

FINAL REPORT NUMBER: SINCAP-TRC-25-002

**NEW CAR ASSESSMENT PROGRAM (NCAP)
MOVING DEFORMABLE BARRIER SIDE IMPACT TEST**

**HYUNDAI MOTOR COMPANY
2025 Hyundai Palisade
NHTSA NUMBER: Q20254206**

**PREPARED BY:
Transportation Research Center Inc.
10820 State Route 347
P. O. Box B-67
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Report Date: March 5, 2026

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

Report Prepared By: ILO Project Operations Group

Report Approved By: 

John Shultz

Approval Date: March 5, 2026

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

Technical Report Documentation Page

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16. Abstract This 55 / 28 km/h 90° Moving Deformable Barrier SINCAP Side Impact Test was conducted on the subject 2025 Hyundai Palisade, in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on July 29, 2025. The impact velocity of the Moving Deformable Barrier (MDB) was 62.33 km/h, and the ambient temperature at the struck (left) side of the target vehicle at the time of impact was 22.2° C. The target vehicle post-test maximum crush was 198 mm at Level 3. The test vehicle's performance was as follows: <table border="1"> <thead> <tr> <th colspan="4">Driver ATD (ES-2re)</th> </tr> <tr> <th>Measurement Description</th><th>Units</th><th>IARV</th><th>Result</th></tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td><td>N/A</td><td>1000</td><td>26.301</td></tr> <tr> <td>Maximum Thoracic Rib Deflection</td><td>mm</td><td>44</td><td>15.181</td></tr> <tr> <td>Total Abdominal Force</td><td>N</td><td>2500</td><td>422.687</td></tr> <tr> <td>Pubic Symphysis Force</td><td>N</td><td>6000</td><td>-1300.817</td></tr> <tr> <td>Lower Spine Acceleration</td><td>G</td><td>82*</td><td>19.969</td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="4">Passenger ATD (SID-IIs)</th> </tr> <tr> <th>Measurement Description</th><th>Units</th><th>IARV</th><th>Result</th></tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td><td>N/A</td><td>1000</td><td>76.361</td></tr> <tr> <td>Lower Spine Resultant Acceleration</td><td>g's</td><td>82</td><td>35.959</td></tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td><td>N</td><td>5525</td><td>1370.086</td></tr> <tr> <td>Maximum Thoracic Rib Deflection</td><td>mm</td><td>38*</td><td>13.635</td></tr> <tr> <td>Maximum Abdominal Rib Deflection</td><td>mm</td><td>45*</td><td>9.086</td></tr> </tbody> </table> * Proposed IARV The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.				Driver ATD (ES-2re)				Measurement Description	Units	IARV	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	26.301	Maximum Thoracic Rib Deflection	mm	44	15.181	Total Abdominal Force	N	2500	422.687	Pubic Symphysis Force	N	6000	-1300.817	Lower Spine Acceleration	G	82*	19.969	Passenger ATD (SID-IIs)				Measurement Description	Units	IARV	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	76.361	Lower Spine Resultant Acceleration	g's	82	35.959	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1370.086	Maximum Thoracic Rib Deflection	mm	38*	13.635	Maximum Abdominal Rib Deflection	mm	45*	9.086
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SECTION 1

TEST PURPOSE AND PROCEDURE

TEST PURPOSE AND PROCEDURE

This moving deformable barrier side impact test was conducted as part of the MY 2025 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 2025 Hyundai Palisade. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated March 2020.

SECTION 2

SUMMARY OF TEST RESULTS

A 2025 Hyundai Palisade was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 62.33 km/h (38.73 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by the Transportation Research Center Inc. in East Liberty, Ohio, on July 29, 2025. Pre-test and post-test photographs of the test vehicle and the MDB and the dummies (ES-2-re and SID-IIs) are included in this report.

Dummies were placed in the driver and left rear designated seating positions according to instructions specified in the OCWS Side Impact Laboratory Test Procedure, dated March 2020. The side impact event was documented by 11 cameras. Camera locations are included in this report.

The dummies were instrumented in the following manner:

DRIVER ATD (ES-2re)

Primary and redundant head CG tri-axial accelerometers

Chest upper rib, middle rib, and lower rib y-axis displacement potentiometers

Abdomen forward, middle, and rear y-axis load cells

Lower spine (T12) tri-axial accelerometers

Pubic symphysis y-axis load cell

PASSENGER ATD (SID-IIs)

Primary and redundant head CG triaxial accelerometers

Chest upper rib, middle rib, and lower rib y-axis displacement potentiometers

Abdomen upper rib and lower rib y-axis displacement potentiometers

Lower spine (T12) tri-axial accelerometers

Acetabulum and iliac wing y-axis load cells

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 of this report contains the test equipment and instrumentation calibration data.

Dummy injury readings were recorded as follows:

Measurement Description	Driver ATD (ES-2-re)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	26.301
Maximum Thoracic Rib Deflection	mm	44	15.181
Combined Abdominal Force	N	2500	422.687
Pubic Symphysis Force	N	6000	-1300.817
Lower Spine (T12) Resultant Acceleration ¹	G	82*	19.969

* Proposed IARV

Measurement Description	Passenger ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	76.361
Lower Spine (T12) Resultant Acceleration	G	82	35.959
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1370.086
Maximum Thoracic Rib Deflection	mm	38*	13.635
Maximum Abdominal Rib Deflection	mm	45*	9.086

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

GENERAL COMMENTS

All doors remained closed throughout the test. No fuel spillage occurred during the impact or the static rollover test which followed. Injury values for both ATDs were within the established performance thresholds.

Right Side Sill at Front Seat Acceleration (X); Channel failed at 34.0 ms

Left Lower B-Post Acceleration (Y); Channel failed at 4.0 ms

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2025 Hyundai Palisade
Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
Test Date: 7/29/2025

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	Q20254206
Model Year	2025
Make	Hyundai
Model	Palisade
Body Style	MPV
VIN	KM8R14GE4SU878034
Body Color	Hyper White
Odometer Reading (km/mi)	143 mi
Engine Displacement (L)	3.8
Type/No. Cylinders	V/6
Engine Placement	Front
Transmission Type	Automatic
Transmission Speeds	8
Overdrive	No
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	Yes
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	Yes
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	Yes
Rear Pass. Torso/Pelvis Airbag	No
Rear Passenger Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	Yes
Driver Load Limiter	Yes
Rear Passenger Load Limiter	Yes
Other	No

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

No

DATA FROM CERTIFICATION LABEL

Manufactured By	HYUNDAI MOTOR COMPANY
Date of Manufacture	OCT/2024
Vehicle Type	MPV

GVWR (LB)	5732
GAWR Front (LB)	2954
GAWR Rear (LB)	3197

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3	3	8
Capacity Weight (VCW) (kg)				600.0
DSC x 68 (kg)				544.0
Cargo Weight (RCLW) (kg)				56.0

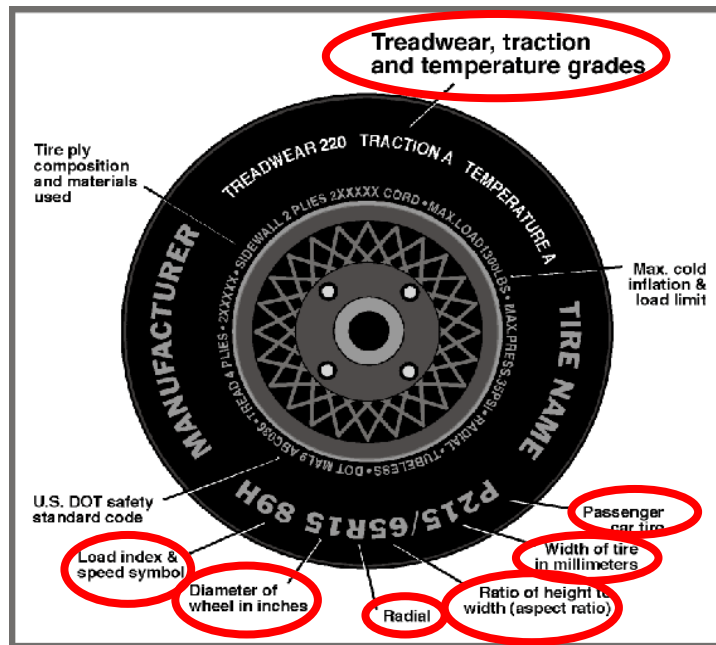
VEHICLE SEAT TYPE

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	N/A	Yes	N/A
Third Row Seat	N/A	N/A	Yes	N/A	N/A	Yes	N/A

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

Test Vehicle: 2025 Hyundai Palisade
 Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
 Test Date: 7/29/2025



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	240	240
Recommended Tire Size	245/60R18	245/60R18
Tire Size on Vehicle	245/60R18	245/60R18
Tire Manufacturer	Bridgestone	Bridgestone
Tire Model	Dueller	Dueller
Treadwear	400	400
Traction	A	A
Temperature Grades	B	B
Tire Plies Sidewall	2	2
Tire Plies Body	4	4
Load Index/Speed Symbol	105H	105H
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon
DOT Safety Code Left	1EJ L20CEC	1EJ L20CEC
DOT Safety Code Right	1EJ L20CEC	1EJ L20CEC

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

Test Vehicle: 2025 Hyundai Palisade
 Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
 Test Date: 7/29/2025

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	241	241	241	241
Tire Placard	kPa	240	240	240	240
Owner's Manual	kPa	240	240	240	240
As Tested	kPa	241	241	241	241

MDB TIRE SPECIFICATIONS

	Units	Requirement	LF	RF	LR	RR
Tire Size		P205/75R15	P205/75R15	P205/75R15	P205/75R15	P205/75R15
Tire Pressure	kPa	200 ± 21 kPa	207	207	207	207

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	547.6	411.6		608.2	476.6		589.0	509.0	
Right	kg	541.4	399.4		545.2	444.6		526.6	456.4	
Ratio	%	57.3	42.7		55.6	44.4		53.6	46.4	
Totals	kg	1089	811.0	1900.0	1153.4	921.2	2074.6	1115.6	965.4	2081.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1900.0	(A)
Actual Weight of 1 P572V ATD (SID-ILs) Dummy Used	kg	125.0	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	56.0	(C)
Calculated Vehicle Target Weight (TVTW)	kg	2081.0	(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

Measurement Description	Units	Fully Loaded	As Tested	Meets Requirement
LF	mm	818	815	Yes
RF	mm	826	820	Yes
RR	mm	839	842	Yes
LR	mm	828	832	Yes
Vehicle CG (Aft of Front Axle)	mm	1348	1290	
Vehicle CG (Left(+)/Right(-) from Longitudinal Centerline)	mm	+47	+39	

***The "As Tested" vehicle attitude measurements must be equal to or within ± 10 mm of the "Fully Loaded" vehicle attitude measurements at each wheel well. Indicate "Yes" or "No" for "Meets Requirement".

Test height adjustable suspension setting, if applicable:

N/A

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

Test Vehicle: 2025 Hyundai Palisade
 Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
 Test Date: 7/29/2025

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Ballast:	72.0
Removed: None	0.0

TEST SURFACE MARKINGS

	Distance from 63° Impact Angle Line (mm)
Fore 25 mm target	1000
Aft 25 mm target	990
Pre-Impact Angle Line	260

Parallel Track Target	X Location (mm)	Y Location (mm)
A	0	0
B	1620	3420
C	3985	3420
D	3985	0

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

Test Vehicle: 2025 Hyundai Palisade
 Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
 Test Date: 7/29/2025

SEAT POSITIONING

The driver seat, front center seat (if applicable), and right front passenger's seat should be set to the mid-track, lowest, 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	14.2	11.6	12.9
Front Passenger Seat	14.2	11.6	12.9
Front Center Seat*	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	N/A	13.4
Non-Struck Side Rear Seat	Fixed	N/A	9.2
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	12.9	260	Max	N/A	N/A	N/A
			Mid	254	260	267
			Min	N/A	N/A	N/A
Front Passenger Seat	9.5	265	Max	N/A	N/A	N/A
			Mid	268	265	271
			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	13.4	297	Max	N/A	N/A	N/A
			Mid	297	297	295
			Min	N/A	N/A	N/A
Non-Struck Side Rear Seat	9.2	300	Max	N/A	N/A	N/A
			Mid	300	303	298
			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 SYSTEM DATA

Test Vehicle: 2025 Hyundai Palisade
 Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
 Test Date: 7/29/2025

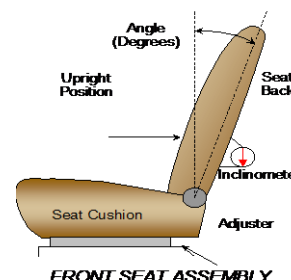
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forwardmost Position	
	mm	Detents	mm	Detent
Driver Seat	244	38	122	20
Front Passenger Seat	244	38	122	20
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	142	10	142	10
Non-Struck Side Rear Seat	142	10	142	10
Rear Center Seat*	132	10	132	10

* If applicable

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned to the manufacturer's designated seat back angle. 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 seat back is positioned such that the dummy's head is level. The rear center and non-struck side rear outboard seat backs are positioned in a similar manner as 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	64.5	33	1	10
Front Passenger Seat	64.7	33	1	10
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat w/ Seated Dummy	22.1	12	N/A	N/A
Non-Struck Side Rear Seat	21.8	12	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 in accordance with the information provided by the manufacturer on Form No. 1.

	Total # of Positions	Placed in Position #
Driver Seat	4	0
Rear Seat	0	0

HEAD RESTRAINT ADJUSTMENT

The driver's head restraint is adjusted to the highest and most full forward in-use position. The struck-side rear passenger's head restraint is adjusted to the lowest and most full forward in-use position.

	Total # of Positions	Placed in Position #
Driver Seat	6	6
Rear Seat	6	0

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

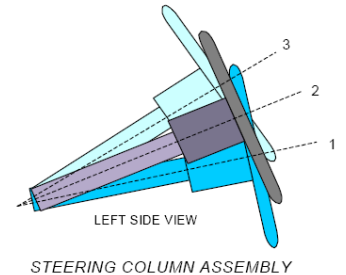
Test Vehicle: 2025 Hyundai Palisade
 Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
 Test Date: 7/29/2025

STEERING COLUMN ADJUSTMENT

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

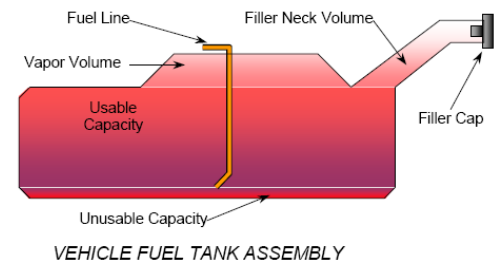
	Degrees	Fore/Aft Position (mm)
Lowermost, Position No. 1	23.4	
Geometric Center, Position No. 2	26.4	
Uppermost, Position No. 3	29.3	
Telescoping Steering Wheel Travel		50
Test Position	26.4	25



FUEL PUMP

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

Fuel pump will operate when engine system is normally operating.



FUEL TANK CAPACITY

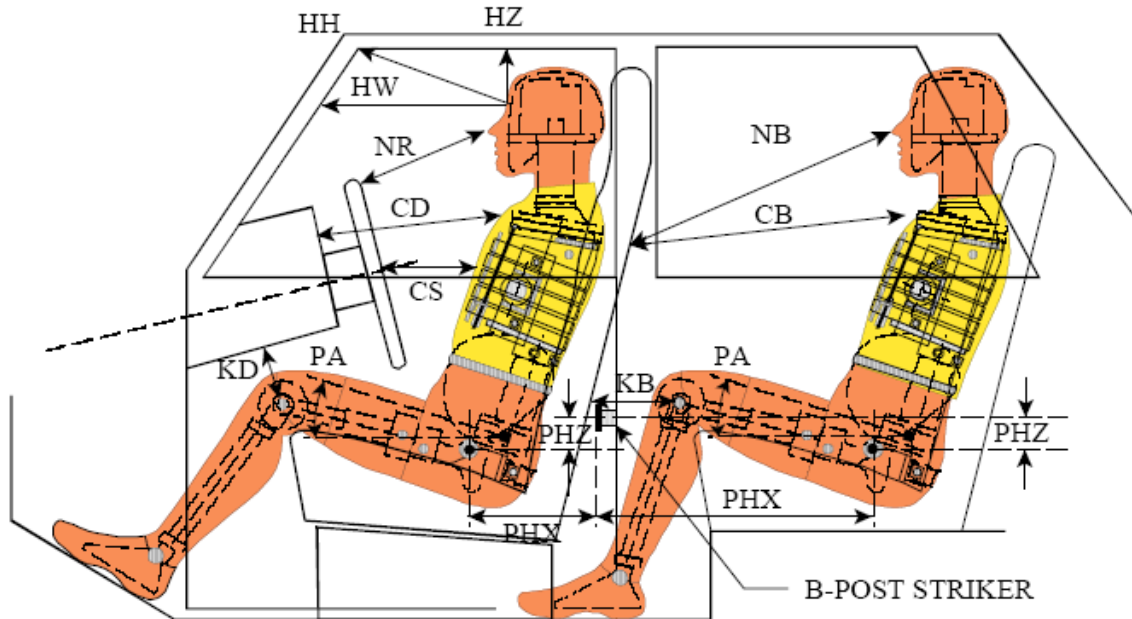
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	71.0
Usable Capacity of "Optional Tank" (see Form No. 1)	N/A
Usable Capacity of Standard Tank (see Owner's Manual)	71.0
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	66.0
Actual Amount of Solvent Used in Test	66.0
1/3 of Usable Capacity	23.7

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: 2025 Hyundai Palisade
 Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
 Test Date: 7/29/2025



LEFT SIDE VIEW

NOTE: 2-DOOR VEHICLE SHOWN.
 REAR DUMMY PHX & PHZ
 MEASUREMENTS FOR A 4-DOOR
 VEHICLE WOULD USE THE C-POST
 STRIKER AS A REFERENCE POINT

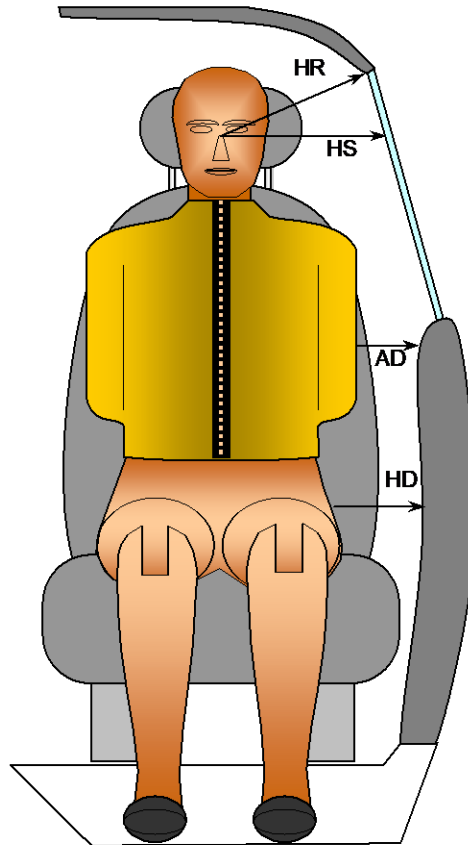
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length (mm)	Angle	Length (mm)	Angle
HH		Header to Header	417			
HW		Header to Windshield	632			
HZ	HZ	Head to Roof Liner	208		323	
NR	NB	Nose to Rim/Seat Back	447		658	
CD	CB	Chest to Dash/Seat Back	590		634	
CS		Chest to Steering Wheel	370			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	110	0.0	292	0.0
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	95	0.0	318	0.0
PAX°	PAX°	Pelvic Tilt Angle X		1.2		0.2
	PAY°	Pelvic Tilt Angle Y				20.0
PHX	PHX	Hip Point to Striker (X-Axis)	191		285	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	214		205	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 Hyundai Palisade
Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
Test Date: 7/29/2025



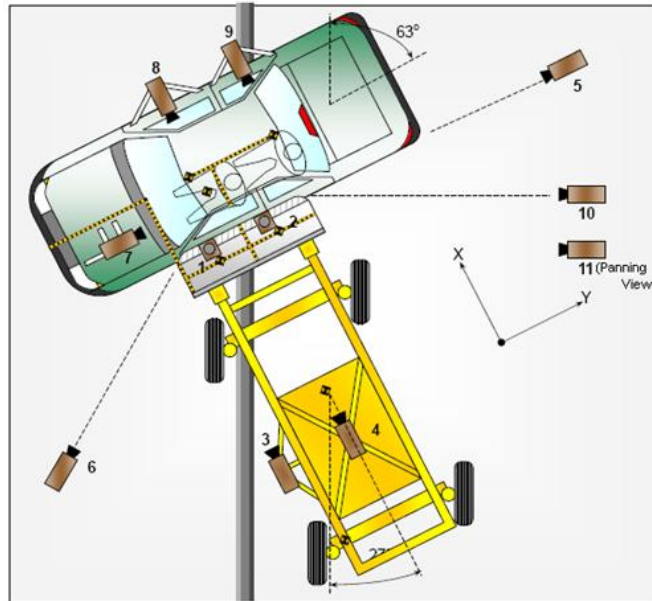
FRONT VIEW OF DUMMY

Code	Description	Units	Driver	Passenger
HR	Head to Side Header	mm	238	298
HS	Head to Side Window	mm	361	375
AD	Arm to Door	mm	114	171
HD	H-Point to Door	mm	163	186

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2025 Hyundai Palisade
 Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
 Test Date: 7/29/2025



CAMERA LOCATIONS AND DATA

No.	Camera View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Overhead Overall	1582	0	-5606	8.5	1000
2	Overhead Close-up	1399	0	-5600	28	1000
3	Left Impact Point (MDB)	-1545	-940	-820	25	1000
4	Side Overall (MDB)	-2281	0	-1410	8.5	1000
5	Rear	3585	-6322	-1474	20	1000
6	Left Front	-5132	4049	-1446	20	1000
7	Driver Front (OB)				25	1000
8	Driver Side (OB)				8.5	1000
9	Passenger Side (OB)				8.5	1000
10	Real-time Left Rear				Zoom	30
11	Real-time Inrun				Zoom	30

Reference: Impact Point projected to Ground; +X = To Front of MDB +Y = To Right of MDB; +Z = Down

*All measurements accurate to ± 6 mm.

If applicable, explain why camera(s) did not operate as intended: N/A

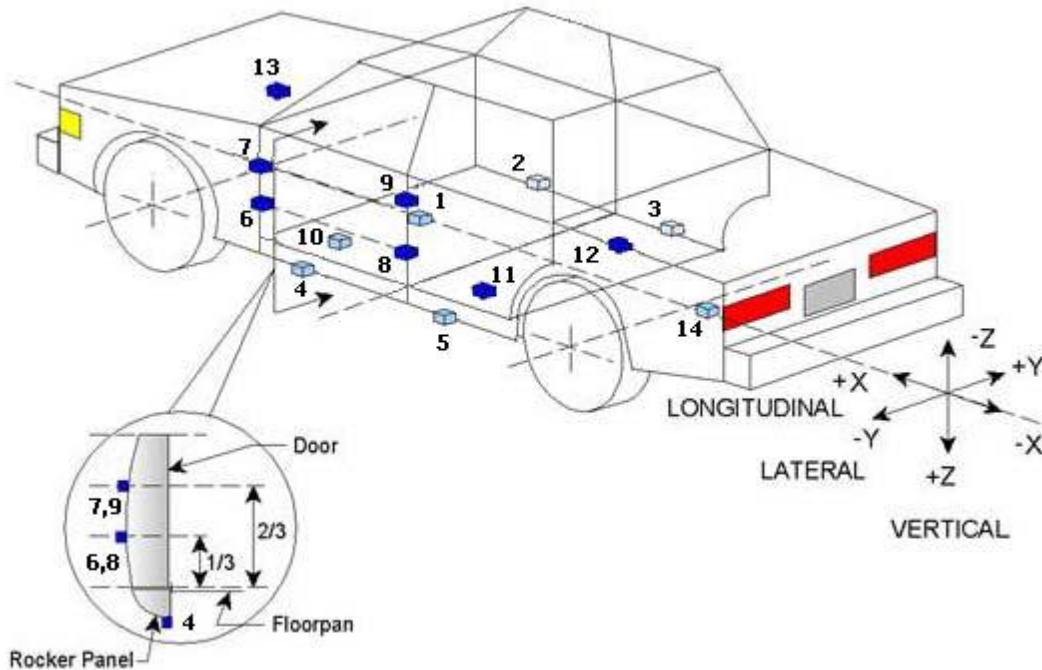
INSTRUMENTATION

Driver Dummy Channels	16
Passenger Dummy Channels	16
Vehicle Structure Accelerometers	23
MBD Accelerometers	5
TOTAL	60

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

Test Vehicle: 2025 Hyundai Palisade
Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
Test Date: 7/29/2025



TEST VEHICLE ACCELEROMETER LOCATIONS

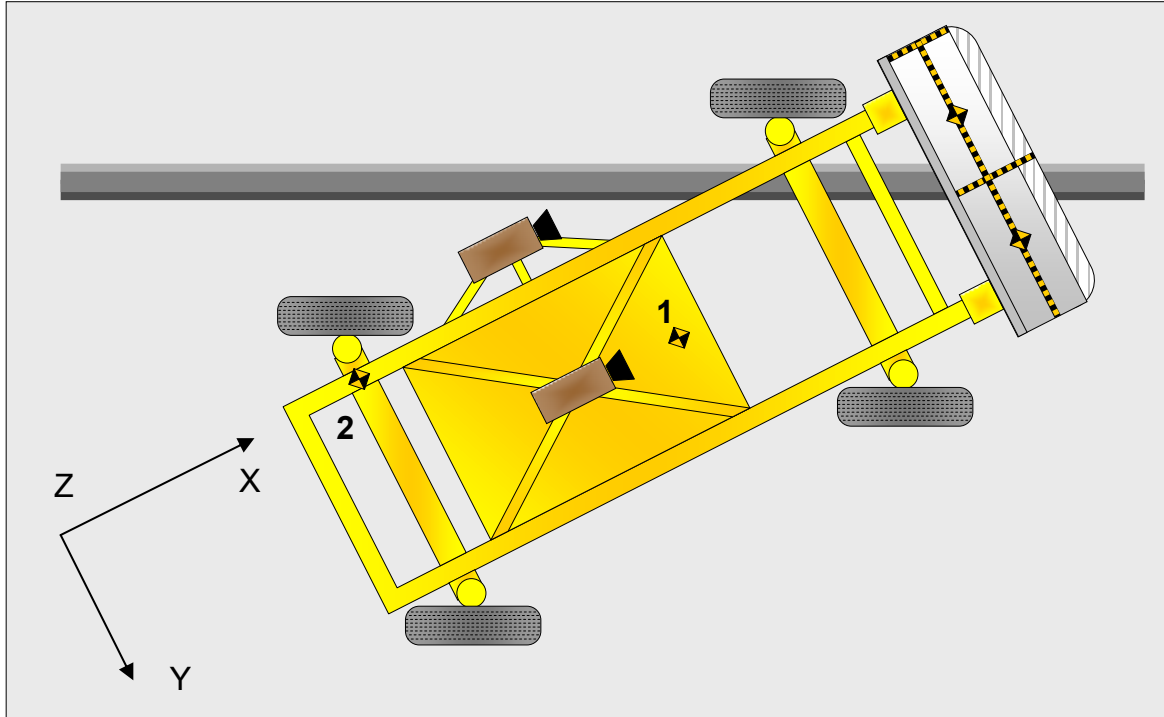
Loc. No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	3089	122	-443
2	Right Sill at Front Seat	3083	749	-438
3	Right Sill at Rear Seat	2111	455	-491
4	Left Sill at Front Door	3109	-746	-433
5	Left Sill at Rear Door	2115	-446	-470
6	A-Post Lower	3470	-892	-603
7	A-Post Middle	3484	-867	-1015
8	B-Post Lower	2451	-890	-595
9	B-Post Middle	2420	-874	-1075
10	Front Seat Track	2721	-624	-515
11	Rear Seat Structure	2113	-403	-474
12	Right Rear Occ. Compartment	2109	382	-487
13	Engine Block	4145	160	-953
14	Rear Above Axle	1098	-10	-576

Reference: X - Rear surface of vehicle (+ forward)
Y - Vehicle Centerline (+ to right)
Z - Ground Plane (+ down)

DATA SHEET NO. 7
MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2025 Hyundai Palisade
 Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
 Test Date: 7/29/2025



MDB ACCELEROMETER LOCATIONS

Loc. No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	MDB CG	-2196	0	-500
2	MDB Rear	-3585	-645	-620

Reference : X - Face of MDB (+ forward)
 Y - MDB Centerline (+ to right)
 Z - Ground Plane (+ down)

**DATA SHEET NO. 8
POST-TEST OBSERVATIONS**

Test Vehicle: 2025 Hyundai Palisade
Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
Test Date: 7/29/2025

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Front Seat Dummy (ES2-re)	Rear Seat Dummy (SID-IIs)
Face	SCAB	SCAB
Top of Head	SCAB	SCAB
Left Side of Head	SCAB	SCAB
Back of Head	SCAB, Headrest	SCAB, Headrest
Left Shoulder	SAB	SAB
Upper Torso	SAB, Seatback	SAB
Lower Torso	SAB, Seatback	SAB
Left Hip	SAB, Door Panel	SAB, Door Panel
Left Knee	Door Panel	Door Panel

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Trunk Lid
	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	None	None	None	None
Seat Disengagement from Floor pan	None	None	None	None
Seat Back Movement from Initial Position	None	None	None	None
Seat Back Collapse	None	None	None	None

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Good
Sill Separation	None
Windshield Damage	None
Side Window Damage	Rear struck side window broken
Other Notable Effects	None

DATA SHEET NO. 8 (CONTINUED)
POST TEST OBSERVATIONS

Test Vehicle: 2025 Hyundai Palisade
 Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
 Test Date: 7/29/2025

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheel Base	mm		2905
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		508
Actual Impact Point (Aft of Front Axle)	mm		506
Horizontal Offset (+ forward / - rearward)	mm	+/- 50 of Intended Impact point	+2
Vertical Offset (+ down / - up)	mm	+/- 20 of Intended Impact point	+10

DATA SHEET NO. 9
MDB SUMMARY OF RESULTS

Test Vehicle: 2025 Hyundai Palisade
Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
Test Date: 7/29/2025

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1252
Overall Length Including Honeycomb Face	4115
Wheel Base of Framework Carriage	2591
C.G. Location aft of Front Axle	1117

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	397.8	287.6	685.4
Right	kg	380.4	302.2	682.6
Ratio	%	56.9	43.1	100.0
Totals	kg	778.2	589.8	1368.0

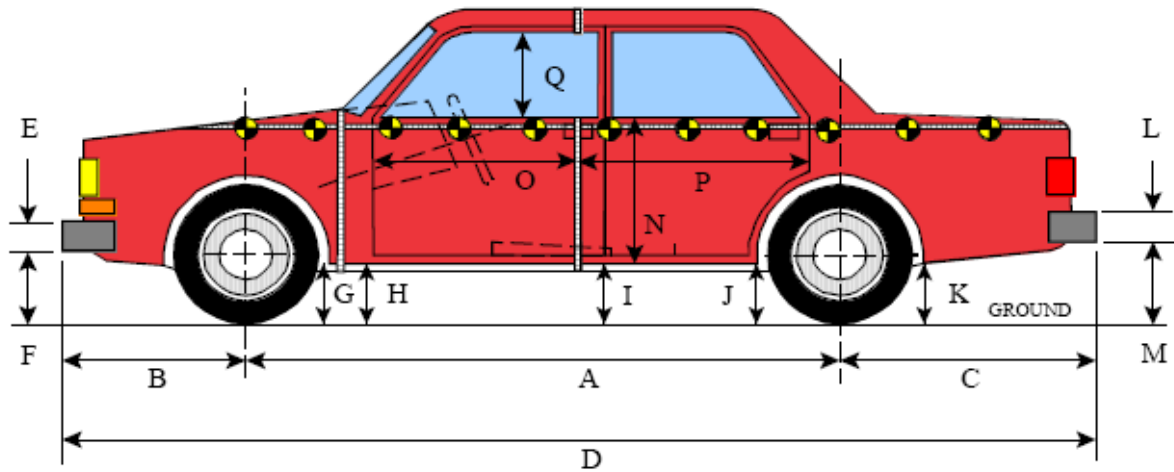
SPEED AND IMPACT ANGLE DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.33
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.37
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90.0
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	63.0
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26 to 28	27.0

DATA SHEET NO. 10
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2025 Hyundai Palisade
 Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
 Test Date: 7/29/2025



LEFT SIDE VIEW

All MEASUREMENTS IN (mm) WITH TOLERANCE OF $\pm 3\text{mm}$

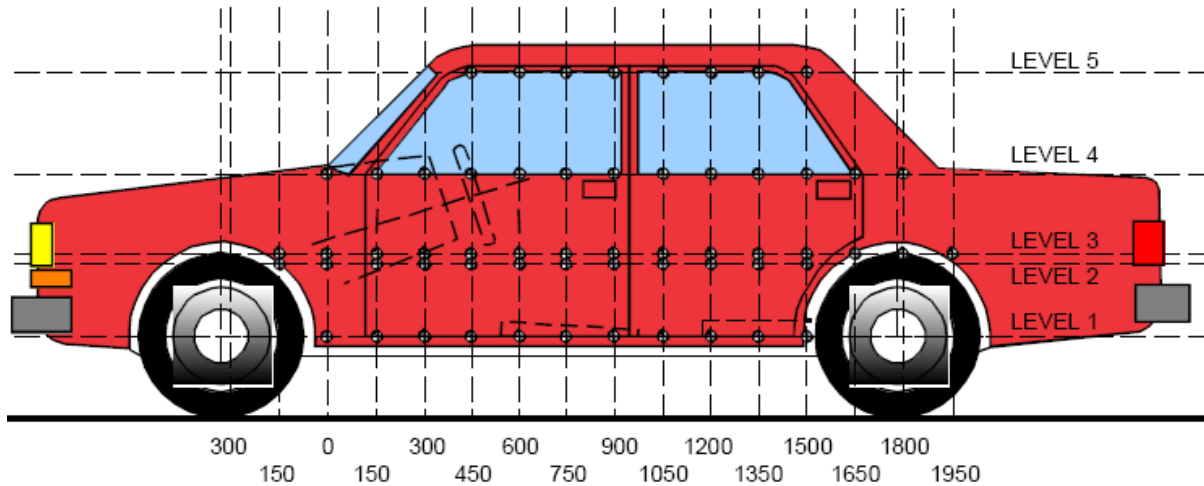
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Change
A	Wheelbase	2905	2896	-9
B	Front Axle to Front Surface of Vehicle	985	993	8
C	Rear Axle to Rear Surface of Vehicle	1112	1112	0
D	Total Length at Centerline	5001	5001	0
E	Front Bumper Thickness	110	110	0
F	Front Bumper Bottom to Ground	470	474	4
G	Sill Height at Front Wheel Well	360	395	35
H	Sill Height at Front Door Leading Edge	362	500	138
I	Sill Height at B-Pillar	380	508	128
J1	Sill Height at Rear Wheel Well	405	550	145
J2	Pinch Weld Height at Rear Wheel Well	271	267	-4
K	Sill Height Aft of Rear Wheel Well	495	577	82
L	Rear Bumper Thickness	112	112	0
M	Rear Bumper Bottom to Ground	571	620	49
N	Sill Height to Window Bottom Sill	980	818	-162
O	Front Door Leading Edge to Impact CL	834	802	-32
P	Rear Door Trailing Edge to Impact CL	1356	1325	-31
Q	Front Window Opening	456	470	14
R	Right Side Length	4850	4850	0
S	Left Side Length	4849	4846	-3
T	Vehicle Width	1985	1986	1
U	Front Wheel Track Width	1713	1713	0
V	Rear Wheel Track Width	1715	1715	0

DATA SHEET NO. 11
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2025 Hyundai Palisade
 Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
 Test Date: 7/29/2025



LEFT SIDE VIEW

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance From Impact
1	Sill Top	-415	50	1800
2	Driver Hip Point	-691	194	1650
3	Mid Door	-717	198	1650
				1500
4	Window Sill	-1139	49	1350
				1800
5	Window Top	-1616	-7	1950
				2100

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

DATA SHEET NO. 11 (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2025 Hyundai Palisade
 Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
 Test Date: 7/29/2025

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test					Post-Test					Crush				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-450	0	0	0	827	0	0	0	0	873	0	0	0	0	-46	0
-300	0	0	0	839	0	0	0	0	883	0	0	0	0	-44	0
-150	0	982	982	851	0	0	1026	1025	880	0	0	-44	-43	-29	0
0	957	979	980	861	0	1005	985	989	896	0	-48	-6	-9	-35	0
150	956	962	961	866	0	919	855	851	933	0	37	107	110	-67	0
300	929	954	957	878	0	897	801	806	927	0	32	153	151	-49	0
450	926	955	958	887	0	901	793	796	927	0	25	162	162	-40	0
600	925	956	959	894	636	898	795	803	923	665	27	161	156	-29	-29
750	924	956	959	899	669	896	808	816	917	695	28	148	143	-18	-26
900	922	956	959	902	680	892	821	824	908	703	30	135	135	-6	-23
1050	920	956	959	905	683	894	820	823	889	703	26	136	136	16	-20
1200	915	954	958	906	681	882	785	788	863	697	33	169	170	43	-16
1350	912	953	956	905	679	880	764	766	856	691	32	189	190	49	-12
1500	907	950	954	904	678	878	756	756	873	688	29	194	198	31	-10
1650	913	952	955	903	676	876	757	757	888	684	37	195	198	15	-8
1800	941	966	966	900	672	891	803	812	899	679	50	163	154	1	-7
1950	955	981	981	897	665	945	841	847	927	672	10	140	134	-30	-7
2100	0	0	985	895	658	0	0	961	940	665	0	0	24	-45	-7
2250	0	0	0	891	649	0	0	0	893	656	0	0	0	-2	-7
2400	0	0	0	887	639	0	0	0	891	644	0	0	0	-4	-5

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.

DATA SHEET NO. 11 (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2025 Hyundai Palisade
Test Program: SINCAP Side Impact

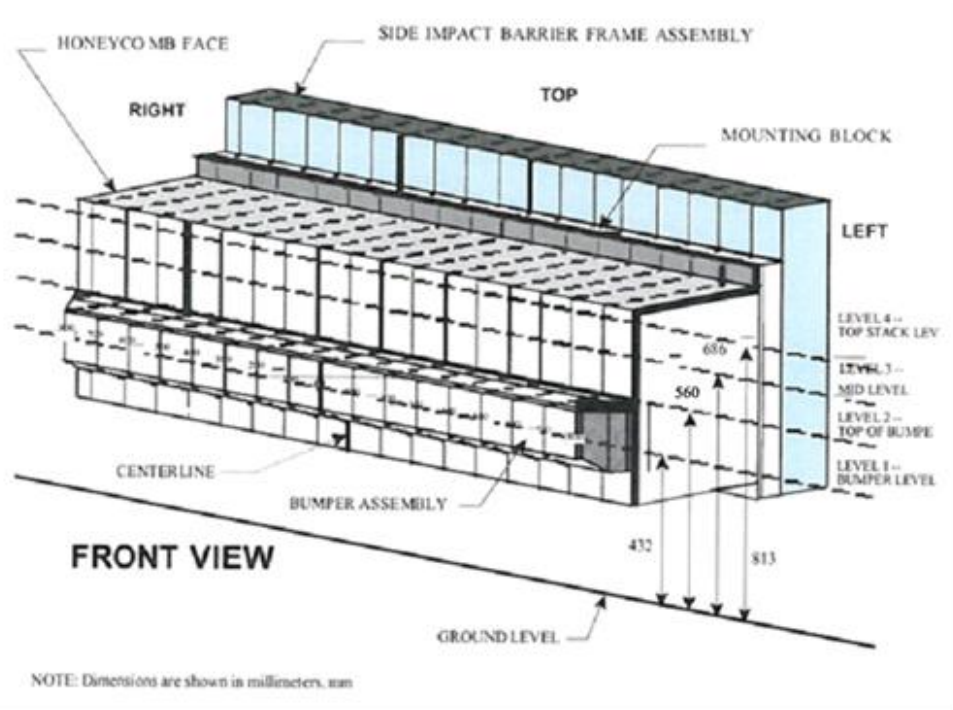
NHTSA No.: Q20254206
Test Date: 7/29/2025



DATA SHEET NO. 12
MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2025 Hyundai Palisade
 Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
 Test Date: 7/29/2025



MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE

Vertical Location			From Centerline		Maximum Crush
Row	Description	Height	Distance	Direction	
A	Center of Bumper	432	700	Right	258
B	Top of Bumper	560	800	Right	110
C	Mid-Level	686	800	Right	94
D	Top of Stack	813	800	Left	130

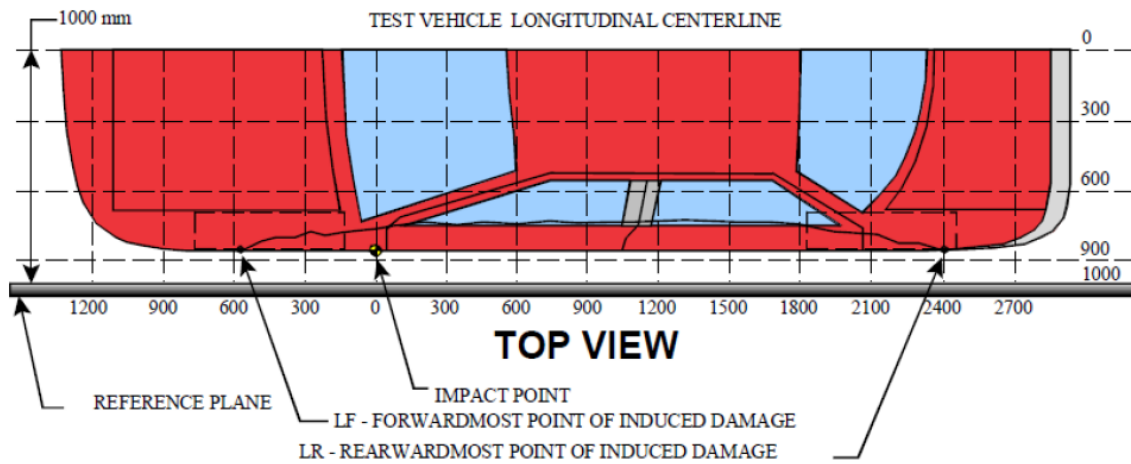
DEFORMABLE BARRIER STATIC CRUSH

Stack Level	Distance Right of Center								C/L	Distance Left of Center							
	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
1	255	258	256	255	252	251	248	245	241	235	231	228	225	222	219	217	212
2	110	109	108	105	104	101	100	97	93	88	84	81	77	74	71	70	68
3	94	53	45	40	41	48	73	90	90	79	65	51	40	38	38	46	69
4	109	64	56	56	64	68	83	104	89	86	76	71	71	77	85	105	130

DATA SHEET NO. 13
VEHICLE AND MDB DAMAGE PROFILE DISTANCES

Test Vehicle: 2025 Hyundai Palisade
 Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
 Test Date: 7/29/2025



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1 ¹	21100	3	961	985	0
2	1650	3	757	955	198
3	1200	3	788	958	170
4	750	2	808	956	148
5	450	2	793	955	162
		3	796	958	
6 ¹	150	3	851	961	110

MDB DAMAGE PROFILE DISTANCES

DPD	Distance From Center of MDB	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	800	1	257	469	212
2	500	1	263	485	222
3	200	1	254	485	231
4	200	1	238	486	248
5	500	1	231	486	255
6 ¹	800	1	219	474	255

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. 14
FMVSS NO. 301 STATIC ROLLOVER RESULTS

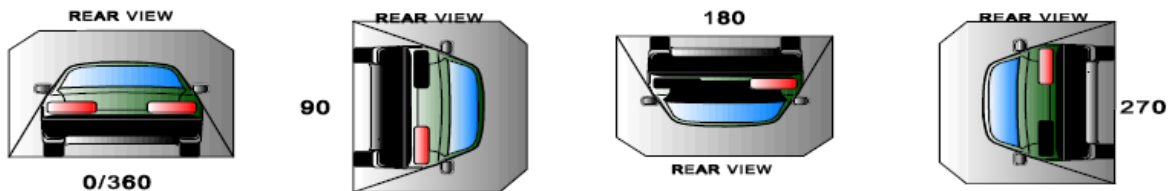
Test Vehicle: 2025 Hyundai Palisade
 Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
 Test Date: 7/29/2025

Test Time: 16:18 **Temperature:** 22.2C

- 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	N/A
90 to 180	0	0	0	N/A
180 to 270	0	0	0	N/A
270 to 360	0	0	0	N/A

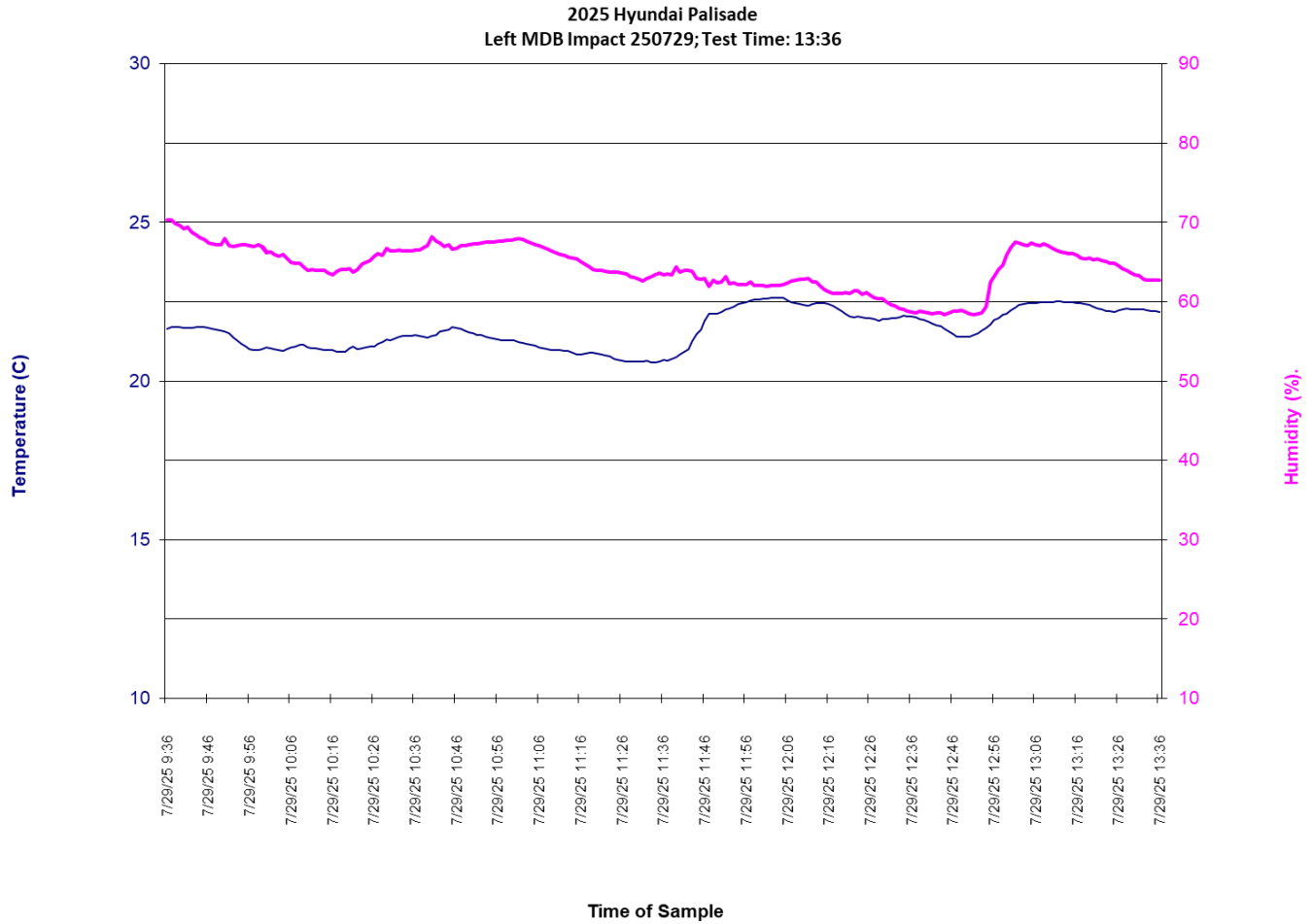
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 15
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2025 Hyundai Palisade
Test Program: SINCAP Side Impact

NHTSA No.: Q20254206
Test Date: 7/29/2025



APPENDIX A
PHOTOGRAPHS

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071	Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment	A-42
072	Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment	A-42
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078	Post-Test Rear Passenger Dummy Close-Up Torso Contact with Side Airbag View	A-45
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080	Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Airbag View	A-46
081	Post-Test Rear Passenger Dummy Close-Up Knee Contact View	A-47
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102	Monroney Label	A-58
103	Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-58
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001 As-Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



002 As-Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle



003 Pre-Test Frontal View of Test Vehicle



004 Post-Test Frontal View of Test Vehicle



005 Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle



006 Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle



007 Pre-Test Left Side View of Test Vehicle



008 Post-Test Left Side View of Test Vehicle



009 Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



010 Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



011 Pre-Test Rear View of Test Vehicle



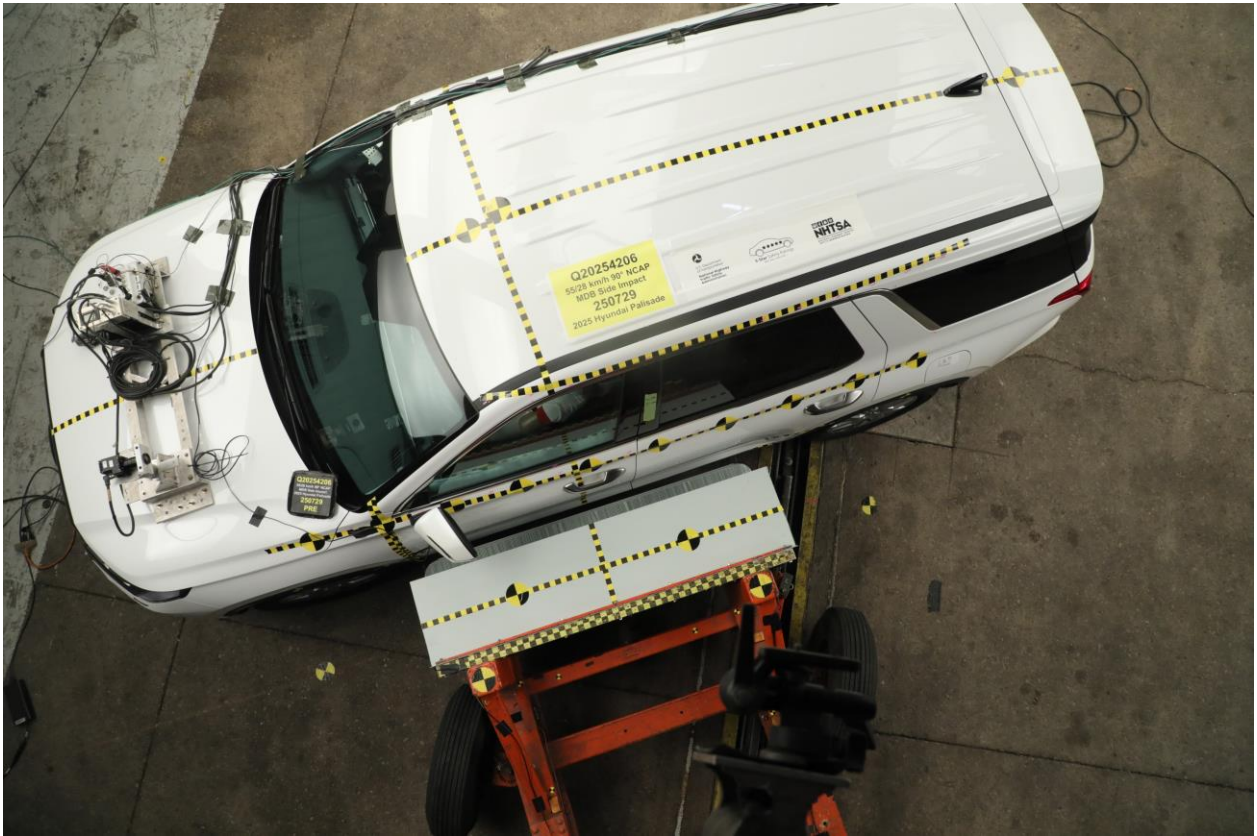
012 Post-Test Rear View of Test Vehicle



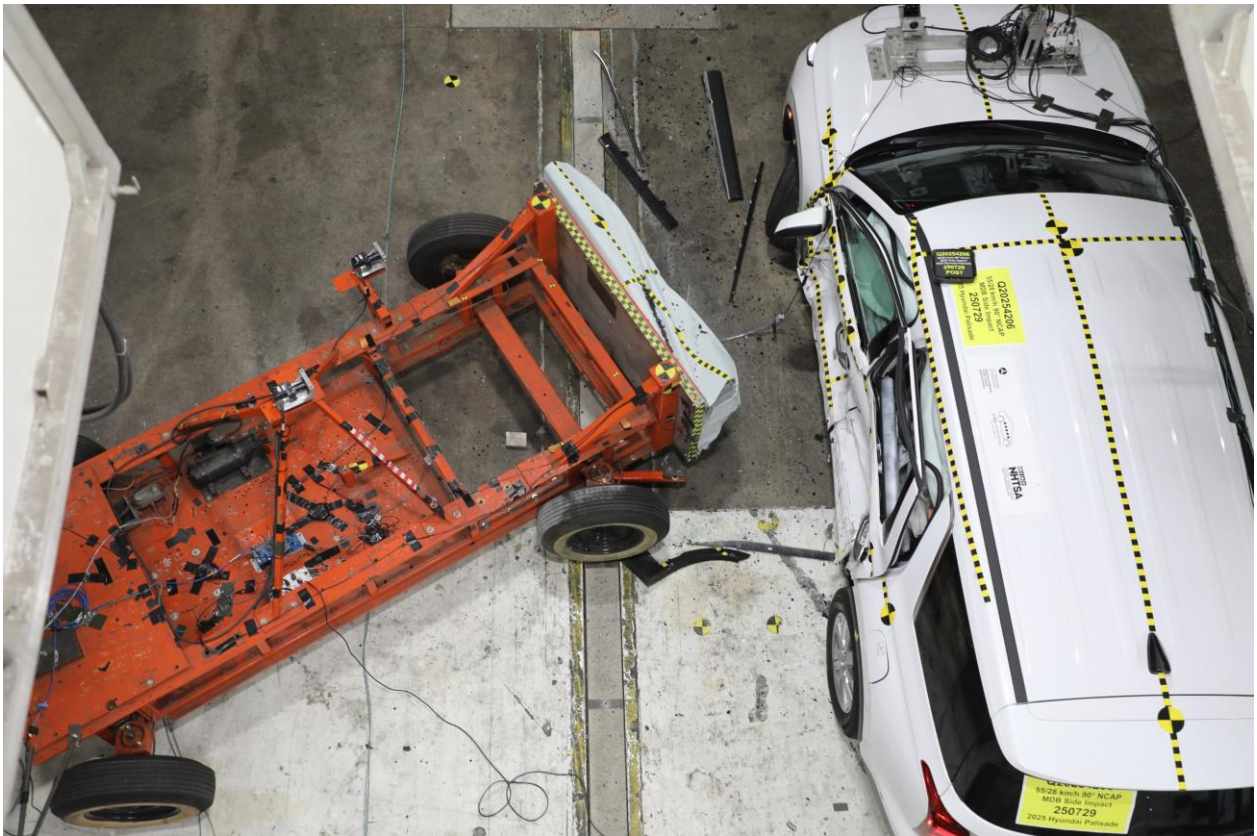
013 Pre-Test Right Side View of Test Vehicle



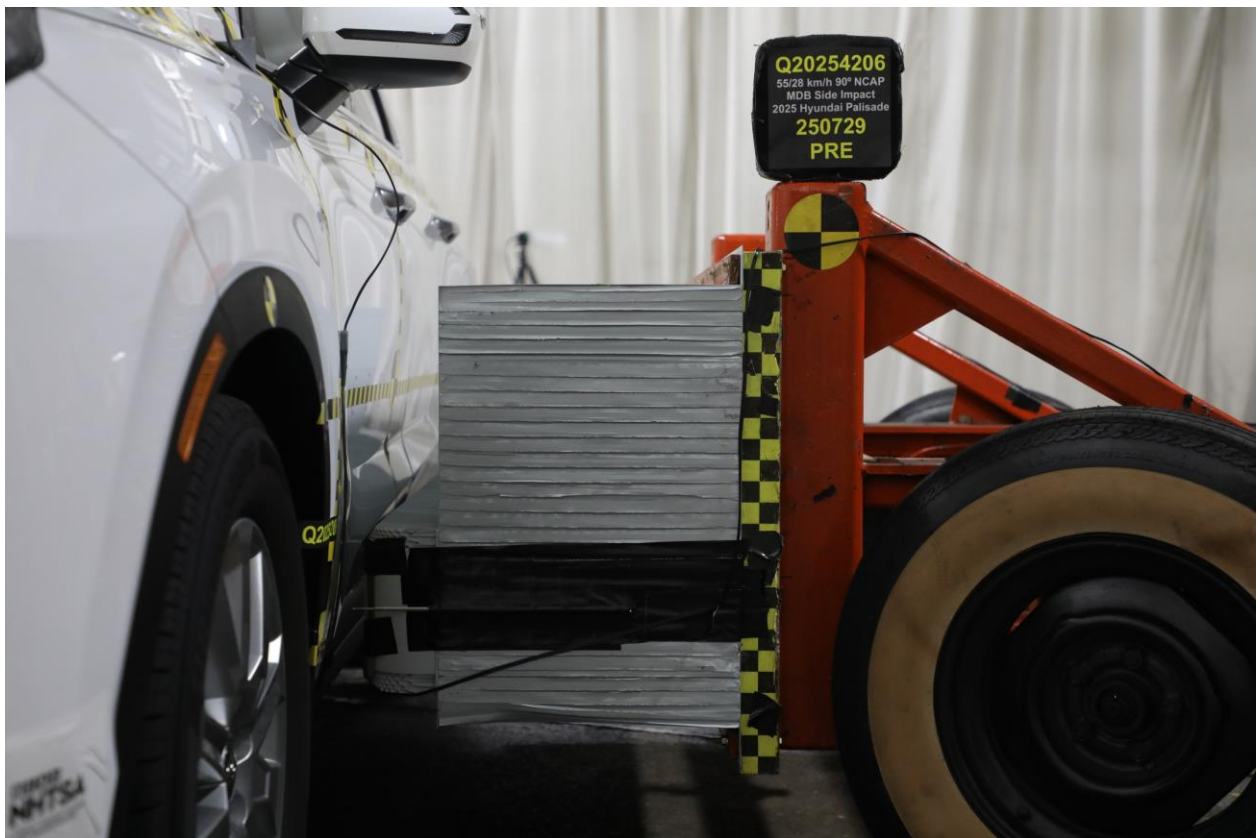
014 Post-Test Right Side View of Test Vehicle



015 Pre-Test Overhead View of Test Area



016 Post-Test Overhead View of Test Area



017 Pre-Test Left Side View of MDB Positioned Against Side of Test Vehicle



018 Pre-Test Right Side View of MDB Positioned Against Side of Test Vehicle



019 Pre-Test Close-Up View of Impact Point Target



020 Post-Test Close-Up View of Impact Point Target



021 Pre-Test Left Front Door Latch Close-Up



022 Post-Test Left Front Door Latch Close-Up



023 Pre-Test Left Rear Door Latch Close-Up



024 Post-Test Left Rear Door Latch Close-Up



025 Pre-Test Front Close-Up View of Driver Dummy



026 Post-Test Front Close-Up View of Driver Dummy



027 Pre-Test Left Side View of Driver Dummy Showing Belt and Chalking

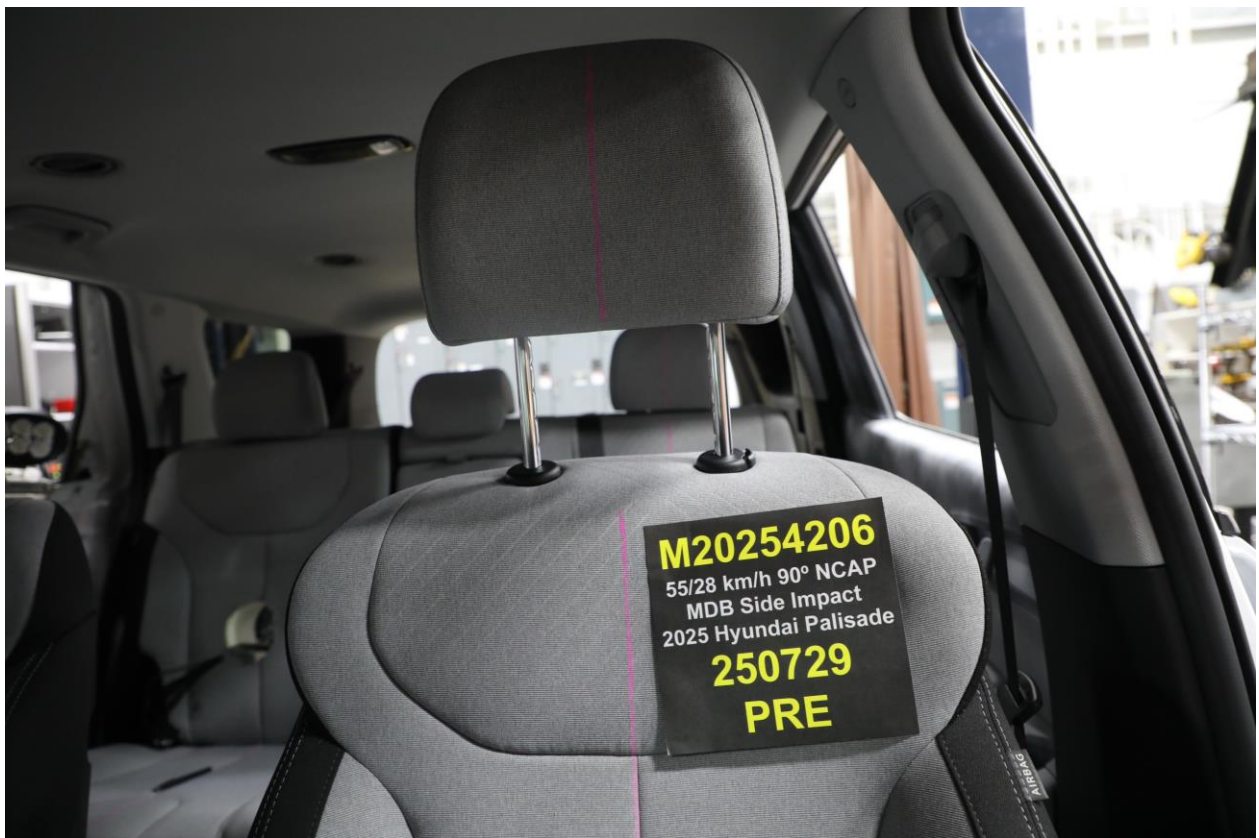
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028 Pre-Test Left Side View of Driver Dummy Shoulder and Door Top



029 Post-Test Left Side View of Driver Dummy Shoulder and Door Top



030 Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning



031 Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint



032 Pre-Test Frontal View of Driver Seat Pan Prior to Dummy Positioning



033 Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan



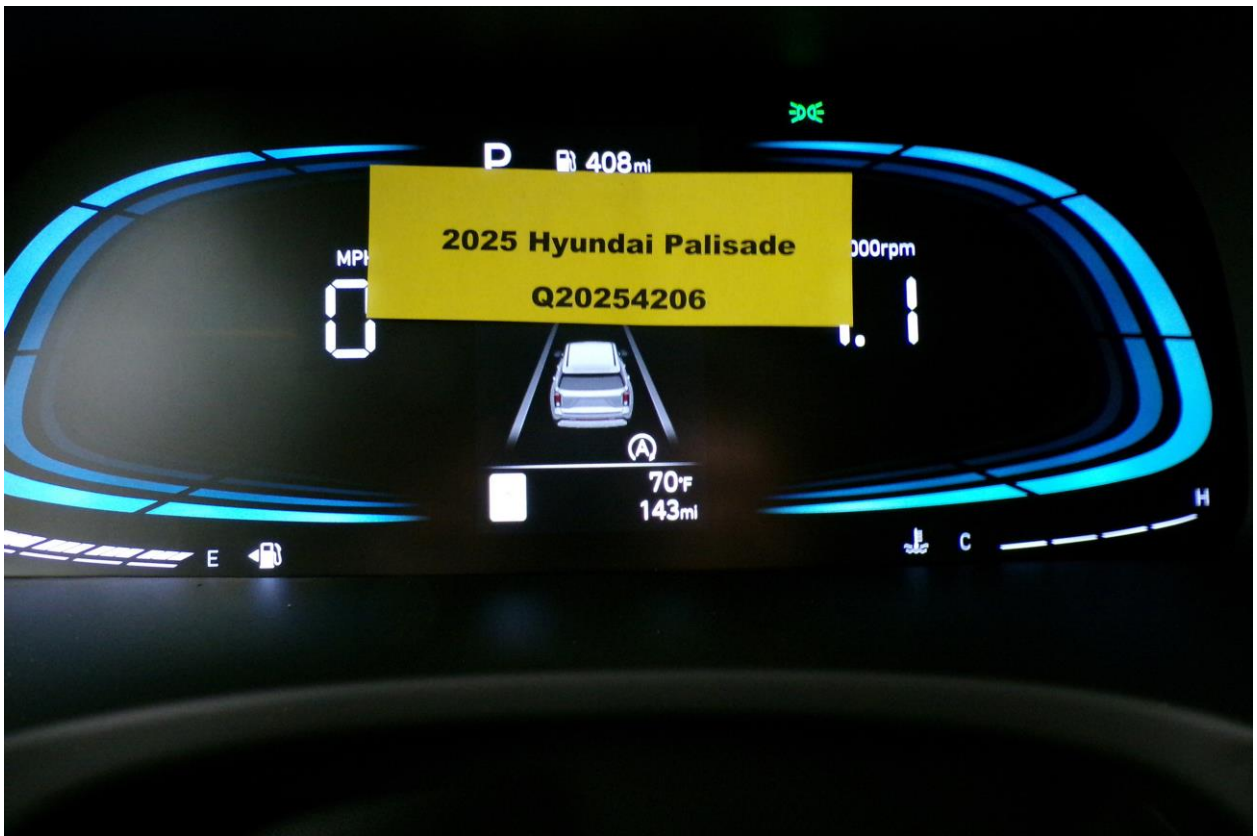
034 Pre-Test Placement of Driver's Dummy Feet



035 Pre-Test View of Belt Anchorage for Driver Dummy



036 Pre-Test Left Side View of Steering Wheel



037 View of Disengaged Parking Brake



038 Pre-Test View of Parking Brake



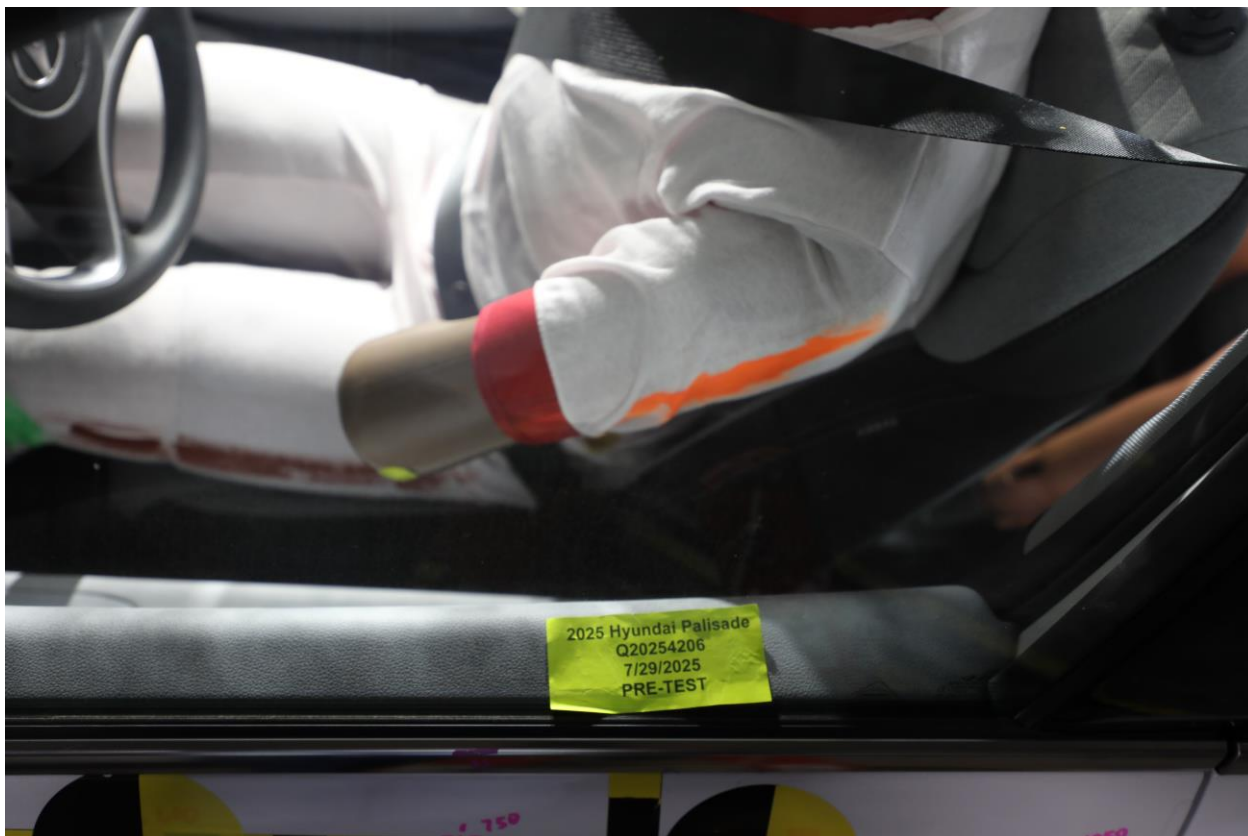
039 Pre-Test Close-Up Left Side View of Driver Seat Track



040 Pre-Test Close-Up Left Side View of Driver Seat Back



041 Pre-Test Close-Up View of Driver Seat Back or Head Restraint



042 Pre-Test Driver Dummy and Door Clearance View



043 Post-Test Driver Dummy and Door Clearance View



044 Pre-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



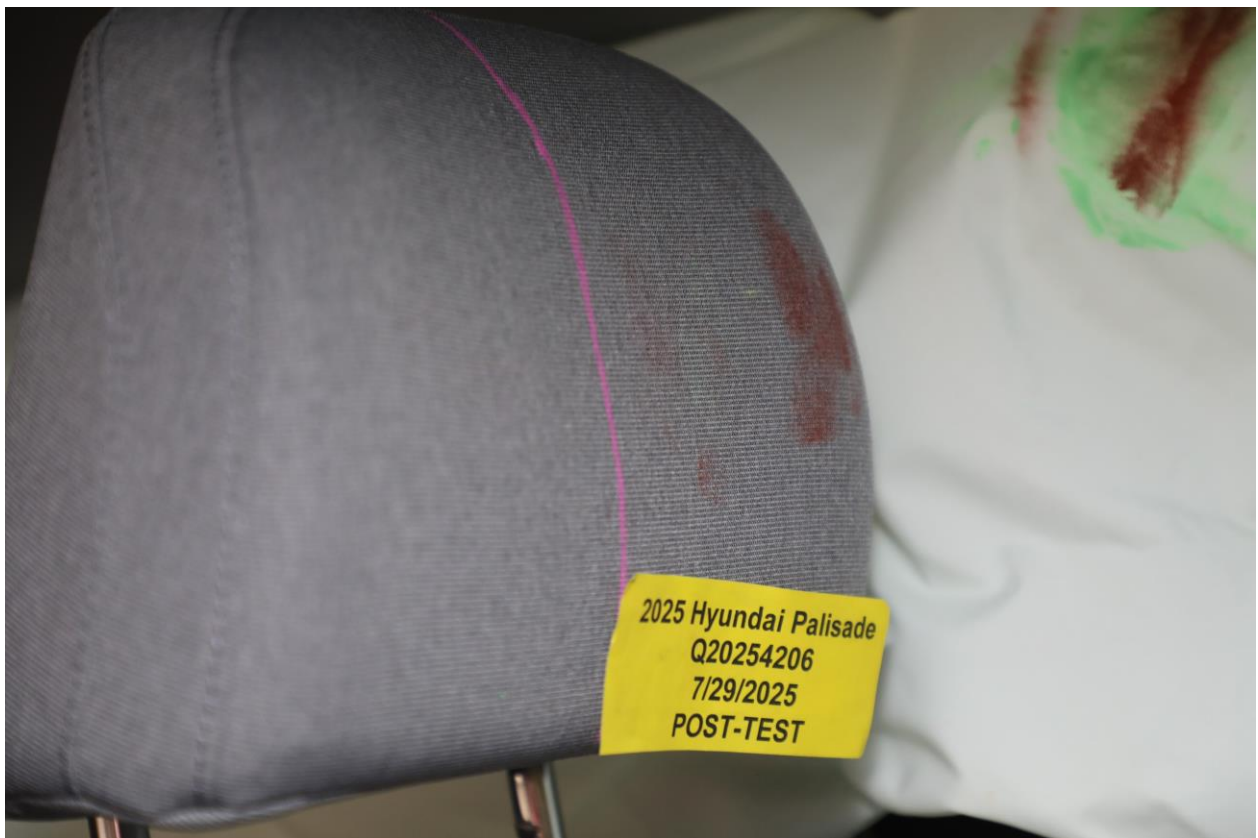
045 Post-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



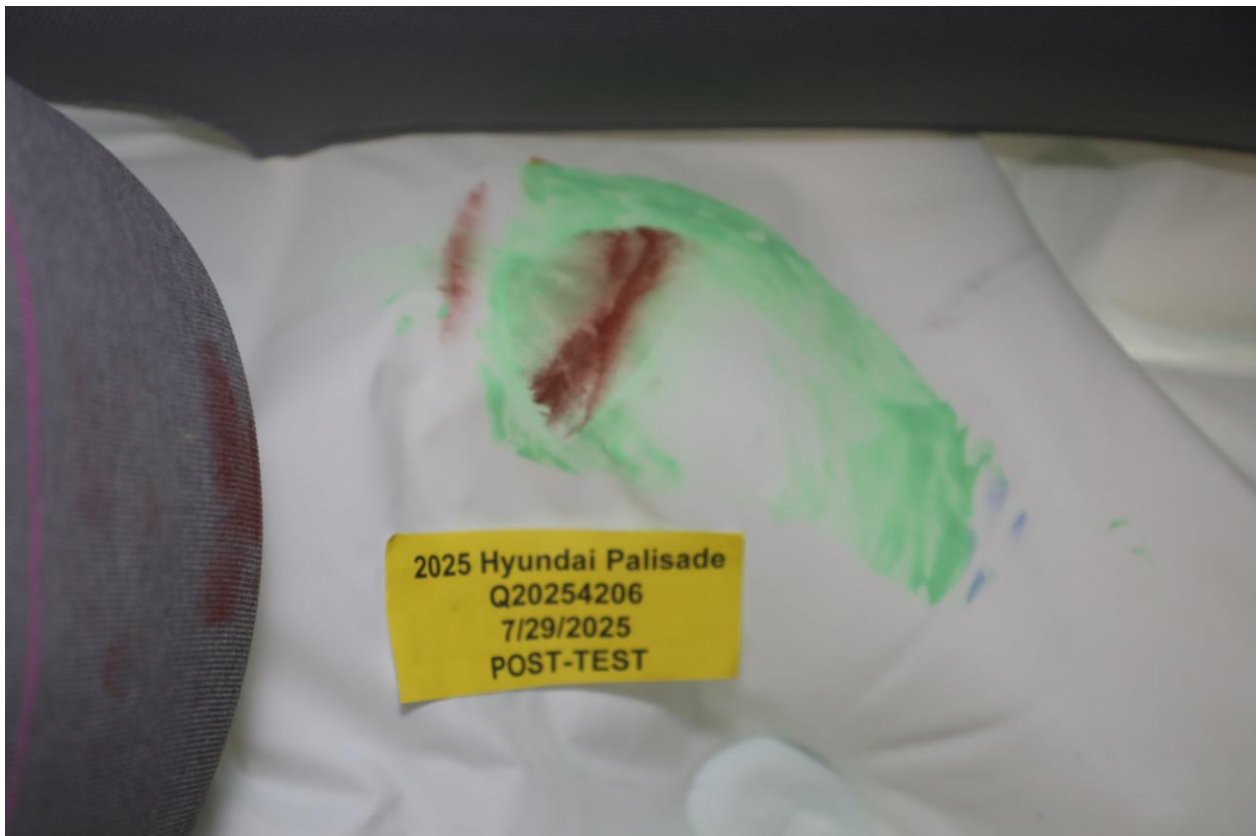
046 Pre-Test Driver Inner Door Panel View



047 Post-Test Driver Inner Door Panel View Showing Driver Dummy Contact Locations



048 Post-Test Driver Dummy Close-Up Head Contact with Vehicle View



049 Post-Test Driver Dummy Close-Up Head Contact with Side Airbag View



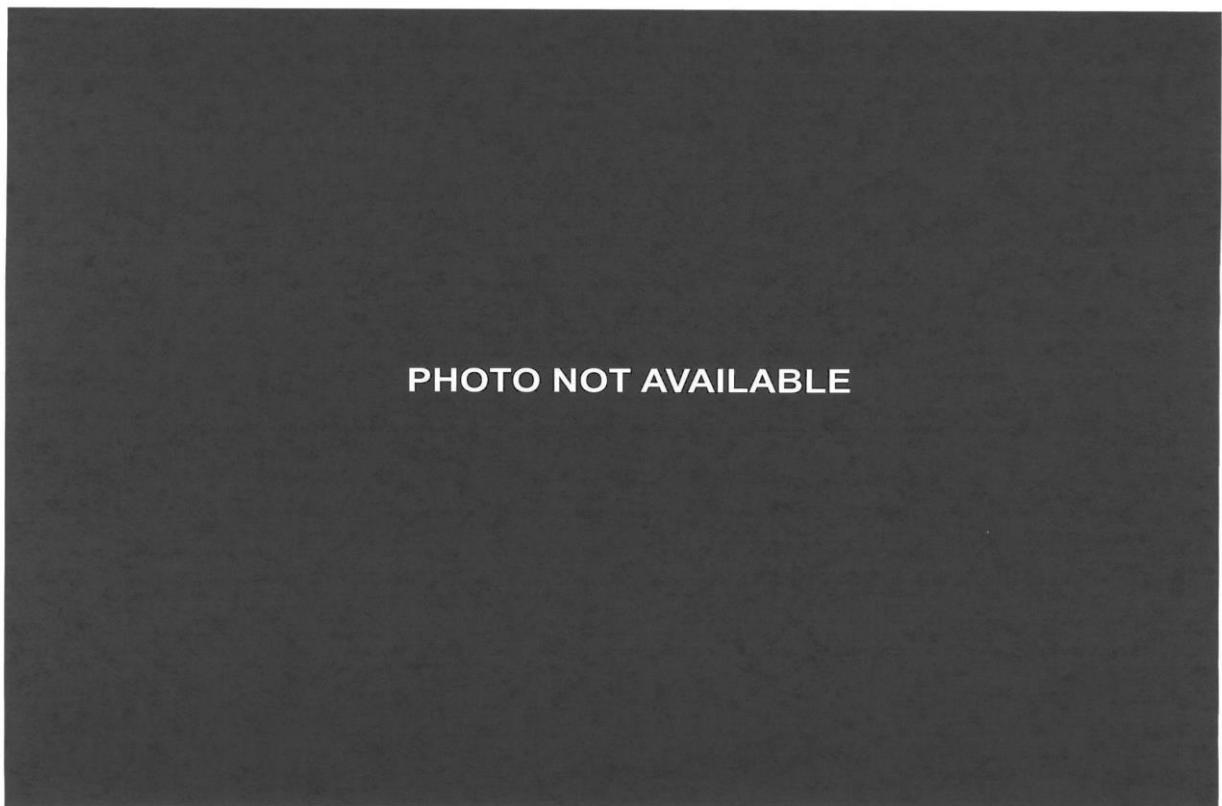
050 Post-Test Driver Dummy Close-Up Torso Contact with Vehicle Interior View



051 Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View



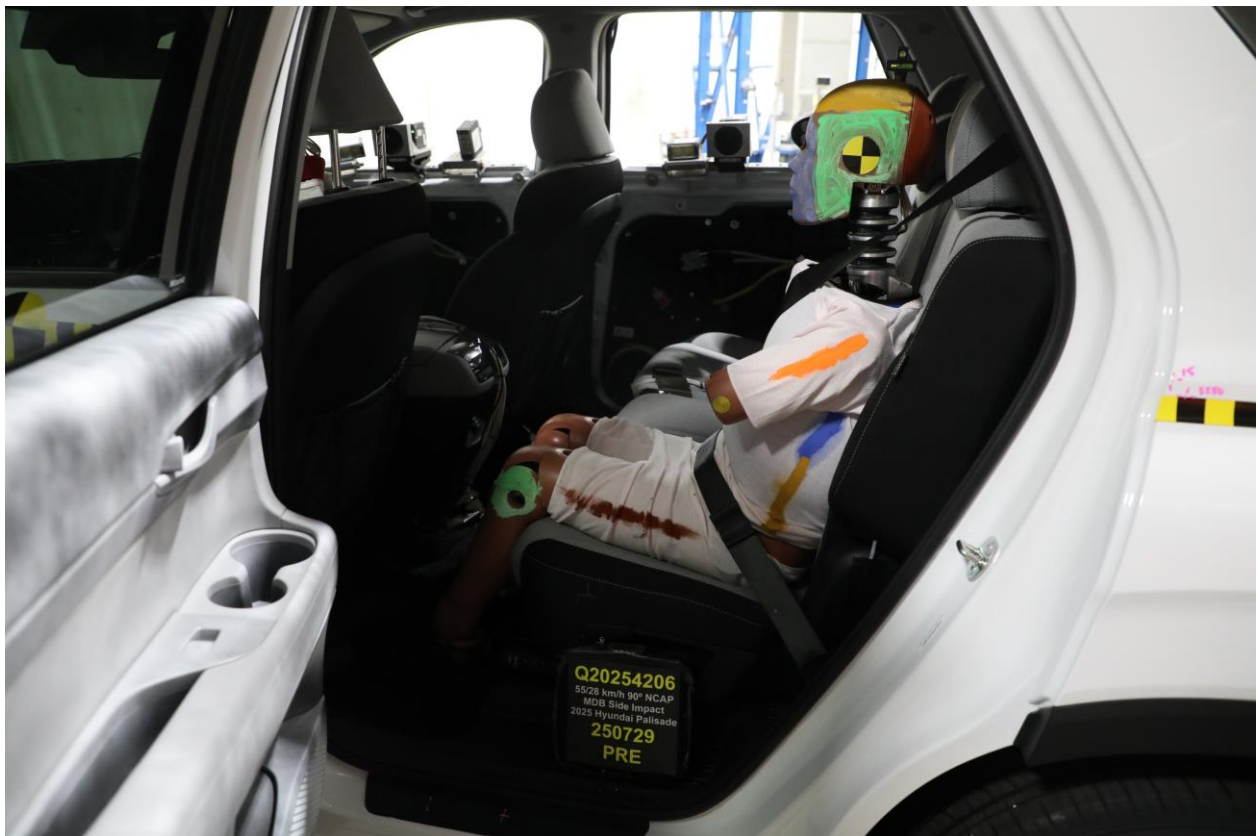
052 Post-Test Driver Dummy Close-Up Pelvis Contact View



053 Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View



054 Post-Test Driver Dummy Close-Up Knee Contact View



055 Pre-Test Left Side View of Passenger Dummy Showing Belt and Chalking



056 Pre-Test Left Side View of Passenger Dummy Shoulder and Door Top View



057 Post-Test Left Side View of Passenger Dummy Shoulder and Door Top View



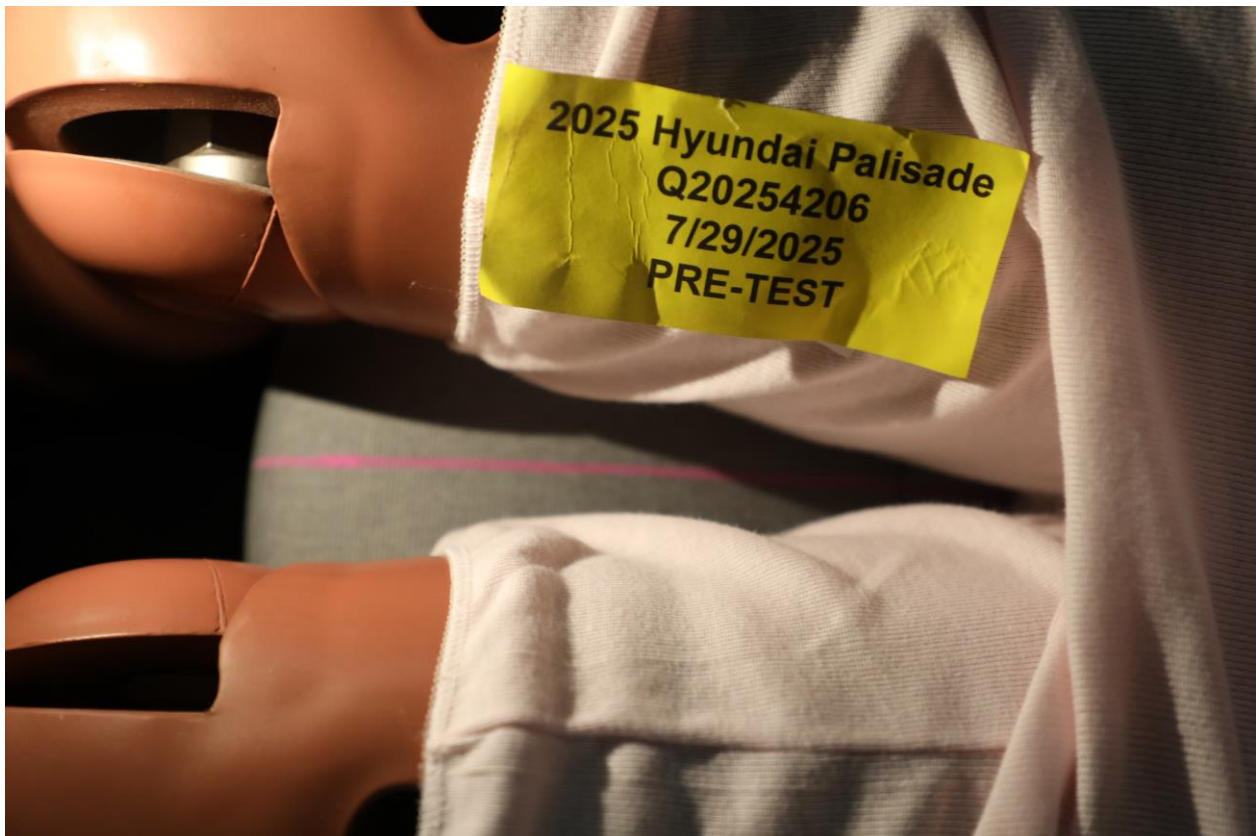
058 Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning



059 Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint



060 Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning



061 Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan



062 Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket



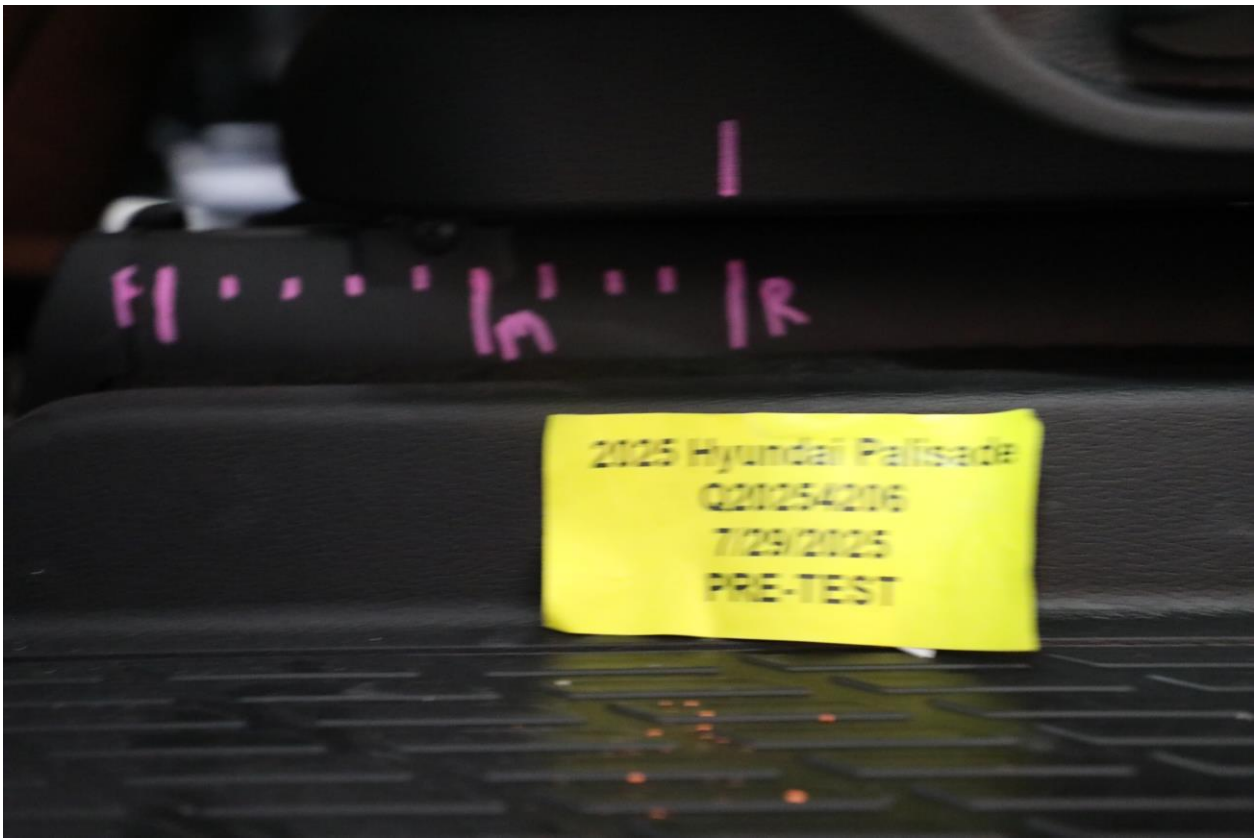
063 Pre-Test View of Rear Passenger Dummy's Head Showing Dummy Head is Level



064 Pre-Test Placement of Rear Passenger Dummy's Feet



065 Pre-Test View of Belt Anchorage for Rear Passenger Dummy



066 Pre-Test Close-Up Left Side View of Rear Passenger Seat Track



067 Pre-test Close-Up Left Side View of Rear Passenger Seat Back



068 Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint

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069 Pre-Test Rear Passenger Dummy and Door Clearance View



070 Post-Test Rear Passenger Dummy and Door Clearance View



071 Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



072 Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



073 Pre-Test Rear Passenger Inner Door Panel View



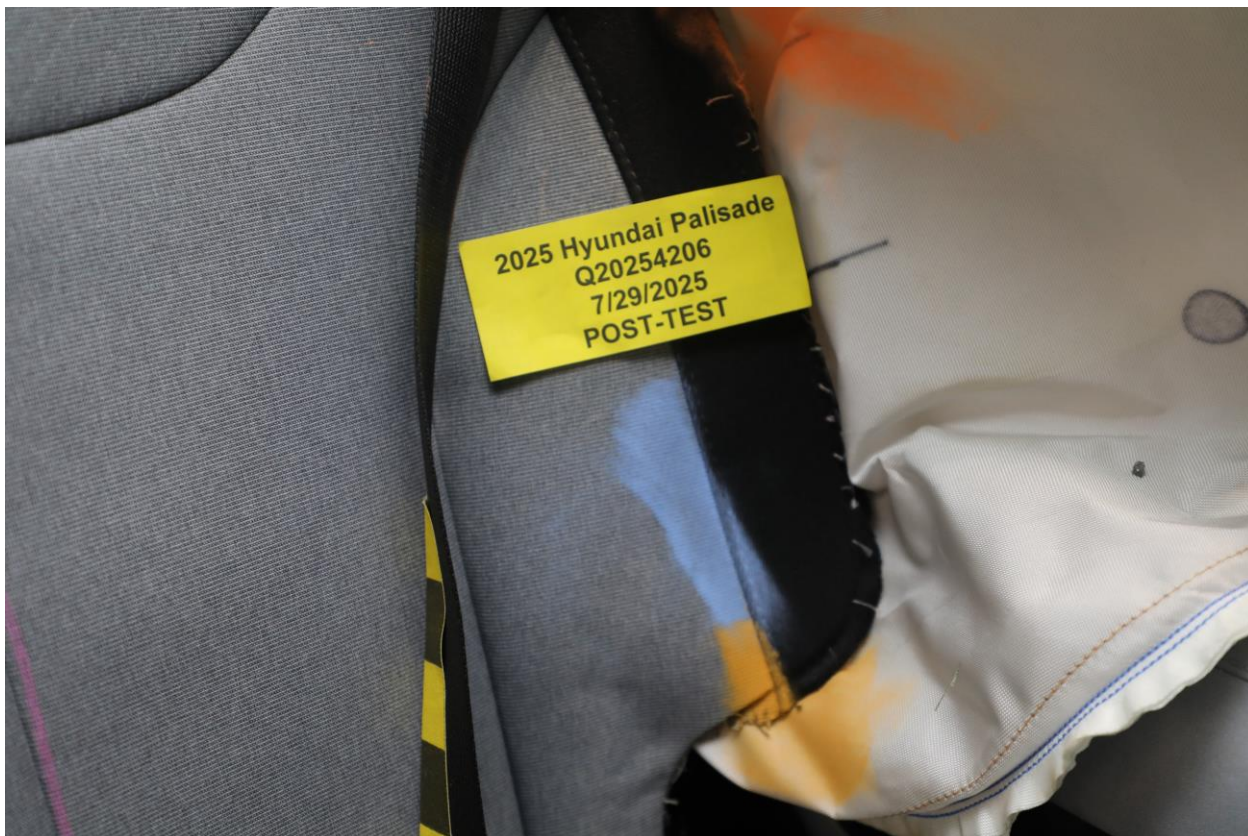
074 Post-Test Rear Passenger Inner Door Panel View



075 Post-Test Rear Passenger Dummy Close-Up Head Contact with Vehicle View



076 Post-Test Rear Passenger Dummy Close-Up Head Contact with Side Airbag View



077 Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Interior View



078 Post-Test Rear Passenger Dummy Close-Up Torso Contact with Side Airbag View

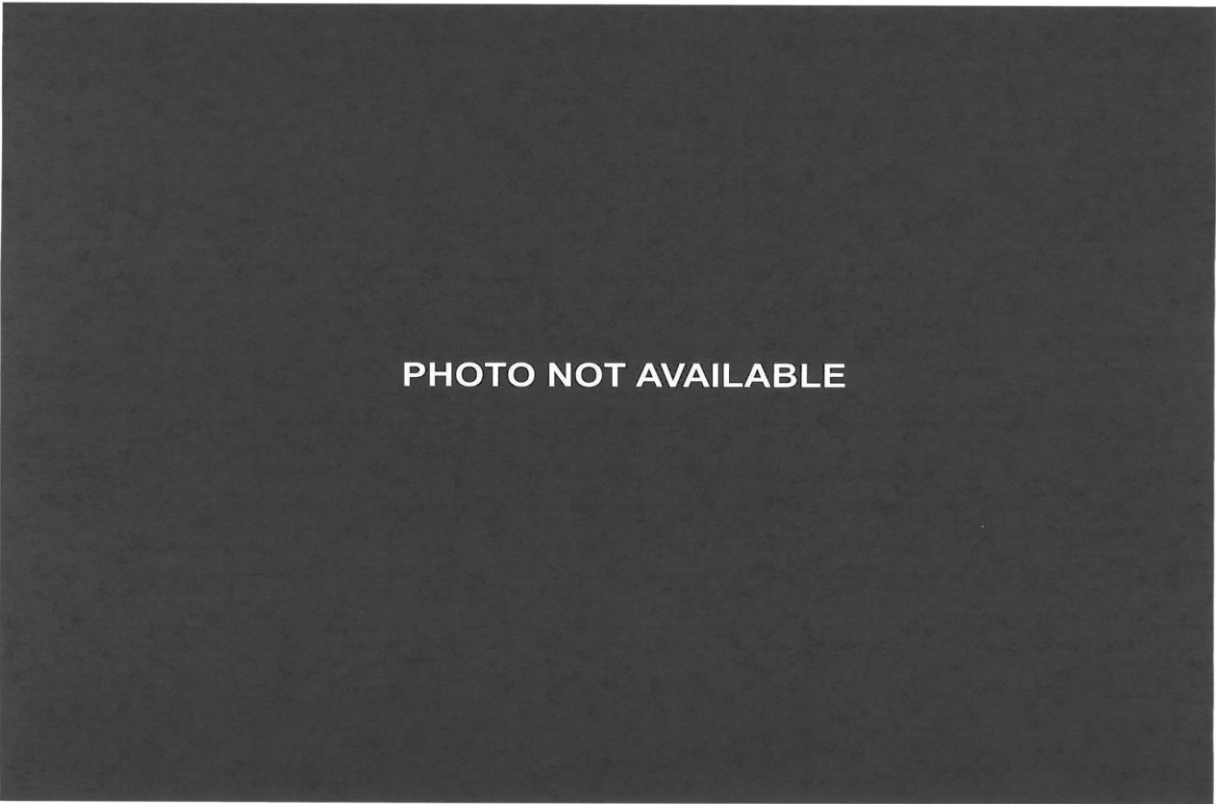


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079 Post-Test Rear Passenger Dummy Close-Up Pelvis Contact View

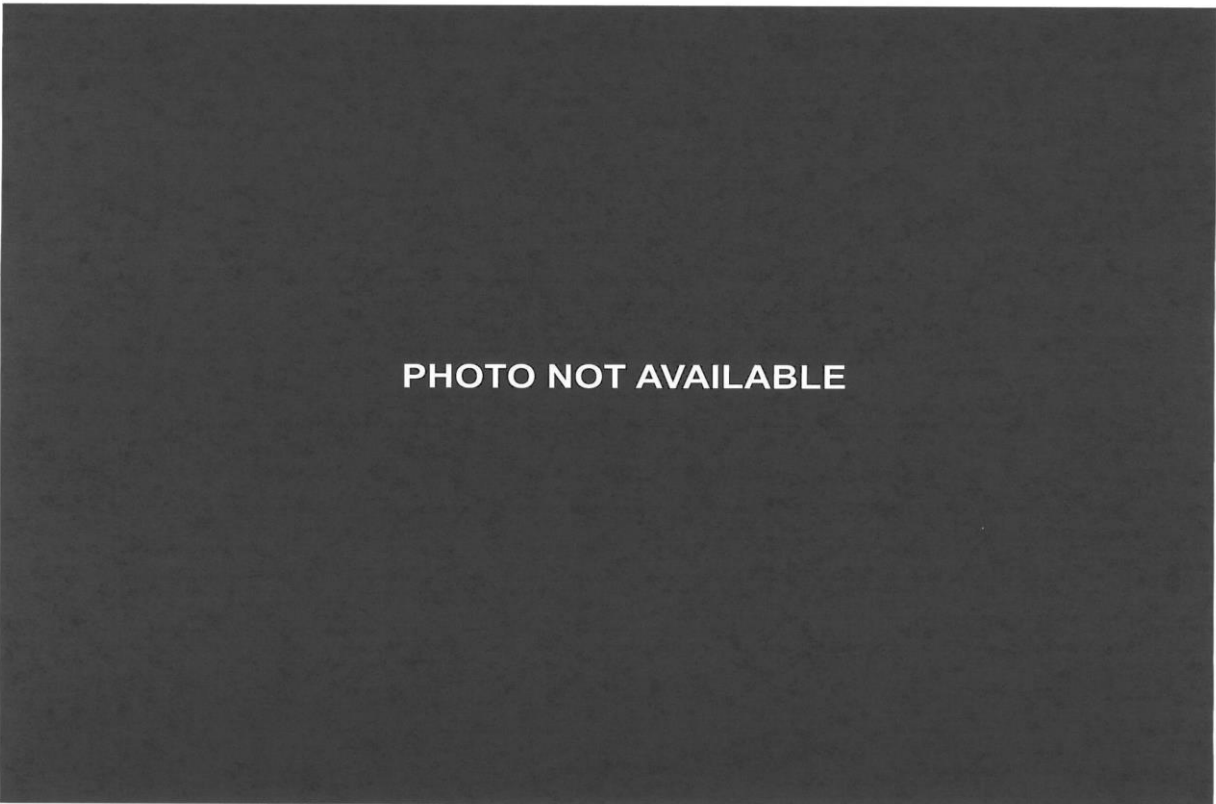


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080 Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Airbag View

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081 Post-Test Rear Passenger Dummy Close-Up Knee Contact View

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082 Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



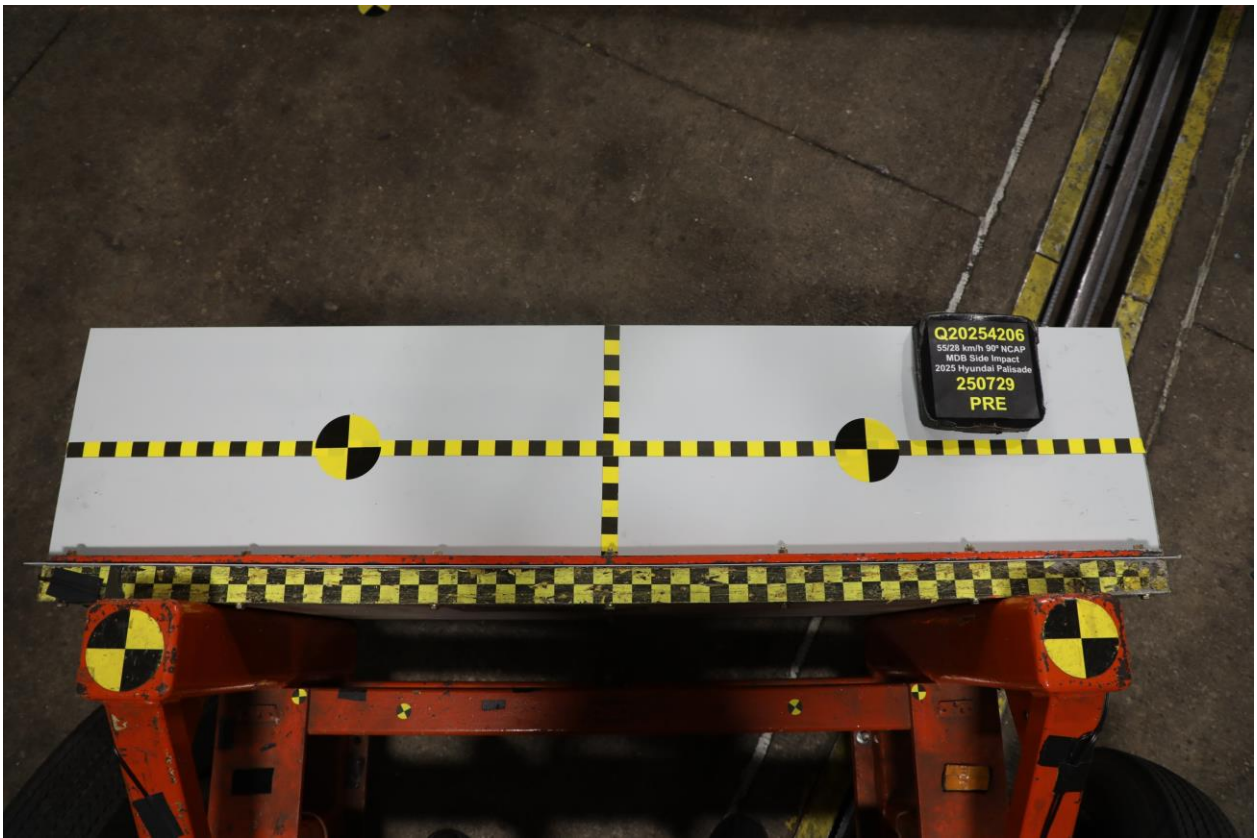
083 Post-Test View of Fuel Filler Cap or Fuel Filler Neck



084 Pre-Test Front View of MDB Impactor Face



085 Post-Test Front View of MDB Impactor Face



086 Pre-Test Top View of MDB Impactor Face



087 Post-Test Top View of MDB Impactor Face



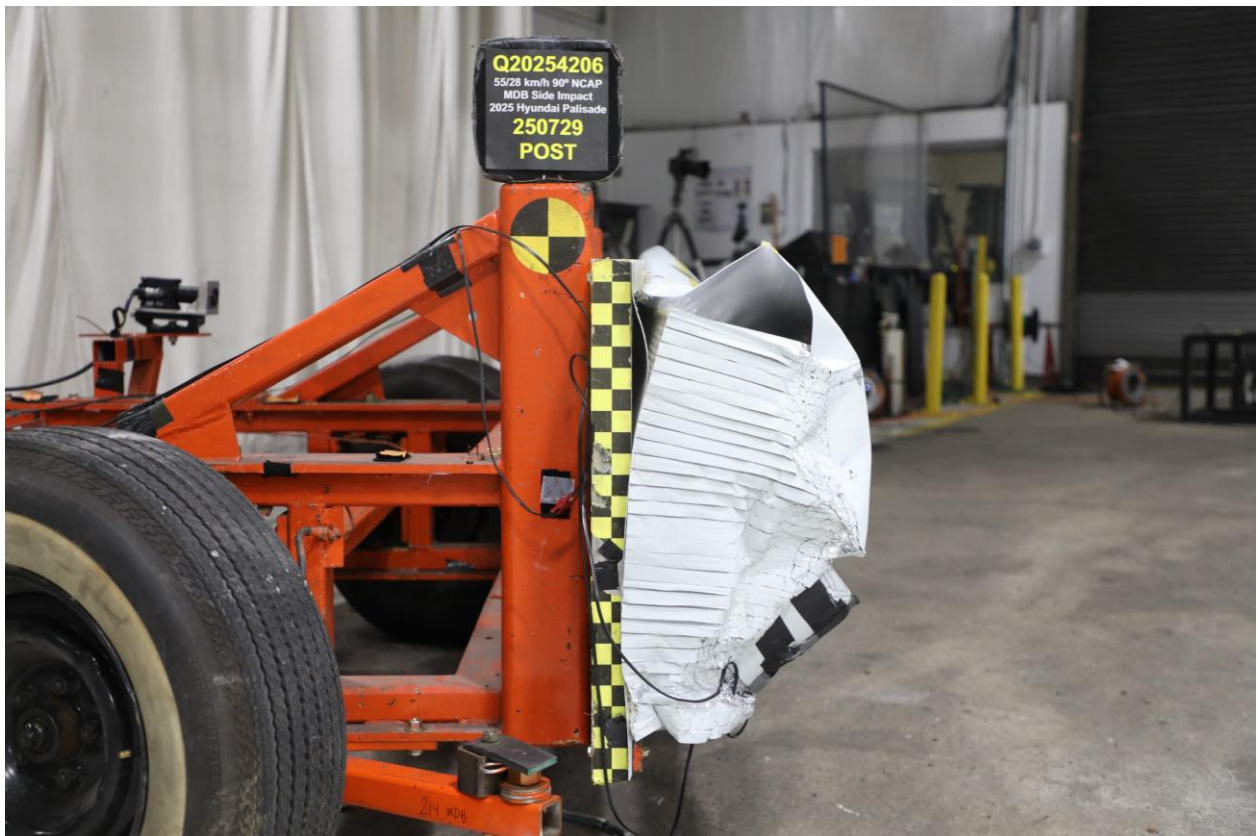
088 Pre-Test Left Side View of MDB Impactor Face



089 Post-Test Left Side View of MDB Impactor Face



090 Pre-Test Right Side View of MDB Impactor Face



091 Post-Test Right Side View of MDB Impactor Face



092 Close-Up View of Vehicle's Certification Label



093 Close-Up View of Vehicle's Tire Information Placard or Label



094 Pre-Test Ballast View



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



096 FMVSS No. 301 Static Rollover 0 Degrees



097 FMVSS No. 301 Static Rollover 90 Degrees



098 FMVSS No. 301 Static Rollover 180 Degrees



099 FMVSS No. 301 Static Rollover 270 Degrees



100 FMVSS No. 301 Static Rollover 360 Degrees



101 Impact Event



2025 PALISADE SE FWD

SOLD TO: TX169 BAYTOWN HYUNDAI 4343 EAST FREEWAY 1-10 BAYTOWN TX 77521		SHIPPED TO: TX169	
VIN: KMBR14GE4SU870034		GOVERNMENT 5-STAR SAFETY RATINGS	
MODEL: J1412F65		This vehicle has not been rated by the government for overall vehicle score, frontal crash, side crash or rollover risk.	
ENGINE: G6DNRA550670		Source: National Highway Traffic Safety Administration (NHTSA). www.safercar.gov or 1-888-327-4236	
PORT OF ENTRY: NC			
EXTERIOR COLOR: HYPER WHITE			
INTERIOR/SEAT COLOR: GRAY W/ BLACK/GRAY W/ BLACK			
TRANSPORT: TRUCK			
ACCESSORY WEIGHT: 26 lbs / 12 kgs.			
EMISSIONS: This vehicle is certified to meet emission requirements in all 50 states			
STANDARD FEATURES: AMERICA'S BEST WARRANTY 5-year/100,000-mile New Vehicle Warranty* 10-year/100,000-mile Powertrain Warranty* 7-year/Unlimited-mile Anti-rust/perforation Warranty* 5-year/Unlimited-mile Roadside Assistance 3-year/36,000-mile Complimentary Maintenance *Limited warranties, see dealer for details ADVANCED SAFETY TECHNOLOGIES Front, Front & 2nd Row Side, Side-Curtain & Driver's Knee Airbags Forward Collision-Avoidance Assist Lane Keeping Assist, Lane Following Assist Driver Attention Warning Blind-Spot Collision Warning Rear Cross-Traffic Collision-Avoidance Assist Parking Distance Warning-Reverse Rearview Camera Immobilizer POWERTRAIN TECHNOLOGY 3.8L V6 Engine w/ Idle Stop & Go 8-Speed Automatic Transmission w/ Paddle Shifters EXTERIOR 18" Alloy Wheels LED Headlights & Daytime Running Lights Heated Side Mirrors Temporary Spare Tire COMFORT & CONVENIENCE Smart Cruise Control Highway Driving Assist Dual Automatic Temperature Control Auto-Dimming Rearview Mirror Proximity Key with Push Button Start Front and 2nd Row USB Ports MULTIMEDIA & CONNECTIVITY 12.3" Navigation System w/AM/FM/HD Radio* Android Auto™ & Apple CarPlay® SiriusXM® w/ 90-Day Trial subscription; (Not Available in AK & HI) BlueLink™ All-Inclusive Connected Services (enrollment required) Wi-Fi Hotspot (trial included with BlueLink®) Full Tank of Fuel		Manufacturer's Suggested Retail Price: \$35,800.00	
		ADDED FEATURES: HYPER WHITE(WC) Paint \$470.00 "Carpeted" Floor Mats \$275.00 "Cargo Cover" \$190.00 "Final Aid Kit" \$30.00 "Splash trim" \$130.00 "Rear Bumper Applique" \$75.00 "Wheel Locks" \$70.00	
		Inland Freight & Handling: \$1,415.00	
		Total Price: \$39,395.00	

Hyundai's flagship, premium three-row SUV



EPA DOT Fuel Economy and Environment		Gasoline Vehicle	
Fuel Economy 22 MPG combined city/hwy 19 city 26 highway 4.5 gallons per 100 miles		You spend \$2,500 more in fuel costs over 5 years compared to the average new vehicle.	
Annual fuel cost \$2,400		Fuel Economy & Greenhouse Gas Rating (passenger only) 1 5 10 Best This vehicle emits 403 grams CO ₂ per mile. The best emits 0 grams per mile (passenger only). Producing and distributing fuel also create emissions, even more at fuel economy.gov.	
Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 28 MPG and costs \$9,500 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$2.50 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.		fuel economy.gov Calculate personalized estimates and compare vehicles	
		Smartphone QR Code	

Manufacturer's suggested retail price includes manufacturer's recommended pre-delivery service, Gasoline license and title fees state and local taxes and dealer installed options and accessories are not included in the manufacturer's suggested retail price. This label has been affixed to this vehicle by Hyundai Motor America, pursuant to the requirements of 15 U.S.C. 1231 et seq. which prohibits its removal or alteration prior to delivery to the ultimate purchaser.	
PARTS CONTENT INFORMATION FOR VEHICLE IN THIS CARLINE: U.S./CANADIAN PARTS CONTENT: 2 % MAJOR SOURCES OF FOREIGN PARTS CONTENT: KOREA: 90 %	
Note: Parts content does not include final assembly, distribution, or other non-parts costs.	
FOR THIS VEHICLE: FINAL ASSEMBLY POINT: ULSAN, KOREA COUNTRY OF ORIGIN: ENGINE: KOREA TRANSMISSION: KOREA	
341	A 3275VRCC 20

102 Monroney Label

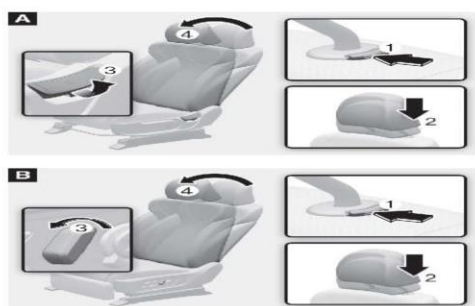
3

WARNING
When sitting on the rear seat, do not adjust the height of the head restraint to the lowest position.
CAUTION
When there is no occupant in the rear seats, adjust the height of the head restraint to the lowest position. The rear seat head restraint can reduce the visibility of the rear area.
NOTICE
To prevent damage, NEVER hit or pull on the head restraints.

Front seat head restraints

The driver's and front passenger's seats are equipped with adjustable head restraints for the passengers safety and comfort.
Adjusting the height up and down
To raise the head restraint: 1. Pull it up to the desired position (1).
To lower the head restraint: 1. Push and hold the release button (2) on the head restraint support. 2. Lower the head restraint to the desired position (3).

103 Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual



[A] : Manual seat

[B] : Power seat

To reinstall the head restraint:

1. Recline the seatback.
2. Put the head restraint poles (2) into the holes while pressing the release button (1).
3. Adjust the head restraint to the appropriate height.
4. Recline the seatback (4) with the seatback angle switch (3).



WARNING

Always make sure the head restraint locks into position after reinstalling and adjusting it properly.

Rear seat head restraints



*: If equipped

The rear seats are equipped with head restraints in all the seating positions for the passenger's safety and comfort.



Adjusting the height up and down

To raise the head restraint:

1. Pull it up to the desired position (1).

To lower the head restraint:

1. Push and hold the release button (2) on the head restraint support.
2. Lower the head restraint to the desired position (3).

3-27

104 Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

Driver & Passenger Dummy Instrumentation Plots

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1	Driver Head Acceleration (X) Primary vs. Time	B-5
2	Driver Head Acceleration (Y) Primary vs. Time	B-5
3	Driver Head Acceleration (Z) Primary vs. Time	B-5
4	Driver Head Resultant Acceleration Primary vs. Time	B-5
5	Driver Upper Thorax Rib Deflection (Y) vs. Time	B-6
6	Driver Middle Thorax Rib Deflection (Y) vs. Time	B-6
7	Driver Lower Thorax Rib Deflection (Y) vs. Time	B-6
8	Driver Thorax Rib Deflection Maximum vs. Time	B-6
9	Driver Anterior Abdominal Force (Y) vs. Time	B-7
10	Driver Middle Abdominal Force (Y) vs. Time	B-7
11	Driver Posterior Abdominal Force (Y) vs. Time	B-7
12	Driver Total Abdominal Force (Y) vs. Time	B-7
13	Driver Pubic Symphysis Force (Y) vs. Time	B-8
14	Passenger Head Acceleration (X) Primary vs. Time	B-9
15	Passenger Head Acceleration (Y) Primary vs. Time	B-9
16	Passenger Head Acceleration (Z) Primary vs. Time	B-9
17	Passenger Head Resultant Acceleration Primary vs. Time	B-9
18	Passenger Lower Spine T12 Acceleration (X) vs. Time	B-10
19	Passenger Lower Spine T12 Acceleration (Y) vs. Time	B-10
20	Passenger Lower Spine T12 Acceleration (Z) vs. Time	B-10
21	Passenger Lower Spine T12 Resultant Acceleration vs. Time	B-10
22	Passenger Iliac Force on Impact Side (Y) vs. Time	B-11
23	Passenger Acetabulum Force on Impact Side (Y) vs. Time	B-11
24	Passenger Total Pelvic Force on Impact Side (Y) vs. Time	B-11

The following additional data can be obtained from the Research and Development section of the NHTSA website (www.nhtsa.gov)

Additional Driver & Passenger Dummy Instrumentation Data

Driver Lower Spine T12 Acceleration (X)
Driver Lower Spine T12 Acceleration (Y)
Driver Lower Spine T12 Acceleration (Z)
Passenger Upper Thorax Rib Deflection (Y)
Passenger Middle Thorax Rib Deflection (Y)
Passenger Lower Thorax Rib Deflection (Y)
Passenger Upper Abdomen Rib Deflection (Y)
Passenger Lower Abdomen Rib Deflection (Y)
Driver Head Acceleration Redundant (X)
Driver Head Acceleration Redundant (Y)
Driver Head Acceleration Redundant (Z)
Passenger Head Acceleration Redundant (X)
Passenger Head Acceleration Redundant (Y)
Passenger Head Acceleration Redundant (Z)
Passenger Head Angular Velocity (X)
Passenger Head Angular Velocity (Y)
Passenger 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)
Right Side Sill at Front Seat Acceleration (X)
Right Side Sill at Front Seat Acceleration (Y)
Right Side Sill at Front Seat Acceleration (Z)
Right Side Sill at Rear Seat Acceleration (X)
Right Side Sill at Rear Seat Acceleration (Y)
Right Side Sill at Rear Seat Acceleration (Z)
Left Side Sill at Front Seat Acceleration (Y)
Left Side Sill at Rear Seat Acceleration (Y)
Lower A-Post Acceleration (Y)
Middle A-Post Acceleration (Y)
Lower B-Post Acceleration (Y)
Middle B-Post Acceleration (Y)
Front Seat Track Acceleration (Y)
Rear Seat Structure Acceleration (Y)
Right Rear Occupant Compartment Acceleration (Y)
Engine Block (X)
Engine Block (Y)
Rear Floorpan Above Axle Acceleration (X)
Rear Floorpan Above Axle Acceleration (Y)
Rear Floorpan Above Axle Acceleration (Z)

MDB Instrumentation Data

MDB Center of Gravity Acceleration (X)
MDB Center of Gravity Acceleration (Y)
MDB Center of Gravity Acceleration (Z)
MDB Rear Acceleration (X)
MDB Rear Acceleration (Y)
Left MDB Contact Switch
Right MDB Contact Switch

NHTSA

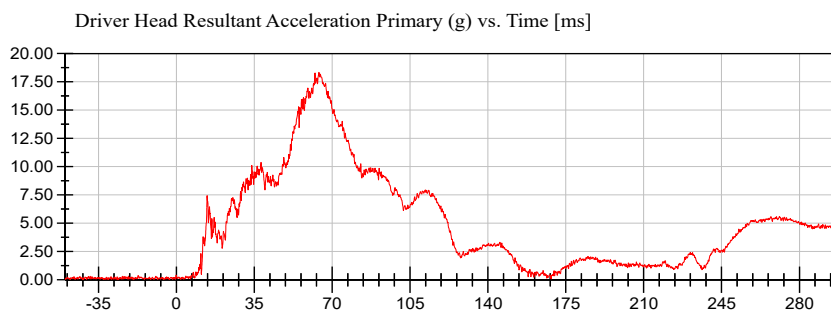
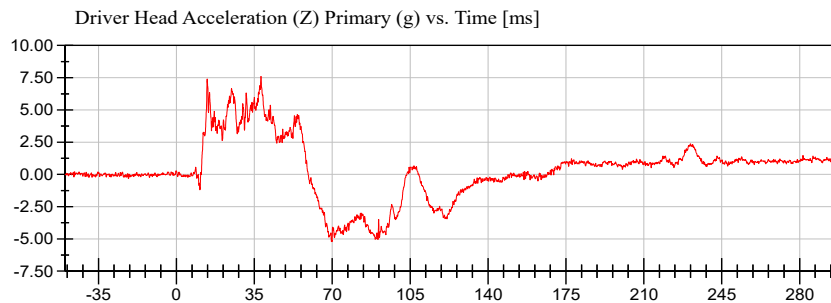
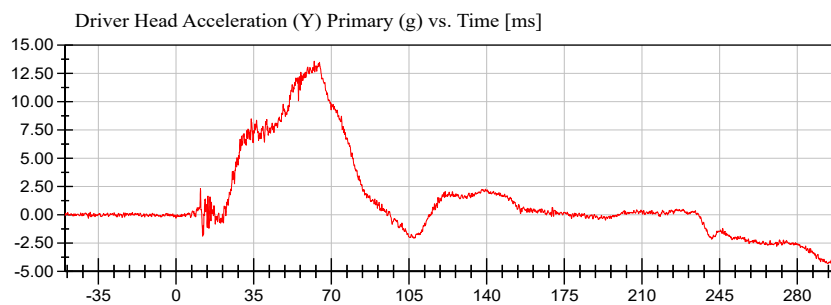
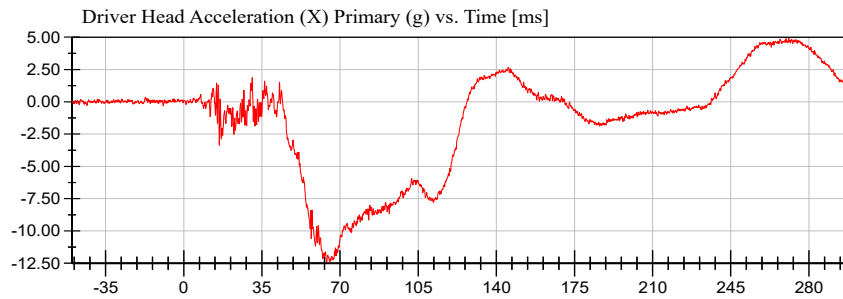
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Test Number: 250729 (Q20254206)

Test Date: 07/29/2025

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (DQ0570)



NHTSA

Test Lab: CTF

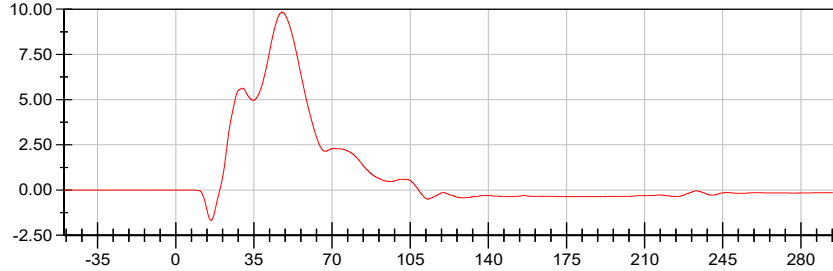
Test Number: 250729 (Q20254206)

Test Date: 07/29/2025

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (DQ0570)

Driver Upper Thorax Rib Deflection (Y) (mm) vs. Time [ms]



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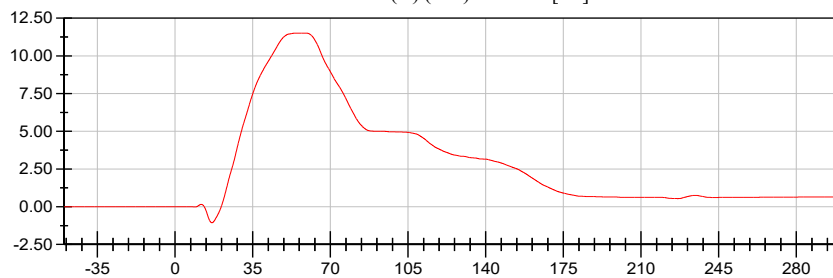
9.84 mm at 47.60 ms

<Min>

-1.67 mm at 15.75 ms

CFC_180

Driver Middle Thorax Rib Deflection (Y) (mm) vs. Time [ms]



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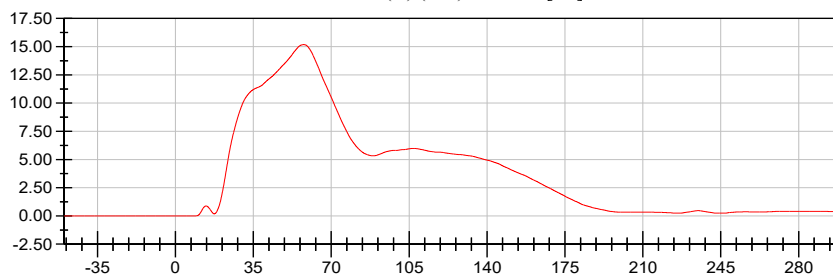
11.51 mm at 59.15 ms

<Min>

-1.06 mm at 16.60 ms

CFC_180

Driver Lower Thorax Rib Deflection (Y) (mm) vs. Time [ms]



<Max>

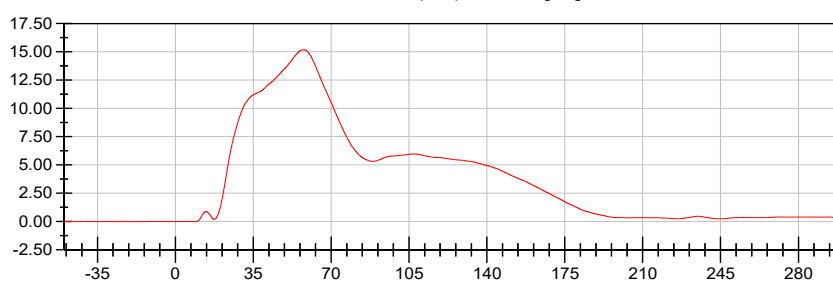
15.18 mm at 57.65 ms

<Min>

0.00 mm at 8.75 ms

CFC_180

Driver Thorax Rib Deflection Maximum (mm) vs. Time [ms]



<Max>

15.18 mm at 57.65 ms

<Min>

0.00 mm at 8.75 ms

CFC_180



NHTSA

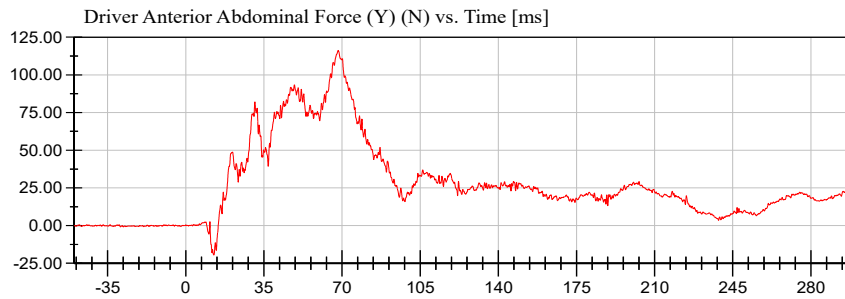
Test Lab: CTF

Test Number: 250729 (Q20254206)

Test Date: 07/29/2025

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (DQ0570)



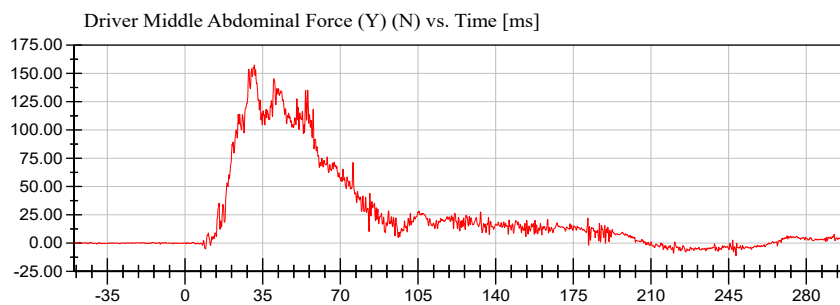
<Max>

116.16 N at 68.25 ms

<Min>

-19.49 N at 12.55 ms

CFC_600



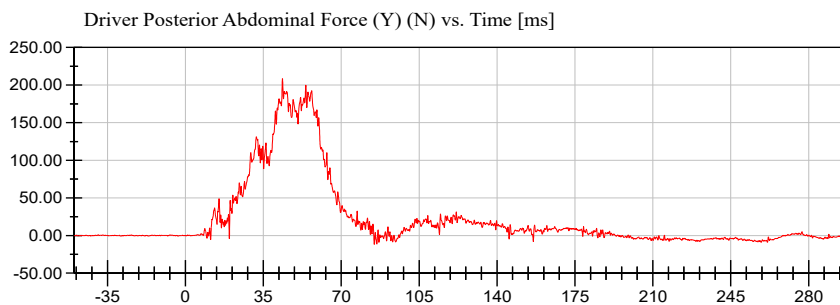
<Max>

157.57 N at 31.25 ms

<Min>

-11.18 N at 248.30 ms

CFC_600



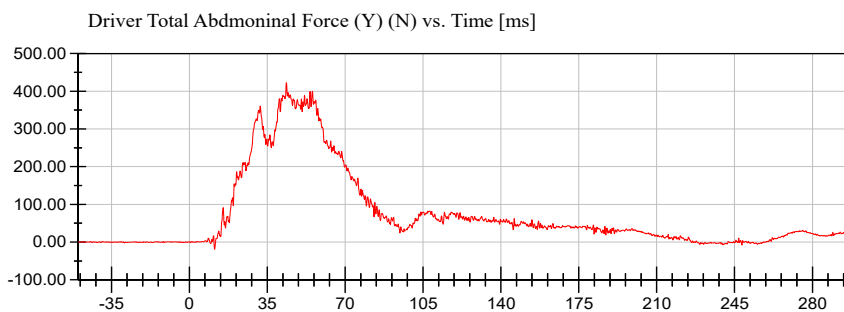
<Max>

208.45 N at 43.60 ms

<Min>

-11.72 N at 84.90 ms

CFC_600



<Max>

422.69 N at 43.60 ms

<Min>

-19.08 N at 11.35 ms

CFC_600



NHTSA

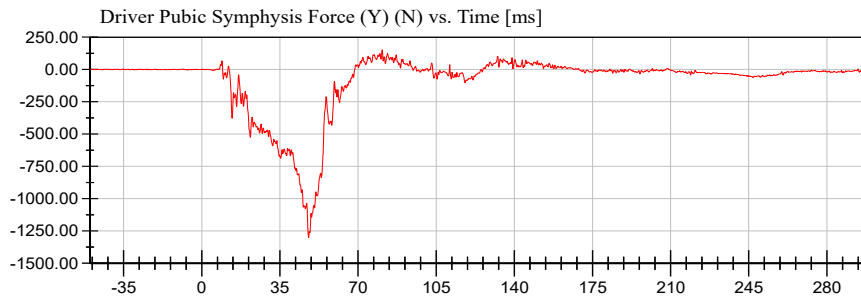
Test Lab: CTF

Test Number: 250729 (Q20254206)

Test Date: 07/29/2025

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (DQ0570)



<Max>

151.30 N at 80.85 ms

<Min>

-1,300.82 N at 47.85 ms

CFC_600



NHTSA

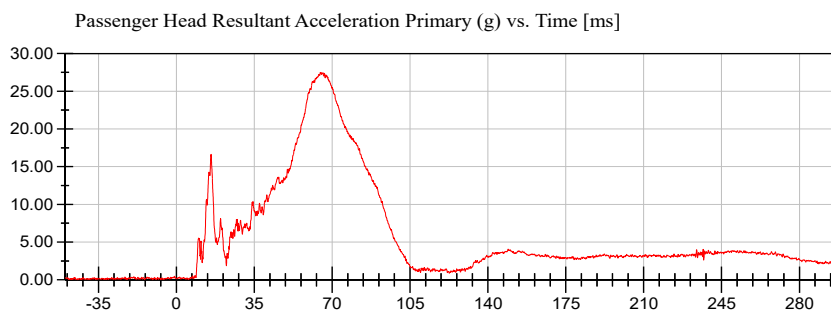
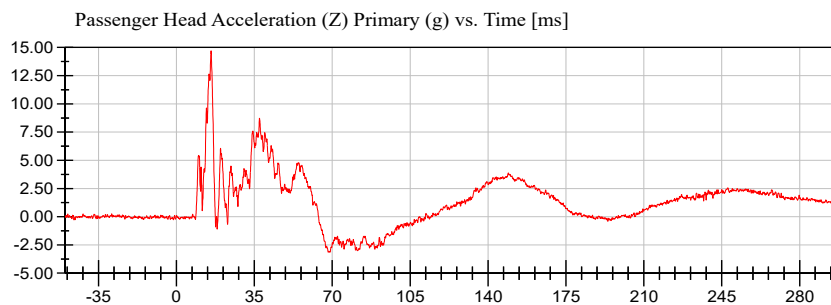
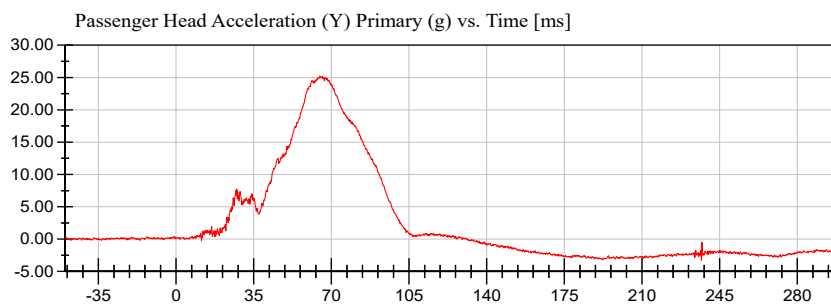
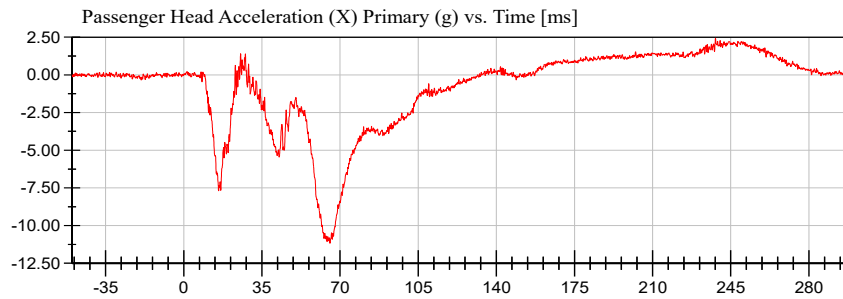
Test Lab: CTF

Test Number: 250729 (Q20254206)

Test Date: 07/29/2025

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (DQ0570)



NHTSA

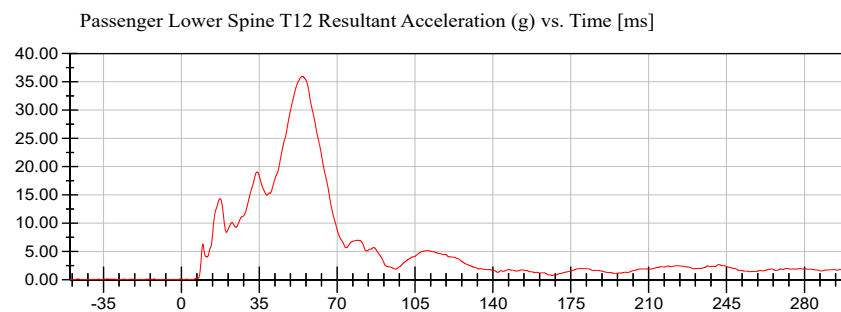
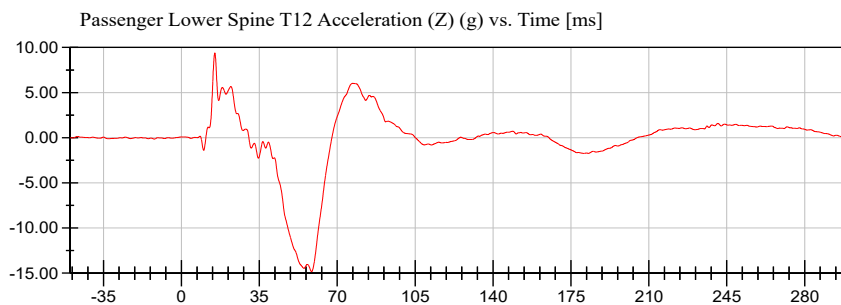
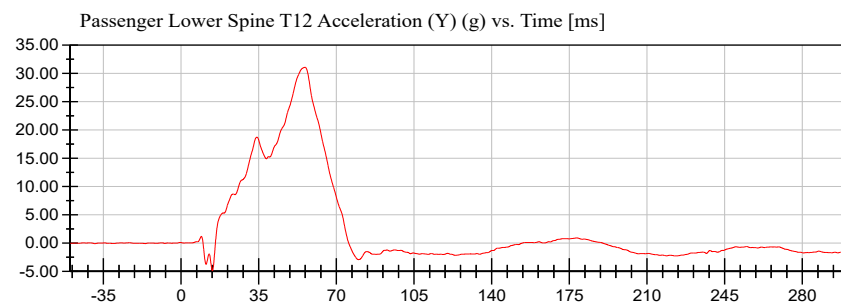
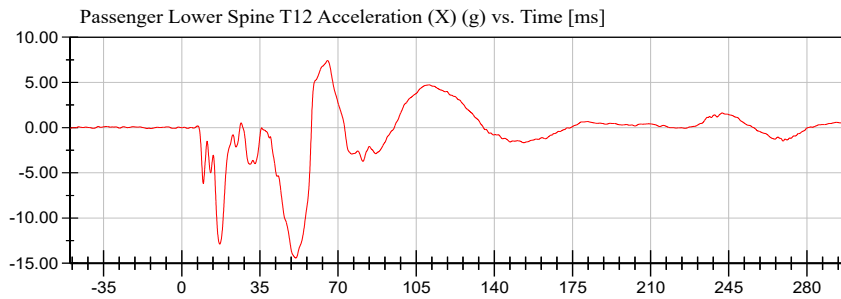
Test Lab: CTF

Test Number: 250729 (Q20254206)

Test Date: 07/29/2025

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (DQ0570)



NHTSA

Test Lab: CTF

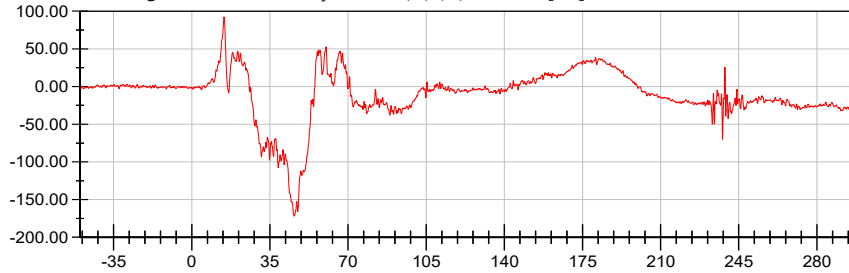
Test Number: 250729 (Q20254206)

Test Date: 07/29/2025

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (DQ0570)

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



<Max>

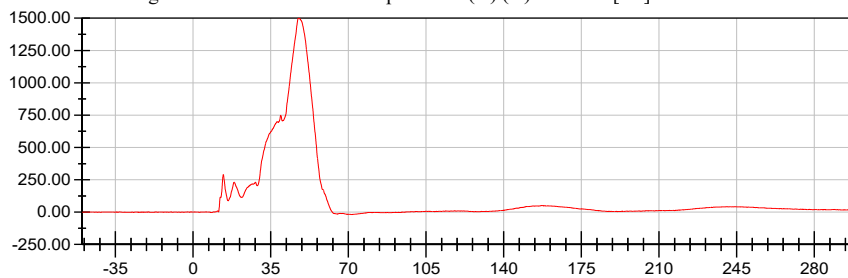
92.18 N at 14.50 ms

<Min>

-171.98 N at 45.90 ms

CFC_600

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



<Max>

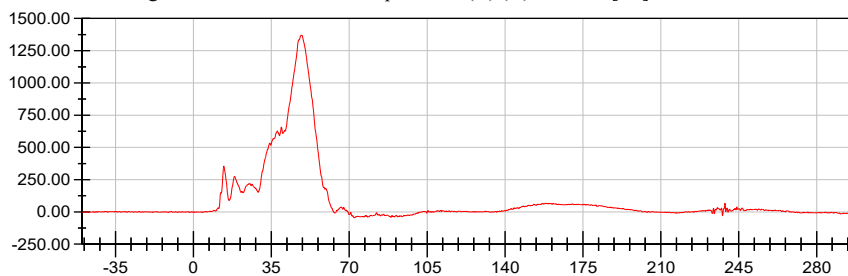
1,499.29 N at 47.55 ms

<Min>

-18.93 N at 71.30 ms

CFC_600

Passenger Total Pelvic Force on Impact Side (Y) (N) vs. Time [ms]



<Max>

1,370.09 N at 48.35 ms

<Min>

-44.85 N at 72.30 ms

CFC_600



APPENDIX C
DUMMY PERFORMANCE CALIBRATION TEST DATA

TABLE OF CALIBRATION MEASUREMENTS AND PLOTS

ES-2re (Driver) Dummy

Description

Table 1. External Measurements

Table 2. Head Drop Test

- Head (X) Acceleration (G's) vs. Time (ms)
- Head (Y) Acceleration (G's) vs. Time (ms)
- Head (Z) Acceleration (G's) vs. Time (ms)
- Resultant Head Acceleration (G's) vs. Time (ms)

Table 3 Neck Pendulum Test

- Pendulum Velocity (m/s) vs. Time (ms)
- Flexion Angle (°) vs. Time (ms)
- Potentiometer A (°) vs. Time (ms)
- Potentiometer B (°) vs. Time (ms)
- Potentiometer C (°) vs. Time (ms)

Table 4. Shoulder Impact Test

- Impactor Acceleration (G's) vs. Time (ms)

Table 5. Thorax – Upper Rib Drop Test

- Upper Rib Displacement @ 459 mm Drop Height (mm) vs. Time (ms)
- Upper Rib Displacement @ 815 mm Drop Height (mm) vs. Time (ms)

Table 6. Thorax – Middle Rib Drop Test

- Middle Rib Displacement @ 459 mm Drop Height (mm) vs. Time (ms)
- Middle Rib Displacement @ 815 mm Drop Height (mm) vs. Time (ms)

Table 7. Thorax – Lower Rib Drop Test

- Lower Rib Displacement @ 459 mm Drop Height (mm) vs. Time (ms)
- Lower Rib Displacement @ 815 mm Drop Height (mm) vs. Time (ms)

Table 8. Thorax – Full Body Impact Test

- Pendulum Acceleration (G's) vs. Time (ms)
- Impactor Force (kN) vs. Time (ms)
- Upper Rib Displacement (mm) vs. Time (ms)
- Middle Rib Displacement (mm) vs. Time (ms)
- Lower Rib Displacement (mm) vs. Time (ms)

Table 9. Abdomen Impact Test

- Impactor Force (kN) vs. Time (ms)
- Front Abdomen Force (kN) vs. Time (ms)
- Middle Abdomen Force (kN) vs. Time (ms)
- Rear Abdomen Force (kN) vs. Time (ms)
- Total Abdomen Force (kN) vs. Time (ms)

Table 10. Lumbar Spine Flexion Test

- Pendulum Velocity (m/s) vs. Time (ms)
- Spine Flexion Angle (°) vs. Time (ms)
- Potentiometer A (°) vs. Time (ms)
- Potentiometer B (°) vs. Time (ms)
- Potentiometer C (°) vs. Time (ms)

Table 11. Pelvis Impact Test

- Pendulum Acceleration (G's) vs. Time (ms)
- Impactor Force (kN) vs. Time (ms)
- Pubic Symphysis (Y) Force (kN) vs. Time (ms)

TABLE OF CALIBRATION MEASUREMENTS AND PLOTS

SID-IIs (Rear Passenger) Dummy

Description

Table 1. External Measurements

Table 2. Head Drop Test

Head (X) Acceleration (G's) vs. Time (ms)
Head (Y) Acceleration (G's) vs. Time (ms)
Head (Z) Acceleration (G's) vs. Time (ms)
Resultant Head 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 F030

Transportation Research Center Inc.
572U ES-2re Dummy
External Dimensions
Serial No. F030 Calibration No. 106

Symbol	Description	Specification	Results	Pass
		mm	mm	
1	Sitting Height	900.0 - 918.0	909	Yes
2	Seat to Shoulder Joint	558.0 - 572.0	560	Yes
3	Seat to Lower Face of Thoracic Spine Box	346.0 - 356.0	347	Yes
4	Seat to Hip Joint (center of bolt)	97.0 - 103.0	98	Yes
5	Sole to Seat, Sitting	433.0 - 451.0	443	Yes
6	Head Width	152.0 - 158.0	154	Yes
7	Shoulder/Arm Width	461.0 - 479.0	475	Yes
8	Thorax Width	322.0 - 332.0	328	Yes
9	Abdomen Width	273.0 - 287.0	279	Yes
10	Pelvis Lap Width	359.0 - 373.0	366	Yes
11	Head Depth	196.0 - 206.0	201	Yes
12	Thorax Depth	262.0 - 272.0	262	Yes
13	Abdomen Depth	194.0 - 204.0	199	Yes
14	Pelvis Depth	235.0 - 245.0	242	Yes
15	Back of Buttocks to Hip Joint (center of bolt)	150.0 - 160.0	156	Yes
16	Back of Buttocks to Front of Knee	597.0 - 615.0	605	Yes

Baseline 10/07/05



Transportation Research Center Inc.

Left Lateral Head Drop

ES-2re Serial No. F030 Certification No. 106-1

Test Date: 7/23/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Peak Resultant Acceleration	125 - 155 g	133.3 g	Yes
Peak Longitudinal Acceleration	(-15) - 15 g	7.9 g	Yes
Is Resultant Acceleration Curve Unimodal within 15% of Main Pulse?	< 15 %	3.85 %	Yes

Test meets specifications.

Condition: Used

Comments:

Head Skin S/N: DP6812

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

07.23.2025 12:38:00 361

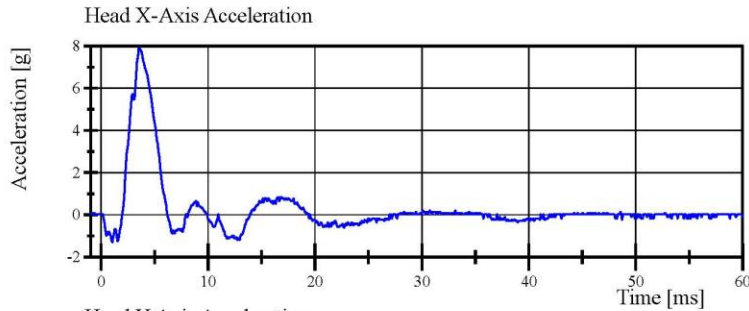


Transportation Research Center Inc.

Left Lateral Head Drop

ES-2re Serial No. F030 Certification No. 106-1

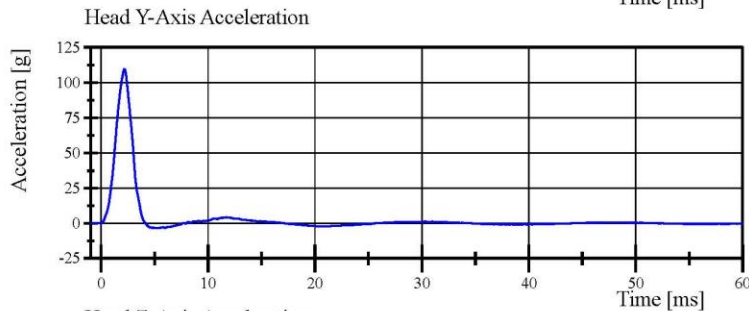
Test Date: 7/23/2025



Filter Class: CFC_1000

Max: 7.9 g at 3.5 ms

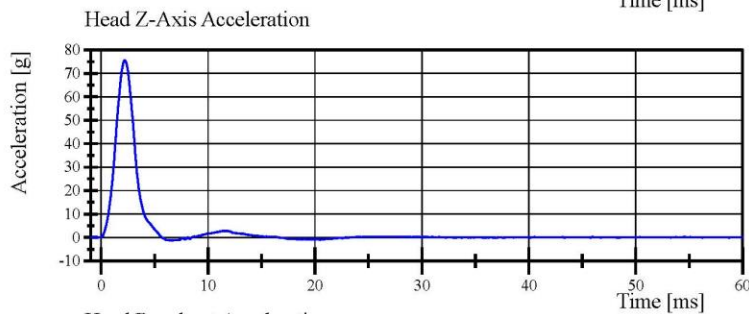
Min: -1.3 g at 1.0 ms



Filter Class: CFC_1000

Max: 109.8 g at 2.2 ms

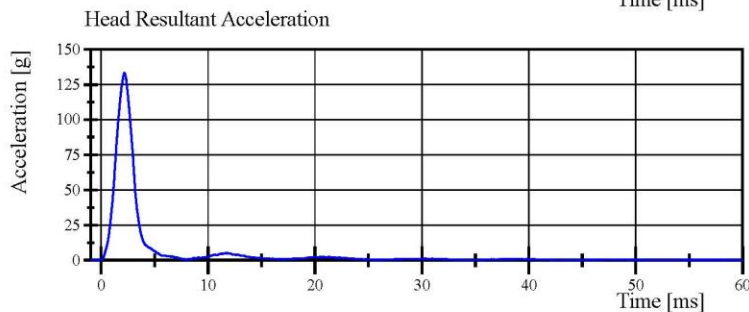
Min: -3.4 g at 5.2 ms



Filter Class: CFC_1000

Max: 75.6 g at 2.2 ms

Min: -1.2 g at 6.4 ms



Filter Class: CFC_1000

Max: 133.3 g at 2.2 ms

Min: 0.0 g at -0.7 ms

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

07.23.2025 12:38:33 361



Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. F030 Certification No. 106-1

Test Date: 7/24/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	66 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-3.3) - (-3.5) m/s	-3.37 m/s	Yes
Maximum Headform Flexion			
Peak	(-49) - (-59) deg	-51.5 deg	Yes
Time of Peak	54 - 66 ms	55.6 ms	Yes
Headform Flexion Decay			
- Peak to Zero	53 - 88 ms	56.6 ms	Yes

Test meets specifications.

Condition: Used

Comments:

Neck S/N: 05053

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

07.24.2025 10:28:56 1496

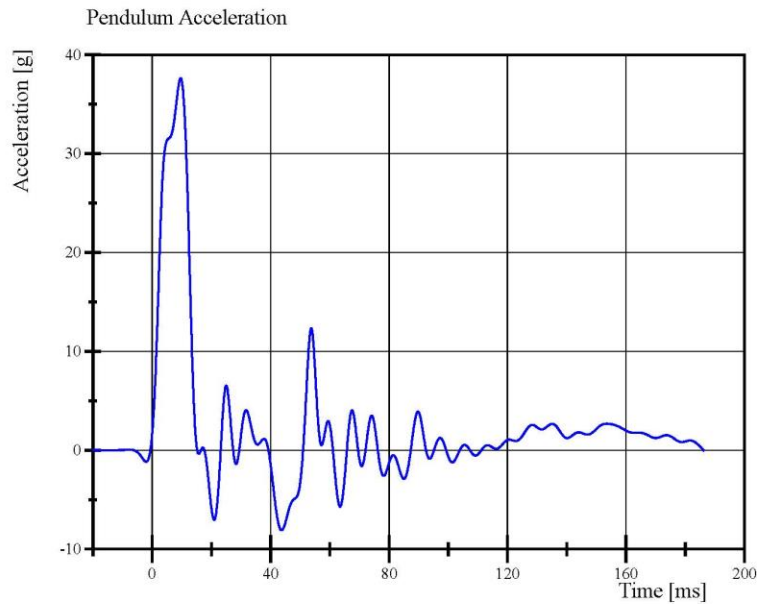


Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. F030 Certification No. 106-1

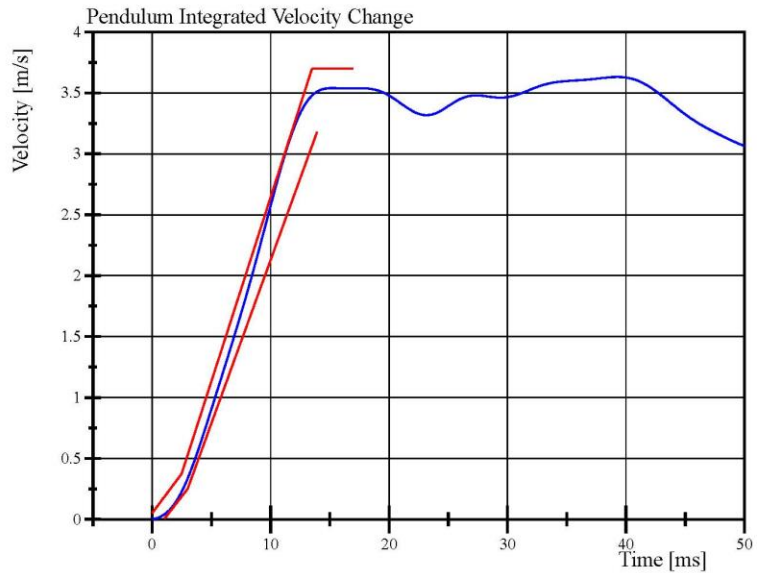
Test Date: 7/24/2025



Filter Class: CFC_60

Max: 37.6 g at 9.6 ms

Min: -8.1 g at 43.7 ms



Filter Class: CFC_60

Max: 3.6 m/s at 39.3 ms

Min: 0.0 m/s at 0.0 ms

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

07.24.2025 10:29:24 1496

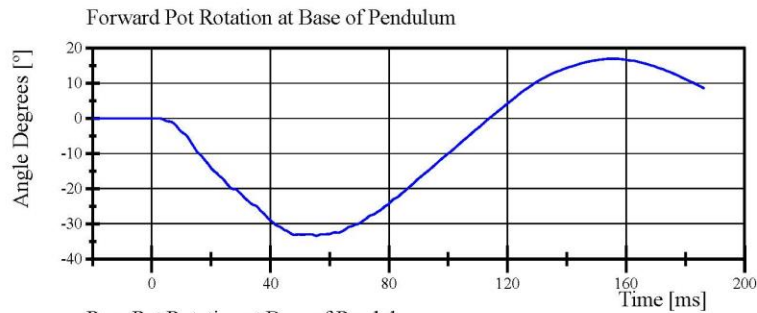


Transportation Research Center Inc.

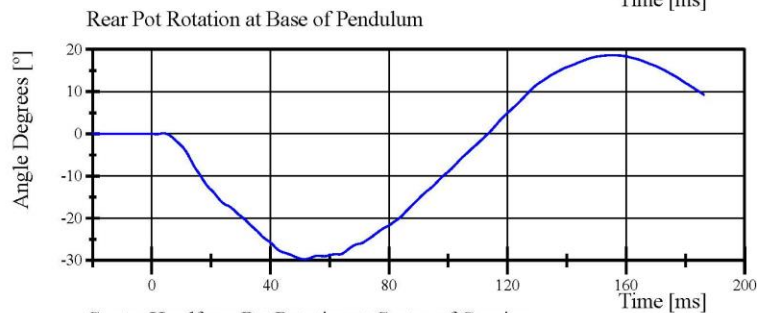
Left Lateral Neck

ES-2re Serial No. F030 Certification No. 106-1

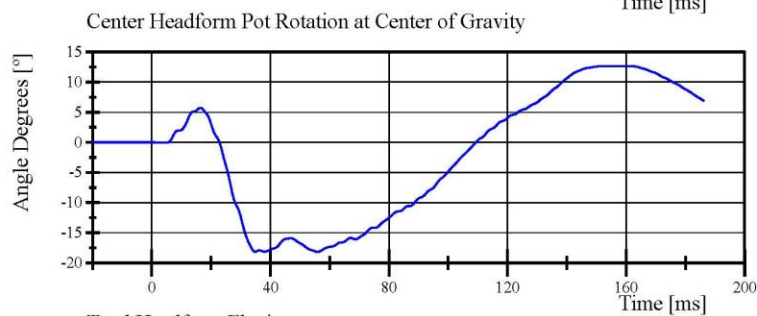
Test Date: 7/24/2025



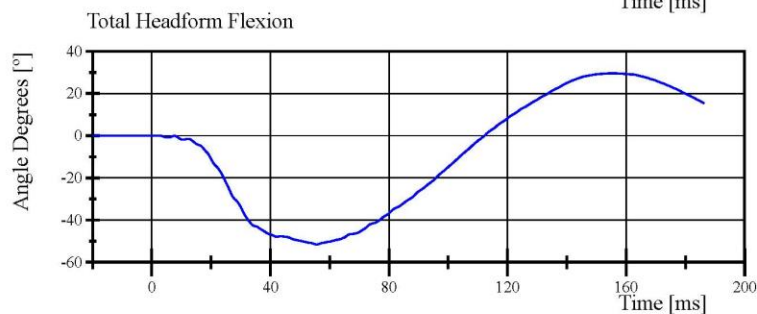
Filter Class: CFC_180
Max: 17.0 ° at 154.8 ms
Min: -33.4 ° at 55.4 ms



Filter Class: CFC_180
Max: 18.7 ° at 155.3 ms
Min: -29.7 ° at 51.3 ms



Filter Class: CFC_180
Max: 12.6 ° at 161.8 ms
Min: -18.2 ° at 55.8 ms



Filter Class: CFC_180
Max: 29.6 ° at 154.8 ms
Min: -51.5 ° at 55.6 ms

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

07.24.2025 10:29:24 1496



Transportation Research Center Inc.

Left Lateral Shoulder

ES-2re Serial No. F030 Certification No. 106-1

Test Date: 7/24/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	68 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.23 m/s	Yes
Test Probe Acceleration	(-7.5) - (-10.5) g	-9.86 g	Yes

Test meets specifications.

Condition: Used

Comments:

Arm S/N: 175-3501-07014

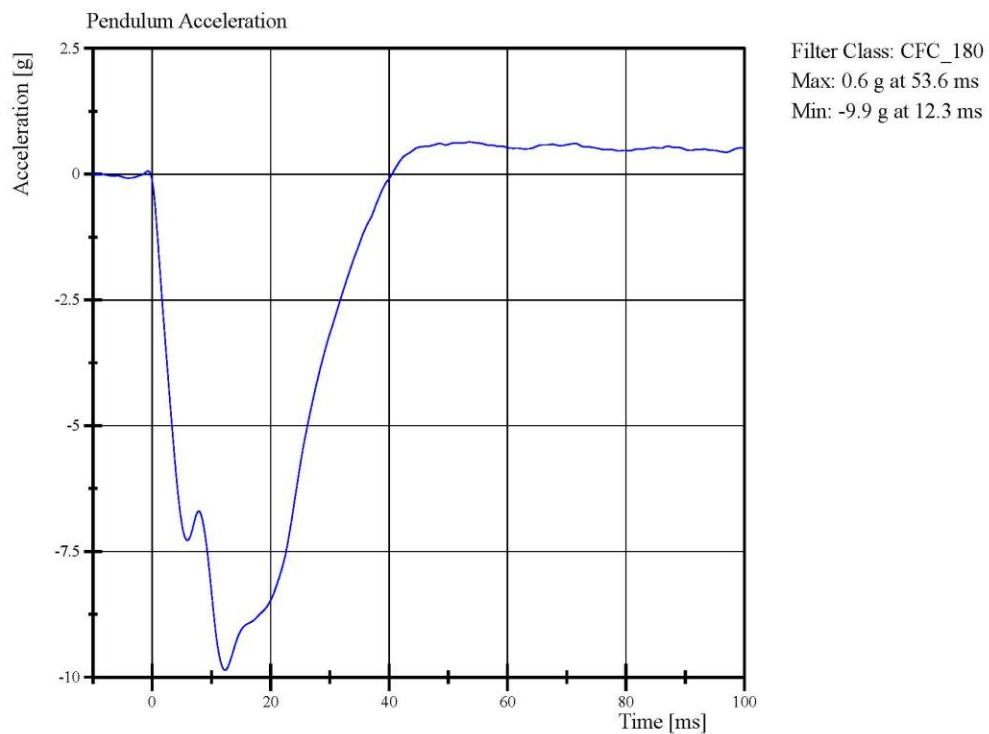
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

07.24.2025 13:07:18 597



Transportation Research Center Inc.

Left Lateral Shoulder
ES-2re Serial No. F030 Certification No. 106-1
Test Date: 7/24/2025



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

07.24.2025 13:07:41 597



Transportation Research Center Inc.

3.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 106-2
Test Date: 7/22/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	39.9 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 462 mm

Rib Foam S/N: EK6973

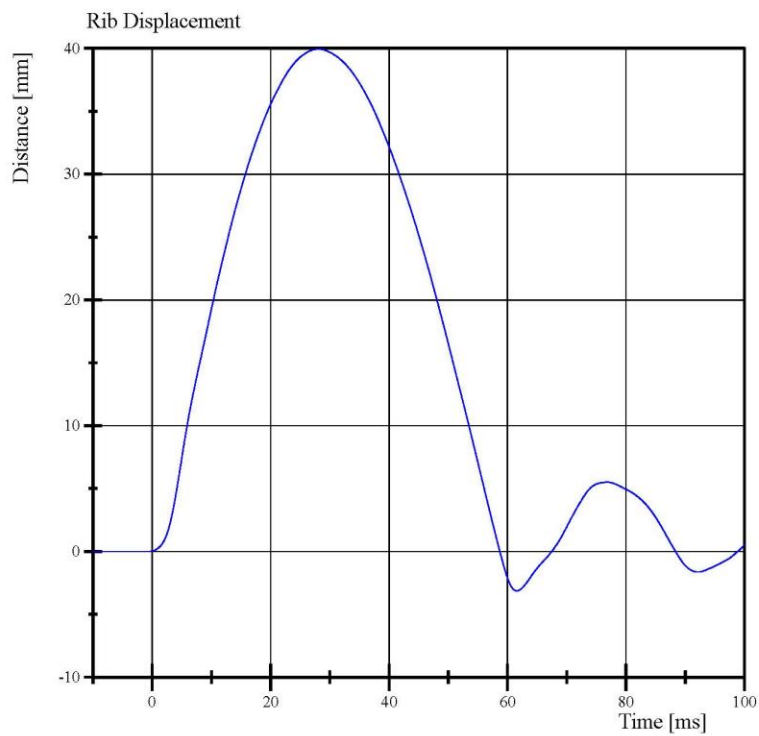
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

07.22.2025 13:36:37 652



Transportation Research Center Inc.

3.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 106-2
Test Date: 7/22/2025



Filter Class: CFC_180
Max: 39.9 mm at 28.1 ms
Min: -3.1 mm at 61.5 ms

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

07.22.2025 13:37:15 652



Transportation Research Center Inc.

4.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 106-1
Test Date: 7/22/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	48.9 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 816 mm

Rib Foam S/N: EK6973

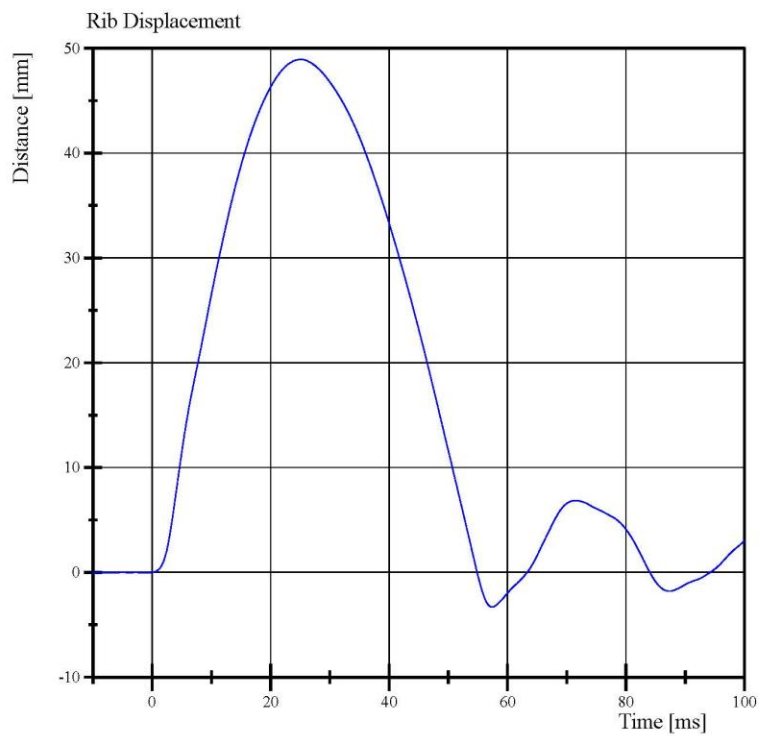
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

07.22.2025 13:00:40 540



Transportation Research Center Inc.

4.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 106-1
Test Date: 7/22/2025



Filter Class: CFC_180
Max: 48.9 mm at 25.1 ms
Min: -3.3 mm at 57.4 ms

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

07.22.2025 13:01:27 540



Transportation Research Center Inc.

3.0 m/s Middle Full Rib Module

ES-2re Serial No. F030 Certification No. 106-1

Test Date: 7/22/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	38.1 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 462 mm

Rib Foam S/N: EK6970

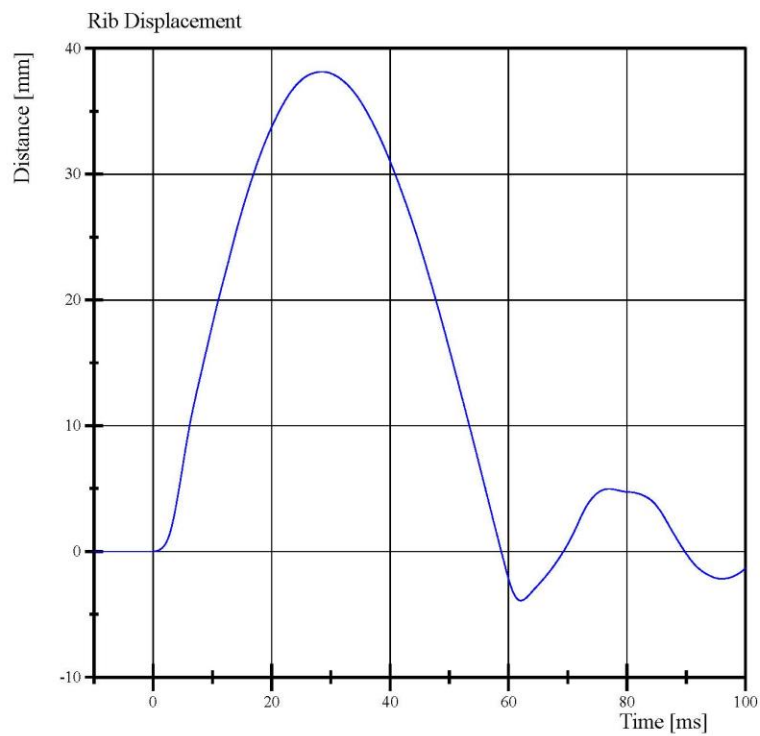
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

07.22.2025 13:14:32 664



Transportation Research Center Inc.

3.0 m/s Middle Full Rib Module
ES-2re Serial No. F030 Certification No. 106-1
Test Date: 7/22/2025



Filter Class: CFC_180
Max: 38.1 mm at 28.6 ms
Min: -3.9 mm at 62.1 ms

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

07.22.2025 13:15:14 664



Transportation Research Center Inc.

4.0 m/s Middle Full Rib Module

ES-2re Serial No. F030 Certification No. 106-1

Test Date: 7/22/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	49.5 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 816 mm

Rib Foam S/N: EK6970

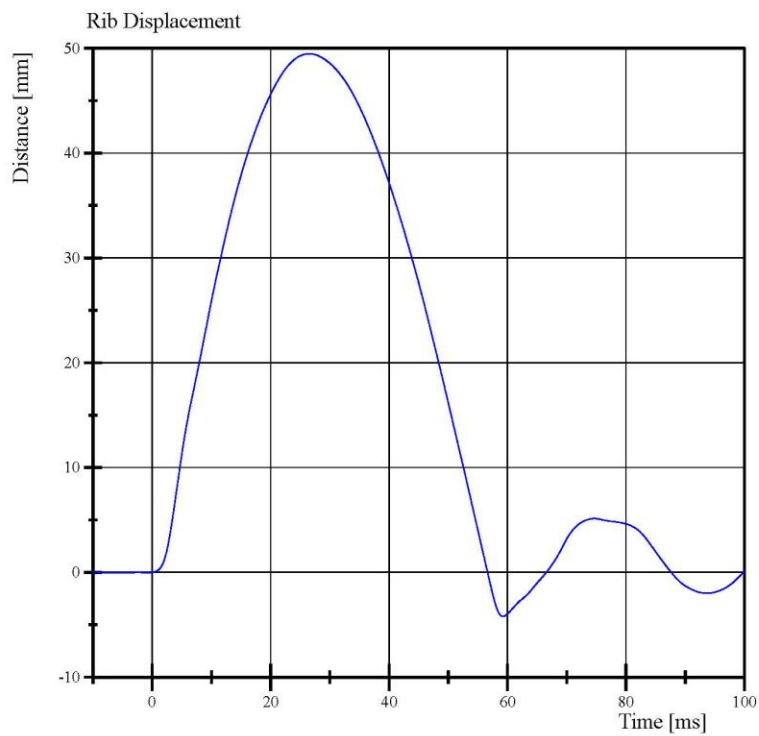
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

07.22.2025 13:09:22 543



Transportation Research Center Inc.

4.0 m/s Middle Full Rib Module
ES-2re Serial No. F030 Certification No. 106-1
Test Date: 7/22/2025



Filter Class: CFC_180
Max: 49.5 mm at 26.6 ms
Min: -4.2 mm at 59.2 ms

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

07.22.2025 13:09:57 543



Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 106-1
Test Date: 7/22/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	38.0 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 462 mm

Rib Foam S/N: EK6971

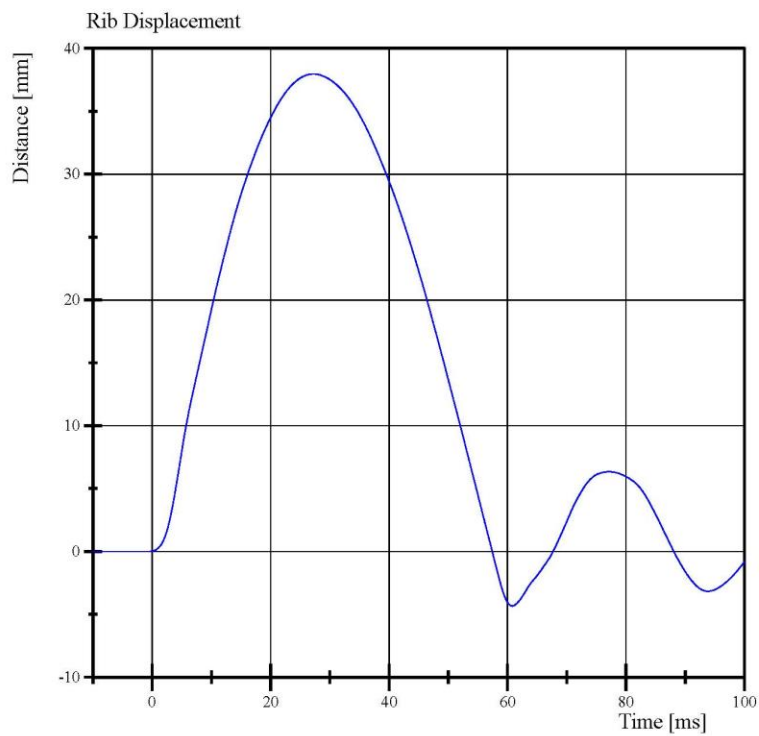
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

07.22.2025 13:24:34 677



Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 106-1
Test Date: 7/22/2025



Filter Class: CFC_180
Max: 38.0 mm at 27.3 ms
Min: -4.3 mm at 60.8 ms

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

07.22.2025 13:25:14 677



Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module

ES-2re Serial No. F030 Certification No. 106-1

Test Date: 7/22/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	58 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	46.4 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 816 mm

Rib Foam S/N: EK6970

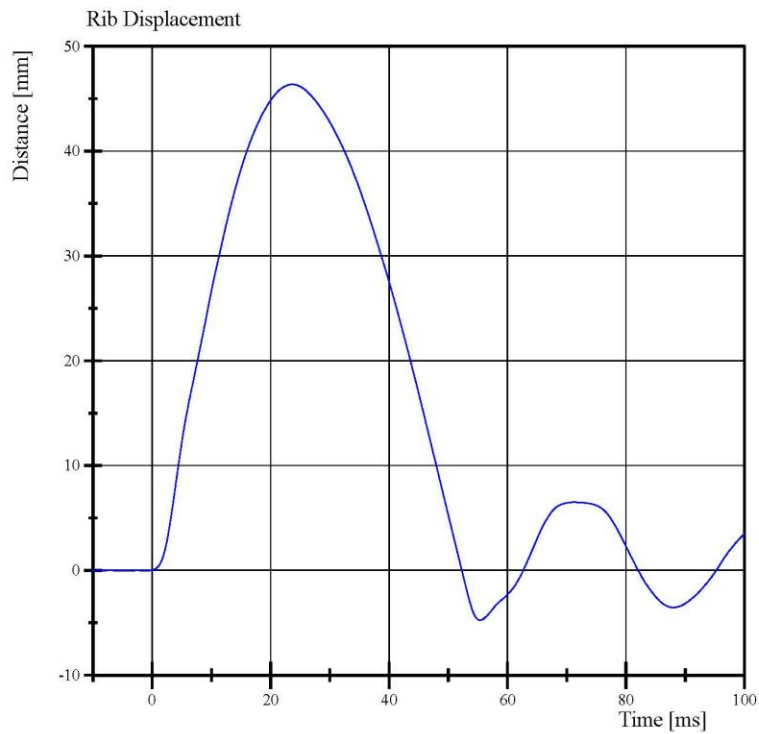
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

07.22.2025 13:18:23 558



Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 106-1
Test Date: 7/22/2025



Filter Class: CFC_180
Max: 46.4 mm at 23.7 ms
Min: -4.7 mm at 55.4 ms

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

07.22.2025 13:18:59 558



Transportation Research Center Inc.

Left Lateral Thorax

ES-2re Serial No. F030 Certification No. 106-1

Test Date: 7/24/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	69 %	Yes
Impactor Velocity	5.4 - 5.60 m/s	5.434 m/s	Yes
Peak Impactor Force after 6 ms	(-5,100) - (-6,200) N	-5,304.6 N	Yes
Upper Rib Displacement	34 - 41 mm	39.1 mm	Yes
Center Rib Displacement	37 - 45 mm	40.6 mm	Yes
Lower Rib Displacement	37 - 44 mm	40.1 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Rib Module S/N: 175-4008-A

Upper Rib Foam S/N: 175-4003-EK6973

Middle Rib Module S/N: 175-4008-A

Middle Rib Foam S/N: 175-4003-EK6970

Lower Rib Module S/N: 175-4008-A-06-017

Lower Rib Foam S/N: 175-4008-EK6971

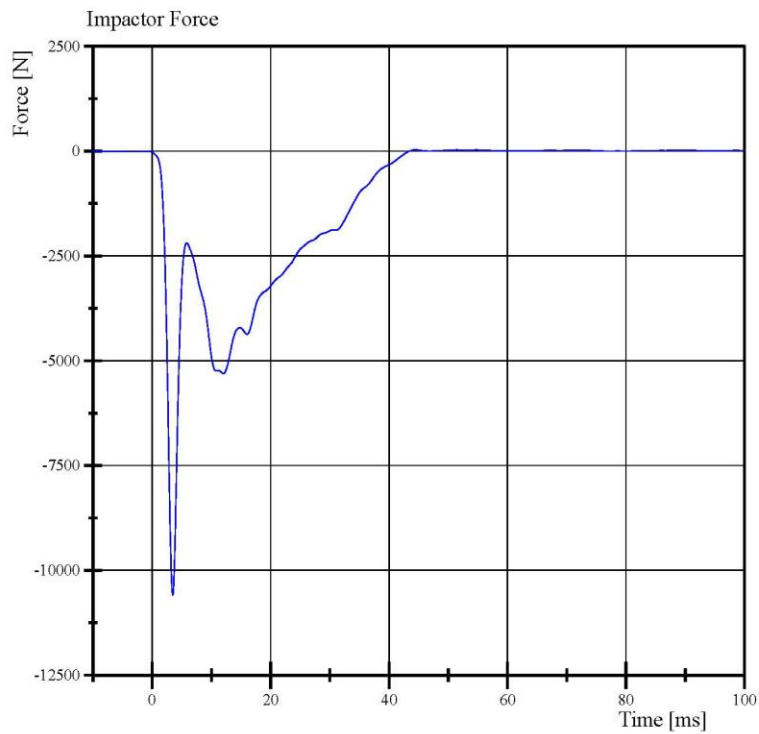
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

07.24.2025 13:12:42 473



Transportation Research Center Inc.

Left Lateral Thorax
ES-2re Serial No. F030 Certification No. 106-1
Test Date: 7/24/2025



Filter Class: CFC_180
Max: 32.9 N at 44.4 ms
Min: -10,586.2 N at 3.4 ms

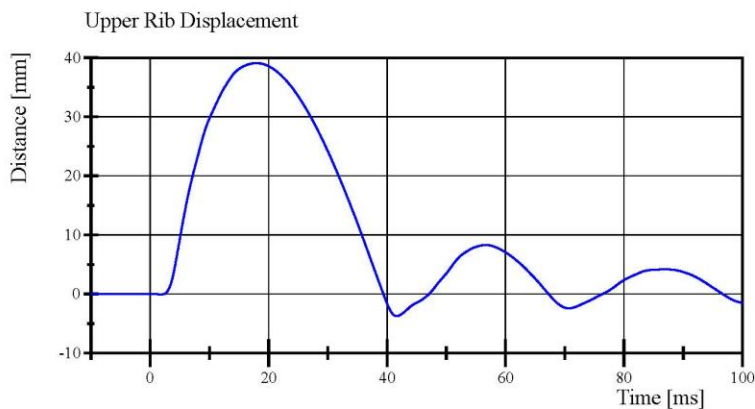
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

07.24.2025 13:13:37 473

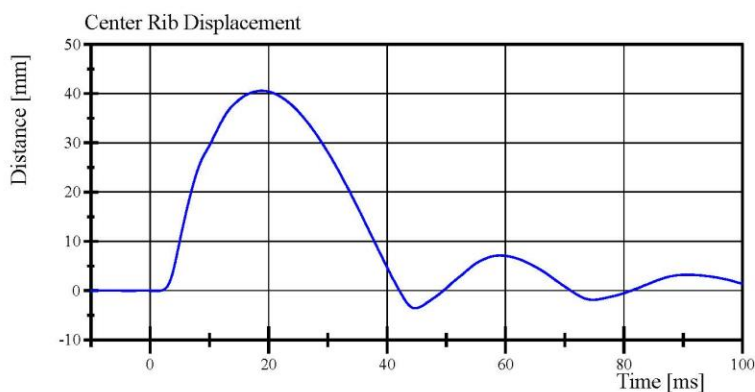


Transportation Research Center Inc.

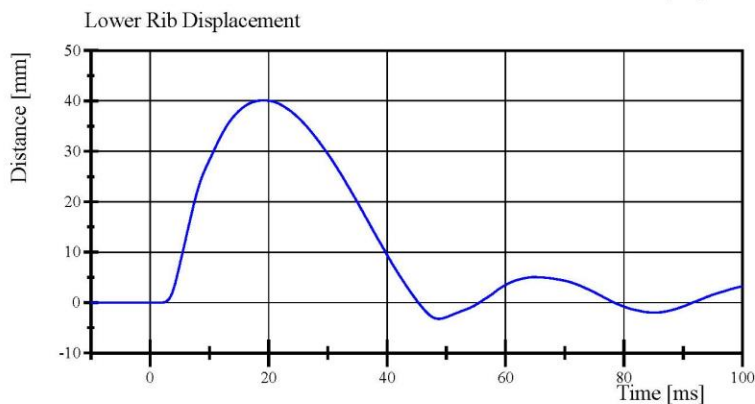
Left Lateral Thorax
ES-2re Serial No. F030 Certification No. 106-1
Test Date: 7/24/2025



Filter Class: CFC_180
Max: 39.1 mm at 17.9 ms
Min: -3.7 mm at 41.6 ms



Filter Class: CFC_180
Max: 40.6 mm at 18.9 ms
Min: -3.6 mm at 44.7 ms



Filter Class: CFC_180
Max: 40.1 mm at 19.2 ms
Min: -3.2 mm at 48.7 ms

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

07.24.2025 13:13:37 473



Transportation Research Center Inc.

Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 106-1
Test Date: 7/24/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	67 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-5.95) - (-6.15) m/s	-6.133 m/s	Yes
Maximum Headform Flexion			
Peak	(-45) - (-55) deg	-51.5 deg	Yes
Time of Peak	39 - 53 ms	46.3 ms	Yes
Headform Flexion Decay			
- Peak to Zero	37 - 57 ms	40.4 ms	Yes

Test meets specifications.

Condition: Used

Comments:

Lumbar S/N: FB7553

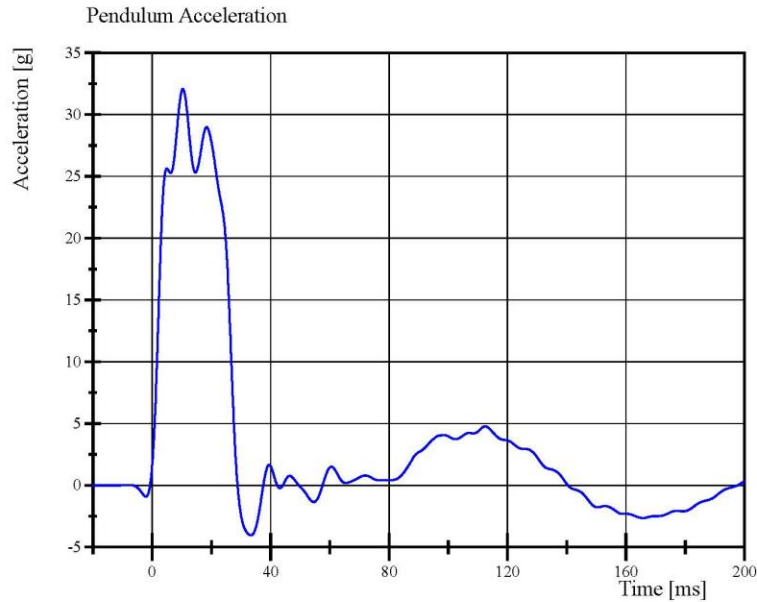
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

07.24.2025 10:46:13 671

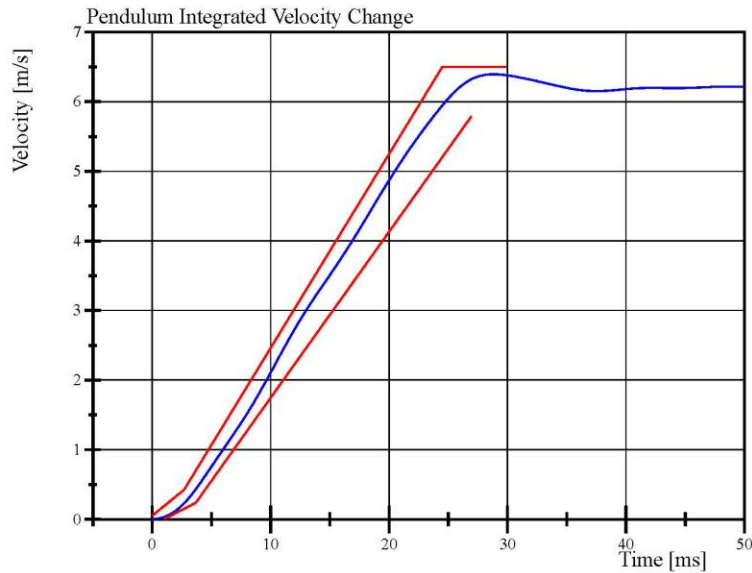


Transportation Research Center Inc.

Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 106-1
Test Date: 7/24/2025



Filter Class: CFC_60
Max: 32.1 g at 10.4 ms
Min: -4.0 g at 33.4 ms



Filter Class: CFC_60
Max: 6.4 m/s at 28.9 ms
Min: 0.0 m/s at 0.0 ms

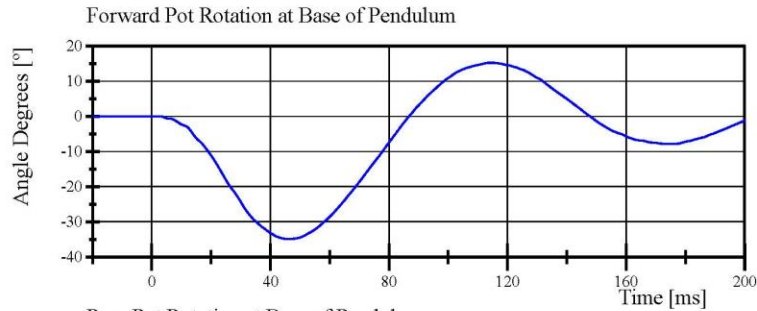
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

07.24.2025 10:46:39 671

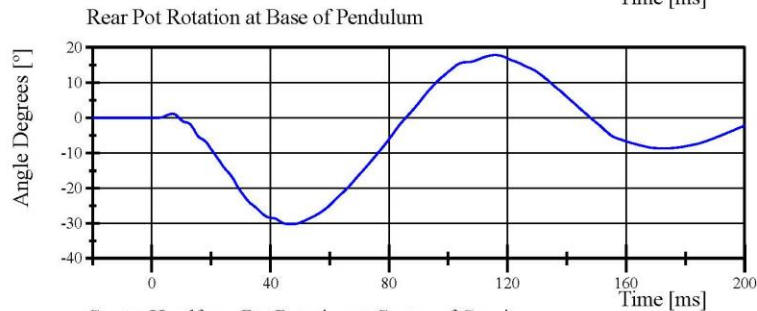


Transportation Research Center Inc.

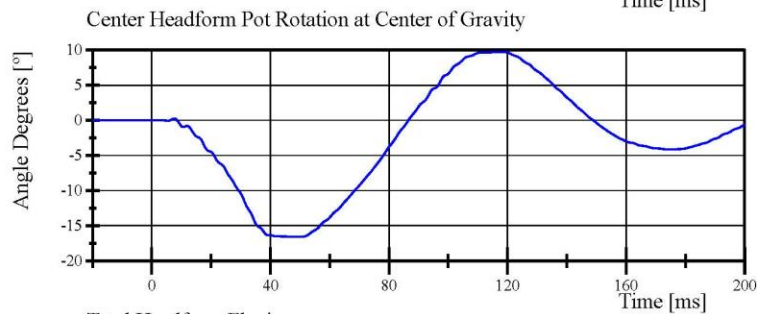
Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 106-1
Test Date: 7/24/2025



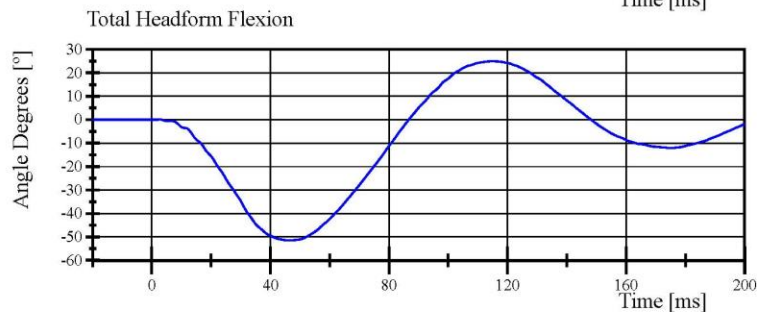
Filter Class: CFC_180
Max: 15.2 ° at 114.3 ms
Min: -34.9 ° at 46.1 ms



Filter Class: CFC_180
Max: 17.9 ° at 115.8 ms
Min: -30.2 ° at 47.6 ms



Filter Class: CFC_180
Max: 9.7 ° at 117.0 ms
Min: -16.6 ° at 49.5 ms



Filter Class: CFC_180
Max: 24.9 ° at 115.0 ms
Min: -51.5 ° at 46.3 ms

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

07.24.2025 10:46:39 671



Transportation Research Center Inc.

Left Lateral Abdomen

ES-2re Serial No. F030 Certification No. 106-1

Test Date: 7/24/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	67 %	Yes
Test Probe Velocity	3.9 - 4.1 m/s	4.08 m/s	Yes
Test Probe Force			
Peak	4,000 - 4,800 N	4,453.5 N	Yes
Time of Peak	10.6 - 13.0 ms	11.68 ms	Yes
Total Abdominal Force			
Peak	2,200 - 2,700 N	2,527.4 N	Yes
Time of Peak	10.0 - 12.3 ms	11.68 ms	Yes

Test meets specifications.

Condition: Used

Comments:

Abdomen S/N: 1066

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

07.24.2025 13:25:22 517

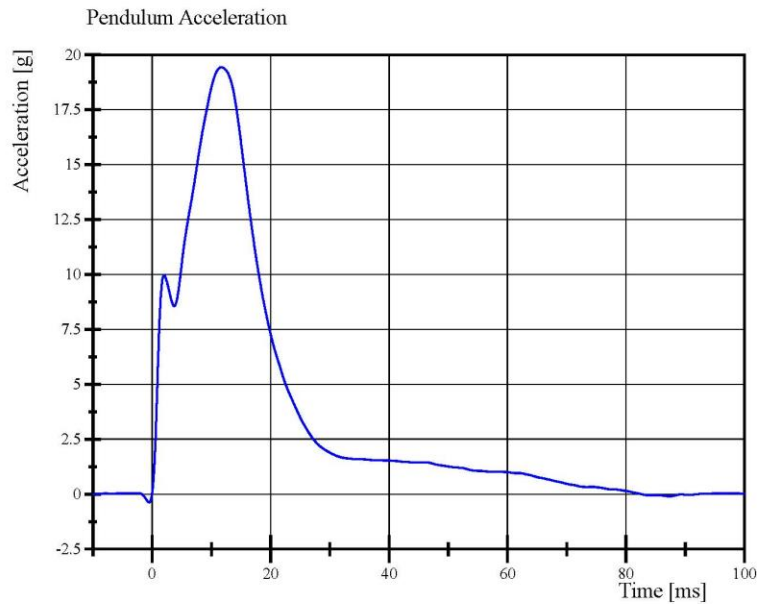


Transportation Research Center Inc.

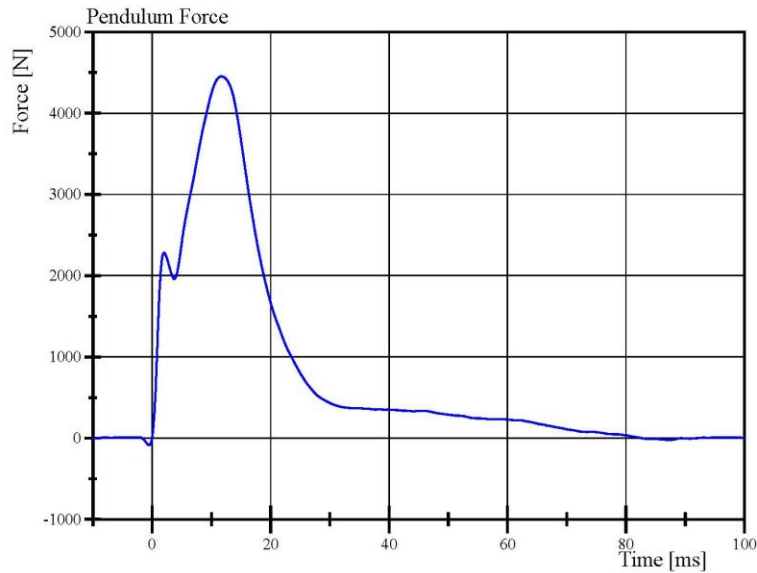
Left Lateral Abdomen

ES-2re Serial No. F030 Certification No. 106-1

Test Date: 7/24/2025



Filter Class: CFC_180
Max: 19.4 g at 11.7 ms
Min: -0.4 g at -0.5 ms



Filter Class: CFC_180
Max: 4,453.5 N at 11.7 ms
Min: -86.1 N at -0.5 ms

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

07.24.2025 13:25:48 517

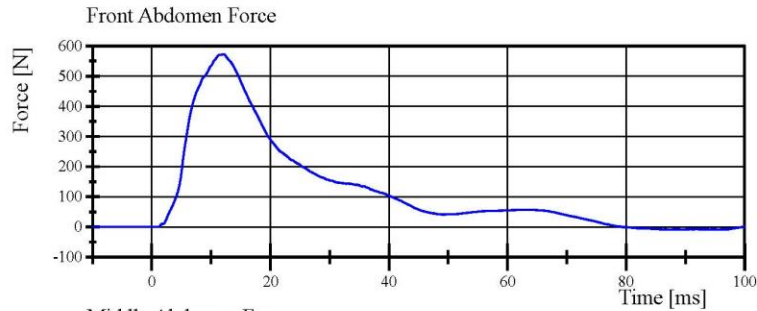


Transportation Research Center Inc.

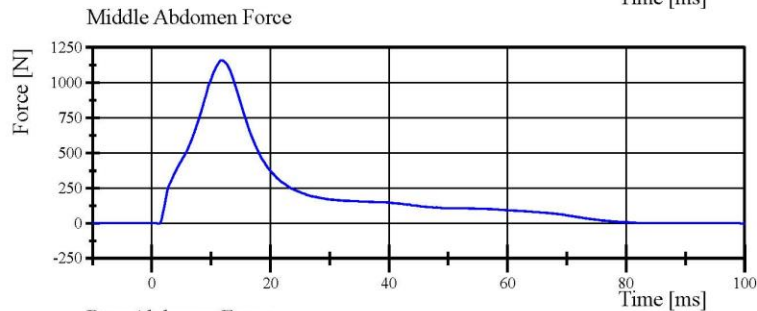
Left Lateral Abdomen

ES-2re Serial No. F030 Certification No. 106-1

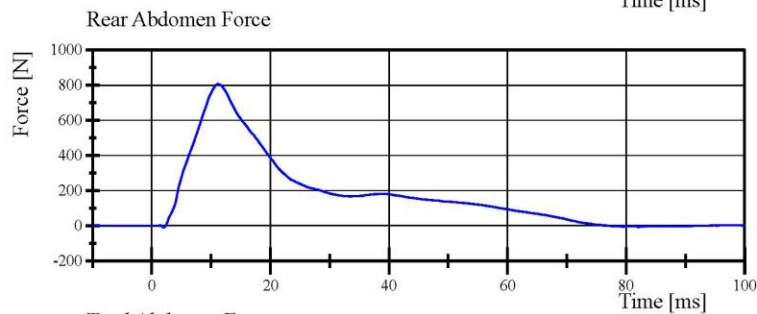
Test Date: 7/24/2025



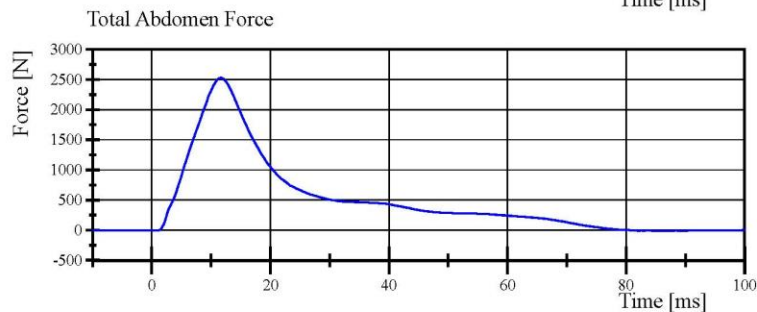
Filter Class: CFC_600
Max: 572.8 N at 12.1 ms
Min: -8.7 N at 95.4 ms



Filter Class: CFC_600
Max: 1,159.6 N at 11.8 ms
Min: -1.6 N at 1.2 ms



Filter Class: CFC_600
Max: 805.8 N at 11.2 ms
Min: -9.9 N at 2.0 ms



Filter Class: CFC_600
Max: 2,527.4 N at 11.7 ms
Min: -10.9 N at 87.1 ms

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

07.24.2025 13:25:49 517



Transportation Research Center Inc.

Left Lateral Pelvis

ES-2re Serial No. F030 Certification No. 106-1

Test Date: 7/24/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	68 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.36 m/s	Yes
Test Probe Force			
Peak	4,700 - 5,400 N	5,177.5 N	Yes
Time of Peak	11.8 - 16.1 ms	13.36 ms	Yes
Pubic Symphysis Force			
Peak	(-1,230) - (-1,590) N	-1,401.2 N	Yes
Time of Peak	12.2 - 17.0 ms	13.28 ms	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis S/N: NA

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

07.24.2025 13:32:32 495

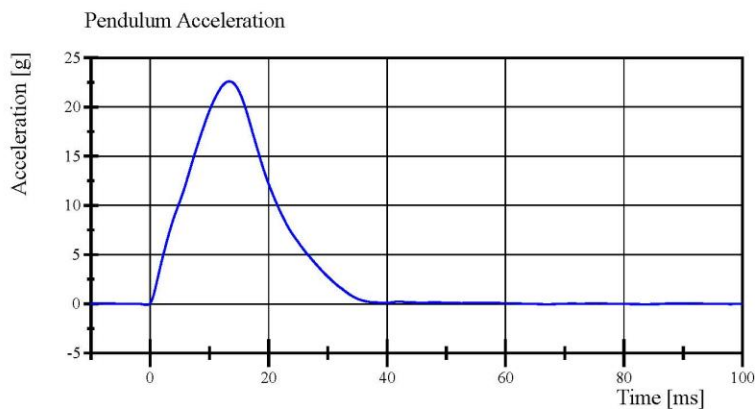


Transportation Research Center Inc.

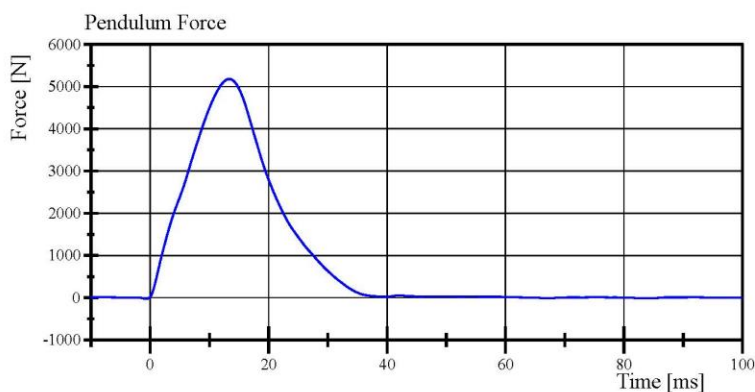
Left Lateral Pelvis

ES-2re Serial No. F030 Certification No. 106-1

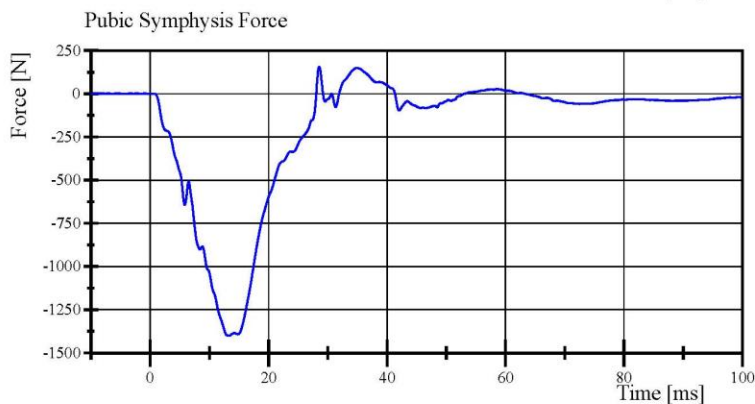
Test Date: 7/24/2025



Filter Class: CFC_180
Max: 22.6 g at 13.4 ms
Min: -0.1 g at -0.6 ms



Filter Class: CFC_180
Max: 5,177.5 N at 13.4 ms
Min: -25.0 N at -0.6 ms



Filter Class: CFC_600
Max: 155.6 N at 28.6 ms
Min: -1,401.2 N at 13.3 ms

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

07.24.2025 13:32:59 495



Post-Test Calibration Sheets
Driver S/N F030

Transportation Research Center Inc.
572U ES-2re Dummy
External Dimensions
Serial No. F030 Calibration No. 107

Symbol	Description	Specification	Results	Pass
		mm	mm	
1	Sitting Height	900.0 - 918.0	909	Yes
2	Seat to Shoulder Joint	558.0 - 572.0	560	Yes
3	Seat to Lower Face of Thoracic Spine Box	346.0 - 356.0	347	Yes
4	Seat to Hip Joint (center of bolt)	97.0 - 103.0	98	Yes
5	Sole to Seat, Sitting	433.0 - 451.0	443	Yes
6	Head Width	152.0 - 158.0	154	Yes
7	Shoulder/Arm Width	461.0 - 479.0	475	Yes
8	Thorax Width	322.0 - 332.0	328	Yes
9	Abdomen Width	273.0 - 287.0	279	Yes
10	Pelvis Lap Width	359.0 - 373.0	366	Yes
11	Head Depth	196.0 - 206.0	201	Yes
12	Thorax Depth	262.0 - 272.0	262	Yes
13	Abdomen Depth	194.0 - 204.0	199	Yes
14	Pelvis Depth	235.0 - 245.0	242	Yes
15	Back of Buttocks to Hip Joint (center of bolt)	150.0 - 160.0	156	Yes
16	Back of Buttocks to Front of Knee	597.0 - 615.0	605	Yes

Baseline 10/07/05



Report Number: F030_ERF107

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Transportation Research Center Inc.

Left Lateral Head Drop

ES-2re Serial No. F030 Certification No. 107-1

Test Date: 7/31/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	69 %	Yes
Peak Resultant Acceleration	125 - 155 g	132.4 g	Yes
Peak Longitudinal Acceleration	(-15) - 15 g	8.4 g	Yes
Is Resultant Acceleration Curve Unimodal within 15% of Main Pulse?	< 15 %	3.89 %	Yes

Test meets specifications.

Condition: Used

Comments:

Head Skin S/N: DP6812

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

07.31.2025 14:25:15 360

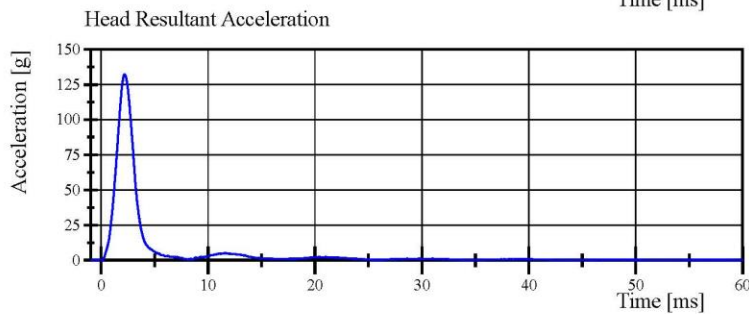
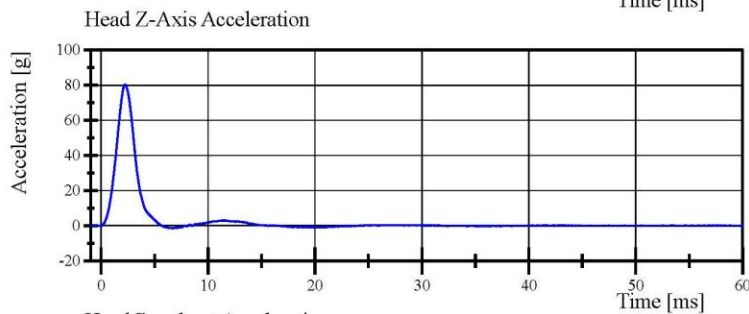
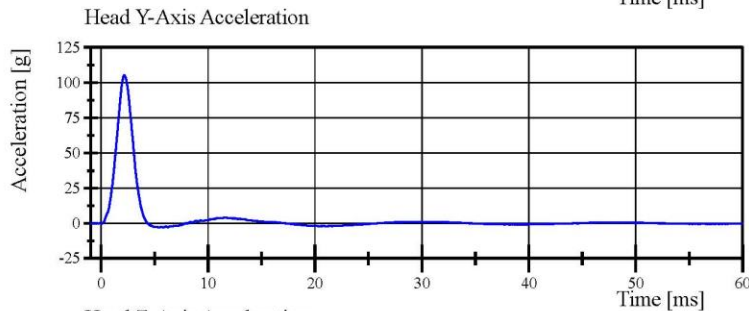
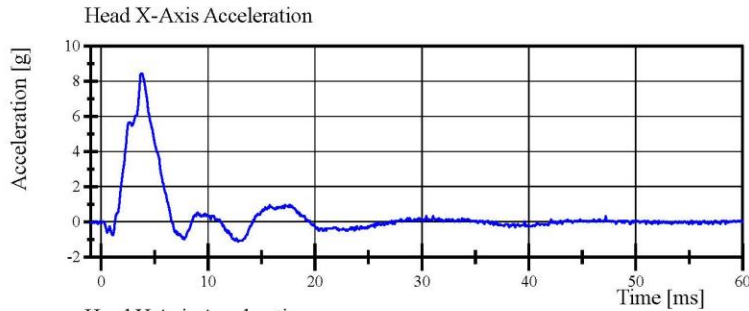


Transportation Research Center Inc.

Left Lateral Head Drop

ES-2re Serial No. F030 Certification No. 107-1

Test Date: 7/31/2025



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

07.31.2025 14:25:43 360



Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. F030 Certification No. 107-3

Test Date: 8/1/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	58 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-3.3) - (-3.5) m/s	-3.37 m/s	Yes
Maximum Headform Flexion			
Peak	(-49) - (-59) deg	-51.2 deg	Yes
Time of Peak	54 - 66 ms	56.2 ms	Yes
Headform Flexion Decay			
- Peak to Zero	53 - 88 ms	56.2 ms	Yes

Test meets specifications.

Condition: Used

Comments:

Neck S/N: 05053

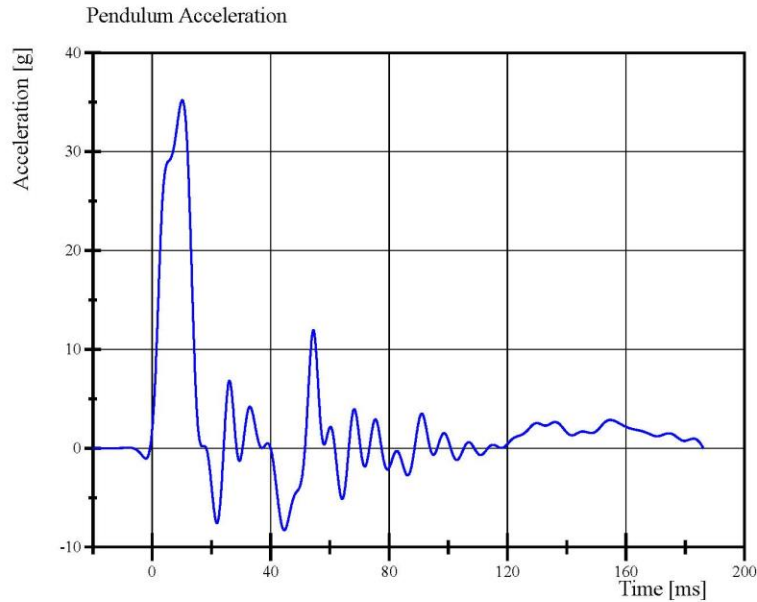
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

08.01.2025 06:48:13 1498

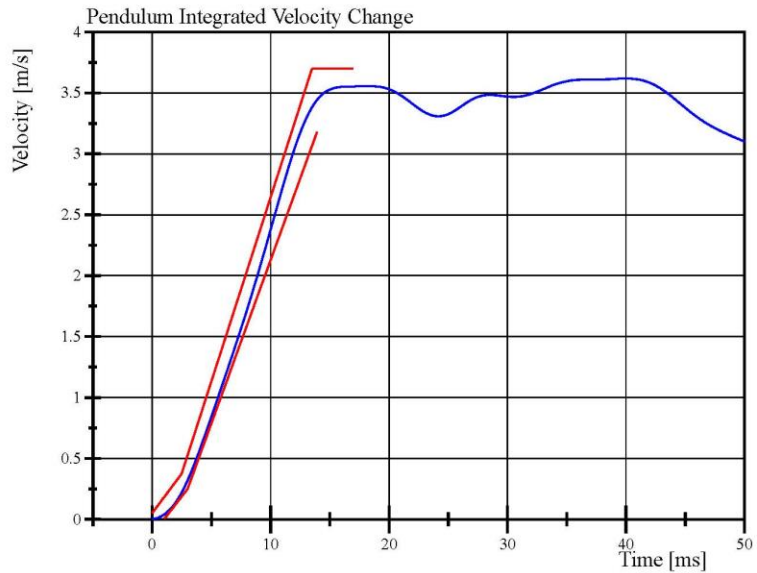


Transportation Research Center Inc.

Left Lateral Neck
ES-2re Serial No. F030 Certification No. 107-3
Test Date: 8/1/2025



Filter Class: CFC_60
Max: 35.2 g at 10.2 ms
Min: -8.3 g at 44.6 ms



Filter Class: CFC_60
Max: 3.6 m/s at 40.0 ms
Min: 0.0 m/s at 0.0 ms

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

08.01.2025 06:48:49 1498

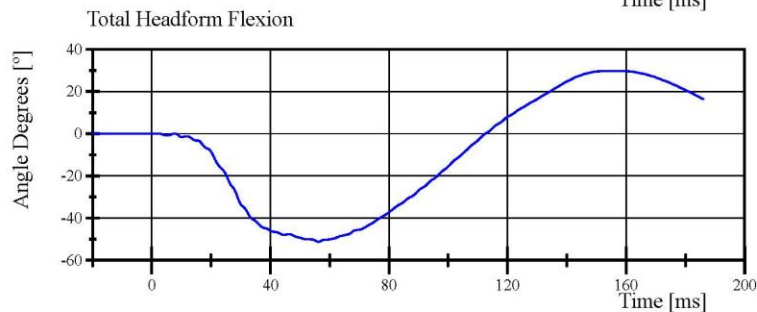
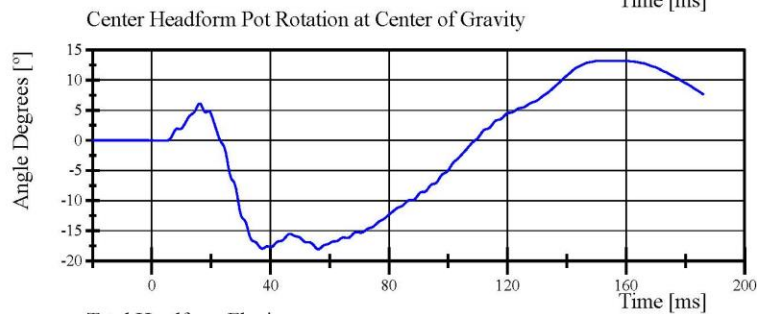
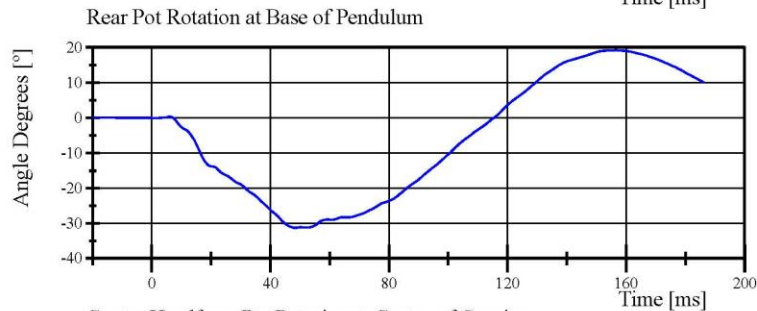
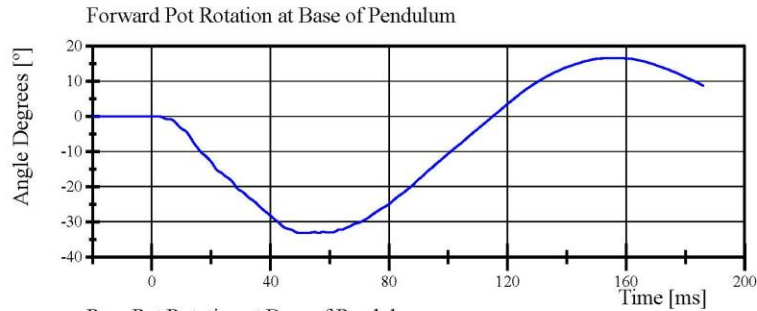


Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. F030 Certification No. 107-3

Test Date: 8/1/2025



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

08.01.2025 06:48:49 1498



Transportation Research Center Inc.

Left Lateral Shoulder

ES-2re Serial No. F030 Certification No. 107-1

Test Date: 8/1/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.23 m/s	Yes
Test Probe Acceleration	(-7.5) - (-10.5) g	-8.81 g	Yes

Test meets specifications.

Condition: Used

Comments:

Arm S/N: 175-3501-07014

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

08.01.2025 10:16:30 574

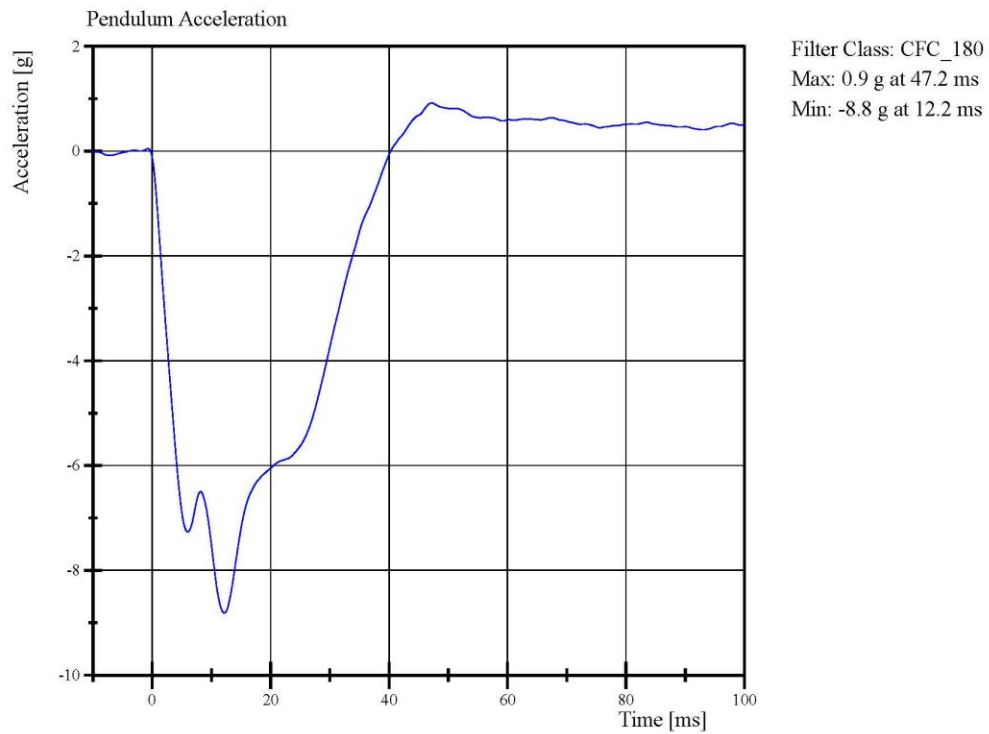


Transportation Research Center Inc.

Left Lateral Shoulder

ES-2re Serial No. F030 Certification No. 107-1

Test Date: 8/1/2025



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

08.01.2025 10:17:15 574



Transportation Research Center Inc.

3.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 107-1
Test Date: 8/1/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	58 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	39.9 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 462 mm

Rib Foam S/N: EK6973

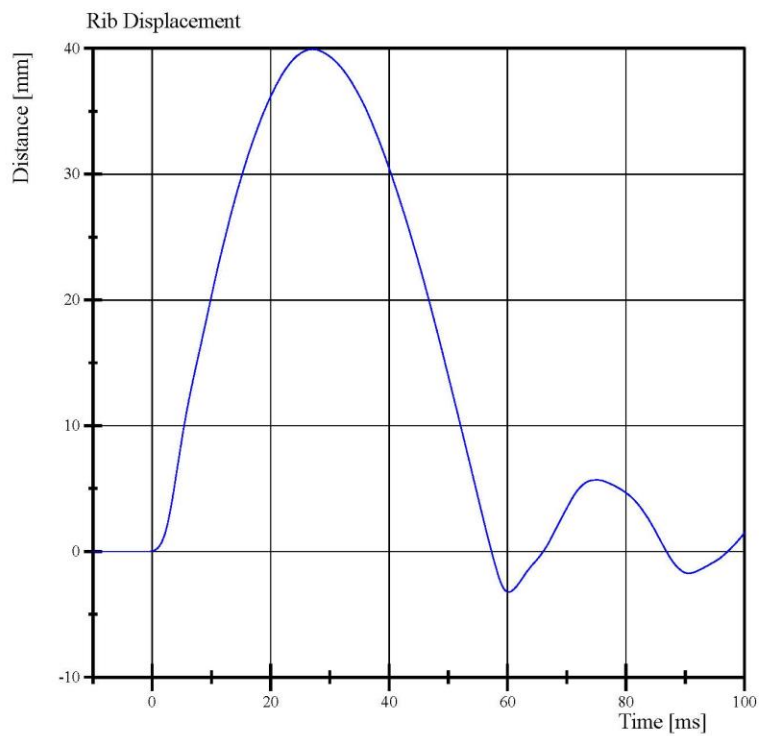
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

08.01.2025 08:00:00 646



Transportation Research Center Inc.

3.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 107-1
Test Date: 8/1/2025



Filter Class: CFC_180
Max: 39.9 mm at 27.0 ms
Min: -3.2 mm at 60.2 ms

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

08.01.2025 08:01:17 646



Transportation Research Center Inc.

4.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 107-1
Test Date: 8/1/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	49.0 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 816 mm

Rib Foam S/N: EK6973

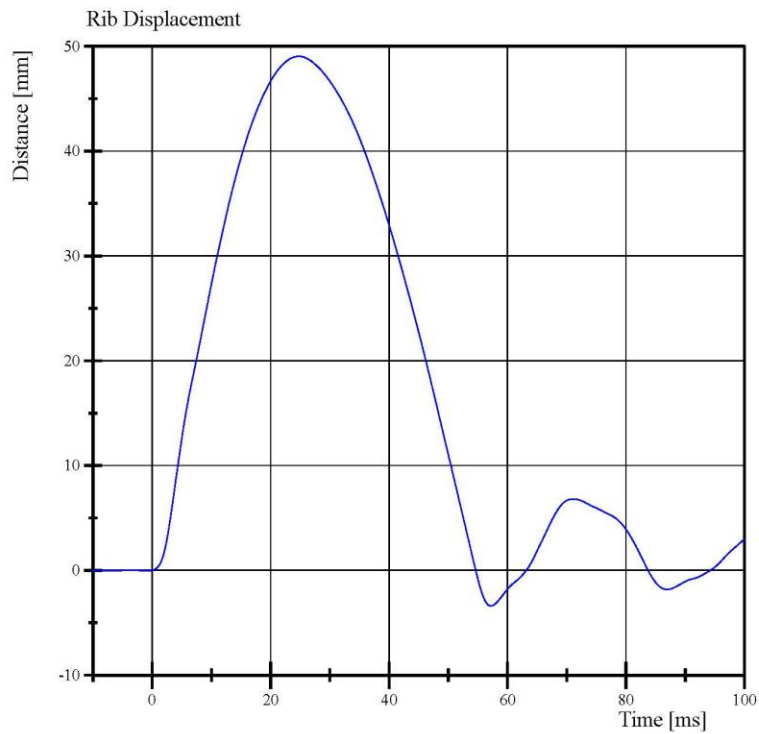
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

08.01.2025 07:50:25 546



Transportation Research Center Inc.

4.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 107-1
Test Date: 8/1/2025



Filter Class: CFC_180
Max: 49.0 mm at 24.7 ms
Min: -3.4 mm at 57.2 ms

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

08.01.2025 07:51:21 546



Report Number: F030_ERF107

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Transportation Research Center Inc.

3.0 m/s Middle Full Rib Module

ES-2re Serial No. F030 Certification No. 107-1

Test Date: 8/1/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	38.6 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 462 mm

Rib Foam S/N: EK6970

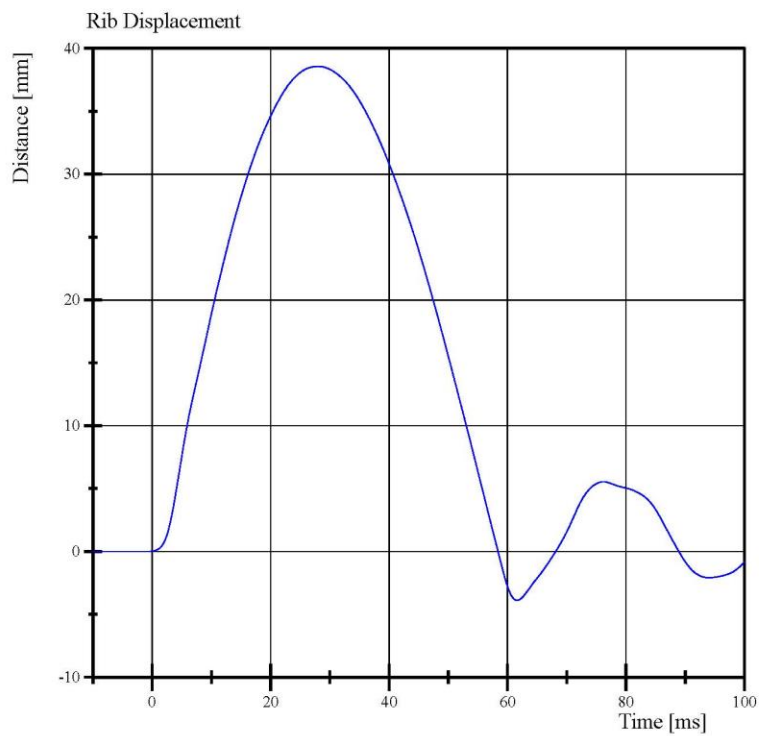
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

08.01.2025 08:12:55 670



Transportation Research Center Inc.

3.0 m/s Middle Full Rib Module
ES-2re Serial No. F030 Certification No. 107-1
Test Date: 8/1/2025



Filter Class: CFC_180
Max: 38.6 mm at 28.0 ms
Min: -3.9 mm at 61.6 ms

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

08.01.2025 08:13:32 670



Transportation Research Center Inc.

4.0 m/s Middle Full Rib Module

ES-2re Serial No. F030 Certification No. 107-1

Test Date: 8/1/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	49.6 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 816 mm

Rib Foam S/N: EK6970

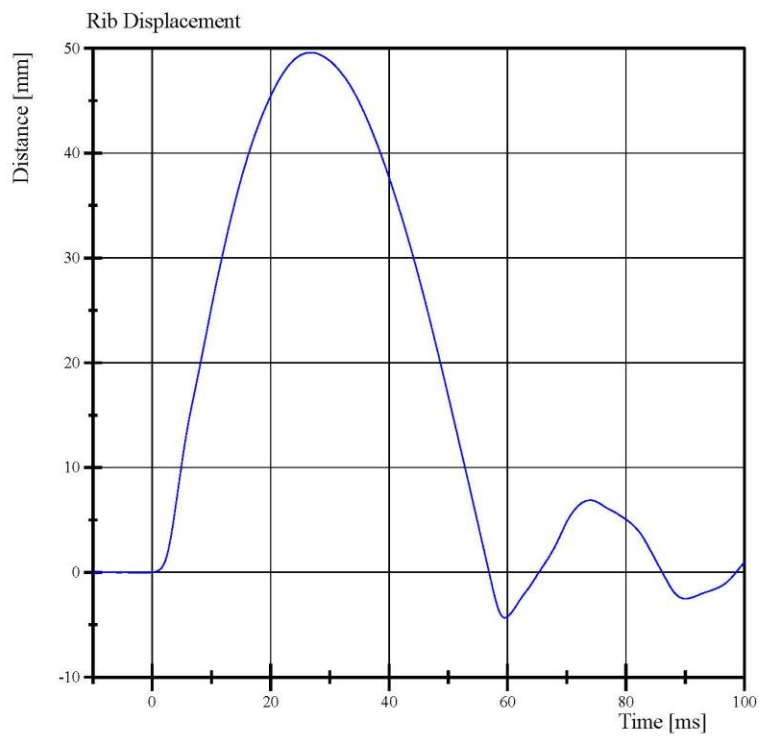
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

08.01.2025 08:08:21 533



Transportation Research Center Inc.

4.0 m/s Middle Full Rib Module
ES-2re Serial No. F030 Certification No. 107-1
Test Date: 8/1/2025



Filter Class: CFC_180
Max: 49.6 mm at 26.8 ms
Min: -4.3 mm at 59.5 ms

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

08.01.2025 08:09:13 533



Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 107-1
Test Date: 8/1/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	38.0 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 462 mm

Rib Foam S/N: EK6970

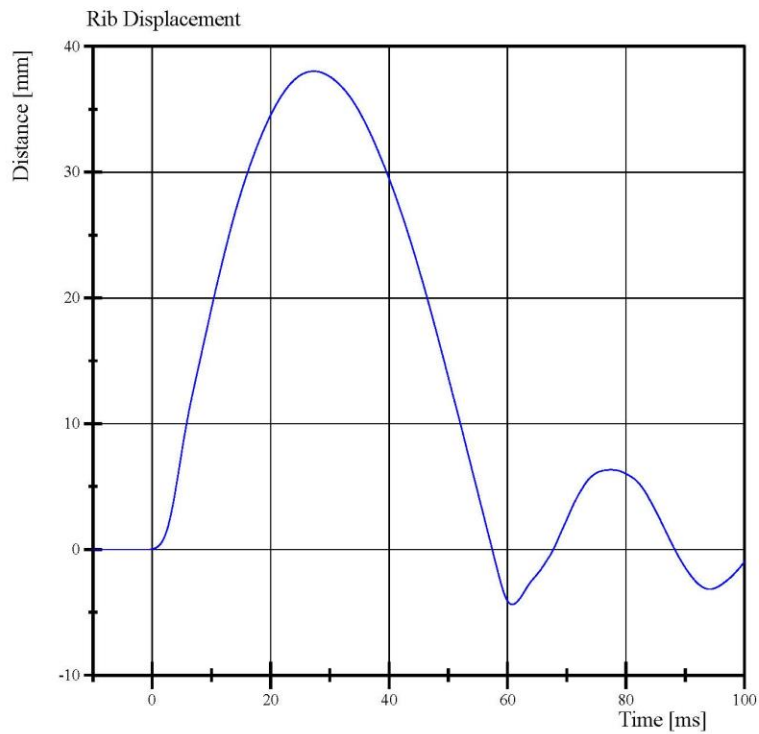
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

08.01.2025 08:30:18 652



Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 107-1
Test Date: 8/1/2025



Filter Class: CFC_180
Max: 38.0 mm at 27.3 ms
Min: -4.4 mm at 60.8 ms

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

08.01.2025 08:31:02 652



Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module

ES-2re Serial No. F030 Certification No. 107-1

Test Date: 8/1/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	46.6 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 816 mm

Rib Foam S/N: EK6970

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

08.01.2025 08:24:28 554

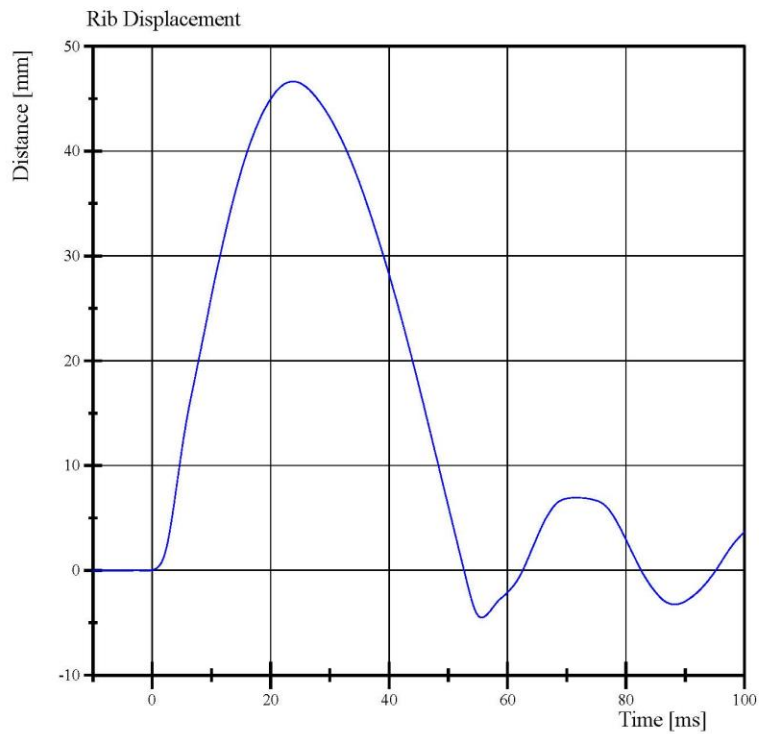


Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module

ES-2re Serial No. F030 Certification No. 107-1

Test Date: 8/1/2025



Filter Class: CFC_180
Max: 46.6 mm at 23.8 ms
Min: -4.5 mm at 55.6 ms

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

08.01.2025 08:25:24 554



Report Number: F030_ERF107

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Transportation Research Center Inc.

Left Lateral Thorax

ES-2re Serial No. F030 Certification No. 107-1

Test Date: 8/1/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	62 %	Yes
Impactor Velocity	5.4 - 5.60 m/s	5.436 m/s	Yes
Peak Impactor Force after 6 ms	(-5,100) - (-6,200) N	-5,917.0 N	Yes
Upper Rib Displacement	34 - 41 mm	37.4 mm	Yes
Center Rib Displacement	37 - 45 mm	39.4 mm	Yes
Lower Rib Displacement	37 - 44 mm	39.2 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Rib Module S/N: 175-4008-A

Upper Rib Foam S/N: 175-4003-EK6973

Middle Rib Module S/N: 175-4008-A

Middle Rib Foam S/N: 175-4003-EK6970

Lower Rib Module S/N: 175-4008-A-06-017

Lower Rib Foam S/N: 175-4008-EK6971

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

08.01.2025 10:34:11 466

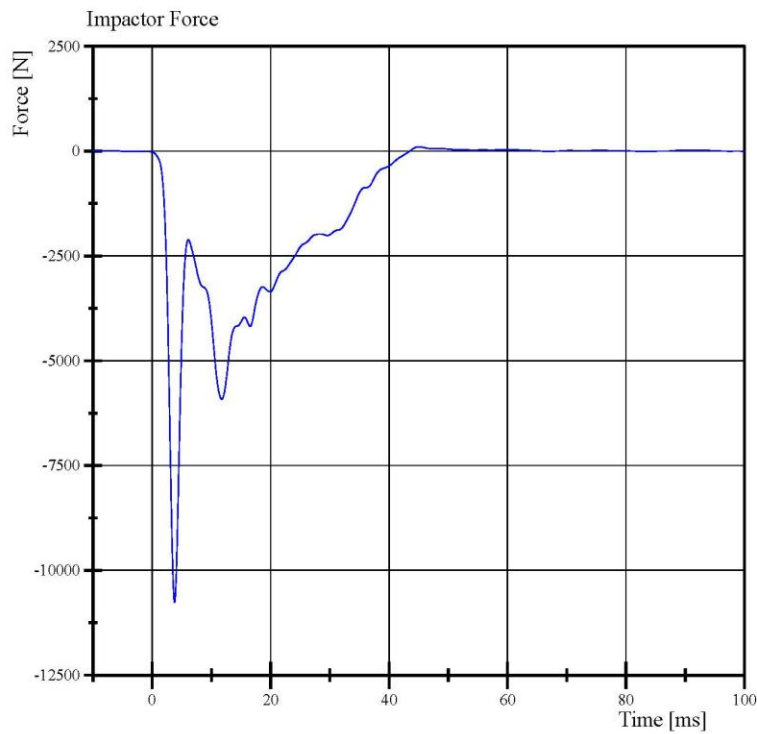


Transportation Research Center Inc.

Left Lateral Thorax

ES-2re Serial No. F030 Certification No. 107-1

Test Date: 8/1/2025



Filter Class: CFC_180
Max: 103.2 N at 45.1 ms
Min: -10,762.4 N at 3.8 ms

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

08.01.2025 10:35:25 466

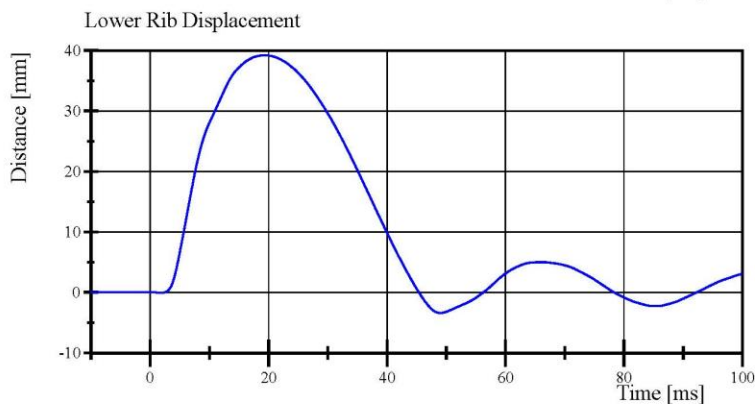
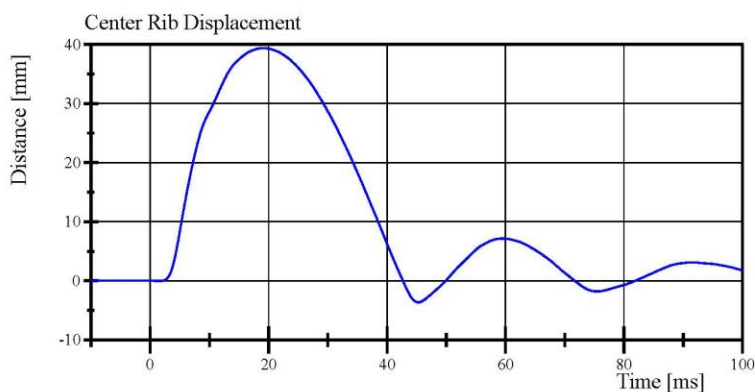
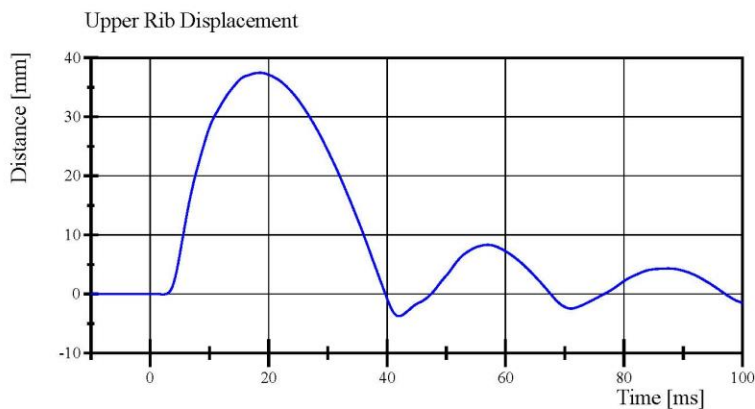


Report Number: F030_ERF107

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Transportation Research Center Inc.

Left Lateral Thorax
ES-2re Serial No. F030 Certification No. 107-1
Test Date: 8/1/2025



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

08.01.2025 10:35:26 466



Transportation Research Center Inc.

Left Lateral Lumbar

ES-2re Serial No. F030 Certification No. 107-1

Test Date: 8/1/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-5.95) - (-6.15) m/s	-6.127 m/s	Yes
Maximum Headform Flexion			
Peak	(-45) - (-55) deg	-49.7 deg	Yes
Time of Peak	39 - 53 ms	45.2 ms	Yes
Headform Flexion Decay			
- Peak to Zero	37 - 57 ms	40.4 ms	Yes

Test meets specifications.

Condition: Used

Comments:

Lumbar S/N: FB7553

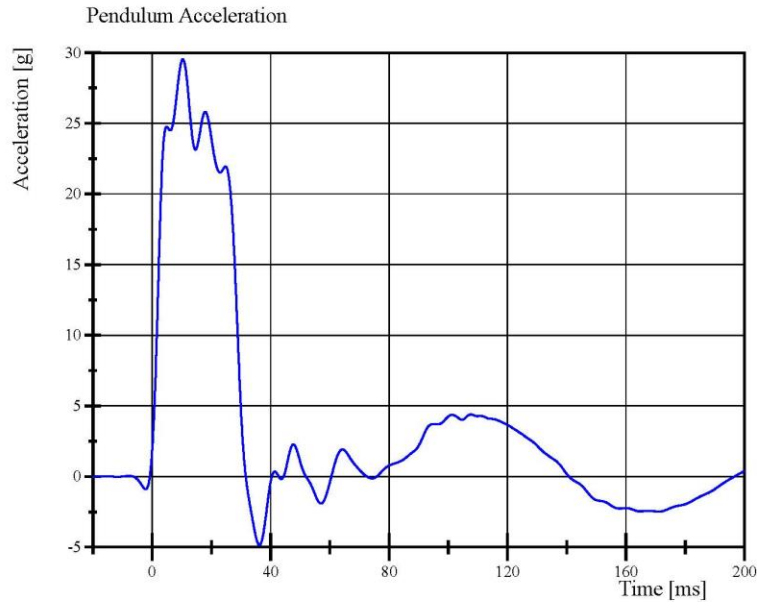
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

08.01.2025 07:40:54 671

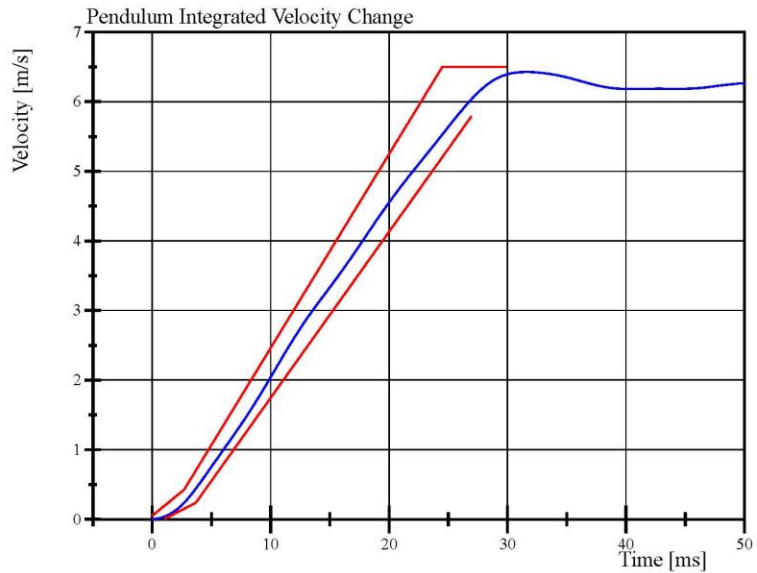


Transportation Research Center Inc.

Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 107-1
Test Date: 8/1/2025



Filter Class: CFC_60
Max: 29.5 g at 10.4 ms
Min: -4.9 g at 36.2 ms



Filter Class: CFC_60
Max: 6.4 m/s at 31.6 ms
Min: 0.0 m/s at 0.0 ms

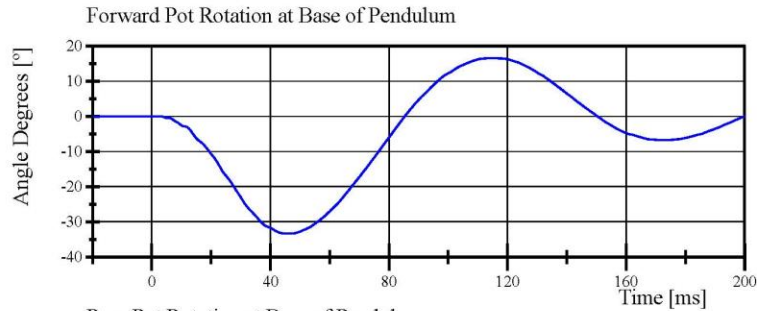
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

08.01.2025 07:41:40 671

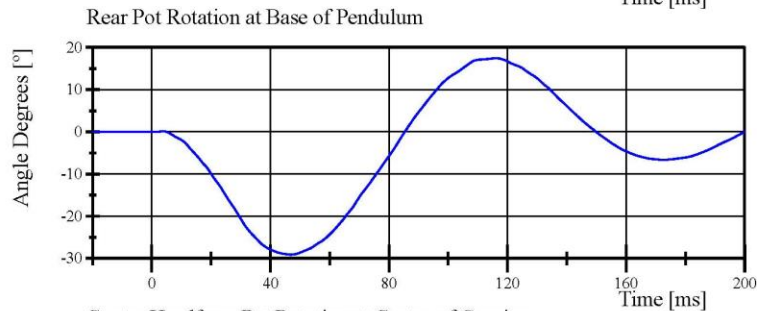


Transportation Research Center Inc.

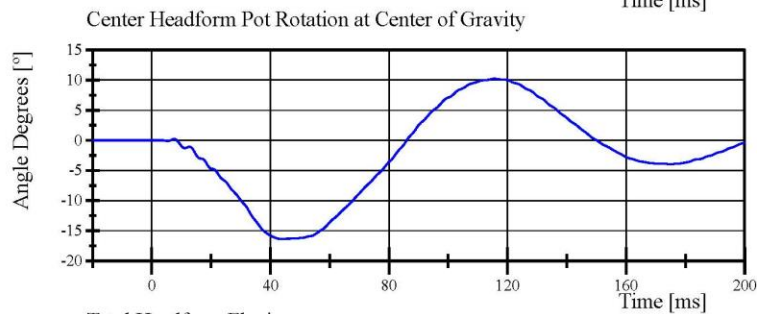
Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 107-1
Test Date: 8/1/2025



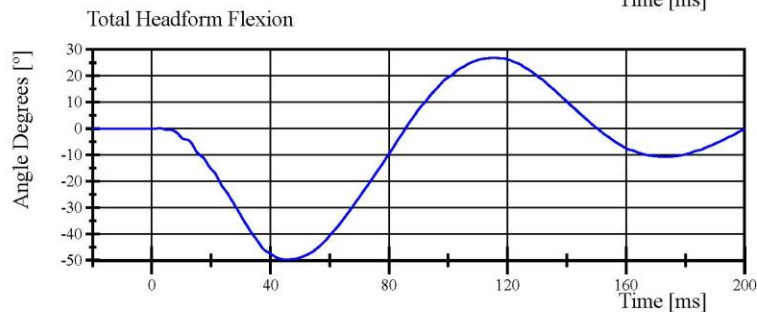
Filter Class: CFC_180
Max: 16.6 ° at 114.6 ms
Min: -33.4 ° at 45.5 ms



Filter Class: CFC_180
Max: 17.5 ° at 116.0 ms
Min: -29.1 ° at 46.8 ms



Filter Class: CFC_180
Max: 10.2 ° at 115.5 ms
Min: -16.3 ° at 43.7 ms



Filter Class: CFC_180
Max: 26.8 ° at 115.2 ms
Min: -49.7 ° at 45.2 ms

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

08.01.2025 07:41:40 671



Transportation Research Center Inc.

Left Lateral Abdomen

ES-2re Serial No. F030 Certification No. 107-1

Test Date: 8/1/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Test Probe Velocity	3.9 - 4.1 m/s	4.07 m/s	Yes
Test Probe Force			
Peak	4,000 - 4,800 N	4,273.6 N	Yes
Time of Peak	10.6 - 13.0 ms	12.72 ms	Yes
Total Abdominal Force			
Peak	2,200 - 2,700 N	2,613.7 N	Yes
Time of Peak	10.0 - 12.3 ms	12.24 ms	Yes

Test meets specifications.

Condition: Used

Comments:

Abdomen S/N: 1066

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

08.01.2025 10:54:29 542

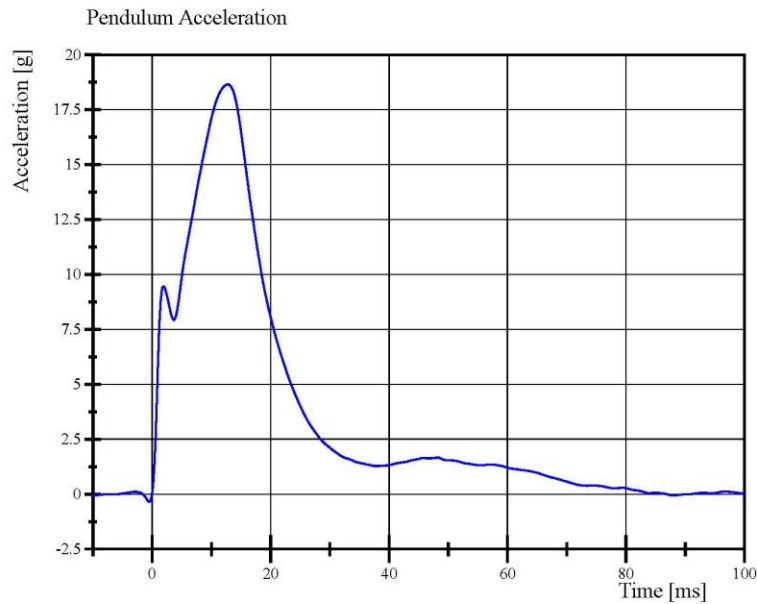


Transportation Research Center Inc.

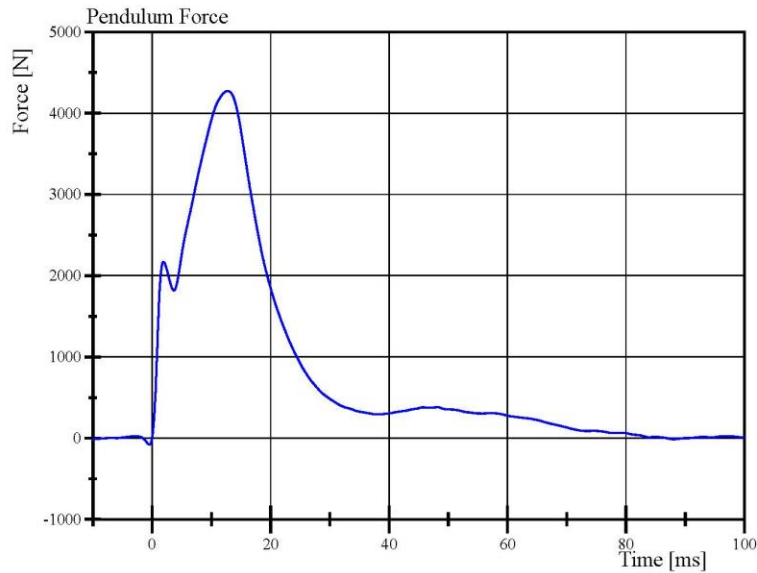
Left Lateral Abdomen

ES-2re Serial No. F030 Certification No. 107-1

Test Date: 8/1/2025



Filter Class: CFC_180
Max: 18.6 g at 12.7 ms
Min: -0.4 g at -0.5 ms



Filter Class: CFC_180
Max: 4,273.6 N at 12.7 ms
Min: -80.7 N at -0.5 ms

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

08.01.2025 10:55:04 542.

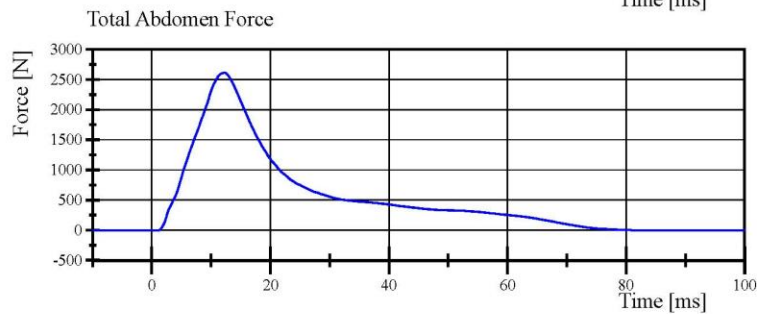
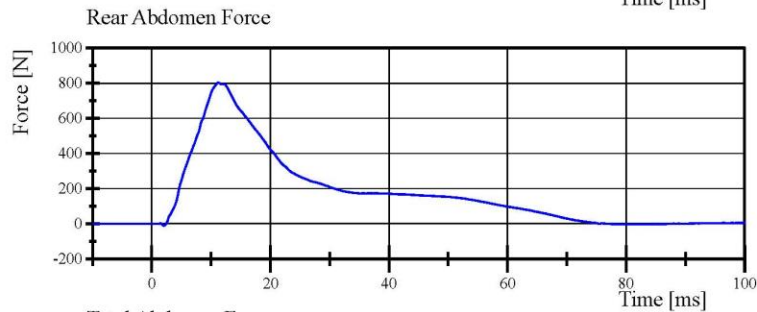
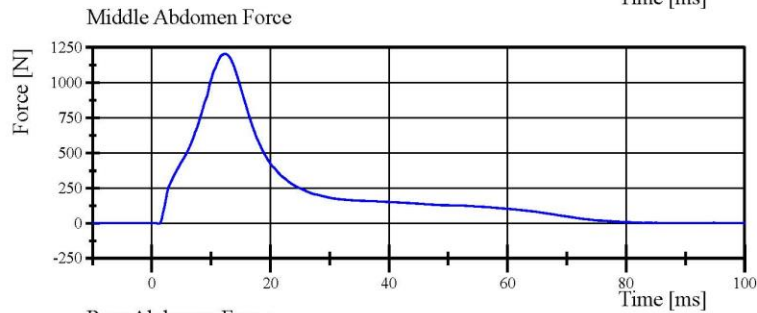
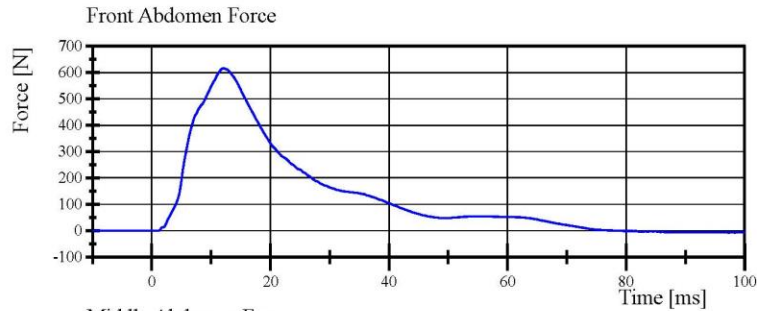


Transportation Research Center Inc.

Left Lateral Abdomen

ES-2re Serial No. F030 Certification No. 107-1

Test Date: 8/1/2025



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

08.01.2025 10:55:04 542.



Transportation Research Center Inc.

Left Lateral Pelvis

ES-2re Serial No. F030 Certification No. 107-1

Test Date: 8/1/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	61 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.35 m/s	Yes
Test Probe Force			
Peak	4,700 - 5,400 N	5,210.8 N	Yes
Time of Peak	11.8 - 16.1 ms	12.88 ms	Yes
Pubic Symphysis Force			
Peak	(-1,230) - (-1,590) N	-1,274.8 N	Yes
Time of Peak	12.2 - 17.0 ms	13.20 ms	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis S/N: NA

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

08.01.2025 11:19:00 515

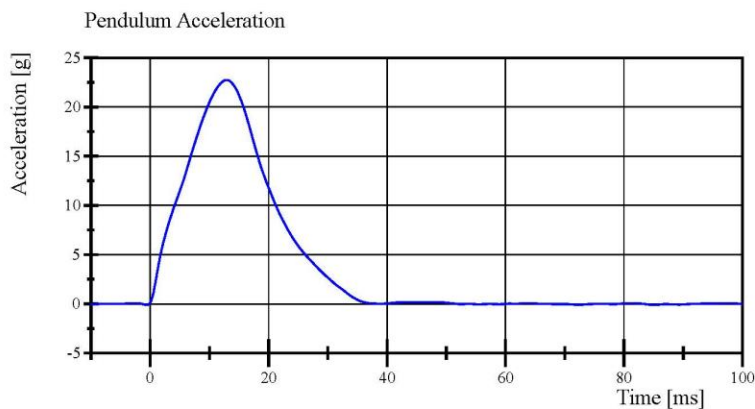


Transportation Research Center Inc.

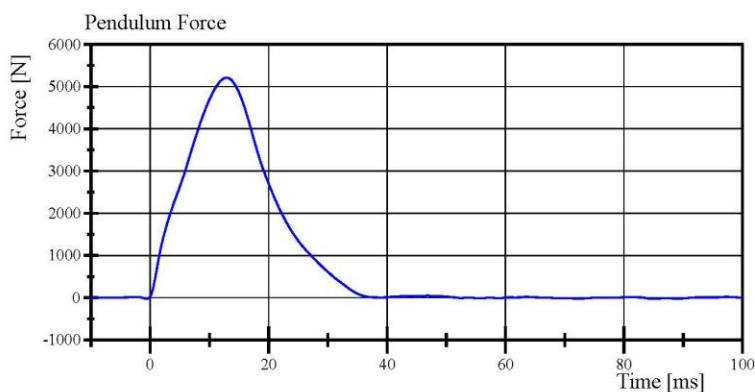
Left Lateral Pelvis

ES-2re Serial No. F030 Certification No. 107-1

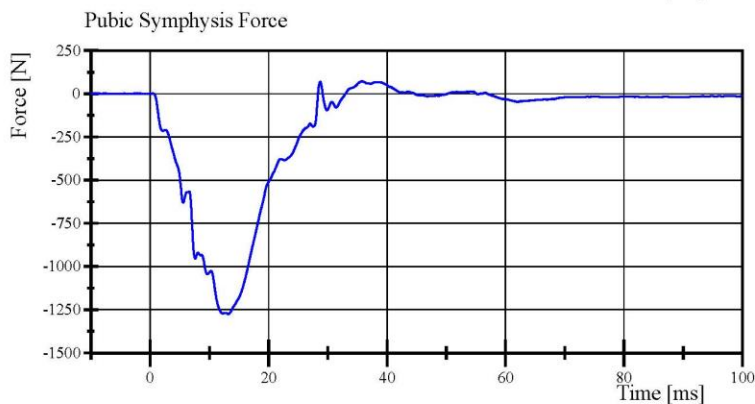
Test Date: 8/1/2025



Filter Class: CFC_180
Max: 22.7 g at 12.9 ms
Min: -0.1 g at -0.6 ms



Filter Class: CFC_180
Max: 5,210.8 N at 12.9 ms
Min: -25.6 N at -0.6 ms



Filter Class: CFC_600
Max: 71.6 N at 35.8 ms
Min: -1,274.8 N at 13.2 ms

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

08.01.2025 11:19:38 515



Pre-Test Calibration Sheets
Passenger S/N DQ0570

Transportation Research Center Inc.
SIDI's Dummy - Level D
External Dimensions
Serial No. DQ0570 Calibration No. 38

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	785	Yes
B	Shoulder Pivot Height	437.0 - 453.0	445	Yes
C	H-Point Height	79.0 - 89.0	83	Yes
D	H-Point from Seat Back	141.0 - 151.0	147	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	101	Yes
F	Thigh Clearance	119.0 - 135.0	130	Yes
G	Head Breadth	140.0 - 148.0	145	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	184	Yes
J	Head Circumference	541.0 - 551.0	545	Yes
K	Buttock to Knee Length	514.0 - 540.0	533	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	427	Yes
O	Chest Depth without Jacket	195.0 - 211.0	200	Yes
P	Foot Length (right)	216.0 - 232.0	220	Yes
P	Foot Length (left)	216.0 - 232.0	220	Yes
Q	Hip Breadth	313.0 - 323.0	316	Yes
R	Arm Length	249.0 - 259.0	254	Yes
S	Knee Joint to seat Back	478.0 - 493.0	486	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	349	Yes
W	Foot Width (right)	78.0 - 94.0	84	Yes
W	Foot Width (left)	78.0 - 94.0	84	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	870	Yes
Z	Waist Circumference	761.0 - 791.0	780	Yes

Revised 9/29/2005



Report Number: DQ0570_S2H38

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Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. DQ0570 Certification No. 38-1

Test Date: 7/21/2025

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	68 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	136.8 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-2.3 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	< 15 %	1.27 %	Yes

Test meets specifications.

Condition: Used

Comments:

Head Skin S/N: DP8345

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

07.21.2025 13:15:07 235



Report Number: DQ0570_S2H38

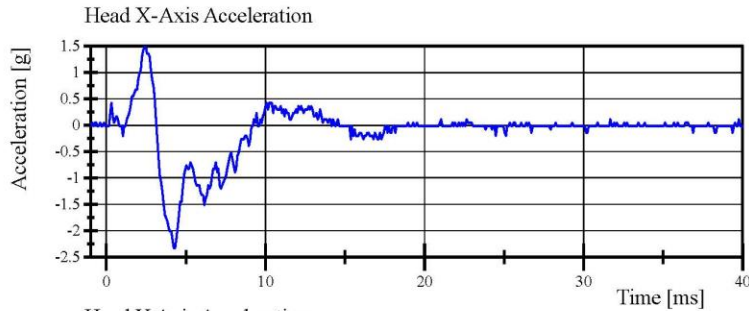
Page 9 of 31

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. DQ0570 Certification No. 38-1

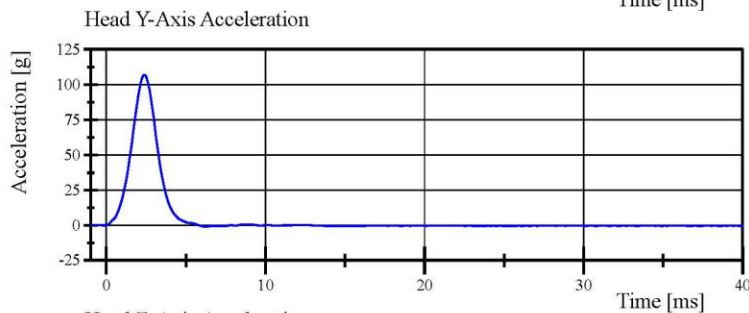
Test Date: 7/21/2025



Filter Class: CFC_1000

Max: 1.5 g at 2.4 ms

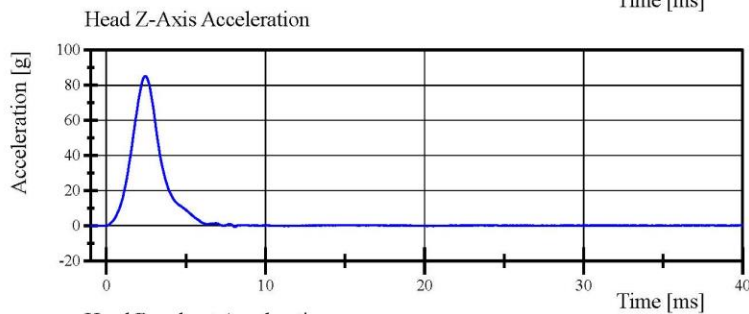
Min: -2.3 g at 4.2 ms



Filter Class: CFC_1000

Max: 107.1 g at 2.4 ms

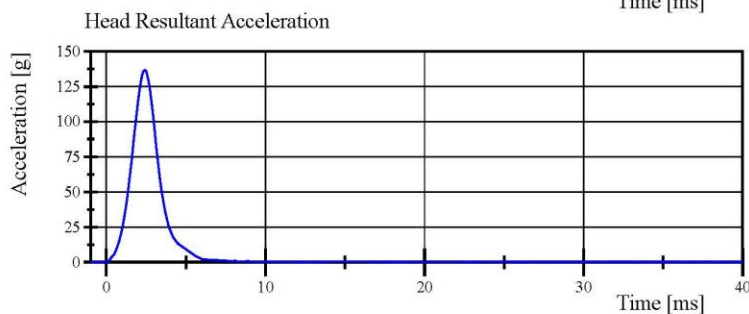
Min: -0.9 g at 6.2 ms



Filter Class: CFC_1000

Max: 85.1 g at 2.5 ms

Min: -0.6 g at 8.1 ms



Filter Class: CFC_1000

Max: 136.8 g at 2.4 ms

Min: 0.0 g at -1.0 ms

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

07.21.2025 13:15:56 235



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. DQ0570 Certification No. 38-1

Test Date: 7/21/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	66 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.607 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.477 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.682 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.026 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.875 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.878 m/s	Yes
Maximum Headform Flexion			
Peak	(-71) - (-81) deg	-72.6 deg	Yes
Time of Peak	50 - 70 ms	59.2 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	41.6 N·m	Yes
Decay to 0 N·m	102 - 126 ms	108.2 ms	Yes

Test meets specifications.

Condition: Used

Comments:

Neck S/N: 180-2001717

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

07.21.2025 13:50:45 750

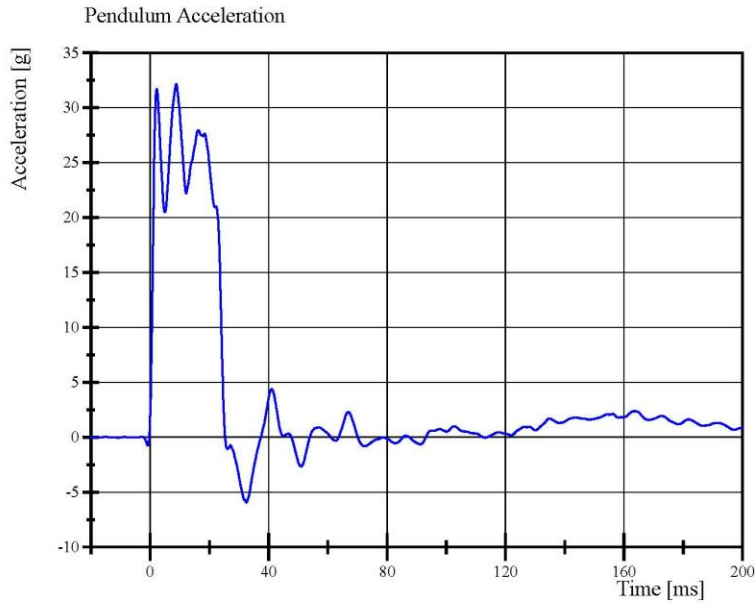


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. DQ0570 Certification No. 38-1

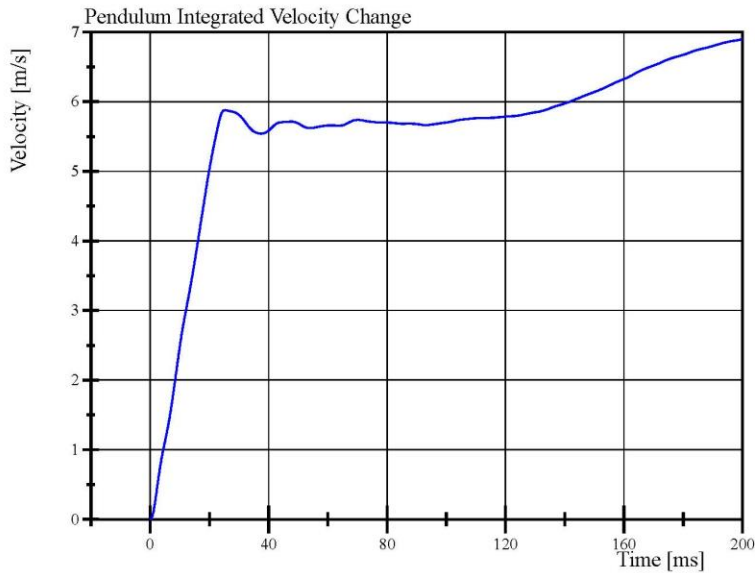
Test Date: 7/21/2025



Filter Class: CFC_180

Max: 32.1 g at 8.9 ms

Min: -5.9 g at 32.5 ms



Filter Class: CFC_180

Max: 6.9 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

07.21.2025 13:51:21 750

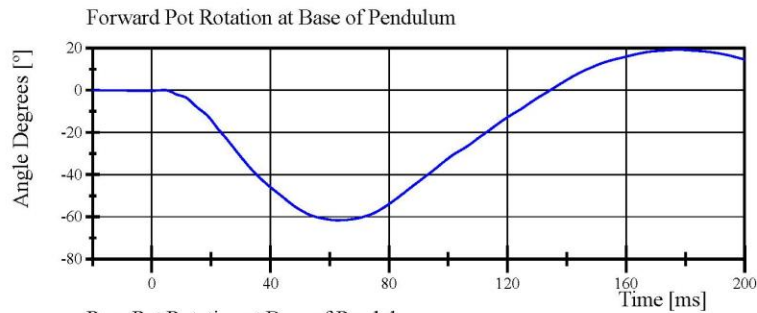


Transportation Research Center Inc.

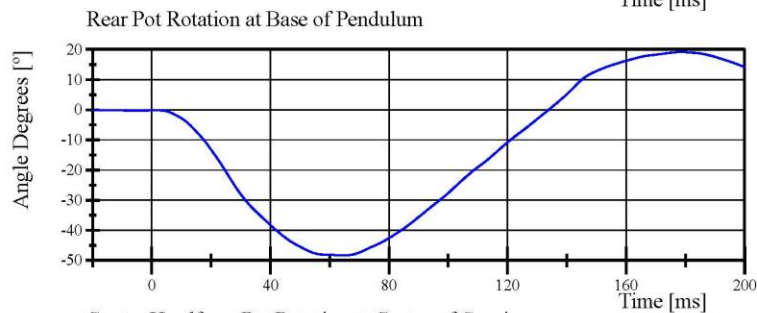
Left Lateral Neck

SID IIs Serial No. DQ0570 Certification No. 38-1

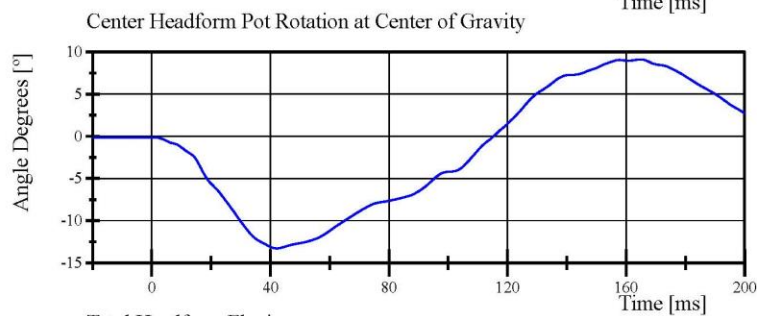
Test Date: 7/21/2025



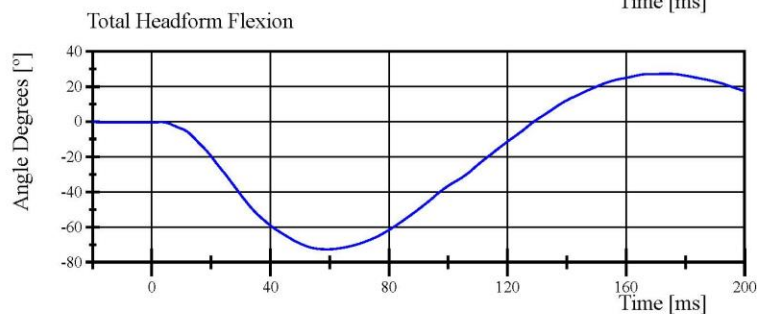
Filter Class: CFC_60
Max: 19.2 ° at 177.4 ms
Min: -61.6 ° at 62.7 ms



Filter Class: CFC_60
Max: 19.1 ° at 178.7 ms
Min: -48.3 ° at 64.7 ms



Filter Class: CFC_60
Max: 9.1 ° at 164.8 ms
Min: -13.3 ° at 42.2 ms



Filter Class: CFC_60
Max: 27.3 ° at 173.5 ms
Min: -72.6 ° at 59.2 ms

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

07.21.2025 13:51:21 750

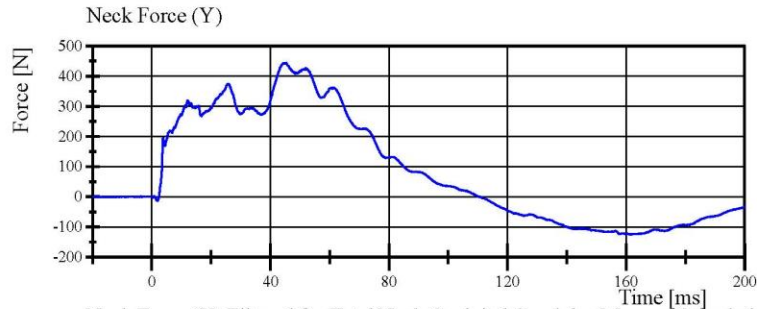


Transportation Research Center Inc.

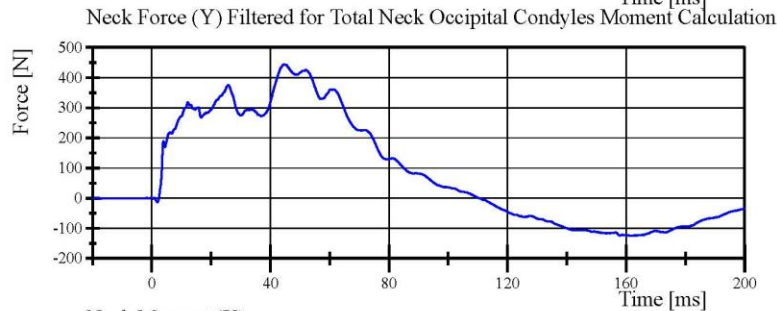
Left Lateral Neck

SID IIa Serial No. DQ0570 Certification No. 38-1

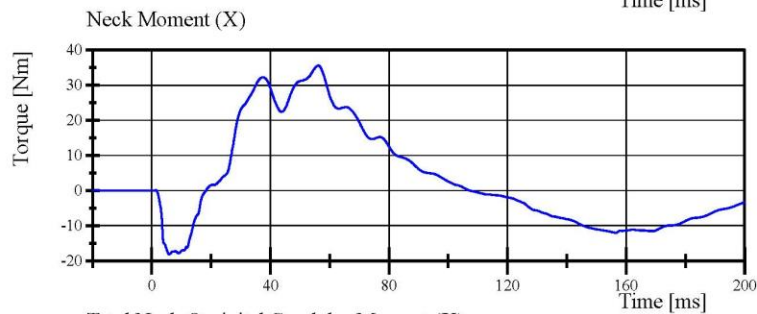
Test Date: 7/21/2025



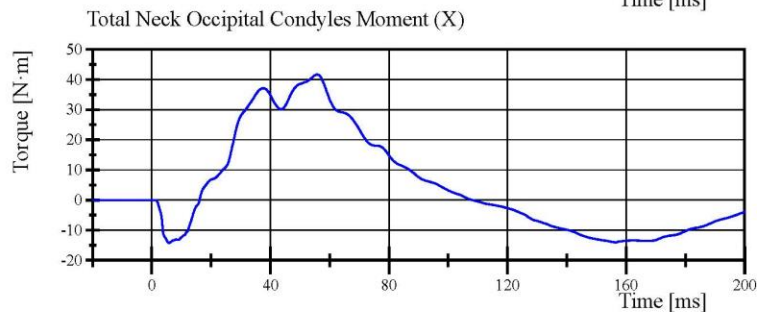
Filter Class: CFC_1000
Max: 444.3 N at 44.6 ms
Min: -124.9 N at 161.4 ms



Filter Class: CFC_600
Max: 443.5 N at 44.6 ms
Min: -124.5 N at 161.5 ms



Filter Class: CFC_600
Max: 35.5 Nm at 56.2 ms
Min: -18.1 Nm at 5.8 ms



Filter Class: Without_(Constar
Max: 41.6 N·m at 55.8 ms
Min: -14.3 N·m at 5.8 ms

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

07.21.2025 13:51:21 750



Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. DQ0570 Certification No. 38-1

Test Date: 7/21/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	66 %	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	30.1 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	19.3 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: DP8451

Shoulder Rib S/N: 180-3355 DL9246

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

07.21.2025 14:43:46 861

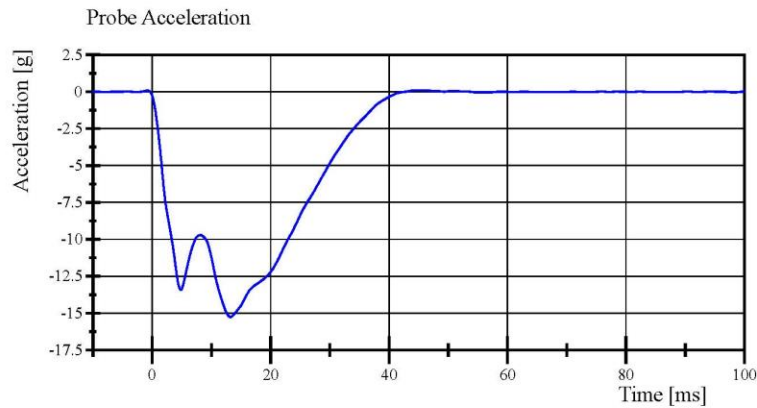


Transportation Research Center Inc.

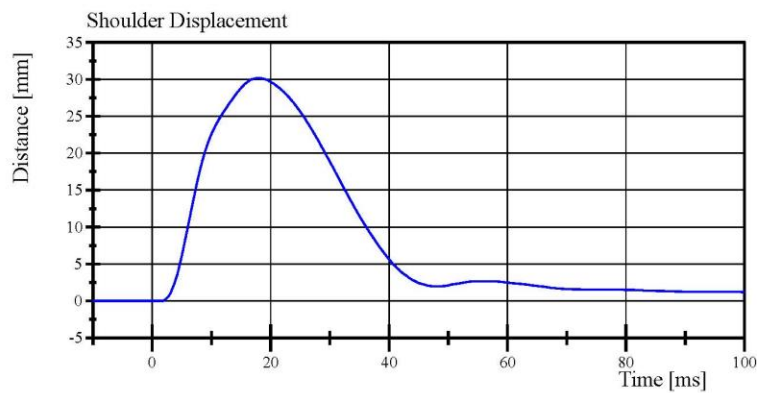
Left Lateral Shoulder

SID IIs Serial No. DQ0570 Certification No. 38-1

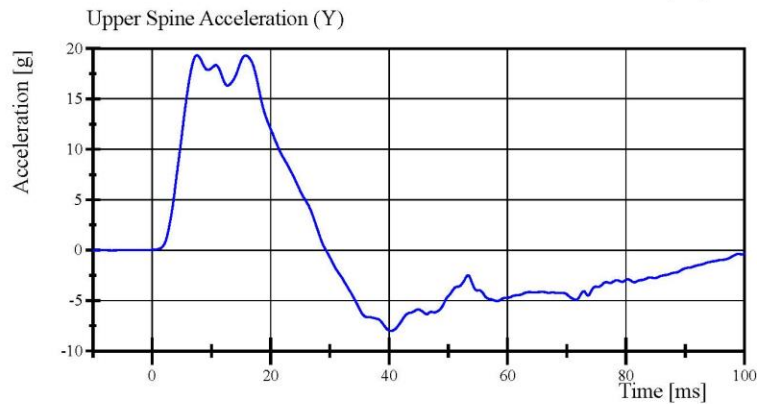
Test Date: 7/21/2025



Filter Class: CFC_180
Max: 0.1 g at 46.1 ms
Min: -15.3 g at 13.2 ms



Filter Class: CFC_600
Max: 30.1 mm at 17.9 ms
Min: -0.0 mm at 1.6 ms



Filter Class: CFC_180
Max: 19.3 g at 7.5 ms
Min: -8.0 g at 40.3 ms

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

07.21.2025 14:44:15 861



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. DQ0570 Certification No. 38-1
Test Date: 7/22/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.733 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-34.1 g	Yes
Shoulder Displacement	31 - 40 mm	35.2 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	27.8 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	30.8 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	33.0 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	38.7 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	35.0 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: DP8451

Shoulder Rib S/N: 180-3355 DL9246

Upper Thorax Rib S/N: 180-3362 DP6492

Middle Thorax Rib S/N: 180-3362 DP6493

Lower Thorax Rib S/N: 180-3362 DP7664

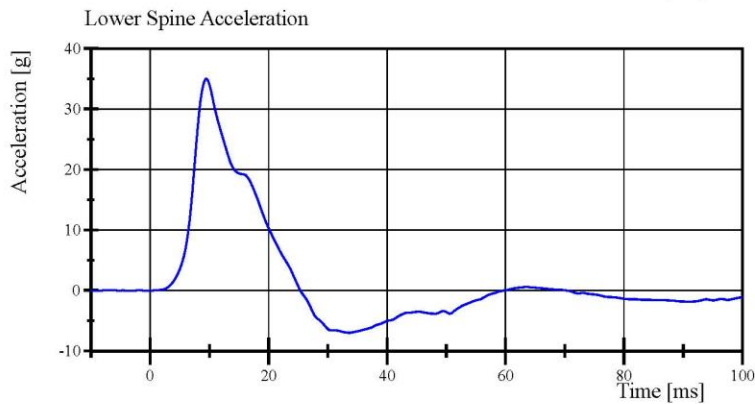
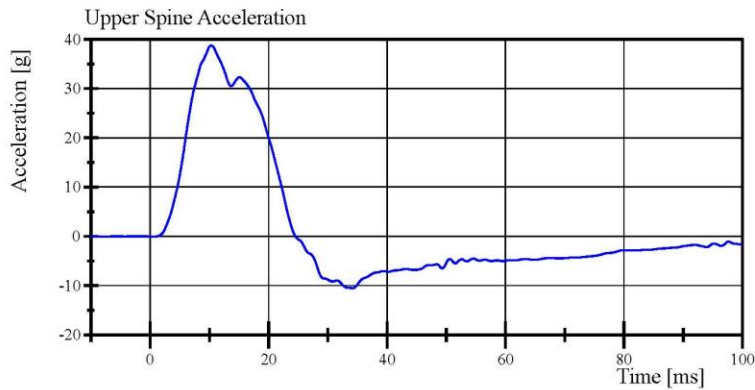
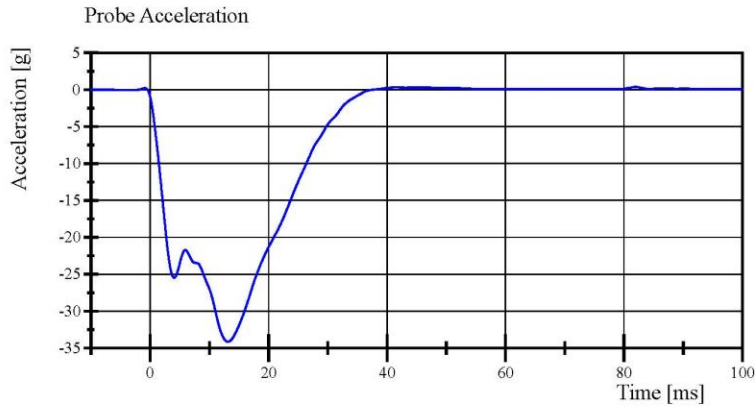
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

07.22.2025 10:22:26 635



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. DQ0570 Certification No. 38-1
Test Date: 7/22/2025



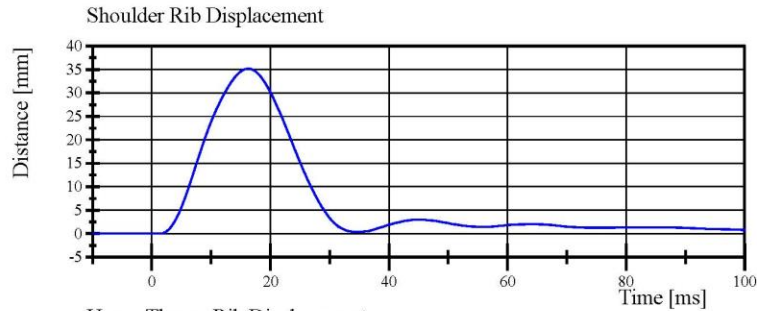
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

07.22.2025 10:23:14 635

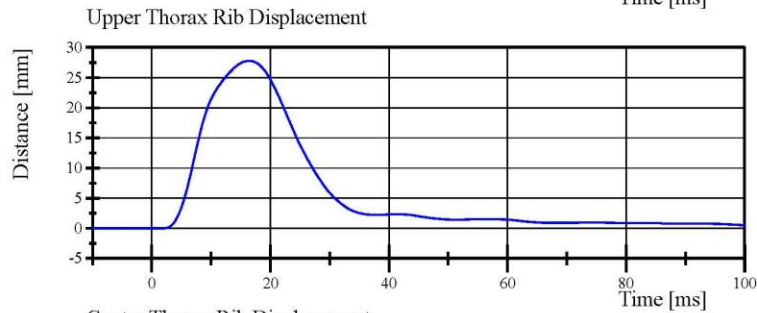


Transportation Research Center Inc.

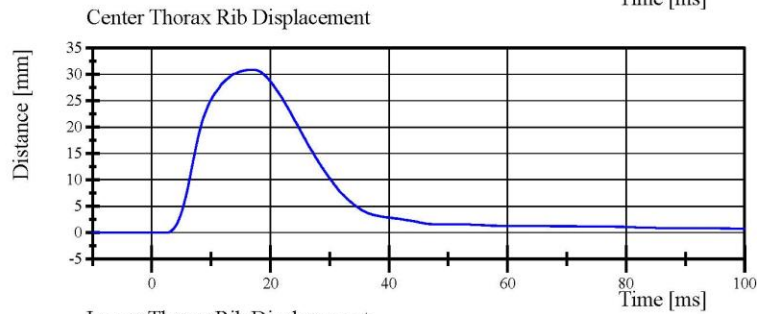
Left Lateral Thorax with Arm
SID IIs Serial No. DQ0570 Certification No. 38-1
Test Date: 7/22/2025



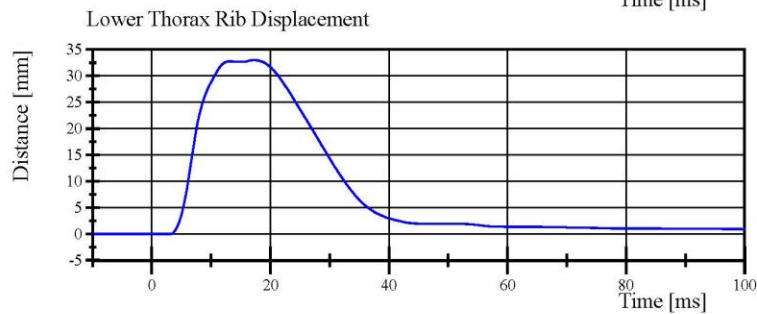
Filter Class: CFC_600
Max: 35.2 mm at 16.3 ms
Min: -0.0 mm at 1.4 ms



Filter Class: CFC_600
Max: 27.8 mm at 16.4 ms
Min: -0.0 mm at -2.9 ms



Filter Class: CFC_600
Max: 30.8 mm at 16.6 ms
Min: -0.0 mm at 2.6 ms



Filter Class: CFC_600
Max: 33.0 mm at 17.3 ms
Min: -0.0 mm at 3.0 ms

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

07.22.2025 10:23:14 635



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. DQ0570 Certification No. 38-1
Test Date: 7/22/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.235 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.5 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	37.1 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	41.1 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	37.6 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.4 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.7 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

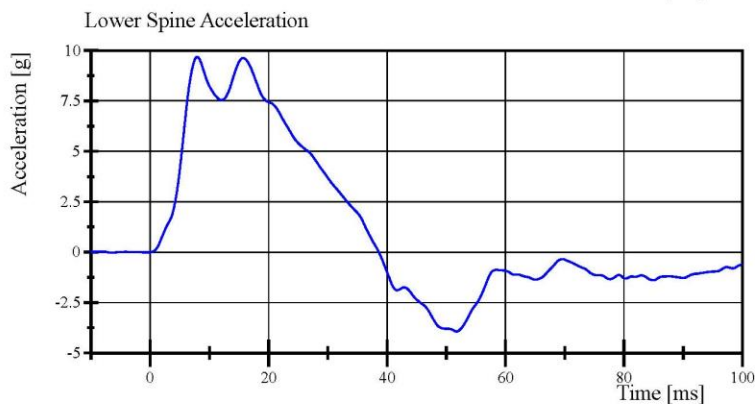
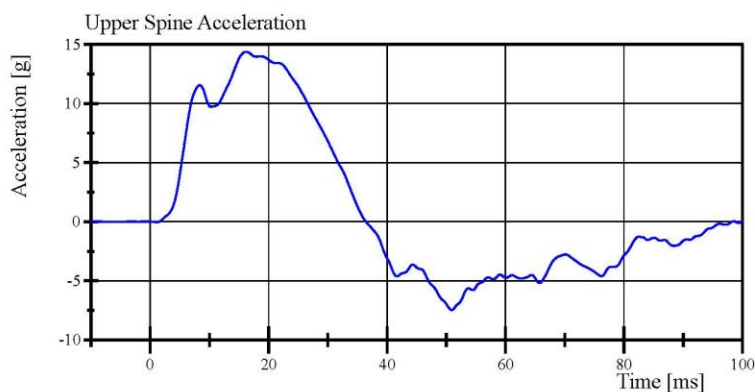
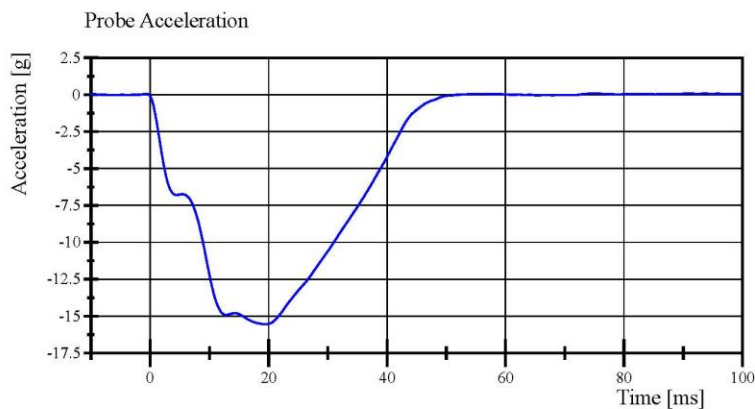
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

07.22.2025 09:41:43 805



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. DQ0570 Certification No. 38-1
Test Date: 7/22/2025



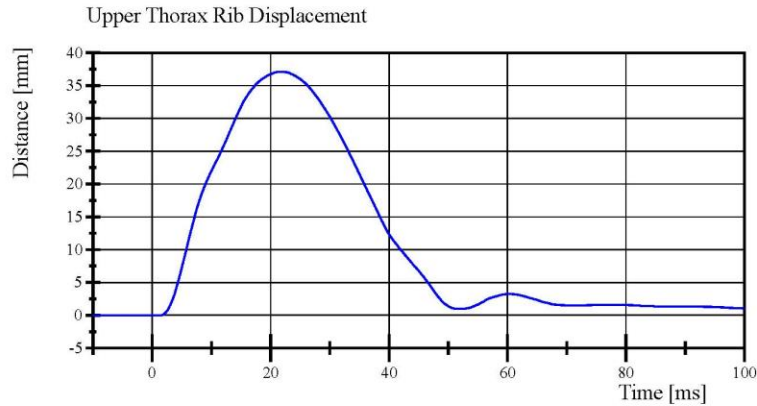
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

07.22.2025 09:42:19 805

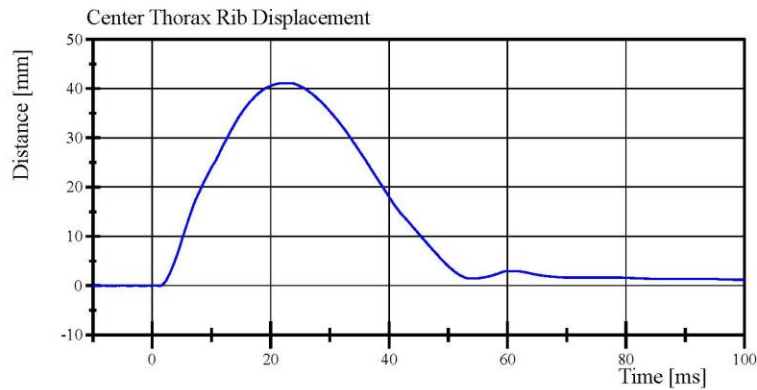


Transportation Research Center Inc.

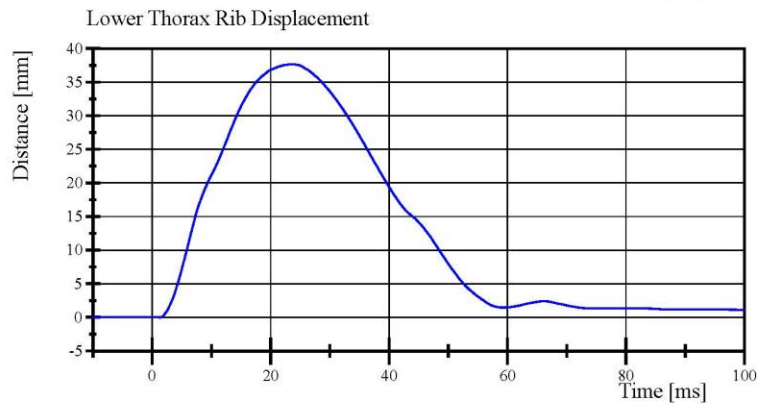
Left Lateral Thorax without Arm
SID IIs Serial No. DQ0570 Certification No. 38-1
Test Date: 7/22/2025



Filter Class: CFC_600
Max: 37.1 mm at 21.8 ms
Min: -0.0 mm at 1.4 ms



Filter Class: CFC_600
Max: 41.1 mm at 22.4 ms
Min: -0.0 mm at 1.3 ms



Filter Class: CFC_600
Max: 37.6 mm at 23.4 ms
Min: -0.0 mm at 1.4 ms

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

07.22.2025 09:42:19 805



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. DQ0570 Certification No. 38-1

Test Date: 7/21/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	61 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.38 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.6 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	40.9 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	39.7 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.50 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Abdominal Rib S/N: 180-3368 DP5142

Lower Abdominal Rib S/N: 180-3368 DP5143

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

07.21.2025 14:55:49 687

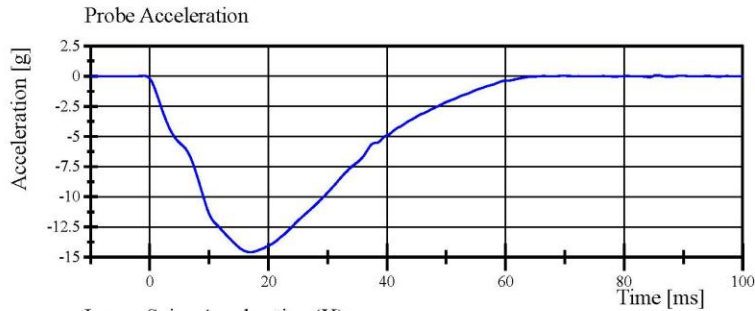


Transportation Research Center Inc.

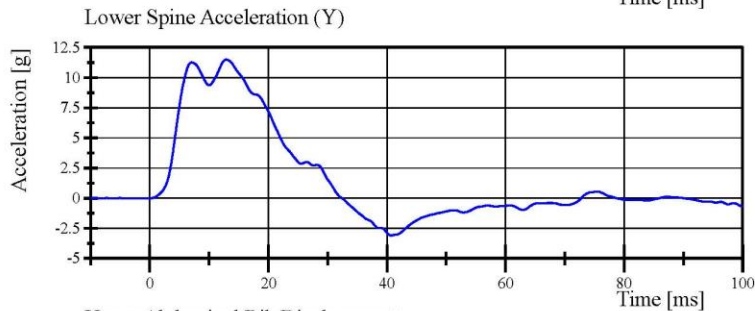
Left Lateral Abdomen

SID IIs Serial No. DQ0570 Certification No. 38-1

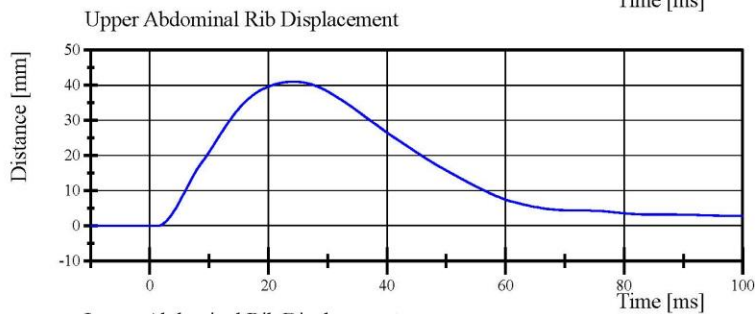
Test Date: 7/21/2025



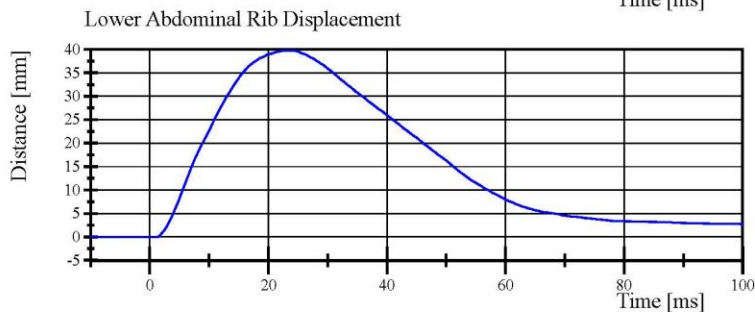
Filter Class: CFC_180
Max: 0.1 g at 85.5 ms
Min: -14.6 g at 17.0 ms



Filter Class: CFC_180
Max: 11.5 g at 12.9 ms
Min: -3.1 g at 40.6 ms



Filter Class: CFC_600
Max: 40.9 mm at 24.6 ms
Min: -0.0 mm at 1.4 ms



Filter Class: CFC_600
Max: 39.7 mm at 24.3 ms
Min: -0.0 mm at 1.2 ms

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

07.21.2025 14:56:17 687



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. DQ0570 Certification No. 38-1

Test Date: 7/21/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	65 %	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	39.6 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,689.0 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1173

Pelvis Plug Info:

Manufacturer: SACO

S/N: 14462

Cal Date: 20201218

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

07.21.2025 14:26:12 461

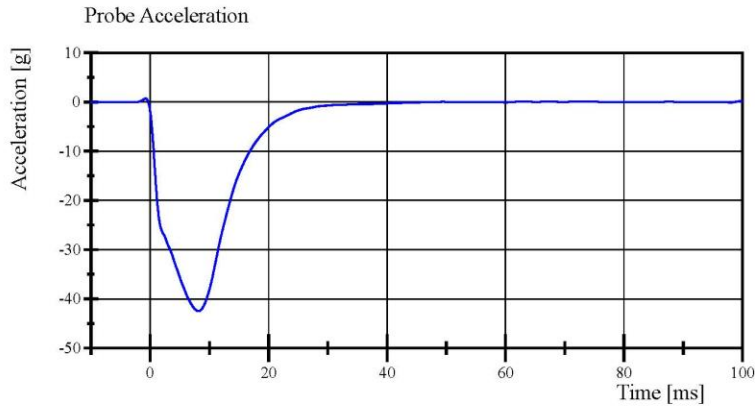


Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. DQ0570 Certification No. 38-1

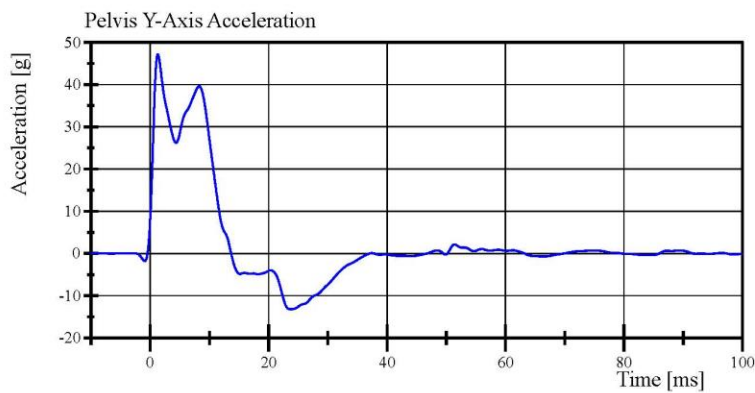
Test Date: 7/21/2025



Filter Class: CFC_180

Max: 0.7 g at -0.8 ms

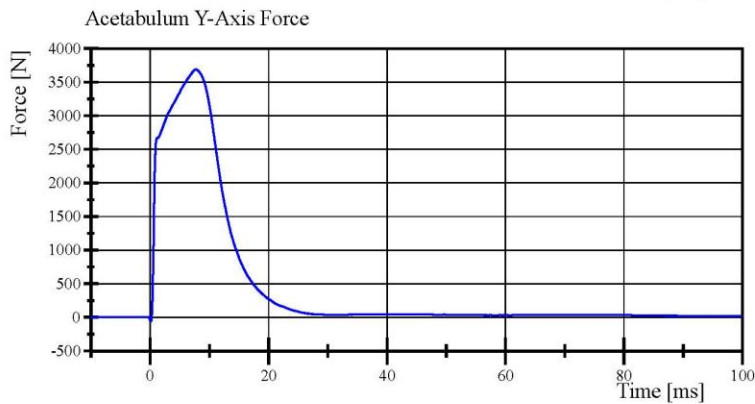
Min: -42.5 g at 8.2 ms



Filter Class: CFC_180

Max: 47.2 g at 1.3 ms

Min: -13.2 g at 23.8 ms



Filter Class: CFC_600

Max: 3,689.0 N at 7.8 ms

Min: -60.9 N at 0.2 ms

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

07.21.2025 14:27:47 461



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. DQ0570 Certification No. 38-1

Test Date: 7/22/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.22 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-40.8 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	33.6 g	Yes
Iliac Force	4,100 - 5,100 N	4,755.6 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1173

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

07.22.2025 11:00:53 653

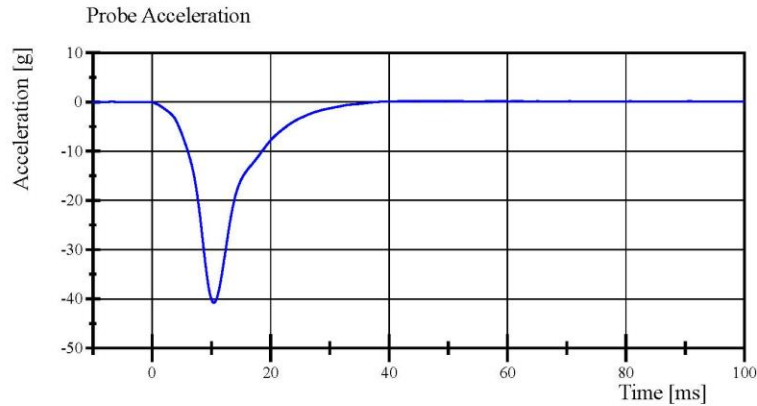


Transportation Research Center Inc.

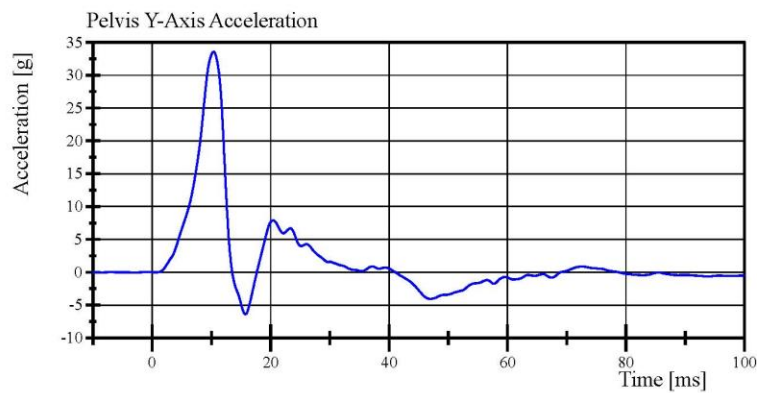
Left Lateral Iliac

SID IIs Serial No. DQ0570 Certification No. 38-1

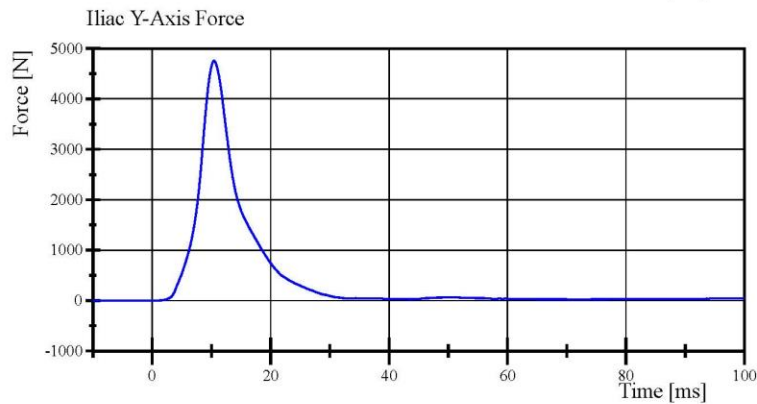
Test Date: 7/22/2025



Filter Class: CFC_180
Max: 0.2 g at 61.6 ms
Min: -40.8 g at 10.4 ms



Filter Class: CFC_180
Max: 33.6 g at 10.4 ms
Min: -6.4 g at 15.8 ms



Filter Class: CFC_600
Max: 4,755.6 N at 10.5 ms
Min: -0.6 N at 1.0 ms

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

07.22.2025 11:02:14 653



Post-Test Calibration Sheets
Passenger S/N DQ0570

Transportation Research Center Inc.
SIDI's Dummy - Level D
External Dimensions
Serial No. DQ0570 Calibration No. 39

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	785	Yes
B	Shoulder Pivot Height	437.0 - 453.0	445	Yes
C	H-Point Height	79.0 - 89.0	83	Yes
D	H-Point from Seat Back	141.0 - 151.0	147	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	101	Yes
F	Thigh Clearance	119.0 - 135.0	130	Yes
G	Head Breadth	140.0 - 148.0	145	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	184	Yes
J	Head Circumference	541.0 - 551.0	545	Yes
K	Buttock to Knee Length	514.0 - 540.0	533	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	427	Yes
O	Chest Depth without Jacket	195.0 - 211.0	200	Yes
P	Foot Length (right)	216.0 - 232.0	220	Yes
P	Foot Length (left)	216.0 - 232.0	220	Yes
Q	Hip Breadth	313.0 - 323.0	316	Yes
R	Arm Length	249.0 - 259.0	254	Yes
S	Knee Joint to seat Back	478.0 - 493.0	486	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	349	Yes
W	Foot Width (right)	78.0 - 94.0	84	Yes
W	Foot Width (left)	78.0 - 94.0	84	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	870	Yes
Z	Waist Circumference	761.0 - 791.0	780	Yes

Revised 9/29/2005



Report Number: DQ0570_S2H39

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Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. DQ0570 Certification No. 39-3

Test Date: 7/31/2025

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	68 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	126.5 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-2.1 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	< 15 %	1.46 %	Yes

Test meets specifications.

Condition: Used

Comments:

Head Skin S/N: DP8345

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

07.31.2025 08:35:37 234



Report Number: DQ0570_S2H39

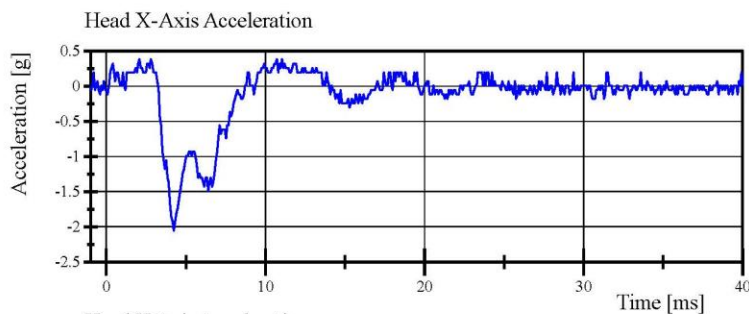
Page 9 of 31

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. DQ0570 Certification No. 39-3

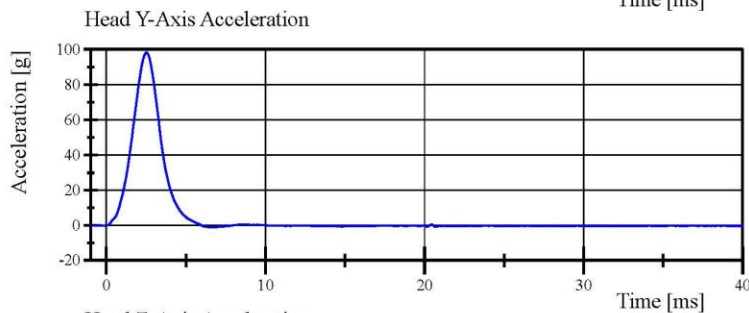
Test Date: 7/31/2025



Filter Class: CFC_1000

Max: 0.4 g at 2.1 ms

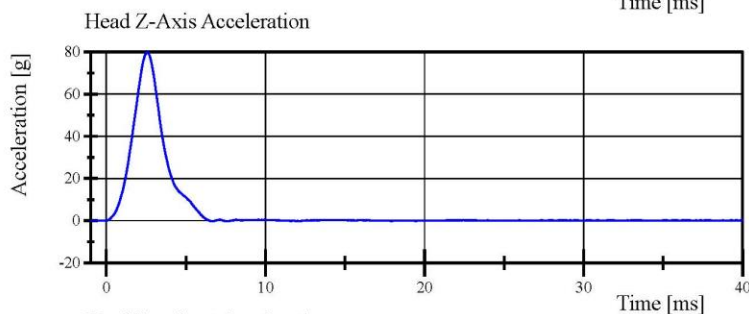
Min: -2.1 g at 4.2 ms



Filter Class: CFC_1000

Max: 98.2 g at 2.5 ms

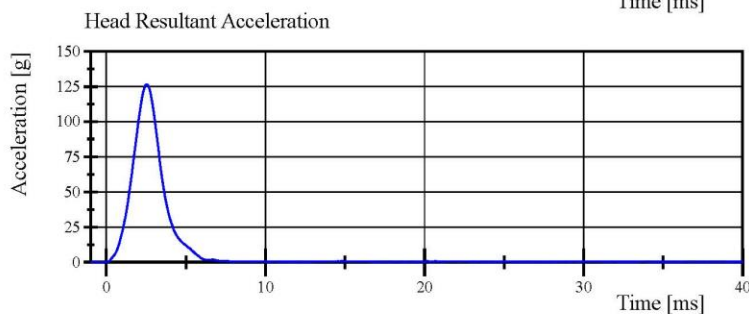
Min: -1.2 g at 6.6 ms



Filter Class: CFC_1000

Max: 79.9 g at 2.6 ms

Min: -0.2 g at 7.5 ms



Filter Class: CFC_1000

Max: 126.5 g at 2.6 ms

Min: 0.0 g at -1.0 ms

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

07.31.2025 08:37:08 234



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. DQ0570 Certification No. 39-1

Test Date: 7/30/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.597 m/s	Yes
Pendulum Integrated Velocity Change at 10 ms	2.20 - 2.80 m/s	2.440 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.638 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.981 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.867 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.875 m/s	Yes
Maximum Headform Flexion			
Peak	(-71) - (-81) deg	-73.4 deg	Yes
Time of Peak	50 - 70 ms	60.3 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	42.4 N·m	Yes
Decay to 0 N·m	102 - 126 ms	110.4 ms	Yes

Test meets specifications.

Condition: Used

Comments:

Neck S/N: 180-2001717

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

07.30.2025 13:55:53 747

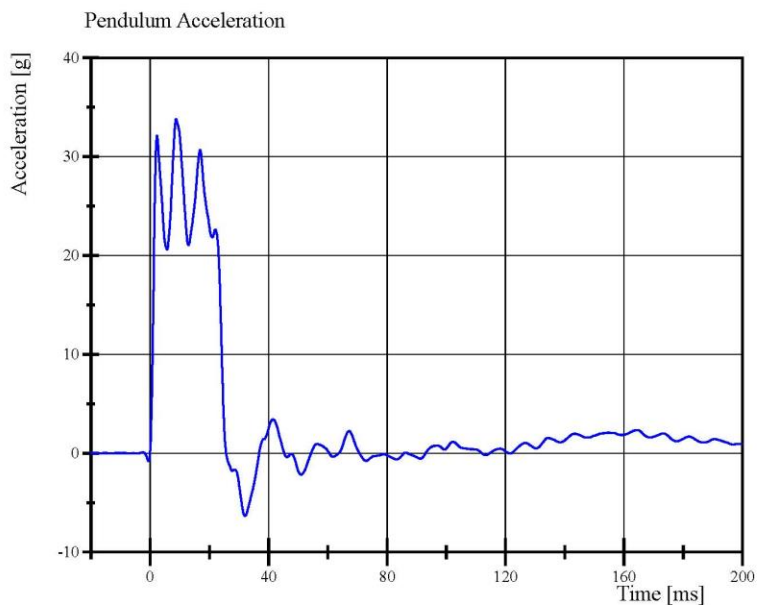


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. DQ0570 Certification No. 39-1

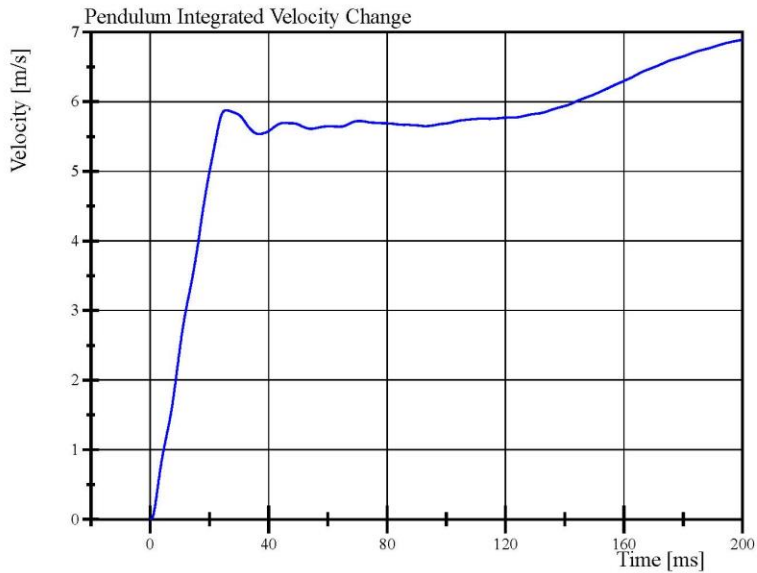
Test Date: 7/30/2025



Filter Class: CFC_180

Max: 33.8 g at 8.8 ms

Min: -6.3 g at 32.1 ms



Filter Class: CFC_180

Max: 6.9 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

07.30.2025 13:56:45 747

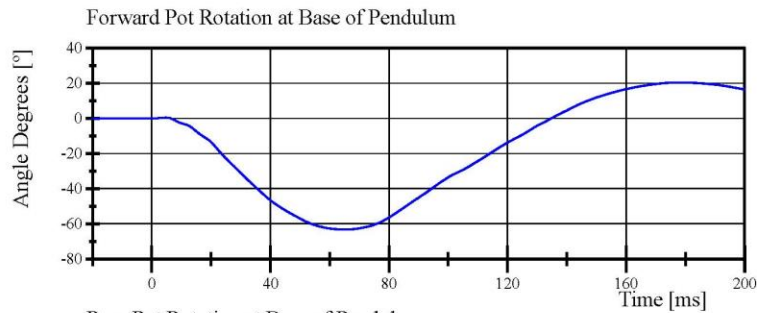


Transportation Research Center Inc.

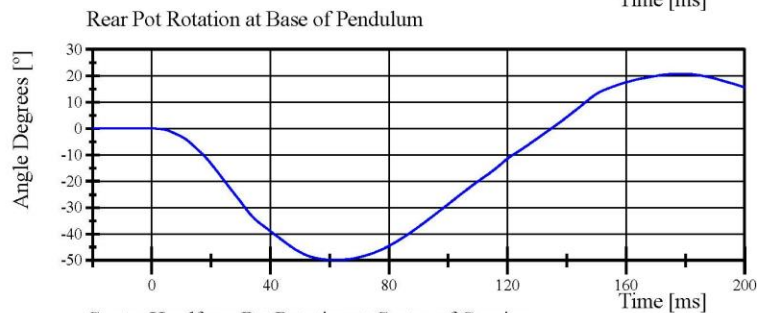
Left Lateral Neck

SID IIs Serial No. DQ0570 Certification No. 39-1

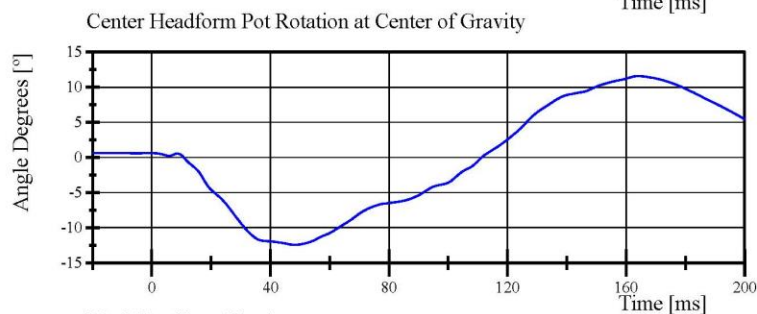
Test Date: 7/30/2025



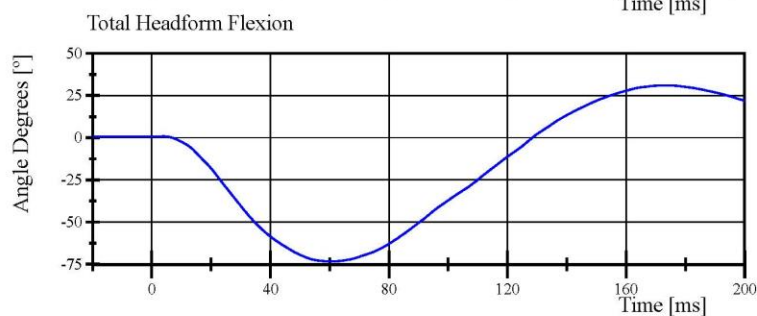
Filter Class: CFC_60
Max: 20.4 ° at 177.8 ms
Min: -63.2 ° at 65.0 ms



Filter Class: CFC_60
Max: 20.8 ° at 178.7 ms
Min: -49.8 ° at 60.3 ms



Filter Class: CFC_60
Max: 11.6 ° at 164.1 ms
Min: -12.4 ° at 48.3 ms



Filter Class: CFC_60
Max: 31.0 ° at 173.4 ms
Min: -73.4 ° at 60.3 ms

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

07.30.2025 13:56:45 747

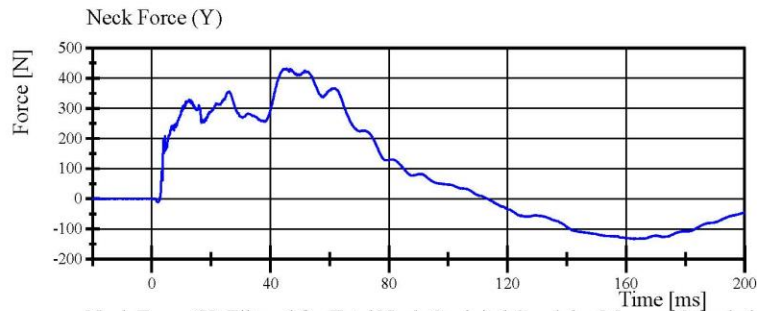


Transportation Research Center Inc.

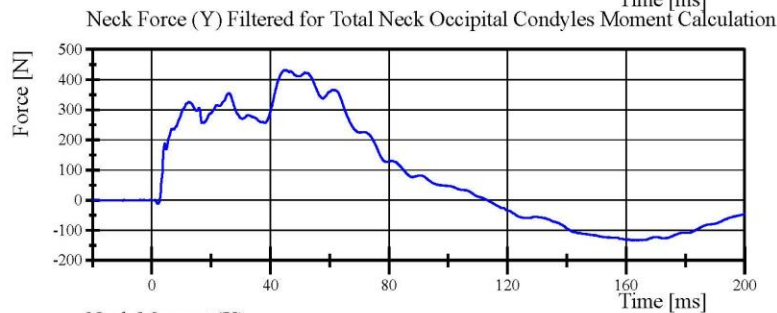
Left Lateral Neck

SID IIs Serial No. DQ0570 Certification No. 39-1

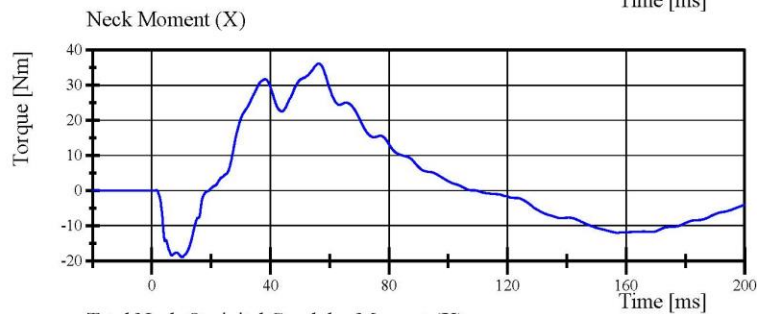
Test Date: 7/30/2025



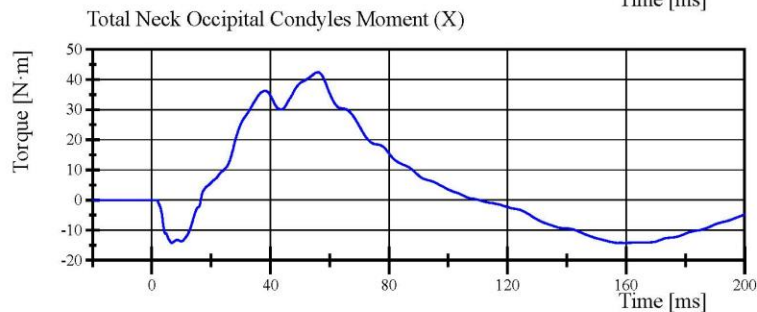
Filter Class: CFC_1000
Max: 432.0 N at 45.4 ms
Min: -133.7 N at 162.7 ms



Filter Class: CFC_600
Max: 431.2 N at 45.4 ms
Min: -132.8 N at 163.6 ms



Filter Class: CFC_600
Max: 36.1 Nm at 56.3 ms
Min: -18.9 Nm at 10.2 ms



Filter Class: Without_(Constar
Max: 42.4 N·m at 56.1 ms
Min: -14.2 N·m at 6.7 ms

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

07.30.2025 13:56:45 747



Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. DQ0570 Certification No. 39-1

Test Date: 7/30/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	69 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.32 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.2 g	Yes
Shoulder Displacement	28 - 37 mm	29.9 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	19.8 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: DP8451

Shoulder Rib S/N: 180-3355 DL9246

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

07.30.2025 10:52:13 852

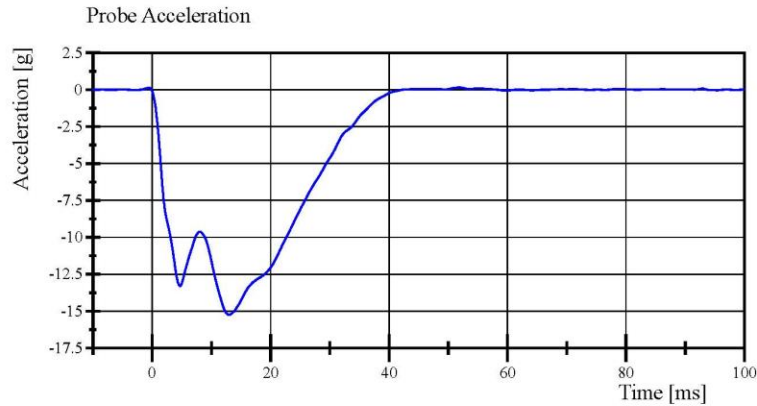


Transportation Research Center Inc.

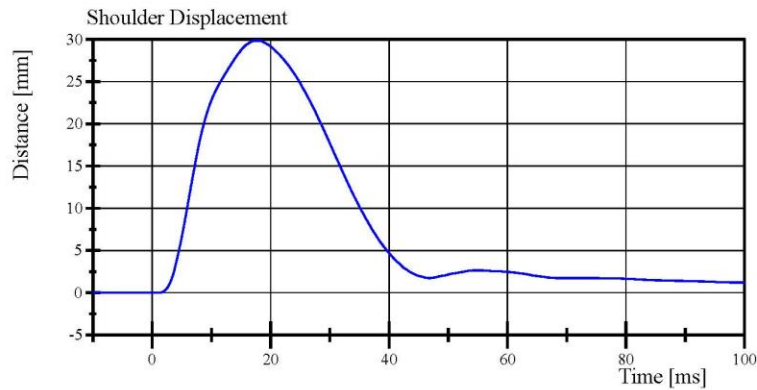
Left Lateral Shoulder

SID IIs Serial No. DQ0570 Certification No. 39-1

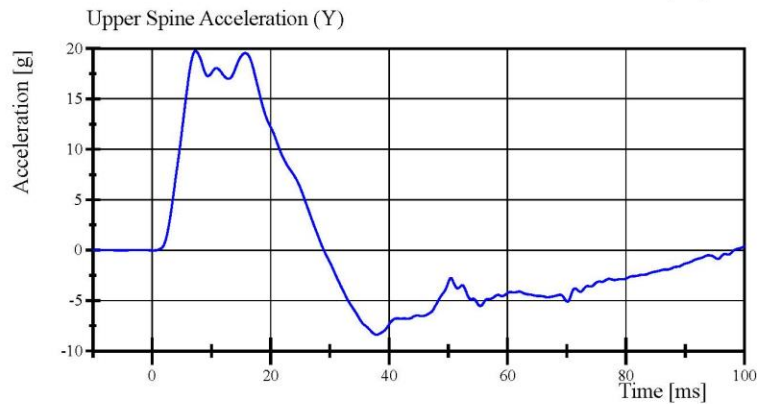
Test Date: 7/30/2025



Filter Class: CFC_180
Max: 0.1 g at 51.8 ms
Min: -15.2 g at 13.0 ms



Filter Class: CFC_600
Max: 29.9 mm at 17.8 ms
Min: -0.0 mm at -2.6 ms



Filter Class: CFC_180
Max: 19.8 g at 7.4 ms
Min: -8.4 g at 37.9 ms

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

07.30.2025 10:52:55 852



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. DQ0570 Certification No. 39-1
Test Date: 7/30/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	68 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.626 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-34.1 g	Yes
Shoulder Displacement	31 - 40 mm	32.1 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	26.8 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.7 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	35.6 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	38.2 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	34.5 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: DP8451

Shoulder Rib S/N: 180-3355 DL9246

Upper Thorax Rib S/N: 180-3362 DP6492

Middle Thorax Rib S/N: 180-3362 DP6493

Lower Thorax Rib S/N: 180-3362 DP7664

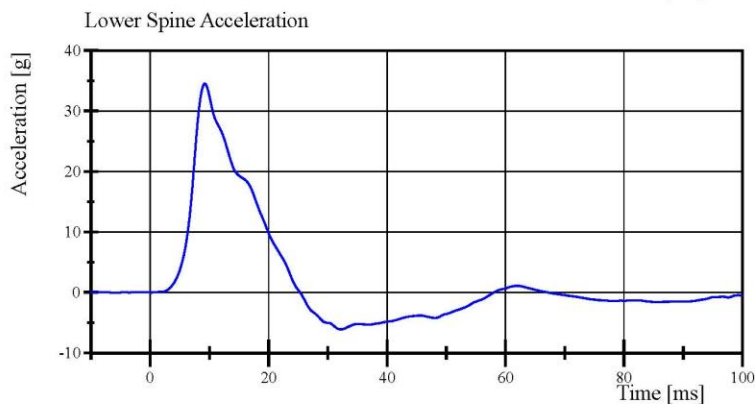
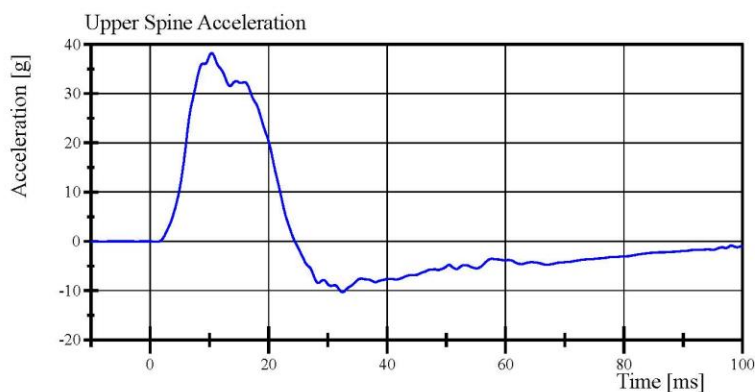
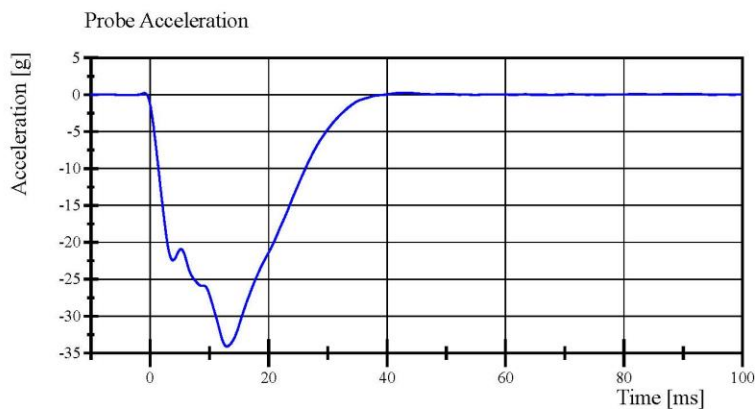
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

07.30.2025 11:38:30 642



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. DQ0570 Certification No. 39-1
Test Date: 7/30/2025



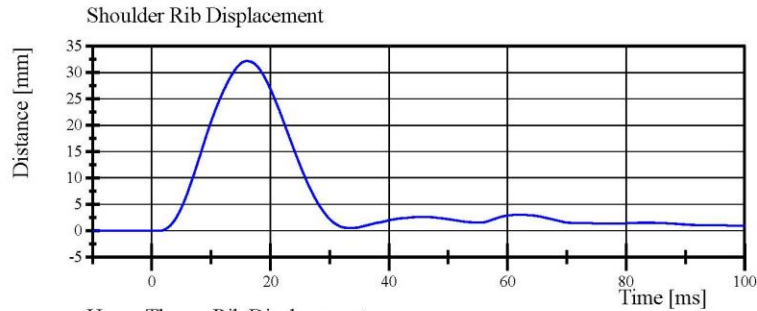
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

07.30.2025 11:39:29 642

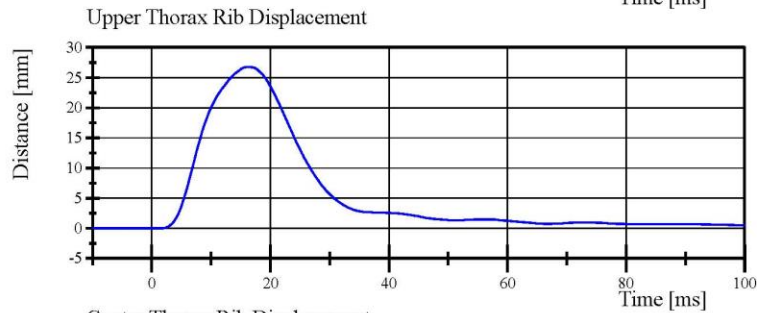


Transportation Research Center Inc.

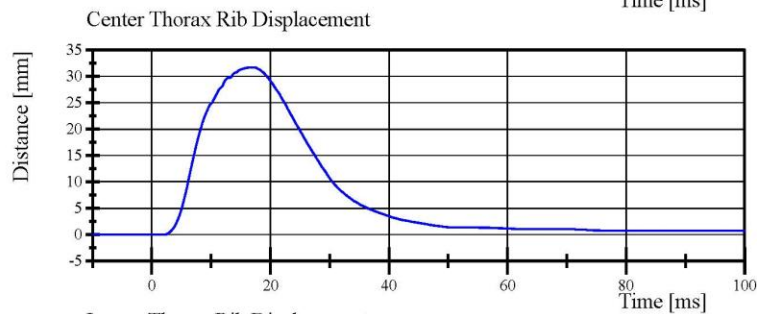
Left Lateral Thorax with Arm
SID IIs Serial No. DQ0570 Certification No. 39-1
Test Date: 7/30/2025



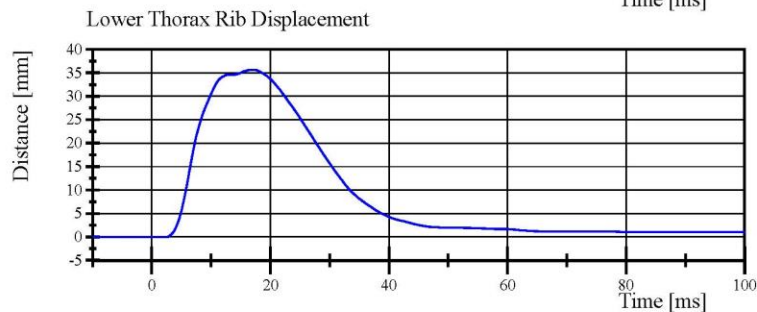
Filter Class: CFC_600
Max: 32.1 mm at 16.1 ms
Min: -0.0 mm at -3.8 ms



Filter Class: CFC_600
Max: 26.8 mm at 16.2 ms
Min: -0.0 mm at -2.0 ms



Filter Class: CFC_600
Max: 31.7 mm at 17.2 ms
Min: -0.0 mm at 2.1 ms



Filter Class: CFC_600
Max: 35.6 mm at 16.9 ms
Min: -0.0 mm at 2.4 ms

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

07.30.2025 11:39:29 642



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. DQ0570 Certification No. 39-1
Test Date: 7/30/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	67 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.235 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.7 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	34.1 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	40.7 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	39.6 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.3 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

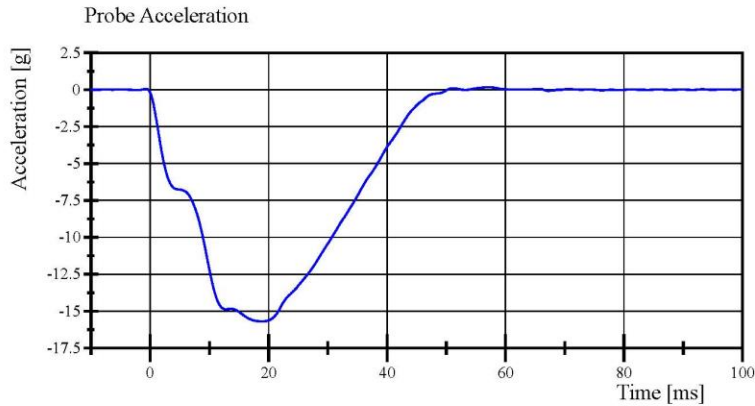
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

07.30.2025 11:04:14 876

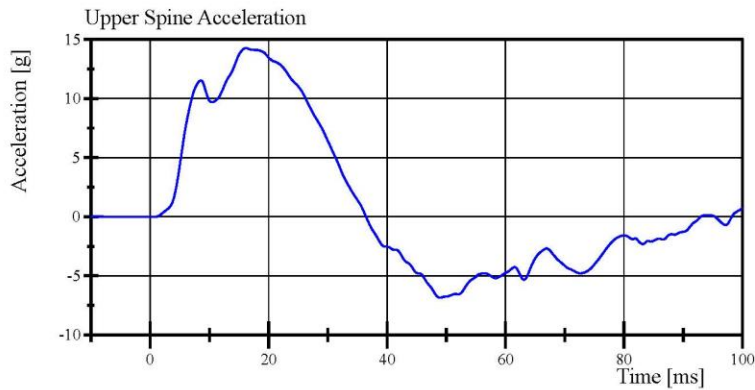


Transportation Research Center Inc.

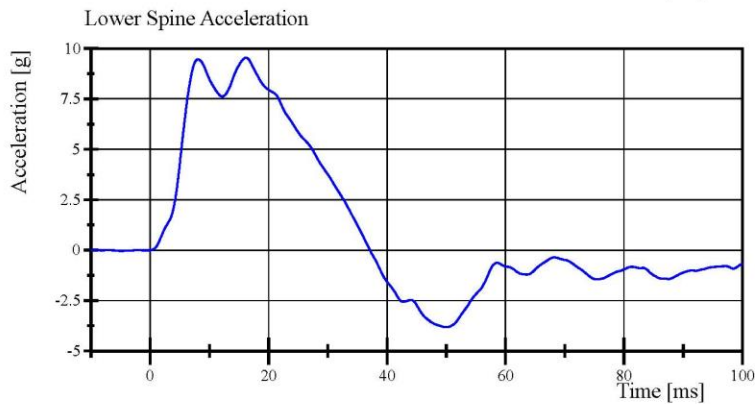
Left Lateral Thorax without Arm
SID IIs Serial No. DQ0570 Certification No. 39-1
Test Date: 7/30/2025



Filter Class: CFC_180
Max: 0.2 g at 57.0 ms
Min: -15.7 g at 18.8 ms



Filter Class: CFC_180
Max: 14.3 g at 16.2 ms
Min: -6.9 g at 48.9 ms



Filter Class: CFC_180
Max: 9.5 g at 16.2 ms
Min: -3.8 g at 49.9 ms

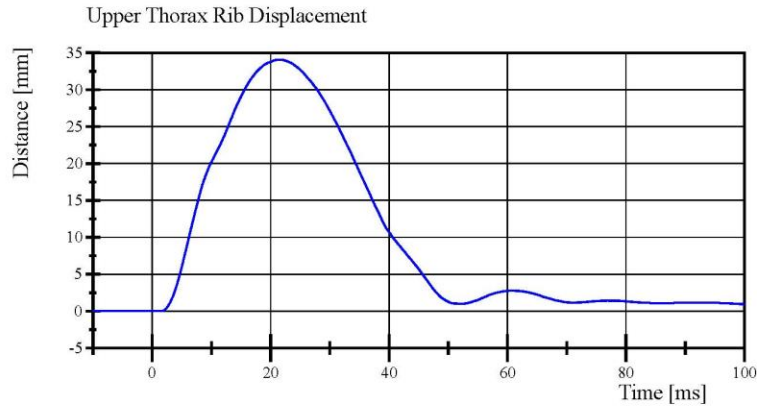
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

07.30.2025 11:04:57 876

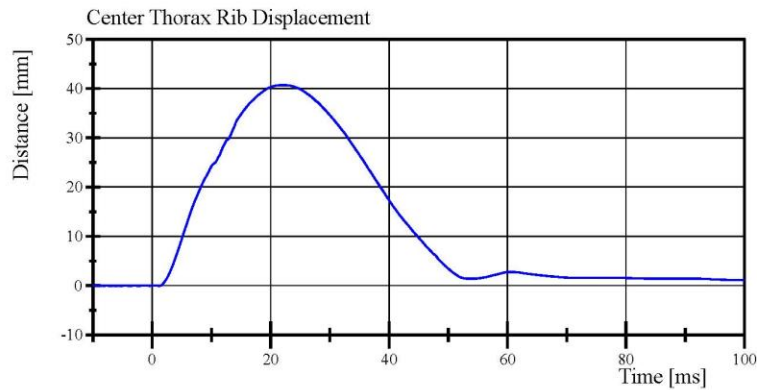


Transportation Research Center Inc.

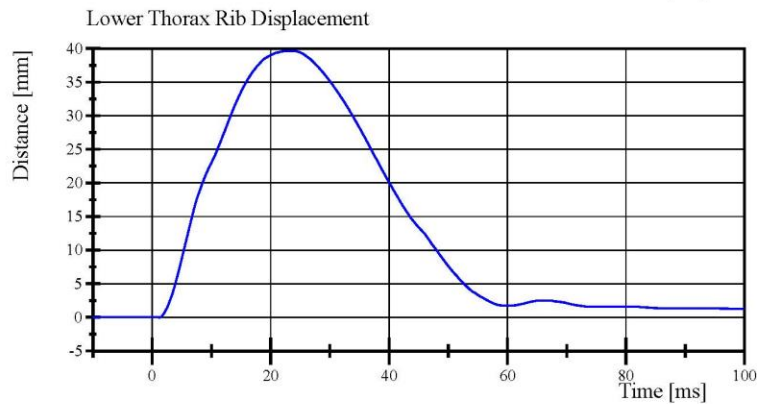
Left Lateral Thorax without Arm
SID IIs Serial No. DQ0570 Certification No. 39-1
Test Date: 7/30/2025



Filter Class: CFC_600
Max: 34.1 mm at 21.6 ms
Min: -0.0 mm at 1.4 ms



Filter Class: CFC_600
Max: 40.7 mm at 21.8 ms
Min: -0.0 mm at 1.3 ms



Filter Class: CFC_600
Max: 39.6 mm at 22.9 ms
Min: -0.0 mm at 1.2 ms

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

07.30.2025 11:04:57 876



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. DQ0570 Certification No. 39-1

Test Date: 7/30/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	68 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.38 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.7 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	42.2 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	38.3 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.47 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Abdominal Rib S/N: 180-3368 DP5142

Lower Abdominal Rib S/N: 180-3368 DP5143

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

07.30.2025 10:57:58 672

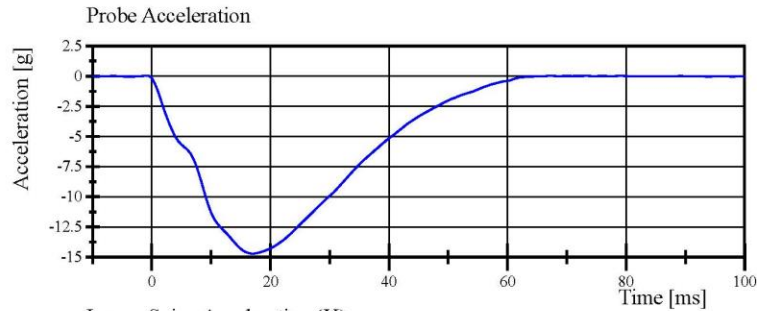


Transportation Research Center Inc.

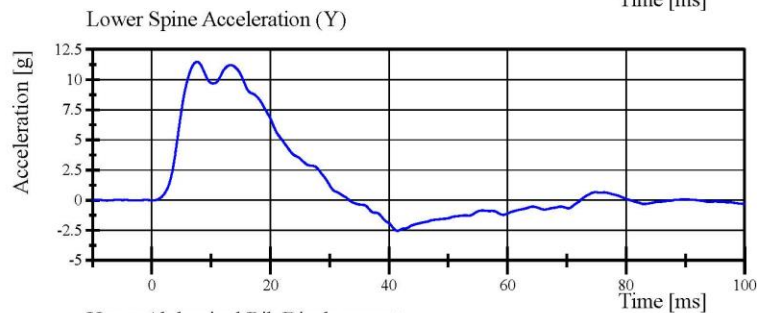
Left Lateral Abdomen

SID IIs Serial No. DQ0570 Certification No. 39-1

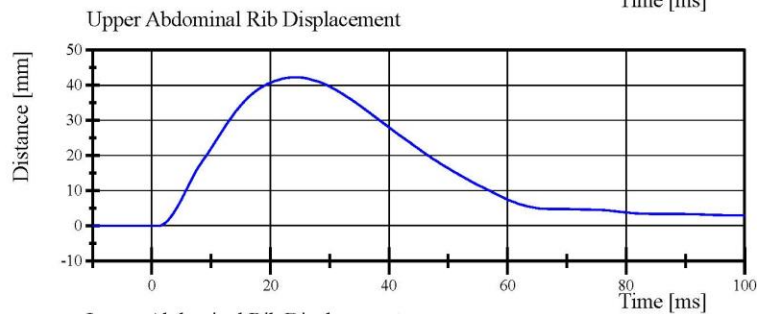
Test Date: 7/30/2025



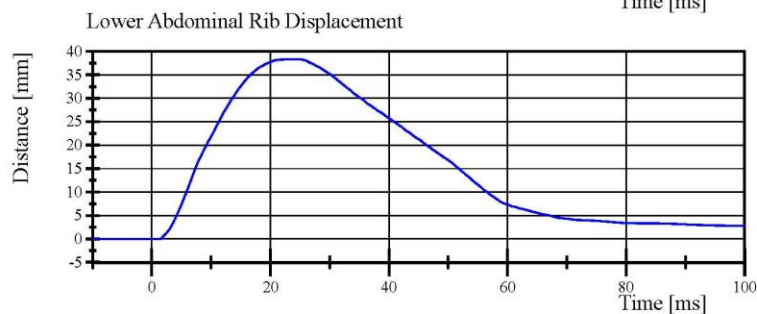
Filter Class: CFC_180
Max: 0.1 g at -0.9 ms
Min: -14.7 g at 17.0 ms



Filter Class: CFC_180
Max: 11.5 g at 7.6 ms
Min: -2.5 g at 41.4 ms



Filter Class: CFC_600
Max: 42.2 mm at 24.6 ms
Min: -0.0 mm at 1.1 ms



Filter Class: CFC_600
Max: 38.3 mm at 23.6 ms
Min: -0.0 mm at 1.2 ms

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

07.30.2025 10:58:30 672



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. DQ0570 Certification No. 39-1

Test Date: 7/30/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	64 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.62 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-42.06 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	35.5 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,611.4 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1173

Pelvis Plug Info:

Manufacturer: SACO

S/N: 14456

Cal Date: 20201218

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

07.30.2025 13:03:56 461

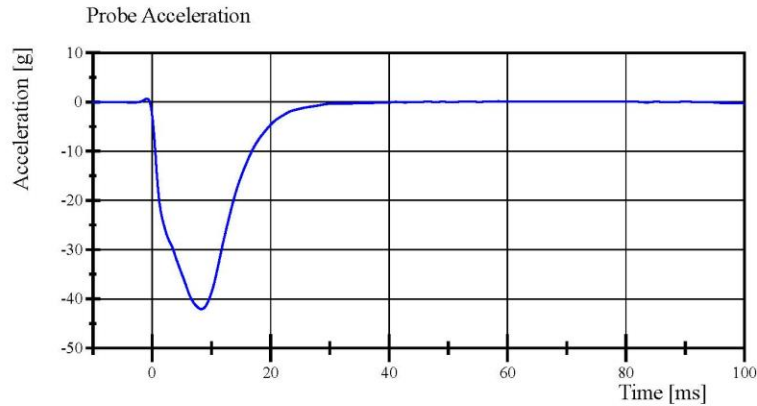


Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. DQ0570 Certification No. 39-1

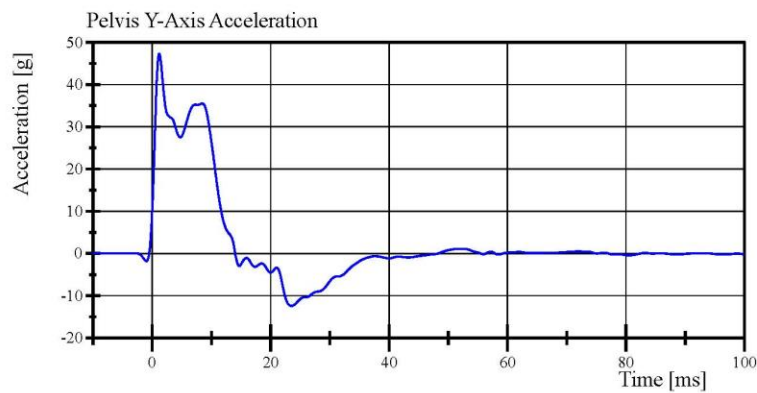
Test Date: 7/30/2025



Filter Class: CFC_180

Max: 0.7 g at -0.9 ms

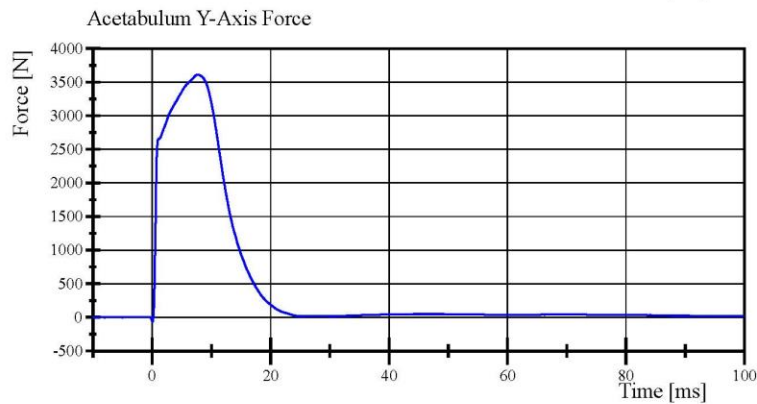
Min: -42.1 g at 8.3 ms



Filter Class: CFC_180

Max: 47.3 g at 1.2 ms

Min: -12.4 g at 23.5 ms



Filter Class: CFC_600

Max: 3,611.4 N at 7.7 ms

Min: -65.0 N at 0.1 ms

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

07.30.2025 13:05:08 461



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. DQ0570 Certification No. 39-1

Test Date: 7/30/2025

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	67 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.21 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-39.9 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	33.1 g	Yes
Iliac Force	4,100 - 5,100 N	4,601.2 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1173

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

07.30.2025 10:45:54 706

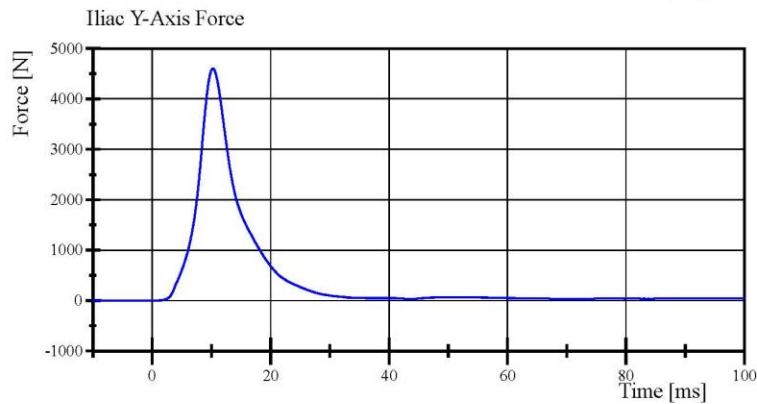
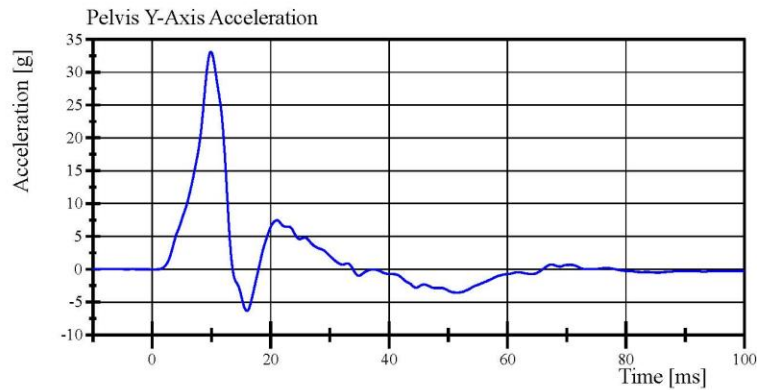
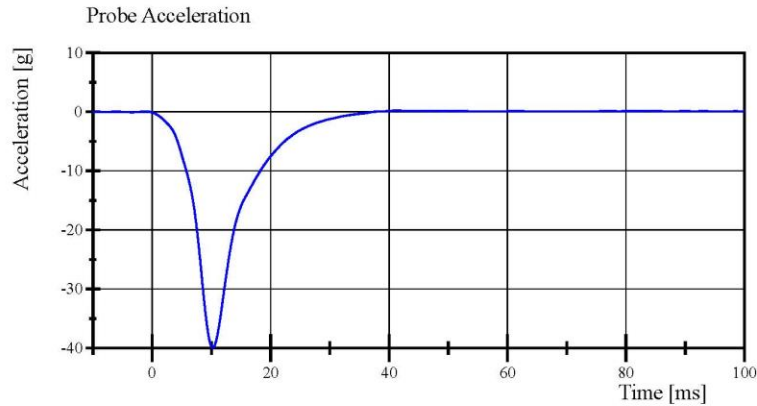


Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. DQ0570 Certification No. 39-1

Test Date: 7/30/2025



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

07.30.2025 10:46:25 706



APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – Dummy Instrumentation (ES-2re)

			ES-2re S/N F030		
			Serial Number	Manufacturer	Calibration Date
Head Accelerometers	X		T14583	Endevco	25-Mar-2025
	Y		T13068	Endevco	25-Mar-2025
	Z		T14569	Endevco	25-Mar-2025
Redundant Head Accelerometers	X		T17635	Endevco	25-Mar-2025
	Y		T14567	Endevco	25-Mar-2025
	Z		T14586	Endevco	25-Mar-2025
Thoracic Rib Displacement Potentiometers	Upper	Y	111	Honeywell	24-Mar-2025
	Middle	Y	174	Honeywell	24-Mar-2025
	Lower	Y	0913	Honeywell	24-Mar-2025
Abdomen Load Cells	Front	Y	1441	Denton	24-Mar-2025
	Middle	Y	1436	Denton	24-Mar-2025
	Rear	Y	1437	Denton	24-Mar-2025
Lower Spine Accelerometers (T12)	X		P69076	Endevco	25-Mar-2025
	Y		T23855	Endevco	24-Jul-2025
	Z		T11387	Endevco	25-Mar-2025
Acetabulum Load Cell		Y	N/A	N/A	25-Mar-2025
Pubic Symphysis Load Cell		Y	465-FY	Denton	24-Mar-2025

TABLE 2 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N DQ0570			
				Serial Number	Manufacturer	Calibration Date	
Head Accelerometers				X	T18335	Endevco	4-Mar-2025
				Y	T24497	Endevco	4-Mar-2025
				Z	T18333	Endevco	4-Mar-2025
Redundant Head Accelerometers				X	T25601	Endevco	4-Mar-2025
				Y	T25566	Endevco	4-Mar-2025
				Z	T20557	Endevco	4-Mar-2025
Displacement Potentiometers	Shoulder			N/A	N/A	N/A	N/A
	Thoracic Rib	Upper	Y	007	Servo	5-Mar-2025	
		Middle	Y	037	Servo	5-Mar-2025	
		Lower	Y	048	Servo	5-Mar-2025	
	Abdominal Rib	Upper	Y	1295	Servo	5-Mar-2025	
		Lower	Y	1136	Servo	5-Mar-2025	
Lower Spine Accelerometers (T12)				X	T14559	Endevco	4-Mar-2025
				Y	T13682	Endevco	4-Mar-2025
				Z	T18476	Endevco	4-Mar-2025
Acetabulum Load Cell				Y	DK7483S-FY	FTSS	5-Mar-2025
Iliac Wing Load Cell				Y	287-FY	Denton	5-Mar-2025
Pelvis Plug (struck side)					14455	SACO	18-Dec-2020
Pelvis Plug (non-struck side)					14450	SACO	18-Dec-2020

TABLE 3 – Vehicle Instrumentation

Vehicle Instrumentation			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	A377483	Measurement Specialties	22-Jul-2025
	Vehicle Center of Gravity	Y	A385711	Measurement Specialties	22-Jul-2025
	Vehicle Center of Gravity	Z	A377525	Measurement Specialties	22-Jul-2025
2	Right Sill at Front Seat	X	A377472	Measurement Specialties	22-Jul-2025
	Right Sill at Front Seat	Y	A377469	Measurement Specialties	22-Jul-2025
	Right Sill at Front Seat	Z	A378311	Measurement Specialties	16-Apr-2025
3	Right Sill at Rear Seat	X	A349879	Measurement Specialties	23-Jul-2025
	Right Sill at Rear Seat	Y	A318488	Measurement Specialties	23-Jul-2025
	Right Sill at Rear Seat	Z	A386415	Measurement Specialties	23-Jul-2025
4	Left Sill at Front Door	Y	A382651	Measurement Specialties	23-Jul-2025
5	Left Sill at Rear Door	Y	A377484	Measurement Specialties	22-Jul-2025
6	Left A-Post Lower	Y	A382655	Measurement Specialties	23-Jul-2025
7	Left A-Post Middle	Y	A382646	Measurement Specialties	23-Jul-2025
8	Left B-Post Lower	Y	A377486	Measurement Specialties	22-Jul-2025
9	B-Post Middle	Y	A377487	Measurement Specialties	22-Jul-2025
10	Front Seat Track	Y	A382652	Measurement Specialties	23-Jul-2025
11	Rear Seat Track or Structure	Y	A298374	Measurement Specialties	16-Apr-2025
12	Right Rear Occupant Compartment	Y	A377471	Measurement Specialties	22-Jul-2025
13	Engine Block	X	A377478	Measurement Specialties	22-Jul-2025
	Engine Block	Y	A385743	Measurement Specialties	3-Jul-2025
14	Rear Floorpan Above Axle	X	A379063	Measurement Specialties	22-Jul-2025
	Rear Floorpan Above Axle	Y	A379057	Measurement Specialties	22-Jul-2025
	Rear Floorpan Above Axle	Z	A377482	Measurement Specialties	22-Jul-2025

TABLE 4 – MDB Instrumentation

MDB Instrumentation		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	A227171	Measurement Specialties	2-Apr-2025
MDB Center of Gravity	Y	A379029	Measurement Specialties	27-Feb-2025
MDB Center of Gravity	Z	A377524	Measurement Specialties	3-Mar-2025
Left Frame Rail at Rear Axle Centerline	X	A377538	Measurement Specialties	2-Apr-2025
Left Frame Rail at Rear Axle Centerline	Y	A378300	Measurement Specialties	2-Apr-2025