FINAL REPORT NUMBER: SPNCAP-TRC-23-001

NEW CAR ASSESSMENT PROGRAM (NCAP)
SIDE IMPACT POLE TEST

NISSAN MOTOR CO., LTD.
2023 Nissan Armada
NHTSA NUMBER: M20235204

PREPARED BY:
Transportation Research Center Inc.
10820 State Route 347
P. O. Box B-67
East Liberty, OH 43319

Report Date: January 18, 2024

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Office of Crashworthiness Standards
Mail Code: NRM-110
1200 New Jersey Ave, SE,
Washington, D.C. 20590

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Report Prepared By: ILO Project Operations Group

Report Approved By: 

John Shultz

Approval Date: January 18, 2024

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

Technical Report Documentation Page

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15. Supplemental Notes		

16. Abstract

A 32.2 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject vehicle, a 2023 Nissan Armada, 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. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on February 15, 2023.

The impact velocity was 32.13 km/h, and the ambient temperature at the struck (left) side of the target vehicle at the time of impact was 21.3° C. The test vehicle's post-test maximum crush was 413 mm at Level 2.

The test or target vehicle's performance is given below:

	Unit	Threshold	Front SID-IIs
Head Injury Criteria (HIC_{36}):	NA	1000	287.338
Resultant Lower Spine Acceleration:	g's	82	63.540
Total Pelvic Force: (sum of acetabular and iliac forces)	N	5525	2591.380
Maximum Thoracic Rib Deflection	mm	38*	18.010
Maximum Abdomen Rib Deflection	mm	45*	14.640

* Proposed IARV

The doors on the struck side did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.

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 Washington, DC 20590

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TEST PURPOSE AND PROCEDURE

TEST PURPOSE AND PROCEDURE

This side impact test was conducted as part of the MY23 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. 693JJ920D000018. The purpose of this test is to generate comparative side impact performance in a 2023 Nissan Armada manufactured by NISSAN MOTOR CO., LTD.. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated March 2020.

SECTION 2

SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a model year 2023 Nissan Armada. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.13 km/h. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, OH, on February 15, 2023. Pre-test and post-test photographs of the test vehicle and the 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
Thorax Upper, Middle, and Lower Rib Displacement Potentiometers
Abdomen Upper and Lower Rib Displacement Potentiometers
Lower Spine (T12) Triaxial Accelerometers
Iliac Load Cell
Acetabulum Load Cell

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

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

Measurement Description	Driver ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC_{36})	NA	1000	287.338
Lower Spine Acceleration Resultant	G	82	63.540
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2591.380
Maximum Thoracic Rib Deflection	mm	38*	18.010
Maximum Abdominal Rib Deflection	mm	45*	14.640

* 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	Yes		
Knee Airbag	Yes	Yes		
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	Yes	Yes	No	N/A
Side Torso Airbag	No	N/A	No	N/A
Seat Belt Pretensioner	Yes	Yes	Yes	No
Seat Belt Load Limiter	Yes	No	Yes	N/A
Other	No	N/A	No	N/A

GENERAL COMMENTS

Left Floor Sill Acceleration (Y); Channel failed after 41.0 ms

Driver Seat Track at Dummy Hip Point Acceleration (Y); Questionable data throughout

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20235204	Traction Control System (TCS)	Yes
Model Year	2023	Auto-Leveling System	No
Make	Nissan	Automatic Door Locks (ADL)	Yes
Model	Armada	Power Window Auto-Reverse	Yes
Body Style	MPV	Other Optional Feature	No
VIN	JN8AY2BA3P9401275	Driver Front Airbag	Yes
Body Color	Aspen White	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	3 mi	Driver Head/Torso Airbag	No
Engine Displacement (L)	5.6	Driver Torso Airbag	No
Type/No. Cylinders	V/8	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Inline Front	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	Yes
Transmission Speeds	7	Rear Pass. Curtain Airbag	Yes
Overdrive	Yes	Rear Pass. Head/Torso Airbag	No
Final Drive	2WD	Rear Pass. Torso Airbag	No
Roof Rack	Yes	Rear Pass. Torso/Pelvis Airbag	No
Sunroof/T-Top	Yes	Rear Pass. Pelvis Airbag	No
Running Boards	Yes	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	No

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

DATA FROM CERTIFICATION LABEL

Manufactured By	NISSAN MOTOR CO., LTD.	GVWR (LB)	7300
Date of Manufacturer	10/22	GAWR Front (LB)	3616
Vehicle Type	MPV	GAWR Rear (LB)	4343

VEHICLE SEATING AND WEIGHT CAPACITY DATA

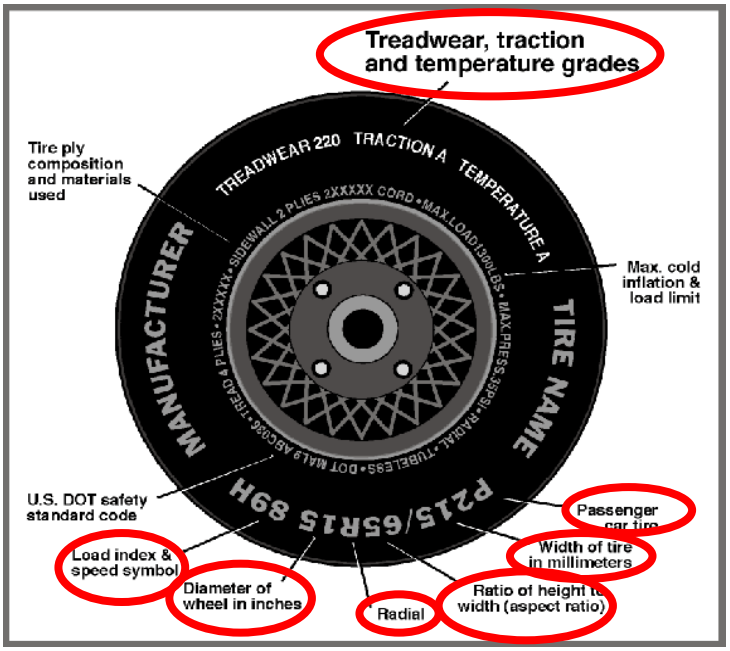
	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	2	3	7
Vehicle Capacity Weight (VCW) (kg)				670.0
DSC X 68 kg				476.0
Rated Cargo and Luggage Weight (RCLW) (kg)				136.0

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	Yes	N/A	N/A		N/A	Yes	N/A
Rear or Second Row Seat	Yes	N/A	N/A	N/A	N/A	Yes	N/A
Third Row Seat	N/A	N/A	Yes	N/A	Yes	N/A	N/A

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

Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	360
Cold Pressure (kPa)	240	240
Recommended Tire Size	P275/60R20	P275/60R20
Tire Size on Vehicle	P275/60R20	P275/60R20
Tire Manufacturer	Bridgestone	Bridgestone
Tire Model	Dueler	Dueler
Treadwear	360	360
Traction	B	B
Temperature Grades	B	B
Tire Plies Sidewall	2	2
Tire Plies Body	5	5
Load Index/Speed Symbol	114H	114H
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon
DOT Safety Code Left	DOT EJ NU DEM4122	DOT EJ NU DEM4122
DOT Safety Code Right	DOT EJ NU DEM4122	DOT EJ NU DEM4122

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

Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	276	282	282	282
Tire Placard	kPa	241	241	241	241
Owner's Manual	kPa	241	241	241	241
As Tested	kPa	241	241	241	241

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	647.2	637.2		666.8	730.6		663.0	740.0	
Right	kg	649.6	622.4		627.0	709.8		633.2	705.2	
Ratio	%	50.7	49.3		47.3	52.7		47.3	52.7	
Totals	kg	1296.8	1259.6	2556.4	1293.8	1440.4	2734.2	1296.2	1445.2	2741.4

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	2556.4	(A)
Actual Weight of 1 P572V ATD (SID-IIs) Dummy Used	kg	49.0	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	136.0	(C)
Calculated Vehicle Target Weight (TVTW)	kg	2741.4	(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 ☐ NO

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	Deg.	-0.4	-0.4	0.0	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg.	-0.3	-0.3	0.0	Yes
Front Bumper-Line Angle (left-to-right)**	Deg.	-0.1	-0.1	-0.1	Yes
Rear Bumper-Line Angle (left-to-right)**	Deg.	-0.1	-0.1	0.0	Yes
Vehicle CG (Aft of Front Axle)	mm	1515	1620	1621	
Vehicle CG (Left (+) / Right (-) from longitudinal Centerline)	mm	+4	+19	+20	

*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. Indicate "Yes" or "No" for "Meets Requirements".

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

Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Ballast: Steel plates in cargo area	133.0
Components Removed: None	0.0

Test height adjustable suspension setting, if applicable: N/A

TEST SURFACE MARKINGS

	Distance from 75° Impact Location Line (mm)
Fore 25 mm target	1924
Aft 25 mm target	1916

DATA SHEET NO. 2

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204

Test Program: SPNCAP Side Impact Test Date: 2/15/2023

SEAT POSITIONING

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

SCRL ANGLE RANGE

Seat	SCRL(°)		
	Max.	Min.	Mid
Driver Seat	18.0	10.4	14.2
Front Passenger Seat	13.2	10.6	11.9
Front Center Seat*	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat*	N/A	N/A	N/A

* If applicable.

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid-Fore/Aft	Forward-Most
Driver Seat	14.2	319	Max	333	335	338
			Mid	318	320	319
			Min	303	305	300
Front Passenger Seat	11.9	316	Max	332	330	330
			Mid	319	315	316
			Min	305	300	302
Front Center Seat*	N/A	N/A	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	Fixed	Max	N/A	N/A	N/A
			Mid	Fixed	Fixed	Fixed
			Min	N/A	N/A	N/A
Non-Struck Side Rear Seat	Fixed	Fixed	Max	N/A	N/A	N/A
			Mid	Fixed	Fixed	Fixed
			Min	N/A	N/A	N/A
Rear Center Seat*	N/A	N/A	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A

* If applicable.

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

Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023

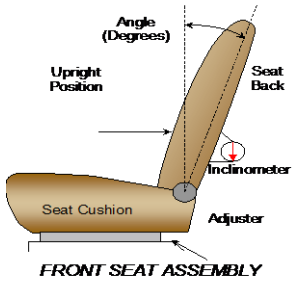
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forward most Position	
	mm	Detents*	mm	Detent*
Driver Seat	240	N/A	0	N/A
Front Passenger Seat	240	N/A	0	N/A
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	N/A	N/A	N/A	N/A
Non-Struck Side Rear Seat	N/A	N/A	N/A	N/A
Rear Center Seat*	N/A	N/A	N/A	N/A

* If applicable.

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned such that the dummy's head is level. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back. The struck-side rear passenger seat back is positioned in accordance with the information provided by the manufacturer on Form No. 1.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detent*
Driver Seat w/ Seated Dummy	55.3	N/A	1.0	N/A
Front Passenger Seat	54.9	N/A	1.0	N/A
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	N/A	N/A	N/A	N/A
Non-Struck Side Rear Seat	N/A	N/A	N/A	N/A
Rear Center Seat*	N/A	N/A	N/A	N/A

* If applicable.

SEAT BELT ANCHORAGE ADJUSTMENT

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

	Total # of Positions	Placed in Position #
Driver Seat	4	0, Full Up

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	6	0, Full Down

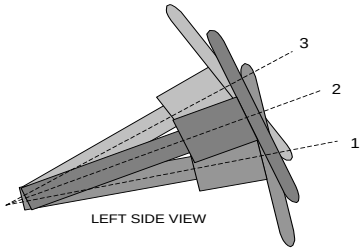
DATA SHEET NO. 2 (CONTINUED)
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023

STEERING COLUMN ADJUSTMENT

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

	Degrees	Fore/Aft Position, mm
Lowermost, Position No. 1	13.6	0
Geometric Center, Position No. 2	20.8	15
Uppermost, Position No. 3	28.0	30
Telescoping Steering Wheel Travel		30
Test Position	20.8	15

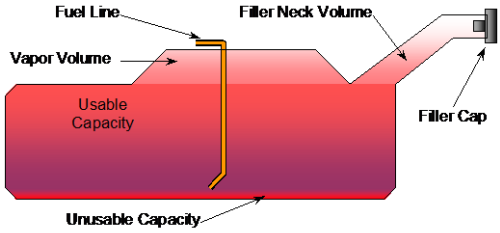


STEERING COLUMN ASSEMBLY

FUEL PUMP

Describe the fuel pump type, details about how it operates and the location of the fuel filler neck:

Approximately 1 second after the ignition is switched to “ON” While the engine is running. Approximately for 1.5 seconds after the engine stops running



VEHICLE FUEL TANK ASSEMBLY

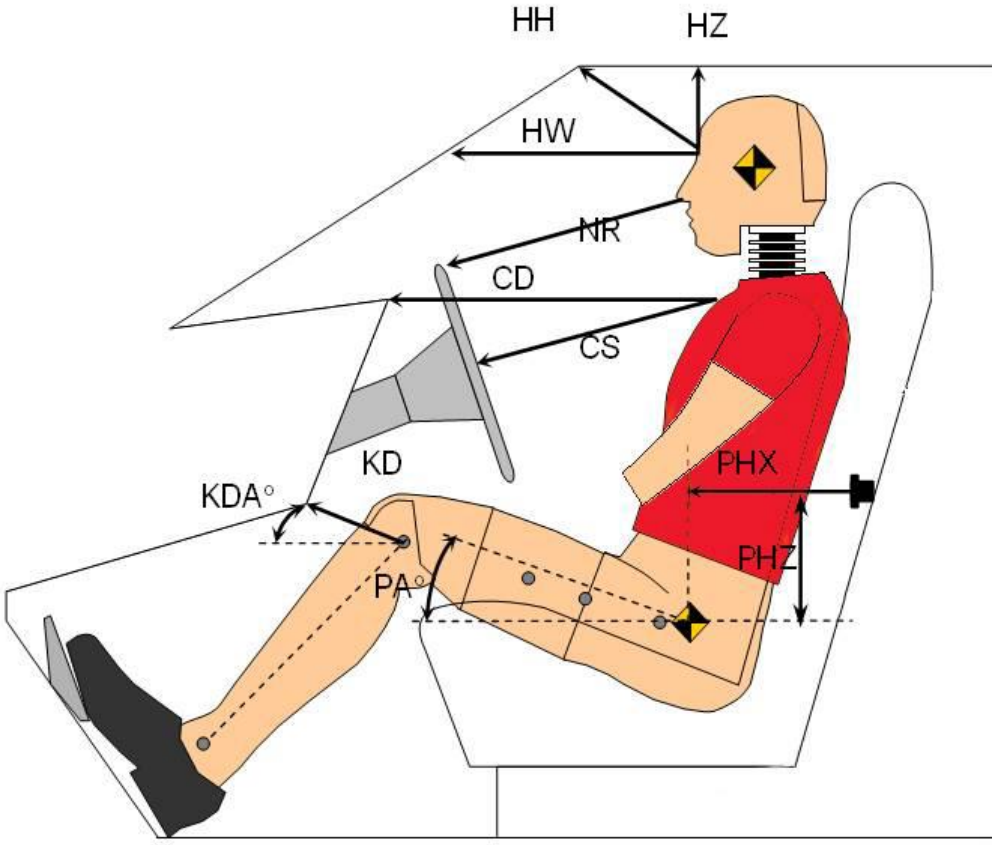
FUEL TANK CAPACITY

	Liters
Usable Capacity of “Standard Tank” (see Form No. 1)	98.4
Usable Capacity of “Optional” Tank (see Form No. 1)	N/A
Usable Capacity of Standard Tank (see Owner’s Manual)	98.4
Usable Capacity of Optional Tank (see Owner’s Manual)	N/A
93% of Usable Capacity	91.5
Actual Amount of Solvent Used in Test	91.5
1/3 of Usable Capacity	32.8

Is the Actual Amount of Solvent Used in the test equal to 93% ± 1% of the Usable Capacity stated in on Form No. 1? ☒ YES ☐ NO

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

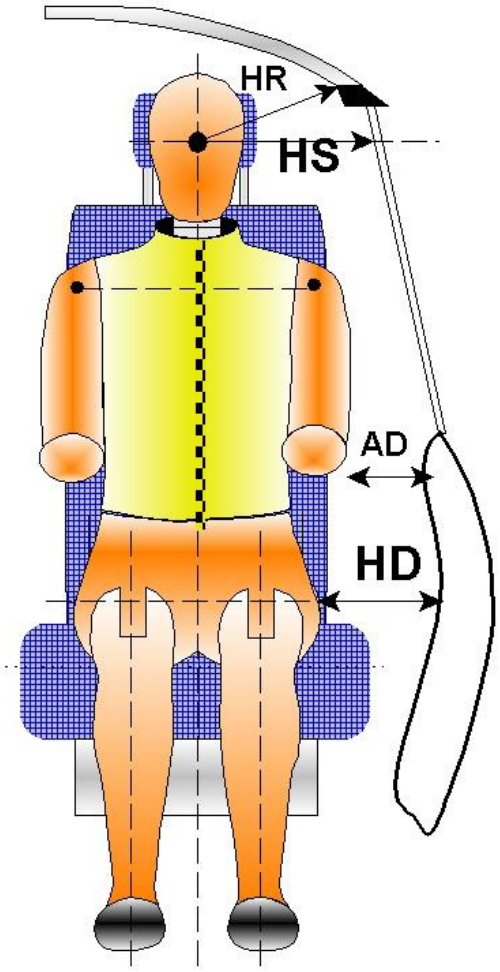
Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023



Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	305	
HW	Head to Windshield	508	
HZ	Head to Visor	200	
NR	Nose to Rim	216	
CD	Chest to Dashboard	376	
CS	Chest to Steering Wheel	145	
KDL/KDLA°	Left Knee to Dash	80	16.7
KDR/KDRA°	Right Knee to Dash	67	17.2
PAX°	Pelvic Tilt Angle (X-axis)		0.1
PAY°	Pelvic Tilt Angle (Y-axis)		19.9
PHX	Hip Point to Striker (X-Axis)	384	
PHZ	Hip Point to Striker (Z-Axis)	28	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

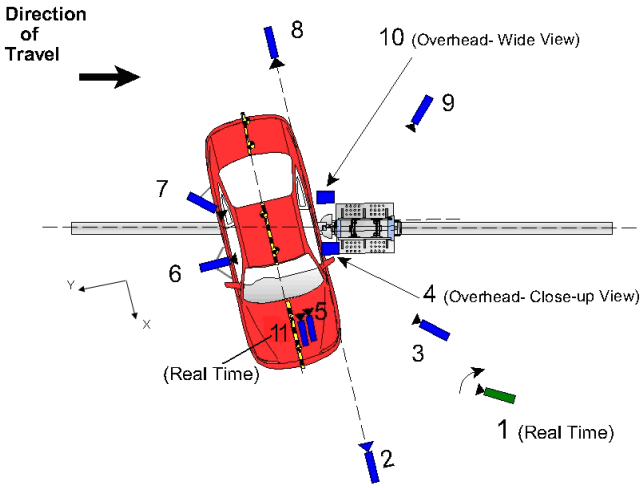
Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023



Code	Measurement Description	Length (mm)
HR	Head to Side Header	251
HS	Head to Side Window	372
AD	Arm to Door	148
HD	Hip Point to Door	162

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023



REFERENCE: (from point of impact for X and Y; from ground for Z)
+ X = Forward of vehicle, + Y = Right of vehicle, + Z = Down

Camera No.	View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Real time (24-30 fps) pan view of impact				Zoom	30
2	Front ground level – impact view	5133	81	-1522	20	1000
3	Impact side 45° – forward pole view	3217	-949	-1425	20	1000
4	Overhead Close-up view of impact	-77	150	-4875	50	1000
5	Onboard – dummy front view				25	1000
6	Onboard – dummy side view				12.5	1000
7	Onboard – dummy rear oblique view				12.5	1000
8	Rear ground level – impact view	-6396	0	-1541	20	1000
9	Impact side 45° – rearward pole view	-3051	-1386	-1662	20	1000
10	Overhead wide view of impact	0	0	-4881	12.5	1000
11	Real time dummy front view				Zoom	30

All measurements accurate to +/- 6 mm.

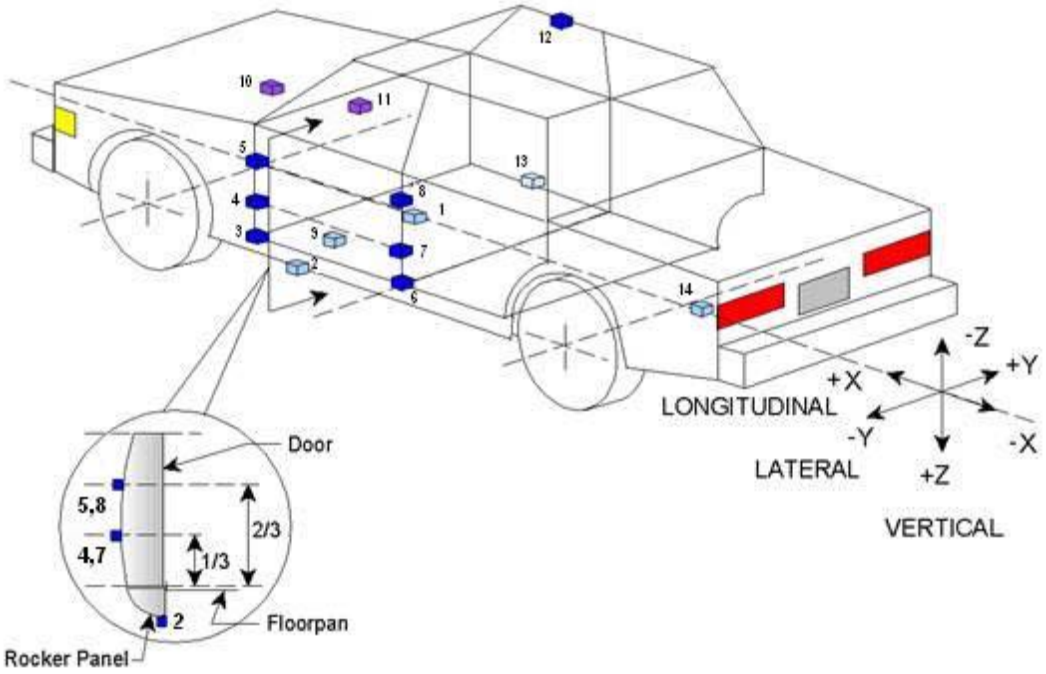
NOTE: Vehicle was at a 75° angle to the rigid pole.
If applicable, explain why camera(s) did not run: N/A

INSTRUMENTATION

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

DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023



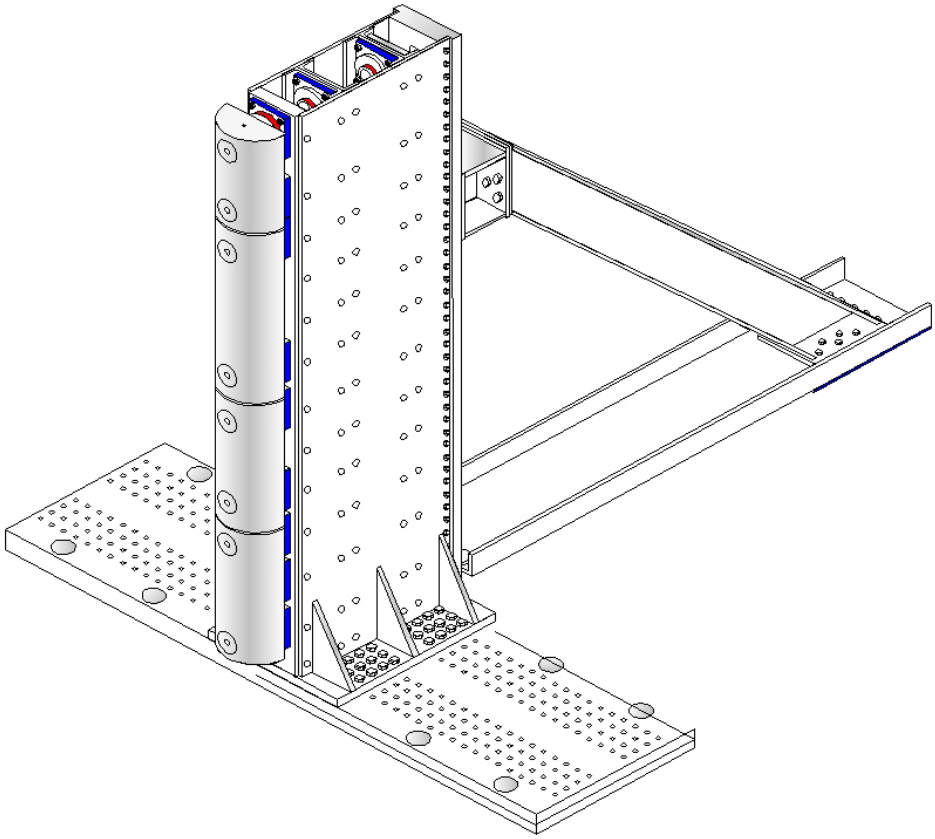
	Accelerometer/Sensor Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	3321	189	-845
2	Left Floor Sill	3290	-749	-540
3	A-Pillar Sill	3660	-809	-625
4	A-Pillar Low	3695	-909	-700
5	A-Pillar Mid	3687	-899	-1100
6	B-Pillar Sill	2520	-762	-500
7	B-Pillar Low	2580	-890	-774
8	B-Pillar Mid	2560	-896	-1190
9	Driver Seat Track	2784	-682	-637
10	Engine Top	4286	0	-1140
11	Firewall	4076	15	-1205
12	Right Roof	2734	750	-1780
13	Right Floor Sill	3282	749	-545
14	Rear Floorpan	374	0	-827

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 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023

FOIL 300K RIGID POLE



Load Cell Locations	
ID	**Height From Top of Carrier (mm)**
1	87
2	468
3	648
4	978
5	1168
6	1651
7	1816
8	2057

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver SID-IIs Dummy
Face	SCAB, Frontal airbag
Top of Head	SCAB
Left Side of Head	SCAB, Frontal airbag
Back of Head	SCAB; driver head restraint
Left Shoulder	SAB; side seat bolster
Upper Torso	Side seat bolster, SAB
Lower Torso	Side seat bolster, SAB
Left Hip	Side seat bolster, SAB, Door panel
Left Knee	Door panel, Knee airbag

POST-TEST DOOR PERFORMANCE

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

POST-TEST SEAT PERFORMANCE

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

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Good
Sill Separation	None
Windshield Damage	Cracked
Side Window Damage	Cracked
Other Notable Effects	None

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

Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

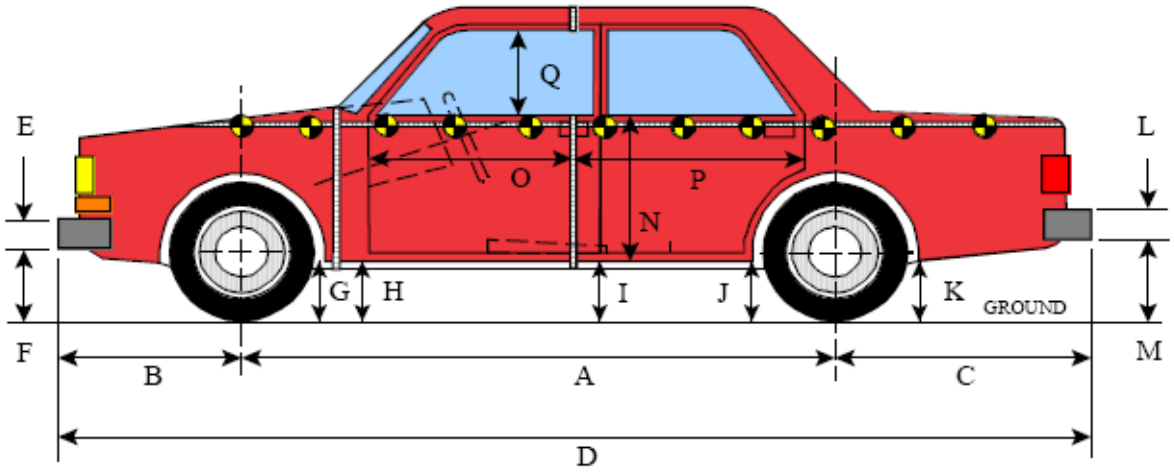
Restraint Type	Struck Side (Driver)		Struck Side (Rear Passenger)	
	Mounted	Deployed	Mounted	Deployed
Front Airbag	Yes	Yes		
Knee Airbag	Yes	Yes		
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	Yes	Yes	Yes	No
Side Torso Airbag	No	N/A	No	N/A
Seat Belt Pretensioner	Yes	Yes	Yes	No
Seat Belt Load Limiter	Yes	No	Yes	N/A
Other	No	N/A	No	N/A

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

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1195
Actual Impact Point (Aft of Front Axle)	mm		1185
Horizontal Offset (+ forward / - rearward)	mm	+/- 38 of Intended Impact point	+10
Angle Between Vehicle's Longitudinal Centerline and Line of Motion	degrees	75 +/- 3	75
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.13
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.11

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023



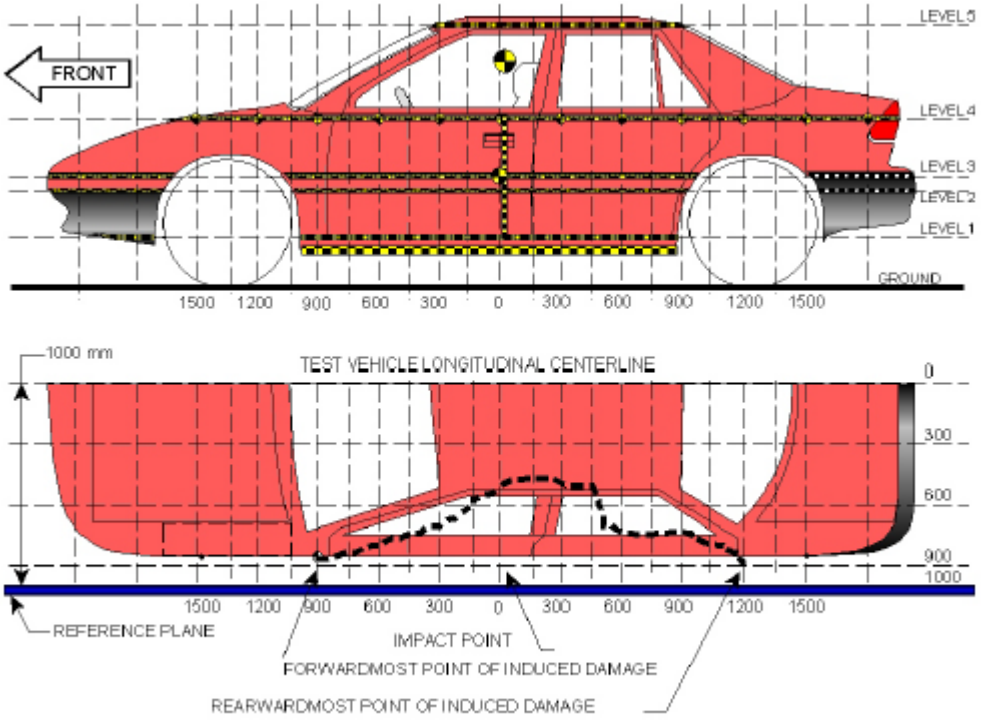
LEFT SIDE VIEW
All MEASUREMENTS IN (mm) WITH TOLERANCE OF ± 3mm

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Change
A	Wheelbase	3075	3030	-45
B	Front Axle to Front Surface of Vehicle	970	970	0
C	Rear Axle to Rear Surface of Vehicle	1231	1230	-1
D	Total Length at Centerline	5276	5250	-26
E	Front Bumper Thickness	35	35	0
F	Front Bumper Bottom to Ground	723	750	27
G	Sill Height at Front Wheel Well	400	380	-20
H	Sill Height at Front Door Leading Edge	436	425	-11
I	Sill Height at B-Pillar	488	495	7
J1	Sill Height at Rear Wheel Well	407	425	18
J2	Pinch Weld Height at Rear Wheel Well	345	356	11
K	Sill Height Aft of Rear Wheel Well	378	405	27
L	Rear Bumper Thickness	150	150	0
M	Rear Bumper Bottom to Ground	615	635	20
N	Sill Height to Bottom of Front Window Sill	925	925	0
O	Front Door Leading Edge to Impact CL	593	360	-233
P	Rear Door Trailing Edge to Impact CL	1630	1600	-30
Q	Front Window Opening	460	435	-25
R	Right Side Length	5040	5065	25
S	Left Side Length	5040	4945	-95
T	Vehicle Width at B-Pillars	1995	1900	-95
U	Front Wheel Track Width	1713	1723	10
V	Rear Wheel Track Width	1740	1740	0

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023



3 **NOTE:** All measurements are in millimeters (mm)

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	534	366	-150
2	Occupant H-Point	938	413	0
3	Mid-Door	868	406	0
4	Window Sill	1257	351	0
5	Window Top	1787	204	0

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

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

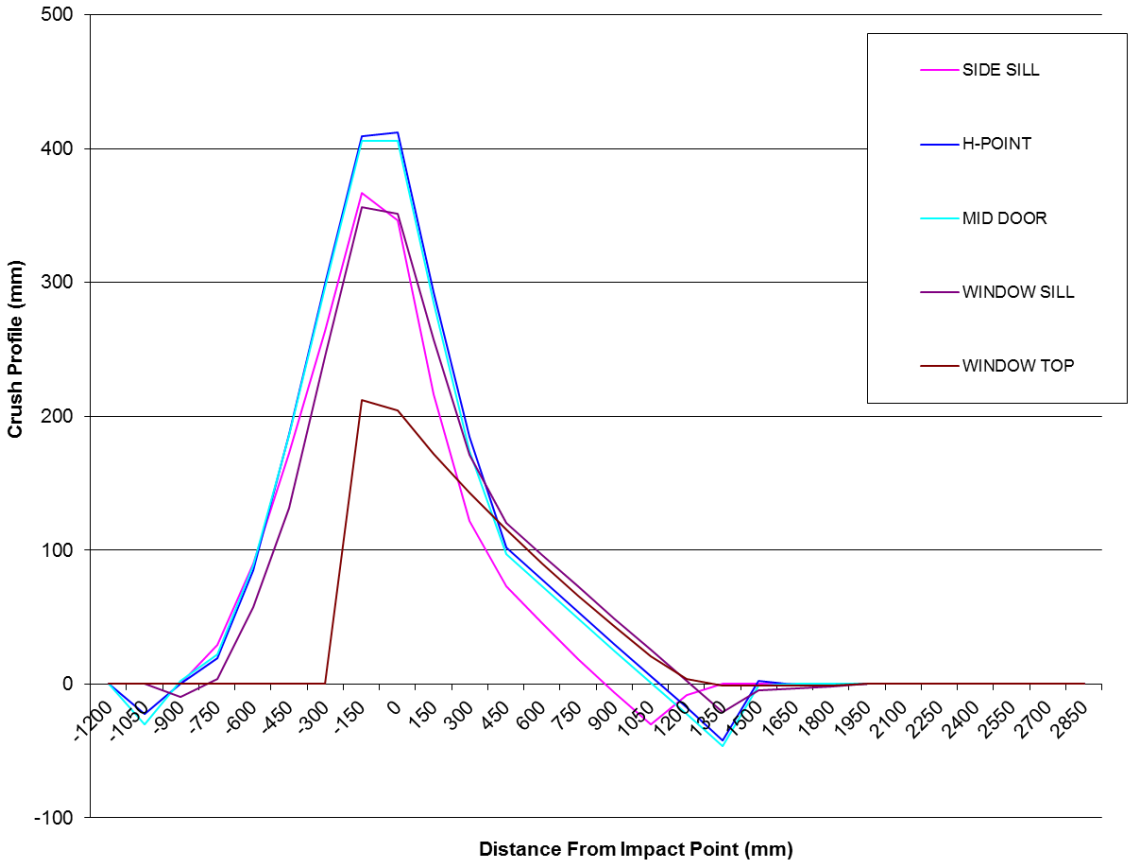
Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023

	Pre-Test					Post-Test					Crush				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1050	0	1002	1018	0	0	0	1025	1049	0	0	0	-23	-31	0	0
-900	0	999	1002	885	0	0	999	1000	894	0	0	0	2	-9	0
-750	994	998	1001	896	0	965	979	979	893	0	29	19	22	3	0
-600	978	996	998	901	0	888	912	909	843	0	90	84	89	58	0
-450	970	996	996	910	0	798	809	810	778	0	172	187	186	132	0
-300	968	997	996	917	0	704	698	701	673	0	264	299	295	244	0
-150	968	998	997	923	701	602	589	592	567	489	366	409	405	356	212
0	969	999	998	926	733	623	586	592	575	529	346	413	406	351	204
150	969	999	997	930	738	753	706	713	673	566	216	293	284	257	172
300	968	998	996	934	741	846	814	822	763	598	122	184	174	171	143
450	967	997	995	937	743	894	895	897	817	628	73	102	98	120	115
600	967	996	994	937	744	921	918	920	840	654	46	78	74	97	90
750	966	994	992	938	743	947	940	943	865	677	19	54	49	73	66
900	969	993	992	937	741	975	963	967	888	698	-6	30	25	49	43
1050	976	993	994	935	738	1006	987	993	909	717	-30	6	1	26	21
1200	991	996	999	934	735	999	1013	1021	931	731	-8	-17	-22	3	4
1350	0	999	1001	931	731	0	1040	1047	952	732	0	-41	-46	-21	-1
1500	0	1000	1014	928	726	0	998	1016	933	727	0	2	-2	-5	-1
1650	0	1013	0	924	721	0	1013	0	927	722	0	0	0	-3	-1
1800	0	1014	0	919	716	0	1014	0	921	717	0	0	0	-2	-1

NOTE: 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. The final distance from impact is determined after the final dummy positioning and the pole is aligned with the center of gravity of the dummy’s head.

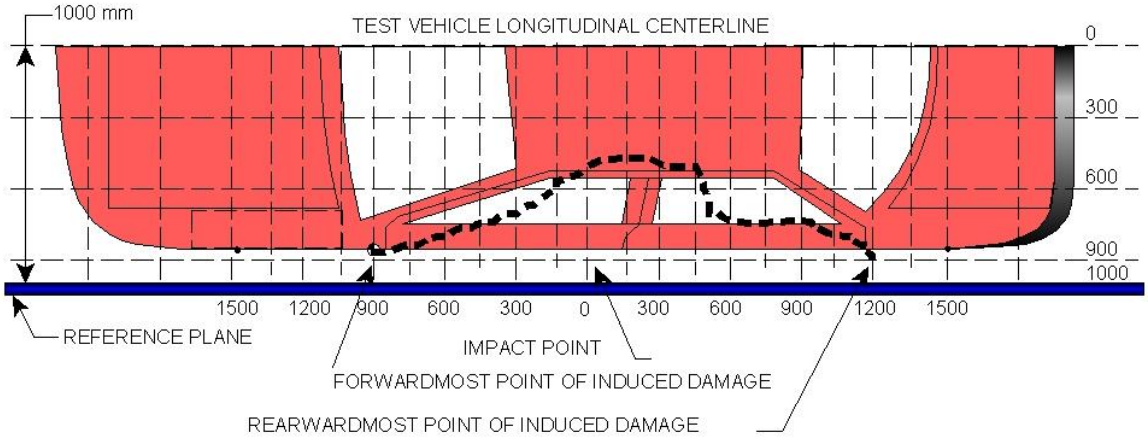
DATA SHEET NO. 10 (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023



DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1[1]	1500	2	998	1000	0
2	1050	4	909	935	26
3	600	4	840	937	97
4	0	2	586	999	413
5	-450	2	809	996	187
6[1]	-900	3	1000	1002	0

[1] DPD 1 and 6 are defined as zero crush since the crush does not extend to the end of the vehicle.

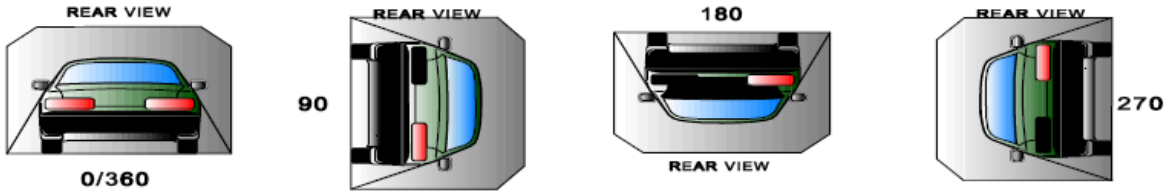
DATA SHEET NO. 12
FMVSS NO. 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023

Test Time: 16:15 **Temperature:** 21.3ºC

A. From impact until vehicle motion ceases: 0 oz.
(Maximum allowable is 1 ounce)
B. For the 5 minute period after motion ceases: 0 oz.
(Maximum allowable is 5 ounces)
C. For the following 25 minutes: 0 oz.
(Maximum allowable is 1 ounce/minute)
D. Spillage Details: None

FMVSS 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0 to 90	90	330	420
90 to 180	90	330	840
180 to 270	90	330	1260
270 to 360	90	330	1680

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE

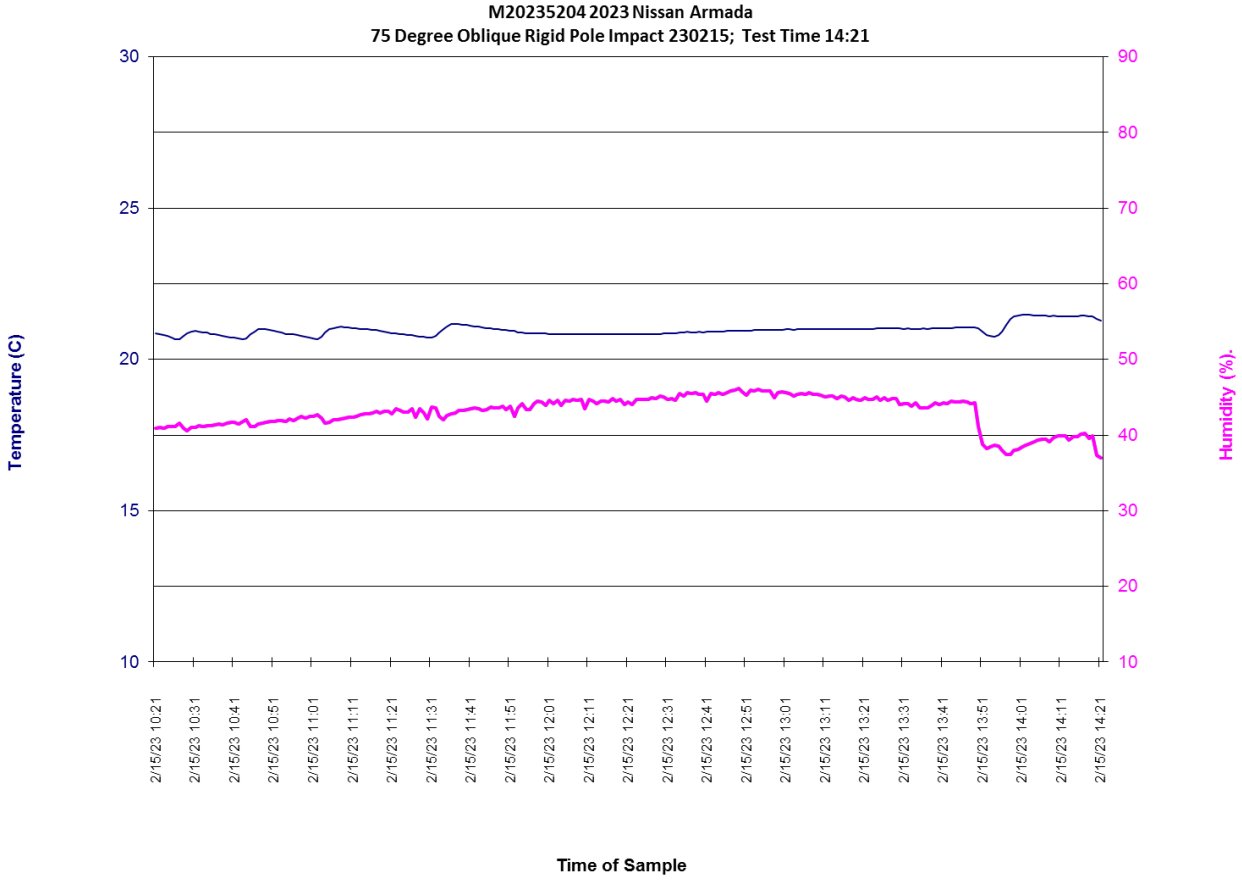
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0 to 90	0	0	0	0
90 to 180	0	0	0	0
180 to 270	0	0	0	0
270 to 360	0	0	0	0

ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0 to 90	None
90 to 180	None
180 to 270	None
270 to 360	None

DATA SHEET NO. 13
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2023 Nissan Armada NHTSA No.: M20235204
Test Program: SPNCAP Side Impact Test Date: 2/15/2023

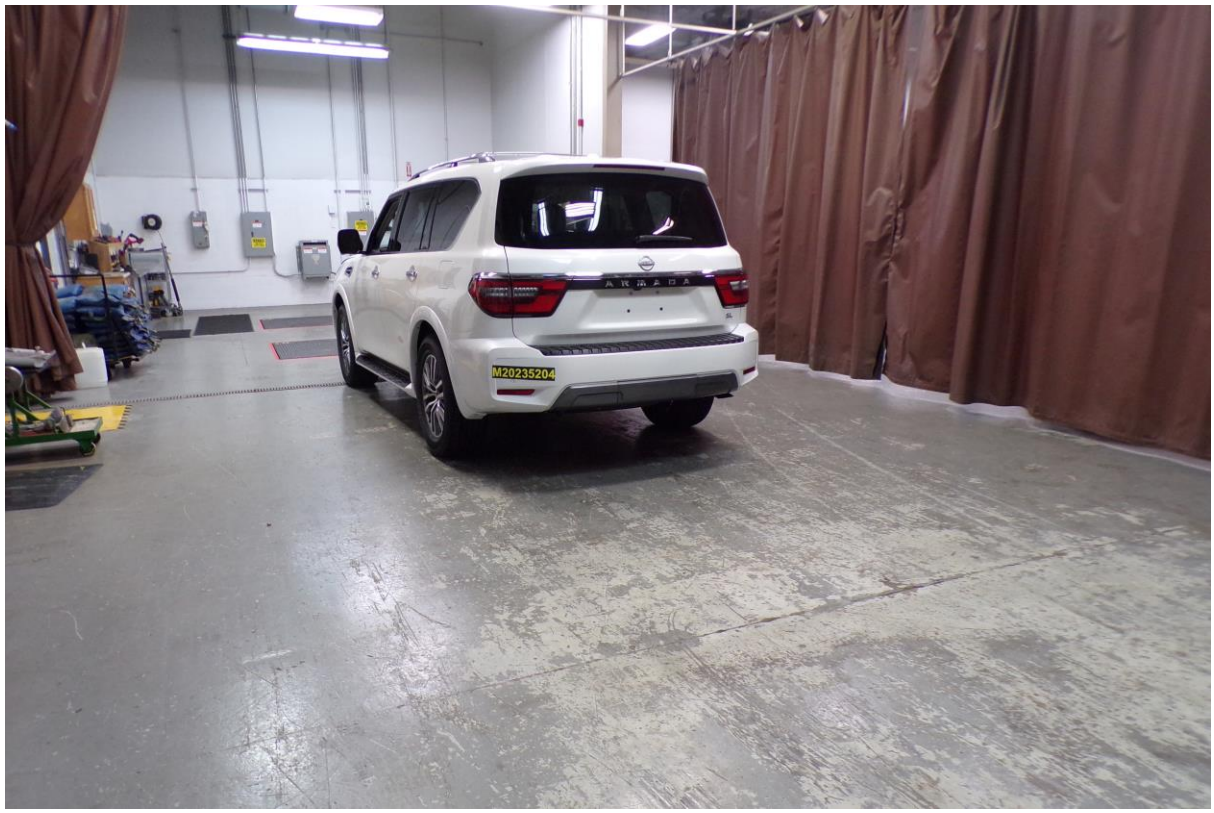


APPENDIX A
PHOTOGRAPHS

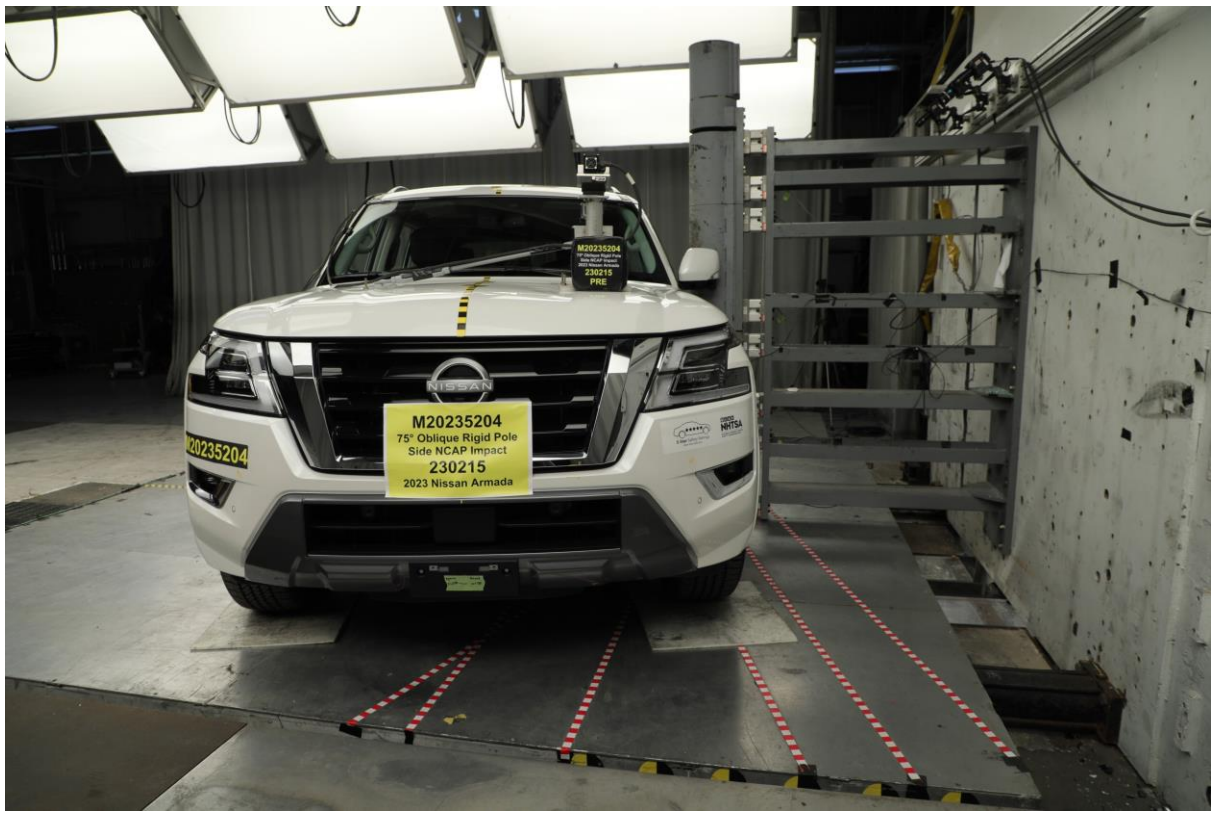
TABLE OF PHOTOGRAPHS

TABLE OF PHOTOGRAPHS (CONTINUED)

No. 001 As Delivered Right Front ¾ View of Test Vehicle



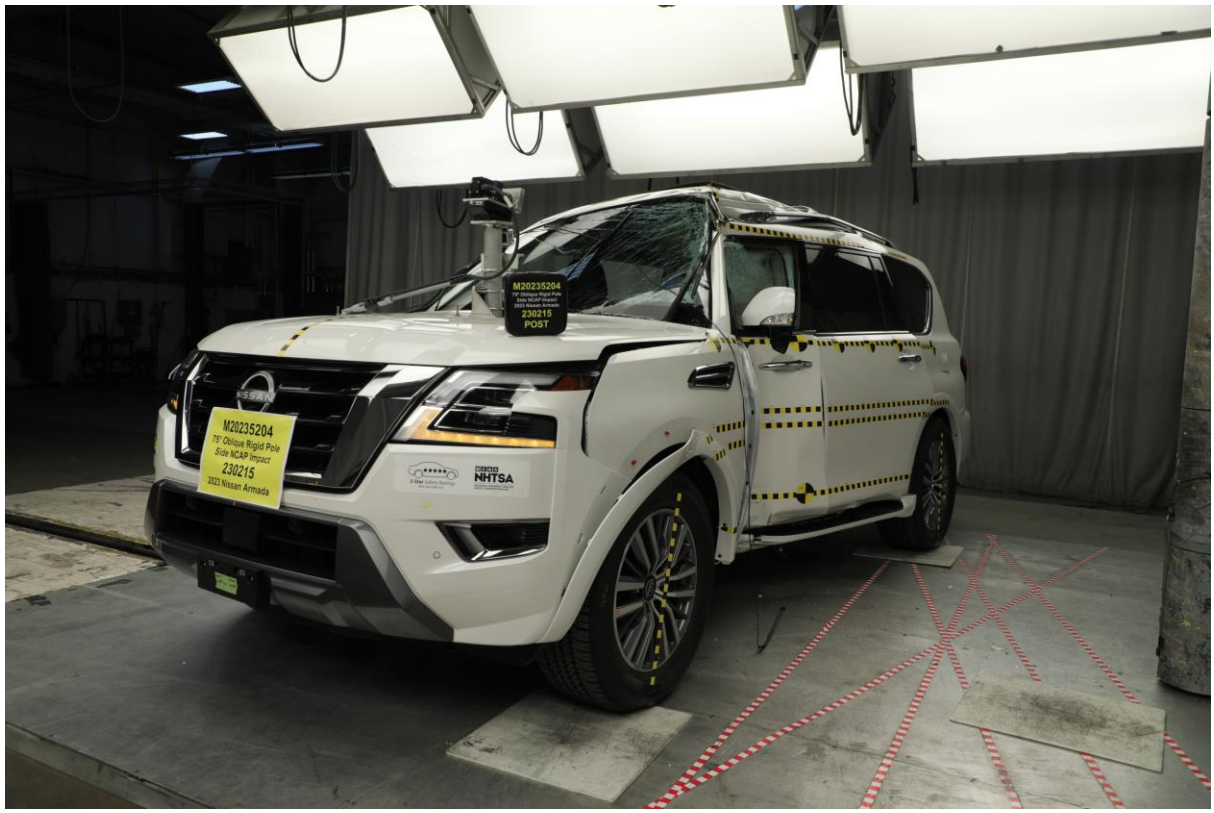
No. 002 As Delivered Left Rear ¾ View of Test Vehicle



No. 003 Pre-Test Frontal View of Test Vehicle

No. 004 Post-Test Frontal View of Test Vehicle

No. 005 Pre-Test Left Front ¾ View of Test Vehicle



No. 006 Post-Test Left Front ¾ View of Test Vehicle

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

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

No. 009 Pre-Test Left Rear ¾ View of Test Vehicle

No. 010 Post-Test Left Rear ¾ View of Test Vehicle

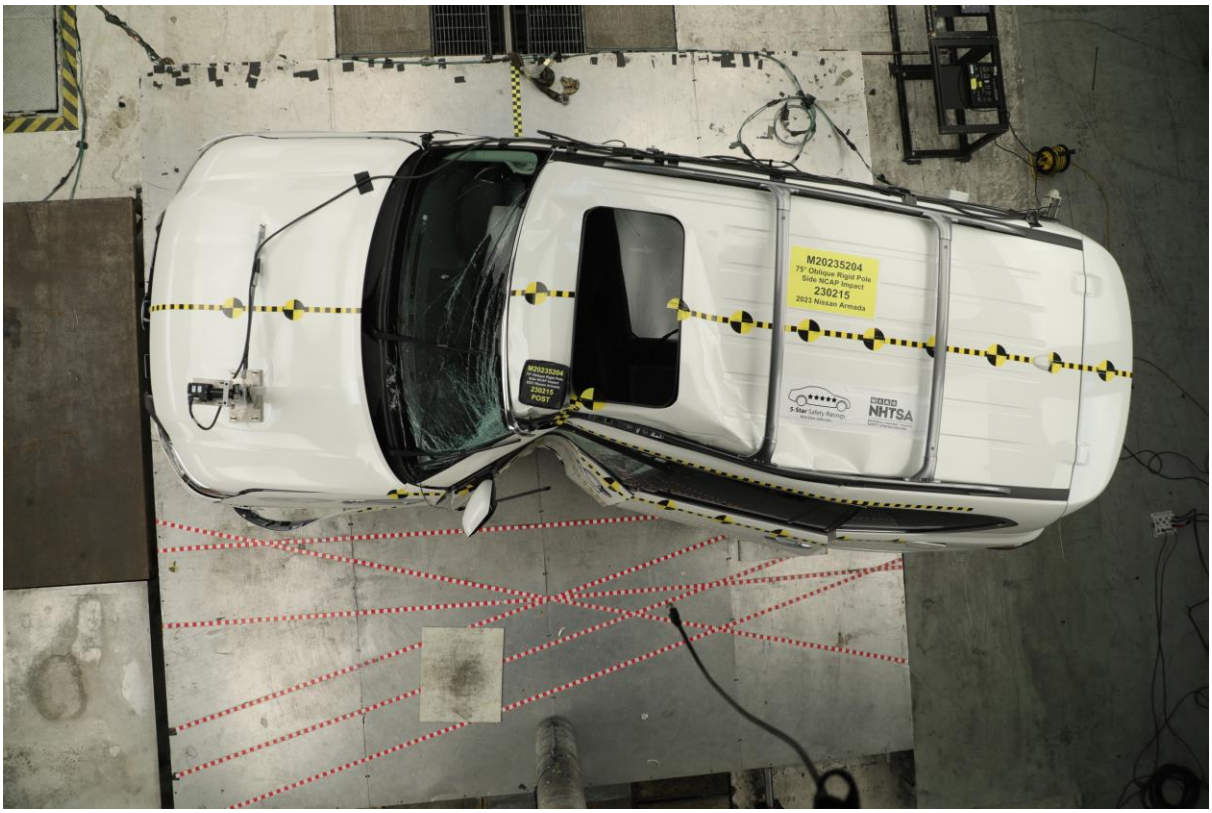
No. 011 Pre-Test Rear View of Test Vehicle

No. 012 Post-Test Rear View of Test Vehicle

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

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

No. 015 Pre-Test Overhead View of Test Area



No. 016 Post-Test Overhead View of Test Area

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

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

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

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

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

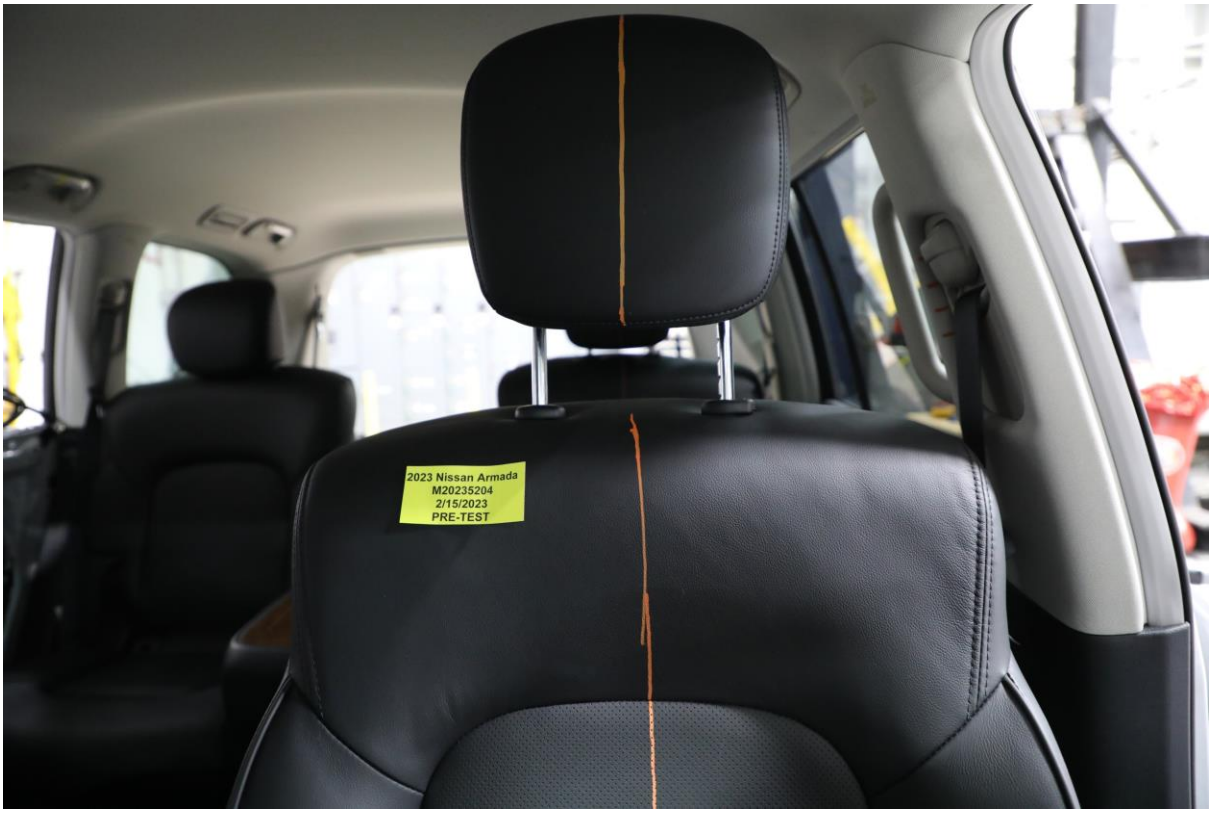
No. 022 Post-Test Front Close-Up View of Dummy

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

Intentionally Left Blank

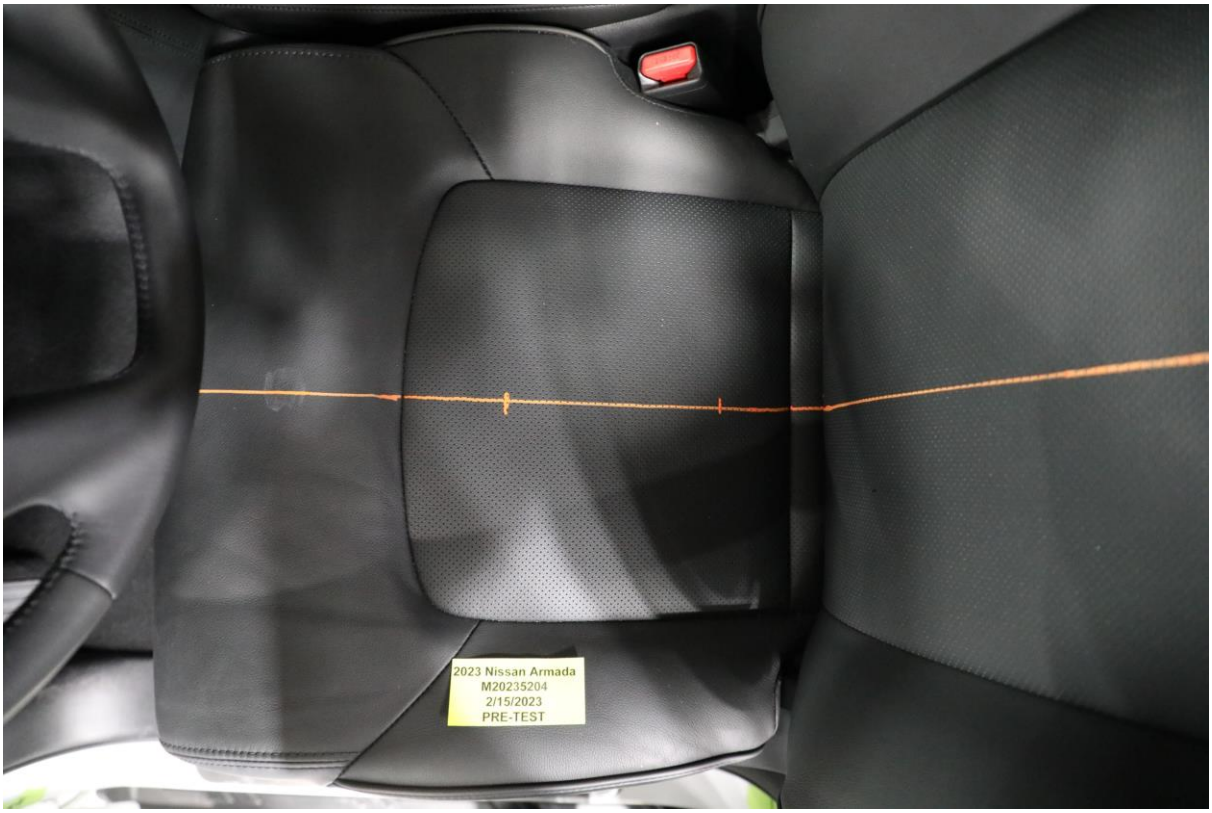
No. 024 Pre-Test Left Side View of Dummy Shoulder and Door Top View

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



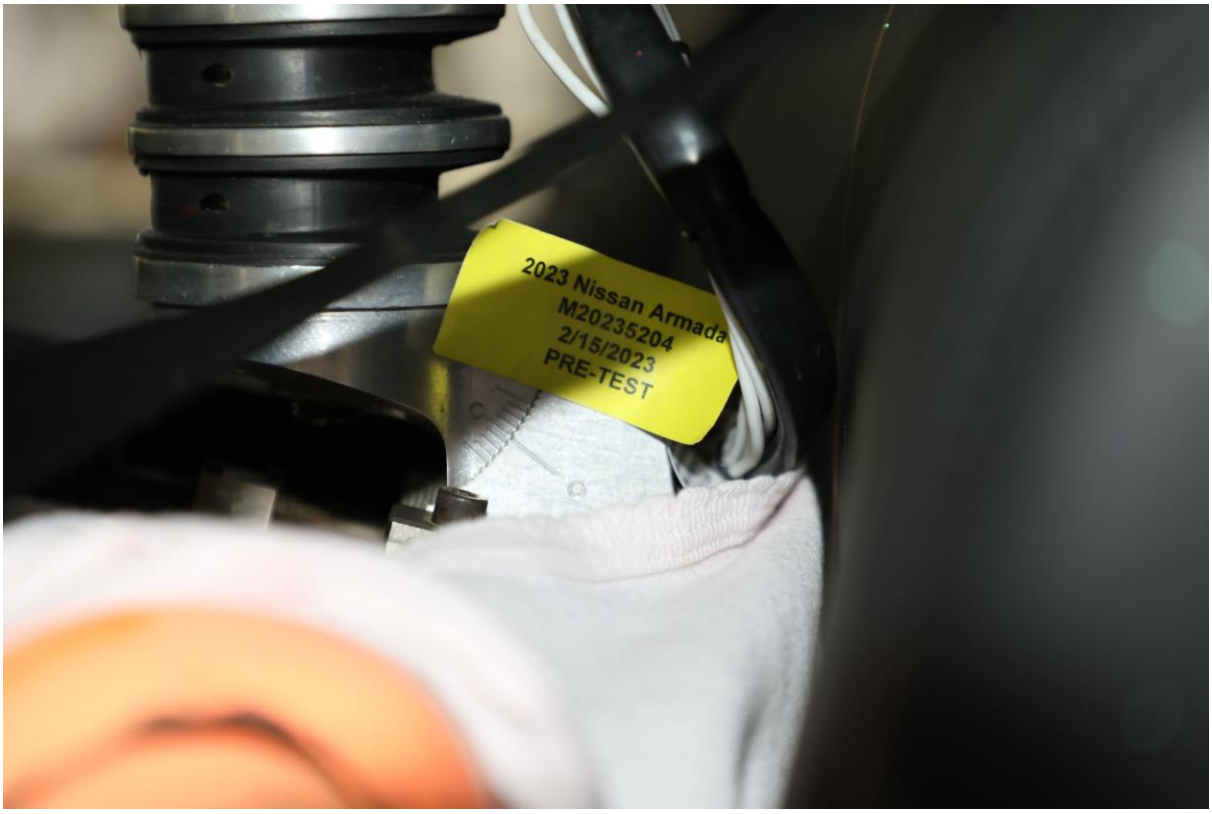
No. 026 Pre-Test Front View of Seat Back Prior to Dummy Positioning

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



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

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



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

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

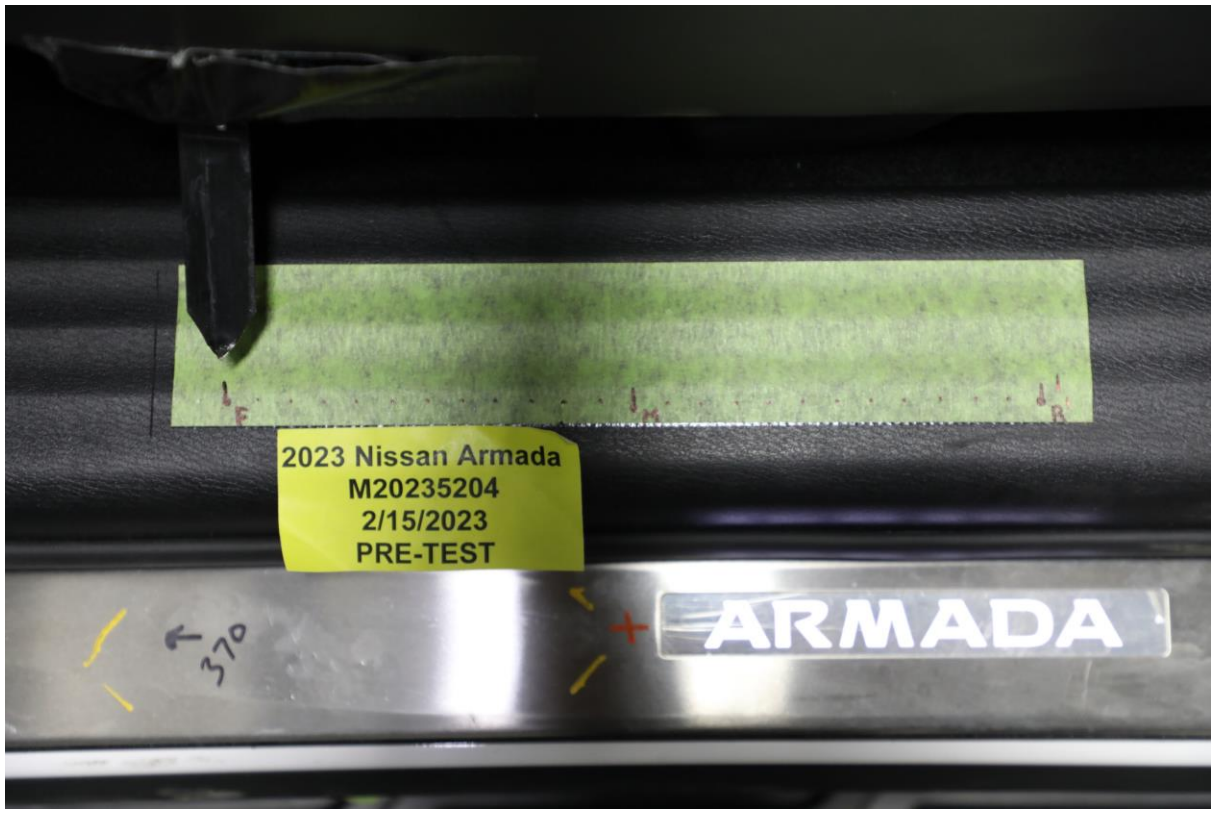
No. 032 Pre-Test Placement of Dummy Feet

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

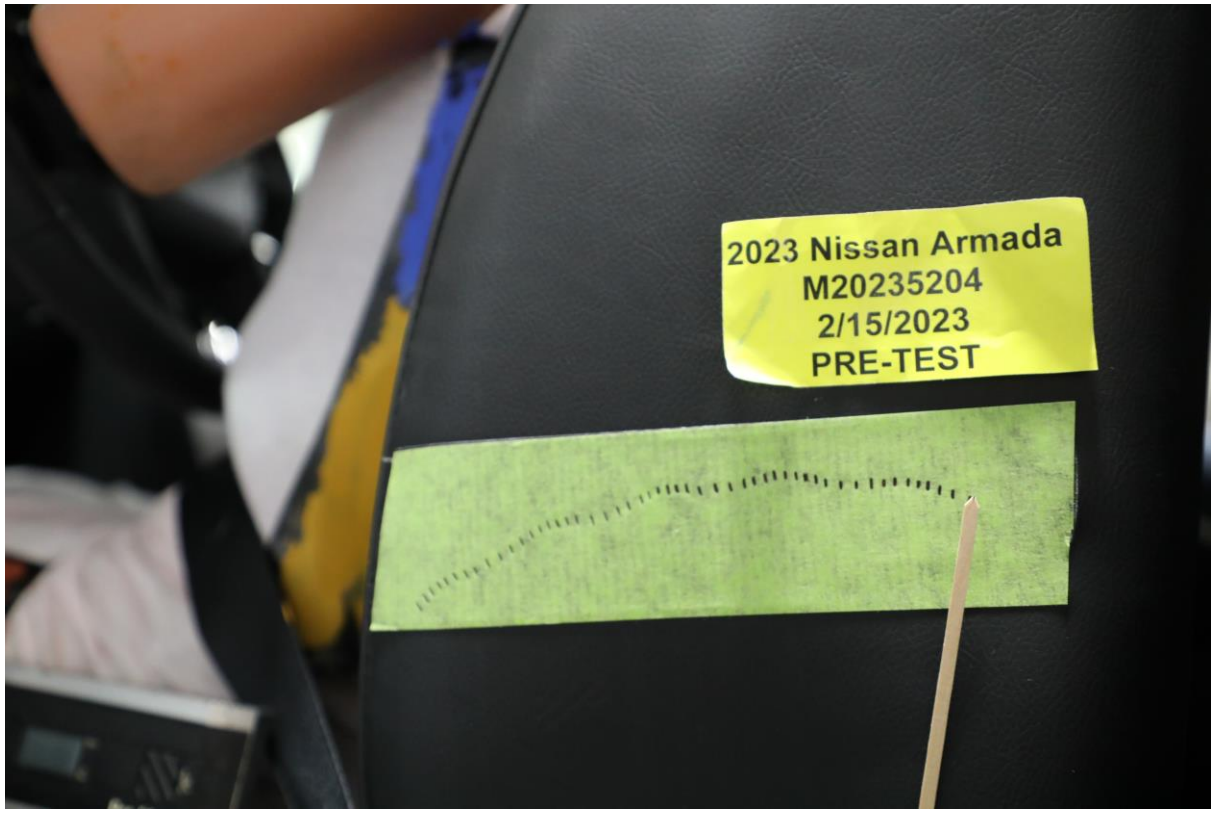
No. 034 Pre-Test Left Side View of Steering Wheel

No. 035 Pre-Test View of Disengaged Parking Brake

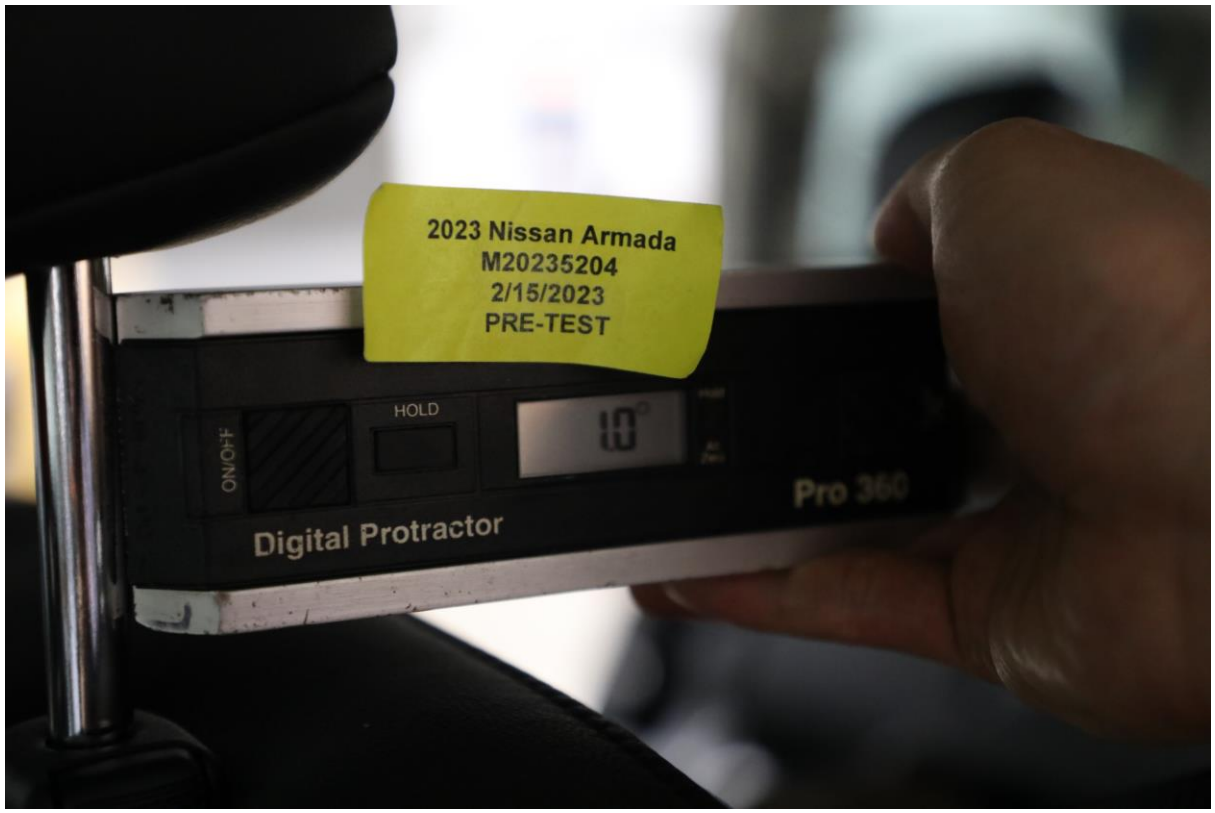
No. 036 Pre-Test View of Parking Brake



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



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



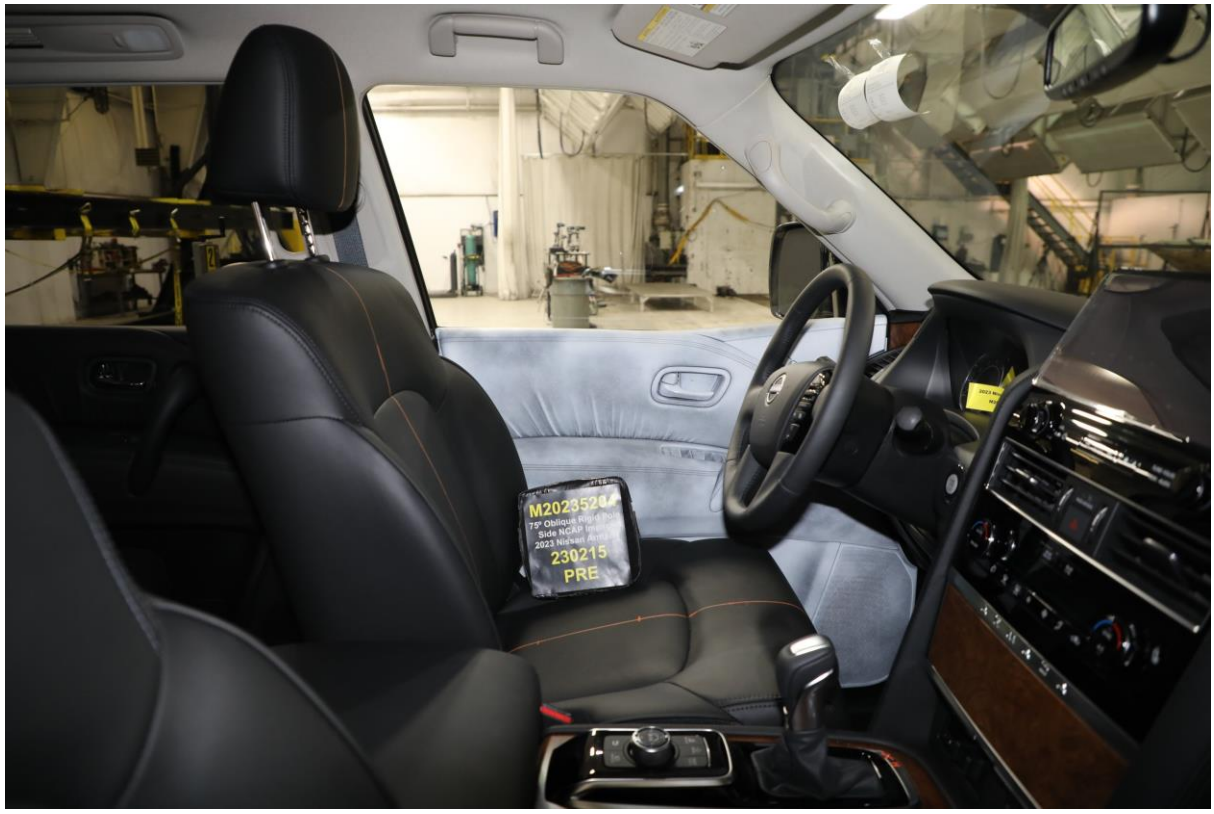
No. 039 Pre-Test Close-Up View of Driver Seat Back or Head Restraint

No. 040 Pre-Test Dummy and Door Clearance View

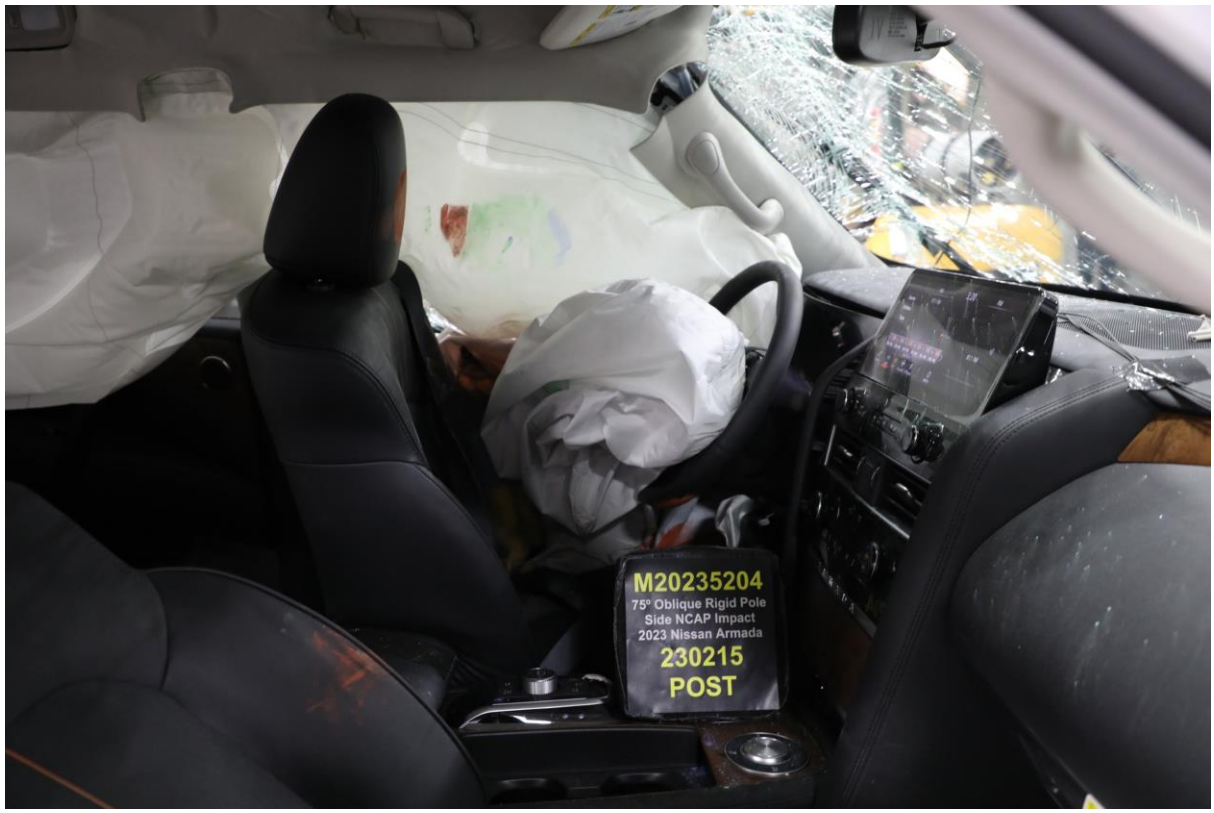
No. 041 Post-Test Dummy and Door Clearance View

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

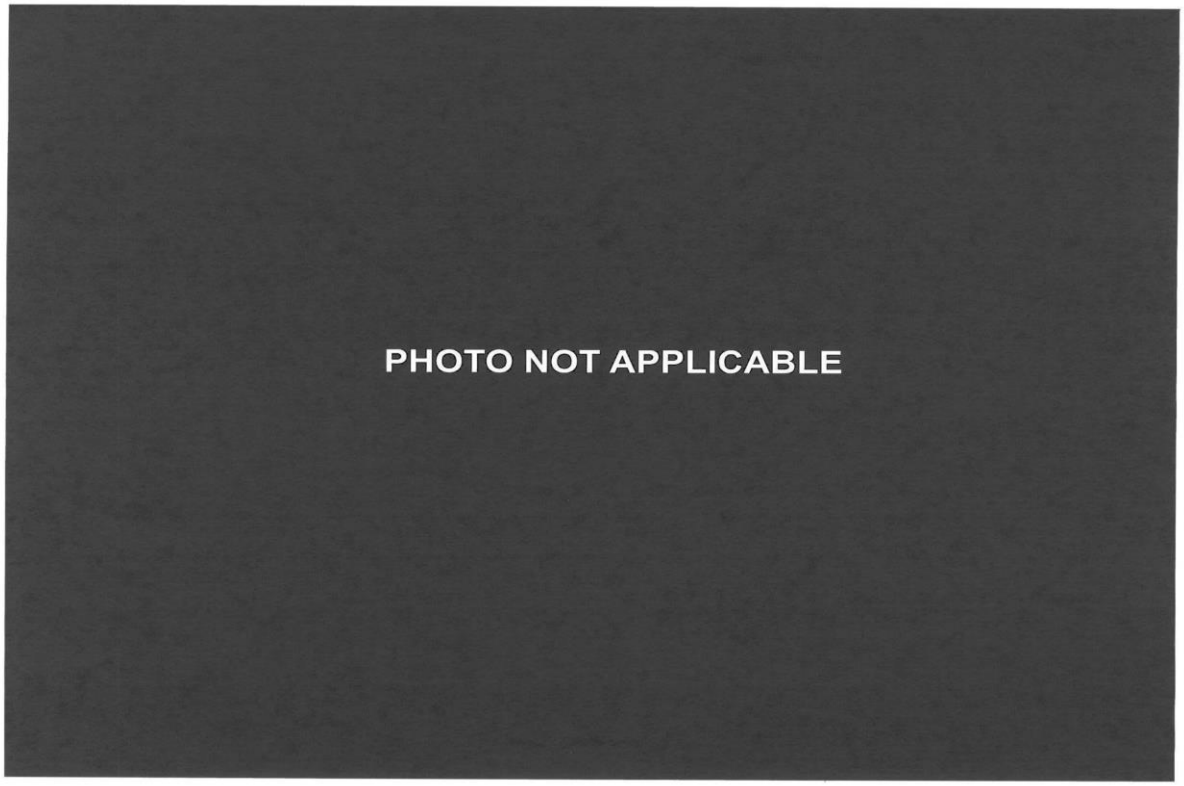
No. 043 Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment



No. 044 Pre-Test Inner Door Panel View



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



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

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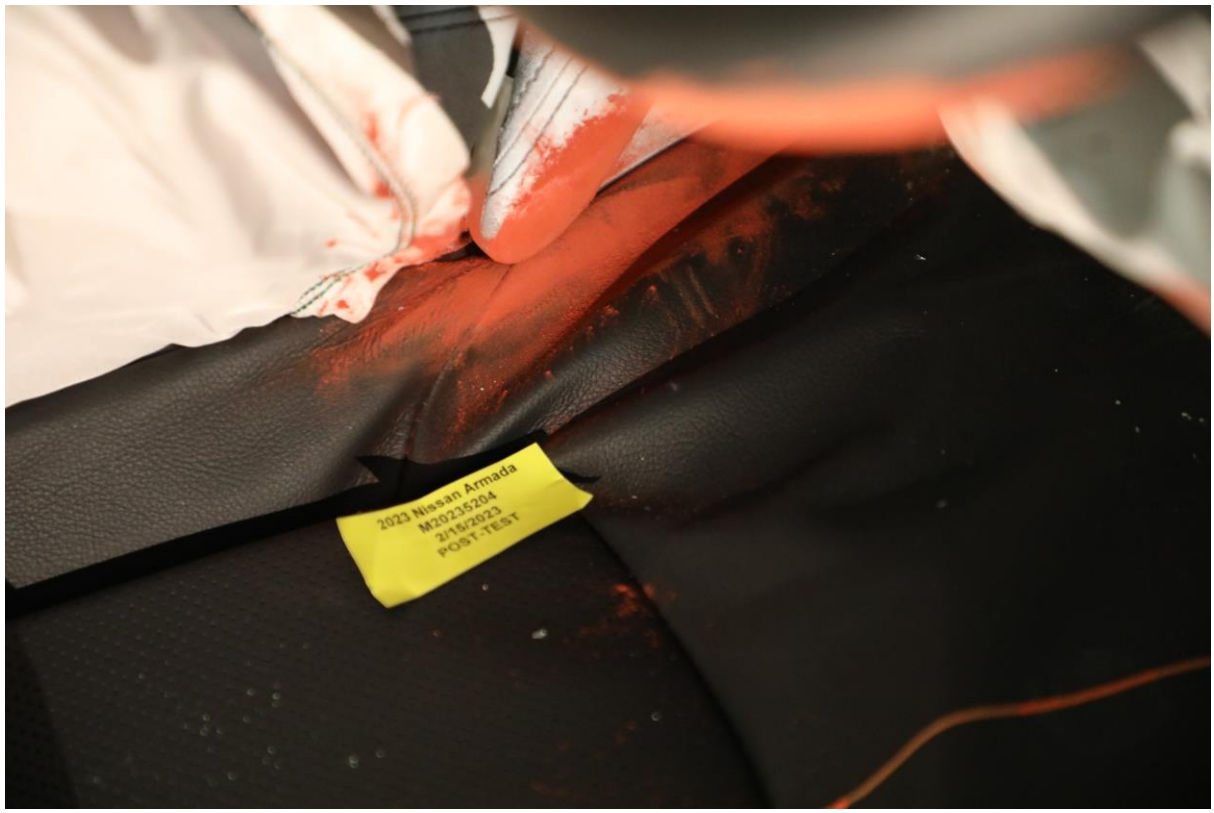
No. 047 Post-Test Dummy Close-Up Head Contact with Side Airbag View

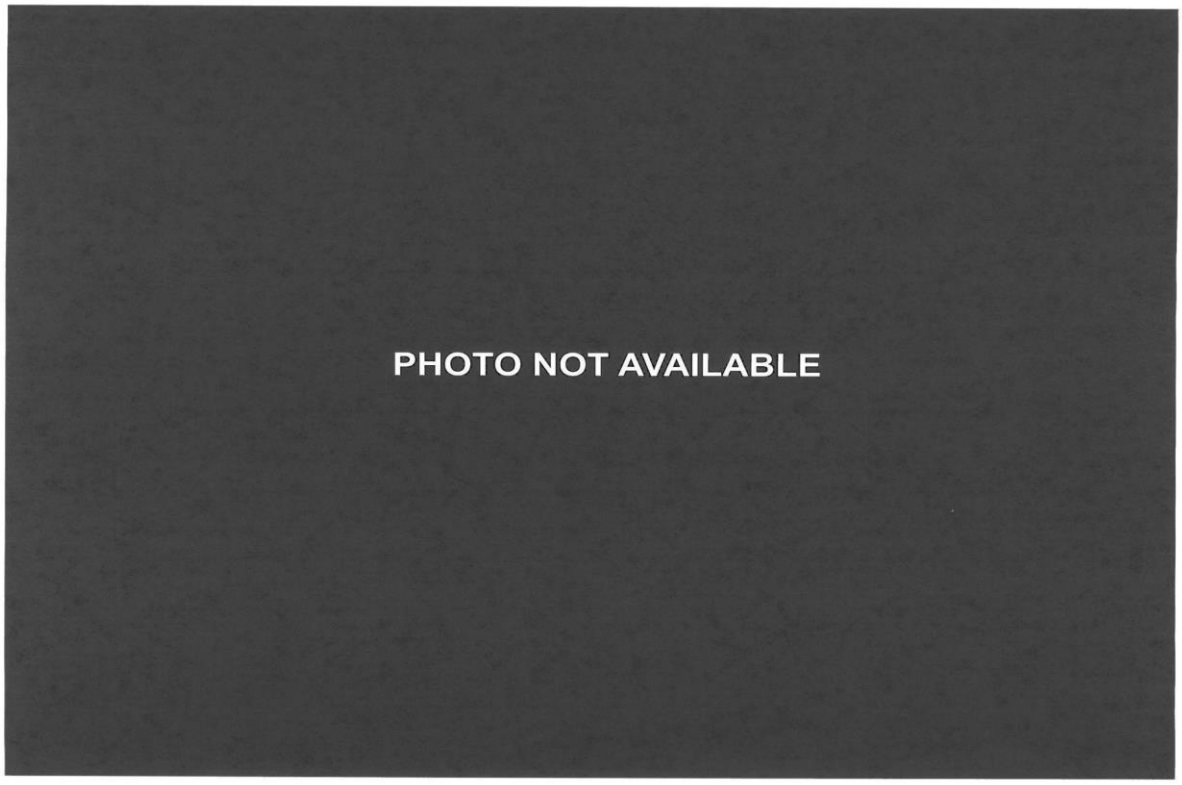
No. 048 Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View

No. 049 Post-Test Dummy Close-Up Torso Contact with Side Airbag View



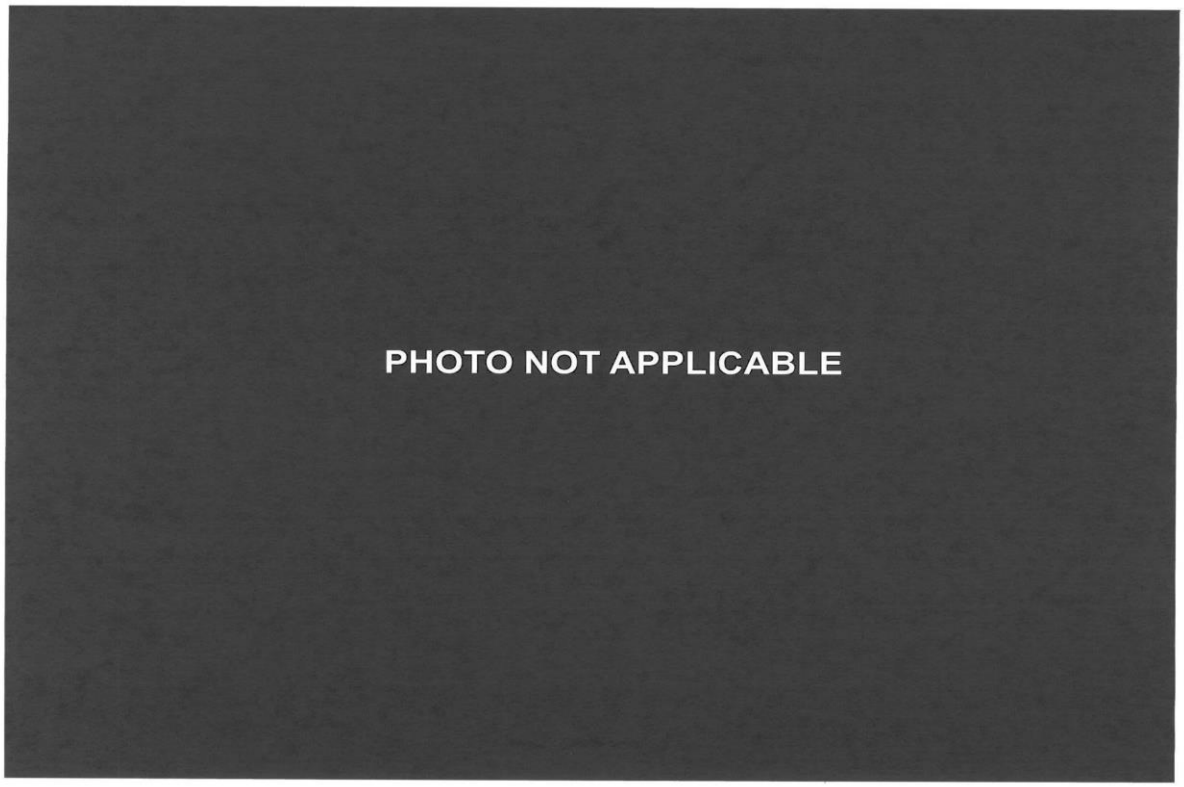
No. 050 Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View

No. 051 Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View



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

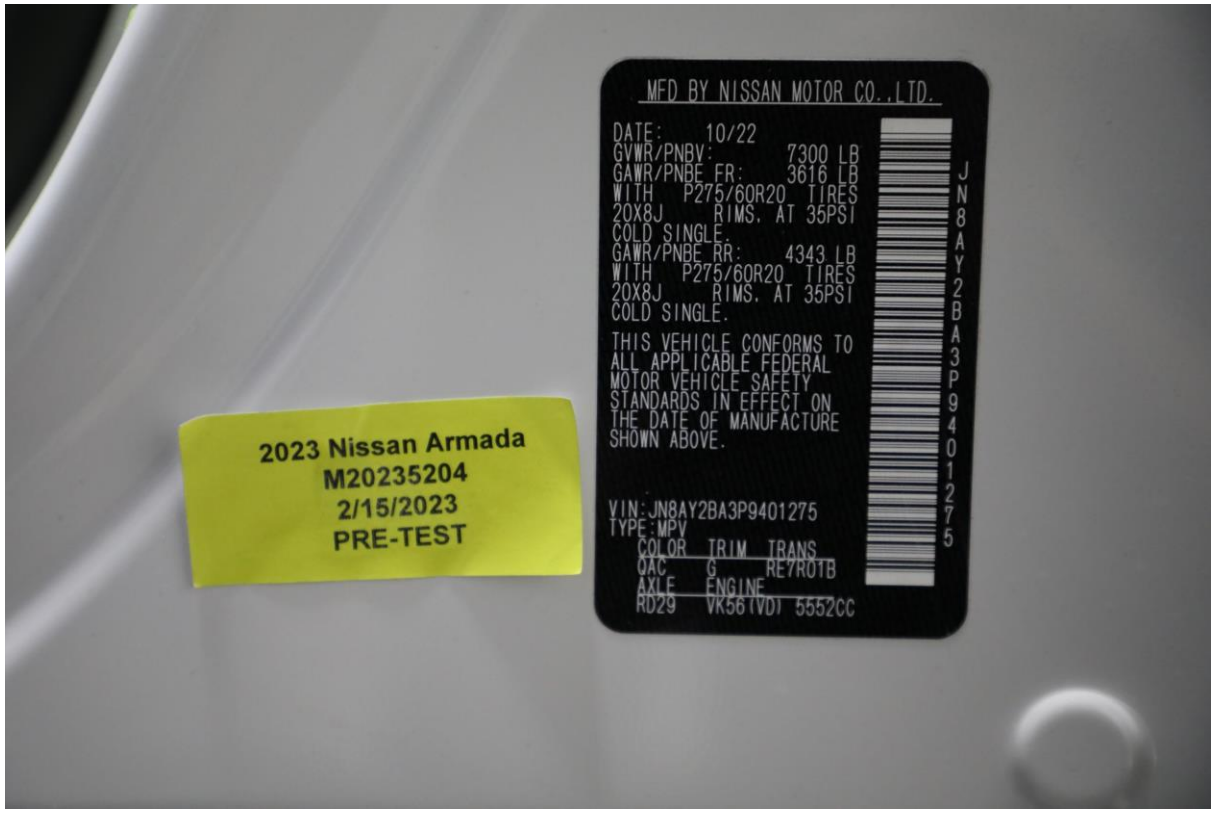
No. 053 Post-Test Right Side View of Dummy and Rear Seat of Occupant Compartment



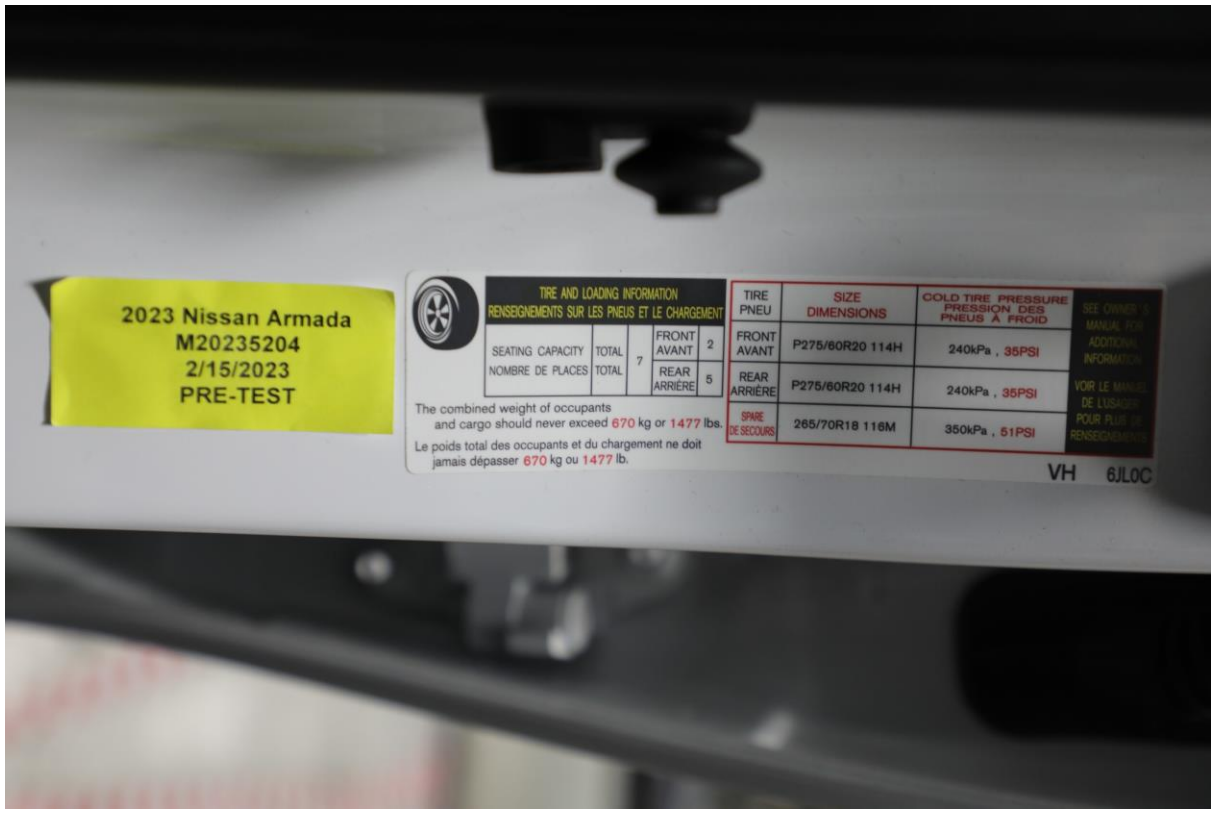
No. 054 Post-Test Inner Rear Passenger Torso Air Bag Deployment View

No. 55 Pre-Test View of Fuel Filler Cap or Fuel Filler Neck

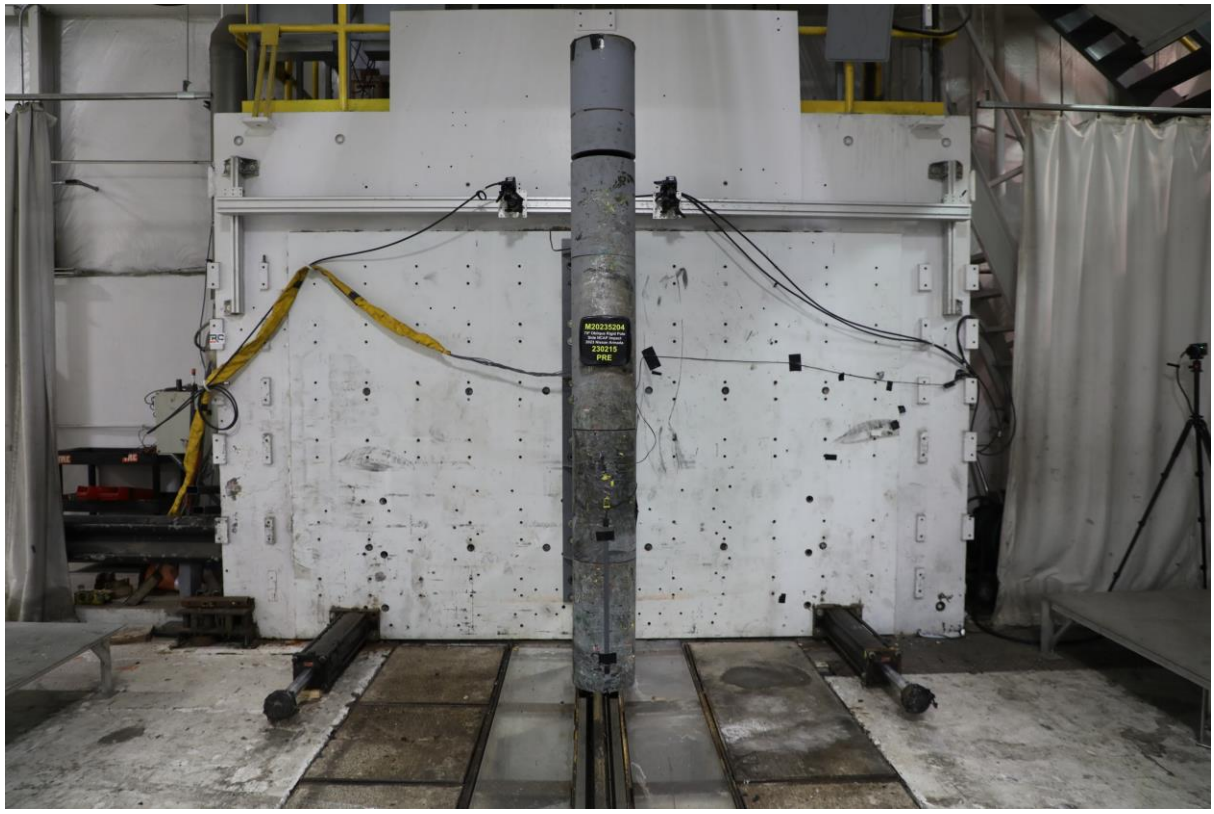
No. 056 Post-Test View of Fuel Filler Cap or Fuel Filler Neck



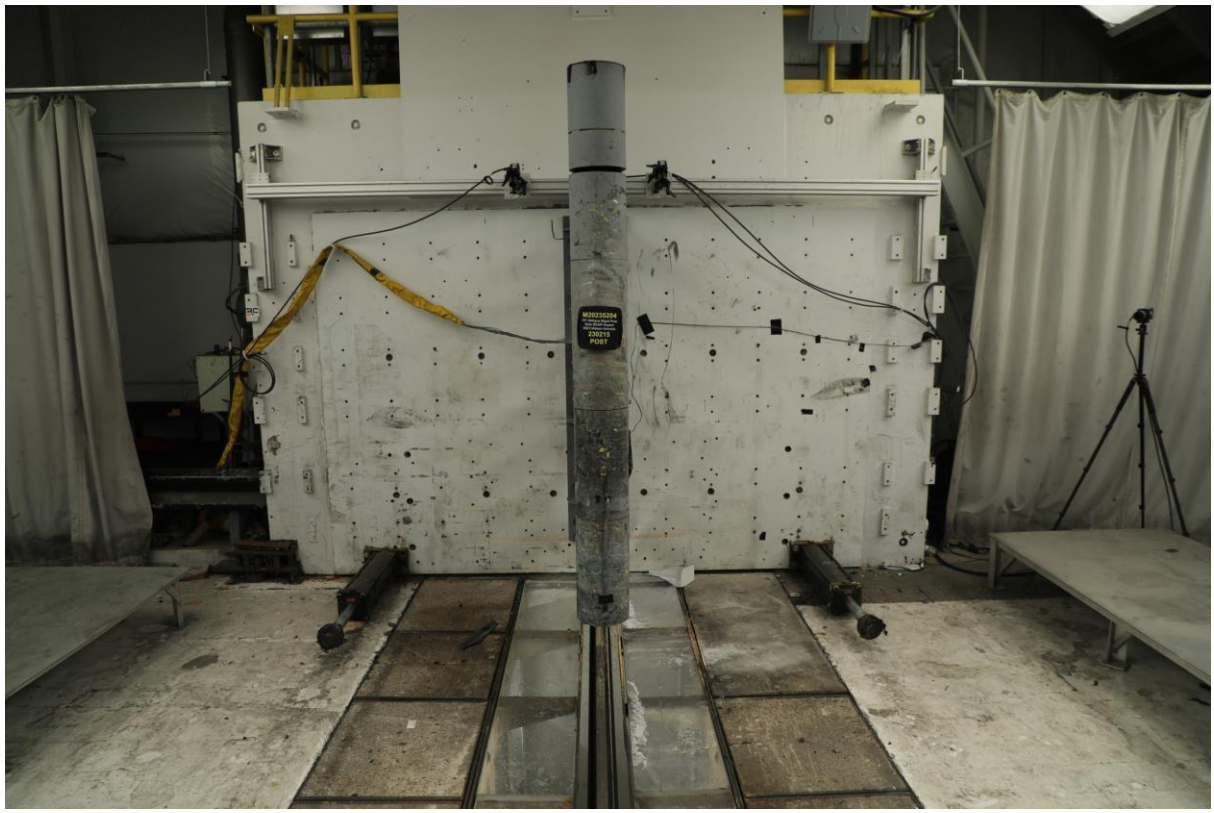
No. 057 Close-Up View of Vehicle Certification Label



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

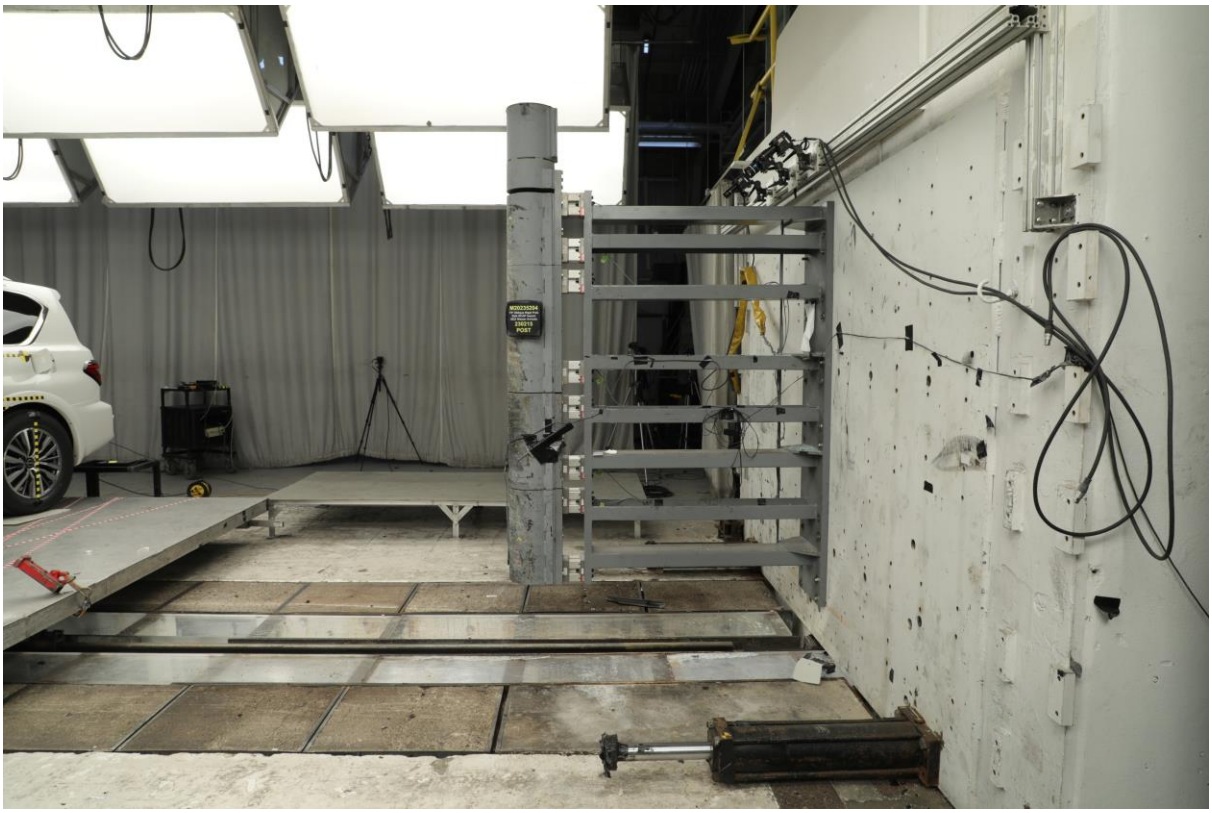


No. 059 Pre-Test Pole Barrier Front View

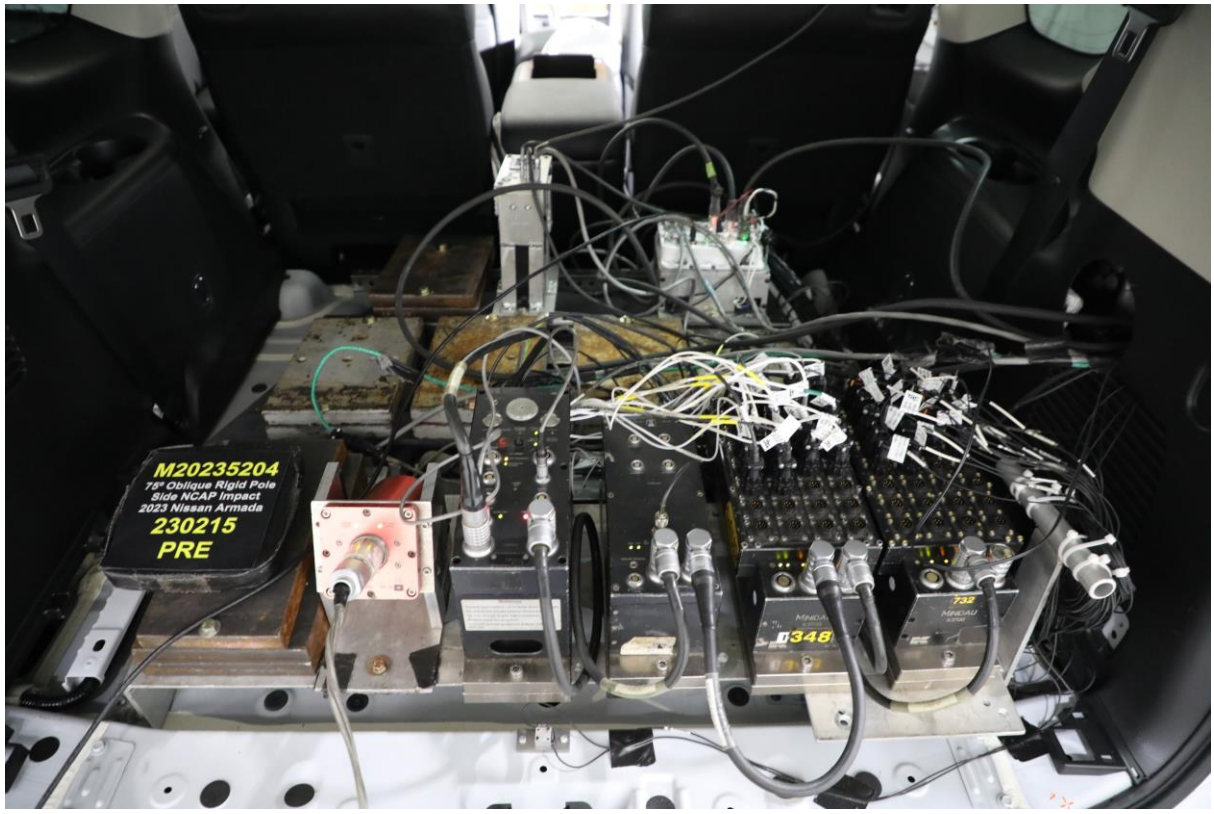


No. 060 Post-Test Pole Barrier Front View

No. 061 Pre-Test Pole Barrier Side View

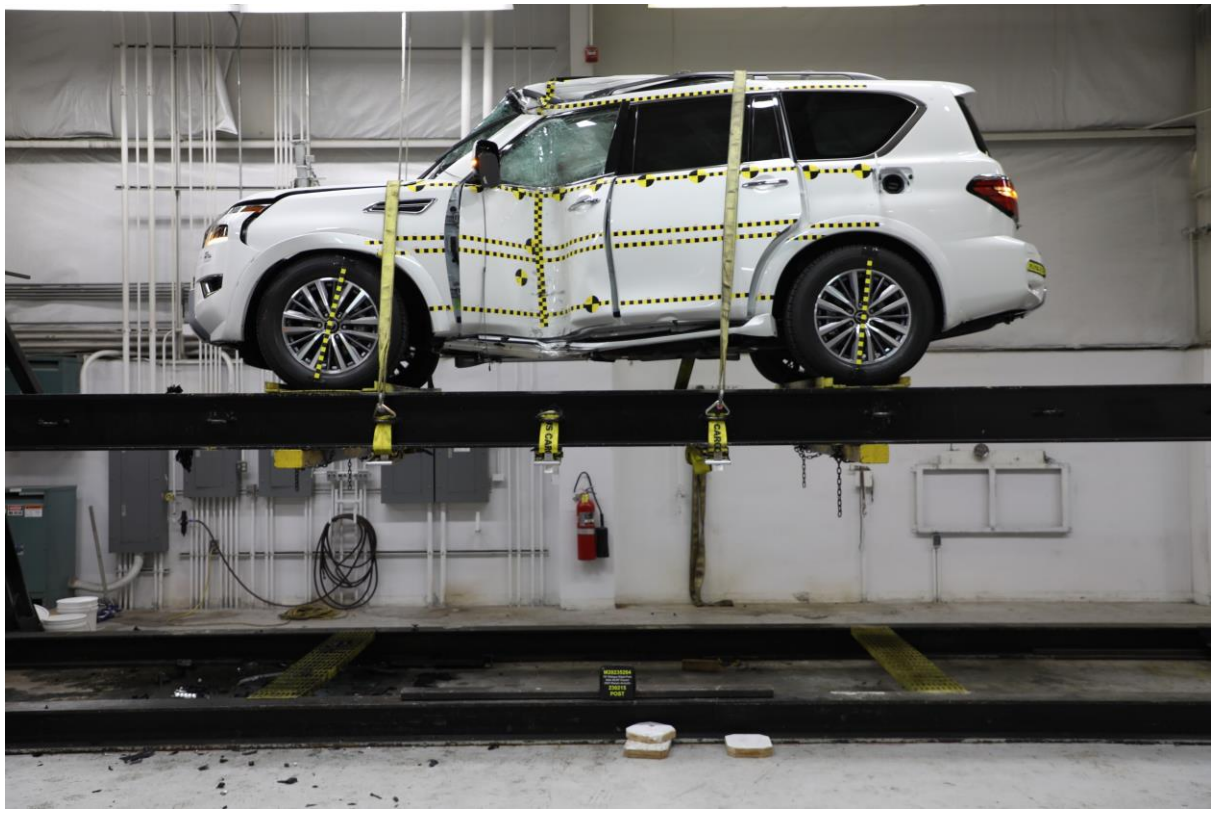


No. 062 Post-Test Pole Barrier Side View

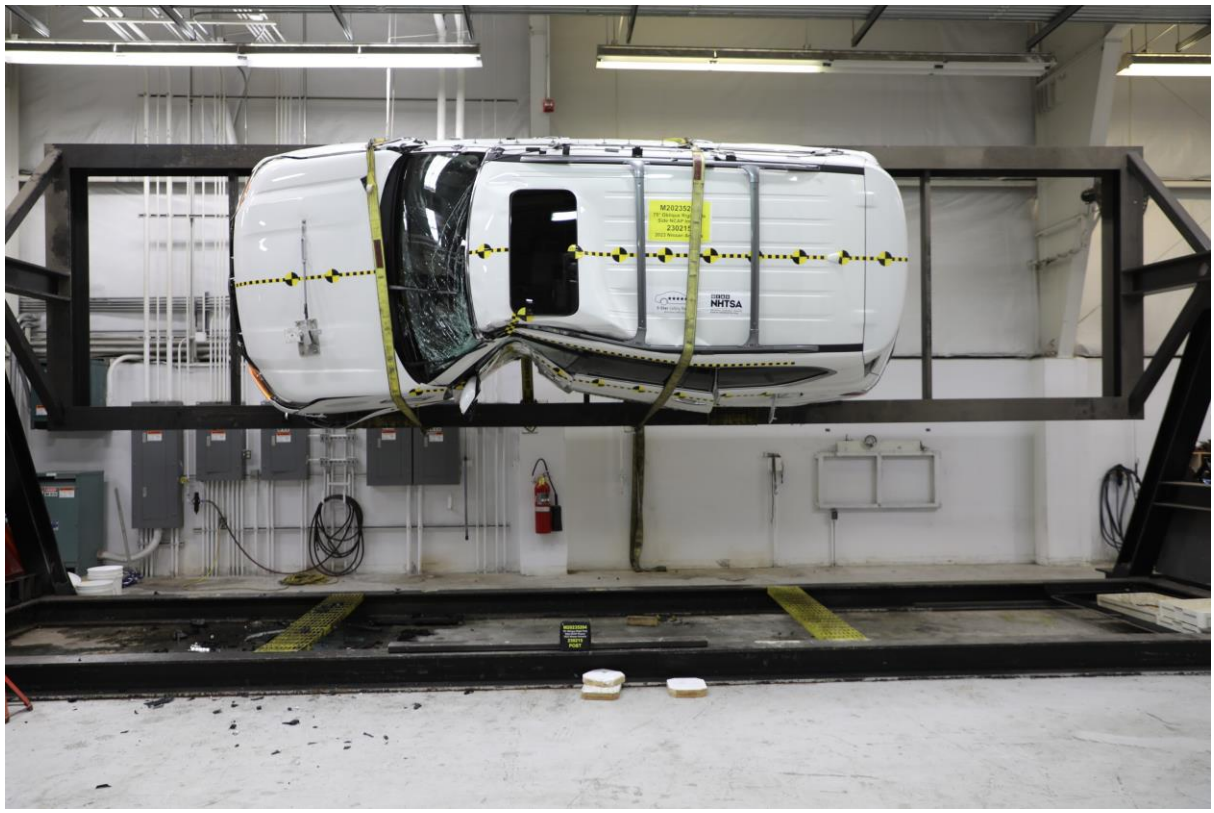


No. 063 Pre-Test Ballast View

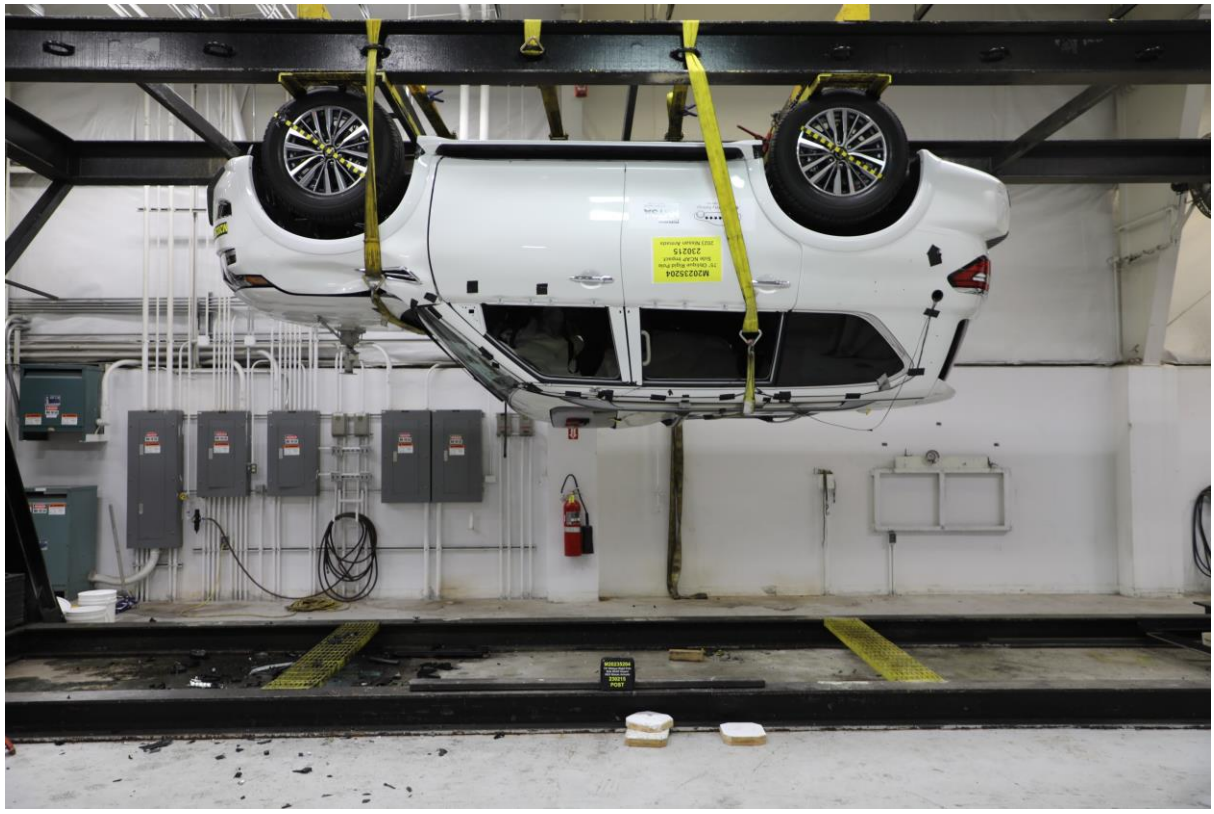
No. 064 Post-Test Primary and Redundant Speed Trap Read Out



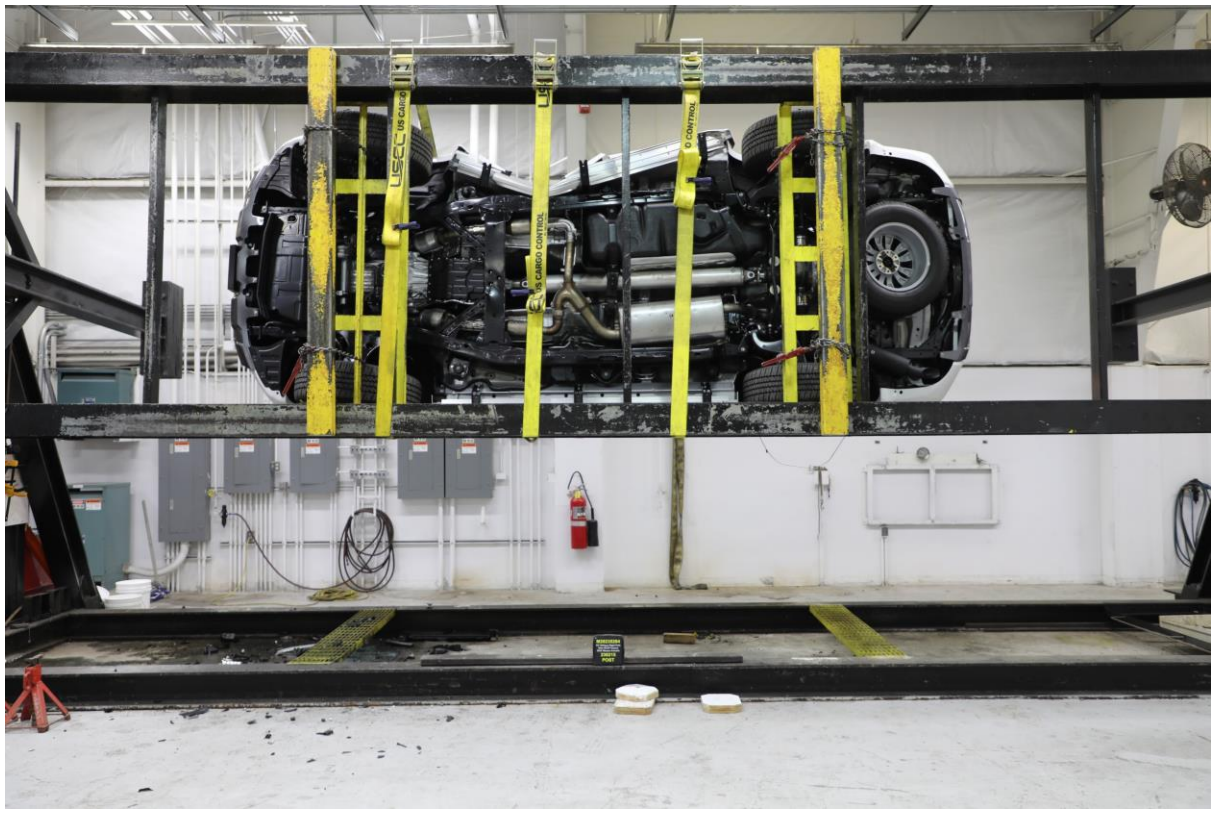
No. 065 FMVSS No. 301 Static Rollover 0 Degrees



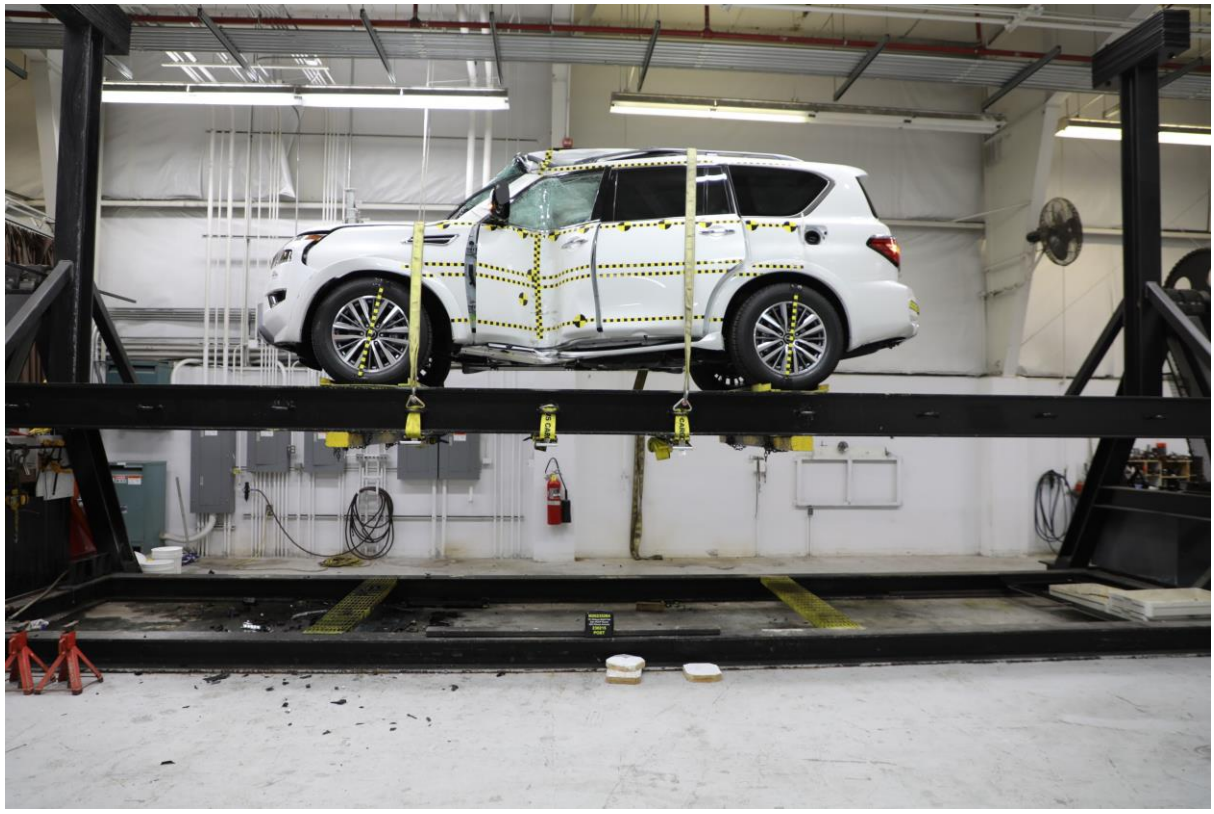
No. 066 FMVSS No. 301 Static Rollover 90 Degrees



No. 067 FMVSS No. 301 Static Rollover 180 Degrees



No. 068 FMVSS No. 301 Static Rollover 270 Degrees



No. 069 FMVSS No. 301 Static Rollover 360 Degrees

No. 070 Impact Event

2023 NISSAN ARMADA
SL
2WD AUTO

Scan QR code for general model information & options

Standard Equipment Included at No Extra Charge

MECHANICAL & PERFORMANCE
5.6-Liter Endurance® V8 Engine
400 Horsepower & 413 lb-ft. Torque
7-speed Automatic Transmission
Class IV Integrated Receiver Hitch++

SAFETY & SECURITY
Nissan Safety Shield 360
High Beam Assist
Automatic Emergency Braking with Pedestrian Detection
Lane Departure Warning
Blind Spot Warning
Rear Automatic Braking
Rear Cross Traffic Alert
Intelligent Forward Collision Warning
Intelligent Lane Intervention
Intelligent Blind Spot Intervention
Intelligent Around View Monitor

COMFORT & CONVENIENCE
Power Driver Seat
Power Passenger Seats
Driver Memory Functions
Heated Driver and Front Passenger Seats
Heated Leather Wrapped Steering Wheel w/ Memory
Leather Wrapped Shift Knob
Leather-appointed 1st & 2nd Row Seats
- USB Ports (2) Type-A & (2) Type-C
Three (3) 12-Volt Power Outlets
120-volt AC power outlet
Wireless Charging
Mid Flow Auto Dual Zone A/C & Rear Indirect Auto A/C w/ Micro Filter
Driver Attention Alert
Intelligent Cruise Control (ICC)
Hill Start Assist
Trailer Brake Controller++
Trailer Sway Control++
Auto-dimming Inside Mirror with Homelink® Universal Transceiver
Remote Engine Start
Memory Intelligent Key

AUDIO & INFOTAINMENT
NissanConnect®
12.3" Color Touch-Screen Display
Wireless Apple CarPlay®+
Android Auto™ +
Nissan Door to Door Navigation+
Bluetooth® Hands-free Phone System+
Wi-Fi Hotspot+
SiriusXM® Radio, Traffic, & Travel Link with Trial Subscription Included+
NissanConnect® Services powered by SiriusXM® w/ Trial Subscription Included+
7" Color Meter Display
Voice Recognition+
13 Speaker BOSE® Audio System
Alexa Built-In

EXTERIOR
20" Painted Alloy Wheels
LED Headlamps & Fog Lamps
Power Sliding Moonroof
Power Liftgate
Power Folding Heated Outside Mirrors with LED Turn Signal Indicators

+For more information, see dealer, owner's manual or www.NissanUSA.com/connect/legal

++Towing capability varies by configuration. See Nissan towing guide and owner's manual for additional information.

*Does not include dealer installed options and accessories, local taxes or license fees. This label has been applied pursuant to federal law. Do not remove prior to delivery to the ultimate purchaser.

Manufacturer's Suggested Retail Base Price:	$58,370.00
Options Included by Manufacturer	
CAPTAIN'S CHAIRS PACKAGE 2nd-Row Captain's Chairs 2nd-Row Center Console with Padded Armrest (Seating Revised From 8 To 7 Passenger)	750.00
PREMIUM PAINT	395.00
CARGO PACKAGE Cargo Area Protector Cargo Net First Aid Kit	230.00
ILLUMINATED KICK PLATES	390.00
CROSS BARS	380.00
CARPETED FLOOR MATS Carpeted Floor Mats & Cargo Mat	380.00
DESTINATION CHARGES	1,695.00
Total*	$62,590.00

EPA DOT Fuel Economy and Environment — Gasoline Vehicle

Fuel Economy: 16 MPG combined city/hwy (14 city, 19 highway)
6.2 gallons per 100 miles
STANDARD SUVS range from 14 to 102 MPG. The best vehicle rates 132 MPGe.

You spend $9,000 more in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost $3,400

Fuel Economy & Greenhouse Gas Rating (tailpipe only): 3 (1 Worst, 10 Best)
Smog Rating (tailpipe only): 3 (1 Worst, 10 Best)

This vehicle emits 568 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 28 MPG and costs $8,000 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at $3.65 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

Smartphone Shortcut

GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.		Not Rated
Frontal Crash Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.	Driver Passenger	Not Rated Not Rated
Side Crash Based on the risk of injury in a side impact.	Front seat Rear seat	Not Rated Not Rated
Rollover Based on the risk of rollover in a single-vehicle crash.		★★★

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

This Vehicle qualifies for Nissan's
Security+Plus Extended Protection Plan
The only service agreement backed by Nissan Extended Services North America!
Ask your dealer for details, or call 1-800-NISSAN-1 for more information

DELIVERY

VEHICLE COLORS:
EXT: ASPEN WHITE TRI
INT: CHARCOAL

FINAL ASSEMBLY POINT:
LOS ANGELES

TRANSPORT METHOD:
TRUCK

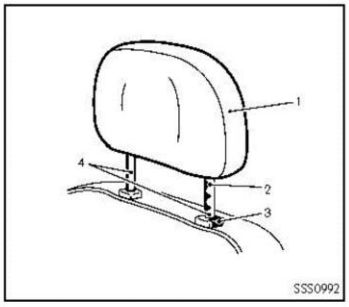
DEALER:
EMPIRE NISSAN
1377 KETTERING LOOP
ONTARIO CA
91761

VIN: JN8AY2BA3P9401275
EMS: 50 STATE EMISSIONS
MDL: 26513-401275 QAC-G
OPT: E-X01E10M92N92B92L93
C03

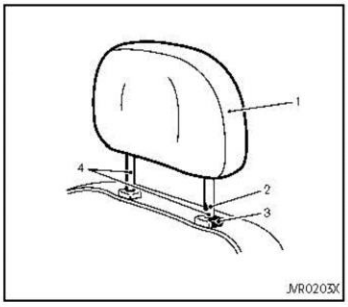
20221114224321AS102C

No. 071 Monroney Label

riding in that designated seating position.



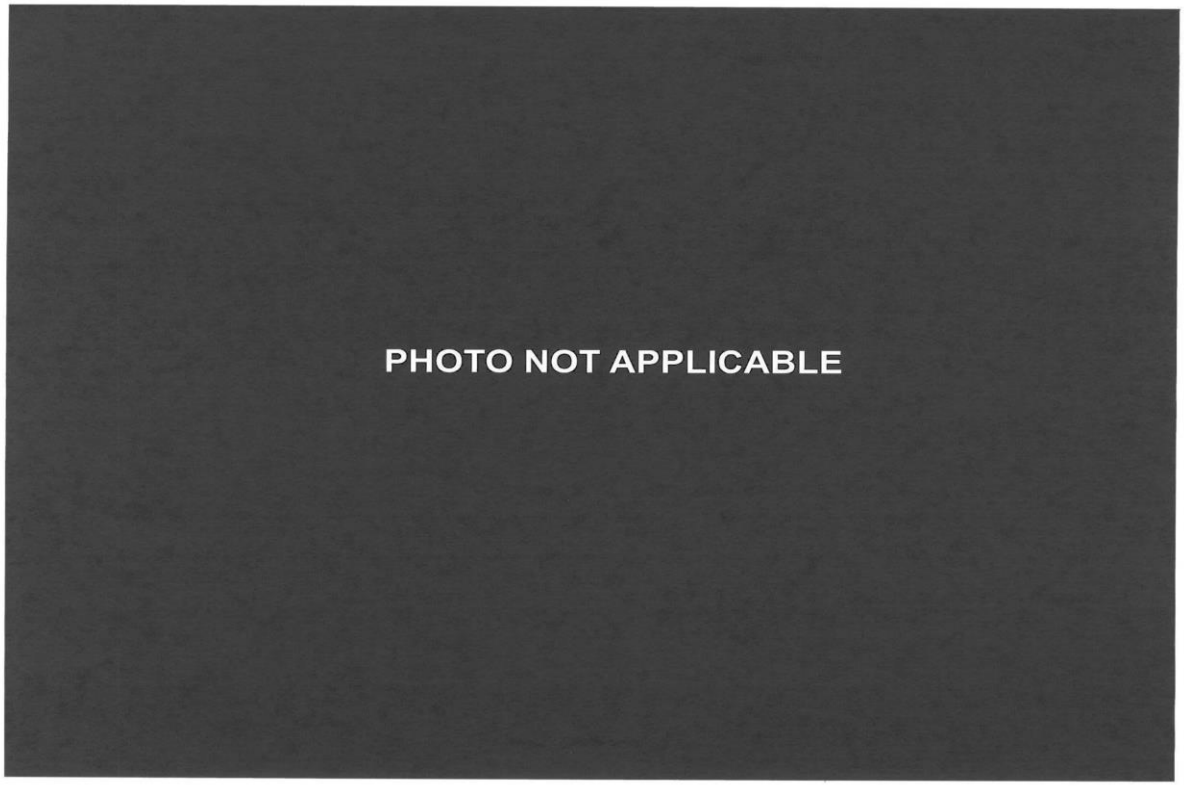
ADJUSTABLE HEAD RESTRAINT/ HEADREST COMPONENTS
1. Removable head restraint/headrest
2. Multiple notches
3. Lock knob
4. Stalks



NON-ADJUSTABLE HEAD RESTRAINT/HEADREST COMPONENTS
1. Removable head restraint/headrest
2. Single notch
3. Lock knob
4. Stalks

1-16 Safety — seats, seat belts and supplemental restraint system

No. 072 Head Restraint Use and Adjustment Information from Vehicle Owner Manual



No. 073 Post-Test View of Shattered Vehicle Inner Door Panel

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

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 Acceleration (X) Redundant
Driver Head Acceleration (Y) Redundant
Driver Head Acceleration (Z) Redundant
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)
Driver Head Angular Velocity (X)
Driver Head Angular Velocity (Y)
Driver Head Angular Velocity (Z)

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 (X)
Load Cell Pole Barrier #2 Force (X)
Load Cell Pole Barrier #3 Force (X)
Load Cell Pole Barrier #4 Force (X)
Load Cell Pole Barrier #5 Force (X)
Load Cell Pole Barrier #6 Force (X)
Load Cell Pole Barrier #7 Force (X)
Load Cell Pole Barrier #8 Force (X)

NHTSA

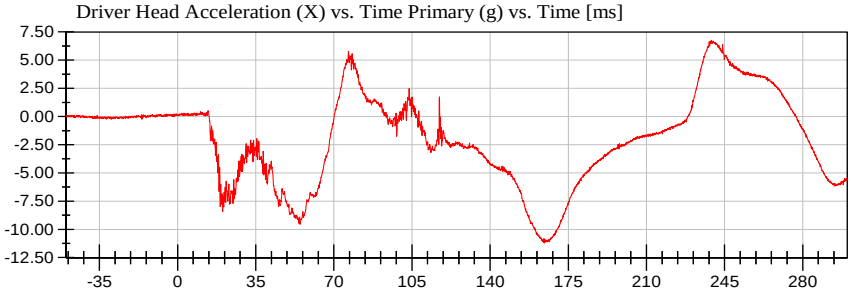
Test Date: 02/15/2023

Position #1 SID IIs Dummy (297)

Test Lab: CTF

Test Number: 230215 (M20235204)

Driver Head Acceleration (X) vs. Time Primary (g) vs. Time [ms]



<Max>

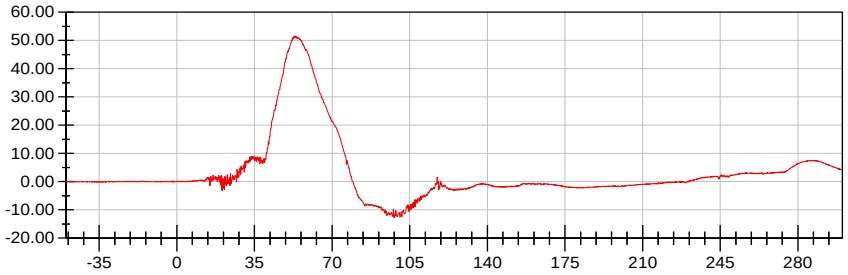
6.77 g at 239.04 ms

<Min>

-11.21 g at 164.24 ms

CFC_1000

Driver Head Acceleration (Y) vs. Time Primary (g) vs. Time [ms]



<Max>

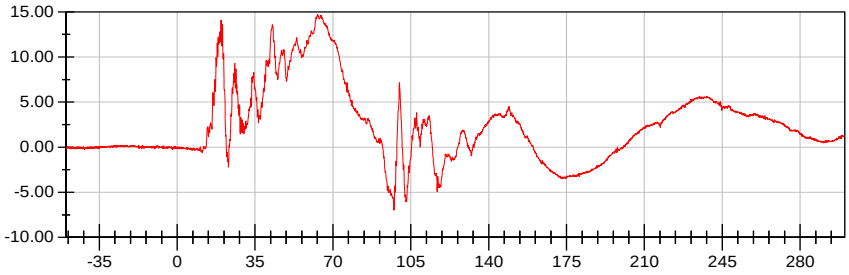
51.55 g at 53.20 ms

<Min>

-12.74 g at 98.00 ms

CFC_1000

Driver Head Acceleration (Z) vs. Time Primary (g) vs. Time [ms]



<Max>

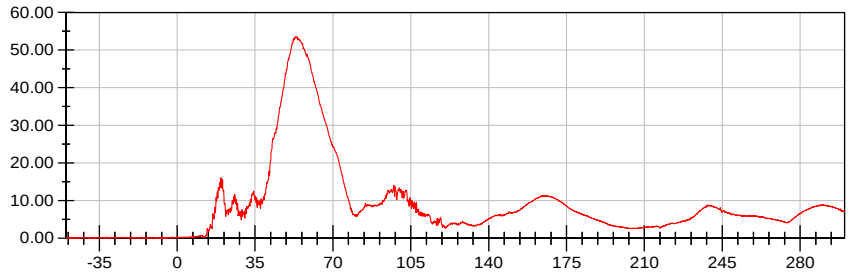
14.75 g at 63.04 ms

<Min>

-6.98 g at 97.44 ms

CFC_1000

Driver Head Acceleration Resultant Primary vs. Time (g) vs. Time [ms]



<Max>

53.53 g at 53.20 ms

<Min>

0.04 g at -49.04 ms

CFC_1000

NHTSA

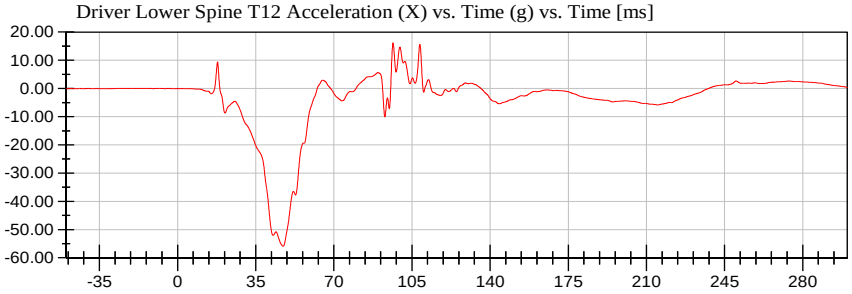
Test Date: 02/15/2023

Position #1 SID IIs Dummy (297)

Test Lab: CTF

Test Number: 230215 (M20235204)

Driver Lower Spine T12 Acceleration (X) vs. Time (g) vs. Time [ms]



<Max>

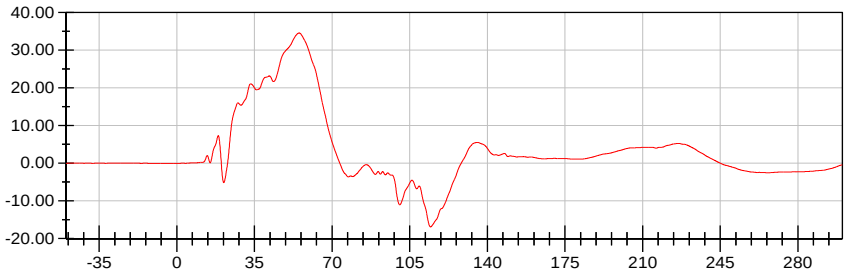
16.16 g at 96.48 ms

<Min>

-55.92 g at 47.28 ms

CFC_180

Driver Lower Spine T12 Acceleration (Y) vs. Time (g) vs. Time [ms]



<Max>

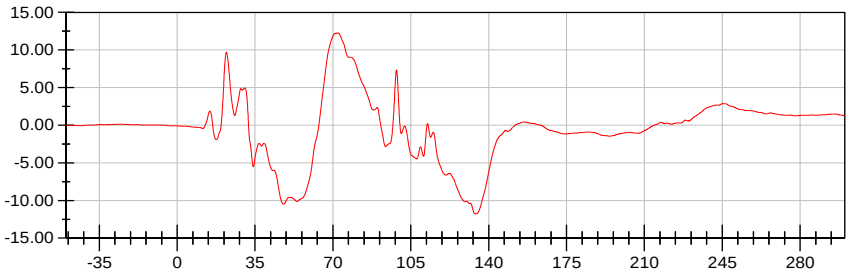
34.60 g at 55.12 ms

<Min>

-16.92 g at 114.40 ms

CFC_180

Driver Lower Spine T12 Acceleration (Z) vs. Time (g) vs. Time [ms]



<Max>

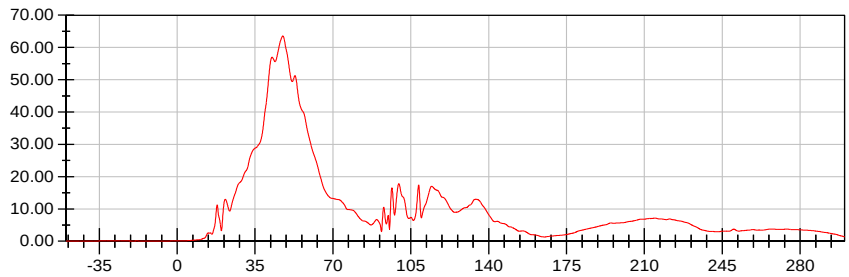
12.25 g at 72.24 ms

<Min>

-11.79 g at 134.16 ms

CFC_180

Driver Lower Spine T12 Acceleration Resultant vs. Time (g) vs. Time [ms]



<Max>

63.54 g at 47.52 ms

<Min>

0.02 g at -41.20 ms

CFC_180

NHTSA

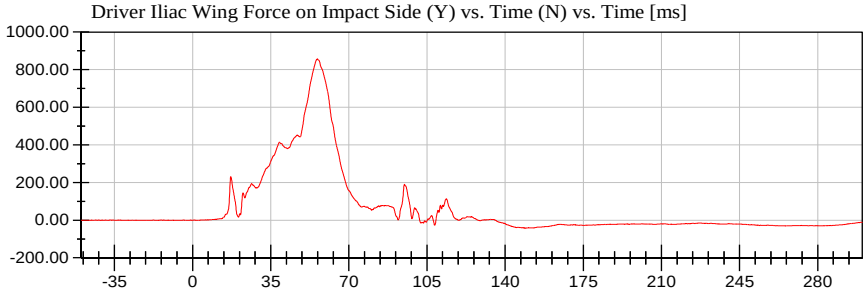
Test Date: 02/15/2023

Position #1 SID IIs Dummy (297)

Test Lab: CTF

Test Number: 230215 (M20235204)

Driver Iliac Wing Force on Impact Side (Y) vs. Time (N) vs. Time [ms]



<Max>

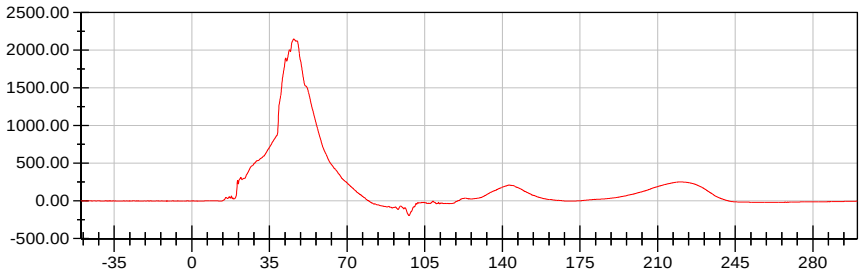
856.90 N at 55.92 ms

<Min>

-43.31 N at 148.88 ms

CFC_600

Driver Acetabulum Force on Impact Side (Y) vs. Time (N) vs. Time [ms]



<Max>

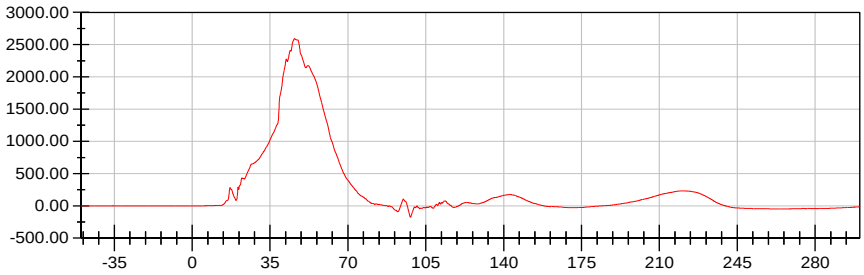
2,149.62 N at 45.92 ms

<Min>

-192.88 N at 97.92 ms

CFC_600

Driver Total Pelvis Force on Impact Side (Y) vs. Time (N) vs. Time [ms]



<Max>

2,591.38 N at 45.92 ms

<Min>

-176.38 N at 98.16 ms

CFC_600

APPENDIX C

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

TABLE OF CALIBRATION MEASUREMENTS AND PLOTS
SID-IIs (Driver) Dummy
Description

Table 1. External Measurements
Table 2. Head Drop Test
- Resultant Head Acceleration (G's) vs. Time (ms)
- Head (X) Acceleration (G's) vs. Time (ms)
- Head (Y) Acceleration (G's) vs. Time (ms)
- Head (Z) Acceleration (G's) vs. Time (ms)

Table 3. Lateral Neck Pendulum Test
- Pendulum Velocity (m/s) vs. Time (ms)
- Flexion Angle (°) vs. Time (ms)
- Moment About Occipital Condyle (Nm) vs. Time (ms)

Table 4. Shoulder Impact Test
- Impactor Acceleration (G's) vs. Time (ms)
- Shoulder Displacement (mm) vs. Time (ms)
- Upper Spine Acceleration (G's) vs. Time (ms)

Table 5. Thorax (With Arm) Impact Test
- Impactor Acceleration (G's) vs. Time (ms)
- Shoulder Displacement (mm) vs. Time (ms)
- Upper Rib Displacement (mm) vs. Time (ms)
- Middle Rib Displacement (mm) vs. Time (ms)
- Lower Rib Displacement (mm) vs. Time (ms)
- Upper Spine Acceleration (G's) vs. Time (ms)
- Lower Spine Acceleration (G's) vs. Time (ms)

Table 6. Thorax (Without Arm) Impact Test
- Impactor Acceleration (G's) vs. Time (ms)
- Upper Rib Displacement (mm) vs. Time (ms)
- Middle Rib Displacement (mm) vs. Time (ms)
- Lower Rib Displacement (mm) vs. Time (ms)
- Upper Spine Acceleration (G's) vs. Time (ms)
- Lower Spine Acceleration (G's) vs. Time (ms)

Table 7. Abdomen Impact Test
- Impactor Acceleration (G's) vs. Time (ms)
- Upper Abdominal Rib Displacement (mm) vs. Time (ms)
- Lower Abdominal Rib Displacement (mm) vs. Time (ms)
- Lower Spine Acceleration (G's) vs. Time (ms)

Table 8. Pelvis Plug Quasi-Static Test (Optional*)
Table 9. Pelvis Acetabulum Impact Test
- Impactor Acceleration (G's) vs. Time (ms)
- Pelvis (Y) Acceleration (G's) vs. Time (ms)
- Acetabulum Force (N) vs. Time (ms)

Table 10. Pelvis Iliac Impact Test
- Impactor Acceleration (G's) vs. Time (ms)
- Pelvis (Y) Acceleration (G's) vs. Time (ms)
- Iliac Force (N) vs. Time (ms)

Pre-Test Calibration Sheets
Driver S/N 297

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 297 Calibration No. 59

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	780	Yes
B	Shoulder Pivot Height	437.0 - 453.0	450	Yes
C	H-Point Height	79.0 - 89.0	85	Yes
D	H-Point from Seat Back	141.0 - 151.0	147	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	102	Yes
F	Thigh Clearance	119.0 - 135.0	129	Yes
G	Head Breadth	140.0 - 148.0	147	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	183	Yes
J	Head Circumference	541.0 - 551.0	544	Yes
K	Buttock to Knee Length	514.0 - 540.0	528	Yes
L	Popliteal Height	343.0 - 369.0	353	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	400	Yes
N	Buttock Popliteal Length	416.0 - 442.0	430	Yes
O	Chest Depth without Jacket	195.0 - 211.0	200	Yes
P	Foot Length (right)	216.0 - 232.0	223	Yes
P	Foot Length (left)	216.0 - 232.0	223	Yes
Q	Hip Breadth	313.0 - 323.0	320	Yes
R	Arm Length	249.0 - 259.0	254	Yes
S	Knee Joint to seat Back	478.0 - 493.0	485	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	347	Yes
W	Foot Width (right)	78.0 - 94.0	85	Yes
W	Foot Width (left)	78.0 - 94.0	85	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	878	Yes
Z	Waist Circumference	761.0 - 791.0	782	Yes

Transportation Research Center Inc.

Left Lateral Head Drop
SID IIs Serial No. 297 Certification No. 59-1
Test Date: 1/24/2023

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	28 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	130.7 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-2.4 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	< 15 %	1.06 %	Yes

Test meets specifications.

Condition: Used

Comments:
Head Skin S/N: 1330

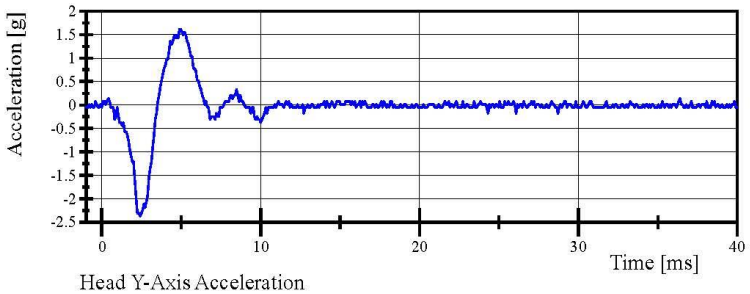
Specification Source: CFR49 Part 572 Subpart V with Polarity in accordance with J211

01.24.2023 11:24:59 234

Transportation Research Center Inc.

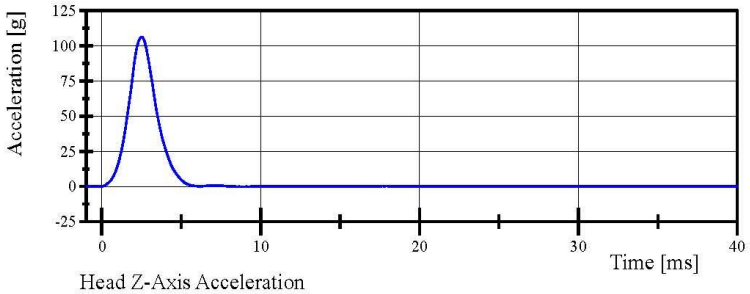
Left Lateral Head Drop
SID IIs Serial No. 297 Certification No. 59-1
Test Date: 1/24/2023

Head X-Axis Acceleration



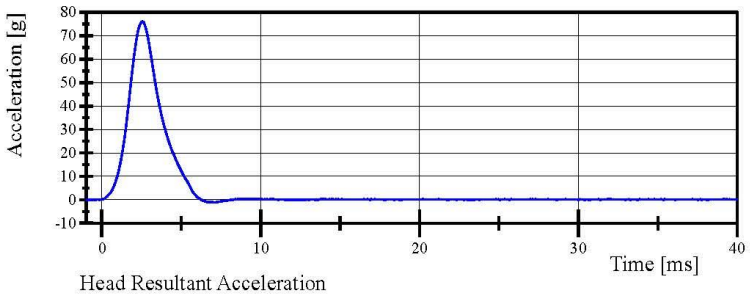
Filter Class: CFC_1000
Max: 1.6 g at 4.9 ms
Min: -2.4 g at 2.4 ms

Head Y-Axis Acceleration



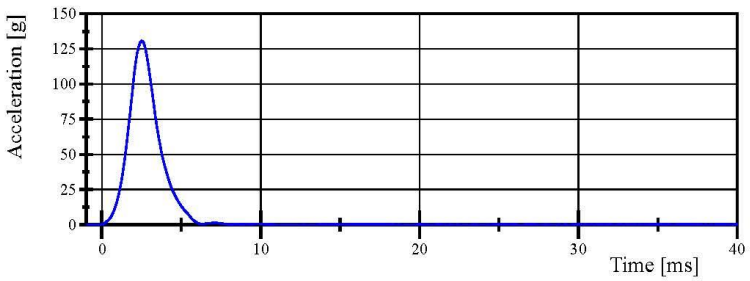
Filter Class: CFC_1000
Max: 106.4 g at 2.5 ms
Min: -0.2 g at 8.6 ms

Head Z-Axis Acceleration



Filter Class: CFC_1000
Max: 76.0 g at 2.6 ms
Min: -1.1 g at 7.0 ms

Head Resultant Acceleration



Filter Class: CFC_1000
Max: 130.7 g at 2.5 ms
Min: 0.0 g at 13.6 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

01.24.2023 11:25:24 234

Transportation Research Center Inc.

Left Lateral Neck
SID IIs Serial No. 297 Certification No. 59-2
Test Date: 1/24/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	24 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.602 m/s	Yes
Pendulum Integrated Velocity Change at 10 ms	2.20 - 2.80 m/s	2.632 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.829 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.171 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.860 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.863 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-78.5 deg	Yes
Time of Peak	50 - 70 ms	60.6 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	42.5 N·m	Yes
Total Neck Occipital Condyles Moment Decay Time to 0 N·m	102 - 126 ms	114.9 ms	Yes

Test meets specifications.

Condition: Used

Comments:
Neck S/N: 779

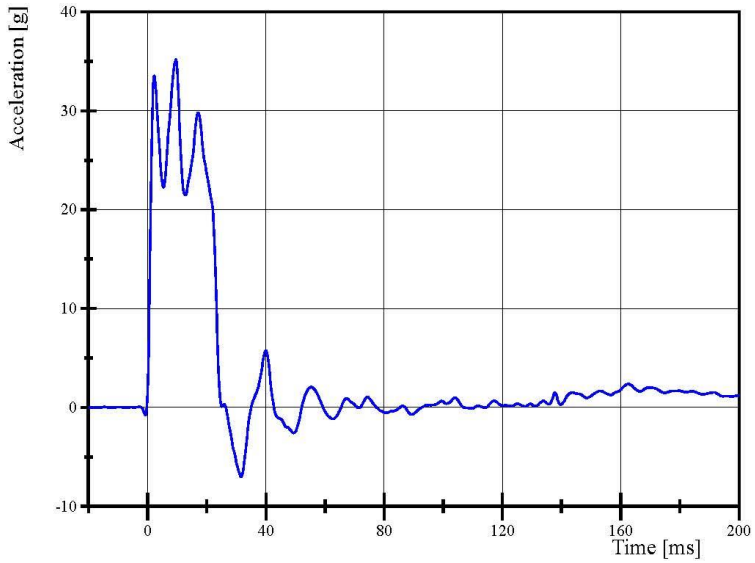
Specification Source: CFR49 Part 572 Subpart V with Polarity in accordance with J211

01.24.2023 12:48:11 750

Transportation Research Center Inc.

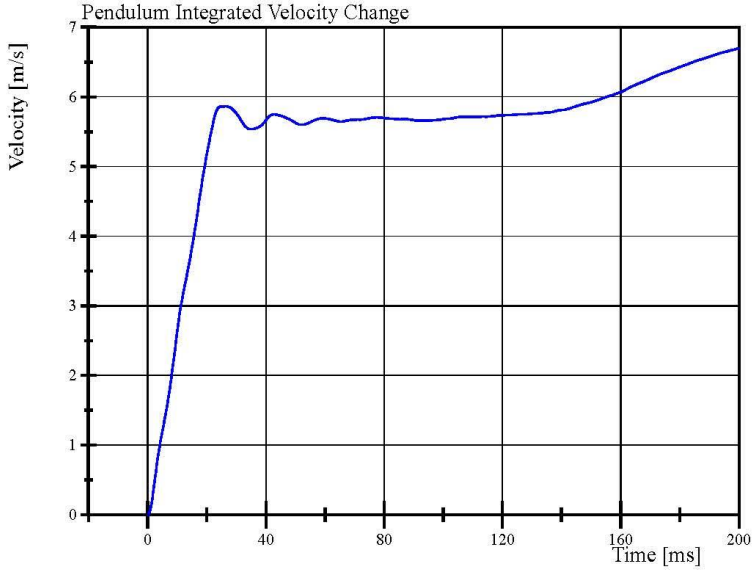
Left Lateral Neck
SID IIs Serial No. 297 Certification No. 59-2
Test Date: 1/24/2023

Pendulum Acceleration



Filter Class: CFC_180
Max: 35.2 g at 9.5 ms
Min: -7.0 g at 31.6 ms

Pendulum Integrated Velocity Change



Filter Class: CFC_180
Max: 6.7 m/s at 200.0 ms
Min: 0.0 m/s at 0.0 ms

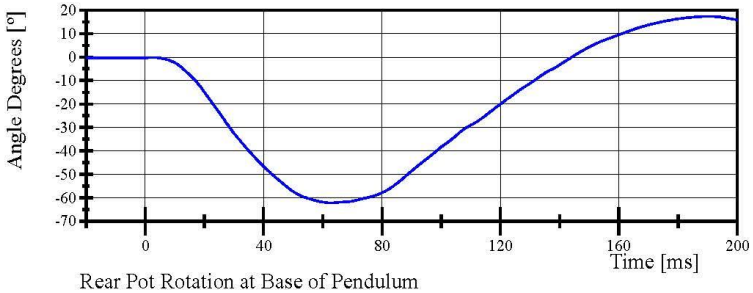
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

01.24.2023 12:48:38 750

Transportation Research Center Inc.

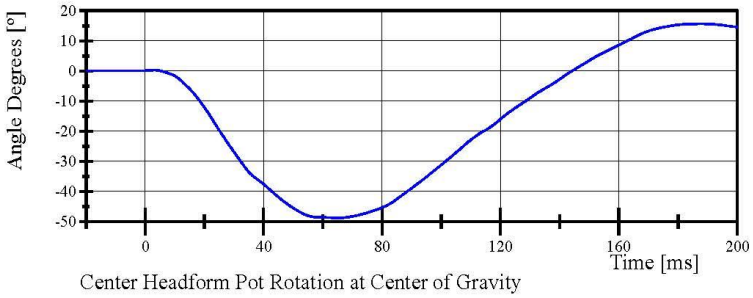
Left Lateral Neck
SID IIs Serial No. 297 Certification No. 59-2
Test Date: 1/24/2023

Forward Pot Rotation at Base of Pendulum



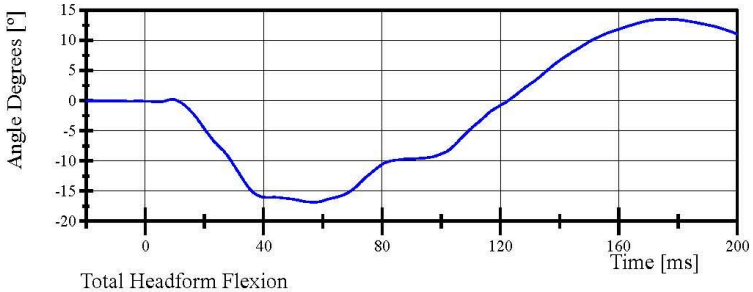
Filter Class: CFC_60
Max: 17.4 ° at 190.4 ms
Min: -62.1 ° at 62.7 ms

Rear Pot Rotation at Base of Pendulum



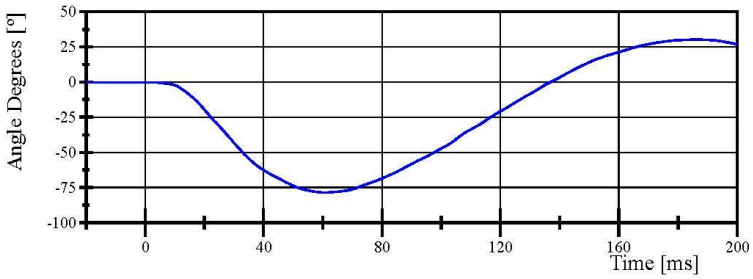
Filter Class: CFC_60
Max: 15.7 ° at 187.8 ms
Min: -48.8 ° at 65.2 ms

Center Headform Pot Rotation at Center of Gravity



Filter Class: CFC_60
Max: 13.5 ° at 176.3 ms
Min: -16.9 ° at 56.9 ms

Total Headform Flexion



Filter Class: CFC_60
Max: 30.1 ° at 186.0 ms
Min: -78.5 ° at 60.6 ms

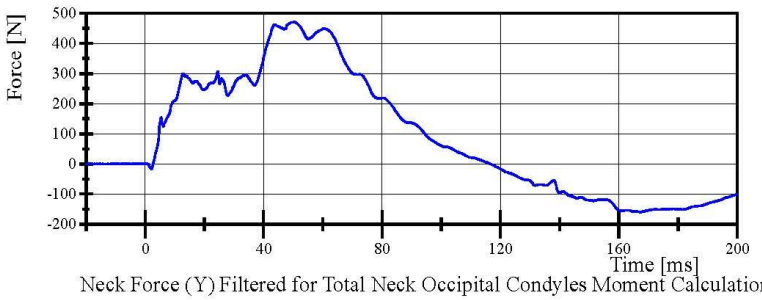
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

01.24.2023 12:48:38 750

Transportation Research Center Inc.

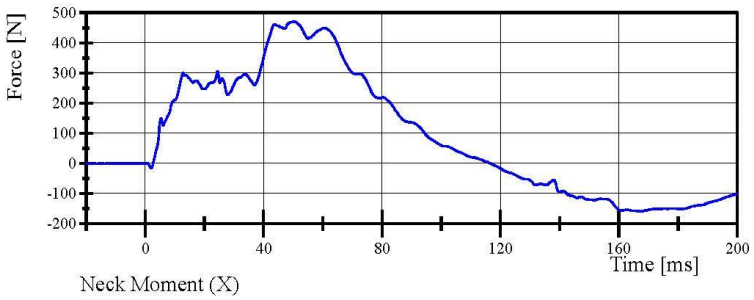
Left Lateral Neck
SID IIs Serial No. 297 Certification No. 59-2
Test Date: 1/24/2023

Neck Force (Y)



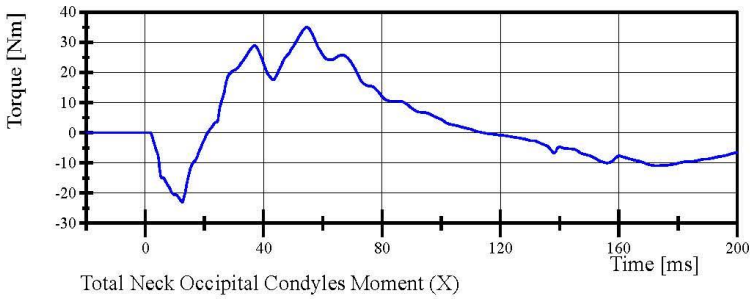
Filter Class: CFC_1000
Max: 471.2 N at 50.1 ms
Min: -159.9 N at 167.4 ms

Neck Force (Y) Filtered for Total Neck Occipital Condyles Moment Calculation



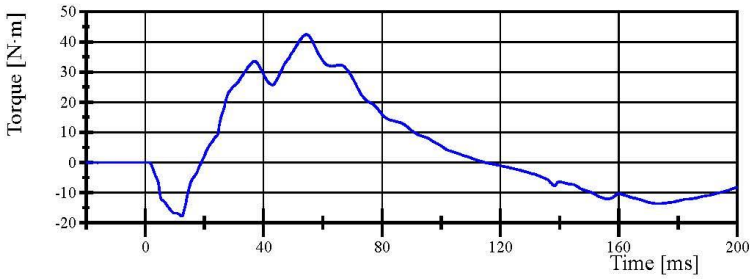
Filter Class: CFC_600
Max: 470.9 N at 50.5 ms
Min: -159.5 N at 167.4 ms

Neck Moment (X)



Filter Class: CFC_600
Max: 35.0 Nm at 54.6 ms
Min: -23.0 Nm at 12.5 ms

Total Neck Occipital Condyles Moment (X)



Filter Class: Without_(Constar
Max: 42.5 N·m at 54.5 ms
Min: -17.8 N·m at 12.3 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

01.24.2023 12:48:38 750

Transportation Research Center Inc.

Left Lateral Shoulder
SID IIs Serial No. 297 Certification No. 59-1
Test Date: 1/24/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	25 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.28 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.4 g	Yes
Shoulder Displacement	28 - 37 mm	30.4 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	20.0 g	Yes

Test meets specifications.

Condition: Used

Comments:
Left Arm S/N: 940L
Shoulder Rib S/N: 180-3355 259

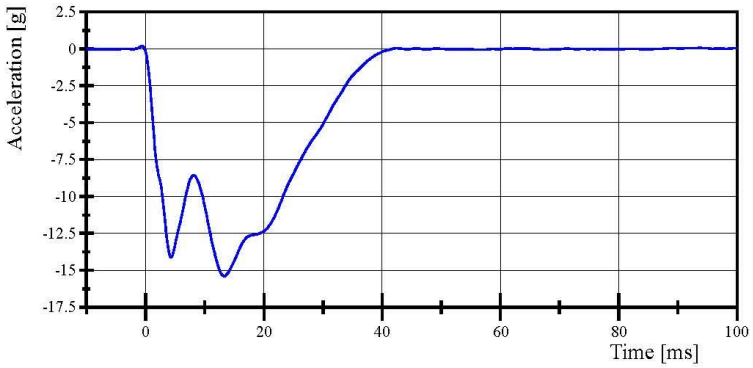
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

01.24.2023 09:36:49 874

Transportation Research Center Inc.

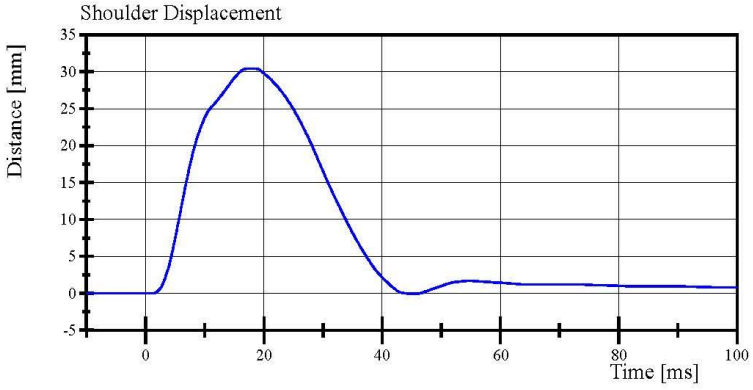
Left Lateral Shoulder
SID IIs Serial No. 297 Certification No. 59-1
Test Date: 1/24/2023

Probe Acceleration



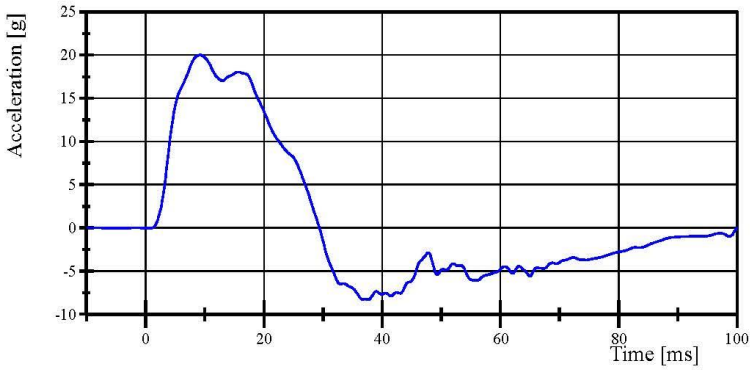
Filter Class: CFC_180
Max: 0.2 g at -0.6 ms
Min: -15.4 g at 13.3 ms

Shoulder Displacement



Filter Class: CFC_600
Max: 30.4 mm at 18.3 ms
Min: -0.1 mm at 45.5 ms

Upper Spine Acceleration (Y)



Filter Class: CFC_180
Max: 20.0 g at 9.2 ms
Min: -8.3 g at 37.6 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

01.24.2023 09:37:22 874

Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 59-1
Test Date: 1/24/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.737 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.9 g	Yes
Shoulder Displacement	31 - 40 mm	32.8 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	25.9 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.3 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	35.0 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	37.6 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	36.0 g	Yes

Test meets specifications.

Condition: Used

Comments:
Left Arm S/N: 940L
Shoulder Rib S/N: 180-3355 259
Upper Thorax Rib S/N: DM5020
Middle Thorax Rib S/N: DM5021
Lower Thorax Rib S/N: DM5022

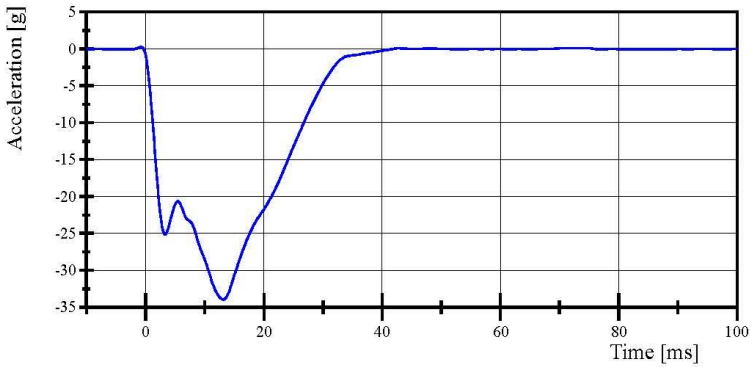
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

01.24.2023 10:40:35 637

Transportation Research Center Inc.

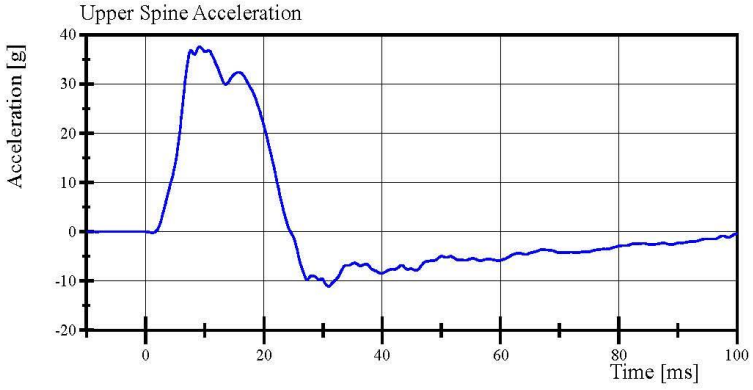
Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 59-1
Test Date: 1/24/2023

Probe Acceleration



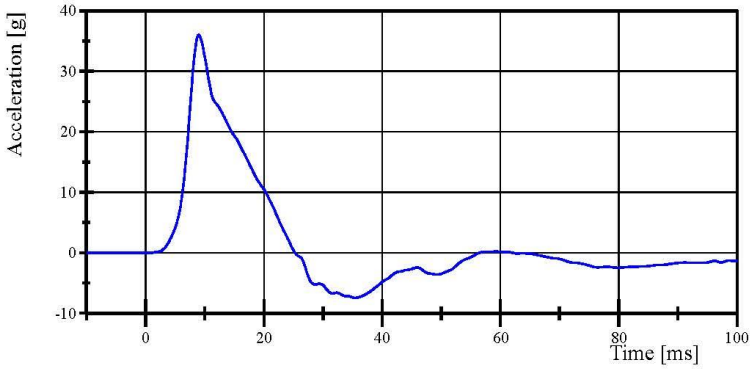
Filter Class: CFC_180
Max: 0.3 g at -0.8 ms
Min: -33.9 g at 13.1 ms

Upper Spine Acceleration



Filter Class: CFC_180
Max: 37.6 g at 9.1 ms
Min: -11.1 g at 31.0 ms

Lower Spine Acceleration



Filter Class: CFC_180
Max: 36.0 g at 9.0 ms
Min: -7.5 g at 35.4 ms

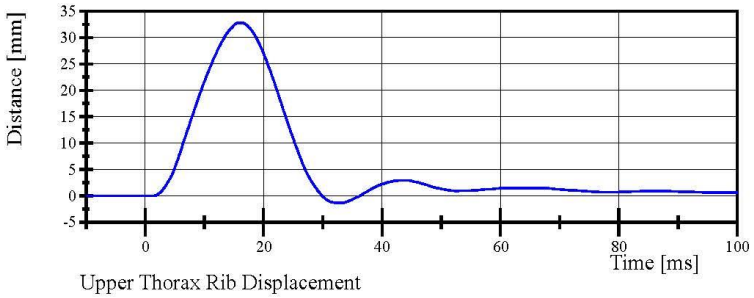
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

01.24.2023 10:41:26 637

Transportation Research Center Inc.

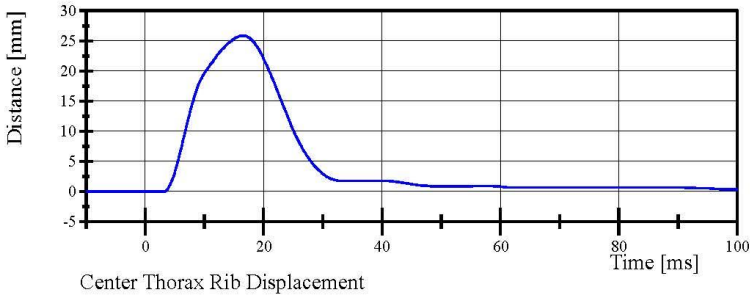
Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 59-1
Test Date: 1/24/2023

Shoulder Rib Displacement



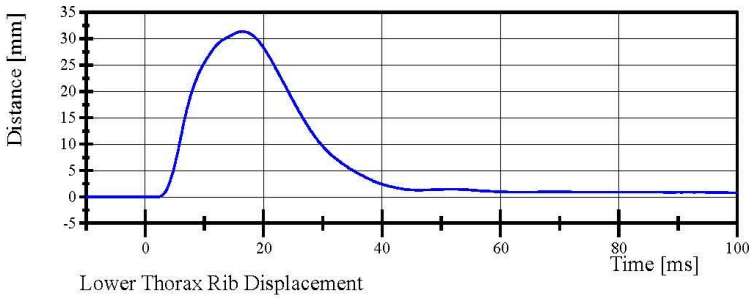
Filter Class: CFC_600
Max: 32.8 mm at 15.8 ms
Min: -1.3 mm at 32.3 ms

Upper Thorax Rib Displacement



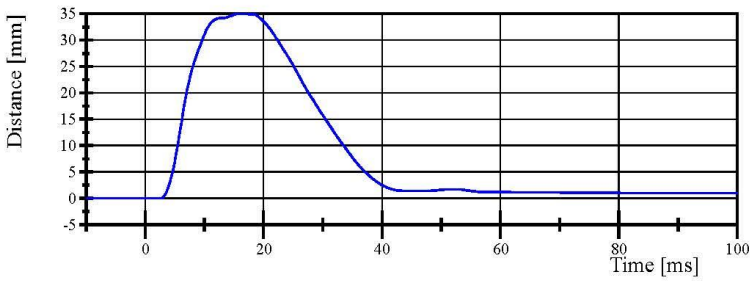
Filter Class: CFC_600
Max: 25.9 mm at 16.4 ms
Min: -0.0 mm at 3.0 ms

Center Thorax Rib Displacement



Filter Class: CFC_600
Max: 31.3 mm at 16.4 ms
Min: -0.0 mm at -2.9 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600
Max: 35.0 mm at 16.8 ms
Min: -0.0 mm at 2.5 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

01.24.2023 10:41:26 637

Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 59-1
Test Date: 1/24/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	27 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.360 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.7 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	35.8 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	41.3 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	39.5 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.8 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	10.3 g	Yes

Test meets specifications.

Condition: Used

Comments:
Upper Thorax Rib S/N: DM5020
Middle Thorax Rib S/N: DM5021
Lower Thorax Rib S/N: DM5022

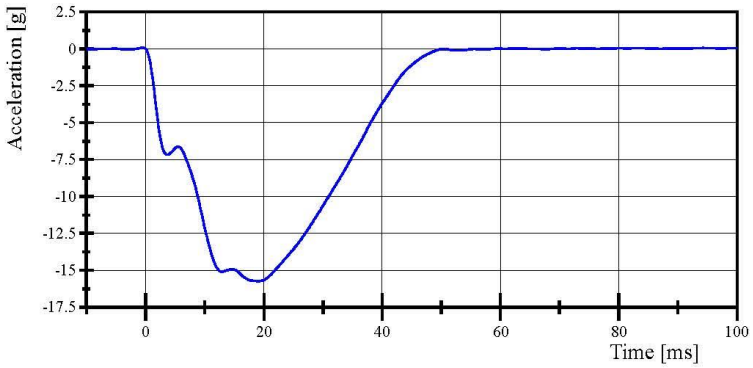
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

01.24.2023 10:07:51 861

Transportation Research Center Inc.

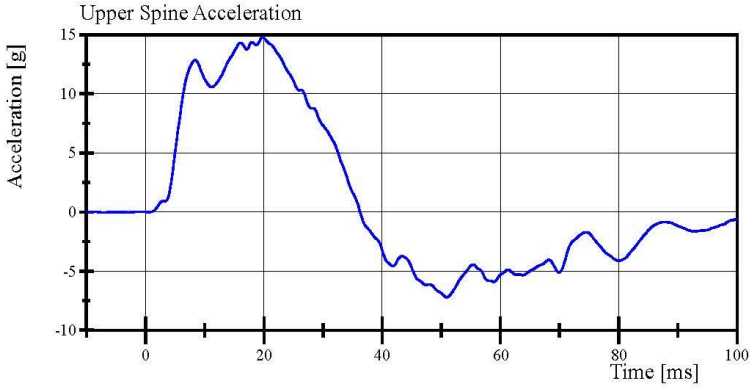
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 59-1
Test Date: 1/24/2023

Probe Acceleration



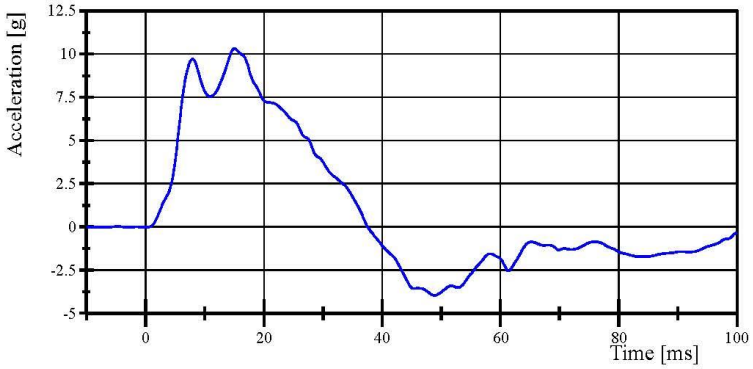
Filter Class: CFC_180
Max: 0.1 g at -0.5 ms
Min: -15.7 g at 19.0 ms

Upper Spine Acceleration



Filter Class: CFC_180
Max: 14.8 g at 19.8 ms
Min: -7.2 g at 51.0 ms

Lower Spine Acceleration



Filter Class: CFC_180
Max: 10.3 g at 15.0 ms
Min: -4.0 g at 48.9 ms

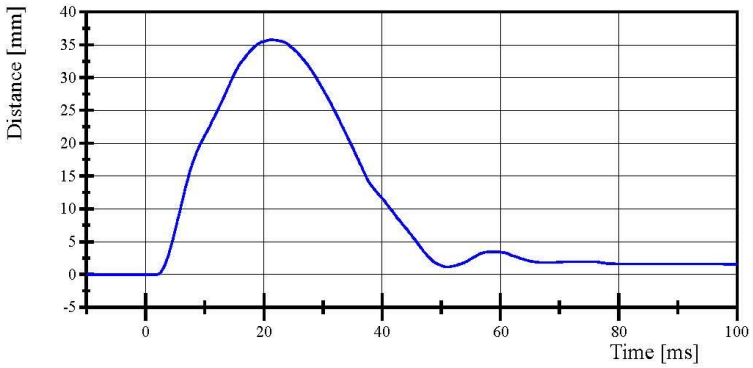
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

01.24.2023 10:08:30 861

Transportation Research Center Inc.

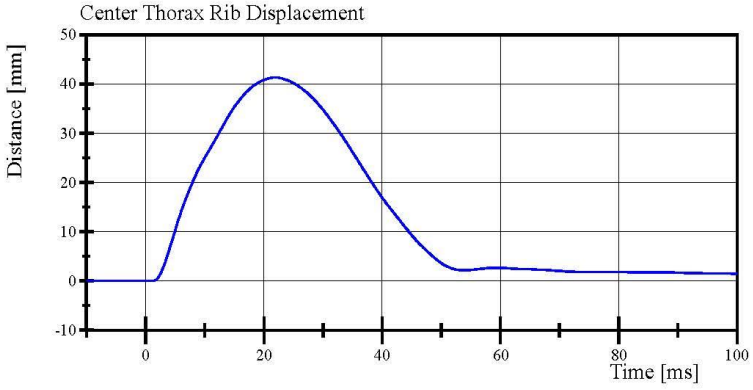
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 59-1
Test Date: 1/24/2023

Upper Thorax Rib Displacement



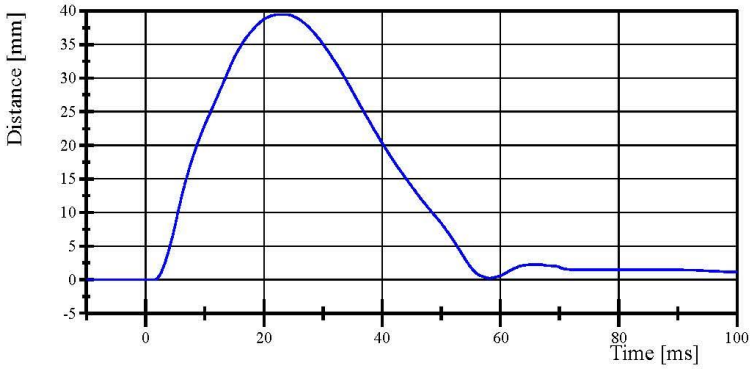
Filter Class: CFC_600
Max: 35.8 mm at 21.3 ms
Min: -0.0 mm at 1.8 ms

Center Thorax Rib Displacement



Filter Class: CFC_600
Max: 41.3 mm at 21.9 ms
Min: -0.0 mm at 1.1 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600
Max: 39.5 mm at 22.6 ms
Min: -0.0 mm at 1.5 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

01.24.2023 10:08:30 861

Transportation Research Center Inc.

Left Lateral Abdomen
SID IIs Serial No. 297 Certification No. 59-1
Test Date: 1/24/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	27 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.28 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.3 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	41.9 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	35.9 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.49 g	Yes

Test meets specifications.

Condition: Used
Comments:
Upper Abdominal Rib S/N: DM7281
Lower Abdominal Rib S/N: DM7275

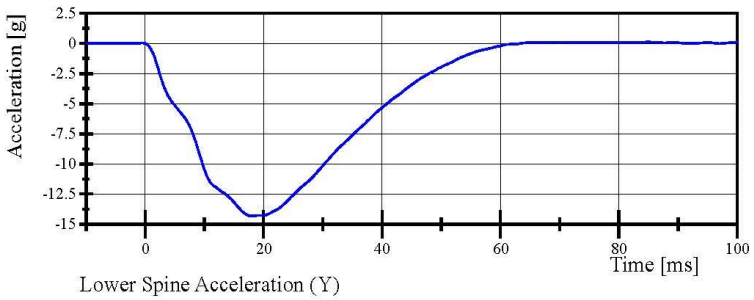
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

01.24.2023 09:56:17 707

Transportation Research Center Inc.

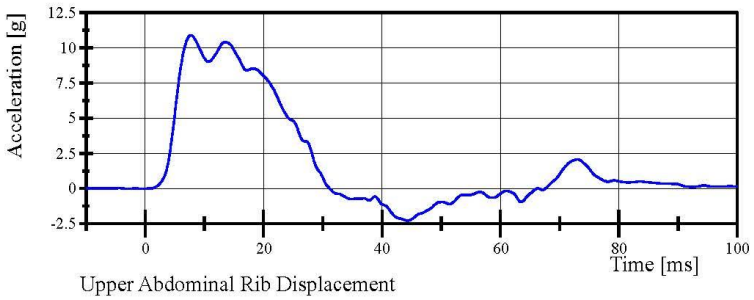
Left Lateral Abdomen
SID IIs Serial No. 297 Certification No. 59-1
Test Date: 1/24/2023

Probe Acceleration



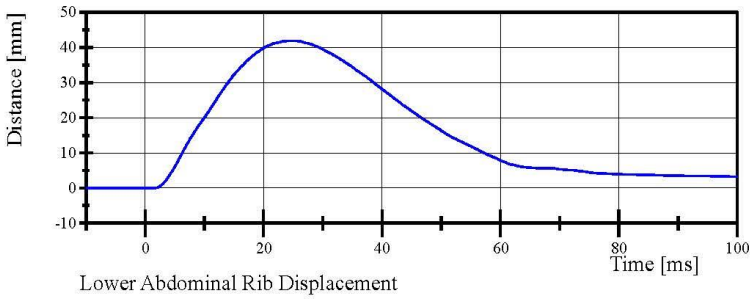
Filter Class: CFC_180
Max: 0.1 g at 84.9 ms
Min: -14.3 g at 18.0 ms

Lower Spine Acceleration (Y)



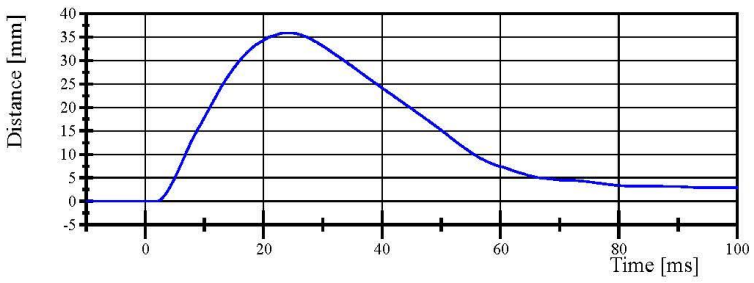
Filter Class: CFC_180
Max: 10.9 g at 7.7 ms
Min: -2.3 g at 44.3 ms

Upper Abdominal Rib Displacement



Filter Class: CFC_600
Max: 41.9 mm at 24.6 ms
Min: -0.0 mm at -1.8 ms

Lower Abdominal Rib Displacement



Filter Class: CFC_600
Max: 35.9 mm at 24.0 ms
Min: -0.0 mm at 1.9 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

01.24.2023 09:56:44 707

Transportation Research Center Inc.

Left Lateral Pelvis
SID IIs Serial No. 297 Certification No. 59-1
Test Date: 1/24/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	29 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.63 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-44.18 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	37.2 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,733.2 N	Yes

Test meets specifications.

Condition: Used

Comments:
Pelvis Skin S/N: 1171
Pelvis Plug Info:
Manufacturer: Saco
S/N: 13779
Cal Date: 20200407

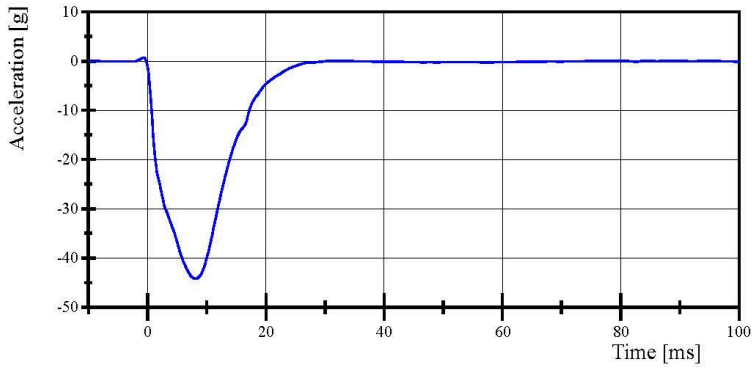
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

01.24.2023 09:06:00 454

Transportation Research Center Inc.

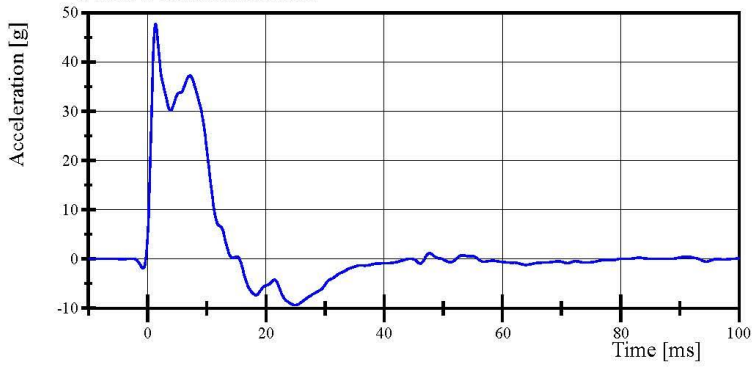
Left Lateral Pelvis
SID IIs Serial No. 297 Certification No. 59-1
Test Date: 1/24/2023

Probe Acceleration



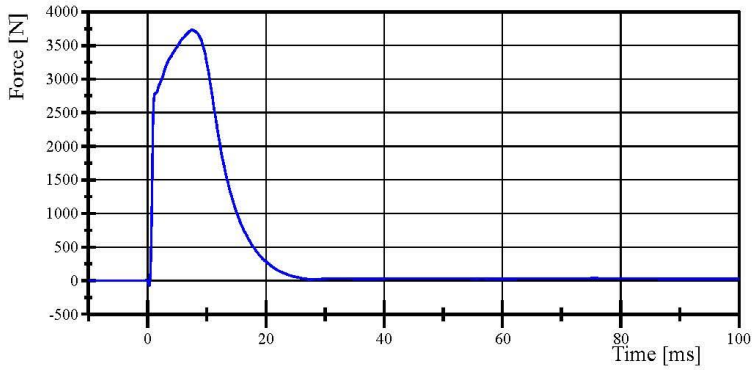
Filter Class: CFC_180
Max: 0.7 g at -0.7 ms
Min: -44.2 g at 8.1 ms

Pelvis Y-Axis Acceleration



Filter Class: CFC_180
Max: 47.7 g at 1.4 ms
Min: -9.3 g at 25.0 ms

Acetabulum Y-Axis Force



Filter Class: CFC_600
Max: 3,733.2 N at 7.5 ms
Min: -71.1 N at 0.2 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

01.24.2023 09:11:35 454

Transportation Research Center Inc.

Left Lateral Iliac
SID IIs Serial No. 297 Certification No. 59-1
Test Date: 1/24/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	28 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-43.4 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	34.7 g	Yes
Iliac Force	4,100 - 5,100 N	5,036.2 N	Yes

Test meets specifications.

Condition: Used

Comments:
Pelvis Skin S/N: 1171
Pelvis Plug Info:Manufacturer:
SacoS/N: 13779
Cal Date: 20200407

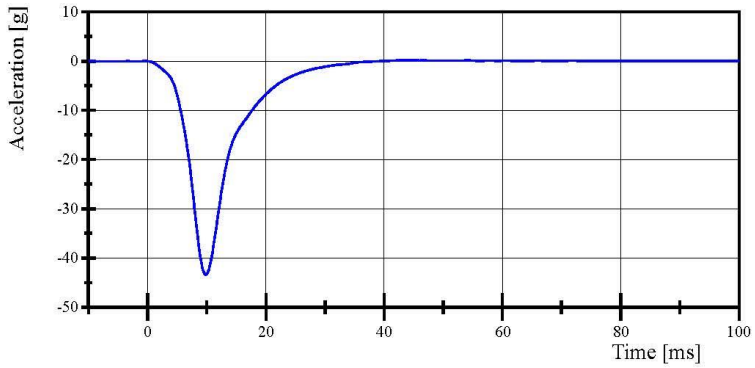
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

01.24.2023 11:12:13 623

Transportation Research Center Inc.

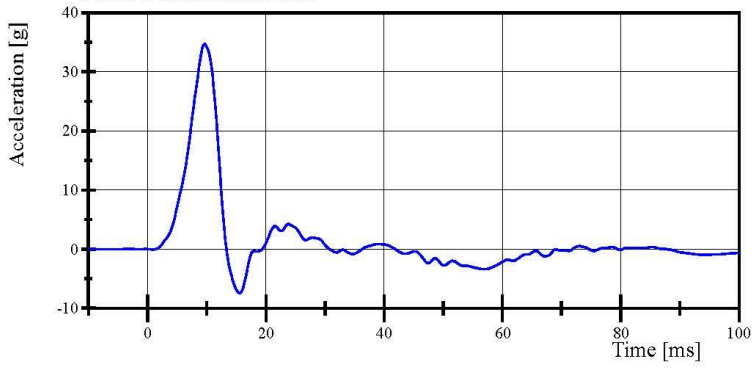
Left Lateral Iliac
SID IIs Serial No. 297 Certification No. 59-1
Test Date: 1/24/2023

Probe Acceleration



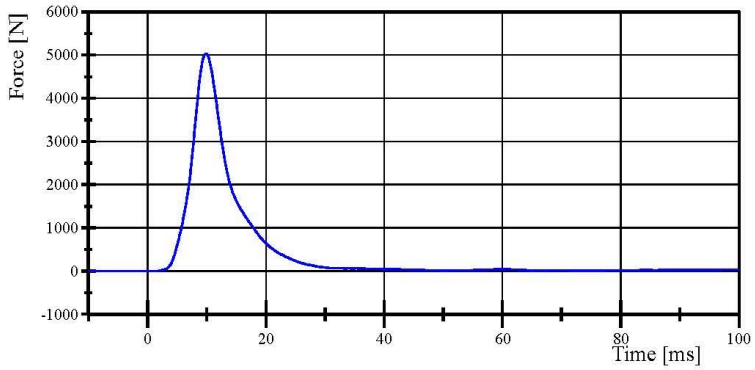
Filter Class: CFC_180
Max: 0.3 g at 43.8 ms
Min: -43.4 g at 9.8 ms

Pelvis Y-Axis Acceleration



Filter Class: CFC_180
Max: 34.7 g at 9.6 ms
Min: -7.4 g at 15.5 ms

Iliac Y-Axis Force



Filter Class: CFC_600
Max: 5,036.2 N at 9.8 ms
Min: -0.6 N at -3.4 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

01.24.2023 11:13:34 623

Post-Test Calibration Sheets
Driver S/N 297

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 297 Calibration No. 60

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	780	Yes
B	Shoulder Pivot Height	437.0 - 453.0	450	Yes
C	H-Point Height	79.0 - 89.0	85	Yes
D	H-Point from Seat Back	141.0 - 151.0	147	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	102	Yes
F	Thigh Clearance	119.0 - 135.0	129	Yes
G	Head Breadth	140.0 - 148.0	147	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	183	Yes
J	Head Circumference	541.0 - 551.0	544	Yes
K	Buttock to Knee Length	514.0 - 540.0	528	Yes
L	Popliteal Height	343.0 - 369.0	353	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	400	Yes
N	Buttock Popliteal Length	416.0 - 442.0	430	Yes
O	Chest Depth without Jacket	195.0 - 211.0	200	Yes
P	Foot Length (right)	216.0 - 232.0	223	Yes
P	Foot Length (left)	216.0 - 232.0	223	Yes
Q	Hip Breadth	313.0 - 323.0	320	Yes
R	Arm Length	249.0 - 259.0	254	Yes
S	Knee Joint to seat Back	478.0 - 493.0	485	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	347	Yes
W	Foot Width (right)	78.0 - 94.0	85	Yes
W	Foot Width (left)	78.0 - 94.0	85	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	878	Yes
Z	Waist Circumference	761.0 - 791.0	782	Yes

Transportation Research Center Inc.

Left Lateral Head Drop
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	118.9 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	2.0 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	< 15 %	0.96 %	Yes

Test meets specifications.

Condition: Used

Comments:
Head Skin S/N: 1330

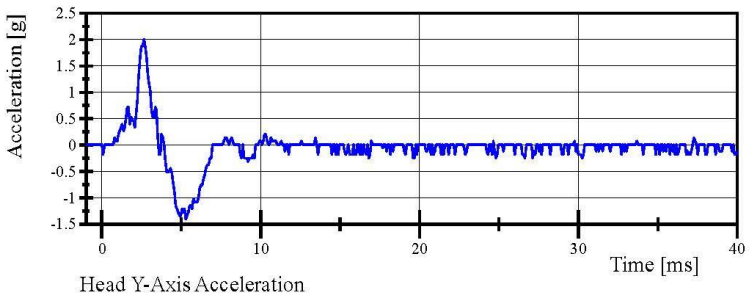
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 08:36:01 233

Transportation Research Center Inc.

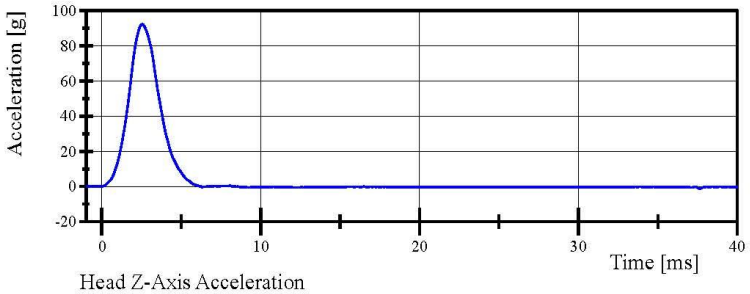
Left Lateral Head Drop
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Head X-Axis Acceleration



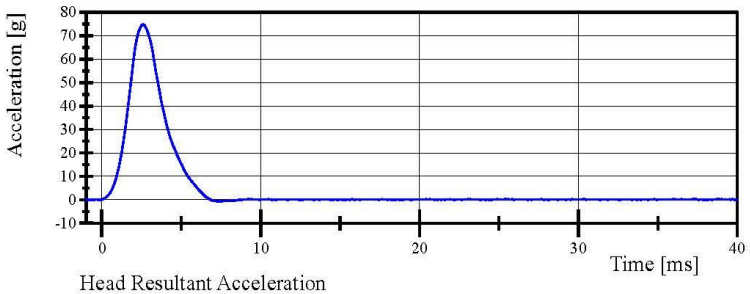
Filter Class: CFC_1000
Max: 2.0 g at 2.6 ms
Min: -1.4 g at 5.3 ms

Head Y-Axis Acceleration



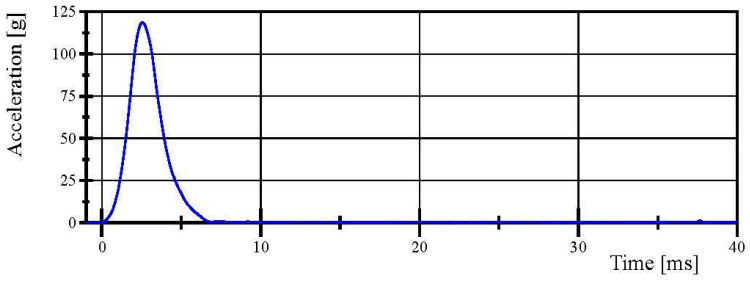
Filter Class: CFC_1000
Max: 92.3 g at 2.6 ms
Min: -1.1 g at 37.7 ms

Head Z-Axis Acceleration



Filter Class: CFC_1000
Max: 74.8 g at 2.6 ms
Min: -0.7 g at 7.3 ms

Head Resultant Acceleration



Filter Class: CFC_1000
Max: 118.9 g at 2.6 ms
Min: 0.0 g at -0.2 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 08:36:35 233

Transportation Research Center Inc.

Left Lateral Neck
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.606 m/s	Yes
Pendulum Integrated Velocity Change at 10 ms	2.20 - 2.80 m/s	2.718 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.979 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.304 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.828 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.834 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-80.4 deg	Yes
Time of Peak	50 - 70 ms	62.8 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	40.2 N·m	Yes
Total Neck Occipital Condyles Moment Decay Time to 0 N·m	102 - 126 ms	118.6 ms	Yes

Test meets specifications.

Condition: Used

Comments:
Neck S/N: 779

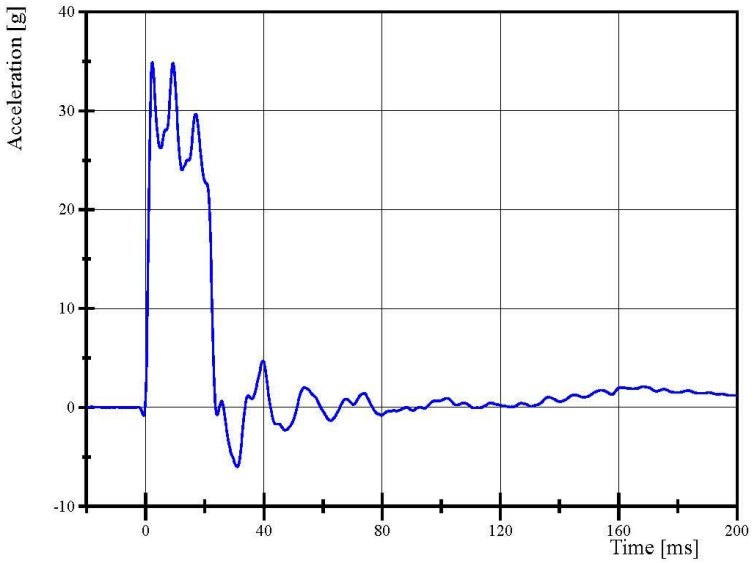
Specification Source: CFR49 Part 572 Subpart V with Polarity in accordance with J211

02.16.2023 08:56:09 748

Transportation Research Center Inc.

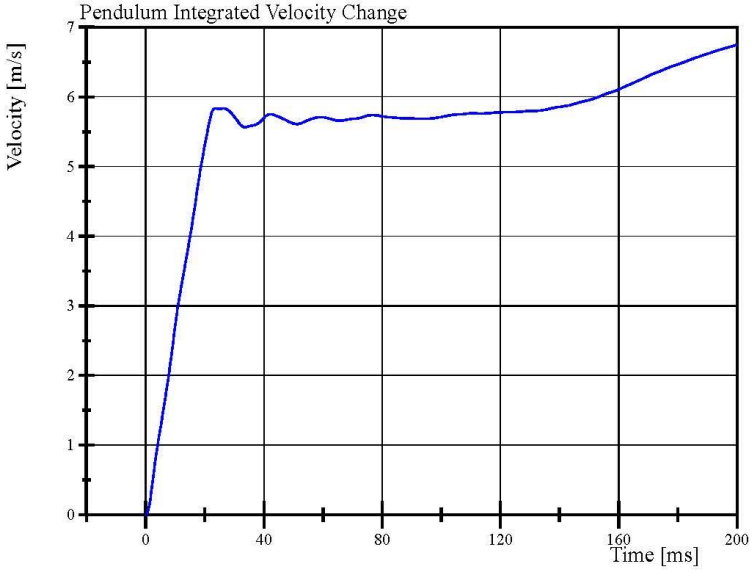
Left Lateral Neck
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Pendulum Acceleration



Filter Class: CFC_180
Max: 34.9 g at 2.2 ms
Min: -6.0 g at 31.0 ms

Pendulum Integrated Velocity Change



Filter Class: CFC_180
Max: 6.7 m/s at 200.0 ms
Min: 0.0 m/s at 0.0 ms

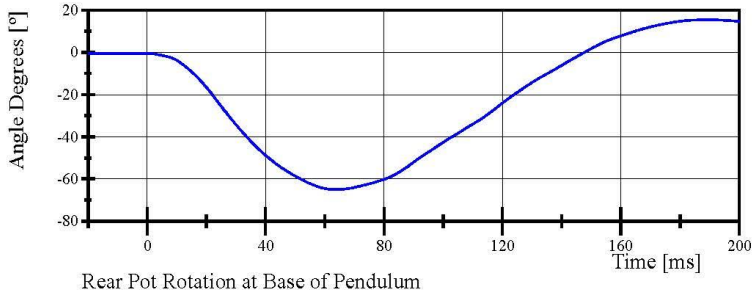
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 08:56:35 748

Transportation Research Center Inc.

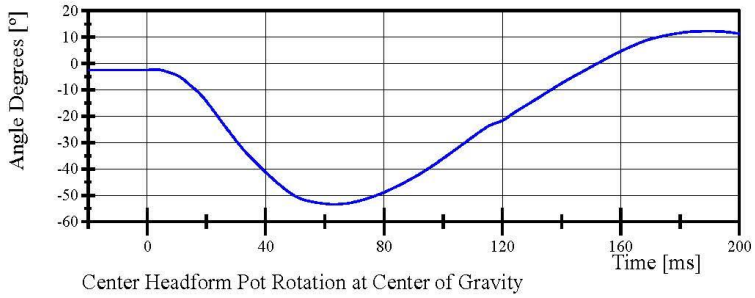
Left Lateral Neck
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Forward Pot Rotation at Base of Pendulum



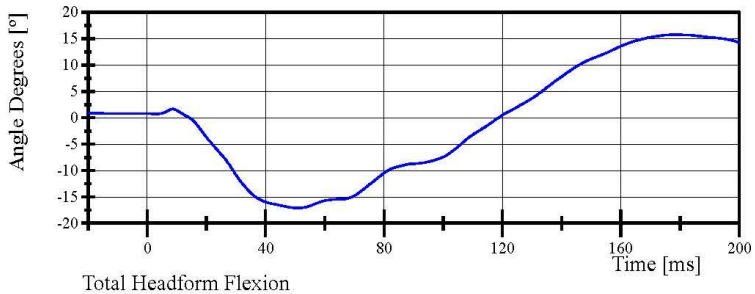
Filter Class: CFC_60
Max: 15.5 ° at 189.4 ms
Min: -64.9 ° at 63.4 ms

Rear Pot Rotation at Base of Pendulum



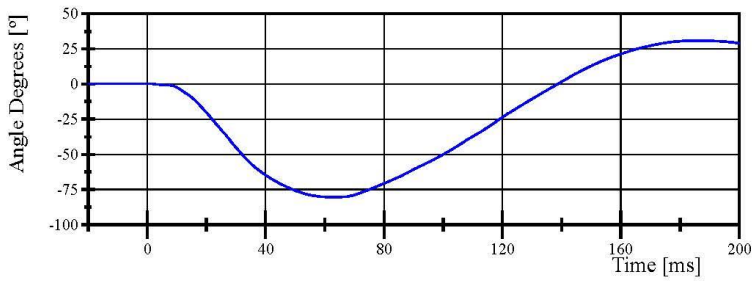
Filter Class: CFC_60
Max: 12.3 ° at 190.0 ms
Min: -53.4 ° at 63.0 ms

Center Headform Pot Rotation at Center of Gravity



Filter Class: CFC_60
Max: 15.8 ° at 178.2 ms
Min: -17.1 ° at 50.9 ms

Total Headform Flexion



Filter Class: CFC_60
Max: 30.9 ° at 184.7 ms
Min: -80.4 ° at 62.8 ms

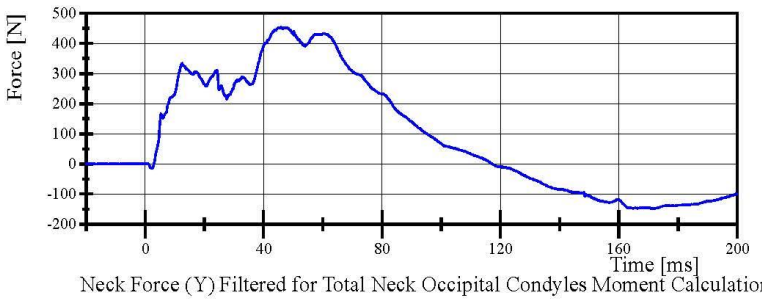
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 08:56:35 748

Transportation Research Center Inc.

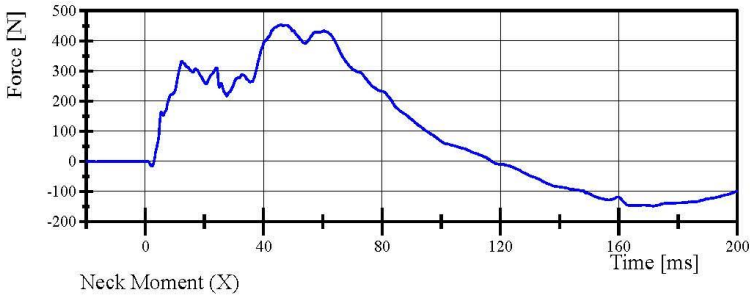
Left Lateral Neck
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Neck Force (Y)



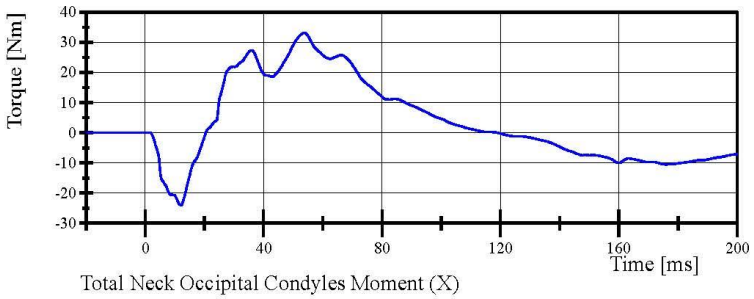
Filter Class: CFC_1000
Max: 453.3 N at 45.8 ms
Min: -148.2 N at 171.6 ms

Neck Force (Y) Filtered for Total Neck Occipital Condyles Moment Calculation



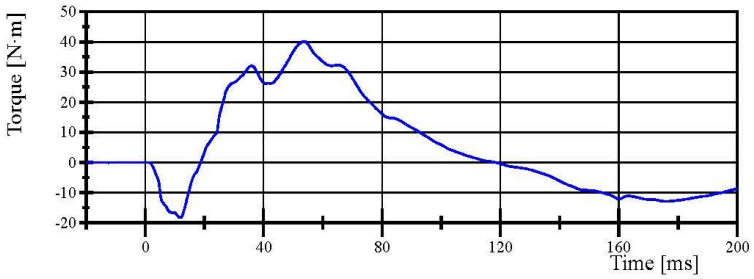
Filter Class: CFC_600
Max: 453.1 N at 45.9 ms
Min: -148.0 N at 171.7 ms

Neck Moment (X)



Filter Class: CFC_600
Max: 33.2 Nm at 53.8 ms
Min: -24.1 Nm at 12.1 ms

Total Neck Occipital Condyles Moment (X)



Filter Class: Without_(Constar
Max: 40.2 N·m at 53.6 ms
Min: -18.3 N·m at 11.9 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 08:56:36 748

Transportation Research Center Inc.

Left Lateral Shoulder
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.3 g	Yes
Shoulder Displacement	28 - 37 mm	31.0 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	20.2 g	Yes

Test meets specifications.

Condition: Used

Comments:
Left Arm S/N: 940L
Shoulder Rib S/N: 180-3355 259

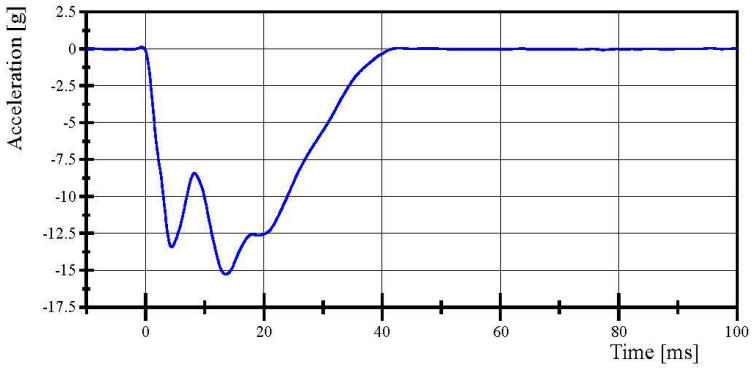
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 10:26:06 827

Transportation Research Center Inc.

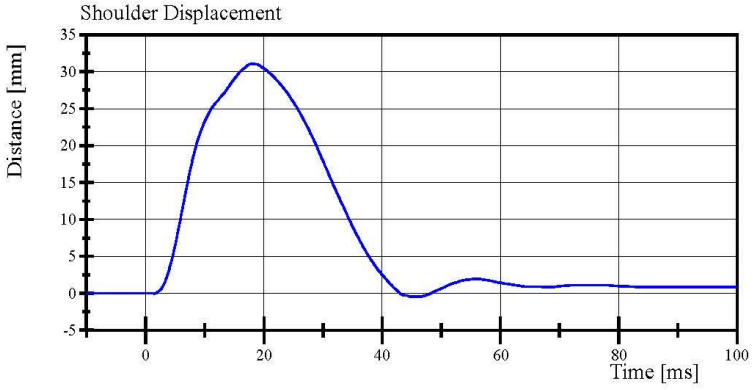
Left Lateral Shoulder
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Probe Acceleration



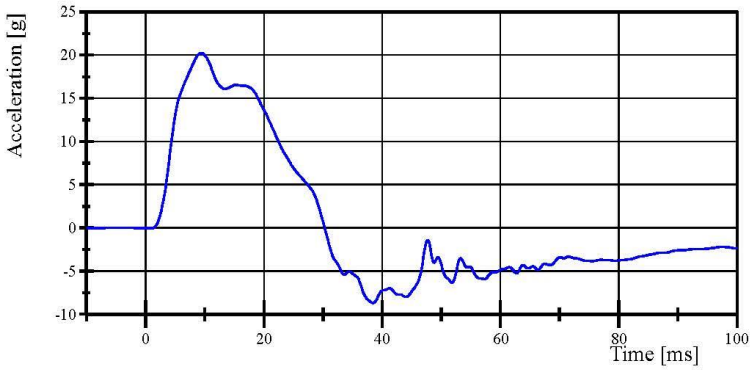
Filter Class: CFC_180
Max: 0.1 g at -0.6 ms
Min: -15.3 g at 13.5 ms

Shoulder Displacement



Filter Class: CFC_600
Max: 31.0 mm at 18.0 ms
Min: -0.5 mm at 45.1 ms

Upper Spine Acceleration (Y)



Filter Class: CFC_180
Max: 20.2 g at 9.4 ms
Min: -8.7 g at 38.5 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 10:26:39 827

Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.730 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-34.4 g	Yes
Shoulder Displacement	31 - 40 mm	36.0 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	27.4 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	32.0 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	34.5 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	39.2 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	36.4 g	Yes

Test meets specifications.

Condition: Used

Comments:
Left Arm S/N: 940L
Shoulder Rib S/N: 180-3355 259
Upper Thorax Rib S/N: DM5020
Middle Thorax Rib S/N: DM5021
Lower Thorax Rib S/N: DM5022

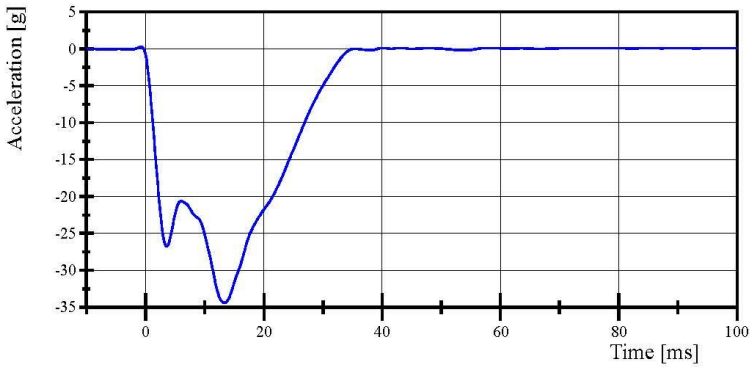
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 11:15:23 630

Transportation Research Center Inc.

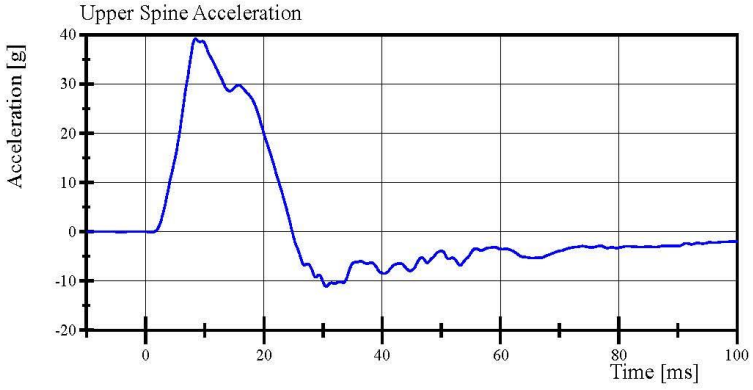
Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Probe Acceleration



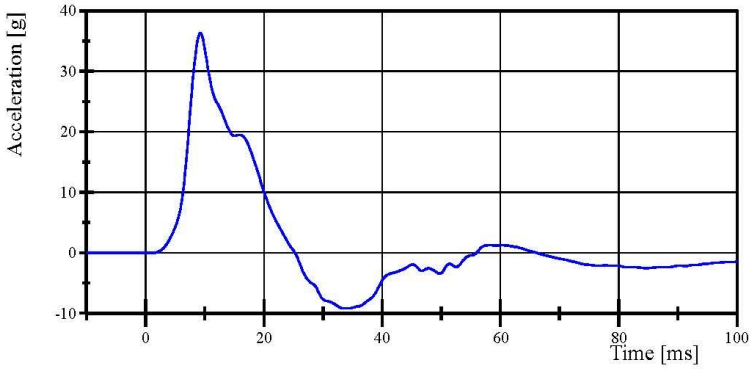
Filter Class: CFC_180
Max: 0.3 g at -0.8 ms
Min: -34.4 g at 13.3 ms

Upper Spine Acceleration



Filter Class: CFC_180
Max: 39.2 g at 8.4 ms
Min: -11.1 g at 30.6 ms

Lower Spine Acceleration



Filter Class: CFC_180
Max: 36.4 g at 9.3 ms
Min: -9.2 g at 33.4 ms

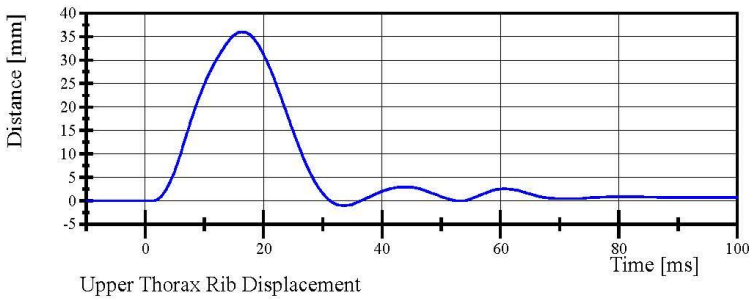
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 11:16:39 630

Transportation Research Center Inc.

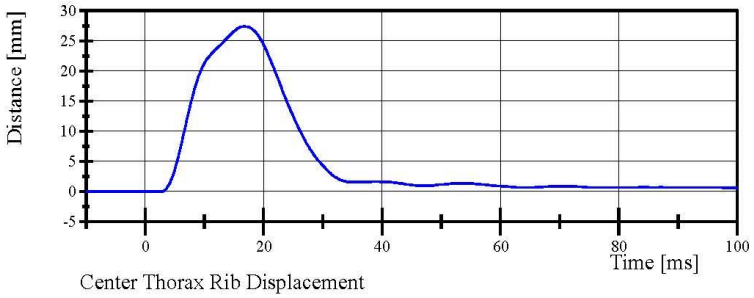
Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Shoulder Rib Displacement



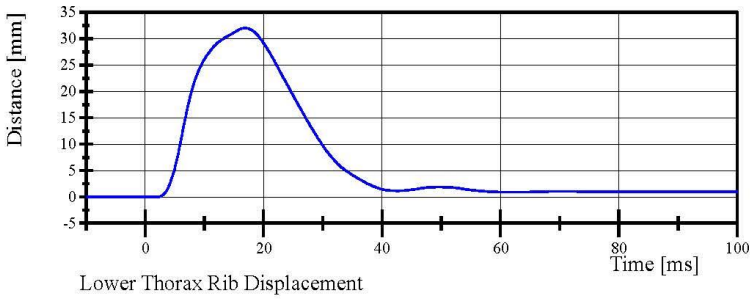
Filter Class: CFC_600
Max: 36.0 mm at 16.2 ms
Min: -1.0 mm at 33.8 ms

Upper Thorax Rib Displacement



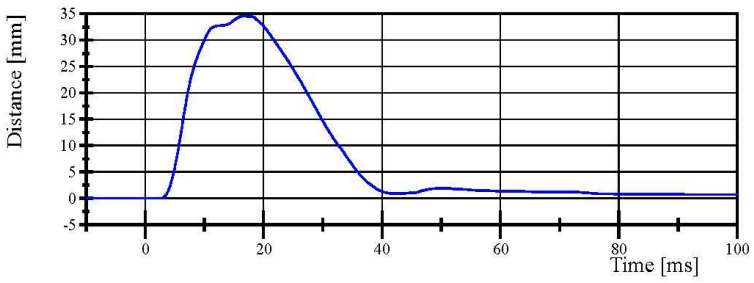
Filter Class: CFC_600
Max: 27.4 mm at 16.7 ms
Min: -0.0 mm at 2.6 ms

Center Thorax Rib Displacement



Filter Class: CFC_600
Max: 32.0 mm at 16.9 ms
Min: -0.0 mm at -9.4 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600
Max: 34.5 mm at 16.8 ms
Min: -0.0 mm at 2.6 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 11:16:39 630

Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.356 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.5 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	36.6 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	41.3 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	38.8 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.3 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.6 g	Yes

Test meets specifications.

Condition: Used

Comments:
Upper Thorax Rib S/N: DM5020
Middle Thorax Rib S/N: DM5021
Lower Thorax Rib S/N: DM5022

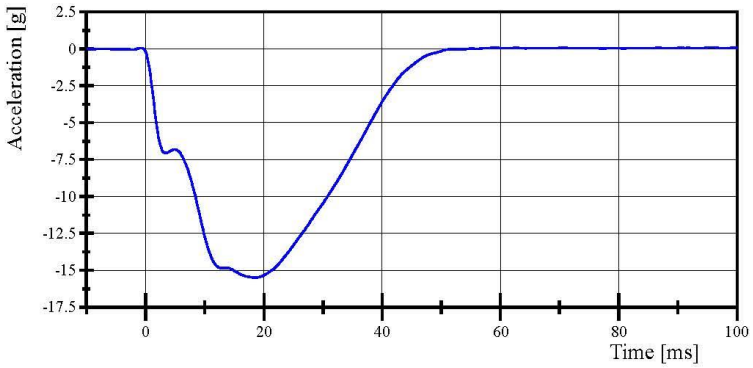
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 10:44:00 848

Transportation Research Center Inc.

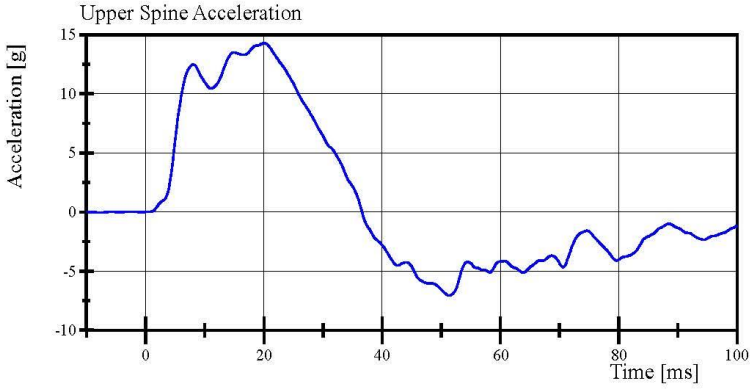
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Probe Acceleration



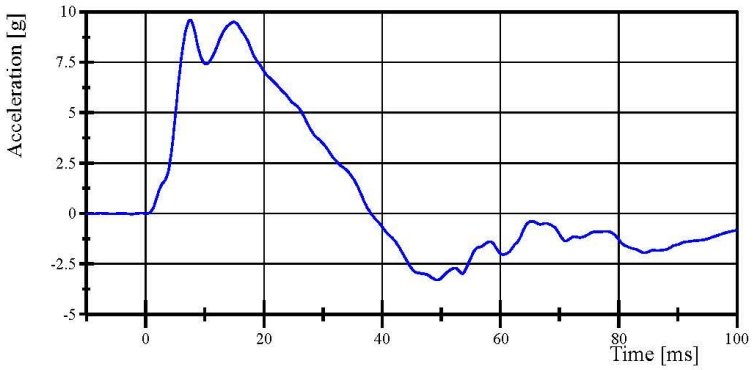
Filter Class: CFC_180
Max: 0.1 g at 95.7 ms
Min: -15.5 g at 18.4 ms

Upper Spine Acceleration



Filter Class: CFC_180
Max: 14.3 g at 20.1 ms
Min: -7.1 g at 51.4 ms

Lower Spine Acceleration



Filter Class: CFC_180
Max: 9.6 g at 7.5 ms
Min: -3.3 g at 49.3 ms

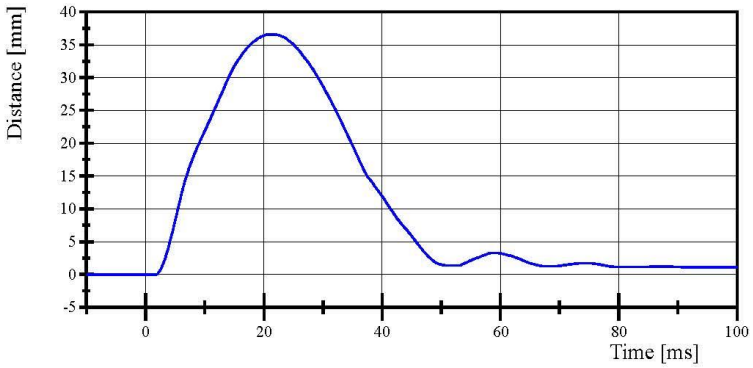
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 10:44:40 848

Transportation Research Center Inc.

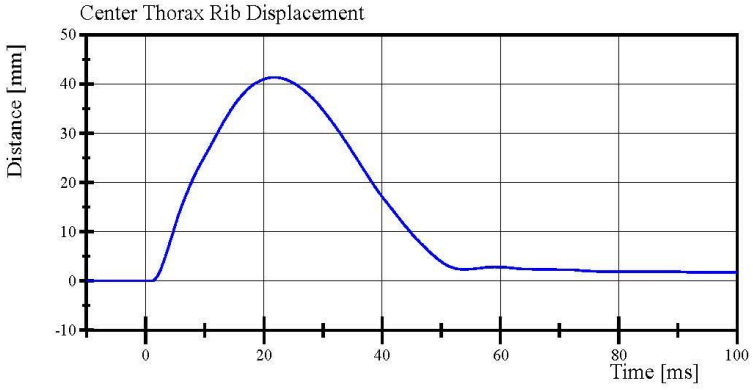
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Upper Thorax Rib Displacement



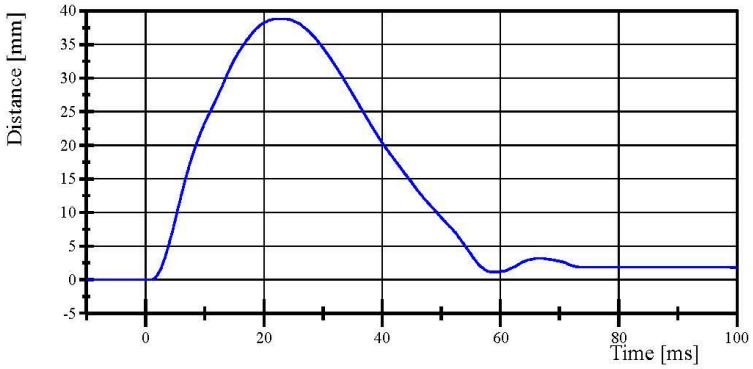
Filter Class: CFC_600
Max: 36.6 mm at 21.1 ms
Min: -0.0 mm at 1.6 ms

Center Thorax Rib Displacement



Filter Class: CFC_600
Max: 41.3 mm at 21.7 ms
Min: -0.0 mm at 0.9 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600
Max: 38.8 mm at 22.1 ms
Min: -0.0 mm at 0.8 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 10:44:40 848

Transportation Research Center Inc.

Left Lateral Abdomen
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.3 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	39.4 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	37.3 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	13.06 g	Yes

Test meets specifications.

Condition: Used
Comments:
Upper Abdominal Rib S/N: DM7281
Lower Abdominal Rib S/N: DM7275

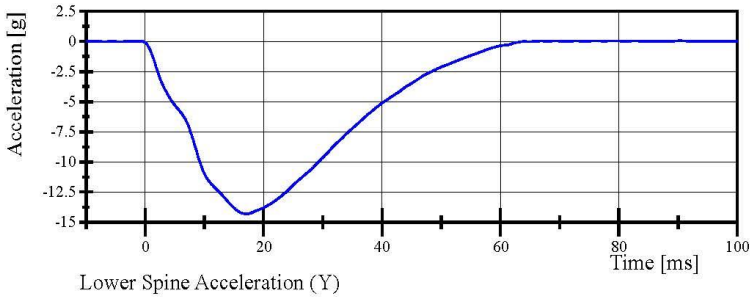
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 10:35:21 634

Transportation Research Center Inc.

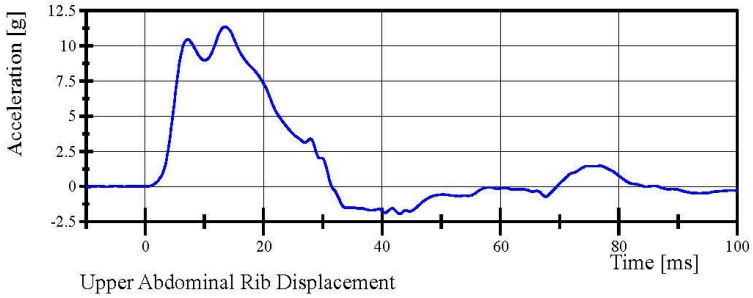
Left Lateral Abdomen
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Probe Acceleration



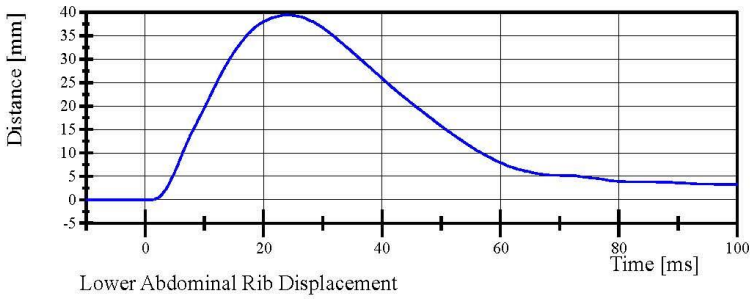
Filter Class: CFC_180
Max: 0.1 g at 90.3 ms
Min: -14.3 g at 17.1 ms

Lower Spine Acceleration (Y)



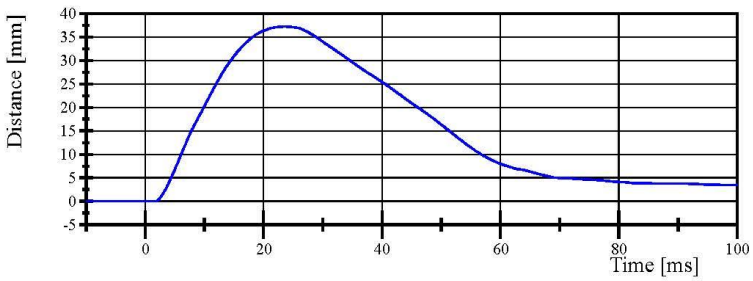
Filter Class: CFC_180
Max: 11.4 g at 13.4 ms
Min: -1.9 g at 43.0 ms

Upper Abdominal Rib Displacement



Filter Class: CFC_600
Max: 39.4 mm at 24.0 ms
Min: -0.0 mm at -6.6 ms

Lower Abdominal Rib Displacement



Filter Class: CFC_600
Max: 37.3 mm at 23.7 ms
Min: -0.0 mm at 1.6 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 10:35:51 634

Transportation Research Center Inc.

Left Lateral Pelvis
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.61 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-43.94 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	37.8 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,840.9 N	Yes

Test meets specifications.

Condition: Used

Comments:
Pelvis Skin S/N: 1171
Pelvis Plug Info:
Manufacturer: Saco
S/N: 13790
Cal Date: 20200508

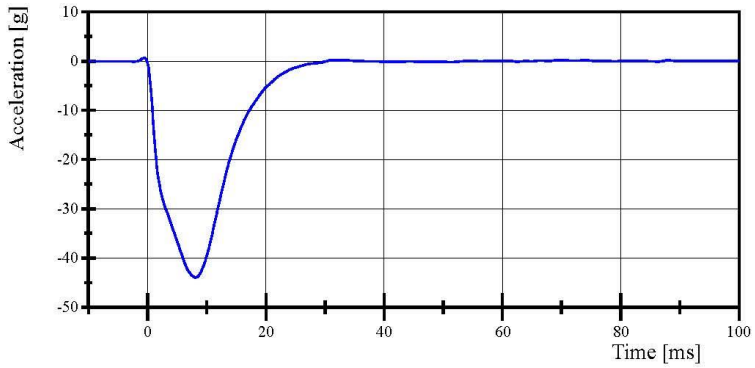
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 10:15:31 454

Transportation Research Center Inc.

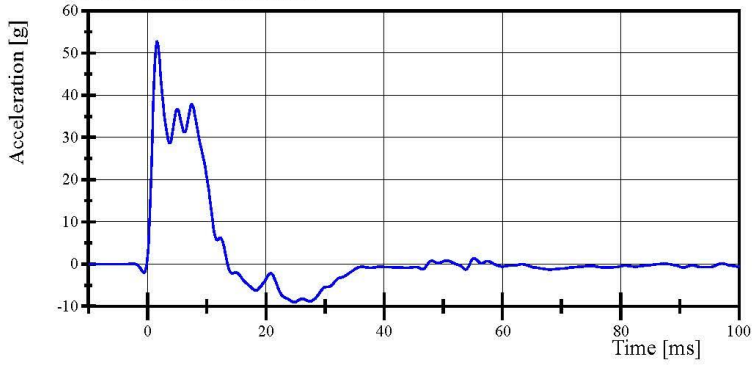
Left Lateral Pelvis
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Probe Acceleration



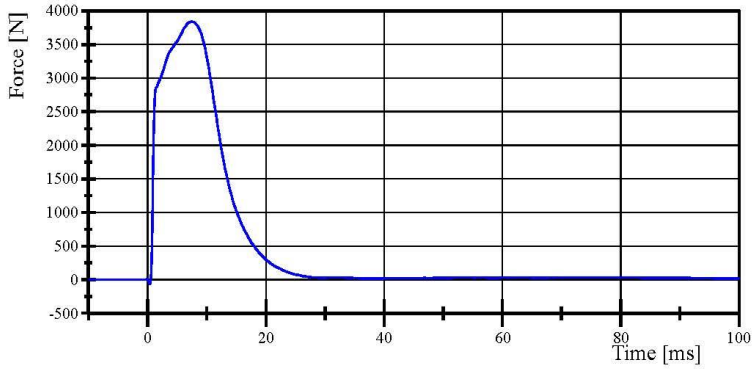
Filter Class: CFC_180
Max: 0.7 g at -0.6 ms
Min: -43.9 g at 8.1 ms

Pelvis Y-Axis Acceleration



Filter Class: CFC_180
Max: 52.7 g at 1.6 ms
Min: -9.0 g at 24.8 ms

Acetabulum Y-Axis Force



Filter Class: CFC_600
Max: 3,840.9 N at 7.4 ms
Min: -65.8 N at 0.4 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 10:16:36 454

Transportation Research Center Inc.

Left Lateral Iliac
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.34 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-42.4 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	35.1 g	Yes
Iliac Force	4,100 - 5,100 N	4,907.1 N	Yes

Test meets specifications.

Condition: Used

Comments:
Pelvis Skin S/N: 1171
Pelvis Plug Info:
Manufacturer: Saco
S/N: 13790
Cal Date: 20200508

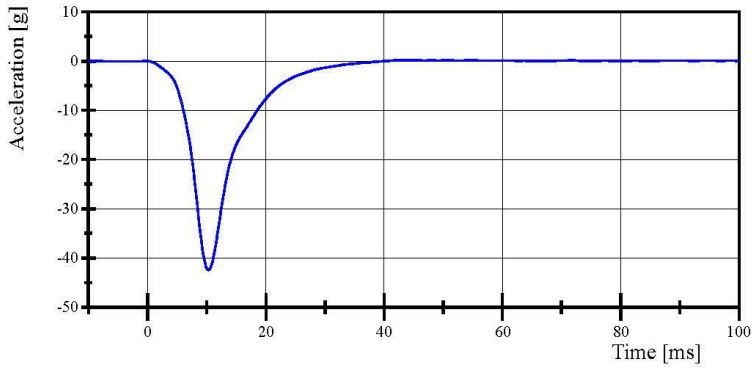
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 12:15:43 639

Transportation Research Center Inc.

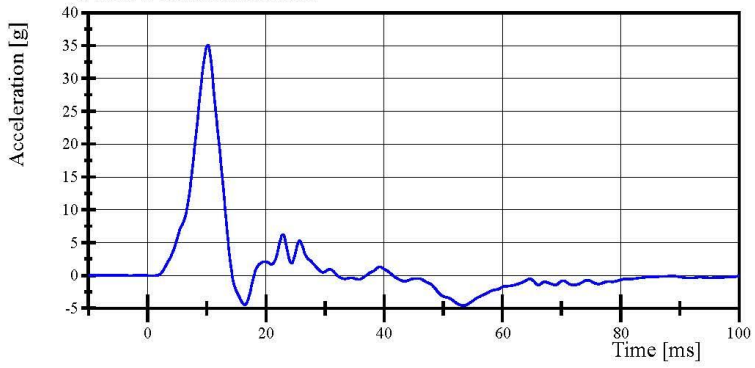
Left Lateral Iliac
SID IIs Serial No. 297 Certification No. 60-1
Test Date: 2/16/2023

Probe Acceleration



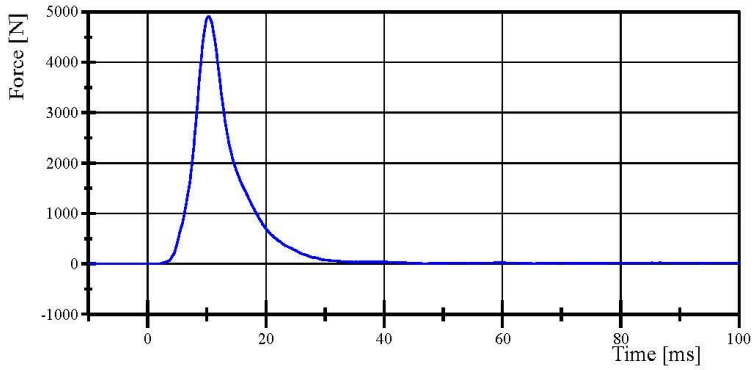
Filter Class: CFC_180
Max: 0.2 g at 42.6 ms
Min: -42.4 g at 10.3 ms

Pelvis Y-Axis Acceleration



Filter Class: CFC_180
Max: 35.1 g at 10.2 ms
Min: -4.6 g at 53.4 ms

Iliac Y-Axis Force



Filter Class: CFC_600
Max: 4,907.1 N at 10.3 ms
Min: -0.7 N at 1.3 ms

Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 12:17:14 639

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N 297		
				Serial Number	**Manufacturer**	**Calibration Date**
Head Accelerometers			X	P93539	Endevco	31-Jan-2023
			Y	P93549	Endevco	31-Jan-2023
			Z	P93776	Endevco	31-Jan-2023
Displacement Potentiometers	Shoulder		Y	N/A	N/A	N/A
	Thoracic Rib	Upper	Y	023	Servo	1-Feb-2023
		Middle	Y	063	Servo	1-Feb-2023
		Lower	Y	043	Servo	1-Feb-2023
	Abdominal Rib	Upper	Y	1152	Servo	1-Feb-2023
		Lower	Y	051	Servo	1-Feb-2023
Lower Spine Accelerometers (T12)			X	P94425	Endevco	31-Jan-2023
			Y	P91522	Endevco	31-Jan-2023
			Z	P91511	Endevco	31-Jan-2023
Acetabulum Load Cell			Y	235-FY	FTSS	31-Jan-2023
Iliac Wing Load Cell			Y	320-FY	FTSS	31-Jan-2023
Pelvis Plug (struck side)				13786	SACO	07-Apr-2020
Pelvis Plug (non-struck side)				13787	SACO	08-May-2020

TABLE 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	A378311	Measurement Specialties	7-Oct-2022
Vehicle Center of Gravity	Y	A230699	Measurement Specialties	6-Oct-2022
Vehicle Center of Gravity	Z	A297045	Measurement Specialties	7-Oct-2022
Left Floor Sill	Y	A378379	Measurement Specialties	7-Oct-2022
A-Pillar Sill	Y	A377197	Measurement Specialties	7-Oct-2022
A-Pillar Low	Y	A378308	Measurement Specialties	7-Oct-2022
A-Pillar Mid	Y	A378323	Measurement Specialties	7-Oct-2022
B-Pillar Sill	Y	A298386	Measurement Specialties	7-Oct-2022
B-Pillar Low	Y	A300456	Measurement Specialties	7-Oct-2022
B-Pillar Mid	Y	A349788	Measurement Specialties	7-Oct-2022
Driver Seat	Y	A378332	Measurement Specialties	6-Oct-2022
Engine Top	X	A349794	Measurement Specialties	7-Oct-2022
Engine Top	Y	A349879	Measurement Specialties	10-Nov-2022
Firewall	Y	A298341	Measurement Specialties	6-Oct-2022
Right Roof	Y	A297050	Measurement Specialties	7-Oct-2022
Right Floor Sill	Y	A254898	Measurement Specialties	7-Oct-2022
Rear Floor Pan	X	A377448	Measurement Specialties	7-Oct-2022
Rear Floor Pan	Y	A318461	Measurement Specialties	7-Oct-2022

TABLE 3 – Pole Instrumentation

Pole Instrumentation	Serial Number	Manufacturer	Calibration Date
Load Cell 1	DK7091S	Humanetics	2-Jan-2023
Load Cell 2	DK7120S	Humanetics	3-Jan-2023
Load Cell 3	DK7118S	Humanetics	3-Jan-2023
Load Cell 4	DK7124S	Humanetics	3-Jan-2023
Load Cell 5	DK7111S	Humanetics	3-Jan-2023
Load Cell 6	DK7126S	Humanetics	3-Jan-2023
Load Cell 7	DK7112S	Humanetics	3-Jan-2023
Load Cell 8	DK7074S	Humanetics	3-Jan-2023