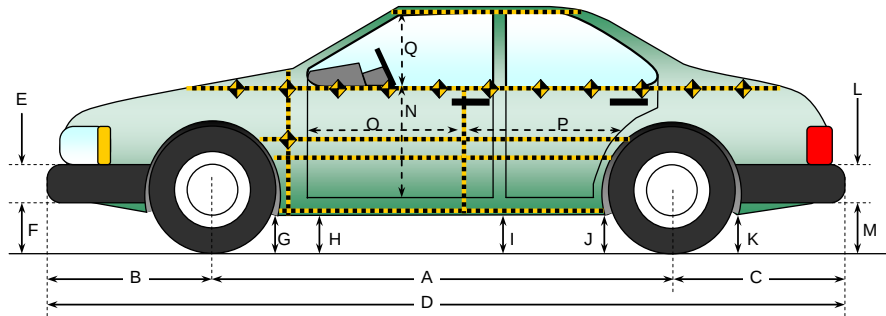
SPEED, ANGLE AT IMPACT, AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1096
Actual Impact Point (Aft of Front Axle)	mm		1096
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	75.7
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.15
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.18

DATA SHEET NO. 9
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2022 Lexus NX 250 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20225104
Test Date: 4/11/2023



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

LEFT SIDE VIEW

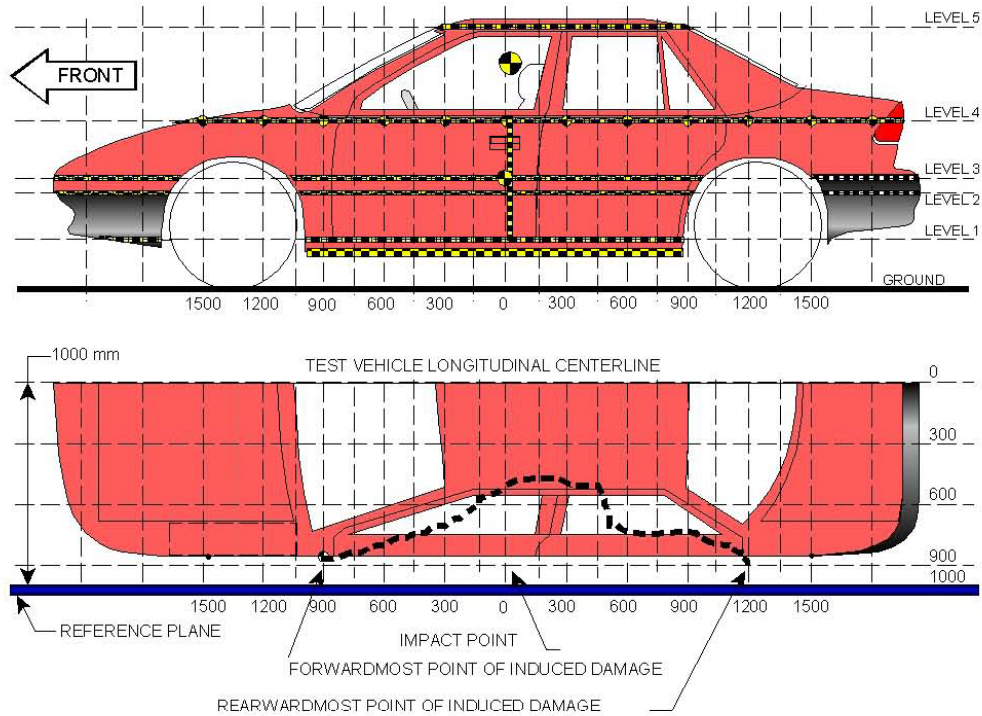
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Change
A	Wheelbase	2693	2636	-57
B	Front Axle to FSOV	1002	943	-59
C	Rear Axle to RSOV	963	1053	90
D	Total Vehicle Length at Centerline	4658	4632	-26
E	Front Bumper Thickness	152	152	0
F	Front Bumper Bottom to Ground	263	283	20
G	Sill Height at Front Wheel Well	290	285	-5
H	Sill Height at Front Door Leading Edge	290	285	-5
I	Sill Height at B-Pillar	288	288	0
J1	Sill Height at Rear Wheel Well	290	312	22
J2	Pinch Weld Height at Rear Wheel Well	293	318	25
K	Sill Height Aft of Rear Wheel Well	299	308	9
L	Rear Bumper Thickness	120	120	0
M	Rear Bumper Bottom to Ground	272	265	-7
N	Sill Height to Bottom of Front Window Sill	830	828	-2
O	Front Door Leading Edge to Impact CL	639	583	-56
P	Rear Door Trailing Edge to Impact CL	1213	1176	-37
Q	Front Window Opening	322	316	-6
R	Right Side Length	3763	3773	10
S	Left Side Length	3763	3701	-62
T	Vehicle Width at B-Pillars	1897	1871	-26
U	Front Wheel Track Width	1604		
V	Rear Wheel Track Width	1620		

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

Test Vehicle: 2022 Lexus NX 250 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20225104
 Test Date: 4/11/2023



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	410	323	0
2	Occupant H-Point	715	308	0
3	Mid Door	739	313	0
4	Window Sill	1116	249	0
5	Window Top	1580	83	150

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

Test Vehicle: 2022 Lexus NX 250 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20225104
 Test Date: 4/11/2023

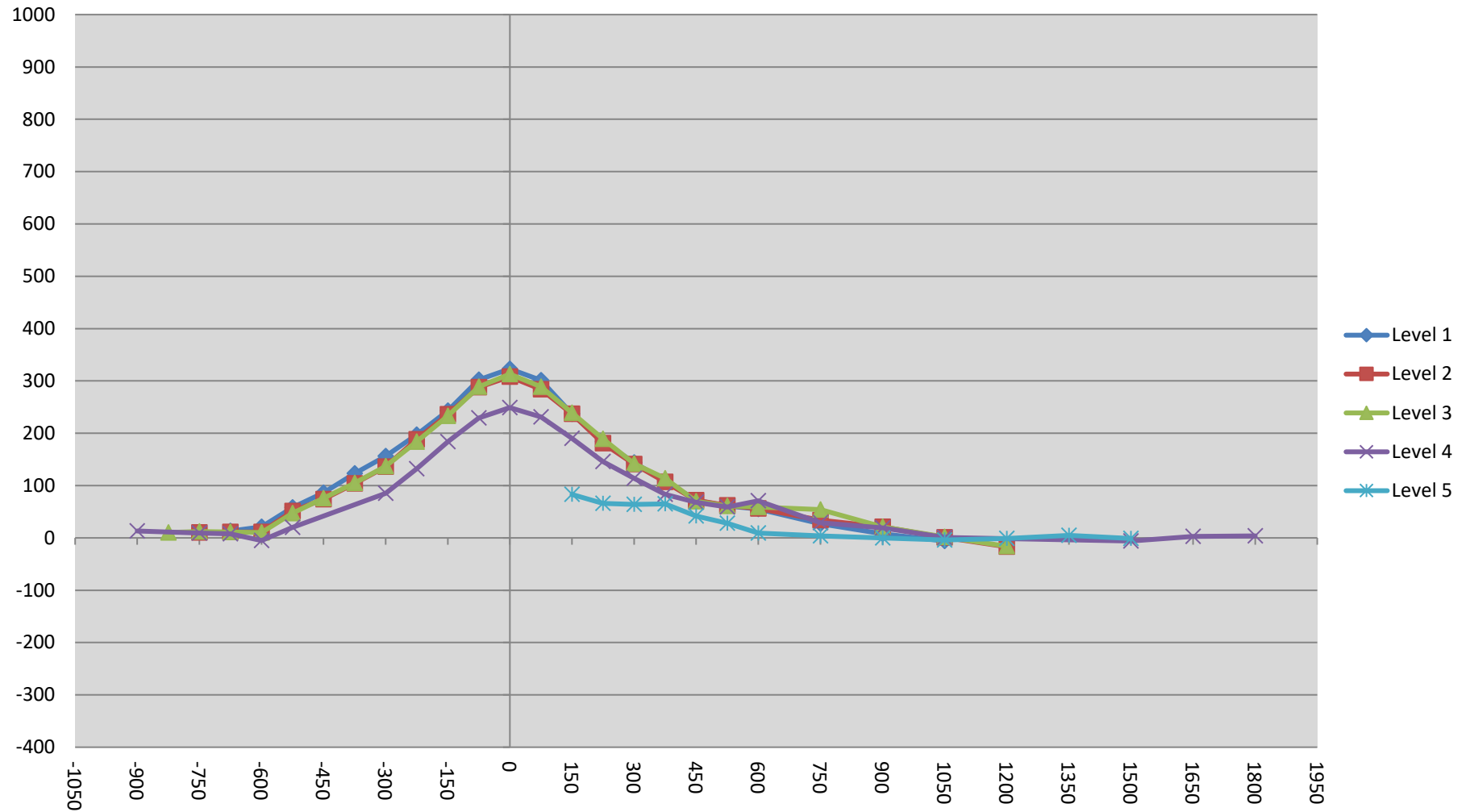
Pre-test measurements are taken when the vehicle is in the “As Tested” weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to the test based on an estimated impact point.

	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				283					296					13	
-825			165					175					10		
-750		170	170	280			180	182	289			10	12	9	
-675	179	171	171	278		192	182	182	286		13	11	11	8	
-600	185	182	182	275		206	193	192	270		21	11	10	-5	
-525	186	184	184	274		244	235	231	294		58	51	47	20	
-450	186	201	201			272	275	277			86	74	76		
-375	184	205	205			307	309	310			123	104	105		
-300	183	205	205	273		339	341	342	358		156	136	137	85	
-225	183	205	205	274		380	393	389	406		197	188	184	132	
-150	181	204	204	272		424	440	437	456		243	236	233	184	
-75	181	202	202	271		483	490	491	500		302	288	289	229	
0	180	200	200	268		503	508	513	517		323	308	313	249	
75	182	199	199	266		483	483	488	497		301	284	289	231	
150	185	196	196	266	511	422	433	435	456	594	237	237	239	190	83
225	186	195	195	264	502	370	376	384	410	568	184	181	189	146	66
300	190	192	192	262	490	334	333	334	376	554	144	141	142	114	64
375	198	191	191	262	485	307	298	305	345	550	109	107	114	83	65
450	206	189	189	262	484	278	261	259	330	526	72	72	70	68	42
525	216	187	187	260	485	277	249	248	319	513	61	62	61	59	28
600	224	186	186	260	488	279	242	245	331	497	55	56	59	71	9
675															
750	233	182	182	260	490	260	216	236	289	494	27	34	54	29	4
825															
900	231	177	177	260	498	239	198	198	279	498	8	21	21	19	0
1050	208	170	170	265	510	202	171	172	266	506	-6	1	2	1	-4
1200		168	168		533		151	152		532		-17	-16		-1
1350					562					567					5
1500				283	610				277	609				-6	-1
1650				285					288					3	
1800				293					297					4	
1950															
2100															
2250															
2400															
2550															
2700															

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

Test Vehicle: 2022 Lexus NX 250 5-Door SUV
Test Program: NCAP Side Pole Impact Test

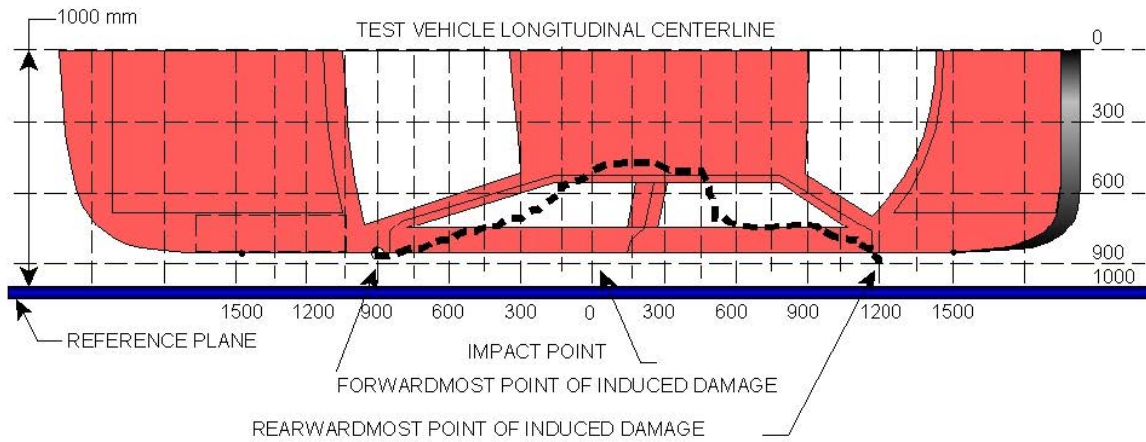
NHTSA No.: O20225104
Test Date: 4/11/2023



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

Test Vehicle: 2022 Lexus NX 250 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20225104
 Test Date: 4/11/2023



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Max. Static Crush (mm)
1	450	3	189	259	70
2	230	3	195	351	156
3	10	3	200	513	313
4	-210	3	205	377	172
5	-430	3	202	291	89
6	-650	3	175	183	8

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

Test Vehicle: 2022 Lexus NX 250 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

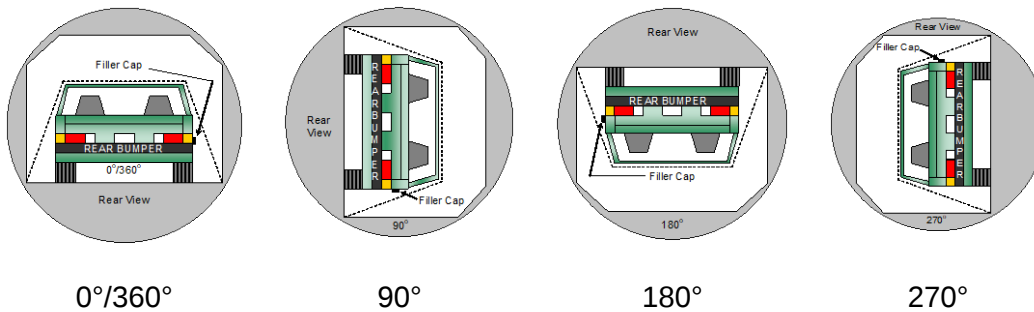
NHTSA No.: O20225104
 Test Date: 4/11/2023

Test Time: 11:29 am

Temperature: 22.0°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°	111	300	411
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	

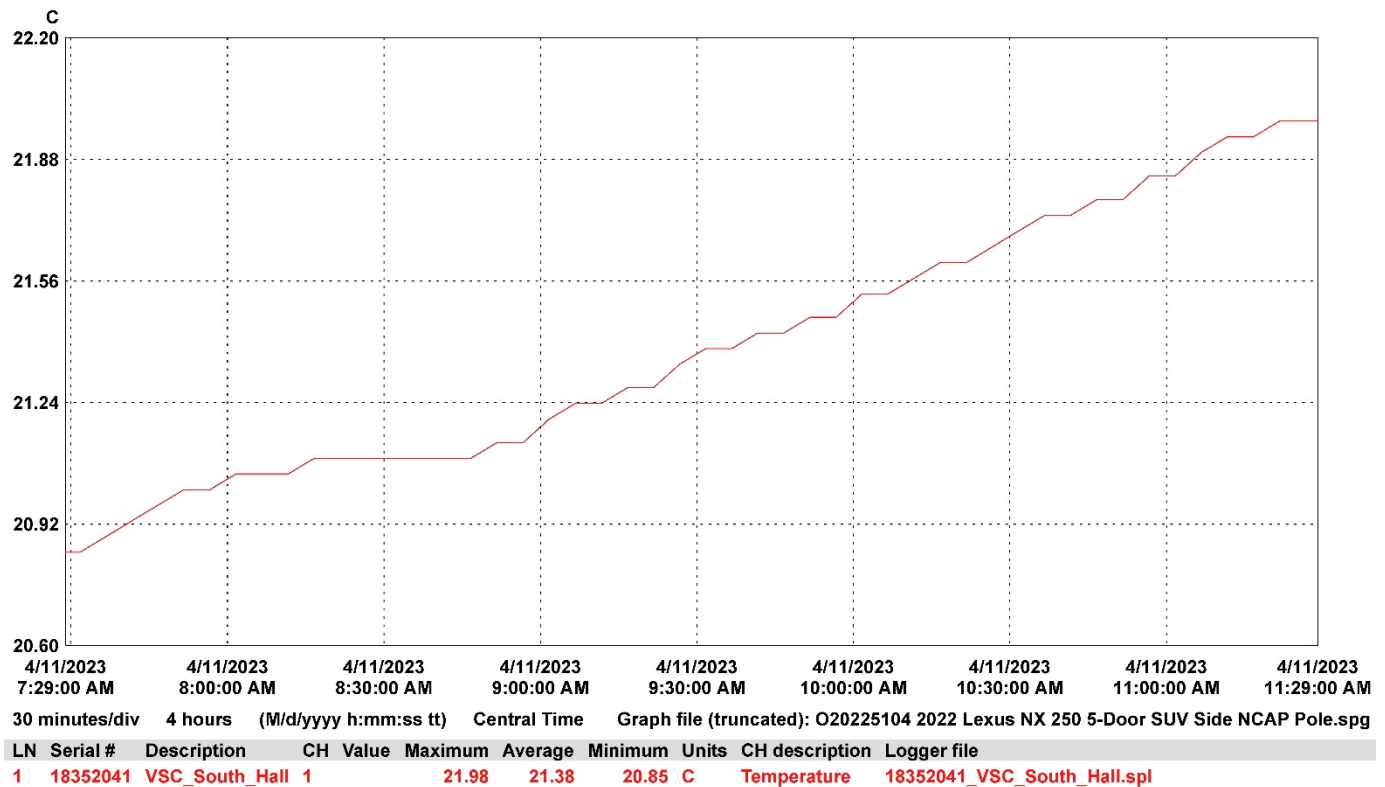
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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: 2022 Lexus NX 250 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20225104
 Test Date: 4/11/2023



**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

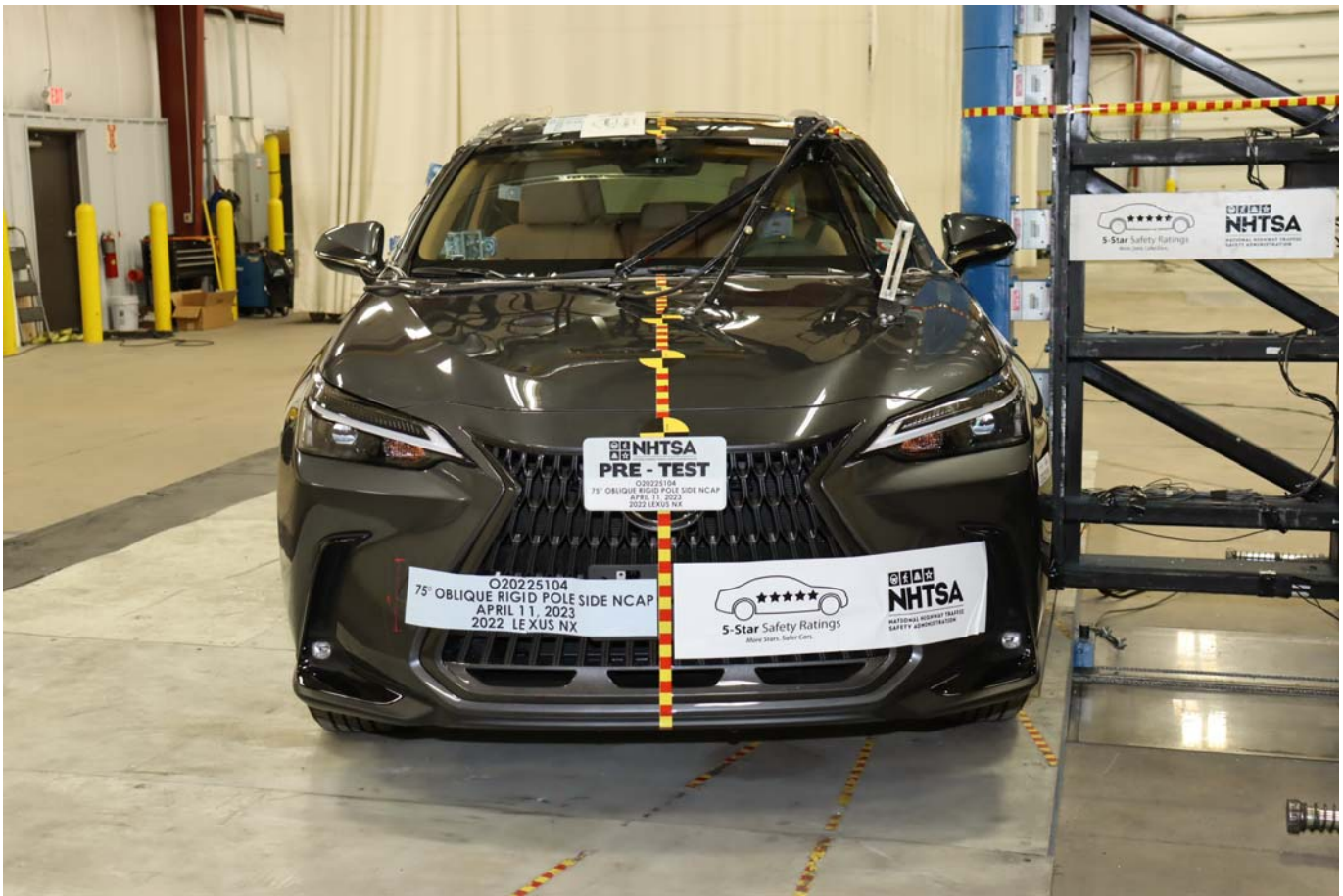


Photo No. 003 - Pre-Test Frontal View of Test Vehicle

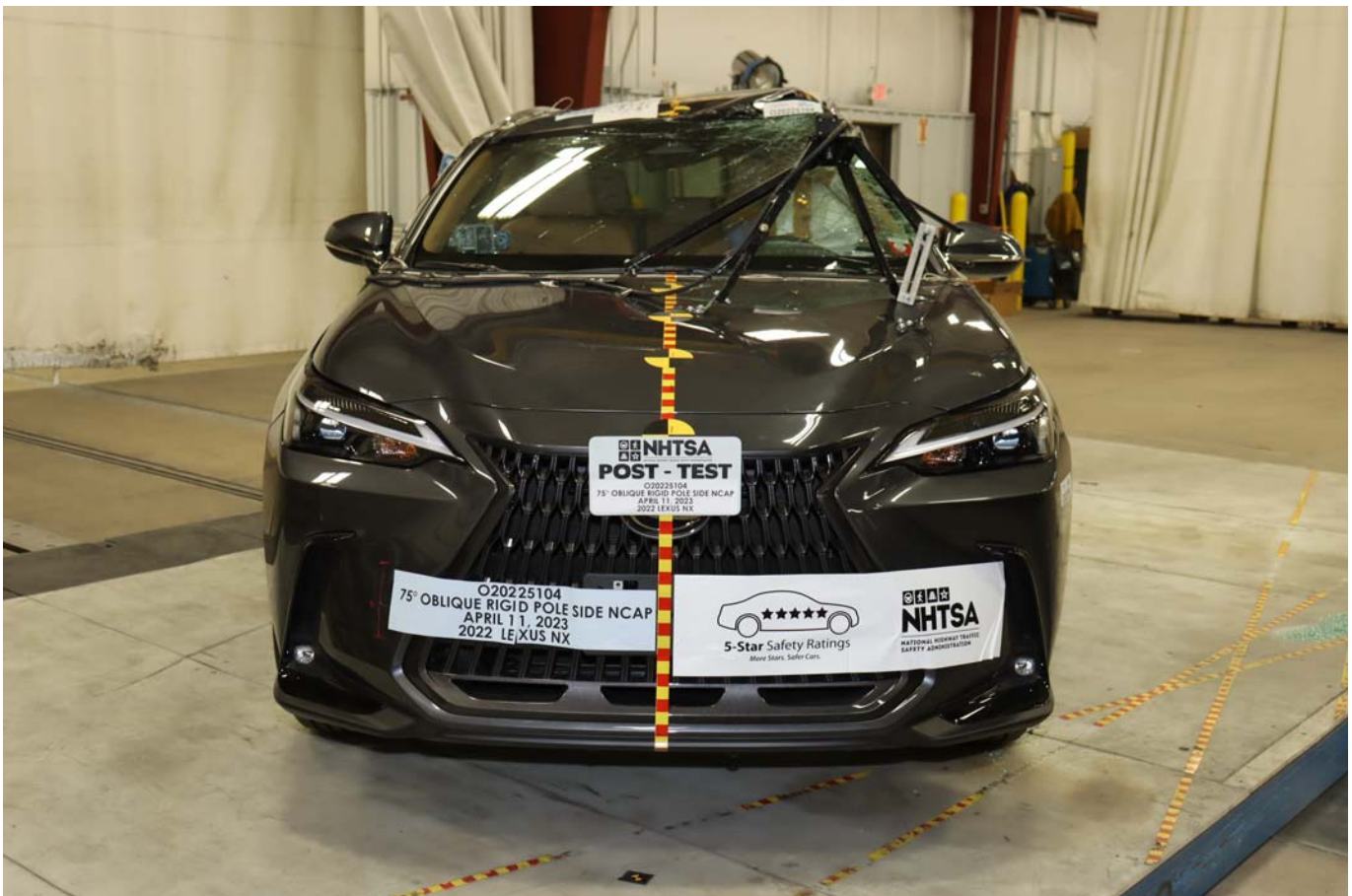


Photo No. 004 - Post-Test Frontal View of Test Vehicle

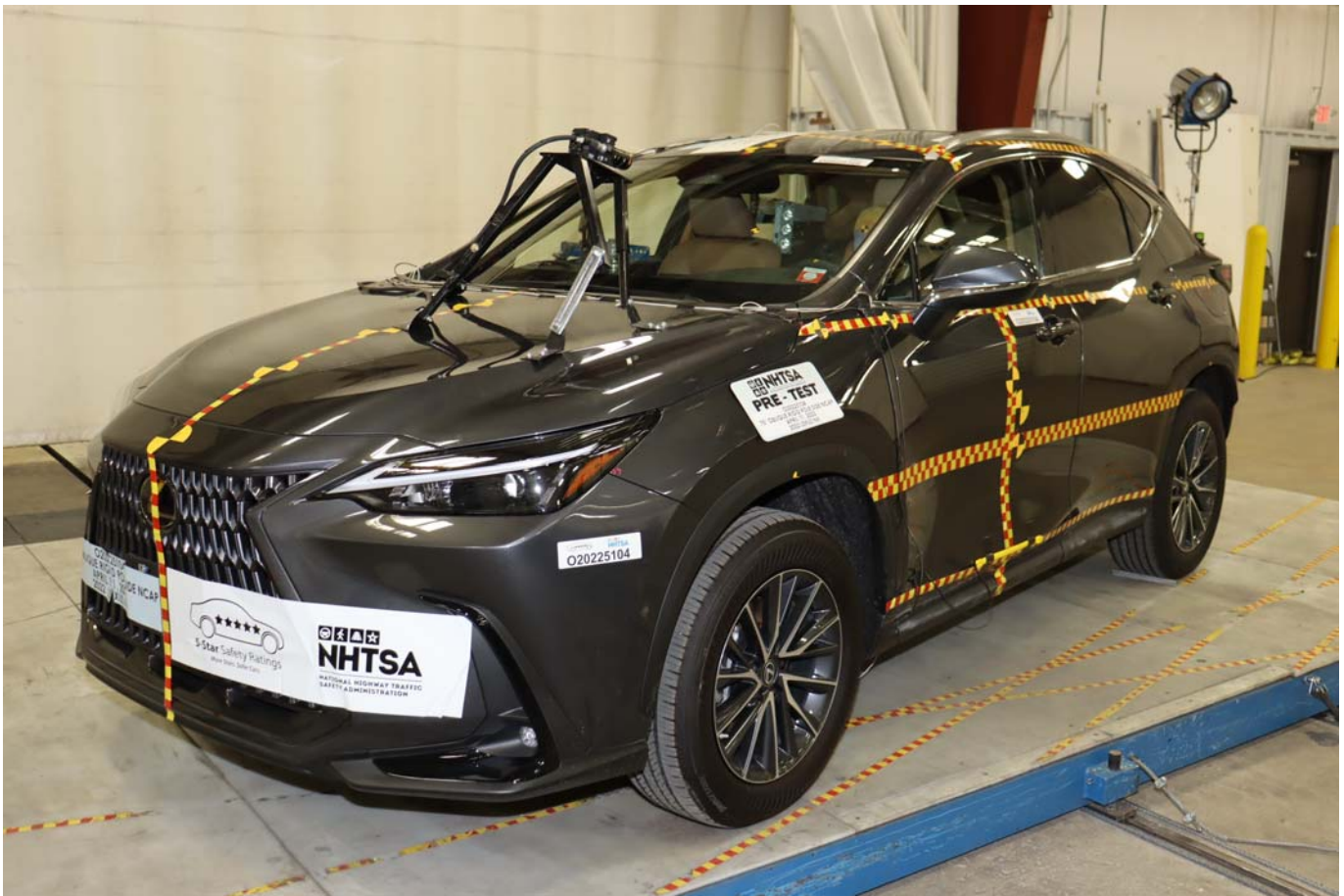


Photo No. 005 - Pre-Test Left Front Three-Quarter View of Test Vehicle



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

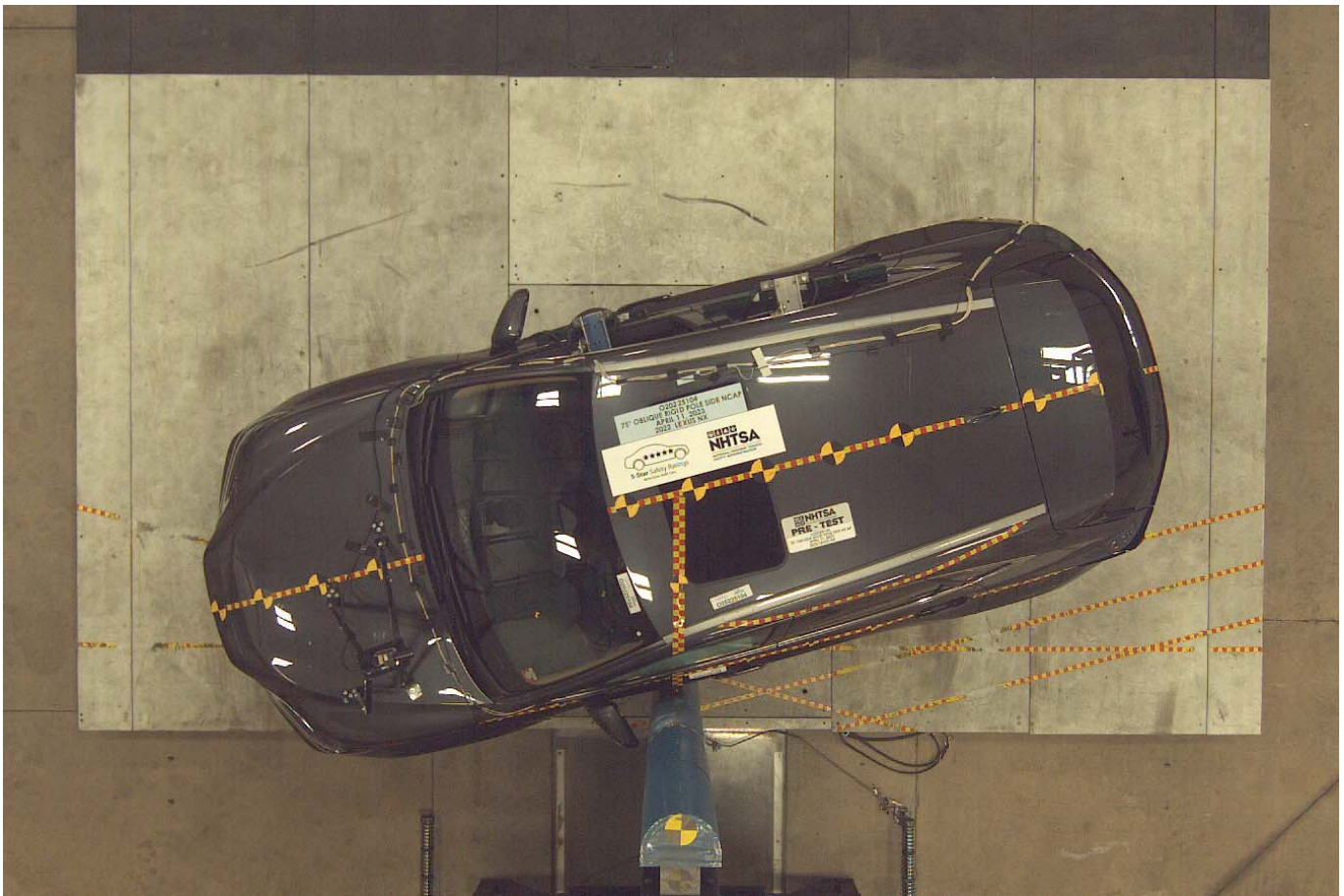


Photo No. 015 - Pre-Test Overhead View of Test Area

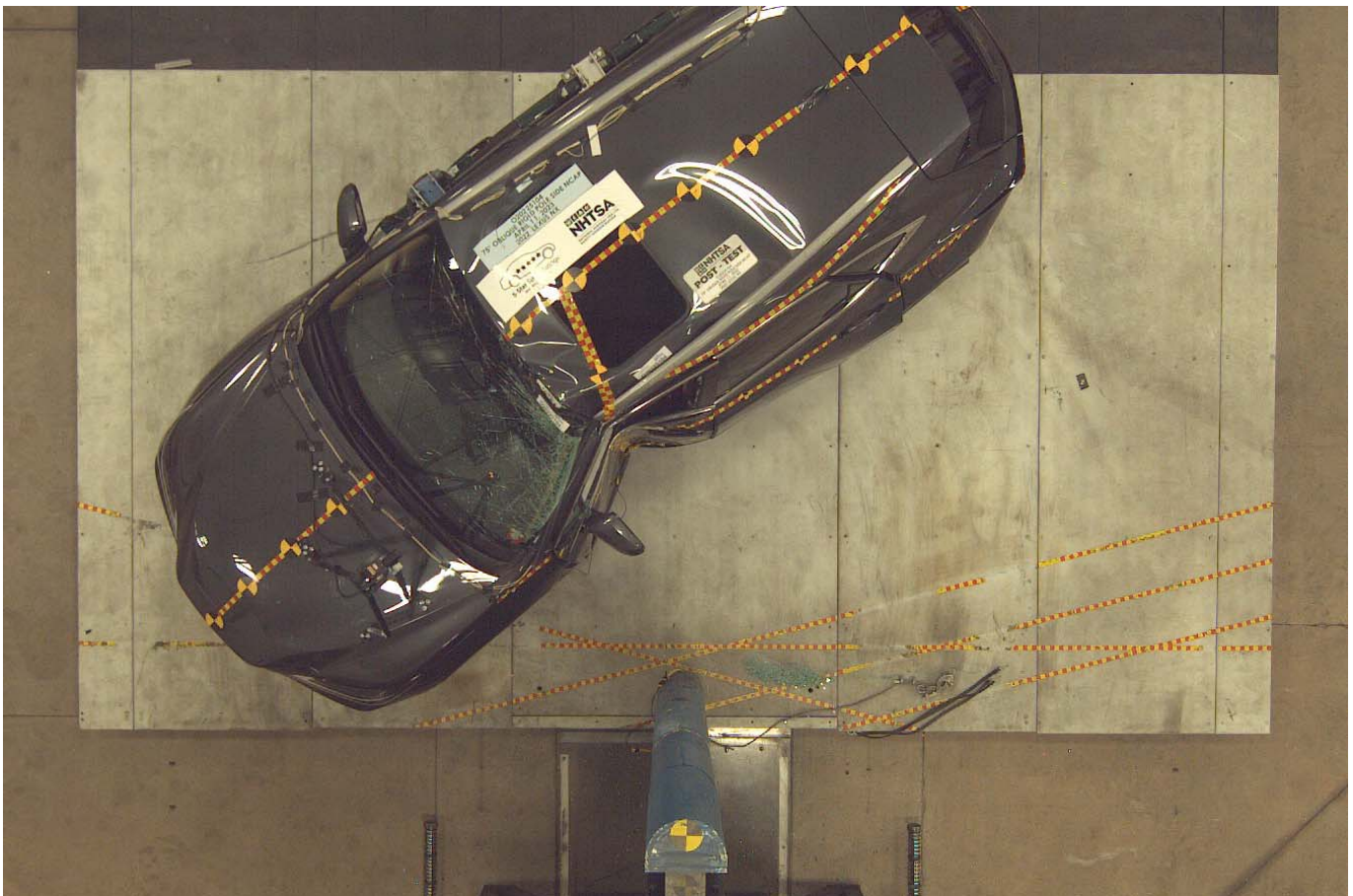


Photo No. 016 - Post-Test Overhead View of Test Area

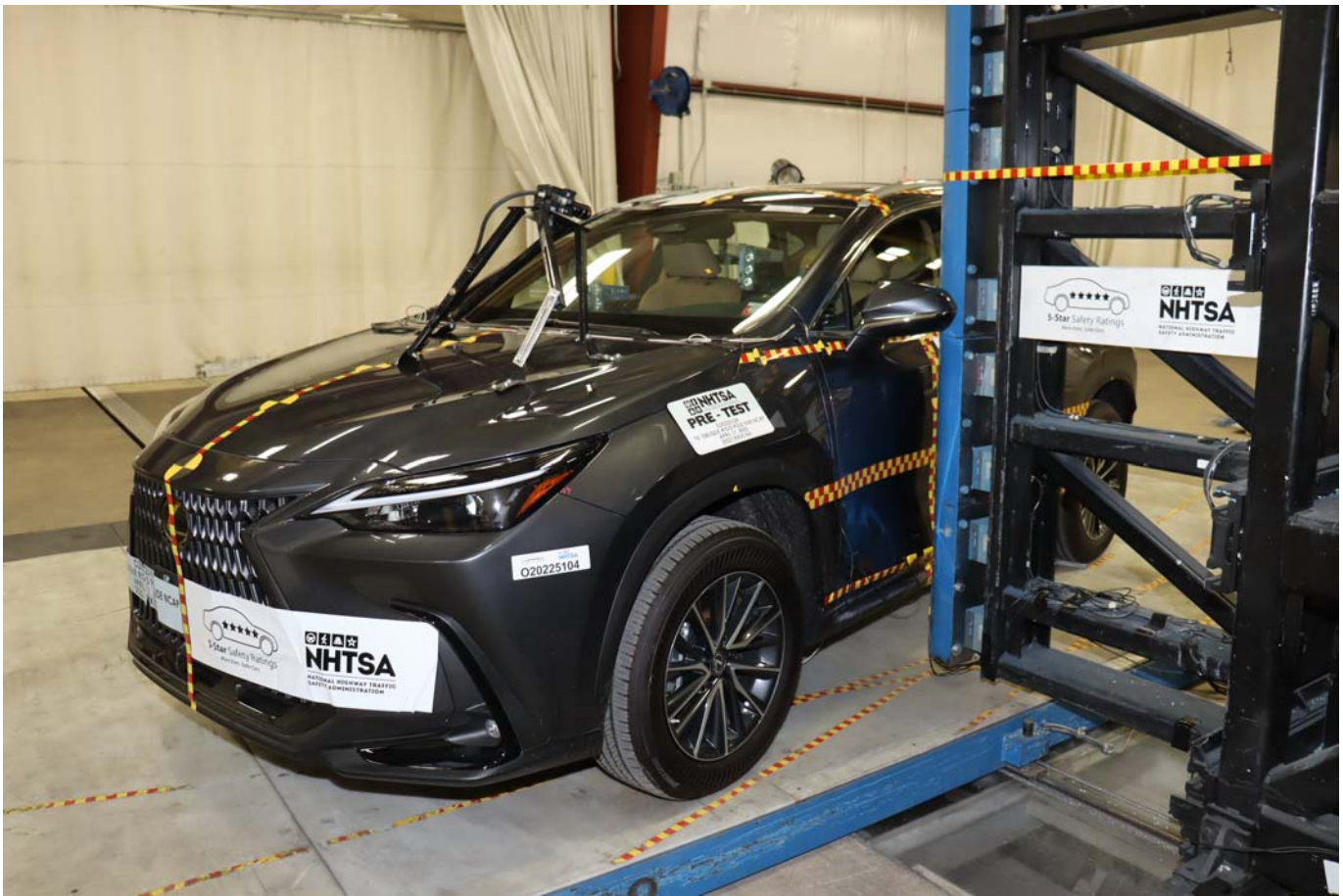


Photo No. 017 - Pre-Test Left Side View of Pole Positioned Against Side of Vehicle



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

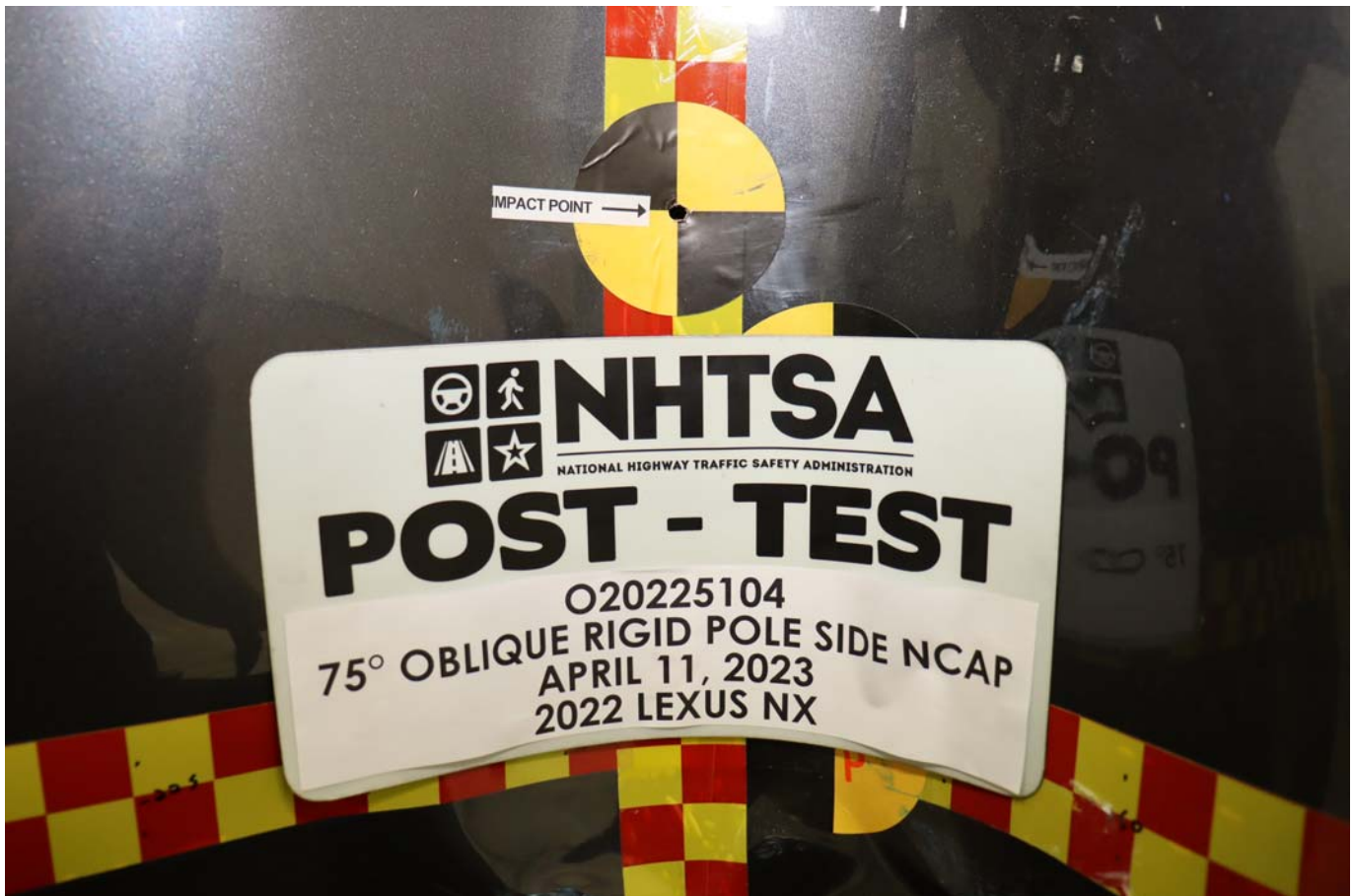


Photo No. 020 - Post-Test Close-Up View of Impact Point Target Showing Impact Location



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

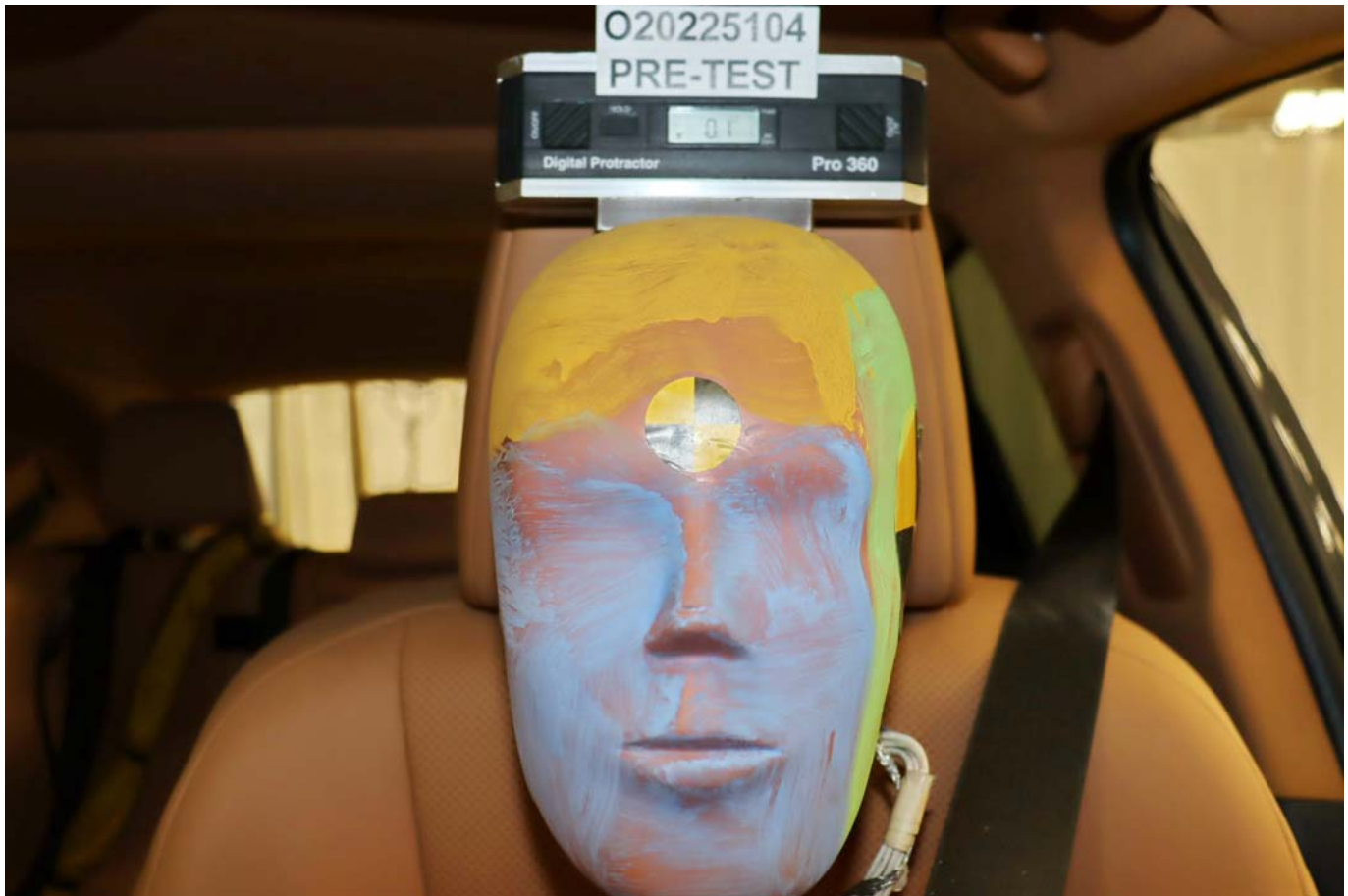


Photo No. 027 - Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint



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'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



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 APPLICABLE

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



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



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

PHOTOGRAPH NOT APPLICABLE

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



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

PHOTOGRAPH NOT APPLICABLE

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. 058a - Close-Up View of Vehicle Load Carrying Capacity Reduction 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

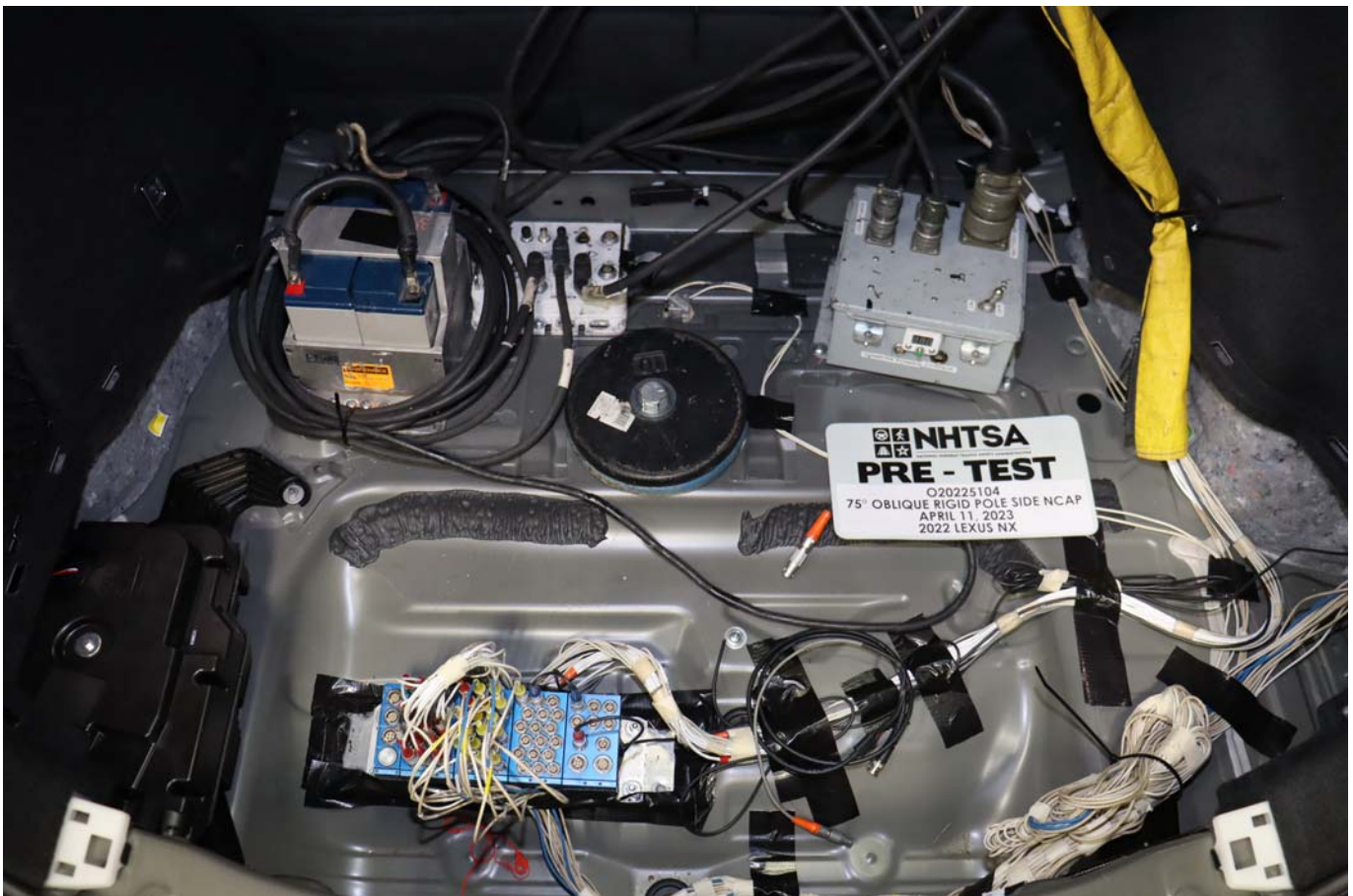


Photo No. 063 - Pre-Test Ballast View



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

LEXUS
EXPERIENCE AMAZING

DESCRIPTION **2022 / 9820C NX 250 5-DR SUV**
 COLOR **CLOUDBURST GRAY**
 VIN **2T2ADCAZ8NC002580**
 FINAL ASSEMBLY POINT **CAMBRIDGE, ONTARIO, CANADA**

Delivered by Truck to
LEXUS OF FREEPORT
70 W. SUNRISE HWY
FREEPORT NY11520

STANDARD EQUIPMENT UNLESS REPLACED BY INSTALLED OPTIONS

STANDARD FEATURES

- Powertrain**
 - 2.5-Liter Engine w/203 HP
 - 8-Speed Automatic Transmission
 - Front Wheel Drive
- Exterior**
 - 18" Alloy Wheels
 - Bi-LED Headlamps / Daytime Running Lights
 - LED Taillamp
 - Roof Rails
- Safety**
 - Lexus Safety System+ 3.0: Lane Tracing Assist, Road Sign Assist, Pre-Collision System w/ Pedestrian Detection, Dynamic Radar Cruise Control w/ Curve Speed Management, Lane Departure Alert w/ Steering Assist, Intelligent High Beam Headlamps, Blind Spot Monitor w/ Rear Cross Traffic Alert
 - 8 Airbags / Brake Assist w/ Smart Stop Technology
 - SmartAccess Entry System w/ Push-button Start/Stop
 - Backup Camera w/ Dynamic Guidelines
 - Digital Latch with Safe Exit Assist
- Multimedia**
 - Lexus Interface with 9.8-inch touchscreen display
 - Wireless Apple CarPlay / Wireless Android Auto
 - Capability
 - 10-speaker Premium Sound System w/4 USB
 - SiriusXM 3-Month Platinum Trial
 - Safety Connect, Service Connect, Remote

Interior

- Connect, Wi-Fi Connect (AT&T Hotspot, Integrated Streaming) Trials, Drive Connect Capability, 4G network dependent. See Lexus.com for details.
- Heated NuLuxe (TM)-trimmed Power Adjustable Front Seats
- Manual Folding 60/40 Split Rear Seat
- Leather-trimmed Steering Wheel and Shift Knob
- Dual-zone Automatic Climate Control w/Interior Air Filter
- Tilt-and-Telescopic Steering Column
- 7" Full Color Multi-Information Display
- Auto-Dimming Inner Mirror with HomeLink Garage Door Opener
- Tonneau Cover
- Carpet Floor Mats
- First Aid Kit

INSTALLED OPTIONS

BASE MANUFACTURER'S SUGGESTED RETAIL PRICE

** Auto Rain Sensing Windshield Wipers	125.00
** Cold Area Package- Heated Steering Wheel, Wiper/Window Deicer	250.00
** Power Back Door	400.00
** Premium Paint	500.00
** Power Tilt/Slide Moonroof	1,100.00
** 2000 lb Towing Capability- may require additional accessories	160.00
** All Weather Floor Liners	170.00
** Activity Mount	390.00
** Door Edge Guard	155.00
** Illuminated Door Sills	460.00

\$38,350.00

EPA DOT Fuel Economy and Environment

Fuel Economy

28 MPG combined city/hwy

26 MPG city

33 MPG highway

3.6 gallons per 100 miles

You save \$250 in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost \$1,250

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

1 **6** **10** **1** **6** **10**

This vehicle emits 311 grams CO₂ per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also create emissions. Learn more at fueleconomy.gov.

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 27 MPG and costs \$6,500 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$2.36 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fueleconomy.gov
Calculate personalized estimates and compare vehicles

MANUFACTURER'S SUGGESTED RETAIL PRICE* **\$42,060.00**

DELIVERY, PROCESSING AND HANDLING FEE **1,150.00**

TOTAL **\$43,210.00**

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.

Star ratings range from 1 to 5 stars (★★★★★) with 5 being the highest.
 Source: National Highway Traffic Safety Administration (NHTSA)
www.safercar.gov or 1-888-327-4236

LEXUS IS PLEASED TO OFFER THE FOLLOWING OWNER SUPPORT PACKAGE WITH EACH NEW LEXUS

- * 24 hour, 365-day/yr. roadside assistance plan
- * Complimentary 1st and 2nd scheduled maintenance services
- * Lodging for emergency breakdowns 100 miles from home

An extended service contract may be available for this vehicle. Ask dealer for details.

735 L093

LML1E2N150F0W2

Photo No. 071 - Monroney Label

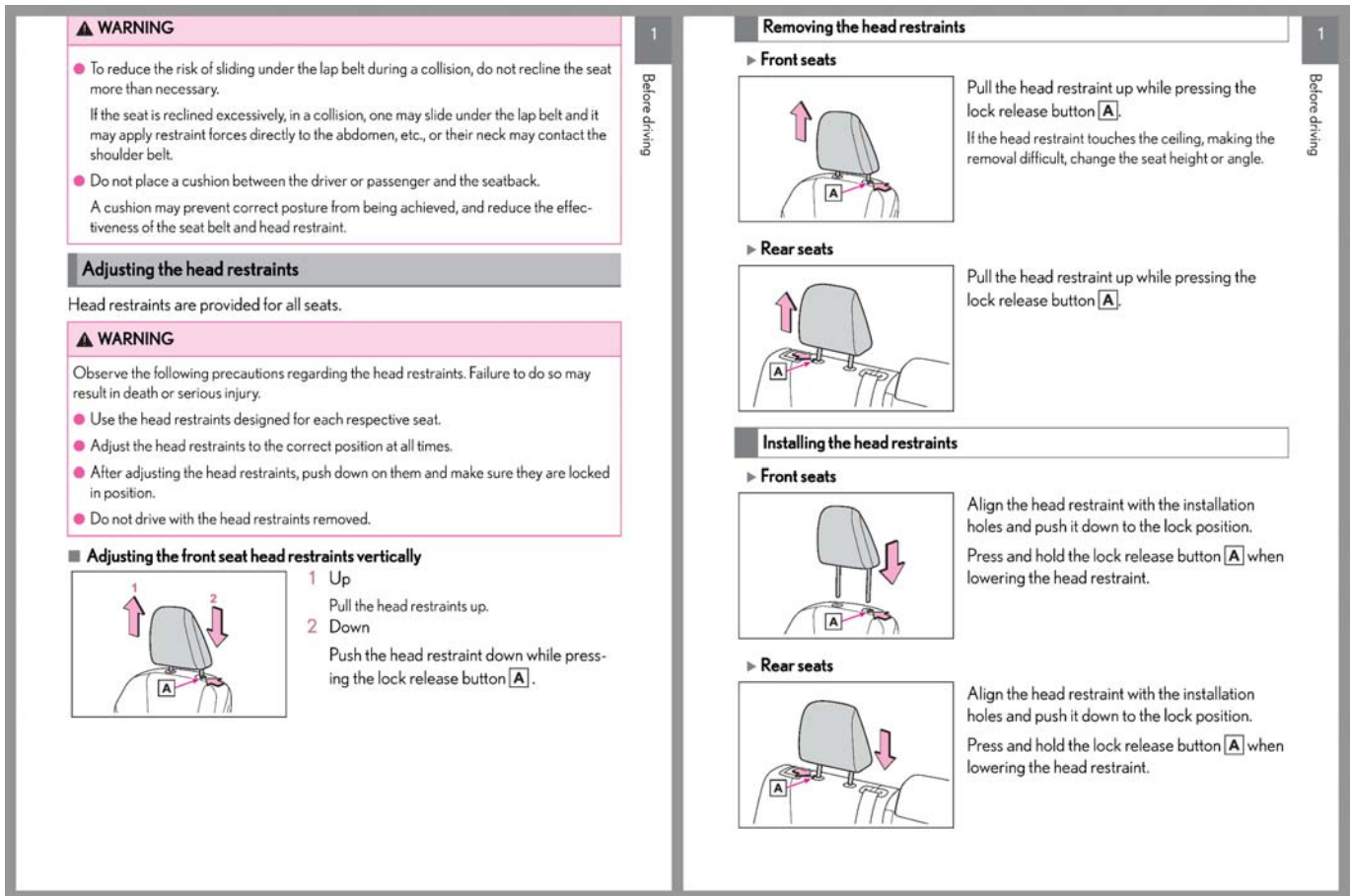


Photo No. 072 - Head Restraint Use and Adjustment Information from Vehicle Owner's Manual



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

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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
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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

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)

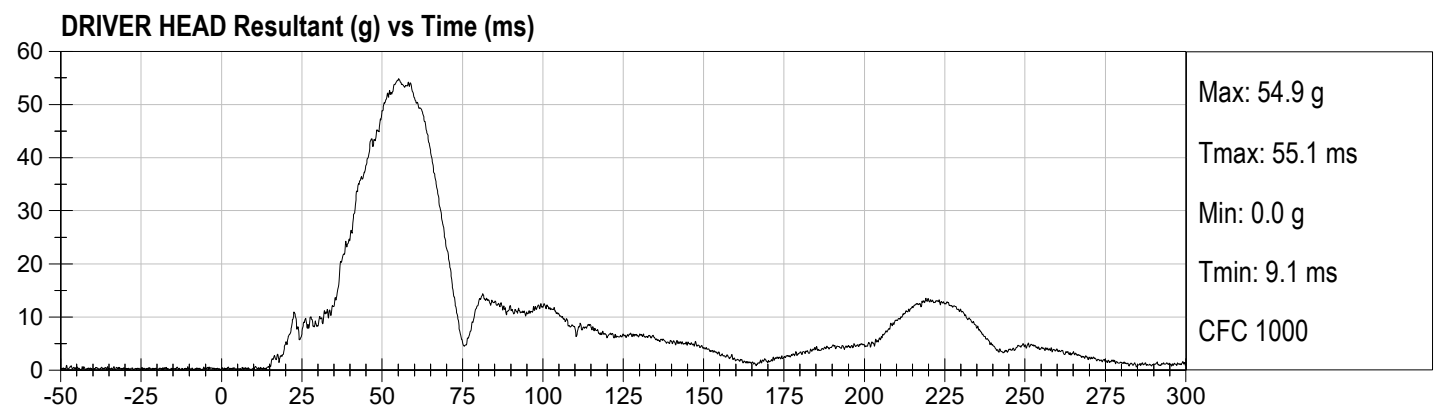
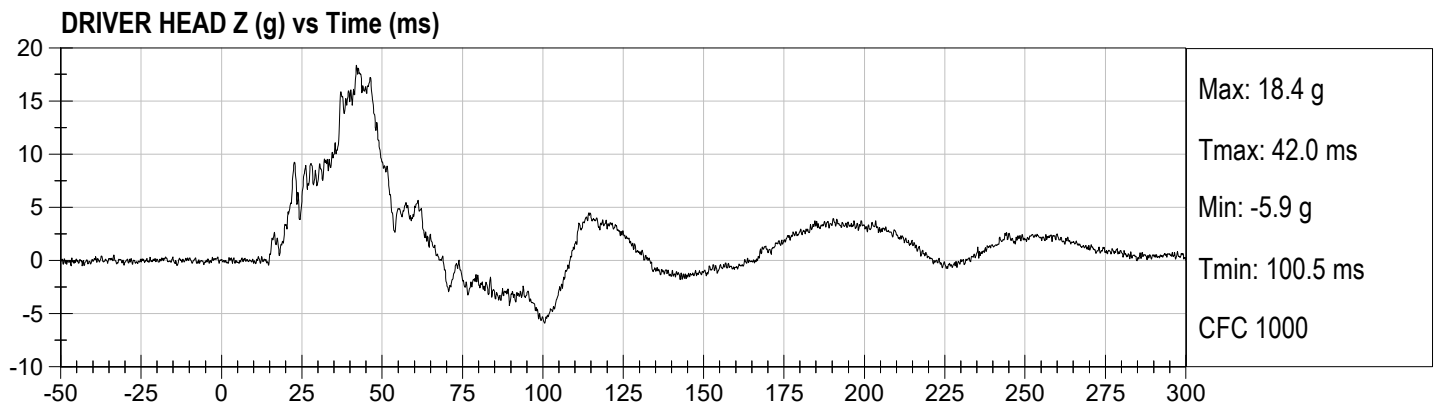
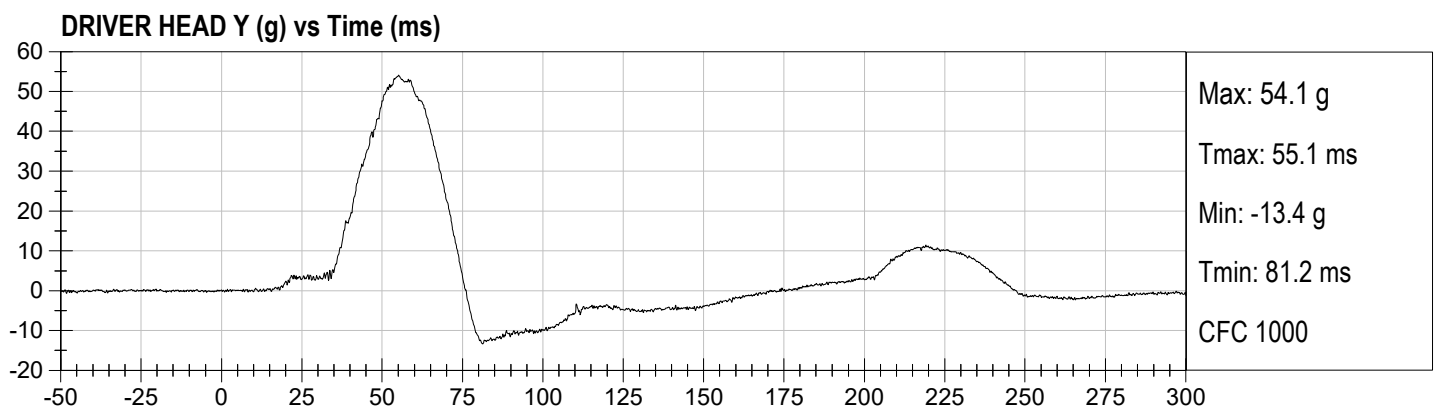
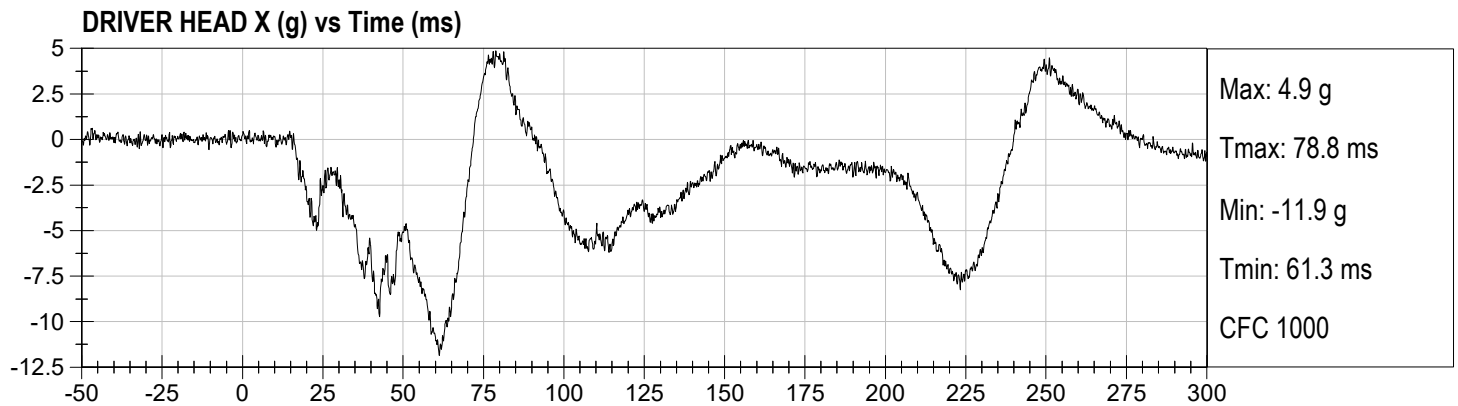
Load Cell Pole Barrier #4 Force (Y)

Load Cell Pole Barrier #5 Force (Y)

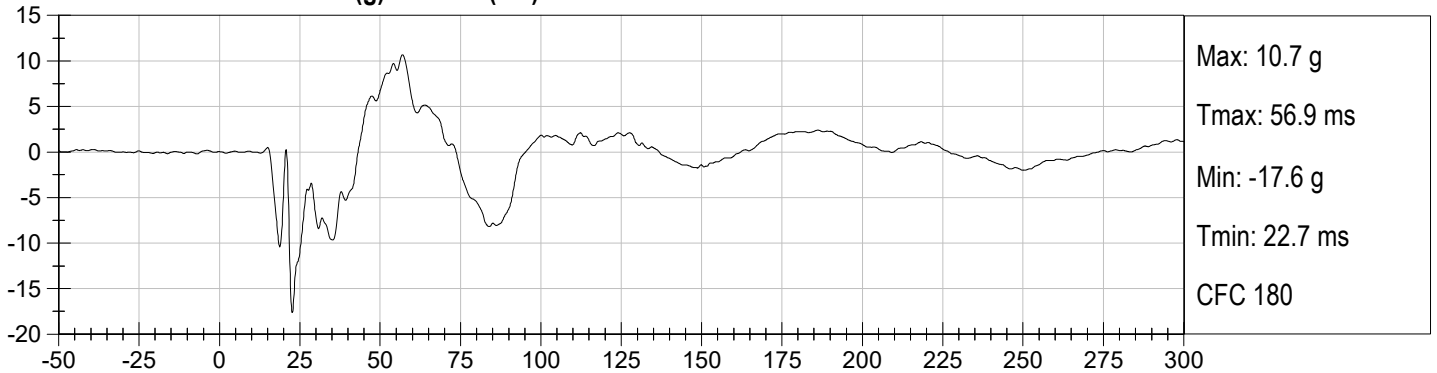
Load Cell Pole Barrier #6 Force (Y)

Load Cell Pole Barrier #7 Force (Y)

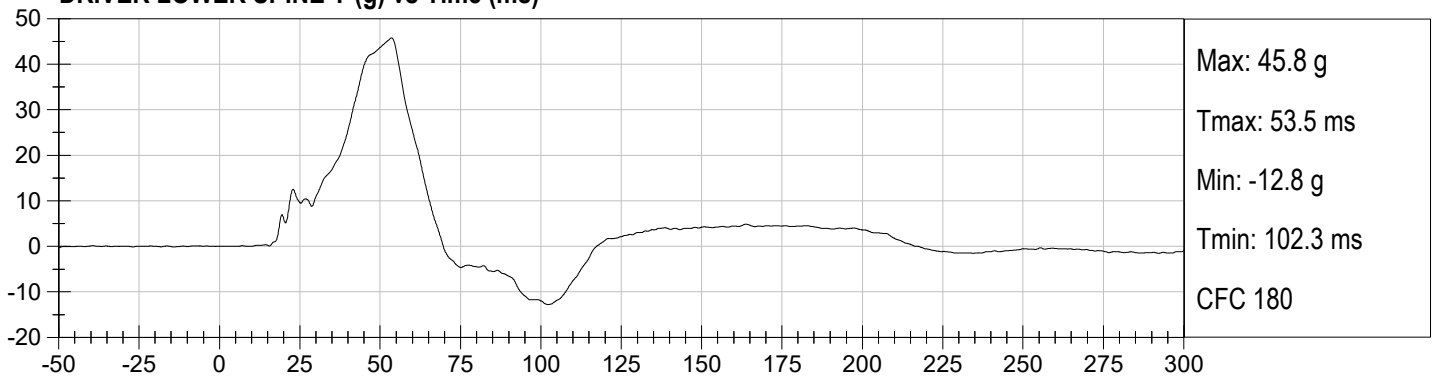
Load Cell Pole Barrier #8 Force (Y)



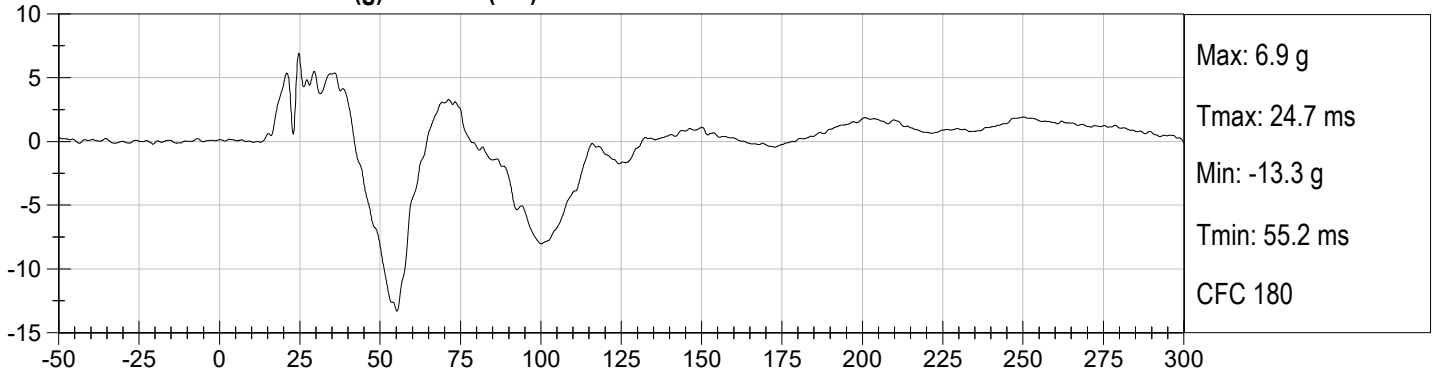
DRIVER LOWER SPINE X (g) vs Time (ms)



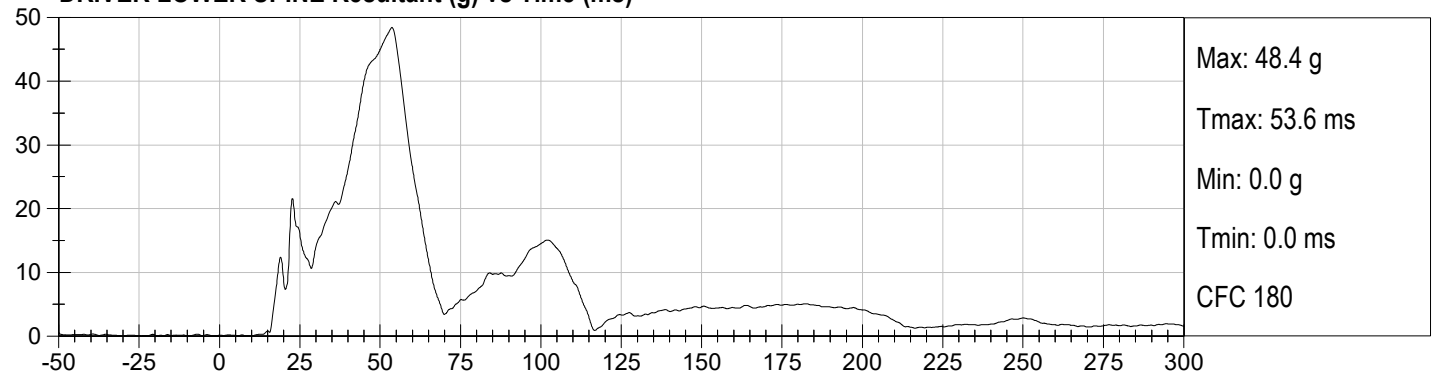
DRIVER LOWER SPINE Y (g) vs Time (ms)



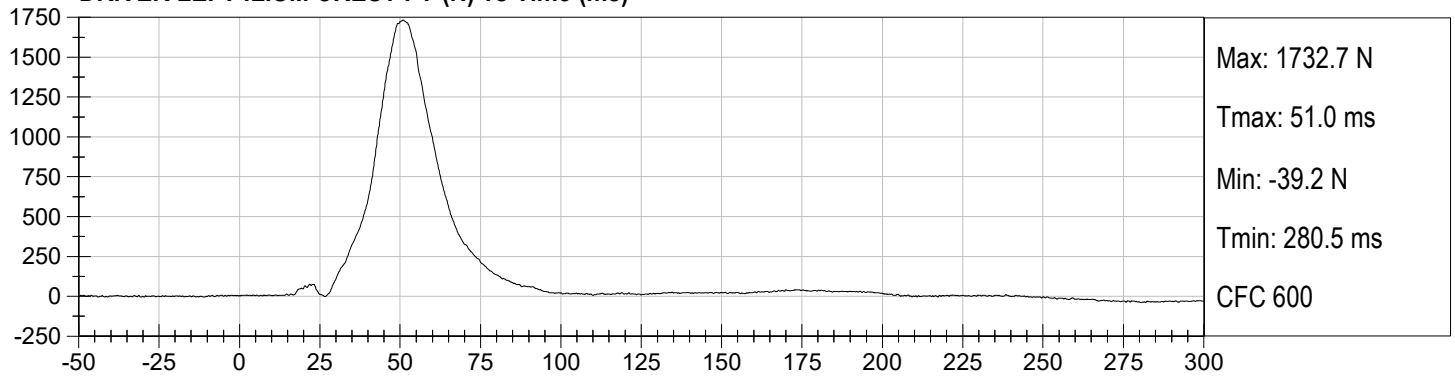
DRIVER LOWER SPINE Z (g) vs Time (ms)



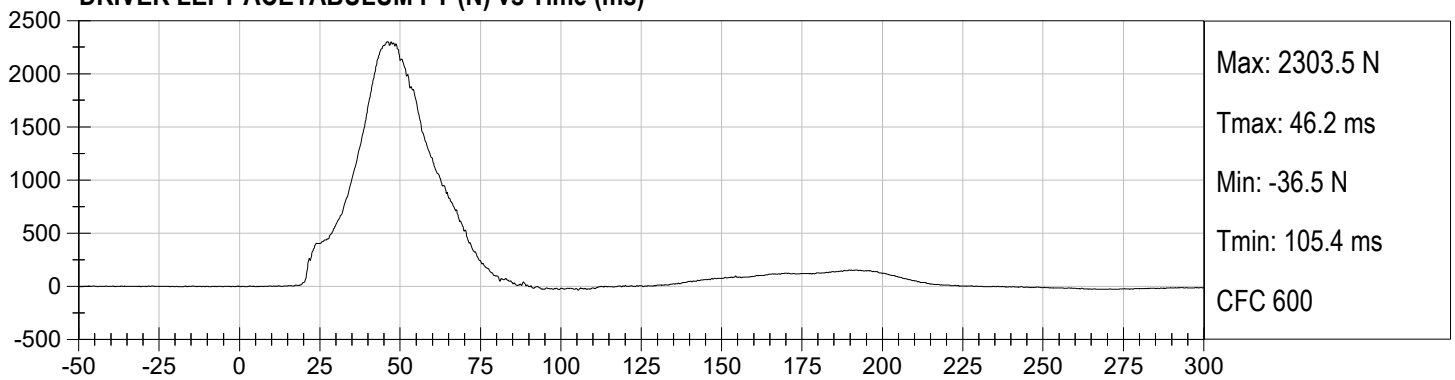
DRIVER LOWER SPINE Resultant (g) vs Time (ms)



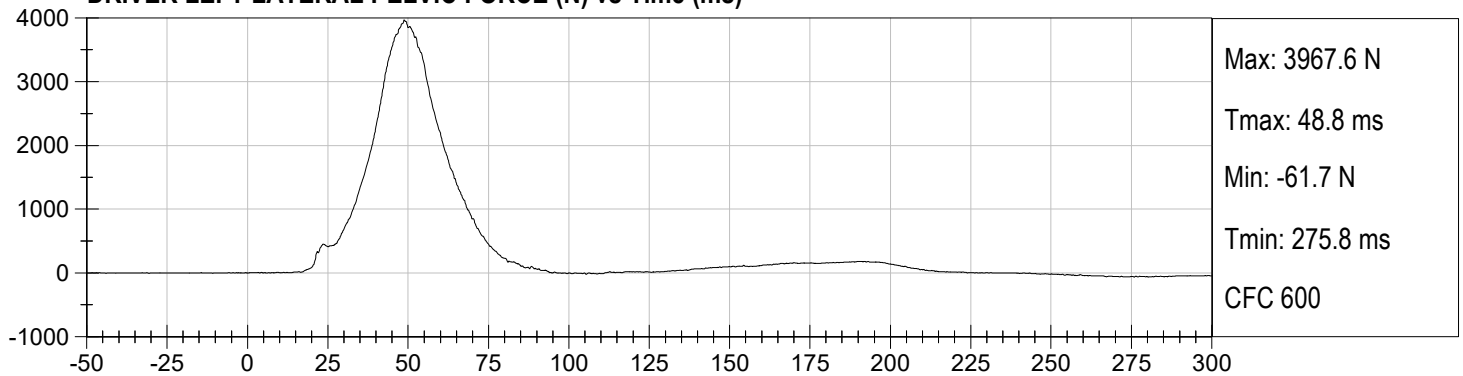
DRIVER LEFT ILIUM CREST FY (N) vs Time (ms)



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 5TH PERCENTILE FEMALE - DRIVER ATD

SID-IIsD External Measurements
SN: 296

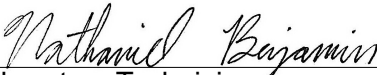
No.	Name	Spec. (mm)	Result	Pass/Fail
A	Sitting Height	772 - 788	784	Pass
B	Shoulder Pivot Height	437 - 453	442	Pass
C	H-point Height	79 - 89	83	Pass
D	H-point from Seatback	141 - 151	145	Pass
E	Shoulder Pivot from Backline	97 - 107	99	Pass
F	Thigh Clearance	119 -135	121	Pass
G	Head Breadth	140 - 148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

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

ATD Serial No: 296

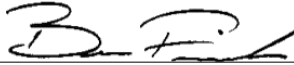
Test ID: D230891

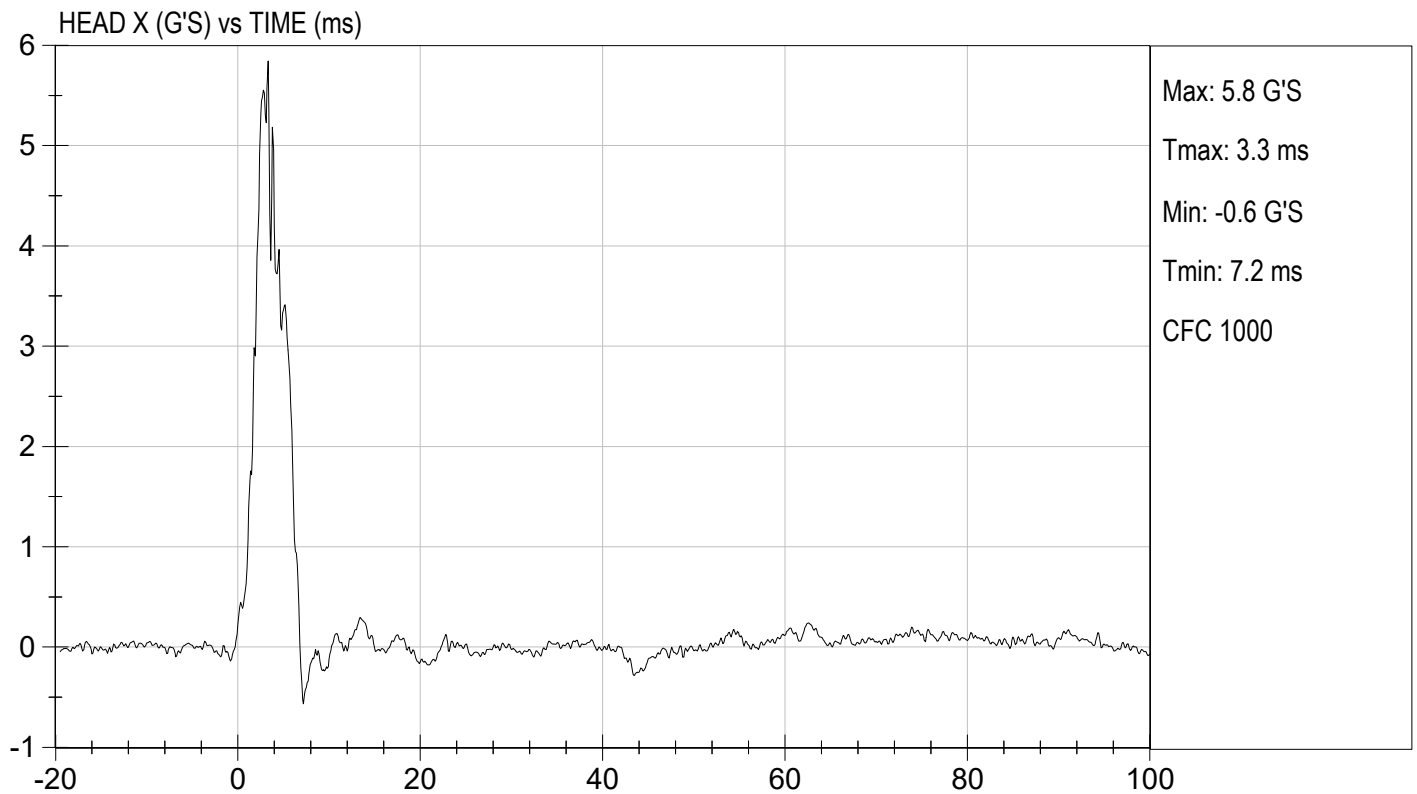
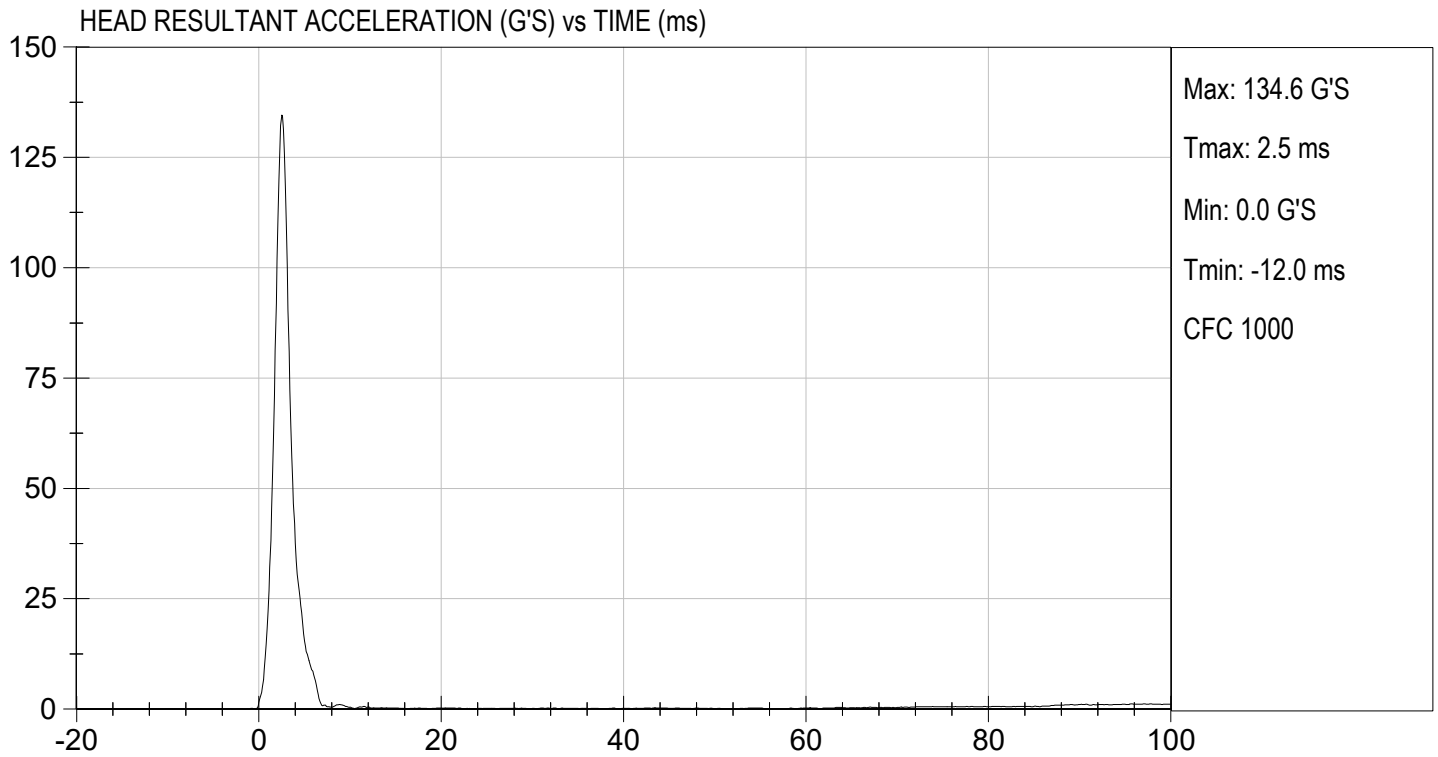
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	31	Pass
Peak Resultant Acceleration	G's	115 to 137	135	Pass
Peak Longitudinal Acceleration	G's	+/- 15	5.8	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
Overall Test Results			Pass	

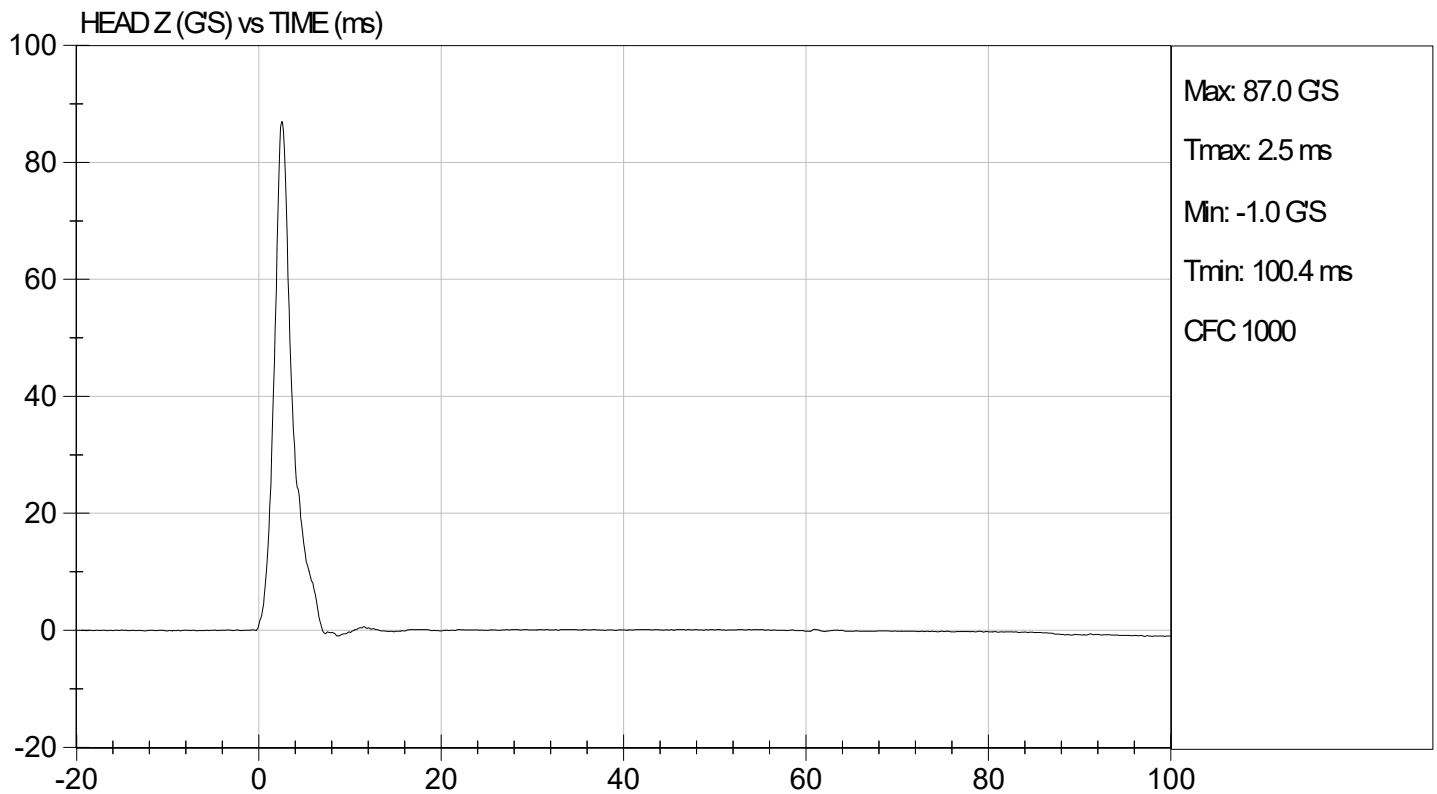
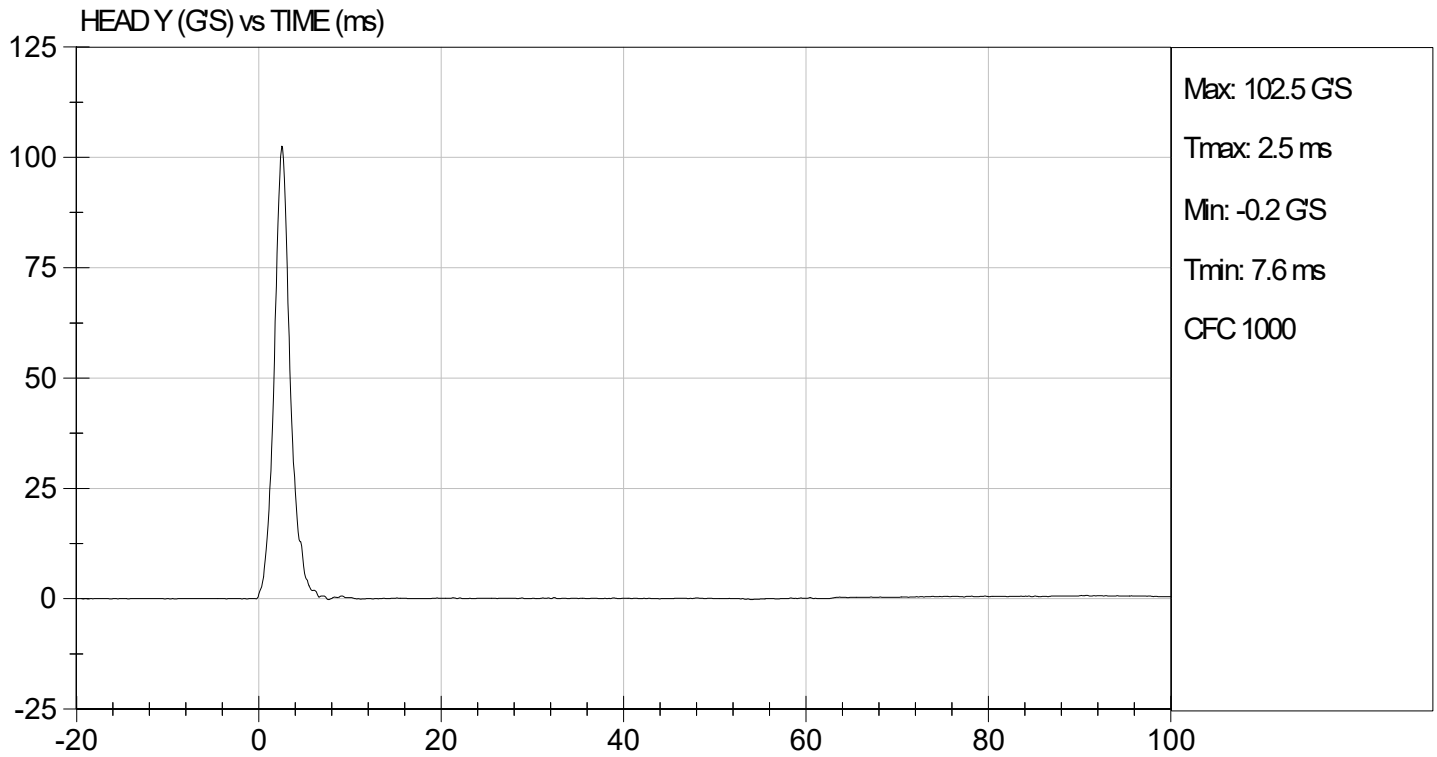

Laboratory Technician

03/31/2023

Test Date


Approved By



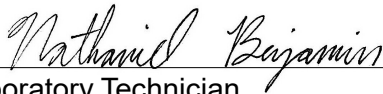


MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

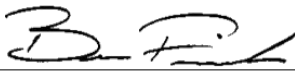
Test I.D: D230892

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.8	Pass
Humidity		%	10 to 70	39	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.26	Pass
	15 ms	m/s	3.30 to 4.10	3.52	Pass
	20 ms	m/s	4.40 to 5.40	4.99	Pass
	25 ms	m/s	5.40 to 6.10	5.69	Pass
	25-100 ms	m/s	5.50 to 6.20	5.71	Pass
Maximum D-Plane Rotation		deg	71 to 81	73	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	62	Pass
Maximum Occipital Condyle Moment		Nm	-44 to -36	-37	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	120	Pass
Overall Test Results				Pass	


 Laboratory Technician

03/31/2023

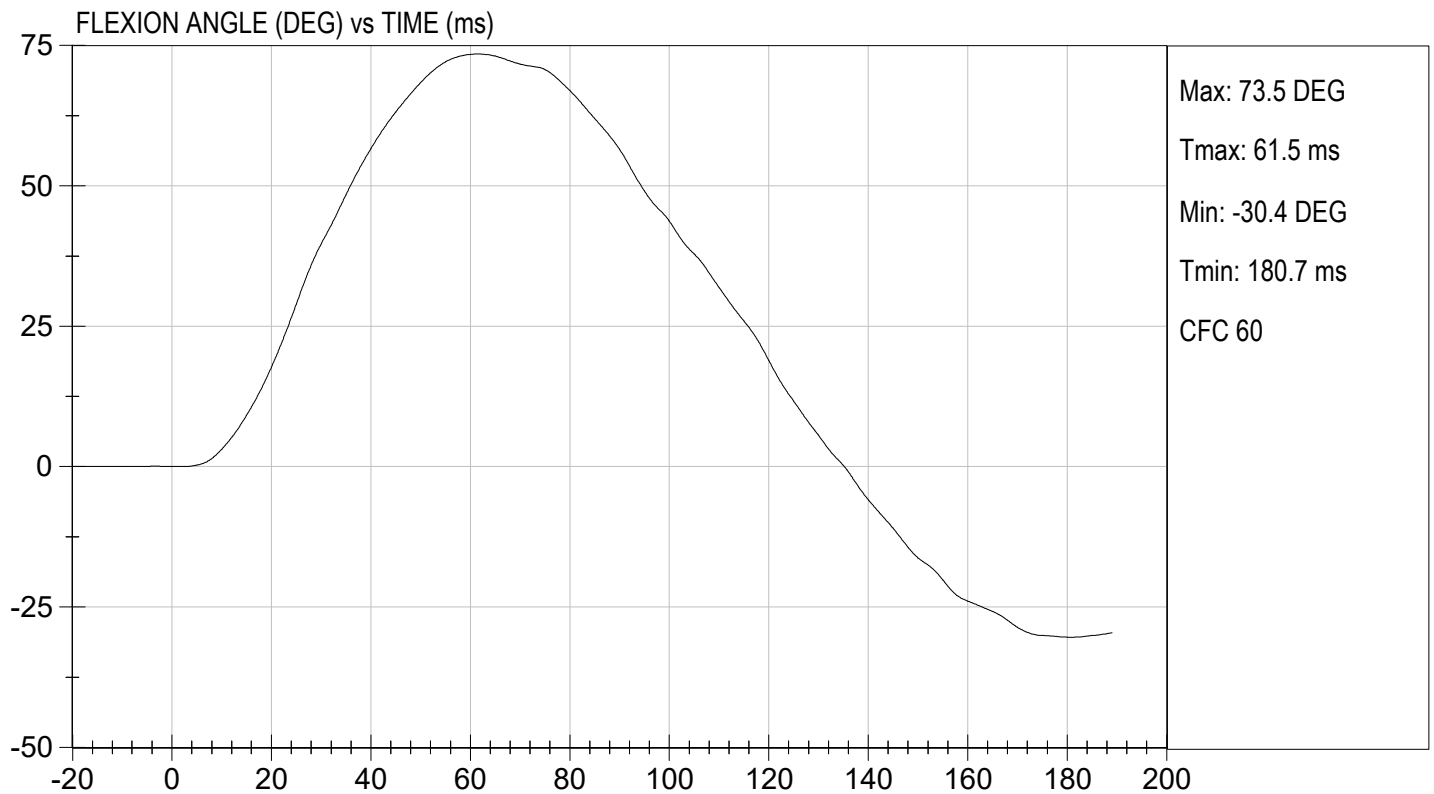
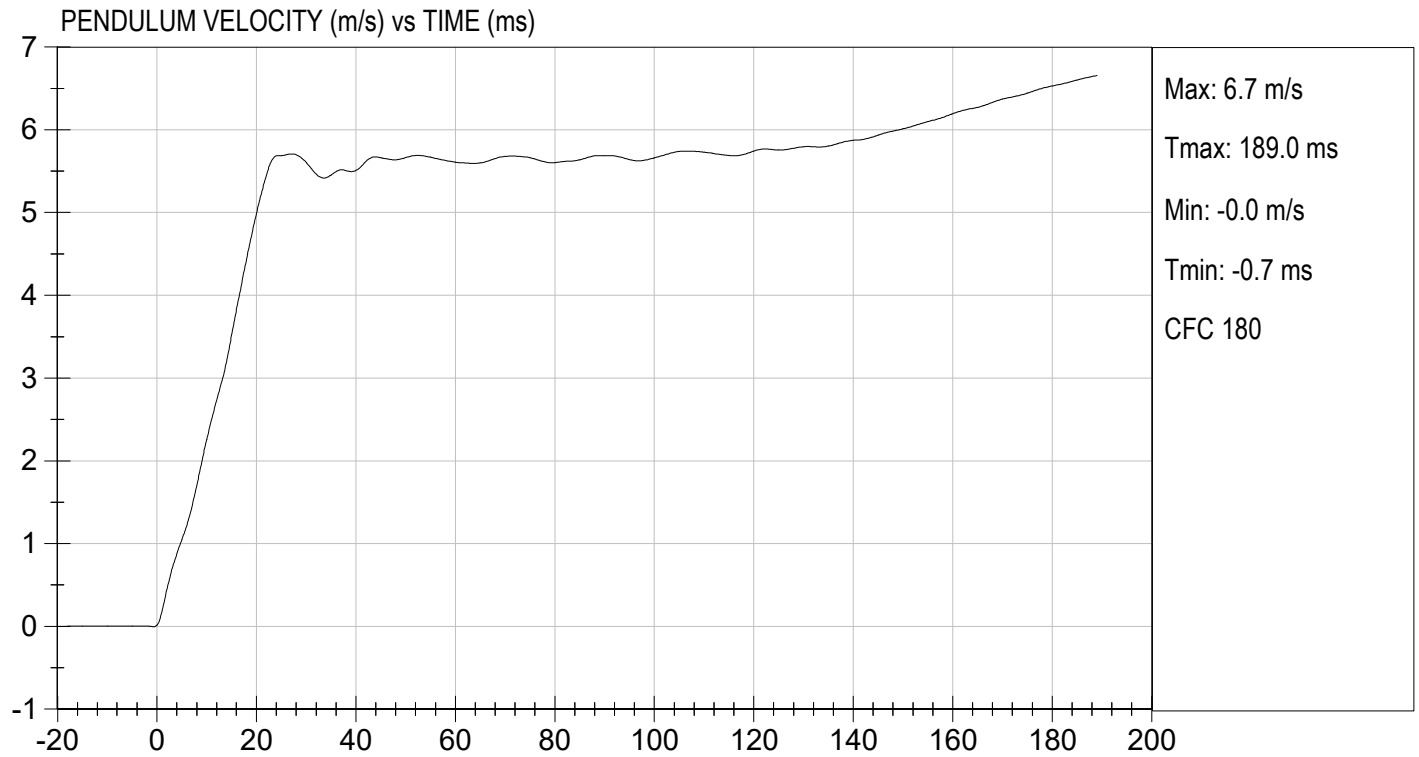
Test Date


 Approved By



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

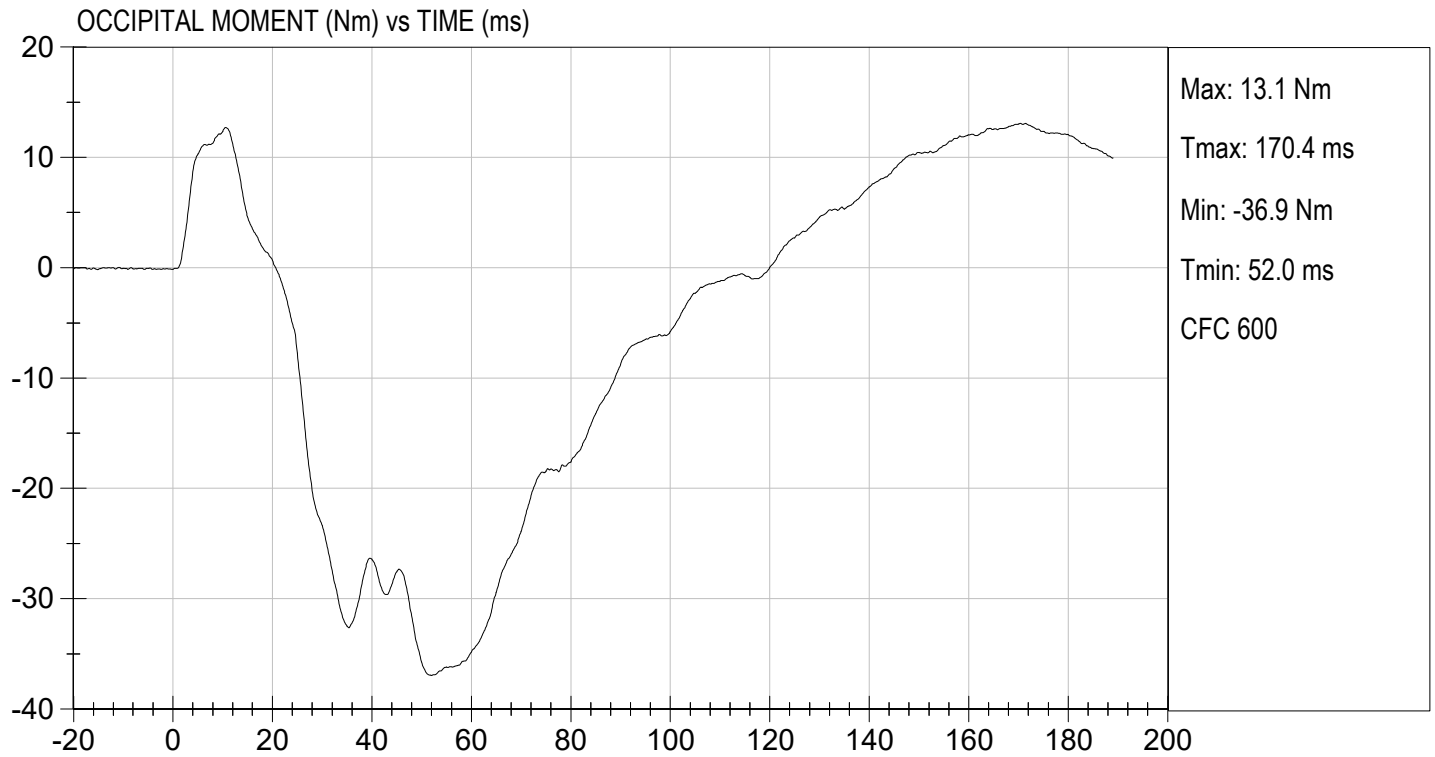
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TEST #: D230892





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

TEST DATE: 03/31/2023
TEST #: D230892



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

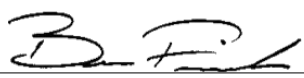
ATD Serial No: 296

Test ID: D230893

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	29	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	13 to 18	16	Pass
Shoulder Displacement	mm	28 to 37	30	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	20	Pass
Overall Test Results				Pass


Laboratory Technician

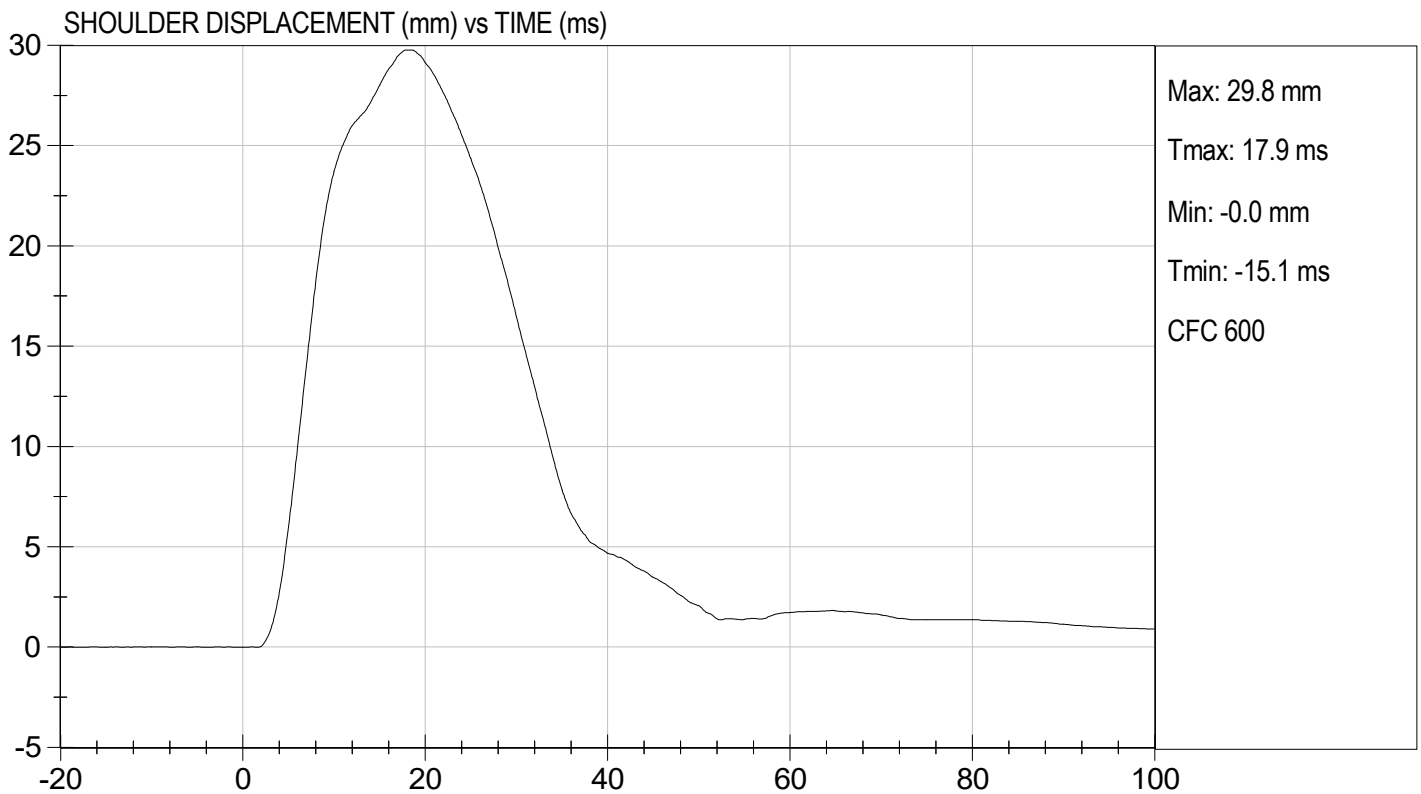
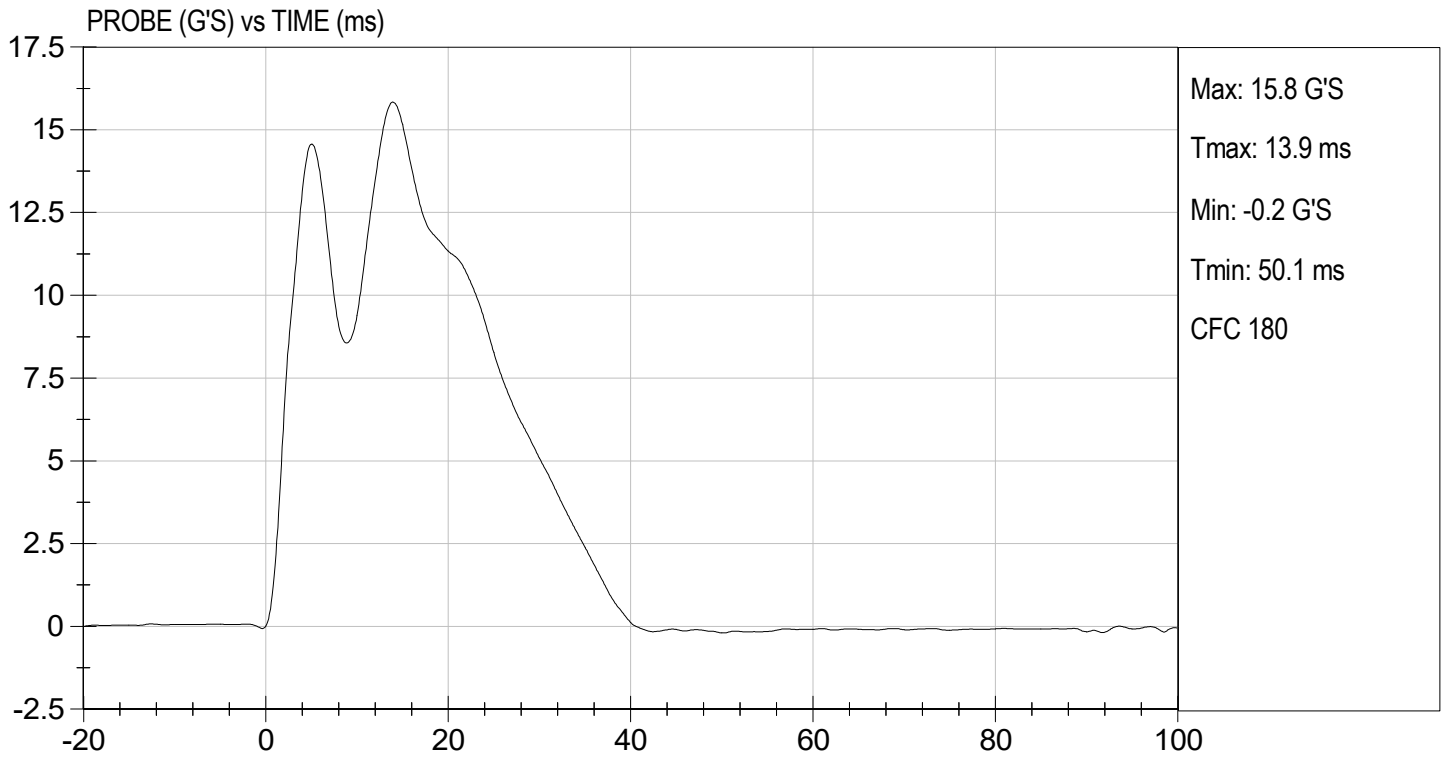
04/03/2023
Test Date


Approved By



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

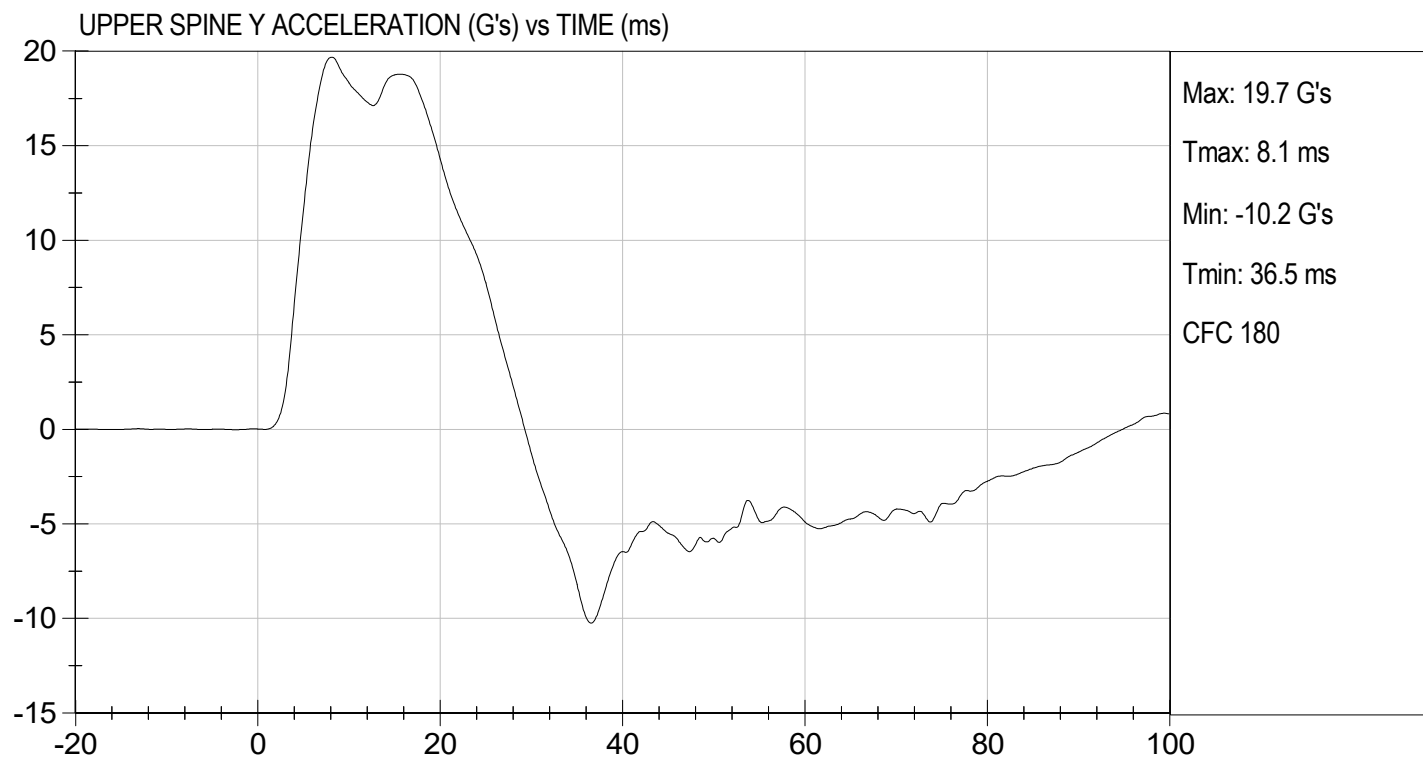
TEST DATE: 04/03/2023
TEST #: D230893





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

TEST DATE: 04/03/2023
TEST #: D230893



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

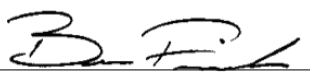
ATD Serial No: 296

Test I.D: D230894

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	29	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	30 to 36	34	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	35	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	39	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	34	Pass
Overall Test Results				Pass


Laboratory Technician

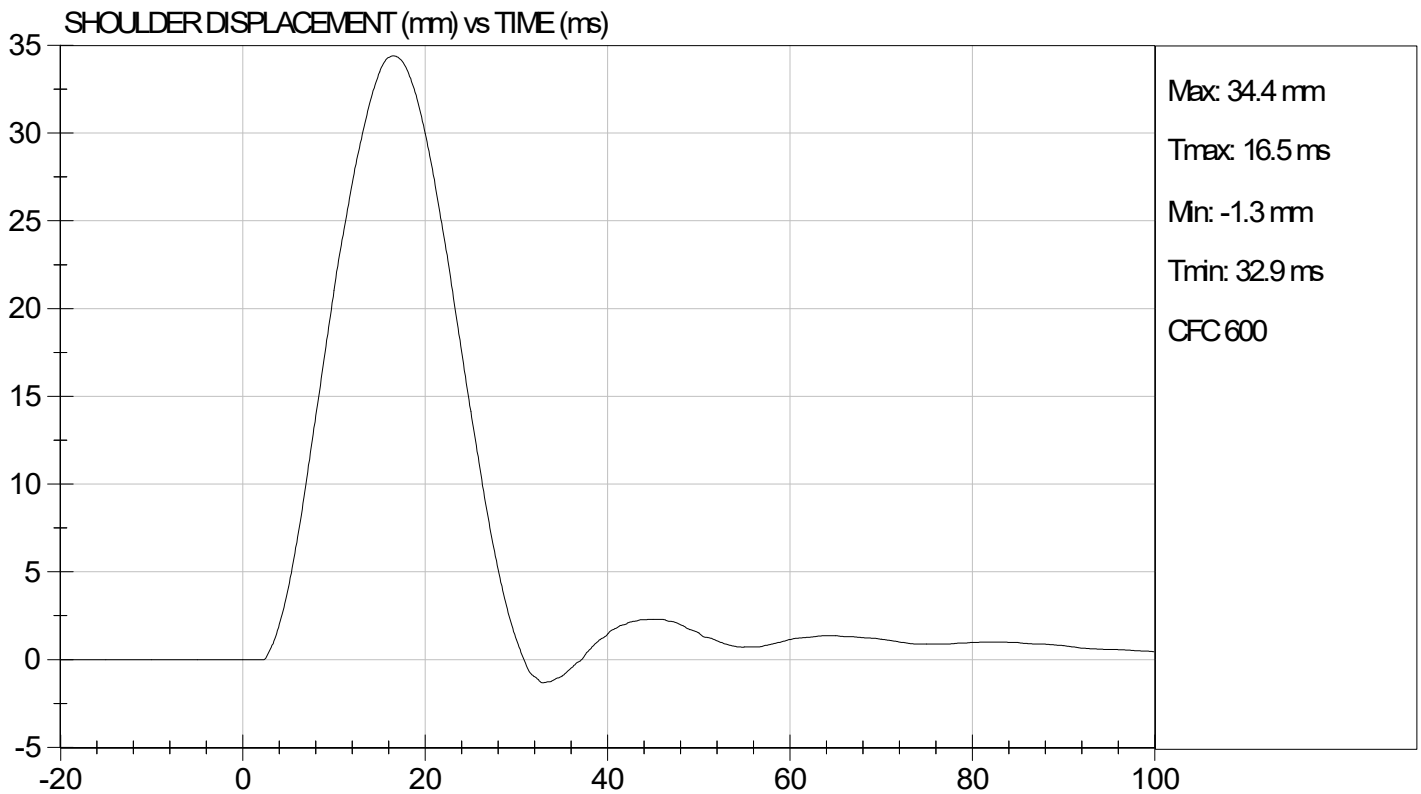
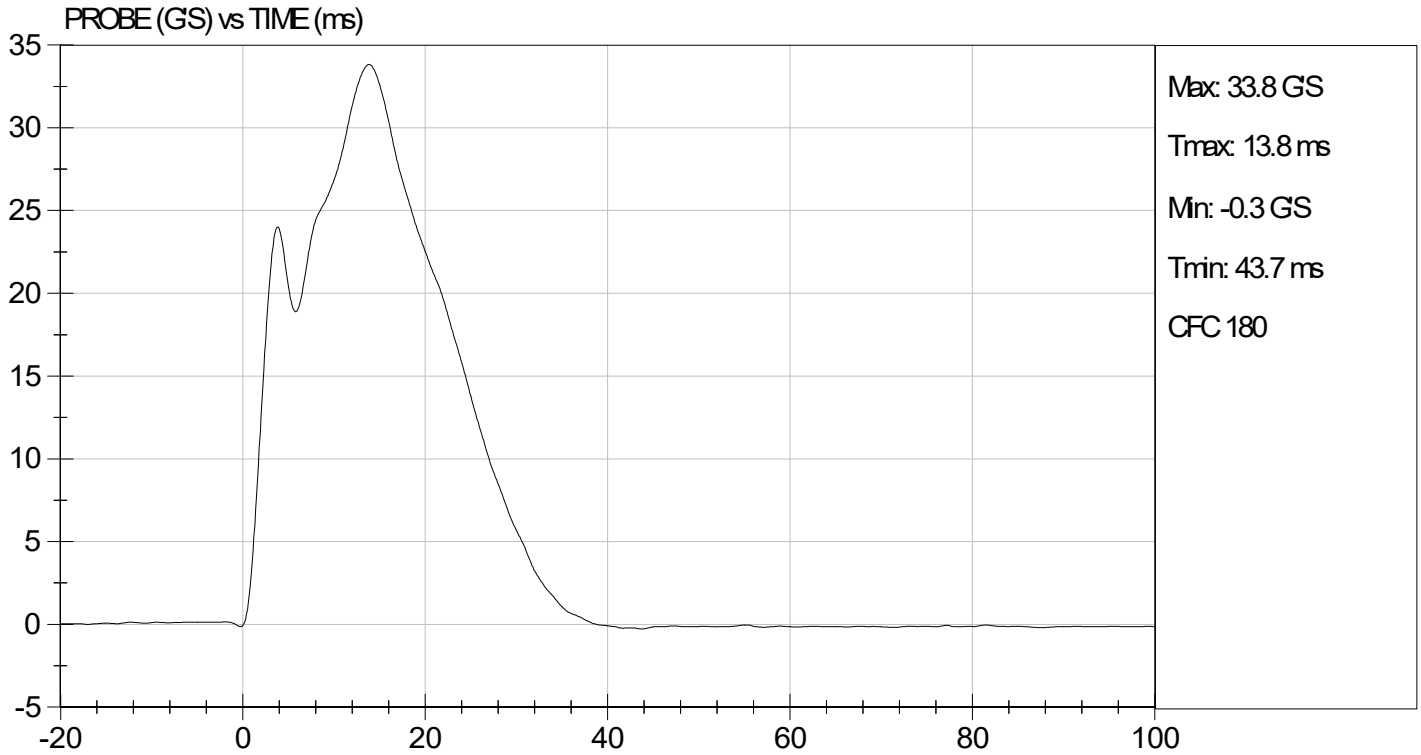
04/03/2023
Test Date


Approved By



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

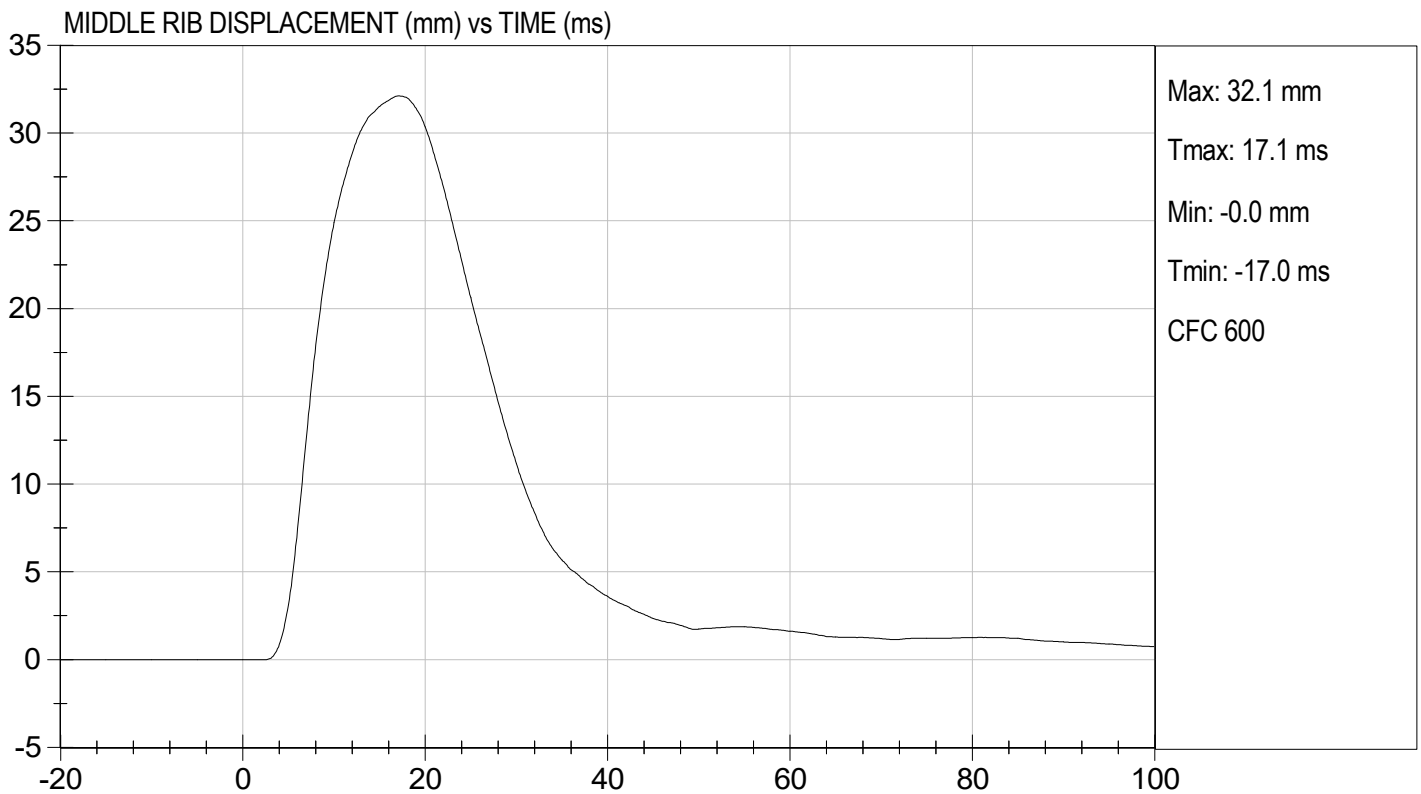
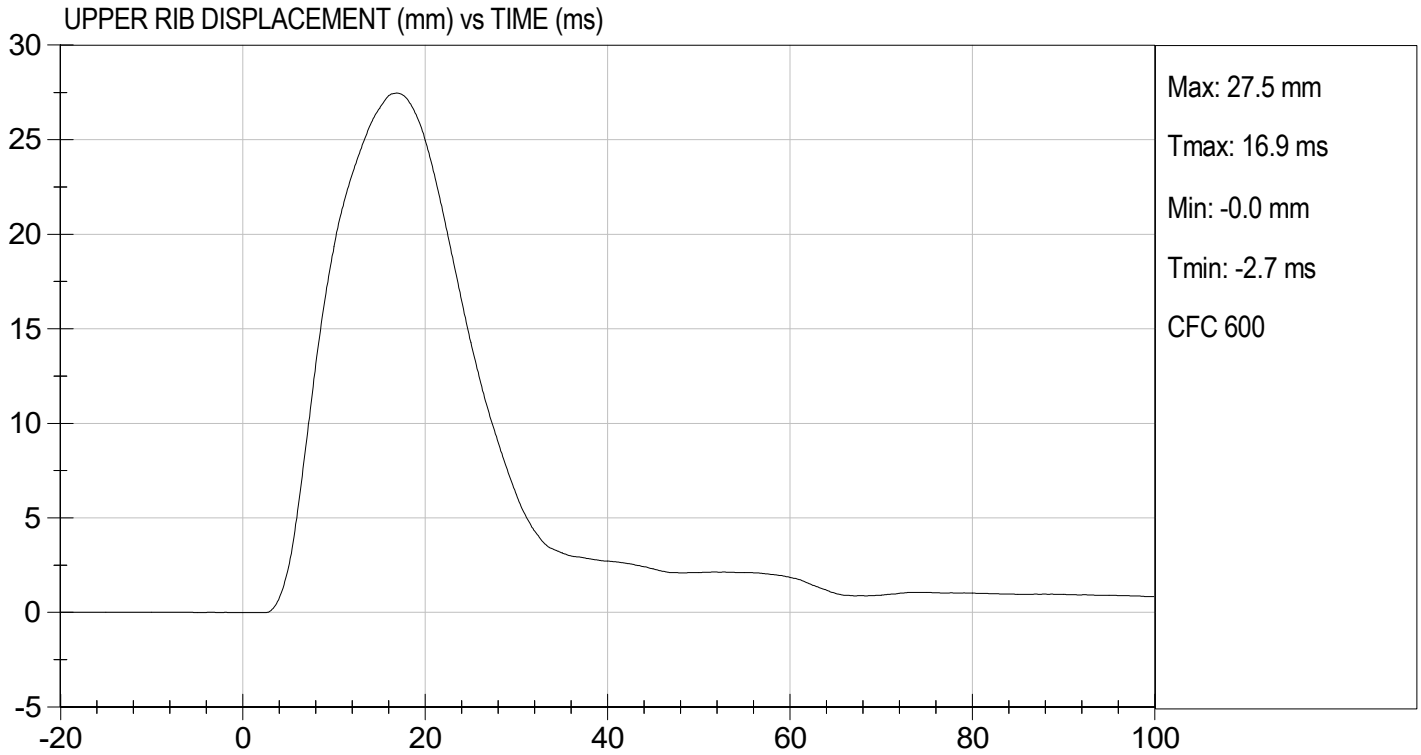
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TEST #: D230894





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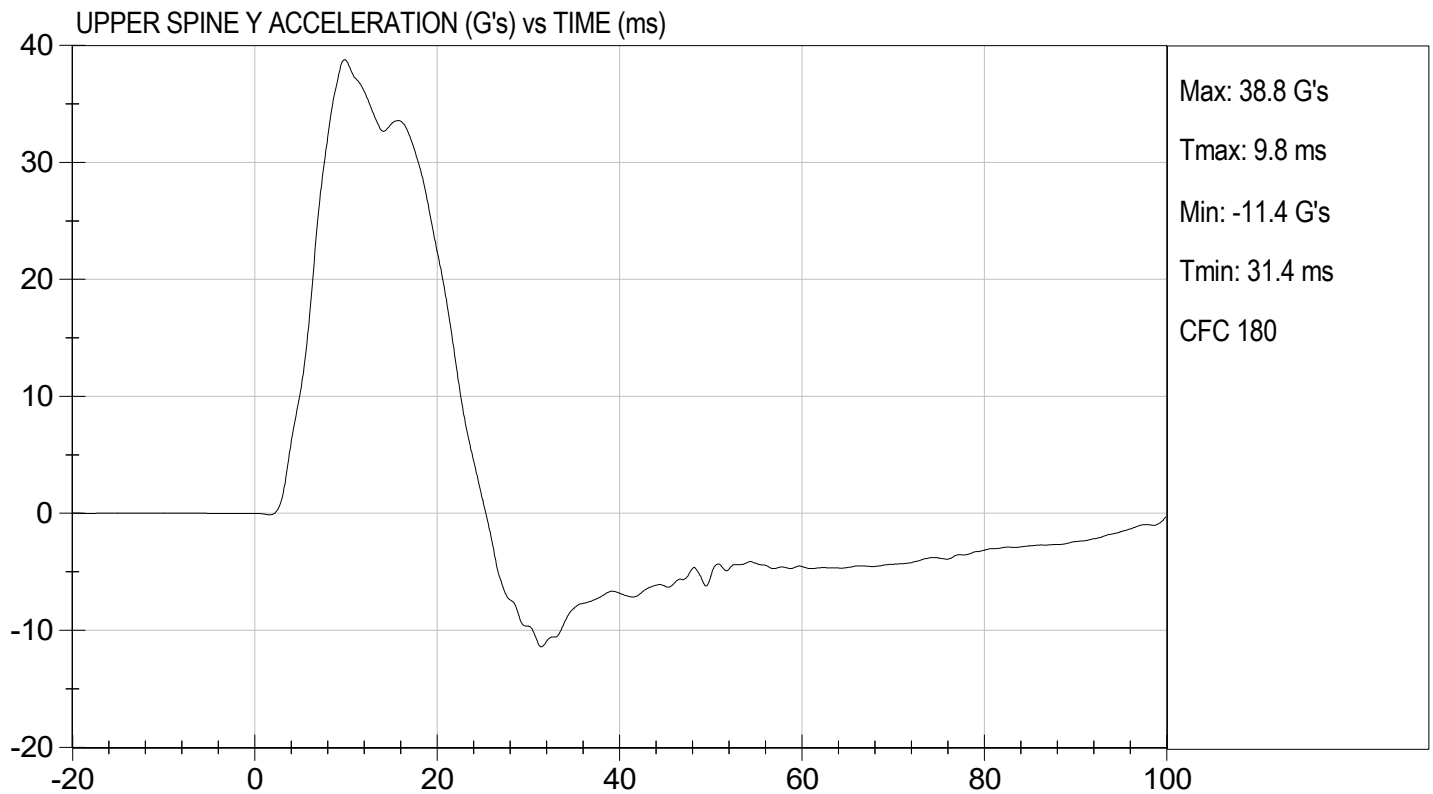
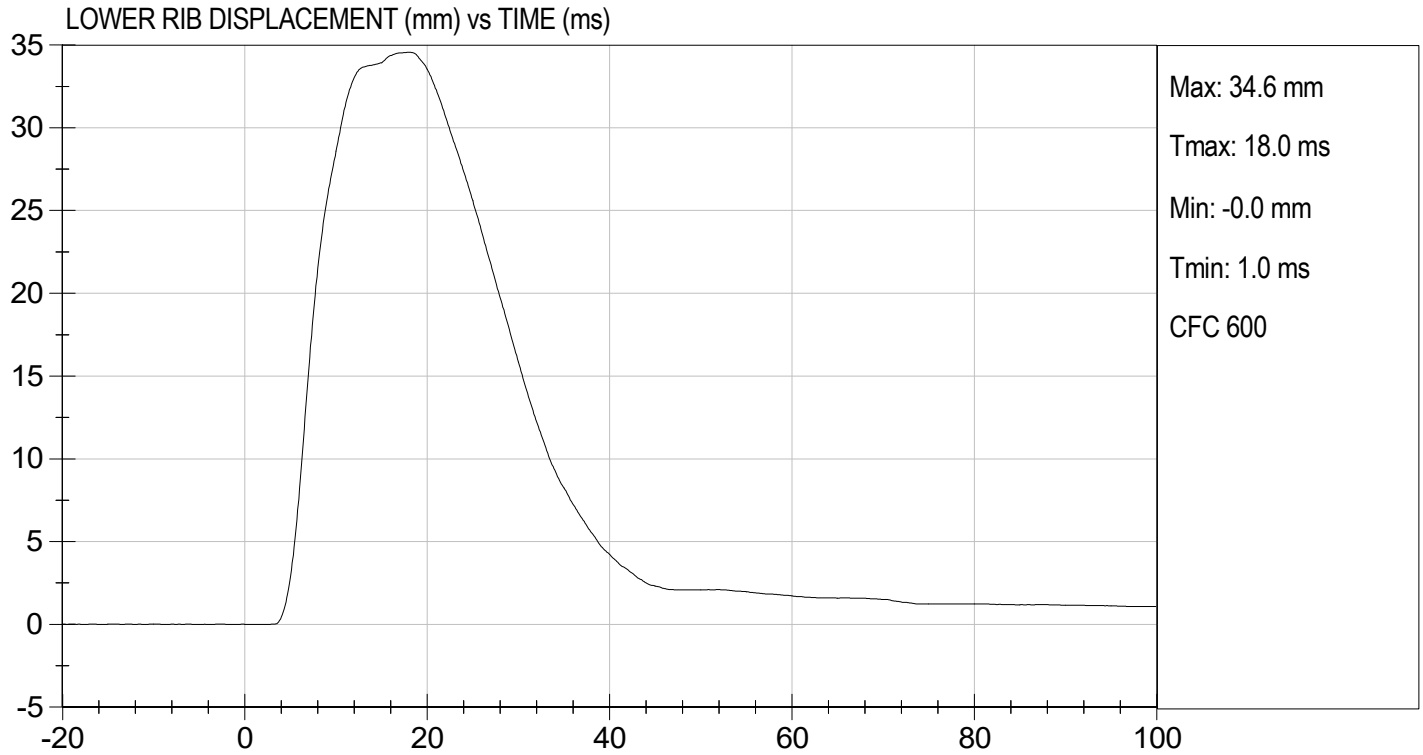
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TEST #: D230894





TEST DESC: THORAX IMPACT WITH ARM
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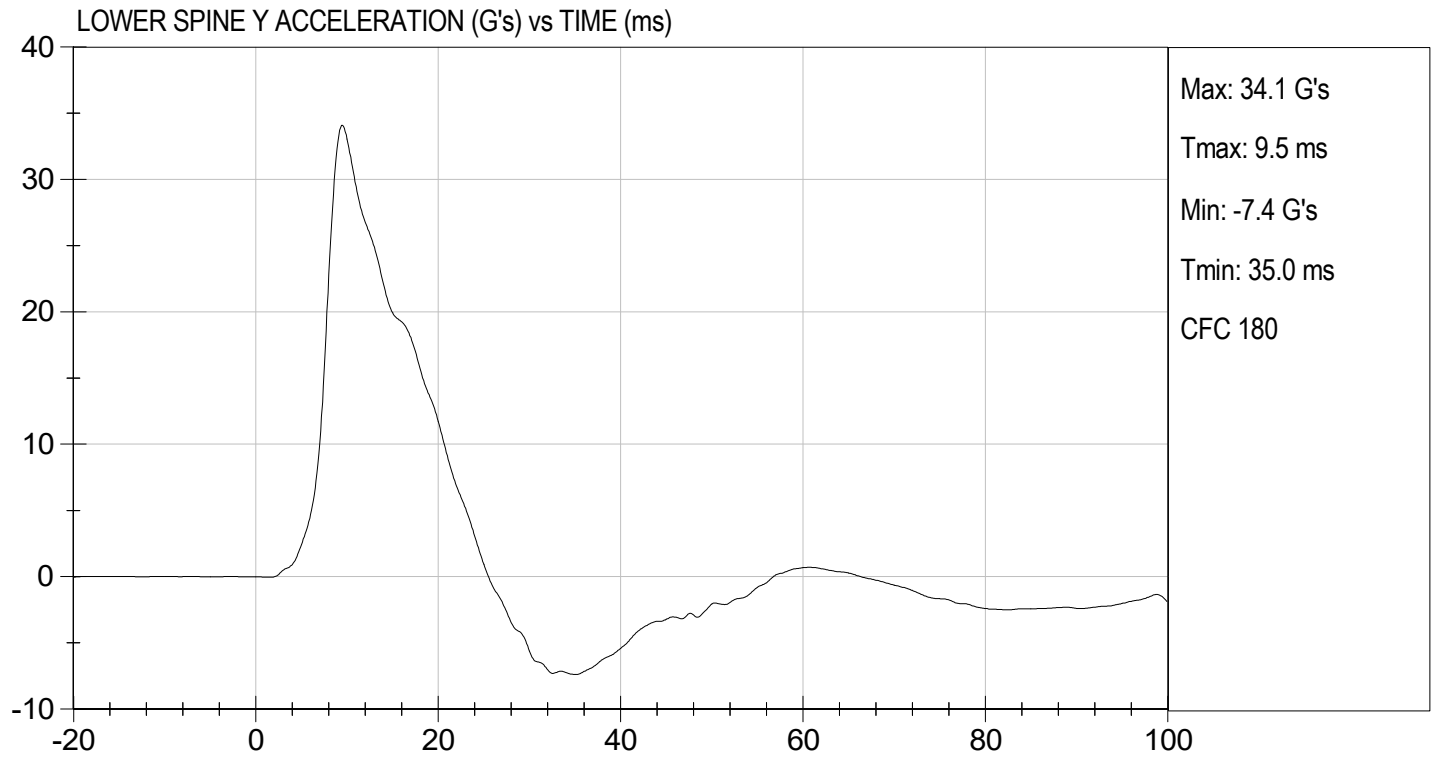
TEST DATE: 04/03/2023
TEST #: D230894





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

TEST DATE: 04/03/2023
TEST #: D230894



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

ATD Serial No: 296

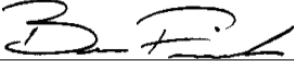
Test I.D: D230895

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	29	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	14 to 18	16	Pass
Upper Rib Displacement	mm	32 to 40	37	Pass
Middle Rib Displacement	mm	39 to 45	43	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

04/03/2023

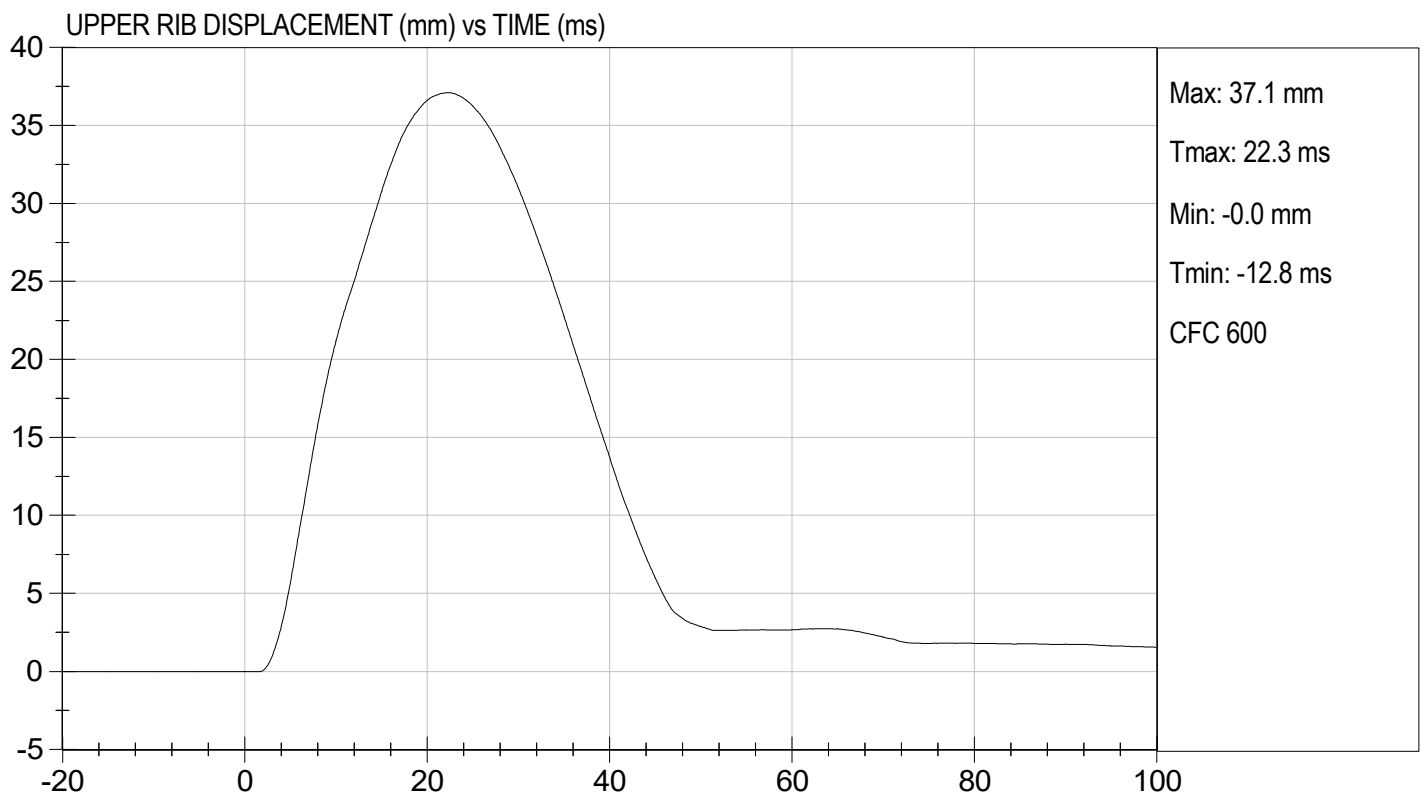
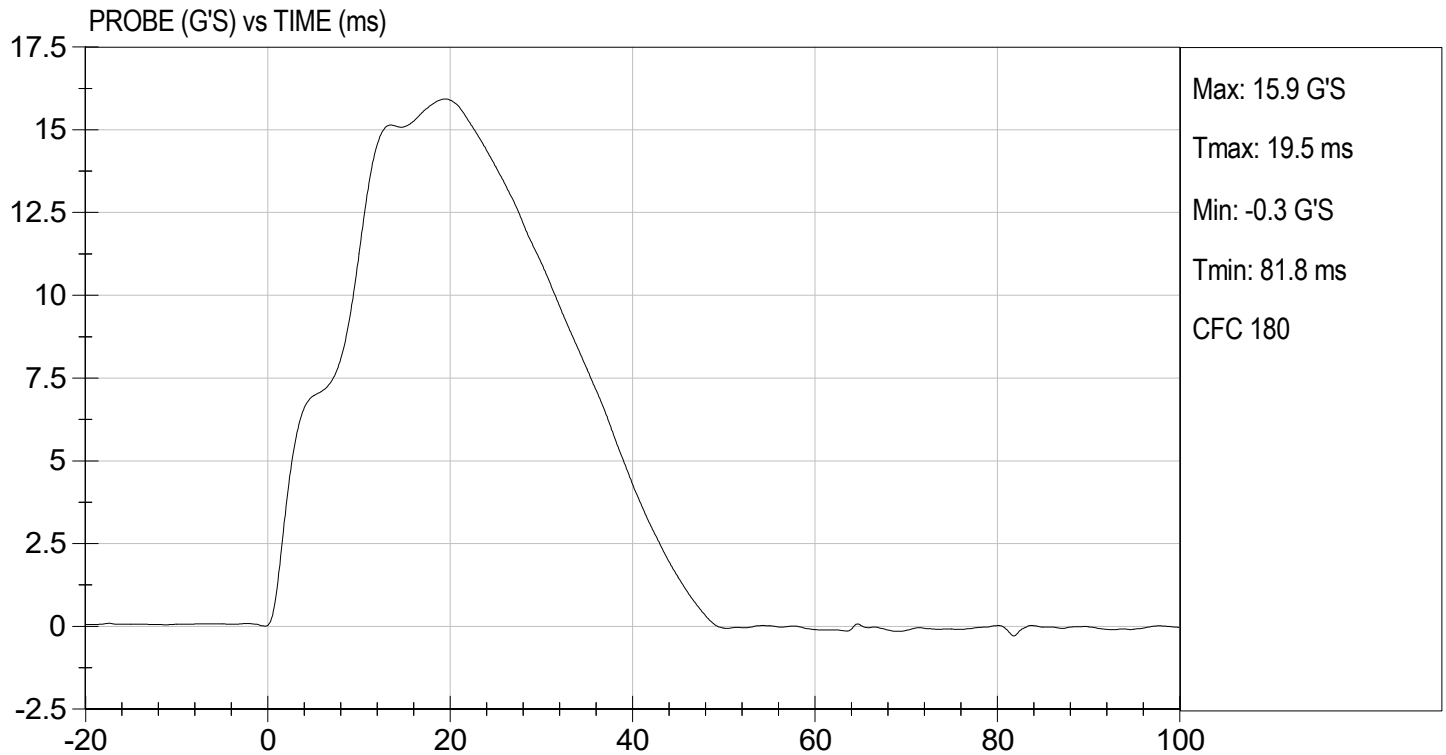
Test Date


Approved By



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

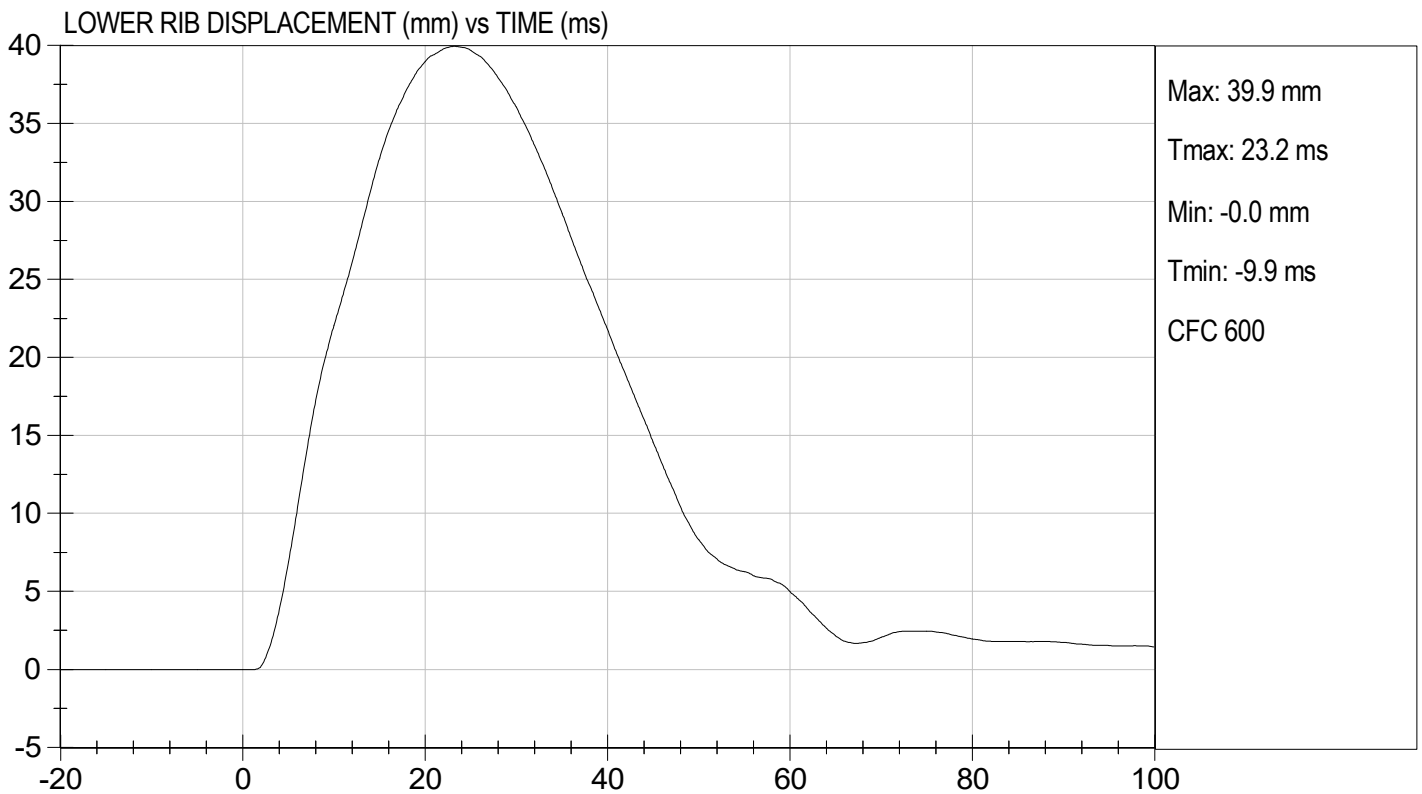
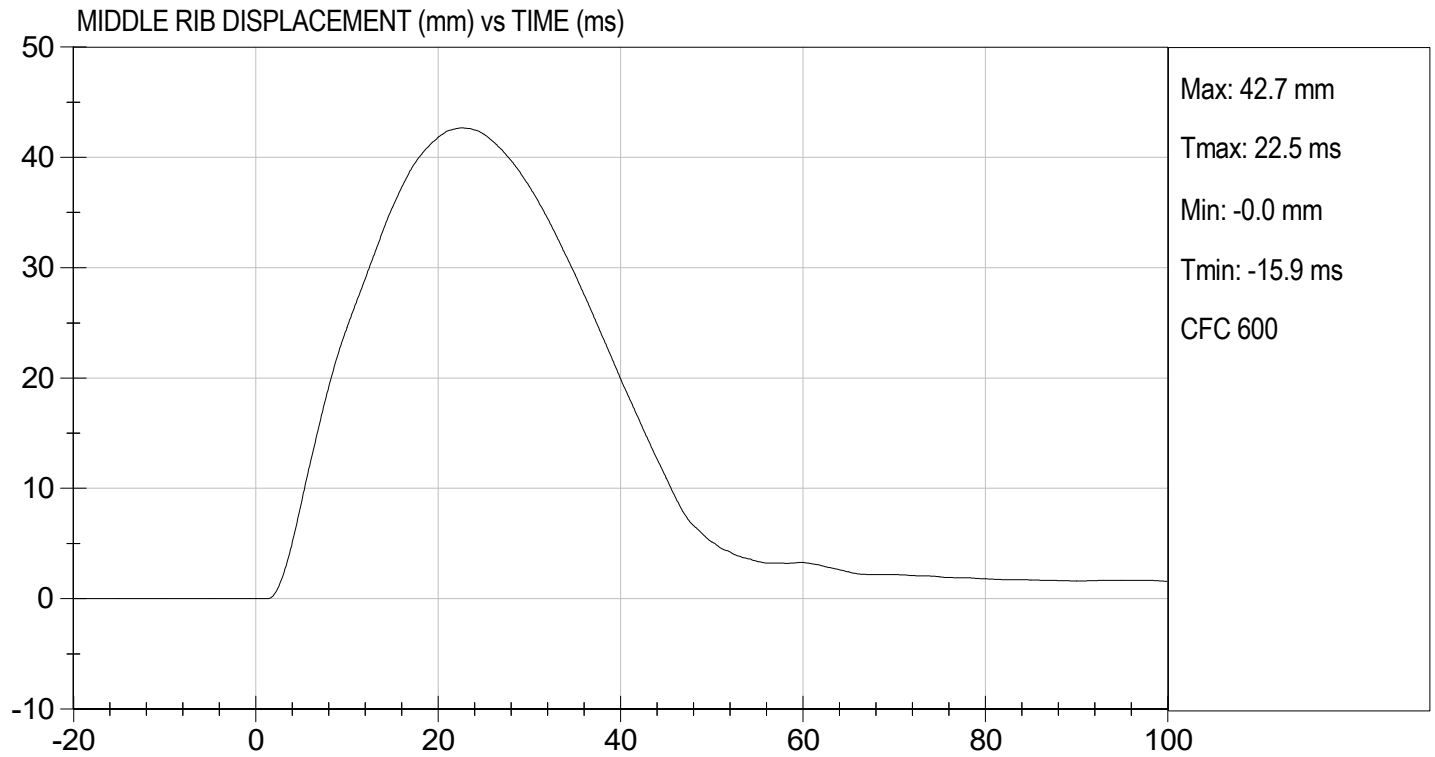
TEST DATE: 04/03/2023
TEST #: D230895





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

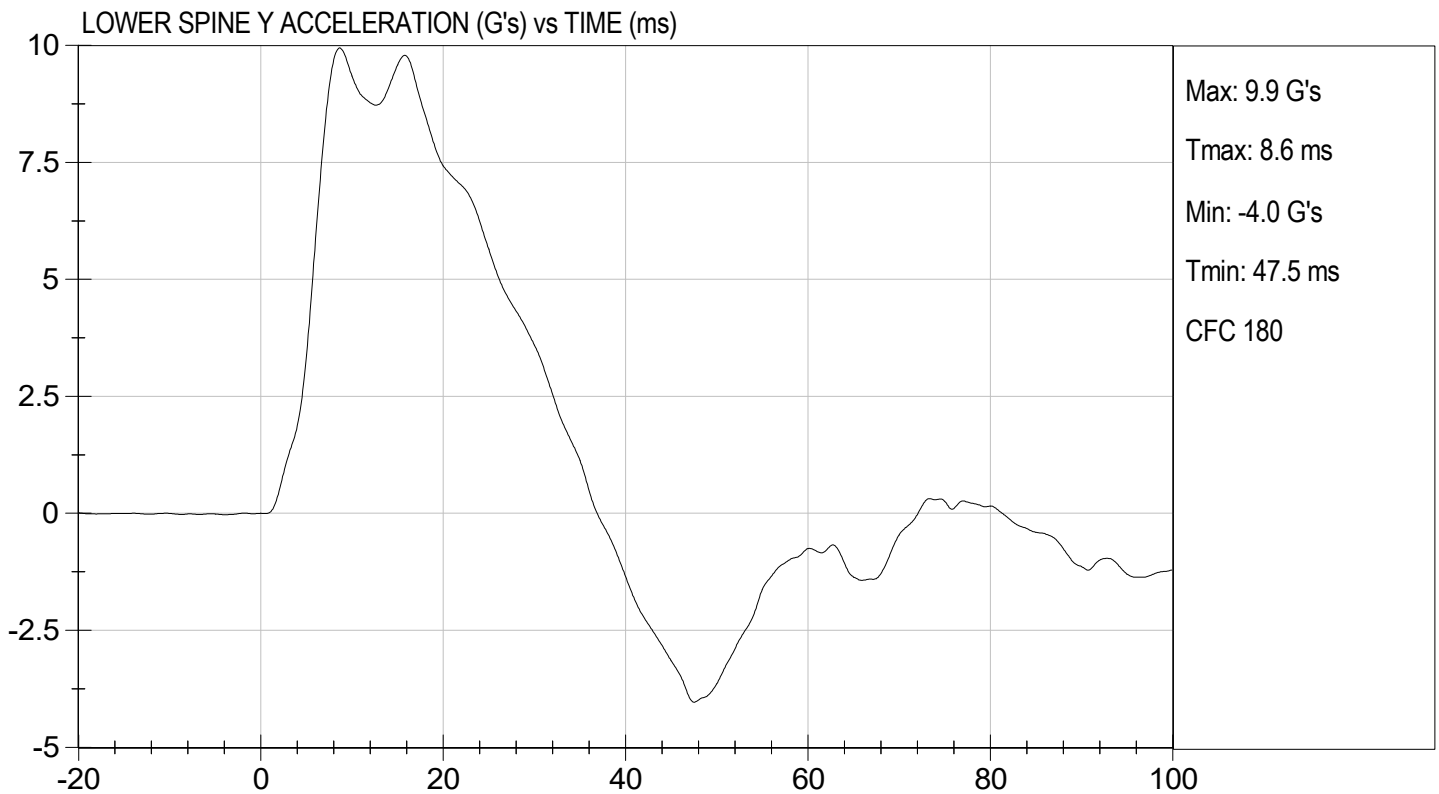
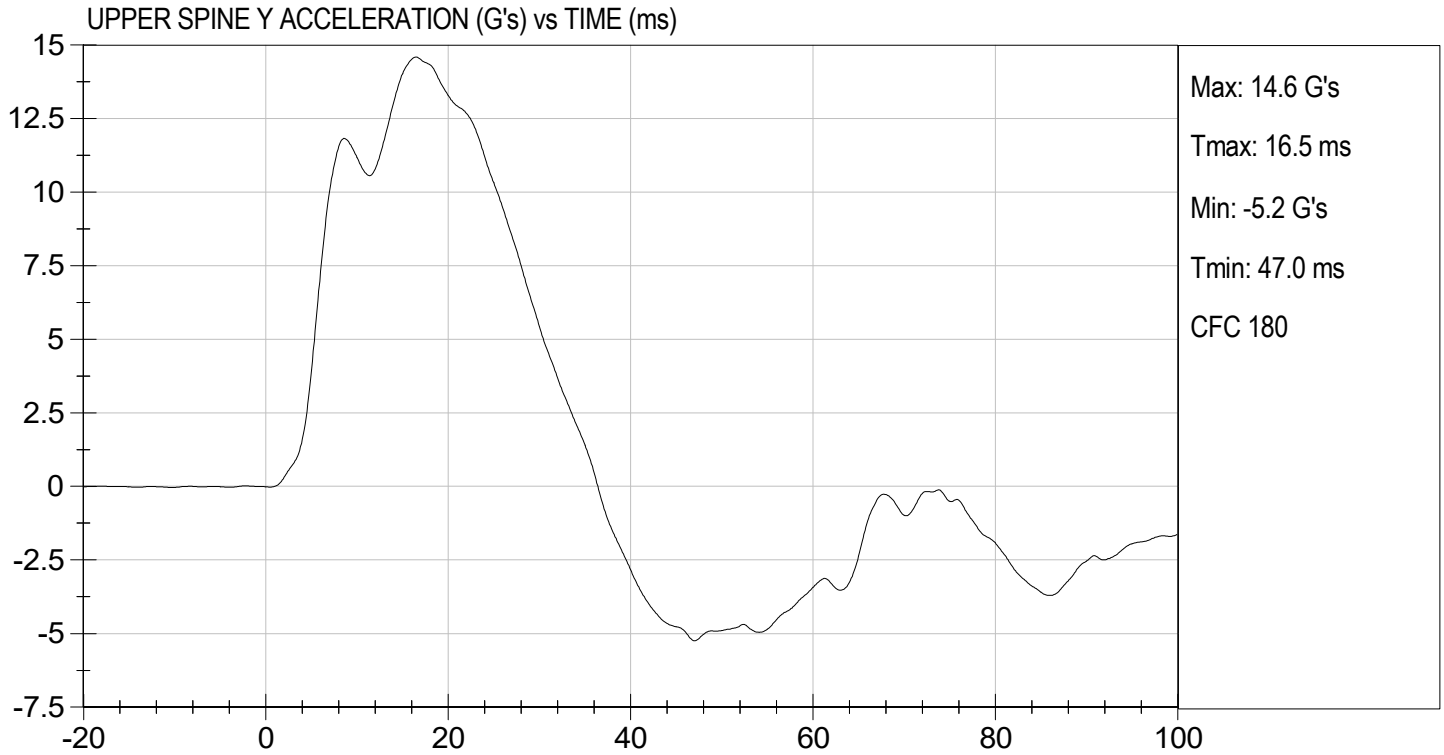
TEST DATE: 04/03/2023
TEST #: D230895





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

TEST DATE: 04/03/2023
TEST #: D230895



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

ATD Serial No: 296

Test I.D: D230896

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	29	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	38	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	12	Pass
Overall Test Results				Pass

Nathaniel Benjamin
Laboratory Technician

04/03/2023

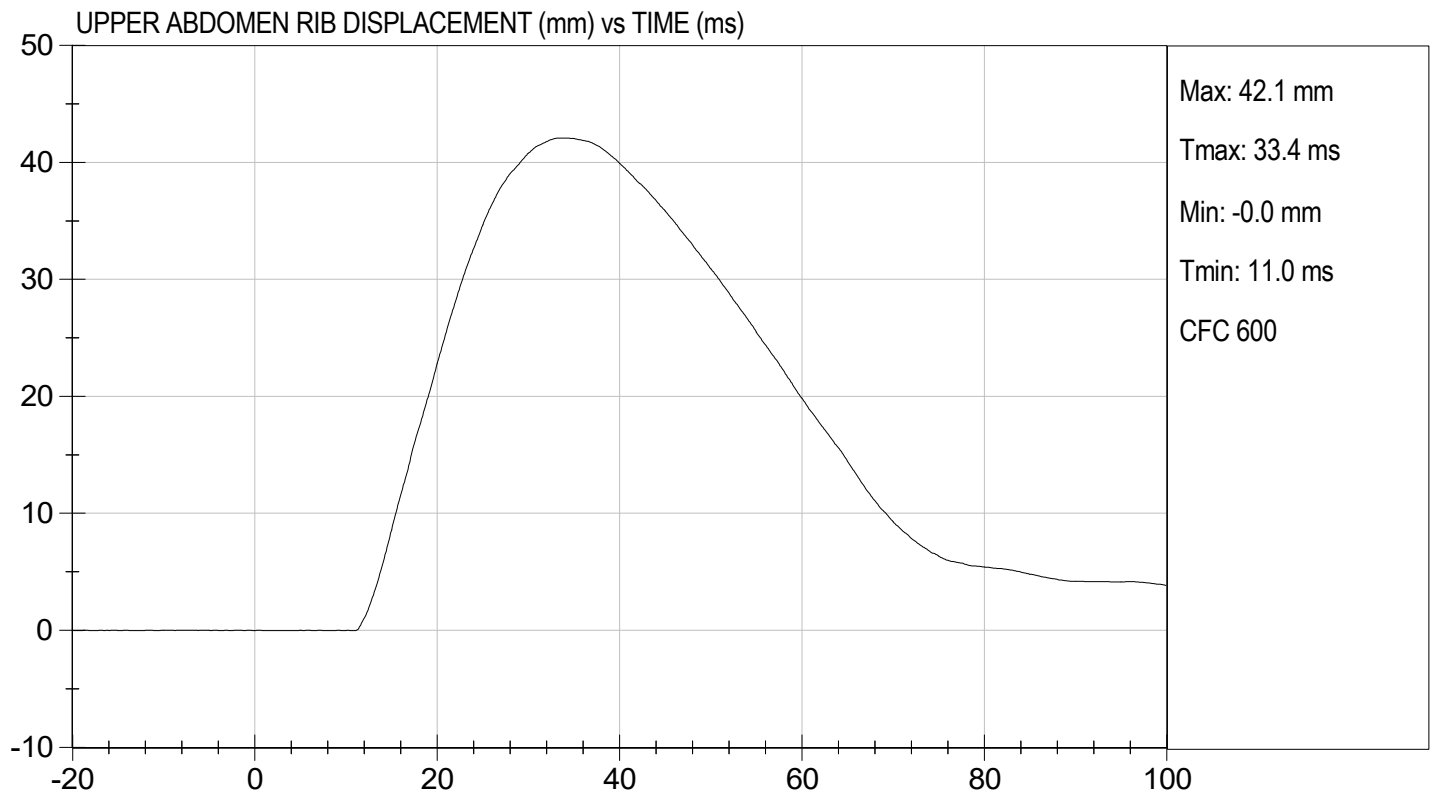
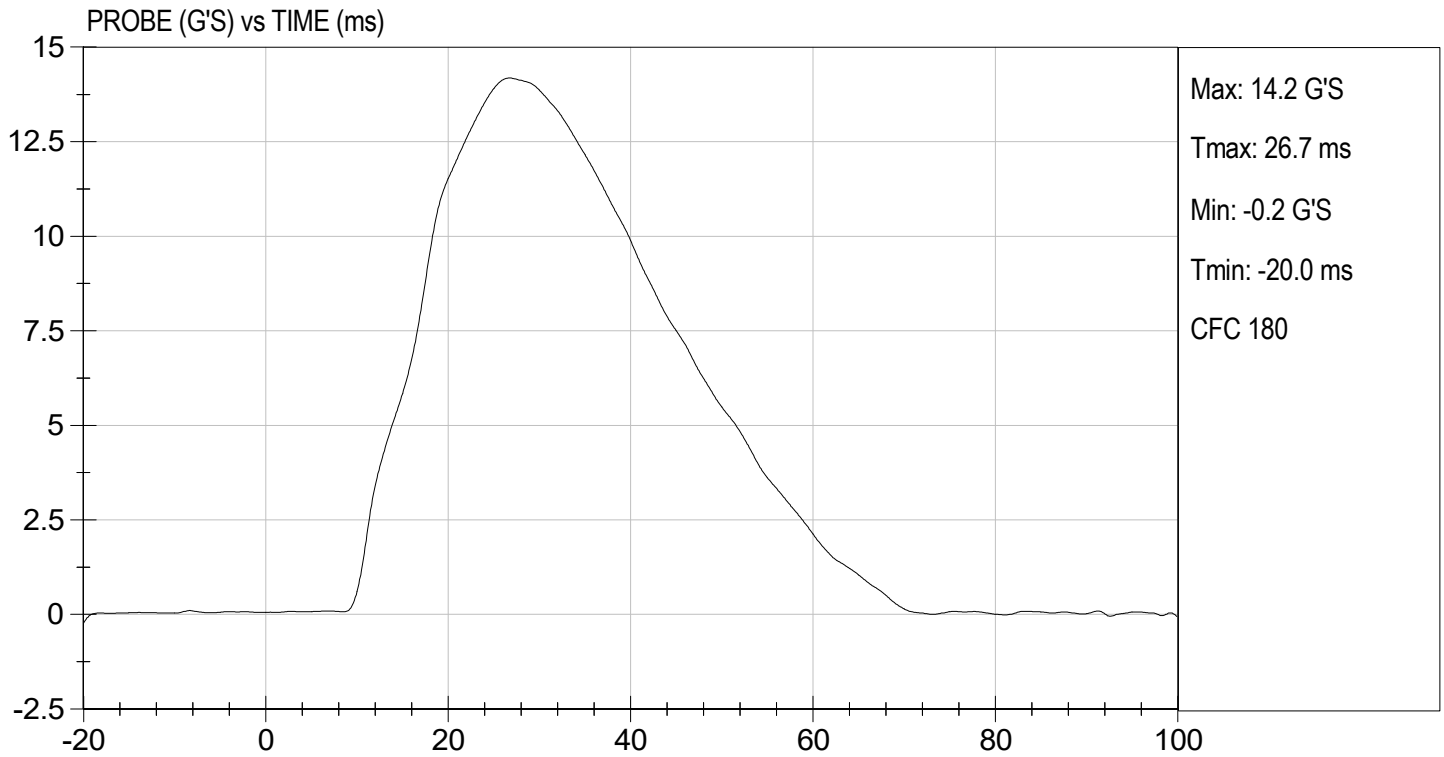
Test Date

B. F. L.
Approved By



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

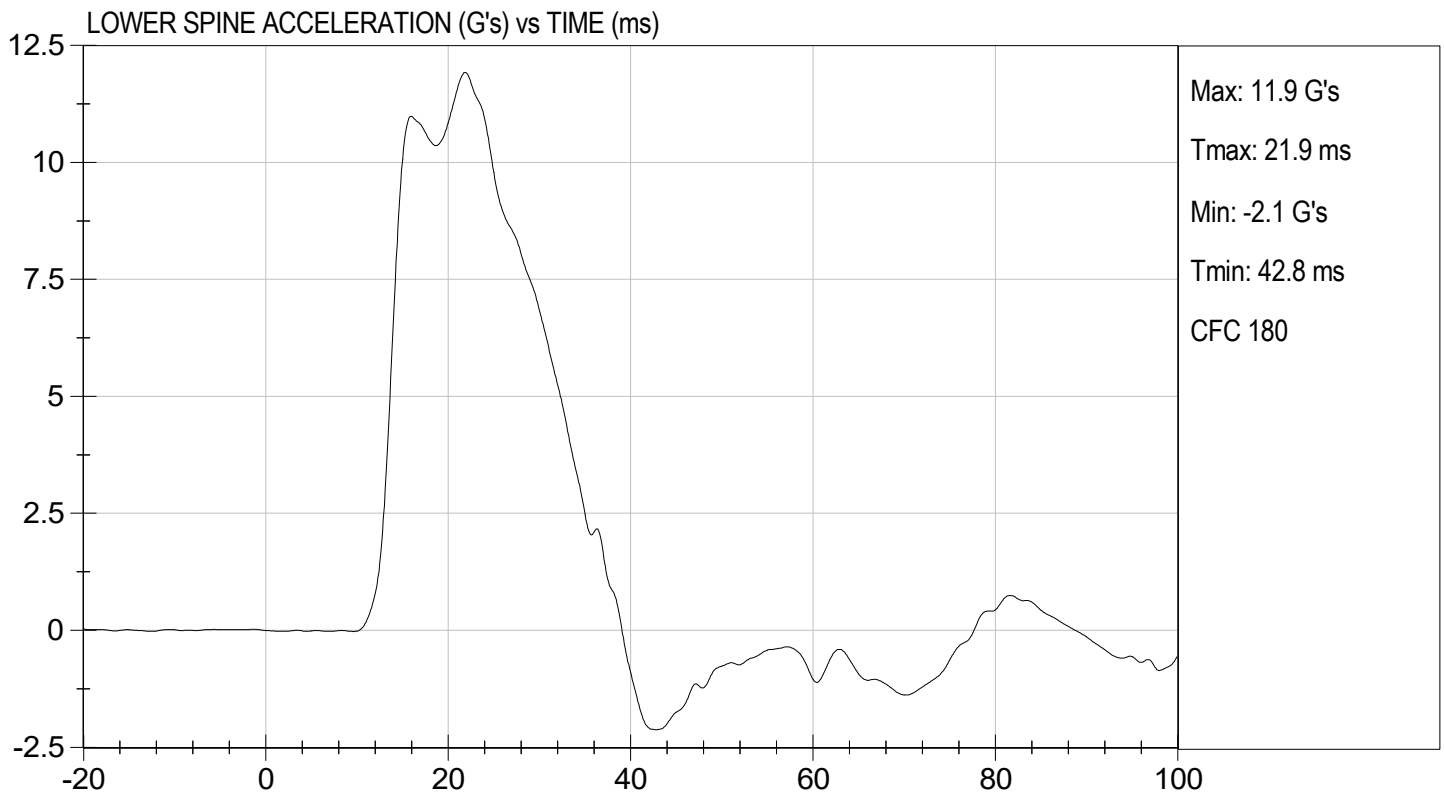
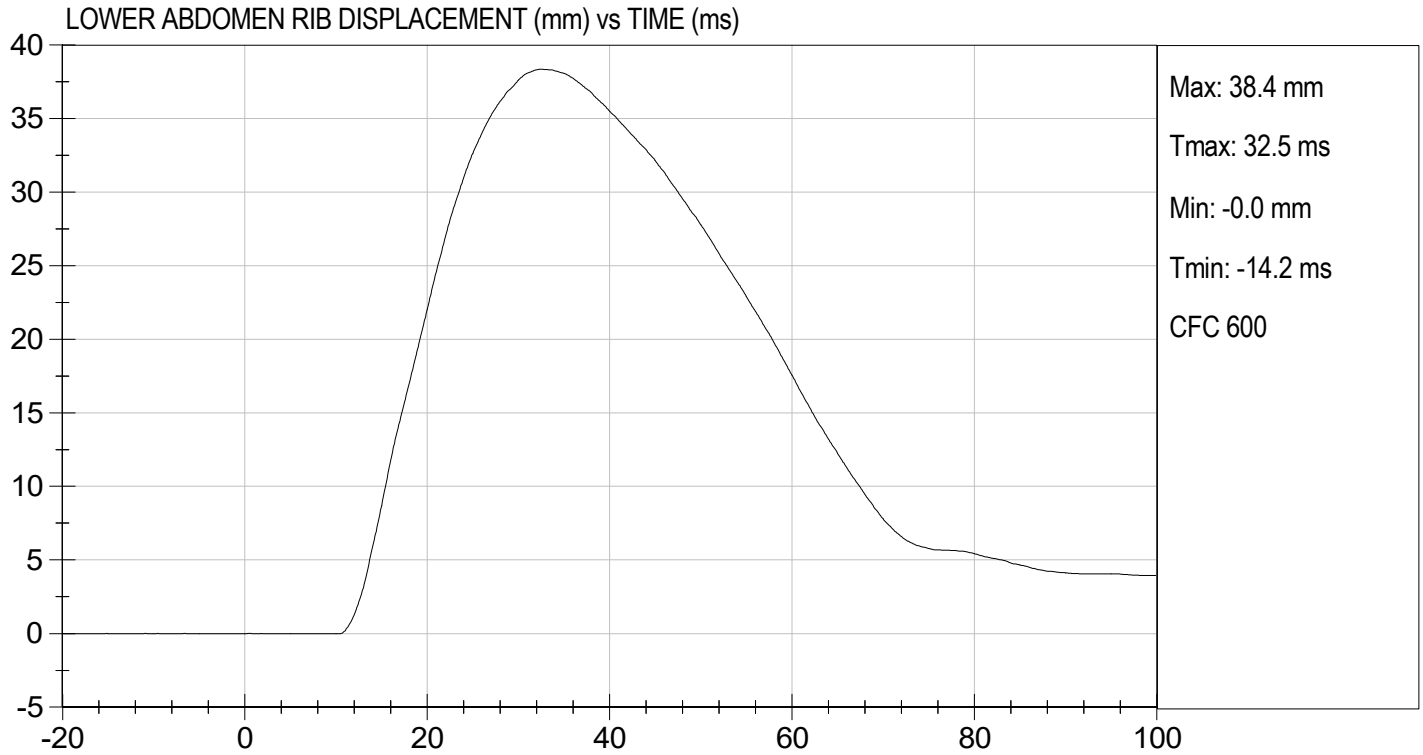
TEST DATE: 04/03/2023
TEST #: D230896





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

TEST DATE: 04/03/2023
TEST #: D230896



MGA RESEARCH CORPORATION

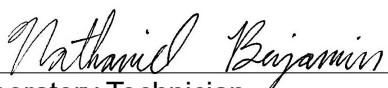
PELVIS IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

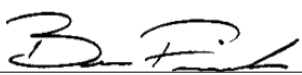
Test I.D: D230897

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	29	Pass
Impact Velocity	m/s	6.60 to 6.80	6.60	Pass
Maximum Probe Acceleration	G's	38 to 47	42	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	40	Pass
Peak Acetabulum Force	N	3600 to 4300	4,100	Pass
Overall Test Results				Pass


Laboratory Technician

04/03/2023

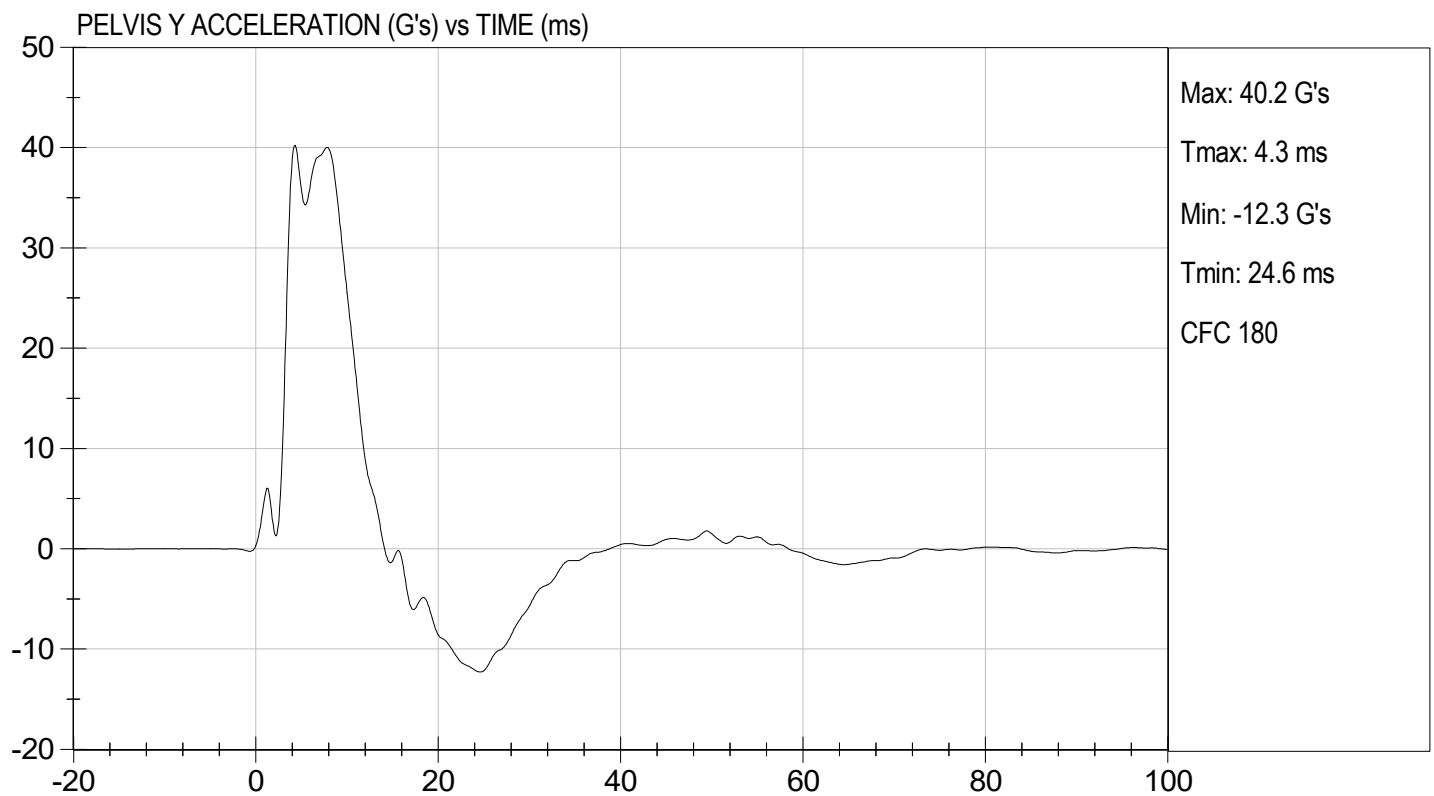
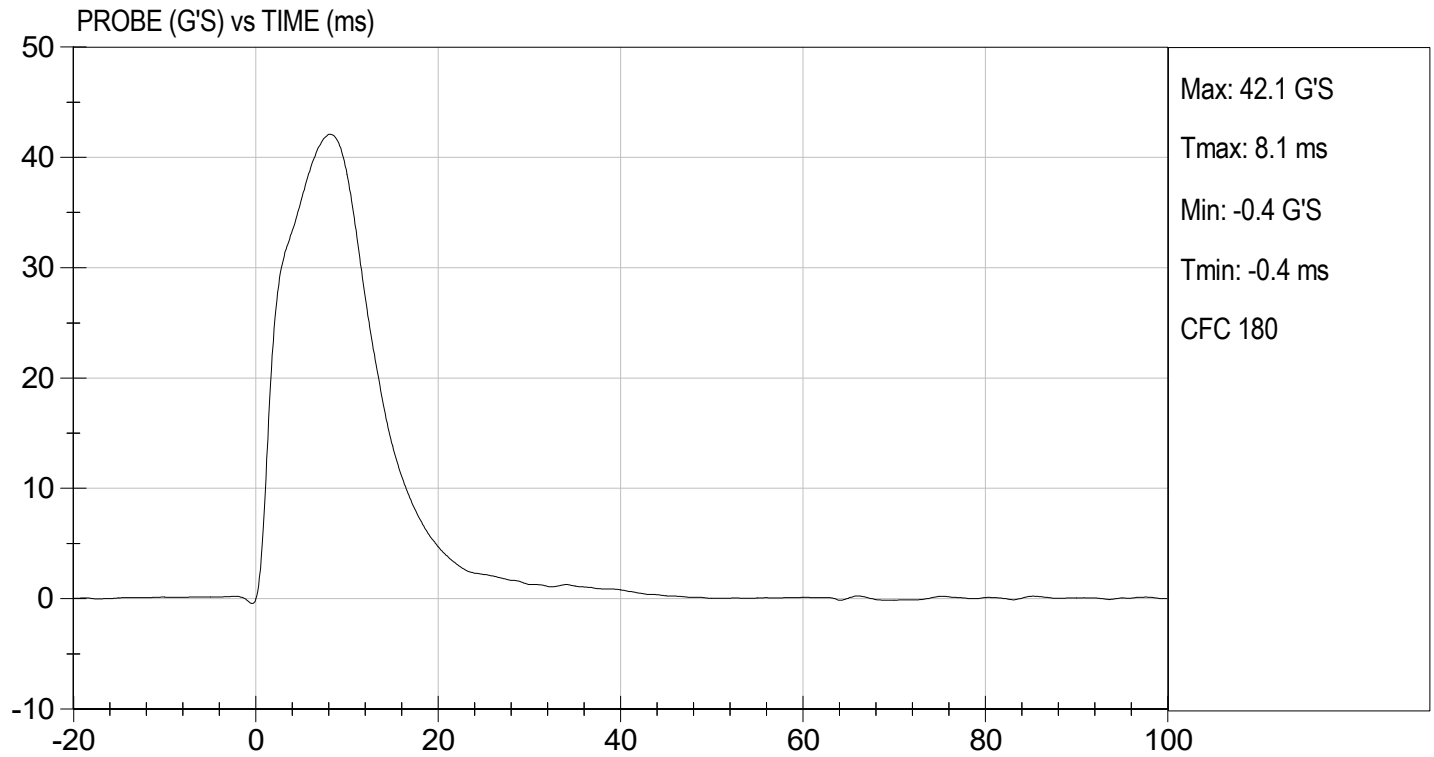
Test Date


Approved By



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

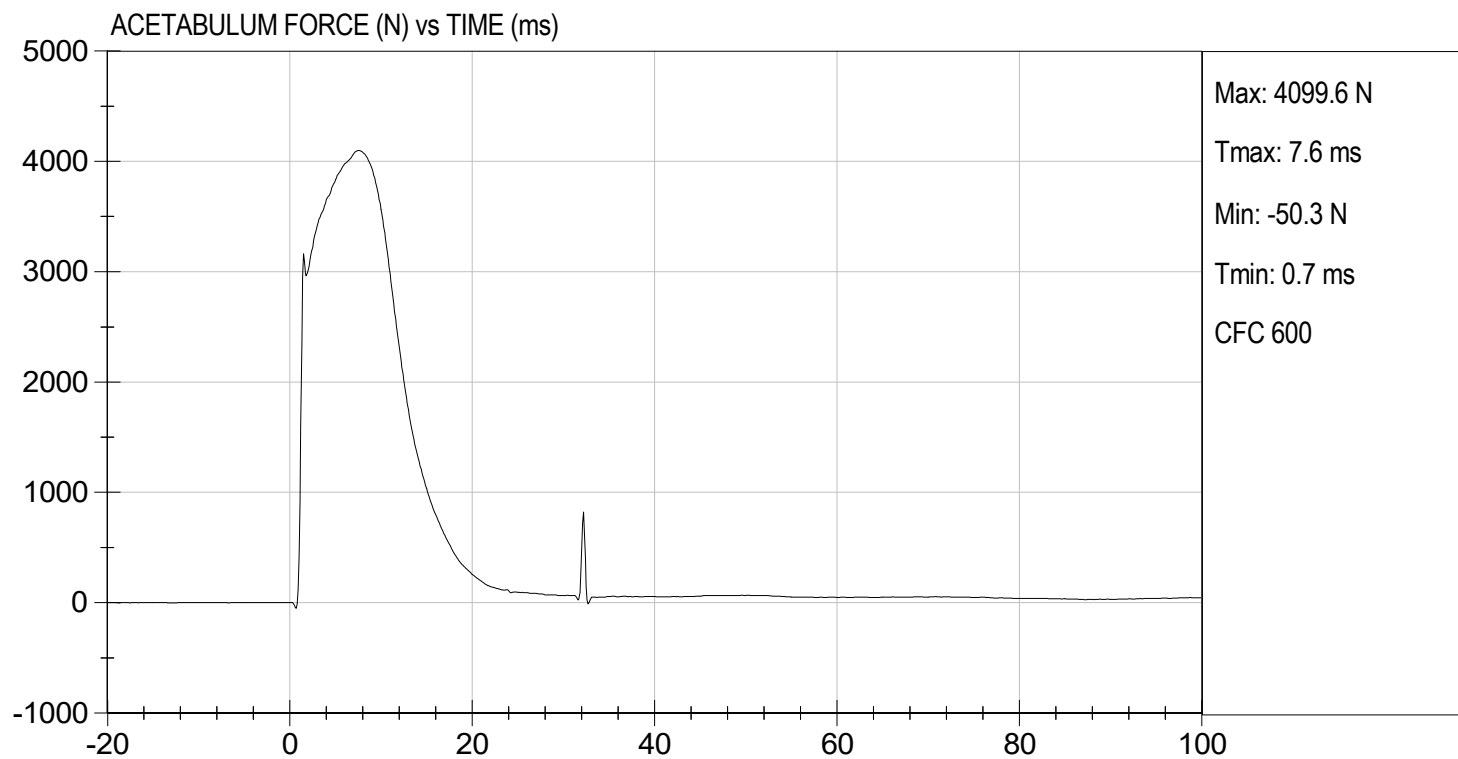
TEST DATE: 04/03/2023
TEST #: D230897





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

TEST DATE: 04/03/2023
TEST #: D230897



MGA RESEARCH CORPORATION

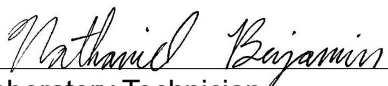
ILIAC IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

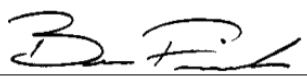
Test I.D: D230898

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	32	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	36 to 45	43	Pass
Pelvis Y Acceleration	G's	28 to 39	35	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	5,097	Pass
Overall Test Results				Pass


Laboratory Technician

04/03/2023

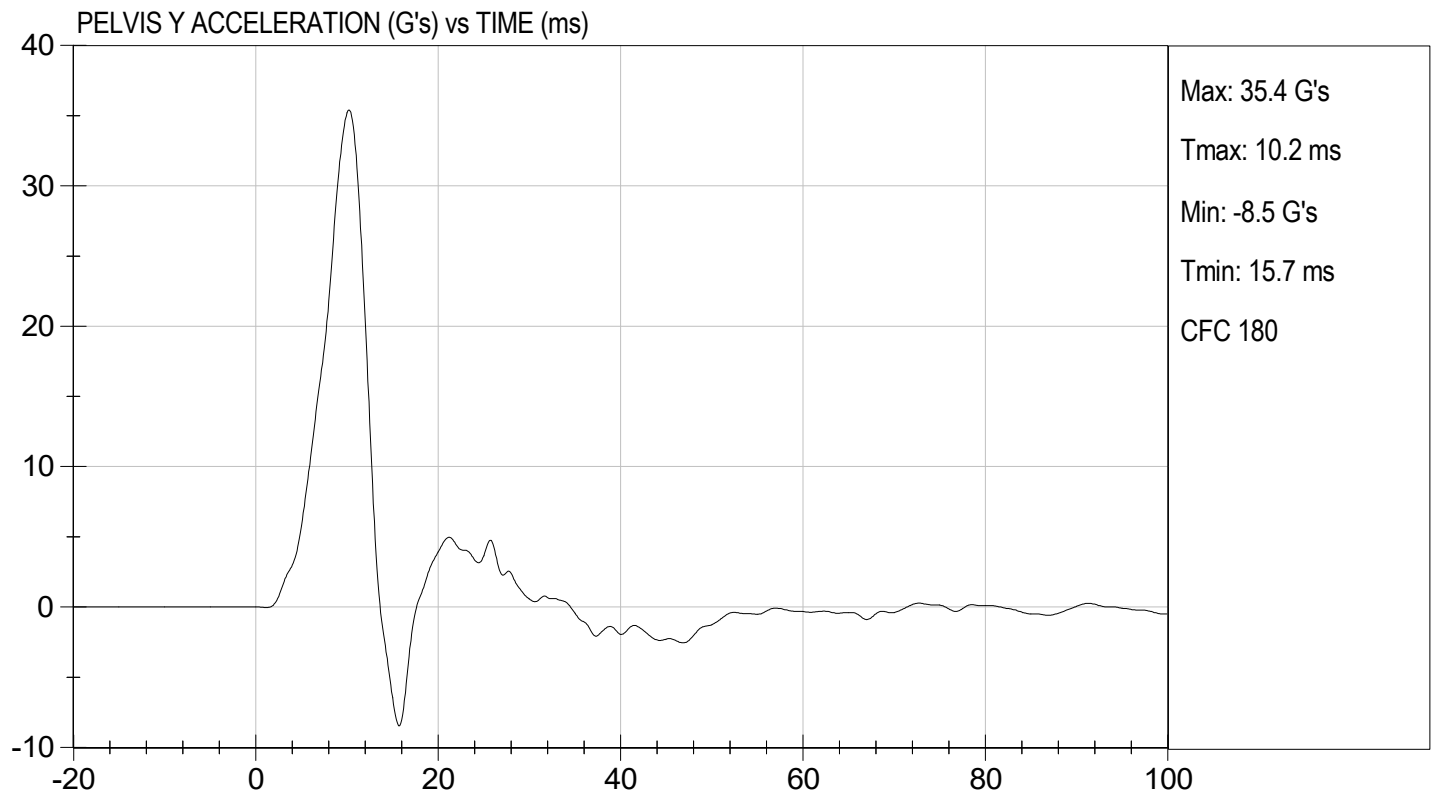
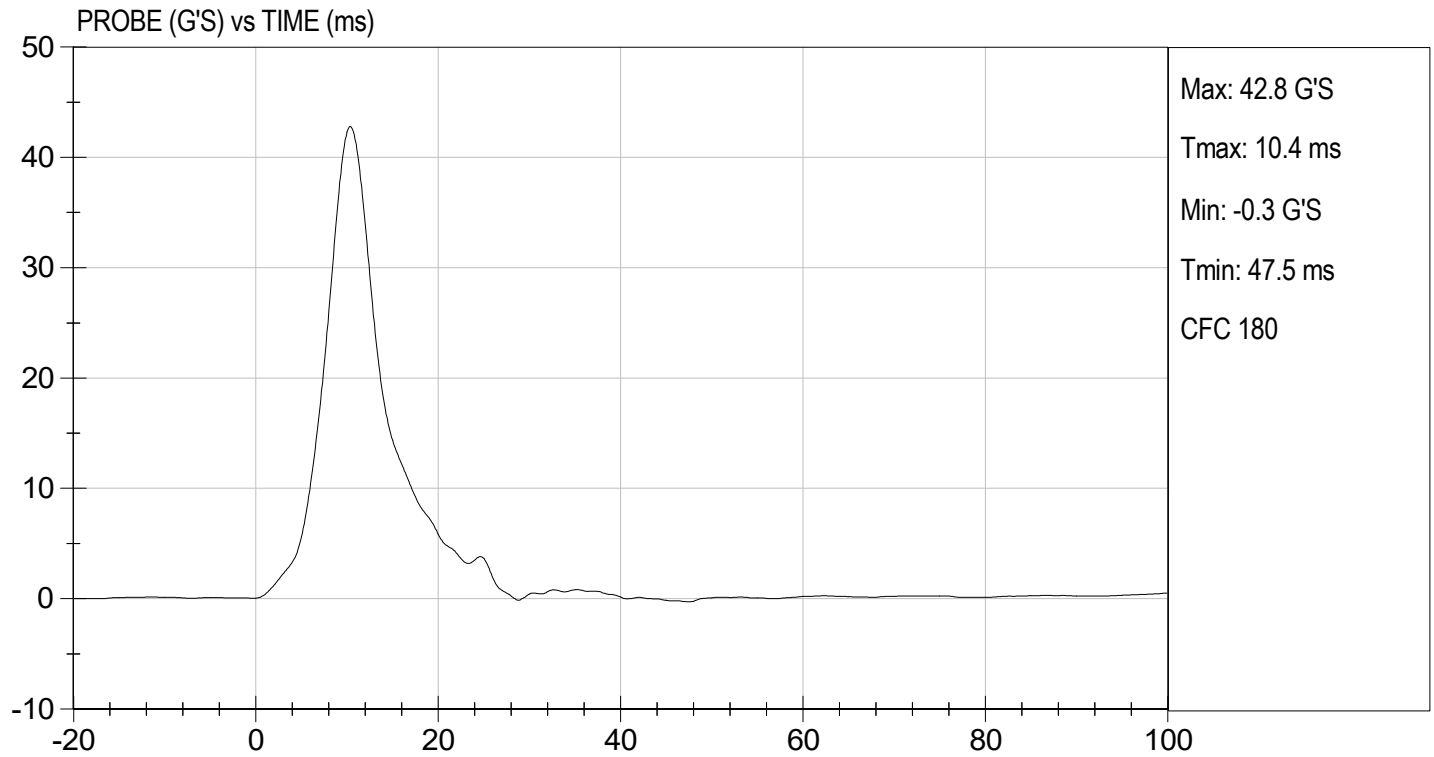
Test Date


Approved By



TEST DESC: ILLIAC
VELOCITY: 14.12 ft/s, 4.30 m/s

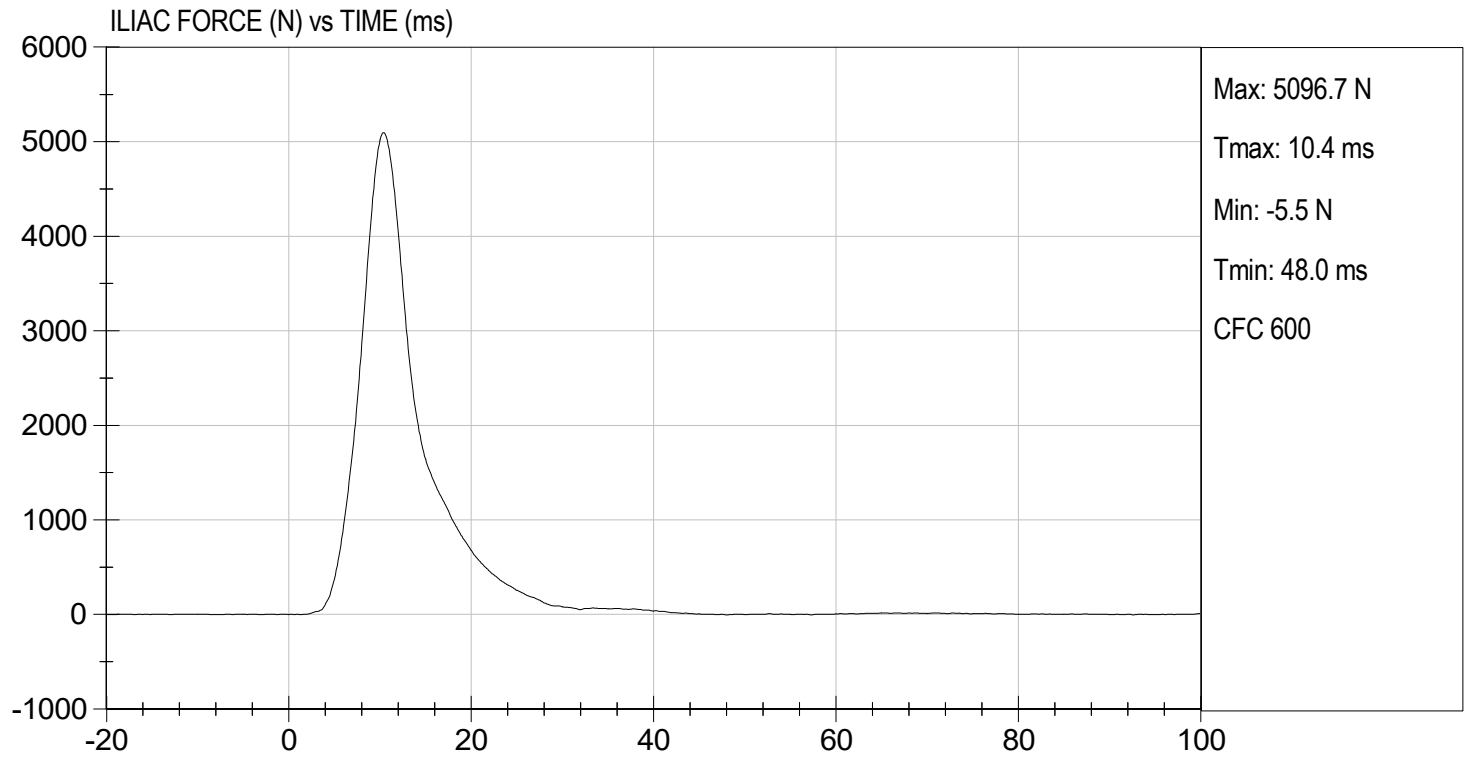
TEST DATE: 04/03/2023
TEST #: D230898





TEST DESC: ILLIAC
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 04/03/2023
TEST #: D230898



CALIBRATION TEST RESULTS

POST-TEST

SID-IIS 5TH PERCENTILE FEMALE - DRIVER ATD

SID-IIsD External Measurements
SN: 296

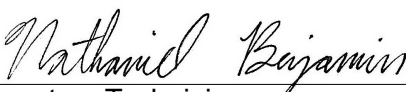
No.	Name	Spec. (mm)	Result	Pass/Fail
A	Sitting Height	772 - 788	784	Pass
B	Shoulder Pivot Height	437 - 453	442	Pass
C	H-point Height	79 - 89	83	Pass
D	H-point from Seatback	141 - 151	145	Pass
E	Shoulder Pivot from Backline	97 - 107	99	Pass
F	Thigh Clearance	119 -135	121	Pass
G	Head Breadth	140 - 148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

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

ATD Serial No: 296

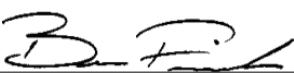
Test ID: D230981

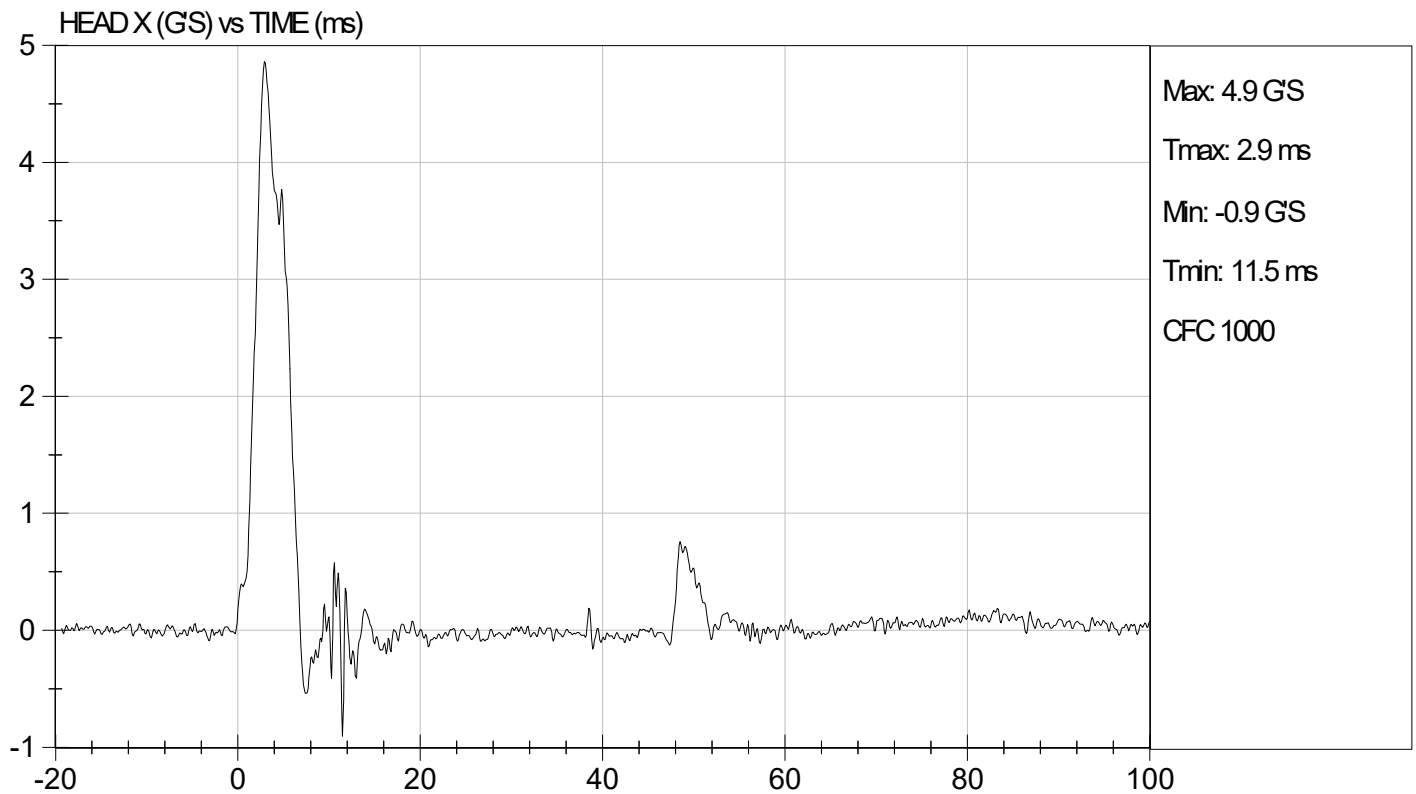
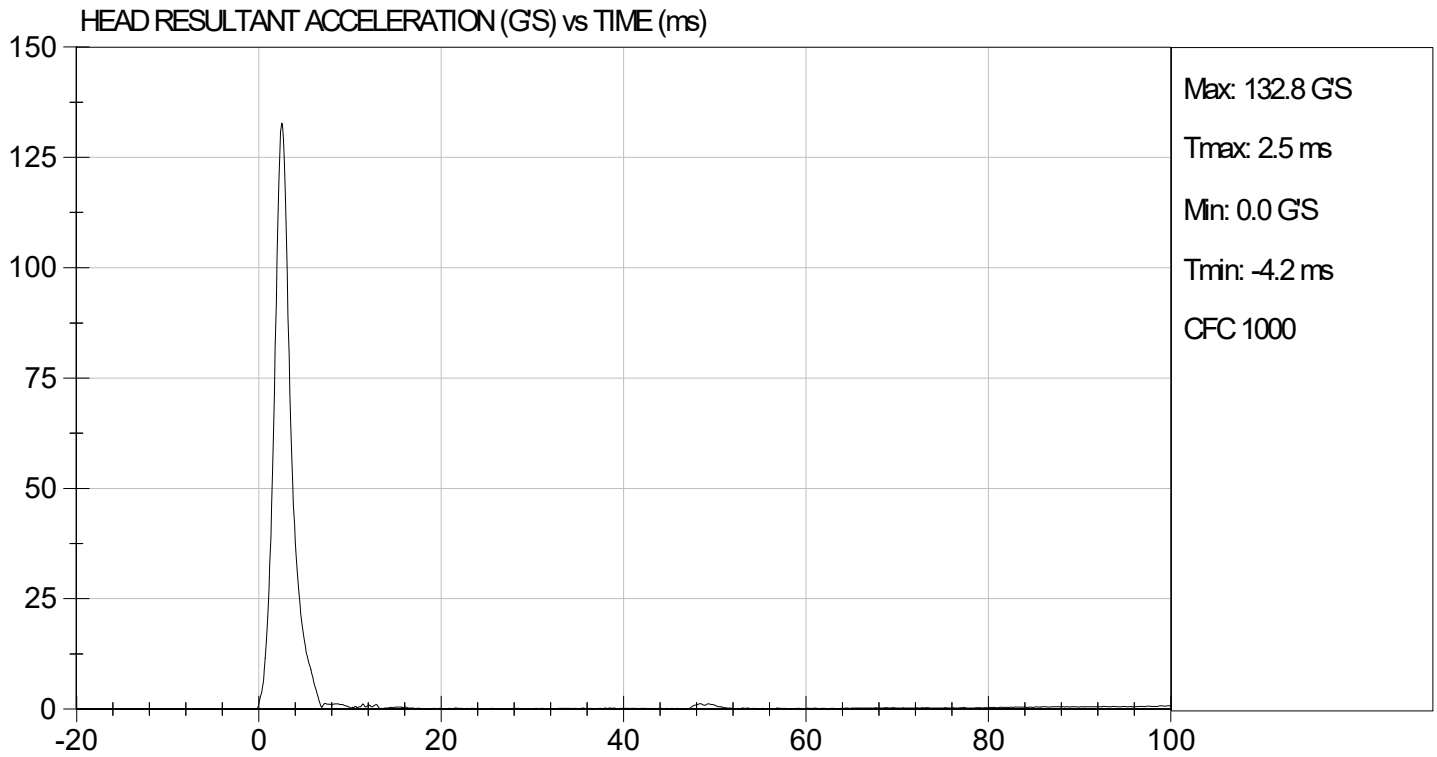
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	36	Pass
Peak Resultant Acceleration	G's	115 to 137	133	Pass
Peak Longitudinal Acceleration	G's	+/- 15	4.9	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
			Overall Test Results	Pass

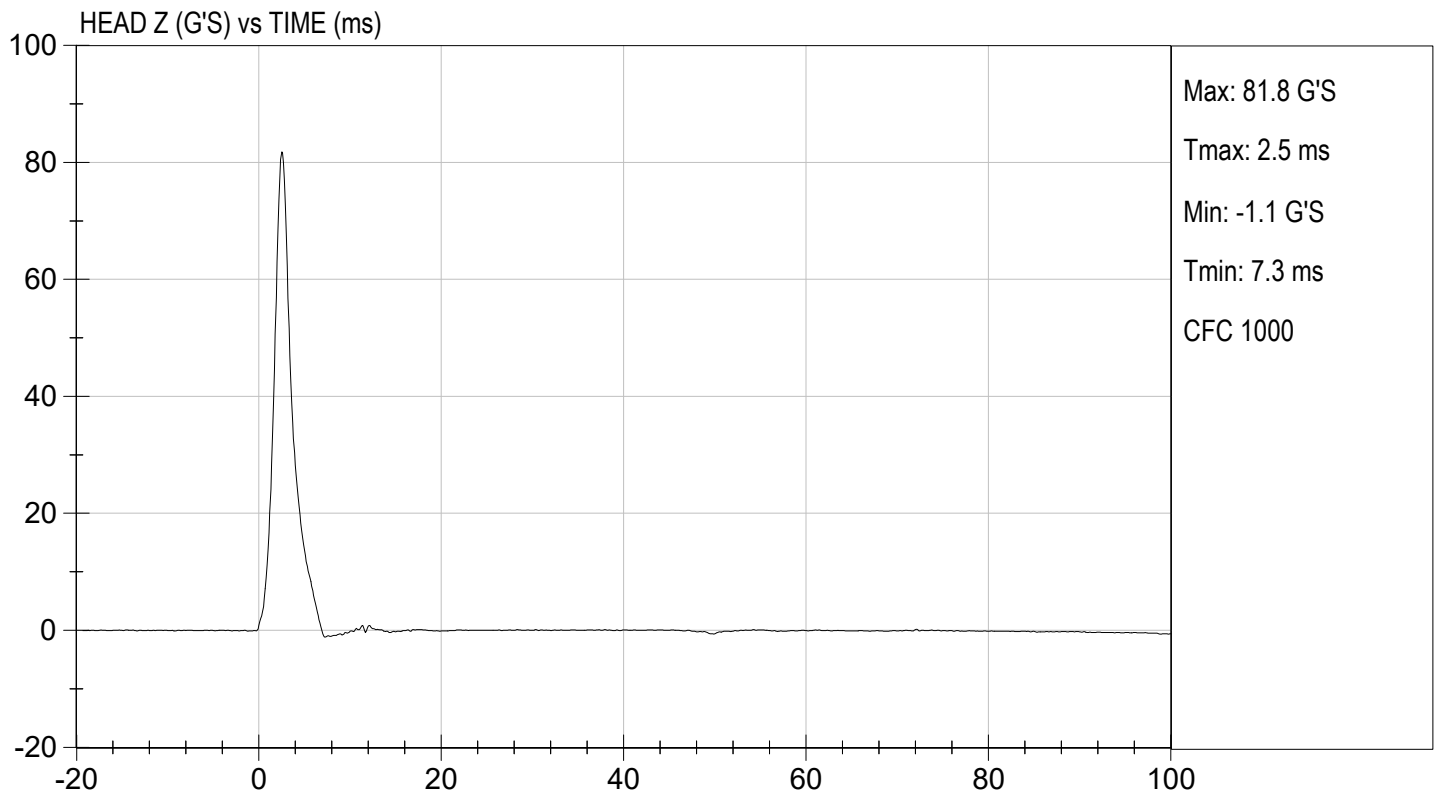
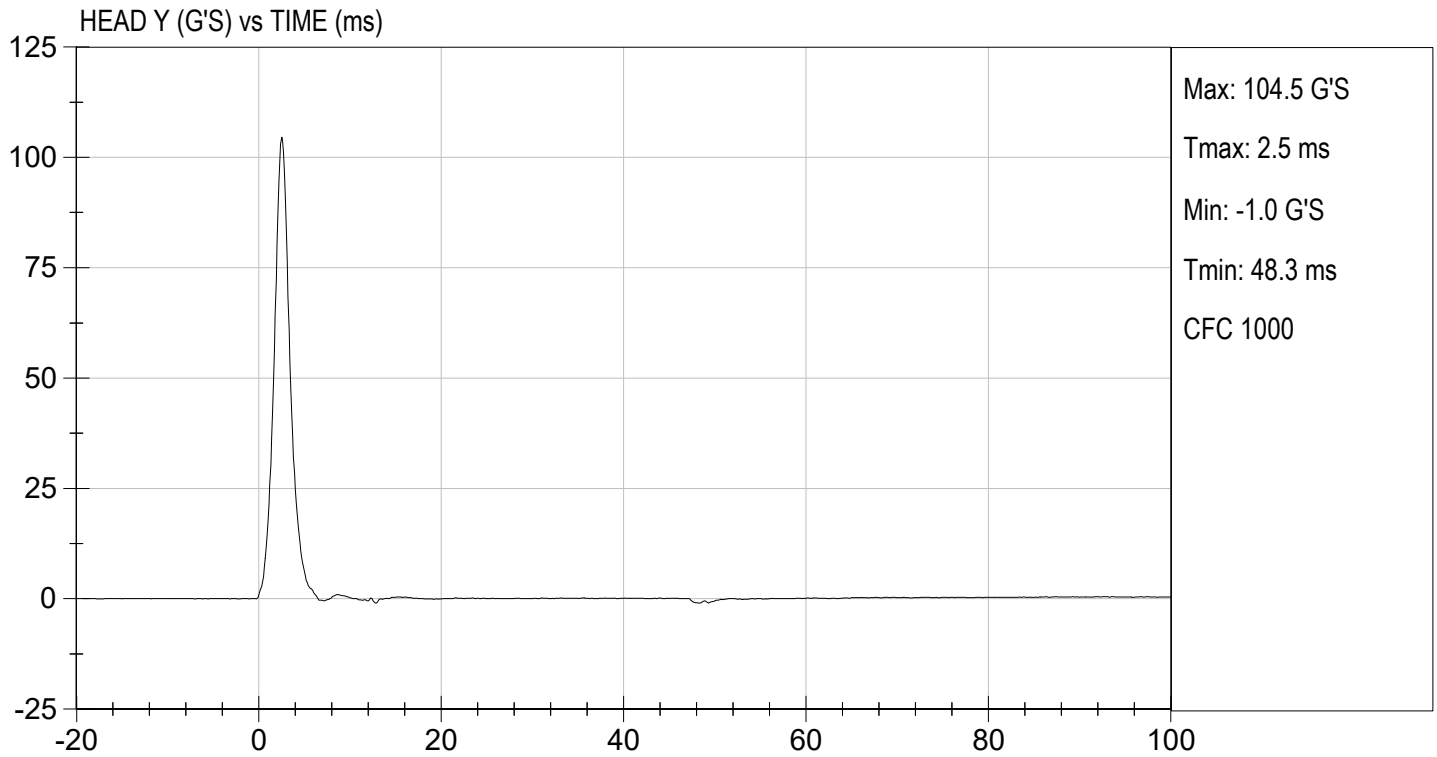

Laboratory Technician

04/14/2023

Test Date


Approved By





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

ATD Serial No: 296

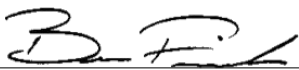
Test I.D: D230982

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.3	Pass
Humidity		%	10 to 70	35	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.35	Pass
	15 ms	m/s	3.30 to 4.10	3.54	Pass
	20 ms	m/s	4.40 to 5.40	5.05	Pass
	25 ms	m/s	5.40 to 6.10	5.69	Pass
	25-100 ms	m/s	5.50 to 6.20	5.71	Pass
Maximum D-Plane Rotation		deg	71 to 81	71	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	60	Pass
Maximum Occipital Condyle Moment		Nm	-44 to -36	-37	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	118	Pass
Overall Test Results				Pass	


 Laboratory Technician

04/14/2023

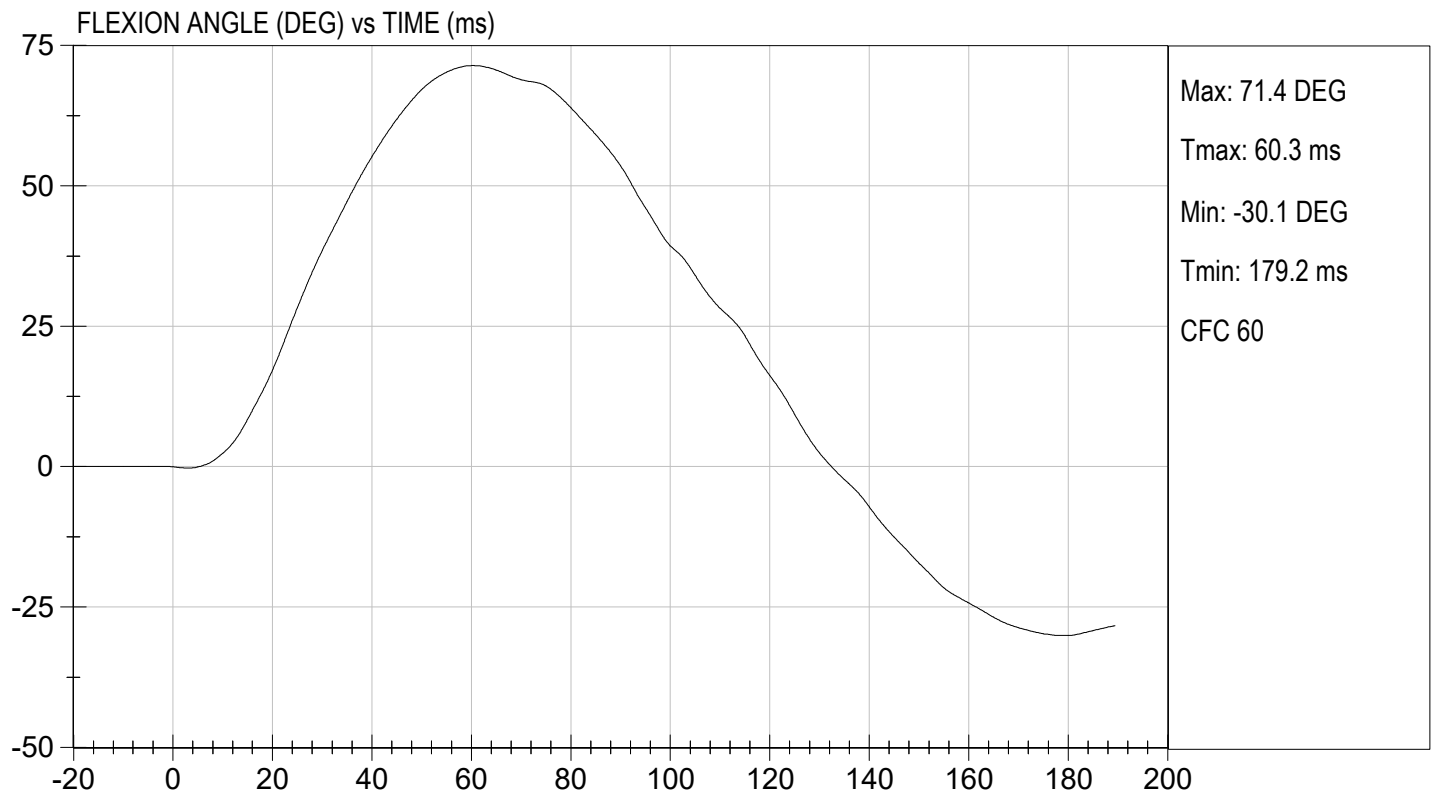
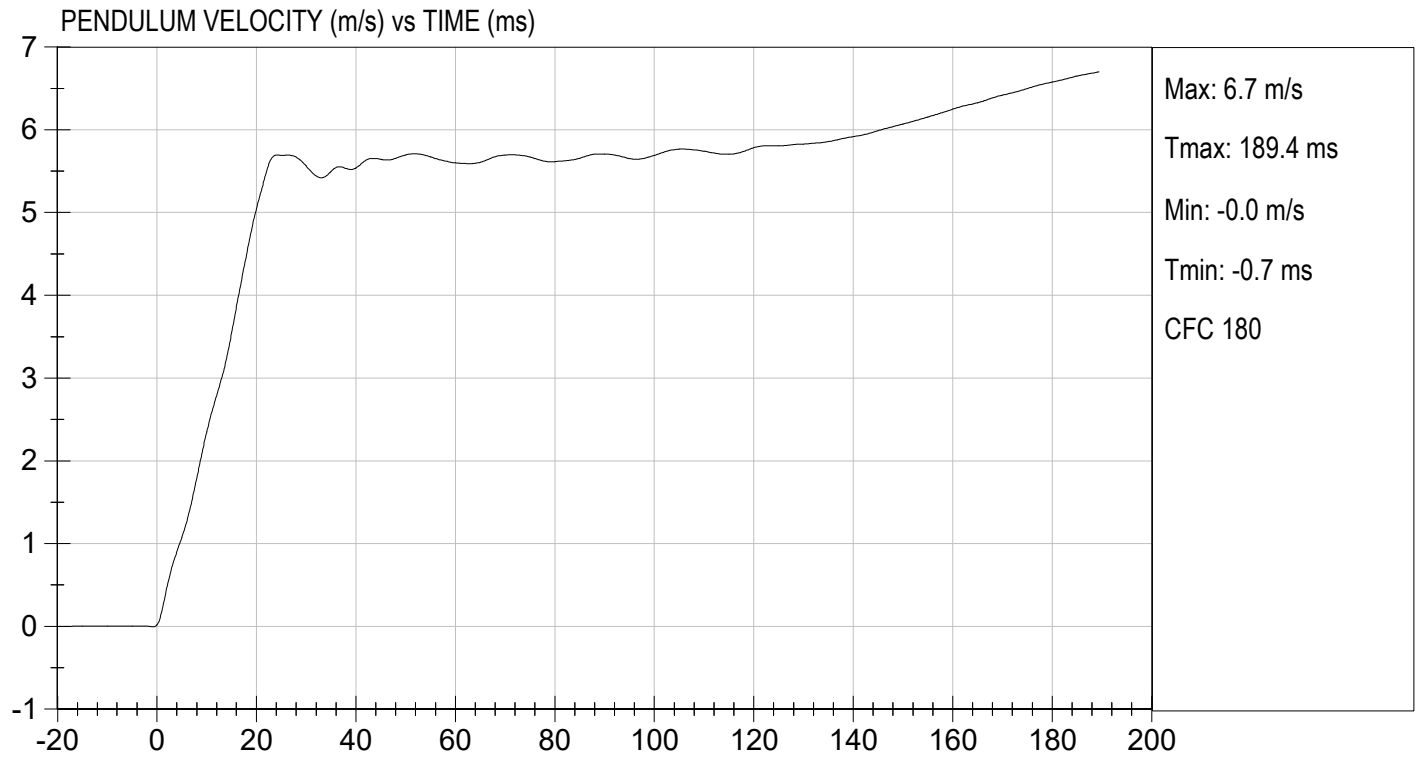
Test Date


 Approved By



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

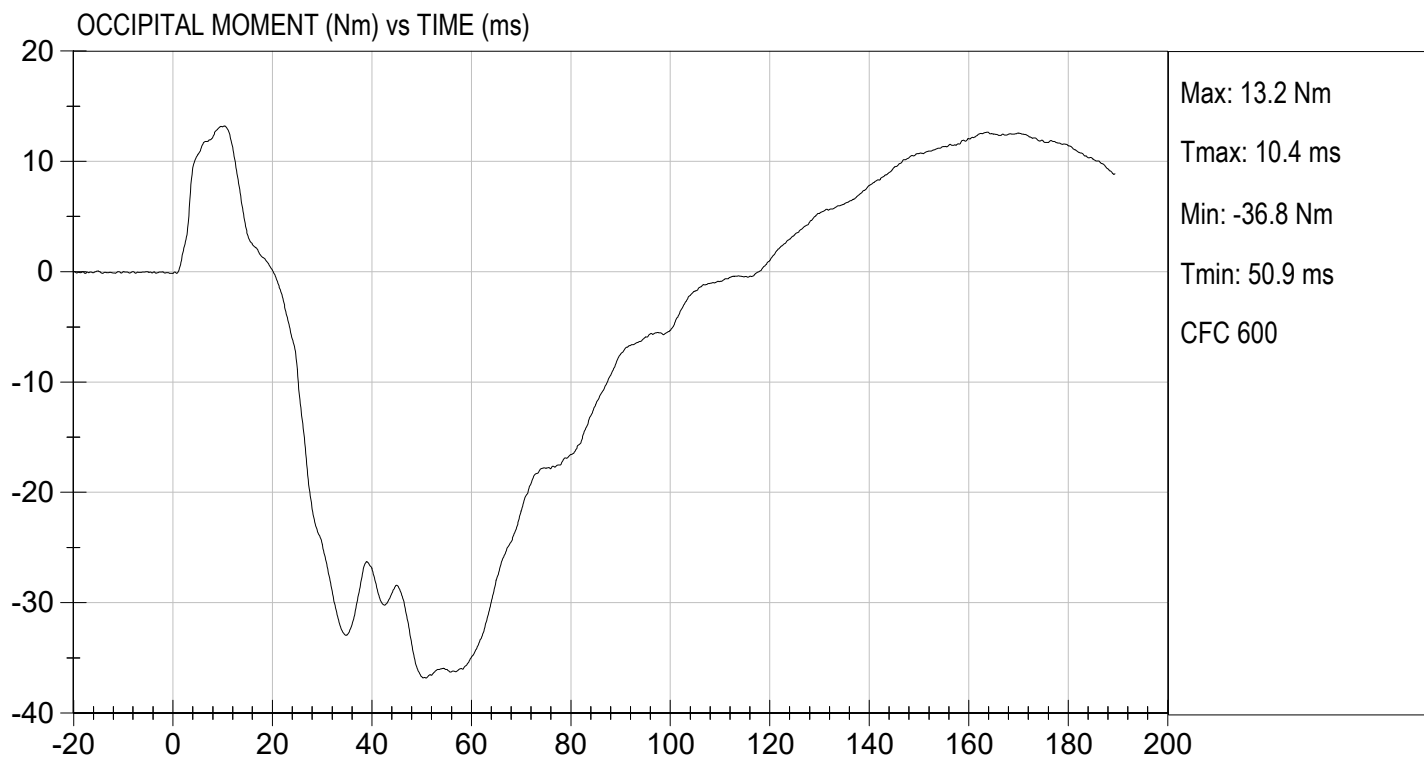
TEST DATE: 04/14/2023
TEST #: D230982





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

TEST DATE: 04/14/2023
TEST #: D230982



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

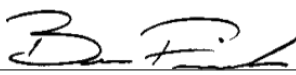
ATD Serial No: 296

Test ID: D230983

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	37	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	30	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	21	Pass
Overall Test Results			Pass	


Laboratory Technician

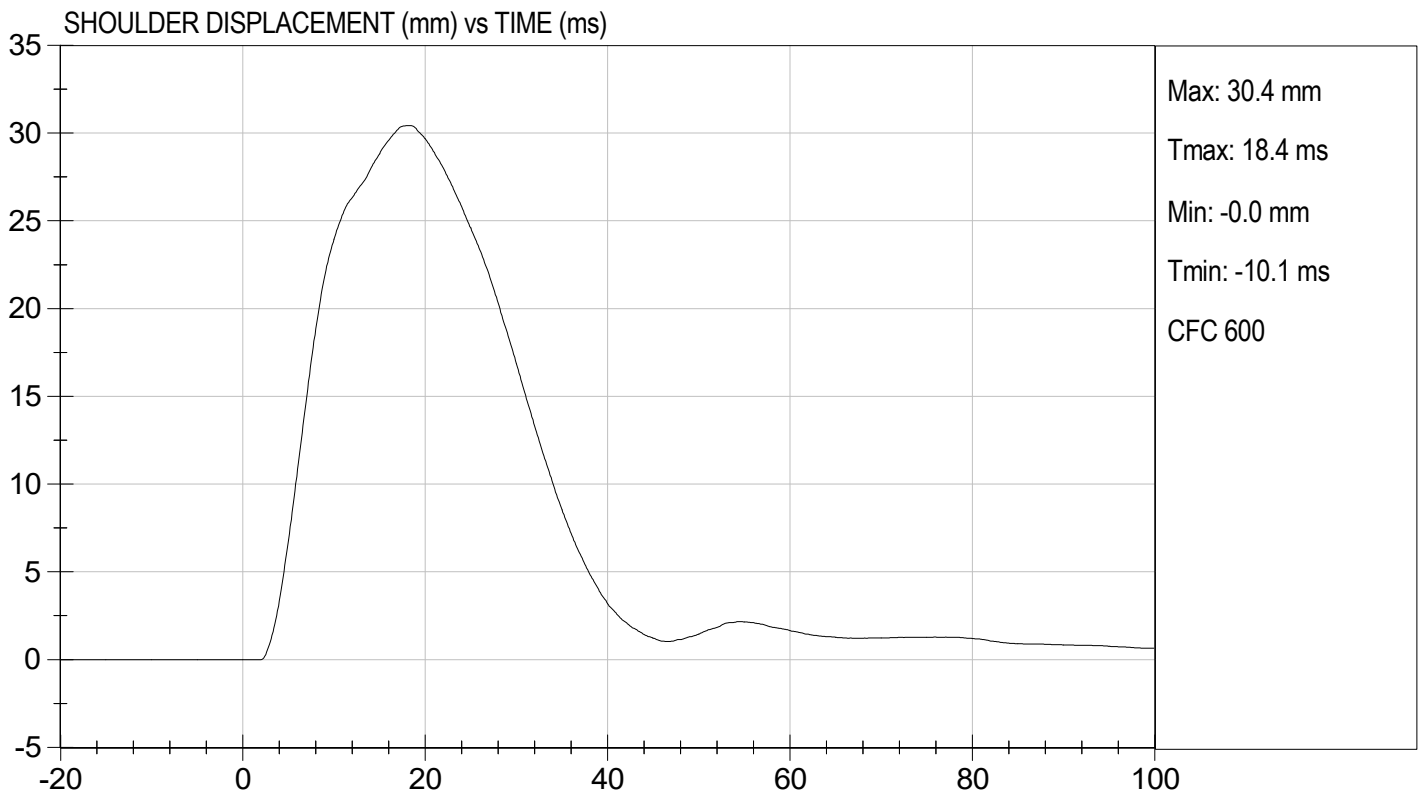
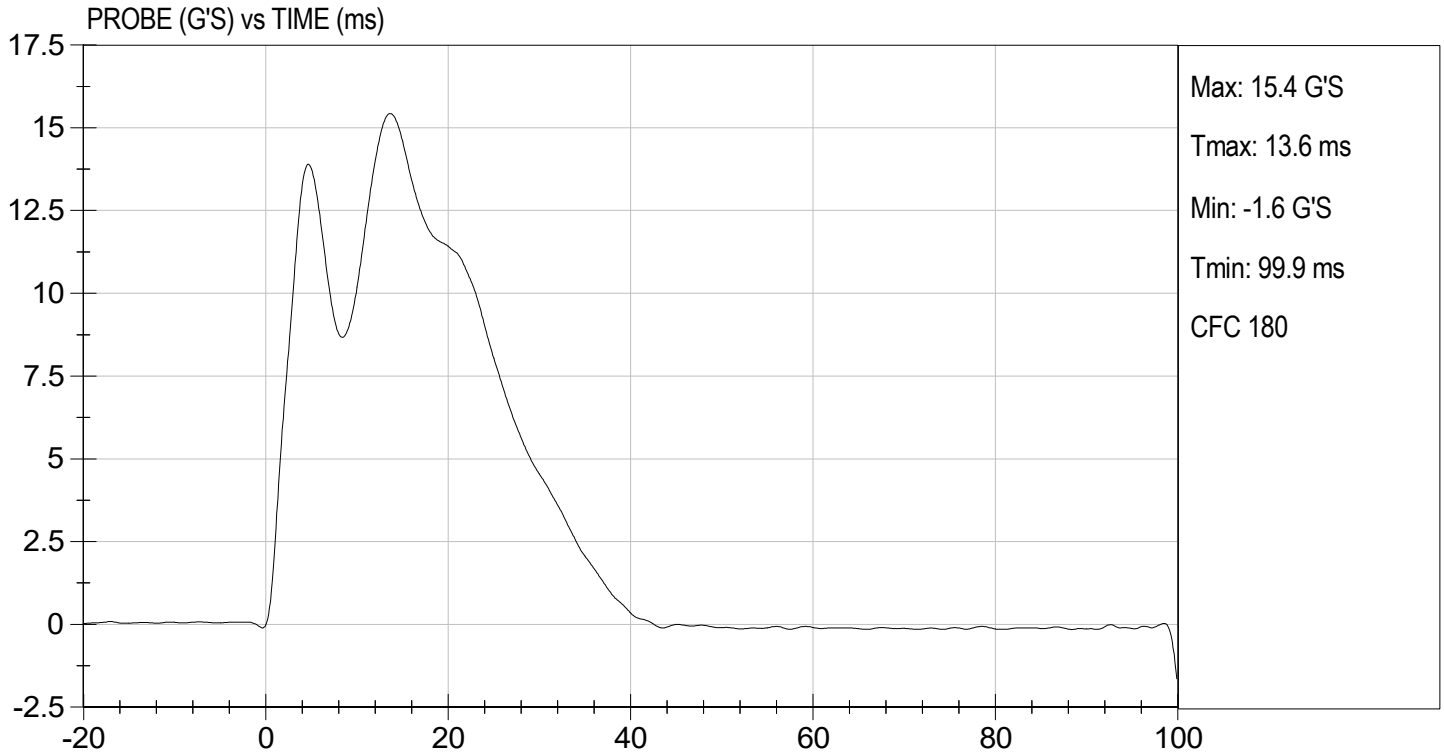
04/14/2023
Test Date


Approved By



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

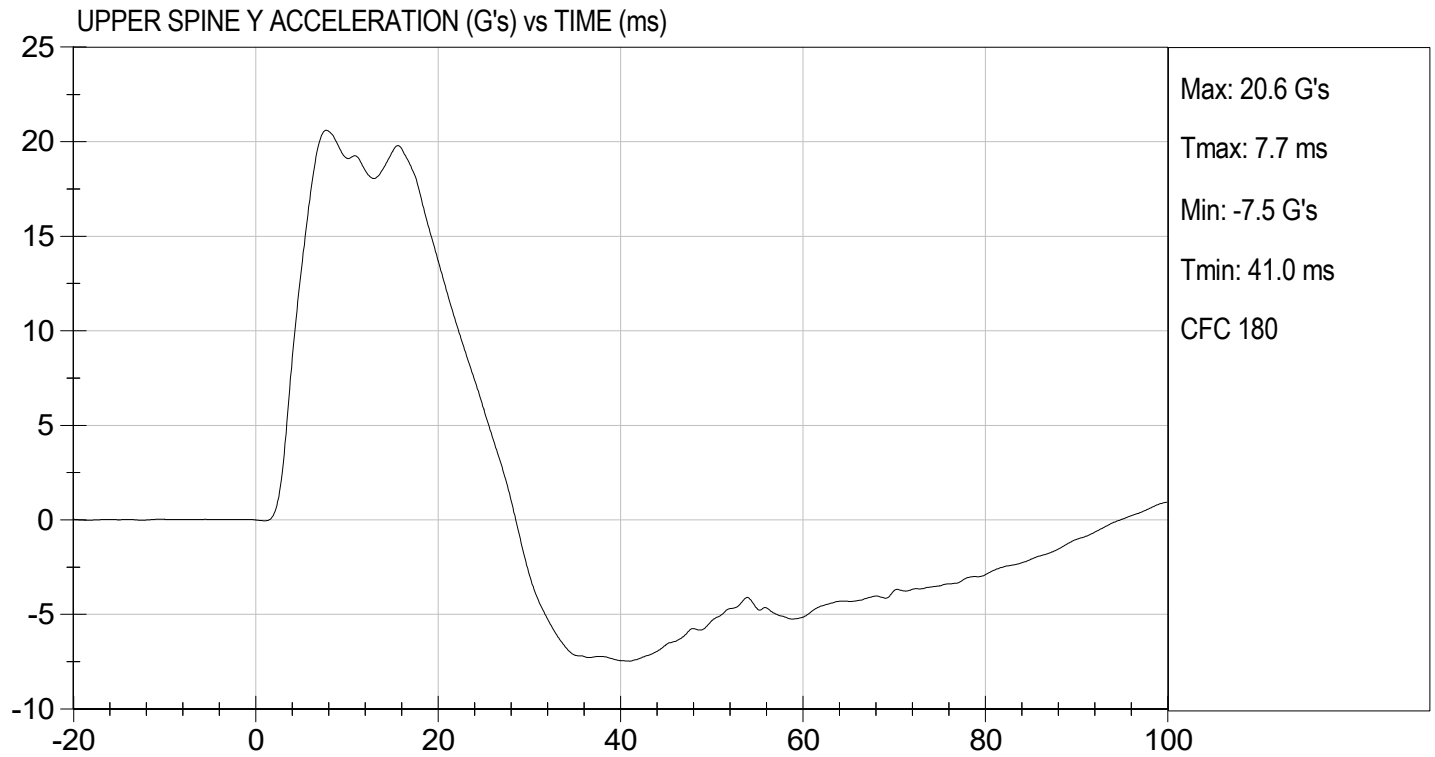
TEST DATE: 04/14/2023
TEST #: D230983





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

TEST DATE: 04/14/2023
TEST #: D230983



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

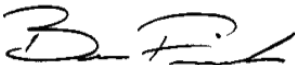
ATD Serial No: 296

Test I.D: D230984

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	37	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	30 to 36	34	Pass
Shoulder Displacement	mm	31 to 40	31	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	36	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	39	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	32	Pass
Overall Test Results				Pass


Laboratory Technician

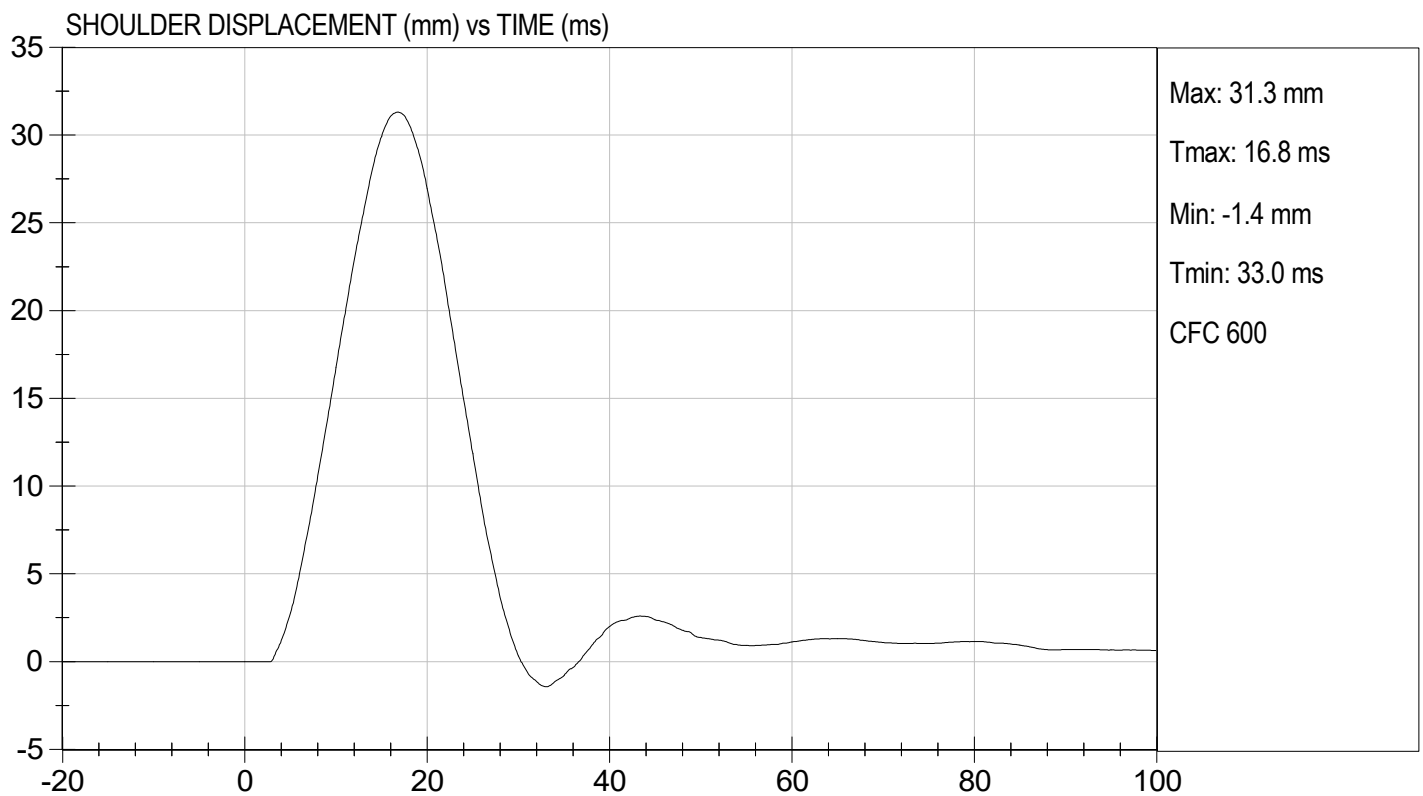
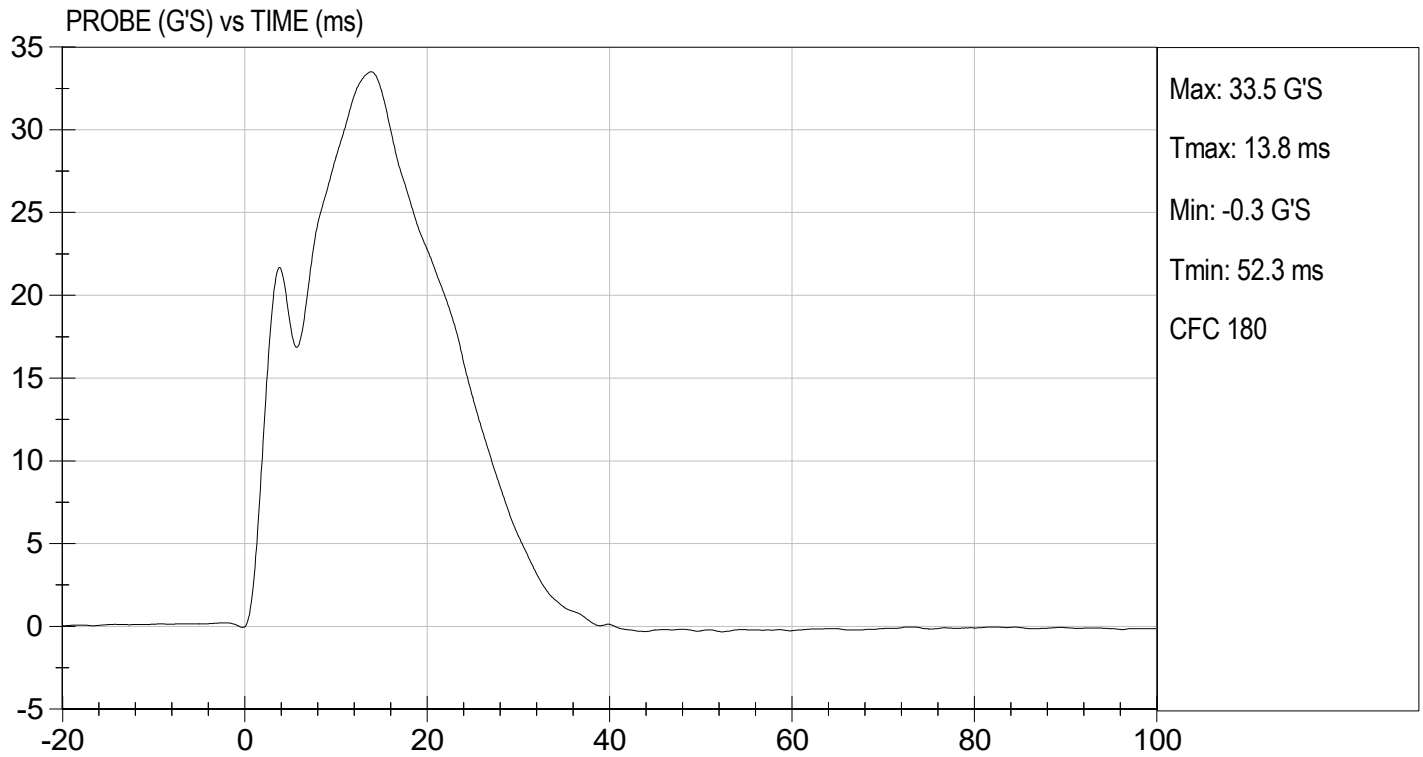
04/14/2023
Test Date


Approved By



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

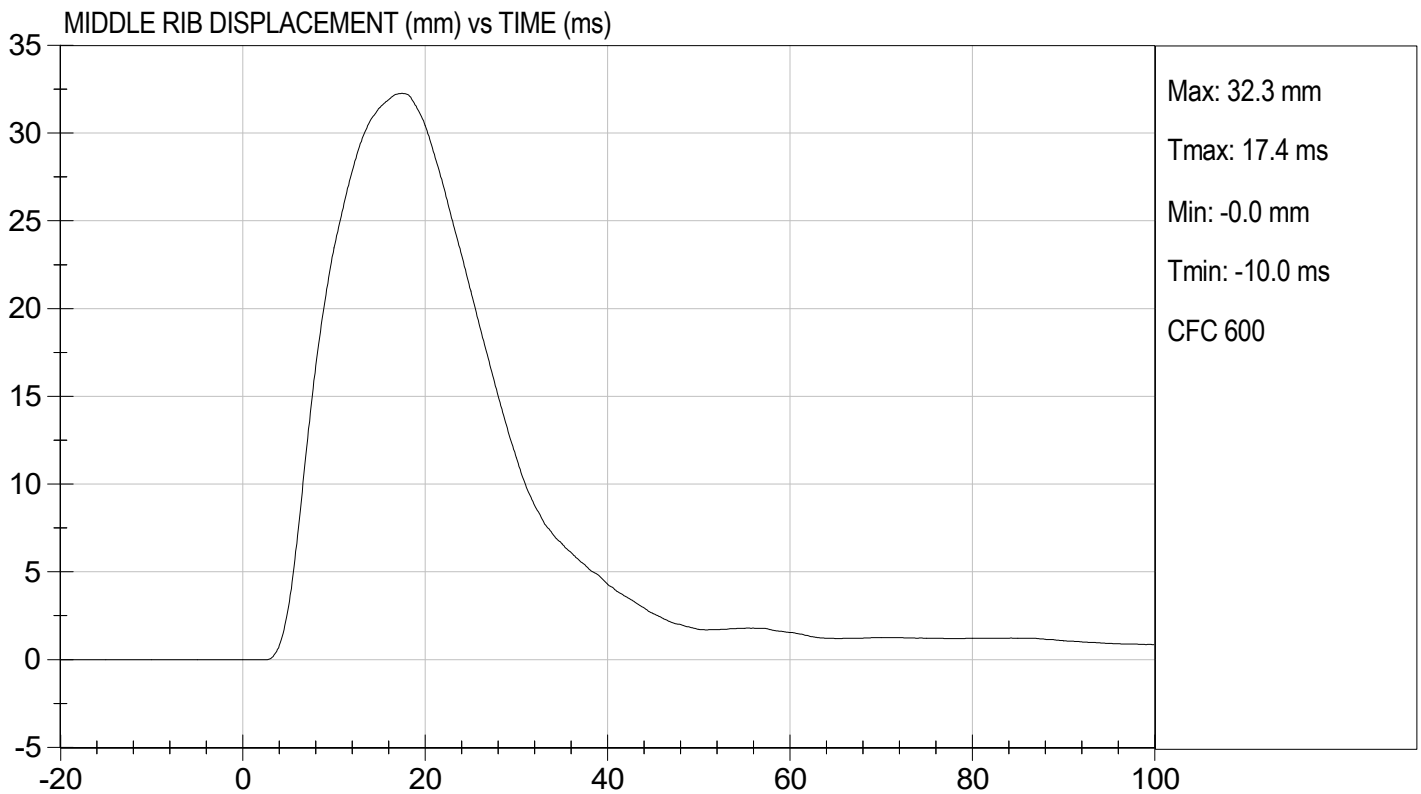
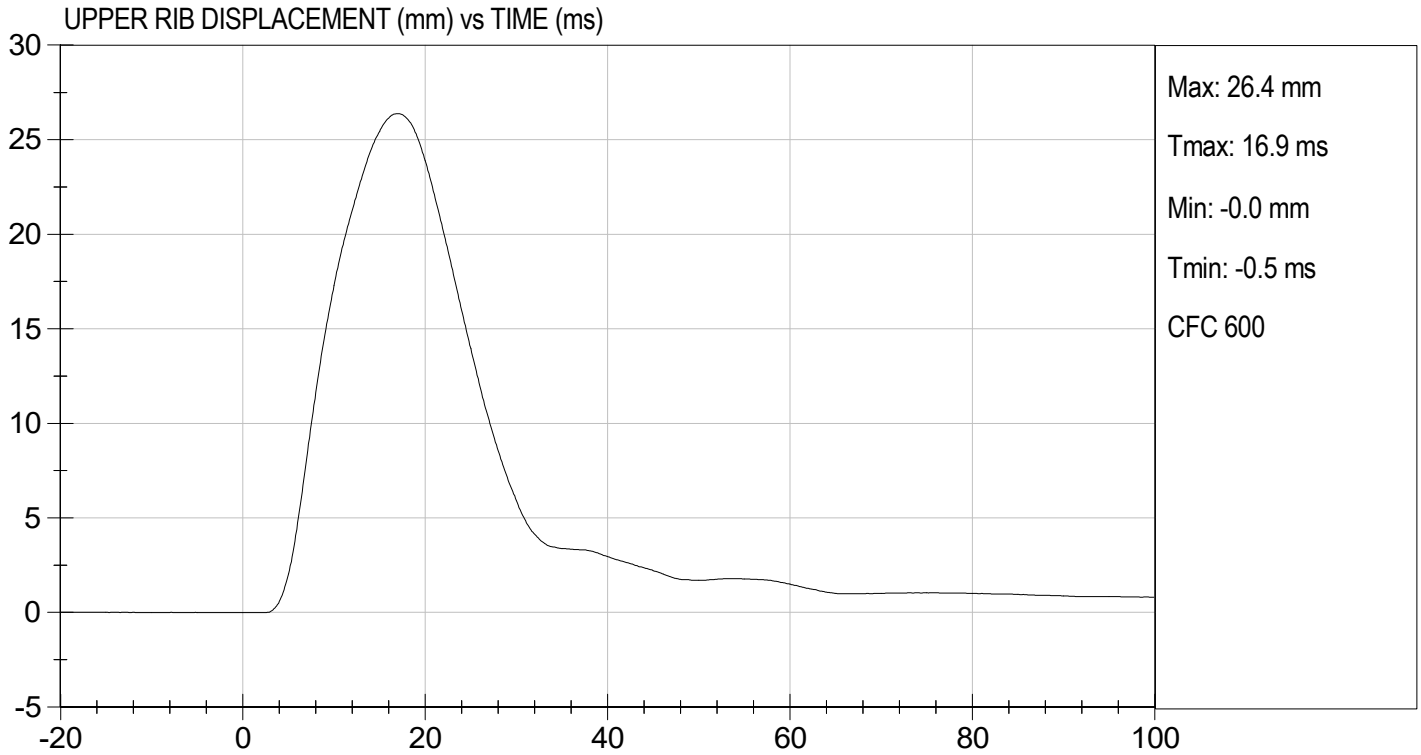
TEST DATE: 04/14/2023
TEST #: D230984





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

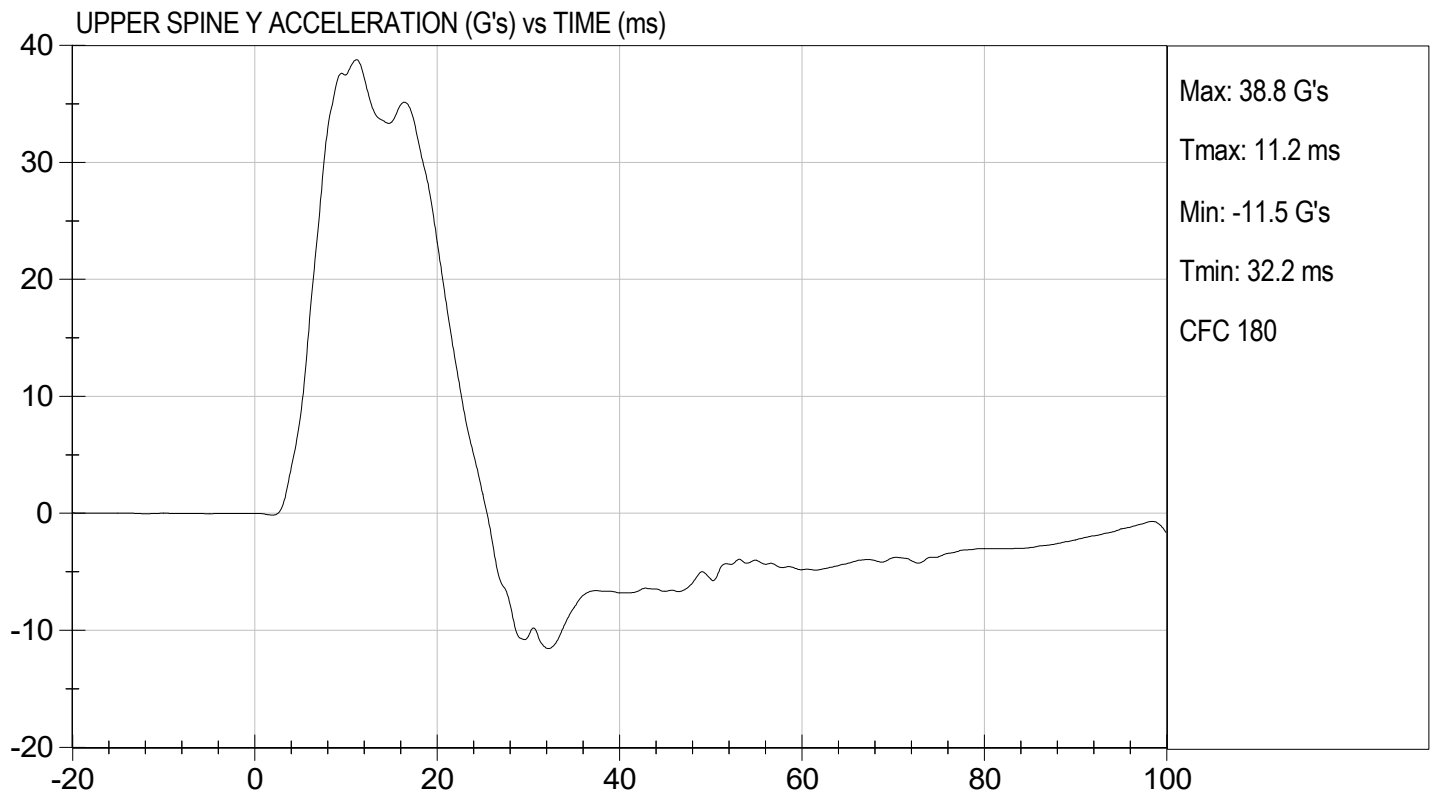
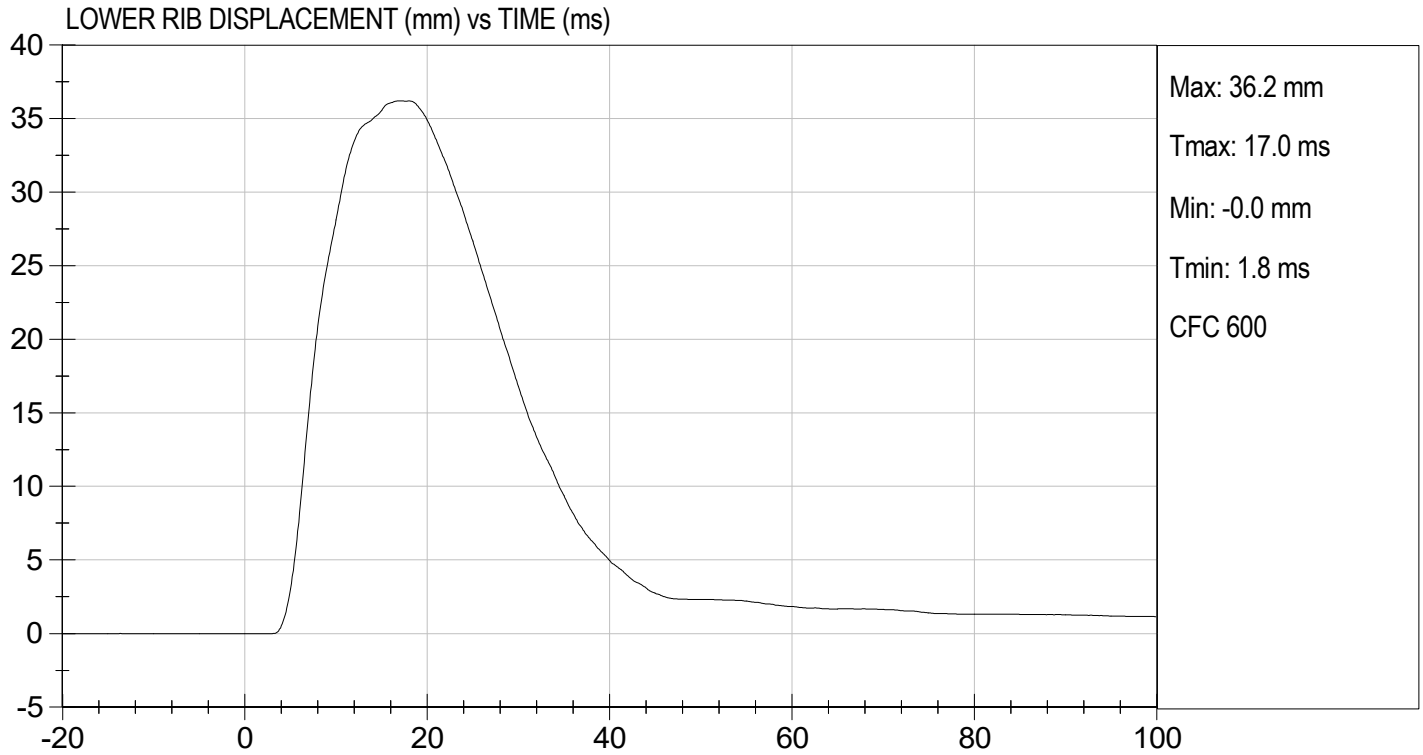
TEST DATE: 04/14/2023
TEST #: D230984





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

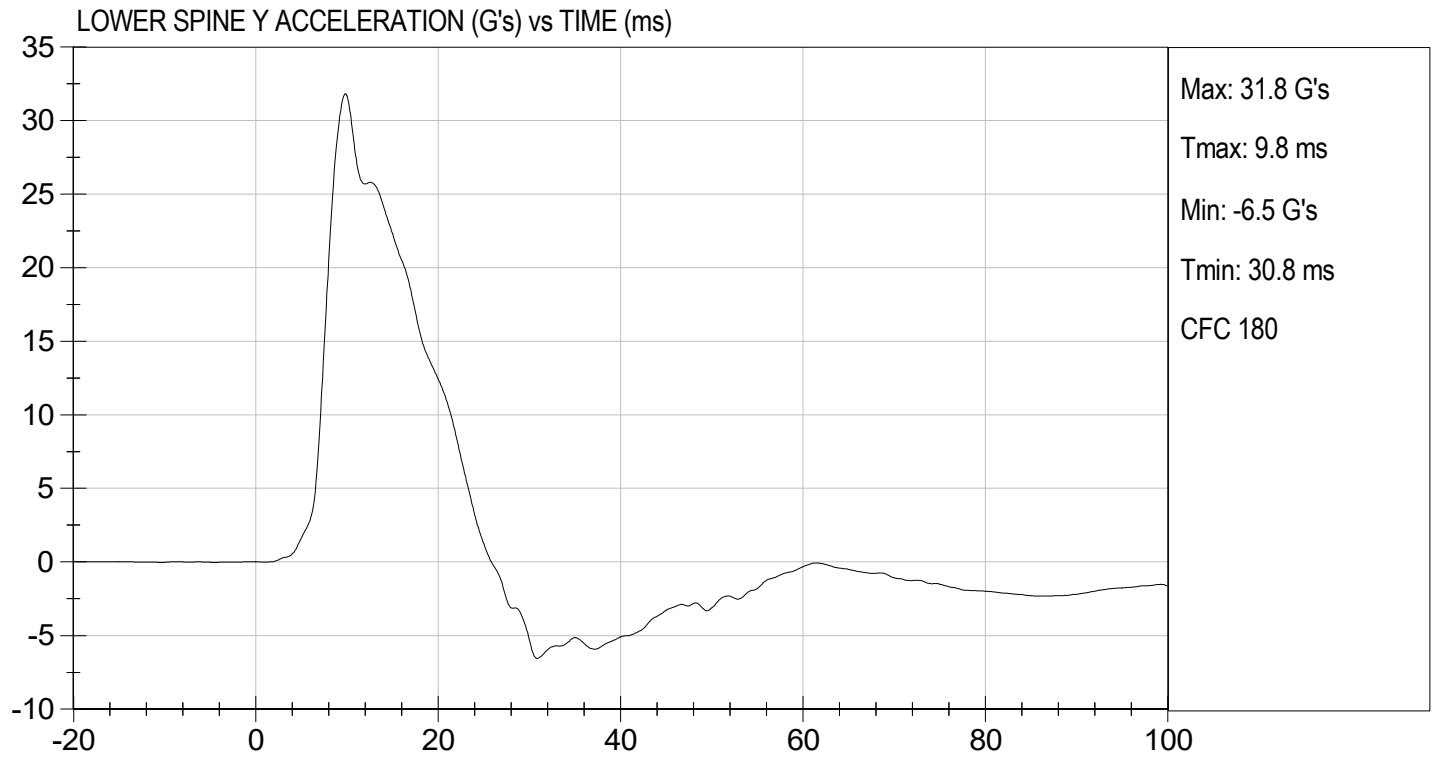
TEST DATE: 04/14/2023
TEST #: D230984





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

TEST DATE: 04/14/2023
TEST #: D230984



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

ATD Serial No: 296

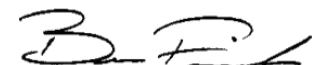
Test I.D: D230985

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	37	Pass
Impact Velocity	m/s	4.20 to 4.40	4.27	Pass
Maximum Probe Acceleration	G's	14 to 18	16	Pass
Upper Rib Displacement	mm	32 to 40	37	Pass
Middle Rib Displacement	mm	39 to 45	43	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	10	Pass
Overall Test Results				Pass


Laboratory Technician

04/14/2023

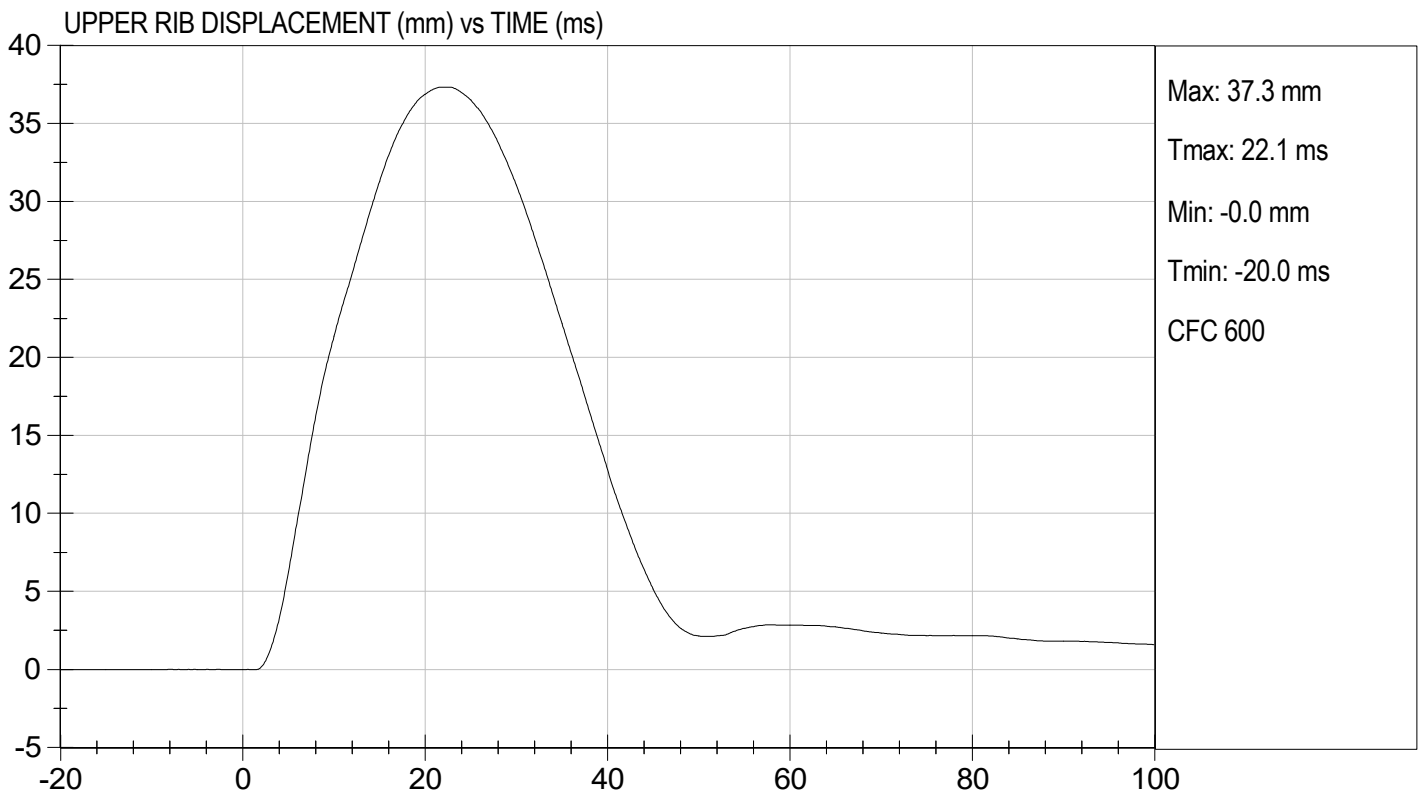
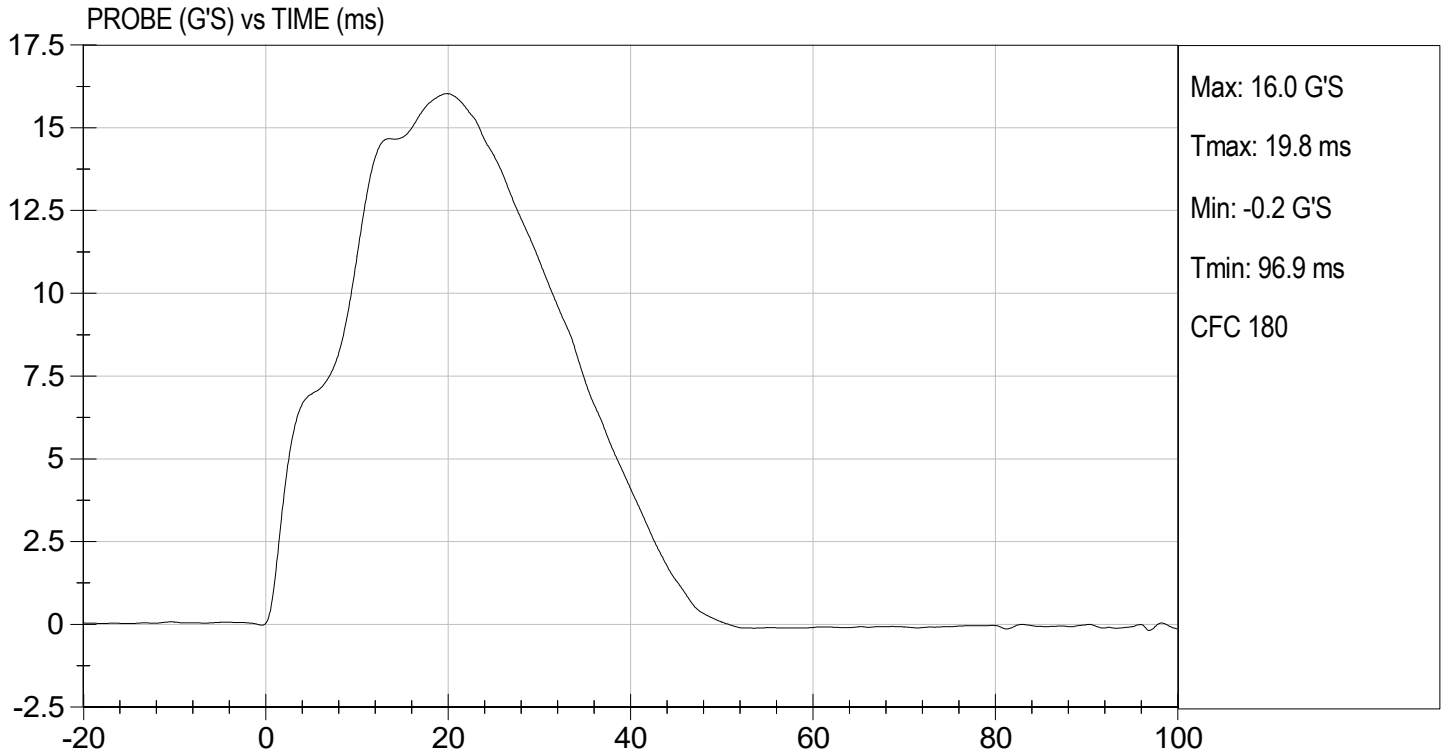
Test Date


Approved By



TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.01 ft/s, 4.27 m/s

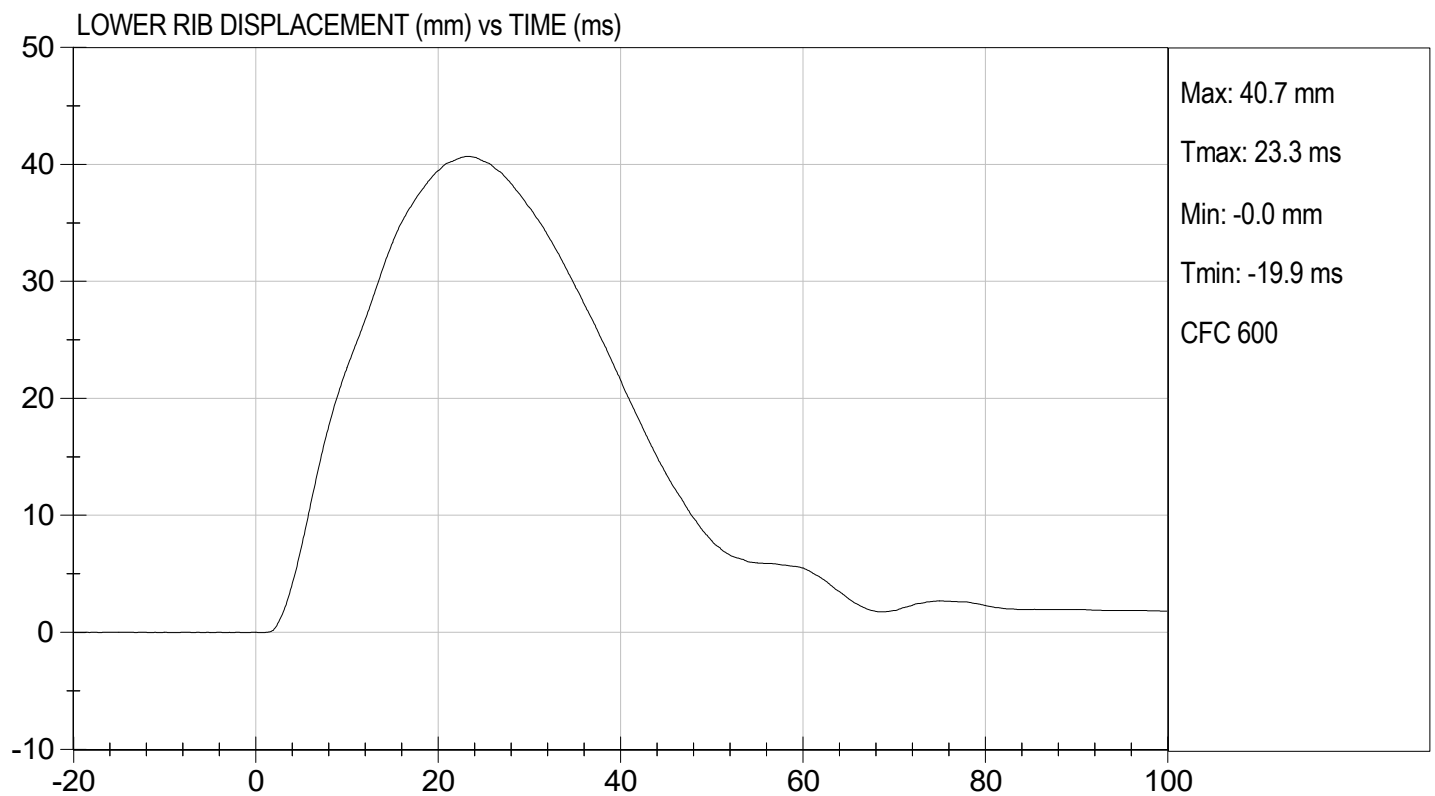
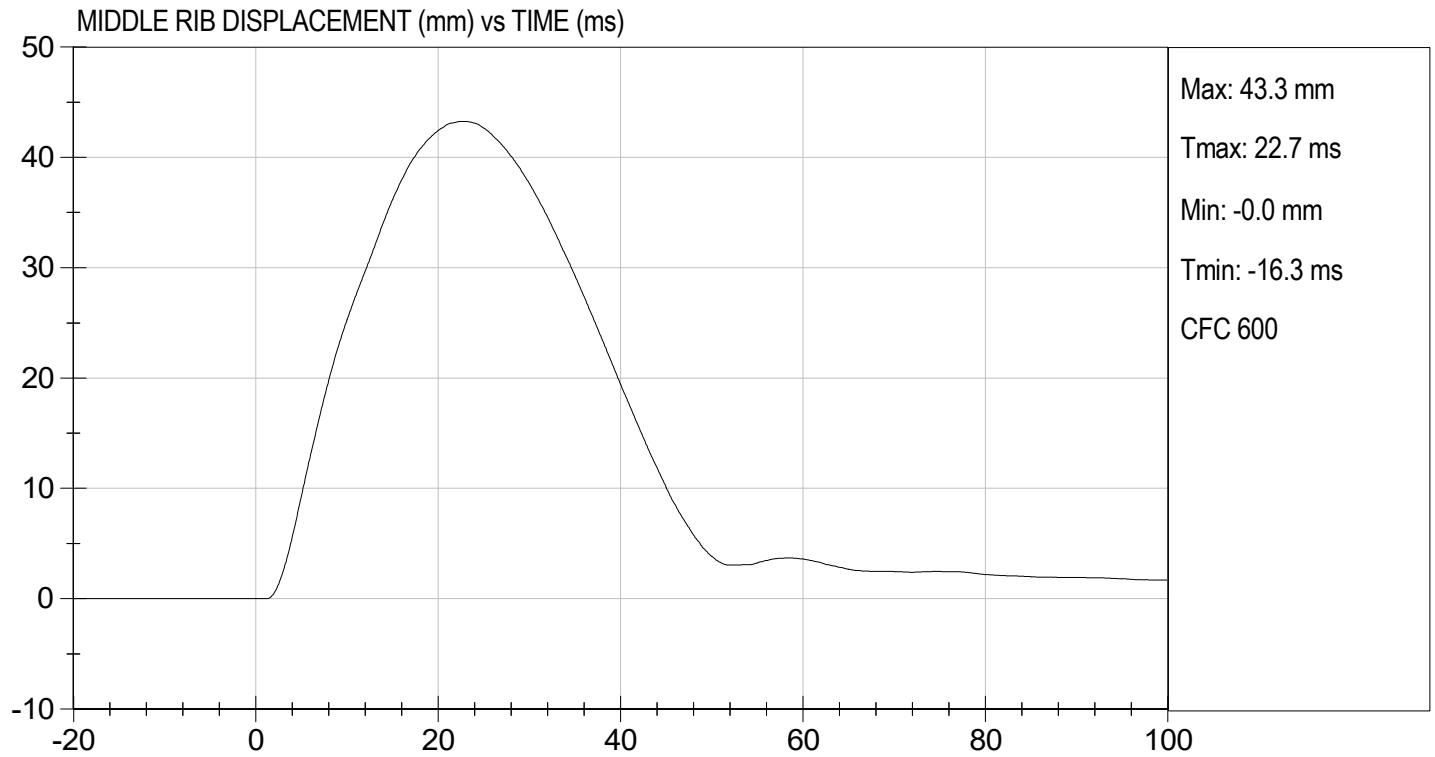
TEST DATE: 04/14/2023
TEST #: D230985





TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.01 ft/s, 4.27 m/s

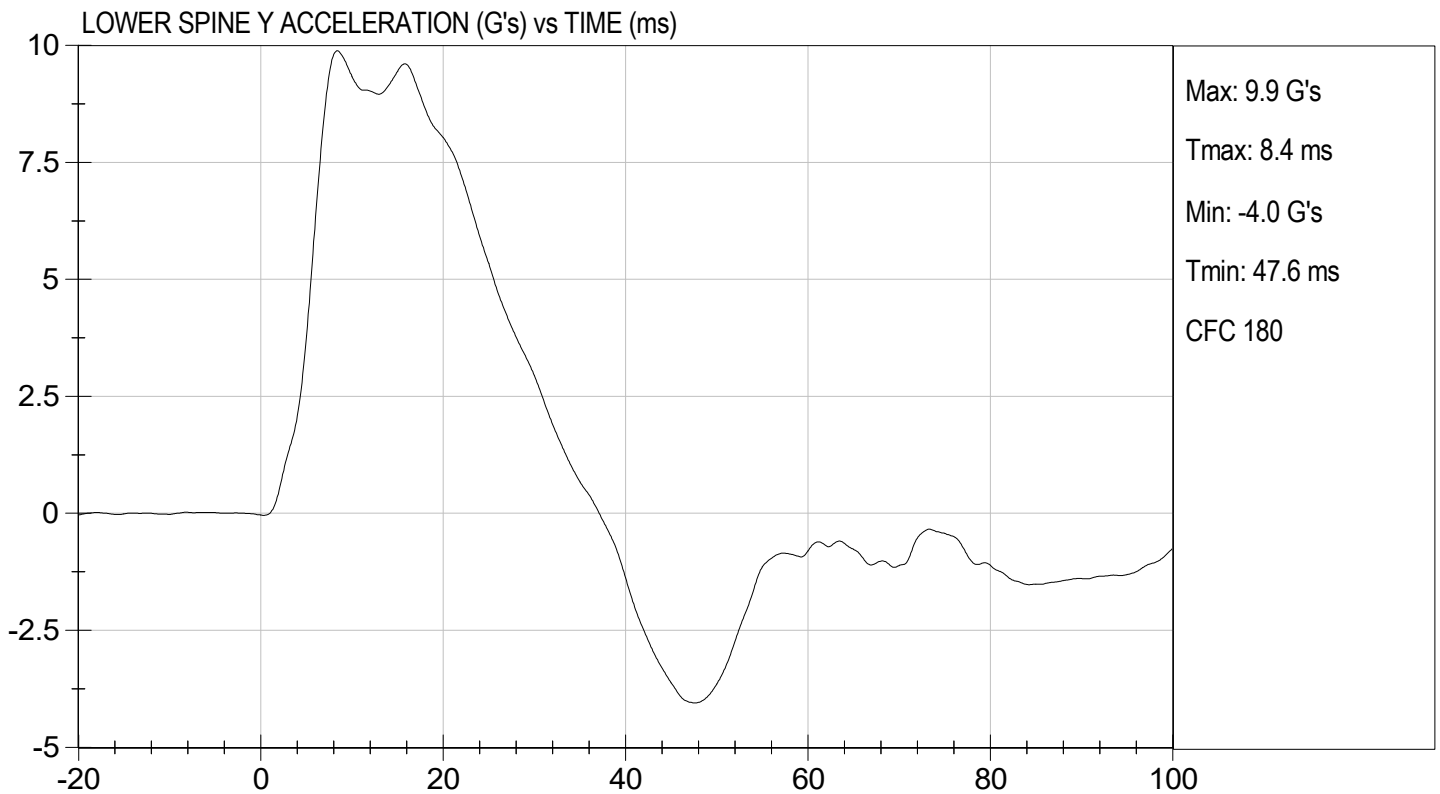
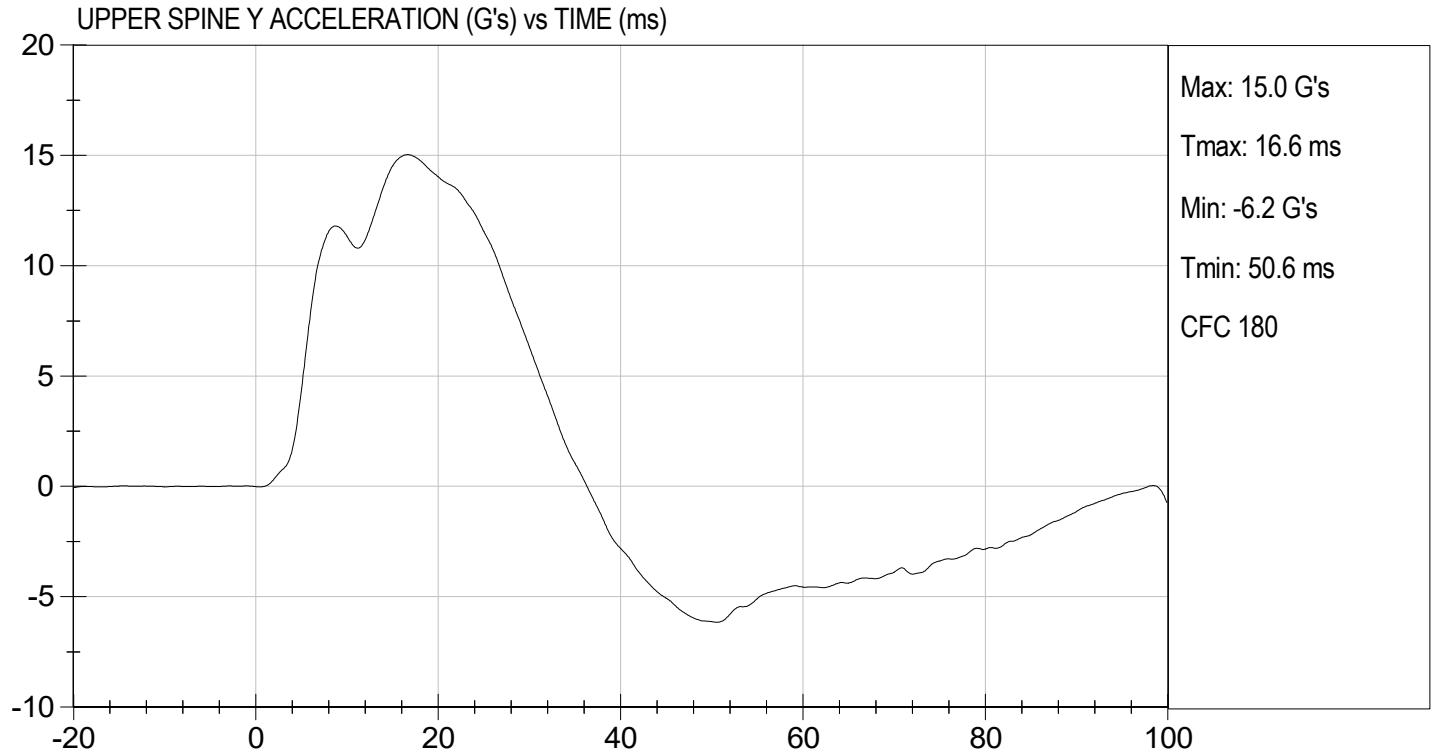
TEST DATE: 04/14/2023
TEST #: D230985





TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.01 ft/s, 4.27 m/s

TEST DATE: 04/14/2023
TEST #: D230985



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

ATD Serial No: 296

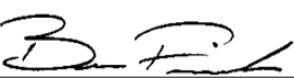
Test I.D: D230986

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	37	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	12 to 16	14	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	43	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	36	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	12	Pass
Overall Test Results				Pass


Laboratory Technician

04/14/2023

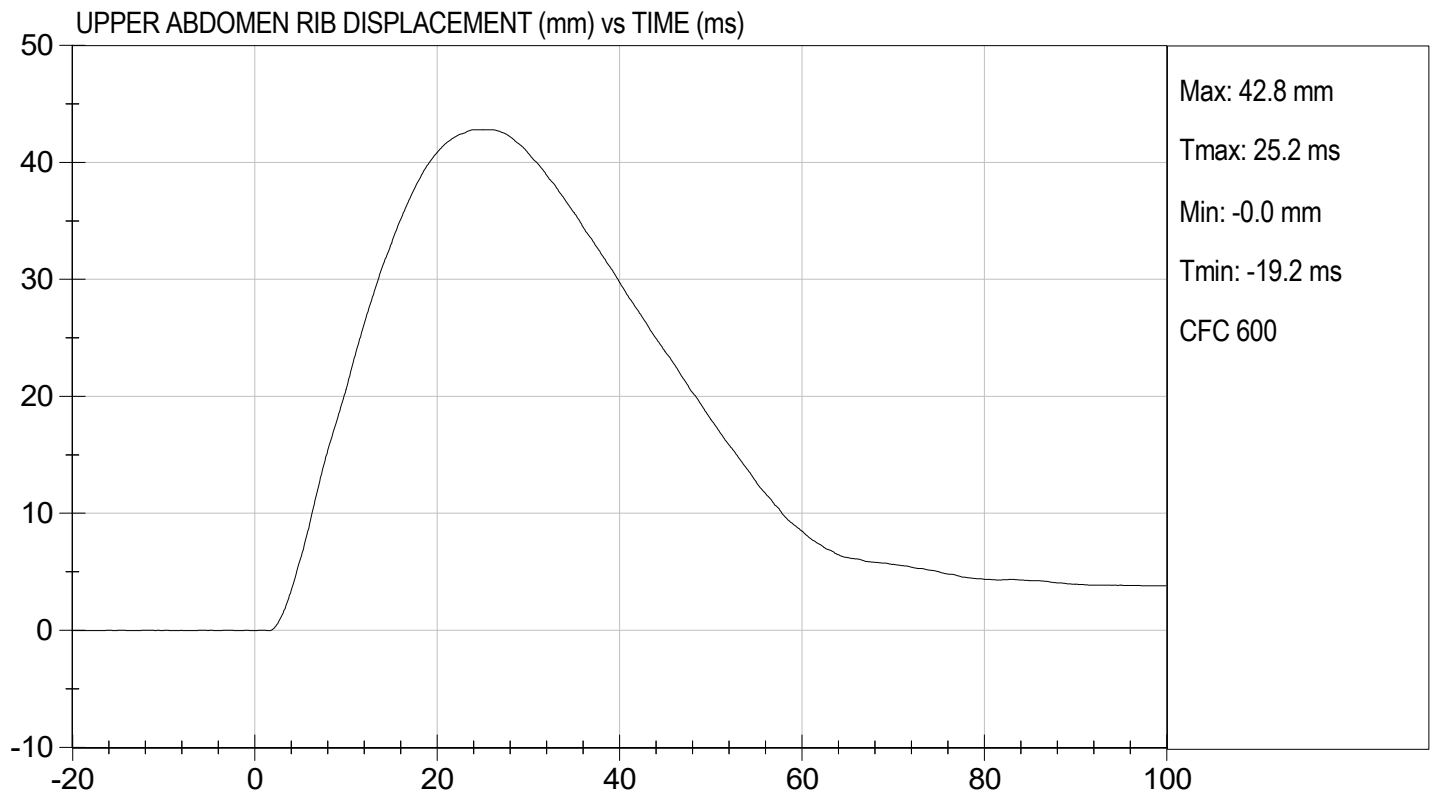
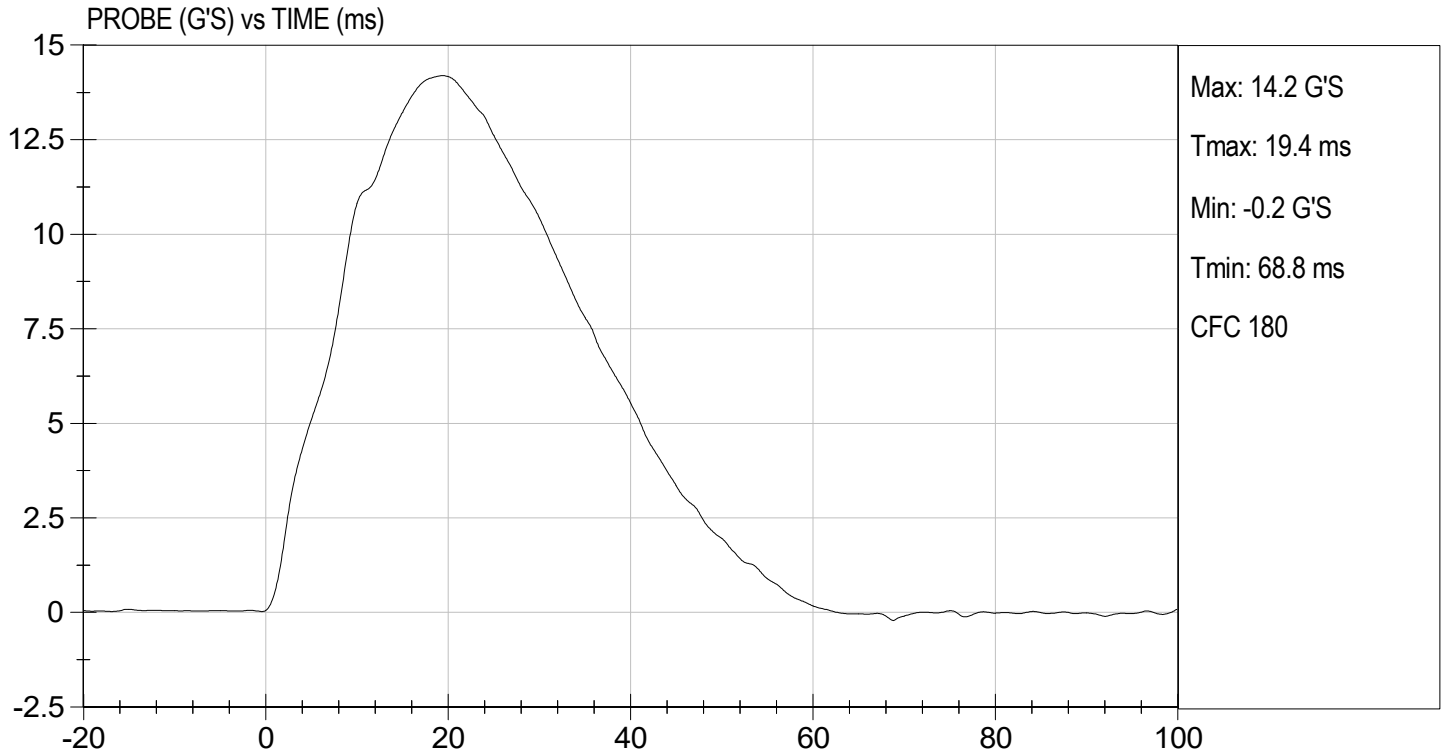
Test Date


Approved By



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

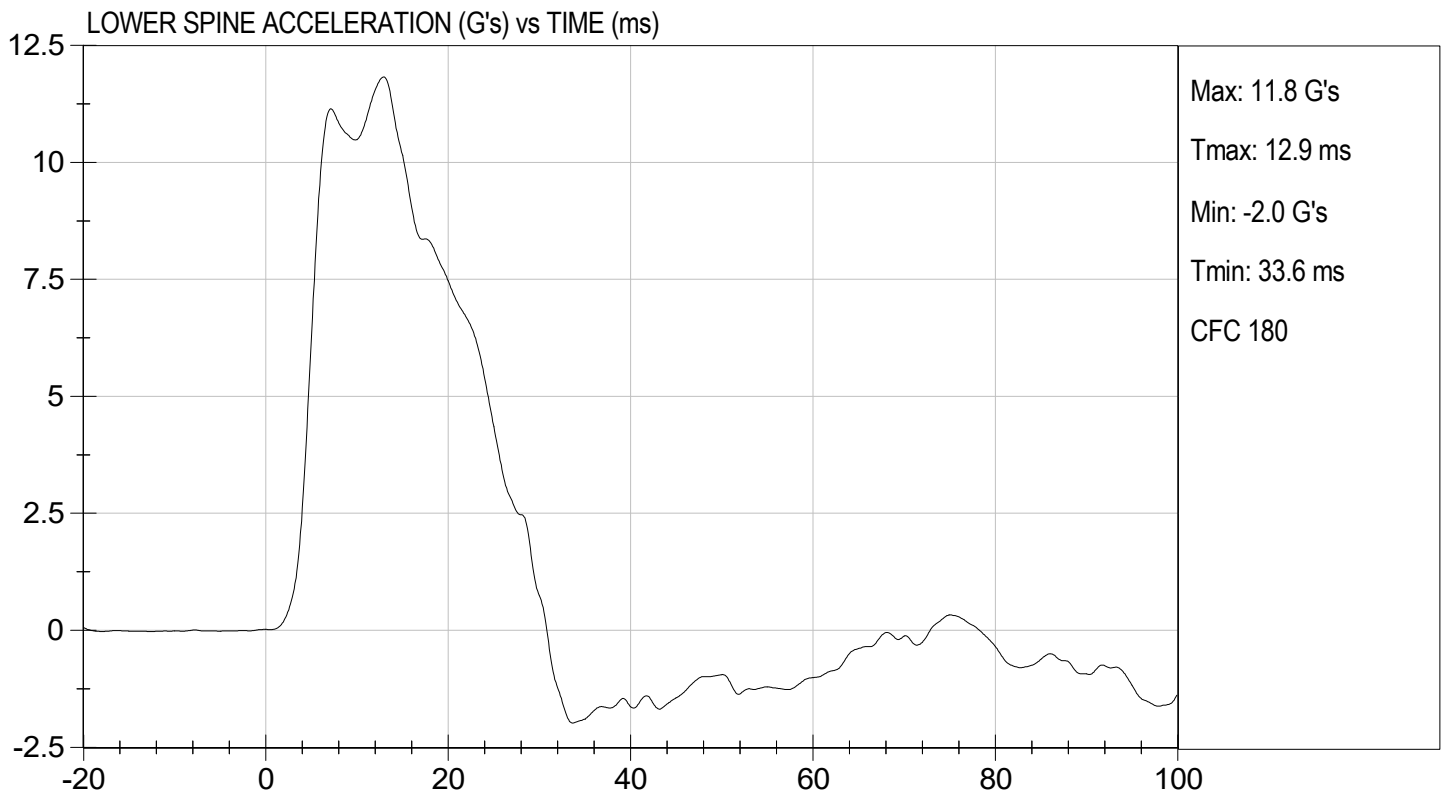
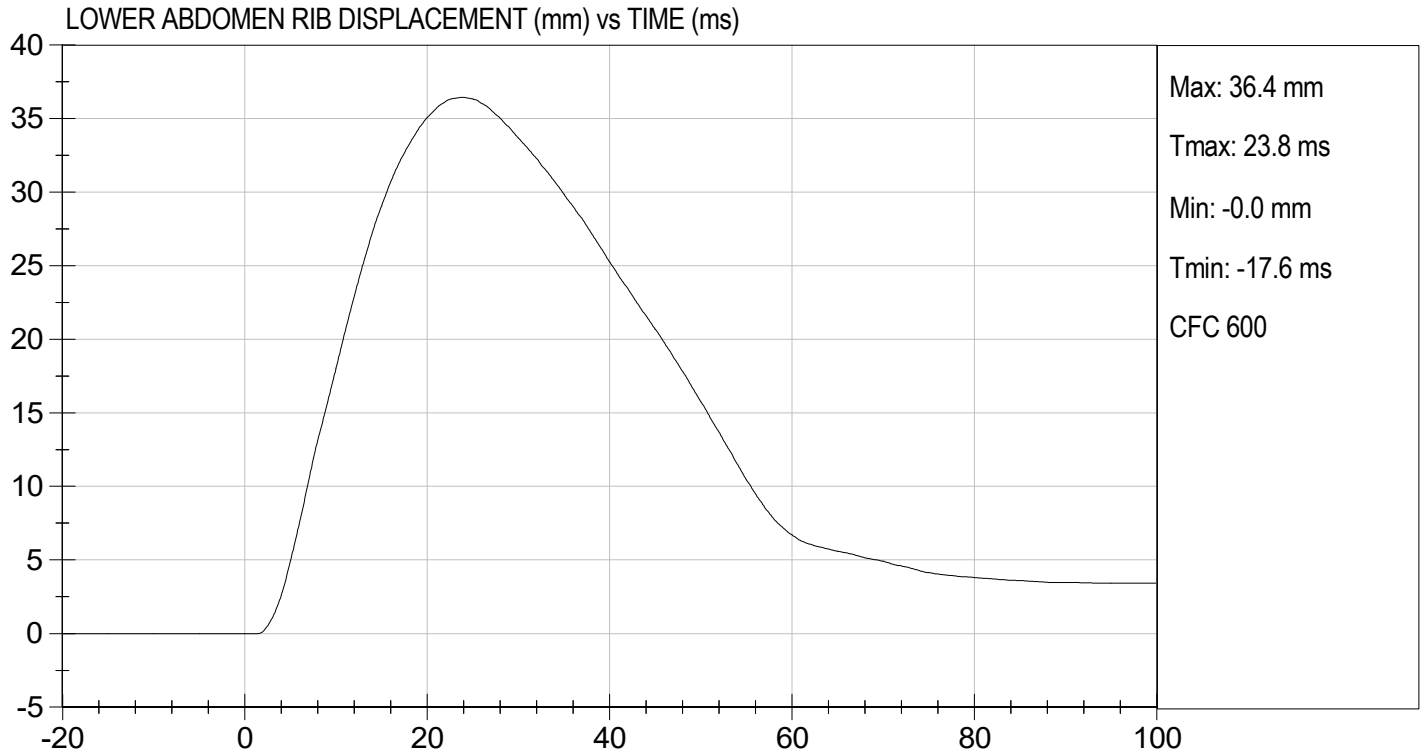
TEST DATE: 04/14/2023
TEST #: D230986





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

TEST DATE: 04/14/2023
TEST #: D230986



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

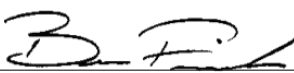
Test I.D: D230987

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	37	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	38 to 47	41	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	40	Pass
Peak Acetabulum Force	N	3600 to 4300	3,797	Pass
Overall Test Results				Pass


Laboratory Technician

04/14/2023

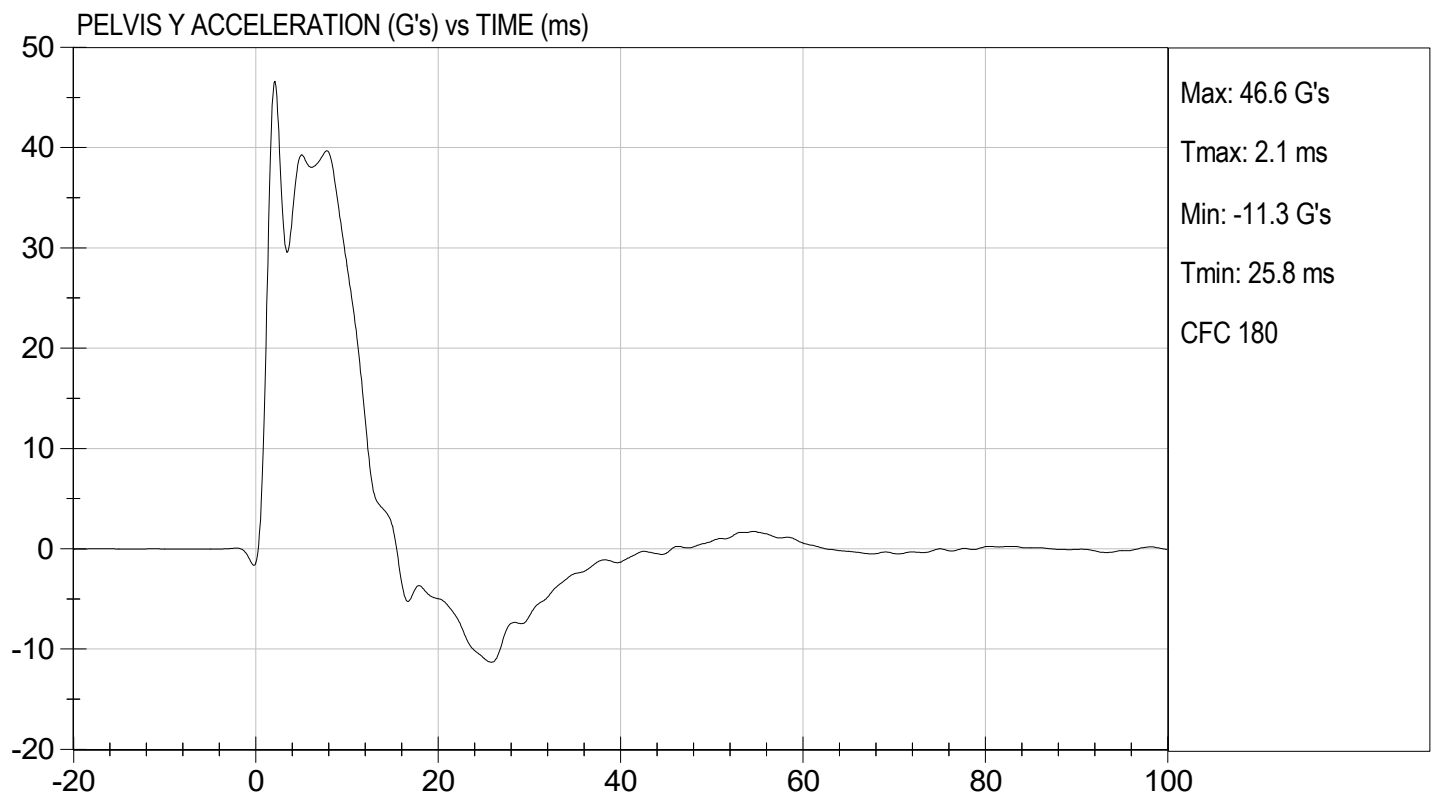
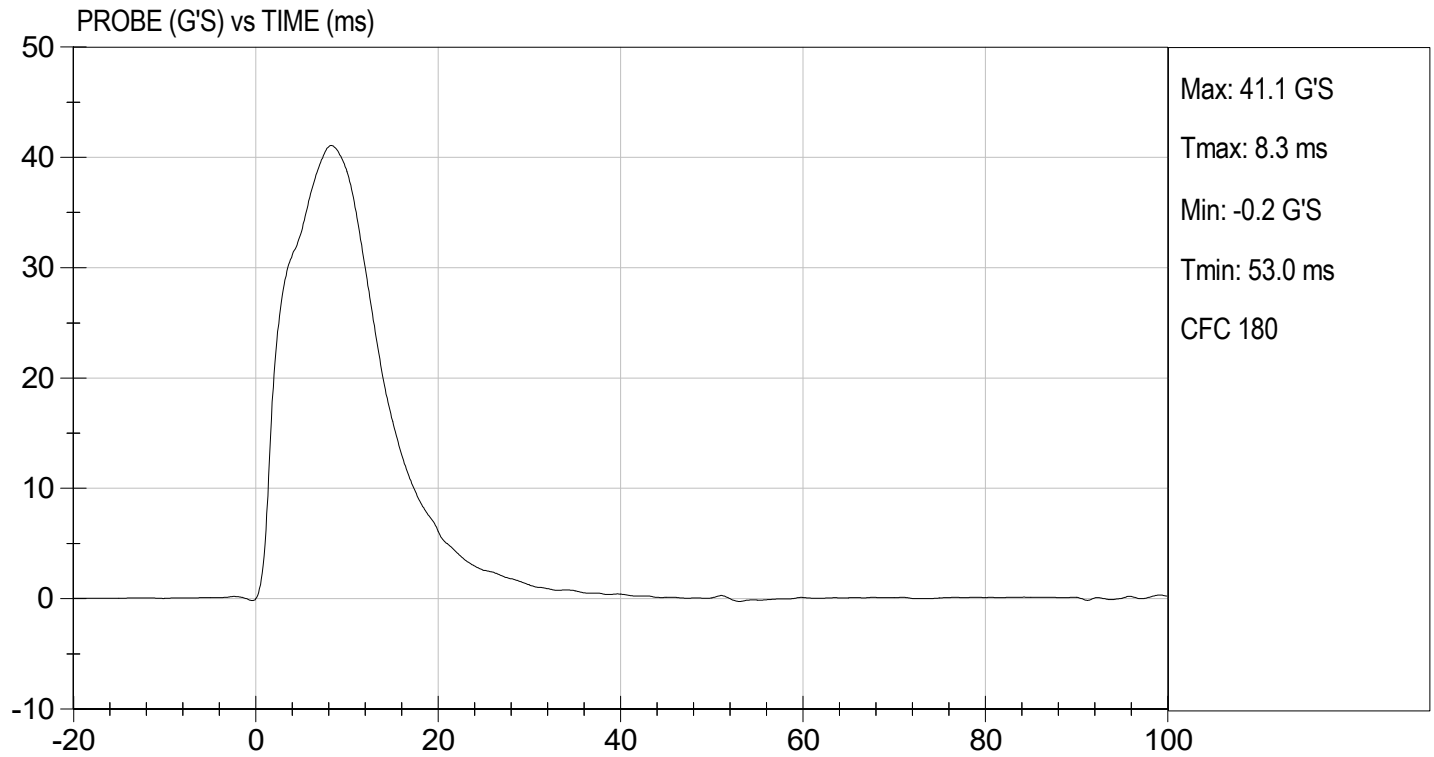
Test Date


Approved By



TEST DESC: PELVIS IMPACT
VELOCITY: 22.22 ft/s, 6.77 m/s

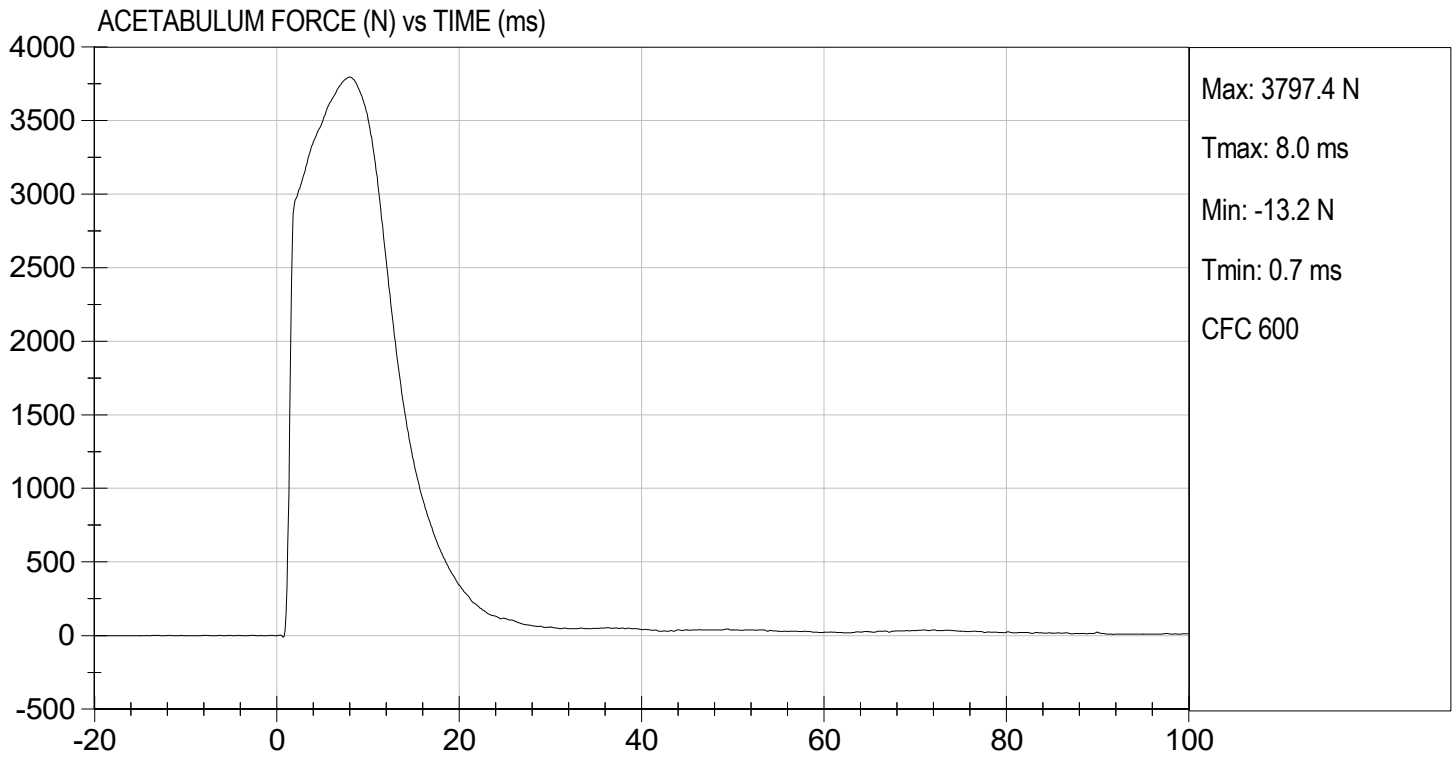
TEST DATE: 04/14/2023
TEST #: D230987





TEST DESC: PELVIS IMPACT
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 04/14/2023
TEST #: D230987



MGA RESEARCH CORPORATION

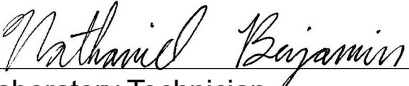
ILIAC IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

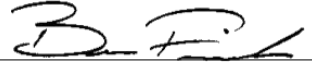
Test I.D: D230988

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	37	Pass
Impact Velocity	m/s	4.20 to 4.40	4.21	Pass
Maximum Probe Acceleration	G's	36 to 45	41	Pass
Pelvis Y Acceleration	G's	28 to 39	32	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,791	Pass
Overall Test Results				Pass


Laboratory Technician

04/14/2023

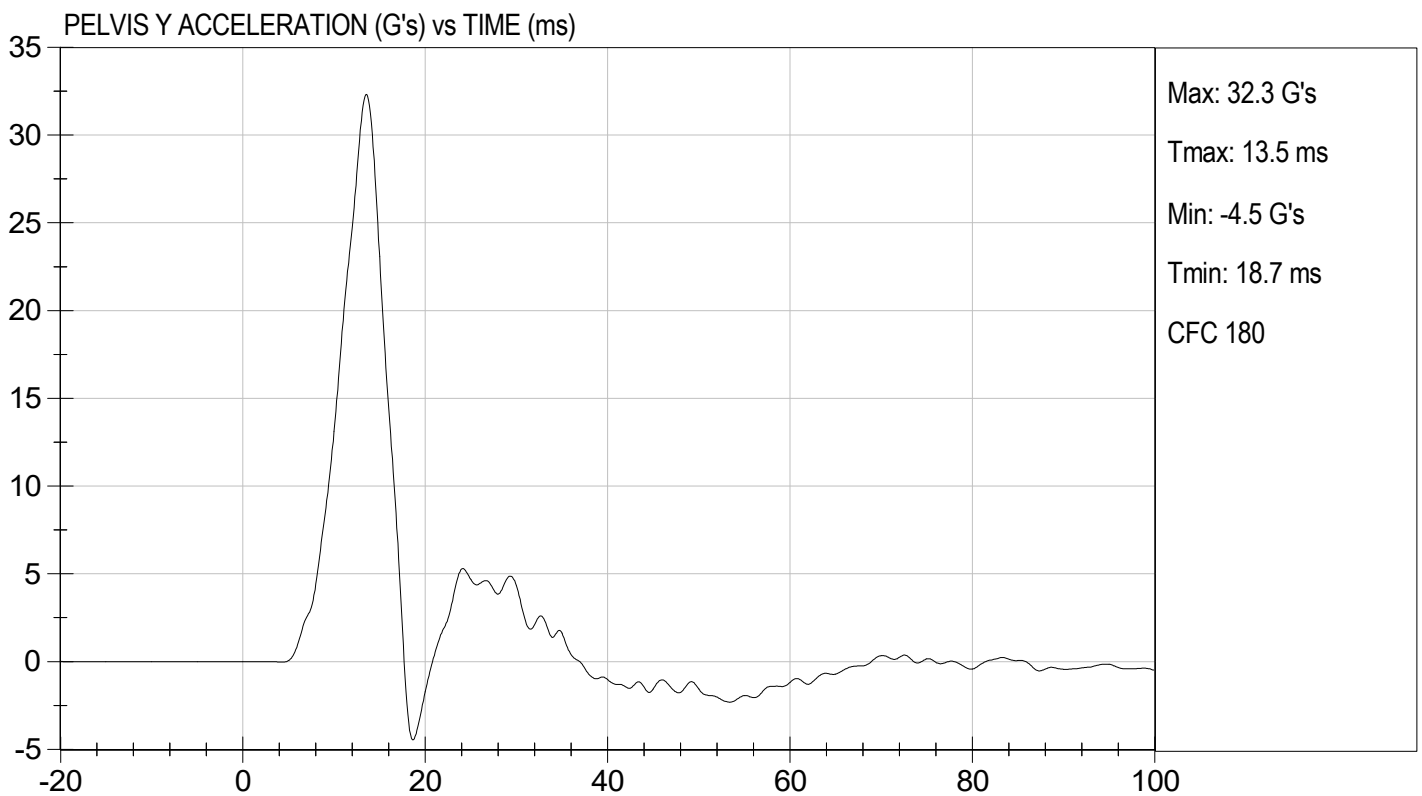
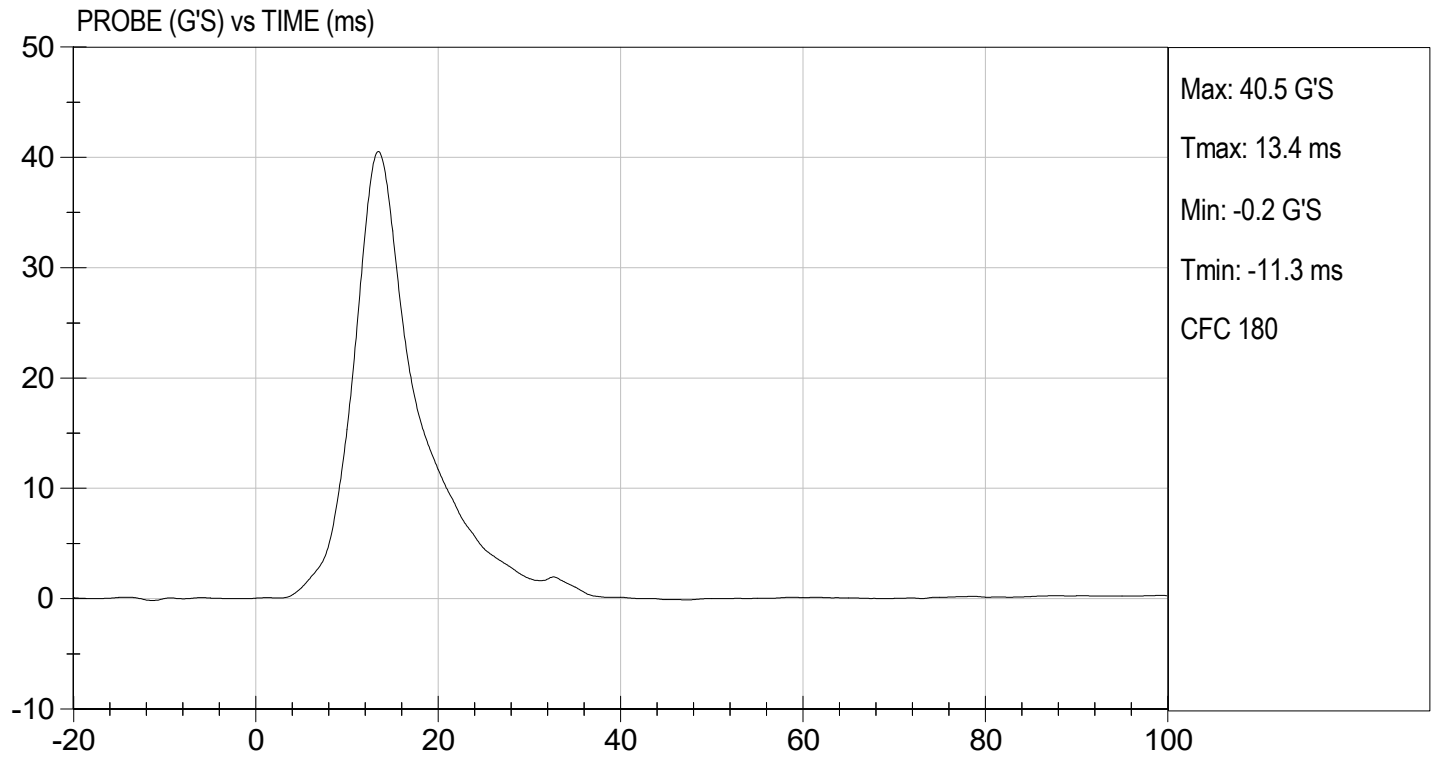
Test Date


Approved By



TEST DESC: ILLIAC
VELOCITY: 13.82 ft/s, 4.21 m/s

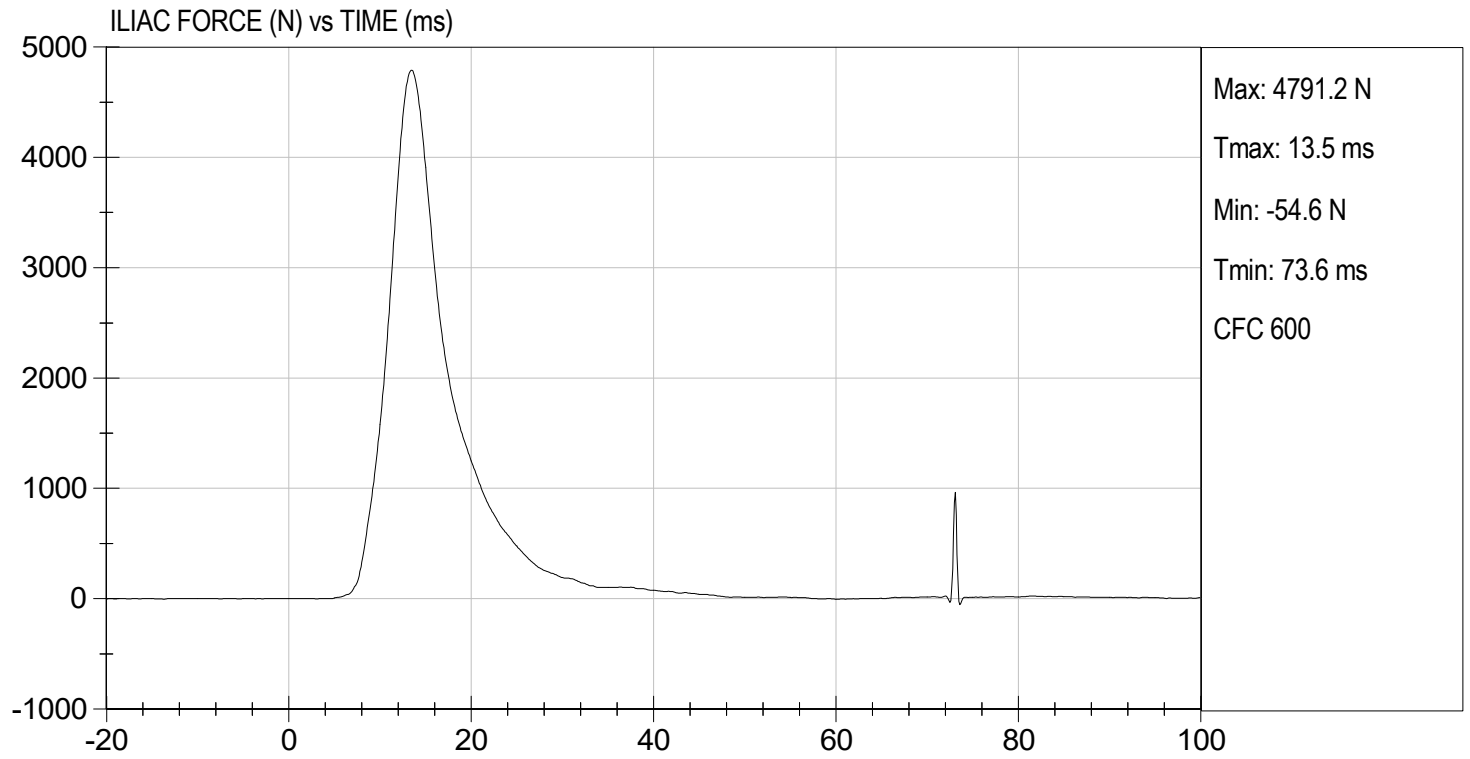
TEST DATE: 04/14/2023
TEST #: D230988





TEST DESC: ILLIAC
VELOCITY: 13.82 ft/s, 4.21 m/s

TEST DATE: 04/14/2023
TEST #: D230988





SID-IIs Pelvis Plug Certification Test

Plug S/N 15154

Test Number 17866

Report Number 17915

Test Date 3/5/2021 11:16:13 AM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	346	50	600
Force @ 1.5 mm (N)	1,207	850	1,400
Force @ 2.5 mm (N)	1,464	1,306	1,618
Force @ 3.0 mm (N)	1,512	1,361	1,673

Testing Machine STM-20 5965542

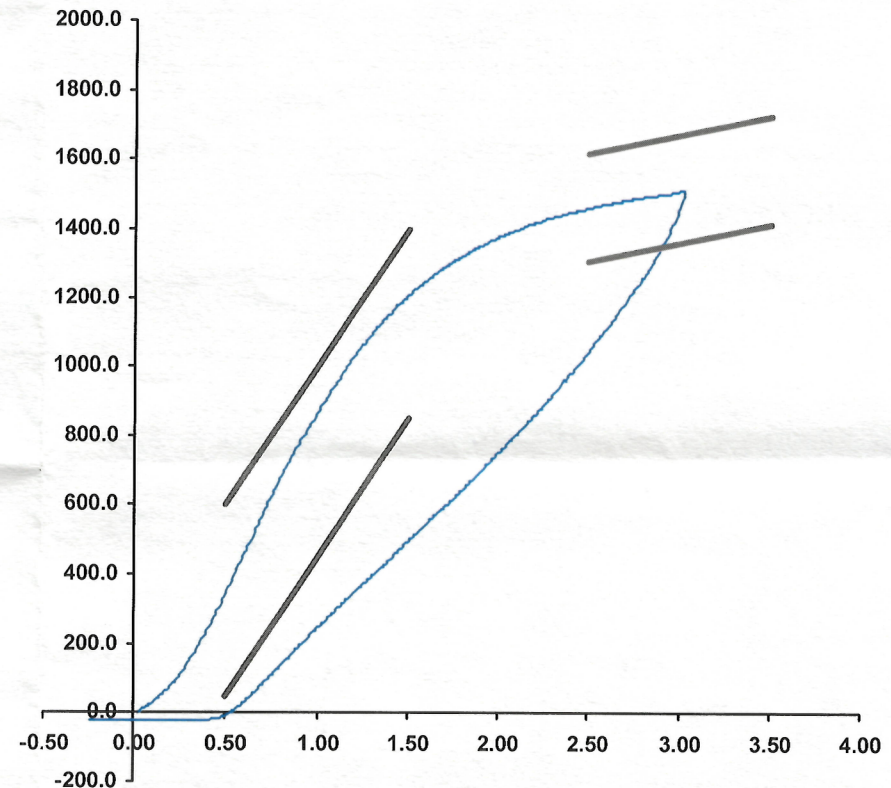
Load Cell S/N (FI360947), Units (LBS) 1000

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

05-Mar-21

SACO Research

By : DC

Date : 3/5/2021



SID-Ils Pelvis Plug Certification Test

Plug S/N 15169

Test Number 17885

Report Number 17934

Test Date 3/8/2021 12:04:48 PM

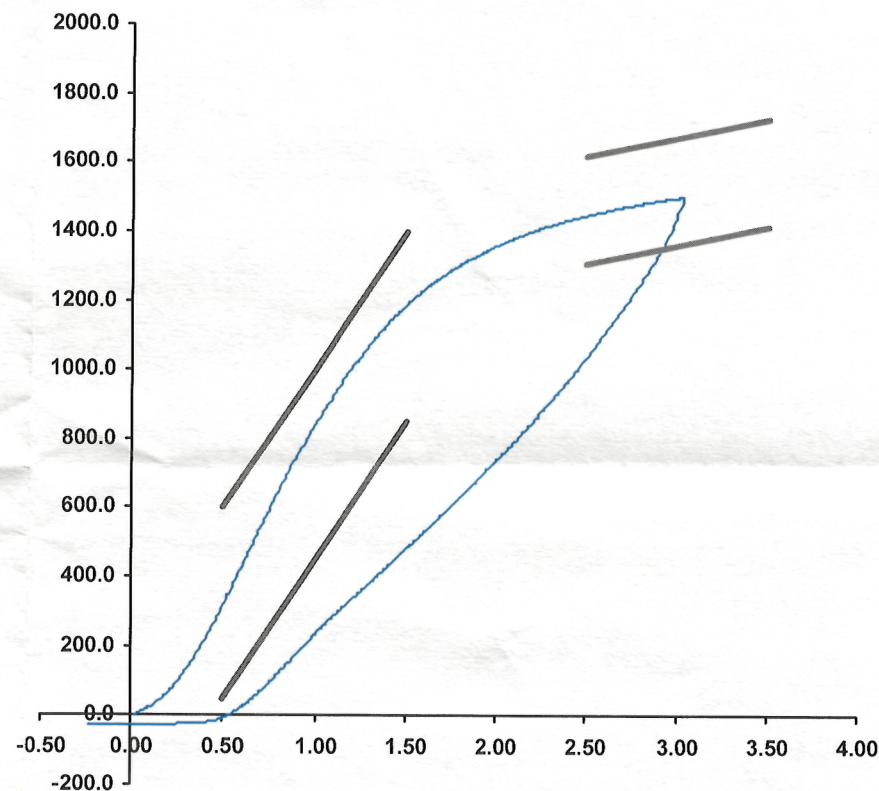
	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	327	50	600
Force @ 1.5 mm (N)	1,187	850	1,400
Force @ 2.5 mm (N)	1,449	1,306	1,618
Force @ 3.0 mm (N)	1,501	1,361	1,673

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

08-Mar-21

SACO Research

By :

DC

Date :

3/8/2021

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)					15154	SACO	03/05/2021
Pelvis Plug (non-struck side)					15169	SACO	03/08/2021

Table 2 – Vehicle Instrumentation

		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	A394380	MSI	02/08/2023
Vehicle Center of Gravity	Y	A383153	MSI	02/08/2023
Vehicle Center of Gravity	Z	A393841	MSI	02/08/2023
Left Floor Sill	Y	A390913	MSI	12/22/2022
A-Pillar Sill	Y	A390899	MSI	03/30/2023
A-Pillar Low	Y	A416932	MSI	02/22/2023
A-Pillar Mid	Y	A416925	MSI	02/22/2023
B-Pillar Sill	Y	PCB1441	PCB	03/30/2023
B-Pillar Low	Y	A310677	MSI	10/26/2022
B-Pillar Mid	Y	A340606	MSI	10/20/2022
Driver Seat	Y	A416915	MSI	12/15/2022
Engine Top	X	T32698	Endevco	02/10/2023
Engine Top	Y	T32711	Endevco	02/10/2023
Firewall	Y	A385807	MSI	12/05/2022
Right Roof	Y	A390922	MSI	02/24/2023
Right Floor Sill	Y	PCB1418	PCB	12/14/2022
Rear Floorpan	X	T29906	Endevco	12/21/2022
Rear Floorpan	Y	A390927	MSI	12/22/2022

Table 3 – Pole Instrumentation

	Serial Number	Manufacturer	Calibration Date
Load Cell 1	DG6277	FTSS	07/30/2018
Load Cell 2	DG6278	FTSS	07/30/2018
Load Cell 3	DG6279	FTSS	07/30/2018
Load Cell 4	DG6280	FTSS	07/30/2018
Load Cell 5	DG6281	FTSS	07/30/2018
Load Cell 6	DG6283	FTSS	07/30/2018
Load Cell 7	DG6284	FTSS	07/30/2018
Load Cell 8	DG6582	FTSS	07/30/2018