

FINAL REPORT NUMBER: SPNCAP-TRC-24-003

**NEW CAR ASSESSMENT PROGRAM (NCAP)
SIDE IMPACT POLE TEST**

**GM KOREA COMPANY
2024 Chevrolet Trax SUV
NHTSA NUMBER: M20240104**

**PREPARED BY:
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Report Date: December 9, 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: December 9, 2024

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

FINAL REPORT ACCEPTANCE BY OCWS:

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NHTSA, Office of Crashworthiness Standards

Date: _____

Technical Report Documentation Page

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16. Abstract A 32.2 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject vehicle, a 2024 Chevrolet Trax SUV, in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on June 26, 2024. The impact velocity was 32.28 km/h, and the ambient temperature at the struck (left) side of the target vehicle at the time of impact was 20.6° C. The test vehicle's post-test maximum crush was 326 mm at Level 2 and 3. The test or target vehicle's performance is given below: <table border="1"> <thead> <tr> <th></th><th><u>Unit</u></th><th><u>Threshold</u></th><th><u>Front SID-IIs</u></th></tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆):</td><td>NA</td><td>1000</td><td><u>463.580</u></td></tr> <tr> <td>Resultant Lower Spine Acceleration:</td><td>g's</td><td>82</td><td><u>54.230</u></td></tr> <tr> <td>Total Pelvic Force: (sum of acetabular and iliac forces)</td><td>N</td><td>5525</td><td><u>3261.820</u></td></tr> <tr> <td>Maximum Thoracic Rib Deflection</td><td>mm</td><td>38*</td><td><u>32.240</u></td></tr> <tr> <td>Maximum Abdomen Rib Deflection</td><td>mm</td><td>45*</td><td><u>20.200</u></td></tr> </tbody> </table> * 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.					<u>Unit</u>	<u>Threshold</u>	<u>Front SID-IIs</u>	Head Injury Criteria (HIC ₃₆):	NA	1000	<u>463.580</u>	Resultant Lower Spine Acceleration:	g's	82	<u>54.230</u>	Total Pelvic Force: (sum of acetabular and iliac forces)	N	5525	<u>3261.820</u>	Maximum Thoracic Rib Deflection	mm	38*	<u>32.240</u>	Maximum Abdomen Rib Deflection	mm	45*	<u>20.200</u>
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17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division 1200 New Jersey Ave Washington, DC 20590																									
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SECTION 1

TEST PURPOSE AND PROCEDURE

TEST PURPOSE AND PROCEDURE

This side impact test was conducted as part of the MY24 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 2024 Chevrolet Trax SUV manufactured by GM KOREA COMPANY. 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 2024 Chevrolet Trax SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.28 km/h. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, OH, on June 26, 2024. 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	463.580
Lower Spine Acceleration Resultant	G	82	54.230
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3261.820
Maximum Thoracic Rib Deflection	mm	38*	32.240
Maximum Abdominal Rib Deflection	mm	45*	20.200

* Proposed IARV

Supplemental restraint information is given below:

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	No	N/A		
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	No	N/A
Seat Belt Load Limiter	Yes	No	No	N/A
Other	No	N/A	No	N/A

GENERAL COMMENTS

The driver's seat side air bag deployed partially through the back and front seams of the seat back bolster.

Vehicle Center of Gravity X-Axis Acceleration: CF 60.0 ms

Vehicle Center of Gravity Y-Axis Acceleration: CF 60.0 ms

Vehicle Center of Gravity Z-Axis Acceleration: CF 60.0 ms

Left Floor Sill Y: CF 40.0 ms

Left B-Pillar Sill Y: CF 32.0 ms

Driver Seat Track at Dummy H-Point Y: CF 40.0 ms

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2024 Chevrolet Trax SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20240104
 Test Date: 6/26/2024

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20240104
Model Year	2024
Make	Chevrolet
Model	Trax
Body Style	MPV
VIN	KL77LFE29RC157344
Body Color	Harvest Bronze
Odometer Reading (km/mi)	159 mi
Engine Displacement (L)	1.2
Type/No. Cylinders	Inline/3
Engine Placement	Transverse
Transmission Type	Automatic
Transmission Speeds	6
Overdrive	Yes
Final Drive	FWD
Roof Rack	No
Sunroof/T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks (ADL)	Yes
Power Window Auto-Reverse	No
Other Optional Feature	No
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	No
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso/Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	No
Driver Load Limiter	Yes
Rear Pass. Load Limiter	Yes
Other	No

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

No

DATA FROM CERTIFICATION LABEL

Manufactured By	GM KOREA COMPANY
Date of Manufacturer	10/23
Vehicle Type	MPV

GVWR (kg)	1880
GAWR Front (kg)	1060
GAWR Rear (kg)	1060

VEHICLE SEATING AND WEIGHT CAPACITY DATA

	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3	N/A	5
Vehicle Capacity Weight (VCW) (kg)				428.0
DSC X 68.0 kg				340.0
Rated Cargo and Luggage Weight (RCLW) (kg)				88.0

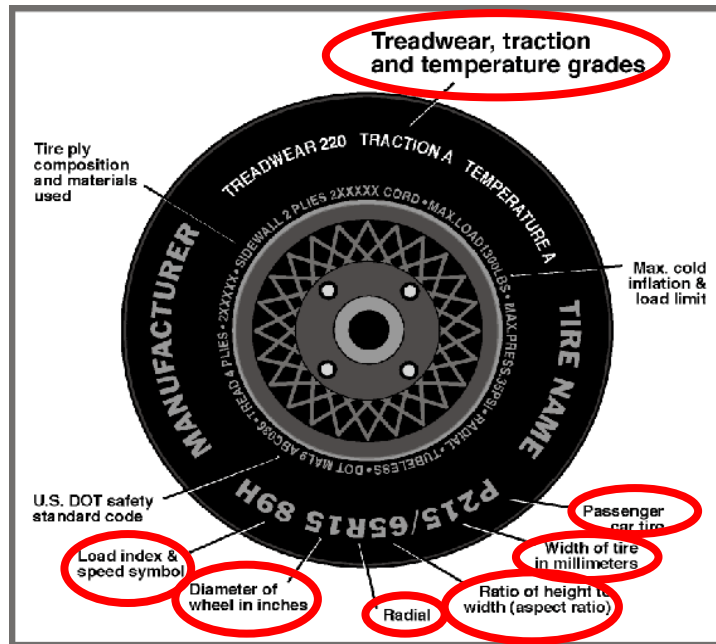
VEHICLE SEAT TYPE

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	N/A	N/A	Yes	N/A	Yes	N/A	N/A
Third row seat	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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

Test Vehicle: 2024 Chevrolet Trax SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20240104
 Test Date: 6/26/2024



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	240	240
Recommended Tire Size	225/60R17	225/60R17
Tire Size on Vehicle	225/60R17	225/60R17
Tire Manufacturer	Hankook	Hankook
Tire Model	Dynapro	Dynapro
Treadwear	460	460
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	2	2
Tire Plies Body	5	5
Load Index/Speed Symbol	99H	99H
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon
DOT Safety Code Left	15MJF BU HA 4223	15MJF BU HA 4223
DOT Safety Code Right	15MJF BU HA 4223	15MJF BU HA 4223

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

Test Vehicle: 2024 Chevrolet Trax SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20240104
 Test Date: 6/26/2024

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	295	295	295	295
Tire Placard	kPa	240	240	240	240
Owner's Manual	kPa	240	240	230	230
As Tested	kPa	240	240	230	230

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	416.0	271.4		431.0	330.0		442.6	335.8	
Right	kg	406.8	248.0		406.2	306.0		404.2	296.4	
Ratio	%	61.3	38.7		56.8	43.2		57.3	42.7	
Totals	kg	822.8	519.4	1342.2	837.2	636.0	1473.2	846.8	632.2	1479.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total As Delivered Weight (UVW)	kg	1342.2
Actual Weight of 1 P572V ATD (SID-III) Dummy Used	kg	49.0
Rated Cargo/Luggage Weight (RCLW)	kg	88.0
Calculated Vehicle Target Weight (TVTW)	kg	1479.2

(A)
 (B)
 (C)
 (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.	-0.1	0.2	0.3	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg.	-0.5	0.1	0.2	Yes
Front Bumper-Line Angle (left-to-right)**	Deg.	-0.5	-0.5	-0.6	Yes
Rear Bumper-Line Angle (left-to-right)**	Deg.	-0.1	0.0	0.0	Yes
Vehicle CG (Aft of Front Axle)	mm	1047	1167	1156	
Vehicle CG (Left (+) / Right (-) from longitudinal Centerline)	mm	19	26	41	

*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: 2024 Chevrolet Trax SUV
Test Program: SPNCAP Side Impact

NHTSA No.: M20240104
Test Date: 6/26/2024

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Ballast: Steel plate	66.0
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	1835
Aft 25 mm target	1830

DATA SHEET NO. 2**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA**Test Vehicle: 2024 Chevrolet Trax SUVNHTSA No.: M20240104Test Program: SPNCAP Side ImpactTest Date: 6/26/2024**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	16.9	12.9	14.9
Front Passenger Seat	11.8	11.8	11.8
Front Center Seat*	N/A	N/A	N/A
Struck Side Rear Seat	13.5	Fixed	Fixed
Non-Struck Side Rear Seat	13.2	Fixed	Fixed
Rear Center Seat*	11.2	Fixed	Fixed

* 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	14.9	198	Max	N/A	N/A	N/A
			Mid	185	189	198
			Min	N/A	N/A	N/A
Front Passenger Seat	11.8	192	Max	N/A	N/A	N/A
			Mid	186	190	192
			Min	N/A	N/A	N/A
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	13.5	Fixed	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Non-Struck Side Rear Seat	13.2	Fixed	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Rear Center Seat*	11.2	Fixed	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: 2024 Chevrolet Trax SUV

NHTSA No.: M20240104

Test Program: SPNCAP Side Impact

Test Date: 6/26/2024

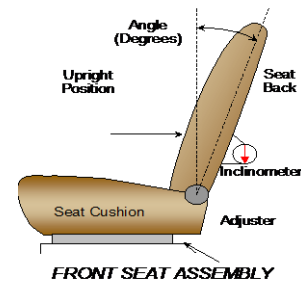
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forward most Position	
	mm	Detents*	mm	Detent*
Driver Seat	260	26	0	0
Front Passenger Seat	260	26	0	0
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat*	Fixed	Fixed	Fixed	Fixed

* 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. For the 5th percentile female dummy in a Side NCAP MDB test. The rear center and non-struck side rear passenger's seat back is set to match the struck-side rear seat back.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detent*
Driver Seat w/ Seated Dummy	65.7	35	29.95	28
Front Passenger Seat	65.7	35	29.95	28
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat*	Fixed	Fixed	Fixed	Fixed

* 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	Fixed	Fixed

HEAD RESTRAINT ADJUSTMENT

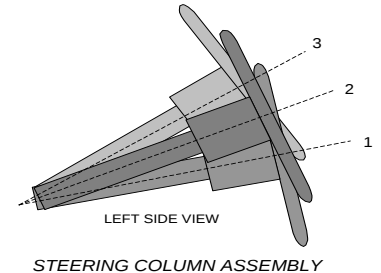
Head restraints are adjusted to the lowest and most full forward in-use position.

	Total # of Positions	Placed in Position #
Driver Seat	9	1

DATA SHEET NO. 2 (CONTINUED)**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA**Test Vehicle: 2024 Chevrolet Trax SUVNHTSA No.: M20240104Test Program: SPNCAP Side ImpactTest Date: 6/26/2024**STEERING COLUMN ADJUSTMENT**

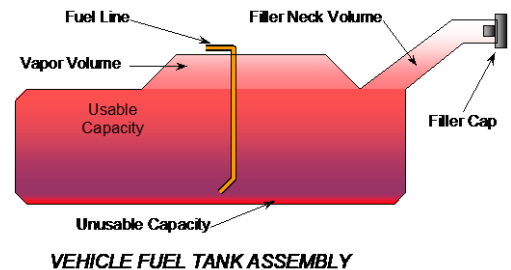
Steering wheel and column adjustments are made so that the steering wheel geometric locus it describes when moved through its full range of motion.

	Degrees	Fore/Aft Position, mm
Lowermost, Position No. 1	19.6	
Geometric Center, Position No. 2	21.6	
Uppermost, Position No. 3	23.6	
Telescoping Steering Wheel Travel		36
Test Position	21.6	18

**FUEL PUMP**

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

Fuel pump will run for approximately 3 seconds when the key or push start button is switched to "On" position, then, it will stop and will not resume operation unless the engine is cranking or running

**FUEL TANK CAPACITY**

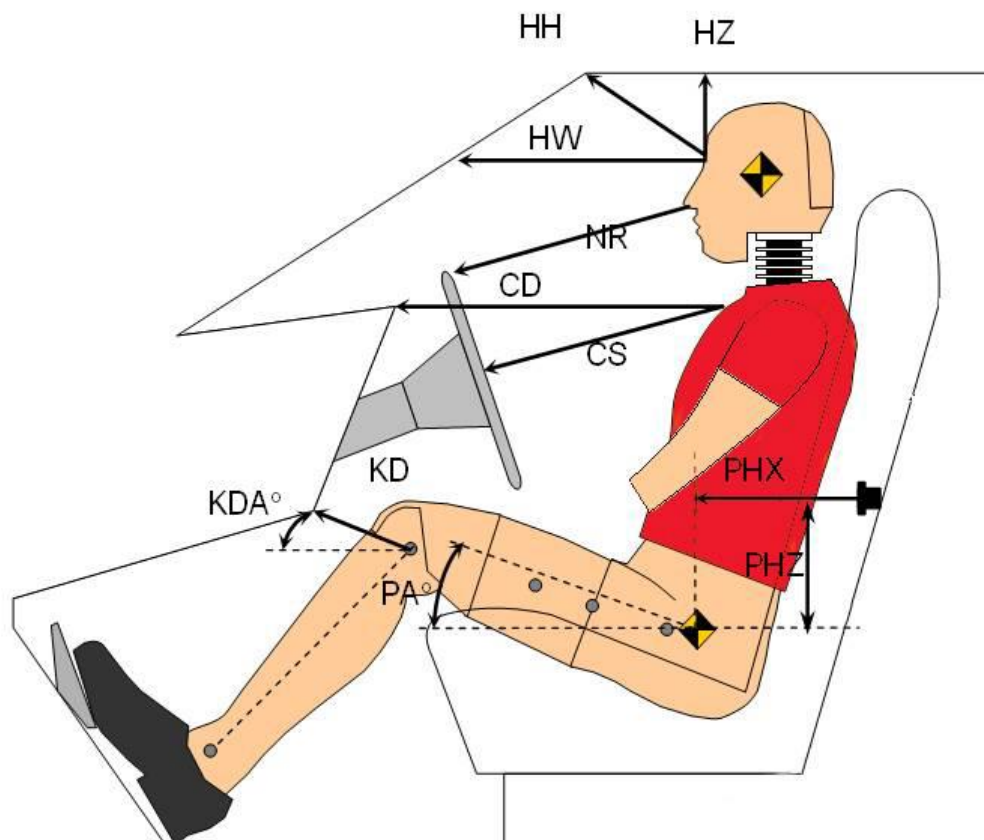
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	50.0
Usable Capacity of "Optional" Tank (see Form No. 1)	N/A
Usable Capacity of Standard Tank (see Owner's Manual)	50.0
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	46.5
Actual Amount of Solvent Used in Test	46.5
1/3 of Usable Capacity	16.7

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

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2024 Chevrolet Trax SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20240104
 Test Date: 6/26/2024

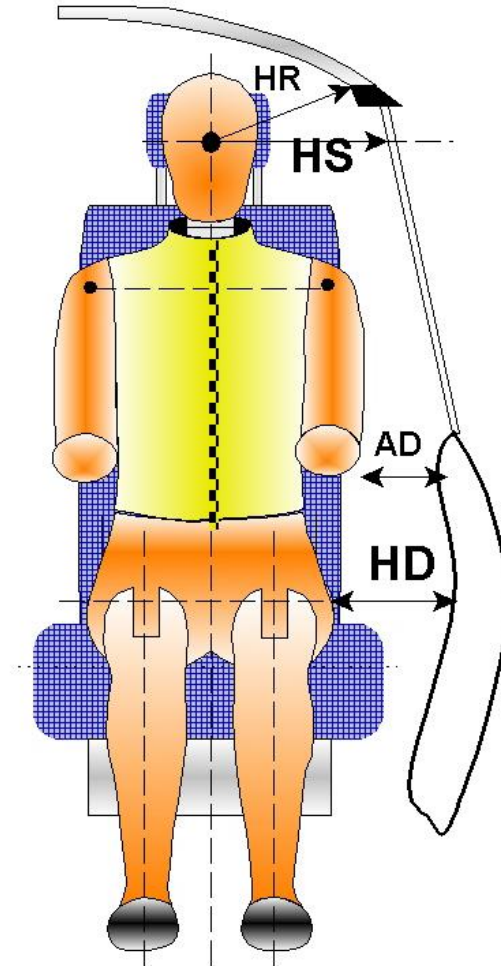


Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	315	
HW	Head to Windshield	723	
HZ	Head to Visor	223	
NR	Nose to Rim	258	
CD	Chest to Dashboard	443	
CS	Chest to Steering Wheel	200	
KDL/KDLA°	Left Knee to Dash	169	24.0
KDR/KDRA°	Right Knee to Dash	138	22.0
PAX°	Pelvic Tilt Angle (X-axis)		20.75
PAY°	Pelvic Tilt Angle (Y-axis)		0.58
PHX	Hip Point to Striker (X-Axis)	300	
PHZ	Hip Point to Striker (Z-Axis)	130	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2024 Chevrolet Trax SUV
Test Program: SPNCAP Side Impact

NHTSA No.: M20240104
Test Date: 6/26/2024

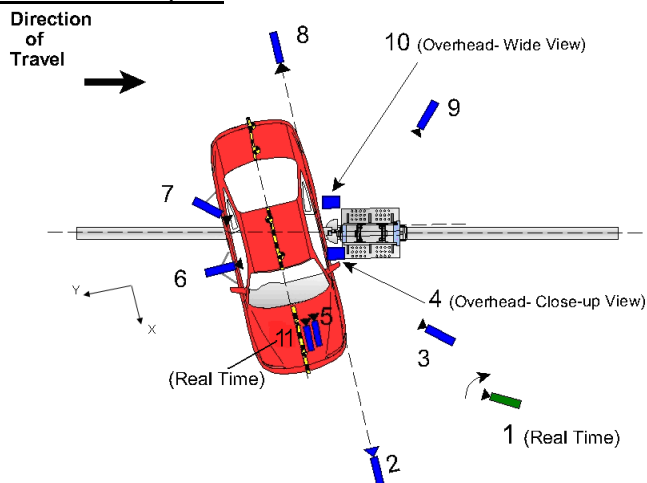


Code	Measurement Description	Length (mm)
HR	Head to Side Header	261
HS	Head to Side Window	375
AD	Arm to Door	102
HD	Hip Point to Door	162

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2024 Chevrolet Trax SUV
Test Program: SPNCAP Side Impact

NHTSA No.: M20240104
Test Date: 6/26/2024



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	4387	2500	-1490	20	1000
3	Impact side 45° – forward pole view	2320	-1530	-1523	8.5	1000
4	Overhead Close-up view of impact	-50	120	-4650	28	1000
5	Onboard – dummy front view				25	1000
6	Onboard – dummy side view				8.5	1000
7	Onboard – dummy rear oblique view				8.5	1000
8	Rear ground level – impact view	-5392	2625	-1583	20	1000
9	Impact side 45° – rearward pole view	-2856	-1628	-1456	8.5	1000
10	Overhead wide view of impact	0	0	-4650	18	1000
11	Real time dummy front view				Zoom	60

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

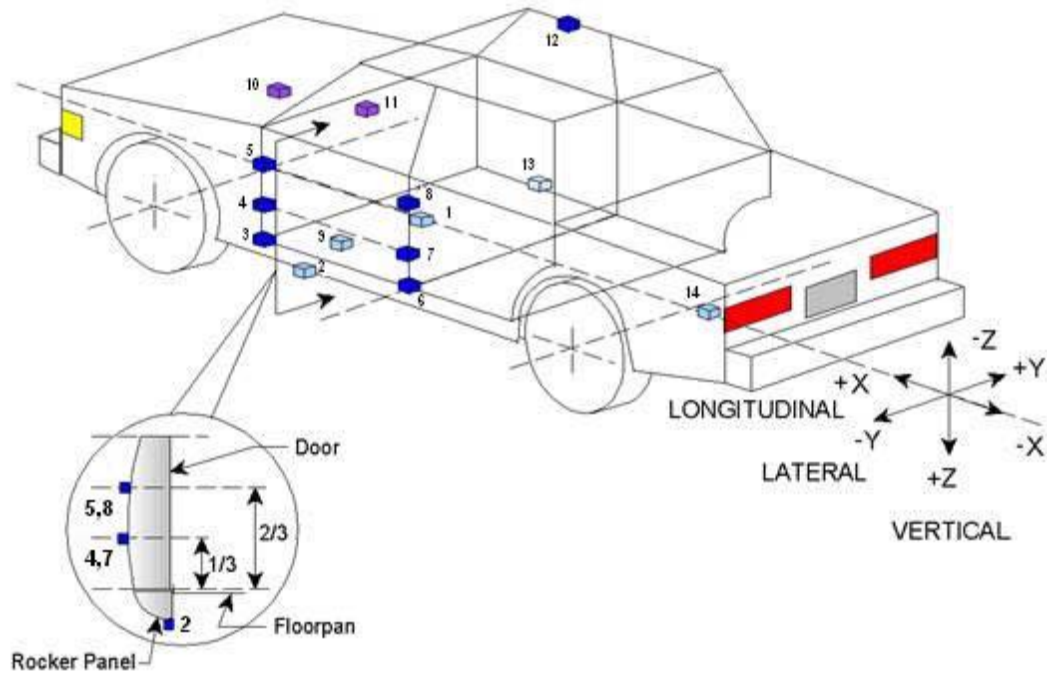
INSTRUMENTATION

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

DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2024 Chevrolet Trax SUV
Test Program: SPNCAP Side Impact

NHTSA No.: M20240104
Test Date: 6/26/2024



Accelerometer/Sensor Location				
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2671	94	-425
2	Left Floor Sill	2819	-679	-388
3	A-Pillar Sill	3019	-679	-400
4	A-Pillar Low	3097	-810	-605
5	A-Pillar Mid	3095	-787	-935
6	B-Pillar Sill	1863	-657	-355
7	B-Pillar Low	2050	-801	-606
8	B-Pillar Mid	2035	-792	-1002
9	Driver Seat Track	2343	-525	-393
10	Engine Top	3675	99	-860
11	Firewall	3544	30	-971
12	Right Roof	2107	562	-1540
13	Right Floor Sill	2787	691	-394
14	Rear Floorpan	187	-9	-593

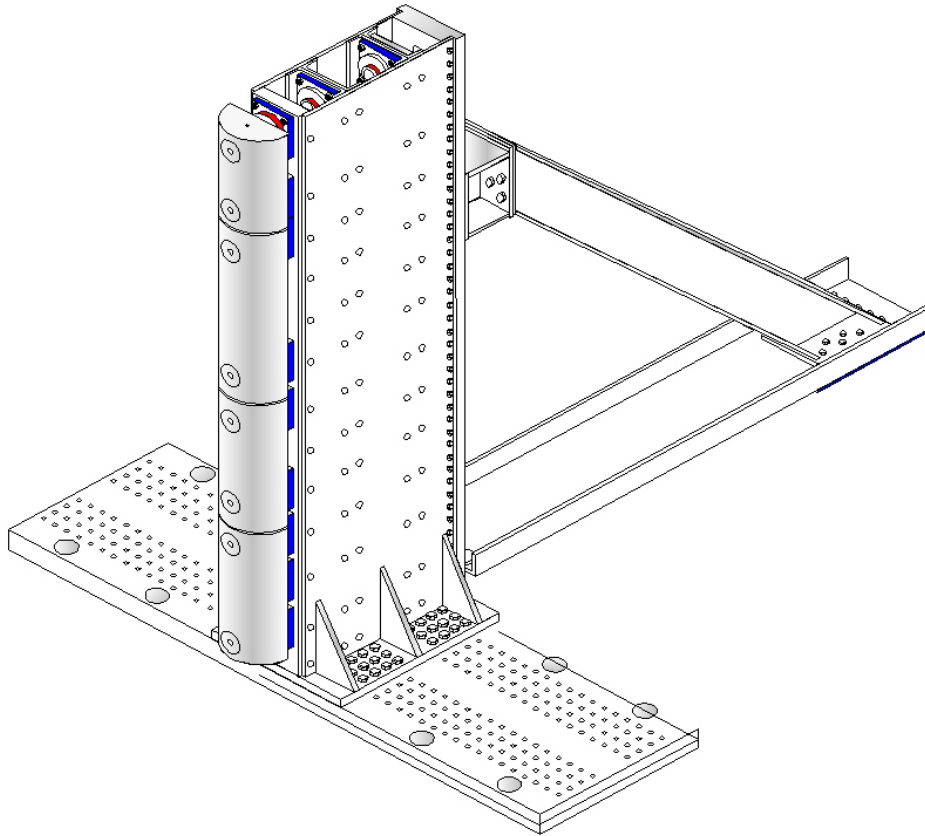
Reference: X - Test Vehicle Rear Bumper (+ forward)
Y - Test Vehicle Centerline (+ to right)
Z - Ground Plane (+ down)

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2024 Chevrolet Trax SUV
Test Program: SPNCAP Side Impact

NHTSA No.: M20240104
Test Date: 6/26/2024

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: 2024 Chevrolet Trax SUV
Test Program: SPNCAP Side Impact

NHTSA No.: M20240104
Test Date: 6/26/2024

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver SID-IIs Dummy
Face	SCAB
Top of Head	SCAB
Left Side of Head	SCAB
Back of Head	SCAB
Left Shoulder	SAB
Upper Torso	SAB, Seat Bolster
Lower Torso	SAB, Seat Bolster
Left Hip	SAB
Left Knee	Door Panel

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch/ Other Door
	Front	Rear	Front	Rear	
Remained Closed and Operational	Yes	Yes	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	N/A	No	N/A
Seat Disengagement from Floor pan	No	N/A	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	Broken and cracked
Side Window Damage	Driver Front Window broken
Other Notable Effects	None

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

Test Vehicle: 2024 Chevrolet Trax SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20240104
 Test Date: 6/26/2024

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

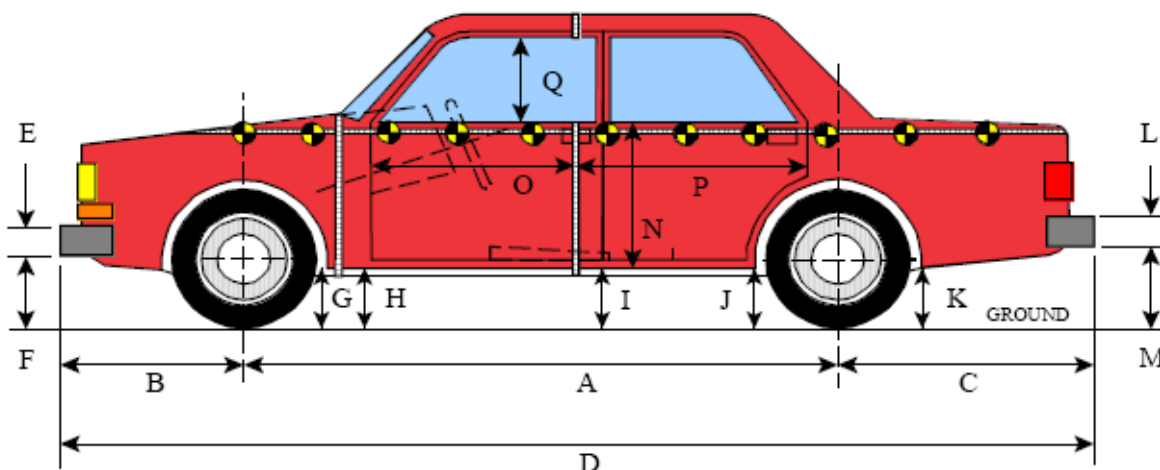
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1130
Actual Impact Point (Aft of Front Axle)	mm		1126
Horizontal Offset (+ forward / - rearward)	mm	+/- 38 of Intended Impact point	-4
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	32.28
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.30

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2024 Chevrolet Trax SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20240104
 Test Date: 6/26/2024



LEFT SIDE VIEW

All MEASUREMENTS IN (mm) WITH TOLERANCE OF ± 3 mm

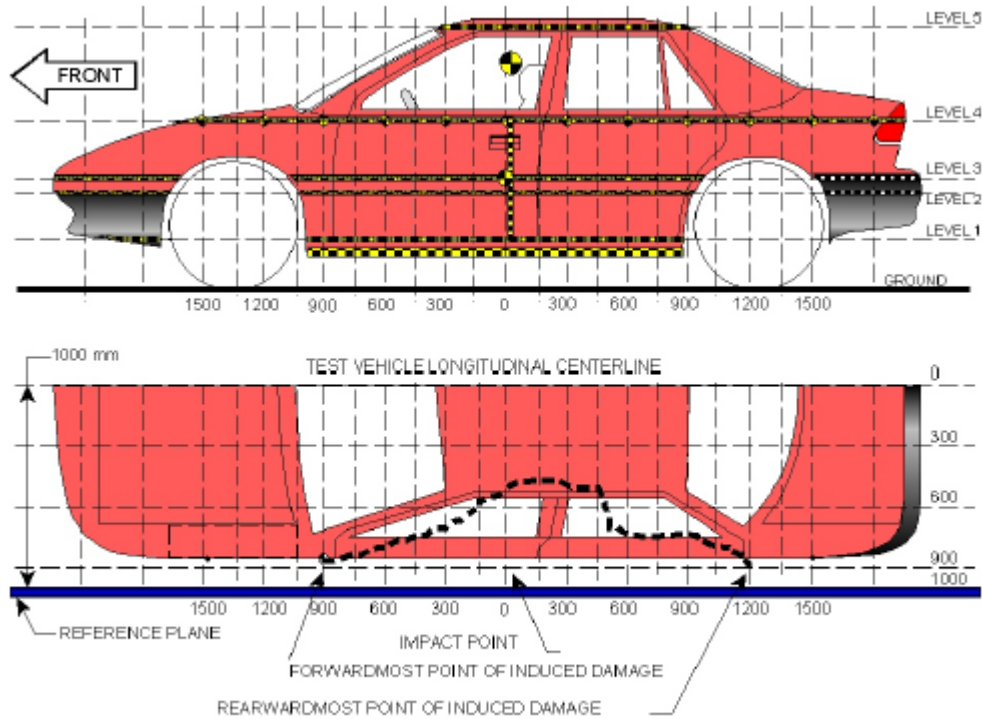
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Change
A	Wheelbase	2705	2658	-47
B	Front Axle to Front Surface of Vehicle	909	941	32
C	Rear Axle to Rear Surface of Vehicle	906	901	-5
D	Total Length at Centerline	4520	4500	-20
E	Front Bumper Thickness	130	130	0
F	Front Bumper Bottom to Ground	448	470	22
G	Sill Height at Front Wheel Well	316	310	-6
H	Sill Height at Front Door Leading Edge	302	295	-7
I	Sill Height at B-Pillar	282	303	21
J1	Sill Height at Rear Wheel Well	260	310	50
J2	Pinch Weld Height at Rear Wheel Well	230	268	38
K	Sill Height Aft of Rear Wheel Well	466	515	49
L	Rear Bumper Thickness	122	122	0
M	Rear Bumper Bottom to Ground	495	539	44
N	Sill Height to Bottom of Front Window Sill	820	844	24
O	Front Door Leading Edge to Impact CL	610	557	-53
P	Rear Door Trailing Edge to Impact CL	1397	1359	-38
Q	Front Window Opening	385	338	-47
R	Right Side Length	4305	4302	-3
S	Left Side Length	4308	4241	-67
T	Vehicle Width at B-Pillars	1787	1700	-87
U	Front Wheel Track Width	1556	1538	-18
V	Rear Wheel Track Width	1571	1568	-3

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2024 Chevrolet Trax SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20240104
 Test Date: 6/26/2024



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	392	285	0
2	Occupant H-Point	653	326	0
3	Mid-Door	689	326	0
4	Window Sill	1046	28	0
5	Window Top	1480	147	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: 2024 Chevrolet Trax SUV
Test Program: SPNCAP Side Impact

NHTSA No.: M20240104
Test Date: 6/26/2024

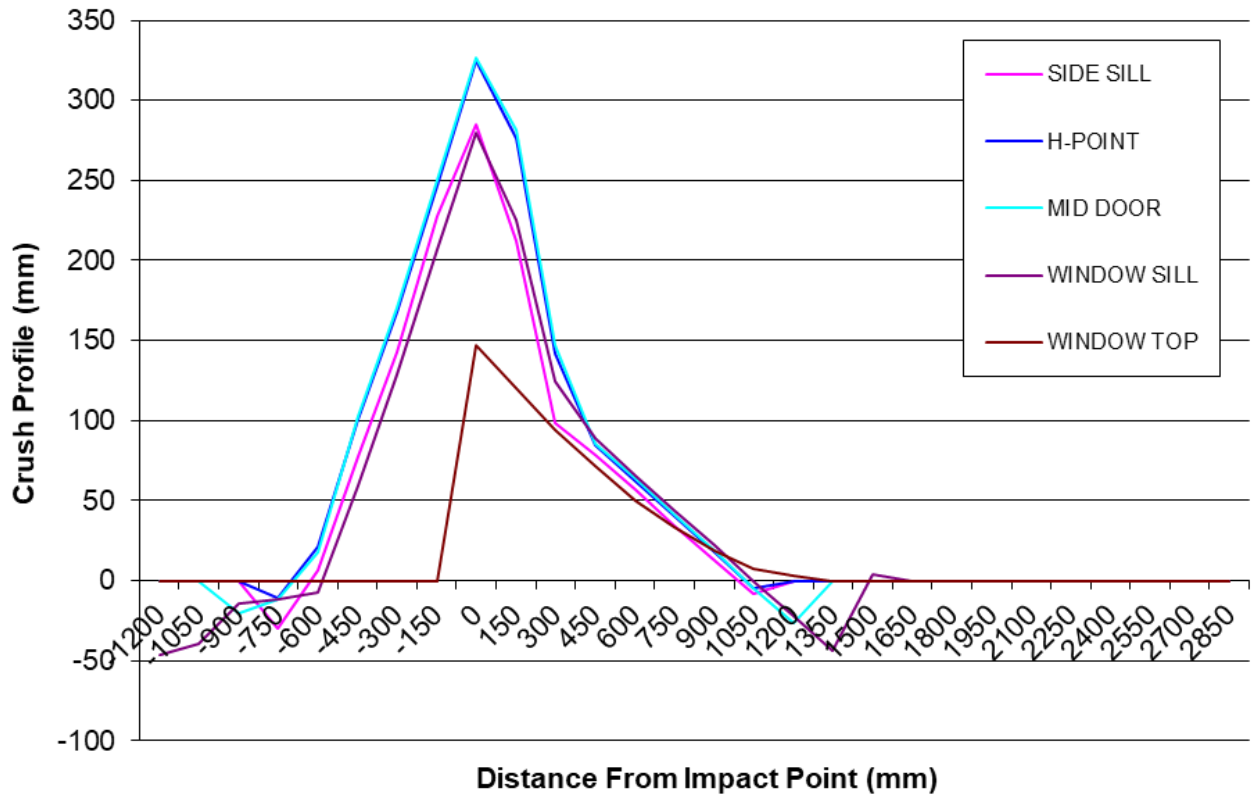
	Pre-Test					Post-Test					Crush				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1200	0	0	0	764	0	0	0	0	810	0	0	0	0	-46	0
-1050	0	0	0	777	0	0	0	0	816	0	0	0	0	-39	0
-900	0	0	902	781	0	0	0	922	796	0	0	0	-20	-15	0
-750	876	894	895	784	0	906	905	906	796	0	-30	-11	-11	-12	876
-600	873	883	885	782	0	866	862	867	790	0	7	21	18	-8	873
-450	876	878	880	785	0	799	777	777	725	0	77	101	103	60	876
-300	878	875	878	792	0	736	707	707	663	0	142	168	171	129	878
-150	880	875	878	799	0	652	628	627	592	0	228	247	251	207	880
0	880	876	878	805	599	595	550	552	525	452	285	326	326	280	880
150	879	877	878	810	604	667	601	597	585	484	212	276	281	225	879
300	878	879	880	816	605	779	737	733	691	510	99	142	147	125	878
450	876	880	880	817	604	797	796	794	728	533	79	84	86	89	876
600	874	883	882	820	600	818	821	819	755	550	56	62	63	65	874
750	873	888	886	828	595	838	848	845	784	562	35	40	41	44	873
900	872	893	892	831	586	859	876	873	809	567	13	17	19	22	872
1050	873	899	900	837	573	881	904	904	837	566	-8	-5	-4	0	873
1200	0	0	906	842	544	0	0	933	864	541	0	0	-27	-22	0
1350	0	0	0	845	0	0	0	0	888	0	0	0	0	-43	0
1500	0	0	0	846	0	0	0	0	843	0	0	0	0	3	0

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: 2024 Chevrolet Trax SUV
Test Program: SPNCAP Side Impact

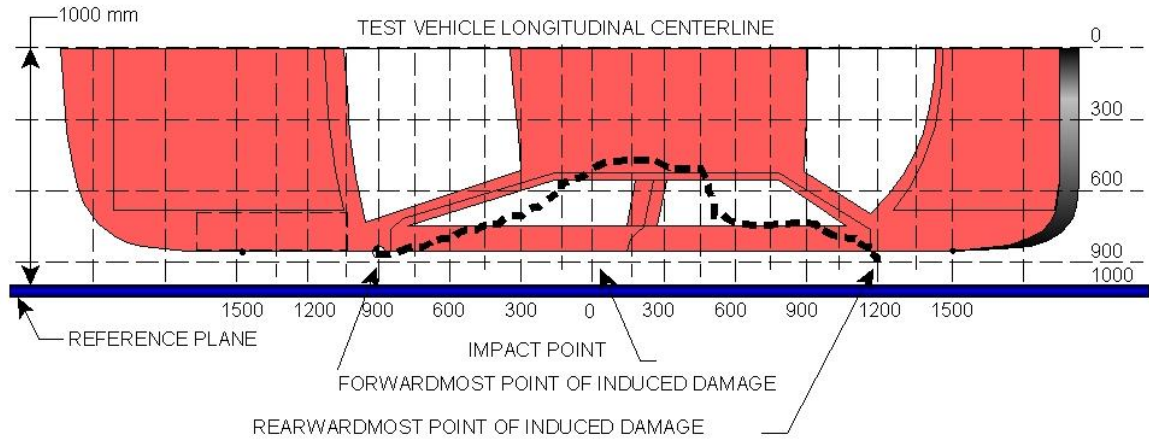
NHTSA No.: M20240104
Test Date: 6/26/2024



DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2024 Chevrolet Trax SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20240104
 Test Date: 6/26/2024



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	1500	4	843	846	3
2	1050	5	566	573	7
3	600	4	755	820	65
4	150	3	597	878	281
5	-150	3	627	878	251
6 ¹	-600	2	862	883	0

¹ DPD 6 is 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: 2024 Chevrolet Trax SUV

NHTSA No.: M20240104

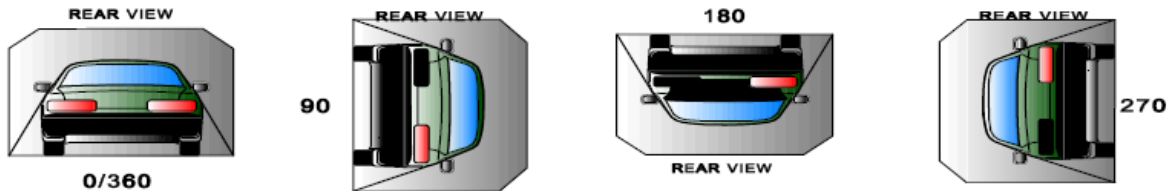
Test Program: SPNCAP Side Impact

Test Date: 6/26/2024

Test Time: 16:26 Temperature: 20.6°C

- 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

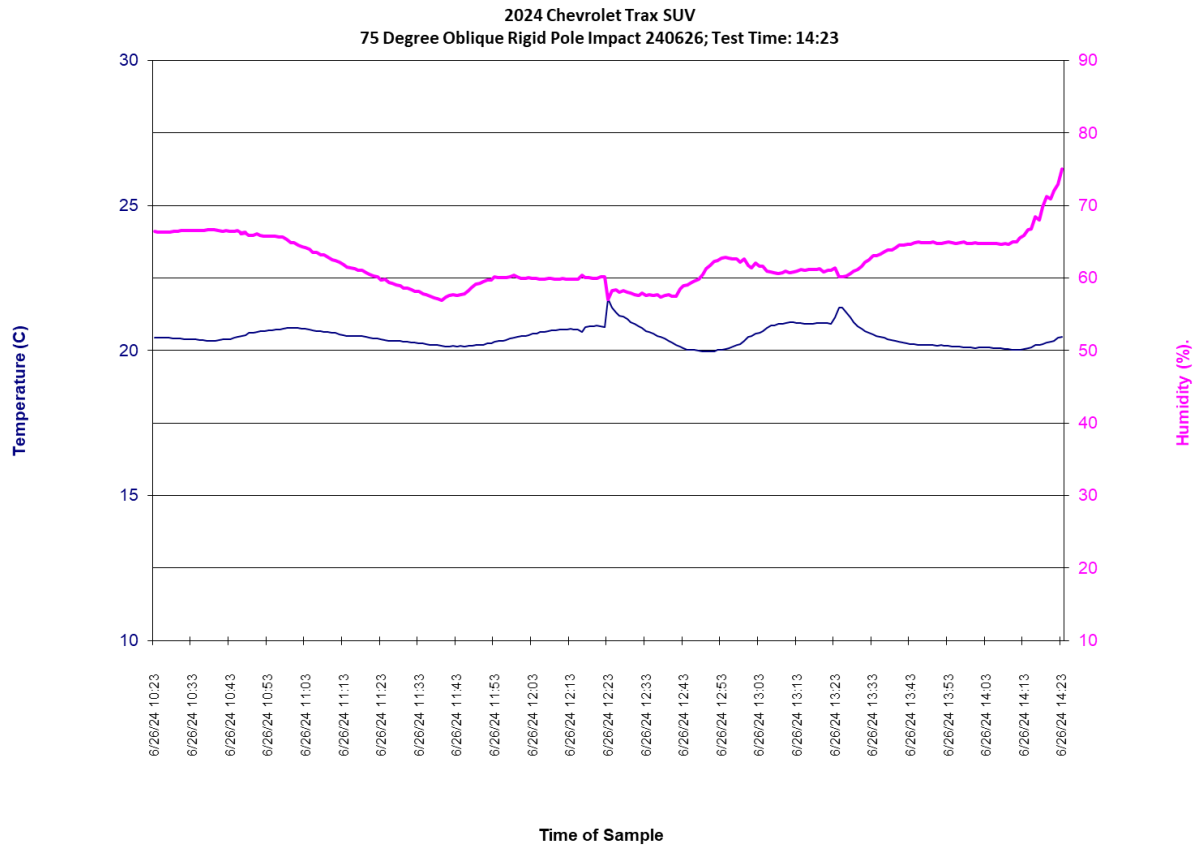
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0 to 90	0	0	0	0
90 to 180	0	0	0	0
180 to 270	0	0	0	0
270 to 360	0	0	0	0

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: 2024 Chevrolet Trax SUV NHTSA No.: M20240104
Test Program: SPNCAP Side Impact Test Date: 6/26/2024



APPENDIX A
PHOTOGRAPHS

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2	As Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle	A-5
3	Pre-Test Frontal View of Test Vehicle	A-6
4	Post-Test Frontal View of Test Vehicle	A-6
5	Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-7
6	Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-7
7	Pre-Test Left Side View of Test Vehicle	A-8
8	Post-Test Left Side View of Test Vehicle	A-8
9	Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-9
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12	Post-Test Rear View of Test Vehicle	A-10
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15	Pre-Test Overhead View of Test Area	A-12
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20	Post-Test Close-Up View of Impact Point Target Showing Impact Location	A-14
21	Pre-Test Front Close-Up View of Dummy Head and Chest	A-15
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24	Pre-Test Left Side View of Dummy Shoulder and Door Top View	A-17
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26	Pre-Test Front View of Seat Back Prior to Dummy Positioning	A-18
27	Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint	A-18
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30	Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket	A-20
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38	Pre-Test Close-Up Left Side View of Driver Seat Back	A-24
39	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-24
40	Pre-Test Dummy and Door Clearance View	A-25
41	Post-Test Dummy and Door Clearance View	A-25
42	Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-26
43	Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-26
44	Pre-Test Inner Driver Door Panel View	A-27
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48	Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View	A-29
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51	Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View	A-31
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53	Post-Test Right Side View of Dummy and Rear Seat of Occupant Compartment	A-32
54	Post-Test Inner Rear Passenger Torso Air Bag Deployment View	A-32
55	Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-33
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57	Close-Up View of Vehicle's Certification Label	A-34
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59	Pre-Test Pole Barrier Front View	A-35
60	Post-Test Pole Barrier Front View	A-35
61	Pre-Test Pole Barrier Side View	A-36
62	Post-Test Pole Barrier Side View	A-36
63	Pre-Test Ballast View	A-37
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66	FMVSS No. 301 Static Rollover 90 Degrees	A-38
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69	FMVSS No. 301 Static Rollover 360 Degrees	A-40
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72	Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-41
73	Post-Test View of Shattered Vehicle Inner Door Panel	A-42

TABLE OF PHOTOGRAPHS (CONTINUED)

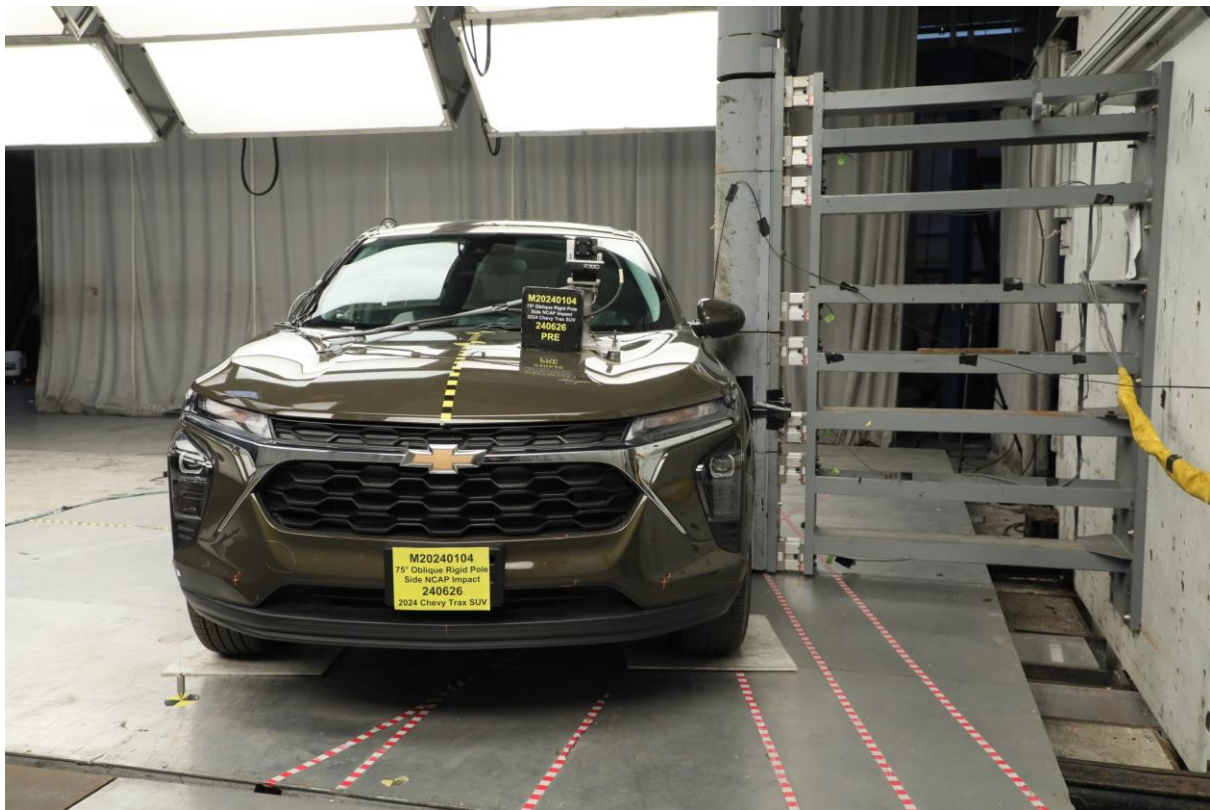
No.	Description	Page
74	Post-Test Close-up Driver Seat Airbag Deployment	A-42
74a	Post-Test Close-up Driver Seat Airbag Deployment	A-43



No. 001 As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



No. 002 As Delivered Left Rear $\frac{3}{4}$ 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 $\frac{3}{4}$ View of Test Vehicle



No. 006 Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle



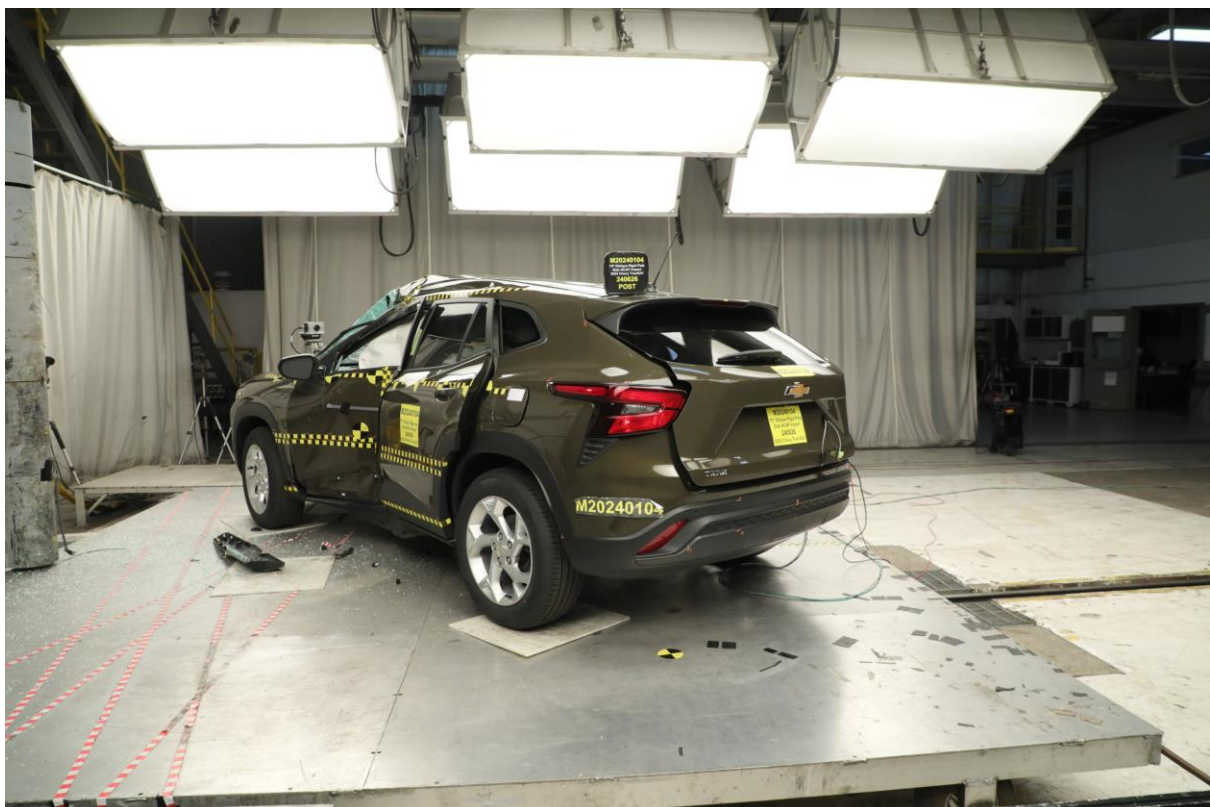
No. 007 Pre-Test Left Side View of Test Vehicle



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



No. 009 Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



No. 010 Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



No. 011 Pre-Test Rear View of Test Vehicle



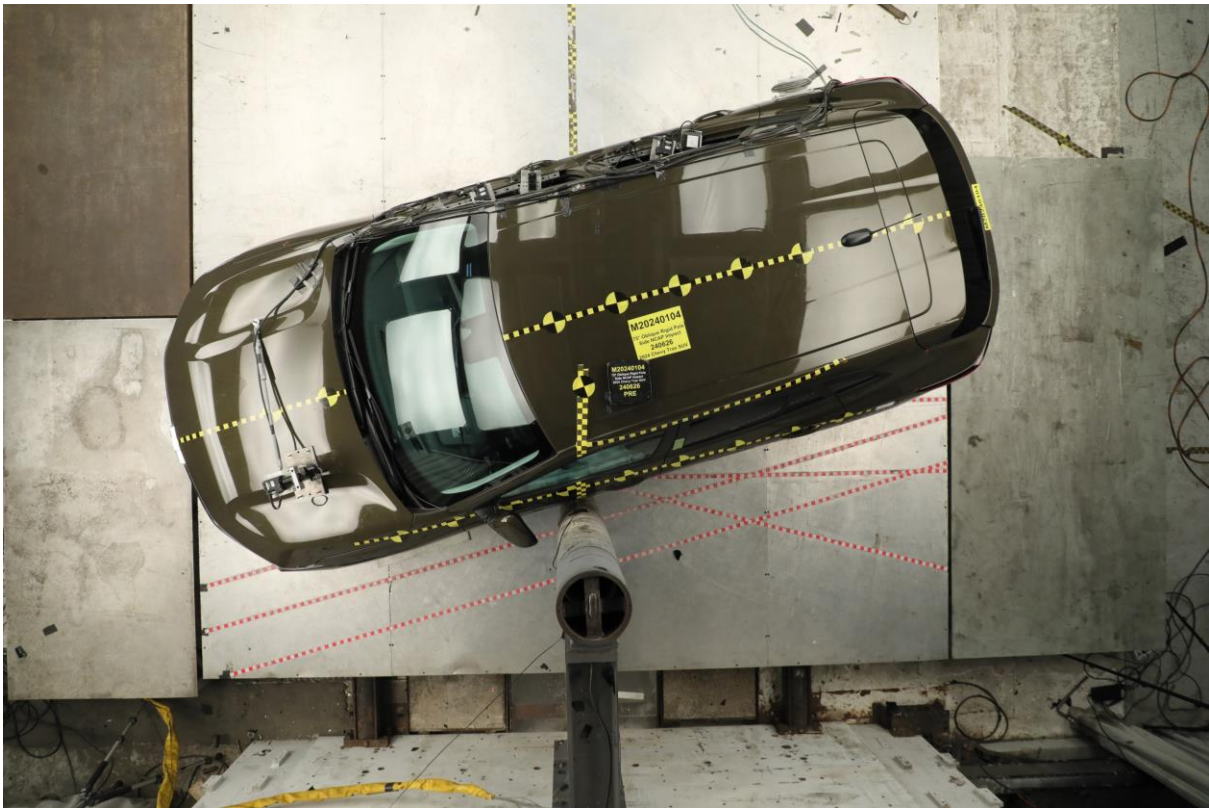
No. 012 Post-Test Rear View of Test Vehicle



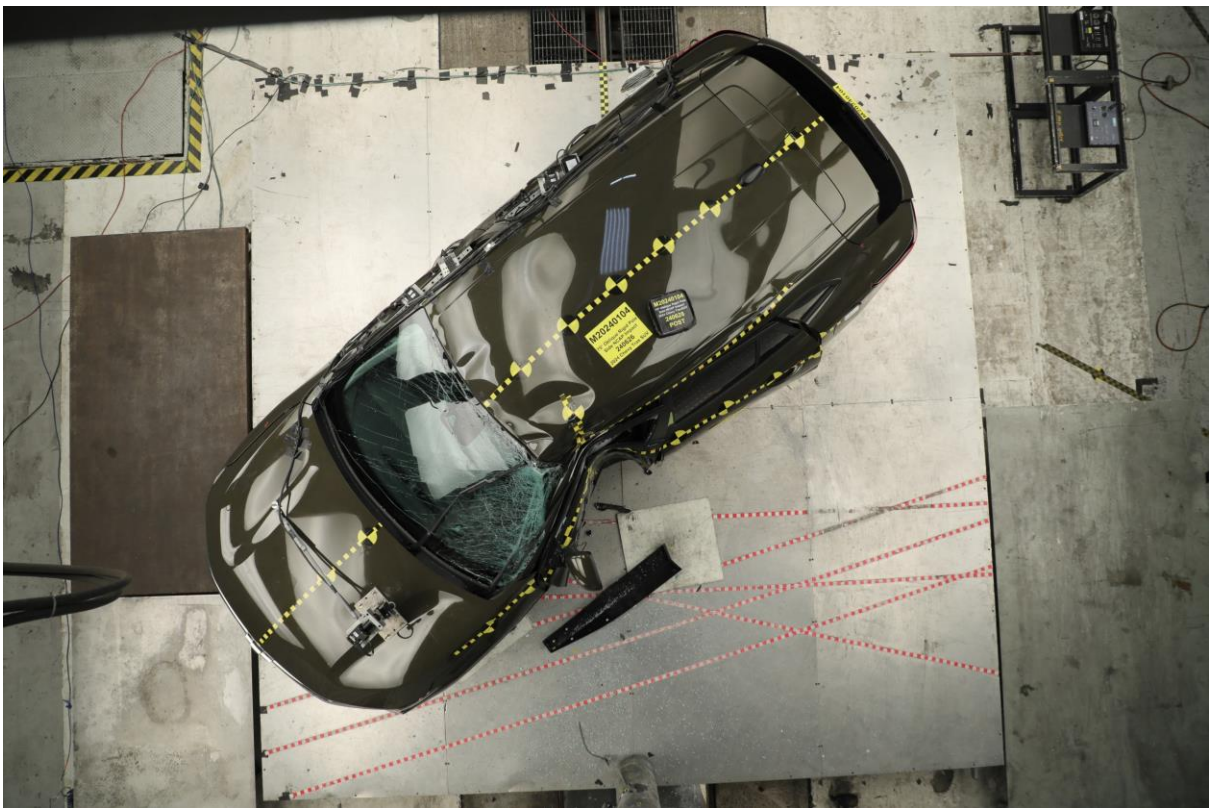
No. 013 Pre-Test Right Side View of Test Vehicle



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



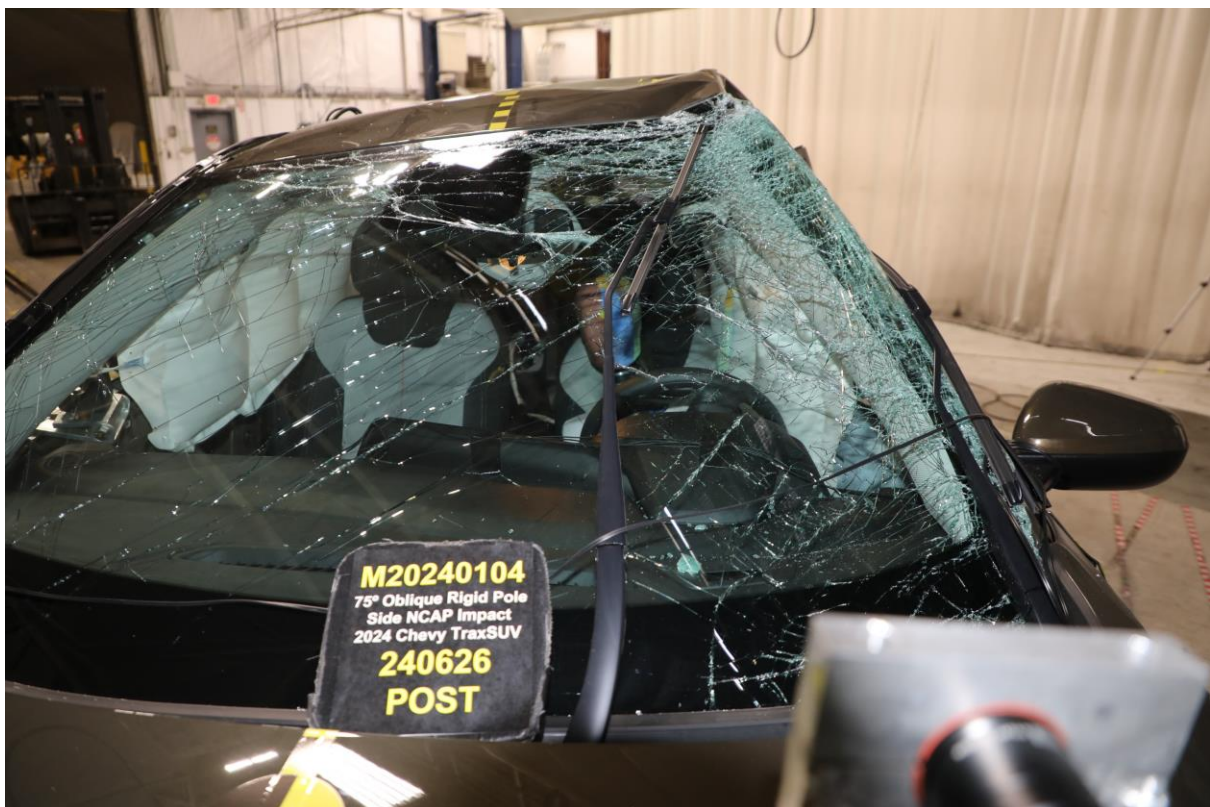
No. 019 Pre-Test Close-Up View of Impact Point Target



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

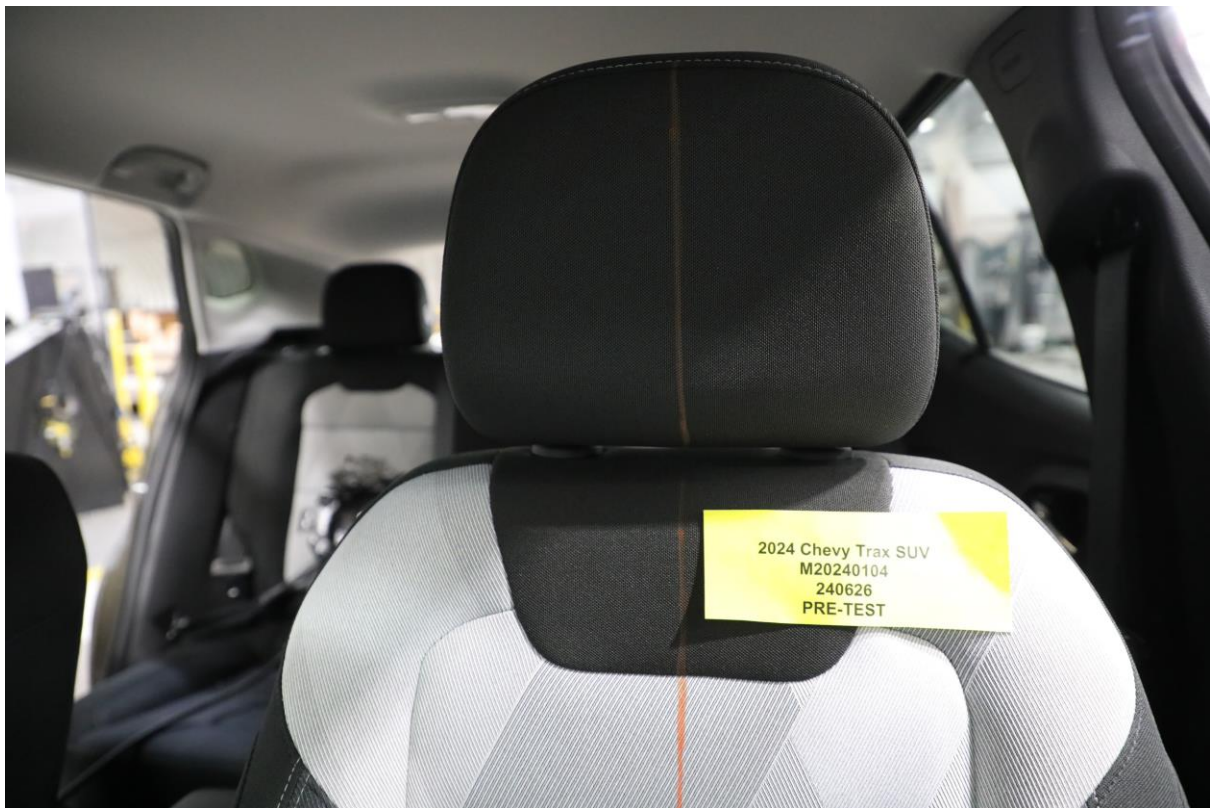
Intentionally Left Blank



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



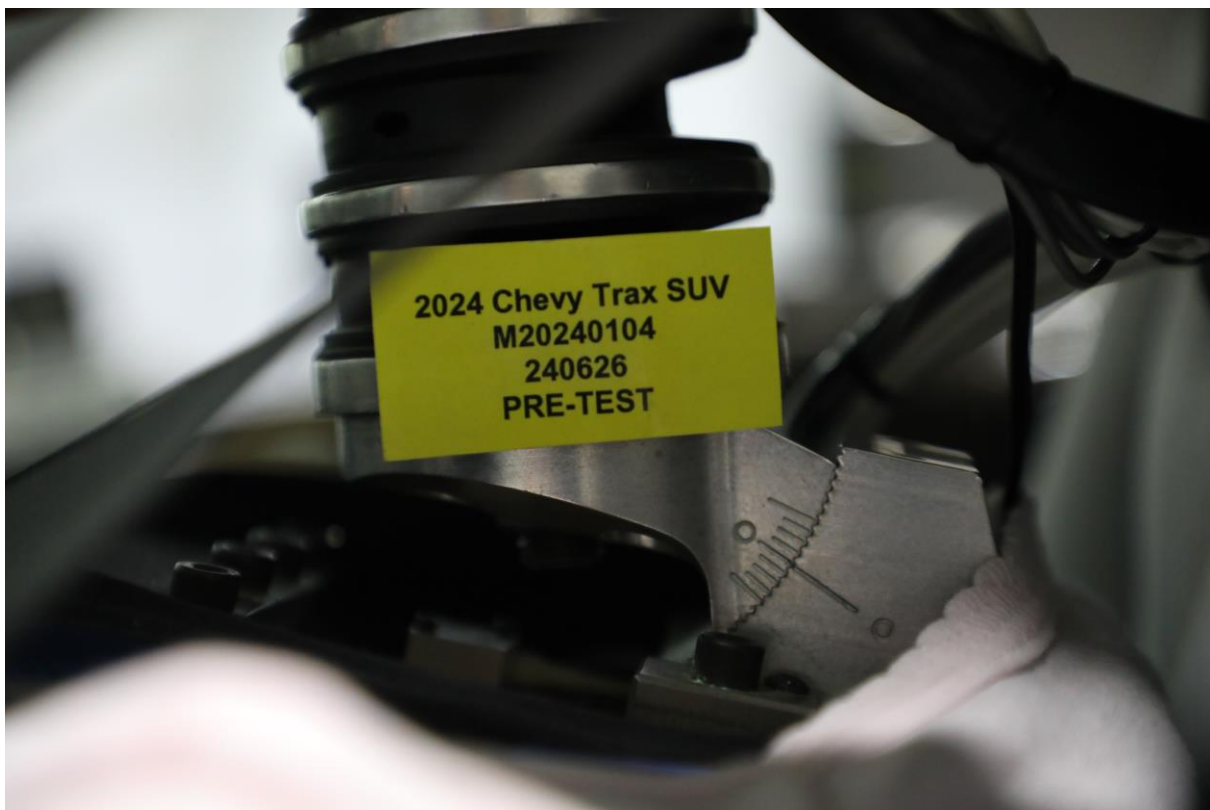
No. 027 Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint



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



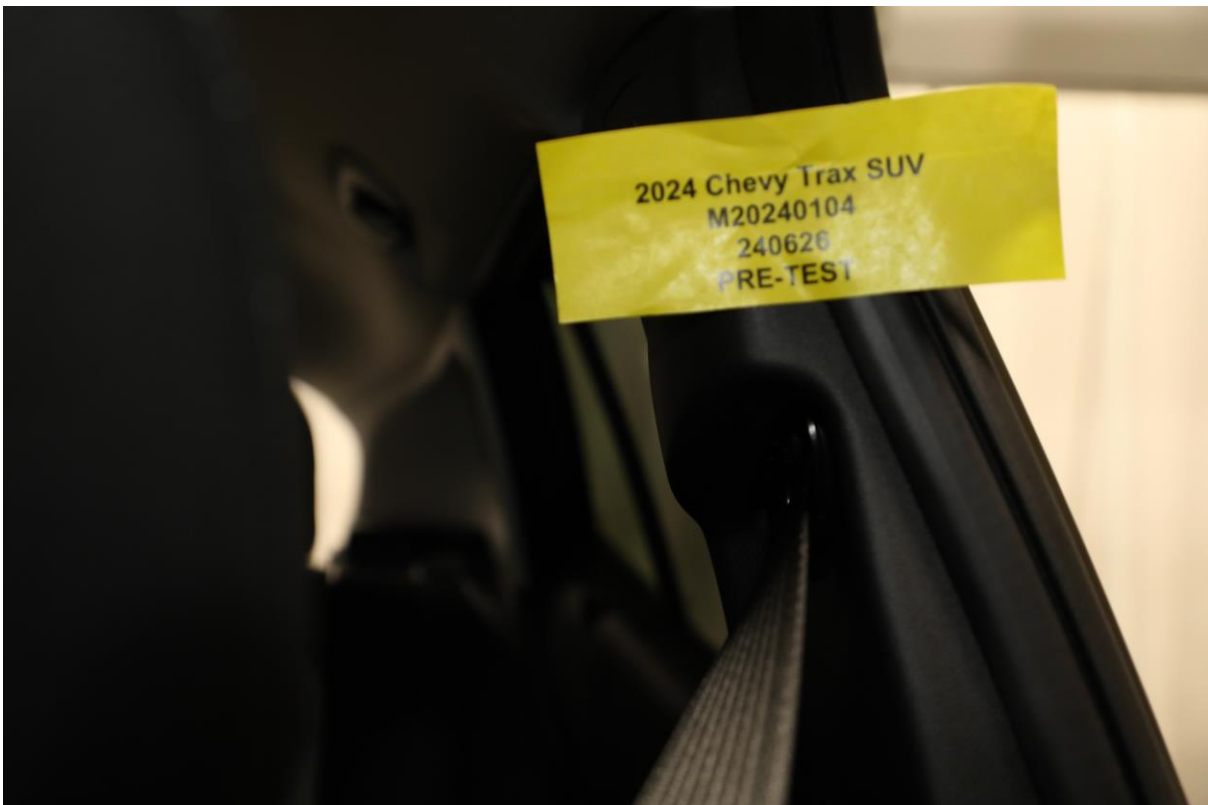
No. 030 Pre-Test Left Side View of Dummy Neck Showing Position of Adjustable Neck Bracket



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



No. 032 Pre-Test Placement of Dummy Feet



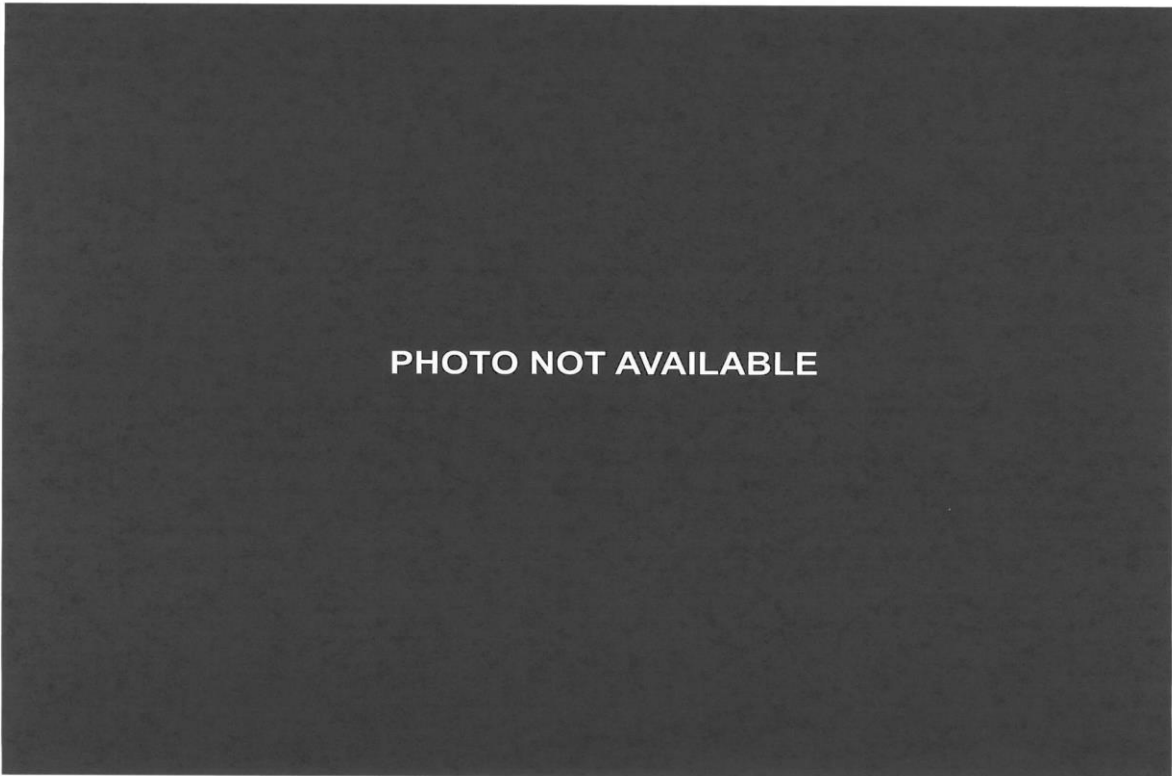
No. 033 Pre-Test View of Belt Anchorage for Dummy



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



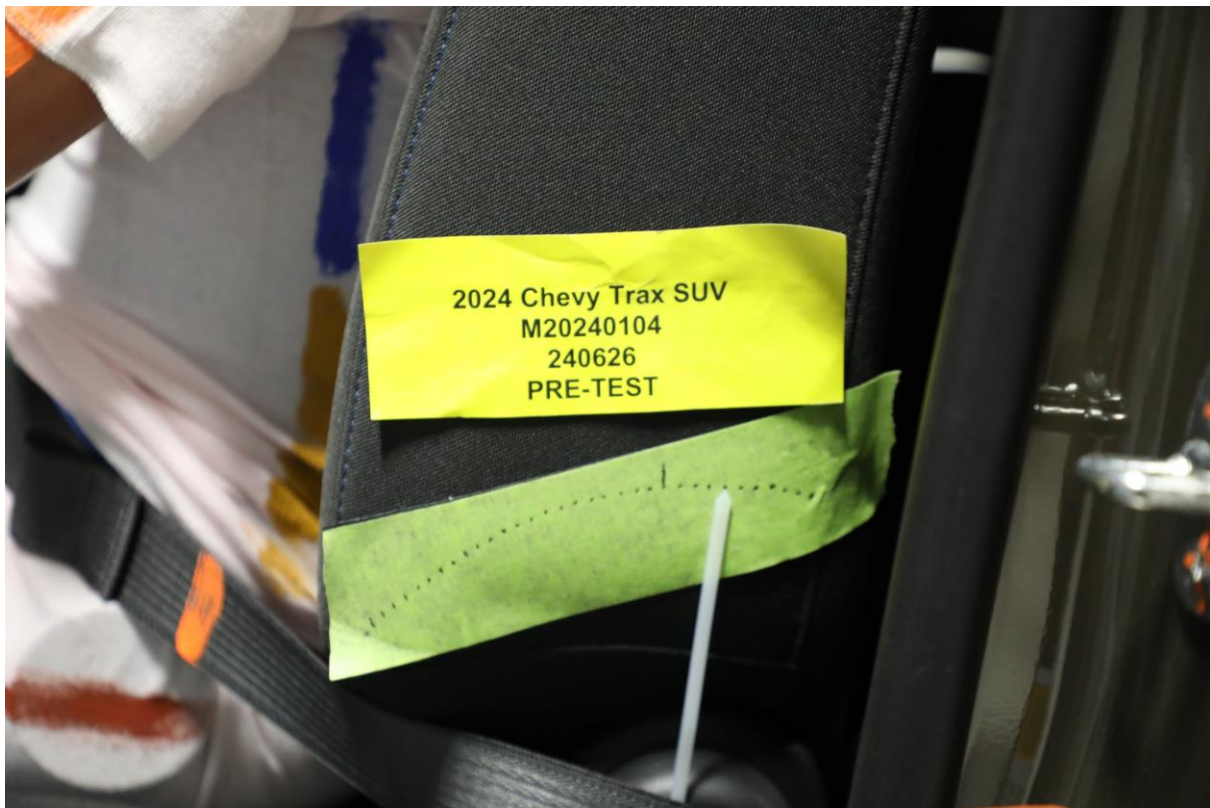
No. 035 Pre-Test View of Disengaged Parking Brake



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

Intentionally Left Blank



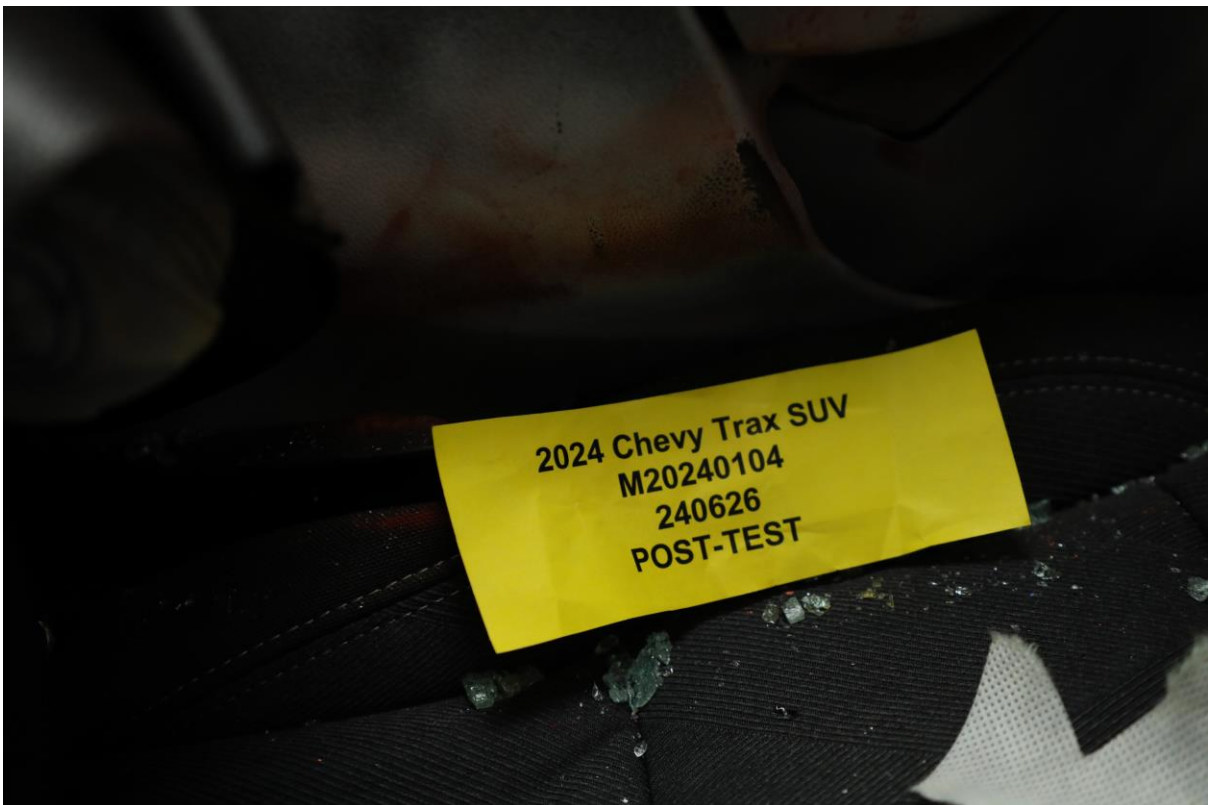
No. 047 Post-Test Dummy Close-Up Head Contact with Side Airbag View



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



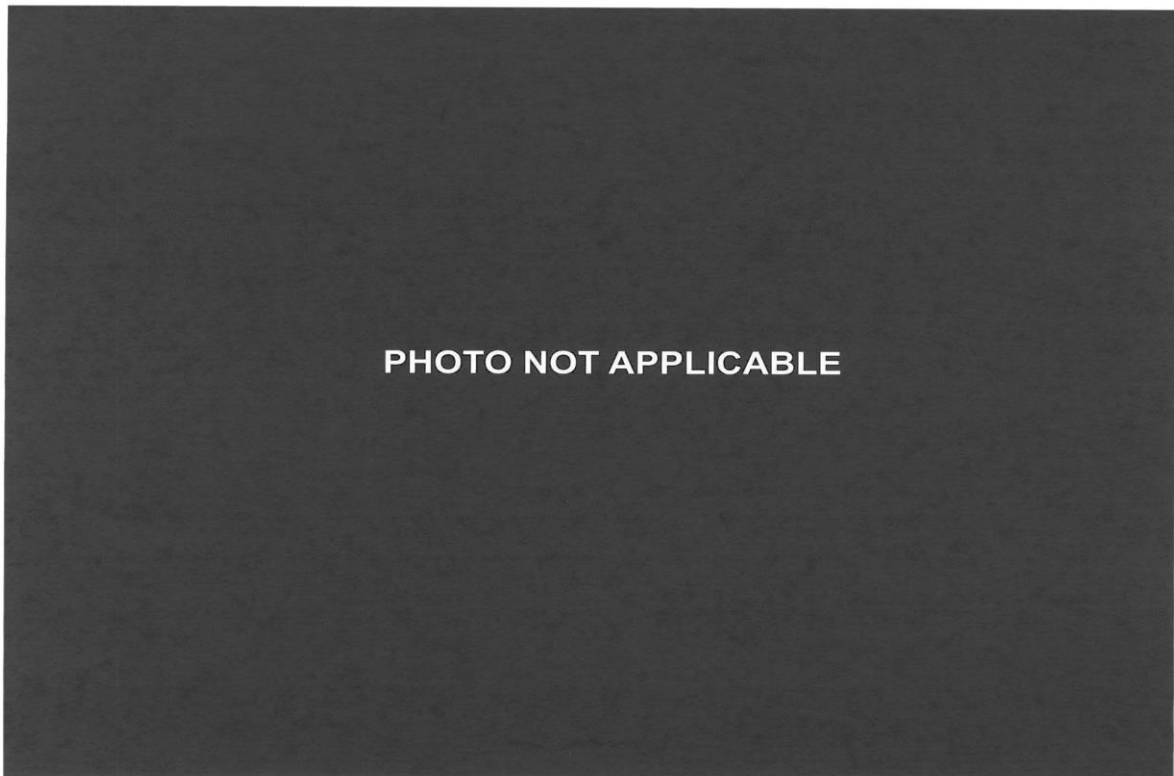
No. 051 Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View



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



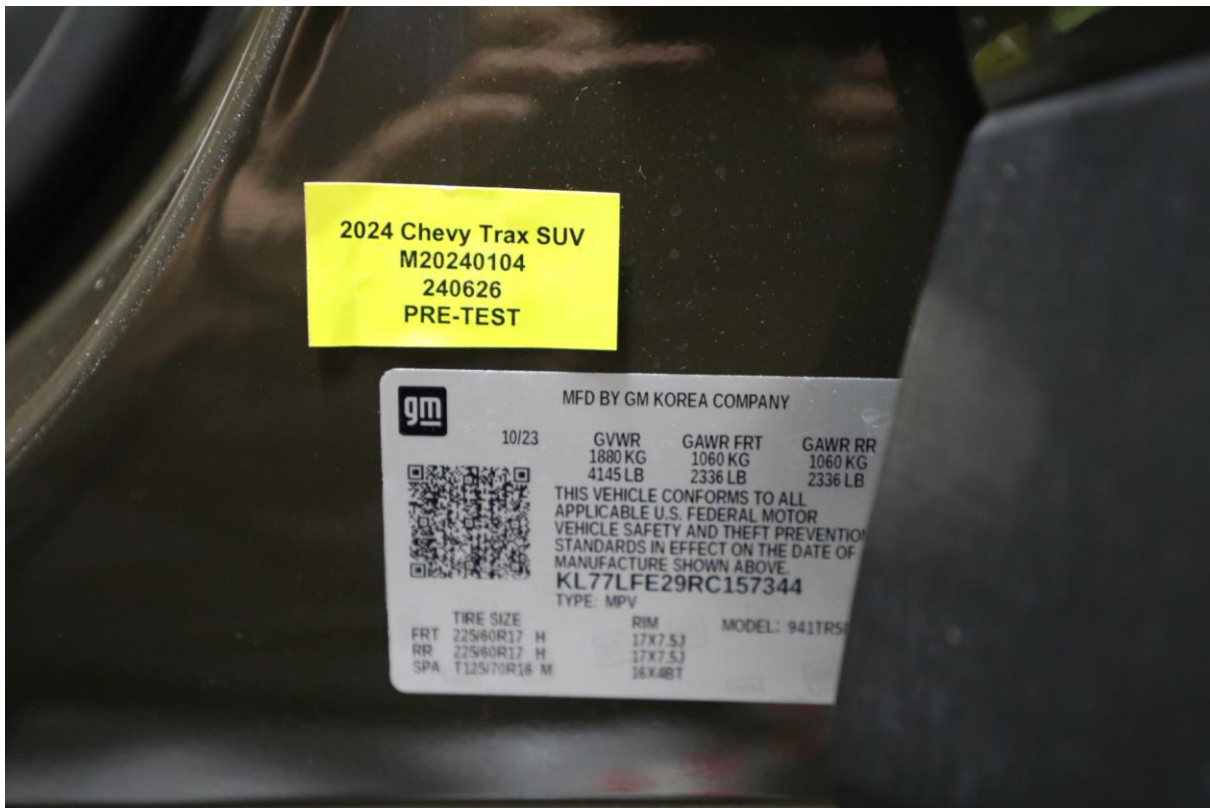
No. 054 Post-Test Inner Rear Passenger Torso Air Bag Deployment View



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



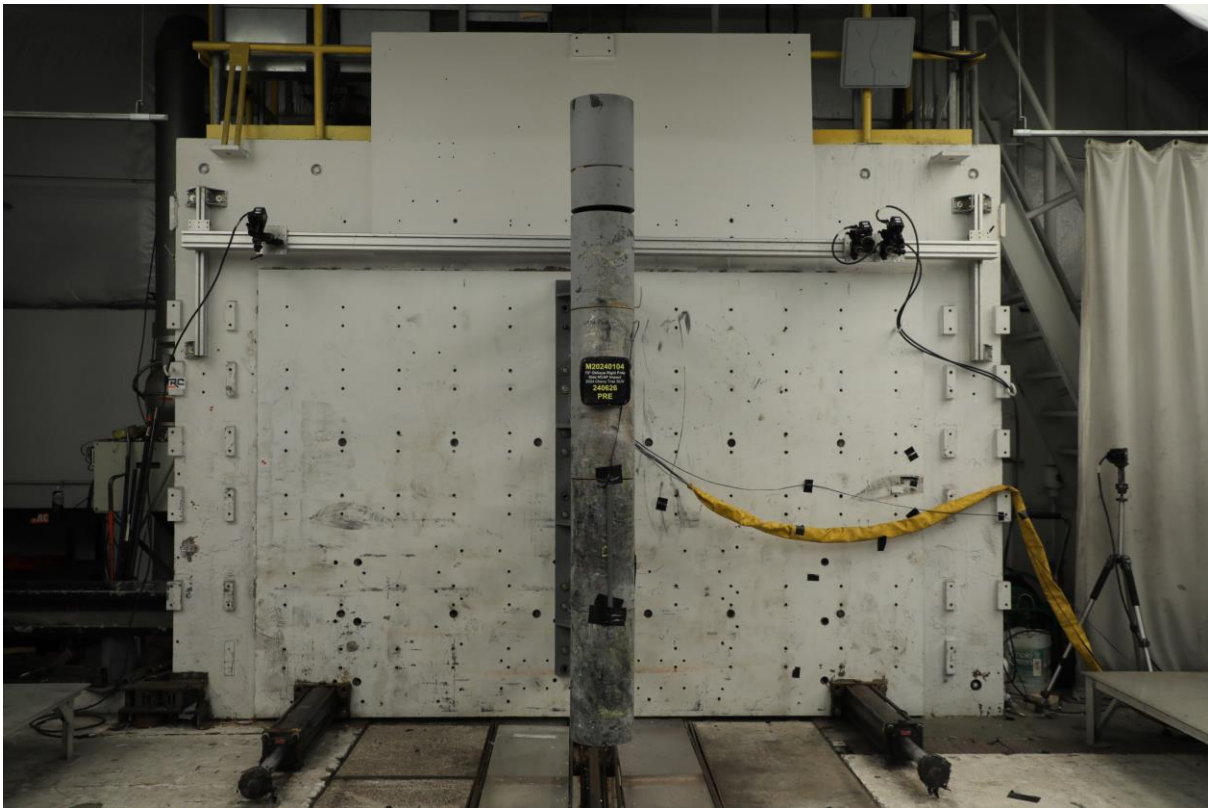
No. 056 Post-Test View of Fuel Filler Cap or Fuel Filler Neck



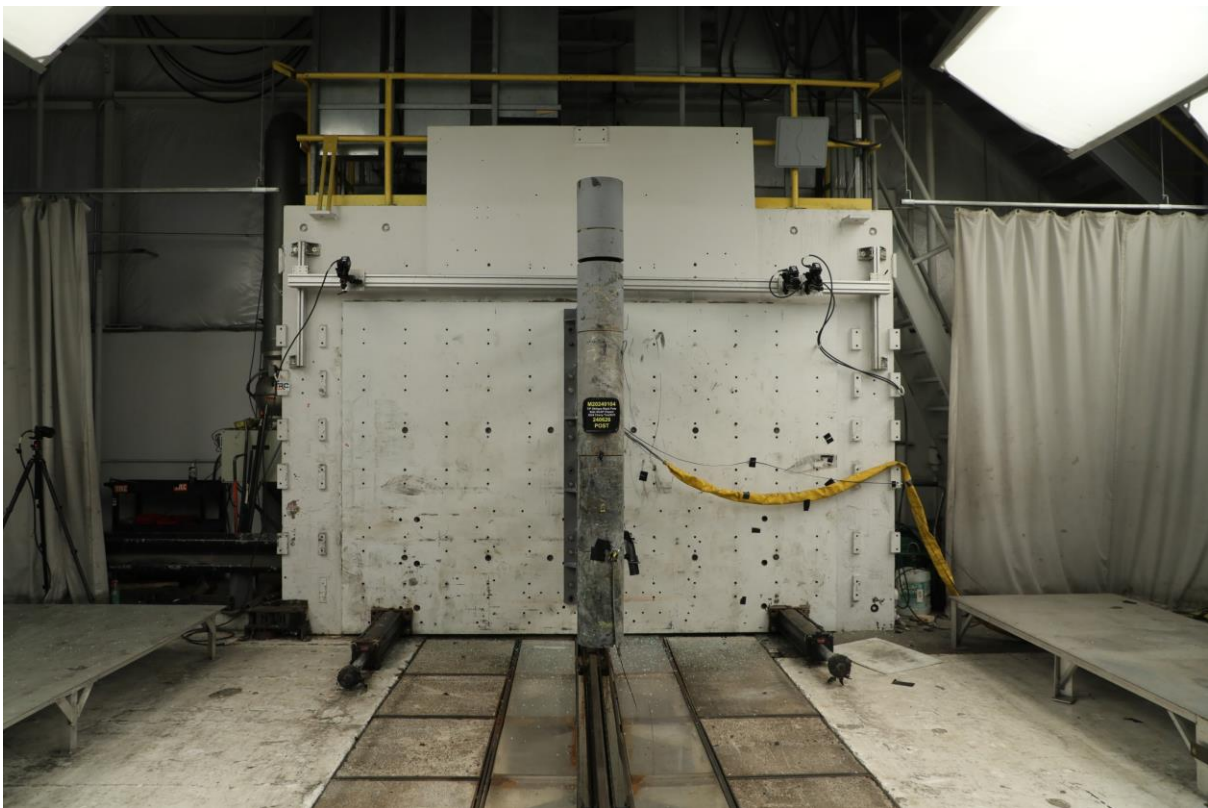
No. 057 Close-Up View of Vehicle Certification Label



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



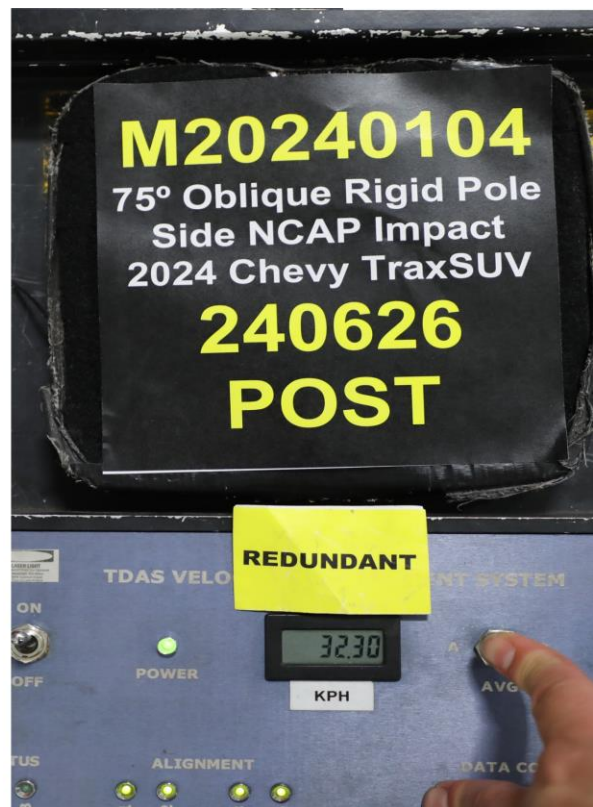
No. 061 Pre-Test Pole Barrier Side View



No. 062 Post-Test Pole Barrier Side View



No. 063 Pre-Test Ballast View



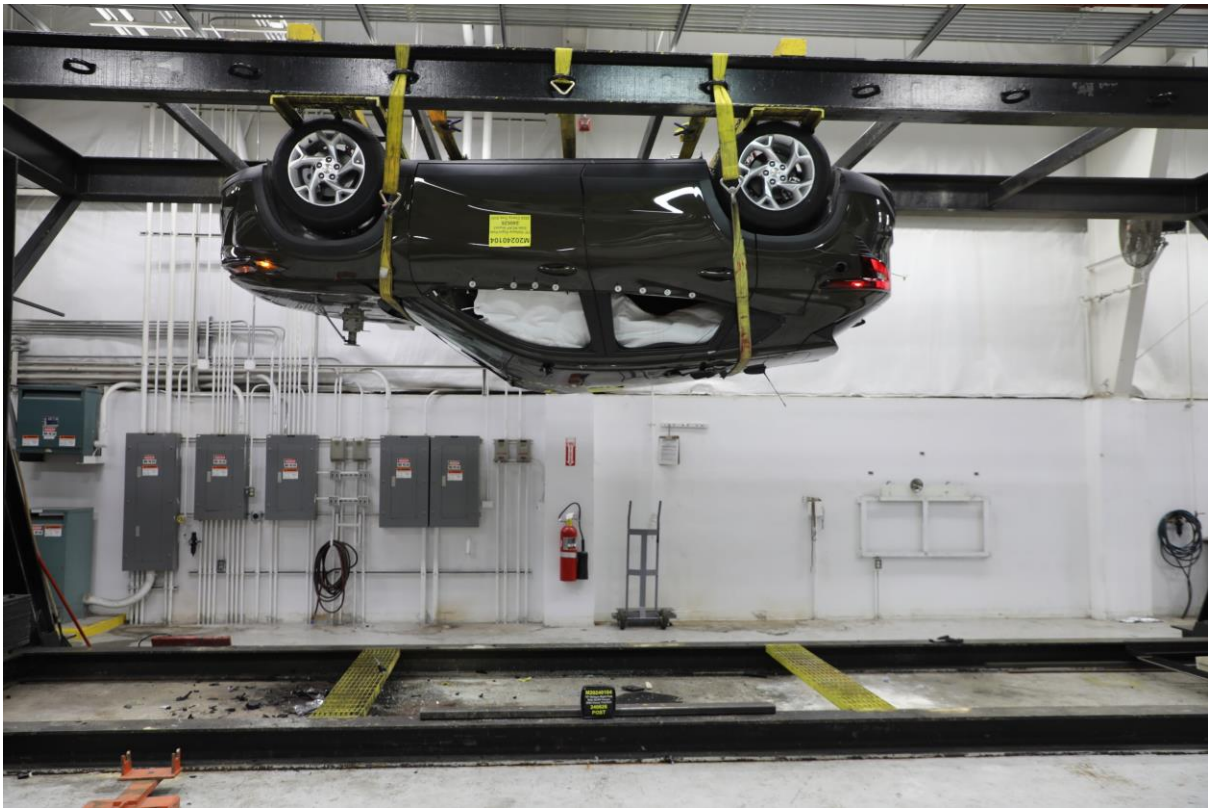
No. 064 Post-Test Primary and Redundant Speed Trap Read Out



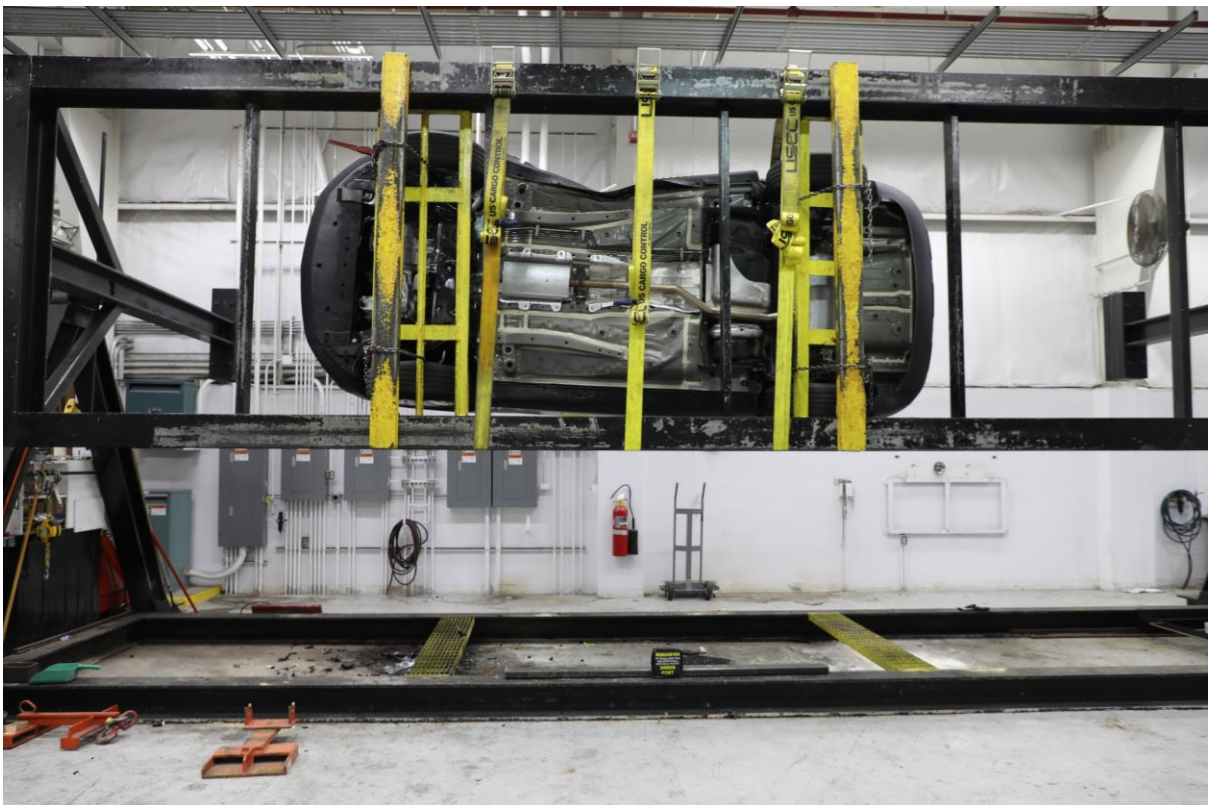
No. 065 FMVSS No. 301 Static Rollover 0 Degrees



No. 066 FMVSS No. 301 Static Rollover 90 Degrees



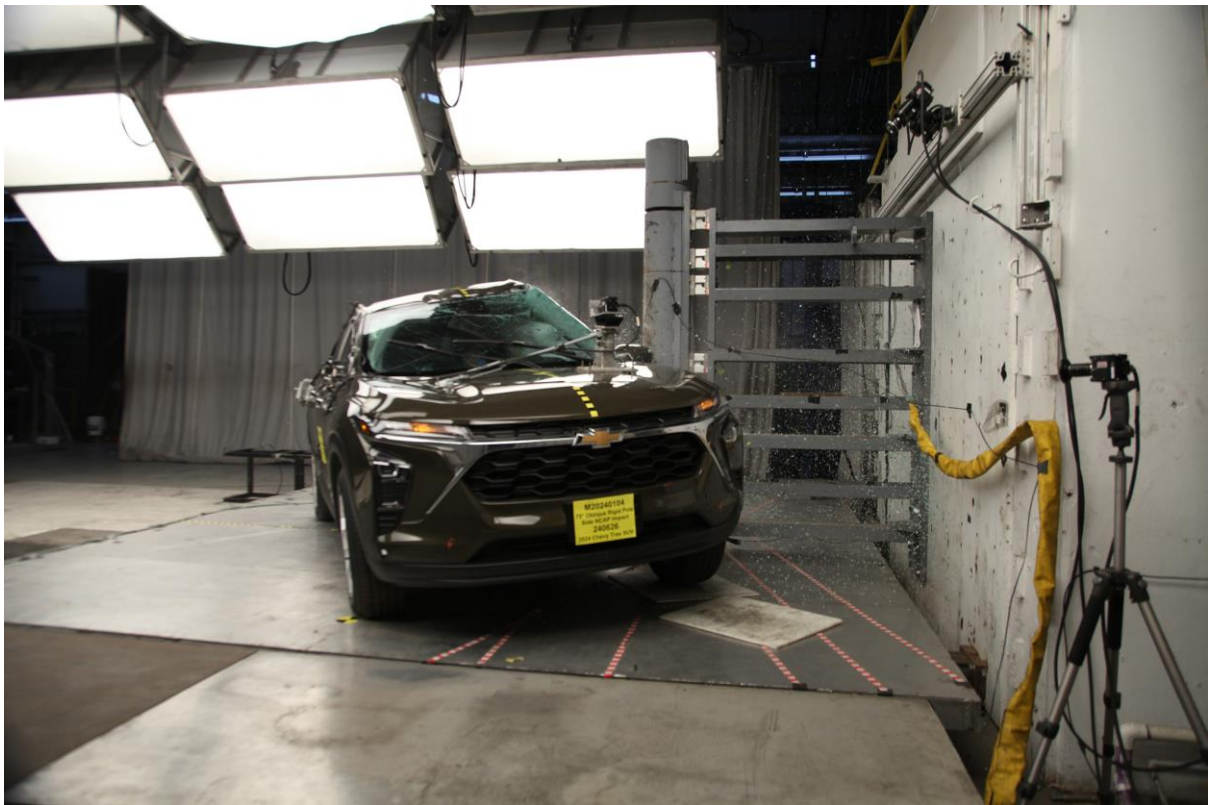
No. 067 FMVSS No. 301 Static Rollover 180 Degrees



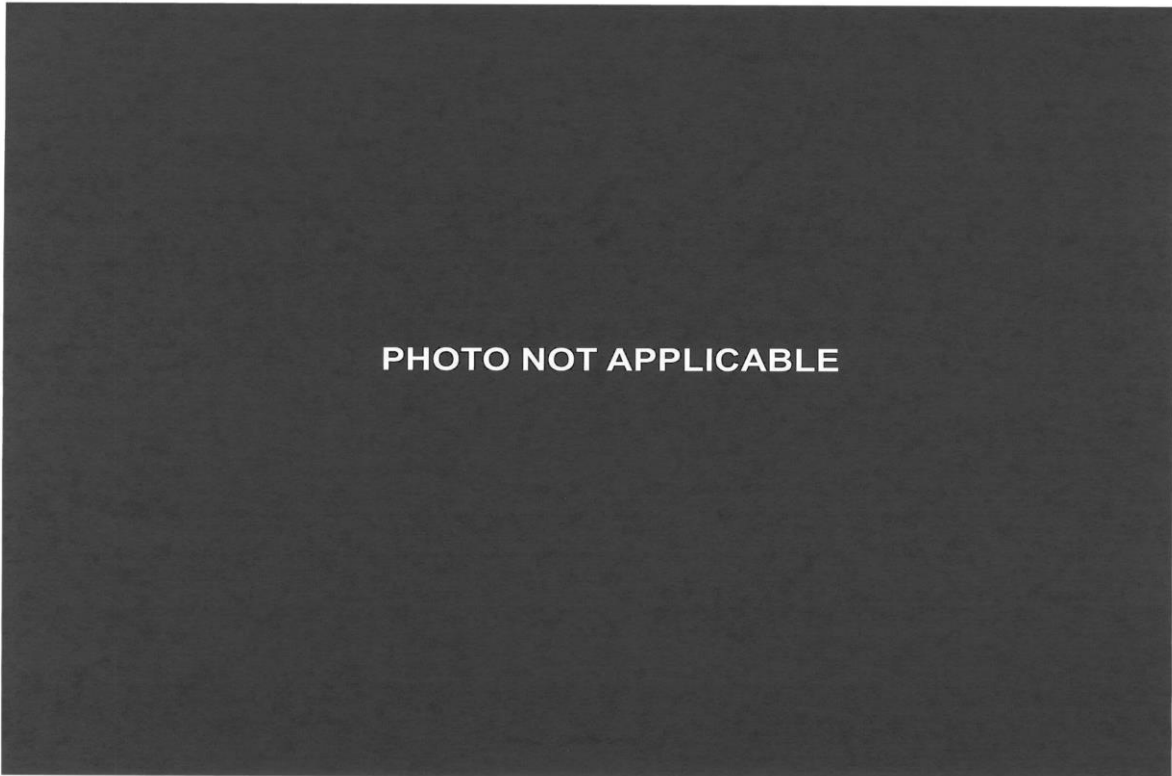
No. 068 FMVSS No. 301 Static Rollover 270 Degrees



No. 069 FMVSS No. 301 Static Rollover 360 Degrees



No. 070 Impact Event



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



No. 074 Post-Test Close-up Driver Seat Airbag Deployment View



No. 074a Post-Test Close-up Driver Seat Airbag Deployment View

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

No.	Description	Page
1	Driver Head Acceleration (X) vs. Time	B-4
2	Driver Head Acceleration (Y) vs. Time	B-4
3	Driver Head Acceleration (Z) vs. Time	B-4
4	Driver Head Acceleration Resultant vs. Time	B-4
5	Driver Lower Spine T12 Acceleration (X) vs. Time	B-5
6	Driver Lower Spine T12 Acceleration (Y) vs. Time	B-5
7	Driver Lower Spine T12 Acceleration (Z) vs. Time	B-5
8	Driver Lower Spine T12 Acceleration Resultant vs. Time	B-5
9	Driver Iliac Wing Force on Impact Side (Y) vs. Time	B-6
10	Driver Acetabulum Force on Impact Side (Y) vs. Time	B-6
11	Driver Total Pelvis Force on Impact Side (Y) vs. Time	B-6

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

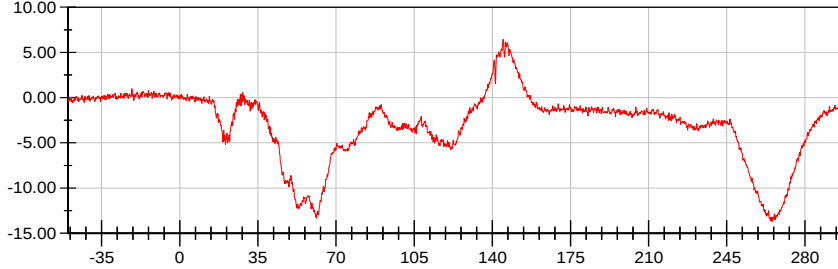
Test Lab: CTF

Test Number: 240626 (M20240104)

Position #1 SID IIs Dummy (297)

Test Date: 06/26/2024

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



<Max>

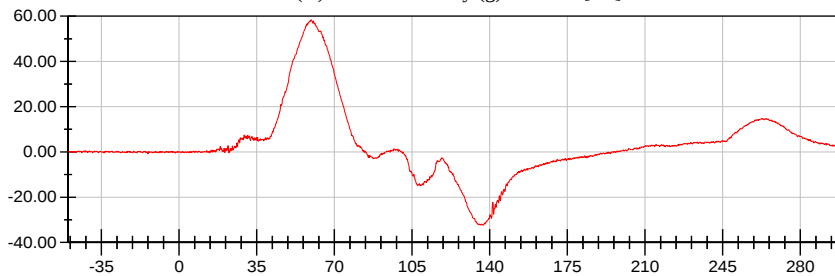
6.45 g at 144.80 ms

<Min>

-13.70 g at 265.36 ms

CFC_1000

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



<Max>

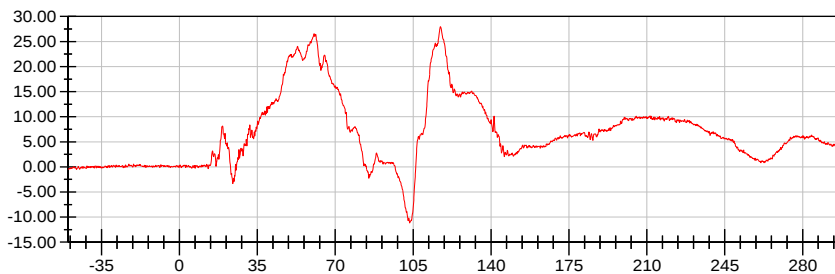
58.40 g at 59.52 ms

<Min>

-32.31 g at 136.64 ms

CFC_1000

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



<Max>

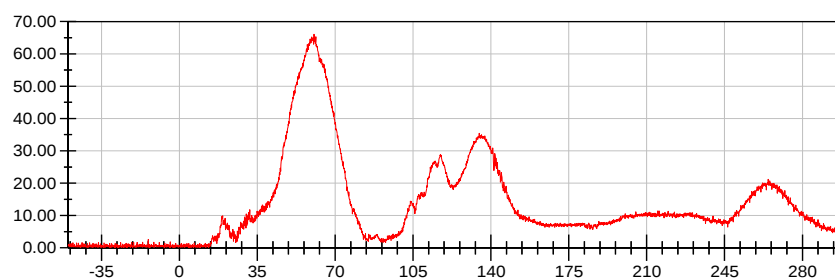
27.96 g at 117.28 ms

<Min>

-11.18 g at 103.44 ms

CFC_1000

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



<Max>

66.05 g at 60.48 ms

<Min>

0.05 g at -6.64 ms

Prefiltered_> CFC 1000



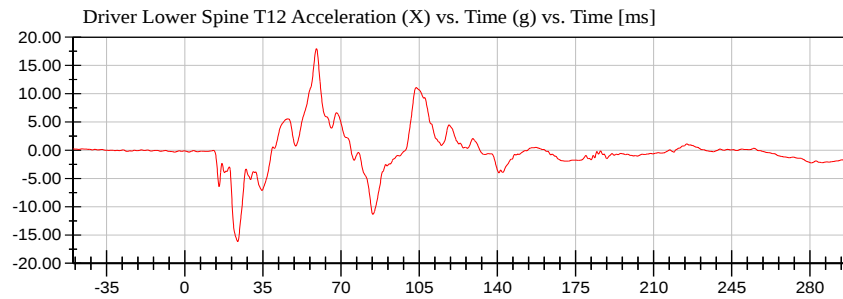
NHTSA

Test Lab: CTF

Test Number: 240626 (M20240104)

Position #1 SID IIs Dummy (297)

Test Date: 06/26/2024



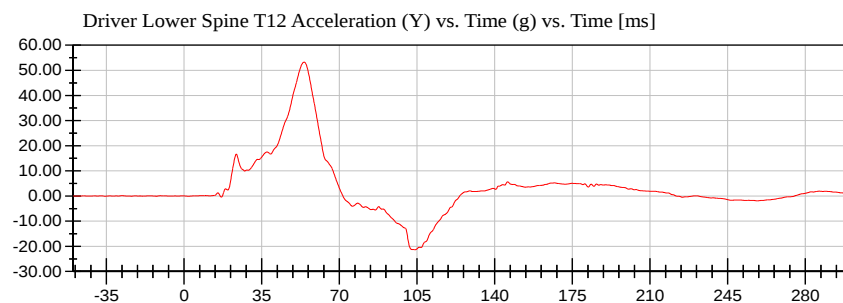
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17.96 g at 58.96 ms

<Min>

-16.15 g at 23.76 ms

CFC_180



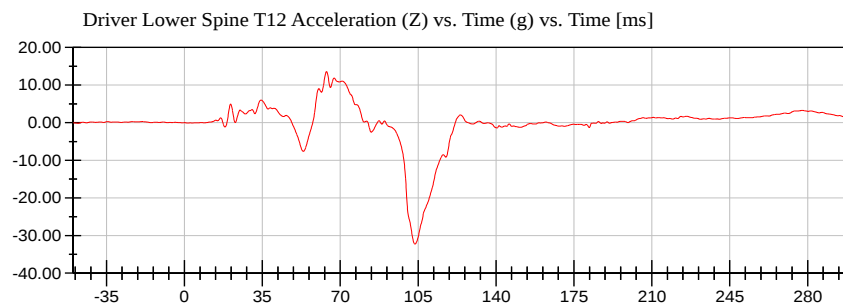
<Max>

53.26 g at 54.08 ms

<Min>

-21.36 g at 104.16 ms

CFC_180



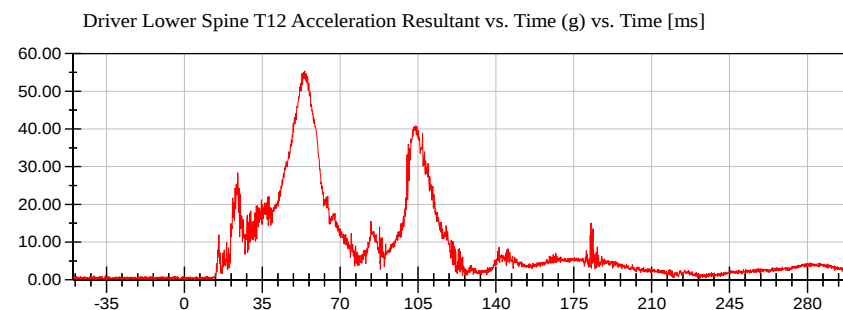
<Max>

13.58 g at 63.84 ms

<Min>

-32.24 g at 103.60 ms

CFC_180



<Max>

55.39 g at 54.08 ms

<Min>

0.06 g at -48.40 ms

Prefiltered_> CFC 1000



NHTSA

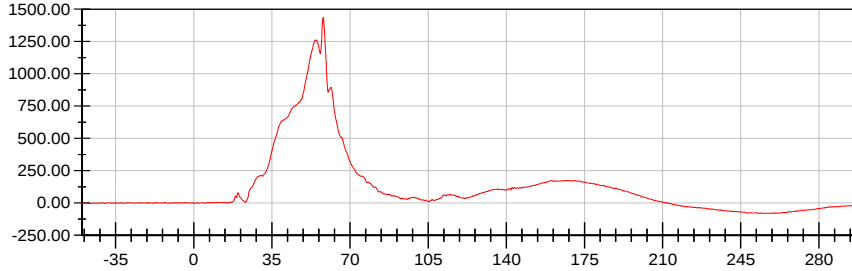
Test Lab: CTF

Test Number: 240626 (M20240104)

Position #1 SID IIs Dummy (297)

Test Date: 06/26/2024

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



<Max>

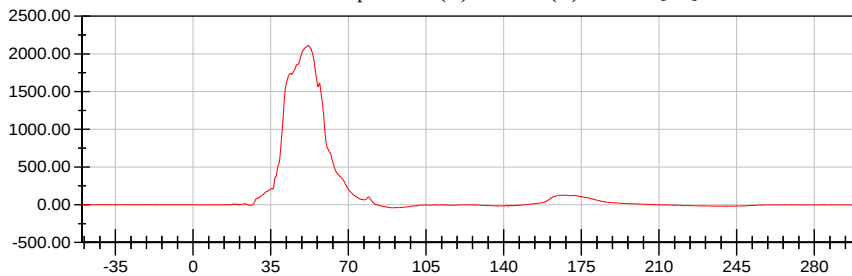
1,435.22 N at 58.00 ms

<Min>

-81.06 N at 255.44 ms

CFC_600

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



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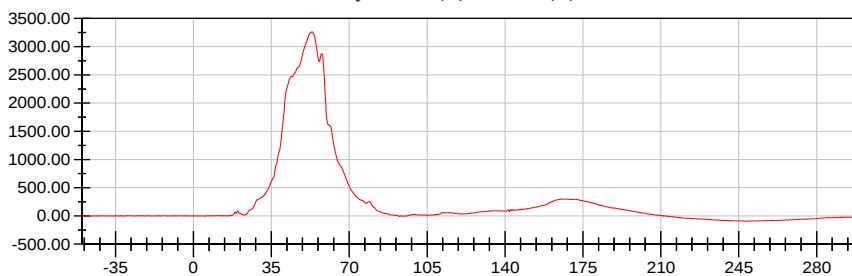
2,110.26 N at 51.84 ms

<Min>

-40.40 N at 90.96 ms

CFC_600

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



<Max>

3,261.82 N at 53.28 ms

<Min>

-94.11 N at 247.44 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. 68

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	130	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	319	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	877	Yes
Z	Waist Circumference	761.0 - 791.0	781	Yes

Revised 9/29/2005

Report Number: 297_S2F68

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Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 68-1

Test Date: 6/13/2024

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	119.4 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	1.7 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	< 15 %	1.12 %	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

06.13.2024 09:04:36 233

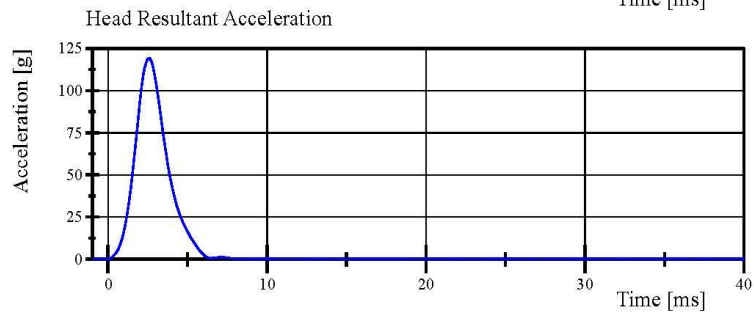
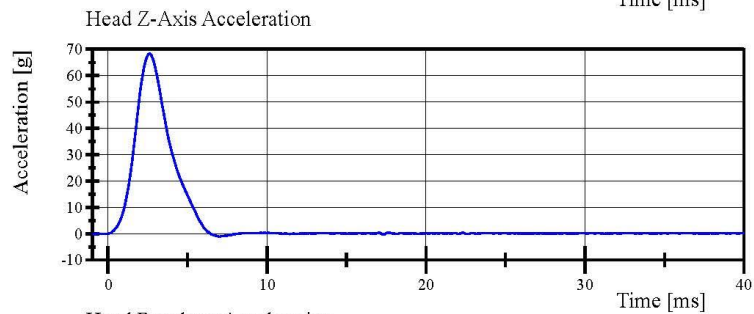
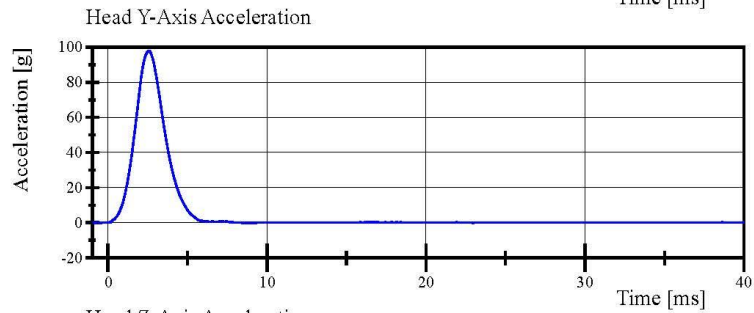
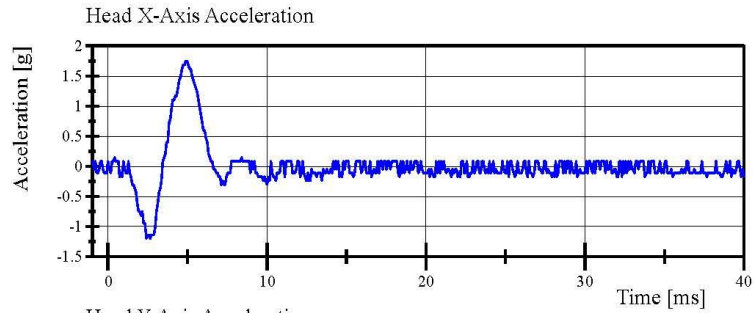


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 68-1

Test Date: 6/13/2024



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

06.13.2024 09:05:00 233



Transportation Research Center Inc.

Left Lateral Neck

SID IIS Serial No. 297 Certification No. 68-2

Test Date: 6/13/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.629 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.311 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.391 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.622 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.592 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.817 m/s	Yes
Maximum Headform Flexion			
Peak	(-71) - (-81) deg	-73.8 deg	Yes
Time of Peak	50 - 70 ms	64.1 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	39.5 N·m	Yes
Decay to 0 N·m	102 - 126 ms	116.2 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

06.13.2024 10:25:34 750

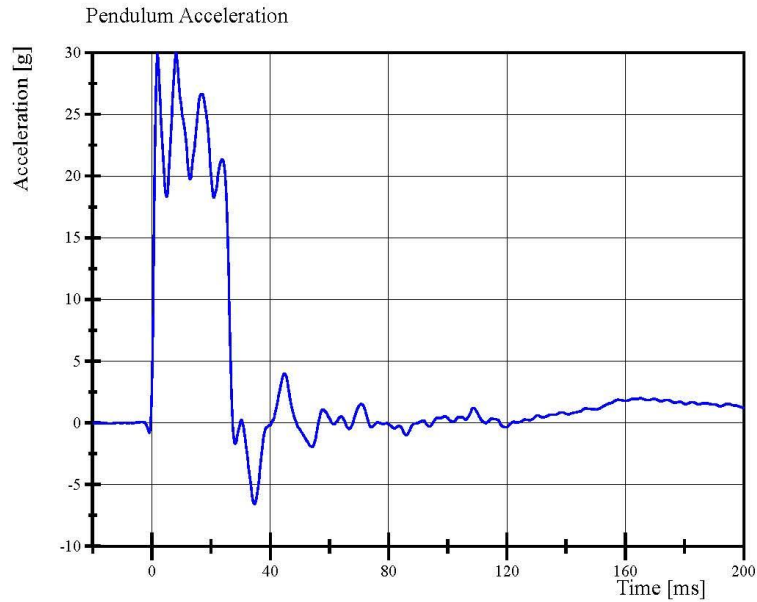


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 68-2

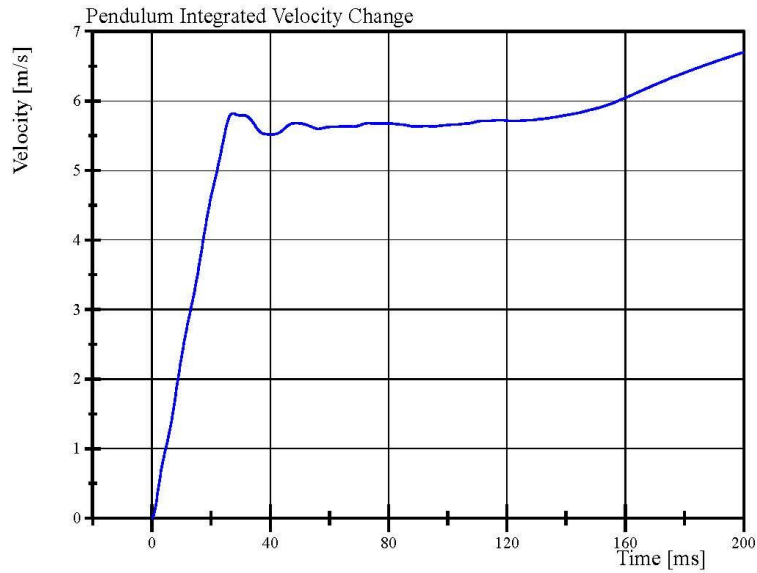
Test Date: 6/13/2024



Filter Class: CFC_180

Max: 30.0 g at 8.2 ms

Min: -6.6 g at 34.7 ms



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

06.13.2024 10:26:21 750



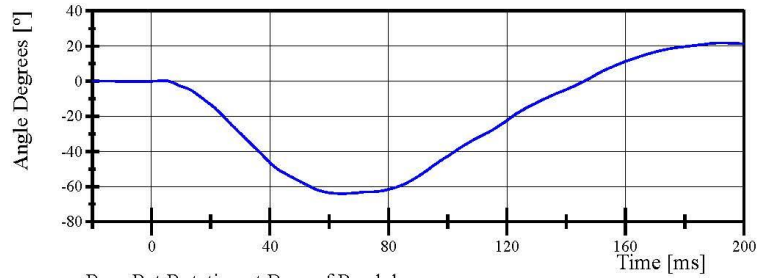
Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 68-2

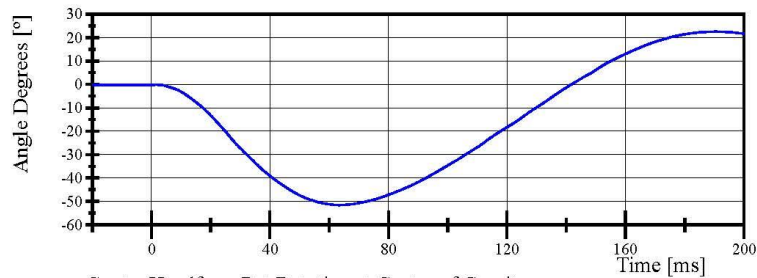
Test Date: 6/13/2024

Forward Pot Rotation at Base of Pendulum



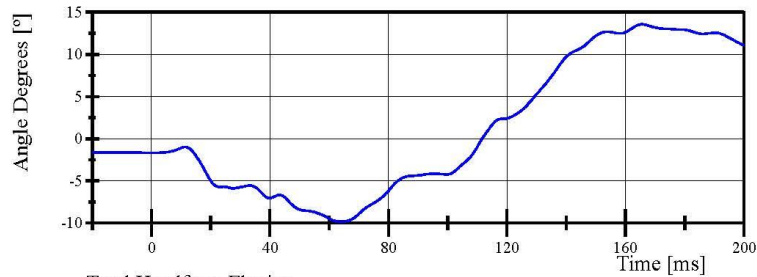
Filter Class: CFC_60
Max: 21.8 ° at 192.3 ms
Min: -64.0 ° at 64.3 ms

Rear Pot Rotation at Base of Pendulum



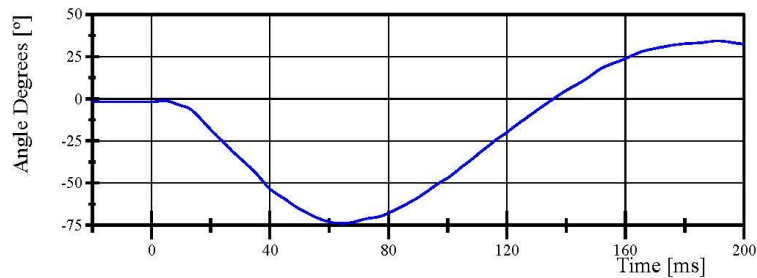
Filter Class: CFC_60
Max: 22.5 ° at 190.5 ms
Min: -51.5 ° at 63.3 ms

Center Headform Pot Rotation at Center of Gravity



Filter Class: CFC_60
Max: 13.6 ° at 165.6 ms
Min: -9.8 ° at 63.8 ms

Total Headform Flexion



Filter Class: CFC_60
Max: 34.3 ° at 191.2 ms
Min: -73.8 ° at 64.1 ms

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

06.13.2024 10:26:21 750

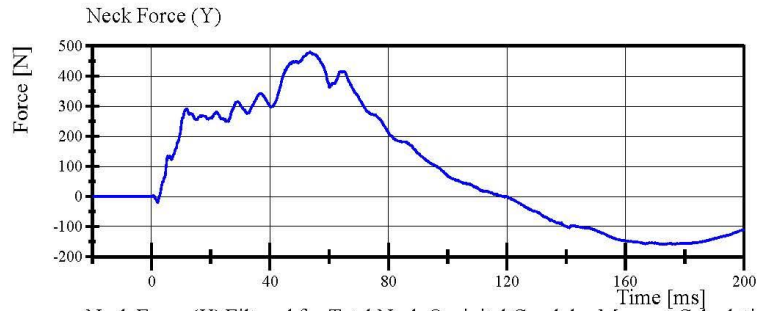


Transportation Research Center Inc.

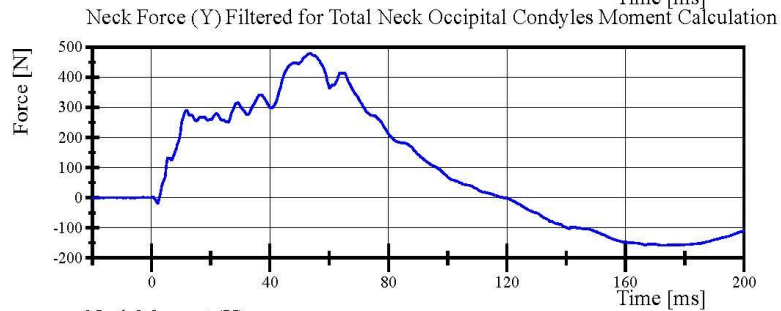
Left Lateral Neck

SID IIs Serial No. 297 Certification No. 68-2

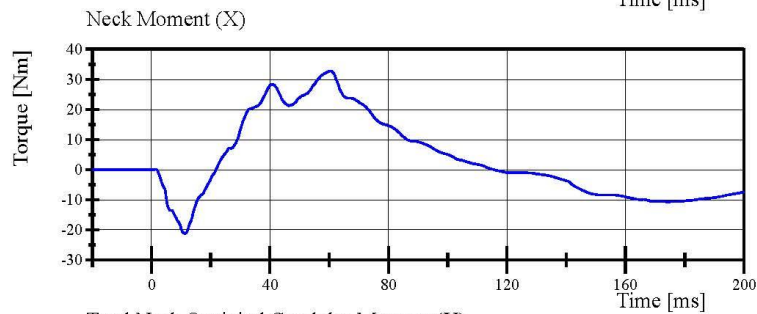
Test Date: 6/13/2024



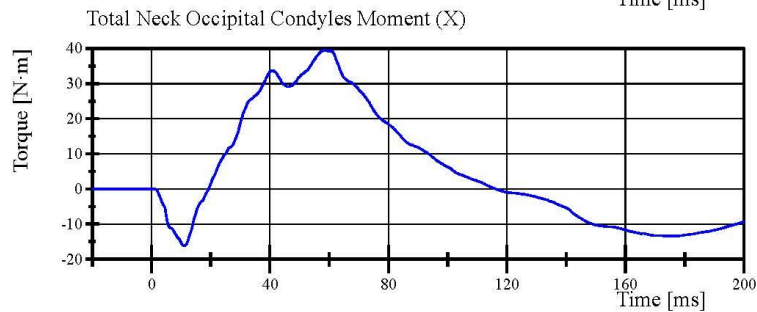
Filter Class: CFC_1000
Max: 480.1 N at 53.5 ms
Min: -158.4 N at 172.2 ms



Filter Class: CFC_600
Max: 479.0 N at 53.6 ms
Min: -158.2 N at 172.2 ms



Filter Class: CFC_600
Max: 32.9 Nm at 60.3 ms
Min: -21.2 Nm at 11.3 ms



Filter Class: Without_(Constar
Max: 39.5 N·m at 58.6 ms
Min: -16.2 N·m at 11.1 ms

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

06.13.2024 10:26:22 750



Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. 297 Certification No. 68-6

Test Date: 6/19/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	65 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.3 g	Yes
Shoulder Displacement	28 - 37 mm	31.6 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	19.0 g	Yes

Test meets specifications.

Condition: New

Comments:

Arm S/N: 940L

Shoulder Rib S/N: 550

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

06.19.2024 14:28:25 891

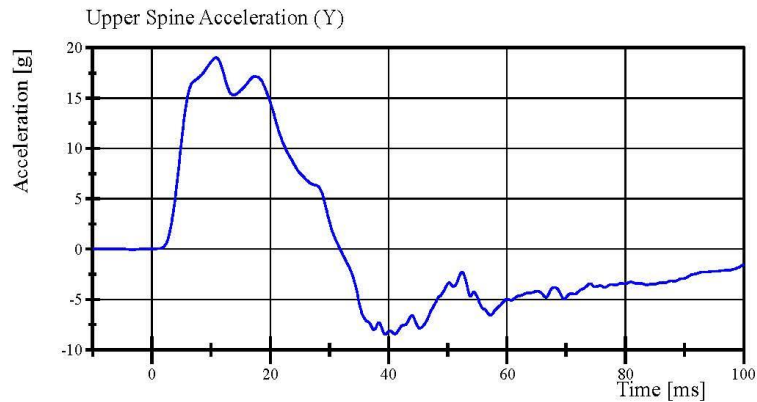
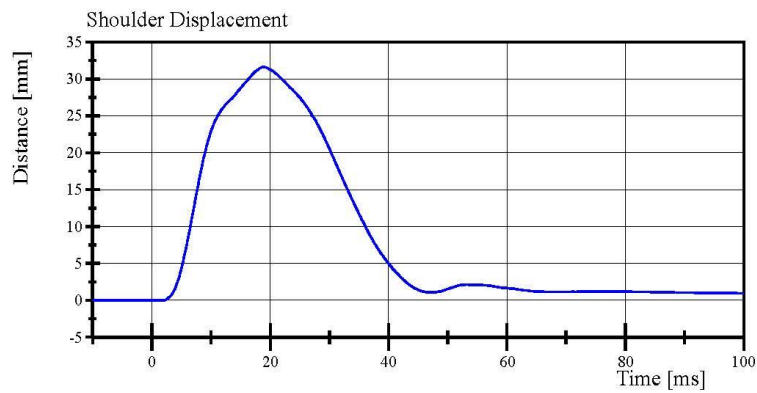
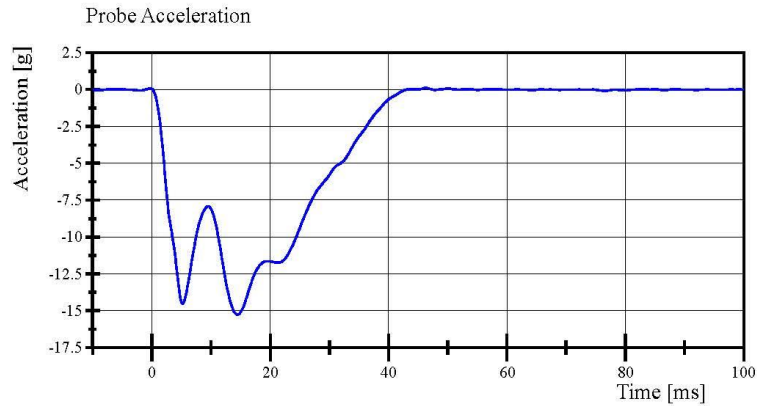


Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. 297 Certification No. 68-6

Test Date: 6/19/2024



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

06.19.2024 14:29:57 891



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 68-3
Test Date: 6/19/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	66 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.728 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.2 g	Yes
Shoulder Displacement	31 - 40 mm	35.3 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	26.5 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.8 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	35.6 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	38.0 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	34.4 g	Yes

Test meets specifications.

Condition: New

Comments:

Left Arm S/N: 940L

Shoulder Rib S/N: 550

Upper Thorax Rib S/N: DM5020

Middle Thorax Rib S/N: DM5021

Lower Thorax Rib S/N: DM5022

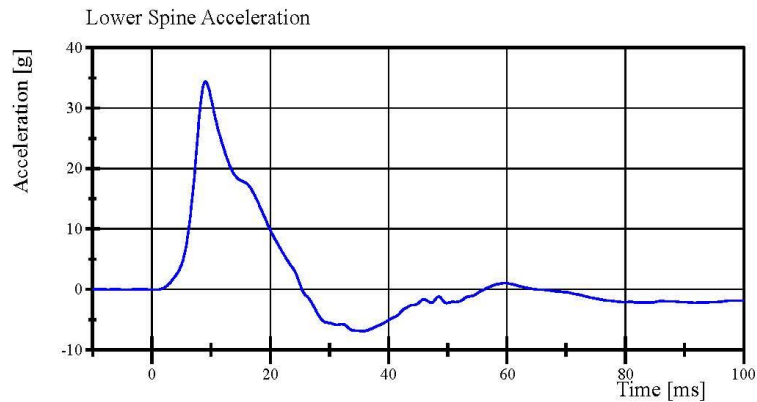
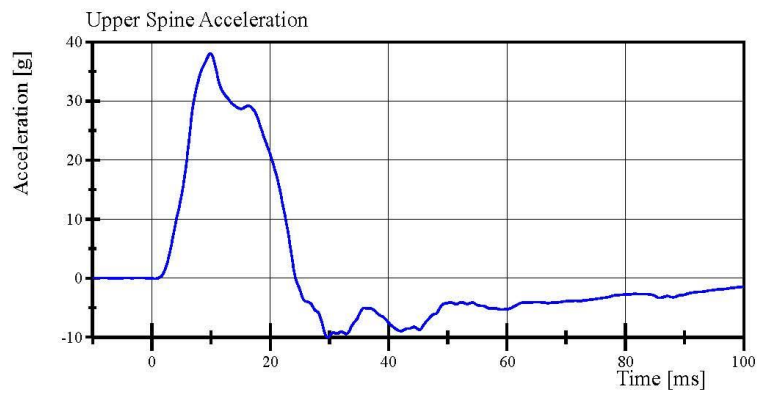
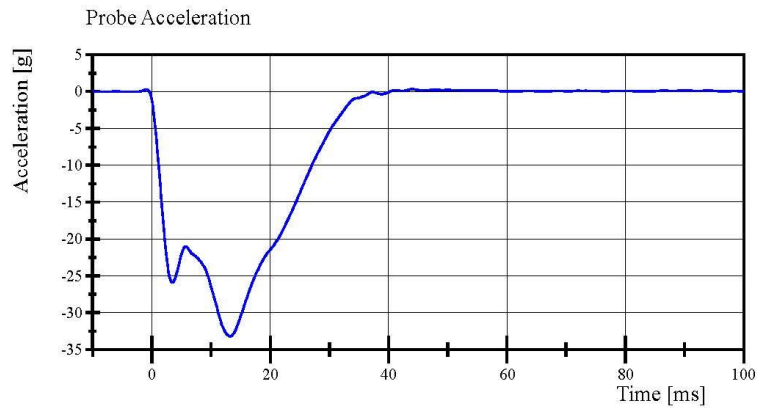
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

06.19.2024 15:09:45 653



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 68-3
Test Date: 6/19/2024



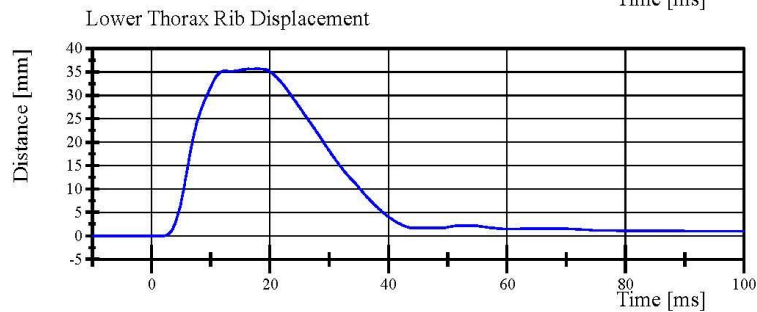
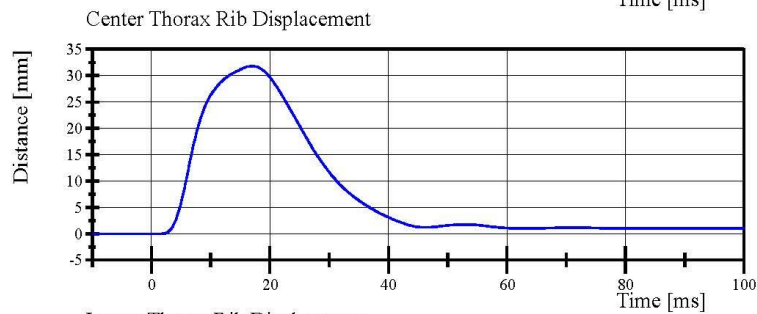
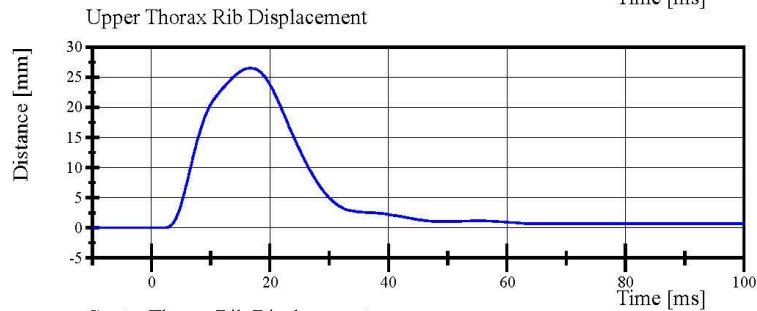
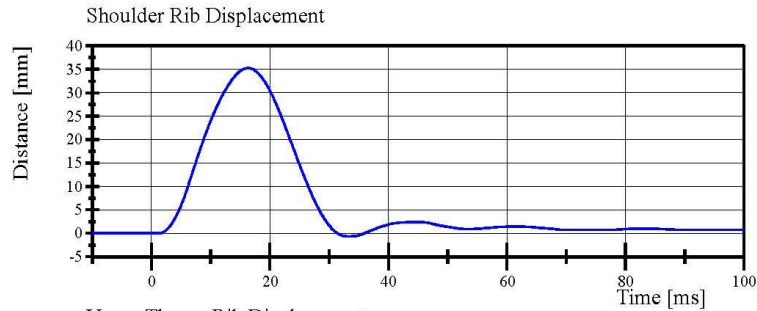
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

06.19.2024 15:11:41 653



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 68-3
Test Date: 6/19/2024



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

06.19.2024 15:11:41 653



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 68-1
Test Date: 6/13/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.356 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.4 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	39.0 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	42.5 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	38.5 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.1 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.4 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Thorax Rib S/N: 180-3362 DP6492

Middle Thorax Rib S/N: 180-3362 DP6493

Lower Thorax Rib S/N: 180-3362 DP7664

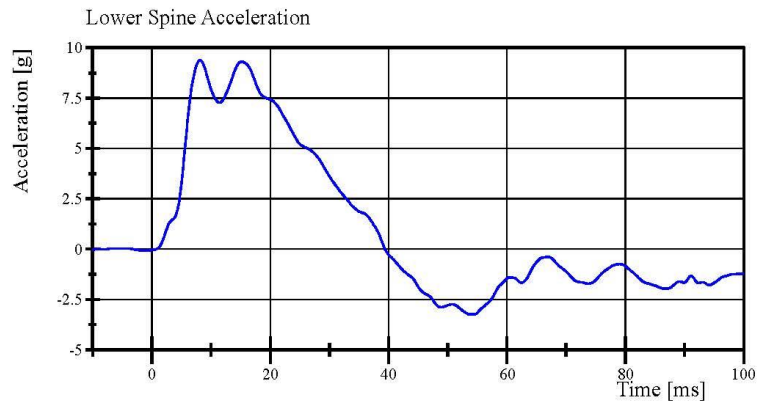
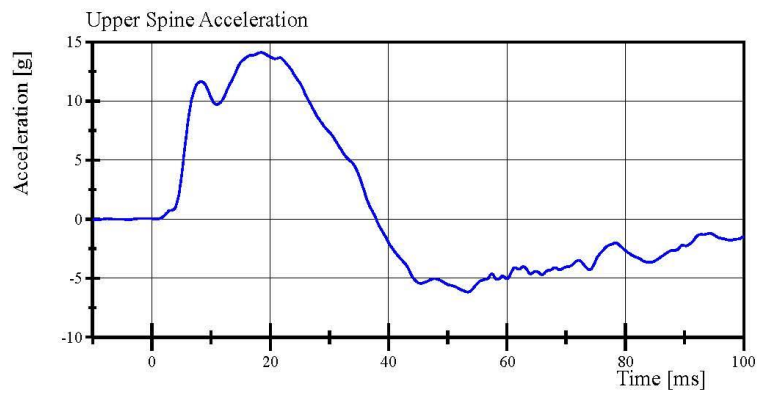
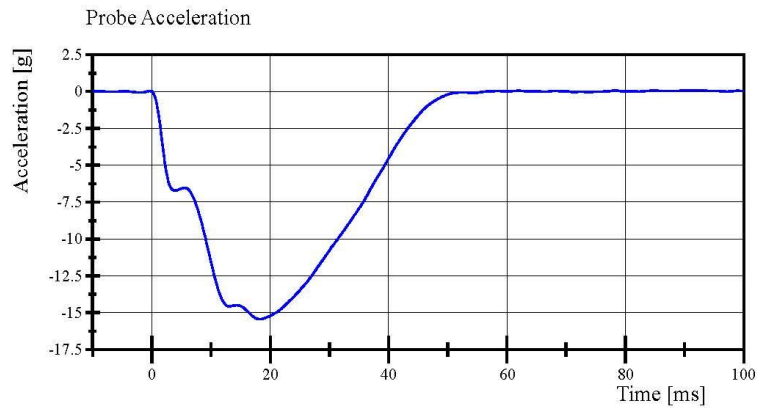
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

06.13.2024 12:45:34 824



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIS Serial No. 297 Certification No. 68-1
Test Date: 6/13/2024



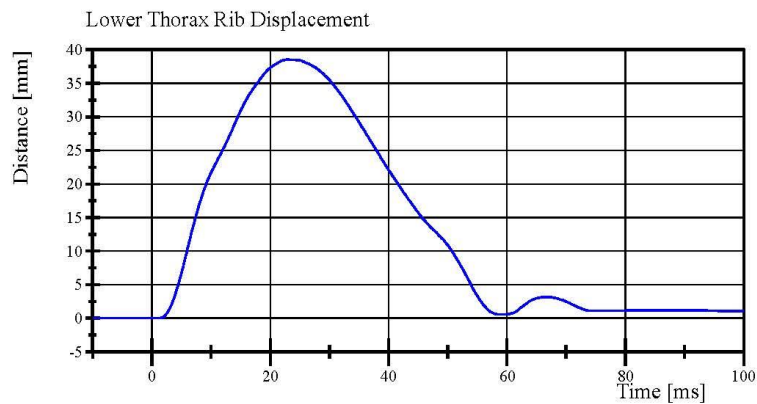
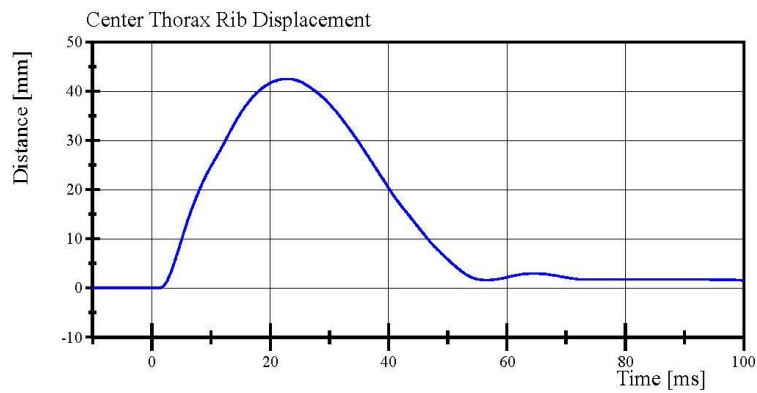
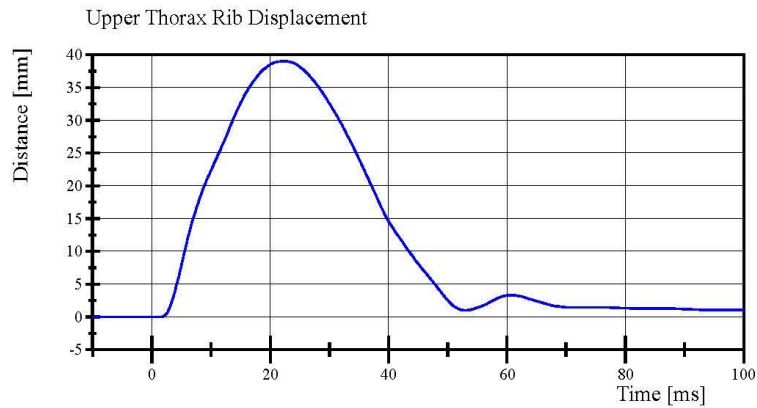
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

06.13.2024 12:46:05 824



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 68-1
Test Date: 6/13/2024



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

06.13.2024 12:46:06 824



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 68-3

Test Date: 6/18/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	66 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.38 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.4 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	36.5 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	41.6 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.17 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

06.18.2024 12:53:53.518

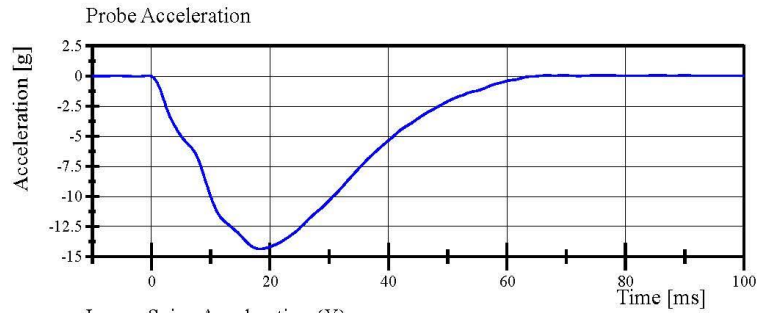


Transportation Research Center Inc.

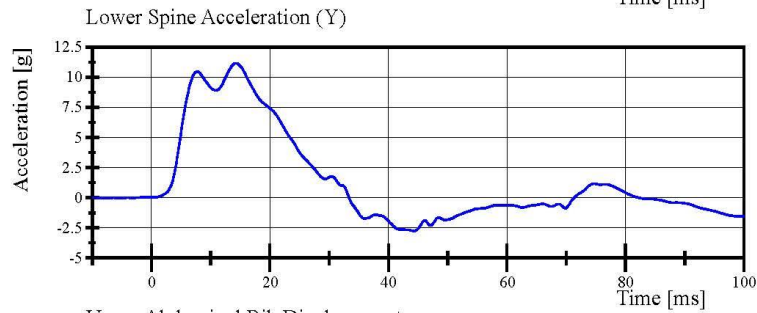
Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 68-3

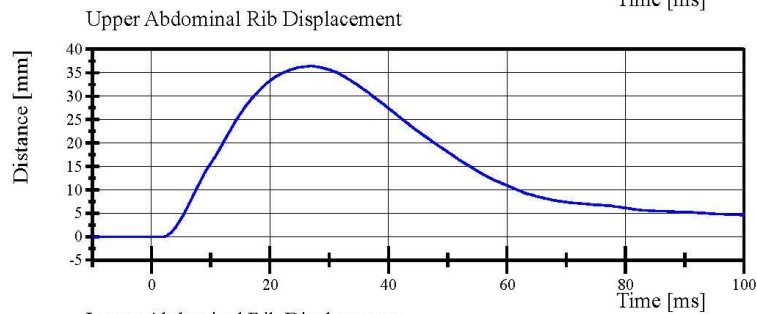
Test Date: 6/18/2024



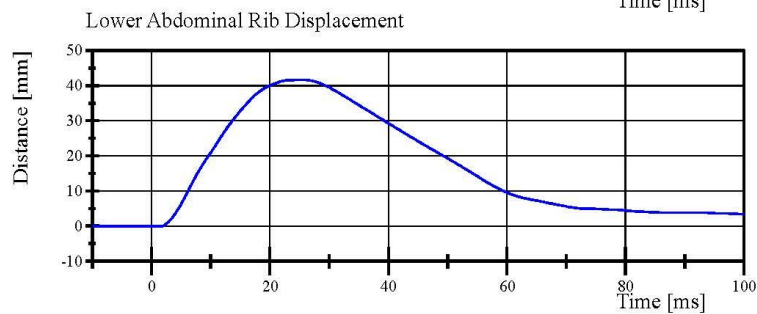
Filter Class: CFC_180
Max: 0.1 g at 89.8 ms
Min: -14.4 g at 18.3 ms



Filter Class: CFC_180
Max: 11.2 g at 14.2 ms
Min: -2.8 g at 44.2 ms



Filter Class: CFC_600
Max: 36.5 mm at 27.0 ms
Min: -0.0 mm at -2.9 ms



Filter Class: CFC_600
Max: 41.6 mm at 25.6 ms
Min: -0.0 mm at 1.7 ms

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

06.18.2024 12:54:22 518



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 68-2

Test Date: 6/18/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	61 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.63 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-42.47 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	36.9 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,708.4 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1171

Pelvis Plug Info:

Manufacturer: Saco

S/N: 14643

Cal Date: 20201221

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

06.18.2024 13:34:04 427

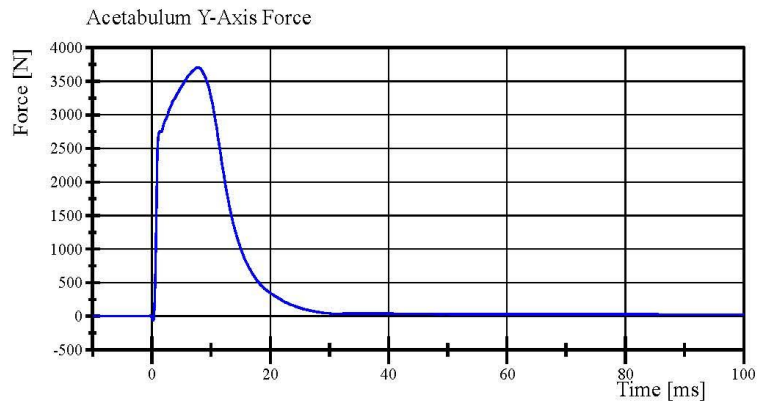
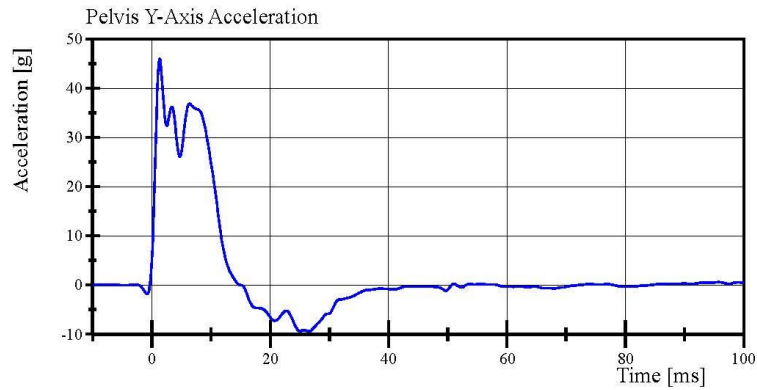
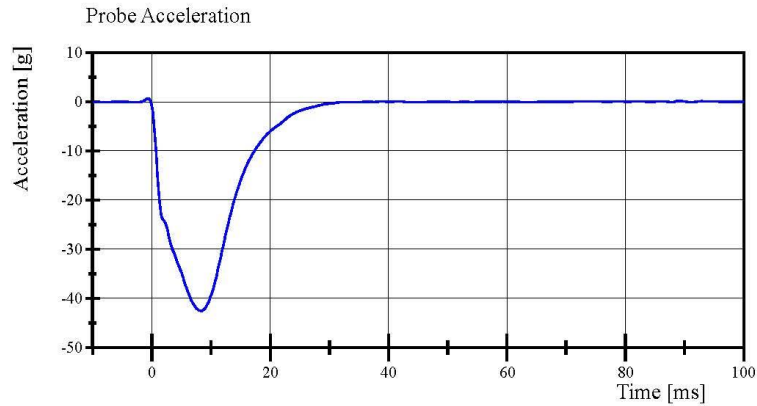


Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 68-2

Test Date: 6/18/2024



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

06.18.2024 13:34:46 427



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 68-1

Test Date: 6/13/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.25 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-41.8 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	36.3 g	Yes
Iliac Force	4,100 - 5,100 N	4,902.4 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1171

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

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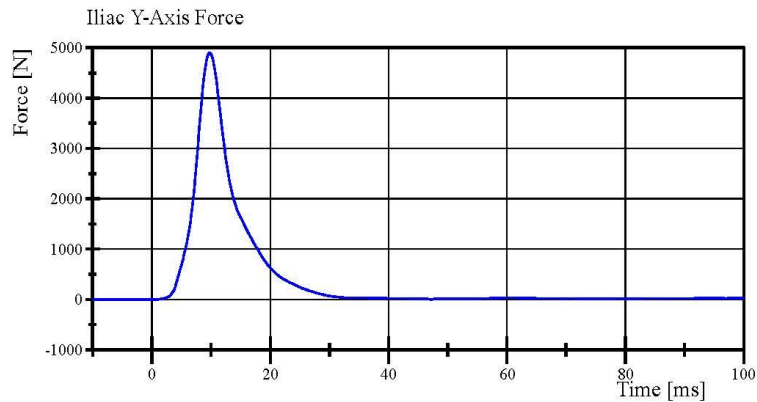
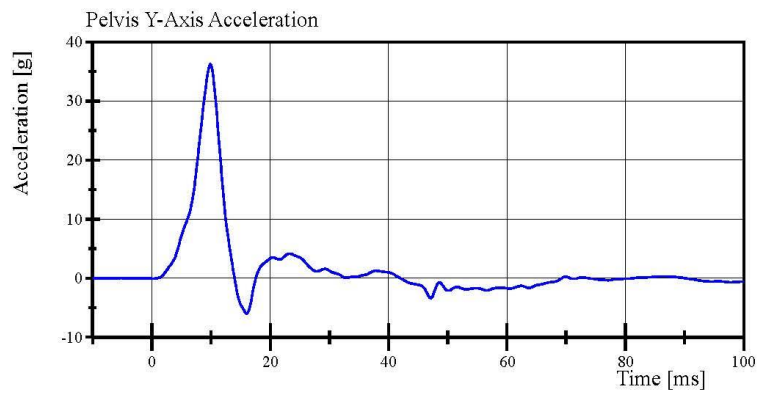
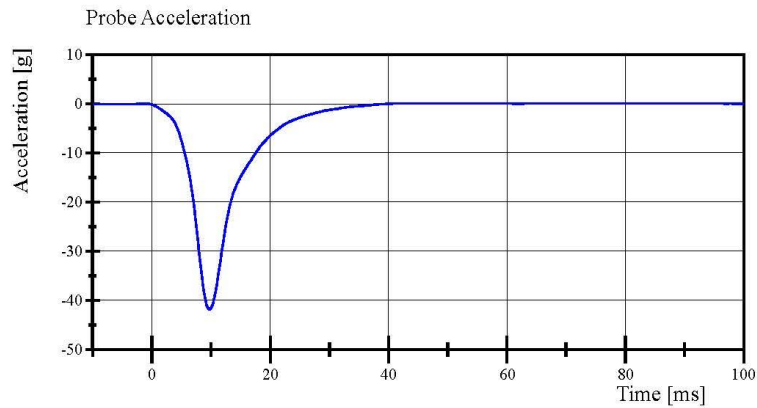


Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 68-1

Test Date: 6/13/2024



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

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Post-Test Calibration Sheets
Driver S/N 297

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 297 Calibration No. 69

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	130	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	319	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	877	Yes
Z	Waist Circumference	761.0 - 791.0	781	Yes

Revised 9/29/2005

Report Number: 297_S2F69

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Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 69-1

Test Date: 6/27/2024

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	67 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	127.6 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-5.2 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	< 15 %	1.21 %	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

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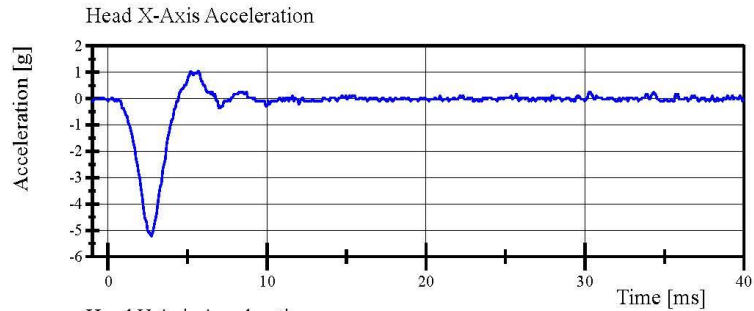


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 69-1

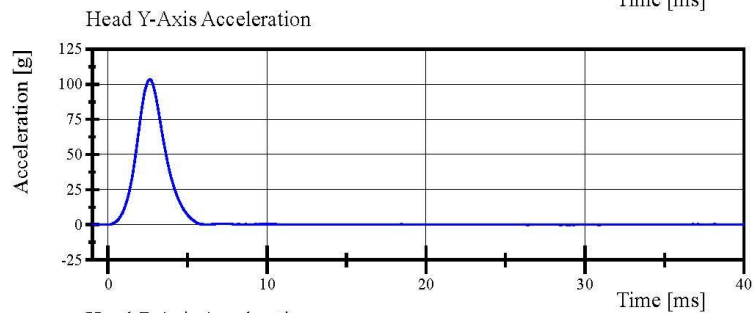
Test Date: 6/27/2024



Filter Class: CFC_1000

Max: 1.0 g at 5.2 ms

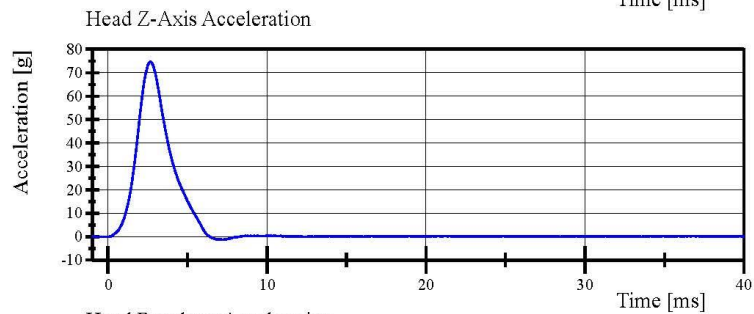
Min: -5.2 g at 2.7 ms



Filter Class: CFC_1000

Max: 103.4 g at 2.6 ms

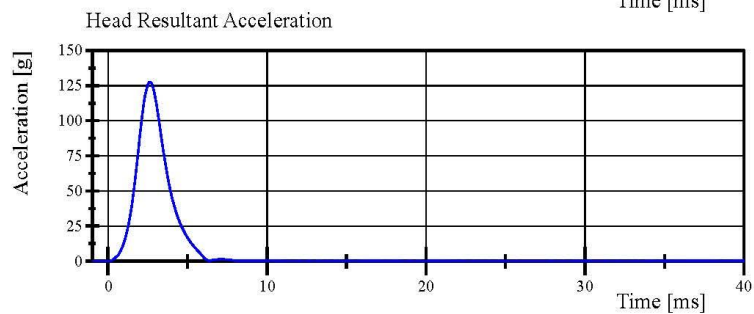
Min: -0.2 g at 29.0 ms



Filter Class: CFC_1000

Max: 74.7 g at 2.6 ms

Min: -1.3 g at 7.2 ms



Filter Class: CFC_1000

Max: 127.6 g at 2.6 ms

Min: 0.0 g at -0.8 ms

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

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Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 69-1

Test Date: 6/27/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	69 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.627 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.281 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.337 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.524 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.588 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.792 m/s	Yes
Maximum Headform Flexion			
Peak	(-71) - (-81) deg	-76.8 deg	Yes
Time of Peak	50 - 70 ms	61.3 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	40.6 N·m	Yes
Decay to 0 N·m	102 - 126 ms	113.8 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

06.27.2024 09:28:22 751

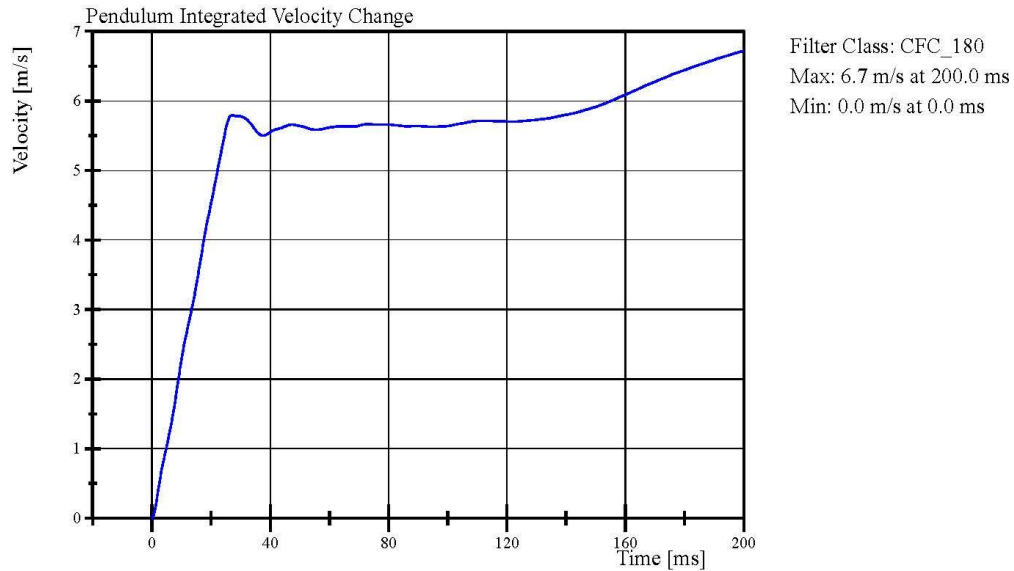
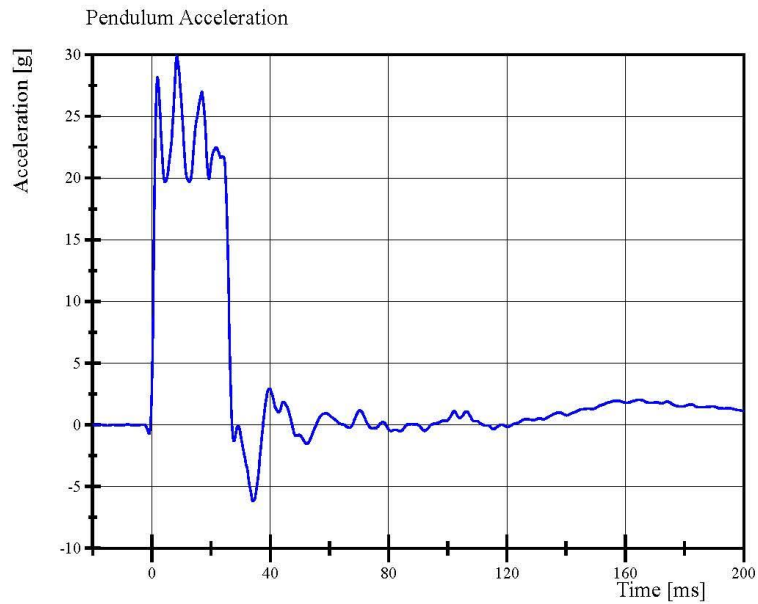


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 69-1

Test Date: 6/27/2024



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

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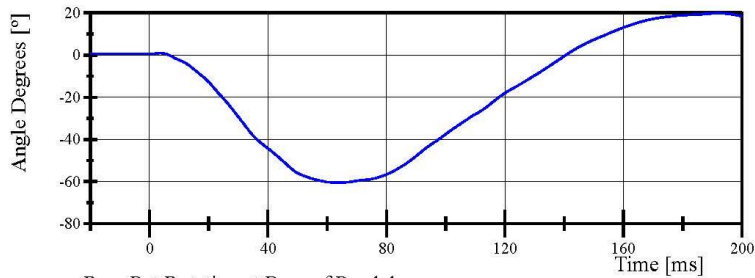
Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 69-1

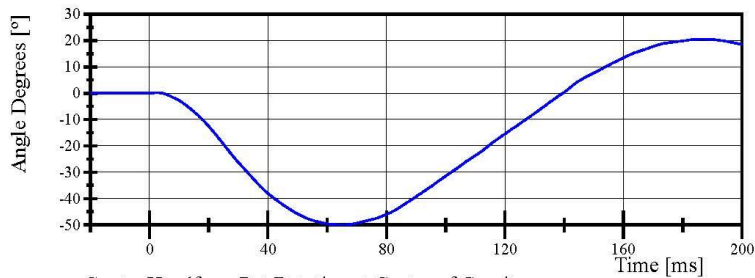
Test Date: 6/27/2024

Forward Pot Rotation at Base of Pendulum



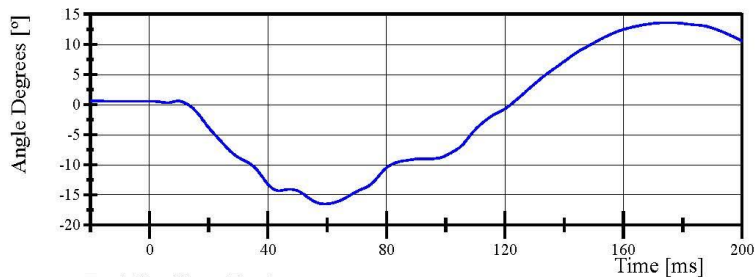
Filter Class: CFC_60
Max: 20.0 ° at 191.9 ms
Min: -60.5 ° at 63.7 ms

Rear Pot Rotation at Base of Pendulum



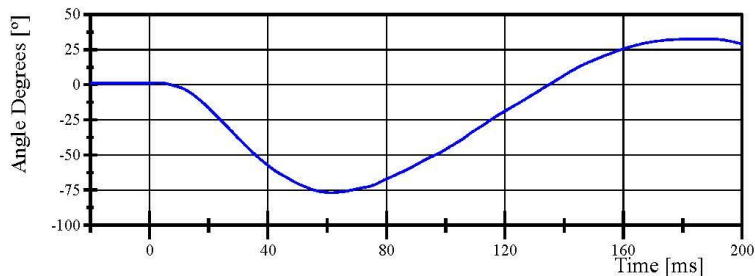
Filter Class: CFC_60
Max: 20.5 ° at 186.6 ms
Min: -49.9 ° at 64.8 ms

Center Headform Pot Rotation at Center of Gravity



Filter Class: CFC_60
Max: 13.6 ° at 175.3 ms
Min: -16.5 ° at 59.3 ms

Total Headform Flexion



Filter Class: CFC_60
Max: 32.6 ° at 188.7 ms
Min: -76.8 ° at 61.3 ms

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

06.27.2024 09:29:53 751

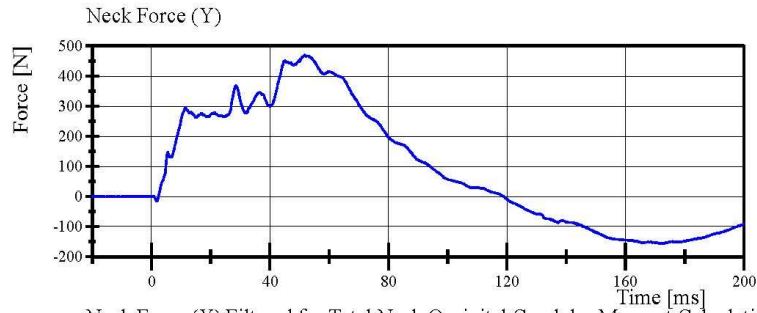


Transportation Research Center Inc.

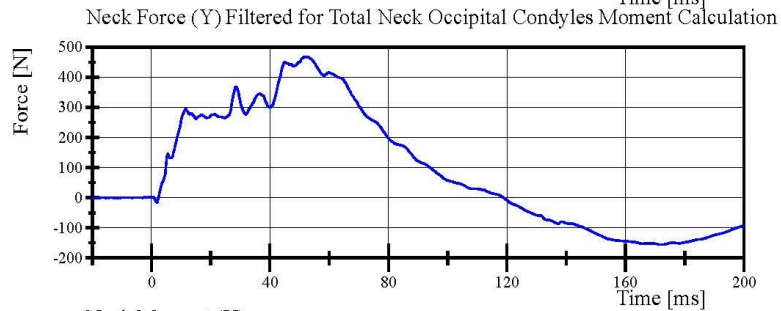
Left Lateral Neck

SID IIs Serial No. 297 Certification No. 69-1

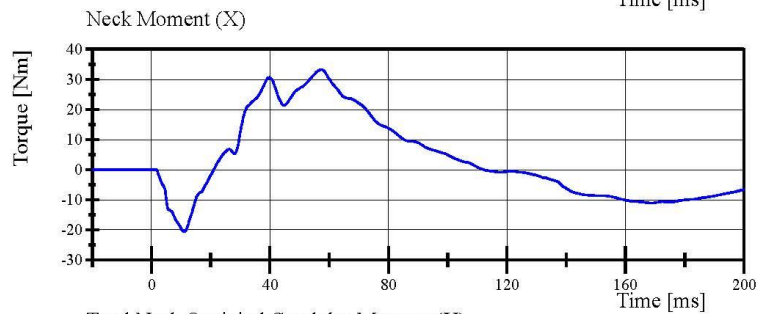
Test Date: 6/27/2024



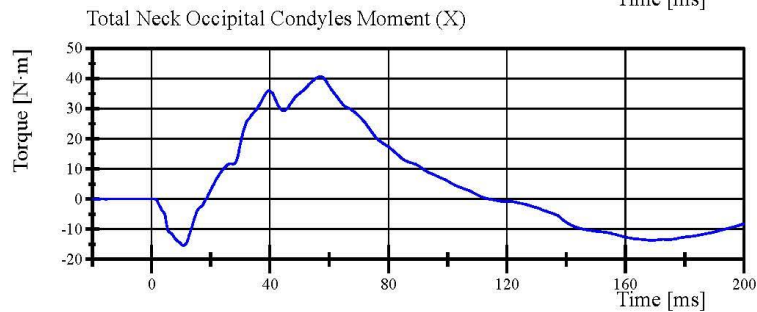
Filter Class: CFC_1000
Max: 469.9 N at 51.7 ms
Min: -156.4 N at 172.0 ms



Filter Class: CFC_600
Max: 468.5 N at 51.8 ms
Min: -156.2 N at 172.2 ms



Filter Class: CFC_600
Max: 33.3 Nm at 57.4 ms
Min: -20.5 Nm at 11.0 ms



Filter Class: Without_(Constar
Max: 40.6 N·m at 56.9 ms
Min: -15.4 N·m at 10.8 ms

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

06.27.2024 09:29:54 751



Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. 297 Certification No. 69-1

Test Date: 6/27/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	69 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.4 g	Yes
Shoulder Displacement	28 - 37 mm	32.1 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	18.7 g	Yes

Test meets specifications.

Condition: Used

Comments:

Arm S/N: 940L

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

06.27.2024 10:55:52 858

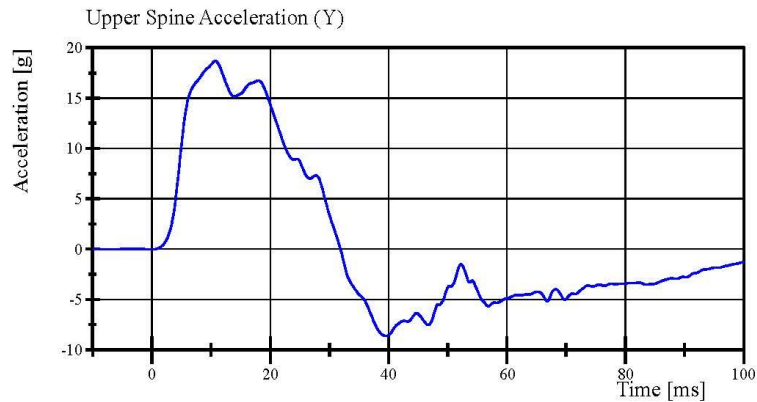
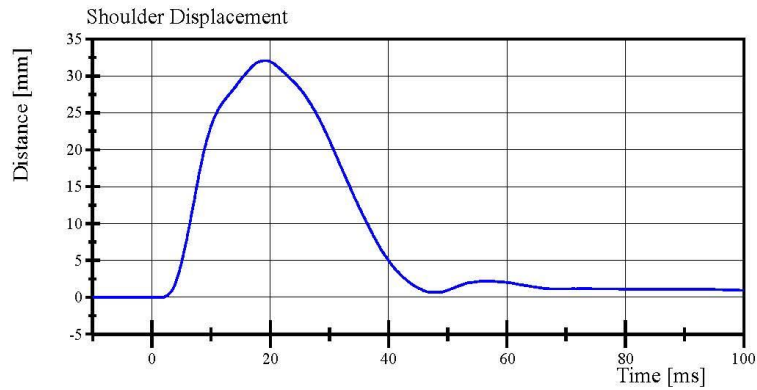
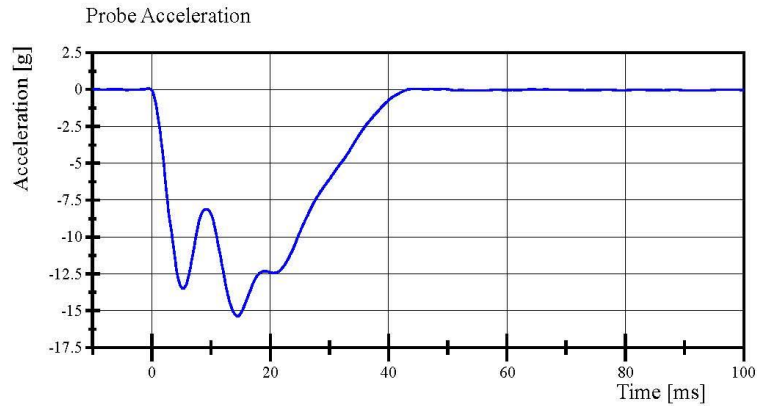


Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. 297 Certification No. 69-1

Test Date: 6/27/2024



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

06.27.2024 10:57:05 858



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 69-1
Test Date: 6/27/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	68 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.728 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-34.1 g	Yes
Shoulder Displacement	31 - 40 mm	35.5 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	27.2 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	32.8 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	36.7 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	36.5 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	35.2 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: 940L

Shoulder Rib S/N: 550

Upper Thorax Rib S/N: DM5020

Middle Thorax Rib S/N: DM5021

Lower Thorax Rib S/N: DM5022

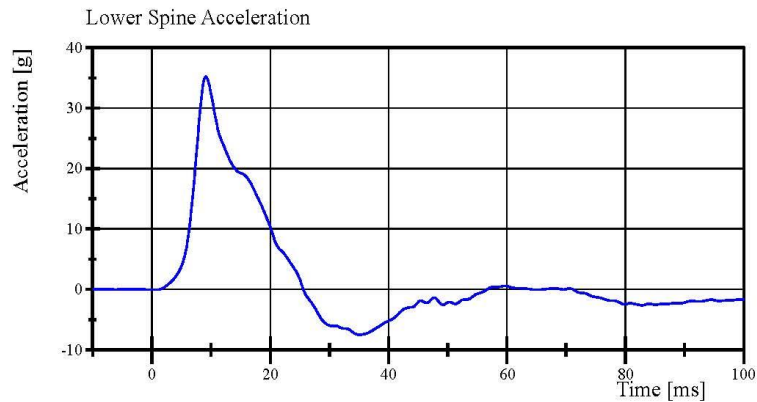
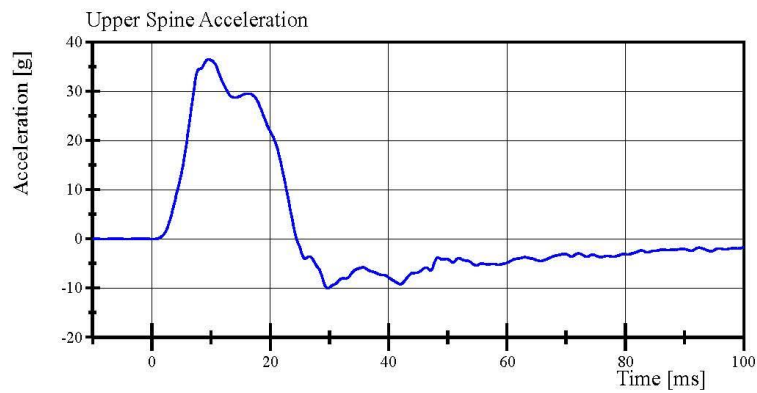
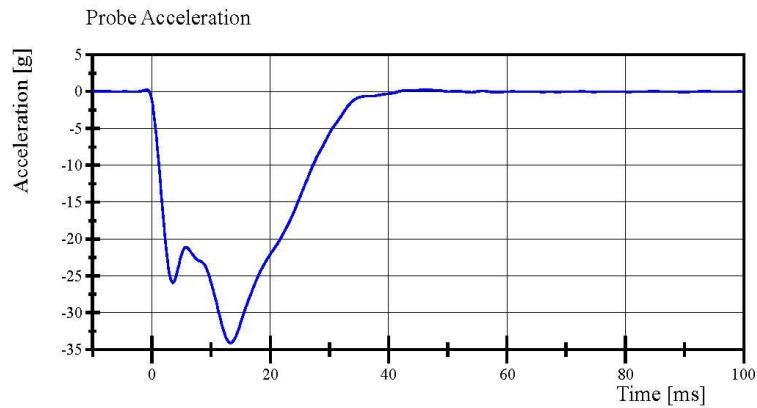
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

06.27.2024 12:32:04 642



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIS Serial No. 297 Certification No. 69-1
Test Date: 6/27/2024



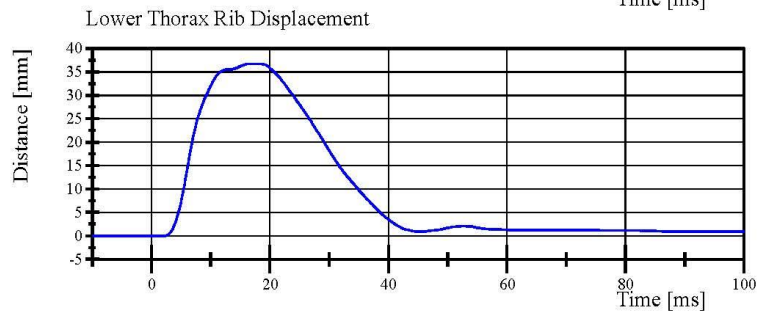
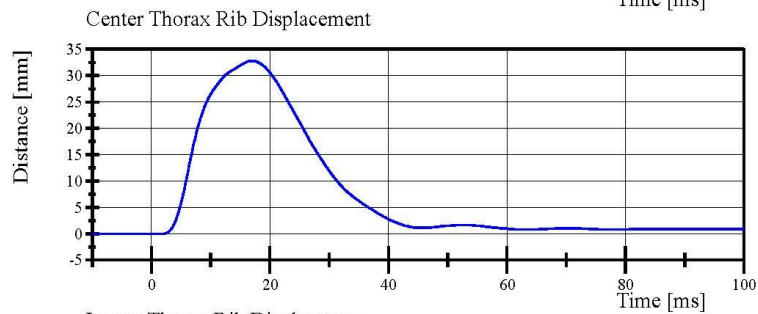
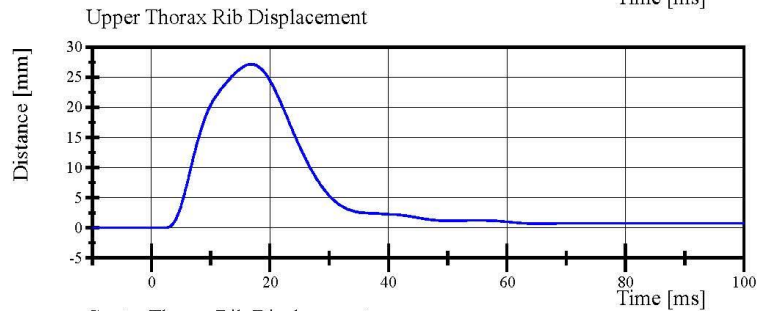
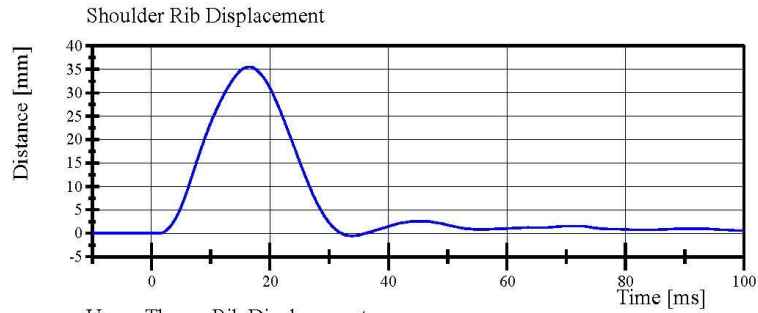
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with Polarity in accordance with J211

06.27.2024 12:32:59 642



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 69-1
Test Date: 6/27/2024



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

06.27.2024 12:33:00 642



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 69-1
Test Date: 6/27/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	68 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.360 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.5 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	35.6 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	42.0 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	41.6 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	13.5 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.5 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Thorax Rib S/N: 180-3362 DP6492

Middle Thorax Rib S/N: 180-3362 DP6493

Lower Thorax Rib S/N: 180-3362 DP7664

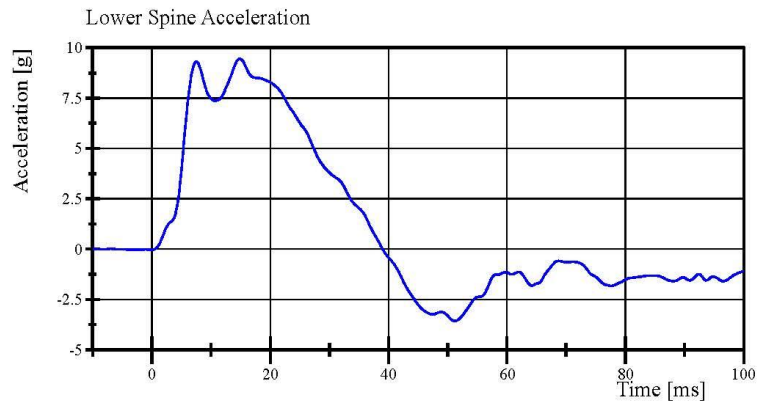
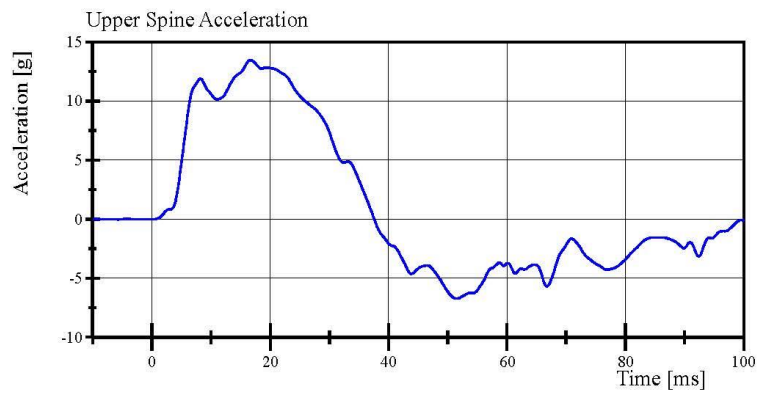
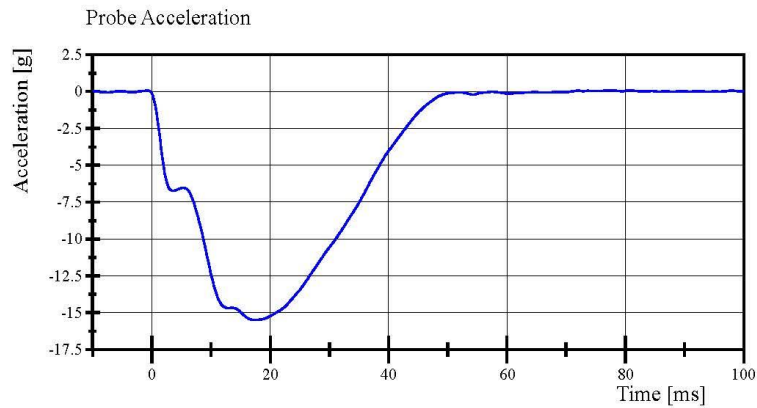
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

06.27.2024 11:35:45 843



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 69-1
Test Date: 6/27/2024



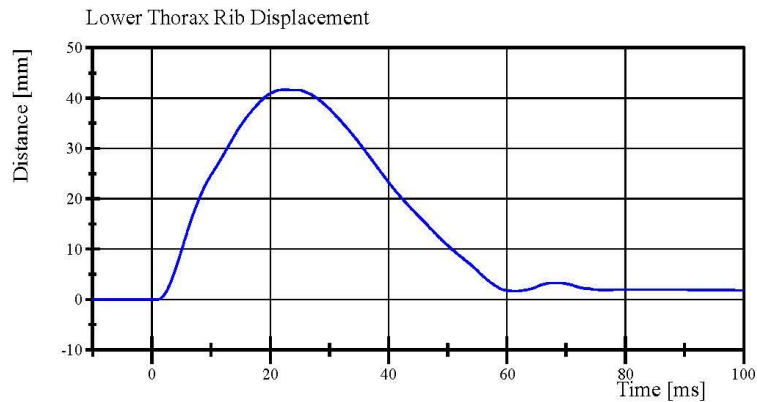
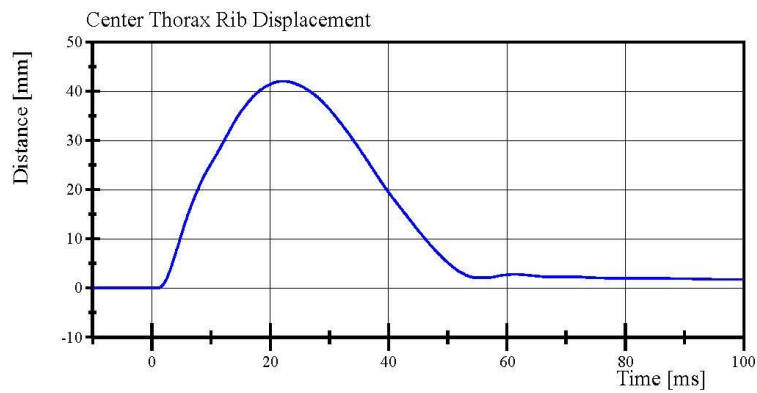
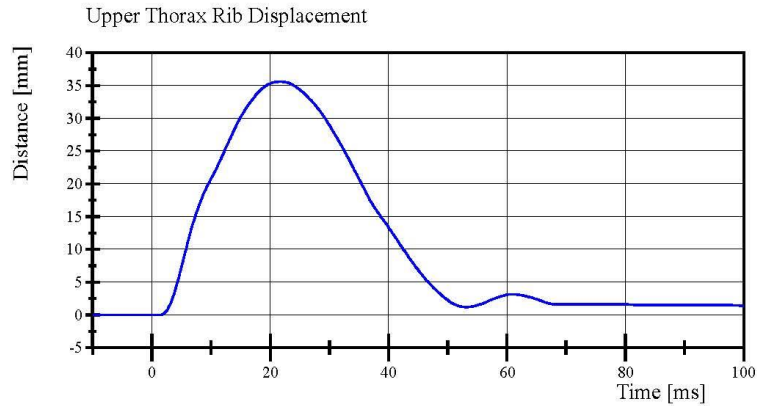
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

06.27.2024 11:36:22 843



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 69-1
Test Date: 6/27/2024



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

06.27.2024 11:36:22 843



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 69-1

Test Date: 6/27/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	69 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.39 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.8 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	37.3 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	40.4 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.17 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

06.27.2024 11:13:04 685

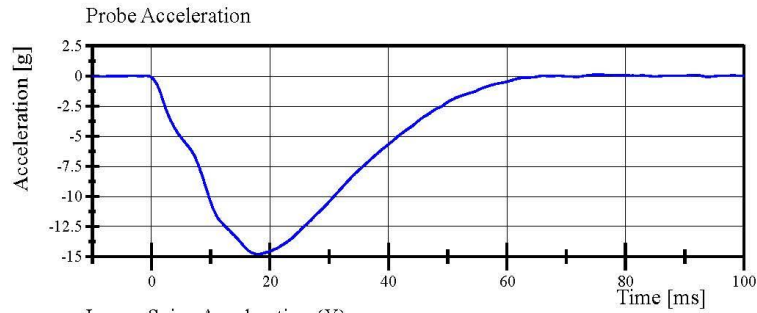


Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 69-1

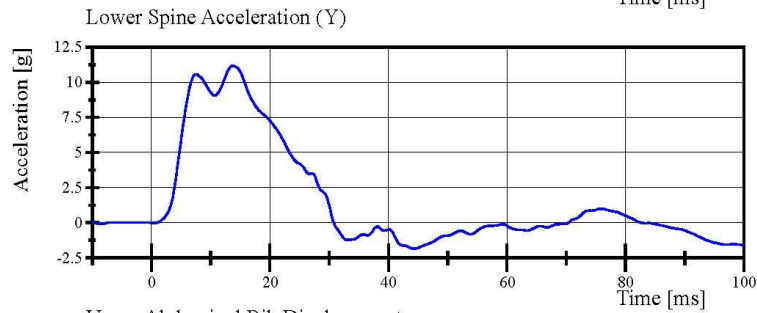
Test Date: 6/27/2024



Filter Class: CFC_180

Max: 0.1 g at 75.6 ms

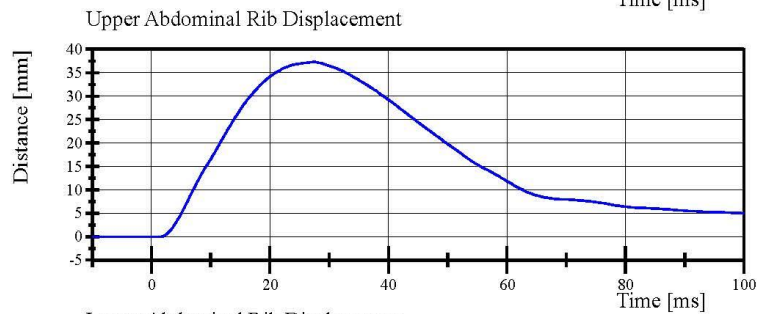
Min: -14.8 g at 17.9 ms



Filter Class: CFC_180

Max: 11.2 g at 13.8 ms

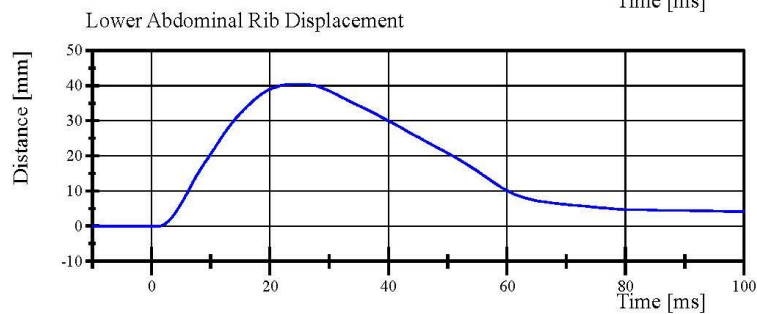
Min: -1.8 g at 44.3 ms



Filter Class: CFC_600

Max: 37.3 mm at 27.4 ms

Min: -0.0 mm at -8.1 ms



Filter Class: CFC_600

Max: 40.4 mm at 25.4 ms

Min: -0.0 mm at 1.0 ms

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

06.27.2024 11:13:45 685



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 69-1

Test Date: 6/27/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	70 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.62 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-42.00 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	34.7 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,699.2 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1171

Pelvis Plug Info:

Manufacturer: Saco

S/N: 14638

Cal Date: 20201221

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

06.27.2024 10:40:57 467

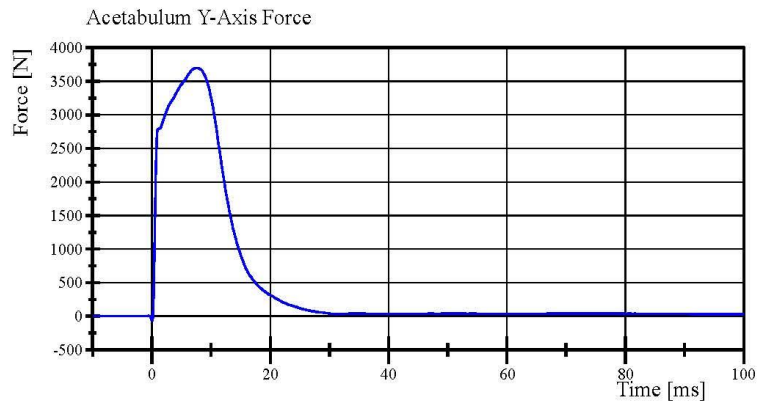
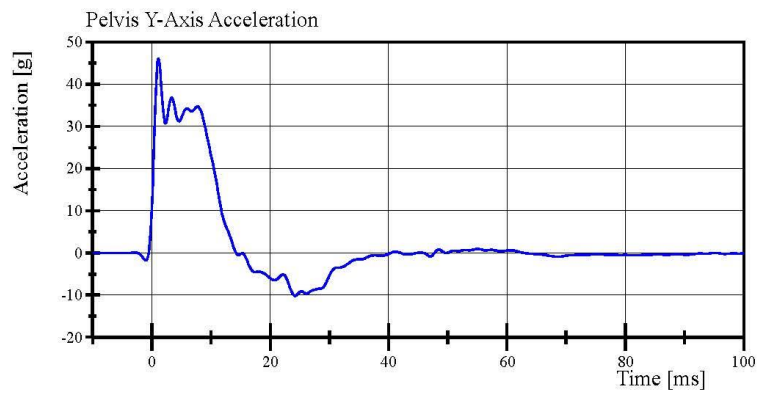
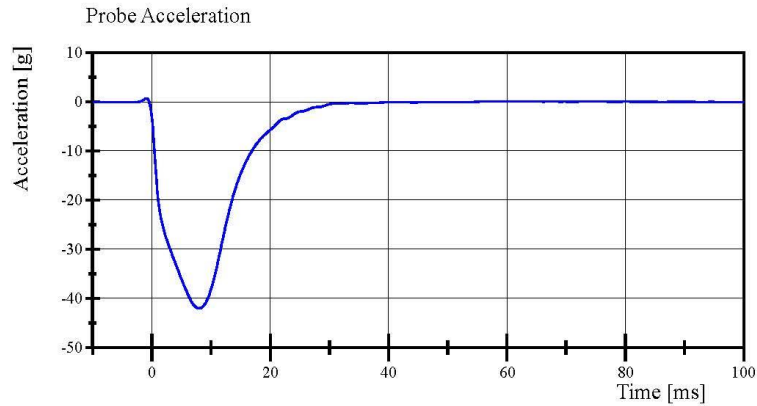


Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 69-1

Test Date: 6/27/2024



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

06.27.2024 10:42:11 467



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 69-1

Test Date: 6/27/2024

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	69 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.24 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-40.2 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	31.8 g	Yes
Iliac Force	4,100 - 5,100 N	4,667.5 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1171

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

06.27.2024 12:55:58 722

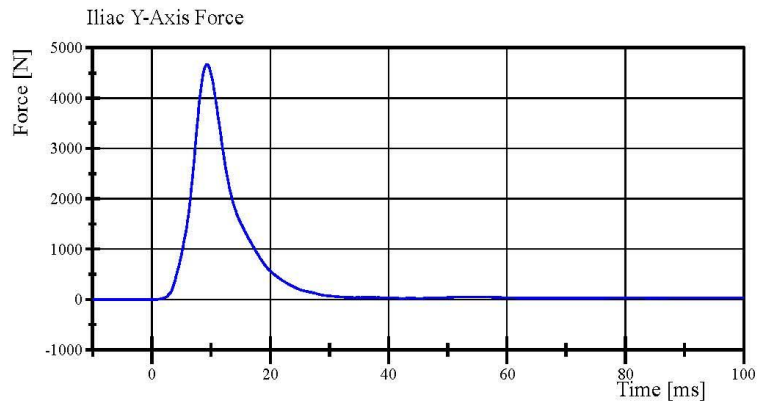
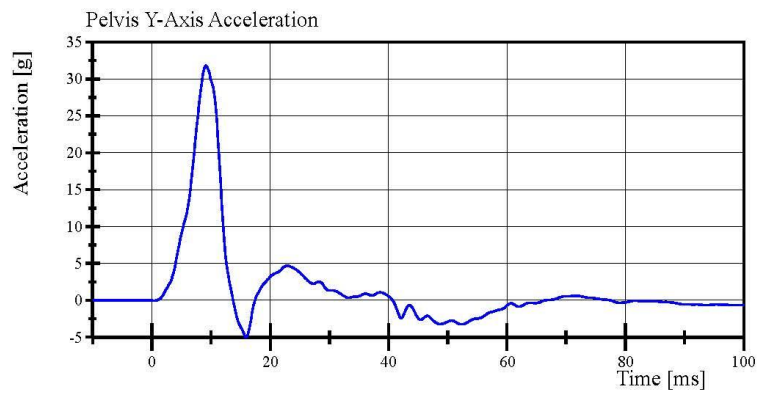
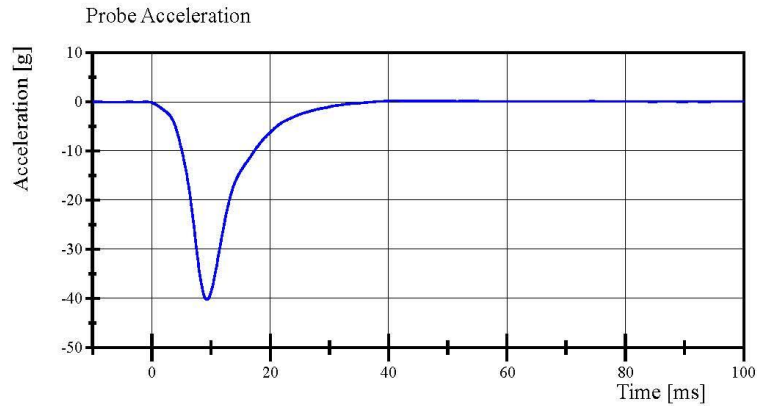


Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 69-1

Test Date: 6/27/2024



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

06.27.2024 12:56:34 722



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	T17622	Endevco	24-May-2024
				Y	T24507	Endevco	24-May-2024
				Z	T17636	Endevco	24-May-2024
Displacement Potentiometers	Shoulder		Y	N/A	N/A	N/A	
	Thoracic Rib	Upper	Y	023	Servo	26-Apr-2024	
		Middle	Y	063	Servo	26-Apr-2024	
		Lower	Y	043	Servo	26-Apr-2024	
	Abdominal Rib	Upper	Y	1152	Servo	26-Apr-2024	
		Lower	Y	051	Servo	26-Apr-2024	
Lower Spine Accelerometers (T12)				X	T20232	Endevco	24-May-2024
				Y	T21084	Endevco	24-May-2024
				Z	T17633	Endevco	24-May-2024
Acetabulum Load Cell				Y	235-FY	FTSS	26-Apr-2024
Iliac Wing Load Cell				Y	320-FY	Denton	26-Apr-2024
Pelvis Plug (struck side)					14644	Saco	21-Dec-2020
Pelvis Plug (non-struck side)					14645	Saco	21-Dec-2020

TABLE 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	A378299	Measurement Specialties	23-May-2024
Vehicle Center of Gravity	Y	A377416	Measurement Specialties	30-Apr-2024
Vehicle Center of Gravity	Z	A378307	Measurement Specialties	23-May-2024
Left Floor Sill	Y	A385753	Measurement Specialties	30-Apr-2024
A-Pillar Sill	Y	A349892	Measurement Specialties	10-Jun-2024
A-Pillar Low	Y	A386358	Measurement Specialties	25-Mar-2024
A-Pillar Mid	Y	A386339	Measurement Specialties	23-May-2024
B-Pillar Sill	Y	A377424	Measurement Specialties	30-Apr-2024
B-Pillar Low	Y	A385756	Measurement Specialties	23-May-2024
B-Pillar Mid	Y	A385702	Measurement Specialties	5-Jun-2024
Driver Seat	Y	A378296	Measurement Specialties	23-May-2024
Engine Top	X	A297050	Measurement Specialties	22-Mar-2024
Engine Top	Y	A349795	Measurement Specialties	25-Mar-2024
Firewall	Y	A378304	Measurement Specialties	23-May-2024
Right Roof	Y	A386415	Measurement Specialties	30-Apr-2024
Right Floor Sill	Y	A385749	Measurement Specialties	23-May-2024
Rear Floor Pan	X	A386416	Measurement Specialties	30-Apr-2024
Rear Floor Pan	Y	A386337	Measurement Specialties	23-May-2024

TABLE 3 – Pole Instrumentation

Pole Instrumentation	Serial Number	Manufacturer	Calibration Date
Load Cell 1	DK7091S	Humanetics	4-Jan-2024
Load Cell 2	DK7120S	Humanetics	4-Jan-2024
Load Cell 3	DK7118S	Humanetics	4-Jan-2024
Load Cell 4	DK7124S	Humanetics	4-Jan-2024
Load Cell 5	DK7111S	Humanetics	4-Jan-2024
Load Cell 6	DK7126S	Humanetics	4-Jan-2024
Load Cell 7	DK7112S	Humanetics	4-Jan-2024
Load Cell 8	DK7074S	Humanetics	4-Jan-2024